

## **Nominee Projects located in Region One**

# **Irish Bayou Shoreline Protection and Marsh Creation Project**

**PPL17 PROJECT NOMINEE FACT SHEET**  
**February 22, 2007**

**Project Name:** Irish Bayou Wetland Creation and Shoreline Protection

**Coast 2050 Strategy:**

Region 1 Ecosystem Strategy Nos. 9, 10, and 13: Dedicated delivery of sediment for marsh building, maintaining shoreline integrity of Lake Pontchartrain, and maintaining eastern Orleans Land Bridge by marsh creation and shoreline protection.

**Project Location:**

Region 2, Pontchartrain Basin, Orleans Parish, South of I-10, on Bayou Sauvage NWR, with borrow area in Lake Pontchartrain.

**Problem:**

The landfall of Hurricane Katrina in southeast Louisiana destroyed thousands of acres of marsh and other coastal habitats in the Lake Pontchartrain basin. The hurricane weakened the Lake Pontchartrain shore between the lake rim and interior marshes near Bayou Chevee. In some cases the storm removed large expanses of the shoreline and exposed interior marshes. Currently only a portion of the lakeshore is protected by a rock dike (PPL 5, PO-22). This dike was originally tied to the shoreline; however the interior marsh has eroded away. Continued shoreline erosion and future storms could create a direct path of open water connecting Lake Pontchartrain with Irish Bayou and the Bayou Sauvage NWR.

**Goals:**

Create 135 acres of marsh and provide shoreline protection to about 26,876 feet of the Bayou Sauvage NWR. The project would maintain the shoreline integrity of Lake Pontchartrain and reduce the threat of Lake Pontchartrain merging with Irish Bayou and the Bayou Sauvage Refuge. The project would also help to buffer and protect the stability of the existing federal hurricane protection levee in New Orleans East. The project would also help to provide wildlife and fisheries habitats and water quality benefits, and the restored marsh vegetation would buffer/weaken storm surge in New Orleans East.

**Proposed Solutions:**

- Dedicated dredging to restore wetlands along the weakened shoreline and current rock dike.
  - Assuming an average 3ft fill/site
  - Part of B is located behind an existing stone dike
  - Site A will be confined with a retaining dike
  - Site B will be semi-confined and allowed to flow into the adjacent marsh of Bayou Sauvage.

Marsh Creation Site	Approximate Acres Created	Estimated Material Required (cy)
A	53	340,000
B	82	520,000
<b>Total</b>	<b>135</b>	<b>860,000</b>

- Extending the existing rock dike along the reach mouth of Chef Menteur Pass to the base of the railroad trestles.

Reach	Length (lf)	Construction elevation (NAVD88)	tons/lf	Estimated Rock Required (tons)
1	9,708	+3.0 ft	4 tons/lf	38,800
2	5,315	+3.0 ft	4 tons/lf	21,300
3	7,000	+3.0 ft	4 tons/lf	28,000
4	4,853	+3.0 ft	4 tons/lf	19,400
<b>Total</b>	<b>26,876</b>			<b>107,500</b>

### **Preliminary Project Benefits:**

1. What is the total acreage benefited both directly and indirectly?  
The project would directly create approximately 135 acres of marsh and protect 165 acres. Indirectly, an additional 905 acres of interior marsh and lake rim would benefit by establishing an intact barrier from Lake Pontchartrain.
2. How many acres of wetlands will be protected/created over the project life?  
294 net acres would be protected/created over the project life.
3. What is the anticipated loss rate reduction throughout the area of direct benefits over the project life (<25%, 25-49%, 50-74% and >75%).  
Loss rate reduction overall >75%
4. Do any project features maintain or restore structural components of the coastal ecosystem such as barrier islands, natural or artificial levee ridges, beach and lake rims, cheniers, etc.  
The project would restore/protect a lake shoreline and preserve portions of the critical East Orleans Landbridge.
5. What is the net impact of the project on critical and non-critical infrastructure?  
The project will also provide protection to critical infrastructure in New Orleans east including the hurricane protection levee and the nearby I-10 corridor.
6. To what extent does the project provide a synergistic effect with other approved and/or constructed restoration projects?  
The project provides some synergy with other projects protecting the East Orleans Landbridge and nearby mapping units including projects at Bayou Chevee (PO-22), and on the Bayou Sauvage NWR.

### **Identification of Potential Issues:**

- Rock shoreline protection projects historically require O&M.
- Area is in the vicinity of critical habitat for Gulf Sturgeon.

**Preliminary Construction Costs:**

Estimated construction cost with 25% contingency: approximately \$13.8 Million. Estimated Fully Funded cost approximately: \$26.1 Million

**Preparer(s) of Fact Sheet:**

Melanie Goodman, USACE, (504) 862-1940, [Melanie.L.Goodman@mvn02.usace.army.mil](mailto:Melanie.L.Goodman@mvn02.usace.army.mil)

Travis Creel, USACE, (504) 862-1071, [Travis.J.Creel@mvn02.usace.army.mil](mailto:Travis.J.Creel@mvn02.usace.army.mil)

Jason Binet, USACE, (504) 862- 2127, [Jason.A.Binet@mvn02.usace.army.mil](mailto:Jason.A.Binet@mvn02.usace.army.mil)

Robert T. Dubois, USFWS, 337-291-3127, [Robert\\_Dubois@fws.gov](mailto:Robert_Dubois@fws.gov)

**Project Map:**



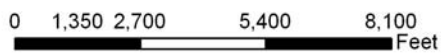
**PPL 17  
Irish Bayou Shoreline Protection  
and Marsh Creation**

**Legend**

**Irish Bayou Marsh Creation**



**Proposed Shoreline Protection**



Map Produced By:  
U.S. Army Corps of Engineers  
New Orleans, La

Data Source:  
2005 DOQQ Aerial Photography  
Map Date: January 26, 2007  
Map ID: NewOrleansLandBridgeMap.mxd

# **Orleans Landbridge Marsh Creation and Shoreline Protection Project**

**PPL17 PROJECT NOMINEE FACT SHEET**  
**March 5, 2007**

**Project Name:** Orleans Landbridge Marsh Creation and Shoreline Protection

**Coast 2050 Strategy:**

Coastwide: Maintain bay and lake shoreline integrity. Regional 10: Maintain shoreline integrity of Lake Pontchartrain. Regional 13: Maintain Eastern Orleans Land Bridge by marsh creation and shoreline protection. Mapping Unit 36: Maintain shoreline integrity

**Project Location:**

Region 1, Pontchartrain Basin, Orleans Parish, East Orleans Landbridge Mapping Unit, along south shore of Lake Ponchartrain near Chef Pass and the Rigolets.

**Problem:**

High wave energy, sea level rise and subsidence levels are impacting the wetland shorelines of Lake Pontchartrain, Chef Pass, and the Rigolets. Shorelines in the area are exhibiting increasingly high erosion rates dating since the 1980s and were highly impacted during Hurricane Katrina. Identified in both *Coast 2050* and the LCA, this critical landbridge forms a barrier between Lake Pontchartrain and Lake Borgne, an eventual passage to the Gulf of Mexico. This thin land mass of mostly brackish marsh was home to over 1,000 residents prior to the storm and protects an inland population of approximately 850,000 people in the city of New Orleans and Metairie along with billions of dollars of infrastructure and historic communities. The disappearance of shoreline and marsh in this area endangers this narrow landbridge that keeps Lake Pontchartrain from joining Lake Catherine and Lake Borgne. Continued erosion without action will result in the acceleration of the loss of the remaining marsh tidal marshes in the area.

**Goals:**

- Maintain the East Orleans Landbridge by stopping shoreline erosion.
- Protect recovering communities and infrastructure located on the landbridge and inland.
- Contribute to the “multiple lines of defense” coastal protection and restoration strategy

**Proposed Project Features:**

- Dedicated dredging to restore wetlands along the weakened shoreline.
  - Assuming an average 4ft fill/site for Area A and 3ft fill/site for Area B.
  - Both sites will be semi-confined and allowed to flow into the adjacent marsh.



Marsh Creation Site	Approximate Acres Created	Estimated Material Required (cy)
A	26	221,000
B	52	338,000
<b>Total</b>	<b>78</b>	<b>559,000</b>

- Rock dike on Lake Pontchartrain east of Chef Pass and west of The Rigolets at Hospital Wall.

Reach	Length (lf)	Construction elevation (NAVD88)	tons/lf	Estimated Rock Required (tons)
North Reach	12,150	+3.0 ft	4 tons/lf	50,000
South Reach	9,250	+3.0 ft	4tons/lf	37,000
<b>Total</b>	<b>21,400</b>			<b>87,000</b>

#### **Preliminary Project Benefits:**

1. What is the total acreage benefited both directly and indirectly?  
The project would directly create approximately 78 acres of marsh and protect 88 acres. Indirectly, an additional 780 acres of interior marsh and lake rim would benefit by establishing an intact barrier from Lake Pontchartrain.
2. How many acres of wetlands will be protected/created over the project life?  
156 net acres would be protected/created over the project life.
3. What is the anticipated loss rate reduction throughout the area of direct benefits over the project life (<25%, 25-49%, 50-74% and >75%).  
Loss rate reduction overall >75%
4. Do any project features maintain or restore structural components of the coastal ecosystem such as barrier islands, natural or artificial levee ridges, beach and lake rims, cheniers, etc.  
The project would restore/protect a lake shoreline and preserve portions of the critical East Orleans Landbridge.
5. What is the net impact of the project on critical and non-critical infrastructure?  
The project will also provide protection to critical infrastructure in New Orleans east including the hurricane protection levee and the nearby I-10 corridor.

6. To what extent does the project provide a synergistic effect with other approved and/or constructed restoration projects?

The project provides some synergy with other projects protecting the East Orleans Landbridge and nearby mapping units including projects at Bayou Chevee (PO-22), and on the Bayou Sauvage NWR.

**Identification of Potential Issues:**

- Rock shoreline protection projects historically require O&M.
- Area is in the vicinity of critical habitat for Gulf Sturgeon.

**Preliminary Construction Costs:**

Estimated construction cost with 25% contingency: approximately \$10.6 Million.

Estimated Fully Funded cost approximately: \$20.4 Million

**Preparers of Fact Sheet:**

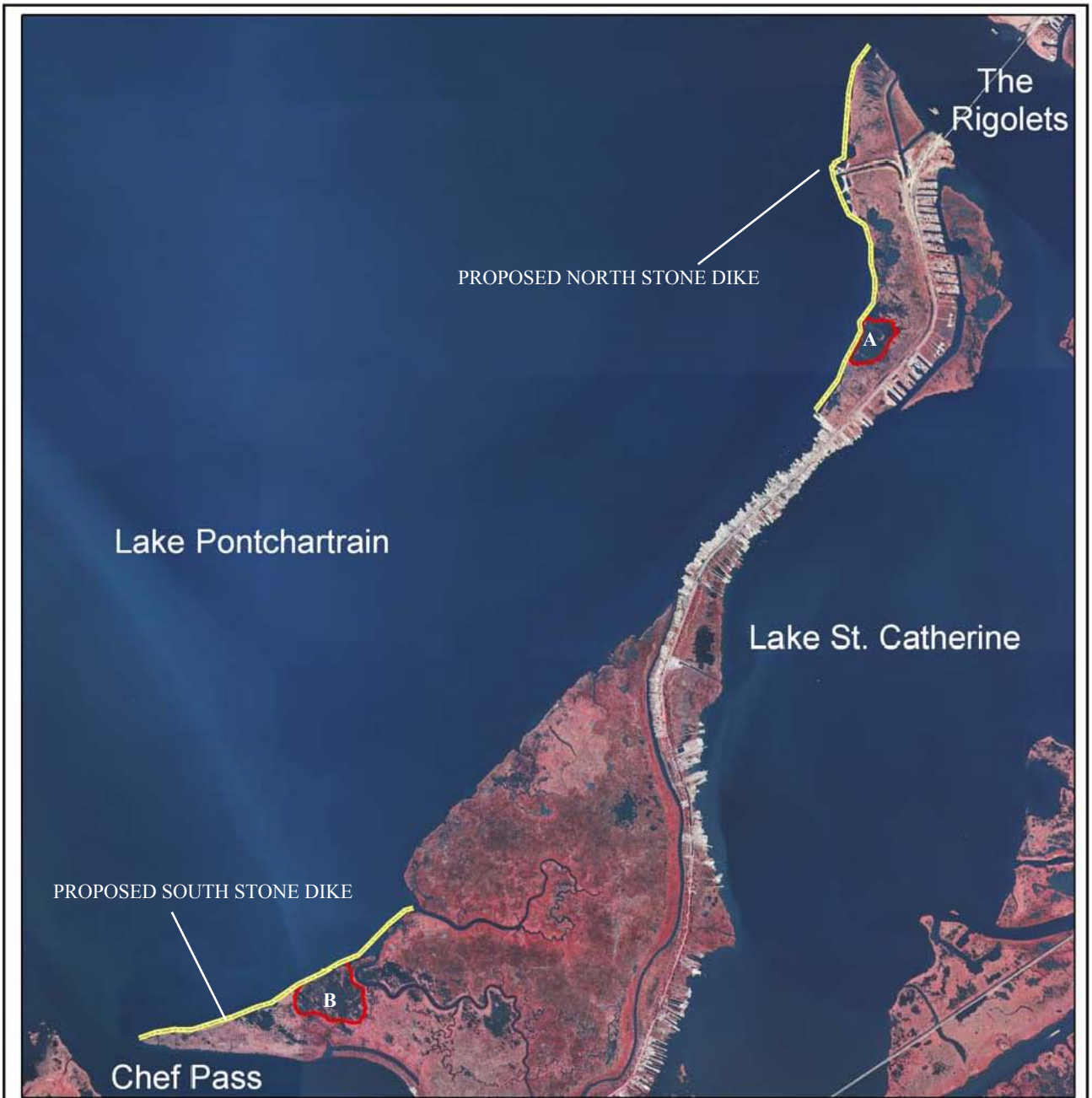
Mr. Leo Richardson, Lake Catherine Civic Association, [lfrichardson@cox.net](mailto:lfrichardson@cox.net)

Mr. John Lopez, Lake Pontchartrain Basin Foundation, [johnlopez@pobox.com](mailto:johnlopez@pobox.com)

Travis Creel, U.S. Army Corp of Engineers, [Travis.J.Creel@usace.army.mil](mailto:Travis.J.Creel@usace.army.mil)



Jason Binet, U.S. Army Corp of Engineers, [Jason.A.Binet@mvn02.usace.army.mil](mailto:Jason.A.Binet@mvn02.usace.army.mil)

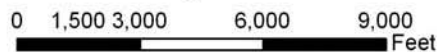
January 26, 2007



**Orleans Parish Candidate Project  
PPL 17 Orleans Landbridge  
Marsh Creation and Shoreline Protection**

**Legend**

-  Shoreline Protection
-  Marsh Creation



Map Produced By:  
U.S. Army Corps of Engineers  
New Orleans, La

Data Source:  
2005 DOQQ Aerial Photography  
Map Date: January 26, 2007  
Map ID: NewOrleansLandBridgeMap.mxd

## **Nominee Projects located in Region Two**

# **Red Pass Crevasses Project**

## PPL17 PROJECT NOMINEE FACT SHEET

March 5, 2007

### Project Name

Red Pass Crevasses

### Coast 2050 Strategy

Coastwide Strategy: Restore/sustain marshes

Regional Ecosystem Strategy #7: Continue building and maintaining delta splays

### Project Location:

Region 2, Mississippi River Basin, Plaquemines Parish, southwest of Venice

### Problem

Marshes on either side of Red Pass are rapidly deteriorating, likely due to a combination of reduced sediment input, high subsidence, and effects of oil and gas canal development. An opportunity exists to maximize land-building and marsh-maintenance by enlarging the several small crevasses connecting it to areas to the north and south.

### Proposed Project Features

Enlarge existing small crevasses, or construct new ones, to move freshwater, sediment, and nutrients into shallow open water areas to build new land, and sustain existing and new land.

### Goals

- Create 93 acres of emergent marsh over the project life
- Reduce the rate of loss of emergent wetlands by >75%
- Increase SAV cover in open water
- Increase the area of shallow water habitat in the project area.

### Preliminary Project Benefits:

- What is the total acreage benefited both directly and indirectly? **150 ac**
- How many acres of wetlands will be protected/created over the project life? **93 ac**
- What is the anticipated loss rate reduction throughout the area of direct benefits over the project life? **> 75%**
- Do any project features maintain or restore structural components of the coastal ecosystem such as barrier islands, natural or artificial levee ridges, beach and lake rims, cheniers, etc. **No**
- What is the net impact of the project on critical and non-critical infrastructure? **The project will have no impact on critical or non-critical infrastructure.**
- To what extent does the project provide a synergistic effect with other approved and/or constructed restoration projects? **The project will have no synergistic effects with other projects.**

### Identification of Potential Issues

- landrights,
- pipelines

**Preliminary Construction Costs:**

Construction +25% contingency = \$412,500

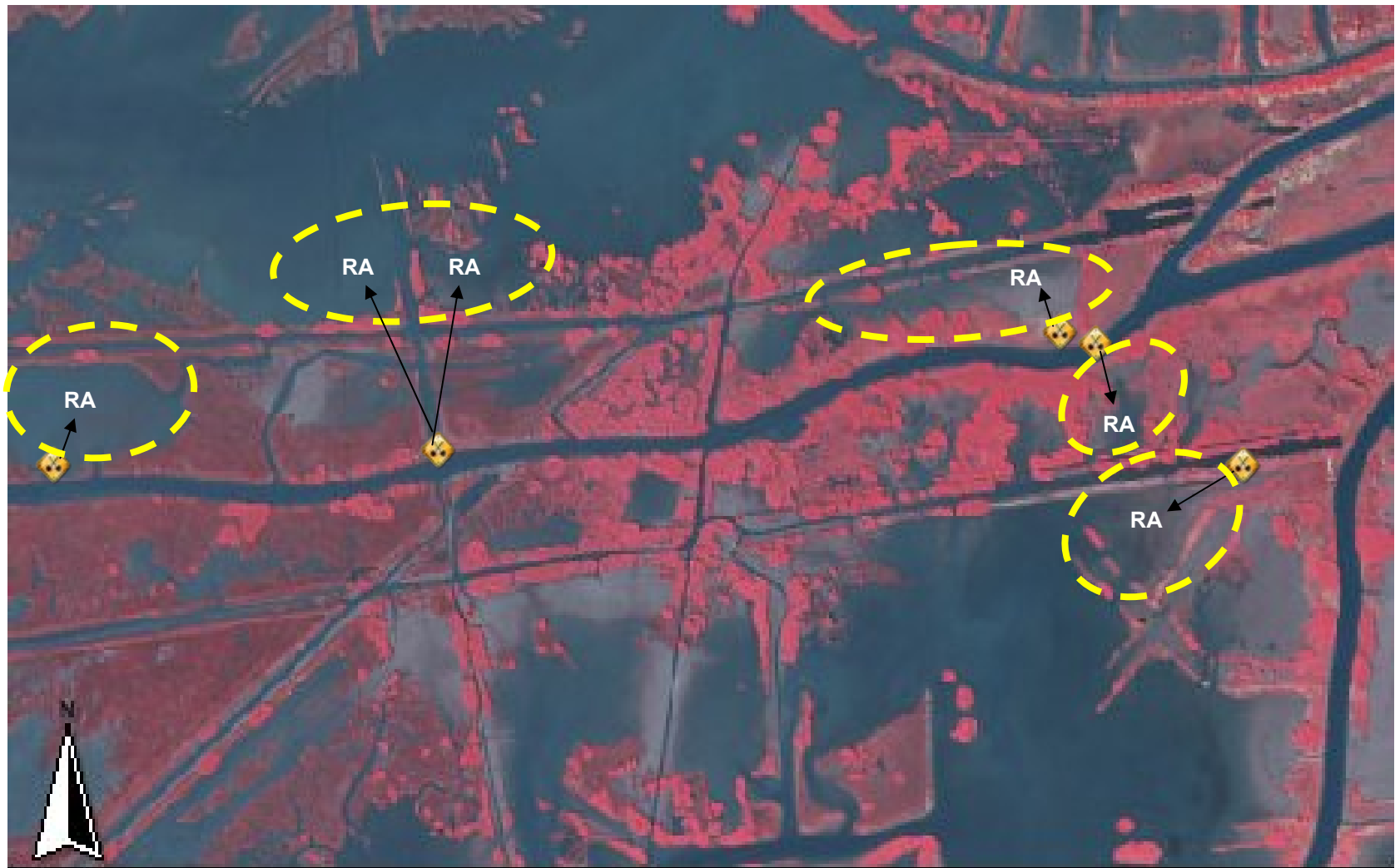
Estimated Fully Funded Cost = \$825,000

**Preparer of Fact Sheet**

Kenneth Teague, EPA, (214) 665-6687; [Teague.Kenneth@epa.gov](mailto:Teague.Kenneth@epa.gov)

Brad Crawford, EPA (214)665-7255; [Crawford.brad@epa.gov](mailto:Crawford.brad@epa.gov)



Chanda Littles, EPA (214)665-6604: [littles.chanda@epa.gov](mailto:littles.chanda@epa.gov)



Louisiana Department of Natural Resources

0  2619ft



-  - Crevasse Location
-  - Crevasse Splay Area
- RA - Receiving Area

**PPL 17 Proposed  
Red Pass Crevasses (REVISED)**



## **Pass a Loutre Restoration Project**

**PPL17 PROJECT NOMINEE FACT SHEET**  
**March 5, 2007**

**Project Name**

Pass a Loutre Restoration

**Coast 2050 Strategy**

Regional Strategy – Continue building and maintaining delta splays

**Project Location**

Region 2, Plaquemines Parish, Mississippi River Delta Basin, marshes north and south of Pass a Loutre on the Delta National Wildlife Refuge (NWR) and Pass a Loutre Wildlife Management Area (WMA).

