Coastal Wetlands Planning Protection & Restoration Act

29th Priority Project List

Region 4

Regional Planning Team Meeting

February 12, 2019
Lake Charles, LA

CWPPRA

1. Welcome and Introductions

- RPT Region 4 Leader: Darryl Clark - USFWS

CWPPRA

Announcements

- Copies of the PPL 29 Selection Process & Schedule available at the sign-in table.
- PPL 29 RPT meetings to accept project nominees:
  - **Region IV, Port of Lake Charles, Feb. 12, 2019, 10:00 am**
  - Region III, Port of Morgan City - Office, Feb. 13, 2019, 9:30 am
  - Region II, USFWS SE LA Refuges Complex (Big Branch), Feb. 14, 2018, 10:00 am
  - Region I, USFWS SE LA Refuges Complex, Feb. 14, 2019, immediately following Region II
- For parishes that do not have a voting registration form filled out already - Parish representatives must identify themselves during the RPT meetings and **fill out a voting registration form**, including contact information for the primary and secondary voting representatives that will cast votes during the Coastwide Electronic Vote.

CWPPRA

Region 4 Parishes

- Eligible parishes for basins in Region 4 include:
- Calcasieu-Sabine Basin
  - **Cameron Parish**
  - **Calcasieu Parish**
- Mermentau Basin
  - **Cameron Parish**
  - **Vermilion Parish**

CWPPRA

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, excluding coastwide projects, 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 representatives (CWPPRA agencies and only the parishes located within the project's basin) will determine if those projects are sufficiently different
    - If sufficiently different:
      - Each project will move forward
    - If not sufficiently different:
      - Projects will be combined
      - Federal sponsor will be determined prior to coastwide vote (February 28th).
  - *This decision will be made at the meeting where the projects are proposed*

CWPPRA

RPT Meetings

- Presenters without factsheets **MUST** complete a PPL 29 Nomination Sign-Up Sheet for <u>each</u> project nominee (demo projects too).
- Presenters with factsheets, please give a factsheet each to Kaitlyn, Michelle & Lonnie <u>before</u> your presentation.
- Limit project proposals to 5 minutes and Powerpoint presentations to 5 slides.
- Public comments on project proposals will be accepted orally during the RPT meetings and in writing by February 21, 2019.
- Limit comments/questions during meeting to PPL 29 subject proposals and processes.

CWPPRA

Coastwide Projects

- Proposes a technique applicable across the coast (e.g. vegetative planting)
- Nominated at any RPT meeting
- All coastal parishes & agencies will vote on selection of coastwide nominee
- Only one coastwide nominee may be selected from the coastwide nominee pool during the Electronic Coastwide Vote on February 28, 2019.
- The Technical Committee may or may not select a coastwide project in April 2019.

CWPPRA

Demonstration Projects

- Demonstrates a technology which can be transferred to other areas in coastal Louisiana
- Engineering/Environmental Workgroups will validate that demos fit CWPPRA Standard Operating Procedures criteria
- The RPTs select up to 6 demos during the February 28th Coastwide Electronic Vote.
- The Technical Committee selects up to 3 demos in April 2019.
- Workgroups may recommend that no demos move forward to candidate stage
- Previous demo candidates must be ***re-nominated*** for PPL 29.

Coastwide Electronic Vote (February 28th) 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

CWPPRA

Coastwide Electronic Vote

- Each officially designated parish representative, each Federal agency, and the State (CPRA) will have one vote.
- No additional projects can be nominated after the RPTs.
- No significant changes to projects proposed at the first round of RPT meetings will be allowed (this includes combining projects).
- Public comments will be heard today and written comments must be submitted by February 21, 2019.

CWPPRA

Coastwide Electronic Voting Process

- USACE will send out voting sheets as both Excel spreadsheet and PDF documents 1 week prior to the Coastwide Electronic Vote. Voters will only receive voting sheets for the basins that they are eligible to vote for & the column that they need to mark their vote will be highlighted. Voting instructions will be provided with the voting sheets.

- Voters must email their voting sheets to kaitlyn.m.carriere@usace.army.mil

All votes must be received by 10:30 am on February 28, 2019.

CWPPRA

Nominee Project Evaluations

- Following the Coastwide Electronic Vote, an agency will be assigned to each project to prepare a Nominee Project factsheet (1 page + map).
- CWPPRA Engineering & Environmental Workgroups review draft features and assign preliminary cost and benefit ranges.
- Work groups will also review demo & coastwide projects and verify that they meet PPL 29 criteria.

CWPPRA

PPL 29 Candidate Project Selection

Candidates evaluated between May and October

- Workgroups conduct site visits and meetings to identify needs and establish project baselines and boundaries.
- Workgroups determine benefits, project features, and cost estimates

CWPPRA

PPL 29 Candidate Project Evaluation & Selection

- **Coastwide Electronic Vote, Feb. 28, 2019**
  - **21 basin-project nominees, 1 coastwide nominee, and 6 demos selected**
- **Technical Committee Mtg, Apr. 11, 2019, Baton Rouge**
  - **Selection of 10 candidates and up to 3 demos**
- **Technical Committee Mtg, Dec. 5, 2019, New Orleans**
  - **Typically recommend up to 4 projects for Phase 1 funding**
- **Task Force Mtg, Jan. 2020, New Orleans**
  - **Final Selection of projects for Phase 1 funding**

CWPPRA

Written Comments

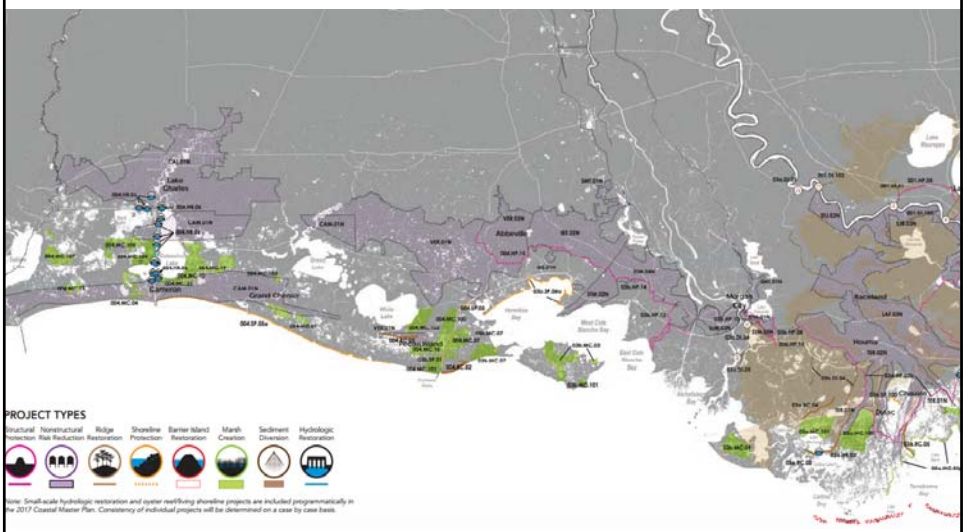
- Send written comments on projects & demos proposed today to the CWPPRA program manager
- **Deadline: February 21, 2019**

Brad Inman
Projects and Restoration Branch Chief
U.S. Army Corps of Engineers
7400 Leake Avenue
New Orleans, Louisiana 70118

Email: Brad.L.Inman@usace.army.mil

(this information is on the back of the agenda)

2017 State Master Plan
Southwest Coast Projects



Southwest Coast Projects

Project Type	Project No.	Project Description	Implementation Period	Project Costs
Hydrologic Restoration	004.HR.06	Calcasieu Ship Channel Salinity Control Measures: Construction of sill and wall structures in West Pass, East Pass, Lake Wall, Long Point Lake, Nine Mile Cut, Dugas Cut 1, Dugas Cut 2, Texaco Cut, Turner's Bay, Salt Ditch, Drainage Canal, and Choupique Bayou to prevent saltwater intrusion into the Calcasieu Ship Channel.	Years 1-10	$262,300,000
Marsh Creation	03b.MC.07	East Rainey Marsh Creation: Creation of approximately 6,300 acres of marsh in the eastern portion of Rainey Marsh to create new wetland habitat and restore degraded marsh.	Years 1-10	$101,500,000
	004.MC.100	Freshwater Bayou North Marsh Creation: Creation of approximately 8,900 acres of marsh in Vermilion Parish west of Freshwater Bayou to create new wetland habitat and restore degraded marsh.	Years 1-10	$226,100,000
	004.MC.101	Freshwater Bayou South Marsh Creation: Creation of approximately 6,800 acres of marsh in Vermilion Parish west of Freshwater Bayou to create new wetland habitat and restore degraded marsh.	Years 1-10	$87,300,000
Sediment Diversion	03a.DI.05	Atchafalaya River Diversion: Sediment diversion off the Atchafalaya River to benefit the Penchant Basin and southwest Terrebonne marshes with 30,000 cfs capacity (modeled at 26% of the Atchafalaya River flow upstream of the confluence with Bayou Shaffet).	Years 1-10	$282,900,000
	03b.DI.04	Increase Atchafalaya Flow to Terrebonne: Dredging of the Gulf Intracoastal Waterway (GIWW) and construction of a bypass structure at the Bayou Boeuf Lock from the Atchafalaya River to Terrebonne marshes with 20,000 cfs capacity.	Years 1-10	$397,900,000
Shoreline Protection	03b.SP.01	Freshwater Bayou Shoreline Protection (Belle Isle Canal to Lock): Shoreline protection through rock breakwaters designed to an elevation of 3.5 feet NAVD88 along approximately 36,000 feet of the east bank of Freshwater Bayou Canal from Belle Isle Canal to Freshwater Bayou Lock to preserve shoreline integrity and reduce wetland degradation from wave erosion.	Years 1-10	$71,800,000
	03b.SP.06a	Vermilion Bay and West Cote Blanche Bay Shoreline Protection (Critical Areas): Shoreline protection through rock breakwaters of critical areas on the east shoreline of Vermilion Bay to preserve shoreline integrity and reduce wetland degradation from wave erosion.	Years 1-10	$155,600,000
	004.SP.03	Freshwater Bayou Canal Shoreline Protection: Shoreline protection through rock breakwaters designed to an elevation of 3.5 feet NAVD88 along approximately 7,500 feet of the south bank of Freshwater Bayou Canal at Little Vermilion Bay to preserve shoreline integrity and reduce wetland degradation from wave erosion.	Years 1-10	$14,900,000
	004.SP.05a	Gulf Shoreline Protection (Calcasieu River to Rockefeller): Shoreline protection through rock breakwaters of critical areas designed to an elevation of 3.5 feet NAVD88 along the Gulf shoreline between Calcasieu River and Freshwater Bayou to preserve shoreline integrity and reduce wetland degradation from wave erosion.	Years 1-10	$495,400,000
Nonstructural Risk Reduction	CAL.01N	Calcasieu Nonstructural Risk Reduction: Project includes floodproofing non-residential properties where 100-year flood depths are 1-3 feet, elevating residential properties where 100-year flood depths are 3-14 feet, and acquiring residential properties where 100-year flood depths are greater than 14 feet.	Years 1-30	$69,800,000
	CAM.01N	Cameron Nonstructural Risk Reduction: Project includes floodproofing non-residential properties where 100-year flood depths are 1-3 feet, elevating residential properties where 100-year flood depths are 3-14 feet, and acquiring residential properties where 100-year flood depths are greater than 14 feet.	Years 1-30	$127,000,000

Project Type	Project No.	Project Description	Implementation Period	Project Costs
Nonstructural Risk Reduction (continued)	IBE.01N	Iberia - Lower Nonstructural Risk Reduction: Project includes floodproofing non-residential properties where 100-year flood depths are 1-3 feet, elevating residential properties where 100-year flood depths are 3-14 feet, and acquiring residential properties where 100-year flood depths are greater than 14 feet.	Years 1-30	$1,000,000
	IBE.02N	Iberia - Atchafalaya Nonstructural Risk Reduction: Project includes floodproofing non-residential properties where 100-year flood depths are 1-3 feet, elevating residential properties where 100-year flood depths are 3-14 feet, and acquiring residential properties where 100-year flood depths are greater than 14 feet.	Years 1-30	$289,400,000
	SMT.01N	St. Martin Nonstructural Risk Reduction: Project includes floodproofing non-residential properties where 100-year flood depths are 1-3 feet, elevating residential properties where 100-year flood depths are 3-14 feet, and acquiring residential properties where 100-year flood depths are greater than 14 feet.	Years 1-30	$13,200,000
	STM.04N	St. Mary - Franklin/Charenton Nonstructural Risk Reduction: Project includes floodproofing non-residential properties where 100-year flood depths are 1-3 feet, elevating residential properties where 100-year flood depths are 3-14 feet, and acquiring residential properties where 100-year flood depths are greater than 14 feet.	Years 1-30	$80,400,000
	STM.05N	St. Mary - Lower Nonstructural Risk Reduction: Project includes floodproofing non-residential properties where 100-year flood depths are 1-3 feet, elevating residential properties where 100-year flood depths are 3-14 feet, and acquiring residential properties where 100-year flood depths are greater than 14 feet.	Years 1-30	$7,200,000
	VER.01N	Vermilion Nonstructural Risk Reduction: Project includes floodproofing non-residential properties where 100-year flood depths are 1-3 feet, elevating residential properties where 100-year flood depths are 3-14 feet, and acquiring residential properties where 100-year flood depths are greater than 14 feet.	Years 1-30	$109,900,000
	VER.02N	Vermilion - Abbeville/Delcambre Nonstructural Risk Reduction: Project includes floodproofing non-residential properties where 100-year flood depths are 1-3 feet, elevating residential properties where 100-year flood depths are 3-14 feet, and acquiring residential properties where 100-year flood depths are greater than 14 feet.	Years 1-30	$190,600,000
Structural Protection	03b.HP.13	Bayou Chene: Construction of a structure across Bayou Chene near Amelia.	Years 1-30	$80,000,000
	03b.HP.08	Amelia Levee Improvements: Construction of a levee to an elevation of 18 feet NAVD88 along the GIWW between Lake Palourde and the Bayou Boeuf Lock near Amelia. Project features approximately 66,400 feet of earthen levee, approximately 12,400 feet of T-wall, (4) 40-foot roller gates, (1) 250-foot barge gate, (1) 110-foot barge gate, and a 5,000 cfs pump station.	Years 1-30	$1,051,700,000
	03b.HP.14	Iberia/St. Mary Upland Levee: Construction of a levee to an elevation between 15.5 to 20 feet NAVD88 in Iberia and St. Mary Parishes between the Delcambre Canal and the Charenton Canal. Project features approximately 158,300 feet of earthen levee, approximately 15,100 feet of T-wall, (3) 110-foot barge gates, (5) 30-foot barge gates, (6) 24-foot sluice gates, (11) 16-foot sluice gates, (11) 8-foot sluice gates, (2) 40-foot swing gates, (2) 40-foot roller gates, and (7) pump stations with a total capacity of 16,320 cfs.	Years 1-30	$1,482,100,000
Marsh Creation	03b.MC.03	Marsh Island Marsh Creation: Creation of approximately 13,500 acres of marsh on Marsh Island to create new wetland habitat and restore degraded marsh.	Years 11-30	$503,500,000

Southwest Coast Projects – continued

Project Type	Project No.	Project Description	Implementation Period	Project Costs
Marsh Creation (continued)	03b.MC.101	Southeast Marsh Island Marsh Creation: Creation of approximately 1,200 acres of marsh on the eastern tip of Marsh Island to create new wetland habitat and restore degraded marsh.	Years 11-30	$36,000,000
	004.MC.01	South Grand Chenier Marsh Creation: Creation of approximately 6,600 acres of marsh south of Highway LA 82 near Grand Chenier to create new wetland habitat and restore degraded marsh.	Years 11-30	$349,800,000
	004.MC.04	Mud Lake Marsh Creation: Creation of approximately 5,200 acres of marsh at Mud Lake south of West Cove, Calcasieu Lake to create new wetland habitat and restore degraded marsh.	Years 11-30	$197,300,000
	004.MC.07	West Rainey Marsh Creation: Creation of approximately 9,700 acres of marsh at Rainey Marsh near the southeast bank of the Freshwater Bayou Canal to create new wetland habitat and restore degraded marsh.	Years 11-30	$271,200,000
	004.MC.10	Southeast Calcasieu Lake Marsh Creation: Creation of approximately 9,000 acres of marsh southeast of Calcasieu Lake to create new wetland habitat and restore degraded marsh.	Years 11-30	$373,900,000
	004.MC.13	Cameron Meadows Marsh Creation: Creation of approximately 3,700 acres of marsh at Cameron Meadows north of Johnsons Bayou to create new wetland habitat and restore degraded marsh.	Years 11-30	$120,000,000
	004.MC.16	East Pecan Island Marsh Creation: Creation of approximately 10,200 acres of marsh between Pecan Island and the west bank of the Freshwater Bayou Canal to create new wetland habitat and restore degraded marsh.	Years 11-30	$472,400,000
	004.MC.23	Calcasieu Ship Channel Marsh Creation: Creation of approximately 3,100 acres of marsh south of Calcasieu Lake near Cameron to create new wetland habitat and restore degraded marsh.	Years 11-30	$116,900,000
	004.MC.102	White Lake Marsh Creation: Creation of approximately 10,600 acres of marsh in Vermilion Parish east of White Lake to create new wetland habitat and restore degraded marsh.	Years 11-30	$434,200,000
	004.MC.107	West Sabine Refuge Marsh Creation: Creation of approximately 7,000 acres of marsh east of Sabine Lake to create new wetland habitat and restore degraded marsh.	Years 11-30	$403,300,000
Nonstructural Risk Reduction	STM.01N	St. Mary - Morgan City Nonstructural Risk Reduction: Project includes floodproofing non-residential properties where 100-year flood depths are 1-3 feet, elevating residential properties where 100-year flood depths are 3-14 feet, and acquiring residential properties where 100-year flood depths are greater than 14 feet.	Years 31-50	$4,200,000
	STM.02N	St. Mary - Glencoe Nonstructural Risk Reduction: Project includes floodproofing non-residential properties where 100-year flood depths are 1-3 feet, elevating residential properties where 100-year flood depths are 3-14 feet, and acquiring residential properties where 100-year flood depths are greater than 14 feet.	Years 31-50	$15,800,000
	STM.03N	St. Mary - Patterson Nonstructural Risk Reduction: Project includes floodproofing non-residential properties where 100-year flood depths are 1-3 feet, elevating residential properties where 100-year flood depths are 3-14 feet, and acquiring residential properties where 100-year flood depths are greater than 14 feet.	Years 31-50	$3,000,000
Structural Protection	03b.HP.10	Morgan City Back Levee: Construction of a levee to an elevation between 10 and 12 feet NAVD88 to protect the northern side of Morgan City. Project features approximately 30,600 feet of earthen levees, approximately 4,600 feet of T-wall, (1) 40-foot swing gate, (1) 70-foot barge gate, and (1) pump station with a total capacity of 1,604 cfs.	Years 31-50	$140,500,000

Project Type	Project No.	Project Description	Implementation Period	Project Costs
Structural Protection (continued)	03b.HP.12	Franklin and Vicinity: Improvements of existing levees to an elevation between 12.5 and 18 feet NAVD88 from the Wax Lake Outlet to the Charenton Canal as well as the Bayou Sale polder. Project features approximately 204,600 feet of earthen levee, approximately 8,700 feet of T-wall, (2) 16-foot sluice gates, and (1) 40-foot roller gate.	Years 31-50	$380,600,000
	004.HP.15	Abbeville and Vicinity: Construction of a levee to an elevation of 23.5 feet NAVD88 in the area south of Delcambre, Erath, and Abbeville roughly following Highway 330. Project features approximately 102,700 feet of earthen levee, approximately 2,800 feet of T-wall, (2) 36-foot sector gates, (3) 30-foot stop logs, (1) 20-foot stop log, and (1) 20-foot sluice gate.	Years 31-50	$755,300,000
Marsh Creation	03b.MC.09	Point Au Fer Island Marsh Creation: Creation of approximately 13,000 acres of marsh on Point Au Fer Island to create new wetland habitat and restore degraded marsh.	Years 31-50	$728,100,000
	004.MC.19	East Calcasieu Lake Marsh Creation: Creation of approximately 16,800 acres of marsh in the eastern Cameron-Creole watershed to create new wetland habitat and restore degraded marsh.	Years 31-50	$1,069,600,000
	004.MC.103	Little Chenier Marsh Creation: Creation of approximately 900 acres of marsh in Cameron Parish south of Grand Lake to create new wetland habitat and restore degraded marsh.	Years 31-50	$59,200,000
	004.MC.104	Calcasieu Lake West Bank Marsh Creation: Creation of approximately 8,900 acres of marsh in Cameron Parish west of Calcasieu Lake to create new wetland habitat and restore degraded marsh.	Years 31-50	$336,500,000
	004.MC.105	West Rimon Lake Marsh Creation: Creation of approximately 8,400 acres of marsh in Cameron Parish south of Black Lake to create new wetland habitat and restore degraded marsh.	Years 31-50	$580,300,000
	004.MC.107	West Sabine Refuge Marsh Creation: Creation of approximately 3,300 acres of marsh east of Sabine Lake to create new wetland habitat and restore degraded marsh.	Years 31-50	$250,500,000
Ridge Restoration	004.RC.02	Cheniere au Tigre Ridge Restoration: Restoration of approximately 77,800 feet of Bill and Cheniere au Tigre Ridges to an elevation of 5 feet NAVD88 to provide coastal upland habitat, restore natural hydrology, and provide wave and storm surge attenuation.	Years 31-50	$8,500,000
	004.RC.03	Pecan Island Ridge Restoration: Restoration of approximately 43,800 feet of Pecan Island Ridge to an elevation of 5 feet NAVD88 to provide coastal upland habitat, restore natural hydrology, and provide wave and storm surge attenuation.	Years 31-50	$6,800,000

Region 4-

Mermentau Basin

Region 4 – Mermentau Basin

ME-01	Highway 82 South Marsh Creation
ME-02	Southeast Pecan Island Restoration
ME-03	Mermentau Basin Wetland Inundation Relief Project
~~ME-04~~	~~Rockefeller Refuge Gulf Shoreline Stabilization East of Beach Prong~~ **Combined with ME-05**
ME-05	Gulf Shore Protection at Beach Prong
ME-06	South Pecan Island Marsh Creation
ME-07	North Big Marsh Restoration

ME-01

PPL29 PROJECT NOMINEE FACT SHEET
February 12, 2019

Project Name
Highway 82 South Marsh Creation

Project Location
Region 4, Mermentau Basin, Cameron Parish

Problem
The marshes south of Louisiana Highway 82 between the Mermentau Ship Channel and Freshwater Bayou have been hydrologically impacted by the construction of oil and gas access roads, spoil banks from canals for petroleum exploration, and the construction of levees for hydrologic management. Such activities have led to major loss of wetlands south of the highway and conversion of the project area to shallow open water. The 1984 to 2014 USGS loss rate from an overlapping PPL25 project is -1.5%/yr.

Goals
The project goal is to create/nourish approximately 320 acres of marsh and explore the potential for marsh terraces. Approximately 289 acres would be marsh creation and 31 acres is marsh nourishment. Sediment for marsh creation/nourishment would be mined offshore of the project area at a distance and design to avoid inducing shoreline erosion. Containment dikes would be constructed around the project area, including the marshes in the north to ensure dredged sediment does not plug existing drainage along the highway and within the project area. Marsh buggy backhoes would be used to construct the containment dikes and the marsh terraces. A hydraulic cutterhead dredge would be used to mine and pump sediments to the project area. Currently 100% of the newly created marsh acreage would be planted with appropriate plant species. The terraces will also include vegetative plantings if constructed.

Preliminary Project Benefits

1) *What is the total acreage benefited both directly and indirectly?*
The total project area is approximately 320 ac.

2) *How many acres of wetlands will be protected/created over the project life?*
Approximately 320 acres of marsh (31 of those acres are nourishment) will be initially constructed in the marsh creation area, and will be explored in the surrounding area. The net acres for the 20 year project life are 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 land loss rate reduction throughout the area of direct benefits will be 50% over the project's 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?*

By constructing marshes to the south of highway 82, the project will help to protect and maintain the critical chenier, Grand Chenier, to the north which is a vital part of the structural coastal ecosystem in Cameron Parish, LA.

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 infrastructures which consists of LA82, a hurricane evacuation route, and residence of Grand Chenier due to reducing the flooding risk to the state highway by reestablishing a land mass in place of open water.

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 two other CWPPRA projects. The ME-20 South Grand Cheniere Marsh Creation project, sponsored by USFWS, is located southeast of the project area, has construction funding, and is in process of preparing to solicit for bids. The project will create marsh southeast of this project area which may help reduce erosion caused by fetch. The ME-32 South Grand Cheniere - Baker Tract Marsh Creation project, sponsored by NRCS, is located southeast of the project area and is presently funded for Phase 1 engineering and design.

Considerations
The project has pipelines/utilities and land rights considerations.

Preliminary Construction Costs
The estimated construction cost plus 25% contingency is $20M - $25M.

Preparer(s) of Fact Sheet:
Brandon Howard, NOAA Fisheries, 225-380-0050, brandon.howard@noaa.gov
Jason Kroll, NOAA Fisheries, 225-757-5411, jason.kroll@noaa.gov

PPL29 Highway 82 South Marsh Creation

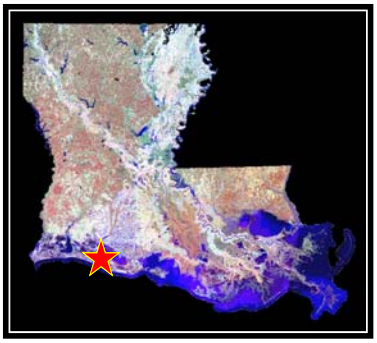
289 Acres Marsh Creation
31 Acres Marsh Nourishment

Federal Sponsor: NOAA Fisheries
2018 Aerial Imagery
Map Date 2-11-2018

Legend

Marsh Creation

Highway 82 South Marsh Creation



REGION 4 – Mermentau Basin

Presenter: Brandon Howard, Fishery Biologist, NOAA

PPL29 CWPPRA Regional Planning Team Meeting
Lake Charles, Louisiana
February 12, 2019

Project Location

Project Area Problem

- Wetland deg
  - Sea Level
  - Hurricane
  - Shoreline
  - Conversio

Restoration Solution

- 320 Acres of Marsh Creation/Nourishment and potential terraces
  - 289 acres of marsh creation & 31 acres of marsh nourishment
  - Will explore the possibility of terraces
  - Hydraulically dredge material from offshore
  - Contained fill areas with dike gapping after construction

Project Map

- Offshore Borrow Area
- 320 Acres TOTAL of Marsh Creation/Nourishment
- Approximately 289 acres Creation and 21 acres Nourishment
- Potential for terraces will be explored

Summary of Features, Cost, and Benefits

- 320 Acres Total
  - 289 acres Marsh Creation
  - 31 acres Nourishment
  - Potential for terraces will be explored
- Construction Cost + 25% Contingency $20M - $25M
- Net Benefits: 250-300 acres

Contact information:
Brandon Howard, 225-380-0050
brandon.howard@noaa.gov
Jason Kroll, 225-757-5411
jason.kroll@noaa.gov

ME-02

PPL29 PROJECT FACT SHEET
February 12, 2019

Project Name
Southeast Pecan Island Restoration

Master Plan Strategy
East Pecan Island Marsh Creation – 004.MC.16
Introduce freshwater to wetlands south of Highway 82 – 004.HR.20

Project Location
Region 4, Mermentau Basin, Vermilion Parish, east of Pecan Island and south of Highway 82.

