CZMA SECTION 309

ASSESSMENT

& STRATEGY

2011 – 2015

FINAL

MISSISSIPPI DEPARTMENT OF MARINE RESOURCES

OFFICE OF COASTAL ECOLOGY

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1.0 Introduction

Overview
The Coastal Zone Enhancement Grants Program (Section 309) encourages coastal zone states to identify, develop and implement Coastal Zone Management Program changes in one or more of nine coastal zone enhancement areas. These nine enhancement areas include Public Access, Coastal Hazards, Wetlands, Cumulative and Secondary Impacts, Marine Debris, Special Area Management Plans, Ocean Resources, Energy and Government Facility Siting, and Aquaculture. Approximately every five years coastal zone states perform a self-assessment of the State's federally approved coastal management program and select priorities from among the nine enhancement areas. A multi-year strategy is developed to address priority needs within the enhancement areas and applied towards either program implementation activities or towards programmatic changes.

On April 20, 2010 an explosion on the Deep Water Horizon rig in the Gulf of Mexico caused oil and natural gas to leak uncontrolled from the underwater well. Because the long term effects of such a disaster cannot be known, the Mississippi Department of Marine Resources (MDMR) will continue to monitor this situation and may need to adjust the following priorities if the situation warrants.

Mississippi's Proposed Priority Enhancement Areas
Based on the findings of this assessment, MDMR proposes the following priorities for the Mississippi Coastal Program, subject to final review by NOAA's Office of Ocean and Coastal Resource Management.

Wetlands – Because so much of Mississippi's coastal landscape is comprised of wetlands, this will always be a high priority. Much has been accomplished in recent years in regards to the State's ability to monitor and permit activities affecting the coastal wetland resources. In an effort to continue the momentum of progress with respect to wetlands, DMR desires to maintain wetlands as a high priority.

Coastal Hazards – Although the coastal zone continues to be at high risk to coastal hazards, through mitigation planning, development of new flood hazard maps, and other efforts, the priority for this Section 309 Assessment and Strategy is medium. Many of the programs and policy changes developed since Hurricane Katrina have been driven by programs other than CZM.

Public Access – In August of 2005, Hurricane Katrina destroyed or severely damaged many of the public access facilities in the coastal region including piers, launches and public beaches. In response to the damage caused by Hurricane Katrina, the State, through the previous Section 309 Assessment and Strategy implemented a project to conduct an inventory and mapping of public access sites in the coastal zone. Through this Assessment and Strategy the State proposed to continue that effort by using data created through the previous project to develop a comprehensive needs analysis of public access in the coastal zone. Due to existing information gaps to be addressed through the proposed strategy, the Public Access Enhancement Area is considered a medium priority.

Marine Debris – Marine Debris has historically been a low priority for the Mississippi Coastal Program primarily due to other existing programs that address the issue. The immediate impacts of Hurricane Katrina caused this enhancement area to be listed as a high priority in the previous Assessment and Strategy document. However, since marine debris relative to Katrina has been largely mitigated, the Marine Debris enhancement area for this report is a low priority.

Cumulative and Secondary Impacts – Development pressures and the impacts of natural disasters result in Cumulative and Secondary Impacts; among the most significant is nonpoint source pollution. The Mississippi Coastal Program has no direct jurisdiction over land use issues that can mitigate cumulative and secondary impacts. However, the Coastal Program has been instrumental in areas such as public education and support to the regulated community through the development of the Mississippi Gulf Coast Stormwater Management Toolbox and other associated workshops, seminars, and other public education activities. This issue remains a high priority for the Mississippi program.

Special Area Management Plans – Formerly a high priority, Special Area Management Planning is now considered a low priority.

Ocean Resources - While Ocean Resources are and will continue to play a vital role in the economy, culture and heritage of the coastal region, issues related to other enhancement areas currently carry a more significant priority because of the impacts of Hurricane Katrina. Based on information presented in this assessment, indications are that the ocean resources and fisheries resources remain at acceptable levels of quality in spite of the impacts of the hurricane; as a result Ocean Resources is classified as a low priority for this assessment.

Energy and Government Facility Siting – The Mississippi Coastal program has no jurisdiction over the siting of energy and government facilities other than in situations where wetlands are impacted in the development process. As a result, this enhancement area is considered to be a low priority.

Aquaculture – Considered a low priority in previous assessments, this is an emerging issue that is likely to become a priority issue in future 309 assessments. At the current time it is classified as a low priority.

1.1 Summary of Past 309 Efforts

Program Year	Task	Expenditure	Status
2006	Restoration Planning	$91,000	Completed
2007	Restoration Planning	$54,090	Completed
2007	Public Access Management Planning – Phase I	$36,910	Completed
2008	Public Access Management Planning – Phase II	$45,500	Completed
2008	Coastal Hazards Mitigation – Phase I	$45,500	Completed

2009	Public Access Management Planning – Phase III	$31,000	Ongoing
2009	Coastal Hazards Mitigation – Phase II	$31,000	Ongoing
2010	309 Assessment & Strategy (2010-2015)	$29,000	Pending
2010	Public Access Management Planning – Phase IV	$20,000	Pending
2010	Coastal Hazards Mitigation – Phase III	$20,000	Pending
2010	Restoration Planning	$51,000	Ongoing

A contract for the Restoration Planning task, initiated in year one of this assessment period, led to hiring of a consultant to implement the restoration project. The consultant was eventually hired to fill a state position funded by this project; the DMR-Coastal Resource Management Specialist V (staff) worked on the assessment and mapping of the Beckendorf and Wachovia tracts located in the Hancock County Marsh Coastal Preserve and the Dantzler tract located in the Pascagoula River Coastal Preserve. Restoration plans for these three sites have been completed, though plans will continue to be updated as new information and data are acquired. Staff has also worked on coordinating and implementing restoration activities for the three current sites listed above as well as five sites assessed and mapped from prior Coastal Preserve Bureau tasks: Admiral Island, Ladner and Dupont tracts in Hancock County, Deer Island and Twelve Oaks tracts in Harrison County. Staff also coordinated initial meetings of the Coastal Mississippi Beneficial Use of Dredge Material Group aimed at maximizing our potential to use dredge material for habitat restoration projects. Attendees at these meetings included staff from the Army Corps of Engineers, National Marine Fisheries, US Fish and Wildlife Service, U. S. Senator Thad Cochran's Office, 4th District Congressman Gene Taylor's Office, MS Department of Environmental Quality, MS Secretary of State, U. S. EPA Gulf of Mexico Program and the MS Department of Marine Resources. Staff is also working to get the coastal counties and local entities to participate in this effort. Staff coordinated the planting of approximately 3,500 *Spartina alterniflora*, *Juncus roemerianus* and *Uniola paniculata* seedlings on the beneficial use site on Deer Island. Staff worked with the Mississippi Sandhill Crane National Wildlife Refuge, MS Forestry Commission, Volunteer Fire Departments, and other agencies to expand the use of prescribed fire in Mississippi's Coastal Zone and continues to work with the U. S. Army Corps of Engineers, Mobile District on the Mississippi Coastal Improvement Plan (MSCIP) to develop ecological restoration projects. Staff is also participating in the Habitat Restoration and Conservation Team within the Gulf of Mexico Alliance.

The Public Access Management Planning project began in November 2008, and is currently in its third phase. An inventory of existing sites was developed and provided to the public on the contractor's and MDMR's website. It will be continuously updated thru the term of the project. Also, an online GIS mapping tool was developed and provided to the public via MDMR's website. It also is continuously updated. The project continues through this report timeline, towards a final goal of presenting a management plan for Public Access siting in Mississippi's Coastal Zone

The Coastal Hazard Mitigation project initiated in February 2009, and is currently in Phase II of a three year timeline. The contractor completed the initial review of communities participating in the Federal Community Rating System (CRS); the Contractor participated in regular meetings with floodplain managers, CRS Coordinators, and building officials through the Coastal Hazards

Outreach Strategy Team (C-HOST) coalition in order to continually seek opportunities for SMPDD to provide assistance in meeting CRS goals and implementing activities. The Contractor provided general assistance with such issues as development of bylaws for the C-HOST group, educating local officials about the importance of making the public aware of flood threats and other coastal hazards, preparation of outreach materials such as maps and brochures, and others. The Contractor also provided direct assistance to Jackson County, Ocean Springs, D'Iberville, Biloxi, Gulfport, Pass Christian, Bay Saint Louis, for CRS related activities, including map books for building and code enforcement activities, other map production and GIS tasks, and general technical assistance. Education/outreach activities remained a major focus point. The Contractor participated in the 2010 Working Waterways and Waterfronts National Symposium. The Symposium was excellent, bringing together coastal resource managers from across the country to share their expertise on a wide range of waterfront issues, including hazards and protection from their impacts. A major outcome from the Symposium was the appointment of a steering committee to establish a national coalition that will focus on advocacy and policy resources. At the invitation of the Contractor, two C-HOST members were featured presenters at meetings of the Harrison County Council of Governments (COG), a coalition of mayors and councilmen/aldermen from the five municipalities, plus county elected officials, state elected officials, representatives of federal elected officials, directors of county commissions, and other distinguished guests. They discussed the CRS, and explained how the C-HOST group was formed and its successes since the group was formally recognized by FEMA. The C-HOST group is unique in the nation, being only the second of its kind, and has received inquiries from other states about modeling its structure in their own areas. The Contractor participated in the 2010 Fall Conference of the Association of Floodplain Managers of Mississippi. Professional speakers led sessions on topics such as flood map modernization techniques, flood risk management programs, geospatial needs for floodplain managers, NFIP compliance, hazards identification, Substantial Damage Estimation training conducted by FEMA, and the Certified Floodplain Manager examination conducted by MEMA. Agencies represented included FEMA, MEMA, MDEQ, USACE, NOAA, as well as private contractors. One of the highlights of the Conference was a private tour of the US Army Corps of Engineers Experimental Research and Development Center, or ERDC. The tour included presentations on the ERDC Information Technology initiative, the USACE flood risk management mission of the Coastal and Hydraulics Laboratory, a model of storm surge impacts, and a walking tour of the country's largest centrifuge housed at the ERDC Geotechnical and Structures Laboratory. The AFMM bi-annual conferences also offer important continuing education and certification opportunities to floodplain officials within the coastal counties. Because many local jurisdictions in Mississippi's Coastal Zone began their fiscal years under lean budgets, some direct assistance was provided to local jurisdictional staff from Jackson County, Bay Saint Louis, and D'Iberville, through attendance scholarships for the Fall 2010 Conference. The Contractor presented at the Alabama-Mississippi Bays and Bayous Symposium 2010, held in Mobile, AL. The primary topic was Education/Outreach for Coastal Hazards Mitigation and CRS Participation. The review of

jurisdictional hazard mitigation plans was completed and resulted in the preparation of comparison tables. Goals, objectives, and/or actions presented in the hazard mitigation plans were compared and matched to specific CRS-eligible activities. These draft tables were sent to floodplain managers and emergency management directors in each coastal jurisdiction. Managers were encouraged to review the tables to identify any potential activities that could be initiated for CRS credit, to identify any gaps that could be bridged, or as a basis for collaboration on achieving common goals or eliminating gaps. These tables, as Excel document, are sent separately by email for inclusion. A 'Step by Step' guide to CRS participation was completed and shared with FEMA/MEMA collaborators for review and comment. Minor updates were made following comments received. This guide has been provided to MDMR, and will be posted on the Agency website.

This 2011-2015 Assessment & Strategy was prepared within this 309 Assessment timeframe.

Public Comments

Only one response was received regarding the draft Assessment and Strategy. The comments received can be summarized as 1) proofreading errors, 2) comments regarding the inclusion of the Harrison County Hazard Mitigation Plan, 3) the Coastal Hazards priority level ("It should, at a minimum, be a Medium priority..."), 4) the references for SCORP, 5) references to the public access inventory, 6) and clarification of the public access inventory's focus areas. In addition to the recommendation for the Coastal Hazards priority level, the commenter also recommended that Public Access be considered a low priority.

Many of the comments made regarding proof-reading errors were addressed prior to the comments being received. Other changes made in response to the comments received include edits to the hazard mitigation discussion under Coastal Hazards to remove the discussion of the Harrison County Hazard Mitigation Plan in lieu of the State Hazard Mitigation Plan. The State Hazard Mitigation Plan was considered more appropriate for the purposes of this assessment. Also in Coastal Hazards the priority level was raised to a medium priority. In Public Access, references were corrected and clarification was made to ensure that the state's public access inventory will include both water-related and non-water related access sites.

2.0 Assessment

2.1 Wetlands

The Coastal Wetlands Protection Law, established by the Mississippi Legislature in 1973, protects wetlands and their ecosystems. This law allows alteration of wetland ecosystems where deemed necessary to serve a higher public interest. MDMR is the state agency given authority over wetland permitting. MDMR works with other state agencies and the U.S. Army Corps of Engineers to determine which wetland impacts will ultimately meet a higher public interest. The goal of the wetland permitting process is "no net loss" of wetland areas. This is achieved through mitigation for wetland impacts through the restoration or creation of

wetlands. In 1992, MDMR instituted the Coastal Preserves Program including the designation of approximately 72,000 acres as critical coastal wetland habitat. The Coastal Preserves Program is responsible for the protection of coastal habitats through planning approaches including management plans for individual flora and fauna species and plans for protecting and restoring wetlands within the coastal zone.

2.1.1 Section 309 Enhancement Objective

Protection, restoration, or enhancement of the existing coastal wetlands base, or creation of new coastal wetlands

2.1.2 Resource Characterization

Purpose: To determine the extent to which problems and opportunities exist with regard to the enhancement objective.

1. Please indicate the extent, status, and trends of wetlands in the coastal zone using the following table:

Wetlands type	**Estimated historic extent** (acres)	**Current extent** (acres)	**Trends in acres lost since 2006** (Net acres gained & lost)	**Acres gained through voluntary mechanisms since 2006**	**Acres gained through mitigation since 2006**	**Year & source(s) of Data**
Tidal (Great Lakes) vegetated						
Tidal (Great Lakes) non- vegetated						
Non-tidal/freshwater						
Other (please specify)						

2. If information is not available to fill in the above table, provide a qualitative description of information requested, including wetlands status and trends, based on the best available information.

The Mississippi Coastal Program (Coastal Program), lead by MDMR, utilized hard copies of wetland maps created in the 1970s until many of these maps were destroyed by Hurricane Katrina. Since 2005, the Coastal Program has worked to update and digitalize these maps. An online coastal mapping tool has been created (http://www.dmr.state.ms.us/ims/mapper.htm). Once digitalization is complete the wetland maps will be made available on the internet mapping website. This website is intended to be utilized to review wetland areas and compare land use, watershed locations, and potential preserve locations. MDMR is also working to develop a database that can be queried for information on permitting activity, mitigation, and restoration and conservation efforts within a given timeframe. This database will be primarily available for internal use at MDMR. Statistical data from this database will be shared with other agencies

when requested. It has not yet been determined to what extent permitting information will be made available on the public online database. However, MDMR employees will be able to query the database system to gather statistics from permitting decisions, number of permits approved, denied, acreages of wetlands impacts, and acreages of mitigation provided.

As a general trend, the coastal zone is losing wetland acreage due to increased development pressures. Over 2,800 permitting actions were completed by the Wetlands Permitting Bureau during the assessment period. The highest numbers of permitting actions were seen in 2006 as recovery from Hurricane Katrina occurred. During the assessment period, over 75 Permit authorizations were granted for either the placement of bulkheads greater than 1,000 ft in length, development of marinas, or projects that fill tidal marsh or water bottoms. Over 1,000 General Permits were issued allowing construction or modification of boat slips and boat berths, maintenance dredging, new work channel dredging, debris removal, construction and modifications of piers, wharves, and their normal appurtenances, construction and modification of boat shelters, gazebos, hoists, and the construction and modification of boat ramps or marine ways. Some of the significant projects during the assessment period are listed in the table below. As this table shows, many of the permitted activities during the assessment period relate to recovery projects from Hurricane Katrina including dredge requests and marina/bulkhead replacements. For projects where impacts are unavoidable, mitigation practices have shifted towards wetland mitigation banks and the purchase of credits. Generally, there is a preference for the purchase of mitigation credits over on-site mitigation due to the intense requirements for mitigation and restoration. This preference is outlined in the March 2008 Compensatory Mitigation Rule (Docket ID No: EPA–HQ–OW–2006–0020) by the Environmental Protection Agency which also emphasizes a watershed approach to mitigation.

