The Pontchartrain Coastal Lines of Defense Program consists of ten priority project areas within the Pontchartrain Basin. These ten coastal restoration project areas were chosen from the Comprehensive Habitat Management Plan (LPBF, 2006), because of their importance to the regional habitat restoration and because they may provide important flood protection to residents of the Pontchartrain Basin. This approach is consistent with the “Multiple Lines of Defense Strategy” being adopted by LPBF (Lopez, 2006) to prioritize the recommendations of the Comprehensive Habitat Management Plan (CHMP).

Under the Multiple Lines of Defense Strategy, coastal sustainability may be achieved with a restoration program utilizing maps which delineate two sets of landscape goals. The first landscape goal is the critical natural Lines of Defense such as barrier islands or marsh land bridges (Figure 1). The second is the target habitat distribution such as fresh, intermediate, brackish and salt marsh (Figure 2). In the Pontchartrain Basin, nine lines of defense project areas have been identified for restoration. These include the Chandeleur Islands, two Biloxi Marsh landbridges, the Bayou la Loutre ridge, the MRGO/Lake Borgne land bridge, the Breton Landbridge, the East Orleans landbridge, a Jefferson Parish wetland buffer, and the Maurepas landbridge. All nine of these lines of defense are in

![Pontchartrain Coastal Lines of Defense Program](image-url)
need of some restoration and define nine project areas. A tenth project area is included to achieve the target habitat goals and help sustain the Lines of Defense in the Pontchartrain Basin. This project is an enlarged diversion located at Violet, La. (Figure 3). The complete list of ten projects areas are given in Table 1 and individual project summaries (attached).

LPBF considers restoration of all ten of these project areas to be exceptionally significant and beneficial. Funding restoration within these project areas provides the dual benefits of habitat restoration and flood protection. Therefore, the project summaries include a description of these dual goals.

Figure 2: Habitat goals as defined in the Comprehensive Habitat Management plan for the Pontchartrain Basin.

LPBF plans to be opportunistic in achieving Pontchartrain Coastal Lines of Defense Program goals by working with any existing or new authorization that may provide expertise and funding for these projects. The ten project areas may ultimately consist of numerous projects within a single Line of Defense. LPBF suggests that emphasis should be placed on execution of these projects due to the state of urgency to enhance flood protection for Louisiana. Each project summary provides guidance for institutional participation with emphasis on project requirements for effective and expeditious project completion. LPBF welcomes the opportunity to partner with parishes, and state or federal agencies to further develop the Pontchartrain Coastal Lines of Defense Program.

A PowerPoint presentation of this program may be found at saveourlake.org. A more complete restoration context of baseline conditions, historical impacts and recommendations for the projects is contained in the CHMP, which may be also found online.

For more information or other inquiries, please contact the Coastal Sustainability Program Director – John Lopez at 504 421-7348 or johnlopez@pobox.com, or Carlton Dufrechou - Executive Director at 504 836-2215.
Figure 3: Hydrologic restoration recommendations to sustain the Lines of Defense as proposed in the Comprehensive Habitat Management Plan. Recommendations include an enlarged Violet reintroduction to manage the “Borgne-Biloxi Estuary” (Table 1 # 5). It is also recommended that the MRGO channel is reduced to GIWW dimensions at Bayou la Loutre and re-build Bayou la Loutre ridge. The existing Caernarvon Diversion would be used to manage the “Caernarvon-Terre aux Boeufs Estuary” (Table 1 # 2).
Where: Maintain the MRGO-Borgne Land Bridge
What: Extensive Rock armoring, local marsh creation, Intermediate marsh
Who: Proposed Construction Team
US Army Corps of Engineers
EPA
LSU Hurricane Center
St. Bernard Parish
DNR
Lake Pontchartrain Basin Foundation
Estimated Cost: $80,000,000

Performance Goals

Flood Protection: Wetland buffer to St. Bernard levees and minimize encroachment of Lake Borgne into the MRGO
Habitat Restoration: Typical intermediate marsh nursery and fringe marsh benefiting recreational and commercial fishing

