REGION 3

Coastal Wetlands Planning Protection & Restoration Act

25th Priority Project List

Region 3

Regional Planning Team Meeting

January 28, 2015
Houma, LA

CWPPRA

1. Welcome and Introductions

- RPT Region 3 Leader: Ron Boustany - NRCS

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Announcements

- Copies of the PPL 25 Selection Process & Schedule available at the sign-in table.
- PPL 25 RPT meetings to accept project nominees:
  - Region IV, Estuarine Fisheries & Habitat Center, Jan. 27, 2015, 11:00 am
  - **Region III, Terrebonne Parish Main Library, Jan. 28, 2015, 9:00 am**
  - Region I, USFWS SE LA Refuges Complex (Big Branch), Jan. 29, 2015, 8:00 am
  - Region II, USFWS SE LA Refuges Complex, Jan. 29, 2015, immediately following Region I.
- 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 3 Parishes

- Eligible parishes for basins in Region 3 include:
- Terrebonne Basin
  - **St. Mary Parish**
  - **Terrebonne Parish**
  - **Assumption Parish**
  - **Lafourche Parish**
  - **Iberia Parish**
  - **St. Martin Parish**
- Atchafalaya Basin
  - **St. Mary Parish**
  - **Iberia Parish**
  - **Terrebonne Parish**
- Teche-Vermilion Basin
  - **St. Mary Parish**
  - **Iberia Parish**
  - **Vermilion Parish**

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RPT Meetings

- Project proposals should be consistent with the 2012 State Master Plan.
- A project can only be nominated in one basin (except for coastwide projects – more info on coastwide projects after the following "RPT Meetings" slide).
- Proposals that cross multiple basins, excluding coastwide projects, shall be nominated in one basin only, based on the majority area of project influence.
- Coastwide projects apply across basin boundaries; their benefits are not tied to one basin. They can be nominated from any basin and can be presented in all RPT meetings.

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RPT Meetings

- Presenters without factsheets **MUST** complete a PPL 25 Nomination Sign-Up Sheet for <u>each</u> project nominee (demo projects too).
- Presenters with factsheets, please give 3 factsheets to Allison, Michelle & Kylie <u>before</u> your presentation.
- Limit project proposals to 5 minutes and Powerpoint presentations to 5 slides.
- Public comments on project proposals will be accepted orally during the RPT meetings and in writing by February 18, 2015.
- Limit comments/questions during meeting to PPL 25 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 24, 2015.
- The Technical Committee may or may not select a coastwide project in April 2015.

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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 Feb. 24 Coastwide Electronic Vote.
- The Technical Committee selects up to 3 demos in April 2015.
- Workgroups may recommend that no demos move forward to candidate stage
- Previous demo candidates must be ***re-nominated*** for PPL 25.

Coastwide Electronic Vote (Feb 24) 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

- Parishes of each basin are asked to ***identify*** **TODAY** ***who will vote*** during the 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 2/18/2015.

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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.
- Parish representatives must **fill out a voting registration form** at the RPT meetings with their email addresses to receive the voting sheets in February.
- Voters may either email their voting sheets to allison.murry@usace.army.mil OR fax their voting sheets to 504-862-2572.
  All votes must be received by 10:30 am on February 24, 2015.

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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 25 criteria.

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PPL 24 Candidate Project Selection

- CWPPRA Technical Committee meeting, April 16, 2015 at 9:30 am, Louisiana Department of Wildlife and Fisheries in Baton Rouge.
- Technical Committee ranks nominees and votes to select 10 candidate projects and up to 3 demos.
- Written public comments should be submitted to Corps of Engineers prior to Tech Comm meeting by April 2, 2015.
- Public comments also accepted orally during meeting.

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PPL 25 Candidate Project Evaluation & 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
- Technical Committee votes to select up to 4 candidate projects and up to 1 demo to recommend for Phase 1.
  - Dec. 10, 2015, Baton Rouge, 9:30 am
- Task Force final decision to select PPL 25 in January 2016.

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PPL 25 Timeline

- **Coastwide Electronic Vote, Feb. 24, 2015**
  - 21 basin-project nominees, 1 coastwide nominee, and 6 demos selected
- **Technical Committee Mtg, Apr. 16, 2015, Baton Rouge**
  - Selection of 10 candidates and up to 3 demos
- **Technical Committee Mtg, Dec. 10, 2015, New Orleans**
  - Recommend up to 4 projects for Phase 1 funding
- **Task Force Mtg, Jan. 2016, 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 18, 2015**

Brad Inman
CWPPRA Program Manager
U.S. Army Corps of Engineers
P.O. Box 60267
New Orleans, Louisiana 70160

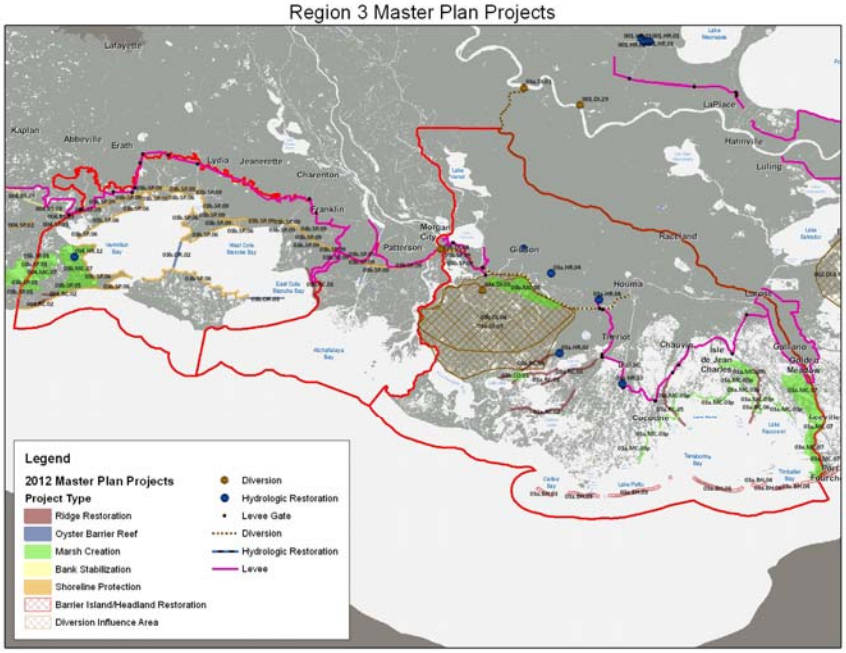
Fax: 504-862-2572
(Attn: Brad Inman)

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

(this information is on the back of the agenda)

CWPPRA

Region 3 Master Plan Projects



CWPPRA

Project Type	Project Name	Project Costs	Project No.
Barrier Island/Headland Restoration	Isles Dernieres Barrier Island Restoration: Restoration of the Isles Dernieres barrier islands to provide dune, beach, and back barrier marsh habitat and to provide storm surge and wave attenuation in the Terrebonne Basin.	$343M	03a.BH.03
Barrier Island/Headland Restoration	Timbalier Islands Barrier Island Restoration: Restoration of the Timbalier barrier islands to provide dune, beach, and back barrier marsh habitat and to provide storm surge and wave attenuation in the Terrebonne Basin.	$524M	03a.BH.04
Hydrologic Restoration	Central Terrebonne Hydrologic Restoration: Modification of structure on Liners Canal to improve freshwater flow to Lake Decade and installation of a structure in Grand Pass to restrict the opening to Lake Mechant.	$14M	03a.HR.02
Hydrologic Restoration	Chacahoula Basin Hydrologic Restoration: Installation of three water control structures (culverts) to increase hydraulic connectivity in the Chacahoula Basin on either side of Highway 182.	$7M	03a.HR.04
Hydrologic Restoration	HNC Lock Hydrologic Restoration: Construction of a lock on the Houma Navigation Canal and operation to reduce saltwater intrusion and distribute freshwater to the surrounding wetlands.	$180M	03a.HR.10
Marsh Creation	Terrebonne Bay Rim Marsh Creation Study: Planning, engineering and design to develop marsh creation along the northern rim of Terrebonne Bay (approximately 3,370 acres). PLANNING AND DESIGN ONLY.	$91M	03a.MC.03p
Marsh Creation	Belle Pass-Golden Meadow Marsh Creation (1st Period Increment): Creation of approximately 14,420 acres from Belle Pass to Golden Meadow to create new wetland habitat, restore degraded marsh, and reduce wave erosion.	$732M	03a.MC.07

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Project Type	Project Name	Project Costs	Project No.
Marsh Creation	North Terrebonne Bay Marsh Creation-Component B: Creation of approximately 4,940 acres of marsh south of Montegut between Bayou St. Jean Charles and Bayou Pointe au Chien to create new wetland habitat, restore degraded marsh, and reduce wave erosion.	$1555M	03a.MC.09b
Marsh Creation	Terrebonne GIWW Marsh Creation: Creation of approximately 1,190 acres of marsh along the GIWW in Terrebonne Basin to create new wetland habitat, restore degraded marsh, and reduce wave erosion.	$37M	03b.MC.05
Marsh Creation	Belle Pass-Golden Meadow Marsh Creation (2nd Period Increment): Creation of approximately 14,420 acres from Belle Pass to Golden Meadow to create new wetland habitat, restore degraded marsh, and reduce wave erosion.	$2,927M	03a.MC.07
Marsh Creation	North Lost Lake Marsh Creation: Creation of approximately 850 acres of marsh between Lake Pagie and Bayou Decade to create new wetland habitat, restore degraded marsh, and reduce wave erosion.	$125M	03b.CO.01
Oyster Barrier Reef	West Cote Blanche Bay Oyster Barrier Reef Restoration: Creation of approximately 28,000 feet of oyster barrier reef in West Cote Blanche Bay from Dead Cypress Point (near Cypremort Point) to near Bayou Michael (NW corner of Marsh Island) to provide oyster habitat, reduce wave erosion, and prevent further marsh degradation.	$20M	03b.OR.02
Oyster Barrier Reef	East Cote Blanche Bay Oyster Barrier Reef Restoration: Creation of approximately 30,000 feet of oyster barrier reef in East Cote Blanche Bay from Marone Point to Lake Point (NE corner of Marsh Island) to provide oyster habitat, reduce wave erosion, and prevent further marsh degradation.	$22M	03b.OR.03
Ridge Restoration	Bayou DeCade Ridge Restoration: Restoration of approximately 47,000 feet (110 acres) of historic ridge along Bayou DeCade from Lake Decade to Raccourci Bay to provide coastal upland habitat, restore natural hydrology, and provide wave and storm surge attenuation.	$38M	03a.RC.01

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Project Type	Project Name	Project Costs	Project No.
Ridge Restoration	Bayou DuLarge Ridge Restoration: Restoration of approximately 106,000 feet (240 acres) of historic ridge along Bayou DuLarge to provide coastal upland habitat, restore natural hydrology, and provide wave and storm surge attenuation.	$56M	03a.RC.02
Ridge Restoration	Small Bayou LaPointe Ridge Restoration: Restoration of approximately 55,000 feet (130 acres) of historic ridge along Small Bayou LaPointe to provide coastal upland habitat, restore natural hydrology, and provide wave and storm surge attenuation.	$29M	03a.RC.03
Ridge Restoration	Mauvais Bois Ridge Restoration: Restoration of approximately 60,000 feet (140 acres) of historic ridge at Mauvais Bois to provide coastal upland habitat, restore natural hydrology, and provide wave and storm surge attenuation.	$37M	03a.RC.04
Ridge Restoration	Bayou Terrebonne Ridge Restoration: Restoration of approximately 55,000 feet (130 acres) of historic ridge along the southern portions of Bayou Terrebonne to provide coastal upland habitat, restore natural hydrology, and provide wave and storm surge attenuation.	$38M	03a.RC.05
Ridge Restoration	Bayou Pointe au Chien Ridge Restoration: Restoration of approximately 57,000 feet (130 acres) of historic ridge along the southern portions of Bayou Pointe au Chien to provide coastal upland habitat, restore natural hydrology, and provide wave and storm surge attenuation.	$30M	03a.RC.06
Ridge Restoration	Bayou Sale Ridge Restoration: Restoration of approximately 36,000 feet (80 acres) of historic ridge along Bayou Sale to provide coastal upland habitat, restore natural hydrology, and provide wave and storm surge attenuation.	$22M	03b.RC.01
Sediment Diversion	Atchafalaya River Diversion (150,000 cfs): Sediment diversion off of the Atchafalaya River into or to benefit Penchant and southwest Terrebonne marshes, 150,000 cfs capacity (modeled at 60% of southward Atchafalaya flow exceeding 50,000 cfs).	$783M	03a.DI.05

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Project Type	Project Name	Project Costs	Project No.
Ridge Restoration	Bayou Long Ridge Restoration: Restoration of approximately 49,000 feet (110 acres) of historic ridge along Bayou Long/Bayou Fontanelle to provide coastal upland habitat, restore natural hydrology, and provide wave and storm surge attenuation.	$37M	002.RC.01
Ridge Restoration	Spanish Pass Ridge Restoration: Restoration of approximately 53,000 feet (120 acres) of historic ridge along the banks of Spanish Pass near Venice to provide coastal upland habitat, restore natural hydrology, and provide wave and storm surge attenuation.	$43M	002.RC.02
Ridge Restoration	Bayou LaLoutre Ridge Restoration: Restoration of approximately 117,000 feet (270 acres) of historic ridge along Bayou LaLoutre to provide coastal upland habitat, restore natural hydrology, and provide wave and storm surge attenuation.	$61M	001.RC.01
Sediment Diversion	Mid-Barataria Diversion (250,000 cfs- 1st Period Increment): Sediment diversion into mid-Barataria in the vicinity of Myrtle Grove to build and maintain land, maximum capacity 50,000 cfs (modeled at 50,000 cfs when the Mississippi River flow exceeds 600,000 cfs, at 8% of river flows between 200,000-600,000 cfs, and no operation below 200,000 cfs). NOTE: This project is the first implementation period component of a 250,000 cfs diversion to mid-Barataria. The influence area shown is for the total 250,000 cfs project upon completion in the second implementation period.	$275M	002.DI.03
Sediment Diversion	Mid Barataria Diversion (250,000 cfs- 2nd Period Increment): Sediment diversion into Mid-Barataria in the vicinity of Myrtle Grove to build and maintain land, 250,000 cfs capacity. NOTE: This project represents the incremental expansion of the 50,000 cfs diversion (002.DI.03) to mid-Barataria (constructed in the 1st Implementation Period) for a total capacity of 250,000 cfs (modeled at 250,000 cfs when Mississippi River flow exceeds 900,000 cfs, at 50,000 cfs for river flows between 600,000-900,000 cfs, at 8% of river flows between 200,000-600,000 cfs, and no operation when river flow is below 200,000 cfs).	$820M	002.DI.03a
Sediment Diversion	Lower Barataria Diversion (50,000 cfs): Sediment diversion into lower Barataria Bay in the vicinity of Empire, 50,000 cfs capacity (modeled at capacity when Mississippi River flow exceeds 600,000 cfs; modeled at 8% of river flow from 600,000 cfs down to 200,000 cfs; no operation below 200,000 cfs).	$203M	002.DI.15
Sediment Diversion	Lower Breton Diversion (50,000 cfs): Sediment diversion into lower Breton Sound in the vicinity of Black Bay to build and maintain land, 50,000 cfs capacity (modeled at 50,000 cfs when Mississippi River flow exceeds 600,000 cfs, at 8% of river flows between 200,000-600,000 cfs, and no operation when river flow is below 200,000 cfs).	$212M	001.DI.02

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Project Type	Project Name	Project Costs	Project No.
Sediment Diversion	Increase Atchafalaya Flow to Eastern Terrebonne: Dredging of the GIWW east of the Atchafalaya and installation of a bypass structure at the Bayou Boeuf Lock to increase freshwater and sediment flows from Atchafalaya River to Terrebonne marshes (modeled to maintain a minimum of 20,000 cfs east along GIWW towards HNC).	$292M	03b.DI.04
Shoreline Protection	Vermilion Bay and West Cote Blanche Bay Shoreline Protection (Critical Areas): Shoreline protection through rock breakwaters of approximately 83,000 feet of shoreline along Vermilion Bay and West Cote Blanche Bay to preserve shoreline integrity and reduce wetland degradation from wave erosion.	$86M	03b.SP.06a
Shoreline Protection	GIWW Shoreline Protection (Intracoastal City to Amelia): Shoreline protection of approximately 690,000 feet of GIWW shoreline between Intracoastal City and Amelia to preserve shoreline integrity and reduce wetland degradation from wave erosion.	$765M	03b.SP.09

ATTENDANCE RECORD

DATE	SPONSORING ORGANIZATION	LOCATION
January 28, 2015 9:00 A.M.	COASTAL WETLANDS PLANNING, PROTECTION AND RESTORATION ACT	Terrebonne Parish Main Library 151 Library Dr Houma, LA 70360

PURPOSE

MEETING OF THE REGIONAL PLANNING TEAM REGION III

PARTICIPANT REGISTER*

NAME	JOB TITLE AND ORGANIZATION	PHONE NUMBER
Logan Boudreaux	CPRA	225 342 2634
Ron Bourtany	NRCS	337 291-3067
Cassidy Lejeune	LDWF	337-651-1312
Randy Moertle	E.A. McIlhenny Enterprises LLC	(985) 856-3630
RALPH Libersat	Vermilion Parish	337-652-6557
BARRY Hebert	LDWF	225 765 0237
Stu Brown	CPRA	225-342-4736
* Mary Frances Cannata		
* Mallory Robichaux		985-870-7480
* Hayden Robichaux		(985) 226-8012
Lisa Landry	LDWF	985-634-4743
Robert Freeman	TSWCD	337-296-3295
Mac Parker	NRCS	337-369-6623 ext. 3
David Minton	Cypress Group	337 7648884
Cindy Steyer	CVS - NRCS Water Rm	225-665-4253 ext 111
Jason Kroll	NOAA	225 757 5411
Amanda Voisin	Lafourche Parish Govt	985 493 6616
JOHN PETITBON	USACE	504 862-2732
Andrea Harris	NRCS DC Thibodaux FO	985-447-3871 x3
Jenny Ladd	CZM - Thibodaux	985-879-1366
Donna Rogers	NOAA	225-936-6812
Brad Crawford	EPA	214 665 7253

LMV FORM 583-R
JAN 88

* If you wish to be furnished a copy of the attendance record, please indicate so next to your name.

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PURPOSE

MEETING OF THE REGIONAL PLANNING TEAM REGION III

PARTICIPANT REGISTER*

NAME	JOB TITLE AND ORGANIZATION	PHONE NUMBER
Blaise Pezold	L-T SWCD	504-264-8125
Gerald Schouest	Terrebonne CZM	985-790-3662
Chad Courville	Miami Corporation	337.364.1695
Kevin Sagrera	UPPJ	337-303-4585
Mary Bigler	Bayou Grace Comm. Ser.	985-594-5350
Milton James Jr	USDA-NRCS	
Drew M. Lee	CPRA	985 447 0990
Adam Ledet	CPRA	985-449-5105
Travis Byland	CPRA	985-449-5073
Sharon Osowski Morgan	EPA	214-534-4782
Archie Chaisson	Lafourche Parish	985-446-8427
Susan Testroet-Bergeron	BTNEP	985-447-0868
Mark Hester	Prof UL Lafayette	504-232-1157
Angela Williams		985-688-3473
Bobby Brien	Conoco Phillips	504 415 8181
Charles Sasser	LSU	225-578-6375
Ben Malbrough	Bayou Lafourche Fresh Water	985-446-7155
Wendley Billiot	TP CZM	985-688-7965
Lisa Abernathy	NMFS	225-389-0508
Patricia Williams	NMFS	225-389-0508
Kimberly Clement	NMFS	225-389-0508
Leslie Suazo	OU	985-209-3270

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JAN 88

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PURPOSE

MEETING OF THE REGIONAL PLANNING TEAM REGION III

PARTICIPANT REGISTER*

NAME	JOB TITLE AND ORGANIZATION	PHONE NUMBER
Alan Mathews	Plan. Ext. Dir. LA Sea Grant	985-677-0368
N. c McMenn	Terrebonne Parish	985-873-6889
Alma Robichaux	BTNEP	985447-0860
Tyler Ortego	ORA Estuaries/Wayfarer Tech	225-342-5528
AARON BASS	Chenier Environmental	225-235-9557
Jim Allen	Apache LA Minerals	985-879-3528
Mel Landry	NOAA	225-778-7380
Adrian Chavarria	EPA	214-665-3103
Vida Summers	TPCG	985-873-6869
Melanie Sand	Cornell University	765-419-3774

LMV FORM 583-R
JAN 88

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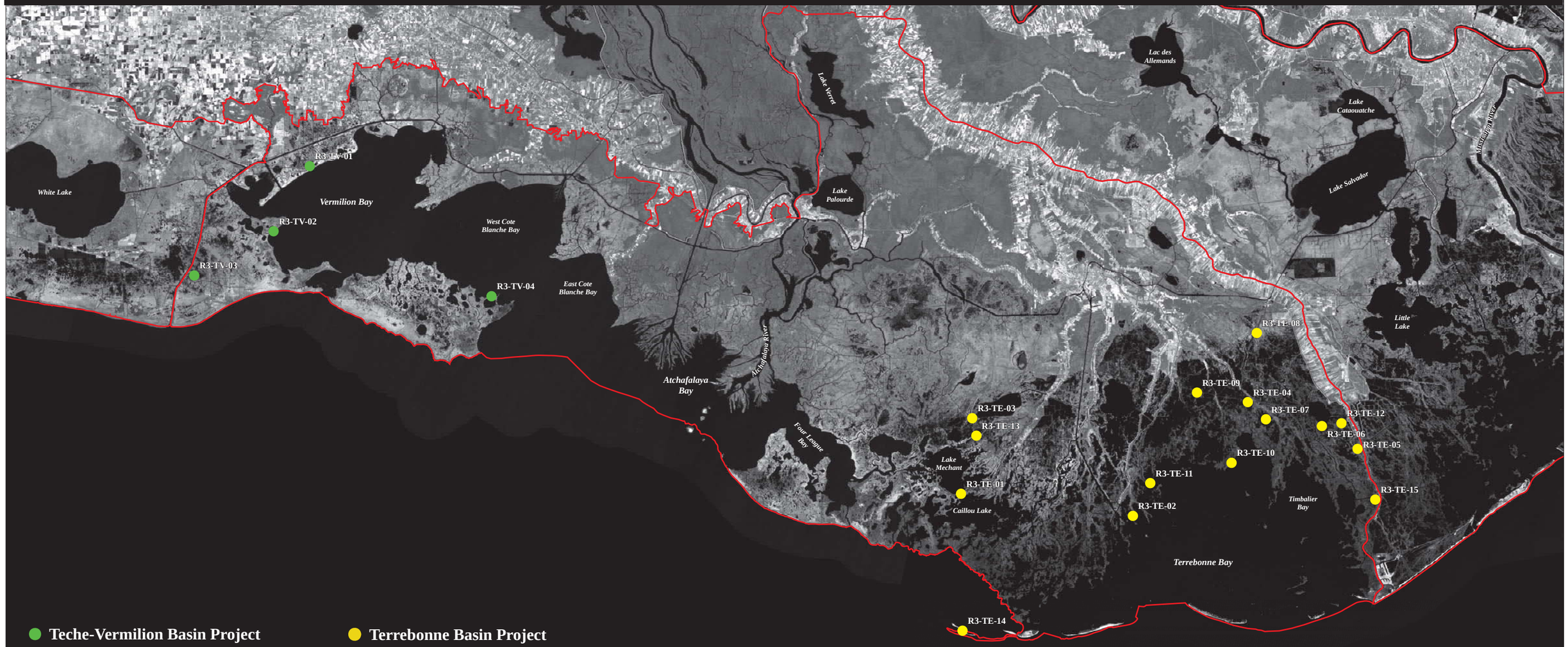
Region 3 – TECHE-VERMILION BASIN

Project Number	Project Proposals
R3-TV-01	Northwest Vermilion Bay Marsh Creation & Shoreline Protection
R3-TV-02	West Vermilion Bay Shoreline Protection & Marsh Creation
R3- TV-03	South Humble Marsh Creation & Nourishment
R3-TV-04	Lake Sand Complex Shoreline Protection & Marsh Creation **marsh creation portion not consistent with 2012 State Master Plan, project needs to be updated to be accepted as a nominee*

Region 3 – TERREBONNE BASIN

R3-TE-01	Bayou Dularge Ridge Restoration & Marsh Creation
R3-TE-02	Cocadrie East Marsh Creation & Ridge Restoration **rim marsh creation not consistent with 2012 State Master Plan, project needs to be updated to be accepted as a nominee*
R3-TE-03	Bayou De Cade Bankline & Marsh Restoration
R3-TE-04	Bayou Jean Lacroix Marsh Creation & Terracing
R3-TE-05	Bayou Lafourche Twin Pipeline Marsh Restoration
R3-TE-06	South Catfish Lake Marsh Creation & Terraces
R3-TE-07	South Bayou Pointe aux Chenes Marsh Creation & Terraces
R3-TE-08	Grand Bayou Freshwater Enhancement
R3-TE-09	Bayou Barre Marsh Creation
R3-TE-10	Lake Felicity Oyster Reef Shoreline Protection & Marsh Creation
R3-TE-11	Bayou Terrebonne Ridge Restoration & Marsh Creation
R3-TE-12	East Catfish Lake Marsh Creation & Terracing
R3-TE-13	Small Bayou LaPointe Marsh & Ridge Restoration
R3-TE-14	Raccoon Island West Restoration
R3-TE-15	West Leeville Marsh Creation & Shoreline Protection

Region 3 PPL24 Nominated Projects



Teche-Vermilion Basin Project

- R3-TV-01 Northwest Vermilion Bay Marsh Creation and Shoreline Protection
- R3-TV-02 West Vermilion Bay Shoreline Protection and Marsh Creation
- R3-TV-03 South Humble Marsh Creation and Nourishment
- R3-TV-04 Lake Sand Complex Shoreline Protection and Marsh Creation *

Terrebonne Basin Project

- R3-TE-01 Bayou Dularge Ridge Restoration and Marsh Creation
- R3-TE-02 Cocodrie East Marsh Creation and Ridge Restoration *
- R3-TE-03 Bayou DeCade Bankline and Marsh Restoration
- R3-TE-04 Bayou Jean Lacroix Marsh Creation and Terracing
- R3-TE-05 Bayou Lafourche Twin Pipeline Marsh Restoration
- R3-TE-06 South Catfish Lake Marsh Creation and Terraces
- R3-TE-07 South Bayou Pointe aux Chenes Marsh Creation and Terraces
- R3-TE-08 Grand Bayou Freshwater Enhancement
- R3-TE-09 Bayou Barre Marsh Creation
- R3-TE-10 Lake Felicity Oyster Reef Shoreline Protection and Marsh Creation
- R3-TE-11 Bayou Terrebonne Ridge Restoration and Marsh Creation
- R3-TE-12 East Catfish Lake Marsh Creation and Terracing
- R3-TE-13 Small Bayou LaPointe Marsh and Ridge Restoration
- R3-TE-14 Raccoon Island West Reclamation
- R3-TE-15 West Leeville Marsh Creation and Shoreline Protection

4 0 4 8 Kilometers

4 0 4 8 Miles

* Not consistent with 2012 State Master Plan. Proposed project will be revised and new fact sheet to be submitted.

Region 3 PPL25
Regional Planning Team Meeting
Terrebone Parish Main Library
Houma, LA
January 28, 2015
Background Image:
2010 Landsat Thematic Mapper 5 Mosaic

Region 3 – TECHE-VERMILION BASIN

R3-TV-01

Northwest Vermilion Bay Marsh Creation & Shoreline Protection

R3-TV-01

PPL25 Northwest Vermilion Bay Marsh Creation and Shoreline Protection

Project Location:
Region 3, Teche-Vermilion Basin, Vermilion Parish, on the NW shoreline of Vermilion Bay west of Boston Canal.

Problem:
Shoreline erosion can dramatically affect wetland loss when it causes relatively isolated marsh drainage systems to become hydrologically connected with dynamic water bodies such as Vermilion Bay. In areas, shoreline erosion is particularly rapid and causes the direct loss of significant wetland acreage. The area between the Gulf Intracoastal Waterway (GIWW) and Vermilion Bay, particularly between Four Mile Canal and Champlain Point, is a critical land mass in terms of protecting interior marshes. Marsh degradation within this project area should be addressed with marsh creation and shoreline protection to restore and prevent further degradation of these areas.

It is critical that this project be implemented in the Vermilion Bay area to reduce interior wetland loss, rebuild wetlands in open water areas, and maintain the geologic framework of the Bay Rim by addressing shoreline erosion and marsh creation along the northwestern bay. The Northwest Vermilion Bay Marsh Creation and Shoreline Protection project addresses both the critical need for shoreline protection and the needed component of marsh creation behind the protection containment feature.

Goals:
The project goals are to enhance emergent/submergent marsh vegetation throughout the project area, increase the land area buffer along the lake rim and maintain the integrity of wetlands by stabilizing the northwest bank of the Vermilion Bay shoreline to prevent further regression of the shoreline.

Proposed Solution:
The project proposes installing approximately 18,000 linear feet (3.4 miles) of shoreline protection (armored dike or retaining wall) to stabilize and protect the most critical shoreline area along the northwestern portion of Vermilion Bay. The shoreline protection feature will be designed using all the lessons learned from previous built projects, both from demonstration and standard shoreline protection projects. To the greatest extent possible, innovative alternatives will be explored to maximize marsh/bay tidal exchange, encourage accretion through suspended sediment capture, and minimize project lifecycle costs associated with these benefits. The project will create/nourish approximately 206 acres of emergent marsh; and protect 3,400 acres of wetlands and promote growth of submerged aquatic vegetation. The borrow for the marsh creation will be obtained from Vermilion Bay.

Project Benefits:
1) What is the total acreage benefited both directly and indirectly? The total area benefited is estimated at 3,400 acres.

2) How many acres of wetland will be protected/created over the project life? The project would protect approximately **258 net acres** (100% of the 258 acres projected to be lost without project).

3) What is the anticipated loss rate reduction throughout the area of direct benefits over the project life (<25%, 25-49%, 50-74%, >75%). The anticipated loss rate reduction throughout the area of direct benefit is estimated to be 100%.

4) Do any of the 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 proposed project would maintain a lake rim component of the coastal ecosystem.

