SYNTHESIS REPORT

Gulf of Mexico Alliance Governors' Action Plan
Wetland and Coastal Conservation and Restoration

Priority Issue Recommendations Synthesis
Habitat Conservation & Restoration Team

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Submitted by:
Gulf of Mexico Foundation

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LIST OF ACRONYMS

ACT	Alliance Coordination Team
AMT	Alliance Management Team
HCRT	Habitat Conservation and Restoration Team
NGO	Non-governmental organization
PIT	Priority Issue Team
RRCT	Regional Restoration Coordination Team
RSMMP	Regional Sediment Management Master Plan
USACE	United States Army Corps of Engineers

INTRODUCTION

Science has demonstrated significant alteration, degradation, and loss of natural habitats within the Gulf of Mexico ecosystem and the associated loss of ecological services due to these changes in habitat character, quality, and quantity. Population growth, anthropogenic alterations, and changes in land use patterns along with natural meteorological and geomorphologic processes in the coastal zones and watersheds of the Gulf of Mexico have facilitated the continuation of these trends on a more rapid time frame.

Regional population growth affects habitats throughout the U.S. Gulf of Mexico region. According to U.S. Census Bureau statistics, the Gulf coast is one of the fastest growing areas in the United States, with the second highest growth-rate of any region between 2003 and 2008. Texas and Florida are two of the top three fastest-growing states in the nation and the growth of metropolitan areas is a consistent occurrence from Key West to Brownsville. The Gulf coast is the fourth most populated region with approximately 19.1 million inhabitants in 2003 (13% of the nation's coastal population). It is estimated that the population of the Gulf coast region grew by 21% between 1990 and 2000 and all indicators suggest that these growth trends in the coastal zone of the Gulf of Mexico will continue as commerce diversifies and increases. In the coastal region tourism is the largest industry in terms of people and businesses involved, further increasing the human influence in the coastal zone.

Habitat conservation and restoration are critical needs within the Gulf of Mexico and Caribbean regions, including the territories of the United States, Mexico, and Cuba. Current levels of habitat restoration are not keeping pace with loss and degradation. To effectively achieve conservation and restoration goals diverse issues of policy, socio-economics, science, public awareness, understanding, and will must be addressed. Increased coordination and information exchange between Gulf States of the United States and Mexico, federal and tribal governments, business and non-profit partners must occur and be sustained. As a unified community residents of the Gulf of Mexico coastal zone must achieve higher levels of understanding of issues and commitment to the future. The Gulf of Mexico community must speak as one voice to ensure the health, productivity, and sustainability of the Gulf of Mexico ecosystem.

The Gulf of Mexico Alliance began in 2004 and the partnership was formally launched in 2006 with the release of the *Governors' Action Plan for Healthy and Resilient Coasts*. The purpose of the Alliance is to increase regional collaboration to preserve and enhance the ecological and economic health of the Gulf of Mexico. The Alliance initially identified five regional issues to address with increased collaboration. The priority issues of the 2006 Governors' Action Plan were:

1) Water Quality for Healthy Beaches and Shellfish Beds
2) Wetland and Coastal Conservation and Restoration
3) Environmental Education
4) Identification and Characterization of Gulf Habitats
5) Reducing Nutrient Inputs to Coastal Ecosystems

Individual Priority Issue Teams (PITs) were established for each of the issues listed above, under leadership of the five U.S. Gulf Coast States, to coordinate the activities of the federal, state, and local governments and business and non-profit organization partners whose involvement is necessary to successfully pursue the goals of the Governors' Action Plan.

Wetland and Coastal Conservation and Restoration Goals of the Governors' Action Plan

In the Governors' Action Plan, the follow 17 actions specific to Wetland and Coastal Conservation and Restoration were specified, organized into two broad categories:

R-1: Streamline coastal restoration and conservation efforts

R-1(1) Establish a Gulf of Mexico Alliance Regional Restoration Coordination Team*, including local, state and federal representation;

R-1(2) Host workshops of the Gulf of Mexico Alliance Regional Restoration Coordination Team to determine Gulf-wide issues, inventory current restoration successes and identify priority sites for restoration;

R-1(3) Host a Gulf of Mexico interstate workshop on the importance of freshwater inflows to maintaining estuarine health including wetlands;

R-1(4) Using the Gulf of Mexico Alliance Regional Restoration Coordination Team, resolve state/federal environmental compliance issues that affect habitat restoration and conservation efforts, such as essential fish habitat, Endangered Species Act requirements and Clean Water Act;

R-1(5) Devise a strategy to streamline certain federal permitting requirements for wetland restoration;

R-1(6) Identify administrative and legal processes in granting agencies that may either facilitate or impede wetland restoration and conservation project planning and implementation;

R-1(7) Develop public-private partnerships, such as the Corporate Wetlands Restoration Partnership and incentives that support landowner conservation to increase funding opportunities for restoration;

R-1(8) Develop a Gulf Regional Sediment Management Master Plan to enable more effective use of dredged material, such as sand, to protect and restore important and vulnerable resources and habitats;

R-1(9) Provide current statistics on population growth to help states determine conservation actions.

* Funding for implementation of the RRCT/HCRT was provided through grants from the USEPA Gulf of Mexico Program, NOAA Community-based Restoration Program, and private sector funding provided by the Gulf of Mexico Foundation, Inc.

R-2: Increase the safety of Gulf communities by better understanding the risks of localized sea level rise, storm surge and subsidence

R-2(1) Enhance the coast-wide network of elevation benchmarks, including the Continuously Operating Reference System, to deliver subsidence rates accurate to one millimeter per year.

R-2(2) Obtain information on projected relative sea level rise, subsidence and storm vulnerability to help prioritize conservation projects, including restoration, enhancement and acquisition.

R-2(3) Develop and apply ecosystem models to forecast the habitat structure and succession following hurricane disturbance and changes in ecological functions and services that impact vital socio-economic aspects of coastal systems.

R-2(4) Develop a management tool that enhances resiliency of Gulf Coast communities to storm surge and flooding through improved data, models, tools and methodologies for at least one pilot study area in the Gulf region, including the Pensacola, Florida area.

R-2(5) Develop an inventory of existing NOAA storm surge and other storm related products and services that includes data and observations, models, tools and outreach and education activities over different time scales.

R-2(6) Inventory and integrate topographic and bathymetric data for improved storm surge and inundation modeling for one or more pilot areas in the Gulf region.

R-2(7) Determine how to enhance coastal communities' resilience to disaster and begin to identify a methodology for the development of a resiliency index.

R-2(8) Coordinate, as appropriate, unified five Gulf State support for the collection of comprehensive shallow water bathymetry data (e.g., LIDAR) to support improved storm surge modeling and more accurate emergency evacuation assessments.

Ecological services and ecosystem functioning throughout the Gulf of Mexico region are being disrupted by loss and degradation of wetlands and coastal habitats, watersheds, and the offshore marine environment. Ecosystems are naturally dynamic, being driven by climatic, oceanographic, geologic, and biologic forces. The tendency of human influence is to remove variability and uncertainty to create more predictable ecosystems. It is necessary to understand the scope and scale of these changes to ecosystem functioning and environmental productivity in a historical context in order to understand their impact on the region today.

The impact that human activities have had on the Gulf of Mexico region's natural resources over the last century makes it clear that our current functional paradigm of growth, development, and resource management is not one that ensures sustainability of the Region's natural bounty. In 2005 Hurricanes Katrina and Rita dramatically underscored the disastrous and tragic effect that loss of ecological services (e.g. storm surge buffering) can have on the people and infrastructure of Gulf Coast communities, to say nothing of the impacts on natural resources from those events. The Priority Issue Team for Wetland and Coastal Conservation and Restoration was formed to identify challenges, develop strategic solutions, and promote implementation of strategies to ensure healthy, productive, and sustainable wetland and coastal habitats in the Gulf of Mexico region.

This effort has been approached from a state-by-state framework, with the recognition that state-specific perspectives are essential to forming a broader regional perspective. Designated representatives from each state and federal agency with vested responsibilities in the Gulf of Mexico have participated in the activities of the PIT. The team's discussions have been augmented by input from additional state and local representatives and from representatives of conservation organizations working in the region. The team held workshops in each Gulf State to gather this input, and it is synthesized in the present report.

Scientists and resource managers have recognized the need for regional ecosystem-based management that gives consideration to the quantity and quality of functional habitat, sustainability of living resources, and ecological services. To accomplish ecosystem-based management, committed coordination and collaboration between agencies and across state boundaries must be implemented and sustained. Forming this PIT began the process of improving this coordination for more effective implementation of habitat conservation and restoration projects across the entire Gulf of Mexico.

The results reported herein stem from the efforts of the Wetland and Coastal Conservation and Restoration Priority Issue Team of the Gulf of Mexico Alliance during Federal Fiscal Years 2006-2008. In addition to summarizing those historical activities, this report also includes a draft of this PIT's action plan for the Second Governor's Action Plan, intended to cover the 2009-2013 time frame.

SUMMARY OF 2006-2008 ACTIVITIES

This section describes in detail the actions taken by the Priority Issue Team in support of Wetland and Coastal Conservation and Restoration across the Gulf of Mexico. Emphasis is given here to the actions outlined above under the category R1: Streamline coastal restoration and conservation efforts. As described at the end of this section, the category R2 (Increase the safety of Gulf communities by better understanding the risks of localized sea level rise, storm surge and subsidence) responsibilities were given to the newly-developed Priority Issue Team for Community Resilience.

R-1(1) Establish a Gulf of Mexico Alliance Regional Restoration Coordination Team, including local, state and federal representation;

To implement the Wetland and Coastal Conservation and Restoration priority issues, the *Governors' Action Plan* identified the need to convene a Regional Restoration Coordination Team (RRCT) with the long-term goal of increasing coordination among the Gulf States and local, federal, business, and non-profit organization partners to better conserve and restore coastal wetlands. The RRCT was established in June 2006 and was comprised of, and led by, representatives from the five Gulf State Governments, with support and coordination from staff of multiple federal government agencies and non-governmental organizations. In addition, conservation and restoration professionals from Veracruz and Tamaulipas, Mexico, Puerto Rico, Saint John, Saint Thomas, and Saint Croix participated. Details on team participants are provided in Appendix A.

The Regional Restoration Coordination team was renamed the Habitat Conservation and Restoration Team (HCRT) to place additional emphasis on the conservation components of the team's activities and to maintain a broad focus on habitats generally (including the offshore marine environment and "up the watershed") rather than only on wetlands or coastal habitats. The HCRT has and continues to identify challenges, developing strategic solutions, and promote implementation of strategies to ensure healthy, productive, and sustainable wetland and coastal habitats in the Gulf of Mexico region.

The first meeting of the RRCT was June 13-15, 2006 in Biloxi, Mississippi. The workshop included a half-day field trip to Mississippi's Coastal Preserves, which were heavily impacted by Hurricane Katrina. The goals of this workshop were to develop a structure for the team, to review the actions set forth for the team in the *Governors' Action Plan*, and to establish a framework for accomplishing those actions.

Approximately 50 participants from U.S. and Mexico state, federal, and non-governmental organizations participated in this initial workshop. As the workshops have moved around the Gulf States, additional partners have participated in varying capacities. The HCRT continues to provide a forum for resource managers, scientists, administrators, educators, and conservation advocates to share information regarding the implementation of habitat conservation and restoration projects in their respective states or territories and to build strategies for regional collaborative efforts.

In 2008 the Alliance Coordination Team (ACT) was formed to improve communications between the HCRT and the other Alliance Priority Issue Teams, as well as between the HCRT and the Alliance Management Team (AMT). Several team members were named to the ACT; these include the team's state co-chairs, federal co-facilitators, NGO Project Coordinator/Grants PI, and the U.S. Army Corps of Engineers (USACE) lead for Regional Sediment Management Master Plan (RSMMP) development.

R-1(2) Host workshops of the Gulf of Mexico Alliance Regional Restoration Coordination Team to determine Gulf-wide issues, inventory current restoration successes, and identify priority sites for restoration;

Recognizing that state-specific perspectives are critical to forming a broader perspective, the HCRT used an iterative approach in an effort to understand on a state-by-state basis the existing framework of conservation and restoration activities that exist in the Gulf States today. Designated representatives from each state and federal agency with vested responsibilities in the Gulf of Mexico have participated in the activities of the HCRT. The HCRT discussions have been augmented by input from additional state and local representatives and from representatives of conservation organizations working in the region. The HCRT held workshops in each Gulf State starting in 2006 into 2008. The synthesized results of these meetings are presented herein. Agendas, proceedings, presentation materials, notes of meetings and workshops, and participants for each of these workshops can be accessed online at:

To **determine Gulf-wide issues** the HCRT held workshops in each Gulf State. The workshops included presentations from natural resource managers, scientists, and NGOs on current conservation and restoration, efforts and needs. The goals of the workshops were for each state to have an understating of the others state's issues, challenges, and potential solutions. Workshop participants are provided in Appendix B.

Gulf-wide and state-specific issues were identified from the HCRT initial white paper (Appendix C), plan of action outline (Appendix D), community workshops, conference calls, presentations and discussions during team workshops, and the questionnaire circulated (Appendix E). Agendas, proceedings, presentation materials, and participants for each of these workshops can be accessed online at either:

www.gulfofmexicoalliance.org

or

http://www2.nos.noaa.gov/gomex/restoration/workshops/workshops.html.

Prior to the release of the Governors' Action Plan and formation of the HCRT a series of eight community workshops were conducted in the five Gulf States. The workshops provided citizens the opportunity to give input on identifying priority issues and building support for change to the Gulf of Mexico. The information from those workshops was compiled into a set of Community Workshop Summary Reports.

The community and HCRT workshops, the initial white paper, and the plan of action outline identified protecting existing habitat and restoring wetland and estuarine resources as Gulf-wide priority issue. The HCRT workshops and questionnaire inventoried a partial list of conservation and restoration issues and focus in an effort to establish common issues among the Gulf-states, Mexico, and the Caribbean Territories. Issues and habitat focuses brought forth included:

- Alteration/Degradation/Loss of Natural Habitat including:
  - Coastal Prairie Habitat
  - Bottomland Forest Habitat
  - Cool Water Refuges Habitat (Palustrine)
  - Coastal Fresh and Brackish Water Habitat (Palustrine)
  - Bird Nesting Habitat
  - Near and Offshore Reef Fish Habitat (Biogenic and Geologic)
  - Seagrass Habitat
  - Shoreline and Fringing Marsh Habitat (Estuarine)
  - Mangrove Habitat
  - Oyster Reef Habitat
  - Coral Reef Habitat
- Invasive Species
- Water Quality
- Hypoxia

- Freshwater diversion/balance
- Erosion
- Shoreline Hardening and Bulkheading
- Subsidence and Sea Level Rise
- Dredging of Canals and Navigation Channels
- Marine Shipping
- Beneficial Use of Dredge Materials
- Altered Coastal Sediment Budgets
- Population Growth
- Lack of Long-term Land Use Planning
- Changing Land Use Patterns
- Fragmentation of Natural Areas
- Lack of Coastal Mapping
- Marine Debris
- Flood Control/Protection
- Scientific Understanding and Integration
- Project Monitoring and Assessment

Restoration and conservation projects and techniques utilized within the Gulf and Caribbean regions were discussed at each meeting. A list of current state and regional conservation and restoration plans was compiled (Appendix F), although an actual **inventory of current restoration successes** was not conducted. This is a planned action for Phase II to the Alliance Action Agenda, and will likely be conducted in concert with the Ecosystem Integration and Assessment PIT.