Problem
Highway 82 separates the Lakes Subbasin to the north from the marshes to the south. Low spots between cheniers historically allowed drainage from the Lakes Subbasin south into the Chenier Subbasin. Virtually all of the project area marshes have become isolated from the movement of freshwater from the upper basin and therefore experienced increased tidal exchange, saltwater intrusion, and reduced freshwater retention. Consequently, these marshes are highly deteriorated and considered a priority for restoration in the state's Master Plan.

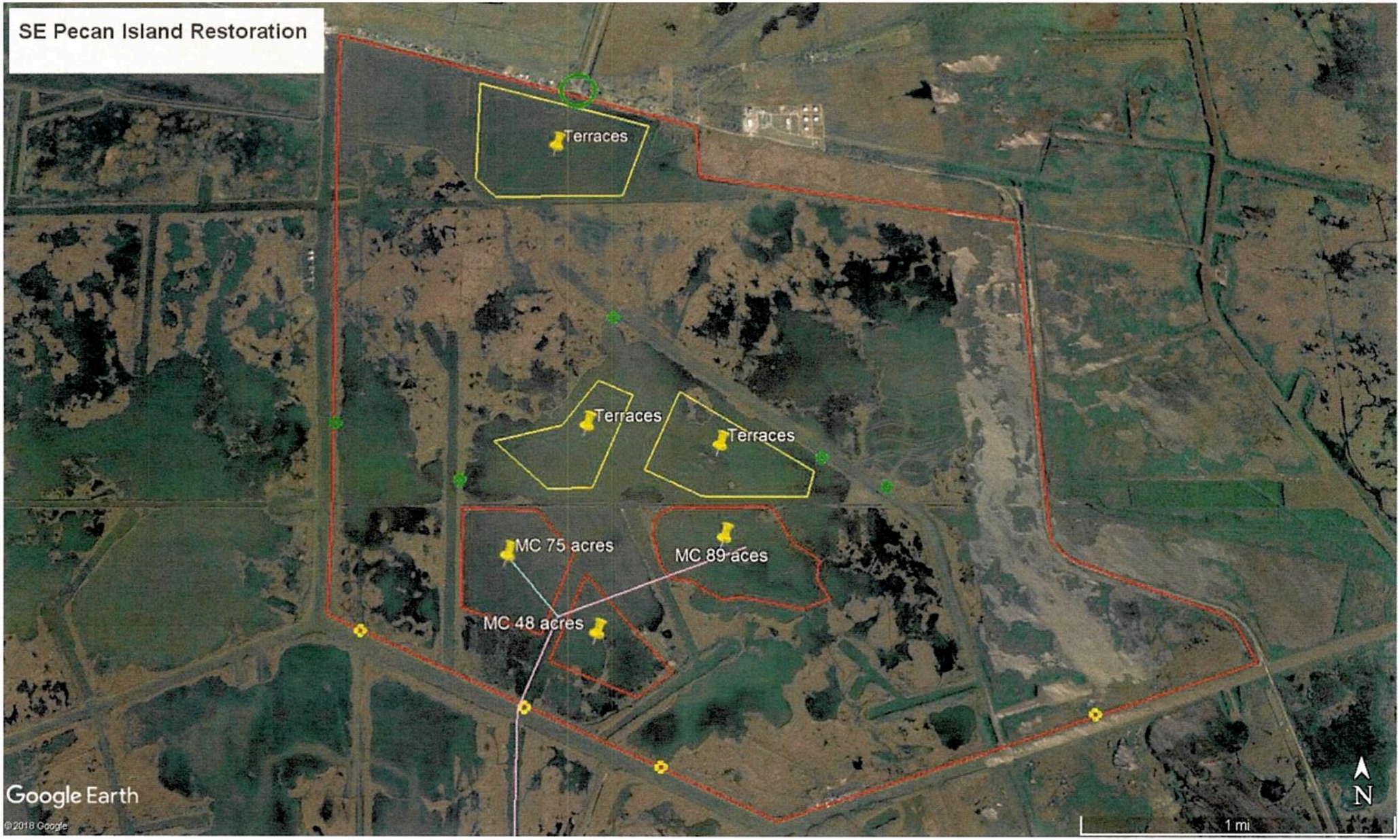
Goals
The project goals are to restore/improve hydrologic conditions and promote the expansion of emergent marsh vegetation throughout the project area. The proposed freshwater introduction feature would restore/improve hydrologic conditions by allowing water from the Lakes Subbasin to drain south across Highway 82 into the Chenier Subbasin. The marsh creation and terrace features would create new wetland habitat, restore degraded marsh, and reduce wave erosion.

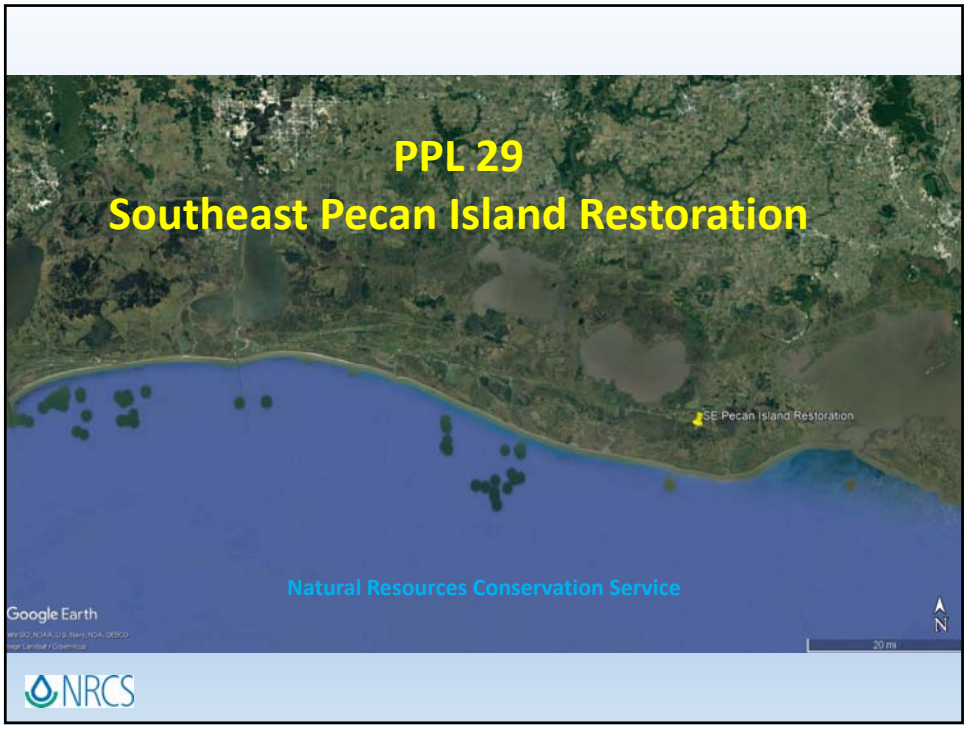
Proposed Solution
The project would construct approximately 212 acres of marsh and 18,000 linear feet of terraces in the most degraded location of the project area. Material will be borrowed from the gulf. Culverts will be placed at various locations to allow tidal water to enter the complex from one end and exit on the other so as to promote trapping of imported materials. A freshwater introduction structure will be built at Front Ridge to connect the Lakes Subbasin to the project area marshes to allow for import of freshwater, nutrients, and sediment. The majority of the necessary freshwater introduction infrastructure exists and would require only minimal improvement/cleanout and the construction of an outlet structure at Front Ridge.

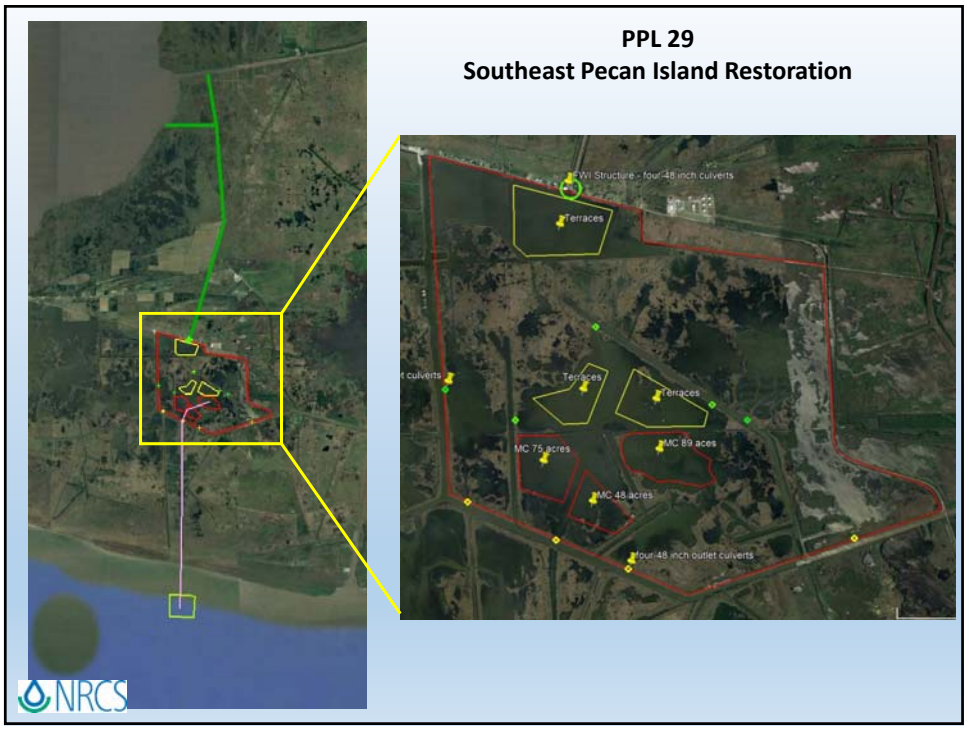
Preliminary Project Benefits
The total project area of impact is 3,281 acres. Approximately 212 acres of marsh would be created from hydraulic dredging and 10 acres from terraces. An additional 56 acres will be protected/restored from hydrologic restoration features for a total of 278 acres.

Preliminary Construction Costs
The estimated construction cost including 25% contingency is approximately $15-20M.

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

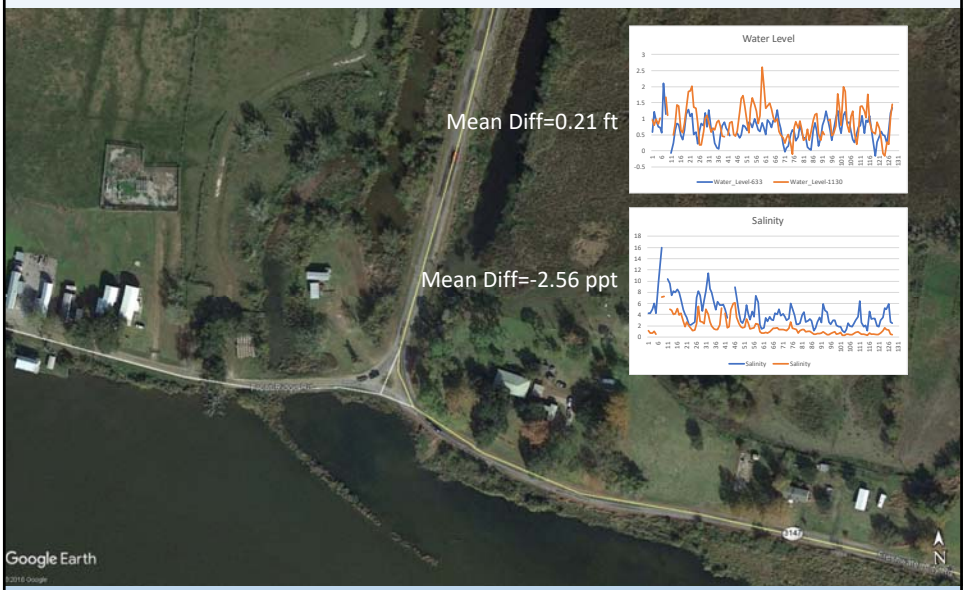

SE Pecan Island Restoration
Terraces
Terraces
Terraces
MC 75 acres
MC 89 acres
MC 48 acres
Google Earth
©2018 Google
N
1 mi


PPL 29
Southeast Pecan Island Restoration
SE Pecan Island Restoration
Natural Resources Conservation Service
Google Earth
NRCS


PPL 29
Southeast Pecan Island Restoration
WI Structure - four 48 inch culverts
Terraces
Terraces
Terraces
MC 75 acres
MC 89 aces
MC 48 acres
four 48 inch outlet culverts
NRCS

Southeast Pecan Island Restoration

NRCS



NRCS

PPL-29
SE Pecan Island Restoration

Project Objectives:

- Establish hydrologic connection to upper Lakes basin and introduce freshwater, sediments, and nutrients into the lower marshes.
- Create marsh and terraces
- Enhance tidal flow through the project area to optimize material capture

Benefits:

- Marsh Creation – 212 acres
- Terraces – 18,000 ft (16 acres)
- Increase natural recovery of wetland function by reestablishing hydrologic connections and introducing freshwater, nutrients and sediments from the lakes basin.
- Total Estimated Net Acres = 278 acres

Estimated Cost:

Construction + 25% = $15-20M

NRCS

ME-03

PPL29 PROJECT NOMINEE FACT SHEET
February 12, 2019

Project Name
Mermentau Basin Wetland Inundation Relief Project

Project Location
Region 4, Mermentau Basin, Cameron Parish, Rockefeller Wildlife Refuge

Master Plan Strategy
Consistent with 2017 Master Plan as a "Programmatic Hydrologic Restoration Project"

Problem
Construction of La. Highway 82 restricts drainage of local communities and marshes north of the highway and results in prolonged wetland flooding stress and marsh loss.

Goals
The proposed project is designed to reduce prolonged periods of inundation within the Mermentau basin. This will relieve flooding stress to vegetation which will restore the function, and sustainability to thousands of acres of marsh. The project will also lower salinity in some wetlands and create additional marsh.

Proposed Project Features
The proposed project cleanout and link existing drainage laterals along Hwy 82 which will make drainage of the wetlands north of the highway more efficient. A new drainage feature will be installed adjacent to the current East End Locks that would assist in the evacuation of the additional flow that is expected. Additionally, the gates on the East End Locks would be replaced with new gates that make drainage more efficient through the locks.

In marsh management "unit 4" on Rockefeller Refuge, two new water control structures and a 200-acre marsh creation feature are proposed. The structures will be built to capture fresh water in order to lower salinities and enhance fisheries access of nearly 3,000 of wetlands. The marsh creation feature will be constructed of sediment from Joseph Harbor canal that will be dredged to ensure efficient evacuation of additional freshwater expected by the construction of the project.

Preliminary Project Benefits
1) What is the total acreage benefited both directly and indirectly? Drainage through this area is important to the entire Mermentau Basin (450,000 plus acres). The immediate impact area of reduced inundation is approximately 50,000 acres.

2) *How many acres of wetlands will be protected/created over the project life*? Approx. 50,000 acres would benefit from reduced ponding and land loss. Over this area it is expected that the reduction in inundation % will results in improved plant/organic production and 465 net acres of marsh preservation. Approximately 105 acres of marsh will be created/nourished through dredging of canals and construction of new gate system. Distribution of diverted waters through

the marshes to the south will also provide freshwater, sediment, nutrient and salinity reduction benefits.

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 <50-74%.

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.* Proposed project improves drainage across La. Highway 82.

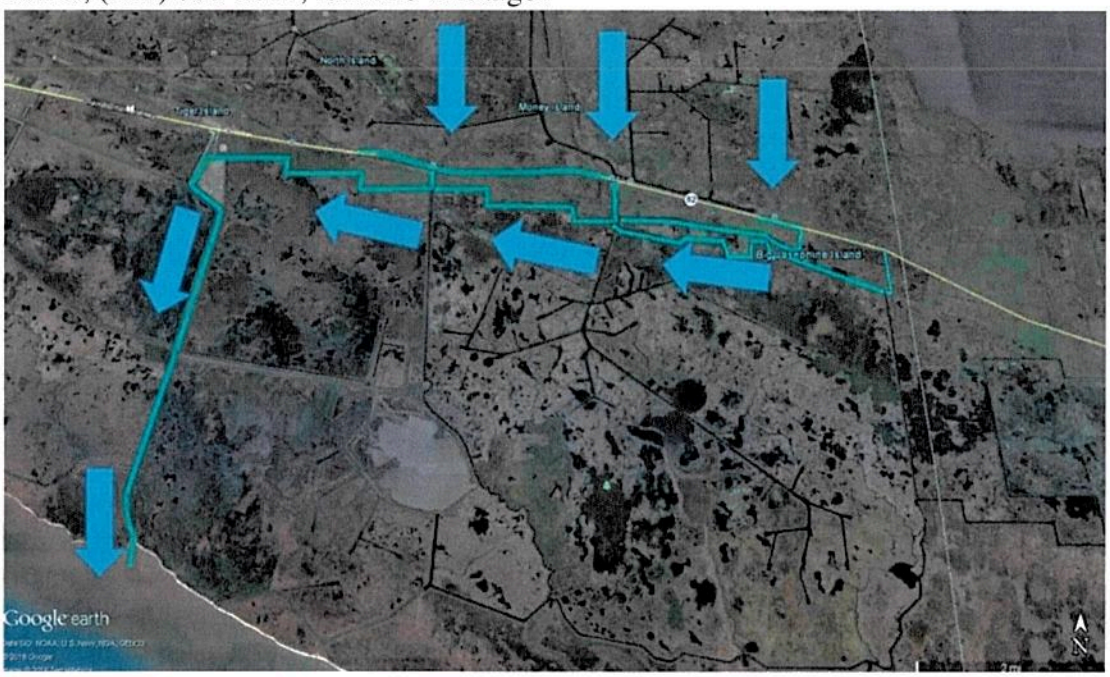
5) *What is the net impact of the project on critical and non-critical infrastructure*? The project would restore some of the historical hydrology that once existed prior to construction of Hwy 82.

6) *To what extent does the project provide a synergistic effect with other approved and/or constructed restoration projects*? The proposal will compliment ME-16 and is consistent with the Louisiana Master Plan for a Sustainable Coast.

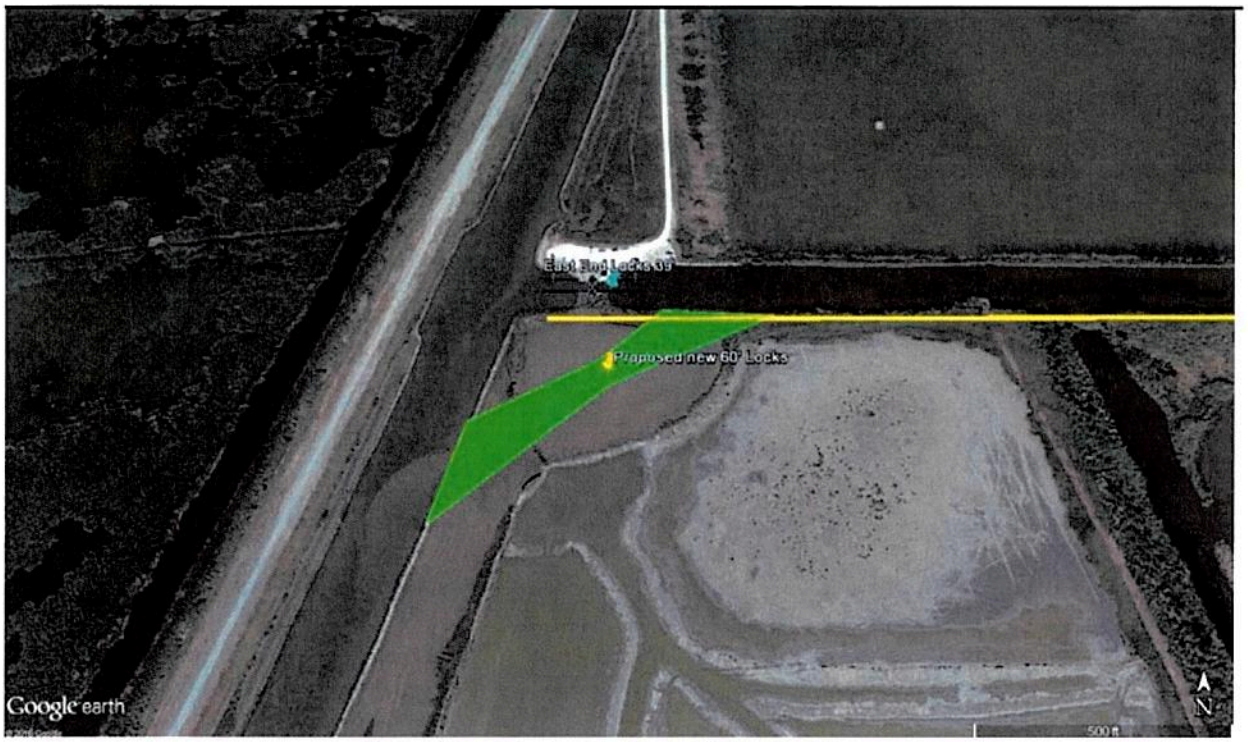
Identification of Potential Issues
There are no issues identified at this time.

Preliminary Construction Costs
The estimated construction cost including contingency is approximately $30 million.

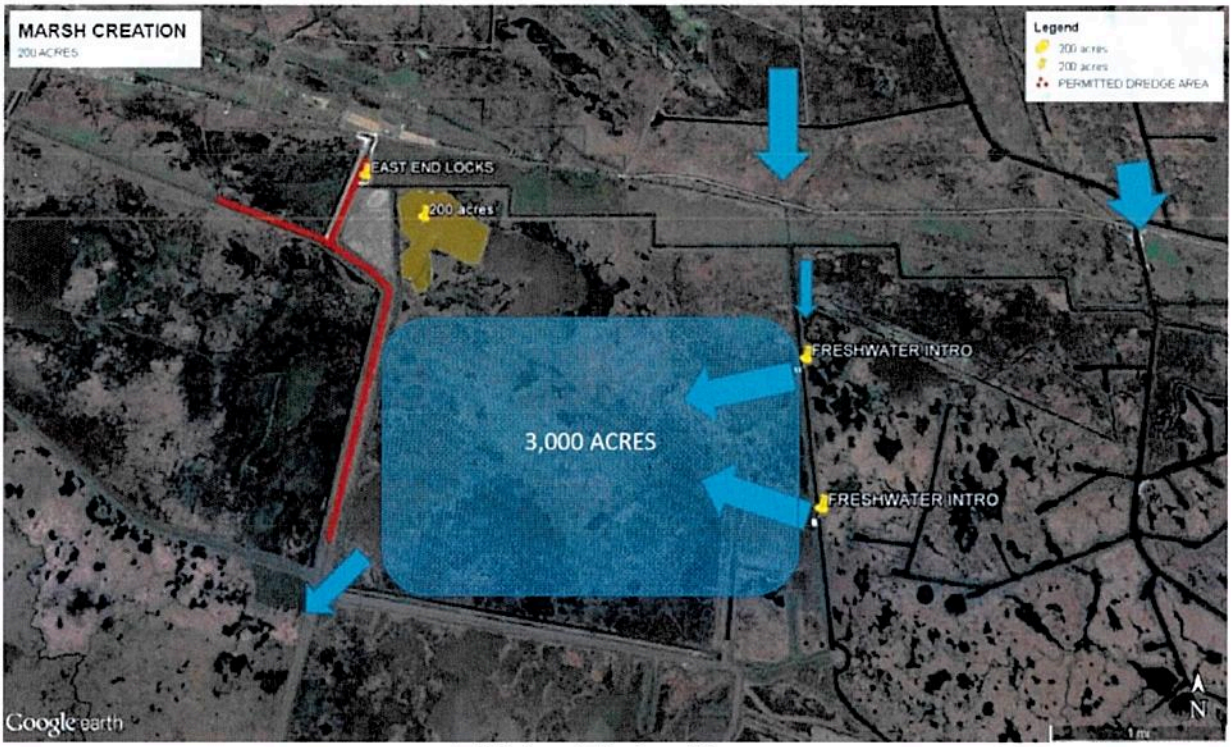
Preparer(s) of Fact Sheet
Phillip Trosclair, (337) 491-2000, ptrosclair@wlf.la.gov
Todd Baker, (225) 765-2814, tbaker@wlf.la.gov



Enhanced Drainage Pattern



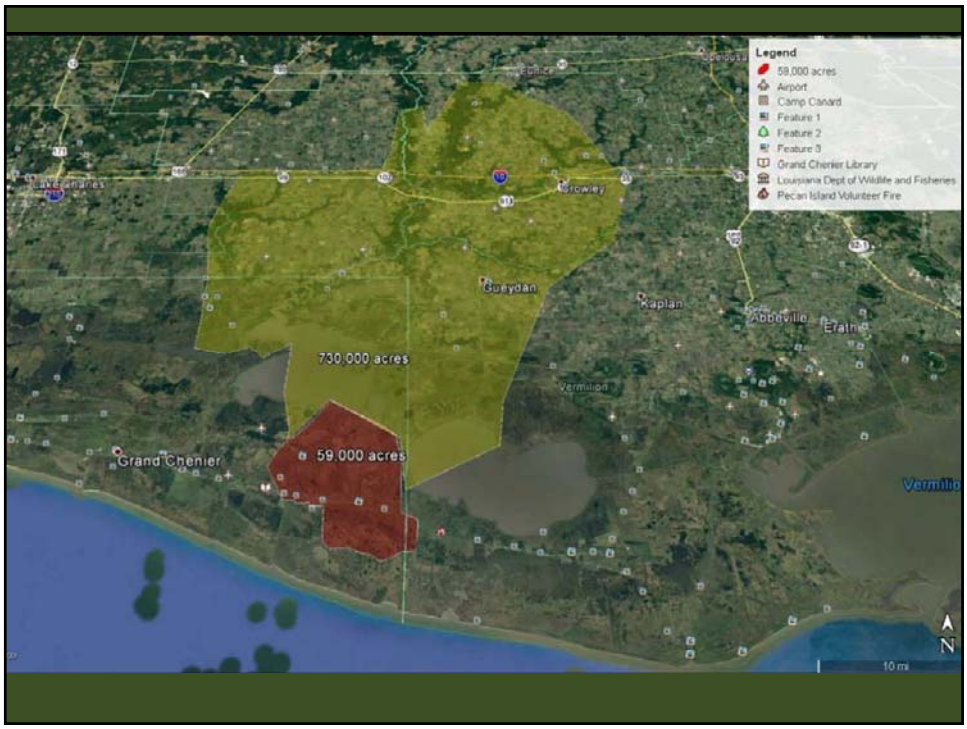
Location of new drainage infrastructure.