**Problem**

Historically, Pass a Loutre was a major artery off the Mississippi River at Head of Passes. This pass carried sediments that created and maintained in excess of 120,000 acres of marsh. With the advent of hopper dredging to maintain the Mississippi River navigation channel, heavy sediments were dumped into Pass a Loutre to facilitate removal of the unwanted material. As a result, much of the historic Pass a Loutre channel has silted in and is now very shallow and narrow. The decreased channel size has much less capacity to carry fresh water and sediments and marshes historically nourished by the channel are now being starved and are subsiding at an alarming rate.

**Goals**

The goal of this project is to restore an important distributary of the Mississippi River so that it will once again create new wetlands and nourish existing marsh. Dredged material will create marsh immediately and the increased fresh water and sediment carrying capacity of the channel will create marsh over time and increase the abundance and diversity of submerged aquatic vegetation.

**Proposed Project Features**

Pass a Loutre would be dredged for approximately 6.5 miles from Head of Passes to just east of Southeast Pass to restore channel flow to historic levels. Approximately 6.0M yd<sup>3</sup> of material would be dredged and used to create approximately 465 acres of marsh on Delta NWR and Pass a Loutre WMA. Preliminary design includes a channel with a 300-ft bottom width and 30-ft depth. Containment dikes would be constructed where needed. Cleanout of some existing crevasses is also proposed.

**Preliminary Project Benefits**

*1) What is the total acreage benefited both directly and indirectly?* Approximately 465 acres of marsh would be created from initial channel construction. Indirect benefits would occur over approximately 30,000 acres of marsh and open water habitats as a result of increased freshwater and sediment delivery.

*2) How many acres of wetlands will be protected/created over the project life?* Using a 50% reduction of the 1983-1990 loss rate (-2.87%/yr) from the nearby Benneys Bay Diversion Project, approximately 348 acres of the 465 acres initially created would remain. It is estimated that only 30% (9,000ac) of the 30,000 acres benefited is marsh. It is assumed that a 20%

reduction in the background loss rate would occur. As a result, the project would achieve 629 net acres protected from increased delivery of fresh water and sediments and 348 net acres from the marsh creation feature. The total net acres protected/created over the project life would be between 977 acres. Land loss spreadsheets are provided.

3) *What is the anticipated loss rate reduction throughout the area of direct benefits over the project life (<25%, 25-49%, 50-74% and >75%)?* The assumed reduction in marsh loss over the entire project area would be <25%.

4) *Do any project features maintain or restore structural components of the coastal ecosystem such as barrier islands, natural or artificial levee ridges, beach and lake rims, cheniers, etc?* The project would help maintain several natural levee ridges. The project would introduce sediment along several passes that have been sediment starved for several decades and are subsiding.

5) *What is the net impact of the project on critical and non-critical infrastructure?* The project would reduce marsh loss and create new wetlands between South Pass and Pass a Loutre. Seven oil and gas companies have facilities and pipelines in this area which would benefit from an increase in marsh acreage. The loss of wetlands in this area exposes those facilities to open water wave energies resulting in expensive damages and oil spills. Protecting/creating wetlands in this area would also assist in reducing storm damages to oil and gas infrastructure and commercial development in nearby Venice, LA.

6) *To what extent does the project provide a synergistic effect with other approved and/or constructed restoration projects?* The project would provide a synergistic effect with the Delta Wide Crevasses Project (PPL6) which constructed several crevasses south of Pass a Loutre. Many of the crevasses constructed under that project depend on the sediment load delivered by Pass a Loutre. With Pass a Loutre restored, the much greater sediment carrying capacity will feed those crevasses and accelerate their marsh-building potential. This project would also have a synergistic effect with several other projects on the Mississippi River Delta – Venice Ponds Marsh Creation and Crevasses (PPL15), Spanish Pass Diversion (PPL13), Miss. River Sediment Trap (PPL12), Benneys Bay Diversion (PPL10), an LDWF crevasse project on Pass a Loutre, and several state mitigation projects that have been constructed on the WMA.

### **Identification of Potential Issues**

Several pipelines cross Pass a Loutre but should not significantly impact dredging activities. Impacts to the Mississippi River navigation channel would need to be investigated via modeling and other analyses.

### **Preliminary Construction Costs**

The construction cost including 25% contingency is approximately \$23,062,500.

The fully-funded cost range for this project is \$30M - \$35M.

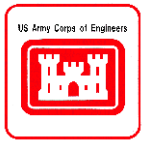
### **Preparer of Fact Sheet**

Kevin Roy, FWS, 337-291-3120 kevin\_roy@fws.gov

Keith O’Cain, COE, 504-862-2746

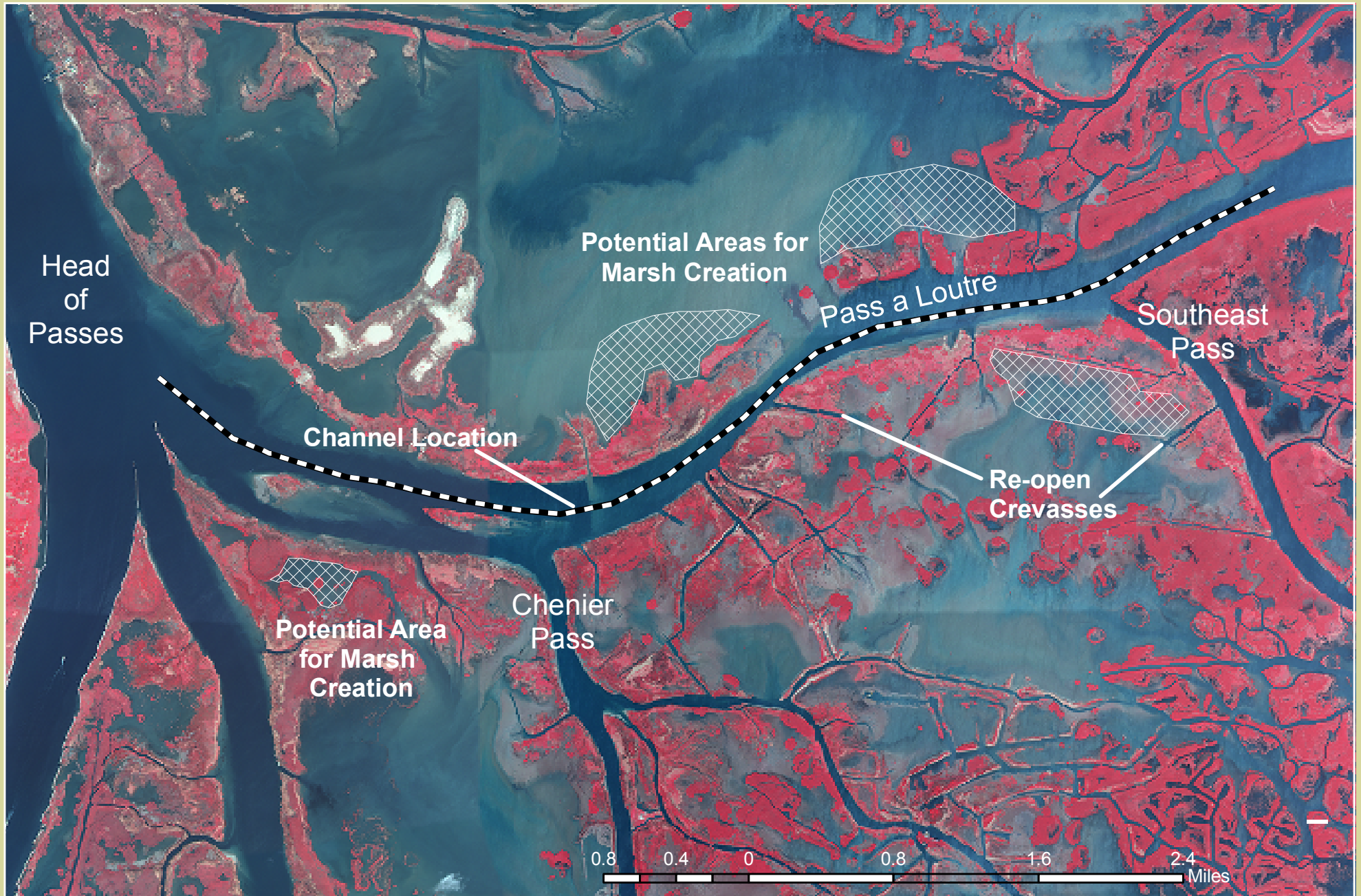
Melanie Goodman, COE, 504-862-1940, Melanie.L.Goodman@MVN02.usace.army.mil

Todd Baker, La. Dept. of Wildlife and Fisheries, 337-962-2992, tbaker@wlf.louisiana.gov



# PPL17 - Region 2 - Mississippi River Delta Basin

## Pass a Loutre Restoration



# **Bohemia Mississippi River Reintroduction Project**

## **PPL17 PROJECT NOMINEE FACT SHEET**

March 5, 2007

Prepared by: Environmental Protection Agency

### **Project Name:**

Bohemia Mississippi River Reintroduction

### **Coast 2050 Strategy:**

- Coastwide Strategy: Restore and sustain marshes
- Region 2 Regional Strategy: #7 Continue building and maintaining delta splays.
- #8 Construct most effective small diversions.

### **Project Location:**

Region 2, Breton Sound Basin, Plaquemines Parish, on the East bank of the Mississippi River approximately 6.5 miles upstream of the Bayou Lamoque diversion structures.

### **Problem:**

The area wetlands were cut off from the historic overbank flooding of the Mississippi River with the manmade improvements to the river channel. This has resulted in much less land being created here than would be created naturally.

### **Goals:**

- Create 442+ ac of marsh by natural deltaic growth
- Convert brackish marsh to fresh and intermediate marsh
- Increase SAV cover
- Increase shallow water habitat

### **Proposed Solutions:**

A 5000 cfs uncontrolled diversion to reintroduce Mississippi River water into the area wetlands.

### **Preliminary Project Benefits:**

- What is the total acreage benefited both directly and indirectly? 800 ac
- How many acres of wetlands will be protected/created over the project life? 442 ac
- What is the anticipated loss rate reduction throughout the area of direct benefits over the project life? >75%
- Do any project features maintain or restore structural components of the coastal ecosystem such as barrier islands, natural or artificial levee ridges, beach and lake rims, etc.? No.
- What is the net impact of the project on critical and non-critical infrastructure? The project would have a net positive impact on critical infrastructure (Mississippi River levee).
- To what extent does the project provide a synergistic effect with other approved and/or constructed restoration projects? The project provides a synergistic effect

with other approved or constructed restoration projects including the Caernarvon and the Bayou Lamoque diversions.

**Identification of Potential Issues:**

- 2/15/07 memo from Helen H. – No landrights impediments,
- one pipeline

**Preliminary Construction Costs:**

- Construction + 25% Contingency = \$3,100,000 Million
- Estimated Fully Funded Cost = \$6,200,000

**Preparer of Fact Sheet**

Kenneth Teague, EPA, (214) 665-6687; [Teague.Kenneth@epa.gov](mailto:Teague.Kenneth@epa.gov)

Brad Crawford, EPA, (214) 665-7255; [crawford.brad@epa.gov](mailto:crawford.brad@epa.gov)

# Bohemia Mississippi River Reintroduction





# **Caernarvon Outfall Management/ Lake Lery Shoreline Restoration Project**

**PPL17 PROJECT NOMINEE FACT SHEET**  
**February 28, 2007**

**Project Name**

Caernarvon Outfall Management/Lake Lery Shoreline Restoration

**Coast 2050 Strategy**

- Region 2 - Restore and Sustain Marshes via Managing Outfall of Existing Diversions
- Coastwide – Dedicated dredging for wetland creation.
- Coastwide – Maintenance of bay and lake shoreline integrity.
- Coastwide - Vegetative Plantings

**Project Location**

Region 2, Breton Sound Basin, St. Bernard and Plaquemines Parishes, Caernarvon mapping unit, north and south of Lake Lery.

**Problem**

1) According to USGS-NWRC mapping, much of the wetlands surrounding Lake Lery were heavily damaged along with the Lake Lery shoreline due to Hurricane Katrina. Wind/wave energy in large open water areas as well as the damaged shorelines caused by the storm may result in the expansion of Lake Lery and further loss of interior emergent vegetation.

2) Marshes to the north and east of Lake Lery have historically not benefited from the diversion as have those marshes to the south and west. It has been estimated that over 66% of the water from the diversion exits directly into Lake Lery via Bayou Mandeville, while over 33% is diverted into the marshes to the west (Monitoring Plan BS-03a). Those marshes to the east have been deteriorating from increased salinities and a lack of freshwater from the diversion. After Katrina the two canals that transported the limited amount of freshwater eastward have been completely blocked with debris to a point where there is virtually no fresh water reaching those marshes. Furthermore, these same marshes were severely damaged from the storm and with the lack of fresh water from the diversion it is unlikely that they will be restored without some assistance.

**Goals**

- Decrease the amount of river water flowing into Lake Lery via Bayou Mandeville by increasing the amount of river water flowing into the marshes east of Bayou Mandeville.
- Restore those sections of the Lake Lery shoreline that were severely impacted by Hurricane Katrina.
- Restore approximately 510 acres of emergent marsh through hydraulically dredging material from Lake Lery.

**Proposed Project Features**

1) Clean out a distributary channel to allow river water to flow into the marshes north of Lake Lery.

2) Dredge a conveyance channel from the Caernarvon outfall canal that would shunt a portion of the water to the east.

- 3) Constrict some existing distributary channels, while enlarging others, to allow river water to flow farther to the east.
- 4) If possible, install a low level sill to neck down the channel adjacent to the Caernarvon outfall canal.
- 5) Restore the southern shoreline of Lake Lery and plant the lakeward edge.
- 6) Create approximately 210 acres of interior marsh around the perimeter of Lake Lery and nourish approximately 300 acres of marsh along the southern shoreline of Lake Lery.

### **Preliminary Project Benefits**

- 1) The project would directly benefit approximately 510 acres of marsh through hydraulic dredging of Lake Lery and placing that material in shallow open water and broken marsh along the shoreline of Lake Lery. The project would also indirectly benefit approximately 16,000 acres of emergent marsh and shallow open water located east of Bayou Mandeville through the increased distribution of river water into that area.
- 2) The project would protect/create approximately 458 net acres in the project life.
- 3) The anticipated loss rate reduction over the project life would be 25-49%.
- 4) This project would restore the shoreline of Lake Lery which is a structural component of the coastal ecosystem.
- 5) This project would help protect a levee located north of Lake Lery.
- 6) This project would enhance the distribution of freshwater associated with the Caernarvon Freshwater Diversion Project and compliment the Caernarvon Freshwater Outfall Management Project (BS-03a)

### **Identification of Potential Issues**

- 1) There could be navigation issues associated with the jack-up barge company located on Hwy. 39, which is reportedly going out of business.

### **Preliminary Construction Costs**

The project construction cost including 25% contingency is approximately \$20,068,871. Total fully funded cost was calculated by multiplying the cost of each of the three categories of features that make up this project by the appropriate cost factor: Marsh Creation = \$14,321,329 or 71.36 % (1.35), Shoreline Protection = \$3,290,417 or 16.40% (2.20), Hydraulic Restoration = \$2,457,125 or 12.24% (1.90). The weighted cost factor is 1.55 for a fully-funded cost of \$31,106,750 and a fully-funded cost range of \$30M - \$35M.

### **Preparer of Fact Sheet**

Robert Dubois, USFWS, (337)291-3127, robert\_dubois@fws.gov  
Loland Broussard, NRCS, (337)291-3069, loland.broussard@la.usda.gov



# U.S. Fish & Wildlife Service - Natural Resource Conservation Service Caernarvon Outfall Management - Lake Lery Shoreline Restoration



# **West Point a la Hache Marsh Creation Project**

## **PPL17 PROJECT NOMINEE FACT SHEET**

March 5, 2007

Prepared by: Environmental Protection Agency

### **Project Name:**

West Pointe a la Hache Marsh Creation

### **Coast 2050 Strategy:**

- Coastwide: Dedicated dredging to create, restore, or protect wetlands
- Coastwide: Off-shore and riverine sand and sediment resources

### **Project Location:**

Region 2, Breton Sound Basin, Plaquemines Parish, in the outfall area of the West Pointe a la Hache siphon.

### **Problem:**

The West Pointe a la Hache area wetlands were cut off from the historic overbank flooding of the Mississippi River with the manmade improvements to the river channel. Without continued sediment input, marshes couldn't maintain elevation due to subsidence. In addition, oil and gas canals disrupted hydrology and facilitated saltwater intrusion.

### **Goals:**

- Convert approximately 475 ac of open water habitat to intermediate marsh.
- Maintain 373 ac of created marsh over the 20 year project life

### **Proposed Solutions:**

A 475 acre marsh creation/marsh nourishment project using sediments from the Mississippi River.

### **Preliminary Project Benefits:**

- 1) What is the total acreage benefited both directly and indirectly? 600 acres
- 2) How many acres of wetlands will be protected/created over the project life? 475 acres will be created initially, of which at least 373 acres is expected to remain throughout the project life.
- 3) What is the anticipated loss rate reduction throughout the area of direct benefits over the project life? 50-74% - Because of the influence of the West Point a la Hache Siphon, at least 373 acres would be expected to remain throughout the project life.
- 4) Do any project features maintain or restore structural components of the coastal ecosystem such as barrier islands, natural or artificial levee ridges, beach and lake rims, cheniers, etc? The created marsh will be located adjacent to the Grand Bayou ridge, thereby protecting the ridge from further deterioration.
- 5) What is the net impact of the project on critical and non-critical infrastructure? The created marsh will be located within 1.5 miles of the west bank hurricane protection levee

and adjacent to approximately 8400 feet of the local flood protection back levee, thereby helping to reduce storm effects while protecting the levees.

6) To what extent does the project provide a synergistic effect with other approved and/or constructed restoration projects? The project will be located in the outfall of the West Point a la Hache Siphon, and it will complement other efforts to establish / nourish marshes west of the Mississippi River – West Bay Sediment Diversion, Lake Hermitage Marsh Creation.

