# Priority Project List Number 16
# Candidate Projects

**Public Meetings – August 2006**

**Abbeville New Orleans**

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# The 16th Priority List Planning Process

- Citizens nominated projects and demonstration projects across the Louisiana coastal zone at Regional Planning Team (RPT) meetings held in January 2006.

- A coast wide voting meeting was held on Feb, 2006 for the RPT's to select 20 nominees and 6 demonstration project nominees. Two PPL 15 projects not selected for Phase I funding in February 2006 were rolled over from PPL 15, for a total of 22 nominees for PPL 16.

- At the direction of the CWPPRA Task Force, the Technical Committee selected 10 candidate projects and 3 demonstration projects for detailed evaluation on March 15, 2006.

- Interagency project site visits were conducted with the participation of interested landowners and local government representatives during the spring and early summer. No site visits were conducted for demonstration projects.

- Members of the Environmental and Engineering Workgroups met to review project features, aerial videotapes, and field notes to determine project boundaries.

- Environmental Workgroup conducted Wetland Value Assessments (WVA) on each candidate project to estimate environmental benefits.

- Engineering Workgroup reviewed designs and cost estimates for each project.

- The work groups met jointly to prioritize the candidate projects.

- Engineering and Environmental Workgroups evaluated demonstration candidate projects.

- Economics Workgroup projected fully funded costs to construct, monitor and maintain each candidate project.

- Hold public meetings to present project evaluation results.

- On September 13, 2006, the Technical Committee will review project evaluation results and develop a recommendation to the Task Force for project selection. The Technical Committee will recommend up to 4 projects and 1 demo to the Task Force.

- The CWPPRA Task Force will select the 16th Priority Project List on October 18, 2006.

# Alligator Bend Marsh Restoration and Shoreline Protection

**Coast 2050 Strategy:**

- Regional – Maintain East Orleans Land Bridge by marsh creation and shoreline protection.
- Regional – Maintain shoreline integrity of Lake Borgne.

**Project Location:**

Region 1, Pontchartrain Basin, Orleans Parish, along the East Orleans Landbridge on the northwest shoreline of Lake Borgne. The project area is located between the Chef Pass, the Gulf Intracoastal Waterway, Unknown Pass, and Lake Borgne.

**Problem:**

The landfall of hurricane Katrina in southeast Louisiana destroyed thousands of acres of marsh and other coastal habitats in the Lake Pontchartrain basin. Along the shorelines of Lake Borgne the storm created breaches between the lake and interior marshes and in some cases removed large expanses of wetlands. Loss of wetlands in the Alligator Bend area (see attached map) has created more than 1,000 acres of open water in a complex that formerly supported relatively stable brackish marshes. Post-storm aerial photographs show the most significant losses occurred along the flanks of Bayou Platte. The current landscape configuration has left a large area of open water between eroding shorelines on Lake Borgne and along the GIWW. Continued shoreline erosion and future storms could create a direct path of open water connecting the GIWW and Lake Borgne and threaten the integrity of this important landbridge.

**Goals:**

The purpose of the project is to restore critical wetlands destroyed by hurricane Katrina and to prevent breaching of degraded marshes between the GIWW and Lake Borgne.

**Proposed Solution:**

Two restoration techniques will be employed for this project – dedicated dredging for marsh creation and vegetation planting for shoreline protection. A hydraulic dredge would be used to mine material from a nearby borrow area and pump the material into two sites within the project area. The dredge would pump 2,988,700 cubic yards into the area to restore and nourish brackish marsh in a 410 acre portion of the project. The restored marsh area would be planted with smooth cordgrass to jumpstart colonization of the marsh plant community in the restored area. The second technique to be used in this project is vegetation planting along 38,140 feet of the Lake Borgne shoreline (protecting an 84 acre portion of the project area).

**Project Benefits:**

The project would benefit about 494 acres of fresh marsh and open water. Approximately 330 acres of marsh would be created/protected over the 20-year project life.

**Project Cost:**

The total fully funded cost for the project is $ 19,620,813.

**Preparers of Fact Sheet:**

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## Alligator Bend Marsh Restoration and Shoreline Protection (PPL Project Candidate)

- Shoreline Protection *
- Containment Dike *
- Marsh Creation *
- Marsh Nourishment *
- Project Boundary

* denotes proposed features

0.4 0 0.4 Kilometers

0.4 0 0.4 Miles

Scale 1:51,000

Map ID: USGS-NWRC 2006-11-0374
Map Date: June 26, 2006

Map Produced By:
U.S. Department of the Interior
U.S. Geological Survey
National Wetlands Research Center
Coastal Restoration Field Station
Baton Rouge, LA

Image Source:
2005 Digital Orthophoto Quarter Quadrangle

# Violet Siphon Enlargement

**Coast 2050 Strategy:**

- Wetland sustaining diversion from the Mississippi River near Violet

**Project Location:**
Region 1, Lake Pontchartrain Basin, St. Bernard Parish, Central Wetlands Mapping Unit, near Violet, LA.

**Problem:** This area has experienced wetland loss and dramatic changes in vegetative communities due to a variety of factors including filling, subsidence, saltwater intrusion, lack of sediment and nutrient input, tropical storm activity, canal dredging and maintenance, and hydrologic modifications (impoundment).

**Goals:**

- Reduce wetland losses in existing marshes in the project area
- Create marsh in the project area
- Increase SAV cover in the project area
- Maintain area of shallow water habitat in the project area
- Decrease salinity in the project area and beyond

**Proposed Solution**:
Reintroduction of freshwater, sediment, and nutrients is proposed to maintain and nourish existing and created marshes. The proposed diversion structure would be constructed in the same location as the existing siphon. Project features include a gated structure with 4,000 - 5,000 cfs capacity. The project also includes beneficial use of all earthen materials excavated during project construction to create about 49 acres of marsh in shallow open water within the project area. The feasibility and benefits of outfall management features, including coordinated operation of the proposed diversion and existing flood gates, would be evaluated during Phase One.

**Project Benefits:**
The project would benefit over 18,000 acres of brackish and intermediate marsh and open water. Approximately 1,609 acres of marsh would be created/protected over the 20-year project life.

**Project Costs:**
The total fully funded cost for the project is $ 53,184,577.

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# Violet Siphon Enlargement (PPL16 Project Candidate)

Siphon *

Project Boundary

* denotes proposed features

0.4 0 0.4 Kilometers

0.4 0 0.4 Miles

Scale 1:104,000

Map ID: USGS-NWRC 2006-11-0463
Map Date: June 27, 2006

Map Produced By:
U.S. Department of the Interior
U.S. Geological Survey
National Wetlands Research Center
Coastal Restoration Field Station
Baton Rouge, LA

Image Source:
2005 Digital Orthophoto Quarter Quadrangle

# Breton Landbridge Marsh Restoration

**Coast 2050 Strategy:**

- Dedicated dredging for wetland creation.
- Maintenance of bay and lake shoreline integrity.

