

LOUISIANA COASTAL MANAGEMENT PROGRAM

Assessment and Strategy
2006-2011

Submitted to the
National Oceanic and Atmospheric Administration
Office of Ocean and Coastal Resource Management

For the Determination of Priority Enhancement Areas

Authorized by Section 309 Coastal Zone Protection Act of 1972
(As amended in 1990 and 1996)

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INTRODUCTION

Section 309 of the Coastal Zone Management Act (CZMA), as amended in 1990 and 1996, establishes a voluntary coastal zone enhancement grants program to encourage states and territories to develop program changes in one or more of the following nine coastal zone enhancement areas:

- Public Access
- Coastal Hazards
- Ocean Resources
- Wetlands
- Cumulative and Secondary Impacts
- Marine Debris
- Special Area Management Plans
- Energy and Government Facility Siting
- Aquaculture

This document is an Assessment and Strategy for enhancing Louisiana's Coastal Resources Program (LCRP) using section 309 funding from the U.S. Department of Commerce for the time period of 2006-2011. The document provides an introduction to Louisiana's Section 309 program, an overview of past 309 efforts, an assessment of coastal resources throughout the Louisiana Coastal Zone (LCZ) as they pertain to the nine pre-identified enhancement areas during the 2001-2005 reporting period, an identification of data gaps in obtaining 309 programmatic objectives, and a multi-year strategy for implementing priority enhancement projects. The implementation of the strategy will result in changes to the LCRP that support attainment of the objectives of one or more of the section 309 enhancement areas.

The implementation of the CZM Performance Measurement System will also occur during the time period of this assessment and strategy, 2006-2011. The performance measures for the Public Access and Government Coordination categories will be submitted to NOAA by July 31, 2006. Habitat (including Wetlands) and Water Quality will be submitted by July 31, 2007; Coastal Hazards and Community Development and Coastal Dependent Uses are due by July 31, 2008. Methods will be developed by the Louisiana Department of Natural Resources/Coastal Management Division (LDNR/CMD) to streamline the gathering of information and assessing progress in the management of the various categories.

Public notice of the assessment portion of the document was placed in the official state journal, *The Advocate*, on April 1, 2006. The Draft Assessment document was on the Louisiana Department of Natural Resources/Office of Coastal Restoration and Management (LDNR/OCRM) webpage. A public meeting was held on May 4, 2006, 10:00 a.m., in the LaSalle Building. One public comment

was received (please see Public Comment/Response). Copies of the document were sent to all of the state's approved Local Coastal Management Programs as well for input from our local partners in coastal management.

Over the past few years, the LCRP has been able to fund important projects through section 309. One such project improved the method by which the LDNR/CMD permit analysts measured wetland impacts and mitigation. The incorporation of a desktop GIS for permit analysts provided all pertinent information necessary for making permitting decisions on-line; and thus allowed the computer to run a query against the databases and the analyst to be alerted to potential problems and/or impacts. This system was implemented initially in 2000 but has undergone continuous upgrades and the inclusion of many additional datasets. For the years 2001 through 2005 as various state offices and other groups realized the value of the system, each asked that their data be incorporated. The functionality of the system has been incorporated into the new electronic permit system. This system is one of the premier permit analysis systems in the country. Another important project was the pipeline corridor study to designate a north/south and an east/west pipeline corridor across Lake Pontchartrain. This study not only had benefits in the immediate Lake Pontchartrain area but also served as a model for use in other parts of the LCZ.

There were a few changes in priority from the 2001-2005 reporting period. Coastal Hazards increased from a low priority to a high priority; Wetlands remained a high priority. Public Access, Cumulative and Secondary Impacts, and Energy & Government Facility Siting decreased in priority. The following categories remained low priority: Ocean Resources, Marine Debris, Special Area Management, and Aquaculture. Please see each category for a detailed discussion and rationale.

To continue improving the LCRP, Louisiana will build on previous Section 309 efforts while expanding its vision to include other concerns. Six strategies in two enhancement areas for the 2006-2011 period are proposed:

- **Coastal Hazards**

- Digital Mapping of Levees, Pumps, and Flood Control Features in Coastal Louisiana and Update of the Regulatory Hazards Protocol
- Coastal Hazard Mitigation Guidebook
- Coastal Use Activities Affecting the Chenier Plain Ecosystem
- Canal Construction and Maintenance

- **Wetlands**

- Beneficial Use of Dredge Material Contribution Fund
- Coastal Use Permit Mitigation Process

During the last reporting period, four tropical storms and five hurricanes raged across the coast of Louisiana. In 2005, Louisiana residents witnessed two of the strongest storms to hit the Louisiana coast, Katrina and Rita. The surge associated with these storms devastated cities throughout the LCZ, impacting homes, businesses, schools, and recreational facilities. Boats and many other large man-made objects which were capable of floating were washed several miles inland, stranded on wetlands and were not able to be retrieved. Wells and/or production platforms toppled; petroleum and hazardous material containers of various types floated from their foundations; storm surges filled agriculture fields destroying crops; and pipelines broke spilling oil onto adjacent wetlands and water bodies. Primary residences and recreational camps at Grand Isle, Fourchon, Caminada, Rutherford Beach, and Holly Beach, as well as communities such as Lafitte, Empire, Cameron, lower St. Bernard and Plaquemines Parishes and the region south of Houma suffered major damages from the destructive forces of wind and water from the hurricanes.

The parishes of Orleans, St. Bernard, Plaquemines, Jefferson, and St. Tammany suffered extreme destruction when Hurricane Katrina swept across Louisiana. Flooding in the New Orleans and surrounding areas was anticipated, but the extent of the inundation was uncertain and was expected to be mainly from rainwater events associated with the passage of the tropical system. However, significant levee failures including at least four breaches occurred along three New Orleans canals as a result of Katrina and lead to catastrophic damages. The levees were, according to the Corps of Engineers designed to withstand surges normally considered to be associated with a tropical system of a Category 3 level or less. Katrina was determined, through post storm analyses, to be a Category 3, demonstrating that the levees could not hold up to a category 3 and its associated storm surge. While Katrina wreaked havoc on the eastern side of the state, Rita did the same for the western half of Louisiana. Whole communities were lost such as Holly Beach. The parish seat, Cameron was also severely impacted. Storm surge pushed inland as far as the GIWW and carried with it massive amounts of debris from destroyed homes and businesses including much oil field related debris. Power remained out for several months in many areas.

The assessment and strategy will further discuss the impacts to Louisiana's coastal area, both present and future, from Hurricanes Katrina and Rita.

SUMMARY OF PAST EFFORTS

As a result of the Section 309 Assessment in 2001, there were three priority enhancement areas identified: 1) developing pipeline corridors in Lake Pontchartrain, 2) water use and 3) private canal barricades. A number of unexpected events occurred which required that the Louisiana Coastal Resources Program revise its Section 309 Strategy as originally proposed in April 2001. These events were largely outside the control of the LDNR/CMD, and LDNR/CMD's proposed response to these events was to delete the private canal barricades and the water use from the approved Section 309 tasks. The new task proposed was the Revision of the Coastal Use Permit (CUP) Mitigation Process. The first two priority enhancement areas were deleted because the Louisiana Legislature acted to address both issues subsequent to the development of the Final Section 309 Strategy.

In the case of the Barricade issue (Public Access), the LDNR determined that the task was being addressed by other state efforts and therefore did not carry the task out.

In the case of the Water Use Task (Cumulative and Secondary Impacts), the Legislature passed a bill which created a Task Force to develop Louisiana's water use policies. Part of the role of the Task Force was to determine which agencies should be responsible for which actions. Further, the timetable of the Task Force and the Water Use Task were not compatible. Since another LDNR agency (Office of Conservation) was the lead agency in the water use effort, CMD determined to not carry out the water use task.

The tasks which replaced these were the Revision of the CUP Mitigation Process (Wetlands) and bringing the ten approved local coastal programs (LCPs) into compliance with the Conservation Plan by getting appropriate mitigation for permitted activities and enforcement actions. The CUP Mitigation Rules, La. Admin. Code 43:1,724, were established in August 1995 with agency and stakeholder input. In recent years, LDNR/CMD permit and mitigation staff have recognized the need to improve the CUP mitigation process in order to help streamline the permitting process and make it more efficient. A program change which will occur as a result of this task will be amended mitigation regulations and modified regulatory procedures. Once the regulations are amended through the state Administrative Procedures Act, the LDNR/CMD will submit them to the National Oceanic and Atmospheric Administration (NOAA) as a Routine Program Change. This task involved a review and evaluation of existing mitigation procedures and rules to determine where the problem areas occurred and what could be done about them. In addition to reviewing the mitigation procedures and regulations from the CUP perspective, the effect of mitigation procedures on Local Coastal Programs (LCPs) and federal consistency was also evaluated.

During the 2001-2005 assessment period, LDNR/CMD mitigation staff have drafted proposed amended mitigation rules to reflect updated restoration costs for the LCZ, to evaluate time-based mitigation requirements, and to increase the ability of LCPs to successfully achieve mitigation. The proposed amended rules have gone through internal agency review and are currently undergoing a legal citation review. The benefits of these revised mitigation regulations will be realized by LDNR/CMD permit and mitigation staff, LCPs, and stakeholders. Promulgation has been indefinitely suspended pending the outcome of the New Orleans District of the U.S. Corps of Engineers' Impact and Compensation Assessment Technique (ICAT) proposal and the U.S. Corps of Engineers headquarters and EPA federal mitigation regulations.

The parish LCPs have passed new ordinances regarding mitigation, with the exception of one parish that was dramatically impacted by Hurricane Katrina. This parish was in the process of completing the ordinance when Katrina struck.

The priority enhancement project to develop pipeline corridors in Lake Pontchartrain (Energy and Government Facility Siting) stemmed from the issue of increased population in the LCZ and the increased need for oil and gas pipelines. The issue is becoming more difficult as the coastal population expands and the demand for oil and gas increases. In previous years it was relatively easy to place pipelines in areas that were unpopulated, although this often resulted in adverse impacts to farmland, wetlands, and water bodies. Now that the coastal population has expanded and that the value of the remaining farmland, wetlands, and water bodies has been recognized, the siting of pipelines has become more problematic.

As a result, LDNR/CMD proposed that a pipeline corridor study be done to designate a north/south and an east/west pipeline corridor across Lake Pontchartrain. The study involved stakeholders from the pipeline industry, regulatory and commenting government agencies, the environmental community, and such other groups who expressed interest in participating in the study. A set of General Conditions for the CUP process was established outlining the location, placement, and design and construction criteria for the pipeline corridors, which were based on discussions with the above mentioned groups and the technical expertise of the LDNR/CMD staff. This study not only had benefits in the immediate Lake Pontchartrain area but will also serve as a model for use in other parts of the LCZ.

PUBLIC ACCESS

SECTION 309 PROGRAMMATIC OBJECTIVES

- I. Improve public access through regulatory, statutory, and legal systems.
- II. Acquire, improve, and maintain public access sites to meet current and future demand through the use of innovative funding and acquisition techniques.
- III. Develop or enhance a Coastal Public Access Management Plan which takes into account the provision of public access to all users of coastal areas of recreational, historical, aesthetic, ecological, and cultural value.
- IV. Minimize potential adverse impacts of public access on coastal resources and private property rights through appropriate protection measures.

RESOURCE CHARACTERIZATION

Extent and Trends in Providing Public Access (publicly owned or accessible):

1. Provide a qualitative and quantitative description of the current status of public access in your jurisdiction. Also, identify any ongoing or planned efforts to develop quantitative measures to assess your progress in managing this issue area.

Louisiana has long been referred to as a Sportsman's Paradise. Louisiana's coastal zone provides a variety of recreational opportunities and amenities to residents and tourists alike. Louisiana's vast landscape, from the Gulf of Mexico, to the herbaceous wetlands, to the forested wetlands, and the upland and plains in the inland areas, provides the opportunity for outdoor activity such as hiking, biking, swimming, fishing, boating, camping, hunting, birding, and picnicking.

The major providers of opportunities for public recreation in Louisiana are parish and local governments, the Louisiana Department of Wildlife and Fisheries (LDWF); the Louisiana Office of Forestry; the Louisiana Department of Culture, Recreation and Tourism; Sabine River Authority; the United States Forest Service; the United States Army Corps of Engineers (USACE); the National Park Service; and the United States Fish and Wildlife Service (USFWS). Coastal Louisiana has 17 Wildlife Management Areas and Wildlife Refuges, seven National Wildlife Refuges, seven State Parks, and one National Park providing public access to recreational and cultural resources for locals and tourists.

A major problem which continues to plague recreational opportunity and facilities providers and users is the lack of available public access. Public access to

beaches and recreational areas situated on the Gulf of Mexico currently comprise less than one percent of the entire Louisiana coastline. There are several aspects of the term “access”. This issue will be addressed relative to access and use of state owned navigable waterways, the existence of public recreational areas, and access to the beach. The most pressing need is the lack of public recreational areas situated on waterways and the coastal beach areas that already have road access. In many areas, people use the highway R-O-W to park, fish, crab, etc. Most of these would logically need to be local or state government sponsored and maintained parks, recreational areas, piers, campgrounds, and similar facilities. For those citizens that do not have a boat, access to recreation is more limited.

Hurricanes Katrina and Rita swept across the Louisiana coastal zone bringing onshore a devastating storm surge. An assessment of public access sites has not been done at this time, but it is probably safe to assume that a large majority of public access points within the LCZ were compromised in some fashion either by being obstructed by debris or decimated from winds and storm surge. This effect will be most acutely felt by coastal parishes such as St. Tammany, St. Bernard, Plaquemines, Jefferson, and Cameron, which sustained the most damage from the hurricanes.

The effects of storm debris, such as building wreckage, cars, home appliances, boats, barrels, tanks/containers on public access are another issue that is of concern. The Federal Emergency Management Agency (FEMA) coordinates federal assistance following a disaster in the United States. FEMA provides supplemental aid to communities and the State to help them during recovery from a disaster. Through the Public Assistance Program, state and local governments and nonprofit groups are being offered aid to conduct recovery and response operations including some forms of debris removal as well as support to develop hazard mitigation measures (Table 1). The removal of debris which has health and safety implications across the LCZ is also being addressed through ESF-3 and ESF-10. At this time, priority regarding debris removal is to remove debris that poses health and safety risks, clear rights of way for accessibility down streets and major thoroughfares to essential points of interest for the public, and to clear potentially hazardous material.

Table 1. Categories of work done by FEMA through the Public Assistance Program

	Category	Type of Work
Emergency Work	A	Debris removal
	B	Emergency protective measures
Permanent Work	C	Roads and Bridges
	D	Water control facilities
	E	Buildings and equipment
	F	Utilities
	G	Parks, recreational facilities, and other items

Adopted from the FEMA Public Assistance Guide

Information on access type and numbers was gathered from the Louisiana Division of Administration, Infrastructure Info Center; the Louisiana Department of Culture, Recreation and Tourism, Office of State Parks; and the LDNR/CMD permitting database. Some of these projects have been completed and some are authorized or permitted only. The LDNR/CMD or other state or local databases do not record these variables as such, and therefore this information is not easily gleaned. Another information source is the Louisiana Oil Spill Coordinators Data Catalog and web site (<http://lagic/lsu.edu/loscoweb>) which records boat launch locations. However, the data is not consistent in the definition of a “public” launch. In most cases of this dataset, commercial launches are considered public.

Access Type	Current Number(s)	Change Since Last Assessment
State/Parish/Local Parks (# and acres)	51(49.2acres)/14/2	Unknown
Beach/Shoreline Access Sites (#)*	2	Unknown
Recreational Boat (power or non-power) Access Sites (#)	257	Unknown
Designated Scenic Vistas or Overlook Points #	6 –two bird viewing towers constructed on Sabine by parish	Unknown
State or Locally Designated Perpendicular Rights-of-Way (i.e., street ends, easements) #	Several on Grand Isle One at Fourchon Two in Cameron	Unknown
Fishing Points (i.e., piers, jetties) #	9	Unknown
Coastal Trails/Boardwalks (# and miles)	17 (2.96 miles)	Unknown
ADA Compliant Access (%)	7	Unknown
Dune Walkovers (#)	Several on Grand Isle One at Fourchon One in Cameron	Unknown

Public Beaches with Water Quality Monitoring and Public Notice (% of total beach miles) and Number Closed due to Water Quality Concerns (# beach mile days)	13 beaches have water quality monitoring stations. 4 of these were in non-compliance and posted swimming advisories (2005)	Unknown
Number of Existing Public Access Sites that have been Enhanced (i.e., parking, restrooms, signage #)*	44	Unknown

CMD cannot determine the actual change in the numbers in the table above as the data for the last report was prepared by a contractor and the source of their numbers is unknown. Several different state agencies have responsibility and jurisdiction for developing public recreational sites and opportunity in Louisiana. Additionally, the local governments also develop and manage recreational sites, but have no directives to report their activities. To coordinate these activities being undertaken by each of these agencies is a daunting task. This report has been done by CMD staff and the numbers determined from sources available to the general public.

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

The process for assessing public demand is usually through questionnaires and/or opinion polls conducted by contractors for one of the resource agencies. Demand for public access in the LCZ remains high according to the most recent Louisiana Statewide Comprehensive Outdoor Recreation Plan (Office of State Parks 2003) which states that issues regarding facility needs in the Southern region of the state include access to Louisiana's coastline other than by boat (Office of State Parks 2003, p. 8).