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

Preliminary Construction Cost
Approximately $27 million

Preparers of Fact Sheet:
Loland Broussard, NRCS, (337) 291-3069, loland.broussard@la.usda.gov
Ralph Libersat, (337) 652-6557, Vermilion Parish Coastal Committee

Benefited Area
3,400 Acres

0 2,500 5,000 10,000
Feet

N

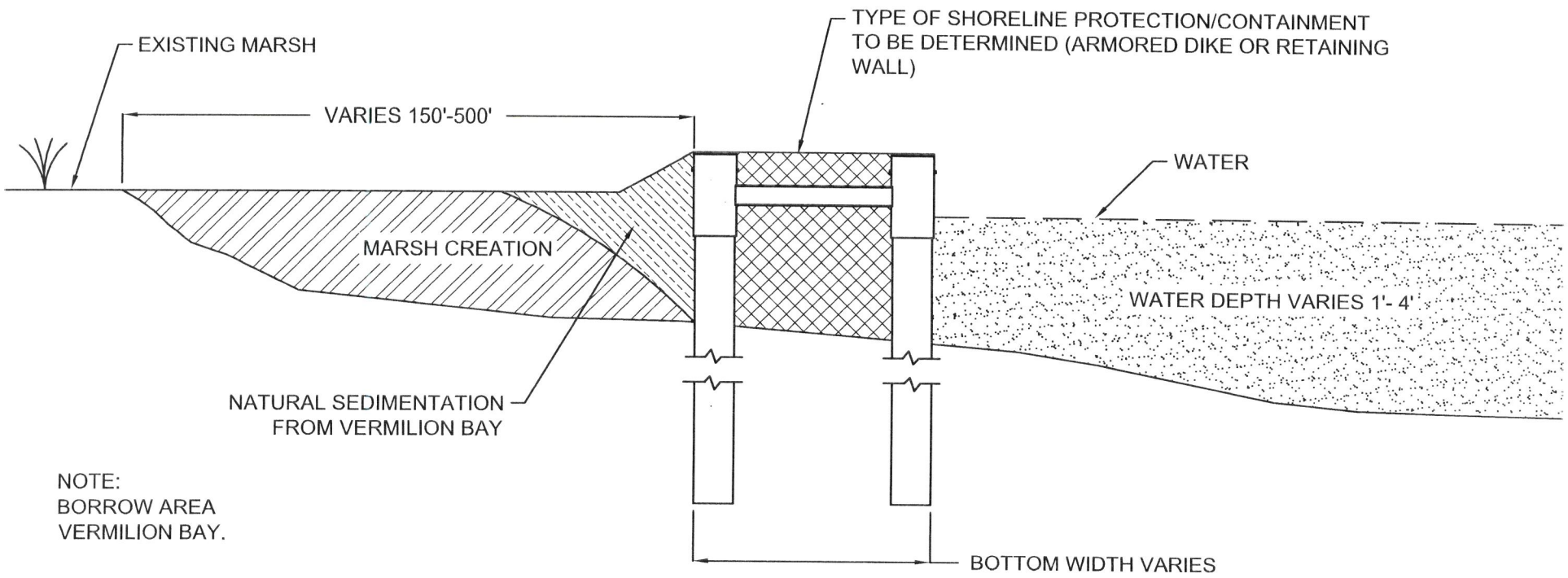
Shoreline Protection & Marsh Creation Feature
Approximately 18,000 ft

0 2,500 5,000 10,000
Feet

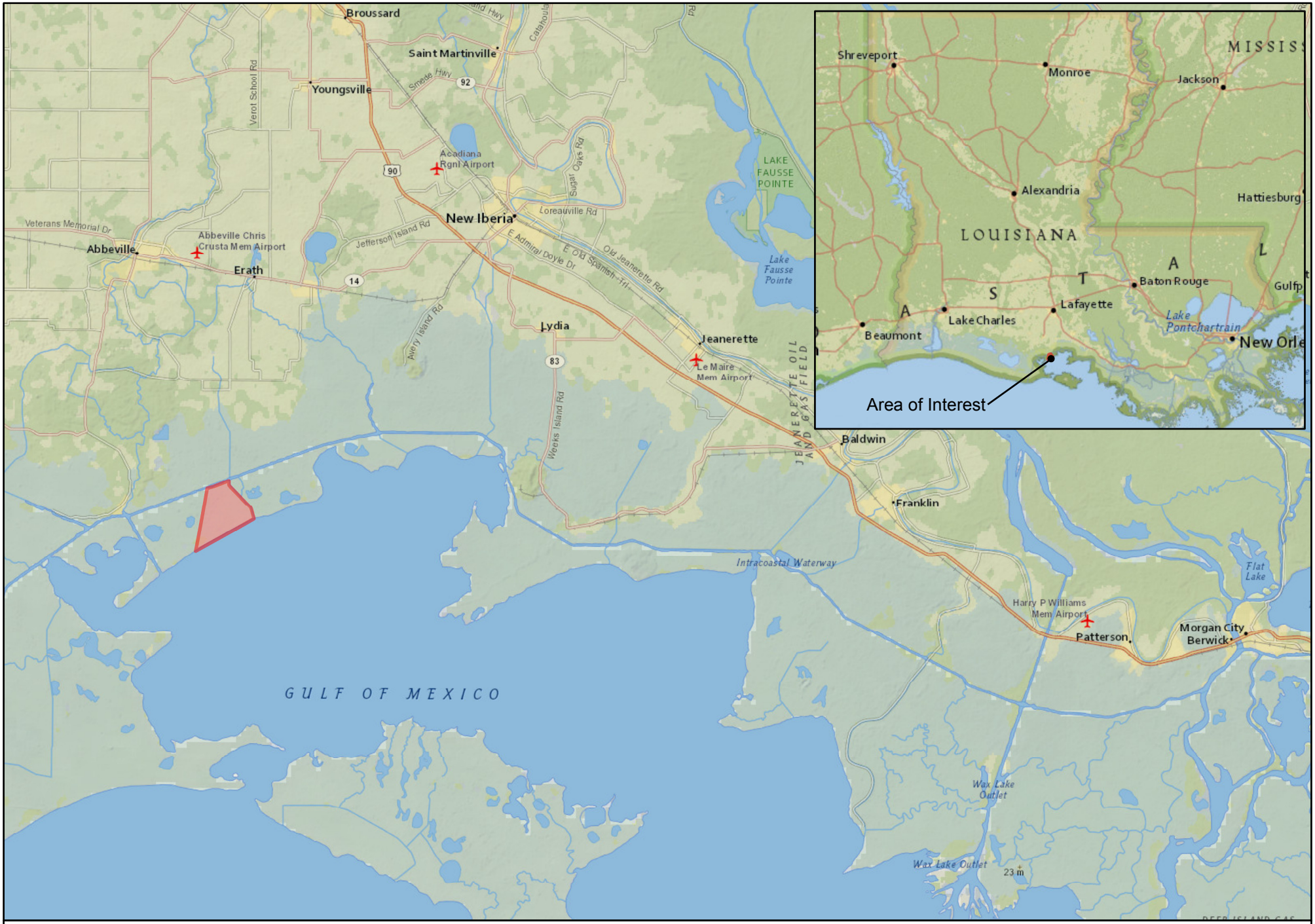
N

Shoreline Protection & Marsh Creation Feature
Plan View

0 500 1,000 2,000 Feet



NOTE:
BORROW AREA
VERMILION BAY.



Vicinity Map

Area of Interest

0 3 6 12 Miles

Benefited Area
3,400 Acres

0 2,500 5,000 10,000
Feet

N

Shoreline Protection & Marsh Creation Feature
Approximately 18,000 ft

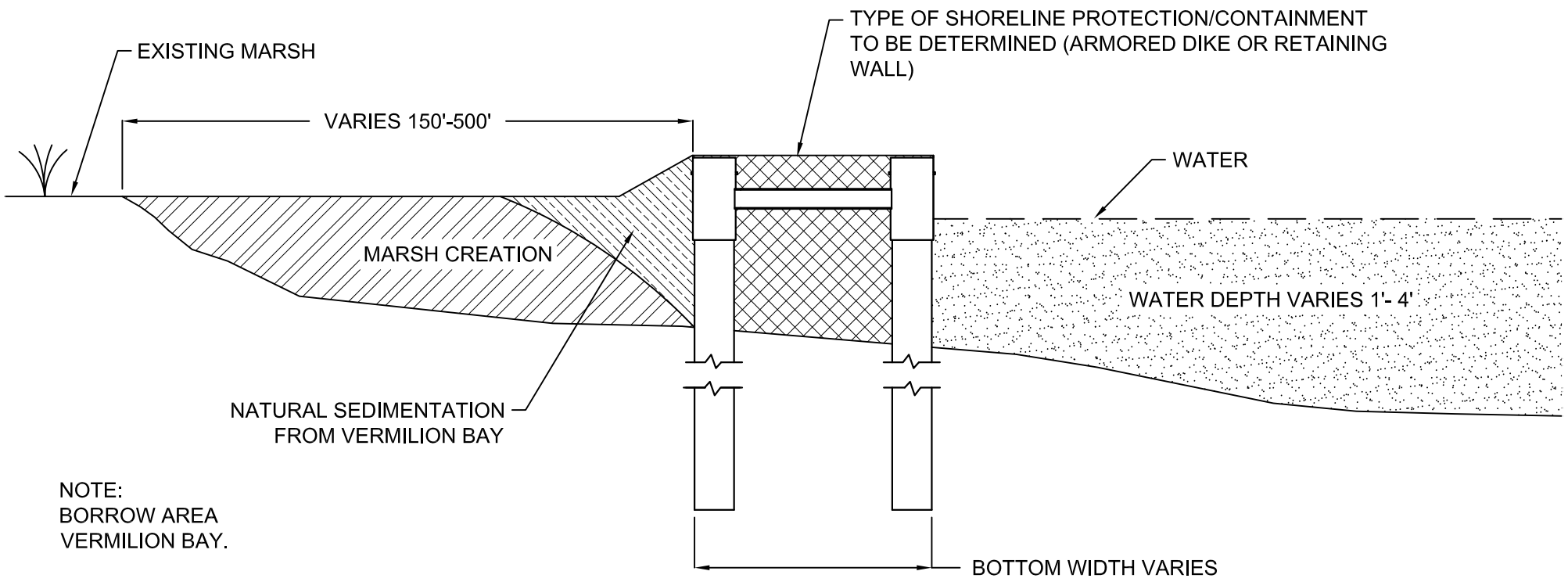
0 2,500 5,000 10,000
Feet

N

Shoreline Protection & Marsh Creation Feature
Plan View

0 500 1,000 2,000 Feet

N



NOTE:
BORROW AREA
VERMILION BAY.

R3-TV-02

West Vermilion Bay Shoreline Protection & Marsh Creation

R3-TV-62

PPL25 PROJECT NOMINEE FACT SHEET
January 27, 2015

Project Name
West Vermilion Bay Shoreline Protection and Marsh Creation

Master Plan Strategy
Shoreline Protection – 03b.SP.06a
Marsh Creation – 03b.MC.07

Project Location
Region 3, Teche-Vermilion Basin, Vermilion Parish, east of Hog Lake and along the southeastern shore of North Lake.

Problem
Over the past decades, the project area has experienced both wetland loss, primarily due to geomorphologic and hydrologic conditions being altered due to dredging of navigation and petroleum access canals and the construction of spoil banks and levees, and shoreline erosion along Vermilion Bay caused primarily by natural wave energy. Wave energy in the bay has gradually increased over the centuries because the bay is naturally getting deeper due to a slight yet constant subsidence and global sea-level rise.

Goals
There are two goals for this project. First is to create/nourish marsh in one cell located east of Hog Lake between Bayou Prien and Hog Bayou and a second cell located between the shorelines of North Lake and Vermilion Bay. The second goal is to protect/armor the western shoreline of Vermilion Bay between Bayou Prien and Hog Bayou and the Vermilion Bay shoreline adjacent to the proposed marsh creation cell near North Lake.

Proposed Solution
The project proposes to create and nourish 465 acres of marsh by dredging sediment from Vermilion Bay. The project also includes armoring approximately 17,045 linear feet of shoreline along Vermilion Bay between Bayou Prien and Hog Bayou and adjacent to the proposed marsh creation cell located near North Lake.

Project Benefits
- The project will create/nourish 465 acres of emergent marsh habitat, and
- Armor approximately 17,045 linear feet of shoreline along Vermilion Bay between Bayou Prien and Hog Bayou and near North Lake.

Preliminary Construction Costs
The preliminary project cost estimate with 25% contingency is approximately $20 million.

Preparer of Fact Sheet
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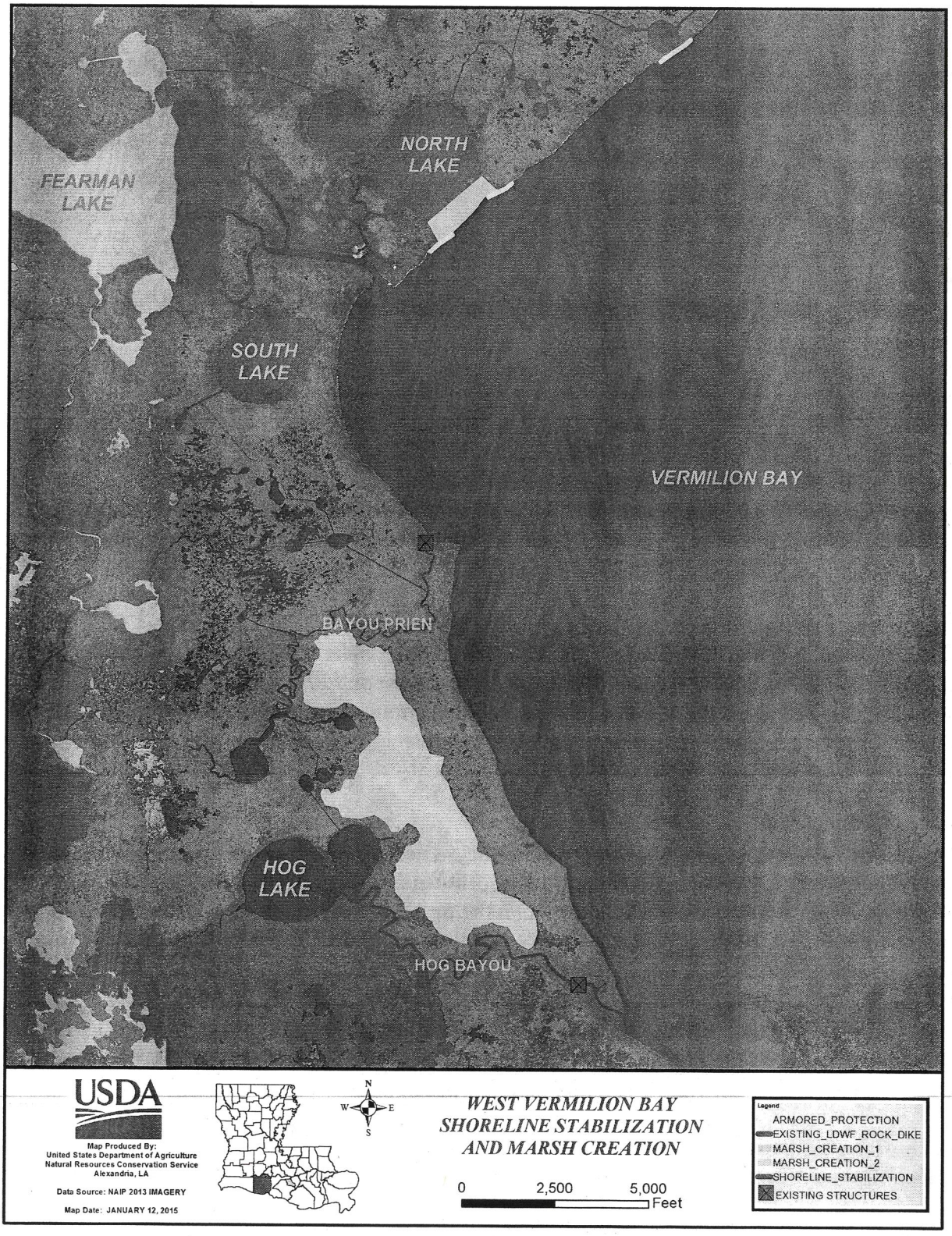

NORTH LAKE
FEARMAN LAKE
SOUTH LAKE
VERMILION BAY
BAYOU PRIEN
HOG LAKE
HOG BAYOU
USDA
Map Produced By:
United States Department of Agriculture
Natural Resources Conservation Service
Alexandria, LA
Data Source: NAIP 2013 IMAGERY
Map Date: JANUARY 12, 2015
N
W
E
S
WEST VERMILION BAY
SHORELINE STABILIZATION
AND MARSH CREATION
0
2,500
5,000
Feet
Legend
ARMORED_PROTECTION
EXISTING_LDWF_ROCK_DIKE
MARSH_CREATION_1
MARSH_CREATION_2
SHORELINE_STABILIZATION
EXISTING STRUCTURES

West Vermilion Bay Shoreline Protection & Marsh Creation

Coastal Wetlands Planning, Protection and Restoration Act

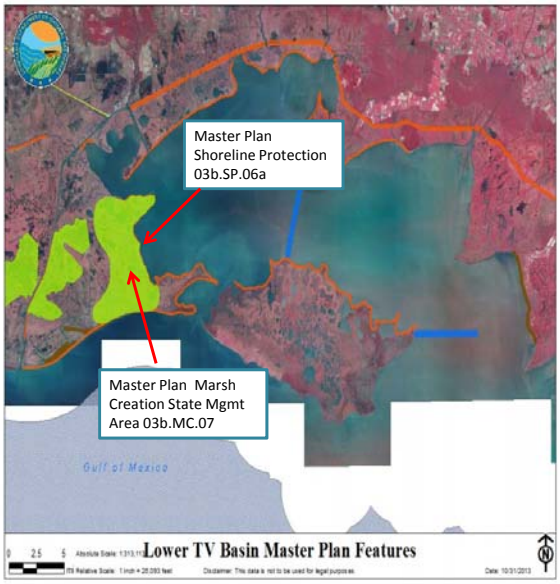
Problem

- Project area has experienced both wetland loss and shoreline erosion
- Compound effects driving marsh loss
  - Subsidence, storm losses, sea level rise, and human intervention
  - Numerous oil & gas canals in project area have altered hydrology
  - Shoreline erosion along Vermilion Bay due to increased wave energy

Coastal Wetlands Planning, Protection and Restoration Act

Project Goals

- Joint sponsored project between NRCS and EPA
- Consistent with the 2012 Master Plan



Coastal Wetlands Planning, Protection and Restoration Act

Project Goals (Cont'd)

- Create/nourish 465 acres of marsh with sediment from Vermilion Bay
- Armor approximately 17,045 linear feet of shoreline along Vermilion Bay in 2 areas:
  - Between Bayou Prien and Hog Bayou
  - Along the shoreline between North Lake and Vermilion Bay.
- Estimated preliminary cost w/25% contingency is $20 million

Coastal Wetlands Planning, Protection and Restoration Act

Project Features

Coastal Wetlands Planning, Protection and Restoration Act

Questions?

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Coastal Wetlands Planning, Protection and Restoration Act

R3-TV-03

South Humble Marsh Creation & Nourishment

R3-TV-03

PPL24 PROJECT NOMINEE FACT SHEET
September 2014

South Humble Marsh Creation and Nourishment

Louisiana's 2012 Coastal Master Plan
Marsh Creation – 004.MC.07

Project Location
Region 3, Teche - Vermilion Basin, Vermilion Parish

Problem
Project area wetlands are being lost at a rate of -0.78 % per year based on USGS analysis (1985-2010). Marshes in this area are subject to losses from shoreline erosion, subsidence/sediment deficit, hurricane impacts, and interior ponding. Shoreline erosion along the Freshwater Bayou Canal has resulted in direct wetland loss as the canal has widened from an authorized width of less than 200 feet to 800 feet. In addition to these direct losses, significant interior marsh loss has resulted from saltwater intrusion and hydrologic changes associated increasing tidal influence, storm surge impacts, and herbivory. The ensuing erosion creates water turbidity within the interior ponds, this coupled with increased pond depth, decreases the coverage of submerged aquatic vegetation. Recent hurricane scour sites are not likely to recover unaided. Erosion of the eastern bank line of Freshwater Bayou has resulted in formation of three breaches, allowing boat wakes and hydrologic action to adversely affect the interior project area marshes. The wakes from passing vessels and tidal action are also causing the export of organic material from the project area.

Proposed Solution
The proposed project's primary feature is to create and/or nourish approximately 516 acres of marsh (301 acres created, 215 acres nourished). Sediment will be hydraulically pumped from the Gulf of Mexico into the shallow water marsh creation area. Containment dikes will be constructed around the marsh creation area to keep material on site during pumping. The saline effluent will be direct toward Freshwater Bayou and will not be discharged eastward into existing marshes. Once pumping has been completed, some dikes will be gapped, tidal channels will be constructed and some vegetative plantings will occur within the newly created areas.

Goals
The project goal is to create and/or nourish approximately 516 ac of marsh (301 ac created, 215 ac nourished) of emergent brackish marsh using sediment from the Gulf.

Preliminary Project Benefits:
Based on a 50% rate reduction to the projected -0.78%/yr land loss rate, marsh creation and nourishment in the project area would yield 294 net acres, 20 years after initial construction.

Preliminary Construction Costs:
The estimated construction cost including 25% contingency is $26M.

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

South Humble Marsh Creation and Nourishment (PPL24 Candidate)

N

Water Control Structure *

Tidal Creeks *

Marsh Creation *

Project Boundary

* denotes proposed features

0.3 0 0.3 Kilometers

0.3 0 0.3 Miles

Scale 1:25,000

USGS science for a changing world

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:
2012 DOQQ

Map ID: USGS-NWRC 2014-11-0029
Map Date: July 21, 2014

R3-TV-04

Lake Sand Complex Shoreline Protection & Marsh Creation

**marsh creation portion not consistent with 2012 State Master Plan, project needs to be updated to be accepted as a nominee*

R3-TV-04

PPL25 PROJECT NOMINEE FACT SHEET
January 2015

Project Name: Lake Sand Complex Shoreline Protection & Marsh Creation

Project Location: Region III, Teche-Vermilion Basin, Marsh Island Refuge, Iberia Parish (LDWF ownership)

Coast 2050 Strategy:
Regional: [10.] Maintain shoreline integrity and stabilize critical areas of the Teche-Vermilion Bay systems including the gulf shorelines
Mapping Units: [64.] Marsh Island – Protect bay/lake/gulf shorelines

Master Plan:
Project No. 03b.SP.06a – Vermilion Bay and West Cote Blanche Bay Shoreline Protection (Critical Areas): Shoreline protection through rock breakwaters of approximately 83,000 feet of shoreline along Vermilion Bay & West Cote Blanche Bay to preserve shoreline integrity and reduce wetland degradation from wave erosion ($86 million).

Problem: The Marsh Island Refuge provides vital support to important fish and wildlife species, and provides crucial geomorphic structure that helps protect and maintain the character of the Vermilion-Cote Blanche Bays system. On Marsh Island's eastern point, wave action generated across the long fetch length of Vermilion and Cote Blanche Bays is causing erosion on the northern shoreline of Marsh Island Refuge, while simultaneously the eastern shoreline is buffeted by the wave and tidal energy impacts from the Gulf of Mexico. In addition to direct marsh loss from shoreline retreat, of particular concern is the loss of certain reaches that would also allow coalescence of the Bays with shallow interior lakes. Also, multiple storm impacts in the last decade have accelerated marsh degradation that is leading to the merge of three large interior lakes, including Lake Sand, and their expansion into a much larger, higher energy water body. Capture of these interconnected shallow lake-marsh ecosystems by West Cote Blanche Bay will significantly alter hydrology by increasing wave and tidal exchange impacts, and immediately accelerate degradation and loss of fragile wetland habitat.

Goal: The goal of this project is to protect critical shoreline areas on the southern Cote Blanche Bay shoreline and the adjacent interior lakes, and restore the marshes on the eastern point of Marsh Island by halting erosion in selected reaches, and counter the interior loss by creating and nourishing marsh with dredged sediments.

Proposed Solutions: The 2,010-acre project area on the eastern tip of Marsh Island Refuge comprises a complex of three lakes totaling 1,035 acres that are surrounded and separated by a total of 975 acres of fragmenting marsh areas. The project measures consist of 1) a total of 16,740 LF of rock breakwater along the shoreline of bands of marsh that maintain separation of West Cote Blanche Bay from the Lake Sand complex; and 2) 275 acres of marsh creation and 156 acres of unconfined marsh nourishment.

Preliminary Project Benefits: Maintaining the integrity of the shoreline and emergent marshes, and stabilizing selected areas of the Teche-Vermilion Bays system will prevent future loss of shoreline reaches critical to protecting important interior wetland and shallow lake areas utilized by numerous species of fish, waterfowl and other wildlife, including endangered species. Over the 20-year project life, features would prevent the bay from capturing substantial acreage of existing shallow-water lakes and surrounding marsh. In addition, the proposed project will have significant synergistic effects with existing restoration and protection projects on the refuge such as TV-14, TV-21, and other restoration actions.

Identification of Potential Issues: There are no potential issues anticipated with this proposed project.

Preliminary Construction Costs: The estimated construction cost, with contingency, is approximately $20 million. Moreover, significant cost reduction may be achieved by using the same borrow area and pipeline alignment used for the TV-21 marsh creation project that has been refilling since 2011, and by utilizing an opportunity to obtain a portion of the rock that will be required from a location in the Atchafalaya Delta.

Preparer(s) of Fact Sheet:
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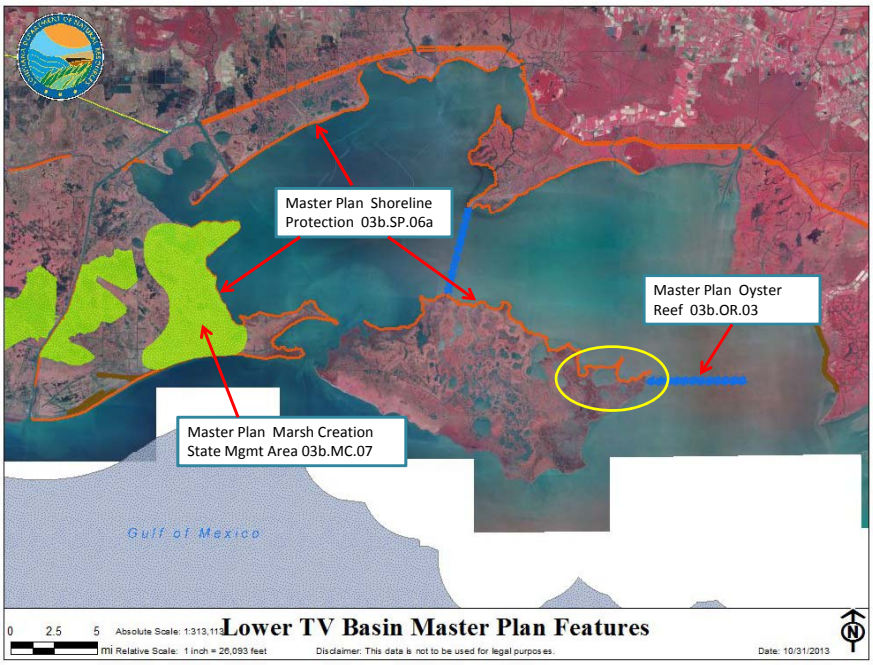
LAKE SAND COMPLEX
MARSH CREATION AND
SHORELINE PROTECTION
IBERIA PARISH, LOUISIANA
USDA
United States
Department of
Agriculture
Natural Resources
Conservation Service
File No.
Drawing: .mxd
Drawing No.
XXX
Sheet X of X
1/12/2015
NAIP 2013 IMAGERY
Legend
MARSH_CREATION
MARSH_NOURISHMENT
EXISTING_SHORELINE_PROTECTION
EXISTING_CLOSURE
PROPOSED_SHORELINE_PROTECTION
0
1,250
2,500
Feet
VERMILION BAY
LAKE SAND
HAWKINS LAKE
GULF OF MEXICO
N



Lower TV Basin Master Plan Features

Lake Sand Complex 1998

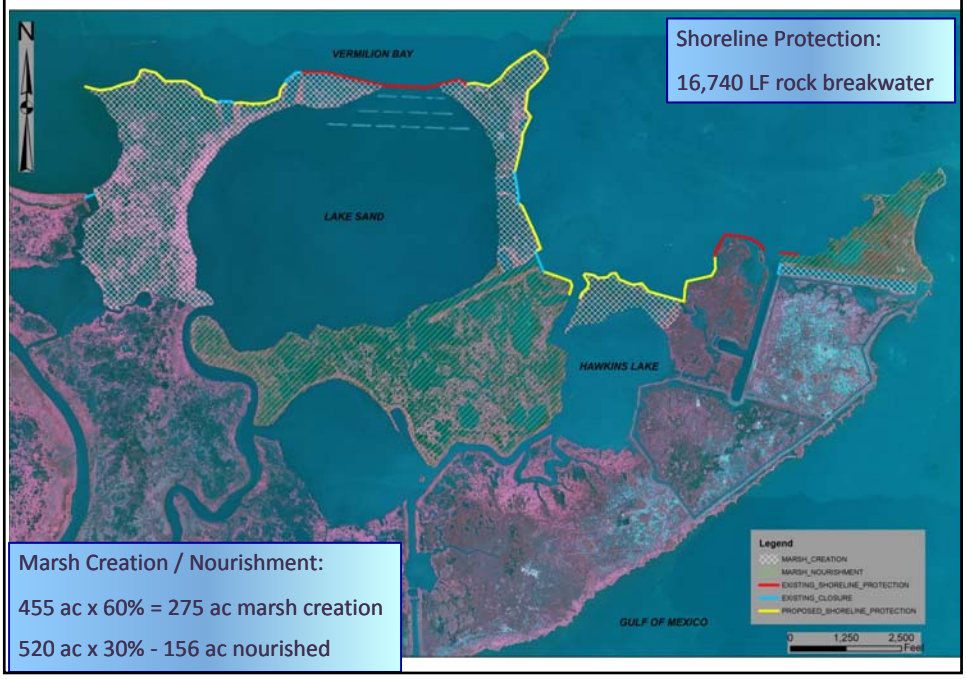
Absolute Scale: 1:47,059

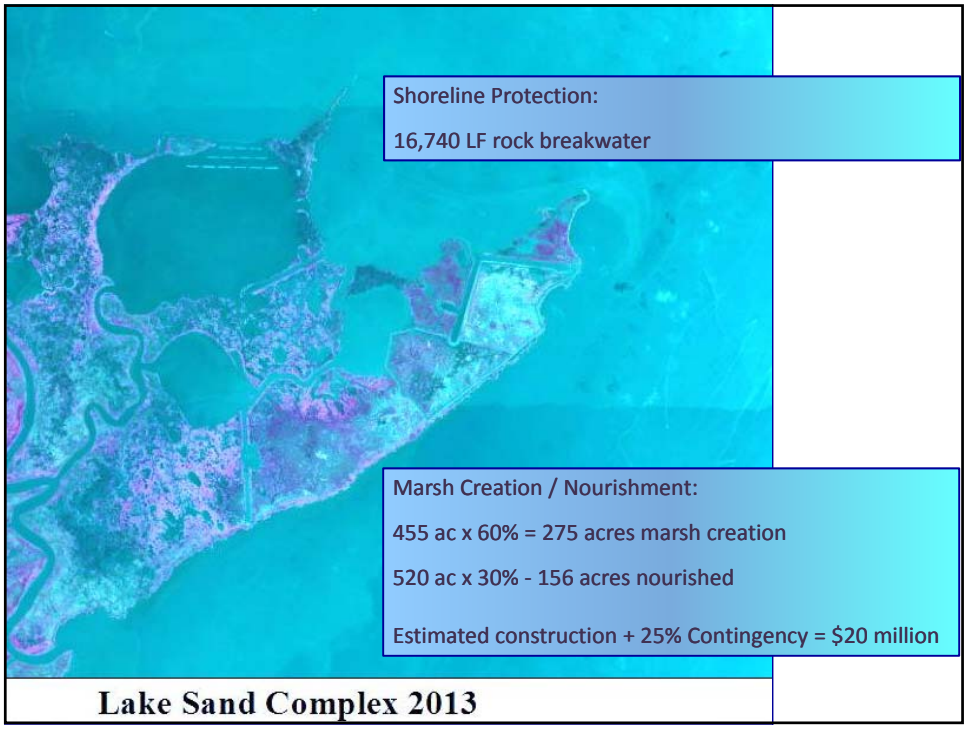
Lake Sand Complex 2007

Absolute Scale: 1:47,059

Lake Sand Complex 2013

Lake Sand Complex Shoreline Protection & Marsh Creation/Nourishment




Shoreline Protection:
16,740 LF rock breakwater
Marsh Creation / Nourishment:
455 ac x 60% = 275 acres marsh creation
520 ac x 30% - 156 acres nourished
Estimated construction + 25% Contingency = $20 million
Lake Sand Complex 2013

Region 3 – ATCHAFALAYA BASIN

No projects were nominated in this basin.

