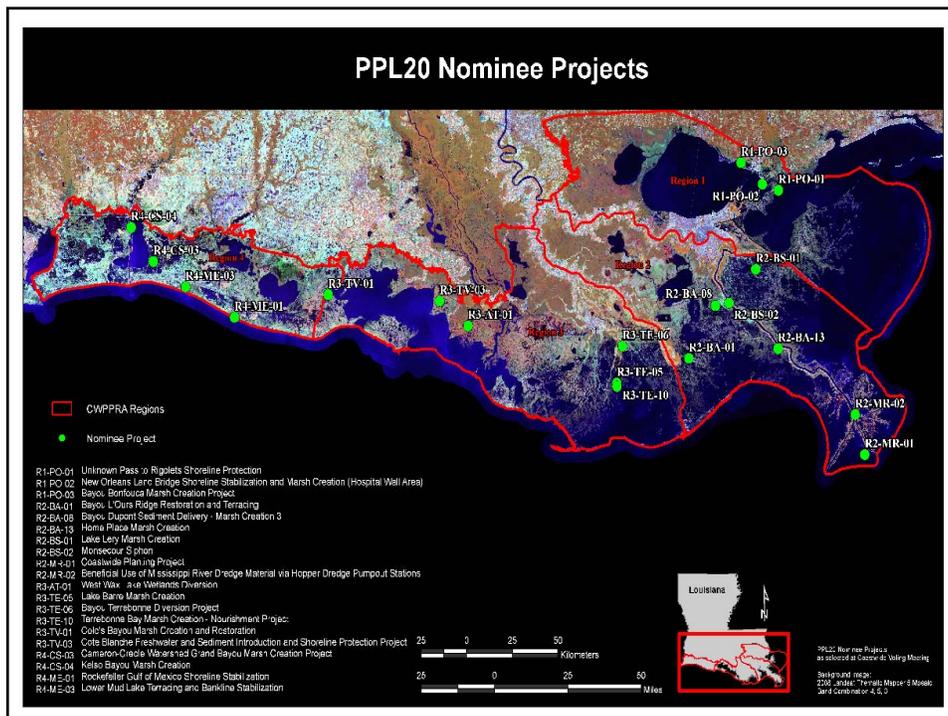
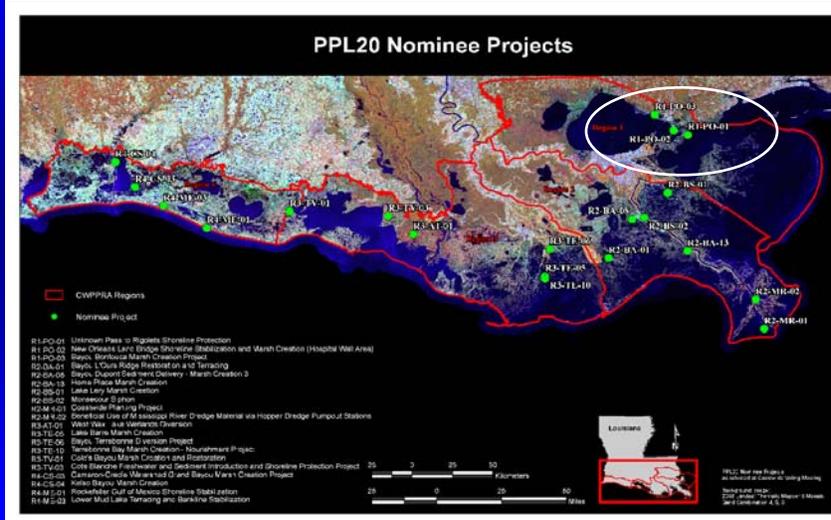
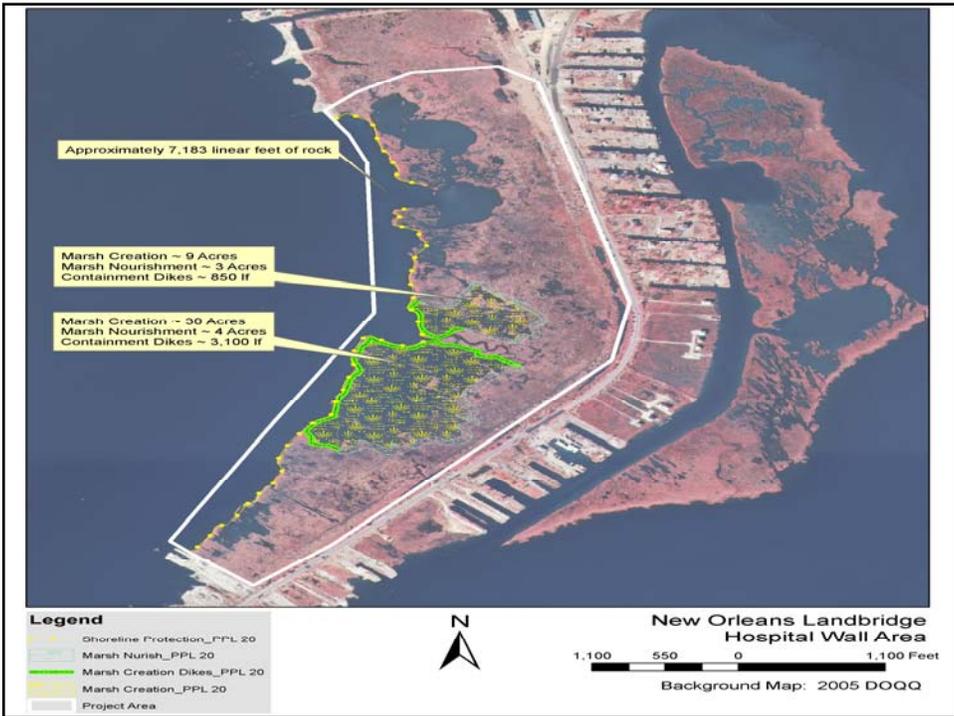


CWPPRA PPL20 Nominees Technical Committee Meeting New Orleans, LA April 20, 2010

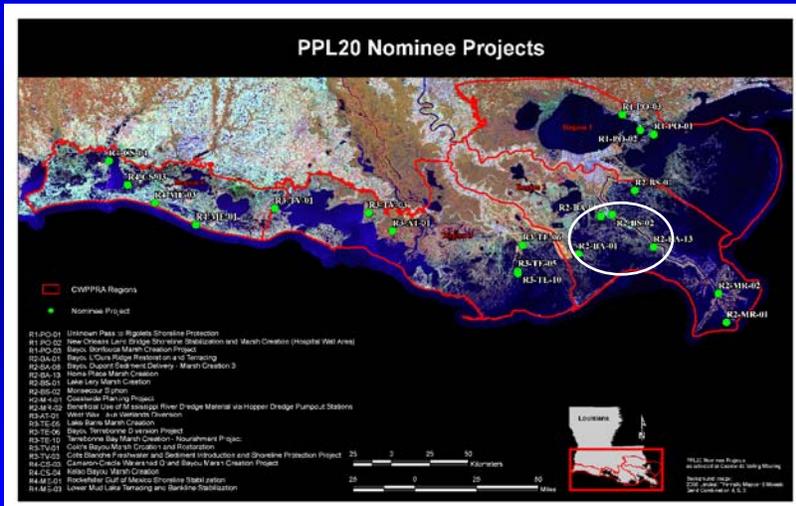


Region 1 Pontchartrain Basin



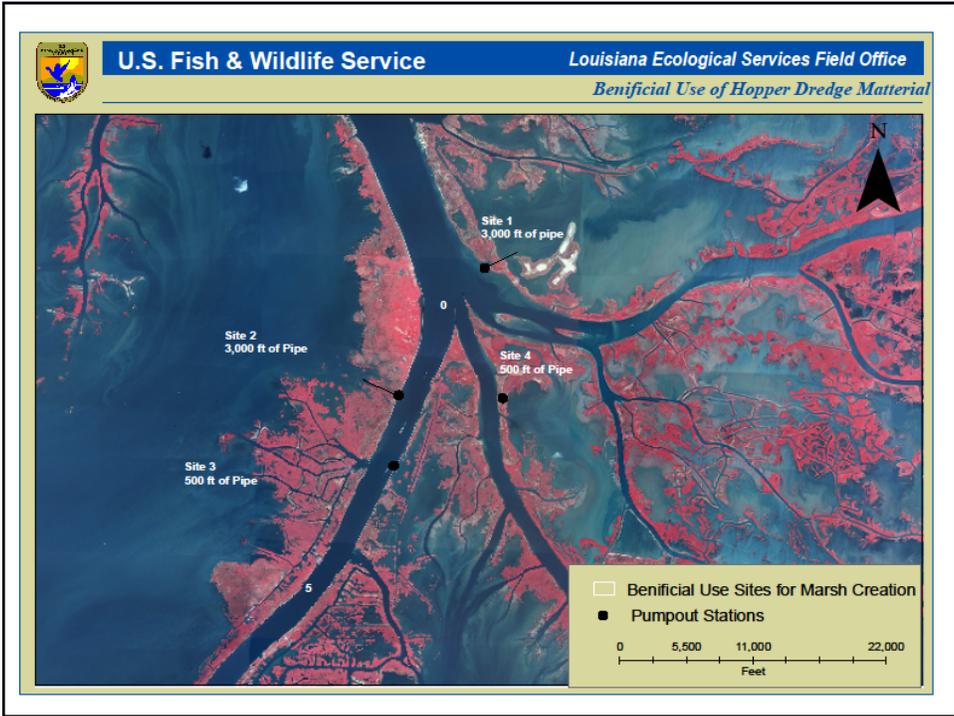


Region 2 Mississippi River Delta Basin

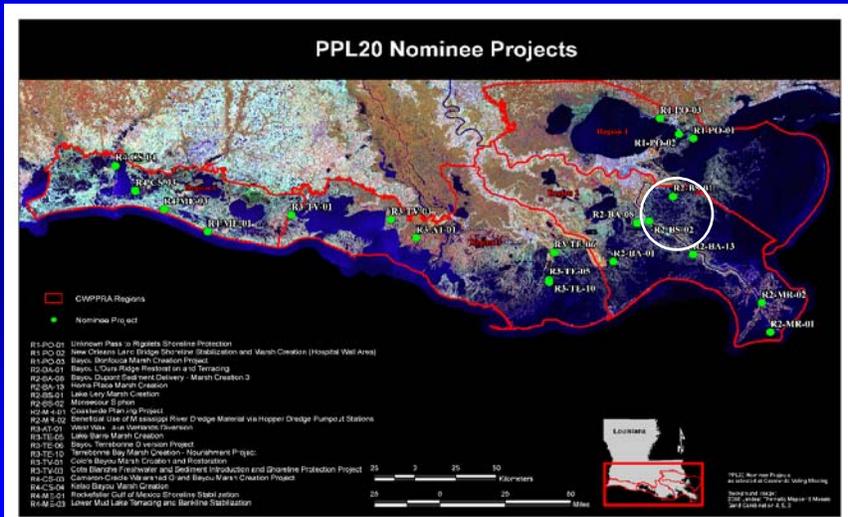


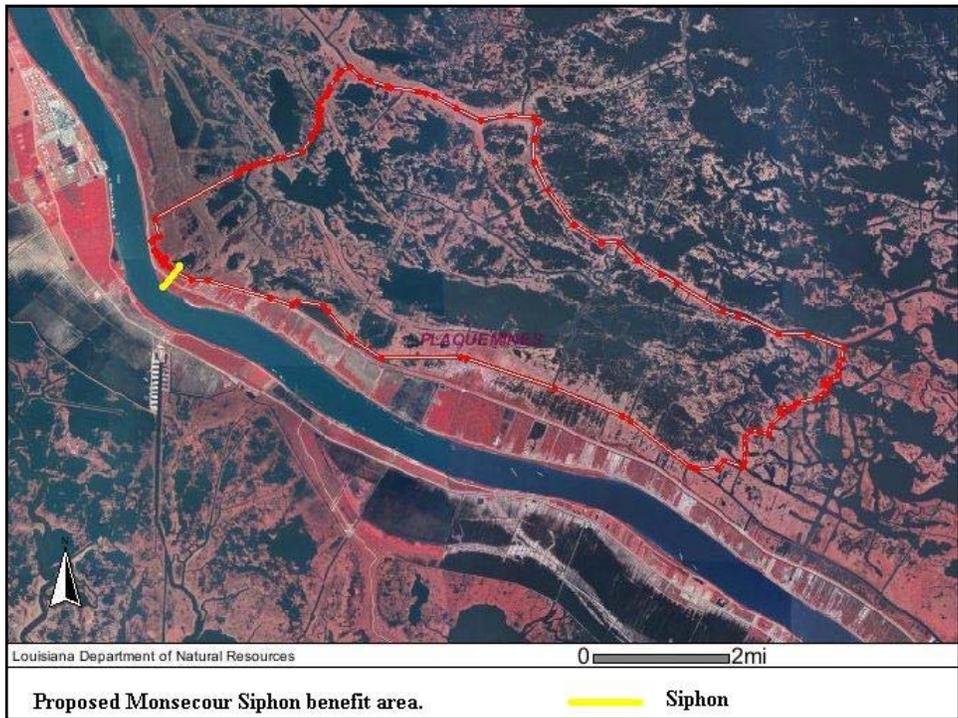
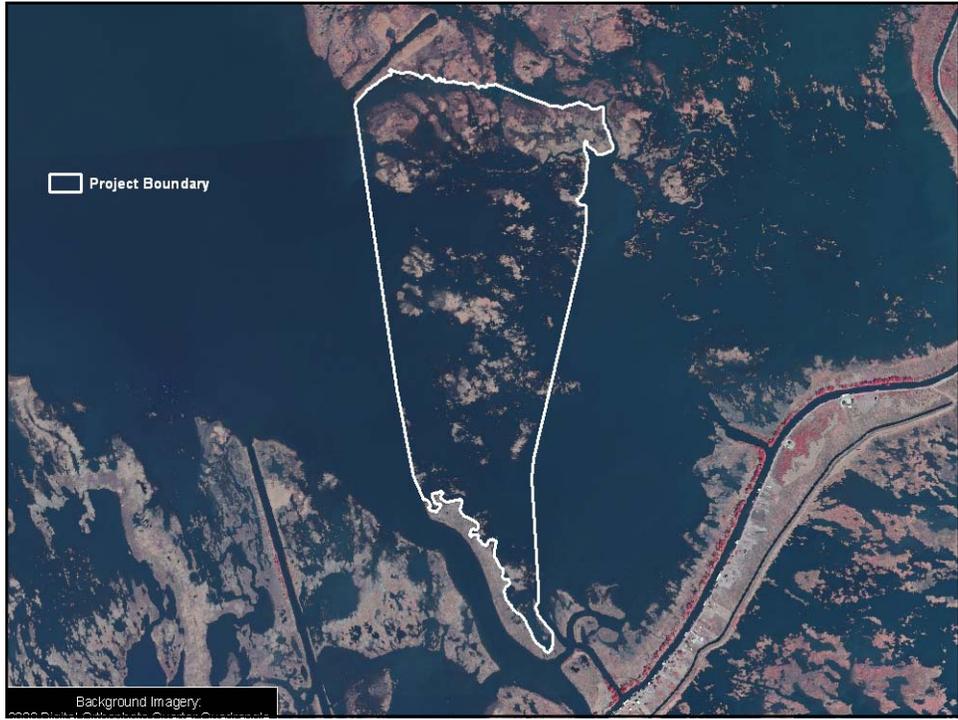
Coastwide Planting Project PPL-20

Potential Vegetative Planting Projects:
Shoreline stabilization
Shallow mud flats
Storm-damaged marshes
Bankline stabilization
Barrier Islands

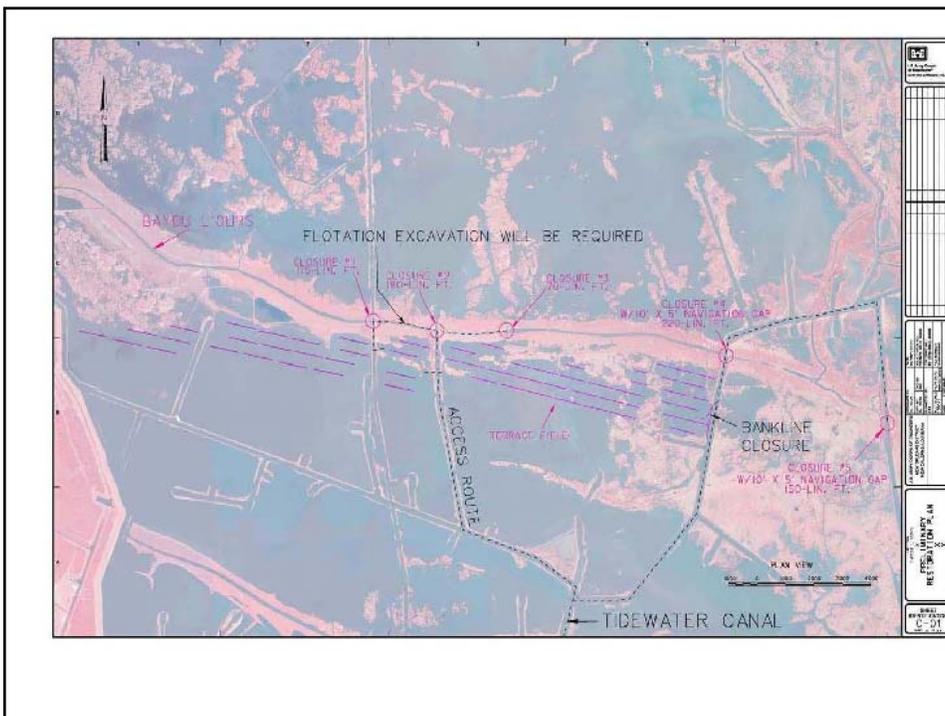
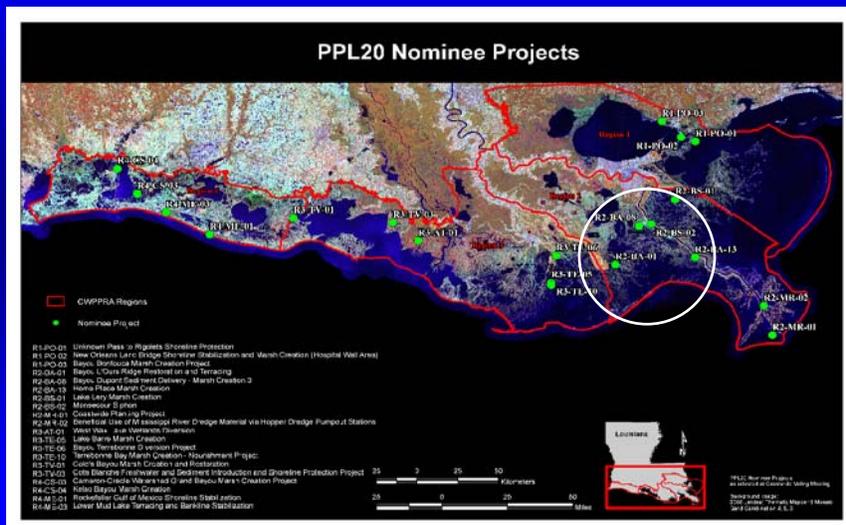


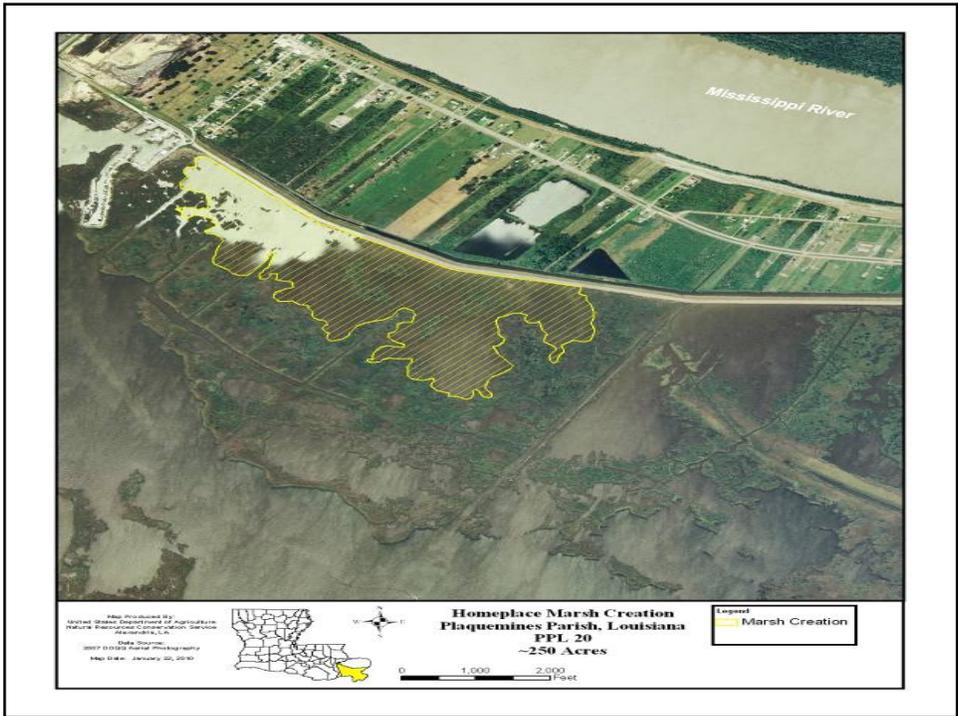
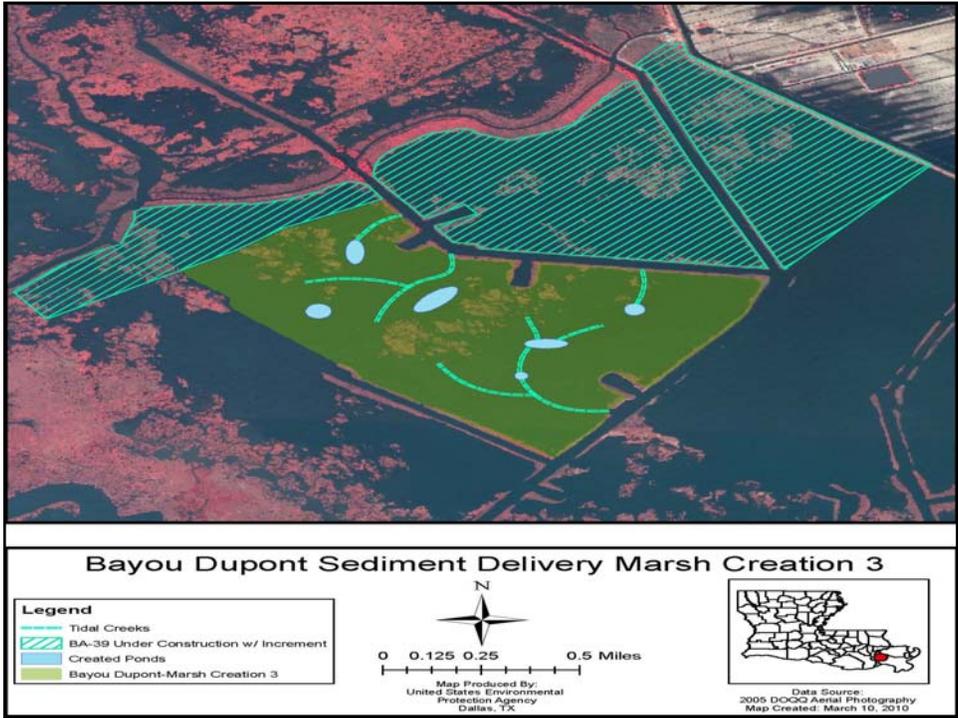
Region 2 Breton Sound Basin



