REGION 2

Coastal Wetlands Planning Protection & Restoration Act

28th Priority Project List

Region 2

Regional Planning Team Meeting

February 1, 2018
Lacombe, LA

CWPPRA

1. Welcome and Introductions

- RPT Region 2 Leader: Brad Inman - USACE

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Announcements

- Copies of the PPL 28 Selection Process & Schedule available at the sign-in table.
- PPL 28 RPT meetings to accept project nominees:
  - Region IV, Rockefeller Wildlife Refuge, Jan. 30, 2018, 1:00 pm
  - Region III, Port of Morgan City – Office, Jan. 31, 2018, 9:30 am
  - **Region II, USFWS SE LA Refuges Complex (Big Branch), Feb. 1, 2018, 10:00 am**
  - Region I, USFWS SE LA Refuges Complex, Feb. 1, 2018, 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.

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Region 2 Parishes

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

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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 27th).
  - *This decision will be made at the meeting where the projects are proposed*

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RPT Meetings

- Presenters without factsheets **MUST** complete a PPL 28 Nomination Sign-Up Sheet for each project nominee (demo projects too).
- Presenters with factsheets, please give a factsheet each to Kaitlyn, Michelle & Lonnie before 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 20, 2018.
- Limit comments/questions during meeting to PPL 28 subject proposals and processes.

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Coastwide Projects

- Proposes a technique applicable across the coast (e.g. vegetative planting)
- Nominated at any RPT meeting
- All coastal parishes & agencies will vote on selection of coastwide nominee
- Only one coastwide nominee may be selected from the coastwide nominee pool during the Electronic Coastwide Vote on February 27, 2018.
- The Technical Committee may or may not select a coastwide project in April 2018.

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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 27th Coastwide Electronic Vote.
- The Technical Committee selects up to 3 demos in April 2018.
- Workgroups may recommend that no demos move forward to candidate stage
- Previous demo candidates must be ***re-nominated*** for PPL 28.

Coastwide Electronic Vote (Feb. 27th) 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

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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 20, 2018.

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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 27, 2018.

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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 28 criteria.

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PPL 28 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

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PPL 28 Candidate Project Evaluation & Selection

- **Coastwide Electronic Vote, Feb. 27, 2018**
  - 21 basin-project nominees, 1 coastwide nominee, and 6 demos selected
- **Technical Committee Mtg, Apr. 12, 2018, Baton Rouge**
  - Selection of 10 candidates and up to 3 demos
- **Technical Committee Mtg, Dec. 6, 2018, Baton Rouge**
  - Typically recommend up to 4 projects for Phase 1 funding
- **Task Force Mtg, Jan. 2019, New Orleans**
  - Final Selection of projects for Phase 1 funding

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Written Comments

- Send written comments on projects & demos proposed today to the CWPPRA program manager
- **Deadline: February 20, 2018**

Brad Inman
CWPPRA Program Manager
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
Southeast Coast Projects

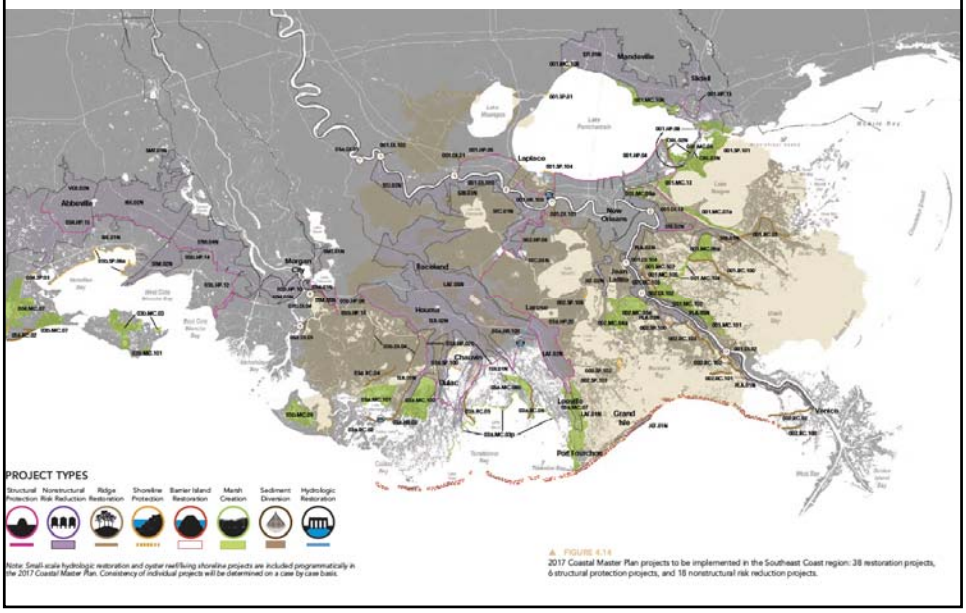

FIGURE 4.14
2017 Coastal Master Plan projects to be implemented in the Southeast Coast region: 38 restoration projects, 6 structural protection projects, and 18 nonstructural risk reduction projects.

Southeast Coast Projects

Project Type	Project No.	Project Description	Implementation Period	Project Costs
Hydrologic Restoration	001.HR.100	LaBranche Hydrologic Restoration: Construction of a 750 cfs hybrid pump-siphon structure, intake structure, and an approximately 1 mile long conveyance system to LaBranche wetlands via the Mississippi River to restore the historically fresh to intermediate marshes. Features also include a conveyance channel, roadway, and railroad crossings.	Years 1-10	$80,900,000
Marsh Creation	001.MC.05	New Orleans East Landbridge Restoration: Creation of approximately 11,600 acres of marsh in New Orleans East Landbridge to create new wetland habitat and restore degraded marsh.	Years 1-10	$396,500,000
	001.MC.13	Golden Triangle Marsh Creation: Creation of approximately 3,900 acres of marsh in Golden Triangle Marsh between the MRGO and GIWW to create new wetland habitat and restore degraded marsh.	Years 1-10	$273,700,000
	001.MC.108	Ouste Island Marsh Creation: Creation of approximately 700 acres of marsh in St. Tammany Parish along the northwest Lake Pontchartrain shoreline to create new wetland habitat and restore degraded marsh.	Years 1-10	$64,400,000
Ridge Restoration	001.RC.100	Bayou Terre aux Boeufs Ridge Restoration: Restoration of approximately 91,200 feet of historic ridge to an elevation of 5 feet NAVD88 to provide coastal upland habitat, restore natural hydrology, and provide wave and storm surge attenuation along Bayou Terre aux Boeufs.	Years 1-10	$15,200,000
	001.RC.103	Carlisle Ridge Restoration: Restoration of approximately 38,200 feet of historic ridge to an elevation of 5 feet NAVD88 to provide coastal upland habitat, restore natural hydrology, and provide wave and storm surge attenuation near Carlisle.	Years 1-10	$9,300,000
	002.RC.101	Adams Bay Ridge Restoration: Restoration of approximately 31,600 feet of historic ridge to an elevation of 5 feet NAVD88 to provide coastal upland habitat, restore natural hydrology, and provide wave and storm surge attenuation along Adams Bay.	Years 1-10	$7,200,000
	002.RC.102	Bayou Eau Noire Ridge Restoration: Restoration of approximately 34,800 feet of historic ridge to an elevation of 5 feet NAVD88 to provide coastal upland habitat, restore natural hydrology, and provide wave and storm surge attenuation along Bayou Eau Noire.	Years 1-10	$9,800,000
	002.RC.103	Grand Bayou Ridge Restoration: Restoration of approximately 48,100 feet of historic ridge to an elevation of 5 feet NAVD88 to provide coastal upland habitat, restore natural hydrology, and provide wave and storm surge attenuation along Grand Bayou.	Years 1-10	$10,300,000
Sediment Diversion	001.DI.02	Lower Breton Diversion: Sediment diversion of 50,000 cfs into Lower Breton Sound to build and maintain land (modeled at 50,000 cfs for river flows at 1,200,000 cfs; variable flows above 200,000 cfs calculated using a linear function up to 1,000,000 cfs; and open with variable flow rate (larger than 50,000 cfs, estimated using linear extrapolation) for river flow above 1,000,000 cfs. No operation below 200,000 cfs).	Years 1-10	$383,200,000
	001.DI.18	Central Wetlands Diversion: Diversion into Central Wetlands near Violet to provide sediment for emergent marsh creation and freshwater to sustain existing wetlands. 5,000 cfs capacity (modeled at a constant flow of 5,000 cfs, independent of the Mississippi River flow).	Years 1-10	$231,000,000
	001.DI.21	East Maurepas Diversion: Diversion into East Maurepas near Angelina to provide sediment for emergent marsh creation and freshwater to sustain existing wetlands, 2,000 cfs capacity (modeled at a constant flow of 2,000 cfs, indiapendent of this Mississippi River flow).	Years 1-10	$184,900,000
Sediment Diversion (continued)	001.DI.100	Manchac Landbridge Diversion: A structure in the existing western spillway guide levee to divert 2,000 cfs thereby increasing freshwater exchange with adjacent wetlands.	Years 1-10	$148,200,000
	001.DI.102	Union Freshwater Diversion: Diversion into West Maurepas swamp near Burnside to provide sediment for emergent marsh creation and freshwater and fine sediment to sustain existing wetlands, 25,000 cfs capacity (modeled at 25,000 cfs when Mississippi River flow equals 400,000 cfs; closed when river flow is below 200,000 cfs or above 600,000 cfs; a variable flow rate calculated using a linear function from 0 to 25,000 cfs for river flow between 200,000 cfs and 400,000 cfs and held constant at 25,000 cfs for river flow between 400,000 cfs and 600,000 cfs).	Years 1-10	$876,700,000
	001.DI.104	Mid-Breton Sound Diversion: Sediment diversion into Mid-Breton Sound in the vicinity of White's Ditch to build and maintain land, 35,000 cfs capacity (modeled at 35,000 cfs when the Mississippi River flow equals 1,000,000 cfs; flow rate calculated using a linear function for river flow from 200,000 cfs to 1,000,000 cfs; flows variable above 1,000,000 cfs; 5,000 cfs minimum flow maintained when Mississippi River flow is below 200,000 cfs).	Years 1-10	$479,100,000
	002.DI.102	Mid-Barataria Diversion: Sediment diversion into Mid-Barataria near Myrtle Grove to build and maintain land, 75,000 cfs capacity (modeled at 5,000 cfs for Mississippi River flows below 200,000 cfs; variable flows to capacity between 200,000 and 1,250,000 cfs calculated using a linear function; diverts exactly 75,000 cfs when flows are at 1,250,000 cfs).	Years 1-10	$998,800,000
Shoreline Protection	001.SP.01	Manchac Landbridge Shoreline Protection: Shoreline protection through rock breakwaters designed to an elevation of 3.5 feet NAVD88 along approximately 5,500 feet of the west side of Lake Pontchartrain north of Pass Manchac near Stinking Bayou to preserve shoreline integrity and reduce wetland degradation from wave erosion.	Years 1-10	$11,600,000
	001.SP.101	Unknown Pass to Rigolets Shoreline Protection: Shoreline protection through rock breakwaters designed to an elevation of 3.5 feet NAVD88 along approximately 2,000 feet of the east side of the New Orleans Landbridge from Unknown Pass to the Rigolets to preserve shoreline integrity and reduce wetland degradation from wave erosion.	Years 1-10	$5,200,000
	001.SP.104	LaBranche Wetlands Shoreline Protection: Shoreline protection through rock breakwaters designed to an elevation of 3.5 feet NAVD88 along approximately 11,100 feet of the southern shore of Lake Pontchartrain near the LaBranche wetlands to preserve shoreline integrity and reduce wetland degradation from wave erosion.	Years 1-10	$23,100,000
	002.SP.100	Lake Hermitage Shoreline Protection: Shoreline protection through rock breakwaters designed to an elevation of 3.5 feet NAVD88 along approximately 6,500 feet around the southern shore of Lake Hermitage to preserve shoreline integrity and reduce wetland degradation from wave erosion.	Years 1-10	$14,500,000
	002.SP.102	East Snail Bay Shoreline Protection: Shoreline protection through rock breakwaters designed to an elevation of 3.5 feet NAVD88 along approximately 7,300 feet of the northeastern shore of Snail Bay south of Little Lake to preserve shoreline integrity and reduce wetland degradation from wave erosion.	Years 1-10	$15,400,000

Southeast Coast Projects – continued

Project Type	Project No.	Project Description	Implementation Period	Project Costs
Shoreline Protection (continued)	002.SP.106	Bayou Perot Shoreline Protection: Shoreline protection through rock breakwaters designed to an elevation of 3.5 feet NAVD88 along approximately 5,900 feet of the western shore of Bayou Perot to preserve shoreline integrity and reduce wetland degradation from wave erosion.	Years 1-10	$13,400,000
Nonstructural Risk Reduction	JEF.01N	Jefferson - Grand Isle 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	$98,200,000
	JEF.02N	Jefferson - Lafitte/Barataria 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	$200,800,000
	LAF.01N	Lafourche - 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	$1,700,000
	LAF.02N	Lafourche - Larose/Golden Meadow 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	$32,600,000
	LAF.03N	Lafourche - Raceland 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	$363,500,000
	ORL.01N	Orleans - Rigolets 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	$18,000,000
	ORL.02N	Orleans - Lake Catherine 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	$135,600,000
	PLA.01N	Plaquemines - West Bank 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	$264,700,000
	PLA.02N	Plaquemines - Braithwaite 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	$56,200,000
Nonstructural Risk Reduction (continued)	PLA.03N	Plaquemines - Grand Bayou 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	$3,000,000
	PLA.05N	Plaquemines - Phoenix/Pointe A La Hache 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	$38,300,000
	STB.01N	St. Bernard - Yscloskey/Delacroix 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	$70,400,000
	STB.02N	St. Bernard 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	$2,400,000
	STC.05N	St. Charles - Salvador 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	$2,300,000
	SJB.03N	St. John the Baptist - Edgard 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	$7,800,000
	STT.01N	St. Tammany 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	$1,611,300,000
Structural Protection	001.HP.05	West Shore Lake Pontchartrain: Construction of a levee to an elevation between 16 and 19 feet NAVD88 in the Laplace area. Project features approximately 91,000 feet of earthen levee, approximately 5,000 feet of T-wall, (1) 18-foot sluice gate, (1) 25-foot sluice gate, (2) 25-foot swing gates, (1) 150-foot roller gate, and (4) pump stations with a total capacity of 2,150 cfs.	Years 1-30	$730,400,000
	001.HP.08	Lake Pontchartrain Barrier: Construction of closure gates and weirs to an elevation of 2 feet NAVD88 across the passes at Chef Menteur and the Rigolets for storm surge risk reduction within the Lake Pontchartrain Basin. Project features approximately 5,200 feet of earthen levee, 630 feet of a combi-wall weir constructed to 2 feet, a 150-foot closure gate at each pass for navigation, and multiple vertical lift gates to maintain tidal exchange through the passes.	Years 1-30	$2,409,600,000
	001.HP.13	Slidell Ring Levees: Construction of a levee to an elevation of 16 feet NAVD88 for storm surge risk reduction around Slidell. Project features approximately 31,000 feet of earthen levee and 14,500 feet of T-wall.	Years 1-30	$181,300,000

Southeast Coast Projects – continued

Project Type	Project No.	Project Description	Implementation Period	Project Costs
Structural Protection (continued)	002.HP.06	Upper Barataria Risk Reduction: Construction of a levee to an elevation between 12.5 and 15 feet NAVD88 along Highway 90 between the West Bank and Larose. Project includes 204,300 feet of earthen levee, 8,200 feet of T-wall, (4) 10-foot sluice gates, (1) 250-foot barge gate, (2) 40-foot swing gates, and (8) pump stations with a total capacity of 6,837 cfs.	Years 1-30	$940,900,000
	03a.HP.20	Larose to Golden Meadow: Improvements to the existing Larose to Golden Meadow levee system, including raising to an elevation between 12 and 21 feet NAVD88. Project features approximately 249,900 feet of earthen levee and approximately 6,700 feet of T-wall.	Years 1-30	$355,500,000
Marsh Creation	001.MC.05	New Orleans East Landbridge Restoration: Creation of approximately 21,800 acres of marsh in New Orleans East Landbridge to create new wetland habitat and restore degraded marsh.	Years 11-30	$1,106,700,000
	001.MC.06a	Breton Marsh Creation - Component A: Creation of approximately 12,000 acres of marsh in the Breton Marsh east of Delacroix Island to create new wetland habitat and restore degraded marsh.	Years 11-30	$982,400,000
	001.MC.07a	Lake Borgne Marsh Creation - Component A: Creation of approximately 5,900 acres of marsh along the south shoreline of Lake Borgne near Proctors Point to create new wetland habitat and restore degraded marsh.	Years 11-30	$271,700,000
	001.MC.08a	Central Wetlands Marsh Creation - Component A: Creation of approximately 2,800 acres of marsh in Central Wetlands near Bayou Bienvenue to create new wetland habitat and restore degraded marsh.	Years 11-30	$122,300,000
	001.MC.102	Pointe a la Hache Marsh Creation: Creation of approximately 12,700 acres of marsh on the east bank of Plaquemines Parish near Pointe a la Hache to create new wetland habitat and restore degraded marsh.	Years 11-30	$647,800,000
	001.MC.104	East Bank Land Bridge Marsh Creation: Creation of approximately 2,300 acres of marsh in Plaquemines Parish between Grand Lake and Lake Lery to create new wetland habitat and restore degraded marsh.	Years 11-30	$154,200,000
	001.MC.105	Spanish Lake Marsh Creation: Creation of approximately 800 acres of marsh in Plaquemines Parish along the eastern shore of Spanish Lake to create new wetland habitat and restore degraded marsh.	Years 11-30	$59,900,000
	001.MC.106	St. Tammany Marsh Creation: Creation of approximately 6,700 acres of marsh in St. Tammany Parish along the northern shore of Lake Pontchartrain to create new wetland habitat and restore degraded marsh.	Years 11-30	$199,300,000
	001.MC.107	Tiger Ridge/Maple Knoll Marsh Creation: Creation of approximately 4,700 acres of marsh in Plaquemines Parish near Tiger Ridge to create new wetland habitat and restore degraded marsh.	Years 11-30	$214,600,000
	002.MC.05e	Large-Scale Barataria Marsh Creation - Component E: Creation of approximately 12,900 acres of marsh in the Barataria Basin south of the Pen to the Barataria Landbridge to create new wetland habitat and restore degraded marsh.	Years 11-30	$674,500,000
Ridge Restoration	001.RC.01	Bayou LaLoutre Ridge Restoration: Restoration of approximately 108,900 feet of historic ridge to an elevation of 5 feet NAVD88 to provide coastal upland habitat, restore natural hydrology, and provide wave and storm surge attenuation along Bayou LaLoutre.	Years 11-30	$20,200,000
	002.RC.02	Spanish Pass Ridge Restoration: Restoration of approximately 46,300 feet of historic ridge to an elevation of 5 feet NAVD88 to provide coastal upland habitat, restore natural hydrology, and provide wave and storm surge attenuation west of Venice along the banks of Spanish Pass.	Years 11-30	$11,600,000

Project Type	Project No.	Project Description	Implementation Period	Project Costs
Ridge Restoration (continued)	002.RC.100	Red Pass Ridge Restoration: Restoration of approximately 23,000 feet of historic ridge southwest of Venice to provide coastal upland habitat, restore natural hydrology, and provide wave and storm surge attenuation along the banks of Red Pass.	Years 11-30	$3,500,000
Sediment Diversion	001.DI.101	Ama Diversion: Sediment diversion into Upper Barataria near Ama to provide sediment for emergent marsh creation and freshwater to sustain existing wetlands; 50,000 cfs capacity (modeled at 50,00000 cfs when the Mississippi River flow equals 1,000,000 cfs; open with a variable flow rate calculated using a linear function from 0 to 50,000 cfs for river flow between 200,000 cfs and 1,000,000 cfs, diverts exactly 50,000 cfs when the Mississippi River flow is 1,000,000 cfs; and open with a variable flow rate (larger than 50,000 cfs, estimated using linear extrapolation) for river flow above 1,000,000 cfs. No operation below 200,000 cfs).	Years 11-30	$882,400,000
Shoreline Protection	002.SP.103	West Snail Bay Shoreline Protection: Shoreline protection through rock breakwaters designed to an elevation of 3.5 feet NAVD88 along approximately 16,600 feet of the western shoreline of Snail Bay south of Little Lake to preserve shoreline integrity and reduce wetland degradation from wave erosion.	Years 11-30	$30,000,000
Nonstructural Risk Reduction	STC.01N	St. Charles - Hahnville/Luling 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	$829,500,000
	STJ.02N	St. James - Vacherie 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	$3,900,000
Structural Protection	001.HP.04	Greater New Orleans High Level Improvements of existing Hurricane and Storm Damage Risk Reduction System levees surrounding the East Bank of Greater New Orleans to elevations between 19 and 35 feet NAVD88. Project features approximately 202,000 feet of earthen levee and approximately 242,100 feet of T-wall.	Years 31-50	$2,222,700,000
Marsh Creation	001.MC.101	Uhlan Bay Marsh Creation: Creation of approximately 700 acres of marsh on the east bank of Plaquemines Parish around Uhlan Bay to create new wetland habitat and restore degraded marsh.	Years 31-50	$29,000,000
	001.MC.102	Pointe a la Hache Marsh Creation: Creation of approximately 5, 400 acres of marsh on the east bank of Plaquemines Parish near Pointe a la Hacha to create new wetland habitat and restore degraded marsh.	Years 31-50	$353,700,000
	002.MC.04a	Lower Barataria Marsh Creation - Component A: Creation of approximately 7,400 acres of marsh in Jefferson Parish on the east shore of Little Lake and Turtle Bay to create new wetland habitat and restore degraded marsh.	Years 31-50	$709,500,000

ATTENDANCE RECORD

DATE	SPONSORING ORGANIZATION	LOCATION
February 1, 2018 10:00 A.M.	COASTAL WETLANDS PLANNING, PROTECTION AND RESTORATION ACT	USFWS SE LA Refuges Complex 61389 Hwy 434 Lacombe, LA 70445

PURPOSE

MEETING OF THE REGIONAL PLANNING TEAM REGION I & 2

PARTICIPANT REGISTER*

NAME	JOB TITLE AND ORGANIZATION	PHONE NUMBER
Brad Crawford	USEPA	214 665 7255
Sharon Osowski	US EPA	214-665-7566
Jason Smith	Jefferson Parish Coastal Division	504 731-4625 jsmith@jeffparish.net
Sinead Borchert	CWPPRA	337-266-8626
Ronny Paille	FWS	337-291-3117
Lonnie Antenat	JESCO (minute-taker)	337-802-7508
Barry Hebert	LDWF	225 765 0233
Dawn Davis	NOAA-Fisheries	225-389-0508
Twyla Cheatwood	NOAA-Fisheries	
Jason Kroll	NOAA	2257575411
Brenda Howard	NOAA	225-389-0508
Donna Rogers	NOAA	225-316-8958
JOHN PETITBON	USACE	504-862-2732
KENNETH RAGAS	PLAQ PARISH LANDOWNER	504309.6654
Aline Morrow	USFWS	337-291-3129
Dan Meden	USACE	504-862-1014
JOHN LANG	SBPG Coastal Director	504 ~~650~~ 579-2173
James Harris	USFWS	985-~~882~~-2027
Ron Bowtany	NRCS	337 291-3067
Neil Lalonde	USFWS	985-882-2003
Carol Giardina	LCA	504-331-5326
Blaise Perrodin	Meraux Foundation	504-264-8175

LMV FORM 583-R
JAN 88

ATTENDANCE RECORD

DATE	SPONSORING ORGANIZATION	LOCATION
February 1, 2018 10:00 A.M.	COASTAL WETLANDS PLANNING, PROTECTION AND RESTORATION ACT	USFWS SE LA Refuges Complex 61389 Hwy 434 Lacombe, LA 70445

PURPOSE

MEETING OF THE REGIONAL PLANNING TEAM REGION I & 2

PARTICIPANT REGISTER*

NAME	JOB TITLE AND ORGANIZATION	PHONE NUMBER
Charles Sawyer	LSU	225 578 6375
Alisha Renfro	National Wildlife Federation	504-512-1014
John Boatman	NRCS	985-331-9084
Thomas McLain	CPRA	225 342-6307
Peter Cole	Fugro	504-464-5355
Barret Fortier	USFWS	985 882-2011
Daniel Breaux	USFWS	985-882-2030
Evelyn Campo	St. John Parish	504-579-6103
Michael Baker, Jr	Marine Gardens	504 430 8900
Tyler Ortego	ORA Technologies	225-372-5570
Alton Lewis Jr	USDA NRCS	
Amanda Watson	Lafourche Parish Gov't	985 493-6616
Amanda Phillips	Edward Wisner Donation	504-210-1152
Gary Slater	Southeastern	985 549 2805
Robert Spears	CZM Plaquemines Parish Gov.	504-491-1607
Vincent Fredrich	CZM Plaquemines Parish Gov.	
Wes LeBlanc	CPRA	225 342.4127
Scott Wandell	USACE	5048621878
Anne Coglianese	acoglianese@nola.gov	

LMV FORM 583-R
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REGION 2 – BARATARIA BASIN

Project Number	Project Proposals
R2-BA-01	Grand Pierre Island Restoration
R2-BA-02	Barataria Bay Waterway East Marsh Creation
R2-BA-03	East Golden Meadow Marsh Creation
R2-BA-04	Bayou eau Noire Ridge and Marsh Creation
R2-BA-05	Three Bayou Bay Marsh Creation
R2-BA-06	North Fourchon Marsh Creation
R2-BA-07	Grand Bayou Ridge and Marsh Restoration
R2-BA-08	East Bayou Lafourche
~~R2-BA-09~~	~~Buras Boat Harbor Marsh Creation – Increment 1~~ *inconsistent with 2017 State Master Plan*
R2-BA-10	East Pen Shoreline and Marsh Restoration

R2-BA-01

Grand Pierre Island Restoration

BA-01

PPL28 PROJECT NOMINEE FACT SHEET
February 1, 2018

Project Name
Grand Pierre Island Restoration

Louisiana's 2017 Coastal Master Plan
Barrier Island/Headland Restoration – 002.BH.04

Project Location
Region 2, Barataria Basin, Plaquemines Parish

Problem
As part of the Barataria Barrier Shoreline, Grand Pierre Island is dominated by marine processes including overwash. The island has receded rapidly and decreased in elevation. The extent of fragmentation is not as advanced as other island projects; therefore, the present island status may lend itself to greater ease of construction and cost effectiveness. The land loss rate is -0.27% based on data from 1985 to 2009 in the Barataria Barrier Island LCA mapping subunit. The 1884 to 2000 Gulf shoreline erosion rate is -50.6 ft/yr and is -46.8 ft/yr from 1988 to 2000.

Goals
The project goal is to create and/or nourish approximately 330 acres (305 acres created and 25 acres nourished) of emergent brackish marsh using sediment from a nearshore Gulf borrow area.

Proposed Solution
The proposed features consist of constructing 127 acres of beach/dune and create and enhance 229 acres (93 acres creation and 136 acres nourishment) of back-barrier marsh. Sediment would be mined from nearshore borrow sites in the Gulf of Mexico. The project includes planting dune, swale, and marsh vegetation as well as construction of sand fences.

Preliminary Project Benefits

1) *What is the total acreage benefited both directly and indirectly?*
This total project area is 356 acres. Some indirect benefits to marsh north of the proposed restoration footprint may result.

2) *How many acres of wetlands will be protected/created over the project life?*
Between 200 and 258 acres of barrier island habitat will be protected/created over the project life are estimated at this time.

3) *What is the anticipated loss rate reduction throughout the area of direct benefits over the project life (e.g., 50% reduction in the background loss rate)?*
Using a 50% reduction in the background rate, 258 acres would remain. A performance analysis has not yet been projected for Grand Pierre. Alternatively, 57% of the target year 1 constructed acres are projected to remain at year 20 based upon the average from all island projects (i.e., 200 acres).

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

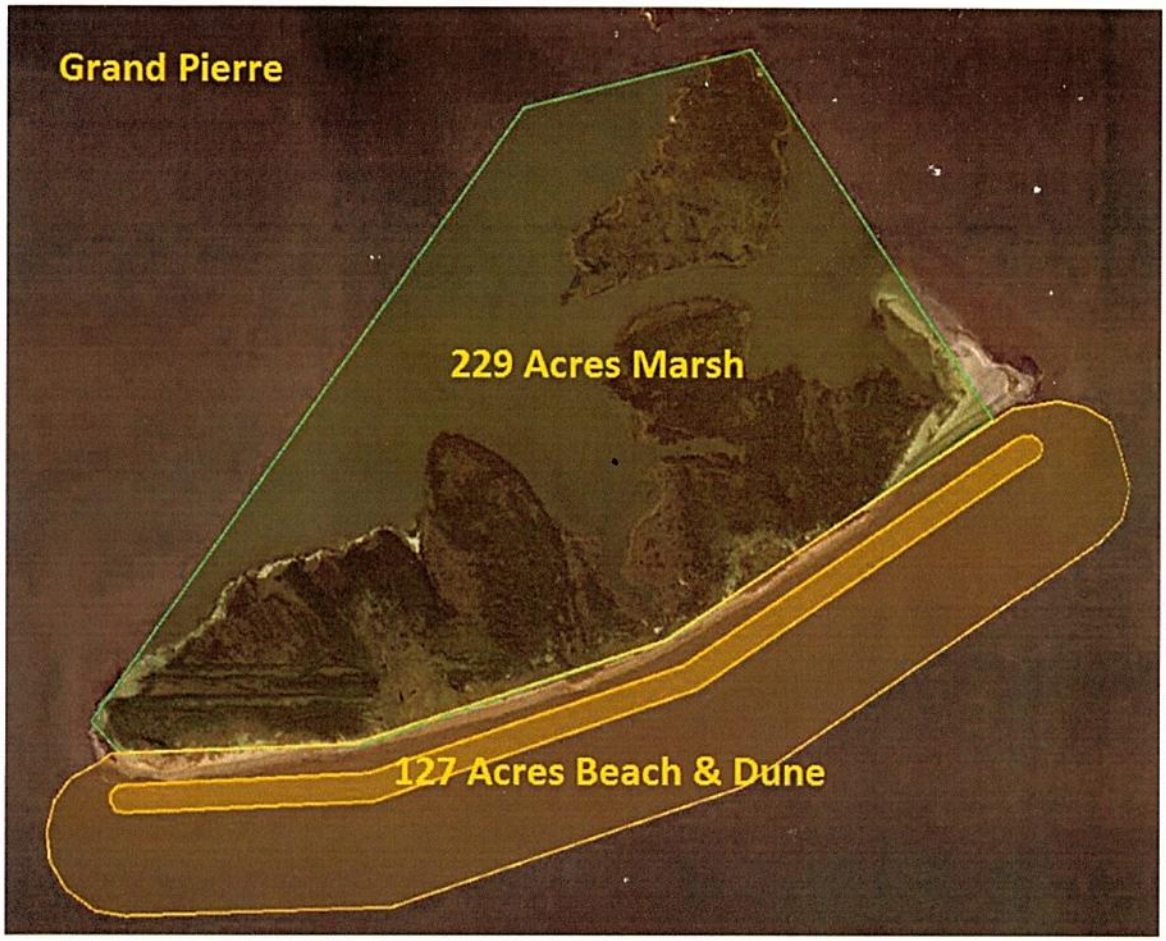
5) *What is the net impact of the project on critical and non-critical infrastructure?*
The project will have a minor net positive effect on non-critical infrastructure.

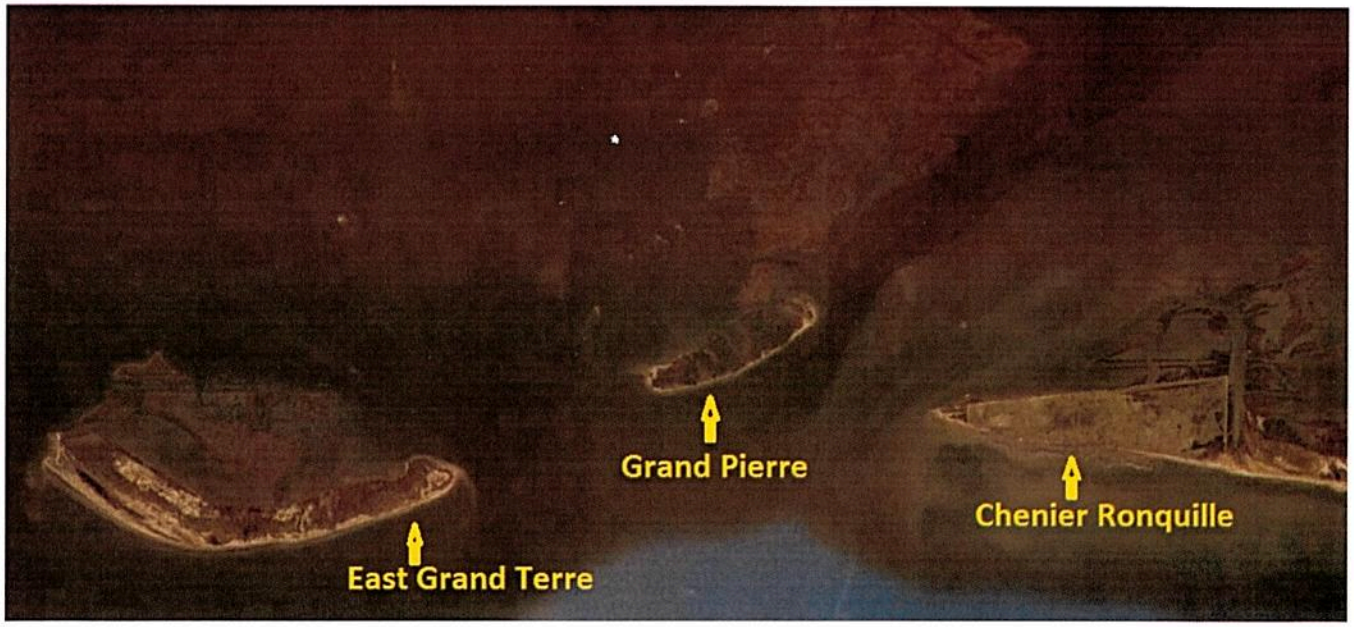
6) *To what extent does the project provide a synergistic effect with other approved and/or constructed restoration projects?*
The project provides synergy with the overall Barataria Barrier Shoreline Complex as well as the adjacent constructed East Grand Terre Project (BA-30) and Chenier Ronquille Restoration Project (BA-76).

Considerations
Land rights have yet to be determined.