Where: Restore the Bayou la Lorette Ridge
What: Constrict MRGO channel (GIWW dimensions), rebuild and re-forest natural ridge, natural ridge and intermediate marsh
Who: US Army Corps of Engineers
LSU SRC
LSU Hurricane Center
St. Bernard Parish
The Nature Conservancy
DNR
Lake Pontchartrain Basin Foundation
Estimated Cost: $200,000,000

Performance Goals (see slides 24 & 25)

Flood Protection: Impede northward movement of storm surges and reduce surge water elevation north of Bayou la Lorette ridge with soil foundation and ridge forest
Habitat Restoration: Restore the natural ridge and hydrologic barrier between the Borgne-Biloxi estuary and the Caernarvon-Terre aux Boeufs estuary, restore the Natural levee ridge habitat of oak, black willow providing refuge of indigenous ridge species
Where: Restore the Chandeleur (barrier) Islands
What: Beach nourishment with sand and shell, saline habitat
Who:
US Fish & Wildlife Service
National Marine Fisheries Service
USACE (Mobile District)
Minerals Management Service
US Geological Survey (Tampa Bay Office)
St. Bernard Parish
Pontchartrain Institute for Environmental Sciences
DNR
MS Dept. of Marine Resources
Lake Pontchartrain Basin Foundation

Estimated Cost: $150,000,000

Performance Goals

Flood Protection: Reduce wave heights and wave energy entering Chandeleur Sound (fair weather and storm generated) and impacting the Biloxi Marsh, reduce storm surge elevations east of barrier islands

Habitat Restoration: Barrier Island dune and lagoon habitats, Saline marsh, bid rookery, recreational and commercial fishing, maintain benefits of National Wildlife Refuge

Where: Jefferson Parish Shoreline Restoration and Protection
What: Rock armoring, marsh creation, SAV habitat, reef balls, Intermediate marsh
Who:
National Marine Fisheries Service
US Army Corps of Engineers
LSU Ag Center
LSU - SRC
Jefferson Parish
DNR
Lake Pontchartrain Basin Foundation

Estimated Cost: $62,500,000

Performance Goals

Flood Protection: Wetland buffer to levees in East Jefferson Parish by reducing risk of levee failure and reducing shoreline or berm erosion lakeward of the levee

Habitat Restoration: Establish intermediate, fringe marsh providing critical marsh nursery, recreational fishing, birding and other outdoor activities
**Where:** Mississippi R. Reintroduction at Violet, LA  
**What:** Reintroduce Mississippi R. water to achieve habitat goals of baseline, re-establish cypress forest, Swamp, intermediate to saline marsh  
**Who:** National Marine Fisheries Service, EPA, MS Dept. of Marine Resources, St. Bernard Parish, DNR, Lake Pontchartrain Basin Foundation  
**Estimated Cost:** $135,000,000

**Performance Goals**

**Flood Protection:** maintain salinity targets to develop a denser and more mature wetland forest east of Chalmette to buffer to St. Bernard levees, and to enhance oyster growth in the outer Biloxi marsh to maintain marsh reduce surge into Mississippi Sound and Lake Borgne

**Habitat Restoration:** Reduce salinity intrusion into swamp or fresh marsh habitat, increase primary and secondary productivity including commercial species such as shrimp, blue crab and oysters. Typical intermediate marsh nursery and fringe marsh benefiting recreational and commercial fishing

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**Where:** Maintain and Restore the Biloxi Marsh Landbridge and reef (south)  
**What:** Salinity management, Oyster reef propagation (reef balls, etc.), rock armoring, marsh creation, terracing, brackish to saline  
**Who:** Construction Team, US Fish and Wildlife Service, Natural Resource Conservation Service - Lead agency, St. Bernard Parish, LSU SC&E, LSU Ag Center, LA Dept. of Wildlife & Fisheries, DNR, MS Dept. of Marine Resources, Lake Pontchartrain Basin Foundation  
**Estimated Cost:** $60,000,000

**Performance Goals**

**Flood Protection:** Maintain integrity of the marsh landbridge and natural ridges preventing Bay Boudreaux developing into a tidal pass or merging into Chandeleur sound which would increase storm surges in Mississippi Sound and Lake Borgne