Additional Project Features

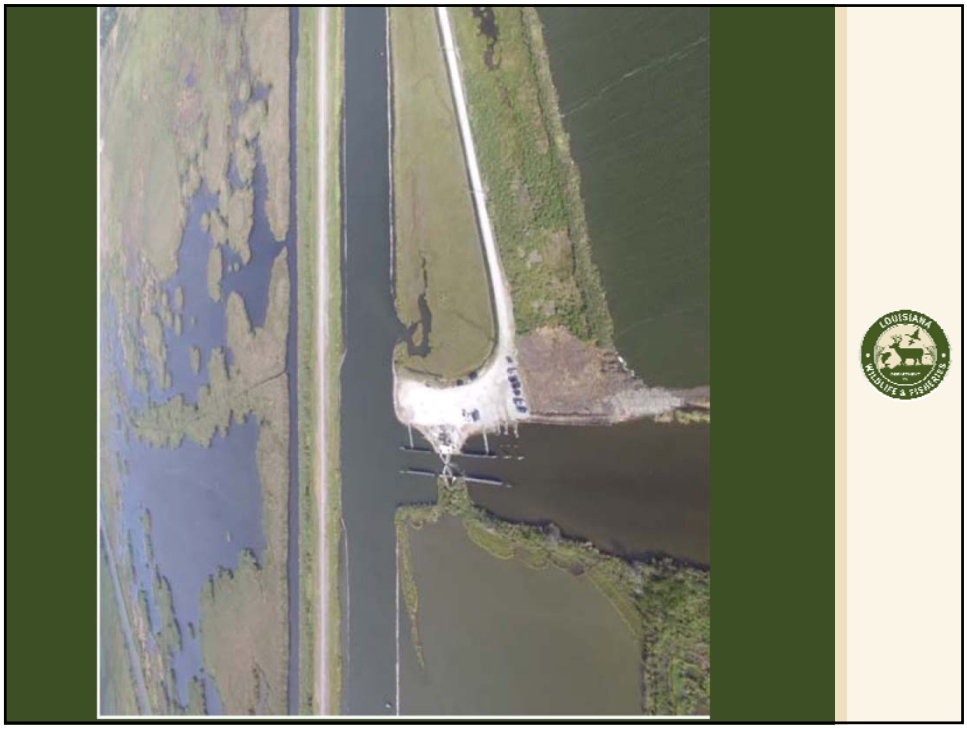
Mermentau Basin Wetland Inundation Relief Project

Todd Baker/ CWPPRA Region 4 RPT Meeting/ February 12, 2019




Google earth

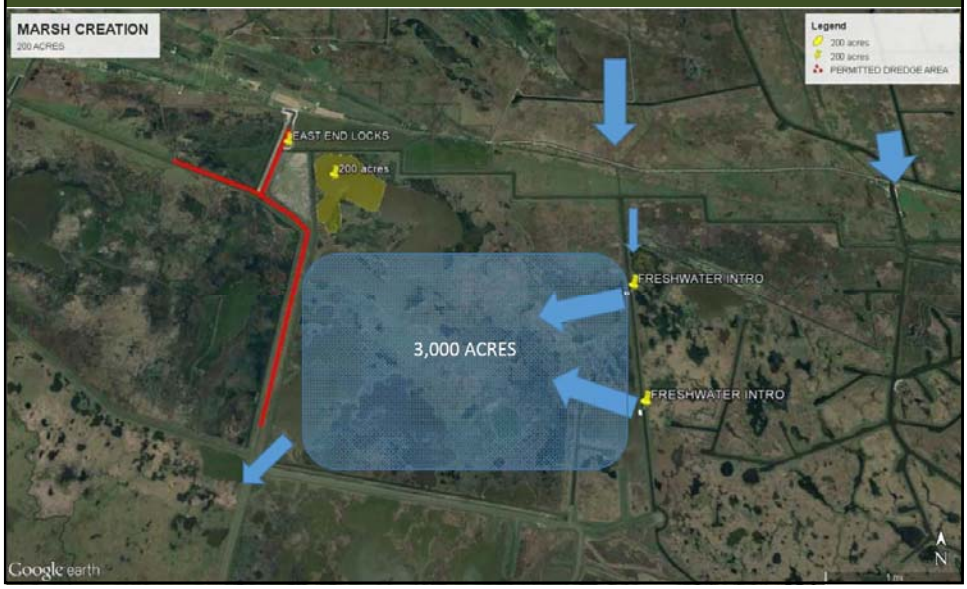

Google Earth



Proposed Location of new Feature

Proposed Additional Features:

- 2 Freshwater Introduction Structures
- 200 acre Marsh Creation Cell



Project Cost:

• Hwy 82 Drainage Laterals clean out and connection	$1.5 m
• New 60' water control structure (Sector Flood Gates)	$17 m
• Renovate East End Locks Gates to increase efficiency	$2 m
• Marsh Creation and Freshwater Introduction Features	$2 m
• **Total** (Rounded to $5m)	**$25 m**
• Contingency	$5 m
• **Overall Cost**	**$30 m**


Questions?

**combined with Gulf Shore Protection at Beach Prong

Combined Project will be listed under ME-05 Gulf Shore Protection at Beach Prong

~~ME-04~~

~~PPL29 Rockefeller Refuge Gulf Shoreline Stabilization East of Beach Prong~~

Project Location

Region 4, Mermentau Basin, Cameron Parish, Rockefeller Refuge Gulf shoreline east of Beach Prong

Master Plan Strategy

Gulf Shoreline Protection (Calcasieu River to Rockefeller) (2017 Master Plan 004.SP.05a). Shoreline protection through rock breakwaters of critical areas designated to an elevation of 3.5 feet NAVD88 along the Gulf shoreline between Calcasieu River and Rockefeller to preserve shoreline integrity and reduce wetland degradation from wave erosion.

Problem

Long-term erosion rates of the gulf shoreline at Rockefeller State Wildlife Refuge in the vicinity of Beach Prong (a branch of Hog Bayou) have averaged 37-42 feet annually, with recent surveys showing much higher rates (up to 100 feet per year). This shoreline retreat has resulted in the direct loss of emergent saline marsh. Without active restoration, the gulf shoreline is predicted to retreat northward of Hog Bayou in the vicinity of Beach Prong by 2050, which would result in significant marsh land loss, and reduce storm protection provided by this buffer to the community of Grand Chenier and areas farther inland.

Goal

The goal of this project is to stop the inland retreat of the gulf shoreline in the vicinity of Beach Prong and thereby prevent the loss of the refuge's emergent saline marshes and their services.

Proposed Solution

This project would implement the construction of nearshore rock breakwaters for an additional three miles, building upon an overarching goal of protecting nine miles of shoreline between Joseph Harbor Bayou and Beach Prong at the western refuge boundary. As such, this project represents the final phase of a larger effort, complementary to the Rockefeller Refuge Gulf Shoreline Stabilization (ME-18) project, which has been successfully implemented in the eastern portion of the aforementioned nine-mile reach of refuge shoreline. This project would utilize the same material and design specifications that were previously approved and implemented for the broader project (ME-18) to date. Thus, breakwaters will consist of encapsulated lightweight aggregate, bedding stone, and large armor stone, and will have a 65- to 70-foot bottom width and an 18-foot crown width.

Project Benefits

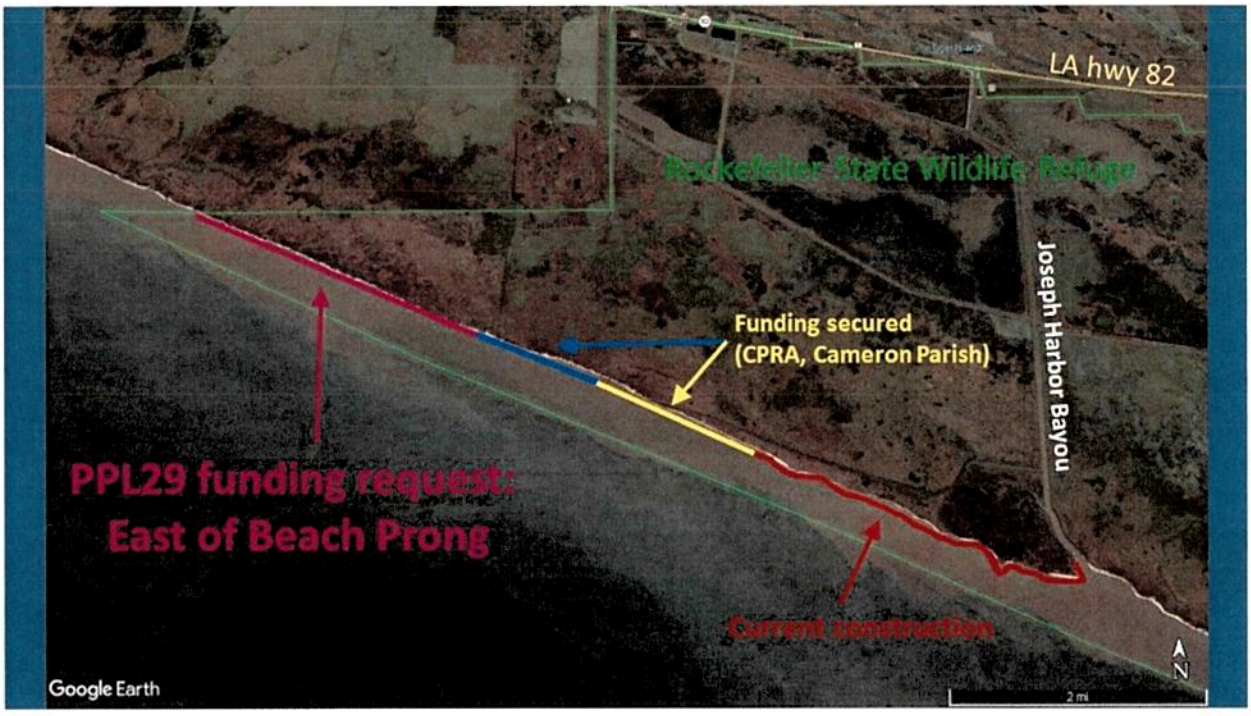
This project includes the following benefits:

- Stabilization of the gulf shoreline at Rockefeller State Wildlife Refuge
    - Reducing land loss by 75-100 %
    - Enhancing foraging and roosting habitat for two threatened and endangered shorebird species

        - Piping Plover, Red Knot
    - Enhancing habitat for numerous Species of Greatest Conservation Need (SGCN) identified by Louisiana's Wildlife Action Plan (WAP)
        - Reddish Egret, American Oystercatcher, Snowy and Wilson's plovers, Long-billed Curlew, Marbled Godwit, and others
- Protection of approximately 280 acres of the refuge's emergent marshes, and the services they provide
    - Recreationally- and commercially-important fisheries
    - Habitat for wintering waterfowl
    - Habitat for a proposed T&E marsh bird species: Black Rail
    - Habitat for marsh bird SGCN (WAP)
        - Mottled Duck, Least Bittern, Clapper Rail, Yellow Rail, Sedge Wren, Nelson's and Seaside sparrows, and others
- Preservation of public recreation opportunities provided by the refuge
- This project would be synergistic with the larger scale Rockefeller Refuge Gulf Shoreline Stabilization (ME-18) project.

Preliminary Cost
$20-25 M

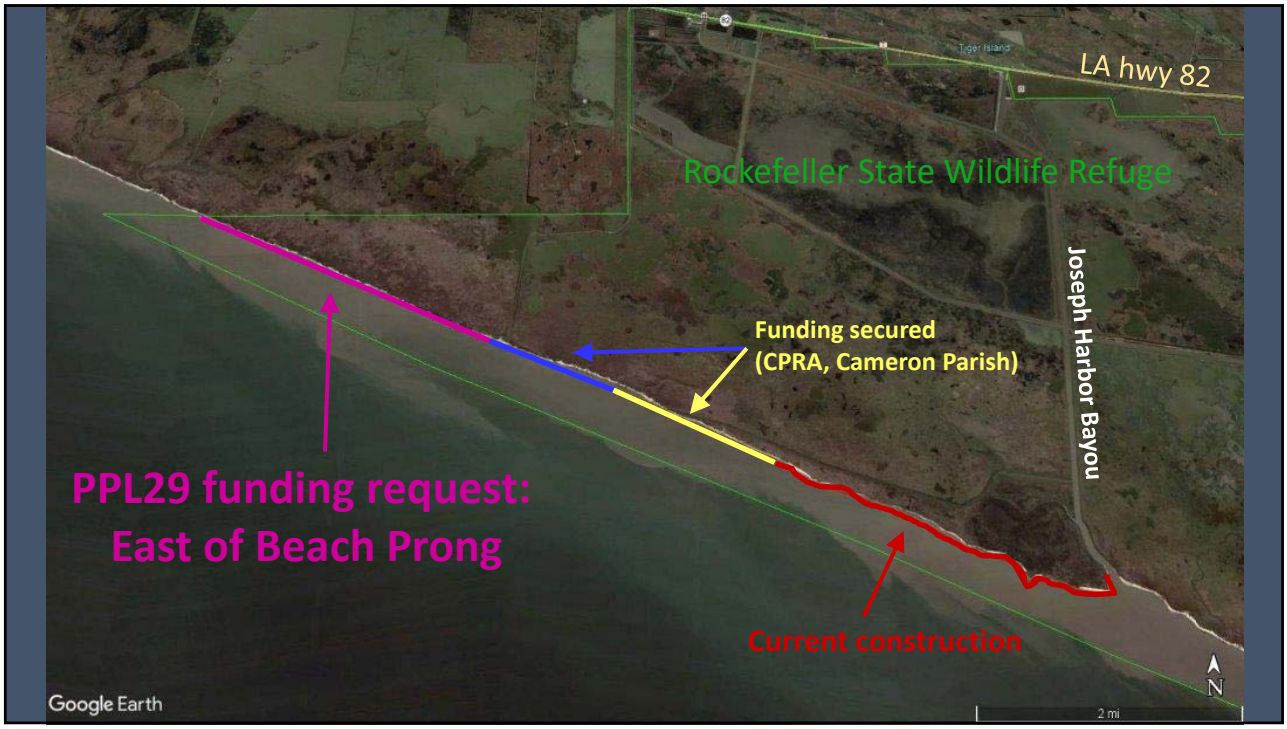
Preparer of Fact Sheet
Robert Dobbs, LDWF, (337)735-8663, rdobbs@wlf.la.gov



Rockefeller Refuge Gulf Shoreline Stabilization East of Beach Prong

PPL 29 Region 4 Nominee

February 12, 2019



Rockefeller Refuge Gulf Shoreline Stabilization East of Beach Prong

- **Consistent with 2017 Master Plan**
  - **004.SP.05a**
- **Synergistic with ME-18 project**
  - **Additional 3 miles of breakwaters**
  - **Completes 9-mi reach: Joseph Harbor Bayou – Beach Prong**
- **Engineering and design complete**
  - **Design and material tested**
  - **Successfully implemented**
- **Permits in place**
- **Cost $20-25 M**

Rockefeller Refuge Gulf Shoreline Stabilization East of Beach Prong

- **Stabilizes shoreline – saves 280 acres of marsh**
  - **Halts shoreline retreat, prevents shoreline breach**
    - **Avg. erosion rate 42 ft/year, up to 100 ft some years**
  - **Direct protection locally**
    - **Marsh & local hydrology**
    - **Refuge & adjacent private property**
    - **Grand Chenier community**
  - **Protection farther inland**
    - **Buffers effects of storm surge for inland areas of Cameron and Vermilion parishes**

Rockefeller Refuge Gulf Shoreline Stabilization East of Beach Prong

- **Preserves refuge's wildlife & fisheries resources**
  - **Brackish & saline marsh habitats**
    - **Fisheries**
    - **Wintering waterfowl**
    - **T&E species - Black Rail (proposed)**
    - **Species of Greatest Conservation Need (SGCN-WAP)**
      - **Mottled Duck, Least Bittern, Clapper Rail, Yellow Rail, Nelson's and Seaside sparrows**
  - **Beach & dune habitats (*incl. breakwaters*)**
    - **T&E - Piping Plover, Red Knot**
    - **SGCN - Reddish Egret, American Oystercatcher, Snowy & Wilson's plovers, Long-billed Curlew, and others**
- **Preserves refuge's public recreation opportunities**

PPL29 PROJECT NOMINEE FACT SHEET
February 2019

Gulf Shore Protection at Beach Prong

Louisiana's 2017 Coastal Master Plan
Shore Protection 004.SP.05a

Project Location
Region 4, Mermentau Basin, Cameron Parish

Problem
Along the western Rockefeller Refuge Gulf shoreline and westward to the vicinity of Beach Prong, the Gulf of Mexico shoreline erosion rate varies from 37 to 48 feet per year (1998 to 2015). By 2050, the Gulf shore will have retreated northward of Hog Bayou near Beach Prong, and may seriously alter hydrology of the middle and upper reaches of the Hog Bayou watershed. In recent years, the shoreline erosion rates have increased.

Goals
The project goal is to halt erosion of the Gulf shoreline erosion along a 5-mile-long reach on Rockefeller Refuge and Miller Estate lands west of Rockefeller. Gulf shore protection in this reach will help to protect marshes on Rockefeller and the integrity of the upper Hog Bayou watershed (19,000 acres). Service goals include the protection of shoreline beaches designated as critical habitat for the threatened piping plover and beaches used by the threatened red knot. The project would also protect back-beach marshes which may be used by the black rail, a candidate threatened species.

Proposed Solution
To halt Gulf shoreline erosion, 5 miles of foreshore protection consisting of lightweight aggregate core foreshore rock armor structures would be installed (as per ME-18 design) to preclude the anticipated system-wide hydrologic impact caused by the shoreline eroding into Hog Bayou.

Preliminary Project Benefits

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

Approximately 563 acres would be benefited directly. Indirect benefits would occur to marshes in the middle and upper Hog Bayou watershed.

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 473 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 75 to 100%.

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

Yes, the project would protect and restore the eroding Gulf shore rim and by reducing shoreline erosion and facilitating accumulation of shell hash, that may raise the rim elevations.

5) *What is the net impact of the project on critical and non-critical infrastructure?*
The project offers no immediate critical infrastructure protection but may provide indirect protection for the community of Grand Cheniere to the north.

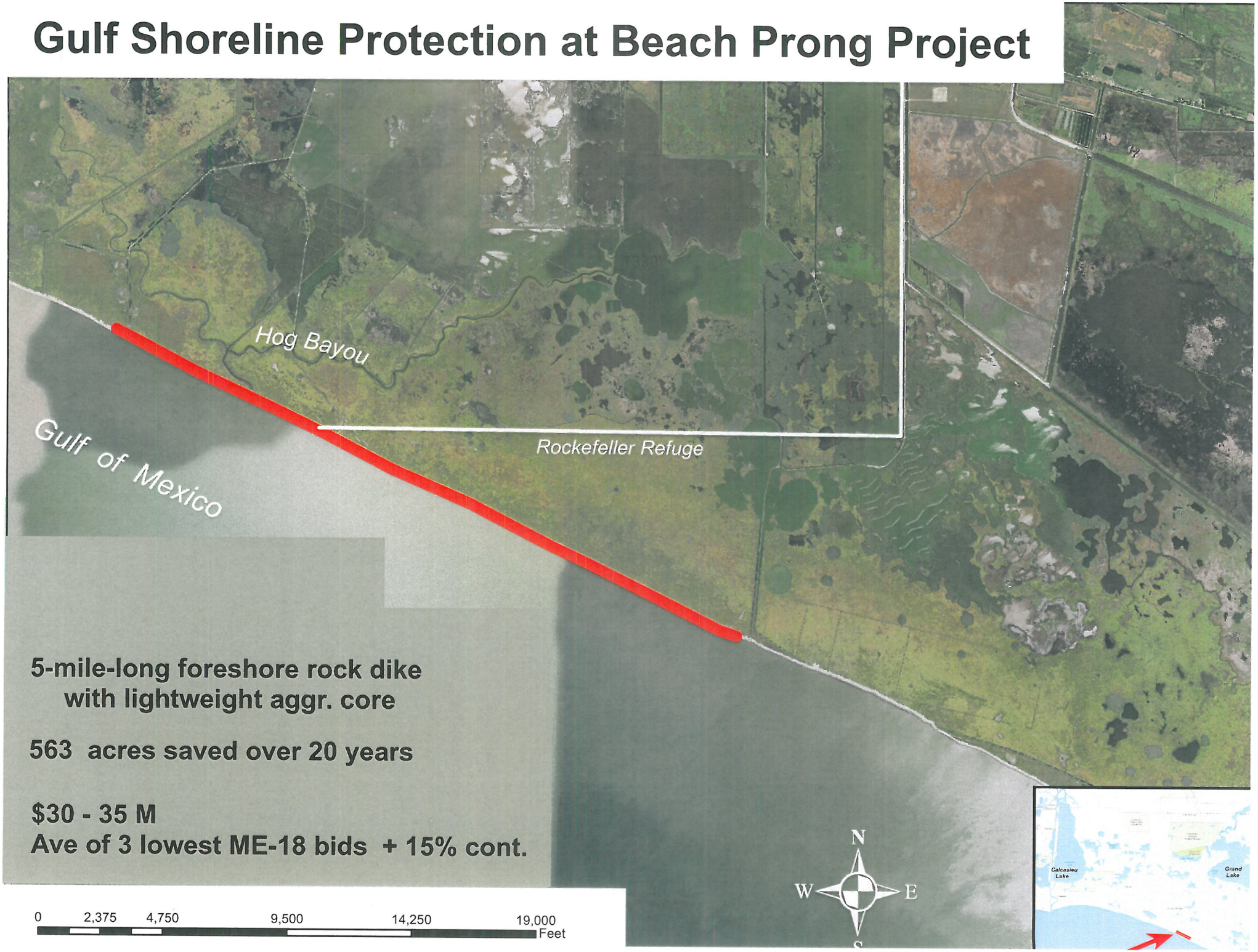
6) *To what extent does the project provide a synergistic effect with other approved and/or constructed restoration projects?*
The project would be synergistic with 2 projects located in the Hog Bayou watershed including the South Grand Chenier Marsh Creation Project (ME-20) and the South Grand Chenier – Baker Tract Marsh Creation Project (ME-32). The project also would add to the ME-18 and other state-funded Gulf shore protection projects currently or soon to be under construction along the Rockefeller Refuge.

Considerations
ME-18 has done the E&D, geotech, and permitting for a portion of the proposed project. Low bid for MR-18 construction was under $6M/mile. There are 2 landowners, Rockefeller Refuge and Miller Estate. Both landowners have expressed strong support for the project.

Preliminary Cost
The construction cost with 15% contingency is $30 to $35M.

Preparer(s) of Fact Sheet:
Ronny Paille: U.S. Fish and Wildlife Service; Ph: 337-291-3117;
Email: Ronald_Paille@fws.gov

Gulf Shoreline Protection at Beach Prong Project



ME-05

PPL29 PROJECT NOMINEE FACT SHEET
February 2019

Gulf Shore Protection at Beach Prong

Project Location
Region 4, Mermentau Basin, Cameron Parish

Problem
Between the Rockefeller Refuge and the Mermentau River Ship Channel, the Gulf of Mexico shoreline erosion rate in the vicinity of Beach Prong (a branch of Hog Bayou) varies from 37 to 44 feet per year (1998 to 2015). By 2050, the Gulf shore will have retreated northward of Hog Bayou near Beach Prong, and may seriously alter hydrology of the middle and upper reaches of the Hog Bayou watershed. In recent years, the shoreline erosion rates have increased.

Goals
The project goal is to halt erosion of the Gulf shoreline erosion along a critical 3-mile-long reach where continued erosion will threaten the integrity of the upper Hog Bayou watershed (19,000 acres). Service goals include the protection of shoreline beaches designated as critical habitat for the threatened piping plover and beaches used by the threatened red knot. The project would also protect back-beach marshes which may be used by the black rail, a candidate threatened species.

Proposed Solution
To halt Gulf shoreline erosion, 3 miles of foreshore protection consisting of lightweight aggregate core foreshore rock armor structures would be installed (as per ME-18 design) to preclude the anticipated system-wide hydrologic impact caused by the shoreline eroding into Hog Bayou.

Preliminary Project Benefits

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

Approximately 323 acres would be benefited directly. Indirect benefits would occur to marshes in the middle and upper Hog Bayou watershed.

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 271 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 75 to 100%.

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

Yes, the project would protect and restore the eroding Gulf shore rim and by reducing shoreline erosion and facilitating accumulation of shell hash, that may raise the rim elevations.

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

The project offers no immediate critical infrastructure protection but may provide indirect protection for the community of Grand Cheniere to the north.

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

The project would be synergistic with 2 projects located in the Hog Bayou watershed including the South Grand Chenier Marsh Creation Project (ME-20) and the South Grand Chenier – Baker Tract Marsh Creation Project (ME-32).

