

Atchafalaya Basin

R3-AT-01-Bateman Island Sediment Retention
and Marsh Restoration

19-3-AT-#1

**PPL 19 Project Nominee Fact Sheet
January 28, 2009**

Project Name

Bateman Island Sediment Retention and Marsh Restoration

Coast 2050 Strategy

Coast wide: Terracing

Regional: (#2) Increase deltaic land building where feasible.

(#8) Beneficial Use of sediment for marsh building by any feasible means.

Project Location

The project is located in Region 3, Atchafalaya Basin, St. Mary Parish, between the Lower Atchafalaya River and Bayou Shaffer. The area is known as Bateman Island.

Problem

Non-retention of readily available sediments and nutrients in a previously degraded marsh area. Shoreline erosion along the perimeter of Sweetbay Lake due to increasing open-water fetch conditions and marine traffic in Lower Atchafalaya River and Bayou Shaffer.

Proposed Project Features

Construction of approximately 31,000 linear feet of terraces within the southern portion of Bateman Island in the vicinity of Sweetbay Lake.

Goals

Reduce and/or reverse current rates of marsh loss in the area of Bateman Island. Reduce shoreline erosion rates around Sweetbay Lake.

Preliminary Project Benefits

Approximately 21.3 acres of freshwater marsh would be created by virtue of the constructed terraces. 38 acres would be protected and directly benefitted by reducing or eliminating shoreline erosion rates around the perimeter of Sweetbay Lake. This project would rebuild freshwater marsh habitat essential to wildlife resources and provide protection to oil and gas industry infrastructure.

Identification of Potential Issues

No significant potential issues are expected from project implementation. Oil and gas industry wells are located in the project area from which gas and flow lines can be avoided.

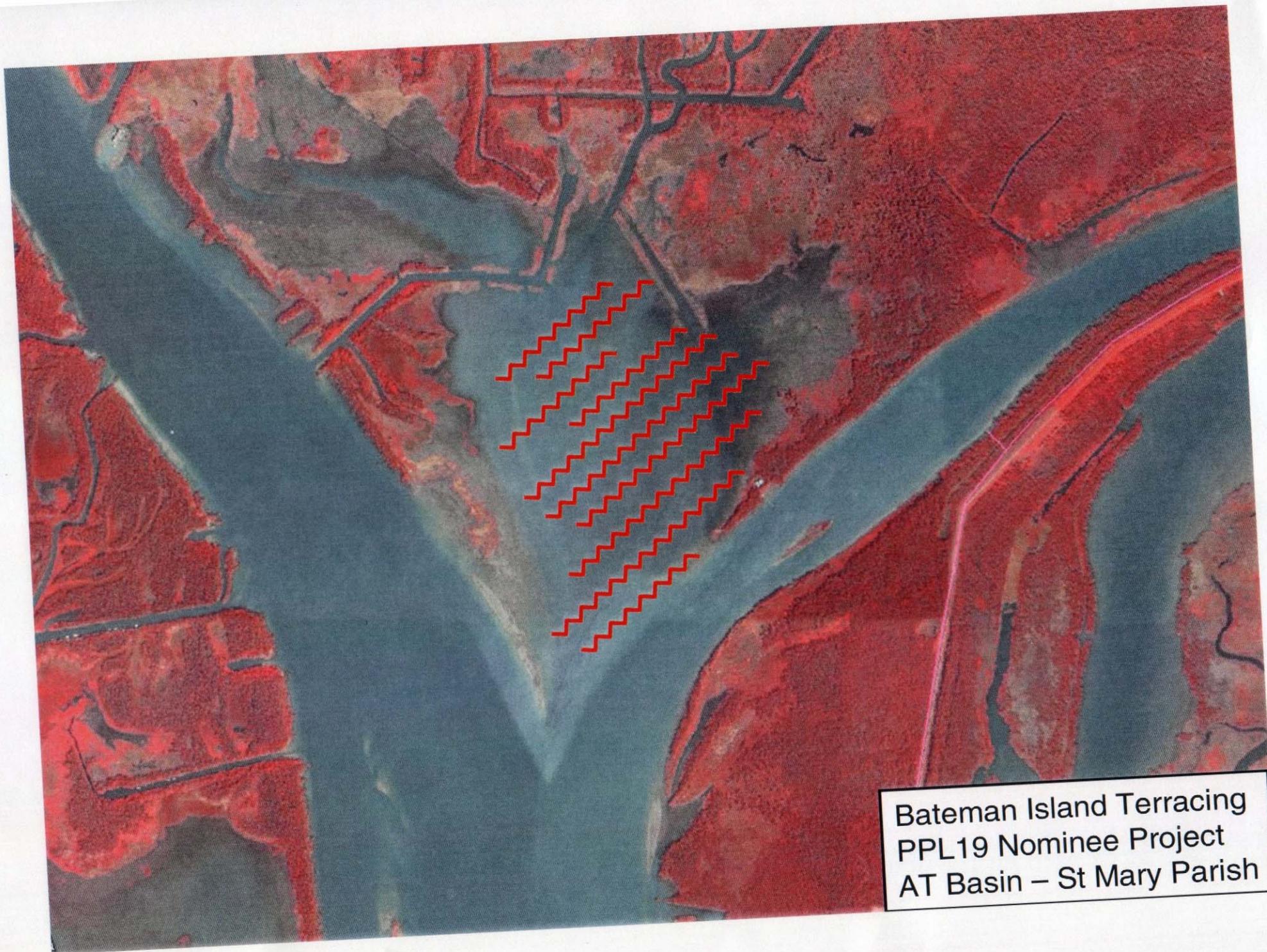
Preliminary Construction Cost

The construction cost plus contingencies for this project is approximately \$805,000.

Preparer of Fact Sheet

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

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



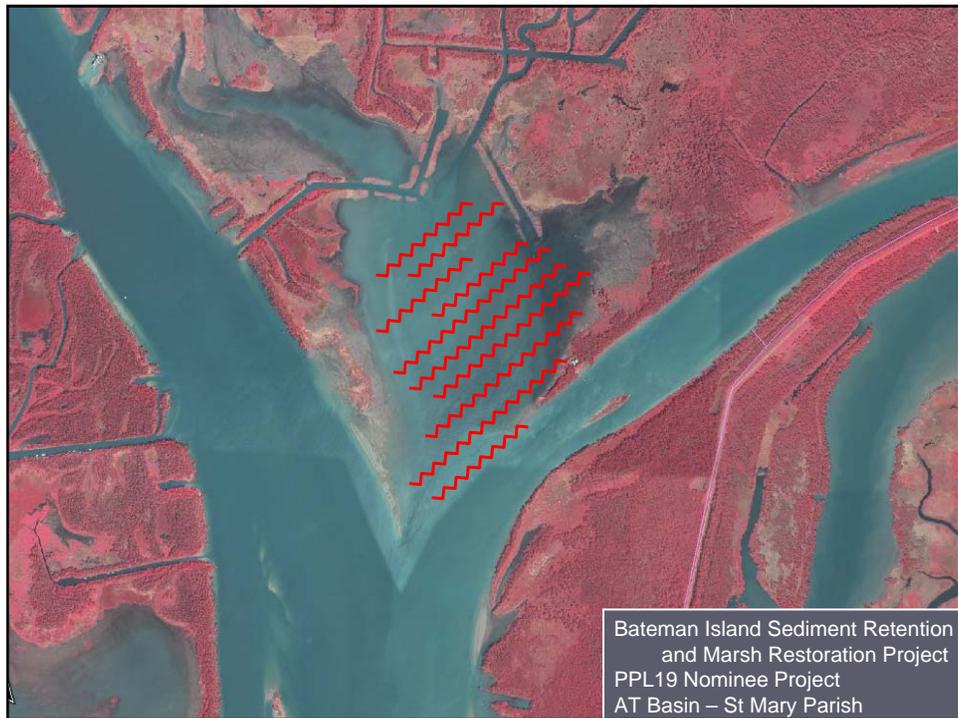
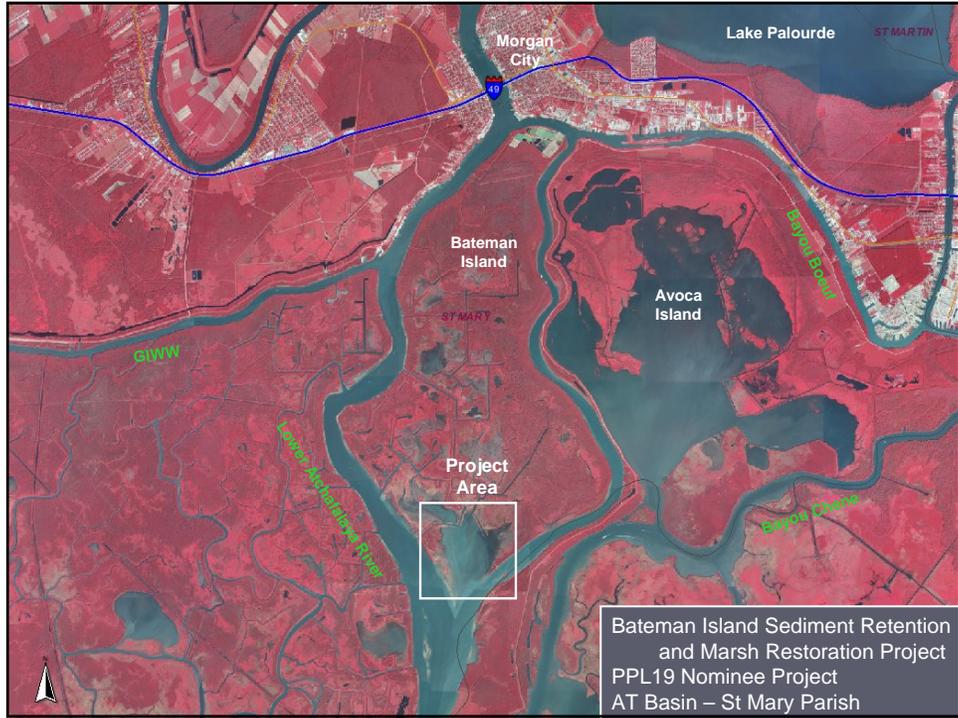
Bateman Island Terracing
PPL19 Nominee Project
AT Basin – St Mary Parish

REGION III
Atchafalaya Basin

PPL19 RPT MEETING

January 28, 2009

**BATEMAN ISLAND
SEDIMENT RETENTION
&
MARSH RESTORATION
PROJECT**



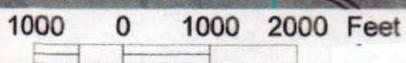
R3-AT-02-Bayou Shaffer Bank Stabilization

St. Mary Parish
Office of the Assessor

December 17, 2008

Parcel Information	Owner Information
[Redacted]	[Redacted]
Land Information	Legal Description
[Redacted]	[Redacted]

BAYOU SHAFER
BANK STABILIZATION
APPROXIMATELY 2 1/4 MILES



The St. Mary Parish Assessors Office makes no claims as to the accuracy of data depicted on this map.

Terrebonne Basin

R3-TE-01-West Raccoon Island Shoal
Enhancement and Protection

19-3-TE-#1

PPL19 PROJECT NOMINEE FACT SHEET

January 28, 2009

Project Name:

West Raccoon Island Shoal Enhancement & Protection

Coast 2050 Strategy:

Regional: [14.] Restore and maintain barrier islands and gulf shorelines

Mapping Unit: [33.] Isles Dernieres - Protect Bay/Gulf Shorelines

Project Location:

Region III, Terrebonne Basin, Terrebonne Parish, Isle Dernieres Barrier Islands

Problem:

The Isles Dernieres barrier island chain is experiencing some of the highest rates of erosion of any coastal region in the world. The western half of Raccoon Island is currently an emergent sand shoal which, for the last several years, has become ephemeral in nature. The shoal is either completely denuded of sand (completely submerged) or severely reduced in size each time a tropical event impacts the island. This lack of sustainability prevents the establishment of woody and herbaceous vegetation from colonizing and providing protection for that part of the island. Lack of vegetation also severely limits the habitat usage of critical avian and waterfowl species which have successfully adapted to the eastern half of the island.

Goals:

The goals of the project are to provide protection, encourage the growth, and stabilize conditions on the sand shoal area of Raccoon Island.

Proposed Solutions:

Project features will include the construction of offshore, segmented rock breakwaters extending from existing breakwater #15 westward to the end of the sand shoal and the building of a terminal groin at the end of the last proposed breakwater. Vegetative plantings, both herbaceous and woody, will follow the construction of the breakwaters.

Preliminary Project Benefits:

It is anticipated that approximately 98 acres of the sand shoal will be protected and directly benefit from this project. Of that acreage, approximately 75 % (74 ac) will revert to supratidal vegetative habitat over the life of the project. An additional 31 acres of tidal and supratidal shoal area are expected to accrue between the proposed breakwaters and existing shoreline as a direct result of the segmented breakwaters. Thereby the rate of shoreline loss on the gulf side of the shoal is expected to cease along 50% of its length and reverse on the remaining 50%. The proposed project will have a significant synergistic effect on the existing Raccoon Island Shore Protection/Marsh Creation (TE-48) and Raccoon Island Demonstration (TE-29) Projects.

Identification of Potential Issues:

There are no potential issues anticipated with this proposed project.

Preliminary Construction Costs:

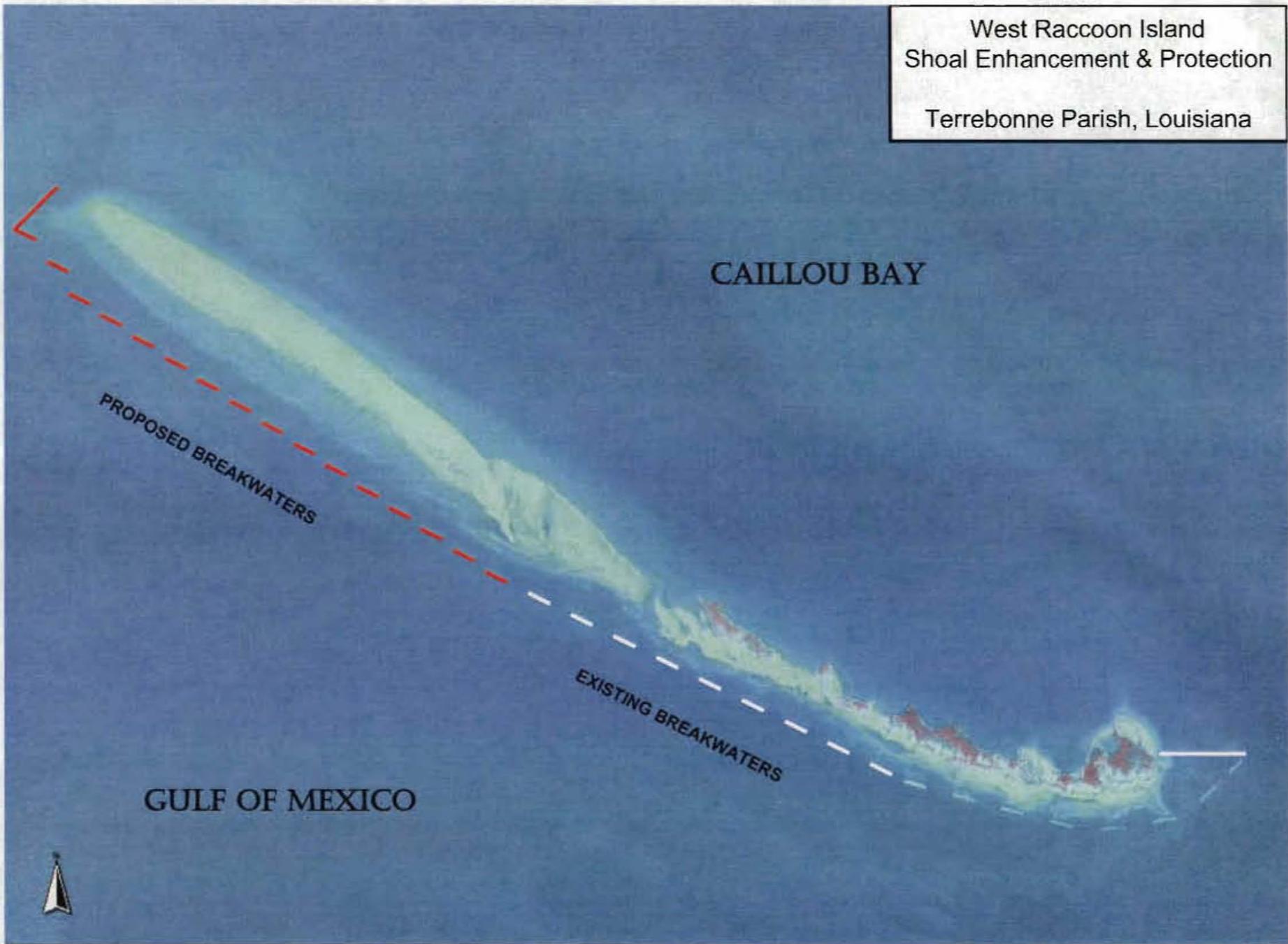
The anticipated construction cost, with contingency, is \$9,700,000.

Preparer(s) of Fact Sheet:

Loland Broussard, (337) 291-3060, loland.broussard@la.usda.gov

Mike Carloss, (337) 373-0032, mcarloss@wlf.louisiana.gov

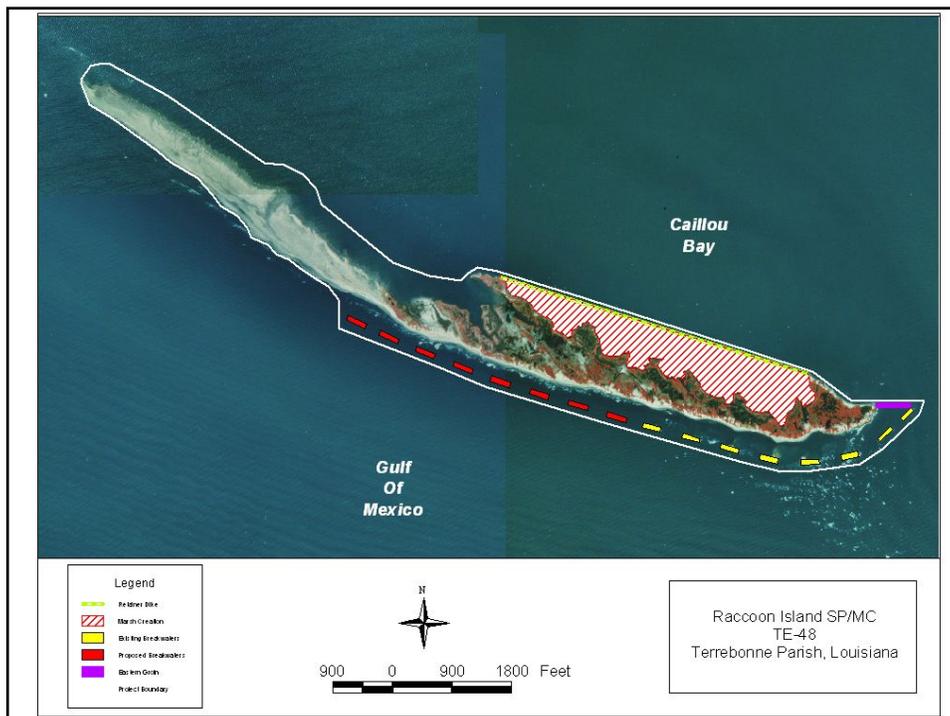
West Raccoon Island
Shoal Enhancement & Protection
Terrebonne Parish, Louisiana



REGION III
Terrebonne Basin
PPL19 RPT MEETING

January 28, 2009

WEST RACCOON ISLAND
SHOAL ENHANCEMENT & PROTECTION
PROJECT







Raccoon Island Pre-Gustav (LDWF), Post-Gustav (USGS) and Post Ike (LDWF)





IDBI Refuge - Trinity Island

(Top-LDWF, Middle-USGS, Bottom-LDWF)



West Raccoon Island
Shoal Enhancement & Protection
Terrebonne Parish, Louisiana



R3-TE-02-Whiskey Island Breakwaters

19-3-TE-#2

PPL19 PROJECT NOMINEE FACT SHEET
January 28, 2009

Project Name:

Whiskey Island Breakwaters

Coast 2050 Strategy:

Regional: [14.] Restore and maintain barrier islands and gulf shorelines

Mapping Unit: [33.] Isles Dernieres - Protect Bay/Gulf Shorelines

Project Location:

Region III, Terrebonne Basin, Terrebonne Parish, Isle Dernieres Barrier Islands

Problem:

The Isles Dernieres barrier island chain is experiencing some of the highest rates of erosion of any coastal region in the world. Whiskey Island is near center of the Isle Dernieres Barrier Islands and one of the only Louisiana barrier islands to provide immediate, adjacent protection to interior wetlands and oil and gas infrastructure. The hurricanes of 2005 and 2008 have considerably reduced the profile of the island which was artificially enhanced by the TE-27 Whiskey Island Restoration CWPPRA Project in 1998. Although the TE-27 Project reinforced the structural integrity and longevity of the island, gulf side and inland bay shoreline erosion continues to threaten the island's sustainability.

Goals:

The goals of the project are to provide protection and stabilize conditions on the gulf side of the island and provide a mechanism to recover lost subtidal/intertidal/supratidal material as a result of impending storm events.

Proposed Solutions:

Project features will include the construction of offshore, segmented rock breakwaters extending from the western vegetated edge of the island to the eastern terminal end (~ 2.8 mi.). Past success with segmented breakwaters, as proven by the adjoining TE-48 Raccoon Island Project, has shown that this form of barrier island protection (in appropriate areas) is dramatically less expensive and less environmentally intrusive than alternatives used in the past. This type of protection is also one of the very few measures that provides a material recovery process throughout the life of the project.