**Project Location:**
Region 2, Breton Basin, Plaquemines Parish, Caernarvon mapping unit, between MRGO and the Mississippi River.

**Problem:**
The landfall of Hurricane Katrina in southeast Louisiana destroyed thousands of acres of marsh and other coastal habitats east of the Mississippi River. One of the areas most severely impacted was the Breton Sound Basin where it is estimated that 40.9 square miles of marsh were converted to open water. The operational plan of the Caernarvon Freshwater Diversion for 2006 proposes higher discharge during the winter and spring to address hurricane impacts. However, this discharge will have little potential to rebuild wetlands near the Breton Landbridge- an area located south of Lake Lery between Bayou Terre aux Boeufs (near Delacroix) and River aux Chenes. Without restoration this region will begin to see the coalescence of water bodies such as Grand Lake, Lake Petit, and the surrounding marsh areas resulting in more direct connection between interior intermediate marshes and the open brackish Black Bay system.

**Goals:**
The goal of this project is to maintain the landbridge between the Bayou Terre aux Boeufs and River aux Chenes ridges and restore critical wetlands destroyed by Hurricane Katrina.

**Proposed Solution:**
Sediments will be hydraulically dredged from a 282 acre borrow area in Grand Lake and pumped via pipeline to create approximately 356 acres of marsh in the project area. Containment dikes will be constructed as necessary (approximately 94,000 LF), mainly in those areas where created marsh would be directly exposed to a large body of water (ie., lake or bayou). The containment dikes would be built two feet above the established healthy marsh within the project area. At present, the proposed design is to place the dredged material to a fill height of +2.0 NAVD 88. Final target elevations will depend on the results of geotechnical investigations in the borrow and fill sites. Dewatering and compaction of dredged sediments should produce marsh elevations conducive to the establishment of emergent marsh within the intertidal range.

**Project Benefits:**
The project would help retain the landbridge between Bayou Terre aux Boeufs and River aux Chenes and create/ restore approximately 176 acres of marsh over the 20-year project life.

**Project Cost:**
The total fully funded cost for the project is $ 13,566,683.

**Preparers of Fact Sheet:**
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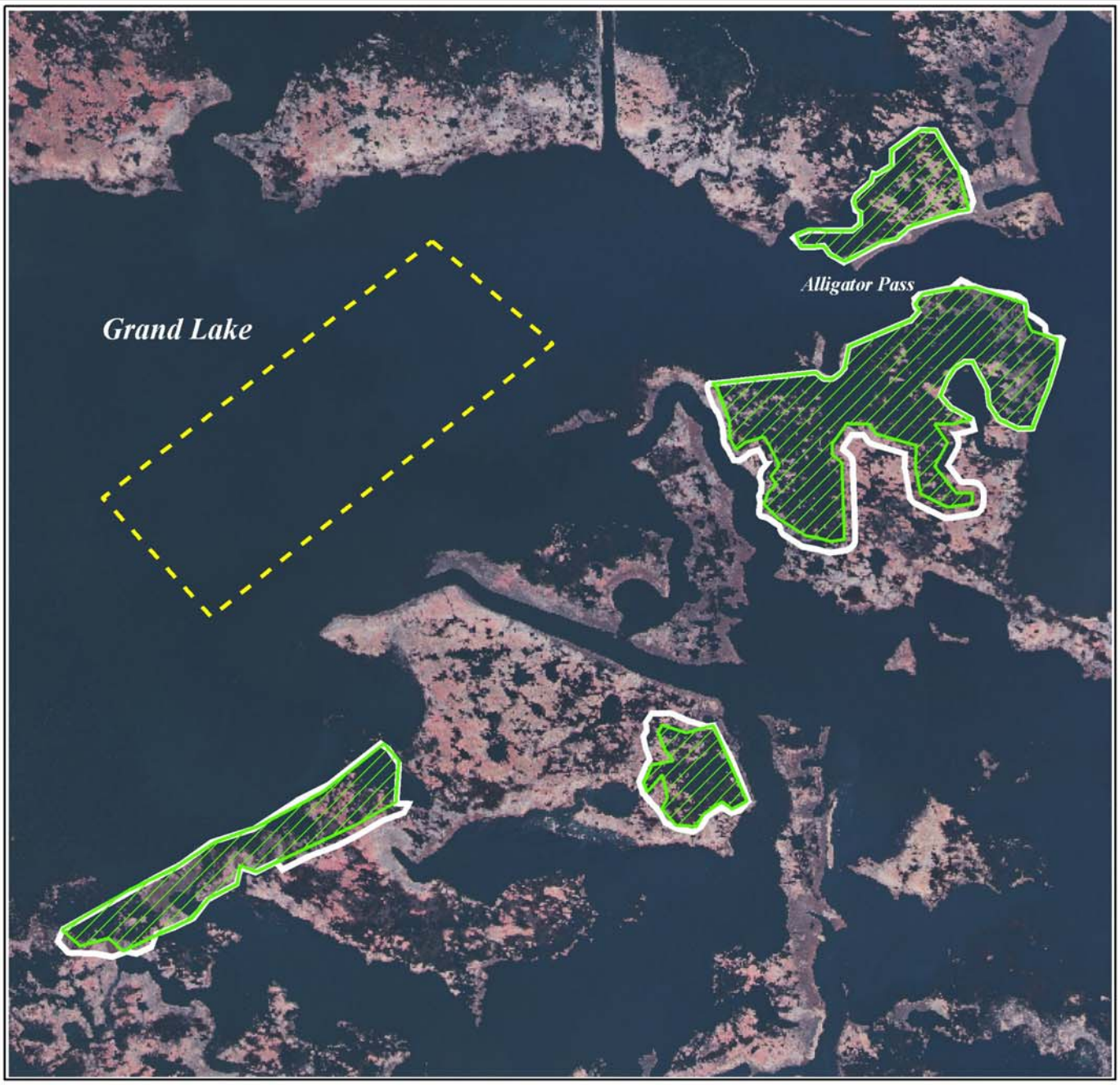


# Breton Landbridge Marsh Restoration (PPL16 Project Candidate)

Project Location

N

Marsh Creation *

Borrow Site *

Project Boundary

* denotes proposed features

0.25 0 0.25 0.5 Kilometers

0.25 0 0.25 0.5 Miles

Scale 1:25,500

Map ID: USGS-NWRC 2006-11-0464
Map Date: June 29, 2006

Map Produced By:
U.S. Department of the Interior
U.S. Geological Survey
National Wetlands Research Center
Coastal Restoration Field Station
Baton Rouge, LA

Image Source:
2005 Digital Orthophoto Quater Quadrangle

# Jean Lafitte Shoreline Protection Project

**Coast 2050 Strategy:**

- Maintain shoreline integrity along lakes in the Cataouatche/Salvador Mapping unit.

**Project Location:**
The project is located in Region 2, in the Barataria Basin. The project site is located along the southeast portion of Lake Salvador at the Barataria Preserve of Jean Lafitte National Historical Park and Preserve and lands south of Bayou Villars in Jefferson Parish, Louisiana.

