ATTENDANCE RECORD

DATE(S)	SPONSORING ORGANIZATION	LOCATION
February 4, 2020 10:00 A.M.	COASTAL WETLANDS PLANNING, PROTECTION AND RESTORATION ACT	Port Authority of Lake Charles (Board Room) 1611 West Sallier Street, Lake Charles, LA

PURPOSE **MEETING OF THE REGIONAL PLANNING TEAM REGION IV**

PARTICIPANT REGISTER

NAME	JOB TITLE AND ORGANIZATION	PHONE NUMBER
ERICH SWENSON	RESEARCHER, LSU	225 578 2730
BARRY HEBERT	LDWF	225 765 0933
Chad Courville	Miami Corporation	337.264.1695
Laurie Cormier	Calcasieu Parish Police Jury	337 721-3645
Kellyn LaCour	Coastal scientist, CPRA	225-342-4467
Wes LeBlanc	"	225 397-4177
Ronny Paille	UFWS	337-291-3117
Adam Linson	CPRA Engineering	225-342-4485
Joanne Tribou	CPRA Engineering	225-342-4496
Brad Crawford	EPA	214 665 7255
Glenn Harris	USFWS	337-598-2217
Angela Trahan	NRCS	337-291-3142
Jackie Jones	NRCS	
Jennifer Smith	NOAA	225-954-666
Scott Rostet	Apach LA. Minerals	337-515 5374
JASON KROLL	NOAA	2257575411
Ron Boustany	NRCS	337 291-3067
LOLAND BROUSSARD	DU	337-443-4410
Eric Whitney	NRCS	337-706-2200
Dana Roberts	Stream	337-515-4724
Jennifer Guidry	CWPPRA	337 266 8623
Charles Sasser	LSU	225 578 6375

LMV FORM 583-R
JAN 88

ATTENDANCE RECORD

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PURPOSE **MEETING OF THE REGIONAL PLANNING TEAM REGION IV**

PARTICIPANT REGISTER

NAME	JOB TITLE AND ORGANIZATION	PHONE NUMBER
Patrick Williams	Ecologist / NOAA Fisheries	225 380-0058
Ralph Libersat	Vermilion Parish	337-652-6557
Jacques Boudreaux	Engineer, CPRA	(225) 342-0242
Dale Garber	ECM Consultants	(337) 581-9078
Lonnie Anderson	(minute-taker) JESCO	337-802-7508
Kara Bonsall	Cameron Parish, CZ Adm.	337-775-5718
Lisa Lowe	CLOF	(337) 519-8006
Michael Nichols	NRCS	318 473-7690
Brandon Samson	NRCS	318-473-7793
Nicholas Gaspard	C.H. Fenstermaker & Associates, LLC.	337-519-0994

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JAN 88

Coastal Wetlands Planning Protection & Restoration Act

30th Priority Project List

Region 4

Regional Planning Team Meeting

February 4, 2020
Lake Charles, LA

CWPPRA

1. Welcome and Introductions

- RPT Region 4 Leader: Kevin Roy, USFWS

CWPPRA

Announcements

- Copies of the PPL 30 Selection Process & Schedule available at the sign-in table.
- PPL 30 RPT meetings to accept project nominees:
  - **Region IV, Port of Lake Charles, Feb. 4, 2020, 10:00 am**
  - Region III, Port of Morgan City - Office, Feb. 5, 2020, 9:30 am
  - Region II, USFWS SE LA Refuges Complex (Big Branch), Feb. 6, 2018, 10:00 am
  - Region I, USFWS SE LA Refuges Complex, Feb. 6, 2020, 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 20th).
  - *This decision will be made at the meeting where the projects are proposed*

CWPPRA

RPT Meetings

- Presenters without factsheets **MUST** complete a PPL 30 Nomination Sign-Up Sheet for <u>each</u> project nominee (demo projects too).
- Presenters with factsheets, please give a factsheet each to Alice, 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 13, 2020.
- Limit comments/questions during meeting to PPL 30 subject proposals and processes.

CWPPRA

Coastwide Projects

- Proposes a technique applicable across the coast (e.g. vegetative planting)
- Nominated at any RPT meeting
- Engineering/Environmental Workgroups will validate that coastwide projects fit CWPPRA Standard Operating Procedures criteria
- All coastal parishes & agencies will vote on selection of coastwide nominee
- Only one coastwide nominee may be selected from the coastwide nominee pool during the Electronic Coastwide Vote on February 20, 2020.
- The Technical Committee may or may not select a coastwide project in April 2020.

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 20th Coastwide Electronic Vote.
- The Technical Committee selects up to 3 demos in April 2020.
- Workgroups may recommend that no demos move forward to candidate stage
- Previous demo candidates must be ***re-nominated*** for PPL 30.

Coastwide Electronic Vote (February 20th) 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 13, 2020.

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 20, 2020.

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 30 criteria.

CWPPRA

PPL 30 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 30 Candidate Project Evaluation & Selection

- **Coastwide Electronic Vote, Feb. 20, 2020**
  - **21 basin-project nominees, 1 coastwide nominee, and 6 demos selected**
- **Technical Committee Mtg, Apr., 2020, New Orleans**
  - **Selection of 10 candidates and up to 3 demos**
- **Technical Committee Mtg, Dec., 2020, New Orleans**
  - **Typically recommend up to 4 projects for Phase 1 funding**
- **Task Force Mtg, Jan. 2021, New Orleans**
  - **Final Selection of projects for Phase 1 funding**

Written Comments

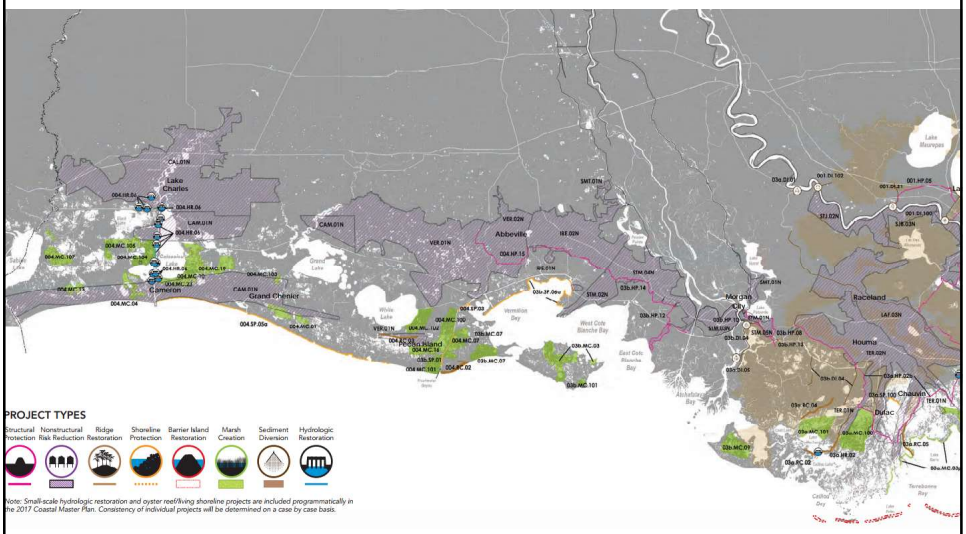
- Send written comments on projects & demos proposed today to the CWPPRA program manager
- **Deadline: February 13, 2020**

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 Shaffer).	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 46,400 feet of earthen levee, approximately 13,400 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 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 138,300 feet of earthen levee, approximately 15,100 feet of T-wall, (3) 110-foot barge gates, (5) 30-foot barge gates, (8) 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	$436,200,000
	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 levee, approximately 4,600 feet of T-wall, (1) 40-foot swing gate, (1) 30-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) 56-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 Brown 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

R4 ME-01

PPL28 PROJECT NOMINEE FACT SHEET
March 28, 2018

Project Name
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 42 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 prevent the loss of back beach marshes which may provide habitat for at-risk species such as the Louisiana-eyed silkmoth, the black rail, and the saltmarsh topminnow.

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.

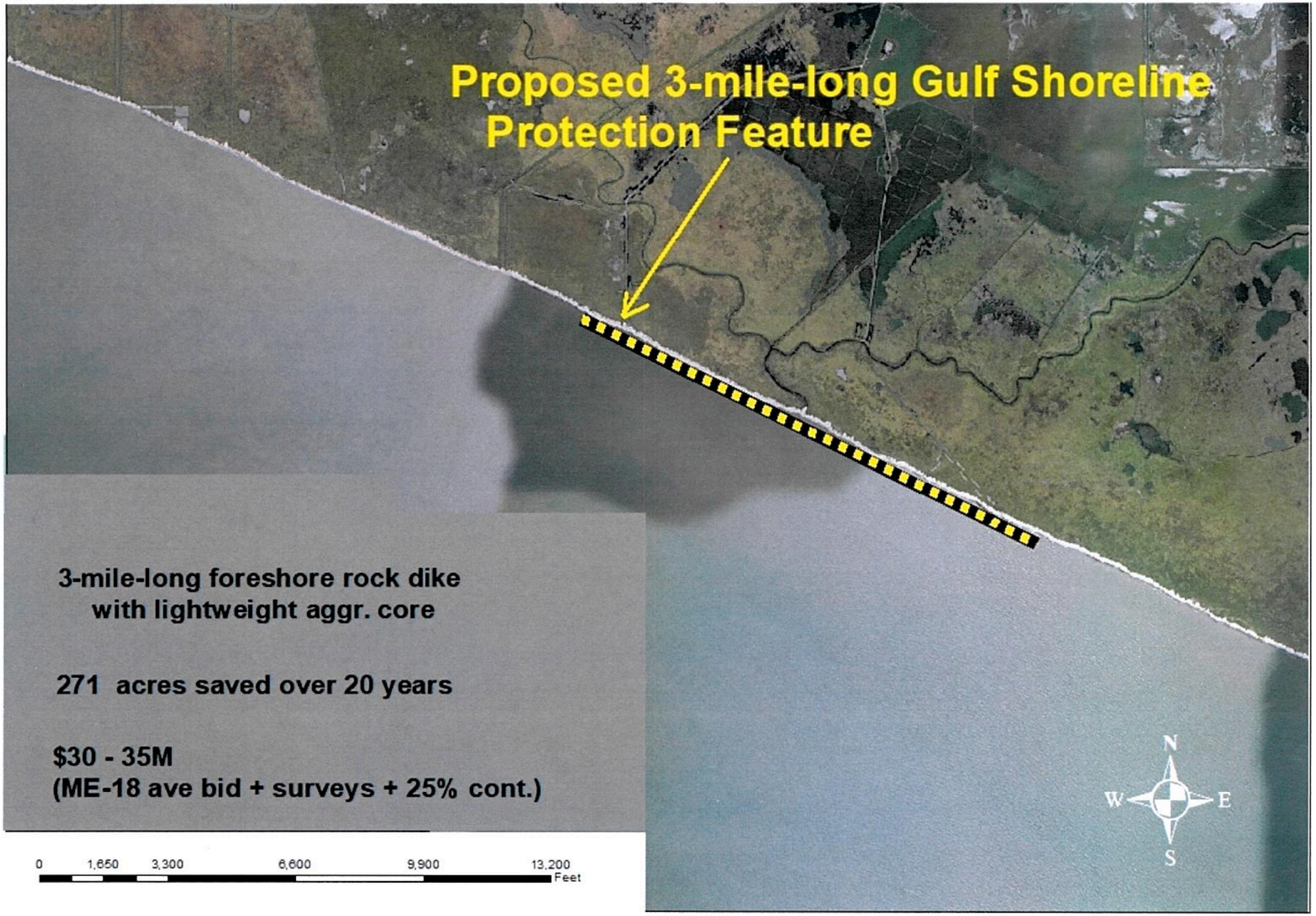
Preliminary Cost

The fully funded cost range is $30 to $35M.

Preparer(s) of Fact Sheet:

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

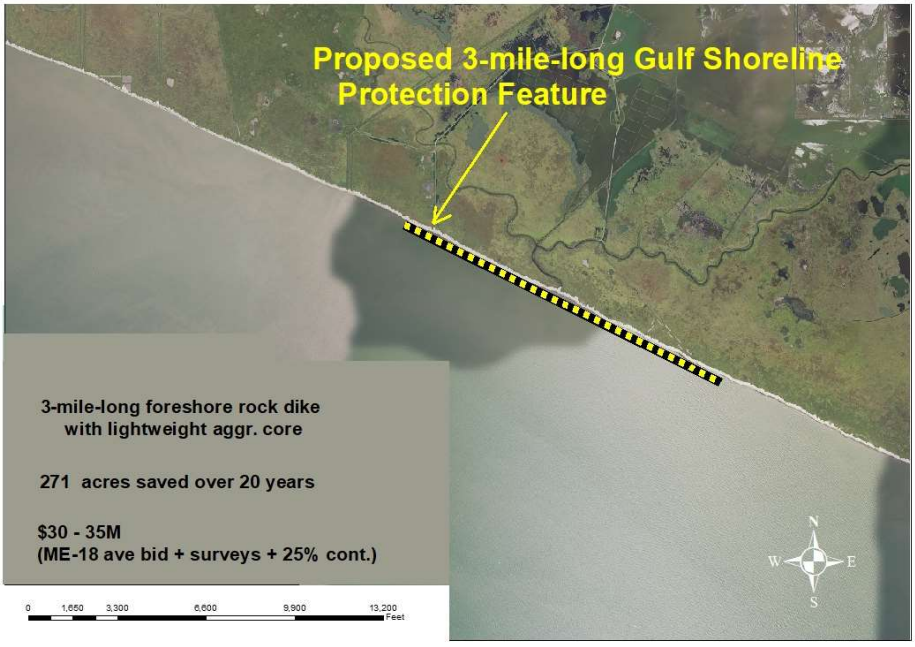
PPL30 Gulf Shoreline Protection at Beach Prong Project




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

PPL30 Gulf Shoreline Protection at Beach Prong Project



R4 ME-02

PPL30 PROJECT NOMINEE FACT SHEET
February 4, 2020

Project Name
Flat Lake Gulf Shoreline Protection Project

Project Location
Region 4, Mermentau Basin, Vermilion Parish, south of Rockefeller State Wildlife Refuge

Problem
The Rockefeller State Wildlife Refuge in Vermilion Parish, LA is currently experiencing erosion rates in excess of 40 feet (ft) per year along the Gulf of Mexico shoreline. Recent estimates indicate erosion along the western portion of the Refuge's shoreline are as high as 46 ft per year, which is equivalent to approximately 19 acres (ac) of shoreline lost per year in the project area. Left to face this erosion without protection, the Refuge shoreline will continue to retreat landward, leaving less marsh complex, which could have substantial impacts on the Refuge as well as the surrounding area. Without stabilizing the Refuge coast, the shoreline may retreat over 900 ft within a 20-year timespan. This is equivalent to over 325 ac of Louisiana's coastal shoreline lost to erosion within the project area.

Goals
The primary goal is to design and construct a 3.41-mile long foreshore breakwater structure with gaps that will reduce beach and back barrier marsh loss along the Gulf of Mexico shoreline of the Rockefeller Refuge. The project is similar to the Rockefeller Refuge Gulf Shoreline Stabilization Project (ME-18). A total of 320 ac would be protected over the life of the project. This takes into consideration a reduction in benefits associated with the peninsula that has now moved and welded to the northern side of the bay as well as reductions of benefits by 7% during the first 9 years and 25% reduction in the following 11 years. This is due to inundation with daily tides, storm activity, frontal systems, sea level rise, and no maintenance of the structure (same calculation as ME-18).

The National Marine Fisheries Service goals include restoration/protection of habitat for threatened and endangered species and stemming loss of coastal shoreline and marsh important for recreational and commercial fisheries in Louisiana.

Proposed Solution
A breakwater with light weight aggregate core would be constructed along the approximate -3.5 ft (NAVD '88) contour, approximately 150 ft offshore, and generally follow the shape of the shoreline. It would extend from the inner mouth of Cop Cop Bayou, across the opening to Flat Lake, to the inner mouth of Rollover Bayou with gaps every 1,500 ft. The project feature may trap sediments moving down the three bayous along the project corridor as well as those from the Gulf. This could result in accretion behind the breakwater as has occurred at ME-18.

Preliminary Project Benefits

1) *What is the total acreage benefited both directly and indirectly*? Approximately 386 ac would be benefited directly. Direct benefits include 320 ac of marsh and shoreline protection. Indirect benefits could occur due to land creation between the breakwater and shoreline.

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

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

4) *Do any project features maintain or restore structural components of the coastal ecosystem such as barrier islands, natural or artificial levee ridges, beach and lake rims, cheniers, etc.* Yes. The project would protect and marsh and shoreline along the Gulf of Mexico and the Refuge.

5) *What is the net impact of the project on critical and non-critical infrastructure*? The project would afford protection to Highway 82, the only evacuation route out of the area, and nearby oil/gas infrastructure.

6) *To what extent does the project provide a synergistic effect with other approved and/or constructed restoration projects*? The project would complement the ME-18 project to the west that is nearing completion.

Considerations

Considerations for this project include pipelines/utilities and maintenance.

Preliminary Cost

The fully-funded cost range is $35M - $40M.

Preparer of Fact Sheet

Brandon Howard, NOAA Fisheries, (225) 380-0050, Brandon.Howard@noaa.gov

PPL30 Flat Lake Shoreline Protection

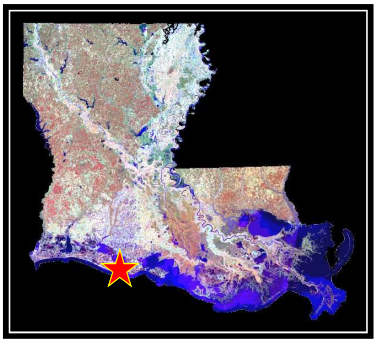
3.41 Miles of Shoreline Protection

Federal Sponsor: NOAA Fisheries
2017 Aerial Imagery
Map Date 1-27-2020

Legend

Shoreline Protection

Flat Lake Gulf Shoreline Stabilization Project



REGION 4 – Mermentau Basin

Presenter: Brandon Howard, Fishery Biologist, NOAA

Special Thanks

Scooter Trosclair, LDWF

Vermilion Parish

PPL30 CWPPRA Regional Planning Team Meeting

Lake Charles, Louisiana

February 4, 2020

Project Location

Project Area Problem

- Shoreline loss of approximately 46 feet per year
  - Sea level rise and subsidence
  - Hurricane impacts
  - Shoreline retreat
  - Conversion of marsh to open water.

Project Goals

- Protect marsh and the Refuge stemming shoreline loss
- Protect existing dunes, marsh, and bird habitat on publically accessible lands.
- Design and construct rock breakwater to maximize shoreline protection throughout the 20 year project life.

