

Coastal Wetlands Planning Protection & Restoration Act

31st Priority Project List



Region 2

Regional Planning Team Meeting

Lead:
Sarah Bradley, USACE

February 4, 2021

CWPPRA

Announcements

- PPL 31 RPT meetings to accept project nominees:
 - Region IV, Feb. 2, 2021, 10:00 am
 - Region III, Feb. 3, 2021, 9:30 am
 - Region II, Feb.4, 2021, 10:00 am
 - Region I, immediately following Region II



Region 2 Parishes

- Eligible parishes for basins in Region 2 include:
- **Barataria Basin**
 - **Plaquemines Parish**
 - **Jefferson Parish**
 - **Orleans Parish**
 - **Ascension Parish**
 - **Assumption Parish**
 - **St. James Parish**
 - **St. Charles Parish**
 - **Lafourche Parish**
 - **St. John the Baptist Parish**
- **Breton Sound Basin**
 - **Plaquemines Parish**
 - **St. Bernard Parish**



RPT Meetings

- Project proposals should be consistent with the 2017 State Master Plan.
- A project can only be nominated in one basin except for coastwide projects
- Proposals that cross multiple basins shall be nominated in one basin only, based on the majority area of project influence.
- If similar projects are proposed within the same area:
 - RPT Lead will call for a break
 - RPT representatives will then participate in a “breakout session” via WebEx to determine the path forward



RPT Meetings

- All proposals submitted in advance will go in the order indicated on the agenda.
- A request for all other proposals will occur after advance submissions.
- Limit project proposals to 5 minutes.
- Public comments on project proposals will be accepted verbally during the RPT meetings and in writing by February 18, 2021.
- Limit comments/questions during meeting to PPL 31 subject proposals and processes.



Coastwide Projects

- Proposes a proven technique applicable across the coast (e.g. vegetative planting)
- Nominated at any RPT meeting
- Engineering/Environmental Workgroups will validate that coastwide projects fit CWPPRA Standard Operating Procedures criteria
- All coastal parishes & agencies will vote on selection of one coastwide nominee



Demonstration Projects

- Demonstrates a coastal wetlands restoration technique or material that can be transferred to other areas of the coastal zone
- Engineering/Environmental Workgroups will validate that demos fit CWPPRA Standard Operating Procedures criteria
- All coastal parishes & agencies will vote on selection of up to 6 demos.
- Previous demo candidates must be ***re-nominated*** for PPL 31.



Coastwide Electronic Vote (**Feb. 23rd**) to select:

Projects per Basin

(Determined by loss rates, the highest loss rates have the most projects)

- 4 Barataria
- 4 Terrebonne
- 3 Breton Sound
- 3 Pontchartrain
- 2 Mermentau
- 2 Calcasieu/Sabine
- 2 Teche/Vermilion
- 1 Atchafalaya
- 1 Coastwide
- 22 Total

& up to 6 demos

PPL 31 Timeline

Coastwide Electronic Vote
(23 Feb)

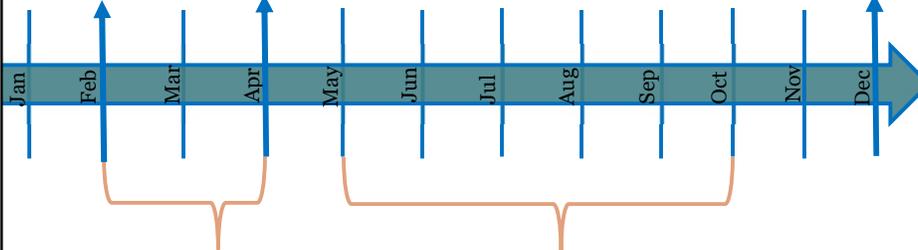
- 21 Basin
- 1 coastwide
- Up to 6 demos

April Technical Committee Mtg

- 10 candidates
- Up to 3 demos

December Technical Committee Mtg

- Recommend up to 4 projects for Phase 1 funding



March – April 2021

- Agencies assigned to projects
- Fact sheets developed
- Workgroup review
- Workgroups may recommend that no demos move forward

May – October 2021

- Site visits
- Workgroup evaluations



Written Comments

- Send written comments on projects & demos proposed today to the CWPPRA program manager
- **Deadline: February 18, 2021**

Sarah Bradley
U.S. Army Corps of Engineers
CEMVN-PM-R, RM 331
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New Orleans, LA 70118

Email: Sarah.C.Bradley@usace.army.mil

(this information has been provided via CWPPRA Newsflash and posted on the USACE CWPPRA webpage)

For more info, please visit lacoast.gov or contact Alice Kerl at Alice.P.Kerl@usace.army.mil



Region 2

Barataria

| | | |
|-----------|---|-------|
| R2, BA-01 | Old HWY 1 | USACE |
| R2, BA-02 | Bayou Dupont South MC | USACE |
| R2, BA-03 | Bayou eau Noire MC/RR | USACE |
| R2, BA-04 | Three Bayou Bay MC | EPA |
| R2, BA-05 | Bayou Chevreuil HR &VP | EPA |
| R2, BA-06 | Spanish Pass-CWPPRA Increment | NMFS |
| R2, BA-07 | Grand Pierre Barrier Island Restoration Project | NMFS |
| R2, BA-08 | NE TurtleBay | NRCS |
| R2, BA-09 | East Bayou Lafourche | FWS |
| R2, BA-10 | Fifi Island | FWS |
| R2, BA-11 | Grand Bayou Ridge and MC Incr 2 | FWS |
| R2, BA-12 | Southeast Golden Meadow | FWS |

Breton Sound

| | | |
|-----------|------------------------------------|-------|
| R2, BS-01 | Will's Point MC | USACE |
| R2, BS-02 | Bayou Terre aux Boeufs North RR/MC | EPA |
| R2, BS-03 | Davant MC Increment 1 | EPA |
| R2, BS-04 | Orange Bayou Marsh Creation | NMFS |
| R2, BS-05 | Horsepower Canal | NRCS |
| R2, BS-06 | TerreAuxBoeufs Ridge MC | NRCS |
| R2, BS-07 | Bohemia Outfall | NRCS |
| R2, BS-08 | Bayou Grosbec MC | NMFS |
| R2, BS-09 | Spanish Lake Shoreline Restoration | FWS |
| R2, BS-10 | Spanish Lake-Grand Lake MC | FWS |

PPL 31 PROJECT FACT SHEET
February 2021

Project Name

Old Highway 1 Marsh Creation

2017 Master Plan Strategy

03a.MC.07 Belle Pass-Golden Meadow Marsh Creation: Creation of approximately 23,200 acres of marsh from Belle Pass to Golden Meadow to create new wetland habitat and restore degraded marsh.

Project Location

The project is located within Lafourche Parish, Barataria Basin (Region 2) located approximately 5 miles south of Leesville, Louisiana. It is located west of Old Highway 1 and east of Bayou Lafourche.

Problem

The landscape in this area is ever-changing and consistently impacted by subsidence, sediment deprivation, sea level rise, shoreline erosion, and manmade development which has resulted in a net loss of 277,000 acres of wetlands in Barataria Basin since 1932 (USGS 2017). Additionally, Barataria basin had the highest land loss rate in the State from 2004 to 1985 (USGS), and the area along Old Hwy 1 has continually converted to open water. With no further coastal protection or restoration actions, critical infrastructure in the area will likely see increasing and adverse impacts during future storm events, therefore negatively affecting coastal resiliency of this area.

Proposed Solution

Approximately 2.1 million CY of material would be mined from Little Lake. It would be used to restore a total of 377 acres of marsh adjacent to Old Highway 1. Containment dikes would be constructed around the entire perimeter, however existing spoil banks and ridges will be considered as well for containment of dredge material.

This project will create marsh in current open water areas that were historically marsh, to provide additional protection to the Hwy, Port Fourchon and the neighboring communities, and reestablish the natural habitat for a wide range of wildlife such as migratory birds, waterfowl, fish, and shellfish.

Considerations

The proposed project has potential utility/pipeline considerations.

Preliminary Construction Costs

The estimated construction cost including 25% contingency is \$20M – \$25M

Preparers of Fact Sheet

Danielle Keller, USACE, 504-862-1744 danielle.a.keller@usace.army.mil



**US Army Corps
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New Orleans District



Old Highway 1 Marsh Creation

 Marsh Creation / Nourishment



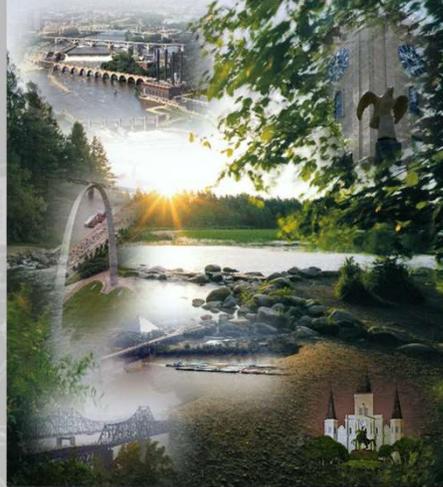
Service Layer Credits: Esri, HERE, Garmin, (c) OpenStreetMap contributors, and the GIS user community

Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

Map Date: December 30, 2020

OLD HIGHWAY 1 MARSH CREATION

February 4, 2021
Region 2
Barataria Basin



US Army Corps
of Engineers

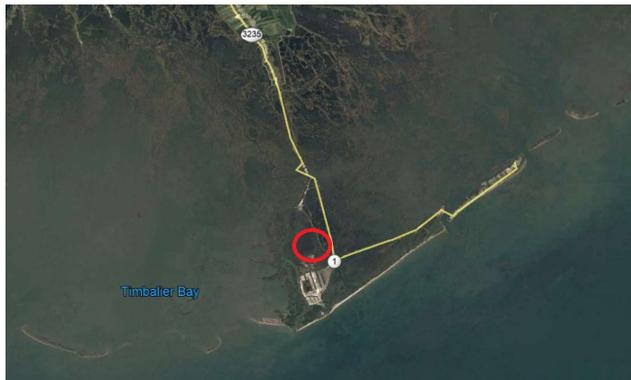
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PROJECT LOCATION



82



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STATE MASTER PLAN CONSISTENCY



83

03a.MC.07 Belle Pass-Golden Meadow Marsh Creation: Creation of approximately 23,200 acres of marsh from Belle Pass to Golden Meadow to create new wetland habitat and restore degraded marsh.



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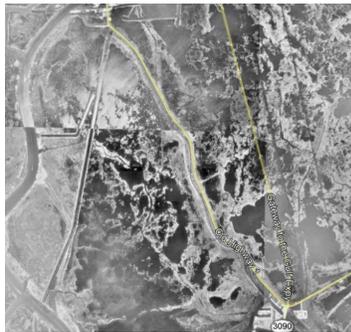
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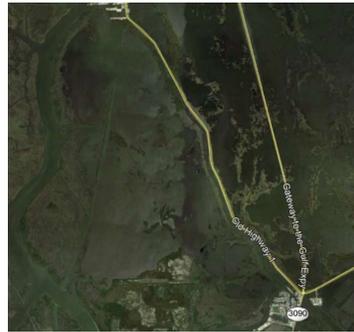
HISTORIC LAND LOSS



84



1989



2019



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PROJECT PROPOSAL



85

- Acres: 377
- 208 Marsh Creation
 - 161 Marsh Nourishment

- Estimated Cost: \$20-\$25M
- 25% contingency

Borrow Source: Little Lake



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CURRENT SIGNIFICANCE AND NEED



86



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PPL 31 PROJECT FACT SHEET
February 2021

Project Name

Bayou Dupont South Marsh Creation

2017 Master Plan Strategy

002.MC.05e Large-Scale Barataria Marsh Creation-Component E: Creation of approximately 12,900 acres of marsh in the Barataria Basin south of the Pen to the Barataria Landbridge to create new wetland habitat and restore degraded marsh.

Project Location

The project is located within Jefferson Parish, Barataria Basin (Region 2) approximately 12 miles southeast of Lafitte, Louisiana, near the northeast shore of Round Lake. It is located about 3 miles southwest of LA Highway 23, 8 miles southeast of Lafitte, and over a mile north of Round Lake.

Problem

Historical wetlands loss (after 1978) in this area has largely been caused by erosional processes, and partially by subsidence (U.S. Geological Survey 2009). This area has also been faced with years of oil and gas usage, which have fragmented and deteriorated existing wetlands. With no further coastal protection or restoration actions, the parish could lose an additional 42% of the parish land area (Coastal Master Plan 2017). Likewise, with no further action, the parish faces severely increased future storm surge based flood risk in areas outside the hurricane protection system. Over the next 50 years (under the medium environmental scenario), 100-year flood depths increase to 15 feet and above across the southern portion of the parish. Furthermore, the continuous loss of wetlands could decrease biodiversity and productivity since this habitat serves as critical breeding, nursery, foraging, and overwintering habitat for economically important species.

Proposed Solution

Approximately 3.7 million CY of material would be mined from Round Lake. It would be used to restore 470 acres of marsh adjacent to Bayou Dupont. Containment dikes would be constructed around the entire perimeter, however existing spoil banks and ridges will be considered as well for containment of river material. This project will be synergistic with Bayou Dupont Sediment Delivery - Marsh Creation and Terracing #3 (BA-164, est. 2013), Bayou Dupont Ridge Creation and Marsh Restoration (BA-48, est. 2007), and Bayou Dupont Sediment Delivery System (BA-39, est. 2003). This project will create marsh in current open water areas that were historically marsh to provide essential estuarine habitat, reduce the effects of coastal storm surge, and provide better commercial and recreational fishing grounds for local communities.

Considerations

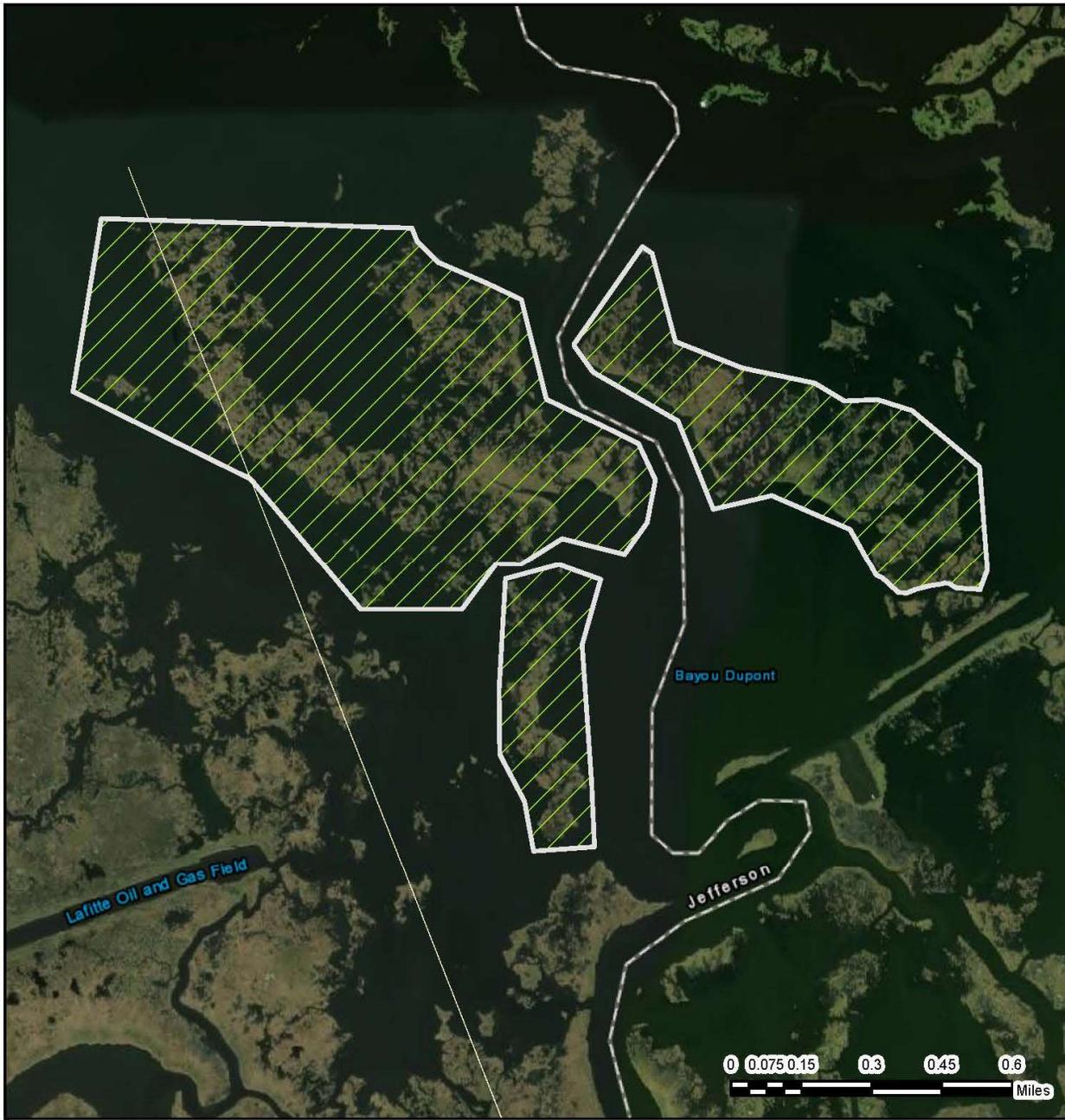
Oil and gas infrastructure (i.e. pipelines), T&E and protected species.

Preliminary Construction Costs

The estimated construction cost including 25% contingency is \$30M – \$35M

Preparers of Fact Sheet

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**US Army Corps
of Engineers**
New Orleans District



Bayou Dupont South Marsh Creation

 Marsh creation / nourishment

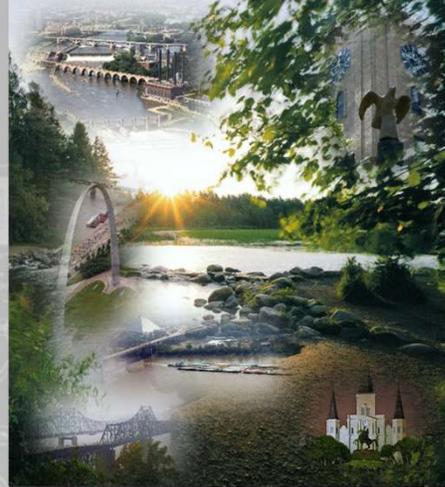


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Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

Map Date: December 30, 2020

BAYOU DUPONT SOUTH MARSH CREATION

February 4, 2021
Region 2
Barataria Basin



US Army Corps
of Engineers

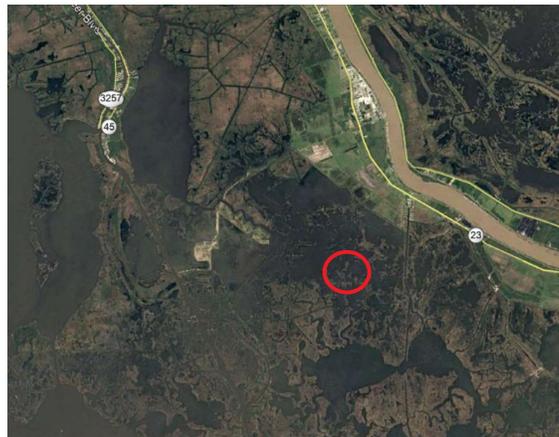
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PROJECT LOCATION



89



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MASTER PLAN CONSISTENCY

90



002.MC.05e Large-Scale Barataria Marsh Creation-Component E: Creation of approximately 12,900 acres of marsh in the Barataria Basin south of the Pen to the Barataria Landbridge to create new wetland habitat and restore degraded marsh.

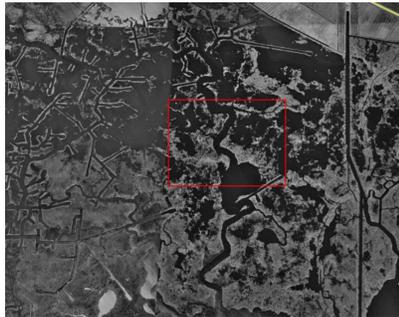


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HISTORIC LAND LOSS

91



199
8



201
6



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PROJECT PROPOSAL

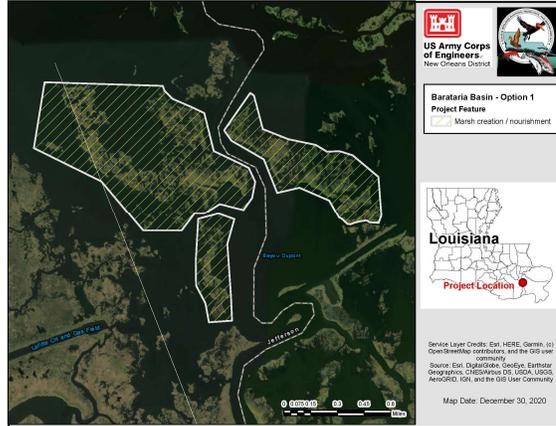
92



- Total Acres: 481
- 243 acres creation
 - 238 acres nourishment

- Estimated Cost: \$30M – \$35M
- 25% contingency

Borrow Source:
Round Lake



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CURRENT SIGNIFICANCE AND NEED

93



- Jefferson Parish could lose additional 42% of land
- Biodiversity and productivity
- Area of Recreational Importance
- Migratory bird stopover habitat
- Habitat value



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PPL31 PROJECT FACT SHEET
February 4, 2021

Project Name

Bayou eau Noire Ridge Restoration and Marsh Creation

Master Plan Strategy

Bayou Eau Noire Ridge Restoration (2017 Master Plan 002.RC.102): Restoration of approximately 34,800 feet of historic ridge to an elevation of 5 feet NAVD88 to provide coastal upland habitat, restore natural hydrology, and provide wave and storm surge attenuation along Bayou Eau Noire.

Project Location

Region 2, Barataria Basin, Plaquemines Parish

Problem

The project area is a broken marsh area immediately adjacent to the west bank of the Mississippi River levee just east of Bay de la Chenier. The historic ridge has degraded over time and marshes have become fragmented and converted to open water due to ongoing subsidence and storm events. In addition, oil and gas canals disrupted hydrology and further degraded the marsh. The land loss rate for the area is -0.95% per year.

Proposed Solution

The proposed project would restore approximately 25,862 linear feet of historic ridge and create/nourish approximately 428 acres of marsh using sediment dredged from the Mississippi River as additional support for the ridge feature.

Project Benefits

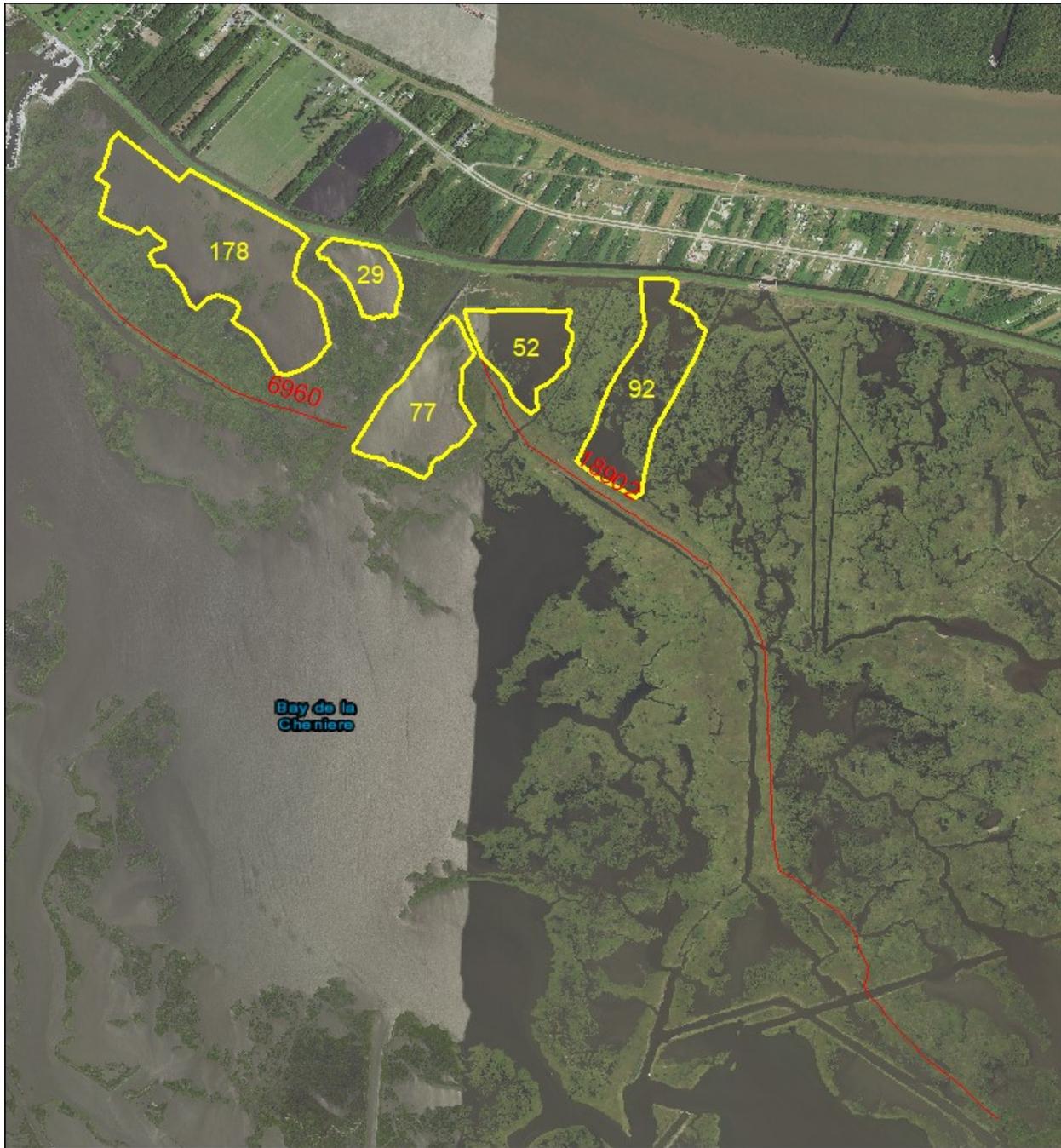
Restore 25,862 linear feet of historic ridge and create/nourish approximately 428 acres (create 240 acres and nourish 188 acres) of marsh.

Project Costs

The estimated construction cost including 25% contingency is \$25M - \$30M.