Preliminary Project Benefits:

It is anticipated that approximately 407 acres of intertidal and dune areas of the island will be protected and directly benefit from this project. An additional 76 acres of tidal and supratidal beach area are expected to accrue between the proposed breakwaters and existing shoreline as a direct result of the segmented breakwaters. Of that acreage, approximately 25 - 35 % (19 - 27 ac) will revert to supratidal vegetative habitat over the life of the project. Thereby the rate of shoreline loss on the gulf side of the island is expected to reduce along 100% of its length and actually reverse directly behind the breakwaters. The proposed project will have a significant synergistic effect on the existing Whiskey Island Restoration (TE-27) and forthcoming Whiskey Island Back Barrier Marsh Creation (TE-50) Projects.

Identification of Potential Issues:

There are no potential issues anticipated with this proposed project.

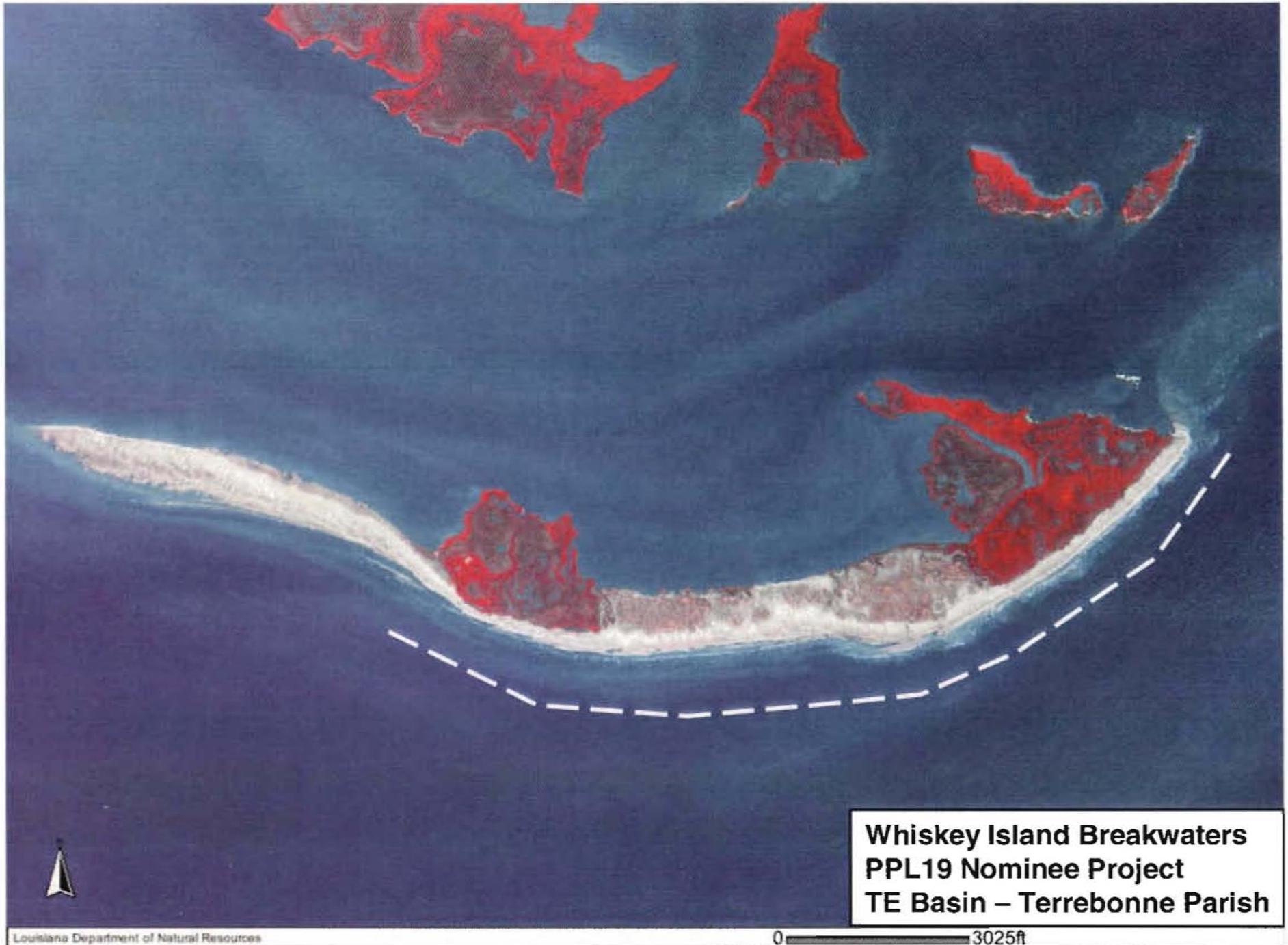
Preliminary Construction Costs:

The anticipated construction cost, with contingency, is \$13,300,000.

Preparer(s) of Fact Sheet:

Loland Broussard, (337) 291-3060, loland.broussard@la.usda.gov

Mike Carloss, (337) 373-0032, mcarloss@wlf.louisiana.gov

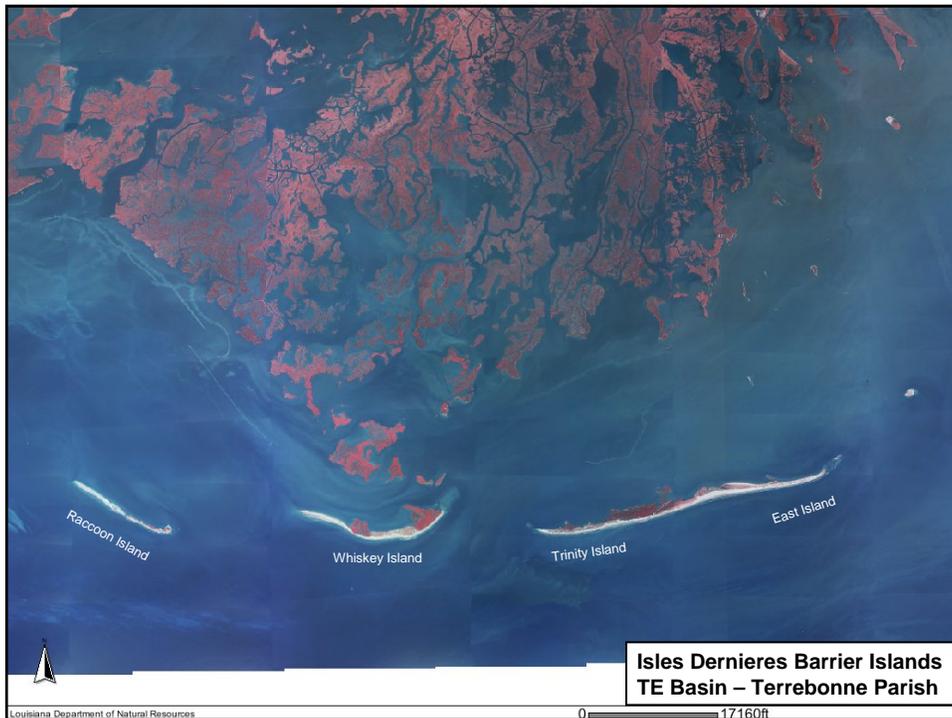


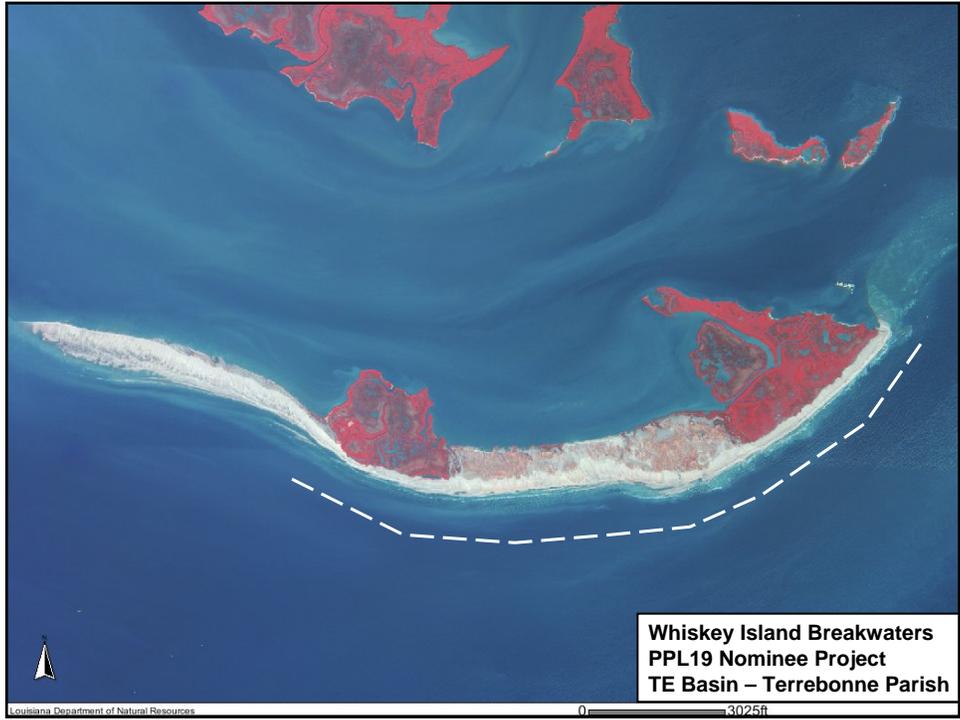
**Whiskey Island Breakwaters
PPL19 Nominee Project
TE Basin – Terrebonne Parish**

REGION III
Terrebonne Basin
PPL19 RPT MEETING

January 28, 2009

**WHISKEY ISLAND BREAKWATERS
PROJECT**





R3-TE-03-East Island Dune and Marsh
Restoration

19-3-TE-#3

PPL19 PROJECT NOMINEE FACT SHEET

January 28, 2009

Project Name: East Island Dune and Marsh Restoration

Coast 2050 Strategy: Coastwide Common Strategies-Dedicated Dredging to Create, Restore, or Protect Wetlands; Vegetative Planting; Utilize Offshore Sand and Sediment Resources.

Regional Ecosystem Strategies- Restore and sustain marshes- #8. Dedicated delivery and/or beneficial use of sediment for marsh building by any feasible means; Restore barrier islands and Gulf shorelines-#14. Restore and maintain the barrier islands and gulf shoreline such as Isles Dernieres, Timbalier barrier island chains, Marsh Island, Point au Fer and Cheniere Au Tigre. Isles Dernieres Shorelines Mapping Unit Strategies- #33. Protect bay/gulf shorelines.

Project Location: Coast 2050 Region 3, Terrebonne Basin, Terrebonne Parish, Terrebonne mapping unit, located approximately 38 miles south of Houma, LA.

Problem: Barrier islands are the first line of defense against storm surge and protect the interior wetlands and infrastructure from open ocean wave effects. They ensure the estuaries behind them are low energy environments capable of supporting wetlands and emerging deltas. East/Trinity Island is part of the Isles Dernieres barrier island chain, one of the most rapidly deteriorating barrier shorelines in the U.S. Previous restorations did not provide for extensive beach and back barrier marsh platforms inhibiting a sustainable landward migration. This easternmost project area encounters considerable wave action and material movement not only on the Gulf shore, but also on the backside of the island.

Goals:

- 1) provide a backbarrier platform to enable sustainable and successful island migration
- 2) extend the life of this barrier island by increasing its width
- 3) create about 272 acres of intertidal marsh using new dredged material and vegetative plantings
- 4) fortify/protect the platform and marsh by creating 20 acres of dune, 10 acres of supratidal habitat
- 5) protect Terrebonne estuary and vegetated wetlands against direct exposure to the Gulf of Mexico
- 6) add sand to this sand-starved barrier island system

Proposed Solution: Dredged material will be placed on the backside of the island creating additional backbarrier marsh and a dune will be created along the Gulf shoreline. The former will provide a stable backbarrier platform onto which the island can migrate landward, while the latter will provide additional sand for redistribution by currents and waves along the entire island's Gulf shore.

Preliminary Project Benefits: This project directly and indirectly benefits about 302 acres of barrier island habitat. Approximately 180 acres of barrier island habitat would be created/protected over the 20-year project life. The anticipated loss rate reduction throughout the area of direct benefits over the project life is estimated to be 25-49%. The project will maintain and restore structural components of the coastal ecosystem (barrier island). This project will provide a synergistic effect on previously constructed CWPPRA projects (TE-20, TE-24, and TE-37) and other restoration projects on the Isles Dernieres.

Identification of Potential Issues: Endangered species coordination.

Preliminary Construction Costs: (including + 25% contingency)

\$ 19 million

Preparers of Fact Sheet:

Brad Crawford, EPA Region 6, (214) 665-7255, crawford.brad@epa.gov

Ken Teague, EPA Region 6, (214) 665-6687, teague.Kenneth@epa.gov

East Island Dune and Marsh Restoration

Marsh Creation = 234 acres
Sand Volume = 946,000 CY

Toe to Fill = 94 acres
Sand Volume = 380,000 CY

750 ft marsh platform TERREBONNE

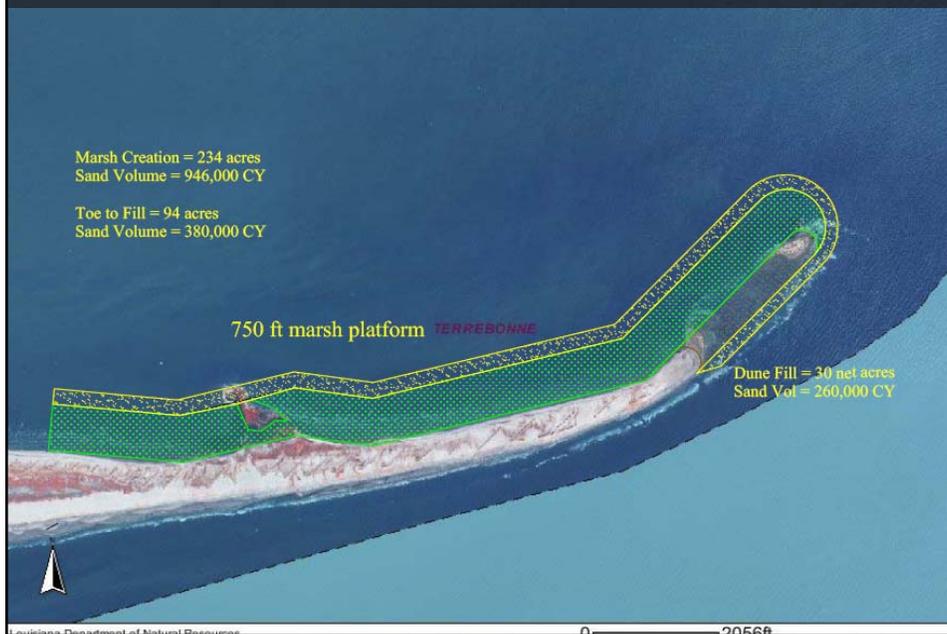
Dune Fill = 30 net acres
Sand Vol = 260,000 CY



East Island Dune and Marsh Restoration



East Island Dune and Marsh Restoration



East Island Dune and Marsh Restoration

Goals:

- Create 272 acres intertidal
- Create 20 acres dune
- Create 10 acres supratidal
- Total = 302 acres BI habitat

Preliminary Project Benefits:

- 180 net acres over 20 years

Identification of Potential Issues:

- Endangered species coordination

Preliminary Construction Costs:

- \$15-\$20 million (incl 25% contingency)

East Island Dune and Marsh Restoration

Questions?

Brad Crawford
EPA Region 6
(214)665-7255
crawford.brad@epa.gov



R3-TE-04-North Catfish Lake Shoreline
Protection

19-3-TE-#4

PPL 19 PROJECT NOMINEE FACT SHEET
2/28/2009

Project Name

North Catfish Lake Shoreline Protection

Coast 2050 Strategy

Coastwide Common Strategy to maintain bay and lakeshore integrity.

Project Location

Region 3, Terrebonne Basin, Lafourche Parish, north shore of Catfish Lake

Problem

The north shore of Catfish Lake has experienced average shoreline erosion of 28 ft per year with some areas losing as much as 55 ft per year.

Proposed Project Features

The project will construct approximately 20,000 linear feet of foreshore protection along the northern half of Catfish Lake and the newly protected shoreline will be planted with smoothcord grass.

Goals

The project will stop shoreline erosion on the northern half of the Catfish Lake.

Preliminary Project Benefits

The shoreline protection will stop 27.7 ft of average annual erosion across 20,000 linear feet, which is equivalent to 12.8 acres per year or 257 acres over 20 years.

Identification of Potential Issues

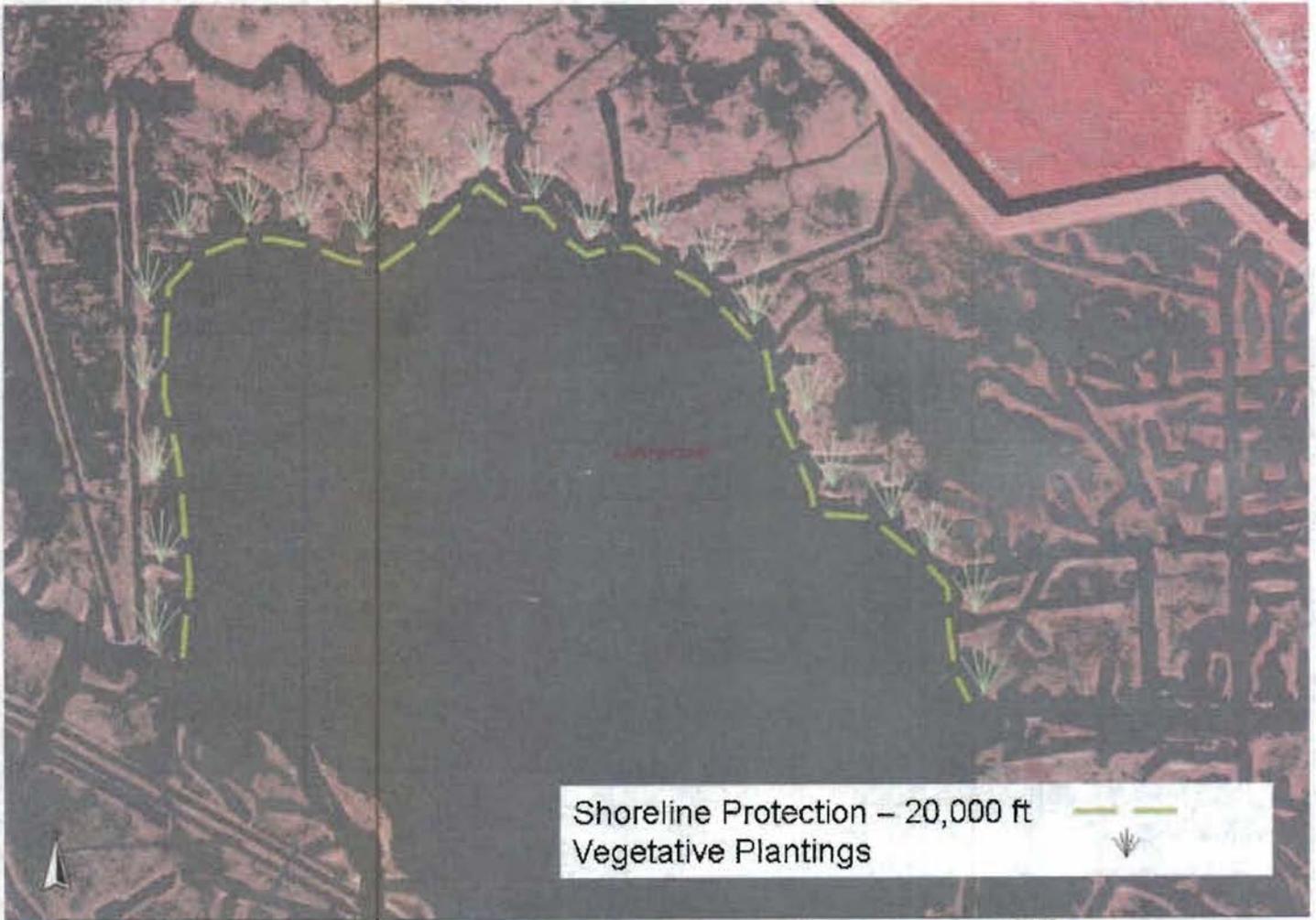
The proposed project has the following potential issues: oysters, land rights, O&M, utilities/pipelines.

