CALCASIEU/SABINE BASIN

R4-CS-01-Oyster Bayou Marsh Creation

PPL19 PROJECT NOMINEE FACT SHEET
January 27, 2009

Project Name:
Oyster Bayou Marsh Creation

Coast 2050 Strategy:
Coastwide – Dedicated Dredging to Create, Restore, or Protect Wetlands
Region 4 Ecosystem Strategy 6. Use dedicated dredging or beneficial use of sediment for wetland creation or protection

Project Location:
Region 4, Calcasieu-Sabine Basin, located west of the Calcasieu Ship Channel and south of the west fork of the Calcasieu River

Problem:
The project would restore marsh to offset levels of historic and ongoing wetland loss. Based on USGS and analysis of 1978 to 2000 data and Corps of Engineers data from 1974 to 1990, landloss ranges from 4.8 acres to 18.8 acres per year for the project area. Saltwater intrusion, drought stress, and hurricane induced wetland losses have resulted in interior marsh breakup and coalescence of Oyster Lake with interior water bodies.

Goals:
The project would create between 300 to 400 acres of saline marsh.

Proposed Solutions:
Sediment would be mined from the east side of the Calcasieu Ship Channel jetties or offshore and placed in multiple disposal areas to create between 300 to 400 acres of saline marsh. Disposal areas have not yet been selected; however, optional disposal areas could include any, but not all of those depicted in the concept map except those noted by arrows. Disposal would be semi-confined and the created elevations would be planted with smooth cordgrass plugs. Post 2008 field data is needed to refine site selection and input from the landowners and Regional Planning Team is welcomed. Although marsh creation via dedicated dredging of sediment would be the primary technique, opportunities may exist to include some terracing where warranted, but that is not included in the benefit/cost estimates at this time. All restoration options would be coordinated to avoid required marsh creation mitigation in the area. Further, it is uncertain whether the Cheniere LNG facility and associated beneficial use in the Oyster Bayou watershed will be constructed given the present state of the economy and the use, to date, of the Sabine Pass LNG.

Preliminary Construction Costs:
The cost plus 25% contingency is about $19.5 million for 300 acres and $24 million for 400 acres.

Preparer(s) of Fact Sheet:
Patrick Williams, NOAA's National Marine Fisheries Service, (225) 389-0508, extension 208; patrick.williams@noaa.gov

Oyster Bayou Marsh Creation
MUD LAKE
5
6
4
3A
1
2
3B
GULF OF MEXICO
Legend
Restoration Site Boundary
Adjacent Landowner
Canal / Pipeline Scar Plug
Restoration Cell
Mitigation Area
No Fill Zones
N

R4-CS-02-Black Bayou Terraces

Region 4-RPT
PPL19 PROJECT NOMINEE FACT SHEET
January 28, 2009

Project Name:
Black Bayou Terraces (R4-CS-01)

Coast 2050 Strategy:
Restore and Sustain Wetlands *(Regional Ecosystem Strategy)*
Terracing *(Coastwide Common Strategy)*
Vegetative Plantings *(Coastwide Common Strategy)*

Project Location:
Region 4, Calcasieu/Sabine Basin, Calcasieu and Cameron Parish, South side of the GIWW, West of Gum Cove Ridge

Problem:
Saltwater intrusion into the surrounding marsh and canals from the GIWW coupled with erosion caused by wave action from nearby boats, wind, and tides has caused the historical land loss within this area. Aerial photography since the late 1930's documents the conversion of approximately 2,700 acres of emergent marsh to open water within the proposed project area, or approximately 75% of the emergent marsh has converted to open water over the last 70 years within this proposed project area (ocular estimate from historical photography). The CWPPRA sponsored Black Bayou Hydrologic Restoration Project (CS-27) features addressed the saltwater intrusion problem, however the expansive open water area identified by this project continues to experience shoreline erosion and coalescence of smaller water bodies into one 2,700 acre pond. This expansion is threatening the integrity of the western levee boundary at this time. The CWPPRA sponsored Plowed Terrace Demonstration Project (CS-25), coupled with mitigation terraces within this area has shown the usefulness of terracing to reduce wave fetch, however more terraces are needed.

Goals:
(1) Restore coastal marsh habitat, and
(2) Reverse the conversion of wetlands to shallow open water in the project area.

Proposed Solutions:
Construct up to 261,000 linear feet of earthen terraces, oriented in such a way as to reduce wind generated wave fetch. Water depths throughout the project area average 1-1.5 deep. In addition, the terraces would be planted with appropriate species of wetland vegetation to reestablish the plant productivity needed to rebuild the organic peat for marsh vertical accretion and expansion. Planting density is projected to be double rows of plugs on each side of the terrace on a 5' spacing.

Preliminary Project Benefits:
1) *What is the total acreage benefited both directly and indirectly?* At 261,000 LF; 5 foot crown, 1:5 side slopes, 3' out of water; 261,000 LF * 35' = 9,135,000 square feet / 43,560 = 210 acres initially constructed, and approximately 500 acres of brackish to intermediate emergent marsh surrounding the open water will be benefited indirectly. Therefore, a total acreage potentially impacted would be 710 acres.
2) *How many acres of wetlands will be protected/created over the project life?* No loss to terraces, thus 210 acres created. A 50% loss rate reduction is assumed for the indirect

acres benefited or; (-0.82% per year) of the 500 initial indirect benefit acres there would be 65 net acres (FW vs. FWO) after 20 years, thus 210 + 65 = 275 Total acres net.

3) *What is the anticipated loss rate reduction throughout the area of direct benefits over the project life?* No loss applied to terraces = 100% loss rate reduction over the 20-year life of the project, or >75%.
4) *Do any project features maintain or restore structural components of the coastal ecosystem such as barrier islands, natural or artificial levee ridges, beach and lake rims, cheniers, etc.?* These terraces will maintain the western artificial levee boundary of this 3,200-acre area through the reduction of wave-induced erosion.
5) *What is the net impact of the project on critical and non*-critical infrastructure? The Black Bayou Gas Field is immediately adjacent to the project area, and this project will re-establish and help stabilize the emergent marsh that adjoins this critical infrastructure.
6) *To what extent does the project provide a synergistic effect with other approved and/or constructed restoration projects?* This project would compliment the results of the Black Bayou Hydrologic Restoration (CS-27) and Plowed Terrace Demonstration (CS-25), as CS-27 reduced saltwater intrusion and CS-25 demonstrated the usefulness of terraces in this area.

Identification of Potential Issues:
No known issues at this time.

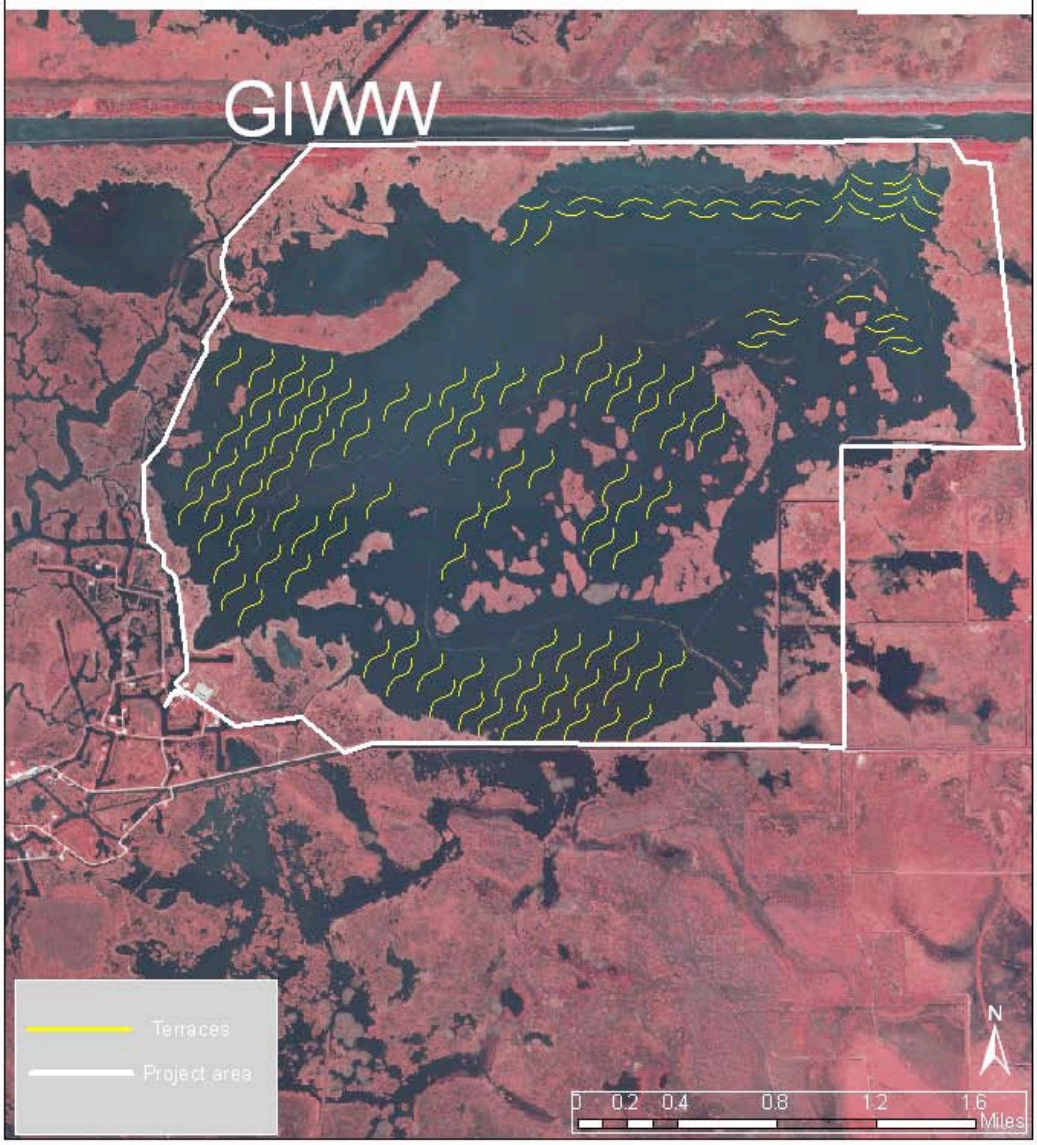
Preliminary Construction Costs:
Estimated construction costs plus 25% contingency = $6,970,750.

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

Black Bayou Terraces

Calcasieu and Cameron Parishes, LA

PPL 19 Nominee



R4-CS-03-Gum Cove Terracing

PPL 18 PROJECT NOMINEE FACT SHEET
1/27/2009

Project Name
Gum Cove Terracing

Coast 2050 Strategy
Use of sediment for wetland creation.

State Master Plan Strategy
Construct terraces for marsh restoration.