**Identification of Potential Issues**

- Pipelines
- Landrights

**Preliminary Construction Costs:**

- Construction +25% Contingency = \$18,018,000
- Estimated Fully Funded Cost = \$24,324,000

**Preparer of Fact Sheet**

Kenneth Teague, EPA, (214) 665-6687; [Teague.Kenneth@epa.gov](mailto:Teague.Kenneth@epa.gov)

Brad Crawford, EPA, (214) 665-7255; [crawford.brad@epa.gov](mailto:crawford.brad@epa.gov)

**Bayou Dupont Marsh Creation and Ridge Restoration Project**



**Final**  
**PPL17 PROJECT NOMINEE FACT SHEET**  
**3/5/07**

**Project Name:** Bayou Dupont Marsh Creation and Ridge Restoration

**Coast 2050 Strategy:**

Coastwide Strategy – Dedicated Dredging, to Create, Restore, or Protect Wetlands

**Project Location:**

Region 2, Barataria Basin, Jefferson Parish, adjacent to Bayou Dupont southeast of the Pen

**Problem:**

The project would create/restore marsh and ridge and re-establish a portion of Bayou Dupont. There is widespread historic and continued rapid land loss in the project area due to altered hydrology, wind erosion, and subsidence. The 1983 to 1990 loss rate for the Myrtle Grove Mapping Unit is  $-0.55\%/yr$ .

**Goals:**

What does the project hope to accomplish? Create and nourish marsh, restore a portion of the Bayou Dupont Ridge, restore a portion of Bayou Dupont, and provide a buffer for the non-Federal Plaquemines levee.

**Proposed Solutions:**

The project would create approximately 134 acres and nourish 34 acres of brackish marsh via dedicated dredging of sediment from the Mississippi River. Additionally, about 12 acres of ridge would be restored along Bayou Dupont by bucket dredging material from the bayou. Preliminarily, a portion of the southern shoreline of the bayou has been identified for this work. An alternative area along the north side of the bayou is also available if it is desirable to relocate the features to that side. The intent is to scale the overall direct acreage near 200 to 250 direct acres. Opportunities to optimize acres and feature location would be explored further if the project becomes a candidate. The entire ridge would be planted and approximately 50% of the created marsh would be planted with smooth cordgrass plugs.

**Preliminary Project Benefits:**

1) *What is the total acreage benefited both directly and indirectly?* Approximately 180 acres would be benefited both directly and indirectly.

2) *How many acres of wetlands will be protected/created over the project life?* Approximately 140 net acres of marsh and ridge would be protected/created over the 20-year project life.

3) *What is the anticipated loss rate reduction throughout the area of direct benefits over the project life (<25%, 25-49%, 50-74% and >75%)?* The anticipated loss rate reduction throughout the area of direct benefits over the project life is 50-74%.

4) *Do any project features maintain or restore structural components of the coastal ecosystem such as barrier islands, natural or artificial levee ridges, beach and lake rims, cheniers, etc?* The project features restore the structural integrity of a portion of Bayou Dupont.

5) *What is the net impact of the project on critical and non-critical infrastructure?* There is net impact of the project on non-critical oil and gas infrastructure and minor net impact on critical infrastructure (non-Federal levee).

6) To what extent does the project provide a synergistic effect with other approved and/or constructed restoration projects? The project would have synergy with previous small dredge projects.

**Identification of Potential Issues:**

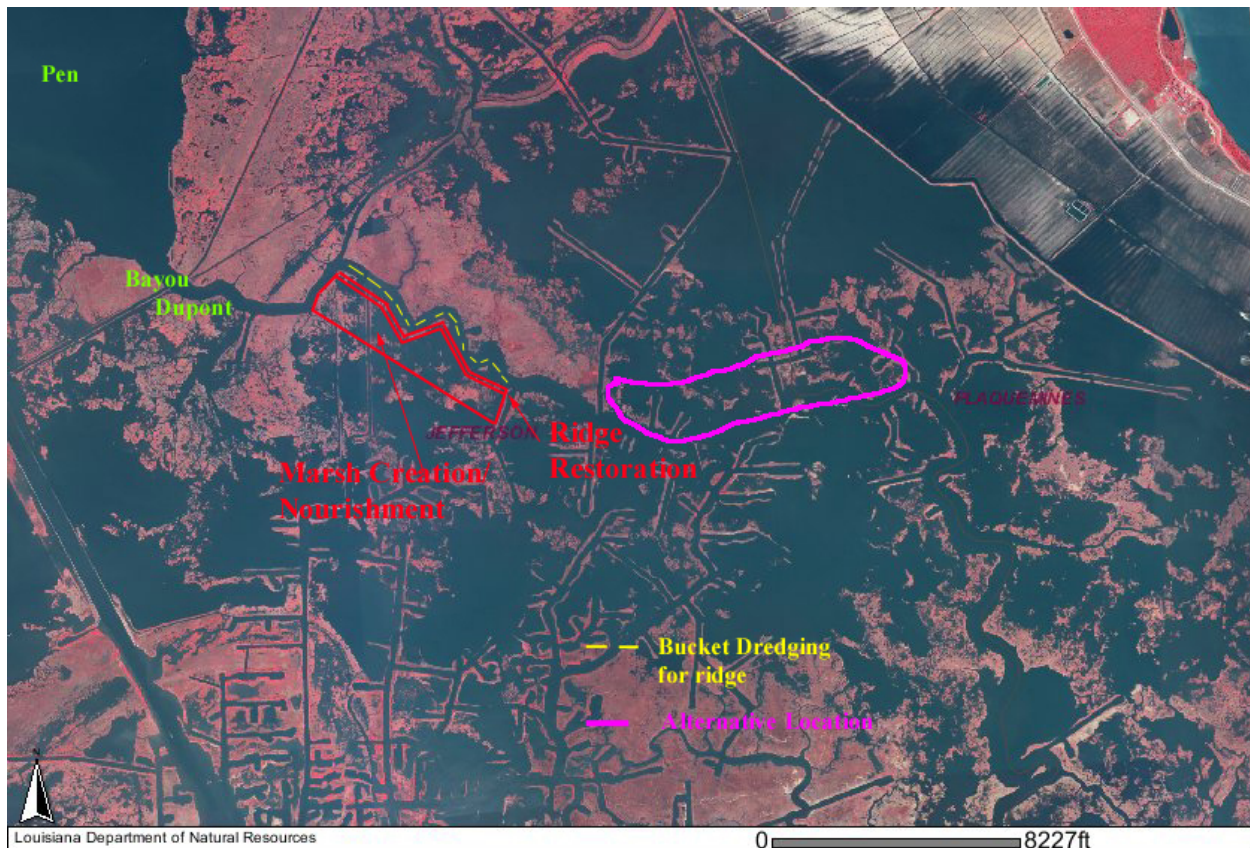
The proposed project has the following potential issues: landrights

**Preliminary Construction Costs:**

The estimated construction cost plus 25% contingency is approximately \$13.9M. The estimated fully-funded cost range is \$15M - \$20M for this project.

**Preparer(s) of Fact Sheet:**

Patrick Williams, National Marine Fisheries Service, 225/389-05087, ext 208;  
[patrick.Williams@noaa.gov](mailto:patrick.Williams@noaa.gov)



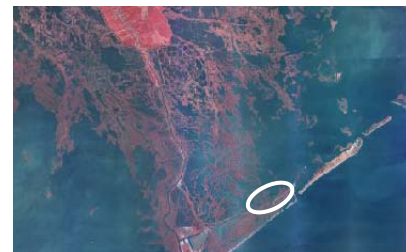
**Bayou Thunder Marsh Creation and Shoreline Protection Project**

## **Bayou Thunder Marsh Creation and Shoreline Protection**

**1 March 2007**

### **Coast 2050 Strategy:**

Regional strategy 16 - dedicated dredging to create marsh  
Caminada Bay mapping unit strategy 17 – maintain shoreline integrity.



### **Project Location:**

Region 2, Barataria Basin, Lafourche and Jefferson Parishes, Chenier Caminada, north of Hwy 1.

### **Problem:**

The marshes between Bays Ronflour and St. Honore and Bayou Thunder are experiencing both bay margin erosion and interior loss. Shoreline erosion estimates based on 1998 and 2005 imagery suggest that erosion rates in this area range from five feet/year to in excess of 50 feet/year in some areas. Additionally, review of aerial photography indicates that significant interior losses are occurring as well. Continued loss in this area will lead to adverse impacts to developed areas and Highway 1.

### **Goals:**

Create 110 acres and nourish an additional 195 acres of saline marsh. Provide shoreline protection to about 1,500 feet of Bay St. Honore shoreline to complement existing protection.

### **Proposed Solutions:**

Dedicated dredging from adjacent bays to create and nourish saline marsh. Extend breakwaters approximately 1,500 feet to northwest to provide shoreline protection.

### **Preliminary Project Benefits:**

The project will directly benefit 305 acres (footprint) and may provide some minor indirect benefits by preventing erosion of adjacent wetlands. It is estimated that about 120 net acres will be protected/created over the project life and that the project will reduce land loss rates by 50 – 75%. The project will protect bay rims and would have a net positive impact to critical and non-critical infrastructure, although no synergistic effects with other CWPPRA projects are anticipated.

### **Identification of Potential Issues:**

The proposed project has the following potential issues: oysters and utilities.

### **Preliminary Construction Costs:**

Estimated construction costs are **\$14,231,684** (with 25% contingencies) and the estimated fully funded cost range is \$15 - \$20 M.

### **Preparer(s) of Fact Sheet:**

Rachel Sweeney, NOAA, 225.389.0508 ext 206, rachel.sweeney@noaa.gov

**Bayou Thunder marsh creation and shoreline protection**



## **Nominee Projects located in Region Three**

# **Falgout Canal Terracing and Freshwater Enhancement Project**

## **PPL17 PROJECT NOMINEE FACT SHEET**

March 5, 2007

### **Project Name**

Falgout Canal Terracing and Freshwater Enhancement Project

### **Coast 2050 Strategy**

Region 3, Strategy 4: Enhance Atchafalaya River influence to Terrebonne marshes, excluding upper Penchant marshes.

### **Project Location**

Region 3, Terrebonne Basin, Terrebonne Parish, marshes adjacent to Falgout Canal between Bayou Dularge and Houma Navigation Canal.

### **Problem**

The marshes located in the project area have been hydrologically isolated from historical flow patterns by construction of various navigation channels, including the Houma Navigation Canal (HNC) and the Falgout Canal. Because of these barriers, the prevailing hydrologic influence is confined to southern tidal flows, which has resulted in elevated salinity and land loss in historically fresh and intermediate marshes. The project would expand the zone of Atchafalaya beneficial influence by modifying water flow patterns to reconnect these areas of need. The marshes are expected to benefit from reduced salinity and increased nutrients and sediment.

### **Goals**

The project will reestablish historical north to south flow in which the benefits of increasing freshwater, nutrients and sediment derived from the Atchafalaya River can be extended to marshes that have suffered loss due to hydrologic isolation and salinity intrusion. The project will also facilitate creation of new marsh by terracing large shallow open water areas receiving new freshwater flow.

### **Proposed Project Features**

Three sets of six 36" flapgated culverts will be installed through the road separating the Falgout Canal from the marshes to the south to introduce freshwater, nutrients and sediment. Approximately 100,000 linear feet of earthen terraces will be constructed in the broad shallow open water south of Falgout Canal to facilitate marsh development. The earthen terraces will be shaped into a bifurcated channel design to promote freshwater conveyance while providing terrace functions of marsh creation and reduction of fetch across broad open water areas. The bifurcated channel terrace design mimics natural delta formation.

### **Preliminary Project Benefits**

1) What is the total acreage benefited both directly and indirectly?

Approximately 62 acres will be created through the construction of earthen terraces. An additional 1500 acres of marsh and open water will benefit from the freshwater, nutrients, and sediment input.

2) How many acres of wetlands will be protected/created over the project life?

The 100,000 linear feet of terracing will be constructed within the large shallow open water areas and create approximately 62 acres of new marsh. Approximately 310 acres of marsh exists within the project area of approximately 1500 acres. The addition of nutrients and sediment is



expected to create/sustain an additional 35 acres of marsh for a total of 97 acres created/sustained over the 20 year life of the project.

3) What is the anticipated loss rate reduction throughout the area of direct benefits over the project life (<25%, 25-49%, 50-74% and >75%).  
>75%

4) Do any project features maintain or restore structural components of the coastal ecosystem such as barrier islands, natural or artificial levee ridges, beach and lake rims, cheniers, etc. The terrace field construction will reduce eroding wave fetch along the levee ridges of Bayou Dularge on the west and the Houma Navigation Canal on the east side of the project.

5) What is the net impact of the project on critical and non-critical infrastructure?  
The project will protect the parish road north of the project area from wave erosion as well as provide some hurricane protection through tidal surge abatement.

6) To what extent does the project provide a synergistic effect with other approved and/or constructed restoration projects?  
None identified.

#### **Identification of Potential Issues**

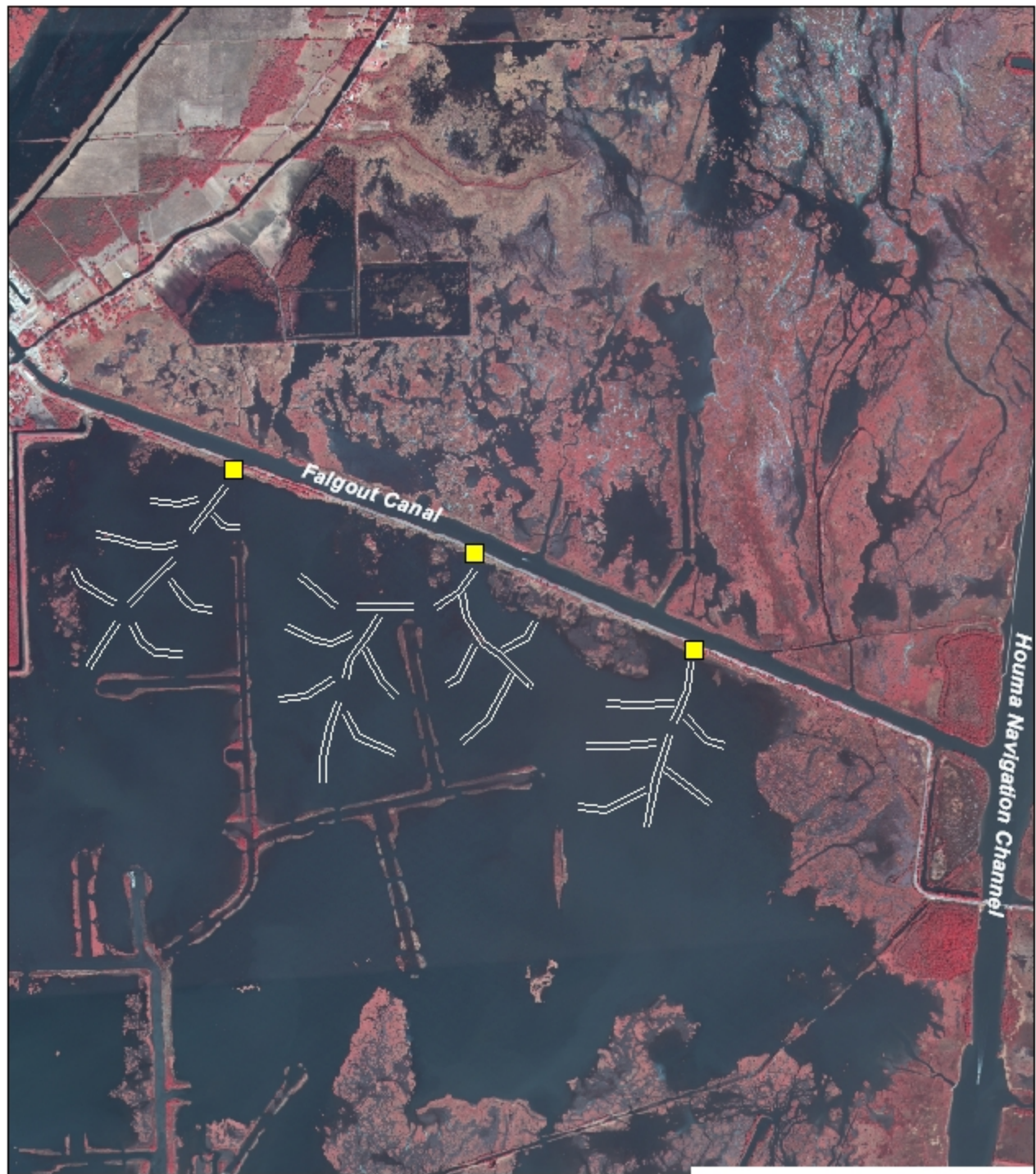
The proposed project has the following potential issues: Landrights and O&M.

#### **Preliminary Construction Costs**



The construction cost plus contingencies for this project is approximately \$3.5 million. The estimated fully funded cost range is \$5 - \$10 million.

#### **Preparer of Fact Sheet**

Ron Boustany, NRCS, (337) 291-3067, ron.boustany@la.usda.gov



**Legend**

-  Culvert
-  Terraces



Falgout Canal Terracing  
and Freshwater Introduction  
Terrebonne Parish, LA  
PPL-17



# **Beach and Black Barrier Marsh Restoration – East Island Project**

**PPL17 PROJECT NOMINEE FACT SHEET**  
**Beach and Back Barrier Marsh Restoration - East Island**  
**5 March 2007**  
**Prepared by EPA Region 6**

**Project Name:** Beach and Back Barrier Marsh Restoration – East Island

**Coast 2050 Strategy:** This proposed barrier island/marsh restoration project demonstrates one 2050 strategic goal – assure vertical accumulation to achieve sustainability; three coastwide common strategies: (restore/maintain barrier islands; maintain shoreline integrity; and utilize offshore sand and sediment resources); and one regional ecosystem strategy (construct interior islands and/or reefs to protect bay/lake shoreline and/or to restore hydrology, restore and maintain the barrier islands and Gulf shorelines such as Isle Dernieres, Timbalier barrier island chains, Marsh Island, Point au Fer and Cheniere au Tigre (including back barrier beaches).

**Project Location:** Coast 2050 Region 3, Terrebonne Basin, Terrebonne Parish. It is in the Terrebonne mapping unit. This barrier island is part of the Isles Dernieres and the project area is located approximately 38 miles south of Houma, LA.

**Problem:** Barrier islands are the first line of defense against storm surge and protect the interior wetlands and infrastructure from open ocean wave effects. From 1887 to 2002 the documented shoreline change for East Island was a loss of 17 feet per year (Connor et al. 2004). A breach on the eastern end of East Island that developed in 2005, increased to approximately 4,000 feet due to Hurricanes Katrina and Rita subjecting East Island to sustained wave action. Although the New Cut restoration (TE-37) CWPPRA project is under construction, it does not address the breach. The TE-37 project also does not provide for extensive beach and back barrier marsh restoration on the eastern end of East Island. This easternmost area sustains considerable wave action and material movement not only on the Gulf shore, but also on the backside of the island and fortification is needed.

**Goals:** The project goals are:

- 1) Add sand into this sand-starved environment;
- 2) extend the life of this barrier island by increasing its width;
- 3) create approximately 200 acres of intertidal marsh using new dredged material;
- 4) provide a back barrier platform to enable successful island migration; and,
- 5) protect the Terrebonne estuary and vegetated wetlands against the direct exposure to the Gulf of Mexico.

The overall project objectives are to fortify and extend the life of this barrier island and capitalize on the success of previous CWPPRA barrier island restoration projects.

**Proposed Solution:** The 2003 CWPPRA Adaptive Management Assessment of Five Barrier Island Restoration Projects in Louisiana reviewed Raccoon Island (TE-29), Whiskey Island (TE-27), Trinity Island (TE-24), East Island (TE-20), and East Timbalier (TE-25/30). This report states, “hydraulic fill barrier island restoration projects were more effective in increasing the survivability of these islands than the use of hard structures” (Penland et al. 2003). Proposed project features consist of two components:

unconfined placement of dredged material extending the width of the back barrier marsh of East Island; and,  
unconfined placement of beach fill on East Island.