Preliminary Construction Costs

\$8 million

Preparer of Fact Sheet

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



Shoreline Protection - 20,000 ft
Vegetative Plantings



North Catfish Lake Shoreline Protection

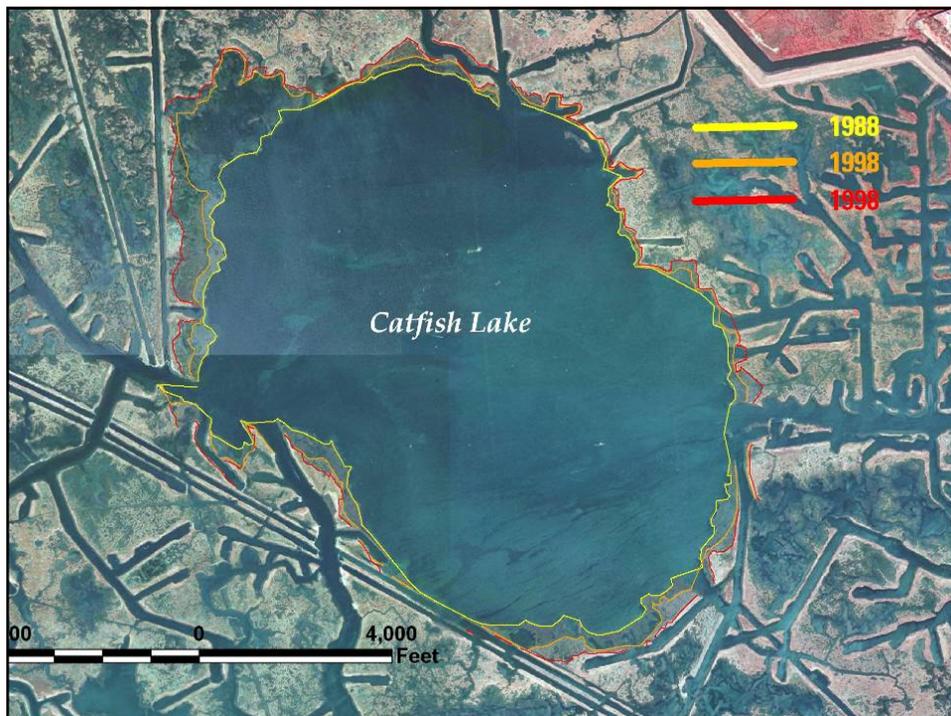
PPL 19 Proposed Project
Region III, Terrebonne Basin
Lafourche Parish
Sponsored by NRCS

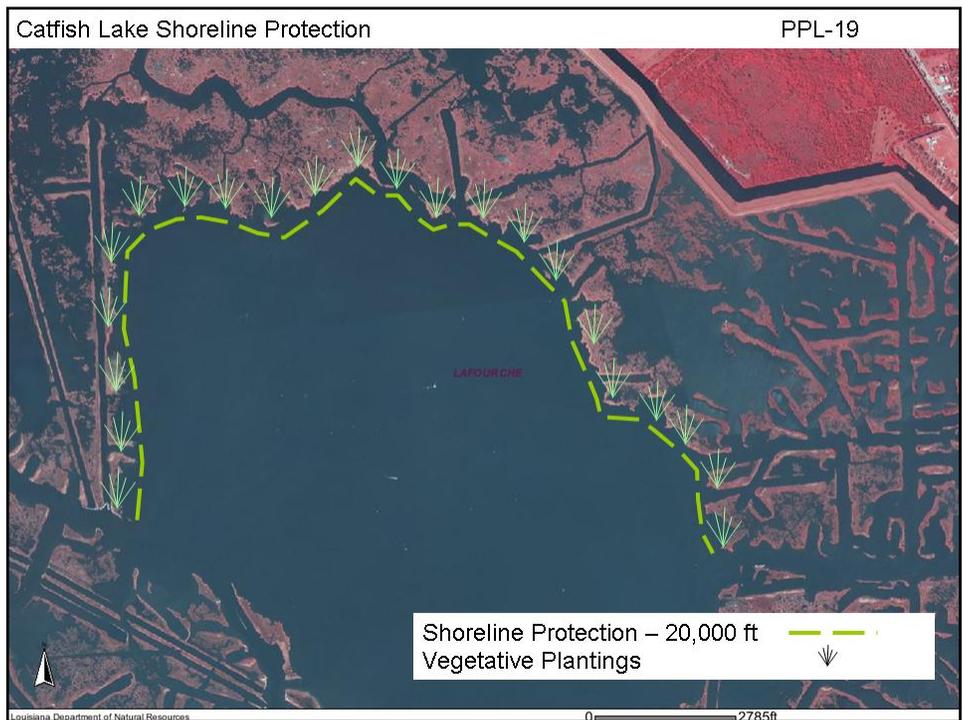
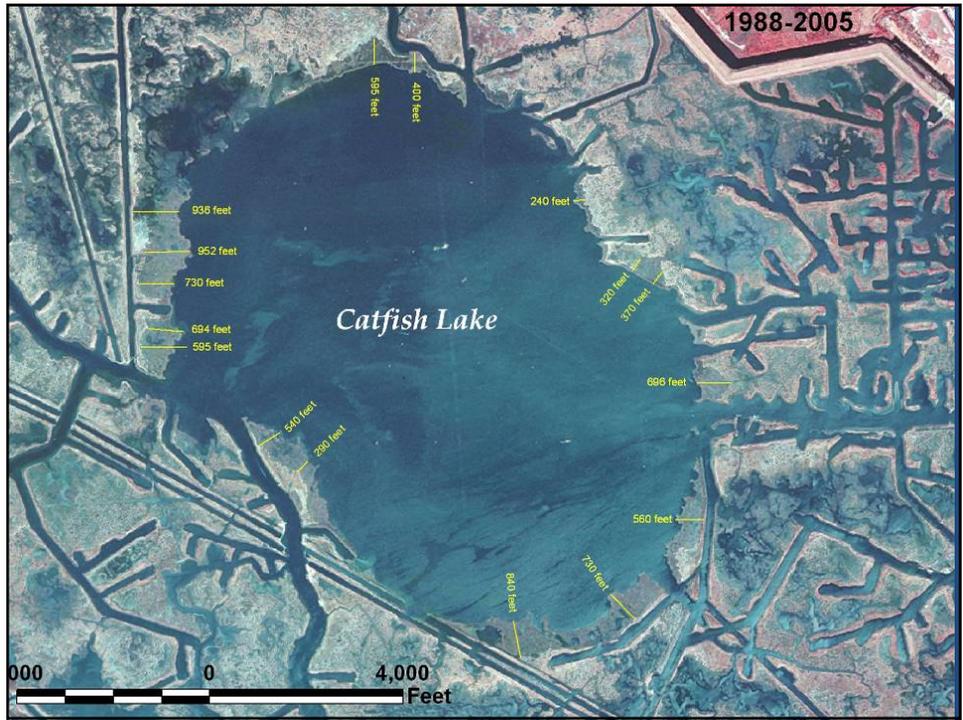
North Catfish Lake Shoreline Protection

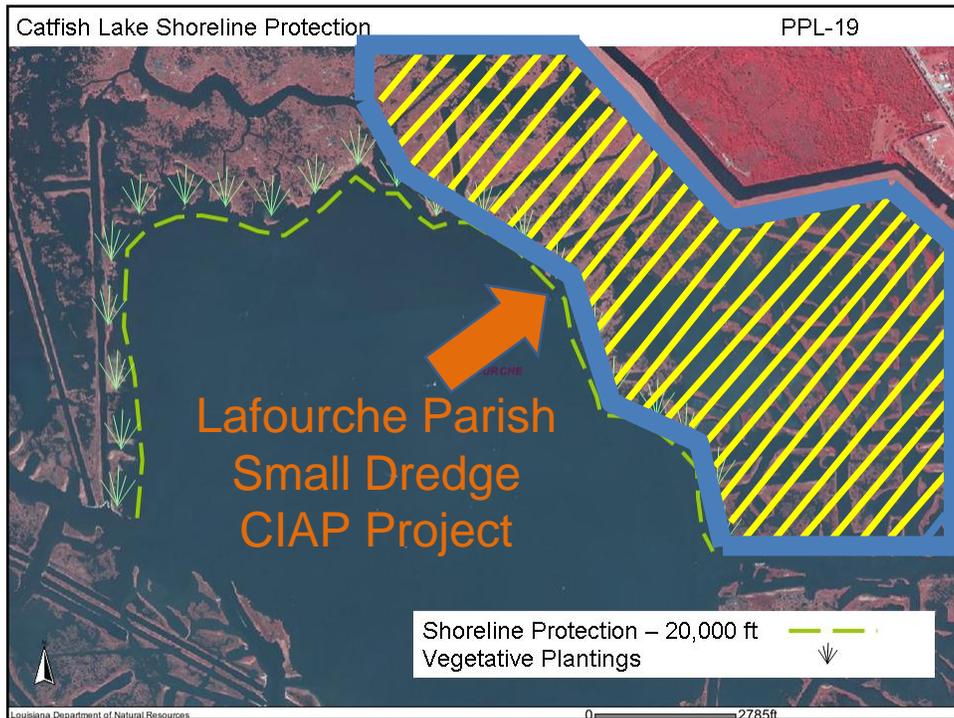
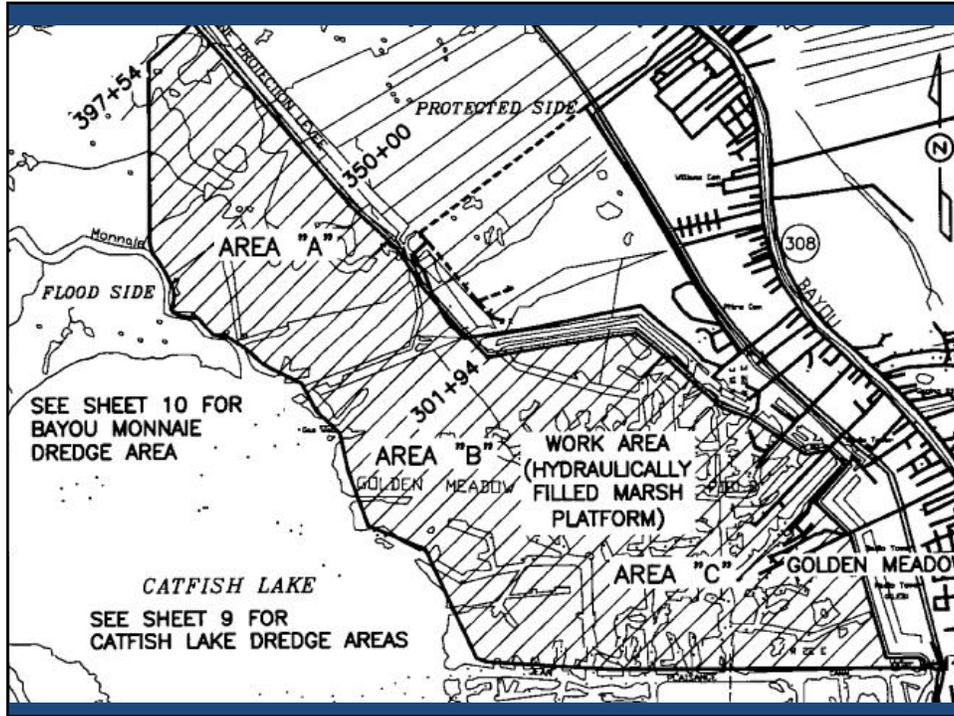
- Coast 2050 Strategy: To maintain bay and lakeshore integrity
- The north shore of Catfish Lake has experienced average shoreline erosion of 28 ft per year with some areas losing as much as 55 ft per year
- The project will stop shoreline erosion on the northern half of the Catfish Lake

North Catfish Lake Shoreline Protection

- Construct approx. 20,000 linear feet of foreshore protection along the N half of Catfish Lake
- Shoreline will be planted with smooth cord grass
- Will stop 27.7' of average annual erosion across 20,000 linear feet—equivalent to 12.8 acres per year; 257 acres over 20 years
- Preliminary Construction Costs: \$8 million







R3-TE-05-Timbalier Island Shoreline
Restoration

PPL19 PROJECT NOMINEE FACT SHEET
February 28,2009

Project Name: Timbalier Island Shoreline Restoration

Coast 2050 Strategy: Coastwide Common Strategies-Dedicated Dredging to Create, Restore, or Protect Wetlands; Vegetative Planting; Utilize Offshore Sand and Sediment Resources. Regional Ecosystem Strategies- Restore and sustain marshes- #8. Dedicated delivery and/or beneficial use of sediment for marsh building by any feasible means; Restore barrier islands and Gulf shorelines-#14. Restore and maintain the barrier islands and gulf shoreline such as Isles Dernieres, Timbalier barrier island chains, Marsh Island, Point au Fer and Cheniere Au Tigre.

Project Location: Coast 2050 Region 3, Terrebonne Basin, Terrebonne Parish, Terrebonne mapping unit, located approximately 38 miles south of Houma, LA.

Problem: Barrier islands are the first line of defense against storm surge and protect the interior wetlands and infrastructure from open ocean wave effects. They ensure the estuaries behind them are low energy environments capable of supporting wetlands and emerging deltas. Timbalier Island is part of the Lafourche Delta headland and barrier island system, one of the rapidly deteriorating barrier shorelines in Louisiana averaging -13.1 ft/yr of erosion from 1990's thru 2005 in the proposed project area. Additionally, the pass east of Timbalier Island (Little Pass Timbalier) is moving westerly. Hurricanes Katrina, Rita, Gustave, and Ike have breached the island in the proposed project area and the closure of the breach should be done to prevent any attempt of the pass to shift westerly toward this point.

Goals:

- 1) Close the cut in the island from Hurricane Gustave to slow shifting of the tidal pass.
- 2) provide a backbarrier platform to enable sustainable and successful island migration
- 3) extend the life of this barrier island by increasing its width
- 4) create about 60 acres of intertidal marsh using new dredged material and vegetative plantings
- 5) fortify/protect the platform and marsh by creating 150 acres of beach.
- 6) protect Terrebonne estuary and vegetated wetlands against direct exposure to the Gulf of Mexico
- 7) add sand to this sand-starved barrier island system

Proposed Solution: Dredged material will be placed on the front and backside of the island creating additional backbarrier marsh and a beach will be created along the Gulf shoreline. The former will provide a stable backbarrier platform onto which the island can migrate landward, while the latter will provide additional sand for redistribution by currents and waves along the entire island's Gulf shore. Sediment fences and plantings will be utilized to manage new placed sediments.

Preliminary Project Benefits: Direct creation of 160 acres of beach and marsh and approximately 130 acres of barrier island habitat would be created/protected over the 20-yr

life. The loss rates, when projected to remaining the same, would cause the loss of approximately 20% of the constructed areas to be lost. This project will provide synergistic affects with other CWPPRA (TE-18 and TE-40) and Federal (LCA Terrebonne Barrier Shoreline) restoration efforts.

Identification of Potential Issues:

Preliminary Construction Costs: (including 25% contingency)

Construction:		
Mobilization and Demobilization:	Lump Sum	\$3,000,000
Containment Dikes (7,000 linear ft)	\$30.00	\$300,000
Hydraulic Dredging (2.3 million cu yd)	\$7.00/cu. yd	\$16,100,000
Cut Closure Structure	Lump Sum	\$70,000
Sand Fencing	Lump Sum	\$100,000
Plantings	Lump Sum	\$100,000
Surveying	Lump Sum	<u>\$150,000</u>
Construction Costs:		\$19,820,000
Contingency (25%)		<u>\$4,955,000</u>
Total Construction plus Contingency:		\$24,775,000
Professional Services:		
Engineering and Design:		\$1,400,000
Surveying:		\$50,000
Construction Admin:		\$40,000
Inspection:		<u>\$130,000</u>
Total Professional Services:		<u>\$1,620,000</u>
Total Estimated Project Budget:		\$26,395,000

Preparers of Fact Sheet:

Darin Lee, OCPR, (985-447-0991), Darin.Lee@la.gov



PPL 19 – CWPPRA RPT Meeting

Timbalier Island Shoreline Restoration

January 28, 2009

01/28/09

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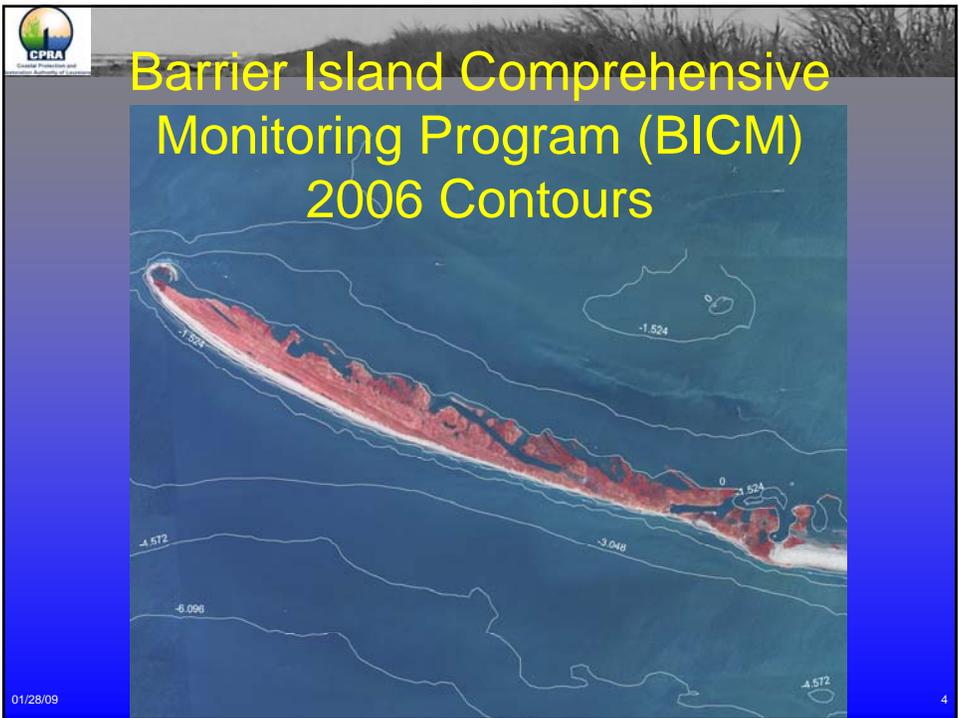


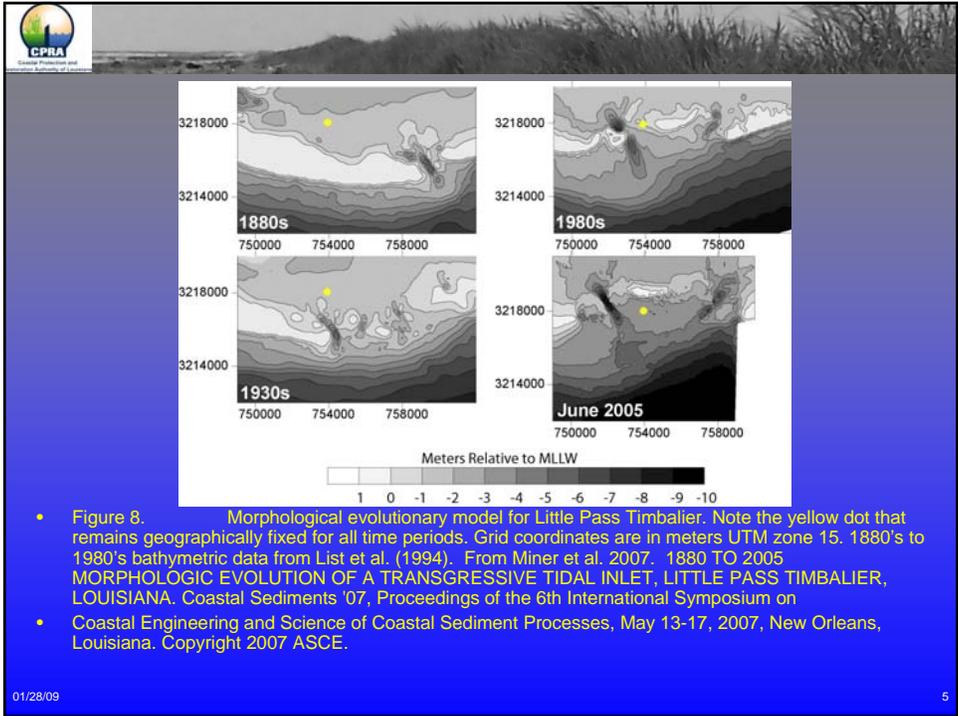
Proposed Project

- Marsh Creation = 60 acres
- Beach Fill = 100 acres

01/28/09

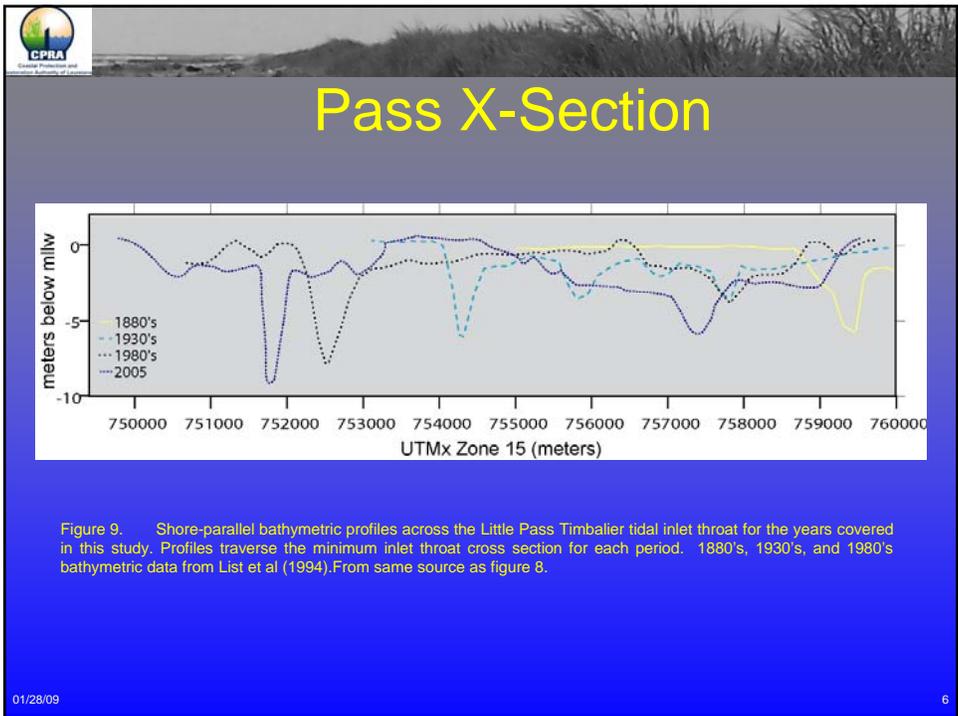
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01/28/09

5



01/28/09

6

 **Timbalier Island**



September 30, 2005



April 20, 2007

Timbalier Island - 29°04'38" / 90°32'05" View to the N (12°)



01/28/09 7

 **Timbalier Island**



September 30, 2005



April 20, 2007

Timbalier Island - 29°04'03" / 90°30'32" View to the NNW (26°)



01/28/09 8

 **Timbalier Island**



September 30, 2005



April 20, 2007

Timbalier Island - 29°03'41" / 90°29'14" View to the N (20°)



01/28/09 9

 **Timbalier Island**



01/28/09 10





Timbalier Island



01/28/09

13

R3-TE-06-Lost Lake Marsh Creation and
Hydrologic Restoration

19-3-TE-#6

PPL19 PROJECT NOMINEE FACT SHEET

January 28, 2009

Project Name

Lost Lake Marsh Creation and Hydrologic Restoration

Coast 2050 Strategy

Regional Strategy – Dedicated delivery of sediment for marsh building

Regional Strategy – Increase transfer of Atchafalaya River water to lower Penchant tidal marshes

Project Location

Region 3, Terrebonne Parish, southwestern Terrebonne Basin near Lost Lake

Problem

Significant marsh loss has occurred between Lake Pagie and Bayou DeCade to the point that little structural framework remains separating those two waterbodies. Northeast of Lost Lake, interior marsh breakup has resulted in large, interior ponds where wind/wave energy continues to result in marsh loss. West of Lost Lake, interior breakup has occurred as a result of ponding and the periodic entrapment of higher salinity waters during storm events.

