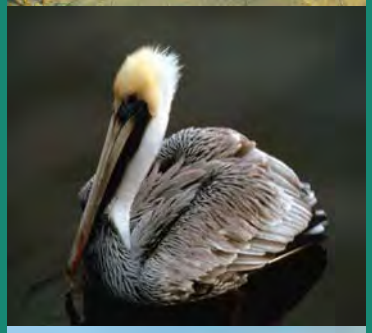

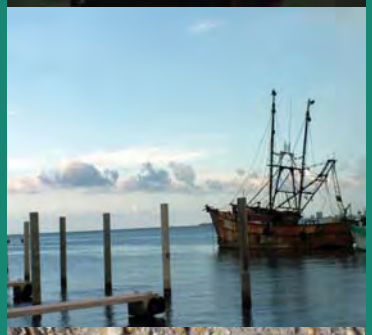

Building Partnerships for a Healthier Gulf

GULF OF MEXICO ALLIANCE

Water Quality ◆ Nutrients ◆ Ecosystems ◆ Education ◆ Restoration ◆ Resilience

GOVERNORS' ACTION PLAN II

For Healthy and Resilient Coasts

2009 - 2014


Building Partnerships for a Healthier Gulf
GULF
OF MEXICO
ALLIANCE
Water Quality ◆ Nutrients ◆ Ecosystems ◆ Education ◆ Restoration ◆ Resilience

GOVERNORS' ACTION PLAN II

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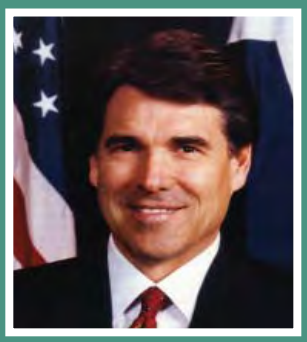
Governor Bob Riley, Alabama

Governor Charlie Crist, Florida

Governor Bobby Jindal, Louisiana

Governor Haley Barbour, Mississippi



Governor Rick Perry, Texas

Dear Gulf Residents and Visitors,

In March 2006, on the heels of Hurricanes Katrina and Rita, the five Gulf Coast Governors signed the Gulf of Mexico Alliance Governors' Action Plan for Healthy and Resilient Coasts. As Gulf States Governors, we recognize that the economy and quality of life for citizens of this national treasure are linked to its ecological health. Gulf stewardship is everyone's responsibility. The first Action Plan identified specific actions needed to improve the health of our coastal areas, and the lives of millions of people that live and visit this region every year. Through the collaborative leadership of the Gulf States, the exceptional support of our federal partners, and active participation of our business council and non-governmental organizations, we have been able to collectively implement these actions.

In 2006 we challenged the Alliance to make tangible progress within 36 months. Thanks to the power of partnerships, the results of the first Action Plan exceeded initial expectations, establishing lasting partnerships, and a foundation on which we will more effectively protect and improve the health of the Gulf of Mexico.

Capitalizing on the momentum of the first Action Plan, this second Action Plan covering five years is more ambitious and addresses some of the most pressing issues affecting our region. It will expand participation and demonstrate the value of a working collaborative in regional ecosystem management. This Action Plan is intended to be a dynamic guide for the Alliance as we collectively address priority regional issues facing the Gulf. Therefore, we, as the executives of the five Gulf States, pledge our full support of and solicit your help toward the actions detailed in this Gulf of Mexico Alliance Governors' Action Plan II for Healthy and Resilient Coasts.

Sincerely,

Bob Riley
Governor of Alabama

Charlie Crist
Governor of Florida

Bobby Jindal
Governor of Louisiana

Haley Barbour
Governor of Mississippi

Rick Perry
Governor of Texas

Strengthening the Gulf of Mexico Regional Partnership

The Gulf of Mexico Governors' Alliance is an example of how regional ocean governance models have proved successful in addressing critical regional and State priorities. The Obama Administration recognizes the outstanding leadership provided by the five Gulf States and the value of federal support through technical expertise as well as fiscal support through grants and cooperative agreements.

Representatives from thirteen federal agencies convened to form the Gulf of Mexico Regional Partnership Federal Workgroup to provide support to the Gulf of Mexico Alliance in addressing priority coastal and ocean issues. Led by NOAA, EPA, and DOI, the Federal Workgroup actively participated in the implementation of the 2006 Governors' Action Plan. The Workgroup has been an excellent venue for collaboration and integration of federal efforts to act on regional issues identified by the five Gulf States.

While we have embraced the concept of regional collaboration, we recognize that there is much work to be done to achieve a healthy Gulf Coast region. The Alliance Governors' second plan will build upon the successes of its 2006 action plan. This Action Plan II sets out six priority areas related to improving Gulf ecosystems and economies, including: coastal community resilience to storms and impacts from sea level rise; improving the quality of our beaches and the safety of the seafood we eat; increasing critical habitat; and providing educational opportunities for our Gulf coast residents and visitors. With this plan, the Alliance will continue to improve the ecological and economic health of the Gulf region.

Sincerely,

Nancy H. Sutley
Chair
White House Council on Environmental Quality

"With this Plan, the Alliance will continue to improve the ecological and economic health of the Gulf region"

Nancy Sutley
Chair, CEQ

Fort DeSoto Park
Pinellas County, FL
Drew Puffer, GMPO

GULF OF MEXICO ALLIANCE

BUILDING PARTNERSHIPS FOR A HEALTHIER GULF

As a result of a shared vision for a healthy and resilient Gulf of Mexico region, the Gulf States and various federal partners formalized the Gulf of Mexico Alliance in 2004. The 2004 U.S. Ocean Action Plan recognized the leadership the five Gulf States demonstrated in forming the Alliance and called for increased integration of resources, knowledge, and expertise to address regional priorities.

This call was answered in the *Governors' Action Plan for Healthy and Resilient Coasts* released in 2006. The three-year *Action Plan* identified regionally significant issues that could be effectively addressed through increased collaboration at the local, state, and federal levels.

Under the leadership of the five Gulf States and the strong support by federal and non-governmental partners, strategies were developed to advance and coordinate the implementation of the specific activities identified in the *2006 Action Plan*. Results of these collaborative partnerships far exceeded initial expectations with the majority of the activities completed or in progress. Some of the accomplishments include:

(1) Coastal Ecosystem Learning Centers (CELCs) have been established in each of the five Gulf States and Veracruz, Mexico;

(2) A Regional Sediment Management Master Plan has been drafted that will provide a framework for better management of Gulf sediment resources facilitating a reduction in coastal erosion and storm damages, as well as the restoration of coastal habitats;

(3) Bi-national workshops designed to standardize harmful algal bloom identification and field sampling methods were conducted in Texas, Florida, and Mexico;

(4) An ecosystem data portal has been established that will be used by resource managers to evaluate habitat extent and changes over time; and

(5) A regional Nutrient Criteria Research Framework was developed that has led to a better understanding of nutrient impacts to Gulf ecosystems, as well as a coordinated approach to managing them.

GOVERNORS' ACTION PLAN II

Building on successes of the first *Action Plan*, the Gulf States and their partners developed the *Governors' Action Plan II*, a farther-reaching, five-year regional plan that looks to expand partnerships. The core goals of the *2006 Action Plan* were to build partnerships and lay a foundation for a true regional approach. This *Action Plan II* sets a course for actions designed to improve the health of coastal ecosystems and economies of the Gulf in ways that a single entity could not achieve. It is a strategy for tangible results in the following priority areas.

Water Quality for Healthy Beaches and Seafood

Habitat Conservation and Restoration

Ecosystems Integration and Assessment

Reducing Nutrient Impacts to Coastal Ecosystems

Coastal Community Resilience

Environmental Education

In addition, the Gulf States Governors recognize that we are not the only residents of this important ecosystem. Our neighboring countries also contribute to, experience the effects of, and reap the benefits of the Gulf of Mexico. To be truly successful in improving the ecological health of this region, a collaborative effort is necessary with other partners of the Gulf, including Mexico. To that end, *Action Plan II* supports the creation of a parallel Mexican Gulf of Mexico Alliance and strongly encourages the continued pursuit of collaboration among countries in the region.