In addition to identifying priority issues, the questionnaire requested input from the states identifying priority conservation and restoration sites. However, it was the consensus at the workshops that conservation and restoration project prioritization should not be based on specific sites; rather they should be based on the resources affected. Instead of providing a list of specific conservation and restoration sites the HCRT recommended that when selecting sites for conservation and/or restoration activities, planning and site selection should include the following considerations:

- Prioritize conservation to protect important and vulnerable resources and habitats over restoration when appropriate however, recognize that this will not always be applicable;
- A review and consideration of existing conservation and restoration plans should also be utilized;
- Base restoration goals and priorities on a defined historical perspective (i.e. projects intended to maintain current ecosystem services or those of some point in the past to avoid shifting baselines);
- Consider the coastal region, not just the coastal fringe (inland and offshore), and seek to protect appropriate buffers and transition zones between coastal habitats;

- Incorporate projections for regional rates of relative sea-level rise and its implications for hazard mitigation, community resiliency, and zones for wetland habitat migration to uplands in prioritizing projects;
- Encourage primary stakeholders (residents, business owners, navigation interests, environmental advocates, etc.) to participate at all levels from planning to implementation.
- Utilize appropriate scientific expertise, including storm modelers, sociologists, geologists, and hydrologists.
- Integrate water quality and nutrients considerations (the coast as a nitrogen sink).
- Consider the potential impacts of climate change and accompanying relative sea level rise.

Determining Gulf-wide issues, attempting to inventory current restoration successes, and identifying priority sites for conservation and restoration is an achievable task. Determining solutions to the issues, continuing and improving restoration successes and failures, and obtaining funding to complete conservation and restoration activities present the greater challenge. Policies, economics, population growth, land use development and private ownership, and community values are factors that will have to be considered in order to effectively resolve habitat issues in the Gulf coast region.

R-1(3) Host a Gulf of Mexico interstate workshop on the importance of freshwater inflows to maintaining estuarine health including wetlands;

Implementation of the Gulf of Mexico interstate workshop on the importance of freshwater inflows is being coordinated by Texas Parks and Wildlife Department and is scheduled for May 2009. The HCRT recommends that the phrase "freshwater balances" should replace "freshwater inflows."

R-1 (4) Using the Gulf of Mexico Alliance Regional Restoration Coordination Team, resolve state/federal environmental compliance issues that affect habitat restoration and conservation efforts, such as essential fish habitat, Endangered Species Act requirements and Clean Water Act;

Eight priority issues were identified within the larger subject area of environmental compliance and policy.

Issue: Lack of coordination between and within state and federal agencies, industry, non-governmental organizations, and private individuals.

Examples

- It's important to mention that it is not always a lack of coordination often agencies simply do not incorporate other agency comments.

Recommendations

- Ongoing communication and collaboration between natural resource managers should be facilitated and supported between Gulf States by developing a long-term framework within which the HCRT will act. And providing funding to support efforts
- Mechanisms for sharing data regarding conservation and restoration projects, techniques, lessons learned, etc. (i.e., PHINS, GoMRC, NERI, and other databases) should be further developed and strengthened. Staff support for data entry is required to make these tools useful**.**

Issue: Inconsistent application of regulations governing impacts to wetlands and coastal habitats across the Gulf region.

Examples

- Variable interpretation of implementing regulations for Section 10/Section 404 permit applications among USACE districts.
- Inability of resource agencies to comment on applications for NWPs.
- Inconsistent use of the Interagency Coordination Team Process for review of federal projects within and among USACE districts.
- Internal federal agency processes such as the National Environmental Policy Act (NEPA) review often fails to adequately assess environmental impacts of proposed actions such as designations of ODMDSs.
- Superficial review when projects are high priorities for the sponsoring agencies.
- Assessments of cumulative impacts are often weak.

Recommendations

- State & federal agencies operating in the Gulf region should coordinate regionally for consistency in interpretation and application of regulations affecting wetlands and coastal habitats.

Issue: Failure to implement effective conservation and restoration due to conflicting inter/intra-agency mandates and opinions, and/or conflicting conservation/restoration and economic development goals inherent in policy.

Examples

- Conflicting goals of restoring salt marsh vs. protecting Gulf Sturgeon habitat within National Marine Fisheries Service (NMFS).
- Conflicts regarding restoration of chenier ridges habitat impacting fishery habitat.

Recommendations

- Permanent, rather than *ad hoc* or project specific, regional interagency coordination teams could be established and consistently used to assess federal and state projects.

Issue: Failure of existing regulations to provide adequate protection to isolated wetlands and non-wetland habitat.

Examples

- Rapanos vs. U.S. Army Corps of Engineers
- Developments completely encircling isolated wetlands with little or no buffer
- The reduction of native coastal prairies to one percent of their historic range through conversion to uses such as agriculture or development

Recommendations

- Develop regulations that recognize and acknowledge the importance of the functions and values that wetlands and non-wetland habitats provide, such as fish and wildlife habitat, erosion control, water quality, flood protection benefits, and coastal hazard mitigation.
- Legislation supporting comprehensive ocean governance which could provide the means for more comprehensive protection of wetland and coastal habitat types, such as the Ocean 21 Act currently being discussed by the Congress, should be championed by Gulf state congressional delegations.
- States and local governments should be encouraged to fill gaps in federal law & agency mandates, and particularly encouraged to support land-use measures promoting the structural and functional integrity of wetlands.

Issue: Lack of long-term land use planning resulting in habitat loss, user conflicts, and inability to adapt to or recover from events such as hurricanes, subsidence and localized sea level rise.

Examples

- Loss of wetland habitats of southern Louisiana.
- Loss of Florida Everglades.
- Loss coastal hardwood forests.
- Erosion of barrier islands intensified with jetties and other hard structures.
- Significant infrastructure development in areas exposed to extreme natural events.
- Lack of a national discussion on conflicts between private property ownership rights and land-use development to the greater good for citizens of the region and nation.

Recommendations

- Mandate and implement long-term land-use planning at the local the local level that conserve and restore habitat through incentive and disincentive funding opportunities.
- The planning and site selection considerations listed in R-1(2) should be used for Gulf wide conservation and restoration planning. These considerations should be adopted by the Gulf States and the federal agencies as the mechanism for prioritizing efforts and funding allocations. Local governments should be informed that a planning and site selection

considerations list exists and be encouraged to use it when planning local conservation and restoration activities. Current Reports that assess status and trends of habitat change in the Gulf States is crucial to the planning effort.

- Mechanisms for sharing data regarding conservation and restoration projects, techniques, lessons learned, etc. (i.e., PHINS, GoMRC, NERI, and other databases) should be consolidated and maintained. Funding for the coordination and enhancement of existing databases should be considered a priority over funding for new databases. Staff support at the local level for collection and data entry will be required to make these tools useful.

Issue: Insufficient staffing and funding for natural resource management and regulatory programs resulting in a loss of coastal habitat.

Examples

- Lack of time for comprehensive review of projects due to limited staffing.
- Funding/staffing inadequacies resulting in projects that neither minimize project impacts nor maximize project benefits.
- Lack of staff to investigate and enforce environmental regulations (compliance and mitigation monitoring).
- Lack of staff to implement (grant writing and project management) of conservation and restoration projects.
- Limited coordination and knowledge of less visible areas where degraded habitat exists and is not being addressed.
- Lack of time due to staffing issues resulting in projects that are not properly managed and do not maximize habitat potential.

Recommendations

- Increased funding for both state and federal natural resource management and regulatory programs.

Issue: Lack of planning and decision making based on current and prevailing scientific understanding.

Examples

- No national policy on coastal conservation & restoration.
- Failure to enforce project components that consider long term effects of relative sea-level rise.
- Continued development in coastal habitats and hazard zones.

Recommendations

- The habitat conservation and restoration community must effectively communicate that change is necessary to conserve remaining and restore lost habitat. Strengthen relationships and outreach activities, utilizing state and federal agencies, NGOs, the public and the media, in order to place pressure on decision makers and strengthen political will to act. The status quo is not sufficient

- The inherent problems of development in coastal habitats and hazard zones should be made wildly known to the general public. Development in these areas should be discouraged and incentives for avoidance should be encouraged. Development and implementation of setbacks and zoning restrictions in coastal habitats and hazard zones for adoption by local governments should be developed.

Issue: Incomplete understanding of how, and historical unwillingness to assign and use economic value to ecosystem services as part of the planning process for projects.

Examples

- Navigation channel dredging and maintenance resulting in devaluation of their services (i.e. values of coastal habitats for fish and wildlife, erosion control, improved water quality, flood protection benefits, and storm hazard mitigation).
- The unwillingness of port authorities, USACE Operations and Maintenance (O&M) managers to consider the benefits ecosystem restoration (i.e. beneficial use of dredged material) in the overall project.
- The Federal Standard of "least cost, environmentally acceptable alternative," which the Corps must adhere to for each dredging project does not encourage the beneficial use of dredge material as a first choice alternative.

Recommendations

- Full consideration should be given to the beneficial use of dredged material, even if it is not the least cost environmentally acceptable alternative.
- The economic value of ecosystem services should be included in the project's cost to benefit ratio.
- Federal budgetary processes and agency methods for determining costs and/or cost/benefits should the benefits of restoration into cost analyses.
- Communicate this need to state and federal lawmakers and executive offices.

R-1(5) Devise a strategy to streamline certain federal permitting requirements for wetland restoration;

HCRT participants stated that regulatory compliance was not an issue and that conservation/restoration projects should undergo agency and public review as is currently required. It was pointed out that not all proposed restoration projects are viable with a high probability of success. It is important that restoration projects be evaluated with regards to local and regional impact with qualitative and quantitative measures.

R-1(6) Identify administrative and legal processes in granting agencies that may either facilitate or impede wetland restoration and conservation project planning and implementation;

The prevailing challenges identified by the HCRT include:

- Insufficient funding in conservation and restoration efforts. Current levels of funding for conservation and restoration efforts, including acquisition, management, and monitoring of wetland and coastal habitats, are insufficient to offset current rates of loss.
- Failure to allocate adequate funds to existing funding entities, resulting in fragmentation of funding sources and lack of effectiveness to implement conservation and restoration projects at ecologically meaningful scale.
- Failure of federal agencies to coordinate timing and administration of grants to make large-scale project implementation feasible.
- Inconsistent guidelines among granting agencies of allowable and/or require match for federal funds.
- Lack of adequate public awareness of grant opportunities for implementation of habitat conservation and restoration projects.
- Conflicting restoration goals between agencies involving the Endangered Species Act and the Magnuson-Stevenson Act.
- USACE cooperation agreements (CAP) are in conflict with Texas contracting guidelines.

Discussions among HCRT members led to the development of the following recommendations:

- Increase federal funding to existing coastal habitat conservation and restoration programs and new federal revenue streams should be developed to support existing programs rather than create new programs.
- Implement and adequately fund land acquisition programs similar to Alabama's Forever Wild program, Florida's Florida Forever program, and Mississippi's Coastal Preserves and Tidelands Trust Fund programs.
- Federal agencies should coordinate the timing and administration of grants to align with agency rules and regulations to enhance the ability for the States and applicants to implement successful projects.

- Reduce bureaucracy by eliminating duplicative grant administration programs. Federal agencies should coordinate their wetlands and habitat grants program to enhance funding opportunities and not compete against one another.

R-1(7) Further develop public-private partnerships, and incentives that support landowner conservation to increase partnership and funding opportunities for restoration;

The HCRT did not invest time in this action agenda, but recommend that it remain an action for Phase II of the Alliance HCRT. Examples of conservation initiatives and incentives for private landowners are found in agricultural policy (e.g. conservation easements).

R-1(8) Develop a Gulf Regional Sediment Management Master Plan to enable more effective use of dredged material, such as sand, to protect and restore important and vulnerable resources and habitats;

Development of a Gulf Regional Sediment Management Master Plan is being undertaken by the Gulf Regional Sediment Management Master Plan Working Group. During Phase II of the Alliance this group will be more closely aligned and coordinated with the HCRT through a NOAA grant supporting the HCRT. The Sediment Management group is working to have a draft plan completed by August 2008.

The Gulf Alliance Habitat Conservation and Restoration Team (HCRT) recognizes that sediment plays a critical and integral role necessary towards accomplishing restoration initiatives/objectives and coastal community protection/resilience objectives. This recognition identified the need and initiated the development of the Gulf Regional Sediment Management Master Plan (GRSMMP) to facilitate and assess the implementation of sediment management to provide for more effective use of dredged material and other sediment resources for habitat conservation and restoration. The intent is for the plan to provide guidelines to the Gulf states for more effective management of sediment resources, recognizing they are a part of a regional system involving natural processes and dredging activities. Issues surrounding sediment management, both natural movement and dredged sediments, have significant impact on the ability to restore and sustain coastal habitats. Sediment management must occur on a regional scale unencumbered by agency, state, or national boundaries. It should be realized that the GRSMMP effort is not a Federal program but a federally led effort to provide guidance to the Gulf States towards achieving the goals and objectives established by the GOMA. The U.S. Army Corps of Engineers and USGS are the Federal agencies that have been tasked to lead this effort along with a range of state, federal, and NGO representatives that co-chairing workgroups to scope and develop this plan.

Purpose. The purpose of this effort is to develop a regional sediment management plan that uses the understanding of sediment dynamics (inputs, outputs, movement) to manage sediment resources to accomplish environmental restoration, conservation, and preservation, while reducing coastal erosion and coastal storm damages and associated costs of sediment management. It will help link sources of sediment with sediment needs, provide a basis for assessing competing needs for sediment, and provide regional strategies for sediment management that:

- Make more effective use of sediment from inlets, navigation channels and other sources in support of environmental and economic objectives;
- Coordinate the collection and dissemination of data about the movement of sediment to better integrate the understanding of regional sediment process into planning, management and other decisions; and
- Facilitate cooperation among states, federal agencies, and other stakeholders in sediment management.