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

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


Grand Pierre
229 Acres Marsh
127 Acres Beach & Dune

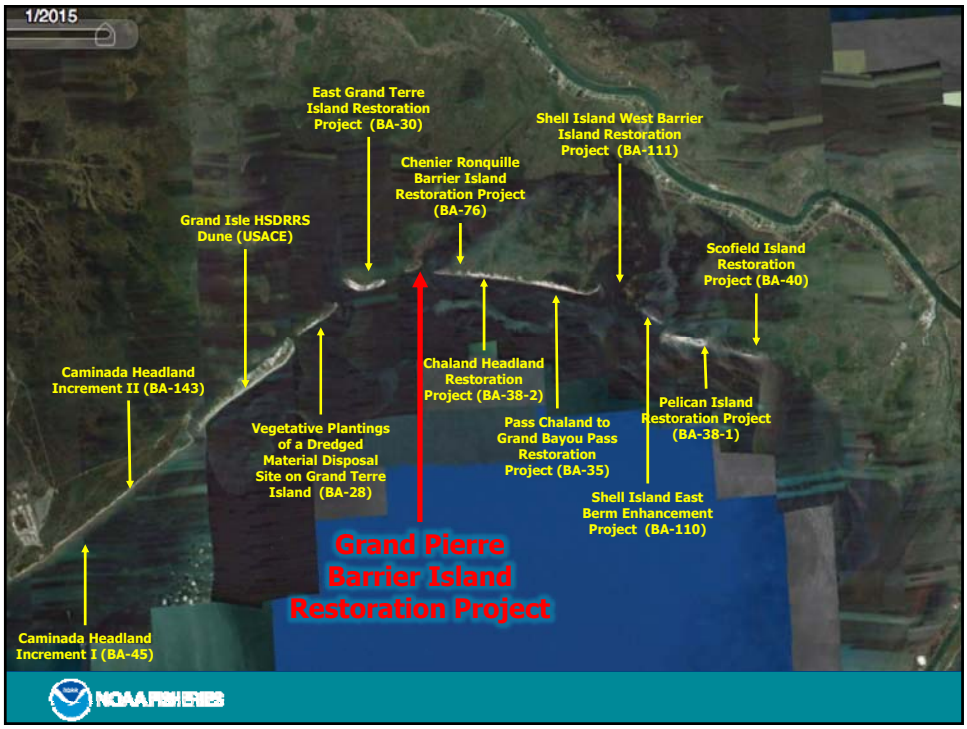

Grand Pierre
Chenier Ronquille
East Grand Terre

NOAA FISHERIES
Restoration Center

Grand Pierre Barrier Island Restoration

Region 2 – Barataria Basin
Plaquemines Parish

February 1, 2018



Why is Grand Pierre Important?

- Final jewel in the Gulf perimeter defense for W. Plaquemines, Jefferson, S. Orleans, and E. Lafourche
- Protects approx. 1,000 acres of lower-basin saline marsh forming the inland coastline of SE Barataria Bay
- Loss would create 2.8 mile tidal pass into the Barataria Basin
- Not identified by the state or feds as a priority for restoration under any DWH funding mechanism

1998

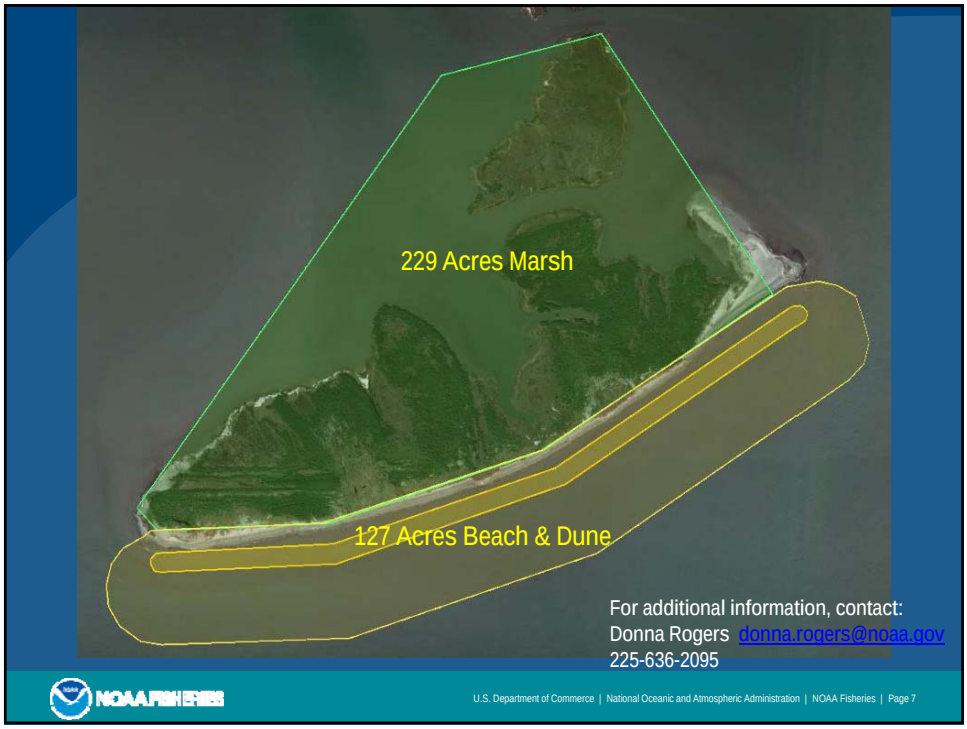
2016

Nearly 100 acres lost since 1998

What is the Solution?

- Complete barrier island restoration (356 acres)
- Create 127 acres beach and dune
- Create 93 acres & nourish 136 acres marsh (229 acres)
- Nearshore borrow area
- Construction cost plus 25% contingency

$15 - $20 million


229 Acres Marsh
127 Acres Beach & Dune
For additional information, contact:
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NOAA FISHERIES
U.S. Department of Commerce | National Oceanic and Atmospheric Administration | NOAA Fisheries | Page 7

R2-BA-02

Barataria Bay Waterway East Marsh Creation

BA-02

PPL28 PROJECT NOMINEE FACT SHEET
January 25, 2018

Project Name
Barataria Bay Waterway East Marsh Creation

Project Location
Region 2, Barataria Basin, Jefferson Parish

Problem
The marshes located east of the Barataria Bay Waterway and north of the Bayou Barataria ridge have completely converted to open water. This loss of marsh was caused by subsidence, sediment deprivation, and construction of access canals, including Barataria Waterway.

Goals
The goal of the project is to create marsh with dredged material from the Mississippi River.

Proposed Solution
The proposed project would create marsh using sediment dredged from the Mississippi River. The dredged material would be fully contained. Containment dikes will be degraded as necessary to reestablish hydrologic connectivity with adjacent wetlands. In case the area does not re-vegetate on its own, the estimated cost includes funds to plant 50% of the created marsh.

Preliminary Project Benefits
The proposed project would create approximately 240 acres of marsh east of the Barataria Bay Waterway and north of the Bayou Barataria ridge. The anticipated land loss rate reduction throughout the area of direct benefits will be 50% over the project life, resulting in an estimated rate of -0.4%/year. Net acres created over the project life is estimated at 227 acres. The project will serve to complete a band of healthy marsh extending from the Bayou Barataria ridge northward to Bayou Dupont and would buffer the effect of tropical weather events for the communities of Lafitte and Barataria which lie to the north. This project would be synergistic with the CWPPRA BA-41 and BA-48 projects, the State-only small-dredge marsh creation project, and the BA-43 Mississippi River Long Distance Sediment Pipeline Project.

Identification of Potential Issues
The proposed project has the following potential issues: pipeline(s) would have to be avoided for containment dikes.

Preliminary Construction Cost
The estimated construction cost including 25% contingency is $35M - $40M.

Preparer of Fact Sheet:
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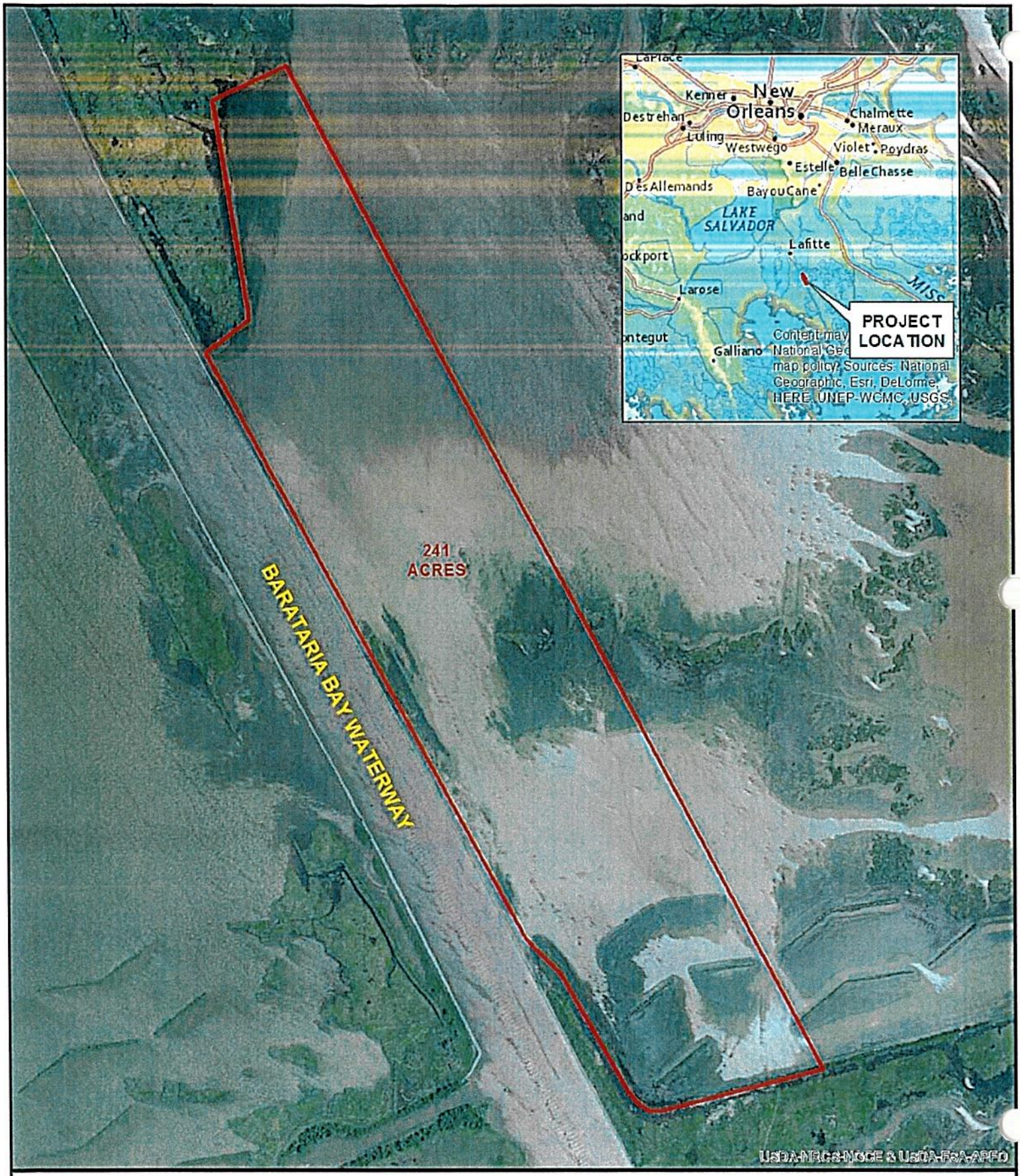


USDA

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

Data Source: NAIP 2015

Map Date: JANUARY 16, 2018

PPL-28 BARATARIA BAY WATERWAY
EAST MARSH CREATION
JEFFERSON PARISH, LA

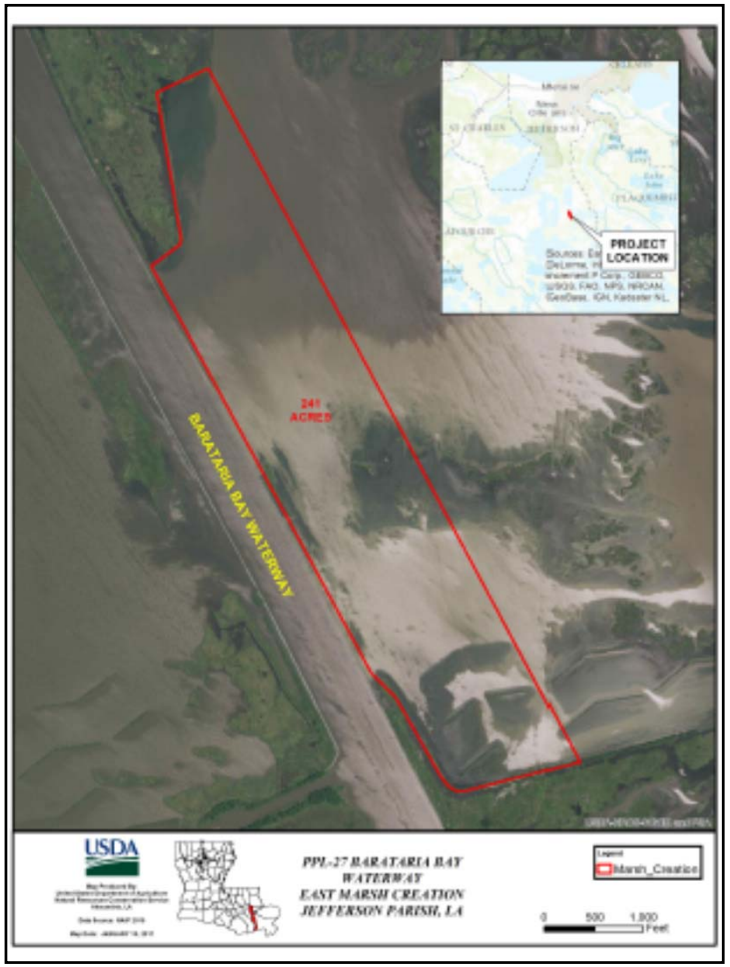
Legend
Marsh_Creation

0 500 1,000
Feet

PPL 28
Regional Planning Meeting
February 1, 2018

Region 2
Barataria Basin

Barataria Bay Waterway East
Marsh Creation



BBWW East MC

- 240 acres of marsh creation
- Furthers concept of Long Distance Dredge Project
- Preliminary Construction Cost $35M - $40M including 25% contingency

R2-BA-03

East Golden Meadow Marsh Creation

PPL28 PROJECT FACT SHEET
February 1, 2018

Project Name
East Golden Meadow Marsh Creation

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

Project Location
Region 2, Barataria Basin, Lafourche Parish

Problem
The project area is an open water body immediately adjacent to the levee near Golden Meadow, LA. The area has experienced wetland loss due to subsidence and storm effects. In addition, oil and gas canals disrupted hydrology and facilitated saltwater intrusion further degrading the marsh.

Proposed Solution
The proposed project would create/nourish approximately 456 acres of marsh using sediment dredged from Little Lake. Additional borrow sources may be investigated and used if determined to be more cost effective. The dredged material would be contained as needed however full containment is not expected as a portion of the marsh creation cells are adjacent to the existing levee. Containment dikes would be degraded post construction as necessary to reestablish hydrologic connectivity with adjacent wetlands. The created marsh would be planted.

Project Benefits
Create/nourish approximately 456 acres of marsh (create 327 acres and nourish 129 acres) using sediment dredged from Little Lake.

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

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

Golden Meadow Marsh Creation

Golden Meadow Marsh Creation Cell

N

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

0 0.075 0.15 0.3 0.45 0.6
Miles

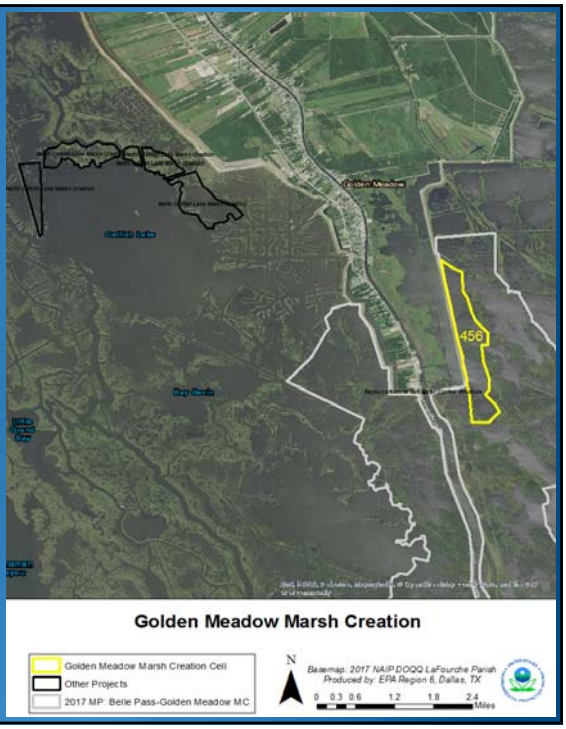
East Golden Meadow Marsh Creation

Coastal Wetlands Planning, Protection and Restoration Act

2017 Master Plan Solution

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

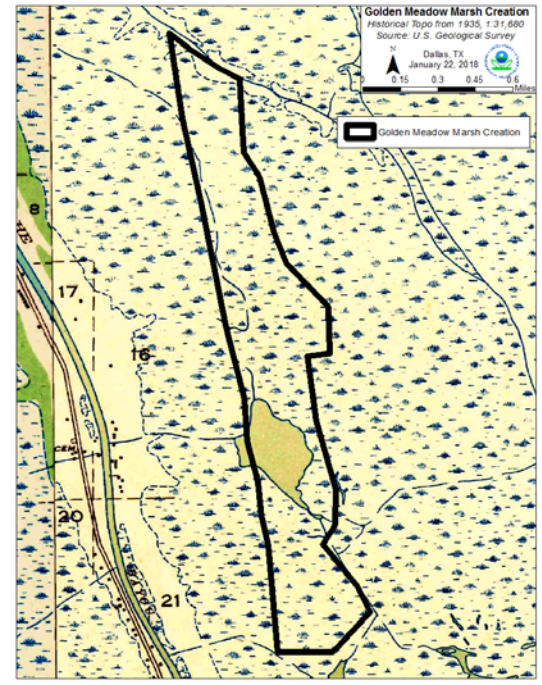
2017 Master Plan Consistency & Project Synergy



Problems

- Subsidence & storm events
- Oil & gas canals disrupted hydrology
- LaFourche Parish could lose an additional 41% of its land area over the next 50 years.
- Golden Meadow could face flooding of 13-15ft with no future protection (2017 MP).

Historical Reference



Project Features

Species & Habitats Protected or Restored

T & E Species

- Piping Plover
- Red Knot
- Sea Turtles
- Sturgeon
- Manatee

Migratory Birds

- American Golden-plover
- Am Oystercatcher (Breeding)
- Black Skimmer (Breeding)
- Many shorebirds

Project Goals

- Create/nourish 456 acres (create 327 acres and nourish 129 acres) of emergent marsh with sediment from Little Lake
- Restore degraded wetland habitat
- Provide increased protection from storm surge and flooding
- Construction cost + 25% contingency is $25M - $30M

R2-BA-04

Bayou eau Noire Ridge and Marsh Creation

BA -04

PPL28 PROJECT FACT SHEET
February 1, 2018

Project Name
Bayou eau Noire Ridge Restoration and Marsh Creation

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

Project Location
Region 2, Barataria Basin, Plaquemines Parish

Problem
The project area is a broken marsh area immediately adjacent to the west bank of the Mississippi River levee just east of Bay de la Chenier. The historic ridge has degraded over time and marshes have become fragmented and converted to open water due to ongoing subsidence and storm events. In addition, oil and gas canals disrupted hydrology and further degraded the marsh. The land loss rate for the area is -1.00% per year.

Proposed Solution
The proposed project would restore approximately 26,997 linear feet of historic ridge and create/nourish approximately 448 acres of marsh using sediment dredged from the Mississippi River as additional support for the ridge feature.

Project Benefits
Restore 26,997 linear feet of historic ridge and create/nourish approximately 448 acres (create 269 acres and nourish 179 acres) of marsh.

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

Preparer(s) of Fact Sheet:
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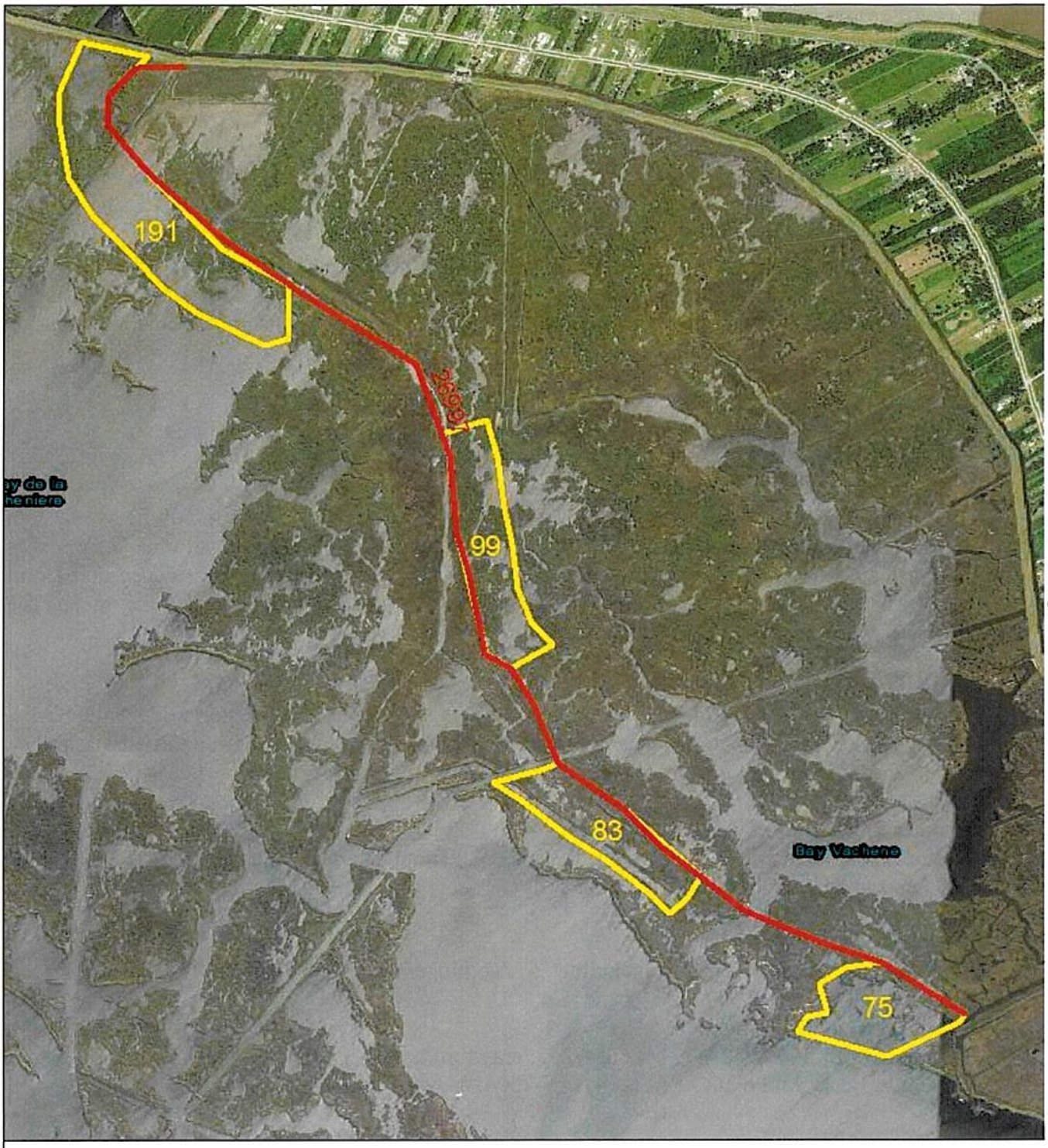


Bayou eau Noire Ridge Restoration & Marsh Creation

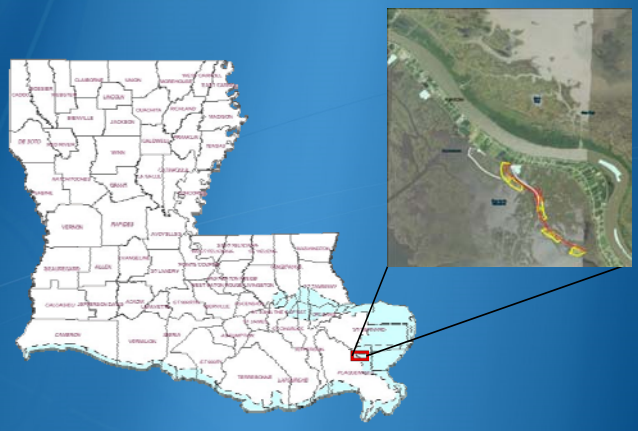
Bayou eau Noire Ridge Feature
Bayou eau Noire Marsh Creation Cells

N

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

0 0.25 0.5 1 1.5 Miles

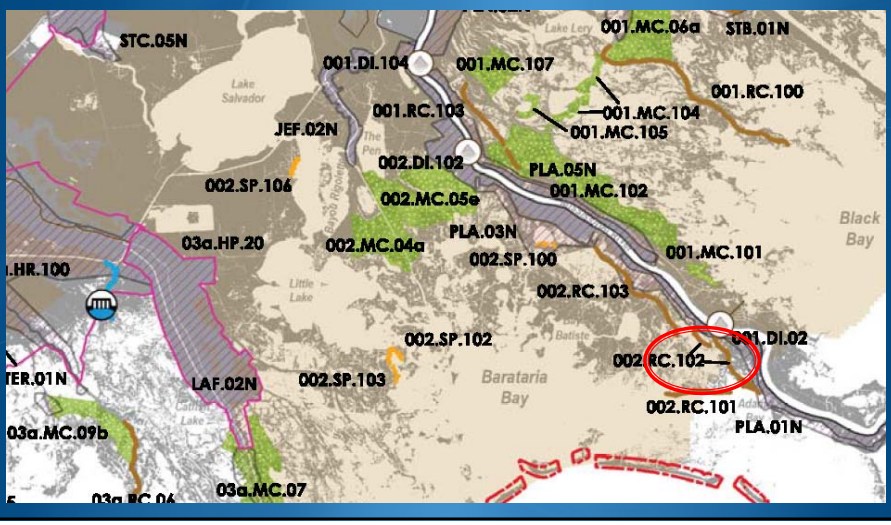
Bayou eau Noire
Ridge Restoration & Marsh Creation



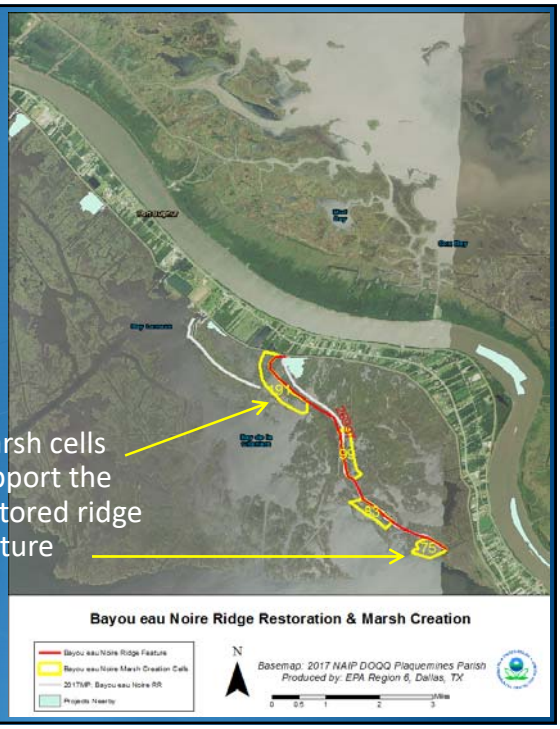
Coastal Wetlands Planning, Protection and Restoration Act

2017 Master Plan Solution

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

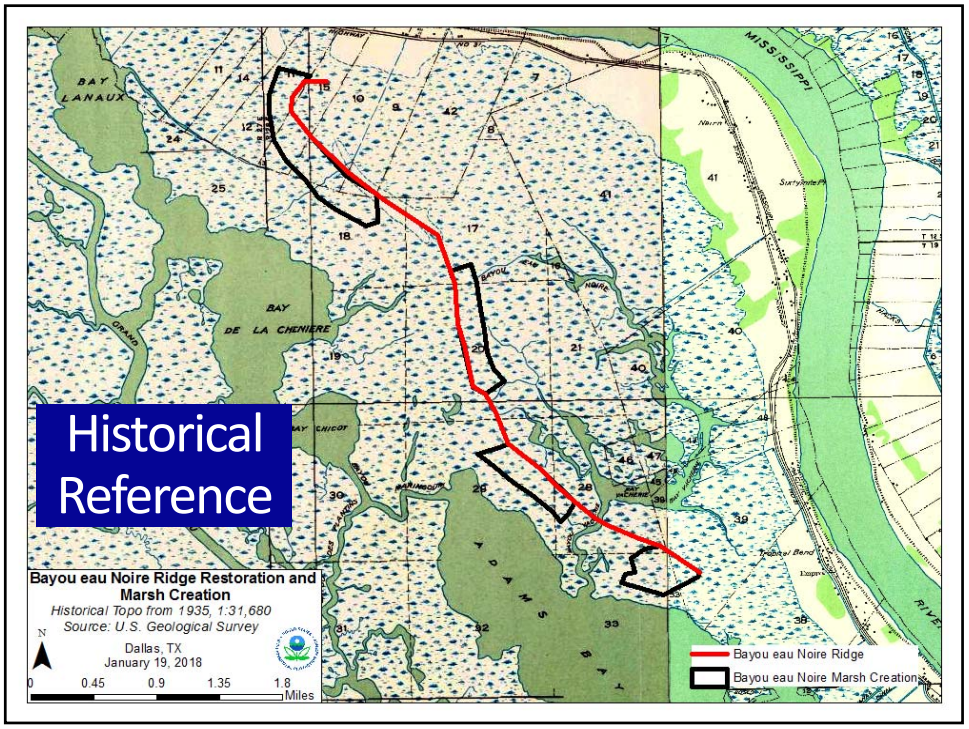


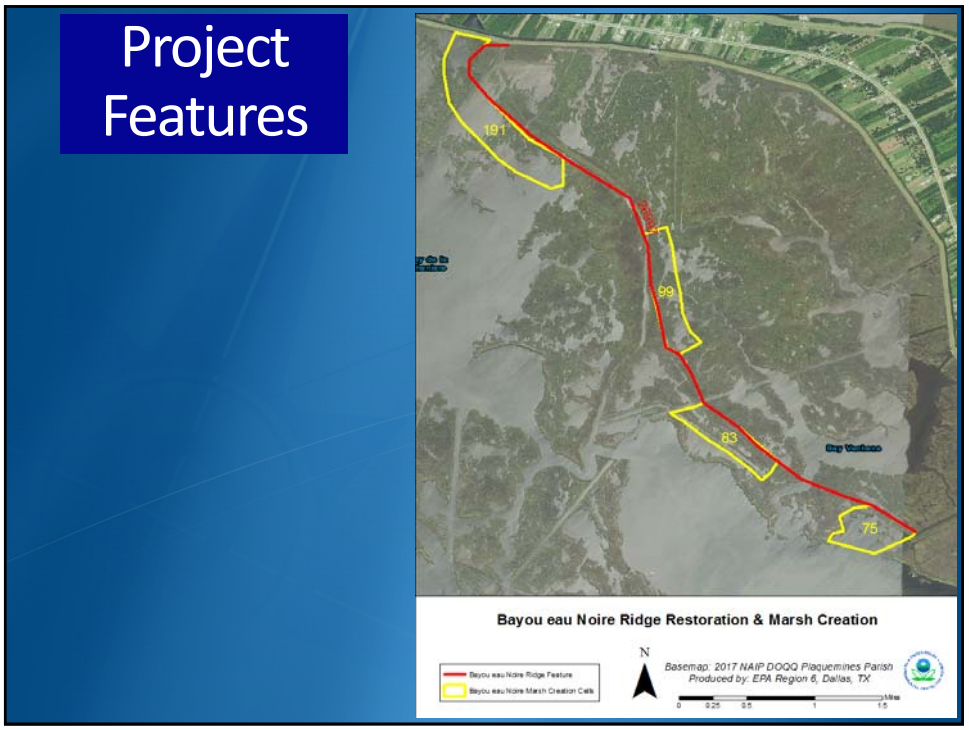
2017 Master Plan Consistency & Project Synergy



Problems

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


Historical Reference
Bayou eau Noire Ridge Restoration and Marsh Creation
Historical Topo from 1935, 1:31,680
Source: U.S. Geological Survey
Dallas, TX
January 19, 2018
0 0.45 0.9 1.35 1.8 Miles
Bayou eau Noire Ridge
Bayou eau Noire Marsh Creation
BAY LANAUX
BAY DE LA CHENIERE
ADAMS BAY
MISSISSIPPI


Project Features
191
99
83
75
Bayou eau Noire Ridge Restoration & Marsh Creation
Basemap: 2017 NAIP DOQQ Plaquemines Parish
Produced by: EPA Region 6, Dallas, TX

Species & Habitats Protected or Restored

T & E Species

- Piping Plover
- Red Knot
- Sea Turtles
- Sturgeon
- Manatee

Migratory Birds

- American Golden-plover
- Am Oystercatcher (Breeding)
- Black Skimmer (Breeding)
- Many shorebirds

Project Goals

- Restore 26,997 linear feet of historic ridge
- Create/nourish 448 acres (create 269 acres and nourish 179 acres) of emergent marsh with sediment from the Mississippi River as additional support for the ridge feature
- Address Plaquemines Parish Phase 1 (construct wetlands adjacent to levees protecting fastlands) and Phase 2 (enhance wetlands in identified areas) priorities
- Restore wetland habitat & provide increased protection from storm surge and flooding
- Construction cost + 25% contingency is $25M - $30M

R2-BA-05

Three Bayou Bay Marsh Creation

13A-0

PPL28 PROJECT FACT SHEET
February 1, 2018

Project Name
Three Bayou Bay Marsh Creation

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

Project Location
Region 2, Barataria Basin, Jefferson Parish

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

Proposed Solution
The proposed project would create/nourish approximately 539 acres of marsh using sediment dredged from the Little Lake. The dredged material would be fully contained. Containment dikes would be degraded as necessary to reestablish hydrologic connectivity with adjacent wetlands. The created marsh would be planted.

Project Benefits
Create/nourish approximately 539 acres (create 338 acres and nourish 201 acres) of marsh using sediment dredged from the Little Lake.