**Habitat Restoration:** Preserve and restore brackish marsh including robust oyster beds throughout the outer Biloxi marsh. Develop oyster barrier reefs within the or along the Fishing Smack Bay

Lake Pontchartrain Basin Foundation – Coastal Sustainability Program February 2006
Where: Maintain and Restore the Breton Landbridge

What: marsh creation (Sediment trap), land building (diversions), reefs, Intermediate to brackish marsh

Who: Construction Team
US Army Corps of Engineers
Natural Resource Conservation Service
US Fish and Wildlife Service
Caernarvon Inter-Agency Advisory Committee
Plaquemines Parish
St. Bernard Parish
LSU SC&E
DNR
Lake Pontchartrain Basin Foundation

Estimated Cost: $40,000,000
(Due to Hurricane Katrina this may be insufficient)

Performance Goals
Flood Protection: Wetland buffer to levees in St. Bernard and Plaquemines Parish by reducing storm surge height and energy

Habitat Restoration: Typical intermediate to brackish marsh nursery benefiting recreational and commercial fishing

Lake Pontchartrain Basin Foundation – Coastal Sustainability Program February 2006

Where: Maintain critical marsh, shorelines and ridges within the East Orleans Corridor Landbridge

What: conservation, local rock armoring, marsh creation for critical areas of shoreline, Intermediate marsh

Who:
US Army Corps of Engineers
LSU SRC
LSU Hurricane Center
UNO – Social Sciences
Orleans Parish
St. Tammany Parish
DNR
Lake Pontchartrain Basin Foundation

Estimated Cost: $87,500,000

Performance Goals
Flood Protection: reduce storm surges into Lake St. Catherine and Lake Pontchartrain by maintaining or enhancing landbridge elements of marsh and Pine Island natural ridges

Habitat Restoration: Typical intermediate marsh nursery benefiting recreational and commercial fishing, Maintain natural ridge habitat of the Pine Island ridges

Lake Pontchartrain Basin Foundation – Coastal Sustainability Program February 2006
Where: Maintain and Restore the Biloxi Marsh Landbridge and reef (north)
What: Salinity management, Oyster reef propagation (reef balls, etc.), rock armoring, marsh creation, terracing, brackish to saline
Who: Construction Team
Natural Resource Conservation Service
US Fish and Wildlife Service
St. Bernard Parish
LSU SC&E
LSU Ag Center
LA Dept. of Wildlife & Fisheries
DNR –Coastal Restoration Division
MS Dept. of Marine Resources
Lake Pontchartrain Basin Foundation

Estimated Cost: $60,000,000

Performance Goals

Flood Protection: Maintain integrity of the marsh landbridge preventing Bay Boudreaux developing into a tidal pass and merging into Mississippi Sound which would increase storm surges in Mississippi Sound and Lake Borgne

Habitat Restoration: Preserve and restore brackish marsh including robust oyster beds throughout the outer Biloxi marsh. Develop oyster barrier reefs within Mississippi Sound shoreline of the Biloxi marsh

Lake Pontchartrain Basin Foundation – Coastal Sustainability Program Feb 2006

Where: Maintain and enhance the Maurepas Landbridge & Maurepas Reintroduction
What: conservation of forests, River reintroductions, hydrologic restoration, marsh creation, swamp & fresh marsh
Who:
EPA
Southeastern Louisiana University
Tangipahoa Parish
St. John the Baptist Parish
LA DWF
DNR
DNR Coastal Management Division
Lake Pontchartrain Basin Foundation

Estimated Cost: $50,000,000 for conservation & $80,000,000 for diversion

Performance Goals

Flood Protection: Reduce storm surges into Lake Maurepas and adjacent shoreline regions by maintaining or enhancing landbridge elements of swamp and fresh marsh

Habitat Restoration: Develop mature swamp and swamp canopy by increasing primary productivity. Increase productivity of fresh marsh. Enhance recreational and commercial fishing. Increase detrital export into Lake Pontchartrain

Lake Pontchartrain Basin Foundation – Coastal Sustainability Program Feb 2006