Dredged material will be used to increase the width of the island in order to provide a suitable platform to work with the natural migration of the islands and create additional back barrier marsh. Substantial economic savings in engineering and design can result from utilizing the data gathered for the New Cut restoration project. For example, the Wine Island Pass offshore borrow area, the source recently identified for the TE-37 project, has been characterized and sufficient and suitable material is available for this proposed project after completing the New Cut work. Approximately 5.4 MCY of material is available with only 2.5 expected to be used in constructing TE-37. The wave modeling performed in association with the New Cut project is still applicable. Availability of the geotechnical investigation and modeling results is expected to save approximately \$500,000 in the engineering and design (Phase I) costs and more importantly, expedite project design efforts.

**Preliminary Project Benefits:**

- 1) The total acreage benefited directly and indirectly is approximately 400 acres.
- 2) 200 acres of wetlands will be created initially, of which approximately 80 acres (40%), are expected to remain throughout the project life.
- 3) The anticipated loss rate reduction throughout the area of direct benefits over the project life is estimated to be <25%.
- 4) This project restores East Island, part of the Isle Dernieres barrier island chain, key structural components of the coastal ecosystem.
- 5) The project is expected to have a net positive impact on critical and non-critical infrastructure.
- 6) The project will provide synergistic effects with other CWPPRA completed restoration projects, namely:
  - TE-20 Isles Dernieres restoration, East Island completed in 1999;
  - TE-24 Isles Dernieres restoration Trinity Island completed in 1999; and,
  - TE-37 New Cut restoration, currently under construction.

**Identification of Potential Issues:** The proposed project has the following potential issue: Piping Plover habitat. Coordination with U.S. Fish and Wildlife Service will be necessary during the project design phase to avoid and/or mitigate impacts.

**Preliminary Construction Costs:**

Estimated Construction Cost + 25% contingency = \$ 16,602,000  
Estimated Fully Funded Cost = \$21,583,000

**Preparers of Fact Sheet:**

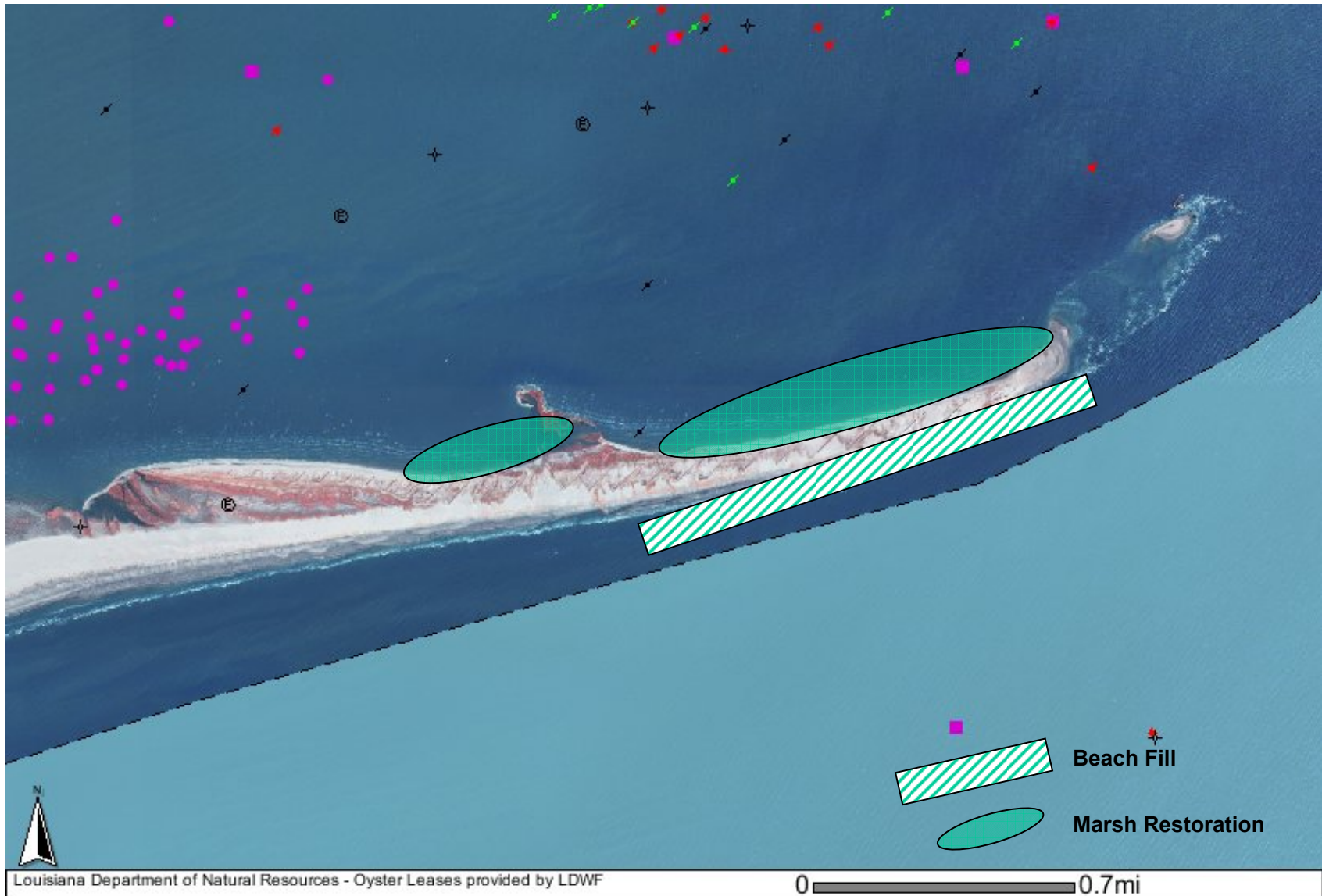
Patricia A. Taylor, P.E., EPA Region 6, (214) 665-6403  
Kenneth Teague, EPA Region 6, (214) 665-6687

**References:**

(Connor et al. 2004) Connor, Jr., P.F.; S. Penland; A.D. Beall; M. A. Kulp; S. Fearnley, S. J. Williams; and A. H. Sallenger, Jr. 2004. Long-term Shoreline Change History of Louisiana's Gulf Shoreline: 1880's to 2002. Pontchartrain Institute for Environmental Sciences. PIES\_CRL Technical Report Series 04001.

(Penland et al. 2003) Penland, S.; Conner, P.; Cretini, F.; and Westphal, K. (Penland et al.) (2003) CWPPRA Adaptive Management: Assessment of Five Barrier Island Restoration Projects in Louisiana. Pontchartrain Institute of Environmental Sciences, University of New Orleans, New Orleans, Louisiana.

# Beach and Marsh Restoration East Island



# **Southeast Lake Boudreaux Marsh Creation and Terracing Project**



**PPL17 PROJECT NOMINEE FACT SHEET- Revised**  
**February 21, 2007**

**Project Name:**

Southeast Lake Boudreaux Marsh Creation and Terracing Project

**Coast 2050 Strategy:**

Coastwide

Terracing and Dedicated Dredging, to Create, Restore, or Protect Wetlands

Regional

Dedicated delivery and/or beneficial use of sediment for marsh building by any feasible means

Boudreaux Mapping Unit

Establish and Protect Ridge Function and Beneficial Use of Dredged Material

**Project Location:**

Region 3, Terrebonne Basin, Boudreaux Mapping Unit, southeast Lake Boudreau

**Problem:**

The interior marshes of Terrebonne Parish have experienced tremendous 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 marshes has exposed significant infrastructure to open water conditions, and has made the area less suitable for fisheries and wildlife. The proposed project would re-establish lost marsh via placement of dredged sediment and terracing. The project would provide direct protection to the Petite Caillou Ridge and significant infrastructure including LA Hwy 56, which is currently subjected to wave energy entering from Lake Boudreaux. The 1983 to 1990 loss rate of the Boudreaux mapping unit is 2.0%/yr, with a subsidence rate of 1.1 to 2.0 ft/century. Loss rates based on newer analyses of infrared photography and satellite imagery indicate rapid land loss resulting predominantly from subsidence.

**Goals:**

Project goals include 1) creating emergent marsh and associated edge habitat, 2) reduce the wave erosion impacting the Petite Caillou ridge, and 3) constructing terraces and secondarily promote conditions more conducive to the colonization of submerged aquatic vegetation (SAV) than presently exist.

**Proposed Solutions:**

The project consists of both marsh creation and terracing by dedicated dredging to create habitat and provide buffer protection to the Petite Caillou Ridge and LA Hwy 56. Approximately 250 acres of intertidal brackish marsh will be created using material from Lake Boudreaux. In addition, approximately 30,000 linear feet of earthen terraces (3 ft height, 10 ft crown with 1:5 slopes) will be constructed with a marsh buggy within the shallower water bodies flanking the existing marshes. Upon completion, the constructed areas will be vegetated with indigenous marsh species to predominantly include *Spartina alterniflora*.

**Preliminary Project Benefits:**

1) *What is the total acreage benefited both directly and indirectly?*

500 acres will be benefited from this project, equally divided between the marsh creation and terrace field. Assume approximately 250 feet between terraces.

2) *How many acres of wetlands will be protected/created over the project life?*

230 acres. Please see attached land loss spreadsheet.

3) *What is the anticipated loss rate reduction throughout the area of direct benefits over the project life (<25%, 25-49%, 50-74% and >75%).*

In concurrence with the Environmental Working Group, anticipated reduction of the background loss rate is 50-74% for marsh creation and terracing.

4) *Do any project features maintain or restore structural components of the coastal ecosystem such as barrier islands, natural or artificial levee ridges, beach and lake rims, cheniers, etc.*

Yes. The project would help re-establish part of the natural lake rim of Lake Boudreaux, as well as help maintain the structural framework function of the Bayou Petite Caillou Ridge.

5) *What is the net impact of the project on critical and non-critical infrastructure?*

The project would provide substantial protection to critical infrastructure along the Bayou Petite Caillou ridge that contains LA Hwy 56. In addition, substantial benefits to non-critical infrastructure including camps, residences, and oil and gas infrastructure are anticipated.

6) *To what extent does the project provide a synergistic effect with other approved and/or constructed restoration projects?*

This project would provide a synergistic effect with the Madison Bay project that was approved for Phase 1 under PPL-16. The projects in combination would help secure the Bayou Terrebonne and Bayou Petite Caillou ridges, LA Hwy 56, and other commercial and private infrastructure. In addition, the projects together would stabilize and help prevent the possible coalescence of Lake Boudreaux with Terrebonne Bay.

#### **Identification of Potential Issues:**

In speaking with the Parish, the major landowners are in support of this project. There are no oyster leases in either the potential borrow area or disposal area. There are a couple wells and a few pipelines that will require landrights coordination.

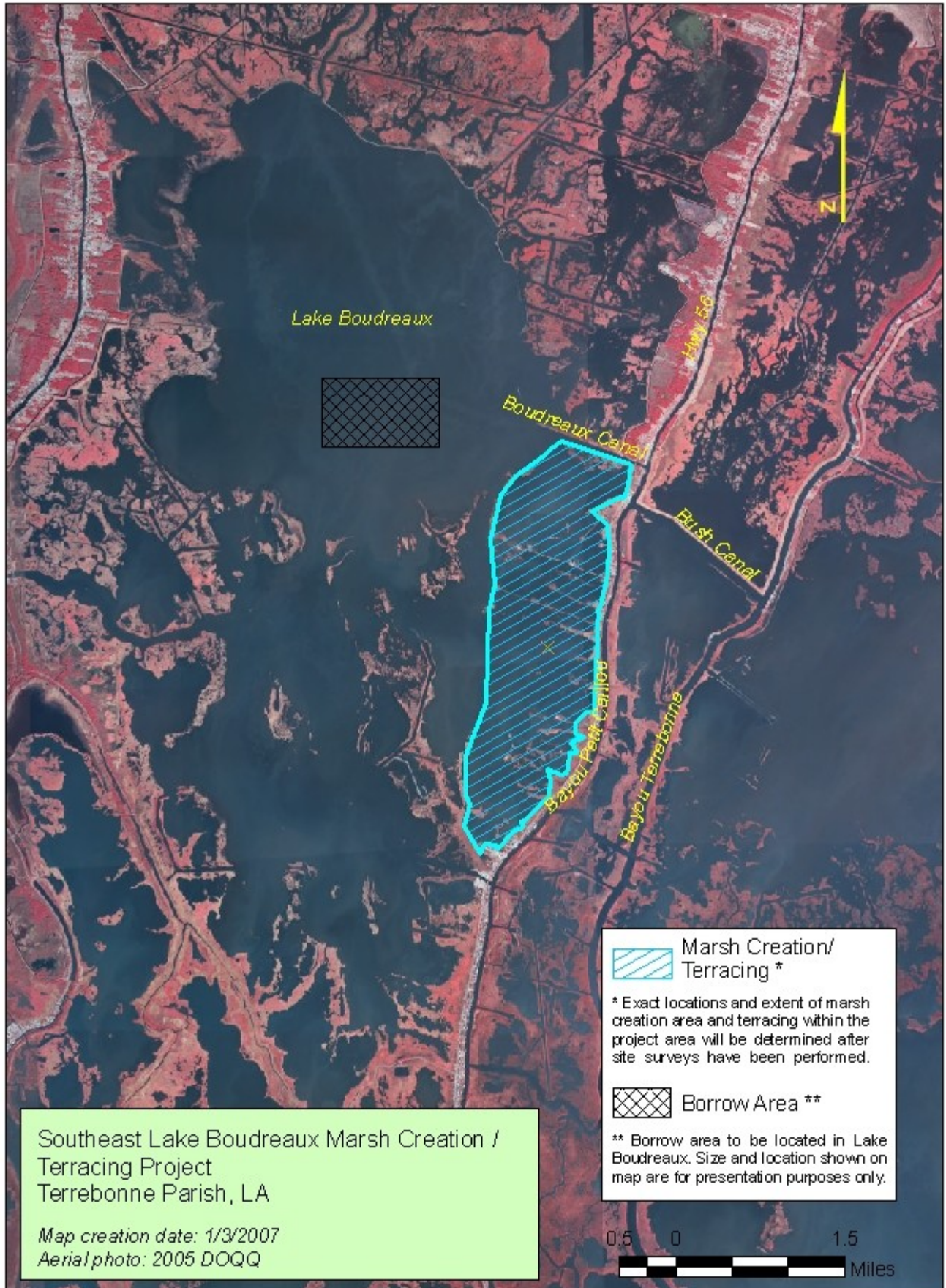
#### **Preliminary Construction Costs:**

Total construction costs including marsh creation, earthen terracing, vegetative plantings, mobilization, and 25% contingency is estimated at \$14,042,000. The Estimated Fully Funded cost is \$15 M - \$20 M.

#### **Preparer(s) of Fact Sheet:**

Cheryl Brodnax, NMFS, (225) 578-7923, [cheryl.brodnax@noaa.gov](mailto:cheryl.brodnax@noaa.gov)

Daniel Dearmond, LDNR, (985) 449-5103, [danield@dnr.state.la.us](mailto:danield@dnr.state.la.us)



Lake Boudreaux



Boudreaux Canal


Bayou 50

Blush Canal


Bayou Petit-Cajon

Bayou Terrebonne



 Marsh Creation/  
Terracing \*

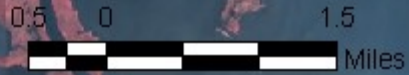
\* Exact locations and extent of marsh creation area and terracing within the project area will be determined after site surveys have been performed.

 Borrow Area \*\*

\*\* Borrow area to be located in Lake Boudreaux. Size and location shown on map are for presentation purposes only.

Southeast Lake Boudreaux Marsh Creation /  
Terracing Project  
Terrebonne Parish, LA

Map creation date: 1/3/2007  
Aerial photo: 2005 DOQQ



# **East Atchafalaya Bay Sediment Trapping Project**

# PPL17 PROJECT NOMINEE FACT SHEET

March 5, 2007

## **Project Name**

East Atchafalaya Bay Sediment Trapping Project

## **Coast 2050 Strategy**

Region 3 - 2. Increase deltaic land building where feasible; 12. Maintain shoreline integrity and stabilize critical areas of Atchafalaya Bay shoreline.

## **Project Location**

Region 3, Atchafalaya Basin, St. Mary/Terrebonne Parish, NE portion of Atchafalaya Bay adjacent to Palmetto Bayou.

## **Problem**

Delta development in the East Atchafalaya Bay has been slow due to the high energy environment and finer sediment. However, development may be rapidly induced with assistance of a sediment trapping mechanism. The shoreline extending from Plum Island Point to Creole Bayou continues to erode at approximately 11 feet per year (USGS 2004). Vast freshwater floating marsh habitat located behind the existing shoreline is increasingly becoming prone to storms and amplified tidal influences. Enhancement of delta development in this area will rapidly create new marsh, stabilize the deteriorating shoreline, and protect existing marsh that has been increasingly vulnerable to the energies of the open bay system.

## **Goals**

The goals of the project are to 1) reduce shoreline erosion, 2) establish submerged aquatic vegetation and emergent marsh within the terraced area, and 3) encourage expanded delta development.

## **Proposed Solution**

Construct approximately 120,000 linear feet of earthen terraces in the East Atchafalaya Bay extending out from Palmetto Bayou and Plumb Bayou into the bay. The terrace construction will consist of a bifurcated channel design to both direct flows and mimic deltaic formation.

## **Preliminary Project Benefits**

- 1) What is the total acreage benefited both directly and indirectly?  
Approximately 118 acres of marsh will be created with the terrace construction.
- 2) How many acres of wetlands will be protected/created over the project life?  
Initial construction of 118 acres of marsh will be constructed in terraces that will expand to 142 acres (20% increase) by TY20.
- 3) What is the anticipated loss rate reduction throughout the area of direct benefits over the project life (<25%, 25-49%, 50-74% and >75%).  
50-74%
- 4) Do any project features maintain or restore structural components of the coastal ecosystem such as barrier islands, natural or artificial levee ridges, beach and lake rims, cheniers, etc.  
Atchafalaya Bay rim

5) What is the net impact of the project on critical and non-critical infrastructure?

None identified

6) To what extent does the project provide a synergistic effect with other approved and/or constructed restoration projects?

None identified.

**Identification of Potential Issues**

The proposed project has potential flowline issues.