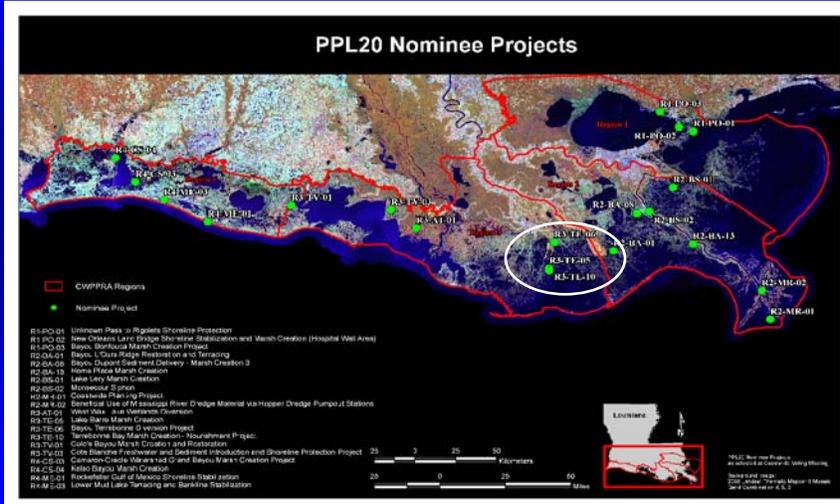


Region 2 Barataria Basin

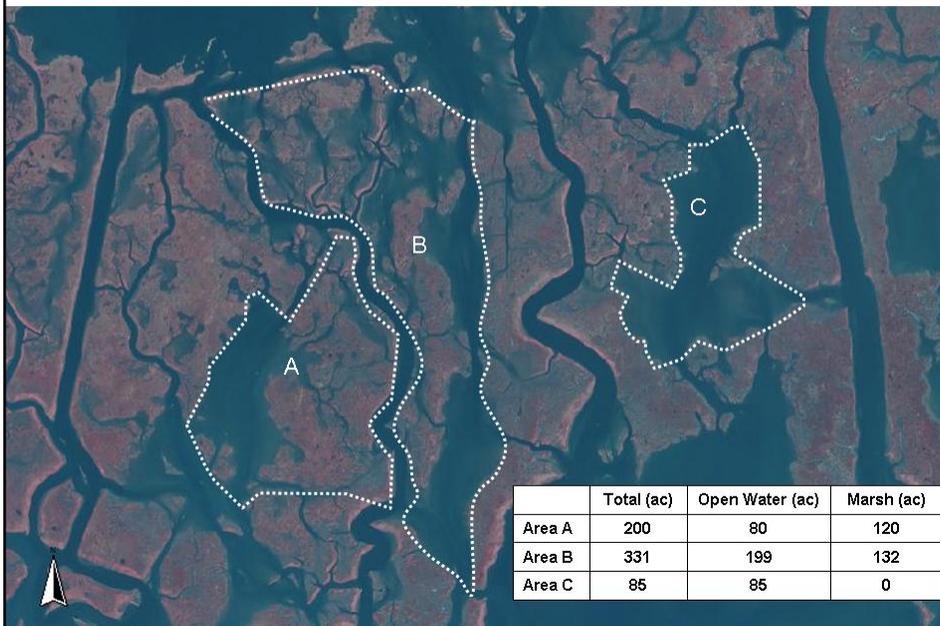


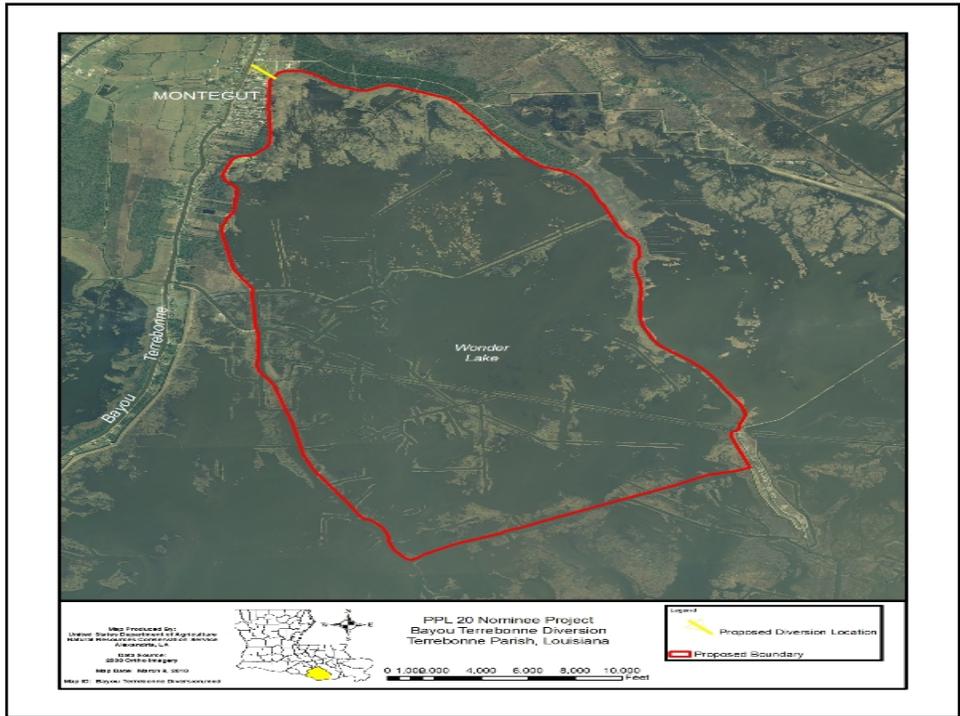
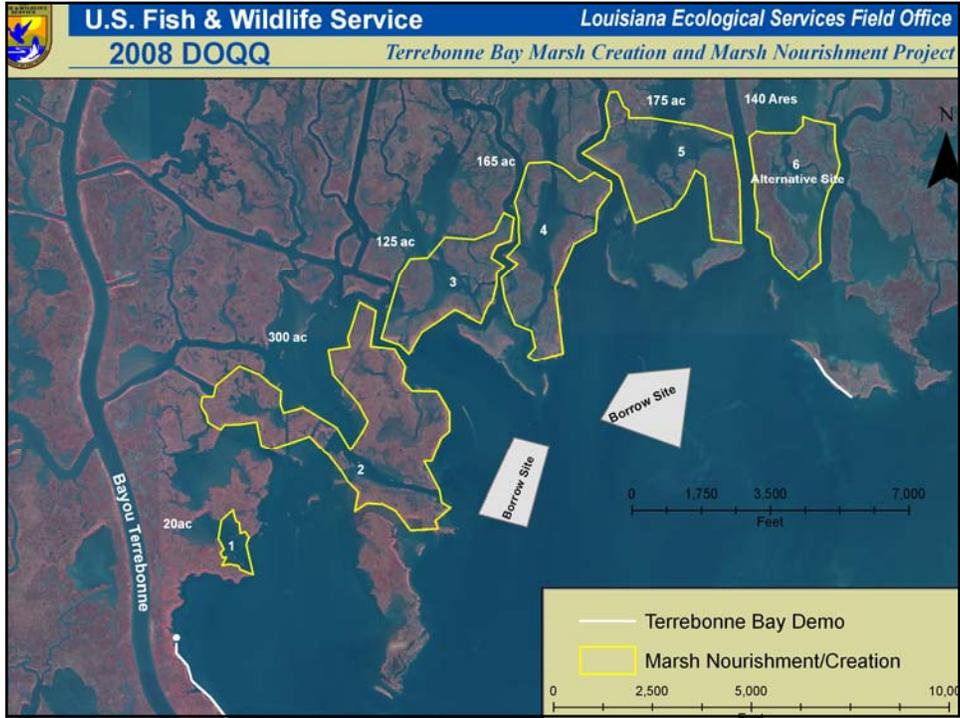


Region 3 Terrebonne Basin

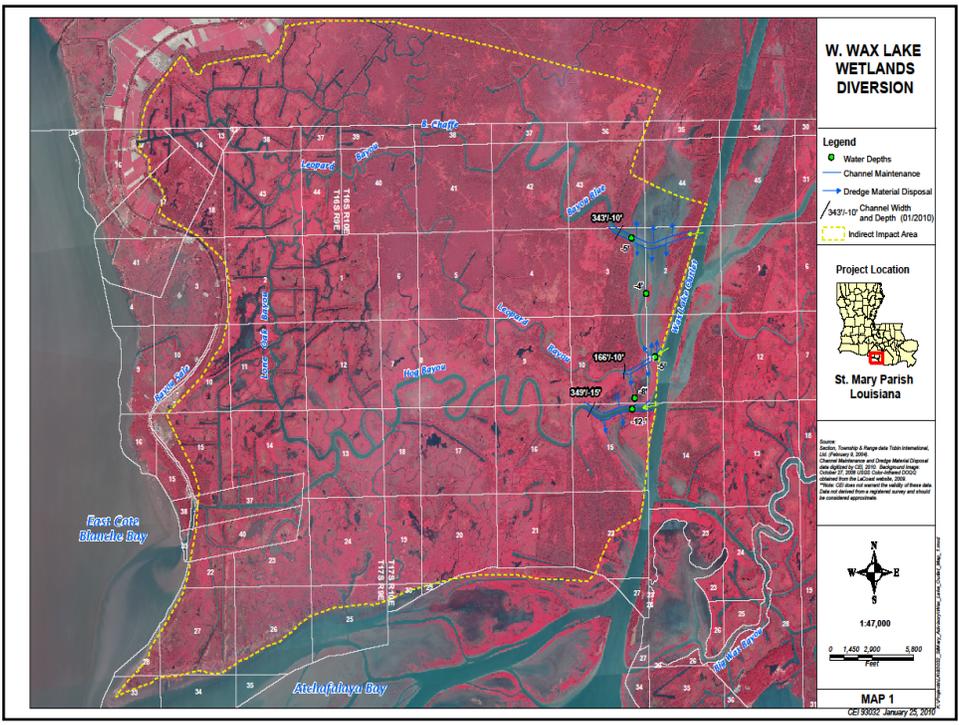
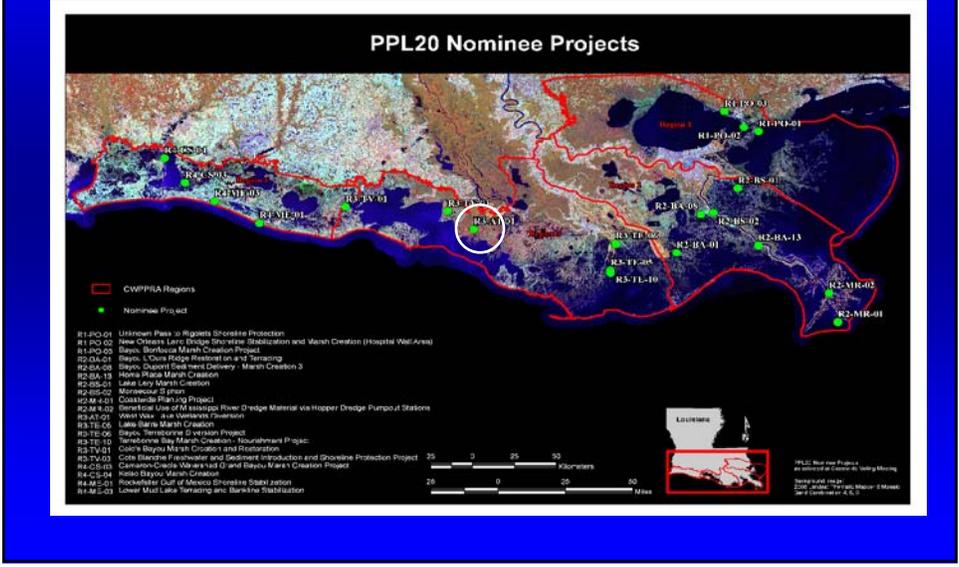


Lake Barre Marsh Creation 364 acres creation; 252 nourishment

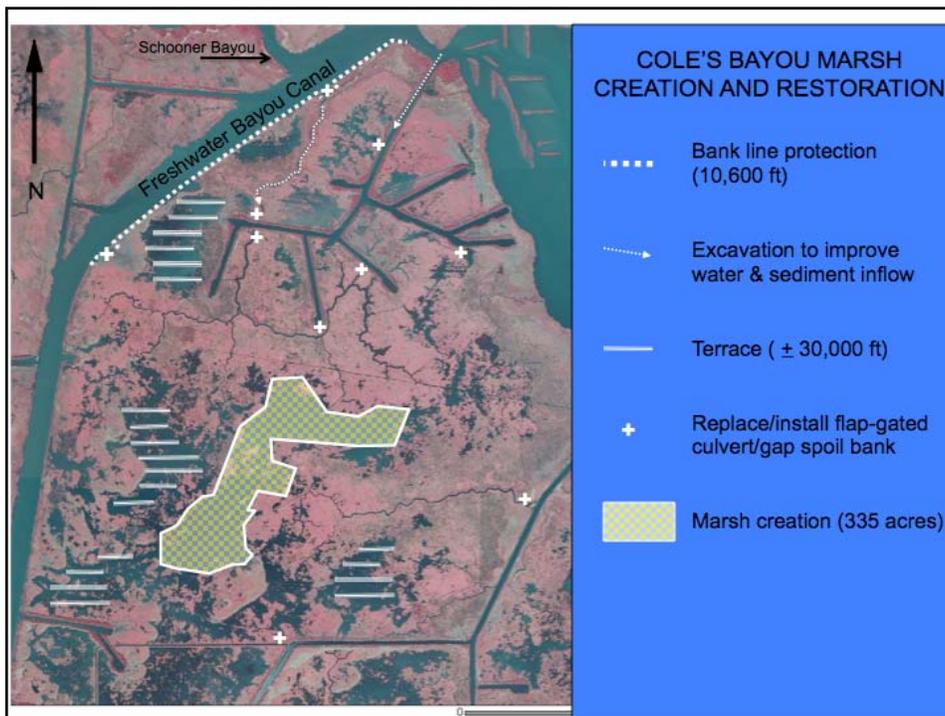
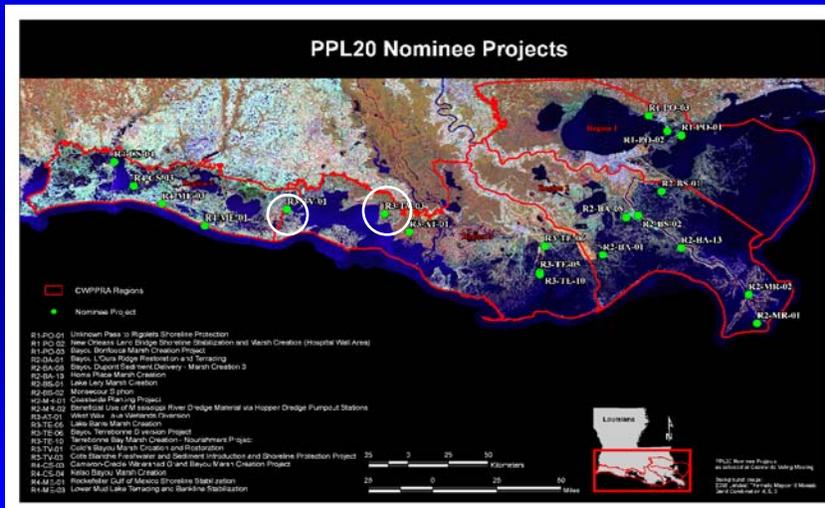


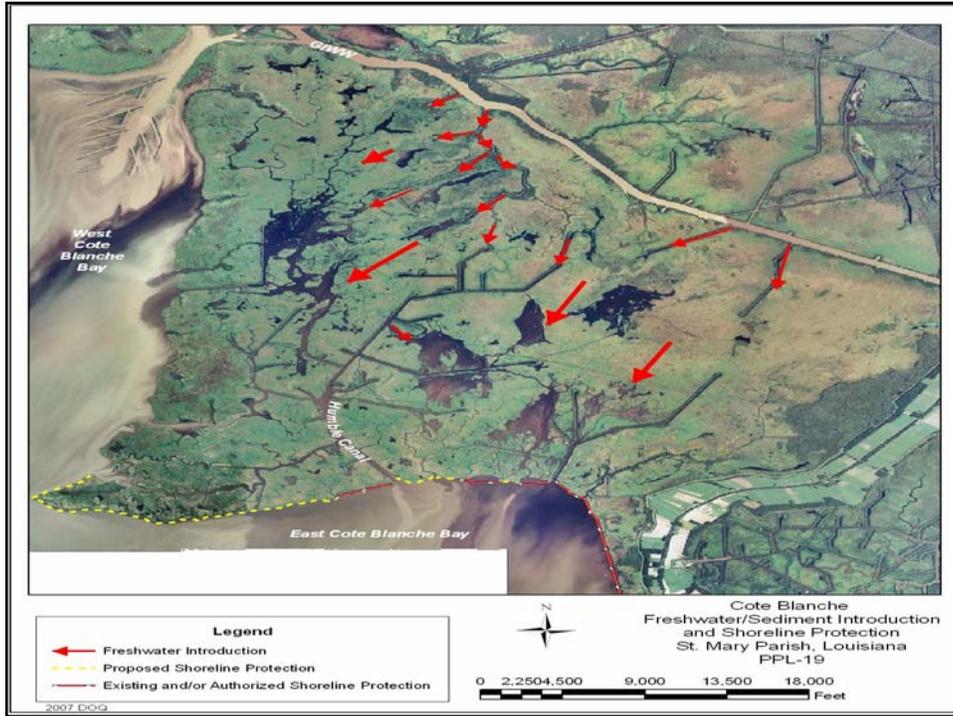


Region 3 Atchafalaya Basin

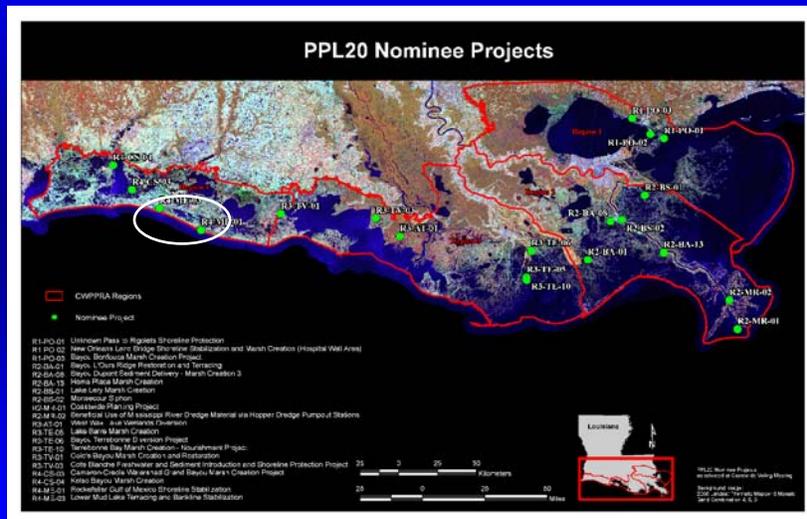


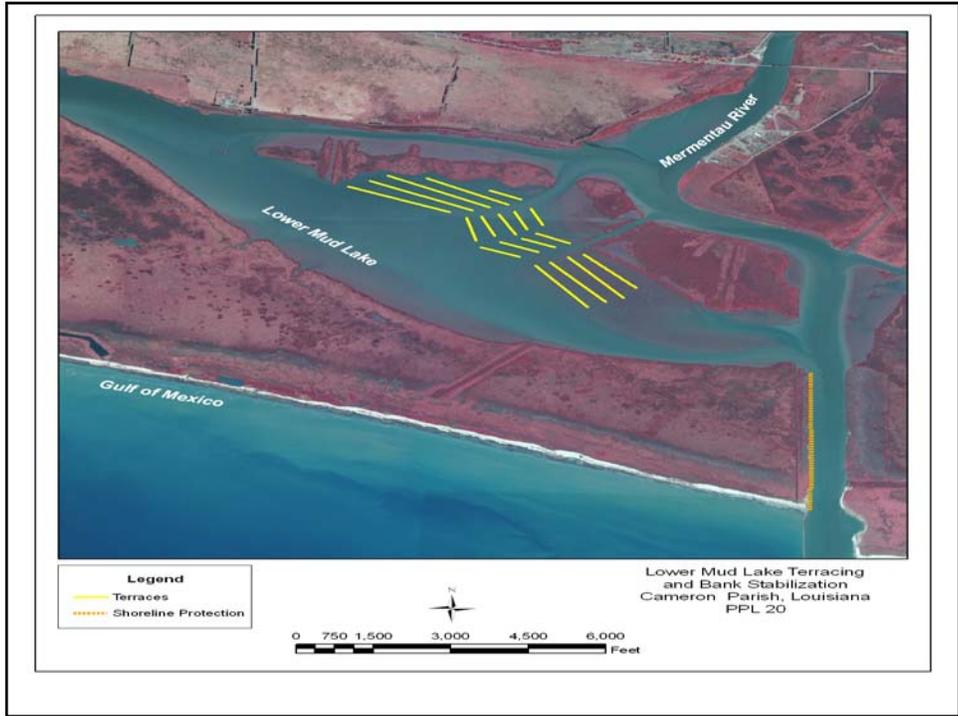
Region 3 Teche-Vermilion Basin



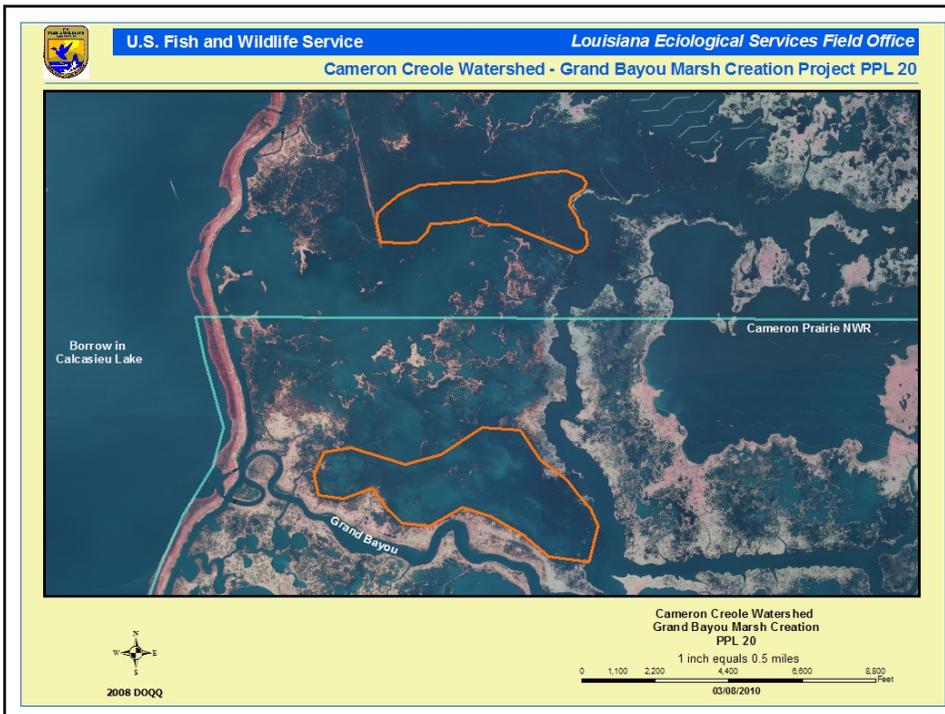
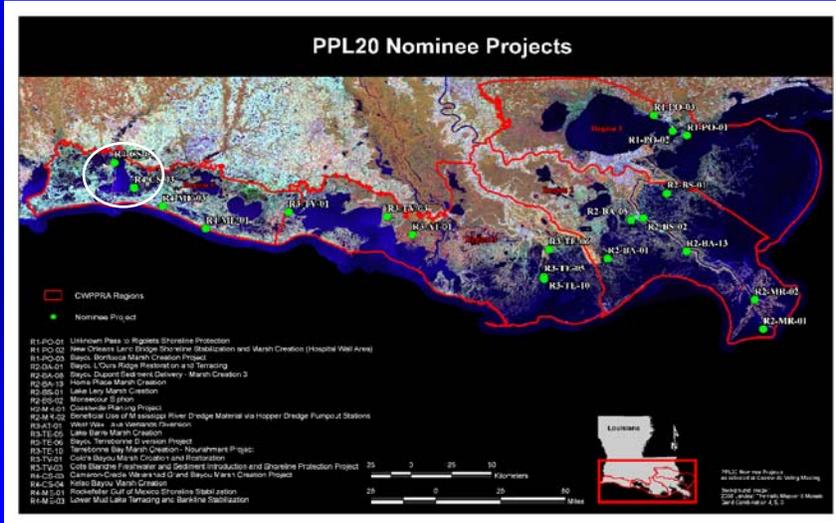


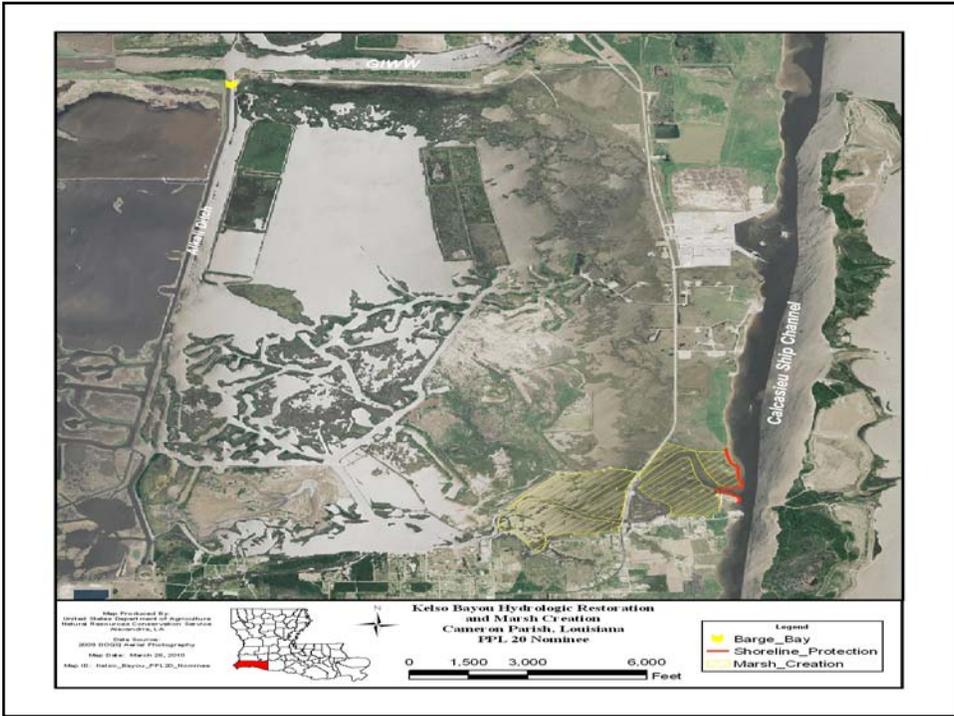
Region 4 Mermentau Basin





Region 4 Calcasieu-Sabine Basin





CWPPRA PPL19 Demonstration Project Nominees

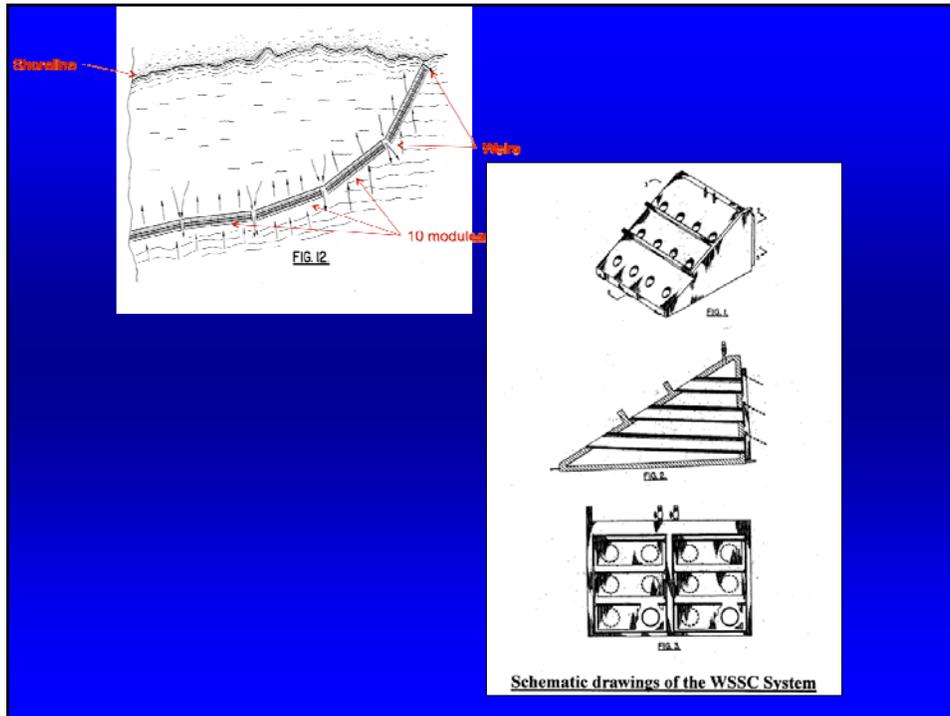


Floating Island Environmental Solutions BioHaven

- Soil conditions and water depths sometimes limit the construction of terraces.
- Floating marshes are often susceptible to breakup and loss after extreme flooding events, especially in areas with altered hydrologic conditions.
- Evaluate the effectiveness of Floating Island BioHavens to function as earthen terraces – provide marsh habitat, reduce wave fetch, trap sediment, etc.
- Evaluate their effectiveness to contain floating marshes in areas where they are susceptible to altered hydrologic conditions.