Goals. The goals of the GRSMMP include:

- Develop understanding of Gulf sediment system dynamics and provisions for better management of sediment resources in the region (including sources, movement, sinks, related watershed and coastal processes, and influences of structures and actions that affect sediment movement, use, and loss,)
- Provide information to inform projects and activities involving sediment, and assist in prioritizing uses of sediment resources.
- Develop/suggest a streamlined approach for regulatory and policy processes that take biodiversity and environmental considerations in the same light (cost-benefit) as other costs and benefits;
- Streamline regulatory processes to consider beneficial uses for existing projects
- Leverage resources for inter-related programs and projects
- Facilitate effective sediment management in sediment systems that cross political boundaries
- Increase stakeholder participation in development and implementation of sediment management strategies.
- Use best management practices in managing sediment resources and minimize secondary adverse impacts.
- Promote information exchange about Gulf region sediment resources and the range of related management needs.
- Inventory available sediment resources and needs.
- Engage the Port Authorities in sediment management process.
- Support Gulf resiliency goals and objectives.

Various activities have been conducted on a frequent basis in the GRSMMP development process in which the Gulf of Mexico Foundation has played an integral role. Their functions have included planning and facilitating activities such as conference calls, meetings, and workshops.

R-1 (9) Provide current statistics on population growth to help states determine conservation actions.

Population growth in the coastal zone effecting changes in land-use patterns may be the single greatest challenge of achieving sustainable environmental integrity and productivity. Demographic statistics are maintained by local, state, and federal agencies including NOAA and the U.S. Bureau of Statistics. As common practice this data should be incorporated into GIS mapping programs and made readily and easily available to land-use planners and managers of natural resources. Demographic data, current and projected, should be the foundation on which conservation and restoration plans are established.

R-2(1-8) Increase the safety of Gulf communities by better understanding the risks of localized sea level rise, storm surge and subsidence

As described above, it was recognized by the PIT, as well as by both the AMT and GOMA in general, that the additional responsibilities outlined under category R-2, when taken in conjunction with the responsibilities described in category R-1, were beyond the ability of a single PIT to successfully complete during the three-year period of activity directed by the first Governors' Action Plan. Accordingly, a new PIT was created to address Community Resilience issues, and given the specific responsibilities outlined in category R-2. The HCRT recognizes that its efforts, both past and future, overlap significantly with those of the Community Resilience PIT. However, this report will not report on the status of those efforts.

STATE-SPECIFIC ISSUES INVENTORY

Although the Priority Issue Team for Wetland and Coastal Conservation and Restoration had a great deal of success addressing the issues described above, there still remain significant issues that each State has identified as needing to be addressed. Those issues follow below.

Alabama

1) Loss of intertidal habitats due to bulkheading. Regulatory hurdles to implementing "living shorelines" alternatives.

2) Chronic long term shoreline erosion and resulting loss of salt marsh along Mississippi Sound.

3) Loss of submerged aquatic vegetation along the eastern shore of Mobile Bay and in Weeks Bay.

4) Loss of seagrass coverage/damage to seagrasses in lower Perdido Bay/Old River.

5) Short term and long term health of oyster reef systems; impacts from drought, lowered freshwater inflows, loss of non-recycled cultch, etc.

6) Chronic long term erosion along the western shore of Mobile Bay.

7) Increased population in coastal counties, urban sprawl, increase in impervious surfaces, habitat loss and associated environmental impacts.

8) Habitat fragmentation, need for the preservation of habitat corridors.

9) Inadequate wetlands protections outside of the defined coastal area boundary, lack of state wetlands protection statutes.

10) Lack of overall habitat restoration and conservation plan: many "plans", no single State plan.

11) Difficulties in achieving beneficial use of dredged materials. Coordinating the timing of sediment needs, available dredged material and site locations proves troublesome except at Gulf-front tidal inlets.

12) Funding, including timing of various grants, complicated grant application and reporting processes, finding match for small to medium scale projects, etc.

13) Impacts to shorelines and habitats from increased recreational and commercial personal watercraft, boat and ship traffic.

Florida

1) Sea level rise – Projected SLR scenarios will profoundly affect natural and developed areas throughout the state, likely resulting in large population shifts and loss of significant ecosystem components (coastal wetlands, barrier islands, biodiversity). Shifting of habitat types upward with SLR will be impeded by existing linear infrastructure.
2) Essential Fish Habitat – Essential Fish Habitat is being threatened by numerous human activities including pipelines and deep-water ports, alteration of freshwater flows, shoreside and watershed population growth and changes in land use patterns, and non-point source contamination. Understanding variable species use of natural and altered habitats is critical to design of restoration projects.

3) Water quality degradation and nutrient increases – Bay health, population impacts, and environmental needs of the Tampa Bay watershed is of great importance. Excess nitrogen and pollutants in the bay are significant issues for estuarine species and habitats (particularly seagrass). Habitat restoration projects are not significant in reducing nutrient loads, but nutrient load reductions are significant to habitat restoration efforts.

4) Wetland loss – Loss, degradation and fragmentation of wetlands continues throughout the state. Tampa Bay region lost 44% of historic emergent wetlands and 81% of historic seagrass extent. Seagrass protection is a priority throughout the state, and more science must be focused on when restoration is appropriate.

5) Hydrologic alterations – Occurring throughout FL in the form of mosquito ditching, the most extensive examples seen in south FL/Everglades; upstream alterations result in extreme fluctuations in flows to estuaries and impact estuarine and marine health (FL Bay, 10,000 Islands). Re-establishment of historic flow-ways, sheet flow, and hydroperiods, reducing point discharges, and maintaining flood control are extremely costly and complicated (potentially conflicting) goals. Native plant communities and fire regimes are also affected.

6) Oysters – Oyster reef and other hardbottom habitat (e.g. relict limestone) has been identified as a primary concern for protection. Restoration of ecologically-functional replacements for losses of these habitats is complex.

7) Erosion – Shoreline protection and dune restoration are significant focuses in the FL panhandle.

8) Corals – *Acropora* spp. now listed; corals generally impacted by poor water quality, climate change, heavy use (fishing, diving). Occurrence and distribution of corals outside the Florida Keys National Marine Sanctuary are not well known.

9) Mangroves – Protected, to some extent, against development but impacted heavily by hydrologic alterations, storms, etc. Mangroves are critical successional species in restoration of emergent wetlands. Mangroves have benefited from a variety of factors (climate change, decreased river discharge, altered tidal flows, and development) that have favored their spread into former salt marsh areas.

10) Population Growth – The carrying capacity of the FL peninsula is questionable; the region's lagging infrastructure may not support the large, growing population. Issues of concern include water losses, high energy costs, and the footprint on the area by growth in environmentally sensitive areas.

11) Fragmented natural areas in urban settings – Ecosystem health (rigor, resiliency, etc.) of landscape fragments maintained by local governmental entities is questionable, and user conflicts for open space (ball parks, etc.) abound.

12) Invasive species – Air potato, Brazilian pepper, Australian pine, melaleuca, castor bean, European starling, Cuban anole, domestic cat, and ~4500 other invasive species cause significant problems throughout FL; control is extremely costly and difficult to achieve, eradication is virtually impossible. Nonnative aquatic species, including the Asian green mussel, are spreading.

13) Karst geology, springs, and aquifers – The major freshwater source for the entire state is threatened by pollutants, nutrients, population growth. Lower groundwater levels resulting from excessive pumping and drought have affected historic groundwater fluxes.

14) Monitoring and Assessment – Particularly for large, long-term projects (i.e., CERP), monitoring and comparison to baselines is critical to assess results. Monitoring for both compensatory and noncompensatory restoration projects often is short-term and more often prescribed by "one size fits all" regulatory requirements than by science-based informational needs.

Louisiana

1) Quantifying the Components of Coastal Land Subsidence – Subsidence is a major consideration in restoration project design. Most restoration projects require a detailed knowledge of the shallow geologic strata of the coastal zone for identification of the best sediment resources, and it is critical to understand subsurface processes that can strongly influence coastal system evolution at the surface.

2) Accurately Predicting High Rates of Relative Sea Level Rise – Historic sea-level rise data for the Louisiana coast over the last century and current understanding of increasing rates of relative se-level rise regionally suggest that large areas of the LA coast will be regularly inundated by the end of the century. Quantifying how much RSLR will occur is necessary to plan coastal protection and restoration activities.

3) Reduction of Nearshore Hypoxia – High nutrient concentrations in the Mississippi River contribute to water quality problems. The second largest human-caused zone of hypoxia in the world's coastal waters is found in the Gulf of Mexico adjacent to the Mississippi River system. Important commercial and recreational fisheries are impacted as reduced oxygen levels force fish, shrimp and crabs from the area.

4) Increase the Beneficial Use of Dredged Sediments – To facilitate planned coastal wetland creation and nourishment projects, it will be necessary to use to the maximum extent possible sediments dredged from navigation channel maintenance projects. Both policy and technical constraints now exist that preclude this from occurring.

5) Understand & Manage Sediment Availability & Dynamics – Related to 7) above, a full array of approaches are needed to understand both riverine and nearshore sediment dynamics (e.g. deposition, erosion and transport) to determine availability and needs for coastal protection and restoration activities.

6) Conserve and Increase the Extent of Coastal Forests – Coastal forests have been significantly impacted by development, harvesting, and flooding and salinity stress from environmental changes. These forests can not only serve as an important sustainable component of the coastal economy, but also can serve to help protect coastal infrastructure from storm surges associated with storm events.

7) Reintroduce Natural River Processes to the Mississippi River Delta – The delta is a product of thousands of years of shifting deposition of river sediments, and the wetlands in the interdistributary basins were historically nourished by periodic overbank flooding events. River sediment transport and hydrology must be understood well enough that we are certain that attempts to reintroduce river flow via engineered diversions will be successful.

8) Ensure the Resilience of Coastal Human Communities – The Louisiana coastal zone is heavily populated by those who earn a living off coastal resources. As demonstrated by the loss of over 200 square miles of wetlands following the hurricanes of 2005, both

natural and adjacent human systems on the LA coast are increasingly susceptible to impacts from storms due to the other stressors to which these systems are subjected. Achieving sustainable coastal communities thus means providing for resilient human development adjacent to healthy natural systems. Understanding how to structure human development so that it does not interfere with natural system health, and thus allowing positive feedbacks from the ecosystem, is critical.

9) Provide for Sustainable Extraction of Mineral Resources – Oil and gas activities are critical to the State's economy. Historically, these activities were a significant source of stress to the coastal environment. Mechanisms that minimize the environmental footprint of extraction are important to sustain economic opportunities and coastal integrity.

10) Ensure Coordination between Federal & State Agencies – Historical planning decisions were made individually by federal and State entities pursuing strict agency-specific missions. Institutional barriers and policy limitations must be managed to maximize interagency involvement and promote programmatic success.

11) Maintain Economic Opportunities for Displaced Communities – Future management, protection and restoration decision-making may require the dislocation of economic opportunities by some stakeholders to ensure coastal sustainability. That needs to be communicated to ensure buy-in, and the nature of those changes needs to be understood to responsibly provide stakeholders with alternatives.

Mississippi

1) Funding mechanisms – Hurricane recovery funds, MSCIP, CIAP, etc. provide disparate and discontinuous funding for conservation and restoration efforts. At this time no funds have been released for use directly by the State of Mississippi for non-fisheries related habitat restoration and conservation.
    a. Funding through traditional habitat restoration/conservation programs is potentially available, but providing the state match is often problematic especially for large-scale projects or acquisitions.
    b. Hurricane Katrina Emergency Disaster Recovery Programs (EDRP I and II) have begun and are addressing various habitat restoration efforts. These projects include planting cultch material on damaged oyster reefs, oyster relay activities, derelict crab trap removal, inshore and offshore artificial reef restoration.
    c. Little or no funding for land acquisition while the cost of coastal real estate continues to rise.
    d. No long-term dedicated funding for management of public lands on the coast.
    e. Little or no funds for monitoring to determine restoration needs or verify the success of restoration projects.

2) Cool water refuges - There has been a loss of cool water refuges and overall increases in water temperature in coastal plain watersheds. Primary causes are extensive land

clearing and development, and wetland loss and reservoir construction. These activities have resulted in watershed wide hydro-geomorphic destabilization and a loss of shading vegetation.

3) Sediment budgets - Sediment budgets have been altered drastically in coastal plain watersheds. The fine/ clay fraction now dominates while sand size material is only transported sporadically. This affects turbidity and nutrient levels in the Mississippi Sound, as well as changes the character of material available for beneficial use.

4) Non-wetland Habitats –
    a. Virtually 100% focus on wetland habitats while coastal upland habitats such as maritime forests are disappearing even more rapidly since they are without regulatory protection.
    b. A loss of grassland habitat and key pyrogenic communities such as pine savannas has occurred due to lack of consistent fire. This has reduced populations of as many as twenty short range migratory bird species including the globally endangered Mississippi Sandhill Crane.

5) Invasive species - Continued expansion and dominance of invasive exotic species, particularly Chinese tallow, cogongrass, giant salvinia, Japanese climbing fern and Chinese privet persists in the region. Hurricanes and hurricane recovery activities have contributed to the spread of these species. Climate change threatens to solidify infestation by normally frost limited species (i.e., climbing fern) and opens the door to new invasives from warmer climates. These infestations are often in areas where the ability to use even light machinery is limited, thus increasing the cost and/or reducing the efficiency of control efforts.

6) Dredging - Non- essential channels and ditches in coastal marshes contribute to marsh erosion, altered marsh hydro periods, altered salinity regimes and loss of hydro-geomorphic habitat features in natural waterways.

7) Freshwater diversion - Potential freshwater diversion projects would alter salinity regimes in the Mississippi Sound and should be carefully evaluated to assess impacts to oyster reefs.

8) Reef habitat - Hurricane Katrina caused the loss of near and offshore hard bottom reef fish habitat and altered oyster reefs by burying oysters, scouring oyster reefs and killing live oysters. The storm heavily contributed to the thousands of derelict crab traps lost in marine fisheries habitat.

9) Seagrass – SAV bed extent declined and species composition changed dramatically between 1969 and 1992. Impacts to marine fisheries populations resulting from the Gulf-wide decrease in seagrass beds warrant further study.

10) Increased development- Development in the coastal zone is limiting the ability of the landscape to provide any significant ecological functions. Specific issues include rapid land conversion, hydrological alterations, water withdrawals, etc.

Texas

1) Current laws are not protecting the states' fish and wildlife or their habitats. For example, Section 404 of the CWA is not protecting habitat, and the NEPA is not acknowledging cumulative impacts.

2) A weakened CWA: The CWA has been decimated by the SWANCC and Rapanos decisions leaving the majority of freshwater wetlands in Texas unprotected.

3) No state laws have been enacted to provide protection for wetlands affected by recent curtailments of the CWA.

4) Decision makers not implementing recommendations of experts, and not making science-based decisions--most decisions are strictly economic. WRDA 1992 gave the Corps the authority to use dredged material for restoration projects; however, in practice, their evaluations only include economics, usually precluding the beneficial use of dredge material.