**Problem:** The project area has lost more than 650 acres of wetlands along the southeast shore of Lake Salvador over the last 50 years. Since the late 1950's, annual shoreline erosion rates at the Barataria Preserve averaged 21 linear feet with a high exceeding 90 feet. Since 1958, the shoreline has retreated approximately 2,400 feet (55 feet per year) at the southern end of the Pipeline Canal. Powerful winds and storm surge caused by Hurricanes Katrina and Rita 3 accelerated shoreline retreat and wetland loss. Within the project area, these storms caused 100 feet of shoreline retreat in places and the interior marsh was compacted or torn apart creating open water ponds. The high loss of wetlands that has occurred could also be partially responsible for flooding of the neighboring communities of Crown Point, Jean Lafitte, and Barataria. Shoreline stabilization and marsh restoration would protect natural resources, communities and infrastructure.

Mapped land loss by the USACE indicates sustained high shoreline erosion rates for this reach of Lake Salvador. Average shoreline retreat in the project area is 21'/year for the period 1930 to 2001. In the northern portion of the project area, Lake Salvador has nearly broken through to the Bayou Segnette Waterway, leaving only a thin portion of the spoil bank, treeless in some places. Maximum retreat nearer the mouth of Bayou Villars for the same 71 year period is 38'/year. Shoreline retreat appears to be accelerating with rates for the 1983 to 1990 period as great as 89'/year. Shoreline retreat along the southern bank of Bayou Villars is nearing the Gulf Intracoastal Waterway (GIWW).

**Goals:**
Stop shoreline erosion along 48,000 linear feet of shoreline, along the southeast portion of Lake Salvador at the Barataria Preserve of Jean Lafitte National Historical Park and Preserve and lands south of Bayou Villars, in Jefferson Parish.

**Proposed Solution:**
Construct approximately 48,000 linear feet of rock shoreline dike on shore in two segments, north and south of Bayou Villars, Area A to the North ≈ 15,000 feet and Area B to the south ≈ 33,800 feet. An estimated 168,000 tons of rock would be installed with a 3-foot crown width and at an elevation of +3.0 feet NAVD. The dike would include a berm 2-feet thick and 5 feet wide.

**Project Benefits:**
Approximately 462 acres (Area A = 90 acres, Area B = 372 acres) of fresh marsh would be protected from erosion over the 20-year project life.

**Project Cost:**
The total fully funded cost for the project is $ 29,836,540.

**Preparers of Fact Sheet:**
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# Jean Lafitte Shoreline Protection
# (PPL16 Project Candidate)

Shoreline Protection *

Project Boundary

* denotes proposed features

1 0 1 Kilometers

1 0 1 Miles

Scale 1:70,000

Map ID: USGS-NWRC 2006-11-0435
Map Date: June 20, 2006

Map Produced By:
U.S. Department of the Interior
U.S. Geological Survey
National Wetlands Research Center
Coastal Restoration Field Station
Baton Rouge, LA

Image Source:
2005 Digital Orthophoto Quarter Quadrangles

# Grand Liard Marsh and Ridge Restoration

**Coast 2050 Strategy:**

- Dedicated dredging to create, restore or protect wetlands
- Off-shore and Riverine Sand and sediment delivery systems
- Vegetative Plantings

**Project Location:**
Region 2, Barataria Basin, Plaquemines Parish, Bastian Bay and Grand Liard mapping units, vicinity of Triumph

**Problem:**
The Bastion Bay and Grand Liard mapping units were historically structured by a series of north south bayous and associated ridges (i.e., Bayou Long, Dry Cypress Bayou). Currently, the majority of these bayou ridges have eroded. The Grand Liard ridge is the most prominent remaining ridge, and separates the open bays of the Bastian Bay and Grand Liard mapping units. Land loss projections suggest that the remaining bayou bank wetlands will be completely converted to open water by 2050. The USGS land loss rate for 1988 to 2005 is 4.0%/yr and. The rate of subsidence for the Grand Liard mapping unit is 2.1 to 3.5 ft/century.

**Goals:**
Project goals include 1) creating/nourishing marsh and associated edge habitat for aquatic species through pipeline sediment delivery, and 2) restoring the Grand Liard ridge to reduce wave and tidal setup and provide fallout habitat for neotropical migrant birds. Specific phase 0 goals include creating 342 acres saline marsh, nourishing 140 acres of saline marsh and constructing about 20,000 linear feet (LF) or 31 acres of maritime ridge habitat.

**Proposed Solution:**
Approximately 342 acres of marsh would be created and 140 acres nourished with an initial fill elevation of +2.76 ft NAVD88. Sediment would be dredged from the Mississippi River and placed in confined disposal areas east of Grand Liard Bayou. A ridge feature would be constructed on the east bank of Grand Liard Bayou with sediment dredged from the bayou. The ridge would have a 20-foot crown width at +6 feet NAVD. The marsh creation area would be planted with plugs of smooth cordgrass. The ridge would be planted with appropriate woody vegetation to be coordinated with NRCS.

**Project Benefits:**
The project would benefit about 513 acres of saline marsh, natural levee ridge, and open water. Approximately 254 acres of marsh and 31 acres of natural levee ridge (285 total net acres) would be created/protected over the 20-year project life.

**Project Costs:**
The total fully funded cost for the project is $ 27,837,237.

**Preparers of Fact Sheet:**
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# Grand Liard Marsh and Ridge Restoration
# (PPL16 Project Candidate)

Ridge Restoration *

Marsh Creation *

Project Boundary

* denotes proposed features

0.4 0 0.4 0.8 Kilometers

0.4 0 0.4 0.8 Miles

Scale: 1:42,500

Map ID: USGS-NWRC 2006-11-0495
Map Date: August 01, 2006

Map Produced By:
U.S. Department of the Interior
U.S. Geological Survey
National Wetlands Research Center
Coastal Restoration Field Station
Baton Rouge, LA

Image Source:
2005 Digital Orthophoto Quarter Quadrangle

# Madison Bay Marsh Creation and Terracing

**Coast 2050 Strategy:**

- Terracing and dedicated dredging, to create, restore, or protect wetlands
- Dedicated delivery and/or beneficial use of sediment for marsh building by any feasible means

**Project Location:**
Region 3, Terrebonne Basin, Montegut Mapping Unit, Madison Bay, north of Madison Canal

**Problem:**
The Madison Bay area has experienced tremendous wetland loss due to a variety of forces including subsidence, salt water intrusion, a lack of sediment supply, and oil and gas activities. The loss of these brackish marshes has exposed significant infrastructure to open water conditions. The loss rate for the area is –2.9%/yr based on USGS 1978 to 2005 data. The Montegut mapping unit has a 1.1 to 2.0 ft/century subsidence rate. With high wetland loss in the vicinity, the Montegut levee has become more susceptible to breaching which has occurred during Hurricanes Lili and Rita in 2002 and 2005, respectively.