The Wave Robber Wave Suppressor Sediment Collection System

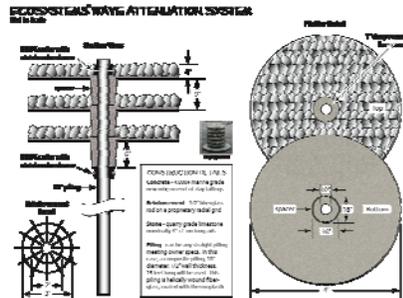
- potential demo location at Southwestern Shore of Little Lake
 - experiencing a high shoreline erosion rate of between 20' and 40' a year.
- Evaluate an alternative method of shoreline protection equivalent to traditional methods, while trapping ambient sediments to facilitate expansion of emergent marsh
- System serves as a barrier to disrupt the tidal wave flow into the shorelines and wetlands while at the same time allowing sediment to be carried through the system by the wave action and water currents



Ecosystems Wave Attenuator for Shoreline Protection

- Soil conditions, accessibility, and other issues sometimes limit traditional shoreline protection techniques.
- Evaluate an alternative shoreline protection method where site conditions limit or preclude traditional techniques (i.e., rock structures).
- The Ecosystems Wave Attenuator consists of concrete discs mounted on a piling and anchored in rows to dissipate wave energy.

Ecosystems Wave Attenuator System

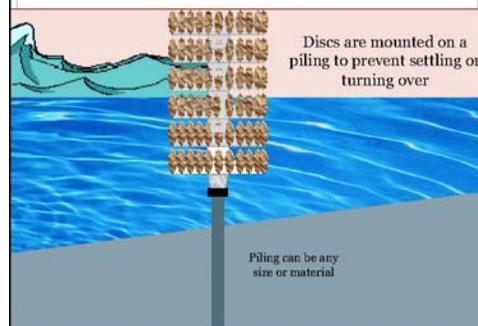


Discs



Limestone rocks are imbedded in a molded concrete disc

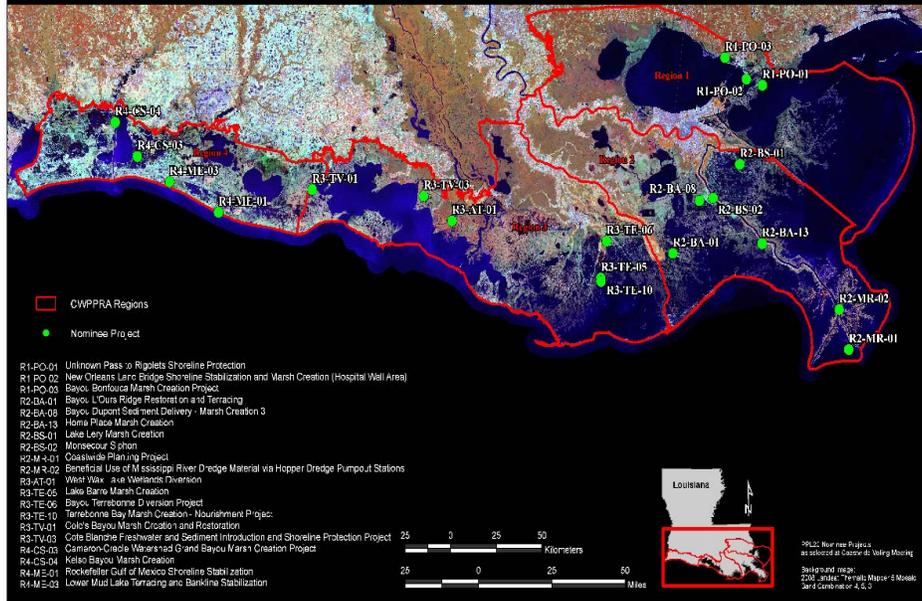
Innovative Anchoring System



Use of Sand Derived from Pulverized Glass as Beach Nourishment on Barrier Island Restoration Projects

- lack of suitable or affordable sand sources have focused the need to develop an alternative sand substitute/additive
- test the feasibility of using glass cullet in the same way that sand use occurs traditionally in coastal restoration
- project would evaluate the effectiveness of withstanding wave energy and shoreline erosion and the cost compared to strictly sand use.

PPL20 Nominee Projects



CWPPRA PPL 20 Nominees

<u>Region</u>	<u>Basin</u>	<u>Project Nominees</u>
1	Pontchartrain	Bayou Bonfouca Marsh Creation Project
1	Pontchartrain	Unknown Pass to Rigolets Shoreline Protection
1	Pontchartrain	New Orleans Land Bridge Shoreline Stabilization and Marsh Creation Project
2	Mississippi River Delta	Coastwide Planting Project
2	Mississippi River Delta	Beneficial Use of MS River Dredge Material via Hopper Dredge Pumpout Stations
2	Breton Sound	Lake Lery Shoreline Marsh Creation
2	Breton Sound	Monsecour Siphon
2	Barataria	Bayou L'Ours Ridge Restoration and Terracing
2	Barataria	Bayou Dupont Sediment Delivery – Marsh Creation 3
2	Barataria	Home Place Marsh Creation
3	Terrebonne	Lake Barre Marsh Creation
3	Terrebonne	Terrebonne Bay Marsh Creation – Nourishment Project
3	Terrebonne	Bayou Terrebonne Diversion Project
3	Atchafalaya	West Wax Lake Wetlands Diversion
3	Teche-Vermilion	Cole's Bayou Marsh Creation and Restoration
3	Teche-Vermilion	Cote Blanche Freshwater/Sediment Introduction and Shoreline Protection Project
4	Calcasieu-Sabine	Cameron-Creole Watershed Grand Bayou Marsh Creation Project
4	Calcasieu-Sabine	Kelso Bayou Marsh Creation and Hydrologic Restoration
4	Mermentau	Lower Mud Lake Terracing and Bankline Stabilization
4	Mermentau	Rockefeller Gulf of Mexico Shoreline Stabilization, Joseph's Harbor East

CWPPRA PPL20 Nominees - SUMMARY MATRIX

6-Apr-10

Region	Basin	Type	Project	Preliminary Fully Funded Cost Range	Preliminary Benefits (Net Acres Range)	Potential Issues					Comments on Other Issues
						Oysters	Land Rights	Pipelines/Utilities	O&M	Other Issues	
1	Pontchartrain	MC	Bayou Bonfouca Marsh Creation Project	\$30M - \$35M	300-350		x			x	gulf sturgeon
1	Pontchartrain	SP	Unknown Pass to Rigolets Shoreline Protection	\$25M - \$30M	100-150	x		x	x	x	gulf sturgeon
1	Pontchartrain	SP/MC	New Orleans Land Bridge Shoreline Stabilization and Marsh Creation Project	\$10M - \$15M	50-100				x	x	gulf sturgeon
2	MR Delta	VP	Coastwide Planting Project	\$15M - \$20M	500-550		x				
2	MR Delta	MC	Beneficial Use of MS River Dredge Material via Hopper Dredge Pumpout Stations	\$25M - \$30M	750-800						
2	Breton Sound	MC	Lake Lery Shoreline Marsh Creation	\$20M - \$25M	350-400			x			
2	Breton Sound	FD	Monsecur Siphon	\$10M - \$15M	950-1000	x		x	x		
2	Barataria	HR/TR	Bayou L'Ours Ridge Restoration and Terracing	\$10M - \$15M	0-50		x		x		
2	Barataria	MC	Bayou Dupont Sediment Delivery – Marsh Creation 3	\$40M - \$50M	300-350						
2	Barataria	MC	Home Place Marsh Creation	\$30M - \$35M	200-250						
3	Terrebonne	MC	Lake Barre Marsh Creation	\$30M - \$35M	300-350	x		x			
3	Terrebonne	MC	Terrebonne Bay Marsh Creation-Nourishment Project	\$25M - \$30M	300-350	x		x			
3	Terrebonne	FD	Bayou Terrebonne Diversion Project	\$10M - \$15M	250-300		x	x	x		
3	Atchafalaya	FD	West Wax Lake Wetlands Diversion	\$10M - \$15M	100-150				x		
3	Teche-Vermilion	MC	Cole's Bayou Marsh Creation and Restoration	\$40M - \$50M	300-350	x	x	x	x		
3	Teche-Vermilion	SP/FD	Cote Blanche Freshwater and Sediment Introduction and Shoreline Protection Project	\$20M - \$25M	600-650			x	x		
4	Mermentau	TR/SP	Lower Mud Lake Terracing and Bankline Stabilization	\$10M - \$15M	50-100		x	x	x	x	Corps Disposal area
4	Mermentau	SP	Rockefeller Gulf of Mexico Shoreline Stabilization, Joseph's Harbor East	\$40M - \$50M	100-150			x	x		
4	Calcasieu-Sabine	MC	Cameron-Creole Watershed Grand Bayou Marsh Creation	\$20M - \$25M	500-550	x					
4	Calcasieu-Sabine	MC/SP	Kelso Bayou Marsh Creation and Hydrologic Restoration	\$20M - \$25M	250-300		x	x	x	x	Corps Disposal area for borrow

CWPPRA PPL 20 Nominee Demonstration Projects

Demonstration Project Name	Meets Demonstration Project Criteria?	Lead Agency	Estimated Cost plus 25% contingency **	Technique Demonstrated
The Wave Robber Wave Suppressor Sediment Collection System	Yes	NMFS	\$967,113	Evaluate the effectiveness of the Wave Robber system as an alternative method of shoreline protection equivalent to traditional methods, while trapping ambient sediments to facilitate expansion of emergent marsh.
EcoSystems Wave Attenuator for Shoreline Protection Demo	Yes	NMFS	\$1,495,750	Evaluate the effectiveness of the EcoSystems Wave Attenuator as an alternative method of shoreline protection in areas where site conditions limit or preclude traditional methods.
Floating Island Environmental Solutions BioHaven©	Yes	NRCS	\$1,255,875	Evaluate the effectiveness of floating marsh islands to reduce wave fetch, trap sediment, and establish floating marsh. In addition, evaluate their effectiveness as an alternative to earthen terraces in areas of poor soils.
Use of Sand Derived from Pulverized Glass As Beach Nourishment on Barrier Island Restoration Projects	Yes	COE	\$1,397,000	Evaluate the effectiveness of cullet compared to sand in erosion control/prevention.

04/02/10

** Costs do NOT include a monitoring program and are NOT fully funded.

PPL20 PROJECT NOMINEE FACT SHEET
March 30, 2010

Project Name:

Bayou Bonfouca Marsh Creation Project

Coast 2050 Strategy:

Coastwide- Dedicated Dredging to create, restore, or protect wetlands; Maintenance of Gulf, Bay and Lake Shoreline.

Regional- #9 Dedicated delivery of sediment for marsh building; #10 Maintain shoreline integrity of Lake Pontchartrain to protect regional ecosystem values.

Mapping Unit- #27 Maintain Shoreline Integrity.

Project Location:

Region 1, St. Tammany Parish, Lake Pontchartrain Basin, along the north shore of Lake Pontchartrain, parts of the project located within Big Branch National Wildlife Refuge adjacent to Bayou Bonfouca.

Problem:

The marsh in this area was fairly stable prior to Hurricane Katrina in August 2005. There was extensive damage to the emergent marsh along the north shore of Lake Pontchartrain and especially localized in the marshes near Bayou Bonfouca when the storm surge removed many acres of marsh. Marsh loss rates should increase in the marsh surrounding these newly created open water areas due to an increase in wind driven fetch. Shoreline erosion rates in this area seem to be very low, currently there is one large breach and several smaller ones. Many more are imminent. These breaches provide direct connection between the fresher interior marshes and higher saline waters of Lake Pontchartrain. The breaches in the bankline should be filled before they grow to become a major exchange point causing an increase in interior loss rates.

Goals :

Primary goals of the project are to create and/or nourish 460 acres of low salinity brackish marsh in open water areas adjacent to Bayou Bonfouca that were damaged by Hurricane Katrina and repair any breaches along the lake rim.

Proposed Solutions:

This project would consist of placing sediment hydraulically dredged from Lake Pontchartrain and placed in open water sites to a height of +1.5 NAVD 88 to create approximately 418 acres of emergent marsh and nourish an additional 42 acres. Several larger historic marsh ponds have been identified and containment dikes would be proposed to re-create these historic ponds. Tidal creeks are also proposed to connect these ponds to facilitate water and fisheries exchange. Containment dikes that would be sufficiently gaped or degraded to allow for fisheries access no later than three years post construction.

Preliminary Project Benefits:

1) *What is the total acreage benefited both directly and indirectly?* Direct benefits would be the 418 acres created and 42 acres nourished. Many acres of interior open water would be indirectly benefited by reduction of wind induced fetch.

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

Approximately 322 acres of marsh would remain within the project area at Target Year 20.

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%)? Interior loss rates would be reduced by 50% to 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?*
This project would help maintain portions of the north shore of Lake Pontchartrain.

5) *What is the net impact of the project on critical and non-critical infrastructure?* This project would have a net positive impact on critical infrastructure through the protection of numerous homes north of the project area.

6) *To what extent does the project provide a synergistic effect with other approved and/or constructed restoration projects?* This project would work synergistically with the newly constructed Goose Point project (PO-33) and continuing maintaining the Lake Pontchartrain shoreline.

Identification of Potential Issues:

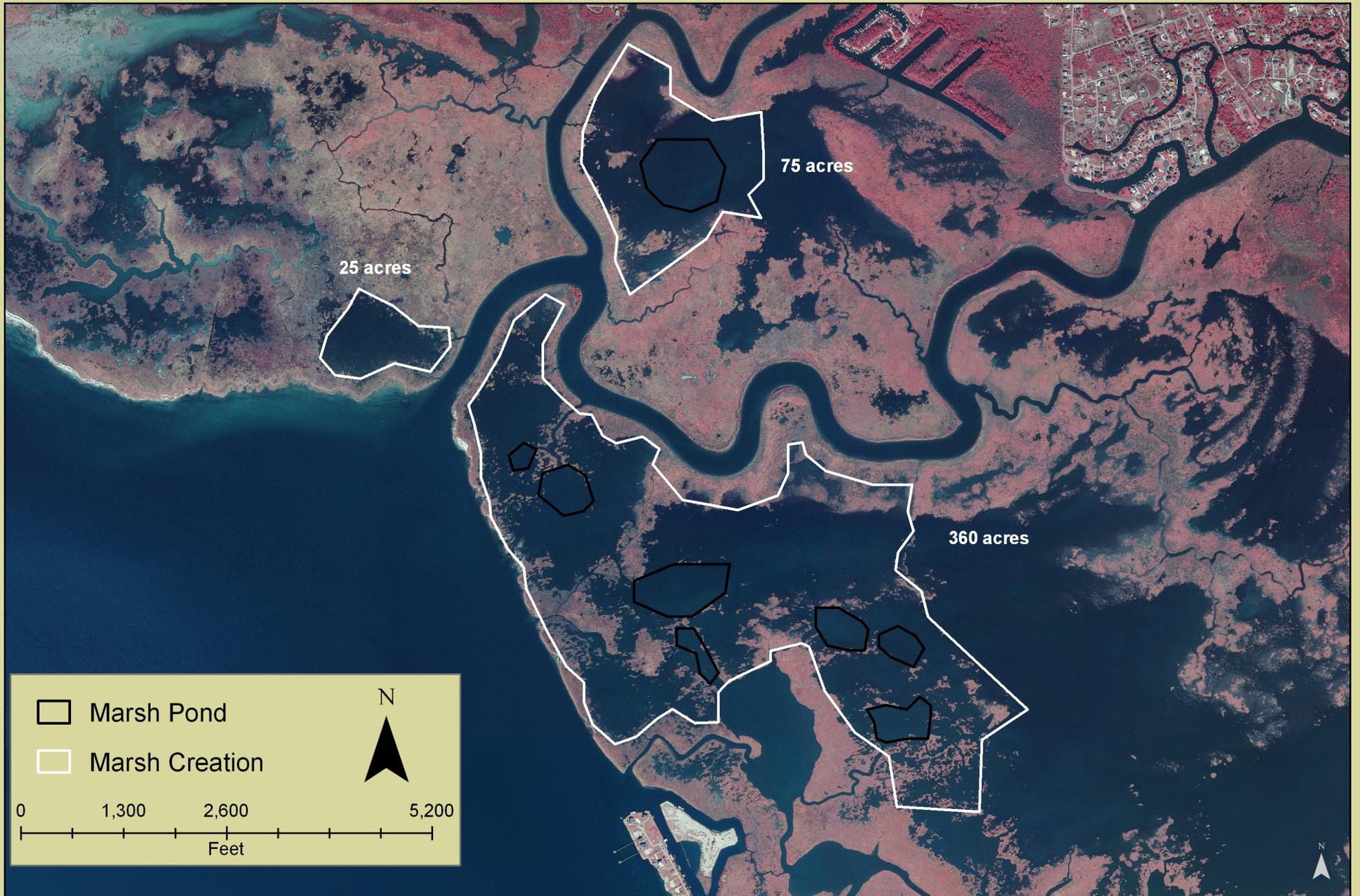
The borrow sites in Lake Pontchartrain are located within Gulf sturgeon critical habitat.

Preliminary Construction Costs:

The estimated construction cost including 25% contingency is \$22,008,486. The fully-funded cost range is \$30M - \$35M.

Preparer(s) of Fact Sheet:

Robert Dubois, U.S. Fish and Wildlife Service, 337-291-3127 Robert_Dubois@fws.gov



PPL20 PROJECT NOMINEE FACT SHEET
April 2, 2010

Project Name:

Unknown Pass to Rigolets Shoreline Protection

Coast 2050 Strategy:

- Regional – Maintain Eastern Orleans Land Bridge by marsh creation and shoreline protection
- Regional – Maintain shoreline integrity of Lake Borgne
- Coastwide – Maintenance of bay and lake shoreline integrity

Project Location:

Region 1, Lake Pontchartrain Basin, Orleans Parish, East Orleans Land Bridge Mapping Unit, along the northwest shoreline of Lake Borgne bounded by the Rigolets, Unknown Pass, the Gulf Intracoastal Waterway (GIWW), and Lake Borgne.

Problem:

High wave energy, sea level rise and subsidence levels are impacting the wetland shorelines and inland marshes of lakes Pontchartrain, Borgne and St. Catherine, and Chef Pass, the Rigolets. These water bodies all outline the East Orleans Landbridge and are located in the Pontchartrain Basin. Identified in both *Coast 2050* and the LCA, this critical land bridge forms a barrier between Lake Pontchartrain and Lake Borgne, an eventual passage to the Gulf of Mexico. Along Lake Borgne between Unknown Pass and the Rigolets, there has been continued loss of shoreline and inland ponds have widened. This area holds the majority of remaining, contiguous wetland acres located in Orleans Parish.

Goals :

- Maintain the East Orleans Landbridge by stopping shoreline erosion.
- Protect inland wetlands between Lake Borgne and Lake St. Catherine.

Proposed Solutions:

The proposed features will consist of the construction of a foreshore rock dike (21,085 feet) along the shoreline of Lake Borgne. The rock dike will have a top elevation of +2.5', 4ft crest, and 2:1 side slopes. Material dredged for access to the shoreline will be beneficially used to create approximately 65 acres of marsh. This created marsh will be planted with vegetation appropriate for a brackish marsh.

Preliminary Project Benefits:

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

The shoreline protection will benefit a total of 68 acres (21,085ft at 7ft of shoreline loss per year for 20 years). Marsh creation from material dredged for access will benefit 68 acres of marsh, however after applying a background loss rate of 1.63% and a reduction of 50% of this loss rate due to the shoreline protection measures, the net result after 20 years is 58 acres. Total acreage benefited will be 126 acres.

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

About 126 total net acres of wetland to 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%).*

The marsh loss rate will be reduced by 50% and the shoreline erosion rate will be reduced by 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?*

The project would maintain the integrity of the Lake Borgne shoreline and the East Orleans Landbridge.

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

The project is anticipated to have marginal net positive impact on critical infrastructure (i.e., GIWW).

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

The project could have positive synergistic effects with the Alligator Bend project.