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

Preparer(s) of Fact Sheet:
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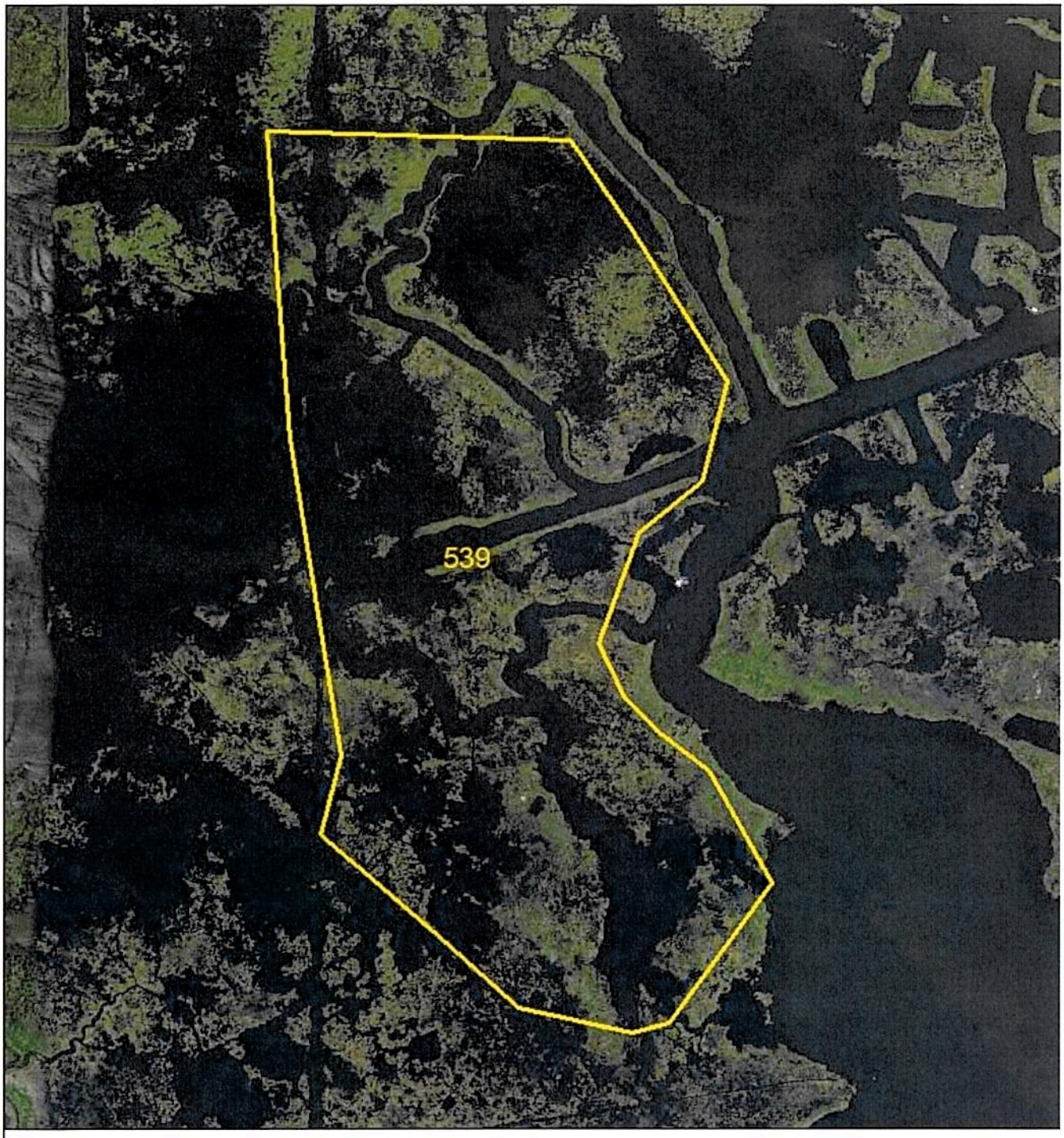
Sharon L. Osowski, Ph.D.; EPA; (214) 665-7506; osowski.sharon@epa.gov



Three Bayou Bay Marsh Creation

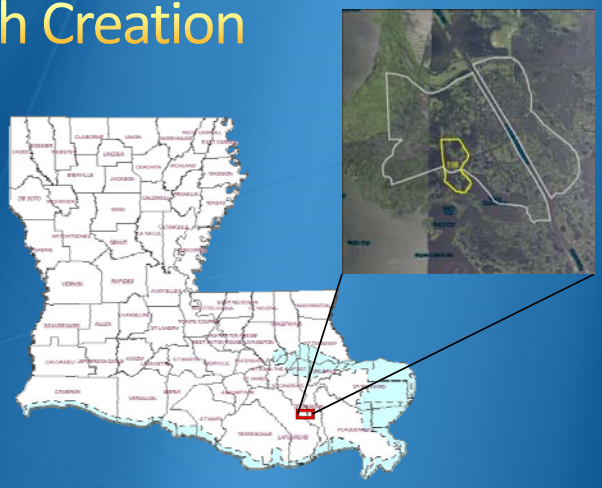
Three Bayou Bay Marsh Creation

N

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

0 0.1 0.2 0.4 0.6 Miles

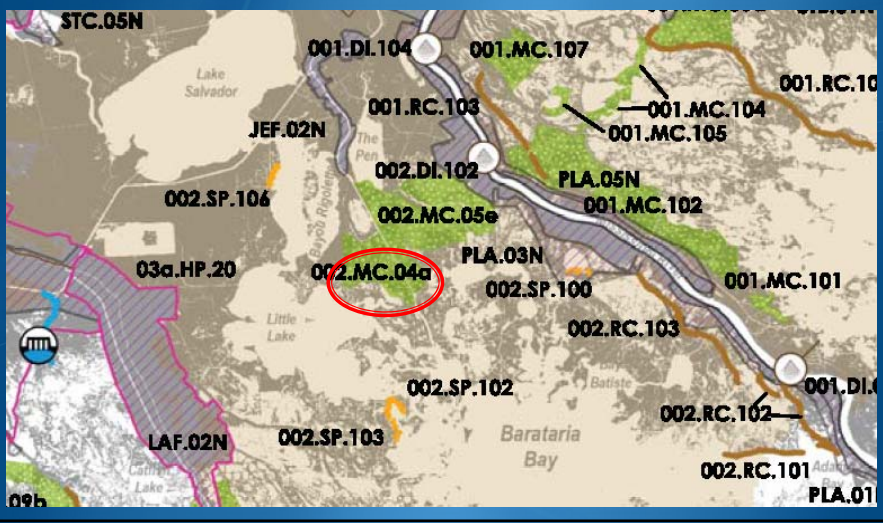
Three Bayou Bay Marsh Creation



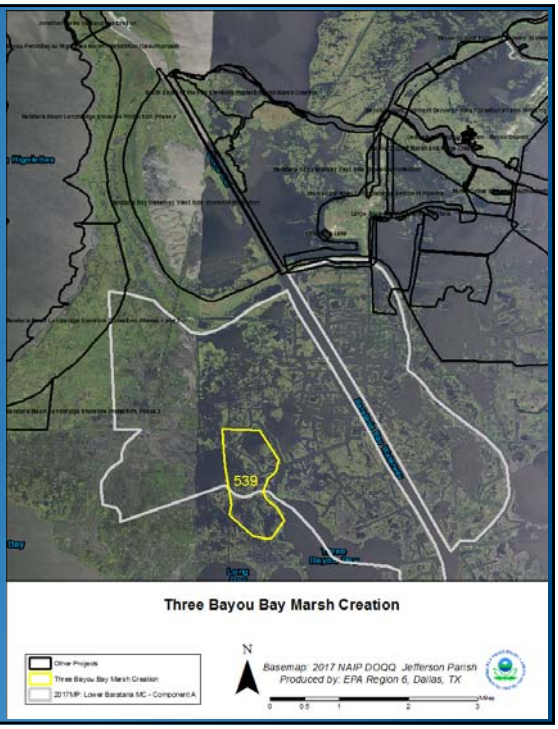
Coastal Wetlands Planning, Protection and Restoration Act

2017 Master Plan Solution

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



2017 Master Plan Consistency & Project Synergy



Problems

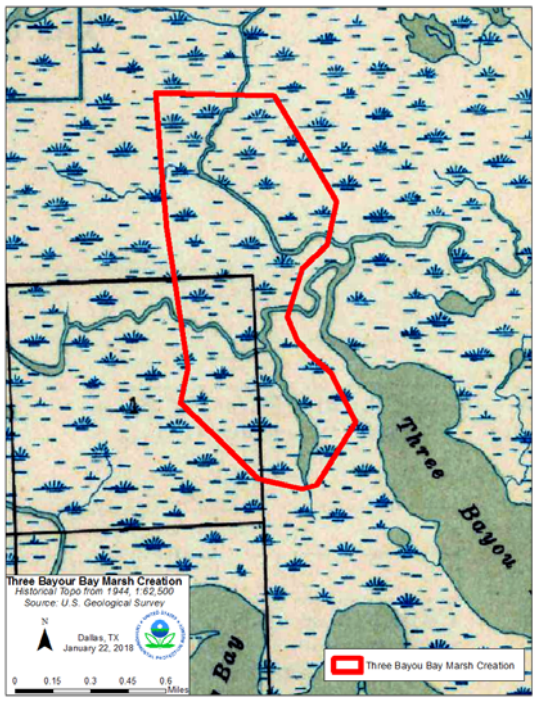
- Subsidence
- Oil & gas canals disrupted hydrology
- Saltwater intrusion
- Decreased sediment input
- Jefferson Parish could lose an additional 42% of its land area over the next 50 years and face severe storm surge flood risk (2017 MP).

Species & Habitats Protected or Restored

T & E Species

- Piping Plover
- Red Knot
- Sea Turtles
- Sturgeon
- Manatee

Historical Reference



Project Features

Project Goals

- Create/nourish 539 acres (create 338 acres and nourish 201 acres) of emergent marsh with sediment from the Little Lake
- Restore degraded wetland habitat
- Provide increased protection from storm surge and flooding
- Construction cost + 25% contingency is $25M - $30M

R2-BA-06

North Fourchon Marsh Creation

BA-06

PPL28 PROJECT FACT SHEET
February 1, 2018

Project Name
North Fourchon Marsh Creation Project

Master Plan Strategy
Belle Pass-Golden Meadow Marsh Creation (2017 Master Plan 03a.MC.07): Creation of approximately 23,200 acres of marsh from Belle Pass to Golden Meadow to create new wetland habitat and restore degraded marsh.

Project Location
Region 2, Barataria Basin, Lafourche Parish

Problem
Historic wetland loss in the project area stems from subsidence, sediment deprivation, and construction of pipeline canals. According to USGS data, nearly 324,000 ac of land were lost between 1932 and 2010 within the basin, which had the highest land loss rate in the state from 1985 to 2004. Wetlands have been replaced by open water where canals are dug, while spoil banks convert them to upland habitat. Bounded by Bayou Lafourche to the east and Timbalier Bay to the west the project area is also subject to shoreline erosion.

Proposed Solution
This project would create marsh habitat and increase the longevity of existing marsh habitat and provide protection to surrounding wetlands, Bayou Lafourche, and the community and infrastructure of Port Fourchon. Sediment for marsh creation would be mined in Timbalier Bay or Little Lake, hydraulically dredged and pumped to the marsh creation and nourishment cells.

Project Goals
Create/nourish approximately 418 acres (create 284 acres and nourish 134 acres) of marsh using sediment dredged from Timbalier Bay or Little Lake.

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

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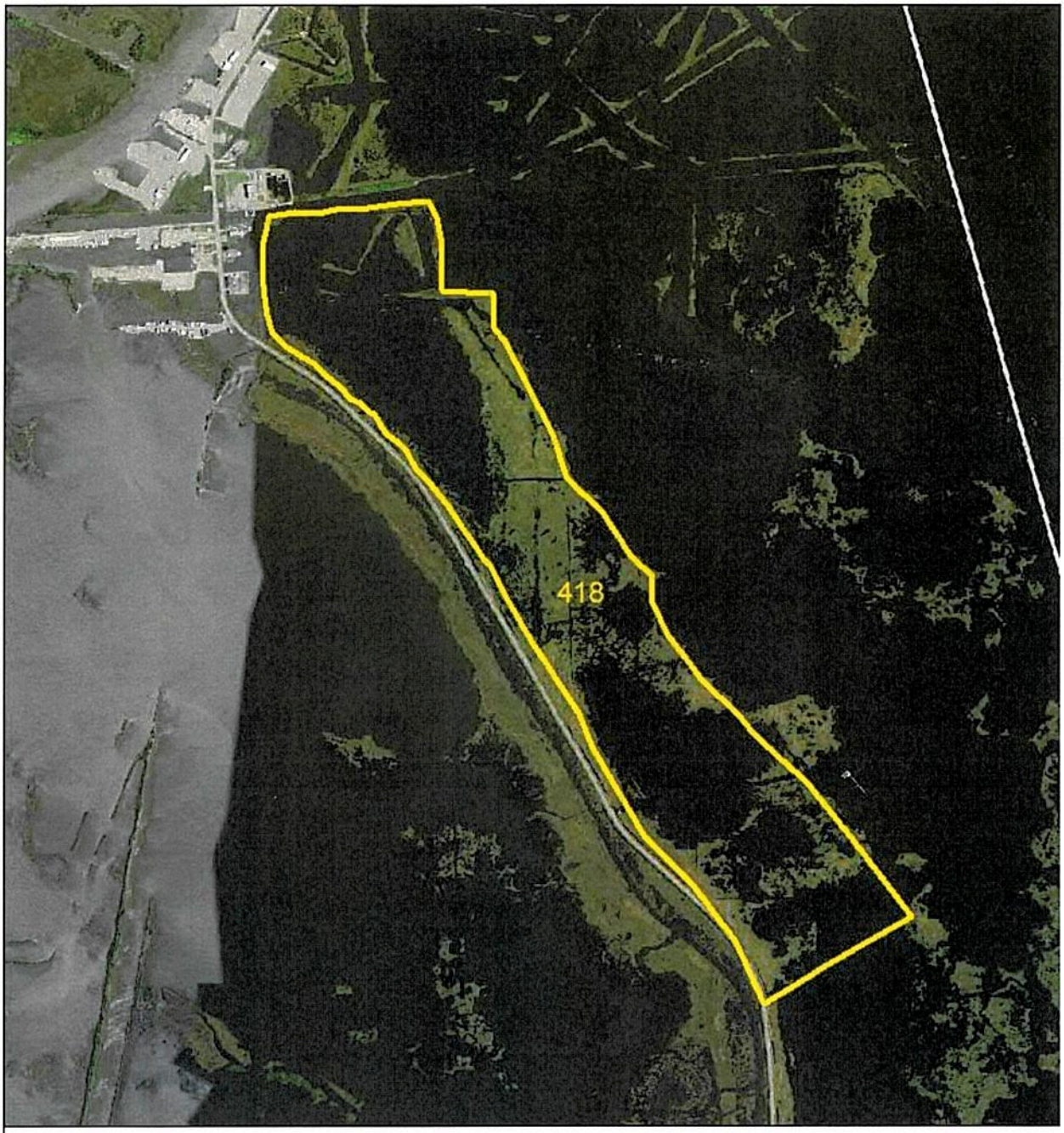
Adrian Chavarria, EPA; (214) 665-3103; chavarria.adrian@epa.gov
Sharon L. Osowski, Ph.D.; EPA; (214) 665-7506; osowski.sharon@epa.gov
Leslie Suazo, Ducks Unlimited; (985)853-3020; lsuazo@ducks.org



North Fourchon Marsh Creation

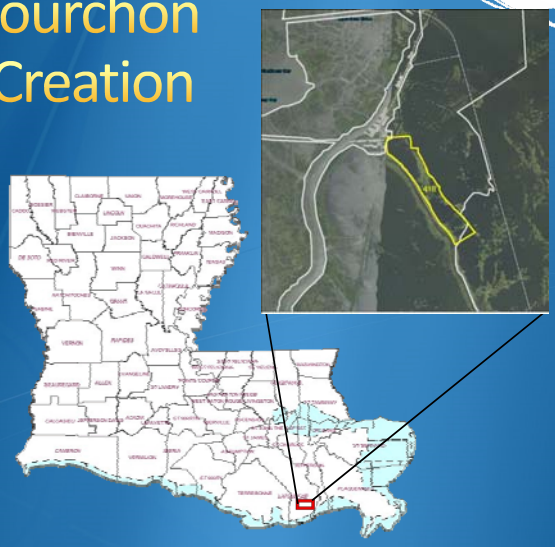
N

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

N Fourchon Marsh Creation Cell

0 0.15 0.3 0.6 0.9 Miles

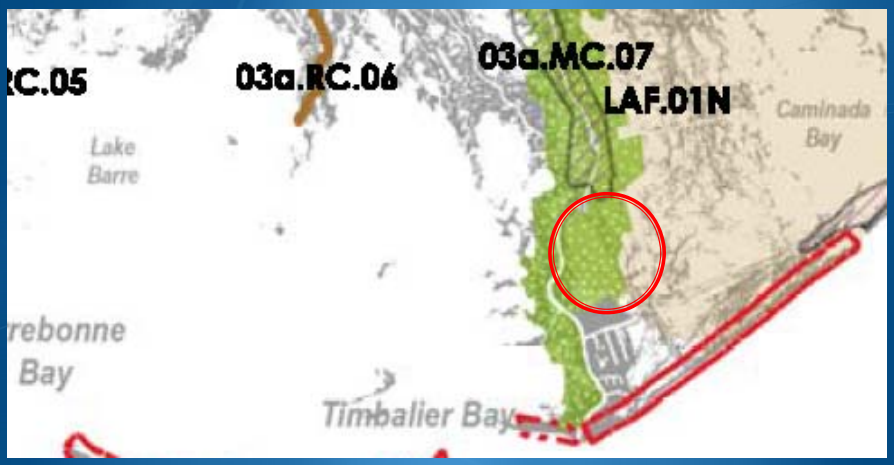
North Fourchon Marsh Creation



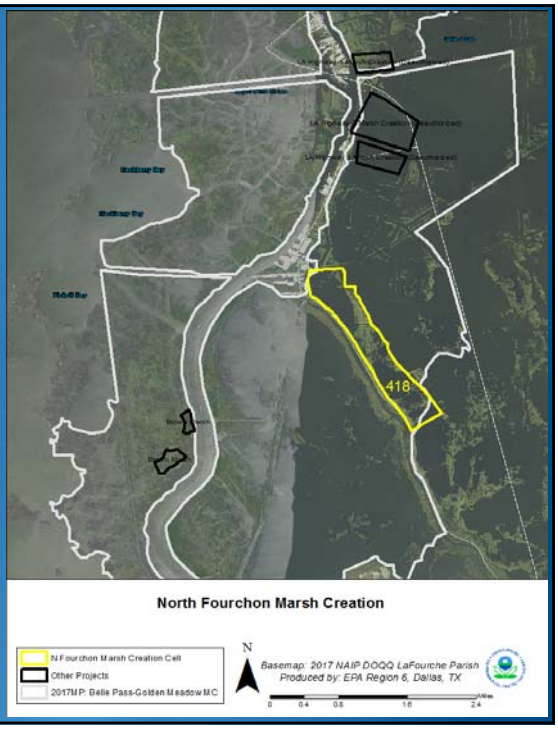
Coastal Wetlands Planning, Protection and Restoration Act

2017 Master Plan Solution

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



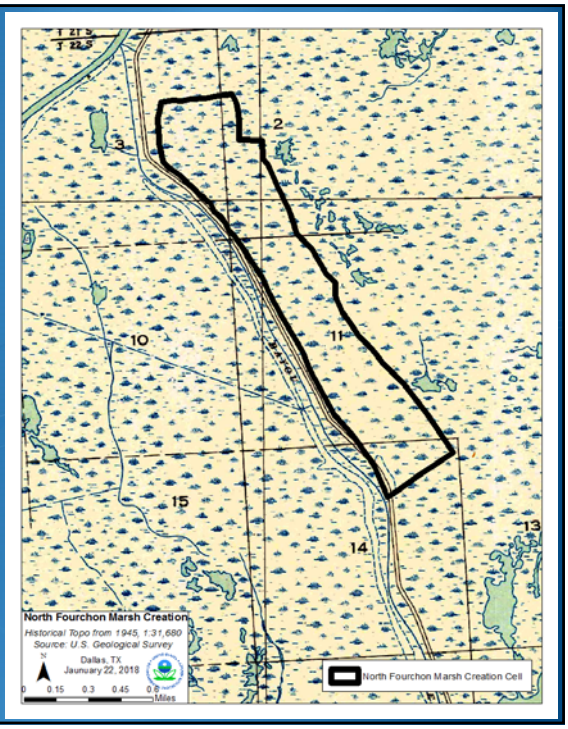
2017 Master Plan Consistency & Project Synergy



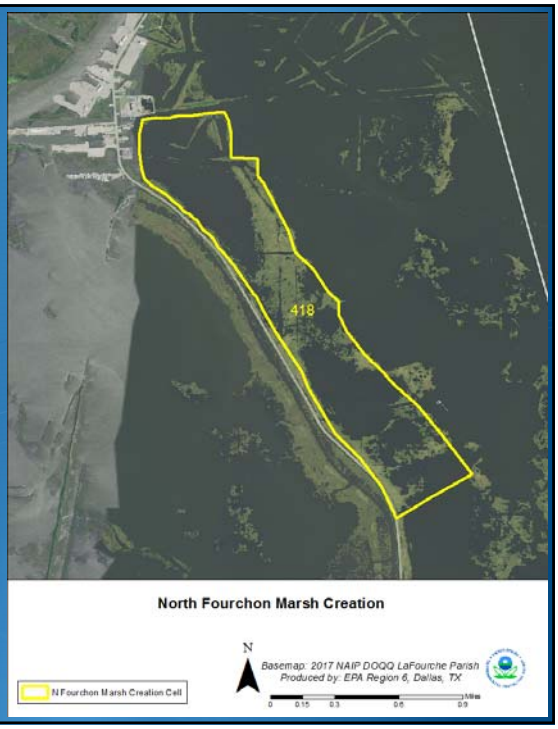
Problems

- This area has experienced wetland loss due to:
  - Subsidence
  - Sediment deprivation
  - Erosion
  - Construction of pipeline canals
- The area had the highest land loss rate in the state from 1985-2004 (USGS)
- LaFourche Parish could be at risk for increased storm surge and flooding in the next 50 years (2017 MP).

Historical Reference



Project Features



Species & Habitats Protected or Restored

T & E Species

- Piping Plover
- Red Knot
- Sea Turtles
- Sturgeon
- Manatee

Migratory Birds

- American Golden-plover
- Am Oystercatcher (Breeding)
- Black Skimmer (Breeding)
- Many shorebirds

Project Goals

- Restore 418 acres (create 284 acres and nourish 134 acres) of emergent wetland habitat using borrow from Timbalier Bay or Little Lake to increase the longevity of existing marsh habitat
- Provide storm surge & flood protection for the community and infrastructure of the Port Fourchon area
- Restore degraded wetland habitat
- Construction cost + 25% contingency is $20M - $25M

R2-BA-07

Grand Bayou Ridge and Marsh Restoration

BA-07

PPL28 PROJECT NOMINEE FACT SHEET
February 1, 2018

Project Name
Grand Bayou Ridge and Marsh Restoration

Project Location
Region 2, Barataria Basin, Plaquemines Parish, Grand Bayou near West Pointe a la Hache

Problem
Within the Lake Hermitage basin, between Bayou Grande Cheniere and the Mississippi River, significant marsh loss has occurred with the construction of oil/gas canals, subsidence, and sediment deprivation. From examination of aerial photography, it appears that the majority of this loss occurred during the 1960s and 1970s when numerous oil/gas canals were dredged in the area. Based on the hyper-temporal analysis (1984-2016) conducted by USGS for the PPL27 candidate project, loss rates in the area are estimated to be -1.65% per year.

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

Specific goals of the project are: 1) Create approximately 356 acres (344 acres of creation; 12 acres of nourishment) of marsh with dredged material from the Mississippi River; 2) create 25,000 linear feet (19 acres) of terraces; 3) Create 10,657 linear feet (13 acres) of forested ridge.

Service goals include restoration/protection of habitat for threatened and endangered species and other at-risk species. This project would restore habitat potentially utilized by the black rail, saltmarsh topminnow, and Louisiana eyed silkmoth, which are petitioned for listing as threatened/endangered species. The project could also benefit other species of concern including the seaside sparrow and neotropical migrants.

Proposed Solution
Sediments from the Mississippi River will be hydraulically dredged and pumped via pipeline to create/nourish approximately 356 acres of marsh (Figure 1). The proposed design is to place the dredged material to a fill height of +1.1 ft NAVD88 (per the BA-42 Lake Hermitage Marsh Creation Project). Dewatering and compaction of dredged sediments should produce elevations conducive to the establishment of emergent marsh and within the intertidal range. Containment dikes will be gapped at the end of construction.

Approximately 25,000 linear feet of terraces (19 acres) will be constructed in open water areas west of Grand Bayou (Figure 1). Terraces will have a 15-ft crown width, a height of +2.5 ft NAVD88, and side slopes of 1(V):4(H). A bucket dredge will be utilized for construction. The terraces will be planted with seashore paspalum on the crown and smooth cordgrass on the side slopes.

Approximately 10,657 linear feet (13 acres) of forested ridge will be created along the western bank of Grand Bayou using material from the bayou. The ridge will be constructed to a crown elevation of +4.0 feet NAVD88, 25 feet wide, and will be planted on the crown and slopes.

Preliminary Project Benefits

1) *What is the total acreage benefited both directly and indirectly*? Approximately 719 acres would be benefited directly and indirectly. Direct benefits include 13 acres of forested, coastal ridge habitat, 356 acres of marsh creation/nourishment, and 19 acres of terraces. Indirect benefits would occur to surrounding marshes and marsh within the terrace field.

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 321 acres.

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

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

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

6) *To what extent does the project provide a synergistic effect with other approved and/or constructed restoration projects*? The project would provide a synergistic effect with the BA-173 Bayou Grande Cheniere Marsh and Ridge Restoration Project (Phase 1), the BA-42 Lake Hermitage Marsh Creation Project (Completed; PPL15) and the West Pointe a la Hache Siphons.

Considerations

Landrights and oil and gas infrastructure are considerations for this project.

Preliminary Cost

The estimated construction cost plus contingency is $30M - $35M.

Preparer of Fact Sheet

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

Grand Bayou Ridge and Marsh Restoration (PPL28 Nominee)

N

Ridge Restoration *

Marsh Creation *

Terrace Field *

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 Restoration Assessment Branch
Baton Rouge, LA

Map ID:
Map Date: January 19, 2018

Image Source:
2016 DOQQ

REGION II

REGIONAL PLANNING TEAM MEETING

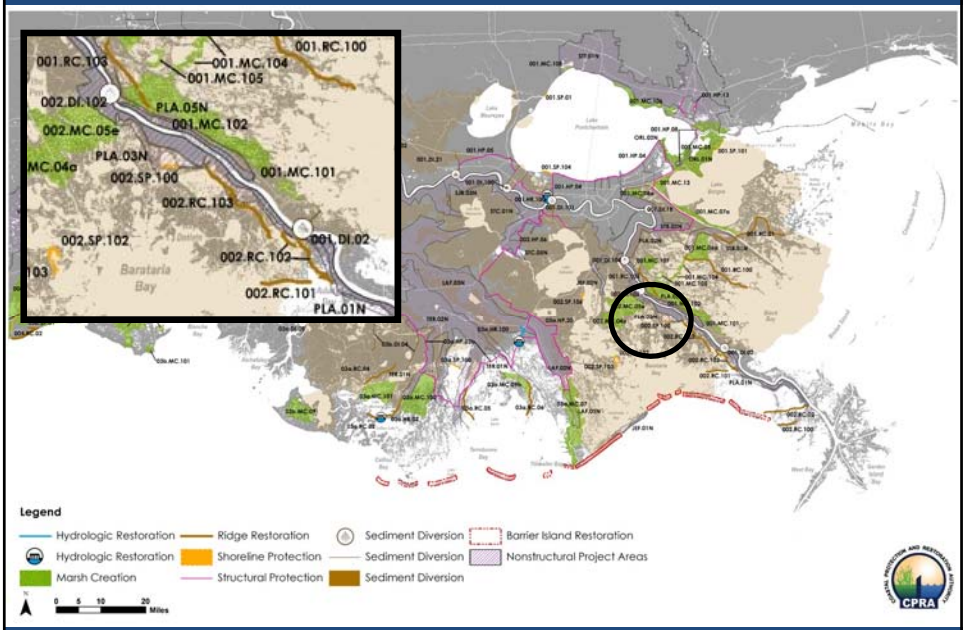
BARATARIA BASIN

Lacombe, LA

February 1, 2018

Kevin Roy
U.S. Fish and Wildlife Service
Lafayette, LA

2017 State Master Plan



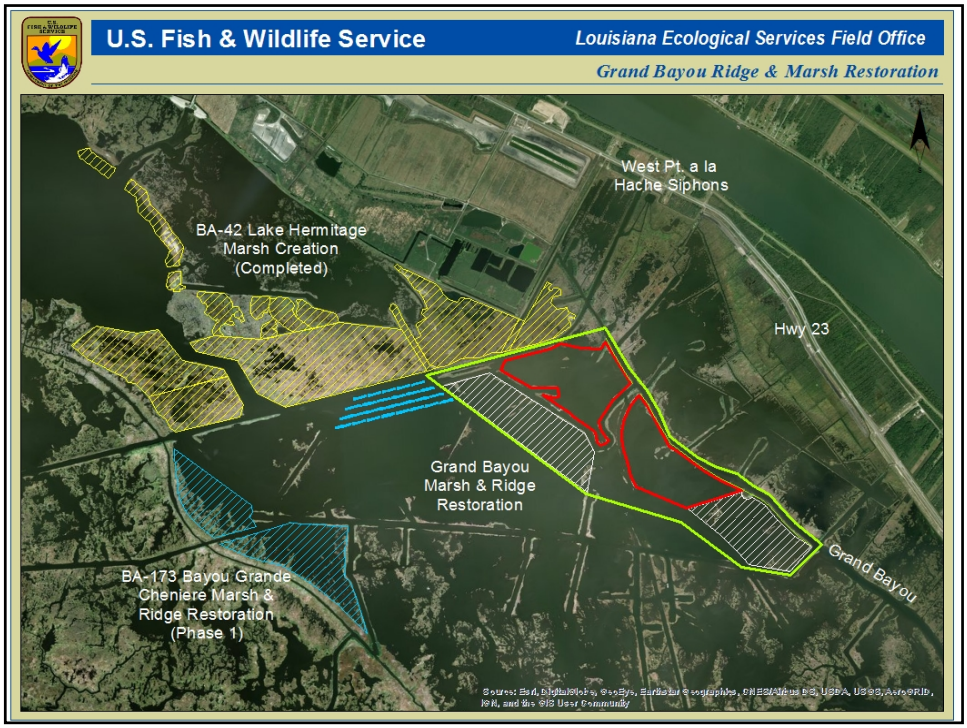
344 acres of marsh creation

12 acres of marsh nourishment

Mississippi River borrow site

25,000 feet of terraces

13 acres of forested ridge



Grand Bayou Ridge and Marsh Restoration

- Mississippi River borrow site
- 10,657 LF (13 acres) of ridge restoration
- 356 acres of marsh creation/nourishment
- 25,000 LF of terraces (19 acres)
- Net acres = 321
- Construction plus contingency = $30M - $35M
- Project synergy - BA-42, BA-173, Siphons
- Infrastructure nearby

R2-BA-08

East Bayou Lafourche Marsh Creation

PPL28 PROJECT NOMINEE FACT SHEET
February 1, 2018

Project Name
East Bayou Lafourche Marsh Creation

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

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

Goals
The primary goal of this project is to restore marsh along the Highway 1-Bayou Lafourche corridor via marsh creation. The specific goal of the project is to create approximately 417 acres (368 acres of marsh creation and 49 acres of marsh nourishment) of marsh with dredged material.

Service goals include restoration/protection of habitat for threatened and endangered species and other at-risk species. This project would restore habitat potentially utilized by the black rail, saltmarsh topminnow, and Louisiana eyed silkmoth, which are petitioned for listing as threatened/endangered species.

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

Preliminary Project Benefits

1) *What is the total acreage benefited both directly and indirectly?*
   Approximately 417 acres would be benefited directly. Direct benefits include 368 acres of marsh creation and 49 acres of marsh nourishment. Indirect benefits would occur to marsh surrounding the project area.

2) *How many acres of wetlands will be protected/created over the project life?*
   The total net acres protected/created over the project life is approximately 325 acres.

3) *What is the anticipated loss rate reduction throughout the area of direct benefits over the project life (e.g., 50% reduction in the background loss rate)?*
The anticipated loss rate reduction throughout the area of direct benefit is estimated to be 50%.

4) *Do any project features maintain or restore structural components of the coastal ecosystem such as barrier islands, natural or artificial levee ridges, beach and lake rims, cheniers, etc?*
The project would restore marsh along what remains of the historical natural levee ridge along Bayou Lafourche.

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

6) *To what extent does the project provide a synergistic effect with other approved and/or constructed restoration projects?*
The project is complementary to the BA-194 East Leeville Marsh Creation Project. Both projects would restore marsh along the Bayou Lafourche/Hwy 1 corridor.

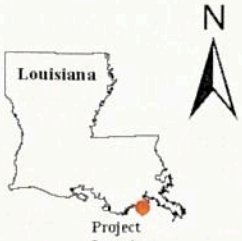
Considerations
Oil and gas infrastructure (i.e., pipelines), landrights, and oyster leases would have to be considered in the project design.

Preliminary Cost
The estimated construction cost plus contingency is $30M - $35M.