3. Identify any significant impediments to providing adequate access, including conflicts with other resource management objectives.

The impediments to providing more public recreational areas is the lack of funding to local governments and in some case the lack of a realization by government officials that there is a demand for public recreational areas. There are two factors involved in the problem of providing adequate access to existing public lands and beaches. In most areas of Louisiana, the beaches are far from the nearest road access. The extensive system of marshes and bays behind the actual beach preclude development of access roads, therefore the beach is accessible only by boat. The exceptions to this are a section of Cameron Parish

where the beach has eroded back to the point that the beach is adjoining the highway right-of-way and Grand Isle which is our only barrier island with road access. However in this area there is no development of parking or recreational facilities. Grand Isle does have public access points to the beach through perpendicular street ends, though more parking would be beneficial. In the only other location where a road comes to the beach, at Fourchon, the private landowner blocked vehicular access to the beach by driving piles down to the high water line. One of the problems mentioned is the limited number of public boat launches. Most boat launches are commercially operated and charge a fee (\$3 - \$10) to launch. (Office of State Parks, 2003).

Currently driving down the beach is a means of access along the beach in those few areas that have road access. However, driving motorized vehicles on the beach is somewhat of a controversy, especially in Cameron Parish. There exist safety concerns of drivers injuring others on the beach and a problem of vehicles destroying dune vegetation.

Louisiana's LCZ is experiencing drastic land loss brought about by a combination of levee construction, subsidence, and sea level rise. LDNR/OCRM actively works to restore the devastating effects of coastal erosion on environmental functions, but there is also a socio-economic component to this wetland loss. The vast expanse of fragile land is of significant value to the state and the nation. Louisiana's wetlands contribute greatly to the nation's fish and wildlife production, provide migratory grounds for birds, and buffer damaging impacts of storms. Eco-tourism wetland related activities contribute \$220 million annually to the state's economy (Coreil 1994). The Office of State Parks (2003) has stated their concern about the carrying capacity of some of the state's public recreation and natural areas allowing public access while protecting the environment.

The Office of State Parks expresses concern regarding poor water quality restrictions on water-oriented recreation. Although this situation seems to be reversing, the agency is still concerned about sewage treatment, agricultural runoff, industrial waste, and littering affecting public recreational facilities (Office of State Parks 2003).

Louisiana's outdoor recreation suppliers are faced with dwindling funds. Federal and state reduction in funds has hampered the ability for normal everyday operations, maintenance, and repair of recreational facilities and programs. To add to this already declining source of funding for the State for recreational and public access, funding from the federal government through the Land and Water Conservation Fund and the Federal Highway Administration to fund acquisition and development of public outdoor recreation areas and facilities and the Louisiana Department of Transportation and Development's Transportation Enhancement Program respectively have been cut drastically (S. Meek, *pers. commun.* 2005, S. Murray, *person. commun.* 2005).

4. Please explain any deficiencies or limitations in data.

Louisiana currently has no central repository for compiling public access available throughout the LCZ or the state. A database containing all public access sites with pertinent information (i.e., directions, specifications, and pictures) would aid Louisiana residents and tourists who use recreational facilities in Louisiana. This could also support emergency and planning efforts during the response and recovery stage of a natural disaster or other emergency event. Since much of the data is taken by different agencies at differing time intervals, for different purposes, it is difficult to track and normalize the information. Many smaller projects are undertaken by local agencies and the work not reported to the state agencies.

5. Does the state have a Public Access Guide or Website: How current is the publication or how frequently is the website updated?

The State of Louisiana does not publish a Public Access Guide or keep a website listing the public access locations across the state or LCZ. The Louisiana Department of Culture, Recreation, and Tourism has the majority of information regarding recreational areas throughout the state. The agency produces numerous leaflets and other hardcopy materials as well as maintaining an electronic web site for information. Its website can be found at <http://www.crt.state.la.us/>. Several different state agencies have responsibility and jurisdiction for developing public recreational sites and opportunity in Louisiana. To coordinate these activities being undertaken by each of these agencies is a daunting task and would require a significant effort.

MANAGEMENT CHARACTERIZATION

1. For each of the management categories below, identify significant changes since the last assessment.

Management Category	Change Since Last Assessment		
	Significant	Moderate	None
Statutory, regulatory, or legal system			X
Acquisition programs or techniques			X
Comprehensive access management planning (including GIS database development)			X

Operation and maintenance programs			X
Funding sources or techniques			X
Education and outreach			X
Beach water quality monitoring and/or pollution source identification and remediation programs			X

2. For categories with changes, provide the following information for each change: summarize the change, specify whether it was a 309, 306A, or other CZM driven change and specify funding source, and characterize the effect of the changes in terms of both program outputs and outcomes.

There have been no changes regarding public access which occurred under the referenced management categories over the past five years.

During the 2005 legislative session several related bills were proposed concerning the issue of barricades across private canals. These bills were debated through committee hearings. None of these successfully passed to law. The current law is clear that the barricades are legal property rights.

CONCLUSION

1. Identify priority needs or major gaps in addressing the programmatic objectives for this enhancement area that could be addressed through a 309 strategy.

Pursuant to La. Rev. Stat. 49:214.21 *et seq.* LDNR/CMD is charged with implementing the LCRP in order to protect, develop, and where feasible, restore or enhance resources of the LCZ. LDNR/CMD does not receive state funds for public access or recreation programs. The cutback in Section 306 funding has resulted in insufficient federal funding to allow CMD to conduct its core functions and still provide Section 306A grants. Wetland loss is the paramount responsibility of LDNR/CMD, and as a result fees and federal grants are applied to the operation and maintenance of programs which support the permit application review and associated support of the Coastal Use Guidelines.

The public access issue is not a strategy of LDNR/CMD because the solution to the largest part of the problem is to acquire property or property rights for the construction and maintenance of recreation areas. LDNR/CMD believes this to

be best handled by the local government or other local agencies. LDNR/CMD does not have the funds, mandate or other resources to fulfill this need, but does support the local agencies in developing public recreational areas.

2. What priority was this area previously and what priority is it now for developing a 309 strategy and allocating 309 funding and why?

In the past, construction, operation, and maintenance of public access locations have not been a primary charge of LDNR/CMD as explained above. The State of Louisiana has assigned that responsibility to agencies such as Louisiana Department of Culture, Recreation, and Tourism and LDWF. Through the LCRP all public and private developments within the LCZ go through a permitting process, in order to ensure that projects minimize any negative impacts to coastal wetlands. Various types of public access such as boardwalks, trails, and parks are eligible for funding through 306A of the Coastal Zone Management Act, and CMD will make 306A grants available if, and when, adequate CZMA funding is made available for that purpose. LDNR/CMD recognizes the need for public access within the LCZ and, as a result, remains open to working with other programs or agencies involved with public access as it relates to wetland areas in the LCZ in the future.

2000-2005 Assessment	2006-2010 Assessment
High	High
Medium	Medium
Low	Low

COASTAL HAZARDS

SECTION 309 PROGRAMMATIC OBJECTIVES

- I. Direct future public and private development and redevelopment away from hazardous areas, including the high hazard areas delineated as FEMA V-zones and areas vulnerable to inundation from sea level rise.
- II. Preserve and restore the protective functions of natural shoreline features such as beaches, dunes, and wetlands.
- III. Prevent or minimize threats to existing populations and property from both episodic and chronic coastal hazards.

RESOURCE CHARACTERIZATION

- 1. Characterize the general level of risk in your state from the following coastal hazards:

Coastal Hazard	Level of Risk		
	High	Medium	Low
Hurricane	X		
Storm Surge*	X		
Flooding*	X		
Shoreline erosion*	X		
Sea level rise*	X		
Subsidence*	X		
Geological hazards*			X
Other (specify)			
Terrorism	X		

The risk of a hurricane striking the coast of Louisiana remains high and a constant threat each hurricane season. The most recent impacts to Louisiana from Hurricanes Katrina and Rita are discussed more fully in the introduction.

The Mississippi River delta plain is subject to the highest rate of relative sea level rise (3ft per century) of any region in the Nation in large part due to rapid geologic subsidence. The rising sea level and subsidence act to accelerate coastal erosion and wetland loss (USGS 2004). Coastal wetlands provide a necessary buffer for storm surge and a cover of protection around critical infrastructure such as levees and oil and gas wells and platforms.

2. If the level of risk or state of knowledge about any of these hazards has changed since the last assessment, please explain. Also, identify any ongoing or planned efforts to develop quantitative measures for this issue area.

Louisiana remains at a high level of risk for a major hurricane striking its coast. According to the National Weather Service, the Atlantic is in a long-term state of heightened activity which may continue for the next decade or longer (Britt). Climatologists are forecasting that 2006 will be another active hurricane season. Areas of coastal Louisiana hit hardest by hurricanes Katrina and Rita will not be able to rebuild and repair before the 2006 season begins. This will leave them extremely susceptible to storm surge and flooding if another major hurricane makes landfall.

As Louisiana's wetlands disappear, oil and gas infrastructure along the coast becomes exposed to open Gulf conditions. Wells and platforms that were once grounded by marsh are now in open water susceptible to damage and to a potential major oil or other hazardous material incident.

Subsidence is a major contributor to coastal erosion and land loss in Louisiana. In 2005 NOAA National Geodetic Survey (NOAA/NGS) began a nationwide campaign to readjust the horizontal position and ellipsoidal heights in the National Spatial Reference System (NSRS) using high accuracy global positioning system data. The project is scheduled for completion in 2007. The last general readjustment occurred in 1986. As part of this initiative, NOAA/NGS and the Louisiana Spatial Reference Center at LSU have released updated elevation information for coastal Louisiana. This survey data will be incorporated into the readjustment of the NSRS. The NSRS data will play a crucial role in emergency planning and response during hurricanes and other natural disasters. It should also inform us with regard to reconstruction and ongoing development in the LCZ.

The Chenier plain is positioned to the west of the deltaic plain and is characterized by marsh that is segmented by long, narrow coast-parallel sand and shell ridges. In the last several decades, humans have impacted the Chenier ecosystems with such activities as mining and exporting mined materials out of the Chenier Plains, livestock grazing, fence building, road building, and urbanization. Marine forces such as winds, tides, and currents may be acting in concert with human activities that favor erosional processes, acting to exacerbate

subsidence and ultimately the loss of these higher elevation geomorphic features. Louisiana's Chenier plains serve as habitat for neo-tropical, trans-gulf migratory birds, many species of fish and shellfish, and a host of other aquatic and terrestrial species. Resource planners and managers do not know the extent to which the coastal use activities detailed above affect the geomorphic integrity of these Chenier ridges and their ability to provide a natural buffer for storm surge, inland flooding, and saltwater intrusion.

In 2003, the Louisiana Department of Emergency Preparedness became the Louisiana Office of Homeland Security and Emergency Preparedness, reflecting the additional responsibilities to the State of Louisiana and its citizens. Since the tragedy of September 11, 2001, the nation has become more vigilant in protecting itself from a terrorist attack. Louisiana poses a high risk from potential terrorism with its tremendous petro-chemical industry, maritime/riverine transportation, 14 major ports, and the Louisiana Offshore Oil Platform (LOOP).

3. Summarize the risks from inappropriate development in the state, e.g., life and property at risk, publicly funded infrastructure at risk, resources at risk.

Louisiana's ecological, recreational, and cultural resources are at a high risk of loss and devastation. The reality of that statement was made clear when Hurricanes Katrina and Rita hit the LCZ. Coastal Louisiana is home to over two million people, representing 46% of the state's population. When investments in facilities, supporting service activities, and the urban infrastructure are totaled, the capital investment in the Louisiana coastal area adds up to approximately \$100 billion (USACE 2004).

According to the LRA, preliminary estimates of financial impacts to the LCZ from the two storms are (Louisiana Recovery Authority 2006):

- *Property and infrastructure*
\$75-100 Billion
- *Levee restoration to pre-Katrina authorized levels*
\$3 Billion
- *Residential homes and personal property*
\$27-35 Billion
- *Businesses and commercial property*
\$25-29 Billion
- *Infrastructure including roads, bridges, utilities, and debris removal*
\$15-18 Billion
- *State facilities and public/private education and health care facilities*

\$6-8 Billion

- *Economic (gross state product through 2009)*

\$50-70 Billion

- *Government fiscal stability*

\$8-10 Billion

- *Estimated state revenue shortfall discounted over five years*

\$4-5 Billion (through 2009)

- *Estimated local city and parish government revenue shortfall discounted over five years*

\$4-5 Billion (through 2009)

MANAGEMENT CHARACTERIZATION

1. Indicate significant changes to the State's hazards protection programs since last assessment.

Management Category	Change Since Last Assessment		
	Significant	Moderate	None
Building setbacks/restriction*			X
Methodologies for determining setbacks			X
Repair/rebuilding restrictions	X		
Restriction of hard shoreline protection structures			X
Beach/dune protection		X	
Permit compliance			X
Inlet management plans			X
Special Area Management Plans			X
Local hazards mitigation planning	X		
Local post-disaster redevelopment plans	X		

Real estate sales disclosure requirements			X
Restrictions on publicly funded infrastructure			X
Public education and outreach	X		
Mapping/GIS/tracking of hazard areas			X

2. For categories with changes, provide the following information for each change: 1) summarize the change, 2) specify whether it was a 309 or other CZM driven change and specify funding source, and 3) characterize the effect of the changes in terms of both program outputs and outcomes.

Repair/Rebuilding Restrictions

State Building Codes (Louisiana Legislature)

The Governor of Louisiana signed Senate Bill No. 44 during the 2005 1st Extraordinary Session of the Louisiana Legislature calling for the state to adopt the International Building Code, International Existing Building Code, International Residential Code, International Mechanical Code, and International Fuel Gas Code. The bill enforces a state uniform construction code for building constructed in the wake of Hurricanes Katrina and Rita and to all building built or rebuilt statewide starting in 2007 (International Code Council). Prior to this legislation, Louisiana did not have a state uniform construction code established. Building requirements remained more of a local government concern but were not always enforced. Following the storms, insurance companies threatened to not issue policies without building codes in place.

Revised Advisory Flood Base Elevations (FEMA)

FEMA will require communities to adhere to the elevation requirements established by Advisory Base Flood Elevations (ABFEs) in order to be eligible for FEMA-funding for certain mitigation and recovery projects. Following major catastrophic events such as Hurricanes Katrina and Rita, FEMA can reassess the most current flood-risk data. The ABFEs are a result of such a reassessment. The ABFEs are significantly higher than the base flood elevations (BFEs) shown on pre-Katrina flood maps, and extend farther inland than the Special Flood Hazard Areas on the existing maps. A base flood elevation is the height, relative to the mean sea level, that has a one percent chance of being equaled or exceeded by flood waters in a given year. It is one of the key building standards required for communities participating in the National Flood Insurance Program (NFIP).

To date, ABFEs exist for Calcasieu, Cameron, Iberia, Lafourche, St. Charles, St. John the Baptist, St. Mary, St. Tammany, Tangipahoa, Terrebonne and Vermilion parishes. Additional ABFEs are being developed for four Louisiana parishes, Orleans, Jefferson, St. Bernard and Plaquemines, protected by levees, including

the city of New Orleans. FEMA is working closely with State and local officials and the Army Corps of Engineers to analyze the situation and provide the best information for the four remaining parishes.

Beach/Dune Protection

La. Rev. Stat. 49:213.9 – Certain activities on dunes prohibited; penalties; speed limits on beaches (Louisiana Legislature)

During the last assessment period, the Louisiana Legislature enacted La. Rev. Stat. 49:213.9 which prohibited certain activities on dunes located in the LCZ; authorized certain parishes to establish speed limits; provided for penalties; and provided for related matters. Unless operating under a permit issued by a state or federal agency, no person is allowed to willfully or maliciously cut, alter, break, or destroy a dune, or ride, drive, operate, or haul any motorized or mechanical vehicle except on public roads.

La. Rev. Stat. 49:214.7 – Barrier islands and shorelines stabilization and preservation (Louisiana Legislature)

In 2004, Louisiana Legislature passed La. Rev. Stat. 49:214.7 to establish a program for barrier islands and shoreline stabilization and preservation. The secretary of LDNR shall establish a barrier islands and shorelines stabilization and preservation program within the Louisiana Coastal Wetlands Conservation and Restoration Program. Each year those parishes with barrier islands and shorelines shall submit a list of barrier islands and shoreline stabilization and preservation projects requested for that parish. LDNR/CMD will review the projects and issue a priority list which will be promulgated and subject to legislative oversight. Funding is available through the Barrier Islands and Shorelines Stabilization and Preservation Fund. If funding is not appropriated in a given year, the barrier island and shorelines stabilization and preservation program shall be suspended until funds are appropriated for the program.

Local Hazards Mitigation Planning

State Hazard Mitigation Plan (FEMA)

The State of Louisiana Office of Homeland Security and Emergency Preparedness, with the assistance and cooperation of the State Hazard Mitigation Planning Committee, undertook the development of a comprehensive State of Louisiana Hazard Mitigation Strategy in 2004. The impetus for developing this strategy comes in part from the long-term commitment of the State of Louisiana to reduce the impact of natural hazards and in part in response to Federal law.