Considerations

ME-18 has done the E&D, geotech, and permitting for a portion of the proposed project. Low bid for MR-18 construction was under $7M/mile. There are 2 landowners, Rockefeller Refuge and Miller Estate. Both landowners have expressed strong support for the project.

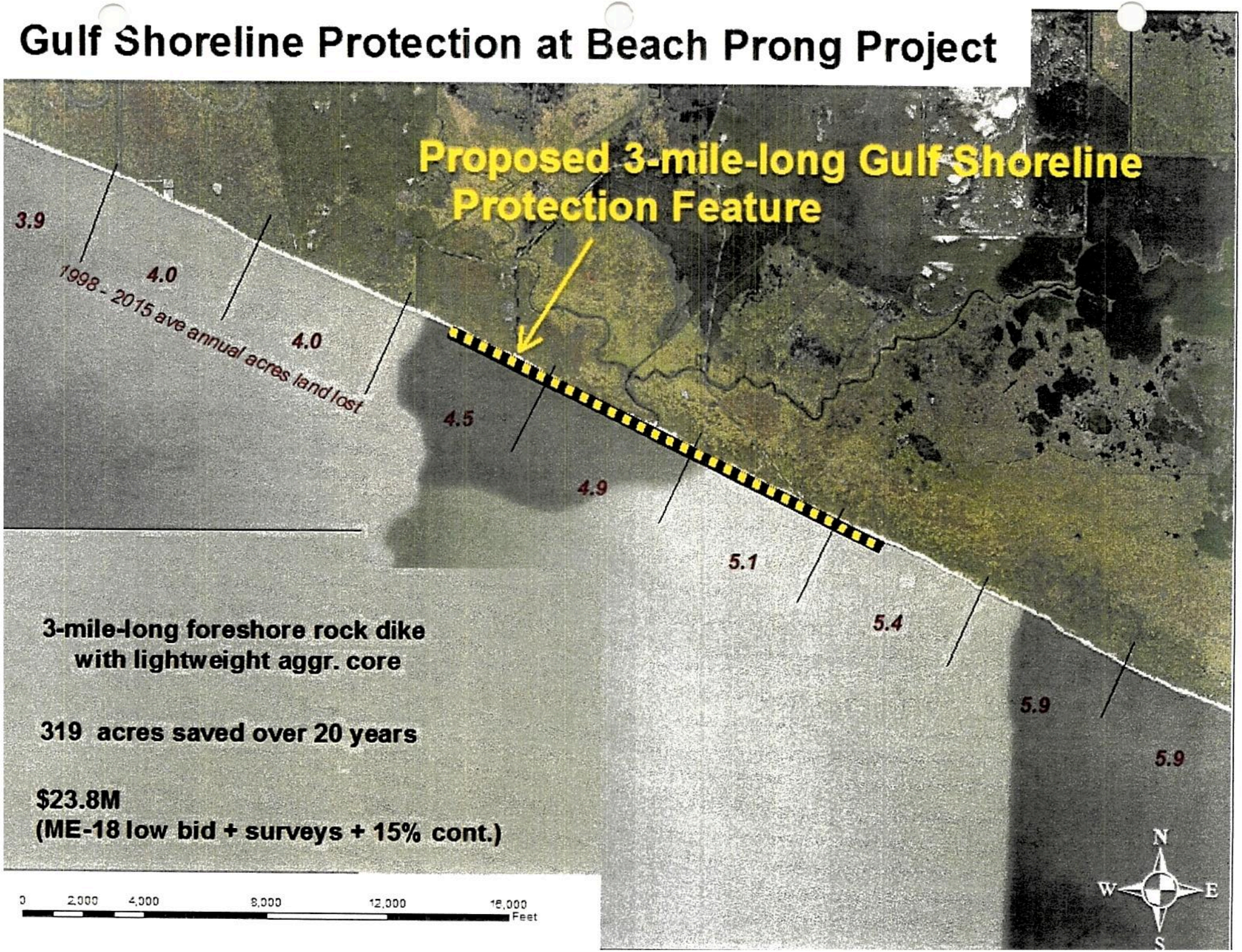
Preliminary Cost

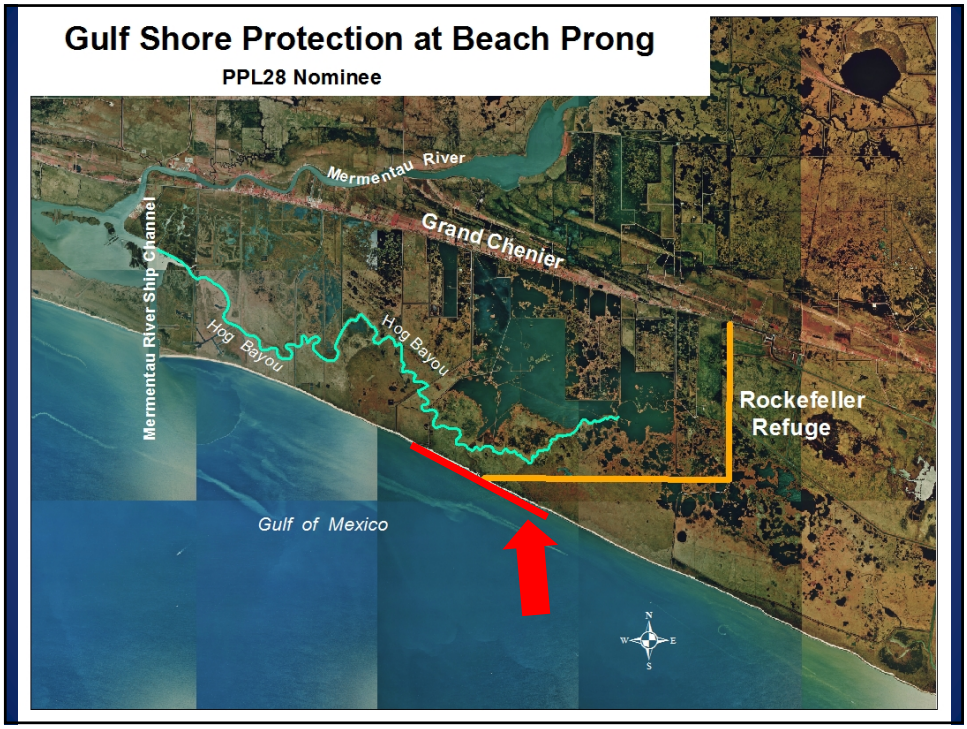
The construction cost with 15% contingency is $20 to $25M.

Preparer(s) of Fact Sheet:

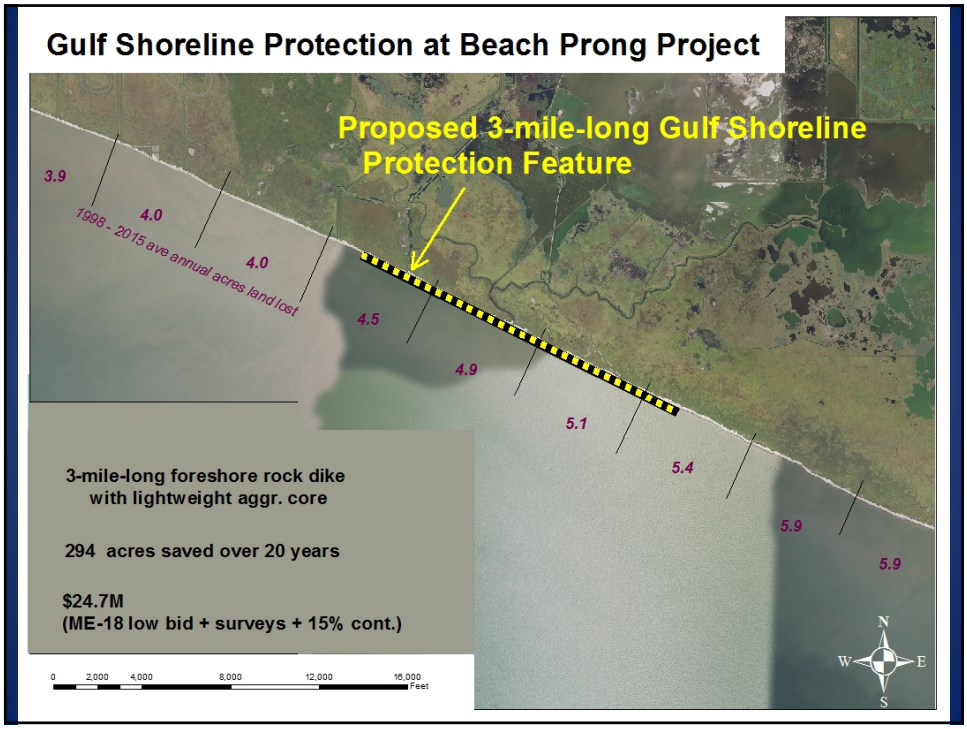
Ronny Paille: U.S. Fish and Wildlife Service; Ph: 337-291-3117;
Email: Ronald_Paille@fws.gov

Gulf Shoreline Protection at Beach Prong Project




Gulf Shore Protection at Beach Prong
PPL28 Nominee
Mermentau River
Grand Chenier
Mermentau River Ship Channel
Hog Bayou
Hog Bayou
Rockefeller Refuge
Gulf of Mexico
N
W
E
S


Hog Bayou
1998 to 2013
erosion rate = 42 ft/yr
2050
2039
2013
1998


Gulf Shoreline Protection at Beach Prong Project
Proposed 3-mile-long Gulf Shoreline Protection Feature
3.9
4.0
4.0
4.5
4.9
5.1
5.4
5.9
5.9
1998 - 2015 ave annual acres land lost
3-mile-long foreshore rock dike with lightweight aggr. core
294 acres saved over 20 years
$24.7M
(ME-18 low bid + surveys + 15% cont.)
0 2,000 4,000 8,000 12,000 16,000 Feet
N
W
E
S

ME-06

PPL29 PROJECT NOMINEE FACT SHEET
February 12, 2019

South Pecan Island Marsh Creation Project

State Master Plan Consistency
Consistent with the 2017 State Master Plan "East Pecan Island Marsh Creation" project (No. 004.MC.16); marsh creation southeast of Pecan Island and west of Freshwater Bayou Canal.

Project Location
Region 4, Mermentau Basin, Vermilion Parish, South of Pecan Island, west of Freshwater Bayou Canal.

Problem
Area wetland loss has been caused by impoundments, saltwater intrusion, hurricane and storm events (Coast 2050). Twenty-five percent (25%; 11,520 acres) of the 46,370 acres of marsh south of Pecan Island, from Freshwater Bayou Canal to Rollover Bayou, converted to open water from 1932 to 1990 (Coast 2050). Another 20% (6,980 acres) present in 1990 is predicted to be lost by 2050. The 1985 to 2016 Rockefeller-Pecan Island unit loss rate was 0.39%/year (USGS LA Land Change Trends 1985-2016). The 49,257-acre area included 61% brackish marsh (29,990 acres), 5% intermediate marsh (2,590 acres), 2% saline marsh (1,720 acres), fresh marsh (550 acres), and 26% open water (12,807 acres) in 1998 (Coast 2050).

Goals
Restore and nourish approximately 478 acres of intermediate to brackish marshes south of Pecan Island.

Proposed Project Features
Marsh creation of 448 acres and nourishment of 11 acres of intermediate to brackish marsh for a total 459 acres south of Pecan Island with dredged material from the Gulf of Mexico. Restore 19 acres of marsh via 42,860 linear feet of vegetated earthen terraces (total restored = 478 acres). Water depths range from 1.0 to 1.5 feet. Retention dikes will be gapped or degraded and tidal creeks and ponds will be constructed post-construction in marsh creation areas to restore area hydrology, allow fisheries access, and improve wetland productivity.

Preliminary Project Benefits
1) The project will directly benefit a net 445 acres over the 20-year project life at a land loss rate of 0.39 %/year. 2) It will provide some storm protection to the community of Pecan Island to the north. 3) It would restore intermediate and brackish marsh habitat to benefit the black rail (petitioned-to-be-listed species); glossy ibis at-risk species, and Joint Venture species of concern - mottled duck other waterfowl, king rail, wood stork, little blue heron, seaside sparrow, lesser snow goose, greater white-fronted goose, and Canada goose.

Identification of Potential Issues
No significant issues have been identified.

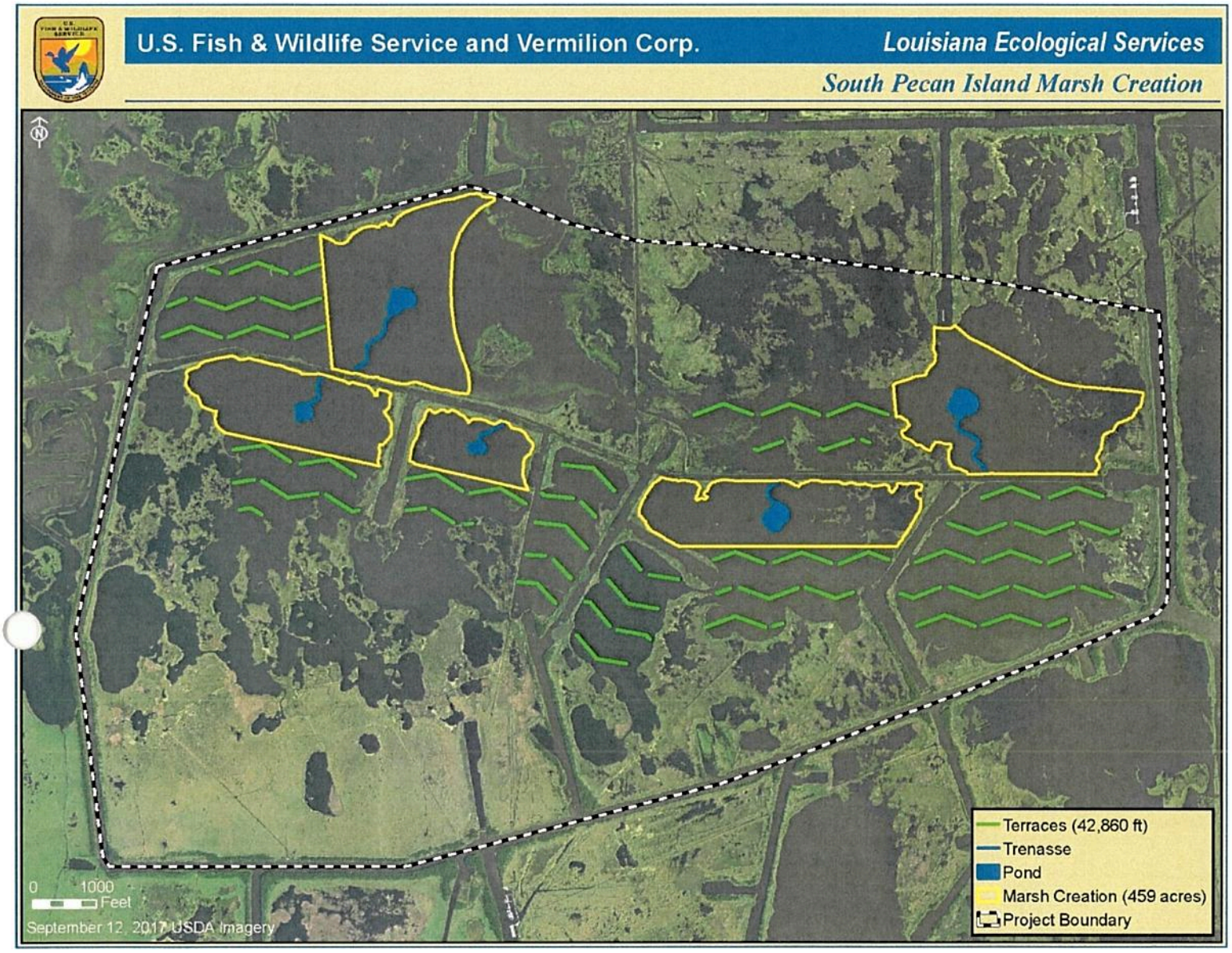
Preliminary Construction Costs
The estimated construction cost including 25% contingency is $30 to $35 M.

Preparers of Fact Sheet

Billy Broussard, Vermilion Corporation, 337-893-0268 vc1958@vermcorp.com
Darryl Clark, U.S. Fish and Wildlife Service, 337-291-3111 Darryl_Clark@fws.gov

South Pecan Island Marsh Creation Vicinity Map

South Pecan Island Marsh Creation Project
PPL 29 Nominee



South Pecan Island Marsh Creation Project PPL 29 Nominee

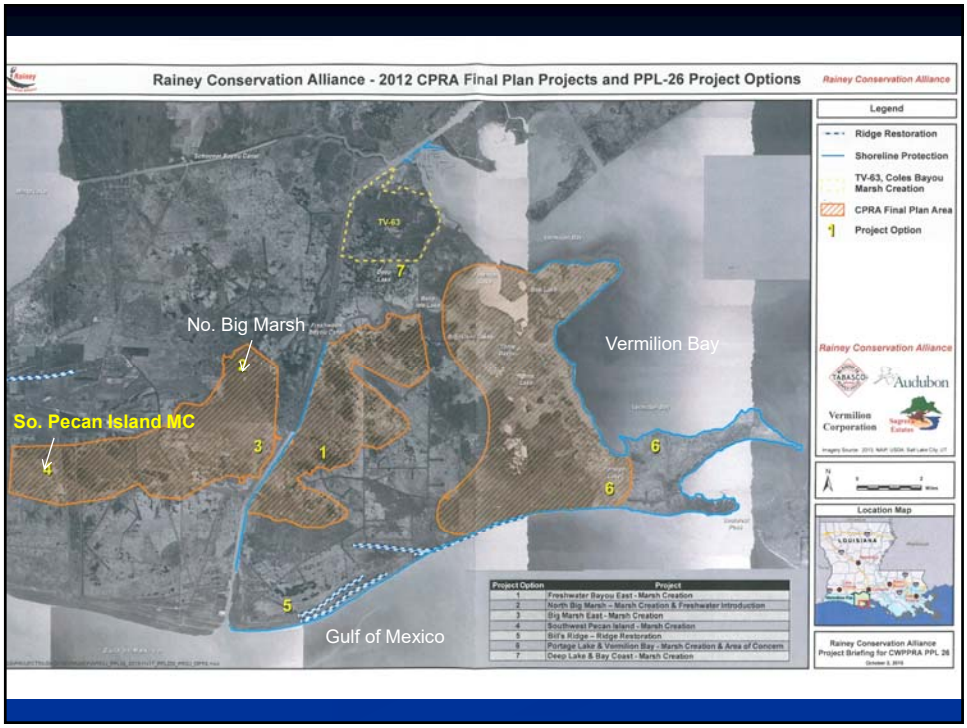
Problem

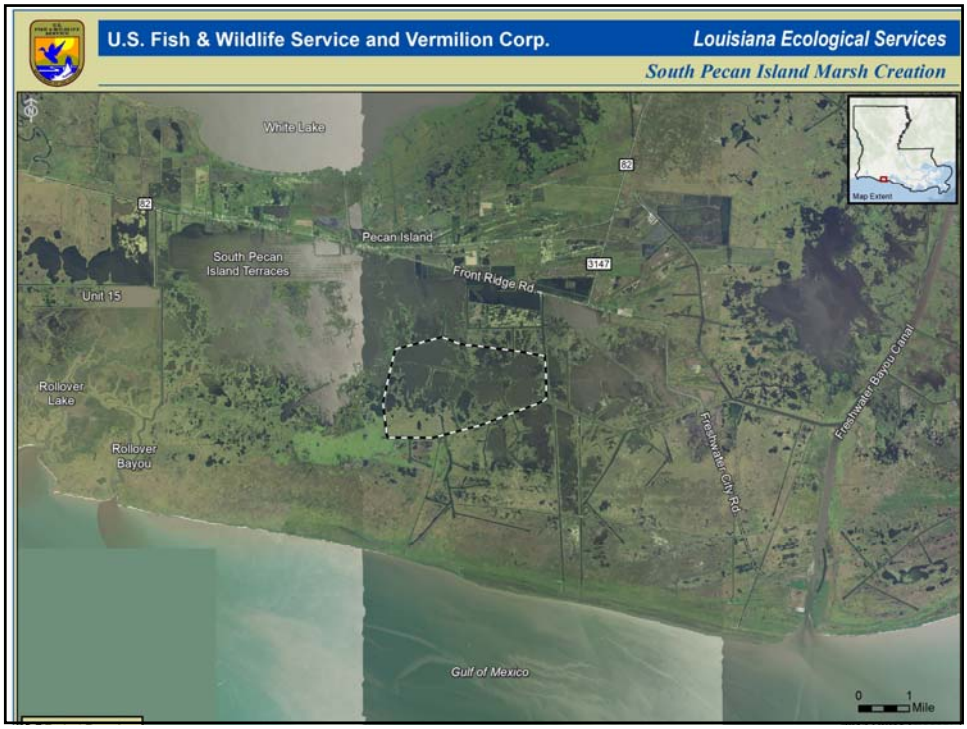
- 25% of the 46,000 acres so. of Pecan Island were lost (1932 to 1990).
- Another 20% loss is predicted by 2050
- Current 1985 to 2016 land loss rate is -0.39%/year

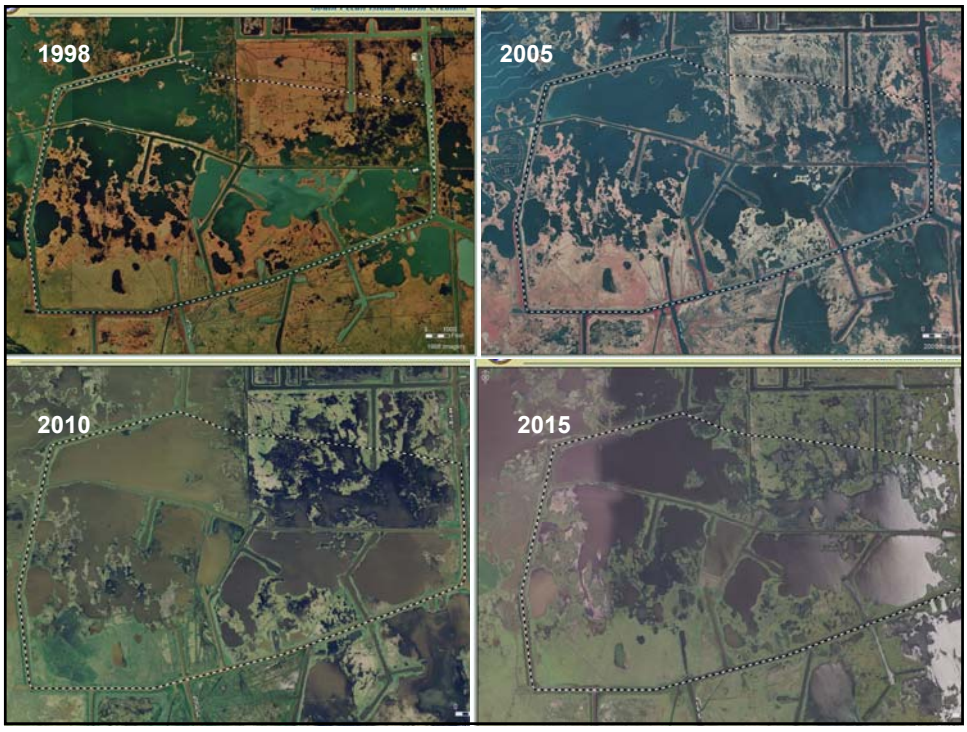
Goal

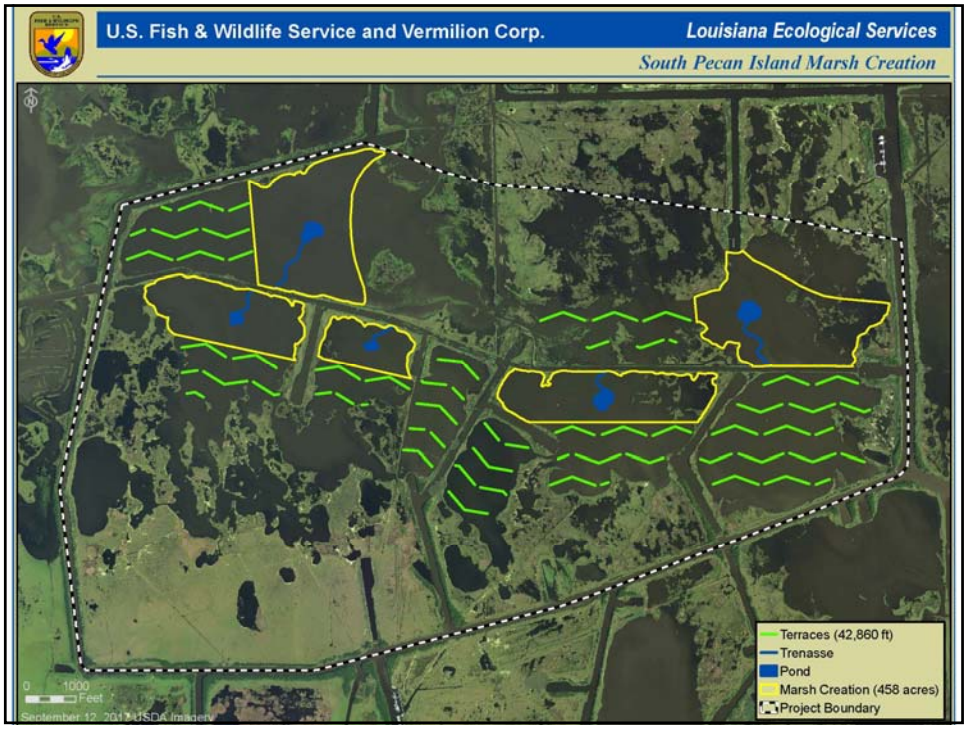
- 1) Restore & nourish 478 acres of brackish & intermediate marsh via marsh creation & terraces.