Alliance Workshop in Biloxi, MS
Terry Teague, GMPO

CROSS-CUTTING ACTIONS

Similar to the 2006 Action Plan*, each priority area is supported by various stakeholder groups including governmental agencies, academia, non-profit organizations, and private businesses.*

Although each priority area has its own long-term goals, they are not mutually exclusive. That is, each priority area team has identified cross-cutting actions that assist in achieving the goals of other priority areas.

Therefore, Action Plan II *is designed to take advantage of opportunities for combining expertise, resources, and knowledge to create a resourceful, streamlined approach to addressing the most pressing needs of the Gulf region.*

CHALLENGES

Actions identified in the *Action Plan II* collectively address four major challenges to healthy and resilient communities in the Gulf region.

(1) Sustaining Gulf Economy

The Gulf of Mexico region is a vital economic engine for the nation, supplying trillions of dollars annually to the U.S. economy and providing jobs for millions of people. For the same reasons that it is a popular destination for tourism and recreation, the Gulf Coast is a popular residential area as demonstrated by the overwhelming population growth in the region in the last 30 years. The Gulf is a proven ground for major marine industries such as commercial seafood, oil and gas production, and shipping. If not properly balanced, a thriving Gulf Coast economy can present challenges to healthy ecosystems and their natural functions. The actions outlined in the chapters of this *Action Plan II* strike a balance between continued economic growth and healthy and sustainable coastal communities.

Shrimp boat fleet
Bayou LaBatre, AL
MBNEP

(2) Improving Ecosystem Health

Much of the economic activity in the Gulf Coast is dependent on or related to a healthy Gulf ecosystem. Coastal and marine planners in the Gulf region are faced with a complex environment in which to make difficult decisions regarding protection, restoration, enhancement, and management of various coastal and natural resources. There are numerous threats to the Gulf, including one of the world's largest zones of hypoxia, or areas of water with little to no oxygen. Each year, the hypoxic zone negatively affects the region's seafood production, illustrating the enormity and complexity of the threats facing the region's ecosystem and, subsequently its economy. This *Action Plan II* provides a blueprint for resource managers to evaluate loss and function of vital coastal resources that are not only the indicators of ecological health, but are the cornerstone to the region's economy.

(3) Mitigating the Impacts of and Adapting to Climate Changes

Climate changes and the associated predicted sea-level rise cause physical changes to the Gulf Coast that adversely impact communities, infrastructure, and natural resources. Being aware of the relative vulnerability of coastal areas to climate change-related effects will help communities consider the longer-term costs associated with protecting natural resources, as well as themselves, including the costs of elevating or relocating their infrastructure and people. Certainly, the Gulf will continue to experience significant destructive coastal storms, but mitigation methods such as accurate mapping, tide level predictions, resilient land use plans, and habitat conservation and restoration can increase a community's ability to "bounce back" after such events. The actions provided in this *Action Plan II* present methods for predicting ecological changes and enhancing both natural and built resources, thus creating more sustainable coastal communities.

(4) Mitigating Harmful Effects to Coastal Water Quality

From upland rivers to the Gulf of Mexico itself, water quality is inextricably linked to the economy of the Gulf Coast region and is influenced by a variety of factors, some of which are harmful to human health. For example, pathogens and harmful algal blooms can have negative impacts on beach water quality while nutrients and toxins can negatively affect coastal fisheries. Mitigation of these harmful effects is important to healthy ecosystems and sustainable communities. Accurate detection and monitoring can greatly improve beach safety and reduced stormwater runoff can greatly improve the health and safety of shellfish. This *Action Plan II* provides methods for mitigating these and other harmful effects of degraded coastal water quality on human health.

PARTNERS

State Partners

Leadership from the five Gulf States forms the foundation of the Alliance and each of the Gulf States has committed time and resources to its successful implementation. Through a collaborative approach, the priority issues of the Gulf are being addressed with scientific and technical experts and resource managers who have the knowledge base and experience. In order to effectively address the priorities of the Gulf region, each of the States provides regional coordination for a particular issue:

- Florida leads the ***Water Quality for Healthy Beaches and Seafood*** team;
- Alabama leads the ***Environmental Education*** team;
- Mississippi leads the ***Reducing Nutrient Impacts to Coastal Ecosystems*** team;
- Louisiana leads the ***Habitat Conservation and Restoration*** team;
- Texas leads the ***Ecosystems Integration and Assessment*** team; and
- Mississippi and Louisiana co-lead the ***Coastal Community Resilience*** team.

Federal Partners

The success of the Alliance is based not only on the dedication of the five Gulf States, but also on leadership from federal partners. Thirteen federal agencies committed to supporting the Alliance have come together as a federal workgroup under the leadership of the U.S. Environmental Protection Agency (EPA), the National Oceanic and Atmospheric Administration (NOAA), and the U.S. Department of Interior (DOI). The goals of the federal work group are to support the Gulf States and to coordinate an integrated federal response to priority regional issues identified by the Alliance. The federal workgroup brings diverse expertise and established experience. By coordinating and integrating these capabilities, the impact of federal resources is fully maximized.

Additional Partners

In addition to Gulf States and the federal workgroup, the Alliance relies heavily on non-governmental partners, such as academic organizations, non-profit organizations, and businesses. Whether piloting new programs, or implementing full-scale efforts, these partners provide the talent and resources to implement on-the-ground projects. These partners have aligned their goals to those of the Alliance in order to create tangible results, thereby realizing the potential for change associated with a grand-scale collaborative effort such as the Gulf of Mexico Alliance.

Lined seahorse (*Hippocampus erectus*), Texas State Aquarium
Jeanne Allen, GMPO

State Partners
AL Department of Conservation and Natural Resources
AL Department of Environmental Management
AL Department of Public Health
FL Department of Environmental Protection
FL Fish and Wildlife Conservation Commission
LA Department of Education
LA Department of Environmental Quality
LA Department of Natural Resources
LA Department of Wildlife and Fisheries
LA Office of Coastal Restoration and Management
MS Department of Environmental Quality
MS Department of Marine Resources
TX Commission on Environmental Quality
TX General Land Office
TX Parks and Wildlife Department

Federal Partners
Council on Environmental Quality
National Aeronautics and Space Administration
National Oceanic and Atmospheric Administration
National Science Foundation
U.S. Army Corps of Engineers
U.S. Department of Agriculture
U.S. Department of Defense
U.S. Department of Energy
U.S. Department of Interior
U.S. Department of Health and Human Services
U.S. Department of State
U.S. Department of Transportation
U.S. Environmental Protection Agency

Additional Partners
America's WETLAND Foundation
Coastal America
Coastal Ecosystem Learning Centers
Coastal States Organization
Dauphin Island Sea Lab
Florida Institute of Oceanography
Gulf Business Coalition
Gulf Coast Research Laboratory
Gulf of Mexico Coastal Ocean Observing System
Gulf of Mexico Research Plan
Gulf of Mexico Foundation
Harte Research Institute
National Estuarine Research Reserve System
National Estuary Program
National Marine Sanctuaries
National Sea Grant College Program
NatureServe
Northern Gulf Institute
The Nature Conservancy

Mission-Aransas National Estuarine Research Reserve, Aransas Bay, TX
Ben Mieremet, NOAA

PRIORITIES FOR HEALTHY BEACHES & SHELLFISH BEDS

Water is the basis of life world-wide and its condition is one of the factors influencing the health of human and natural communities in the Gulf of Mexico region. Moreover, the economies of the five Gulf States are substantially dependent on the productive natural resources and ecosystems of this region. In an effort to address regional-scale water quality priorities, the Gulf of Mexico Alliance has strategically identified those that are most crucial to the five Gulf States.

To help ensure healthy beaches and safe seafood in our coastal areas, the Alliance has identified four water quality priorities that will guide the partnership's efforts: (1) reducing risk of exposure to disease-causing pathogens, (2) minimizing occurrence and effects of harmful algal blooms (HABs), (3) identifying sources of mercury in Gulf seafood, and (4) improving monitoring of Gulf water resources. These issues are far-reaching and are best addressed through regional-scale efforts such as the Alliance.