**Goals:**
Project goals include creating and nourishing marsh and associated edge habitat, and promoting conditions conducive to the growth of submerged aquatic vegetation. Secondarily, proposed terraces will reduce the wave erosion of created and existing marshes along the fringes of Madison Bay.

**Proposed Solution:**
Approximately 417 acres of marsh would be created and 258 acres nourished with settled soil elevations of about +1.5 ft NAVD 88. Approximately 24,600 LF of terraces would be constructed to +4.0 ft NAVD88 (initial height) with a crown width of 10 ft and 1:4 side slopes and average fill height of 6 ft. Subaerial benefits of the terraces would be based on the settled elevation of +2.5 ft NAVD 88. The marsh creation area and all terraces would be planted. The marsh creation area would be planted with 4-inch containers of marshhay cordgrass and plugs of smooth cordgrass. Terraces would be planted with four rows of smooth cordgrass plugs on 7-ft spacing and two rows of marshhay cordgrass on the crown.

**Project Benefits:**
The project would benefit about 1,019 acres of fresh marsh and open water. Approximately 372 acres of marsh would be created/protected over the 20-year project life.

**Project Cost:**
The total fully funded cost for the project is $ 32,353,377.

**Preparers of Fact Sheet:**
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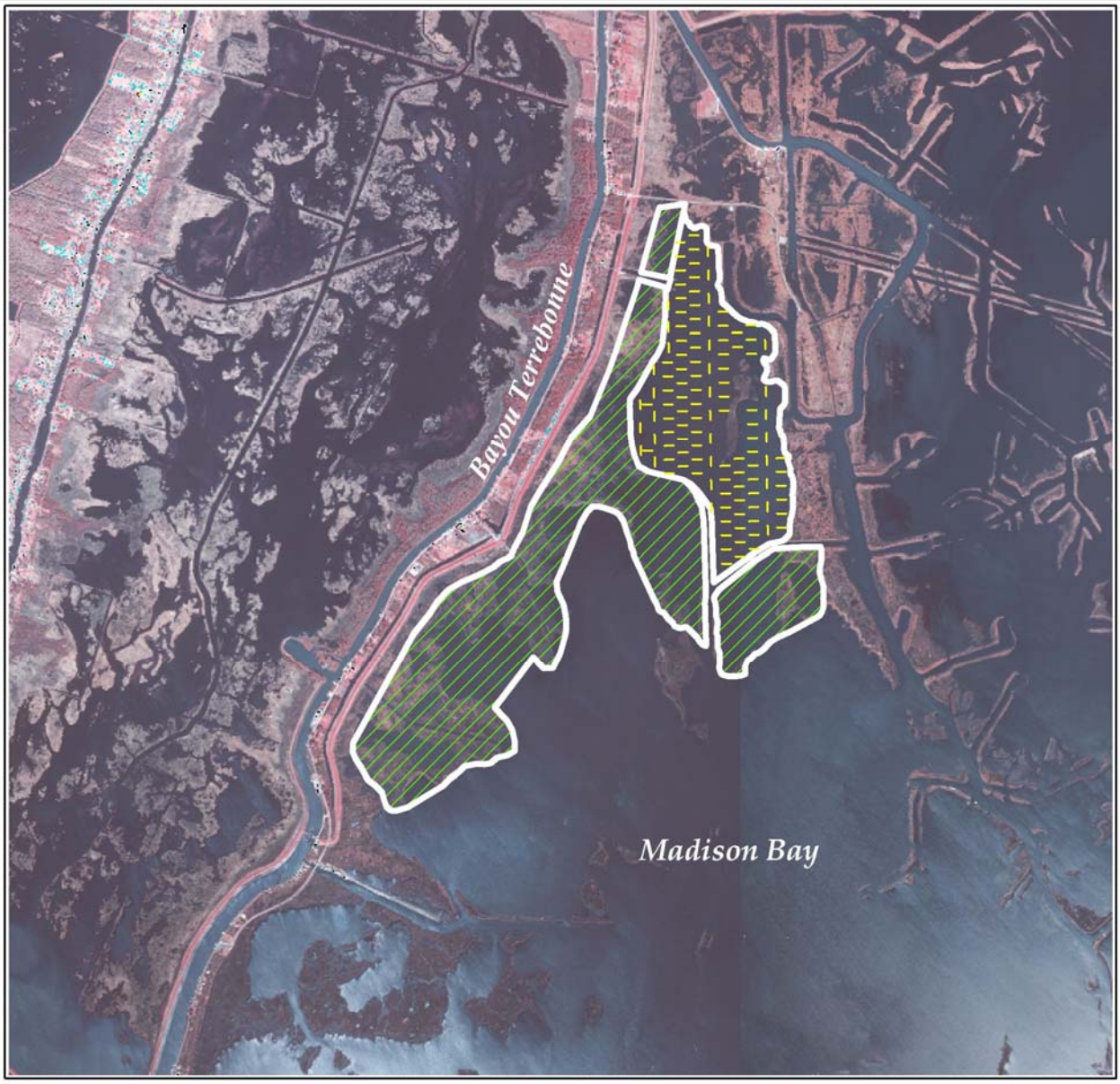


**Madison Bay Marsh Creation and Terracing Project**
**(PPL16 Project Candidate)**

**Terracing ***

**Marsh Creation ***

**Project Boundary ***

*** denotes proposed features**

0.25 0 0.25 0.5 Kilometers

0.25 0 0.25 0.5 Miles

**Scale 1:29,600**

Map ID: USGS-NWRC 2006-11-0349
Map Date: May 31, 2006

Map Produced By:
U.S. Department of the Interior
U.S. Geological Survey
National Wetlands Research Center
Coastal Restoration Field Station
Baton Rouge, LA

Image Source:
2004 Digital Orthophoto Quater Quadrangle

# West Belle Pass Barrier Headland Restoration Project

**Coast 2050 Strategy:**

- Restore/maintain barrier islands
- Dedicated dredging to create, restore, or protect wetlands

**Project Location:**
Region 3, Terrebonne Basin, Lafourche Parish, along the western most extent of the Chenier Caminada headland west of Belle Pass.

**Problem:**
The gulf shoreline near West Belle Pass is eroding at an approximate rate of 55 feet per year. Before last year's hurricanes this headland provided one of the last remnants of barrier shoreline in Timbalier Bay, which also helps to protect Port Fourchon from storm surge and increased tidal prism entering from the gulf. As this headland deteriorates, a first line of defense becomes obsolete and interior marshes are subject to greater erosion.

**Goals:**
The goals of this project are to reestablish the eroded West Belle Pass headland via dune and marsh creation, and to prevent increased erosion along the adjacent bay shoreline.