Preparer(s) of Fact Sheet:

Sharon L. Osowski, Ph.D.; EPA; (214) 665-7506; osowski.sharon@epa.gov
Brad Crawford, P. E., EPA; (214) 665-7255; crawford.brad@epa.gov



Bayou eau Noire Ridge Restoration & Marsh Creation



Basemap: 2019 NAIP DOQQ Plaquemines Parish
 Produced by: EPA Region 6, Dallas, TX



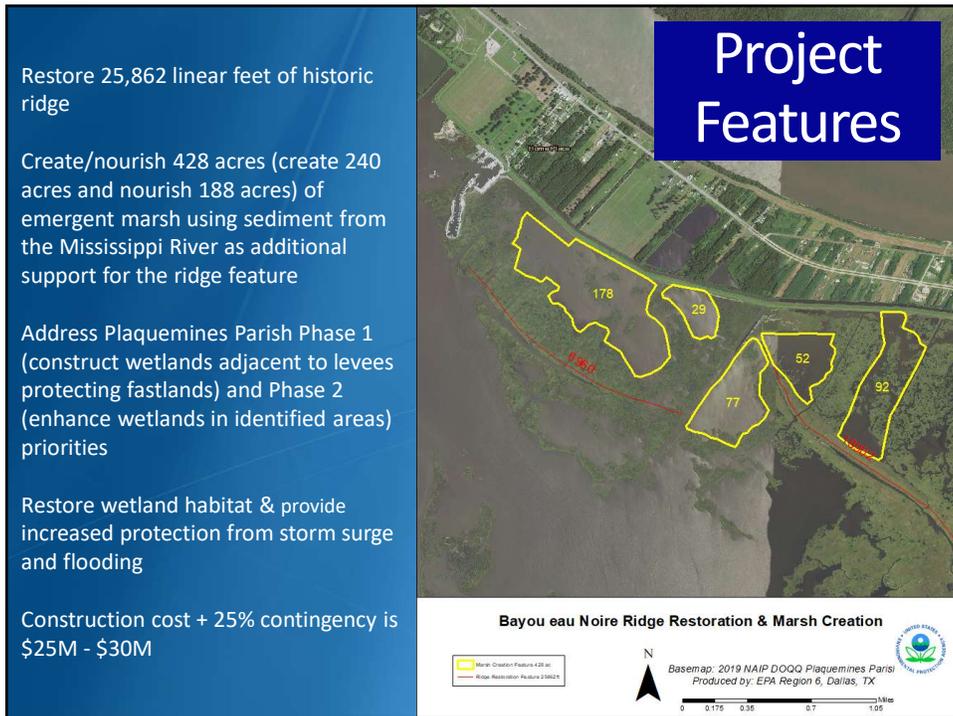
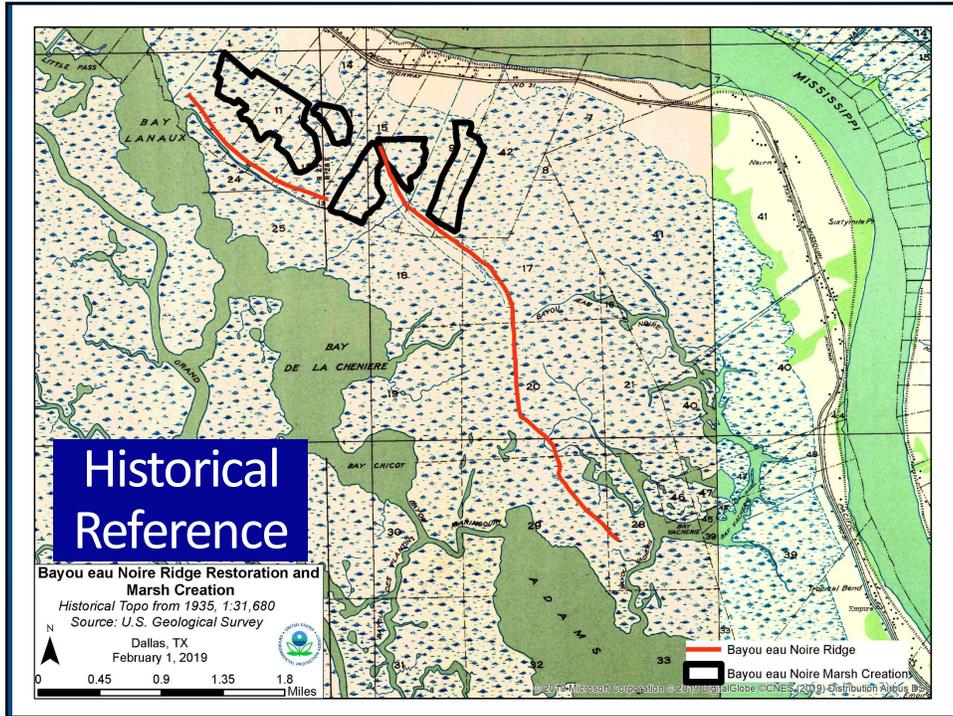
2017 Master Plan Consistency & Project Synergy

Marsh cells
support the
restored ridge
feature



Problems

- Historic ridge feature has degraded over time
- Marsh has degraded and converted to open water over time due to multiple stressors
- Subsidence & storm events
- Plaquemines Parish could lose an additional 55% of its land area over the next 50 years & faces extensive wetland loss & severe storm surge flood risk (2017 MP).



PPL31 PROJECT FACT SHEET
February 4, 2021

Project Name

Three Bayou Bay Marsh Creation

Master Plan Strategy

Lower Barataria Marsh Creation-Component A (2017 Master Plan 002.MC.04a): Creation of approximately 7,400 acres of marsh in Jefferson Parish on the east shore of Little Lake and Turtle Bay to create new wetland habitat and restore degraded marsh.

Project Location

Region 2, Barataria Basin, Jefferson Parish

Problem

The project area is a semi-open water body near Three Bayou Bay. Wetland loss has occurred in the project area and are not able to maintain viable elevations due to ongoing subsidence. In addition, oil and gas canals disrupted hydrology and facilitated saltwater intrusion further degrading the marsh.

Proposed Solution

The proposed project would create/nourish approximately 638 acres (382 acres created, and 256 acres nourished) of marsh using sediment dredged from the Little Lake. The dredged material would be fully contained. Containment dikes would be degraded as necessary to reestablish hydrologic connectivity with adjacent wetlands. The created marsh would be planted.

Project Benefits

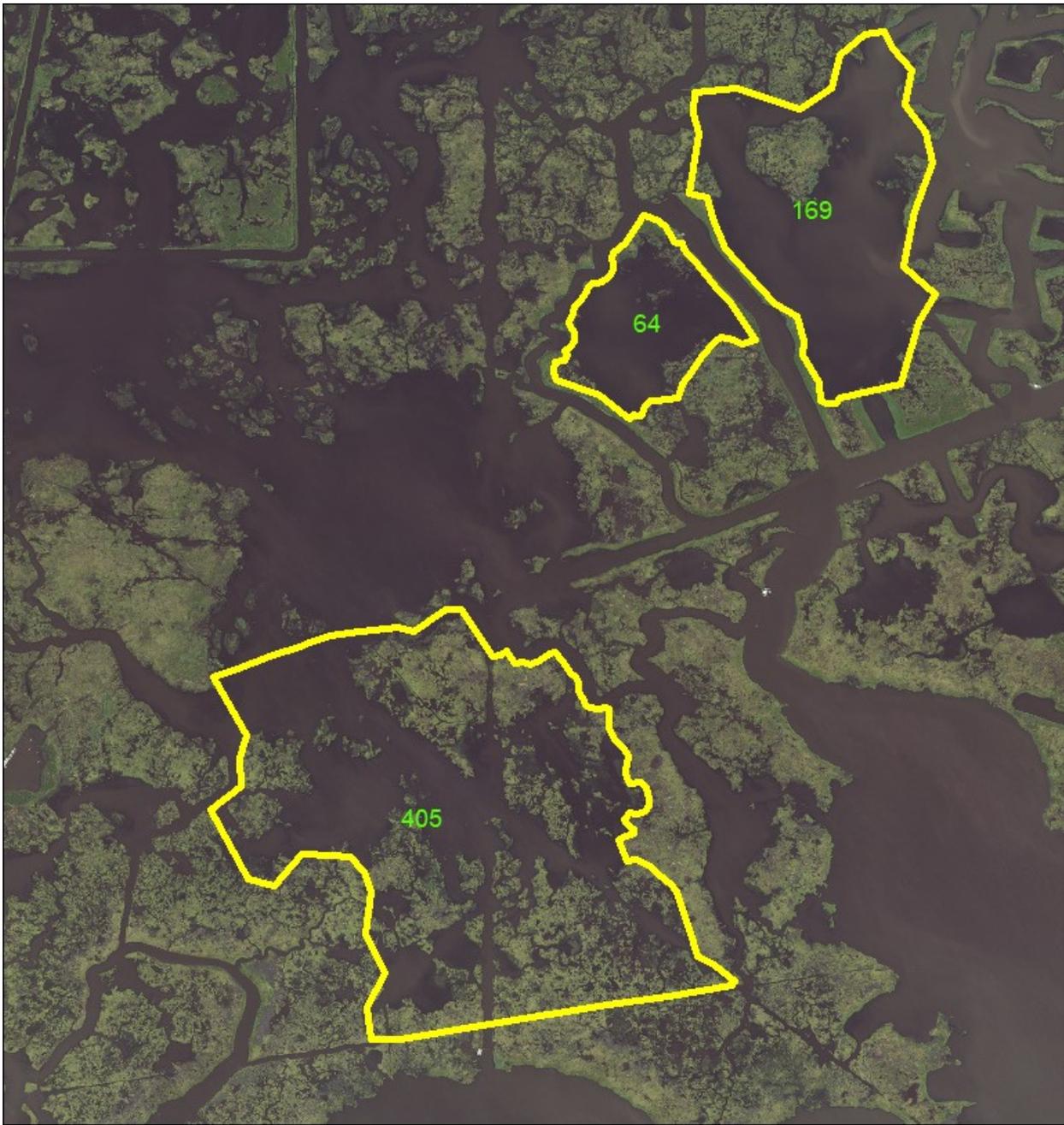
Create/nourish approximately 638 acres of marsh using sediment dredged from the Little Lake.

Project Costs

The estimated construction cost including 25% contingency is \$30M - \$35M.

Preparer(s) of Fact Sheet:

Sharon L. Osowski, Ph.D.; EPA; (214) 665-7506; osowski.sharon@epa.gov



Three Bayou Bay Marsh Creation



 Three Bayou Bay Marsh Creation



Basemap: 2019 NAIP DOQQ Jefferson Parish
Produced by: EPA Region 6, Dallas, TX



2017 Master Plan Consistency

- 002.MC.04a Lower Barataria Marsh Creation-Component A

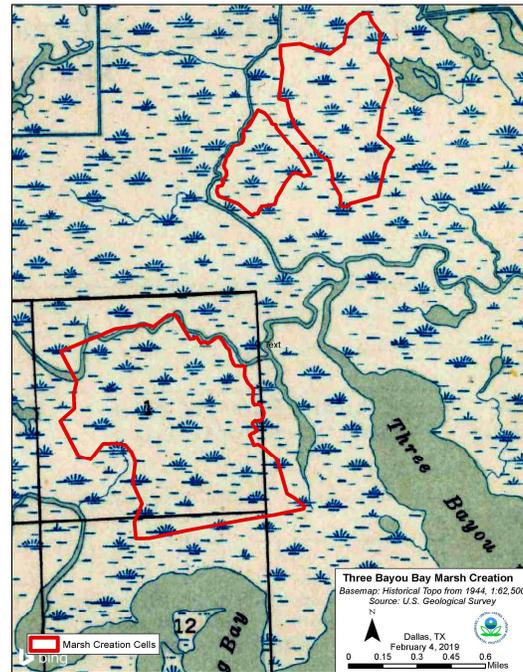


Problems

- Subsidence
- Oil & gas canals disrupted hydrology
- Saltwater intrusion
- Decreased sediment input
- Jefferson Parish could lose an additional 42% of its land area over the next 50 years and face severe storm surge flood risk (2017 MP).

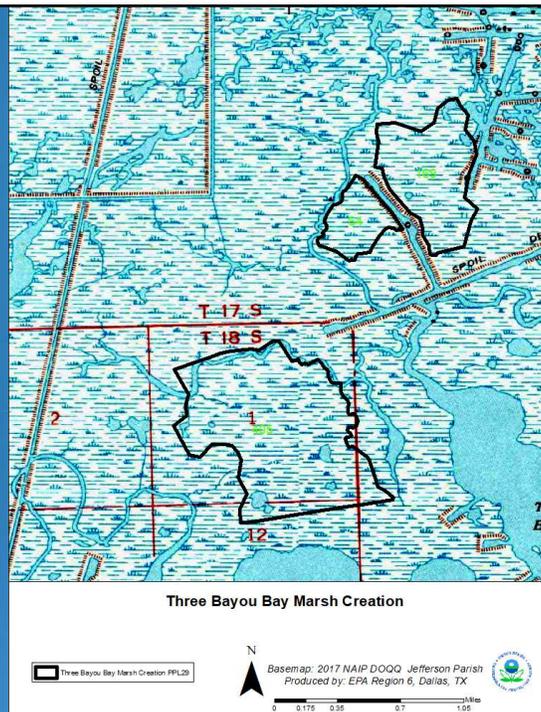
Historical Reference

- Historical topo from 1944
- Predominantly solid marsh



Historical Reference

- Historical topo from 1962
- Predominantly solid marsh



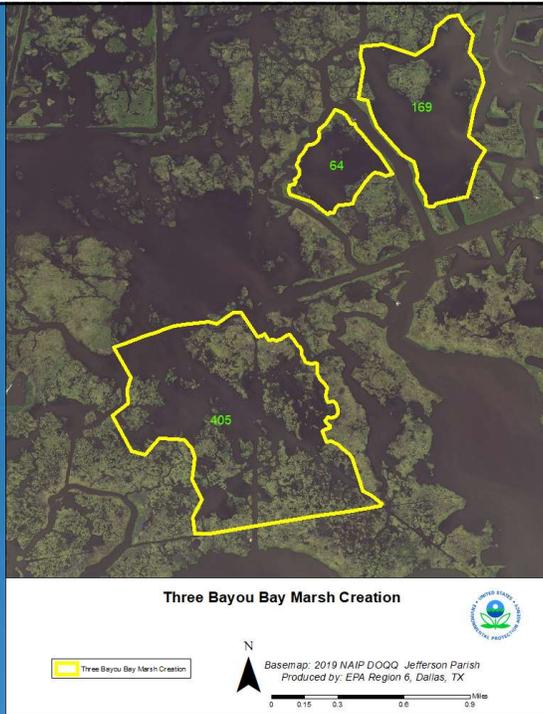
Project Features

Create/nourish 638 acres of emergent marsh with sediment from the Little Lake

Restore degraded wetland habitat

Provide increased protection from storm surge and flooding

Construction plus 25% contingency = \$30M-35M



PPL31 PROJECT FACT SHEET

Project Name:

Bayou Chevreuil Hydrologic Restoration and Vegetative Planting

Project Location:

Region 2, Barataria Basin, St. John the Baptist Parish, Bayou Chevreuil, Lac Des Allemands Swamp

Problem:

The Lac Des Allemands River Basin Initiative identified the following problems within the watershed: drainage impairments, water quality impairments, impoundment, subsidence, and inadequate accretion of sediment and organic matter. These problems were largely caused by human activities that severed the area from the natural flow of water. The Edward Wisner Donation, an organization that owns and manages land in the St. John the Baptist Parish portion of the Lac Des Allemands Basin, identified the area as under threat from erosion, subsidence and flooding in its 2019 Coastal Restoration Master Plan.

Goals:

The goals of this project are to 1) restore natural hydrology on Bayou Chevreuil 2) reduce impoundment 3) increase swamp longevity and productivity 4) protect neighboring developed areas from flooding hazards through hydrologic management.

Proposed Solution:

The proposed project involves 1) construction of gaps on the northern bank of Bayou Chevreuil 2) creation of conveyance channels that originate from the gaps and extend inward into the swamp 3) construction of disposal berms that allow hydrologic exchange between conveyance channels and swamp 4) vegetative plantings of cypress and tupelo saplings.

Project Benefits:

The proposed project will benefit approximately 3,000 acres of the Lac Des Allemands Swamp.

Project Estimated Costs: \$0 - \$5M

Preparer of Fact Sheet:

Devin A. Foil

Coastal & Water Management Division Lead

St. John the Baptist Parish Government

d.foil@stjohn-la.gov

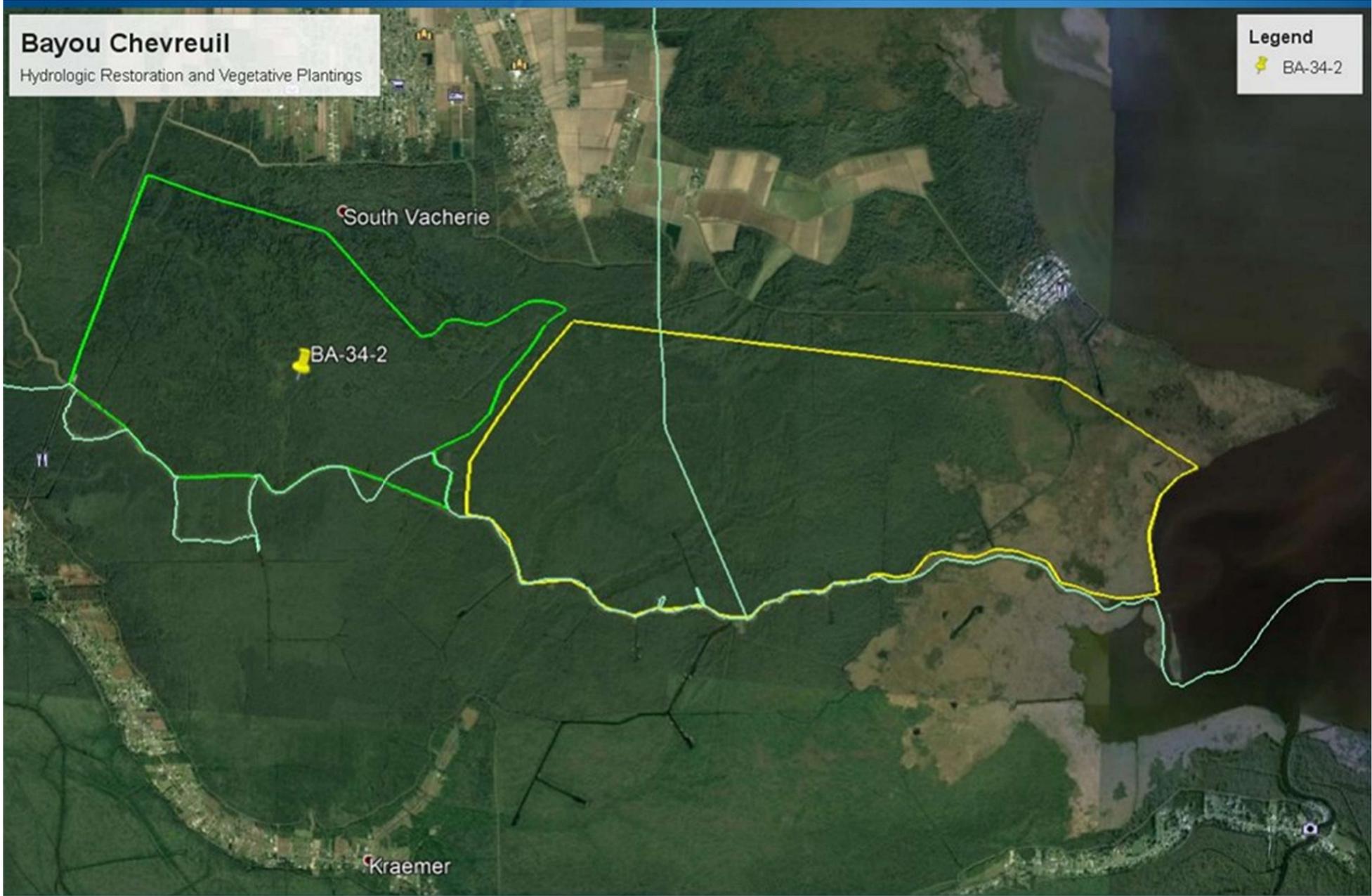
(985) 359-1148

Bayou Chevreuil

Hydrologic Restoration and Vegetative Plantings

Legend

 BA-34-2

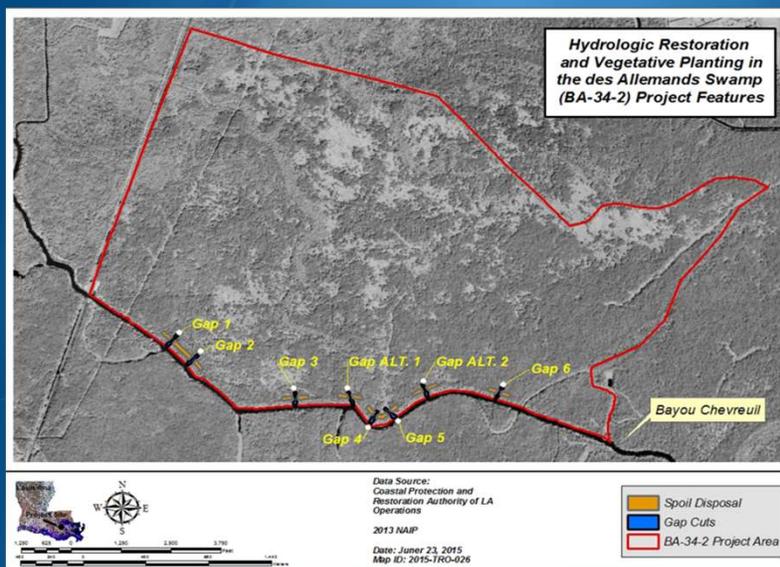


**Bayou Chevreuil Hydrologic Restoration and Vegetative Planting
PPL31**

Problems

- Drainage and water quality impairments resulting in marsh loss and decline of cypress forest
- Impoundment
- Subsidence
- Inadequate accretion
- Roads, drainage canals and spoil banks contribute to the problem

Lac des Allemands HR (BA-34-2)



Construction Activities



Before & After Gap Construction

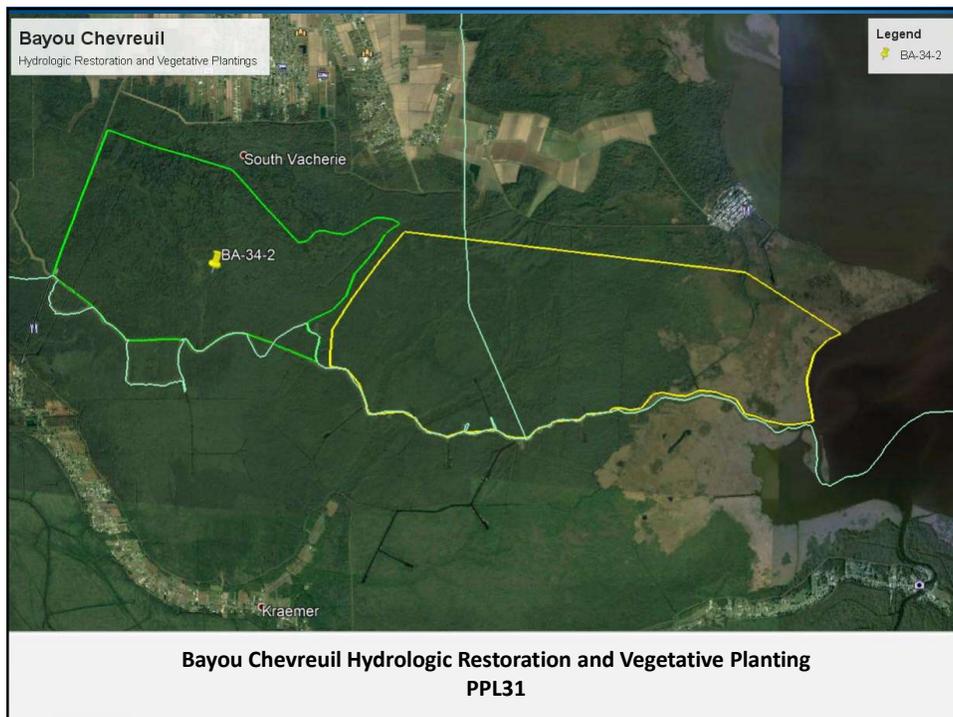


One Year Post Construction



Results/Summary

- Total construction costs less than \$525K
- Reconnected swamp hydrology to bayou
- Southeastern Louisiana University research underway/ongoing to evaluate effectiveness



Goals

- Restore natural hydrology of Bayou Chevreuil in order to counteract impoundment caused by levees.
- Hydrologic management protects neighboring developed areas from flooding hazards while optimizing aquatic production and swamp longevity.

Features:

- This project mimics a hydrologic restoration project BA-34-2 on Bayou Chevreuil in St. James Parish, roughly 3 miles away from the project area.
- Creation of gaps will serve as starting point for a conveyance channel that will extend into the swamp to increase hydrologic exchange.
- Cypress and tupelo saplings will be planted once hydrologic connectivity and environmental conditions have been restored.
- Cost + 25% = \$0 - \$5M

PPL31 PROJECT NOMINEE FACT SHEET
February 4th, 2021

Project Name

Spanish Pass – CWPPRA Increment

Project Location

Region 2, Barataria Basin, Plaquemines Parish, west of Venice

Problem

Historically, this area was nourished by freshwater delivered by the Mississippi River until the creation of the levees along the lower river. The major cause of wetland loss has been from storm activity (i.e. Hurricane Betsy and Katrina), causing both storm-induced scouring and salt water intrusion. Without some other restoration, this region will continue to see the coalescence of water bodies such as Yellow Cotton Bay. The wetland loss rate in the area is -0.93%/ year based on CRMS0163 data from 2007 to 2020.

Goals

The project goals are to create and/or nourish 145 acres of brackish marsh.

Proposed Solution

Sediments from the Mississippi River will be hydraulically dredged and pumped via pipeline to create/nourish 145 acres of marsh. The marsh creation platform will be constructed without the use of containment dikes. The acreage consists of the two marsh creation areas H1 and H2 (Alternatives 2 & 3) of the BA-203 Design and Bid Package. CPRA has awarded a construction contract for the BA-203 project. This PPL31 project would seek to compete directly for Phase 2 construction funds in December of 2021. All project sponsor obligations for a Phase 2 request will be met during the Phase 0 Candidate evaluation process.

Preliminary Project Benefits

- 1) *What is the total acreage benefited both directly and indirectly?* Approximately 145 acres would be benefited directly and indirectly. Direct benefits include 130 acres of marsh creation and 15 acres of marsh nourishment. Indirect benefits could occur to surrounding marsh and open water areas.
- 2) *How many acres of wetlands will be protected/created over the project life?* The total net acres protected/created over the project life is approximately 100-150 acres.
- 3) *What is the anticipated loss rate reduction throughout the area of direct benefits over the project life (<25%, 25-49%, 50-74% and >75%).* The anticipated interior loss rate reduction throughout the area of direct benefit 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 project would help to protect and restore habitat and sustain fisheries in the vicinity of Yellow Cotton Bay.
- 5) *What is the net impact of the project on critical and non-critical infrastructure?* The project would help complete the BA-203 Spanish Pass Ridge and Marsh Creation Project already awarded to Weeks Marine, Inc.

6) *To what extent does the project provide a synergistic effect with other approved and/or constructed restoration projects?* The project would work synergistically with three projects constructed/awaiting construction: Grand Liard Marsh and Ridge Restoration (BA-68), USACE BUDMAT Project (Tiger Pass 1 & 2), and the Spanish Pass Ridge and Marsh Creation Project (BA-203).

Considerations

Considerations for this project include pipelines/utilities.