Goals

- 1) Prevent the coalescence of Bayou DeCade and Lake Pagie and extend the landbridge function of the North Lake Mechant Landbridge Project.
- 2) Address interior marsh loss with terraces and marsh creation.
- 3) Increase fresh water and sediment delivery to marshes north and west of Lost Lake.

Proposed Project Features

The proposed project consists of several features to protect marsh, create marsh, and extend the landbridge function of the North Lake Mechant Landbridge Project to the west. Marshes north, east, and west of Lost Lake serve an important function as an intermediate zone buffering fresh marshes to the north from the higher salinities to the south. Features include:

- 1) Marsh creation (300 acres) between Lake Pagie and Bayou DeCade to prevent the coalescence of those two waterbodies and restore/protect some key features of structural framework (i.e., lake rim and bayou bank) in the area. This feature will compliment features currently being built under the North Lake Mechant Landbridge Project. In addition, 150 acres of marsh will be created north of Bayou DeCade.
- 2) Terracing (approximately 30,000 linear feet or 16 acres) to reduce fetch in deteriorated marsh northeast of Lost Lake.
- 3) At certain times of the year, Carencro Bayou is an excellent source of fresh water and sediments from the Atchafalaya River/Four League Bay system. However, delivery of that water into the marshes west of Lost Lake is limited by a series of fixed-crest weirs which limit water exchange. An opportunity exists to increase freshwater and sediment delivery by removing some of the fixed-crest weirs and installing structures with bays/gates.
- 4) The Penchant Basin Natural Resources Plan Project will provide an additional 500 cfs of freshwater flow into Brady Canal which will increase flows into Carencro Bayou north of Lost

Lake. An opportunity exists to increase freshwater and sediment delivery south of Carencro Bayou and to take advantage of excess fresh water north of Carencro Bayou by removing some of the plugs and fixed-crest weirs and installing structures with bays/gates.

Preliminary Project Benefits

- 1) The total acreage benefited directly would be 466 acres (450 acres of marsh creation/nourishment and 16 acres of terraces). Indirect benefits would occur over approximately 9,000 additional acres of marsh as a result of increased fresh water and sediment delivery.
- 2) The total net acres protected/created over the project life would be between 400-500 acres.
- 3) Background loss rates would be reduced by 50% in the marsh creation and marsh nourishment areas. Increased fresh water and nutrients would reduce marsh loss in the areas west and north of Lost Lake. The assumed reduction in marsh loss in those areas is approximately 20%. Overall, the reduction in marsh loss across the project area would be in the range of 25% to 50%.
- 4) The project would help maintain the Lake Pagie shoreline and the southern bank of Bayou DeCade.
- 5) The project would not protect any significant infrastructure.
- 6) The project would provide a synergistic effect with the North Lake Mechant Landbridge Restoration Project located to the east. The concept of protecting this important landbridge would be extended westward. Other CWPPRA projects which protect marsh in this important area include the Brady Canal Hydrologic Restoration Project and the Penchant Basin Natural Resources Plan. This project would work synergistically with those projects to protect marsh in this portion of the western Terrebonne Basin.

Identification of Potential Issues

At this time, no significant issues have been identified for this project. Lost Lake contains no oyster leases and maintenance costs for the project would be low.

Preliminary Construction Costs

The estimated construction cost with a 25% contingency is approximately \$25,725,000.

Preparer of Fact Sheet

Kevin Roy, U.S. Fish and Wildlife Service, 337-291-3120 email: kevin_roy@fws.gov



U.S. Fish & Wildlife Service

Louisiana Ecological Services Field Office

Lost Lake Marsh Creation and Hydrologic Restoration



R3-TE-07-Bayou Terrebonne Freshwater
Diversion

19-3-TE-#7

PPL19 PROJECT NOMINEE FACT SHEET
January 28, 2009

Project Name

Bayou Terrebonne Freshwater Diversion

Coast 2050 Strategy

Coastwide Strategy – Management of Pump Outfall for Wetland Benefits; Terracing

Project Location:

Region 3, Terrebonne Basin, Terrebonne Parish, Pointe aux Chenes Wildlife Management Area (WMA)

Problem:

The marshes of Terrebonne Parish are rapidly deteriorating due to subsidence, lack of sediment, lack of fresh water, and saltwater intrusion. This has led to a significant reduction in the quality of fish and wildlife habitat. This loss has also made oil and gas infrastructure and the cities of Montegut, Pointe aux Chenes, and Houma more susceptible to storm events.

Goals:

1. Increase the delivery of fresh water, sediments, and nutrients to approximately 9,050 acres of brackish and intermediate marsh.
2. Create approximately 30 acres of habitat via terracing (56,000 feet).
3. Increase emergent marsh diversity.
4. Increase abundance and diversity of submerged aquatic vegetation.

Proposed Solution:

There is currently a large drainage ditch that originates at a pump station on Bayou Terrebonne and runs south to pump stations located at Montegut and Pointe aux Chenes. These three pump stations remove rainwater from the communities of Montegut and Pointe aux Chenes.

With minor modifications, this drainage ditch could connect all three pump stations and allow fresh water to be diverted from Bayou Terrebonne and pumped into the Pointe aux Chenes and Montegut management units on Pointe aux Chenes WMA. This plan would need to provide four elements to achieve the above mentioned goals.

1. Install a water bypass structure around the pump station located at Bayou Terrebonne.
2. Remove an earthen plug between the Montegut and Pointe aux Chenes drainage systems.
3. Install a screw-gate water control structure near the location of the removed plug.
4. Provide Terrebonne Parish with funding to operate and maintain the three pump stations for freshwater delivery to the targeted wetlands.

Once constructed, the pumps located at Pointe aux Chenes and Montegut would pump water out of the drainage system into the impoundments. The drainage system would be provided with fresh water from Bayou Terrebonne via the bypass structure. Once the desired salinity levels were reached in the impoundments the bypass station at Bayou Terrebonne would be closed, water levels within the drainage system would be pumped down to manageable levels, and the entire system would return to flood control operation.

Preliminary Project Benefits:

- 1) *What is the total acreage benefited both directly and indirectly?* 9,050 acres of marsh and shallow water habitat would be benefited. Within this 9,050 acres up to 30 acres of new marsh will be created via terracing.
- 2) *How many acres of wetland will be protected/created over the project life?*
Approximately 150-200 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%)?* <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, chenieres, etc?* Terraces will help protect ridges within the management units.
- 5) *What is the net impact of the project on critical and non-critical infrastructure?*
Several oil and gas companies have wells and lines in the project area. By reducing marsh loss rates and created marsh, those interests will be better protected and less likely to be exposed.
- 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 goals of the Montegut Wetland Project (State Project TE-01) and the Pointe aux Chenes Hydrologic Restoration Project (State Project TE-06).

Identification of Potential Issues

There are a few pipelines located near the terrace fields which will have to be avoided.

An operation plan will have to be developed between Terrebonne Parish and the Louisiana Department of Wildlife and Fisheries (LDWF).

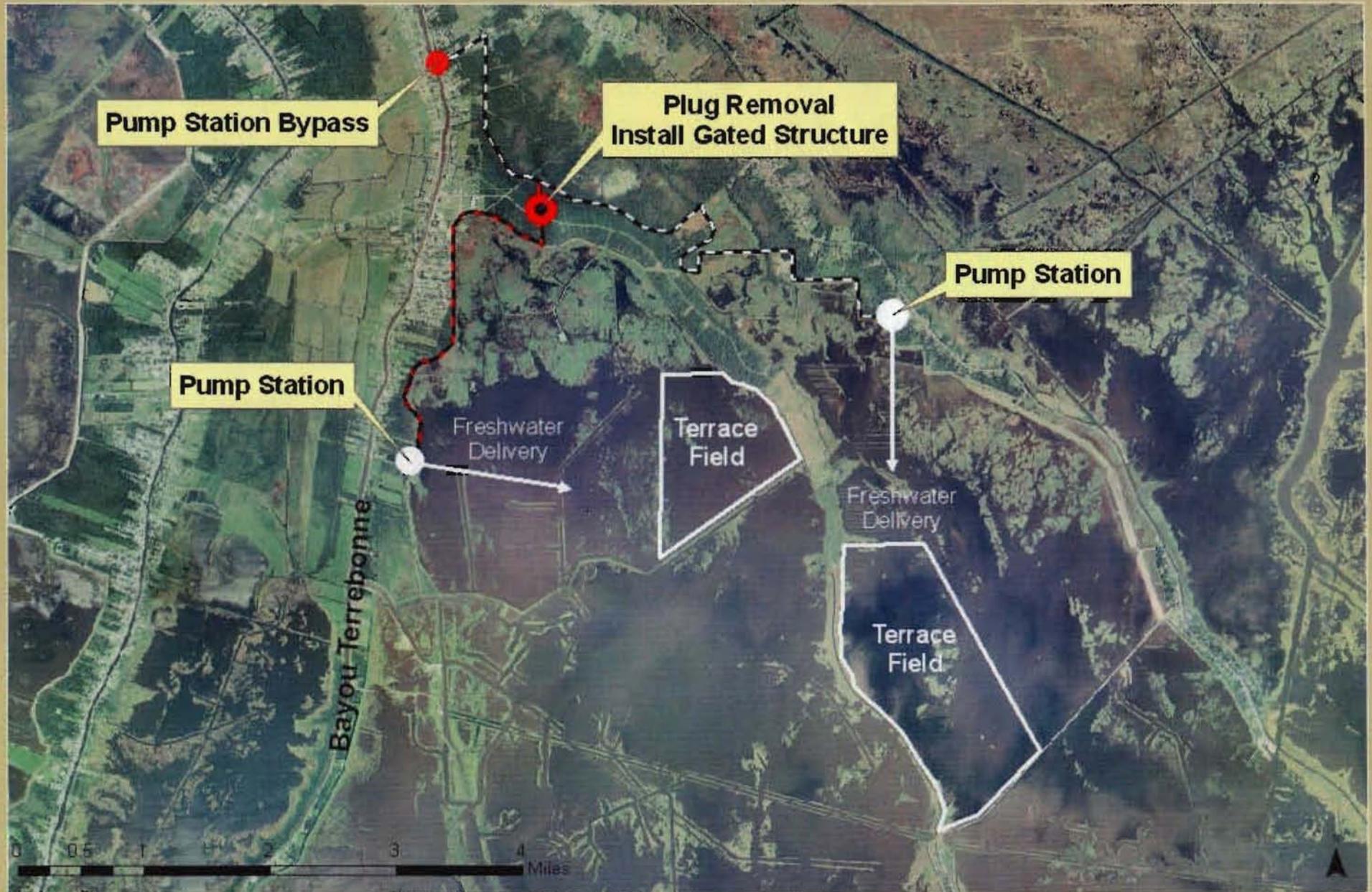
Preliminary Construction Costs

Unknown at this time

Preparer of Fact Sheet

Todd Baker, LDWF, (337) 373-0032, tbaker@wlf.louisiana.gov

Kevin Roy, USFWS, (337) 291-3120, kevin_roy@fws.gov



R3-TE-08-Lake Boudreaux – Lake Quitman
Shoreline Restoration and Marsh Creation

19-3-TE-~~11~~#8

PPL19 PROJECT NOMINEE FACT SHEET
January 28, 2009

Project Name:

Lake Boudreaux-Lake Quitman Shoreline Restoration and Marsh Creation

Coast 2050 Strategy:

Regional Strategy #8; Dedicated Dredging for Wetland Creation; # 10 Maintenance of Bay and Lake Shoreline Integrity;

Project Location:

Region 3, Boudreaux Basin, Terrebonne Parish, South Shore of Lake Boudreaux and North Shore of Lake Quitman

Problem:

Interior marsh loss rates were calculated to be 2.8 %/year by USGS in this area as per PPL 17 Southeast Lake Boudreaux Marsh Creation and Terracing Project. Interior marshes and shorelines of Lake Boudreaux and Lake Quitman have experienced high marsh erosion rates due to wind driven waves, subsidence, a lack of new sediments, oil and gas activity, and stresses to the plant community due to increased salinity from Boudreaux and Robinson Canals. The loss of emergent marsh that separates Lake Boudreaux and Lake Quitman has contributed to an increase in the amount of high saline waters entering Lake Boudreaux from Robinson Canal. Marshes along the northern banks of Lake Boudreaux have converted from fresh/intermediate marshes to intermediate/brackish marshes and cypress swamps in the upper reaches of the basin have converted to more of an intermediate marsh. Lake Boudreaux and Lake Quitman are nearing coalescence which will increase the fetch associated with the wind induced waves thus increasing marsh erosion in a basin with some of the highest landloss rates along coastal Louisiana.

Goals:

The main goal of this project is to stop the coalescence of Lake Boudreaux and Lake Quitman by restoring the southern shoreline of Lake Boudreaux and the northern shoreline of Lake Quitman. A second goal is to protect and/or restore fragile shorelines along several reaches of Lake Boudreaux. *Specific Project Goals:* 1) Stop the coalescence of Lake Boudreaux and Lake Quitman into one large lake which would significantly increase the lakes north-south fetch. 2) Halt shoreline erosion along 10,500 ft of the southern shoreline of Lake Boudreaux. 3) Extend the rock dike constructed as part of the TE-46 CWPPRA project so as to stop shoreline erosion along the western shoreline of Lake Boudreaux. 4) Extend a rock dike 1,300 ft. from an existing State project to Boudreaux Canal (this would complete that project). 5) Restore 1,200 ft of shoreline along the northern shoreline of Lake Boudreaux which would reestablish the functionality of a component within a recently completed CWPPRA project (West Lake Boudreaux Project TE-46), which was lost during Hurricane Gustav. 6) Create 115 acres of marsh and nourish 130 acres of marsh along the southern shoreline of Lake Boudreaux and north shore of Lake Quitman.

Proposed Solutions:

1) Place 10,600 LF of rock as hard shoreline protection along the southern shoreline of Lake Boudreaux and northern shoreline of Lake Quitman. Extend the rock dike from the TE-46 project by placing 2,500 ft of rock in front of a section of marsh along the western shoreline of

Lake Boudreaux. Extend an existing rock dike 1,300 ft. to tie into the Boudreaux Canal levee along the northeastern shoreline of Lake Boudreaux. This would thereby complete a previously constructed project that was halted due to lack of funds. All rock dikes would be built to a height of +3.5 NAVD 88 on the -2 ft contour. There would be a 1:3 side slope and geofabric would be placed under the rock.

2) Create 115 acres and nourish 130 acres of emergent marsh behind the 10,600 ft. of rock shoreline protection. All marsh would be created with a hydraulic dredge and material would be placed to a height of +1.5 to +2.0 ft NAVD 88. All material would be contained with earthen containment dikes which would be adequately gaped or degraded within 3 years post construction to allow for fisheries access. The borrow site for this material would be in Lake Boudreaux.

3) Restore a 1,200 ft. section of shoreline along the northwestern shoreline of Lake Boudreaux which would restore a functionality of a component of the TE-46 project that was lost due to Hurricane Gustav. Shoreline restoration would consist of an earthen berm constructed to a height of +2.0 and planted with *Spartina alterniflora* reduce initial erosion.

Preliminary Project Benefits:

1) *What is the total acreage benefited both directly and indirectly?* The total acreage directly benefited would be the creation of 115 acres of marsh and the nourishment of 130 acres of marsh. Halting shoreline erosion would protect those 245 acres of emergent marsh. Also direct benefits would be realized along the western shoreline where the rock dike constructed as part of the TE-46 project would be extended for 2,500 ft. thereby protecting that emergent marsh along the western shoreline. The marsh and shallow open water behind the 1,200 ft of shoreline restoration would be protected also some benefits could be realized from the completion of the 1,300 ft of rock dike along the eastern shoreline of Lake Boudreaux.

2) *How many acres of wetlands 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%).* Loss rates in the area of direct benefits would be reduced by 50-74% throughout the project life.

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

5) *What is the net impact of the project on critical and non-critical infrastructure?* This project would help protect some oil and gas infrastructure along the eastern shoreline of Lake Boudreaux.

6) *To what extent does the project provide a synergistic effect with other approved and/or constructed restoration projects?* Project features would work synergistically with the West Lake Boudreaux (TE-46), North Lake Boudreaux (TE-32), and several shoreline protection projects by DNR on the northeast shore of Lake Boudreaux.

Identification of Potential Issues:

There are two oyster leases within the project boundary, but impacts should be minimal.

Preliminary Construction Costs:

Lump sum construction costs are estimated to be \$12.4 million, \$15.5 with a 25% contingency.

Preparer(s) of Fact Sheet:

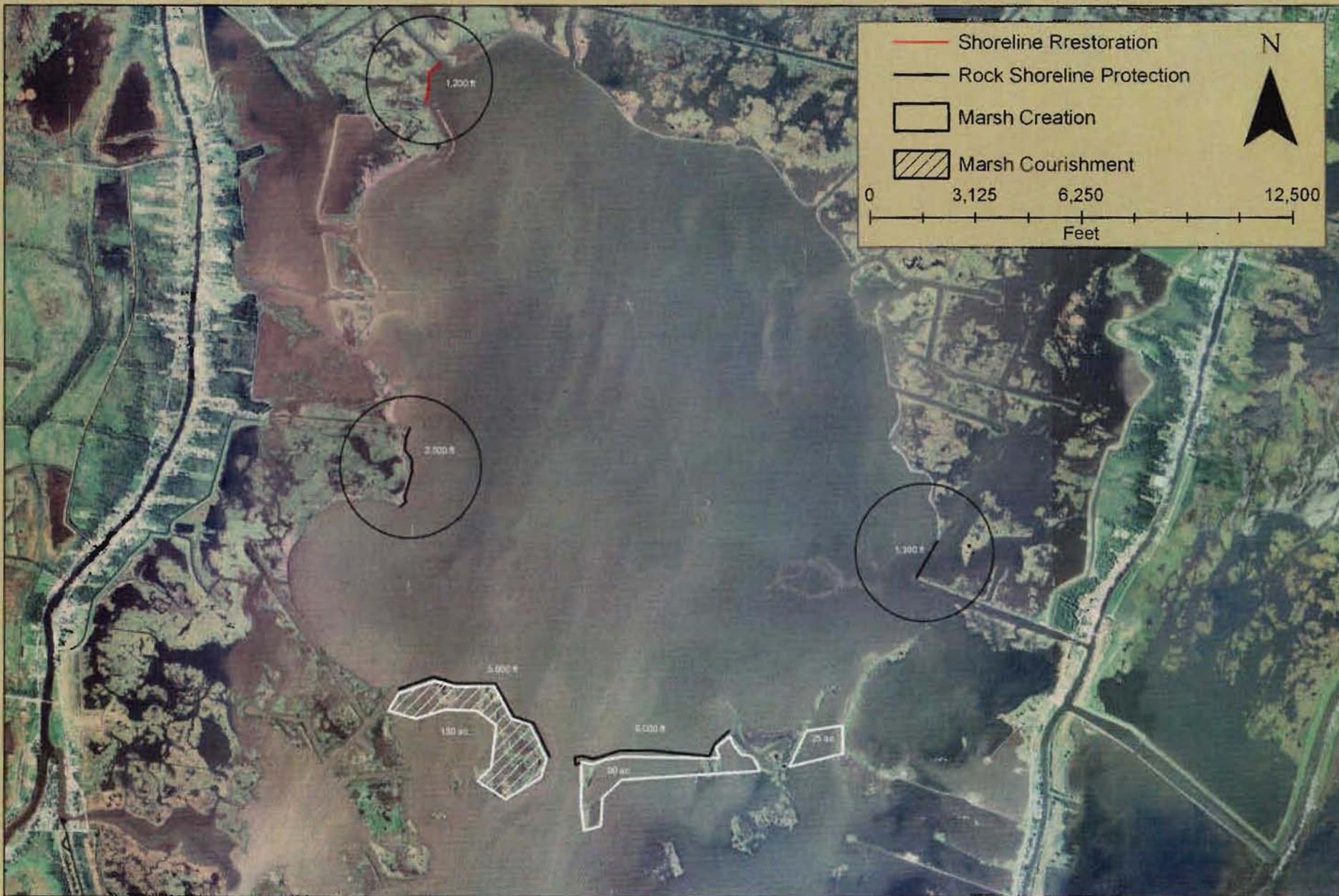
Robert Dubois; U.S. Fish and Wildlife Service; 337-291-3127; robert_dubois@fws.gov



U.S. Fish & Wildlife Service

Louisiana Ecological Services Field Office

LAKE BOUDREAUX-LAKE QUITMAN SHORELINE PROTECTION AND MARSH CREATION



R3-TE-09-Bay Raccourci Shoreline Restoration
and Marsh Creation

19-3-TE-#9

PPL19 PROJECT NOMINEE FACT SHEET
January 28, 2009

Project Name:

Bay Raccourci Shoreline Restoration and Marsh Creation Project

Coast 2050 Strategy:

Region 3 Strategy #8- Dedicated delivery of sediment for marsh building by any feasible means
Coastwide Strategy: Maintain bay and shoreline integrity; Vegetative plantings; #2: Maintain estuarine gradient to achieve diversity

Project Location:

Region 3, Mechant/de Cade Basin, Terrebonne Parish. This project is located north of Lake Mechant.

Problem:

High saline waters (during the summer and fall months) from Lake Mechant have directly contributed to the loss and/or conversion of much of the historically intermediate marshes to low salinity brackish marshes north of Lake Mechant. Much of the emergent marshes have converted to open water and as these marshes converted to open water increased fetch is now also accelerating interior marsh loss. The zone of intermediate marsh in this area is very narrow and is located directly north of Lake Mechant. This transition zone between brackish marsh and the very productive fresh marshes is a very unique zone that is becoming increasingly scarce along coastal Louisiana. The CWPPRA North Lake Mechant Project TE-44, which is currently under construction, will help retain that transition zone by strengthen critical marshes directly north of the Lake. It will also close some key water exchange points to further slow the movement of high saline waters north. One of the largest exchange points between Lake Mechant and the lower saline marshes north of the lake is Bayou Raccourci. Currently, water from the Lake enters Bayou Raccourci continuing north until it empties into Bay Raccourci, which is just a short distance from the lake. When the high saline water enters Bay Raccourci from Bayou Raccourci it effectively short circuits the TE-44 project and can flow unimpeded into the lower saline marshes in any direction. This project will help reduce the effects of that water exchange point which could not be addressed by the TE-44 project, by restoring the integrity of the Bay Raccourci shoreline through shoreline restoration and marsh creation.