Preparer of Fact Sheet
Kevin Roy, USFWS, (337) 291-3120, kevin_roy@fws.gov

East Bayou Lafourche Marsh Creation
(PPL28 Nominee)

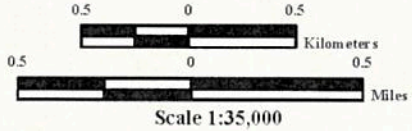
USGS
science for a changing world



Marsh Creation *

Project Boundary

* denotes proposed features



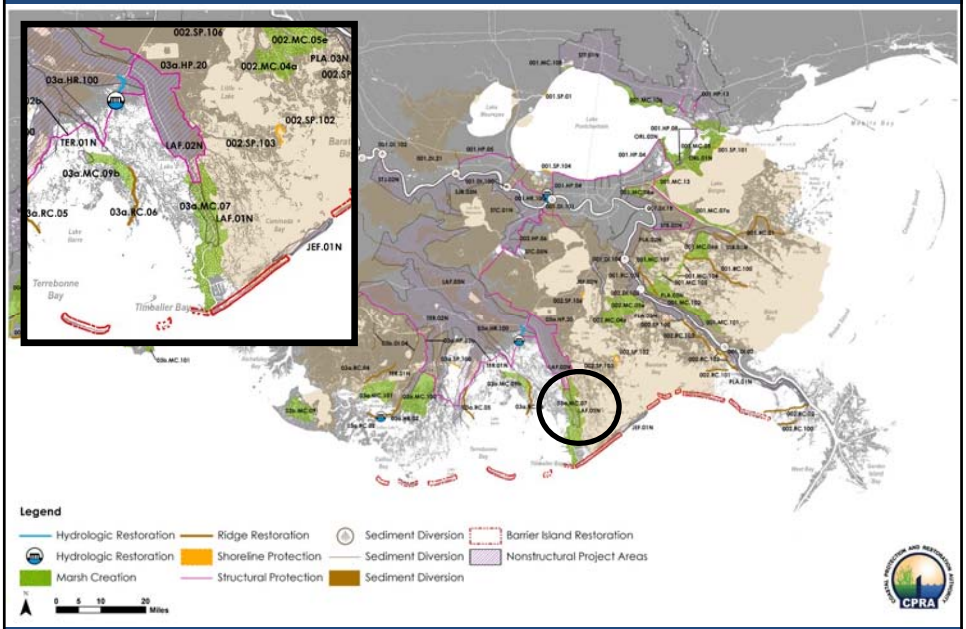
Scale 1:35,000

Produced by:
U.S. Department of the Interior
U.S. Geological Survey
Wetland and Aquatic Research Center
Coastal Restoration Assessment Branch
Baton Rouge, La

Image Source:
2016 DOQQ

Map ID:
Map Date: January 19, 2018

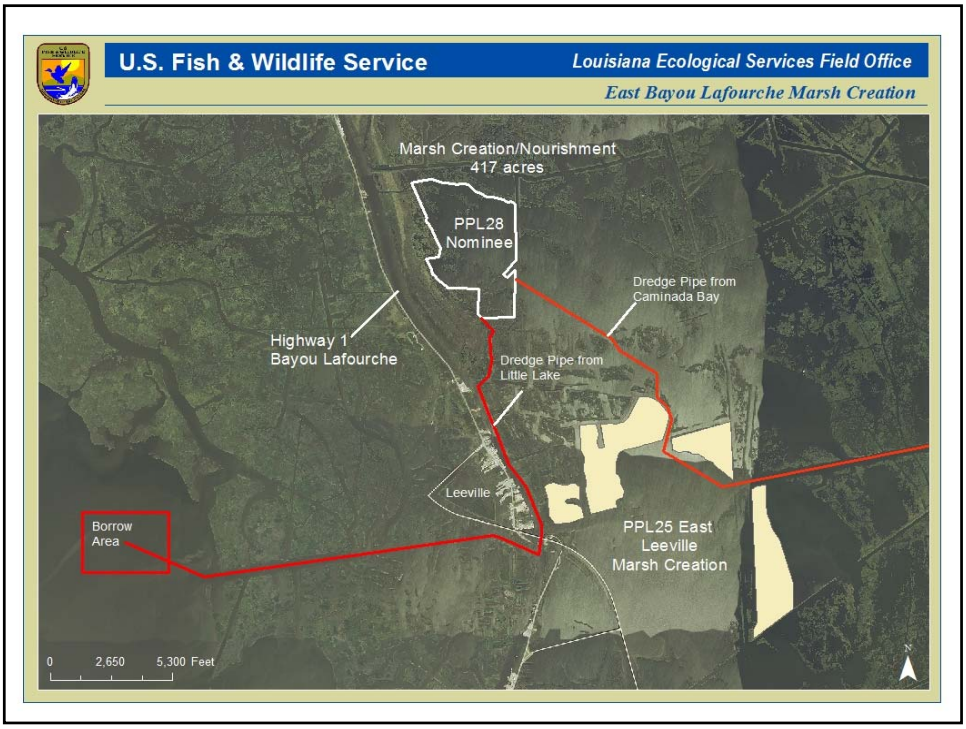
2017 State Master Plan



368 acres of marsh creation

49 acres of marsh nourishment

Little Lake or Caminada Bay borrow site



East Bayou Lafourche Marsh Creation

- Little Lake/Caminada Bay borrow site
- 417 acres of marsh creation/nourishment
- Net acres = 325
- Construction plus contingency = $30M - $35M
- Project synergy – BA-194 East Leeville Marsh Creation (Phase 1)

~~R2-BA-09~~

~~Buras Boat Harbor Marsh Creation Increment 1~~

Inconsistent with the 2017 State Master Plan

PPL28 PROJECT NOMINATION FACT SHEET
February 1, 2018

~~BA-09~~
not consistent

Project Name
Buras Boat Harbor Marsh Creation- Increment 1

Coast 2050 Strategy
Regional: Restore and sustain marshes

Project Location
Region 2, Barataria Basin, Plaquemines Parish

Problem
Project area was severely damaged when the USACE dredged a 17 mile borrow pit canal extending from Empire, La. to Venice, La. in 1974 after hurricane Camille. The borrow was used as the base for the new west bank back hurricane protection levee. The canal was 17 miles long, 450' wide and 60' deep. The surrounding marshland subsequently eroded into the deep canal causing approximately 30 square miles of marshland to disappear. The canal in currently 4' to 5' deep throughout its length.

Proposed solution
The proposed primary feature is to restore the area east of the Buras Boat Harbor bordered by the ridge which was created by the CIAP project completed in 2014. This will be the first increment of a larger marsh creation project extending in the area which was affected by the borrow pit canal.

Goals
This area has subsequently subsided and eroded to the point of causing open water to approach the back side of the hurricane protection levee. The whole extent of the 17 mile USACE 1974 project footprint is eroding and will eventually lap at the outer base of that levee. The project area is the area of greatest threat to the integrity of the hurricane protection back levee on the west bank of southern Plaquemines Parish.

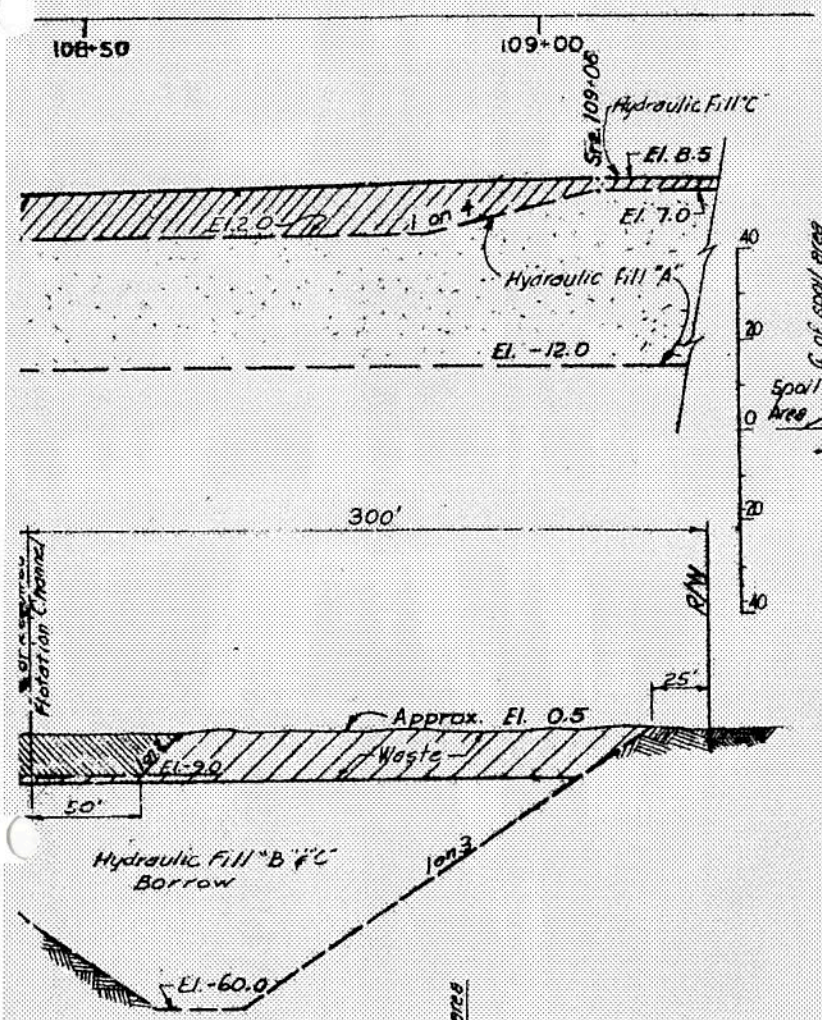
Preliminary Project Benefits
Approximately 173 acres would be benefited directly as marsh creation and nourishment to provide protection of the base of the hurricane back levee and habitat for native species.

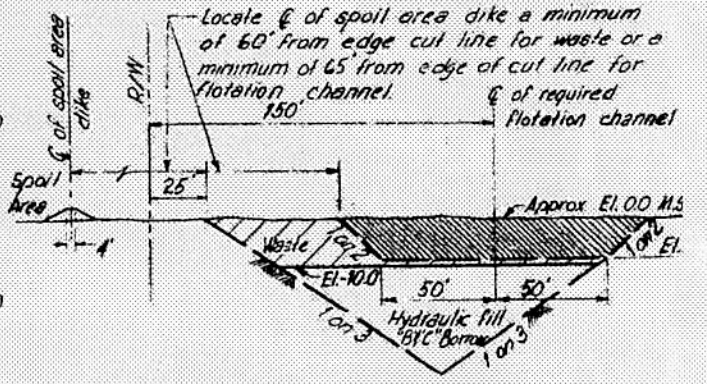
Preliminary Construction Cost
There are two primary material sources for this project.
1) Dredging and pipelining borrow from near shore of the Gulf of Mexico. The material for project BA-68, the Bayou Grand De Liard Project, was sourced from that location.
Weeks Marines provided borrow for that project at $6 /cubic yard and the total projected cost of that project was $42.5 million dollars for creation of 484 acre of marsh platform and ridge. The project was approximately 7 miles in length extending from the Gulf of Mexico to the outlet of the Triumph Drainage Pumping Station canal. Using that projects parameters the Buras Boat Harbor project would cost approximately 17 million dollars.
2) Dredging material from the area adjacent to the CIAP Ridge outward toward the Gulf of Mexico beginning several hundred yards from the ridge would cost approximately 8 to 10 million dollars.

Preparer of Fact Sheet
Kenneth Ragas, 504-309-6654, Plaquemines Parish stakeholder, 8246buras@att.net


Ruler
Line
Path
Polygon
Circle
3D path
3D polygon
Measure the distance or area of a geometric shape on the ground
Perimeter: 11,712.61 Feet
Area: 172.73 Acres
Mouse Navigation
Save
Clear
Mississippi River
Buras Boat Harbor
Buras
173 acres Marsh Creation
Existing completed CIAP project
© 2016 Google
Google Earth
Imagery Date: 11/20/2016

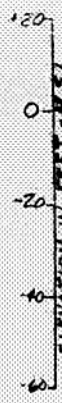
BURAS BOAT HARBOR CIAP PROJECT
Completed in November 2014





SECTION L-L

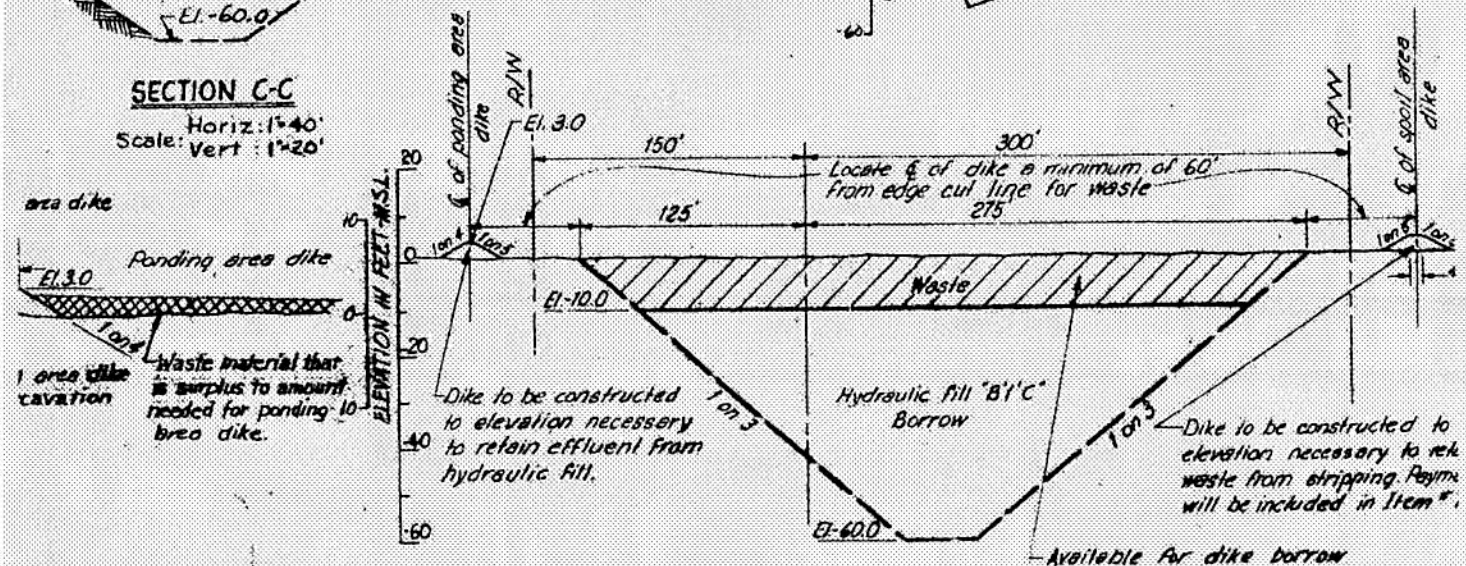
Scales: Horiz. 1"=40'
Vert. 1"=20'



THIS PLAN ACCOMPANIES MODIFICATION P003 TO CONTRACT NO. DACW29 70-C-0275

SECTION C-C

Scale: Horiz: 1"=40'
Vert: 1"=20'



Notes:

1. For location of River borrow area see dwg. 7.
2. Material above elevation -10.0 M.S.L. in the marsh borrow area is to be wasted into the spoil area.
3. Hydraulic fill "A" - Sand material obtained from River Borrow Area. (See dwg. 7)
4. Hydraulic fill "C" - Any acceptable clay material having a liquid limit of 40% or greater obtained from marsh borrow area between El. -12.0 and El. -60.0.
5. A minimum of 10 foot free board must be maintained at all ponding area dikes.

SECTION K-K

Scales: Horiz. 1"=50'
Vert. 1"=20'

4/22/71	Changed total no. of dwgs. - Mod. #3	
11/16/70	General revisions Mod. #1	
6/6/70	General revisions - amend. #1	
DIVISION	DATE	DESCRIPTION

DESIGNED: H. M. C. D. L. P. | DRAWN: E. A. D. | CHECKED: V. E. | CODE IDENT. NO. | SIZE | FILE NO. H-8-25250

DATE: MAY 1970 | SCALE: SHOWN | SPEC. NO. SUBMITTED 70-B-0221 | SHEET 6 OF 1

NEW ORLEANS TO VENICE – REACH B-1 STA. 104+70 TO STA. 340+

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

BURAS QUADRANGLE

LOUISIANA – PLAQUEMINES PARISH

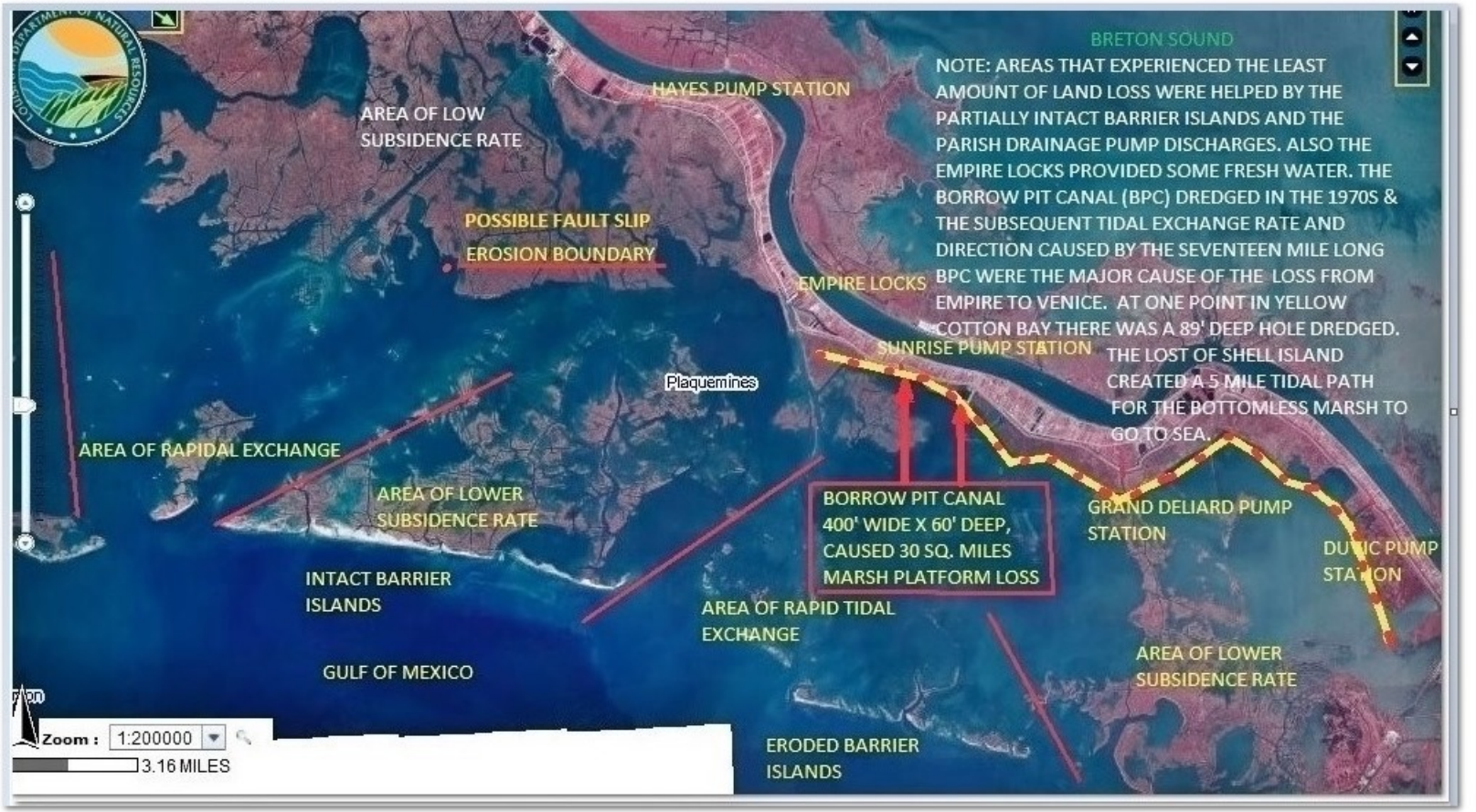
7.5 MINUTE SERIES ORTHOPHOTOMAP (TOPOGRAPHIC)

SE/4 EMPIRE 15' QUADRANGLE


Ruler
Line
Path
Polygon
Circle
3D path
3D polygon
Measure the distance or area of a geometric shape on the ground
Perimeter: 11,712.61 Feet
Area: 172.73 Acres
Mouse Navigation
Save
Clear
Mississippi River
Buras Boat Harbor
173 acres Marsh Creation
Existing completed CIAP project
Buras
Buras River Rd
Levee Rd
Hwy 11
Buras Boat Harbor Rd
Roek Rd
© 2018 Google
Google Earth
Earth Point
1998
Imagery Date: 11/20/2016 29°20'44.45" N 89°32'49.82" W elev 0 ft eye alt 13572 ft

BURAS BOAT HARBOR CIAP PROJECT
Completed in November 2014

USACE BORROW PIT CANAL



R2-BA-10

East Pen Shoreline and Marsh Restoration

BA - 10

CWPPRA PPL 28 Nomination Sign-Up Sheet

Complete a sign-up sheet for each project you nominate. Please print neatly!

Name of Project: East Pen Shoreline & Marsh Restoration Project

Is this a demonstration project? Yes (No)

If not, please provide the below information.

Region: *(Circle one)*	1	2	3	4	Coastwide
Basin: *(Circle one)*	Pontchartrain	(Barataria)	Terrebonne	Calcasieu-Sabine	
		Breton Sound	Atchafalaya	Mermentau	
			Teche-Vermilion		

Did you provide a factsheet? Yes (No)

Contact Information:

Name: Lauren Averill - Jefferson Parish

Phone Number: 504-736-6653

Email: laverill@jeffparish.net

REGION 2 – BRETON SOUND BASIN

Project Number	Project Proposals
R2-BS-01	Breton Landbridge Marsh Creation (West), River aux Chenes to Grand Lake
R2-BS-02	Breton Landbridge Central Marsh Creation
R2-BS-03	Spanish Lake Marsh Creation, South Shoreline
R2-BS-04	North Lake Lery Wetland Restoration
	~~Grand Lake West Marsh Creation and Terracing~~
	Marsh creation and terracing features in the Grand Lake West Marsh Creation and Terracing project are inconsistent with the 2017 State Master Plan, however the hydrologic features denoted as the North Lake Lery Wetland Restoration are consistent
R2-BS-05	Wills Point South Marsh Restoration
R2-BS-06	Phoenix Marsh and Ridge Restoration
R2-BS-07	Bayou Terre aux Boeuf Ridge Restoration and Marsh Creation
R2-BS-08	Bayou Terre aux Boeufs South Ridge Restoration and Marsh Creation
R2-BS-09	Reggio Marsh Creation and Hydrologic Restoration
R2-BS-10	Davant Marsh Creation
R2-BS-11	East Delacroix Marsh Creation and Terracing
R2-BS-12	North Delacroix Marsh Creation and Terracing

R2-BS-01

Breton Landbridge Marsh Creation (West), River aux Chenes to Grand Lake

BS-01

PPL28 PROJECT NOMINEE FACT SHEET
February 1, 2018

Project Name
Breton Landbridge Marsh Creation (West), River aux Chenes to Grand Lake

Project Location
Region 2, Breton Basin, Plaquemines Parish

Problem
The wetlands within this area have a unique history. Historically this area was nourished by the fresh water, sediment and nutrients delivered by the Mississippi River. Following the creation of levees along the lower river, these inputs ceased, with exception of levee breaches in 1923 and 1927. In 1991, the Caernarvon Freshwater Diversion Structure became operational with capabilities to divert up to 8,000 cubic feet/sec. As a result of these freshwater influences, the marshes in the area have fluctuated between fresh/intermediate and brackish/saline habitat types over time. The major cause of wetland loss for this area has been attributed to storm activity (i.e. Hurricanes Betsy and Katrina), causing both storm-induced scour and forcing salt water into the lower salinity marshes. Altered hydrology and oil/gas development have exacerbated storm-related loss. Subsidence, high in this area, ranges from 2.1-3.5 ft/century. Natural lakes and bays continue to increase in size due to coalescence with marsh lost to water and increased wave fetch. The 1984 to 2016 USGS loss rate is -1.58%/yr for the extended boundary area.

Goals
The project goals are to restore 423 acres of marshes and bank lines along the south side of Grand Lake. The proposed first phase would address the critical reach of the landbridge by restoring the Grand Lake shoreline. This project is part of an overall, long-range, restoration goal which would create/nourish 1,000 to 2,000 acres of intermediate marsh across 7 miles of the Breton Basin from River aux Chenes to Bayou Terre aux Bouefs.

Proposed Solution
There will be 315 and 108 acres of marsh creation and marsh nourishment, respectively, via confined disposal in four disposal areas of sediment dredged from Grand Lake. Three disposal areas will be fronted by constructing a lakeside berm. The berm would be constructed with a combination of bucket dredge and marsh buggies. The lakeside slope of the berm would be planted with appropriate vegetation. The marsh creation acres would not be planted. The non-lakeside portions of the dikes will be gapped no later than three years post construction (i.e., the lakeshore berm would not be gapped). Data will be acquired from 224 additional acres to allow for robust alternatives analysis and/or upscaling the project during engineering and design.

The overall landbridge concept incorporates marsh and shoreline restoration in a west-to-east configuration across the basin to be completed in three phases. Once restored, the land-bridge would reduce the potential for coalescence of Lake Lery with Grand Lake and Lake Petit.

Preliminary Project Benefits
1) *What is the total acreage benefited both directly and indirectly?*
The total project area of this phase is approximately 423 acres.

2) *How many acres of wetlands will be protected/created over the project life?*
Approximately 250-300 acres of intermediate marsh would be protected/created over the project life for this phase.

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 restore portions of Orange Bayou and Grand Lake shorelines.

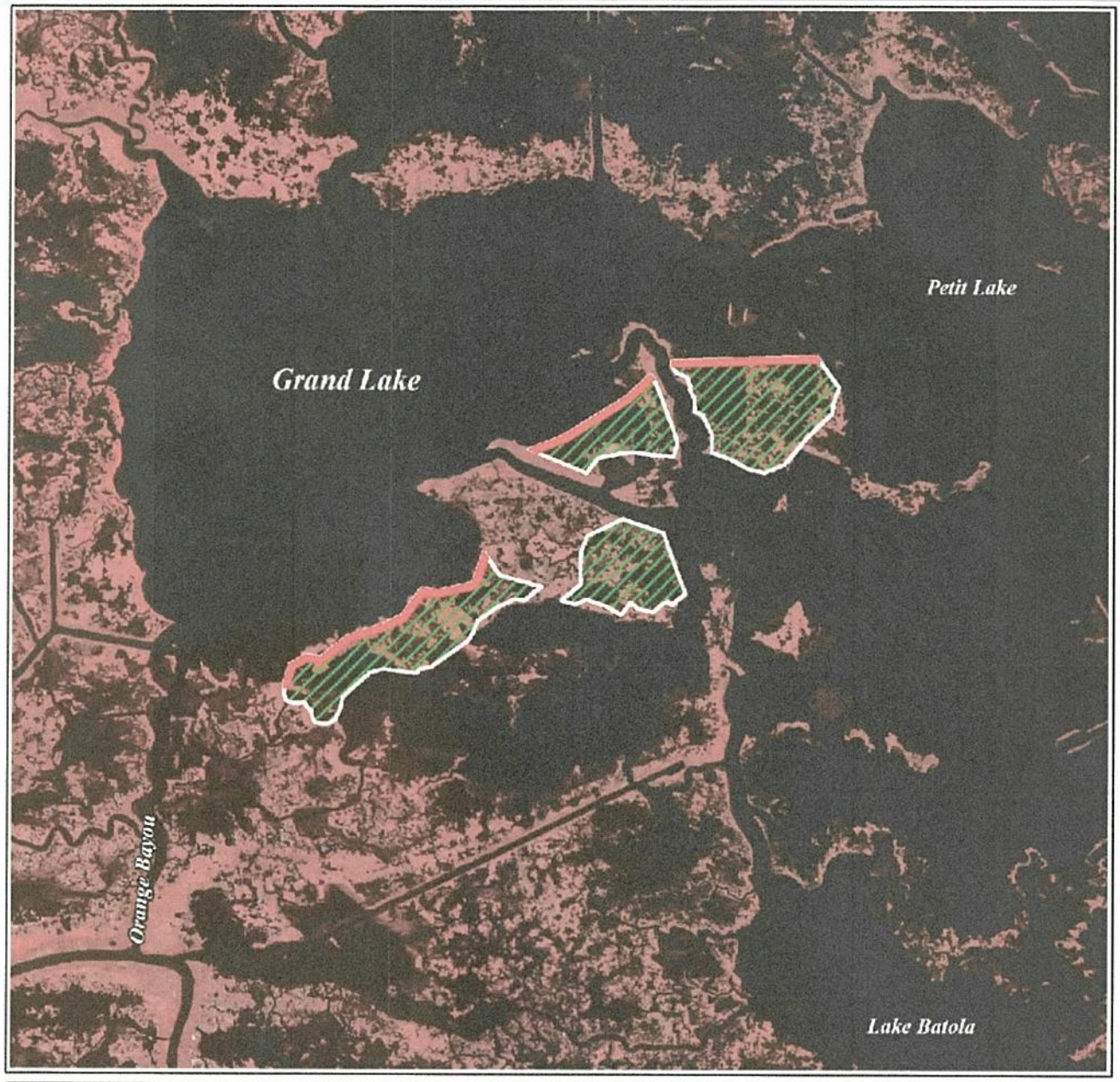
5) *What is the net impact of the project on critical and non-critical infrastructure?*
The project may have moderate net positive impact to non-critical infrastructure comprised of pipelines and oil and gas wells.

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) BS-16 South Lake Lery Shoreline and Marsh Restoration, 2) BS-24 Terracing and Marsh Creation South of Big Mar, 3) CIAP project constructed west of Delacroix, 4) the Caernarvon Freshwater Diversion, and 5) Mid-Breton Landbridge (recently authorized).

Considerations
The proposed project has land rights considerations.

Preliminary Cost
The estimated construction cost plus contingency is $25M-$30M.

Preparer(s) of Fact Sheet:
Dawn Davis, NOAA Fisheries, 225-389-0508, ext 206, dawn.davis@noaa.gov
Patrick Williams, NOAA Fisheries, 225-389-0508, ext 208, patrick.williams@noaa.gov



Breton Landbridge Marsh Creation (West), River aux Chenes to Grand Lake

(PPL28 Nominee)

USGS
science for a changing world

N

Earthen Berm *

Marsh Creation *

Project Boundary

* denotes proposed features

0.5 0 0.5 1 Kilometers

0.5 0 0.5 1 Miles

Scale: 1:40,000

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

Map ID: 2017-11-0040
Map Date: August 31, 2017

Image Source:
2016 DOQQ

NOAA FISHERIES

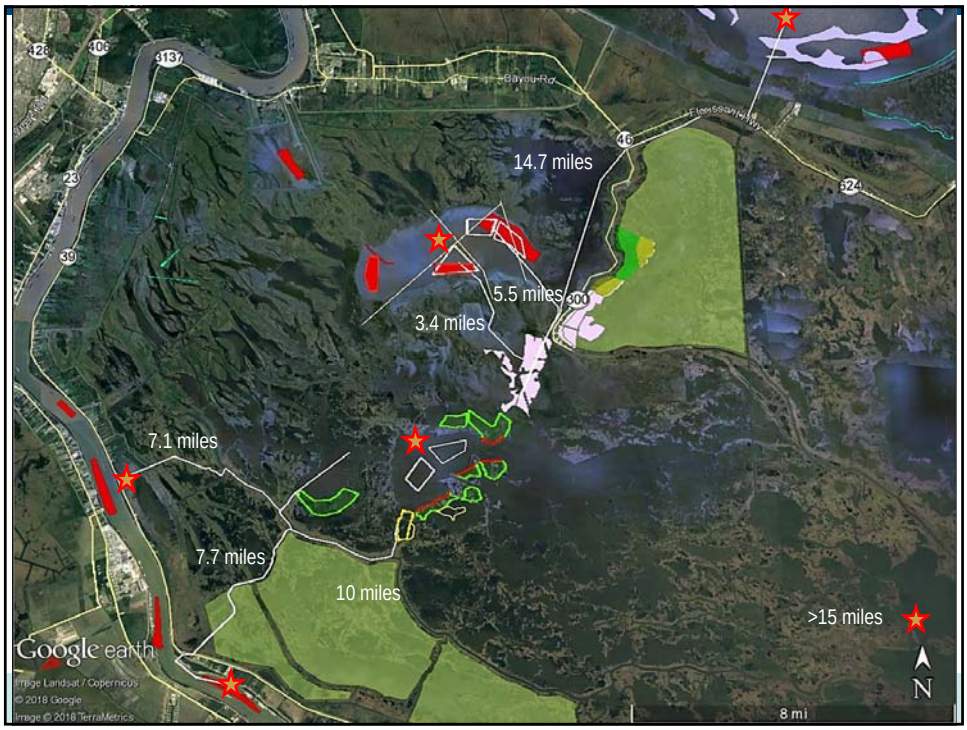
Habitat Conservation Division

PPL28 Breton Landbridge
West Marsh Creation
Central Marsh Creation

February 1, 2018

PPL22 Breton Landbridge


PPL 26-Bayou La Loutre
Belle Chasse
MED
Port Sulphur
Empire
NOAA Fisheries | Page 3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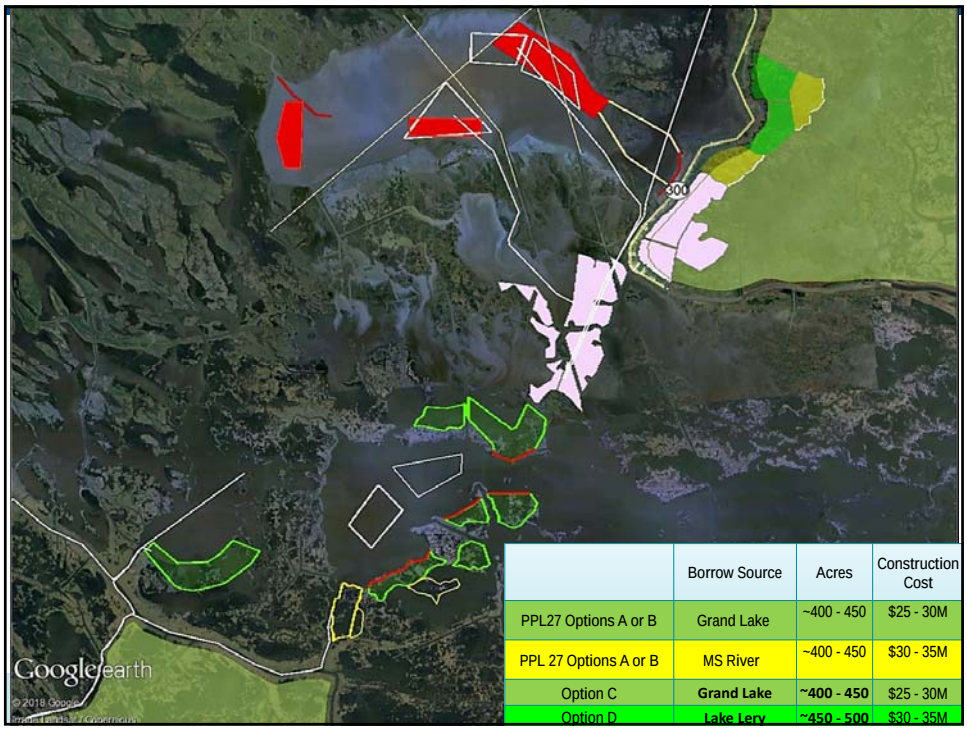
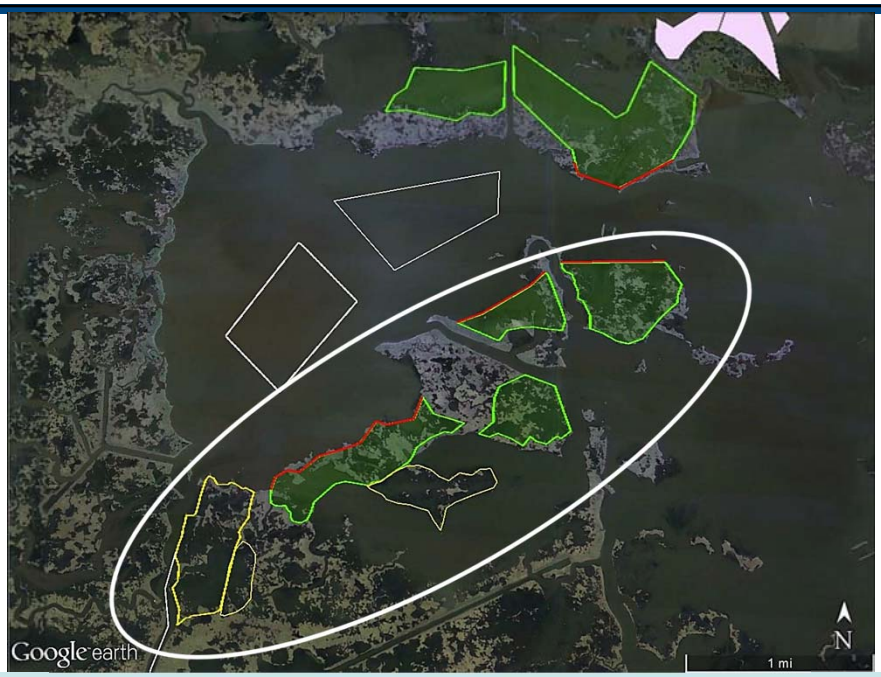


	Borrow Source	Acres	Construction Cost
PPL27 Options A or B	Grand Lake	~400 - 450	$25 - 30M
PPL 27 Options A or B	MS River	~400 - 450	$30 - 35M
Option C	**Grand Lake**	**~400 - 450**	$25 - 30M
Option D	**Lake Lery**	**~450 - 500**	$30 - 35M

NOAA FISHERIES

Breton Landbridge Marsh Creation (West) River aux Chenes to Grand Lake


Google earth
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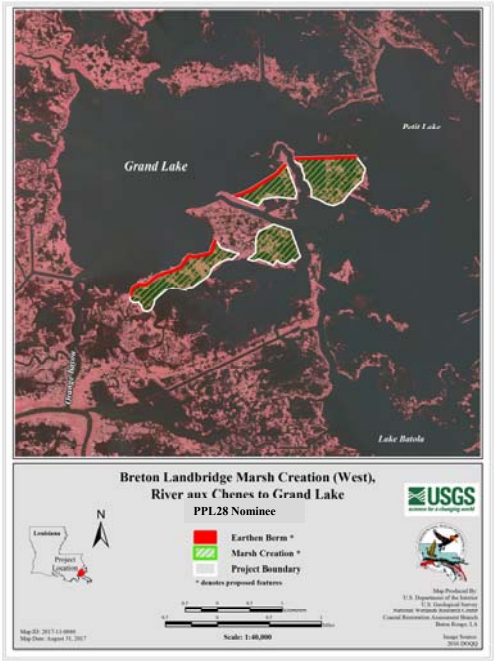
Grand Lake
Petit Lake
Lake Batola
Breton Landbridge Marsh Creation (West),
River aux Chenes to Grand Lake
PPL28 Nominee
Earthen Berm *
Marsh Creation *
Project Boundary
* denotes proposed features
Louisiana
Project Location
N
Scale: 1:40,000
USGS

Summary

- Total: 423 ac
- Marsh Creation: 315 ac
- Marsh Nourishment: 108 ac
- TY20 Net: 250 - 300 ac
- Grand Lake Borrow
- Construction Cost + 25% Contingency Range: $25M - $30M

R2-BS-02

Breton Landbridge Central Marsh Creation

BS-02

PPL28 PROJECT NOMINEE FACT SHEET
February 1, 2018

Project Name
Breton Landbridge Central Marsh Creation
Project Location
Region 2, Breton Basin, Plaquemines Parish

Problem
Historically, this area was nourished by the freshwater delivered by the Mississippi River until the creation of the levees along the lower river. In 1991, the Caernarvon Freshwater Diversion began delivering freshwater to the marshes in the area. The major cause of wetland loss has been to storm activity (i.e. Hurricanes Betsy and Katrina), causing both storm-induced scouring and salt water intrusion. High subsidence rates range from 2.1-3.5 ft/century. Natural lakes and bays are increasing in size due to coalescence with marsh lost to water and increased wave fetch. The 1984 to 2016 USGS loss rate is -1.79%/yr for the extended project boundary area from the average of the adjacent Breton Landbridge West and Mid-Breton Landbridge projects.