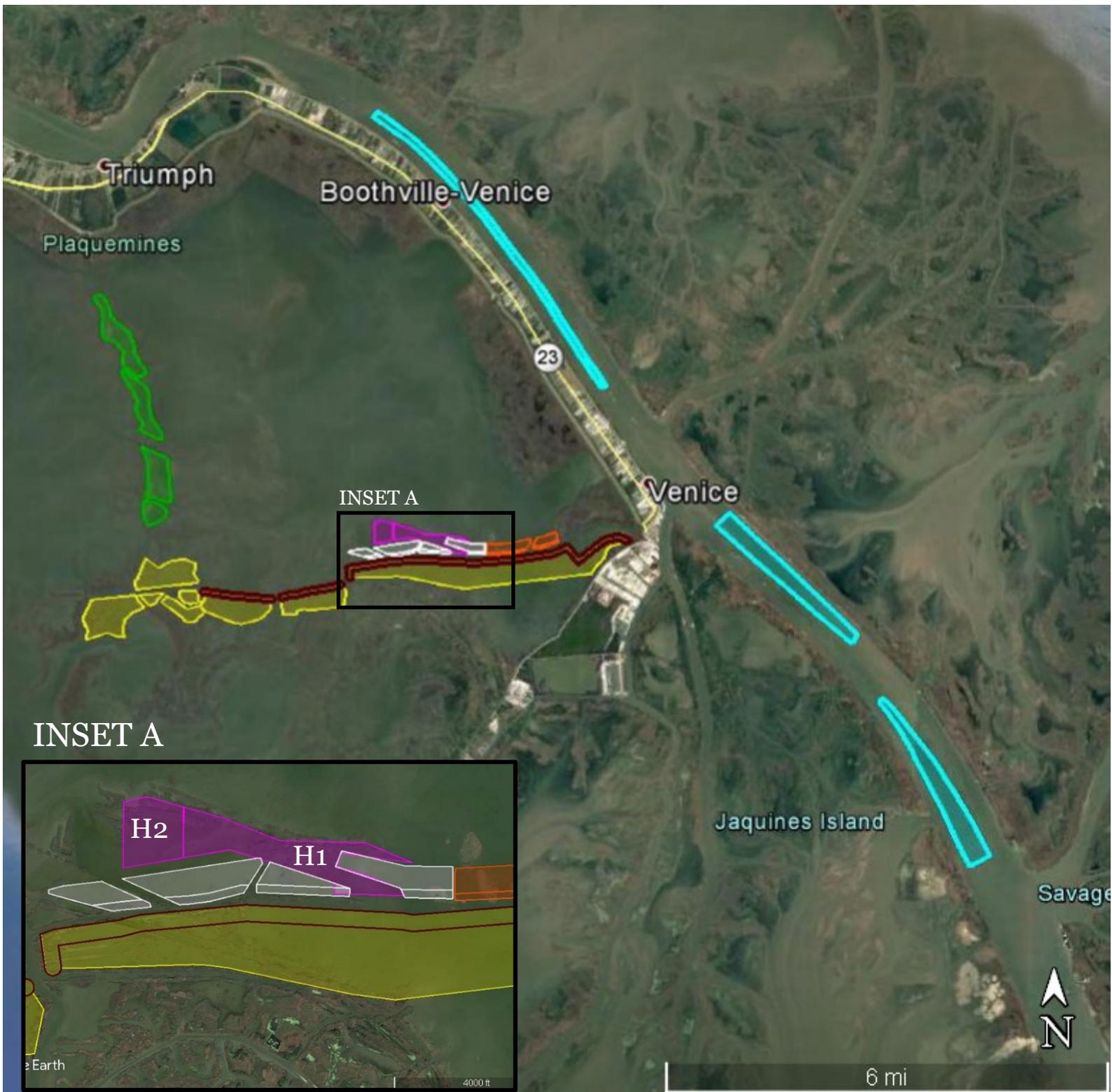
Preliminary Cost

The fully-funded cost range is \$5M - \$10M.

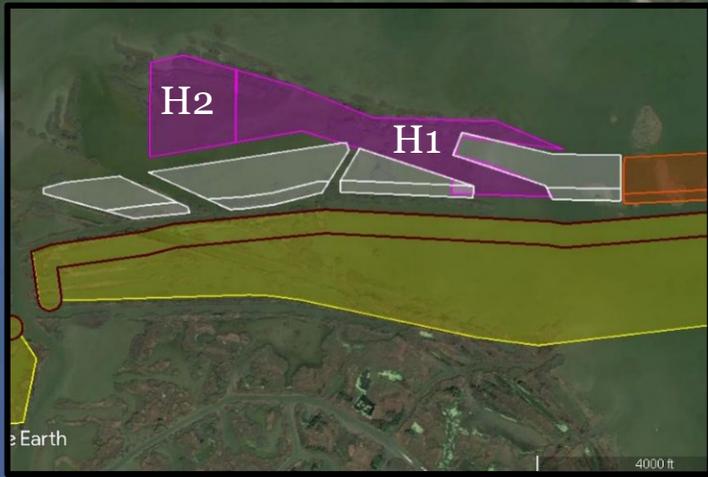
Preparer of Fact Sheet

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Jennifer Smith, NOAA, (225) 954-6654, jennifer.smith@noaa.gov



INSET A



Earth

4000 ft

6 mi



PPL31 Spanish Pass – CWPPRA Increment

Marsh Creation and Nourishment
 Add Alt 2 H1 = 95 Acres
 Add Alt 3 H2 = 50 Acres

Federal Sponsor: NOAA Fisheries
 2016 Aerial Imagery
 Map Date 01/27/2021

Legend

- PPL31 Spanish Pass - CWPPRA Increment Marsh Creation
- Borrow Areas
- NRDA Spanish Pass Marsh Creation
- NRDA Spanish Pass Ridge
- USACE BUDMAT Constructed
- USACE BUDMAT Designed
- BA-68



NOAA
FISHERIES

Spanish Pass – CWPPRA Increment



REGION 2 – Barataria Basin

Presenter: Jason Kroll, Civil Engineer, NOAA

Special thanks to:
Jenny Smith, NOAA
CPRA
LA TIG
Plaquemines Parish

PPL31 CWPPRA Regional Planning Team

Virtual Meeting
February 4, 2021

Spanish Pass – CWPPRA Increment

Project Vicinity



Focus on the Spanish Pass Alignment

Google Earth
maps Landsat / Copernicus



Project Area Degradation

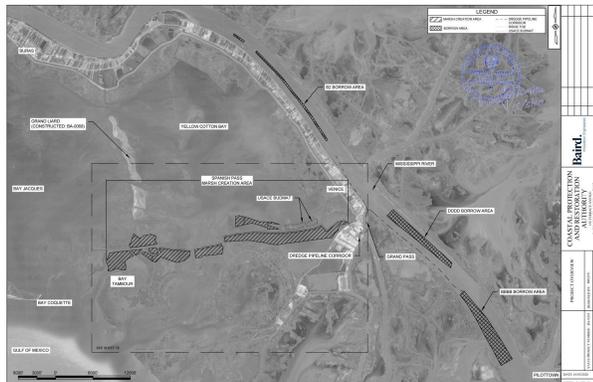


What's Going On?

Through the Deepwater Horizon (DWH) Oil Spill Natural Resources Damage Assessment (NRDA), the Louisiana Trustee Implementation Group (LA TIG) approved the design and construction of the Spanish Pass Ridge and Marsh Creation Project.

BA-203 Spanish Pass Ridge and Marsh Creation Project Construction

- Construction contract awarded to Weeks Marine, Inc. on 12/22/2020
- Funding limitations prohibited the award of Add Alts 2 & 3
- Notice to proceed expected mid-March 2021
- Construction duration over 2 years.



Proposed Project Solution

- Consistent with CPRA State Master Plan
 - Protect and restore habitat to sustain fisheries in the vicinity of Yellow Cotton Bay
 - Maintain resilient coastal ecosystems and communities within lower Plaquemines Parish
-
- Construct 145 Acres of Marsh Creation/Nourishment
 - MCAs H1 and H2 (Add Alts 2 & 3) of the BA-203 Design and Bid Package
 - Dredge material from Mississippi River
 - Utilize existing design and construction contract to implement the proposed CWPPRA increment
 - Coordinate across implementing agencies/entities for streamlined cost efficient wetland restoration
 - Supplement long term monitoring as needed

Project Map

BA-68 Nearby Restoration
 (Left) NOAA CWPPRA Project - BA-68 Grand Liard Marsh and Ridge Restoration




(Bottom) USACE Beneficial Use of Dredge Material (BUDMAT) Project



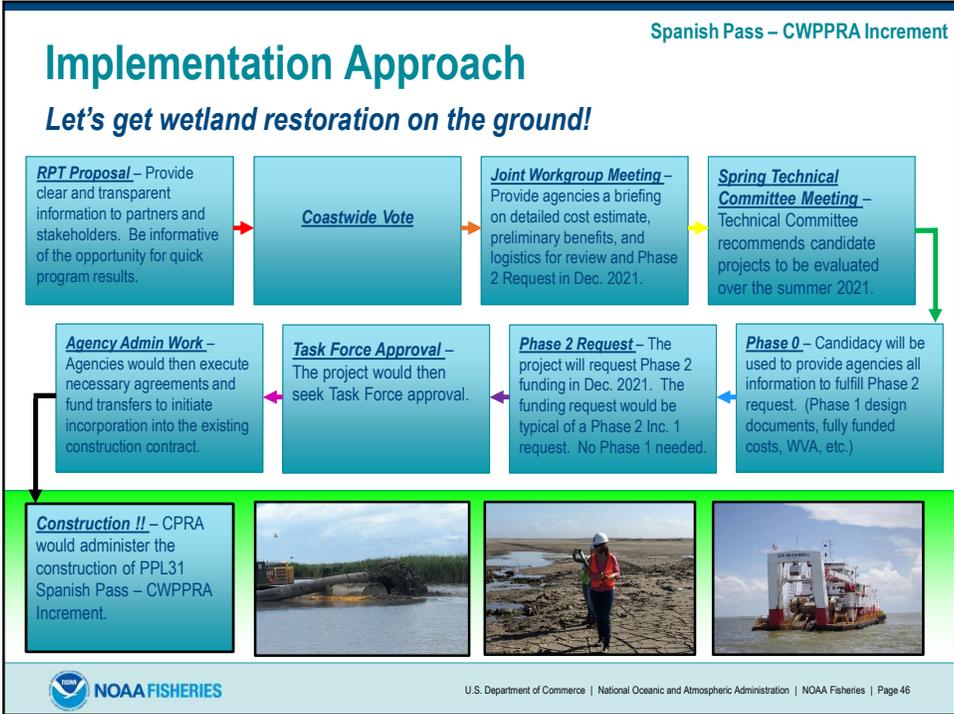

Legend

- PPL31 Spanish Pass – CWPPRA Increment
- Marsh Creation
- Borrow Areas
- NRDA Spanish Pass
- Marsh Creation
- NRDA Spanish Pass
- USACE BUDMAT
- Ridge
- USACE BUDMAT Constructed
- USACE BUDMAT Designed
- BA-68

PPL31 Spanish Pass – CWPPRA Increment

Marsh Creation and Nourishment
 Add Alt 2 H1 = 95 Acres
 Add Alt 3 H2 = 50 Acres

Federal Sponsor: NOAA Fisheries
 2016 Aerial Imagery
 Map Date 01/27/2021



Spanish Pass – CWPPRA Increment

Summary

- 145 Acres Marsh Creation/Nourishment
- Construction contract for BA-203 already awarded
- Time sensitive implementation
- Cost efficiencies with cross-program coordination and implementation.
- Construction Cost + 25% Contingency \$5M - \$10M
- Net Benefits: 100-150 acres

Synergy

- Synergy with NRDA Spanish Pass Marsh & Ridge, BA-68, USACE BUDMAT

Case History

- CWPPRA has often been flexible when unique restoration opportunities arise.
- Lake Hermitage area, Bayou Dupont area

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 **NOAA FISHERIES** U.S. Department of Commerce | National Oceanic and Atmospheric Administration | NOAA Fisheries | Page 47

PPL31 PROJECT NOMINEE FACT SHEET
February 4, 2021

Project Name

Grand Pierre Island Restoration

Louisiana's 2017 Coastal Master Plan

Barrier Island/Headland Restoration – 002.BH.04

Project Location

Region 2, Barataria Basin, Plaquemines Parish

Problem

As part of the Barataria Barrier Shoreline, Grand Pierre Island is dominated by marine processes including overwash. The island has receded rapidly and decreased in elevation. In 2020, the island sustained an approximately 600-foot wide breach as a result of Hurricane Zeta. The land loss rate is -0.38%/yr based on data from 1985 to 2016 in the Barataria Barrier Island LCA mapping subunit, whereas it is -1.21%/yr for the adjacent Barataria Barrier Shorelines mapping subunit. The 1884 to 2000 Gulf shoreline erosion rate is -50.6 ft/yr and -46.8 ft/yr from 1988 to 2000.

Goals

The project goal is for approximately 150 to 200 net acres after 20 years. This includes creating 101 acres of back barrier marsh and 72 acres of emergent beach and dune, protecting and enhancing 114 acres of existing supratidal and intertidal island habitat, and enhancing 55 acres of subtidal Gulf shoreface with sand fill.

Proposed Solution

The proposed features consist of placing 127 acres of beach and dune fill (constructing 19 acres of dune, 53 acres of intertidal and supratidal beach fill, 55 acres of subtidal beach fill) and 101 acres of back-barrier marsh. The dune would be constructed to +8 ft NAVD88 150 ft wide. Marsh would be created using confined or semiconfined disposal with a constructed marsh fill elevation of +2.5 ft NAVD88. Additionally, 114 acres of existing supratidal and intertidal habitat would be benefited. Sediment would be mined from nearshore borrow sites in the Gulf of Mexico. Tentative sites includes those previously identified and remaining after construction of other island projects. The project includes planting dune and swale vegetation as well as construction of sand fences.

Preliminary Project Benefits

- 1) *What is the total acreage benefited both directly and indirectly?*
This total project area is 446 acres. Some indirect benefits to marsh north of the proposed restoration footprint may result.
- 2) *How many acres of wetlands will be protected/created over the project life?*
Between 150 and 200 net acres of barrier island habitat are estimated to be protected/created over the project life.
- 3) *What is the anticipated loss rate reduction throughout the area of direct benefits over the project life (e.g., 50% reduction in the background loss rate)?*

Using a 50% reduction in the background rate, 165 net acres would remain. Alternatively, 57% of the target year 1 constructed acres are projected to remain at year 20 based upon the design/benefit performance average from all island projects (i.e., 163 acres).

- 4) *Do any project features maintain or restore structural components of the coastal ecosystem such as barrier islands, natural or artificial levee ridges, beach and lake rims, cheniers, etc?*
Yes, the project restores a barrier island.
- 5) *What is the net impact of the project on critical and non-critical infrastructure?*
The project will have a minor net positive effect on non-critical infrastructure.
- 6) *To what extent does the project provide a synergistic effect with other approved and/or constructed restoration projects?*
The project provides synergy with the overall Barataria Barrier Shoreline Complex as well as the adjacent constructed East Grand Terre Project (BA-30) and Chenier Ronquille Restoration Project (BA-76).

Considerations

Land rights have yet to be determined.

Preliminary Construction Costs

The estimated construction cost plus 25% contingency is \$25M - \$30M

Preparer(s) of Fact Sheet:

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Patrick Williams; NOAA Fisheries Service, 225-329-9268, Patrick.Williams@noaa.gov



Google Earth

5000 ft



PPL31 Grand Pierre Barrier Island Restoration

446 Acres Barrier Island Restoration

Federal Sponsor: NOAA Fisheries
2016 Aerial Imagery
Map Date 01-25-2021

Legend



Marsh Creation



Beach and Dune Fill



NOAA
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Grand Pierre Barrier Island Restoration

Region 2 – Barataria Basin Plaquemines Parish



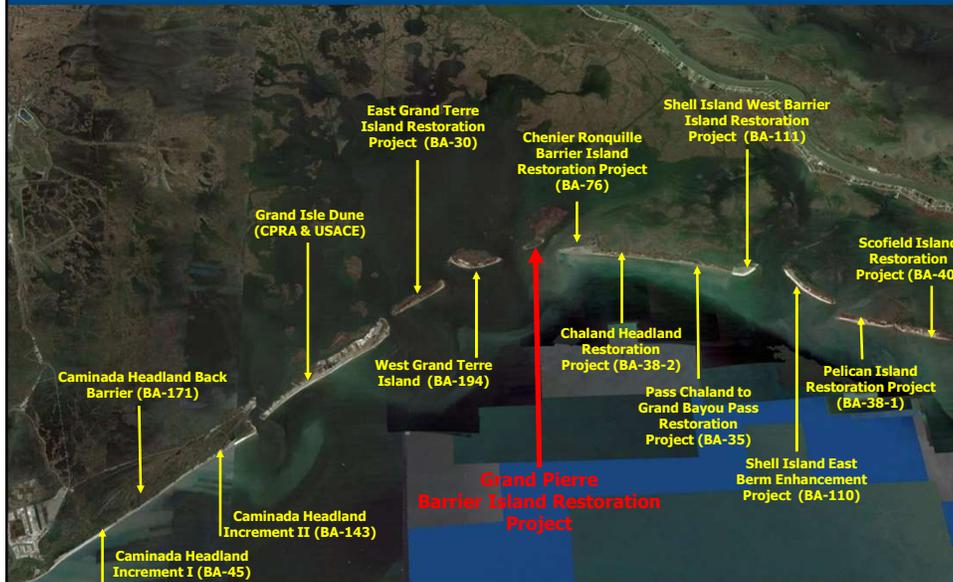
PPL31 CWPPRA Regional Planning Team

Virtual Meeting

February 4, 2021

Project Vicinity

Grand Pierre Barrier Island Restoration



Why is Grand Pierre Important?

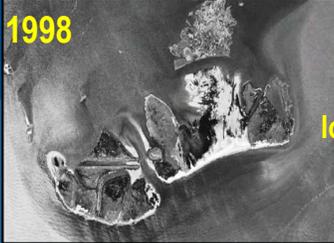
- Final piece in the Gulf line of defense for Barataria Basin
- Protects ~ 1,000 acres of lower-basin saline marsh
- Loss would create 2.8 mile tidal pass into the Barataria Basin. Not identified as a priority for restoration under any funding mechanism



Why Now?



What is the Problem?



1998



2016

~100 acres
lost from 1998 to 2016

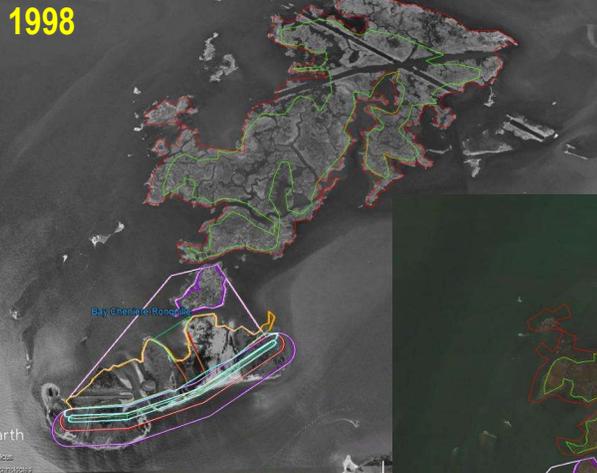


2020

~ 600-ft wide breach Post Hurricane Zeta



NOAA FISHERIES



1998

Marsh behind Grand Pierre

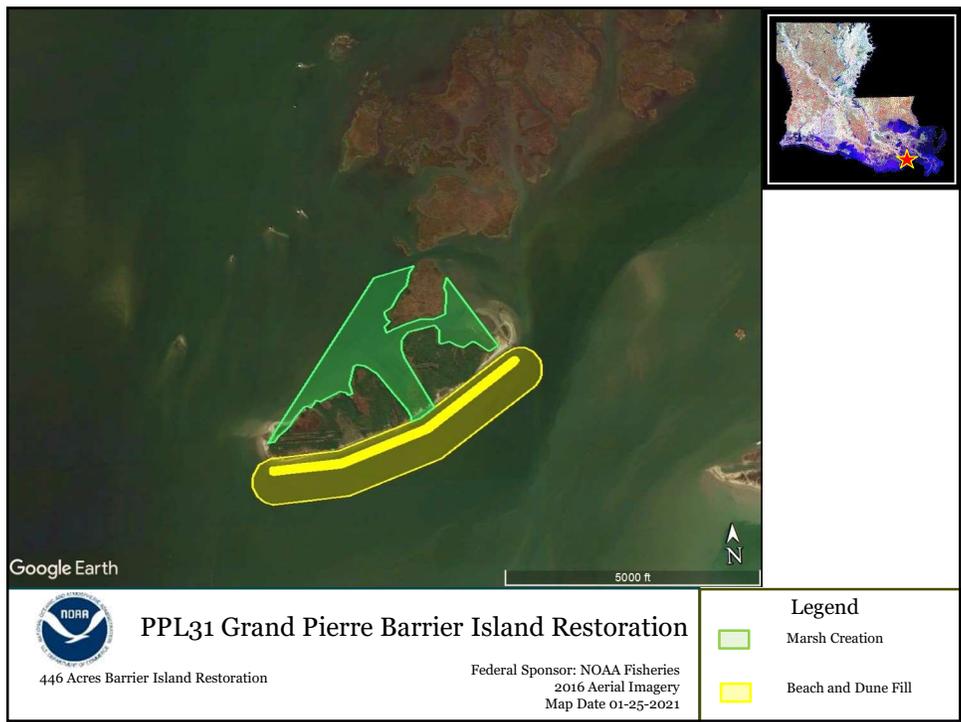


2016

Design and Benefit Polygons



NOAA FISHERIES



Summary

- Complete Barataria Basin barrier island restoration
- 127 acres beach and dune fill
- 101 acres back-barrier marsh creation (includes breach repair)
- 165 net acres
- Nearshore borrow areas
- Construction cost plus 25% contingency \$25 - \$30 million

Thanks to Southern Shores Engineering

Synergy

- Synergy with BA-30 and BA-76

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Grand Pierre with Extension



- \$~5M
- 23 ac dune
- 56 ac marsh
- 31 beach fill



NOAA FISHERIES

PPL31 NOMINEE FACT SHEET
February 4, 2021

Project Name

Northeast Turtle Bay Marsh Creation Extension

Project Location

Region 2, Barataria Basin, Jefferson Parish, northeast of Turtle Bay

Problem

Historic wetland loss in the Perot/Rigolettes mapping unit of the Barataria Basin has been caused by subsidence, sediment deprivation, and construction of access and pipeline canals. The Barataria Waterway has also allowed salt water and higher tidal energies to enter the area causing marsh loss. Interior ponds have expanded and coalesced as a result of subsidence and increased tidal energies. As ponds expand increased wave fetch exacerbates interior shoreline erosion. Based on analysis conducted by USGS, loss rates in the project extended boundary are estimated to be - 0.76% per year for the period 1984 to 2019.

Goals

The goal of the project is to create approximately 425 acres of marsh and nourish approximately 67 acres of marsh (492 acres total) with dredged material from Turtle Bay.

Proposed Solution

The proposed project would create approximately 425 acres and nourish approximately 67 acres of marsh using sediment dredged from Turtle Bay. At this time, it is expected that area will be fully contained. Containment dikes will be degraded as necessary to reestablish hydrologic connectivity with adjacent wetlands. In case the area does not re-vegetate on its own, the maintenance cost estimate includes funds to plant 25% of the created marsh at Year 3.

Preliminary Project Benefits

- 1) *What is the total acreage benefited both directly and indirectly?* 425 acres directly benefitted.
- 2) *How many acres of wetlands will be protected/created over the project life?* The total net acres protected/created over the project life is approximately 300-350 acres.
- 3) *What is the anticipated loss rate reduction throughout the area of direct benefits over the project life (<25%, 25-49%, 50-74% and >75%)*. The anticipated interior loss rate reduction throughout the area of direct benefit is estimated to be 50%.
- 4) *Do any project features maintain or restore structural components of the coastal ecosystem such as barrier islands, natural or artificial levee ridges, beach and lake rims, cheniers, etc.* This project would contribute to protection of the Central Barataria Basin Landbridge.
- 5) *What is the net impact of the project on critical and non-critical infrastructure?* The communities of Lafitte and Barataria lie to the north of this important landmass which serves to buffer the effect of tropical weather events. Numerous pipelines would benefit from reducing land loss in the area.

6) *To what extent does the project provide a synergistic effect with other approved and/or constructed restoration projects?* This project would work in sync with BA-2, BA-27, BA-20, BA-23, BA-03a, BA-26, BA-36 (and associated CIAP project), BA-125, BA-206, and BA-41, contributing to protection of the Central Barataria Basin Landbridge.

Considerations

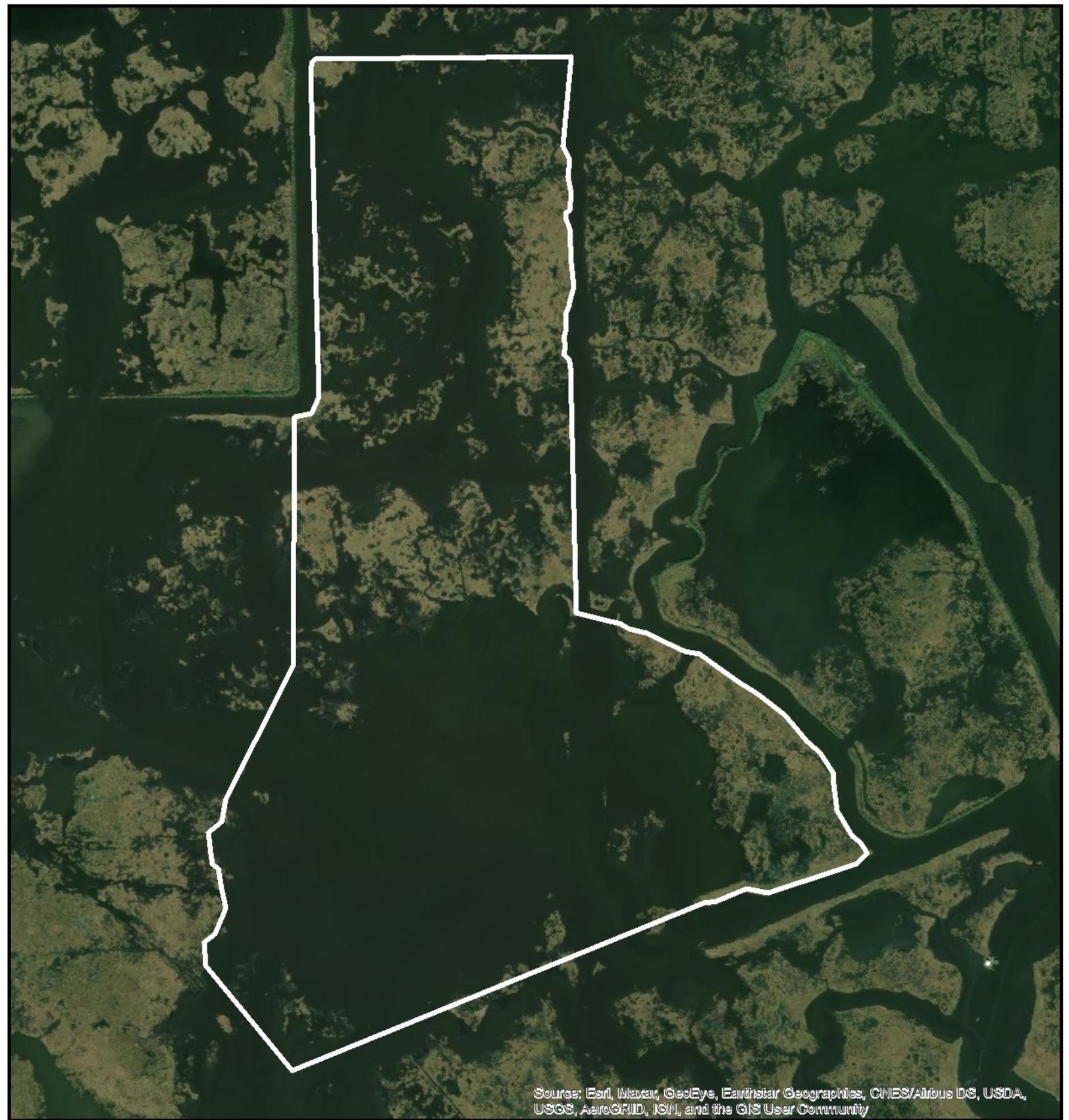
There are active pipelines running near and through the project area. Turtle Bay is part of an oyster seed ground. No other issues known at this time.