Goals :

The goal of this project is to slow the northern movement of high saline water that enter the low brackish and intermediate marsh directly north of Bay Raccourci and try to retain that zone of intermediate marsh that historically ran south of Lake Decade and north of Bay Raccourci.

Specific goals: 1) Create approximately 390 acres of intermediate/low brackish marsh around the perimeter of Bay Raccourci. 2) Restore approximately 25,500 linear feet of Bay Raccourci shoreline. 3) Plant the 25,500 ft of the newly restored Bay Raccourci shoreline.

Proposed Solutions:

This project would restore approximately 25,500 linear feet of Bay Raccourci shoreline which would effectively complete the restoration of that shoreline. Shoreline restoration would be accomplished by creating an earthen berm that would be built to a height of +2 ft NAVD 88 and have a 50 crown width. The bay side face of that berm would be planted with *Spartina alterniflora* to quickly establish marsh to minimize the initial erosion. Directly behind the

shoreline restoration approximately 390 ac of intermediate and low salinity brackish marsh would be created. That marsh would be created by dredging material from the bottom of either Lake Decade of Lake Mechant with a hydraulic dredge. Material would be pumped by a pipeline and placed in cells to a height of between +1.5 and +2.0 ft NAVD 88. The material would be contained with earthen containment dikes which would be gaped or degraded no later than 3 years post construction.

Preliminary Project Benefits:

1) *What is the total acreage benefited both directly and indirectly?* The project area would benefit from the 390 acres of marsh that would be created and by filling an open water area with dredged material. An additional 50 acres would be created with a bucket dredge while creating the earthen berm for shoreline restoration. Indirect benefits could be realized from marshes to the west, north and east of the newly created marsh by reducing the salinity spikes that can be seen during the summer and fall months.

2) *How many acres of wetlands will be protected/created over the project life?* Approximately 440 acres of emergent marsh would be created.

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 is estimated to be 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.* The Bay Raccourci shoreline would be considered a structural component of the coastal ecosystem, thus restoration of that shoreline fulfill that criteria.

5) *What is the net impact of the project on critical and non-critical infrastructure?* This project would protect many camps along Bayou Decade which would be considered non-critical infrastructure.

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 shoreline protection component of the Phase II approved Lake Decade project along with the ongoing construction of the North Lake Mechant project to reduce salinities within the project area.

Identification of Potential Issues:

There are no known issues associated with this project.

Preliminary Construction Costs:

Lump sum construction costs for this project are estimated to be approximately \$13.8 million and \$17.3 with a 25% contingency.

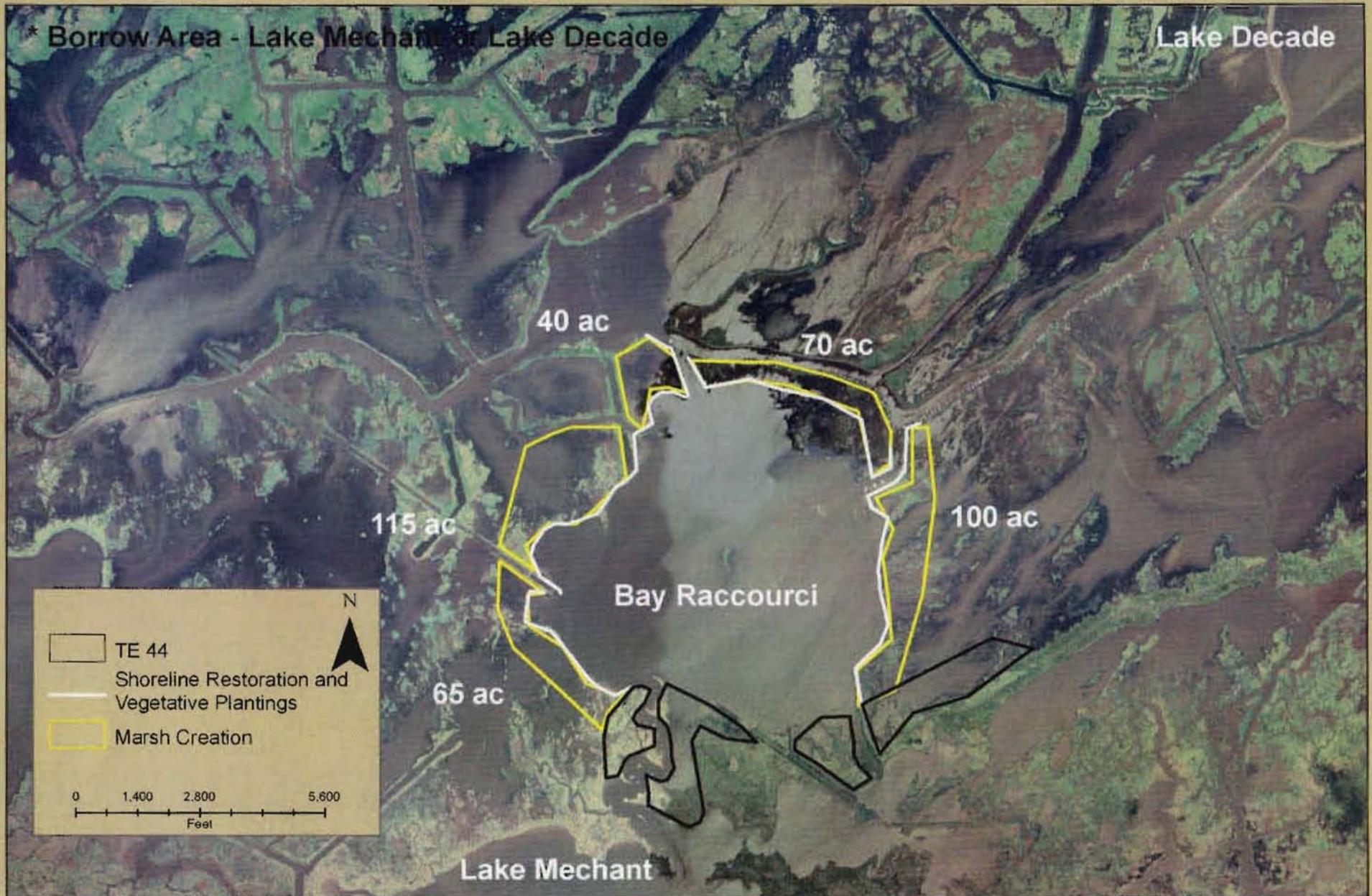
Preparer(s) of Fact Sheet:

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



U.S. Fish & Wildlife Service - Louisiana Ecological Services Field Office

Bay Raccourci Shoreline Restoration and Marsh Creation Project



R3-TE-10-Terrebonne Bay Shoreline
Restoration and Marsh Creation

193-TE-#10

PPL19 PROJECT NOMINEE FACT SHEET
January 28, 2009

Project Name:

Terrebonne Bay Shoreline Restoration and Marsh Creation

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 southern most 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 extremely high interior landloss rates calculated to be 2% per year and moderate shoreline erosion rates calculated to be between 2 and 8 ft per year by USGS. 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 also 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.

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 and reducing the cross section of two major bayous and the closing of one bayou. All these components of the project would work together 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 31,000 ft of the northern shoreline of Terrebonne Bay. 2) Create 235 ac of emergent marsh and nourish an additional 300 ac of emergent marsh. 3) Reduce the channel cross sectional on two major bayous to further reduce tidal exchange between the bay and interior marshes.

Proposed Solutions:

This project would propose to strengthen or restore approximately 31,000 ft of shoreline along the northern bank of Terrebonne Bay by creating a +2 ft high earthen berm that with a 50 ft crown which would be planted with *Spartina alterniflora*. Directly behind the earthen berm/shoreline 235 acres of emergent marsh would be created and 300 acres of emergent marsh would be nourished with the use of a hydraulic dredge. Dredge material would be placed to a height of between +1.5 to +2.0 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 project would also propose to reduce the channel cross section of two of the major

bayous that convey high saline waters directly from Terrebonne Bay into Madison Bay and Bayou Terrebonne. This would be done with sheet piles and would not reduce the depth of the bayou where the cross section is reduced. This could be one part of a phased comprehensive plan to protect the northern shoreline of Terrebonne Bay from further erosion. This would also work synergistically with the constructed CWPPRA Terrebonne Bay Demonstration Project TE-45.

Preliminary Project Benefits:

1) *What is the total acreage benefited both directly and indirectly?* Project area shoreline erosion rates have been calculated to be between 2 and 8 feet per year by USGS. This project would reduce those rates by 50% with the shoreline restoration efforts. The shoreline restoration would also initially create 50 acres of marsh. This project would also create/nourish 535 acres of emergent marsh and reduce the interior land loss of those marshes by 50% from 2% to 1% per year. Additional indirect benefits would be realized through the reduction of wind induced waves in the interior marsh ponds and a reduction of the tidal prism which would also reduce interior land loss rates on other surrounding marshes.

2) *How many acres of wetlands 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?* This project would create/nourish 535 acres of marsh and the interior loss rate of 2% per year would be reduced by 50% to 1% per year. If the proposed project were to be constructed interior loss rates of 2% per year would be the loss rate would be expected to be reduced by 50% to 74% 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 and marsh ponds.

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:

Pipeline and oyster leases are potential issues with this project.

Preliminary Construction Costs:

Lump sum construction cost are estimated to be \$15.7 million, \$19.6 million with a 25% contingency added

Preparer(s) of Fact Sheet:

Robert Dubois, USFWS, (337) 291-3127, robert_dubois@fws.gov

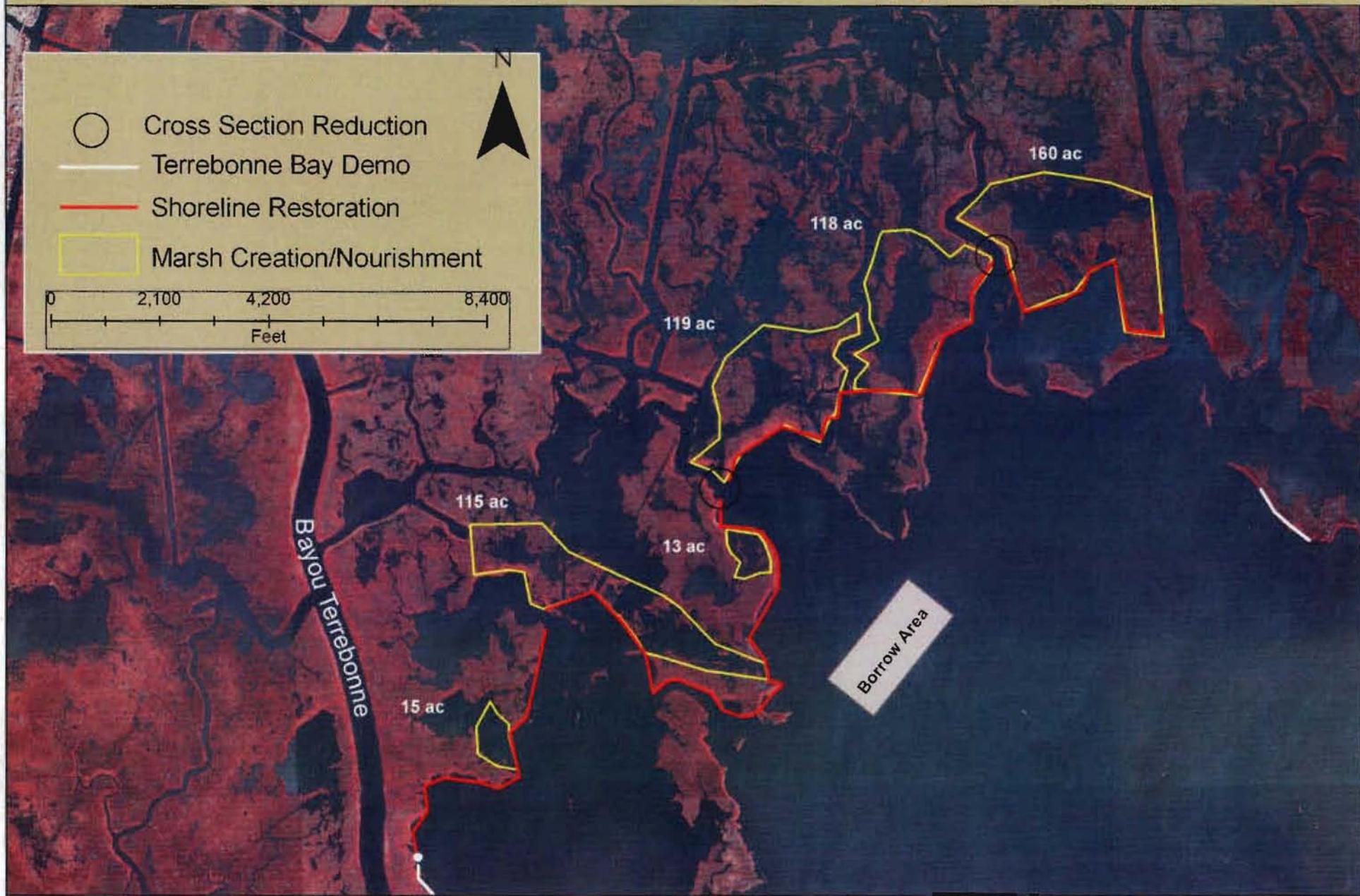


Legend:

- Cross Section Reduction
- Terrebonne Bay Demo
- Shoreline Restoration
- Marsh Creation/Nourishment

Scale: 0, 2,100, 4,200, 8,400 Feet

North Arrow



R3-TE-11-Madison/Terrebonne Bays Marsh
Creation

**PPL19 Nominee
Madison / Terrebonne Bays Marsh Creation
30 January 2009**

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, west of Bayou Terrebonne/south of Madison Bay.

Problem:

The remaining land mass between Madison Bay and Terrebonne Bay is undergoing rapid deterioration from both interior wetlands loss and shoreline erosion. This marsh rim forms the last barrier between Terrebonne bay and interior marshes and infrastructure south of Montegut. 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 southern edge of Madison Bay would act to create an interior line of defense. Ideally, additional cells would be created to the east in future years to stabilize the land mass between Madison and Terrebonne bays.

Goals:

The project goal is to maintain a continuous wetland mass between Madison and Terrebonne Bays to prevent coalescence of the bays.

Proposed Solutions:

Dedicated dredging from either Lake Barre or Madison Bay to create and restore about 430 acres of saline marsh directly west of Bayou de Mangue. Containment dikes will be constructed to manage fill deposition. As conceptualized, Bayou Chitgoue will remain open, although cell configuration may be adjusted as needed to accommodate local hydrology, user access, etc. Vegetative plantings will be used.

Preliminary Project Benefits:

The project will benefit about 430 acres of saline marsh.

Identification of Potential Issues:

The proposed project has the following potential issues: borrow material source.

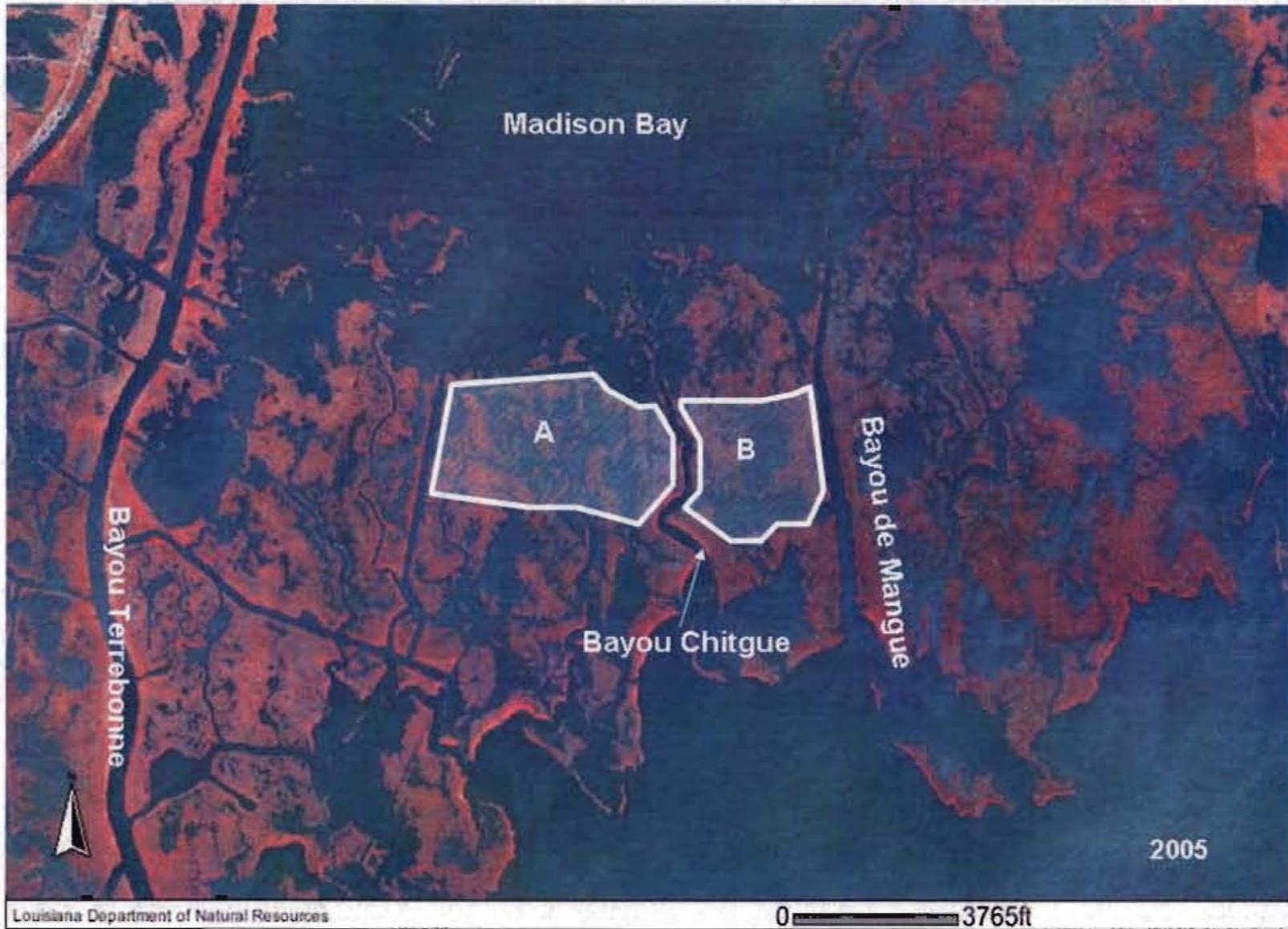
Preliminary Construction Costs:

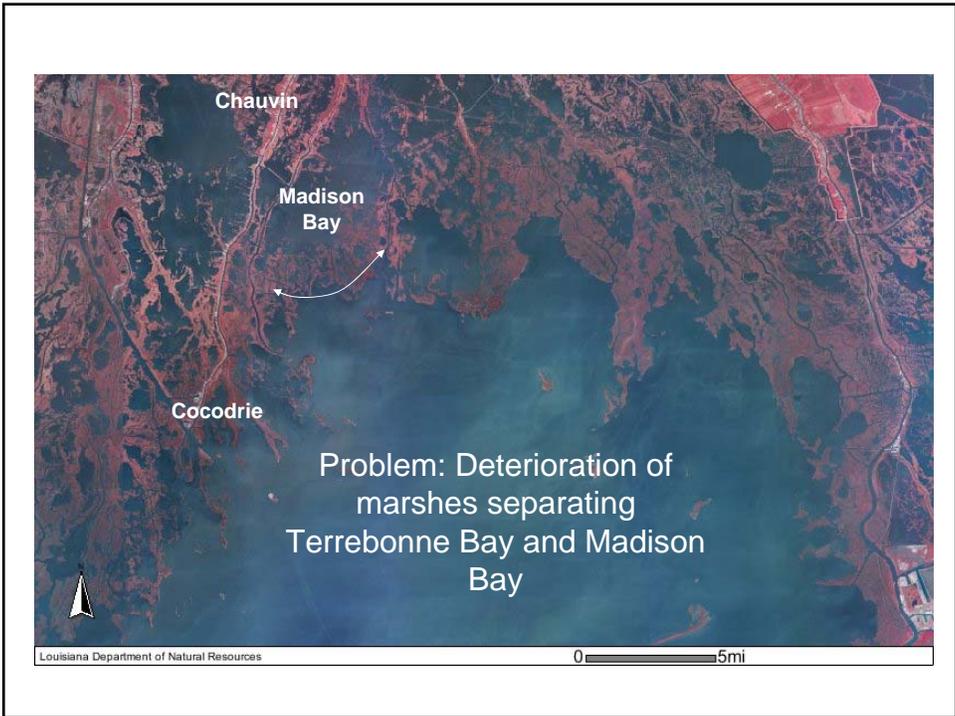
Construction costs are estimated at \$24,000,000 with 25% contingency.

