

Draft Vision for Gulf Coast Recovery, Restoration, and Protection

The Mississippi Gulf of Mexico Commission



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Vision Statement

The vision for the Mississippi Gulf Coast is a region that is attractive to our residents, visitors, and industry, and is vital to our nation's well-being. Our environment is thriving, managed for sustainable growth, resilient, and supports the full complement of biological diversity native to the Gulf of Mexico. Our infrastructure is modern, robust, and capable of attracting and sustaining industry, as well as our residents. We are a key center for international and domestic trade, as well as home to vital national security institutions and enablers. Our communities are the destination of choice to live, work, and play.

Overview

In accordance with a recent Presidential directive, Secretary of the Navy Ray Mabus was charged with the development of a Gulf-wide coastal restoration effort. To that end, Secretary Mabus has asked the respective Gulf coastal states to prepare a coastal restoration program for his consideration in development of that Gulf-wide plan. Mississippi Governor Haley Barbour has charged the Mississippi Gulf of Mexico Commission [MSGOMC] with drafting the framework for this plan as it specifically pertains to Mississippi.

This framework includes the development of a long-term, comprehensive vision for the future of the Mississippi Gulf Coast Region. The MSGOMC is comprised of local elected officials, business leaders, and members of the scientific, research, and education communities. This Commission represents an unprecedented opportunity to positively impact the Gulf Coast for decades to come – environmentally, economically, and socially. Implementation of this plan will be based on sound science-based information, and will be used to develop a Plan that is sustainable and supported by our stakeholder communities. The resulting *Plan* is expected to serve as a broad and holistic tool that will provide a framework for achieving the identified goals developed by the Commission. Thus, the Commission's *Plan* will be comprehensive policy and program-focused, specific to achieving broad long-term sustainable objectives, and may not necessarily identify specific individual projects.



Once developed, the Commission's *Plan* will serve a number of purposes. Among these, it will be presented to Secretary Mabus who has been charged by the President for restoration of the Gulf of Mexico following the oil spill. Also, and more important to the region long-term, the *Plan* will serve as a

comprehensive roadmap for the implementation of major economic and environmental restoration, and coastal protection initiatives, among others.

Ultimately, the purpose of this Commission and the development of its *Plan* is to enable the evolution of a comprehensive, long-term, sustainable vision that ensures a healthy and prosperous Mississippi Gulf Coast – a region that is economically vibrant, socially responsible, and environmentally sustainable.

Existing and On-going Programs

Mississippi Coastal Improvement Program (MSCIP)

The MSCIP is a \$1.4 billion comprehensive program for coastal Mississippi consisting of structural, non-structural, and environmental project elements. These elements are intended to address hurricane and storm damage reduction, salt water intrusion, shoreline erosion, and fish and wildlife preservation. The MSCIP is structured in three phases, the first of which is to address the most urgent storm protection and restoration priorities to include restoration of the barrier islands and other identified interim needs. Phases Two and Three of MSCIP consist of identified potential projects that are recommended for further study and intended for possible implementation over a 30-40 year period.



Approximately \$550 million has been appropriated by Congress to address identified Interim Projects and barrier island restoration. Thus far, these funds have required no state matching requirements due to the fact that the program is related to storm recovery. Mississippi hopes to receive the balance of funding over the next two funding cycles with no cost share requirement.

Gulf of Mexico Energy Security Act of 2006 (GOMESA)

The Gulf of Mexico Energy Security Act (GOMESA), passed in 2006, established a program to create a dedicated funding stream for coastal restoration and protection activities for those Gulf states which permit Outer Continental Shelf (OCS) exploration. Specifically, GOMESA funds may be utilized for five authorized purposes:

1. Coastal protection and restoration activities;
2. Mitigation of natural resource/habitat damage;
3. Implementation of Federally-approved marine, coastal, and conservation management plans;
4. Mitigation of damage resulting from OCS activities; and
5. Associated planning and administrative costs (not to exceed 3% of shared revenues).

Through this dedicated funding stream, an excellent opportunity is presented to the State of Mississippi to develop and implement a long-term comprehensive Master Plan for coastal protection, restoration, economic development, and improved quality of life. Earlier projections suggested Mississippi may receive up to \$20 billion over the 50 year life of the program. Between 2006 and 2017, however, funding is limited due to the restricted sharing of revenues with the states during this period. The potential for this program to make real impacts to the State is incredible, as long as a well-developed plan for the use of the funds is put into action.

Gulf of Mexico Alliance (GOMA)

GOMA was formed in 2004 by the five Gulf States and various federal partners as a result of a shared vision for a healthy and resilient Gulf of Mexico. GOMA is currently implementing the *Governors' Action Plan II*, a five year regional plan to improve the health of coastal ecosystems and economies of the Gulf. *Action Plan II, 2009-2014* is a strategy for tangible results in the following priority areas:

Water Quality for Healthy Beaches and Seafood

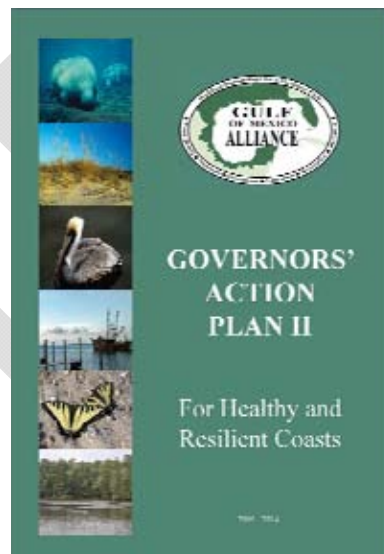
Habitat Conservation and Restoration

Ecosystems Integration and Assessment

Reducing Nutrient Impacts to Coastal Ecosystems

Coastal Community Resilience

Environmental Education



Continuous funding support is needed for GOMA thru NOAA, DOI, NASA, EPA, USACE and other sources to support implementation of these priorities.

Stennis Space Center (SSC)

SSC has been involved in working key scientific issues in the Gulf for decades. NASA's Gulf of Mexico Initiative is headquartered at SSC and focuses on addressing key issues in the Gulf including habitat restoration, wetlands loss, and water quality. Over 350 scientists from around the country are engaged in supporting this effort with a project portfolio valued at \$18M. In addition, the Commander, Naval Meteorology and Oceanography Command, the Naval Research Laboratory, and the Naval Oceanographic Office are also located at the Center. The largest concentration of oceanographers in the world resides at SSC. SSC hosts several NOAA functions, including the National Data Buoy Center, the National Coastal Data Development Center, and the Northern Gulf Institute (NGI), a NOAA cooperative institute, all currently engaged in either operational or research efforts in the Gulf. EPA's Gulf of Mexico Program is also located at the Center with efforts directed at maintaining and restoring the health and productivity of the Gulf. In addition, the USGS also has a presence at SSC and has been providing input to the Mississippi and Louisiana coastal restoration plans. EPA, NOAA, DOI, and NASA serve as federal co-leads for the Gulf of Mexico Alliance (GOMA).

Gulf of Mexico Research Plan (GMRP)

The Gulf of Mexico Research Plan (GMRP) is intended to identify priority research needs for the Gulf of Mexico through broad constituent input and to implement strategies to address those needs. Working under the leadership of the National Oceanic and Atmospheric Administration (NOAA) National Sea Grant College Program, the plan identified the following five research priorities for the Gulf Coast:

- Ecosystem Health Indicators
- Freshwater Input and Hydrology
- Habitats and Living Resources
- Sea Level Change, Subsidence and Storm Surge
- Water Quality and Nutrients



Integration of research products from the GMRP will improve the efficiency and effectiveness of data collection and analysis associated with the Plan development and execution.

Institutions of Higher Learning (IHL) Research & Development

“Mississippi universities employ some of the best minds in the world. By working together within our system, and with other higher education systems in affected states, we can help find practical solutions to the problems that could follow this devastating oil spill,” Commissioner of Higher Education Dr. Hank Bounds said.

Scientists, researchers and others teaching and working at the state’s four public research institutions have banded together to create the Mississippi Research Consortium Deepwater Horizon Response Team (DHRT). The group is assisting other federal, state and private agencies in monitoring and mitigating the oil spill off the Mississippi and Louisiana Coasts.



The DHRT’s current capabilities and efforts include:

- Observing and forecasting the coastal movement and impact of the spill;
- Environmental monitoring of water quality, marine life and fisheries;
- Analyzing impacts at the spill site;
- Analyzing impacts to human and wildlife health;
- Analyzing the socio-ecological and socio-economic impacts of oil on coastal communities;
- Filming and documenting the development of events; and
- Coordinating community education and outreach.

Shortly after the spill, the University of Southern Mississippi (USM) established the Oil Spill Response Team, which includes scientists, faculty, staff and students from the Gulf Coast Research Laboratory, Stennis Space Center, and the Gulf Park and Hattiesburg campuses.

The Mississippi Research Consortium (MRC), formed by the four Mississippi research universities (JSU, MSU, UM and USM) in 1986, created the DHRT shortly after Southern Miss established its team in order to coordinate the response to the spill across the system. The DHRT is comprised of two representatives from each research university.