5) The federal standard of using the least-cost environmentally acceptable options for dredged material disposal is being poorly applied. Many current disposal practices are no longer environmentally acceptable and, in some cases, are detrimental to the local and regional environments.

6) The Corps of Engineers Civil Works Program (i.e. flood control and navigation projects) activities alter watershed dynamics, increase saltwater intrusion, and shunt or divert freshwater and sediment directly into the GOM. This has had negative impacts, including degrading riparian, freshwater, and estuarine habitats.

7) The mandate of local governments and river authorities to supply water to existing and projected populations will increase the construction of dams, reservoirs, barriers, diversions and other activities and will reduce freshwater inflows and sediments downstream, affecting habitats, particularly estuarine systems. This change in historic distribution of inflows will alter salinity and circulation patterns potentially leading to a change in faunal and floral communities.

8) Activities that cause subsidence and relative sea level will continue to result in loss of coastal habitat. Subsidence in the Texas coastal zone is substantial, but the actual degree of subsidence is unknown. Funding to conduct studies or studies conducted by federal agencies to predict future subsidence are necessary in order to; predict potential habitat degradation, adequately plan for habitat conservation and restoration activities, and adequately plan for coastal infrastructure.

9) Regional population growth may be the single most significant factor affecting habitats in the U.S. Gulf of Mexico region. Texas is one of the top three fastest-growing states in the nation. The Houston population is expected to nearly double by year 2035. Projected population growth will increase demands on regional water supply, degrade water quality, and will increase pressure on state's natural resources.

10) Population growth, along with other stressors, will have a cumulative impact on natural resources: An example is in marsh transition zones. Limited ability or the lack of will to plan for land use compatible with projected sea-level rise results in development in areas that might otherwise transition into wetlands, as sea-levels rise. For example the construction of roads and bulkheads bordering wetlands prohibits the migration of wetlands as sea levels rise. This will result in substantial coastal marsh loss.

11) State agency limitations (budgets/funding/spending caps and policy issues): Inadequate program budgets for proactive, on-the-ground conservation and restoration activities.

12) Inadequate program budgets for the continued analysis of status and trends of riparian, freshwater, and estuarine habitats, including coastal restoration projects.

13) No revenue for a state land acquisition program: Not having available state funds for cost-share match limits the state's ability to take advantage of federal funding programs, such as CELCP and CWPPRA. Examples of state land acquisition programs with adequate funds are Florida Forever and Alabama Wild.

14) Habitat restoration and conservation program funding is not commensurate with programmatic goals: For example, if the Galveston Bay Estuary Program spent its entire annual budget on land conservation on Galveston Island, it would take 222 years for the program to achieve its 10 year goal.

15) Willful neglect of existing science and planning resources: Existing information regarding threats to ecosystem integrity (and community resilience) is largely ignored at local levels, as evidenced in the case of the Galveston geo-hazards map and disregard for "smart growth" planning paradigms, etc. Local and county resources (fiscal and human) are also very limited.

16) The lack of educational programs on the economic benefits of wetlands and other habitats, which ultimately affects funding to the state.

17) The lack of public recognition and/or involvement in wetland and habitat laws, which ultimately affects funding to the state.

18) Misconceptions and/or perceptions that working with agencies on conservation activities on private land will lead to takings or reduction of property rights.

19) A statewide election authorized the issuance of bonds to purchase land for State parks, but no money was appropriated by the legislature.

20) Conflicting and/or duplicative mandates: This can best be exemplified by the presence of numerous federal, interagency coordination bodies for the Gulf of Mexico region--Gulf of Mexico Program, Gulf of Mexico Alliance, Gulf of Mexico Foundation, Gulf Coast Joint Venture, Gulf of Mexico Fishery Management Council, Gulf States Marine Fisheries Commission, and Southeast Aquatic Resources Partnership. This duplication leads to a diversion of resources into planning and organizational infrastructure and does not result in on the- ground work.

21) The method/practice the USACE utilizes to evaluate projects in order to increase the benefit to cost ratio to justify a project is often at the expense of the environment. The only benefits that are evaluated are the economic benefits of "the project" and do not consider the restoration/conservation of the environment as an economic benefit of the project and/or the degradation of the environment as a project cost.

22) The border fence/wall may have adverse impacts on habitats and wildlife corridors. Environmental impacts are being disregarded.

THE NEXT STEP: RECOMMENDED ACTIONS FOR THE SECOND GOVERNORS'S ACTION PLAN (2009-2013)

November 25, 2008

HCRT Mission: Provide leadership to advance conservation and restoration of coastal habitats and ecosystems throughout the Gulf of Mexico and associated watersheds and ultimately reverse the downward trend in habitat quality, quantity and ecosystem services.

Rationale: Scientific research has demonstrated significant degradation and loss of natural habitat character, quality and quantity within, and the attendant loss of ecological services from, the Gulf of Mexico ecosystem. Population growth, anthropogenic impacts, and changes in land-use patterns in the coastal zones and throughout the watersheds of the Gulf of Mexico have exacerbated the natural geomorphologic processes underlying these trends. To remain healthy and sustainable the communities of the Gulf of Mexico must achieve economic development consistent with environmental sustainability.

Ecosystem sustainability is the foundation on which economic development and quality of life are established. However, current habitat conservation and restoration efforts are neither keeping pace with the loss and degradation of coastal habitats nor sufficient to sustain critical ecological services such as storm surge reduction and fisheries production. It is critical that conservation of habitats is implemented more aggressively and that restoration efforts are increased and made more effective through the application of the growing body of restoration science.

To succeed in its mission, the Habitat Conservation and Restoration Team (HCRT) must play an integral role in coordination and information exchange among the Gulf States and local, federal, and tribal governments, international partners, business and non-profit partners. In contrast, it must also be clarified that the HCRT is not responsible for either commissioning or conducting on-the-ground conservation or restoration actions, which even at the small scale typically require budgets greatly in excess of that available to this team. The role of the HRCT instead is to facilitate a greater understanding of policy, socio-economic and scientific issues, as well as public and political commitments to the future. By doing so, the HCRT will facilitate the implementation of on-the-ground projects, by easing funding, policy and technical hurdles that hinder program and project development.

The text below specifies the actions that the HCRT will undertake during the 2009-2013 time frame in pursuit of these goals. Implicit in the discussion that follows is the recognition by the HCRT that its activities cannot and will not be done alone, and that close cooperation with the other Gulf of Mexico Alliance (GOMA) Priority Issue Teams will be necessary. Although some cross-team

integration is predictable, details must wait until the issues are more fully explored. The HCRT therefore chose not to list such measures in this document.

H-1 Continue Development of Robust Partnerships within and Outside of the HCRT

Action: Partnership development

Continue developing the HCRT partnership structure by identifying and engaging relevant stakeholders to include local, state, federal, and tribal governments, non-governmental organizations (NGO), business and industry, landowners, and other stakeholders of the United States and Mexico with interest in the health and sustainability of the Gulf of Mexico.

Justification: Habitat conservation and restoration challenges facing the communities of the Gulf of Mexico require that the populace commit to developing and implementing long-term solutions. Subsequently, the "people factor" in the process will also be dynamic and the partnership structure must be continuously nurtured. Ultimately, it is partnerships that provide the HCRT the ability to achieve its programmatic goals. This includes external private-public partnerships that provide the incentives to encourage management of private lands to the benefit of present and future societies.

Five-year Outcome: An active HCRT with appropriate membership and partnerships within the United States and Mexico

Action Steps:

1) Conduct and support the activities of the HCRT to continue the implementation of the Gulf of Mexico Alliance (GOMA) Governor's Action Plan.
2) Continue to encourage and facilitate public-private partnerships to support habitat conservation and restoration efforts.

Headlines:

"Congress Increases Funding of GOMA after 5 Gulf Governors Report Collaboration Successes"

"One Million Acres Conserved through Private Landowner Partnerships with GOMA"

H-2 Conduct Topical Working Sessions on Management Issues Limiting Gulf Conservation and Restoration

Action: Management Working Sessions

Conduct a series of topical working sessions to address specific bureaucratic and technical issues impeding habitat conservation and restoration, including those identified during Phase 1 of the HCRT effort.

Justification: The purpose is to further define the status and qualitative and quantitative need for habitat conservation and restoration within the Gulf of

Mexico ecosystem; describe opportunities for, and obstacles to, conservation and restoration; and develop strategies to overcome these obstacles in order to advance conservation and restoration from planning to implementation. Policy impediments to implementing effective and efficient habitat conservation and restoration programs that were identified by the HCRT during its 2006-2008 activities included the need to:

- revise the Federal Standard to consider the conservation and restoration of the environment as an economic benefit of the project and/or degradation of the environment as a project cost,
- increase coordination among Gulf-relevant Federal funding programs, and
- identify policy and economic limitations that limit private landowner participation in, and/or effectiveness of, stewardship, conservation and restoration on private lands.

Five-year Outcome: Development and Promotion of Funding, Policy, Permitting, and Regulatory Change Recommendations

Action Steps:

1) Hold topical working sessions to address the funding, policy, permitting and regulatory issues that the HCRT identified during Phase 1. Workshops will be followed by formal summary reports of findings and recommendations to be communicated to the GOMA Alliance Management Team (AMT).
2) Work with the AMT and HCRT partners such as NGOs, to promote the set of topical recommendations for changes in funding, policy, permitting and regulations to the appropriate State and/or Federal agency executives and/or legislators to improve conservation and restoration efforts on the ground.

Headlines:

"States Clear Bureaucratic Hurdles to Coastal Conservation and Restoration"
"Revision of Federal Standard Promotes Creation of 1000's of Acres of Coastal Wetlands"

H-3 Conduct Topical Working Sessions on Scientific and Technical Issues Limiting Gulf Conservation and Restoration

Action: Science Working Sessions

Conduct a series of topical working sessions to address specific scientific and technical uncertainties impeding habitat conservation and restoration, including those identified during Phase I of the HCRT effort.

Justification: In addition to management issues that limit conservation and restoration activities, as described above, there exist significant scientific and technical uncertainties that also hinder responsible Gulf ecosystem management. The uncertainties identified by the HCRT during its 2006-2008 activities include:

- the specific impact of relative sea-level rise and climate change on Gulf of Mexico coastal communities,
- the importance of freshwater inflows on maintaining estuarine health, and
- the need to accurately predict ecological and socio-economic benefits of conservation and restoration activities, to inform stakeholder discussions and management decision-making.

Five-year Outcome: Advance the State of Restoration and Conservation Science and Science-Based Management Tools

Action Steps:

1) Conduct topical working sessions to advance the state of restoration and conservation science and science-based management tools. Workshops will be followed by formal summary reports of findings and recommendations to be communicated to the GOMA AMT.
2) Work with the AMT to promote the set of topical science and technical recommendations to the appropriate State and/or Federal agency executives and/or legislators to improve conservation and restoration efforts on the ground.

Headlines:

"Gulf of Mexico Habitat Restoration Comes of Age. Sound Science Boosts Efficiency and Effectiveness of Projects."

"Science Pays Off: Economic Benefits Felt Across the Gulf States Resulting From Science-Based Restoration and Conservation"

H-4 Continued Development of the Gulf Regional Sediment Management Master Plan

Action: Regional Sediment Plan

Continue to develop, facilitate and assess the implementation of the Gulf Regional Sediment Management Master Plan (GRSMMP) to provide for more effective use of dredged material and other sediment resources for habitat conservation and restoration.

Justification: Issues of sediment management, both natural movement and dredged sediments, have significant impact on the ability to conserve, restore and sustain coastal habitats. However, present management of sediment resources is typically compartmentalized within individual agencies, sometimes with

conflicting missions and standard practices. Standard practices must change to ensure that sediment resources are managed beneficially, to the maximum extent practicable, on a regional scale unencumbered by agency, state, or national boundaries. Consideration of policy issues germane to sediment management, such as the need to redefine the Federal Standard (H-2 above), offer part of the approach. The GRSMMP will provide additional technical guidelines for more effective management of sediment resources by responsible Federal and State agencies, recognizing they are a part of a regional system involving natural processes and dredging activities.

Five-year Outcomes: Complete the GRSMMP and Promote the Gulf-wide Implementation of the Practices Therein

Action Steps:

1) Finalize the Draft GRSMMP and present the final draft to the AMT.
2) Adopt the final GRSMMP, to be updated when necessary, in conjunction with stakeholders involved in Gulf of Mexico sediment management.
3) Facilitate adoption of the GRSMMP and implementation of the practices contained therein by member States to maximize the beneficial use of dredge material for habitat conservation and restoration.
4) Identify remaining gaps in RSM coverage in the USACE Districts and States bordering the GOM and impediments to implementing RSM.
5) Contribute GRSMMP technical staff to the topical working session on redefining the Federal Standard.

Headlines:

"States Agree on a Gulf-wide Plan for Effective Use of Sediment Resources in Conserving and Restoring Coastal Habitat"

"Gulf States Reduce Shoreline Erosion by 3 feet per Year through Comprehensive Sediment Management"

H-5 Coordination of HCRT Activities with International Partners

Action: International Partnerships

The HCRT will work to continue coordinating specific issues with international partners, primarily with representatives from the Gulf Mexican States at this time.

Justification: The six Mexican States that border the Gulf of Mexico contain nearly half the contiguous coastline between the Florida and Yucatán Peninsulas. Responsible and thorough management of the overall Gulf of Mexico ecosystem can not be a sole effort of the U.S. Gulf States. The Mexican Federal and State governments bordering the Gulf must be engaged in HCRT activities if habitat-dependent issues are to be addressed.

Five-year Outcome: Integrate Mexican Partners in HCRT Activities

Action Steps:

1) Encourage Mexican partners to attend HCRT meetings, either directly or remotely.
2) Develop list of Mexican State-specific and overall management and technical issues to integration into HCRT programming.
3) Begin discussions with Mexican federal and state governments to identify appropriate level and capacity of Mexican participation in the expansion of the GRSMMP to a Gulf-wide scale. The formal role of the Mexican Federal and State Governments will be established in a Memorandum of Understanding to be signed by key officials from both countries.