Project Year	Applicant	Project Specifics
2006	Gulf LNG Energy, LLC and Gulf LNG Pipeline, LLC	Proposal to site, construct, and operate a new liquefied natural gas receiving terminal. This project proposed the permanent fill of 4.88 acres of coastal wetlands and 2.55 acres of freshwater wetlands with temporary impacts to 9.34 acres of coastal wetlands and 10.62 acres of freshwater wetlands. Mitigation for these impacts was proposed through the creation of 7.6 acres of coastal wetlands and the purchase of freshwater wetland credits.
2006	City of Biloxi – 4 permits	Maintenance dredging permits were filed for the City's Commercial Docking Facility, the Lighthouse Fishing Dock, the Small Craft Harbor, and the Point Cadet Marina.
2006	Bayou Cassotte Energy, LLC	The proposed project included building and operating an onshore liquefied natural gas import terminal and associated facilities on Bayou Cassotte in Jackson County, MS. This project proposed to permanently impact 116 acres of non-tidal wetlands and 6 acres of tidally influenced wetlands. Another 17.2 acres of non-tidal and 7.7 acres of tidally-influenced wetlands would be temporary impacted. The project was approved by the Commission on Marine Resources.
2006	City of Gulfport	The City requested a maintenance dredge permit for the Bert Jones Yacht Basin. The project was approved by the Commission on Marine Resources.
2007	J. Levens Builders and Pearlington	A permit application was submitted to excavated 115.1 acres of low quality pine savanna wetlands. This project involved three types of compensatory mitigation: creation, enhancement, and preservation. Coastal Zone Consistency was issued by the

	Dirt Company	MDMR.
2007	Pass Christian	An application was submitted for the Pass Christian Small Craft Harbor for the restoration of approximately 307 boat slips.
2007	City of Pascagoula	Application to dredge areas around the Round Island breakwater to mitigation the effects of Hurricane Katrina. An Individual Permit was issued to the city.
2007	Harrah's Entertainment	Authorization for the construction of bulkhead for shoreline stabilization for the Construction of the Margaritaville Casing and Resort.
2007	Jackson County Board of Supervisors	9 applications for maintenance dredge activities were approved by the Commission on Marine Resources.
2008	Harrison County Development Commission	Request to dredge an existing waterway to allow the launching of vessels constructed by Gulf Ships, LLC. The project was approved by the Commission on Marine Resources.
2008	Hancock County Port and Harbor Commission	Application for maintenance dredge activities within Port Bienville Industrial Park. The project was approved by the Commission on Marine Resources.
2008	Harrison County Development Commission	Application for maintenance dredging of an existing sedimentation basin. An Individual Permit was issued.
2008	Chevron Products Company	An application for dredging of Bayou Cassotte was filed in conjunction with a request to fill 69.99 acres of low quality non-tidal wetlands. The applicant proposed to mitigate by the purchase of mitigation credits. An Individual Permit was issued by MDMR.
2009	CSX Transportation	An application was submitted for the voluntary clean up of PAH contamination. Besides the cleanup activities, the project included impacting 0.7 acres of tidal marsh with could be mitigated for by creating and/or restoring 2.14 acres of tidal marsh on-site.
2010	City of Bay. St. Louis	Application for the construction of a municipal harbor complex including the fill of 2.19 acres of sand beach and 0.06 acres of water-bottoms. The proposal facility is the first public recreational harbor within Hancock County, Mississippi and was approved by the Commission on Marine Resources.
2010	City of Waveland	Application to construct 102-slip municipal harbor including the proposed fill of 2.5 acres of sand beach. The project will also create 9.8 acres of sand beach to mitigate for the 2.5 acres filled by the project. This project was approved by the Commission on Marine Resources.
2010	Hancock County Board of Supervisors	Sand beach re-nourishment project consisting of a 200-foot re-nourishment area, 50-foot intertidal zone, and 250 to 500-foot borrow area. The project was approved by the Commission on Marine Resources.

MDMR's Annual Report (2009) indicates the State of Mississippi currently holds the title to over 35,000 acres of critical habitat within the Coastal Preserves. Additional acreage totaling 10,000 acres is held by the National Park Service and the U.S. Fish and Wildlife Service.

Accurate data on the number of acres gained through mitigation since 2006 is not readily available. According to the Regional Internet Bank Information Tracking System (RIBITS), accessed on June 29, 2010, there were 5 active mitigation banks within the three coastal counties. Three of these mitigation banks are new since 2006: Dead Tiger, Devil's Swamp, and Devil's Swamp Phase II. All five banks are located in Hancock and Jackson counties and include a total of 9,917.40 acres of land for mitigation use. The Nature Conservancy owns one bank in Jackson County, known as Old Fort Bayou. This is one of the only mitigation banks with Bay-Cypress-Tupelo-Swamp credits. According to the RIBITS site the Old Fort Bayou bank is currently sold out of credits, therefore its 1,730 acres were not included in the available land for mitigation total. More information regarding the active mitigation banks is included in the following table:

Mitigation Bank Name	County	Acres	Type of Credits Available
Dead Tiger	Hancock	1,387.40	Bottomland Hardwood and Wet Pine Flats
Devil's Swamp	Hancock	2,369.00	Bottomland Hardwood and Wet Pine Flats
Devil's Swamp Phase II	Hancock	3,336.00	Bottomland Hardwood and Wet Pine Flats
South Mississippi – 3 Bank Sites	Jackson	1421.00	Bottomland Hardwood and Wet Pine Flats
Mississippi Wetlands	Jackson	1404.00	Bottomland Hardwood and Wet Pine Flats
TNC – Old Fort Bayou (SOLD OUT)	Jackson	1730.00	Bay-Cypress-Tupelo-Swamp and Wet Pine Flats

Tidal wetland mitigation is handled by on-site, in-kind mitigation. Amendments made in 2006 to the Mississippi Gaming Commission regulations allowing land-based casinos in the three coastal counties is expected to help protect tidal wetlands from future impacts.

New beneficial use legislation has been adopted for Mississippi, however there are no completed beneficial use projects done in this assessment period under the new legislation.

3. Provide a brief explanation for trends.

As a general trend, the wetland acreage is decreasing in Coastal Mississippi. The Mississippi Gulf Coast continues to rebuild following the devastation of Hurricane Katrina. Based on permitting information from the MDMR's Bureau of Wetland Permitting, the overall number of permitting actions has decreased from 2006 to 2010. This decrease is attributed to the number of permits required during the recovery period post-Hurricane Katrina was primarily during 2006 and 2007. From 2008 (incomplete data) through 2010 the number of permits issues for wetland impacts has remained relatively constant. The table below provides information from the MDMR bi-annual Performance Report for the state's CZM Grant. Although the development pressure

has decreased since the previous assessment due to the economic recession, the focus of large scale development continues to include areas with threatened coastal wetlands. Based on information from the U.S. Census Bureau's website, the three coastal counties have reached 94% of the pre-Katrina population and 93% of the pre-Katrina housing units as of 2009 and 2008 respectively. As the population continues to rebound, the need for housing will continue to increase accordingly. This data indicates that additional development is needed to reach pre-Katrina numbers.

Year	General Permit Total	Permit Total	Permit Action Totals[1]
2006	189	29	650
2007	189	18	653
2008[2]	128	7	269
2009	300	10	572
2010	234	11	451

[1] Permit Actions include: Consistency, Consistency After-the-Fact, Direct Federal Consistency, Direct Federal Consistency Modification, Emergency Order, Exclusion, General Permit, General Permit After-the-Fact, General Permit Extension, General Permit Modification, NWP Review, Permit, Permit After-the-Fact, Permit Extension, Permit Modification, Review Violation, Wavier, Wavier After-the-Fact, Waiver Extension, and Waiver Modification.

[2]Data for 2008 was only reported for the second half of 2008 (July- December).

Commercial development continues to increase as shown by developments such as the Promenade shopping center in D'Iberville, Harrison County, MS. The Promenade is a 700,000 square foot development which has the potential to provide up to 1,000 new jobs as well as retail shopping options for over 300,000 coast residents. Also, in Harrison County, the redevelopment of the Port of Gulfport has the potential to increase development pressures in the immediately surrounding areas. The harbor area and downtown Gulfport will experience spin-off development from the port expansion project. The port expansion projected completion coincides with the expansion of the Panama Canal in 2014 which will increase shipping between the West Coast and the Gulf Coast. Based on similar port expansions, this project has the potential to create 6,500 jobs. These two large developments are examples that indicate rebuilding efforts continue even five years after Hurricane Katrina. Other commercial areas are increasing development including casinos, shopping, recreation centers, and more. Casino development has slowed slightly due to the economic crisis. The Mississippi Gaming Commission amended its regulations in 2006 to allow land-based casinos within Hancock, Harrison, and Jackson Counties. These new regulations are expected to help alleviate tidal wetland impacts due to casino development pressures. As retail and commercial development continues to provide new job opportunities the population is expected to increase significantly, requiring additional housing options. These development pressures will continue to threaten sensitive wetland habitats for the foreseeable future.

Very little data exists with respect to sea level rise and its potential impacts to the Mississippi Coastal Zone. The State is currently in the process of developing a Sea Level Rise Action Plan that will discuss specific risks and vulnerabilities with respect to sea level rise. A 2001 study conducted by the Mississippi Department of Environmental Quality (MDEQ), Office of Geology analyzed aerial imagery and other geospatial data south of I-10 (below 15 foot elevation) to

determine levels of land gain and loss from 1850-1999. The study also analyzed marsh gain and loss from 1950-1999. Conclusions from the analysis revealed the following:

- A net of approximately 4000 acres of coastal Mississippi south of US 90 has been lost since 1850.
    - Total natural change: -5600 acres
    - Total man-made change: +1700 acres
- 9000+ acres of marsh south of I-10 (below 15 ft elevation) has been lost since 1950, or about 15% of total marsh in the area analyzed.
    - Approximately 2700 acres to water
    - Approximately 3500 acres to development
- Loss of coastal habitat continues at rates similar to historic trend.
- Present rate of sea level rise will maintain coastal habitat loss trend, expected increases in sea level rise will heighten coastal loss.

4. Identify ongoing or planned efforts to develop monitoring programs or quantitative measures for this enhancement area.

MDMR is currently developing a GIS-based permit tracking mechanism, which will be implemented by several staff members who will require specialized training and equipment. This computer-based method of tracking permits will allow MDMR to track the following: volume of permits requested/approved, the creation and enhancement of wetlands, and mitigation factors.

5. Use the following table to characterize direct and indirect threats to coastal wetlands, both natural and man-made. If necessary, additional narrative can be provided below to describe threats.

Type of Threat	**Severity of Impacts** (H,M,L)	**Geographic Scope of Impacts** (extensive or limited)	**Irreversibility** (H,M,L)
Development/Fill	H	Extensive	H
Alteration of hydrology	H	Extensive	H
Erosion	H	Extensive	H
Pollution	H	Extensive	H
Channelization	M	Limited	H
Nuisance or exotic species	H	Extensive	H
Freshwater input	L	Limited	L
Sea level rise/Great Lake level change	L	Extensive	H
Other (please specify)			

Development/Fill
The threat to both tidal and non-tidal wetlands from development and fill is a coast-wide

concern. Development pressures along the Gulf Coast of Mississippi remain steady. Nearly five years after the destruction of Hurricane Katrina, the region continues to rebuild. Development pressure is highest for residential development in traditionally rural areas and commercial industry in previously developed areas along the coast. The development pressures result in a loss of wetland areas, loss of function and loss of fish and nursery grounds. The factors preventing wetland preservation remain constant 1) need for redevelopment in the aftermath of Hurricane Katrina, 2) a desire to improve local economic status, and (3) desire to increase tax base. Development pressures from condominium and casino industries have spread beyond the Gulfport/Biloxi area and constitute a major threat to wetland areas.

Alteration of Hydrology

Fill and development of wetland areas alters the hydrology of surrounding wetland areas causing reduced value and functionality of the surrounding wetland areas. Alteration of hydrology also results from erosion and hardening of shorelines. Erosion from coastal hazards and development continues to threaten wetland hydrology.

Erosion

Erosion is the movement of sediment by either wind or water forces. Erosion is a major concern for development, where areas of loose dirt are present for long periods of time. Erosion from development is being addressed through state Stormwater regulations. Other causes of erosion include hardening of shorelines and alteration of natural sand transport processes. The threat of erosion is increasing and prevention is impeded by development pressures, inadequate mitigation for wetland fills, and naturally occurring events such as migration and coastal storms. Human activities such as construction, land clearing, filling of wetland areas, and recreation are impacting erosion rates. Recreational boating can cause large wakes which increase shoreline erosion. This erosion causes homeowners to seek protection in the form of bulkheads or other hardened shoreline approaches. Hardened shorelines alter natural water processes, increasing velocity downstream which leads to increased erosion. Hardened shorelines also deteriorate critical shoreline habitat.

Pollution

The recent Deepwater Horizon Oil Spill has become a substantial pollution threat to the coast of Mississippi. However, approximately 75% of pollution has been determined to originate with non-point sources. The EPA's Stormwater Phase II Program and the Section 6217 Non-point Pollution Program have increased awareness of non-point sources and the cumulative effects on water quality. Non-point source pollution can decrease functionality of wetland areas and alter the habitat for flora and fauna within the wetland ecosystem. The impediments to pollution reduction are incorrect use and installation of best management practices during development, lack of public awareness, lack of political support, lack of strict sustainable development, smart growth, and stormwater runoff ordinances, and lack of strict zoning and regulations.

Channelization

The threat of channelization is most evident near casinos and ports. Channelization causes alteration of hydrology, erosion and destruction of wetland habitats. The threats are stable and restrictions are impeded by development pressures.

Nuisance and Exotic Species
Nuisance and exotic species are often introduced into an eco-system due to human interference. Nuisance and exotic species threaten natural eco-systems because they outcompete native species. This decreases diversity within the eco-system and can lead to serious consequences for the native flora and fauna.

Freshwater Input
Freshwater input threatens saltwater marsh areas by damaging plants which typically thrive in high salinity waters. With the degradation of aquatic plants, the marshlands are susceptible to erosion from wave action or tidal influence.

Sea Level Rise
Very little data exists with respect to sea level rise and its potential impacts to the Mississippi Coastal Zone. The State is currently in the process of developing a Sea Level Rise Action Plan that will discuss specific risks and vulnerabilities with respect to sea level rise. Recent climate change studies by the EPA indicate that sea level rise can lead to land loss, reduction of wetland acreage, and erosion of ocean shores. Flooding risks are increased by sea level rise due to larger storm surges and slower drainage rates. The risks associated with sea level rise also include saltwater intrusion leading to higher salinity of surface and ground water that can be harmful to aquatic plants and animals in estuaries. Salt water intrusion can also affect shallow coastal aquifers.

6. **(Contextual Measure) Indicate** whether the Coastal Management Program (CMP) has a mapped inventory of the following habitat types in the coastal zone and the approximate time since it was developed or significantly updated

Habitat Type	**CMP has Mapped Inventory** (Y or N)	**Date Completed or Substantially Updated**
Tidal (Great Lakes) Wetlands	N	
Beach and Dune	N	
Nearshore	N	
Other (please specify)		

7. **(Contextual Measure)** Use the table below to report information related coastal habitat restoration and protection. The purpose of this contextual measure is to describe trends in the restoration and protection of coastal habitat conducted by the State using non-CZM funds or non Coastal and Estuarine Land Conservation Program (CELCP) funds. If data is not available to report for this contextual measure, please describe below actions the CMP is taking to develop a mechanism to collect the requested data.

Contextual Measure	Cumulative Acres for 2004-2010
Number of acres of coastal habitat restored using non-CZM or non-Coastal and Estuarine Land Conservation Program (CELCP) funds	Not Available

Contextual Measure	Cumulative Acres for 2004-2010
Number of acres of coastal habitat protected through acquisition or easement using non-CZM or non-CELCP funds	330

The CMP (through the Coastal Preserves program) will begin tracking the non-CZM and non-Coastal and Estuarine Land Conservation Program (CELCP) funded restoration projects which are completed by the CMP.

2.1.3 Management Characterization

Purpose: To determine the effectiveness of management efforts to address those problems described in the above section for the enhancement objective.

1. For each of the wetland management categories below, indicate if the approach is employed by the state or territory and if significant changes have occurred since the last assessment:

Management Categories	Employed by state/territory (Y or N)	Significant changes since last assessment (Y or N)
Wetland regulatory program implementation, policies, and standards	Y	Y
Wetland protection policies and Standards	Y	Y
Wetland assessment methodologies (health, function, extent)	Y	N
Wetland restoration or enhancement Programs	Y	N
Wetland policies related public infrastructure funding	Y	N
Wetland mitigation programs and Policies	Y	Y
Wetland creation programs and policies	Y	Y
Wetland acquisition programs	Y	Y
Wetland mapping, GIS, and tracking Systems	Y	Y
Special Area Management Plans	Y	N
Wetland research and monitoring	Y	N
Wetland education and outreach	Y	Y
Other (please specify)		

2. For management categories with significant changes since the last assessment provide the information below. If this information is provided under another enhancement area or section of the document, please provide a reference rather than duplicate the information.
    a) Characterize significant changes since the last assessment;

b) Specify if it was a 309 or other CZM-driven change (specify funding source) or if it was driven by non-CZM efforts; and
c) Characterize the outcomes and effectiveness of the changes.