UM and USM are already a part of the National Institute for Undersea Science and Technology (NIUST), which is conducting a study of the impact at the spill site. The lack of information about existing activities could likely result in an unnecessary duplication of effort, so there is a desperate need for an inventory of baseline data, as well as, efforts to coordinate and fill gaps in data sets. IHL can help establish standardized sample collection and research protocols to ensure scientific integrity.

Mississippi State University Extension Service personnel are working closely with marine fishing and other coastal industries to help minimize economic and environmental impacts on businesses and communities, as well as providing educational programs to help coastal residents deal with the stress associated with the oil spill, including sudden and continuing loss of income.

The Northern Gulf Institute

The Northern Gulf Institute (NGI) is a cooperative institute led by Mississippi State University, partnering with the University of Southern Mississippi, Louisiana State University, Florida State University, and the Dauphin Island Sea Lab (AL), whose combined interrelated expertise is ideally suited to fulfill the NOAA Cooperative Institute program requirements. Research themes are aligned with NOAA, GOMA, and the Gulf of Mexico Research Plan. NGI was one of four institutes in the Gulf region funded for immediate research needs in response to the Deepwater Horizon incident, and has provided funding to all four MRC institutions through these funds.



NGI conducts high-impact research and education programs in the Northern Gulf of Mexico region focused on integration - integration of the land-coast-ocean-atmosphere continuum; integration of research to operations; and integration of individual organizational strengths into a holistic program. The program measurably contributes to the recovery and future health, safety, resilience and productivity of the region, through sustained research and applications in a geospatial and ecosystem context.

The Mississippi-Alabama Sea Grant Consortium (MASGC)

The Mississippi-Alabama Sea Grant Consortium was established in 1972. MASGC is a federal-state partnership funded through NOAA and 9 research institutions in Mississippi and Alabama. MASGC focuses its competitive research program and integrated extension, outreach, and education programs in four focus areas, including Safe and Sustainable Seafood Supply, Healthy Coastal Ecosystems, Sustainable Coastal Development and Hazard Resilient Coastal Communities. MASGC has supported over \$50 million in research and outreach since its creation and also partners with the three other Gulf of Mexico Sea Grant programs to annually fund regional competitive research programs in one of its four focus areas. The 2010/2011 program has brought together the EPA Gulf of Mexico Program and the Northern Gulf Institute as funding partners. Sea Grant manages other competitive grant programs including the NOAA's Coastal Storms Program and NOAA's Restoration Center.

In response to the need to catalog oil spill research, a research database has been developed by the NOAA National Data Development Center and the Gulf of Mexico Sea Grant Programs. This database serves as a single location to upload and access information about research and monitoring activities related to the Deepwater Horizon oil spill. The database contains brief descriptions of activities but not raw data.

The Nature Conservancy (TNC)

Since 1951, The Nature Conservancy has been working in partnership with local communities, government agencies and private businesses to protect the natural landscapes that harbor the diversity of plant and animal life on Earth. They address the most pressing conservation threats at the largest scale. Thanks to the support of our more than 1 million members, they have built a tremendous record of success since their founding in 1951:

- They have protected more than 119 million acres of land and 5,000 miles of rivers worldwide, including over 300,000 acres in Mississippi — and operate more than 100 marine conservation projects globally.
- They work in all 50 states and more than 30 countries — protecting habitats from grasslands to coral reefs, from Australia to Alaska to Zambia.
- They address threats to conservation involving potential climate change, fresh water, oceans, and conservation lands.



The Nature Conservancy has developed a Three-Strand Restoration Strategy in *Gulf 20/20 Case for Long-Term Restoration* in July, 2010:

- First - Restore Key Bays and Estuaries
- Second - Ensure oil and gas development is carried out in a safe and sustainable manner
- Third - Invest in science and technology to inform decision-making and restoration plans for the Gulf of Mexico

Oil Pollution Act of 1990 (OPA)

The goal of the Natural Resource Damage Assessment (NRDA) under OPA is to make the public whole for natural resources (e.g., fish, wildlife, biota, air, water, land) that are injured and for the public's loss of the use of those resources that are damaged or impaired following a discharge of oil into the environment. Making the public whole is achieved by returning injured natural resources to their pre-spill condition and providing compensation to the public for the loss of use from the time of the spill through the recovery period. This reparation is typically achieved through the restoration, rehabilitation, or replacement of the damaged resources or acquisition of equivalent resources and /or services and providing monetary compensation for loss of use. NRDA costs or damages are based upon the cost of restoring, rehabilitating, replacing, or acquiring the equivalent of the damaged natural resources; the loss in value of those natural resources pending restoration; plus the reasonable costs of assessing those damages.



Key Elements of NRDA:

- The Role of the Trustees (federal and state)
- Baseline Sampling and Relevant Science
- Determination and Quantification of Injury
- Community Involvement
- Restoration Selection
- Restoration Implementation

National Ocean Policy (NOP)

President Barack Obama has established a national ocean policy that will for the first time create a coordinated system for managing America's oceans, coasts and Great Lakes. In an Executive Order issued Monday, July 19, 2010, President Obama adopted the final recommendations of the Interagency

Ocean Policy Task Force that has been gathering facts and drafting the policy since June 2009. The order creates a National Ocean Council to implement the new policy.

Marine management under this policy will be "ecosystem-based," which means that regulation of specific activities, such as oil and gas development, will take into account impacts on the broader ecosystems that could be affected. Provisions for the development of coastal and marine spatial plans will build upon and improve existing federal, state, tribal, local, and regional decision making and planning processes. Marine spatial planning is intended to protect ocean ecosystems and minimize conflicts between new and existing ocean uses through science-based decision making and the involvement of stakeholders and the public.

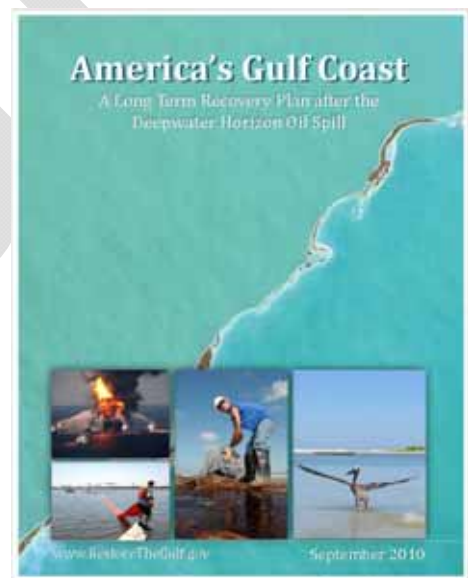
The new national policy provides a clear road map for all federal agencies to work together, with local partners, to protect our vital waters for future generations. Regional plans will enable a more integrated, comprehensive, ecosystem-based, flexible, and proactive approach to planning and managing sustainable multiple uses across sectors and improve the conservation of the ocean, our coasts, and the Great Lakes.

America's Gulf Coast: A Long-Term Recovery Plan after the Deepwater Horizon Oil Spill

In June, 2010 by Presidential directive, Secretary of the Navy Ray Mabus was charged with the development of a Gulf wide coastal restoration effort to help the Gulf Coast and its people recover from the Deepwater Horizon Oil Spill, and to make a commitment to the Gulf that would go beyond the crisis of the moment. To that end, Secretary Mabus produced a plan in September, 2010, ***America's Gulf Coast: A Long-Term Recovery Plan after the Deepwater Horizon Oil Spill***, with input from Mississippi and the Mississippi Gulf of Mexico Commission [MSGOMC].

This plan focuses on the three central requirements for recovery in the Gulf Coast: the environment; the economy; and health and human services. The plan encompasses five topic areas critical to the long-term recovery of the Gulf region:

- Proposal to Congress to dedicate Clean Water Act civil penalties to the Gulf Coast
- Long-term Ecosystem Restoration
- Health and Human Services Recovery
- Economic Recovery
- Non-profit Sector Recovery



Background

The Mississippi Gulf Coast is a unique region, shaped by a myriad of drivers. Economic, social and environmental impacts have determined the condition and makeup of the coast, with the region transformed in some way by each influence. The economy of the Gulf Coast is shaped heavily by three industries: Seafood, Tourism, and Oil and Gas. Each of these industries relies on an abundance of natural resources for their viability. Commercial fishing and seafood processing is a natural extension of life in a coastal area. Hundreds of fishing boats make their home in Mississippi ports, and the seafood they catch and collect generates thousands of business opportunities. Tourism is also driven in part by the seafood industry, as recreational fishing opportunities bring many visitors to ply the Mississippi gulf waters. The state has attracted visitors through a robust gaming industry, combined with coastal beaches, golf courses and other recreational and cultural venues. Off-shore oil and gas exploration and development further boost the area's economy. Providing experienced off-shore workers, necessary logistical support, and industrial capacity to generate that support are all important sources of fuel for the coast's economic engine.



