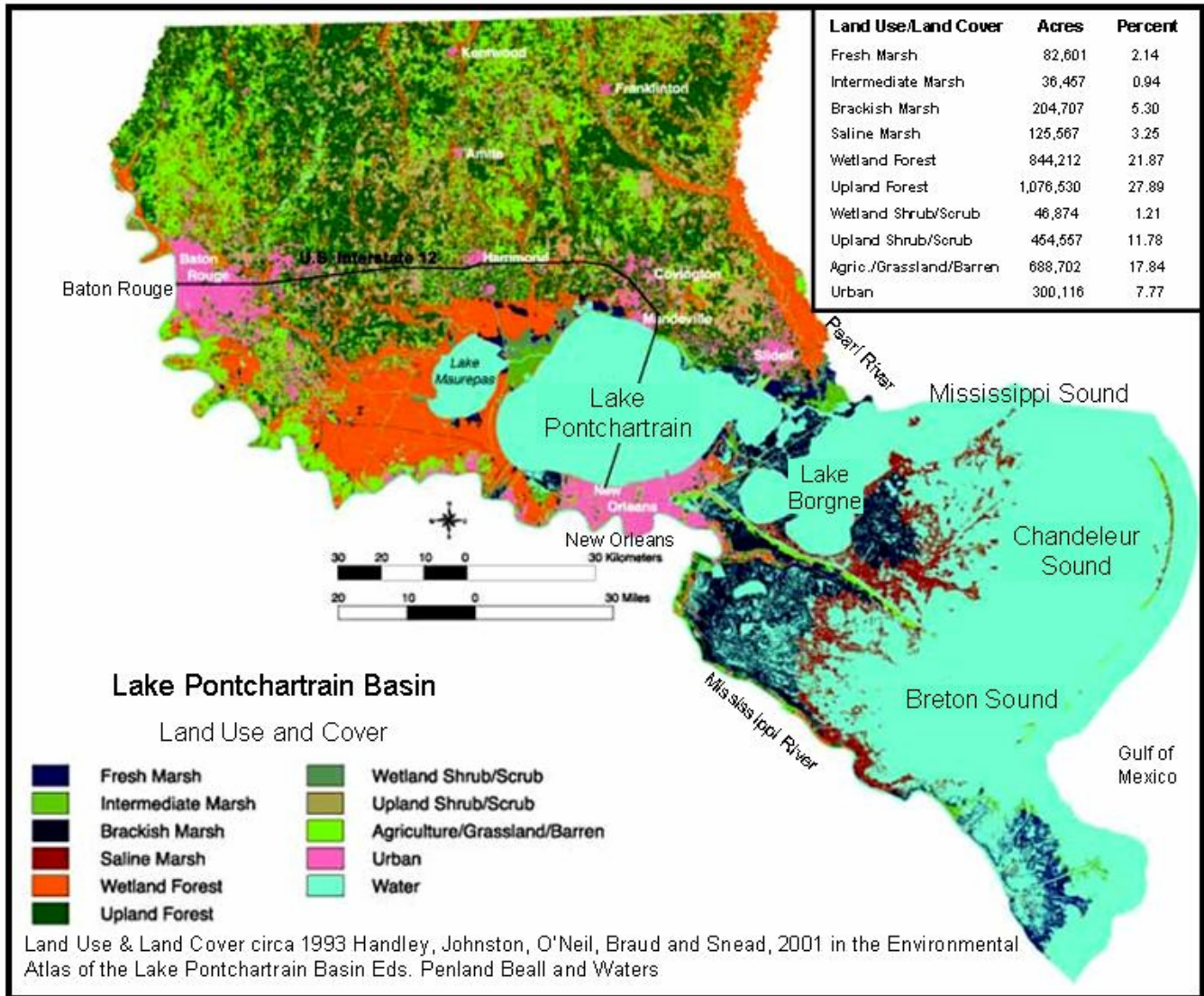


# COMPREHENSIVE HABITAT MANAGEMENT PLAN FOR THE LAKE PONTCHARTRAIN BASIN



## LAKE PONTCHARTRAIN BASIN FOUNDATION FEBRUARY 28, 2006 - FINAL



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## EXECUTIVE SUMMARY

The greater Pontchartrain Basin includes a watershed extending southward from central Mississippi to the distant wetlands at the mouth of the Mississippi River in southern Louisiana. In this report, “Pontchartrain Basin” refers to the area of the basin within Louisiana, which includes all of the area in Louisiana, east of the Mississippi River excluding West Feliciana Parish. The Pontchartrain Basin has been divided into four sub-basins to analyze the baseline conditions, impairments and restoration needs of each. The objective of the report is to present a comprehensive habitat management plan that will direct progress towards restoring the historic form and function of the Pontchartrain Basin habitats.