Management Characteristic	Description of Change	CZM Driven (Y/N)	Outcome or Effectiveness
Wetland Regulatory Program Implementation, Policies, and Standards	New state legislation allows permitting agency to access private property to investigate violations, provides a specific permit timeline commencing at application completion, and allows fines up to $500/day for violators.	N	This legislation provides staff the ability to investigation violations and levy finds for damage to sensitive areas. The timeline change gives specific deadlines for staff and permit applicants to work with.
Wetland Protection Policies and Standards	New state legislation allows permitting agency to access private property to investigate violations, provides a specific permit timeline commencing at application completion, and allows fines up to $500/day for violators.	N	This legislation provides staff the ability to investigation violations and levy finds for damage to sensitive areas. The timeline change gives specific deadlines for staff and permit applicants to work with.
Wetland Mitigation Programs and Policies	MDMR currently follows the federal guidelines on mitigation programs and policies. The March 2008 Compensatory Mitigation Rule (Docket ID No: EPA–HQ–OW–2006–0020) by the Environmental Protection Agency emphasizes a watershed approach to mitigation and promotes the use of mitigation bank credits.	N	The outcomes and effectiveness of these changes have not been measured. The goal of the new rule is to promote mitigation banking to provide reliable and regulated restoration of wetland areas.
Wetland Creation Programs and Policies	MDMR has worked with other agencies including the Grand Bay National Estuarine Research Reserve, The Weeks Bay National Estuarine Research Reserve, the University of South Alabama, and others to present a workshop on constructing living shorelines. The	N	The living shorelines workshop held in March of 2010 had 63 people register.

Management Characteristic	Description of Change	CZM Driven (Y/N)	Outcome or Effectiveness
	emphasis of this workshop was on the function of shorelines and the benefits of living shorelines. Presentations were given on coastal processes, permitting requirements, funding opportunities and living shoreline design considerations. The		
Wetland Acquisition Programs	The State achieves wetland acquisition as part of the Coastal and Estuarine Land Conservation Program (CELCP) Plan.	Y (CELCP)	The State has prepared a draft implementation plan and is in the process of developing the State CELCP program. Its stated purpose is to utilize the CELCP program to continue its stated purpose of preservation and conservation of coastal wetlands and ecosystems, aquatic life, air, and water, historical and cultural resources, scenic qualities, and the public trust. During the Assessment period the CMP utilized CELCP funds to acquire the Ortte Tract - 102.3 acres in the Wolf River Coastal Preserve in 2008 and the Gex Tract – 77 acres in the Grand Bayou Coastal Preserve in 2007.
Wetland Mapping, GIS, and tracking Systems	MDMR has developed an online mapping tool which is currently equipped with GIS layers for surface water, watershed boundaries, proposed coastal preserves, shrimping and oyster harvesting zones, as well as coastal flood zones.	Y (306)	The effectiveness of the current mapping tool is difficult to quantify. The mapping tool can be utilized for educational and information purposes for coastal residents, planners, community leaders, regulators and others.
Wetland Education and Outreach	Several workshops have been made available to regulators, consultants, and academics. The workshop topics include:	Y (306)	The Coastal Training Program at the Grand Bay National Estuarine Research Reserve held 11 wetland-related workshops

Management Characteristic	Description of Change	CZM Driven (Y/N)	Outcome or Effectiveness
	wetland plant and soil identification, wetland restoration, alternatives to hardened shorelines, and promotion of smart growth techniques. The MS Coastal Program provides a standardized training program for new employees that include technical training on wetland delineation, wetland plant identification, hydric soils, and mitigation concepts.		with 341 attendees from 2007-2010. Data from the 4 wetland-related workshops held in 2006 was not readily available. Involvement in educational workshops includes members of local, state, and federal agencies as well as private consulting groups.

3. **(Contextual Measure)** Indicate whether the CMP has a habitat restoration plan for the following coastal habitats and the approximate time since the plan was developed or significantly updated.

Habitat Type	CMP has a Restoration Plan (Y or N)	Date Completed or Substantially Updated
Tidal (Great Lake) Wetlands	N	
Beach and Dune	N	
Nearshore	N	
Other (please specify)		

While the CMP does not currently have restoration plans in place by habitat type, the CMP does have site-specific restoration plans. In 2007, The MDMR contracted with a consultant to provide services related to the assessment and mapping of potential restoration sites and the development of site specific restoration plans. The contractor, who later became a MDMR employee, developed/updated prescribed burn plans for 6 fire-dependent Coastal Preserve Sites totaling almost 3,500 acres.

2.1.4 Priority Needs and Information Gaps

Using the table below, identify major gaps or needs (regulatory, policy, data, training, capacity, communication and outreach) in addressing each of the enhancement area objectives that could be addressed through the Coastal Management Program and partners (not limited to those items to be addressed through the Section 309 Strategy). If necessary, additional narrative can be provided below to describe major gaps or needs.

Gap or Need Description	Select Type of Gap or Need (regulatory, policy, data, training, capacity, communication & outreach)	Level of Priority (H, M, L)
Database/Mapping	Data, Training, Communication and Outreach	H
Erosion Control/Protection	Data, Communication & Outreach	H
Assessment of land & wetland loss due to human activities in the coastal zone.	Data, communication & outreach, and policy	M
Inventory and Restoration Plans	Data	L

Database/Mapping
This assessment identified gaps in the current database management and mapping strategies of the CMP. The database is still in the development stage and needs additional processing to function properly.

Erosion Control/Protection
Collection of data on current rates of erosion occurring within wetland areas is needed to support protection efforts. Specifically, loss of wetland habitat on the small islands in Mississippi's coastal bays and estuaries needs to be addressed. Wetland habitat extent data is needed as well as an assessment of factors contributing to erosion/degradation. These findings can be utilized to provide information for communication and outreach strategies.

Wetland Loss Assessment
In addition to the database and mapping needs, an assessment of the effects of human activities on wetland acreage over time is needed for this enhancement area. This constitutes a data gap but the information gathered will be beneficial in communication and outreach activities and potential new policies or regulations.

Inventory and Restoration Plans
In the process of this assessment, data on the following topics was not readily available: wetland acreages (including those gained through mitigation programs), mapped inventories of Beach, Dune, and Nearshore habitat, and acreages of habitat restoration. Another gap was identified in habitat restoration plans; while the CMP does have site-specific habitat restoration plans, the CMP does not currently have habitat restoration plans specifically designed for tidal, beach and dune, and nearshore habitats throughout the coastal zone.

2.1.5 Enhancement Area Prioritization

1. What level of priority is the enhancement area for the coastal zone (including, but not limited to, CZMA funding)?

High X
Medium _____
Low _____

Briefly explain the level of priority given for this enhancement area.

The priority given to this enhancement area is listed as high due to the number of gaps and needs identified during this assessment.

2. Will the CMP develop one or more strategies for this enhancement area?

Yes X
No ____

Briefly explain why a strategy will or will not be developed for this enhancement area.

Two strategies will be developed for the Wetlands enhancement area because the threat to wetland functioning and critical habitat is the greatest. More information is needed to fully address the current extent, functioning, and restoration potential of wetlands within the coastal areas of Mississippi.

2.2 Coastal Hazards

2.2.1 Section 309 Enhancement Objective

Prevent or significantly reduce threats to life and property by eliminating development and redevelopment in high-hazard areas, managing development in other hazard areas, and anticipating and managing the effects of potential sea level rise and Great Lakes level change

2.2.2 Resource Characterization

Purpose: To determine the extent to which problems and opportunities exist with regard to the enhancement objective.

1. Characterize the level of risk in the coastal zone from the following coastal hazards: (Risk is defined as: "the estimated impact that a hazard would have on people, services, facilities and structures in a community; the likelihood of a hazard event resulting in an adverse condition that causes injury or damage." *Understanding Your Risks: Identifying Hazards and Estimating Losses. FEMA 386-2. August 2001*)

Type of Hazard	**General Level of Risk** (H,M,L)	**Geographic Scope of Risk** (Coast-wide, Sub-region)
Flooding	H	Coast-wide
Coastal storms, including associated storm surge	H	Coast-wide
Geological hazards (e.g., tsunamis, earthquakes)	L	No record of tsunamis in Gulf of Mexico. No fault lines
Shoreline erosion (including bluff and dune erosion)	H	Sub-region
Sea level rise and other climate change impacts	M	Coast-wide
Great Lake level change and other climate change impacts	L	N/A

Type of Hazard	General Level of Risk (H,M,L)	Geographic Scope of Risk (Coast-wide, Sub-region)
Land subsidence	M	Sub-region (coastal beaches)
Other (please specify)		

2. For hazards identified as a high level of risk, please explain why it is considered a high level risk. For example, has a risk assessment been conducted, either through the State or Territory Hazard Mitigation Plan or elsewhere?

Hurricane Katrina brought the severity of Coastal Hazards to light for many coast residents as well as state and local governments. The State of Mississippi's Hazard Mitigation Plan (2010) identifies the following hazards as high risk for the State of Mississippi: Hurricane, Tornado and Flooding. The State's Hazard Mitigation Plan addresses shoreline erosion concerns with Hurricanes and Flooding issues. For the basis of this assessment, shoreline erosion is considered a high level of risk because of the correlation to flooding and coastal storm events.

Flooding

The State of Mississippi Hazard Mitigation plan includes flooding as one of the top eight hazardous concerns for the state. The State Hazard Mitigation plan includes discussion of Hazards U.S. Multi-Hazard (HAZUS–MH MR4) modeling used to analyze the potential for building losses due to flooding and potential for displaced population. The three coastal counties were listed as part of the most at risk for both of these concerns.

Coastal Storms

The State of Mississippi Hazard Mitigation plan identified hurricanes and tropical storms as a significant risk for Mississippi. Within the discussion of coastal storms the State Hazard Mitigation Plan addresses storm surge damage, flooding issues, erosion of shorelines, tornados and other hazards associated with large coastal storms. The State Hazard Mitigation Plan utilized a hazard identification and ranking worksheet to assess the level of risk for each potential hazard.

Shoreline Erosion

In Mississippi, the primary causes of erosion are coastal storms and flooding. The threat of shoreline erosion is greatest with coastal storms and associated storm surge. The increased energy of wave action on shorelines damages shorelines by removing sediment and altering geography. Winds and debris from coastal storms can also contribute to shoreline erosion. Flooding from these storms as well as seasonal coastal flooding can contribute to shoreline erosion. Human activities, such as recreational boating can lead to erosion issues in protected waters such as bayous and rivers. The State of Mississippi Hazard Mitigation Plan lists coastal erosion as a non-profiled hazard but discusses the potential risks under the Hurricane and Flooding sections of the plan.

3. If the level of risk or state of knowledge of risk for any of these hazards has changed since the last assessment, please explain.

The State of Mississippi Hazard Mitigation Plan for 2010 has lowered the risk for tsunamis from the 2007 Mitigation Plan. There is no historical evidence of tsunamis in the Gulf of Mexico and therefore very little data for prediction of future tsunamis. The State Hazard Mitigation Plan quantitatively measured the following hazards: Hurricane, Tornado, Flooding, Extreme Winter

Weather, Earthquake, Wildfire, Dam/Levee Failure and Drought/Water Supply.

4. Identify any ongoing or planned efforts to develop quantitative measures of risk for these hazards.

The State of Mississippi Hazard Mitigation Plan utilizes risk assessment worksheets to quantitatively measure certain risks within the state of Mississippi. The coastal hazards which have been ranked in the State Plan include Hurricanes (ranking score: 53), Flooding (ranking score: 56), and Earthquake (ranking score: 30). The remaining coastal hazards were not profiled in the State Hazard Mitigation Plan. This plan is a living document that is evaluated annually and updated every 3 years.

5. **(Contextual Measure)** Use the table below to identify the number of communities in the coastal zone that have a mapped inventory of areas affected by the following coastal hazards. If data is not available to report for this contextual measure, please describe below actions the CMP is taking to develop a mechanism to collect the requested data.

Type of Hazard	Number of Communities that have a Mapped Inventory	Date Completed or Substantially Updated
Flooding	14	October 2009 – DFIRM maps Hancock County June 2009 – DFIRM maps Harrison County March 2009 – DFIRM maps Jackson County
Storm surge	14	2010 – MEMA
Geological hazards (including Earthquakes, tsunamis)	0	Not Applicable
Shoreline erosion (including bluff and dune erosion)	13	Historic Shoreline Data 1993
Sea level rise	13	Historic Shoreline Data 1993
Great lake level fluctuation	Not Applicable	Not Applicable
Land subsidence	0	Not Applicable
Other (please specify)		

2.2.3 Management Characterization

Purpose: To determine the effectiveness of management efforts to address those problems described in the above section for the enhancement objective.

1. For each of the management categories below, indicate if the approach is employed by the state or territory and if significant changes have occurred since the last assessment:

Management Categories	Employed by state/territory (Y or N)	Significant changes since last assessment (Y or N)
Building setbacks/ restrictions	N	N
Methodologies for determining setbacks	N	N
Repair/rebuilding restrictions	Y	Y
Restriction of hard shoreline protection Structures	Y	N
Promotion of alternative shoreline stabilization methodologies	Y	Y
Renovation of shoreline protection structures	Y	Y
Beach/dune protection (other than setbacks)	Y	N
Permit compliance	Y	N
Sediment management plans	Y	Y
Repetitive flood loss policies, (e.g., relocation, buyouts)	Y	N
Local hazards mitigation planning	Y	Y
Local post-disaster redevelopment plans	Y	Y
Real estate sales disclosure requirements	Y	N
Restrictions on publicly funded Infrastructure	N	N
Climate change planning and adaptation Strategies	Y	Y
Special Area Management Plans	Y	N
Hazards research and monitoring	Y	N
Hazards education and outreach	Y	Y
Other (please specify)		

2. For management categories with significant changes since the last assessment provide the information below. If this information is provided under another enhancement area or section of the document, please provide a reference rather than duplicate the information.
   a) Characterize significant changes since the last assessment;
   b) Specify if it was a 309 or other CZM-driven change (specify funding source) or if it was driven by non-CZM efforts; and
   c) Characterize the outcomes and effectiveness of the changes.