Goals
The project goal is to restore approximately 410 acres of marsh and banklines along the north shore of Grand Lake at the intersection with Bayou Gentilly and Petit Lake. This is the proposed third phase in a comprehensive restoration goal to create/nourish 1,000 to 2,000 acres of marsh across 7 miles of the Breton Basin from River aux Chenes to Bayou Terre aux Bouefs.

Proposed Solution
There will be 310 and 100 acres of marsh creation and marsh nourishment, respectively, via confined disposal in two disposal areas of sediment dredged from Grand Lake. A portion of the disposal area at the intersection of Grand Lake, Bayou Gentilly, and Petit Lake would be fronted by constructing a lakeside berm. The lakeside slope of the berm would be planted with appropriate vegetation. The marsh creation acres would not be planted. The non-lakeside portions of the dikes will be gapped no later than three years post construction (i.e., the lakeshore berm would not be gapped). If selected for candidacy, small terrace fields may be added north of the marsh creation to provide protection from shoreline erosion.

The overall landbridge concept incorporates marsh and shoreline restoration in a west-to-east configuration across the basin to be completed in three phases. Once restored, the land-bridge would reduce the potential for coalescence of Lake Lery with Grand Lake and Lake Petit.

Preliminary Project Benefits

1) *What is the total acreage benefited both directly and indirectly?*
   This total project area is 410 ac.

2) *How many acres of wetlands will be protected/created over the project life?*
   Approximately 250-300 acres of habitat 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 restore the structural frame work of Grand Lake and Bayou Gentilly.

5) *What is the net impact of the project on critical and non-critical infrastructure?*
The project would have minor net positive impact non-critical oil and gas infrastructure in the project vicinity.

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 the authorized Mid-Breton Landbridge project, South Lake Lery Shoreline and Marsh Restoration (BS-16), Terracing and Marsh Creation South of Big Mar (BS-24), and other increments along the Breton Landbridge.

Considerations
The proposed project has potential utility/pipeline considerations.

Preliminary Construction Costs
The construction cost + 25% contingency range is $20M-$25M.

Preparer(s) of Fact Sheet:
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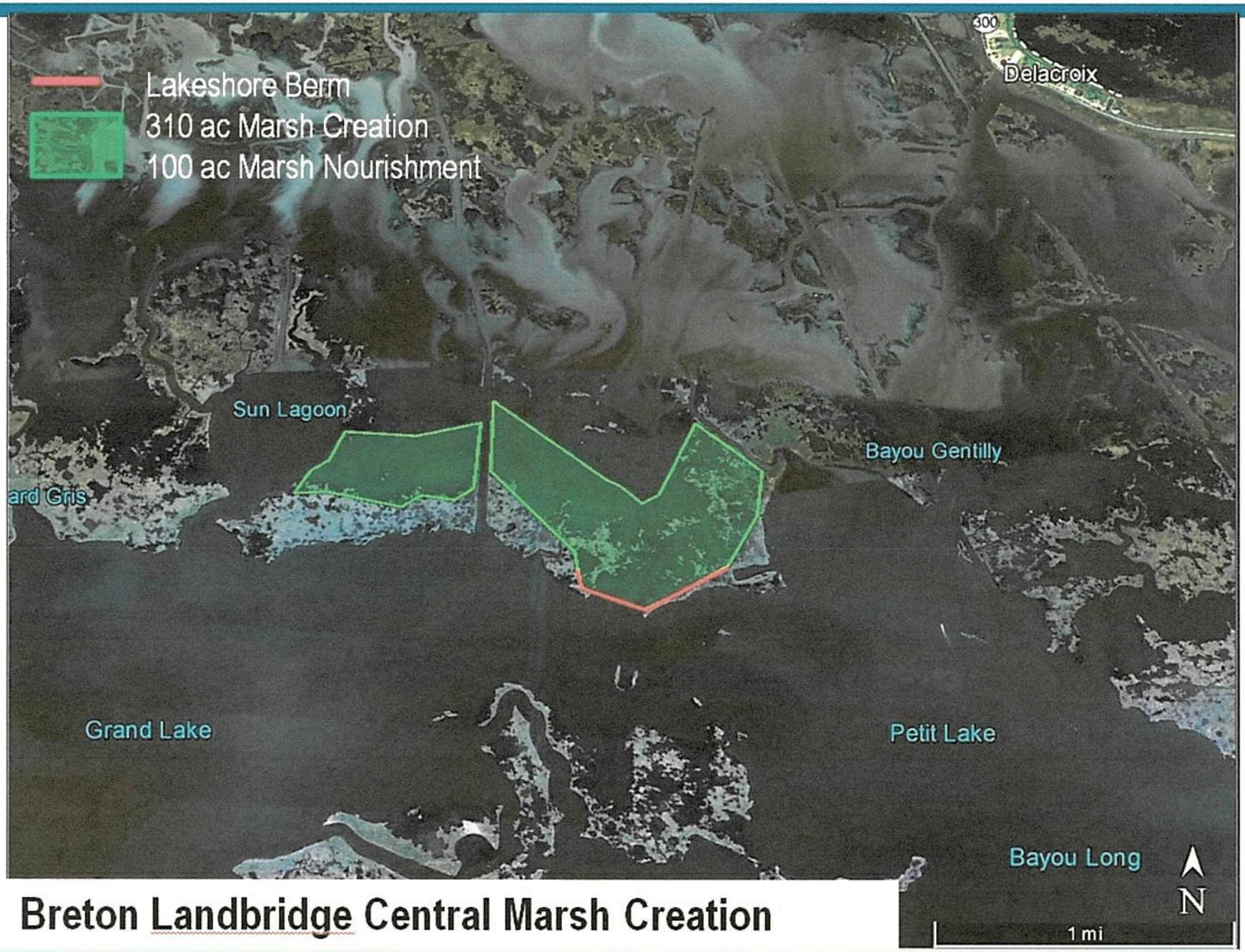
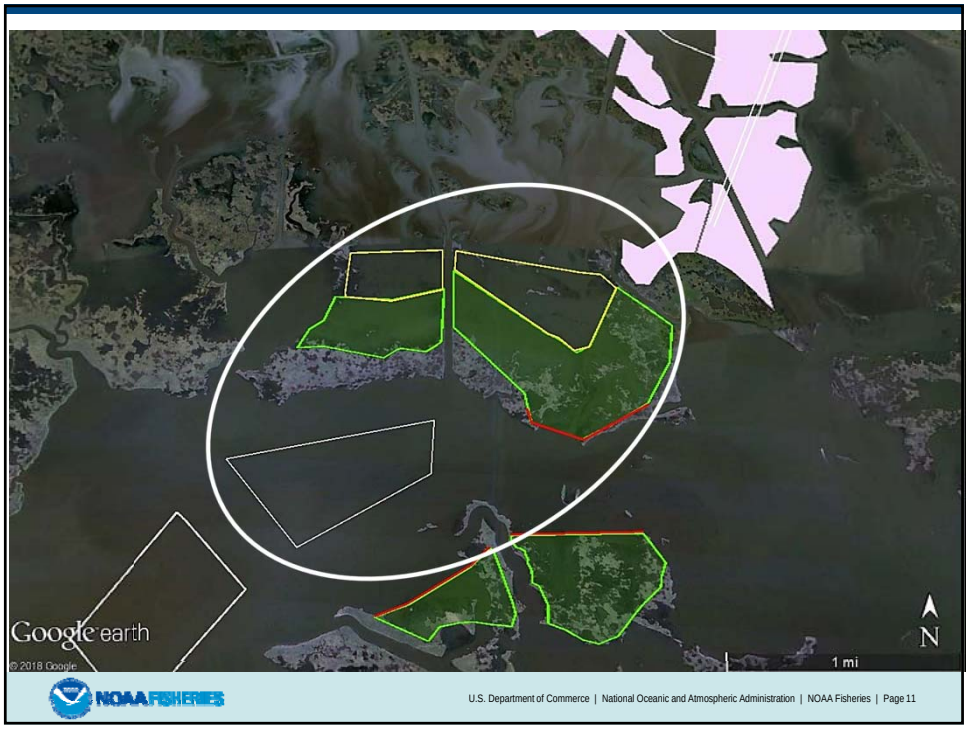
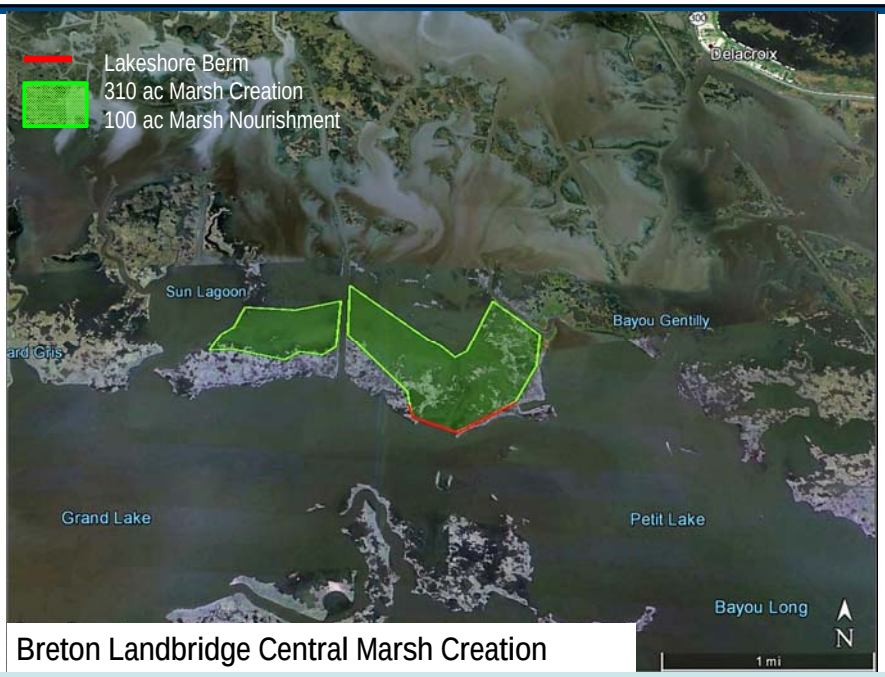


Breton Landbridge Central Marsh Creation

NOAA FISHERIES

Breton Landbridge Central Marsh Creation





Breton Landbridge Central Marsh Creation

Summary

- Total: 410 ac
- Marsh Creation: 310 ac
- Marsh Nourishment: 100 ac
- TY20 Net: 250 – 300 ac
- Grand Lake Borrow
- Construction Cost + 25% Contingency Range: $20M - $25M

R2-BS-03

Spanish Lake Marsh Creation, South Shoreline

152-05

PPL28 PROJECT NOMINEE FACT SHEET
February 1, 2018

Project Name
Spanish Lake Marsh Creation, South Shoreline

Project Location
Region 2, Breton Basin, Plaquemines Parish

Problem
Wetland loss in Breton Sound Basin from subsidence, saltwater intrusion, erosion of wetlands, river levee and oil/gas construction has caused large impacts to this region in recent decades. After Hurricane Katrina in 2005, a major wetland loss event occurred in this area due to both storm-induced scour and salt water intrusion into the lower salinity marshes. The altered hydrology and oil/gas development have exacerbated this storm-related loss. Spanish Lake continues to increase in size due to coalescence with marsh lost to water and increased wave fetch. High subsidence rates range from 4.4-6.5 mm/year. The 1984 to 2016 USGS land loss rate for this area is -1.58%/yr (adjacent Breton Landbridge West project (PPL27 candidate)).

Goals
The project goal is to create and nourish approximately 324 acres of intermediate marsh along the southern bank of Spanish Lake.

Proposed Solution
The proposed solution would be to create approximately 275 acres and nourish 49 acres to restore the southern portion of the Spanish Lake shoreline. Sediment will be hydraulically pumped from the Myrtle Grove borrow source in the Mississippi River near Phoenix, LA. Temporary containment dikes will be constructed and gapped within three years of construction to allow greater tidal exchange and estuarine organism access. This marsh creation project is envisioned as part of a larger restoration effort of continuing to restore the northeastern shoreline of Spanish Lake with an additional phase of marsh creation.

Preliminary Project Benefits

1) *What is the total acreage benefited both directly and indirectly?*
   The total project area is approximately 324 acres.

2) *How many acres of wetlands will be protected/created over the project life?*
   The net acre benefit range is 200-250 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 hyper-temporal data from 1984 to 2016 shows from -1.58%/year from an adjacent CWPPRA PPL27 candidate in the area)

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 restore portions of Spanish Lake shoreline.

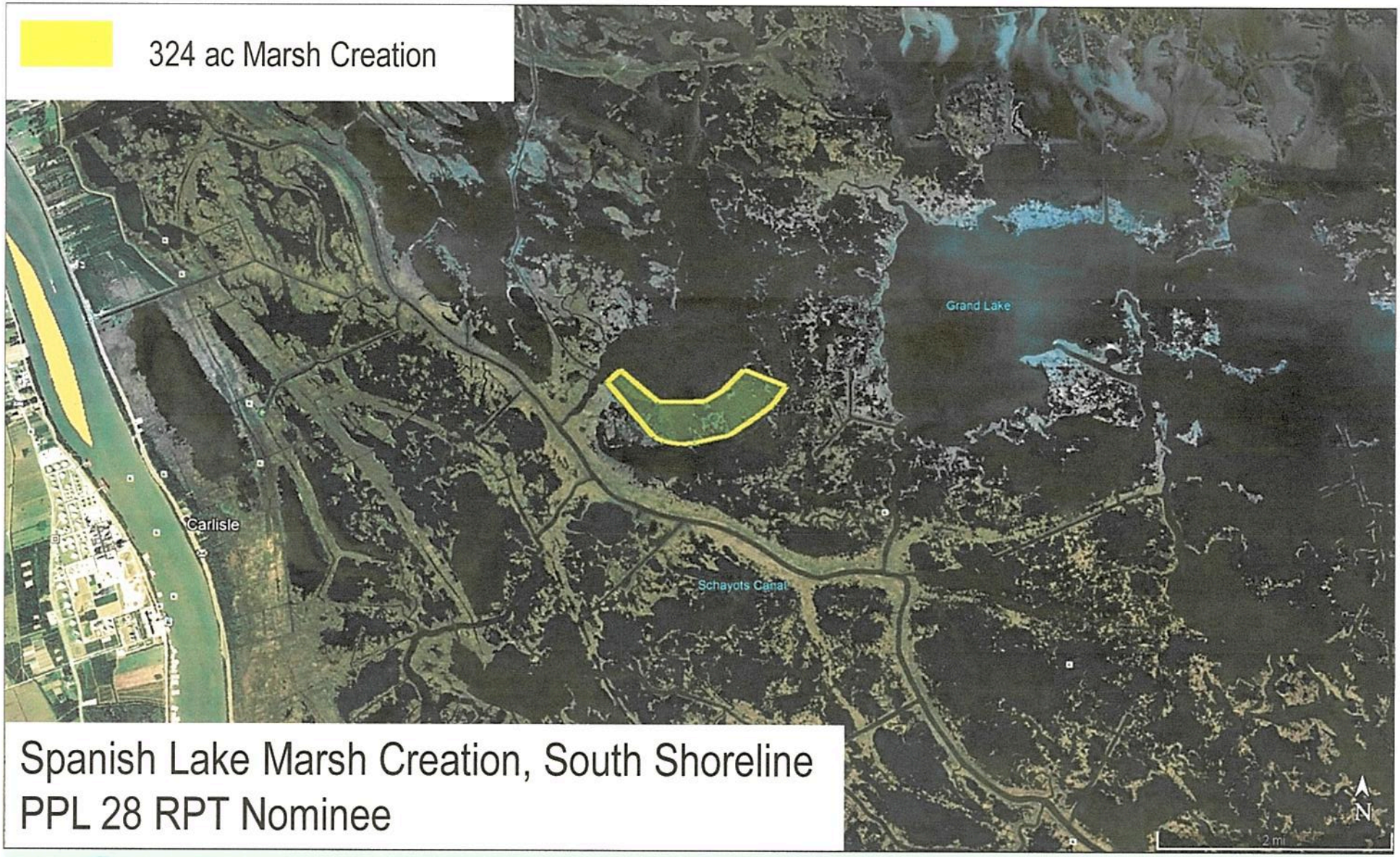
5) *What is the net impact of the project on critical and non-critical infrastructure?*
The project may have minor net positive impact to non-critical infrastructure comprised of pipelines and oil and gas wells.

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) BS-16 South Lake Lery Shoreline and Marsh Restoration, 2) BS-24 Terracing and Marsh Creation South of Big Mar, 3) CIAP project constructed west of Delacroix, 4) the Caernarvon Freshwater Diversion, and 5) Mid-Breton Land Bridge Marsh Creation and Terracing (recently authorized).

Considerations
The proposed may have land rights considerations.

Preliminary Construction Costs
The estimated construction cost plus 25% contingency range is $35M-$40M.

Preparer(s) of Fact Sheet:
Dawn Davis, NOAA Fisheries, 225-389-0508, ext 206, dawn.davis@noaa.gov
Jason Kroll, NOAA Fisheries, 225-757-5411, jason.kroll@noaa.gov



Spanish Lake Marsh Creation, South Shoreline
PPL 28 RPT Nominee

NOAA FISHERIES

Spanish Lake Marsh Creation

NOAA FISHERIES

Habitat Conservation Division

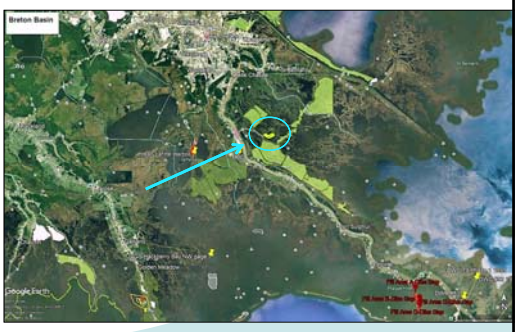
Region 2 - Breton Basin

Presenter: Dawn Davis

PPL28 CWPPRA Regional Planning Team Meeting

Lacombe, LA

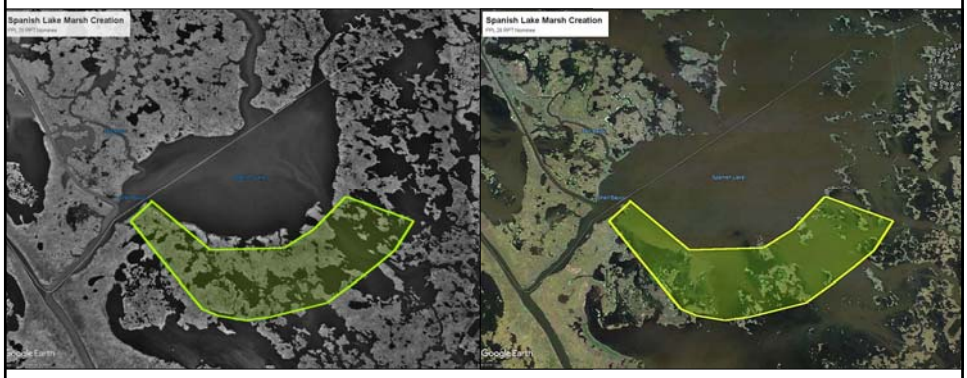
February 1, 2018



Project Vicinity

Project Area Problems

1999 2016

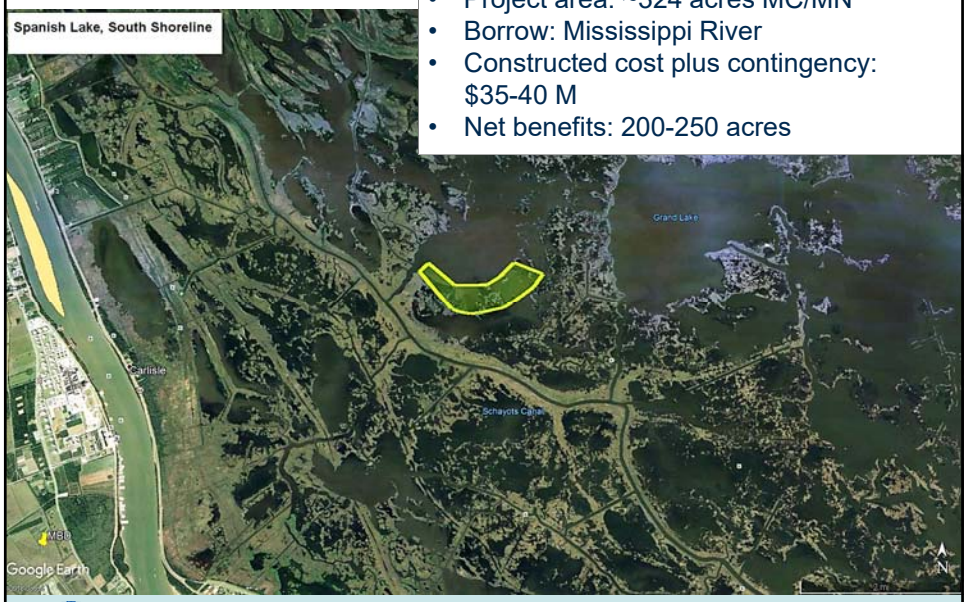


Proposed project solution

Spanish Lake Marsh Creation and borrow area

Project Features and Benefits

- Project area: ~324 acres MC/MN
- Borrow: Mississippi River
- Constructed cost plus contingency: $35-40 M
- Net benefits: 200-250 acres



Questions?

Contact information:

Dawn Davis
225-389-0508, Dawn.Davis@noaa.gov

Jason Kroll
225-757-5411, Jason.Kroll@noaa.gov

R2-BS-04
North Lake Lery Wetland Restoration

PPL28 PROJECT NOMINEE FACT SHEET
February 1, 2018

Project Name: North Lake Lery Wetland Restoration

Project Location:
Region 2, Breton Sound Basin, St. Bernard Parish, North and West of Lake Lery

Problem:
According to USGS-NWRC mapping, much of the wetlands surrounding Lake Lery were heavily damaged along with the Lake Lery shoreline due to Hurricane Katrina. Since 2005 this area has been hit with 4 Hurricanes (Gustav, Ike, Ida, Issac) and at least 1 Tropical Storm (Lee). The marshes in the area have never had time to completely heal before the next major storm hit. Wind induced waves are now damaging the interior marshes north of the Lake causing accelerated interior marsh loss. In addition, the storms deposited material into the 40-Arpent canal until now it has been plugged allowing no or very little water to flow into the marshes east of Bayou Mandeville.

There is also a canal that carries water directly from the Carnarvon Freshwater Diversion Canal to marshes west and south of Big Mar. The levees that have been constructed along this canal due to maintenance events are not gapped and therefore do not allow sediment and nutrient rich waters to nourish adjacent marshes.

Goals:
The project goals are to 1) clear an 80 ft. x 8 ft. channel of debris for up to 25,000 ft. to allow water from Bayou Mandeville via Caernarvon Freshwater Outfall Canal to flow eastward down the 40-arpet canal.

Service goals include the creation of habitat or improvement of habitat for rare species, species of concern, and threatened and endangered species. The creation of brackish intertidal marsh habitat would be beneficial to several species that are currently on the lists of rare species and species of concern. These include, but are not limited to Least Bittern, Black Rail, Mottled Duck, Brown Pelican, King Rail, and Saltwater topminnow.

Proposed Solutions:
The proposed project would: 1) Restore the 40-arpent canal to a width of 80ft. and a depth of 8 ft. up to 25,000 ft. with the use of a bucket dredge. Naturally occurring material (mud) would be placed along the southern shoreline of the canal and "storm debris" would be placed in a barged to be disposed of off-site. This would allow water from the Caernarvon Freshwater Diversion Outfall Canal to flow toward the east. The southern bank of the canal directly south of Big Mar would be gapped in several places to allow water to flow south through the marshes.

Preliminary Project Benefits:
1) What is the total acreage benefited both directly and indirectly? Approximately 16,000 acres would be benefited.

2) How many acres of wetlands will be protected/created over the project life? The total net acres protected/created over the project life has yet to be determined.

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

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

5) What is the net impact of the project on critical and non-critical infrastructure? Adding fresh nutrient rich water into the area east of Bayou Mandeville will help marshes protecting the Levee.

6) To what extent does the project provide a synergistic effect with other approved and/or constructed restoration projects? This project would work synergistically with the constructed BS-16, BS-?, and St. Bernard CIAP project. This would also be synergistic with the BS-24 project which is in Phase II.

Identification of Potential Issues:
The proposed project has the following potential issues: There could be pipelines in the project area.

Preliminary Construction Costs:
The estimated construction cost including 25% contingency is < $5 M.

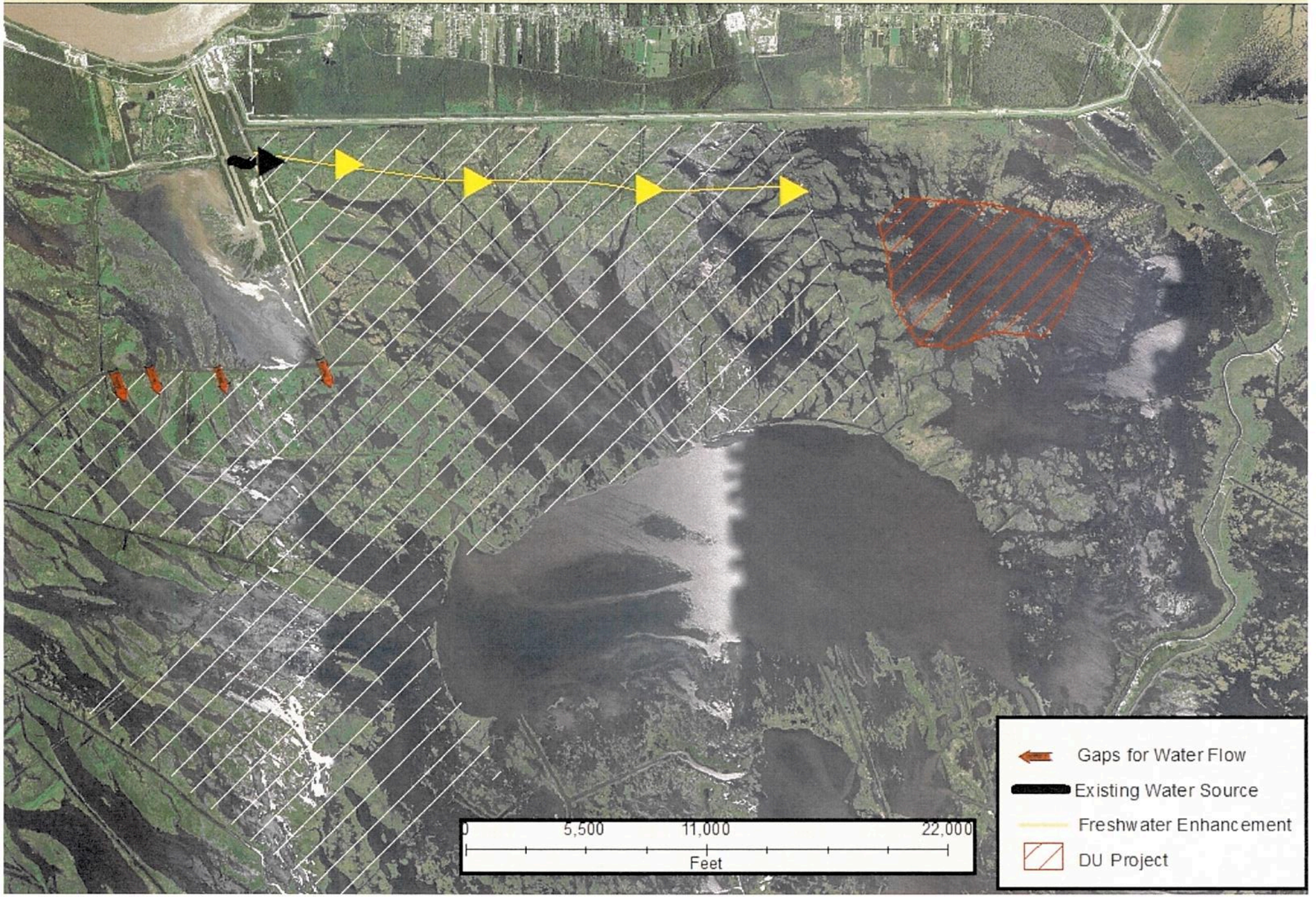
Preparer(s) of Fact Sheet:
Robert Dubois (337) 291-3127 robert_dubois@fws.gov

U.S. Fish & Wildlife Service

preliminary map3-06-07.mxd

Louisiana Ecological Services

PPL28 North Lake Lery Wetland Restoration

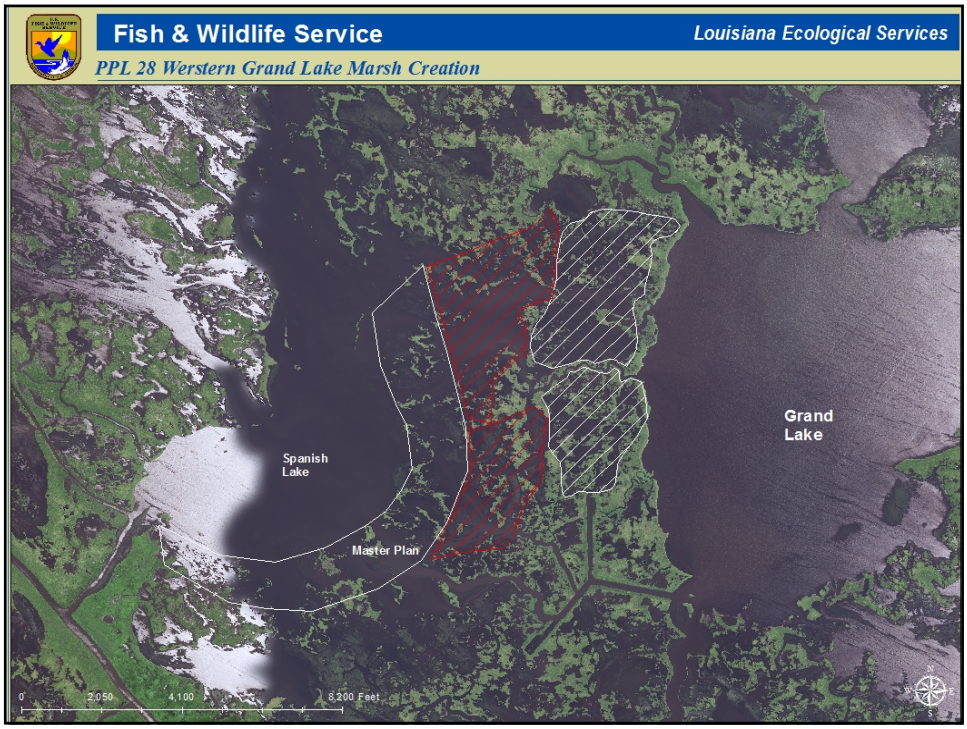


GRAND LAKE WEST MARSH CREATION AND TERRACING

GRAND LAKE WEST
MARSH CREATION AND TERRACING

Problem:

- **Hurricane Katrina destroyed thousands of acres of marsh**
- **Estimated over 40 sq. miles of marsh were converted to open water from Hurricane Katrina**
- **Because of increased open water, wave fetch induced erosion is now a problem**
- **40 Arpent Canal plugged; impedes water flow from Bayou Mandeville**
- **Canal levee south of Big Mar impedes water flowing south from Caernarvon.**