The Pontchartrain Basin is an ecosystem dominated by an estuarine system that is essential to the future of southeast Louisiana. The Pontchartrain Basin is 19% (9,700 square miles) of Louisiana’s area and has within it 46% of the state’s population (or 2.1 million people). Based on imagery from 1992 to 1995, the entire basin was estimated to hold 2,100 square miles of marshes and swamps (including the Pearl River alluvial swamps) (Handley and others, 2001). The area of all wetlands and open water (lakes, etc.), which composes the Pontchartrain Basin estuary, is 5,800 square miles. From 1932 to 2001, 415 square miles of these wetlands were converted to open water or upland habitat, and we have discovered that the rate of loss has dramatically increased in the last decade (1990 - 2001). Preliminary estimates suggest that Hurricane Katrina in 2005 caused at least as much loss of marsh as in this entire prior decade (~80 square miles). Because the Pontchartrain Basin contains the great port cities of New Orleans and Baton Rouge, the fate of the Pontchartrain Basin is of national significance. Decades of poor stewardship of the region’s natural resources triggered the founding of the Lake Pontchartrain Basin Foundation (LPBF) in 1989, which was given the mission to restore and preserve the Pontchartrain Basin.

From 1991 to 1995, LPBF developed a Comprehensive Management Plan (CMP) for the Pontchartrain Basin. Phase III of the CMP was the final step in this initial CMP development for LPBF. In Phase III, three particular environmental issues were developed in further detail. One of these was the issue of “Saltwater Intrusion and Wetland Loss”. This section was drafted by a select committee of professionals. Since 1995, extensive research has been published on the Pontchartrain Basin and new issues have been identified, resulting in a need to revise the section regarding “Saltwater Intrusion and Wetland Loss”. Further, it was determined that this addendum to the CMP should be expanded to include all the habitats of the Pontchartrain Basin. This report is an addendum to the 1995 CMP, but supersedes the older section of the report addressing wetlands. This report will serve as LPBF’s blueprint for restoration and conservation for all habitats within the Pontchartrain Basin. In continuance of these efforts, in 2005, LPBF established a Coastal Sustainability Program for the Pontchartrain Basin.

In 2004, a Comprehensive Habitat Management Plan (CHMP) - Draft Committee was created to evaluate impairments and restoration alternatives for habitats in the Pontchartrain Basin (see addendum for members). During the analysis and drafting process, new data were made available which indicate accelerated land loss rates in the Pontchartrain Basin and thus added greater justification and urgency to the completion of this initiative.

The committee began deliberations in January 2004 and submitted a draft report to expert reviewers in July 2005 (see addendum). The reviewers were requested to individually review the

entire CHMP draft report or appropriate sections related to their expertise. Their comments were reviewed and appropriate changes were made by the CHMP Draft Committee.

Public Meetings were being scheduled for August and September 2005 when Hurricane Katrina struck Louisiana on August 29, 2005. Due to the highly scattered population, the draft CHMP was posted on the LPBF website. Public meetings will be held when feasible. In response to the impacts of Hurricanes Katrina and Rita, the CHMP draft committee was questioned about what changes should be made to the CHMP. Appropriate changes were made including an addendum on impacts of Hurricane Katrina and Rita.

The Pontchartrain Basin habitats range from pine upland to estuarine to marine. For purposes of CHMP plan development, the Basin was divided into four Sub-basins including: Upland Sub-basin (north of Interstate 12), Upper Sub-basin (Lake Maurepas region), Middle Sub-basin (Lake Pontchartrain region) and Lower Sub-basin (St. Bernard and Plaquemines Parishes). The following section summarizes the proposed restoration for each of the four Sub-basins.

#### Upland Sub-basin Forest Recommendations (North of Interstate 12)

The overall goal in the Upland Sub-basin is to expand the current range of longleaf pine upland forests, flatwood savannahs and associated habitats while expanding the awareness of these lost habitats to a public which has never known the park-like virgin pine forests. Specific goals call for expansion of existing conservation areas to a minimum of 5,000 acres each and creation of one or two large conservation areas (ca. 50,000 acres each) where landscape-scale, fire-dependent ecosystems can be re-established with indigenous flora and fauna. Establishment of a prescribed fire council is recommended as a key means to facilitate and expand effective use of prescribed fire. The red-cockaded woodpecker and other rare, threatened or endangered species warrant additional efforts to reestablish longleaf pine and associated habitat and expand their populations.