Preparer(s) of Fact Sheet:

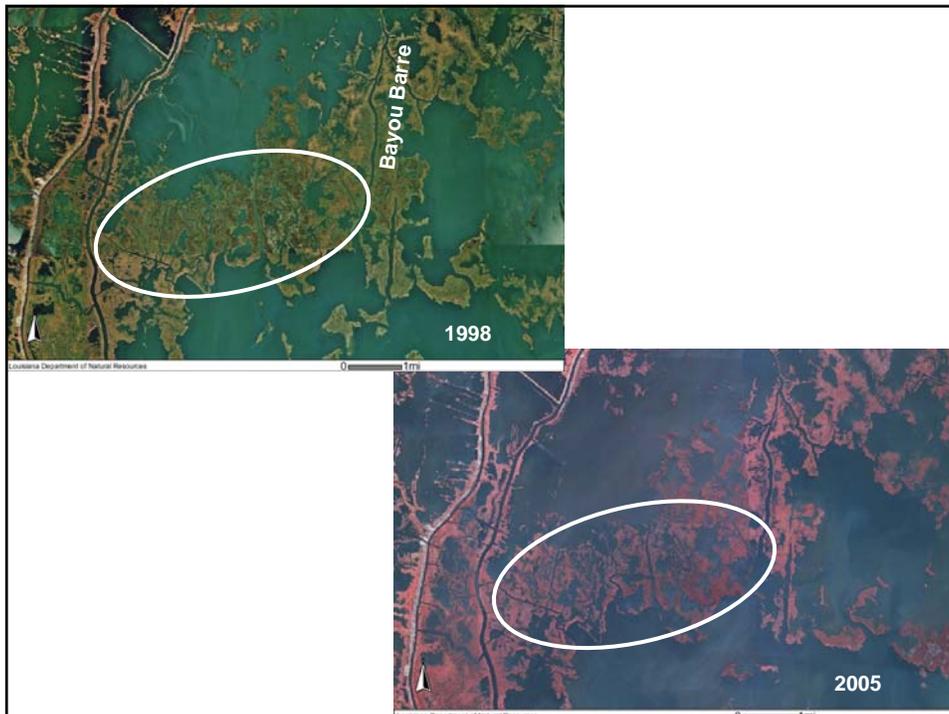
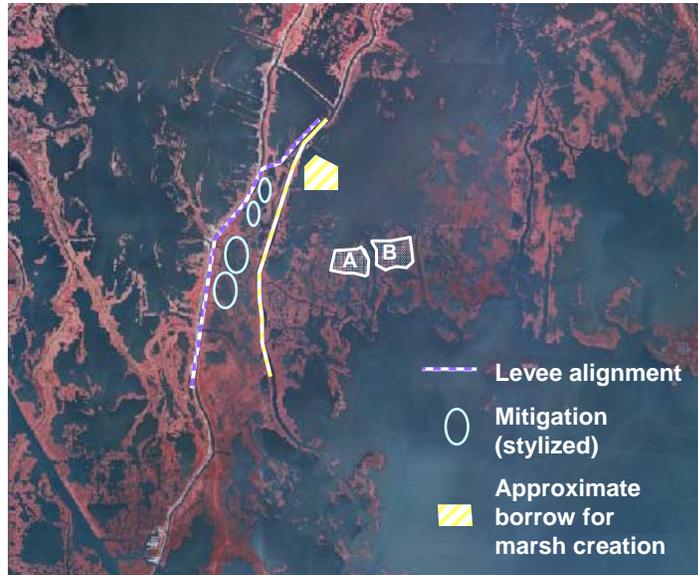
Rachel Sweeney, NOAA, 225.389.0508 ext 206, rachel.sweeney@noaa.gov

Madison Bay – Terrebonne Bay Marsh Creation

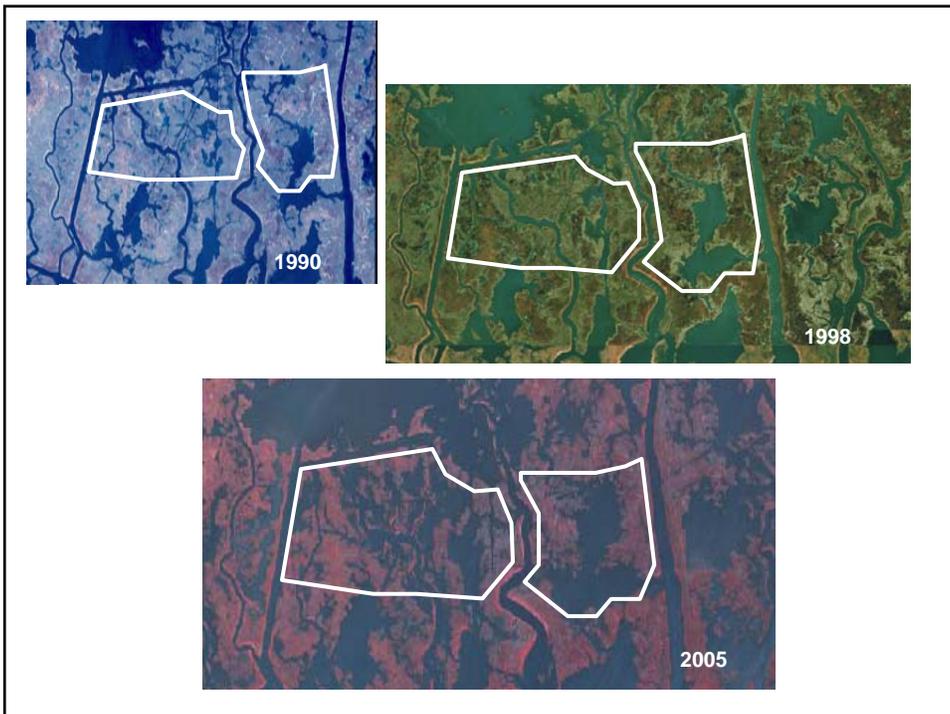
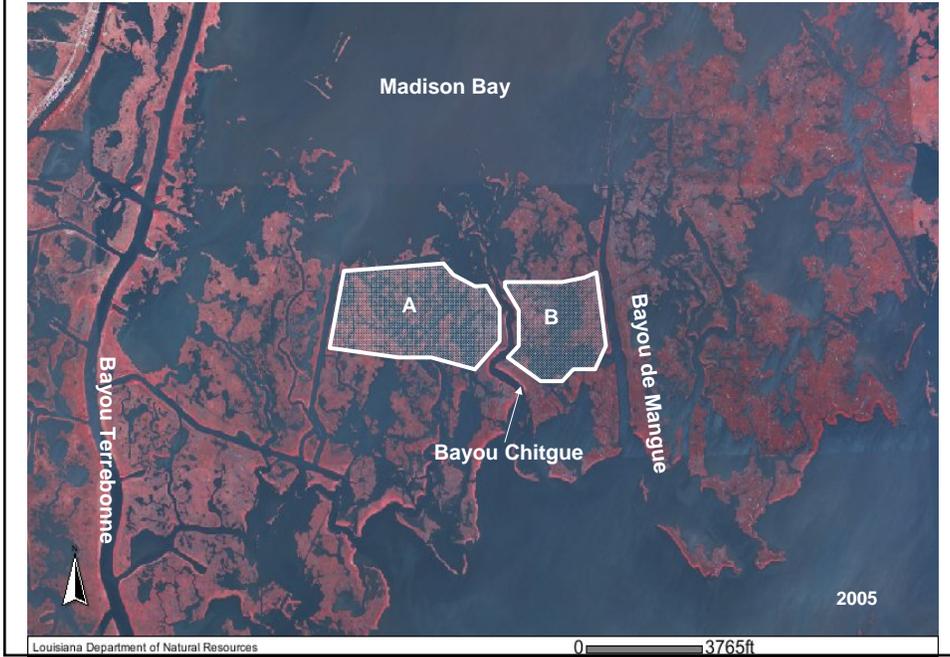




M2G, Reach H alignment and mitigation



Madison Bay – Terrebonne Bay Marsh Creation



R3-TE-12-South Lake Decade Marsh Creation
and Nourishment

PPL19 PROJECT NOMINEE FACT SHEET
January 28, 2009

Project Name:

South Lake Decade Marsh Creation and Nourishment

Coast 2050 Strategy:

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

Regional Strategy – Dedicated delivery and/or beneficial use for marsh building by any means feasible means

Mapping Unit Strategy - Beneficial use of dredged material

Project Location:

Region 3, Terrebonne Basin, Mechant/Decade Mapping Unit, Terrebonne Parish, located along the shorelines of Lake Decade southwest of Theriot.

Problem:

The project would restore lake edge and interior wetlands that have been lost and fragmented. The marsh creation and nourishment areas would maintain delineation of the lake rim if the lake shoreline levees are no longer possible to be maintained. What problem will the project solve? Wetland loss rates are evidence for the nature and scope of the problem in the project area. The wetland loss rate for the mapping unit is -0.7 % per year during 1956 to 1974 and -0.4% per year during 1983 to 1990. For polygon B, the land loss rate was -2.29% per year from 1956 to 1974 and -0.26% per year during 1983 to 1990 (after the landowner initiated maintaining the lake shoreline in the 1980's). Section A of the shoreline breached during the summer of 2007, only eight months after the previous "lift". Generally, breaches develop in between the annual maintenance efforts to re-establish the integrity of the shoreline.

Goals:

The conceptual project goals are to accomplish approximately 350 acres of marsh creation and 150 acres of marsh nourishment in strategic locations to enhance and maintain the structural integrity of the lake shorelines.

Proposed Solutions:

Sediment would be dredged from Lake Decade and placed in a semi- to confined manner in strategic locations along the lake shoreline to create and nourish intertidal, intermediate, and fresh marsh. Approximately half of the created marsh acres would be planted with appropriate wetland vegetation. The borrow area in Lake Decade would be located and designed in a manner to avoid and minimize environmental impacts (e.g., to submerged aquatic vegetation and water quality) to the maximum extent practicable.

Preliminary Project Benefits:

The following questions should be addressed: 1) The total acreage benefited both directly and indirectly is 500 acres. 2) Approximately 389 net acres are expected at TY 20. *Note that this is a draft number subject to pro-rating revisions due to overlapping with the South Lake Decade TE-39.* 3) The anticipated loss rate reduction throughout the area of direct impacts is 50-74%. 4) The marsh creation would help maintain the structural limits of Lake Decade, especially if the existing levees can not be maintained. 5) The project would not have a significant impact on

critical or non-critical infrastructure. 6) The project would have direct synergy with the TE-39, South Lake Decade Freshwater Introduction Project.

Identification of Potential Issues:

The proposed project has the following potential issues: utilities/pipelines, etc. The fill areas are located on Apache Corporation property and the conceptual features have been coordinated with them.

Preliminary Construction Costs:

The lump sum construction cost including 25% contingency is \$21,373,000.

Preparer(s) of Fact Sheet:

Patrick Williams, NOAA's National Marine Fisheries Service, (225)389-0508, ext 208,
patrick.williams@noaa.gov



R3-TE-13-Bayou Piquant Restoration

PPL19 PROJECT NOMINEE FACT SHEET
January 28, 2009

Project Name:

Bayou Piquant Restoration

Coast 2050 Strategy:

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

Terrebonne Basin - 8. Dedicated delivery and/or beneficial use of sediment for marsh building by any means feasible

Penchant Mapping Unit – 44. Stabilize banks; 46. Beneficial use of dredged material

Project Location:

Region 3, Terrebonne Basin, Penchant Mapping Unit, Terrebonne Parish, located between the Gulf Intracoastal Waterway, Bayou Penchant, Gulf South Pipeline Canal, and Bayou Copasaw.

Problem:

The project would re-establish the bayou bank lines and create flanking marsh habitat as well as potentially reduce wave fetch that is eroding marshes in the vicinity. Based on review of historic photography, large reaches of the bayou that were present in 1974 have since eroded to the extent it is hard to tell where the bayou previously existed. Based on USGS 1988 to 2005 data, the wetland loss in the vicinity determined for the Penchant Basin project was -1.34%/yr. This project would recreate both marsh and structural framework, although the potential hydrology benefits may not be quantifiable.

Goals :

The project goal is to re-establish about 4.3 miles of bank lines of Bayou Piquant by creating approximately 60 acres of fresh marsh elevations. Additionally, 1.5 miles of the bayou would be cleared, snagged, and/or spray dredged to re-establish hydrology of reaches silted in adjacent to forested wetlands.

Proposed Solutions:

In the south and central reaches a bucket dredge would be used to dredge no more than a six foot cut along the historic alignment of the bayou and sidecast the material to a maximum initial elevation not exceeding 0.5 to 1.5 feet above average marsh elevation, soils allowing. This is to create elevations ranging from 70 up to 115 feet wide on either or both sides of the bayou conducive to the establishment of marsh vegetation, but not spoil bank habitat. A double row of giant cutgrass would be planted along the reconstructed bayou banklines at the land-water interface on the back and front sides of the disposal areas. The rows would be approximately five feet apart with planting units installed on ten-foot centers in a staggered manner. Planting of the crowns with roseau cane may also be included. Planting would occur during the first growing season of dredging. These dredging, fill placement, and planting details are based on previous mitigation work on Bayou Piquant at the recommendation of NMFS and monitoring of channel stabilization work along Turtle Bayou. In the north reach, clearing, snagging, and spray dredging may be necessary to clear the bayou and re-establish flow while minimizing impacts to adjacent forested wetlands. Sidecast disposal to create marsh elevations would be desirable along a portion of the north reach to mimic historic limits on north/south flow and fetch. Other locations for bayou bank stabilization, terracing, canal plugging, or flotant mat re-establishment could be identified for possible inclusion.

Preliminary Project Benefits:

The following questions should be addressed: 1) The total acreage benefited both directly and indirectly (i.e., the project area) is roughly 84 acres of fresh marsh and forested wetlands (64 acres of marsh creation + 20 acres of forested wetlands receiving unquantified benefits from spray dredging). 2) Approximately 52 acres would be protected over the project life (i.e., Target Year 20 net). Note: this assumes no credit at this time for spray dredging or any potential indirect credit for restored hydrology or reduction in shoreline erosion with bayou bank restoration. 3) Because the marsh creation areas are relatively narrow and soils and wave erosion may limit longevity, it is assumed that loss rate reduction to those created areas could be in the 25-49% range, which is less than the standard. 4) As defined in the Coast 2050 Criteria, the project does not maintain or restore structural components of the coastal ecosystem such as barrier islands, natural or artificial levee ridges, beach and lake rims, cheniers, etc. However, the project goal is to restore the structural framework of a natural bayou and its' adjacent banklines. 5) The project would have a net positive impact on non-critical infrastructure (minor oil and gas facilities). 6) The project would have a limited synergistic affect with the Penchant Basin project.

Identification of Potential Issues:

The proposed project may have utilities/pipelines and possibly bald eagle issues.

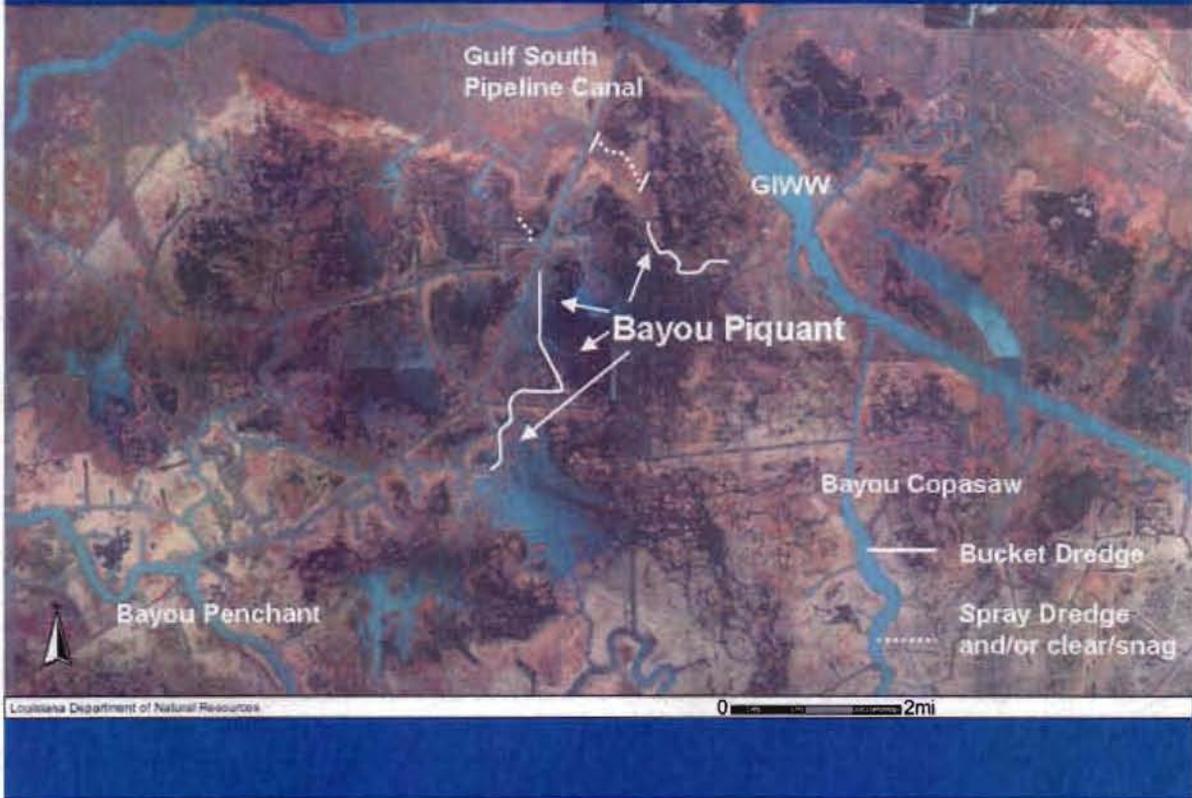
Preliminary Construction Costs:

The lump sum construction cost plus 25% contingency is \$6.3 million.

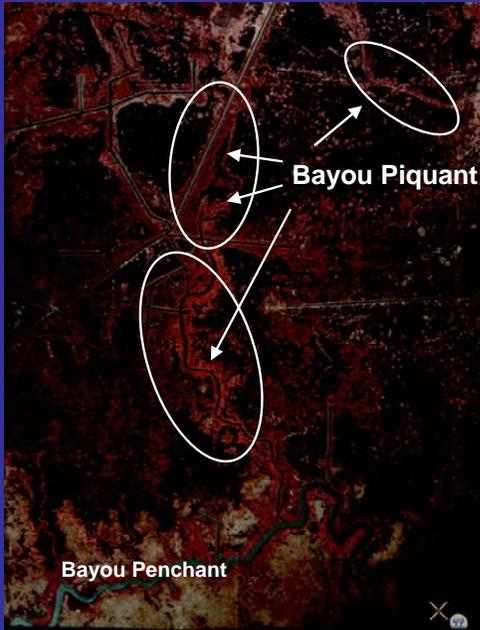
Preparer(s) of Fact Sheet:

Patrick Williams; NOAA's National Marine Fisheries Service; (225)389-0508, ext 208;
patrick.williams@noaa.gov

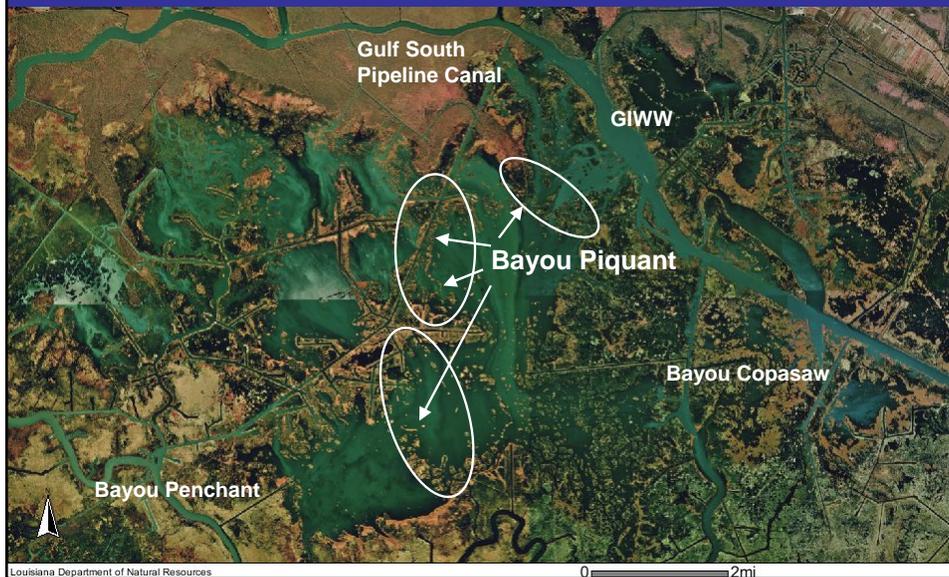
Bayou Piquant Restoration



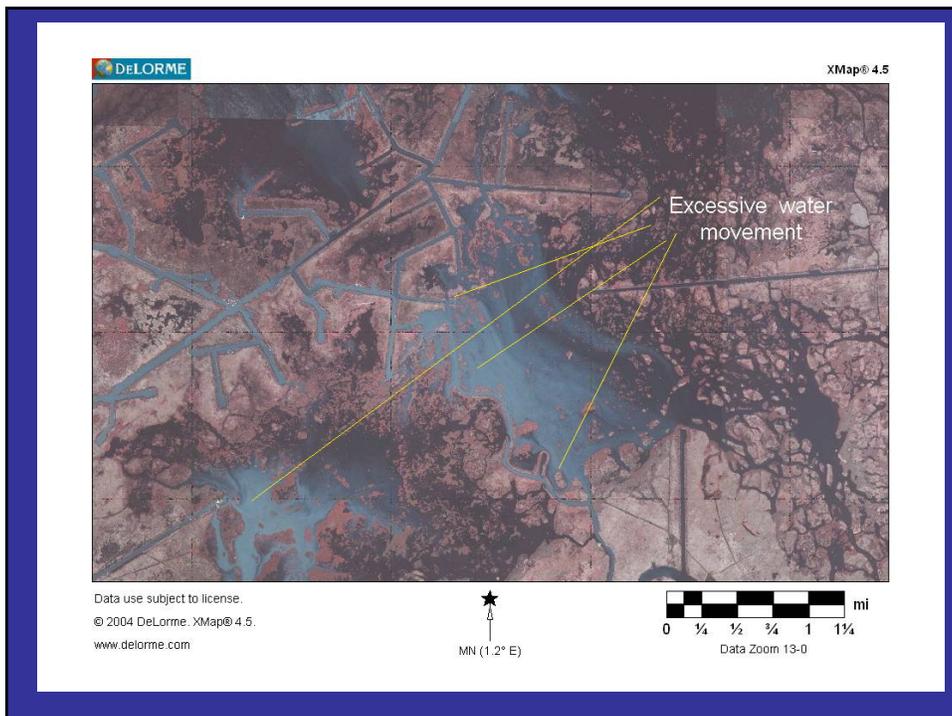
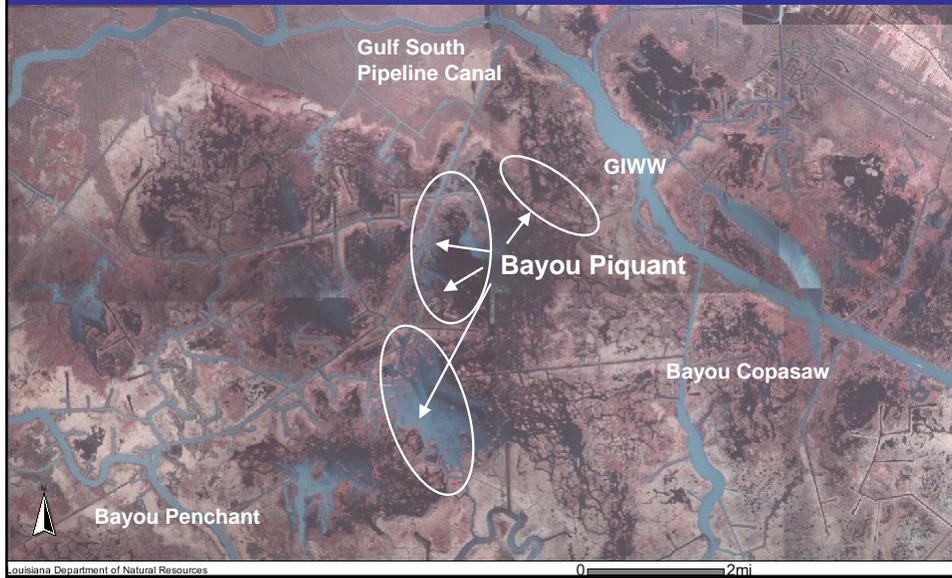
Bayou Piquant (1974)