Borrow
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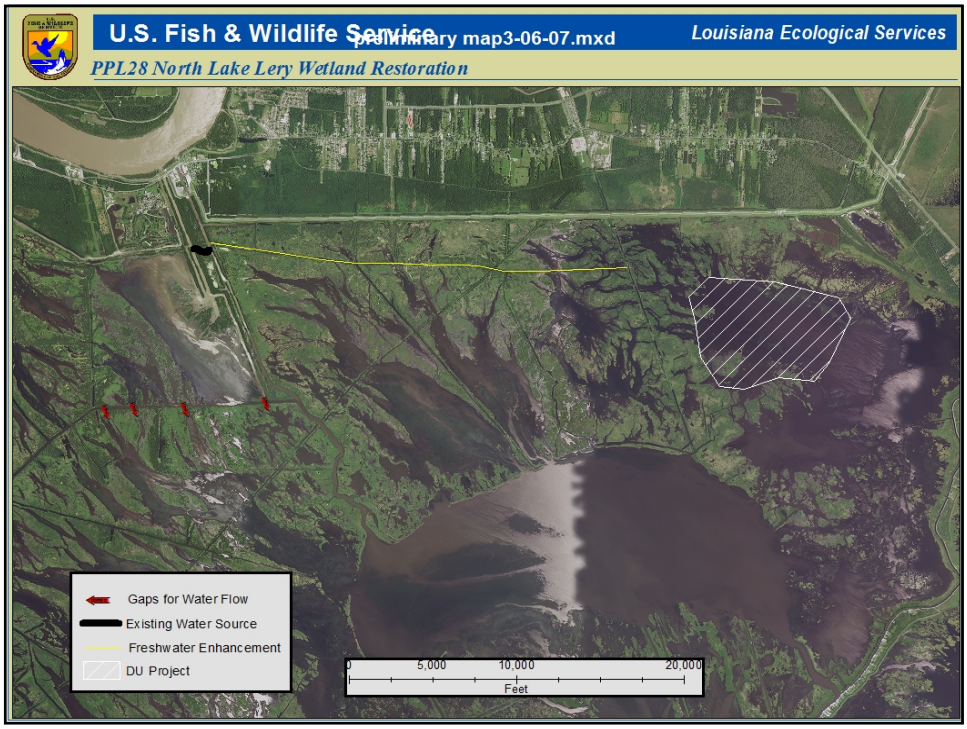
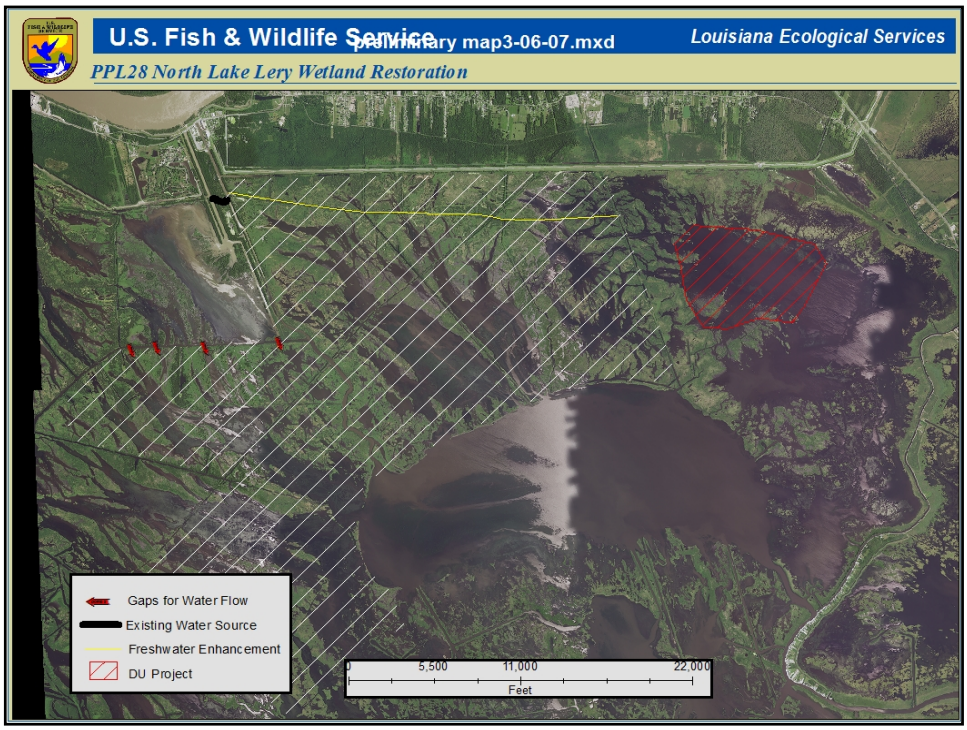

U.S. Fish & Wildlife Service
preliminary map3-06-07.mxd
Louisiana Ecological Services
PPL28 North Lake Lery Wetland Restoration
Gaps for Water Flow
Existing Water Source
Freshwater Enhancement
DU Project
0
5,000
10,000
20,000
Feet



GRAND LAKE WEST MARSH CREATION AND TERRACING

Solution:

- **Hydraulically dredge material from Grand Lake to create and nourish emergent intertidal marsh**
- **Construct Terraces in open water areas between Grand and Spanish Lake**
- **Remove debris from the 40 Arpent Canal to allow water to flow and nourish marshes east of Bayou Mandeville**
- **Gap canal levee located south of Big Mar allowing direct nourishment of marshes south of canal.**

GRAND LAKE WEST MARSH CREATION AND TERRACING

Goals:

- Create/nourish 360 acres of marsh between Spanish and Grand Lakes
- Create 25,000 LF of terraces (365 acre terrace field) east of Spanish Lake
- Remove storm debris from the 40 Arpent Canal (25,000 LF)
- Gap levee south of Big Mar

Net Acres:

- Total net acres = 248 acres (not including hydraulic components)
- Acres impacted = 16,700 acres

Preliminary Construction Costs

- The estimated construction cost range plus 25% contingency $15-$20M.

Species of Concern and Rare Species

- Least Bittern
- Black Rail
- Mottled Duck
- Brown Pelican
- King Rail

R2-BS-05

Wills Point South Marsh Creation

BS-05

PPL 28 PROJECT FACT SHEET
1 February 2018

Project Name
Wills Point South Marsh Restoration

2017 Master Plan Strategy
001.MC.107 Tiger Ridge/ Maple Knoll Marsh Creation: Creation of approximately 4,700 acres of marsh in Plaquemines Parish near Tiger Ridge to create new wetland habitat and restore degraded marsh.

Project Location
Region 2, Breton Sound Basin, Plaquemines Parish

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

Proposed Project Features
Approximately 3.1 million CY of material would be mined from the Mississippi River from the point bar at Wills Point. It would be used to restore 576 acres of marsh adjacent to the River aux Chenes and Tiger Ridges. Containment dikes would be constructed around entire perimeter, however existing spoil banks and ridges will be considered as well for containment of river material.

Project Benefits
468 acres of open water would be filled with sediment dredged from the Mississippi River, and 108 acres of degraded marsh would be nourished. Project also protects natural ridges of Rive aux Chenes and Tiger Ridge, as well as adjacent levees which are critical to neighboring communities of Bertrandville and Wills Point.

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

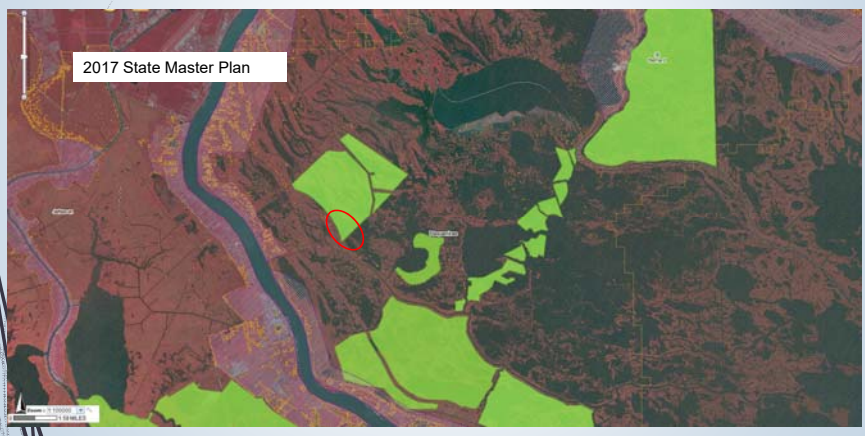
Preparers of Fact Sheet
Scott Wandell, USACE, 504-862-1878 Scott.F.Wandell@usace.army.mil


PPL 28 WILLS POINT SOUTH MARSH RESTORATION
309 ac
267 ac
Caskett Bayou
N
Sun Bayou
Shell Bayou
Marsh Creation

Wills Point South Marsh Restoration

PPL 28
Region 2
Breton Sound Basin

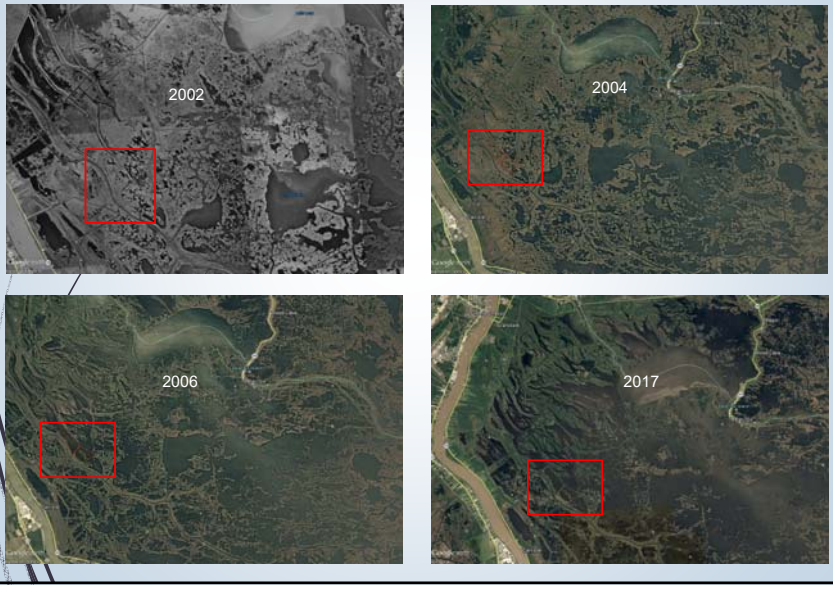
Project Location:



Problem:

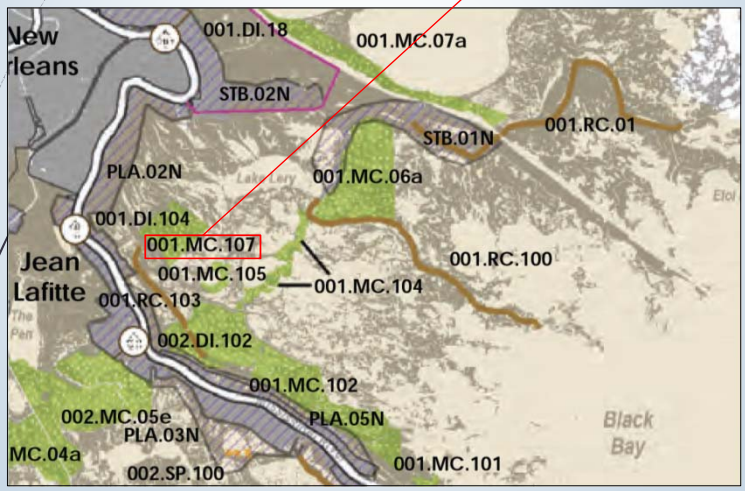
- The project area is mostly shallow open water that began to appear when marsh was lost between 1958 and 1974, due to subsidence, salinity spikes and tropical events.
- However the major losses incurred in this area were a result of Hurricane Katrina in 2005, and have experienced steady deterioration since.

Land Loss over Time:



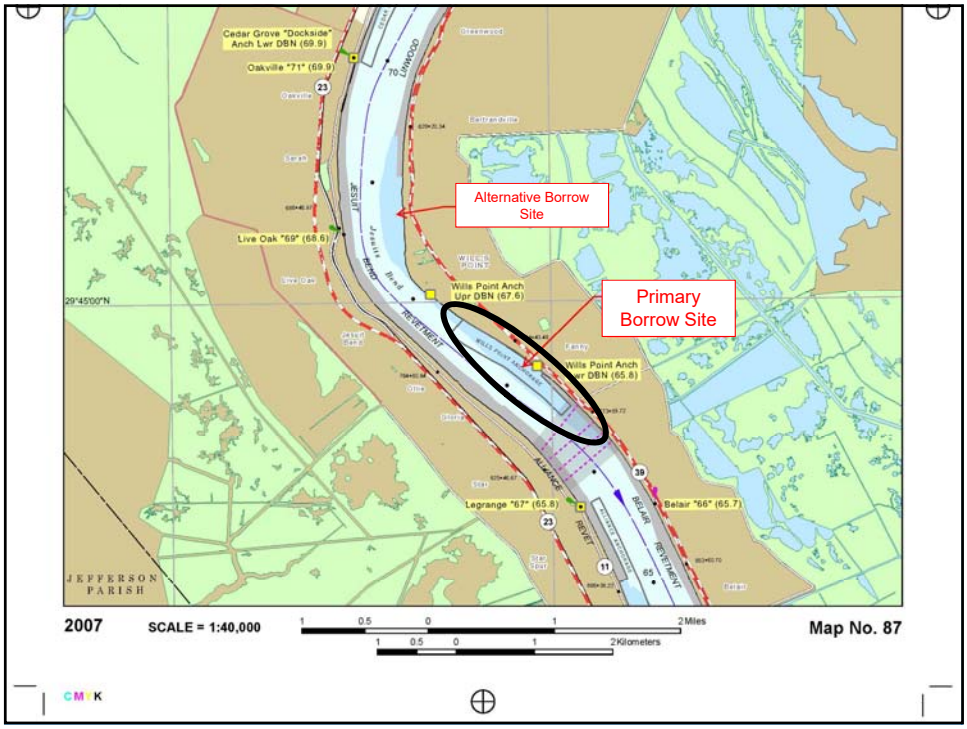
Master Plan Strategy:

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



Proposed Project Features:

- Restore 576 acres of marsh (468 created/108 nourished)
- Approximately 3.1 million CY of material would be mined from the Mississippi River
- The existing spoil banks and ridges could potentially be used to contain the dredge material.



Summary:

- Create 468 acres of emergent marsh
- Nourish 108 acres of degraded wetlands
- Restore marsh and critical habitat around Spanish Lake and natural ridges (River aux Chene,, and Tiger Ridge)
- Estimated Construction Cost + 25% contingency $30-35M

R2-BS-06

Phoenix Marsh and Ridge Restoration

BS-06

PPL28 PROJECT NOMINEE FACT SHEET
February 1, 2018

Project Name
Phoenix Marsh and Ridge Restoration

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

Problem
Within the project vicinity, marsh loss has occurred with the construction of oil/gas canals, subsidence, and sediment deprivation. Based on USGS' hyper-temporal analysis (1985-2016) for the Schayots Canal mapping unit, the loss rate for this area is estimated to be -1.00% per year.

Goals
The primary goals of this project are; 1) create forested, coastal ridge habitat, 2) restore marsh habitat in the open water areas via marsh creation and terracing, and 3) reduce fetch and wave energy in open water areas via the construction of terraces. Specific goals of the project are: 1) Create approximately 8,450 feet (17 acres) of forested ridge; 2) create approximately 390 acres of marsh with dredged material from the Mississippi River; and 3) create 9,500 linear feet (7 acres) of terraces.

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

Proposed Solution
1. Riverine sediments will be hydraulically dredged and pumped via pipeline to create 17 acres of ridge habitat and create/nourish approximately 390 acres of marsh.
2. Approximately 9,500 linear feet (7 acres) of terraces will be constructed.
3. Containment dikes will be gapped and the ridge and terraces will be planted.

Preliminary Project Benefits
1) *What is the total acreage benefited both directly and indirectly*? Approximately 577 acres would be benefited directly and indirectly. Direct benefits include 17 acres of forested, coastal ridge habitat, 390 acres of marsh creation, and 7 acres of terraces. Indirect benefits would occur to surrounding marshes and within the terrace field.

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

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

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

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

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

Identification of Potential Issues
None identified at this time.

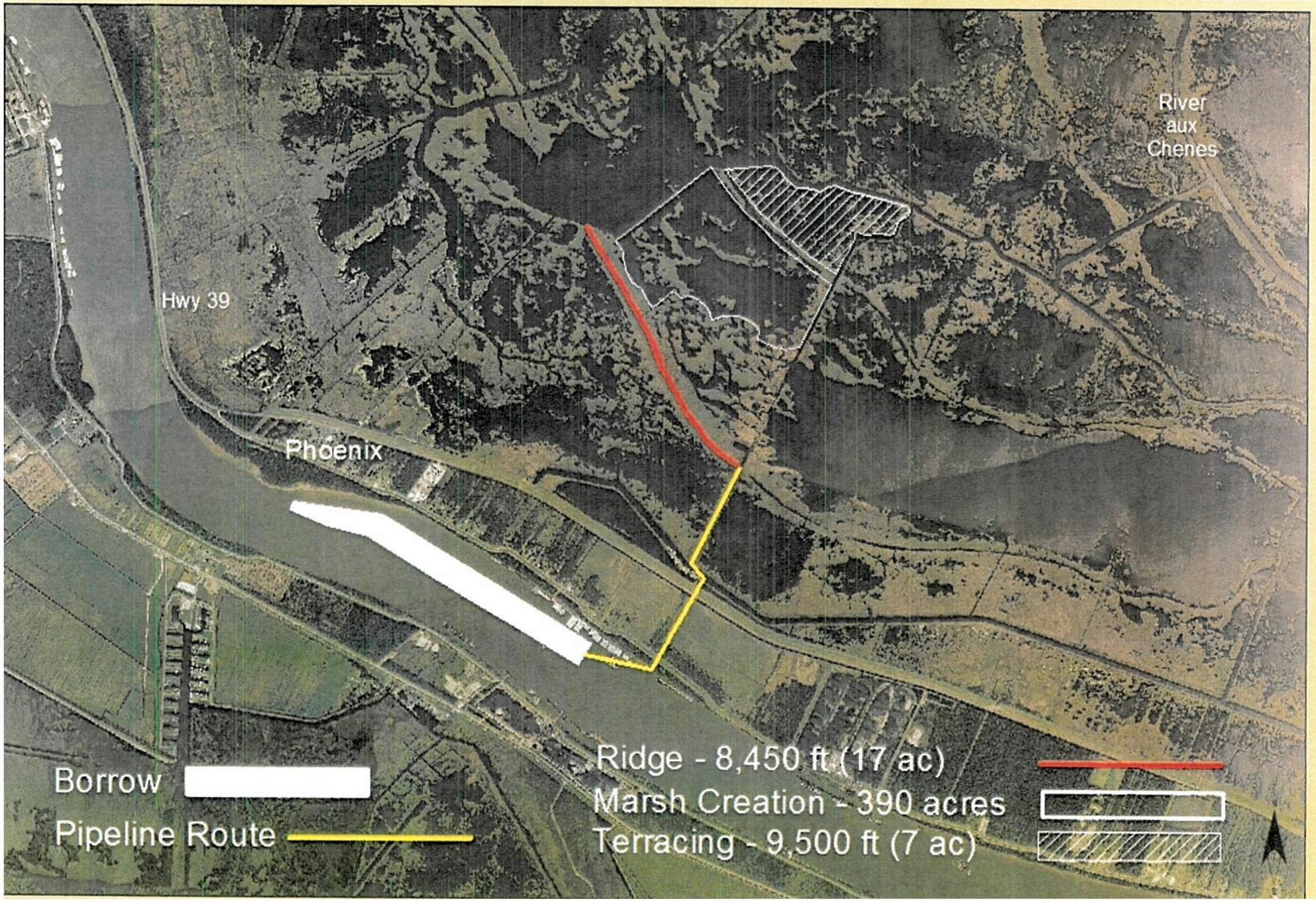
Preliminary Construction Costs
The estimated construction cost including 25% contingency is $30M - $35M.

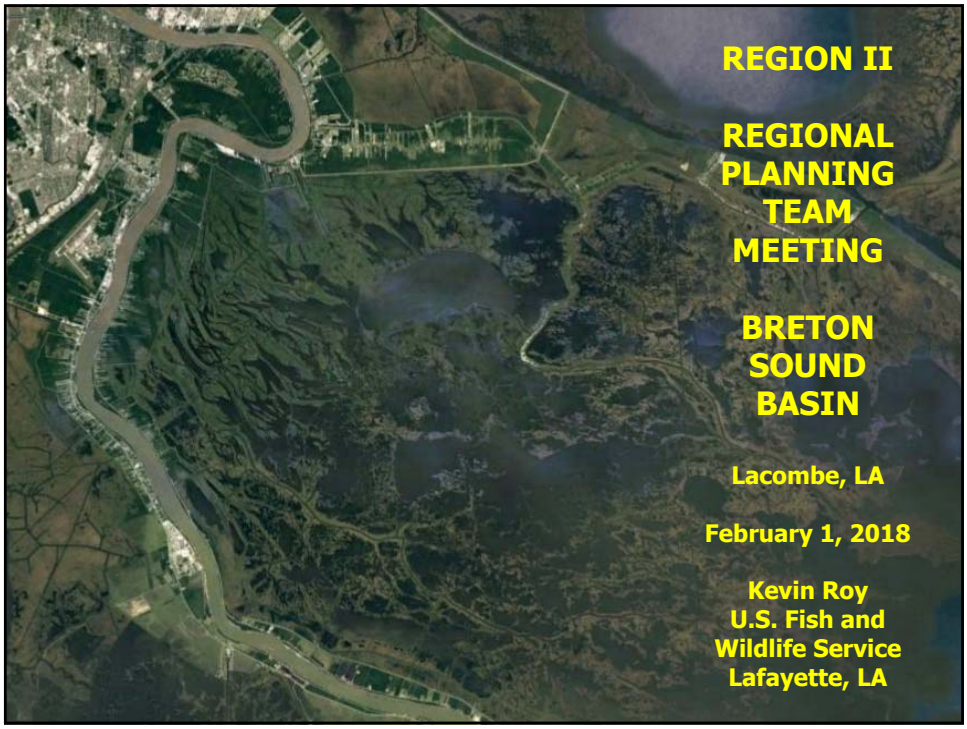
Preparer of Fact Sheet
Kevin Roy, USFWS, (337) 291-3120, kevin_roy@fws.gov

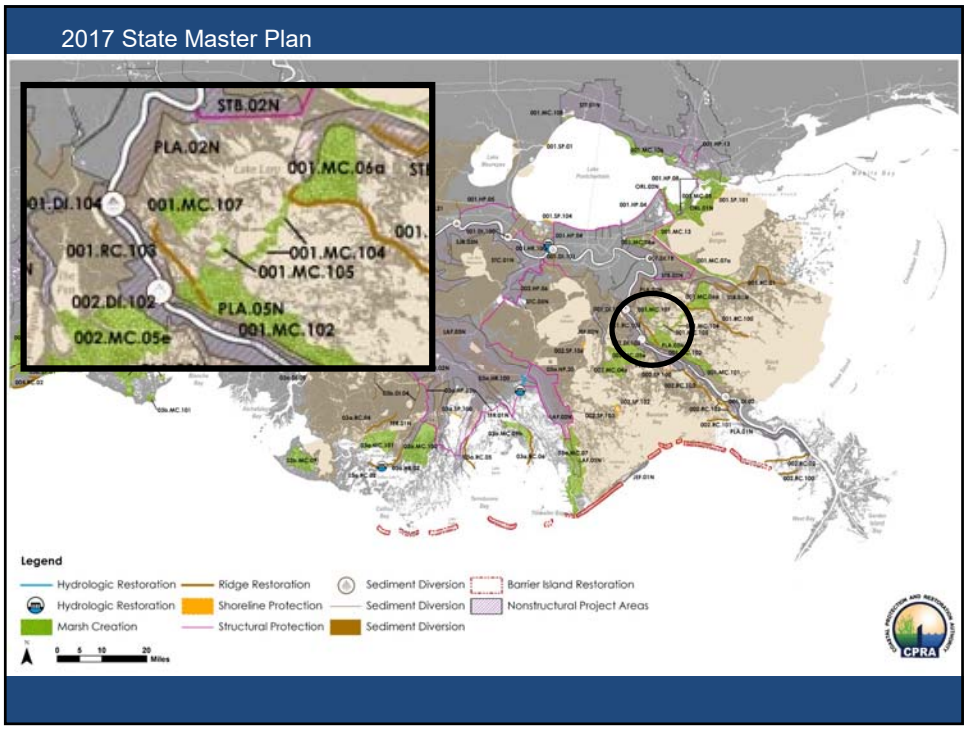
U.S. Fish & Wildlife Service

Louisiana Ecological Services Field Office

Phoenix Marsh & Ridge Restoration




REGION II
REGIONAL PLANNING TEAM MEETING
BRETON SOUND BASIN
Lacombe, LA
February 1, 2018
Kevin Roy
U.S. Fish and Wildlife Service
Lafayette, LA


2017 State Master Plan
STB.02N
PLA.02N
001.MC.06a
001.DI.104
001.MC.107
001.RC.103
001.MC.104
001.MC.105
002.DI.102
PLA.05N
001.MC.102
002.MC.05e
Legend
Hydrologic Restoration
Ridge Restoration
Sediment Diversion
Barrier Island Restoration
Hydrologic Restoration
Shoreline Protection
Sediment Diversion
Nonstructural Project Areas
Marsh Creation
Structural Protection
Sediment Diversion
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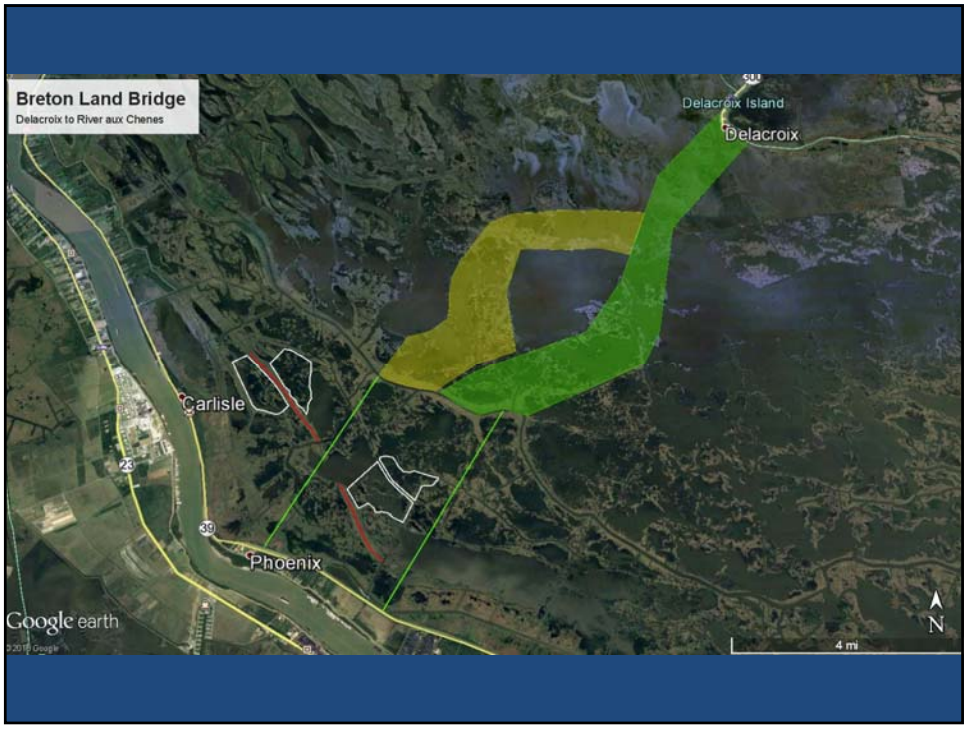
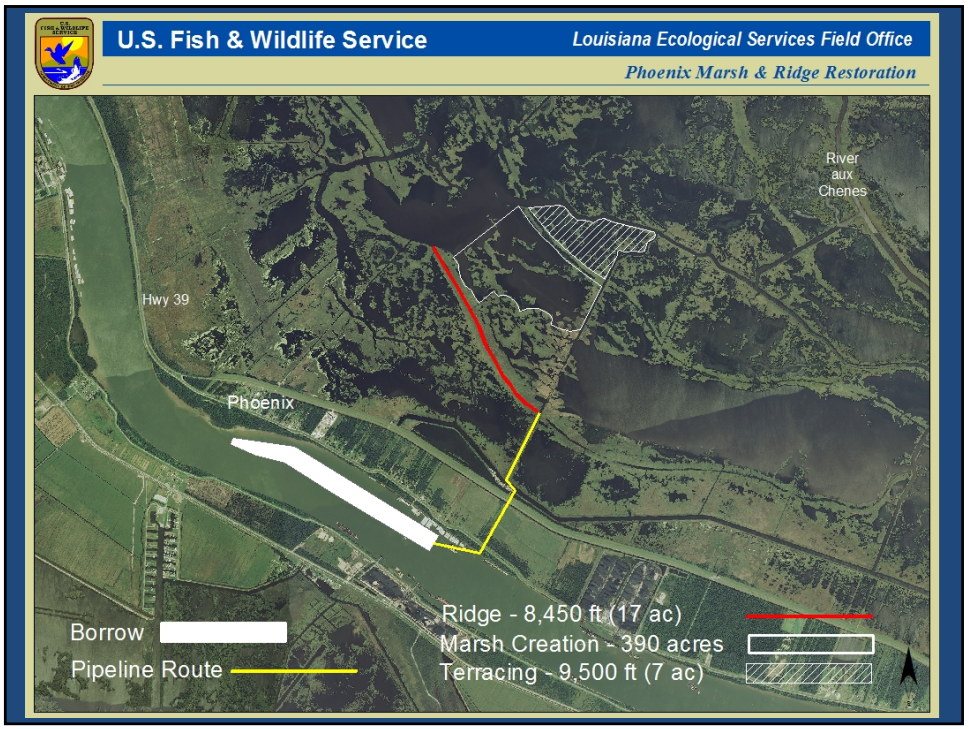
Miles
CPRA


Breton Land Bridge
Delacroix to River aux Chenes
Delacroix Island
Delacroix
Carlisle
Phoenix
Google earth
4 mi
N


U.S. Fish & Wildlife Service
Louisiana Ecological Services Field Office
Phoenix Marsh & Ridge Restoration
River
aux
Chenes
Hwy 39
Phoenix
Borrow
Pipeline Route
Ridge - 8,450 ft (17 ac)
Marsh Creation - 390 acres
Terracing - 9,500 ft (7 ac)

Phoenix Marsh and Ridge Restoration

- Mississippi River borrow site
- 8,450 ft (17 acres) of ridge restoration
- 390 acres of marsh creation/nourishment
- 9,500 ft of terraces (7 acres)
- Net acres = 300 - 350
- Construction plus contingency = $30M - $35M

R2-BS-07

Bayou Terre aux Boeuf Ridge Restoration and Marsh Creation

BS - 07

PPL 28 PROJECT FACT SHEET
February 1, 2018

Project Name
Bayou Terre aux Boeuf Ridge Restoration and Marsh Creation

Master Plan Strategy
Master Plan 2017: Utilizes Ridge Creation 100 and Marsh creation .06a concepts.

Project Location
Region 1, Breton Basin, Plaquemines Parish.

Problem: Historic ridge habitat loss occurs in the form of subsidence and shoreline erosion along Bayou Terre Aux Boeuf (BTAB). The shoreline erosion is caused by boat traffic from recreational and commercial vessels. The ridge is subsiding due to anthropogenic and natural processes. The habitat associated with ridges in Louisiana is Live Oak Hackberry forest. This ecosystem is utilized by trans-gulf migratory bird species as a first and last stop when crossing the Gulf of Mexico. This critical habitat is rated as S1 and S2 priority by the state of Louisiana. Interior marsh loss in the project site is caused by subsidence, increased tidal prism and salinities due to construction of access and or transmission canals. The BTAB ridge is the barrier that separates brackish form intermediate marsh in the Breton Basin. Loss of this hydrological barrier could pose greater threats to already diminishing intermediate marshes.

Goal: Restore 4.73 miles or 25 acres of Live Oak Hackberry forest ridge along the southern bank of BTAB and construct 508 acres of marsh creation/nourishment west of the ridge. The total project acreage will be 533 acres.

Proposed Solutions: Create approximately 4.73 miles of ridge equaling 25 acres of Live Oak Hackberry forest habitat along BTAB. The ridge habitat restoration will consist of bucket dredging the bayou and partially constructed out into the shallow shoreline of the bayou, to minimize the impact on healthy adjacent marsh. The structure will have a +5 elevation and 50% of the newly created ridge will include vegetative plantings. The marsh creation site will create 206 acres of marsh and nourish approximately 302 acres of marsh (508 acres total) using sediment dredged from Lake Cuatro Caballo, Jean Louis Robin or Cochon Bay. The marsh creation portion is currently 93% contained. A total open water berm length of 3,018 ft. is needed to enclose the site, which might provide considerable cost savings. Upon completion containment will be degraded as necessary to re-establish hydrologic connectivity with adjacent wetlands.

Preliminary Project Benefits: Restore historical Live Oak Hackberry forest and strengthen the geomorphological barrier between brackish and intermediate marsh in the Breton basin. The proposed project will have significant synergistic effects with the South Lake Lery Shoreline Marsh Creation (BS-17), the Breton Landbridge and institutes components of the MRGO Ecosystem Restoration Plan. The BTAB ridge also serves as a structural line of defense for communities in Plaquemines, St. Bernard and the greater New Orleans area from highly erosional storm surge events.

Identification of Potential Issues: The proposed project has the following potential issues: pipelines would have to be avoided for the borrow site and oysters leases exist adjacent to the project site.

Preliminary Construction Costs: The preliminary construction cost with 25% contingency is $20M -$25M.