Preliminary Cost

The estimated construction cost + 25% contingency is \$25-30M.

Preparer of Fact Sheet

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Kyle Cappotto, USDA-NRCS, 318-473-7737, kyle.cappotto@usda.gov



Source: Esri, Maxar, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community



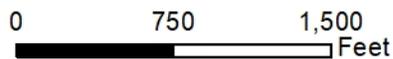
Map Produced By:
United States Department of Agriculture
Natural Resources Conservation Service
Alexandria, LA

Data Source: ESRI JANUARY 2019

Map Date: JANUARY 20, 2021



PPL 31
**NORTHEAST TURTLE BAY
MARSH CREATION
JEFFERSON PARISH, LA**



Legend

 MARSH_CREATION

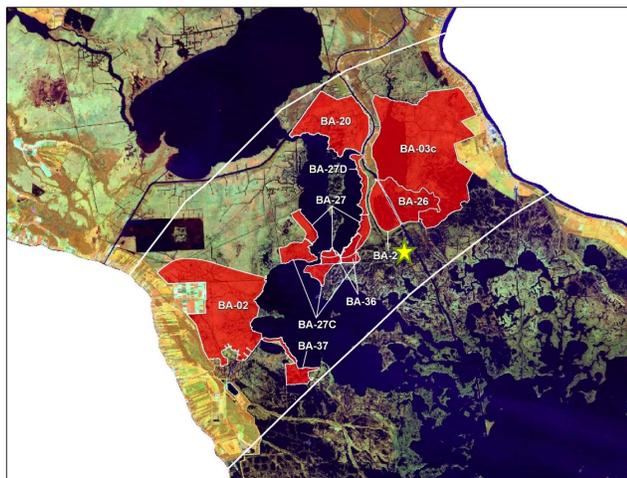
PPL31
Northeast Turtle Bay Marsh Creation - Extension
Region 2, Barataria Basin



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Barataria Basin Landbridge



PPL31- Northeast Turtle Bay Marsh Creation Extension

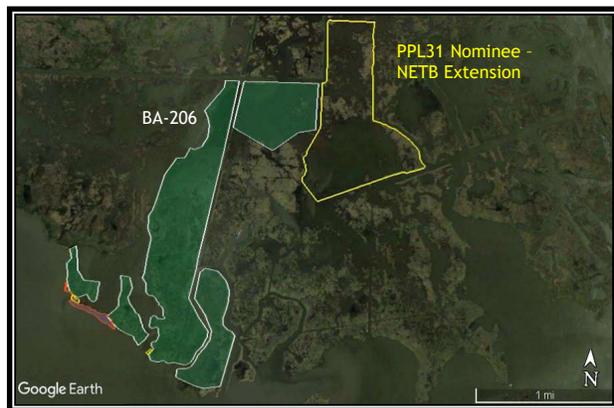


Problem:

- Subsidence, sediment deprivation, pipeline canals
- Barataria Waterway - conduit for saltwater intrusion, increased tidal prism
- Increased wave fetch as a result of coalescence of interior ponds



PPL31- Northeast Turtle Bay Marsh Creation Extension



PPL31- Northeast Turtle Bay Marsh Creation Extension



Goal:

- Borrow Area - Turtle Bay
- 360 acres Marsh Creation
- 65 acres Marsh Nourishment
- 425 acres direct benefits
- 300-350 net acres
- Indirect Benefits: Facilitate the restoration of the natural hydrology of the Barataria Land Bridge

Construction Costs + 25%
Contingency = \$30-35M



PPL31 PROJECT NOMINEE FACT SHEET
January 26, 2021

Project Name

East Bayou Lafourche Marsh Creation

Project Location

Region 2, Barataria Basin, Lafourche Parish, south of Golden Meadow adjacent to Bayou Lafourche

Problem

The Leeville area has experienced extensive loss of emergent wetlands from subsidence, storms, canal dredging, and altered hydrology. Wetland loss has increased the vulnerability of Leeville and Louisiana Highway 1 to damage from tropical storms. Based on the hyper-temporal analysis conducted by USGS for the PPL26 candidate, the project area loss rate is estimated to be -1.42% per year for the period 1984 to 2016.

Goals

The primary goal of this project is to restore marsh along the Highway 1-Bayou Lafourche corridor via marsh creation. The specific goal of the project is to create approximately 417 acres (370 acres of marsh creation and 47 acres of marsh nourishment) of marsh with dredged material.

Service goals include restoration/protection of habitat for threatened and endangered species and other at-risk species. This project would restore habitat potentially utilized by the threatened black rail and other at-risk species such as the saltmarsh topminnow and seaside sparrow.

Proposed Solution

Sediments from a Little Lake/Caminada Bay borrow site will be hydraulically dredged and pumped via pipeline to create/nourish approximately 417 acres of marsh. Dewatering and compaction of dredged sediments should produce elevations conducive to the establishment of emergent marsh and within the intertidal range. Perimeter containment dikes will be constructed. Containment dikes exposed to open water will be planted with appropriate vegetation. Containment dikes will be gapped at the end of construction or by target year 3.

Preliminary Project Benefits

- 1) *What is the total acreage benefited both directly and indirectly?*
Approximately 417 acres would be benefited directly. Direct benefits include 370 acres of marsh creation and 47 acres of marsh nourishment. Indirect benefits would occur to marsh surrounding the project area.
- 2) *How many acres of wetlands will be protected/created over the project life?*
The total net acres protected/created over the project life is 300-350 acres.
- 3) *What is the anticipated loss rate reduction throughout the area of direct benefits over the project life (e.g., 50% reduction in the background loss rate)?*

The anticipated loss rate reduction throughout the area of direct benefit is estimated to be 50%.

- 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 marsh along what remains of the historical natural levee ridge along Bayou Lafourche.

- 5) *What is the net impact of the project on critical and non-critical infrastructure?*
Some protection could be afforded to Highway 1, which is not elevated along this reach.

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

None at this time.

Considerations

Oil and gas infrastructure (i.e., pipelines) and oyster leases would have to be considered in the project design.

Preliminary Cost

The construction cost plus 25% contingency is \$25M - \$30M. The fully-funded cost is estimated to be \$40M - \$45M.

Preparer of Fact Sheet

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

PPL31 PROJECT NOMINEE FACT SHEET

January 28, 2021

Project Name

Fifi Island Marsh Creation

Project Location

Region 2, Barataria Basin, Jefferson Parish

Problem

Fifi Island has undergone significant land loss from storms, subsidence, and wave erosion due to its northern exposure to Bay Des Ilettes. Since the early 2000s, several restoration efforts have taken place on the island. The island has experienced periods of land gain due to the deposition of dredged material from the maintenance dredging of Bayou Rigaud. The latest dredging event was in 2010. The Grand Isle Independent Levee District has also been instrumental in several island restoration projects. A rock dike now provides protection to wave energy along the northern island shoreline. Additional rock dikes have also been constructed along the southern shoreline adjacent to Bayou Rigaud. Based on the hyper-temporal analysis conducted by USGS for the PPL29 candidate, the land loss rate in the project area is -1.21% per year for the period 1984 to 2019.

Goals

The primary goals of the project are; 1) restore marsh habitat on Fifi Island via marsh creation and 2) provide backbarrier marsh habitat in the vicinity of Grand Isle. The specific goals of this project are; 1) create 160 acres of marsh and 2) nourish 14 acres of marsh.

Service goals include restoration/protection of habitat for threatened and endangered species and other at-risk species. This project would restore habitat potentially utilized by the black rail, a threatened species. The project could also benefit other species of concern including the saltmarsh topminnow and seaside sparrow.

Proposed Solution

Sediments from Bayou Rigaud and Caminada Bay will be hydraulically dredged and pumped via pipeline to create/nourish 174 acres of marsh. Dewatering and compaction of dredged sediments should produce elevations conducive to the establishment of emergent marsh and within the intertidal range. Containment dikes will be constructed around each marsh creation cell. Containment dikes will be gapped at the end of construction or by TY3.

Preliminary Project Benefits

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

Approximately 174 acres would be directly benefitted. Indirect benefits would occur to surrounding marshes.

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

Approximately 100-150 net acres would be protected/created over the project life.

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

The anticipated loss rate reduction throughout the area of direct benefits is 50%.

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

Yes. Marsh created on Fifi Island would help to maintain and afford some protection to Grand Isle, a barrier island.

5) *What is the net impact of the project on critical and non-critical infrastructure?* The project would result in no impacts to infrastructure.

6) *To what extent does the project provide a synergistic effect with other approved and/or constructed restoration projects?* This project will have a synergistic effect with the efforts of the Grand Isle Independent Levee District to construct approximately 6,075 linear feet of rock dike along the southern side of Fifi Island. The Grand Isle Independent Levee District is also proposing to refurbish 1,400 linear feet of an existing rock dike.

Considerations

There are pipelines running near and through the project footprint. Oyster leases may be a consideration depending on the borrow site selected in Caminada Bay. Landrights are also a consideration for project design.

Preliminary Cost

The construction cost plus 25% contingency is \$10M - \$15M. The fully-funded cost range is \$20M - \$25M.

Preparer of Fact Sheet

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PPL31 PROJECT NOMINEE FACT SHEET
January 29, 2021

Project Name

Grand Bayou Ridge and Marsh Restoration – Increment 2

Project Location

Region 2, Barataria Basin, Plaquemines Parish, Grand Bayou

Problem

Within the Lake Hermitage basin, between Bayou Grande Cheniere and the Mississippi River, significant marsh loss has occurred with the construction of oil/gas canals, subsidence, and sediment deprivation. From examination of aerial photography, it appears that the majority of this loss occurred during the 1960s and 1970s when numerous oil/gas canals were dredged in the area. Based on the hyper-temporal analysis conducted by USGS for the PPL30 candidate, the land loss rate in the project area is -0.43% per year for the period 1984 to 2018.

Goals

The primary goals of this project are; 1) restore marsh habitat in the open water areas via marsh creation and 2) restore forested ridge habitat along Grand Bayou.

Specific goals of the project are: 1) Create approximately 386 acres (306 acres of creation; 80 acres of nourishment) of marsh with dredged material from the Mississippi River; and 2) Create 6,900 linear feet (9 acres) of forested ridge habitat.

Service goals include restoration/protection of habitat for threatened and endangered species and other at-risk species. This project would restore habitat potentially utilized by the black rail, a threatened species. The project could also benefit other species of concern including the seaside sparrow and neotropical migrants such as the golden-winged warbler.

Proposed Solution

1) Sediments from the Mississippi River will be hydraulically dredged and pumped via pipeline to create/nourish approximately 386 acres of marsh. The proposed design is to place the dredged material to a fill height of +2.0 ft NAVD88). Dewatering and compaction of dredged sediments should produce elevations conducive to the establishment of emergent marsh and within the intertidal range. Containment dikes will be gapped at the end of construction.

2) Approximately 6,900 linear feet (9 acres) of forested ridge will be created along the western bank of Grand Bayou using material from the Mississippi River. The ridge will be constructed to a crown elevation of +4.0 feet NAVD88, 25 feet wide, and will be planted on the crown and slopes.

Preliminary Project Benefits

1) *What is the total acreage benefited both directly and indirectly?* Approximately 395 acres would be benefited directly and indirectly. Direct benefits include 9 acres of forested, coastal ridge habitat and 386 acres of marsh creation/nourishment.

2) *How many acres of wetlands will be protected/created over the project life?* The total net acres protected/created over the project life is approximately 300-350 acres.

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

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

5) *What is the net impact of the project on critical and non-critical infrastructure?* The project would afford some protection to flood protection levees east of the project area along Hwy. 23.

6) *To what extent does the project provide a synergistic effect with other approved and/or constructed restoration projects?* The project would provide a synergistic effect with BA-217 Grand Bayou Ridge and Marsh Restoration-Increment 1 (PPL28), BA-240 Bayou Grande Cheniere Marsh Restoration (State-only), BA-42 Lake Hermitage Marsh Creation Project (PPL15), and the West Pointe a la Hache Siphon Project.

Considerations

Oyster leases, landrights, and pipelines/utilities will need to be considered in project design.

Preliminary Cost

The construction cost plus 25% contingency is \$30M - \$35M. The fully-funded cost is \$40M - \$45M.

Preparer of Fact Sheet

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

PPL31 PROJECT NOMINEE FACT SHEET
January 28, 2021

Project Name

Southeast Golden Meadow Marsh Creation

Project Location

Region 2, Barataria Basin, Lafourche Parish, southeast of Golden Meadow

Problem

The project area has experienced extensive loss of emergent wetlands from subsidence, storms, canal dredging, and altered hydrology. Wetland loss has increased the vulnerability of the South Lafourche Hurricane Protection Levee to damage from tropical storms. Two land loss rates are available for this area. Based on the land-water analysis conducted by USGS for the nearby West LA Hwy 1 Marsh Creation Project (PPL29 candidate), a loss rate of -0.86% per year was calculated for the period 1984 to 2019. The 1984-2018 loss rate for the Lake Palourde USGS polygon was calculated at -0.84% per year.

Goals

The primary goal of this project is to restore marsh southeast of Golden Meadow near the alignment of the hurricane protection levee. The specific goal of the project is to create approximately 342 acres (289 acres of marsh creation and 53 acres of marsh nourishment) of marsh with dredged material.

Service goals include restoration/protection of habitat for at-risk species. This project would restore habitat potentially utilized by the threatened black rail and other at-risk species such as the seaside sparrow and saltmarsh topminnow.

Proposed Solution

Sediments from Bayou Lafourche will be hydraulically dredged and pumped via pipeline to create/nourish approximately 342 acres of marsh. Dewatering and compaction of dredged sediments should produce elevations conducive to the establishment of marsh within the intertidal range. Perimeter containment dikes will be constructed where necessary. Containment dikes will be gapped at the end of construction or by target year 3.

Preliminary Project Benefits

- 1) *What is the total acreage benefited both directly and indirectly?*
Approximately 342 acres would be benefited directly. Direct benefits include 289 acres of marsh creation and 53 acres of marsh nourishment. Indirect benefits would occur to marsh surrounding the project area.
- 2) *How many acres of wetlands will be protected/created over the project life?*
The total net acres protected/created over the project life is 250-300 acres.
- 3) *What is the anticipated loss rate reduction throughout the area of direct benefits over the project life (e.g., 50% reduction in the background loss rate)?*

The anticipated loss rate reduction throughout the area of direct benefit is estimated to be 50%.

- 4) *Do any project features maintain or restore structural components of the coastal ecosystem such as barrier islands, natural or artificial levee ridges, beach and lake rims, cheniers, etc?*
No.
- 5) *What is the net impact of the project on critical and non-critical infrastructure?*
Protection would be afforded to the South Lafourche Hurricane Protection System surrounding Golden Meadow.
- 6) *To what extent does the project provide a synergistic effect with other approved and/or constructed restoration projects?*
None at this time.

Considerations

Oil and gas infrastructure, landrights, and navigation in Bayou Lafourche are some of the items that would have to be considered in project design.

Preliminary Cost

The construction cost plus 25% contingency is \$15M - \$20M. The fully-funded cost range is \$25M - \$30M.

Preparer of Fact Sheet

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REGION II

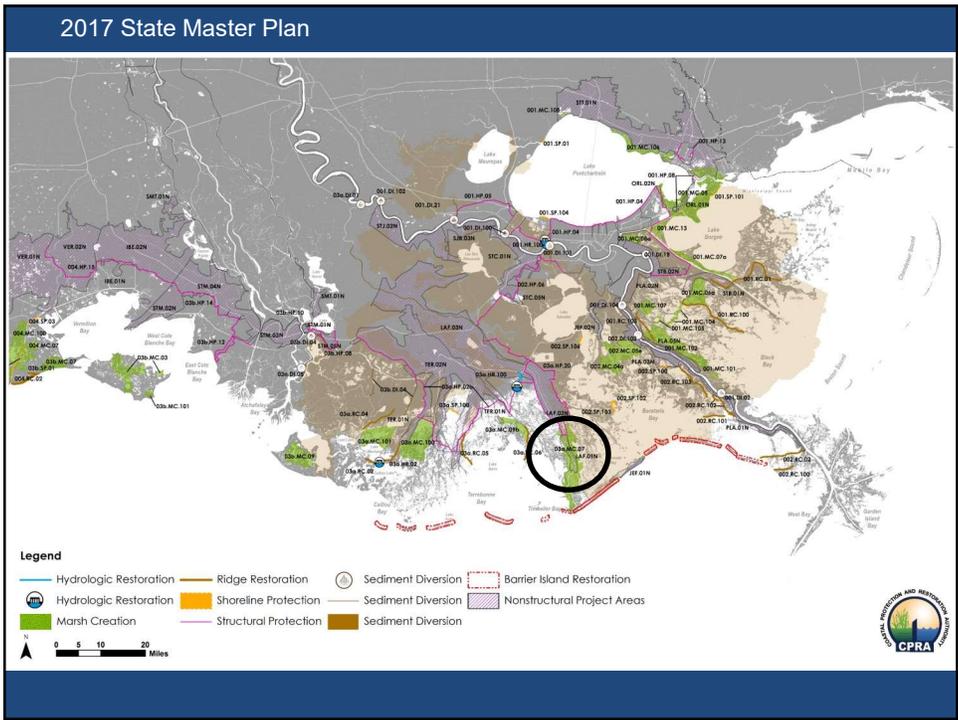
**REGIONAL
PLANNING
TEAM
MEETING**

**BARATARIA
BASIN**

February 4, 2021



**Kevin Roy
Lafayette, LA**

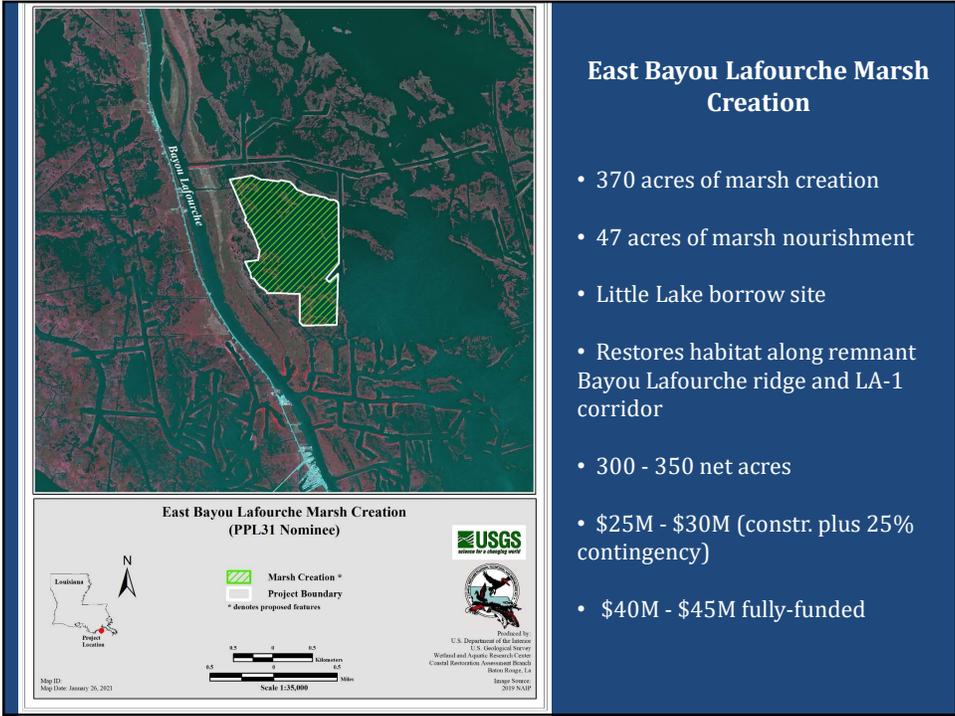




State Master Plan – 03a.MC.07
 Belle Pass-Golden Meadow
 Marsh Creation

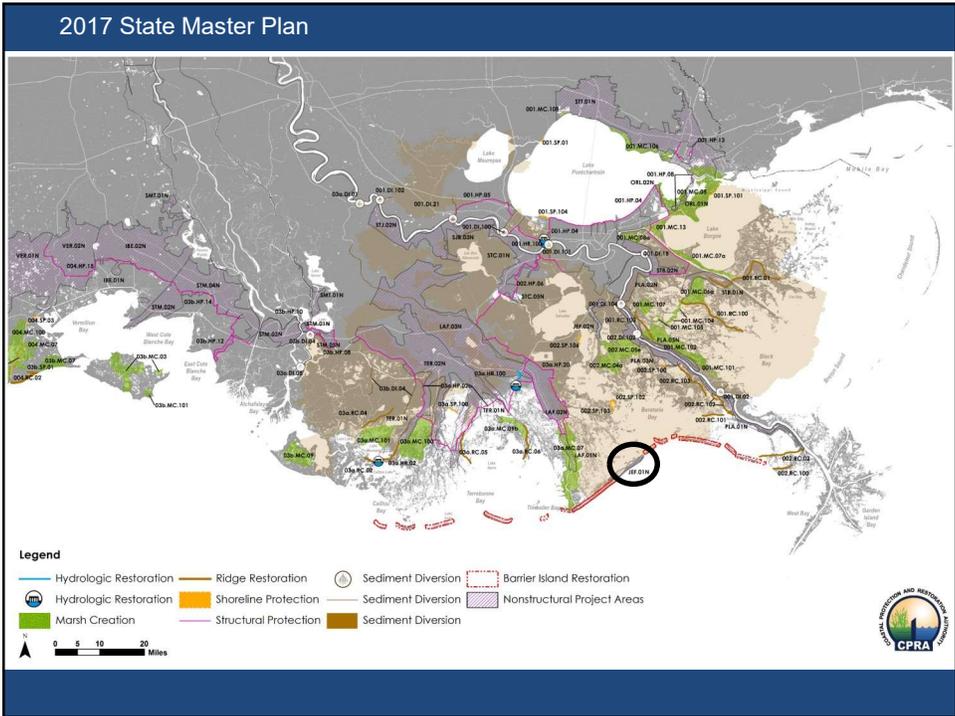
- Lafourche Parish invested RESTORE Act funds to investigate marsh and ridge restoration options within the Barataria Basin
- T. Baker Smith was selected to perform E&D services in 2017
- As part of that effort, a marsh creation area along the South Lafourche levee was investigated as the Bayou Lafourche Marsh Creation Project
- TBS planned to submit an expanded Bayou Lafourche Marsh Creation Project under the CPRA Outcome Based Performance Contracting Project
- The project was withdrawn from OBPC consideration

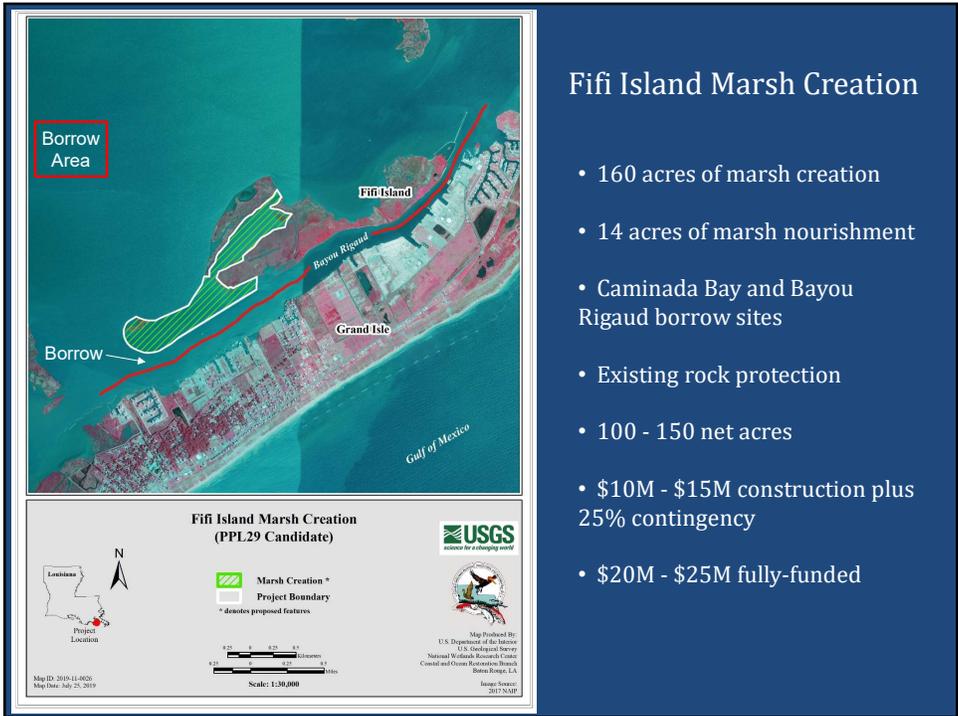




East Bayou Lafourche Marsh Creation

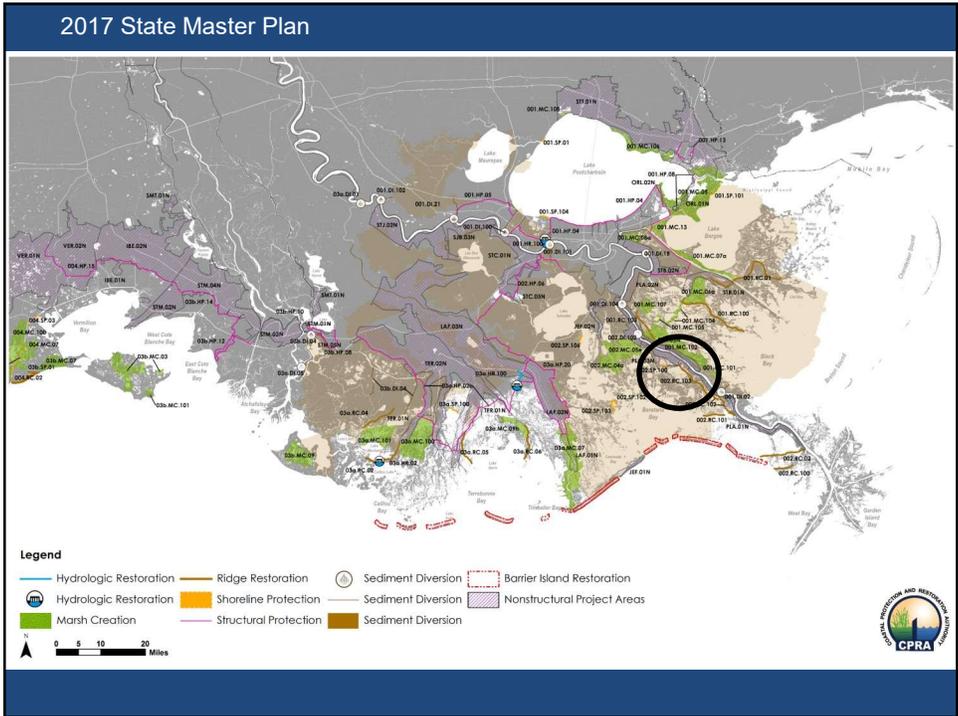
- 370 acres of marsh creation
- 47 acres of marsh nourishment
- Little Lake borrow site
- Restores habitat along remnant Bayou Lafourche ridge and LA-1 corridor
- 300 - 350 net acres
- \$25M - \$30M (constr. plus 25% contingency)
- \$40M - \$45M fully-funded