Louisiana Anti-terrorism Act (Louisiana Legislature)

Louisiana law provides mechanisms for the government to act and define the appropriate limits of that action. The Governor, operating within these parameters, pursuant to Executive Order Number MJF 2001-42 (“The Executive Order”), issued on September 21, 2001, established the Louisiana Domestic Terrorism Advisory Committee within the Executive Department, Office of the

Governor to plan and execute a Louisiana-specific domestic terrorism threat and needs assessment; to develop, based on that assessment, a three-year plan to enhance overall emergency response capabilities to terrorist events; and to direct the administration and distribution of federal funds to accomplish these objectives and to provide localities with funding to purchase equipment to support the state and local response to emergencies. The State Legislature has also moved forward to combat the terrorist threat through passage of important legislation including the Louisiana Anti-terrorism Act ("the Anti-terrorism Act"), Act No. 128 of the First Extraordinary Session, 2002.

Local Post-Disaster Redevelopment Plans

Louisiana Recovery and Rebuilding Conference (unknown)

In November 2005, the Louisiana Recovery and Rebuilding Conference was held in New Orleans, Louisiana at the request of the Louisiana Recovery Authority (LRA). This conference was to mark the beginning of the development of planning principles and rebuilding plans that will guide long-range recovery efforts for those parishes affected by Hurricanes Katrina and Rita. More than 650 citizens, community leaders, architects, business people, and public officials took part in the event. Policy goals and planning principles for each of the devastated parishes were identified by participants as: create infrastructure, promote economic growth, provide public services, pursue policies, plan and design communities. A common theme among all parishes was the use of smart growth principles and mixed-use development.

3. Discuss significant impediments to meeting the 309 programmatic objectives (e.g., lack of data, lack of technology, lack of funding, legally indefensible, inadequate policies, etc.).

Louisiana Coastal Hazard Mitigation Guidebook

There is no current Louisiana coastal hazard mitigation guidebook that will provide information to local coastal officials, planners, builders, and consumers in Louisiana to assist in making wise decisions as they rebuild communities for the future. The need for this guidance has become even more obvious since the occurrence of Hurricanes Katrina and Rita.

Digital Mapping of Levees, Pumps, and Flood Control Features in Coastal Louisiana

Currently, almost all of the communities in the LCZ have some sort of flood protection system. Most of the cities are surrounded by levees and the water levels controlled by pumps. There is no current map, hardcopy or digital, collectively of these flood protection systems. There are major flood protection systems built and maintained by the USACE and under the control of various state levee boards, other large levee systems maintained by the parish (county) governments, smaller systems under control of public drainage agencies, and numerous privately managed large levee and pump systems protecting residences and agricultural operations. All of the information and maps reside

with the respective agency or individuals responsible for the systems; there is no central repository.

A GIS database with the location of levees and pump stations including basic and pertinent information about each of those features does not exist and is needed by many State agencies to more efficiently and effectively perform their mandates in the LCZ. Additionally, for those critical applications of protection of life and property, specialized user interfaces, queries, and displays are needed that provide for use of the application without a great deal of training or knowledge of the GIS software. Lack of funding has prevented the development of a GIS dataset of all levees and pump stations in the LCZ, and the development of tools that fulfill aspects of emergency response and planning that are flexible enough to be used as a basis for future projects that refine and/or add to the data and utility of the data and tools.

Appropriate Subdivision Development Evaluation

Subdivision development in the LCZ currently requires a CUP. When the activity occurs in a parish with a local coastal program the activity is usually deemed a local concern unless it involves state owned waterways which would make it a state concern. Before receiving a CUP to begin construction, applicants must complete the supplemental information packet for new residential subdivision development. Information requested includes: administrative and legal information, physical/land planning, housing market need, social impacts, economic impacts, traffic impacts, and environmental impacts. In the aftermath and recovery of Hurricanes Katrina and Rita, LDNR/CMD would like to address issues of appropriate subdivision development in the LCZ. Coastal zone managers and planners need to take a better look at the zoning and subdivision regulations for siting of such developments. Potential educational opportunities vis-à-vis workshops on new state statutes may be appropriate. It is anticipated that additional funding will be necessary to assist parishes with the development of suggested new zoning/regulatory proposals, outreach materials and to conduct needed workshops. In addition, as noted above, as most subdivisions in parishes with approved local programs are deemed to be of local concern, there is likely to be some legal constraint on LDNR/CMD's ability to force compliance.

Canal Construction and Maintenance

Canal construction and maintenance are coastal uses that may be state or local concern uses. Reports following the passage of Hurricanes Katrina and Rita evidenced that the orientation of canals may in fact influence their potential to serve as conduits for storm surge into populated areas. The maintenance of these canals may also play an important role in reducing or exacerbating hazards. For example, the plugging (damming) of canals and in some cases, spoil banks may reduce or attenuate storm surge. According to La. Admin. Code, Title 43:I,701.G.20 which states:

“(It is the policy of the coastal resources program to avoid ...) Increases in the potential for flood, hurricane and other storm damage, or increases in the likelihood that damage will occur from such hazards”,

activities such as canal construction and maintenance are carefully reviewed depending on the proposed coastal use. Unfortunately, there is a lack of data documenting which canal construction and maintenance techniques are appropriate in the LCZ given hurricane hazards. *Funding will be required to obtain the documentation necessary to formulate an educated opinion on future steps needed to address this issue.*

Coastal Use Activities Affecting the Chenier Plain Ecosystem

Louisiana’s Chenier Plain serves as habitat for neo-tropical, trans-gulf migratory birds, many species of fish and shellfish, and a host of other aquatic and terrestrial species, in addition to the role they play in abating inland flooding and saltwater intrusion. Development and maintenance of pipelines, roads or utilities, grazing practices, mining practices, and residential development are just a few of the human activities being perceived as threats to the composition and structure of these geologic features and their associated wildlife habitats. Subsidence, shoreline erosion, and associated increased salinity gradients (saltwater intrusion) are believed to be the leading causes for natural threats to these unique coastal features.

Post Hurricane Rita, the need to assess the ecological health, productivity and overall condition of these geologic features is evidenced by the State’s requirement to make an informed decision as to what human activities to allow on these sensitive geologic features. The desire to reintroduce livestock, rebuild homes and businesses, and reconstruct roads in these areas is increasing as time goes on. With limited data to support the overall public sentiment that human activities on cheniers are adding to the demise of these geologic features and reducing their capacity to abate storm surge and flooding, it becomes increasingly difficult for the State to take the position that they should disallow rebuilding along the cheniers.

Funding will be required to obtain the documentation necessary to formulate an educated opinion on future steps needed to address this issue. Additionally, as many activities on cheniers are deemed to be of local concern It is anticipated that additional funding will be necessary to assist parishes with the development of suggested new zoning/regulatory proposals, outreach materials and to conduct needed workshops. There is likely to be some legal constraint on our ability to force compliance on the part of the parishes or to redefine activities on cheniers as matters of state concern.

CONCLUSION

1. Identify priority needs or major gaps in addressing the programmatic objectives for this enhancement area that could be addressed through a 309 strategy.

PRIORITY1 - HIGH: DIGITAL MAPPING OF LEVEES, PUMPS AND FLOOD CONTROL FEATURES IN COASTAL LOUISIANA

A GIS database with the location of levees and pump stations including basic and pertinent information about each of those features does not exist. Additionally, for those critical applications of protection of life and property, specialized user interfaces, queries, and displays are needed that provide for use of the application without a great deal of training or knowledge of the GIS software.

PRIORITY 2 - HIGH: LOUISIANA COASTAL HAZARD MITIGATION GUIDEBOOK LOCAL COASTAL PROGRAM COORDINATION

LDNR/CMD sees the need for Louisiana to have a coastal hazard mitigation guidebook and supports the initiative of Louisiana Sea Grant in this endeavor.

PRIORITY 3 – HIGH: COASTAL USE ACTIVITIES AFFECTING THE CHENIER PLAIN ECOSYSTEM

LDNR/CMD sees the need for an in depth assessment and review of existing conditions of Louisiana’s Chenier ridges, as well as a study of how anthropogenic activities are affecting the overall integrity of these geologic features.

PRIORITY 4 – HIGH: CANAL CONSTRUCTION AND MAINTENANCE

LDNR/CMD recognizes the significance of providing guidance to CUP applicants on the construction and maintenance of canals for uses in the LCZ. Correct information regarding canal construction and maintenance methods is needed.

PRIORITY 5 –MODERATE: APPROPRIATE SUBDIVISION DEVELOPMENT EVALUATION

LDNR/CMD realizes the importance and the immediacy of evaluating subdivision development in high hazard zones.

2001-2005 Assessment	2006-2010 Assessment
High	High
Medium	Medium
Low	Low

OCEAN RESOURCES

SECTION 309 PROGRAMMATIC OBJECTIVES

- I. Develop and enhance regulatory, planning, and intra-governmental coordination mechanisms to provide meaningful state participation in ocean and Great Lakes resource management and decision-making processes.
- II. Where necessary and appropriate, develop a comprehensive ocean and Great Lakes resource management plan that provides for the balanced use and development of ocean and Great Lakes resources, coordination of existing authorities, and minimization of use conflicts. These plans should consider, where appropriate, the effects of activities and uses on threatened and endangered species and their critical habitats. The designation of specific marine protected areas should be considered.

RESOURCE CHARACTERIZATION

Louisiana's coastal zone and ocean resources are inextricably linked. The Coastal Ocean Habitat, with its estuaries, wetlands, barrier islands and seashores, serve as breeding and nursery grounds for many commercially important ocean species and migratory waterfowl. Louisiana's commercial and recreational fisheries provide important jobs and economic boost to the State. With the commercial fisheries landings of Louisiana ranking second in biomass to Alaska and third in economic value for the United States (U.S.), it is easy to understand how vitally important this resource is to Louisiana's economy. Between 2001-2005 commercial fisheries landings averaged 3 billion dollars a year, and supported approximately 31,400 jobs. An additional 13 billion dollars in revenue is estimated annually to result from recreational hunting and fishing expenditures.

The coastal ocean habitat also serves as the bridge from Louisiana's plentiful oil and gas resources to the refineries located inland. Over 150 million barrels of oil and 130 million cubic feet of gas are produced in Louisiana annually, with the majority of the production in Louisiana's coastal wetlands and coastal ocean. Oil and gas wells in the Outer Continental Shelf (OCS) off the coast of Louisiana account for 95% of all U. S. oil produced in the OCS. An additional 60% of oil and gas imports into the U. S. come through Louisiana's oil and gas infrastructure.

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 Conflict	Degree of Threat (high/medium/low)	Anticipated Threat Or Conflict
Overfishing and bycatch	Reduction to sustainable fisheries	Medium	Increased reduction of fisheries resource
Agricultural Operations along Mississippi River	Hypoxia in coastal waters from nonpoint source pollution runoff causing a reduction in the state's fisheries	High	Continued hypoxia in coastal waters and loss of fisheries resource
Coastal Development	Nonpoint source pollution runoff and loss of habitat	Medium	Increased pollution and loss of habitat
Activities resulting in Global Warming	Climate change resulting in less precipitation causing changes in wetland gradients and fisheries habitats and yields	High	Increased loss of habitat, changes in wetlands gradients and fisheries yields due to sea level rise
Hydrocarbon extraction, offshore Liquid Natural Gas (LNG) delivery	Degradation or loss of habitat due to onshore activities; possible impacts to fisheries from permitted open loop LNG facilities	High	Loss of habitat due to onshore activities; reduced impacts to fisheries from any future permitted open loop LNG facilities

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

There are several threats to the fisheries resources of Louisiana. With landings in a single year reaching as high as 600,000 metric tons per year there is increased pressure on the resource through over fishing and bycatch. These pressures are currently being researched by the Department of Oceanography and Coastal Sciences at Louisiana State University.

Hypoxia continues to be a threat to our coastal ocean resources, with the largest Dead Zone in a decade mapped in 2002. We have also continued to see an increase in coastal development, which leads to an increase in possible point and nonpoint source pollution, contributing to nutrient levels and thus the hypoxic zone in the gulf. Hypoxia continues to push our fisheries further and further offshore, increasing the distance that commercial fisherman are required to travel, and exposing them to more hazards. The Hypoxia Working Group was formed in 2002 and is addressing this issue.

Louisiana also faces loss of its important coastal wetlands and other coastal ocean habitats as a result of coastal development, increased point and non-point source pollution, erosion due to storm action, subsidence and sea level rise due to climate change. With the continued loss of up to one acre of coastal habitat every 25 minutes, this continues to be a challenge for Louisiana.

Liquid Natural Gas (LNG) facilities that use an open loop regassification system have emerged as a possible new threat to Louisiana's fisheries. The potential impacts on fisheries resources are presently unknown due to insufficient data. The possible threats to fisheries are from thermal shock, chemicals used for anti-fouling of equipment, and direct impacts from the pump systems that kill fish eggs. CMD has permitted two open loop systems; one is in operation and the other has not been constructed. The US Coast Guard and the operators have agreed to monitoring plans that the facilities will implement. This should supply needed data for further evaluation of permitted facilities and any associated impacts. Louisiana's Governor Blanco and the LDWF are publicly opposed to open loop systems until impacts can be determined.

Management Characterization

1. Identify significant state ocean and/or Great Lakes management programs and initiatives developed since the last assessment:

Management Category	Change Since Last Assessment		
	Significant	Moderate	None
Statewide comprehensive ocean/Great Lakes management statute			X
Statewide comprehensive ocean/Great Lakes management plan or system of Marine Protected Areas	X		
Single purpose statutes related to ocean/Great Lakes resources			X
Statewide ocean/Great Lakes resources planning/working groups			X
Regional ocean/Great Lakes resources planning efforts		X	
Ocean/Great Lakes resources mapping or information system	X		
Dredged material management planning		X	
Habitat research, assessment, monitoring			X
Public education and outreach efforts			X

2. For categories with changes summarize the change, specify whether it was a 309 or other CZM driven change and specify funding source, characterize the effect of the changes in terms of both program outputs and outcomes.

**Statewide Management Plan – Wildlife Conservation Strategy
Comprehensive Wildlife Conservation Strategy**

In order to receive federal funds through the State Wildlife Grants program, Congress charged each state and territory with developing a comprehensive wildlife conservation strategy. The goal of the wildlife action plan is to prevent wildlife from becoming endangered. In Louisiana, LDWF is the government agency vested with conservation and management of the wildlife in the state, including aquatic life, and is authorized to execute the laws enacted for the

control and supervision of programs relating to the management, protection, conservation, and replenishment of wildlife, fish, and aquatic life; and the regulation of the shipping of wildlife, fish, furs, and skins. The purpose of this CWCS is to develop a blueprint for guiding LDWF in the development of management actions for Louisiana's fish and wildlife species with emphasis on species of conservation concern and associated habitats. The goals of the strategy are to focus on species conservation, habitat conservation, public outreach and education, and strengthening existing partnerships and building new ones. The plan was approved by USFW in 2005.

Regional Ocean Resources Planning Efforts – Mississippi River and Gulf of Mexico

The Lower Mississippi River Sub-Basin Committee was formed in 2003. The state agencies from Louisiana, Arkansas, Mississippi, Missouri, and Tennessee that were serving on the Mississippi River/Gulf of Mexico Watershed Nutrient Task Force formed an initial steering committee. The federal agency partners are EPA, USDA and USGS. The committee developed a work plan in 2003 that selected focus watershed projects in each state that could demonstrate nutrient reduction techniques that would be applicable on a wider level in the basin. A draft nutrient reduction strategy for the lower river, consistent with short-term action #2 in the Action Plan (Action Plan for Reducing, Mitigating, and Controlling Hypoxia in the Northern Gulf of Mexico, 2001, Mississippi River/Gulf of Mexico Watershed Nutrient Task Force), was developed in 2005. The committee agreed to organize a symposium in 2006 on nutrient loading and removal in the lower river basin as part of the reassessment process for the Action Plan.

In 2004 Louisiana's Governor joined with the governors of the Gulf of Mexico states of Alabama, Florida, Mississippi and Texas to form the Gulf of Mexico Alliance. The goal of the alliance is to protect the Gulf of Mexico. In the spring of 2005, 13 federal agencies convened a federal workgroup committed to support the alliance under the coordination of the US EPA and NOAA. The alliance will release the Governors' Action Plan for Healthy and Resilient Coasts at the State of the Gulf of Mexico Summit in March 2006.

Ocean Resources Mapping and Information Systems

During the 2001-2005 timeframe the LDNR/CMD Support Services Section completed several projects in this area.

- All oyster seed grounds in Louisiana were digitally mapped. This was a CZM driven change that was funded by LDNR/CMD. The initial data that was obtained from the LDWF was updated. Digital information on the boundaries of the seed grounds was obtained from LDWF along with paper maps and descriptions of the delineation of productive versus unproductive areas. CMD staff updated the digital seed ground boundaries by creating a GIS dataset with the productive and unproductive areas delineated on the GIS maps and associated database.

- Information on oyster leases in Louisiana was made available via the internet to the public. This was a CZM driven change that was jointly funded by CWPPRA and 309. The actual work to originally map the oyster leases was partially funded by 1993-1997 309 funding. The 1997 309 task incorporated this data into the CMD desktop permit analysis system. Putting this information on the web was partially funded through the Local Programs Initiative using 309 funding for internet and public outreach.
- Information on oil and gas wells was made available to the public via the internet, and additional MMS platform and pipeline data have been downloaded and made available. This was a LDNR/CMD funded project.
- Completed a project to map infrastructure, which included all pipelines in state waters. This was the first project of its kind and was a project jointly funded by 309 and Minerals Management Service (MMS). Mapping of the infrastructure was completed during the 1997 309 strategy. The data gathered by that effort was incorporated into the GIS system and included in the permit analysis system during the 2001- 2005 time period.
- Completed a project to map the isohaline lines associated with Davis Pond. The purpose was to predict habitat change. This was a 309 project that was jointly funded by LDNR/CMD and CWPPRA under the 1997 309 strategy. Data from this effort was also incorporated into the permit analysis system during 2001-2005.