Headlines:

"Inclusion of Mexico into Alliance Allows Truly Gulf-wide Habitat Conservation and Restoration"

APPENDICES

Appendix A: Members of the Gulf of Mexico Habitat Conservation and Restoration Team

STATE REPRESENTATIVES:

Dr. James Pahl, Louisiana Office of Coastal Protection and Restoration, **Co-Chair**
Greg DuCote, Louisiana Department of Natural Resources, **Co-Chair**
Dr. Len Bahr, Louisiana Governor's Office of Coastal Activities
Seth Blitch, Florida Department of Environmental Protection
Tom Calnan, Texas General Land Office
Roy Collins, Alabama Department of Environmental Management
Carl Ferraro, Alabama Department of Conservation and Natural Resources
Kendal Keyes, Texas Parks and Wildlife Department
Cherie O'Brien, Texas Parks and Wildlife Department
George Ramseur, Mississippi Department of Marine Resources
Dr. Randy Runnels, Florida Department of Environmental Protection
Andy Sanderson, Mississippi Department of Environmental Quality
Robert Seyfarth, Mississippi Department of Environmental Quality

FEDERAL AGENCY REPRESENTATIVES:

Drew Puffer, EPA Gulf of Mexico Program; **Co-Facilitator**
Kristopher Benson, NOAA Restoration Center; **Co-Facilitator**
Jim Boggs, FWS
Jarrett "Woody" Woodrow, FWS
Miles Croom, NOAA/NMFS
Doug Jacobson, EPA
Stephanie Gambino, MMS
Bruce Baird, MMS
Lynn Martin, ACE
Larry Parson, ACE; **RSMMP Coordinator**
Dr. Dawn LaVoie, USGS
Cherry Green, NPS
Kenli Schaaf, Department of State
Dr. Jean Ellis, NASA
Kelly Knowlton, NASA

(continued)

NGO REPRESENTATIVES:

Dr. Quenton Dokken, Gulf of Mexico Foundation, Inc; **Project Coordinator & Grant PI**
Bobbi Reed, Gulf of Mexico Foundation, Inc.
Ryan Fikes, Gulf of Mexico Foundation, Inc.
Rafael Calderon, The Nature Conservancy
Suzanne Sessine, National Fish & Wildlife Foundation
Joe Murphy, Gulf Restoration Network
Casey DeMoss Roberts, Gulf Restoration Network
Tara Schultz, Texas State Aquarium
Dr. Richard McLaughlin, Harte Research Institute for Gulf of Mexico Studies
Jeff Grimes, Gulf Restoration Network
Matt Rota, Gulf Restoration Network
Eduardo Cuevas, Pronatura, Mexico
Cuauhtemoc Leon Diez, Science/Management Consultant, Mexico

Appendix B: Participation for Habitat Conservation & Restoration Team Workshops

Alejandro Yanez-Arrancibia	INECOL
Alfonso Banda	Pronatura Noreste
Ali Leggett	MS DMR
Allison Mead	Tulane University
Amber McCammon	University of the VI
Amy King	SCD Coastal
Andrea Krzystan	FL DEP
Andy Sanderson	ADCNR
Barry A. Vittor	Vittor & Assoc.
Beau Hardegree	USFWS
Becky Allee	NOAA
Bill Hicks	USACE
Bob Bosenberg	USACE
Bob Gasaway	USFWS
Bob Heinly	USACE
Bob Martinson	MMS
Bobbi Reed	GOM Foundation
Brandt Hennigsen	SW FL Water MD
Brent Weisman	Univ. of South Florida
Bruce Baird	MMS
Bruce Rinker	Pinellas County DEP
Carl Ferraro	ADCNR-SLD
Carole McIvor	USGS
Cecilia Blasco	FMCN
Cherie O'brien	TPWD
Cherie Price	USACE
Cheryl Brodnax	NOAA RC
Chris Boyd	MS State MASGC
Chris Cretini	USGS, NWRC
Chris David	NOAA SP
Chris May	Grand Bay, NERR
Christina Watters	Grand Bay NERR
Christine Mathis	FL DEP
Claudia Agraz	Univ. of Campeche
Clifford Hearn	USGS
Craig Davis	TGLO
Cuauhtemoc Leon	Meso. Biol. Corridor
Danny Hardin	GOMRC
Daphne McFarlan	NOAA
Daryl Boudreau	Florida DEP
David Rice	MDMR
David Ruple	MDMR
Dawn Lavoie	USGS
Denis Rennis	Wet. & Coast. Research
Dennis Barnett	USACE
Dick Kevelam	DHV/CH2M
Doug Frugé	USFWS
Doug Haywick	USA
Doug Jacobsen	EPA Region 6
Drew Puffer	EPA GOM Program
Dugan Sabins	LA DEQ
Ed Creef	USACE
Ed Proffitt	FL Atlantic Univ.
Eddie Seidensticker	US Dept. of Agriculture
Eduardo Cota	Pronatura Mexico
Elisa Peres-Barbosa	Pronatura
Ellen Raabe	USGS
Ernesto Diaz	Puerto Rico DNER
Gary Ray	Corps, ERDC
George Ramseur, Jr.	MS DMR
Greg Ducote	Louisiana DNR
Greg Graves	S FL Water Mgmt. Dist.
Harley Means	FL Geologic Survey
Heidi Recksiek	NOAA
Helen Drummond	Galveston Bay EP
Holly Greening	Tampa Bay EP
J. Valentine	Dauphin Island Sea Lab
Janelle Stokes	USACE
Jarrett "Woody" Woodrow	TPWD
Jason Ballard	MDMR
Jay Gamble	USACE
Jeff Dalla Rasa	Galveston Bay EP
Jeff Grimes	Gulf Rest. Network
Jeff Raasch	TPWD
Jeff Waters	USACE-CHL
Jeff Williams	USGS
Jenny Jacobsen	USACE
Jereme Phillips	USFWS
Jim Bergan	The Nature Conservancy
Jim Buckalew	USACE
Jim Gibeaut	University of Texas
Joe Jernigan	ADCNR/WFF
Joe Murphy	Gulf Rest. Network
Joe Suhayda	LSU
John Bowie	EPA GOM Program
John Day	LSU
John Dindo	Dauphin Island Sea Lab
John Huffman	USFWS
John Jacob	Texas A&M
Jonas White	USACE
Jorge Avila	Veracruz Gov.'s Office
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Josh Yerby	ADCNR/WFF
Julio Sanchez	University of Campeche
Karen Gautreaux	LA DEQ
Kathryn Tunnell	GOM Foundation
Kathy Smartt	TGLO
Ken Heck	Dauphin Island Sea Lab
Kendal Keyes	TPWD
Keval Lindsay	Island Res. Foundation
Kristopher Benson	NOAA RC
Larry Parson	USACE
Lei Hu	Dauphin Island Sea Lab
Len Bahr	LA GOCA
Leslie Hartman	ADCNR/MRD
Libby Canahan	FL DEP
Linda Lillycrop	USACE
Linda Mathies	USACE
Lisa Schiavinato	LA Sea Grant
Lori Van Bemden	Weedon Island Preserve
Lynn Martin	USACE, IWR
Margaret Sedlecky	Weeks Bay Reserve
Maria Araujo	TPWD
Marie Burns	USACE
Mark Dunning	Consultant
Mark Kulp	Univ. of New Orleans
Mark S. Van Hoose	ADCNR/MRD
Mark Schleifstein	Times-Picayune

Mark Sramek	NOAA
Mary Meickers	USACE
Matt Rota	Gulf Rest. Network
Michael Duever	S FL Water Mgmt. Dist.
Michael Pursley	MDMR
Miles Croom	NMFS
Monica Gomez Solano	Univ. of Campeche
Monica Herzig	CONAP - Mexico
Nick Drayton	Ocean Conservancy
Patric Harper	USFWS
Phil Bass	EPA/GMPO
Phyllis Kolianos	Weedon Island Preserve
Porfirio Alvarez	SEMARNAT
Quenton Dokken	GOM Foundation
Rafael Calderon	The Nature Conservancy
Randy Runnels	FDEP
Ray Allen	CBBEP
Ray Newby	TGLO
Rhonda Price	MS DMR
Richard Hartman	NOAA/NMFS
Rob Cunningham	LSU
Robert Heinly	USACE
Robert Seyfarth	MDEQ
Roberta Swann	MBNEP
Rost Parsons	NOAA
Roy Collins	AL DEM
Russ Beard	NOAA NCDDC
Sarah Xie Desoto	USACE
Scott Gordon	MS DMR
Shelly Alexander	Florida DEP
Shirley Laska	Univ. of New Orleans
Stan Mahoney	Wolf Bay Wat. Watch
Stephanie Gambino	DOI-MMS
Steve Heath	ADCNR/MRD
Susan Rees	USACE
Tim Axtman	USACE
Tim Few	USACE
Tom Calnan	TGLO
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Appendix C: Initial HCRT White Paper

Gulf of Mexico Alliance White Paper
Restoration of Coastal Wetlands/Estuarine Ecosystems
Wetlands/Ecosystem Restoration White Paper
June 1, 2005
Version 8

Problem Statement/Goals:
Coastal wetlands and estuarine ecosystems are threatened throughout all five Gulf Coast states. Major threats to these ecosystems include human activity and processes accelerated by anthropogenic inputs such as erosion, subsidence and sea level rise. Wetland/marine permitting and "no net loss" policies have been difficult for Gulf Coast states and federal agencies to implement for wetland impacts associated with human activities. In addition, these efforts do not encompass loss due to failure of mitigation sites, lack of monitoring and enforcement, and indirect loss due to processes accelerated by anthropogenic activities. The result is that wetland loss continues to occur. One of the goals of the Gulf of Mexico Alliance is to continue and enhance cooperative planning and programs among the Gulf Coast states and federal agencies to reverse wetland/estuarine loss. The long-term goal of the Alliance is to establish a sustainable "no net loss" standard, which encompasses both human and natural losses while addressing the restoration and conservation of coastal wetland and estuarine ecosystems.

Background
The coastal regions of the Gulf Coast states contain a diverse array of wetland and estuarine ecosystems. These ecosystems include emergent marshes, mangroves, coastal prairies and forests, beds of submerged aquatic vegetation (SAV), barrier islands and shorelines (including dunes and back marshes), shell reefs and coral reefs, cheniers and ridges that support maritime forests, shallow open water bodies, bayous, streams, rivers, and fishery-rich waters of the continental shelf that are influenced by the runoff of freshwater, nutrients and suspended sediments. These ecosystems provide numerous ecological and economic benefits including improved water quality, nurseries for fish, crabs and other shellfish, wildlife habitat, flood buffers, erosion control, and recreation.

Coastal wetland loss has occurred through a combination of human activities and natural processes. Some losses are the direct result of human activities such as agriculture, industrial development, and urban/suburban growth, while other causes include a natural process component such as erosion, subsidence and sea level rise. Specific causes of wetland loss vary throughout the Gulf Coast states. Urban and suburban growth and cumulative development pressures are the greatest contributors to direct coastal wetland loss in states such as Mississippi, Alabama, Texas and Florida. In Texas, for example, approximately 1,000,000 acres of freshwater wetlands are no longer protected in by the Clean Water Act. In coastal Louisiana, structural controls on the Mississippi River for navigation and flood control are the primary contributors to wetland loss. Sediment deprivation and subsidence due to the channelization and isolation of the Mississippi River from its delta have caused approximately 24-square miles per year of wetland loss

and Louisiana has suffered the catastrophic loss of 1,900 square miles of coastal wetlands and barrier islands during the past century.–Other direct and in-direct human activities that have degraded and/or contributed to further losses of coastal wetland ecosystems include changes in hydrology and freshwater inflow into the system, poor water quality and increased eutrophication, activities which enhance coastal erosion, navigational dredging and channelization, and increased boat traffic. The introduction of exotic species into coastal wetlands may also contribute to their decline. In some areas like the Upper Texas Coast, wetland loss has primarily occurred through land subsidence induced by the mining of oil, gas and groundwater. Many of these wetlands have become drowned or lost due to the lowering of the land.

Taking into account both human and natural impacts, the current rate of habitat loss and degradation within the Gulf Coast states is greater than the current investment in conservation and restoration. Changes in existing policies and formation of new collaborative efforts between the Gulf Coast states and federal agencies need to occur to address wetland and marine ecosystem degradation and to outline methods to achieve an overall "no net loss" goal of coastal wetlands.

Strengths/Progress:
The Gulf Coast states believe their primary strength in addressing issues pertaining to coastal wetland and estuarine restoration is the formation of strong multi-stakeholder partnerships including various state and federal agencies, industry, non-profit organizations, and local municipalities. These partnerships have led to restoration of wetland habitats and estuaries on a greater scale than through any single agency's efforts. Examples of two major state and federal partnerships include the National Estuary Program (NEP) and the National Estuarine Reserve Research System (NERRS). NERRS is federal partnership program between NOAA and coastal states to protect and preserve estuarine land and water, which provides essential habitat for wildlife. The NEP is a federal partnership program between EPA and coastal states to restore and protect nationally significant estuaries. Both of these programs have provided significant funding in the conservation of coastal wetland and estuarine ecosystems and have assisted in the identification and funding for priority areas of restoration. Four reserves have been established under NERRS (Rookery Bay, FL; Apalachicola, FL; Weeks Bay, AL; and Grand Bay, MS) with one additional reserve location in the western Gulf currently being proposed. NEPs within the Gulf Coast states include Charlotte Harbor, Sarasota Bay and Tampa Bay in Florida, Mobile Bay in Alabama, Barataria-Terrebone in Louisiana, and Galveston Bay and Coastal Bend Bays in Texas.

Federal funding is also available through the 1990 passage of the Coastal Wetlands Planning, Protection and Restoration Act (CWPPRA). Louisiana, for instance, applies approximately $50 million per year for coastal restoration, which is currently cost shared with state funds at 15%.

In addition to the partnerships listed above, individual states have made progress towards wetland restoration goals through their individual state policies, planning, and conservation. County and local governments in Florida play substantial roles in wetland

restoration projects through contributing yearly funds, in addition to land acquisition costs, for habitat restoration. Each of Florida's five water management districts has a Surface Water Improvement and Management (SWIM) program that is tasked with extensive habitat restoration and creation. Florida has also implemented the Comprehensive Everglades Restoration Program (CERP) that was authorized under the 2000 Water Resources Development Act (WRDA).

The state of Texas has established the Coastal Erosion Planning and Response Act Program (CEPRA). This program provides grants to partners for beach nourishment, shoreline protection, and marsh restoration. The program has been used to facilitate wetland restoration in bays and estuaries where erosion is occurring. The program has leveraged federal dollars through grants from federal agencies including U.S. Fish and Wildlife Service (USFWS), U.S. Army Corps of Engineers (USACE), and National Oceanic and Atmospheric Administration (NOAA). The state has also performed wetland restoration with funding and support from federal agencies, NEPs and NGOs, where CEPRA funding is not applicable or competitive such as freshwater wetland restoration and conservation.

Louisiana and the US Army Corps of Engineers are currently seeking authorization under a 2005 WRDA bill for a massive comprehensive coastal restoration program known as the Louisiana Coastal Area (LCA) plan.