Management Characteristic	Description of Change	CZM Driven (Y/N)	Outcome or Effectiveness
Repair/ Rebuilding Restrictions	All local governments have adopted more stringent building codes and elevation requirements	N	These changes were driven by disaster recovery actions which put emphasis on requiring safer structures. The outcomes and

Management Characteristic	Description of Change	CZM Driven (Y/N)	Outcome or Effectiveness
	since 2005.		effectiveness of the changes will be most apparent in the event of widespread flooding or other natural disaster.
Promotion of Alternative Shoreline Stabilization Methodologies	MDMR participated in a conference related to shoreline stabilization methodologies called Constructing Living Shorelines in March of 2010. This workshop provided background knowledge of coastal processes and the living shoreline design methodology.	N	Increasing awareness of alternative shoreline stabilization methodologies within DMR has promoted living shoreline stabilization projects within south Mississippi.
Renovation of Shoreline Protection Structures	The United State Army Corps of Engineers completed a renourishment of the Harrison County sand beach in 2007.	N	This renourishment of the sand beach resulted in approximately 900 acres of new sand placement. This renovation was in response to damage caused by Hurricane Katrina in 2005. Smaller beach renourishment projects have been undertaken along the Mississippi coast since Hurricane Katrina but the Harrison County effort was the most extensive.
Sediment Management Plans	MDMR has developed a program to promote the beneficial use of dredged materials.	Y (306 and 310)	This program has been effective at providing opportunities for dredged materials to be used in beneficial ways by stockpiling dredged materials for free or lower rates than disposal companies. Dredged materials were recently used in restoration activities on Deer Island. Funding for these efforts has been provided through a variety of sources including CIAP, Corps of Engineers funding, and local government funding.
Local Hazards Mitigation Planning	Harrison County updated the County's Hazard Mitigation Plan in August 2008.	N	Mitigation planning provides opportunities for municipal governments to received funding from FEMA to implement specific mitigation strategies that

Management Characteristic	Description of Change	CZM Driven (Y/N)	Outcome or Effectiveness
			are outlined in each plan. In addition, the mitigation plans in effect in the coastal region and throughout the state include locally specific mitigation strategies designed to 1) protect human health, safety, and welfare; 2) protect public infrastructure and critical facilities from damage; and 3) reduce local and state emergency management costs. The State and Local Hazard Mitigation Plans also include in-depth risk and vulnerability assessments designed to further understand risks associated with natural disasters and provide a context for effective mitigation planning.
Local Post-Disaster Redevelopment Plans	All municipalities and counties on the Gulf Coast have updated comprehensive plans and plans from the Renewal Forum held in 2005. Each of these communities also has a Hazard Mitigation plan which addresses this issue.	N	Most coastal communities have implemented or begun to implement at least components of post-disaster redevelopment in their comprehensive, environmental and transportation planning processes. Other than the plans indicated, there is little evidence that local communities have developed comprehensive post-disaster redevelopment plans. However, many coastal communities have developed strategies for hurricane debris management including identification of staging and disposal sites and agreements with local contractors to assist in the management of post-disaster debris. In addition, the local hazard mitigation plans are designed to identify and promote implementation of projects that are designed to make coastal

Management Characteristic	Description of Change	CZM Driven (Y/N)	Outcome or Effectiveness
			communities more resilient to future storms.
Hazards Education and Outreach	Hazards education and outreach is required from municipal and county Hazard Mitigation Plans.	N	Most local hazard mitigation plans include a mitigation strategy component that involves public education and outreach. These efforts combined with a general heightened awareness of risks associated with hurricanes and coastal storms have increased local knowledge and awareness of availability of resources such as shelters and relief aid made available during and after a significant natural disaster event. The State Hazard Mitigation Plan refers to several agencies and events designed to provide education and awareness of hazard events. These include: Flood Awareness Week, Hurricane Preparedness Week, Wildfire Prevention Month, Arson Awareness Week, National Fire Prevention Week, Mississippi Firewise, Tornado Awareness Month, and Severe Weather Awareness Week. Participating agencies include the Mississippi Emergency Management Agency, Mississippi Public Broadcasting, MDMR, Public School Districts throughout the State, and the State Board of Community and Junior Colleges.
Climate Change Planning and Adaptation Strategies	In January 2010, the State began the process of developing a Sea Level Rise Action Plan for the Mississippi Gulf Coast. The Plan does not provide additional modeling or projections but does provide an overview of existing	N	The Sea Level Rise Action Plan is currently in the final draft stages and is being reviewed by the State. Implementation of specific measures will be conducted primarily by local governments with assistance

Management Characteristic	Description of Change	CZM Driven (Y/N)	Outcome or Effectiveness
	models and projections as they relate to sea level rise on the Mississippi Coast. The Plan also provides a menu of response strategies categorized as Retreating, Adaptation, and Armoring. In addition to this planning effort, SLAMM modeling was conducted at the Grand Bay NERR and a Sea Level Rise Visualization Tool was developed by USGS		from the State. The SLAMM modeling conducted by USGS is complete. The report indicates that the Grand Bay NERR and Petit Bois Island is susceptible to the effects of sea level rise but not necessarily more so than the rest of the coast. The USGS Sea Level Rise Visualization Tool is online and accessible to the public.

3. **(Contextual Measure)** Use the appropriate table below to report the number of communities in the coastal zone that use setbacks, buffers, or land use policies to direct development away from areas vulnerable to coastal hazards. If data is not available to report for this contextual measure, please describe below actions the CMP is taking to develop a mechanism to collect the requested data.

   For CMPs that use numerically based setback or buffers to direct development away from hazardous areas report the following:

Contextual Measure	Number of Communities
Number of communities in the coastal zone required by state law or policy to implement setbacks, buffers, or other land use policies to direct develop away from hazardous areas.	0
Number of communities in the coastal zone that have setback, buffer, or other land use policies to direct develop away from hazardous areas that are more stringent than state mandated standards or that have policies where no state standards exist.	0

For CMPs that do not use state-established numerical setbacks or buffers to direct development away from hazardous areas, report the following:

Contextual measure	Number of communities
Number of communities in the coastal zone that are required to develop and implement land use policies to direct development away from hazardous areas that are approved by the state	0

Contextual measure	Number of communities
through local comprehensive management plans.	
Number of communities that have approved state comprehensive management plans that contain land use policies to direct development away from hazardous areas.	0

2.2.4 Priority Needs and Information Gaps

Using the table below, identify major gaps or needs (regulatory, policy, data, training, capacity, communication and outreach) in addressing each of the enhancement area objectives that could be addressed through the CMP and partners (not limited to those items to be addressed through the Section 309 Strategy). If necessary, additional narrative can be provided below to describe major gaps or needs.

Gap or Need Description	**Select Type of Gap or Need** (regulatory, policy, data, training, capacity, communication & outreach)	**Level of Priority** (H, M, L)
Coastal erosion is closely tied to natural hazards including those directly related to coastal hazards including sea level rise, hurricanes and other tropical activity. Efforts to minimize coastal erosion will have direct benefits in terms of mitigation of impacts from these events. Currently, there is no comprehensive inventory of hardened shorelines within the coastal region. A better understanding of the locations and effects of these hardened shorelines and they way in which they may be effected by severe coastal storms would assist in the development of a long-term, comprehensive strategy to address issues related to shoreline management.	Development of a hardened shorelines inventory and assessment as it relates to the potential for coastal erosion downdrift of hardened shoreline segments. The inventory will provide a mechanism for assessment of opportunities for alternative shoreline stabilization methods. Efforts to eliminate this data gap would include collection of data (inventory), and education related to the environmental benefits of alternative shoreline management approaches and policies.	M

2.2.5 Enhancement Area Prioritization

1. What level of priority is the enhancement area for the coastal zone (including, but not limited to, CZMA funding)?

High	
Medium	X

Low _____

Briefly explain the level of priority given for this enhancement area.

Coastal hazards will always be at least a medium priority for the Mississippi Coastal Zone. Establishment of this enhancement area as a medium priority as opposed to a high priority is primarily due to mitigation planning, education and outreach, and other policy changes (i.e. new flood maps) that have occurred in recent years and that are current in-force in the State.

2. Will the CMP develop one or more strategies for this enhancement area?

Yes **X**
No _____

Briefly explain why a strategy will or will not be developed for this enhancement area.

The hardened shorelines inventory and assessment project will provide benefits to coastal erosion and will indirectly mitigate impacts from coastal storms and other coastal hazards. Development of a strategy for this enhancement area is based on the overall lack of a comprehensive inventory of hardened shorelines in the coastal region. Development of an inventory and assessment is directly related to development of a comprehensive approach to discovery of alternative and more beneficial methods of shoreline management.

2.3 Public Access

2.3.1 Section 309 Enhancement Objective

Attain increased opportunities for public access, taking into account current and future public access needs, to coastal areas of recreational, historical, aesthetic, ecological, or cultural value

2.3.2 Resource Characterization

Purpose: To determine the extent to which problems and opportunities exist with regard to the enhancement objective.

1. Characterize threats and conflicts to creating and maintaining public access in the coastal zone:

Type of Threat or Conflict Causing Loss of Access	**Degree of Threat** (H,M,L)	**Describe trends or provide other statistics to characterize the threat and impact on access**	**Type(s) of Access Affected**
Private residential development (including conversion of public facilities to private)	L	No known issues.	
Non-water dependent commercial/industrial uses of the waterfront (existing or conversion)	L	Redevelopment or expansion of existing facilities.	Beach access, boat ramp access, fishing piers
Erosion	M	Erosion can threaten beaches as well as undermine pilings and other access structures.	Beaches, fishing piers
Sea level rise/ Great Lake level change	L	Public access sites are built in such a way as to not be affected by minor changes in sea-level.	None
Natural disasters	H	Destruction of infrastructure and natural habitat	Fishing, boating, marinas, piers, shoreline/beaches
National security	L	No know issues.	
Encroachment on public land	L	No know issues.	
Other			

2. Are there new issues emerging in your state that are starting to affect public access or seem to have the potential to do so in the future?

The primary impacts to public access since 2006 have been related to natural disasters in the form of hurricane damage. The effects of Hurricane Katrina have prevented re-opening of some public access sites. Damage from Hurricane Gustav in 2008 closed several fishing piers along the coastline.

3. **(Contextual Measure)** Use the table below to report the percent of the public that feels they have adequate access to the coast for recreation purposes, including the following. If

data is not available to report for this contextual measure, please describe below actions the CMP is taking to develop a mechanism to collect the requested data.

Contextual Measure	Survey Data
Number of people that responded to a survey on Recreational access	2003 – Approximately 7,000 statewide 2008 – Approximately 140 statewide
Number of people surveyed that responded that public access to the coast for recreation is adequate or better.	Approximately 140 public survey responses were received statewide from the 2008 survey.
What type of survey was conducted (i.e. phone, mail, personal interview, etc.)?	The survey was distributed as a random sampling throughout the State by the Mississippi Planning and Development Districts. The 2008 Mississippi State Comprehensive Outdoor Recreation Plan does not describe the distribution method. In addition to the public survey, a phone survey was conducted to determine the existing level of public access areas from municipal and county governments.
What was the geographic coverage of the survey?	State of Mississippi
In what year was the survey conducted?	2003 and updated in 2008

The Mississippi Department of Wildlife, Fisheries, and Parks conducted a public survey for the completion of the Statewide Comprehensive Outdoor Recreation Plan (SCORP). The original survey was conducted in 2003 and updated in 2008. The survey results are presented in a fashion that cannot be easily adapted to the previous table. Generally, for the coastal areas, the highest recreational activity requirements were for Canoe, Kayaking, Rafting, Tubing, Hunting, Bow Hunting, and Fishing (Bank or Pier) (2003 Survey). Statewide, the most requested recreation activities were Jog, Run, Walk for Exercise, Swimming (Recreational), and Fishing (Bank or Pier) (2008 Survey).

4. Briefly characterize the demand for coastal public access within the coastal zone, and the process for periodically assessing public demand.

An inventory of public access sites on the Mississippi Gulf Coast was conducted in 2008 by the Southern Mississippi Planning and Development District. This inventory was completed to update the previous database and assess the condition of public access sites along the coast of Mississippi and document lingering effects from Hurricane Katrina. The inventory provides information on what public access sites are open and what they offer to the public. In addition to the inventory, the Mississippi Department of Wildlife, Fisheries, and Parks updates the Statewide Comprehensive Outdoor Recreation (SCORP) plan every five years. According to statistics published in 2003 for the SCORP the demand for increased activities related to public access is high.

5. Please use the table below to provide data on public access availability. If information is not available, provide a qualitative description based on the best available information. If data is

not available to report on the contextual measures, please also describe actions the CMP is taking to develop a mechanism to collect the requested data.

Types of Public Access	Current Number(s)	Changes Since Last Assessment (+/-)	Cite Data Source
(Contextual Measure) Number of acres in the coastal zone that are available for public (report both the total number of acres in the coastal zone and acres available for public access)	Not Available		
(CM) Miles of shoreline available for public access (report both the total miles of shoreline and miles available for public access)	Total Miles: 659 miles Available for Public Access: 27.5 miles of beaches	+	MARIS
Number of State/County/Local parks and number of acres	257 Parks >114 acres of parks	0	County and City Websites Department of Wildlife, Fisheries and Parks,
Number of public beach/shoreline access sites	11	+	MDMR Public Access Inventory
Number of recreational boat (power or non-power) access sites	102 boat launches/ramps 72 public, operational boat launches/ramps	+	MDMR Public Access Inventory
Number of designated scenic vistas or overlook points	0	0	MDMR Public Access Inventory
Number of State or locally designated perpendicular rights-of way (i.e. street ends, easements)	90	None	MARIS
Number of fishing access points (i.e. piers, jetties)	50	+	MDMR Public Access Inventory
Number and miles of coastal trails/boardwalks	The 2008 Mississippi Comprehensive Outdoor Recreation Plan indicates total trail miles in		SCORP http://www.smpdd.com/data-center/scorp.html

Types of Public Access	Current Number(s)	Changes Since Last Assessment (+/-)	Cite Data Source
	Mississippi at 1613.8. However, the inventory included in the plan does not provide a breakdown by region or geography.		
Number of dune walkovers	0		
Percent of access sites that are ADA compliant access	Not Available		
Percent and total miles of public beaches with water quality monitoring and public closure notice programs	100% of 40 miles	None	USM's Beach Monitoring http://www.usm.edu/gcrl/msbeach/faq.htm
Average number of beach mile days closed due to water quality concerns	2657.9 average BMD from 2006-2009 84.067 average BMD from 2007-2009	+	EPA's BEACON USM Monitoring Data

The changes since the last assessment include expansion and redevelopment of many sites. However, there is no quantifiable data to accurately report acreage available for public access or to calculate net change since the last assessment. Public access inventories and a public access needs analysis will help the coastal program to quantify the available public access sites for the next review.

The Southern Mississippi Planning and Development District was contracted by MDMR to update an inventory of public access sites including marinas, boat launches, fishing piers, beach/shoreline access points, yacht clubs, and swimming areas. Of 120 sites visited, there are 102 boat launches or ramps, 50 fishing piers, 33 marinas/harbors, 6 yacht clubs, 10 areas designated for swimming, and 9 beach/shoreline access points (not including the sand beaches in Harrison and Jackson Counties). These numbers reflect the 2008 inventory of public access but not all of these sites were active at the time of the inventory assessment. The previous 309 Assessment focused on operational facilities. Since many of the sites included in MDMR inventory are currently under renovation, all potential public access sites are listed in the table above. An updated inventory will be released by the Southern Mississippi Planning and Development District in late 2010 which will include water-related and non-water-related public access sites.

MDMR's Public Access Inventory is the most readily accessible data source for beach/shoreline access. This inventory specifically designates six sites, including the barrier islands, as Beach/Shoreline Access Points. Another four beach access sites are found at state parks along the coast. Although not included in the inventory, shoreline access is also available along the 26 miles of beach located south of U.S. Highway 90 in Harrison County as well as at the Grand Bay NERR and within other preserves and parks sites.

The number of boat launches has increased since the last assessment primarily due to redevelopment after Hurricane Katrina. New boat launches were made available and formerly inoperable launches have been reestablished.

Board walks are available along the sand beach in Harrison County. Trails are available at the following state, local and federally maintained parks and nature areas: Scranton Nature Center (Pascagoula), Clower-Thornton Nature Area (Gulfport), Grand Bay NERR, Sandhill Crane Refuge, Twelve Oaks (Ocean Springs), and the DeSoto National Forest (Harrison County).

The monitoring data from the EPA's Beach Advisory & Closing On-Line Notification website was used to determine the average beach mile days closed due to water quality impairment. In part due to Hurricane Katrina the monitored beaches were closed for most of 2006. These year-long closures significantly increased the average beach mile days over the assessment time frame. Analysis of the data from 2007 through the end of 2009 gives an average beach mile days closed due to water quality impairments of 84.067. The data from 2007-2009 provides a more accurate view of average water quality related closures. The closures from 2006 can be attributed to both water quality concerns and marine debris directly related to Hurricane Katrina.

2.3.3 Management Characterization

Purpose: To determine the effectiveness of management efforts to address those problems described in the above section for the enhancement objective.

1. For each of the management categories below, indicate if the approach is employed by the state or territory and if significant changes have occurred since the last assessment:

Management Categories	**Employed by state/territory** (Y or N)	**Significant changes since last assessment** (Y or N)
Statutory, regulatory, or legal system changes that affect public access	N	N
Acquisition programs or policies	Y	Y
Comprehensive access management planning (including GIS data or database)	Y	Y
Operation and maintenance programs	Y	N
Alternative funding sources or techniques	Y	N
Beach water quality monitoring and pollution source identification and remediation	Y	N
Public access within waterfront redevelopment programs	Y	Y
Public access education and Outreach	Y	N
Other (please specify)		

2. For management categories with significant changes since the last assessment provide the information below. If this information is provided under another enhancement area or section of the document, please provide a reference rather than duplicate the information.
   a) Characterize significant changes since the last assessment;
   b) Specify if it was a 309 or other CZM-driven change (specify funding source) or if it was driven by non-CZM efforts; and
   c) Characterize the outcomes and effectiveness of the changes.