Identification of Potential Issues:

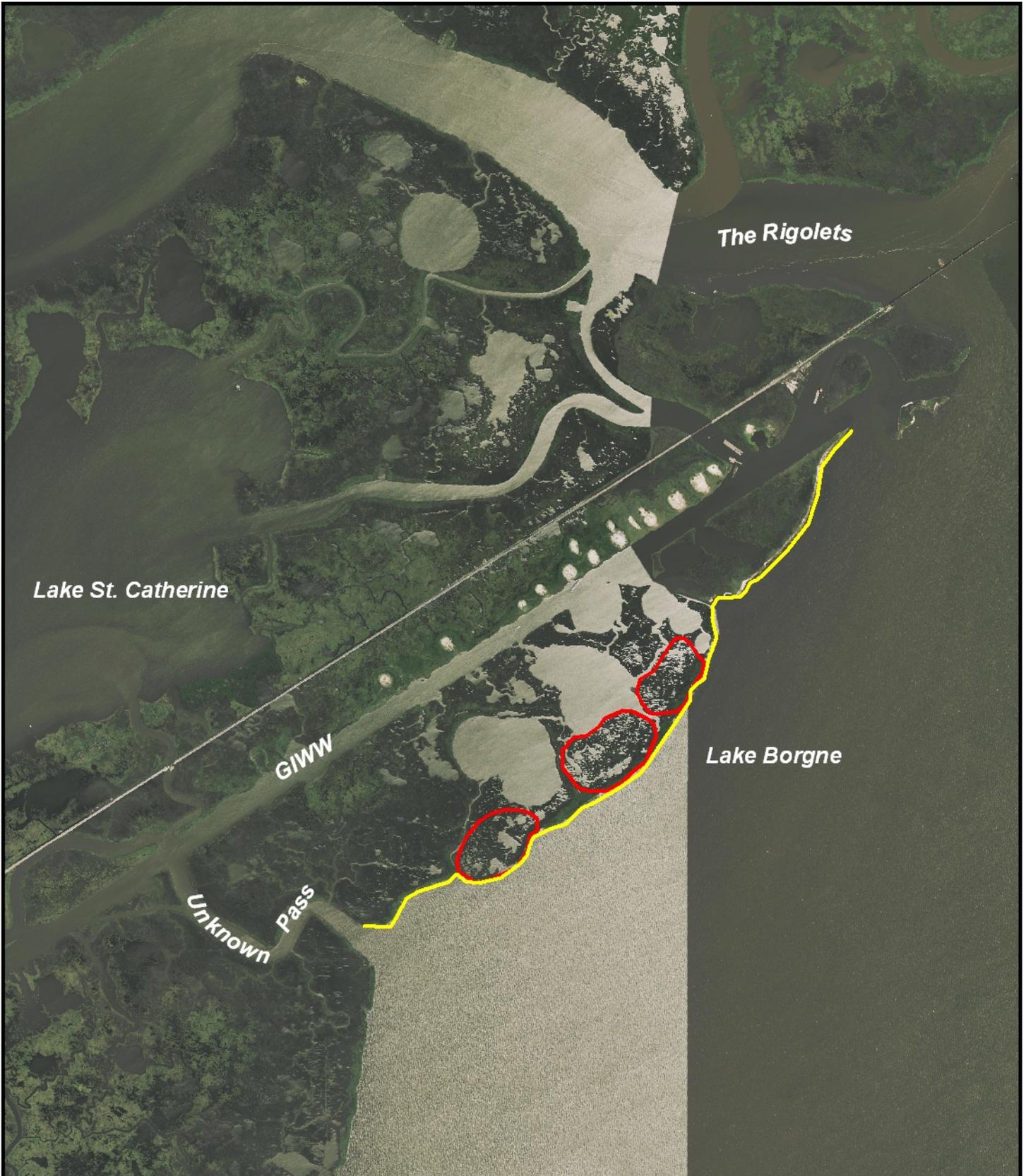
The proposed project has the following potential issues: shoreline protection design requiring operation and maintenance over a 20 year project life.

Preliminary Construction Costs:

The estimated construction cost including 25% contingency is \$12,026,080. The fully-funded cost range is \$25M - \$30M.

Preparer(s) of Fact Sheet:

John Jurgensen, USDA NRCS, (318)-473-7694, john.jurgensen@la.usda.gov



Lake St. Catherine

The Rigolets

GIWW

Lake Borgne

Unknown Pass

Map Produced By:
United States Department of Agriculture
Natural Resources Conservation Service
Alexandria, LA

Data Source:
2009 DOQQ Aerial Photography

Map Date: March 24, 2010

Map ID: Unknown_Pass_PPL20_nominee



**Unknown Pass to Rigolets
Shoreline Protection
Orleans Parish
PPL 20 Nominee**



Legend

-  Shoreline_Protection
-  Dredged_Material_Placement_Areas

PPL 20 PROJECT NOMINEE FACT SHEET
FINAL, revised March 26, 2010

Project Name:

New Orleans Land Bridge Shoreline Stabilization & Marsh Creation Project (Hospital Wall Area)

Coast 2050 Strategies:

Basin Strategies:

- 10. *Maintain shoreline integrity of Lake Pontchartrain to protect regional ecosystem values.*
- 15. *Maintain Eastern Orleans Land Bridge by marsh creation and shoreline protection.*

Project Location:

The project is located in Region 1, in the Pontchartrain Basin. The project site is located along the east portion of Pontchartrain west of HWY 90 between Hospital Road and Greens Ditch in Orleans Parish, Louisiana.

Problem:

Since 1956, the project area has lost more than 110 acres of wetlands along the east shore of Lake Pontchartrain between Hospital Road and the Greens Ditch area. The shoreline in the Hospital Wall Area has retreated approximately 450 feet since 1956. Wetland losses were accelerated by winds and storm surge caused by Hurricanes Katrina and Rita. Within the project area, these storms alone converted approximately 50 acres of interior marsh to open water ponds. Flooding of nearby communities during strong northwest winds may be partially attributed to these high wetland losses. Stabilizing the shoreline and protecting the remaining marsh would protect natural coastal resources, communities and infrastructure.

The average shoreline retreat in the project area is approximately 8 ft year. Some areas have a shoreline retreat as great as 15 ft year and have broken into the interior marsh. The continued loss of wetlands in the area has the potential to breach this land bridge into Lake St. Catherine if no action is taken to stabilize this shoreline.

Proposed Project Features:

- 1. Install approximately 7,183 linear feet of rock along the northwestern shoreline of the New Orleans Land bridge.
- 2. Dredging- fill placement to create/restore/nourish wetlands

Goals:

- 1. Stop shoreline erosion.
- 2. Create/restore/nourish/protect ~ 63 acres of wetlands.
- 3. Protect the New Orleans Landbridge

Preliminary Project Benefits:

The following questions should be addressed:

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

Directly benefitted: Approximately 26 acres of marsh will be protected via the shoreline protection feature(7,183 ft x 8 ft x 20 yrs/43,560 = 26 ac.) Approximately 46 acres of marsh will be restored via the marsh creation/nourishment feature.

Indirectly: *Approximately 200 acres in the project area would be protected from the shoreline protection. Additionally, Hwy 90 would be protected from encroachment from Lake Pontchartrain.*

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

At the end of 20 years, approximately 26 acres of marsh should remain due to the shoreline protection feature. The marsh creation/nourishment feature would result in an estimated 37 net acres at end of 20 years. The net acres benefited would be 63 acres.

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 100% for the shoreline protection and 50% for marsh creation/nourishment. Most of the interior land loss has been due to areas where the shoreline has broken into the interior marsh.

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 maintains a portion of the rims of Lake Pontchartrain, which are structural components of the coastal ecosystem. The project also protects the New Orleans Land Bridge.

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

One key feature of this project is the protection of Hwy 90 which is used by the local communities as hurricane evacuation route. The project site is also located in a critical area that provides one of the last lines of defense against storm surge coming into the Lake Pontchartrain system.

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

The project continues to protect the Lake Pontchartrain Rim which serves as the remaining critical reach that protects the west side of the New Orleans Land Bridge.

Identification of Potential Issues:

Rock shoreline protection projects historically require O&M. Consideration of possible impacts to gulf sturgeon at certain times of the year would be required.

Preliminary Construction Costs:

The construction cost including 25% contingency is approximately \$6,976,072. The fully-funded cost range is \$10M - \$15M

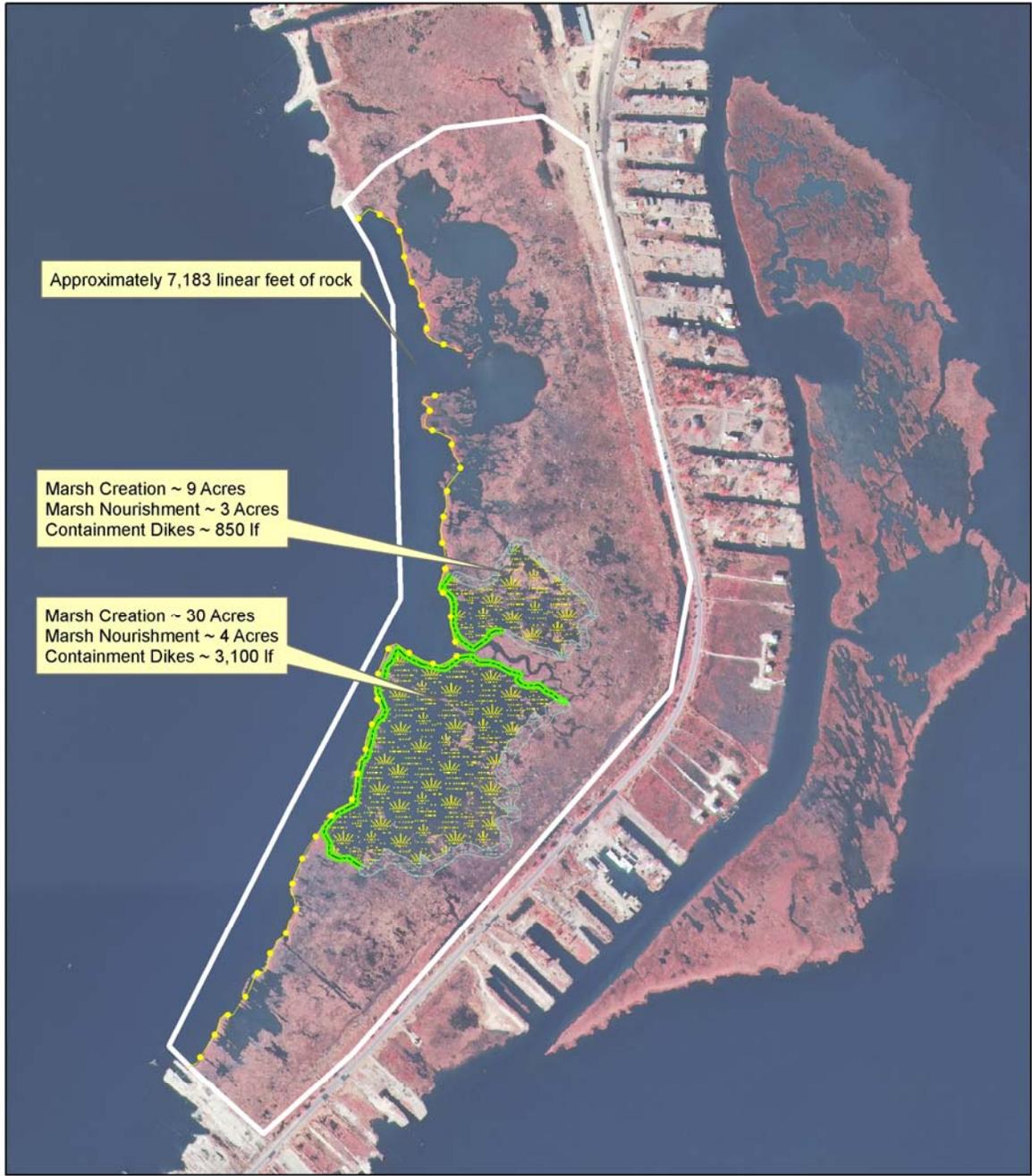
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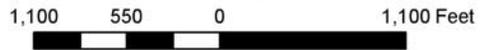
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**New Orleans Landbridge
Hospital Wall Area**



Background Map: 2005 DOQQ

PPL20 FINAL PROJECT NOMINEE FACT SHEET
3/30/2010

Project Name:

Coastwide Planting Project

Coast 2050 Strategy:

Vegetative Planting

Project Location:

Coastwide

Problem:

The coastal restoration community has long recognized the benefits of vegetative plantings in restoration. Many marsh creation and most terracing projects require planting to insure success. Coastal shoreline plantings have also proven to be very effective and some have demonstrated the ability to not only stop shoreline erosion but to facilitate accretion. Recent hurricane events have exposed a need to have a mechanism in place where large-scale planting efforts can be deployed in a timely manner to specifically target areas of need anywhere coastwide. Although the CWPPRA program can fund specific large-scale planting projects, the normal program cycle for individual projects can delay needed restoration plantings for a number of years.

Goals :

The goals of this project are to facilitate a consistent and responsive planting effort in coastal Louisiana that is flexible enough to routinely plant on a large scale and be able to rapidly respond to “hot spots” following storm or other damaging events.

Proposed Solutions:

This project will provide a consistent annual mechanism for vegetative planting projects through the CWPPRA program designed to implement targeted restoration planting efforts. The project would set up an advisory panel consisting of representatives from various state and federal agencies who would assist in the selection of projects for funding. The project would also set up a mechanism by which project nominations would be submitted for consideration. The panel would provide an annual report on project activities.

Preliminary Project Benefits:

1) What is the total acreage benefited both directly and indirectly? This project is expected to directly benefit those areas of planting by creating/protecting up to 1,200 acres of marsh as well as provide some additional stability to those areas adjacent to planting projects.

2) How many acres of wetlands will be protected/created over the project life? It is estimated that 30% of planting will go to shorelines losing on average 8 ft per year. Using a 25% loss reduction to shorelines planted would yield 18 acres. 70% of plantings would be in interior marsh losing on average 0.5%/y. Using a 50% of area of planting vegetation becoming functional marsh would yield 25 acres of marsh per year or 502 acres over the life of the project. Therefore, the total project benefits would yield **520** acres over 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%). 30% would reduce losses by 25% and 70%

would result in net gain; therefore, the net loss rate reduction $(0.3*0.25)+(0.7*1.00) = 77.5\%$ ($>75\%$).

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.*
None identified

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 the following potential issues: None identified

Preliminary Construction Costs:

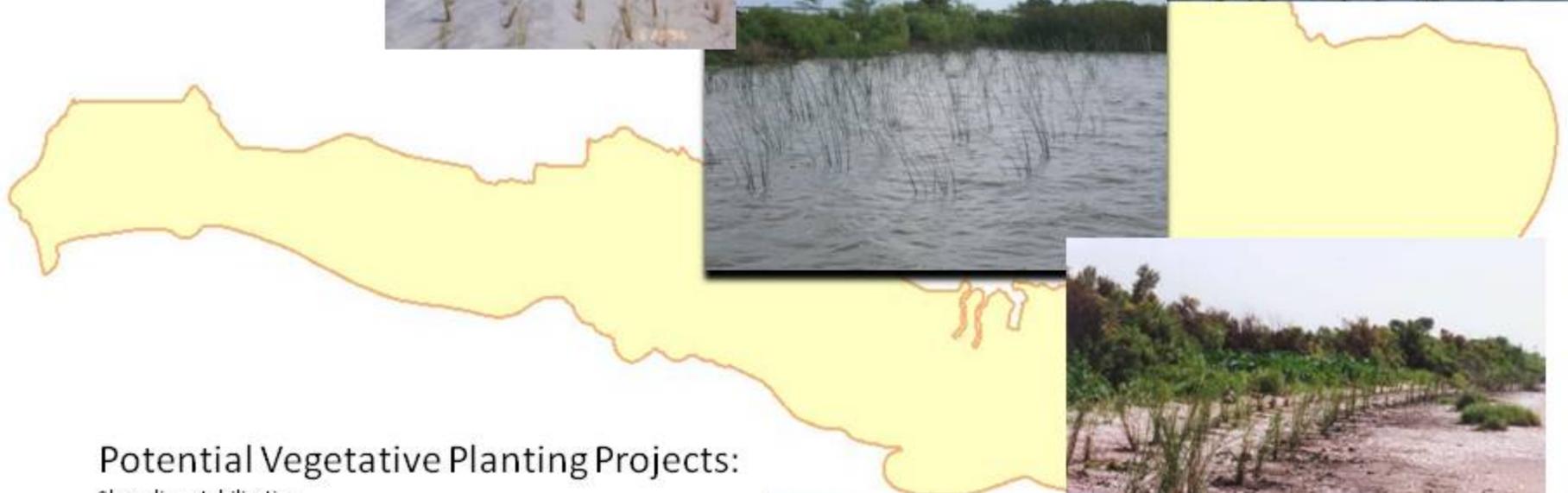
The estimated construction cost including 25% contingency is \$10,000,000 (\$500,000/year for 20 years). The fully-funded cost range is \$15M - \$20M.

Preparer(s) of Fact Sheet:

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Coastwide Planting Project

PPL-20



Potential Vegetative Planting Projects:

- Shoreline stabilization
- Shallow mud flats
- Storm-damaged marshes
- Bankline stabilization
- Barrier Islands



PPL20 PROJECT NOMINEE FACT SHEET
March 31 2010

Project Name:

Beneficial Use of Mississippi River Dredge Material via Hopper Dredge Pumpout Stations

Coast 2050 Strategy:

Coastwide Common Strategies- Beneficial Use of Dredged Material from Maintenance Operations

Project Location:

Region 1, Mississippi River Birdsfoot Delta, Plaquemines, east and west banks of Southwest Pass and area near Heads of Passes,

Problem:

Implementation of this project would prevent ocean dumping of valuable Mississippi River sediment and reduce the amount of double handling of river sediment near the Pass a Loutre. There has been several papers and one demonstration project that would indicate that this is a viable option. There have also been many papers written that document the value of the sediment that is utilized with river sediment while we are still dumping millions of cubic yards of sediment off the Louisiana Coast.

Goals :

This project hopes to make available to the Corps the option of using all or a large portion of the Mississippi River sediment dredged from the river and dumped into the ocean to create fresh and intermediate marshes near the banks of the Mississippi River and its passes.

Proposed Solutions:

The proposed project would create 4 mooring/pumpout sites along either side of the Mississippi River and Main Pass in the vicinity of Heads of Passes, West Bay and East Bay. These pumpout stations would be a mooring anchor with a pipe floating in the water that would be hoisted up to the ship for pumpout. CWPPRA would pay for the incremental portion of the pumpout cost for a set amount of sediment.

Preliminary Project Benefits:

- 1) Create 4 permanent mooring sites and dispose of material at these sites creating 100 acres for each of 2 years at each of the 4 mooring sites. (800 acres or 756 net acres at TY20)
- 3) The anticipated loss rate reduction throughout the area of direct benefits over the project life is normally 50-74% with marsh creation projects.
- 4) The Mississippi River Birds Foot Delta should be considered a structural component of the coastal ecosystem and this project would help maintain this feature.
- 5) This project would not protect any critical or non critical infrastructure.

Identification of Potential Issues:

At this time, it is not know if the Corps dredging operations would support this project. It is also not know if the State would also be supportive of this project. Some Corps employees have said

in the past it is not feasible, but others have also said that it is feasible. Will the State support a beneficial use project in the Mississippi River Birds Foot Delta.

Preliminary Construction Costs:

The estimated construction cost including 25% contingency is \$21,364,384. The fully-funded cost range is \$25M - \$30M.

Preparer(s) of Fact Sheet:

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PPL 20 PROJECT NOMINEE FACT SHEET

Project Name: Lake Lery Shoreline Marsh Creation

Coast 2050 Strategy:

- Coastwide – Dedicated dredging for wetland creation
- Coastwide – Maintenance of bay and lake shoreline integrity
- Coastwide – Vegetative plantings

Project Location:

The project is located in Region 2, Breton Basin, St. Bernard Parish, along the eastern rim of Lake Lery and extending toward Bayou Terre aux Boeufs.

Problem:

The marshes forming the eastern shoreline of Lake Lery and directly to the east of the former lake shoreline were severely deteriorated by Hurricane Katrina. Without directly rebuilding these marshes, the lake itself will likely continue to grow and will extend to Bayou Terre aux Boeufs.

Goals:

1. Create/nourish 493 acres of marsh through dedicated dredging and vegetative plantings
2. Restore/stabilize the eastern shoreline of Lake Lery

Proposed Solutions:

This project would create/nourish 493 acres of marsh along the eastern shore of Lake Lery using material dredged from Lake Lery and vegetative plantings. The target elevation for the marsh creation area will correspond with the elevation of healthy marsh in the surrounding areas. Temporary containment dikes will be constructed in situ around the marsh creation/nourishment area and will be gapped within 3 years of construction to allow greater tidal exchange and estuarine organism access.

Preliminary Project Benefits:

- 1) What is the total acreage benefited both directly and indirectly? **493 acres**
- 2) How many acres of wetlands will be protected/created over the project life? **363 acres**
- 3) What is the anticipated loss rate reduction throughout the area of direct benefits over the project life? **50-74%** per convention of the EnvWG for interior marsh creation projects
- 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.?
This project will reestablish the eastern rim of Lake Lery. This area was significantly damaged during H. Katrina and is the only portion of Lake Lery that is not being addressed under any restoration funding vehicle. Completion of this project, as well as the other projected projects, will restore the full integrity of the Lake Lery watershed.
- 5) What is the net impact of the project on critical and non-critical infrastructure?
This project will have a moderate impact on non-critical infrastructure; however, reestablishing wetlands in this area can serve as a buffer to the hurricane protection levee just to the north.

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

This project will complement several other projects and represents the final construction unit required to restore the Lake Lery shoreline.

The projects directly complemented by this project include the following: 1) BS-16 Lake Lery Shoreline Restoration project, which will reestablish the southern shoreline of Lake Lery through marsh creation; 2) a CIAP project that will reinforce the western bank of Bayou Terre aux Boeufs; and 3) the Caernarvon 4th Supplemental project, which will create marsh to reestablish the western and northern shorelines of Lake Lery. This project will also utilize freshwater and nutrient inputs from the Caernarvon Freshwater Diversion to maintain healthy marsh once established.

Identification of Potential Issues:

There are no known potential issues to this project. The major landowner, Delacroix Corp., is fully aware of the project concept and has voiced their support. There are a few listed well heads or pipelines in the area which should be avoidable with no issue. There are no oyster leases.

Preliminary Construction Costs:

The estimated construction cost including 25% contingency is \$16,114,614. The fully-funded cost range is \$20M - \$25M.

Preparer(s) of Fact Sheet:

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PPL-20 Lake Lery Shoreline Marsh Creation Project

 Project Boundary



North

Background Imagery:
2008 Digital Orthophoto Quarter Quadrangle

PPL20 Project Nominee Fact Sheet
April 1, 2010

Project Name

Monsecour Siphon

Coast 2050 Strategy

Coastwide Common Strategies:

- 11.) Diversions and river discharge
- 12.) Management of diversion outfall for wetland benefits

Region 2 Regional Ecosystem Strategies:

- o Restore and Sustain Marshes
- 8.) Construct most effective small diversions

Project Location

Region 2, Breton Sound Basin, Plaquemines Parish, north of Phoenix, LA.

Problem

This area has been disconnected from the Mississippi River since levees were constructed during the early 20th century. The lack of overbank flooding/crevasses ensures that wetlands here do not have sufficient sediment input to maintain elevation against subsidence. In addition, drainage canals and oil and gas canals and associated spoil banks probably create some undesirable impoundment and tidal scour/saltwater intrusion in the area. In addition to impoundment caused by canals and spoil banks, the area is probably somewhat naturally impounded due to natural ridges. Aerial photography clearly demonstrates the significant loss of marsh in this area.

Goals

The project goal is to protect approximately 990 ac of intermediate marsh by reducing wetland loss rates, in turn by reintroducing an average of 1,145 cfs, and a maximum of 2,000 cfs, of Mississippi River water into the project area to increase sediment and nutrient loading.

Proposed Solution:

The proposed project features include a 2000 cfs maximum capacity siphon (estimated average flow=1145 cfs) from the Mississippi River that empties into the marsh. A conveyance channel will be constructed at the siphon outflow to aid in delivery of Mississippi River water. Additional features may be required to aid in the delivery and management of siphon discharge throughout the outfall area.

Based on current information that was run through the Boustany model, this project will introduce, on average, 1145 cfs of water per day from the Mississippi River carrying 120 mg/L of Total Suspended Solids (TSS) and approximately 1.5 mg/L of nitrogen and phosphorus. Together, this should provide a 68% reduction in the landloss rate.

Preliminary Project Benefits

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

The project will benefit a total of 12,255 acres of intermediate marsh.

- 2) *How many acres of wetlands will be protected/created over the project life?*
990 net acres of intermediate and/or fresh marsh will 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%)?*
The project will provide a 50-74% reduction in the anticipated land loss rate over 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 project will not maintain or restore any structural components of the coastal ecosystem.
- 5) *What is the net impact of the project on critical and non-critical infrastructure?*
The project will have no net impact on critical and non-critical infrastructure.
- 6) *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 CWPPRA projects that have been approved and/or previously constructed. These projects include the Caernarvon Freshwater Diversion (BS-08), White Ditch Diversion Restoration and Outfall Management (BS-12) and Bertrandville Siphon (BS-14). Of these projects, only the Caernarvon Freshwater Diversion has been constructed.

Identification of Potential Issues

According to OCPR, the proposed project has potential oyster lease issues. OCPR has also identified pipelines in the project area, and while most of these are not relevant to the project, it is possible that one pipeline may pose some problems. The project would require O&M.

Project Costs

The estimated construction cost with a 25% contingency is \$ 5,617,019. The full-funded cost range is \$10-15M.

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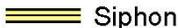
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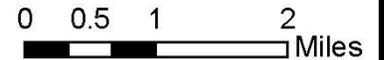


Monsecour Siphon



Legend

-  Siphon
-  Project Area



Map Created by
United States Environmental
Protection Agency

Data Source:
2008 DOQQ Aerial Imagery
Map Created March 12, 2010

PPL 20 PROJECT NOMINEE FACT SHEET
FINAL – revised March 26, 2010

Project Name

Bayou L’Ours Ridge Restoration and Terracing

Coast 2050 Strategy

Coastwide: Maintain or Restore Ridge Functions

Terracing

Vegetative Plantings

Local and Common Strategies: Maintain function of Bayou L’Ours Ridge

Restoration of the Bayou L’Ours ridge is part of the State of Louisiana’s Master Plan.