Mississippi has founded the Coastal Preserves Program. This program creates an active acquisition and management strategy for coastal wetlands and associated habitats with the Secretary of State and local non-profit organizations. The Program has acquired approximately half of its goal of 80,000 acres for protection in perpetuity. Modeled after a similar program in Texas, Mississippi recently began a Beneficial Use of Dredge Material Program to restore coastal wetlands using appropriate dredge material. Partnerships through the Beneficial Use Program include federal and state agencies and private and municipal stakeholders in a Beneficial Use Group (BUG). Mississippi also uses State Tidelands funds from the lease of state owned water-bottoms, to provide state match for federal monies for habitat restoration activities.

Alabama has made a substantial commitment to the conservation of coastal wetlands with the purchase of a large portion of the Mobile-Tensaw river delta. Over 100,000 acres have been acquired by combining federal funds with state funding from oil and gas lease revenues. Additionally, the Alabama's Forever Wild Program has been combined with federal funds from the Coastal Impact Assistance Program, North American Wetland Conservation Act, Coastal Wetland Conservation Act, Forest Legacy, Corps of Engineers WRDA, and Coastal Land Enhancement Program to acquire wetland habitats in the delta, as well as areas along Mississippi Sound and Perdido Bay.

Challenges/Barriers:
The principal challenge/barrier the Gulf Coast states face when addressing wetland restoration is cost. The cost of wetland restoration is typically high, exceeding $10,000 per acre for marsh creation. This cost does not take into account land acquisition

required in some restoration projects, which can vary from $10,000 to $150,000 or more per waterfront footage of coastal locations. Even when funds are available, jurisdictions often have problems obtaining local funds for non-federal match requirements. Variable federal and state cost share requirements, and federal and state caps on grants can also create challenges. There is also strong competition for limited funding through multiple wetland restoration proposal efforts (state, local, NGOs) in different geographic regions. Additional funding and resources also need to be secured for management and long-term viability of the wetland restoration and preservation sites.

Another challenge to wetland restoration activities is the rate of coastal population increase. The associated development and sprawl creates barriers in both protecting the existing wetland resources as well as land availability for wetland restoration. Extending beyond the coastal region, this increase in development has created conflicts between states in terms of increasing freshwater needs for humans, which may result in reduced freshwater flows into coastal wetlands and estuarine systems.

The limited status and trends information available for coastal wetlands and estuarine ecosystems also makes determining accurate rates of wetland loss difficult. It also makes the effort of identifying and prioritizing areas for restoration difficult. In addition, limited educational programs depicting the value of wetlands and water conservation, and incentives to implement conservation are available to private landowners.

As mentioned above, wetland loss is also occurring through forces than are not easily controllable. Acceleration in sea level rise, land subsidence, and increased storm vulnerability due to erosion and loss of barrier islands creates confounding dilemmas in managing and maintaining existing and restored wetlands and are serious challenges to restoration efforts. These are Gulf-wide processes that may have different impacts in different parts of the Gulf because of regional geology and hydrology. Wetland restoration is a relatively new technical endeavor. It is very important that the monitoring of restoration efforts takes place and is supported. During periods of budget constraints and limited funding, monitoring is often sacrificed. For the science and technology of wetland restoration to improve and become more effective and efficient, it is very important that the data necessary to evaluate actions are collected. Additionally, the monitoring of reference habitats is needed to provide a standard or goal as well as an understanding whether the observed changes are due to restoration or due to natural variability. When performing large ecosystem level projects, monitoring of many of the ecosystem components are required to understand how a system is going to respond. There are limited resources currently to collect these data.

Most regulatory agencies allow impacts to wetlands that have unique characteristics to be offset by large-scale mitigation banks. The trend to consolidate mitigation into larger, more easily monitored sites is increasing, which could result in a decline in diversity. Site-specific data on wetland diversity are generally not available and no statutory authority exists to protect diversity.

Another challenge the Gulf Coast states face is through dealing with wetland restoration

provisions required by the US Army Corps of Engineers (Corps) under WRDA. Flexibility within the Corps is not given to state wetland restoration projects falling under Sections 1135 "Project Modifications to Improve the Environment", 206 "Aquatic Ecosystem Restoration, and 204 "Environmental Restoration Projects in Connection with Dredging". Provisions within these sections required by the Corps to distribute funding for wetland restoration activities violates some states' constitutional or contracting guidelines. The requirements under Section 204 for the Corps to choose the least costly plan of dredged material disposal and the restrictions in place for distance of dredged material transport, creates many lost opportunities for state wetland restoration and beneficial use of dredged material. In addition, the different regulatory Corps District boundaries present within each state, and variation of interpretation of regulations among Corps Districts, create difficulties for states to meet Corps' requirements regarding wetland restoration.

Opportunities/Potential Solutions:
The Gulf Coast states believe that it will be critical to build upon lessons learned from existing studies regarding successful wetland restoration projects. One avenue to ensure that past lessons learned are conveyed to scientists, planners and restoration managers is to foster, support, and establish special interest focus groups, conferences and workshops on wetland restoration in the Gulf of Mexico.

Improving scientific understanding and encouraging the use of information on projected relative sea-level rise and subsidence will help prioritize conservation (restoration, enhancement and acquisition) projects. Taking advantage of remote sensing technologies and long-term monitoring stations, such as aerial photography, LIDAR, tide and water level gages, and land elevation benchmark stations, will assist the Gulf Coast states in scientifically addressing their wetland restoration efforts as well as provide baseline information to measure subsidence over large areas. A collaborative effort employing these techniques will provide the appropriate information to make long-term management decisions based on sound, scientific data.

Continued partnerships and funding from federal agencies will be critical to addressing wetland restoration issues. Although numerous opportunities exist with State Agencies to obtain funding (e.g., USFWS's National Coastal Wetlands Conservation Grant Program), it would be beneficial for the Federal Agencies to revisit federal-state cost sharing ratios and develop flexible match rates. Additionally, the Federal Government must continue to encourage mechanisms that foster non-federal funding by corporations, non-profits, and state agencies to address non-federal match issues. Targeted funding that supports conservation and acquisition, as well as property management, would be useful. Mechanisms that support partnerships and land transfers with local governments and NGOs that would act as caretakers of the wetland restoration sites are needed to take advantage of conservation opportunities. Significant and flexible incentives to support landowner conservation are needed to provide solutions to problems that can be solved with wetland restoration.

Other solutions to wetland restoration barriers and challenges involve the study of existing wetland conservation areas/preserves to collect baseline information for restoration goals. Developing a regional restoration plan with specific success criteria and robust monitoring that is ecosystem based will yield the information needed to determine the level of success. Providing federal support to improve our understanding of the status and trends and long-term monitoring of habitats, can be used to evaluate risks associated with development and change and will provide needed information that can be used by decision makers for evaluating management decisions and prioritizing resources for conservation. Federal funding would also assist scientists and managers in the development of solutions for the management of freshwater inflows that will maintain healthy and productive estuaries.

Priorities:
The main priorities for the Gulf Coast states are to protect existing habitat and to restore wetland and estuarine resources. Protection of existing wetlands should be prioritized over wetland restoration. The ultimate goal is to translate a "no net loss" policy for wetlands into reality through both protection and restoration. In order to create effective and legislatively-backed wetland restoration and conservation programs, the states and the federal government as well as other wetland stakeholders need to develop an ecosystem level approach to setting priorities. Federal support for the development of common methods of priority setting among the states would be useful in cultivating cooperation which links the conservation/restoration efforts of these coastal wetlands and estuarine environments to realized economic benefits in water quality and shoreline protection. Impaired watersheds should be recognized as locations for priority wetland restoration. In addition, pristine watersheds and watersheds threatened by development should be recognized as priority areas for conservation.

Further research also needs to be conducted and solutions explored to the high rates of ongoing natural (human-accelerated) wetland losses occurring from sea level rise and subsidence. These type of losses need to be substantiated in the "no net loss" policy.

Needs from State/Federal Partnership:
The Gulf Coast states currently partner with many federal agencies to fund and implement wetland restoration projects. These agencies involve the Corps, U.S. EPA, NOAA, USDA and the U.S. Fish and Wildlife Service. These collaborations are essential in identifying and establishing wetland restoration projects and wetland conservation areas. Continued partnerships and the formation of new partnership are essential for:

- Providing support to the Gulf States by facilitating and supporting a restoration workgroup. The workgroup's mission would be to establish how the states will work together to achieve each others goals with wetland restoration, share knowledge, pursue funding and meet the needs of the Gulf ecosystem. An informational clearinghouse should be established providing state agencies, NGOs and engineers in the wetland restoration field with proven successful restoration designs, hydrology, and monitoring techniques.

- Developing more streamlined/seamless funding regarding wetland restoration efforts that require numerous funding sources. Reducing the amount of repetitive paperwork and securing and tracking numerous smaller grants often produce inefficient use of staff resources and project funds.

- Developing educational programs that emphasize the intrinsic and less tangible values of restored habitat. This will enable individual property owners and the general public to understand the importance of restoration and foremost, conservation.

- Addressing limited state resources to cope with coastal restoration.

- Establishing delegation of teamwork within state agencies, among state agencies, and with federal agencies.

- Developing a collaborative Gulf-coast wide effort in identifying watershed and ecosystem based restoration and conservation needs.

- Gaining Governor and Presidential involvement and support of wetland restoration projects. This increases the visibility and funding opportunities for wetland restoration projects.

- It is critical to the Gulf States, that the Federal Government remain active and expand its support for wetland restoration in the Gulf of Mexico. The number of projects to date that have taken place without federal support are few to none. The availability of federal funds and meaningful mechanisms in translating those funds into wetlands of value to the nation require both national and state leadership.

Governance Implications:
A regional strategy/council needs to be organized to address large regional issues of wetland and estuarine restoration facing the Gulf Coast states. Beyond the contributions of state and federal agencies, experienced NGOs should also play a role in the development of regional strategies. A regional council should offer a forum for coordinating efforts across state lines. In order to address and maximize the overall benefits that wetland restoration activities will have in the Gulf Region, the council should identify Gulf-wide priority sites for restoration; taking into account efforts of neighboring Gulf Coast states, federal agencies, and NGOs efforts. The council will help in establishing a coordinated effort for restoration and conservation that will maximize the overall ecological and economic benefits these restored and conserved wetland and estuarine ecosystems have on the Gulf of Mexico. The council should also facilitate information sharing and the development of solutions that address the common and unique needs of the Gulf Coast states.

Broader Implications:
Addressing habitat restoration issues through a regional council will promote changes required within state and federal bureaucracies to successfully manage ecosystems within the Gulf of Mexico. An established regional approach and coordinated efforts among states, federal agencies, and NGOs for identifying priority restoration sites and estuarine conservation areas will maximize dollars spent in wetland restoration and conservation. Sharing of data and successful wetland restoration strategies with common and understood regional wetland restoration goals will increase both the success of the wetland restoration efforts and contribute to the overall ecological and economic health of the Gulf of Mexico.

A network of wetland restoration sites could provide the baseline of an integrated real-time monitoring system to help provide further insight on the interactions between large riverine systems, large coastal bays and estuaries and the Gulf of Mexico. These wetland restoration sites can aid in the monitoring of wetla

Appendix D: HCRT Plan of Action Outline

RESTORATION/CONSERVATION OF
COASTAL WETLANDS AND ESTUARINE ECOSYSTEMS

PLAN OF ACTION OUTLINE

STRATEGIC PRIORITY

The diverse array of coastal wetland and estuarine ecosystems around the Gulf coast provide vital ecological and economic benefits, including improved water quality, nurseries for fish, wildlife habitat, flood buffers, erosion control and recreational opportunities.

Because the sustainability of the Gulf's coastal wetlands is under increasing pressure from erosion, subsidence, rising sea levels and land development, **the states' challenge is to protect and restore wetlands, coastal dunes, coastal uplands, marshes, bayous, mangroves, seagrass meadows and shellfish beds, demonstrating measurable increases in wetland restoration acreage and ecosystem functional values.** By 2007, the Gulf Alliance and federal partners will develop policy tools, streamline funding mechanisms, and better utilize scientific understanding of wetlands restoration.

STRATEGIC OBJECTIVE I: The states will initiate a Gulf of Mexico Workgroup to provide an interactive forum for the states to share commonalities and distinctions and learn from common experiences to inform a regional approach to wetland restoration and conservation and to build bottom-up political support for the Gulf of Mexico.

GOAL 1: By October, 2005, establish a Gulf States workgroup whose goal is to develop consensus between the States on the various concepts of restoration and conservation so that all stakeholders (policy, management and technical) operate at an equal level of understanding and share common restoration issues. The states will hold a series of workshops, including at least one policy-oriented and one technically-oriented workshop. The objective of these workshops, which should be held on an annual basis, would be to share state success stories, share technical expertise, and update the status of actions from action plan.

The actions of this group will include but are not limited to:

TARGETED ACTIONS:

A) This State workgroup will meet for a series of 2-3 workshops, with the first to be held prior to the Nov. 7, 2005 State of the Gulf of Mexico Summit in Corpus Christi, TX. These workshops should include other partners such as private sector and NGOs (noting state/federal lead).[1]

[1] *notes:*

- could these be combined with education group and other groups' workshops?
- TNC has offered potential facilitation for these workgroups as a neutral 3rd party

B) The policy group should determine common Gulf wide issues at the workshop so that states understand what is happening in and important to other states. The policy workshop should also address administrative issues (e.g., reg. challenges) and should look toward the end goal of increasing national funding to the Gulf region. This workshop should also include some science background.

C) The states will share goals and major projects and programs with each other, possibly at policy workshop. This will allow states to learn about and understand differences in restoration planning and philosophies between states and should allow for coordination of planning goals. Rather than write a new restoration action plan for the Gulf, the group should state with an inventory existing State Wetlands Restoration Plans in an effort to start with what's out there.

D) The workgroup will develop a prioritization framework after existing trends have been inventoried. This prioritization will be useful to present to governors and to allocate limited funding.

GOAL 2: By July 2006, streamline and improve federal grant funding to increase Gulf States' success in competitive federal grants process and cost-sharing programs to accomplish the following important research and conservation actions.

TARGETED ACTIONS:

A) Identify funding for research and development that will improve our understanding of how changes in freshwater inflows (projected demands and allocation- how to manage water for people and water for the environment) will impact coastal habitats. Also, assist in the development of solutions for the management of freshwater inflows that will maintain healthy and productive estuaries.[2]

B) Identify funding for status and trends studies and monitoring that can be used to make management decisions.

C) Identify federal grants and overlap of separate programs. Identify case study successes and failures in Gulf States. Develop RFPs that focus on the successes.

- suggestion of initial meeting of just the states before November summit
- policy group needs strong cross-ties with other groups- need unified voices to present to governors
- Keep feedback loop between policy and technical groups

[2] NOAA has done research on freshwater inflows- do we need to look at what's been done? It should be noted that some existing studies have ignored the Mississippi River.

D) Identify mechanisms to stakeholders that foster non-federal funding by corporations, non-profits, and state agencies (to be used for federal match). Additionally, identify federal support for NGOs to develop private funding partners (e.g., development grants), that is, grants to develop partnerships to get more funding (rather than grants to restore wetlands).