Region 3 – TERREBONNE BASIN

R3-TE-01

Bayou Dularge Ridge Restoration & Marsh Creation

R3-TE-01

PPL25 Bayou Dularge Ridge Restoration and Marsh Creation

Project Location:
The project is located in Region 3, Terrebonne Basin, Terrebonne Parish, Bayou Dularge at Grand Pass

Problem:
The Bayou Dularge Ridge is a prominent feature in the south central Terrebonne Basin forming a diagonal ridge extending from northeast to southwest that historically restricted the Gulf marine influence into Central Terrebonne marshes. The project location provides a unique opportunity to manage salinity intrusion into a vast area where historically salinity was naturally moderated through intact land features. The Grand Pass, a 900 ft wide artificial cut through the Bayou Dularge Ridge, south of Lake Mechant, is currently being addressed in the CWPPRA TE-66 project. However, the integrity of the ridge is also of concern due to erosion of the adjacent marshes. Loss of this important land bridge separating Lake Mechant from Sister Lake would undermine efforts to restore the fresh and intermediate marshes to the north and eliminate an important landscape feature of critical importance to basin hydrology. The State Master Plan has also identified the ridge as a restoration priority.

Goals:
The project will create/restore a ridge feature and marsh in the landbridge that separates Lake Mechant from Sister Lake to insure the integrity of the ridge and the important function of sustaining optimal salinity gradients and promote healthy marsh recovery in the region.

Proposed Solution:
The project would create/restore approximately 30,567 linear feet of coastal ridge south of Bayou Dularge and create/nourish approximately 354 acres of marsh. Lake sediments will be hydraulically dredged and pumped via pipeline to supply material to the marsh creation locations. Containment dikes will be constructed around marsh creation areas to retain material during pumping. Additionally, the ridge feature will be fully planted with appropriate hardwood species.

Project Benefits:
The project would result in approximately 216 net acres of emergent marsh and 25 acres of forested coastal ridge.

Preliminary Project Costs Estimate:
Estimated construction cost w/ 25% contingency is approximately $18.3 million.

Preparer of Fact Sheet
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John Jurgensen, NRCS, (318) 473-7694, john.jurgensen@la.usda.gov

USDA

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

Data Source:NAIP 2013

Map Date: JANUARY 21, 2015

BAYOU DULARGE RIDGE RESTORATION AND MARSH CREATION

0 2,600 5,200 Feet

Legend
RIDGE_RESTORATION
MARSH_CREATION

Bayou Dularge Ridge Restoration and Marsh Creation

National Resources Conservation Service

Presented by students of the Wetlands Discovery Center and Youth Advisory Council

Challenge and Goals

- Restore Historical Function of Ridge
- Secure Integrity of Marsh
- Manage Salinity Intrusion
- Protect previous CWPPRA investments

Project Area

Solutions and Benefits

- 30,567 Linear Feet of Forested Coastal Ridge
- Create/Nourish 354 acres of Marsh
- Create 216 Net Acres
- 25 Acres of Forested Coastal Ridge
- Synergy with other CWPPRA Projects
- Cost Estimate: $18.3 million (includes 25% contingency)

What's Different

- ✧Utilize Bayou as Borrow Source
- ✧Reduce Overall Footprint
- ✧Reduce Height of Ridge
- ✧Reduce Cost of Project

Questions

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USDA Natural Resources Conservation Service
Natural Resource Specialist

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Lafayette, LA 70506

R3-TE-02

Cocadrie East Marsh Creation & Ridge Restoration

**rim marsh creation not consistent with 2012 State Master Plan, project needs to be updated to be accepted as a nominee*

R3-TE-02

PPL25 PROJECT NOMINEE FACT SHEET

January 28, 2015

Project Name
Cocodrie East Marsh Creation and Ridge Restoration

Project Location
Region 3, Terrebonne Basin, Terrebonne Parish, in the vicinity of the town of Cocodrie

Master Plan Strategy
03a.MC.03 – Terrebonne Bay Rim Marsh Creation Study: Planning, engineering and design to develop marsh creation along the northern rim of Terrebonne Bay (approximately 3,370 acres).

03a.RC.05 - Bayou Terrebonne Ridge Restoration: Restoration of approximately 55,000 feet (130acres) of historic ridge along the southern portions of Bayou Terrebonne to provide coastal upland habitat, restore natural hydrology, and provide wave and storm surge attenuation.

Problem
The eastern shore of Terrebonne Bay continues to erode and Cocodrie residents will be more exposed to wave energy and storm surge events. Marsh habitat in this area continues to decline and transform into open water areas.

Proposed Solution
The project will use 3.3 MCY of fill to create 511 acres of marsh. In addition, 219 acres of marsh will be nourished and a living shoreline (9302 ft) will be constructed.

Goals
The goal of this project is to create marsh and living shoreline features on the eastern portion of Terrebonne Bay. These activities will also help protect Cocodrie residents from storm surge.

Project Benefits
- This project will create 511 ac of marsh and 9302 ft of living shoreline
- This project will help protect Cocodrie residents from storm surge events
- Will include tidal creeks and ponds that mimic historic conditions

Preliminary Construction Costs
The preliminary project cost estimate with 25% contingency is $30 million

Preparer(s) of Fact Sheet:
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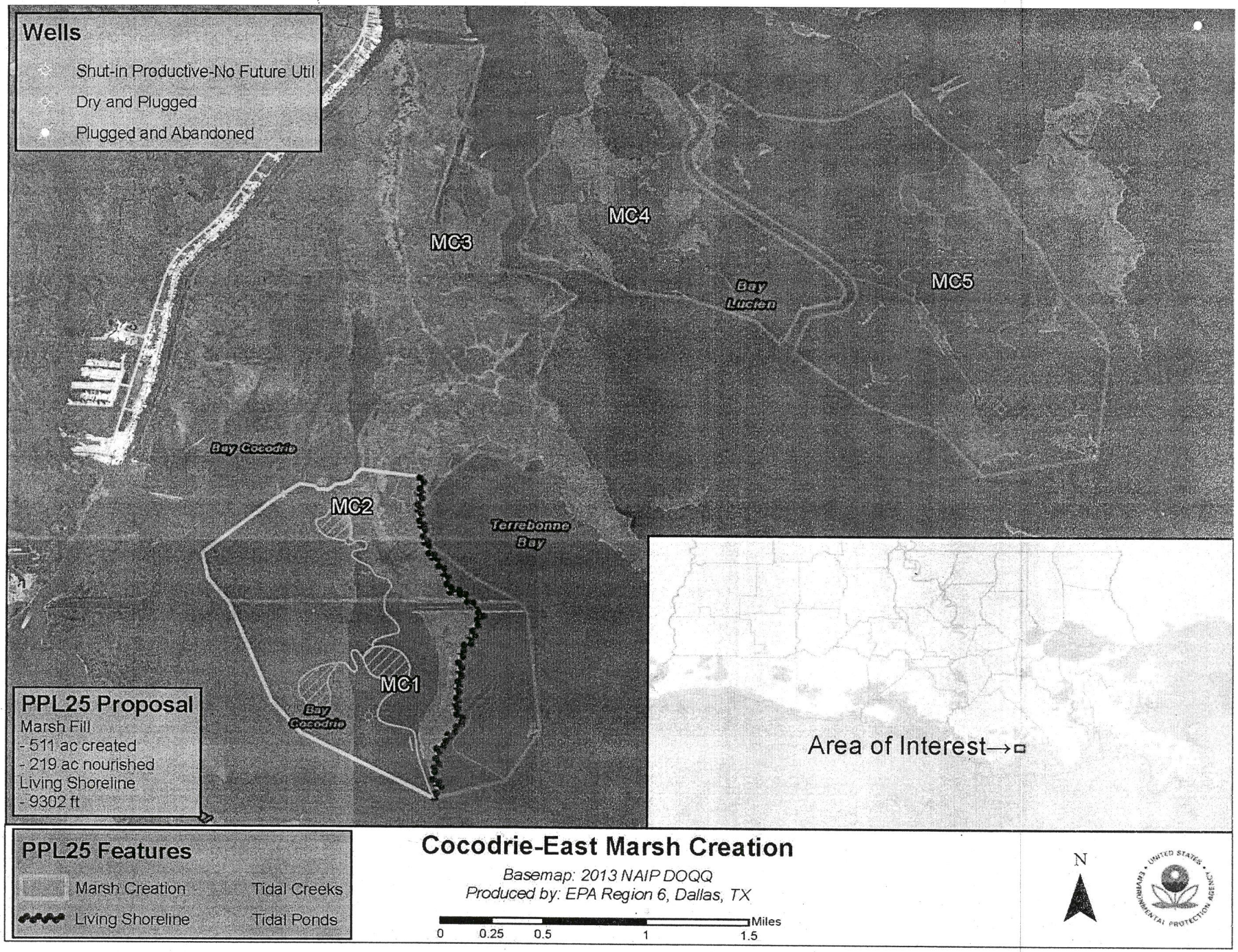
Brad Crawford; (214)665-7255; crawford.brad@epa.gov
Barbara Aldridge; (214)665-2712; Aldridge.barbar@epa.gov


Wells
Shut-in Productive-No Future Util
Dry and Plugged
Plugged and Abandoned
MC3
MC4
MC5
Bay Lucien
Bay Cocodrie
MC2
Terrebonne Bay
MC1
Bay Cocodrie
PPL25 Proposal
Marsh Fill
- 511 ac created
- 219 ac nourished
Living Shoreline
- 9302 ft
Area of Interest
PPL25 Features
Marsh Creation
Tidal Creeks
Living Shoreline
Tidal Ponds
Cocodrie-East Marsh Creation
Basemap: 2013 NAIP DOQQ
Produced by: EPA Region 6, Dallas, TX
Miles
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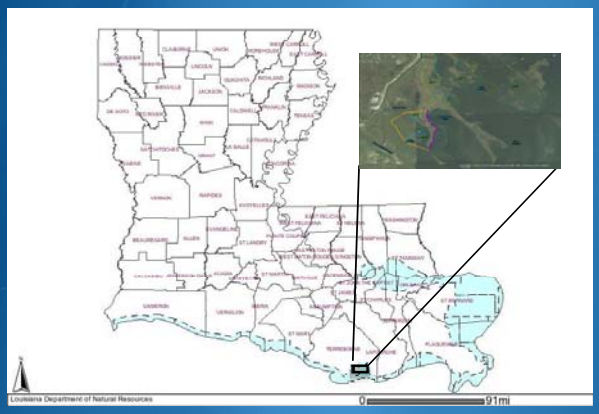
0.25
0.5
1
1.5
N

Cocodrie East Marsh Creation and Ridge Restoration

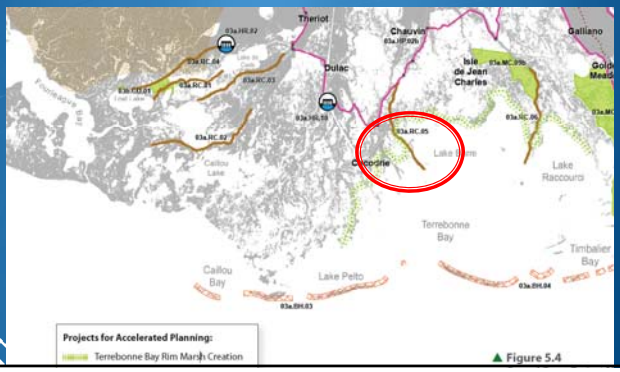


Coastal Wetlands Planning, Protection and Restoration Act

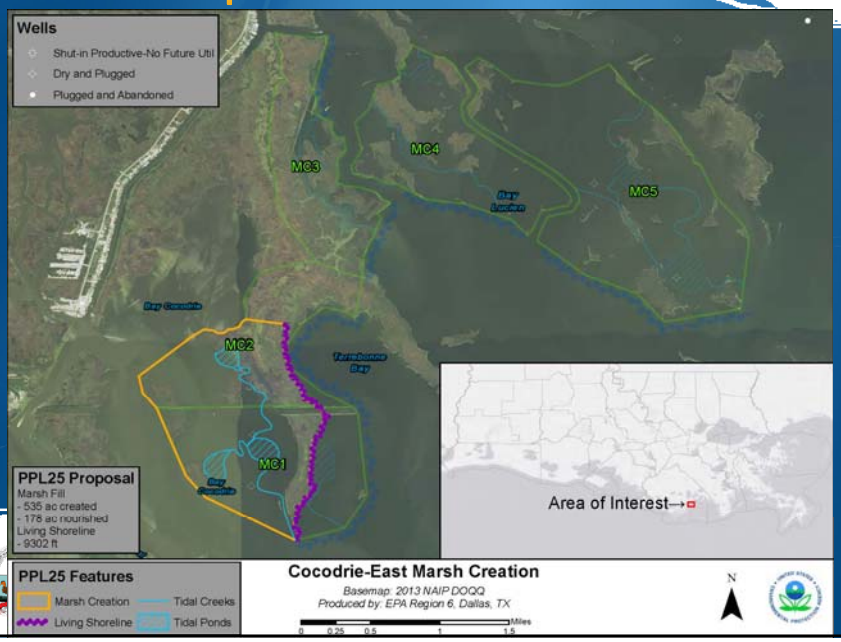
2012 Master Plan Strategies

Terrebonne Bay Rim Marsh Creation Study: Planning, engineering and design to develop marsh creation along the northern rim of Terrebonne Bay (approximately 3,370 acres).

Bayou Terrebonne Ridge Restoration: Restoration of approximately 55,000 feet (130 acres) of historic ridge along the southern portions of Bayou Terrebonne to provide coastal upland habitat, restore natural hydrology, and provide wave and storm surge attenuation.



PPL25 Proposal



PPL25 Project Features

- Combine portions of MC1 and MC2
  - 535 ac marsh created
  - 178 nourished
- Shoreline stabilization component
  - 9302 ft of shoreline
  - "living shoreline" or earthen stabilization options
- Will include tidal creeks & ponds that mimic historic conditions

Coastal Wetlands Planning, Protection and Restoration Act


Questions?
Coastal Wetlands Planning, Protection and Restoration Act

R3-TE-03

Bayou De Cade Bankline & Marsh Restoration

R3-TE03

PPL25 PROJECT NOMINEE FACT SHEET
January 28, 2015

Project Name
Bayou De Cade Bankline and Marsh Restoration

Project Location
Region 3, Terrebonne Basin, Terrebonne Parish, Lake Mechant Mapping Unit

Louisiana's 2012 Coastal Master Plan
Consistent Ridge Restoration Subunit - 03a.RC.01

Problem
The Terrebonne Basin is an abandoned delta complex, characterized by a thick section of unconsolidated sediments that are undergoing dewatering and compaction, contributing to high subsidence, and a network of old distributary ridges extending southward from Houma. Historically, subsidence and numerous oil and gas canals and pipelines in the area have contributed significantly to wetland losses. Since 1932, the Terrebonne Basin has lost approximately 20% of its wetlands. Current loss rates range from approximately 4,500 to 6,500 acres/year. This loss amounts to up to 130,000 acres during the next 20 years. One-third of the Terrebonne Basin's remaining wetlands would be lost to open water by the year 2040. The wetland loss rate for the Lake Mechant subunit is -0.45%/year based on USGS data from 1995 to 2009.

Goals
The project goals are to:

- Create and/or nourish up to 335-400 acres of emergent intermediate marsh along the northern bank of Bayou Decade and a portion of the western shoreline of Lake Decade
- Construct 10,560-15,400 linear feet of ridge along the bank of Bayou Decade

Proposed Solutions
The proposed project's primary feature for either option is to create and/or nourish approximately 335-400 acres of intermediate marsh adjacent to Lake Decade and restore 10,560-15,400 linear feet of Bayou Decade bankline. Sediment will be hydraulically pumped from a borrow source in Lake Decade. The borrow area in Lake Decade would be located and designed in a manner to avoid and minimize environmental impacts (e.g., to submerged aquatic vegetation and water quality) to the maximum extent practicable. Containment dikes will be constructed around the marsh creation area to retain sediment during pumping. No later than three years post construction, the containment dikes will be degraded and/or gapped. Additionally, the half of the newly constructed marsh will be planted following construction to stabilize the platform and reduce time for full vegetation. Material for the ridge feature above the containment dike will be hydraulically pumped from a borrow source in Lake Decade and lifted to a crown elevation of +5.0 feet, 20 feet wide, and will be planted with woody vegetation.

Preliminary Project Benefits

1) *What is the total acreage benefited both directly and indirectly?*
   Option 1 total project area is approximately 418 acres (350 acres of marsh creation and 50 acres of marsh nourishment + 18 acres of ridge).

Option 2 total project area is approximately 355 acres (275 acres of marsh creation and 60 acres of marsh nourishment + 20 acres of ridge).

2) *How many acres of wetlands will be protected/created over the project life?*
Assuming a 50% reduction in the background loss rate (Lake Mechant Subunit, -0.45%/year), for the marsh creation and nourishment; and, no loss for the ridge feature would result in:
   a) 355 net acres after 20 years for Option 1; and,
   b) 286 net acres after 20 years for Option 2.

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. (Lake Mechant Mapping Unit, from -0.45%/year to -0.27%/year)

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

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

6) *To what extent does the project provide a synergistic effect with other approved and/or constructed restoration projects?*
(TE-39) South Lake Decade Freshwater Introduction Project and (TE-44) North Lake Mechant Landbridge Restoration

Identification of Potential Issues
The proposed project has the following potential issues: utilities/pipelines, etc. The fill areas are located on Apache Corporation property and the conceptual features have been coordinated with them.

Preliminary Construction Costs
The estimated construction cost including 25% contingency for both options is approximately $22.5 M. The fully-funded cost range is $25M - $30M.

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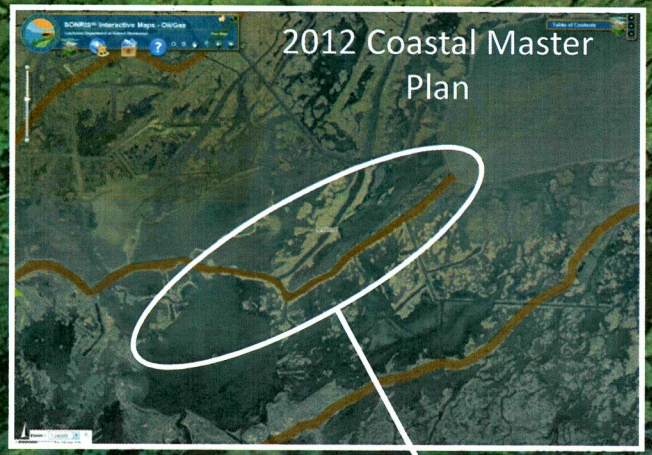
Patrick Williams, NOAA Fisheries, 225-389-0508, ext 208, patrick.williams@noaa.gov

PPL25 Bayou De Cade Bankline and Marsh Restoration



Lake De Cade

BORROW

Option 1

Option 2

Option 2

Raccourci Bay

Project Features Option 1 – Lake De Cade:

- 400 acres marsh creation
- 10,560 feet of ridge construction

Project Features Option 2 – Raccourci Bay:

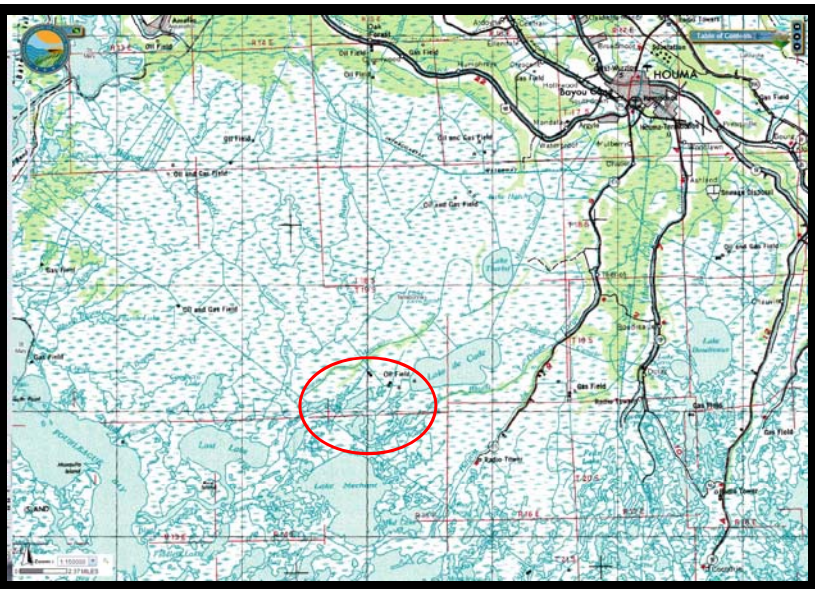
- 335 acres marsh creation
- 15,400 feet of ridge construction

5781 ft

1990

Google earth

Imagery Date: 11/14/2012 29°22'36.16" N 90°54'36.45" W elev 2 ft eye alt 26528 ft



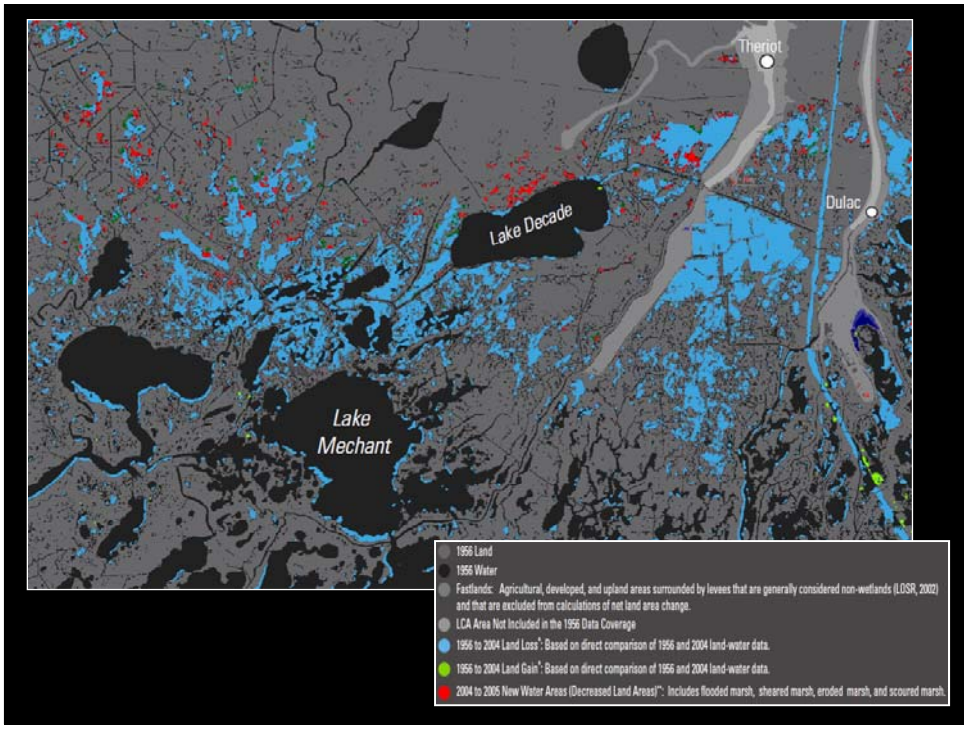
PPL24 BAYOU DECADE BANKLINE AND MARSH RESTORATION

PPL25 Region 2 RPT, January 28, 2015

Kimberly Clements
National Marine Fisheries Service

Problems near Bayou De Cade Area:

- High Land Loss rates in Terrebonne Basin, 20% since 1932 and currently 4,000-6,500 acres lost per year
- High Subsidence in the area, 2.1-3.5 ft/century, Coast 2050 Mechant/Decade Unit
- Wetland Loss Rate for the Lake Mechant subunit is -0.45%/year
- Reduced intermediate/brackish habitat for fisheries in the area


Theriot
Dulac
Lake Decade
Lake Mechant
1956 Land
1956 Water
Fastlands: Agricultural, developed, and upland areas surrounded by levees that are generally considered non-wetlands (LOSR, 2002) and that are excluded from calculations of net land area change.
LCA Area Not Included in the 1956 Data Coverage
1956 to 2004 Land Loss*: Based on direct comparison of 1956 and 2004 land-water data.
1956 to 2004 Land Gain*: Based on direct comparison of 1956 and 2004 land-water data.
2004 to 2005 New Water Areas (Decreased Land Areas)*: Includes flooded marsh, sheared marsh, eroded marsh, and scoured marsh.


SONRIS 2008
of Natural Resources
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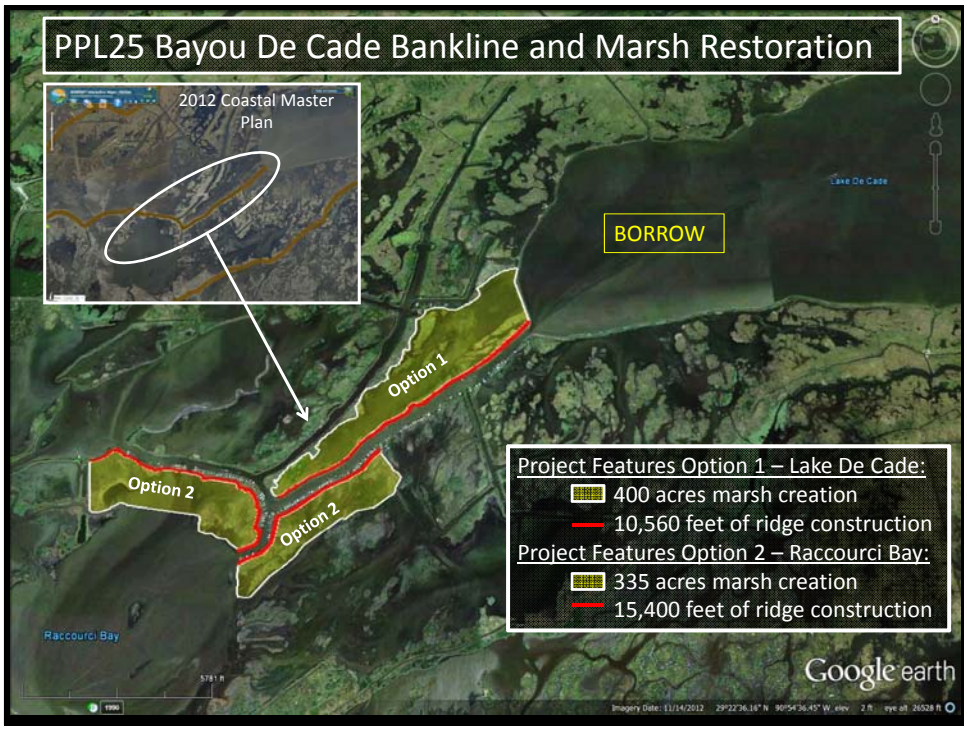
9634ft


Louisiana 2012 Coastal Master Plan


PPL25 Bayou De Cade Bankline and Marsh Restoration
2012 Coastal Master Plan
BORROW
Option 1
Option 2
Option 2
Project Features Option 1 – Lake De Cade:
400 acres marsh creation
10,560 feet of ridge construction
Project Features Option 2 – Raccourci Bay:
335 acres marsh creation
15,400 feet of ridge construction
Raccourci Bay
Google earth

Project Features and Benefits

- Total habitat restored range between 362-418 acres, including 335-400 acres of marsh (depending on option) and 2-3 miles of ridge construction
- Borrow from outside immediate project area in Lake Decade
- Consistent with State Master Plan, Ridge Creation Subunit – 03a.RC.01, “restoration of historic ridge along Bayou Decade from Lake Decade to Raccourci Bay to provide coastal upland habitat, restore natural hydrology, and provide wave and storm surge attenuation”
- Supports “T9” Concept for Terrebonne Parish, 4th Annual Coastal Restoration Workshop
- Construction + 25% Contingency is $22.6 M

R3-TE-04

Bayou Jean Lacroix Marsh Creation & Terracing

R3-TE-04

PPL25 PROJECT NOMINEE FACT SHEET
January 28, 2015

Project Name
Bayou Jean Lacroix Marsh Creation and Terracing

Louisiana's 2012 Coastal Master Plan:
Consistent with Marsh Creation Subunit – 03a.MC.09b

Project Location
Region 3, Terrebonne Basin, Terrebonne and Lafourche Parish

Problem
The Terrebonne Basin is an abandoned delta complex, characterized by a thick section of unconsolidated sediments that are undergoing dewatering and compaction, contributing to high subsidence, and a network of old distributary ridges extending southward from Houma. Historically, subsidence and numerous oil and gas canals and pipelines in the area have contributed significantly to wetland losses. Since 1932, the Terrebonne Basin has lost approximately 20% of its wetlands. Current loss rates range from approximately 4,500 to 6,500 acres/year. This loss amounts to up to 130,000 acres during the next 20 years. One-third of the Terrebonne Basin's remaining wetlands would be lost to open water by the year 2040. The wetland loss rate for the Wonder Lake subunit is -0.87%/year based on USGS data from 1985 to 2009.