**Preliminary Construction Costs**

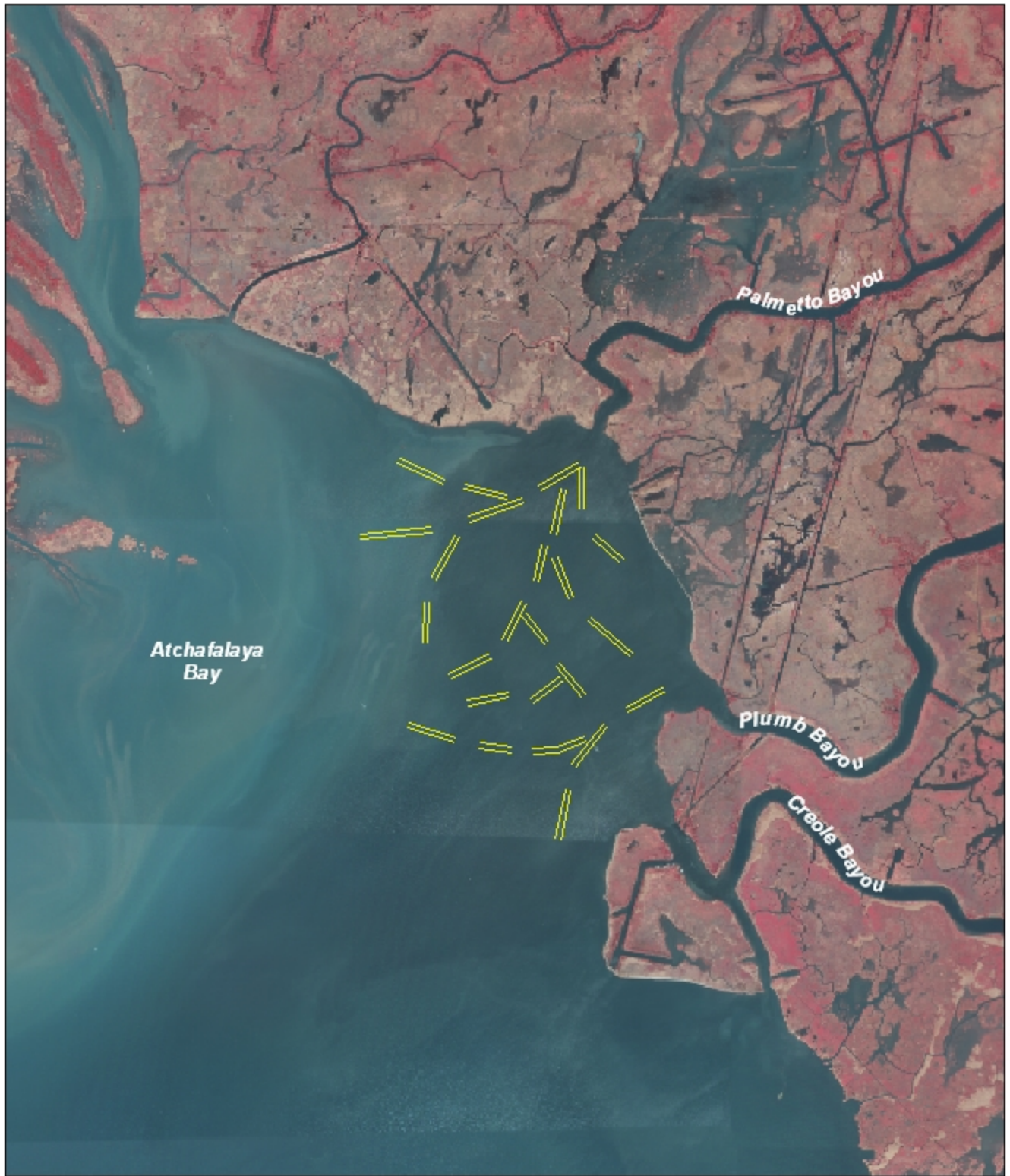
The construction cost plus contingencies for this project is approximately \$3.6 million. The estimated fully funded cost range is \$5 - \$10 million.

**Preparer of Fact Sheet:**

Ron Boustany, NRCS, (337) 291-3067, [ron.boustany@la.usda.gov](mailto:ron.boustany@la.usda.gov)

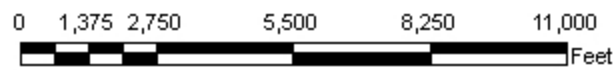
Loland Broussard, NRCS, (337) 291-3060, [loland.broussard@la.usda.gov](mailto:loland.broussard@la.usda.gov)

Mike Carloss, LDWF, (337) 373-0032, [mcarloss@wlf.louisiana.gov](mailto:mcarloss@wlf.louisiana.gov)



**Legend**

== Terraces



East Atchafalaya Bay  
Sediment Trapping  
St. Mary Parish, Louisiana  
PPL-17

# **Point Chevreuil Shoreline Protection Project**



## PPL17 PROJECT NOMINEE FACT SHEET

March 1, 2007

### Project Name

Point Chevreuil Shoreline Protection

### Coast 2050 Strategy

Regional: #10. Protect, restore and maintain ridge functions; #11. Maintain shoreline integrity and stabilize critical shoreline areas.

Coastwide: Maintenance of gulf, bay and lake shoreline integrity; maintain, protect or restore ridge functions.

Mapping Unit: East Cote Blanche Bay (73) - Protect Bay/Lake Shorelines  
Wax Lake Wetlands (60) - Protect Bay/Lake Shorelines

### Project Location:

The project is located in Region 3, Atchafalaya River Basin, St. Mary Parish, along the southeastern shoreline of East Cote Blanche Bay, around Point Chevreuil, and the northwestern shoreline of Atchafalaya Bay.

### Problem:

Eroding shoreline caused by the open water fetch and resulting wave energy from East Cote Blanche and Atchafalaya Bays. The retreating shoreline has resulted in a substantial loss of emergent wetlands and critical habitat used by a multitude of wildlife and fish species. Project features will protect the natural ridge functions of the Bayou Sale Ridge and protect the adjacent marshes. Shoreline erosion rates have been estimated at 13.5 LF/year (USGS 2003).

### Goals:

Reduce and/or reverse shoreline erosion rates and protect natural ridge and marsh habitat as well as maintaining the existing hydrology of the area by preventing the Atchafalaya Bay shoreline from intercepting an oilfield and pipeline canal. The ridge and marsh area provides important habitat for black bears, neo-tropical migrants, wintering migratory waterfowl, etc.

### Proposed Solutions:

Construction of a foreshore rock dike or rock revetment parallel to the existing eastern shoreline of East Cote Blanche Bay, from Bayou Sale southward to Point Chevreuil and the northern shoreline of Atchafalaya Bay from Point Chevreuil eastward to an existing pipeline crossing. The linear footage of shoreline is approximately 20,000 linear feet (~3.8 miles). It is possible that marsh can be created with the fill material from dredging of an access channel to accommodate construction equipment, where needed. This created area will be from the existing shoreline out to the rock dike.

### Preliminary Project Benefits:

1) *What is the total acreage benefited both directly and indirectly?* The proposed project would directly benefit approximately 184 acres which includes 124 acres of abating the annual shoreline loss of 13.5 ft/yr and 60 acres of marsh creation behind the shore protection. Indirectly, approximately 676 acres of intermediate marshes could benefit by preventing the breaching of an oilfield and pipeline canal along the north shore of Atchafalaya Bay.

2) *How many acres of wetlands will be protected/created over the project life?* Approximately 178 acres would remain at the end of the project life. The shoreline protection component should stop the average erosion rate of 13.5 feet per year and protect 124 acres. Dredge material would create 60 acres behind the shoreline protection, of which 54 acres should remain after 20 years due to a low interior wetland loss rate.

3) *What is the anticipated loss rate reduction throughout the area of direct benefits over the project life?* Shoreline protection will be provided by some form of armored structure which, when properly designed and installed, has proven to reduce erosion rates by 100%. Therefore, the anticipated loss rate reduction throughout the area of direct benefits over the project life should exceed 75%.

4) *Do any project features maintain or restore structural components of the coastal ecosystem such as barrier islands, natural or artificial levee ridges, beach and lake rims, cheniers, etc?* Project features will provide protection to and maintain the small remnant of natural ridge/chenier function that currently exists along the eastern bank of the once-defined Bayou Sale channel.

5) *What is the net impact of the project on critical and non-critical infrastructure?* The project would prevent the breaching and impending tidal exchange of an oilfield and pipeline canal with Atchafalaya Bay.

6) *To what extent does the project provide a synergistic effect with other approved and/or constructed restoration projects?* The project will have an important synergistic effect with the TV-20 Bayou Sale CWPPRA-approved Project by extending similar benefits to the southern most extent of the East Cote Blanche Bay shoreline.

#### **Identification of Potential Issues:**

The only significant potential issue expected to impact project implementation is the possible presence of flow lines. Oilfield activity maps provided by USGS, DNR, and CEI for the TV-20 Bayou Sale Project indicate there is only 1 flow line and 1 pipeline (in the same channel) running north and south at the eastern terminus of the project along Atchafalaya Bay. The marsh creation component of the project will be designed such that created wetlands will not encroach on the existing shoreline thereby avoiding any reclamation issues. Adjacent landowners have provided letters acknowledging full support of the project.

As a result of the CWPPRA Joint Workgroup Meeting held on March 1, 2007, the following potential issues were flagged:

*Land Rights: Due to potential reclamation concern by DNR Real Estate.*

*O&M: Due to rock riprap being used as the primary shoreline protection component.*

#### **Preliminary Construction Costs:**

The construction cost plus contingencies for this project is approximately \$13.9 million. The estimated fully funded cost range is \$20 - \$25 million.

#### **Preparer(s) of Fact Sheet:**

Loland Broussard/NRCS/ (337) 291-3060 / [loland.broussard@la.usda.gov](mailto:loland.broussard@la.usda.gov)

Charles Stemmans/NRCS/ (337) 369-6623 / [charles.stemmans@la.usda.gov](mailto:charles.stemmans@la.usda.gov)

# Point Chevreuil Shoreline Protection St Mary Parish, Louisiana



# **Vermilion Bay Shoreline Protection and Marsh Creation Project**

# PPL17 PROJECT NOMINEE FACT SHEET

3/5/2007

## Project Name

Vermilion Bay Shoreline Protection and Marsh Creation 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 Bay extending 1.5 miles west of Avery Canal

## Problem

The TV-13a Oak/Avery Hydrologic Restoration project included 5.1 miles of vegetative plants along the north Vermilion Bay shoreline between Oaks and Avery Canals. The plantings have been highly successful in reducing the rate of shoreline erosion by capturing and accreting sediments from the Atchafalaya River, proving quite resilient in the wake of two major hurricanes – Lili and Rita. However, a 1-mile stretch just west of Avery Canal has remained a problem because a preexisting shoreline breach that has eroded beyond the natural lake rim, into organic interior marshes, and has proven too unstable for plantings alone. To complicate matters, the breach has broken through into a location keyway canal and threatens to undermine the remaining lake rim and a vast marsh complex. As a result, the lake rim will require reconstruction using some form of shoreline protection.

## Goals

The project will repair 1.5 miles of lake rim and complete the restoration of over 10 miles of north Vermilion Bay shoreline by repairing a breach into the interior marsh that threatens to undermine a much broader area.

## Proposed Solutions/Project Features

The project calls for reestablishing lake rim function by constructing approximately 7,775 linear feet of wave dampening structure consisting of rock, sheet piles, or other method determined most feasible through further investigation. The structure will reconnect to the solid lake rim on either side of the breach. Approximately 108 acres of marsh would be created behind that structure. Those acres would be planted with vegetative plugs. Additionally, an earthen plug would be installed to close an abandoned oil field canal.

## Preliminary Project Benefits

Stop erosion in an area that has lost over 100 ft per year of shoreline in some areas and averages approximately 56 ft per year loss. Create approximately 108 acres of new marsh.

- 1) *What is the total acreage benefited both directly and indirectly?* The proposed project would directly benefit approximately 274 acres. Approximately 166 of those acres would benefit from stopping the annual shoreline erosion of **56 ft per year** (1988-2005) for the next 20 years. The other 108 acres would benefit from marsh creation. Indirectly, an additional 500 acres of interior marsh and lake rim would benefit by establishing an intact barrier from Vermilion Bay.
- 2) *How many acres of wetlands will be protected/created over the project life?* 274 acres (108 acres created; 166 acres protected).

- 3) *What is the anticipated loss rate reduction throughout the area of direct benefits over the project life?* According to standard Environmental Work Group protocol the proposed structure is assumed to reduce the loss rate 100%.
- 4) *Do any project features maintain or restore structural components of the coastal ecosystem such as barrier islands, natural or artificial levee ridges, beach and lake rims, cheniers, etc?* Yes, the shoreline protection feature will reestablish a solid lake rim on the north shore of Vermilion Bay.
- 5) *What is the net impact of the project on critical and non-critical infrastructure?* Some oil and gas facilities exist north of the project that would benefit from the added protection provided by the reestablished lake rim.
- 6) *To what extent does the project provide a synergistic effect with other approved and/or constructed restoration projects?* The project will repair 1.5 miles of lake rim and complete the restoration of over 10 miles of north Vermilion Bay shoreline. It accomplishes this by providing a synergistic effect with TV-13a (Oak/Avery Hydrologic Restoration project) and TV-09 (Boston Canal/Vermilion Bay Shoreline Protection Project).

### **Identification of Potential Issues**

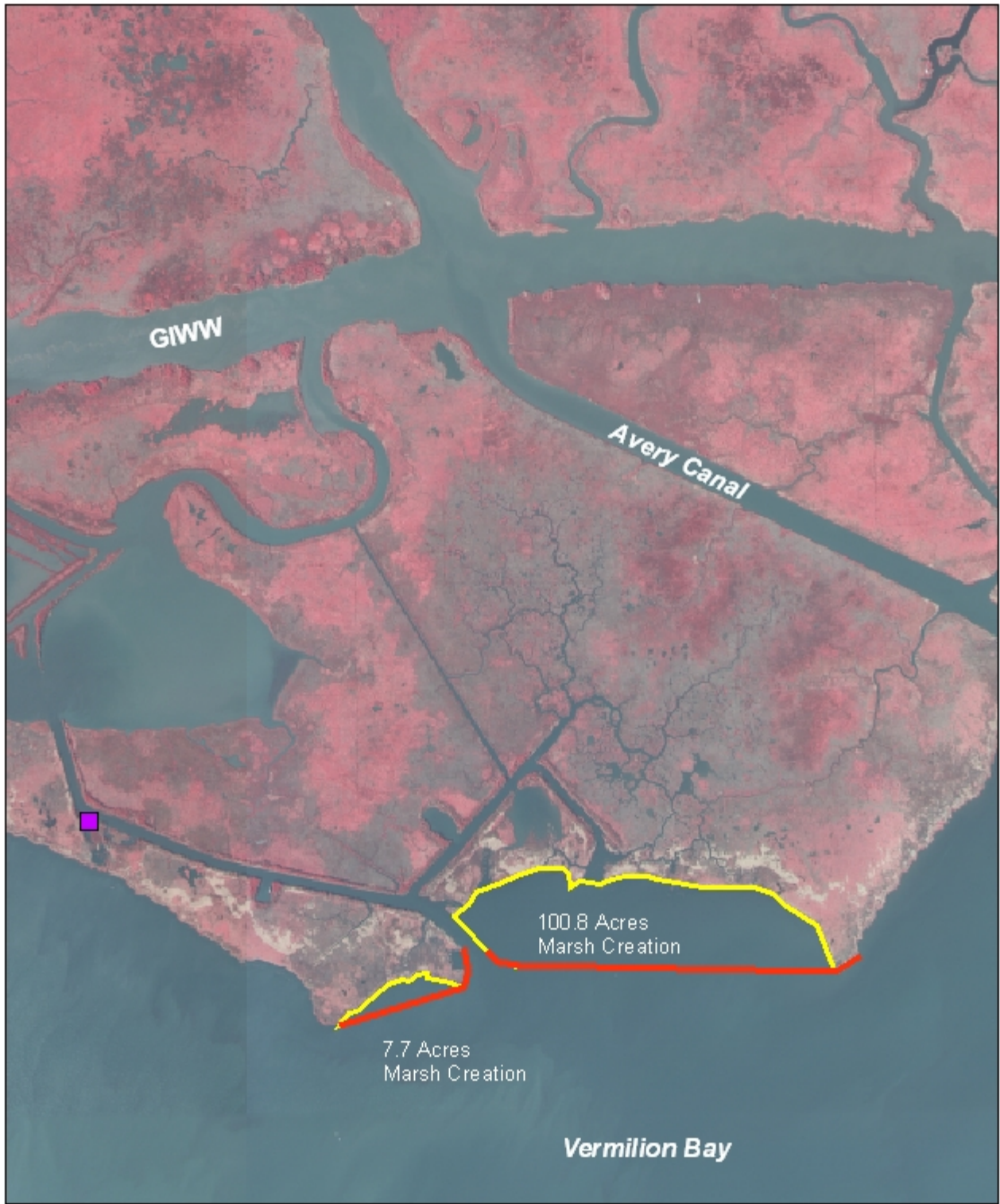
Land rights, O&M.

The construction cost plus contingencies for this project is approximately \$11.0 million. The estimated fully funded cost range is \$15 - \$20 million.




### **Preparer(s) of Fact Sheet**

Charles Stemmans, NRCS, (337) 369-6623, [charles.stemmans@la.usda.gov](mailto:charles.stemmans@la.usda.gov)

Ron Boustany, NRCS, (337) 291-3067, [ron.boustany@la.usda.gov](mailto:ron.boustany@la.usda.gov)

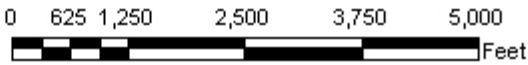


**Legend**

-  Earthen\_Plug
-  Structure\_Location
-  Marsh\_Creation



Vermilion Bay  
Shoreline Protection/ Marsh Creation  
PPL 17  
Iberia Parish, Louisiana



# **Marone Point Shoreline Protection Project**



## **PPL 17 Project Nominee Fact Sheet**

### **March 1, 2007**

**Project Name:**

Marone Point Shoreline Protection

**Coast 2050 Strategy:**

Coast wide: Maintenance of Bay and Lake Shoreline Integrity

Regional: 11. Maintain shoreline integrity and stabilize critical shoreline areas of the Teche-Vermilion system including the gulf shoreline

Mapping Unit: (East Cote Blanche Bay) 73. Protect Bay/Lake Shorelines

**Project Location:**

The project is located in Region 3, Teche/Vermilion Basin, St. Mary Parish, along the northern shoreline of East Cote Blanche Bay and eastern shoreline of West Cote Blanche Bay.

**Problem:**

This area of shoreline has historic and predicted shoreline erosion rates of 15-20 ft. /year. If left unchecked, the rapidly eroding shoreline along East Cote Blanche Bay will lead to a conversion of interior wetlands to open bay. Installing shoreline protection would preserve the hydrologic integrity of water control structures installed under the TV-04 Cote Blanche Hydrologic Restoration CWPPRA Project that the O&M program will not provide.

**Proposed Solution:**

Project features include construction of approximately 26,000 linear feet of armored protection parallel to the existing northern shoreline of East Cote Blanche Bay. The proposed location of the shoreline protection feature is approximately 23,000 linear feet, starting from 3300 feet west of Humble Canal and extending around Marone Point, and approximately 3000 feet to the East of the Humble Canal between shoreline protection planned and installed through the TV-04 Cote Blanche Hydrologic Restoration Project.

**Goals:**

Reduce and/or reverse shoreline erosion rates, protect critical marsh habitat and maintain existing hydrology of the East Cote Blanche Bay wetlands established through the TV-04 Cote Blanch Hydrologic Restoration Project. The marsh habitat provides important habitat for wintering migratory waterfowl, black bears, and other furbearers. These wetlands also provide vital protection to inland areas of St. Mary Parish from storm surges associated with hurricanes.

**Preliminary Project Benefits:**

1) *What is the total acreage benefited both directly and indirectly?* The proposed project would directly benefit approximately 209 acres by eliminating the annual shoreline loss of 17.5 ft/yr. Approximately 375 acres of intermediate marshes would benefit indirectly by preventing the breaching of, and tidal exchange through, several natural bayous and open water ponds lying adjacent to the E Cote Blanche Bay shoreline. Therefore the total acreage potentially impacted would be 584 acres.

2) *How many acres of wetlands will be protected/created over the project life?* Approximately 209 acres would be protected at the end of the project life due to the shoreline protection component.

3) *What is the anticipated loss rate reduction throughout the area of direct benefits over the project life?* Shoreline protection will be provided by some form of armored structure which, when properly designed and installed, has proven to reduce erosion rates by 100%. Therefore, the anticipated loss rate reduction throughout the area of direct benefits over the project life should exceed 75%.

4) *Do any project features maintain or restore structural components of the coastal ecosystem such as barrier islands, natural or artificial levee ridges, beach and lake rims, cheniers, etc?* Project features will provide protection and serve to maintain a significant critical section of lake rim on the East Cote Blanche Bay shoreline.

5) *What is the net impact of the project on critical and non-critical infrastructure?* The project would serve to protect inland oilfield well locations from exposure to open bay conditions.

6) *To what extent does the project provide a synergistic effect with other approved and/or constructed restoration projects?* The project features will provide a synergistic effect with the TV-04 Cote Blanche Hydrologic Restoration Project, and TV-20 Bayou Sale Ridge Protection Project by extending shoreline protection around the entire northern shore of East Cote Blanche Bay, ultimately providing contiguous protection to thousands of acres of deteriorating marsh in St. Mary parish.

**Identification of Potential Issues:**

No significant potential issues are expected from the project implementation. Major landowners are in full support of the project.