Management Characteristic	**Description of Change**	**CZM Driven** (Y/N)	**Outcome or Effectiveness**
Acquisition Programs or Policies	The CELCP program was originally created through The Department of Commerce, Justice, and State Appropriations Act of 2002 (Public Law 107-77). As a result of the directive, NOAA developed the Coastal and Estuarine Land Conservation Program Final Guidelines in June 2003, and is charged with administration of the program on the federal level. The State has prepared a draft implementation plan and is in the process of developing the State CELCP program. Its stated purpose is to utilize the CELCP program to continue its stated purpose of preservation and conservation of coastal wetlands and ecosystems, aquatic life, air, and water, historical and cultural resources, scenic qualities, and the public trust.	Y (CELCP)	CELCP is utilized by MDMR for land acquisition. This funding is primarily used to obtain critical habitat. Often areas surrounding critical habitat are utilized for public access, education and outreach campaigns (i.e. Gulf Islands National Seashore).
Comprehensive Access Management Planning (Including GIS Data or Database	The Statewide Comprehensive Outdoor Recreation Plan was updated for 2009-2014. This plan includes surveys of residents to determine the perceived need areas for public recreation. Also, a Public Access Inventory was completed in 2008 for DMR. This inventory has two parts, a document providing information	Y (309)	The State's recreation plan is used to develop strategies for improvements to public access to recreation activities. MDMR's Public Access Inventory is available for use by the general public for informational and recreation planning purposes.

Management Characteristic	Description of Change	CZM Driven (Y/N)	Outcome or Effectiveness
	on 120 public access sites in Hancock, Harrison, and Jackson Counties and an online mapping tool to graphically display those public access sites.		
Public Access Within Waterfront Redevelopment Programs	The Schooner Pier Complex in Biloxi is being enhanced for recreational activities. Marina expansion projects have occurred in Bay St. Louis and are underway in Gulfport. These expansion projects have included public access options in their plans and additions.	N	The expansion projects provide additional public access sites for the residents of Hancock, Harrison and Jackson Counties.

3. Indicate if your state or territory has a printed public access guide or website. How current is the publication and/or how frequently is the website updated? Please list any regional or statewide public access guides or websites.

In 2008, MDMR, with the assistance of the Southern Mississippi Planning and Development District, updated an inventory of public access points for the three coastal counties. This inventory is available at both MDMR and the District's websites. The inventory provides a document with pictures and information on the rebuilding of certain public access structures. There is also an interactive online map which allows users to see a photograph of the public access site as well as access information about the site. Although the 2008 inventory focuses on water-related public access, the Southern Mississippi Planning and Development District is working on an updated inventory with non-water-related sites included. Other public recreation information is available at municipal and county government websites, and the U.S. National Park Service.

2.3.4 Priority Needs and Information Gaps

Using the table below, identify major gaps or needs (regulatory, policy, data, training, capacity, communication and outreach) in addressing each of the enhancement area objectives that could be addressed through the CMP and partners (not limited to those items to be addressed through the Section 309 Strategy). If necessary, additional narrative can be provided below to describe major gaps or needs.

Gap or Need Description	Select Type of Gap or Need (regulatory, policy, data, training, capacity, communication & outreach)	Level of Priority (H, M, L)
Public Access Needs Assessment	Data	H
Public Access Plan to Meet Needs	Policy	M

Public Access Needs Assessment

An assessment of the public access needs of Mississippi's coastal residents is needed to provide data on current recreation options. This assessment will help to complete data gaps observed during the preparation of this 309 Assessment. Data gaps that will need to be addressed include the number of acres in the coastal zone available for public access, the number of ADA compliant access sites, the total mileage of shoreline access points, the total mileage of available boardwalks and trails, etc. It will also provide information to local, state, and federal agencies for future public access planning efforts.

2.3.5 Enhancement Area Prioritization

1. What level of priority is the enhancement area for the coastal zone (including, but not limited to, CZMA funding)?

High	
Medium	X
Low	

Briefly explain the level of priority given for this enhancement area.

The Public Access enhancement area is given a medium priority due to gaps that remain in public access facilities damaged or destroyed by Hurricane Katrina. Many of the coast's public access resources have been redeveloped since 2005. However, the need exists to conduct a comprehensive needs assessment to help local decision makers determine the best use of available resources to identify and fill existing gaps in public access facilities.

2. Will the CMP develop one or more strategies for this enhancement area?

Yes	
No	**X**

Briefly explain why a strategy will or will not be developed for this enhancement area.

A strategy will not be developed for this strategy. The CMP will continue the Public Access Inventory strategy from the previous Section 309 program in order to address the gaps and needs identified in this assessment.

2.4 Marine Debris

2.4.1 Section 309 Enhancement Objective

Reducing marine debris entering the Nation's coastal and ocean environment by managing uses and activities that contribute to the entry of such debris

2.4.2 Resource Characterization

Purpose: To determine the extent to which problems and opportunities exist with regard to the enhancement objective.

1. In the table below, characterize the significance of marine/Great Lakes debris and its impact on the coastal zone.

Source of Marine Debris	**Extent of Source** (H,M,L)	**Type of Impact** (aesthetic, resource damage, user conflicts, other)	**Significant changes since last assessment** (Y or N)
Land Based – Beach/Shore Litter	H	Aesthetic, resource damage	N
Land Based – Dumping	M	Aesthetic, resource damage	N
Land Based – Storm Drains and Runoff	H	Resource damage, user conflicts, Water Quality	N
Land Based – Fishing Related (e.g. fishing line, gear)	M	Aesthetic, Resource damage	N
Ocean Based – Fishing (Derelict Fishing Gear)	M	Aesthetic, Resource damage, user conflicts	N
Ocean Based – Derelict Vessels	M	Aesthetic, Resource damage, user conflicts	N
Ocean Based – Vessel Based (cruise ship, cargo ship, general vessel)	M	Resource damage, Water Quality	N
Hurricane/Storm	M	Aesthetic, Resource damage, user conflicts, water quality	N
Other (please specify)			
Other (please specify)			

2. If information is not available to fill in the above table, provide a qualitative description of information requested, based on the best available information.

The following table provides detailed debris information from the 2010 Mississippi Coastal Clean Up event. This event is held annually as part of the International Coastal Cleanup and data from the cleanup is used for targeted public education and outreach programs. The table lists the types and numbers of items found during the 2010 cleanup as well as potential resource impacts.

Source	# of Items	Type of Impact
Shoreline & Recreational Activities		
Bags (paper)	1,345	Aesthetic and resource damage
Bags (plastic)	4,239	Aesthetic and resource damage
Balloons	305	Aesthetic and resource damage
Beverage Bottles (plastic)	3,002	Aesthetic and resource damage
Beverage Bottles (glass)	4,386	Aesthetic and resource damage
Beverage Cans	4,012	Aesthetic and resource damage
Caps and Lids	4,699	Aesthetic and resource damage
Clothing/Shoes	887	Aesthetic and resource damage
Cups, plates, forks, knives, spoons	2,193	Aesthetic and resource damage
Food Wrappers/Containers	3,646	Aesthetic and resource damage
Pull Tabs	668	Aesthetic and resource damage
6-Pack Holders	239	Aesthetic and resource damage
Shotgun Shells/Wadding	114	Aesthetic and resource damage
Straws/Stirrers	1,812	Aesthetic and resource damage
Toys	376	Aesthetic and resource damage
Ocean/Waterway Activities		
Bait Containers/Packaging	209	Aesthetic and resource damage
Bleach/Cleaner Bottles	223	Aesthetic and resource damage
Buoys/Floats	124	Aesthetic and resource damage
Crab/Fish Traps	57	Aesthetic and resource damage
Crates	24	Aesthetic and resource damage
Fishing Line	539	Aesthetic and resource damage
Fishing Lures/Light Sticks	165	Aesthetic and resource damage
Fishing Nets	81	Aesthetic and resource damage
Light Bulbs/Tubes	72	Aesthetic and resource damage
Oil/Lube Bottles	236	Aesthetic and resource damage
Pallets	78	Aesthetic and resource damage
Plastic Sheeting/Tarps	341	Aesthetic and resource damage
Rope	359	Aesthetic and resource damage
Strapping Bands	242	Aesthetic and resource damage
Smoking Related Activities		
Cigarettes/Cigarette Butts	8,102	Aesthetic and resource damage
Cigarette Lighters	202	Aesthetic and resource damage
Cigar Tips	926	Aesthetic and resource damage
Tobacco Packaging/Wrappers	756	Aesthetic and resource damage
Dumping Activities		
Applicances	58	Aesthetic and resource damage
Batteries	83	Aesthetic and resource damage

Source	# of Items	Type of Impact
Building Materials	2,058	Aesthetic and resource damage
Cars/Car Parts	266	Aesthetic and resource damage
55 Gallon Drums	55	Aesthetic and resource damage
Tires	165	Aesthetic and resource damage
Medical/Personal Hygiene		
Condoms	121	Aesthetic and resource damage/Public Health
Diapers	85	Aesthetic and resource damage/Public Health
Syringes	16	Aesthetic and resource damage/Public Health
Tampons/Tampon Applicators	47	Aesthetic and resource damage/Public Health

Source: International Coastal Cleanup:
http://www.oceanconservancy.org/images/2010ICCReportRelease_pressPhotos/2010)_ICC_Report.pdf

The Coastal Cleanup event tabulates data for "baggable" debris only; the above table does not include 95,000 pounds of debris that could not be placed in trash bags. The debris was collected by more than 2,000 volunteers. The primary source of debris falls into the category of Shoreline and Recreational Activities. Marine debris associated with recreation continues to be of significant concern within the context of a comprehensive environmental management program.

The 2009 Mississippi Coastal Cleanup resulted in more than 49,000 pounds of trash and debris being removed from Hancock, Harrison, and Jackson County coastlines. The debris source information is not available for the Mississippi Coast 2009 cleanup event. A review of data from the International Coastal Cleanup 2009 Report indicates that for the United States as a whole, shoreline related activities were the largest contributor to marine debris followed by Smoking Activities and Ocean/Waterway Activities.

3. Provide a brief description of any significant changes in the above sources or emerging issues.

There are no significant changes in the sources of marine debris since the last assessment.

4. Do you use beach clean-up data? If so, how do you use this information?

Data collected from the Mississippi Coastal Cleanup is used to determine focus areas for public education and outreach efforts.

2.4.3 Management Characterization

Purpose: To determine the effectiveness of management efforts to address those problems described in the above section for the enhancement objective.

1. For each of the management categories below, indicate if the approach is employed by the state or territory and if significant changes have occurred since the last assessment:

Management Categories	**Employed by state/territory** (Y or N)	**Employed by local governments** (Y, N, Uncertain)	**Significant changes since last assessment** (Y or N)

Management Categories	Employed by state/territory (Y or N)	Employed by local governments (Y, N, Uncertain)	Significant changes since last assessment (Y or N)
Recycling requirements	N	N	N
Littering reduction Programs	Y	Y	N
Wasteful packaging reduction programs	N	N	N
Fishing gear management Programs	Y	N	Y
Marine debris concerns in harbor, port, marine, & waste management plans	Y	Y	N
Post-storm related debris programs or policies	Y	Y	N
Derelict vessel removal programs or policies	Y	Y	N
Research and monitoring	Y	Y	N
Marine debris education & Outreach	Y	Y	Y
Other (please specify)			

Recycling Requirements

In Mississippi, recycling is a voluntary activity rather than a mandatory program. The three coastal counties have drop off facilities for collecting recycling from the public. The cities of Biloxi, Gulfport, and Ocean Springs offer curbside recycling programs and provide recycling bins to residents. Pascagoula, Hancock County and Gautier each have locally sponsored programs in cooperation with local solid waste companies and provide drop-off locations that are widely publicized.

2. For management categories with significant changes since the last assessment provide the information below. If this information is provided under another enhancement area or section of the document, please provide a reference rather than duplicate the information.
   a) Characterize significant changes since the last assessment;
   b) Specify if it was a 309 or other CZM-driven change (specify funding source) or if it was driven by non-CZM efforts; and
   c) Characterize the outcomes and effectiveness of the changes.

Management Characteristic	Description of Change	CZM Driven (Y/N)	Outcome or Effectiveness
Fishing Gear Management Programs	MDMR sponsors a derelict crab trap removal program in order to reduce navigation hazards, improve aesthetics, and prevent ghost fishing. The 2010 program	N	In 2010, the program collected 347 derelict crab traps

Management Characteristic	Description of Change	CZM Driven (Y/N)	Outcome or Effectiveness
	was funded by the Fish American Foundation in partnership with the Brunswick Public Foundation and the National Oceanic and Atmospheric Administration Restoration Center for Community-Based Habitat Restoration.		
Marine Debris Education & Outreach	The Gulf of Mexico Marine Debris Program was developed in response to concerns for hazards to vessel traffic and threatened fishing grounds. The program was funded in 2006-2007 by NOAA's Office of Coast Survey and Office of Response and Restoration.	N	The Gulf of Mexico Marine Debris Program provides mapping information on the location of marine debris in the Gulf of Mexico. The survey of the Mississippi Sound was completed at the end of 2007 and is available online.

2.4.4 Priority Needs and Information Gaps

Using the table below, identify major gaps or needs (regulatory, policy, data, training, capacity, communication and outreach) in addressing each of the enhancement area objectives that could be addressed through the CMP and partners (not limited to those items to be addressed through the Section 309 Strategy). If necessary, additional narrative can be provided below to describe major gaps or needs.

Gap or Need Description	Select Type of Gap or Need (regulatory, policy, data, training, capacity, communication & outreach)	Level of Priority (H, M, L)
No specific priority needs or information gaps were discovered relative to Marine Debris.		

2.4.5 Enhancement Area Prioritization

1. What level of priority is the enhancement area for the coastal zone (including, but not limited to, CZMA funding)?

High _____
Medium _____
Low X

Briefly explain the level of priority given for this enhancement area.

Due to the increased awareness of the marine debris issue after Hurricane Katrina the storm related debris has been largely mitigated. These efforts continue through a variety of marine debris programs and therefore this enhancement area is considered a low priority.

2. Will the CMP develop one or more strategies for this enhancement area?

Yes	
No	**X**

Briefly explain why a strategy will or will not be developed for this enhancement area.

Through the assessment of this enhancement area no significant gaps or needs were identified so a strategy will not be developed for this enhancement area.

2.5 Cumulative and Secondary Impacts

2.5.1 Section 309 Enhancement Objective

Development and adoption of procedures to assess, consider, and control cumulative and secondary impacts of coastal growth and development, including the collective effect on various individual uses or activities on coastal resources, such as coastal wetlands and fishery resources.

2.5.2 Resource Characterization

Purpose: To determine the extent to which problems and opportunities exist with regard to the enhancement objective.

1. Identify areas in the coastal zone where rapid growth or changes in land use require improved management of cumulative and secondary impacts (CSI) since the last assessment. Provide the following information for each area:

Geographic Area	**Type of Growth or Change in Land Use**	**Rate of Growth or Change in Land Use** (% change, average acres converted, H,M,L)	**Types of CSI**
Coastwide	The only quantitative data illustrating specific land use changes are from a time period including 1996-2006. The majority of growth experience since the previous assessment is related to urbanization (commercial growth) and redevelopment from Hurricane Katrina (residential growth). However, most growth and/or development sectors have slowed since the economic downturn.	Unknown but anticipated to be medium based on post-Katrina redevelopment.	Assumed to be urbanization – change from undeveloped land to developed land. This assumed trend means higher runoff rates, potentially increased erosion and loss of green space.

2. Identify sensitive resources in the coastal zone (e.g., wetlands, water bodies, fish and wildlife habitats, critical habitat for threatened and endangered species) that require a greater degree of protection from the cumulative or secondary impacts of growth and development. If necessary, additional narrative can be provided below to describe threats.