Goals
The project goals are to:

- create and/or nourish up to 360 acres of emergent brackish marsh;
- construct 27,300 linear ft. of terraces (17 acres) south of and adjacent to the newly restored marsh platform

Proposed Solution
The proposed project's primary feature is to create 288 acres and nourish 72 acres of existing marsh to form a land bridge south of the Twin Pipeline Canal between Bayou Jean Lacroix and Bayou Pointe au Chien. Sediment will be hydraulically pumped from a borrow source near Lake Felicity. Containment dikes will be constructed around the marsh creation area to retain sediment during pumping. Dikes will be degraded and/or gapped no later than three years post construction to allow greater tidal exchange and estuarine organism access. Half of the newly constructed marsh (144 acres) will be planted following construction to stabilize the platform and reduce time for full vegetation. The project will also construct 27,300 ft. (17 acres) of terraces in 390 acres of shallow open water just south of the marsh platform to help reduce wave fetch generated from the south in Terrebonne Bay. Terraces would be constructed to an elevation of +2.5 feet NAVD 88, with a 15-ft crown width, and would be planted. The proposed solution is synergistic with (TE-53) Madison Bay Marsh Creation and Terracing and (TE-117) Island Road Marsh Creation and Nourishment projects currently authorized under the CWPPRA program.

Preliminary Project Benefits

1) *What is the total acreage benefited both directly and indirectly?*
This total project area is approximately 750 acres (288 acres of marsh creation and 72 acres of marsh nourishment + 390 acres of terrace field).

2) *How many acres of wetlands will be protected/created over the project life?*
Assuming a 50% reduction in the background loss rate (Wonder Lake Mapping Unit, -0.87%/year), the marsh creation, nourishment, and constructed terraces would result in 286 net 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, marsh nourishment, and terraces. (Wonder Lake Mapping Unit, from -0.87%/year to -0.43%/year)

4) *Do any project features maintain or restore structural components of the coastal ecosystem such as barrier islands, natural or artificial levee ridges, beach and lake rims, cheniers, etc?*
The project will help restore a small portion of Bayou Jean Lacroix.

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

6) *To what extent does the project provide a synergistic effect with other approved and/or constructed restoration projects?*
The project may have indirect synergy with the (TE-53) Madison Bay Marsh Creation and Terracing project and (TE-117) Island Road Marsh Creation and Nourishment project; the Ducks Unlimited marsh management unit on Point aux Chien Wildlife Management Area; and the Ducks Unlimited Island Road Marsh Terracing Project.

Identification of Potential Issues

The proposed project has potential utility/pipeline issues and oyster leases.

Preliminary Construction Costs

The estimated construction cost including 25% contingency is $20,556,249. The fully-funded cost range is $25M - $30M.

Preparer(s) of Fact Sheet:

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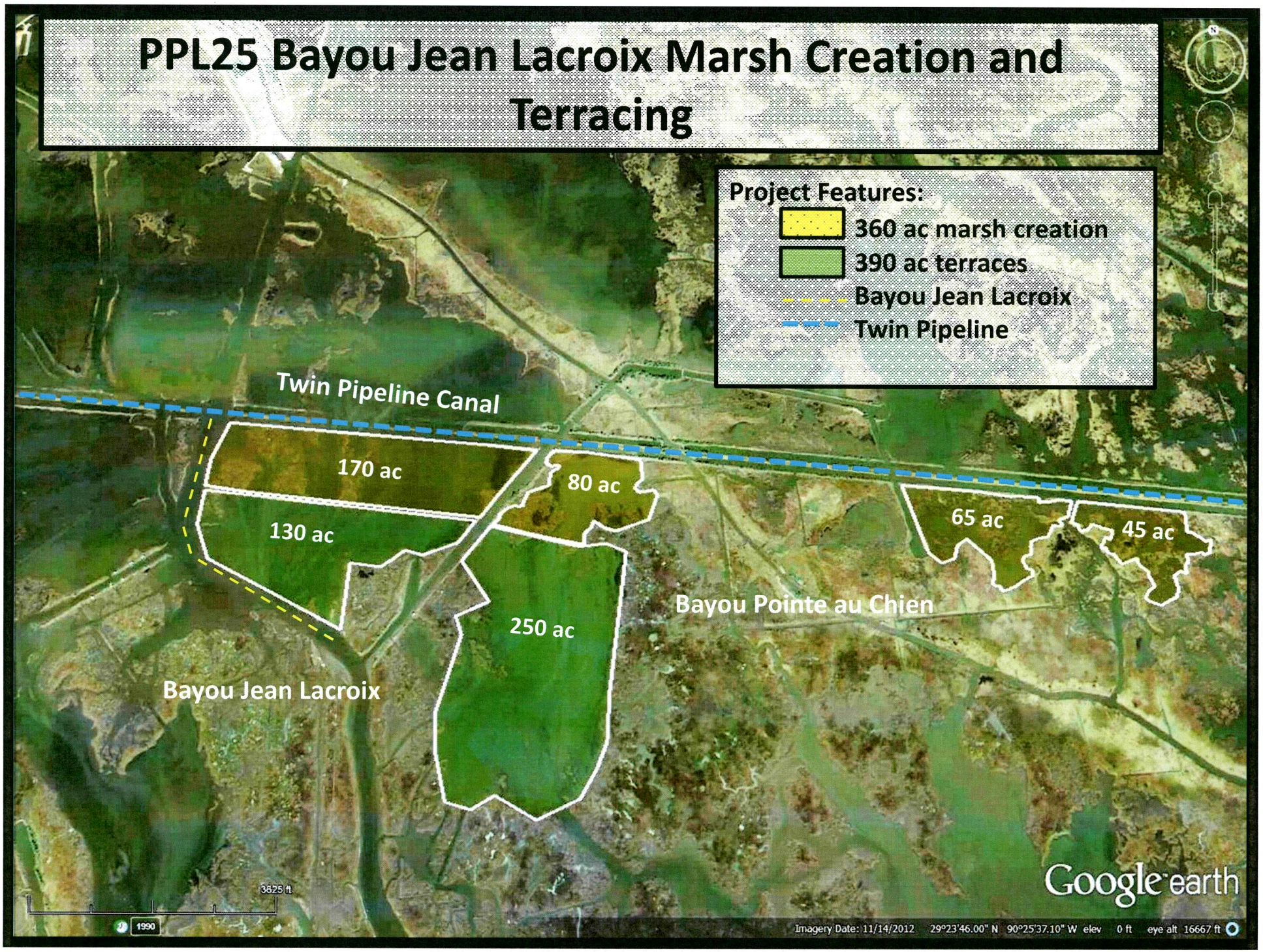
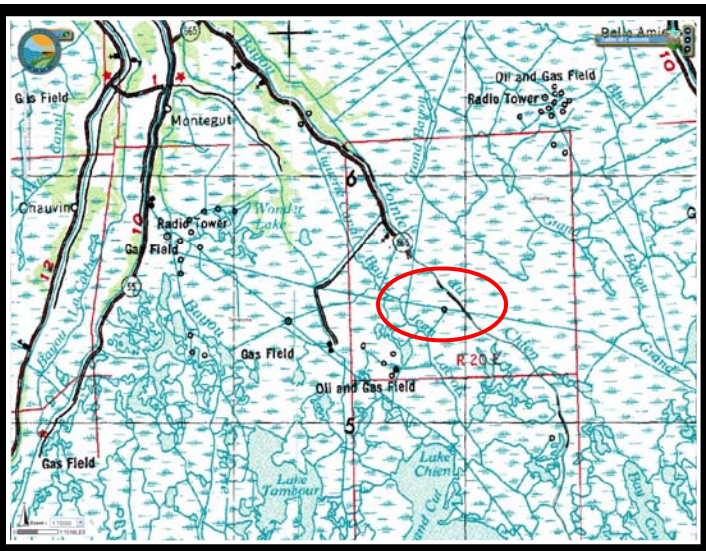
PPL25 Bayou Jean Lacroix Marsh Creation and Terracing



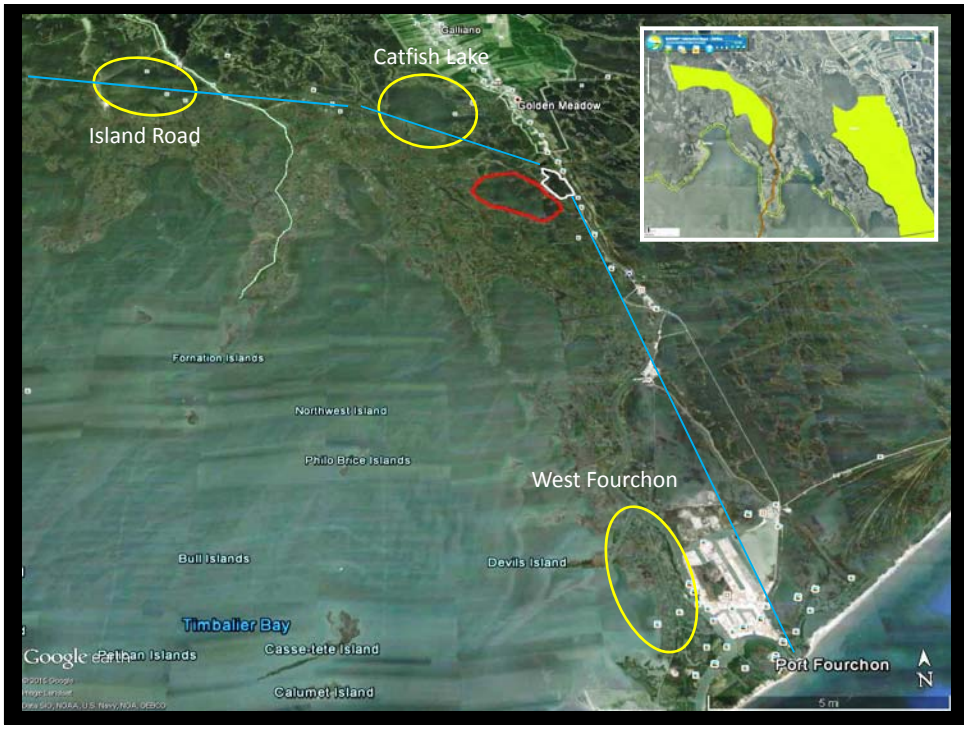


PPL25 BAYOU JEAN LACROIX MARSH CREATION AND TERRACES

PPL25 Region 3 RPT, January 28, 2015
Kimberly Clements
National Marine Fisheries Service

Problems near Point au Chene Area

- High Land Loss rates in Terrebonne Basin, 20% since 1932 and currently 4,000-6,500 acres lost per year
- High Subsidence in the area, 2.1-3.5 ft/century, Coast 2050 Terrebonne Marshes
- Wetland Loss Rate for the Wonder Lake subunit is -0.87%/year
- Limited protection to surrounding communities as seen with PPL23 Island Road WVA trip


Catfish Lake
Island Road
Golden Meadow
Formation Islands
Northwest Island
Philo Brice Islands
West Fourchon
Bull Islands
Devils Island
Timbalier Bay
Casse-tete Island
Calumet Island
Port Fourchon
Google earth
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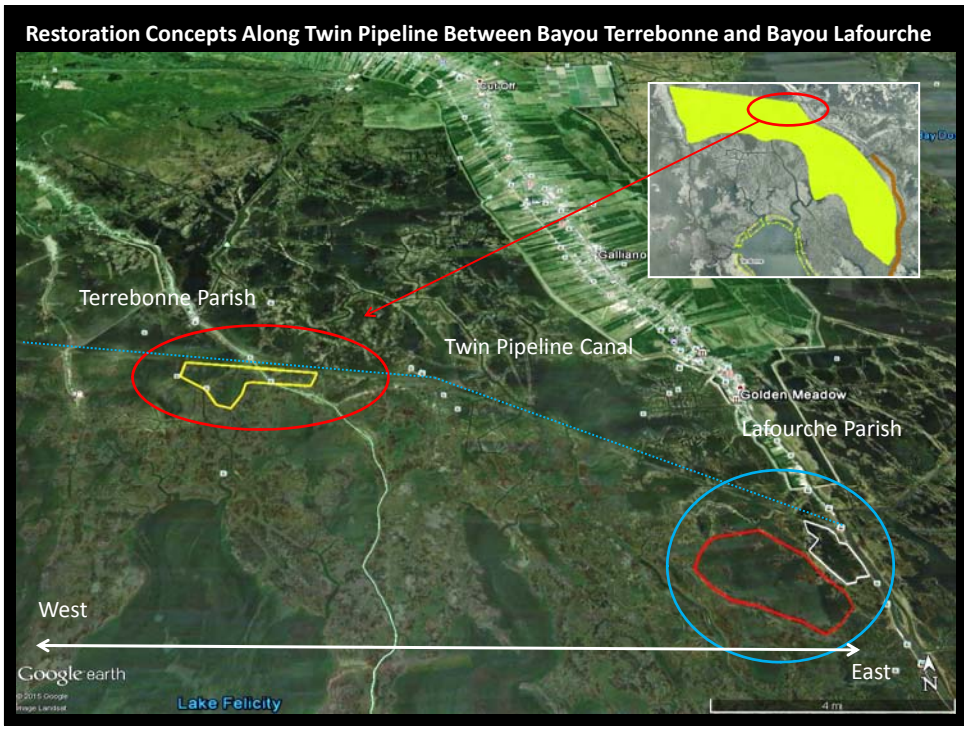
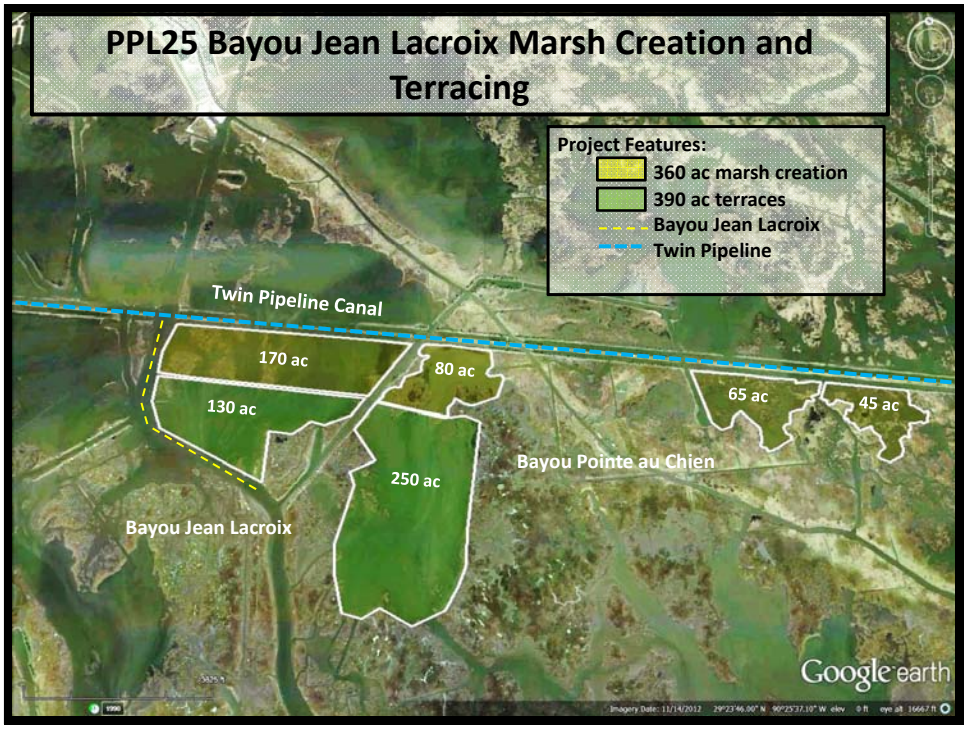

Restoration Concepts Along Twin Pipeline Between Bayou Terrebonne and Bayou Lafourche
Terrebonne Parish
Twin Pipeline Canal
Golden Meadow
Lafourche Parish
West
East
Google earth
Lake Felicity
N



Project Features and Benefits

- Total Acres is 377 (360 acres of marsh and 17 acres of terraces)
- Re-establishes a portion of Bayou Jean Lacroix
- Borrow from outside immediate project area
- Allows for additional restoration activities in the area (i.e. Ducks Unlimited)
- Consistent with State Master Plan, Marsh Creation Unit – 03a.MC.09b, "create new wetland habitat, restore degraded marsh, and reduce wave erosion south of Montegut between Bayou St. Jean Charles and Bayou Pointe au Chien"
- Supports "T9" Concept for Terrebonne Parish, 4th Annual Coastal Restoration Workshop
- Synergistic to TE-117 Island Road Marsh Restoration Project
- Construction + 25 % Contingency is $20.5 M

R3-TE-05

Bayou Lafourche Twin Pipeline Marsh Restoration

R3-TE-05

PPL25 PROJECT NOMINEE FACT SHEET
January 28, 2015

Project Name:
Bayou Lafourche Twin Pipeline Marsh Restoration

Louisiana's 2012 Coastal Master Plan:
Consistent with Marsh Creation Subunit – 03a.MC.07

Project Location:
Region 3, Terrebonne Basin, Lafourche Parish

Problem:
The Terrebonne Basin is an abandoned delta complex, characterized by a thick section of unconsolidated sediments that are undergoing dewatering and compaction, contributing to high subsidence, and a network of old distributary ridges extending southward from Houma. Historically, subsidence and numerous oil and gas canals and pipelines in the area have contributed significantly to wetland losses. Since 1932, the Terrebonne Basin has lost approximately 20% of its wetlands. Current loss rates range from approximately 4,500 to 6,500 acres/year. This loss amounts to up to 130,000 acres during the next 20 years. One-third of the Terrebonne Basin's remaining wetlands would be lost to open water by the year 2040. The wetland loss rate for the S. Pointe Aux Chenes State WMA subunit is -0.89%/year based on USGS data from 1995 to 2009.

Goals:
The project goals are to:

- Create and/or nourish up to 400 acres of emergent brackish marsh
- Construct up to 37 acres of terraces in a 1,000 acre open water terrace field adjacent to the marsh creation/nourishment

Proposed Solutions:
The proposed project's primary feature is to create and/or nourish approximately 400 acres of emergent brackish marsh. In order to achieve this, sediment will be hydraulically pumped from a borrow source near Little Lake. Containment dikes will be constructed around the marsh creation area to retain sediment during pumping. No later than three years post construction, the containment dikes will be degraded and/or gapped. Additionally, the half of the newly constructed marsh (150 acres) will be planted following construction to stabilize the platform and reduce time for full vegetation. The project will also construct 70,000 ft. (37 acres) of terraces in 1,000 acres of shallow open water just west of the marsh platform to help reduce wave fetch generated to the south by Terrebonne Bay. Terraces would be constructed to an elevation of +2.0 feet NAVD 88, with a 15-ft crown width, and would be planted.

Preliminary Project Benefits

1) *What is the total acreage benefited both directly and indirectly?*
   This total project area is approximately 1,400 acres (350 acres of marsh creation and 50 acres of marsh nourishment + 1,000 acre terrace field).

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

Assuming a 50% reduction in the background loss rate (S. Pointe Aux Chenes State WMA Subunit, -0.89%/year), the marsh creation, nourishment, and constructed terraces would result in 358 net 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, marsh nourishment, and terraces. (S. Pointe Aux Chenes State WMA Subunit, from -0.89%/year to -0.44%/year)

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

5) *What is the net impact of the project on critical and non-critical infrastructure?*
The project will provide additional protection to LA 1 south of Golden Meadow. The project would also provide positive impacts to non-critical (i.e., minor oil and gas facilities) infrastructure. Minor oil and gas facilities and pipelines in the area would benefit from an increase in marsh acreage.

6) *To what extent does the project provide a synergistic effect with other approved and/or constructed restoration projects?*
This is an area of need due to the lack of previous restoration efforts.

Identification of Potential Issues:
The proposed project has potential utility/pipeline issues along with oyster leases along the dredge pipeline path.

Preliminary Construction Costs
The estimated construction cost including 25% contingency is $25,063,476. The fully-funded cost range is $30M - $35M.

Preparer(s) of Fact Sheet:
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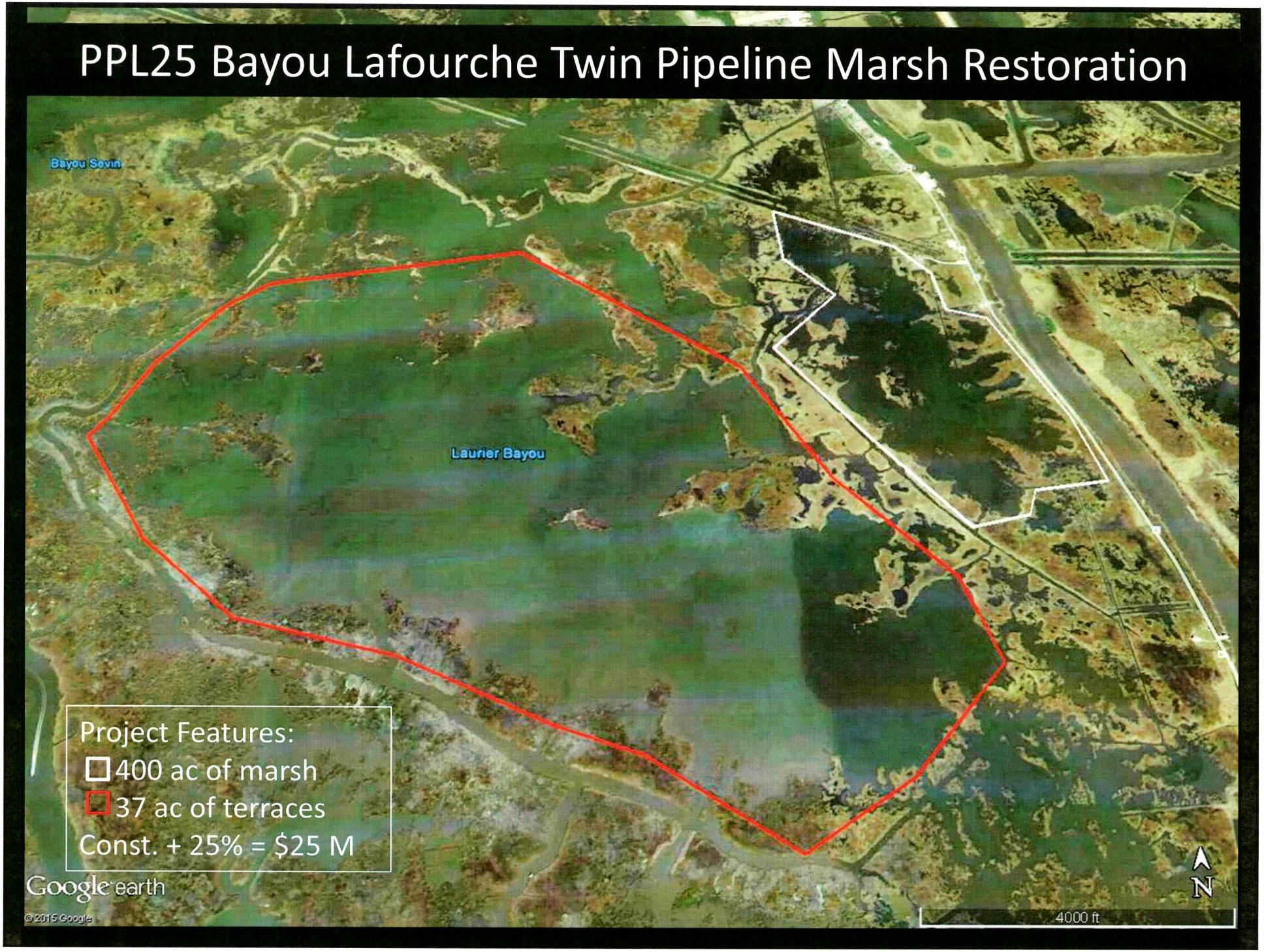
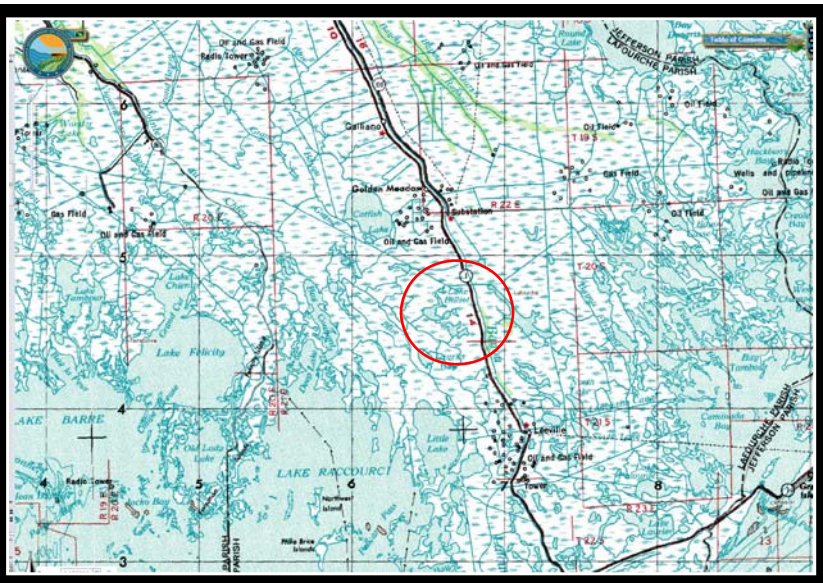
PPL25 Bayou Lafourche Twin Pipeline Marsh Restoration



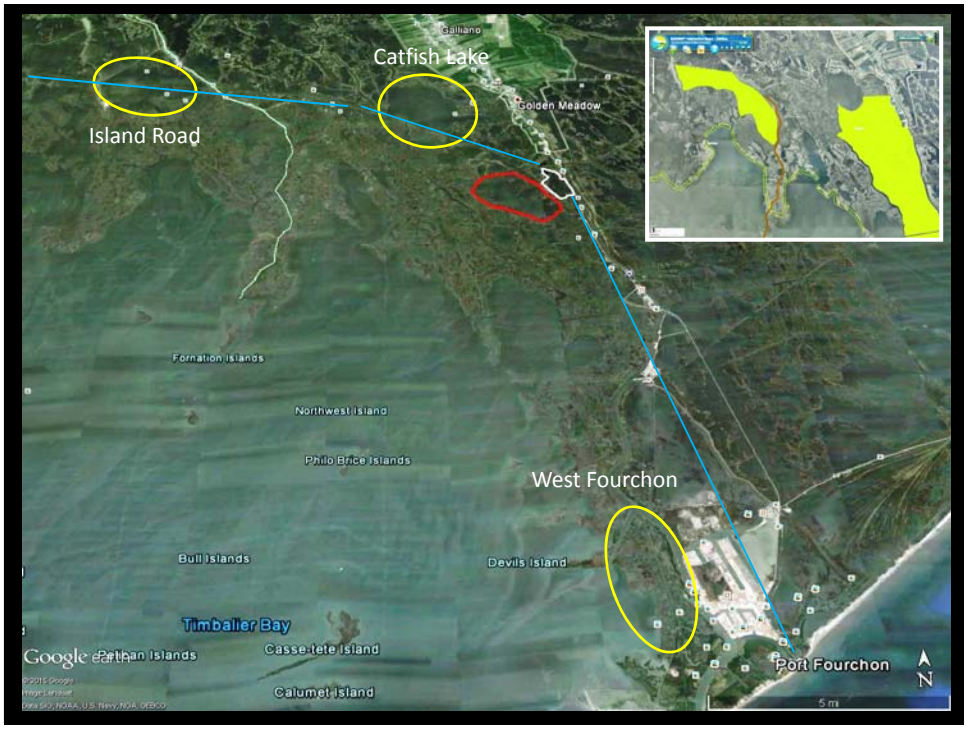


PPL25 BAYOU LAFOURCE TWIN PIPELINE MARSH RESTORATION

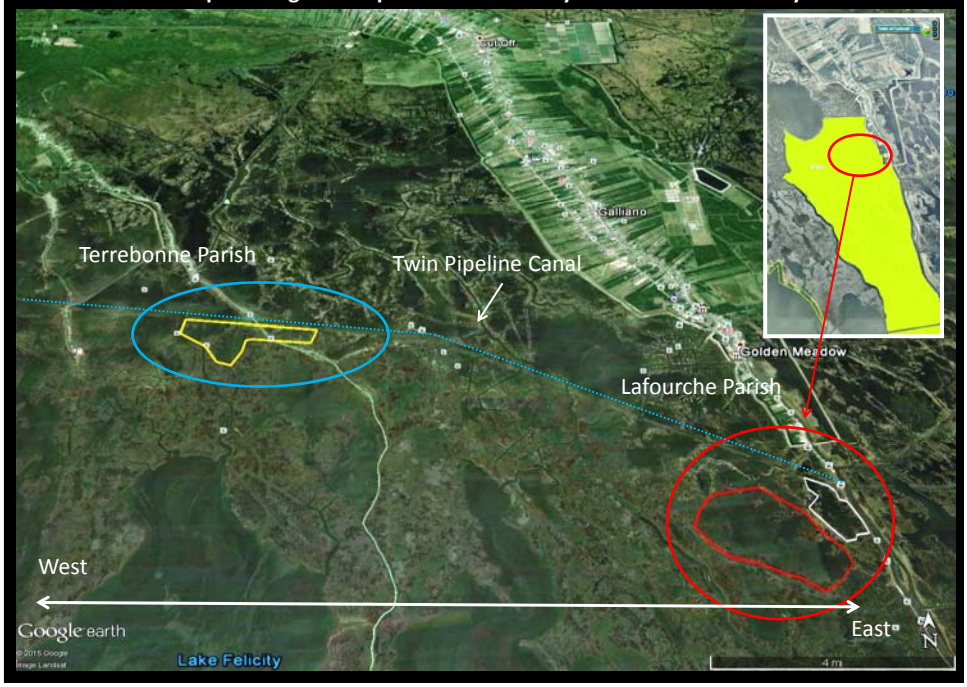
PPL25 Region 3 RPT, January 28, 2015
Kimberly Clements
National Marine Fisheries Service

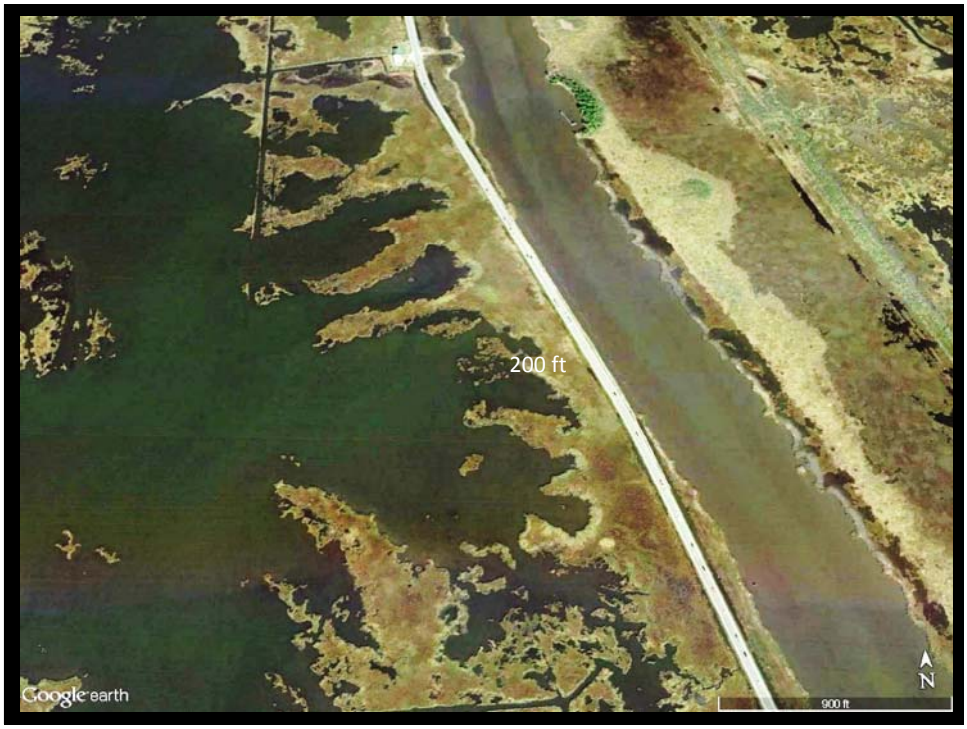
Problems near Bayou Lafourche Area

- High Land Loss rates in Terrebonne Basin, 20% since 1932 and currently 4,000-6,500 acres lost per year
- High Subsidence in the area, 2.1-3.5 ft/century, Coast 2050 South Bully Camp Marsh
- Limited protection to the western side of LA 1
- Wetland Loss Rate for the S. Pointe Aux Chenes State WMA subunit is -0.89%/year



Restoration Concepts Along Twin Pipeline Between Bayou Terrebonne and Bayou Lafourche




200 ft
Google earth
900 ft
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TWIN PIPELINE
Google earth
900 ft
N

PPL25 Bayou Lafourche Twin Pipeline Marsh Restoration

Project Features and Benefits

- Total Acres 437 acres (400 acres of marsh creation and 37 acres of terraces)
- Borrow from outside immediate project area in Little Lake
- Consistent with State Master Plan, Marsh Creation Subunit – 03a.MC.07, “create new wetland habitat, restored degraded marsh, and reduce wave erosion from Belle Pass to Golden Meadow”
- Supports “T9” Concept (Twin Pipelines) for Lafourche Parish, 5th Annual Coastal Restoration Workshop
- Promotes protection to HWY LA 1
- Construction + 25% Contingency is $25 M

R3-TE-06

South Catfish Lake Marsh Creation & Terraces

R3-TE-06

South Catfish Lake Marsh Creation and Terraces

PPL-25 Region 3 RPT Meeting
January 28, 2015

State Master Plan Strategy
03a.MC.09b Belle Pass-Golden Meadow Marsh Creation

Project Location:
Region 3, Terrebonne Basin, Lafourche Parish, South of Catfish Lake and south side of Twin Pipelines.