Sponsors – Vermilion Corp., FWS




U.S. Fish & Wildlife Service and Vermilion Corp.
Louisiana Ecological Services
South Pecan Island Marsh Creation
White Lake
82
Pecan Island
South Pecan
Island Terraces
3147
Front Ridge Rd
Unit 15
Rollover
Lake
Rollover
Bayou
Freshwater City Rd
Freshwater Bayou Canal
Gulf of Mexico
Map Extent
0
1
Mile


1998
2005
2010
2015



SOUTH PECAN ISLAND
FEATURES BENEFITS & COSTS

- **Features – Restore 478 acres of brackish/ intermediate marsh so. of Pecan Island with Gulf dredged material (459 acres MC/MN) & terraces (42,860 ft.; 19 acres).**
- **Preliminary Project Benefits – Total net marsh benefited over 20-year project life = 445 acres at a loss rate of 0.39 %/year.**
- **2) The project would restore marsh, protect Pecan Island, & benefit black rail (a proposed listed species), glossy ibis, mottled duck, other waterfowl & geese, little blue heron, seaside sparrow at-risk & FWS Joint Venture species.**
- **Cost - Estimated construction cost is $30 to $35 M. Cost effectiveness ~ $78,600/acre.**

ME-07

PPL28 PROJECT NOMINEE FACT SHEET
February 12, 2019

North Big Marsh Restoration Project

Project Location
Region 4, Mermentau Basin, Vermilion Parish. Within the 2017 State Master Plan's "East Pecan Island Marsh Creation" project (No. 004.MC.16).

Problem
The 450-acre North Big Marsh project area lost 55% of its marsh (250 acres) from 1998 to 2013 (~3.6%/year), with greatest losses due to hurricanes Rita (2005) and Ike (2008). A large 4,700-acre shallow open water area developed in the center of Big Marsh mapping unit mostly due to those hurricanes. Prior to 2000, the Big Marsh Coast 2050 mapping unit lost 11% marsh (-3,810 acres) from 1932 to 1990 with the greatest loss during the 1956-1979 period from the dredging of Freshwater Bayou Canal, which caused wake erosion, altered hydrology, and increased losses due to storm activity. The 36,000-acre Big Marsh unit consisted of fresh (57%), intermediate (25%), and brackish (3%) marshes, and open water (10%) in 1998 (Coast 2050 Report). The Unit's 1985 to 2016 land loss rate was -0.28%/year (LA Land Loss Change Trends 1985-2016, USGS).

Goals
Restore and nourish 483 acres of fresh and intermediate marsh in the northern portion of Big Marsh via marsh creation and freshwater introduction from White Lake.

Proposed Solution
Restore 405 acres and nourish 45 acres of marsh to restore 450 acres of fresh to intermediate marsh in Big Marsh west of Freshwater Bayou Canal with dredged material from Little Vermilion Bay. Introduce freshwater eastward from White Lake (~100 cfs) via 3, 48-inch-diameter culverts at Hwy 82 and an existing canal (33 acres restored). Water depths range from 1.5 to 2.0 feet. Retention dikes will be gapped or degraded and tidal creeks constructed post-construction to restore area hydrology, allow fisheries access, and improve wetland productivity.

Preliminary Project Benefits
This total project area benefitted is 5,691 acres (450 acres marsh creation; 5,691-acre freshwater introduction area = 33-acres restored). Total area restored equals 483 acres. The project would restore marsh habitat for the Black Rail (petitioned species), the glossy ibis (at-risk species), and FWS Joint Venture species of concern - mottled duck other waterfowl, king rail, wood stork, little blue heron, lesser snow goose, greater white-fronted goose, and Canada goose.

Identification of Potential Issues
There may be pipeline considerations within the marsh creation and/or Little Vermilion Bay borrow area.

Preliminary Construction Costs
The estimated construction cost, including 25% contingency, is $25M-$30M.

Preparers of Fact Sheet:
Darryl Clark, U.S. Fish and Wildlife Service, 337-291-3111 Darryl_Clark@fws.gov
Billy Broussard, Vermilion Corporation, 337-893-0268, vc1958@vermcorp.com

North Big Marsh Restoration Project PPL 29 Nominee

North Big Marsh Restoration Project PPL 29 Nominee

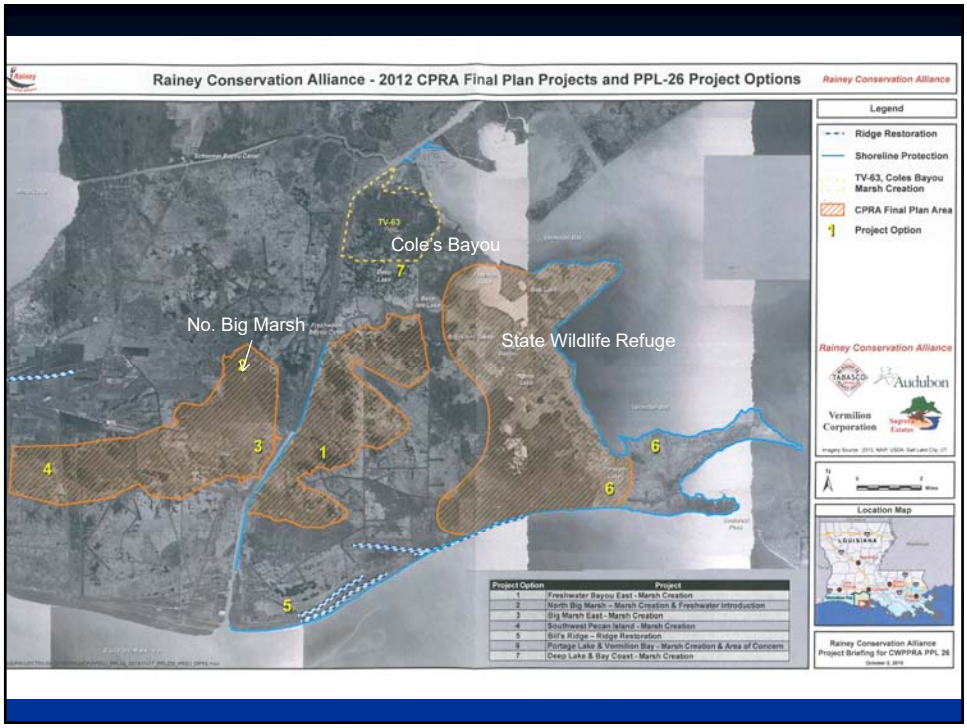
Problem

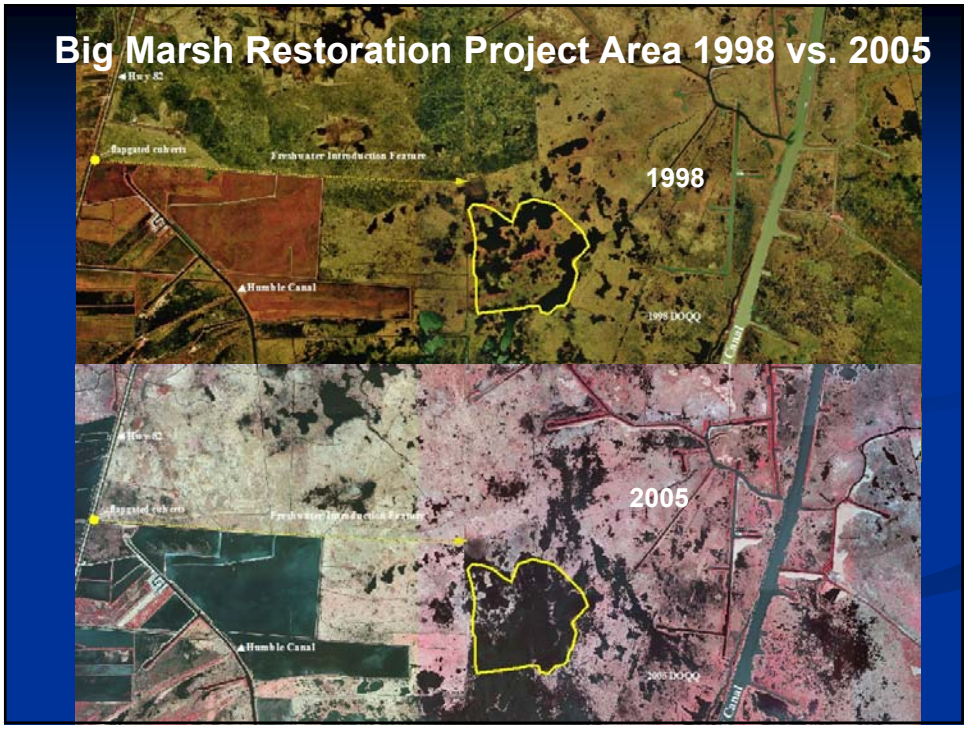
- Big Marsh Unit lost 11% marsh (-3,810 acres) (1932 - 1990).
- Coast 2050 Study predicted another 10% loss by 2050 (3,000 acres).
- Hurricanes Rita (2005) & Ike (2008) eroded an additional 4,700-acre area (16%; total 27% loss).
- Current 1985 to 2016 land loss rate is -0.28%/year
- 450-acre No. Big Marsh project area lost 55% of its marsh (250 acres) from 1998 to 2013.

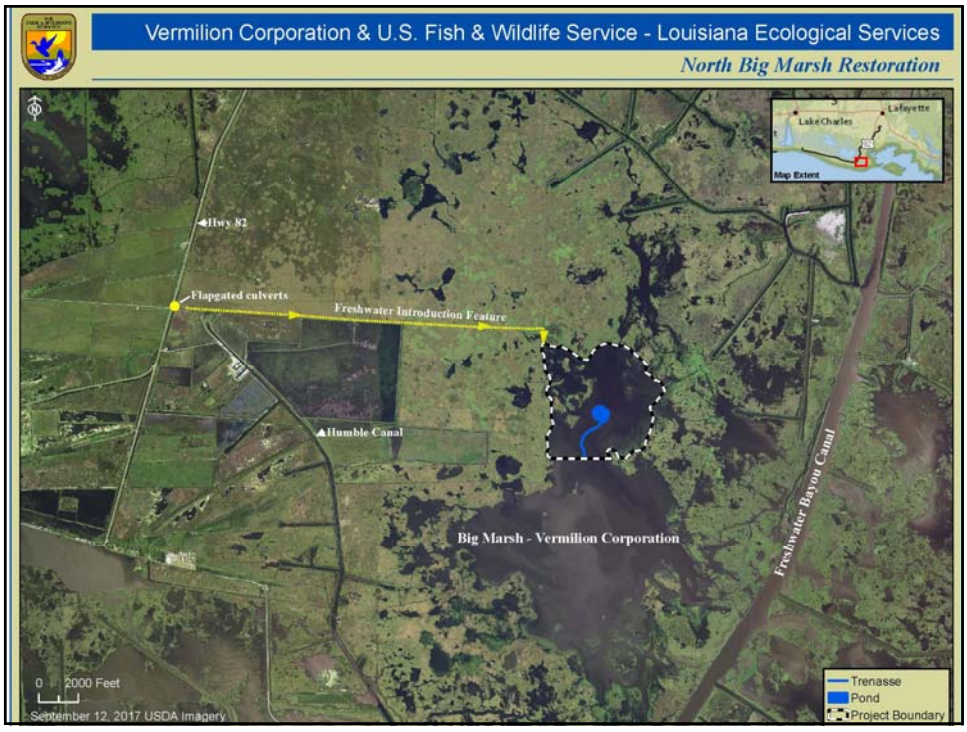
Goals

- 1) Restore & nourish 450 acres of fresh & intermediate marsh in North Big Marsh
- 2) Introduce freshwater from White Lake (33 acres restored).
- 3) Total restored = 483 acres (= 427 net acres)

Sponsors – Vermilion Corp., FWS




Big Marsh Restoration Project Area 1998 vs. 2005
Hwy 82
Flapgated culverts
Freshwater Introduction Feature
1998
Humble Canal
1998 DOQQ
Canal
Hwy 82
Flapgated culverts
Freshwater Introduction Feature
2005
Humble Canal
2005 DOQQ
Canal


Vermilion Corporation & U.S. Fish & Wildlife Service - Louisiana Ecological Services
North Big Marsh Restoration
Lafayette
Lake Charles
Map Extent
Hwy 82
Flapgated culverts
Freshwater Introduction Feature
Humble Canal
Big Marsh - Vermilion Corporation
Freshwater Bayou Canal
0 2000 Feet
September 12, 2017 USDA Imagery
Trenasse
Pond
Project Boundary

- **Features – 1) Restore & nourish 483 acres of fresh-intermediate marsh in the Big Marsh area west of Freshwater Bayou Canal with dredged material from Little Vermilion Bay or the Gulf.**
- **2) Introduce freshwater (~100 cfs) via 3, 48-inch-diameter culverts at Hwy 82 from White Lake.**
- **Preliminary Project Benefits – 1) Total net marsh acreage benefited over the 20-year project life would be 427 acres at the loss rate of 0.28 %/year.**
- **The project would restore marsh & benefit Black Rail (petitioned species), glossy ibis (at-risk species), & FWS Joint Venture species of concern - mottled duck other waterfowl, king rail, wood stork, little blue heron, & geese.**
- **Cost - Estimated construction cost is $25 to $30 M.**
  Estimated cost effectiveness = $70,200/acre.

Region 4-

Calcasieu-Sabine Basin

Region 4 – Calcasieu-Sabine Basin

CS-01	Willow Bayou Marsh Creation
CS-02	South Black Bayou Marsh Creation
CS-03	East Prong Marsh Creation and Terracing
CS-04	North Mud Lake Marsh Creation
CS-05	Mud Lake Peninsula Marsh Creation
CS-06	Mud Lake South Marsh Creation
CS-07	Sweetlake Freshwater Enhancement
CS-08	Sweet Lake Marsh Creation
CS-09	Cameron Meadows East Marsh Creation

CS-01

PPL29 PROJECT NOMINEE FACT SHEET
February 2019

Willow Bayou Marsh Creation Project

Louisiana's 2017 Coastal Master Plan
Marsh Creation – 004.MC.107 (*Consistency approved for PPL28 nominee*)

Project Location
Region 4, Sabine Basin – Cameron Parish

Problem
Following the construction and enlargement of the Sabine-Neches Waterway, increased salinities in combination with hurricane storm surges and droughts resulted in the loss of interior low salinity marsh vegetation and the export of unvegetated organic soils during the 1960s and 1970s. The conversion of those marshes to large open water areas has allowed wind action to cause erosion of marsh edges. Because of the fetch and continued erosion of marsh edges, turbid water conditions are maintained within those open water areas. As remnant marsh islands disappear, the fetch increases thus exacerbating the erosion/turbidity problem. Earthen terraces have been constructed in portions of these open water areas, but other open water areas remain un-terraced. Hurricane Rita (2005) and Hurricane Ike (2008) have also enlarged these open water areas.

Goals
The project goal is to construct marsh in the remaining open water areas where terraces have not been constructed.

Proposed Solution
Using borrow material from Sabine Lake, approximately 402 acres of marsh would be created in two confined disposal cells, and 10 ac of existing marsh within those cells would be nourished.

Preliminary Project Benefits:

1) *What is the total acreage benefited both directly and indirectly?*
   Approximately 412 acres of marsh would be benefitted directly (402 ac from marsh creation, 10 acres from marsh nourishment). Indirect benefits may occur in adjoining open water areas due to reduced fetch, restoration of SAV beds, and reduced shoreline erosion of nearby marshes.

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 397 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.

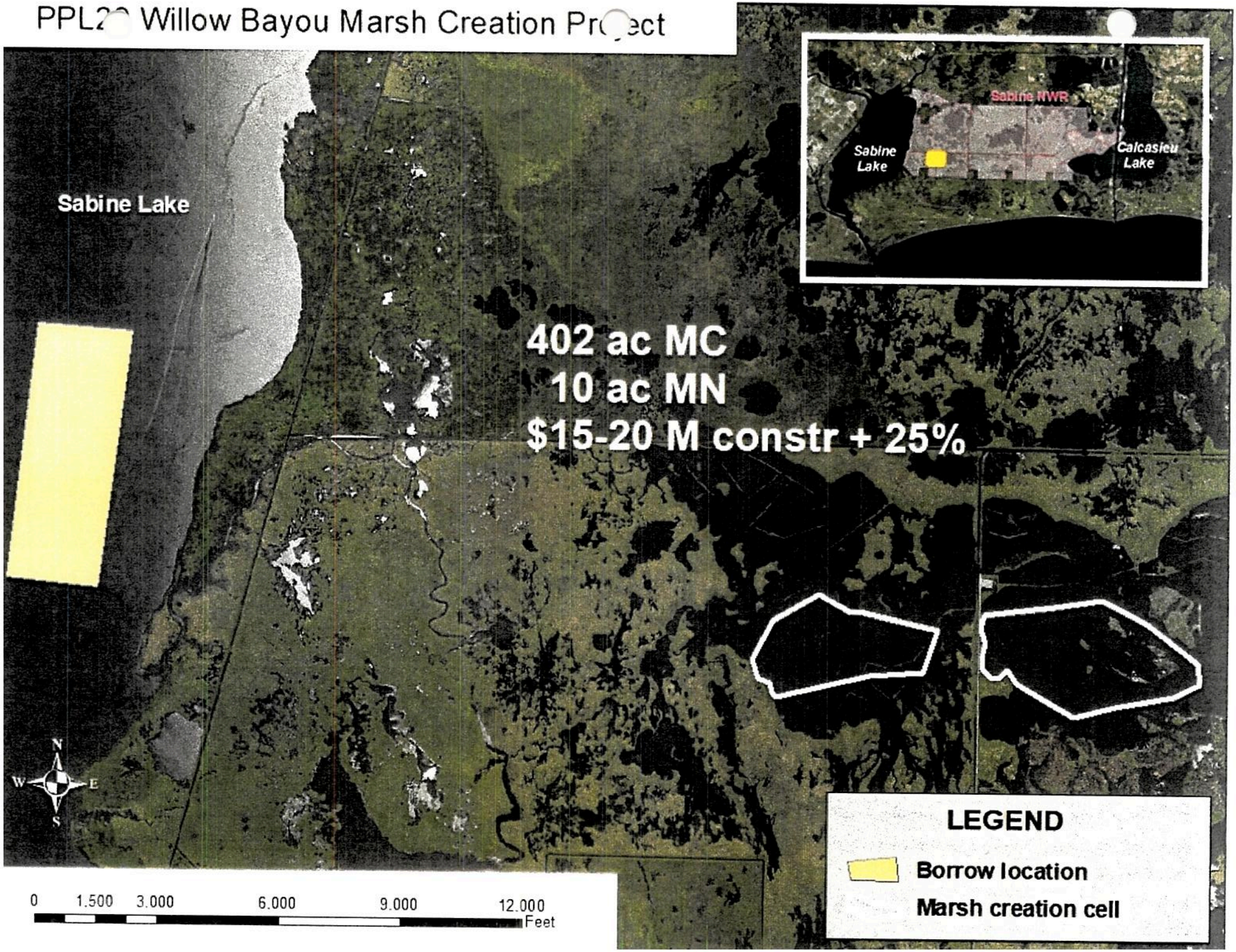
5) *What is the net impact of the project on critical and non-critical infrastructure?*
None.

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

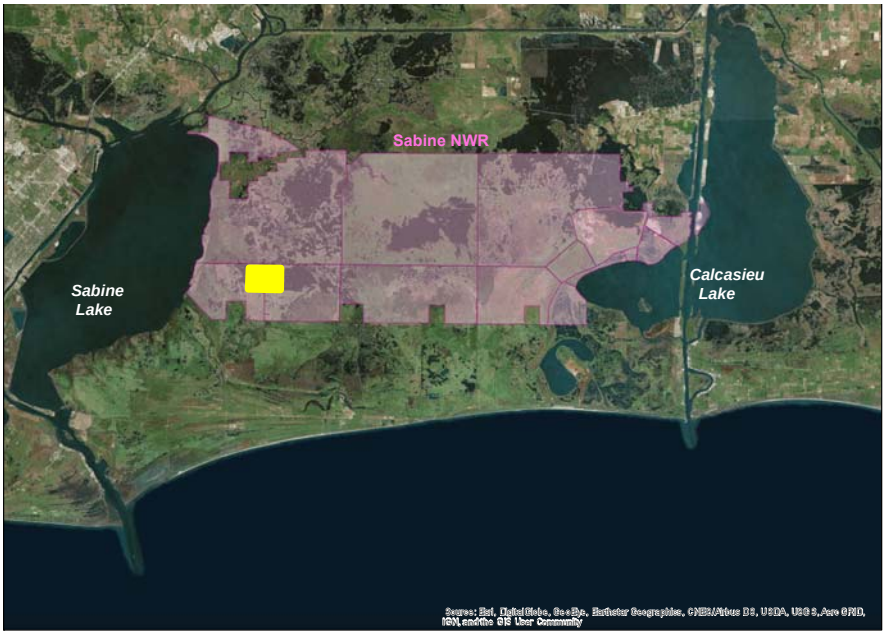
Preliminary Construction Costs:
The estimated construction cost including 25% contingency is $15 to 20M.

Preparer(s) of Fact Sheet:
Ronald Paille: U.S. Fish and Wildlife Service; 337-291-3117

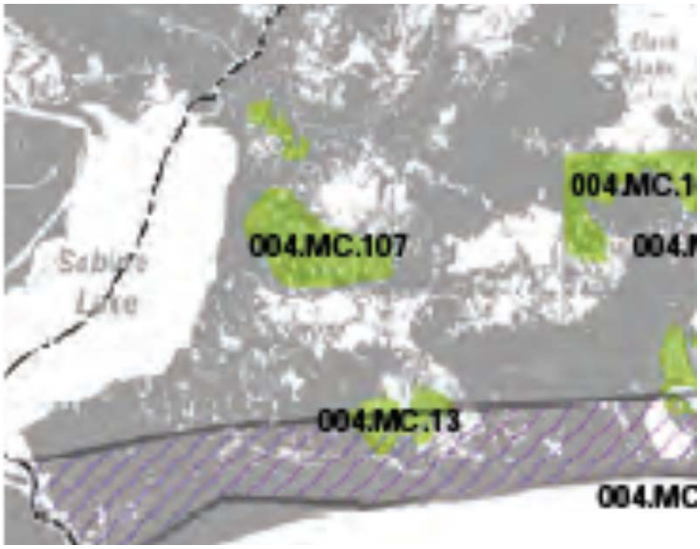
PPL2? Willow Bayou Marsh Creation Project



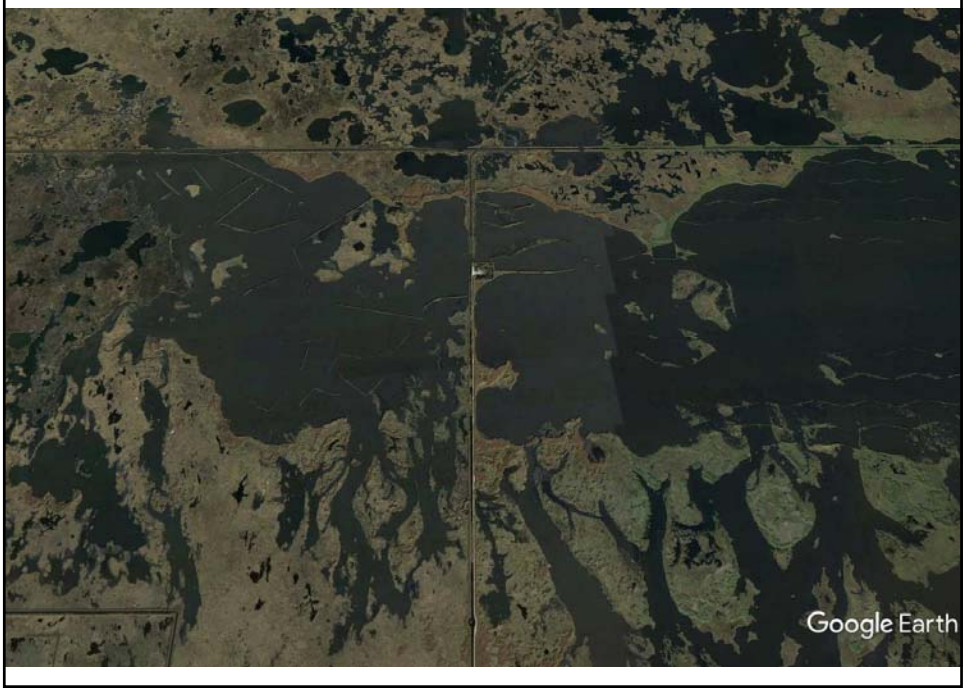
PPL29 Willow Bayou Marsh Creation Project

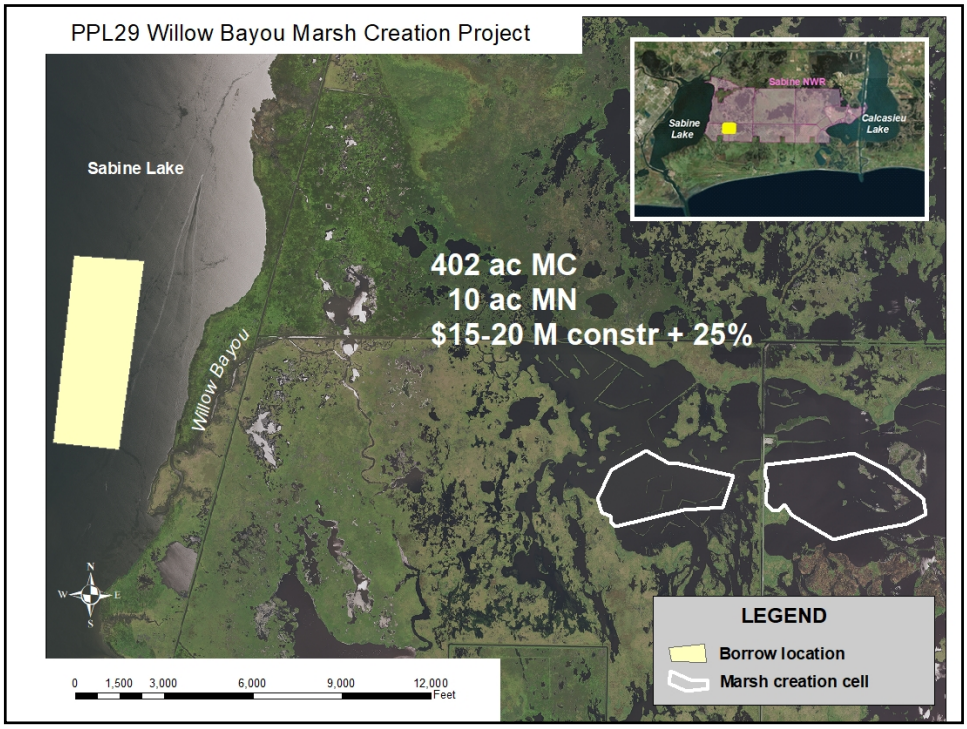


2017 Coastal Master Plan




Google Earth


Google Earth


PPL29 Willow Bayou Marsh Creation Project
Sabine Lake
Willow Bayou
Sabine NWR
Sabine Lake
Calcasieu Lake
402 ac MC
10 ac MN
$15-20 M constr + 25%
N
W
E
S
0 1,500 3,000 6,000 9,000 12,000
Feet
LEGEND
Borrow location
Marsh creation cell

CS-02

PPL29 PROJECT NOMINEE FACT SHEET
February 2019

South Black Bayou Marsh Creation Project

Louisiana's 2017 Coastal Master Plan
Marsh Creation – 004.MC.107

Project Location
Region 4, Sabine Basin – Cameron Parish

Problem
The loss of marshes south of Black Bayou following Hurricanes Rita (2005) and Ike (2008) has created large interior open water areas resulting in increased tidal prism. The loss of marsh has also enabled the establishment of an ever increasing cross-system hydrologic connection between Sabine Lake (via The Pines Canal) and Black Bayou. The large open water lakes are now subject to increased fetch and shoreline erosion which increases tidal prism and eroded organic material is more readily exported to Sabine Lake.