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

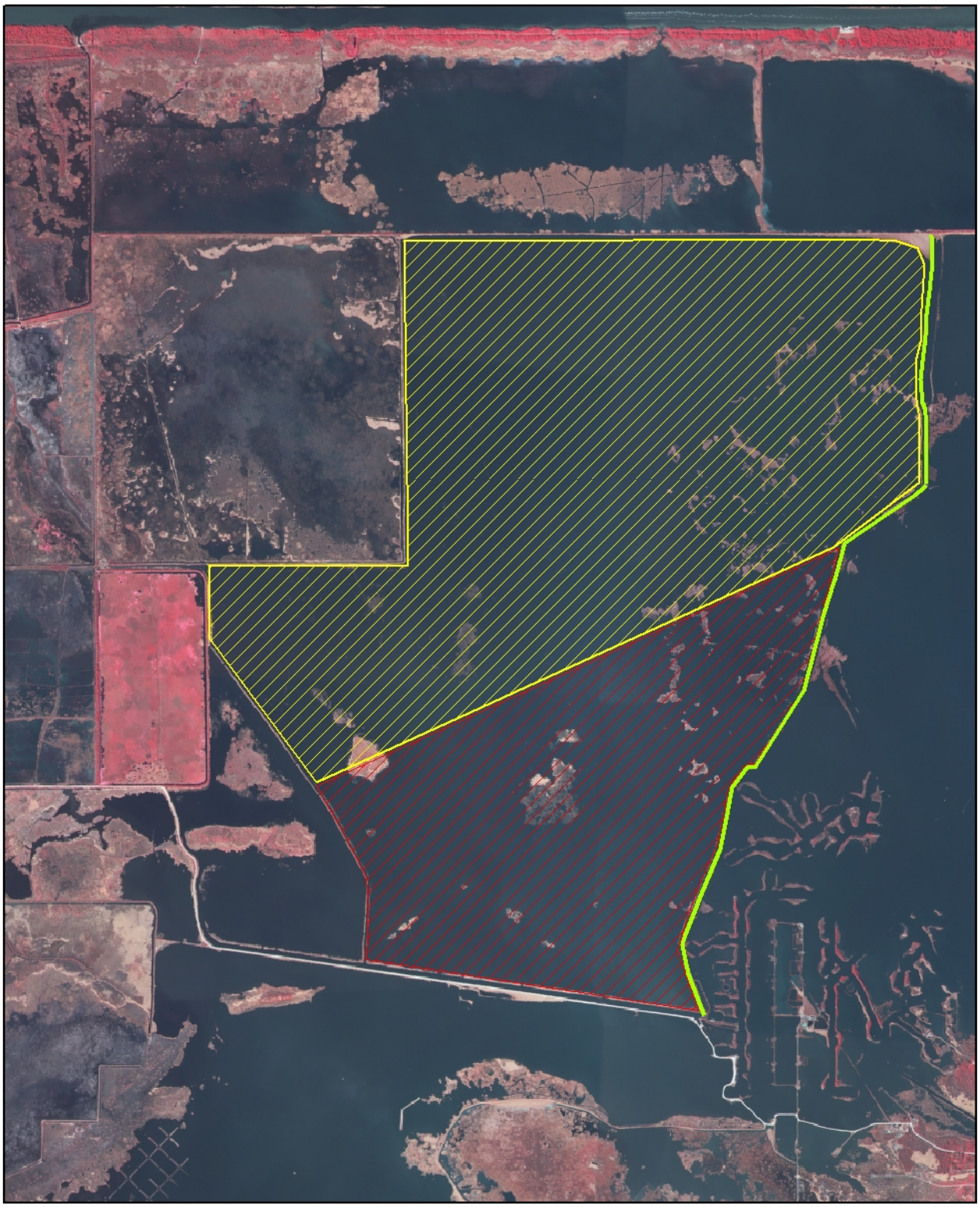
Problem
The most significant environmental problem affecting the marshes in this area is deterioration and conversion to open water. Between 1952 and 1974 this area experienced an 81 percent marsh loss. Much of that loss occurred because the construction of the Calcasieu Ship Channel greatly increased the efficiency of water exchange through Calcasieu Pass. Freshwater retention was consequently reduced and saline water was able to enter in greater quantities and penetrate further north. The proposed project area is bordered by a north/south levee that provides protection from water and salinity level fluctuations. However, because the organic soils have been lost from erosion, it is unlikely that emergent marsh will reestablish in the open water areas. SAV habitat is also limited by the energy associated with the large open water fetch.

Proposed Project Features
The project will construct approximately 250,000 linear feet of terraces with approximately 300 foot spacing and would compliment a Ducks Unlimited terracing project to be constructed this Spring.

Preliminary Project Benefits
The proposed terracing project will reestablish emergent marsh and create excellent SAV habitat by reducing wave energy associated with fetch.

Preliminary Construction Costs
$5 million

Preparer of Fact Sheet
Troy Mallach, NRCS, (337) 291-3064, troy.mallach@la.usda.gov
Curt Marcantel, landowner



Legend

- Levee_Caps
- Terrace Field
- Ducks_Unlimited_Terracing_2009

N

Gum Cove Terracing
PPL 19
Calcasieu and Cameron Parishes, Louisiana

0 1,200 2,400 4,800 7,200 9,600
Feet

R4-CS-04-Kelso Bayou Marsh Creation and Hydrologic Restoration

PPL 19 PROJECT NOMINEE FACT SHEET
1/27/2009

Project Name
Kelso Bayou Marsh Creation

Coast 2050 Strategy
Use of sediment for wetland creation and Restore historic hydrologic and salinity conditions throughout Region 4 to protect wetlands from hydrologic modification.

State Master Plan Strategy
Restore natural hydrology to the Chenier Plain.

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

Problem
The most significant environmental problem affecting the marshes in this area is deterioration and conversion to open water. Between 1952 and 1974 this area experienced an 81 percent marsh loss. Much of that loss occurred because the construction of the Calcasieu Ship Channel greatly increased the efficiency of water exchange through Calcasieu Pass. Freshwater retention was consequently reduced and saline water was able to enter in greater quantities and penetrate further north. The proposed project will be designed to reduce salt water intrusion by decreasing the amount of salt water entering the project area and disrupting the artificial circulation of that water. SAV habitat is also limited by the tidal energy associated with the large amount of water exchange.

Proposed Project Features
Marsh creation, shoreline protection, and rock weir at Kelso Bayou

Preliminary Project Benefits
The proposed project would utilize marsh creation techniques to create approximately 127 acres of marsh. That created marsh and a portion of the Calcasieu Ship Channel would be protected with a rock dike. The exchange at Kelso Bayou would be reduced from over 200 feet wide and 10 feet deep to approximately 60 feet wide and 6 feet deep. Therefore, the cross sectional area could be reduced over 80%. The salinity reduction could be estimated with existing models and would be the foundation for existing and future restoration efforts.

Preliminary Construction Costs:
$8-10 Million

Preparers of Fact Sheet
Troy Mallach, NRCS troy.mallach@la.usda.gov

Legend

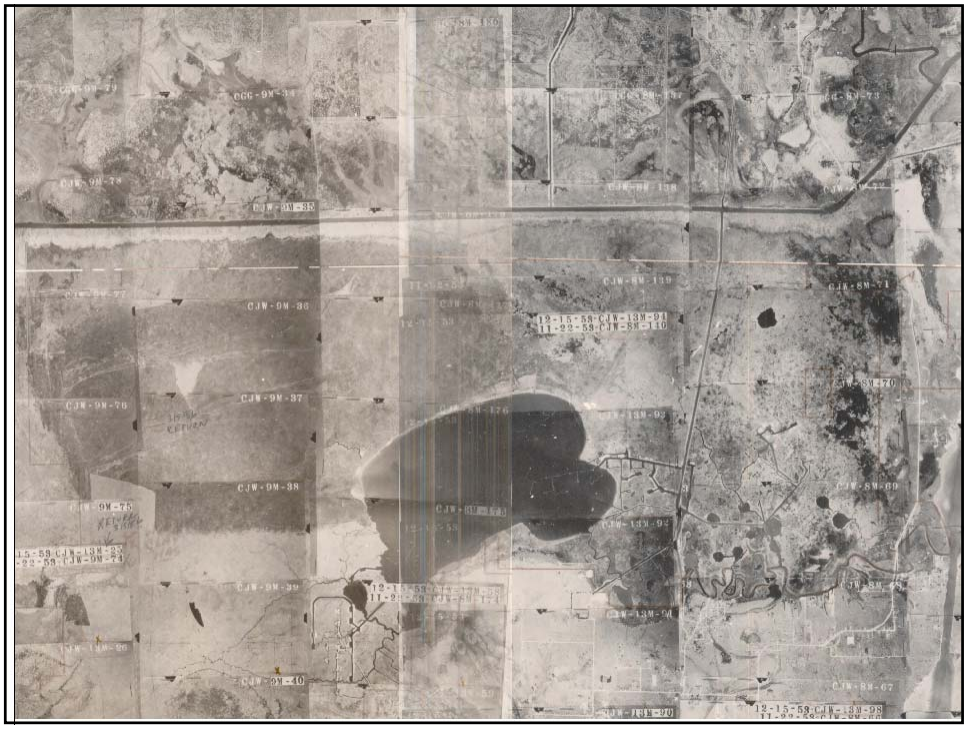
- Water_Control_Structure
- Shoreline_Protection
- Marsh_Creation