Problem:
Eastern Terrebonne Basin is significantly isolated from the riverine influences of the Mississippi and Atchafalaya Rivers. Consequently, both subsidence and erosion of shorelines have occurred at some of the highest rates in Louisiana. The southern half of the Catfish Lake shoreline has experienced significant erosion and the interior marsh has also succumbed to several large ponds that tend to expand and accelerate erosion.

The State has identified this region as a priority in the master plan. Some locations within the State Master Plan marsh creation polygons consist of broad open water areas that are not feasible by conventional marsh creation approaches.

Goals:
The goal of the project is to strategically create marsh and reduce interior erosion/subsidence by creating marsh and terraces to stabilize the area as well as prevent further expansion of Catfish Lake to the south.

Proposed Solutions:
Project would create approximately 170 acres of marsh creation in the form of three island cells surrounded by fields of terraces. Total project area is about 1400 acres.

Project Benefits:
The project would result in approximately 215 net acres over the 20 year project life. This project also offers an innovative solution to addressing larger open water areas by combining marsh creation and terraces to collectively stabilize the broader area. Placement of fill material in the form of islands optimizes the use of imported material and increases the effectiveness of the in-situ terrace construction. It also allows the restoration effort to impact a much broader area than conventional marsh creation designs.

Project Costs:
Estimated construction cost with 25% contingency is approximately $13.8 million

Preparer(s) of Fact Sheet:
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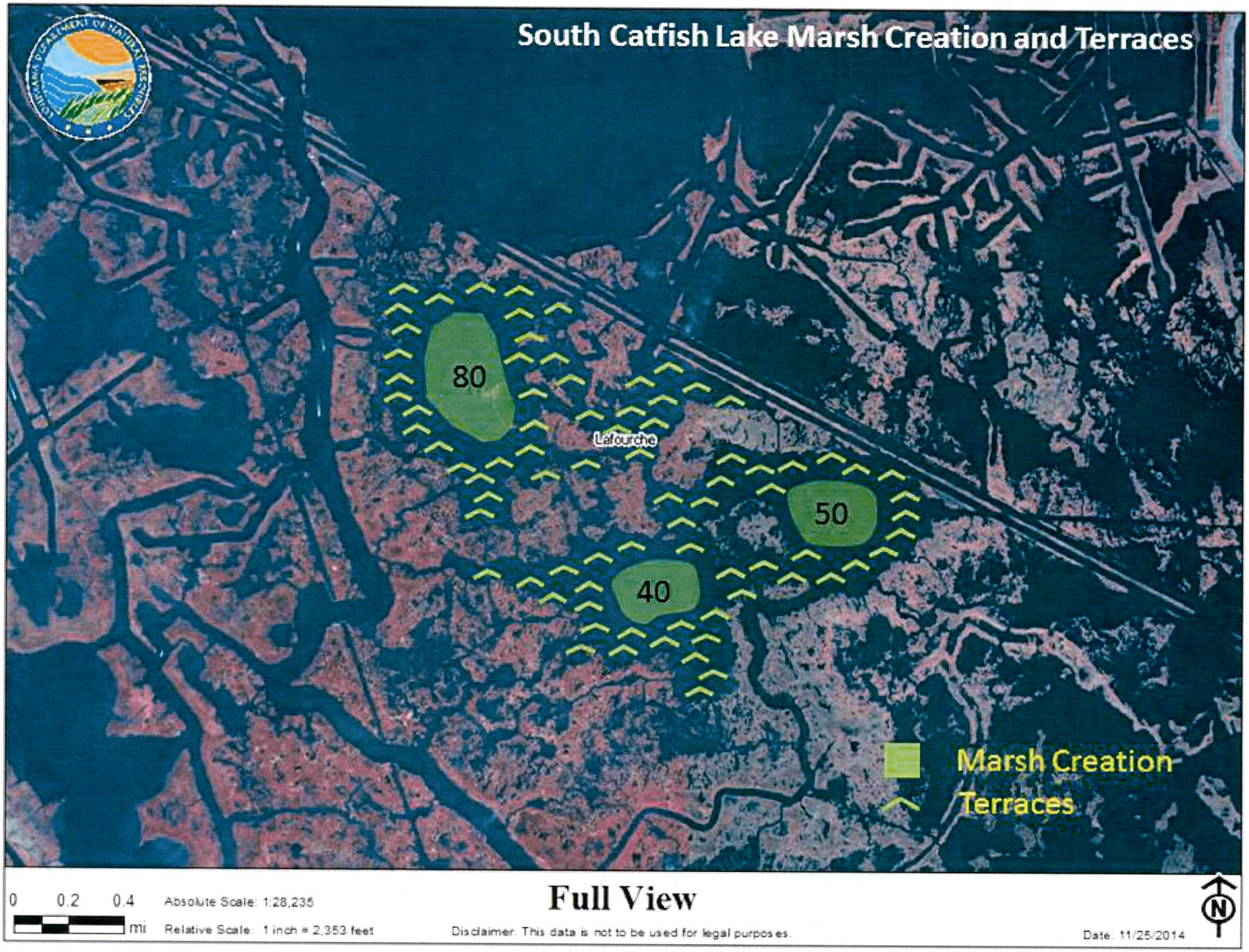
South Catfish Lake Marsh Creation and Terraces
80
Lafourche
50
40
Marsh Creation
Terraces
0 0.2 0.4
mi
Absolute Scale: 1:28,235
Relative Scale: 1 inch = 2,353 feet
Full View
Disclaimer: This data is not to be used for legal purposes.
Date: 11/25/2014
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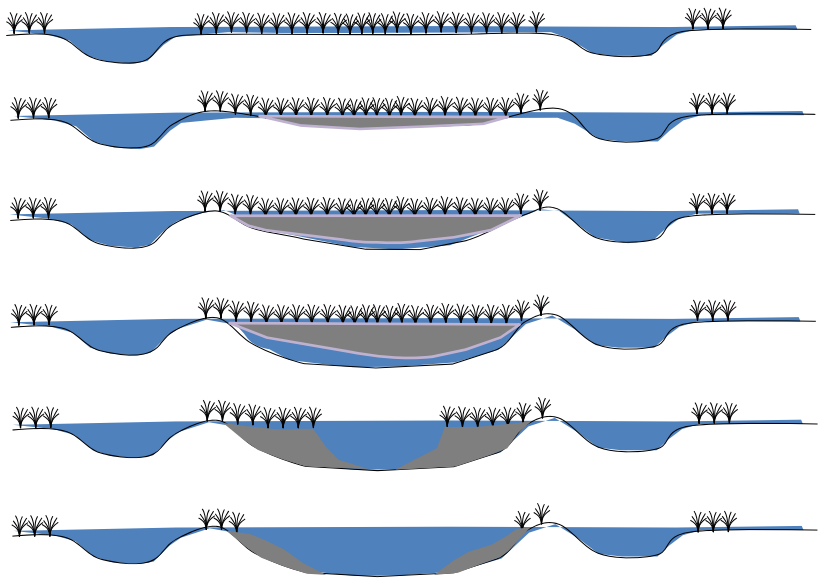
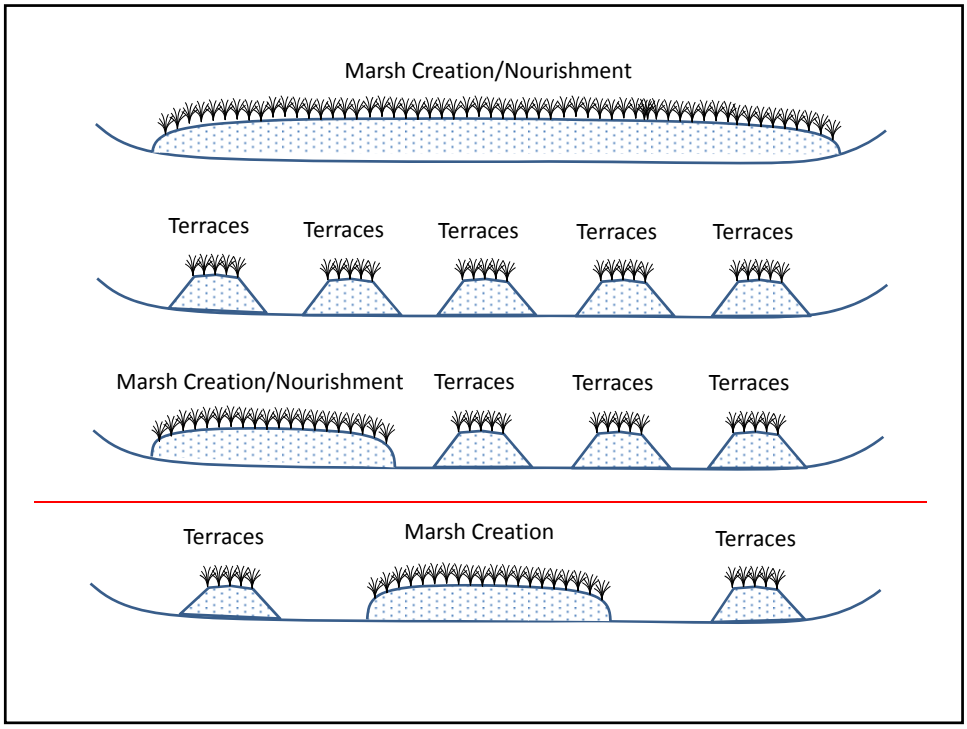
NRCS

South Catfish Lake Marsh Creation and Terraces

Ron Boustany

Natural Resources Conservation Service (NRCS)




Marsh Creation/Nourishment
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Marsh Creation/Nourishment
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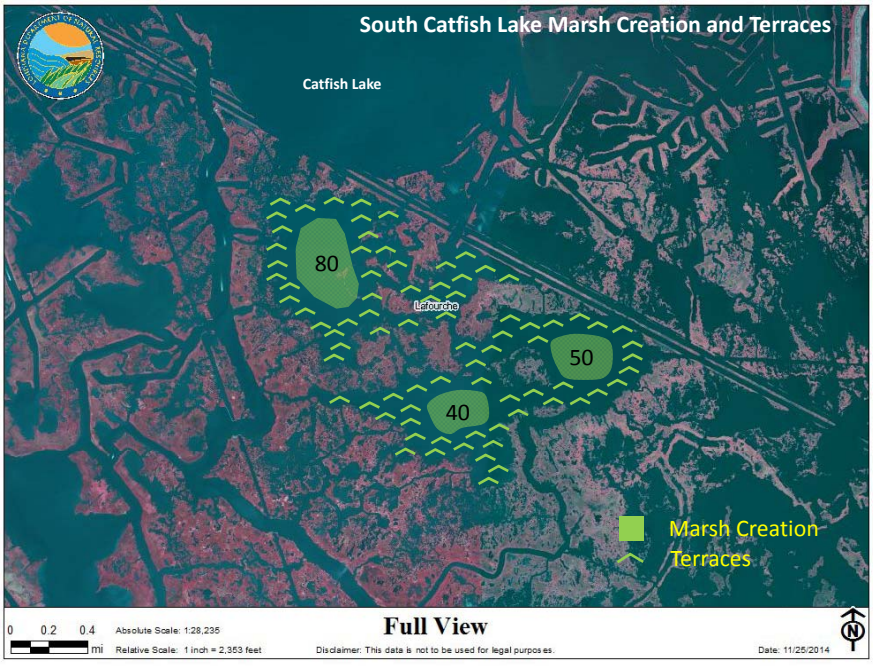
Marsh Creation
Terraces


South Catfish Lake Marsh Creation and Terraces
Catfish Lake
80
Lafourche
50
40
Marsh Creation
Terraces
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mi
Absolute Scale: 1:28,235
Relative Scale: 1 inch = 2,353 feet
Full View
Disclaimer: This data is not to be used for legal purposes.
Date: 11/25/2014
NRCS

Advantages

Lower cost per total area of impact

Optimal use of imported material in terms of created marsh

Significant increase in edge and fisheries habitat value

Stabilization of relatively large areas at reasonable cost effectiveness

R3-TE-07

South Bayou Pointe aux Chenes Marsh Creation & Terraces

R3 TE-07

South Bayou Pointe aux Chenes Marsh Creation and Terraces

PPL-25 Region 3 RPT Meeting
January 28, 2015

State Master Plan Strategy
03a.MC.09b North Terrebonne Bay Marsh Creation

Project Location:
Region 3, Terrebonne Basin, Terrebonne Parish, South Bayou Pointe aux Chenes near Lake Billiot.

Problem:
The eastern side of Terrebonne Basin is significantly isolated from the riverine influences of the Mississippi and Atchafalaya Rivers. Consequently, both subsidence and erosion of shorelines have occurred at some of the highest rates in Louisiana. The peripheral marshes surrounding Terrebonne Bay have experienced significant erosion and the interior marsh has also succumbed to several large ponds that tend to expand and accelerate erosion.

The State has identified this region as a priority in the master plan. Some locations within the State Master Plan marsh creation polygons consist of broad open water areas that are not feasible by conventional marsh creation approaches.

Goals:
The goal of the project is to strategically create marsh and reduce interior erosion/subsidence by creating marsh and terraces to stabilize the area and prevent further expansion of large shallow open water area and loss of adjacent marshes.

Proposed Solutions:
Project would create approximately 250 acres of marsh creation in the form of an island cell surrounded by fields of terraces. Total project area is about 1200 acres. This project will utilize an innovative solution to addressing larger open water areas by combining marsh creation and terraces to collectively stabilize the broader area. Placement of fill material in the form of islands optimizes the use of imported material toward marsh creation and provides an anchor to increase the effectiveness of the in-situ terrace construction. It also allows the restoration effort to impact a much broader area than conventional marsh creation designs.

Project Benefits:
The project would result in approximately 295 net acres over the 20 year project life. The project will also help to stabilize the broader 1200 acre complex.

Project Costs:
Estimated construction cost with 25% contingency is approximately $16.7 million

Preparer(s) of Fact Sheet:
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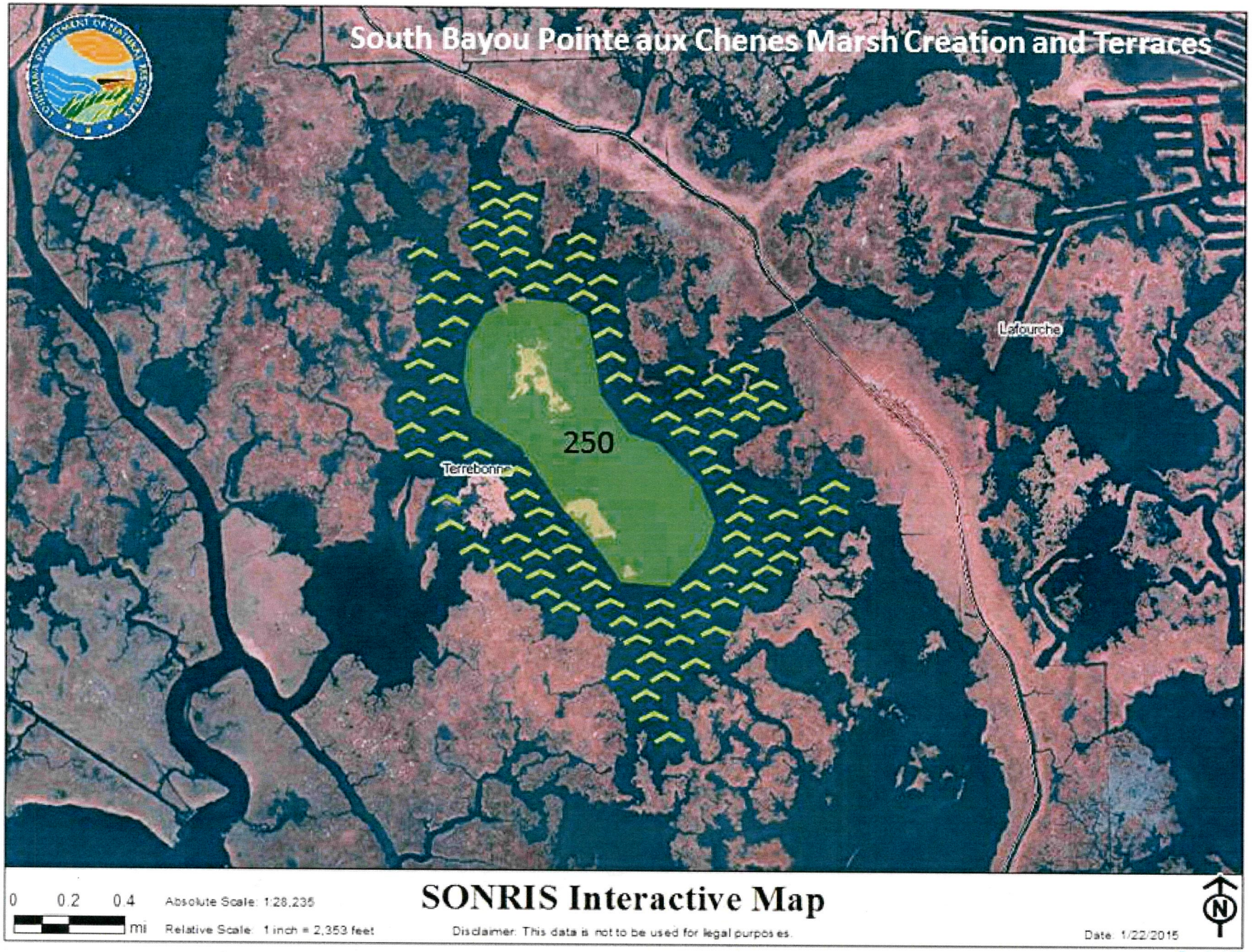
South Bayou Pointe aux Chenes Marsh Creation and Terraces
250
Terrebonne
Lafourche
0 0.2 0.4
mi
Absolute Scale: 1:28,235
Relative Scale: 1 inch = 2,353 feet
SONRIS Interactive Map
Disclaimer: This data is not to be used for legal purposes.
Date: 1/22/2015
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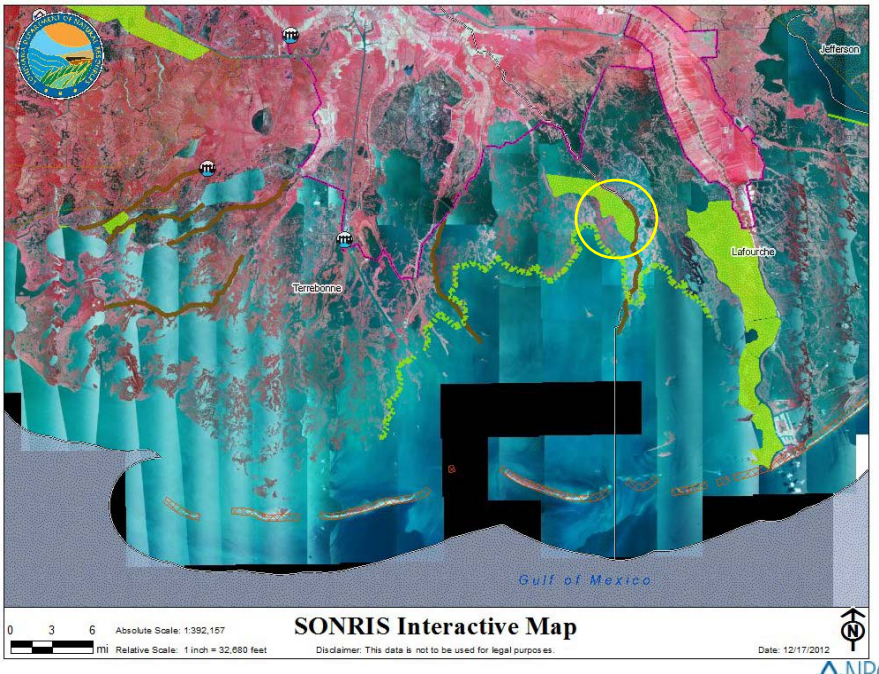
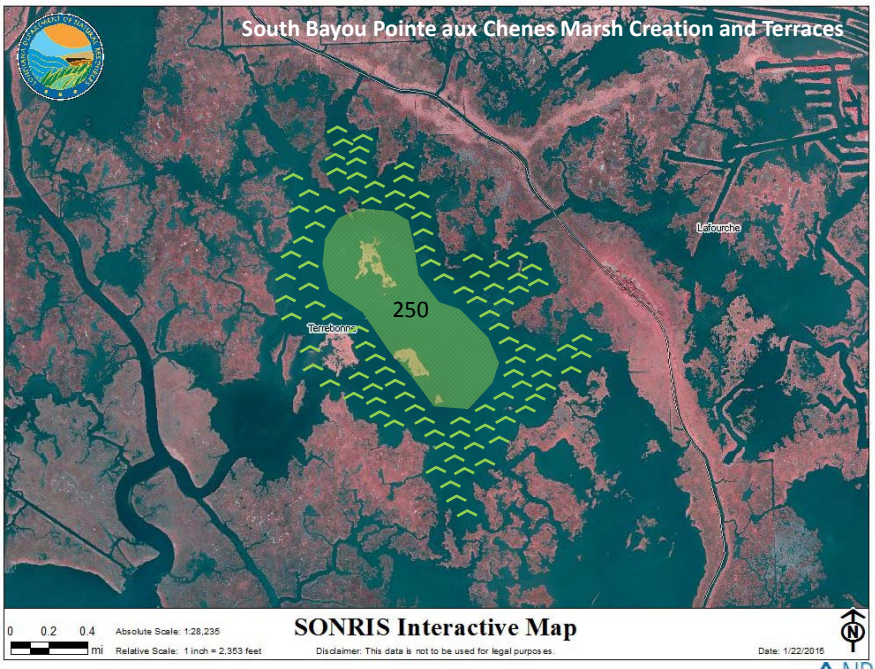
NRCS

South Bayou Pointe aux Chenes Marsh Creation and Terraces

Ron Boustany

Natural Resources Conservation Service (NRCS)




South Bayou Pointe aux Chenes Marsh Creation and Terraces
250
Terrebonne
Lafourche
0 0.2 0.4 mi
Absolute Scale: 1:28,235
Relative Scale: 1 inch = 2,353 feet
SONRIS Interactive Map
Disclaimer: This data is not to be used for legal purposes.
Date: 1/22/2015
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NRCS

R3-TE-08

Grand Bayou Freshwater Enhancement

R3-TE-08

PPL25 PROJECT NOMINEE FACT SHEET
January 28, 2015

Project Name
Grand Bayou Freshwater Enhancement

Project Location
Region 3, Terrebonne Basin, Lafourche Parish

Problem
The project area is located within the North Bully Camp Marsh (43,882) and St. Louis Canal (25,563 acres) mapping units. Between the years 1932 and 1990, these two mapping units lost an estimated 12,840 and 3,450 acres of marsh, respectively. A significant amount of the land loss in these areas since 1949 may be attributed to direct removal and altered hydrology from canal dredging. Altered hydrology remains a current cause of land loss along with high rates of subsidence which are estimated to be between 2.1 and 3.5 ft/century (LCWCRTF 1999).

Because of the high number of canals that have been dredged in the area, high salinity Gulf waters move rapidly northward into the marshes within the project area. The amount of high salinity waters moving north is increasing as the marshes continue to breakup and disappear. The only freshwater input to this area originates from the Gulf Intracoastal Waterway (GIWW) along the northern project boundary. The freshwater inflow from the GIWW is restricted by the small cross-section of the channel north of the Hwy. 24 bridge and continuing for several thousand feet south of that bridge. There is also a restriction (earthen plug) in Margaret's Bayou which prevents fresh water from moving east from Grand Bayou into the broken marshes.

Goals
The primary goal of this project is to increase the flow of fresh water from the GIWW down Grand Bayou Canal. That increase is water would lower salinities and add nutrients to the wetlands south of the GIWW along the east and west banks of Grand Bayou Canal. ***Specific goals***: 1) Increase the flow of fresh water from the GIWW into Grand Bayou Canal from approximately 600 cfs to 1,600 cfs; 2) redirect much of the freshwater from Grand Bayou Canal into the marshes east and west of Grand Bayou Canal, and 3) Create 112 acres of fresh marsh and nourish an additional 14 acres of intermediate marsh west of Grand Bayou near Hwy 24.

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 and improvement of over 26,000 acres of intermediate and 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, Louisiana Eyed Silkmoth, Bald Eagle, Osprey, and Saltwater topminnow. Keeping these species off the threatened and endangered list is a goal of FWS because at that point ALL Federal agencies must then address those species.

Proposed Solution
This project would increase the Grand Bayou cross-section from an average of 628 cfs to 1,604 cfs with the use of a hydraulic dredge. Material dredged from the channel would be beneficially

used to create approximately 126 acres of intermediate marsh. Along the west bank of the channel a rock plug would be replaced with a 5-48" flap-gated culvert water control structure, an increase of 122 cfs. Along the east bank an earthen plug would be removed to allow freshwater to flow directly into the marshes to the east down Margaret's Bayou, an increase in 385 cfs.

Preliminary Project Benefits

1) *What is the total acreage benefited both directly and indirectly?*
This total project area is 26,533 ac.

2) *How many acres of wetlands will be protected/created over the project life?*
Approximately 676 acres of intertidal marsh 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?*
No.

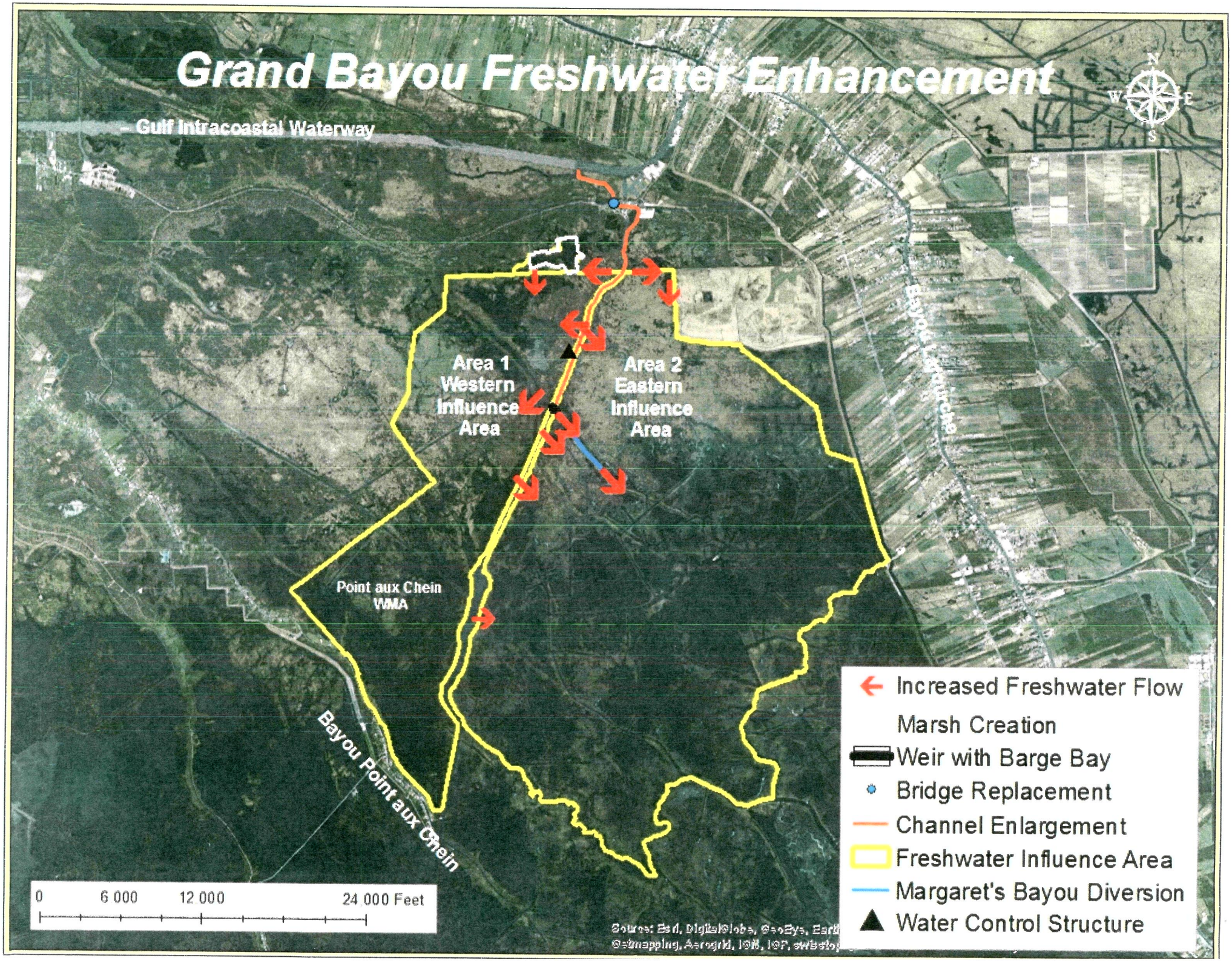
5) *What is the net impact of the project on critical and non-critical infrastructure?*
The project would have moderate net positive impact to critical infrastructures which consists of Larose to Golden Meadow Levee, oil and gas infrastructure, and businesses near Hwy. 24.