Project Location

Region 2, Barataria Basin, Lafourche Parish, east of Galliano, and south of Little Lake

Problem

The gapping of the Bayou L’Ours ridge by pipeline canals has altered the hydrology of the area and contributed to the degradation of the marsh north of the ridge. Additionally, the tidal flow through these canals is causing the depth of these openings to increase. Also, portions of the marsh along the southern shore of the ridge are being eroded at a rate of about three feet per year.

Goals

The project will restore the function of the Bayou L’Ours ridge, partially restore the hydrology north of the ridge, and will halt the deepening of the gaps. Terraces will be created in areas near the ridge to help restore the ridge’s natural function and prevent further erosion of the marsh immediately south of the ridge.

Proposed Solutions

Three of the gaps will be closed completely. Two additional gaps will be decreased in size and armored to prevent any further scouring. A 462-acre terracing field, consisting of approximately 42,500 linear feet of terraces will be constructed south of the ridge to provide additional protection to the ridge. The bankline of the canal south of closure 4 will be restored to prevent salt water intrusion into the terracing field.

Preliminary Project Benefits

1) What is the total acreage benefitted both directly and indirectly? The terraces will create 19 acres which will be directly benefitted. The project area of approximately 5,000 acres, of which approximately 1,625 acres are land, will be benefitted indirectly due to a decrease in salinity.

2) How many acres of wetlands will be protected/created over the project life? At the end of 20 years, 15 of the terrace acres will remain. Additionally, 7 acres of erosional loss will be prevented in the marsh south of the Bayou L’Ours ridge. Assuming a 5% reduction in the loss rate in a 5,000-acre area north of the ridge due to salinity reduction, 23 acres would be preserved over 20 years. (The 5,000-acre area north of the ridge could not be “cookie cut” in time for this WVA. By eyeballing, it was assumed that the proportion of marsh/water was the same in the new 5,000-acre area as in last year’s 8,000-acre area. The loss rate for last year’s area was used.)

TY20

Terraces-	15 ac
Prevention of erosional loss to Ridge-	7 ac
Salinity reduction-	23 ac

Thus, the net acres benefitted would be 45.

3) *What is the anticipated loss rate reduction throughout the area of direct benefits over the project life?*
<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.* Project features restore one function of the Bayou L'Ours ridge by providing a barrier to salt water intrusion.

5) *What is the net impact of the project on critical and non-critical infrastructure?* The net impact provides additional storm surge protection for the Clovelly Dome Oil Storage Terminal, the Larose to Golden Meadow levee system, and communities along Bayou Lafourche.

6) *To what extent does the project provide a synergistic effect with other approved and/or constructed restoration projects?* Project implementation would reduce salt water intrusion to the area near the Little Lake Shoreline Protection (BA-37) Project. With increased usage of the Davis Pond diversion, the closure of the ridge will help restore the degraded marsh north of the ridge by helping keep the fresher water north of the ridge longer.

Identification of Potential Issues

Past projects in this area have had landowner issues, but landowners in the area, including the owners of the Tidewater Canal, have publicly expressed their support of the project.

Preliminary Construction Costs

The construction cost including 25 % contingency is approximately \$6,615,043. The fully-funded cost range is \$10M - 15 M.

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PPL20 PROJECT NOMINEE FACT SHEET
March 25, 2010

Project Name

Bayou Dupont Sediment Delivery – Marsh Creation 3

Coast 2050 Strategy

Coastwide Strategy:

- 2.) Dedicated dredging to create, restore, or protect wetlands
- 10.) Off-shore and riverine sand and sediment resources

Region 2 Ecosystem Strategy:

- o Restore and Sustain Marshes

Project Location

Region 2, Barataria Basin, Plaquemines and Jefferson Parishes

Problem

The wetlands in the Barataria Basin were historically nourished by the fresh water, sediment and nutrients delivered by the Mississippi River and the many distributary channels. Following the creation of levees along the lower river for flood control and navigation, these inputs ceased. In addition, numerous oil and gas canals in the area contributed significantly to wetland losses. Data suggests that from 1932 to 1990, the basin lost over 245,000 ac of marsh, and from 1978 to 1990, Barataria Basin experienced the highest rate of wetland loss along the entire coast.

Proposed Solution

The proposed project's primary feature is to create and/or nourish approximately 501 ac (402 ac created, 99 ac nourished) of marsh, approximately 10 ac of tidal ponds, and approximately 10,000 linear ft of tidal creeks. In order to achieve this, sediment will be hydraulically pumped from the Mississippi River into the shallow water marsh creation area. The project will utilize the existing pipeline crossing that was constructed for an adjacent project (Mississippi River Sediment Delivery System (BA-39)). Containment dikes will be constructed around the marsh creation area to keep material on site during pumping and the tidal creeks and ponds will be constructed. Once pumping has been completed, the containment dikes will be degraded to the current platform elevation and gaps will be made in the containment dike, hydraulically connecting the constructed tidal creeks to the adjacent water. Additionally, the newly constructed marsh will be assessed to determine if vegetative plantings will be necessary. Funds are budgeted to plant 50% of the created marsh acres (201 ac).

Goals

The project goal is to create and/or nourish approximately 501 ac (402 ac created, 99 ac nourished) of emergent brackish marsh using sediment from the Mississippi River and protect 344 ac of emergent brackish marsh over the project's life.

Preliminary Project Benefits

- 1) *What is the total acreage benefited both directly and indirectly?*
This total project area is 522 ac.
- 2) *How many acres of wetlands will be protected/created over the project life?*
Approximately 344 ac of brackish marsh will 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%)?*

The anticipated land loss rate reduction throughout the area of direct benefits will be 50-74% over the projects 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 project will help maintain the natural southern ridge along Cheniere Traverse Bayou.

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

The project will have a net positive effect on critical flood protection levees.

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

The project will have a synergistic effect with several approved and/or constructed restoration projects. Constructed projects that this project is expected to have a synergistic effect with include the Davis Pond Freshwater Diversion (BA-01), Naomi Freshwater Diversion (BA-03) and Mississippi River Sediment Delivery System (BA-39). This project is expected to have a synergistic effect with several approved projects including the Myrtle Grove Delta Building Diversion (BA-33) and the Bayou Dupont Marsh and Ridge Creation (BA-48).

Identification of Potential Issues

The proposed project has potential land rights and utility/pipeline issues.

Preliminary Construction Costs

The estimated construction cost including 25% contingency is \$34,161,207. The fully funded cost estimate ranges between \$40-50M.

Preparer(s) of Fact Sheet:

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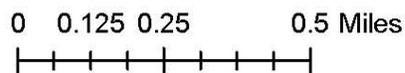
Ken Teague, EPA, 214-665-6687, teague.kenneth@epa.gov



Bayou Dupont Sediment Delivery Marsh Creation 3

Legend

-  Tidal Creeks
-  BA-39 Under Construction w/ Increment
-  Created Ponds
-  Bayou Dupont-Marsh Creation 3



Map Produced By:
United States Environmental
Protection Agency
Dallas, TX



Data Source:
2005 DOQQ Aerial Photography
Map Created: March 10, 2010

PPL20 PROJECT NOMINEE FACT SHEET
March 30, 2010

Project Name

Homeplace Marsh Creation

Coast 2050 Strategy

Coastwide Strategy. Dedicated dredging for wetland creation

Louisiana's Comprehensive Master Plan for a Sustainable Coast

From page 52 of the Master Plan, "One way to accelerate the benefits of diversions would be to mechanically restore lost marsh by pumping sediments via pipeline from the bed of the Mississippi River, offshore, or from navigation channels. Combining land sustaining diversions and this type of mechanical marsh restoration could rapidly convert open water to wetlands and help the restored marsh remain viable. Pipeline conveyance of sediment is seen as a particularly good option for areas like Myrtle Grove and West Point a la Hache, where the Master Plan recommends situating land sustaining diversions. Together, diversions and pipeline conveyance of sediment could rebuild marsh quickly areas where land loss has reached crisis level." See Figure 10, page 57 of the Master Plan.

Project Location

Region 2, Barataria Basin, Plaquemines Parish, near Homeplace, west of hurricane protection levee.

Problem

What problem will the project solve? The marsh located between the hurricane protection levee and Bay Lanaux / Bay de la Cheniere is severely degraded; the lack of healthy marsh at this location poses a threat to the hurricane protection levee. The proposed marsh creation / marsh nourishment will help protect the levee.

What evidence is there for the nature and scope of the problem in the project area? 2008 aerial imagery confirms the deteriorated of marsh west of the hurricane protection levee.

Goals

Create 215 acres and nourish 35 acres of marsh between the hurricane protection levee and Bay Lanaux / Bay de la Cheniere. The proposed marsh creation and nourishment will help protect the levee.

Proposed Solution

215 acres of marsh creation and 35 acres of marsh nourishment. Material for marsh creation and nourishment will be excavated from the Mississippi River.

Preliminary Project Benefits

- 1) What is the total acreage benefited both directly and indirectly? 250 acres
- 2) How many acres of wetlands will be protected/created over the project life? Estimated 203 net acres at end of 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%). 50% reduction in land loss rate (marsh creation/nourishment).

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 and nourished marsh will help re-establish the hydrologic function of the former Bayou de la Cheniere ridge.

5) What is the net impact of the project on critical and non-critical infrastructure? The created/nourished marsh will reduce the fetch west of the hurricane protection levee.

6) To what extent does the project provide a synergistic effect with other approved and/or constructed restoration projects? The project will complement other efforts to establish / nourish marshes west of the Mississippi River – Mississippi River Sediment Delivery- Bayou Dupont; West Bay Sediment Diversion, Lake Hermitage Marsh Creation, West Point ala Hache Marsh Creation..

Identification of Potential Issues

The proposed project has the following potential issues: no issues presently identified.

Preliminary Construction Cost

The estimated construction cost including 25% contingency is \$22,786,140. The fully-funded cost range is \$30M - \$35M.

Preparer of Fact Sheet

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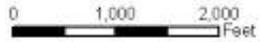
Mississippi River

Map Produced By:
United States Department of Agriculture
Natural Resources Conservation Service
Mandeville, LA

Data Source:
2007 DDDG Aerial Photography
Map Date: January 22, 2010



Homeplace Marsh Creation
Plaquemines Parish, Louisiana
PPL 20
~250 Acres



Legend
Marsh Creation

PPL20 PROJECT NOMINEE FACT SHEET
2 April 2010

Project Name:

Lake Barre Marsh Creation

Coast 2050 Strategy:

Regional Ecosystem Strategy 8 (dedicated delivery and/or beneficial use of sediments for marsh building); Terrebonne Marshes Mapping Unit Strategies 15 (protect bay/lake shorelines) and 16 (beneficial use of dredged material)

Project Location:

Region 3, Terrebonne Parish, east of Bayou Terrebonne, approximately 10 miles southeast of Montegut.

Problem:

The remaining land mass between Madison and Terrebonne Bays is deteriorating due to interior wetlands loss and shoreline erosion. This land mass is the last barrier between Terrebonne Bay and interior bays, marshes and infrastructure along lower Bayou Terrebonne. As this area erodes/subsides, interior bays and marshes, hurricane protection levees and developed areas may be subject to increased erosion.

Recent aerial photography suggests that although some areas of robust marsh still exist in the proposed project area, much of the remaining marsh is highly fragmented. Interior wetlands loss rates in the vicinity were recently calculated to be -2.0%/year (PPL19 Terrebonne Bay Shoreline Protection/Marsh Creation Project, 1988 – 2008 interior loss rate).

Water depths and bay processes on the northern edge of Terrebonne Bay may make restoration south of the proposed project technically challenging and costly. Marsh creation/nourishment along the southern edge of Madison Bay would act to maintain an interior line of defense and stabilize the land mass between Madison and Terrebonne Bays.

Goals:

Create and nourish 616 acres of saline marsh through dedicated dredging.

Proposed Solutions:

Dedicated dredging from either Lake Barre or Madison Bay to create 364 acres and nourish 252 acres saline marsh in three subareas. Fill areas were selected to maintain a continuous landform between Madison and Terrebonne Bays, create marsh in open water areas, and nourish fragmenting marsh. Cell configuration is also based on historic conditions (per topographic maps).

Based on 2008 aerial photography, open water and existing marsh areas are estimated as:

	Total (ac)	Open Water (ac)	Marsh (ac)
Area A	200	80	120
Area B	331	199	132
Area C	85	85	0
Total	616	364	252

About 3.2 Mcy of material, in place (or 4.1 M cy excavated) will be required based on a target settled elevation of +1.5' NAVD and assuming existing open water depths ranging from -1.25' NAVD to -2.5' and existing marsh elevations of 0.0' (water depth information from 3/17/2010 site recon corrected for real-time stage data at Bayou Terrebonne floodgate).

Borrow would be obtained from Madison Bay (north) or Terrebonne Bay (south). No "external" sources are available. Review of Morganza to the Gulf plans (including mitigation) and existing infrastructure data, suggest that ample borrow area appears to be available. Borrow areas would be designed to avoid shoreline impacts or degrading dissolved oxygen. Containment dikes will be constructed to manage fill deposition as needed although full containment is included in the current cost estimate. As conceptualized, due to differential settlement deeper waterways, bayous and canals, it is anticipated that dedicated construction of tidal features may not be required, however, tidal features and containment dike gapping would be considered for post-construction event (using O&M funding). Vegetative plantings will be used over 50% of the created marsh acres.

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

About 616 acres will be directly benefited from marsh creation/nourishment.

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

Assuming a background loss rate of -2.0%/year, and FWP loss rate reduction of 50%, it is anticipated that approximately 501 created/nourished acres would remain after 20 years. Total net acres are projected to be 334.

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%).

Anticipated loss rate reduction 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.

No.

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

The project will have a moderate net positive impact on critical infrastructure (flood control/hurricane protection projects) and a net positive impact on non-critical (oil and gas facilities, minor navigation channels, secondary/minor roads) infrastructure.

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

The project could provide limited synergistic benefits with Madison Bay Marsh Creation and Terracing (TE-51).

Identification of Potential Issues

Potential oyster lease and pipeline issues.

Preliminary Construction Costs:

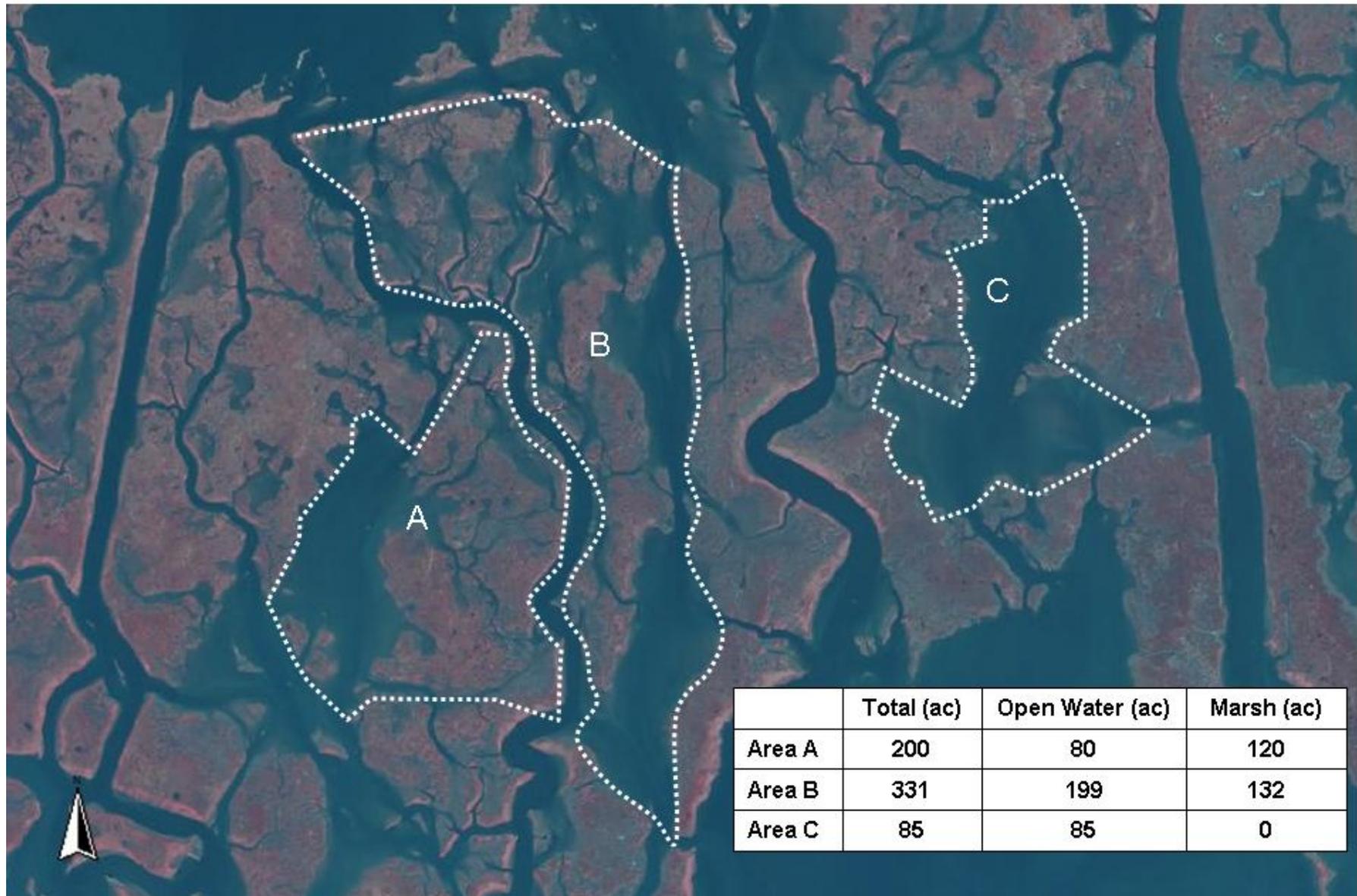
The estimated construction cost including 25% contingency is \$23,307,743. The fully-funded cost range is \$30M - \$35M.

Preparer(s) of Fact Sheet:

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Lake Barre Marsh Creation

364 acres creation; 252 nourishment



PPL20 PROJECT NOMINEE FACT SHEET
April 2, 2010

Project Name:

Terrebonne Bay Marsh Creation-Nourishment Project

Coast 2050 Strategy:

Coastwide Strategy: Maintenance of Bay and Lake Shoreline Integrity

Region 3 Strategy #8; Dedicated Dredging for Wetland Creation, #11- Maintain shoreline integrity of marshes adjacent to Caillou, Terrebonne, and Timbalier Bays

Project Location:

Region 3, Terrebonne Basin, Terrebonne Parish. Beginning on the southernmost contiguous point along the east bank of Bayou Terrebonne, continuing east along the northern shoreline of Terrebonne Bay and ending at Bayou Chitique.

Problem:

Emergent marshes north of Terrebonne Bay have been eroding as fast or faster than almost any other marshes along coastal Louisiana with high interior landloss rates calculated to be 2% per year and moderate shoreline erosion rates calculated to be 5.9 ft per year. Reasons for this include a lack of sediment input and a limited supply of freshwater coupled with past dredging of oil and gas canals. This rapid loss of land has dramatically increased the tidal prism north of Terrebonne Bay and directly contributes to the ongoing flooding problems of many communities along Bayou Terrebonne including the town of Montegut. This rapidly increasing tidal prism is likely accelerating the interior marsh loss rates for those marshes directly north of Terrebonne Bay. These marshes also serve to slow the progress of high saline waters that threaten the lower saline marshes north and west of Madison Bay and even in Lake Boudreaux.

Goals:

The goal of this project would be to start reducing the tidal prism that has been increasing for many years. This overall goal would be realized by strengthening the northern shoreline of Terrebonne Bay, creating and nourishing the emergent marshes just north of Terrebonne Bay. All these components of the project would work synergistically to reduce water exchange between Terrebonne Bay and interior lakes during normal tidal events and small storm events

Specific goals: 1) Reduce shoreline erosion along 35,000 ft of the northern shoreline of Terrebonne Bay. 2) Create 235 ac of emergent marsh in shallow open waters and nourish an additional 550 ac of emergent marsh.

Proposed Solutions:

This project would propose to strengthen approximately 35,000 ft of shoreline along the northern bank of Terrebonne Bay by creating a higher marsh along the shoreline. North of the shoreline, 235 acres of emergent marsh would be created in shallow open water and 550 acres of emergent marsh would be nourished by hydraulic dredge. Dredge material would be placed on interior marshes to a target height of +1.5 NAVD 88. All constructed containment dikes would be sufficiently gapped or degraded no later than 3 years post construction to allow for fisheries access. This could be one part of a phased comprehensive plan to protect the northern shoreline

of Terrebonne Bay from further erosion. The project would also work synergistically with the previously constructed CWPPRA Terrebonne Bay Demonstration Project (TE-45) which is adjacent to this proposed project allowing that project to be expanded. If the TE-45 project was expanded without this project first being built, there is a reasonable chance that the marshes could separate from the shoreline protection component and become isolated.

Preliminary Project Benefits:

1) *What is the total acreage benefited both directly and indirectly?* Acres directly benefited by this project would be 785 acres of marsh. This would include the nourishment of approximately 35,000 ft. of project area shoreline, reducing the shoreline erosion rates by 33% from an average of 5.91 ft/yr (3 to 8 feet per year USGS - PPL 18) to 3.1 ft/yr. This project would also create 235 acres of marsh and nourish 550 acres of emergent marsh, reducing interior land loss rates 50% from 2.05% to 1.02% per year and reducing interior landloss rates to marshes near the shoreline by 33%. Additional indirect benefits would be realized through the reduction of wind induced waves in the interior marsh ponds. Also, the filling in of the open water areas along the shoreline would not only reduce the tidal prism, but also reduce the amount of water entering the marshes during the daily tidal cycle thereby reducing the pumping action which should further reduce interior loss rates.

2) *How many acres of wetlands will be protected/created over the project life?* This project would create/nourish approximately 615 ac of emergent marsh over the 20 year project life. The total net acres for this project is 311 acres.

3) *What is the anticipated loss rate reduction throughout the area of direct benefits over the project life?* This project would initially create/nourish 785 acres of marsh and the interior loss rate of 2.05% per year would be reduced by 50% to 33% per year. This project would also see a 33% reduction in the shoreline erosion rate along approximately 35,000 ft. of shoreline from 5.91 ft/yr to 3.1 ft/yr. If the proposed project were to be constructed marsh loss rates would be expected to be reduced by 25-49% throughout the area of direct benefits over 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 rime, Cheniers, etc?* This project would restore and help maintain the Terrebonne Bay shoreline as well as many other small lakes, marsh ponds, and bayous which their banks make-up many of the ridges.

5) *What is the net impact of the project on critical and non-critical infrastructure?* This project would help protect several camps and some oil and gas infrastructure.

6) *To what extent does the project provide a synergistic effect with other approved and/or constructed restoration project?* This project would work with the recently constructed CWPPRA Terrebonne Bay Demonstration Project TE-45.

Identification of Potential Issues:

There are two pipelines and one inactive well within the footprint of the potential marsh creation sites. There are also numerous oyster leases within the project area.

Preliminary Construction Costs:

The estimated construction cost including 25% contingency is \$20,771,906. The fully-funded cost range is \$25M - \$30M.