#### Upland Sub-basin riverine recommendations (North of Interstate 12)

The rivers and streams of the north shore are highly degraded and their history of environmental impacts is poorly documented. A primary recommendation is to document historical and ongoing impacts from mining activities in particular. Many mine sites (sand and gravel dredging) should be targeted for remediation to improve riverine habitats and water quality. Freshwater mussels have been significantly reduced and further protection and habitat restoration is necessary to re-establish the range of mussels including the endangered inflated heelsplitter mussel (*Potamilus inflatus*). In addition to mining, the Bogue Chitto and Pearl Rivers have been impacted by the Pearl River Navigation project. Hydrologic restoration is recommended to re-establish the natural migration of fish, including the threatened Gulf sturgeon (*Acipenser oxyrinchus desotoi*).

#### Upper Sub-basin (Lake Maurepas and adjacent wetlands)

It is recommended that the area of wetlands in the Upper Sub-basin, which lies on or adjacent to the natural levee of the Mississippi River, be reestablished with its natural connection to the river by spring reintroductions into the wetlands. These alluvial river swamps would be sustained by several small diversions recommended between Baton Rouge and Garyville where the Hope Canal project is to be constructed. The reintroductions are intended to increase plant growth (primary productivity) and rebuild a mature Bald cypress –Tupelo (*Taxodium distichum – Nyssa aquatica*) swamp. The benefited areas should be in conservation. Breaching of the bank of the Amite River Diversion Canal is recommended to increase circulation into the adjacent swamp. It is

recommended that the wetlands north of Lake Maurepas be optimally managed using treated sewage or stormwater runoff, where appropriate, to introduce nutrients and freshwater. In all of the Upper Sub-basin, cypress logging should be prohibited in areas which are classified as relic forest. A moratorium is recommended on all other cypress logging until Best Management Practices (BMP's) are established to assure a sustainable forestry. Avoidance, BMP's and local mitigation are recommended to prevent further loss of wetland habitat by urbanization.

Several position statements are also included for the Upper Sub-basin. Key statements are the continued ban on shell dredging and any commercial dredging within Lake Maurepas. The continued use of pipeline/powerline corridors is supported. The policies recommended by the Science Working Group for Coast Wetland Forests are supported, but it is also recommended that legislation be passed to permanently ban cypress logging in relic forest and place a moratorium on all other areas of cypress logging in the Pontchartrain Basin.

Middle Sub-basin (Lake Pontchartrain and adjacent wetlands)

The wetlands positioned between Lake Pontchartrain and the Mississippi River are considered vital to sustaining the ecology of Lake Pontchartrain because it is through these wetlands that river reintroductions may occur most beneficially to Lake Pontchartrain. Re-establishment of the detrital food base for Lake Pontchartrain can be accomplished by freshwater reintroductions into these wetlands to stimulate primary productivity and detrital export. As a result, the Lake is expected to increase in secondary productivity and fisheries. Several small diversions are recommended, including three which use the Bonnet Carre' Spillway corridor. Segments of the Lake's natural shoreline (littoral) habitat should be restored along the south, southeast and northwest shorelines. This recommendation includes marsh creation and re-expansion of SAV extent. Some other key local projects are the restoration of estuarine fisheries in Bayou St. John and an interim project to construct a sill in the Inner Harbor Navigation Canal (IHNC) or Lake Pontchartrain, which would reduce the 100 square-mile dead zone and restore environmental benefit provided by clams. Avoidance of wetlands, BMP's to reduce wetland impact, and local mitigation when wetlands are impacted are the recommended order of priority to prevent further loss of wetland habitat by urbanization.

Several position statements are also included for the Middle Sub-basin. Key statements are the continued ban on shell dredging and any commercial dredging within Lake Pontchartrain. The continued use of existing pipeline/powerline corridors is supported for justified expansion of these facilities. The continued ban on new oil and gas leasing in Lake Pontchartrain is supported as is the limited use of gill nets as currently legislated. Continued improvements to sewage treatment and stormwater systems are strongly endorsed for both the north and south shores of Lake Pontchartrain. Beneficial use of treated sewage and stormwater should be pursued wherever wetlands and water quality may be enhanced. The Coastal Wetlands Planning, Protection and Restoration Act (CWPPRA) has a successful nutria bounty program and is supported. However, more vigorous efforts are recommended to reduce other invasive species such as the Chinese tallow (*Sapium sebiferum*).