Multiple events have shaped the coastal environment, changing its topography, altering its visible bottom-dwelling invertebrates, and modifying its habitats and resources. In August 1969 Hurricane Camille made landfall in Harrison County devastating coastal Mississippi with significant economic damage and loss of life. This powerful storm eroded the barrier islands off shore, and cut Ship Island into two separate islands. In addition to its immediate impacts, it increased the coast's susceptibility to future storm events. This increased susceptibility manifest itself in August 2005 when Hurricane Katrina made land fall along the Louisiana-Mississippi state line. The accompanying storm surge wreaked havoc on the area, destroying homes, businesses, and coastal habitat. The storm further impacted the barrier islands and coastal marsh areas, potentially jeopardizing the future of communities on the coast. Most recently, in April 2010, the Deepwater Horizon exploded and sank 108 miles off of Mississippi's shoreline, killing 11 workers and leading to the worst oil spill in U.S. history.

Goals and Objectives

The economy and quality of life for citizens of the Gulf Coast are linked to its ecological health. Priority areas related to improving Gulf ecosystems and economies include: coastal community resilience to storms, disasters, and impacts of sea level rise; improving the quality of beaches; insuring the safety of the seafood that we eat; increasing critical habitat; and providing comprehensive education and research for the Gulf Coast and its residents. A summary of MSGOMC goals and objectives are presented below:

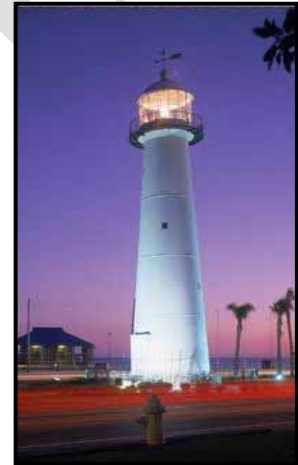
Promote a Healthy and Resilient Gulf Coast Ecosystem

- Implement Early Restoration Projects (NRDA & MSCIP)
- Hurricane/Storm Surge Protection
- Saltwater/Ecosystem Protection
- Habitat Creation and Restoration
- Mitigation of the Impacts of Potential Climate Change
- Water Quality Improvement
- Air Quality Improvement
- Encourage Environmental Education and Community Involvement
- Coastal and Marine Spatial Planning



Promote a Healthy and Resilient Gulf Coast Economy

- Promote Sustainable Economic Development
- Intermodal Transportation Network Development
- Infrastructure to support sustainable development
- Seafood Safety/Industry Sustainment
- Tourism Destination of Choice
- IHL Research and Development
- Jobs Retention, Jobs Creation, and Develop Quality Workforce
- Implement long-term and sustainable mental health care programs
- Homeland and National Security Initiatives and Programs



More specific information regarding each of the goals and objectives follows.

Promote a Healthy and Resilient Gulf Coast Ecosystem

Implement Early Restoration Projects

The state has identified and advanced several early coastal restoration projects for implementation to promote recovery and resiliency from natural and manmade disasters. These projects are “ready-to-go” and should be implemented as soon as funding is available from NRDA and MSCIP sources.

Hurricane/Storm Surge Protection

Identify measures to minimize risk to loss of life, safety, and property caused by hurricane and storm surge. Implement cost effective measures to reduce the risk of damages from hurricanes and storms without encouraging redevelopment in high risk areas. Identify and implement structural and non-structural measures to reduce risk. Conduct a cost benefit analysis of structural versus

non-structural methods of storm surge protection accounting for the “ecosystem services” provided by non-structural restoration methods. Overhaul the current Hurricane/Storm Surge Protection - River Warning System to provide adequate monitoring of coastal weather, including rainfall, temperature, wind speed and direction, and barometric pressure. Partnering by state, federal and local governments will ensure that state-of-the-art monitoring equipment is placed at priority sites and properly maintained. Web-based distribution of real-time data is crucial.



Saltwater/Ecosystem Protection

Recommend and implement cost-effective measures to reduce damages caused by saltwater intrusion into nationally significant ecosystems. Secure proper management of river and surface fresh water to reduce potential impacts of periodic saltwater intrusion. Properly manage freshwater flows and water quality to support healthy bays and estuaries and species and to reduce the occurrence and extent of hypoxia.

Habitat Creation and Restoration

Develop and implement measures for restoration and creation of nationally and regionally significant environmental resources within the context of long-term sustainability.

Establish a master list of restoration needs to direct and focus the restoration projects being implemented by public and private entities.



Mitigation of Impacts of Potential Climate Change

Identify, develop, and implement methods such as accurate mapping, tide level predictions, resilient land use plans, and habitat conservation and restoration to increase the coastal community’s ability to mitigate and reduce the potential impacts of potential climate change. A number of climate and resiliency tools are available that will allow the study of:

- Historic temperature and rainfall
- Predictions of temperature and rainfall
- Climate change
- Sea level rise

Water Quality Improvement

In order to provide for clean surface waters, safe water supply, healthy beaches, and safe seafood in our coastal areas, five water quality priorities are critical: 1) reducing risk of exposure to disease-causing pathogens, 2) reducing biological waste and nutrients to surface waters; 3) minimizing occurrence and effects of harmful algal blooms and hypoxia 4) identifying and reducing sources of mercury in Gulf seafood, and 5) improving monitoring of Gulf water resources. Coordinate activities and policy recommendations with other efforts, such as the Hypoxia Task Force.

Air Quality Improvement

Air quality in some areas of the Gulf Coast is affected by regular daily activities relating to the population density, transportation, shipping, and energy industries. Develop and implement policies and measures to improve air quality in the Gulf region.

Encourage Environmental Education and Community Involvement

The Gulf's influence on climate, health, and the economy reaches to more than 31 states and two Canadian provinces. This influence provides an opportunity to provide educational programs to improve the nation's understanding and appreciation of the Gulf and its abundant resources, the value to the nation, and the need to restore and protect beyond the effects of the oil spill. Providing environmental education and stewardship programs include the following priorities: 1) Community Education and Outreach, 2) Public Awareness, 3) K through 20 Environmental Literacy, 4) Economic Value Communication, and 5) supporting science centers, such as INFINITY, a new state-of-the-art go-to resource for environmental education. Primary goals are to prepare students for consider technical careers and enhance science literacy among the public.

Coastal and Marine Spatial Planning

On July 19, 2010, President Obama signed an executive order establishing a [National Policy for the Stewardship of the Ocean, Our Coasts, and the Great Lakes](#). The executive order adopts the *Final Recommendations of the Interagency Ocean Policy Task Force* and directs federal agencies to implement them. The national policy identifies **coastal and marine spatial planning (CMSP)** as one of nine priority implementation objectives and outlines a flexible framework for effective CMSP to address conservation, economic activity,



user conflict, and sustainable use of the ocean, our coasts, and the Great Lakes. Under the framework, CMSP will be regional in scope, developed cooperatively among federal, state, tribal, and local authorities, and include substantial stakeholder, scientific, and public input. The framework for CMSP includes a number of important provisions that will significantly overhaul the federal government's approach to coastal and marine planning.

The framework:

- Establishes a new approach to how we use and protect the ocean, our coasts, and the Great Lakes to decrease user conflicts, improve planning and regulatory efficiencies and decrease costs and delays, and preserve critical ecosystem services;
- Moves away from sector-by-sector and statute-by-statute decision-making;
- Brings federal, state, and tribal partners together in an unprecedented manner to jointly plan for the future of the ocean, our coasts, and the Great Lakes;
- Places science-based information at the heart of decision-making; and
- Emphasizes stakeholder and public participation.

The CMSP framework provides, for the first time, a science-based and transparent road map for coastal communities to directly, objectively, and inclusively plan the future of their waters. To this end, the CMSP framework supports regional planning processes in which those who are most familiar with, and most affected by, the region's ocean and coasts are empowered and given the data, tools, and responsibility to make informed decisions about how their waters are to be used for this and future generations. Engage national CMSP resources with state plans and resources to ensure the integration of Mississippi's plan into the regional and national framework.

Stennis Space Center to Serve as a Location to Assist Restoration Activities

NASA's John C. Stennis Space Center (SSC) is a Federal City uniquely suited to assist coastal restoration and recovery efforts. There are over 30 resident agencies representing both government and academia, the majority of which are engaged in scientific and technical work, much of it focused on oceanography and coastal science in the Gulf of Mexico region. Many of the key federal players involved in response to the Deepwater Horizon oil spill are SSC residents including the Navy, NOAA, EPA Gulf of Mexico Program, USGS, USM, and MSU.

Promote a Healthy and Resilient Gulf Coast Economy

Promote Sustainable Economic Development

So, how do areas on the Gulf Coast move toward sustainability? What does a sustainable Gulf Coast look like? Is sustainability possible in a region of the country where land changes, intensive industrial development, and natural disasters are so prevalent that rebuilding and adaptation is the norm? A recovery effort should take into account the economic resiliency of the region as much as

it figures into the equation social and environmental factors. Without the social and environmental needs of the public being met, economic recovery will remain an elusive goal. People, together with resources, are the driving factor of economics; and people require clean air, water, and land, as well as their general safety needs being met.

Development and implementation of policies and programs that provide incentives for structured growth and development planning, providing infrastructure, services, land use and construction standards which support long-term community prosperity and resiliency are a critical need. Plans and standards should support conservation



and renewal of natural resources, efficiency of community operations, and an economic base capable of supporting the community and its needs. Incentives for expansion of existing businesses will result in job growth and economic expansion, making the Mississippi Gulf Coast an attractive location for the creation of new businesses. Infrastructure development and expedited permitting will enhance the opportunity for sustainable development.