N

0 250 500 1,000 1,500 2,000

Feet

Kelso Bayou Marsh Creation
Cameron Parish, Louisiana
PPL 19

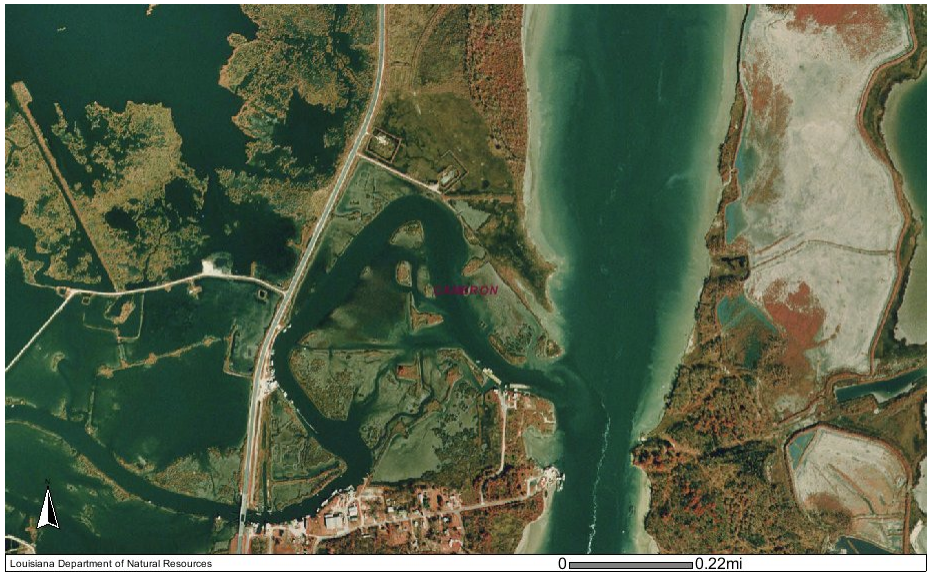


Meselhe Model 2006

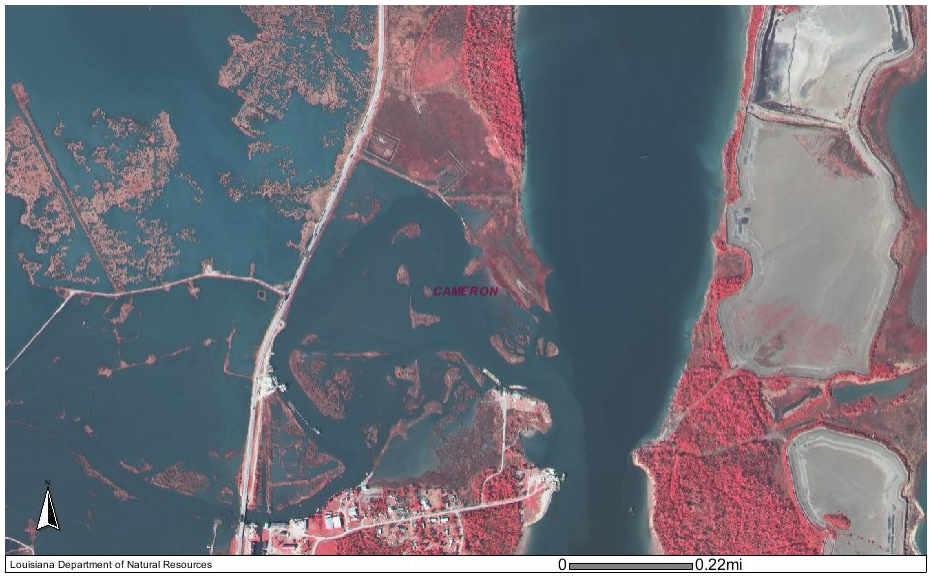
- Legend for Calibration Model (0 – 19 ppt).

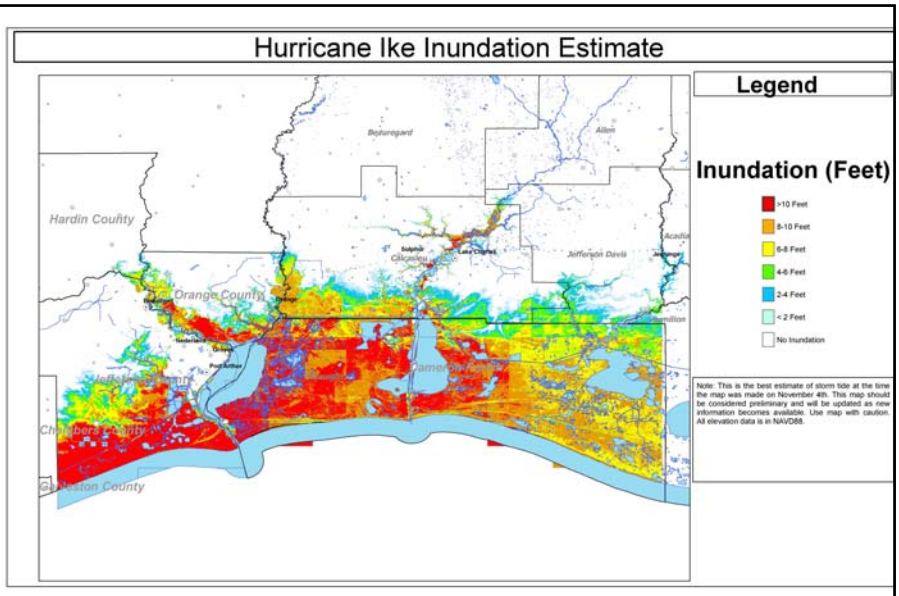
Kelso Vicinity

Kelso Bayou 1998



Kelso Bayou 2005




Hurricane Ike Inundation Estimate
Legend
Inundation (Feet)
>10 Feet
8-10 Feet
6-8 Feet
4-6 Feet
2-4 Feet
< 2 Feet
No Inundation
Note: This is the best estimate of storm tide at the time the map was made on November 4th. This map should be considered preliminary and will be updated as new information becomes available. Use map with caution. All elevation data is in NAVD88.
Hardin County
Orange County
Jefferson Davis
Beauregard
Allen
Calcasieu
Cameron
Galveston County

Calcasieu Ship Channel
Legend
Water_Control_Structure
Shoreline_Protection
Marsh_Creation
Kelso Bayou Marsh Creation
Cameron Parish, Louisiana
0 250 500 1,000 1,500 2,000
Feet

R4-CS-05-North Willow Lake Restoration

PPL 19 PROJECT NOMINEE FACT SHEET
1/27/2009

Project Name
North Willow Lake Restoration

Coast 2050 Strategy
Use of sediment for wetland creation.

State Master Plan Strategy
Construct marsh and terraces for marsh restoration.

Project Location
Region 4, Calcasieu-Sabine Basin, Cameron Parish, Sweet/Willow Lakes Mapping Unit, area northeast of Calcasieu Lake and north of GIWW.

Problem
The most significant environmental problem affecting the marshes in this area is deterioration and conversion to open water. Additionally, several breaches between Willow Lake and interior open water areas have developed since Hurricane Rita. Those areas were again impacted by Hurricane Ike and rapid deterioration from organic soil export is occurring.

Proposed Project Features
The project will protect approximately 7,000 linear feet of Willow Lake shoreline, construct approximately 150 acres of marsh, and create approximately 60,000 linear feet of terraces with approximately 300 foot spacing.

Preliminary Project Benefits
The proposed project will reestablish the north shoreline of Willow Lake, construct emergent marsh, and create excellent SAV habitat by reducing wave energy associated with fetch.

Preliminary Construction Costs
$10 million

Preparer of Fact Sheet
Troy Mallach, NRCS, (337) 291-3064, troy.mallach@la.usda.gov

Legend

- Terraces
- Shoreline Protection
- Marsh Creation/Nourishment

N

0 500 1,000 2,000 3,000 4,000

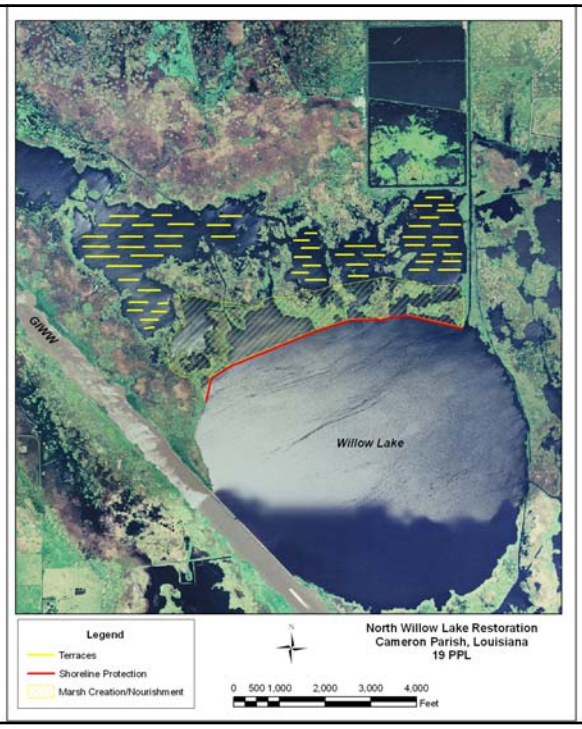
Feet

North Willow Lake Restoration
Cameron Parish, Louisiana
19 PPL

Willow Lake 1998

Willow Lake 2004

Willlow Lake 2005



R4-CS-06-Black Lake Marsh Restoration

19-4-CS-#6

PPL19 PROJECT NOMINEE FACT SHEET
January 27, 2009

Project Name
Black Lake Marsh Restoration

Coast 2050 Strategy
Terracing accompanied by vegetative planting is an effective means of marsh habitat creation. Functions and values of terraces include nursery habitat, fetch reduction, and sediment trapping in addition to promoting conditions conducive to growth of submerged aquatic vegetation.

Project Location
Region IV, Calcasieu/Sabine Basin, Cameron Parish, west of the Alkali Ditch and south of the GIWW.

Problem
This area has been impacted by oil and gas exploration and the influx of saltwater causing interior marsh loss.

Proposed Project Features
This project will construct approximately 94,000 linear feet of earthen terraces with vegetative plantings.

Goals
This project would reduce fetch and create a suitable environment for submerged aquatic vegetation.

Identification of Potential Issues
There are no potential issues with the project; however, O&M, utilities/pipelines, will need to be investigated.

Preliminary Construction Costs
The total estimated project cost is $9,957,650

Preparer of Fact Sheet
Kelley Templet, OCPR, (225) 342-1592
Email: kelley.templet@la.gov

Project Map
See attached project map.

APPLICATION BY:	**OFFICE OF COASTAL PROTECTION & RESTORATION** **ENGINEERING BRANCH** 450 FLORIDA STREET BATON ROUGE, LOUISIANA 70801		PPL 19 CANDIDATE BLACK LAKE TERRACES	PROJECT LAYOUT
			STATE PROJECT NUMBER:	DATE: JANUARY 2009
DRAWN BY: RUDY SIMONEAUX	DESIGNED BY:	APPROVED BY:	FEDERAL PROJECT NUMBER:	SHEET 1 OF 1

R4-CS-07-Cameron-Creole Watershed Grand Bayou Marsh Creation Project

PPL19 PROJECT NOMINEE DRAFT FACT SHEET
January 27, 2009

Cameron-Creole Watershed Grand Bayou Marsh Creation Project

Coast 2050 Strategy: Regional Strategy: Use dedicated dredging or beneficial use of sediment for wetland creation or protection.

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

Problem: 14,390 acres (32%) of Cameron-Creole Watershed marshes were lost to open water from 1932 to 1990 at an average loss rate of 248 ac/year (0.55%/year), due to subsidence and saltwater intrusion from the Calcasieu Ship Channel. The CCWP was implemented in 1989 to reduce saltwater intrusion and stimulate revegetation. The loss rate was reduced to only 37 ac/yr (0.12%/yr), with the CCWP in place and operating. However, Hurricanes Rita and Ike in 2005 and 2008, breached the watershed levee scouring the marsh and allowing higher Calcasieu Lake salinities to enter the watershed causing more land loss. The hurricane-scoured marsh is very shallow (less than 1 ft. deep) making it ideal for marsh restoration with sediment. Sediment introduction, water level drawdowns, and freshwater introduction from the north are needed to restore shallow open water areas to marsh within the watershed.