Preparer of Fact Sheet:
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USDA

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

Data Source: NAIP 2015

Map Date: JANUARY 18, 2018

PPL 28
BAYOU TERRE AUX BOEUF
RIDGE RESTORATION AND MARSH CREATION
ST. BERNARD AND PLAQUEMINES PARISH, LA

Legend

- PPL28_RIDGE_RESTORATION
- PPL28_MARSH_CREATION_BOUNDARY
- PPL28_MARSH_NOURISHMENT

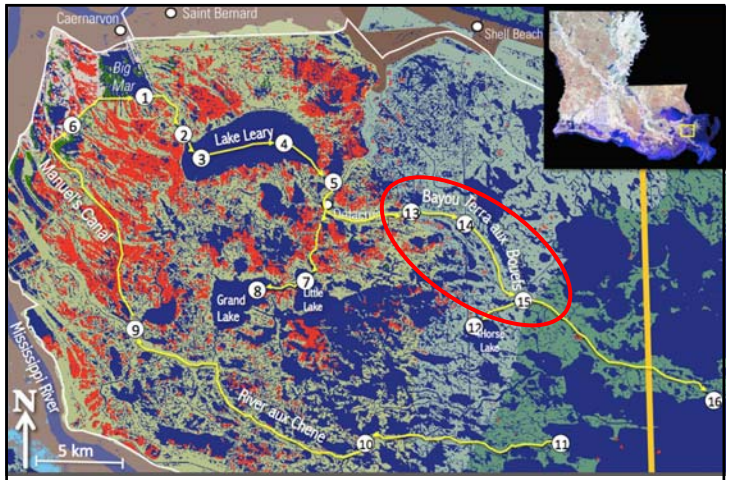
Bayou Terre aux Boeuf Ridge Restoration and Marsh Creation

PPL 28-RPT Meeting
February 01, 2018

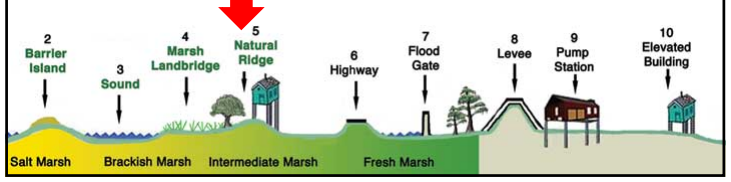
Region 1
Breton Basin

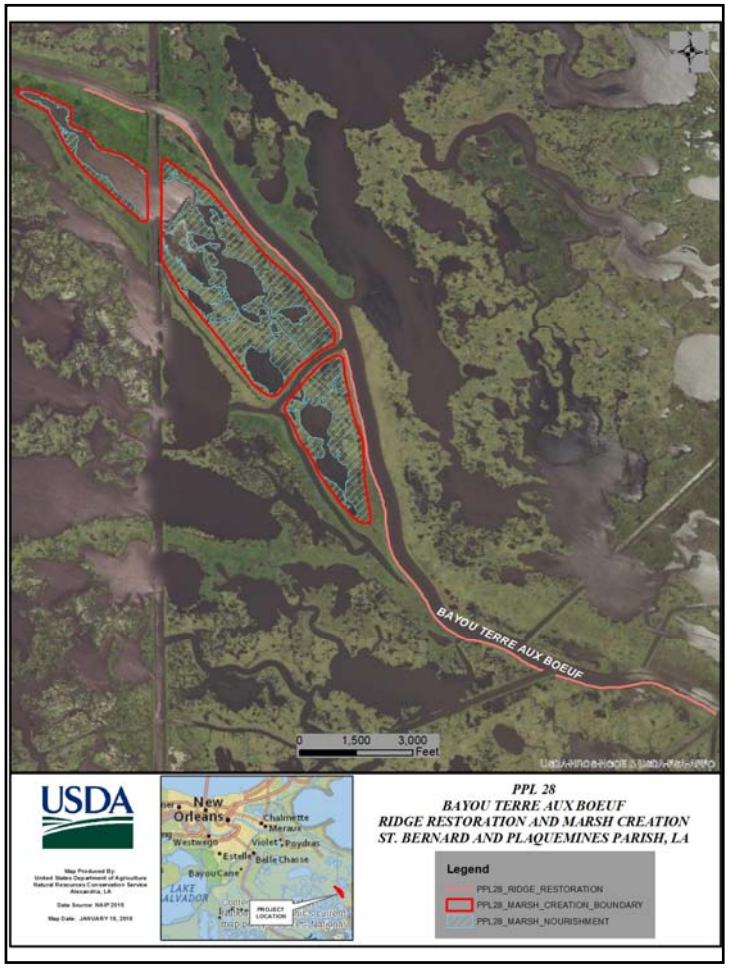
Consistent with 2017 Master Plan

Correct Stuart Brown???



- Loss of BTAB ridge leaves coastal communities and ecosystems vulnerable
- Ridge systems are an integral part of the Multiple lines of defense model





Bayou Terre Aux Boeuf Ridge Creation

- 4.73 miles of Ridge
- 25 acres of S1/S2 Live Oak Hackberry Forest Habitat

Marsh Creation

- 206 acres of marsh creation
- 302 acres of marsh nourishment
- 533 acres total

Total cost + Contingency

=20-25 Million

Any questions?

Blaise Pezold, The Meraux Foundation, 504-264-8125, Blaise@merauxfoundation.org

R2-BS-08

Bayou Terre aux Boeuf South Ridge Restoration and Marsh Creation

BS-08

PPL28 PROJECT FACT SHEET
February 1, 2018

Project Name
Bayou Terre aux Boeufs South Ridge Restoration and Marsh Creation

Master Plan Strategy
Bayou Terre aux Boeufs Ridge Restoration (2017 Master Plan 001.RC.100): Restoration of approximately 91,200 feet of historic ridge to an elevation of 5 feet NAVD88 to provide coastal upland habitat, restore natural hydrology, and provide wave and storm surge attenuation along Bayou Terre aux Boeufs.

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

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

Proposed Solution
Create 30,912 linear feet of ridge along Bayou Terre aux Boeufs to provide coastal upland habitat, restore natural hydrology, and provide wave and storm surge attenuation. Create/nourish 443 acres emergent marsh with sediment from the Black Bay and/or Breton Sound.

Project Benefits
Create 30,912 linear feet of ridge along Bayou Terre aux Boeufs and create/nourish 443 acres (create 211 acres and nourish 232 acres) emergent marsh.

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

Preparer(s) of Fact Sheet:
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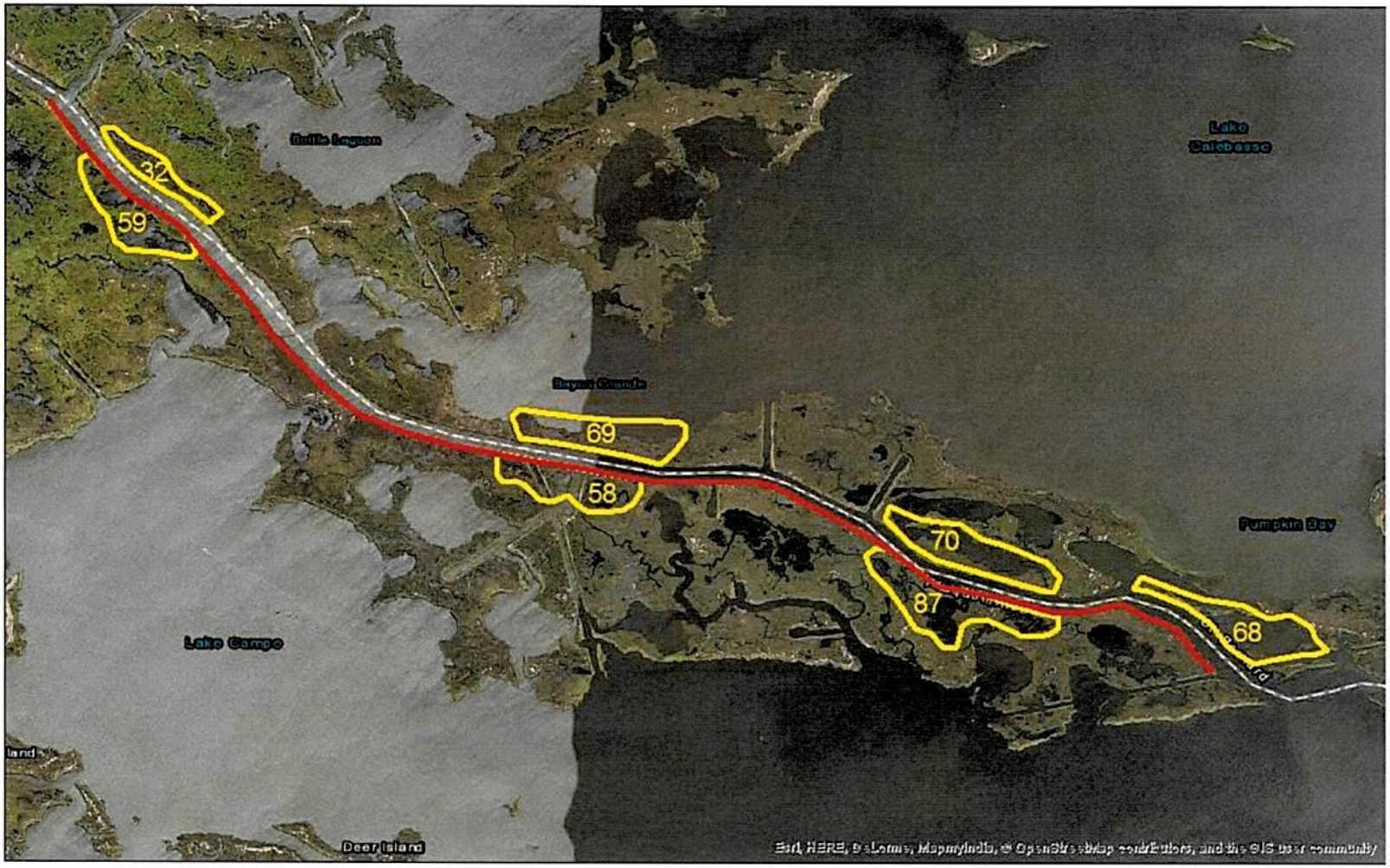
Amanda Moore, National Wildlife Federation; (504) 273-4838; MooreA@nwf.org



Bayou Terre aux Boeufs Ridge Restoration & Marsh Creation

Terre aux Boeufs S Ridge Features 30,912ft

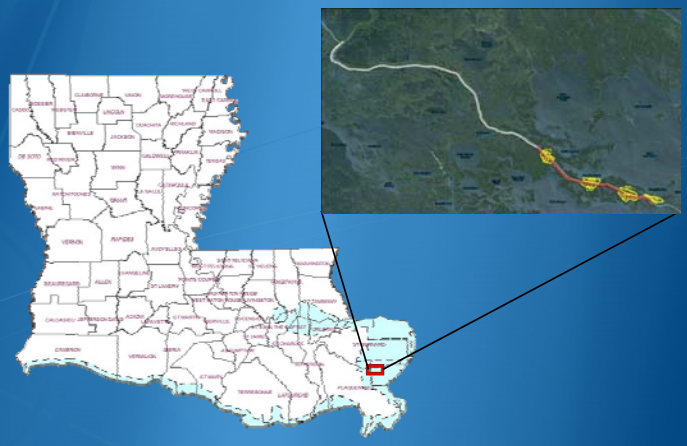
Terre aux Boeufs Marsh Creation Cells 443ac

N

Basemap: 2017 NAIP DOQQ
St Bernard Parish & Plaquemines Parish
Produced by: EPA Region 6, Dallas, TX

0 0.25 0.5 1 1.5 2 Miles

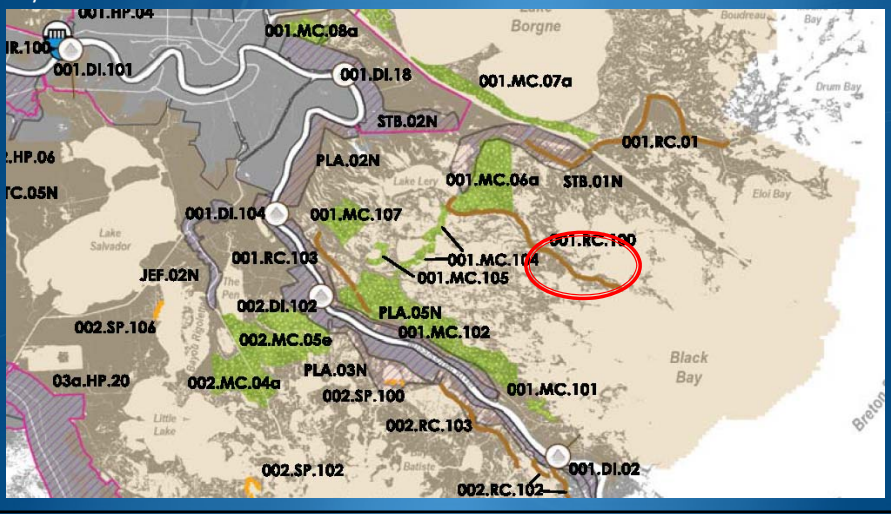
Bayou Terre aux Boeufs South Ridge Restoration & Marsh Creation

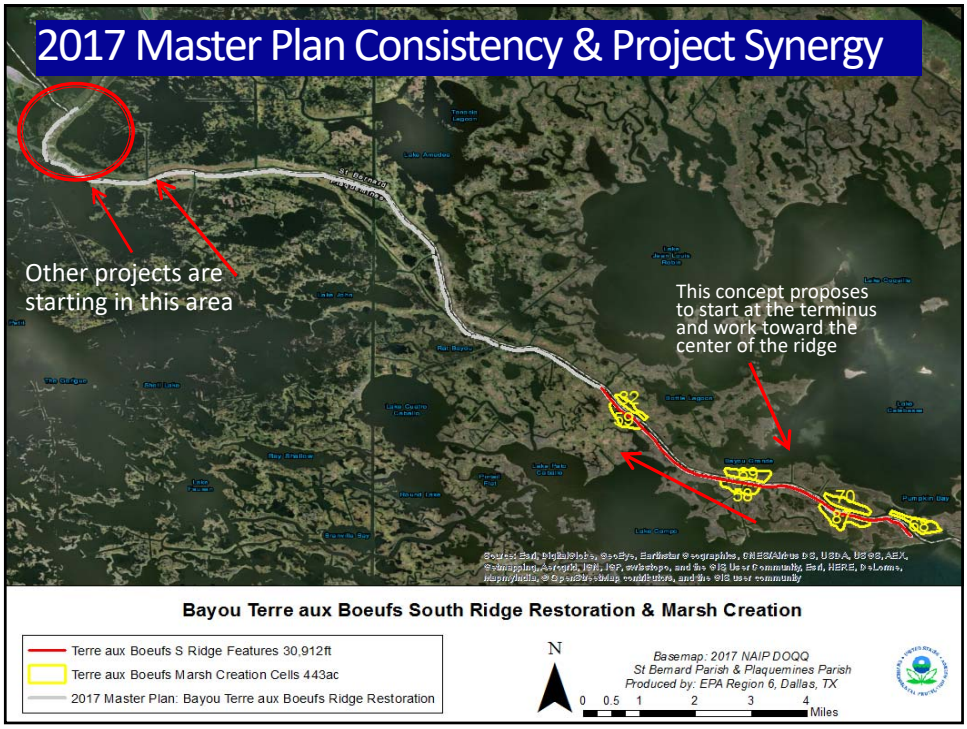


Coastal Wetlands Planning, Protection and Restoration Act

2017 Master Plan Solution

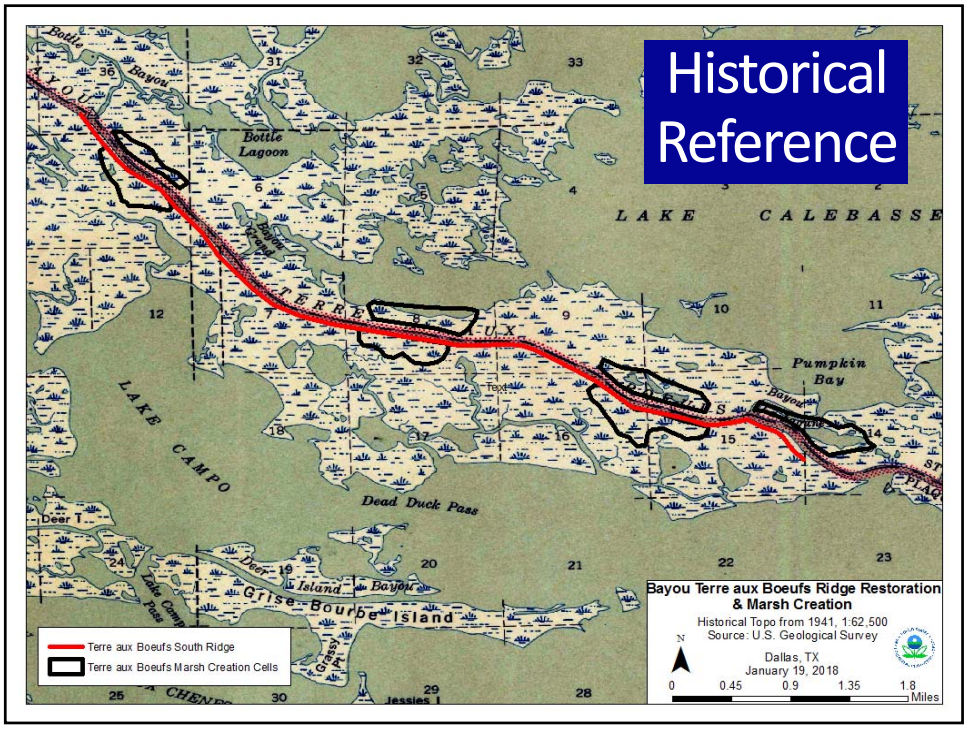
001.RC.100 Bayou Terre aux Boeufs Ridge Restoration: Restoration of approximately 91,200 feet of historic ridge to an elevation of 5 feet NAVD88 to provide coastal upland habitat, restore natural hydrology, and provide wave and storm surge attenuation along Bayou Terre aux Boeufs.

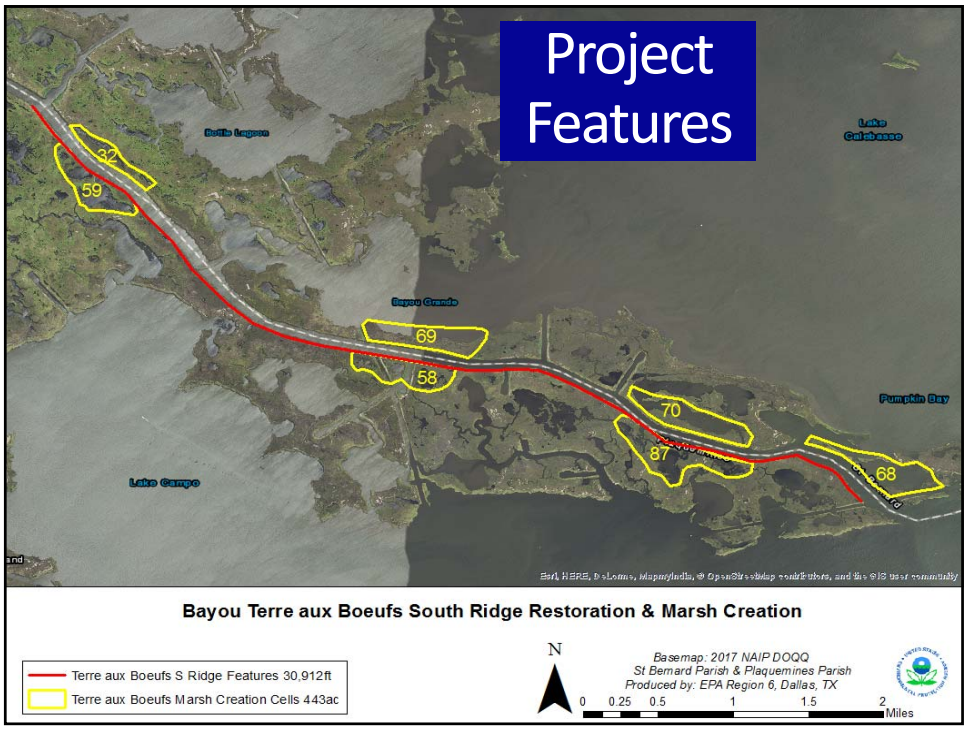




Problems

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


Historical Reference
Bottle Lagoon
LAKE CALEBASSE
LAKE CAMPO
Dead Duck Pass
Pumpkin Bay
Grise Bourbe Island
Terre aux Boeufs South Ridge
Terre aux Boeufs Marsh Creation Cells
Bayou Terre aux Boeufs Ridge Restoration & Marsh Creation
Historical Topo from 1941, 1:62,500
Source: U.S. Geological Survey
Dallas, TX
January 19, 2018
0 0.45 0.9 1.35 1.8
Miles


Project Features
Bottle Lagoon
Lake Calebasse
Bayou Grande
Pumpkin Bay
Lake Campo
32
59
69
58
70
87
68
Bayou Terre aux Boeufs South Ridge Restoration & Marsh Creation
Terre aux Boeufs S Ridge Features 30,912ft
Terre aux Boeufs Marsh Creation Cells 443ac
N
Basemap: 2017 NAIP DOQQ
St Bernard Parish & Plaquemines Parish
Produced by: EPA Region 6, Dallas, TX
0 0.25 0.5 1 1.5 2
Miles

Species & Habitats Protected or Restored

T & E Species

- Piping Plover
- Red Knot
- Sea Turtles
- Sturgeon
- Manatee

Migratory Birds

- American Golden-plover
- Am Oystercatcher (Breeding)
- Black Skimmer (Breeding)
- Many shorebirds

Project Goals

- Restore 30,912 linear feet of historical ridge
- Provide separation between Lake Campo and Lake Calebasse
- Address St. Bernard Parish Priority Project Tier 1
- Create/nourish 443 acres (create 211 acres and nourish 232 acres) of emergent marsh as additional support for the ridge feature with sediment from either Black Bay or Breton Sound
- Construction cost + 25% contingency is $25M - $30M

R2-BS-09

Reggio Marsh Creation and Hydrologic Restoration

BS-09

PPL28 PROJECT FACT SHEET
February 1, 2018

Project Name
Reggio Marsh Creation and Hydrologic Restoration

Master Plan Strategy
Breton Marsh Creation-Component A (2017 Master Plan 001.MC.06a): Creation of approximately 12,000 acres of marsh in the Breton Marsh east of Delacroix Island to create new wetland habitat and restore degraded marsh.

Project Location
Region 2, Breton Sound Basin, St. Bernard Parish

Problem
St. Bernard Parish may experience some of the highest rates of wetland loss over the next 50 years of any coastal parish and with no further action, it could lose an additional 237 sq. miles (72% of the parish land area; 2017 Master Plan Appx A). Locations outside the levees could experience increased storm surge flood risk. This project area has experienced wetland loss due to a variety of factors including subsidence, saltwater intrusion, and storm damage. Hurricane Katrina devastated the area resulting in substantial marsh loss which has exposed infrastructure to open water conditions. Canals in the area have increased the effects of salt water pulses in the fall which subsequently cause the vegetation to die off and decay to the W and N of the canals (identified in red on the map).

Proposed Solution
Create/nourish 404 acres of wetlands by converting open water into marsh and nourishing existing marsh remnants with sediment hydraulically dredged from a borrow source in Lake Lery (if Lake Lery becomes impractical, Lake Borgne could also be targeted). In addition, two canals (1563ft) are proposed to be plugged to counteract saltwater intrusion. Temporary containment dikes will be constructed and gapped within three years of construction to allow greater tidal exchange and estuarine organism access. Restoration in this area would build the area's defenses against hurricanes and flooding.

Project Benefits
Create/nourish 404 acres (create 208 acres and nourish 196 acres) of emergent marsh with sediment dredged from Lake Lery and plug two canals totaling 1,563ft.

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

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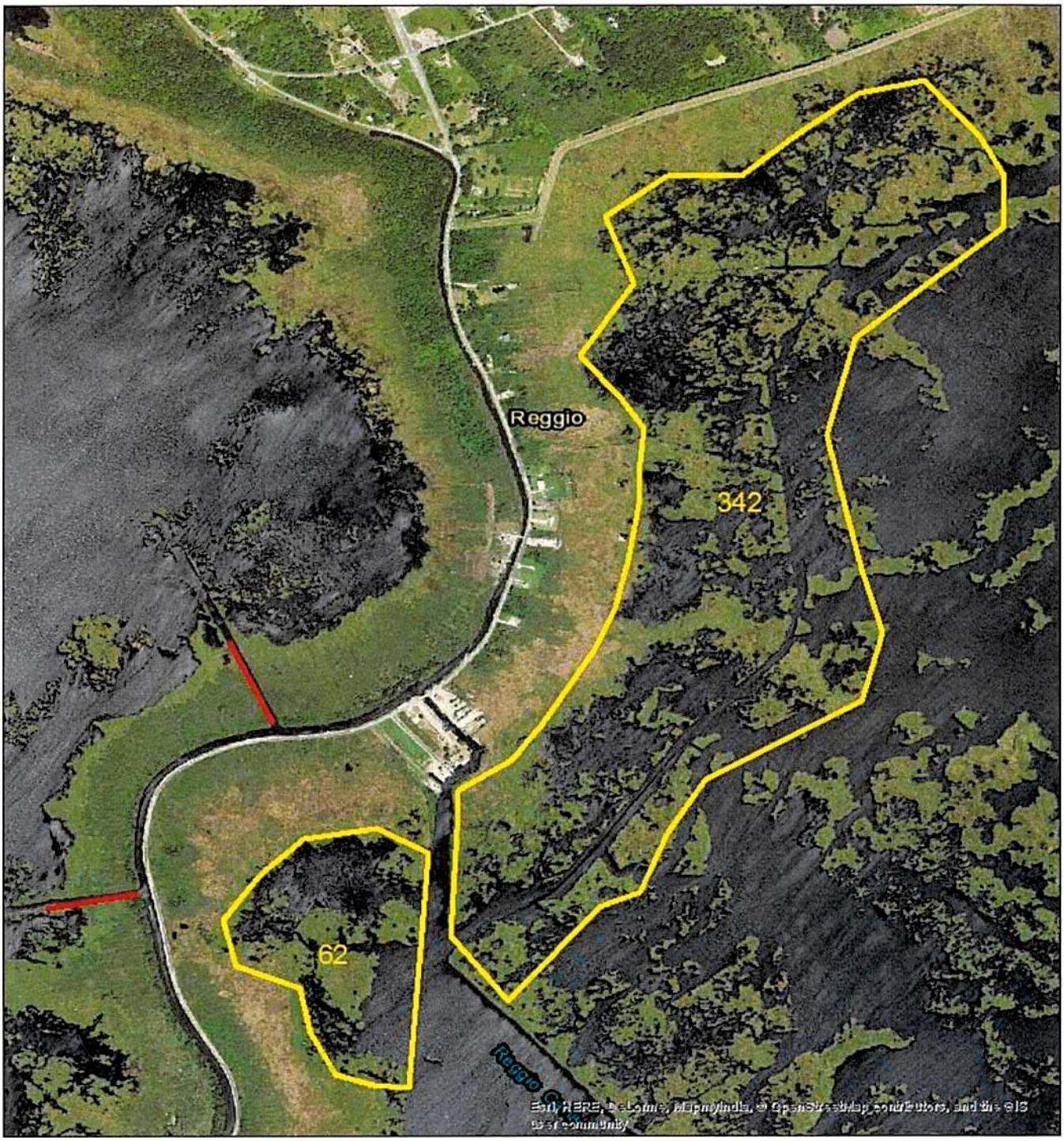
Brad Crawford, P. E., EPA; (214) 665-7255; crawford.brad@epa.gov



Reggio Marsh Creation and Hydrologic Restoration

Reggio Canals Plugged 1563ft

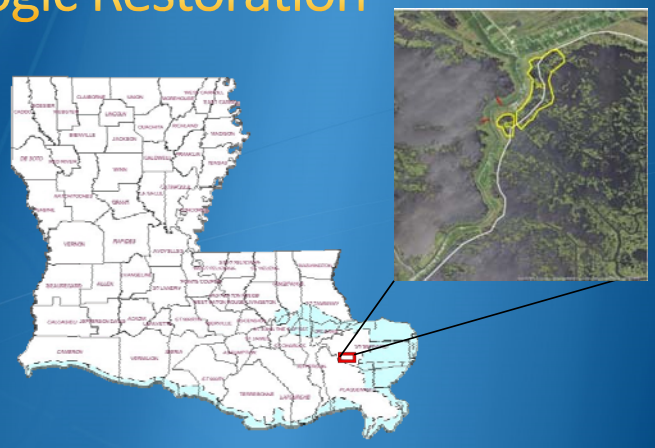
Reggio Marsh Creation Cells 404ac

N

Basemap: 2017 NAIP DOQQ St. Bernard Parish
Produced by: EPA REgion 6, Dallas, TX

0 0.050.1 0.2 0.3 0.4
Miles

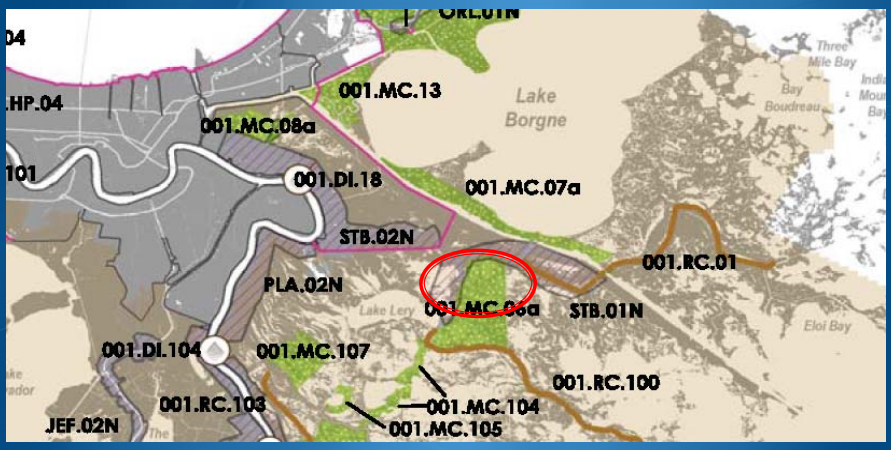
Reggio Marsh Creation & Hydrologic Restoration



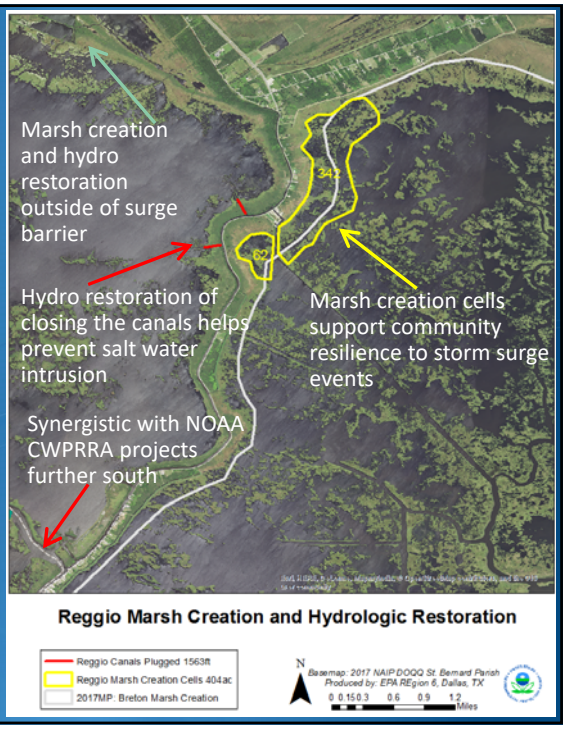
Coastal Wetlands Planning, Protection and Restoration Act

2017 Master Plan Solution

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



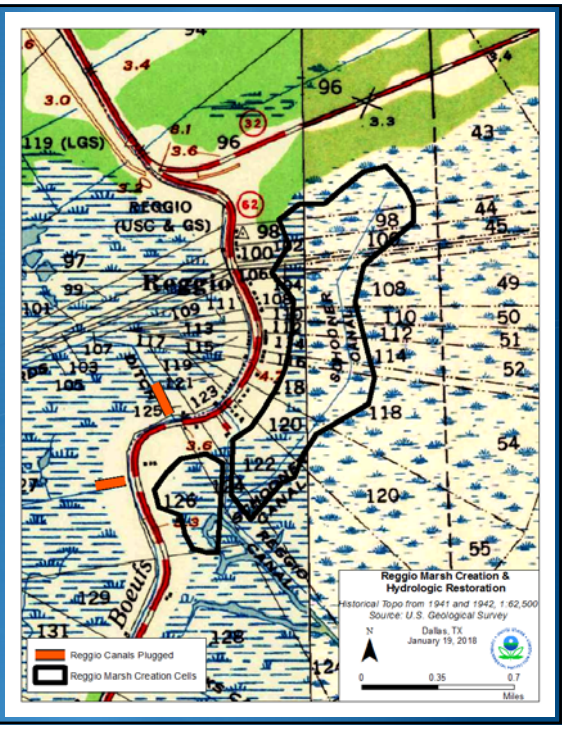
2017 Master Plan Consistency & Project Synergy



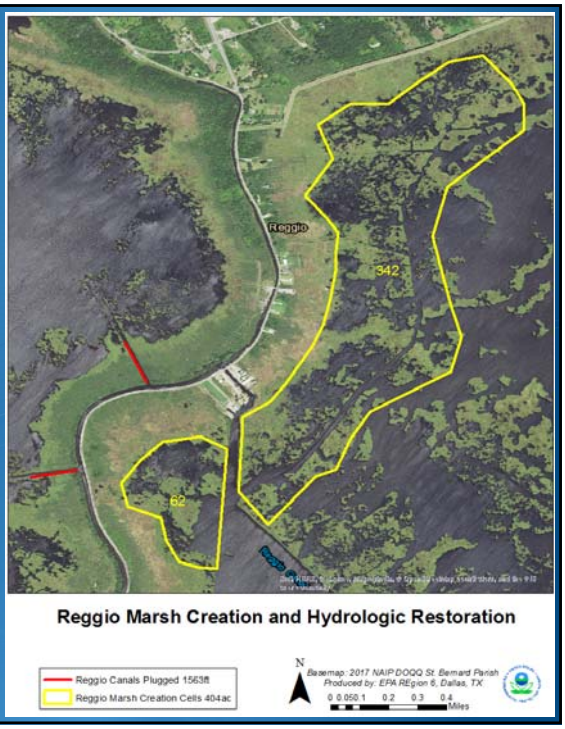
Problems

- Storm impacts from Hurricane Katrina
- Saltwater intrusion through the MC polygons makes its way to the W via the two small canals causing high salinity conditions in the fall which then causes vegetation die off and decaying conditions to the W & N of the canals
- Subsidence & Sea-level rise
- St. Bernard Parish may experience some of the highest rates of wetland loss and increased flood risk over the next 50 years (2017 MP)

Historical Reference



Project Features



Species & Habitats Protected or Restored

T & E Species

- Piping Plover
- Red Knot
- Sea Turtles
- Sturgeon
- Manatee

Migratory Birds

- American Golden-plover
- Am Oystercatcher (Breeding)
- Black Skimmer (Breeding)
- Many shorebirds

Project Goals

- Create/nourish 404 acres (create 208 acres and nourish 196 acres) of emergent marsh with sediment from Lake Lery and close 1563 ft of canal
- Resiliency from storm surge for the community of Reggio
- May address St. Bernard Parish Priority Project Tier 1: Lake Lery MC polygon
- Restore wetland habitat by reducing fall high salinity conditions so that intermediate/freshwater marsh can remain viable all year long
- Construction cost + 25% contingency is $25M - $30M

R2-BS-10

Davant Marsh Creation

BS-10

PPL28 PROJECT FACT SHEET
February 1, 2018

Project Name
Davant Marsh Creation

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

Project Location
Region 2, Breton Sound Basin, Plaquemines Parish

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

Proposed Solution
The proposed project would create/nourish approximately 284 acres of marsh using sediment dredged from the Mississippi River. The dredged material would be fully contained. Containment dikes would be degraded as necessary to reestablish hydrologic connectivity with adjacent wetlands. The created marsh would be planted.