Lower Sub-basin (St. Bernard and Plaquemines Parishes)

The paramount restoration feature of the Lower Sub-basin is to restore the integrity of the Bayou la Loutre ridge by reducing the Mississippi River Gulf Outlet (MRGO) navigation channel dimensions to Intracoastal Waterway width and depth at the Bayou la Loutre ridge. Contraction of

the MRGO channel would directly improve the environment by reducing ship wakes and reducing the dead zone in Lake Pontchartrain, but also allows the essential opportunity to manage the marshes east of the MRGO with river reintroductions. A larger river diversion is recommended at Violet which, along with the contraction of the MRGO channel, will be designed to reestablish historic habitats of Lake Borgne, Biloxi marsh and, (if supported by Mississippi) Mississippi Sound. Discharge from the Caernarvon freshwater diversion may be increased to achieve habitat goals and rebuild marsh. All reintroductions are recommended to mimic the natural spring flooding with maximum flow from April to June.

The ecologic function of the Chandeleur – Breton barrier island chain should be maintained. The role of these islands in reducing wave energy and protecting interior marsh, such as the Biloxi marsh, from wave erosion should be considered in the need and design of barrier island restoration. Due to the cumulative impact of hurricanes from 1998 to 2005, including Hurricane Katrina, restoration is urgently needed for the Chandeleur and Breton Islands. The identified landbridges within the Biloxi marsh must also be restored and protected due to the weakened condition of the Chandeleur Islands.

The delta region of the Lower Sub-basin should be restored through natural and cost effective projects due to the historic and ongoing high rates of wetland loss. Crevasse projects and sediment diversions are recommended. The proposed Sediment Trap project (CWPPRA) in the Mississippi River should be moved upriver to target areas of need and to be where the soil foundation is superior. If a large scale study of the delta is undertaken to examine alternatives such as “hang-a-left” or “hang-a-right”, which would remove navigation from the lower river by a new dredged channel located east or west of the Mississippi River, the alternative of selectively closing passes should be evaluated.

#### Research and Data Needs

Critical research and data needs have been identified for the Pontchartrain Basin. This list of 23 items is not meant to be all inclusive but contains significant apparent deficiencies that were identified during discussions and analyses by the draft committee. This list is intended to guide research to further the understanding of the nature of the Pontchartrain Basin habitats and how these habitats might be restored and sustained. The list includes: Annual mapping of the Lake Pontchartrain dead zone; Economics of coastal wetland forests; Fish assemblage research; Acquisition of bathymetry of lakes and passes; Barrier island ecology; Rangia clams in St. Bernard and Plaquemines Parishes; Natural oyster reefs; MRGO habitat quality; Analysis of accelerated wetland loss; Non-commercial species in St. Bernard and Plaquemines Parishes; blue crab (*Callinectes sapidus*) in Lake Pontchartrain; West Indian Manatee (*Trichechus manatus*); Rio Grande Cichlid (*Cichlasoma cyanoguttatum*) threat, Striped Bass (*Morone saxatilis*) and Gulf sturgeon (*Acipenser oxyrinchus*), Sea turtles on barrier islands; Hydrologic modeling for habitat restoration; Impact of poorly planned growth; Identification of biotic hotspots; Copper contamination in Lake Pontchartrain; Sand and gravel mine impact; Subsidence and relative sea-level rise; Mississippi River Delta management study; and a 10-year reoccurring comprehensive habitat inventory.

#### Post-Hurricanes Katrina and Rita

Appendix E was added to the CHMP after the preliminary impacts of Hurricanes Katrina and Rita were estimated. Hurricane Katrina had greater impact to the Pontchartrain Basin than Rita, and it

may have caused the loss of more than 60 square miles of marsh (converted to open water) throughout the Basin. These results are preliminary and may be an overestimate due to residual high-water on the marsh. Nevertheless it appears that in one day more land lost occurred than in the prior decade (1990-2000), which was already period of accelerated lost. In addition to the addendum, several adjustments were made to the CHMP recommendations due to the effect of the 2005 hurricane season.

Hurricane Katrina and Rita made the need to integrate coastal restoration and engineered flood protection very apparent. Prior to these events LPBF had developed a planning strategy to address this need. A report titled “The Multiple Lines of Defense Strategy to Sustain Coastal Louisiana” was completed in November 2005 and is available on the LPBF website ([SAVEORLAKE.ORG](http://SAVEORLAKE.ORG)). Application of this strategy resulted in the selection of ten priority project areas for immediate project development and construction. These priority projects compose the “Pontchartrain Coastal Lines of Defense Program” (see [saveourlake.org](http://saveourlake.org)), and are intended to be the first phase of implementation of the CHMP.

This report is considered a draft report during the public comment period, which ended December 31, 2005. In February 2006, the report was made final.