Dredge Material Management Planning

CMD continues to require beneficial use of dredged material wherever possible, and to encourage it when not mandatory. The single biggest dredging agency in the coastal zone is the USACE, which maintains 10 navigation channels in coastal Louisiana. Some 30-40% of this dredged material is used beneficially; the rest is lost due primarily to the expense of moving it to a beneficial location.

Breton Island serves as an important coastal resource for migratory birds and breeding waterfowl as well as important protection from wave action and storm surge during storm events. During the calendar years 2001 and 2005 the USACE undertook a program which was fully federally funded to restore parts of Breton Island through beneficial use of dredge material. Material created by the maintenance dredging of the Mississippi River Gulf Outlet was utilized for island renourishment.

CMD attempts to increase the amount of beneficial use by facilitating partnerships with the USACE, and some projects have in the past been accomplished using supplemental funds from CWPPRA, Sections 204 and 1135 of the Corps' Continuing Authorities Program, and LDNR's own coastal restoration program. The OCRM has also established a beneficial use working group.

Conclusion

1. Identify priority needs or major gaps in addressing the programmatic objectives for this enhancement area that could be addressed through a 309 Strategy.

An increase in the amount of beneficial use continues to be a need ~~or major gaps~~ in addressing the programmatic objectives identified for the Ocean Resources enhancement area. Please see the “Wetlands” category for a discussion of a beneficial use strategy.

2. What priority was this area previously and what priority is it now for developing a 309 strategy and designating 309 funding and why?

The Ocean Resources enhancement area was previously identified as an area of low priority and is still considered an area of low priority. Though the threats and conflicts to these resources are high, the LDNR/CMD feels the progress that is being made statewide and by LDNR/CMD in these areas is sufficient. There are no proposed strategies for this enhancement area for during the next five years.

2000-2005 Assessment	2006-2010 Assessment
High	High
Medium	Medium
Low	Low

WETLANDS

Section 309 Programmatic Objectives

- I. Protect and preserve existing levels of wetlands, as measured by acreage and functions, from direct, indirect and cumulative adverse impacts, by developing or improving regulatory programs.
- II. Increase acres and associated functions (e.g., fish and wildlife habitat, water quality protection, flood protection) of restored wetlands, including restoration and monitoring of habitat for threatened and endangered species.
- III. Utilize non-regulatory and innovative techniques to provide for the protection, restoration, and acquisition of coastal wetlands.
- IV. Develop and improve wetlands creation programs.

Resource Characterization

1. Extent of coastal wetlands

Louisiana's uniquely formed coastal zone area has been shaped by the Mississippi River system. Ranked sixth in the world in terms of freshwater discharge (Milliman and Meade, 1983), the Mississippi River system drains more than 40% of the contiguous United States and parts of Canada. Due in large part to this natural and dynamic system, the wetland dominated ecosystem, which covers Louisiana's coastal zone, is filled with sensitive resources. These resources are important to Louisiana citizens, as well as the nation, who depend on them for commerce and recreation. These wetlands truly are America's Wetlands.

Wetland loss in Louisiana accounts for 90% of the coastal marsh loss occurring in the Nation (USACE 2004). The Louisiana wetland ecosystem ranges from natural levee and beach ridges to forested swamps and freshwater, intermediate, brackish and saline marshes. These wetlands provide critical habitat for migrating birds, nesting habitat for endangered bird species, and provide a buffer from hurricanes and other storms.

It was estimated from the year 2000 that over the next 50 years Louisiana would lose 6,600 acres per year with an additional net loss of 328,000 acres that may occur by 2050, which is almost 10% of Louisiana's remaining coastal wetlands (Barras et al., 2003, USACE 2004).

Wetlands Type*	Extent (acres & year of data)*	Trends (acres/year)*
Tidal	N/A	N/A
Non-Tidal/Freshwater	940,811*	See #2
Publicly Acquired** Easements	127,970 ** 290***	N/A
Wetlands		
Intermediate Marsh	724,290*	See #2
Brackish Marsh	584,523*	See #2
Saline Marsh	374,778*	See #2
Swamp/Wetland Forest	1,040,786*	See #2
Wetlands Benefited ¹	60,650****	See #2
Other		

* USACE 2004

** Louisiana Department of Administration, Office of State Lands, State Land and Building Systems Database (2006). This data includes State acquired land purchases, quitclaims, donations, agreements, and judgments.

*** As per LDNR/CRD/Land Rights Section

****Louisiana Department of Natural Resources, Restoration Technology Section (2006)

2. If information is not available to fill in the above table, provide a qualitative description of wetlands status and trends based on the best available information. Also, identify any ongoing or planned efforts to develop quantitative measures for this issue area. Provide explanation for trends.

In 2002 the USACE began the Louisiana Coastal Area Ecosystem Restoration (LCA) Study resulting in the publication of the LCA Ecosystem Restoration Study Final Programmatic Environmental Impact Statement (FPEIS). Appendix B of the FPEIS documented the historical and projected coastal land changes in Louisiana from 1978-2050. Trend data exhibited a net loss of 419 square miles (34.9 sq. miles/year) from 1978-1990 and a 239 square mile (23.9 sq. miles/year)

¹ The Louisiana Coastal Restoration Program uses benefited acres for the restoration projects implemented in the state under this program as opposed to acres created or acres restored.

loss from 1990-2000 (Barras et. al 2003). The projected land loss from 2000-2050 is 513 square miles [(10.26 sq. miles/year) Barras et. al 2003)].

Louisiana coastal managers, planners, and resource scientists are continually working to develop methods for quantifying gains, losses, and changes to the landscape of the LCZ for the reason of keeping up with the dynamic system that so many are working to maintain, enhance, and restore for Louisiana residents and for the nation. Louisiana’s coastal restoration initiatives are unlike those of other coastal states. Restoration in Louisiana occurs at a large scale and for long-term periods. The LCZ comprises approximately 13,053 square miles of area and provides a buffer from hurricanes, storms, and floods. This is extremely important to public, private, and commercial property and infrastructure.

Preliminary reports by the USGS state that Hurricanes Katrina and Rita transformed approximately 100 square miles of marsh to open water. The most significantly impacted areas were in southeastern Louisiana from Hurricane Katrina such as St. Bernard and Plaquemines Parishes, the Breton Sound area, and the Pontchartrain, Pearl River, Terrebonne, and Barataria Basins. Hurricane Rita did not pack quite the punch that Katrina did, but did cause marsh degradation in the southwestern and central coastal parishes (USGS).

3. Characterize direct and indirect threats to coastal wetlands, both natural and manmade. For threats identified, provide the following information: scope of threat, recent trends, and impediments to addressing the threat.

	Significance		
Threat	High	Medium	Low
Development/fill	X		
Altered hydrology	X		
Erosion	X		
Pollution			X
Channelization	X		
Nuisance or exotic species	X		
Freshwater Input	X		
Sea Level Rise	X		

Other			X
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Development/fill - During the last century, a large quantity of wetland vegetative communities have been converted for development or agronomic use (USACE 2004). Such enterprises required significant changes to the landscape in order to control hydrology given the wetland soils existing in Louisiana. Regulatory programs like those administered by LDNR/CMD and the USACE work to minimize impacts caused by such development and resolve user conflicts. A review of CUPs during 2001-2005 revealed approximately 1203 acres of wetlands in the LCZ was developed and or filled. Marsh impacts are in areas that were dredged to construct a short canal or slip in which to place a barge to drill for oil and gas, for fill activities for construction of camps and houses, or for those activities that do not recover to marsh subsequent to pipeline installation but revert to linear areas of open water. Impacts to forested wetland habitats are fill for construction of subdivisions and houses and pipeline construction which does require the removal of the trees. Table 2 details the common development/fill activities within the LCZ during 2001-2005.

Table 2. Percent of total of permit activities in the LCZ during the reporting period.

PERMIT ACTIVITY	PERCENT OF TOTAL
Drill Barge and Structures	17.1
Other (production) Barges and Structures	2.2
Drill Site	13.4
Propwashing	1.8
Maintenance Dredging	5.9
Riprap/Erosion Control	0.8
Pipeline/Flowline	9.8
Sewerline	0.2
Cable	0.6
Bulkhead and Fill	2.9
Wharf/Pier/Boathouse	3.1

Homesite/Driveway	9.6
Subdivision Development	5.3
Levee Construction	1.4
Bridge/Road	2.0
Other Structures	12.4
Drainage Improvements	2.0
Fill for Development	2.4
Dredge for New Slip	0.6
Vegetative Plantings	1.2
Plug and Abandon Activity	1.0
Site Clearance	0.2
No Data	3.9

Forested wetlands make up approximately two million acres throughout the state of Louisiana, with over half being in the LCZ. Significant loss and decrease in productivity of some of these forested wetlands has occurred over the years from natural and manmade consequences causing substantial ecosystem degradation. Over the past several years, the issue of harvesting these degraded areas has become a widely debated regulatory issue. Scientists are concerned that harvesting in some of these degraded areas will not support regeneration, which will lead to a change in vegetative community or open water conditions. In some instances, landowners plan to harvest the forest then turn the property over to developers, while others seek conservation opportunities through various federal and state agencies and non-profit organizations. The importance of these forested wetlands cannot be overlooked or underestimated as they provide a critical natural buffer against storm surge.

Alteration of hydrology – Altered hydrology has always been a major factor in influencing landscape changes in the LCZ. Levees were first constructed in the 18th century, which interrupted the overbank flows and arrested large-scale deposition of sediment to the wetlands (USACE 2004). Today coastal marshes suffer severely due to the lack of freshwater nutrients and sediment, which acts to stifle marsh productivity and vertical accretion (Delaune et al. 1990). This

along with coastal subsidence and global sea level rise significantly affects the coastal marshes. Other factors such as municipal drainage systems and roads and railroad embankments have also been associated with wetland loss from accelerated drainage, disturbance of natural drainage and impoundment, and physical removal for borrow material (USACE 2004).

LDNR/CMD's Coastal Use Permit and Consistency processes, along with the USACE 404 permit program, have done much over the years to reduce and ameliorate adverse hydrologic alteration impacts. Perhaps the biggest single impediment to further impact reduction is the need to protect the lives and property of people who live and work in coastal Louisiana from devastating floods from Mississippi River overflow or major hurricanes.

Erosion - The threat of coastal erosion in the LCZ is significant and remains a paramount issue for LDNR/OCRM. The Louisiana coast has approximately 350 miles of sandy shoreline along its barrier islands and gulf beaches and about 30,000 miles of land-water interface along the bays, lakes, canals, and streams (Louisiana Coastal Wetlands Conservation and Restoration Task Force and the Wetlands Conservation and Restoration Authority 1998). When erosion occurs there is a loss of coastal geomorphology. Geomorphic features such as natural levees, lake rims, land bridges, cheniers, and barrier islands and shorelines are lost or degraded due to the effects of wind and/or wave erosion. Barrier islands play a critical role in protecting coastal wetlands, bays, and estuaries by reducing wave impacts at the margins of the coastal wetlands and serve as important natural buffers during storms (USACE 2004). Barrier islands are very dynamic and naturally degrade over time. Historic land loss rates of barrier islands can average as high as 50 acres per year over several decades. Hurricane events can cause as high as 300 acres of loss per year (USACE 2004).

LDNR/CMD's Coastal Use Permit and Consistency processes, along with the USACE's Section 10 and 404 permit program, have greatly reduced man-induced erosion of Louisiana's shorelines. The state and federal governments are undertaking actions through state and CWPPRA funded projects to restore beaches and barrier islands.

Channelization - Construction of canals for oil and gas production and navigational purposes has affected wetland degradation through changing marsh hydrology, disrupting sheet flow, hindering drainage, changing sediment movement patterns, causing impoundment and flooding and encouraging saltwater intrusion and increased tidal exchange (USACE 2004). LDNR/CMD has the necessary authorities to minimize impacts associated with commercial canals. Federal assistance is needed in ameliorating the impacts associated with federally maintained navigation canals – funding for beneficial use of spoil from maintenance dredging, installation of sills or gates to minimize saltwater intrusion, possible closure of some channels, etc.

Nuisance or exotic species – The threat of invasive and exotic species to the ecosystem is a significant problem in the LCZ. Some areas are already degraded and as a result are more susceptible to being overtaken by invasive species. In situations as this, invasive aquatic species can alter local hydrology and hinder growth and reproduction of native aquatic plants (Chabreck 1972a). Invasive plant species can interfere with drainage and flood control, and impede navigation and recreational activities (Westbrooks 1998).

LDNR is not the principle agency responsible for dealing with introduced species. In those rare instances of involvement, LDNR/CMD uses the permit system to support the decisions and requirements of those other agencies.

In the 1930's nutria were accidentally introduced to Louisiana. Damage to wetlands caused by nutria and muskrat herbivory has occurred throughout the LCZ. "Eat-outs" are extremely harmful to the marsh vegetation because not only is the marsh vegetation depleted, but the root system is permanently damaged (USACE 2004).

Freshwater input - Areas across the LCZ suffer from the lack of freshwater and sediment found in the Mississippi River. Historically, the Mississippi River switches its course providing vital sediments and nutrients to coastal habitats. The Mississippi River can no longer switch courses and leave its banks to inundate vast coastal areas, and as a result, these coastal areas are starved of freshwater and sediments that provide essential nutrients and sediments important to marsh growth and land accretion. Ultimately, this has caused ecosystem degradation across the entire LCZ through subsidence, sea level rise, and saltwater intrusion. The LCA has several large-scale freshwater diversion projects planned for coastal Louisiana that aim to convey freshwater and sediments where needed in the hope to rejuvenate coastal marshes and forested wetlands.

Lack of financial resources and user group conflicts are the principal impediments to building the projects.

Sea level rise - Louisiana is experiencing an estimated average relative sea level rise of 3.4 – 3.9 ft/century and an estimated subsidence rate of 0.5 – 4.3 ft/century in the Deltaic Plain and .25 – 2.0 ft/century for the Chenier Plain (USACE 2004). Relative sea level change is defined as the difference between the change in eustatic sea level and the change in land elevation. The majority of the LCZ is experiencing a net loss of land due to the fact that sediment accretion can not keep pace with the rate of subsidence. As a result Louisiana's land elevation continues to decrease.

There is nothing LDNR can do to address sea level rise directly. As mentioned elsewhere, various projects are planned that will help address relative sea level change, though none are of a regulatory nature.

Management Characterization

1. Within each of the management categories below, identify significant changes since the last assessment:

Management Category	Change Since Last Assessment		
	Significant	Moderate	None
Regulatory program	X		
Wetlands protection policies and standards	X		
Assessment methodologies (health, function, extent)	X		
Impact analysis			X
Restoration/enhancement programs	X		
Special Area Management Plans			X
Education/outreach	X		
Wetlands creation programs			X
Mitigation banking			X
Mapping/GIS/tracking systems	X		
Acquisition programs	X		
Publicly funded infrastructure restrictions			X

2. For categories with changes provide the following information for each change: Characterize the scope of the change, describe recent trends, and identify impediments to addressing the change.

Regulatory Program

Revision of Mitigation Rules

The CUP Mitigation Rules, La. Admin. Code 43:1,724, were established in August 1995 with agency and stakeholder input. The process of establishing the rules involved considerable stakeholder input and produced rules which were an

acceptable compromise to the involved stakeholders. Unfortunately the implementation of these rules has proven to be somewhat problematic. The major problem areas are mitigation banks, mitigation credit purchases, landowner approvals, and local coastal program mitigation participation. During the 2001-2005 assessment time period, LDNR/CMD mitigation staff have rewritten the mitigation rules to reflect updated restoration costs, to evaluate time-based mitigation requirements, and to increase the ability of the LCPs to successfully achieve mitigation. The modified rules have gone through internal agency review and are currently undergoing a legal citation review. Promulgation has been indefinitely suspended pending the outcome of the New Orleans District of the USACE's Impact and Compensation Assessment Technique (ICAT) proposal and the USACE Headquarters and EPAs' federal mitigation regulations

Memorandum of Understanding Between the Department of Natural Resources and the Department of Wildlife and Fisheries for Activities Occurring in or Affecting the Louisiana Coastal Zone

The CUP is the basic regulatory tool of LDNR/CMD and is required for certain projects in the LCZ, including but not limited to dredge and fill work, bulkhead construction, shoreline maintenance, and other development projects. A prime concern of the CUP program is to regulate activities that may increase the loss of wetlands and aquatic resources, as well as reduce conflicts between coastal resource users. Coordination between other federal and state regulatory agencies is essential in processing CUPs effectively and efficiently. In 2005 an MOU was signed between LDNR/CMD and LDWF, which outlined specific elements that will result in more efficient permit processing and continued resource protection (Appendix A). The establishment of this MOU fulfills the Governor's commitment to reducing permit delays, especially for oil and gas activities, and provides more-timely coordination and dispute resolution procedures to reduce permitting delays and conserve coastal resources.