The states will share innovative ways to fund land acquisition (e.g. 1 cent tax in Pinellas County, FL).[3]

E) Identify significant and flexible incentives that support landowner conservation. Need funding to expand program and outreach/education to landowners to increase participation in program. Need improvements in current programs to justly compensate landowners for participation (e.g. tax breaks)

F) Foster non-federal funding by corporations, non-profits, and state agencies.

G) Revisit federal state cost-sharing ratios for restoration projects and provide flexible match rates for states that are consistent and meaningful.

H) Review existing grant caps and allow for significant funding in large amounts for significant projects or longer term projects that require several years to complete. Need streamlined bureaucracy for grants, particularly smaller grants.[4]

I) Increase targeted funding that supports conservation and acquisition and maintenance. Provide transitional funding support for property management once site has been acquired when restoration of degraded habitats is a component of the management plan. Identify programs that provide funding for acquisition, enhancements, easements, and restoration.

J. States specifically request the USACE legal staff meet with State legal staff to develop Project Cooperation Agreements that protect both federal and state interests while at the same time not violate state constitution language or state contracting guidelines.

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[3] *It should be noted that existing programs such as CWRP are useful but need more resources to attract more corporate partners. CWRP should invest to hire someone to engage in outreach.*

[4] *(note: some states feel that smaller grants require too much administrative work to be worthwhile, although other states make great use of smaller grants.)*

GOAL 3: Overcome regulatory and policy roadblocks to wetland restoration.

TARGETED ACTION:

A. States request that Federal regulatory agencies (e.g. Corps, NOAA, USFWS) meet with states to resolve issues regarding wetland restoration efforts, such as statues and policies that may affect wetland restoration projects. In particular, it can be difficult to carry out wetland restoration projects while complying with EFH, ESA, and TMDL programs. (*note: we should keep in mind that we don't want to completely eliminate roadblocks that are in place to prevent certain types of development*).

Fed regulatory agencies and states should meet to develop a means for negotiating exceptions to federal guidelines which may be inappropriate in certain specific restoration contexts. (for example, the State of Florida has developed a streamlined general permit for permitting restoration projects (204, 206, 1135). This general permit may serve as a model)

STRATEGIC OBJECTIVE II: Improve effectiveness and better define the success rate of restoration projects around the Gulf.

GOAL 1: By January 2006, begin a formal Gulf-state wide sharing of information and knowledge regarding best available restoration techniques and establish easy access to this regional habitat data and information. Also by January 2006, improve data and information sharing among federal and state agencies for compensatory mitigation

TARGETED ACTIONS:

A) Perform a gap analysis of available status and trends to determine what data are missing. The suggested leads would be federal partners, such as USGS through its National Biological Information Inventory (NBII- USGS program or EPA GMP). Goal date TBD.

B) Develop a GIS-based inventory of completed restoration efforts, separated by proactive and compensatory restoration. This inventory should include type, outcome, and cost of restoration projects. This effort would be useful within states and throughout the Gulf region as there does not currently exist a centralized place to go to find out what's going on in Texas (or other areas). Certain federal agencies do inventory their restoration projects; perhaps the database could start as a central repository to track projects through individual program websites (e.g., a repository that links these websites).

It should be noted that standard database formats need to be developed and implemented before an integrated GIS mechanism could be developed.

C) Provide an interstate mechanism for Gulf to exchange information and technology on compensatory restoration through the scientific/technical workgroup. This mechanism may be an agency-hosted website or annual workshop.

D) Determine each State's current statistics on increasing population growth. States need current information so that decision makers may anticipate coming population change and determine what conservation actions to take (through existing mechanisms such as the Census, NOAA's STICS database, etc).

GOAL 2: By January 2006, begin a formal Gulf-state wide sharing of information and knowledge regarding success criteria for restoration projects.

A) For proactive restoration projects, states, federal agencies, and nonprofits will inventory and define success criteria currently used. These could be used for the grant process to evaluate various projects.

B) For compensatory restoration projects, initiate an interagency coordination team (different from workgroup) whose responsibility is to review mitigation success so that information can be incorporated into future projects with success criteria, recognizing the need for adaptive management and follow-up after compensatory mitigation projects are in place.[5]

C) Create a restoration success "clearinghouse" which holds all the information in digital format (GIS) which will be made available to all stakeholders. Included projects would be based on what identified success criteria.

D) Provide for funding assistance for the monitoring of non-compensatory restoration projects to determine what was successful and what was not.

E) Hold an annual or bi-annual "Lessons Learned" type of Restoration techniques workshop for states to share information (note: this is in accordance with technical workshop identified in strategic objective #1).

F) States need to provide guidance to federal agencies to define criteria regarding benefits; that is, there is a need to distinguish net restorative benefits from habitat substitution (for example, creating wetlands in place of coastal upland habitat). This issue may be discussed at technical workshop.

[5] *(note: definition of success criteria for proactive and compensatory mitigation are separated due to differences in process, players, agencies, and scale for projects)*

G) Quantify economic and intrinsic benefits in terms of ecosystem goods and services performed by restored or conserved wetlands. Communicate benefits to public, decision-makers, landowners, and media.
NOTE: cross-cutting with Education goal.

.***GOAL 3***: Support national goal of net loss of wetland function (baseline to be determined).

TARGETED ACTIONS:
To be determined

GOAL 4: By July 2006, increase the Gulf States' scientific understanding a number of technical factors affecting restoration, such as the implications of

- sea level rise, subsidence
- climate change;
- population growth;
- sediment tracking/needs budget, deficits;
- hurricane hazards; and
- freshwater inflows.

TARGETED ACTIONS:
A) The states request a federal host agency to engage with states on impacts of climate change on conservation and restoration projects. This dialogue should help states obtain information on projected relative sea-level rise and other climate change issues to help prioritize conservation (restoration, enhancement and acquisition) projects (for example, dynamics of barrier islands with respect to sea level rise).

B) Provide funding for a coastwide network and program of elevation benchmarks and re-leveling. Involve technical experts such as: Dave Zilkowski from National Geodectic Survey (NOAA), Virginia Burkett from USGS, and John Lopez (geophysicist) to see the big picture Gulf-wide.

Federal agencies need to improve databases for coastwide elevation, including current topo/bathy maps. The states need more monitoring stations and reinstatement of old stations, such as tide gages, gages to measure sediment levels, water quality gages. These monitoring stages should be linked through an integrated ocean observing system (IOOS) utilizing regional associations (GCOOS, others).

C) A natural hazard risk assessment should be undertaken [by whom?] to be used for conservation/restoration planning. Current federal hazard efforts such as FEMA's should be expanded to include conservation interests.

KNOWLEDGE GAP for restoration group: is this being done at the federal level?

Work with habitat ID group: Cross-cutting issue

D) Expand existing MMS and Corps sediment management program to include development of a Gulf-wide sediment budget and definition of suitable sediment sources for restoration activities. States should work to influence Gulf Regional Sediment Management Program to allow new sediment disposal activities (that are not necessarily the most economical disposal methods), considering the Gulf-wide sediment system in management decisions. Involve appropriate state and federal agencies, including DOT and others.

Appendix E: RRCT Questionnaire

State Leads,

Moving forward with the implementation of the Wetland and Coastal Habitat Conservation and Restoration Committee established by the Governor' Action Plan of the Gulf of Mexico Alliance, the Gulf of Mexico Foundation requests the answers to the following questions for each state. As outlined in the Gulf of Mexico Foundation's Scope of Work for the project, the following information will be needed from each state to produce the required synthesis document.

Regional Habitat Issues

1. The white paper states that the threats to the GOM ecosystem are human activity and processes accelerated by anthropogenic inputs such as erosion, subsidence, and sea level rise. Please identify the specific habitat issues in your state.

Current Restoration Plans

2. Please identify the current habitat restoration/conservation plans in your state.
3. Are current restoration/conservation plans in your state effective?
4. Are there regulatory or policy constraints that hinder the progress of the plans?

Priority Restoration Needs

5. What are the restoration goals for your state?
6. *State identified priority sites* – what are your states most significant priority restoration/conservation sites?
7. What will the benefits of restoring/conserving those sites be?
8. *Resource needs* – what resources does the state need to implement those projects (i.e. science & technology, expert teams, expanding/redirecting strategies, money, etc.)?

Identification of and Resolutions for Federal/State Environmental Compliance Issues

9. What are the Federal/State conflicts specific to your state? – including but not limited to conflicts concerning Essential Fish Habitat, Endangered Species Act, and Clean Water Act
10. Are regulatory and policy change necessary to resolve those conflicts? If so, please identify practical/feasible changes that would lead to resolution.

Strategy to Streamline Certain Federal Permitting Requirements

11. What are problematic federal permitting requirements related to restoration in your state?
12. Does your state currently have a process for streamlining federal permitting for restoration projects? If so, please explain that process.
13. What tools or resources, including regulatory/policy change, would be

necessary to streamline federal permitting requirements in your state, or further improve your existing streamlining process if you currently have one.

14. What are your recommendations for a regional strategy to streamline federal permitting requirements for restoration projects?

Identify Administrative and Legal Processes in Granting Agencies

15. Please identify the granting agencies your state typically deals with.
16. Please identify any specific agency processes that facilitate wetland restoration in your state.
17. Please identify problematic processes and/or requirements within granting agencies that impede restoration in your state.
18. Do you feel that standardizing the processes among agencies would alleviate problematic requirements? If so, please identify the processes that, if standardized, would facilitate restoration in your state.
19. Do you have any other recommendations for a strategy to alleviate problematic processes within granting agencies?

Appendix F: State and Regional Conservation and Restoration Plans

Alabama

1) **Weeks Bay National Estuarine Research Reserve**, Alabama Department of Conservation & Natural Resources, http://www.nerrs.noaa.gov/WeeksBay/welcome.html – Restoration priorities include restoring riparian buffers, shorelines, wetlands, and bottom lands. Restoration projects currently underway include prior-converted wetland and riparian buffer restoration, pitcher plant bog restoration, salt marsh restoration, and prescribed burning.

2) **Mobile Bay and Delta Comprehensive Conservation and Management Plan**, Mobile Bay NEP and Alabama Department of Conservation and Natural Resources, State Lands Division, http://www.mobilebaynep.com/Publications.htm – MBNEP has outlined the issues and action items to be addressed in a document entitled "Our Water Our Future." Priority issues include water quality, physical and hydrological modifications, habitat loss, living resources, human uses, and public education and involvement.

3) **Alabama Coastal Area Management Plan**, Alabama Department of Environmental Management and Alabama Department of Conservation and Natural Resources, Coastal Section, http://www.adem.state.al.us/fieldops/coastal/Coastal.htm – This is a joint effort between the AL Department of Economic and Community Affairs and the AL Department of Environmental Management. *While habitat restoration is mentioned in the Alabama Coastal Area Management Plan document, the Mobile Bay NEP Comprehensive Management Plan and other similar documents, there is no single comprehensive habitat restoration plan for coastal Alabama.

Florida

1) **Florida Coastal Management Program**, Florida Department of Environmental Protection, http://www.dep.state.fl.us/cmp/ – The FL CMP activities relate to the protection, preservation, and development of Florida's natural, cultural, and economic resources. A 15-member Governor's Coastal Advisory Committee advises the governor and legislature on coastal management issues and program implementation.

2) **Apalachicola National Estuarine Research Reserve**, Florida Department of Environmental Protection, http://nerrs.noaa.gov/Apalachicola/ – Restoration priorities in the ANERR management plan include restoring historic hydrology, historic biological communities, and fire regimes. Current restoration projects include shoreline stabilization, Phragmites removal, marsh restoration, and prescribed burning.

3) **Surface Water Improvement and Management Program (SWIM)**, Florida Department of Environmental Protection, http://www.dep.state.fl.us/water/watersheds/swim.htm – Management plans have been prepared for Pensacola Bay, St. Marks River, and the Choctawhatchee River and Bay systems. These watershed management plans describe the resources and the issues within the watershed. The plans also describe proposed projects related to watershed management, biological concerns, water quality, and public awareness.

4) **Charting the Course: the Comprehensive Conservation and Management Plan for Tampa Bay**, Tampa Estuary Program, http://www.tbep.org/pdfs/ctc/ctctoc.html – The document addresses seven priority issues: degradation of water quality, impacts to living resources and habitats, impacts associated with human uses of the estuary, agency coordination and response, community awareness, bay circulation and flushing, and spills and contamination. Restoration and protection of Seagrass is a key goal.

5) **Rookery Bay National Estuarine Research Reserve**, Florida Department of Environmental Protection and NOAA, http://www.rookerybay.org/About-Us.html – The management plan

identifies restoration priorities as hydrological restoration and native community restoration. Current restoration projects include hydrological restoration through roadbed removal and GeoWeb installation, invasive plant control, mangrove restoration, and prescribed burning.

6) **Southwest Florida Coastal Conservation Corridor Plan**, Tampa Bay Regional Planning Council, Tampa Bay Program, and The Nature Conservancy, http://www.baysoundings.com/wint04/corridor.html – This framework document is designed to provide a partnership vehicle to synchronize comprehensive planning efforts by a host of independent partners.

7) **Land management Plan for the Estero Bay State Buffer Preserve**, Florida Department of Recreation & Parks, http://www.floridastateparks.org/esteroBay/History.cfm – The document describes resources associate with the preserve, as well as proposed management activities and the roles of managing agencies, the public and local government in management of the area.

8) **Comprehensive Conservation and Management Plan,** Charlotte Harbor National Estuary Program, http://www.chnep.org – A draft plan identifies hydrologic alterations, water quality degradation, and fish and wildlife habitat loss as priority issues.

9) **Strategic Beach Management Plan**, Florida Department of Environmental Protection, http://www.dep.state.fl.us/beaches/programs/bcherosn.htm – The Florida Department of Environmental Protection (FDEP) developed this multiyear repair and maintenance strategy to carry out responsibilities of a comprehensive, long-range, state-wide program of beach erosion control.

Louisiana

1) **Coast 2050: Towards a Sustainable Coastal Louisiana**, Louisiana Coastal Wetland Conservation & Restoration Task Force and the Wetlands Conservation & Restoration Authority, http://www.crcl.org/Coast2050.html **–** This strategic plan for the survival of Louisiana's coast and communities promotes restoration and protection on a coast-wide basis, and recommends strategies that work with natural forces such as tidal influences. The strategies are expected to prevent the loss of 1,000 square miles of coastal habitat.

2) **Louisiana Coastal Wetlands Restoration Plan**, Louisiana Coastal Wetlands Conservation and Restoration Task Force, http://lacoast.gov/reports/cwcrp/1993/1993lcwrp-all.pdf – built upon by Coast 2050.