Restoration Solution

- 300-350 Acres of Shoreline Protection
  - 3.41 miles of rock breakwater similar to ME-18
  - Gapping for fisheries access and trap sediment laden water behind the breakwater
  - Encapsulated lightweight aggregate, bedding stone, and large armor stone
  - Would have 65-70 foot base with 18 foot crown

Project Map

2017 State Master Plan Polygon 004.SP.05a

386 Acres TOTAL of Marsh and Shoreline Protection

3.41 Miles of Shoreline Protection

Summary of Features, Cost, and Benefits

- 386 Acres Total Protected
- Construction Cost + 25% Contingency $35M - $40M
- Net Benefits: 350-400 acres

Contact information:
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R4 ME-03

PPL30 PROJECT NOMINEE FACT SHEET
February 5, 2020

Project Name
Southeast Pecan Island Marsh Creation

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

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. Recent hurricanes have impacted the area and scour has resulted in large open water areas to form that continue to erode from within. Loss rates are estimated at -0.76 %/year. Consequently, these marshes are highly deteriorated and considered a priority for restoration in the state's Master Plan.

Goals
The goals of this project are to create and nourish marsh from material dredged from the gulf and create several terrace fields to help stabilize the project area.

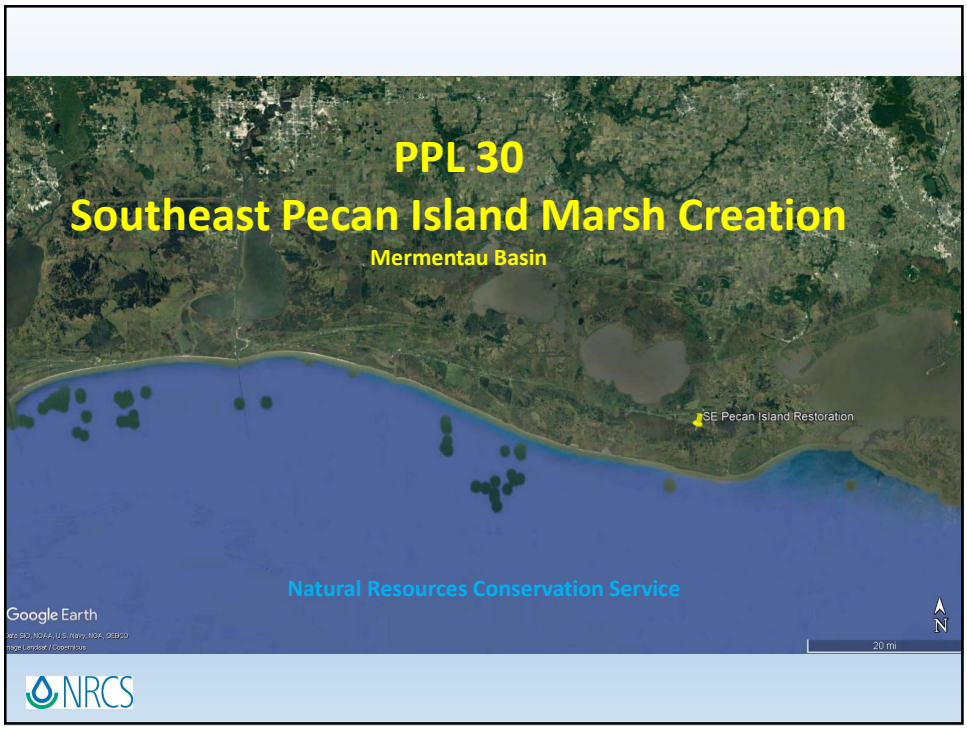
Proposed Solution
The project would construct approximately 400 acres of marsh and 18,000 linear feet of terraces in the most degraded location of the project area. Material will be borrowed from the gulf. The project site will be fully contained but existing berms will be used to maintain much of the marsh creation.

Preliminary Project Benefits
The project is expected to create and nourish 400 acres of marsh and an additional 16 acres will be created from terracing.

Preliminary Cost
The preliminary cost with 25% contingency is $25M - $30M.

Preparer of Fact Sheet
Ron Boustany, NRCS, (337) 291-3067, ron.boustany@usda.gov
Eric Whitney, NRCS, (337) 291-3069, eric.whitney@usda.gov


Legend
acres
Terraces
Terraces
Terraces
Terraces
Terraces
MC2-147 ac
MC1-253 ac
Terraces
Google Earth
N
3000 ft


PPL 30
Southeast Pecan Island Marsh Creation
Mermentau Basin
SE Pecan Island Restoration
Natural Resources Conservation Service
Google Earth
20 mi
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NRCS


SE Pecan Island MC
Mulberry Island
Google Earth
2 mi
N

PPL 30
Southeast Pecan Island Marsh Creation

NRCS

PPL-30
SE Pecan Island Marsh Creation

Project Objectives:

- Creating marsh from dedicated dredge material pumped via pipeline from the gulf
- Create terraces in shallow open water areas to stabilize the marsh and promote development of submerged aquatic vegetation

Benefits:

- Marsh Creation – 400 acres
- Terraces – Approximately 18,000 lf of the terraces (14 acres)

- Total Estimated Acres = 414 acres

Estimated Cost:

Construction + 25% = $20-25M

NRCS

R4 ME-04

PPL30 PROJECT NOMINEE FACT SHEET
February 05, 2020

Project Name
South Pecan Island Marsh Creation Project

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.

Specific goals: 1) Create 448 acres and nourish 11 acres of intermediate to low salinity brackish/ marsh, 2) Create 42,860 LF of terraces, 3) Plant newly constructed terraces with appropriate types of vegetation.

Proposed Project Features
Create 448 acres and nourish 11 acres of intermediate to brackish marsh south of Pecan Island with material material dredged from the Gulf of Mexico. Create 42,860 linear feet of earthen terraces (19 acres marsh) which would be vegetated for a project total of 478 acres of restored marsh. Water depths range from 1.0 to1.5 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) *What is the total acreage benefited both directly and indirectly?*
   Approximately 2,000 acres would be directly benefited. Direct benefits include 448 acres of created marsh, 11 acres nourished marsh, 42,860 LF of terraces and surrounding 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 445 acres.

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

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

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

5) *What is the net impact of the project on critical and non-critical infrastructure?*
This project would help protect oil and gas infrastructure, the town of Pecan Island and Hwy. 82.

6) *To what extent does the project provide a synergistic effect with other approved and/or constructed restoration projects?*
This project would work synergistically with the constructed ME-14 and ME-16.

Considerations
No significant issues have been identified.

Preliminary Cost
Construction cost plus 25% contingency is estimated to be $30 - $35M.

Preparer(s) of Fact Sheet:
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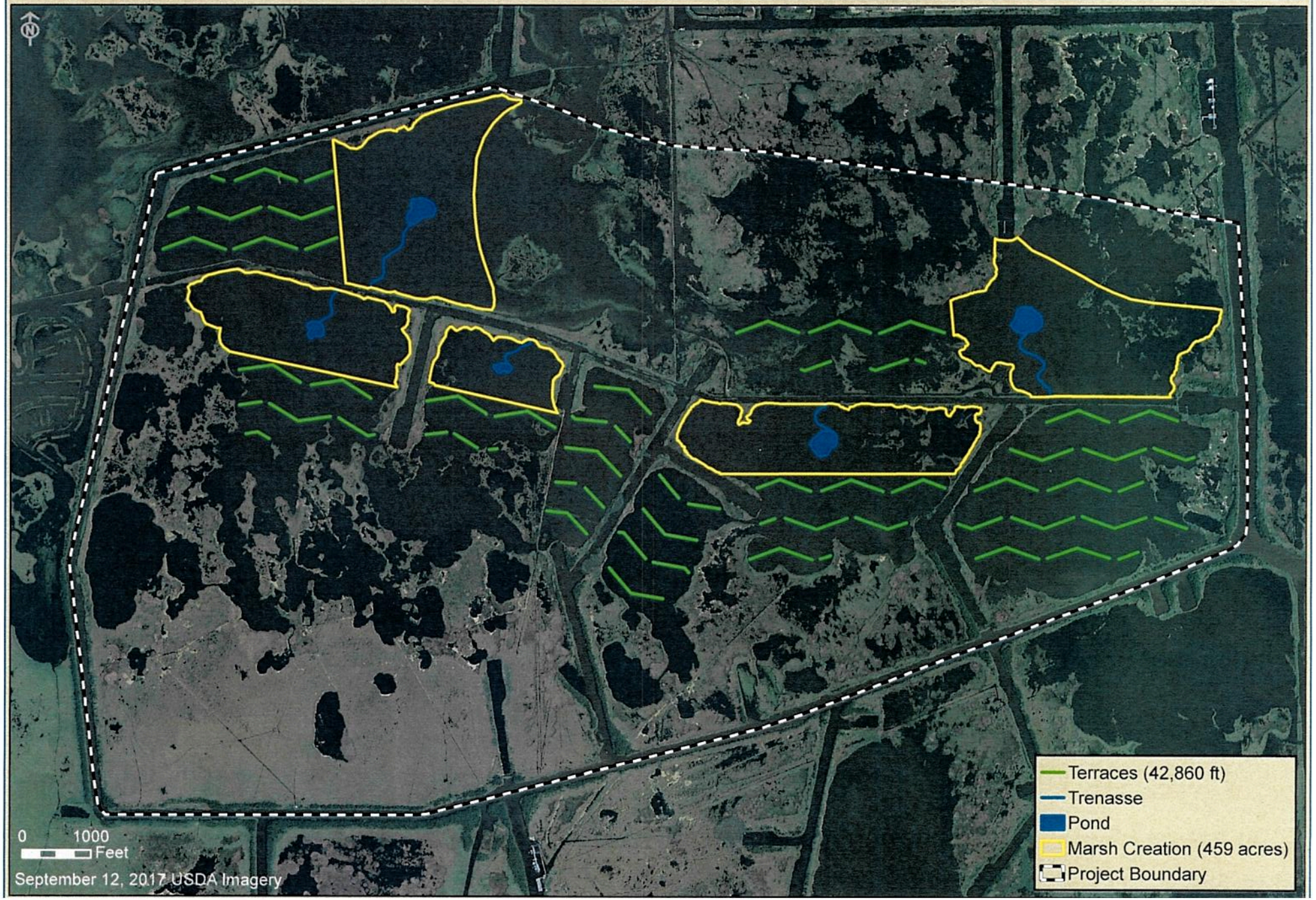
Robert Dubois, Fish and Wildlife Service, 337-291-3127 Robert_Dubois@fws.gov

U.S. Fish & Wildlife Service and Vermilion Corp.

Louisiana Ecological Services

South Pecan Island Marsh Creation



South Pecan Island Marsh Creation Project PPL 30 Nominee

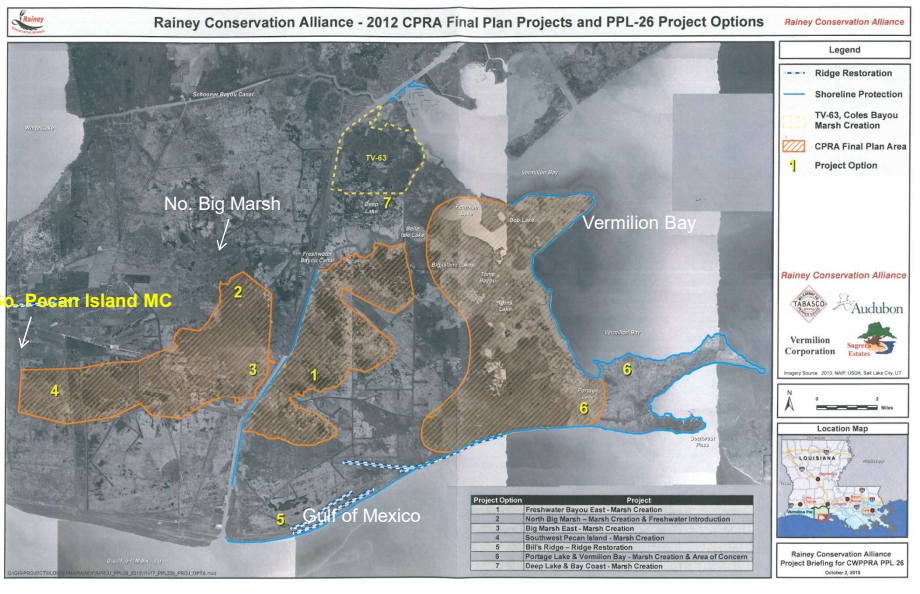
Problem

- 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

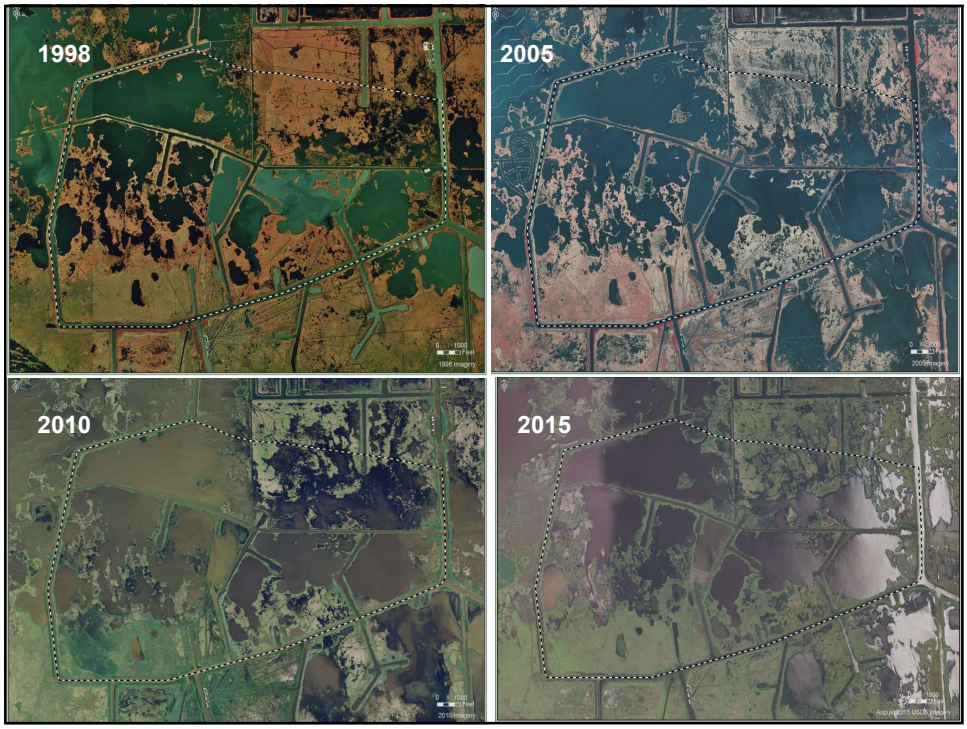
Goal

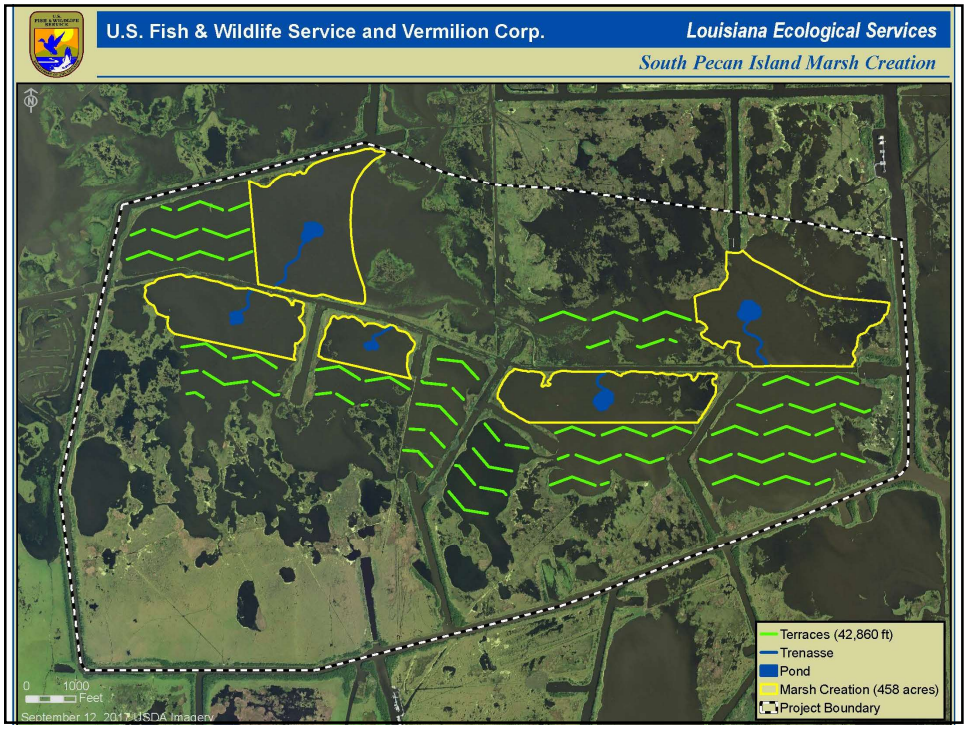
- 1) Restore & nourish 478 acres of brackish & intermediate marsh via marsh creation & terraces.

Sponsors – Vermilion Corp., FWS




U.S. Fish & Wildlife Service and Vermilion Corp.
Louisiana Ecological Services
South Pecan Island Marsh Creation
White Lake
82
82
Pecan Island
South Pecan
Island Terraces
Front Ridge Rd.
3147
Unit 15
Rollover
Lake
Rollover
Bayou
Freshwater Bayou Canal
Freshwater Cut Rd.
Gulf of Mexico
Map Extent
Project Boundary
0 1
Mile
2017 USDA Imagery


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.**

R4 ME-05

PPL30 PROJECT NOMINEE FACT SHEET
February 4, 2020

Project Name:
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.

Service Goals include restoring 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.

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.

Preliminary Project Benefits:
1) What is the total acreage benefited both directly and indirectly?
This total project benefitted is 5,691 acres.

2) How many acres of wetlands will be protected/created over the project life?
Approximately 427 net acres of fresh/intermediate marsh would be protected/created.

3) What is the anticipated loss rate reduction throughout the area of direct benefits over the project life (<25%, 25-49%, 50-74%, and >75%)?
The anticipated land loss rate reduction throughout the area of direct benefits would be 50-74% over the 20 year 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?
None.

6) To what extent does the project provide a synergistic effect with other approved and/or constructed restoration projects?
This project would work synergistically with several other projects including ME-04, ME-13, and ME-31.