Preparer(s) of Fact Sheet:

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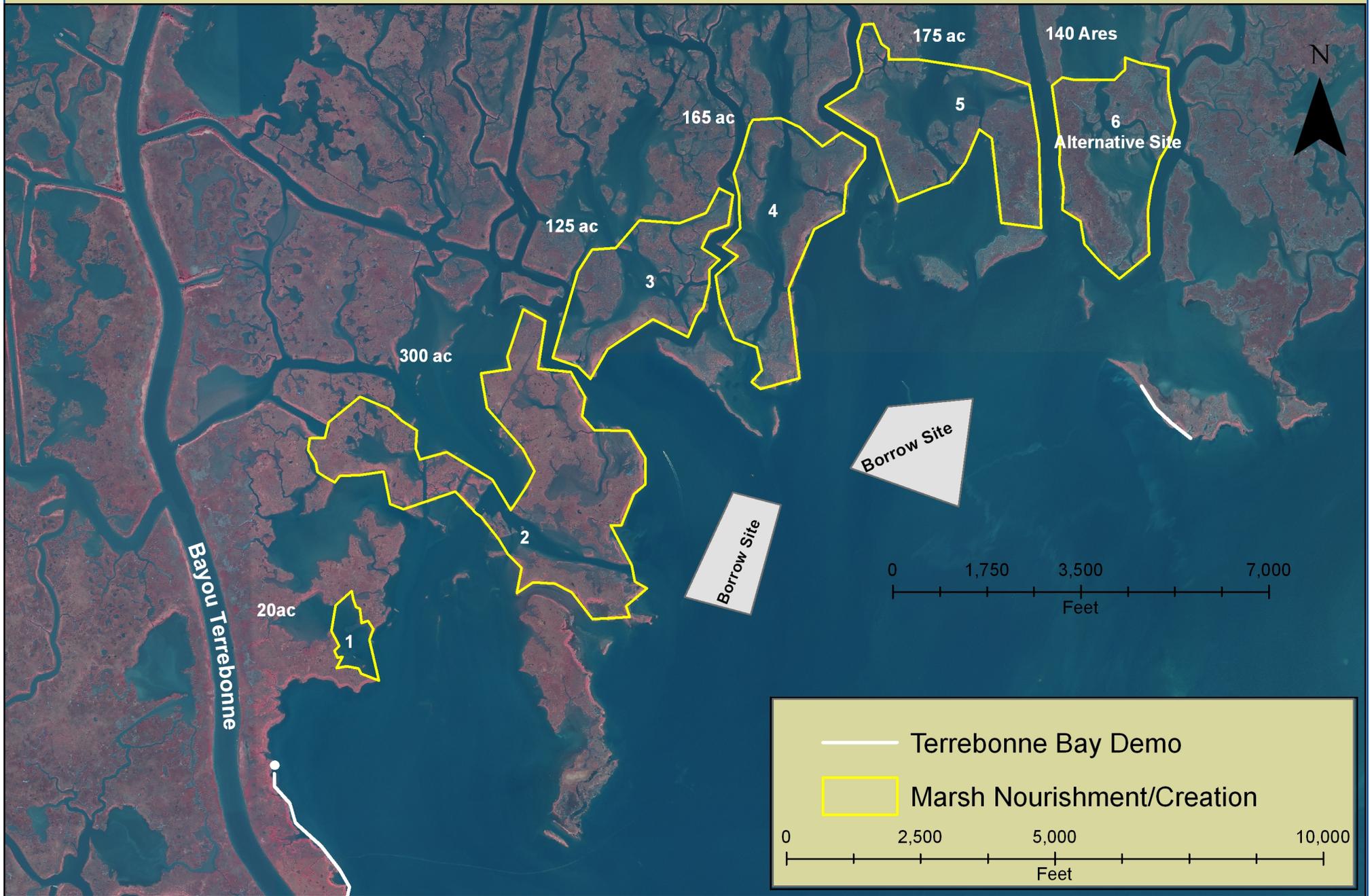


U.S. Fish & Wildlife Service

2008 DOQQ

Louisiana Ecological Services Field Office

Terrebonne Bay Marsh Creation and Marsh Nourishment Project



PPL20 FINAL PROJECT NOMINEE FACT SHEET
4/2/2010

Project Name:

Bayou Terrebonne Diversion Project

Coast 2050 Strategy:

Enhance Atchafalaya River influence to Terrebonne Basin marshes

Project Location:

Region 3, Terrebonne Basin, Terrebonne Parish, Bayou Terrebonne at Montegut

Problem:

The Central and Eastern Terrebonne marshes are greatly deprived of freshwater, nutrients and sediments from riverine sources. Consequently, subsidence and saltwater intrusion have resulted in high rates of land loss. More recently, efforts have been underway to try to optimize freshwater flows to some of these areas where possible; however, the sources of freshwater are greatly limited. The Gulf Intracoastal Waterway (GIWW) has been recognized as a lateral source of freshwater from the Atchafalaya River extending from west to east across the entire Terrebonne Basin. This resource provides the potential to reroute freshwater to the Central and East Terrebonne marshes.

Goals :

To convey freshwater, nutrients and sediments from the Atchafalaya River east via the GIWW and Bayou Terrebonne into the Central Terrebonne marshes.

Proposed Solutions:

The project will construct a freshwater diversion to move freshwater, nutrients and sediments originating largely from the Atchafalaya River via the GIWW and Bayou Terrebonne into the Montegut Unit marshes in Central Terrebonne. The project will include construction of a diversion structure to manage an average of 250 cubic feet per second freshwater flow through an underground conduit a distance of approximately 1200 ft from the bayou to the northern extent of the marsh.

Preliminary Project Benefits:

1) What is the total acreage benefited both directly and indirectly? The benefits from this project will be generated from the positive effects of additional nutrients and sediment introduced to a highly deprived marsh area and concurrently reduce salinities to promote more vigorous plant production. Preliminary estimates are that the project would directly benefit 3900 acres of marsh directly and an additional 5000 acres indirectly.

2) How many acres of wetlands will be protected/created over the project life? At an estimated average annual flow of 250 cfs, it is estimated that the project protect/create 254 acres.

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%). Preliminary model estimates are that the project would reduce land loss by approximately 34% (25-49% category).

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.* None identified.

5) *What is the net impact of the project on critical and non-critical infrastructure?* The target restoration area is adjacent to a protection levy system.

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: land rights, O&M, utilities/pipeline

Preliminary Construction Costs:

The estimated construction cost including 25% contingency is \$7,259,763. The fully-funded cost range is \$10M - \$15M.

Preparer(s) of Fact Sheet:

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<p>Map Produced by: United States Department of Agriculture Natural Resources Conservation Service Alexandria, LA</p> <p>Data source: 2000 Ortho Imagery</p> <p>Map Date: March 4, 2010</p> <p>Map ID: Bayou Terrebonne Diversion000</p>		<p>PPL 20 Nominee Project Bayou Terrebonne Diversion Terrebonne Parish, Louisiana</p>	<p>Legend</p> <p> Proposed Diversion Location</p> <p> Proposed Boundary</p>
<p>0 1,000 2,000 4,000 6,000 8,000 10,000 Feet</p>			

PPL20 PROJECT NOMINEE FACT SHEET

April 2, 2010

Project Name: West Wax Lake Outlet Wetlands Diversion

Coastwide 2050 Strategy:

- Coastwide Strategy: Dedicated Dredging for Wetland Creation
- Regional Strategies: Restore and Sustain Marshes - Maximize Atchafalaya Land Building
- Mapping Unit Strategies (Wax Lake Wetlands Unit):
 - #61 Beneficial use of dredged material
 - #62 Maintain distributaries (e.g., Hog Bayou, *Leopard Bayou and Bayou Blue*)

State Master Plan:

- Planning Unit 3b: Atchafalaya and Teche-Vermilion Basins
- Atchafalaya River Diversion - Freshwater (*nutrients & sediments*) Conveyance
 - D3b-9 Increase Sediment Transport Down Wax Lake Outlet (*and distributaries*)
 - D3b-14 Convey Atchafalaya River Water Westward via GIWW (*and distributaries*)

Project Location: Region 3 - Atchafalaya Basin, Wax Lake Wetlands mapping unit (western subunit between Wax Lake Outlet and Bayou Sale), St. Mary Parish. The West Wax Lake Wetlands subunit is bordered on the north by the Gulf Intracoastal Waterway (GIWW), on the east by the Wax Lake Outlet, on the south by the Atchafalaya Bay and emerging Wax Lake Delta and on the west by the Bayou Sale east bank natural levee and flood protection levee which extends from Gordy to the GIWW. This environmental unit contains approximately 34,466 acres, predominantly in fresh marsh and swamp, with numerous bayous and small open water areas, a narrow strip of natural levee hardwoods and petroleum related development, oil and gas pipeline canals and access canals and associated spoil banks and spoil retention areas along the west bank of historic Wax Lake from dredging of the Outlet in 1941.

Problem: Three bayous (Hog, Leopard and Blue) that have functioned as distributary channels of the Wax Lake Outlet since its construction in the early 1940s are becoming blocked by natural development of the Outlet's west bank natural levee (evidenced through aerial-photo analysis and depth measurements) and are reducing diversion of fresh water, nutrients and sediment to the West Wax Lake Wetlands east of Bayou Sale.

Goals: The goal of this project is to help restore and maintain sediment and nutrient-laden freshwater distribution from the Wax Lake Outlet throughout the West Wax Lake Wetlands subunit by: 1) dredging a new, direct channel from Wax Lake Outlet to the original mouth of Bayou Blue, 2) dredging a new direct channel from Wax Lake Outlet to the original mouth of Leopard Bayou and 3) performing maintenance dredging of the existing Hog Bayou channel to Wax Lake Outlet. Dredged material cast onto the shallow bottom of the historic Wax Lake north and south of the newly dredged and/or maintained channels would create marsh. High water overbank flooding would continue development of natural levees along the three major bayous as well as firm up the banks of smaller, interior bayous and fill in abandoned access canals off of major bayous with distributary channel sediments. Through-flow would enhance water quality and also offset tidal influence and substrate erosion associated with access canals in the western portion of the subunit by maintaining a westward moving head of fresh water and introduction of sediments and nutrients that promote vigorous plant growth and sustain wetlands.

Proposed Solutions: Restore and maintain hydrologic connection between Wax Lake Outlet (Atchafalaya River water) and distributary channels to sustain hydrologic processes and wetlands.

Preliminary Project Benefits:

- 1) *What is the total acreage benefited both directly and indirectly?*
Approximately 25,360 ac of wetlands between the Bayou Sale natural levee / flood protection levee and the Wax Lake Outlet west bank, influenced by these three major distributary channels, would be benefited.
- 2) *How many acres of wetlands will be protected/created over the project life?*
The proposed project would immediately create 125 ac of wetlands through beneficial use of dredged material from Bayou Blue, Leopard Bayou and Hog Bayou. Additional acreage is expected to accrue throughout the life of the project by virtue of sediment accumulation in abandoned oil field canals. Assuming a 25% reduction in the background loss rate of -0.2%/yr through distributary channel improvements, approximately 126 net acres would be protected within 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 Coast 2050 report indicates a potential loss of 5860 acres within 60 years (57 ac /yr [0.2%]) for the West Wax Lake Sub-basin. The 20-yr reduction in loss rate attributable to this project is estimated to be 25-49%.
- 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.*
This project would help sustain existing wetlands, especially those located near the east Bayou Sale natural levee and flood protection levee, and north of the north-central and north-west Atchafalaya Bay shoreline, through delivery of fresh water, sediment and nutrient input via natural hydrologic processes. Maintenance of these wetlands would help protect the eastern flood protection levee and development infrastructure along the eastern natural levee of Bayou Sale and along interior water bodies. Overbank flow, especially during high water periods, would deposit mineral sediments and continue promotion of natural levee development along distributary channels, thus helping to protect interior wetlands from tidal and boat-generated wave action. Continuance of sediment input would facilitate repair of marsh impacted by natural and human-induced activities. Through-flow via channel and overland movement from Wax Lake Outlet to East Cote Blanche Bay and Atchafalaya Bay would promote water quality enhancement in the project area as well as facilitate entrainment and southward movement of GIWW flow from the north.
- 5) *What is the net impact of the project on critical and non-critical infrastructure?*
The net impact of the project is that it will help sustain the natural environment that supports both critical and non-critical infrastructure such as development along Bayou Sale and interior water bodies, LA 317 to Burns and the Bayou Sale Flood Protection Levee.
- 6) *To what extent does the project provide a synergistic effect with other approved and/or constructed restoration projects?*
This project will function synergistically with other restoration projects in this area: 1) the active natural Wax Lake Outlet Delta formation, 2) CWPPRA TV-20: Bayou Sale Shoreline Protection Project, \$32.1 million, 35,776 ft of foreshore rock dike along eastern side of East Cote Blanche Bay north of Burns Point, 3) CIAP Point Chevreuil Shoreline Protection Project: \$1.9 million, covering 4,250 ft of coastline around the point at the southern most tip of East Cote Blanche Bay, and 4) CIAP Burns Point Shoreline: \$1.01 million for protection of the 8.5 ac recreational vehicle park and campground at Bayou Sale Bay (e.g., East Cote Blanche Bay). While these three proposed actions are designed to prevent future shoreline erosion and protect existing infrastructure, the PPL-20 project

nominee is designed to sustain the interior wetlands, water quality and infrastructure using natural hydrologic processes to deliver fresh water, sediments and nutrients.

Identification of Potential Issues: There do not appear to be any potential issues at this time. The Wax Lake Outlet connections of Blue Bayou, Leopard Bayou and Hog Bayou, as well as the majority of the project impact area, are located on property owned by St. Mary Land and Exploration Company, which supports the project. A portion of the property along Bayou Blue north of St. Mary Land & Exploration Company property is owned by Miami Corp. Their land manager has been provided information on the proposed project and has expressed no objections to the project.

Preliminary Construction Costs:

The estimated construction cost including 25% contingency is \$5,641,645. The fully-funded cost range is \$10M - \$15M.

Preparer of Fact Sheet:

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W. WAX LAKE WETLANDS DIVERSION

Legend

- Water Depths
- Channel Maintenance
- Dredge Material Disposal
- 343'/-10' Channel Width and Depth (01/2010)
- Indirect Impact Area

Project Location

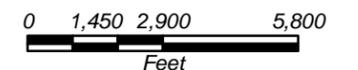


**St. Mary Parish
Louisiana**

Source: Section, Township & Range data Tobin International, Ltd. (February 9, 2004). Channel Maintenance and Dredge Material Disposal data digitized by CEI, 2010. Background Image: October 27, 2008 USGS Color-Infrared DOQQ obtained from the LaCoast website, 2009.
**Note: CEI does not warrant the validity of these data. Data not derived from a registered survey and should be considered approximate.

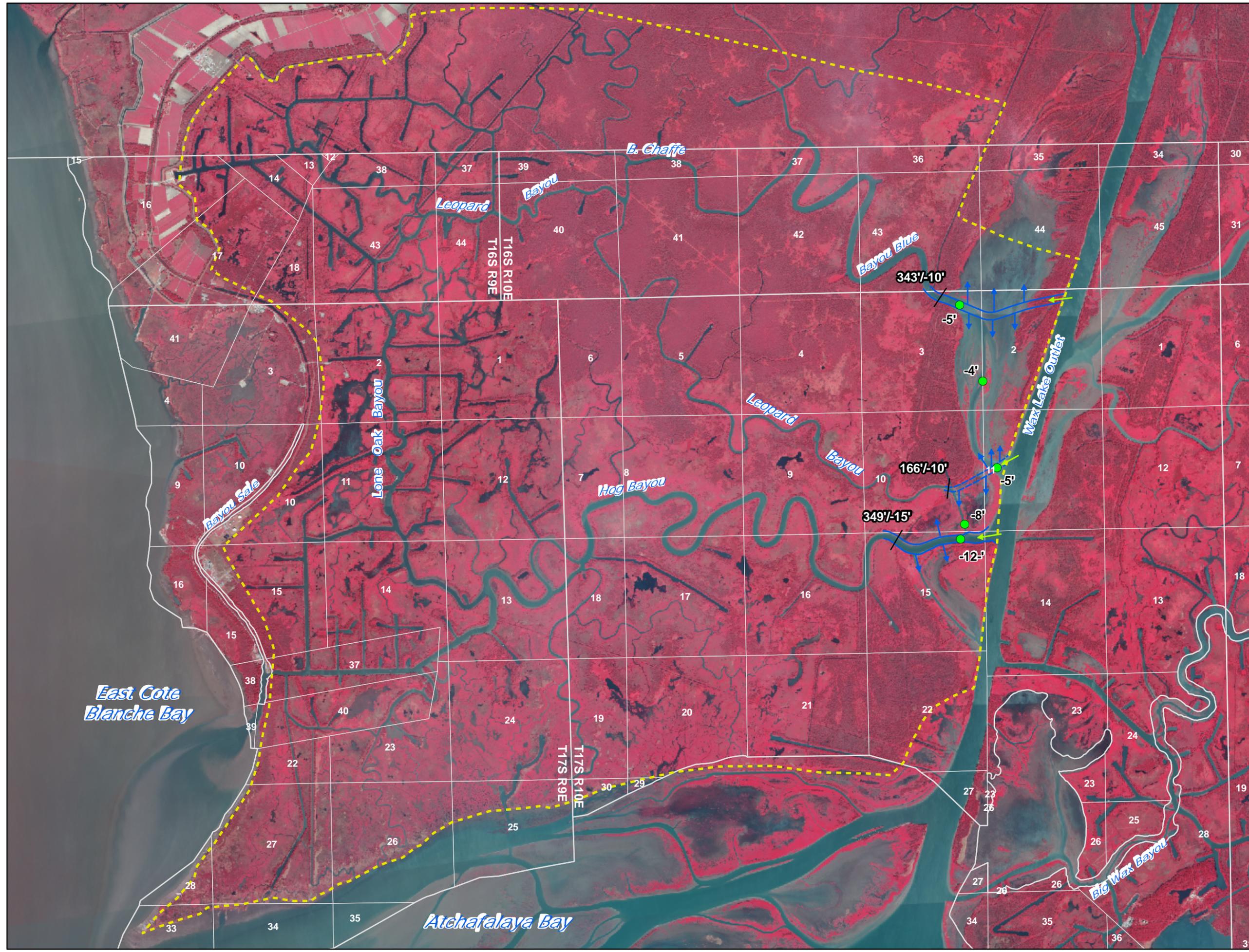


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MAP 1

CEI 93032 January 25, 2010



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Region 3-RPT
PPL20 PROJECT NOMINEE FACT SHEET
April 2, 2010

Project Name:

Cole's Bayou Marsh Creation and Restoration

Coast 2050 Strategy:

Restore and Sustain Wetlands (*Regional Ecosystem Strategy*)

Dedicated Dredging, to Create, Restore, or Protect Wetlands (*Coastwide Common Strategy*)

Stabilization of the Width and Depth of Major Navigation Channels (*Coastwide Common Strategy*)

Terracing (*Coastwide Common Strategy*)

Vegetative Plantings (*Coastwide Common Strategy*)

Project Location:

Region 3, Teche/Vermilion Basin, Vermilion Parish, Eastern Bank of Freshwater Bayou, Schooner Bayou South approximately 3.85 miles

Problem:

Project area wetlands are undergoing losses at rates between -0.2 and -0.5 %/year based on analyses conducted through 2006; these loss rates do not reflect the effects of 2008 storms and may be lower than updated analyses would reveal. Marshes in this area are subject to losses from shoreline erosion, subsidence/sediment deficit, and interior ponding. Shoreline erosion along the Freshwater Bayou Canal has resulted in direct wetland loss as the canal has widened from an authorized width of less than 200 feet to 800 feet. In addition to these direct losses, significant interior marsh loss has resulted from salt water intrusion and hydrologic changes associated increasing tidal influence. As hydrology within this area has been modified, habitats have shifted to more of a floatant marsh type, resulting in increased susceptibility to tidal energy and storm damages. Habitat shifts and hydrologic stress reduce marsh productivity, a critical component of vertical accretion in intermediate wetlands. Disturbances to the landscape from hurricanes and herbivory have resulted in the breakup and export of large sections of interior marsh. The ensuing erosion creates water turbidity within the interior ponds, this coupled with increased pond depth, decreases the coverage of submerged aquatic vegetation. Additionally, recent hurricanes have resulted in large and wide-spread losses. It is unlikely that many of these areas will recover unaided.

As evidenced from aerial photography the project area is part of a larger feature of weakened interior marsh from the project area south and west to include those marshes south of Pecan Island. If left to deteriorate, the project area would eventually open Vermilion Bay into Freshwater Bayou. This would then threaten the integrity of Freshwater Bayou, exposing a larger interior marsh area to conversion to open water.

In the specific project area, erosion of the eastern bankline of Freshwater Bayou has resulted in formation of three breaches, allowing boat wakes and hydrologic action to adversely affect the interior marsh east of the canal. The wakes from passing vessels and tidal action are causing the export of organic material from the project area. Large areas of interior marsh in the western and central part of the project area are breaking apart and turning into open water.

Goals:

- (1) Halt bank erosion,
- (2) Maintain limited hydrologic connection between Freshwater Bayou Canal and interior marshes,
- (3) Improve freshwater and sediment inflow into interior wetlands,
- (4) Create approximately 365 acres of intermediate emergent marsh by creation and terraces and
- (5) Protect interior marshes from erosion.

Proposed Solutions:

Create 335 acres intermediate marsh in existing open water areas via dedicated dredging. Target marsh elevation is +1.4' NAVD. Borrow is proposed from Vermillion Bay; although not considered "external" source of material, significant sediment inflows into this area may result in re-filling of the borrow area. Approximately 30,000 feet of terraces are proposed in shallow open water areas to reduce pond enlargement. Terraces would be constructed with +3', 20' crown width and planted. Terrace construction is estimated to create about 30 acres of wetland. Project features would also include a 10,600 foot-long rock dike with a top height of +3.5' NAVD beginning at an oil field canal in Schooner Bayou west to Freshwater Bayou, then south along the eastern shore of Fresh Water Bayou. As proposed, the dike would be constructed along the -2' contour with 5' wide crown and 3:1 side slopes. Conceptual dike design based on Belle Isle Bayou to the Lock (TV-11b).

Additionally, sediment-laden freshwater is often available at the northern reaches of the project area. It is proposed that flap-gated culverts be installed at locations along Freshwater Bayou Canal and through spoil banks in the northwestern portion of the project area to provide conduits for freshwater and sediment introduction. It may be necessary to conduct limited excavation of Coles Bayou and access canals to optimize sediment and freshwater introduction. It is anticipated that flapgated structures would also be replaced/installed in the southern portion of the area to provide drainage and encourage water intake from the north. It is expected that all structures will remain fully open except during extreme events.

Preliminary Project Benefits:

- 1) *What is the total acreage benefited both directly and indirectly?* Throughout the area of direct benefits, approximately 365 acres of marsh would be created from initial dredged material placement and terrace construction. In addition, over the 20-year project life, approximately 45 acres would be protected by the 10,600 LF of shoreline protection (assuming 9.3 ft/year loss rate). Indirect benefits may occur over some portions of the 4,400 project area as a result of freshwater and sediment introduction.
- 2) *How many acres of wetlands will be protected/created over the project life?* Assuming a 50% reduction in the background loss rate of -0.528%/year (Port Of Iberia) terracing and marsh creation would result in 314 net acres after 20 years. However, as evidenced in the photography pre- and post- 2008, project specific loss rates may be much higher; i.e. similar to the trend observed with the PPL 19 Freshwater Bayou Marsh Creation Project, extended boundary. A 100% loss rate reduction is assumed for the shoreline protection. Approximately 45 acres would be protected from the 10,600 LF of shoreline protection (9.3 ft/year loss rate). The total net acres estimated are 335 acres at TY20. In the event that benefits associated with the freshwater and sediment introduction are calculated, there could be a minor increase in anticipated net acres.
- 3) *What is the anticipated loss rate reduction throughout the area of direct benefits over the project life?* A 50% loss rate reduction is assumed for the terraces and marsh creation (from -0.528%/year to -0.264%/year). A 100% loss rate reduction is assumed for the shoreline protection. In the event that benefits associated with the freshwater and sediment introduction

are calculated, there could be a minor decrease in anticipated loss rates for some portion of the 4,400 acre project area.

- 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.? No.
- 5) What is the net impact of the project on critical and non-critical infrastructure? The project would provide positive impacts to both critical (i.e., Freshwater Bayou Canal) and non-critical (i.e., minor oil and gas facilities) infrastructure. As evidenced from aerial photography the project area is part of a larger feature of weakened interior marsh from the project area south and west to include those marshes south of Pecan Island. If left to deteriorate, the project area would eventually open Vermilion Bay into the Freshwater Bayou Canal, posing a moderate threat to critical infrastructure. This would then threaten the integrity of Freshwater Bayou Canal banks, exposing a larger interior marsh area to conversion to open water. 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. In addition, Audubon Society, Rainey Refuge borders the project area to the south, and it would benefit from an increase in marsh acreage.
- 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 Little Vermilion Bay Sediment Trapping Project (TV-12), which constructed approximately 110 acres of earthen terraces. The project would also provide a synergistic effect with the Freshwater Bayou Bank Stabilization Project (TV-11), by increasing marsh acreage East of the TV-11 project.

Identification of Potential Issues:

Oil and gas infrastructure is within the project area and would need to be avoided by dredge/fill activities. Operations and maintenance could also be an issue for this project, however, previous shoreline projects along the Freshwater Bayou Canal has resulted in the adaptation of larger stone classes to reduce such events.

Preliminary Construction Costs:

The estimated construction cost including 25% contingency is \$27,213,225. The fully-funded cost range is \$40M - \$50M.

Preparer of Fact Sheet:

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COLE'S BAYOU MARSH CREATION AND RESTORATION

-  Bank line protection (10,600 ft)
-  Excavation to improve water & sediment inflow
-  Terrace (± 30,000 ft)
-  Replace/install flap-gated culvert/gap spoil bank
-  Marsh creation (335 acres)

PPL 20 Project Nominee Fact Sheet

April 2, 2010

Project Name:

Cote Blanche Freshwater & Sediment Introduction & Shoreline Protection Project

Coast 2050 Strategy:

Coast wide: Goal 1 – Assure Vertical Accumulation to Achieve Sustainability
 Strategy 5 – Maintenance of Gulf, Bay and Lake Shoreline Integrity
 Strategy 11 – Diversion & Riverine Discharge

Regional: 12. Maintain shoreline integrity and stabilize critical shoreline areas of the Teche-Vermilion system
 15. Optimize Atchafalaya River flow in Gulf Intracoastal Waterway into marshes and minimize direct flow into bays & Gulf of Mexico
 17. Reduce sedimentation into bays

Mapping Units - Cote Blanche Wetlands, East Cote Blanche Bay, West Cote Blanche Bay:

80. Protect Bay/Lake Shorelines

Louisiana State Master Plan:

Atchafalaya River Delta & Chenier Plain:

Managing Water & Sediment - Opportunistic use of GIWW to distribute existing Atchafalaya freshwater & sediment flows to interior marshes

Bay/Lake Shoreline Stabilization – Prevent expansion of Vermilion, East and West Cote Blanche Bays and prevent wave erosion impacts to surrounding marsh.