Coastal Use Permitting Program Streamlining Effort

In 2001 LDNR/CMD began the initial steps in beginning a permit streamlining initiative due in part to stakeholder frustration with the CUP process. Interests were expressed by the Governor's office in reducing delays, and LDNR/CMD desired to better assist and educate applicants on how to submit complete applications, and use technology to achieve better, faster, and more consistent permit reviews. Streamlining actions included revising the joint permit application, introducing the automated permit processing system, providing training to permit analysts, developing permit escalation procedures, and establishing new outreach efforts. Preliminary streamlining results revealed that the processing time for General Permits (GP) and CUPs was reduced by 29 days (45%) between 2001 and 2003, and the processing time for Exempt, No Direct and Significant Impacts (NDSI), GP, and CUP was reduced by 39 days (57%) between 2001 and 2003.

Wetlands protection policies and standards

Coastal Protection and Restoration Authority

The Coastal Protection and Restoration Authority was created by Act 8 of the 2005 Special Legislative Session. Formally the Coastal Wetlands Conservation and Restoration Authority, the Authority is charged with creating a master plan that fully integrates the state's coastal restoration and hurricane protection efforts. The legislature places responsibility for the direction and development of the state's comprehensive master coastal protection coastal vegetated wetlands conservation and restoration plan in the Wetlands Conservation plan with the Coastal Protection and Restoration Authority within the Office of the Governor. Primary responsibility for carrying out the elements of the plan relative to coastal wetlands conservation and restoration is placed in the LDNR/OCRM. Primary responsibility for carrying out the elements of the plan relative to hurricane protection is placed with the Office of Public Works and Intermodal Transportation within the Department of Transportation and Development. In order to maximize the effectiveness of coastal protection efforts, the secretaries of the Department of Natural Resources, the Department of Transportation and Development and the governor's executive assistant for coastal activities shall use an integrated team effort to jointly coordinate master plan development with federal agencies and political subdivisions, including levee districts.

Assessment methodologies (health, function, extent)

Coastal Wetland Forest Conservation and Use Science Working Group

The issue of timber harvesting in the coastal area has become very important over the past two years. There is considerable concern that timber harvesting in much of the LCZ may be non-sustainable, largely because continued subsidence and resultant higher water levels have greatly reduced regeneration. However, the State and Local Coastal Resources Management Act (SLCRMA) provides that forestry activities are exempted from Coastal Use Permitting, and EPA has ruled that the Clean Water Act's Section 404 forestry exemption applies to such timber harvesting. The apparent lack of regulatory protection for these forests has aroused public concern that timber harvesting of coastal forests will result in the permanent loss of these forests and that such losses are inconsistent with the state's coastal restoration program. As a result of this, the Governor appointed a Coastal Forestry Policy group, which consists of the Science Working Group (SWG) and the Advisory Panel (AP). The SWG was largely composed of wetland scientists and foresters, and its job was to acquire scientific data to develop sustainability criteria, and formulate policies for sustainable timber harvest. The AP is largely composed of state and federal agency representatives, as well as landowners and professional foresters, and its job was to provide information to the SWG. The Administrator is the official LDNR delegate to the AP and the Assistant Administrator is the alternate.

The findings of the SWG were released in 2005. Once the final report was issued, the SWG was disbanded and the AP took a different role as the policy advisory group to the Governor's Office of Coastal Activities. To summarize, the

report established three “condition classes” of coastal forests: Condition Class I forests, which will reforest naturally; Condition II forests, which can be reforested by using appropriate techniques; Condition Class III forests, which will inevitably convert to another habitat type if logged. The SWG also recommended that a moratorium be placed on the harvesting of Condition Class III forests. Further, the SWG established a boundary area for coastal forests, which extends well beyond the LCZ. The forestry and landowner AP representatives are generally in opposition to the boundary, the Condition Class system, and the moratorium concept. The major area of consensus is that non-regulatory methods, such as acquisition or incentive programs, need to be used to achieve the no-harvest goal for Condition Class III forests. The AP will continue to meet on this issue and provide their recommendations by August of 2006.

Restoration/enhancement programs

Coastal Impact Assistance Program

The Coastal Impact Assistance Program (CIAP), Title 371 of the Energy Policy Act of 2005, returns a portion of federal oil and gas royalties to coastal states and counties based on their respective levels of energy production, population and coastline. Under the current version of this title, Louisiana stands to receive \$540 million over the next four years for coastal impact assistance. LDNR/OCRM is in the process of developing a plan required by the CIAP.

Mapping/GIS/tracking systems

Permit database

In late 1999 the Arc View GIS permit analysis system was implemented. All of the GIS databases were moved to ESRI format, either shape files or Geodatabases. This led to a completely different way of reviewing permits. Prior to that, all the information that had to be verified was on paper maps. The files had to be reviewed against a dozen different maps and took time. Now, all of the information is on-line, the computer runs a query against the databases and the analyst is alerted to potential problems and/or impacts. Although this system was implemented in 2000, which is outside of our reporting period, the impact of the system was not felt until 2001. During 2001 and 2002 a USGS employee and a LDNR/CMD employee demonstrated the permit system to several state and federal agencies and at conferences.

Acquisition programs

The Coastal and Estuarine Land Conservation Program

LDNR/CMD is the lead agency for the State of Louisiana’s coastal management program. In FY 05, LDNR/CMD staff submitted four priority projects to potentially be acquired using Coastal and Estuarine Land Conservation Program funds (CELCP). CELCP was established to protect coastal and estuarine lands considered important for their ecological, conservation, recreational, historical or aesthetic value. The program provides funding for projects that ensure conservation of these areas for the benefit of future generations, and that can be

effectively managed and protected. LDNR/CMD staff is currently developing the CELC Plan for FY 06.

Education/Outreach

America’s Wetland: Campaign to Save Coastal Louisiana

In 2002, then Governor Murphy J. Foster announced a three year initiative, America’s Wetland: Campaign to Save Coastal Louisiana. This is the largest public awareness campaign ever launched by the State of Louisiana. The campaign acts to bring to the forefront issues related to coastal land loss at local and state levels to national and world status.

Conclusion

1. Identify priority needs or major gaps in addressing the programmatic objectives for this enhancement area that could be addressed through a 309 Strategy.

Priority 1 – High: Beneficial Use of Dredge Material Contribution Fund

Information on the cost of beneficial use by methodology (e.g., hydraulic dredging, double handling, bucket dredging, etc.) and habitat type is currently lacking. LDNR/CMD is proposing to investigate the cost effectiveness of beneficial placement of dredged material in those cases deemed economically infeasible. A potential alternative for those cases where it is not economically feasible to dispose of the dredge material beneficially in the LCZ is to determine the feasibility of providing the benefits through payment into the Beneficial Use of Dredged Material Fund based on a fair cost.

Priority 2 – High. Coastal Use Permit Mitigation Process

Revised mitigation rules reflecting updated restoration costs, evaluation of time-based mitigation requirements, and increased ability of LCPs to achieve mitigation are needed. The benefits of revised mitigation regulations will be realized by LDNR/CMD permit and mitigation staff, LCPs, and stakeholders.

2. What priority was this area previously and what priority is it now for developing a 309 Strategy and designating 309 funding and why?

The wetlands enhancement area was ranked high with the 309 Revised Strategy of the last reporting period, and is being ranked high for this reporting period. The priorities identified will give LDNR/CMD the opportunity to fulfill its obligation under the public policy provisions of SLCRMA and continue necessary research and outreach to expand the LCRP’s capabilities of enhancing and protecting wetlands and moderating user conflicts.

2000-2005 Assessment	2006-2010 Assessment
High	High

Medium	Medium
Low	Low

CUMULATIVE AND SECONDARY IMPACTS

Section 309 Programmatic Objectives

I. Develop, revise or enhance procedures or policies to provide cumulative and secondary impact controls.

Resource Characterization

1. Identify areas in the coastal zone where rapid growth or changes in land use require improved management of cumulative and secondary impacts (CSI).

Rapid growth and development within the Louisiana Act 361 coastal zone continues on the Pleistocene terraces of St. Tammany, Tangipahoa, and Livingston Parishes and the natural levees and bottomland hardwoods of St. Charles and St. John the Baptist Parishes in the river region. St. Tammany Parish south of Interstate Highway 12 receives a significant influx of families moving from Orleans, Jefferson, and St. Bernard Parishes. Tangipahoa Parish, in the vicinity of Pontchatoula and south of Hammond, serves as a bedroom community for workers from the south shore of Lake Pontchartrain (the New Orleans region and the river parishes). Livingston Parish is rapidly growing as people leave East Baton Rouge Parish. St. Charles and St. John the Baptist Parishes function as bedroom communities for the New Orleans region. General population growth characterizes other parts of the LCZ due to an improving economy that is related to the oil and gas industry and the diversification of businesses. Parishes like St. Tammany, Livingston, and Tangipahoa are beginning to adopt smart growth and sustainable development principals and ordinances.

The Louisiana Department of Environmental Quality's 305b report presents some degree of measure of cumulative and secondary impacts of growth as they relate to impacts on water quality. The 305b report is a comprehensive list of Louisiana's water bodies, their degrees of impairment and the source(s) of their impairments. Because population growth leads to increased infrastructure and more infrastructure increases water quality impairment, both through point source and non-point source discharges, the 305b report can serve as an indirect indicator of cumulative growth impacts in the Louisiana coastal zone. The 305b report serves as an indicator of secondary impacts as the consequences of both point and nonpoint source pollution discharge are also manifest away from the actual discharge sight further downstream as water quality impairments throughout the Louisiana coastal zone. One may anticipate such consequences from areas of growth and development in suburban areas: increased runoff from roads, driveways, and

parking lots carrying transportation-related pollutants; higher sewage releases; more trash; litter; and garden and yard byproducts. Growth also means locating and constructing solid waste sites so as not to adversely impact coastal waters. An increasing population burdens public facilities in accessing the LCZ; for example: boat ramps and fishing or crabbing places, public garbage, sanitary facilities, and car and R.V. parking. However these are indirect measures of cumulative and secondary impacts of growth in the LCZ. The 305b report does not take growth explicitly into account as a direct measure of impairment.

2. Identify areas in the coastal zone, by type or location, which possess sensitive coastal resources (e.g., wetlands, waterbodies, fish and wildlife habitats, threatened and endangered species and their critical habitats) and require a greater degree of protection from the cumulative or secondary impacts of growth and development.

Area	CSI Threats/Sensitive Resources
Coastal wetlands	Point and nonpoint source runoff from developing areas
Water bodies (e.g. lakes, rivers, and estuaries)	Fecal coliform contamination, primarily from septic tanks and municipal sewage systems; low dissolved oxygen from sewage, agriculture, or natural causes; sediment related problems such as turbidity, suspended solids, and siltation caused by agriculture or other causes; and mercury related to fish consumption advisories
Brown marsh	Multiple unknown stressors, research is ongoing
Unrestricted withdrawal of ground water	New wells drilled as coastal population grows
Chenier plain	Chenier mining for sand and clay sources in coastal areas can lead to the cumulative degradation of a first line tropical storm defensive barrier

Management Characterization

1. Identify significant changes in the state’s ability to address CSI since the last assessment (e.g., new regulations, guidance, manuals, etc.). Provide the following information for each change.

Louisiana Clean Marina Program

In 2005 the Clean Marina Program was instituted in coastal Louisiana. The program has two graduates and several interested candidate marinas. The Louisiana Clean Marina initiative is an effort to assist marina operators to protect the resources that provide their livelihood: clean water and fresh air by providing technical advice and educational material to marina operators and boaters. These natural assets are essential features of the boating industry. Ironically, it is the enjoyment of these natural wonders that may lead to their decline.

Louisiana Clean Marina Guidebook

In 2004, the Louisiana Sea Grant published the Louisiana Clean Marina Guidebook. The guidebook provides an overview of actions that marine industry professionals can take to protect water and air quality. It is written for managers of full-service marinas. The recommendations contained within, however, are equally applicable to marinas with limited services as well as marine contractors. Marinas that adopt a significant proportion of the best management practices suggested within this guidebook will be eligible to be recognized as a Louisiana Clean Marina.

Supplemental Information Packet for New Residential Subdivision Development

This document was developed in 2001 and requires developers of new subdivisions to address economic justification for new development as well as to address smart growth principles. In October of 2004 nonpoint source pollution BMP information and requirements were added to the packet.

Brown Marsh Die Back

The last assessment for the LCRP highlighted two issues that during the reporting period have been reported on or resolved in some fashion. These issues dealt with the brown marsh phenomenon and the unrestricted withdrawal of groundwater. Brown marsh or “saltwater marsh die-off” was first discovered in the spring of 2000 in Lafourche, Terrebonne, Jefferson, and Plaquemines Parishes during the period of an extended drought. Current findings suggest that multiple stressors acting in tandem on the *Spartina* vegetation are likely to have caused the die-back phenomenon rather than a single stressor, such as the drought conditions occurring at that time.

Conservation of Ground Water Resources

Recent events have resulted in statewide interest and public concern about the protection and conservation of freshwater resources, particularly about the type and/or quantity of water use, and whether uses are appropriate and/or do not optimize vital freshwater resources. Act 49 of the 2003 Regular Legislative Session requires the LDNR-Office of Conservation to administer all matters related to the management of Louisiana’s ground water resources to ensure sustainability of those resources. A major component of that responsibility will be to monitor the ongoing use of aquifers in the state and to determine the effect of

new wells on those aquifers. New wells determined to have an adverse impact on the sustainability of an aquifer or a nearby well may be subject to certain restrictions. Such restrictions could include limiting production, setting well spacing, and requiring metering. A Ground Water Resources Commission, made up of 19 members representing various departments, industries and interests in Louisiana, was also authorized in 2003.

Conclusion

1. Identify priority needs or major gaps in addressing the programmatic objectives for this enhancement area that could be addressed through a 309 Strategy (i.e, inadequate authority, data gaps, inadequate analytical methods, lack of public acceptance, etc.).

LDNR/CMD has determined at this time there are no major gaps in addressing the programmatic objectives for the CSI enhancement area that could be addressed through a 309 strategy. However several of the Coastal Hazards strategies selected will have very positive benefits on the previously reported enhancement areas. The Coastal Hazard Mitigation Guidebook will incorporate smart growth development into safer land use planning. The Canal Construction and Maintenance enhancement project will help to prevent pollution from dredged sediments and negative hydrologic changes.

2. What priority was this area previously and what priority is it now for developing a 309 strategy and designating 309 funding and why?

This enhancement area was ranked high for the previous assessment period, and is now ranked low. Because the rebuilding of coastal Louisiana will require more stringent safety and environmental guidelines, the 309 enhancement strategies that are being ranked high and that will address Wetlands and Coastal Hazards will also have very positive impacts on CSIs. Therefore for this period CSIs are ranked as a low priority even though it will continue to be addressed. LDNR/CMD continues to work with the LDEQ, NOAA, and EPA on the Coastal Nonpoint Pollution Program, continues to incorporate smart growth and BMPs into the coastal use permitting process and continues extensive pollution outreach and education strategies.

2000-2005 Assessment	2006-2010 Assessment
High	High
Medium	Medium
Low	Low

MARINE DEBRIS

Section 309 Programmatic Objectives

I. Develop or revise programs that reduce the amount of marine and/or lake debris in the coastal zone.

Resource Characterization

1. In the table below, characterize the extent of marine/lake debris and its impact on the coastal zone.

Source	Impact (Significant/Moderate/ Insignificant)	Type of Impact (Aesthetic, resource damage, etc.)
Natural disasters	Significant	Aesthetic and resource damage
Fishing and recreational vessels	Significant	Aesthetic and resource damage
Offshore oil & gas structures	Significant	Aesthetic and resource damage
Cargo & passenger vessels	Significant	Aesthetic and resource damage
Onshore littering & dumping	Significant	Aesthetic and resource damage

(NOAA, Marine Debris Program 2006)

(Louisiana Sea Grant, Louisiana Fisheries 2006)

The presence of marine debris on Louisiana's beaches and in coastal waters has economic, health and safety, and ecological impacts. Beach visitors find debris-strewn beaches unaesthetic. Scarce tax dollars must be spent cleaning beaches. Trash fouls cooling intakes. Discarded pipe, equipment, abandoned or lost crab traps, nets, etc. ruin propellers or damage hulls of recreational and commercial vessels. Lost and abandoned fishing line, crab traps and similar gear can persist in the environment for years, trapping fish and crustaceans, and entangling sea turtles and seabirds.

The people of Louisiana use the LCZ and nearshore waters for recreation year around. In the spring, fishing and boating are prevalent activities; summer brings camping, swimming, and crabbing to the forefront. Fall and winter find groups fishing and hunting. Commercial fishing and trapping and oil and gas extraction, both onshore and offshore, occur throughout the year. With all of this activity a tremendous amount of trash is generated and often not brought back to land for

proper disposal. As a result of much of the garbage being tossed over the side of the boat, marine debris becomes a problem.

Following Hurricanes Katrina and Rita, there is a substantial amount of debris strewn throughout the LCZ. As one can imagine, there is a great deal of disaster related debris such as trees and wood, building wreckage, sand, mud, silt and gravel, vehicles, and derelict vessels as well as plenty of hazardous material such as toxic or unknown chemicals that have washed onto wetlands, beaches and shorelines across the coast. All of these debris types can pose injury to or kill marine life and humans, causing damage to important resources.