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

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

Preparers of Fact Sheet:
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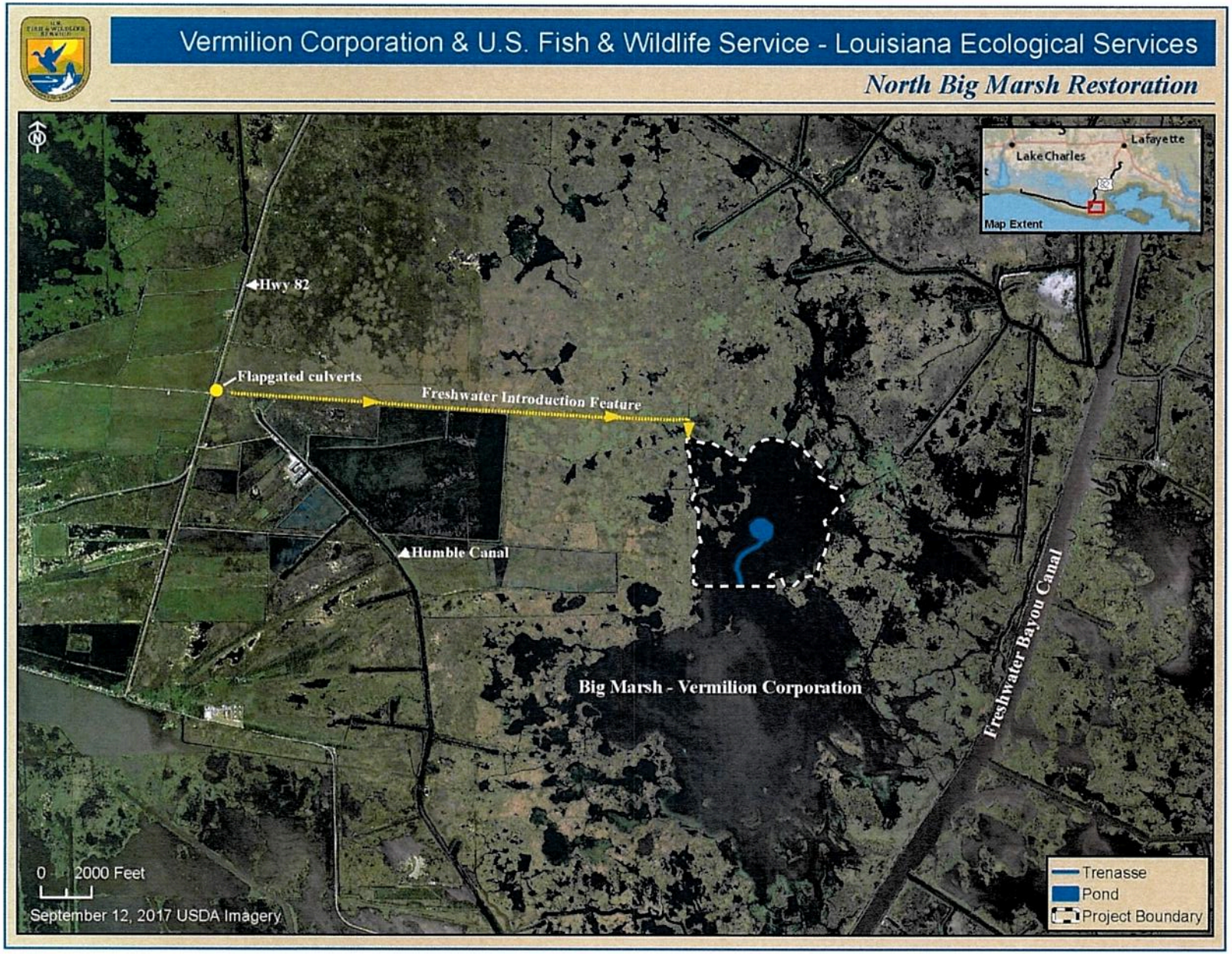
Billy Broussard, Vermilion Corporation, 337-893-0268, vc1958@vermcorp.com


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

North Big Marsh Restoration Project PPL 30 Nominee

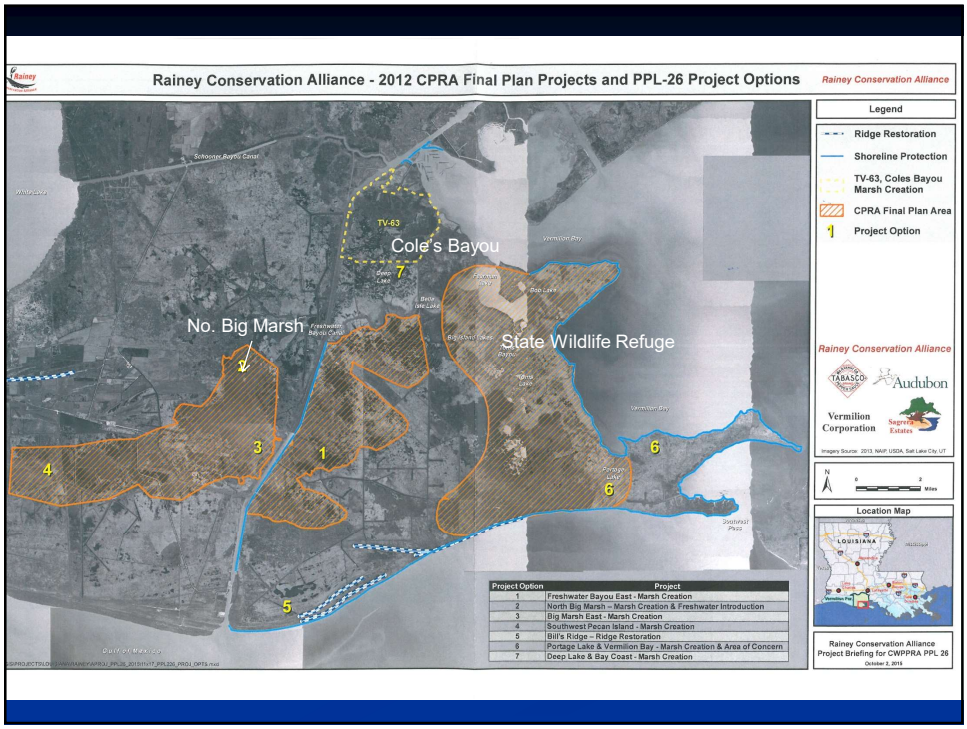
Problem

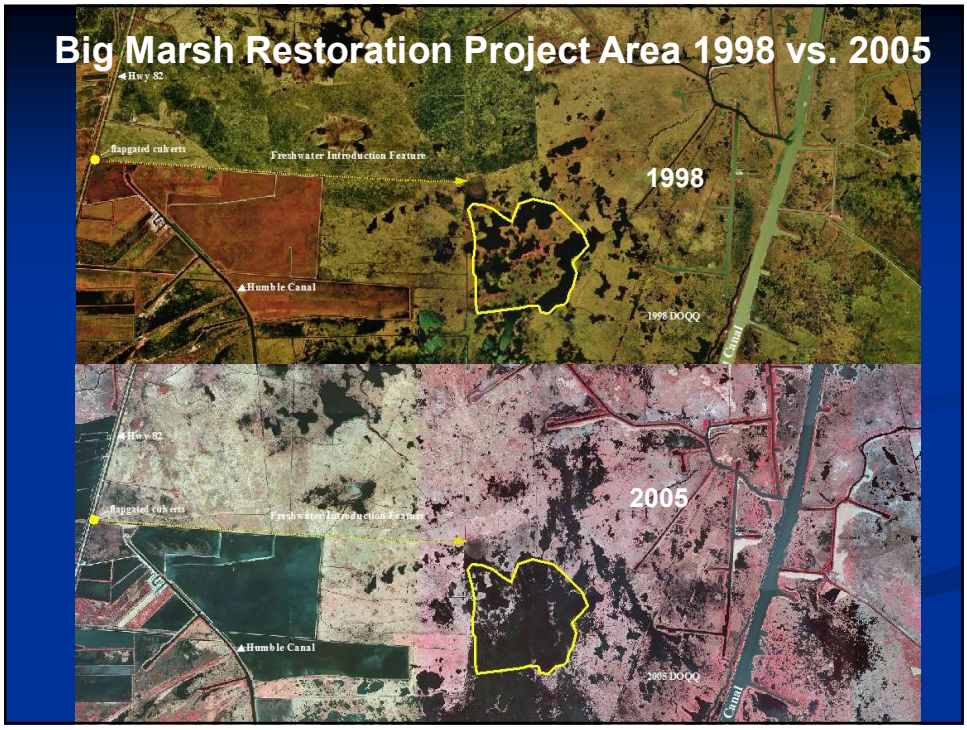
- **Hurricanes Rita (2005) & Ike (2008) eroded an additional 4,700-acre area (16%; total 27% loss).**
- **450-acre No. Big Marsh project area lost 55% of its marsh (250 acres) from 1998 to 2013.**
- **Big Marsh Unit lost 11% marsh (-3,810 acres) (1932 - 1990).**
- **Coast 2050 Study predicted another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

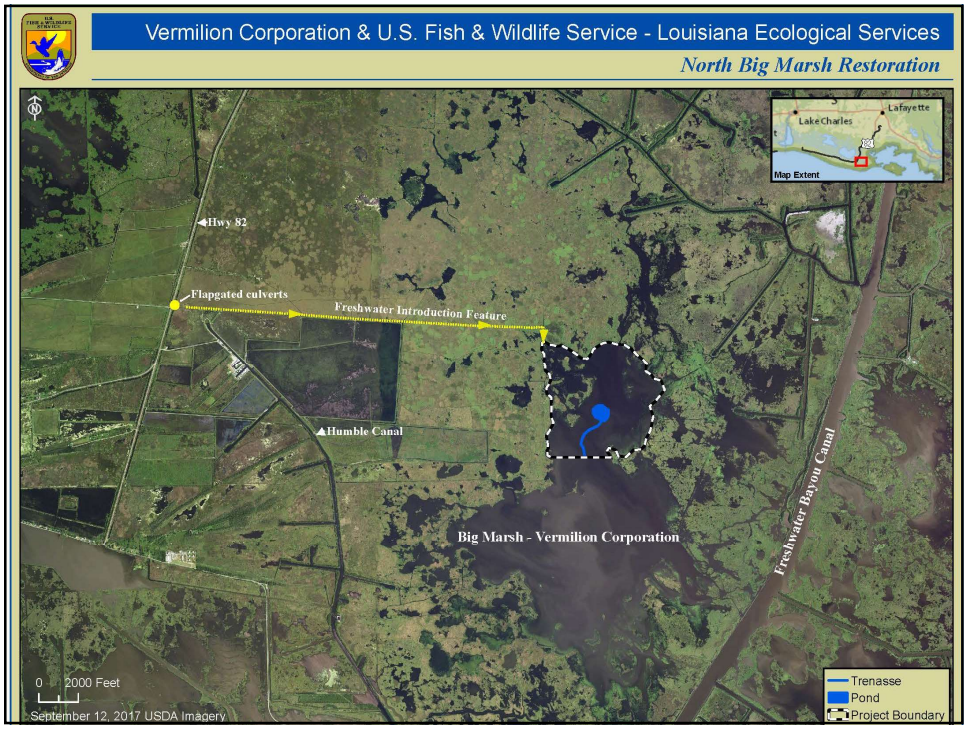
Features

- **1) Restore & nourish 450 acres of fresh & intermediate marsh in North Big Marsh**
- **2) Borrow from Little Vermillion Bay or Gulf**
- **2) Introduce freshwater from White Lake across Hwy. 82 (33 acres restored).**
- **3) Total restored = 483 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
2005
Humble Canal
2005 DOQQ
Canal


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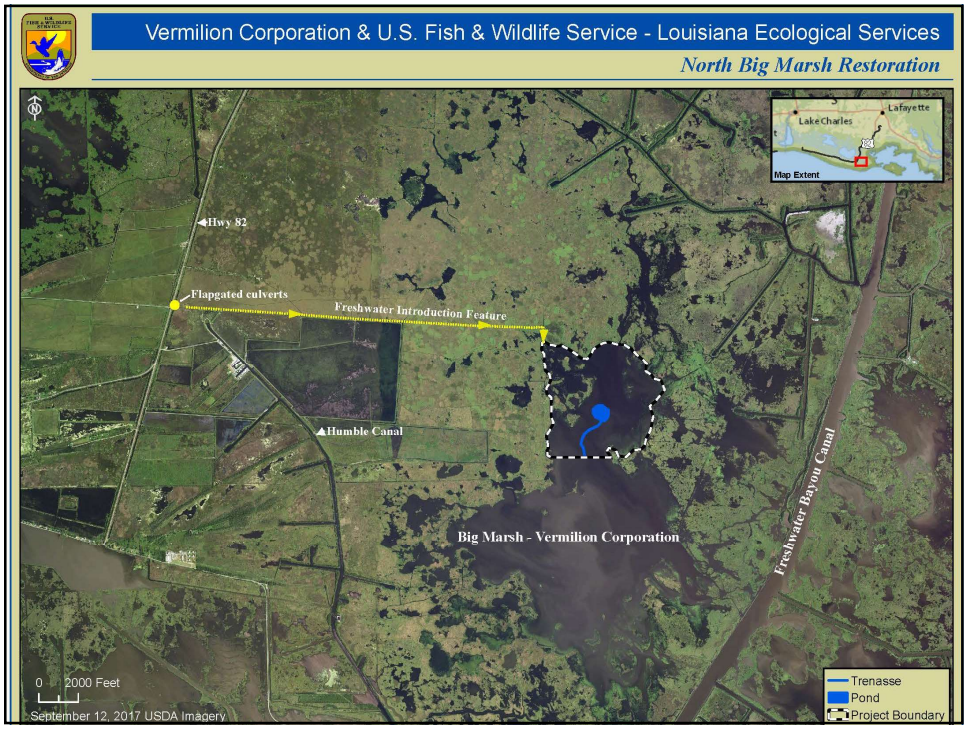
Map Extent
Hwy 82
Flapgated culverts
Freshwater Introduction Feature
Humble Canal
Big Marsh - Vermilion Corporation
Freshwater Bayou Canal
0 2000 Feet
September 12, 2017 USDA Imagery
Trenasse
Pond
Project Boundary

- Goal
- 1) Restore & nourish 483 acres of fresh-intermediate marsh in the Big Marsh area with dredged material from Little Vermilion Bay or the Gulf.
- 2) Introduce freshwater (~100 cfs) from White Lake via 3, 48-inch-diameter culverts located at Hwy 82.
- 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.
- Cost - Estimated construction cost is $25 to $30 M.
  Estimated cost effectiveness = $70,200/acre.
- 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.



Region 4-

Calcasieu-Sabine Basin

R4-CS-01

PPL30 PROJECT NOMINEE FACT SHEET
February 4, 2020

Project Name
Black Bayou South Marsh Creation and Nourishment

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

Problem
Wetland loss in the project area is due to hurricanes (Rita 2005 and Ike 2008), subsidence, sea level rise, and conversion to open water. Wind erosion and saltwater intrusion have also resulted in loss of marsh vegetation and wetland soils. The loss of marsh has also enabled the establishment of an increase in cross-system hydrologic connection between Sabine Lake (via The Pines Canal) and Black Bayou. The USGS estimates land loss rates in the project area at -0.23%/yr from 1985 to 2016.

Goals
The project goal is to create and nourish approximately 544 acres (ac) of emergent brackish marsh.

Proposed Solution
The project goal is to create and nourish approximately 544 acres (ac) of marsh (393 ac creation 151 ac nourishment). Sediment would be dredged from the Sabine River north of the project area and placed via pipeline. Preliminary estimates based on information provided by the U.S. Army Corps of Engineers, Galveston District, indicate approximately 5-6 miles of the federally maintained navigation channel would need to be dredged to provide sufficient materials for the project as proposed. The cell layout would halt the cross-system hydrologic connection that currently exacerbates wetland loss. During both Phase 0 and Phase 1, opportunities would be explored to increase the amount of marsh creation.

Preliminary Project Benefits

1) *What is the total acreage benefited both directly and indirectly?*
   This total project area is 544 ac.

2) *How many acres of wetlands will be protected/created over the project life?*
   Approximately 350 – 400 ac of marsh will be protected/created over the project life.

3) *What is the anticipated loss rate reduction throughout the area of direct benefits over the project life (e.g., 50% reduction in the background loss rate)?*
   The anticipated land loss rate reduction throughout the area of direct benefits will be 50-74% over the projects life.

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

5) *What is the net impact of the project on critical and non-critical infrastructure?*
The project would help protect water control structures and weirs in the nearby Black Bayou Hydrologic Restoration Project (CS-27) and the East Sabine Lake Hydrologic Restoration Project (CS-32).

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 CS-27 to the north and CS-32.

Considerations
The proposed project has potential utility/pipeline considerations and oil and gas infrastructure.