Sensitive Resources	**CSI Threats Description**	**Level of Threat** (H,M,L)
Public	Continued beach closures due to biological impairment. The Mississippi	

Sensitive Resources	CSI Threats Description	Level of Threat (H,M,L)
Beaches	Beach Monitoring Program consists of sampling of water quality conditions from 21 monitoring locations. From 2006 through March of 2010, approximately nineteen beach closures have been in effect (not including hurricane-related closures). These closures are typically related to elevated bacteria levels that have to potential for human health impacts. In addition to the nineteen closures, a number of beach advisories were issued due to bacteria related concerns. Data from the Beach Monitoring Program may be found at www.usm.edu/grcl/msbeach/closehis.cgi.	M
Estuaries	The MDEQ 305(b) report from 2010 indicates that 97% of all Mississippi coastal waters fully support aquatic life based on indicators including Dissolved Oxygen, Temperature, and pH. Additional MDEQ data indicates the publication of four new TMDL reports for coastal and estuarine water bodies from 2006 to 2010. Many of the estuarine areas of the coastal zone have been impacted by human activities including erosion caused by boat wake.	M
Lakes	Lakes and other surface water elements are continually at risk of the same impacts from urban and rural runoff as other water features in the gulf coast region. Local efforts to manage water quality and non-point source pollution continue to have a positive impact on water quality. However, activities related to agriculture and urban development, including redevelopment from Katrina continue to present challenges to water quality.	M
Rivers	The Mississippi 303(d) listing of impaired streams includes those streams that have known water quality impairments. Causes of impairment are listed as biological, organic enrichment, low dissolved oxygen, and *enterococci*. All impairment causes listed can be directly attributed to non-point source pollution, agricultural activities, improperly working septic systems, and urban development activities and runoff.	H
Watersheds	The coastal counties in Mississippi are encompassed by three distinct basins (8-digit HUC) including the Coastal Streams, Pascagoula, and Pearl River Basins. Within these three basins are thirteen watersheds (11-digit HUC). The majority of watersheds in coastal counties include some level of urban development that has the potential to impact both linear and surface water bodies in the coastal region. Continued efforts to maintain water quality and to control urban and non-point source pollution are critical to the overall water quality health of water bodies in the region including the Mississippi Sound.	H
Shorelines	The variety of shoreline types (i.e. hardened and natural) existing along Mississippi's coastline has the potential for cumulative and secondary impacts with respect to water quality, erosion, and sediment deposition in the Mississippi sound and associated bays, bayous, and other waterways. The general tendency is for natural or "unprotected" shorelines adjacent to hardened shorelines to be a greater risk for coastal erosion due to wave or current action.	H

2.5.3 Management Characterization

Purpose: To determine the effectiveness of management efforts to address those problems described in the above section for the enhancement objective.

1. For each of the management categories below, indicate if the approach is employed by the state or territory and if significant changes have occurred since the last assessment:

Management Categories	**Employed by state/territory** (Y or N)	**Significant changes since last assessment** (Y or N)
Regulations	Y	Y
Policies	Y	N
Guidance	N	N
Management Plans	Y	Y
Research, assessment, monitoring	Y	Y
Mapping	N	N
Education and Outreach	N	N
Other (please specify)	N	N

2. For management categories with significant changes since the last assessment provide the information below. If this information is provided under another enhancement area or section of the document, please provide a reference rather than duplicate the information.
   a) Characterize significant changes since the last assessment;
   b) Specify if it was a 309 or other CZM-driven change (specify funding source) or if it was driven by non-CZM efforts; and
   c) Characterize the outcomes and effectiveness of the changes.

Management Characteristic	**Description of Change**	**CZM Driven** (Y/N)	**Outcome or Effectiveness**
Regulations	The primary change is related to changes in state regulations and permits. For example, since the previous assessment, the state has enacted new state general permits regulating Phase II stormwater communities and stormwater management associated with large (greater than 5 acre) construction activities. In addition, the State Department of Transportation is a regulated MS4. As a result, the MDOT stormwater management plan has more of a statewide focus.	N	Changes to the state's permits as illustrated have required enhanced regulation of post-construction stormwater best management practices such as retention and/or detention basins. The new permits also require a higher level of regulation with respect to protection of threatened and endangered species potentially impacted by construction and development activities. MDOT's stormwater management plan provides a context for management of sediment, erosion control, and water quality associated

Management Characteristic	Description of Change	CZM Driven (Y/N)	Outcome or Effectiveness
			with transportation improvements throughout the state.
Management Plans	Also through the Phase II Stormwater program, each local jurisdiction including cities and counties was required to develop a new or revised Stormwater Management Plan in 2008. These modified or updated plans were required to be consistent with the State's General Permit. While the management plans are local, they are primarily precipitated by changes to the state's general permit.	N	As with regulatory activities, the effectiveness of management plans is a function of each jurisdiction's level of effort for implementation.
Research, Assessment, Monitoring	Since the previous 309 Assessment and Strategy, the State of Mississippi through MDEQ has published annual 303(d) listings of impaired water bodies and 305(b) Water Quality Assessment Reports. These reports provide insight into the overall water quality health of the state and the coastal region. Data supporting publication of these reports is derived from local and state efforts to monitor water quality throughout the state.	N	The 303(d) and 305(b) reports are used as mechanisms to drive other regulatory activities such as establishment of Total Maximum Daily Load (TMDL) reports for stream segments, water bodies, beach stretches and other water-related features that are considered impaired.

2.5.4 Priority Needs and Information Gaps

Using the table below, identify major gaps or needs (regulatory, policy, data, training, capacity, communication and outreach) in addressing each of the enhancement area objectives that could be addressed through the CMP and partners (not limited to those items to be addressed through the Section 309 Strategy). If necessary, additional narrative can be provided below to describe major gaps or needs.

Gap or Need Description	Select Type of Gap or Need (regulatory, policy, data, training, capacity, communication & outreach)	Level of Priority (H, M, L)
Assessment of land & wetland loss due to human activities in the coastal zone.	Data, communication & outreach, and policy	M
The State of Mississippi, through the coastal county utility authorities has made	Continued education and outreach on septic system maintenance,	M

Gap or Need Description	Select Type of Gap or Need (regulatory, policy, data, training, capacity, communication & outreach)	Level of Priority (H, M, L)
significant progress in eliminating unsewered areas since Hurricane Katrina. However, large areas within the coastal counties continue to be unsewered and rely on site-specific mechanisms for wastewater treatment and disposal (i.e. septic tanks). Many of these on-site wastewater treatment systems are not properly managed or maintained, thereby contributing to water quality impairments, primarily in coastal streams. A need exists to provide greater regulation and education relative to septic tank and on-site wastewater management and maintenance.	decentralized wastewater systems, and agricultural buffers.	

2.5.5 Enhancement Area Prioritization

1. What level of priority is the enhancement area for the coastal zone (including, but not limited to, CZMA funding)?

High X
Medium _____
Low _____

Briefly explain the level of priority given for this enhancement area.

Issues related to water quality and non-point source pollution have and will continue to be a significant issue for Coastal Mississippi and the state as a whole. As a water dependent region and economy, issues related to tourism, economic development, and job creation can be directly related to water quality. In addition to the obvious environmental concerns, beach closures, fish and shellfish consumption advisories, and the potential for additional TMDLs have direct effects on the quality of life and economy in the coastal region. Protection, restoration, outreach, and education efforts are critical and on-going efforts to ensure that impacts of poor water quality are minimized. Loss of wetlands and shoreline stability related to human activities in the coastal zone continues to occur. Changes to these systems can be attributed in part to activities such as artificial shoreline hardening through sea walls, groins, and riprap, and from erosion caused by boat wake.

2. Will the CMP develop one or more strategies for this enhancement area?

Yes X
No _____

Briefly explain why a strategy will or will not be developed for this enhancement area.

Strategies related to Cumulative and Secondary Impacts will be developed to address issues related to artificial shoreline hardening and erosion impacts from boat wake. Both strategies will include development of new data, studies and analysis. In addition, both strategies with include a communication and outreach component and both have potential to lead to development of new policies.

2.6 Special Area Management Planning

2.6.1 Section 309 Enhancement Objective

Preparing and implementing special area management plans for important coastal areas.

> The Coastal Zone Management Act (CZMA) defines a Special Area Management Plan (SAMP) as "a comprehensive plan providing for natural resource protection and reasonable coastal-dependent economic growth containing a detailed and comprehensive statement of policies; standards and criteria to guide public and private uses of lands and waters; and mechanisms for timely implementation in specific geographic areas within the coastal zone. In addition, SAMPs provide for increased specificity in protecting natural resources, reasonable coastal-dependent economic growth, improved protection of life and property in hazardous areas, including those areas likely to be affected by land subsidence, sea level rise, or fluctuating water levels of the Great Lakes, and improved predictability in governmental decision making."

2.6.2 Resource Characterization

Purpose: To determine the extent to which problems and opportunities exist with regard to the enhancement objective.

1. Identify geographic areas in the coastal zone subject to use conflicts that can be addressed through special area management plans (SAMP). Also include areas where SAMPs have already been developed, but new issues or conflicts have developed that are not addressed through the current plan. If necessary, additional narrative can be provided below.

Geographic Area	Major Conflicts	Is this an emerging or long-standing conflict?
Harrison County Beach SMA	Potentially emerging conflicts between waterfront development interests and preservation of the beach area as a public recreation amenity have the potential to create management concerns. However, downturns in the economy since 2009 have served to minimize the conflicts. Likewise, a potential upswing in the economy has the potential to renew this conflict. Potential conflicts are primarily related to impacts to public use areas, viewsheds, and other public amenities as lands are redeveloped for commercial and/or private use.	Emerging
Inland areas of Hancock, Harrison, and Jackson Counties	Infrastructure development and planning has begun to outpace development activities primarily due to the current economic conditions. It is anticipated that development activities versus infrastructure creation will normalize when the economy begins to stabilize. When this set of circumstances is created, resource pressures will potentially be a concern again as new	Emerging

Geographic Area	Major Conflicts	Is this an emerging or long-standing conflict?
	developments are planned and resources such as wetlands are potentially impacted.	

2.6.3 Management Characterization

Purpose: To determine the effectiveness of management efforts to address those problems described in the above section for the enhancement objective.

1. Identify below any special management areas in the coastal zone for which a SAMP is under development or a SAMP has been completed or revised since the last Assessment:

SAMP Title	Status (new, revised, or in progress)	Date Approved or Revised
No new SAMPs have been developed or significantly modified since the last Section 309 Assessment.		

2. For management categories with significant changes since the last assessment provide the information below. If this information is provided under another enhancement area or section of the document, please provide a reference rather than duplicate the information.
   a) Characterize significant changes since the last assessment (area covered, issues addressed and major partners);
   b) Specify if it was a 309 or other CZM-driven change (specify funding source) or if it was driven by non-CZM efforts; and
   c) Characterize the outcomes and effectiveness of the changes.

There have been no significant changes to existing SAMPs or additions of new SAMPs since the last Section 309 Assessment and Strategy.

2.6.4 Priority Needs and Information Gaps

Using the table below, identify major gaps or needs (regulatory, policy, data, training, capacity, communication and outreach) in addressing each of the enhancement area objectives that could be addressed through the CMP and partners (not limited to those items to be addressed through the Section 309 Strategy).

Gap or Need Description	Select Type of Gap or Need (regulatory, policy, data, training, capacity, communication & outreach)	Level of Priority (H, M, L)
No specific priority needs or information gaps were discovered relative to Special Area Management Planning.		

2.6.5 Enhancement Area Prioritization

1. What level of priority is the enhancement area for the coastal zone (including, but not limited to CZMA funding)?

High _____
Medium _____
Low ____X____

Briefly explain the level of priority given for this enhancement area.

This is enhancement area is considered a low priority because the assessment did not reveal new or significantly altered areas in need of special management planning.

2. Will the CMP develop one or more strategies for this enhancement area?

Yes _____
No ____X____

Briefly explain why a strategy will or will not be developed for this enhancement area.

The assessment conducted relative to Special Area Management Planning did not reveal new or significantly altered SAMPs. In addition, no specific gaps relative to SAMPs were identified through the assessment process. As a result, no specific strategies will be developed relative to SAMPs.

2.7 Ocean/Great Lakes Resources

2.7.1 Section 309 Enhancement Objective

Planning for the use of ocean resources

2.7.2 Resource Characterization

Purpose: To determine the extent to which problems and opportunities exist with regard to the enhancement objective.

1. In the table below characterize ocean and/or Great Lakes resources and uses of state concern, and specify existing and future threats or use conflicts.

Resource or Use	**Threat or Use Conflict**	**Degree of Threat** (H,M,L)	**Anticipated Threat or Use Conflict**
Fisheries	1. Resources after Hurricane Katrina – Potential impacts on harvesting, processing, and distribution.	Moderate	Resources lost or damaged due to hurricane impacts.
	2. Non-point source pollution including sedimentation caused by unprotected urban construction and development activities.	High	Land use changes, increases in development, new development near the coastal zone.
	3. Harvesting of species at levels above optimum yield	Low	Over harvesting
Fisheries, Tourism, Economic Development	1. Offshore rigs are aesthetically displeasing to tourists	High	Potential for spills and potential loss of tourism dollars
	2. Potential for spills and pollution.	High	Coastal Mississippi is currently is under a significant level of concern over the potential impacts from the Deep Water Horizon oil spill currently occurring in the Gulf of Mexico. Numerous federal, state, and local agencies, partners, and stakeholders are working to develop solutions to the ever expanding plume of oil in the gulf. While the ultimate outcome is still unknown,

Resource or Use	Threat or Use Conflict	Degree of Threat (H,M,L)	Anticipated Threat or Use Conflict
			the spill will have some level of impact on the Mississippi Gulf Coast. Potential impacts may be cultural, economic, environmental, or any combination of these.
Fisheries, Commercial Fishing and Harvesting	1. Red tide events	Moderate	Reduced harvests; economic impacts; shellfish contamination; public health issues; potential impacts to tourism.
	2. Introduction of non-indigenous species	Moderate	Reduced harvests; damage to boats and other marine equipment; impacts to native species; economic impacts to seafood industry; potential for transfer to other waters.

2. Describe any changes in the resources or relative threat to the resources since the last assessment.

Fisheries – Resource Changes

Commercial and Recreational Fishery

The previous Section 309 Assessment communicated concerns relative to the Mississippi Coast fishery including the fishery as a resource and impacts to the commercial and recreational fishing industries. Many of the harbors and marinas that provided home berths to commercial and recreational vessels were damaged during Katrina and the health of the fishery was at risk due to the imputation of backwash debris from the receding storm surge. Primarily due to the efforts of local concerns as well as a number of state and federal agencies, the impacts to fishery resources such as the oyster beds has diminished and many resources that became "off-limits" immediately after Katrina are once again begin utilized to their full potential. In addition, many of the harbors and marinas significantly damaged or destroyed during Katrina have been rebuilt and are now fully functional, providing access to the fishery for both commercial and recreational fishing.

An analysis of the Mississippi Department of Marine Resources 2008 and 2009 Annual Reports indicates that oyster, shellfish, and finfish harvests have consistently increased since 2005 and 2006 with some harvest quantities beginning to approach pre-Katrina levels. In addition, data from FEMA indicates that as of January 2009, approximately 390,000 cubic yards of marine debris has been removed from the Mississippi Sound since Katrina.

The Mississippi Sound and the Gulf of Mexico fisheries are currently at risk from impacts related to the Deep Water Horizon oil spill. The spill resulted from an April 10, 2010 explosion on the Deep Water Horizon oil rig. The resulting oil plume continued to enlarge as efforts to stop the leakage continued to fail. At the writing of this assessment, the spill has been controlled at the source. However, lingering concerns exists over the potential long-term impacts of the incident. The state has developed a recovery plan to address these long-term impacts.

Non-point Source Pollution

While non-point source pollution continues to be a significant issue of concern for coastal Mississippi, the regulatory environment relative to this issue continues to evolve. All three coastal counties including the eleven municipalities located within these counties are regulated by both MDEQ and the US EPA under the NPDES Phase II Stormwater Program. In 2008, the State of Mississippi received approval of its renewed and redeveloped state general permit for stormwater management. In response to this new permit, each regulated city and county developed and submitted a revised 5-year stormwater management plan. As these local entities continue to implement strategies and initiatives designed to minimize the adverse impacts of non-point source pollution, changes in the landscape due to development and redevelopment continue to present challenges.

In response to these local conditions and similar circumstances existing nation-wide, the US EPA in 2009 promulgated the EPA Construction Stormwater Rule that establishes numeric limitations for certain categories of development and construction activities based on land areas impacted. Local responses to these new regulations combined with evolving local land use strategies and regulations have the potential to affect the overall impacts of non-point source pollution on water quality in the Gulf of Mexico.

The State of Mississippi continues to play an active role in control and regulation of non-point source pollution with the MDEQ in a regulatory role with respect to both public and private development activities as they potentially create and impact levels of non-point source pollution.

2.7.3 Management Characterization

Purpose: To determine the effectiveness of management efforts to address those problems described in the above section for the enhancement objective.

1. For each of the management categories below, indicate if the approach is employed by the state or territory and if significant changes have occurred since the last assessment:

Management Categories	**Employed by state/territory** (Y or N)	**Significant changes since last assessment** (Y or N)
Comprehensive ocean/Great Lakes management plan or system of Marine Protected Areas	Y	N (GEMS)
Regional comprehensive ocean/Great Lakes management program	Y	Y
Regional sediment or dredge material management plan	Y	N
Intra-governmental coordination mechanisms for Ocean/Great Lakes management	Y	N
Single-purpose statutes related to ocean/Great Lakes resources	Y	Y (See table below.)
Comprehensive ocean/Great Lakes management statute	N	N
Ocean/Great Lakes resource mapping or	Y	N

Management Categories	Employed by state/territory (Y or N)	Significant changes since last assessment (Y or N)
information system		
Ocean habitat research, assessment, or monitoring programs	Y	N
Public education and outreach efforts	Y	N
Other (please specify)		

2. For management categories with significant changes since the last assessment provide the information below. If this information is provided under another enhancement area or section of the document, please provide a reference rather than duplicate the information.
   a) Characterize significant changes since the last assessment;
   b) Specify if it was a 309 or other CZM-driven change (specify funding source) or if it was driven by non-CZM efforts; and
   c) Characterize the outcomes and effectiveness of the changes.