LONG-TERM GOALS

- *Develop a monitoring network that identifies the sources of pathogens and their impacts*
- *Implement a HAB tracking and forecasting system that supports the reduction or elimination of blooms and can be used to minimize the negative effects*
- *Reduce the risk of mercury-induced health effects from Gulf seafood consumption*
- *Develop a monitoring network that provides vital information about the status and trends of Gulf water quality*

WATER QUALITY FOCUS AREAS:

Pathogens
Harmful Algal Blooms
Mercury in Seafood
Monitoring

Pathogens

Alliance Action: Improve the understanding of waterborne, disease-causing microorganisms (pathogens), including their sources and survival so that coastal managers can make informed decisions that benefit public health and coastal economies.

Action Steps:

1. Develop new and improved methods to identify the coastal waters and beaches that are impaired by pathogens and to track the sources of these disease-causing organisms.
2. Improve the understanding of specific pathogens in Gulf waters that constitute risks to human health.
3. Provide coastal managers with information necessary to make better informed health and resource management decisions.
4. Work with universities and Gulf health agencies to better understand *Vibrio* bacteria ecology, health risks, and research needs.

Why?

A better understanding of pathogens and their sources will allow agencies to reduce the risk of human illnesses due to exposure to Gulf waters. For instance, enhanced awareness of environmental and ecological factors affecting Vibrio *populations will decrease the number of* Vibrio*-related deaths and illnesses in coastal communities. By working as the Alliance to improve the pathogen monitoring network and methods, local resource managers can address health management issues in a proactive, rather than reactive way. In turn, best management practices using risk-based approaches can be employed to better focus and allocate resources.*

Future expectations....

EXPECTED RESULTS

- *Revised microbial contamination indicators lead to increased beach protection from pathogens.*
- *Improved data is accessible for time-critical decision making (e.g., issuance of public beach advisories).*
- *State health departments are active, collaborating partners of the Alliance.*

Horse-eyed Jack (*Caranxlatus*) Flowers Gardens National Marine Sanctuary, TX
G. Schmahl, NOAA

Harmful Algal Blooms (HABs)

Alliance Action: Reduce the effects of HABs by improving our ability to detect, track, forecast, and mitigate HAB movement and their effects along the Gulf Coast.

Action Steps:

1. Provide decision-making information regarding HAB ecology and toxicity to coastal managers.
2. Improve the capabilities of Gulf-wide HAB monitoring networks to support HAB detection and tracking.
3. Determine the significance of ballast water introduction and transfer of native and invasive HAB species in the Gulf.
4. Determine the connection between HABs and their effects on human and ecosystem health.
5. Develop and evaluate methods that help prevent, control, and mitigate HABs and their impacts.

Why?

Once the ecology of HABs is understood, an early warning and forecasting system can be developed using real-time data. However, present technologies for detecting and tracking HABs are expensive and generally not suitable for long-term deployment. To be effective, the existing monitoring networks need to be compatible and regional in coverage in order to detect, track, and forecast those blooms that migrate across the Gulf. Management strategies can then be developed to improve responses to bloom events and to reduce the frequency of blooms and the extent of their impacts on coastal recreation and ecosystems health.

EXPECTED RESULTS

- *Citizens have enhanced knowledge about human health and ecosystem impacts from HABs, including the significance of ballast water introductions of new species.*
- *Coordinated operational systems regularly detect, track, and forecast HAB movements through the Gulf.*
- *Methods and training that help prevent, control, and mitigate HABs are improved.*

Horn Island, MS
Christi Taylor

Mercury in Seafood

Alliance Action: Identify sources of mercury in Gulf fishery resources, understand its presence in the Gulf food web, and develop the ability to reduce the human health risk of exposure.

Action Steps:

1. Regularly post research information on mercury cycling in the Gulf to a public Web site.
2. Quantify and model the major sources (for instance, atmospheric or river input), fate, and transport of mercury to the Gulf.
3. Work with Gulf health agencies to develop a strategy to inform decision makers and public health advisory groups regarding the relative importance of sources and pathways for mercury accumulation in fish.

EXPECTED RESULTS

- *Health risks are reduced by determining primary sources, predicting effects, and communicating information early concerning Gulf Seafood consumption to public health advisory groups.*
- *Gulf citizens have an increased awareness and understanding of the mechanism by which mercury enters the food chain and accumulates in fish.*

Why?

Mercury in seafood can have significant human health and economic effects; the scope of which is not clearly understood. Removing mercury from seafood cannot be addressed without first understanding the sources, fate, and transport of it around the Gulf, as well as understanding the scope of its effects on human health and the economy.

Monitoring

Alliance Action: Obtain and provide vital information about the conditions of Gulf waters to support better management decisions regarding coastal fisheries, recreation, tourism, public health, and infrastructure planning.

Action Steps:

1. Increase data comparability across the Gulf by improving standardization of water quality data collection and reporting.
2. Coordinate the collection and management of information about water quality programs across the Gulf and improve communications with resource managers.
3. Design a framework for Gulf water quality monitoring.
4. Improve the knowledge base needed to properly manage water quality in coastal waters including a mechanism to track trends in the waters designated as impaired.

Why?

A region-wide framework for water quality monitoring in the Gulf will lead to an abundance of information to address both local and Gulf-wide issues, such as land-use decisions, water quality criteria, nutrient loading, mercury source tracking, and other related issues. With a searchable catalog of monitoring program information available, an increased number of potential users will know where to access Gulf water quality data, allowing issues to be addressed more efficiently. Agencies being aware of potential additional sources of water quality data should result in more appropriate total maximum daily load assessments.

EXPECTED RESULTS

✦ *Data collected from around the Gulf is of known and comparable quality.*

✦ *Increased public awareness and cost savings to monitoring programs are the results of access to and use of existing water quality information.*

✦ *Collaboration and cooperation among agencies and organizations performing water quality monitoring are increased.*

✦ *New data dissemination tools are developed to access and interpret water quality data and models.*

Water quality monitoring
Lael Butler GMPO

Habitat Conservation & Restoration

Grand Bay National Estuarine Research Reserve
Grand Bay, MS
P.R. Hoar, NOAA

LONG-TERM GOALS

- ✦ *Engage a diverse group of stakeholders from state, federal, and international agencies, business and industry, and non-profit organizations to restore and conserve critical habitat*
- ✦ *Improve policies that promote conservation and restoration efforts in both the public and private arena*
- ✦ *Provide improved conservation and restoration management tools through the application of science and technology*
- ✦ *Develop and implement an accurate tracking system to document gains and losses of Gulf habitats and ecosystem services*

PRIORITIES FOR SUSTAINABLE NATURAL COMMUNITIES

Over time, the Gulf of Mexico coastal zone has suffered significant degradation of natural habitats, as well as the associated loss of ecological services attendant to those changes. Population growth, changes in land use, and other human impacts in the coastal zones have exacerbated these trends. To remain healthy and sustainable, the communities of the Gulf region must ensure that economic development is consistent with environmental sustainability. The mission of the Alliance is to provide leadership to advance conservation and restoration of coastal habitats and ecosystems throughout the Gulf and associated watersheds and ultimately reverse the downward trend in habitat quality, quantity, and ecosystem services.

Restoration efforts must be increased and made more effective through the application of science and conservation and restoration of habitats must be implemented on a more aggressive scale. To achieve these conservation and restoration goals, a coordinated and regional approach must be implemented. The Alliance's priority is to promote the implementation of on-the-ground projects by easing funding, policy, and technical hurdles that hinder program and project development.

HABITAT CONSERVATION & RESTORATION FOCUS AREAS:

Expanded Partnerships
Policy Changes
Technology Development
Gulf Regional Sediment Management Master Plan
Reversing the Downward Trend in Habitat and Ecosystem Services

Expanded Partnerships

Alliance Action: Identify and engage non-participating relevant United States stakeholders with interests in the health and sustainability of the Gulf, and coordinate specific issues with representatives from the Gulf Mexican States.