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 several Ducks Unlimited projects, Bayou Point aux Chenes WMA management units, and several mitigation projects located within the project area.

Identification of Potential Issues
The proposed project has the following potential issues: O&M, utility/pipeline, and DOTD bridge replacement.

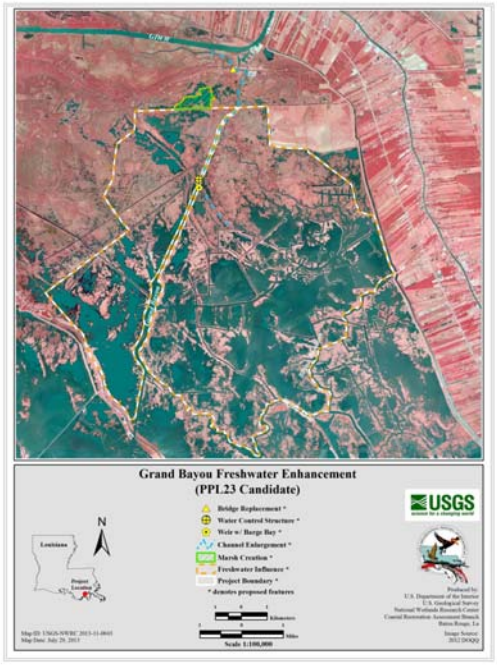
Preliminary Construction Costs
The estimated construction cost including 25% contingency is $15 M.

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


Grand Bayou Freshwater Enhancement
Gulf Intracoastal Waterway
Area 1
Western
Influence
Area
Area 2
Eastern
Influence
Area
Point aux Chein
WMA
Bayou Point aux Chein
Bayou Grand Caillou
0
6 000
12 000
24 000 Feet
Increased Freshwater Flow
Marsh Creation
Weir with Barge Bay
Bridge Replacement
Channel Enlargement
Freshwater Influence Area
Margaret's Bayou Diversion
Water Control Structure

PPL 25

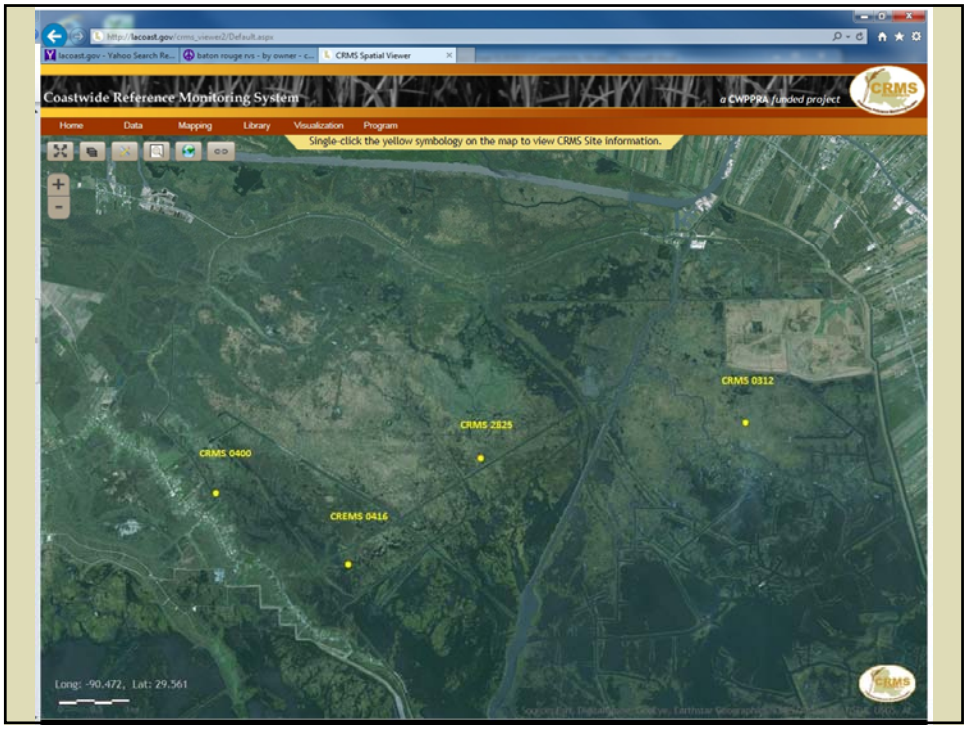
Grand Bayou Freshwater Enhancement



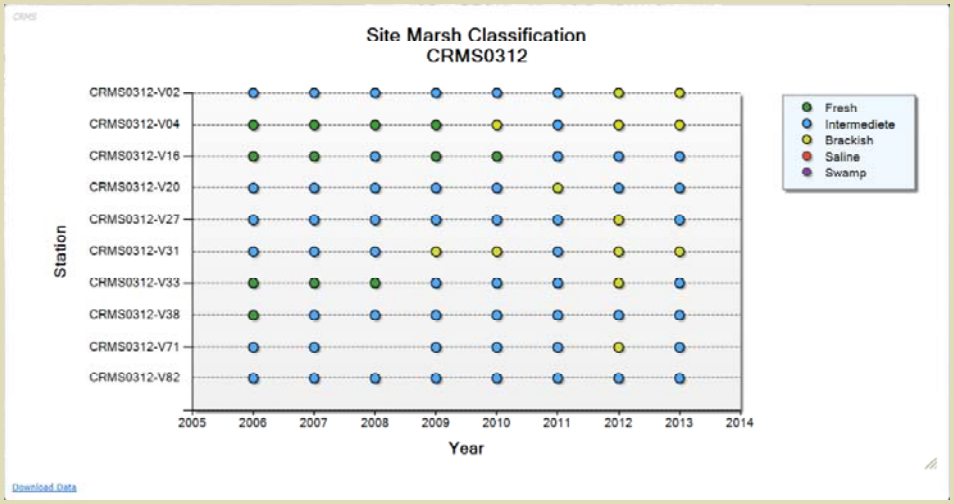
GRAND BAYOU FRESHWATER ENHANCEMENT

Problem:

- Project area salinities are increasing due to the continued loss of marshes south of the project area
- Freshwater inflows into the project area originate from the GIWW which are restricted by small channel cross-sections along the northern section of Grand Bayou Channel (GBC)- 5ft depth at GIWW
- Margaret's Bayou is also plugged keeping fresh water from moving east from GBC into the broken marshes
- Land loss rates are estimated between -0.328 and -0.583 %/year .
- Project area encompasses 26,533 acres of which 10,018 acres (38%) was marsh and the remaining 16,515 acres (62%) was open water as of 2010



GRAND BAYOU FRESHWATER ENHANCEMENT




Site Marsh Classification
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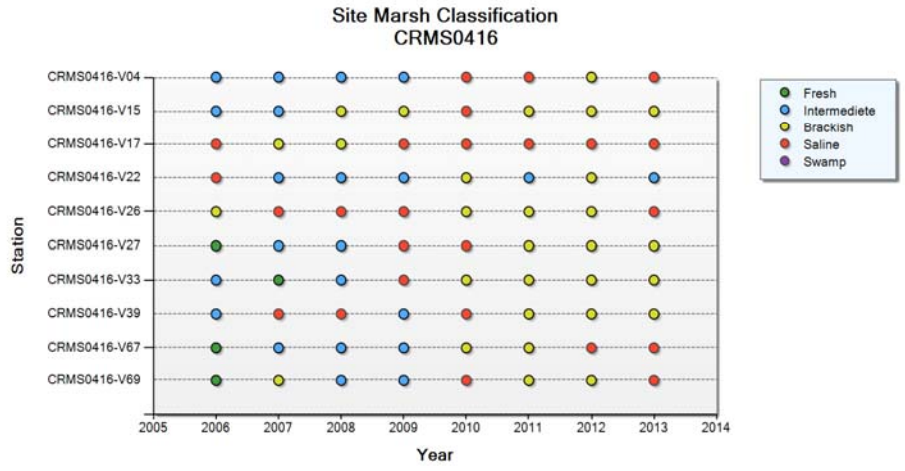
CRMS2825-V05
CRMS2825-V14
CRMS2825-V15
CRMS2825-V25
CRMS2825-V27
CRMS2825-V36
CRMS2825-V52
CRMS2825-V63
CRMS2825-V71
CRMS2825-V74
Station
2007
2008
2009
2010
2011
2012
2013
2014
Year
Fresh
Intermediete
Brackish
Saline
Swamp


Site Marsh Classification
CRMS0416
CRMS0416-V04
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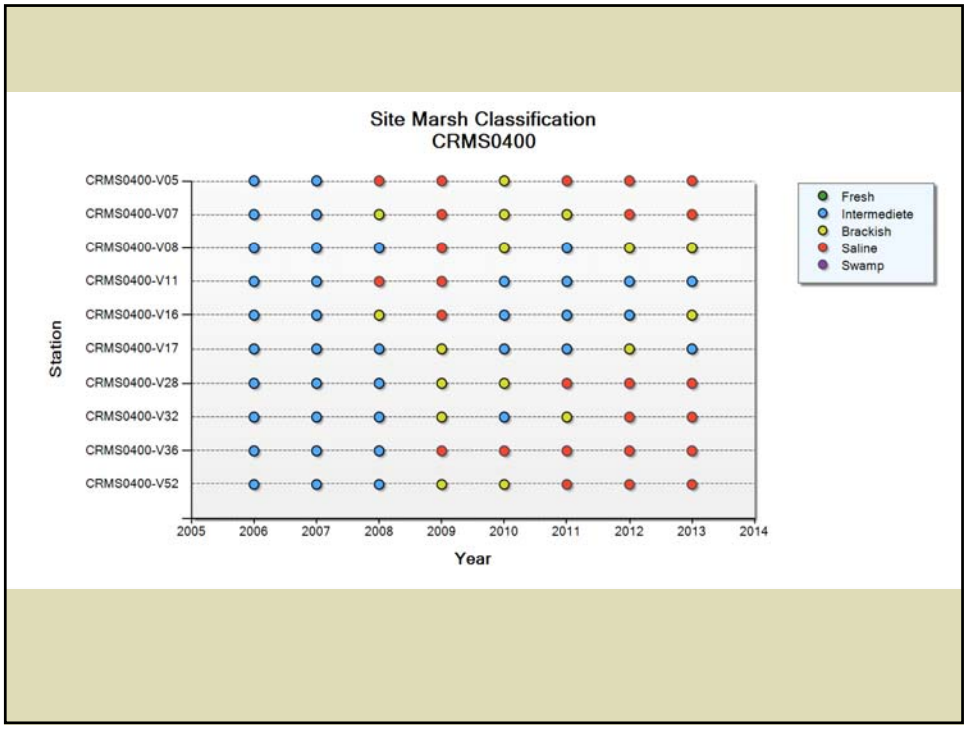
CRMS0416-V22
CRMS0416-V26
CRMS0416-V27
CRMS0416-V33
CRMS0416-V39
CRMS0416-V67
CRMS0416-V69
Station
2005
2006
2007
2008
2009
2010
2011
2012
2013
2014
Year
Fresh
Intermediete
Brackish
Saline
Swamp


Site Marsh Classification
CRMS0400
CRMS0400-V05
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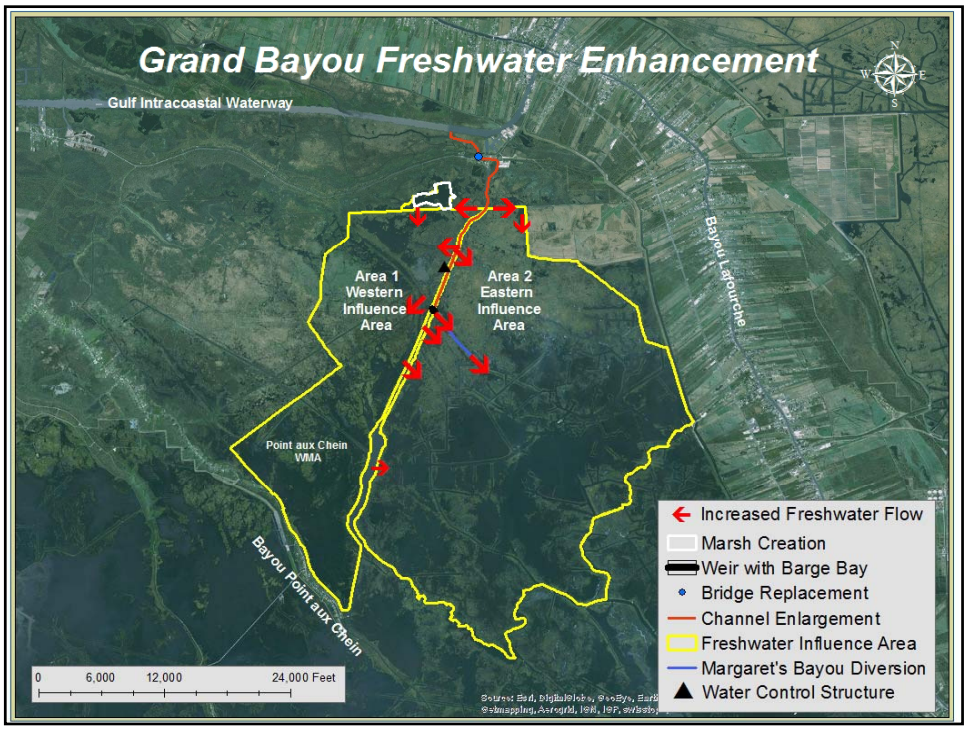
CRMS0400-V16
CRMS0400-V17
CRMS0400-V28
CRMS0400-V32
CRMS0400-V36
CRMS0400-V52
Station
2005
2006
2007
2008
2009
2010
2011
2012
2013
2014
Year
Fresh
Intermediete
Brackish
Saline
Swamp


Grand Bayou Freshwater Enhancement
Gulf Intracoastal Waterway
Area 1
Western
Influence
Area
Area 2
Eastern
Influence
Area
Bayou Lafourche
Point aux Chein
WMA
Bayou Point aux Chein
0
6,000
12,000
24,000 Feet
Increased Freshwater Flow
Marsh Creation
Weir with Barge Bay
Bridge Replacement
Channel Enlargement
Freshwater Influence Area
Margaret's Bayou Diversion
Water Control Structure

GRAND BAYOU FRESHWATER ENHANCEMENT

Proposed Solution/Goals:

- Increase the GBC cross-section from an average of 600 cfs to 1,604 cfs with the use of a hydraulic/bucket dredge (1,000 cfs increase)
- Use that material to create/nourish approximately 126 acres of intermediate marsh.
- Replace a rock plug with 5-48" flap-gated culverts (increase 122 cfs)
- Increase flow down Bayou Blue and two other canals totaling 25 cfs
- Remove earthen plug at Margaret's Bayou allowing freshwater to flow directly into the marshes east (increase 385 cfs)
- Place fixed crest weir with barge bay below Margaret's Bayou (increase 449 cfs)
- Improve and/or create habitat for rare species and species of concern

Species of Concern and Rare Species

- Least Bittern
- Black Rail
- Mottled Duck
- Saltmarsh topminnow
- Brown Pelican
- Louisiana Eyed Silkmoth
- King Rail
- Bald Eagle

GRAND BAYOU FRESHWATER ENHANCEMENT

- Increase the flow of fresh water from the GIWW down Grand Bayou Canal from an average 600 cfs to 1,600 cfs
- The project would result in approximately 676 net acres over the 20-year project life.
- The construction cost plus 25% contingency is $15 M.
- Project is currently not part of the State's Convey Atchafalaya River Water East

R3-TE-09

Bayou Barre Marsh Creation

R3-TE-09

PPL 25 PROJECT NOMINEE FACT SHEET
January 28, 2015

Project Name:
Bayou Barre Marsh Creation

Project Location:
Region 3, Terrebonne Basin, Terrebonne Parish. Southeast Montegut between Wonder Lake and Madison Bay.

Problem:
The marshes near the Madison Bay area have experienced tremendous wetland loss due to a variety of factors, including subsidence, saltwater intrusion, a lack of sediment supply, and oil and gas activities. The loss of the marshes have exposed significant infrastructure to open water conditions and has made the area less suitable for various wildlife and fisheries. The 1983 to 1990 loss rate for the Montegut area is 3.5%/yr. (Coast 2050). With high wetland loss in the vicinity, the Montegut Levee to the north of the project area has become extremely susceptible to high wave energies caused by the increased fetch distance in the now the open water areas of Madison Bay and Wonder Lake. The Montegut Levee breached during Hurricanes Lili and Rita in 2002 and 2005, respectively.

Goals :
This project would strategically tie together three ridges (Bayou Terrebonne Ridge, Bayou St. Jean Charles Ridge, and Point au Chene Ridge) and two other CWPPRA projects (Maddison Bay Marsh Creation and Terracing project and Island Road Marsh Creation project).
Specific goals: 1) Create 440 acres and nourish 19 acres of emergent brackish marsh.

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, Louisiana Eyed Silkmoth and Saltwater topminnow. Keeping these species off the threatened and endangered list is a goal of FWS because at that point ALL Federal agencies must then address those species.

Proposed Solution:
This project would propose to create/nourish approximately 459 acres of emergent marsh by hydraulically dredging material from Maddison Bay and placing that material in in shallow open water areas between Wonder Lake and Maddison Bay. Dredge material would be placed in open water areas to a target height of +1.4 NAVD 88. All constructed containment dikes would be sufficiently gapped or degraded no later than 3 years post construction to allow for fisheries access.

Preliminary Project Benefits:
1) What is the total acreage benefited both directly and indirectly?
This total project area is 459 ac.

2) How many acres of wetlands will be protected/created over the project life?
Approximately 353 ac of brackish marsh will be protected/created over the 20 year project life.

3) What is the anticipated loss rate reduction throughout the area of direct benefits over the project life (<25%, 25-49%, 50-74%, and >75%)?
The anticipated land loss rate reduction throughout the area of direct benefits would be 50-74% over the 20 year project life.

4) Do any project features maintain or restore structural components of the coastal ecosystem such as barrier islands, natural or artificial levee ridges, beach and lake rims, cheniers, etc?
The project would help restore portions of the Wonder Lake shoreline and portions of the Bayou Barre bankline.

5) What is the net impact of the project on critical and non-critical infrastructure?
This project would help protect the Point Barre road, several camps, and some oil and gas infrastructure.

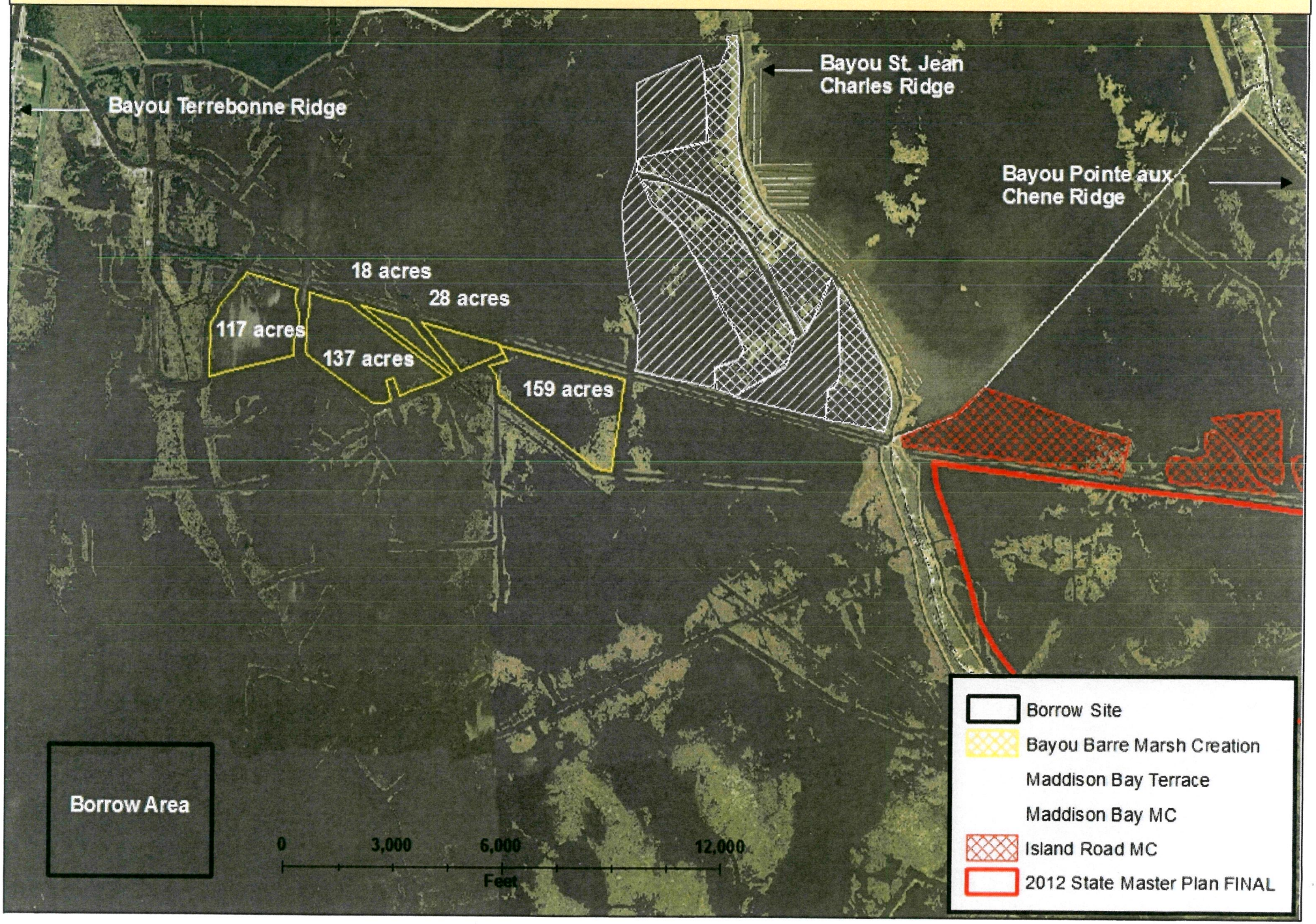
6) To what extent does the project provide a synergistic effect with other approved and/or constructed restoration projects?
This project would work synergistically with two other projects (Maddison Bay Marsh Creation and Terracing project and Island Road Marsh Creation project) which would tie together three ridges (Bayou Terrebonne Ridge, Bayou St. Jean Charles Ridge, and Pointe aux Chene Ridge). This would also work synergistically with the TE-83 project that will be located just south of the project area.

Identification of Potential Issues:
There would most likely be some pipeline issues and numerous oyster leases within the project area.

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

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

BAYOU BARRE MARSH CREATION



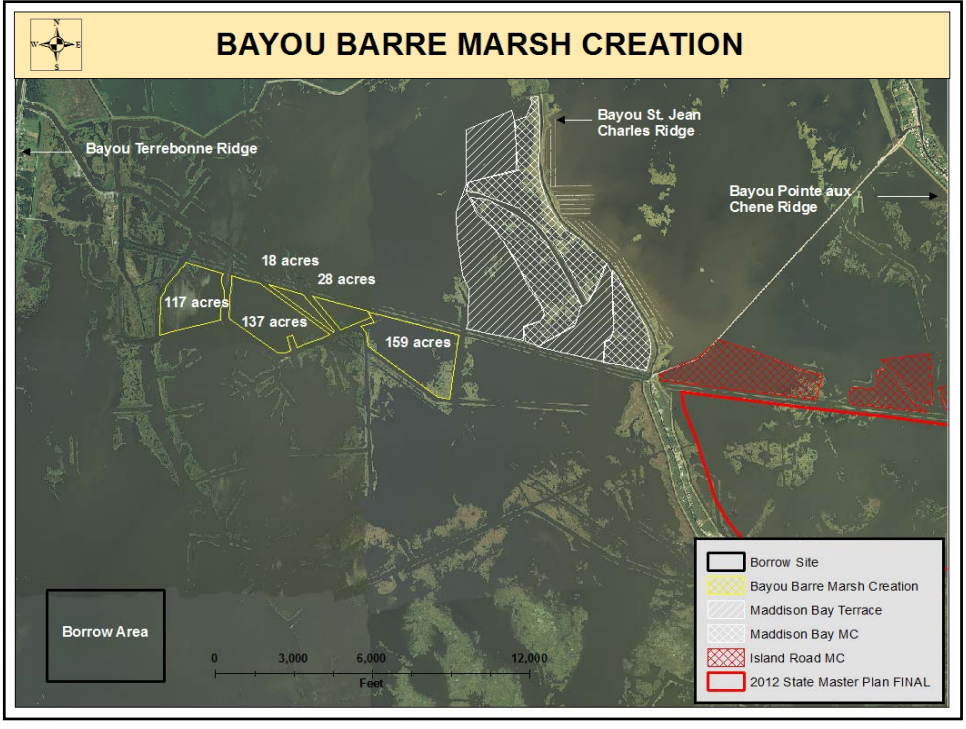
PPL 25

BAYOU BARRE MARSH CREATION

BAYOU BARRE MARSH CREATION

Problem:

- Project area wetlands loss is due to subsidence, saltwater intrusion, a lack of sediment supply, and oil and gas activities.
- The 1984 to 2011 loss rate 2.29%/yr. (Madison Bay project).
- Losses have exposed infrastructure to open water conditions and has made habitats in the area less suitable for various wildlife and fisheries .
- Montegut Levee north of the project area more susceptible to high wave energies. Breached during Hurricanes Lili and Rita in 2002 and 2005, respectively.



BAYOU BARRE MARSH CREATION

- **This area is an incredible area of need. No CWPPRA project has been constructed in the entire Eastern Terrebonne area.**
- **This project would strategically tie together three ridges (Bayou Terrebonne Ridge, Bayou St. Jean Charles Ridge, and Point au Chene Ridge)**
- **Tie synergistically with two other CWPPRA projects (Maddison Bay Marsh Creation and Terracing project and Island Road Marsh Creation project)**
- **Create 440 acres and nourish 19 acres of emergent brackish marsh**

Species of Concern and Rare Species

- Least Bittern
- Black Rail
- Mottled Duck
- Saltmarsh topminnow
- Brown Pelican

BAYOU BARRE MARSH CREATION

Net Acres:

Approximately 353 ac of brackish marsh will be protected/created over the 20 year project life.

Identification of Potential Issues:

There would most likely be some pipeline issues and oyster leases within the project area.

Preliminary Construction Costs:

The estimated construction cost plus 25% contingency $25.6 M.

R3-TE-10

Lake Felicity Oyster Reef Shoreline Protection & Marsh Creation

R3-TE-10

PPL25 PROJECT NOMINEE FACT SHEET
January 28, 2015

Project Name
Lake Felicity Oyster Reef Shoreline Protection and Marsh Creation

Project Location
Region 3, Terrebonne Basin, Terrebonne Parish, Terrebonne Bay

Problem
Marshes along the northern shoreline of Terrebonne Bay have a high interior marsh loss rate, estimated to be 1.2%/yr. (USGS-1985-2009-TE-83). The shoreline erosion rate in some areas along the northern Terrebonne Bay shoreline has been shown to be 8 to 34 ft/yr (TE-45 Demo Project). Other estimates (FWS–Ronnie Paille) show erosion rates as high as 30 ft/yr. The reasons for these high erosion rates include subsidence, a lack of sediment input, a limited supply of freshwater, and a dramatically increase in the tidal prism north of Terrebonne Bay. The increase in the tidal prism directly contributes to the increasing flooding problems of many communities along Bayou Terrebonne including the town of Montegut. As emergent marshes in this area convert to open water, tidal surges will continue to increase thus increasing the flooding north of the bay.

Goals
The goals of the project are 1) reduce shoreline erosion along 39,496 linear feet of Terrebonne Bay shoreline, 2) protect 162 acres of existing highly productive marsh, and 3) create 137 acres of marsh and nourish 18 acres of marsh.

One goal of the Service is 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, Louisiana Eyed Silkmoth and Saltwater topminnow. Keeping these species off the threatened and endangered list is a goal of FWS because at that point ALL Federal agencies must then address those species.

Proposed Solution
Project area shoreline erosion rates are estimated to be 12 ft/yr. This project would protect approximately 39,496 linear feet of Terrebonne Bay shoreline through the construction of 30,000 LF of hard structures suitable for the establishment of oyster reefs. This would equate to protecting 162 acres of marsh and 20 acres of shallow open water. This would be accomplished by installing rock-filled gabion mats along the shoreline and concrete foreshore structures across any open water areas to enhance oyster reef production. This would promote the creation of oyster reefs which would reduce the shoreline erosion rates by 95% with little to no maintenance.

This project would also create approximately 137 acres and nourish 18 acres of marsh by filling small shallow open-water areas with material dredged from the bottom of Terrebonne Bay with a small hydraulic dredge.

Preliminary Project Benefits

1) *What is the total acreage benefited both directly and indirectly?*
This total project area is 311 ac.

2) *How many acres of wetlands will be protected/created over the project life?*
Approximately 221 acres of intertidal marsh 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 associated with the shoreline protection feature would be; 1) 100% reduction in shoreline erosion rates associated with the Gabion Mats, 2) 80% reduction in shoreline erosion rates associated with a foreshore structure, and 3) a 50%-74% reduction in the interior loss rate associated with marsh creation over the 20 year project life.