**Proposed Solution:**
The project will create a continuous, substantial headland and marsh platform over approximately a 9,300-foot lineal distance. The project will construct 120 acres of beach/dune habitat and 150 acres of marsh habitat. The berm/dune crest width of the constructed island is a constant 275 feet with a post construction elevation of +6 feet NAVD. A 1V:45H construction slope has been adopted for the front and back of the beach/dune feature. Approximately 1.6 MCY of sand material is estimated for the berm/dune component. In addition, a back island marsh platform will be constructed to an elevation of +2.6 feet NAVD, with a final intertidal elevation of +1.5 feet NAVD. Approximately 850,000 CY of material is estimated for the marsh platform component. Sand fencing will be installed concurrent with dune construction and vegetative plantings of both the dune and marsh platform will occur between 1 to 3 years post construction.

**Project Benefits:**
The project would benefit about 389 acres of dune, beach, and saline marsh. Approximately 299 acres of marsh would be created/protected over the 20-year project life.

**Project Cost:**
The total fully funded cost for the project is $ 32,563,747.

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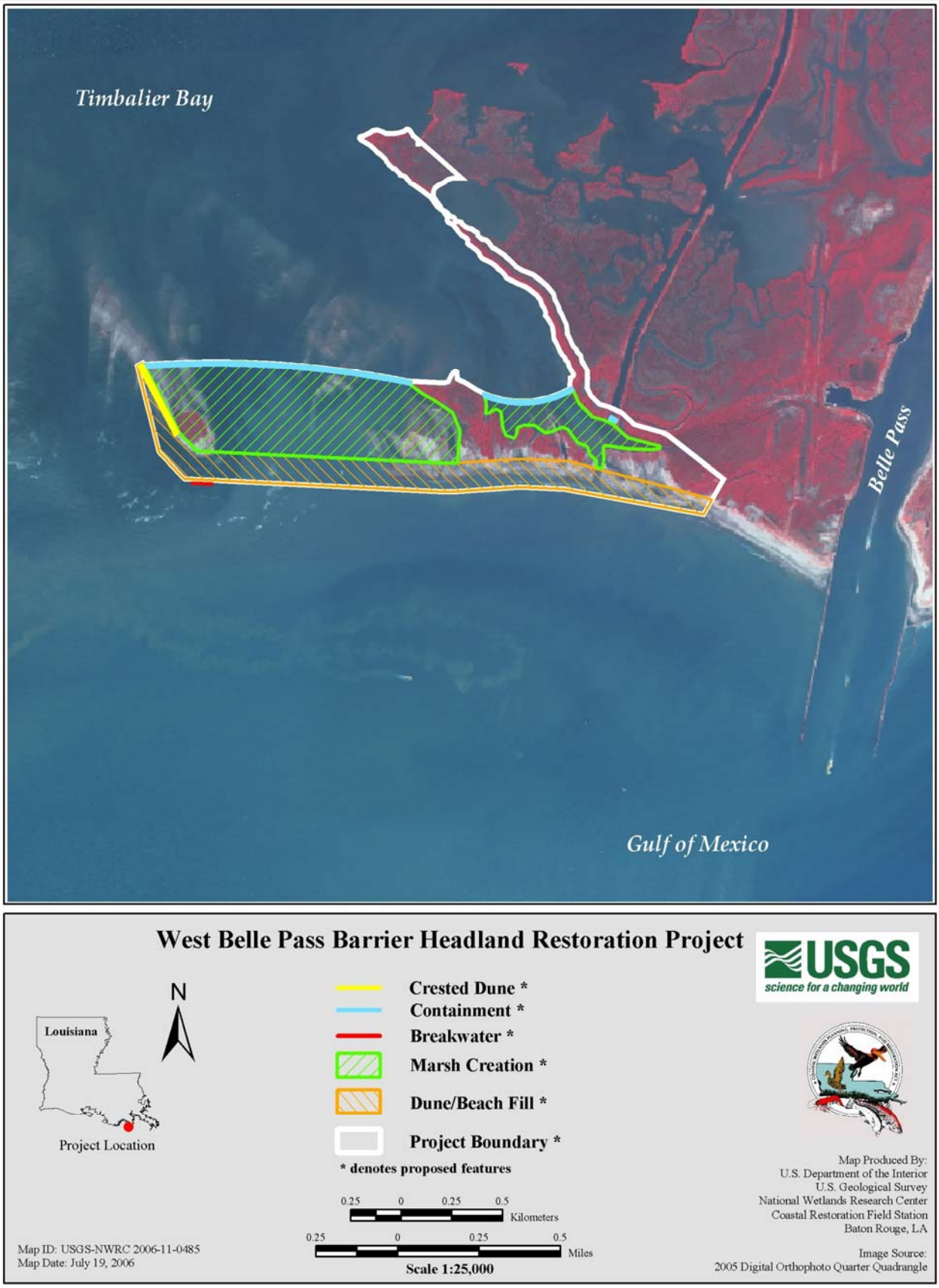
Timbalier Bay
Belle Pass
Gulf of Mexico
West Belle Pass Barrier Headland Restoration Project
USGS
science for a changing world
N
Louisiana
Project Location
Crested Dune *
Containment *
Breakwater *
Marsh Creation *
Dune/Beach Fill *
Project Boundary *
* denotes proposed features
0.25 0 0.25 0.5
Kilometers
0.25 0 0.25 0.5
Miles
Scale 1:25,000
Map ID: USGS-NWRC 2006-11-0485
Map Date: July 19, 2006
Map Produced By:
U.S. Department of the Interior
U.S. Geological Survey
National Wetlands Research Center
Coastal Restoration Field Station
Baton Rouge, LA
Image Source:
2005 Digital Orthophoto Quarter Quadrangle

# Deer Island Pass Sediment Delivery

**Coast 2050 Strategy:**

- Increase deltaic land building where feasible

**Project Location:**
Region 3, Atchafalaya Basin, St. Mary Parish, along the east bank of the Lower Atchafalaya River (LAR) and in the northeastern portion of Atchafalaya Bay.

**Problem:**
A shoal between the LAR and the head of Deer Island Pass does not allow the efficient flow of water and sediment from the river into northeastern Atchafalaya Bay. Natural accretion is occurring in the bay, but a more efficient delivery of sediment to that area would enhance marsh-building processes. Also, wave action is resulting in erosion along the eastern bank of the LAR north of Deer Island Bayou. A GIS comparison of the 1990 and 2005 shoreline position reveals that erosion of the LAR east bank ranges from 12 feet per year to a maximum of 22 feet per year.

**Goals:**
The project would accelerate deltaic land-building in the northeast portion of Atchafalaya Bay which would result in the formation of 264 acres of emergent wetlands over the project life. The project would also create 68 acres of marsh with dredged material from the construction of a sediment delivery channel. The created marsh will protect existing marsh from erosion along the eastern bank of the LAR. In addition, maintenance of the sediment delivery channel would create a total of 35 acres of marsh over the project life.

**Proposed Solution:**
A 5,280-foot-long, 280-foot-wide, and 12-foot-deep sediment delivery channel will be hydraulically dredged across the shallow flat between the LAR and the northern end of Deer Island Pass. Dredged material from the sediment delivery channel will be placed in three marsh creation cells (68 acres total) along the eastern bank of the LAR. The sediment delivery channel will be re-dredged at target years 6, 11, and 16 to maintain channel efficiency.