Action Steps:

1. Identify habitat conservation and restoration goals, and define and address limitations of critical stakeholder participation.
2. Promote and encourage critical stakeholder participation in both United States and Mexican habitat conservation and restoration efforts.

Why?

The challenges facing the communities of the Gulf region require that people and governments commit to developing and implementing solutions. The process of improving conservation and restoration requires that governments change policies and develop new strategies for reducing habitat losses and restoring those which are degraded. This is the case in both the United States and in the six Mexican States that border the Gulf of Mexico. The six Mexican States contain nearly half the contiguous coastline between the Florida and Yucatán Peninsulas. To fully address the need for conservation and restoration, it is imperative that many stakeholders cooperate, including public and private landowners, business and industry leaders, non-profit organizations, and international partners in the United States and Mexico. Cooperation includes external private-public partnerships that provide the incentives to develop and implement new government policies which encourage management of private and public lands to the benefit of present and future societies.

Future expectations....

EXPECTED RESULTS

✦ *Alliance stakeholders in the United States and Mexico are active in pursuing Gulf habitat conservation and restoration through private and public partnerships.*

Sea Oats (*Uniola paniculata*)
Anna Maria Island, FL
Joy Murphy

Policy Changes

Alliance Action: Address specific public policy issues impeding habitat conservation and restoration.

Action Steps:

1. Conduct working sessions to address and promote improvements to funding, policy, permitting, and regulatory issues that limit conservation efforts.
2. Work with partners to recommend revisions to the Federal Standard such that conservation and/or restoration is considered economically beneficial to projects and environmental degradation is considered an economic cost.
3. Increase coordination among federal funding programs.
4. Identify policy and economic limitations that restrict private landowner participation in conservation and restoration on private lands.
5. Develop a list of Mexican management issues that can be integrated into Alliance habitat conservation and restoration programming.

Why?

Existing policies and regulations may inadvertently create impediments to the private and public conduct of efficient habitat conservation and restoration. Improved regulatory policies and funding approaches will result in less habitat damage and greater habitat restoration.

EXPECTED RESULTS

✦ *Funding and permitting processes, policies, and regulations regarding habitat conservation and restoration are improved.*

Couch's spadefoot toad
(Scaphiopus couchii)
Gary Stolz, USFWS

Technology Development

Alliance Action: Identify and resolve specific scientific and technical issues so that conservation and restoration of Gulf habitats are more successful.

Action Steps:

1. Conduct topical working sessions on uncertainties (e.g. sea level rise) that limit the state of conservation science and the development of science-based management tools.
2. Provide scientific and technical solutions to improve on-the-ground restoration results.
3. Develop a list of Mexican technical issues that can be integrated into Alliance habitat conservation and restoration programming.

Why?

Future habitat conservation and restoration programs must be based on effective restoration science. A Gulf-wide effort will serve as a platform to promote emerging technologies and science-based management tools.

EXPECTED RESULTS

✦ *Improved science-based management tools are available and routinely used for on-the-ground projects.*

Gulf Regional Sediment Management Master Plan

Alliance Action: Develop and implement the Gulf Regional Sediment Management Master Plan (GRSMMP) to more effectively use dredged material and other sediment resources for restoration projects.

Action Steps:

1. Finalize the GRSMMP and encourage its adoption by all relevant stakeholders throughout the Gulf, including ports and transportation authorities.
2. Identify obstacles to regional sediment management within state and federal agencies managing the Gulf coastal zone.
3. Provide leadership for integrating environmental benefits and coastal zone management policies into the decision-making process of, and potential future revisions to, the Federal Standard.
4. Expand the GRSMMP partnership to include Mexican stakeholders.

Why?

Existing sediment resources, including dredge material, can be more effectively used to benefit conservation and restoration efforts. The GRSMMP provides a regional blueprint for beneficial use of dredged materials. Implementation of the GRSMMP will result in quicker and more efficient dredging and restoration.

EXPECTED RESULTS

✦ *Regional sediment management is implemented in all U.S. Army Corps of Engineers districts in collaboration with stakeholders across the Gulf.*

✦ *Restoration project costs are significantly reduced by increasing re-use of dredged materials.*

Reversing the Downward Trend in Habitat and Ecosystem Services

Alliance Action: Monitor a Gulf-wide inventory of distribution, gain, and loss of coastal habitats and measure the ecosystem services they provide.

Action Steps:

1. Deliver information on state and federal conservation and restoration projects to the habitat distribution database.
2. Translate technical assessments of how to value habitat ecosystem services.
3. Analyze and communicate gains and losses in habitat distribution and associated ecosystem services to Alliance stakeholders.

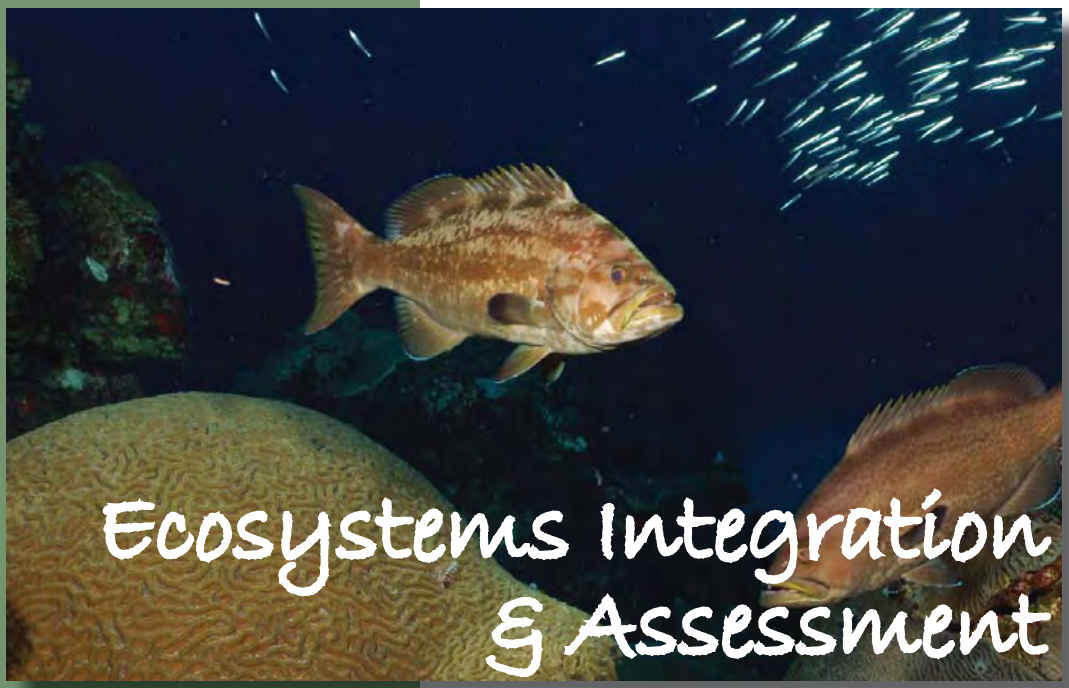
Why?

Conservation and restoration efforts in the Gulf region protect critical habitats, as well as bolster coastal resiliency, and are therefore essential to the region's economy as a whole. A robust inventory of Gulf habitat distribution that includes ongoing and future conservation and restoration activities will help stakeholders make strategic management decisions.

EXPECTED RESULTS

✦ *The downward trend in Gulf habitat and ecosystem services is reversed.*

Pelican Island Restoration, FL
George Gentry, USFWS



Ecosystems Integration & Assessment

Gulf red grouper
(*Epinephelus morio*)
G. Schmahl, NOAA

PRIORITIES FOR MANAGING ECOSYSTEM DATA

Coastal ecosystems in the Gulf of Mexico are essential to sustaining local economies and offer protection from coastal storms. Natural disasters such as tropical storms cause significant, measurable economic losses in the infrastructure that supports coastal communities; however, economic losses of natural resources are significant and more difficult to assess. Coastal managers are faced with a complex environment in which to make difficult decisions regarding protection, restoration, conservation, and management of these crucial resources.