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

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

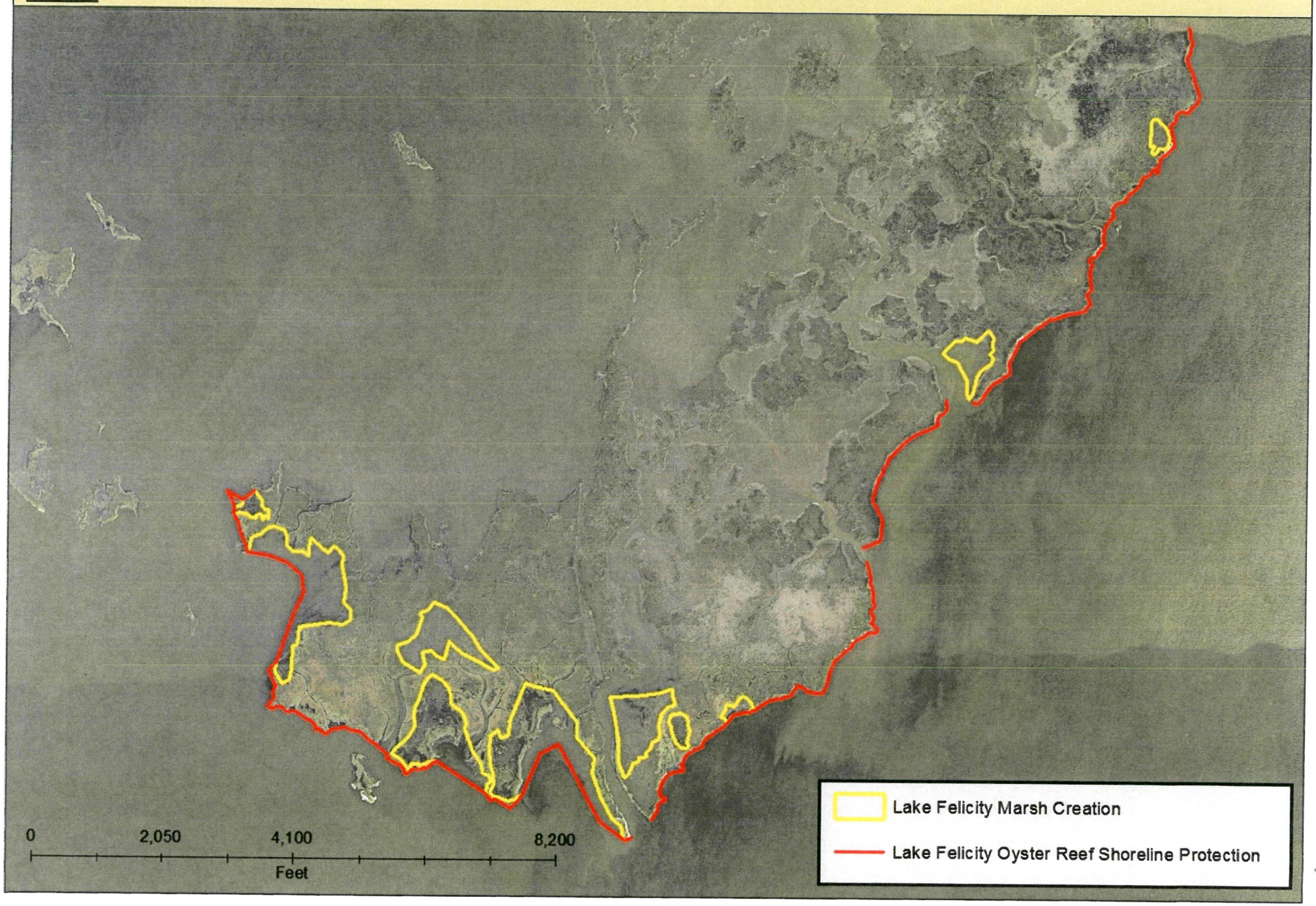
6) *To what extent does the project provide a synergistic effect with other approved and/or constructed restoration projects?*
The project will have a synergistic effect with Terrebonne Bay Oyster Demo (TE-45) and Terrebonne Bay Marsh Creation Project (TE-83).

Identification of Potential Issues
This area has many oyster leases, but through the light loading of material and shallow draft equipment the impacts to the leases should be minimal. Potential issues include the following: Oysters leases and pipelines.

Preliminary Construction Costs
The estimated construction cost including 25% contingency is between $19.3 M.

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

LAKE FELICITY OYSTER REEF SHORELINE PROTECTION AND MARSH CREATION

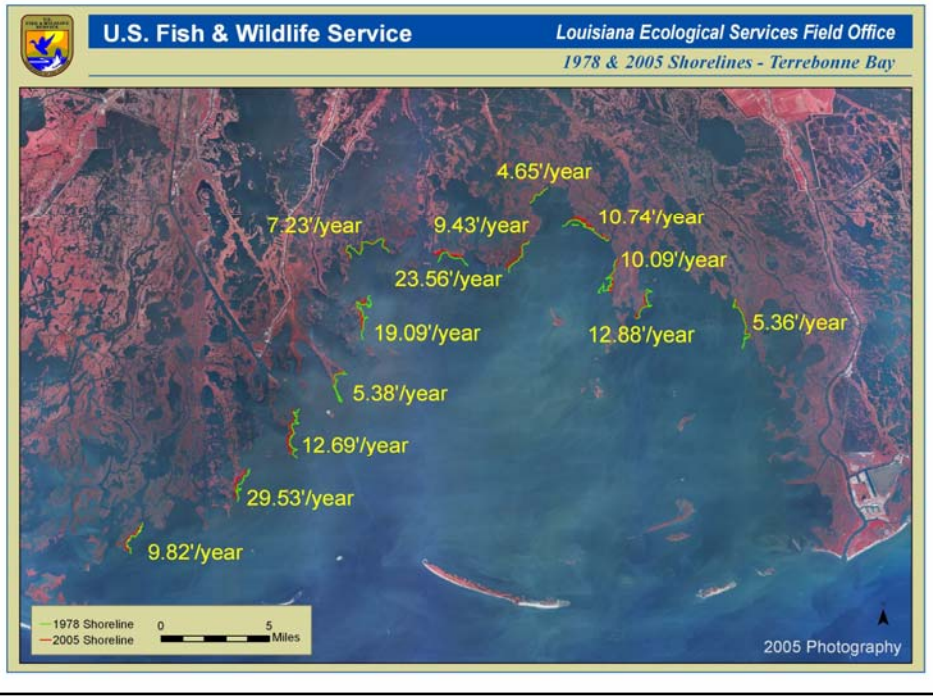


PPL 25

LAKE FELICITY

OYSTER REEF

SHORELINE PROTECTION AND MARSH CREATION



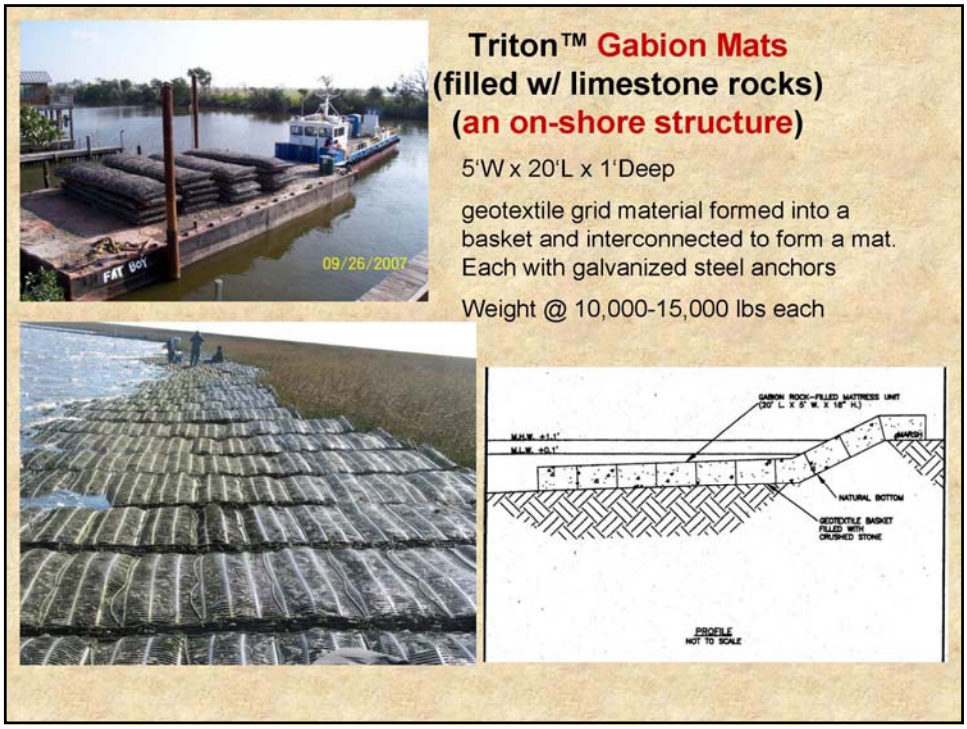
LAKE FELICITY OYSTER REEF
SHORELINE PROTECTION AND MARSH CREATION

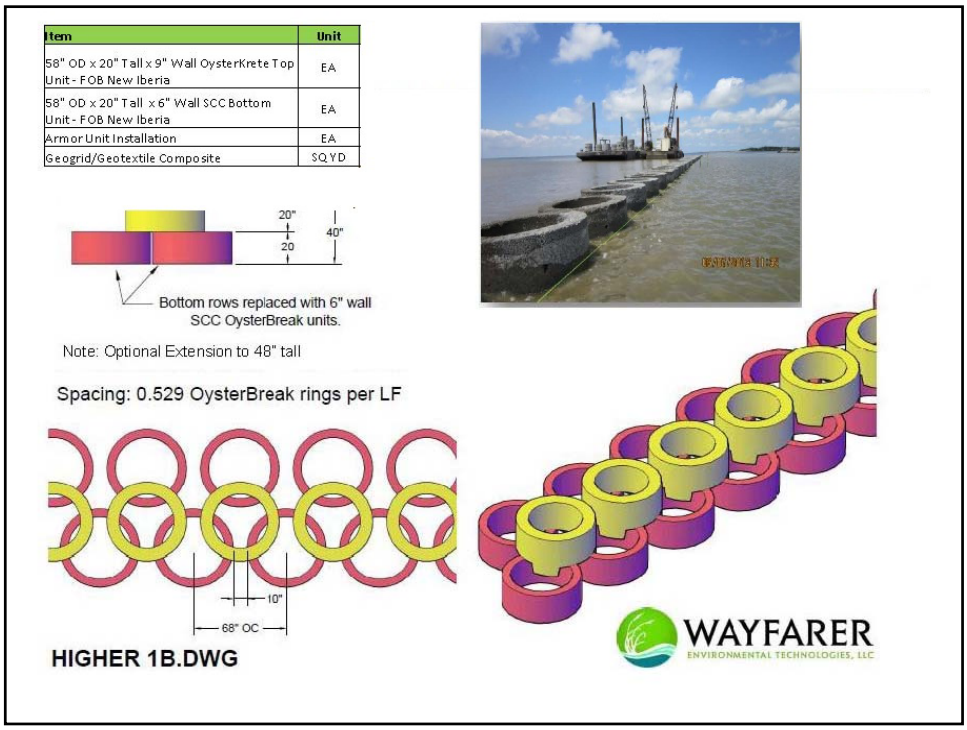
Problem:

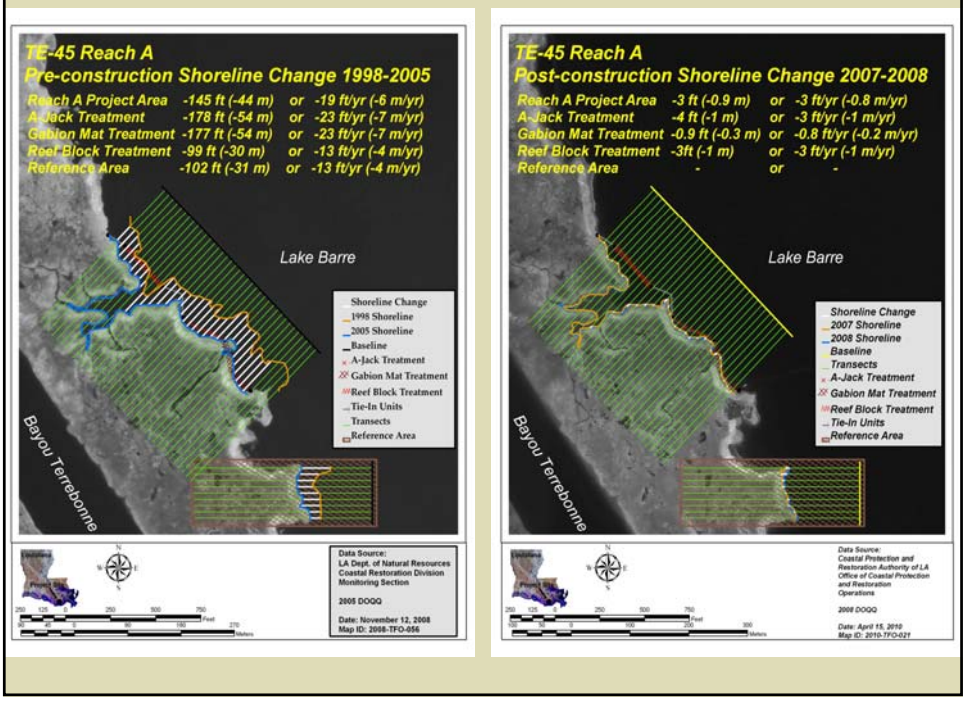
- Marshes along the Northern Terrebonne Bay have high interior marsh loss rates – 1.2%/yr. Shoreline erosion rates have been shown to be between 3-34 ft/yr. Project area shoreline erosion rates average 12 ft/yr.

Solution:

- Install approximately 22,000 LF of 5'x20'x12"Gabion Mat structures along the shoreline of Terrebonne Bay
- Install approximately 8,000 LF of Concrete Oyster Reef foreshore structures in open water areas
- Create approximately 132 ac of intertidal marsh and nourish an additional 10 ac with a small hydraulic dredge immediatlaly adjacent to the shoreline protection structures


Triton™ Gabion Mats
(filled w/ limestone rocks)
(an on-shore structure)
5'W x 20'L x 1'Deep
geotextile grid material formed into a basket and interconnected to form a mat. Each with galvanized steel anchors
Weight @ 10,000-15,000 lbs each
09/26/2007
GABION ROCK-FILLED MATTRESS UNIT
NATURAL BOTTOM
GEOTEXTILE BASKET FILLED WITH CRUSHED STONE
PROFILE
NOT TO SCALE


Item
Unit
58" OD x 20" Tall x 9" Wall OysterKrete Top Unit - FOB New Iberia
EA
58" OD x 20" Tall x 6" Wall SCC Bottom Unit - FOB New Iberia
EA
Armor Unit Installation
EA
Geogrid/Geotextile Composite
SQ YD
20"
40"
20
Bottom rows replaced with 6" wall SCC OysterBreak units.
Note: Optional Extension to 48" tall
Spacing: 0.529 OysterBreak rings per LF
10"
68" OC
HIGHER 1B.DWG
WAYFARER
ENVIRONMENTAL TECHNOLOGIES, LLC



LAKE FELICITY OYSTER REEF
SHORELINE PROTECTION AND MARSH CREATION

Goals:

- Protect 39,490 feet of bay shoreline
- Protect 162 acres of highly productive natural marshes
- Create 137 acres of marsh and nourish 18 acres

Net Acres:

- Approximately 221 ac of brackish marsh will be protected/created over the 20 year project life.

Identification of Potential Issues:

- Pipelines within the project area
- Oyster leases within the project area

Preliminary Construction Costs:

- The estimated construction cost plus 25% contingency $19 M.

LAKE FELICITY OYSTER REEF SHORELINE PROTECTION AND MARSH CREATION

- Little to no maintenance for shoreline protection and created/nourished marshes
- Would be the first fully successful demonstration project to expand to a full project
- There have been NO CWPPRA projects constructed or funded to be constructed in Eastern Terrebonne Parish
- Has to be considered one of Coastal Louisiana's highest areas of need
- This method of shoreline protection has been proven to work and be cost effective

R3-TE-11

Bayou Terrebonne Ridge Restoration & Marsh Creation

R3-TE-11

PPL 25 PROJECT NOMINEE FACT SHEET

Project Name
Bayou Terrebonne Ridge Restoration and Marsh Creation

Master Plan Strategy:
- 03a.RC.05 – Bayou Terrebonne Ridge Restoration

Project Location
The project is located directly along Bayou Terrebonne, northwest of Cocodrie, in Terrebonne Parish, Louisiana.

Problem
Terrebonne basin was historically structured by a series of north-south ridges—remnants of the many distributaries of Bayou Lafourche. Much of the habitat function of these ridges has been lost over the last half-century to erosion, subsidence, and development. Land loss projections predict that the ridge and surrounding marshes will be converted to open water by 2050.

Goals
1) Restore both the structural and habitat functions of 3.9 miles of Bayou Terrebonne Ridge.
2) Create and nourish 221 acres of marsh habitat.
3) Install 7,100 feet of artificial oyster reef, to provide habitat and help protect the newly created marsh and ridge.

Proposed Project Features
Create a 20,461 foot ridge along the east bank of Bayou Terrebonne. The ridge will have a +5.2 ft settled top height, a 15-foot top width, and 1:7 side slopes. The ridge feature would result in 7 acres of marsh and 24 acres of ridge habitat (Figure 2). Ridge material will come from Bayou Terrebonne. The borrow sites will be noncontiguous, as not to facilitate the northward flow of saltwater. The project will also include 214 acres of marsh creation and nourishment adjacent to the ridge component and 7,100 feet of artificial oyster reef. Borrow for the marsh creation component will come from Terrebonne Bay.

Preliminary Project Benefits
The project would restore 24 acres of resting and foraging habitat necessary to support transient migratory land birds in the spring and fall. Additional benefits of restoring the ridge include helping reduce storm surge and restoring natural hydrologic patterns in the area. The ridge and marsh components of this project would also help restore and protect the eastern bank of Bayou Terrebonne.

Preliminary Project Benefits

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

2) *How many acres of wetlands will be protected/created over the project life?*
This project will create a net benefit of 185 acres of marsh and ridge habitats over the 20-year 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% for the MC feature and 50% for the ridge feature 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 nearly 4 miles of the natural ridge habitat along the east bank of Bayou Terrebonne. The project also helps maintain the Bayou Terrebonne bank line, keeping the bayou from coalescing with Lake Barre.

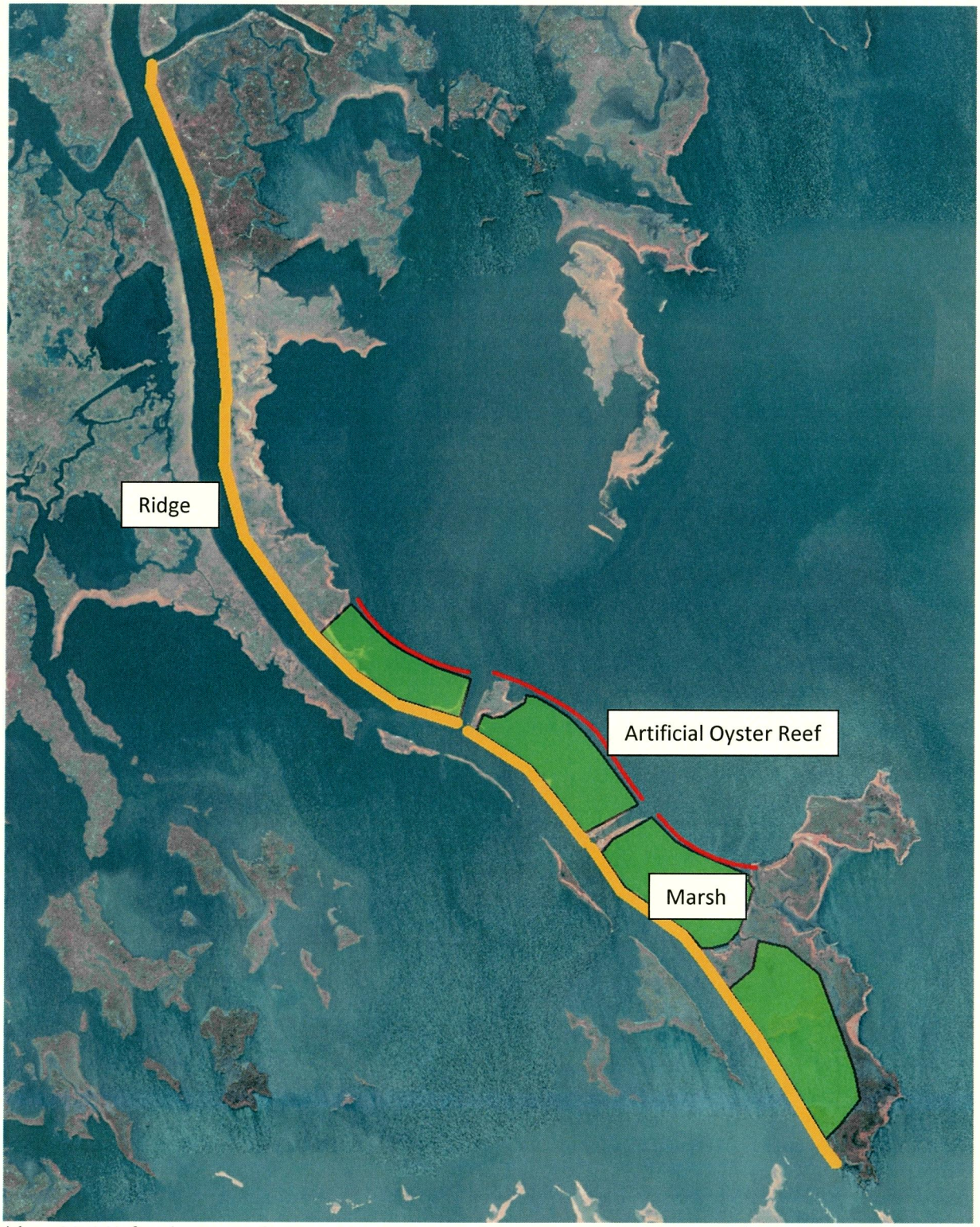
5) *What is the net impact of the project on critical and non-critical infrastructure?*
The project would help maintain Bayou Terrebonne which sees heavy commercial and recreational boat traffic. The ridge may offer some protection to infrastructure (LA-56) and communities to the west and north of the project.

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 other efforts to protect and restore Terrebonne Bay rim, including Terrebonne Bay Shore Protection Demonstration (TE-45), and Terrebonne Bay Marsh Creation and Nourishment Project (TE-83).

Preliminary Construction Cost +25% Contingency: $21.2M

Preparer of Fact Sheet
Stuart Brown, CPRA (225) 342-4736, stuart.brown@la.gov

Figure 1 - Bayou Terrebonne Ridge Restoration and Marsh Creation



Ridge: 20,461 feet long. 15 ft. top width. 7:1 side slopes. Target top elevation +5.2 ft.
Marsh Creation/Nourishment Cells: 214 acres. (An additional 7 acres of marsh will be created on the bayou side of the ridge feature). 7,100 feet of artificial oyster reef.

PPL-24
Bayou Terrebonne Ridge and Marsh Restoration

1/28/2014

Bayou Terrebonne Ridge South Increment

Ridge: 21,000 feet long. 15 ft. top width. 7:1 side slopes. Target top elevation +5.2 ft.

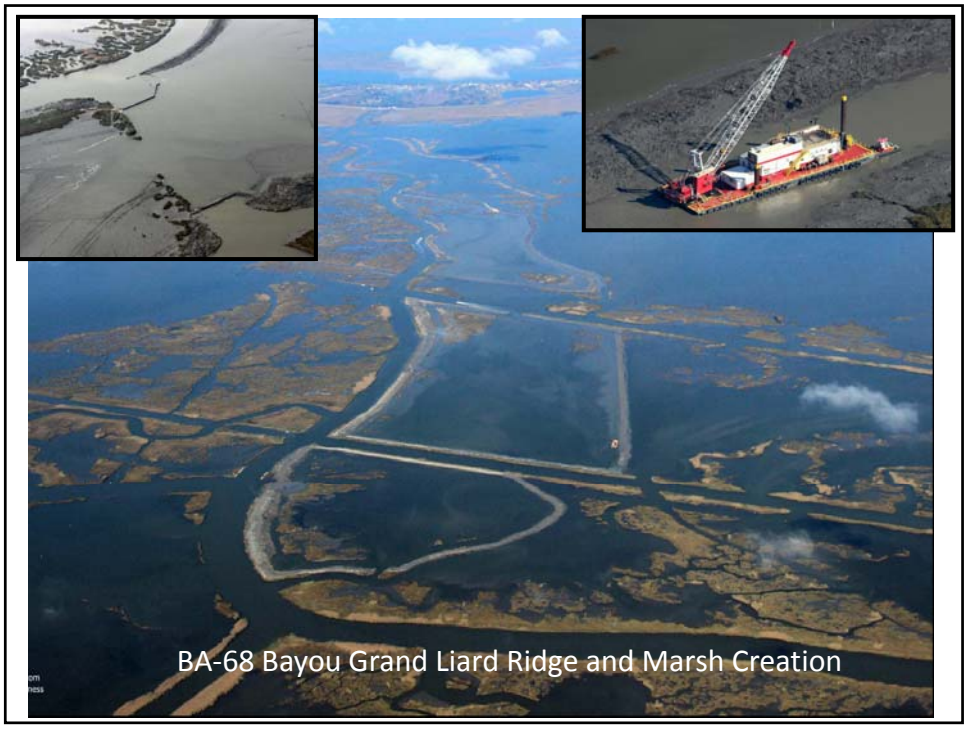
Marsh: 200 acres.

7,100 ft of artificial oyster reef.

Borrow material will be dredged form a noncontiguous borrow area in Bayou Terrebonne.

Preliminary Construction + 25% =
$21.2M

BA-48 Bayou Dupont Ridge and Marsh Creation


BA-68 Bayou Grand Liard Ridge and Marsh Creation

R3-TE-12

East Catfish Lake Marsh Creation & Terracing

R3-TE-12

PPL25 PROJECT NOMINEE FACT SHEET
January 28, 2015

Project Name
East Catfish Lake Marsh Creation and Terracing

Project Location
Region 3, Terrebonne Basin, Lafourche Parish, east of Catfish Lake

Problem
Examination of historical aerial photography clearly indicates significant marsh loss around Catfish Lake. Subsidence, canal dredging, a lack of freshwater input, saltwater intrusion, and altered hydrology are all important factors contributing to this loss. Of particular note, is the area between Catfish Lake and Golden Meadow. Canal dredging, associated with oil and gas activities, has resulted in the rapid deterioration of this area. USGS calculated a 1985-2010 loss rate of -0.79% per year for the PPL22 North Catfish Lake Marsh Creation Project.

Goals
Goals are to restore a portion of the eastern Catfish Lake shoreline via marsh creation and restore marsh along the alignment of the Golden Meadow hurricane protection levee.

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 and Louisiana eyed silkmoth which are both petitioned for listing as threatened/endangered species. The project could also benefit other at-risk species including the peregrine falcon, osprey, diamondback terrapin, and seaside sparrow.

Proposed Solution
1. Sediments will be hydraulically dredged in Catfish Lake and pumped via pipeline to create/nourish approximately 610 acres of marsh. The maximum pump distance for a Catfish Lake borrow site is approximately 31,000 feet (5.9 miles).
2. Containment dikes will be constructed as necessary and gapped upon project completion.
3. Terraces (26,000 linear ft-18 ac) will be constructed in deteriorated marsh areas to reduce fetch, promote SAV production, and provide marsh edge habitat.

Preliminary Project Benefits
1) *What is the total acreage benefited both directly and indirectly*? Approximately 1,070 acres would be benefited directly and indirectly. Direct benefits include 610 acres of marsh creation and 18 acres of terraces. Indirect benefits would occur to surrounding marshes and within the 460-acre 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 501 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.* The project would restore marsh along the eastern Catfish Lake shoreline.

5) *What is the net impact of the project on critical and non-critical infrastructure*? The project would afford protection to the Golden Meadow Hurricane Protection Levee.

6) *To what extent does the project provide a synergistic effect with other approved and/or constructed restoration projects*? The project would complement other restoration projects in the area including the PPL22 North Catfish Lake Marsh Creation Project and CIAP/Parish marsh creation projects in the Catfish Lake area.

Identification of Potential Issues
Oil and gas infrastructure and oyster leases in Catfish Lake.

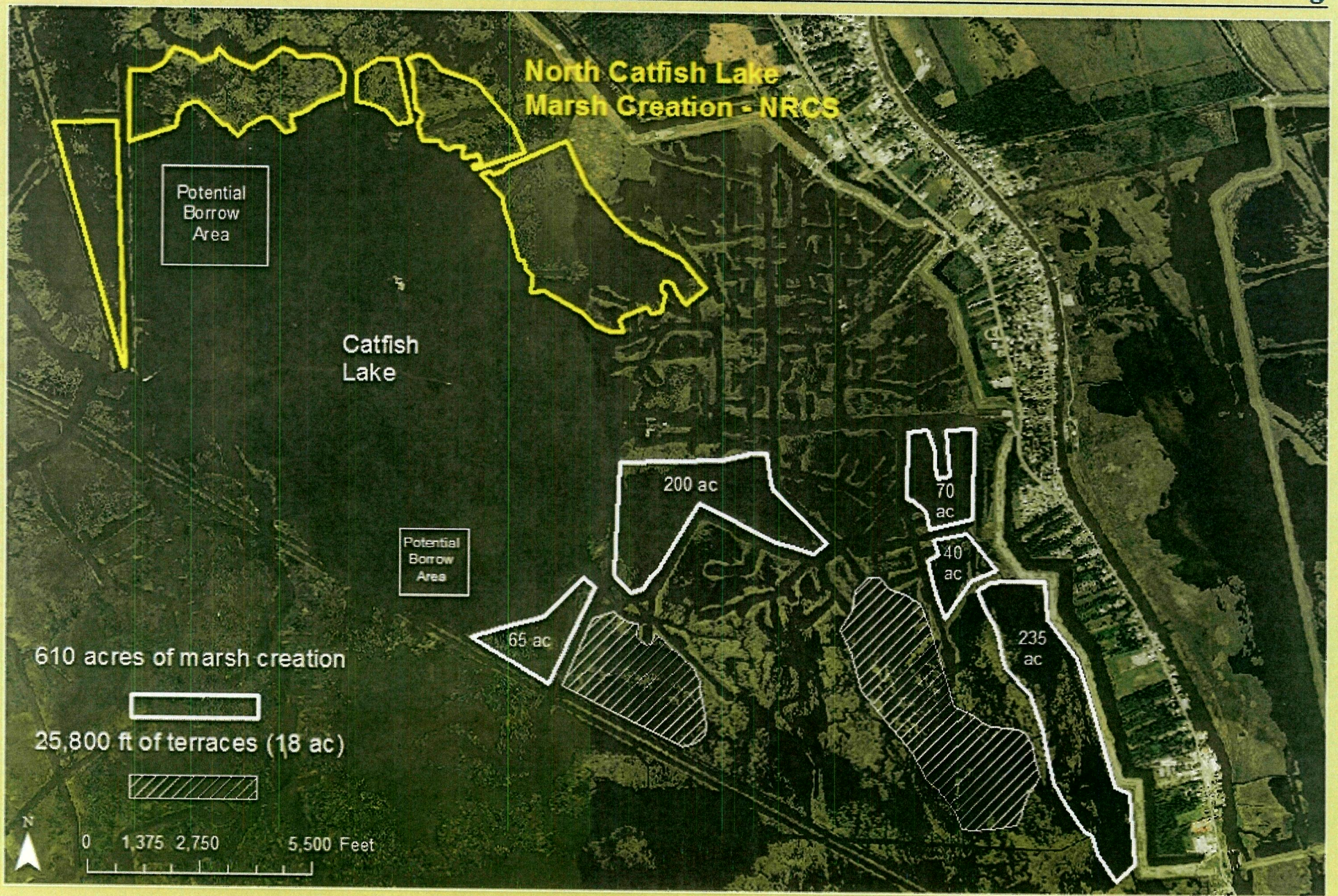
Preliminary Construction Costs
The estimated construction cost including 25% contingency is $25,860,302.