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

Preparer(s) of Fact Sheet:
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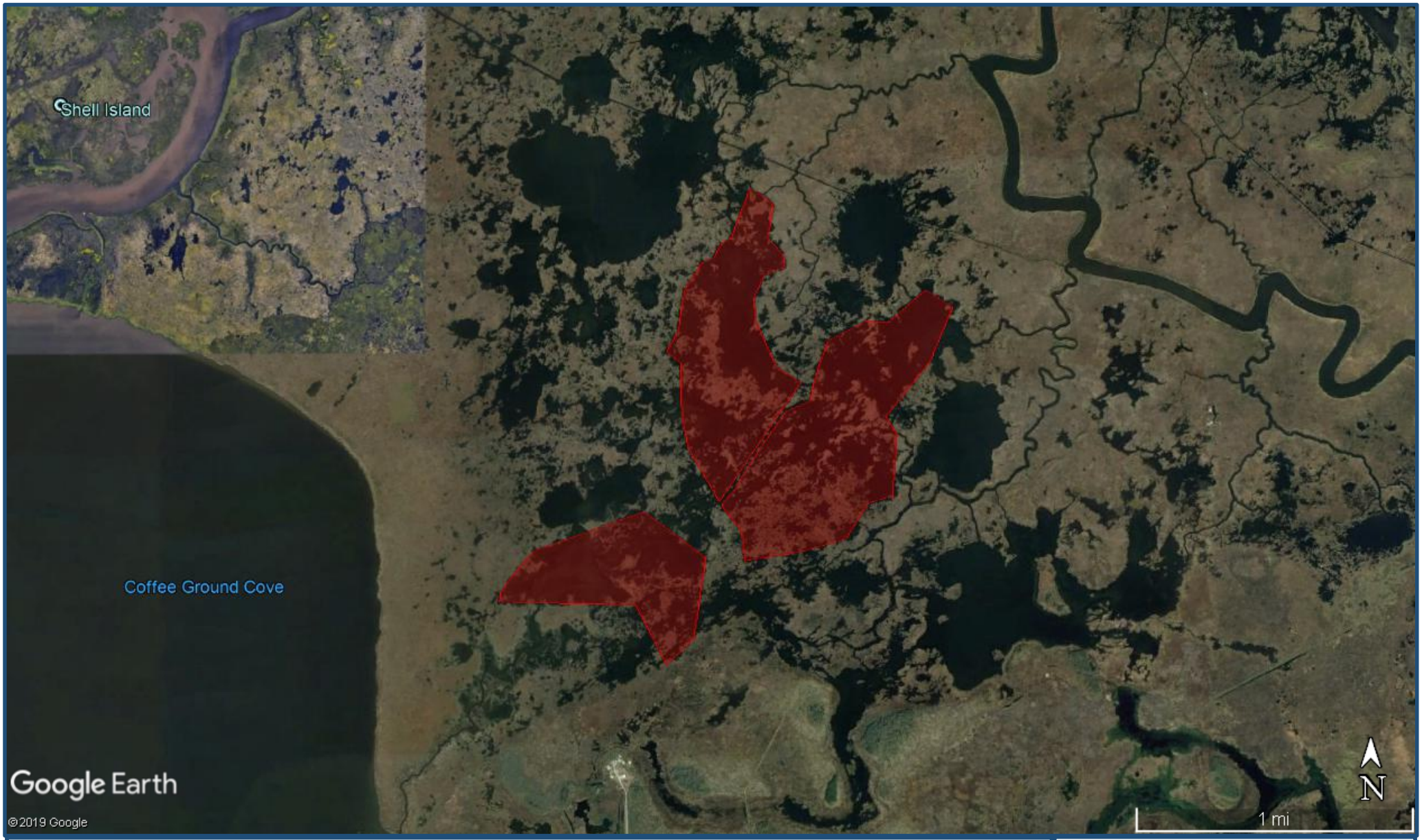
Jason Kroll, NOAA Restoration Center, 225-757-5411, jason.kroll@noaa.gov



PPL30 Black Bayou South Marsh Creation and Nourishment

393 acres of marsh creation
151 acres of marsh nourishment

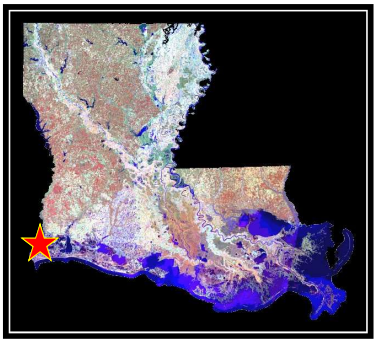
Federal Sponsor: NOAA Fisheries
2019 Aerial Imagery
Map Date 2-7-2020

Legend

Marsh Creation and Nourishment

Black Bayou South Marsh Creation and Nourishment Project

NOAA FISHERIES



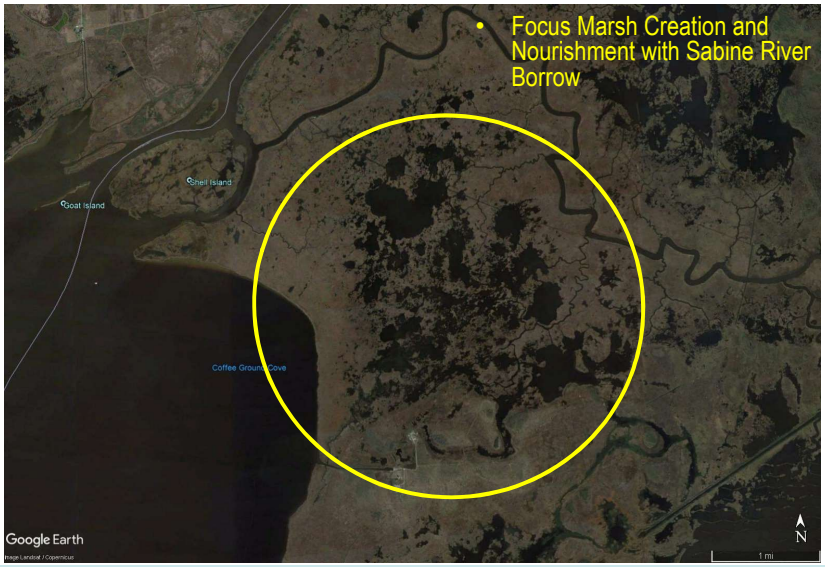
REGION 4 – Calcasieu Sabine Basin

Presenter: Brandon Howard, Fishery Biologist, NOAA

Special Thanks
Terry Delane, FWS
Cameron Parish
Belynda Kinman, USACE-SWG

PPL30 CWPPRA Regional Planning Team Meeting
Lake Charles, Louisiana
February 4, 2020

Project Location



Project Area Problem

- V

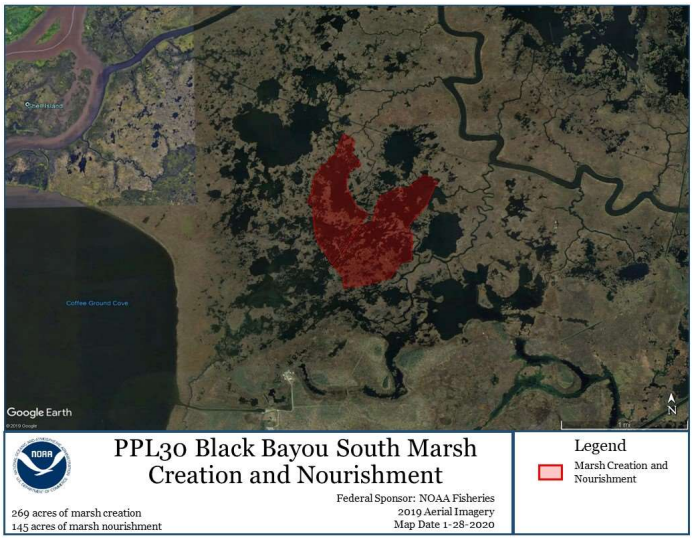
Project Goals

- Marsh Creation and Nourishment
  - Restore intertidal marsh habitat on Sabine National Wildlife Refuge.
  - Design and construct resilient wetlands to maximize wetland benefits throughout the 20 year project life.

Restoration Solution

- 414 Acres of Marsh Creation/Nourishment
  - 269 acres of marsh creation &145 acres of marsh nourishment
  - Hydraulically dredge material from the Sabine River
  - Contained fill areas with dike gapping after construction
  - Incremental cost sharing with USACE-SWG

Project Map



- 2017 State Master Plan Polygon 004.MC.107
- 414 Acres TOTAL of marsh creation/nourishment
- Approximately 269 acres of creation and 145 acres of nourishment
- Sabine River borrow area

Summary of Features, Cost, and Benefits

- **414 Acres Total**
  - 269 acres Marsh Creation
  - 145 acres Nourishment
- **Construction Cost + 25% Contingency $10M - $15M**
- **Net Benefits: 250-300 acres**

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

~~R4-CS-02~~
WITHDRAWN

PPL30 PROJECT NOMINEE FACT SHEET
February 2020

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 370 acres of marsh would be created in five confined disposal cells and in one additional semi-confined cell. 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 69 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 439 acres of marsh would be benefitted directly (370 ac from marsh creation, 69 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 364 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%.

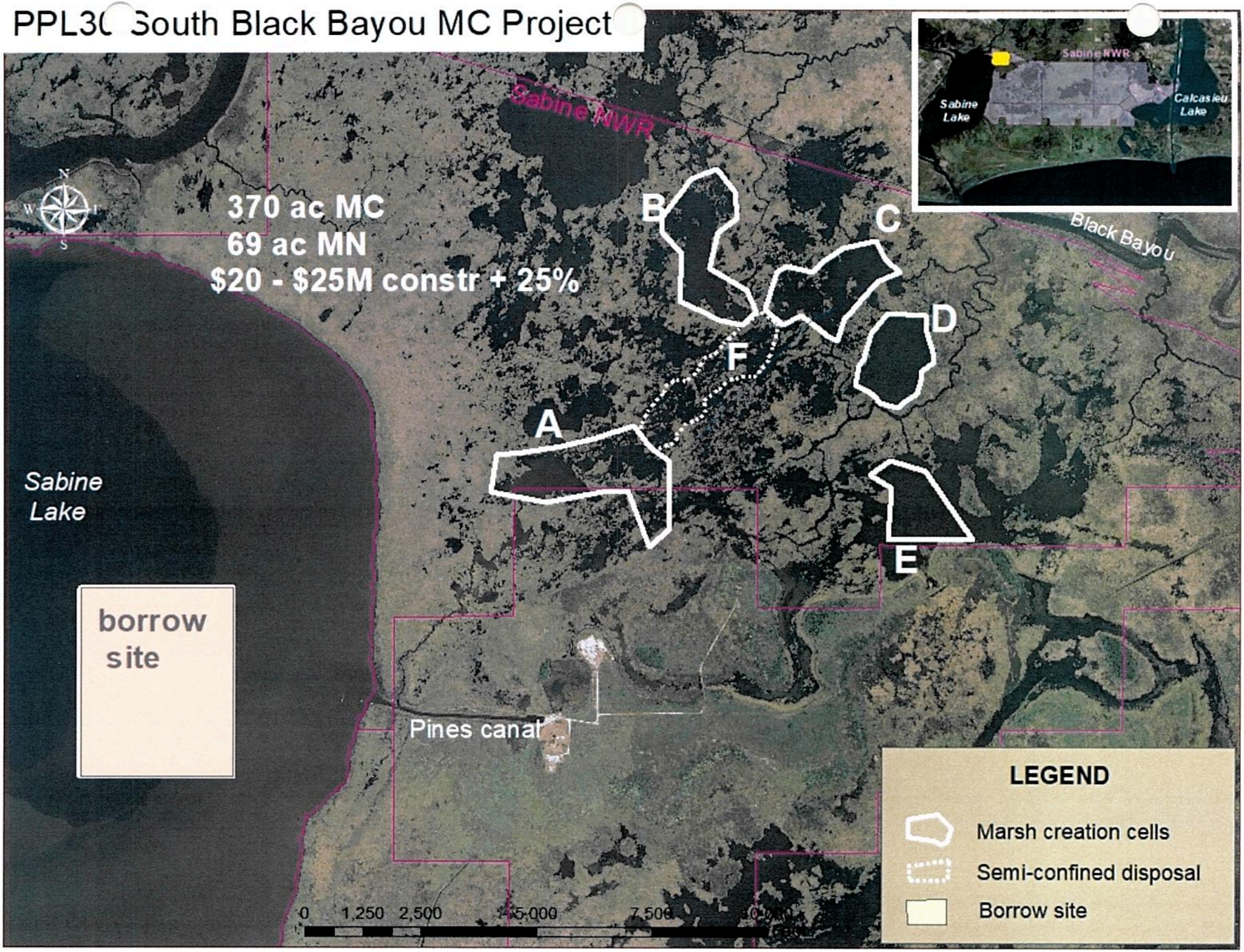
4) *Do any project features maintain or restore structural components of the coastal ecosystem such as barrier islands, natural or artificial levee ridges, beach and lake rims, cheniers, etc?*
NO.

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

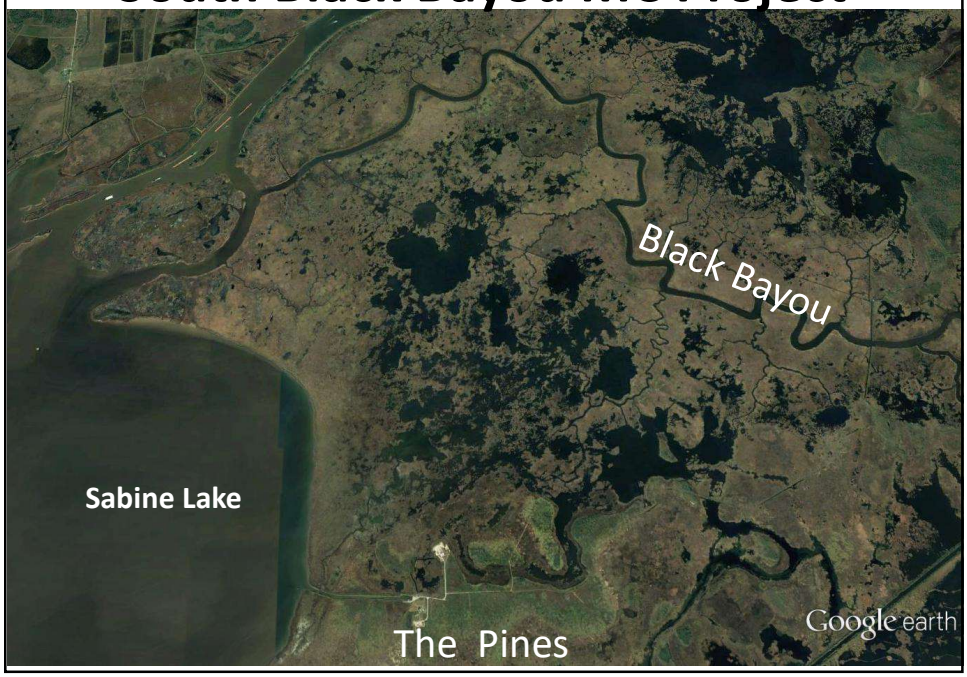
6) *To what extent does the project provide a synergistic effect with other approved and/or constructed restoration projects?*
The proposed project would complement the East Sabine Lake Hydrologic Restoration Project (CS-32).

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


PPL3C South Black Bayou MC Project
Sabine NWR
370 ac MC
69 ac MN
$20 - $25M constr + 25%
B
C
D
F
A
E
Black Bayou
Sabine Lake
borrow site
Pines canal
Sabine NWR
Sabine Lake
Calcasieu Lake
LEGEND
Marsh creation cells
Semi-confined disposal
Borrow site
0 1,250 2,500 5,000 7,500

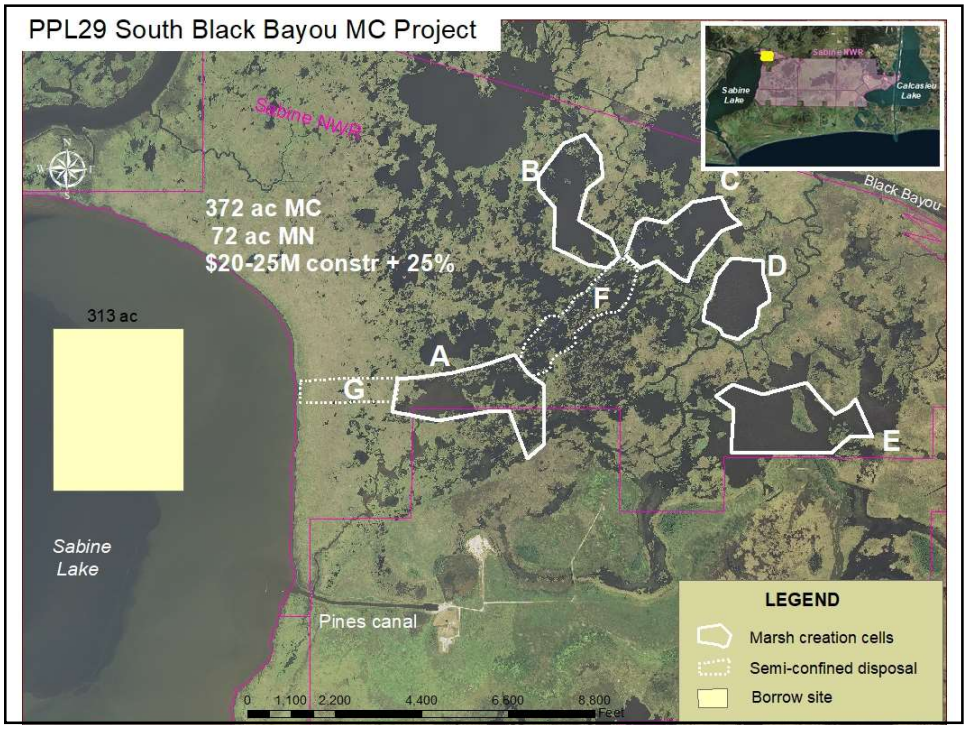
South Black Bayou MC Project

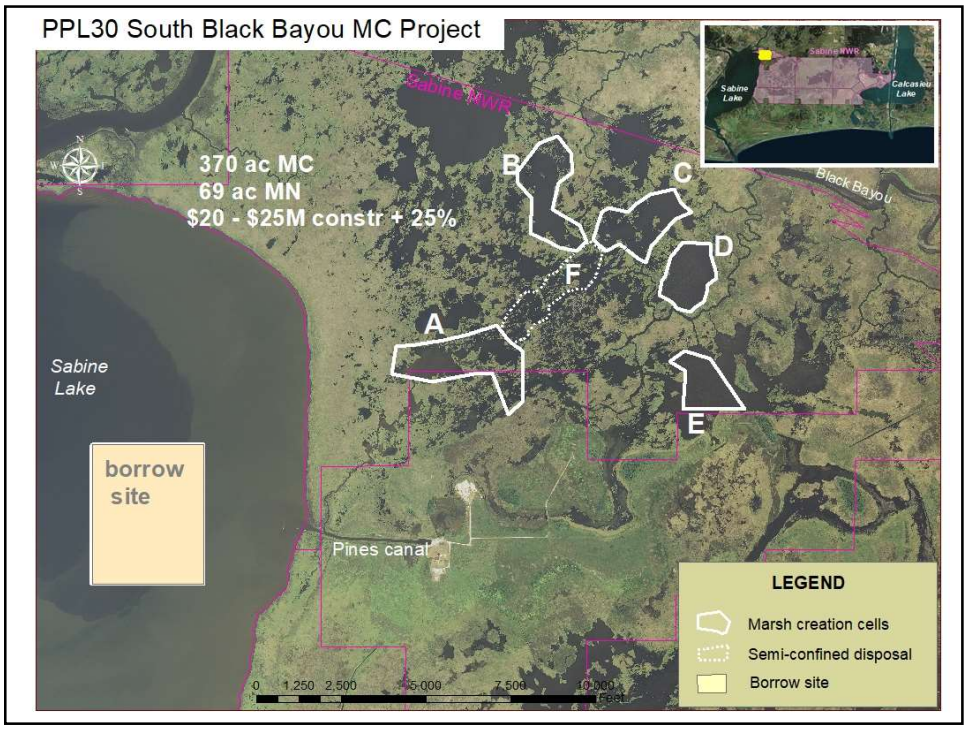


CS-32 Rock Weir on Pines Bayou

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


PPL30 South Black Bayou MC Project
Sabine NWR
370 ac MC
69 ac MN
$20 - $25M constr + 25%
Sabine Lake
borrow site
Pines canal
Black Bayou
A
B
C
D
E
F
LEGEND
Marsh creation cells
Semi-confined disposal
Borrow site
0 1,250 2,500 5,000 7,500 10,000 Feet

R4 CS-03

PPL30 PROJECT NOMINEE FACT SHEET
February 2020

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.