**Project Benefits:**
The project would benefit about 1,202 acres of fresh marsh and open water. Approximately 216 acres of marsh would be created/protected over the 20-year project life.

**Project Cost:**
The total fully funded cost for the project is $ 8,775,058.

**Preparer of Fact Sheet:**
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## Deer Island Pass Sediment Delivery
## (PPL16 Candidate Project)

Marsh Creation *

Sediment Delivery Channel *

Project Boundary

* denotes proposed features

0.6 0 0.6 1.2 Kilometers

0.5 0 0.5 1 Miles

Scale 1:47,000

Map ID: USGS-NWRC 2006-11-0405
Map Date: July 06, 2006

Map Produced By:
U.S. Department of the Interior
U.S. Geological Survey
National Wetlands Research Center
Coastal Restoration Field Station
Baton Rouge, LA

Image Source:
2005 Digital Orthophoto Quarter Quadrangle

# Vermilion Bay Shoreline Protection Project

**Coast 2050 Strategy:**

- Region 3. #12. Maintain shoreline integrity and stabilize critical areas of Vermilion, East, and West Cote Blanche, Atchafalaya, Calliou, Terrebonne, and Timbalier Bay systems including the Gulf shoreline.

**Project Location:**
Region 3, Teche/Vermilion, Iberia Parish, North shore of Vermilion to Weeks Bay extending 1.5 miles west to 5 miles east of Avery Canal

**Problem:**
Approximately 5 miles of shoreline along the northern Vermilion and Weeks Bay remain vulnerable to shoreline erosion. Although previous planting projects have been highly successful in stabilizing shoreline erosion along the north shore of Vermilion Bay, a one mile stretch of that shoreline, just east of Avery Canal, has eroded beyond the natural bay rim and breached into the organic interior. As a result, the bay rim will require reconstruction using some form of hardened structure. The remaining shoreline can be maintained with vegetative plantings. However, because of lessons learned by prior vegetative plantings and potentially degraded bay rim soils at points along this shoreline a more intensive planting regime will be undertaken to ensure success.

**Goals:**
The project goal is to abate wind-driven wave erosion along the north Vermilion Bay shoreline. The project will repair a breach in that shoreline, which threatens to undermine a much broader area of interior marsh. An additional 5 miles of shoreline would be stabilized through a series of intensive low-cost vegetative plantings and would complete the restoration of over 10 miles of the north Vermilion Bay shoreline.

**Proposed Solutions:**
The project calls for reestablishing the bay rim function by constructing approximately 9,330 linear feet of rock riprap to reconnect the solid bay rim on either side of the breach. Additionally, an intensive 5-year vegetation planting regime will be applied to the 5 mile stretch of shoreline east of Avery Canal. The first years planting will be followed by an estimated 50%, 50%, 25% and 10% replacement consecutively in the following four years to ensure complete coverage of the shoreline and jumpstart the mineral trapping and accretion characteristics observed in previous successful plantings in the area.

**Project Benefits:**
The project will protect a total of 132 net acres of coastal wetlands along the Northern Vermilion Bay shoreline over the 20-year project life.

**Project Cost:**
The total fully funded cost for the project is $ 9,407,238.

**Preparer(s) of Fact Sheet**
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# Vermilion Bay Shoreline Protection Project (PPL16)

Project Boundary

1 0 1 Kilometers

1 0 1 Miles

Scale 1:80,000

Map ID: USGS-NWRC 2005-11-0436
Map Date: June 20, 2006

Map Produced By:
U.S. Department of the Interior
U.S. Geological Survey
National Wetlands Research Center
Coastal Restoration Field Station
Baton Rouge, LA

Image Source:
2005 Digital Orthophoto Quarter Quadrangles

# Southwest Louisiana Gulf Shoreline Nourishment and Protection Project

**Coast 2050 Strategy:**

- Stabilize Gulf of Mexico Shoreline in the vicinity of Rockefeller Refuge from the old Mermentau River to Dewitt Canal and Dredge fill in open water by dedicated dredging in the Gulf of Mexico.

**Project Location:**
Region 4, Mermentau Basin, Cameron and Vermilion Parish, South of Pecan Island and Rockefeller Refuge, between Dewitt Canal and Constance Lake.

**Problem:**
The Gulf of Mexico shoreline in the vicinity of Rockefeller Refuge is reportedly eroding at an estimated rate of 35 to 39 feet per year (Coast 2050 Report and Rockefeller Refuge Gulf Shoreline Stabilization Project (ME-18) respectively). Land loss maps prepared for the Project Area by U.S.G.S. indicate that the shoreline is eroding at a variable rate from 12 feet per year near DeWitt Canal to 57 feet per year near the east side of Constance Lake.

**Goals:**
The goal of the proposed project is to nourish and protect approximately 685 acres and create 203 acres of marsh along the gulf shoreline by the end of the 20 year project life.

**Proposed Solution:**
Deposit approximately 4.9 million cubic yards of sediment parallel to approximately 47,900 linear feet of gulf shoreline between Dewitt Canal and Constance Lake to create approximately 421 acres of marsh platform, mud flat and shallow water, extending approximately 384 feet seaward. The marsh platform would be pumped to between 0.0 and +2.5 feet mean low gulf in an average of 2.5 feet water. Approximately 685 acres of existing, and 203 acres of created shoreline would be protected over 20 years by redepositing approximately 1.1 million cubic yards every four years after initial construction. Sediment would be acquired by dedicated dredging approximately one mile offshore in the Gulf of Mexico.

**Project Benefits:**
The project would benefit approximately 1,244 acres of saline and brackish marsh and open gulf water. Approximately 888 acres of marsh would be protected/created over the 20-year project life.

**Project Cost:**
The total fully funded cost for the project is $36,922,487.

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## Southwest LA Gulf Shoreline Nourishment and Protection (PPL16 Project Candidate)

Supra Tidal Dredge Material *

Borrow Site *

Project Boundary

* denotes proposed features

0.8 0 0.8 1.6 Kilometers

0.8 0 0.8 1.6 Miles

Scale 1:125,000

Map ID: USGS-NWRC 2006-11-0478
Map Date: August 02, 2006

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U.S. Department of the Interior
U.S. Geological Survey
National Wetlands Research Center
Coastal Restoration Field Station
Baton Rouge, LA

Image Source:
2005 Digital Orthophoto Quarter Quadrangle

# DEMONSTRATION PROJECTS

Section 303(a) of the CWPPRA states that in the development of Priority Project List, ". . . [should include] due allowance for small-scale projects necessary to demonstrate the use of new techniques or materials for coastal wetlands restoration."

The CWPPRA Task Force, on April 6, 1993, stated that: "The Task Force directs the Technical Committee to limit spending on demonstration projects to $2,000,000 annually. The Task Force will entertain exceptions to this guidance for projects that the Technical Committee determines merit special consideration. The Task Force waives the cap on monitoring cost for demonstration projects."