Project Location:

The project is located in Region 3, Teche/Vermilion Basin, St. Mary Parish, within the TV-4 Cote Blanche Hydrologic Restoration Project interior, and along portions of the northern shoreline of East Cote Blanche Bay and eastern shoreline of West Cote Blanche Bay.

Problem:

Substantial loss of emergent wetlands, up to .45% per year, was occurring in the project interior prior to TV-4 Project construction. The TV-4 Project has reduced water level variability, thereby facilitating accretion of the sediment entering from the adjacent bays and achieving the project objective of reducing the rate of interior marsh loss. Unfortunately, in 2002 Hurricane Lili caused direct removal of approximately 1,750 acres of emergent marsh within the project area (Barras 2004), which was followed by additional loss from Hurricane Rita in 2005 (Barras 2005).

Significant quantities of freshwater and sediment are available to be tapped from the GIWW, but only a small portion is currently reaching the adjacent interior marshes for a number of reasons. Continuous stretches of spoil banks bordering some canals prevent the nourishing flows to the wetlands. Additionally, the storms blocked some avenues that previously allowed some low-level freshwater and sediment flows to interior marsh areas. In other areas, some flows that should be circulating through interior areas have been short-circuited back into the canal systems. The TV-4 project structures have continued to function as intended; however, increasing sediment inputs through new, more direct paths would accelerate accretion and restoration of damaged interior marsh areas adjacent to the GIWW.

The targeted Marone Point shoreline area 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 also preserve the hydrologic integrity of water control structures installed under the TV-04 Project.

Goals:

Reduce and/or reverse shoreline erosion rates, reduce interior land loss and promote land building, protect critical marsh habitat and maintain lower energy hydrology of the East Cote Blanche Bay wetlands established through the TV-04 project. The marsh habitat provides important habitat for wintering migratory waterfowl, alligator, bald eagles, black bear, and other furbearers. These wetlands also provide vital protection to inland areas of St. Mary Parish from storm surges associated with hurricanes.

Proposed Solution:

Project features will include channel enlargement, spoilbank gapping, and/or structural measures where necessary to increase freshwater & sediment input from the GIWW into interior Cote Blanche marshes and optimize distribution through multiple avenues to further reduce emergent marsh loss and accelerate sediment accretion to promote land building in isolated areas.

Project features also include construction of approximately 26,400 linear feet of armored protection parallel to the 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 3,400 feet to the east of the Humble Canal between existing shoreline protection segments.

Preliminary Project Benefits:*1) What is the total acreage benefited both directly and indirectly?*

The proposed shoreline protection feature 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 benefitted by the shoreline protection would be 584 acres.

With the estimated additional flows and improved distribution, the freshwater and sediment introduction component is expected to beneficially influence an approximate total of 11,020 wetland acres, of which approximately 9,500 acres is emergent marsh.

Therefore, for both project components, the total acreage benefitted would be approximately 11,604 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.

For the freshwater & sediment introduction component, a total of 406 acres of emergent wetlands is estimated to be protected/created over the project life. In addition, approximately 12 acres of emergent marsh would be created with the dredged material from channel enlargement.

Therefore, for both project components, a total of 627 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?

Shoreline protection will be provided by some form of armored structure which, when properly designed and installed, should reduce the shoreline erosion rates by 100% over the project's life.

The anticipated loss rate reduction over the project life due to the freshwater and sediment introduction component throughout the areas of direct benefit is estimated to range from 26% to 36%.

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?

Shoreline protection feature will provide protection and serve to maintain a significant critical section of the East & West Cote Blanche Bays' shoreline, as well as Marone Point which is a key feature influencing the bays current circulatory patterns.

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 and the GIWW transportation corridor from exposure to open bay conditions, and from increased wave energy generated by marsh fragmentation and expansion of interior open water areas.

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, TV-20 Bayou Sale Shoreline Protection Project, and TV-15 Sediment Trapping at the Jaws by extending shoreline protection around the entire northern shore of East Cote Blanche Bay, and ultimately providing contiguous protection and promoting sustainable restoration 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. St. Mary Parish and major landowners are in full support of the project.

Preliminary Construction Costs:

The estimated construction cost including 25% contingency is \$12,756,113. The fully funded cost range is \$20M - \$25M.

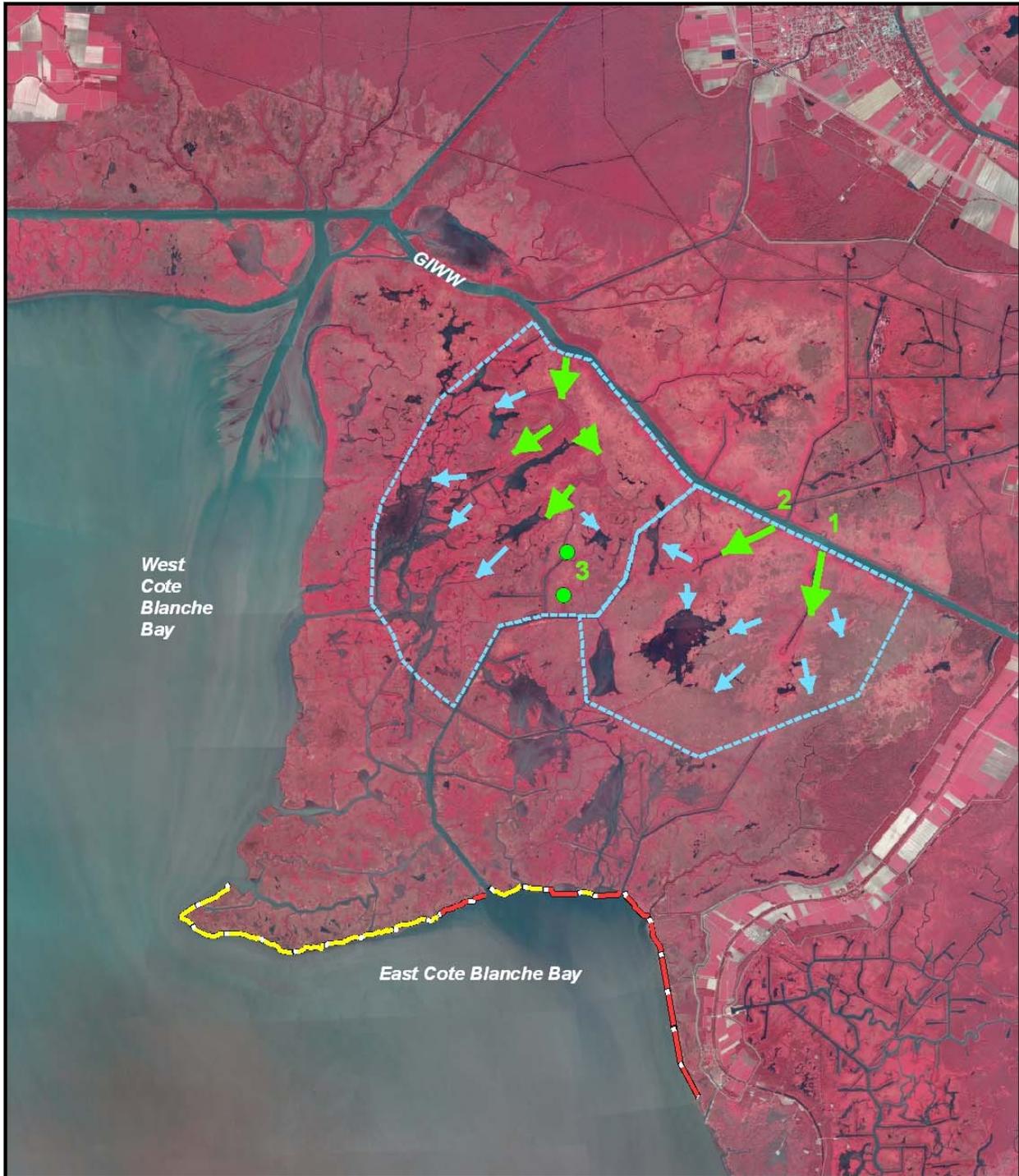
Preparer of Fact Sheet

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Map Produced By:
 United States Department of Agriculture
 Natural Resources Conservation Service
 Alexandria, LA

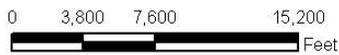
Data Source:
 2008 Aerial Photography

Map Date: March 24, 2010

Map ID: Cote_Blanche_PPL20_Nominee



**Cote Blanche
 Freshwater/Sediment Introduction
 and Shoreline Protection
 St. Mary Parish, Louisiana
 PPL-20 Nominee**



- Legend
- Plug
 - Freshwater Introduction
 - Distributary Flows
 - Proposed Shoreline Protection
 - Existing and/or Authorized Shoreline Protection
 - Freshwater Influence Area

PPL20 Candidate Project Fact Sheet

April 2, 2010

Cameron-Creole Watershed Grand Bayou Marsh Creation Project

Coast 2050 Strategy:

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

Project Location: Region 4, Calcasieu-Sabine Basin, Cameron Parish, 6 miles northeast from Cameron, LA, on the Cameron Prairie NWR and Miami Corporation north of Grand Bayou.

Problem: Approximately 14,390 acres (32%) of the Cameron-Creole Watershed project (CCMP) marshes were lost to open water from 1932 to 1990 at an average loss rate of 248 ac/year (0.55%/year) due to subsidence and saltwater intrusion from the Calcasieu Ship Channel. The CCWP was implemented by the NRCS in 1989 to reduce saltwater intrusion and stimulate restoration through revegetation. Hurricanes Rita and Ike in 2005 and 2008 breached the watershed levee scouring the marsh and allowing higher Calcasieu Lake salinities to enter the watershed causing more land loss. The Calcasieu-Sabine Basin lost 28 mi² (17,920 acres) (4.4%) as a result of H. Rita (Barras et al. 2006).

Goals: Project goals include restoring and nourishing marsh with dedicated dredged material from Calcasieu Lake to benefit fish and wildlife resources within the Cameron Prairie NWR and adjacent brackish marshes. Specific phase 0 goals include creating 580 acres of brackish marsh and nourishing 13 acres of brackish marsh.

Proposed Solution: Place approximately 3 million cubic yards of material dredged from a Calcasieu Lake borrow site, avoiding existing oyster reefs, into two marsh creation areas north of Grand Bayou to restore 580 acres and nourish 13 acres of brackish marsh. The feasibility and benefits of using material from the Calcasieu Ship Channel is also being investigated. The hurricane-scoured marsh, within the project area, is very shallow (averaging 1.2 feet deep) making it ideal for marsh restoration with sediment because more marsh per volume of dredged material could be restored. Tidal creeks will be constructed prior to placement of dredge material and retention levees would be gapped for estuarine fisheries access and to achieve a functional marsh.

Preliminary Project Benefits:

1) What is the total acreage benefited both directly and indirectly? The project would restore 580 acres and nourish 13 acres of brackish marsh in the 593-acre project area.

2) How many acres of wetlands will be protected/created over the project life? 528 (91%) net acres of marsh would result from this project over the 20-year project life (@ 50% of the 0.9% loss rate).

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 would be approximately 50-74%. Interior shoreline erosion rates would be stopped and restored marsh would assume a 50% reduction in loss rate.

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 not directly restore any of the above structural components, but it could help maintain the Cameron-Creole watershed levee by reducing wave energy from the east. Although the Cameron-Creole watershed levee could be maintained by the Cameron Creole Maintenance project (CS-04a), protection provided by this marsh creation project could reduce those maintenance costs.

5) What is the net impact of the project on critical and non-critical infrastructure? The marsh creation project will help maintain the north-south portion of the Cameron-Creole Watershed levee near Grand Bayou by reducing wave energy and hurricane scour from the east.

6) To what extent does the project provide a synergistic effect with other approved and/or constructed restoration projects? The project is synergistic with the NRCS-constructed Cameron-Creole Watershed Management Project, and the CWPPRA Cameron-Creole Plugs (CS-17), Cameron-Creole Maintenance (CS-04a), and Cameron-Creole Freshwater Introduction projects. These projects were implemented to reduce saltwater intrusion caused by the Calcasieu Ship Channel. Marsh would be reestablished in open water areas that have not revegetated since the implementation of the Cameron-Creole watershed project and have been further eroded by hurricanes Rita and Ike.

Identification of Potential Issues:

Project managers have and will continue coordinate with LDWF biologists to ensure impacts to aquatic resources, if any, are minimized and temporary in duration in regards to the borrow area design and location. A bottom assessment will be necessary to avoid and minimize impacts to oyster reefs when locating the borrow site.

Project Costs:

The estimated construction cost including 25% contingency is \$17,837,139. The fully-funded cost range is \$20M - \$25M.

Preparers of Fact Sheet:

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U.S. Fish and Wildlife Service

Louisiana Ecological Services Field Office

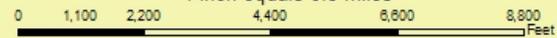
Cameron Creole Watershed - Grand Bayou Marsh Creation Project PPL 20



2008 DOQQ

Cameron Creole Watershed
Grand Bayou Marsh Creation
PPL 20

1 inch equals 0.5 miles



03/08/2010

PPL20 PROJECT NOMINEE FACT SHEET
April 2, 2010

Kelso Bayou Hydrologic Restoration and Marsh Creation

Coast 2050 Strategy

Use of sediment for wetland creation and restore historic hydrologic and salinity conditions throughout Region 4 to protect wetlands from hydrologic modification.

Project Location

Region 4, Calcasieu-Sabine Basin, Cameron Parish, West Black Lake Mapping Unit, area east of Gum Cove and south of GIWW.

Problem

The most significant environmental problem affecting the marshes in this area is deterioration and conversion to open water. Marsh loss has and continues to occur as a result of salt water intrusion and sediment export (erosion). The construction of the Calcasieu Ship Channel and the Gulf Intracoastal Waterway greatly increased the efficiency of water exchange through Calcasieu Pass. Freshwater retention was consequently reduced and saline water is able to enter interior marshes and penetrate ever further north and west. Project-area marshes are connected to the navigation channels through a network of canals and bayous including Kelso Bayou and Alkali Ditch. Unvegetated substrate is vulnerable to increased tidal exchange and immense quantities of organic substrate are being washed away.

Additionally, the Calcasieu Ship Channel acts as a conduit during storm events. Recent marsh loss and scouring at the mouth of Kelso Bayou from impacts related to Hurricanes Rita and Ike allow increased salt water intrusion, tidal exchange, and storm surge impacts. The proposed project will be designed to increase freshwater retention and reduce tidal exchange and storm surge by repairing and armoring the mouth of Kelso Bayou and restricting exchange through Alkali Ditch.

Goals

The goal of this project is to restore and protect approximately **316 acres** of critically important marsh and the numerous functions they provide. The proposed project will also reduce the artificial intrusion of Gulf marine waters into the Black Lake and Brown Lake area marshes and provide direct protection to Louisiana State Highway 27, the region's only northward hurricane evacuation route.

Proposed Solutions

- 1) Approximately 262 acres of marsh will be created/nourished and planted to reestablish the natural meandering banks of Kelso Bayou. Over 100 of those acres would be located between the Calcasieu Ship Channel and State Highway 27.
- 2) Approximately 3,200 linear feet of rock will be used to protect the marsh creation area and the existing shoreline along the Calcasieu Ship Channel.
- 3) Construct a barge bay at Alkali Ditch to reduce tidal erosion.
- 4) Rock armor at the mouth of Kelso Bayou.

Preliminary Project Benefits

The project goal is to increase brackish marsh and SAV productivity by creating approximately 262 acres of marsh and by reducing tidal fluctuations and salinity within the project area.

The proposed project would utilize marsh creation techniques to create approximately 262 acres of marsh. That created marsh and a portion of the Calcasieu Ship Channel would be protected against erosion with rock. In addition, a barge bay would reduce the cross section at Alkali Ditch to improve SAV habitat and reduce marsh loss resulting from high salinity and tidal scour. Initial estimates (using a 10% salinity reduction and the NRCS SProd 2 salinity model) indicate an additional 54 net acres of benefit from salinity reduction. Salinity reduction would also benefit existing and future restoration efforts.

1) What is the total acreage benefited both directly and indirectly? Approximately 316 acres of marsh would be directly benefited. Indirect benefits would occur over approximately 16,767 acres of marsh and open water habitats as a result of reduced salinity and tidal exchange.

2) How many acres of wetlands will be protected/created over the project life? Based on preliminary estimates, 269 net acres of marsh would result from this project. Approximately 215 net acres from marsh creation and 54 net acres from salinity reduction.

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 would be approximately 50-74%. Shoreline erosion rates would be stopped and restored marsh would assume a 50% reduction in loss rate.

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 proposed project would repair a breach in the bankline along the west side of the Calcasieu Ship Channel.

5) What is the net impact of the project on critical and non-critical infrastructure? Recent wetland loss in this area resulting from Hurricane Rita has left State Highway 27 and Hackberry, Louisiana vulnerable to storm events. Currently, there is no barrier between those areas and the Calcasieu Ship Channel. State Highway 27 and Hackberry, Louisiana both received record flooding from Hurricane Ike. The proposed project would protect and provide a wetland buffer to Hackberry and Highway 27, which is the region's only northward hurricane evacuation route.

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 several thousand acres of recently completed and/or approved coastal restoration projects including: 1) numerous North American Wetland Conservation Agreement (NAWCA) terracing projects totaling approximately 200,000 linear feet; and 2) the largest state-local beneficial use of dredge material project to rebuild approximately 440 acres in the Black Lake Marsh.

Identification of Potential Issues

Project managers have and will coordinate with the USACE to locate upland disposal sites or areas of the Ship Channel to be mined as a sediment source.

Preliminary Construction Costs

The estimated construction cost including 25% contingency is \$16,123,556. The fully-funded cost range is \$20 to \$25 million.

Preparers of Fact Sheet

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Map Produced By:
 United States Department of Agriculture
 Natural Resources Conservation Service
 Alexandria, LA

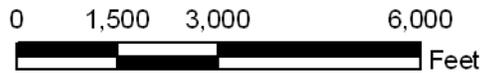
Data Source:
 2009 DOQQ Aerial Photography

Map Date: March 26, 2010

Map ID: Kelso_Bayou_PPL20_Nominee



**Kelso Bayou Hydrologic Restoration
 and Marsh Creation
 Cameron Parish, Louisiana
 PPL 20 Nominee**



Legend	
	Barge_Bay
	Shoreline_Protection
	Marsh_Creation

PPL20 PROJECT NOMINEE FACT SHEET
March 30, 2010

Lower Mud Lake Terracing and Bank Stabilization Project

Coast 2050 Strategy:

Use of sediment for wetland creation.

Project Location:

Region 4, Mermentau Basin, Cameron Parish, Lower Mud Lake Mapping Unit, area just northwest of the Mermentau Ship Channel.

Problem:

The large area of fetch and associated wave energies prevent sediments from the Mermentau River from being deposited. Therefore, much of that sediment is being exported into the Gulf of Mexico via the Mermentau Ship Channel. SAV habitat is also limited by the sediment load and energy associated with the large open water fetch.

Additionally, the west bank of the Mermentau Ship Channel is eroding at approximately 5 feet/year (Sonris). That erosion continues to expose interior marsh to energy associated with the ship channel including boat traffic.

Goals:

The goal of this project is to create and protect approximately **62 acres** of marsh and induce additional acreage through sedimentation. Approximately 50 acres of marsh would be constructed sediment trapping terraces similar to those used at Little Vermilion Bay (TV-12) and the Jaws (TV-15) projects. Those terraces would dissipate wave energy and allow sediment to drop out of the water column and increase accretion, which would permit emergent vegetation to establish.

Shoreline protection along the west bank of the Mermentau Ship Channel is expected to completely halt shoreline erosion.

Proposed Solutions:

The project components include: dredging distributary channels and constructing 36,000 linear feet of terraces approximately 60 feet wide at an elevation of 2.5 feet NAVD88. The proposed 36,000 linear ft. of terracing will establish approximately 50 acres of emergent marsh and maximize sedimentation within the project area.

Approximately 5,500 linear feet of shoreline protection would be constructed along the west bank of the Mermentau Ship Channel. That shoreline is eroding at approximately 5 ft/yr.
 $(5,500)(5)(20)/43560 = 12.6$ acres.

Preliminary Project Benefits:

The proposed project would utilize terracing techniques to create approximately 50 acres of marsh. Those terraces would induce sedimentation and results from NMFS' Sediment Trapping at the Jaws (TV-15) indicate that additional acreage would be created from terrace expansion. Shoreline protection would protect approximately 12 acres of shoreline.

1) *What is the total acreage benefited both directly and indirectly?* Approximately 62 acres would be benefitted directly and approximately 550 acres would be benefited indirectly from protection provided by the proposed terraces and shoreline protection features.

2) *How many acres of wetlands will be protected/created over the project life?* Approximately 62 acres plus any additional acreage created by terrace expansion. Estimates of expansion would be calculated using information from TV-15 and TV-12.

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%. Shoreline protection would completely halt loss along the Mermentau Ship Channel and some of the sediment trapping terraces at TV-12 and TV-15 are expanding.

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 proposed project would protect interior marsh west of the Mermentau Ship Channel.

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:

Unknown at this time.

Preliminary Construction Costs:

The estimated construction cost including 25% contingency is \$4,861,819. The fully-funded cost range is \$10 - \$15 million.

Preparer(s) of Fact Sheet:

Troy Mallach, NRCS troy.mallach@la.usda.gov



Mermentau River

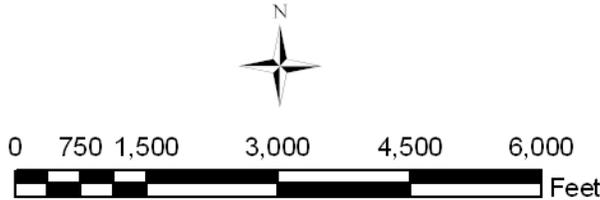
Lower Mud Lake

Gulf of Mexico

Legend

- Terraces
- Shoreline Protection

Lower Mud Lake Terracing
and Bank Stabilization
Cameron Parish, Louisiana
PPL 20



Region 4-RPT
PPL20 PROJECT NOMINEE FACT SHEET
April 2, 2010

Project Name:

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.

Goal:

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.

Proposed Solution:

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.

Preliminary Project Benefits:

- 1) The project is expected to influence approximately 125 acres directly.
- 2) 120 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) X 0.75. 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 118,500 cubic yards will be placed behind the rock structure.
- 3) Anticipated loss rate reduction for the segmented breakwater is 75%.
- 4) The project would protect and maintain chenier and beach function.

- 5) 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.
- 6) The proposed project is designed as an eastward extension of the ME-18 (Rockefeller Refuge Gulf Stabilization Project).