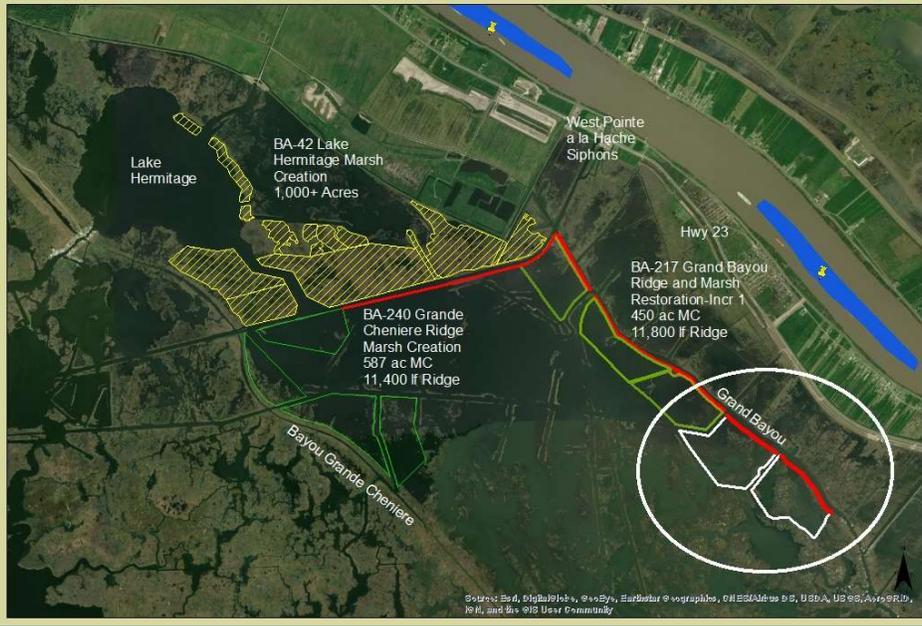
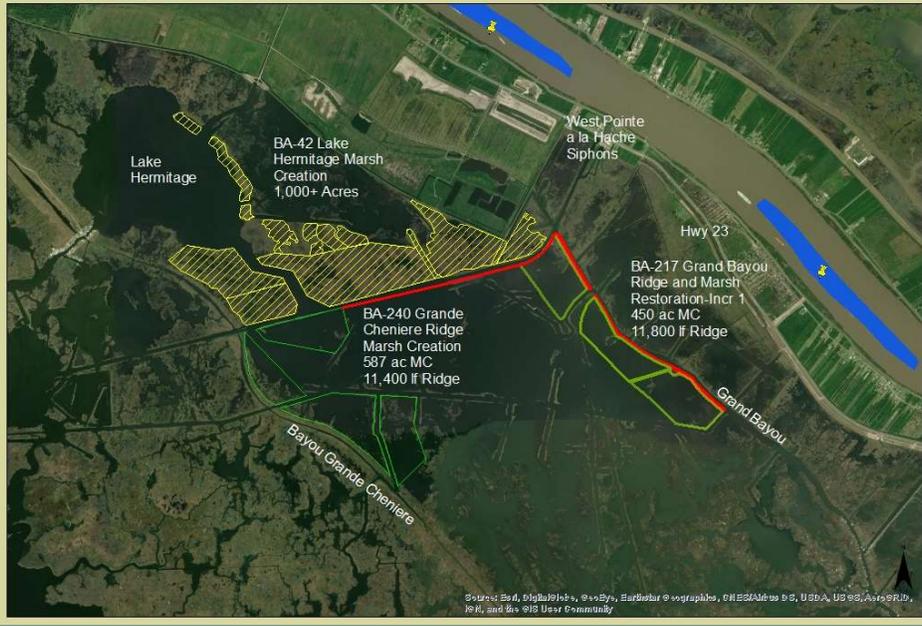


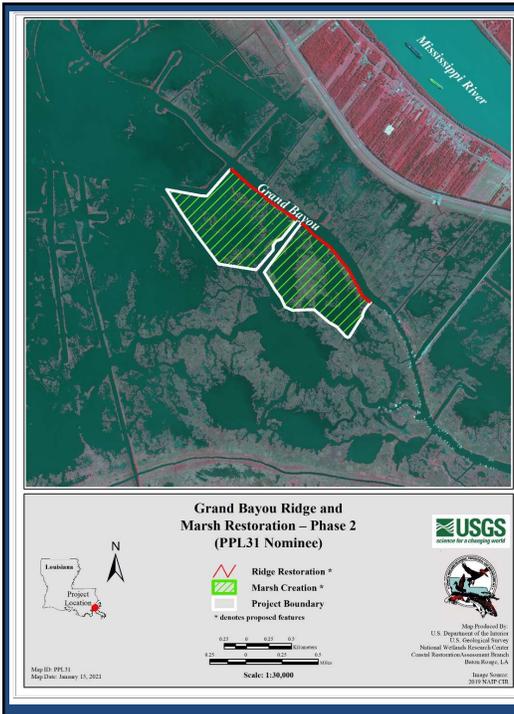
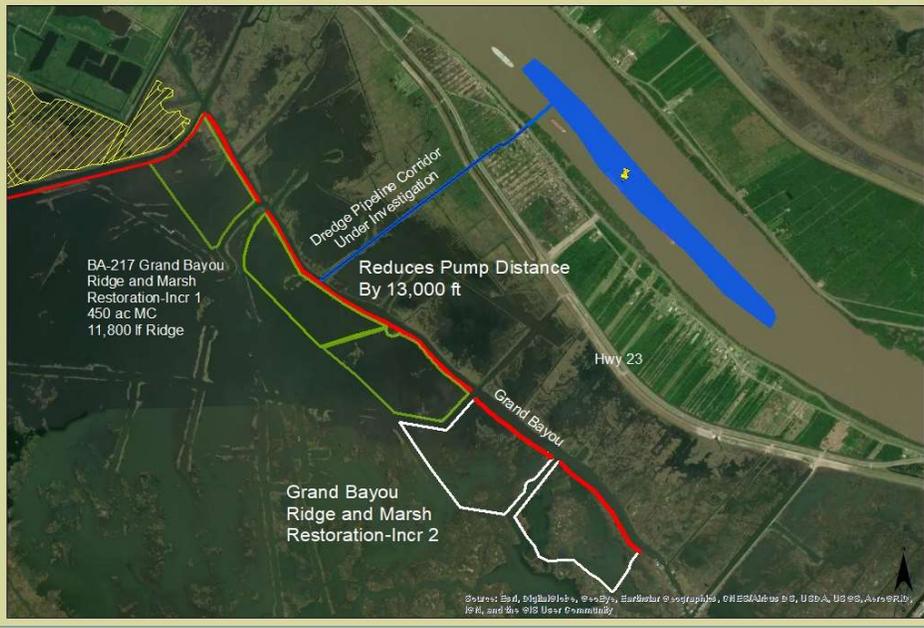


Fifi Island Marsh Creation

- 160 acres of marsh creation
- 14 acres of marsh nourishment
- Caminada Bay and Bayou Rigaud borrow sites
- Existing rock protection
- 100 - 150 net acres
- \$10M - \$15M construction plus 25% contingency
- \$20M - \$25M fully-funded







Grand Bayou Ridge and Marsh Restoration – Increment II

- 306 acres of marsh creation
- 80 acres of marsh nourishment
- Mississippi River borrow site
- 6,900 LF of ridge restoration
- Synergy with BA-217 Grand Bayou Ridge and Marsh Restoration-Increment I
- 301 net acres
- \$32.2M (constr. plus 25% cont.)
- \$43.5M (PPL30 fully-funded)

Breton Sound Basin

PPL 31 PROJECT FACT SHEET
February 2021

Project Name

Will's Point Marsh Creation

2017 Master Plan Strategy

001.MC.107 Tiger Ridge/Maple Knoll Marsh Creation: Creation of approximately 4,700 acres of marsh in Plaquemines Parish near Tiger Ridge to create new wetland habitat and restore degraded marsh.

Project Location

The project is located within Plaquemines Parish, Breton Sound Basin (Region 2). The project is set within a large expanse of marsh east of the Mississippi River, north of Grand Lake, and Southwest of Lake Lery.

Problem

The project area is mostly shallow water that appeared when marsh was lost between 1958 and 1974. Hurricane Katrina further exacerbated the deterioration of interior wetlands, and accelerated losses of critical habitat. The area lies amongst the natural ridges of River aux Chenes and Tiger Ridge. Losses over time have increased the vulnerability to wave fetch and tidal exchange. Furthermore, another major hurricane could be devastating to the stability of the marshes in this area.

Proposed Project Features

Approximately 3.1 million CY of material would be mined from the Mississippi River located west of the project location to restore a total of 576 acres of intermediate marsh adjacent to Lake Lery. Containment dikes would be constructed around the entire perimeter, however existing spoil banks and ridges will be considered as well for containment of dredge material.

Proposed Solution

The project will restore 468 acres of intermediate marsh with sediment dredged from the Mississippi River and nourish 108 acres of degraded intermediate marsh. This project will create intermediate marsh in current open water areas that were historically marsh to provide a natural storm barrier and reduce the effects of coastal storm surge. It will also reestablish the natural habitat for a wide range of recreationally and commercially significant species, which in turn will improve the seafood industry and economy for the Parish.

Considerations:

Oil and gas infrastructure (i.e. pipelines), T&E and protected species.

Preliminary Construction Costs

The estimated construction cost including 25% contingency is \$30M – \$35M

Preparers of Fact Sheet

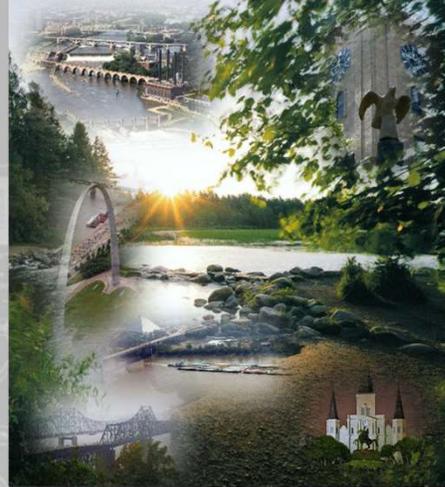
Danielle Keller, USACE, 504-862-1744 danielle.a.keller@usace.army.mil

Will's Point Marsh Creation



WILL'S POINT MARSH CREATION

February 4, 2021
Region 2
Breton Sound Basin



US Army Corps
of Engineers

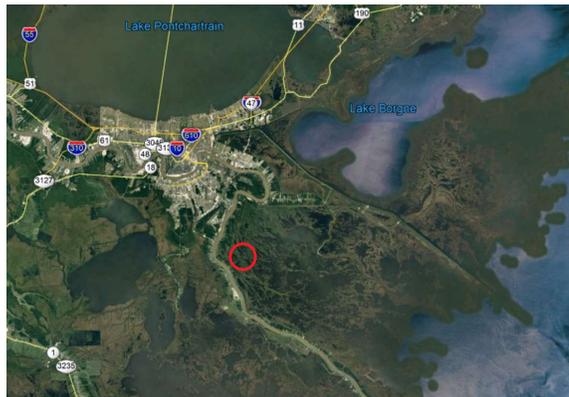
BUILDING STRONG®
and Taking Care of



PROJECT LOCATION



97



BUILDING STRONG®
and Taking Care of
People



STATE MASTER PLAN CONSISTENCY



98

001.MC.107 Tiger Ridge/Maple Knoll Marsh Creation: Creation of approximately 4,700 acres of marsh in Plaquemines Parish near Tiger Ridge to create new wetland habitat and restore degraded marsh.



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HISTORIC LAND LOSS



99



1984



2020



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PROJECT PROPOSAL



100

- Acres: 576
- 468 Marsh Creation
 - 108 Marsh Nourishment

- Estimated Cost: \$30-\$35M
- 25% contingency

Borrow Source:
Mississippi River



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People!

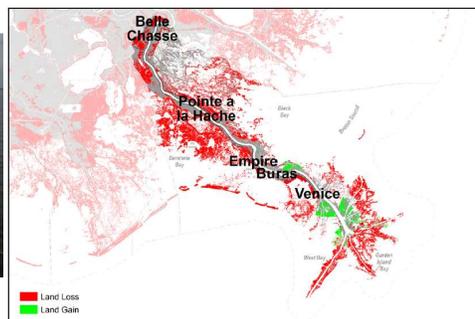


CURRENT SIGNIFICANCE AND NEED



101

- T&E and protected species.
- Another devastating hurricane would leave this marsh unstable.



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People!

PPL31 PROJECT FACT SHEET
February 4, 2021

Project Name

Bayou Terre aux Boeufs North Ridge Restoration and Marsh Creation

Master Plan Strategy

Bayou Terre aux Boeufs Ridge Restoration (2017 Master Plan 001.RC.100): Restoration of approximately 91,200 feet of historic ridge to an elevation of 5 feet NAVD88 to provide coastal upland habitat, restore natural hydrology, and provide wave and storm surge attenuation along Bayou Terre aux Boeufs. Breton Marsh Creation- Component A (2017 Master Plan 001.MC.06a): Creation of approximately 12,000 acres of marsh in the Breton Marsh east of Delacroix Island to create new wetland habitat and restore degraded marsh.

Project Location

Region 2, Breton Sound Basin, Plaquemines & St. Bernard Parishes

Problem

As a result of storm events, subsidence, and sea level rise, among other factors, the ridge has degraded in this area. As the ridge continues to degrade the water bodies on each side merge creating a much larger open water area, bringing increased wave fetch, storm surge, and conversion of the remaining fragmented wetlands into open water areas. The area remains vulnerable to future hurricane damage and subsidence and is a Tier 1 Priority Project area for St. Bernard Parish (St. Bernard Priority Coastal Projects 2016).

Proposed Solution

Create 28,384 linear feet of ridge along Bayou Terre aux Boeufs to provide coastal upland habitat, restore natural hydrology, provide storm surge attenuation, and improve local community resilience. Create/nourish 770 acres emergent marsh with sediment from the Lake Lery.

Project Benefits

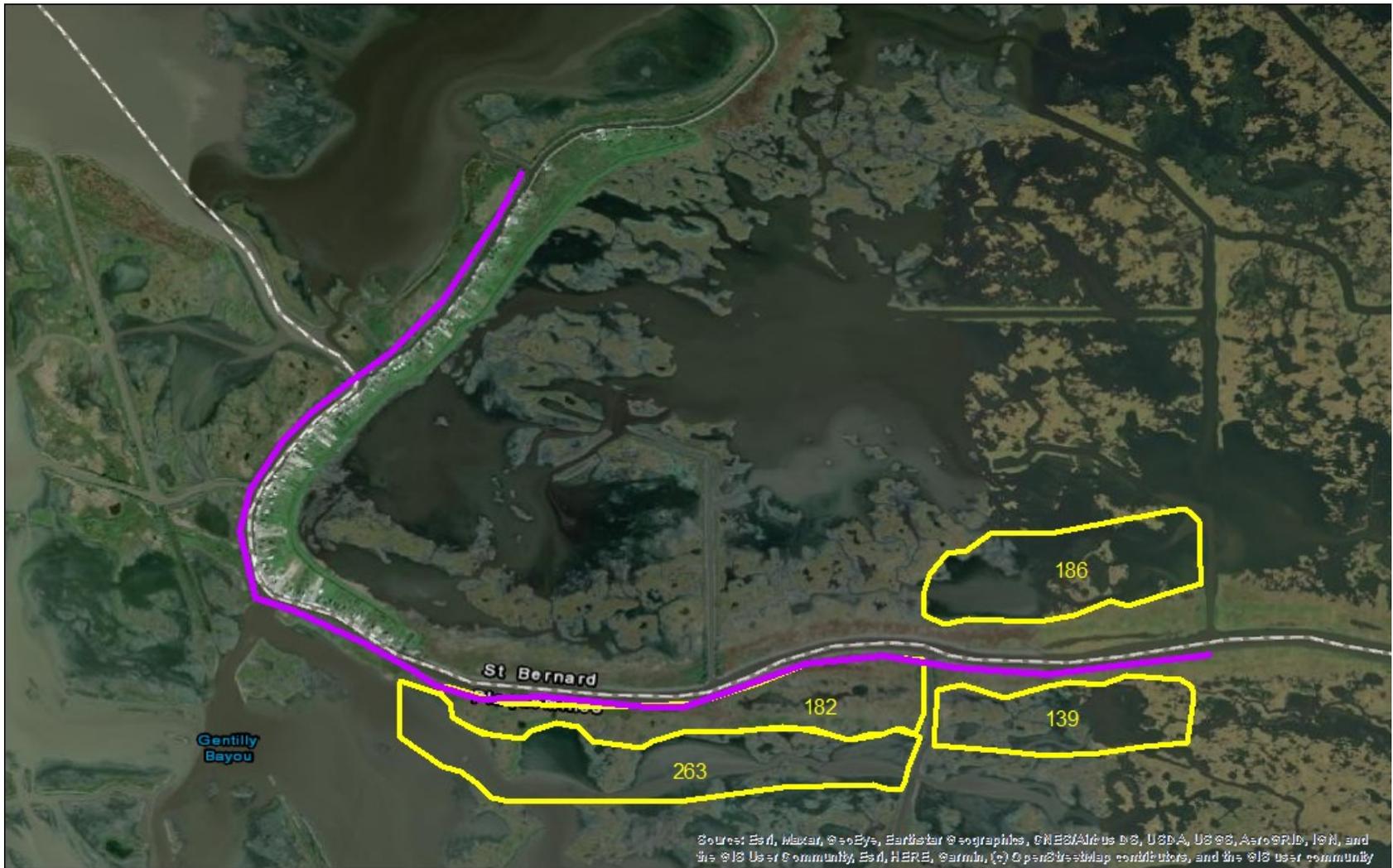
Create 28,384 linear feet of ridge along Bayou Terre aux Boeufs and create/nourish 770 acres (create 533 acres and nourish 237 acres) emergent marsh.

Project Costs

The estimated construction cost including 25% contingency is \$40M - \$45M. Cost savings, construction efficiencies, and project synergy could be realized if nearby project concepts (e.g. NRCS project concept) are designed and constructed together.

Preparer(s) of Fact Sheet:

Sharon L. Osowski, Ph.D.; EPA; (214) 665-7506; osowski.sharon@epa.gov



Bayou Terre aux Boeufs North Ridge Restoration & Marsh Creation

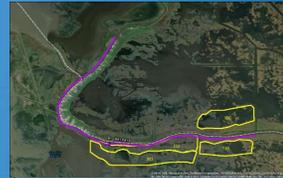
- Ridge Features 28,384ft
- Marsh Creation 770ac

N

 Basemap: 2019 NAIP DOQQ
 St Bernard Parish & Plaquemines Parish
 Produced by: EPA Region 6, Dallas, TX

0 0.2 0.4 0.8 1.2 1.6
 Miles

Bayou Terre aux Boeufs North Ridge Restoration & Marsh Creation



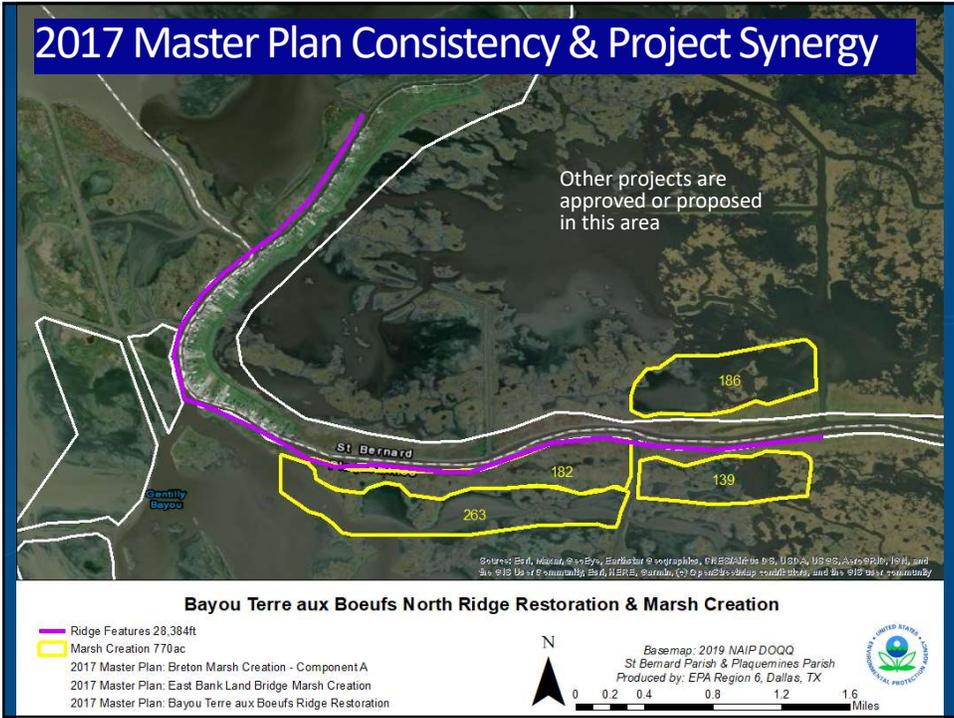
Coastal Wetlands Planning, Protection and Restoration Act

2017 Master Plan Solution

001.RC.100 Bayou Terre aux Boeufs Ridge Restoration: Restoration of approximately 91,200 feet of historic ridge to an elevation of 5 feet NAVD88 to provide coastal upland habitat, restore natural hydrology, and provide wave and storm surge attenuation along Bayou Terre aux Boeufs.

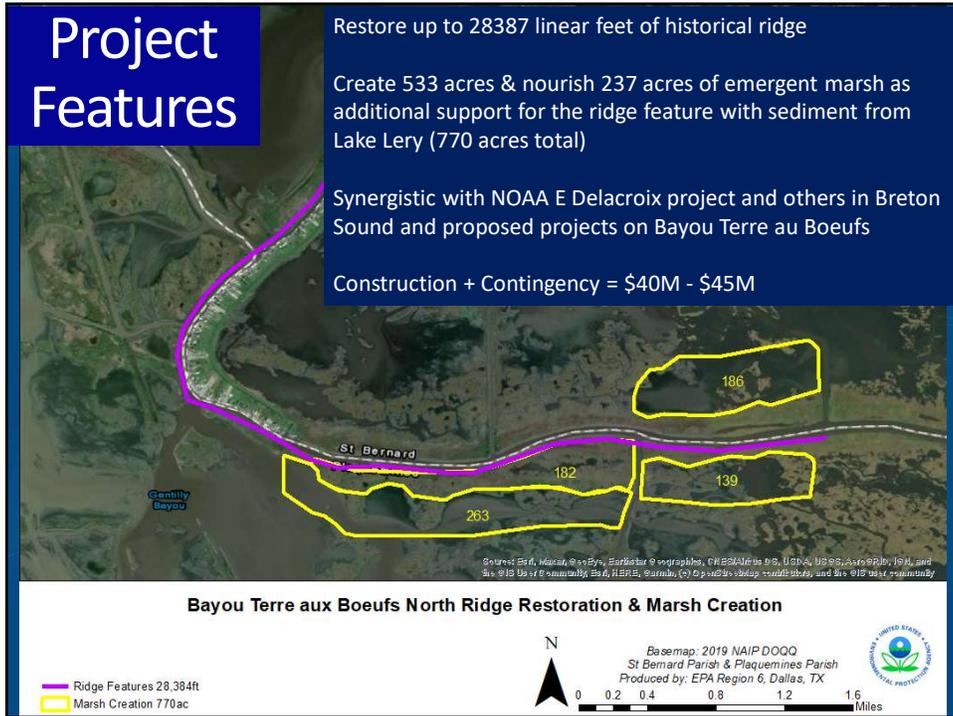
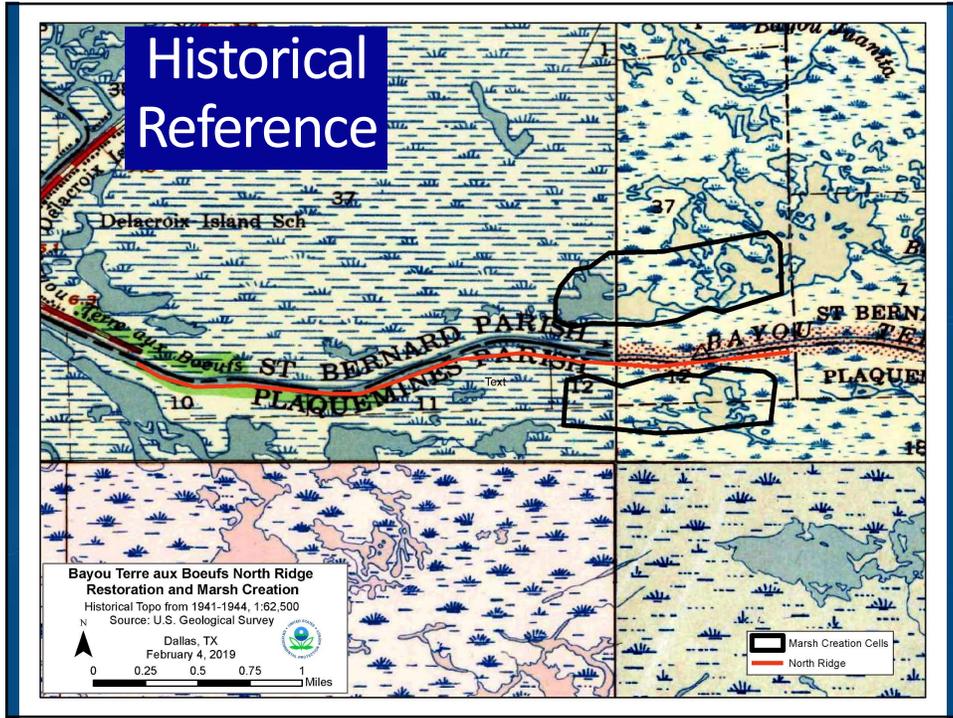
001.MC.06a Breton Marsh Creation- Component A: Creation of approximately 12,000 acres of marsh in the Breton Marsh east of Delacroix Island to create new wetland habitat and restore degraded marsh.