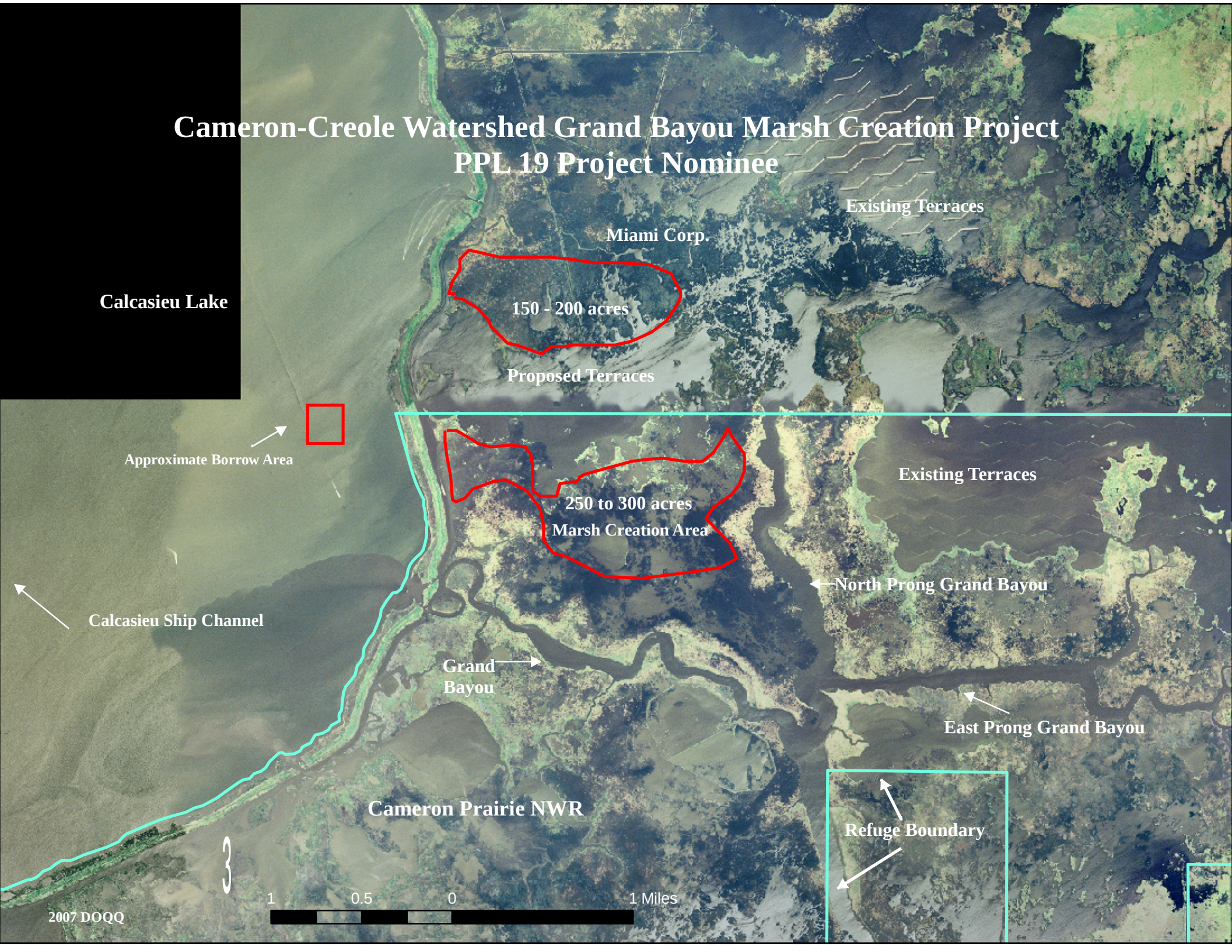
Goals: To restore approximately 515 acres of marsh via dredged material from Calcasieu Lake.

Proposed Solution: Place approximately 3.2 million cubic yards of material dredged from a Calcasieu Lake borrow site (2, 400 ft X 2,400 ft X 15 feet deep) located approximately 2,000 feet west of Grand Bayou into two marsh creation areas north of Grand Bayou in the western portion of the Cameron-Creole Watershed to restore 515 acres of brackish marsh. Following construction, retention levees would be degraded, man-made bayous (trenasses) constructed, and possible vegetative plantings installed for estuarine fisheries access and to achieve a functional marsh.

Project Benefits: The project would benefit 515 acres of brackish and saline marsh and open water.

Project Costs: The total project construction cost estimate is $16 to $20 M.

Preparers of Fact Sheet:
Darryl Clark, U.S. Fish and Wildlife Service, (337) 291-3111, Darryl_Clark@fws.gov;
Glenn Harris, U. S. Fish and Wildlife Service, (337) 598-2216, Glenn_Harris@fws.gov
Billy Leonard, U. S. Fish and Wildlife Service, (337) 774-5923, Billy_Leonard@fws.gov
Chad Courville, Miami Corporation, (337) 264-1695, cjcourville1@bellsouth.net


Cameron-Creole Watershed Grand Bayou Marsh Creation Project
PPL 19 Project Nominee
Existing Terraces
Miami Corp.
Calcasieu Lake
150 - 200 acres
Proposed Terraces
Approximate Borrow Area
Existing Terraces
250 to 300 acres
Marsh Creation Area
North Prong Grand Bayou
Calcasieu Ship Channel
Grand
Bayou
East Prong Grand Bayou
Cameron Prairie NWR
Refuge Boundary
3
1
0.5
0
1 Miles
2007 DOQQ

R4-CS-08-Calcasieu Ship Channel Sediment By-Pass Project

PPL19 PROJECT NOMINEE FACT SHEET
January 27, 2009

Project Name

Calcasieu Ship Channel Sediment By-Pass Project

Coast 2050 Strategy - CS 18 - Restore Long-shore Sediment Flow Across the Mouth of Calcasieu Pass

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

Problem - The Calcasieu Ship Channel jetties have interrupted the natural westward flow of near shore Gulf long-shore currents and sediment deposition. Sand is building on the Gulf shore on the east side of Calcasieu Ship Channel jetties. West of the jetties there continues to be severe erosion. Only 10 years ago the dunes on the western Gulf shore were intact.

Proposed Project Features
The project proposes to transport subtidal sediment from the east side of Calcasieu Pass to the west via a hydraulic dredge placed east of the east jetty. The recently deposited sediment will be dredged from subtidal areas in > 2 ft water depths to a dredged depth of 10 ft or more.

Goals
The goal is to reduce Gulf shoreline erosion west of the Calcasieu Pass jetties by transportation of sediment from the east jetty area.

Preliminary Project Benefits
Approximately 10 Million cubic yards of material can be transported west of the Calcasieu Pass jetties to rebuild at least 500 acres of Gulf shoreline. 1,000 acres could be constructed in 3 dredging events but we anticipate at least 50% would erode to the Gulf.

Identification of Potential Issues
Possible landrights issues caused by dredging recently deposited sediment east of the jetties is not an issue because the State of Louisiana owns all lands below mean high water. The material dredged would be submerged (subtidal) sediment not subaerial land that has created new marsh or beach.

Preliminary Construction Costs
$50 M at $5.00/ cubic yard based on the cost to dredge 10 M cubic yards of material in three dredging events and transport it 1 to 2 miles to restore 500 acres of marsh and Gulf shoreline.

Project Nominator
David Richard, Stream Property Management Co., 337-433-1057 (ext 19), drichard@streamcompany.com

Preparer of Fact Sheet
Darryl Clark, USFWS, 337-291-3111, Darryl_Clark@fws.gov

Calcasieu River Ship Channel Sediment By-Pass
PPL 19 Project Nominee
Sabine NWR
Calcasieu Lake
West Cove
Calcasieu Ship Channel
Cameron Prairie NWR
Cameron
Mud Lake
Holly Beach
Calcasieu Pass
Gulf of Mexico
Beach-Shore Restoration Area
Jetties
Borrow Area
0 0.5 1 2 3 4
Miles
2007 DOQQ

R4-CS-09-Constriction of Sabine Lake at the Hwy 82 Causeway

PPL19 PROJECT NOMINEE FACT SHEET
January 27, 2009

Project Name and Number

Constriction of Sabine Lake at the Highway 82 Causeway

Coast 2050 Strategy

CS 11 - Salinity reduction of Sabine Lake at the Causeway

Project Location

Region 4, Calcasieu-Sabine Basin, located just north of the Hwy 82 Causeway in the southern portion of Sabine Lake.

Problem
Increased salinities in Sabine Lake caused by the Sabine-Neches Waterway and its future enlargement. The Galveston Corps and the Jefferson County Port Commission are planning to widen and deepen the channel.

Proposed Project Features

Construct a 2,000 linear foot rock weir with a 100 to 200 foot-wide boat bay across the southern portion of Sabine Lake just north of the Hwy 82 causeway.

Goals
This project will reduce salinities in Sabine Lake and mitigate increased salinities from the Sabine-Neches Waterway.

Preliminary Project Benefits - Reduce salinities in lower Sabine Lake by reducing higher salinity water from the Sabine-Neches Channel from entering lower Sabine Lake.

Identification of Potential Issues

Oyster reefs may be in or adjacent to the proposed structure. The structure may reduce fisheries and navigation access to Sabine Lake.