As a result of the CWPPRA Joint Workgroup Meeting held on March 1, 2007, the following potential issues were flagged:

*O&M: Due to rock riprap being used as the primary shoreline protection component.*

**Preliminary Construction Cost:**

The construction cost plus contingencies for this project is approximately \$12.2 million. The estimated fully funded cost range is \$15 - \$20 million.

**Preparer of Fact Sheet**

Loland Broussard/NRCS/ (337) 291-3060/ [loland.broussard@la.usda.gov](mailto:loland.broussard@la.usda.gov)

Charles Stemmans/NRCS/ (337) 369-6623 [charles.stemmans@la.usda.gov](mailto:charles.stemmans@la.usda.gov)

# Marone Point Shoreline Protection St. Mary Parish Louisiana



## Legend

- TV-20 Planned Bayou Sale Shoreline Protection
- TV-04 Cote Blanche Shoreline Protection- Approx. 4,140 lf.
- Approved TV-04 O&M -Rock Dike
- Approved TV-04 O&M - Rock Revetment
- PPL-16 Proposed Shoreline Protection -Approx. 26,000 lf.



## **Nominee Projects located in Region Four**

# **Calcasieu Ship Channel Sediment By-Pass Project**

**PPL17 PROJECT NOMINEE FACT SHEET**  
**Revised March 5, 2007**

**Calcasieu Ship Channel Sediment By-Pass Project**

**Coast 2050 Strategy** - CS 18 - Restore Long-shore Sediment Flow Across the Mouth of Calcasieu Pass; CS-16 - Stabilize the Gulf of Mexico Shore from Calcasieu Pass to Johnston's Bayou.

**Project Location**

Region 4, Calcasieu-Sabine Basin, Calcasieu Pass and the Gulf of Mexico, south of Cameron.

**Problem**

The Calcasieu Ship Channel jetties have interrupted the natural westward flow of near shore Gulf long-shore currents and sediment deposition. Sandy to silty-clay sediments are being trapped by the eastern jetty, while severe erosion continues to the west of the channel. The eroded Gulf barrier headland dunes west of the Calcasieu Ship Channel were intact 10 yrs ago. Although Byrnes and McBride (1995) measured average shoreline erosion rates of – 4.6 ft/yr and a maximum erosion rate of – 9.2 ft/yr in a 1990 to 1994 study, recent Gulf shoreline erosion rates (measured from 1998 to 2005) averaged 15 ft/yr from Calcasieu Pass to 3 to 4 miles west of that pass.

**Proposed Project Features**

The proposed project is designed to transport about 2 million cubic yards of subtidal sediment from the east side of Calcasieu Pass and place the material along 3 miles of Gulf shoreline west of the channel. 1 M cyds would be dredged in each of two dredging cycles at years 1 and 10. The material would be placed unconfined via a hydraulic dredge (located east of the eastern jetty) along 3 miles of shoreline (15,840 linear feet) to 600 feet offshore to restore 217 acres of Gulf barrier shoreline (15,840 ft X 600 ft = 217 acres). The material would be placed in water depths ranging from the shoreline, to less than 1 foot, to 2 feet deep and stacked 3 feet high. Water depths east and west of the channel are less than 2 feet deep 1,000 feet from shore, 6 feet deep 2,400 ft from shore, and 12 feet deep 1.5 miles from shore (a 1 foot depth increase every 400 feet) (1982 USGS quadrangle map). Water depths in the vicinity of the Holly Beach Breakwater Project are 5 feet deep 800 feet from shore. The recently deposited sediment will be dredged from an approximate 1,650 foot X 1,650 foot subtidal borrow area in greater than 2 foot water depths to a dredged depth of no more than 10 feet (yielding approximately 1,083,333 cubic yards per dredging cycle).

The hydraulic dredging pipeline would be placed along the bottom of the ship channel to not interfere with navigation. The pipeline would be extended to 3 miles along the shoreline at the mean high water mark and the material discharged unconfined to form a discharge area 3 miles-long by 450-foot-wide for the first of two dredging cycles (Years 1 and 10). A second dredging cycle at Year 10 would place material 300 feet wide from approximately 300 feet remaining from Cycle 1 to 600 feet-wide for a total area of 600 feet wide by 3 miles long by Year 10. Year 1 would restore 164 acres (450 feet X 3 miles = 164 ac). 56 acres would be lost due to erosion by Year 10 leaving a remainder of 108 acres from the first Cycle 1 at Year 10. Cycle 2 (Year 10) would restore another 109 acres (300 feet X 3 miles = 109 acres) for a total of 217 acres restored at Year 10 (164 acres - 56 acres = 108 acres (Cycle 1 +10 yrs erosion) + 109 acres (Cycle 2) = 217 acres] (see Table 1, page 2).

This discharge area can be maintained assuming an approximate 40% loss of material to the near shore system per cycle (i.e., 600,000 cyds per cycle would be needed but 1 M cyds would be dredged). A similar project using maintenance dredged material from Sabine-Neches Ship Channel at Texas Point experienced 60% of the maintenance material remaining after initial placement with an annual loss of 8%. This project would involve the dredging and deposition of new, not maintenance material that would tend not to erode as easily. Cycle 2 would begin at the Cycle 1 created new Gulf shore and extend the discharge to the 600 foot-wide point. Thus the total 2-cycle Gulf shore restoration area would be 3 miles by 600 feet wide (217 acres).

**Goals**

Restore Gulf barrier shoreline and stop shoreline erosion for a 3-mile distance west of Calcasieu Pass by transportation of sediment westward from the east jetty area.

**Preliminary Project Benefits**

1) Total acreage benefited both directly and indirectly = 217 acres. The sediment by-pass project is expected to rebuild at least 217 acres of Gulf shoreline west of the ship channel and protect 111 acres (15,840 ft X 15.3 ft/yr = 5.6 ac/year; 5.6 ac X 20 yrs = 111 ac protected) from erosion over 20 years, for a total of 328 acres restored and protected not counting shoreline erosion. Approximately 629 acres of marsh north of the Gulf barrier shore, between the shore and Hwy 82, may be indirectly protected, but these are not counted in the total.

2) Acres of wetlands protected/created over the project life. - 111 ac protected. If the 15.3 ft/yr erosion rate is applied to the 217 acres of created shoreline, the acres remaining after the 10th year Cycle 2 would be 161 acres (217 ac - 56 ac = 161 acres) to account for 56 acres of loss from years 10 to 20. Total net acres after 20 years is expected to be 272 ac (111 ac + 161 ac) (See Table 1).

Table 1: Calcasieu Ship Channel Sediment By-Pass Project Benefits

	<b>Dimensions</b>	<b>Initial Area Restored</b>	<b>Erosion Yr 1 to Yr 10</b>	<b>Area At Year 10</b>	<b>Erosion Yrs 10 to 20</b>	<b>Area Restored at Year 20</b>
<b>Cycle 1 (Yr 1)</b>	450 ft X 3 mi	164 ac	- 56 ac	108 ac		
<b>Cycle 2 (Yr 10)</b>	300 ft X 3 mi	109 ac		109 ac		
<b>Total Acres @ Yr 10</b>				217 ac	- 56 ac	161 ac
<b>Acres Protected (Yrs 1-20)</b>						111 ac
<b>Total Net Acres</b>						272 ac

3) The anticipated loss rate reduction throughout the area of direct benefits over the project life is expected to be a 100% reduction in shoreline erosion rates for the 3-mile project shoreline.

- 4) Project features that maintain or restore structural components of the coastal ecosystem (i.e., barrier islands, natural or artificial levee ridges, beach and lake rims, cheniers) include the restoration and protection of a Gulf barrier headland shoreline west of Calcasieu Pass.
- 5) The net impact of the project on critical infrastructure includes the protection of LA Hwy 82, a hurricane evacuation route, north of and parallel to the Gulf shoreline.
- 6) The project provides a synergistic effect with the Holly Beach Breakwaters and Sand Nourishment projects west of Holly Beach approximately 9 miles west of Calcasieu Pass and 6 miles west of the westward end of this project. Littoral drift from the sediment by-pass project is expected to benefit the westward down drift shoreline.

#### **Identification of Potential Issues**

The proposed project has the following potential issues: Navigation - The pipeline would be placed at the bottom of the 40-foot-deep Calcasieu Ship Channel and buried below the channel if necessary. Landrights may not be an issue because the State of Louisiana owns the land to the average high tide and Gulf water bottoms. Material dredged would be State-owned submerged (subtidal) sediment, not subaerial land.

#### **Preliminary Construction Costs**

Lump sum construction costs plus 25% contingencies total \$14,687,500. Supporting cost documents are attached. The fully funded cost range is \$15 to \$20 M.

#### **Preparer of Fact Sheet**

Darryl Clark, USFWS, 337-291-3111, Darryl\_Clark@fws.gov  
Rudy Simoneaux, DNR, 225-342-6750, RudyS@DNR.state.la.us

---

Note: The original nomination consisted of sediment by-passes at both the Calcasieu and Mermentau Ship Channels. Because the Mermentau Ship Channel By-Pass project is contained in the State's draft CIAP Plan, that portion has been omitted from this PPL 17 nomination.

#### **References:**

Byrnes, M.R. and R.A. McBride. 1995. Preliminary Assessment of Beach Response to a Segmented Breakwater System: Constance Beach and Vicinity, 1990-1994. Coastal Studies Institute, Louisiana State University, Baton Rouge, LA., 26 p.



# Calcasieu River Ship Channel Sediment By-Pass PPL 17 Project Nominee



# **East Cove Marsh Creation Project**

# PPL17 PROJECT NOMINEE FINAL FACT SHEET

March 5, 2007

## East Cove Marsh Creation Project

### Coast 2050 Strategy

Regional Strategy 6: Use dedicated dredging or beneficial use of sediment for wetland creation or protection.

### Project Location

Region 4, Calcasieu-Sabine Basin, 1.5 miles north of Cameron, Cameron Parish, in the southwestern portion of the Cameron-Creole Watershed on the Cameron Prairie National Wildlife Refuge.

### Problem

Former brackish marshes in the southwest portion of the Cameron Creole Watershed have converted to open water due to subsidence and past saltwater intrusion from the Calcasieu Ship Channel. The Cameron-Creole Watershed Hydrologic Restoration project was implemented in 1989 to relieve the saltwater intrusion problem and has not succeeded in revegetating the area. Hurricane Rita in 2005 cut four breaches in the Cameron-Creole Watershed levee allowing higher salinities from Calcasieu Lake to enter the watershed. Sediment from an outside source or water level draw-downs is needed to restore existing large open water areas to marsh.

### Proposed Project Features

Place material beneficially from normal maintenance dredging of the Lower Calcasieu River from Mile Points (MP) 5 to 12 in two disposal areas in the southwest portion of the Cameron-Creole Watershed. The Corps of Engineers, New Orleans District dredges approximately 1.88 million cubic yards of material, dependent on the shoaling of the channel and contractor over-depth dredging, every 2 years in the vicinity of MP 5 to 12 in the lower Calcasieu River. The project plan would be to transport approximately 3.76 million cubic yards of dredged material to two open water areas of the Cameron Prairie National Wildlife Refuge, totaling 845 acres, to create approximately 592 acres of marsh in two cycles (i.e., 1.5 million cubic yards per cycle). Approximately 30% of the open water areas would be converted to vegetated marsh habitat, while the remaining areas would establish as shallow open water and mud flat. Approximately 100 acres of adjacent existing marsh and open water would also be nourished. Cycle 1 would initially create approximately 301 acres of vegetated marsh, and Cycle 2 would create approximately 291 acres of vegetated marsh. The target marsh elevation would be +2.5 feet MLG (1.1 feet NAVD 88). The restored marsh areas would have constructed bayous and openings to existing bayous for estuarine fisheries access to make them functional.

### Goals

The goal is to create approximately 592 acres of marsh (i.e., 70% of the 845 acres of open water) via beneficial use of maintenance dredged material from the Calcasieu Ship Channel.

### **Preliminary Project Benefits**

The project would restore approximately 592 acres of open water to marsh and protect adjacent inland marshes in the southwestern portion of the Cameron-Creole Watershed.

### **What is the total acreage benefited both directly and indirectly?**

A total of 845 acres of marsh, shallow water and mud flats would be created. Approximately 100 acres of marsh and shallow open water areas would be nourished as material overflows the earthen weirs.

### **How many acres of wetlands will be protected/created over the project life?**

Assuming a 50 % reduction in the 1983-1990 loss rate (Coast 2050 Report: Appendix F) applied to the marsh creation acres and adjacent nourished marsh, a net 562 acres (557 acres created and 5 acres nourished) would be created and/or protected over the 20 year project life.

### **What is the anticipated loss rate reduction throughout the area of direct benefits over the project life (<25%, 25-49%, 50-74% and >75%).**

Interior shoreline erosion rates, although they are minimal, would be stopped, and the created marsh would assume a 50% reduction loss rate; therefore, the anticipated loss rate reduction would be approximately 50-74%.

### **Do any project features maintain or restore structural components of the coastal ecosystem such as barrier islands, natural or artificial levee ridges, beach and lake rims, cheniers, etc.?**

No.

### **What is the net impact of the project on critical and non-critical infrastructure?**

No infrastructure would be impacted by the proposed project.

### **To what extent does the project provide a synergistic effect with other approved and/or constructed restoration projects?**

The proposed project is synergistic with the Cameron-Creole Plugs project (CS -17) and the Cameron-Creole Maintenance project (CS-04a), which were implemented to relieve the saltwater intrusion problem.

### **Identification of Potential Issues**

The dredge disposal pipeline would traverse Calcasieu Lake; oyster issues are anticipated. The area is on a Federal refuge so landrights will not be an issue.

### **Preliminary Construction Costs**

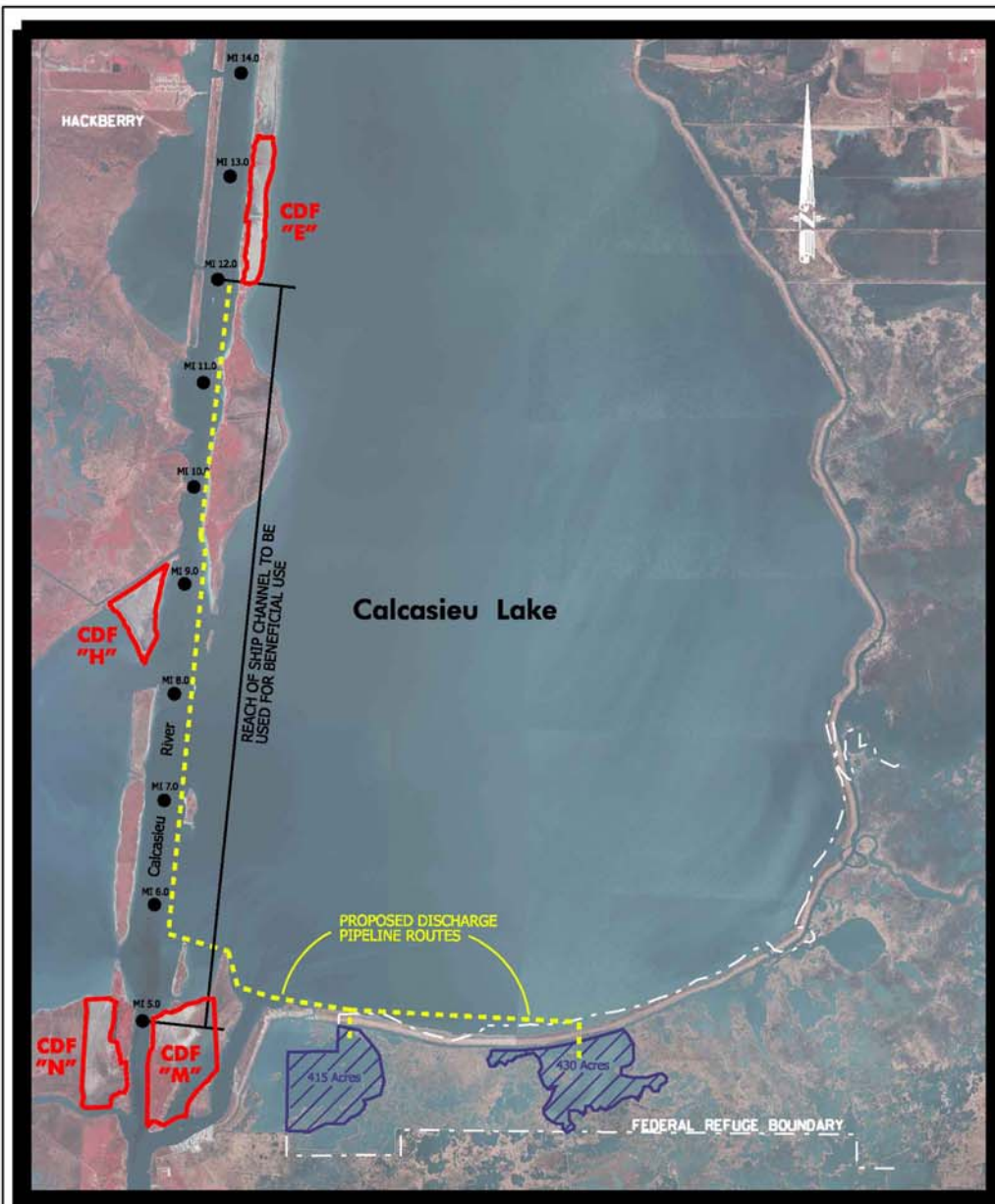
Preliminary construction costs are estimated at \$ 12.76 million, which includes 25% contingency. The total fully funded cost (i.e., including a 1.35 cost factor) is estimated at \$17,223,131.

### **Preparers of Fact Sheet:**

Angela Trahan, FWS, 337-291-3137, [Angela\\_Trahan@fws.gov](mailto:Angela_Trahan@fws.gov)

Melanie Goodman, Corps, 504-862-1940, [Melanie.L.Goodman@mvn02.usace.army.mil](mailto:Melanie.L.Goodman@mvn02.usace.army.mil)

Rick Broussard, Corps, 504-862-2402, [Richard.W.Broussard@mvn02.usace.army.mil](mailto:Richard.W.Broussard@mvn02.usace.army.mil)



DATA SOURCE:  
2005 Photography (D00 Photos)



CWPPRA PPL 17 Nominee:  
Region 4

### East Cove Marsh Creation Project

Utilizing Material Dredged Between  
Calcasieu River Miles 5 and 12

Cameron Parish, LA

**Rockefeller Gulf of Mexico Shoreline Stabilization Project,  
Joseph's Harbor East**

**PPL17 PROJECT NOMINEE FACT SHEET**  
February 15, 2007

**Project Name and Number**

Rockefeller Gulf of Mexico Shoreline Stabilization, Joseph's Harbor East, ME-25.

**Coast 2050 Strategy**

Regional: Dedicated dredging or beneficial use of sediment for wetland creation or protection (6) and Stabilize Gulf of Mexico Shoreline from Old Mermentau River to Dewitt Canal (16). Coast-wide Common: Maintenance of Gulf, Bay and Lake shoreline Integrity, and Maintain, Protect or Restore Ridge Functions.

**Project Location**

Region 4, Mermentau Basin, Cameron/Vermilion Parish, LA. Along the Gulf shoreline from eastern bank of Joseph's Harbor (Rockefeller Refuge) eastward 10,000 feet.

**Problem**

The project will be designed to address Gulf shoreline retreat averaging 35' per year (Byrnes, McBride et al., 1995) with subsequent direct loss of saline emergent marsh.

**Proposed Project Features**

The project would entail construction of a near-shore break-waters along the Gulf of Mexico shoreline. The break-water would extend from the eastern bank of Joseph's Harbor canal eastward for 10,000 feet. The proposed structure would be tied into the present shoreline at the point of beginning and ending. It would be designed to attenuate shoreline retreat along this stretch of Gulf shoreline, as well as promote shallowing, settling out, and natural vegetative colonization of over-wash material landward of the proposed structure. The resultant design would be placed offshore along the -5' contour. The crest height of the proposed structure would be 8.5 feet above the Gulf floor (i.e., +3.5 ft above average water level), with an 18 foot crown and 1:2 slope on both sides. The proposed structure would consist of neutral buoyancy material encapsulated by 2,200 lb. class stone. The proposed design would include openings every 1000' to facilitate material and organism linkages. Excavation material for construction access would be placed on the landward side of the structures.