Problems

- Historic ridge is degrading between the water bodies on both sides which may cause them to merge creating additional impacts
- Subsidence
- Storm events
- Fragmenting wetlands supporting the ridge
- Both Plaquemines (55%) and St. Bernard (72%) Parishes could lose extensive land area over the next 50 years and experience severe storm surge flood risk (2017 MP). (Addresses St. Bernard Parish Priority Project Tier 1)



PLL31 PROJECT FACT SHEET
February 4, 2021

Project Name

Davant Marsh Creation (Increment 1)

Master Plan Strategy

Pointe a la Hache Marsh Creation (2017 Master Plan 001.MC.102): Creation of approximately 19,100 acres of marsh on the east bank of Plaquemines Parish near Pointe a la Hache to create new wetland habitat and restore degraded marsh.

Project Location

Region 2, Breton Sound Basin, Plaquemines Parish

Problem

The project area is an open water body immediately adjacent to the east bank of the Mississippi River levee. As a result of leveeing the Mississippi River for navigation and flood control, the Pointe a la Hache wetlands were cut off from the historic overbank flooding of the river. Without continued sediment input, marshes could not maintain viable elevations due to ongoing subsidence. In addition, oil and gas canals disrupted hydrology and facilitated saltwater intrusion further degrading the marsh. The land loss rate for the area is -1.00% per year.

Proposed Solution

The proposed project would create/nourish approximately 419 acres of marsh using sediment dredged from the Mississippi River. The dredged material would be fully contained. Containment dikes would be degraded as necessary to reestablish hydrologic connectivity with adjacent wetlands. The created marsh would be planted.

Project Benefits

Create/nourish approximately 419 acres (create 360 acres and nourish 59 acres) of emergent marsh using sediment dredged from the Mississippi River.

Project Costs

The estimated construction cost including 25% contingency is \$25M - \$30M.

Preparer(s) of Fact Sheet:

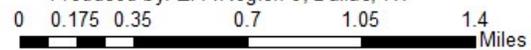
Sharon L. Osowski, Ph.D.; EPA; (214) 665-7506; osowski.sharon@epa.gov
Brad Crawford, P.E., EPA; (214) 665-7255; crawford.brad@epa.gov

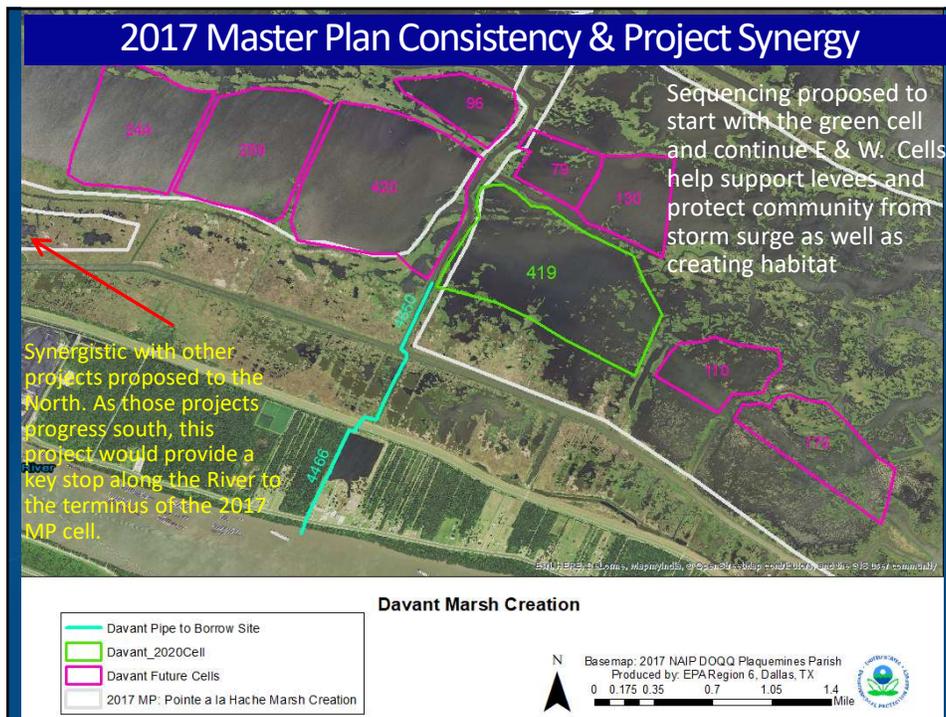


Davant Marsh Creation



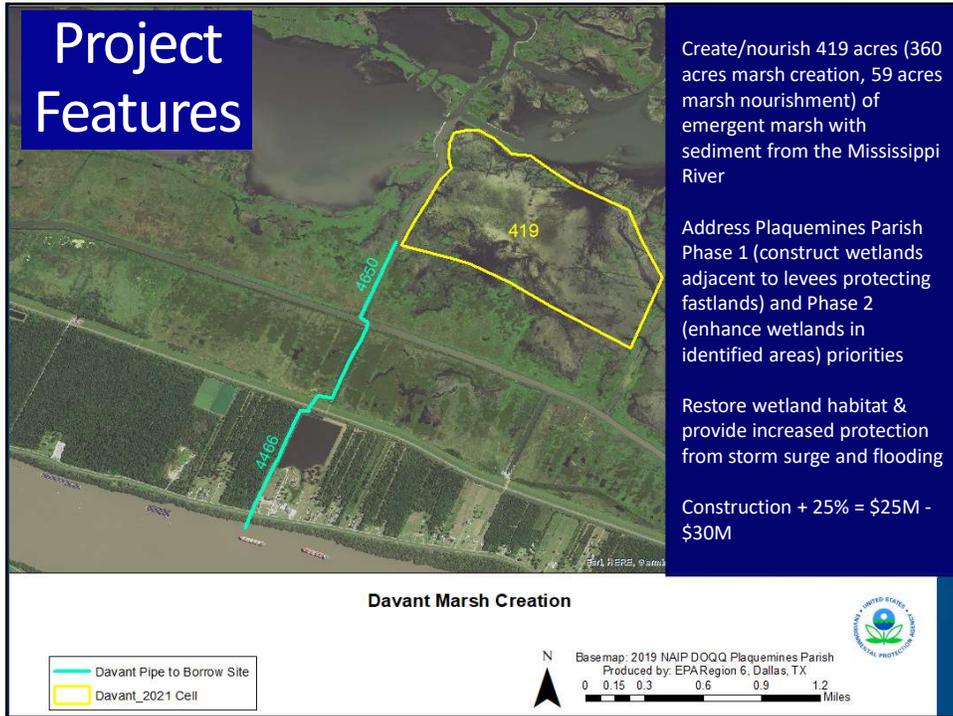
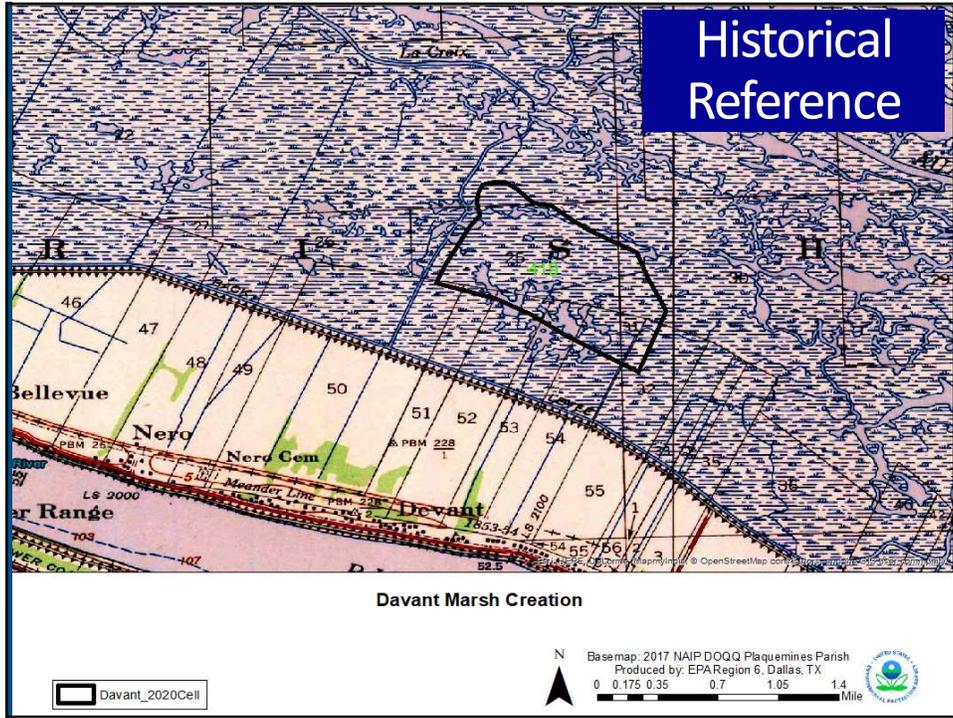
Basemap: 2019 NAIP DOQQ Plaquemines Parish
 Produced by: EPA Region 6, Dallas, TX





Problems

- Levees for navigation and flood control cut off wetlands from overbank flooding
- Marsh areas could not maintain viable elevations without sediment input
- Subsidence
- Oil & gas canals disrupted hydrology
- Saltwater intrusion
- Plaquemines Parish could lose an additional 55% of its land area over the next 50 years and face severe storm surge flood risk (2017 MP).



PPL31 PROJECT NOMINEE FACT SHEET
February 4th, 2021

Project Name

Orange Bayou Marsh Creation Project

Project Location

Region 2, Breton Sound Basin, Plaquemines Parish, west of Grand Lake

Problem

Historically, this area was nourished by freshwater delivered by the Mississippi River until the creation of the levees along the lower river. The major cause of wetland loss has been from storm activity (i.e. Hurricane Betsy and Katrina), causing both storm-induced scouring and salt water intrusion. One of the areas most severely impacted was the Breton Sound Basin where it is estimated that 40.9 square miles of marsh were converted to open water. Without some other restoration, this region will continue to see the coalescence of water bodies such as Grand Lake. The wetland loss rate in the area is -1.36%/year based on CRMS0121 data from 2009 to 2020.

Goals

The project goals are to create and/or nourish 350 acres of brackish marsh.

Proposed Solution

Sediments from Grand Lake will be hydraulically dredged and pumped via pipeline to create/nourish 350 acres of marshes and bank lines west of Grand Lake. Containment dikes will be constructed around each marsh creation cell where material will be borrowed from perimeter lakes and bayous. Containment dikes will be gapped at the end of construction or by TY3.

Preliminary Project Benefits

- 1) *What is the total acreage benefited both directly and indirectly?* Approximately 350 acres would be benefited directly and indirectly. Direct benefits include 300 acres of marsh creation and 50 acres of marsh nourishment. Indirect benefits could occur to surrounding marsh and open water areas.
- 2) *How many acres of wetlands will be protected/created over the project life?* The total net acres protected/created over the project life is approximately 250-300 acres.
- 3) *What is the anticipated loss rate reduction throughout the area of direct benefits over the project life (<25%, 25-49%, 50-74% and >75%).* The anticipated interior loss rate reduction throughout the area of direct benefit 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 project would help to maintain portions of the Orange Bayou and Grand Lake shoreline.
- 5) *What is the net impact of the project on critical and non-critical infrastructure?* The project would help complete the Breton Sound Landbridge concept.

6) *To what extent does the project provide a synergistic effect with other approved and/or constructed restoration projects?* The project would work synergistically with three projects currently in engineering and design: Breton West Landbridge Marsh Creation Project (BS-38), Mid Breton Landbridge Marsh Creation and Terracing (BS-32), and Phoenix Marsh and Ridge Restoration Project.

Considerations

Considerations for this project include pipelines/utilities.

Preliminary Cost

The fully-funded cost range is \$15M - \$20M.

Preparer of Fact Sheet

January Murray, NOAA, (225) 380-0089, january.murray@noaa.gov

Jennifer Smith, NOAA, (225) 954-6654, jennifer.smith@noaa.gov



PPL31 Orange Bayou Marsh Creation

300 Acres Marsh Creation
50 Acres Marsh Nourishment

Federal Sponsor: NOAA Fisheries
2016 Aerial Imagery
Map Date 01-19-2021

Legend

-  Alternative Marsh Creation
290 acres
-  Marsh Creation
350 acres
-  Borrow Area



NOAA
FISHERIES

Orange Bayou Marsh Creation Project

REGION 2 – Breton Sound Basin

Presenter: January Murray, Project Manager, NOAA

Special Thanks:

Delacroix Corporation
Plaquemines Parish
NOAA Project Team



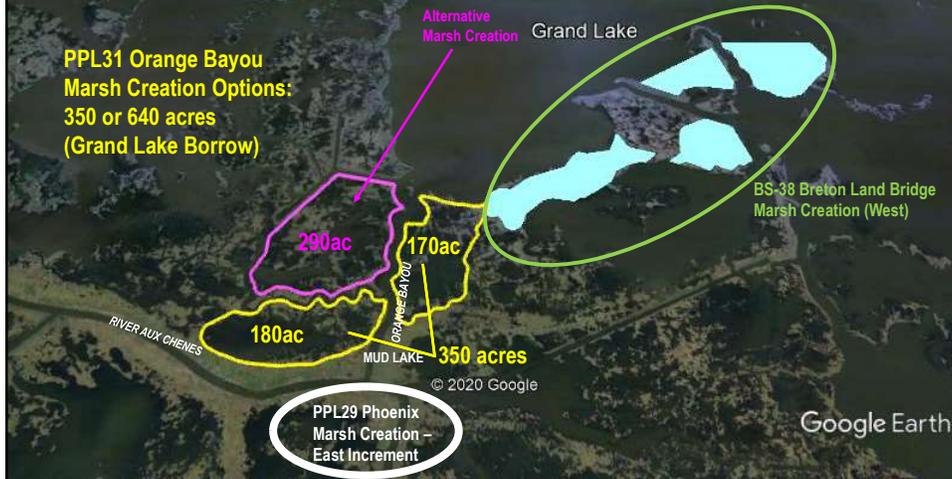
PPL31 CWPPRA Regional Planning Team Meeting
February 4, 2021

Project Location

Orange Bayou Marsh Creation Project

Orange Bayou Marsh Creation
Preliminary Project Concept

PPL31 Orange Bayou Marsh Creation Options:
350 or 640 acres
(Grand Lake Borrow)



Project Area Problems, Goals, & Solutions

Problems: Wetland Degradation (-1.36%/yr)

- Sea Level Rise, Subsidence, Hurricane Impacts, Conversion of Marsh to Open Water, & Nutria Foraging

Goals: Marsh Creation & Nourishment

- Restore intertidal marsh habitat
- Design & construct resilient wetlands to maximize wetland benefits throughout the 20 year project life

Restoration Solution:

- 300 acres of Marsh Creation & 50 acres of Marsh Nourishment
- Hydraulically dredge material from Grand Lake
- Contained Fill areas with dikes gapped after construction



Project Map

- 2017 State Master Plan Polygon 001.MC.102
- Grand Lake Borrow Area
- 350 acres TOTAL of Marsh Creation/Nourishment
- Approximately 300 acres Creation and 50 acres Nourishment
- Approximately 290 acres of Alternative Marsh Creation



PPL31 Orange Bayou Marsh Creation

300 Acres Marsh Creation
50 Acres Marsh Nourishment

Federal Sponsor: NOAA Fisheries
2016 Aerial Imagery
Map Date 01-31-2020

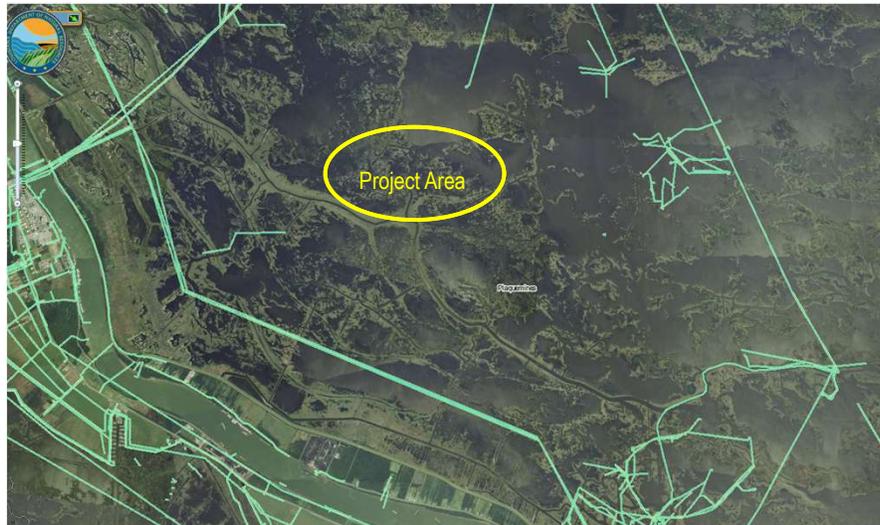
Legend

- Alternative Marsh Creation 290 acres
- Marsh Creation 350 acres
- Borrow Area



Pipelines

Orange Bayou Marsh Creation Project



U.S. Department of Commerce | National Oceanic and Atmospheric Administration | NOAA Fisheries | Page 121

Orange Bayou Marsh Creation Project

Summary of Features, Cost, and Benefits

- **350 Acres Total**
 - 300 acres Marsh Creation
 - 50 acres Nourishment
- **Construction Cost + 25% Contingency \$15M - \$20M**
- **Net Benefits: 250-300 acres**

Contact Information:

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U.S. Department of Commerce | National Oceanic and Atmospheric Administration | NOAA Fisheries | Page 122

PPL31 PROJECT FACT SHEET
February 4, 2021

Project Name

Horsepower Canal Marsh Creation

Project Location

Region 2, Breton Sound Basin, Plaquemines Parish, East of Phoenix, LA

Problem

Within the project vicinity, marsh loss has occurred as the result increased saltwater intrusion due to oil/gas canals, subsidence, and a lack of sediment deposition. Historically, the marshes were nourished and replenished with freshwater, nutrients, and sediment by overbank flooding from the Mississippi River. Tropical storms have exacerbated the deterioration of these freshwater marshes. For the Phoenix Marsh Creation-West Increment Project (PPL30), USGS calculated a land change rate of -0.65% per year for the period 1984 to 2019.

Goals

The primary goal of this project is to restore degraded marsh along the east bank of Plaquemines Parish near Pointe a la Hache and to protect the marshes and communities along the East Bank. Restoring marsh in this location will help to prevent the coalescence of open water areas. The specific goal of this project is to create 355 acres of marsh and nourish 150 acres of marsh with dredged material from the Mississippi River.

Proposed Solution

Sediment will be hydraulically dredged from the Mississippi River-Myrtle Grove Anchorage to create 355 of marsh and nourish an additional 150 acres. The dredged riverine sediments will be pumped via pipeline into two fully-contained marsh creation cells. Containment dikes will be gapped no later than three years post construction.

Preliminary Project Benefits

- 1) *What is the total acreage benefited both directly and indirectly?*
Approximately 505 acres would be benefited directly, including 355 acres of marsh creation and 150 acres of marsh nourishment.
- 2) *How many acres of wetlands will be protected/created over the project life?*
Approximately 300-350 ac. of marsh will be protected/created over the project life.
- 3) *What is the anticipated loss rate reduction throughout the area of direct benefits over the project life (e.g., 50% reduction in the background loss rate)?*
The anticipated land loss rate reduction throughout the area of direct benefits will be 50% over the projects life.
- 4) *Do any project features maintain or restore structural components of the coastal ecosystem such as barrier islands, natural or artificial levee ridges, beach and lake rims, cheniers, etc?* No.

- 5) *What is the net impact of the project on critical and non-critical infrastructure?*
The project will support critical infrastructure including Louisiana Highway 39, a hurricane evacuation route, and the Mississippi River and hurricane protection levees. These levees provide protection to the communities along the river including Phoenix and Carlisle.

- 6) *To what extent does the project provide a synergistic effect with other approved and/or constructed restoration projects?*
The project will have a synergistic effect with projects along the Breton Sound Basin Landbridge including the Phoenix Marsh Creation – East Increment Project and the Breton Landbridge Marsh Creation (West) Project.

Considerations

The proposed project has potential utility/pipeline and levee considerations.

Preliminary Costs

The construction cost plus 25% contingency is \$35-40 million.

Preparer of Fact Sheet

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Jackie Jones, Jacqueline.Jones@USDA.gov, 337/291-3055



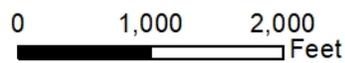
Map Produced By:
United States Department of Agriculture
Natural Resources Conservation Service
Alexandria, LA

Data Source: NAIP 2019

Map Date: JANUARY 4, 2021



**PPL 31
HORSEPOWER CANAL
MARSH CREATION
PLAQUEMINES PARISH, LA**



Legend

 MARSH_CREATION

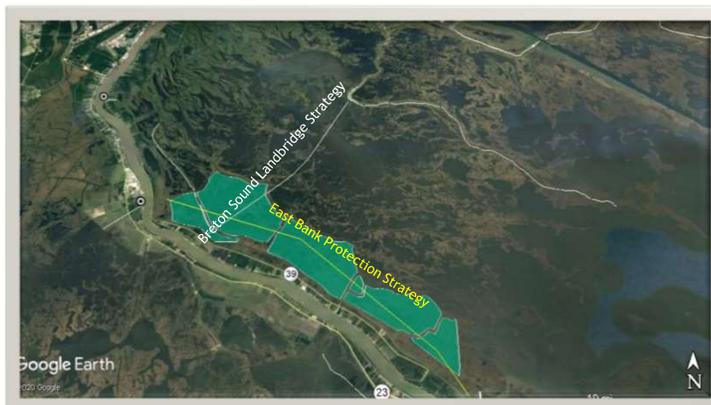
PPL31
Horsepower Canal Marsh Creation
Region 2, Breton Sound Basin

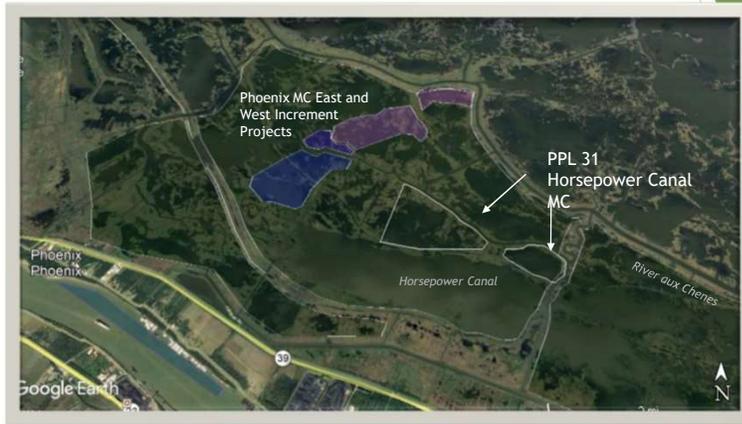


Contacts:
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Jackie Jones, Planning Engineer, Jacqueline.Jones@USDA.gov, 337/291-3055



Breton Sound Basin Restoration Strategies





PPL31 - Horsepower Canal Marsh Creation

Mississippi River Borrow

355 acres Marsh Creation

150 acres Marsh Nourishment

505 acres Total

300-350 net acres

Construction Costs + 25%

Contingency = **\$35-40M**

Support critical infrastructure:

- LA Hwy 39 (Evacuation Route)
- Mississippi River
- Hurricane protection levees
- Communities along the river (Phoenix & Cartisle)



PPL31 PROJECT FACT SHEET
February 4, 2021

Project Name

Terre aux Boeufs Ridge and Breton Marsh Restoration

Project Location

Region 2, Breton Sound Basin, St. Bernard and Plaquemines Parishes, along the western bankline of Bayou Terre Aux Boeufs and along the western side of the TGP Twin Pipeline (PL) canal.

Problem

Historic ridge habitat loss has occurred in the form of subsidence and shoreline erosion along Bayou Terre aux Boeufs. Shoreline erosion is caused by boat traffic from recreational and commercial vessels. The ridge is subsiding due to anthropogenic and natural processes. Live Oak-Hackberry forest habitat associated with ridges in Louisiana is utilized by trans-gulf migratory bird species as a first and last stop when crossing the Gulf of Mexico. This critical habitat is rated as S1 and S2 priority by the state of Louisiana (reference). This historic ridge is the barrier that separates brackish from intermediate marsh in the Breton Basin. Loss of this hydrological barrier could pose greater threats to already diminishing intermediate marshes.

Pipeline canals and channelization have already increased the tidal prism and allowed higher salinities waters to infiltrate fresher marshes further inland in the Breton Marshes. As fresher marshes die off organic soils are lost during tidal exchange and their ability to withstand storm surges is weakened. Due to this altered hydrology and saltwater intrusion, marsh loss has increased exposure of the communities of Delacroix and Reggio to flooding. Restoring the ridge feature and the marsh along the Twin PL canal is vital to restoring the tidal prism and protecting these natural hydrologic barriers. The 1984 to 2019 USGS loss rate calculated for extended boundary of the North Delacroix MC & terracing project is -1.41%/year.

Goals

The primary goals of this project are: 1) create forested, coastal ridge habitat along the western bank of Bayou Terre aux Boeufs, and 2) restore marsh habitat along the Twin PL Canal via marsh creation and marsh nourishment to maintain and restore the natural hydrology. Specific goals of the project are: 1) Create approximately 23,109 linear feet (20 acres) of forested ridge; and 2) restore 671 acres with dredged material from Lake Amedee/Cochon Bay.

Proposed Solution

Lake sediments will be hydraulically dredged and pumped via pipeline to create 385 acres & nourish 286 acres of marsh. Containment dikes will be gapped and the ridge will be planted. The intent is to restore degraded marsh west of the TGP Twin Pipeline canal to reduce tidal movement through broken marsh further inland and restore the salinity gradient. The bayou will be mechanically dredged to create 23,109 linear feet (28 acres) of ridge habitat, with 25-foot top width, and 1:5 to 1:7 side slopes. Ridge plantings are proposed.

Project Benefits

The project would result in approximately 370 net acres of marsh and 28 acres of forested ridge over the 20-year project life.

Preliminary Cost

The estimated construction cost including 25% contingency is \$30M - \$35M.