Management Characteristic	Description of Change	CZM Driven (Y/N)	Outcome or Effectiveness
Regional comprehensive ocean/Great Lakes management program	The Governors' Action Plan II as the basis for the Gulf of Mexico Alliance exists as the basis for intra-governmental coordination relative to resource management and protection in the gulf states. In addition, the Gulf of Mexico Commission has established a draft Vision for Gulf Coast Recovery, Restoration, and Protection in response to the Deep Water Horizon incident.	N	The Governors' Action Plan outlines and identifies six primary areas of focus and concentration for a sustainable Gulf of Mexico region including: Water Quality for Healthy Beaches and Seafood; Habitat Conservation and Restoration; Ecosystems Integration and Assessment; Reducing Nutrient Impacts to Coastal Ecosystems; Coastal Community Resilience; and Environmental Education. The State of Mississippi is actively involved in the Gulf of Mexico Alliance and in particular, the priority area relative to Coastal Community Resilience. As a primary outcome, the coastal states and communities are working together to plan and implement policies and actions designed to ensure a healthier and more resilient Gulf of Mexico region. The Gulf of Mexico Commission Vision Plan outlines specific goals and objectives designed to aid in

Management Characteristic	Description of Change	CZM Driven (Y/N)	Outcome or Effectiveness
			the environmental and economic recovery from the gulf oil spill as well as to provide a level of preparedness and resiliency to future incidents similar to the recent oil spill.
Single-purpose statutes related to ocean/Great Lakes resources	See Table Below	N	See Table Below

Summary of Mississippi Department of Marine Resources Regulations

Title Reference	Name	Purpose	Date
Title 22, Part 01	Oyster Growing and Harvesting	Regulates commerce of molluscan shellfish and to protect the public health of consumers	April 2010
Title 22, Part 02	Rules and Regulations for Shrimping	Regulation of the commercial and recreational shrimp fishery	September 2008
Title 22, Part 03	Menhaden	Regulates menhaden fishing through season and area restrictions	December 2006
Title 22, Part 04	Taking of Crabs	Regulates the commercial and recreational taking of crabs	December 2006
Title 22, Part 05	Use of Nets, Traps, Pots	Establishes regulations governing the use of nets, traps, and pots in Mississippi territorial waters	December 2006
Title 22, Part 06	Live Bait Shrimping	Provides for regulations of live-bait fishing	December 2006
Title 22, Part 07	Bag Limits	Regulates commercial and recreational fishing through bag limits, size limits, and equipment usage	January 2010
Title 22, Part 08	Official Standards of	Establishes standards of measurement in	January 2007

Title Reference	Name	Purpose	Date
	Measure	enforcement of other Title 22 parts.	
Title 22, Part 09	Confidentiality of Statistical Data	Provides regulations for the recording, reporting, and confidentiality of Mississippi seafood landings	January 2006
Title 22, Part 10	Marine Litter Act	Provides regulations to prohibit the disposal of plastic and other garbage in marine waters. This Part also provides for disposal facilities on vessels and at certain access areas and to provide penalties for the violations of the Marine Litter Act of 1989	December 2006
Title 22, Part 11	Disposition of Equipment and Seized Nets	Regulations for procedures for the disposition of equipment and/or nets seized by the Mississippi Commission on Marine Resources (MCMR)	January 2007
Title 22, Part 12	Regulation Vessel Seafood Transport	Regulations of vessel seafood transport	December 2006
Title 22, Part 13	Marine Aquaculture	Requirements for aquaculture activities in marine waters that require a permit under the provisions of the Coastal Wetlands Protection Act and the Mississippi Aquaculture Act of 1988, and said requirements are to be used in making permit decisions regarding regulated activities in marine waters and provide regulatory guidance for industry and resource agencies	December 2006
Title 22, Part 14	Derelict Vessel	Regulations to implement the derelict vessel act	December 2006
Title 22, Part 16	Boat and Water Safety	Rules and regulations for boat and water safety in the Marine waters of the State of Mississippi	March 2010
Title 22, Part 17	Shellfish	Regulation of shellfish landing, unloading, transport, buying, selling, opening and other	September

Title Reference	Name	Purpose	Date
	Landing	shellfish related activities in the State of Mississippi.	2009
Title 22, Part 18	Special Permit Regulations	Provides for the regulations for special permits	December 2006
Title 22, Part 19	Vehicle and Vehicle use in NERR	establishes a regulation to prohibit all motorized vehicle use within the publicly owned Mississippi Coastal Preserves and marine waters	December 2006
Title 22, Part 20	Administrative Penalty Procedures	Provides for penalties for violation of Title 22	May 2006
Title 22, Part 21	Regulate Processing and Sale of Crab	Establishes the minimum requirements necessary to regulate the processing of saltwater crabs and establishes a program to protect the public health of consumers by providing for the sale or distribution of saltwater crabs from safe sources and by providing that the saltwater crabs have not been adulterated during preparation, picking, packing, shipping and selling and other related activities in the state	December 2006

The regulations outlined in the above table, combined with statutes found in the Mississippi Code of 1972, Annotated, are part of a series of policies and laws regulating the marine environment and coastal resources in the State of Mississippi. The above table provides dates of the most recently adopted provisions of Title 22 indicated the date of policy changes. In general terms, these program changes are policy-related in nature and are not necessarily ties to specific funding programs such as CZM or CIAP. Statutes included in the MS Code include by reference:

- Title 29, Chapter 15 – Public Trust Tidelands Laws
- Title 49, Chapter 15 – Seafood Laws
- Title 49, Chapter 27 – Wetlands Protection Laws
- Title 57, Chapter 15 – Marine Resources Laws
- Title 59, Chapter 21 – Boat and Water Safety Laws

2.7.4 Priority Needs and Information Gaps

Using the table below, identify major gaps or needs (regulatory, policy, data, training, capacity, communication and outreach) in addressing each of the enhancement area objectives that could be addressed through the CMP and partners (not limited to those items to be addressed through the

Section 309 Strategy). If necessary, additional narrative can be provided below to describe major gaps or needs.

Gap or Need Description	Select Type of Gap or Need (regulatory, policy, data, training, capacity, communication & outreach)	Level of Priority (H, M, L)
No specific priority needs or information gaps were identified through the 309 Assessment process.		

2.7.5 Enhancement Area Prioritization

1. What level of priority is the enhancement area for the coastal zone (including, but not limited to, CZMA funding)?

High _____
Medium _____
Low X

Briefly explain the level of priority given for this enhancement area.

Ocean Resources is listed as a low priority because no gaps or needs were identified through this assessment.

2. Will the CMP develop one or more strategies for this enhancement area?

Yes _____
No **X**

Briefly explain why a strategy will or will not be developed for this enhancement area.

The assessment conducted relative to Ocean and Great Lakes Resources did not reveal the need for new or altered policies. In addition, no specific gaps relative to Ocean and Great Lakes Resources were identified through the assessment process. As a result, no specific strategies will be developed relative to Ocean and Great Lakes Resources.

2.8 Energy & Government Facility Siting

2.8.1 Section 309 Enhancement Objectives

Adoption of procedures and enforceable policies to help facilitate the siting of energy facilities and Government facilities and energy-related activities and Government activities which may be of greater than local significance

2.8.2 Resource Characterization

Purpose: To determine the extent to which problems and opportunities exist with regard to the enhancement objective.

1. In the table below, characterize the types of energy facilities in your coastal zone (e.g., oil and gas, Liquefied Natural Gas (LNG), wind, wave, Ocean Thermal Energy Conversion (OTEC), etc.) based on best available data. If available, identify the approximate number of facilities by type.

Type of Energy Facility	**Exists in CZ** (# or Y/N)	**Proposed in CZ** (# or Y/N)	**Interest in CZ** (# or Y/N)	**Significant changes since last assessment** (Y or N)
Oil and gas facilities	Y	N	Y	N
Pipelines	Y	Y	Y	N
Electric transmission cables	Y	N	Y	N
LNG	Y	Y	Y	N
Wind	N	N	N	N
Wave	N	N	N	N
Tidal	N	N	N	N
Current (ocean, lake, river)	N	N	N	N
OTEC	N	N	N	N
Solar	N	N	N	N
Other (please specify)	N	N	N	N

2. Please describe any significant changes in the types or number of energy facilities sited, or proposed to be sited, in the coastal zone since the previous assessment.

Two primary changes in energy facility siting have been proposed since the last assessment. New LNG transmission lines near the Mississippi Power generation facility in Biloxi have been submitted for permitting and new natural gas transmission lines have been proposed in the Wolf River Watershed that would potentially cross the Wolf River. Current information indicates that neither of the proposed activities have commenced but that both are in environmental review and permitting stages.

3. Does the state have estimates of existing in-state capacity and demand for natural gas and electric generation? Does the state have projections of future capacity? Please discuss.

The Energy Division of the Mississippi Development Authority (MDA) and the Mississippi Public Service Commission are the two primary organizations permitting, promoting, and exploring

opportunities for energy development and exploration of alternative energy sources for the State. Interviews with both agencies revealed that the State does not have comprehensive information related to existing or future capacities for gas and electric generation.

4. Does the state have any specific programs for alternative energy development? If yes, please describe including any numerical objectives for the development of alternative energy sources. Please also specify any offshore or coastal components of these programs.

The Mississippi Development Authority is actively recruiting companies that produce biofuels, and has brought three to the state in the last 18 months - Blue Fire Ethanol Fuels, KiOR and Enerkem. In a Special Session this summer, the legislature authorized $2 million in general obligation bonds for research on biomass usage at two of the state's universities. Specific numerical objectives were not provided but information indicated that Mississippi is ranked among the top five states in the US for potential biomass energy. Information reviewed did not indicate an offshore or coastal component other than the oil and gas exploration activities currently being conducted in the Gulf of Mexico.

5. If there have been any significant changes in the types or number of government facilities sited in the coastal zone since the previous assessment, please describe.

No significant changes in the types or number of government facilities located in the coastal zone.

2.8.3 Management Characterization

Purpose: To determine the effectiveness of management efforts to address those problems described in the above section for the enhancement objective.

1. Does the state have enforceable policies specifically related to energy facilities? If yes, please provide a brief summary, including a summary of any energy policies that are applicable to only a certain type of energy facility.

Title 53 of the Mississippi Code addresses oil, gas and other minerals and provides a regulatory framework for establishment and administration of the Mississippi Oil and Gas Board, development, production, and distribution of gas and oil, and policies relative to surface mining and reclamation. Title 77 of the Mississippi Code regulates public utilities with Title 77, Chapter 5 specifically addressing electrical power and Title 77, Chapter 11 specifically addressing gas pipelines.

2. Please indicate if the following management categories are employed by the State or Territory and if there have been significant changes since the last assessment:

Management Categories	**Employed by state/territory** (Y or N)	**Significant changes since last assessment** (Y or N)
Statutes or regulations	Y	N
Policies	Y	N
Program guidance	Y	N
Comprehensive siting plan (including SAMPs)	Y	N
Mapping or GIS	Y	N
Research, assessment or monitoring	Y	N
Education and outreach	Y	N

Management Categories	Employed by state/territory (Y or N)	Significant changes since last assessment (Y or N)
Other (please specify)	N	N

3. For management categories with significant changes since the last assessment provide the information below. If this information is provided under another enhancement area or section of the document, please provide a reference rather than duplicate the information.
   a) Characterize significant changes since the last assessment;
   b) Specify if it was a 309 or other CZM-driven change (specify funding source) or if it was driven by non-CZM efforts; and
   c) Characterize the outcomes and effectiveness of the changes.

There were no significant changes to the management categories listed in the table above during the assessment timeframe.

2.8.4 Priority Needs and Information Gaps

Using the table below, identify major gaps or needs (regulatory, policy, data, training, capacity, communication and outreach) in addressing each of the enhancement area objectives that could be addressed through the CMP and partners (not limited to those items to be addressed through the Section 309 Strategy). If necessary, additional narrative can be provided below to describe major gaps or needs.

Gap or Need Description	Select Type of Gap or Need (regulatory, policy, data, training, capacity, communication & outreach)	Level of Priority (H, M, L)
None noted.		

On September 29, MDEQ announced its initiation of the restoration planning phase of the Natural Resource Damage Assessment (NRDA) process in the wake of the Deep Horizon Oil Spill. Further signaling the state's continued efforts in restoring the Mississippi Gulf Coast, MDEQ also published a Notice of Intent to conduct Restoration Planning. DMR will be supporting the MDEQ in these efforts.

2.8.5 Enhancement Area Prioritization

1. What level of priority is the enhancement area for the coastal zone (including, but not limited to, CZMA funding)?

High _____
Medium _____
Low **X**

Briefly explain the level of priority given for this enhancement area.

The Mississippi Coastal Program has no jurisdiction over the siting of energy and government

facilities other than in situations where wetlands are impacted in the development process.

2. Will the CMP develop one or more strategies for this enhancement area?

Yes	
No	**X**

Briefly explain why a strategy will or will not be developed for this enhancement area.

The assessment conducted relative to Energy and Government Facility Siting did not reveal significant changes in programs or policies. In addition, no specific gaps relative to this enhancement area were identified through the assessment process. As a result, no specific strategies will be developed relative to Energy and Government Facility Siting.

2.9 Aquaculture

2.9.1 Section 309 Enhancement Objective

Adoption of procedures and policies to evaluate and facilitate the siting of public and private aquaculture facilities in the coastal zone, which will enable States to formulate, administer, and implement strategic plans for marine aquaculture

2.9.2 Resource Characterization

Purpose: To determine the extent to which problems and opportunities exist with regard to the enhancement objective.

1. Generally characterize the private and public aquaculture facilities currently operating in your state or territory.

Existing aquaculture facilities in Mississippi are associated with freshwater fish farming and are generally located in Delta regions of the State outside of the coastal zone. The Mississippi Code Section 79, Chapter 22 – The Mississippi Aquaculture Act of 1988 provides the authority under which aquaculture is regulated in Mississippi. A review of the code language in this section indicates that no significant policy changes have been enacted since its adoption in 1988. The Act details agencies involved in aquaculture and their specific roles including:

- The Department of Agriculture and Commerce as the lead agency responsible for permitting aquaculture activities in fresh and marine waters,
- MDMR as the permitting agency if proposed aquaculture activities are planned below the high tide line, in coastal wetlands, or areas suitable for water-dependent industries,
- The Mississippi Secretary of State as the permitting agency for uses of state lands including public trust tidelands. An aquaculture lease is required from the Secretary of State if aquaculture activities are proposed in the water column or sea bottom, and
- MDEQ as the permitting agency for NPDES and Water Quality Certification for marine net-pen aquaculture.

Type of Existing Aquaculture Facility	Describe Recent Trends	Describe Associated Impacts or Use Conflicts
Currently, no aquaculture facilities exist in the coastal zone.		

2.9.3 Management Characterization

Purpose: To determine the effectiveness of management efforts to address those problems described in the above section for the enhancement objective.

1. For each of the management categories below, indicate if the approach is employed by the state

or territory and if significant changes have occurred since the last assessment:

Management Categories	Employed by state/territory (Y or N)	Significant changes since last assessment (Y or N)
Aquaculture regulations	Y	N
Aquaculture policies	Y	Y
Aquaculture program guidance	Y	N
Research, assessment, monitoring	Y	N
Mapping	N	N
Aquaculture education & outreach	Y	N
Other (please specify) Marketing	Y	N

2. For management categories with significant changes since the last assessment provide the information below. If this information is provided under another enhancement area or section of the document, please provide a reference rather than duplicate the information.
   a) Characterize significant changes since the last assessment;
   b) Specify if it was a 309 or other CZM driven change (specify funding source) or if it was driven by non-CZM efforts; and
   c) Characterize the outcomes and effectiveness of the changes.

In December 2006, the State adopted new policies related to marine aquaculture that provide requirements for aquaculture activities in marine waters requiring a permit under the provisions of the Coastal Wetlands Protection Act and the Mississippi Aquaculture Act of 1988. However, no commercial aquaculture activities exist on the coast at the current time.