**Goals**

1) Reduce Gulf shoreline retreat and direct marsh loss at areas of need identified from Rockefeller Refuge east to Region 4 boundary, 2) protect saline marsh habitat, 3) Enhance fish and wildlife habitat.

**Preliminary Project Benefits**

The project is expected to influence approximately 166 acres directly (161 protected, 5 created), and a portion of 4,900 acres indirectly (Rockefeller Refuge Unit 5). This project is anticipated to benefit 125 acres (10K ln ft X 35 ft/yr X 20 yrs). The reduction efficiency was estimated by using 90% of the average wave transmission rates listed in the Rockefeller Refuge gulf Shoreline Stabilization Feasibility Study produced by Shiner Mosely and Associates (Table 6, page 4-19, methodology of Seabrook and Hall, 1998). Estimates for excavation are as follows; at the -5' contour, an additional 4' of material will be moved at a width of 80', for the 10,000 linear feet of the project or 3,200,000 cubic feet (118,519 cubic yards) will be placed behind the rock structure.

The project would protect and maintain chenier and beach function.

The project would have a net positive impact on non-critical infrastructure. This project would protect five existing pipelines that come ashore within the project area from continued erosion of the cover, which when uncovered, become a public and environmental hazard. This project would also protect properly plugged, land-based wellheads from erosion of the cover, thus becoming a public and environmental hazard.

### Identification of Potential Issues

There are potential issues with pipelines. There are pipelines in the area, however design layout can accommodate locations.

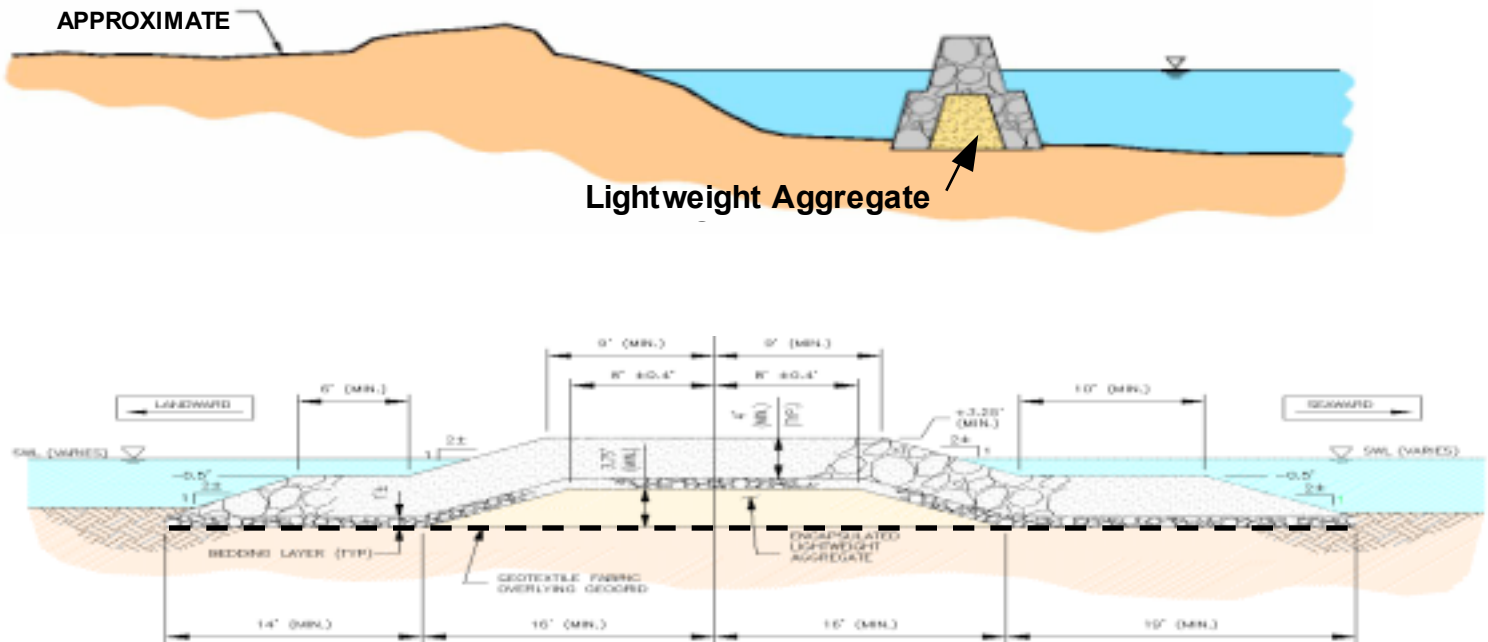
### Preliminary Construction Costs

The preliminary fully funded cost plus 25% contingency is \$11,903,500.

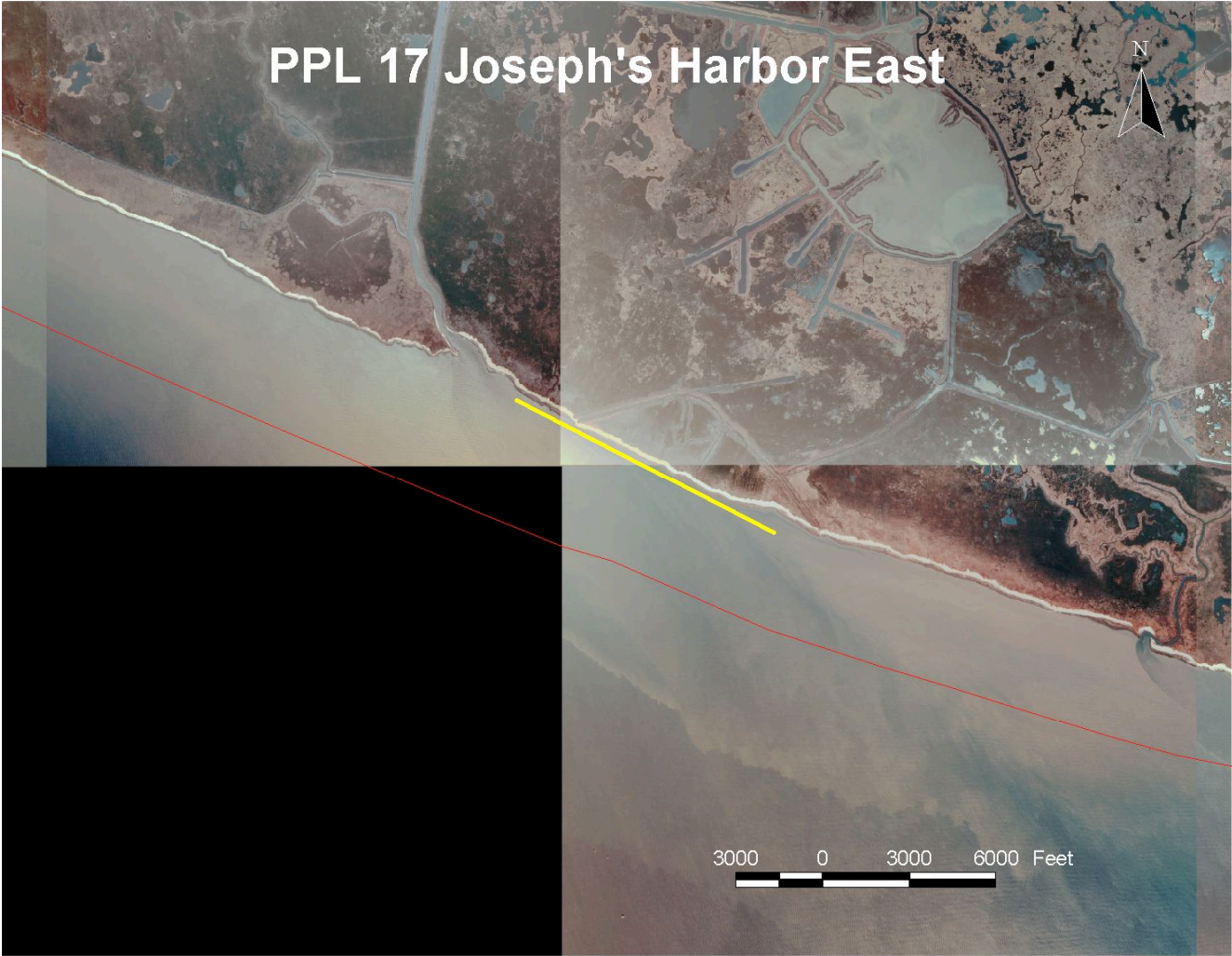
Fully funded cost range is \$20 - 25 M.

### Preparer of Fact Sheet

John Foret, National Marine Fisheries Service, 337/291-2107; [john.foret@noaa.gov](mailto:john.foret@noaa.gov)







# **Southeast White Lake Shoreline and Marsh Creation Project**

## PPL17 PROJECT NOMINEE FACT SHEET

March 2, 2007

**Project Name:** Southeast White Lake Shoreline Protection and Marsh Creation Project

**Coast 2050 Strategies: Basin Strategies: 5) Stabilize White Lake Shoreline**

**Project Location:** The project is located in Region IV, in the Mermentau Basin, South White Lake Mapping Unit, on the southeast side of White Lake, between Wills Point and Schooner Bayou in Vermilion Parish, Louisiana (Figure 1).

**Problem:** The shoreline erosion rate between Wills Point and Schooner Bayou is estimated to be an average 5 feet per year (Figure 2). The slightly elevated scrub/shrub and woody vegetated shoreline rim in the project area is eroding and exposing more fragile interior herbaceous marshes to the high energy wave climate and elevated water depths in White Lake. Also, the shoreline and interior marshes along the proposed project reach were severely impacted by Hurricane Rita.

### **Proposed Project Features:**

1. Install approximately 26,000 lf of rock shoreline protection with fish gaps according to specifications for South White Lake Shoreline Protection Project (ME-22, Figures 3 and 4).
2. Create approximately 75 acres of marsh with floatation channel dredge material behind the shoreline protection.

### **Goals:**

1. Stop shoreline erosion.
2. Create and nourish marsh.

**Preliminary Project Benefits:** The following questions should be addressed:

**1) What is the total acreage benefited both directly and indirectly?** *Directly benefited: Protect approximately 60 acres and create 75 acres of marsh and lake rim habitat.*

**2) How many acres of wetlands will be protected/created over the project life?** *At the end of 20 years, approximately 135 acres would remain. The shoreline protection should stop erosion of at least 5 feet per year over 26,000 feet (60 acres) and dredge material would create 75 acres behind the shoreline protection, which would remain after 20 years.*

**3) What is the anticipated loss rate reduction throughout the area of direct benefits over the project life (<25%, 25-49%, 50-74% and >75%)?** *The anticipated loss rate reduction throughout the area of direct benefits over the project life would be greater than 75%.*

**4) Do any project features maintain or restore structural components of the coastal ecosystem such as barrier islands, natural or artificial levee ridges, beach and lake rims, cheniers, etc?** *The project would protect and restore a portion of the South White Lake Rim.*

**5) What is the net impact of the project on critical and non-critical infrastructure?** *The project would prevent further erosion into pipeline canals and protect marsh that separates White Lake from LA 82.*

**6) To what extent does the project provide a synergistic effect with other approved and/or constructed restoration projects?** *This project would add to the overall shoreline protection of south White Lake provided by the constructed South White Lake Shoreline Protection Project (ME-22). It would be somewhat synergist with the Pecan Island Terracing Project (ME-4), the South Pecan Island Freshwater Introduction project (ME-23), and the Southwest LA Gulf Shoreline protection and nourishment Project (ME 24).*

**Identification of Potential Issues:** Rock shoreline protection projects historically require O&M.

**Preliminary Construction Costs:**

The construction cost including 25% contingency is approximately \$9,253,750.  
The estimated fully funded cost range is \$15 - \$20 million.

**Preparers of Fact Sheet:**

Melanie Goodman, USACE, 504-862-1940, [Melanie.L.Goodman@mvn02.usace.army.mil](mailto:Melanie.L.Goodman@mvn02.usace.army.mil)



**Figure 1: Project Location**



Figure 2: USGS Land Loss

Figure 3: Typical Dike Section (from ME-22)

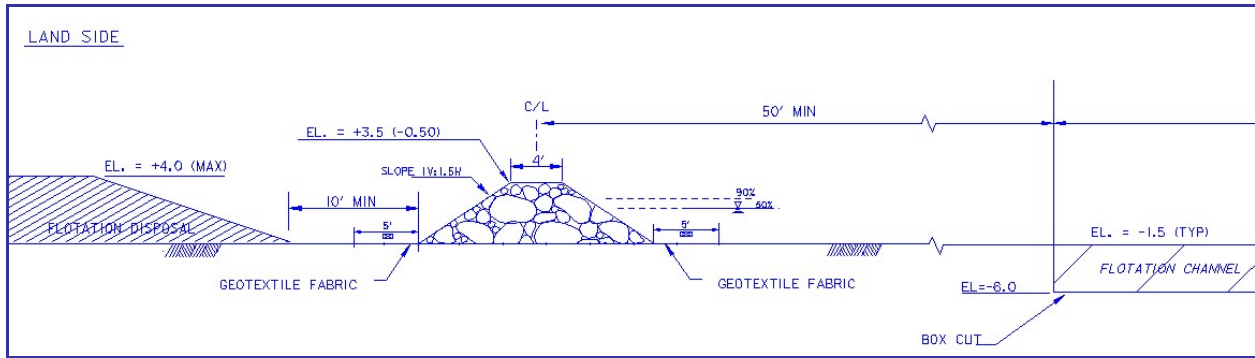


Figure 4: Typical Dike Layout with Flotation Disposal (from ME-22)

## **Nominee Demonstration Projects**

# **Bioengineered Oyster Reef Project**



## PPL17 DEMONSTRATION PROJECT NOMINEE FACT SHEET

February 15, 2007

### **Demonstration Project Name: Bioengineered Oyster Reef**

#### **Coast 2050 Strategy(ies):**

The project is linked to CWPPRA Region 4 Strategy 15: *Stabilizing Gulf of Mexico Shoreline in the Vicinity of Rockefeller Refuge.*

#### **Potential Demonstration Project Location(s)**

Region, Basin, Parish, general location

- Region: CWPPRA Region 4
- Basin: Chenier subbasin of the Mermentau Hydrologic Basin
- Parish: Cameron and Vermillion parishes

#### **Problem:**

The purpose of this project is to address rapid shoreline retreat and wetland loss in the Rockefeller Wildlife Refuge. The direct Gulf of Mexico frontage and extremely low (250-330psf) soil load bearing capacity present unique engineering challenges.

Local shoreline retreat at the site averages 30.9 ft/yr. The wetlands contained in the refuge provide essential habitat for numerous aquatic and terrestrial species including migratory waterfowl, endangered species and commercially and recreationally important species. Loss of wetlands also threatens to directly expose Highway 82 to storm waves. Highway 82 is the only hurricane evacuation route for residents of the Chenier plain.

#### **Goals:**

The goal of this demonstration project is to evaluate the proposed technique as a cost effective technique for protecting the entire Rockefeller Wildlife Refuge given the unique engineering challenges.

The proposed technique should prevent beach erosion for up to Category 1 hurricane conditions, and, where practicable, should remain stable for up to 100 year storm conditions.

The project would be maintained and monitored for up to 5 years.

#### **Proposed Solution:**

The demonstration project would consist of an Oysterbreak, approximately 1000' long. The Oysterbreak is a light-weight, modular shore protection device that uses accumulating biomass (an oyster reef) to dissipate wave energy. The Oysterbreak minimizes manufacture and construction costs by minimizing the amount of material initially placed. The Oysterbreak is constructed by placing modular units into an open interlocked configuration. The units are sized to be stable under storm wave conditions. The height and width of the Oysterbreak are designed to achieve a moderate initial wave energy reduction. However, the bioengineered structure is designed to grow rapidly into an open structured oyster reef utilizing specifically designed structural components with spat attractant and enhanced nutrient conditions conducive to rapid oyster growth. As successive generations of encrusting organisms settle on the Oysterbreak, the structure's ability to dissipate wave energy increases to equal or possibly exceed a comparable solid rock structure with less reflectance problems associated with solid structures.

### Project Benefits:

If the Oysterbreak successfully prevents beach erosion, approximately 4.5 acres (1,000 ft x 39 ft/yr x 5 yrs x 1 acre/43,560 sq ft) of wetlands will be protected. Secondary benefits include increased habitat diversity and complexity, increased nekton utilization, and recreational fishing benefits associated with natural oyster reefs.

### Project Costs:

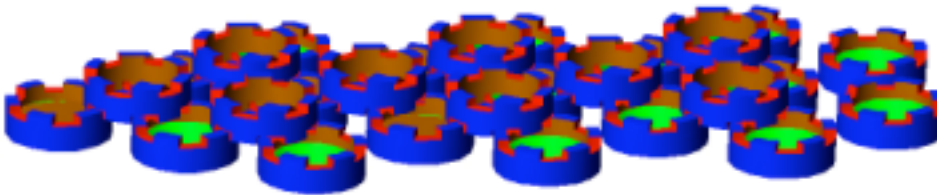
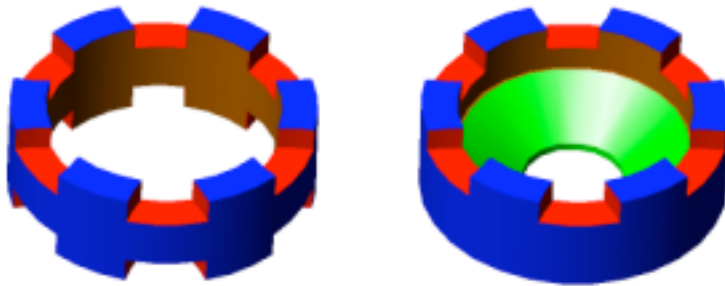
Estimated costs plus 25% contingency is \$1,125,000.

Costs include concrete rings, forms, equipment, labor to construct, deployment of bio-engineered reef, and four (4) years of monitoring of sedimentation rates, flow rates, wave transmission, reflection and dissipation, settlement rates, oyster growth, growth of other sessile species and monitoring of local populations of mobile species (e.g. fish, crabs, snails).

5,400 concrete rings  
1,302 cubic yards of concrete at \$150 per cubic yard = \$195,300  
Forms, equipment, labor to construct 5,400 rings = \$304,700  
Deployment of bio-engineered reef = \$250-300,000  
Four (4) years of monitoring of sedimentation rates, flow rates, wave transmission, reflection and dissipation, settlement rates, oyster growth, growth of other sessile species and monitoring of local populations of mobile species (e.g. fish, crabs, snails) = \$89,000.  
Equipment = \$16,500  
Personnel = \$67,500  
Expendable supplies = \$5,000

### Preparer of Fact Sheet:

John D. Foret, Ph.D., NOAA Fisheries Service, (337) 291-2107, [john.foret@noaa.gov](mailto:john.foret@noaa.gov).