Preparer of Fact Sheet

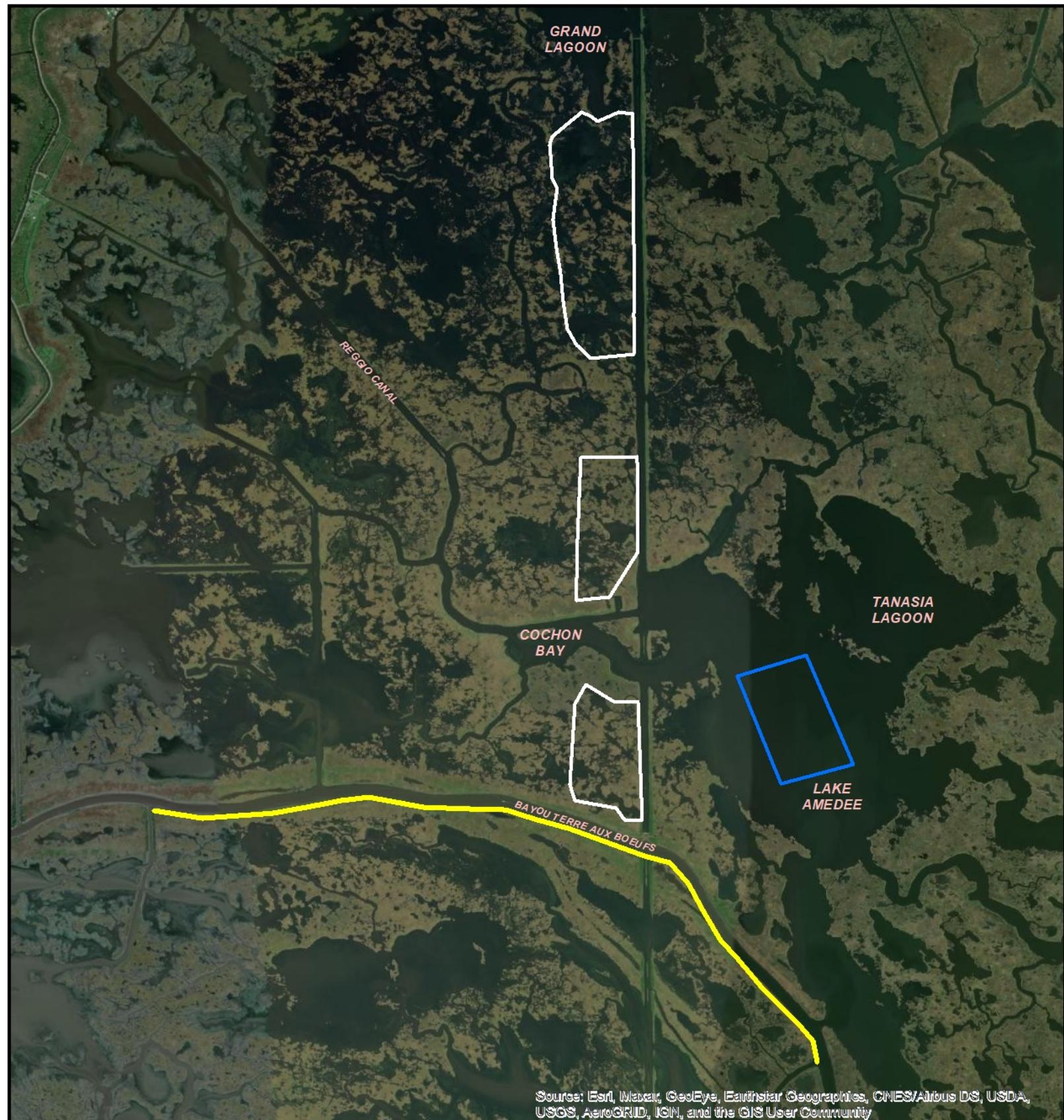
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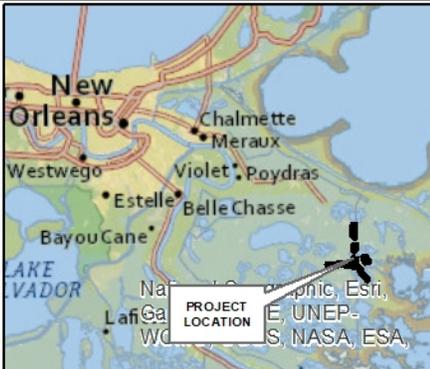


Source: Esri, Maxar, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

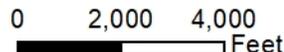


Map Produced By:
United States Department of Agriculture
Natural Resources Conservation Service
Alexandria, LA

Data Source: ESRI APRIL 2018
Map Date: JANUARY 21, 2021



PPL 31
TERRE AUX BOEUFs RIDGE AND
BRETON MARSH RESTORATION
ST BERNARD AND
PLAQUEMINES PARISH, LA



Legend

- MARSH_CREATION
- RIDGE_RESTORATION
- BORROW_AREA

PPL31
 Terre aux Boeufs Ridge & Breton Marsh Restoration
 Region 2, Breton Sound Basin



Contacts:

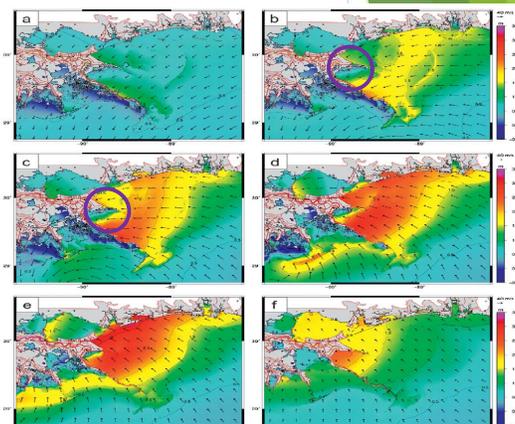
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 Jackie Jones, USDA-NRCS, Jacqueline.Jones@usda.gov, 337/291-3055



Deterioration of the ridge and marsh increased the tidal prism and allowed higher salinities waters to infiltrate fresher marshes resulting in a net loss of organic soils

Breton communities/ecosystems have become vulnerable with loss of the BTAB ridge & marsh

Ridge systems are integral part of the Multiple Lines of Defense Strategy





Louisiana's Coastal Wetlands & Maritime Forests: Americas' Avian Port of Call



PPL31 PROJECT NOMINEE FACT SHEET
February 4, 2021

Project Name

Bohemia Spillway Outfall Management

Project Location

Region 2, Breton Sound Basin, Plaquemines Parish

Problem

The Bohemia Spillway is one of the few areas within the Mississippi (MS) River floodplain that is considered sustainable and has relatively low rates of land loss. Land loss is associated with the direct loss due to dredging of canals and due to shoreline erosion near the bays. Even though this area is considered a stable marsh land building has yet to occur. Sediment supplied by overbank flooding is not directly delivered to the marsh but is carried out into adjacent bays through the numerous canals and bayous. Currently, under the normal range of river stage that goes through the Bohemia Spillway, peak annual flow is likely to 30,000 to 50,000 cubic feet per second (LPBF Bohemia Spillway Report 2013). In that Report, it is suggested that sediment that gets deposited into the bay is redistributed into the marsh during storms and fronts. Loss rates for 1985-2016 for the American Bay mapping unit is -0.44%/yr (Couvillion et al. 2017).

Goals

The primary goal is to manage outfall of the Spillway to enhance the natural marsh processes and increase the growth rate of the emergent wetlands associated with Lower Grand Bayou and John Bayou distributaries. Specific goals include: 1) maintaining and increase flow of fresh water and sediments into shallow, open-water habitat, 2) create 318 acres of marsh using the material from the bayous, 4) create 20,600 linear feet (LF, 13 acres) of terraces, 3) reduce fetch and wave energy in open water areas and 6) protect 3,700 LF of shoreline along Battle Ground Bay. The project will build upon the multiple lines of defense strategy by extending the marsh into the bays offering a buffer for areas to the north. Additional indirect benefits include increased sediment retention within the marsh and bay areas.

Proposed Solution

The proposed solution is to create approximately 318 acres of marsh within the outfall of John and Lower Grand Bayous to facilitate sediment retention in the bays. Material will be dredged primarily from Lower Grand Bayou (18,300 LF) and John Bayou (11,000 LF) to ensure efficiency of the distributary bayous. Portions of the Back Levee Canal (10,000 LF) experiencing siltation will also be dredged to ensure flow to these bayous. A crevasse (433 feet long x 75 feet wide x 8 feet deep) will be dredged to facilitate sediment-laden waters into Long Bay from Lower Grand Bayou. Approximately 20,600 linear feet of terraces (i.e., 300 acres of terrace field/s resulting in 13 acres of marsh creation benefits) will be created within strategic areas to encourage sediment retention. The terrace slopes and crown would be planted with appropriate marsh vegetation. Shoreline protection is proposed along the southwestern shoreline of Battle Ground Bay to prevent the shoreline from eroding into inland bays and bayous. Approximately 3,700 linear feet (12,333 sq. yards) of gabion mattresses will be placed along the foreshore containment dike of the proposed marsh creation area.

Preliminary Project Benefits

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

The total project area is 331 (318+13) acres will be benefited directly through marsh creation and terracing. An additional 300 acres (terrace field acres) or more could experience increased sediment deposition within the terrace fields and marsh creation areas.

- 2) *How many acres of wetlands will be protected/created over the project life?*
Approximately 300-350 ac of marsh will be protected/created over the project life.
- 3) *What is the anticipated loss rate reduction throughout the area of direct benefits over the project life (e.g., 50% reduction in the background loss rate)?*
The intent is to increase land building processes in an area that is sustainable. If land change analysis reveals land loss the assumption is the loss will be reduced by 50%.
- 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 protects 3,700 LF of bay rim along Battle Ground Bay.
- 5) *What is the net impact of the project on critical and non-critical infrastructure?*
The project will offer protection to the Mississippi River and Tributaries (MR&T) main line levee and work synergistically with that levee to protect the infrastructure and communities within the flood protection system.
- 6) *To what extent does the project provide a synergistic effect with other approved and/or constructed restoration projects?*
The project concept has been designed to synergistically work with the Bohemia Spillway during high river events to encourage land growth.

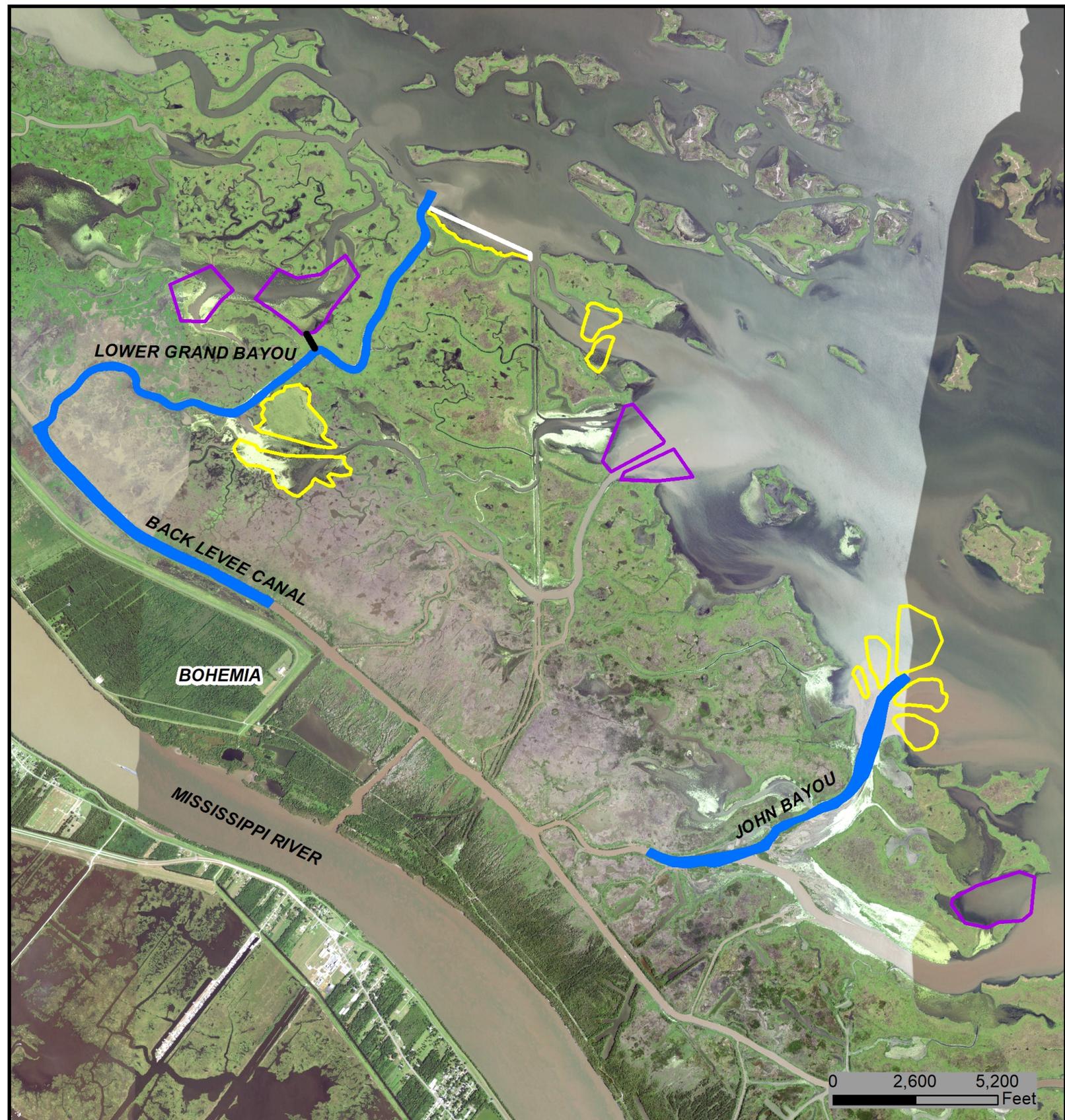
Preliminary Construction Costs

The construction cost +25% contingency is estimated to be \$35-40M.

Preparer(s) of Fact Sheet:

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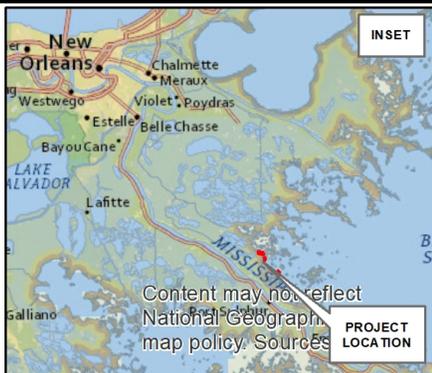
Eric Whitney, USDA-NRCS, eric.whitney@usda.gov, 337-291-3069



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

Data Source: NAIP 2019

Map Date: JANUARY 27, 2020



PPL 30
BOHEMIA SPILLWAY
OUTFALL MANAGEMENT
PLAQUEMINES PARISH, LA



Legend

- █ MARSH_CREATION_1_27_20
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- █ SHORELINE_PROTECTION_1_27_20
- █ TERRACES_1_27_20
- █ 433_FT_CREVASSE

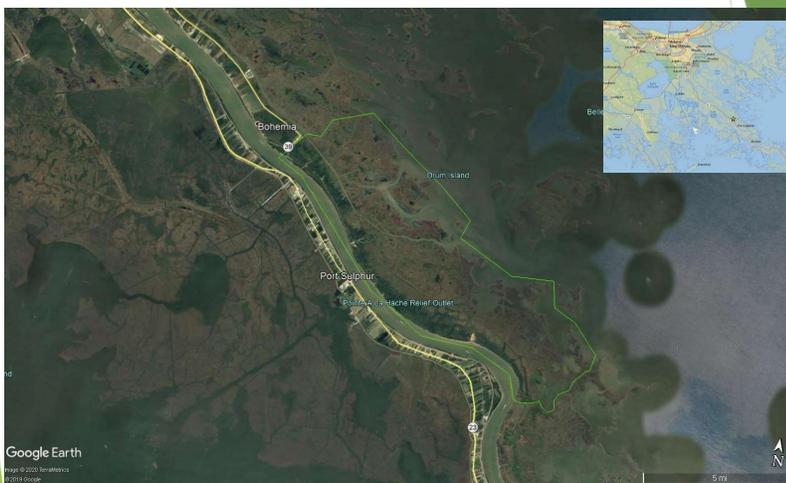
PPL31
Bohemia Spillway Outfall Management
Region 2, Breton Sound Basin



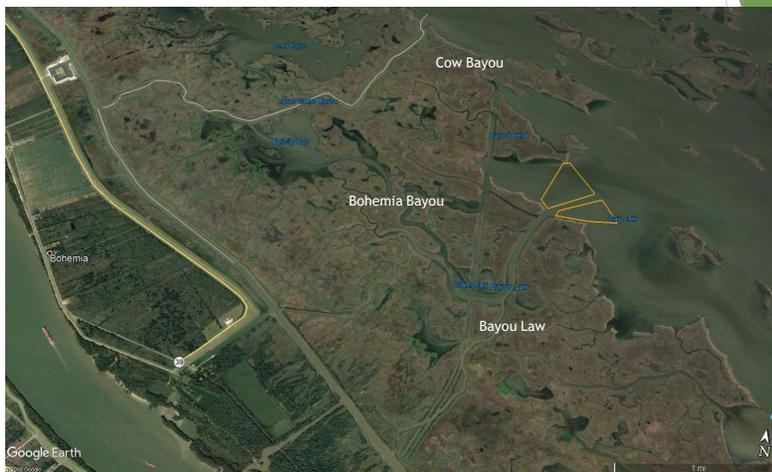
Contacts:
Angela Trahan, USDA-NRCS, angela.trahan@usda.gov, 337-291-3142
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PPL31 Bohemia Spillway Outfall Management



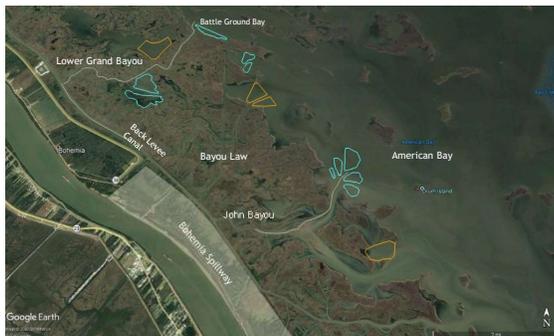
PPL31 Bohemia Spillway Outfall Management



PPL31 Bohemia Spillway Outfall Management



PPL31 Bohemia Spillway Outfall Management



Goal:

- Dredging: 31,000 LF
- Marsh Creation: 318 Acres
- Terraces:
 - 20,600 LF
 - 3 Terrace Fields (300 Acres)
 - 13 acres MC
- Shoreline Protection: 3,700 LF

Construction Costs + 25%
Contingency = \$30-35M



Delta Mngt at Fort. St Philip (BS-11)

“The ultimate usefulness of sediment to build coastal wetlands by an outlet or diversion is dependent not just on the outlet or diversion’s existence, capacity, and operation, but also on the riverside and bayside conditions to capture sediment, build land and become vegetated.”

-LPBF 2017

December-2006



November-2016



West Bay Diversion



PPL30 PROJECT NOMINEE FACT SHEET
February 4, 2021

Project Name

Bayou Grosbec Marsh Creation

Project Location

Region 2, Breton Basin, St. Bernard Parish

Problem

Hurricanes Katrina and Rita caused the majority of wetland loss in the project area. Wind erosion and saltwater intrusion have resulted in loss of marsh vegetation and wetland soils. Marsh loss has increased exposure of Delacroix to flooding from the east/southeast. The USGS expanded project boundary loss rate from the nearby PPL28 East Delacroix Marsh Creation and Terracing (BS-37) project is -1.58%/yr from 1984 to 2018 for the extended project boundary area.

Goals

The project goal is to create and nourish approximately 410 acres (ac) of tidal emergent marsh.

Proposed Solution

The project goal is to create and nourish approximately 410 ac of marsh (369 ac creation 41 ac nourishment) utilizing a layout to help protect the community of Delacroix and provide synergy with BS-37, and the BS-41 North Delacroix Marsh Creation and Terracing projects which are both currently in Phase I Engineering and Design. Sediment would be mined from Cochon Bay and placed via pipeline. The borrow area would be designed to avoid adverse impacts to the existing shorelines of Cochon Bay. During both Phase 0 and Phase 1, opportunities would be explored to increase the amount of marsh creation.

Preliminary Project Benefits

- 1) *What is the total acreage benefited both directly and indirectly?*
This total project area is 410 ac.
- 2) *How many acres of wetlands will be protected/created over the project life?*
Approximately 300 – 350 ac of marsh will be protected/created over the project life.
- 3) *What is the anticipated loss rate reduction throughout the area of direct benefits over the project life (e.g., 50% reduction in the background loss rate)?*
The anticipated land loss rate reduction throughout the area of direct benefits will be 50-74% over the projects life.
- 4) *Do any project features maintain or restore structural components of the coastal ecosystem such as barrier islands, natural or artificial levee ridges, beach and lake rims, cheniers, etc?*
The project will help protect the Bayou Terre aux Boeuf Ridge.
- 5) *What is the net impact of the project on critical and non-critical infrastructure?*

The project would have moderate net positive impact to critical infrastructure which consists of Delacroix Highway, a hurricane evacuation route, and residences of Delacroix. Net positive impact would result from providing synergistic flood protection with the back levee and help protect the highway.

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

The project will have a synergistic effect with the CIAP project constructed west of Delacroix helping to protecting Delacroix from wave fetch, BS-37, and the N Delacroix project.

Considerations

The proposed project has potential utility/pipeline considerations.

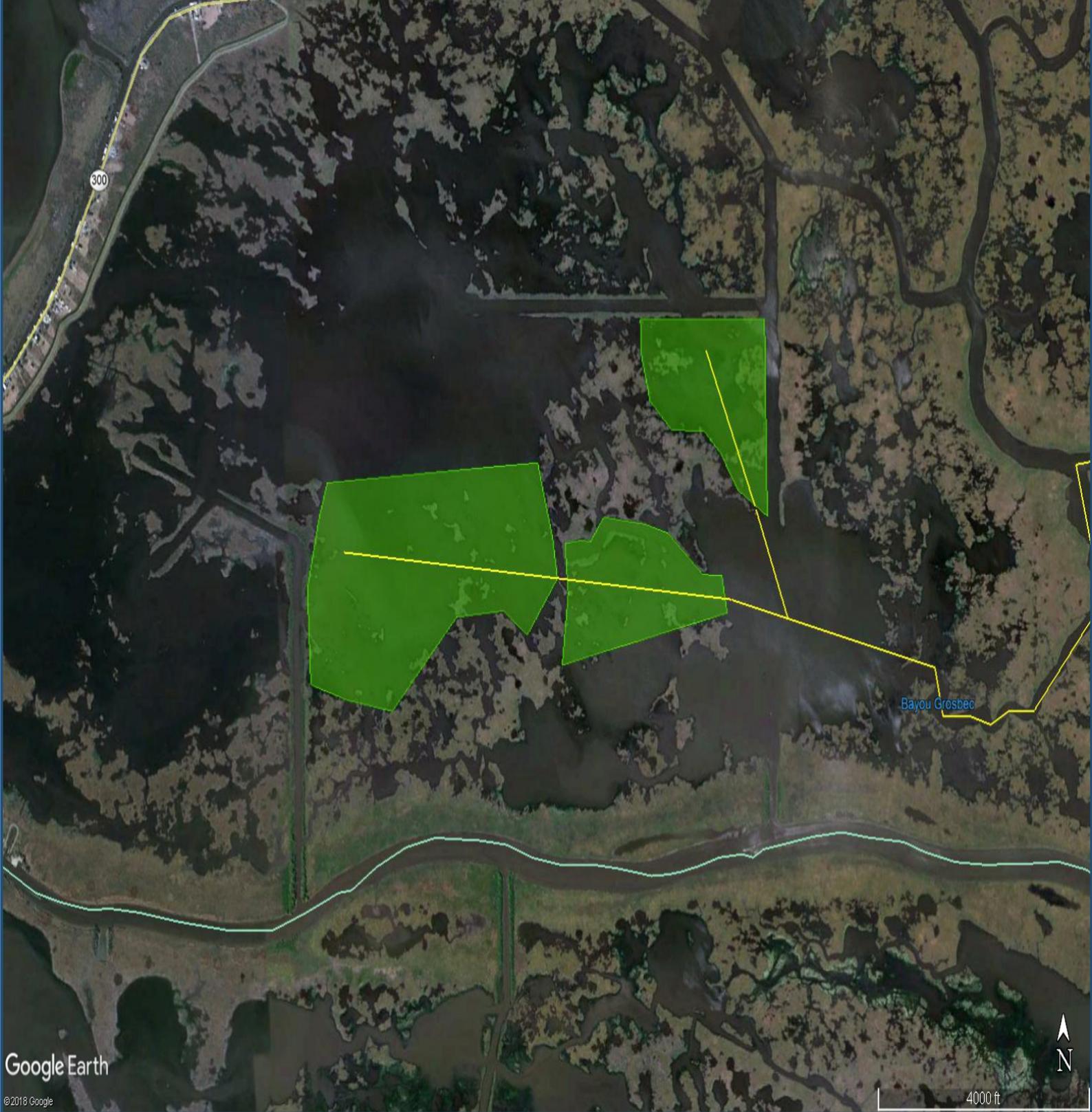
Preliminary Construction Costs

The estimated construction cost plus 25% contingency is \$25M - \$30M.

Preparer(s) of Fact Sheet:

Brandon Howard, NOAA Fisheries, 225-380-0050, brandon.howard@noaa.gov

Jason Kroll, NOAA Restoration Center, 225-757-5411, jason.kroll@noaa.gov



Google Earth
© 2018 Google

Bayou Grosbec



4000 ft



PPL31 Bayou Grosbec Marsh Creation

377 Acres Marsh Creation
33 Acres Marsh Nourishment

Federal Sponsor: NOAA Fisheries
2018 Aerial Imagery
Map Date 2-4-2021

Legend

-  Dredge Pipeline
-  Marsh Creation Areas



NOAA
FISHERIES

Bayou Grosbec Marsh Creation



REGION 2 – Breton Basin

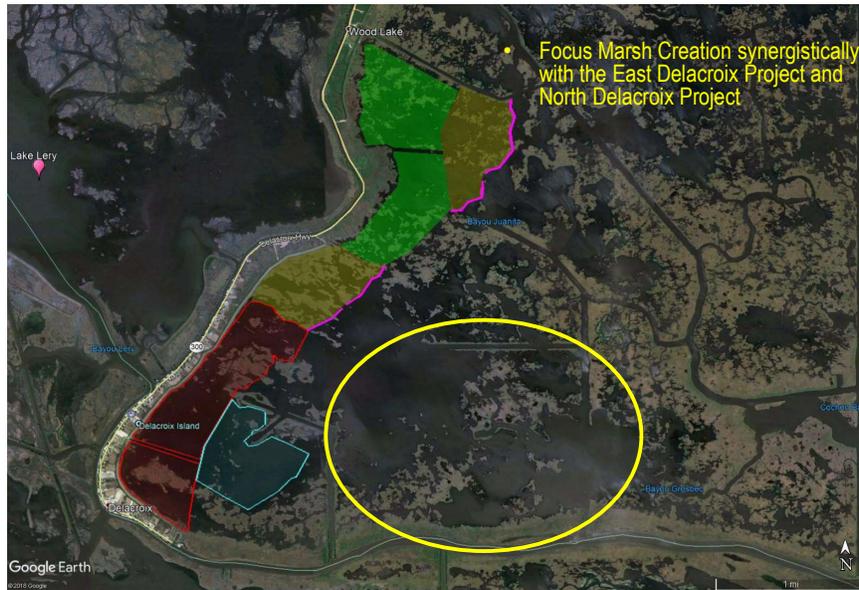
Presenter: Brandon Howard, Fishery Biologist, NOAA

Special Thanks

Jerry Graves, Jr.
John Lane
George Ricks
St. Bernard Parish

PPL30 CWPPRA Regional Planning Team Meeting
February 4, 2021

Bayou Grosbec Marsh Creation Project



Restoration Solution

- 410 Acres of Marsh Creation/Nourishment
 - 369 acres of marsh creation & 41 acres of marsh nourishment
 - Hydraulically dredge material from Cochon Bay
 - Contained fill areas with dike gapping after construction

Project Map

- 2017 State Master Plan Polygon 001.MC.06a
- Cochon Bay Borrow Area
- 410 Acres TOTAL of Marsh Creation/Nourishment
- Approximately 369 acres Creation and 41 acres Nourishment



 **PPL31 Bayou Grosbec Marsh Creation**

377 Acres Marsh Creation
33 Acres Marsh Nourishment

Federal Sponsor: NOAA Fisheries
2018 Aerial Imagery
Map Date 2-4-2021

Legend

-  Dredge Pipeline
-  Marsh Creation Areas

Summary of Features, Cost, and Benefits

- **410 Acres Total**
 - 369 acres Marsh Creation
 - 41 acres Nourishment
- **Construction Cost + 25% Contingency \$25M - \$30M**
- **Net Benefits: 300 - 350 acres**

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NOAA FISHERIES

PPL31 PROJECT NOMINEE FACT SHEET
February 4, 2021

Project Name

Spanish Lake Shoreline Restoration (Shoreline Berm/Marsh Creation)

Project Location

Region 2, Breton Basin, Plaquemines Parish, west of Grand Lake and east of Spanish Lake.