Goals
The project goal is to construct marsh in the large interior lakes and to block cross-basin hydrologic exchange.

Proposed Solution
Using borrow material from Sabine Lake, approximately 372 acres of marsh would be created in five confined disposal cells and in 2 additional semi-confined cells. Sediment placement in the semi-confined cells would create marsh in open water areas and would repair unavoidable project related marsh damage from dragging pipe. Approximately 72 acres of existing marsh within the confined and semi-confined cells would be nourished. Cell layout is designed to halt the cross-system water exchange. Marsh creation sites are located in large open water areas to address the fetch and associated shoreline erosion problems.

Preliminary Project Benefits:

1) *What is the total acreage benefited both directly and indirectly?*
   Approximately 444 acres of marsh would be benefitted directly (372 ac from marsh creation, 72 acres from marsh nourishment). Indirect benefits may occur in adjoining open water areas due to reduced fetch, restoration of SAV beds, and reduced shoreline erosion of nearby marshes.

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 366 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%.

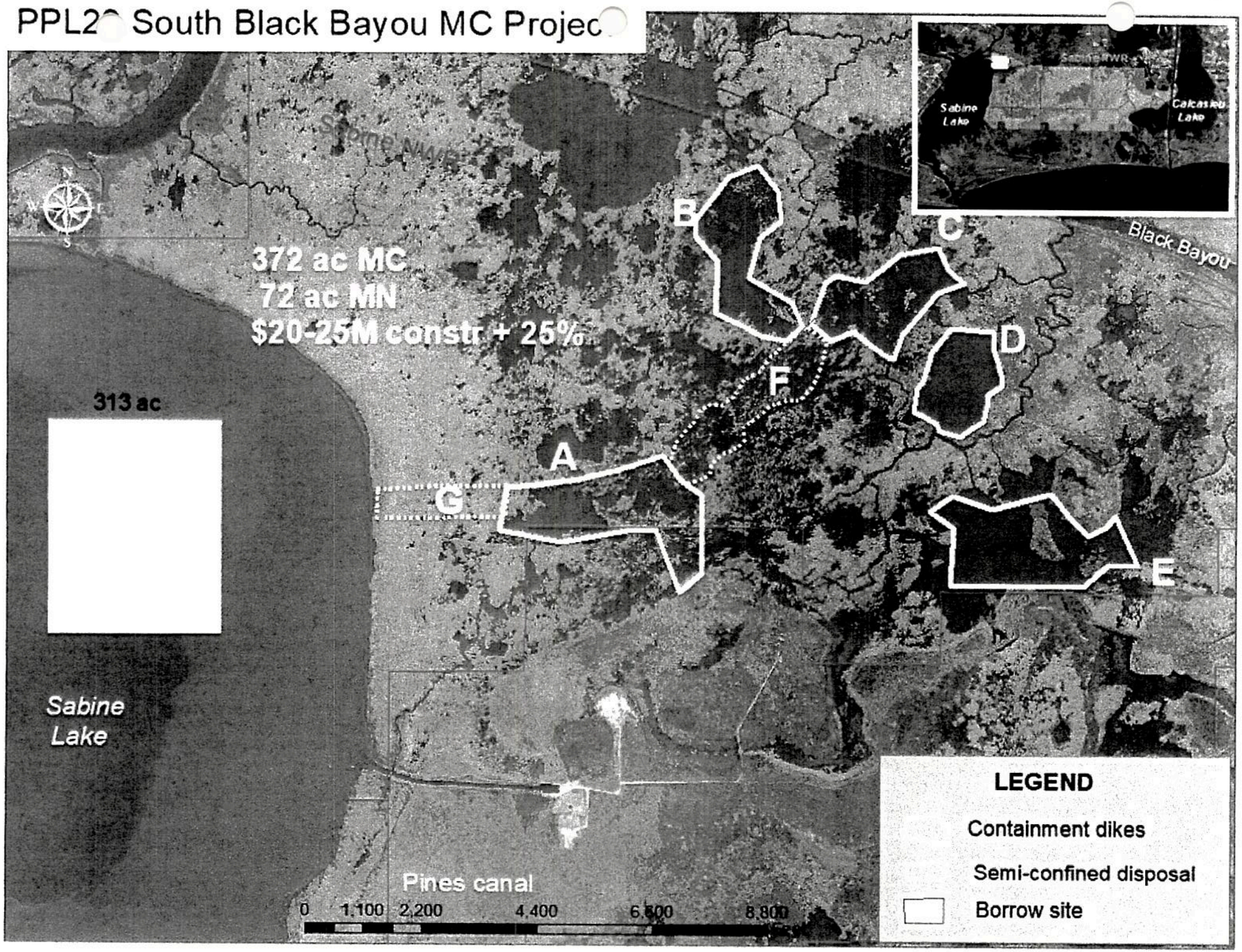
4) *Do any project features maintain or restore structural components of the coastal ecosystem such as barrier islands, natural or artificial levee ridges, beach and lake rims, cheniers, etc?*
NO.

5) *What is the net impact of the project on critical and non-critical infrastructure?*
None.

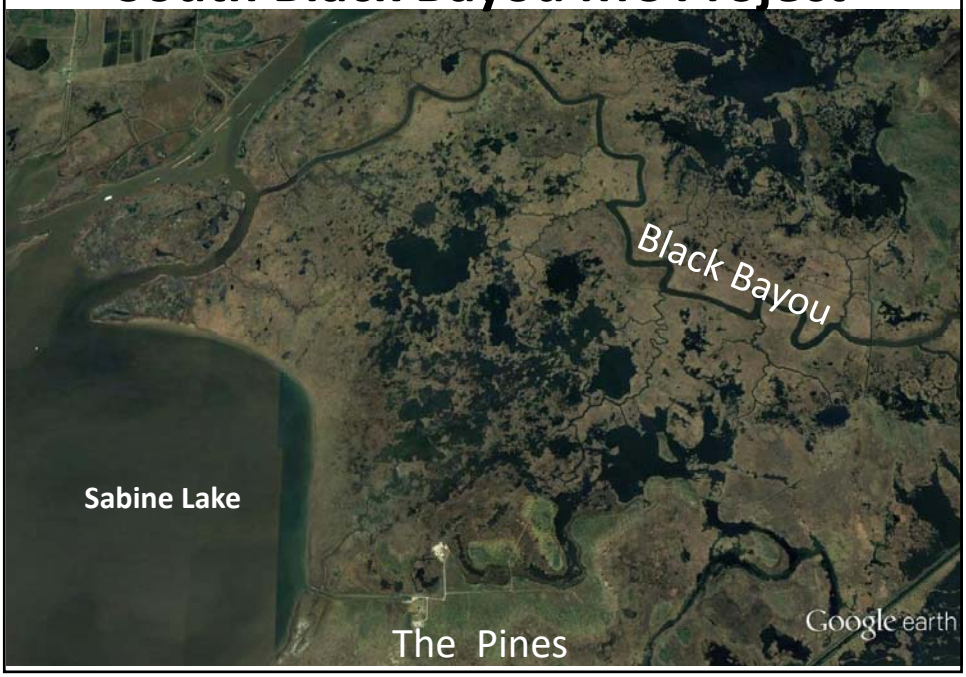
6) *To what extent does the project provide a synergistic effect with other approved and/or constructed restoration projects?*
The proposed project would complement the East Sabine Lake Hydrologic Restoration Project (CS-32).

Preliminary Construction Costs:
The estimated construction cost including 25% contingency is $20 to 25M.

Preparer(s) of Fact Sheet:
Ronald Paille: U.S. Fish and Wildlife Service; 337-291-3117


PPL2 South Black Bayou MC Projec
Sabine NWR
Sabine Lake
Calcasieu Lake
Black Bayou
372 ac MC
72 ac MN
$20-25M constr + 25%
313 ac
A
B
C
D
E
F
G
Sabine Lake
Pines canal
0 1,100 2,200 4,400 6,600 8,800
LEGEND
Containment dikes
Semi-confined disposal
Borrow site

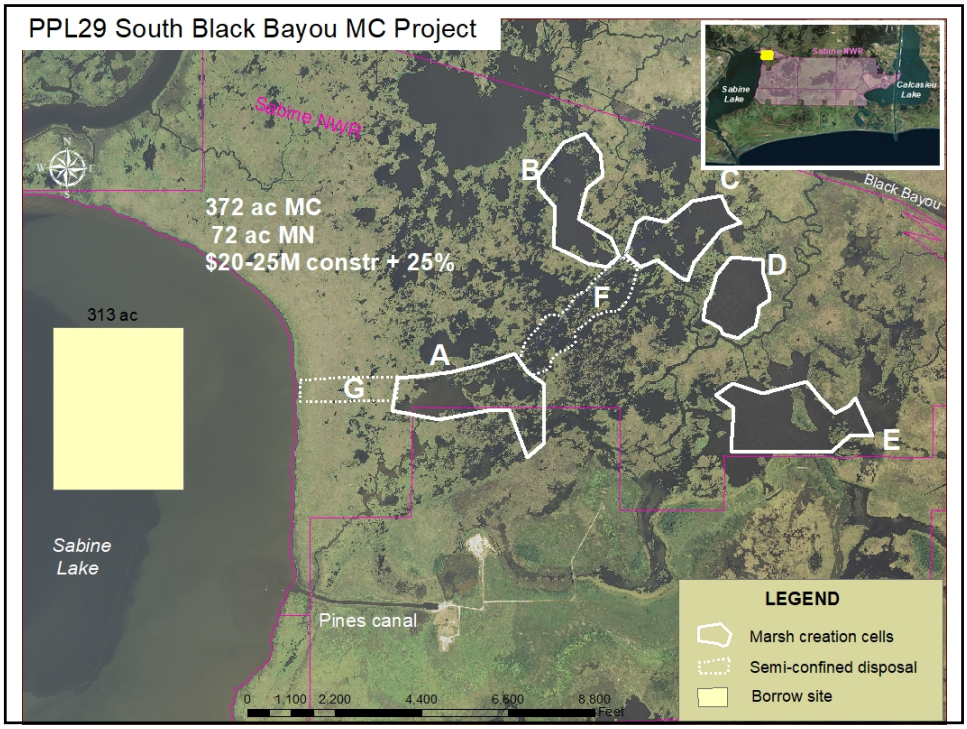
South Black Bayou MC Project



CS-32 Rock Weir on Pines Bayou

40’ wide x 2.5’ deep

Photo from 2017 CPRA annual inspection report


PPL29 South Black Bayou MC Project
Sabine NWR
372 ac MC
72 ac MN
$20-25M constr + 25%
313 ac
Sabine Lake
Pines canal
Black Bayou
A
B
C
D
E
F
G
LEGEND
Marsh creation cells
Semi-confined disposal
Borrow site
0 1,100 2,200 4,400 6,600 8,800 Feet

CS-03

PPL29 PROJECT NOMINEE FACT SHEET
February 12, 2019

Project Name
East Prong Marsh Creation & Terracing

Project Location
Region 4, Calcasieu-Sabine Basin, Cameron Parish, north of East Prong on Cameron Prairie NWR

Problem
Historically this area was dominated by saw grass marsh. Loss of the historical saw grass marsh can be attributed to saltwater intrusion from the Calcasieu Ship Channel (CSC) in the 1950s. Hurricane Audrey (1957) exacerbated the impacts to the dying saw grass system, clearing away the dead and deteriorated saw grass stands. A combination of human-induced hydrologic changes and severe storm events has resulted in virtually all of the habitat changes and land losses in the Calcasieu-Sabine Basin (Hydrologic Investigation of the Chenier Plain Report 2002). The CCWP was implemented by the NRCS in 1989 to reduce saltwater intrusion and stimulate restoration through revegetation. Land loss is estimated to be -1.66 %/yr based on USGS data from 1985 to 2010 (CS-54 WVA 2014). Comparatively, USGS - LA Land Change Trends data from 1985-2016, estimates land change for the Calcasieu–Sabine Basin, Lambert Lake Unit at -1.67 %/yr.

Goals
Project goals include restoring and nourishing brackish marsh to elevations that are sustainable, constructing terraces, and reestablishing channel depths to benefit fish and wildlife resources on Cameron Prairie NWR. The proposed project will reduce wind-induced erosion and will buffer higher saline waters from penetrating further inland protecting fresher marshes. Restoring brackish marshes in the Cameron Creole Watershed is a conservation strategy identified by the FWS' *Vision for a Healthy Gulf of Mexico Watershed,* and would benefit Fish and Wildlife Service trust resources such as migratory waterfowl, shorebirds, and wading birds including priority species such as the mottled duck and greater white fronted goose. Additionally, restoring these marshes may be beneficial to at-risk species such as the black rail (proposed for listing as a threatened species) and the salt-marsh topminnow.

Proposed Solution
An estimated 2.4 million cubic yards (cyds) of dredged material is needed to restore 435 acres of brackish marsh. Terraces (25,000 linear feet, 16 acres of benefits) will be constructed in open water areas to the east. Approximately 379,000 cyds of material is available through dredging 55,308 LF of the natural bayous: assuming a 5-foot bottom depth, a 12-foot bottom width, and a 1:5 side slope. Spray dredging can nourish approximately 100 feet from the marsh bank line resulting in approximately 127 acres (100*55,308/43560) of nourished marsh. In addition, dredging the bayous would increase the storage capacity of those bayous and reestablish the natural tidal ingress and egress of the watershed.

Preliminary Project Benefits
1) *What is the total acreage benefited both directly and indirectly*? The project would restore 451 acres (435+16) and nourish 127 acres of brackish marsh in the CCW and reestablish a more natural tidal hydrology. Indirect benefits would occur to surrounding marshes and within the 349-acre terrace field, for a total of 926 acres benefited directly and indirectly.

2) *How many acres of wetlands will be protected/created over the project life*? A total of 350-400 net acres 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 benefit is estimated to be 50% for marsh creation, nourishment and terraces.

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*? None.

6) *To what extent does the project provide a synergistic effect with other approved and/or constructed restoration projects*? The project would provide a synergistic effect with the Cameron-Creole Watershed Project, CS-54 CCW-Grand Bayou Marsh Creation project, the CS-49 Cameron Creole Freshwater Introduction, and two Ducks Unlimited Terracing projects.

Considerations
Calcasieu Lake Oyster Seed Ground

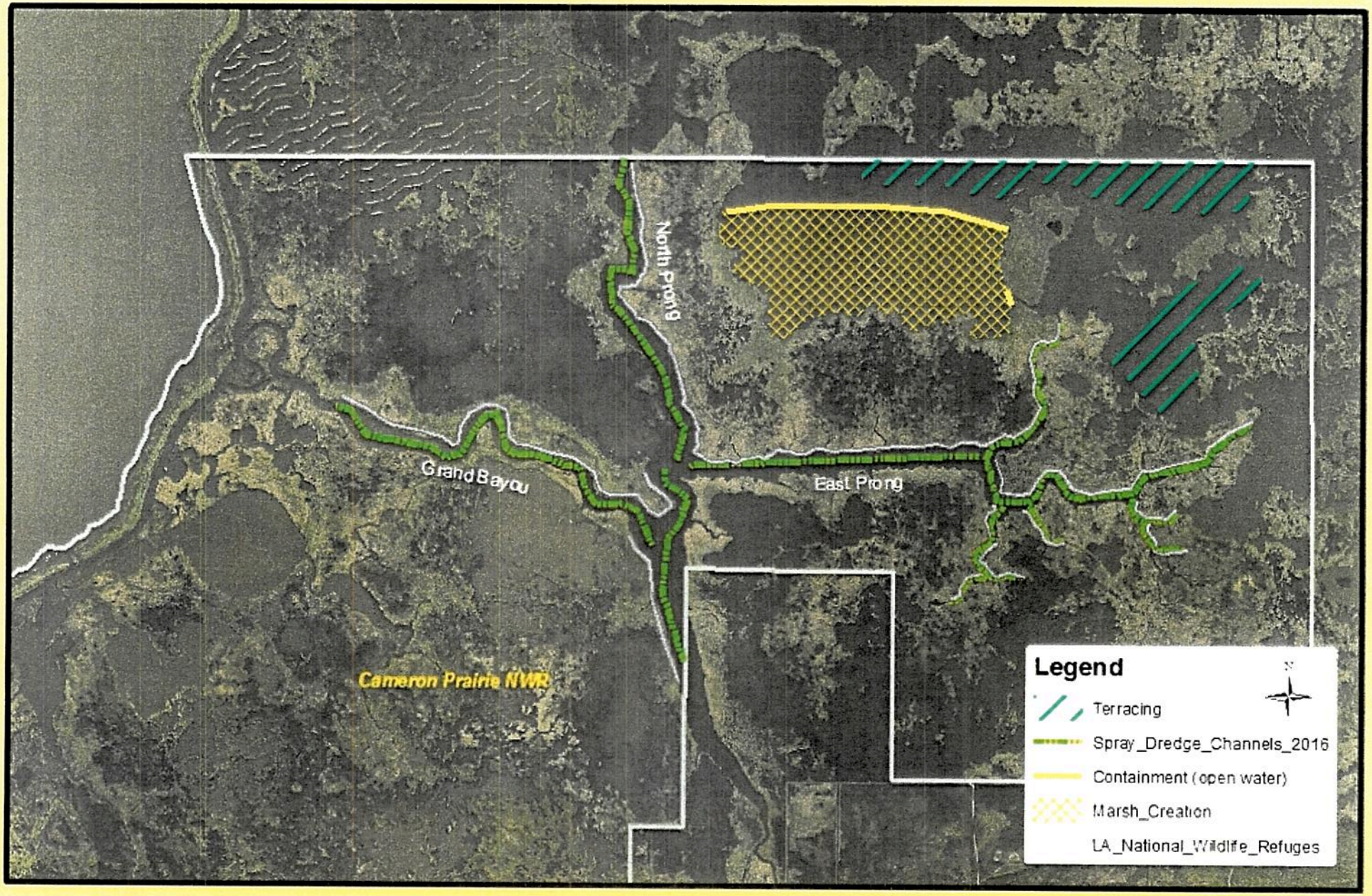
Preliminary Cost
The estimated construction cost plus 25% contingency is $20M - $25M.

Preparer of Fact Sheet
Angela Trahan, Fish and Wildlife Service, (337) 291-3137, Angela_Trahan@fws.gov

Fish and Wildlife Service

Louisiana Ecological Services Office

East Prong Marsh Creation Project



REGION IV

REGIONAL PLANNING TEAM MEETING

CALCASIEU-SABINE BASIN

Lake Charles, LA

February 12, 2019

Kevin Roy
Lafayette, LA

CWPPRA

Currently Under Construction

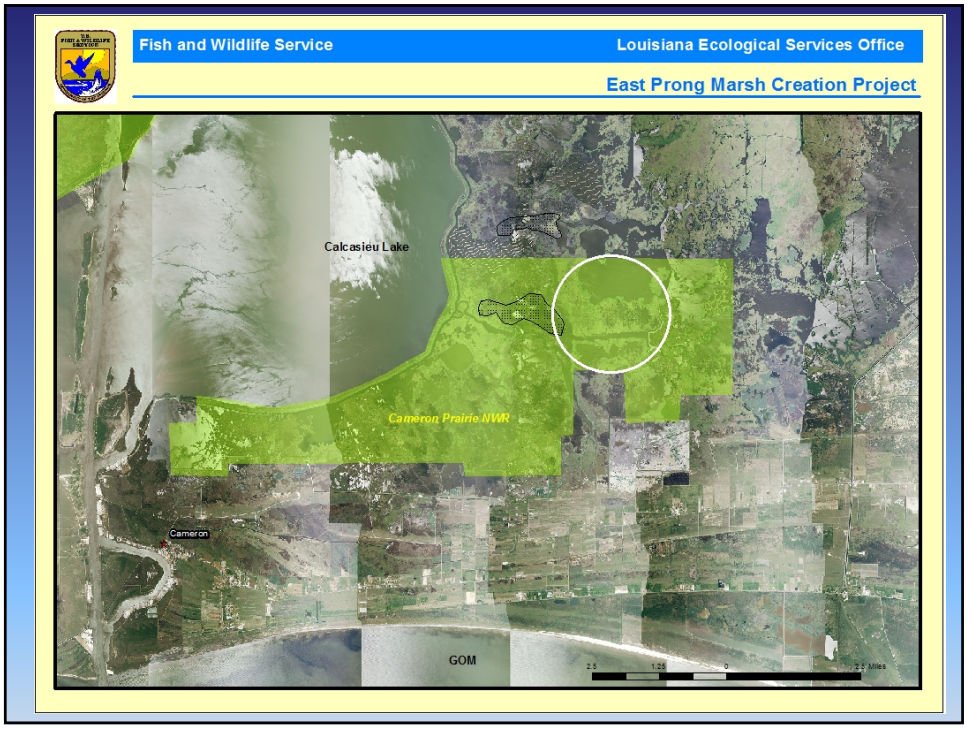
Project Name: CCW– Grand Bayou Marsh Creation

Expected Construction Cost: $8.2 M (NOA),
Additional Mitigation and State BU Funds allocated to the project to create at least 50 additional acres

Location: Cameron Prairie NWR & Private Lands, southeastern shore of Calcasieu Lake

Status: NTP issued 9/13/2017

- North Cell complete on 6/16/18
  - 998,758 cubic yards placed
- South Cell: hydraulic dredging began on 6/30/2018
  - >1.4Mcy dredged to date in the southern cell



East Prong Marsh Creation & Terracing

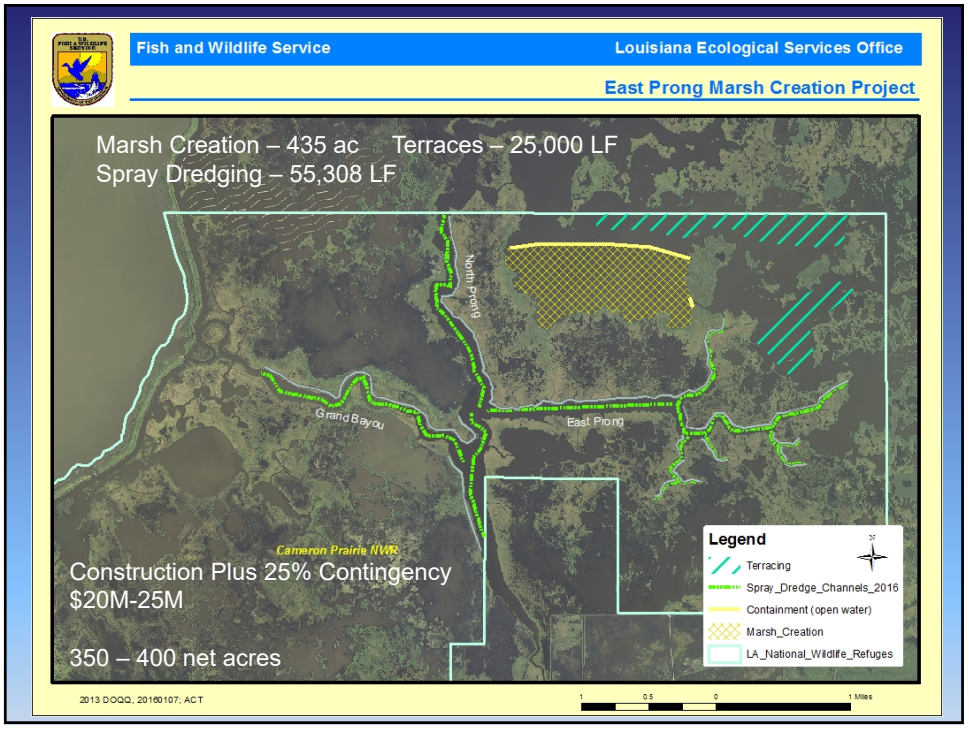
Problems: salt water intrusion, storm-induced impacts, and prolonged inundation

Goal: restore marsh within large open water areas; nourish along the bayous; restore the natural hydrology

East Prong Marsh Creation & Terracing

Sabine NWR Marsh Creation

ME-16 Freshwater Intro. South of 82



PPL29 PROJECT NOMINEE FACT SHEET
February 12, 2019

Project Name
North Mud Lake Marsh Creation

Louisiana's 2017 Coastal Master Plan
Marsh Creation – 004.MC.04

Project Location
Region 4, Calcasieu-Sabine Basin, Cameron Parish

Problem
The wetlands in this portion of Cameron Parish have been significantly altered by hydrologic modifications, saltwater intrusion, and conversion of marsh to open water. Anthropogenic factors, including the construction of the Calcasieu Ship Channel and LA Highway 27 have caused significant hydrologic changes to this system. In addition, fluid extraction may have contributed to some surface downwarping within this area. These factors contributed to the weakening of the wetland plant community, reducing its ability to respond to increasing salinities and flood duration. Wetlands also converted to open water during increased tidal action (i.e. tropical events), leaving open water areas. Hurricane Rita in 2005 and Hurricane Ike in 2008 resulted in marsh loss in the area. Salinity levels and flood duration have improved with time; however, water depths are not conducive to reestablish emergent vegetation. In addition, submerged aquatic vegetation development in the project area is limited by wave action and turbidity within the large, open water areas.

Goals
The project goal is to create and/or nourish approximately 316 acres of emergent brackish marsh (306 acres creation and 10 acres nourishment) using sediment from a nearshore Gulf borrow area.