3) **Coastal Wetlands Conservation and Restoration Plan**, Wetlands Conservation and Restoration Authority, http://www.goca.state.la.us/swa-pdf/report20042005stateplan.pdf – built upon by Coast 2050.

4) **Integrated Ecosystem Restoration and Hurricane Protection: Louisiana's Comprehensive Master Plan for a Sustainable Coast**, Coastal Protection and Restoration Authority of Louisiana, http://www.lacpra.org/ – This master plan, produced by the **CPRA**, emphasizes sustainability in coastal ecosystems, flood protection, and communities. It integrates flood control projects and coastal restoration initiatives to help both human and natural communities thrive over the long-term.

5) **Louisiana Coastal Resource Program**, Louisiana Department of Natural Resources, Coastal Management Division, http://coastalmanagement.noaa.gov/mystate/la.html – Administered by the LA Department of Natural Resources, the program works with local parishes to design programs that resolved conflicting local issues of the coast. Programs include the **Coastal Use Permit Program** and management of the Marsh Island Refuge and Louisiana Offshore Oil Port.

6) **Barataria-Terrebonne National Estuary Program (BTNEP) Comprehensive Conservation Management Plan (CCMP)**, BTNEP, http://www.btnep.org/default.asp?id=30 - The plan identifies seven priority issues: hydrological modifications, sediment reduction, habitat loss, eutrophication, pathogen contamination, toxic substances, and changes in living resources. The plan also contains action items in the areas of coordinating planning and implementation, ecological management, sustained recognition and citizen involvement, and economic growth.

7) **Louisiana Coastal Area (LCA) Ecosystem Restoration Plan**, LCA, http://dnr.louisiana.gov/crm/background/lca.asp - Based on Coast 2050, this is a first step in implementing the long-range, large-scale ecosystem restoration strategies necessary to preserve and protect coastal Louisiana. The plan includes: 15 restoration projects, creation of a Science and Technology program, funding for demonstration projects, increased funding for beneficial use of dredged material, and funding for large-scale studies.

8) **Coastal Impact Assistance Program (CIAP)**, Minerals Management Service, http://www.mms.gov/ciapmain.htm - draft plan, which includes over 100 proposed projects within the 19 coastal parishes.

9) **Coastal Wetland Planning, Protections, and Restoration Act (CWPPRA)**, Louisiana Coastal Area, http://www.lacoast.gov/cwppra/ - A mechanism by which coastal projects seek funding appropriations for restoration projects in Louisiana.

10) **The Louisiana Coastal Protection and Restoration (LACPR) Plan**, US Army Corps of Engineers, http://lacpr.usace.army.mil/ - Development of a full range of hurricane protection measures.

11) **The Lake Pontchartrain Basin Foundation Plan**, Lake Pontchartrain Basin Foundation, http://www.saveourlake.org/pdfs/LOD_broch.pdf – Pontchartrain Multiple Lines of Defense Program.

Mississippi

1) **Coastal Improvements Program,** Mississippi Department of Marine Resources, http://www.gautier-ms.gov/ccm/112007/ms%20coastal%20improv%20proj.pdf **–** The Mississippi Coastal Program's restoration plans include approximately 40 million dollars worth of project work including island restoration, coastal plain and riparian and channel restoration and management, marsh creation and invasive exotic species management, programmatic reintroduction of fire, etc.

2) **Comprehensive Resource Management Plan,** Department of Marine Resources, Marine Fisheries Office, http://www.dmr.state.ms.us/CMP/CRMP/crmp-home.htm – DMR has begun a 5 year restoration project from Hurricane Katrina Disaster Funds to rehabilitate fisheries. For oyster reefs this includes planting of cultch material, relaying of oysters and cultivating of reefs. A restoration grant has also removed over 10,000 derelict crab traps from fisheries habitat since the storm (16,000 traps removed since 2000) as part of the on-going cleanup effort. Artificial reef habitat will be restored and enhanced through deployment of near and offshore reef material in Mississippi's permitted reef sites.

3) **Grand Bay National Estuarine Research Reserve**, NOAA, Mississippi Coastal Program, http://www.nerrs.noaa.gov/GrandBay/ – Restoration priorities include exotic species control, shoal and salt marsh restoration, oyster reef restoration, reestablishment of flood water flow and hydrological restoration, and prescribed burning in wet pine savannah and pine flatwoods. Current restoration projects include prescribed burning.

4) **Coastal Impact Assistance Plan**, MMS, Mississippi Department of Marine Resources, http://www.coastalcleanup.ms.gov/ciap/ - CIAP authorizes funds to be distributed to outer

Continental Shelf (OCS) oil and gas producing states to mitigate the impacts of OCS activities. Mississippi is one of six states eligible to receive CIAP funds.

Texas

1) **Texas Coastal Management Program (TCMP)**, Texas General Land Office, Coastal Coordination Council, http://www.glo.state.tx.us/coastal/cmp.html – Coordinates state, local, and federal programs for the management of Texas coastal resources. Current areas of high priority include protecting wetlands, improving shorelines access, and addressing the impacts of non-point source pollution.

2) **Coastal Texas 2020**, Texas General Land Office, http://www.glo.state.tx.us/coastal/ct2020/index.html – Created by the Texas General Land Office, this state-wide initiative thrives to unite local, state, and federal efforts to promote the economic and environmental health of the Texas coast.

3) **Galveston Bay Estuary Program**, Texas Commission on Environmental Quality, http://www.gbep.state.tx.us/ - Program of the Texas Commission on Environmental Quality (TCEQ), successfully working with a variety of partners and stakeholders to facilitate implementation of the **Galveston Bay Plan**, http://www.gbep.state.tx.us/estuary-program-overview/the%20galveston%20bay%20plan.asp . The Plan is a **Comprehensive Conservation and Management Plan (CCMP),** http://www.epa.gov/owow/estuaries/ccmp/ for the Galveston Bay ecosystem, developed as a part of the National Estuary Program process.

4) **Habitat Conservation Blueprint**, Galveston Bay Foundation, http://www.galvbay.org/conservation_blueprint.html – Developed by the Galveston Bay Foundation, with federal, state, and local partners facilitating habitat restoration and protection goals of the **Galveston Bay Plan**.

5) **Coastal Bend Bays Plan**, Coastal Bend Bays & Estuaries Program, http://www.cbbep.org/publications/virtuallibrary/cbbin.pdf – Implemented by the Coastal Bend Bays and Estuaries Program for the Aransas, Corpus Christi, and Laguna Madre estuaries, this document outlines action plans for human use, maritime commerce and dredging, habitat and living resources, water and sediment quality, freshwater resources, and education and outreach. Priority issues include freshwater inflow, condition of living resources, public health, loss of wetlands and other estuarine habitats, degradation of water quality, altered circulation, and debris.

6) **Seagrass Conservation Plan for Texas**, Texas Parks & Wildlife Department, http://www.tpwd.state.tx.us/publications/pwdpubs/media/pwd_bk_r0400_0041.pdf – addresses the assessment of, restoration and management of seagrasses in Texas waters.

7) **The Clean Rivers Program**, Texas Commission on Environmental Quality, http://www.tceq.state.tx.us/compliance/monitoring/crp/ – The Texas Natural Resource Conservation Commission works with river authorities and other stakeholders to address issues related to monitoring and assessment of water quality.

8) **Mission/Aransas Watershed Wetland Conservation Plan**, Texas General Land Office, Coastal Division, http://www.sci.tamucc.edu/ccs/refugio/conservation%20plan.html – Outlines habitat assessment, enhancement, and education goals. This plan was designed as a model for coastal communities interested in bringing together local stakeholders to evaluate wetland issues and to develop a plan for conserving wetlands while allowing for economic growth.

9) **Texas Coast-wide Erosion Response Plan: A Report to the 75th Legislature**, Texas General Land Office, http://www.glo.state.tx.us/coastal/erosion/CEPRA-LegReport2005/pdf/CEPRA_Lege_Report_April_2005_3.pdf - Updated in 2004, the plan

describes the state's existing policies for managing coastal erosion and proposes new ones. It describes methods of erosion response for bay and Gulf shorelines and provides specific guidance concerning projects that can be undertaken to protect uplands, marsh, and shallow-water habitat in several identified "critical erosion areas."

10) **Texas Wetlands Conservation Plan**, Texas Parks & Wildlife Department, Resource Protection, http://www.tpwd.state.tx.us/landwater/water/habitats/wetland/publications/conservation_plan.phtml - focuses on non-regulatory, voluntary approaches to conserving Texas' wetlands. Although the development of the Texas Wetlands Conservation Plan has been coordinated by Texas Parks and Wildlife, the Plan is intended as a guide for wetlands conservation efforts throughout the state.

11) **Coastal Impact Assistance Program (CIAP)**, Texas General Land Office, Minerals Management Service, http://www.glo.state.tx.us/coastal/ciap/ -draft state plan that includes over 100 proposed projects in the 18 coastal counties.

12) **Coastal and Estuarine Land Conservation Program**, National Oceanographic & Atmospheric Administration, http://coastalmanagement.noaa.gov/land/welcome.html -draft state plan for protecting coastal and estuarine areas in the 18 coastal counties that have significant conservation, recreation, ecological, historical, or aesthetic values or are threatened by conversion from their natural or recreational state to other uses.

13) **Texas Coastal Hazards Atlas**, Bureau of Economic Geology, University of Texas, http://www.hazard-tech.net/node/367 – The purpose of this web map is to provide geographic information that can be used to help make more informed decisions and get answers to questions for a specific area or topic that involves a geographic dimension.

Regional Restoration Plans

1) **Action Plan for Reducing, Mitigating, and Controlling Hypoxia in the Northern Gulf of Mexico** (2001), Mississippi River/Gulf of Mexico Watershed Nutrient Task Force, US EPA, http://www.epa.gov/msbasin/taskforce/pdf/actionplan.pdf – This Action Plan describes a national strategy to reduce the frequency, duration, size and degree of oxygen depletion of the hypoxic zone of the northern Gulf of Mexico.

2) **Gulf Hypoxia Action Plan** (Draft 2008)**,** Mississippi River/Gulf of Mexico Watershed Nutrient Task Force, US EPA, http://www.epa.gov/msbasin/taskforce/actionplan.htm - Building on the *2001 Action Plan*, this plan lays out specific steps that need to be accomplished to reach the goals. It also reiterates the long term goals and continues the ask Force's commitment to an adaptive management approach to reducing the size and impact of the Gulf hypoxic zone and improving water quality in the Basin.

3) **Clean Water Action Plan: Coastal Research and Monitoring Strategy**, Coastal Research & Monitoring Strategy Workgroup, http://www.gulfofmaine.org/nciw/cwap-execsumm.pdf – The intent is to replace traditional single-issue, single-agency, single-discipline problem-solving with a coordinated, multi-agency, interdisciplinary approach to address problems of coastal water quality and coastal resources.

4) **A National Strategy to Restore Coastal and Estuarine Habitat**, Restore America's Estuaries, http://www.estuaries.org/?id=7 – Strategy presented by Restore America's Estuaries with the purpose of providing a framework for restoring function to coastal and estuarine habitat. It can be applied to improve the effectiveness of restoration efforts conducted under any program.

Additional "Tools" for Restoration

1) **The Nature Conservancy: Eco-region Assessments and Conservation Plans**, http://www.nature.org/tncscience/files/spalding.pdf – Once conservation areas are identified at an eco-regional level, TNC develops separate *conservation area plans* for them. Conservation area plans are both biological assessments (at a finer scale than is possible with eco-regional assessments) and strategic work plans that detail how conservation will be achieved in a real-world context.

2) **Gulf Ecological Management Sites (GEMS) Program**, Gulf of Mexico Program, US EPA, http://www.epa.gov/gmpo/gem2.html – GEMS are unique natural habitats that are home to a large variety of birds, fish, and other wildlife and are critical to the productivity and sustainability of the Gulf of Mexico as one of the most valuable resources of the United States. GEMS represent opportunities to preserve our natural heritage and ensure sustainability for generations to come. Program goals include promoting information exchange about the ecology and management of GEMS, increasing awareness of their national and international significance, and improving understanding of the Gulf of Mexico Ecosystem.

3) **Damage Assessment, Remediation and Restoration Program (DARRP)**, NOAA, http://www.darrp.noaa.gov/ - As a natural resource trustee, NOAA acts on behalf of the public to restore resources injured by oil spills, releases of other hazardous substances and vessel groundings. DARRP is a NOAA multi-office effort involving the Damage Assessment Center, Office of General Counsel for Natural Resources, and Restoration Center.

4) **Digital Coast: Legislative Atlas**, NOAA Coastal Services Center, http://www.csc.noaa.gov/legislativeatlas/ – This atlas, produced by the NOAA Coastal Services Center (CSC), allows users to visualize where selected coastal and ocean laws apply helping regional collaborations to make sense of the complex governance system of our oceans and coasts.

5) **Priority Habitat Information System (PHINS)**, NOAA National Coastal Data Development Center, http://www.ncddc.noaa.gov/activities/phins - state/federal partnership intended to provide users with habitat information and foundation geospatial data supporting implementation of the Gulf of Mexico Alliance Governor's Action Plan. One of the main objectives is to improve state, local, and federal resource management decision-making through increased access and use of spatial data.

6) **Non-point Source Pollution and Erosion Comparison Tool (N-SPECT)**, NOAA Coastal Services Center, http://www.csc.noaa.gov/crs/cwq/nspect.html – A complex GIS extension that helps coastal managers and local decision-makers predict potential water-quality impacts from non-point source pollution and erosion.

8) **Gulf of Mexico Research Plan**, Gulf of Mexico Sea Grant Programs, http://www.masgc.org/gmrp/index.htm – Project goals are to identify priority research needs for the Gulf of Mexico through stakeholder input and to implement strategies to address these needs. The plan also lists a number of strategic planning documents relevant to the Gulf of Mexico region.

9) **National Coastal Assessment Framework**, US EPA, http://www.epa.gov/ged/r03_dw.htm – The US EPA's NCA surveys the condition of the Nation's coastal resources by creating an integrated, comprehensive monitoring program among the coastal states.

10) **Coastal Condition Reports**, US EPA, http://www.epa.gov/owow/oceans/nccr/ – Reports describe the ecological and environmental conditions in U.S. coastal waters. They summarize the condition of ecological resources and highlight several exemplary federal, state, tribal, and local programs that assess coastal ecological and water quality conditions.

11) **National Fish Habitat Action Plan**, http://fishhabitat.org/index.php?option=com_content&view=category&layout=blog&id=35&Itemid=27 – Produced by the Southeast Aquatic Resources Partnership (SARP), its mission is to protect, restore and enhance the nation's fish and aquatic communities through partnerships that foster fish habitat conservation.

12) **Environmental Monitoring and Assessment Program (EMAP)**, US EPA, http://www.epa.gov/emap/ - a research program to develop the tools necessary to monitor and assess the status and trends of national ecological resources.