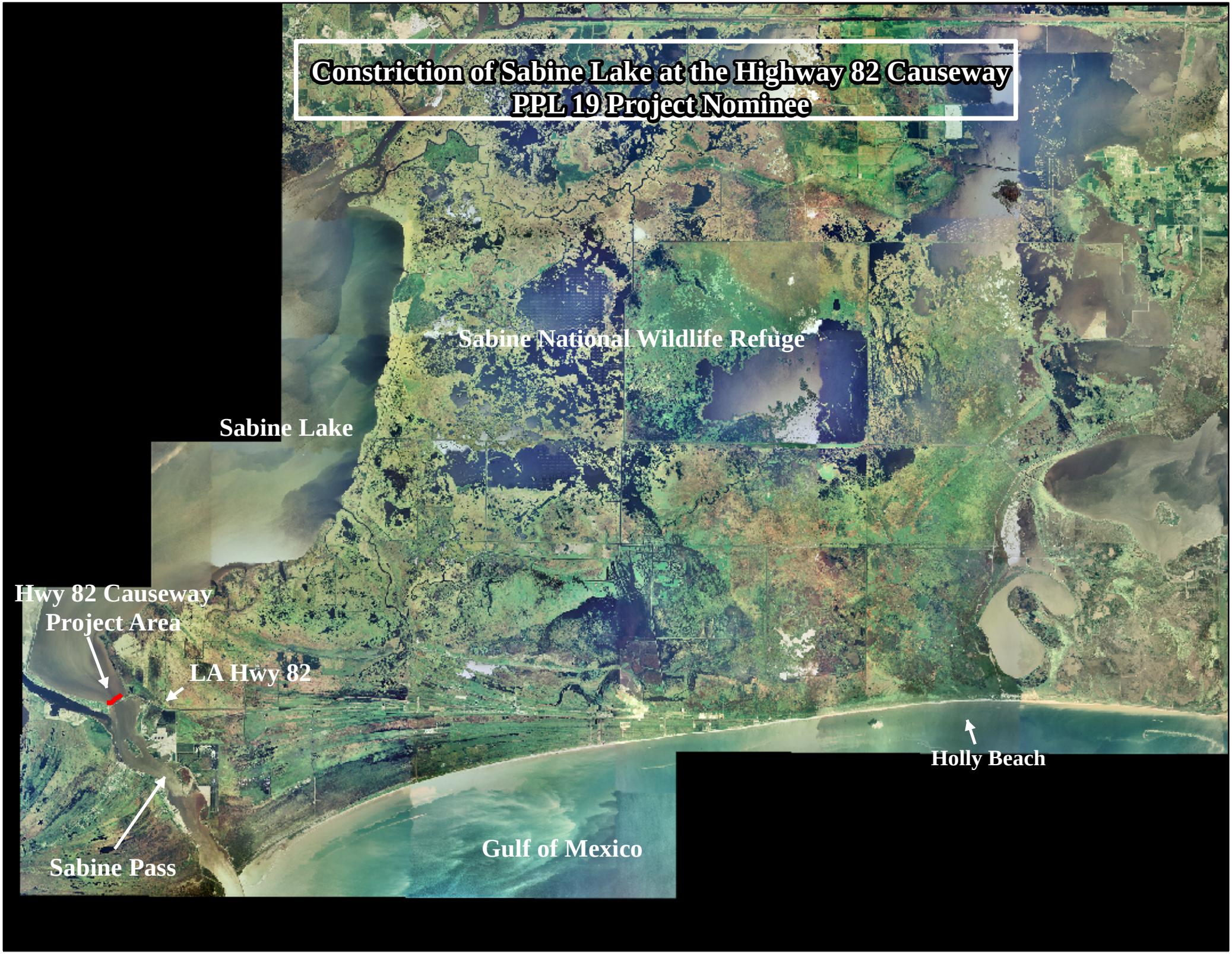
Preliminary Construction Costs

$2 to $5 M; $1,000 to $2,000 per linear foot.

Project Nominator
David Richard, Stream Property Management Co., 337-433-1057 (ext 19),
drichard@streamcompany.com

Preparer of Fact Sheet

Darryl Clark, USFWS, 337-291-3111, Darryl_Clark@fws.gov


Constriction of Sabine Lake at the Highway 82 Causeway
PPL 19 Project Nominee
Sabine National Wildlife Refuge
Sabine Lake
Hwy 82 Causeway
Project Area
LA Hwy 82
Holly Beach
Gulf of Mexico
Sabine Pass

MERMENTAU BASIN

R4-ME-01-Freshwater Bayou Marsh Creation

19-4-ME-#1

PPL 19 PROJECT NOMINEE FACT SHEET
1/27/2009

Project Name
Freshwater Bayou Marsh Creation

Coast 2050 Strategy
Marsh Creation by Sediment Delivery or Dedicated Dredging.

State Master Plan Strategy
Maintain or establish natural landscape features and hydrologic processes that are critical to sustainable ecosystem structure and function, including dissipation of storm energy.

Project Location
Region 4, Mermentau Basin, Vermilion Parish, Big Marsh Mapping Unit, area west of Freshwater Bayou and north of the Freshwater Bayou lock.

Problem
This area was damaged by Hurricane Rita, and recently by Hurricanes Ike and Gustav. Currently, Freshwater Bayou threatens to breach into the large interior open water and establish a hydrologic connection that previously did not exist. This would exacerbate the environmental problems affecting marshes in this area. Interior marsh loss will likely increase without construction of the proposed project.

Proposed Project Features
Costs for the proposed project are based on dedicate dredge material to rebuild approximately 574 acres of marsh that was converted to open water by Hurricane Rita. Potential sediment sources include White Lake, Freshwater Bayou, and the Gulf of Mexico. We would also coordinate with the USACE during Phase 1 to beneficially use any or all of the approximately 640,000 yds^3 of material dredged from Freshwater Bayou (lock to the Gulf) every three years.

Preliminary Project Benefits
The proposed project would create/nourish approximately 574 acres or more of interior marsh. That marsh would restore and maintain a wetland buffer between the open water of the Mermentau Basin and Freshwater Bayou.

Preliminary Construction Costs
$7.5 million (using $4/cubic yard).

Preparer of Fact Sheet
Troy Mallach, NRCS, (337) 291-3064, troy.mallach@la.usda.gov
Judge Edwards, Vermilion Corporation, vermilioncorporation@connections-lct.com

Freshwater Bayou MC/Nourishment
PPL 19
Vermilion Parish, Louisiana

Legend

- Marsh Creation/Nourishment North Area
- Marsh Creation/Nourishment South Area

N

0 0.15 0.3 0.6 0.9 1.2
Miles

R4-ME-02-Front Ridge Chenier Protection

19-4 -ME- #2

PPL 19 PROJECT NOMINEE FACT SHEET
1/27/2009

Project Name
Front Ridge Chenier Terracing/Protection

Coast 2050 Strategy
Use of sediment for wetland creation.

State Master Plan Strategy
Construct terraces for marsh restoration.

Project Location
Region 4, Mermentau Basin, Vermilion Parish, South Pecan Island Mapping Unit, area south of Front Ridge.

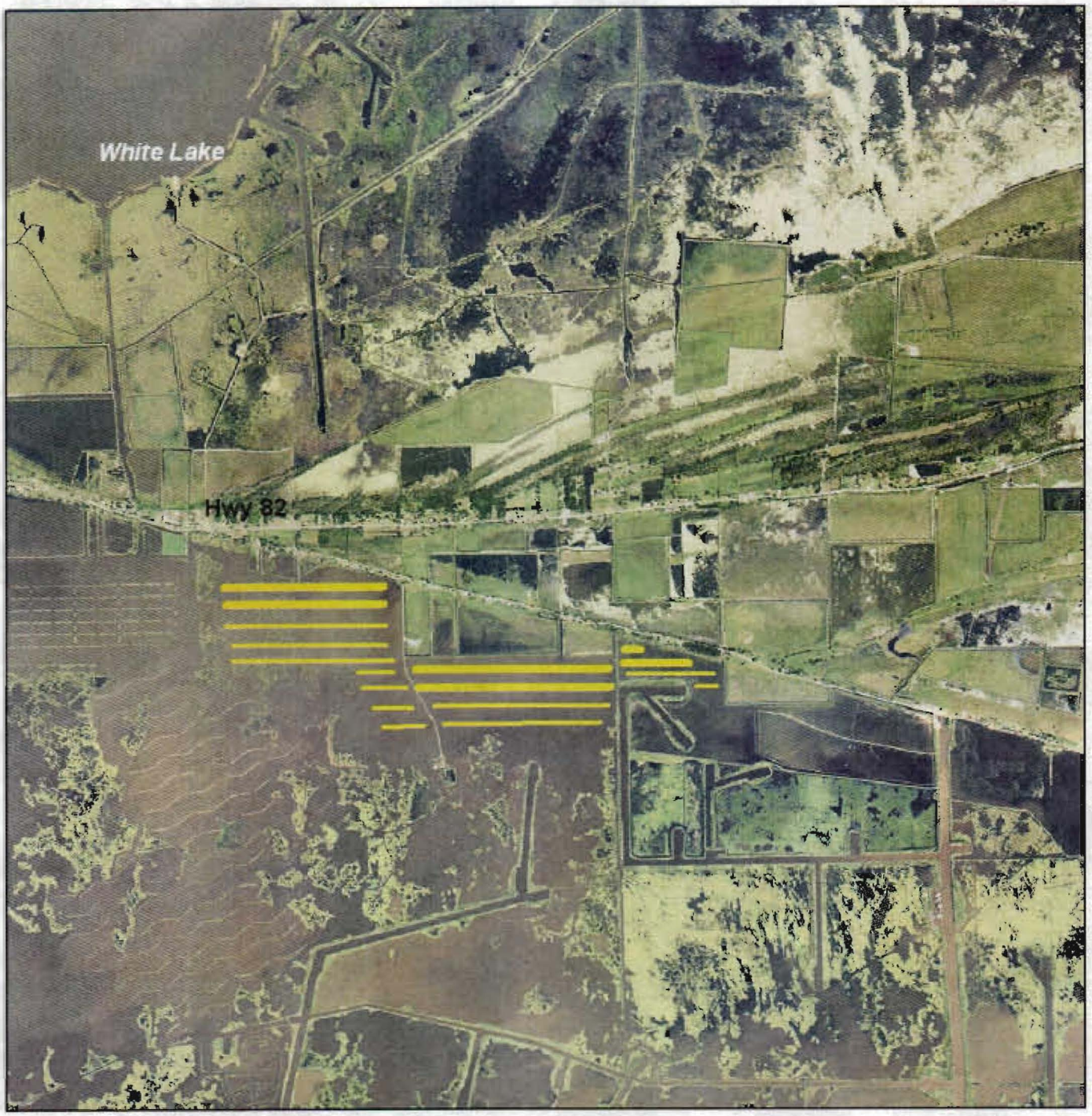
Problem
The most significant environmental problem affecting the marshes in this area is deterioration and conversion to open water. Initially, much of the loss in the area occurred from salt water intrusion. Now large open water areas contribute to marsh deterioration through wave action associated with increased fetch. Several terracing projects have proven to work in this area and fetch has been reduced in the associated areas. However, new open water areas were created adjacent to Front Ridge after Hurricanes Rita, Gustav, and Ike and erosion from increased wave energy now threatens the ridge. SAV habitat is also limited by the energy associated with the large open water fetch. It is unlikely that emergent marsh will reestablish in the open water areas and the area will continue to deteriorate.

Proposed Project Features
The project will construct approximately 85,000 linear feet of terraces with approximately 300 foot spacing.

Preliminary Project Benefits
The proposed terracing project will reestablish emergent marsh and create SAV habitat by reducing wave energy associated with fetch.

Preliminary Construction Costs
$2 million

Preparer of Fact Sheet
Troy Mallach, NRCS, (337) 291-3064, troy.mallach@la.usda.gov



Legend

Terraces

Front Ridge Chenier Protection
PPL 19
Vermilion Parish, Louisiana

N

0 1,400 2,800 5,600 8,400 11,200
Feet

R4-ME-03-Lower Mud Lake Sediment Trapping

PPL 19 PROJECT NOMINEE FACT SHEET
1/27/2009

Project Name
Lower Mud Lake Sediment Trapping

Coast 2050 Strategy
Use of sediment for wetland creation.

State Master Plan Strategy
Encourage the retention of inflowing sediment

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

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

Proposed Project Features
The project would construct sediment trapping terraces similar to those used at Little Vermilion Bay (TV-12) and the Jaws (TV-15). Those terraces would dissipate wave energy and allow sediment to drop out of the water column and increase accretion, which would permit emergent vegetation to establish. Distributaries would be dredged to direct sediments to the project and distribute that sediment throughout the project area.