Proposed Solution
The proposed project would create and/or nourish approximately 316 acres in a marsh area north of Mud Lake. Sediment would be hydraulically pumped from a nearshore Gulf borrow area into the shallow marsh creation area. Containment dikes would be constructed around the marsh creation area to retain material on-site during pumping. Tidal creeks and ponds may be incorporated into the design process, where applicable. Containment dikes would be degraded to the current platform elevation and gapped to improve hydrologic connectivity.

Preliminary Project Benefits

1) *What is the total acreage benefited both directly and indirectly?*
   The 316-acre project area would have 306 acres of marsh creation and 10 acres of marsh nourishment.

2) *How many acres of wetlands will be protected/created over the project life?*
   The net acres benefit is 284 acres after 20 years.

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)?*
   A 50% loss rate reduction is assumed for the marsh creation and nourishment area 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?*
No.

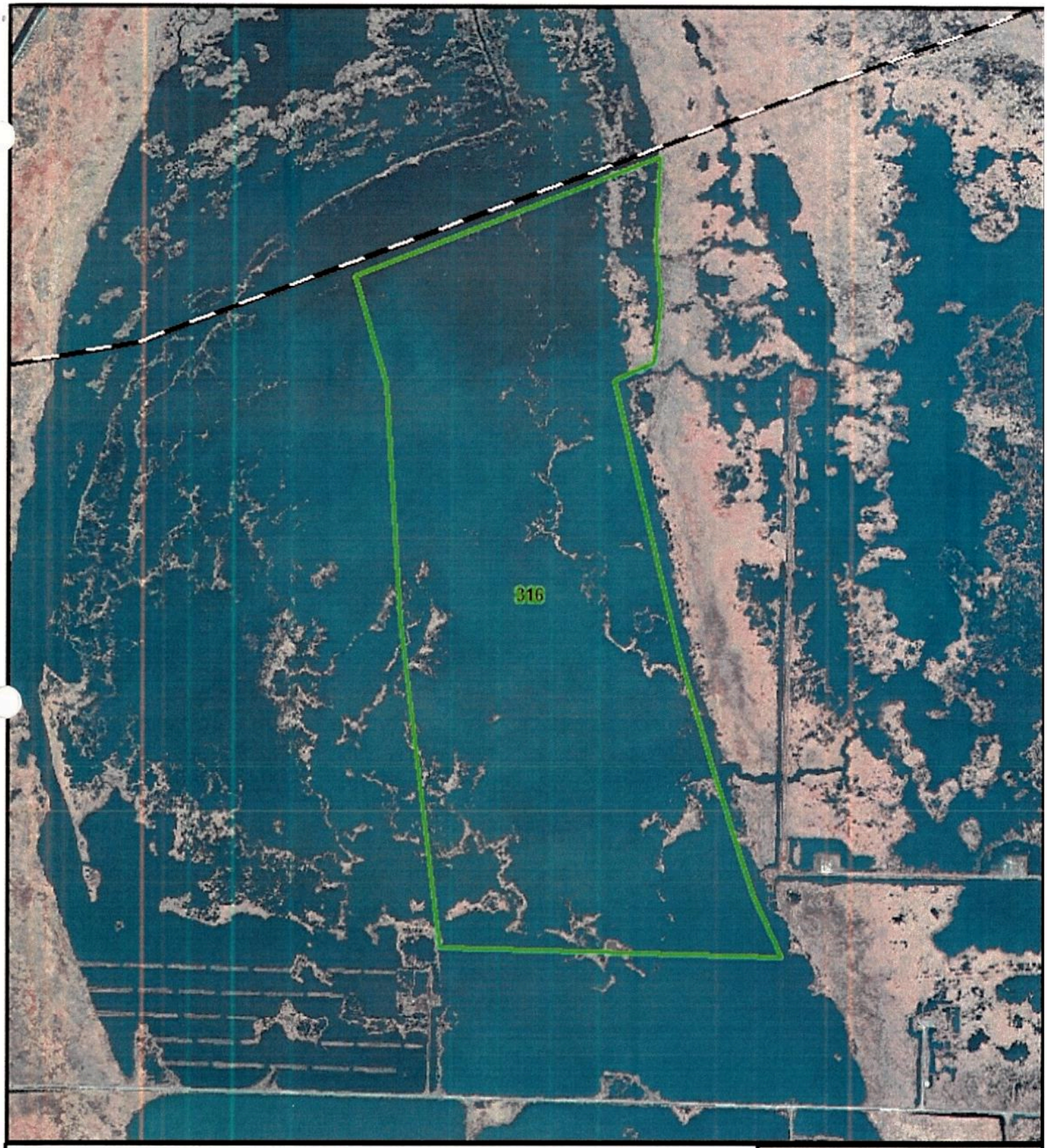
5) *What is the net impact of the project on critical and non-critical infrastructure?*
The project would provide positive impacts to critical (i.e., LA Highway 27) infrastructure. The loss of wetlands in this area increases the vulnerability of infrastructure to wave energy. Protecting/creating wetlands in this area may also assist in reducing storm damages to oil and gas infrastructure.

6) *To what extent does the project provide a synergistic effect with other approved and/or constructed restoration projects?*
Synergistic with East Mud Lake Marsh Management (CS-20).

Considerations
Pipelines, roads, and other infrastructure, and protection of the Gulf shoreline, are considerations in the project design.

Preliminary Construction Costs
The estimated construction cost plus 25% contingency is $20M - $25M

Preparer(s) of Fact Sheet:
Donna Rogers, Ph.D.; NOAA Fisheries Service, 225-636-2095, Donna.Rogers@noaa.gov
Jennifer Smith; NOAA Fisheries Service, 225-757-5230, Jennifer.Smith@noaa.gov
Jason Kroll; NOAA Fisheries Service, 225-757-5411, Jason.Kroll@noaa.gov



PPL29 North Mud Lake Marsh Creation Project

0 600 1,200 Feet

306 Acres of Marsh Creation
10 Acres of Marsh Nourishment

Federal Sponsor: NOAA Fisheries
2008 aerial imagery
Map Date 02-01-2019

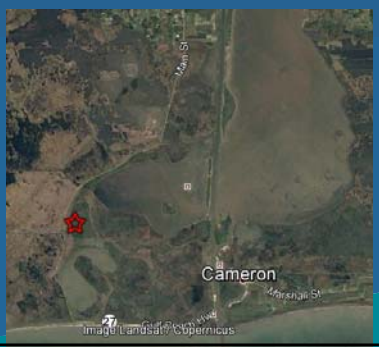
Legend

- Approximate_Natural_Gas_Pipeline
- NMLBoundaryEast

NOAA FISHERIES
Restoration Center

North Mud Lake Marsh Creation Project

Region 4 – Calcasieu-Sabine Basin
Cameron Parish



PPL29 CWPPRA RPT
Lake Charles, Louisiana

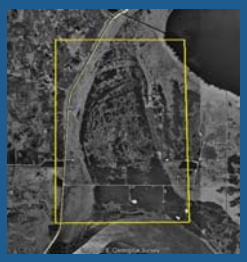
February 12, 2019

Sabine National Wildlife Refuge

Area Habitat Changes

- Conversion of brackish marsh to open water
- Saltwater intrusion
- Hurricanes Rita 2005 & Ike 2008
- USGS data 1984 - 2016 extended boundary loss rate
  -0.76% per year

1998



2017

Design Considerations

- Avoid or minimize impacts to:
  - Oyster seed grounds and public oyster grounds
  - Gulf shoreline from nearshore borrow area
  - Adjacent landowner terrace fields to the south
  - Pipelines, roads, and other infrastructure in project area
- Current marsh creation design is on Sabine NWR—open to exploring options to expand project onto adjacent landowner property

Preliminary Design

- Create and nourish 316 acres brackish marsh:
  - (306 acres creation and 10 acres nourishment)
- Nearshore Gulf borrow area
- Construction Cost + 25% Contingency

  $20 - 25 M

For additional information, contact:
Donna Rogers donna.rogers@noaa.gov 225-636-2095

PPL29 PROJECT NOMINEE FACT SHEET
February 12, 2019

Project Name
Mud Lake Peninsula Marsh Creation

Louisiana's 2017 Coastal Master Plan
Marsh Creation – 004.MC.04

Project Location
Region 4, Calcasieu-Sabine Basin, Cameron Parish

Problem
The wetlands in this portion of Cameron Parish have been significantly altered by hydrologic modifications, saltwater intrusion, and conversion of marsh to open water. Anthropogenic factors, including the construction of the Calcasieu Ship Channel and LA Highway 27 have caused significant hydrologic changes to this system. These factors contributed to the weakening of the wetland plant community, reducing its ability to respond to increasing salinities and flood duration. Wetlands also converted to open water during increased tidal action (i.e. tropical events), leaving open water areas. Hurricane Rita in 2005 and Hurricane Ike in 2008 resulted in marsh loss in the area. Salinity levels and flood duration have improved with time; however, water depths are not conducive to reestablish emergent vegetation. In addition, submerged aquatic vegetation development in the project area is limited by wave action and turbidity within the large, open water areas.

Goals
The project goal is to create and/or nourish approximately 412 acres (307 acres created and 105 acres nourished) of emergent brackish marsh using sediment from Mud Lake borrow areas.

Proposed Solution
The proposed project would create and/or nourish approximately 412 acres (307 acres created and 105 acres nourished) in marsh area on the Mud Lake peninsula and the northern edge of Mud Lake. Sediment would be hydraulically dredged from Mud Lake borrow areas into the shallow marsh creation areas using a small dredge. Containment dikes would be constructed around the marsh creation area to retain material on-site during pumping. Tidal creeks and ponds may be incorporated into the design process, where applicable. Containment dikes would be degraded to the current marsh platform elevation and gapped to improve hydrologic connectivity. Marsh creation areas may be planted with native vegetation if necessary.

Preliminary Project Benefits

1) *What is the total acreage benefited both directly and indirectly?*
   The project area comprised of marsh creation and nourishment is 412 acres (307 acres created and 105 acres nourished).

2) *How many acres of wetlands will be protected/created over the project life?*
   The net acres benefit is 294 acres after 20 years.

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)?*
   A 50% loss rate reduction is assumed for the marsh creation and nourishment area 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?*
Yes. Project maintains a lake rim.

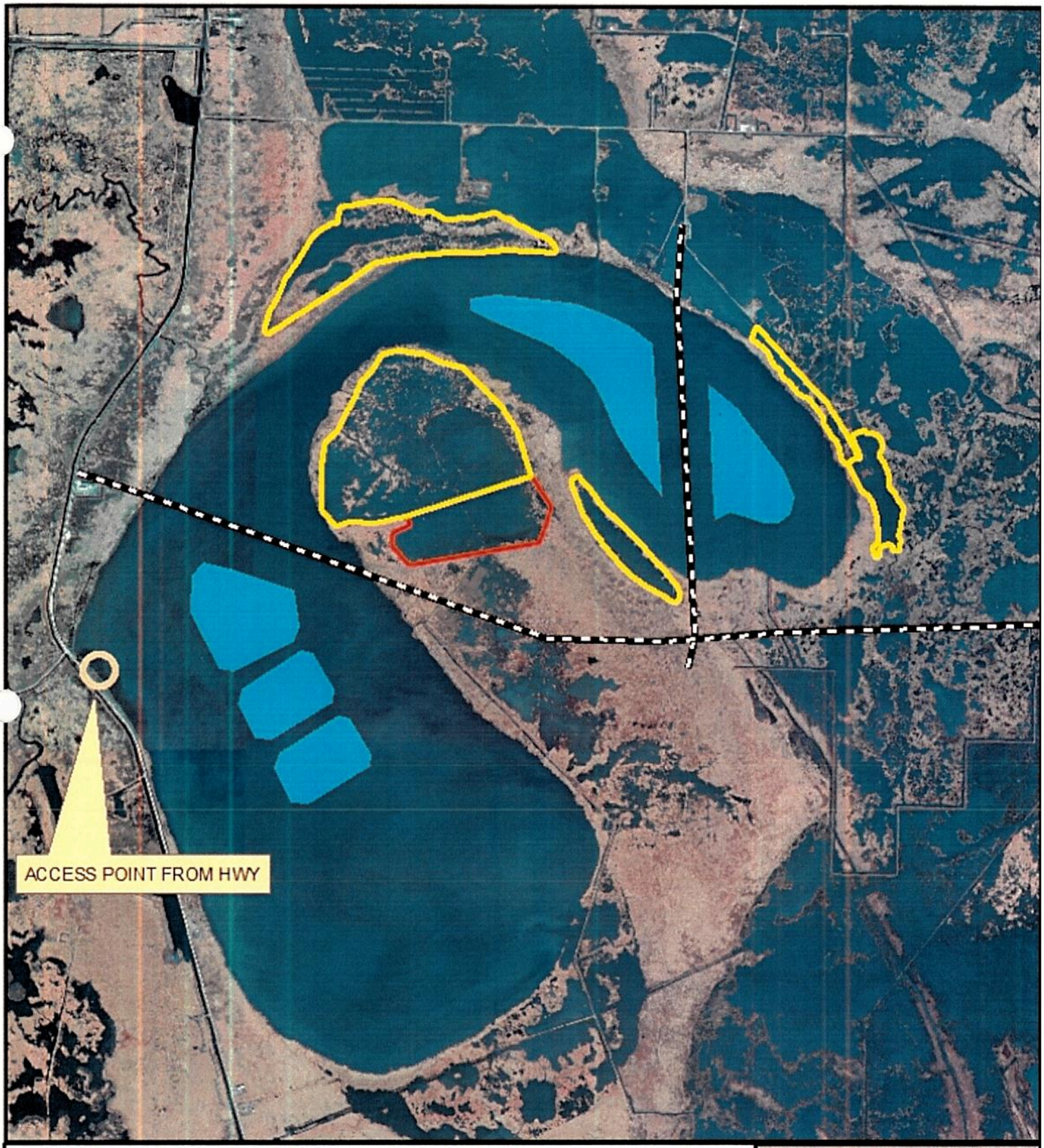
5) *What is the net impact of the project on critical and non-critical infrastructure?*
The project would provide positive impacts to critical infrastructure. The loss of wetlands in this area increases the vulnerability of infrastructure to wave energy. Protecting/creating wetlands in this area may also assist in reducing storm damage to oil and gas infrastructure.

6) *To what extent does the project provide a synergistic effect with other approved and/or constructed restoration projects?*
The project provides a synergistic effect with East Mud Lake Marsh Management (CS-20), Oyster Bayou Marsh Restoration (CS-59), and Oyster Lake Marsh Creation and Nourishment (CS-79).

Considerations
Pipelines and other infrastructure, and protection of the Mud Lake shoreline, are considerations in the project design.

Preliminary Construction Costs
The estimated construction cost plus 25% contingency is $15M - $20M.

Preparer(s) of Fact Sheet:
Jennifer Smith; NOAA Fisheries Service, 225-757-5230, jennifer.smith@noaa.gov
Donna Rogers, Ph.D.; NOAA Fisheries Service, 225-636-2095, donna.rogers@noaa.gov
Jason Kroll; NOAA Fisheries Service, 225-757-5411, jason.kroll@noaa.gov



PPL29 Mud Lake Peninsula Marsh Creation Project

0 0.3 0.6 Miles

Approximately 412 Acres total:
307 Acres of Marsh Creation
105 Acres of Marsh Nourishment

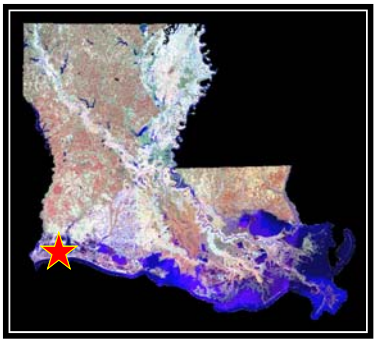
Federal Sponsor: NOAA Fisheries
2008 aerial imagery
Map Date 02-01-2019

Legend

- Mud_Lake_Approx_Pipelines
- Mud_Lake_Borrow_Areas
- Mud_Lake_Marsh_Creation
- Mud_Lake_Secondary_Sediment_Retention

Mud Lake Peninsula Marsh Creation Project

NOAA FISHERIES



REGION 4 Calcasieu-Sabine Basin

Presenter: Jennifer Smith, Project Manager, NOAA

Thanks: Apache Louisiana Minerals, LLC and Stream Property Management, Inc.

PPL29 CWPPRA Regional Planning Team Meeting
Lake Charles, Louisiana
February 12, 2019

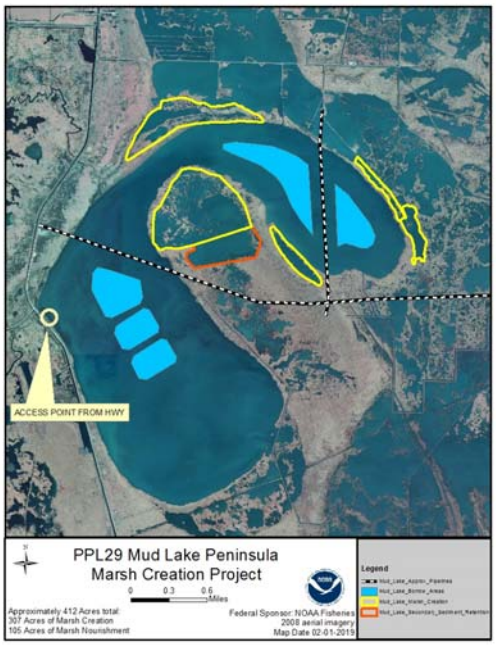
Project Vicinity

Project Area Problems

- Wetland degradation
  - The marshes West of the Calcasieu Ship Channel have been hydrologically impacted by many anthropogenic factors.
  - Hurricane impacts
  - Such activities have led to major loss of wetlands.

Proposed Project Solution

- 412 Acres of Marsh Creation/Nourishment
  - Dredge material from Mud Lake (privately owned)
  - Contained Fill areas with dike gapping following settlement after construction
  - Opportunity for design to expand benefit area.
  - Opportunity for Semi-Confined placement
  - Small Dredge trucked in with access off HWY27.
  - Short pumping distance, less than 1.5 miles.



Project Map

- 2017 State Master Plan Polygon 004.MC.04
- Segmented Borrow Area Design
- 412 Acres of Marsh Restoration (307 Marsh Creation and 105 Marsh Nourishment)
- Expandable Project for more acreage
- Borrow Area in Mud Lake – designed to prevent impacts to shorelines

Summary

- 412 Acres of Marsh Restoration Total
- 307 Acres Marsh Creation
- 105 Acres Marsh Nourishment
- Estimated Construction Cost plus 25% Contingency is $15M - $20M

Contact information:
Jennifer Smith, 225-954-6654
jennifer.smith@noaa.gov
Donna Rogers, Ph.D. 225-636-2095
donna.rogers@noaa.gov
Jason Kroll, 225-757-5411
jason.kroll@noaa.gov

CS-06

PPL29 PROJECT FACT SHEET
February 12, 2019

Project Name
Mud Lake South Marsh Creation

Master Plan Strategy
Mud Lake Marsh Creation (2017 Master Plan 004.MC.04): Creation of approximately 5,200 acres of marsh at Mud Lake south of West Cove, Calcasieu Lake to create new wetland habitat and restore degraded marsh.

Project Location
Region 4, Calcasieu/Sabine Basin, Cameron Parish

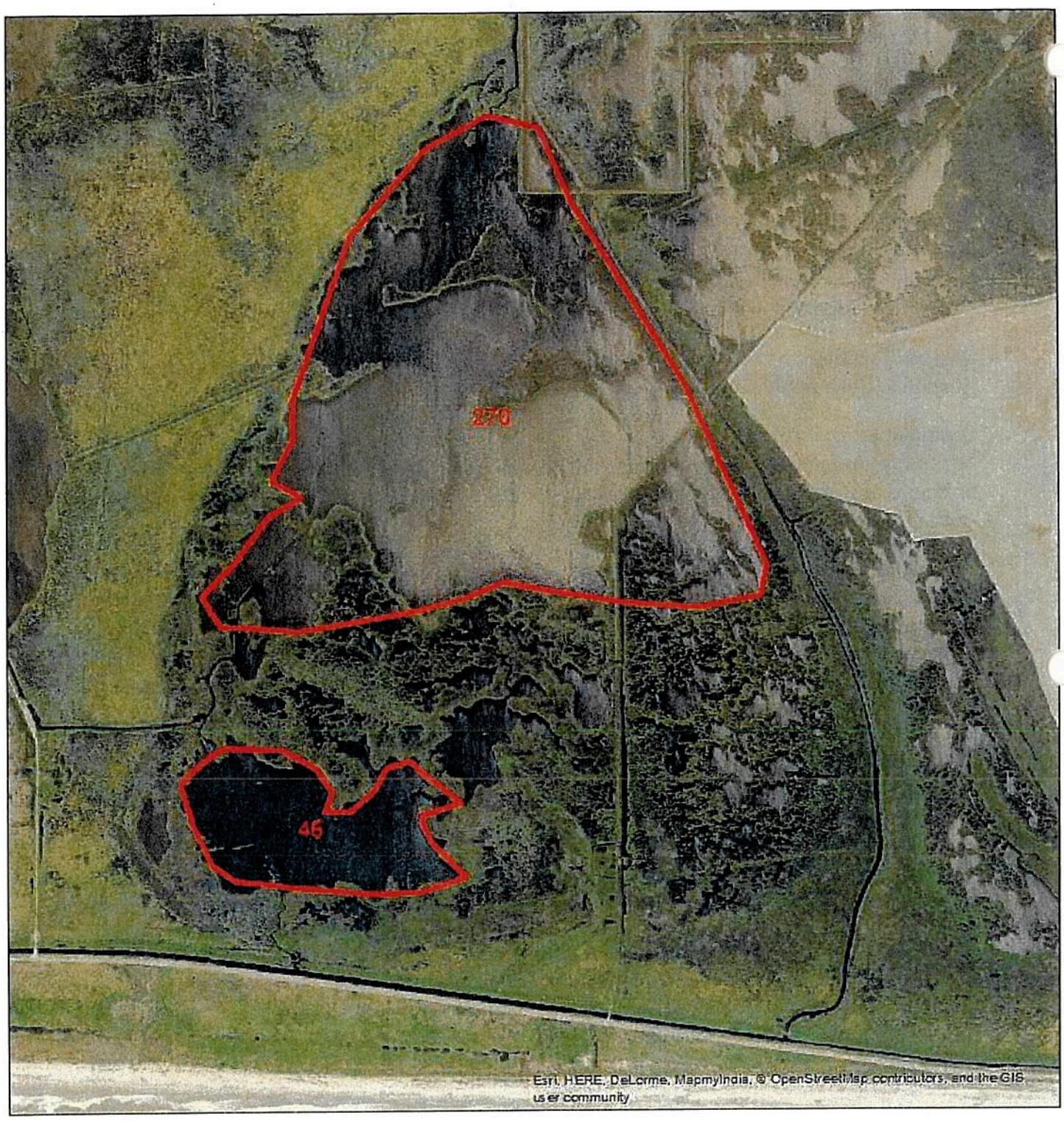
Problem
The project proposed is a fragmented wetland area water located immediately west of Mud Lake, just north of LA Hwy 27. The area has experienced wetland loss due to storm events, subsidence and saltwater intrusion.

Proposed Solution
The proposed project would create/nourish approximately 316 acres of marsh using sediment dredged from the Gulf of Mexico. The dredged material may be fully contained or partially contained depending upon the borrow sediment characteristics and site conditions. 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 316 acres (create 272 acres and nourish 44 acres) of marsh using sediment dredged from the Gulf of Mexico.

Project Costs
The estimated construction cost including 25% contingency is $15M - $20M.

Preparer(s) of Fact Sheet:
Adrian Chavarria, EPA; (214) 665-3103; chavarria.adrian@epa.gov
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



Mud Lake South Marsh Creation

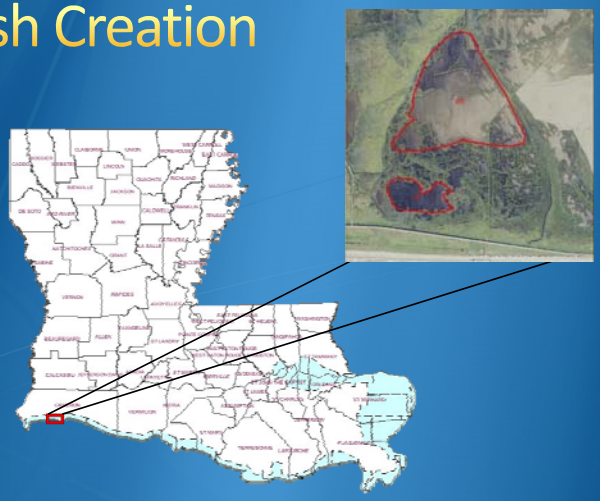
Mud Lake S Marsh Creation

N

Basemap: 2017 NAIP DOQQ Cameron Parish
Produced by: EPA Region 6, Dallas, TX

0 0.05 0.1 0.2 0.3 0.4 Miles

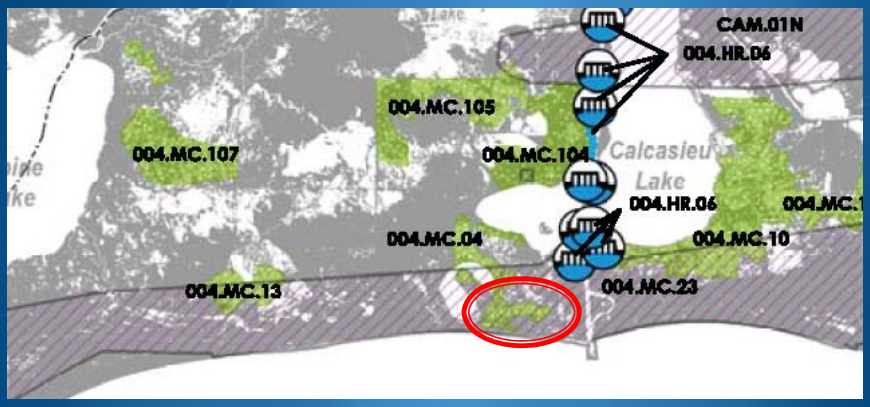
Mud Lake South Marsh Creation



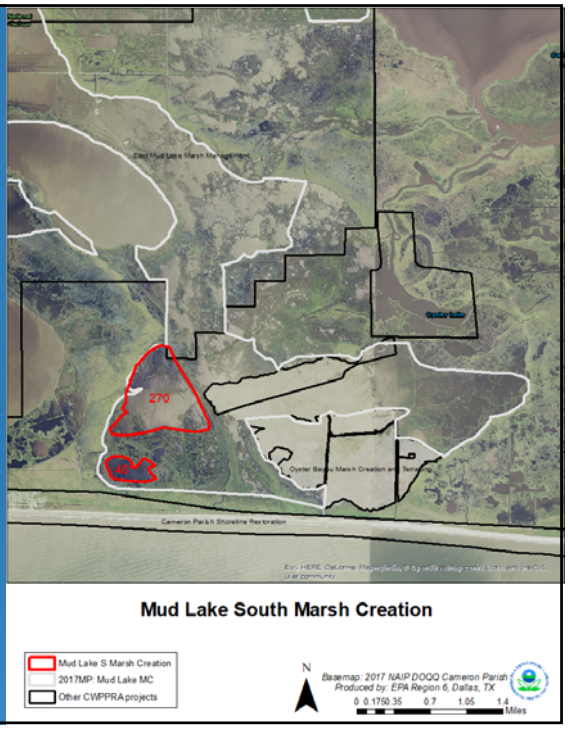
Coastal Wetlands Planning, Protection and Restoration Act

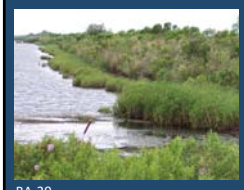
2017 Master Plan Solution

004.MC.04 Mud Lake Marsh Creation: Creation of approximately 5,200 acres of marsh at Mud Lake south of West Cove, Calcasieu Lake to create new wetland habitat and restore degraded marsh.