The CWPPRA Task Force, on April 12, 2006, passed a motion concerning the selection of demonstration projects. The Task Force agreed to consider funding, upon review, at least one credible demonstration project annually with estimates not to exceed $2 million.

What constitutes a demonstration project:

1. Demonstration projects contain technology that has not been fully developed for routine application in coastal Louisiana or in certain regions of the coastal zone.

2. Demonstration projects contain new technology, which can be transferred to other areas of the coastal zone.

3. Demonstration projects are unique and are not duplicative in nature.

PPL 16 Demonstration Project Candidates

In a change from previous years, demonstration projects were nominated at the 4 Regional Planning Team (RPT) meetings. Regional Planning Teams selected six (6) demonstration project nominees at the February 1, 2006 Coastwide RPT voting meeting. Demonstration project nominees were reviewed by the Environmental and Engineering Workgroups to verify that they met demonstration project criteria. On March 15, 2006 the Technical Committee selected three (3) demonstration project candidates for detailed assessments by the workgroups.

The following proposed demonstration projects were evaluated as candidates for the 16$^{th}$ Priority Project List:

- Enhancement of Barrier Island Vegetation
- Nourishment of Permanently Flooded Cypress Swamps Through Dedicated Dredging
- Sediment Containment System for Marsh Creation

# Enhancement of Barrier Island Vegetation Demo

## Coast 2050 Strategies:

- Coastwide Common Ecosystem Strategy; Restore/Maintain Barrier Islands, Headlands, Shorelands; Region 2 Mapping Unit Strategy # 17 Caminada Bay – Maintain Shoreline Integrity e.g. vegetative plantings of mangroves or marsh; and Region 3 Regional Ecosystem Strategy; Protect Bay/Lake Shorelines, #10 Maintain shoreline integrity and stabilize critical areas of Teche/Vermillion Bay Systems including the Gulf Shorelines (bay/lake/gulf)

## Project Location:

There are multiple projects planned and ongoing that fit within the strategies listed above, most of which include use of vegetative plantings on barrier islands. One possible project site in Region 3 is the Timbalier Island Dune and Marsh Restoration project (TE-40) that recently planted over 150,000 plants, eight different species. Additional project locations are available in Regions 2 and 3.

## Problem:

Barrier Islands provide critical habitat and are the first line of defense to not only day-to-day coastal erosion but also to the destructive forces of major storm events. Developing methodologies to enhance vegetation establishment and growth in barrier island restoration projects is important because healthy vegetative cover traps, binds, and stabilizes sand and sediment, thereby improving island integrity during storm and overwash events. Barrier islands are very stressful environments and there remains a critical need to develop cost-effective improvements to existing restoration methodologies that will enhance the successful establishment and spread of vegetation in these expensive and important restoration projects.

## Goals:

Test several technologies and/or products to enhance the cost-effective establishment and growth of key barrier island and salt marsh vegetation.

## Proposed Solution:

Humic acid and broadcast fertilization regimes will be applied. Humic acid benefits will be demonstrated in both intertidal and supratidal plantings, whereas broadcast fertilization benefits will only be demonstrated in supratidal plantings. Each product (humic acid and fertilizer) will be commercially available and off-the-shelf. Enhancing the establishment of woody vegetation (black mangrove and groundsel bush) will be achieved via high-density dispersal techniques of propagule and seeds. All treatment test sections and reference planting areas will be visually inspected and sampled quarterly (plant and soil variables) and compared to the reference area to develop recommendations for future planting projects.

## Project Benefits:

The humic acid amendment and broadcast fertilization regime techniques are intended to "jump start" and facilitate the rapid establishment and expansion of vegetation. Establishing woody vegetation (black mangrove and groundsel bush) via propagules and seeds is a cost-saving alternative to planting container-grown transplants of these trees. If successful, these techniques can be applied coastwide.

## Project Cost:

The total fully funded cost for the project is $ 919,599.

## Preparers of Fact Sheet:

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(with major assistance from Dr. Mark Hester)

# Nourishment of Permanently Flooded Cypress Swamps Through Dedicated Dredging Demo

**Coast 2050 Strategy:**

- Coastwide Common Strategy - Dedicated dredging for wetland creation

**Project Location(s):**
Houma Navigation Channel and locations in Barataria Basin and Penchant Basin.

**Problem:**
1) Many cypress/tupelo swamps in coastal Louisiana have experienced altered hydrology either through the loss of sediments (i.e., flood control levees along the Mississippi river) causing increased subsidence rates or through impoundments (i.e., roads, levees, etc.). These swamps are also affected by saltwater intrusion (due to the construction of canals). These trees slowly die when exposed to prolonged, flooding for longer than normal duration and regeneration of new trees cannot occur under these flooded conditions. 2) Several State and Federal agencies have denied the possible use of dredged material to rehabilitate permanently flooded cypress/tupelo swamps because of the perception that it would harm those trees.

**Goals:**
To demonstrate how the deposition of differing amounts (depths) of dredged material within a cypress/tupelo swamp would affect the growth and natural regeneration of cypress trees and how that would affect the ability of those cypress trees to naturally regenerate. Several methods of planting small cypress trees in the newly deposited dredged material would be tested along with their survival rates.

**Proposed Solution:**
**1)** Containment dikes at each of 3 study sites will be constructed to provide 3 contiguous 3-acre blocks and 1 control block (9 acres) with similar pre-project hydrology. Blocks will be filled with 1ft, 2ft or 3ft of sediment. **2)** Certain physiological and morphological measurements would be preformed pre and post sediment placement on selected mature trees within each plot to document the effects of sediment placement of differing depths on mature trees. Also, a detailed soil analysis will be carried out within each plot. **3)** Areas within these units with very little tree cover would be used to test three methods of tree planting. Selected areas with mature trees will be designated to determine the effects of the addition of soil to natural regeneration.

**Project Benefits:**
Information gathered with this project would benefit non-sustainable hydraulically altered cypress swamps. The project would also answer questions ask in the Coastal Wetland Forest Conservation and Use Science Working Group which was endorsed by Governor Blanco.

**Project Cost**:
The total fully funded cost for the project is $ 1,474,785.

**Preparer of Fact Sheet:**
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# Sediment Containment System for Marsh Creation Demo

**Coast 2050 Strategy:**

- Management of diversion outfall for wetland benefits
- Dedicated dredging to create restore or protect wetlands

**Project Location:**
Coastwide

**Problem:**
Small and medium freshwater diversions that flow into broad areas and small dredge projects require confinement and trapping features to form marsh because the materials entering the area are often too dilute or fine to result in any appreciable accumulation. A method to delineate smaller areas to concentrate sediments flowing across an area would improve suspended sediment retention efficiency and allow accumulations to occur within a more timely and cost-effective manner. A sediment trapping mechanism would also allow for taking advantage of finer materials that would otherwise largely flow through the target area or require costly construction of some form of containment.

**Goals:**
The overall goal of the project is to demonstrate the effectiveness of a sediment trapping system to strategically define areas of accumulation and improve the efficiency of passive sediment retention in small and medium freshwater diversions as well as mechanized introduction of fluid material to create marsh.