2. If any of the sources above or their impacts has changed since the last Assessment, please explain.

Louisiana's coastal area is still dealing with the debris clean up associated with the impacts of Hurricanes Katrina and Rita. Under FEMA's Public Assistance Grant, different categories of debris removal are funded. For example, a natural stream or flood channel where debris from the hurricanes may cause flooding from a future storm would be eligible. If such flooding would cause an immediate threat of damage to improved property, removal of the debris only to the extent necessary to protect against an immediate threat would be eligible. However, not all public property clearance will necessarily be eligible.

Currently, the ESF-10 Joint State of Louisiana, EPA, and the Coast Guard Unified Command is proceeding with Hazardous Material (HAZMAT) and Oil Pollution Threat Removal to include drums, cylinders, tanks, and other containers in the coastal zone that pose a risk to public health and the environment. The goal of the recovery is to remove the larger HAZMAT debris threat without causing environmental injury greater than that posed by the HAZMAT itself. Existence of such debris can cause various aesthetic and resource damages.

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

Programs such as the Barataria National Estuary Program and Lake Pontchartrain Basin Foundation typically have a beach clean-up event annually, coordinated by the Louisiana Department of Environmental Quality Litter Reduction and Public Action program. In previous years the cleanup has been in conjunction with The Ocean Conservancy, other federal and state agencies and private companies and individuals who wanted to be actively involved. There were 2,045 participants in the 2004 Louisiana Beach Sweep and Inland Waterway Cleanup (The 2005 program was cancelled due to Hurricanes Katrina and Rita). Volunteers covered 72 miles, picking up 68,394 debris items that weighed 56,619 pounds. In Louisiana, cigarettes, food wrappers, and plastic beverage bottles accounted for over one quarter of all the debris items collected (LDEQ).

Beach sweep results are used by programs such as the Lake Pontchartrain Basin Foundation, as well as LDEQ and other governmental agencies, for educational efforts aimed at reducing littering and improper disposal; for monitoring the overall trends and conditions of, and public concerns for the shore environment; and to plan for future cleanup efforts.

Management Characterization

4. For the categories below, identify significant state ocean/Great Lakes management programs and initiatives developed since the last Assessment:

Management Category	Change Since Last Assessment		
	Significant	Moderate	None
State/local program requiring recycling			X
State/local program to reduce littering			X
State/local program to reduce wasteful packaging			X
State/local program managing fishing gear	X		
Marine debris concerns incorporated into harbor, port, marina, and coastal solid waste management plans	X		
Education and outreach programs			X

5. For the changes identified above provide a brief description of the change.

State/local Program Managing Fishing Gear

Louisiana's Derelict Crab Trap Removal Program

The LDWF is the lead agency for this program, authorized by Act 48 passed in the 2003 Regular Legislative Session. The program designates the beginning and ending dates of the trap closure, geographical area of the trap closure, who may remove the abandoned traps, and the locations for placement of the abandoned traps for disposal. The program was developed to address the negative impacts of abandoned crab traps which include ghost fishing mortality of blue crabs and bycatch; user group conflicts with shrimp fishermen and other water-based user groups; navigational hazards to boaters; and decreased visual aesthetics. The program is based on volunteers and is made up of organizations, governmental entities, and individuals.

Two trap closures and cleanups took place in 2004, a winter closure in an area of Terrebonne Bay Estuary and a spring closure in Vermilion Bay. The two closures resulted in a total of 6,894 crab traps collected. Four trap closures and clean ups took place in 2005 (Sabine Lake, Terrebonne Bay, Breton Sound, and Vermilion Bay), resulting in a total of 4,623 derelict crab traps retrieved.

Although some crab fishermen will lose some fishing time and incur costs associated with trap relocation, and some dealers near the closure areas may experience a slight reduction in the supply of crabs, the potential impacts are outweighed by the benefits of removal of these derelict crab traps.

Marine Debris Concerns Incorporated into Harbor, Port, Marina, and Coastal Solid Waste Management Plans

Hurricane Katrina Debris Management Plan

The purpose of this guidance is to furnish local governments with basic information on hurricane debris management within the scope of effective environmental management. While LDEQ is willing to be flexible and innovative on various approaches to handling debris issues as a result of Hurricane Katrina, it must still adhere to its mission of protecting the state's environment to the fullest extent possible under the circumstances. The LDEQ will consider reasonable waiver requests in order to facilitate rapid and environmentally safe disposal, composting and waste diversion goals. This plan is updated periodically and given to FEMA to be incorporated into its debris management plan.

In response to Hurricanes Katrina and Rita, LDNR published a short paper on storm debris use in coastal restoration, for informational purposes as the State continues to develop a master debris management plan. The paper addresses the possible use of vegetative debris and concrete/rock materials for shoreline stabilization and marsh restoration; notes potential issues such as transport and staging, contamination of groundwater, and regulatory approval; and provides

recommendations on what measures could be pursued by LDNR and coastal parishes should the use of this material be contemplated.

Conclusion

1. Identify priority needs or major gaps in addressing the programmatic objectives for this enhancement area that could be addressed through a 309 Strategy.

Marine debris is a high priority to Louisiana, particularly in the aftermath of hurricanes Rita and Katrina. Hurricane debris, including hazardous and toxic materials, will remain in coastal areas long after the emergency cleanup effort is completed. However, this activity is ranked low for LDNR because jurisdiction over marine debris falls to other state and local agencies.

2. What priority was this area previously and what priority is it now for developing a 309 Strategy and designating 309 funding and why?

This enhancement area was ranked low for the previous assessment period, and continues to be ranked low. Marine debris, litter, and recycling are currently under the jurisdiction of LDWF, LDEQ, and at least three other state agencies, as well as local governments. These agencies have funding and staff whose jobs are to promote waste reduction and recycling efforts, promote and coordinate anti-litter campaigns and cleanups and to enforce existing state and federal anti-litter laws. LDNR/CMD has no staff currently available for these activities or the jurisdiction to be involved in any capacity other than continuing the role of cooperating with the other state agencies and user groups. LDNR/CMD continues to work with the parishes and municipalities to reduce litter, debris, and used oil at marinas and boat ramps. The CMD uses its education and outreach programs to remind people about their responsibility to keep the coast clean and litter free.

2000-2005 Assessment	2006-2010 Assessment
High	High
Medium	Medium
Low	Low

SPECIAL AREA MANAGEMENT PLANNING

Section 309 Programmatic Objectives

I. Develop and implement special area management planning in coastal areas applying the following criteria:

- Areas with significant coastal resources (e.g., threatened and endangered species and their critical habitats, wetlands, waterbodies, fish and wildlife habitat) that are being severely affected by cumulative or secondary impacts;
- Areas where a multiplicity of local, state, and federal authorities hinder effective coordination and cooperation in addressing coastal development on an ecosystem basis;
- Areas with a history of long-standing disputes between various levels of government over coastal resources that has resulted in protracted negotiations over the acceptability of proposed uses;
- There is a strong commitment at all levels of government to enter into a collaborative planning process to produce enforceable plans;
- A strong state or regional entity exists which is willing and able to sponsor the planning program.

Resource Characterization

1. Using of the criteria listed above, identify areas of the coast subject to use conflicts that can be addressed through special area management planning (SAMP).

The table below contains useful information regarding areas that might normally be considered to be likely candidates for the SAMP process. SAMP is not the most useful methodology to address issues that exist in certain areas in Louisiana. Locally driven initiatives in which the Coastal Management Division acts as facilitator and/or technical assistance provider have proven to be far more effective and are able to do things that state government is precluded from doing to achieve success.

Area	Major Conflicts
Chenier Ridges	Mining, Habitat Destruction, Development, Subsidence
Navigation Channels	Beneficial Use of Dredged Material

Lake Pontchartrain	Water Quality Development
Baratria-Terrebonne Basins	Water Quality/Quantity, Development, Land Loss, Subsidence

Management Characterization

Louisiana has two SAMPs which are currently continuing to operate as they have since original program submittal and approval by NOAA. They are the Louisiana Offshore Oil Port (LOOP) and Marsh Island Wildlife Management Area and Game Preserve managed by the LDWF. While Louisiana did has used the SAMP planning process to initiate “conservation and management efforts” in several areas, the CMD has allowed local entities to pursue advanced plan formulation and implementation. An example of this is the Lake Pontchartrain Basin Foundation and its focus on the health of the basin. CMD has continued to maintain a major role in these efforts as a technical and management partner while allowing locally developed initiatives to be the leader.

1. Identify areas of the coast that have or are being addressed by a special area plan since the last Assessment.

There are no new areas of the coast that have or are being addressed by a special area management plan since the last assessment. Numerous planning efforts are on-going, e.g. LaCPRA (Louisiana Coastal Protection Restoration Authority, USACE version), Louisiana Coastal Authority (LCA), CWPPRA, CPRA (Coastal Protection Restoration Authority, State version) which are performing planning tasks much like and addressing the same issues as would a SAMP. CMD staff has been involved in all of these efforts.

2. Identify any significant changes in the state’s SAMP programs since the last assessment (i.e., new regulations, guidance, Memorandums of Understanding, completed SAMPs, implementation activities, etc.). Provide the following information for each change.

There are no significant changes in Louisiana's SAMP program since the last assessment. CMD has participated in all of the efforts noted above (see answer to question 1) as well as numerous other efforts such as Gulf Ecological Management Sites program, the Lake Pontchartrain Foundation, as well as ongoing efforts of the Barataria-Terrebonne National Estuary Program.

Conclusion

1. Identify priority needs or major gaps in addressing the programmatic objectives for this enhancement area that could be addressed through a 309 Strategy.

There are no priority needs or major gaps in addressing programmatic objectives related to SAMP criteria or use conflicts that could be fulfilled through the SAMP process.

2. What priority was this area previously and what priority is it now for developing a 309 Strategy and designating 309 funding and why?

Louisiana has chosen to use mechanisms, other than SAMPs to address areas and issues that inform coastal management in Louisiana. The CMD is working with interagency working groups on such initiatives as LaCPRA, LCA, LRA and others, and these venues offer many opportunities to address issues that might otherwise be addressed through the SAMP process. In fact there are so many ongoing planning efforts that trying to start yet another effort to address issues might be confusing to the lay audience targeted for support and participation. Additionally, the CMD continues to be represented on the Board of the Lake Pontchartrain Basin Foundation and participates on the Management Conference of the Barataria-Terrebonne National Estuary Program. LDNR/CMD also maintains working relationships with the LCPs. LDNR/CMD will continue to pay close attention to these local groups and the concerns that they have regarding coastal areas. Local planning initiatives offer the greatest chance of success because they include many basin residents and decision-makers.

2000-2005 Assessment	2006-2010 Assessment
High	High
Medium	Medium
Low	Low

ENERGY & GOVERNMENT FACILITY SITING

Section 309 Programmatic Objectives

I. Enhance existing procedures and long range planning processes for considering the needs of energy-related and government facilities and activities of greater than local significance.

II. Improve program policies and standards which affect the subject uses and activities so as to facilitate siting while maintaining current levels of coastal resource protection.

Management Characterization

1. Identify significant changes in the state's ability to address the siting of energy and government facilities since the last Assessment (e.g., new regulations, guidance, manuals, etc.).

Liquefied Natural Gas

The demand for natural gas across the United States has grown over the last several decades. Domestic natural gas supplies have been unable to keep up with the demand, and as a result natural gas prices have risen. The use of liquefied natural gas (LNG) is becoming more popular due to the fact that the cost of producing and transporting LNG is more competitive than those associated with domestic natural gas (Congressional Research Services).

Louisiana is uniquely situated to be a major player in the distribution of LNG to the nation. The State has a specific advantage in that we have the infrastructure in place, and a population which accepts energy facility siting in our coastal areas, which assist in achieving this goal.

LNG is natural gas cooled to temperatures below minus -260°F which condenses to liquefied natural gas. Transportation of LNG is typically by tanker to an offshore or onshore terminal or facility where regassification takes place. Onshore terminals consist of docks, LNG handling equipment, storage tanks, and interconnections to regional gas transmission pipelines and electric power plants. Offshore terminals regassify and pump the LNG directly into offshore natural gas pipelines or may store LNG in undersea salt caverns for later injection into offshore pipelines (Congressional Research Services). There are various techniques that can be used to regassify LNG such as the open rack vaporization (ORV, an "open loop" system), ambient air regassification, or submerged combustion vaporization (a "closed loop" system).

The ORV uses a continuous stream of seawater as the source of heat to vaporize LNG, and is then discharged back into the sea, now chlorinated and 20

degrees cooler. This technique has faced environmental criticism because of concern with the unknown effects this system may have on marine fisheries. The Louisiana Department of Wildlife and Fisheries, as well as federal agencies, have expressed concern with the unknown effects of the ORV regassification system's entrainment, impingement, and discharge characteristics on populations of marine species, particularly considering the number of license applications for this type of facility being proposed in the GOM.

The closed loop system is more expensive to operate, but does not rely on continuous intake of seawater for vaporizing the LNG and has a far smaller potential for adverse impacts on fisheries stocks. It, or the ambient air technique, are the only viable regassification methods which can be used at onshore facilities.

At the federal level, offshore siting of LNG terminals is regulated under the Deepwater Ports Act of 1974 (P.L. 93-627). The Secretary of Transportation has delegated authority to the Maritime Administration within the Department of Transportation and to the United States Coast Guard, within the Department of Homeland Security. In 2002 the P.L. 93-627 was amended to include LNG terminals and lays out a detailed procedure for offshore facility siting. A preexisting provision of the Deepwater Port Act allows the governor of a state adjacent to a proposed offshore LNG facility to veto any license which does not comply with the state's environmental protection, land and water use, or coastal zone management programs (33 U.S.C. §1508(b) Congressional Research Services). Regulation of onshore siting of LNG facilities resides with the Department of Transportation and the Federal Energy Regulatory Commission under the Pipeline Safety Improvement Act of 2002 (P.L. 107-355) and the Natural Gas Act of 1938, respectively.

The State of Louisiana through the coastal management program has two management tools with respect to the siting and operation of LNG facilities located in the LCZ and adjacent federal waters. The Coastal Use Permit (CUP) program reviews applications for developmental activities in the LCZ. The CUP program requires the consideration of alternative site locations or operation of facilities, and mitigation for unavoidable habitat losses.

The second program is Federal Consistency. Under the CZMA, the LDNR reviews federally licensed or permitted activities which may affect coastal resources, and for which a CUP is not required. Criteria for consistency authorization are essentially the same as for CUPs.-

As of June, 2006, there were six LNG facilities proposed in offshore federal waters. Four have been approved and one denied by LDNR/CMD and USCG / Maritime Administration (USCG/MARAD); one is pending; and one has been withdrawn by the applicant. Onshore in Louisiana, there is one existing LNG facility, and there have been two permitted and one proposed.

Of the five LNG terminal projects in federal waters off shore Louisiana whose permit applications have been decided, all proposed to use the ORV technique of regassification. As applications have been reviewed and more learned about the potential effects of ORV systems on important fishery species, the state came to the decision that applicants proposing to use an ORV must either develop a detailed pre-and post-construction monitoring plan, impact prevention response plan, and mitigation plan in coordination with LDWF, or use a closed-loop regassification system. Four permits were issued for ORVs as this policy was under development; the offshore LNG operator whose application was denied consistency approval has announced the intention of resubmitting the project using a closed-loop revaporization system.

Offshore Wind Power

In 1979 coastal Louisiana was identified as having a significant potential for wind energy development. Development of such a resource was not pursued. However, the issue was again raised in 2003 and has received much more attention. The reason for this is related to: an increase in the feasibility of wind power economics versus the high cost of fossil fuels, a recent study suggesting that the Gulf of Mexico (GOM) may possess a greater wind resource than previously thought, and a south Louisiana company's proposal to place wind power plants in state and federal waters on abandoned oil and gas platforms. Typically oil and gas platforms once abandoned must be deconstructed and sunk in the ocean at a designated location. Using the abandoned structures to aid in producing electricity would save the oil and gas industry hundreds of millions of dollars by avoiding the expense of removing the platforms.

The Louisiana Public Service commission called on the LDNR Technology Assessment Division to provide technical assistance. The Technology Assessment Division worked with the U.S. Department of Energy, National Renewable Energy Laboratory, and other state agencies to assess the issues of offshore wind power.

There are obvious attractions and drawbacks to generating wind energy. The fact that wind energy is a renewable non-polluting resource and the increase in costs for conventional fuels makes wind energy appealing. Some may argue the capital costs associated with construction and the potential aesthetic and bird fatalities that may result are major disadvantages to wind power (LDNR, Louisiana Energy Topic, Dec. 2004).

During the last assessment period, LDNR received a proposal from a south Louisiana company to place wind turbines on abandoned oil and gas platforms in state and federal waters and use them as wind farms to generate electricity. Research has shown that offshore Louisiana has a potential to support a productive wind energy industry (Crouch 2004, Archer and Jacobson 2003).

One potential impediment regarding the use of oil and gas platforms as wind farms was the fact that the state did not have the authority to permit offshore wind farms and that new legislation would be needed. As a result, in 2005 the legislature voted on House Bill No. 428 and later enacted La. Rev. Stat. 41:1731-1734:

to authorize the Department of Natural Resources to lease state lands for the exploration, development, and production of energy from wind; to provide a process for leasing state lands for the exploration, development, and production of energy from wind; to provide for the powers and duties of the secretary of the Department of Natural Resources; to provide for the powers and duties of the State Mineral Board; to authorize the implementation of fees; to provide for the promulgation of rules and regulations; and to provide for related matters.