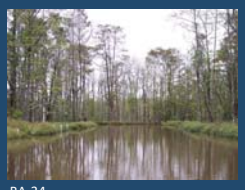


2017 Master Plan Consistency & Project Synergy




BA-39


PO-30


BA-34


TE-40

EPA Region 6 CWPPRA Team Goals

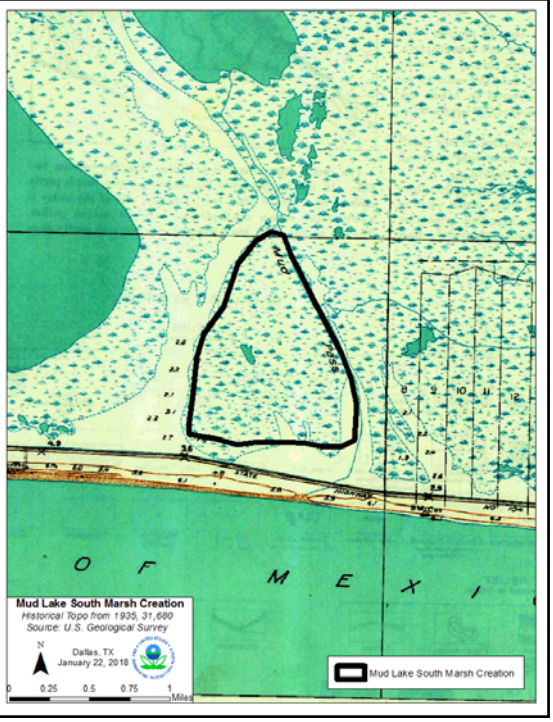
- Protect human health and the environment, including water quality, by restoring coastal wetlands
- Improve local community resilience
- Restore wetland habitats and protect critical infrastructure
- Support stakeholder priorities in synergy with EPA's mission

Problems

- Wetland loss due to storm and hurricane impacts
- Subsidence
- Saltwater intrusion
- Cameron Parish could lose an additional 40% of its land area, especially to coastal towns, over the next 50 years and face severe storm surge flood risk (2017 MP).

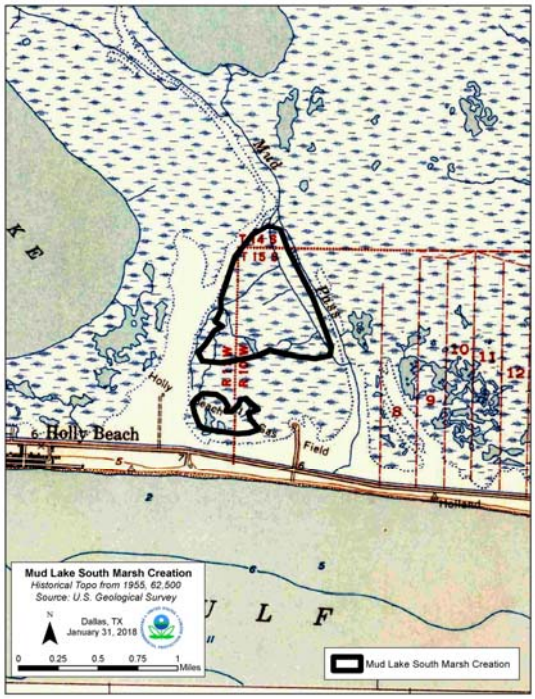
Historical Reference

- 1935



Historical Reference

- 1955



Project Features

- 316 Acres MC/MN
- Gulf of Mexico Borrow
- Full containment

Potential Species & Habitats Protected or Restored

T & E Species

- Sea Turtles
- Sturgeon
- Manatee

Migratory Birds

- American Golden-plover
- Black Skimmer (Breeding)
- Rails & Terns
- Many other shorebirds

Project Goals

- Create/nourish 316 acres (create 272 acres and nourish 44 acres) of emergent marsh with sediment from the Gulf of Mexico
- Provide increased protection from storm surge and flooding
- Restore degraded wetland habitat
- Construction cost + 25% contingency is $15M - $20M

PPL29 PROJECT FACT SHEET
February 12, 2019

Project Name
Sweetlake Freshwater Enhancement

Master Plan Strategy
East Calcasieu Lake Hydrologic Restoration - 004.HR.22. Features in this project are also included in the USACE 2013 Southwest Coastal Louisiana Study.

Project Location
Region 4, Calcasieu/Sabine Basin, Cameron Parish, east of Calcasieu Lake west of Highway 27.

Problem
To reduce Calcasieu Ship Channel impacts such as increased tidal exchange, saltwater intrusion, and reduced freshwater retention, the Cameron-Creole Watershed Project was completed in 1989. The area has done quite well since, but Hurricanes Rita and Ike have caused significant losses. The area continues to recover but more can be done to facilitate recovery. The pending CS-49 and marsh creation in the area is expected to greatly improve conditions. One of the remaining issues of concern is the Cameron-Creole water control structures are limited in their capacity to adequately remove excess water during periods of extreme high water and/or storm events resulting in periods of prolonged inundation. Inundation may be contributing to some of the low vegetative production and marsh recovery. Improvements that can reduce these periods of inundation would further improve the recovery of these marshes.

Goals
The project goals are: 1) modify a connection from GIWW to Cameron Creole marshes to prevent backflow of water into the GIWW; 2) create terraces in open water areas in the immediate outfall of the flow; 3) place a plug where saline water short-circuits into the interior marshes; and 4) promote the expansion of emergent marsh vegetation throughout the project area by reducing flood stress in marsh areas experiencing prolonged periods of inundation.

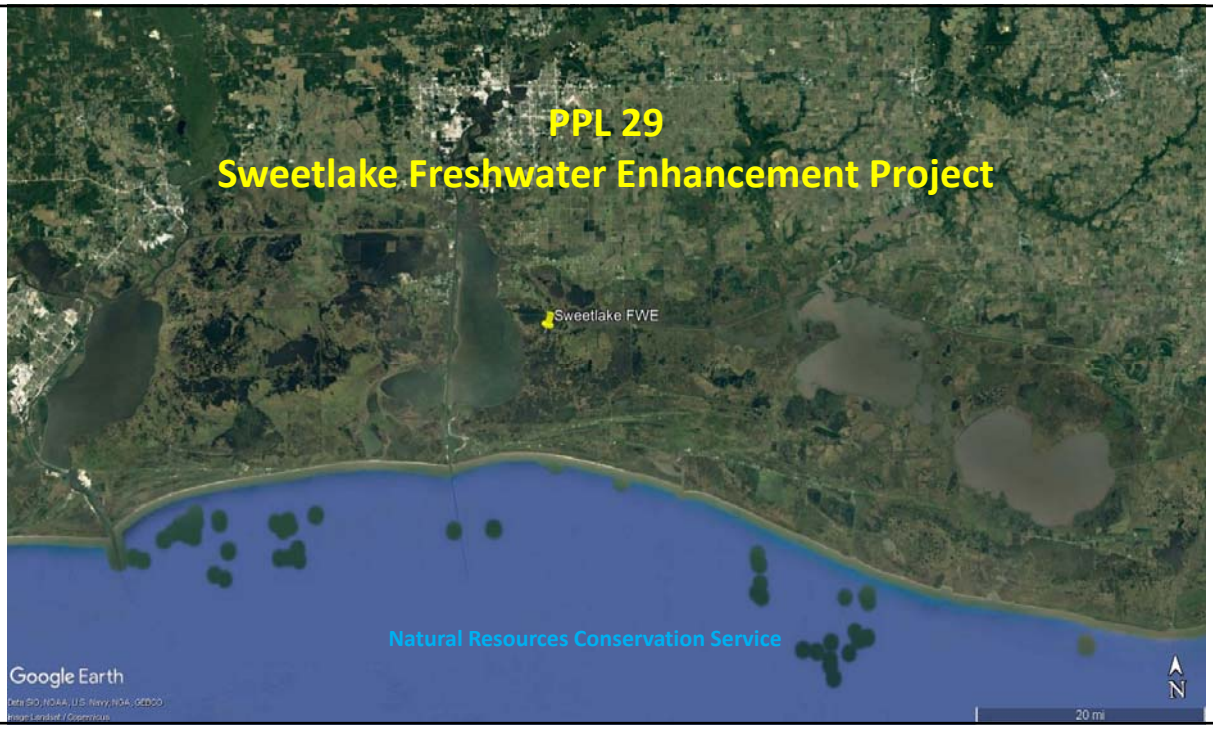
Proposed Project Features
The project would employ several hydrologic restoration features to reduce salinity, increase import of nutrients and sediments into the marsh and reduce marsh inundation by evacuating floodwaters faster and reducing prolonged inundation of marshes. The project features include a freshwater introduction structure at the GIWW, a plug in a canal location where salinity from the lake tends to short-circuit and penetrate into the interior marshes, and installation of two emergency overflow structures along the lake front to allow water to more rapidly evacuate when the interior levels exceed the outside lake levels.

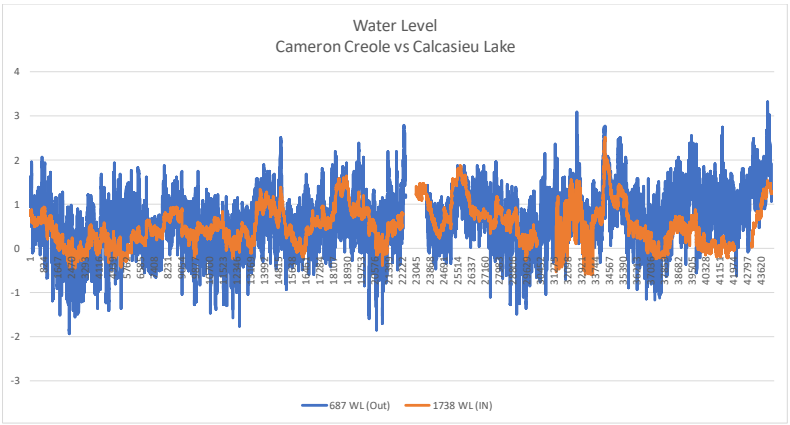
Preliminary Project Benefits
The total project area of impact is 13,400 acres. Specific benefits are to be determined based upon projections of inundation reduction, improved freshwater introduction and terraces.

Preliminary Construction Cost
The estimated construction cost including 25% contingency is approximately $10-15M.

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

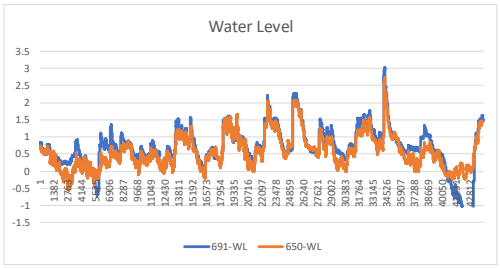

Sweetlake FWE
FWI Structure (one-way IN)
Plug
Terraces
Outlet Stucture
Outlet Structure
Google Earth
N
2 mi



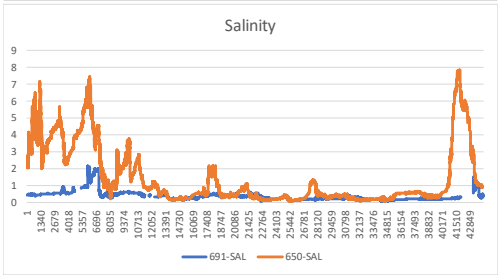


On average, CC is higher than CL 35% of time, but the ability to flow water out occurs frequently.

GIWW vs Cameron Creole Marshes



Average WL Difference
0.13 ft



Average Salinity Difference
1.08 ppt

PPL-29
Sweetlake Freshwater Enhancement Project

Objectives:
- Improve freshwater flow into area from GIWW
- Create terraces to facilitate the capture of materials, reduce fetch and create marsh.
- Reduce salinity intrusion by plugging canal
- Reduce flooding stress on a vast area of marsh by installing emergency overflow relief structures

Project Features and Benefits
- Freshwater introduction structure at GIWW
- 17,000 linear ft of terraces (16 acres)
- Saltwater plug
- Two flood relief structures along lake front
- Project effect area – 13,400 acres
- Direct benefits – TBD (freshwater intro, inundation reduction, and terraces.

Project Cost: $10-15M

NRCS

PPL29 PROJECT NOMINEE FACT SHEET
February 12, 2019

Project Name
Sweet Lake Marsh Creation

Project Location
Region 4, Calcasieu-Sabine Basin, Cameron Parish

Problem
Wetland loss in the Calcasieu-Sabine Basin is due to altered hydrology, drought stress, subsidence, and hurricane-induced damage. The 1985 to 2016 USGS land loss rate for this area is -0.13%/yr from the Sweet Lake Canals subunit.

Goals
The project goal is to create and nourish approximately 415 acres of marsh in the Cameron Creole Watershed east of Calcasieu Lake.

Proposed Solution
The proposed solution would be to create approximately 405 acres of tidal marsh and nourish 10 acres of marsh to restore a portion of the Cameron Creole Watershed. Sediment will be hydraulically pumped from Calcasieu Lake. Temporary containment dikes will be constructed and gapped within three years of construction to allow greater tidal exchange and estuarine organism access, and tidal creeks will also be evaluated for inclusion.

Preliminary Project Benefits

1) *What is the total acreage benefited both directly and indirectly?*
The total project area is approximately 415 acres.

2) *How many acres of wetlands will be protected/created over the project life?*
The net acre benefit range is 400-450 acres after 20 years.

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)?*
A 50% loss rate reduction is assumed for the marsh creation and marsh nourishment. (USGS data from 1985 to 2016 shows from -0.13%/year)

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 may have minor net positive impact to non-critical infrastructure comprised of pipelines.

6) *To what extent does the project provide a synergistic effect with other approved and/or constructed restoration projects?*
The project will have synergistic effects with: 1) CS-04a Cameron-Creole Maintenance, 2) CS-49 Cameron-Creole Freshwater Introduction, 3) CS-54 Cameron-Creole Watershed Grand Bayou Marsh Creation, and 4) and Ducks Unlimited terraces.

Considerations
Calcasieu Lake public oyster seed grounds.

Preliminary Construction Costs
The estimated construction cost including 25% contingency is $20M-$25M.

Preparer(s) of Fact Sheet:
Craig Gothreaux, NOAA Fisheries, 225-380-0078, craig.gothreaux@noaa.gov
Patrick Williams, NOAA Fisheries, 225-380-0058, patrick.williams@noaa.gov

PPL29 Sweet Lake Marsh Creation

405 Acres Marsh Creation
10 Acres Marsh Nourishment

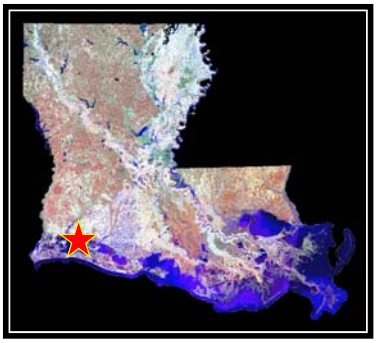
Federal Sponsor: NOAA Fisheries
2017 Google Earth Aerial Imagery
Map Date 02-11-2019

Legend

- Earthen Containment Dikes
- Marsh Creation Areas

Sweet Lake Marsh Creation Project

NOAA FISHERIES



REGION 4 – Calcasieu-Sabine Basin

Presenter: Craig Gothreaux, Fisheries Biologist, NOAA

PPL29 CWPPRA Regional Planning Team Meeting
Lake Charles, Louisiana
February 12, 2019

Project Vicinity

Sweet Lake Marsh Creation Project

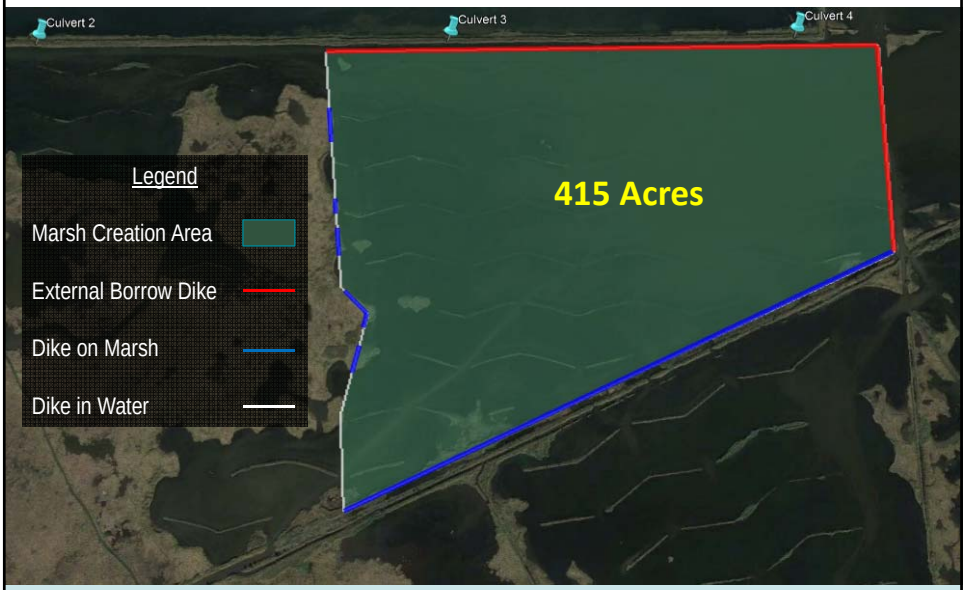
Project Area Problems

Sweet Lake Marsh Creation Project

Land loss rate (1985-2016 USGS data) for the Sweet Lake Canals subunit is -0.13%/yr

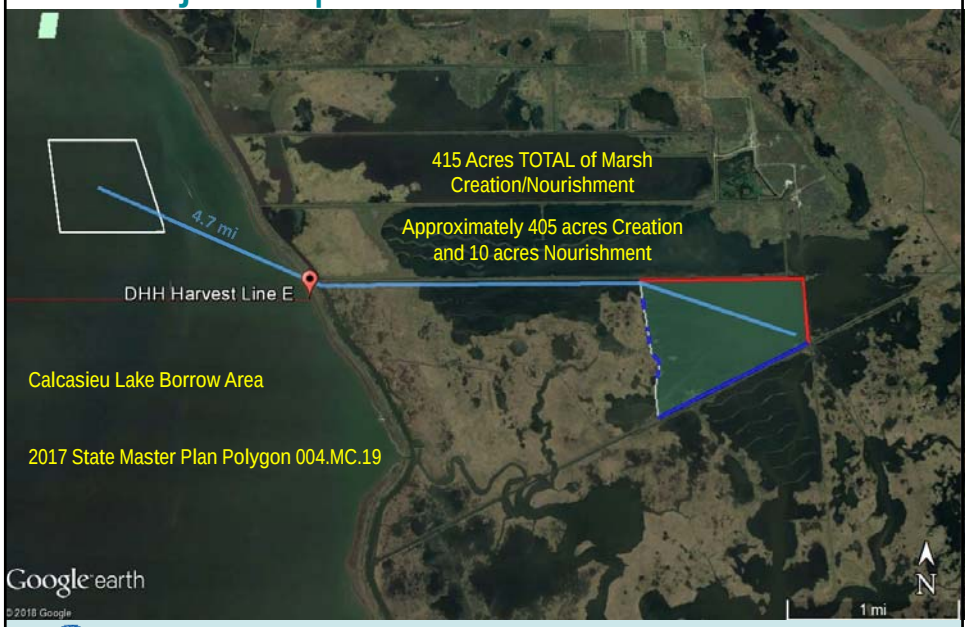
Proposed Project Solution

Sweet Lake Marsh Creation Project



Project Map

Sweet Lake Marsh Creation Project



Sweet Lake Marsh Creation Project

Summary

- 415 Acres Marsh Creation/Nourishment
- Construction Cost + 25% Contingency $20M - $25M
- Net Benefits: 400-450 acres

Contact information:
Craig Gothreaux, 225-380-0078
craig.gothreaux@noaa.gov
Patrick Williams, 225-380-0058
patrick.williams@noaa.gov

CS-09

PPL29 PROJECT NOMINEE FACT SHEET
February 12, 2019

Project Name
Cameron Meadows East Marsh Creation

Project Location
Region 4, Calcasieu-Sabine Basin, Cameron Parish

Problem
Significant marsh loss in the Cameron Meadows area is attributed to fluid and gas extraction, as well as synoptic losses with hurricanes over the last two decades. Fluid and gas extraction resulted in surface down warping along geologic fault lines. During the hurricanes of 2005 and 2008, the physical removal of marsh coupled followed with droughts resulted in the conversion of marsh to water. The wetland loss rate for the project area is -1.15%/year based on the Magnolia subunit from 1985 to 2016.

Goals
The project goal is to create approximately 300 acres (ac) of brackish marsh. The project would work synergistically with Cameron Meadows Marsh Creation and Terracing (CS-66) and land management efforts by the land owner.

Proposed Solution
The proposed project goals are to create approximately 300 ac of marsh. Sediment would be hydraulically dredged from the Gulf of Mexico via pipeline. The borrow area would be designed to avoid adverse impacts to coastal processes and the existing Gulf shorelines. The CS-66 conveyance corridor along Long Beach Road, Highway 82 crossing, and along Cameron Meadows Field Road would be used. The containment dikes will be degraded and/or gapped no later than three years post construction. During both Phase 0 and Phase 1, opportunities would be explored to add terracing.

Preliminary Project Benefits

1) *What is the total acreage benefited both directly and indirectly?*
   This total project area is 300 ac.

2) *How many acres of wetlands will be protected/created over the project life?*
   Approximately 250-300 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?*
   The project will provide synergy with the chenier north of Highway 82.

5) *What is the net impact of the project on critical and non-critical infrastructure?*
The project will provide positive impacts to non-critical (i.e., minor oil and gas facilities) infrastructure. Minor oil and gas facilities and pipelines in the area would benefit from an increase in marsh acreage.

6) *To what extent does the project provide a synergistic effect with other approved and/or constructed restoration projects?*
The project will have synergy with CS-66 and habitat management by the land owner.

Considerations
The proposed project has potential utility/pipeline considerations.

Preliminary Construction Costs
The estimated construction cost +25% contingency is $25M-$30M.

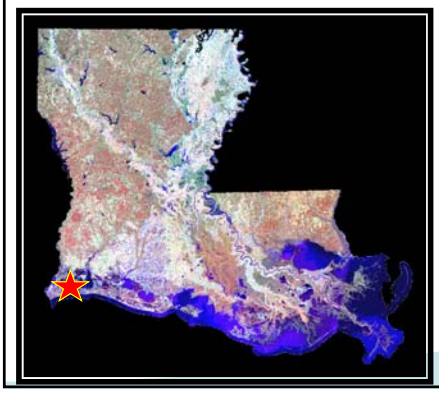
Preparer(s) of Fact Sheet:
Patrick Williams, NOAA Fisheries, 225-380-0058, patrick.williams@noaa.gov

PPL29 Cameron Meadows East

Cameron Meadows East

Region 4 – Calcasieu-Sabine Basin

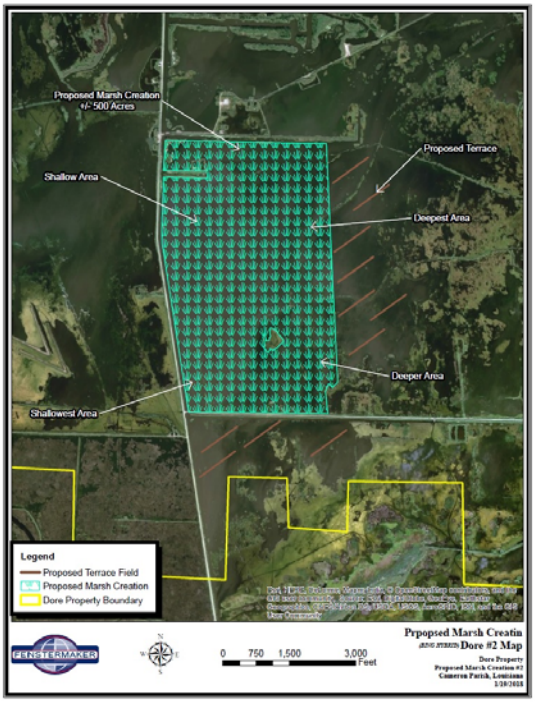
Presenter: Patrick Williams



PPL29 CWPPRA Regional Planning Team Meeting
Lake Charles, Louisiana
February 12, 2019

Project Area Problems

Synpotic landloss with storms
-1.15%/yr 1984 to 2016 loss rate



Proposed Project Solution

PPL29 Cameron Meadows East

Summary

Marsh Creation: 300 ac

Net acres: 250 - 300 ac

Construction Cost + 25% Contingency: $25 M - $30M

Contact information:
Patrick Williams, 225-389-0508
patrick.williams@noaa.gov