Develop, fund, and implement long-term and sustainable economic development programs to restore the Mississippi Gulf Coast economy.

Intermodal Transportation Network Development

The Gulf is a proven location for major maritime commerce such as oil and gas production, ship building, commercial seafood, shipping, tourism, national security, and natural resources. Integrated and effective intermodal transportation networks are critical to the success of the economy and productivity of the region and the nation. Develop and implement an expandable, integrated transportation network.

Infrastructure to Support Sustainable Development

Local infrastructure systems are critical to support sustainable development in our coastal communities. Over \$500 million has been invested in backbone regional water/wastewater infrastructure systems in the three Gulf Coast counties, post-Katrina. It is imperative to continue to support these backbone systems with infrastructure to improve water quality and provide safe drinking water for our coastal communities. Development of a coordinated drainage plan throughout the counties and cities will enhance the use of land, prevent flooding, and improve water quality.

Seafood Safety/Industry Sustainment

The safety of our seafood supply is critical for sustaining this important industry and confidence must be restored in the minds of the consumers. Credible seafood sampling and testing protocols have been established and implemented. However, these protocols must be better communicated to the public to restore consumer confidence. To provide for the sustainment of the industry, marine habitats must continue to be investigated and assessed. Research and development efforts provide recommendations for restoration and enhancement projects to assure the renewal, sustainment and growth of fishery and shellfish habitats, and the corresponding sustainment of the seafood industry.



Tourism Destination of Choice

The Mississippi Gulf Coast has long been a tourism destination. Regional planning and development policies must leverage the attractiveness of the Mississippi Gulf Coast as a destination of choice for the tourism industry. The region's reputation as a hospitality center - accommodations, recreational facilities and attractions - fuels a significant economic engine, and represents substantial potential for future growth. Zoning, land use and fiscal policies need to be supportive of maintaining and expanding growth in tourism while preserving the resources that make the region inviting to travelers.



IHL Research and Development

IHL has the expertise necessary to conduct near-term and long-range research to support all aspects of the objectives identified in this Plan. Oceanographic, engineering, physical, biological, and social sciences are being brought together in comprehensive, multi-disciplinary teams to address these needs in ways that no single discipline can. Research will address both the ecosystem and human dimensions of the recovery requirements. Results will be used to improve the lives of our Gulf Coast citizens, and the coastal and marine environment. Equally important will be the impact that this research can have on sound, science-based policy development and decision-making.

Another important element that can be contributed through IHL is extension and outreach. Without effective transfer of research results through well-designed outreach efforts, research findings are of little consequence. A coordinated outreach program with all MRC institutions and other stakeholders will be critical to the ultimate success of the Plan, and must be programmed into every element.

The Mississippi Research Consortium has developed a comprehensive research plan (see Appendix 3 for executive summary) on the distribution, impacts and potential impacts, and fate of the oil. The on-shore impacts to people, communities and the economy are also addressed in the plan.

The ocean research proposed in the plan extends from the shoreline to the spill site and deep basin of the Gulf over time scales of 1 year, 3 years, and 10 years. Within this framework, research will focus on key community or fisheries species, important habitats and major ecosystem processes. Analytical and predictive models will be used to develop a stronger understanding of the Gulf ecosystem, its major components and how they are impacted and respond to disturbances such as a massive oil spill.

Research on human, community, and economic impacts includes using multiple data sources such as surveys, sales and employment statistics and tax revenues. Key socioeconomic and demographic indicators will be monitored and analyzed. Models will be utilized to project current and future potential impacts to basic and secondary economies.

Community resilience and the preparedness to recover from disasters will be investigated in local communities and local governments and will include risk assessment, changes in tax revenues, and service demands and legal research on the NRDA process and agency roles and compensation regimes for victims of the spill.

Research on human impacts includes studies on social conditions, hazard management and vulnerability analyses (susceptibility and response). Determining the impact of the spill and related events on population health and mental health will involve the combined fields of public health, toxicology, health economics, epidemiology, counseling, psychology, and sociology. Modeling will include health assessments and health systems analyses and will be combined with economic, social and community results to broadly evaluate human condition impacts.

Extension, outreach, and education activities are also proposed and include forums, technical workshops, open house events, and social networking. Forums will target businesses, the public, middle school and high school teachers and students and college undergraduate students. New university courses are proposed in marine geophysics and marine mapping, focused on petroleum issues and pursue new graduate degree programs such as in Environmental Toxicology.

Jobs Retention, Jobs Creation, and Develop Quality Workforce

It is critical to support and develop employers in the Gulf Coast region to promote their business interest in order to retain the important jobs that we currently have, and to sustain the economy.

Additionally, it is critical to develop and implement a business friendly environment to promote the creation of new jobs in the region, and to expand the economy.

Workforce quality is closely tied to labor productivity, making it a key determinant of economic growth and wages. In today's dynamic economy, jobs increasingly require education beyond a high school diploma. Education not only prepares individuals for the tasks required by a job, but also enhances an individual's ability to adapt to new working environments.



Worker productivity, defined as the real output per worker, is an alternate measure of workforce quality. Unlike educational attainment, which captures the inputs into workforce quality, worker productivity measures the average output of workers. High labor productivity typically results in higher standards of living.

Access to good jobs and training is critical to our Gulf Coast economy and stands at the center of our vision of opportunity. As the job market in the United States has shifted dramatically over the past three decades, growing numbers of Americans suffer from chronic unemployment or are trapped in low-wage jobs with limited resources to support a family and move up the economic ladder.

Members of racial and ethnic minorities, immigrants, and other marginalized populations are among the most vulnerable. Expanding the employment opportunities of workers requires effective workforce development strategies that are responsive to their needs, provide access to quality training and connect them to jobs and career paths that increase their mobility and earning potential.

Four main strategies are offered to improve opportunities for workers:

- Working with stakeholders in the workforce development system—including government entities, schools, community colleges, universities, training providers, community-based organizations, and the private sector—to make it more effective and responsive to the needs of workers
- Supporting innovations that increase the effectiveness and ability of training programs to better deliver workforce development services to workers
- Helping to increase the capacity of worker centers to develop training initiatives and connect their members to established training providers like community colleges
- Supporting research and policy analysis on workers, employers, labor markets, best practices, replication, and scaling up of activities that improve the lives and working conditions of workers

Implement Long-term and Sustainable Mental Health Care Programs

Back-to-back natural and man-made disasters (Hurricane Katrina and the Deepwater Horizon Oil Spill) have added social stressors on the Gulf Coast citizens. There is a profound need to develop and implement sustainable mental health care programs that address:

- Prevention by developing programs that target underage drinking, substance abuse, and suicide prevention programs
- Early Intervention through integration of primary care with behavioral health
- Treatment, especially through family-based services
- Recovery, including integration of mental health and substance abuse services into a behavioral health system
- Training programs to prepare 1,000 Gulf Coast residents to become peer listeners to better assist individuals within affected sectors to better cope with technological and natural disasters.

Using public/private partnerships to develop a locally-focused mental health system will allow for long-term strategies and performance based solutions.

Homeland and National Security Initiatives and Programs

The Gulf Coast is blessed with military defense facilities, energy facilities, port and other multi-modal transportation infrastructure, shipbuilding, industry, other commerce, off-shore/on-shore resources, and other valuable resources. These facilities come with a responsibility to provide security and protect these resources from threats. Initiatives and programs are needed to continue support for Homeland and National Security interest associated with Keesler Air Force Base, U. S. Coast Guard, Naval Construction Battalion Center, Chevron Refinery, Gulf LNG Energy Terminal, shipbuilding, ports, transportation networks, electrical supply grids, pipelines, and others.

ENVIRONMENTAL ACTION ITEMS

Tier 1 Priorities:

- **Develop a Comprehensive Restoration Plan** to guide expenditure of any Natural Resource Disaster funds as well as long-term ecosystem recovery efforts.

Start habitat restoration now in “no regrets” places; i.e., key bays, estuaries and rivers that contribute to the Gulf’s health.

Implement projects specifically focused on habitat and marine species directly impacted by the oil spill, focusing on habitat restoration for sea turtles and dolphins, birds, finfish, shellfish, and mollusks. There are other ready-to-go projects consistent with MSCIP, projects focused on enhancing and improving shore and migratory bird habitat, increasing housing and rehabilitative capacity at the Institute for Marine Mammal Studies (IMSS), increasing near-shore and deep water fish and shellfish habitat, and populating and monitoring those habitats.

- **Congress to establish a dedicated Gulf of Mexico Restoration Fund to Implement Environmental/Water Quality/Air Quality/Coastal Restoration and Protection Programs**

Use revenues from offshore oil and gas leasing to create an Ocean Trust Fund to support long-term marine and coastal stewardship DOI/Bureau of Ocean Energy Management, Regulation and Enforcement (BOEMRE) to revise the rules and provide for advance, stable revenue funding for GOMESA – speed up federal revenue sharing from deepwater oil/gas production from 2017 to 2011. An increase in the share of revenues returned to the states is recommended.