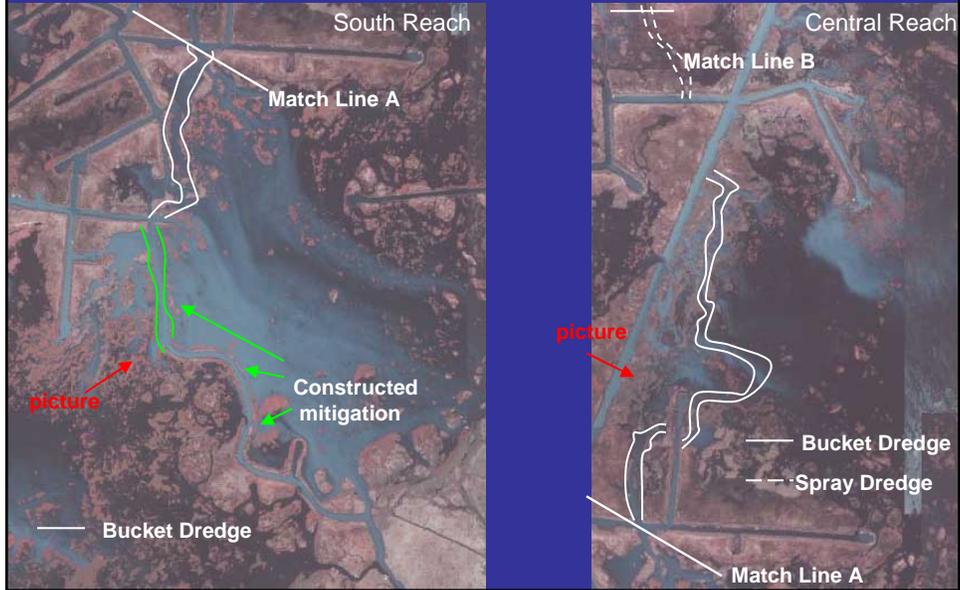
Bayou Piquant (1998)



Bayou Piquant (2004)



Bayou Piquant Restoration

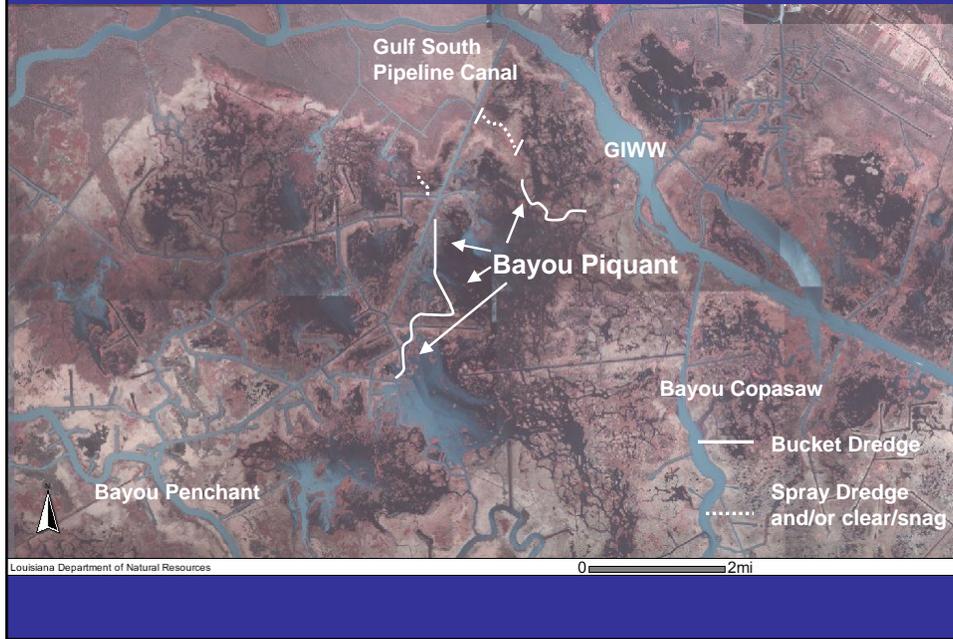




Bayou Piquant Restoration



Bayou Piquant Restoration



R3-TE-14-Barataria and Terrebonne Basins
Stormwater Redirection

19-3-TE-#14

PPL-19 Project Nominee Fact Sheet
January 29, 2000

Project Name:

Barataria and Terrebonne Basins Stormwater Redirection Project

Coast 2050 Strategy:

Coastwide strategy: Management of pump outfall for wetland benefits

Regional Strategy: Construct small diversions with outfall management

Project Location:

Region 2 and 3. Barataria and Terrebonne Basins, Specifically: Grand Caillou, Bayou Sale, Parish Line Canal, Hayes Canal, south Port Sulphur, and Boothville area stormwater pumping stations located in Terrebonne, Jefferson/St.Charles, and Plaquemines Parishes, respectively.

Problem:

Wetlands and the bottomland hardwood swamps of Barataria and Terrebonne Basins are experiencing some of the most drastic land loss rates in the state. Suffering from a combination of subsidence, salt water intrusion, and lack of sediment, freshwater, and nutrient input, these areas are in a perpetual state of decline unless action is taken to reverse these conditions. Numerous river diversions and siphons have been constructed to replenish failing wetlands; however, these projects are costly and not available to all areas of the coast. With much of south Louisiana under forced drainage, there are numerous opportunities to optimize both drainage and the beneficial discharge of collected stormwater by retrofitting existing pumping stations. Stormwater discharge is mainly pumped either over levees and into unconfined, open water, or into canals dredged adjacent to pumping stations specifically to facilitate drainage. Stormwater, containing freshwater and to some extent nutrients, is then channelized and diffused into large open receiving bays. This freshwater could be redirected into adjacent wetlands which would serve as a dedicated source of freshwater into stressed marshes.

Proposed Project Features:

The project will re-route or manage the outfall of stormwater discharge at six sites within the Barataria and Terrebonne Basins. Depending upon location, construction would consist of rerouting and installing pipe to direct flow to adjacent wetlands, and/or installing water control structures to maximize distribution throughout the outfall area. Coordination with parish drainage personnel has been part of this preliminary process and initial site scoping, and will be closely continued throughout each phase of project selection.

Preliminary Project Benefits:

The intent of this project is to divert freshwater into marshes that are currently stressed. Limited marsh creation is anticipated; therefore, project benefits will be determined by the existing wetlands delineated within the proposed likely area of stormwater influence. A preliminary estimate of project benefits is 4,200 acres.

Identification of Potential Issues:

Beneficially redirecting stormwater drainage is a known technique and has been previously

applied and studied in south Louisiana. Since this is stormwater only, no water quality issues with the Dept. of Environmental Quality are expected. The parishes have been contacted and coordination has occurred with the Barataria-Terrebonne National Estuary Program who has considerable expertise with this technique. There may be some oyster leases within the proposed areas of influence.

Preliminary Construction Costs:

Preliminary construction cost estimate plus contingency is approximately \$2,100,000.

Preparer of Fact Sheet:

Cheryl Brodnax, NOAA NMFS, (225) 578-7923, cheryl.brodnax@noaa.gov

Bayou Sale Stormwater Pumping Site, Terrebonne Parish



Stormwater redirected area of influence

Grand Caillou Stormwater Pumping Site, Terrebonne Parish



← Stormwater redirected area of influence,

Hayes Canal Stormwater Pumping Site near Port Sulpur, Plaquemines Parish

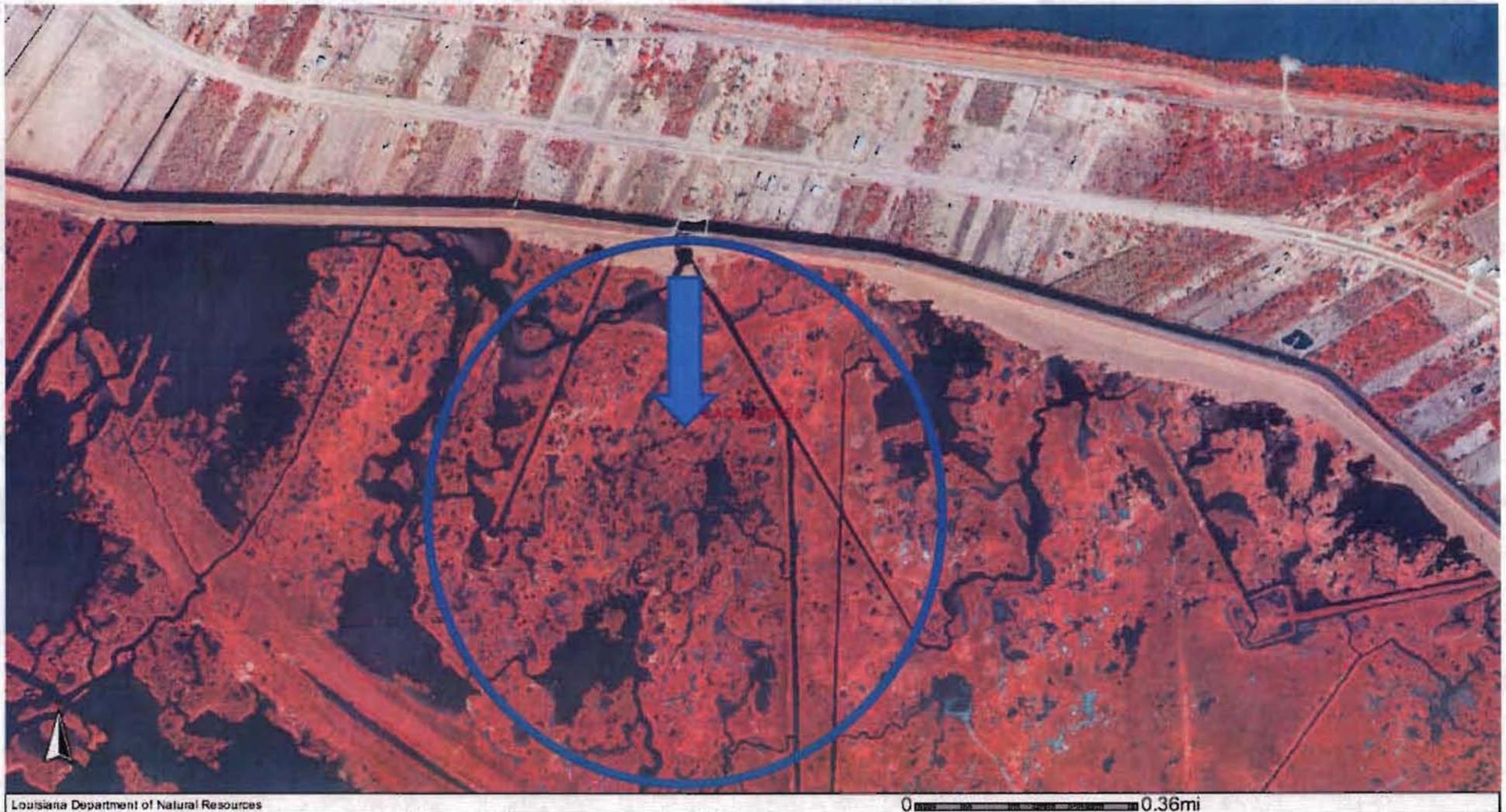


Stormwater redirect



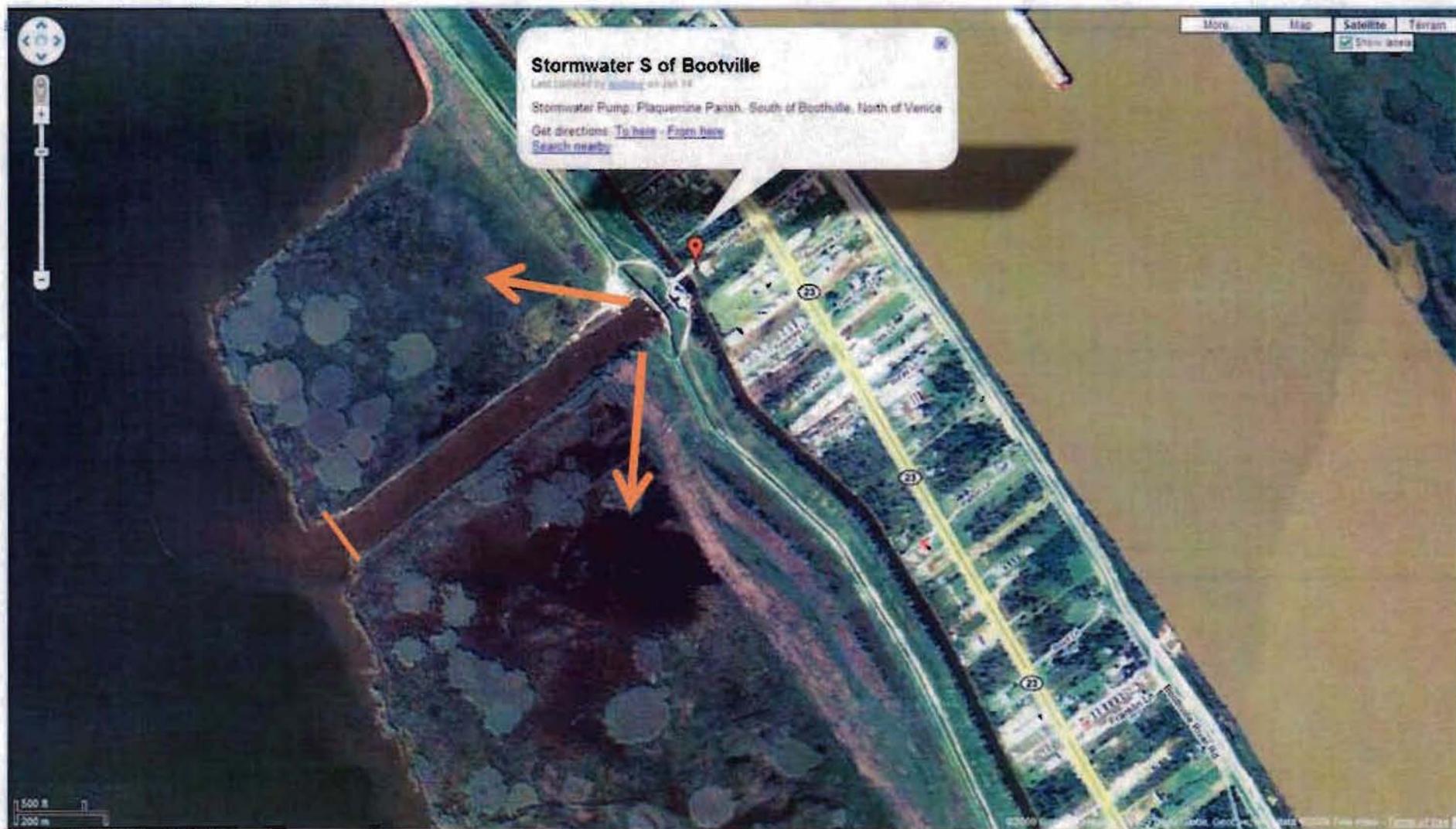
Discharge area of influence,

Stormwater Pumping Site south of Port Sulphur, Plaquemines Parish



Stormwater redirected area of influence

Stormwater Pumping Site south of Boothville, Plaquemines Parish



Stormwater redirected areas of influence



Proposed plug

Parish Line Canal Stormwater Pumping Site, St. Charles and Jefferson Parishes



○ Proposed weir with boat bay

← Redirected flow and area of influence

Teche/Vermilion Basin

R3-TV-01-Cheniere Au Tigre Headland
Restoration

PPL 19 PROJECT NOMINEE FACT SHEET
January 28, 2009

Project Name: Cheniere Au Tigre Headland Restoration

Coast 2050 Strategy:

Coast-wide Common Strategy:

Maintenance of Gulf, Bay & Lake Shoreline Integrity

Maintain or Restore Ridge Functions

Beneficial Use of Dredged Material from Maintenance Operations

Region 3 Ecosystem Strategy (Teche-Vermilion Basin Strategy):

Strategy 10. Maintain shoreline integrity and stabilize critical areas of Teche-Vermilion Bay systems including the gulf shorelines.

Strategy 15. Reduce sedimentation in bays (by dedicated delivery of sediment as a construction alternative to shoreline protection).

Louisiana's Comprehensive Master Plan for a Sustainable Coast:

Page 60: Maintain basin integrity of freshwater reservoirs (stopping flow of saltwater into inland canals)

Page 64: Shoreline Stabilization (to protect surrounding marsh, cheniers, coastal prairie from wave-induced erosion).

Project Location: Cheniere Au Tigre stretches nearly 5 miles from Southwest Pass in the east to Freshwater Bayou in the west, 200 feet to a quarter of a mile wide, on the edge of the Gulf shore in the southernmost region of Vermilion Parish, about 40 miles south of Abbeville, LA. The Paul J. Rainey Wildlife Sanctuary and the Louisiana Wildlife Management Area and Game Preserve are located north and east of this area.

Problem: Formation of breaches and scour areas along the gulf shoreline are undermining the structural integrity of the nearby chenier and its unique habitat. Protection provided by the chenier to the adjacent interior brackish marshes from increased salinity levels and the abrasive impacts of storms are threatened. In addition, nearby navigation channels or canals could serve as saltwater conduits inland should the land between them and the gulf become breached. The breach/scour areas mainly correspond to the locations of gaps in the segmented rock breakwaters located just offshore (these breakwaters were constructed via the CWPPRA demo project TV-16 and State Project CAT-01, in 2001 and 2005, respectively). Excessive water movement through these gaps during Hurricanes Rita and Ike removed accreted sediment & resultant vegetation landward of the rock structures; even more land was washed offshore through these gaps due to backwash as the storms passed and water retreated. The Paul J. Rainey Wildlife Sanctuary and the Louisiana Wildlife Management Area and Game Preserve are located in the vicinity of this problem.

Goals: Restore and maintain the Cheniere Au Tigre gulf shoreline and corresponding chenier formations. Prevent likelihood of increased saltwater intrusion into the brackish marshes and channels/canals north of the chenier. Minimize sediment loading into

Vermilion Bay and work synergistically with the nearby TV-16 and CAT-01 projects through specific dredged material placement.

Proposed Solutions: Place dredged material linearly along the unvegetated portion of the gulf shoreline, in a continuous alignment roughly parallel to the existing rock breakwaters located about 200 feet offshore, for a linear distance somewhat greater than that of the TV-16 and CAT-01 projects combined (estimated distance about 6000 feet). The material would either be hydraulically dredged from existing sand bars located gulfward of the existing rock breakwaters (approximately 1300 feet from shore), or from the Freshwater Bayou bar channel during its Federal maintenance dredging cycle, contingent upon timing, suitability of material, costs, among other things. Dredged material would be placed to an initial surface elevation of about 5 to 6 feet above the existing elevation of the shoreline, at slopes appropriate for its composition. Dredged material may be planted or allowed to revegetate naturally.

Preliminary Project Benefits:

- 1) What is total acreage benefitted both directly and indirectly? About 43 & 68,000 acres
- 2) How many acres of wetlands will be protected/created over the project life? Not determined yet.
- 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%)? Not determined yet.
- 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.? Both gulf shoreline and chenier stability.
- 5) What is the net impact of the project on critical and non-critical infrastructure? Dredged material placement to protect/restore the stability of the gulf shoreline and the nearby chenier will reduce storm surge that would otherwise approach the community of Cheniere Au Tigre and the brackish marshes to the north, & also reduce the likelihood of a breach from the gulf into existing channels & canals not far from the existing gulf shore.
- 6) To what extent does the project provide a synergistic effect with other approved and/or constructed restoration projects? The proposed dredged material placement alignment is situated on the shoreline just north of the TV-16 and CAT-01 constructed rock breakwater projects- the shoreline those breakwaters were designed to protect. Placing dredged material in the vicinity of those projects will help recover accreted sediments lost during recent hurricane passages and further stabilize the area by providing a more stable shoreline to accrete against, plus thwart/delay new erosive gap/breach development.

Identification of Potential Issues: None identified.