Preliminary Project Benefits
The proposed terracing project will establish emergent marsh and maximize sedimentation within the project area.

Preliminary Construction Costs
$2-4 million

Preparer of Fact Sheet
Troy Mallach, NRCS, (337) 291-3064, troy.mallach@la.usda.gov

Legend

Terraces

N

0 750 1,500 3,000 4,500 6,000

Feet

Lower Mud Lake Sediment Trapping
PPL 19
Cameron Parish, Louisiana

R4-ME-04-Terracing at Dyson’s Ditch

Region 4-RPT
PPL19 PROJECT NOMINEE FACT SHEET
January 28, 2009

Project Name:
Terracing at Dyson's Ditch, ME-25

Coast 2050 Strategy:
Restore and Sustain Wetlands *(Regional Ecosystem Strategy)*
Terracing *(Coastwide Common Strategy)*
Vegetative Plantings *(Coastwide Common Strategy)*

Project Location:
Region 4, Mermentau Basin, Vermilion Parish, between the Gulf of Mexico and Pecan Island.

Problem:
The mash is broken and subsided as a result of saltwater intrusion and drainage and issues that have since been remedied.

Goals:
1) Restore coastal marsh habitat, and
2) To reduce wave fetch and increase marsh through the construction of terraces. This can decrease turbidity, decrease erosion, and increase submersed aquatics, and marsh.

Proposed Solutions:
Project would include construction of earthen terraces in open water areas throughout the project area for a minimum of 200,000 linear ft, with the exception of two areas that were previously small lakes that will remain open water. The terraces would consist of dredging bottom material deposited in 200-400 ft long berms with 5 ft crowns, 20 ft bases and a height of 2.5 ft above MSL. Terraces would be non-linear oriented in a way to reduce wind generated wave fetch and planted with species appropriate to rebuild the organic peat for marsh vertical accretion and expansion.

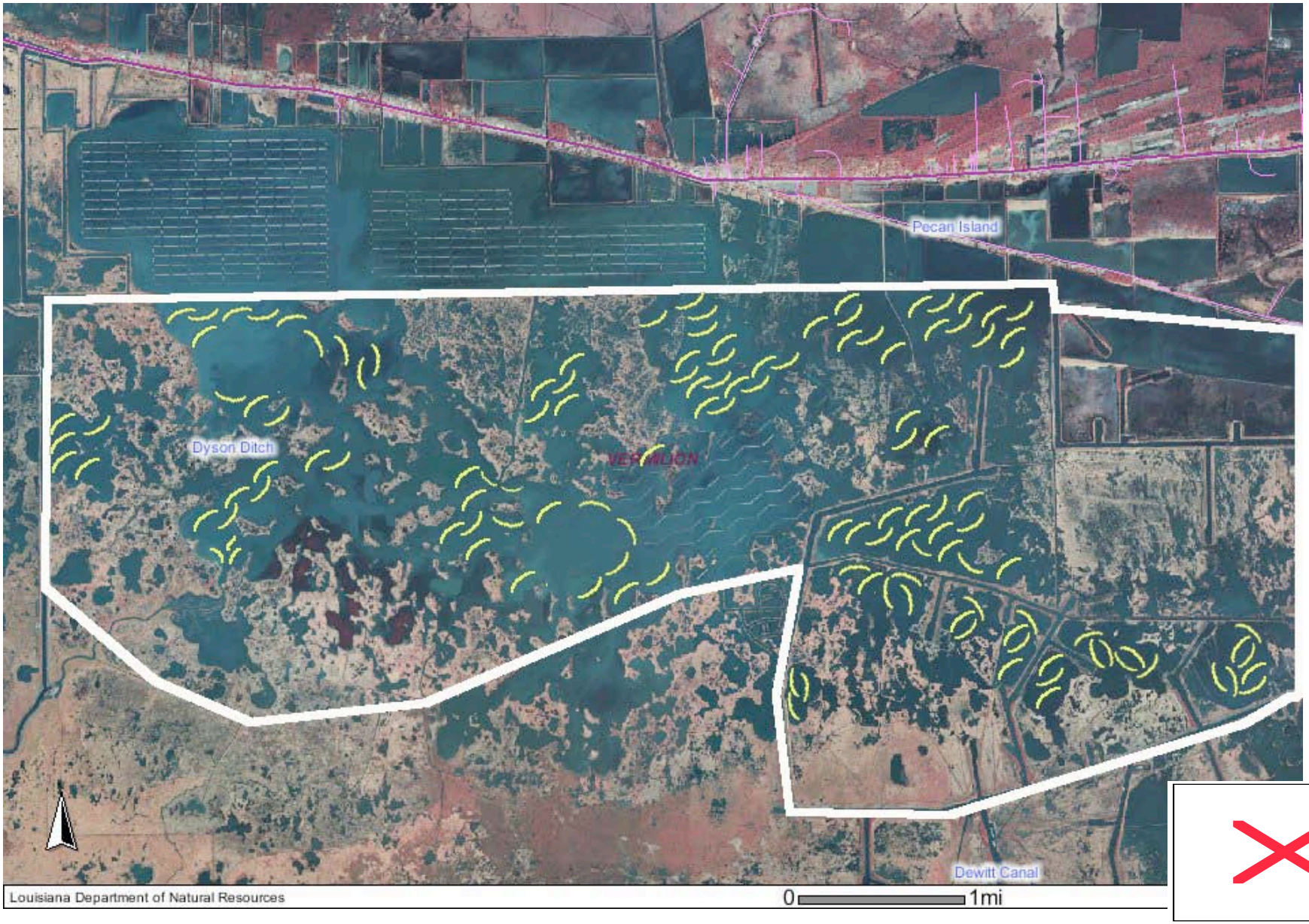
Preliminary Project Benefits:
At 200,000 LF; 5 foot crown, 1:5 side slopes, 3' out of water; 200,000 LF * 35" = 7,000,000 square feet / 43,560 = 161 acres initially constructed, and approximately 500 acres of emergent marsh surrounding the open water will be benefited indirectly. This project would compliment the results of the Pecan Island Terracing Project (ME-18).

Identification of Potential Issues:
No known issues at this time.

Preliminary Construction Costs:
Estimated construction costs plus 25% contingency = $5,400,000.
200,000 LF of terraces and 184,000 vegetative plugs

Preparer(s) of Fact Sheet:
John D. Foret, Ph.D., NOAA Fisheries Service, john.foret@noaa.gov 337-291-2107

Terracing at Dyson's Ditch (ME-25)
Vermilion Parish, LA
PPL 19 nominee



R4-ME-05- Rockefeller Gulf of Mexico Shoreline Stabilization, Joseph’s Harbor East

Region 4-RPT
PPL19 PROJECT NOMINEE FACT SHEET
January 28, 2009

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

Coast 2050 Strategy:
Regional: Dedicated dredging or beneficial use of sediment for wetland creation or protection (6) and Stabilize Gulf of Mexico Shoreline from Old Mermentau River to Dewitt Canal (16). Coast-wide Common: Maintenance of Gulf, Bay and Lake shoreline Integrity, and Maintain, Protect or Restore Ridge Functions.

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

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

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

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

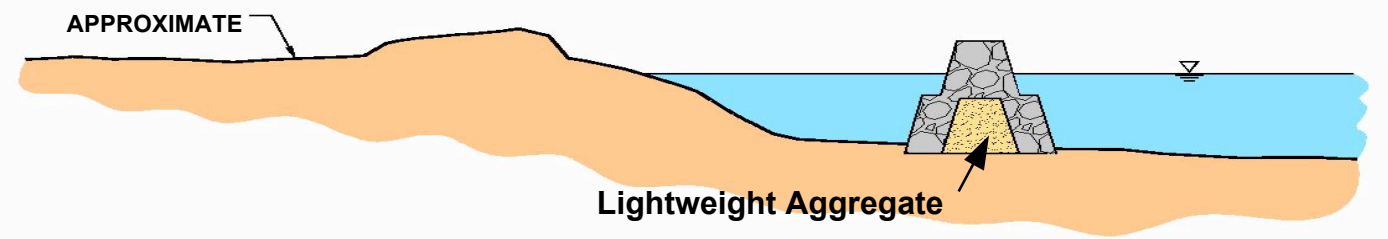
Preliminary Project Benefits:
The project is expected to influence approximately 125 acres directly (120 protected, 5 created), and a portion of 4,900 acres indirectly (Rockefeller Refuge Unit 5). This project is anticipated to benefit 125 acres (10K ln ft X 35 ft/yr X 20 yrs) X 0.75. The reduction efficiency was estimated by using 90% of the average wave transmission rates listed in the Rockefeller Refuge gulf Shoreline Stabilization Feasibility Study produced by Shiner Mosely and Associates (Table 6, page 4-19, methodology of Seabrook and Hall, 1998). Estimates for excavation are as follows; at the –5' contour, an additional 4' of material will be moved at a width of 80', for the 10,000 linear feet of the project or 3,200,000 cubic yards will be placed behind the rock structure.
The project would protect and maintain chenier and beach function.

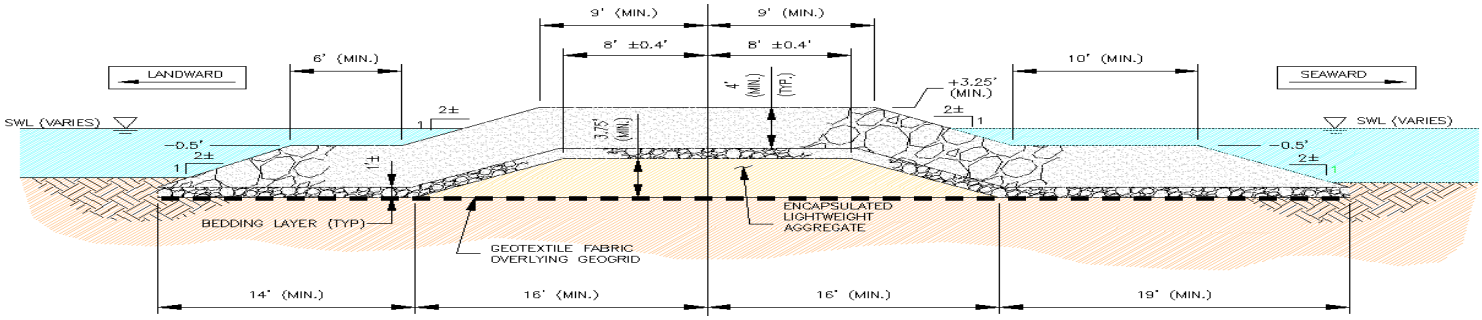
The project would have a net positive impact on non-critical infrastructure. This project would protect five existing pipelines that come ashore within the project area from continued erosion of the cover, which when uncovered, become a public and environmental hazard. This project would also protect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