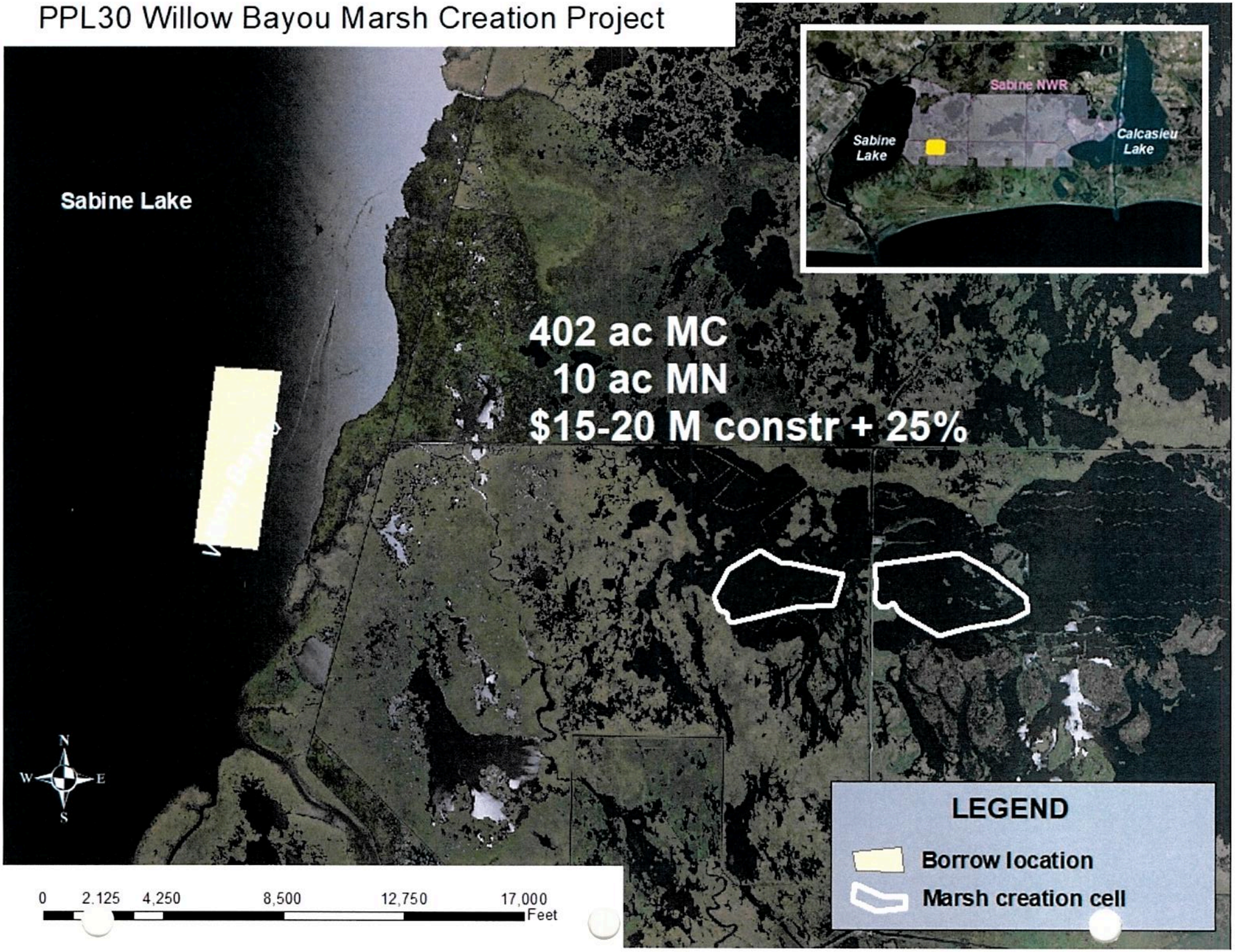
5) *What is the net impact of the project on critical and non-critical infrastructure?*
None.

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

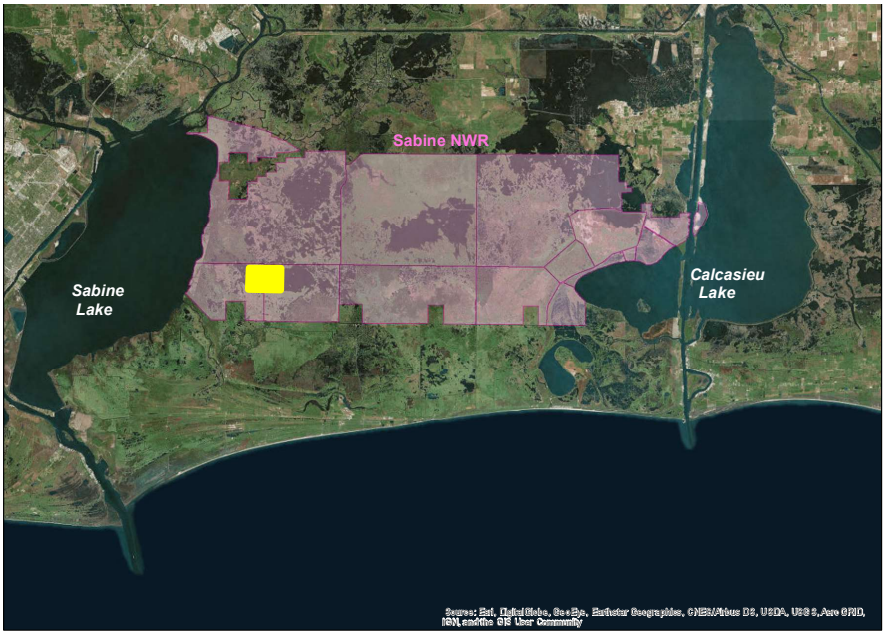
Preliminary Construction Costs:
The estimated construction cost including 25% contingency is $15 to 20M.

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

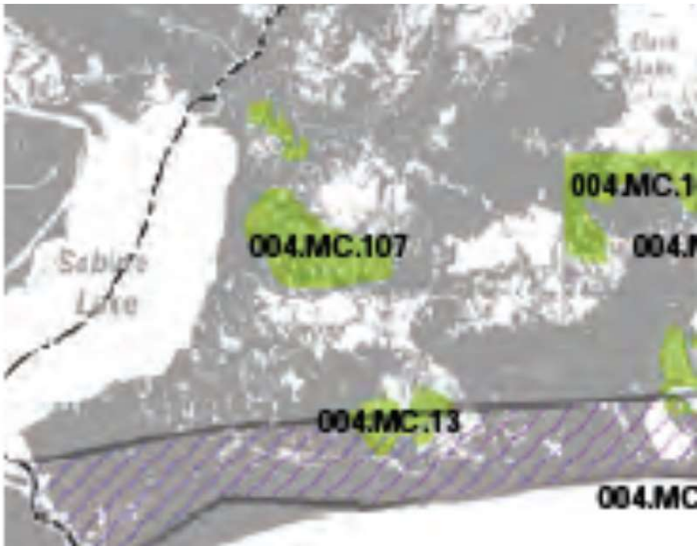
PPL30 Willow Bayou Marsh Creation Project



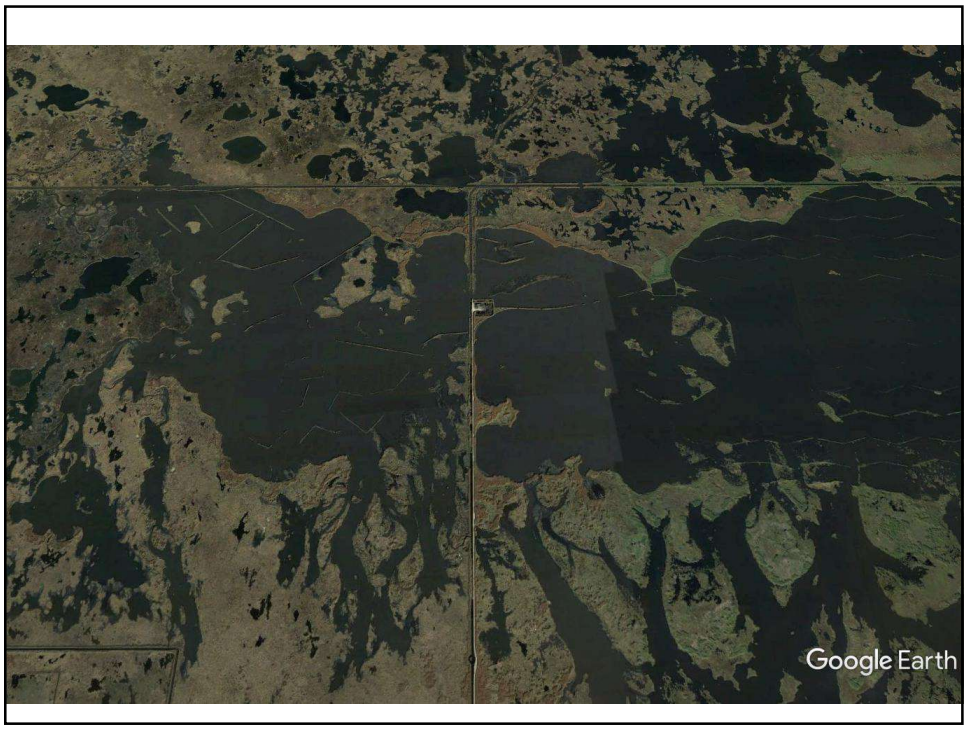
PPL29 Willow Bayou Marsh Creation Project

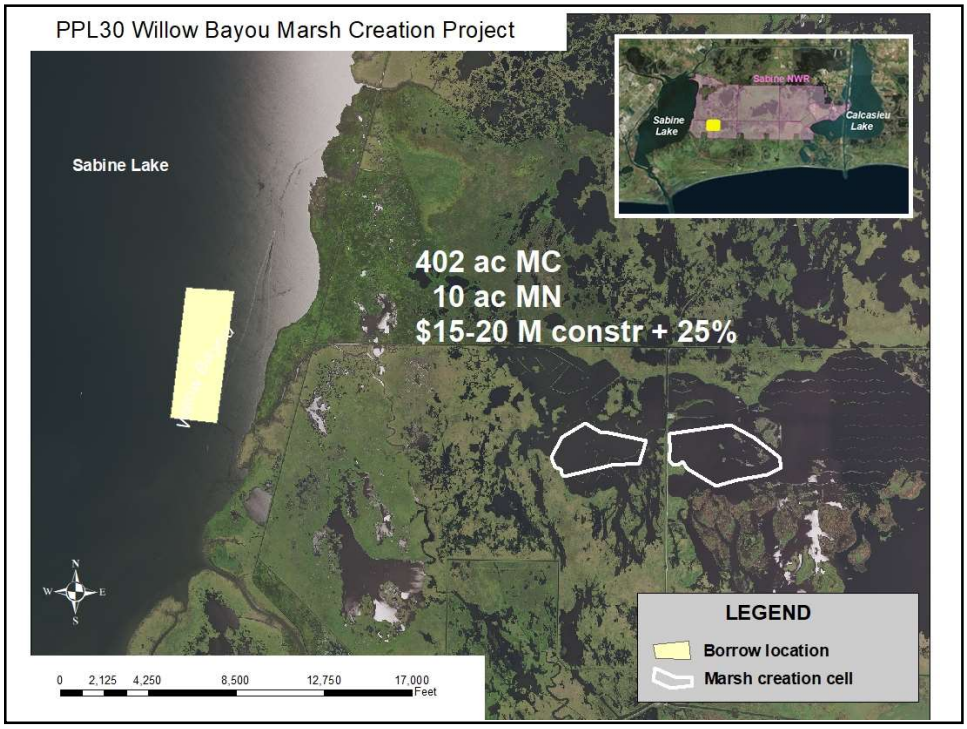


2017 Coastal Master Plan




Google Earth


Google Earth


PPL30 Willow Bayou Marsh Creation Project
Sabine Lake
Sabine NWR
Sabine Lake
Calcasieu Lake
402 ac MC
10 ac MN
$15-20 M constr + 25%
LEGEND
Borrow location
Marsh creation cell
0 2,125 4,250 8,500 12,750 17,000
Feet

R4 CS-04

PPL30 PROJECT FACT SHEET
February 4, 2020

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.

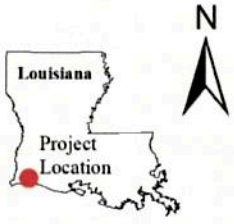
Proposed Solution
The proposed project would create/nourish approximately 316 acres of marsh using sediment dredged from the Gulf of Mexico. The dredged material may be fully contained or partially contained depending upon the borrow sediment characteristics and site conditions. Containment dikes would be degraded as necessary to reestablish hydrologic connectivity with adjacent wetlands. The created marsh would be planted.

Project Benefits
Create/nourish approximately 321 acres (create 267 acres and nourish 54 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:
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



Marsh Creation *

Project Boundary

* denotes proposed features

0.25 0 0.25 0.5 Kilometers

0.25 0 0.25 0.5 Miles

Scale: 1:35,000

USGS science for a changing world

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

Image Source:
2017 NAIP

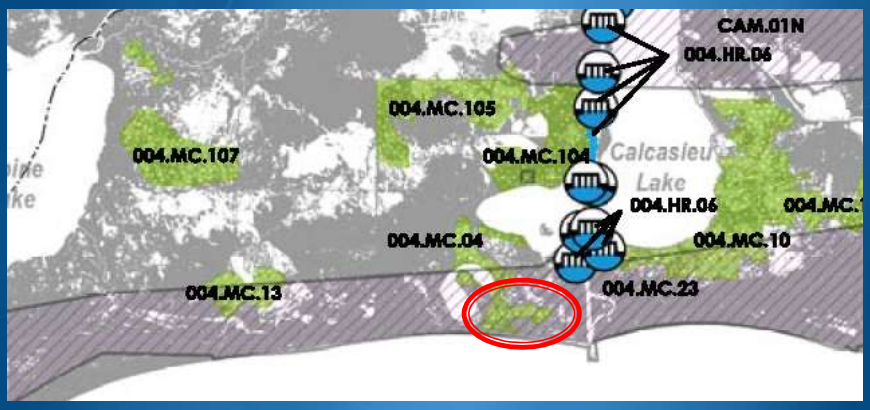
Map ID: 2019-11-0023
Map Date: July 23, 2019

Mud Lake South Marsh Creation

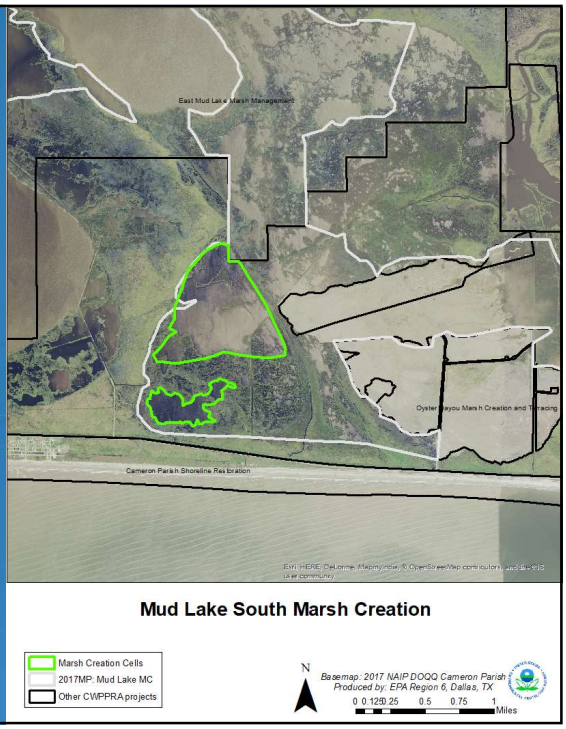
Coastal Wetlands Planning, Protection and Restoration Act

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

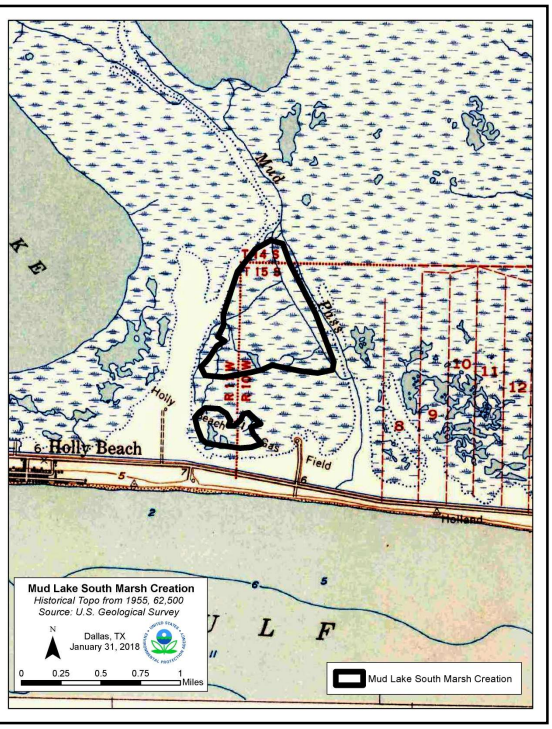


Problems

- 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).

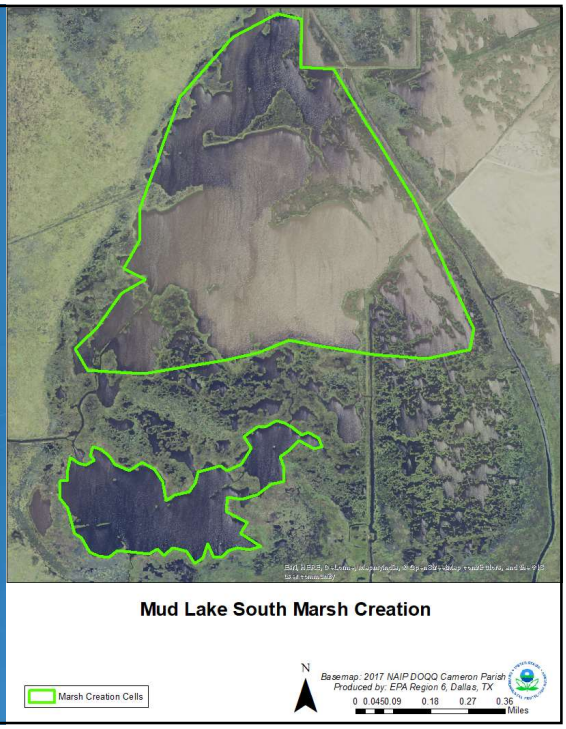
Historical Reference

- 1955



Project Features

- Create/nourish 321 acres (create 267 acres and nourish 54 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



R4 CS-05

PPL30 PROJECT FACT SHEET
February 4, 2020

Project Name
West Cove 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 Southeast of West Cove, approximately 1 mile north of Mud Lake. The area has experienced wetland loss due to storm events, subsidence and saltwater intrusion.

Proposed Solution
The proposed project would create/nourish approximately 728 acres of marsh using sediment dredged from the Calcasieu Ship Channel. 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 728 acres (create 437 acres and nourish 291 acres) of marsh using sediment dredged from the Calcasieu Ship Channel.