Although much information has been gathered and scientific research conducted on coastal environments, currently there is no information system that allows easy access to information and data for scientists conducting region-wide comparative studies; nor is there a convenient way for managers and policy makers to tap into the knowledge gained from this research. A solution to this problem is a natural resource data portal and information system that will enable resource managers to develop sound recommendations for managing valued coastal resources. The Alliance provides an effective partnership structure to improve accessibility and awareness of the extensive data available throughout the Gulf region.

LONG-TERM GOALS

- *Develop regional data systems that contain environmental and economic data*
- *Establish strategic partnerships to fill environmental and ecological data gaps*
- *Provide ecosystem decision-support tools to address priority issues within the Gulf*

ECOSYSTEMS INTEGRATION & ASSESSMENT FOCUS AREAS:

Gulf of Mexico Master Mapping Plan (GMMMP)
Data Access and Acquisition
Living Marine Resources
Emergent Wetlands Status and Trends Report
Ecological Services Valuation

Gulf of Mexico Master Mapping Plan

Alliance Action: Produce the Gulf of Mexico Master Mapping Plan (GMMMP), a comprehensive plan to collaboratively acquire data on the physical characteristics of the Gulf region, particularly elevation, shoreline, and surface data.

Action Steps:

1. Identify mapping needs and requirements to allow for informed coastal management decisions and data gap analysis.
2. Conduct an inventory of the capabilities and data assets of existing mapping programs and leverage ongoing efforts by the Interagency Working Group on Ocean and Coastal Mapping.
3. Develop a collaborative strategy to acquire the necessary region-wide physical characteristic data.

Why?

The Gulf is too large for any one agency to map, thus a collaborative approach is required; one that identifies and fulfills all mapping requirements with ongoing mapping programs. Therefore, by aligning data collection methods and sharing resources, critical mapping information can be collected at a lower cost to the program partners.

Future expectations....

EXPECTED RESULTS

✦ *A GMMMP is developed using shared resources.*

✦ *Coastal management decisions across the Gulf are made more effectively by updated elevation, shoreline, and sea floor characterization data.*

Bayou Cocodrie
National Wildlife Refuge
Ferriday, LA
USFWS

Data Access and Acquisition

Alliance Action: Provide resource managers and Alliance partners access to a Gulf-wide data and ecosystem support services system.

Action Steps:

1. Acquire new data by filling known ecological and physical data gaps, e.g., bathymetry.
2. Promote collaborative efforts for standardized and coordinated data acquisition in support of resource management.
3. When feasible, implement the Coastal and Marine Ecological Classification Standard (CMECS) for data collected in and around the Gulf.
4. Encourage the use of the Gulf-wide data system to provide access to physical, chemical, and environmental data.
5. Establish a relationship with international data managers in order to include and have access to international ecological data.

Why?

Gathering new data and improving access to available data will aid in the assessment and management of coastal resources. With a thorough knowledge of the status and health of these resources, planners can more effectively anticipate management needs and account for those needs in future planning scenarios.

EXPECTED RESULTS

✦ *Environmental data are readily available for use by resource managers.*

✦ *Ecosystems-based tools are being used to identify areas of critical habitat for conservation and/or protection.*

Gulf shrimp (*Panaeus spp.*)
Mote Marine

Living Marine Resources

Alliance Action: Provide collaboration opportunities for the various living marine resource organizations to support the management of the Gulf as a large marine ecosystem.

Action Steps:

1. Establish a liaison within the Alliance governance structure to interact with living marine resource management organizations.
2. Identify data and information needs related to living marine resource management issues where the Alliance can provide support.

Why?

There are numerous public and non-governmental entities managing components of living marine resources in the Gulf and these entities share common management challenges and data needs. The Alliance partnership is in a unique position to collaborate with these groups to better coordinate the management of the Gulf as a large marine ecosystem.

EXPECTED RESULTS

✦ *Collaborative partnerships are expanded to enhance the conservation of living marine resources.*

✦ *Agreements between resource managers who address data gaps and support ecosystem-based management efforts are strengthened.*

Emergent Wetlands Status and Trends Report

Alliance Action: Develop an Emergent Wetlands Status and Trends Report to provide scientists and decision makers with regional information to guide management decisions.

Action Steps:

1. Evaluate emergent wetland coverage changes over time using existing wetland habitat information for the Gulf region.
2. Coordinate the United States Geological Survey status and trends effort with EPA's National Assessment of Wetlands Condition and the Gulf of Mexico pilot assessment of coastal wetlands.
3. Produce an Emergent Wetlands Status and Trends Report with state-level synthesis chapters and a series of case studies.

Why?

Since 50 percent of the nation's wetlands are located in the Gulf, they are critical to the nation's productivity and economic sustainability. In addition, Gulf wetlands serve as protective barriers during storm events. However, emergent wetlands around the coastal fringe of the Gulf have seen a significant decline over the past several decades. A status and trends report for these wetland resources will support scientifically-sound recommendations for conservation and restoration.

EXPECTED RESULTS

✦ *Emergent wetlands in the Gulf region are tracked and better managed.*

✦ *A status and trends report for emergent wetlands in the Gulf is created and updated at regular intervals.*

Lacassine National Wildlife Refuge
Lake Arthur, LA
John Hollingsworth, USFWS

Ecosystem Services Valuation

Alliance Action: Determine socioeconomic values of critical coastal ecosystem services in the Gulf region.

Action Steps:

1. Inventory the range of ecological services provided by coastal resources in the Gulf region.
2. Determine the socioeconomic benefits these ecosystem services provide through pilot studies throughout the Gulf region.
3. Develop procedures and tools for resource managers to use the benefit valuations in their decision-making processes.

Why?

The true value of ecosystem services is often not considered in coastal management decisions because the socioeconomic values of those services are unknown. Since a sustainable economy and high quality of life are dependent on healthy coastal ecosystems, a better understanding of the socioeconomic value of natural systems can lead to improved and more responsible societal decisions.

EXPECTED RESULTS

✦ *The economic values of select Gulf resources are inventoried and documented.*

✦ *Economic values of ecosystem services are incorporated into coastal resource management decisions.*

Nutrients & Nutrient Impacts

Blue crab (*Callinectes spadius*)
Mobile Bay, AL
MBNEP

PRIORITIES FOR PRODUCTIVE MARINE ECOSYSTEMS

All living organisms depend on nutrients for survival. Nutrients are carried into estuaries and coastal waters through rain, groundwater, rivers, streams, waves, and tides. A balance of the right amounts and forms of nutrients is essential to maintaining healthy and productive Gulf ecosystems. Excess nutrients in our water bodies, however, can be detrimental to coastal ecosystems and can cause a decrease in the levels of oxygen available in the water. This condition is called hypoxia and it impacts fish and other aquatic organisms that depend on oxygen for survival and healthy life cycles. Some sources of excess nutrients are man-made and include polluted run-off from urban and agricultural sources, failing septic systems, and atmospheric deposition (nutrients deposited from the air).

The determination of healthy levels of nutrients is an important step toward reducing their impact, and providing vital management tools. Establishing nutrient criteria for coastal waters and estuaries could improve their quality and productivity, but the challenge is to eliminate only the excess nutrients while maintaining adequate levels to ensure ecosystem productivity. The Alliance is providing a collaborative approach to build and evaluate tools needed to reduce excess nutrients and restore coastal waters that have been negatively impacted by nutrients.

LONG-TERM GOALS

- ***Design a regional process for comparing nutrient criteria across coastal and estuarine waters***
- ***Develop and implement strategies that reduce nutrient inputs and hypoxia***
- ***Establish a comprehensive ecosystem approach to manage nutrient inputs and reduce impacts to coastal ecosystems***
- ***Increase the capacity of Gulf coastal communities so that nutrient impacts are better managed and reduced***

NUTRIENTS & NUTRIENT IMPACT FOCUS AREAS:

Nutrient Characterization
Nutrient Criteria Development
Hypoxia
Nutrient Reduction Strategies

Nutrient Characterization

Alliance Action: Implement regional nutrient characterization studies to evaluate ecosystem responses and to develop the tools for better characterization of nutrients in coastal waters.