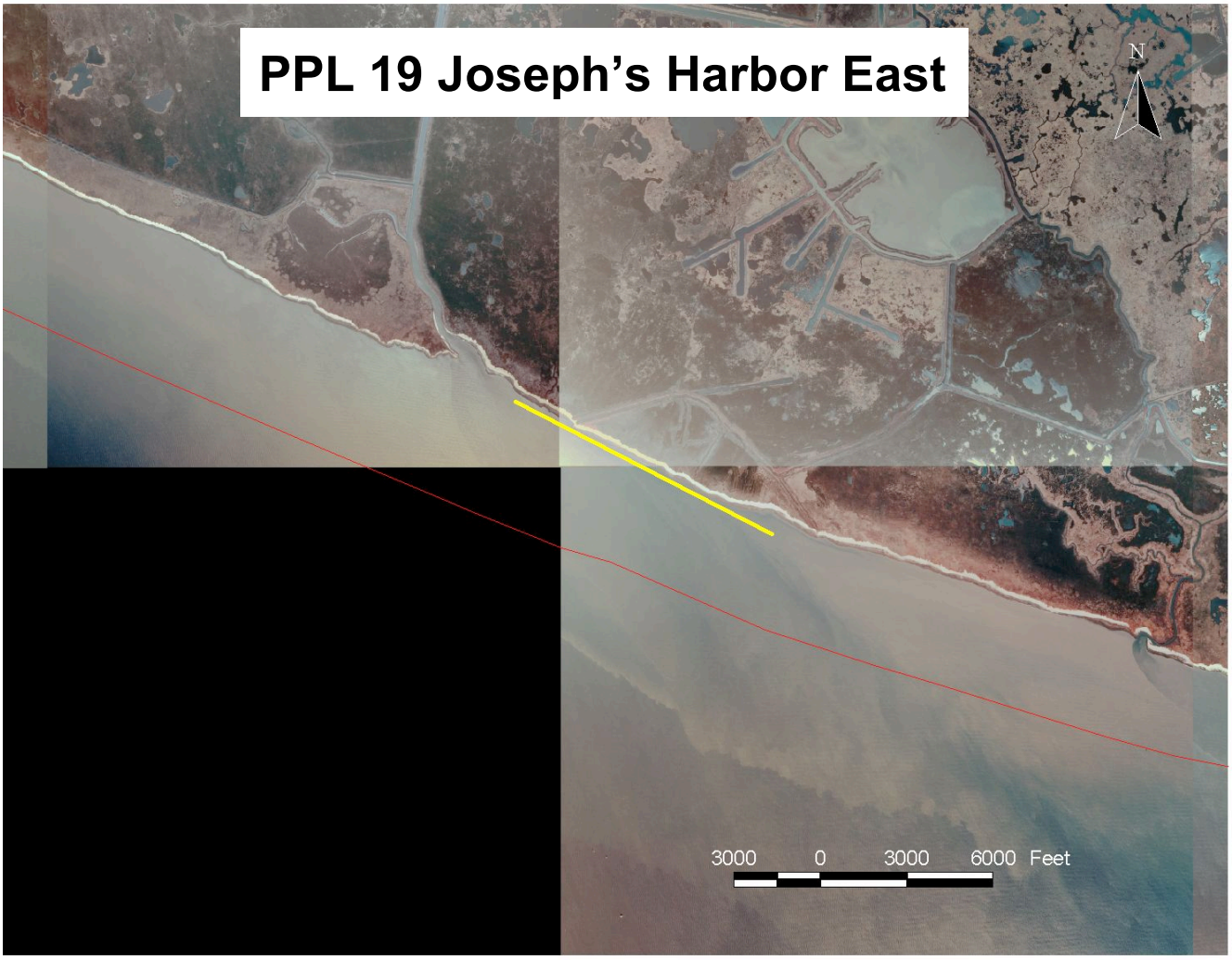
Identification of Potential Issues:
There are potential issues with pipelines. There are pipelines in the area

Preliminary Construction Costs:
The preliminary fully funded cost is $9-11 million.
Rock Breakwater: $978 per linear foot * 10,300 linear feet = $10,073,400

Preparer of Fact Sheet:
John D. Foret, NOAA Fisheries Service, 337/291-2107; john.foret@noaa.gov






PPL 19 Joseph's Harbor East
N
3000 0 3000 6000 Feet

PPL19 PROJECT NOMINEE FACT SHEET
January 27, 2009

Project Name
Mermentau Ship Channel Sediment By-Pass Project

Coast 2050 Strategy
M/CS 19 - Restore Long-shore Sediment Flow Across the Mouth of the Mermentau Ship Channel

Project Location
Region 4, Mermentau Basin, located at the mouth of the Mermentau Ship Channel and the Gulf of Mexico, south of Grand Chenier.

Problem
The Mermentau Ship Channel jetties have interrupted the natural westward flow of near shore Gulf long-shore currents and sediment deposition. Sand is building on the east side of Mermentau Ship Channel jetties and starved to the west. West of the jetties experiences high Gulf shore erosion (> 50 ft/yr) at Hackberry Beach and has the highest Cameron Parish Gulf shore erosion.

Proposed Project Features
Two to 3 M cubic yards of subtidal sediment would be transported in two dredging events (1 to 1.5 M cu. yds. each in Years 1 and 10 of the 20-year project life) from the east side of the Mermentau Ship Channel 2 to 3 miles westward via a hydraulic dredge placed east of the east jetty. Recently deposited sediment will be dredged from subtidal areas in > 2 ft water depths to a dredged depth of 10 ft or more and placed in a 20,000 foot long X 500 foot wide area W of the W jetty starting at the highest point on the shore and extending gulf ward. Recent Corps' Mermentau Ship Channel Beneficial Use maintenance dredging projects have placed material west of the jetties to reduce erosion.

Goals
To reduce Gulf shoreline erosion and build Gulf shoreline west of the Mermentau Ship Channel jetties by transportation of sediment from the east jetty.

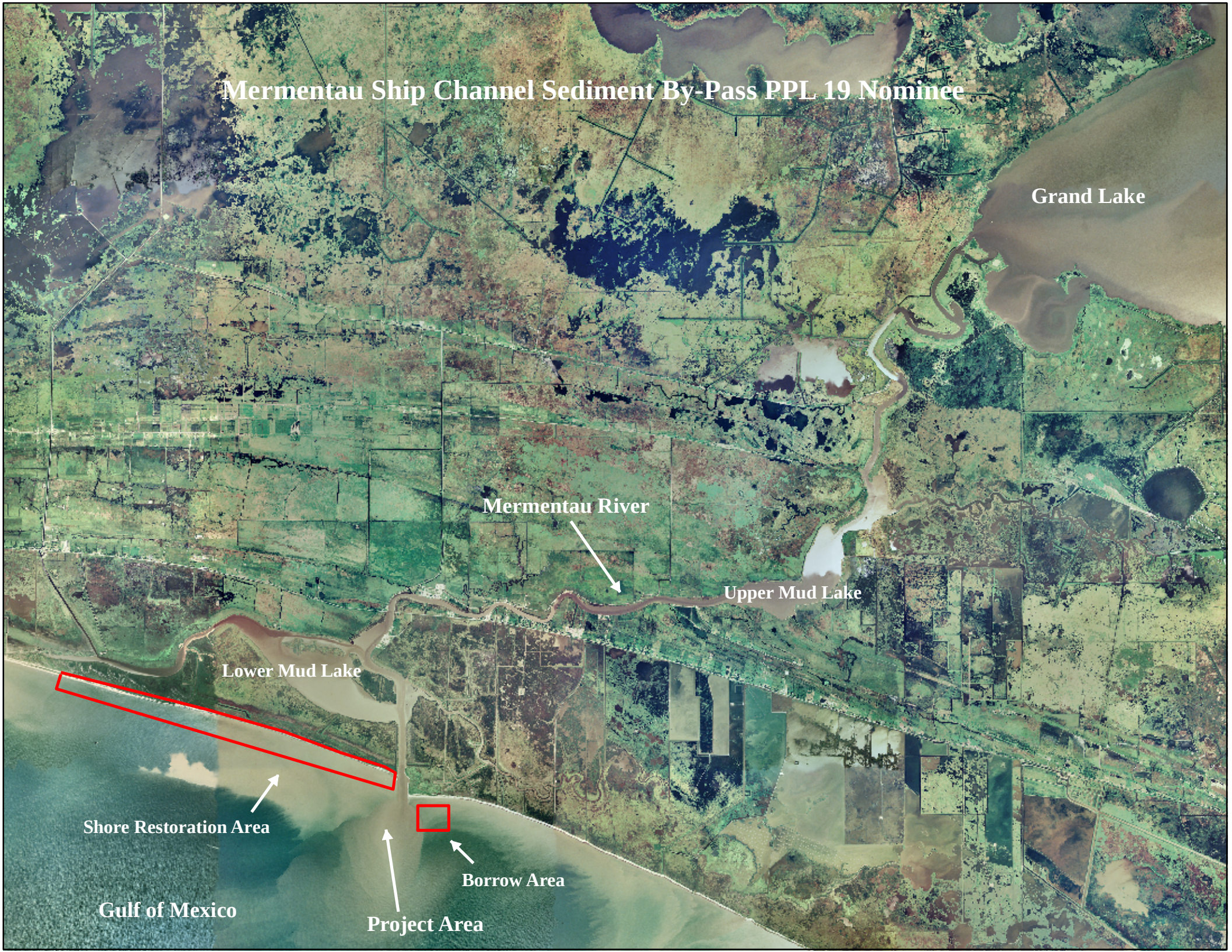
Preliminary Project Benefits
Approximately 1 to 1.5 million cubic yards of material in two dredging cycles (total 2 to 3 M cu. yds.) would be transported west of the Mermentau Ship Channel jetties to restore 150 to 200 acres of Gulf shoreline at Hackberry Beach.

Identification of Potential Issues
Possible landrights issues caused by dredging recently deposited sediment east of the jetties may not be an issue because the likely landowner is the State of Louisiana. Dredged material would be submerged (subtidal) sediment not recently accreted new marsh.

Preliminary Construction Costs
$10 to $15 M based on the cost to dredge 2 to 3 M cubic yards of material and transport it 1 to 2 miles to restore 175 to 200 acres of marsh and Gulf shoreline.

Project Nominator/ Fact Sheet preparer - David Richard, Stream Prop. Mgt. Co., 337-433-1057 (ext 19), drichard@streamcompany.com; Darryl Clark, USFWS, 337-291-3111, Darryl_Clark@fws.gov

R4-ME-06-Mermentau Ship Channel Sediment By-Pass Project


Mermentau Ship Channel Sediment By-Pass PPL 19 Nominee
Grand Lake
Mermentau River
Upper Mud Lake
Lower Mud Lake
Shore Restoration Area
Borrow Area
Gulf of Mexico
Project Area

R4-ME-07-Umbrella Bay Shoreline Protection

PPL19 PROJECT NOMINEE FACT SHEET
January 27, 2009

Project Name
Umbrella Bay Shoreline Protection

Coast 2050 Strategy
Coastwide Strategy – Maintenance of bay and lake shoreline integrity
Regional Strategy – Stabilization of the Grand Lake shoreline
Mapping Unit Strategy – Shoreline stabilization along Umbrella Bay in Grand Lake

Project Location
Region 4, Cameron Parish, eastern Grand Lake-Umbrella Bay shoreline

Problem
The project area experiences shoreline erosion estimated at 20 feet per year (17 to 34 ft/yr, based on the Grand-White Lakes Landbridge Protection Project - ME-19). Approximately 370 acres of marsh will be lost over the next 20 years. Shoreline breaches will increase connectivity with Grand Lake and introduce greater energy to the interior marsh.