To date there have been no CUP applications submitted to LDNR/CMD for developing wind farms in state waters.

Along the same lines of developing renewable energy in Louisiana, in 2003 regular session, the Governor signed the Louisiana Renewable Energy Development Act. This Act allows private companies or individuals who develop and construct innovative energy production systems such as solar systems, wind mills, synfuels, etc., to add that electricity to the power grid and be credited for the monetary benefits added to the energy grid.

Government Facility Siting Activities

The Louisiana coastal program states (La. Rev. Stat. 49: 214.32 B.):

Any governmental body undertaking, conducting, or supporting activities directly affecting the coastal zone shall ensure that such activities shall be consistent to the maximum extent practicable with the state program and any affected approved local program having geographical jurisdiction over the action.

The LDNR/CMD reviews the construction of new and the expansion of existing Federal installations, pursuant to the CZMA as a Direct Federal Action consistency determination (Subpart C of 15CFR930-30-44). Federal facilities of significance are the possessions of the U.S. Coast Guard, National Aeronautics and Space Administration (NASA), U.S. Navy, U.S. Department of Energy (DOE), the U.S. National Park Service, U.S. Fish and Wildlife Service, and the USACE. Although some acreage is for the installation and potential expansion, most acreage is for habitat/wildlife preservation and recreation.

Proposed construction activities associated with state and local governmental facilities are treated as standard CUP applications and are reviewed pursuant to the permitting requirements of the SLCRMA and the applicable Coastal Use

Guidelines: guidelines applying to all uses (Guidelines 1.1 -1.10), guidelines for levees (Guidelines 2.1 - 2.6), guidelines for linear facilities (Guidelines 3.1 - 3.16), guidelines for dredged spoil disposal (Guidelines 4.1 - 4.6), guidelines for surface alterations (Guidelines 6.1 - 6.14), and the guidelines for waste disposal (Guidelines 8.1 - 2.9). The term "Maximum Extent Practicable" qualifier is applied to federal projects [15CFR930.39(c) of the NOAA consistency regulations].

Strategic Petroleum Reserve Expansion

The Energy Policy Act of 2005 directed the Secretary of Energy to fill the Strategic Petroleum Reserve (SPR) to its authorized one billion barrel capacity and to select sites to expand the SPR. On September 1, 2005 the Department of Energy released a Notice of Intent to Prepare an Environmental Impact Statement and Conduct Public Scoping Meetings to assess the proposed capacity expansion at three of the four existing SPR storage sites and the development of a new storage site in the Gulf Coast region. The existing sites are located in Texas, Louisiana, and Mississippi. The initial plans of DOE are to create two new sites and expand two existing sites in Louisiana. One proposed new site and one expansion site are located in the LCZ.

Hurricane Protection Levees

Following the passage of Hurricanes Katrina and Rita there were many emergency authorizations to work on levees and pumps throughout coastal Louisiana. At present, the USACE has been charged with building the levees back to their condition prior to Hurricanes Katrina and Rita. The USACE is drafting the South Louisiana Comprehensive Coastal Protection and Restoration Plan pursuant to the Energy and Water Development Appropriations Act, 2006 (P.L. 103-109) and the Department of Defense Appropriations Act, 2006 (P.L. 109-148). Concurrently, LDNR and LDOTD are coordinating to implement the Comprehensive Master Coastal Protection Plan as charged by the Coastal Protection and Restoration Authority.

Lake Pontchartrain Basin Pipeline Corridor

The LCRP underwent a policy change to the CUP process when the Lake Pontchartrain Pipeline Corridor Project was completed in 2004. Historically, the placement and location of oil and gas pipelines throughout the LCZ has been a contentious issue, even prior to the establishment of the LCRP. Increasing offshore production has increased the need to construct pipelines while at the same time development has expanded in the Greater New Orleans area. This has resulted in user conflicts between the energy industry and the coastal users and communities in the area, especially in Lake Pontchartrain. CMD proposed to establish north/south and east/west pipeline corridors traversing Lake Pontchartrain in the wake of new pipeline projects proposed in the area. In addition, the intention was also that the development of these corridors would serve as a model for use in other parts of the LCZ where similar circumstances had developed. The project involved stakeholders from the pipeline industry,

regulatory and commenting governmental agencies, the environmental community, and other groups that expressed interest in participating in the project. A set of General Conditions for the CUP process were established outlining the location, placement, and design and construction criteria for the pipeline corridors, which were based on discussions with the above mentioned groups and the technical expertise of the CMD staff.

Conclusion

1. Identify priority needs or major gaps in addressing the programmatic objectives for this enhancement area that could be addressed through a 309 Strategy.

The LDNR/CMD did not identify any gaps in achieving the Section 309 programmatic objectives for energy and governmental facility siting.

2. What priority was this area previously and what priority is it now for developing a 309 Strategy and designating 309 funding and why?

The LDNR/CMD handles siting of energy and government facilities through its consistency provisions and its standard guidelines and regulatory authority. During the last assessment, LDNR/CMD ranked this priority high in order to resolve a user conflict within the LCZ. For this assessment LDNR/CMD will rank this enhancement area low, but will continue to listen to potential issues that may arise regarding energy and governmental facility siting.

2000-2005 Assessment	2006-2010 Assessment
High	High
Medium	Medium
Low	Low

AQUACULTURE

Section 309 Programmatic Objective

I. Enhance existing procedures and long range planning processes for considering the siting of public and private marine aquaculture facilities in the coastal zone.

II. Improve program policies and standards which affect aquaculture activities and uses so as to facilitate siting while ensuring the protection of coastal resources and waters.

Resource Characterization

1. Briefly describe the states aquaculture activities (e.g., existing procedures, plans, program policies and standards).

Aquaculture Statistics

The Louisiana Aquaculture Plan, Comprehensive Report (2000) published by the Louisiana Aquaculture Task Force defines aquaculture² as:

“The propagation, maintenance, rearing and harvest of crustaceans, mollusks, fishes, amphibians, aquatic reptiles (such as turtles and alligators), or any other species of aquatic animal or plant within artificial reservoirs, tanks, cages, impoundments or other controlled environments, so as to prevent, at all times, the ingress or egress of animal and plant life from public waters including natural streams or lakes, be they fresh, brackish or saline.”

During the 2001-2005 assessment period, trends in aquaculture gross farm values stayed steady with only minor fluctuations on the order of 1% from year to year. On average between 2001 and 2004³, state gross farm values were approximately \$135 million. The 19 coastal parishes which make up the LCZ contributed on average \$60 million or roughly 45% of the gross farm values generated from aquaculture in the State of Louisiana.

² The Louisiana Aquaculture Task Force determined their definition of aquaculture to be compatible with those statutes that reference aquaculture (La. Rev. Stat. 56:356, La. Rev. Stat. 3:263 (3) and (10), and La. Rev. Stat. 3:446.2 (3).

³ Data for 2005 was not released in time for the assessment.

Table 3. Summary of change in gross farm values and comparison of state and coastal parish gross farm values.

Year	Change in Gross Farm Value	State	Coastal
2004	-1.3	\$128,528,524.00	\$77,613,765.00
2003	0.8	\$161,967,370.00	\$52,436,041.00
2002	-1.0	\$123,715,104.00	\$52,910,725.00
2001	1.0	\$125,007,532.00	\$58,571,181.00
		\$134,804,632.50	\$60,382,928.00

Aquaculture Regulations

In the 2003 Regular Session of the Louisiana Legislature, House Bill No. 2013 was put forth to establish the Louisiana Aquaculture Coordinating Council to develop a program to oversee, coordinate, and regulate aquaculture and to promote aquaculture products. The then Governor, Governor Murphy J. Foster vetoed the bill because the Council was established within the Department of Agriculture and Forestry, and Article IX Section 7 of the Louisiana Constitution of 1974 vests “control and supervision of the wildlife of the state including all aquatic life in the Louisiana Wildlife and Fisheries Commission”. Governor Foster promulgated Executive Order MJF 03-15 which established the Louisiana Aquaculture Advisory Council within the executive department, Office of the Governor, but its existence was short lived.

Following this, in 2004 after extensive discussions between the Louisiana Department of Agriculture and Forestry and the Louisiana Department of Wildlife and Fisheries, Act 865 was enacted to provide a regulatory framework for the orderly development and maintenance of a modern aquacultural segment of Louisiana’s agriculture industry and for the promotion of aquaculture and aquacultural products. The Act created the Louisiana Aquaculture Coordinating Council within the Department of Agriculture and Forestry and established a procedure for approving a species of finfish as suitable for aquaculture.

The Coastal Management Regulations (La. Admin. Code 43:1,723: B(1)(a)(i)), state that a coastal use permit is not required for aquaculture activities that take place on land consistently used for those activities. A state or local CUP will be required when the construction of an aquaculture site is within the LCZ that was not previously used for agriculture or aquaculture, is below the 5 ft mean sea level, and is not in a fastland. In such cases, LDNR/CMD permit analysts will determine if there are any alternative project sites, and if not, work with the

project applicant to minimize impacts to the wetlands. If the project results in wetland impacts, mitigation will be required. In cases when a CUP is not needed, local ordinances should always be checked for siting and construction requirements.

Mariculture is the practice of aquaculture in brackish or marine waters and includes hatchery breeding, transportation, implantation, propagation, growout, and harvesting of domesticated fish and other aquatic species (LDWF). Permits for mariculture projects can be obtained through the LDWF Mariculture Program. Projects must be within the LCZ on private property or water bottoms. A mariculture permit will not be issued until a CUP is issued if required for the reasons mentioned in the previous paragraph.

The Platforms for Mariculture Task Force (Task Force) was created following passage of Louisiana House Concurrent Resolution No. 176 (HCR 176). The resolution was adopted during the 2004 Regular Session of the Louisiana Legislature. HCR 176 directed the Task Force to study the following aspects of utilizing offshore oil and gas platforms for culturing marine organisms in the development of a Louisiana mariculture industry in the GOM: 1) economic feasibility and impact on other segments of the economy, 2) environmental impact and 3) regulatory considerations. Delivery of a written report of the findings and recommendations to the Governor and Legislature by January 31, 2005 was required (Appendix B). The study focused primarily on five (5) mariculture activities which could potentially utilize Louisiana GOM offshore platforms for culture operations. Mariculture activities of specific interest included: 1) net-pen culture; 2) oyster depuration; 3) ornamental fish; 4) coral and sponge harvest, and 5) platform sea farming.

2. Briefly describe environmental concerns (e.g., water quality, protected areas, impacts on native stock and shell fish resources). Also, describe any use conflicts (e.g., navigational, aesthetic, incompatible uses, public access, recreation, and future threats (e.g., shoreline defense works, introduced species)).

Louisiana has a unique opportunity to take advantage of the continuing demand for fisheries products and is rich in the resources necessary for aquaculture development. Louisiana's landscape is conducive to aquaculture development and our climate satisfies a long growing season. In order to maintain a profitable aquaculture industry special attention must be paid to water quality which can directly affect the health of aquaculture products. Nonpoint sources of pollution have been of concern in recent years. Effluents from aquacultural operations are released into streams and rivers during heavy rainfall, when harvesting fish, to accommodate reproductive cycles of cultured animals, or to maintain acceptable water quality in the culture system (Romaine 1999). LSU AgCenter scientists continue to research and develop practical, cost-effective solutions to manage

pond effluents to comply with federal and state regulatory requirements, protect the environment and sustain profitability.

During the current reporting period, issues arose surrounding the effects that ongoing coastal restoration actions have on oyster fishing. Concerns were expressed by local oystermen that freshwater diversion projects may disrupt the salinity conducive for oysters to grow and thereby ruin the oyster production for the season. In simple terms, a freshwater diversion is a restoration technique that usually involves creating a control structure in a levee in order to connect a wetland with a freshwater source. The purpose of the diversion is to benefit species diversity, land building, nutrient cycling, sediment deposition, and habitat creation. Oyster fishermen, shrimpers, commercial and recreational fishermen are concerned about how the changes are going to affect their catches, and, quite possibly, their livelihood. As the coastal restoration initiative grows and more restoration implementation occurs across the state, issues such as this will have to be addressed and resolved cooperatively between the effected user groups.

The effects of the passage of Hurricanes Katrina and Rita on the aquaculture industry are still unknown at this time. Experts from LSU AgCenter caution that recent hurricane related weather could possibly cause problems for pond owners, including fish kills from low dissolved oxygen or disease, or loss of stocked fish or contamination with wild fish where floodwaters went over levees. Natural disasters of the magnitude of Hurricanes Katrina and Rita can cause a decline in production, decrease in the quality of product, disrupt supply and demand conditions, and increase production costs due to physical damage to infrastructure, which lead to revenue loss (LSU AgCenter Research & Extension a). Preliminary estimates of cumulative economic impact from Hurricanes Katrina and Rita to aquaculture due to reduced revenue and increased costs are thought to be \$58.3 million (LSU AgCenter Research & Extension b).

Management Characterization

1. Identify significant changes in the state's ability to address the planning for and siting of aquaculture facilities since the last Assessment (new regulations, guidance, manuals, etc.).

As mentioned in the previous section, an environmental concern regarding aquaculture is nonpoint source pollution. The LSU AgCenter, in cooperation with the Natural Resources Conservation Service, the LDEQ, the Louisiana Farm Bureau Federation, and the LDAF, has taken the lead in developing BMPs for aquaculture in Louisiana. Development and implementation of these BMPs can aid in reducing the impact of agricultural and aquacultural production on Louisiana's environment.

Conclusion

1. Identify priority needs or major gaps in addressing the programmatic objectives for this enhancement area that could be addressed through a 309 Strategy.

The LDNR/CMD did not identify any gaps in achieving the Section 309 programmatic objectives for aquaculture.

2. What priority was this area previously and what priority is it now for developing a 309 Strategy and designating 309 funding and why?

Previously aquaculture was ranked as a low priority and it will remain low for this assessment period. Aquaculture and mariculture are administered through the LDAF and the LDWF, respectively. LDNR/CMD will continue to provide assistance and work cooperatively with these agencies to address any issues that may involve LDNR/CMD.

2000-2005 Assessment	2006-2010 Assessment
High	High
Medium	Medium
Low	Low

STRATEGIES

Coastal Hazards

Strategy - Task 1. Coastal Hazard Mitigation Guidebook

The Louisiana Sea Grant College Program is proposing to publish a Louisiana Coastal Hazard Mitigation Guidebook. The task will involve contracted research, analysis, and production of the Louisiana Coastal Hazard Mitigation Guidebook, a series of three brochures, and a series of workshops. This guidebook will serve as education and outreach to local coastal officials and planners, builders, and consumers in coastal Louisiana to assist them in making wise decisions as they rebuild communities. Different concepts will apply to different areas, as each will have particular issues and hazard mitigation needs. This task will cover the beginning phase of the project, and will include the research and draft of the written project. At the time of completion of the project guidebook and brochures, the LDNR/CMD will become involved in introducing the concepts to local officials.

Program Change: The Coastal Hazard Mitigation Guidebook Outreach enhancement project may lead to an Administrative Change to the LCRP, defined by new or revised guidelines, procedures and/or policy documents that will provide meaningful improvements to the LCRP. We can anticipate that, at a minimum, the components of the guidebook will aid LDNR/CMD and LCP permit staff in making informed regulatory determinations regarding development in the coastal zone by providing best management practices to be used as a basis of the review for new construction projects. The guidebook recommendations could ultimately be incorporated into a standard review by LCPs and LDNR/CMD of all pertinent permit applications. The state will work with parishes to implement the BMPs. The document may also spur changes to building codes within local parishes and communities. CMD will provide OCRM with a list of the parishes that have implemented BMPs, or adopted new or revised codes or ordinances as a result of the guidebook outreach. The list will also describe what changes have been achieved.

Year 1 (2006-2007)

Under this task, Louisiana Sea Grant Legal Program will gather research and literature, organize the materials, outline the written project, and submit a written draft to LDNR/CMD. The cost will be \$25,000.

Likelihood of Success: The likelihood of success of the project is high given the importance of hazard mitigation in our coastal zone to building sustainable coastal communities for the future.

Strategy - Task 2. Canal Construction and Maintenance

LDNR/CMD recognizes the significance of providing guidance to CUP applicants on the construction and maintenance of canals for uses in the coastal zone. Correct information regarding canal construction and maintenance methods is needed. A study comparing appropriate canal construction and orientation and the short and long term maintenance of these canals in relation to storm surge susceptibility and storm surge dampening would greatly aid regulatory agency personnel in providing direction to coastal users on the issue. Based on the research, guidance will be provided to CMD that will result in changes to the guidelines, policies or procedures.

Program Change: The Canal Construction and Maintenance enhancement project will lead to an Administrative Change to the LCRP, defined by new or revised guidelines, procedures and/or policy documents that will provide meaningful improvements to the LCRP. In all likelihood, the changes will be policy-based as we believe we have adequate statutory authority in the form of existing laws and regulations to implement any recommendations we anticipate are likely to result.

Year 1 (2006-2007)

The task will involve a contracted study (or studies) to determine appropriate canal construction and orientation and the short and long term maintenance of these canals in relation to storm surge and flooding. The research will involve getting information from local, state, and federal agencies and academics. It is estimated that approximately \$50,000 will be needed for the first phase of the task, which will not be completed in year 1.