2.9.4 Priority Needs and Information Gaps

Using the table below, identify major gaps or needs (regulatory, policy, data, training, capacity, communication and outreach) in addressing each of the enhancement area objectives that could be addressed through the CMP and partners (not limited to those items to be addressed through the Section 309 Strategy). If necessary, additional narrative can be provided below to describe major gaps or needs.

Gap or Need Description	Select Type of Gap or Need (regulatory, policy, data, training, capacity, communication & outreach)	Level of Priority (H, M, L)
No priority needs or information gaps exist with respect to aquaculture.		

2.9.5 Enhancement Area Prioritization

1. What level of priority is the enhancement area for the coastal zone (including, but not limited to, CZMA funding)?

High	
Medium	
Low	X

Briefly explain the level of priority given for this enhancement area.

This enhancement area is considered a low priority due to the lack of significant changes to Aquaculture policies and programs in the state.

2. Will the CMP develop one or more strategies for this enhancement area?

Yes	
No	**X**

Briefly explain why a strategy will or will not be developed for this enhancement area.

The assessment conducted relative to Aquaculture did not reveal new or significantly altered policies or programs. In addition, no specific gaps relative to this enhancement area were identified through the assessment process. As a result, no specific strategies will be developed relative to Aquaculture.

3.0 Section 309 Strategies

3.1 Alternative Shoreline Management and Policy Development

I. Issue Area(s)

The proposed strategy or implementation activities will support the following priority (high or medium) enhancement area(s) *(check all that apply)*:

- ☐ Aquaculture
- ☐ Energy & Government Facility Siting
- ☒ Coastal Hazards
- ☐ Ocean/Great Lakes Resources
- ☐ Special Area Management Planning
- ☒ Cumulative and Secondary Impacts
- ☒ Wetlands
- ☐ Marine Debris
- ☐ Public Access

II. Program Change Description

A. The proposed strategy will result in, or implement, the following type(s) of program changes *(check all that apply):*

- ☐ A change to coastal zone boundaries;
- ☒ New or revised authorities, including statutes, regulations, enforceable policies, administrative decisions, executive orders, and memoranda of agreement/understanding;
- ☐ New or revised local coastal programs and implementing ordinances;
- ☒ New or revised coastal land acquisition, management, and restoration programs;
- ☐ New or revised Special Area Management Plans (SAMP) or plans for Areas of Particular Concern (APC) including enforceable policies and other necessary implementation mechanisms or criteria and procedures for designating and managing APCs; and,
- ☒ New or revised guidelines, procedures and policy documents which are formally adopted by a state or territory and provide specific interpretations of enforceable CZM program policies to applicants, local government and other agencies that will result in meaningful improvements to coastal resource management.

B. Describe the proposed program change(s) or activities to implement a previously achieved program change. If the strategy will only involve implementation activities, briefly describe the program change that has already been adopted, and how the proposed activities will further that program change. (Note that implementation strategies are not to exceed two years.)

As waterfront development activities increase in the coastal zone, impacts and changes to shorelines and coastal wetlands are continuously impacted by hardening of shorelines including installation of sea walls, riprap, groins, and other artificial stabilization methods. While shoreline erosion is a natural process, changes to the natural shoreline through hardening mechanisms have the potential to interrupt natural shoreline processes potentially leading to increased erosion down drift from the structure.

Through this strategy, the state will evaluate and recommend priority areas for the development of a Living Shoreline. To initiate this process, the state will conduct an inventory and assessment of hardened shorelines specific to areas designated as coastal preserves and the various bays and estuaries along the Mississippi coast. In addition, the State will develop outreach and education materials targeting waterfront property owners that are designed to encourage the use of shoreline hardening alternatives such as living shorelines, hybrid stabilization in appropriate areas, and eventual policy changes related to shoreline hardening. We will also review permitting practices to ensure that it is feasible to implement the desired shoreline management strategy in the areas indicated.

As a result of this strategy, the following will be implemented: review and revisions to existing wetlands and shoreline development permitting policies and procedures; development of a living shorelines planning and design guidance document; data on existing shoreline conditions resulting from the inventory and assessment; and continued education and outreach on the benefits of natural/living shorelines versus hardened shorelines.

The State will report its review of existing permitting policies and procedures to determine avenues for improvements to these policies and procedures designed to encourage development of alternative methods of shoreline management and protection. To assist with implementation of the revised policies and procedures, the state will develop a planning and design guidance document designed to provide shoreline property owners with technical assistance in planning for shoreline management and to provide specifics on alternatives to hardened shorelines. The inventory and assessment will result in a working GIS Shapefile showing shoreline conditions throughout the Mississippi Coast. This shapefile will be altered, amended, and edited as changes to the shoreline occur. The GIS data will also serve as a tool for permitting divisions to evaluate the need and justification for permits related to shoreline alteration.

III. Need(s) and Gap(s) Addressed

Identify what priority need the strategy addresses, and explain why the proposed program change or implementation activities are the most appropriate means to address the priority need. This discussion should reference the key findings of the Assessment and explain how the strategy addresses those findings.

Recent events including Hurricane Katrina have illustrated the delicate nature of the Mississippi Coast's shoreline. Combined with shoreline development and coast-wide urbanization, changes in the shoreline have the potential for detrimental impacts to water quality and marine habitats. Because of the varied methods of shoreline protection employed along the coast, some areas have a tendency to be more susceptible to wave and current action that may be magnified by existing hardened shorelines. Currently the state does not have a comprehensive inventory of shoreline protection measures employed throughout the coast. The proposed strategy will address this particular gap by providing for an inventory and assessment of existing shoreline conditions. In addition, the strategy will address policy gaps that exist through review and revision of existing policies related to permitting of shoreline protection activities. Finally, an outreach program will be implemented that will include development of a planning and design manual for alternative shoreline management techniques. The development of this manual will directly address the education and information gaps that exist relative to local information and knowledge of the benefits of alternative management techniques.

IV. Benefit(s) to Coastal Management

Discuss the anticipated effect of the program change or implementation activities including a clear articulation of the scope and value in improved coastal management and resource protection.

Implementation of this strategy will provide information and resources necessary to discourage the continued use of potentially harmful stabilization practices and will also provide mechanisms for conversion of hardened shorelines to more natural and sustainable stabilization methods. Specifically, this strategy will provide tangible benefits related to sea level rise, coastal erosion, and impacts to estuarine and coastal wetlands by mitigating over time the detrimental impacts of hardened shorelines.

V. Likelihood of Success

Discuss the likelihood of attaining the proposed program change and implementation activities. The state or territory should address: 1) the nature and degree of support for pursuing the strategy and the proposed change; and, 2) the specific actions the state or territory will undertake to maintain or build future support for achieving and implementing the program change, including education and outreach activities.

To fully address the nature and degree of support for pursuing the proposed strategy, the state will incorporate an education and outreach program specifically targeting shoreline property owners. The education program will be anchored by development of a planning and design manual designed to illustrate and communicate alternative methods of shoreline protection and management. It is understood that implementation of this strategy will require a long-term approach that will extend beyond available funding from Section 309. However, implementation of this strategy has support from the State and appropriately prepared and presented outreach and educational materials will provide the means to gain stakeholder support. To effectively communicate alternative stabilization processes and methods, the State will rely on existing research and data provided by the NOAA Office of Ocean and Coastal Resource Management to prepare and disseminate a “living shorelines” planning and design manual for use by stakeholders in determining appropriate alternative methods of shoreline stabilization.

VI. Strategy Work Plan

Using the template below, provide a general work plan that includes the major steps necessary for achieving the program change and/or implementing a previously achieved program change. The plan should identify significant projected milestones/outcomes, a schedule for completing the strategy, and budget estimates. If an activity will span two or more years, it can be combined into one entry (i.e., Years 2-3 rather than Year 2 and then Year 3). While the annual outcomes are a useful guide to ensure the strategy remains on track, OCRM recognizes that these benchmarks may change some over the course of the five-year strategy due to unforeseen circumstances. The same holds true for the annual budget estimates. If the state intends to fund implementation activities for the proposed program change, describe those in the plan as well. Further detailing of annual tasks, budgets, benchmarks, and work products will be determined through the annual award negotiation process.

Total Years:	Three years
Total Budget:	$222,900
Final Outcome(s) and Products:	1) Development of an inventory and assessment of existing hardened shorelines specific to areas designated as coastal preserves and the bays and estuaries of the Mississippi Coast. 2) Report reviews and revisions to permitting policies and procedures. 3) Development of an Alternative Shoreline Management Planning and Design Manual 4) Implementation of an education and outreach program targeting shoreline property owners.
Year(s):	Year 1 ($91,000): Inventory/Assessment and Development of Design Manual Year 2 ($81,900): Finalize Development and Design Manual and Review/Revision of Policies. Year 3 ($50,000): Finalize Policy Revision and Implementation of Education and Outreach Program
Description of activities:	The activities associated with this proposed strategy include: 1) review and revision to existing permitting policies and procedures; 2) development of a shoreline inventory and assessment and associated mapping; 3) Development of an Alternative Shoreline Management Planning and Design Manual, and 4) education and outreach targeting shoreline property owners.
Outcome(s):	The primary anticipated outcome is a comprehensive change in the way shorelines are managed throughout the coast. To facilitate this change, the state will generate four specific outputs to include revisions to existing permitting policies and procedures, an inventory and assessment of existing conditions, development of an Alternative Shoreline Management Planning and Design Manual, and targeted education and outreach for shoreline property owners.

3.2 Analysis of Erosion and Wetlands Loss Related to Boat Wake and Human Activities on Islands in Bayous, Rivers, and Bays

I. Issue Area(s)

The proposed strategy or implementation activities will support the following priority (high or medium) enhancement area(s) *(check all that apply)*:

- ☐ Aquaculture
- ☐ Energy & Government Facility Siting
- ☐ Coastal Hazards
- ☐ Ocean/Great Lakes Resources
- ☐ Special Area Management Planning
- ☒ Cumulative and Secondary Impacts
- ☒ Wetlands
- ☐ Marine Debris
- ☐ Public Access

II. Program Change Description

A. The proposed strategy will result in, or implement, the following type(s) of program changes *(check all that apply):*

- ☐ A change to coastal zone boundaries;
- ☐ New or revised authorities, including statutes, regulations, enforceable policies, administrative decisions, executive orders, and memoranda of agreement/understanding;
- ☐ New or revised local coastal programs and implementing ordinances;
- ☒ New or revised coastal land acquisition, management, and restoration programs;
- ☐ New or revised Special Area Management Plans (SAMP) or plans for Areas of Particular Concern (APC) including enforceable policies and other necessary implementation mechanisms or criteria and procedures for designating and managing APCs; and,
- ☒ New or revised guidelines, procedures and policy documents which are formally adopted by a state or territory and provide specific interpretations of enforceable CZM program policies to applicants, local government and other agencies that will result in meaningful improvements to coastal resource management.

B. Describe the proposed program change(s) or activities to implement a previously achieved program change. If the strategy will only involve implementation activities, briefly describe the program change that has already been adopted, and how the proposed activities will further that program change. (Note that implementation strategies are not to exceed two years.)

Increases in human activity in the Mississippi Sound and the coastal zone's bays, estuaries, bayous and rivers combined with onshore and near-shore development activities continues to impact water quality, cause erosion, and impairs the quality of coastal wetlands. One definable source of these impacts is related to boat wake and the impacts it has on small islands and marine life primarily located in the major bays within the Mississippi coastal zone. The Biloxi Back Bay, the Pascagoula Bay, and the mouth of the Pascagoula River all contain a series of small islands that are not developed for human habitation but that provide critical habitat for a variety of species of birds, and other marine-dependent wildlife. Islands located at the mouth of the Pascagoula and Biloxi Rivers

are included in designated coastal preserve areas through the Mississippi Gulf Ecological Management Sites (GEMS) program.

To better understand human impacts on these islands related to boat wake and other activities, the State proposes a strategy to conduct a study on the loss of wetlands and shorelines associated with the aforementioned islands as a result of unpermitted human activities. The state also proposes to develop an education/outreach program targeting boaters and other stakeholders. Through a proposed study of these aforementioned human activities, the state will evaluate the need for policy revisions that may include, but that are not necessarily limited to, establishment of new or revised no wake zones and implementation of additional and alternative shoreline protection measures.

III. Need(s) and Gap(s) Addressed

Identify what priority need the strategy addresses, and explain why the proposed program change or implementation activities are the most appropriate means to address the priority need. This discussion should reference the key findings of the Assessment and explain how the strategy addresses those findings.

Coastal erosion and loss of wetlands habitat on the small islands in Mississippi's coastal bays and estuaries remains an issue that has historically been difficult to quantify. Through this strategy the State seeks to conduct an analysis of wetlands loss and erosion as a result of boat wake and other human activities. Data collected through the analysis component of the strategy will assist in the development of outreach materials and the potential development of new policies to include but not limited to establishment of new "no wake" zones within proximity of the islands.

IV. Benefit(s) to Coastal Management

Discuss the anticipated effect of the program change or implementation activities including a clear articulation of the scope and value in improved coastal management and resource protection.

Specific enhancement areas potentially benefitting from this strategy include impacts to wetlands, reduction of cumulative and secondary impacts, and protection of ocean and marine resources. It is anticipated that data collected through this strategy will serve as the basis for policy changes designed to lessen or minimize impacts from these activities.

V. Likelihood of Success

Discuss the likelihood of attaining the proposed program change and implementation activities. The state or territory should address: 1) the nature and degree of support for pursuing the strategy and the proposed change; and, 2) the specific actions the state or territory will undertake to maintain or build future support for achieving and implementing the program change, including education and outreach activities.

Collection and analysis of data relative to wetlands loss and erosion will be conducted through an analysis of existing spatial data combined with field surveys and ground-truthing. Policy decisions will be directly related to data collected during the analysis phase. The State does have concerns related to its ability and availability of resources to enforce potential policy actions such as incorporation of no wake zones. However, it is believed that impacts from boat wake will be lessened to a degree by posting appropriate signage and buoys delineating and marking specific no wake

zones. To effectively address these issues, the state will conduct a comprehensive study on the impacts of human activities on shorelines (including islands) in bay and estuarine areas within the coast. The study will include specific recommendations for policy changes designed to protect coastal habitats and shorelines, and will include recommendations for education and outreach specific to human activities in bay and estuarine areas of the coast.

VI. Strategy Work Plan

Using the template below, provide a general work plan that includes the major steps necessary for achieving the program change and/or implementing a previously achieved program change. The plan should identify significant projected milestones/outcomes, a schedule for completing the strategy, and budget estimates. If an activity will span two or more years, it can be combined into one entry (i.e., Years 2-3 rather than Year 2 and then Year 3). While the annual outcomes are a useful guide to ensure the strategy remains on track, OCRM recognizes that these benchmarks may change some over the course of the five-year strategy due to unforeseen circumstances. The same holds true for the annual budget estimates. If the state intends to fund implementation activities for the proposed program change, describe those in the plan as well. Further detailing of annual tasks, budgets, benchmarks, and work products will be determined through the annual award negotiation process.

Total Years:	Three years
Total Budget:	$160,700
Final Outcome(s) and Products:	Creation of a study analyzing human impacts on wetlands loss and erosion on small islands located in the bays within the coastal zone. Additional outputs will include outreach/educational materials and potential policy actions designed to minimize human impacts on the natural resources contained within the islands.
Year(s):	Year 3 ($31,900): Conduct study and prepare report outlining policy and education recommendations. Year 4 ($46,900): Finalize study and report, begin implementation of policy changes. Year 5 ($81,900): Continue implementation of policy changes and implement education and outreach program.
Description of activities:	Through analysis of map data and field work, the State will prepare a study relative to human impacts on wetlands and shoreline; develop outreach and educational materials; and consider relevant policy changes. The study will also include specific recommendations for policy change and education and outreach. The second primary activity will involve implementation of the recommendations included in the research and study to include policy changes and proposed education and outreach activities.

Outcome(s):	Reduction of harmful impacts of human activities on island shorelines and coastal wetlands through a study of historical impacts and specific recommendations designed to minimize or reduce future impacts.

2011 – 2015 309 Budget Summary by Strategy

Strategy Title	Year 1 Funding	Year 2 Funding	Year 3 Funding	Year 4 Funding	Year 5 Funding	Total Funding
Alternative Shoreline Management & Policy Development	$91,000	$81,900	$50,000			$222,900
Analysis of Erosion and Wetlands Loss Related to Boat Wake and Human Activities on Islands in Bayous, Rivers, and Bays			$31,900	$46,900	$81,900	$160,700
2016-2020 309 Assessment and Strategy Development				$35,000		$35,000
Total Funding	**$91,000**	**$81,900**	**$81,900**	**$81,900**	**$81,900**	**$418,600**