Goals
1) Reduce or halt shoreline erosion along the eastern Grand Lake and Umbrella Bay shorelines.
2) Prevent shoreline breaches into interior ponds.

Proposed Project Features
The proposed project consists of approximately 40,000 linear feet (7.5 miles) of foreshore segmented rock breakwater placed at the 1 to 2 foot depth contour with gaps approximately every 1,000 feet and access channel dredged material placed shoreward to restore marsh.

Preliminary Project Benefits
1) The total marsh acreage benefited directly would be approximately 370 acres assuming an erosion rate of 20 ft/yr. 2) The total net acres protected/created over the 20-year project life would be approximately 370 acres. 3) Shoreline erosion along the Umbrella Bay and Grand Lake shorelines would be reduced by 100% assuming that the structure is completely effective at stopping erosion from wave energy. In addition, the rock dike could also prevent breaches that would connect interior ponds to Grand Lake. 4) The project would maintain a portion of the Grand Lake-Umbrella Bay shoreline which is a structural component of the coastal ecosystem. 5) The project would not protect any infrastructure. 6) Synergistic effects with the Grand-White Lakes Landbridge Shoreline Protection Project to the south.

Identification of Potential Issues
At this time, no significant issues have been identified for this project.

Preliminary Construction Costs
The estimated construction cost (assuming $300 per linear foot) is $12,000,000.

Preparer of Fact Sheet
Darryl Clark, U.S. Fish and Wildlife Service, 337-291-3111 Darryl_Clark@fws.gov

Umbrella Bay Shoreline Protection
Grand Lake
Umbrella Bay
Umbrella Bay Shoreline Protection
Foreshore Rock Dike
40,000 linear feet
Grand-White Lakes Landbridge Protection Project
Grand Lake Shoreline Protection Project (CWPPRA & CIAP)
Miles
0
0.5
1
2
N
W
E
S

R4-ME-08-Chenier Du Font Shoreline Protection

PPL19 PROJECT NOMINEE FACT SHEET
February 6, 2009

Project Name
Chenier du Fond Restoration and Shoreline Protection

Coast 2050 Strategy
Coastwide Strategy – Maintenance of bay and lake shoreline integrity
Regional Strategy – Stabilization of the Grand Lake shoreline
Mapping Unit Strategy – Shoreline stabilization along Grand Lake

Project Location
Region 4, Cameron Parish, eastern Grand Lake shoreline

Problem
The project area experienced the loss of Chenier du Fond, an approximate 60 acre chenier, between 1950 and 1972. The project area experiences shoreline erosion averaged at 2 feet per year (1 to 18 ft/yr, based on the USGS analysis from 1988-2006). Approximately 11 acres of marsh will be lost over the next 20 years. Shoreline breaches will increase connectivity with Grand Lake and introduce greater energy to the interior marsh.

Goals
1) Re-create Chenier du Fond.
2) Reduce or halt shoreline erosion along the southeastern Grand Lake shoreline.

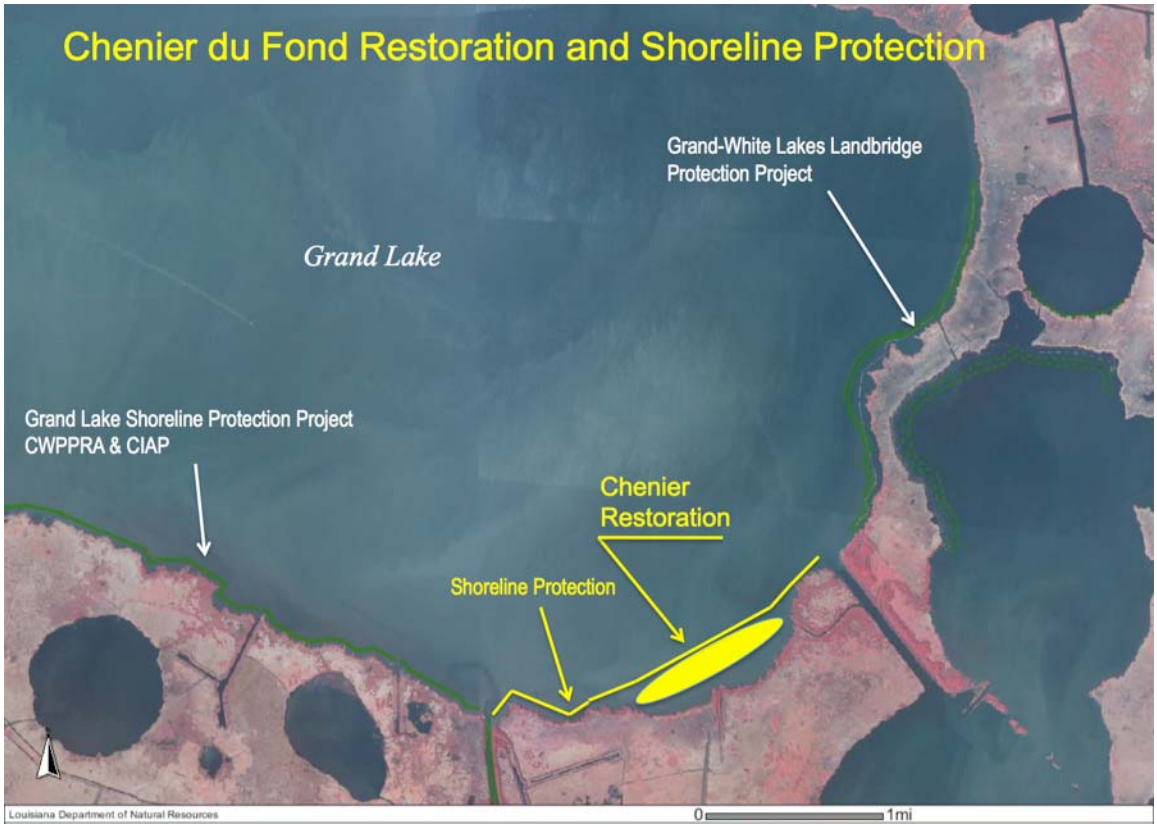
Proposed Project Features
The proposed project consists of re-creating a 60 acre chenier to a settled elevation of +4, and planted with appropriate vegetation. The proposed project also consists of approximately 17,300 linear feet of foreshore segmented rock breakwater placed at the 1 to 2 foot depth contour with gaps approximately every 1,000 feet and access channel dredged material placed shoreward to restore marsh.

Preliminary Project Benefits
1) The total marsh acreage benefited directly would be approximately 71 acres through direct creation and assuming an erosion rate of 2 ft/yr. 2) The total net acres protected/created over the 20-year project life would be approximately 71 acres. 3) Shoreline erosion along the Grand Lake shoreline would be reduced by 100% assuming that the structure is completely effective at stopping erosion from wave energy. In addition, the rock dike could also prevent breaches that would connect interior ponds to Grand Lake. 4) The project would maintain a portion of the Grand Lake shoreline, which is a structural component of the coastal ecosystem. 5) The project would not protect any infrastructure. 6) Synergistic effects with the Grand-White Lakes Landbridge Shoreline Protection Project to the north.

Identification of Potential Issues
At this time, no significant issues have been identified for this project.

Preliminary Construction Costs
The estimated construction cost for the chenier is $4,800,000, plus dike (assuming $300 per linear foot for foreshore dike) is $5,200,000, for a total of $10,000,000.

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


Chenier du Fond Restoration and Shoreline Protection
Grand-White Lakes Landbridge
Protection Project
Grand Lake
Grand Lake Shoreline Protection Project
CWPPRA & CIAP
Chenier
Restoration
Shoreline Protection
Louisiana Department of Natural Resources
0
1mi

Chenier du Fond Restoration and Shoreline Protection
Grand-White Lakes Landbridge
Protection Project
Grand Lake
Grand Lake Shoreline Protection Project
CWPPRA & CIAP
Chenier
Restoration
Shoreline Protection
Louisiana Department of Natural Resources
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R4-ME-09-North Grand Lake Shoreline Protection

PPL19 PROJECT NOMINEE FACT SHEET
February 2, 2009

Project Name
North Grand Lake Shoreline Protection

Coast 2050 Strategy
Coastwide Strategy – Maintenance of bay and lake shoreline integrity
Regional Strategy – Prevent the Coalescence of Grand Lake and the GIWW, Stabilization of the Grand Lake Shoreline
Mapping Unit Strategy – Shoreline stabilization along North Grand Lake

Project Location - Region 4, Cameron Parish, Northeastern Grand Lake

Problem
The north Grand Lake project area experiences shoreline erosion possibly as high as 10 feet per year. Approximately 184 acres of marsh could be lost over the next 20 years. Increased shoreline breaches will increase the connectivity with Grand Lake and the GIWW which causes increased GIWW salinities.

Goals
1) Reduce or halt shoreline erosion along the northeastern portion of Grand Lake.
2) Prevent shoreline breaches into the GIWW.
3) Reduce GIWW salinities.

Proposed Project Features
The proposed project consists of approximately 40,000 linear feet (7.5 miles) of foreshore segmented rock breakwater placed at the 1 to 2 foot depth contour with gaps approximately every 1,000 feet and access channel dredged material placed shoreward to restore marsh.

Preliminary Project Benefits
1) The total marsh acreage benefited directly would be approximately 184 acres assuming an erosion rate of 20 ft/yr. 2) The total net acres protected/created over the 20-year project life would be approximately 184 acres. 3) Shoreline erosion along the north Grand Lake shoreline would be reduced by 100% assuming that the structure is completely effective at stopping erosion from wave energy. The rock dike could also prevent breaches that would connect Grand Lake to the GIWW. 4) The project would maintain the northern portion of the Grand Lake shoreline which is a structural component of the coastal ecosystem. 5) The project would not protect any infrastructure. 6) Synergistic effects with the Grand-White Lakes Landbridge Shoreline Protection Project to the south.

Identification of Potential Issues
At this time, no significant issues have been identified for this project.

Preliminary Construction Costs
The estimated construction cost (assuming $300 per linear foot) is $12,000,000.

Preparer of Fact Sheet
Darryl Clark, U.S. Fish and Wildlife Service, 337-291-3111 Darryl_Clark@fws.gov

North Grand Lake Shoreline Protection PPL 19 Nominee
GIWW
Shore Restoration Project Area
Lake Misere
Grand Lake
Mermentau River