Project Benefits
Create/nourish approximately 284 acres (create 222 acres and nourish 62 acres) of emergent marsh using sediment dredged from the Mississippi River.

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

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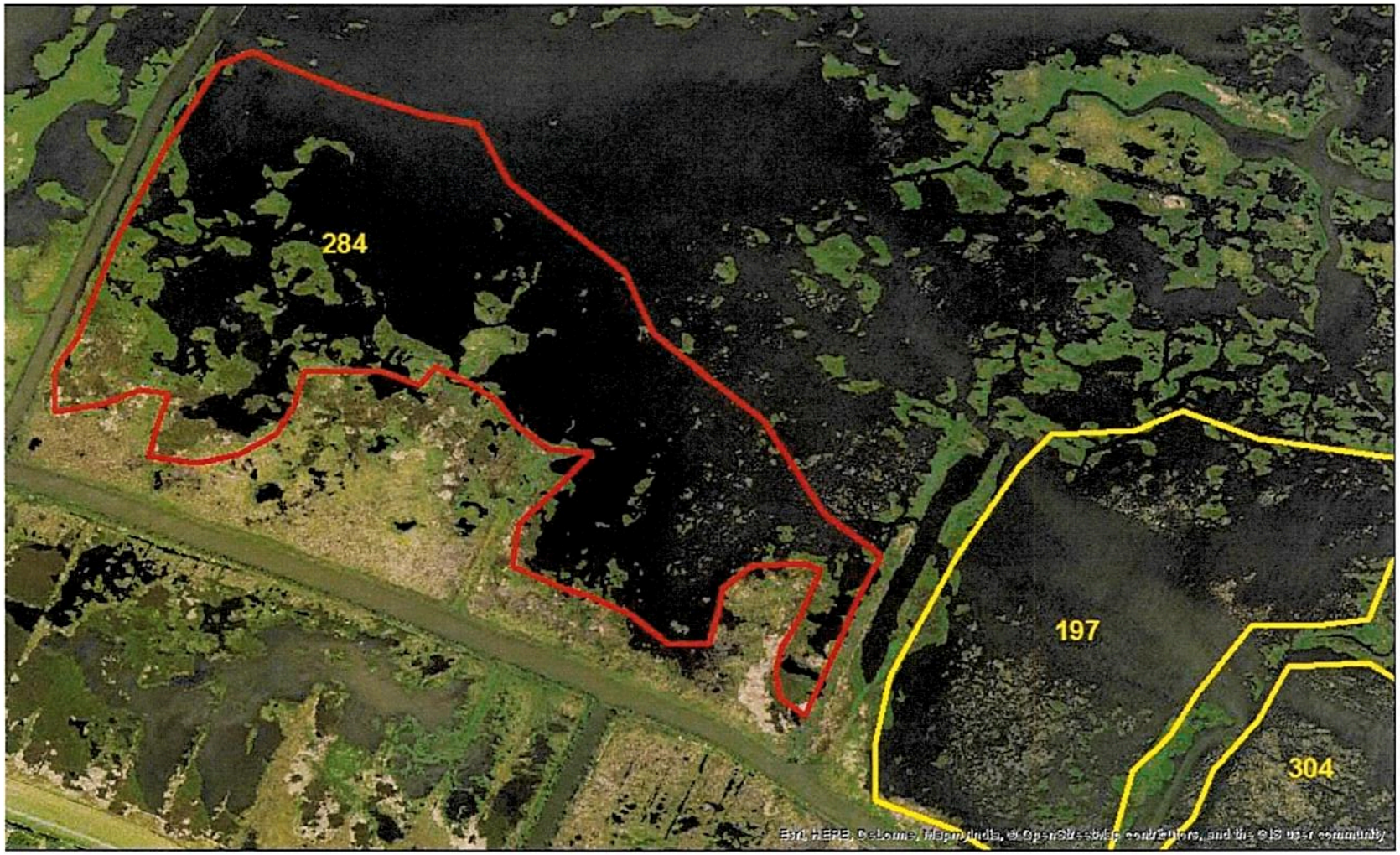
Brad Crawford, P.E., EPA; (214) 665-7255; crawford.brad@epa.gov



Davant Marsh Creation

Davant Marsh Creation 284 ac
Davant MC Future Cells

N

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

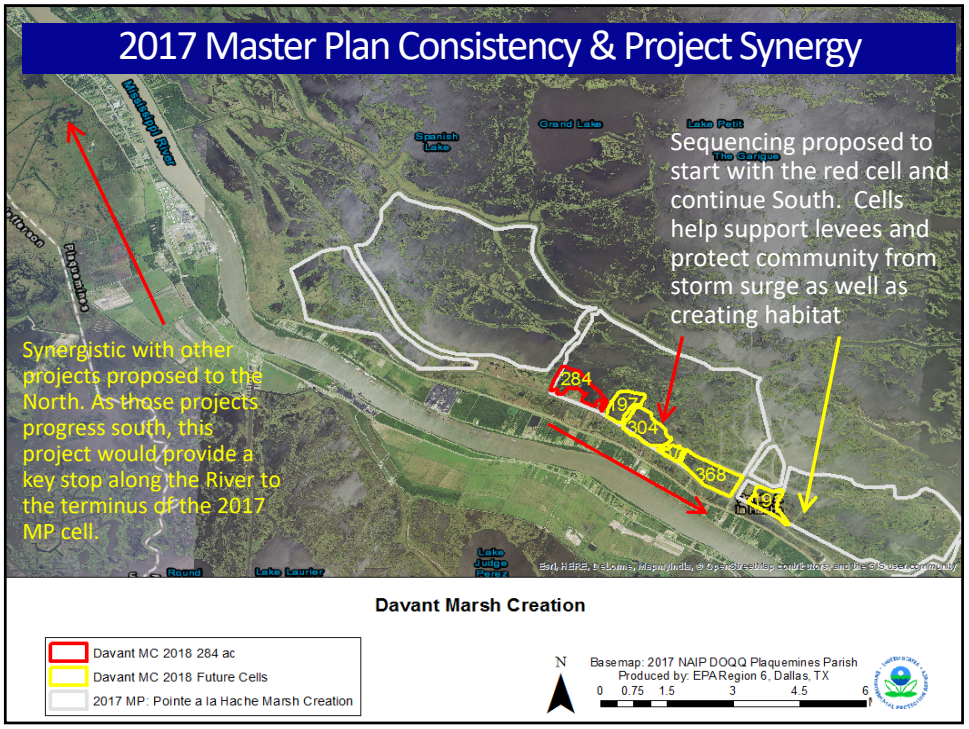
0 0.075 0.15 0.3 0.45 0.6

Davant Marsh Creation

Coastal Wetlands Planning, Protection and Restoration Act

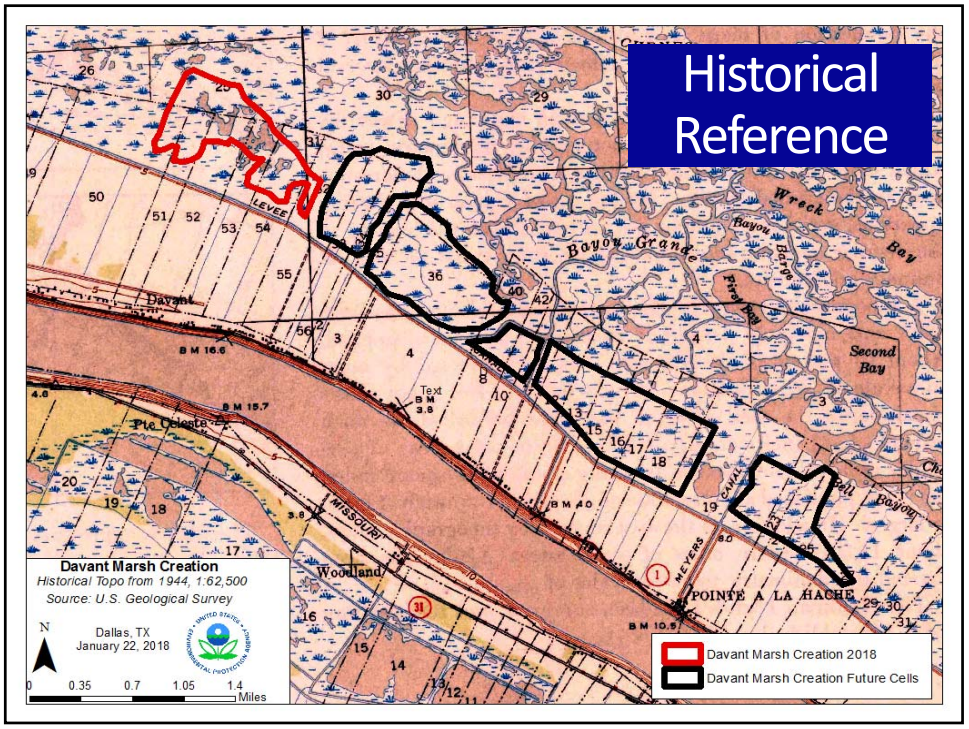
2017 Master Plan Solution

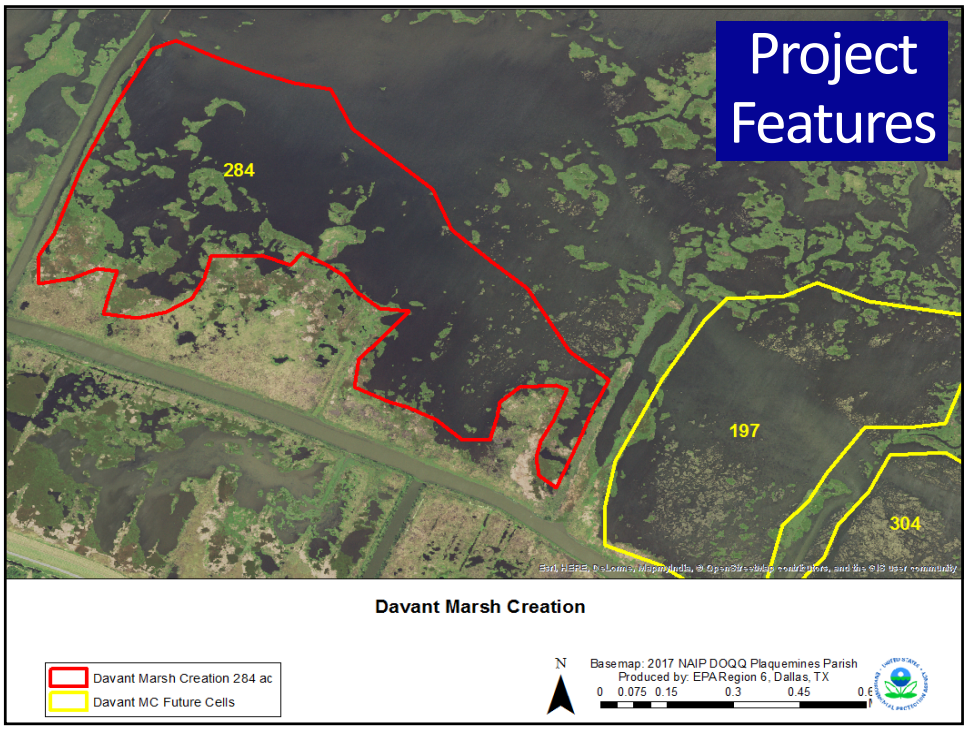
001.MC.102 Pointe a la Hache Marsh Creation: Creation of approximately 19,100 acres of marsh on the east bank of Plaquemines Parish near Pointe a la Hache to create new wetland habitat and restore degraded marsh.



Problems

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


Historical Reference
Davant Marsh Creation
Historical Topo from 1944, 1:62,500
Source: U.S. Geological Survey
Dallas, TX
January 22, 2018
0 0.35 0.7 1.05 1.4
Miles
Davant Marsh Creation 2018
Davant Marsh Creation Future Cells
Bayou Grande
Wreck Bay
Second Bay
Pte Celeste
MISSOURI
Woodland
POINTE A LA HACHE
MEYERS


Project Features
284
197
304
Davant Marsh Creation
Davant Marsh Creation 284 ac
Davant MC Future Cells
Basemap: 2017 NAIP DOQQ Plaquemines Parish
Produced by: EPA Region 6, Dallas, TX
0 0.075 0.15 0.3 0.45

Species & Habitats Protected or Restored

T & E Species

- Piping Plover
- Red Knot
- Sea Turtles
- Sturgeon
- Manatee

Migratory Birds

- American Golden-plover
- Am Oystercatcher (Breeding)
- Black Skimmer (Breeding)
- Many shorebirds

Project Goals

- Create/nourish 284 acres (create 222 acres and nourish 62 acres) of emergent marsh with sediment from the Mississippi River
- Address Plaquemines Parish Phase 1 (construct wetlands adjacent to levees protecting fastlands) and Phase 2 (enhance wetlands in identified areas) priorities
- Restore wetland habitat & provide increased protection from storm surge and flooding
- Construction cost + 25% contingency is $20M - $25M

R2-BS-11

East Delacroix Marsh Creation and Terracing

BS-11

PPL28 PROJECT NOMINEE FACT SHEET
February 1, 2018

Project Name
East Delacroix Marsh Creation and Terracing

Project Location
Region 2, Breton Basin, St. Bernard Parish

Problem
Hurricanes Katrina and Rita caused the majority of wetland loss in the project area. Wind erosion and saltwater intrusion have resulted in loss of marsh vegetation and wetland soils. Marsh loss has increased exposure of Delacroix to flooding from the east/southeast. The 1985 to 2016 Tanasia Lagoon subunit loss rate is -0.61%/yr.

Goals
The project goal is to create and nourish approximately 406 acres of marsh (347 acres creation 59 acres nourishment) and construct approximately 12,950 linear feet of terraces (approximately 8 acres) utilizing a layout to help protect the community of Delacroix.

Proposed Solution
The proposed project goals are to create 347 acres and nourish 59 acres of marsh. Sediment would be mined from Lake Lery and placed east of Delacroix via pipeline. The borrow area would be designed to avoid adverse impacts to the existing shoreline of Lake Lery. In addition to marsh creation approximately 12, 950 linear feet of terraces would be constructed. The terrace slopes and crown would be planted with appropriate marsh vegetation. During 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 597 ac.

2) *How many acres of wetlands will be protected/created over the project life?*
   Approximately 307 acres of marsh will be protected/created over the project life.

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

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

5) *What is the net impact of the project on critical and non-critical infrastructure?*
   The project would have moderate net positive impact to critical infrastructure which consists of Delacroix Highway, a hurricane evacuation route, and residences of Delacroix.

Net positive impact would result from providing synergistic flood protection with the back levee and protection of the highway.

6) *To what extent does the project provide a synergistic effect with other approved and/or constructed restoration projects?*
The project will have a synergistic effect with the CIAP project constructed west of Delacroix helping to protecting Delacroix from wave fetch.

Considerations
The proposed project has potential utility/pipeline considerations.

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

Preparer(s) of Fact Sheet:
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Patrick Williams, NOAA Fisheries, 225-389-0508, ext 208, patrick.williams@noaa.gov

East Delacroix Marsh Creation and Terracing PPL 28 RPT Nominee

USGS
science for a changing world

N

Marsh Creation *

Terrace Field *

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

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

Image Source:
2016 DOQQ

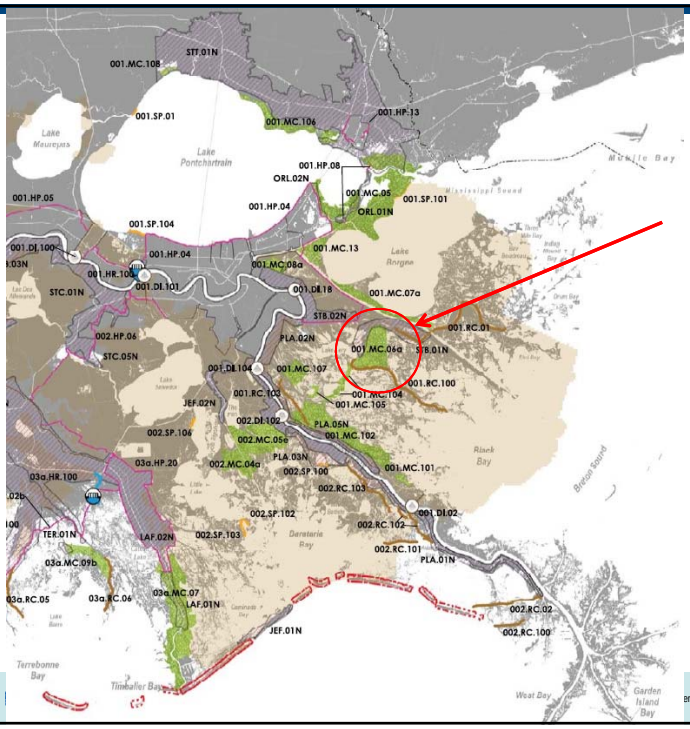
Map ID: 2017-11-0011
Map Date: August 14, 2017

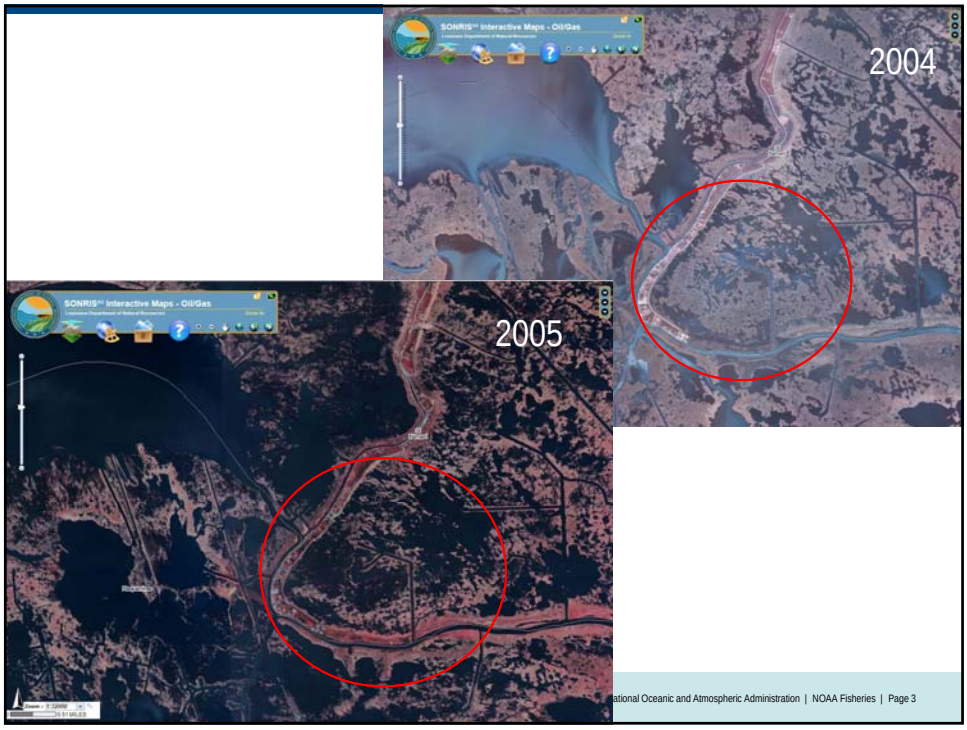
PPL28 East Delacroix Marsh Creation and Terracing

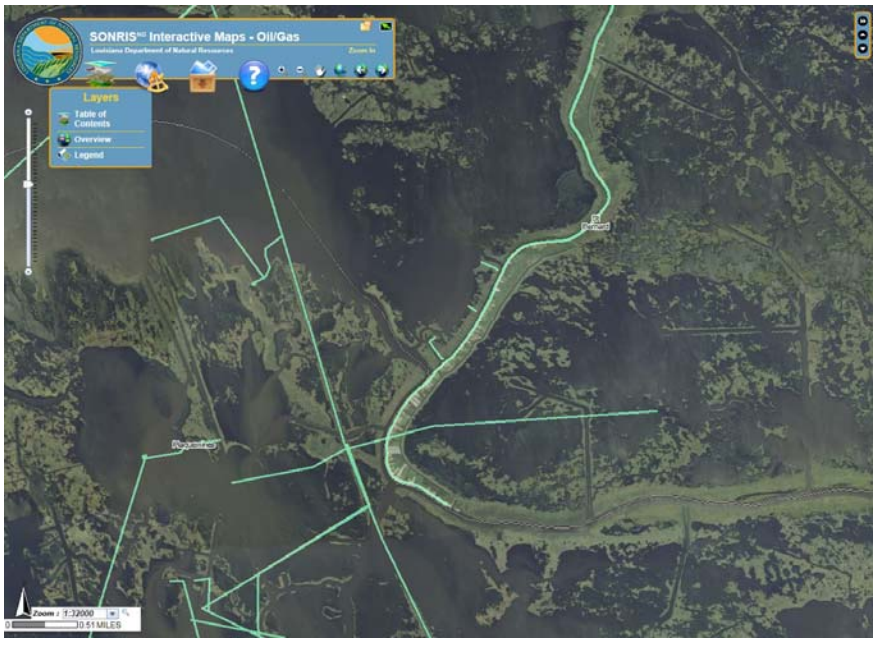
NOAA FISHERIES

Habitat Conservation Division

February 1, 2018




SONRIS Interactive Maps - Oil/Gas
2004
SONRIS Interactive Maps - Oil/Gas
2005


SONRIS Interactive Maps - Oil/Gas
Layers
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Legend

East Delacroix Marsh Creation and Terracing

347 acres marsh creation
59 ac acres marsh nourishment

198 acre terrace field
(12, 950 lf/8 acres)

Estimated net acres = 307

Estimated Construction cost +25% contingency : $25M - $30M

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Questions?
NOAA FISHERIES
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R2-BS-12

North Delacroix Marsh Creation and Terracing

BS-12

PPL28 PROJECT NOMINEE FACT SHEET
February 1, 2018

Project Name
North Delacroix Marsh Creation and Terracing

Project Location
Region 2, Breton Basin, St. Bernard Parish

Problem
Hurricanes Katrina and Rita caused the majority of wetland loss in the project area. Wind erosion and saltwater intrusion have resulted in loss of marsh vegetation and wetland soils. Marsh loss has increased exposure of Delacroix to flooding from the east/southeast. The 1985 to 2016 Jean Louis Robin subunit loss rate is -0.66%/year (yr). The expanded project boundary loss rate from PPL27 E Delacroix is -0.61%/yr from 1985 to 2016.

Goals
The project goal is to create and nourish approximately 389 acres (ac) of marsh (311 ac creation 78 ac nourishment) and construct approximately 17,540 linear feet (lf) of terraces (approximately 11 emergent ac) utilizing a layout to help protect the community of Delacroix. The project would work synergistically with the East Delacroix Marsh Creation and Terracing project.

Proposed Solution
The proposed project goals are to create approximately 311 ac and nourish 78 ac of marsh. Sediment would be mined from Lake Lery and placed east of Delacroix via pipeline. The borrow area would be designed to avoid adverse impacts to the existing shorelines of Lake Lery. In addition to marsh creation approximately 17,540 lf of terraces would be constructed. The terraces slopes and crown would be planted with appropriate marsh vegetation. 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 400 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 50-74% over the projects life.

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

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

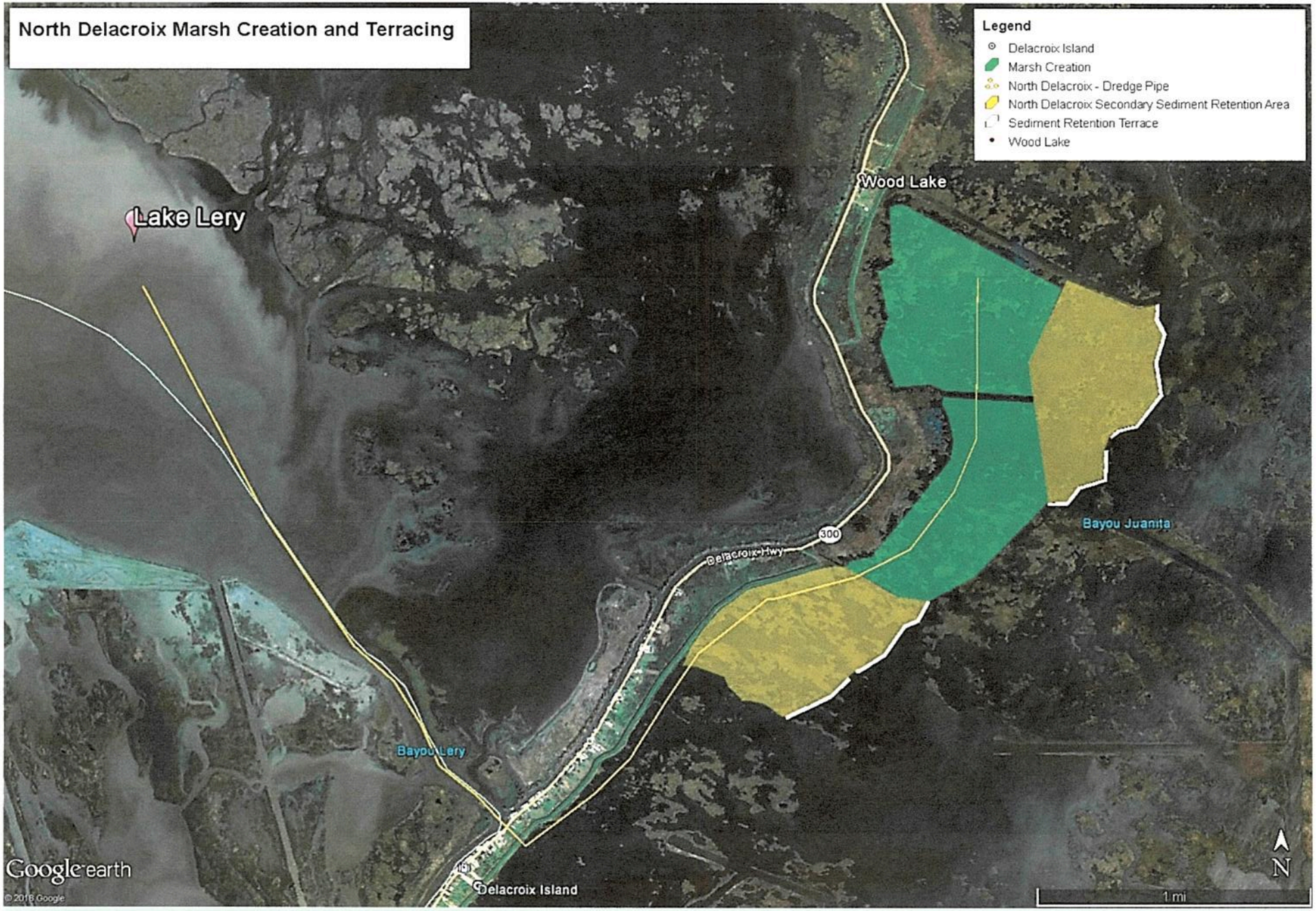
The project would have moderate net positive impact to critical infrastructure which consists of Delacroix Highway, a hurricane evacuation route, and residences of Delacroix. Net positive impact would result from providing synergistic flood protection with the back levee and help protect the highway.

6) *To what extent does the project provide a synergistic effect with other approved and/or constructed restoration projects?*
The project will have a synergistic effect with the CIAP project constructed west of Delacroix helping to protecting Delacroix from wave fetch.

Considerations
The proposed project has potential utility/pipeline considerations.

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

Preparer(s) of Fact Sheet:
Brandon Howard, NOAA Fisheries, 225-389-0508, ext 207, brandon.howard@noaa.gov
Jason Kroll, NOAA Restoration Center, 225-757-5411, jason.kroll@noaa.gov



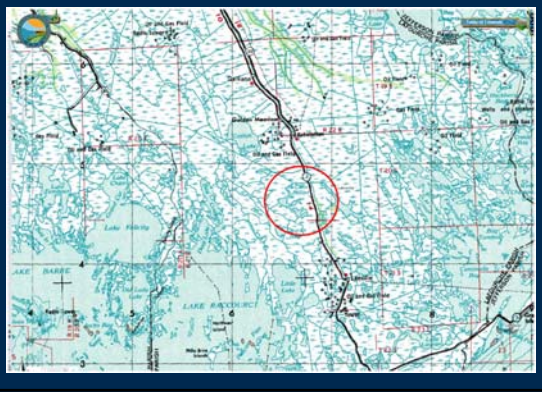
NOAA FISHERIES

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

Science, Service, Stewardship

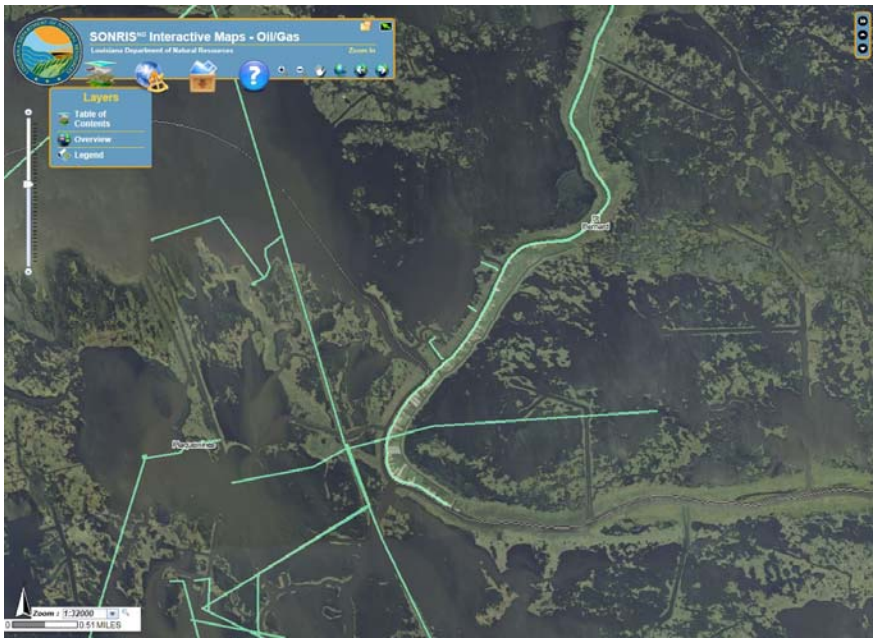
North Delacroix Marsh Creation and Terracing

- Region 2 – Breton Basin
- PPL28 RPT



NOAA FISHERIES SERVICE

February 1, 2018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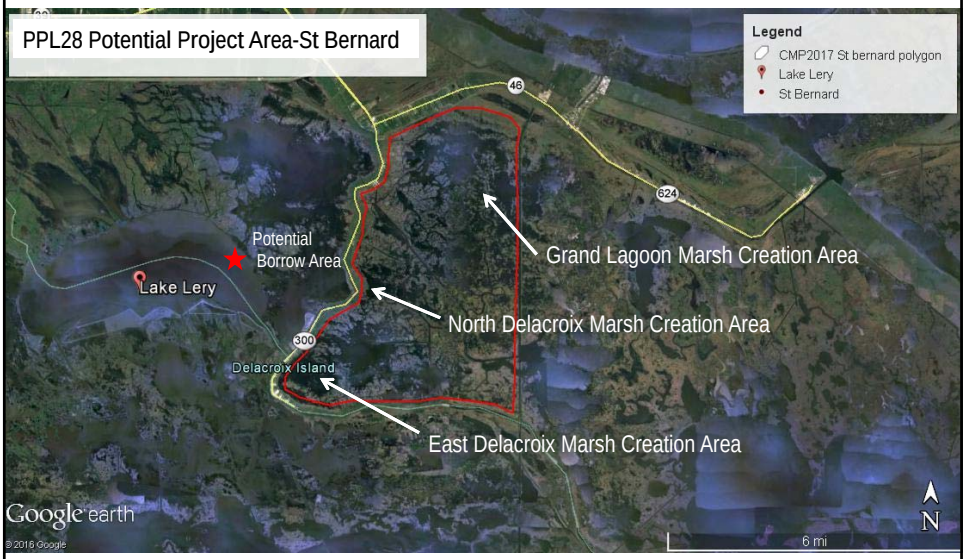
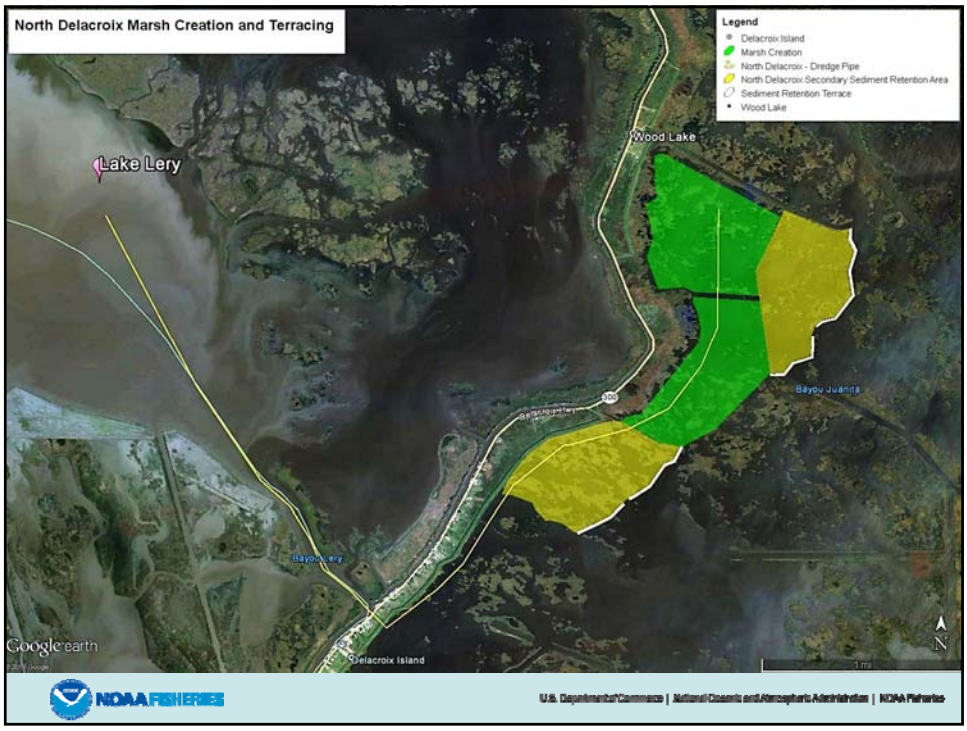

PPL28 Potential Project Area-St Bernard
Legend
CMP2017 St bernard polygon
Lake Lery
St Bernard
46
624
300
Potential
Borrow Area
Lake Lery
Delacroix Island
Grand Lagoon Marsh Creation Area
North Delacroix Marsh Creation Area
East Delacroix Marsh Creation Area
Google earth
© 2016 Google
6 mi
N



North Delacroix Marsh Creation and Terracing

311 acres marsh creation

78 ac acres marsh nourishment

17,540 liner feet of terraces (11 acres)

Estimated net acres = 297

Estimated construction plus 25% contingency is $25M - $30M