Problem

From 1932 to 1990, the Caernarvon Mapping Unit lost 14,240 acres of its marsh. Prior to Hurricane Katrina, the greatest loss documented occurred between 1956 and 1974 and coincided with Hurricane Betsy and extensive canal building. Hurricane Katrina in 2005 devastated the area resulting in substantial marsh loss. According to USGS Open File Report (2006-1274), approximately 39 square miles of marsh around the upper and central portions of Breton Sound were converted to open water by mechanical removal of the marsh or by marsh submergence. Based on the hyper-temporal analysis conducted by USGS for the extended project boundary, the loss rate in the project area is estimated to be -1.99% /year for the period 1984 to 2016.

Goals

The goal of this project is to restore the eastern shoreline of Spanish Lake with a more robust marsh (slightly higher than typical CWPPRA marshes) and create more typical intertidal marsh in the open water and fragmented marshes east of that restored shoreline.

Specific goals: 1) Create approximately 300 acres of intermediate to low salinity brackish marsh around the perimeter of Spanish Lake. 2) Restore approximately 18,000 linear feet of Spanish Lake's eastern shoreline.

Proposed Features

1. Hydraulically dredge material from the Mississippi River (Alliance or Alliance South Anchorage) to create/nourish 300 acres of marsh.
2. Approximately 18,000 linear feet of shoreline would be restored with material dredged from Mississippi River.
3. Material would be shaped from a higher elevation near the newly created Spanish Lake shoreline to a lower elevation east of that shoreline.
4. Because river material will be used, earthen containment would not be necessary.

Preliminary Project Benefits

- 1) *What is the total acreage benefited both directly and indirectly?*
This total project area is 600 ac.
- 2) *How many acres of wetlands will be protected/created over the project life?*
Approximately 235 net acres would result after the 20-year project life.
- 3) *What is the anticipated loss rate reduction throughout the area of direct benefits over the project life (<25%, 25-49%, 50-74%, and >75%)?*

The anticipated land loss rate reduction throughout the area of direct benefits is approximately 50% to 74% over the project life.

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

This project would restore the eastern shoreline of Spanish Lake.

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

This project would help protect small camps around the Spanish Lake area.

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

This project would work synergistically with the constructed BS-16 project, the BS-24, BS-32, BS-38 and the newly selected Phoenix Marsh Creation-East Increment project which currently in Phase I (engineering and design).

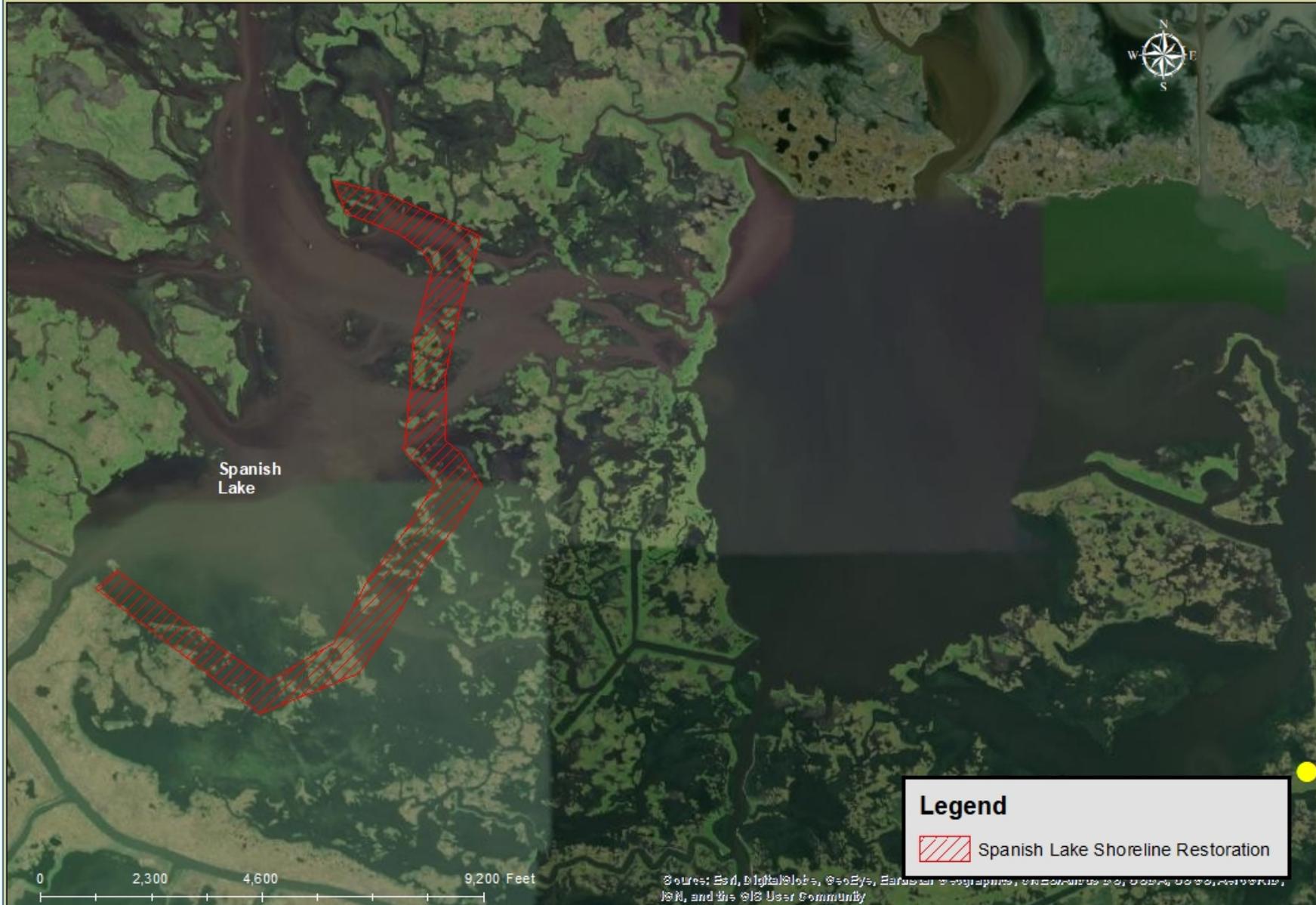
Preliminary Cost

The construction cost plus 25% contingency is estimated to be \$30-\$35M.

Preparer(s) of Fact Sheet:

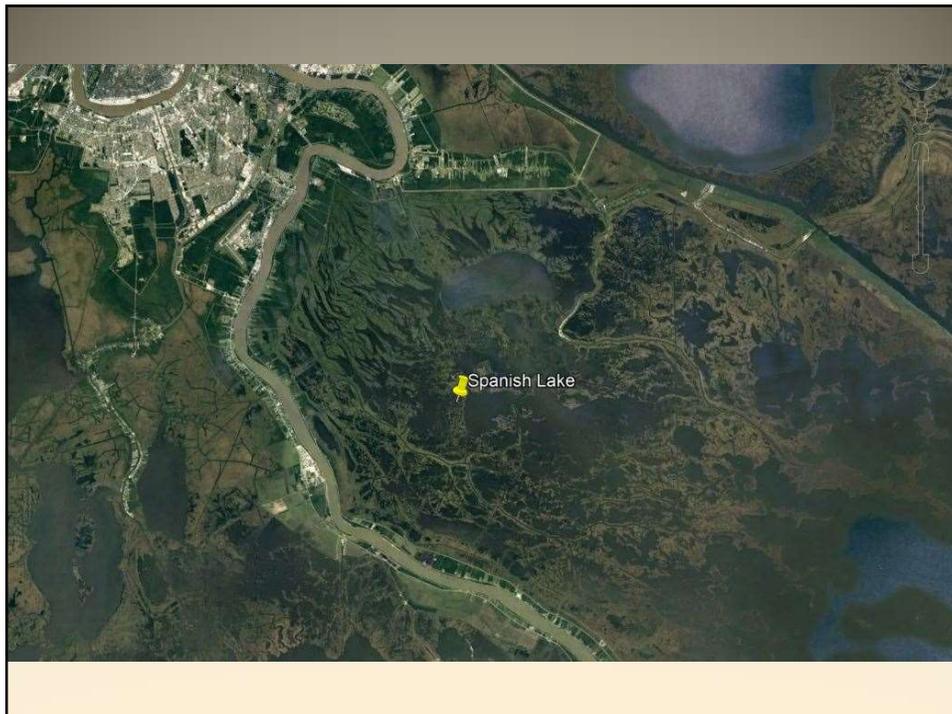
Robert Dubois, Fish and Wildlife Service, 337-291-3127 Robert_Dubois@fws.gov

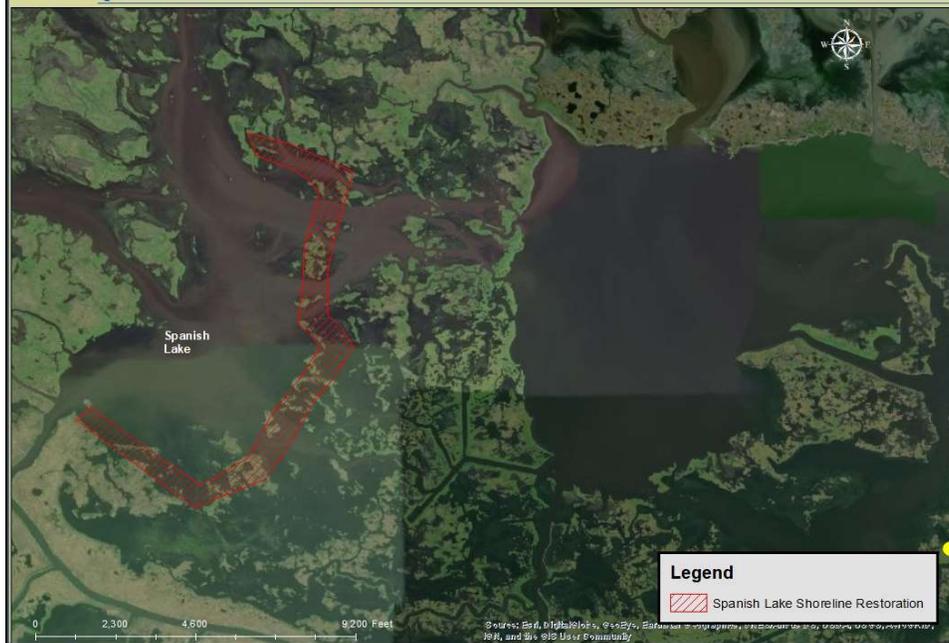
Spanish Lake Shoreline Restoration





SPANISH LAKE SHORELINE RESTORATION AND MARSH CREATION





SPANISH LAKE SHORELINE RESTORATION AND MARSH CREATION

Problem:

- Hurricane Katrina destroyed thousands of acres of marsh
- Estimated over 40 sq. miles of marsh were converted to open water from Hurricane Katrina
- Because of increased open water, wave fetch induced erosion is now a problem





Spanish Lake Shoreline Restoration



SPANISH LAKE SHORELINE RESTORATION AND MARSH CREATION

Solution:

- Hydraulically dredge material from the Mississippi River to restore the eastern shoreline of Spanish Lake (270 acres marsh creation and 30 acres marsh nourishment).
- Because this is proposed with river material, no containment dikes are being proposed at this time.



SPANISH LAKE SHORELINE RESTORATION AND MARSH CREATION

Goals:

- Restore approximately 17,000 ft. of the eastern Spanish Lake shoreline with material dredged from the Mississippi River .
- Create/nourish 300 acres of enhanced (slightly higher) intertidal marsh between Spanish and Grand Lakes with material dredged from the Mississippi River.

Net Acres:

- Total net acres = 235 acres (not including hydraulic components)

Preliminary Construction Costs

- The estimated construction cost range plus 25% contingency \$30-\$35M.

Species of Concern and Rare Species

- **Least Bittern**
- **Black Rail**
- **Mottled Duck**
- **King Rail**

PPL31 Spanish Lake-Grand Lake Marsh Creation

Project Location:

Region 2, Breton Sound Basin, Plaquemines Parish, west of Delacroix, Louisiana

Problem:

Historically this area was nourished by the fresh water, sediment and nutrients delivered by the Mississippi River. Following the creation of levees along the lower river, these inputs largely ceased. In 1991, the Caernarvon Freshwater Diversion Structure became operational with capabilities to divert up to 8,000 cubic feet/sec. As a result, marshes in the area have fluctuated between fresh/intermediate and brackish/saline habitat types over time.

The major cause of wetland loss for this area has been attributed to storm activity (i.e. Hurricanes Betsy and Katrina), causing both storm-induced scour and salt water intrusion. Altered hydrology and oil/gas development have exacerbated storm-related loss. Subsidence, high in this area, ranges from 2.1-3.5 ft./century. Natural lakes and bays continue to increase in size due to coalescence with marsh lost to water and increased wave fetch. The 1984 to 2019 USGS loss rate is -0.96%/yr. for the extended boundary area.

Goals:

The primary goals of this project are to restore degraded wetland habitat and provide increased protection from storm surge and flooding. Specific objectives are to 1) create 467 acres of emergent marsh, 2) nourish 216 acres of emergent marsh.

Service goals include restoration/protection of habitat for threatened and endangered species and other at-risk species. This project would restore habitat potentially utilized by the black rail, which is proposed for listing as a threatened species. The project could also benefit other species of concern including the osprey, mottled duck, saltmarsh topminnow, and seaside sparrow.

Proposed Solution:

This project would create/nourish 683 acres of marsh using material hydraulically dredged from Grand Lake with an initial target fill elevation of +1.04 feet (NAVD88). Constructed earthen containment dikes would be gapped as needed by year 3 to provide tidal exchange after fill materials settle and consolidate. The proposed project features will help maintain the marshes west of Grand Lake and stop the coalescing of Grand Lake and Spanish Lake. The proposed project would be synergistic with the 2017 Master Plan's East Bank Land Bridge Marsh Creation projects of which three projects are in the Engineering and Design phase.

Project Benefits:

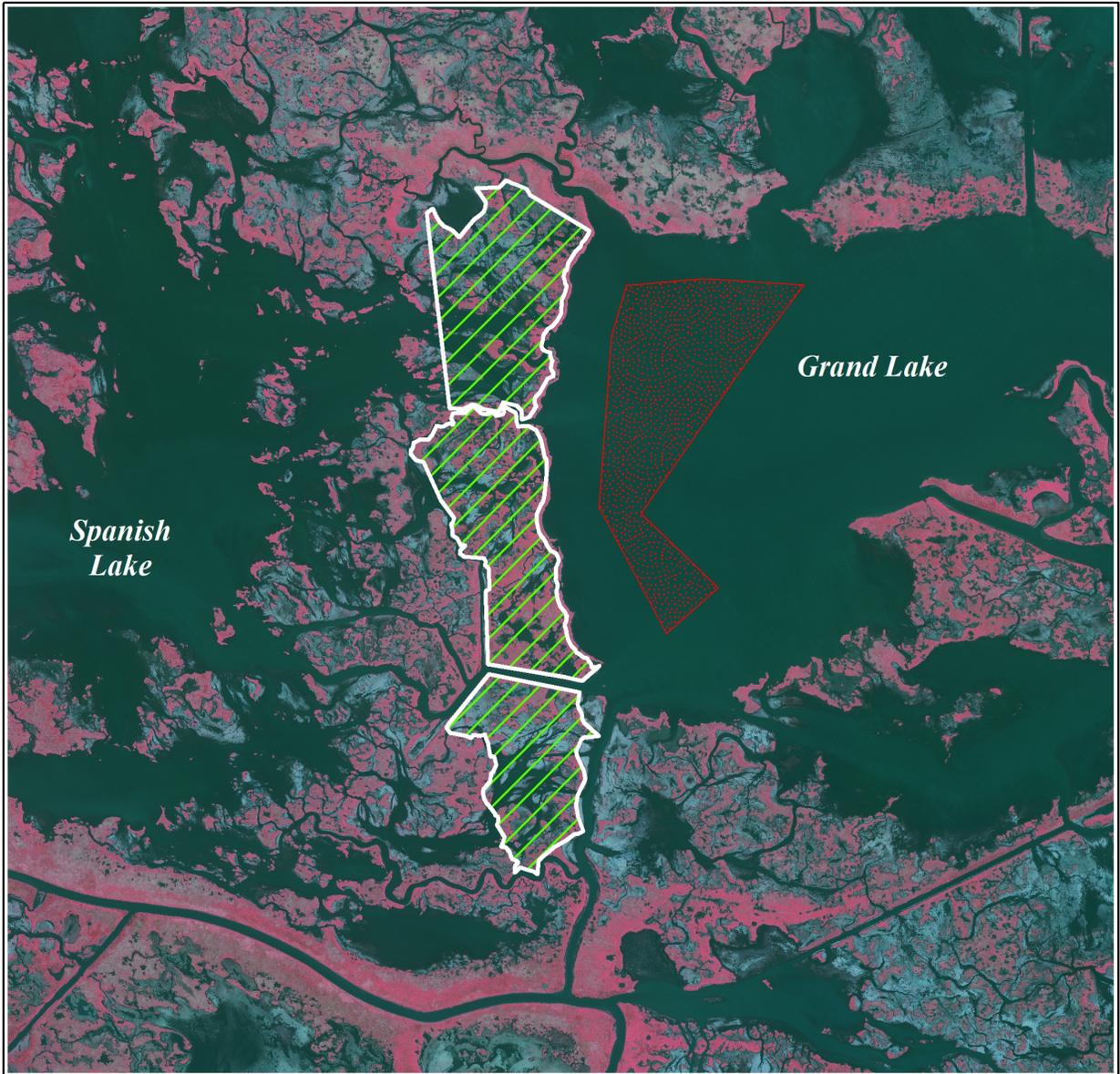
The project would result in approximately 442 net acres over the 20-year project life.

Project Costs:

The construction cost plus 25% contingency is between \$25-\$30M.

Preparer of Fact Sheet:

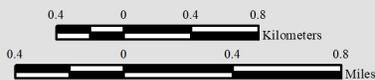
Robert Dubois; FWS; (337) 291-3127; robert_dubois@fws.gov



Spanish Lake - Grand Lake Marsh Creation (PPL30 Candidate)



-  Marsh Creation/Nourishment *
 -  Borrow Site *
 -  Project Boundary
- * denotes proposed features



Scale: 1:40,000

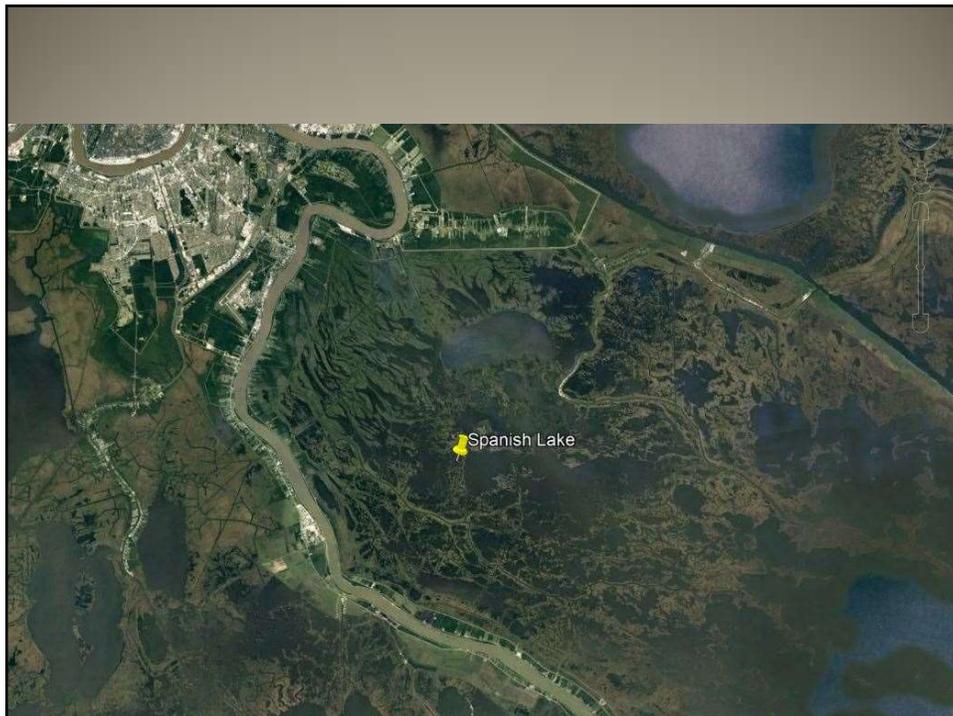
Map ID: 2020-11-0030
Map Date: August 11, 2020

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

Image Source:
2019 NAIP CIR



SPANISH LAKE GRAND LAKE MARSH CREATION

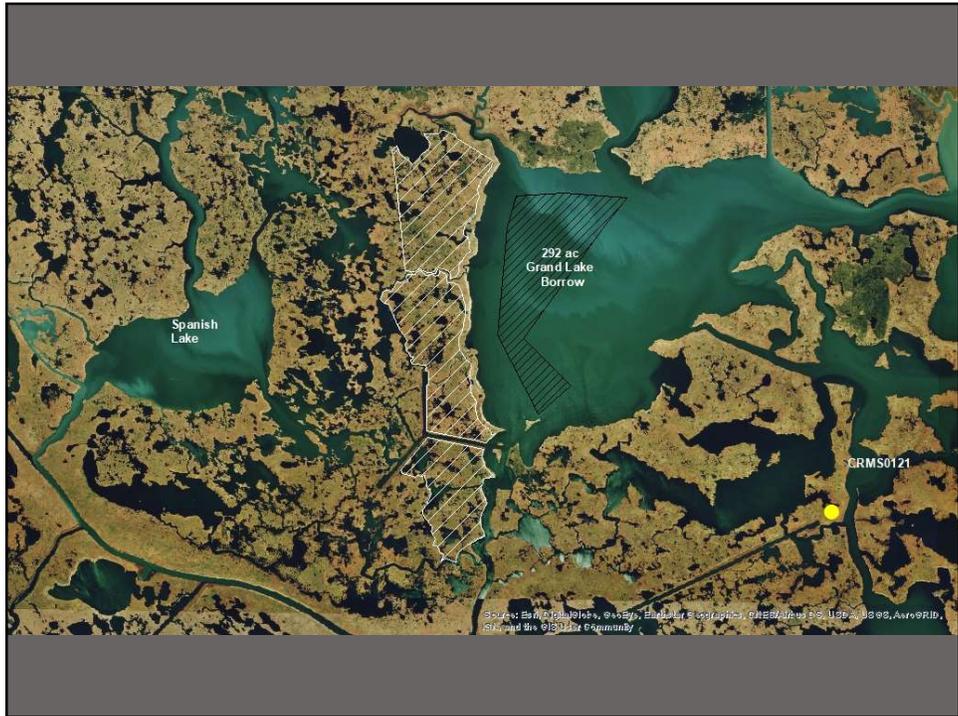


SPANISH LAKE - GRAND LAKE MARSH CREATION

Problem:

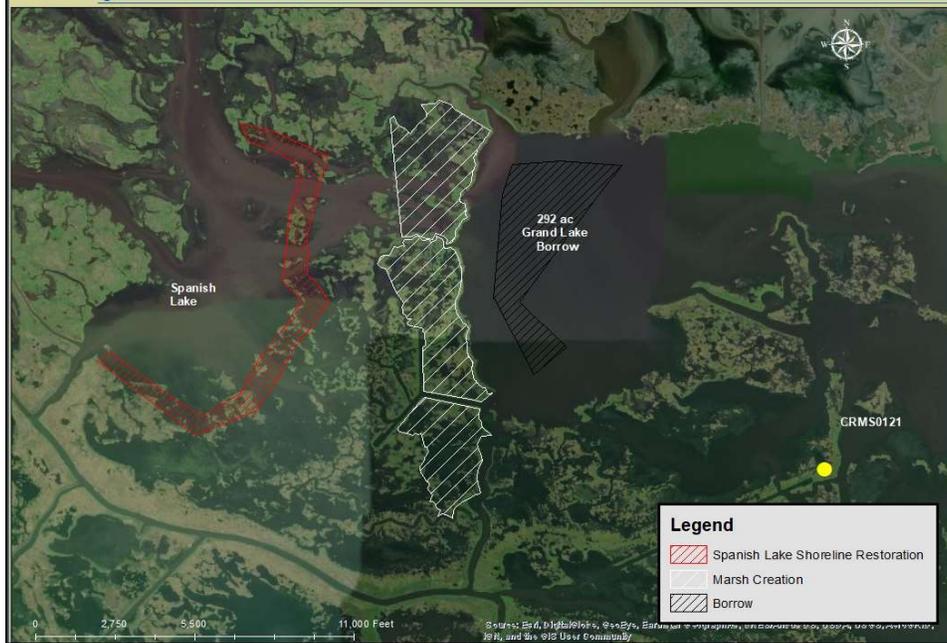
- Hurricane Katrina destroyed thousands of acres of marsh
- Estimated over 40 sq. miles of marsh were converted to open water from Hurricane Katrina
- Because of increased open water, wave fetch induced erosion is now a problem
- Emergent marsh is being/has been lost west of the Grand Lake shoreline. Grand Lake shoreline is not seem to be eroding at significantly high rates (<6 ft./yr.).







Spanish Lake Grand Lake Marsh Creation



SPANISH LAKE – GRAND LAKE MARSH CREATION

Goals:

- Create 467 acres of marsh and nourish 216 acres of broken marsh west of Grand Lake with material dredged from Grand Lake.
- Stop the coalescing of Grand Lake and Spanish Lake

Net Acres:

- Total net acres = 442 acres

Preliminary Construction Costs

- The estimated construction cost range plus 25% contingency \$25-30M

Species of Concern and Rare Species

- **Least Bittern**
- **Black Rail**
- **Mottled Duck**
- **King Rail**