Identification of Potential Issues:

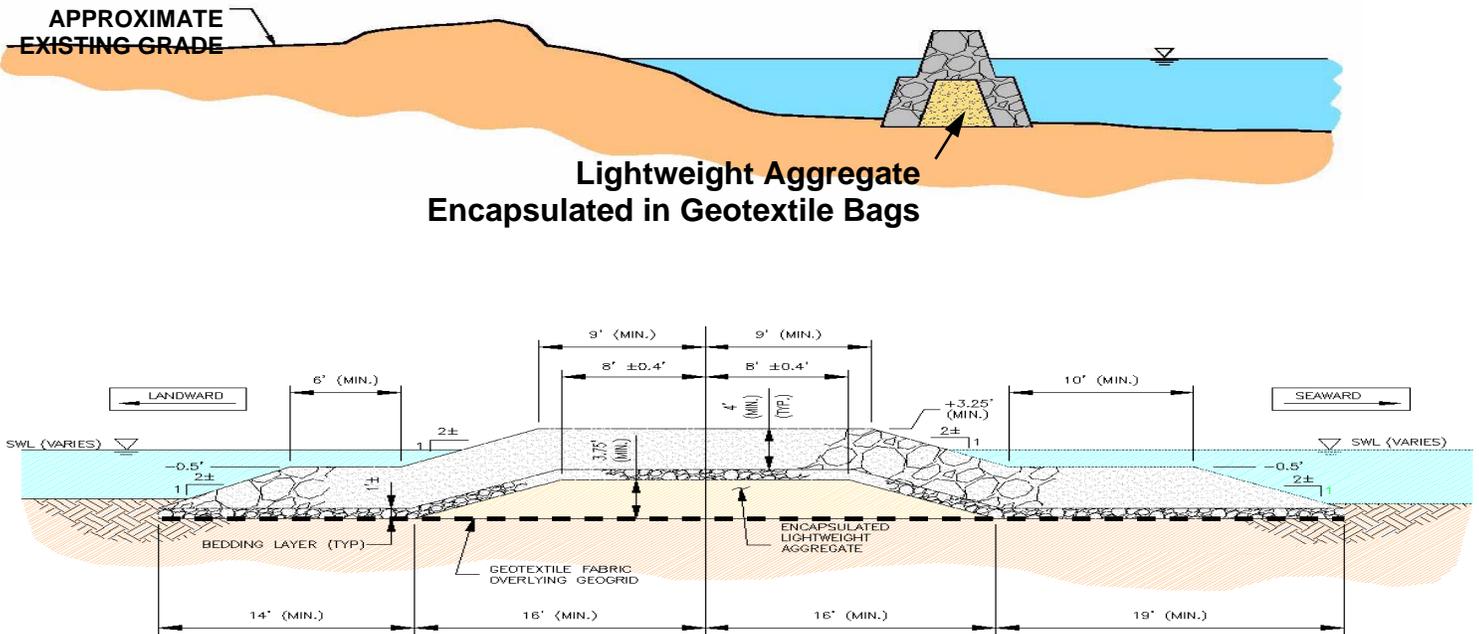
There are potential issues with pipelines. There are 5 pipelines in the area

Preliminary Construction Costs:

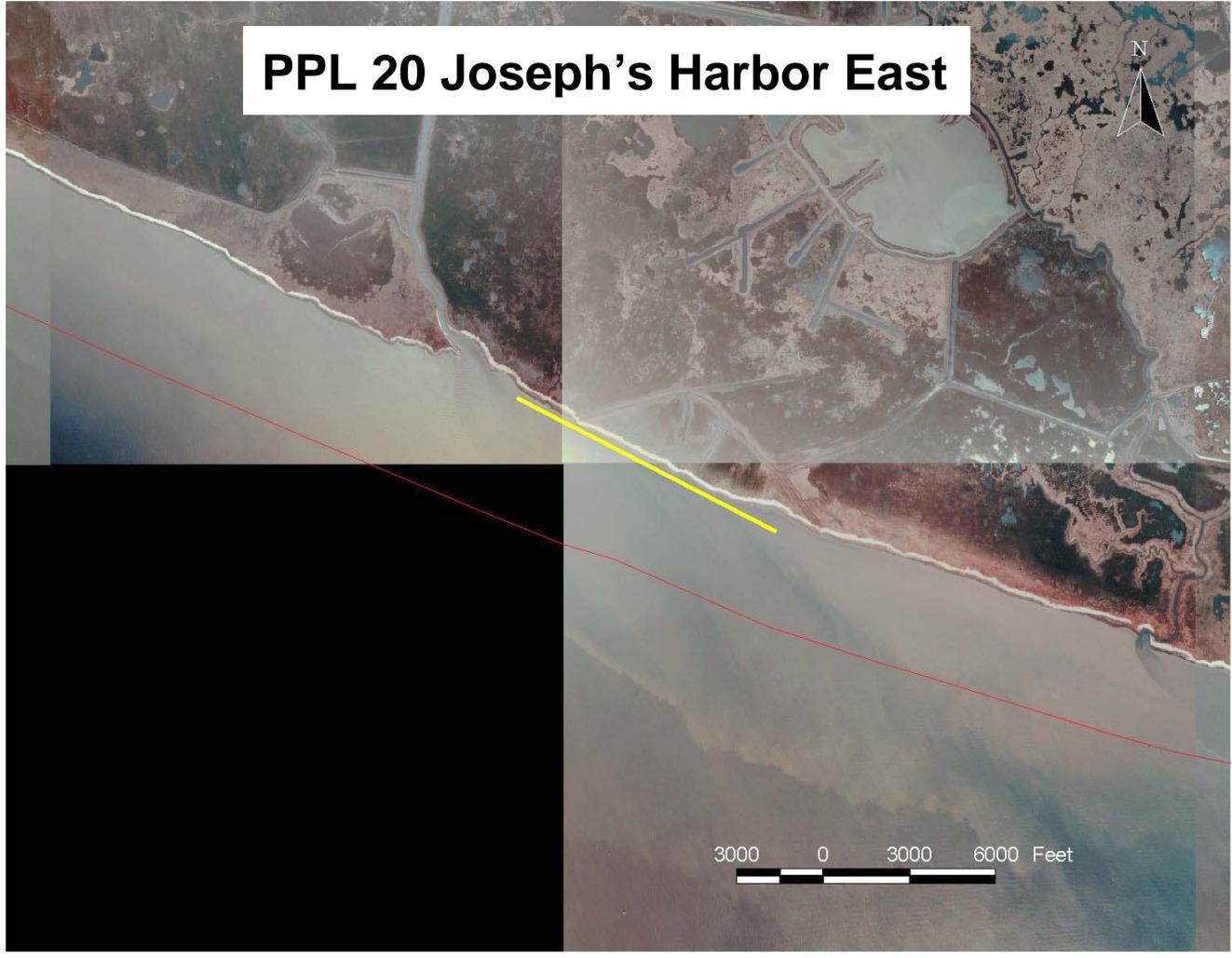
The estimated construction cost including 25% contingency is \$20,511,669. The fully-funded cost range is \$40M - \$50M.

Preparer of Fact Sheet:

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PPL 20 Joseph's Harbor East



3000 0 3000 6000 Feet

Demonstration Project Nominees

Coast-wide	DEMO	Marsh Restoration and Enhancement Utilizing Floating Islands
Coast-wide	DEMO	The Wave Robber Wave Suppressor Sediment Collection System
Coast-wide	DEMO	Ecosystems Wave Attenuator for Shoreline Protection
Coast-wide	DEMO	Use of Sand Derived from Pulverized Glass as Beach Nourishment on Barrier Island Restoration Projects

PPL20 DEMONSTRATION PROJECT NOMINEE FACT SHEET

March 26, 2010

Demonstration Project Name: Marsh Restoration and Enhancement Utilizing Floating Islands

Coast 2050 Strategy(ies):

Maintain bay and lake shorelines. Terracing and Plantings.

Potential Demonstration Project Location(s):

Coastwide

Problem:

What problem will the demonstration project try to solve?

Excessive erosion of bay and lake rims expose thousands of acres of interior marshes to increased erosion rates and severe hydrologic change. In addition, the loss of wetlands resulting from the direct effects of wave action is exacerbated over large open bodies of water where fetch distances are great. Highly organic interior marshes have limited options for restoration because of poor soil conditions.

What evidence is there for the nature and scope of the problem in the project area?

Shoreline erosion rates have been measured in excess of 30 feet per year in areas across the Louisiana coast. The need for stabilization in critical areas was noted in all four Coast 2050 regions.

Goals:

What does the demonstration project hope to accomplish?

The proposed demonstration project would restore and enhance interior marsh shorelines and maintain exchange and interface with estuarine systems. Additionally, some accretion may occur and build emergent marsh.

Proposed Solution:

Describe demonstration project features in as much detail as possible.

The Floating Island is a multi-faceted marsh restoration and enhancement system that would absorb and deflect wave energy, protect and enhance vegetation, protect and create emergent marsh, trap sediment and provide nursery habitat. The islands are made from recycled PET plastic and adhered together with polyurethane marine foam. They are connected to each other and anchored into the soil with marine/earth anchor systems.

1. The interconnected islands can be oriented in numerous ways to restore and enhance marshes in many different types of environments coastwide.
2. The islands can be planted at various densities.
3. When used as a method of shoreline enhancement; it is cheaper than rock and could be considered a compromise between “hard” and “soft” shoreline protection methods.

4. A staggered terrace-like orientation can break up wave action, reducing turbidity and allow sediment time to settle, potentially accreting and creating emergent marsh.
5. When used in the outfall of sediment laden diversions, it is reasonably expected that the islands will collect sediment behind and inside the island.

Project effectiveness would be monitored and evaluated after construction according to the CWPPRA workgroups' recommended treatments established for this product in Phase 0. The conceptual treatments are shown in Figure 1.

Project Benefits:

Describe demonstration project benefits in as much detail as possible.

The proposed project would:

1. Absorb and deflect wave energy;
2. Protect and enhance existing or planted shoreline vegetation;
3. Allow ingress and egress of aquatic species;
4. Collect sediment by reducing wave energy.
5. Reduce interior marsh loss

Project Costs:

For 6,900 feet of 8 inch thick by 5 feet deep islands, the estimated construction cost including 25% contingency is \$1,255,875.

Preparer(s) of Fact Sheet:

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PPL20 DEMONSTRATION PROJECT NOMINEE FACT SHEET

March 29, 2010

Demonstration Project Name: **The Wave Robber (Wave Suppressor Sediment Collection System)**

Coast 2050 Strategy(ies):

Maintenance of Bay and lake Shoreline Integrity.

Potential Demonstration Project Location(s):

Region 2, Barataria Basin, Lafourche Parish, southwestern shore of Little Lake

Problem:

What problem will the demonstration project try to solve? The Wave Suppressor Sediment Collection System addresses two critical areas of need in Coastal Louisiana. First, the WSSC is a system designed to protect the shorelines and wetlands from erosion caused by wave action or tidal surge. Second, the WSSC system can assist in the rebuilding of shorelines and restoration of wetlands loss from wave action and tidal surge.

What evidence is there for the nature and scope of the problem in the project area? The southwestern portion of Little Lake is currently experiencing a high shoreline erosion rate of between 20' and 40' per year. The WSSC system serves as a barrier to disrupt the tidal wave flow into the shorelines and wetlands while at the same time allowing sediment to be carried through the system by the wave action and water currents. The sediment is trapped and deposited between the system and the shorelines and wetlands. Trapped sediment would then consolidate to form a solid base for the establishment of emergent marsh.

Goals:

What does the demonstration project hope to accomplish? The primary goal of this demonstration is to manufacture, deploy and test an alternative method of shoreline protection equivalent to traditional methods, while trapping ambient sediments to facilitate expansion of emergent marsh.

Proposed Solution:

Describe demonstration project features in as much detail as possible. The WSSC system serves as a barrier to disrupt the tidal wave flow into the shorelines and wetlands while at the same time allowing sediment to be carried through the system by the wave action and water currents. The sediment is trapped and deposited between the system and the shorelines and wetlands.

Install 45 WSSC units along three different shorelines (500LF each shoreline), with two different spacing patterns at each site. The first spacing would be installing a 10' gap every 50 LF (5 WSSC units) for 3 50' segments, then increase the number of WSSC units to 10 units (100 LF) between 10' gaps, for a total of 45 WSSC units per shoreline

location. All gaps would be made using the same material as the WSSC units. The spacing is as follows:

Shoreline

5 WSSC / 10' / 5 WSSC / 10' / 5 WSSC / 10' / 10 WSSC / 10' / 10 WSSC / 10' / 10 WSSC

Bay

Project Benefits:

Describe demonstration project benefits in as much detail as possible. Trapped sediment would then consolidate to form a solid base for the establishment of emergent marsh. The WSSC system has several distinct advantages over other wave suppression and sediment retention structures that makes it ideal for the rebuilding and restoring of the degraded wetlands of south Louisiana as well as other areas in the United States and throughout the world. One major advantage is that the WSSC system is transportable and can be easily installed along shorelines and wetlands. Additionally, the WSSC units are reusable and designed to be removed from one location and easily moved to another. The WSSC system is also less expensive than fixed dike structures, a distinct advantage in managing project cost. Lastly, the WSSC system allows a continuous water exchange for ecological support rather than isolating areas behind the structure.

If successful the product could be a low cost option in shoreline protection, dredge spoil containment, barrier island protection and island creation, direct creation of habitat in shallow waters where turbidity could be decreased, and used as an addition to both interior lake and exposed coastal bay shorelines and open bay waters.

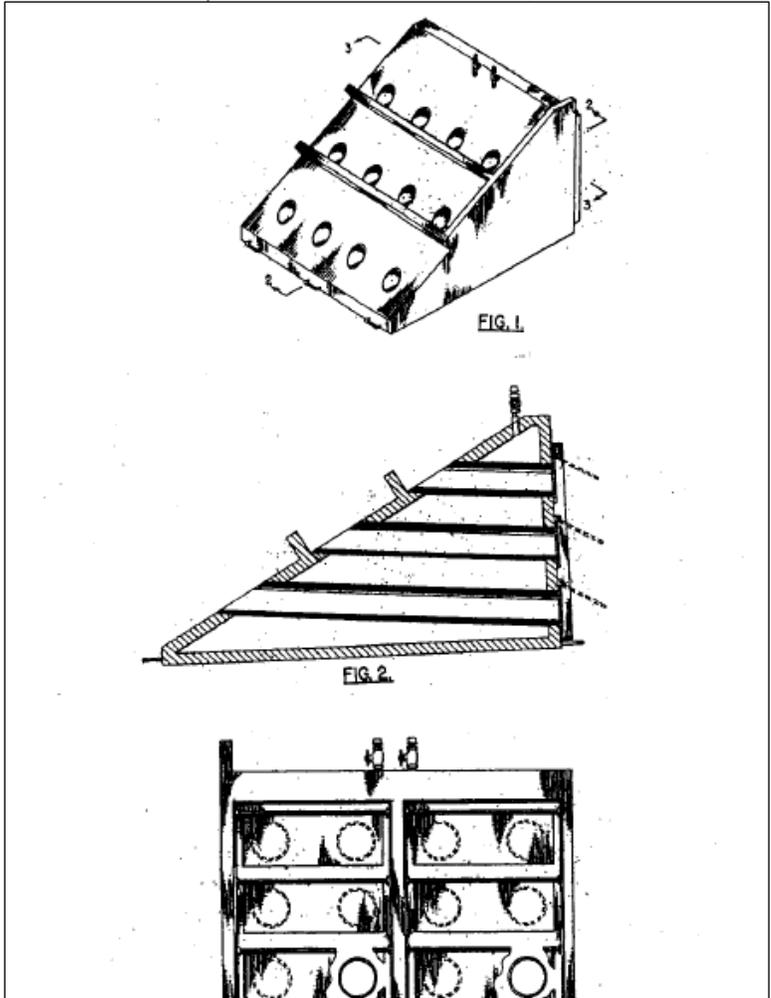
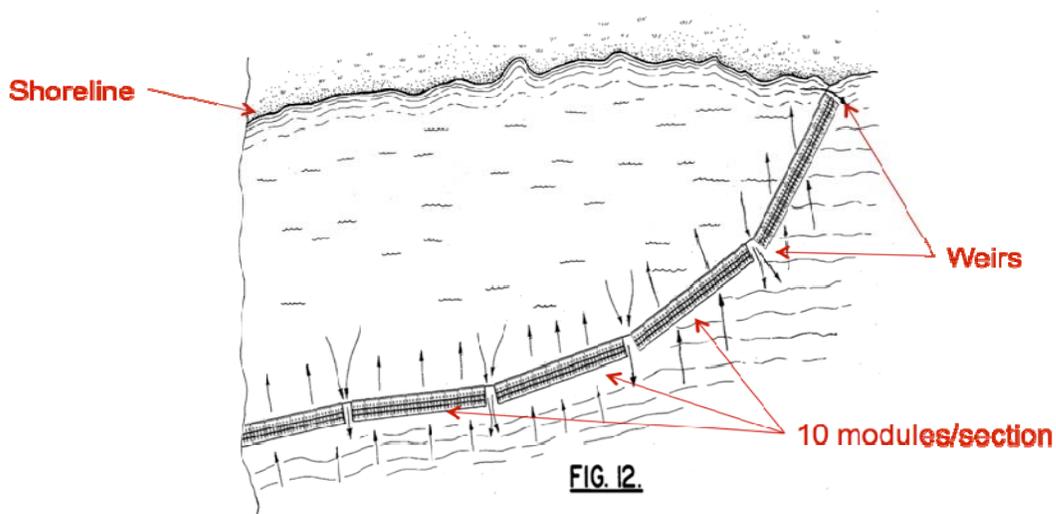
Project Costs:

The estimated cost to implement the demonstration project including 25% contingency is \$967,113.

Preparer(s) of Fact Sheet:

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

Project:	Project Name: EcoSystems Wave Attenuator Demonstration Proj	Date: 3/22/10	Date	Revised:	26-Mar-10
Computed by:	John D. Foret	Project Priority List 20 (ver.082408)			
Item No.	Work or Material	Quantity	Unit	Unit Cost	Amount
1	Mobilization/Demobilization	1	LS	\$200,000.00	\$200,000
2	WSSC Units	135	EA	\$3,190.00	\$430,650
3	Anchors	810	EA	\$84.00	\$68,040
4	Installation	15	DAYS	\$5,000.00	\$75,000
5					\$0
6					\$0
7					\$0
ESTIMATED CONSTRUCTION COST					\$773,690
ESTIMATED CONSTRUCTION + 25% CONTINGENCY					\$967,113



PPL20 DEMONSTRATION NOMINEE FACT SHEET
April 2, 2010

Demonstration Project Name:

EcoSystems Wave Attenuator for Shoreline Protection Demo Project

Coast 2050 Strategy(ies):

Maintenance of Bay and lake Shoreline Integrity

Potential Demonstration Project Location(s):

Gulf, bay, or lake shorelines; specific site to be determined later. Applicable Statewide

Problem:

Coastal Louisiana consists of areas with unstable soil conditions, subsurface obstructions, accessibility limitations, etc. which limit the types of shoreline protection suitable to provide adequate relief of shoreline erosion. Traditional methods that have shown the most success are through the use of rock riprap. The major advantages of rock are the effectiveness and durability of protection that is provided. The disadvantages are the cost, supply, and site specific problems with placement and handling of material. However, the same problems are also associated with other “non-rock” alternatives that have been tried as substitutes to provide equivalent protection against shoreline erosion.

Goals:

The primary goal of this demonstration is to manufacture, deploy and test an alternative method of shoreline protection equivalent to traditional methods in areas where site conditions limit or preclude traditional methods.

Proposed Solution:

Walter Marine has developed a method of protection against shoreline erosion using the EcoSystems Wave Attenuator. This product is a unit of EcoSystems discs mounted on piling with an innovative anchoring system, which dissipates wave action. The EcoSystems Wave Attenuator could be applicable for use as a shoreline protection or in place of a channel plug. The intent of this demonstration project is to place the EcoSystems Wave Attenuator in an area where traditional restoration strategies would have used a cock plug or sheetpile for a channel closure. The project will evaluate the effectiveness of reducing wave energy and shoreline erosion. As a shoreline protection feature, a double row of pilings (5' OC) would be driven and 4 foot diameter disks mounted on each piling along approximately 600 LF of shoreline. A second treatment will have a double row of pilings (7' OC) driven and disks mounted on each piling along an adjacent 730 LF of shoreline. The project will evaluate the effectiveness of reducing wave energy and shoreline erosion at the two prescribed spacing between disks.

Project Benefits:

If successful the project benefits include: 1) reduction in shoreline erosion associated with wave energy; 2) information regarding deployment and installation of EcoSystems Wave Attenuator; 3) information obtained would allow a comparison with riprap structures; 4) identification of other applications of EcoSystems Wave Attenuators.

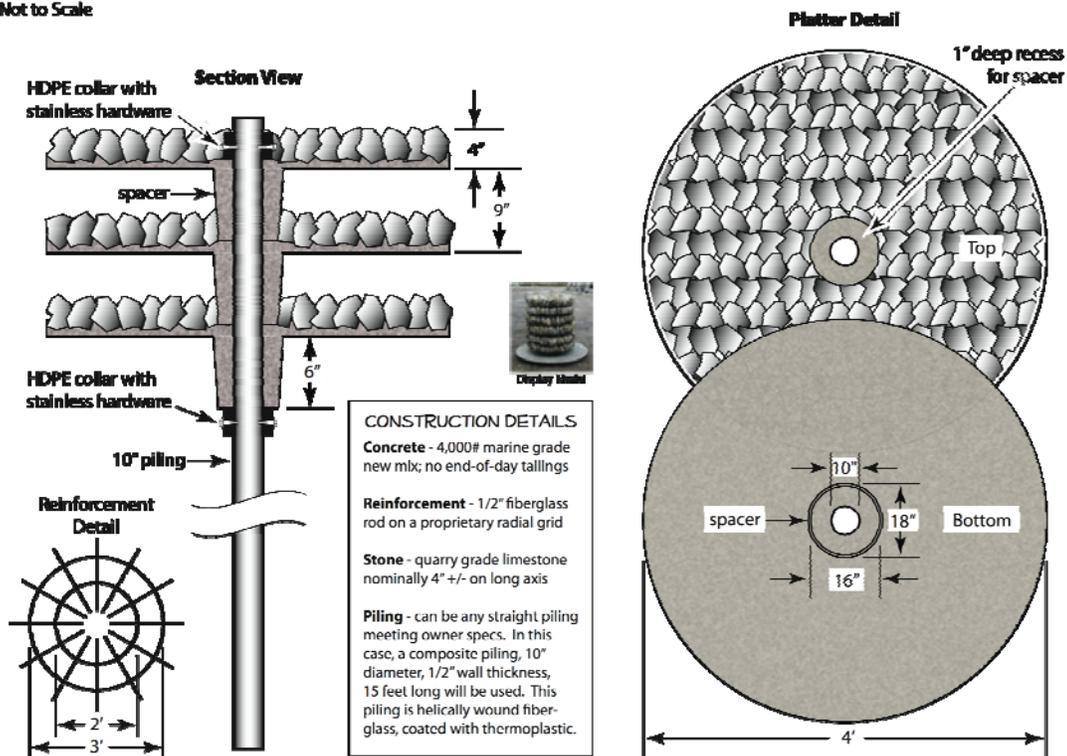
Total Project Costs +25%: \$1.5M

Preparer of Fact Sheet:

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

Project:	Project Name: EcoSystems Wave Attenuator Demonstration Proj	Date: 3/24/09	Date	Revised:	26-Mar-09
Computed by:	John D. Foret	<i>Project Priority List 20</i> (ver:082408)			
Item No.	Work or Material	Quantity	Unit	Unit Cost	Amount
1	Mobilization/Demobilization	1	LS	\$200,000.00	\$200,000
2	40' fiberglass piling w/stop	400	EA	\$1,029.00	\$411,600
3	Ecosystem Discs (4' DIA) Precast concrete Units	2,400	EA	\$150.00	\$360,000
4	Installation	45	DAYS	\$5,000.00	\$225,000
5					\$0
6					
7					\$0
ESTIMATED CONSTRUCTION COST					\$1,196,600
ESTIMATED CONSTRUCTION + 25% CONTINGENCY					\$1,495,750

ECOSYSTEMS[®] WAVE ATTENUATION SYSTEM
Not to Scale



PPL20 DEMONSTRATION NOMINEE FACT SHEET
March 26, 2010

Demonstration Project Name:

Beach Glass Demo Project

Coast 2050 Strategy(ies):

Maintenance of Gulf, Bay, and Lake Shoreline Integrity

Potential Demonstration Project Location(s):

Applicable Statewide.

Problem:

Lack of suitable or affordable sand sources to combat various problems experienced throughout coastal Louisiana, such as shoreline retreat or island breach formation – all have focused the need to develop an alternative sand substitute or even a sand additive to help address these types of problems. The major advantages of using suitable sands to address these problems are the effectiveness and durability of protection that is provided. Maybe there is another material that would provide equal, if not superior, results as suitable sands- glass cullet (pulverized glass).

Goals:

The primary goal of this demonstration is to test the feasibility of using glass cullet in the same way that sand use occurs traditionally in coastal restoration projects. There is a wide range of sand usage, from beach refurbishment, shoreline erosion prevention, island breach repair, as capping material at specific fill sites, as an additive to local soils or dredged material to improve soil “stackability”- this is by no means an exhaustive listing of all possible sand use. This demonstration project proposes narrow the focus and use glass cullet to rebuild the shoreline of a barrier island.

Proposed Solution:

Glass cullet has been used in Florida as beach topping to prevent erosion. Information pertaining to this application is available through this website: <http://www.broward.org/waste/awards.htm>. Glass cullet may be applicable for use as a sand alternative in replacing beach lost due to erosion. The intent of this demonstration project is to place glass cullet in an area where traditionally sand would have been used and compare its performance to sand and/or different combinations of sand and glass cullet along a stretch of shoreline. The project would evaluate the effectiveness of withstanding wave energy and shoreline erosion and the cost compared to strictly sand use. Glass cullet could be placed within a footprint having a total length of 1000 feet, with a 200-foot width at a 2-foot depth, along a suitable shoreline experiencing erosion. The site could be broken into 3 equal-sized segments of different combinations of sand versus cullet, and compared to sand reaches outside of the demo site footprint (demo project dimensions and design would be adjusted to fit cost constraints and parameters that would provide statistically meaningful results as project development continues). The main objective would be to compare the performance of the glass cullet to that of sand.

Current Assumptions: The current proposal assumes that the cullet will be provided at no charge and delivered to a dock in the New Orleans area. It is also assumed that the cullet supplier will stockpile enough quantity for the Demo at no charge.

Project Benefits:

If successful, the project benefits include: 1) reduction in shoreline erosion; 2) information regarding glass cullet's performance in wave energy dissipation and erosion prevention in comparison with sand performance; 3) information regarding deployment, installation, and cost of using glass cullet; and 4) indication of other possible applications of pulverized glass in coastal restoration projects.

Total Project Costs +25%: \$1,397,000

Preparer of Fact Sheet:

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