Project Costs
The estimated construction cost plus 25% contingency is $20M-25M with USACE Credit
The estimated construction cost plus 25% contingency is $30M-35M w/o USACE Credit

Preparer(s) of Fact Sheet:
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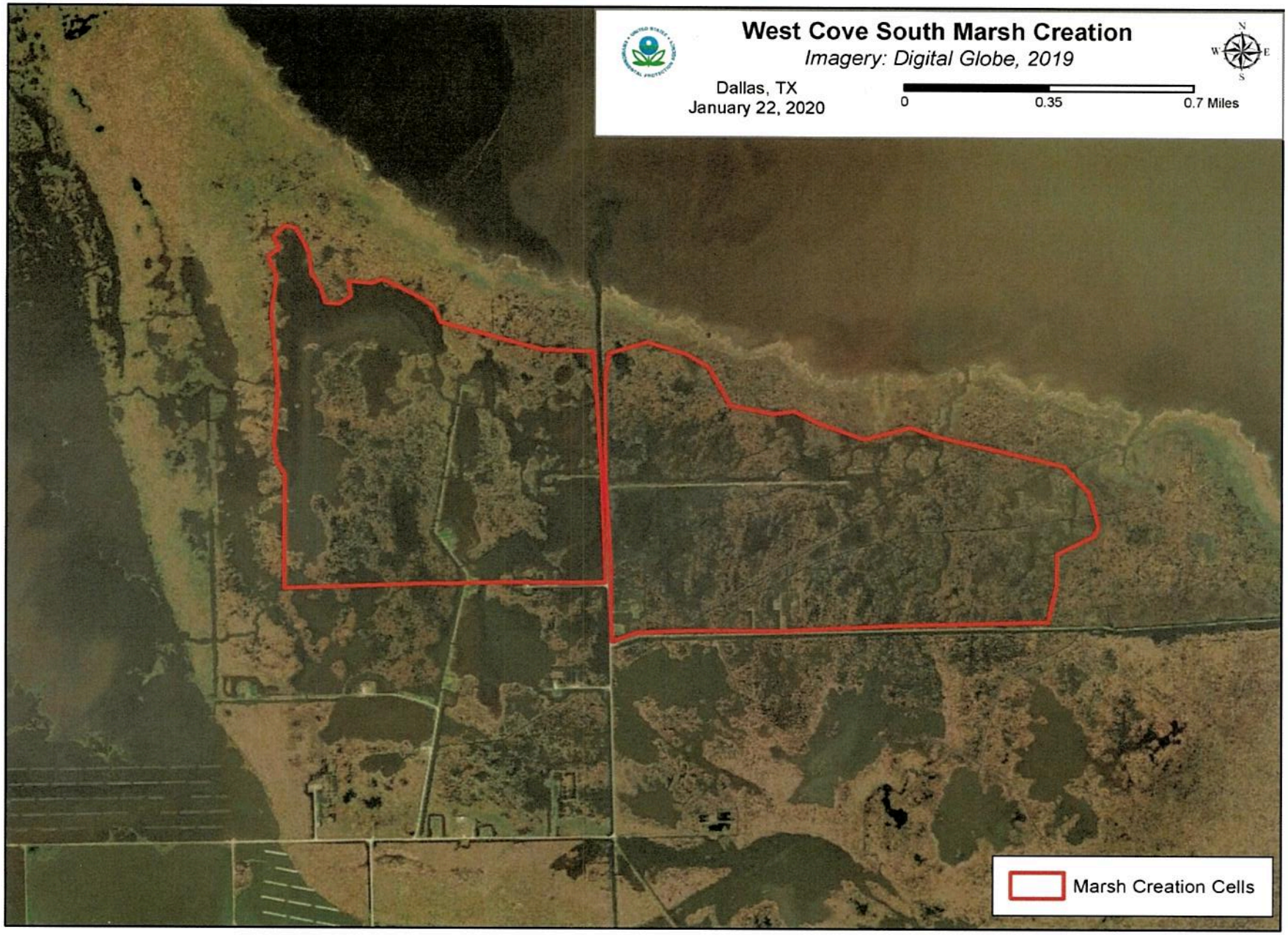
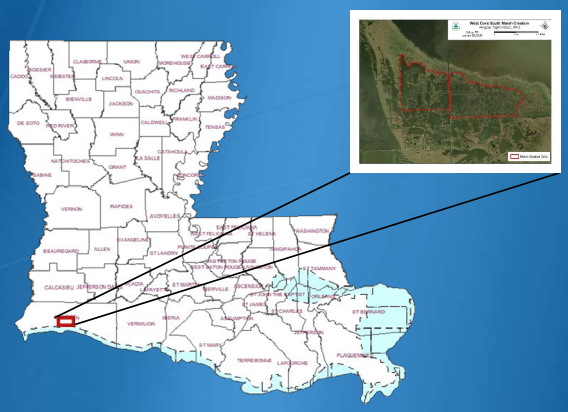
Brad Crawford, P.E., EPA; (214) 665-7255; Crawford.brad@epa.gov


West Cove South Marsh Creation
Imagery: Digital Globe, 2019
Dallas, TX
January 22, 2020
0
0.35
0.7 Miles
N
W
E
S
Marsh Creation Cells

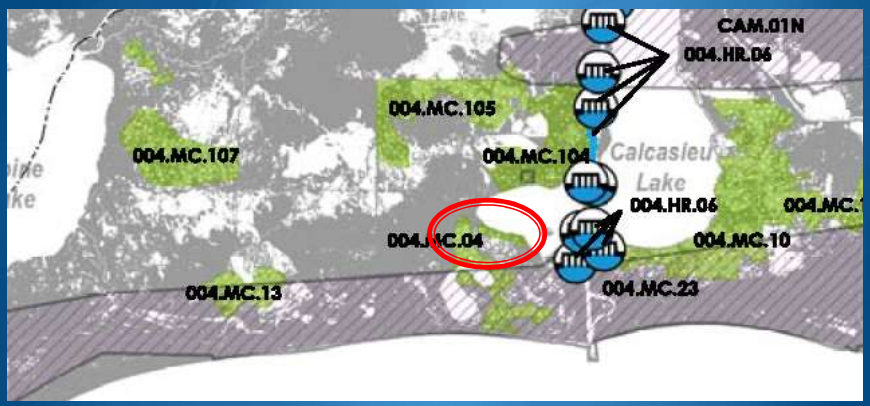
West Cove South Marsh Creation



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.

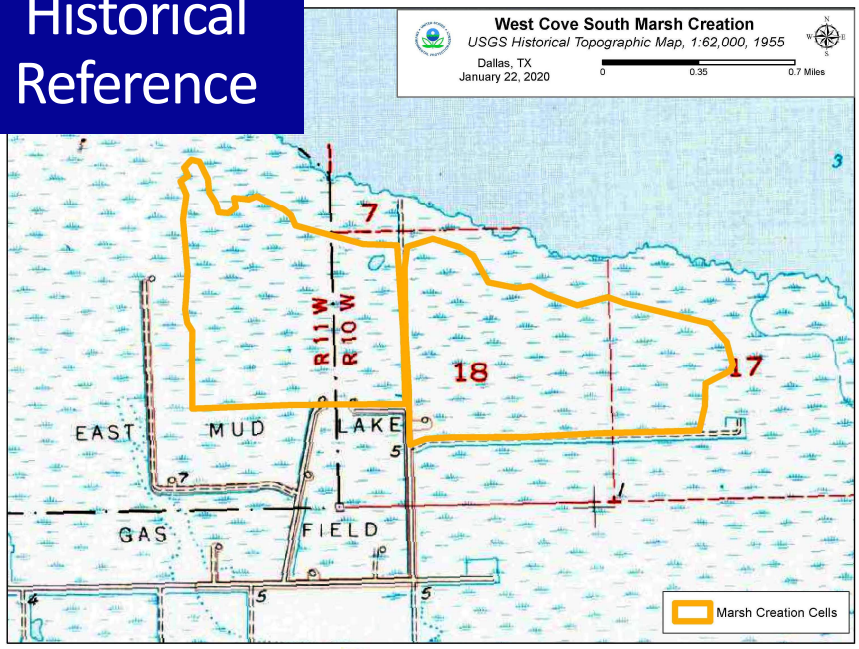


2017 Master Plan Consistency & Project Synergy

Problems

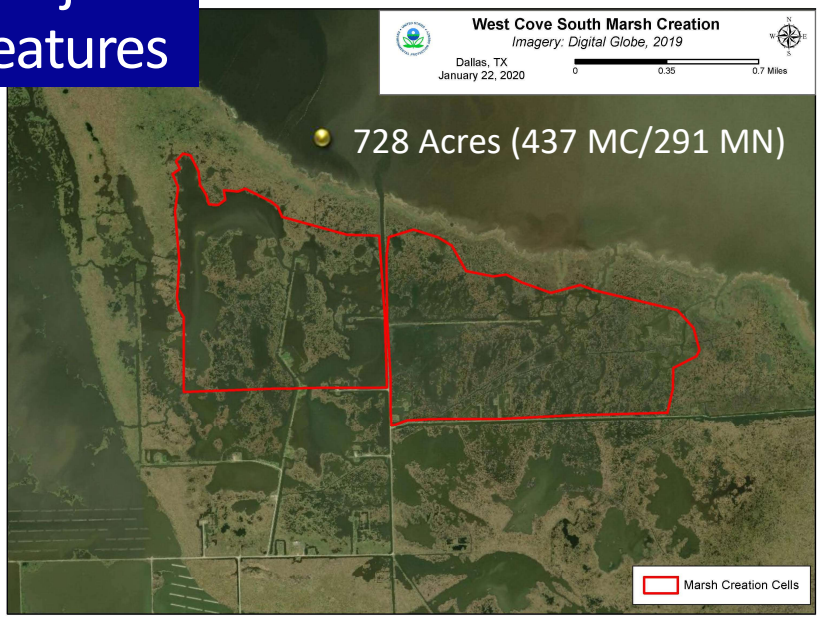
- Wetland loss due to storm and hurricane impacts
- Subsidence
- Saltwater intrusion
- Cameron Parish could lose an additional 40% of its land area, especially to coastal towns, over the next 50 years and face severe storm surge flood risk (2017 MP).

Historical Reference



- 1955

Project Features



- 728 Acres (437 MC/291 MN)

Project Goals

- Create/nourish 728 acres (create 437 acres and nourish 291 acres) of emergent marsh with sediment from the Calcasieu Ship Channel maintenance event
- Provide increased protection from storm surge and flooding
- Restore degraded wetland habitat
- Construction cost + 25% contingency is $20M-$25M
  - w/USACE Credit

RH CS-06

PPL30 PROJECT FACT SHEET
February 4, 2020

Project Name
Three Bayous Marsh Creation

Project Location
Region 4, Calcasieu/Sabin Basin, Cameron Parish, Three Bayous area adjacent to Sabine Lake.

Problem
Construction of the Sabine/Neches Waterway has allowed an increase in the vulnerability of the marshes along Sabine Lake to salinity intrusion particularly during times of drought. Recent hurricanes have further deteriorated the marsh which has allowed more frequent tidal flushes within the marsh that have increased interior erosion. As the area continues to open up, winds and increased fetch across the area has accelerated erosion. Land loss in the project region is estimated by USGS to be -0.12%/y with a subsidence of at least 3.8 mm/y. Marsh creation would quickly restore marshes and reduce the volume of tidal flux into the area to stabilize conditions for existing marsh.

Goals
The goal of the project is to create and nourish marsh to restore habitat and limit the tidal flux to the complex of marshes in the area.

Proposed Solution
Sediments will be hydraulically dredged from Sabine Lake and pumped via pipeline to create and nourish approximately 607 acres of marsh habitat. The marsh creation areas will be fully contained, and the containment will be degraded after construction.

Preliminary Project Benefits
The project will initially create approximately 607 acres of marsh through hydraulically dredge material from Sabine Lake.

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

Preparer of Fact Sheet
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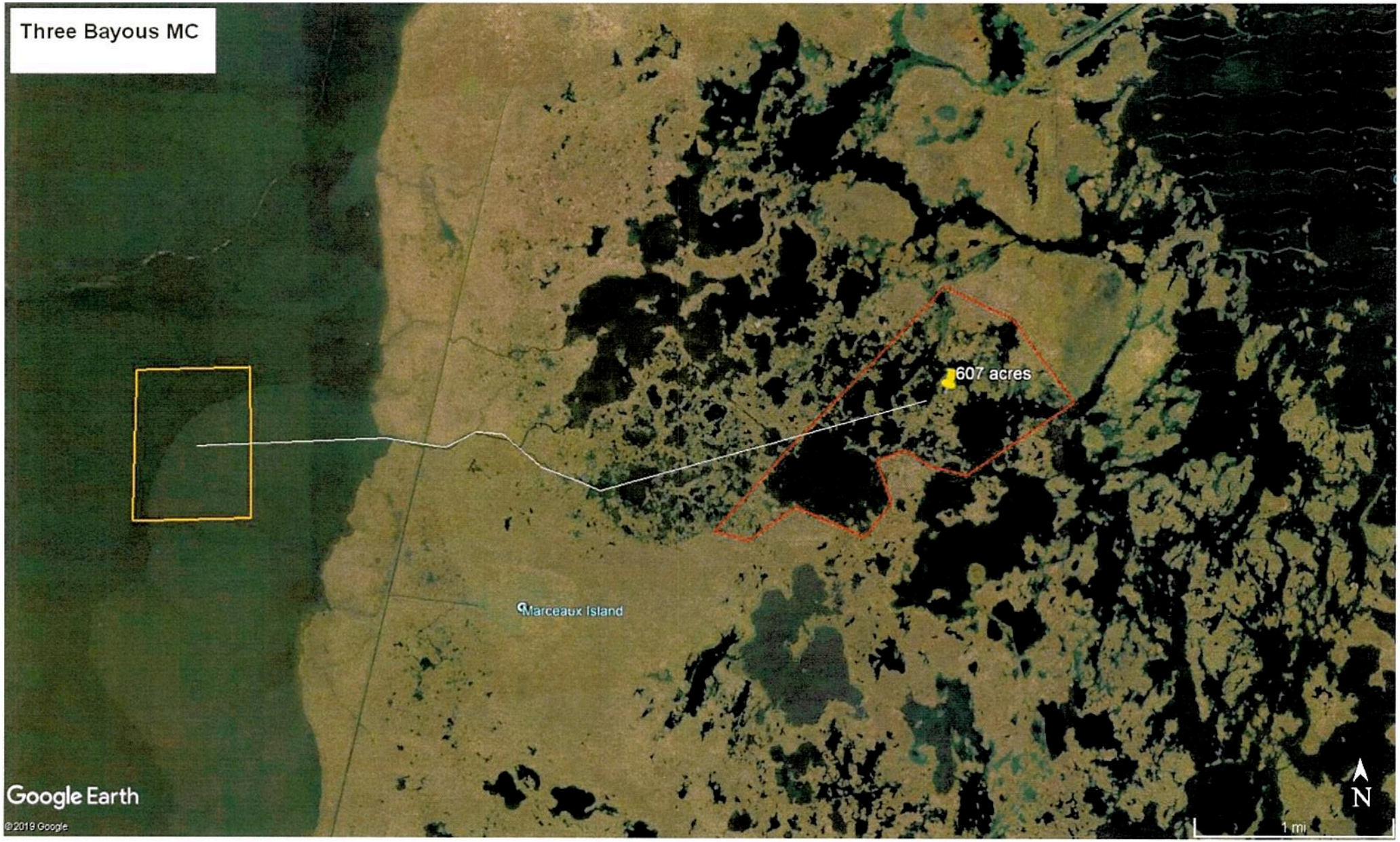
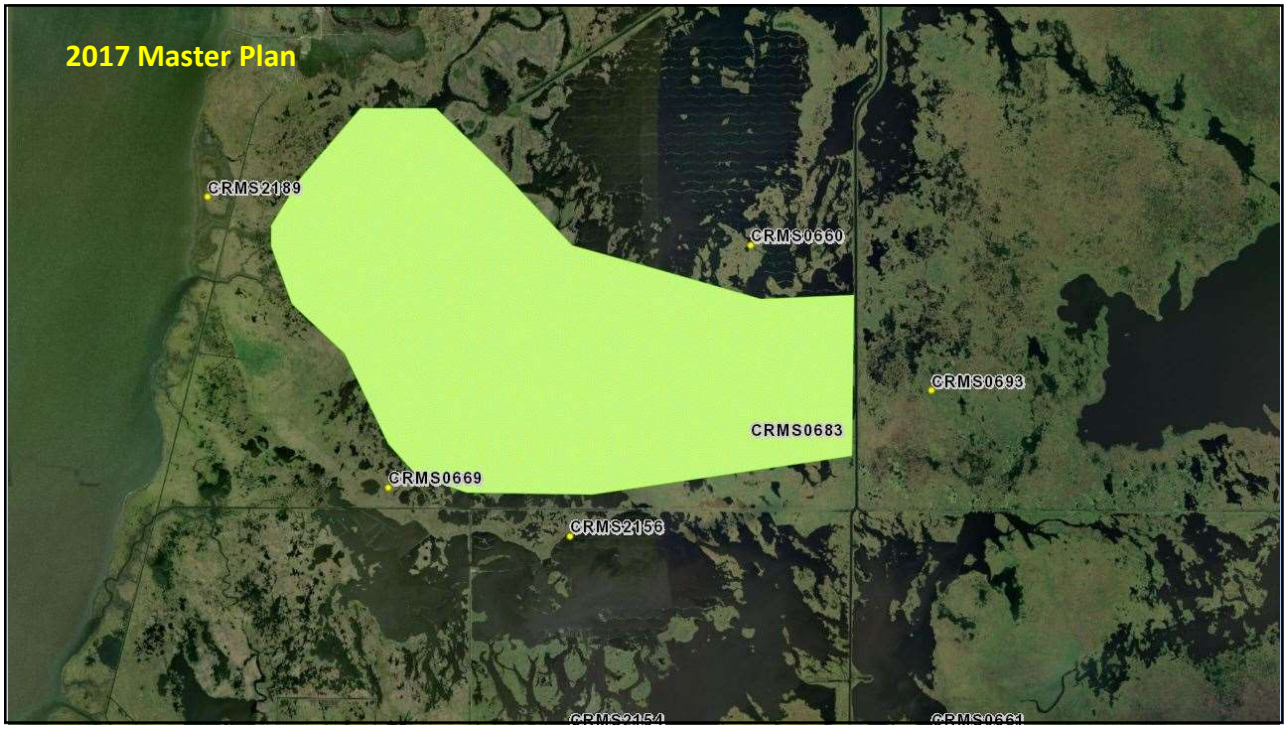
Eric Whitney, NRCS, Engineer, (337) 291-3069, eric.whitney@usda.gov


Three Bayous MC
607 acres
Marceaux Island
Google Earth
©2019 Google
N
1 mi


PPL 30
Three Bayous Marsh Creation
Three Bayous MC
Natural Resources Conservation Service
NRCS
Google Earth
©2019 Google
Data SIO, NOAA, U.S. Navy, NGA, GEBCO
N
10 mi


2017 Master Plan
CRMS2189
CRMS0660
CRMS0693
CRMS0683
CRMS0669
CRMS2156
CRMS2154
CRMS0661

PPL-30

Three Bayou Marsh Creation

Project Objectives:

- Create/nourish marsh with material dredged from Sabine Lake.
- Reduce interior erosion by creating marsh to connect land mass to reduce the tidal prism in the interior marsh

Project Features and Benefits:

- Create 607 acres of marsh

Project Cost:

- $20-25 million

NRCS

R4 CS-07

PPL30 PROJECT NOMINEE FACT SHEET
February 4, 2020

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. In addition, rapid fluid extraction may have contributed to the 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 restore intertidal marsh habitat on the perimeter and within the peninsula of land located in and around Mud Lake. The project should be designed and constructed to maximize wetland benefits throughout the twenty year project life.