- Meaningful restoration programs beyond the effects of oil spill.
 - Local infrastructure systems to provide clean water and support sustainable development in our coastal communities. It is imperative to continue to support the backbone water and wastewater systems with infrastructure to improve water quality and provide safe drinking water for our coastal communities.
 - Providing a coordinated drainage plan throughout the coastal counties and cities to enhance the use of land, prevent flooding, and improve water quality. The plan should provide for clearing of debris, snags, and accumulated sediments from coastal streams and rivers.
 - Implementation of real-time, internet-accessible river flow monitoring stations on Gulf Coast streams and rivers.
 - Advocating streamlined environmental permitting to expedite program completion in order to enhance job creation and economic development, and efficiently mitigate natural resource concerns.
- **Implement Early NRDA Restoration Projects** – The Trustee has identified early habitat restoration projects that are part of MSCIP. These “ready-to-go” projects would simply be funded by the responsible party in a way where they get NRDA credit.
 - **Congress to fund the balance of MSCIP** – Request Congress to fund the balance of the 12 Phase I projects identified in the MSCIP Comprehensive Plan, that are not implemented by the Early NRDA Restoration Projects identified above - \$850 million (see Appendix 1).

- **Congress to fund Gulf of Mexico Alliance (GOMA) initiatives** - Continuous funding is needed from federal sources (NOAA, DOI, NASA, EPA, USACE, USDA, and others) to support implementation of *Governors' Action Plan II*.
- **Establish GOMA as the Coordinating Agency for Coastal Restoration & Protection Programs and the facilitator of the comprehensive Gulf-wide Restoration Plan.**
 1. **Complete the Gulf of Mexico Coastal and Marine Spatial Plan (CSMP) as identified by the Interagency Ocean Policy Task Force.** CMSP identifies areas most suitable for various types or classes of activities in order to reduce conflicts among uses, reduce environmental impacts, facilitate compatible uses, and preserve critical ecosystem services to meet economic, environmental, security, and social objectives. Activities include:
 - Compiling data on existing conditions and efforts that will establish the baseline for CSMP
 - Working with GOMA and its partners to develop a comprehensive toolbox of CMSP tools based on ecosystem management
 - Identifying the need and establishing authority required to carry out CMSP
 - Preparing and approving a spatial management plan
 - Implementing, monitoring, and evaluating the plan
 2. **Review and consider the *Louisiana - Mississippi Gulf Coast Ecosystem Restoration Working Group's Roadmap for Restoring Ecosystem Resiliency and Sustainability Report – March 2010*.**
 3. **Build a Gulf of Mexico Coalition** representing government, local communities, academic institutions, scientific leadership, non-governmental organizations, oil and gas and other private industry leadership to support a vision for a sustained Gulf and commit to working in concert to carry out a roadmap to success. **Update the National Contingency Plan for oil spill response and establish crisis-related policies that allow for more local inclusion and input by local officials, civil defense authorities, and experts in the affected areas, thereby providing more effective and efficient response.**
- **Develop, plan, and fund a Gulf Coast-wide master plan for expansion of existing nature tourism assets and development of new assets is a critical piece of this Vision Plan, and should include, but not limited to nature tourism areas, trail systems, and greenspaces.** The nature tourism industry continues to be a fast-growing enterprise; the protection and promotion of nature tourism opportunities will build and strengthen the Mississippi Gulf Coast's reputation as clean, beautiful and desirable by providing long-term support of existing natural resource assets such as:
 - Gulf Islands National Seashore
 - Grand Bay National Estuarine Research Reserve
 - Pascagoula River Audubon Center
 - Mississippi Sandhill Crane National Wildlife Refuge
 - Pascagoula River State Wildlife Management Area
 - Land Trust for the Mississippi Coastal Plain lands
 - The Nature Conservancy lands

- Wolf River Conservation Society lands
- Mississippi Coast Scenic By-ways
- Mississippi Coast State Parks

Expansion of existing nature tourism assets and development of new assets is a critical piece of this Vision Plan.

- **Develop and implement a Coast-wide shoreline management plan that would enhance bays, estuaries, natural and man-made beaches, and marshes:**
 - Implement the Harrison County Sand Beach Master Plan
 - Develop and implement a Jackson County Shoreline Master Plan
 - Develop and implement a Hancock County Shoreline Master Plan
 - Develop and implement a Coast-wide Stormwater Management Plan incorporating best management practices for erosion and sedimentation runoff controls
- **Ensure full and dedicated funding for the National Park Service’s Land and Water Conservation Fund (LWCF).** The LWCF program provides matching grants to States and local governments for the acquisition and development of public outdoor recreation areas and facilities. The program is intended to create and maintain a nationwide legacy of high quality recreation areas and facilities and to stimulate non-federal investments in the protection and maintenance of recreation resources across the United States.

Tier 2 Priorities:

- Evaluate the possibilities of establishment of a **Gulf Coast Wetlands Banking Program**, with a focus on in lieu fee programs, same watershed concepts, and new option studies.
- **Establish a dedicated state conservation acquisition and management fund** to support projects such as the State’s Coastal Preserve Program administrated by the Secretary of State’s Office and DMR. Encourage policies to conserve, protect, and expand wetlands and estuaries.

PUBLIC HEALTH, SAFETY, AND WELFARE ACTION ITEMS

Tier 1 Priorities:

- **Continue long-term testing and sampling of the Gulf waters, sand beaches, and seafood to produce reliable, ongoing scientific data regarding water quality and seafood safety. Continue to focus on public outreach aimed at communicating all scientific findings.** Hire Mississippi fishermen to assist with the long-term testing and sampling process.
- **Begin implementation of a seafood safety marketing program, utilizing all scientific data to date regarding seafood safety.**
- **Update existing Oil and Hazardous Substance Area Contingency Plans in order to provide for efficient, integrated, effective, and timely hazard response capabilities.**

- **Implement long-term and sustainable mental health care programs for the Mississippi Gulf Coast.** The Mississippi Department of Mental Health, which recently received \$12 million from BP to create and enhance behavioral health support and outreach programs across the Mississippi Gulf Coast, will lead the mental-health effort.

Tier 2 Priorities:

- **Implement Homeland and National Security Initiatives and Programs.** Ongoing Congressional funding is needed to maintain Mississippi's Homeland and National Security interests associated with Keesler Air Force Base, the U. S. Coast Guard, the Construction Battalion (SeaBee) Base, the Chevron Refinery, the Gulf Liquefied Natural Gas Energy Terminal, Ports, Stennis Space Center, local civil defense entities, and others.
- **Address Public Health Needs.** Assess public health concerns arising from the oil spill. Identify programs and request funding to address public health needs. Create new public health initiatives aimed at developing effective strategies for addressing public health disparities among fishermen and their families, low income citizens, and seniors. Ensure that outreach is conducted in English, Vietnamese, and Spanish. Outreach should focus on increased screening, treatment and access to preventive care.
- **Federal Agencies should utilize faith-based and community-based organizations for long-term community recovery related to the oil spill, and should award grants to increase their capacity and scope of services.** Local organizations can provide certified interpreters, well-trained case managers, and referral services. Federal Agencies should regularly consult with faith-based and community-based organizations on strategies, action plans, and program design. Local community-based organizations should be an integral part of the delivery system for services, training, job opportunities, and benefits.
- **The White House Asian American and Pacific Islanders (AAPI) Initiative should coordinate the efforts of federal agencies and community-based organizations in addressing the needs of the Southeast Asian Community along the Mississippi Gulf Coast.** Efforts should focus on ensuring language access to information, training, job opportunities, and services.
- **Develop a communication system to deliver timely, accurate and consistent information to the Southeast Asian community along the Mississippi Gulf Coast.** Request funding to create a Gulf Coast Vietnamese Radio Station (GCVR), which will provide Vietnamese-language programming to communities along the Mississippi Gulf Coast and neighboring states.

ECONOMIC DEVELOPMENT ACTION ITEMS

Tier 1 Priorities:

- **Implement early NRDA economic recovery projects** - Focused on making the Mississippi Gulf Coast a “Destination Travel” location, projects like the Infinity Science Center, the Institute for Marine Mammal Studies Aquarium, the Seafood Industry Museum, and the Ohr - O’Keefe Museum.
- **Congress to provide Financial Incentive Programs to promote development and restore the Mississippi Gulf Coast economy** – These incentives may include extending GO Zone benefits, bonus depreciations, tax exempt bonds, and extending the bank eligibility status to enhance marketability of tax exempt bonds and other development incentives.
- **FEMA to provide economic recovery for coast communities by forgiving Community Disaster Loans.**
- **Develop, plan, and fund a Gulf Coast-wide master plan for expansion of existing nature tourism assets and development of new assets is a critical piece of this Vision Plan, and should include, but not limited to nature tourism areas, trail systems, and greenspaces.** The nature tourism industry continues to be a fast-growing enterprise; the protection and promotion of nature tourism opportunities will build and strengthen the Mississippi Gulf Coast's reputation as clean, beautiful and desirable by providing long-term support of existing natural resource assets such as:
 - Gulf Islands National Seashore
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 - The Nature Conservancy lands
 - Wolf River Conservation Society lands
 - Mississippi Coast Scenic By-ways
 - Mississippi Coast State Parks

Expansion of existing nature tourism assets and development of new assets is a critical piece of this Vision Plan.