Year 2 (2007-2008)

The research task will continue through completion. It is estimated that about \$40,000 will be needed to complete the research phase of the task. The research and guidance produced by the study will be submitted to CMD. The CMD will build a GIS database of the information provided by the research task in order to assist permit and consistency reviews of uses that involve canal construction and maintenance. It is proposed that this will be done by DNR staff and cost approximately \$80,000.

Year 3 (2008-2009)

Implementation of the administrative changes will be done by staff and is estimated to cost about \$10,000 per year.

Likelihood of success

This task is likely to succeed because the data should be readily obtainable and the issue is of public concern. This information will aid regulatory agency personnel in providing direction to coastal users on the issue of canal construction and maintenance.

Strategy - Task 3. Coastal Use Activities Affecting the Chenier Plain Ecosystem

LDNR/CMD recognizes the significant environmental and structural roles that natural coastal features play in Louisiana. Post Hurricanes Katrina and Rita, the State has recognized the significant role they play in hazard mitigation and protection of life and property in the coastal zone.

For this and other reasons, LDNR sees the need for an in-depth assessment and review of existing conditions of Louisiana's chenier ridges, as well as a study of how anthropogenic activities are affecting the overall integrity of these geomorphic features. It would be prudent to initiate an outreach program to engage the local coastal program leaders in a study that would define certain human activities, such as grazing, forestry activities, urbanization, and mining, monitoring these activities for any changes, negative or positive, to the ecological, biological, and structural integrity of the chenier, and record these effects, looking for any correlations. Also, there will be a contractual legal analysis that will propose language for any legislative changes required pursuant to the study.

Program Change: The Coastal Use Activities Affecting the Chenier Plain Ecosystem enhancement project will lead to an Administrative Change to the LCRP, defined by new or revised legislation, guidelines, procedures and/or policy documents that will provide meaningful improvements to the LCRP. As CMD cannot anticipate the final results, the form of any Administrative Changes cannot be determined at this time. The intent of any changes would be to ensure that the ecologic, biologic and geomorphic integrity of the cheniers is maintained so that they can continue to provide their essential functions (e.g., continuing to provide protection from coastal hazards by reducing storm surge, providing flood protection, reducing shoreline erosion in some instances, etc.) to the coastal zone and its inhabitants.

Year 2 (2007-2008)

The task will involve a study to determine the appropriate coastal activities that can take place on chenier ridges such as grazing, forestry activities, urbanization, and mining. The study will include an in depth assessment of the geomorphic formation and existing conditions of the chenier ridges. The goal of this study will be to determine the ecologic, biologic, and geomorphologic integrity and makeup of the chenier ridges and their ability to sustain different types of coastal activities. The research will involve getting information from local, state, and federal agencies and

academics. LDNR/CMD support services staff will assist contractors in field investigations as necessary.

During Year 2, LDNR/CMD staff will establish an outreach program to engage the LCP officials in the study and incorporate local parish concerns on the issue into the study. The research will involve getting information from local, state, and federal agencies and academics. It is estimated that approximately \$80,000 will be needed for the first phase of the task, which will not be completed in year 2.

Year 3 (2008-2009)

The research task will continue through completion. It is estimated that about \$40,000 will be needed to complete the research phase of the task. Independent of the research task will be a contractual task to perform an analysis of the legal authority of CMD to regulate and/or review for consistency, at a state level, those activities which may affect cheniers but are currently delegated to the LCPs. One deliverable of this task will be proposed language for any legislative changes (statute or regulation) that may be necessary to bring the review to the state level, for use in the event that is determined to be an appropriate course of action. The legal analysis will be submitted to LDNR/CMD and is estimated to cost approximately \$30,000.

Year 4 (2009-2010)

The CMD will build a GIS database, for incorporation into our existing GIS/electronic permit application review process, of the information provided by the research task in order to assist in permit and consistency reviews of uses which involve cheniers. It is proposed that this will be done by DNR staff and cost approximately \$80,000.

Year 5 (2010-2011)

Implementation of the administrative changes will be done by staff and is estimated to cost about \$10,000 per year.

Likelihood of success

This task is likely to succeed because the data should be readily obtainable and the issue is of public concern. This information will aid regulatory agency personnel in providing direction to coastal users on the issue of coastal activities affecting the Chenier Plain ecosystem.

Strategy - Task 4. Digital Mapping of Levees, Pumps, and Flood Control Features in Coastal Louisiana

The issue of protection of coastal communities and existing infrastructure in recent months has become a paramount one. As an agency regulating activities in the coastal zone LDNR/CMD recognizes the need for a database consisting of tools that can aid regulators, planners, and restoration implementers in making informed decisions regarding emergency planning and response, facility and project siting, etc. Currently, almost all of the communities in the coastal zone have some sort of flood protection system. Most of the cities are surrounded by levees and the water levels controlled by pumps. There is no current map, hardcopy or digital, collectively of these flood protection systems. There are major flood protection systems built and maintained by the USACE and under the control of various State Levee Boards, other large levee systems maintained by the parish (county) governments, smaller systems under control of public drainage agencies, and numerous privately managed large levee and pump systems protecting residences and agricultural operations. All of the information and maps reside with the respective agency or individuals responsible for the systems; there is no central repository.

A GIS database with the location of levees and pump stations including basic and pertinent information about each of those features does not exist and is needed by many agencies of the State of Louisiana to more efficiently and effectively perform their mandates in the coastal zone. Additionally, for those critical applications of protection of life and property, specialized user interfaces, queries, and displays are needed that provide for use of the application without a great deal of training or knowledge of the GIS software. The goal of this project is to complete a GIS dataset of all levees and pump stations in the Coastal Zone of Louisiana and to develop tools that fulfill aspects of emergency response and planning as described in this proposal, as well as to design the project so that it is flexible enough to be used as a basis for future projects that refine and/or add to the data and utility of the data and tools associated with this project. These data and tools will be used for coastal use regulatory permit application review and determinations; coastal restoration project analysis and design; emergency response and planning; and flood protection and drainage projects planning.

Data will be obtained either by staff of LDNR/CMD or by contractual agreement and will be incorporated into a GIS dataset. Obtaining this data for the GIS system is of critical importance to many users in the coastal zone. A list of the users and potential users and how the data and tools can assist in the mission of each group follows:

CMD: The most immediate use of the data will be to document what types of levee systems have been constructed, to capture the new proposals similarly, and document the effects on tidal coastal waters within and adjoining those levee systems, i.e. completely enclosed (fastlands), storm protection only (no effect on tidal exchange, or some effects). The capturing of this information in the

database, especially for the existing levee systems, will accomplish two purposes. It will relieve the analysts of having to research old files and spend a great deal of time trying to determine the permitted conditions and exclusions of these large permits whenever other projects are proposed nearby that may be affected or may affect the levee system. The other immediate benefit is to determine and document the need for mitigation within the levee systems. When a completely enclosed system is created, the wetlands within must be mitigated as they are removed from tidal exchange. Future development within such systems will not need to be mitigated again. Conversely, systems built for storm flood protection only, do not require mitigation for interior wetlands as those wetlands still receive tidal exchange. Sometimes the difference is not obvious and it is possible the analyst will not recognize that it is not an enclosed system, thereby failing to require mitigation for impacts to interior wetlands. Additionally, local officials can sometimes have mistaken ideas that anything within the levee can be developed without permits. As the demand for more and enhanced levees will certainly be a priority for many areas, CMD needs information on existing systems to make the best decisions on the permit applications certainly anticipated. Use of this data in the GIS permit review system will be required including the mitigation requirement analysis.

This data will also provide a means to compare and consider the amount of coastal land within levees as compared to that outside. This information will be important in consideration of large COE levee project proposals.

Coastal Restoration Projects: In designing freshwater diversions and other hydrologic projects, there is an acute need to know what levee systems are located in the project area and their impact on the hydrologic process. In designing water flow rates and water levels, the location and height of adjoining flood protection levees must be taken into consideration. The depth of flow and velocity is directly related to the area and boundaries of the flood plane. An accidental or incidental instance of a restoration project damaging property would be a public relations disaster. Having the location and relative height of levee systems immediately available will permit faster and better decisions on potential restoration projects and project design.

Emergency response agencies: Those responsible for emergency response are currently able to review models of incoming storms and storm surge prior to the storms landfall. Knowing the capacity of each levee and pump system for flood protection will allow the decision makers to discover areas that should evacuate and to anticipate areas of strategic concern. A decision and announcement can be made to evacuate those areas in danger. As importantly, it may allow other areas to not evacuate needlessly and cause problems for the areas that are in jeopardy. As the models change, those areas that may or may not be at risk can be quickly determined and appropriate measures announced. For planning new levee systems, the information on what levee systems are nearby can be used to minimize environment impacts in levee location and design.

Program Change: The Digital Mapping of Levees, Pumps, and Flood Control Features in Coastal Louisiana and Update of the Regulatory Hazards Protocol enhancement project will lead to an Administrative Change to the LCRP, defined by new or revised guidelines, procedures and/or policy documents that will provide meaningful improvements to the LCRP. The expected program change will be policy and guidance to permit and consistency analysts that outline the data and how it is to be used in consideration of other related factors during permit review and to consider the requirement for mitigation.

Year 2 (2007-2008)

LDNR/CMD will begin incorporating data collected in 1990 by LDNR/CMD into ArcGIS geo database and begin reviewing the positional accuracy of the data using DOQQ aerial photography. Field staff will review the maps for their respective areas and, where needed, perform field inspections to determine and verify the status and locations of the levees and pumps. The database will be updated with the acquired information.

Simultaneously, the manager and field investigators will schedule meetings with the various levee boards and parish governments to review the information and data that exists in each respective agency and to acquire copies of paper maps and other data that will be needed for the project. The field investigators will provide field inspections to verify location and status of features.

LDNR/CMD staff or contractor will coordinate with other state or federal agencies or academics to incorporate existing models that could be of benefit to the mapping.

Data compilation will be completed and submitted to LDNR/CMD. The costs involved in Year 2 will include CMD field investigator staff at approximately \$46,500 and CMD staff or contractor at \$50,000.

Year 3 (2008-2009)

LDNR/CMD will enter the data compiled. It is likely that tasks from year 2 will continue into Year 3. The LDNR/CMD will import and/or create the maps and populate the databases with the data from each agency that was compiled in Year 2 by the Support Services Manager and the field investigators. The Support Services manager and field investigators will coordinate with the contractor to provide guidance and assistance on the data. LDNR/CMD Support Services staff will incorporate the updated Regulatory Hazard Protocols and the digital map of the levee, pump, and flood control features into the LDNR/CMD permit database.

The costs involved in Year 3 will be approximately \$16,000 for CMD field staff and contractual or CMD staff costs at \$100,000.

Year 4 (2009-2010)

The draft data will be furnished to each agency for final review. Demonstrations of the tools and data will be scheduled with the appropriate parish and state officials. These demonstrations will be scheduled in Baton Rouge and in each local parish and provided by Support Services, permit and mitigation, and local coastal program staffs. The resulting final information and database will be shared with other agencies.

This phase of the project will be completed by either CMD staff or contractual agreement at a cost of \$50,000.

Likelihood of Success:

This project has a high likelihood of success due to the current government and public concern regarding the affects of coastal hazards on our coastal communities and on infrastructure important to the nation.

Wetlands

Strategy - Task 5. Beneficial Use of Dredge Material Contribution Fund

According to La. Rev. Stat. 43:214.30, whenever a proposed use or activity requires a CUP for the dredging or disposal of from 25,000 to 500,000 cubic yards of any water bottoms or wetland within the LCZ, the secretary of LDNR may require the beneficial use of the dredge material. Consideration includes a site specific statement reflecting estimated costs and the availability of a suitable disposal area. Long term management strategy disposal areas are utilized when practical. Activities not in the vicinity of long term management strategy disposal areas are considered on a case-by-case basis through the CUP process. Beneficial use of dredge material is required in circumstances where it is deemed economically feasible, but is not required in those cases when it is not economically feasible.

Over the years, many CUPs were issued which did not require that dredged material excavated as a result of the permitted activities be used beneficially. As a result, in order for the state to fulfill its obligation under the public policy provisions of SLCRMA LDNR/CMD is proposing to investigate the cost effectiveness of beneficial placement of dredged material in those cases deemed economically infeasible. The ultimate outcome for those cases where it is not economically feasible to dispose of the dredge material beneficially in the LCZ, is for the CUP applicant to pay into a dedicated fund based on a fair cost. The fund will be used by the State for beneficial use projects such as the Dedicated Dredge Program.

Program Change: Based on the results of the study, the LDNR/CMD will propose new legislation/rule making requiring applicants (possibly both state and federal) to pay a fee to the Beneficial Use of Dredge Material Mitigation Account in those cases when it is determined not to be cost effective to dispose of dredge material beneficially. The CMD will build a GIS database which will allow for the tracking of contributions made to the fund.

Year 2 (2007-2008)

LDNR/CMD will work with CRD and CED staff to determine the cut-off for cost effectiveness of using dredge material beneficially. As much as possible LDNR/OCRM staff will use already existing information such as Dedicated Dredge Program data. LDNR/CMD staff will determine a fee based on cost/cubic yard of dredge material that will be required in those cases where the beneficial use of dredge material is not cost effective.

Year 3 (2008-2009)

LDNR/CMD will establish a Division Policy requiring applicants to pay a fee to the Beneficial Use of Dredge Material Mitigation Account in those cases when it is determined not to be cost effective to dispose of dredge material beneficially. The CMD will build a GIS database which will allow for the tracking of contributions made to the fund. It is proposed that this will be done by DNR staff and cost approximately \$80,000.

Likelihood of Success: The likelihood of success of this project is high given the current need for a mechanism to deal with the beneficial use of dredge material in those instances defined above. This “cash-out” method gives the LCRP a way to beneficially use dredged material resources and affords the applicant a fast and trouble-free, yet responsible way of dealing with the coastal impacts.

Strategy – Task 6. Coastal Use Permit Mitigation Process

Pursuant to the Section 309 Revised Strategy during the 2001-2005 assessment period LDNR/CMD mitigation staff has drafted proposed amended mitigation rules to reflect updated restoration costs for the LCZ, to evaluate time-based mitigation requirements, and to increase the ability of LCPs to successfully achieve mitigation. The proposed amended rules have gone through internal agency review and are currently undergoing a legal citation review. The benefits of these revised mitigation regulations will be realized by LDNR/CMD permit and mitigation staff, LCPs, and stakeholders. Promulgation has been indefinitely suspended pending the outcome of the New Orleans District of the U.S. Corps of Engineers’ Impact and Compensation Assessment Technique (ICAT) proposal and the U.S. Corps of Engineers headquarters and EPA federal mitigation regulations.

Program Change: The Program Change will be amended mitigation regulations and modified regulatory procedures. Once the regulations are amended through the Louisiana Administrative Procedures Act, the CMD will submit them to NOAA as a Routine Program Change.

Year 1 (2006-2007)

Pending the outcome of the NOCOE's ICAT proposal and the USACOE/EPA federal mitigation regulations, the LDNR/CMD will continue development of its proposed regulations, or move forward with promulgation of the proposed regulations. If the mitigation regulations are not approved until after October 30, 2006, CMD staff will work towards finalizing the regulations and conducting outreach to gather support for approval. The Permit/Mitigation Program Manager will either work on finalizing the mitigation regulations or work to supervise the implementation of the mitigation task, so do some of each. Changes in the mitigation rules may require field support and staff to modify the CMD database. Staff will also provide assistance and guidance to the Parish Local Coastal Programs in implementing new mitigation ordinances. Section 309 funds will be used for the implementation phase once the rules are effective pursuant to the Louisiana Administrative Procedures Act. \$214,000 will be needed for staff support.

Year 2 (2007-2008)

It is possible that Implementation of the regulations could begin during Year 2, pending any need for revisions based upon the outcome of the ICAT and USACOE/EPA federal mitigation regulations.

Likelihood of Success

The need for changes in the CMD mitigation procedures and regulations is accepted by the Louisiana coastal community and stakeholders. It is likely that at least some of the changes, if not all, proposed by this task will succeed.

PUBLIC COMMENT/RESPONSE

The LDNR/CMD received one comment from the public.

Comment:

“The only comment I have is regarding beneficial use of dredge material. It’s unclear how the Dredge Material Contribution Fund operates. Is the purpose the contributing to this fund to be able to subsidize future dredging activities? Will this fund subsidize companies/individuals who cannot afford to use dredged materials beneficially?”

Heather Szapary
May 18, 2006

Response from LDNR/CMD:

The purpose of this fund will be to accumulate monies in order to implement beneficial use of dredge material projects. If a permittee cannot economically implement a beneficial use project, then the permittee would be required to contribute to this fund. It will not be used to subsidize permittees. A fund of this type will require legislative approval.

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**APPENDIX A. MEMORANDUM OF UNDERSTANDING
BETWEEN THE DEPARTMENT OF NATURAL
RESOURCES AND THE DEPARTMENT OF WILDLIFE
AND FISHERIES FOR ACTIVITIES OCCURRING IN OR
AFFECTING THE LOUISIANA COASTAL ZONE.**

**APPENDIX B. LOUISIANA PLATFORMS FOR
MARICULTURE TASK FORCE FINAL REPORT OF
FINDINGS AND RECOMMENDATIONS TO THE
LOUISIANA LEGISLATURE AND GOVERNOR**