Proposed Solution
The proposed solution is create and/or nourish approximately 412 acres (307 acres created and 105 acres nourished) in critical target areas of open water in the northern vicinity 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 platform elevation and gapped to improve hydrologic connectivity. 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 300-350 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 helps to maintain the integrity the lake rim.

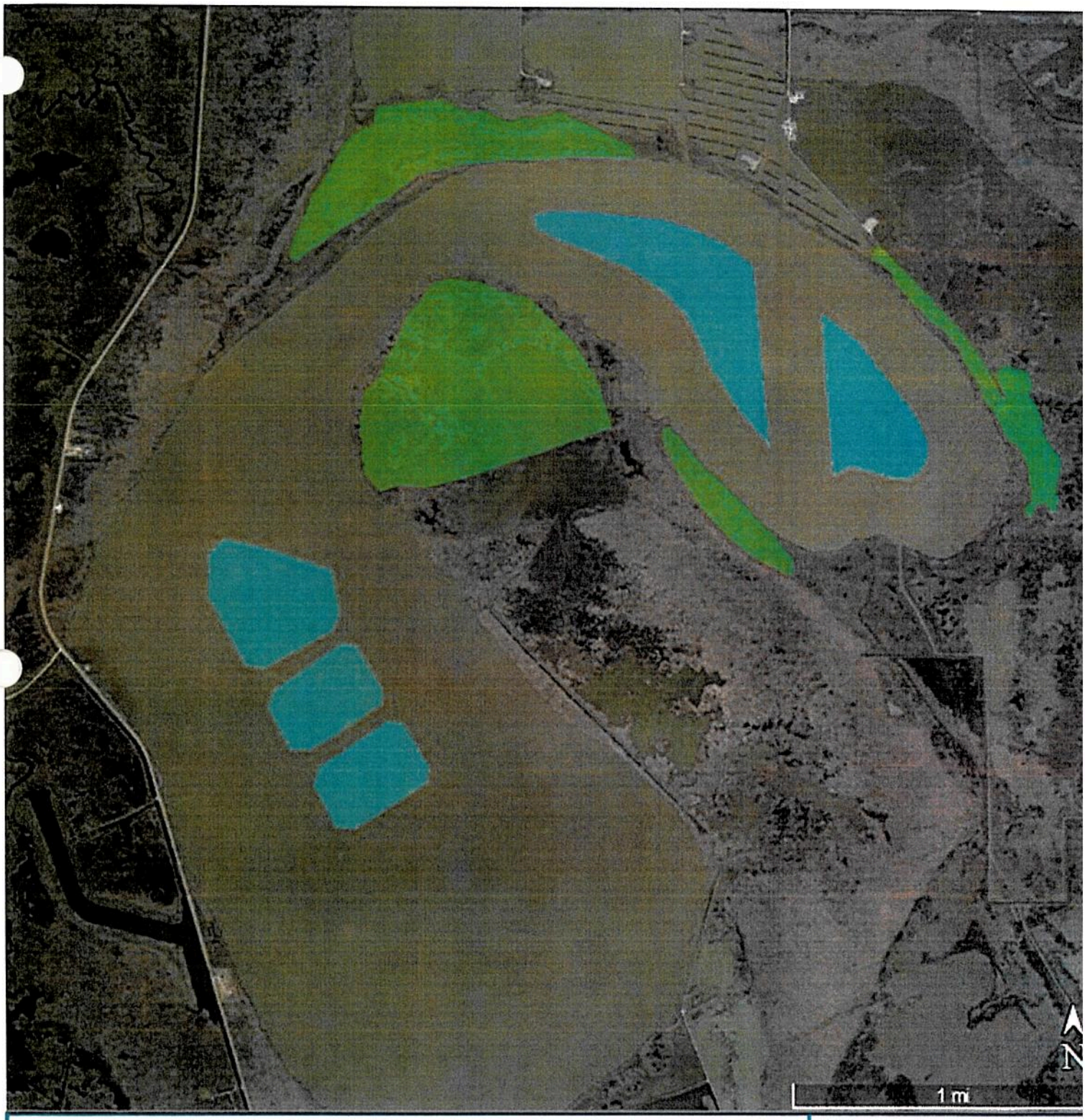
5) *What is the net impact of the project on critical and non-critical infrastructure?*
The project would provide positive impacts to critical infrastructure. The loss of wetlands in this area increases the vulnerability of infrastructure to wave energy. Protecting/creating wetlands in this area may also assist in reducing storm 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?*
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 range is $15M - $20M.

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



PPL30 Mud Lake Peninsula Marsh Creation

Approximately
307 Acres Marsh Creation
105 Acres Marsh Nourishment

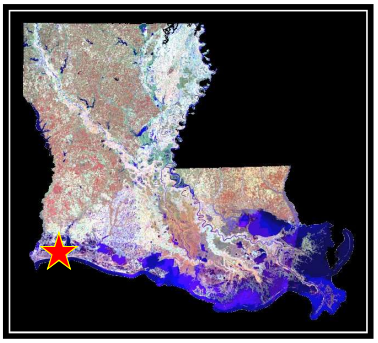
Federal Sponsor: NOAA Fisheries
2017 Aerial Imagery
Map Date 01-23-2020

Legend

- Marsh Creation
- Potential Borrow Areas

Mud Lake Peninsula Marsh Creation Project

NOAA FISHERIES



REGION 4 Calcasieu-Sabine Basin

Presenter: Jason Kroll, Civil Engineer, NOAA

Special Thanks

Tim Allen and Francis Fields with Apache Corp.
David Richard and Stream Properties
Jenny Smith and NOAA Team

PPL30 CWPPRA Regional Planning Team Meeting
Lake Charles, Louisiana
February 4, 2020

Project Vicinity

Project Area Problems

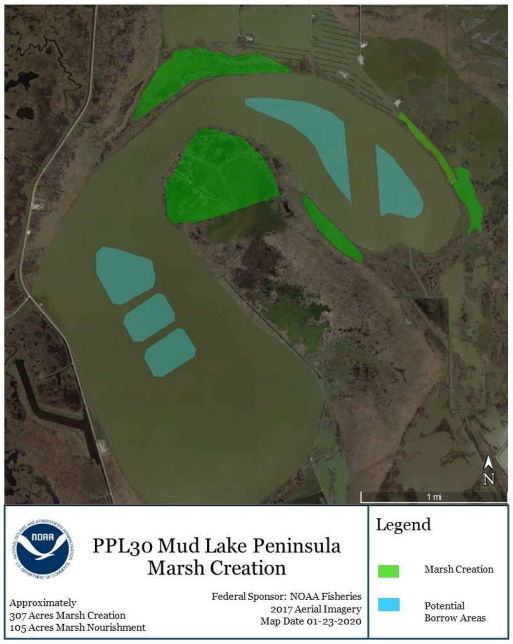
- Major loss of wetlands
- Coastwide subsidence and sea level rise
- Hydrologic Impacts
- Hurricane impacts
- Conversion of contiguous marsh to large areas of open water
- Going to continue to see further degradation with increased water depths and wave fetch distances

Project Goals

- Marsh Creation and Nourishment
  - Restore intertidal marsh habitat on the perimeter and peninsula of Mud Lake.
  - Design and construct resilient wetlands to maximize wetland benefits throughout the 20 year project life.

Proposed Project Solution

- 412 Acres of Marsh Creation/Nourishment
  - Dredge material from Mud Lake
  - Contained Fill areas with dike gapping after construction
  - Opportunity for design to expand in acreage.
  - Opportunity for Semi-Confined placement
  - Small Dredge plant 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 – design 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
- Estimated 300-350 NET ACRES

Small Dredge Discharge (Photo Courtesy of PO-75 Pilot Project)

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R4 CS-08

PPL30 PROJECT NOMINEE FACT SHEET
February 04, 2020

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, rapid fluid extraction may have contributed to the 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:
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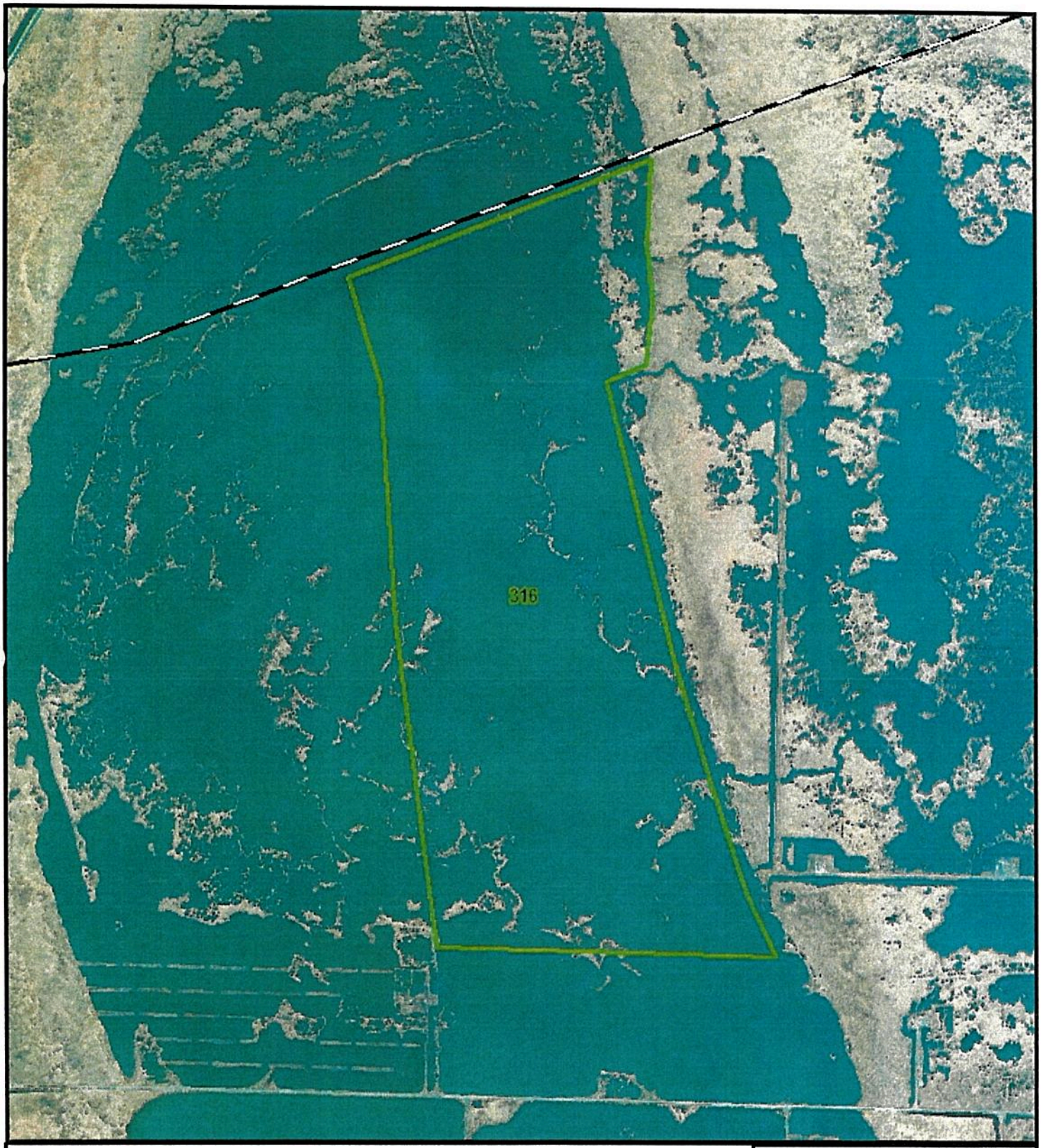


N

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

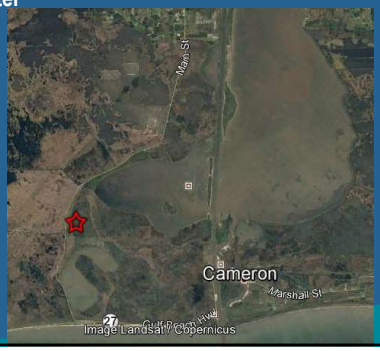
Approximate_Natural_Gas_Pipeline

NMLBoundaryEast

NOAA FISHERIES
Restoration Center

North Mud Lake Marsh Creation Project

Region 4 Calcasieu-Sabine Basin
Cameron Parish
Presenter: Jennifer Smith, NOAA



Special Thanks
Sabine National Wildlife Refuge
Jason Kroll and NOAA Team

PPL 30 Regional Planning Team Meeting
Lake Charles, LA
February 04, 2020

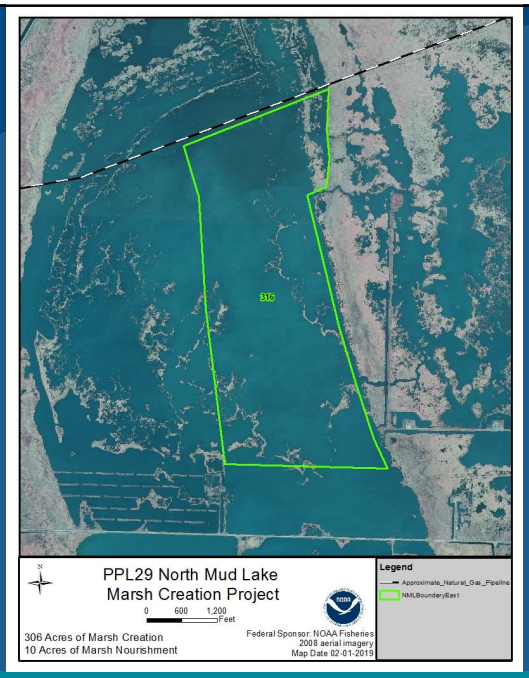
Area Habitat Changes

- 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 southwest
  - Pipelines, roads, and other infrastructure in project area
- Current 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:
Jennifer Smith jennifer.smith@noaa.gov 225-757-5230
Donna Rogers donna.rogers@noaa.gov 225-636-2095

R4 CS-09

PPL30 PROJECT NOMINEE FACT SHEET
February 4, 2020

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 Cameron-Creole Watershed Project (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. 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 trust resources such as migratory waterfowl, shorebirds, and wading birds. Additionally, restoring these marshes may be beneficial to at-risk species such as the black rail (proposed for listing as a threatened species), seaside sparrow, and salt-marsh topminnow.

Proposed Solution
Material will be dredged from Calcasieu Lake to restore 435 acres of brackish marsh. Terraces (25,000 linear feet, 16 acres of benefits) will be constructed in open water areas to create additional habitat. Approximately 379,000 CY of material are 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 CCWP 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 Cameron Creole Watershed-Grand Bayou Marsh Creation, the CS-49 Cameron Creole Freshwater Introduction, and two Ducks Unlimited terracing projects.

Considerations
Calcasieu Lake Seed Oyster Ground

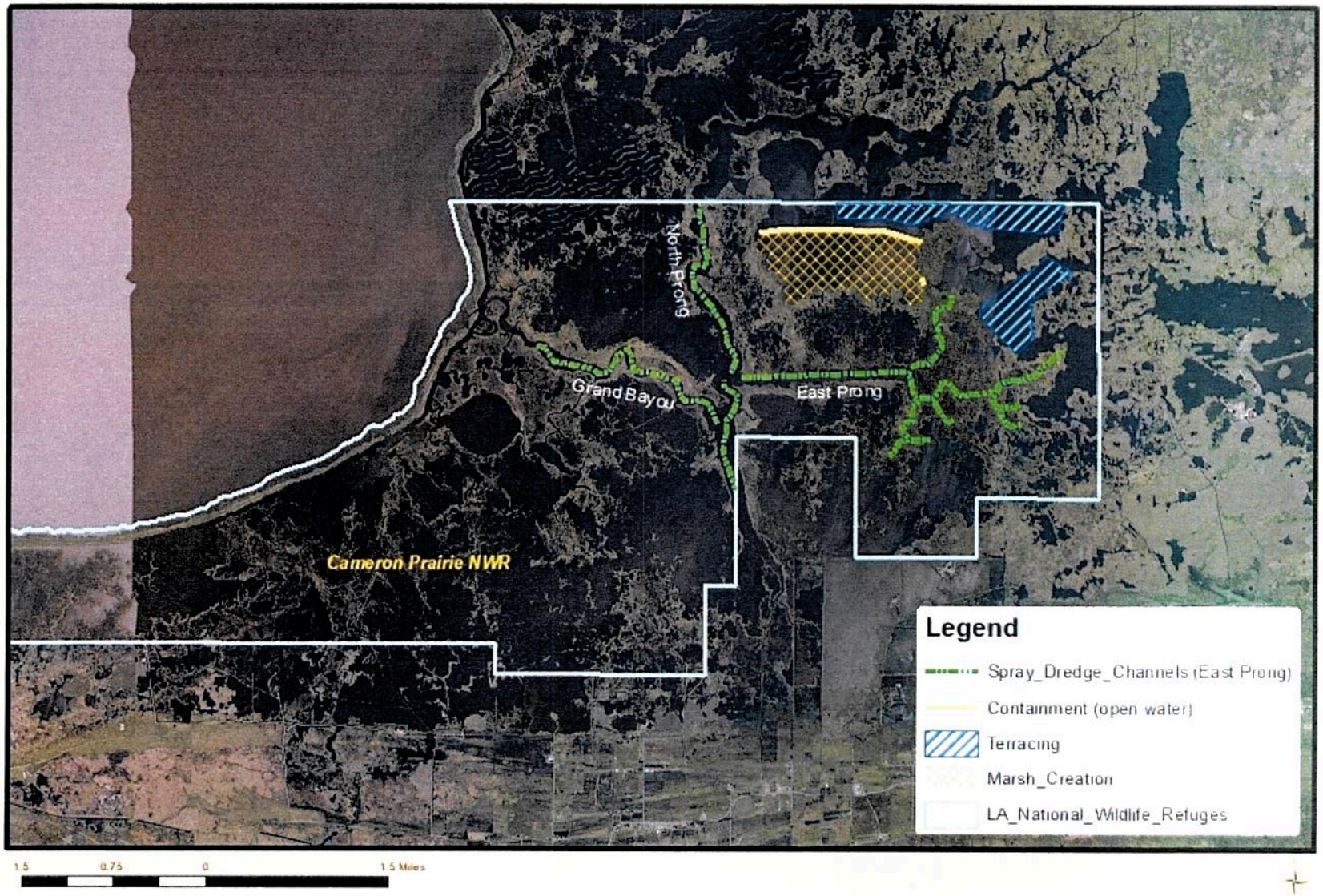
Preliminary Cost
The estimated construction cost plus 25% contingency is $20M - $25M.