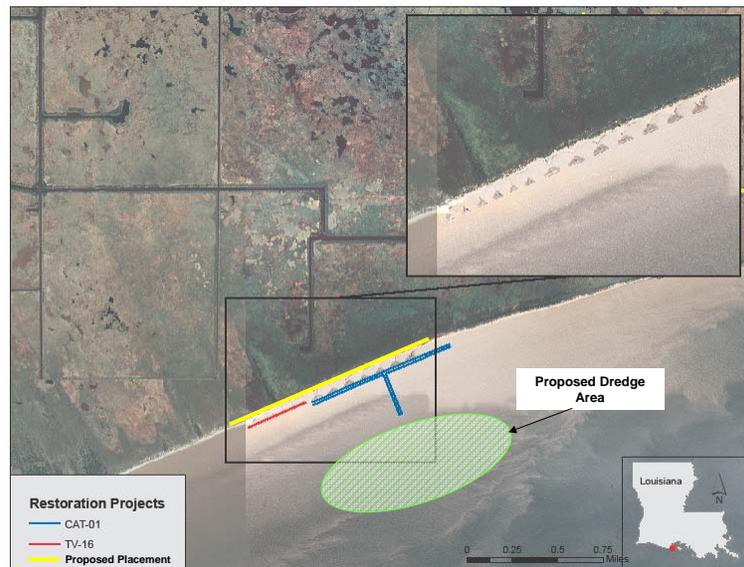
Preliminary Construction Costs: Approximately \$5,000,000.

Preparer(s) of Fact Sheet:

Susan M. Hennington; USACE; 504-862-2504; susan.m.hennington@usace.army.mil
Sherrill Sagraera, Vermilion Parish Coastal Restoration Advisory Committee, 337-652-0636; sherrillsagraera@bellsouth.net

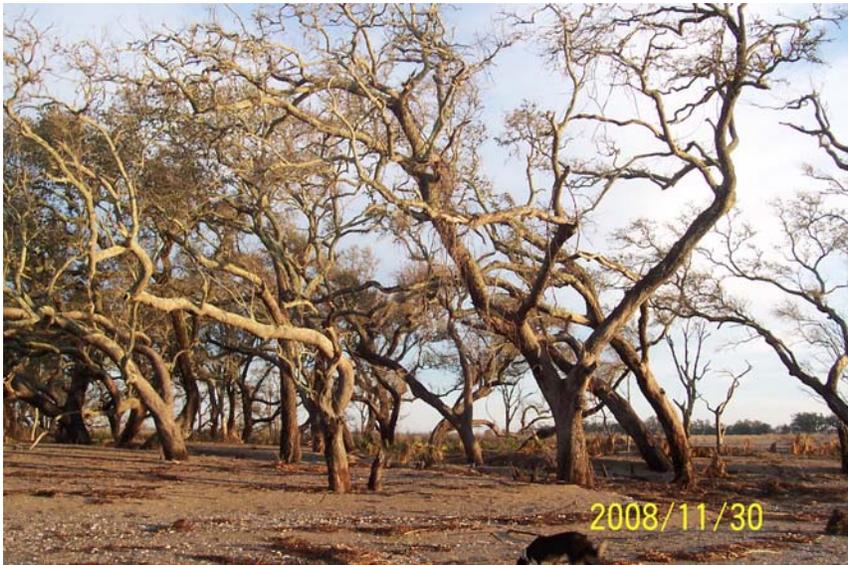
PPL 19 Project Nominee

Cheniere Au Tigre Headland Restoration



Cheniere Au Tigre Headland Restoration
PPL 19 Project Nominee









R3-TV-02-Cote Blanche Freshwater/Sediment
Introduction and Shoreline Protection Project

19-3-TV-#2

**PPL 19 Project Nominee Fact Sheet
January 2009**

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 bays & lakes 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:

Significant loss of emergent wetland, 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 providing conditions that would facilitate sediment accretion and achieve the project objective of reducing the rate of interior marsh loss. However, Hurricane Lili caused direct removal of approximately 1,740 acres of emergent marsh within the project area (Barras 2004), which was followed by additional loss from Hurricane Rita (Barras 2005 in draft). The TV-4 project structures have continued to function as intended, however, increasing sediment inputs should help to accelerate accretion.

The targeted area of shoreline has historic and predicted shoreline erosion rates of 15-20 ft. /year. If left unchecked, the rapidly eroding shoreline along East Cote Blanche Bay will lead to a conversion of interior wetlands to open bay. Installing shoreline protection would preserve the hydrologic integrity of water control structures installed under the TV-04 Project.

Proposed Solution:

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

Project features also include construction of approximately 26,000 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 the shoreline protection segments installed as part of 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, bald eagles, black bears, and other furbearers. These wetlands also provide vital protection to inland areas of St. Mary Parish from storm surges associated with hurricanes.

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

The proposed 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 impacted would be 584 acres.

For FW & Sed Intro: Not yet determined. Exact locations and sizes of potential avenues of flow from GIWW will be identified to estimate additional flow, as well as potential for marsh creation/nourishment with dredged material.

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 Freshwater & sediment introduction component: Has not been determined.

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 erosion rates by 100% over a project's life.

Loss rate reduction has not been determined yet for freshwater and sediment introduction component.

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.

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

The project would serve to protect inland oilfield well locations from exposure to open bay conditions, 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 project, and TV-20 Bayou Sale Shoreline Protection Project by extending shoreline protection around the entire northern shore of East Cote Blanche Bay, and ultimately providing contiguous protection and promoting 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.

Preparer of Fact Sheet

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

Cindy Steyer/NRCS/ (225) 389 – 0334 cindy.steyer@la.usda.gov

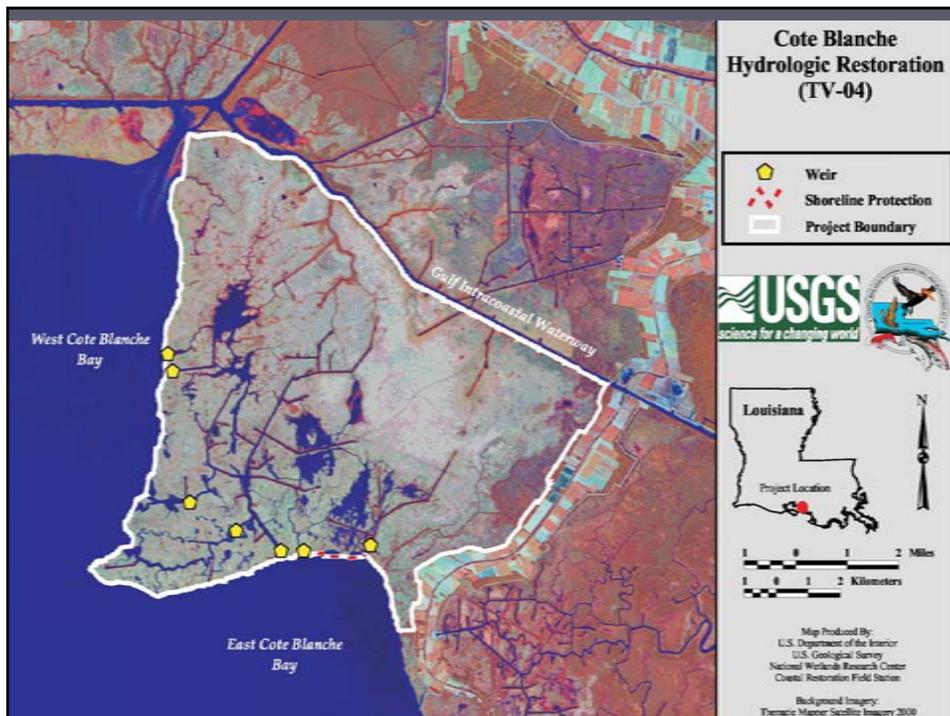
Larry Langlinais/NRCS/ (337) 369-6623 charles.stemmans@la.usda.gov

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

REGION III
Teche/Vermilion Basin
PPL19 RPT MEETING

January 28, 2009

COTE BLANCHE FRESHWATER INTRO
&
SHORELINE PROTECTION PROJECT



Marone Point Shoreline Protection St. Mary Parish Louisiana



Legend

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

0 1,950 3,900 7,800 11,700 15,600 Feet

FW & Sediment Intro
from GIWW Concept:

- Enlargement of existing channels
- Spoil bank gapping
- Structural measures



R3-TV-03-Northwest Vermilion Bay Vegetative
Planting and Maintenance

Region 3-RPT
PPL19 PROJECT NOMINEE FACT SHEET

January 28, 2009

Project Name:

Northwest Vermilion Bay Vegetative Planting and Maintenance (R3-TV-01)

Coast 2050 Strategy:

Region 3. #12. Maintain shoreline integrity and stabilize critical areas

Project Location:

Region 3, Teche/Vermilion, Vermilion Parish, Northeastern shore of Vermilion Bay extending from Mud Point, around Little Vermilion Bay to State Wildlife Refuge.

Problem:

Continued shoreline retreat in Vermilion Bay is threatening the integrity of Bay rim, which if compromised would expose surrounding marsh to open bay energies. In addition, several oil and gas canals within the project area would be opened to Vermilion Bay, if the shoreline were compromised. Comparing 1998 and 2005 photography of three locations within the project area estimated an annual shoreline loss of 8 ft/yr for this area.

Goals:

This project would stabilize much of the North Vermilion Bay shoreline through a series of intensive low-cost vegetative plants.

Proposed Solutions:

The TV-13a Oak/Avery Hydrologic Restoration project included 5.1 miles of vegetative plants along the north Vermilion Bay shoreline between Oaks and Avery Canals. In addition, Avery Island Inc. in conjunction with the Natural Resource Conservation Service (NRCS) has been planting the north shore of Vermilion Bay with smooth cordgrass (*Spartina alterniflora*) since 1990. The plantings have been highly successful in reducing the rate of shoreline erosion by capturing and accreting sediments from the Atchafalaya River and proving quite resilient in the wake of two major hurricanes – Lili and Rita. Other reaches of the Vermilion Bay shoreline have site specific areas of the vegetative planting areas become denuded annually due to hurricane and other wave generated conditions.

The project calls for annual vegetative planting of impacted areas along the north shore of Vermilion Bay through an intensive maintenance-planting program. A reconnaissance of northwestern Vermilion Bay would be conducted to determine the most suitable locations for the vegetative planting of smooth cordgrass. Five rows of smooth cordgrass plugs would be installed on two-foot centers. During FY08, vegetative planting would be installed along 30,000 linear feet within the 6-mile length of Vermilion Bay shoreline (5 rows at 2' OC * 30,000 LF of shoreline = 75,000 plugs). During the next four years, maintenance plantings (assume replacement of 15%, or 11,250 plugs) would be conducted throughout the site to ensure project success.

Preliminary Project Benefits:

Vegetative planting and maintenance along the North Vermilion Bay shoreline have been extremely successful at halting shoreline erosion and retreat between Avery Canal and Weeks Island. In many areas, established plantings have captured the westerly sediments moving down the GIWW from the Atchafalaya River and Wax Lake Outlet causing accretion and advancement of the plantings seaward into the Bay. This project would create emergent marsh and protect the existing shoreline.

What is the total acreage benefited both directly and indirectly? The proposed project would benefit 65 acres of brackish intermediate marsh and open water. Approximately 11 acres of brackish marsh would be created/protected over the 20-year project life. Shoreline protection will be provided by vegetative plantings, which has been shown to reduce erosion rates by 100%, and as evidenced in the Boston Canal and Oaks Avery Projects, expand towards Vermilion Bay. Therefore, the anticipated loss rate reduction of direct and indirect benefits over the project life should exceed 75%.

Identification of Potential Issues:

DNR landrights has identified one potential landowner that could be an issue.

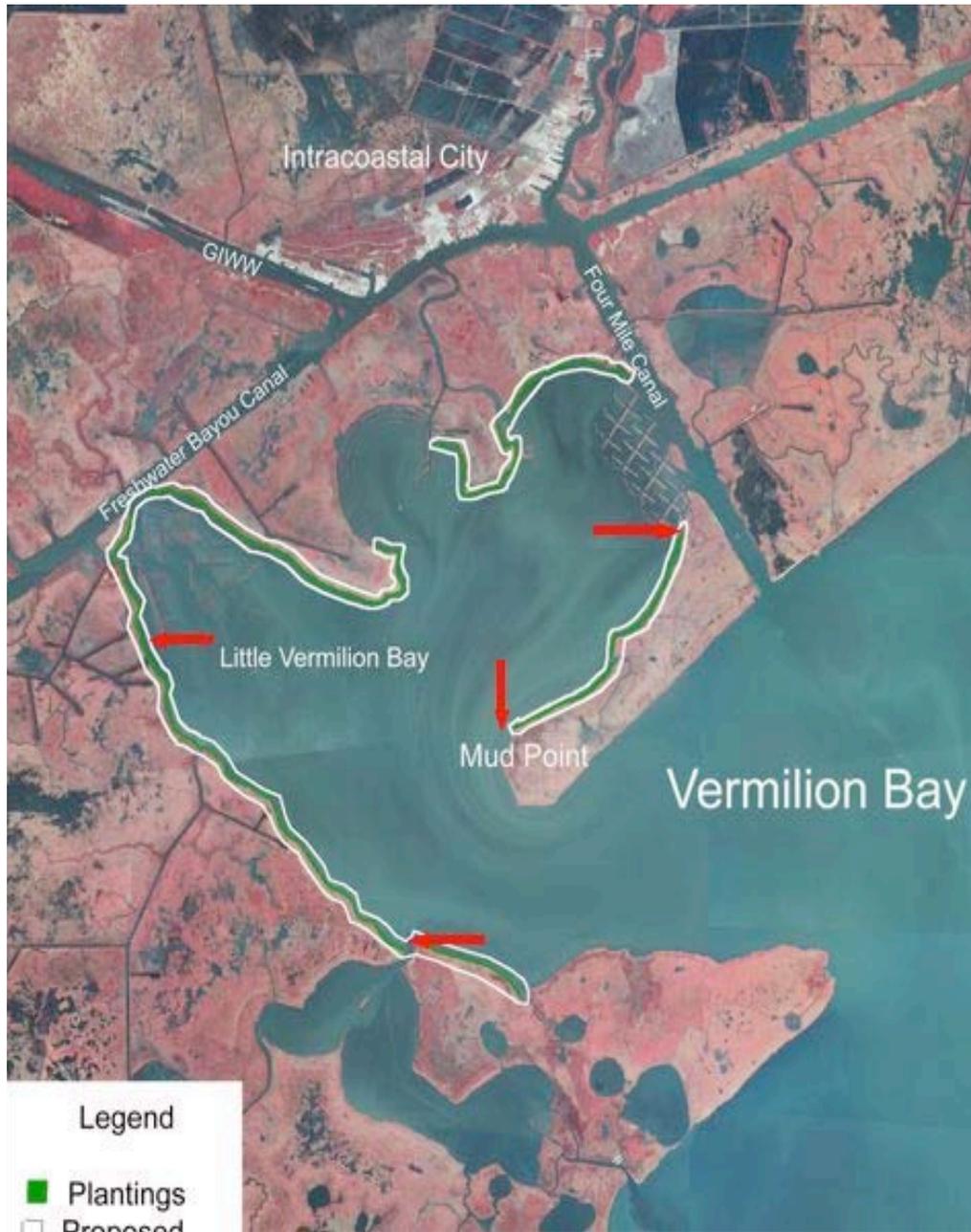
Preliminary Construction Costs:

Estimated construction costs plus 25% contingency = \$1,100,000 million.

Preparer(s) of Fact Sheet:

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

Arrows indicate likely areas for plantings.



R3-TV-04-State Wildlife Chenier and Marsh
Creation

PPL19 PROJECT NOMINEE FACT SHEET

January 28, 2009

Project Name

State Wildlife Chenier and Marsh Creation

Coast 2050 Strategy

Coastwide Strategies for: Vegetative plantings; Dedicated dredging for wetland creation; Maintenance of Bay and lake Shoreline Integrity; and Terracing. Region 3 strategies: (10)Protect Bay and Lake Shorelines, (8) Dedicated delivery of sediment for marsh building by any feasible means,

Project Location

The project is located in Region 3, Vermilion Basin, Vermilion Parish at State Wildlife Refuge

Problem

Shoreline wetlands erosion have been eroding approximately between 3 to 7feet/year along the lake shorelines estimated by LDWF staff.

Erosion of the peninsula has increased fetch around Lake Fearman, increasing shoreline erosion, turbidity and decreasing emergent and submerged vegetation. Shoreline erosion at North Lake is opening the lake to Vermilion Bay and will create bay erosion rates, rather than interior lake erosion.

Proposed Solution

Re-establish approximately 35 acres of the Fearman Lake peninsula with borrow from sediments from Vermilion Bay that acts as a natural terrace to break the fetch in lake, and create approximately 87,000 linear feet of vegetated terraces in the Lake. Approximately 4,000 linear feet of terrace would be constructed to contain pumped sediment. These containment terraced would be 5 foot crown 1:6 side slope of approximately +2.0' NAVD88.

Create a 13 acre chenier at North Lake planted with woody vegetation. Construct approximately 3,000 linear feet of vegetated terraces within North Lake.

Terraces would be constructed with a 15 ft crown 1:3 slopes in 2 ft of water. Appropriate species of vegetation would be planted at each created area. Potentially one maintenance lift of the terraces would be needed during the project life.

Preliminary Project Benefits

Approximately 120 acres of wetlands would be created from construction of the terraces and marsh creation. Approximately 43 acres of marsh would be protected by reducing shoreline erosion by 50-74%. The project would increase the colonization of submerged aquatic vegetation by reducing water turbidity.

Identification of Potential Issues

None

Preliminary Construction Costs

\$4-6 Million

Preparer of Fact Sheet

John Foret, National Marine Fisheries Service, 337-291-2107, john.foret@noaa.gov

State Wildlife Chenier and Marsh Creation

PPL19



R3-TV-05-Vermilion River Dedicated Dredging

Region 3- RPT
PPL19 PROJECT NOMINEE FACT SHEET
January 28, 2009

Project Name:

Vermilion River Dedicated Dredging

Coast 2050 Strategy:

Regional: #2 Increase deltaic land building where feasible #6-Stabilize banks and/or cross-sections of any navigation canal for water conveyance and/or for restoring hydrology of adjacent marshes #7- Maintain or direct Atchafalaya River water or other freshwater sources and sediment through the Gulf Intracoastal Waterway or other water sources #8-Dedicated delivery and /or beneficial use of sediment for marsh building by any feasible means #10 -Restore historic hydrologic conditions of major tidal exchange points or prevent adverse tidal exchange points between Gulf/lake, lake/marsh, bay/marsh, Gulf/bay, and marsh/navigation channel locations #13-Construct interior islands and/or reefs to protect bay/lake shorelines and/or restore hydrology #15 – Optimize Gulf Intracoastal Waterway flows into marshes and minimize direct flow into bays #17 Reduce sedimentation in bays

Mapping Unit Vermilion Bay Marsh: #81 Stabilize Banks of Navigation channels and canals, #82 Protect Bay/ Lake Shorelines, and #83 Stabilize banks of navigation channels and canals.

Project Location:

The project is located in Region 3, Teche/Vermilion Basin, Vermilion Parish, along the navigation channel referred to as the Four Mile Canal, south of Intracoastal City.

Problem:

A majority of the freshwater and sediments available from the Vermilion River are diverted southward into Vermilion Bay via the Four Mile Canal and bypass adjoining wetlands and open water areas. The Four Mile Canal has enlarged from a 300 ft. constructed width to currently a 950 ft. wide channel due to wake action from commercial and recreational marine traffic.

Wave energy has eroded the west bank of the Four Mile Canal navigation channel. The southern portion of Vermilion River, between the Four Mile Canal Terracing Project terrace fields, has silted in.

Goals:

Use dredge spoil to create channel shoreline that has eroded. Establish and armor Four Mile Canal West Bank.

Proposed Solution:

Dredge spoil would be placed in marsh lobes along Four Mile canal to recreate the canal bank. Openings would be left to allow for small boat traffic and water flow into the terrace fields of the TV-18 terraces for sediment trapping. Both the dredge spoil and what remains of the west bank would be armored with rock using light weight aggregate (to minimize the load). Maintenance would include maintaining the rock armor only. No plantings are necessary in this area, as the seed bank is established.

Preliminary Project Benefits:

Restore to some degree the historic distributary patterns of the Vermilion River system thereby stabilizing water salinity levels and increasing sediment input in adjoining wetlands. The project will significantly enhance the availability of sediments for the adjoining TV-12 Little Vermilion Bay

Sediment Trapping CWPPRA Project. Approximately 20 acres of marsh would be directly created, an undetermined amount indirectly through increased sedimentation, and additional acres benefited from a loss rate reduction of 25-49%.

The project area of impact is anticipated to be large due to the hydrologic redistribution, but also difficult to determine. For the sake of comparison the following estimate is provided. The TV18 project area is 2648 acres. Assuming the proposed project would affect 2648 acres of marsh in the area, and the LDNR 1999 estimated loss rate in Vermilion Bay Marsh of 0.45% yearly between 1974 and 1990, a reduction in that loss of 25-49% would equate to 111 acres of marsh preserved.

Identification of Potential Issues:

Pipelines in the area limit the extent of the armoring and dredging.

Preliminary Construction Costs:

The approximate construction cost for this project is estimated around \$2.3 million, including a 25% construction contingency.

Preparer of Fact Sheet:

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

Vermilion River Dedicated Dredging TV-00



-  Rock Armor
-  Dredge spoil
-  Dredging area



Exhibit A
Four Mile Canal Terracing and
Sediment Trapping Project TV-18
Vermilion Parish, Louisiana

Legend

- Project Boundary
- Proposed Terraces
- Township/Range Line
- Section Line
- Pipeline
- Oyster Lease
- Active Well
- Inactive Well
- Shut-in Well
- Other Well
- SWD Well
- Orphan Well
- Well without status code (Tobin data)

All features are graphical representations only and may not reflect true location or dimension.



USGS
 U.S. Geological Survey
 National Wetlands Research Center
 Coastal Restoration Field Station
 Louisiana Department of Natural Resources
 Coastal Restoration Division and GIS Lab
 1994 SPOT Imagery
 Map Date: November 1, 2001
 Map ID: 2002-04-105