- **Provide short-term financial support for coastal county tourism agencies** such that their annual operating budgets through 2013 are enhanced to 150% of their 2009 operating budgets. This degree of budgetary support provides the ability to recapture lost tourism market share over a several year time span.
- **Provide funds to be utilized over a three year period to reestablish the quality of life of living on the Mississippi Gulf Coast,** with an emphasis in locating workforce here for business leaders

- **Provide funds to be utilized over a three year period to maintain and/or re-establish the safety, quality, and availability of Gulf of Mexico seafood.**
- **The BP Oil Spill further complicated the Katrina insurance crisis and demonstrates a need for a national approach to dealing with disasters. The Coastal region will be unable to recover from the Oil Spill until a solution is found.**

Fund a program that will facilitate the establishment of a multi-state commission that will be charged with finding solution(s) to the lack of obtainable and affordable residential and commercial insurance. Amongst the steps that need to be taken: identifying members of the commission, creating a budget for studies that will take place – these include identifying the positive economic impact of fixing the problem and the negative economic impact of not fixing the problem - and ultimately implementing public awareness campaigns. On the Mississippi Gulf Coast, participation in the state’s “wind pool” has tripled since Hurricane Katrina, resulting in home sale volumes that are only at 60% of pre-Katrina levels. As a result, average selling price has fallen for eleven consecutive quarters and, unless insurance is addressed, other programs implemented to expedite the Gulf Coast’s economic recovery from the oil spill will be stymied. Notably, the RAND Corporation will likely be publishing a paper that recommends a similar commission be created, and that paper will also point out that currently the existing solutions (that have already been proposed) to solve the problem will ultimately fall short of addressing the problem of unattainable and unaffordable insurance in a sustainable and effective manner.

- **Provide funds over a three year period to establish Small Business Resource Centers in each county.** The engine of job creation is small businesses. There is a need to fuel that engine by giving entrepreneurs and companies the support they need to re-open their doors, recover, expand, and hire more workers. With a severely impacted customer base from the BP Oil Spill, small businesses across the Coast have been slow to show signs of recovering. Using the Chambers of Commerce as existing resources, assist small business owners through the BP claims process and provide the tools for technical assistance, marketing and capital they need to grow and hire. The Centers will also focus on providing other tools to help small businesses meet specific challenges brought on by the oil spill to include: capitalizing revolving loan funds with existing county community development foundations and CDFI’s to offer low interest / forgivable loans to create greater access to capital for small businesses; creation of a venture capital fund (Louisiana is requesting \$150 million) to build the technology corridor; creation of business investment incentives (beyond the Go Zone) to facilitate tourism infrastructure reinvestment.
- **Implement long-term and sustainable economic development programs to restore the Mississippi Gulf Coast,** incorporating strategies from the IEDC/EDA County reports.

Tier 2 Priorities:

- **Implement long-term and sustainable intermodal transportation programs to restore the Mississippi Gulf Coast economy.**

- **Implement long-term and sustainable intermodal transportation programs to restore the Mississippi Gulf Coast economy. Economic Development**
- **Implementation of Urban Agriculture, Animal Husbandry, and Aquaculture** - urban agriculture contributes to food security and safety of Gulf Coast consumers by increasing the amount and quality of food stocks. A program that utilizes land-based recirculation marine aquaculture technologies is needed to develop key marine species for market and stocking and to provide jobs for affected workers in the seafood industries.
- **Implement the Harrison County Sand Beach Master Plan; develop and implement plans for Hancock and Jackson Counties that will protect, enhance, and expand existing sand beaches.**
- **Implement IHL National Laboratory and Technology Center on the Mississippi Gulf Coast –** Multiple disasters (both natural and man-made) have revealed a need for research to drive policy and regulatory action and corporate decisions. The U.S. does not have a national laboratory focused on multi-hazard disaster preparedness, mitigation, response, and recovery. Relevant state agencies (e.g. MDEQ, MEMA, DMR, IHL, MSBCJC) will serve as founding partners/affiliated entities.
- **Establish a DOE National Laboratory and Technology Center for applied research and commercialization:** to develop and test new hardware, software and systems for “Green Energy”. This may be in the form of Solar, Wind Power, Hydrogen Fuel Cells, Smart Power Distribution Grids, Hydrogen Vehicle System Testing, Bio-mass Fuel Power Plants, Energy Data System Storage. The development & testing would improve the efficiency and safety of such fuel uses for the commercial market; and, to develop and implement new methods of approach, with new hardware on technologies for oil spill containment, removal, separation, recovery. Investigate and develop new tools and systems to improve the response and techniques of oil spills through applied research and testing.

Tier 3 Priorities

- **Evaluate the possibilities of establishment of a Gulf Coast Wetlands Banking Program.**

EDUCATION AND RESEARCH ACTION ITEMS

Tier 1 Priorities:

- **Implement IHL National Laboratory and Technology Center on the Mississippi Gulf Coast –** Multiple disasters (both natural and man-made) have revealed a need for research to drive policy and regulatory action and corporate decisions. The U.S. does not have a national laboratory focused on multi-hazard disaster preparedness, mitigation, response, and recovery. Relevant state agencies (e.g. MDEQ, MEMA, MDMR, IHL, MSBCJC) will serve as founding partners/affiliated entities.
- **Implement IHL Mississippi Universities Gulf of Mexico Research Plan:** Ocean, Economic and Social Sciences with Extension, Outreach and Education Recommendations. Focused funding must be designated through relevant federal agencies for this plan. The plan will be comprehensive, addressing needs ranging from physical oceanographic measurements through socio-economic

outreach to distressed communities, e.g. Southeast Asian populations (see Appendix 3 for Executive Summary).

Draft

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Phase I - Recommended Plan Element	Total Project Cost	Federal Cost*	Non Federal Cost *
Comprehensive Barrier Island Restoration	\$479,710,000	\$311,810,000	\$167,900,000
Coast-wide Beach and Dune Ecosystem Restoration	\$23,320,000	\$15,160,000	\$8,160,000
Phase I High Hazard Area Risk Reduction Plan	\$407,860,000	\$265,110,000	\$142,750,000
Waveland Flood-proofing	\$4,450,000	\$2,890,000	\$1,560,000
Forrest Heights Levee	\$14,070,000	\$9,150,000	\$4,920,000
Turkey Creek Ecosystem Restoration	\$6,840,000	\$4,450,000	\$2,390,000
Franklin Creek Ecosystem Restoration	\$1,860,000	\$1,210,000	\$650,000
Bayou Cumbest Ecosystem Restoration & Hurricane Storm Damage Reduction	\$25,530,000	\$16,590,000	\$8,940,000
Submerged Aquatic Vegetation Pilot Program	\$900,000	\$590,000	\$310,000
Dantzler Ecosystem Restoration	\$2,210,000	\$1,440,000	\$770,000
Deer Island Ecosystem Restoration	\$21,520,000	\$13,990,000	\$7,530,000
Admiral Island Ecosystem Restoration	\$21,810,000	\$14,180,000	\$7,630,000
Total MsCIP Authorization Request	\$1,010,080,000	\$656,550,000	\$353,530,000

Phase III - Feasibility Studies	Total Study Cost	Federal Cost *	Non Federal Cost *
Ecosystem Restoration Studies	\$1,700,000	\$850,000	\$850,000
Long-term High Hazard Risk Reduction Plan	\$5,000,000	\$2,500,000	\$2,500,000
Structural Hurricane Storm Damage Reduction	\$85,000,000	\$42,500,000	\$42,500,000
Escatawpa River Freshwater Diversion	\$3,000,000	\$1,500,000	\$1,500,000
Long-term Ecosystem Restoration and Hurricane and Storm Damage Risk Reduction	\$48,500,000	\$24,250,000	\$24,250,000
Subtotal of MsCIP Recommended Investigations	\$143,200,000	\$71,600,000	\$71,600,000

Appendix 2 MDEQ/MDMR Sampling Results



Sampling Locations



- **Total Sites – 540**
- **Total Samples – 1236**
 - **Water – 609**
 - **Sediment – 124**
 - **Tissue – 273**
 - **Other (tar balls, rain water, leachate, etc.) – 166**
 - **Splits with CTEH - 64**