**Proposed Solution:**
The project will demonstrate the effectiveness of a sediment trapping system designed for dredge containment to facilitate both sediment retention and accumulation in freshwater diversion that are located in broad areas where sediments tend to dissipate and to demonstrate the ability of the system to perform in small dredge applications. The project will demonstrate that by isolating areas where accumulation can be concentrated accretion rates will be greatly enhanced and speed up marsh creation.

**Project Benefits:**
The project will benefit any area in coastal Louisiana by facilitating containment where suspended sediment load is adequate for potential marsh development but retention is low due to broad open water expanse or channelization. The project will also benefit small dredge projects by providing a cost-effective alternative to earthen containment, particularly in areas where construction of earthen containment may be problematic (e.g. flow lines and poor soils).

**Project Cost:**
The total fully funded cost for the project is $ 1,132,576.

**Preparer of Fact Sheet:**
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# PPL 16 Candidate Project Evaluation Matrix

| Project Name | Region | Parish | Project Area (acres) | Average Annual Habitat Units (AAHU) | Net Acres | Prioritization Score | Total Fully Funded Cost | Fully-Funded Phase I Cost | Fully-Funded Phase II Cost | Average Annual Cost (AAC) | Cost Effectiveness (AAC/AAHU) | Cost Effectiveness (Cost/Net Acre) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Alligator Bend Marsh Restoration and Shoreline Protection | 1 | Orleans | 584 | 166 | 330 | 45.4 | $19,620,813 | $1,660,985 | $17,959,828 | $1,511,324 | $9,104 | $59,457 |
| Violet Siphon Enlargement (1) | 1 | St. Bernard | 17,971 | 2,436 | 1,609 | 59.8 | $53,184,577 | $4,984,067 | $48,200,510 | $4,102,218 | $1,684 | $33,054 |
| Breton Landbridge Marsh Restoration | 2 | Plaquemines | 356 | 62 | 176 | 41.5 | $13,566,683 | $1,471,424 | $12,095,259 | $1,053,752 | $16,996 | $77,083 |
| Jean Lafitte Shoreline Protection | 2 | Jefferson | 546 | 157 | 462 | 49.4 | $29,836,540 | $1,382,172 | $28,454,368 | $2,042,606 | $13,010 | $64,581 |
| Grand Liard Marsh and Ridge Restoration | 2 | Plaquemines | 513 | 167 | 285 | 56.0 | $27,837,237 | $2,796,716 | $25,040,521 | $2,190,749 | $13,440 | $100,134 |
| Madison Bay Marsh Creation and Terracing | 3 | Terrebonne | 1,019 | 242 | 372 | 45.9 | $32,353,377 | $3,002,170 | $29,351,207 | $2,512,603 | $10,214 | $85,365 |
| West Belle Pass Barrier Headland Restoration | 3 | Lafourche | 542 | 180 | 299 | 59.3 | $32,563,747 | $2,694,363 | $29,869,384 | $2,463,461 | $13,686 | $108,909 |
| Deer Island Pass Sediment Delivery | 3 | St. Mary | 1,202 | 68 | 216 | 54.4 | $8,775,058 | $736,238 | $8,038,820 | $501,660 | $7,377 | $40,625 |
| Vermilion Bay Shoreline Protection | 3 | Iberia | 166 | 44 | 132 | 41.4 | $9,407,238 | $709,519 | $8,697,719 | $615,896 | $13,998 | $71,267 |
| SW LA Gulf Shoreline Nourishment and Protection | 4 | Cameron / Vermilion | 1,244 | 311 | 888 | 63.5 | $36,922,487 | $1,266,842 | $35,655,645 | $2,064,226 | $9,340 | $49,164 |

Notes:

1. Violet Siphon Total Fully Funded Cost does not include: (1) the estimated cost of Corps review in support of Mississippi River Commission (MRC) approval and (2) a cost for closure (removal) of the structure at the end of CWPPRA funding (20 years). If those 2 items were included, the Total Fully Funded Cost would be $70,989,682.

# PPL 15 Demonstration Project Evaluation Matrix

(Parameter grading as to effect: 1 = low; 2 = medium; 3 = high)

| Demonstration Project Name | Lead Agency | Total Fully Funded Cost | Parameter ($P_n$) | | | | | | Total Score |
|---|---|---|---|---|---|---|---|---|---|
| | | | **$P_1$** Innovativeness | **$P_2$** Applicability or Transferability | **$P_3$** Potential Cost Effectiveness | **$P_4$** Potential Env Benefits | **$P_5$** Recognized Need for Info | **$P_6$** Potential for Technological Advancement | |
| Enhancement of Barrier Island Vegetation Demo | EPA | $919,599 | 3 | 3 | 3 | 3 | 2 | 2 | 16 |
| Nourishment of Permanently Flooded Cypress Swamps Through Dedicated Dredging Demo | FWS | $1,474,785 | 3 | 2 | 2 | 3 | 3 | 2 | 15 |
| Sediment Containment System for Marsh Creation Demo | NRCS | $1,132,576 | 3 | 3 | 2 | 2 | 2 | 2 | 14 |

Demonstration Project Parameters:

($P_1$) Innovativeness - The demonstration project should contain technology that has not been fully developed for routine application in coastal Louisiana or in certain regions of the coastal zone. The technology demonstrated should be unique and not duplicative in nature to traditional methods or other previously tested techniques for which the results are known. Techniques which are similar to traditional methods or other previously tested techniques should receive lower scores than those which are truly unique and innovative.

($P_2$) Applicability or Transferability - Demonstration projects should contain technology which can be transferred to other areas of the coastal zone. However, this does not imply that the technology must be applicable to all areas of the coastal zone. Techniques, which can only be applied in certain wetland types or in certain coastal regions, are acceptable but may receive lower scores than techniques with broad applicability.

($P_3$) Potential Cost Effectiveness - The potential cost-effectiveness of the demonstration project's method of achieving project objectives should be compared to the cost-effectiveness of traditional methods. In other words, techniques which provide substantial cost savings over traditional methods should receive higher scores than those with less substantial cost savings. Those techniques which would be more costly than traditional methods, to provide the same level of benefits, should receive the lowest scores. Information supporting any claims of potential cost savings should be provided.

($P_4$) Potential Environmental Benefits - Does the demonstration project have the potential to provide environmental benefits equal to traditional methods? somewhat less than traditional methods? Above and beyond traditional methods? Techniques with the potential to provide benefits above and beyond those provided by traditional techniques should receive the highest scores.

($P_5$) Recognized Need for the Information to be Acquired - Within the restoration community, is there a recognized need for information on the technique being investigated? Demonstration projects which provide information on techniques for which there is a great need should receive the highest scores.

($P_6$) Potential for Technological Advancement - Would the demonstration project significantly advance the traditional technology currently being used to achieve project objectives? Those techniques which have a high potential for completely replacing an existing technique at a lower cost and without reducing wetland benefits should receive the highest scores.