Preparer of Fact Sheet
Kevin Roy, U.S. Fish and Wildlife Service, (337) 291-3120, Kevin_Roy@fws.gov

U.S. Fish and Wildlife Service

Louisiana Ecological Services

East Prong Marsh Creation & Terracing



REGION IV

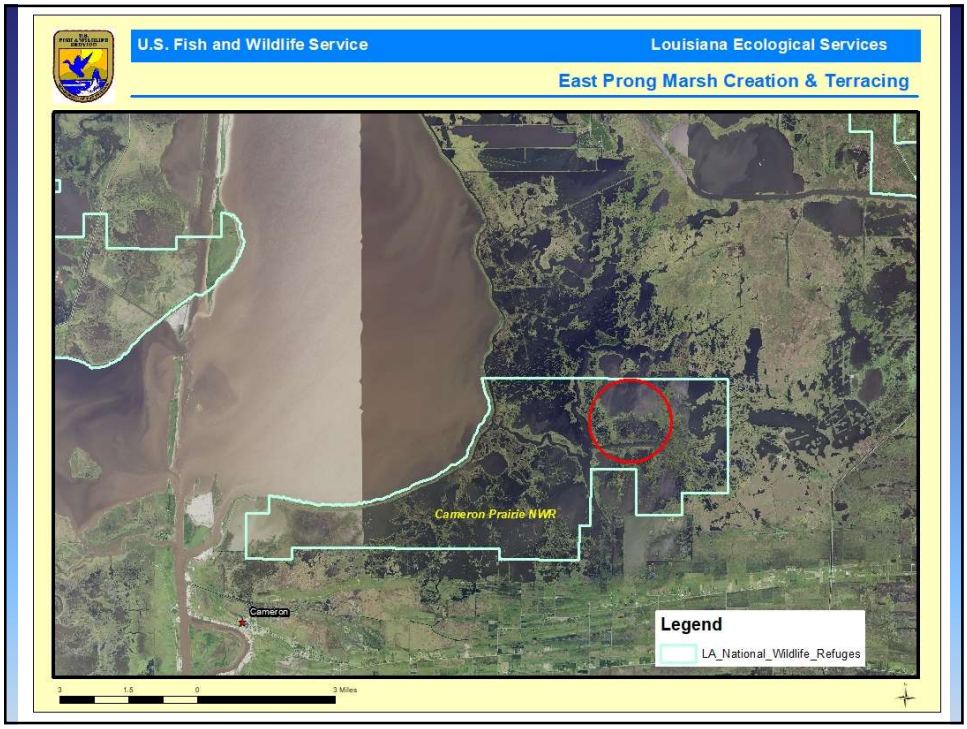
REGIONAL PLANNING TEAM MEETING

CALCASIEU-SABINE BASIN

Lake Charles, LA

February 4, 2020

Kevin Roy
Lafayette, LA



Cameron Creole Watershed–Grand Bayou Marsh Creation (CS-54)

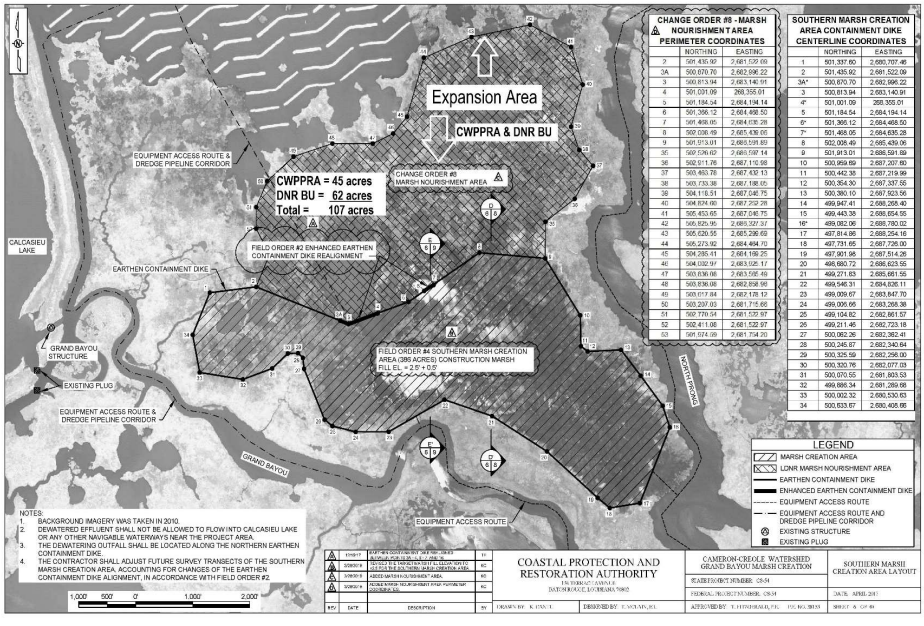
Completed

Notice To Proceed – September 13, 2017

Construction Cost: $12.4M (awarded contract + change orders)

- **LDNR In Lieu Fee Mitigation funds ($1.2M)**
  60-ac expansion
- **State Beneficial Use funds ($1M) and $500,000 from leftover construction funds**
  107-acre expansion
- **772-ac total project footprint**

Completion - November 2019



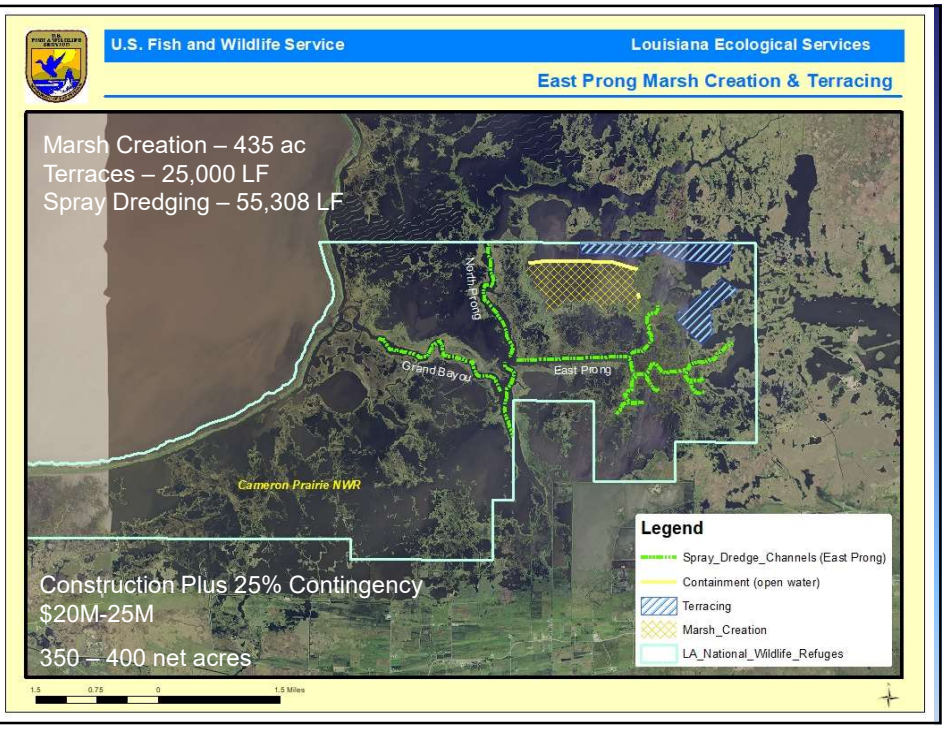
East Prong Marsh Creation & Terracing

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

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

Sabine NWR Marsh Creation

ME-16
Freshwater Intro.
South of 82



R4 CS-10

PPL30 PROJECT NOMINEE FACT SHEET
February 4, 2020

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 project (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.

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 construction plus 25% contingency cost range is $30M - $35M.

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

PPL30 Cameron Meadows East

300 Acres Marsh Creation

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

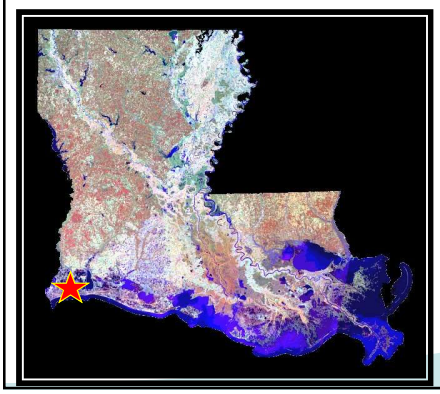
Legend

Marsh Creation

Borrow Area

Cameron Meadows East

NOAA FISHERIES

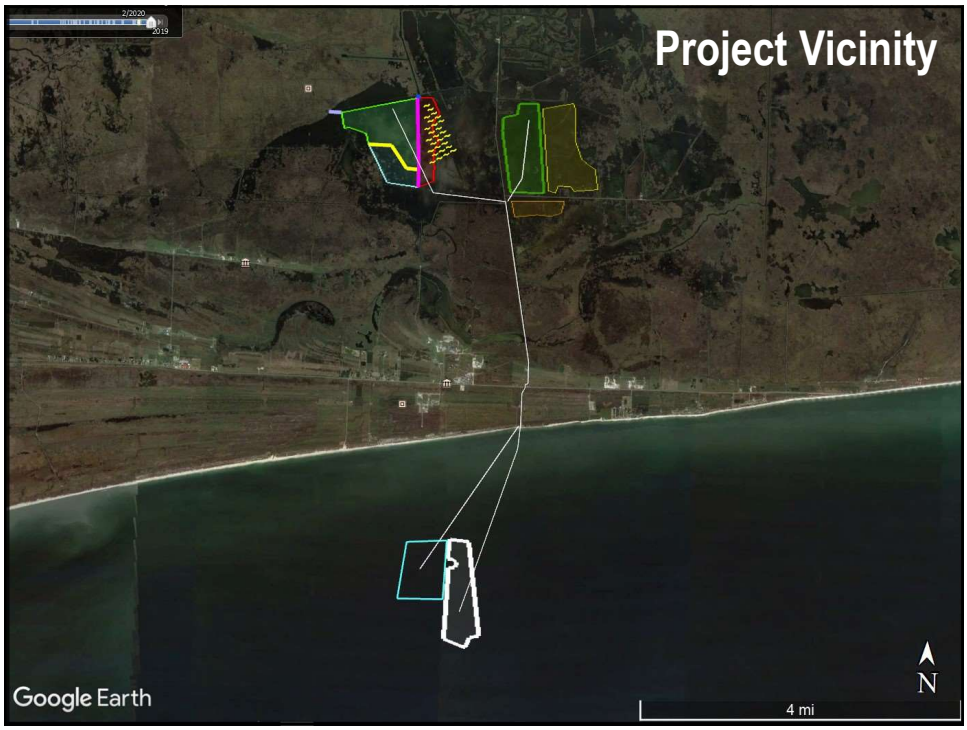


Region 4 – Calcasieu-Sabine Basin

Presenter: Patrick Williams, Fishery Biologist

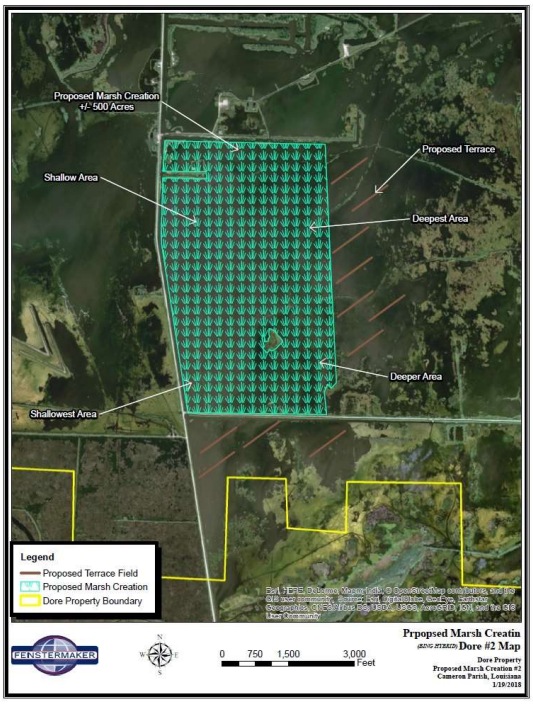
Special Thanks
Bill Dore
Richard Timpa

PPL30 CWPPRA Regional Planning Team Meeting
Lake Charles, Louisiana
February 4, 2020

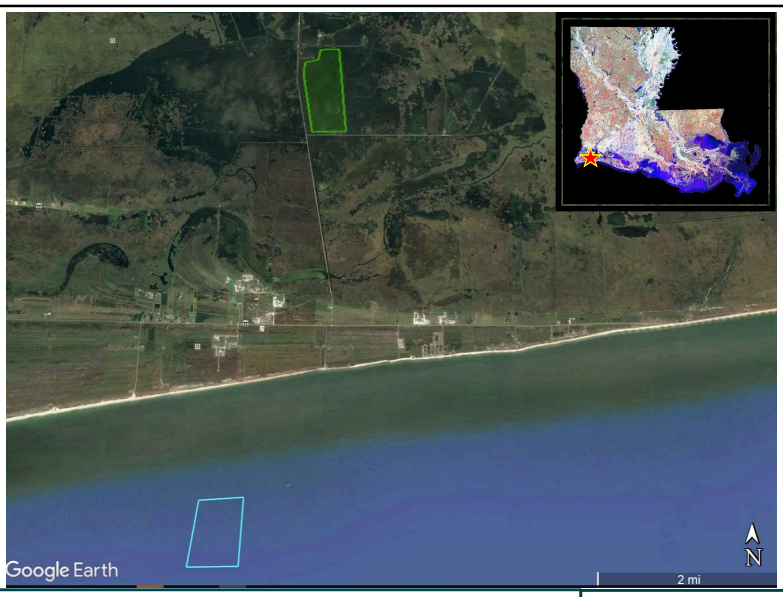


Project Area Problems

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



NOAA FISHERIES



300 Acres Marsh Creation

PPL30 Cameron Meadows East

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

Legend
Marsh Creation
Borrow Area

Summary

Marsh Creation: 300 ac

Net acres: 250 - 300 ac

Construction Cost + 25% Contingency: $30 M - $35M

Contact information:
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patrick.williams@noaa.gov

R4 CS-11

PPL29 PROJECT NOMINEE FACT SHEET
February 4, 2020

Project Name
Sweet Lake Canal 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 and inundation 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 restore approximately 402 acres of tidal marsh in the Cameron Creole Watershed east of Calcasieu Lake.

Proposed Solution
The proposed solution would be to create approximately 360 acres of tidal marsh, nourish 12 acres of marsh, and incorporate three 10-acre ponds connected by tidal creeks to restore a portion of the Cameron Creole Watershed. Sediment will be hydraulically pumped from Calcasieu Lake into a fully contained marsh creation cell. Temporary earthen containment dikes will be constructed using a combination of internal and external borrow, and will be gapped within three years of construction. Additional elements to allow greater tidal exchange and estuarine organism access, include three tidal ponds and a network of tidal creeks.

Preliminary Project Benefits

1) *What is the total acreage benefited both directly and indirectly?*
The total project area is approximately 402 acres.

2) *How many acres of wetlands will be protected/created over the project life?*
The net acre benefit range is 350-400 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

PPL30 Sweet Lake Canal Marsh Creation

402 Total Project Acres
360 Acres Marsh Creation
12 Acres Marsh Nourishment
30 Acres Tidal Ponds

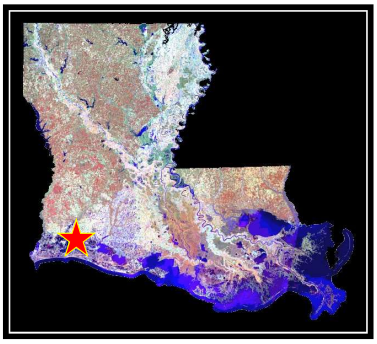
Federal Sponsor: NOAA Fisheries
2017 Google Earth Aerial Imagery
Map Date 02-04-2020

Legend

- Earthen Containment Dikes
- Marsh Creation Areas
- Tidal Ponds

Sweet Lake Canal Marsh Creation Project

NOAA FISHERIES



REGION 4 – Calcasieu-Sabine Basin

Presenter: Patrick Williams, Fisheries Biologist, NOAA

Special Thanks
Sweet Lake Land
Miami Corporation

PPL30 CWPPRA Regional Planning Team Meeting
Lake Charles, Louisiana
February 4, 2020

Project Vicinity

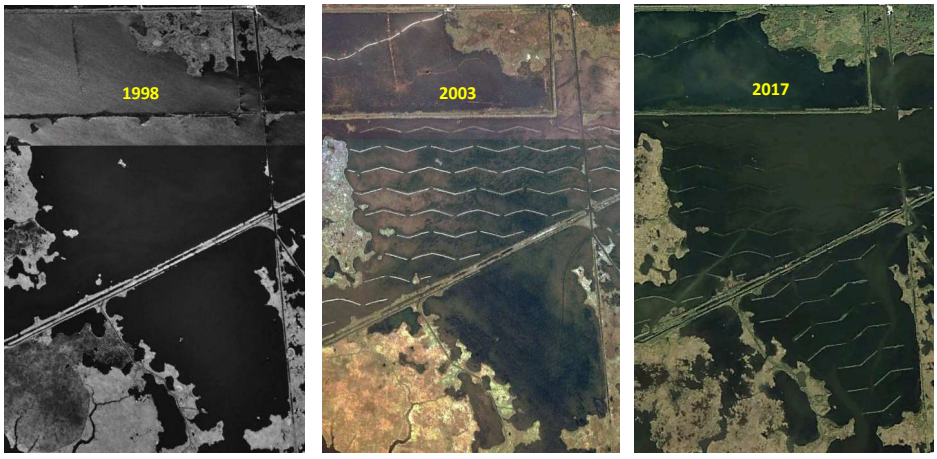
Sweet Lake Canal Marsh Creation Project

Considerations

Sweet Lake Canal Marsh Creation Project

Project Area Problems

Sweet Lake Canal Marsh Creation Project



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

Project Elements

Sweet Lake Canal Marsh Creation Project

Proposed Project Solution

Sweet Lake Canal Marsh Creation Project

Summary

- **402 Total Project Acres** (372 Acres Creation/Nourishment)
  - 360 Acres Marsh Creation + 12 Acres Marsh Nourishment
  - 30 Acres of Tidal Ponds + 15,000 lf of Tidal Creeks
- **Construction Cost + 25% Contingency: $20M – $25M**
- **Net Benefits: 350 – 400 Acres**

Contact information:
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