Action Steps:

1. Conduct "Nutrient Sources, Fate, Transport, and Effects" studies within Gulf ecosystems.
2. Identify methods and data needed to estimate ecosystem and socioeconomic impacts of excess nutrients.
3. Identify and apply regional models to characterize sources, loads, ecosystem responses, and socioeconomic impacts of nutrients.
4. Recommend a strategy to improve monitoring data coverage for characterization of nutrient loads, trends, and impacts to coastal ecosystems in the Gulf.
5. Identify and develop environmental and biological indicators of nutrient impacts.
6. Increase the understanding of the role of coastal wetlands in nutrient dynamics.
7. Characterize the connectivity and contribution of adjacent, freshwater systems to Gulf watersheds using a regionally consistent methodology.

Why?

Before nutrients can be effectively managed, their roles and impacts within our Gulf ecosystems must be understood. In addition, nutrient characterization studies are necessary to improve the science used by water quality managers to address excess nutrients in coastal waters. Nutrient characterization studies will provide a better understanding of the sources and dynamics of nutrients and help establish the links between nutrients and the health of our coastal ecosystems. Leveraging resources and expertise to adequately characterize nutrients in coastal ecosystems assures a more consistent, efficient approach across the Gulf.

Future expectations....

EXPECTED RESULTS

- ***Nutrient impacts are adequately characterized to establish key ecological relationships, thresholds, and socioeconomic values for state-selected indicators.***
- ***Integrated models are designed and used to estimate nutrient loads, establish goals, and predict the ecological and socioeconomic impacts of management decisions for the Gulf States.***
- ***Improved science and management tools are employed to better understand how freshwater and wetland systems influence nutrient impacts.***

Sandhill Crane National Wildlife Refuge, Jackson County, MS
MS Department. of Marine Resources

Nutrient Criteria Development

EXPECTED RESULTS

- ***Milestones are established for state-specific Nutrient Criteria Development Plans for all Gulf States.***
- ***A consistent framework exists for the development of appropriate and protective coastal nutrient criteria.***
- ***Regional forums are organized for communication and resource sharing to address nutrient pollution to coastal ecosystems.***
- ***Nutrient criteria are established for at least one Gulf estuary.***

Alliance Action: Identify common state needs and priorities for the development of nutrient criteria and provide support and technical assistance to facilitate a regional approach to nutrient criteria development and management.

Action Steps:

1. Establish an aligned Gulf States approach for the development of coastal nutrient criteria.
2. Conduct an annual conference on coastal nutrient criteria development to enhance regional coordination.
3. Establish a technical workgroup to recommend appropriate biological assessment tools and nutrient-related thresholds for nutrient criteria development.
4. Develop a region-wide classification system for coastal waters and estuaries for use in nutrient criteria development and management.
5. Pilot the process for developing and evaluating nutrient criteria in at least one coastal estuary.

Why?

By working collaboratively, the Alliance is providing a forum to the States that encourages the establishment of a consistent and scientifically-defensible coastal nutrient criteria development process. The establishment of appropriate and protective nutrient criteria will, in turn, increase the productivity and economic viability of the Gulf region.

Hypoxia

EXPECTED RESULTS

- ***An integrated, regionally-comparable model that predicts hypoxia and its impacts is developed.***
- ***Watershed nutrient reduction plans are complete and include strategies for reducing Gulf hypoxia in state-selected priority watersheds.***
- ***Nutrient reduction plans for at least five project areas are developed.***
- ***A partnership between the Alliance and the Mississippi River/Gulf of Mexico Watershed Nutrient Task Force is formed to implement nutrient reduction and monitoring strategies within the Mississippi River Watershed.***

Alliance Action: Coordinate strategies and provide guidance to better characterize hypoxia and the resulting socioeconomic impacts.

Action Steps:

1. Develop a framework to monitor and characterize hypoxic events in estuaries and coastal waters and their impacts to critical habitats.
2. Coordinate resources and research to develop hypoxia reduction goals, thresholds, and reference sites or conditions.
3. Support the goals and actions of the Mississippi River/Gulf of Mexico Watershed Nutrient Task Force as identified in the Gulf Hypoxia Action Plan.
4. Participate in and promote the exchange of information and technology between the upper and lower Mississippi River Basin states and organizations.

Why?

More than 40 percent of the United States drains into the Gulf of Mexico; therefore, addressing hypoxia in the Gulf requires collaboration and effort at a national scale. On a watershed scale, it is important to encourage the development of watershed-specific nutrient reduction targets to minimize areas affected by hypoxia. The Alliance is and will continue to partner with the Mississippi River Watershed Nutrient Task Force to address the large hypoxic zone off the Louisiana and Texas coasts.

Nutrient Reduction Strategies

Alliance Action: Develop management tools and implement nutrient reduction activities in cooperation with local communities to reduce excess nutrient inputs to estuaries and coastal waters.

Action Steps:

1. Develop outreach materials to be distributed through the Alliance's Environmental Education Network.
2. Develop and distribute a decision support toolbox for decision makers.
3. Increase partnerships throughout the Gulf of Mexico Watershed to identify significant sources of nutrients and opportunities for reductions, increase the implementation of best management practices, and pilot innovative nutrient reduction technologies.
4. Regionally prioritize sources of nutrient loads to identify reduction trends and opportunities.
5. Develop a nutrient reduction strategy template that can be applied to Gulf watersheds.
6. Implement and evaluate a nutrient reduction strategy in a Gulf watershed.

Why?

Excess nutrients impact ecosystem health and reduce the economic benefit and human use for coastal communities along the Gulf Coast. With the Gulf States working collaboratively to characterize nutrients and their impacts, establish coastal nutrient criteria, and increase public awareness of Gulf hypoxia, this is a perfect opportunity to implement actions to reduce excessive nutrient inputs to Gulf waters.

EXPECTED RESULTS

- ***Awareness of the ecological and socioeconomic impacts of nutrient pollution and prevention is significantly enhanced.***
- ***There is an increase in access to information documenting nutrient reduction progress for Gulf States and partners.***
- ***A nutrient reduction strategy template is developed that can be applied to Gulf of Mexico watersheds.***
- ***Additional partnerships with upstream states are formed.***

Mangrove Creek, FL
Florida Keys National Marine Sanctuary
Amy Massey

Corpus Christi, TX
Jeanne Allen, GMPO

PRIORITIES FOR RESILIENT COASTAL COMMUNITIES

The coast of the Gulf of Mexico has attracted and supported human settlement for over 12,000 years. From the beginning, these settlements have faced and adapted to challenges of living along the coast. Economics and aesthetics were responsible for the growth of coastal populations and fostered the persistence and resettlement of these communities after fire, war, famine, disease, and storms. The economic, ecological, and social losses from coastal hazard events have multiplied as development and population growth increasingly place people in harm's way and as the ecosystems' natural resilience is compromised by development and pollution. These pressures continue to shape the Gulf Coast today. In addition, the latest climate change research suggests that new challenges are on the horizon from sea level rise and other impacts.

Resilience is the capacity of human and natural/physical systems to adapt to and recover from change. To continue to enjoy living and receiving the benefits these coastal areas have to offer, there is a need to make the natural, built, and social environments more resilient. Enhancing resilience requires adjustments to day-to-day living, as well as adjustments to processes of long-term settlement and development of coastal areas. Louisiana's Comprehensive Master Plan for a Sustainable Coast captures this need for change, stating that "...wiser land use practices must govern the way we live in this dynamic landscape if we are to create safe communities that thrive over the long-term." Building resilience is an economic imperative for the Gulf region – individuals, businesses, communities, and ecosystems all need to be more resilient in order to sustain and grow the region's economic prosperity.

LONG-TERM GOALS

- *Provide enhancements for coastal communities, ecosystems, and economies to become more resilient to coastal hazards*
- *Increase the understanding of coastal hazards risks associated with living, working, and doing business in the Gulf region by residents and visitors*
- *Incorporate state-of-the-art mitigation methods for reducing risks and enhancing resilience*
- *Encourage growing numbers of communities, businesses, and individuals to adopt new methods for risk mitigation and resilience*

COASTAL COMMUNITY RESILIENCE FOCUS AREAS:

Risk and Resilience Assessment
Risk and Resilience Management Toolbox
Risk and Resilience Communication

Risk and Resilience Assessment

Alliance Action: Provide tools to coastal communities to better understand the risks and impacts associated with coastal hazards, including climate changes. In addition, the Alliance will assess the risks of coastal hazards to the natural, built, and social environments of the Gulf Coast and increase infrastructure to better quantify these risks in the future.