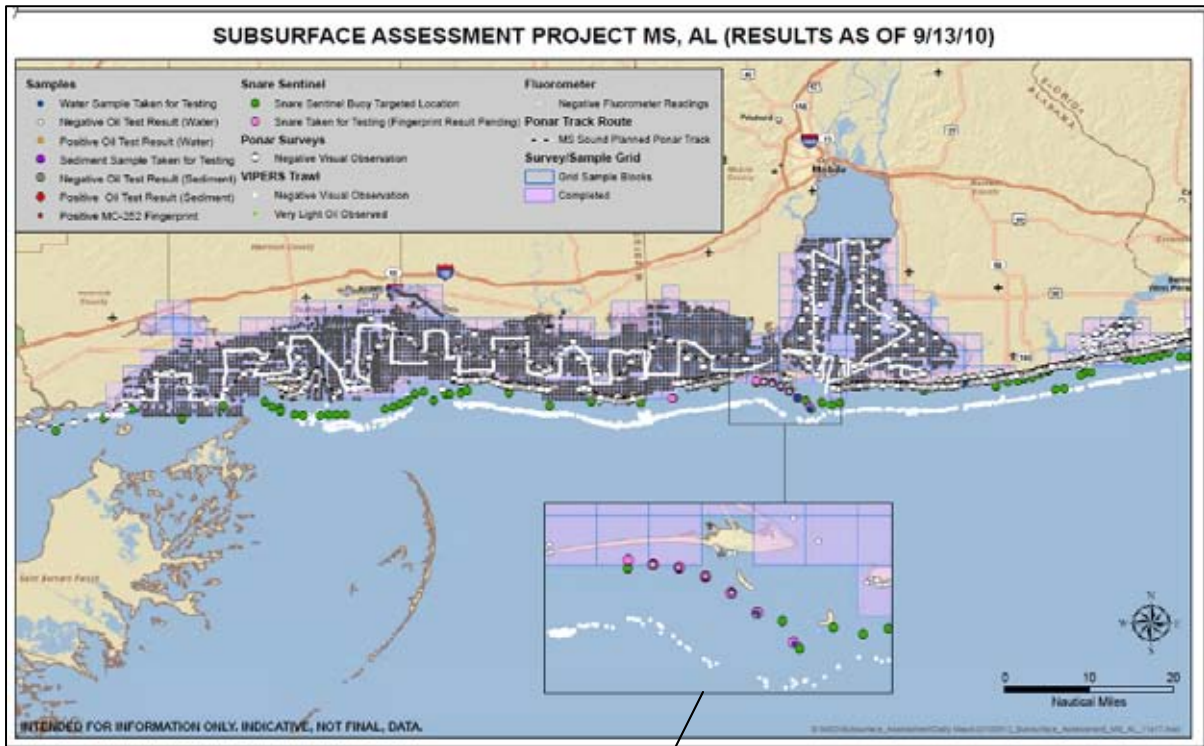
Results:

- Only a small % of samples showed a detect for Oil Range Organics
- The oil that reached MS waters was highly weathered.
- Most of the toxic components have been removed by wind, waves, sun and dilution.
- The remaining material coming ashore as tar ball or tar patties is similar to asphalt
- Our data, and data from other agencies indicate the dispersant is not a problem in MS waters.
- MDMR has reopened all of MS state waters for finfish and shrimp.
- Developed sampling plan with Mobile UIC to determine if recoverable subsurface oil is present.

Submerged Oil Survey Plan



Submerged Oil Survey Summary



Results:

- **3000+ adsorbent pad drops in MS waters**
 - **6 suspect areas sampled for water column**
 - **3 additional sites sampled due to presence of light sheen**
- **45 sediment sites screened**
 - **10 samples collected for analysis**
- **No Oil detected with Fluorometer**
- **No Oil detected with Snare Sentinels**
- **No Oil detected with Viper Trawls**

Seafood Testing Results:

Table list results compiled from 157 total samples. Including: 49 shrimp; 49 fish; 26 crab, and 33 oyster

Each sample is a composite of multiple individual organisms

PAH Compounds Detected (ppm)

	Shrimp		Fish		Crab		Oyster	
	Max Detected	Level of Concentration	Max Detected	Level of Concentration	Max Detected	Level of Concentration	Max Detected	Level of Concentration
Napthalene	0.0127	123	0.0121	32.7	0.0121	123	0.0196	133
Fluorene	0.00282	246	0.00211	65.3	0.00345	246	0.00695	267
Anthracene/Phenanthrene	0.0271	1846	0.0158	490	0.0305	1846	0.01595	2000
Pyrene	0.00366	185	0.006	49	0.077	185	0.0169	200
Fluoranthene	0.00477	246	0.006	65.3	0.0116	246	0.00294	267
Chrysene	ND	132	ND	35	0.00075 1	132	0.00054 7	143
Benzo(k)fluoranthene	ND	13.2	ND	3.5	ND	13.2	0.00070 3	14.3
Benzo(b)fluoranthene	ND	1.32	ND	0.35	0.00064 4	1.32	0.00072 7	1.43
Benz(a)anthracene	ND	1.32	ND	0.35	ND	1.32	0.00062 8	1.43
Indeno(1,2,3-cd)pyrene	ND	1.32	ND	0.35	ND	1.32	0.00189	1.43
Dibenz(a,h)anthracene	0.00050 5	0.132	ND	0.035	ND	0.132	0.00209	0.143
Benzo(a)pyrene	ND	0.132	ND	0.035	ND	0.132	0.00291	0.143

Data for 5/27/2010 thru 10/11/2010

ND = Non Detected at minimum detection limit of 0.01 ppm prior to July 1 and after July 31 or 0.0005 ppm for July 1 thru July 31

Appendix 3

Mississippi Institutions of Higher Learning
Gulf of Mexico Research Plan

Executive Summary

November 2010

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Vision Statement

To develop and apply new knowledge and technologies in ocean sciences, public health, and social and economic sciences in support of the five priority areas identified by the Gulf of Mexico Commission:

1. Coastal community resilience to storms, disasters, and impacts of sea level rise;
2. Improving the quality of beaches;
3. Improving the safety of the seafood that we eat;
4. Increasing critical habitat; and
5. Providing comprehensive education and research for the Gulf Coast and its residents.

(Vision for Gulf Coast Recovery, Restoration, and Protection, The Mississippi Gulf of Mexico Commission)

Overview

The Gulf of Mexico is a 620,000 square mile body of water whose distinct oceanographic and atmospheric conditions (warm water, variable Loop Current, frequent hurricanes) and geological features (continental shelves, deep basins, fine and rocky sediments, gas hydrates) have nurtured biologically diverse populations, attracted and sustained industry, facilitated trade, and drawn residents and tourists to the 44-mile Mississippi Gulf Coast. It is essential for scientists to collect and analyze data to assess the immediate, mid-term, and long-term impacts of the spill to these regional habitats, populations, and industries in order to help decision makers plan and assess the effectiveness of recovery and restoration activities.

An important characteristic of academic research is the peer review process, by which methods, data, and findings are shared with and vetted by other independent scientists. The outcomes of peer-reviewed investigations are new knowledge and insights for public and private interests, and often, new sets of questions that become the starting point for subsequent investigations. In the context of the Deepwater Horizon incident, the collective body of knowledge and insights generated by the research proposed, along with the transparency of the methods and data by which this knowledge is gained, is critical to informing and evaluating the community response, and to ensuring the public's trust in that response.



The *Plan* establishes goals and objectives for this research, and action items organized around three essential dimensions:

When: Time from the spill¹

Where: The spatial location relative to the shore²

Who/what/how: The nature of the impact³

With the **goal** of assessing the potential and actual on-shore impacts of the oil spill, the *Plan* identifies a number of different habitats, communities, human dimensions, and economies that have the potential to be impacted by the spill; assessing these (potential) broad impacts constitutes the **objectives** of the *Plan*. Within each objective, the *Plan* proposes **action items** that may be more specific to the relative time of the impact, the location of the impact, and the nature of the impact, or to how the knowledge will be communicated to broader communities.

Building from the Gulf of Mexico Research Plan (GMRP), which was developed in the years immediately preceding the Deepwater Horizon spill by the Sea Grant College Programs of Texas, Louisiana, Florida and Mississippi-Alabama (Sempier et al. 2009), the Mississippi Institutions of Higher Learning Gulf of Mexico Research Plan proposes four overarching areas of activity: Development of knowledge in *Ocean Sciences, Human Health, Social and Economic Sciences*, and application of the knowledge through *Education, Outreach, and Technology Transfer*. Additionally, the *Plan* identifies *Resources Needed* to accomplish the outlined objectives.

Specific topics are drawn from the GMRP Deepwater Horizon Oil Spill Research Needs Survey, Consortium for Ocean Leadership Gulf Oil Symposium, the research planning session at the Northern Gulf Institute 2010 annual meeting, Center for Natural Resource Economics and Policy 2010 annual meeting, and NOAA Southeast Fisheries Science Center Workshop on Deepwater Horizon oil spill efforts. In addition, they are compatible with the BP Gulf of Mexico Research Initiative Themes, and the Gulf of Mexico Alliance Governors' Action Plan.