**Sediment Containment for Marsh Creation Project (see PPL16)**

# PPL 17 DEMONSTRATION PROJECT NOMINEE FACT SHEET

March 5, 2007

## **Project Name**

### **Sediment Containment System for Marsh Creation**

## **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**

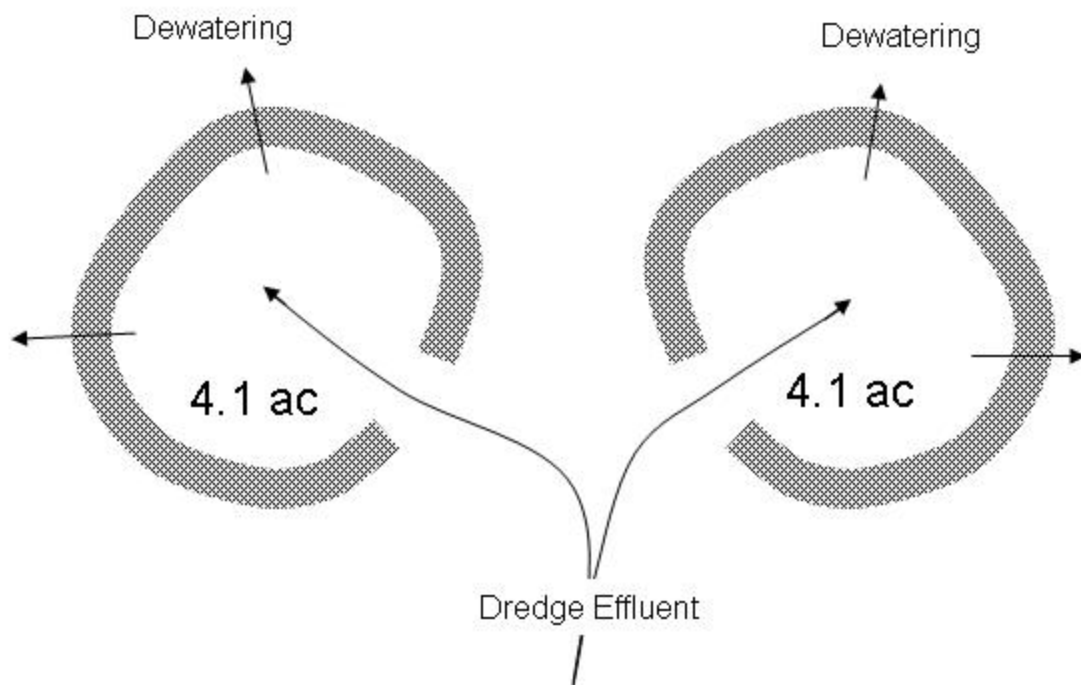
Construction + 25% Contingency = \$590,000

## **Preparer of Fact Sheet**

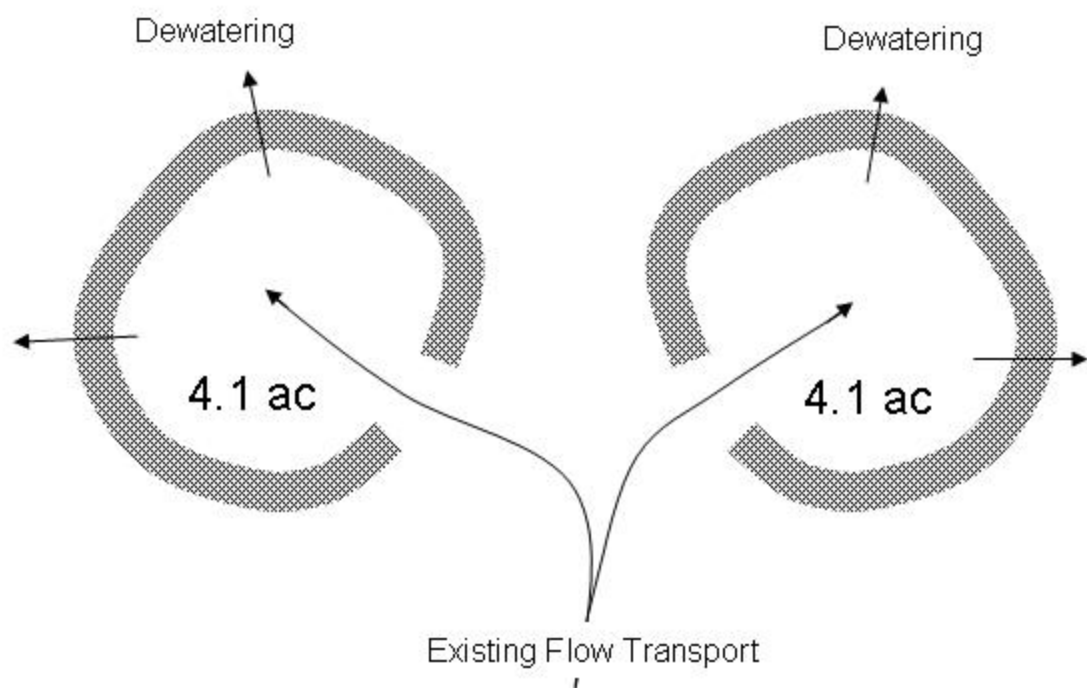
Ron Boustany, NRCS (337) 291-3067, [ron.boustany@la.usda.gov](mailto:ron.boustany@la.usda.gov)

# Sediment Containment System for Marsh Creation

\*Containment System for Dedicated Dredge



Passive Catchment



\* Each application will consist of 2 units placed @ 1500' circumference

## **Beach Angel Project- Zigzag/ Sand Trap Jetty Project**

## **PPL17 DEMONSTRATION PROJECT NOMINEE FACT SHEET**

February 23, 2007

### **Demonstration Project Name: Grande Terre Zigzag Sand Bag / Sand Trap Jetty**

#### **Coast 2050 Strategies:**

- Maintenance of gulf, bay and lake shoreline integrity
- Restore/maintain barrier headlands, islands, and shorelines.

#### **Potential Demonstration Project Location(s):**

Region II, Barataria Basin, Jefferson Parish, located in Pass Abel between east and west Grand Terre or anywhere along barrier island beaches or between barrier islands that are joined by shallow water passes where land formation and shoreline protection is needed

#### **Problem:**

Barrier shorelines and passes between barrier islands are rapidly eroding throughout Louisiana. Current methodologies are limited. This demonstration attempts to provide a low cost method for shoreline protection along barrier islands.

#### **Goals:**

The demonstration project will attempt to reconnect the islands and/or build shorelines and reclaim land lost along the Louisiana coast.

#### **Proposed Solution:**

This project would utilize a small 400 horse power dredge to pump bottom material from the location where the jetty is being built. Large 1000-2000lb burlap or other natural fiber sand bags would be filled on location and placed in a zigzag configuration with the north end of each V left open and the south end of each V closed. The idea is to channel a large volume of water through a small opening thereby increasing the velocity of the incoming tide in an effort to encourage water to pick up sediment, carry it through the funnel shaped trap, deposit it as velocity slows and swirls to each side of the funnel opening, thereby building land on the north side of the jetty.

#### **Project Benefits:**

1. Low cost means of building a protective barrier to prevent land loss and rebuild land.
2. Not a permanent structure so once the zigzag jetty/ sand trap proves or disproves itself the natural fiber bags will rot.
3. The soft structure will provide less risk of a safety hazard to both boats and humans.
4. If the top of the jetty is built just below water line it will be more aesthetic.
5. If working in shallow water these bags can be filled in the exact spot where they will be placed using a small 5 horse power pump and little manpower thereby making it a potential volunteer project similar to the Christmas Tree Project.

**Project Costs:**

Total cost + 25% contingency: \$1,562,500

AT THE END OF THE PROJECT THE DREDGE SHOULD STILL BE AVAILABLE FOR OTHER PROJECTS.

**Preparers of Fact Sheet:**

*Rory M. Nettles, citizen (225) 937-8521 [rorynettles@yahoo.com](mailto:rorynettles@yahoo.com)*

*Kelley Templet, LDNR (225) 342-1592 [kelley.templet@la.gov](mailto:kelley.templet@la.gov)*



# **Positive Displacement Pump Solution Restoration Project**

# PPL17 DEMONSTRATION PROJECT NOMINEE FACT SHEET

March 5, 2007

## **Demonstration Project Name:**

Positive Displacement Pump Solution Project (TurboPiston Pump)

## **Coast 2050 Strategy(ies):**

Coast wide Strategies: Offshore and riverine sand and sediment sources

## **Potential Demonstration Project Location(s):**

Coast wide, Region 2, Barataria Basin, Jefferson or Breton Sound Basin near Violet, Plaquemines Parish

## **Problem:**

Areas in need of restoration are often many miles away from a suitable sediment source and require dredging to produce a stream of sediment for use in coastal restoration. The use of dedicated dredging increases the expense and amount of time required for sediment to be moved because of operation schedules and avoidance of the normal flow of vessels along the sediment source tributary. Current pipeline sediment conveyance technology also requires booster pumps to convey sediment slurry farther than about 3-4 miles. Booster pumps add an additional layer of complexity to implementing a project and each require their own operation and maintenance plan. Any delays that arise as described above increase the time and expense of any project associated with using sediment to restore coastal areas.

## **Goals:**

The goal of this demonstration project is to demonstrate the ability of a newly patented type of positive displacement pump that has the ability to pump a high volume of sediment slurry over distances of 5-10 miles without a booster pump while replacing the need for a dredge to supply sediment to the system. It allows for both high volume and high pressure simultaneously, unlike pumps currently utilized. By using high pressure water to jet the sediment bed during slow river flow periods this system can act as a passive unmanned source of sediment flow on a 24 hour, seven day a week delivery system schedule with no need to halt the process to avoid vessel traffic or crew schedules. This allows for higher productivity rates and lower costs to produce coastal marshes. The energy efficiency of the system is enhanced via its use of a positive displacement pump having mechanical and hydraulic efficiencies on the order 92 to 95% compared to 50 to 60% for standard dredge and booster pumps. It utilizes a high pressure jet to set upstream of the pump system inlet to increase the suspended sediment load delivered.

## **Proposed Solution:**

A smaller prototype of the TurboPiston Pump would be utilized to demonstrate the potential capability to supply and to move sediments via pipeline over longer distances than current technology allows, without the need for additional booster pumps, in a relatively passive self controlled system. Demonstration project details are as follows:

- A sediment rich area of a river or tributary would be identified to provide a constant source of at least 10% by volume sediment to water loading.
- Using an existing 24" TurboPiston Pump that is both mobile and self contained we would set up the pump on the bank's sediment source. This source could be river, bay, lake or any other natural source of sediment.
- Into the sediment source we would extend two lines that will be anchored and ballasted. One line would be a screened inlet line for the pump suction and three to five feet upstream of the inlet would extend the second line. This second line, equipped with a multi-port nozzle, would direct a variable small percentage of discharge flow into to fluff the sediment and increase the percentage of sediment into the pump main suction.

- From the TurboPiston Pump discharge we would directly attach a discharge line to direct the sediment to a silt screen enclosed area for marsh creation. Using the pressure of positive displacement, a multi-outlet discharge diffuser system will be placed at the outlet to reduce the effects of single outlet velocity erosion and to thoroughly and more efficiently distribute the sediment to the confined area. The first leg of the discharge system will extend six miles from the sediment source and begin extending from there along a one acre wide path. Upon completion of the deposit of three feet high of sediment to fill in area, the piping system will be extended to reach another adjoining enclosed area further from the sediment source. As the areas fill with sediment the system will be extended until a ten mile creation of marsh is reached.
- This advance of land creation will continue for the duration of the project.
- Volumetric flow rate of sediment will be adjusted to increase the sediment load to maximize the results of this demonstration.

### **Project Benefits:**

This project will demonstrate the ability of a new type patented pump, TurboPiston Pump, along with a relatively passive system to convey sediment slurry over 5-10 miles without the use of either a dedicated dredge or booster pumps. Using a flow rate of 900 gpm, a slurry jet rate of 100 gpm from the discharge of the intended 24" pump and a flow rate of 10% volumetric sediment load (1431.4 lbs per minute), land growth can be expected to reach a period of 7.54 days to fill one acre three feet deep at a cost of \$6339.06 per acre created over a five year demonstration life with total of 242 acres restored. The material is moved into the coastal area at a cost of \$1.31 per cubic yard of dry sediment across this five year period. Costs noted above include the cost of the 24" TurboPiston Pump where in the demonstration this cost is absorbed by Louisiana Pump, Inc. Additional benefit is realized in marsh areas surrounding the enclosed area from the inflow of fresh water to nourish these areas and reduction of the effects of saltwater intrusion. If this small scale system were left in place over a ten year period it would fill a total of 484 acres at a cost per acre of \$4467.13 and a dry sediment cost of \$0.92 per cubic yard. The main benefit of this demonstration project is to prove out the fully designed large scale system. A larger system designed with one eight foot pump flowing 300 cubic feet per second with a 30 cubic foot per second (3570 lbs per second) sediment flow rate would fill a radius of five miles extending from the original five mile penetration pipeline. This half circle area no closer than five miles and extending 10.5 miles from the sediment source would fill an area of 72,397 acres in ten years using the original pump system with a five mile piping system moved along this radius and extended. This fully optimized system reduces the cost per acre restored to \$2992.68 at \$0.61 per cubic yard of delivered dry sediment. Costs per acre for the eight foot pump system are based on a fully funded cost of \$187 million which includes fixed costs and operating costs over ten years with allowance for increase in fuel costs over the ten year life. Extension from 10 to 20 miles in the larger system is accomplished using a higher pressure TurboPiston Pump (500 psig discharge) and larger pipeline diameters. These costs are not projected here.

### **Project Costs:**

Estimated Demonstration Project Cost plus 25% contingency is \$1,248,443.

The 24" TurboPiston Pump would be provided by Louisiana Pump, Inc. at no cost to this project

### **Preparer(s) of Fact Sheet:**

Honora Buras, Coastal Restoration Division, La. Dept. of Natural Resources, (225) 342-4103,  
[Honora.buras@la.gov](mailto:Honora.buras@la.gov)

Rudy Simoneaux, Coastal Engineering Division, La. Dept. of Natural Resources, (225) 342-6750,  
[Rudy.simoneaux@la.gov](mailto:Rudy.simoneaux@la.gov)

Pat Rousset and Warren Braai, Power Engineering, Inc., (504) 957-8800, (504) 486-0525,  
[proussset@powerengineeringinc.com](mailto:proussset@powerengineeringinc.com)

## **SUMMARY- Letters of Support for Nominees**

**Public Support for Proposed Projects**

**In Support for PPL17 Coast-Wide Voting Meeting**

R2- BS 2 Caernarvon Outfall Management/Lake Lery Shoreline Restoration

John A. Lopez, Ph.D.

Director – Coastal Sustainability Program, Lake Pontchartrain Basin Foundation

R2- BS 1 Bohemia Mississippi River Reintroduction Project

John A. Lopez, Ph.D.

Director – Coastal Sustainability Program, Lake Pontchartrain Basin Foundation

**Public Support for Proposed Projects**

**In Support for PPL17 Coast-Wide Voting Meeting**

Demo 13 Positive Displacement Pump Solution Restoration Project

Ting Wang Director

Energy Conversion and Conservation Center

Henry Rodriguez, Jr.

St. Bernard Parish President

Marnie Winter

Director, Jefferson Parish Environmental Affairs

Robert E. Billiot

Mayor, City of Westwego

## Public Support for Proposed Projects

### In Support for PPL17 Coast-Wide Voting Meeting

#### R1-PO 4 Irish Bayou Shoreline Protection and Marsh Creation Project

- |                                                                               |                                                                     |
|-------------------------------------------------------------------------------|---------------------------------------------------------------------|
| -William B. Coleman III                                                       | -Patricia B. Sceau                                                  |
| -Nicole Carpenter                                                             | -Claudette McFadden                                                 |
| -Maggi Martinez                                                               | -Pearl F. Williams                                                  |
| -Dr. Russell E. Trahan, Jr.<br>Dean of Engineering, University of New Orleans | -Sharon Hillard                                                     |
| -Connie A. Burkenstock                                                        | -Ernest Collins                                                     |
| -Kathleen Falgoust                                                            | -Zeke                                                               |
| -Carolina Febles<br>Intern Architect, Torre / Design Consortium, Ltd.         | -Michelle Duroncelet                                                |
| -Sarah K. Mack<br>Environmental Scientist                                     | -Sandra Johnson Severin                                             |
| -□ Mario Bardales                                                             | -Bobbie Salow-Howard □                                              |
| -Nicloe Martinez                                                              | -Angela T. Henderson                                                |
| -Norbert C. White                                                             | -Natasha F. Muse                                                    |
| -Angela O'Byrne, AIA<br>President of Perez, APC                               | -Maria T. Rivas                                                     |
| -Lee Richardson<br>Lake Catherine Civic Assn.                                 | -Antoinette Fostee                                                  |
| - Beatriz E. Caro                                                             | -Brandie Smith                                                      |
| -Page McCranie                                                                | -Firmin Brown                                                       |
| -Nathan Champagne<br>Brownfields Coordinator City of New Orleans              | -Jeanette Thomas-Allen                                              |
| -Carol P. Gabriel                                                             | -Jacquelyn H Laster                                                 |
| -Marbarell Simmons                                                            | -Cyril L.                                                           |
| -Jeanene H. Gabriel                                                           | -Viola H. Barnes                                                    |
| -Tracey Jackson                                                               | -Ursula Higgins                                                     |
| -Rob Dufour                                                                   | -S. B.                                                              |
| -Sabrina R. Johnson                                                           | -Bobbie S. Causey                                                   |
| -Jennifer J. Day                                                              | -Monica Reed-McKay                                                  |
| -Chester M. Nevels, Sr.                                                       | -Gloria Mae Prevost                                                 |
| -Ann M. Garcia                                                                | -Sonovia Maria Hicks                                                |
| -Madelyn Cosey Sanchez                                                        | -Joan Gray                                                          |
| -Melvin Baker                                                                 | -Mildred G. Perkins                                                 |
| -Anthony M. Faciane                                                           | -Lillie C. Reed                                                     |
| -Dr. C. Paul Lo, Sc.D.<br>President, Materials Management Group, Inc.         | -Hazel E. James                                                     |
| -Oliver M. Thomas, Jr.<br>President, New Orleans City Council                 | -Theodore Mitchell                                                  |
| -Corcherrie Washington                                                        | -Rosemary Williams                                                  |
| -Col. Terry J. Ebbert                                                         | -Patricia Mitchell                                                  |
| -C. Ray Nagin<br>Mayor, City of New Orleans                                   | -Emma Bryan                                                         |
| -Serda Anderson                                                               | -Marion L. Eugene                                                   |
| -Mary G. Pittingly                                                            | -Beverly A. Swinney                                                 |
| -Patricia A. Smith                                                            | -Lisa Richard                                                       |
|                                                                               | -A'Gaysha Lumpkins                                                  |
|                                                                               | -Joyce Atkins                                                       |
|                                                                               | -Heather Szapary                                                    |
|                                                                               | -Lula P. Love                                                       |
|                                                                               | -Cheryl Mendy                                                       |
|                                                                               | -Karen M. Wicker                                                    |
|                                                                               | -Maria I. O'Byrne Stephenson                                        |
|                                                                               | -Barbara M. McArthur<br>Vice Pres., Chef Menteur Land Company, Ltd. |

**Public Support for Proposed Projects**

**In Support for PPL17 Coast-Wide Voting Meeting**

R1-PO 5 Orleans Landbridge Marsh Creation and Shoreline Protection Project

William B. Coleman III

Nicole Carpenter

Maggi Martinez

Dr. Russell E. Trahan, Jr.  
Dean of Engineering, University of New Orleans

Connie A. Burkenstock

Kathleen Falgoust

Timothy P. Kerner  
Mayor, Town of Jean Lafitte

Carolina Febles  
Intern Architect, Torre / Design Consortium, Ltd.

Sarah K. Mack  
Environmental Scientist

Mario Bardales

Nicole Martinez

Norbert C. White

Angela O'Byrne, AIA  
President of Perez, APC

Lee Richardson  
Lake Catherine Civic Assn.

Beatriz E. Caro

Karen M. Wicker

Maria I. O'Byrne Stephenson

Barbara M. McArthur  
Vice Pres., Chef Menteur Land Company, Ltd.



**Public Support for Proposed Projects**

**In Support for PPL17 Coast-Wide Voting Meeting**

R2-BA 4 Bayou Dupont Marsh Creation and Ridge Restoration Project

Woody Crews

Chair, Jefferson Parish Marine Fisheries Advisory Board, Wetlands Committee  
Chair, Coalition to Restore Coastal Louisiana

Vickie Duffoure

President, Bayou Segnette Community and Boaters Association, Inc.

Jason Smith

Board Coordinator Marine Fisheries Advisory Board

Timothy P. Kerner

Mayor, Town of Jean Lafitte

Tracy Kuhns

Louisiana BayouKeeper, Inc.

Henry Haller, Jr.

Agent, Madison Land Company, Inc.