Action Steps:

1. Produce and implement a Master Plan to enhance the region-wide observing system and enable the measurement of millimeter-scale changes in land elevations and water levels over the long term.
2. Develop a data platform that includes existing coastal hazard information as well as global climate change-related variables as they relate to coastal habitats, communities, and weather variables.
3. Conduct a social climate survey to explore the public's understanding of coastal hazards and resilience in order to improve the effectiveness of future outreach and education efforts.
4. Assess risks to natural and built environments and identify models that assess both the economic and environmental consequences associated with coastal hazards and climate changes.
5. Assess risks to social environments and develop cultural and heritage projects to demonstrate the connections between healthy ecosystems and healthy social communities.

Future expectations....

EXPECTED RESULTS

✦ *Twenty coastal communities have used a Resilience Index to self-assess their vulnerabilities and track progress towards greater resilience.*

✦ *A region-wide geospatial infrastructure is designed to obtain baseline data for monitoring local sea level rise trends.*

✦ *Twenty coastal counties have participated in a Resilience Social Climate Survey measuring trends in public knowledge and acceptance of community resilience.*

✦ *Wetlands dynamics models are being used to demonstrate the ecological impacts of projected sea level rise on estuarine systems.*

✦ *An initial assessment of Gulf-wide risks and resilience of natural, built, and social environments is assisting planners to incorporate a better understanding of risk into the determination of appropriate land use.*

Hooded pitcher plants (*Sarracenia minor*) Gautier, MS
Donna Dewhurst, USFWS

Bear Point Marina
Gulf Shores, AL
Laura Bowie

EXPECTED RESULTS

✦ *A risk and resilience-related management toolbox is being used by individuals, businesses, and communities.*

✦ *Local coastal communities have implemented recommendations for enhancements to existing resilience policies.*

✦ *Coastal marinas have adopted more resilient and environmentally responsible operations and volunteered to become certified as Clean/ Sustainable Marinas.*

Why?

Assessing coastal hazards will lead to better protection of the lives and property of coastal residents and will contribute to a more sustainable economy. To empower coastal communities to become more resilient, it is critical to increase our understanding of the risks to the natural, built, and social environments in the Gulf of Mexico.

Risk and Resilience Management Toolbox

Alliance Action: Prepare an inventory of existing capabilities and tools to address coastal hazards in the Gulf region, identify important gaps, and, where needed, develop new methods to enhance regional and local resilience.

Action Steps:

1. Promote the concept of resilience by developing a Resilience Index which will serve as a self-assessment tool for coastal communities helping them identify their vulnerabilities and strengths.
2. Compile and maintain an inventory of existing resilience-related data, projects, tools, and policies from across the Gulf region.
3. Create and package planning and mitigation tools for use in management at the local and state levels.
4. Research existing policies guiding coastal development and make recommendations to enhance resilience.
5. Promote the expansion of resilient and environmentally responsible operations and best management practices at marinas.

Why?

Communities are sometimes unaware of resources available to manage risk and improve resilience. By sharing and perfecting existing tools and best practices, communities can maximize available dollars to implement necessary changes.

Risk and Resilience Communication

Alliance Action: Inform communities about the risks associated with coastal hazards and provide access to the tools necessary to increase their resilience.

Action Steps:

1. Develop state-specific guidebooks/handbooks/outreach materials to help local decision makers and citizens prepare for coastal hazards.
2. Develop an online Resilience Clearinghouse / Web portal ensuring that resilience-related information and tools are available to the public.
3. Share the results of sea level rise modeling work performed in the Gulf via the clearinghouse and other mechanisms, and exchange information with efforts around the country related to sea level rise and other climate change impacts.
4. Conduct workshops to promote proactive resilience and mitigation measures and to improve coordination between emergency managers, floodplain managers, natural resource managers, land use planners, and county officials.

Why?

Ensuring that risks of coastal hazards and mitigation tools are communicated at the local level will empower coastal communities to become more resilient.

Live oak *(Quercus virginiana)*
Aransas, TX
Ben Mieremet

EXPECTED RESULTS

✦ *State-specific resilience guidebooks/handbooks have been developed and distributed to more than 50 percent of local coastal communities.*

✦ *An online Resilience Clearinghouse/Web portal is available to all residents of and visitors to the Gulf region.*

✦ *Sea level rise modeling results from the Gulf region are available via the Clearinghouse/Web portal, and information is being exchanged with other efforts around the country, thereby resulting in partnerships with Mexico and other nations bordering the Gulf.*

✦ *Twenty resilience training workshops have been conducted across the Gulf States.*

✦ *Resilience information and tools are available to all Gulf residents using a variety of communication methods.*

Environmental Education

Audubon Aquarium of the Americas
New Orleans, LA
Jeanne Allen, GMPO

PRIORITIES FOR ENSURING ENVIRONMENTAL LITERACY

The importance of the Gulf of Mexico's influence on climate, health, and the economy reaches beyond the 31 states and two Canadian provinces that are within its watershed. With this influence comes an opportunity to provide educational programs to improve the nation's understanding and appreciation of the Gulf and its abundant natural and living resources.
To capitalize on this opportunity, the Alliance's environmental education efforts include formal and informal educational opportunities, professional development, communication, and actions which reach an extensive audience who reflect the phrase "K to Gray." Programs such as the Coastal Ecosystem Learning Centers, National Estuary Programs, National Estuarine Research Reserves, National Sea Grant College Programs, Gulf of Mexico Coastal Ocean Observing System, and National Marine Sanctuaries have interaction with over four million people each year, fostering stewardship through various outreach programs. Through these and other programs, the Alliance is committed to providing environmental education that includes local cultural and economic values with the belief that education will encourage action toward a healthier Gulf.

LONG-TERM GOALS

- *Continue implementing environmental literacy with a focus on the Gulf*
- *Promote stewardship of the Gulf region*

ENVIRONMENTAL EDUCATION FOCUS AREAS:

Community Education and Outreach
Public Awareness
K through 20 Environmental Literacy
Economic Value Communication

Community Education and Outreach

Alliance Action: Increase awareness and promote action among Gulf citizens by engaging in educational and outreach activities.

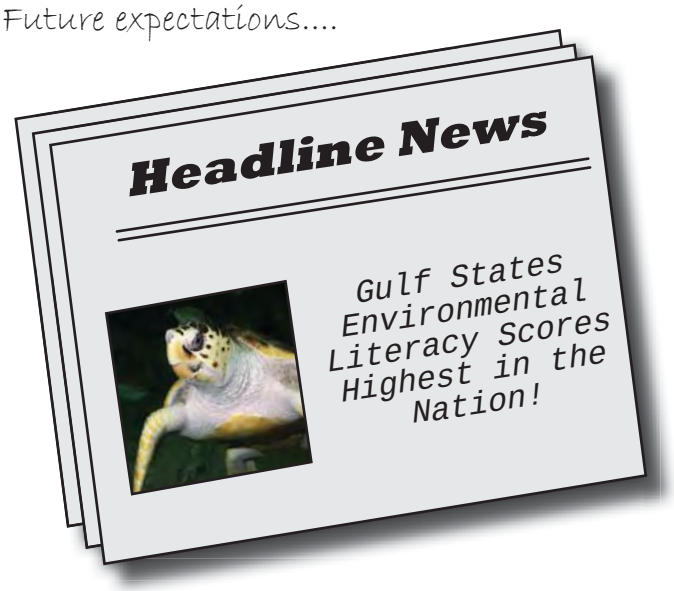
Action Steps:

1. Galvanize professional partners through workshops and community involvement sessions that identify effective strategies to address issues of concern.
2. Maintain, support, and expand the Alliance online digital library and Web site to increase access to educational materials and network opportunities.
3. Create and promote adult environmental education opportunities through coordinated, non-traditional partnerships with civic organizations.