¹ Immediate: to 1st anniversary of spill (April 2011); Mid-term: to 3rd anniversary of spill (2013); Long-term: to 10th anniversary of spill (2020)

² As defined by Unified Area Command, Sub-Sea and Sub-Surface Oil and Dispersant Detection, Sampling and Monitoring Strategy (Directive Memo 16451, 18 Aug 2010): Inshore: shoreline to barrier islands; Nearshore: barrier islands to 3 nmi, or the 20 m isobath (inner shelf) if closer to shore; Offshore: 3 nmi to shelf break (outer shelf); Offshore – Blue Water: surface to approximate shelf break depths, seaward of the shelf; Deep Sea: shelf slope and basin

³ Ocean Sciences; Public Health; Social and Economic Sciences; and Education, Outreach, and Technology Transfer

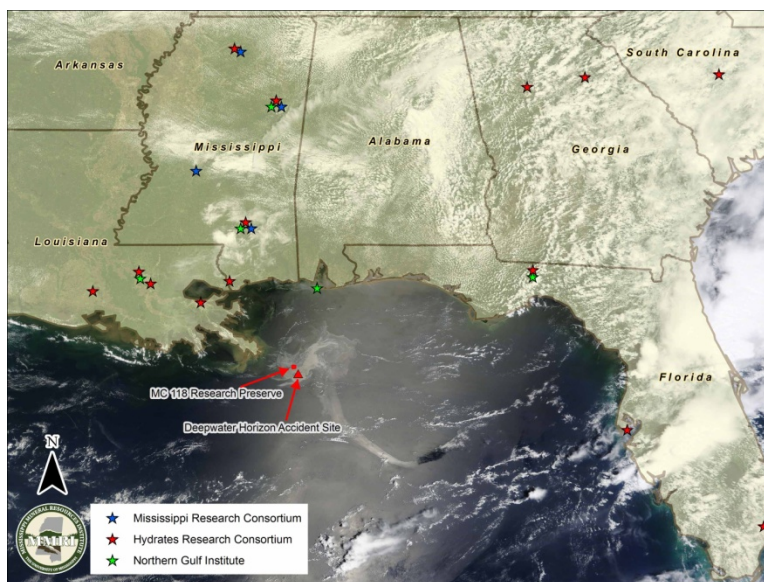
Existing and On-going Programs

Scientists in Mississippi and the other four Gulf states have been collecting data and conducting research into Gulf environments and populations for many years, and therefore already possess unique capabilities, experience, and assets to contribute immediately to many of the research objectives presented in this plan.

Capabilities of Mississippi universities include:

- Coastal observations and forecasting spill movement and impact
- Environmental monitoring of water quality, marine life, and fisheries
- Impacts and distribution of oil at the spill site and in affected offshore waters
- Application of sand berm for coastal erosion protection from oil spills
- Human health and wildlife impacts
- Socio-ecological and socio-economic impacts of oil on coastal communities
- Filming and documenting the development of events
- Coordinating community outreach and education

The Mississippi research universities (Jackson State University, Mississippi State University, University of Mississippi, and University of Southern Mississippi) are the members of the Mississippi Research Consortium (MRC), which will be responsible for carrying out the Research Plan. MRC was established in 1986 to develop and sustain nationally competitive research programs in the state of Mississippi. The chief research officers of these universities comprise the Board of Directors of the MRC.



Listings of MRC capabilities, expertise, and assets relevant to researching Deepwater Horizon impacts are available on the MRC Webpage at: <http://mississippiresearch.org/dhrt.html>.

Goals and Objectives

The **goals** of the *Plan* are:

- To understand the Gulf marine, coastal, and human ecosystem
- To understand the impact of oil and gas on this system (includes remediation activities such as application of dispersants)
- To apply this knowledge to ensure the recovery and long-term health of the system

The **objectives** of the *Plan* relate to four broad areas: Ocean Sciences; Public Health; Social and Economic Sciences; and Education, Outreach, and Technology Transfer.

Ocean Sciences (*Physical, Biological, Fisheries, Chemical, Geological and Engineering Sciences*)

- Determine the distribution, fate and persistence in the ecosystem of oil and oil/dispersants
- Model/forecast/predict the location and magnitude of Deepwater Horizon and future oil spill-related impacts, including food webs and ocean processes supporting commercial and recreational fisheries and the potential role of ocean currents (e.g. Loop Current, warm eddies, near-bottom currents) and hurricane storm surge
- Assess the impacts of oil and dispersants on the physical, ecological, and biogeochemical environments, from onshore to deepwater
- Determine floral and faunal communities and habitats, especially those of commercial importance, that are most at risk due to the Deepwater Horizon oil spill and future spills
- Examine effects on air quality of volatile organic compounds, controlled burns, flaring gas, and related components and activities
- Study impact of oil spill and dispersants on infrastructure and manmade components, including marine craft and related structures
- Characterize geological, geochemical and biological properties of natural oil and gas seeps to distinguish from oil spills
- Develop new sensors, analysis protocols, and monitoring technologies for current and future disasters relating to oil spills and other chemically associated events in the Gulf

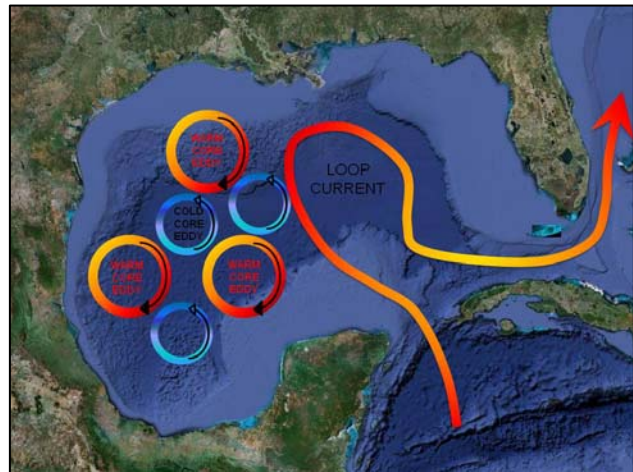


Figure 3. Major loop current and other circular currents found within the Gulf of Mexico (Image from www.texaspelagics.com).

Public Health

- Examine impacts to the physical health of cleanup workers, volunteers
- Determine immediate impacts to mental health due to stress and anxiety as well as examine long-term impacts due to employment and economic uncertainties
- Determine the toxicity of oil, dispersants, and drilling mud on humans
- Examine the long-term physical health impacts to coastal residents of the oil and clean-up related materials and events
- Determine long-term mental health impacts of coastal residents due to changes in quality of life

Social and Economic Sciences

- Determine economic impact on specific industries and sectors, now and in the future
- Determine the impact of the Deepwater Horizon event on the recovery from Hurricane Katrina and the recent recession
- Identify changes to state and federal laws and regulations that can facilitate recovery and restoration
- Identify organizational, institutional, and process changes that enhance recovery efforts or community resilience
- Understand the human dimension impacts to coastal residents negatively impacted by the Deepwater Horizon spill, including perceptions of coastal residents regarding oil and gas development and regulation in the Gulf and the value of coastal restoration
- Evaluate economic impact on specific population groups living along the Gulf Coast, including vulnerable populations
- Evaluate impact of NGOs, faith-based, and local community organizations on dissemination of information related to the Deepwater Horizon spill, establish new guidelines and community-based resilience programs

Education, Outreach, and Technology Transfer

- Inform recovery and restoration public policy decision making
- Facilitate community awareness of oil risks and impacts and engagement in recovery and restoration
- Communicate effective strategies to increase employment and community resilience
- Expand opportunities for student research and education in ocean resource and spill issues
- Facilitate the adoption of new technologies related to the spill

Resources Needed

In addition to funds needed to carry out individual research and educational components of this plan, investments are needed to add or upgrade key shared infrastructures or programs that will support multiple efforts. *Each addition or upgrade will require both **initial investment** and **substantial long-term funding for operation and maintenance**:*

- Examine the state of technology for collection and analysis of samples
- Expand capacity to store, process, visualize, and share scientific data and results
- Strengthen Mississippi university research capabilities by adding select faculty in key disciplines and providing funding for postdoctoral associates, technicians, and students
- Obtain an oceanographic research vessel, support base (pier, warehouse, offices)
- Obtain a deep-capability (~5000 m) ROV to service the seafloor observing network, conduct manipulative experiments placed on the seafloor, collect seafloor and water column samples and explore deep Gulf areas in advance of oil development
- Obtain a deep-capability (~5000 m) autonomous undersea vehicle (AUV) for exploration and high-resolution mapping of the seafloor and detection of hydrocarbons and gases dissolved in seawater, i.e. to track plumes and discover new sources
- Deploy a fleet (~5) of gliders (AUV that moves through the ocean by changing its buoyancy rather than battery or fuel cell power) equipped with various sensors to inexpensively sample large volumes of the ocean
- Acquire field instruments and gear for shipboard and coastal work, such as conductivity (=salinity), temperature and depth (CTD) instruments, CDOM fluorometers, methane sensors, mass spectrometers, transmissometers (detects reduced light transmission = particles in the water), oxygen sensors, drop cameras, and sediment coring gear
- Improve monitoring and detection capabilities through access to remote sensing data, including satellite, remotely piloted vehicles, and in situ monitoring system
- Acquire appropriate laboratory instruments, e.g. mass spectrometers, gas chromatographs, to improve analytical capabilities for hydrocarbons and gases
- Create and operate a network of instrumented seafloor sites to better understand seafloor communities relative to oil, gas, and hydrate dynamics and oceanographic conditions, and network them to land to provide real-time data monitoring capabilities
- Expand sensor network at MC 118 for real-time monitoring of seismic events, deep ocean currents, megafauna movements, water chemistry and biologic seafloor activity
- Establish the **National Multi-Hazard Disaster Laboratory** in Mississippi – Request United States Congress authorize and fund the creation of a *National Laboratory* dedicated to multi-hazard disaster preparedness, mitigation, response and recovery. The Lab, to be located on the Mississippi Gulf Coast would serve as the federal ‘scientific command center’ for major disasters affecting the U.S. in the future. It is envisioned that the Lab will include MRC and state agency partners

The full Mississippi Institutions of Higher Learning Gulf of Mexico Research Plan is accessible at <http://www.mississippiresearch.org/> and at <http://www.mgomc.org>