Why?

Education experts have learned that being aware and informed does not always translate into action. Engaging local audiences in issues that directly affect them will strengthen the foundation for attitudinal, and subsequently, behavioral changes, thereby positively affecting Gulf-wide environmental stewardship. This increased participation will be a strong vehicle for improving the health of the Gulf, as well as the economy of the nation as a whole.

Future expectations....



EXPECTED RESULTS

✦ *Expanded partnerships with organizations incorporating outreach activities across the Gulf is routinely occurring.*

✦ *On-the-ground outreach and education projects are developed and implemented to better engage the public.*

✦ *Access to volunteer/service-learning opportunities through organizations such as Coastal Ecosystem Learning Centers is significantly increased.*

Tree planting on Turkey Creek
Gulfport, MS
Land Trust for the MS Coastal Plain

EXPECTED RESULTS

✦ *The Alliance is more widely recognized by Gulf residents and visitors.*

✦ *Regional messages for all Alliance priority issues are disseminated to reach regional and upstream watershed audiences.*

✦ *Opportunities abound for active participation in initiatives that promote a healthy Gulf in coastal and upstream watershed areas.*

✦ *Environmental messages are disseminated through multiple media outlets including informal education centers (museums, aquariums, libraries, and science centers).*

Public Awareness

Alliance Action: Expand public awareness efforts to connect the Gulf and its relevance to the lives of citizens.

Action Steps:

1. Create public awareness and stewardship opportunities for regional audiences as well as those not previously targeted, including those within the Gulf watershed.
2. Develop, launch, and evaluate the pilot Community Based Social Marketing (CBSM) campaign.
3. Use and evaluate CBSM strategy to include additional Alliance priority issues and reach non-traditional and watershed audiences using creative methods that address their values and interests.

Why?

Streamlining outreach in the Gulf under one brand will provide consistency and recognition of the message delivered to the region and the nation. In turn, consistent and timely messages will promote initiatives for a healthy Gulf, ultimately resulting in more hazard-resilient and sustainable coastal communities.

EXPECTED RESULTS

✦ *Hands-on learning opportunities are expanded across all grade levels.*

✦ *Programs and field experiences are aligned with state standards and environmental literacy principles.*

✦ *Programs targeted toward under-represented and underserved populations are expanded.*

✦ *Professional development and training opportunities utilizing best practices are significantly increased.*

K through 20 Environmental Literacy

Alliance Action: Increase environmental literacy within the K through 20 audience by developing, implementing, expanding, and enhancing specific environmental education programs.

Action Steps:

1. Increase hands-on learning opportunities through formal and informal education programs and projects.
2. Continue to implement environmental education programs targeted toward under-represented and underserved populations.
3. Provide professional development and/or teacher preparation programs that emphasize various data collection and communication technologies.
4. Monitor emerging trends in state and national environmental education legislation and support state activities to implement changes to enhance environmental education in the Gulf region.

Why?

By providing hands-on learning opportunities across the region, educators and students will benefit from an enhanced understanding of the connection between the environment and public health. Enhanced knowledge in science education should result in increased numbers of individuals pursuing science, technology, engineering, and math as future careers, thereby strengthening regional workforce development.

Economic Value Communication

Alliance Action: Include the economic value of Gulf ecosystems in environmental education.

Action Steps:

1. Compile information on public and private economic benefits from conservation and stewardship efforts of Gulf resources.
2. Work with regional partners to add economic resources to the existing education online digital library and develop a strategy to communicate that information broadly.

Why?

A better understanding of the true value of the environmental services generated by the region's natural systems will create more support for educational programs that help protect those natural systems.

Bi-National Taxonomy Workshop
Veracruz, Mexico
Jeanne Allen, GMPO

EXPECTED RESULTS

✦ *Local, regional, and national environmental education and public awareness initiatives incorporate the economic value of the Gulf and its ecosystems.*

✦ *A Teacher's Guide on the economic benefits of the Gulf is available and formatted for ease of use for various audiences.*

✦ *An online digital library includes the economic value of Gulf natural resources.*

Gulf Shores, AL
Kim Caviness, MDEQ

PRIORITIES FOR THE FUTURE....

The Alliance is committed to a Gulf of Mexico region that includes healthy beaches and seafood, sustainable natural communities, productive marine ecosystems, and resilient coastal communities. This vision is shared not only by the five Gulf States, but also by vital federal agencies, businesses, and non-governmental organizations. Accomplishing the goals of the *2006 Action Plan* proved that stakeholders can form productive partnerships to identify important goals for the Gulf region. *Action Plan II* provides a road map to achieve these goals. They are within reach, but only if all stakeholders are informed and active in furthering these goals. Education and outreach are necessary on all levels so that agencies, businesses, residents and visitors know the value of the natural and living resources of the Gulf and incorporate it into their daily lives. Achieving the goals of *Action Plan II* will take a coordinated effort to review current practices, actions, and policies along with a willingness to revise those that pose as obstacles to change. Currently, the Alliance is poised to do just that... and with the help of existing stakeholders, new partners and a fresh agenda, a healthy and resilient Gulf region is within our grasp.

Public Involvement

This *Action Plan II* contains a set of goals designed to create a healthier Gulf of Mexico. Public involvement will assure that these goals are appropriate and that they will be met. Since *Action Plan II* is designed to be a flexible document, with the ability to react to unforeseen challenges and opportunities, the Alliance hopes that the public will help to identify issues and concerns along the way. Public involvement will also provide perspective on the awareness about the importance of a healthy Gulf, as well as identify successful programs and partnerships that can support Alliance efforts. The Alliance is committed to creating opportunities for the public to be continually engaged on all levels and seeks active participation with the priority areas of concern.

For more information and general federal or state contacts, visit *http://www.gulfofmexicoalliance.org.*

In 2008, the Alliance lost two Resilience Team members who were instrumental in furthering the goal of a sustainable Gulf region. The work Dr. Rod Emmer and Mr. Ralph Rayburn initiated will be continued but their presence will be missed.

In Memoriam

Dr. Rod Emmer

With Dr. Rod Emmer's passing, Louisiana Sea Grant and the Gulf region lost a great resource of knowledge and experience in the fields of floodplain management, hazard mitigation, geography, and culture. As a founding member and co-chair of the Coastal Community Resilience Team, Rod urged the team to produce tangible products and initiated the development of the Resilience Index for communities, which is now being pilot-tested.

Mr. Ralph Rayburn

The late Ralph Rayburn, Texas Sea Grant Extension Program's beloved and much respected leader, dedicated his career to understanding and protecting the nation's marine resources. His work touched thousands of lives through the research, conservation, and education initiatives that he developed. As a member of the Coastal Community Resilience Team, Ralph was a strong voice for on-the-ground progress, rallying the group to address the root causes of vulnerability.

OPPORTUNITIES FOR INVOLVEMENT

- *Public forms identified for the six priority areas*
- *Electronic communication opportunities available through the Alliance Web site*
- *Community-based surveys*
- *Local habitat restoration events*

State Agencies

AL Department of Conservation and Natural Resources
AL Department of Environmental Management
AL Department of Public Health
FL Department of Environmental Protection
FL Fish and Wildlife Conservation Commission
LA Department of Education
LA Department of Environmental Quality
LA Department of Natural Resources
LA Department of Wildlife and Fisheries
LA Office of Coastal Restoration and Management
MS Department of Environmental Quality
MS Department of Marine Resources
TX Commission on Environmental Quality
TX General Land Office
TX Parks and Wildlife Department

Federal Agencies

Council on Environmental Quality
National Aeronautics and Space Administration
National Science Foundation
U.S. Army Corps of Engineers
U.S. Department of Agriculture
U.S. Department of Commerce, NOAA
U.S. Department of Defense
U.S. Department of Energy
U.S. Department of the Interior
U.S. Department of Health and Human Services
U.S. Department of State
U.S. Department of Transportation
U.S. Environmental Protection Agency

http://www.gulfofmexicoalliance.org