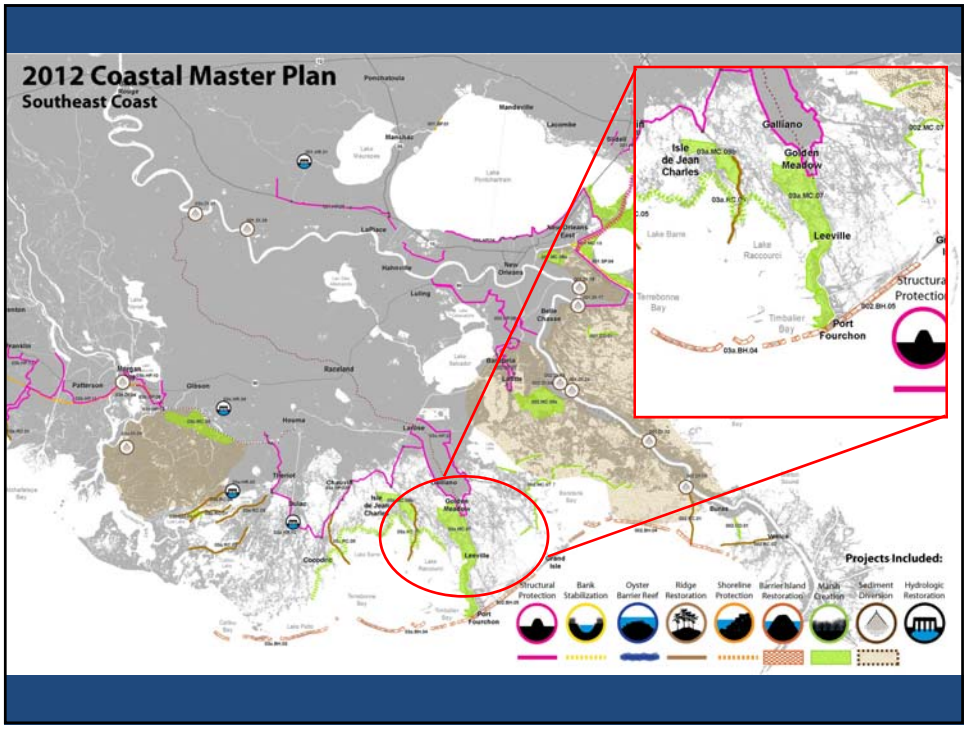
Preparer of Fact Sheet
Kevin Roy, USFWS, (337) 291-3120, kevin_roy@fws.gov

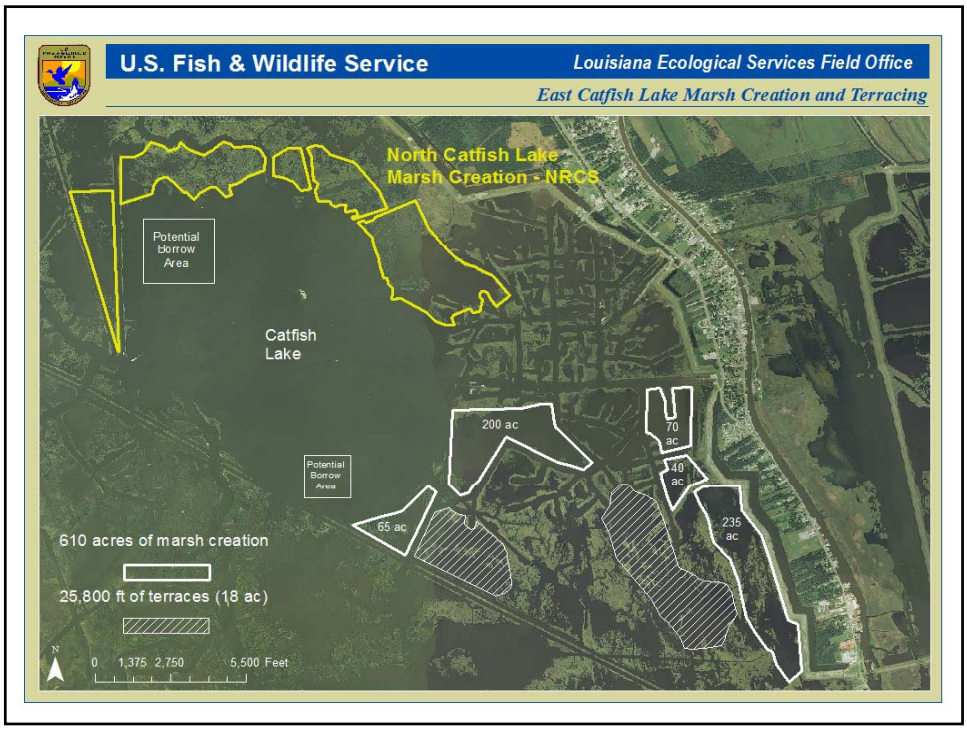
U.S. Fish & Wildlife Service

Louisiana Ecological Services Field Office

East Catfish Lake Marsh Creation and Terracing




2012 Coastal Master Plan
Southeast Coast
Galliano
Isle de Jean Charles
Golden Meadow
Leeville
Port Fourchon
Projects Included:
Structural Protection
Bank Stabilization
Oyster Barrier Reef
Ridge Restoration
Shoreline Protection
Barrier Island Restoration
Marsh Creation
Sediment Diversion
Hydrologic Restoration


U.S. Fish & Wildlife Service
Louisiana Ecological Services Field Office
East Catfish Lake Marsh Creation and Terracing
North Catfish Lake - Marsh Creation - NRCS
Potential Borrow Area
Catfish Lake
200 ac
70 ac
40 ac
235 ac
65 ac
Potential Borrow Area
610 acres of marsh creation
25,800 ft of terraces (18 ac)
0 1,375 2,750 5,500 Feet

East Catfish Lake Marsh Creation and Terracing

- Catfish Lake borrow site
- Maximum pump distance of 31,000 feet
- 610 acres of marsh creation/nourishment
- 26,000 linear feet of terraces – 18 acres
- Net acres = 501
- Construction plus contingency = $25.9M

R3-TE-13

Small Bayou LaPointe Marsh & Ridge Restoration

R3-TE-13

PPL25 PROJECT NOMINEE FACT SHEET
January 28, 2015

Project Name
Small Bayou LaPointe Marsh and Ridge Restoration

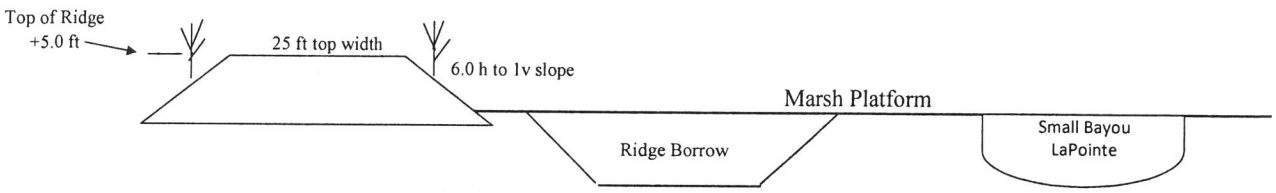
Project Location
Region 3, Terrebonne Basin, Terrebonne Parish, east of Raccourci Bay, adjacent to Small Bayou LaPointe

Problem
Examination of historical aerial photography clearly indicates significant marsh loss in the vicinity of the project area, particularly in the area between Small Bayou LaPointe and Bayou DeCade. Subsidence, canal dredging, saltwater intrusion, and altered hydrology are all important factors contributing to marsh loss in the area. USGS calculated a 1985-2009 loss rate of -0.45% per year for the Lake Mechant LCA polygon. In addition, forested ridge no longer exists along Small Bayou LaPointe. The ridge has subsided over several centuries and is now marsh.

Goals
The goals are to: 1) Restore 393 acres of intermediate/brackish marsh habitat along the northern side of Small Bayou LaPointe and 2) Restore ridge habitat along Small Bayou LaPointe.

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 and Louisiana eyed silkmoth which are both petitioned for listing as threatened/endangered species. Restoration of forested coastal ridge habitat would benefit neotropical migratory songbirds. The project could also benefit other at-risk species including the diamondback terrapin and seaside sparrow. The mottled duck, a priority species for the Gulf Coast Joint Venture, would also be benefited by the restoration of low-salinity brackish marsh habitat.

Proposed Project Features
1. Sediments will be hydraulically dredged in Lake Mechant and pumped via pipeline to create/nourish approximately 393 acres of marsh.
2. Containment dikes will be constructed as necessary and gapped upon project completion.
3. The maximum pump distance for the Lake Mechant borrow site is approximately 29,000 feet.
4. Approximately 18,500 ft (23 acres) of ridge will be constructed along the southern bank of Small Bayou LaPointe. Ridge material will be obtained north of the ridge alignment and the borrow area filled during construction of the marsh platform. Proposed ridge dimensions include a settled elevation of +5 ft, a 25 ft top width, 1V:6H side slopes, and a base width of 55 ft. Chinese tallow tree control and hardwood plantings are included.



Preliminary Project Benefits

1) *What is the total acreage benefited both directly and indirectly*? Approximately 393 acres of marsh would be benefited directly from marsh creation. Ridge restoration would result in 23 acres of ridge habitat.

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 279 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. The project would restore a forested ridge along Small Bayou LaPointe.

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

6) *To what extent does the project provide a synergistic effect with other approved and/or constructed restoration projects*? The project would provide a synergistic effect with the North Lake Mechant Landbridge Restoration Project (TE-44) located to the west. Both projects would work together to maintain ridge/marsh landbridge along the intermediate zone between Lake Mechant and Bayou DeCade.

Identification of Potential Issues

Oyster leases in Lake Mechant.

Preliminary Construction Costs

The estimated construction cost including 25% contingency is $24.7M.

Preparer of Fact Sheet

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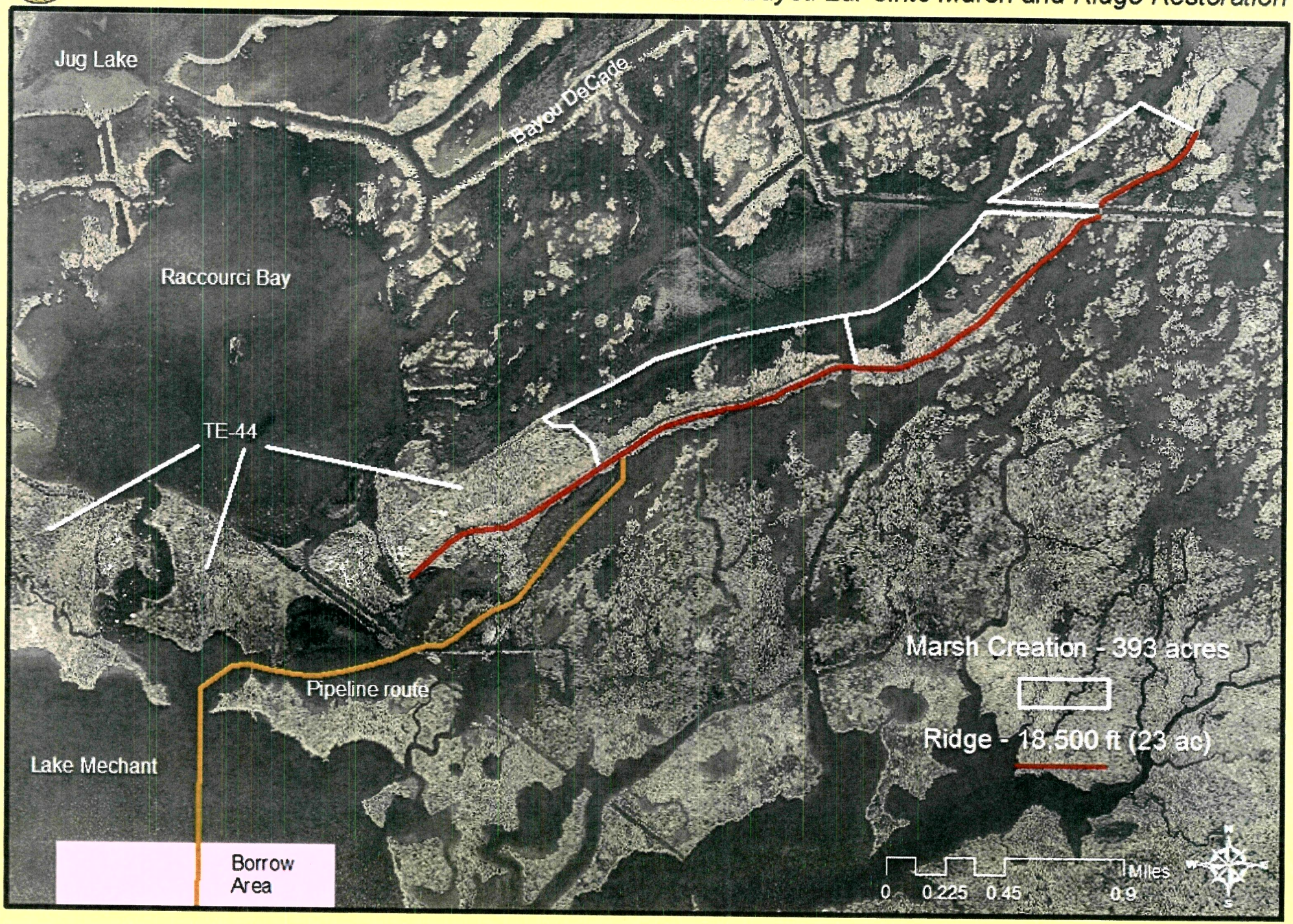
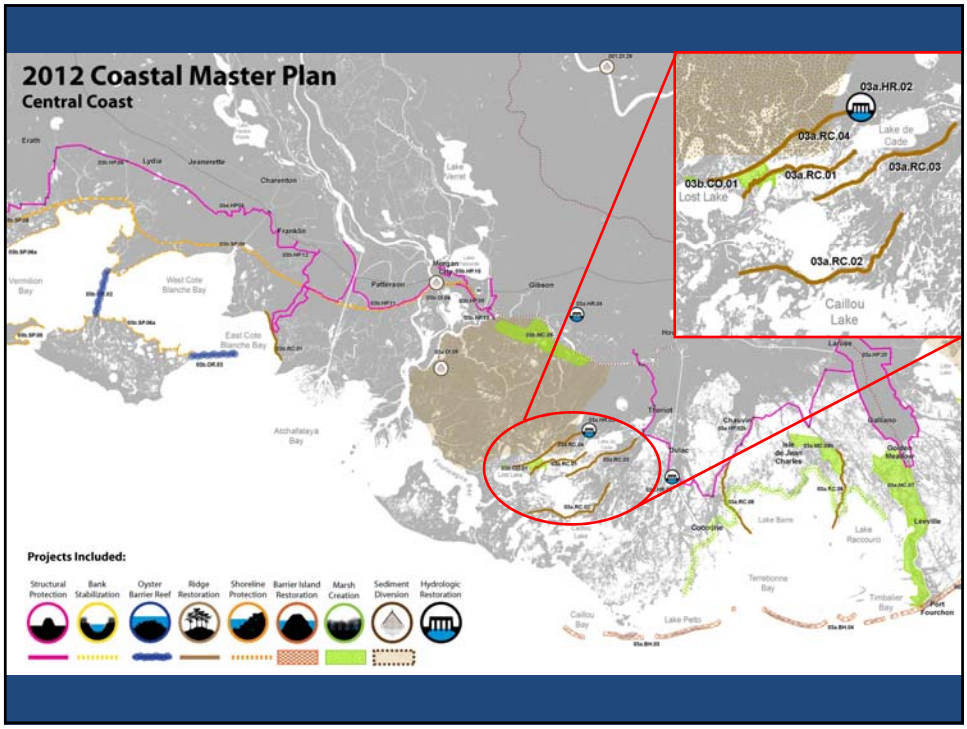
U.S. Fish & Wildlife Service

Louisiana Ecological Services Field Office

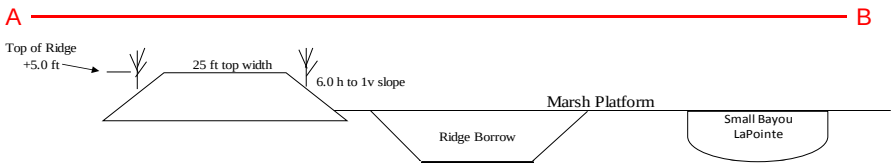
Small Bayou LaPointe Marsh and Ridge Restoration

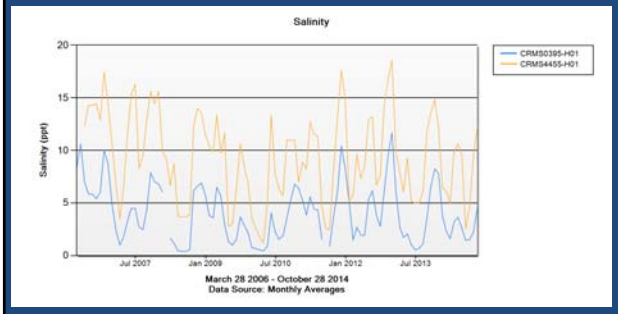



2012 Coastal Master Plan
Central Coast
03a.HR.02
03a.RC.04
03a.RC.01
03a.RC.03
03b.CO.01
Lost Lake
03a.RC.02
Caillou Lake
Projects Included:
Structural Protection
Bank Stabilization
Oyster Barrier Reef
Ridge Restoration
Shoreline Protection
Barrier Island Restoration
Marsh Creation
Sediment Diversion
Hydrologic Restoration


U.S. Fish & Wildlife Service
Louisiana Ecological Services Field Office
Small Bayou LaPointe Marsh and Ridge Restoration
Jug Lake
Bayou DeCade
Raccourci Bay
TE-44
Pipeline route
Lake Mechant
Borrow Area
Marsh Creation - 393 acres
Ridge - 18,500 ft (23 ac)
0 0.225 0.45 0.9
Miles

Small Bayou LaPointe Ridge Feature





Advantages of Small Bayou LaPointe Site

1) Lower Salinity
   4 ppt vs 9 ppt

2) More protected

3) No camps!

Small Bayou LaPointe Marsh and Ridge Restoration

- Lake Mechant borrow site
- Maximum pump distance of 29,000 feet
- 393 acres of marsh creation/nourishment
- 18,500 ft of ridge restoration (23 ac)
- Net acres = 279
- Construction plus contingency = $24.7M

Questions?

R3-TE-14

Raccoon Island West Restoration

R3-TE-14

PPL25 PROJECT NOMINEE FACT SHEET
January 2015

Project Name:
Raccoon Island West Reclamation Project

Project Location:
Region III, Terrebonne Basin, Terrebonne Parish, Isle Dernieres Barrier Islands Refuge

Master Plan:
Project No. 03a.BH.03

Problem:
The Isles Dernieres barrier island chain is experiencing some of the highest rates of erosion of any coastal region in the world. A simple analysis of aerial imagery from 1998 to 2008 revealed an average loss of 110 feet per year on the western portion of Raccoon Island (i.e., the spit), which is the western most island of the chain. Raccoon Island serves as breeding bird habitat for a variety of avian species including brown pelicans, terns, gulls, and wading birds. During peak years of nest success, well over 30,000 nests have been documented at Raccoon Island. As a result of erosional processes (particularly hurricane activity over the past 10 years), the western end of Raccoon Island has degraded to roughly 20 acres and is at risk of being a subaqueous sand shoal in the near future. This portion of the island no longer serves as breeding bird habitat due to lack of elevation and rapid shoreline loss. The subaqueous sand shoal that exists offshore on the southeast corner of the island that provides littoral material to the segmented breakwaters and areas west has also been substantially depleted over time.

Goals:
The goal of this project is to restore the western portion of Raccoon Island to pre-2005 & 2008 hurricane conditions and provide a sustaining mechanism to preserve newly created areas.

Proposed Solutions:
Project features include the restoration of approx. 100 acres of comparable barrier island habitat between the existing island and spit (breached area). This area of the island would be recreated/restored by depositing offshore dredge material within a contained area. Vegetative plantings, both herbaceous and woody, will follow the construction of the newly created platform to provide improved breeding bird habitat and to stabilize the island. A westward extension of the existing segmented breakwaters would provide protection and a recovery mechanism for impending storm events. A terminal groin placed on the western tip of the spit would enhance retaining long shore sediments and further stabilize that end of the island. Replenishment of the eastern subaqueous sand shoal would make long-shore/cross-shore littoral material available to further sustain a sediment source to western areas of the island.

Preliminary Project Benefits:
The western side of Raccoon Island will be restored to productive avian habitat and expand the storm buffering capabilities of the Isle Dernieres barrier island chain. Approximately 100 acres of subtidal, tidal, and emergent marsh habitat will be created and protected over the life of the project. The sustainability of accreted gulf shoreline areas will be greatly enhanced. The proposed project will have a significant synergistic effect on the existing Raccoon Island CWPPRA restoration projects (TE-48 and TE-29).

Identification of Potential Issues:
There are no potential issues anticipated with this proposed project.

Preliminary Construction Costs:
The anticipated construction cost, with 25% contingency, is $25 million.

Preparer(s) of Fact Sheet:
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Loland Broussard, (337) 291-3069, loland.broussard@la.usda.gov


PPL-25 Raccoon Island Project
D
C
B
A
Project Features
A - Sand Shoal Replenishment
B – Segmented Breakwaters
C – Breach Closure
D – Terminal Groin
Note: Sediment budget will be done in Phase 1
On cores taken from Coupe Colin to Raccoon Pt.

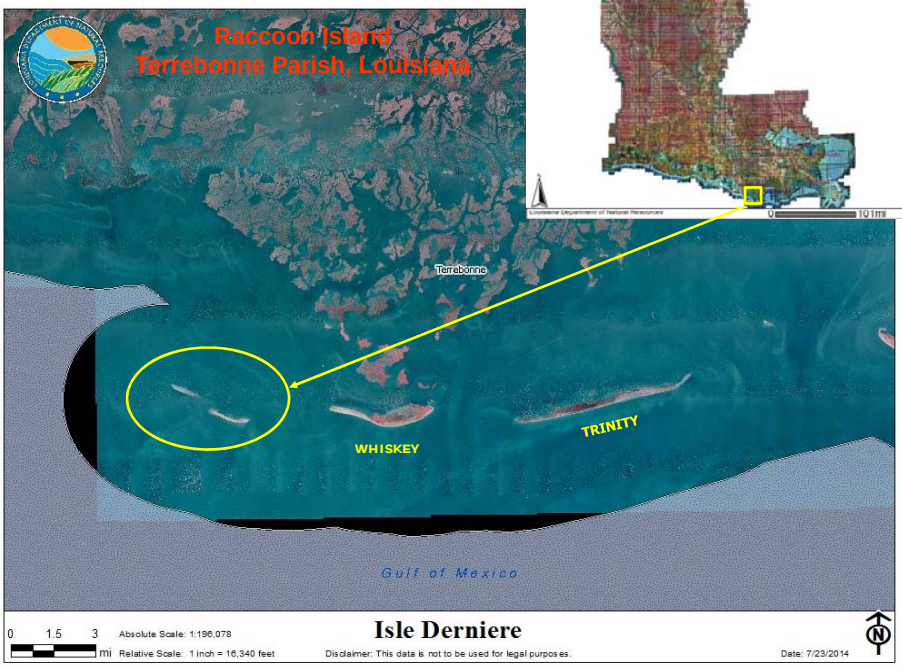
REGION III

Terrebonne Basin

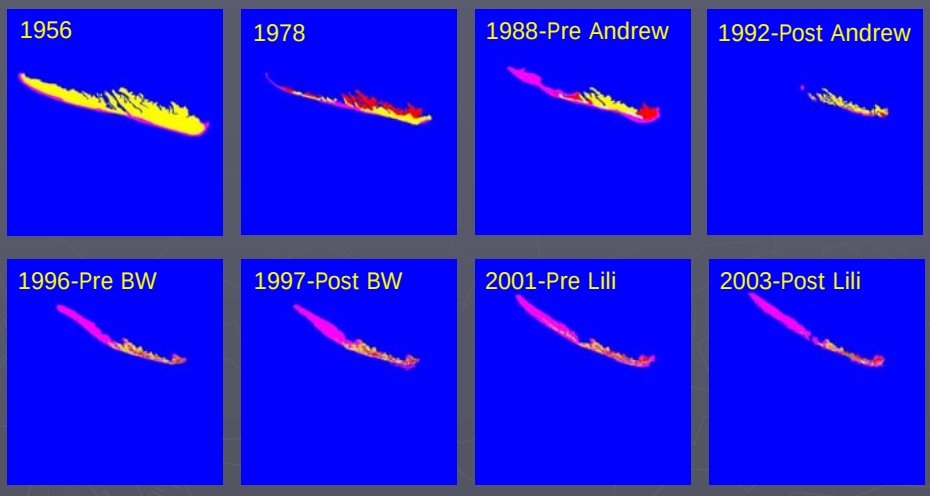
PPL25 RPT MEETING

January 28, 2015

Raccoon Island West Reclamation Project

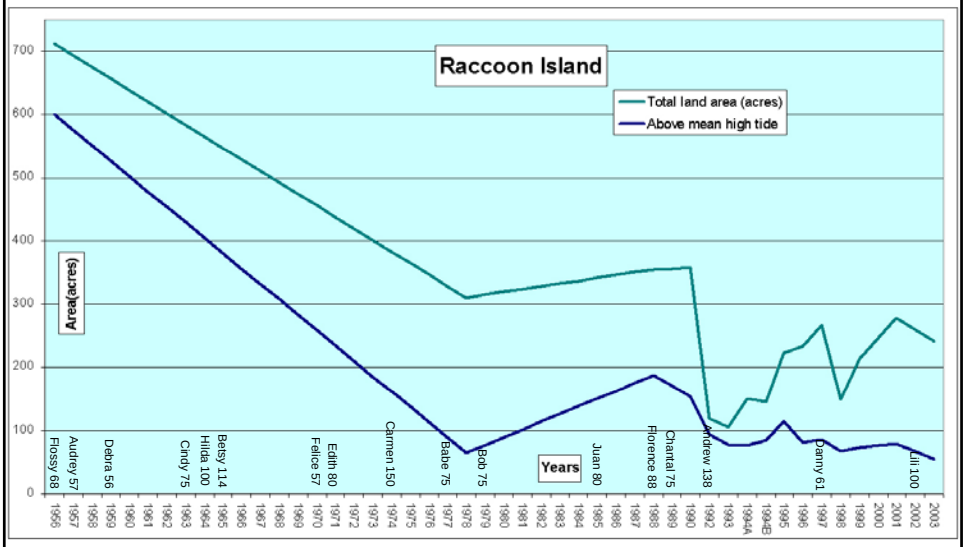


From Handley and Wells 2005, Raccoon Habitats 2001-2003, USGS Report



NRCS

From Handley and Wells 2005, Raccoon Habitats 2001-2003, USGS Report



Changes in island area from 1956 to 2003. Dates between 1956 and 1978 are derived from linear interpolation as are dates between 1978 and 1988, 1988 to 1992, 1998 to 2000, and 2001 to 2003. Hurricanes that passed within 50 mile radius of the island were modeled for wind speed and direction in relation to Raccoon Island. Numbers after storm names indicate modeled wind velocities in miles per hour.


PPL-25 Raccoon Island Project
D
C
B
A
Project Features
A - Sand Shoal Replenishment
B – Segmented Breakwaters
C – Breach Closure
D – Terminal Groin
Note: Sediment budget will be done in Phase 1
On cores taken from Coupe Colin to Raccoon Pt.

R3-TE-15

West Leeville Marsh Creation & Shoreline Protection

~~BA-EC~~
RB-TE-15

PPL25 PROJECT NOMINEE FACT SHEET
January 28, 2015

Project Name
West Leeville Marsh Creation and Shoreline Stabilization

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

Project Location
Region 2, Terrebonne Basin. The project is located to the south of the Southwestern Louisiana Canal and west of Bayou Lafourche, southwest of the town of Leeville in Lafourche Parish, Louisiana.

Problem
The compound effects of subsidence, erosional forces, and human intervention have taken a toll on the Terrebonne Basin. 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. Oil and gas canal dredging is widespread within the project area, altering the hydrology and exacerbating the problem further. Wetlands have been replaced by open water where canals are dug, while spoil banks convert them to upland habitat. The natural banks of Bayou Lafourche and Southwest Louisiana Canal have been seriously impacted near the project area caused primarily by wave energy.

Goals
Create and nourish approximately 400 acres of emergent marsh and provide approximately 12,500 linear feet of shoreline stabilization along the northern and southern shorelines of the Southwestern Louisiana Canal within the project area.

Proposed Solution
The project proposes to create and nourish 400 acres of marsh using sediment from Little Lake. The project also includes armoring approximately 12,500 linear feet of shoreline along the northern and southern shorelines of the Southwestern Louisiana Canal.

Project Benefits
- The project will create/nourish 400 acres of emergent marsh habitat, and
- Armor approximately 12,500 linear feet of shoreline along the northern and southern shorelines of the Southwestern Louisiana Canal.

Preliminary Construction Costs
The preliminary project cost estimate with 25% contingency is approximately $24.3 million.

Preparer of Fact Sheet
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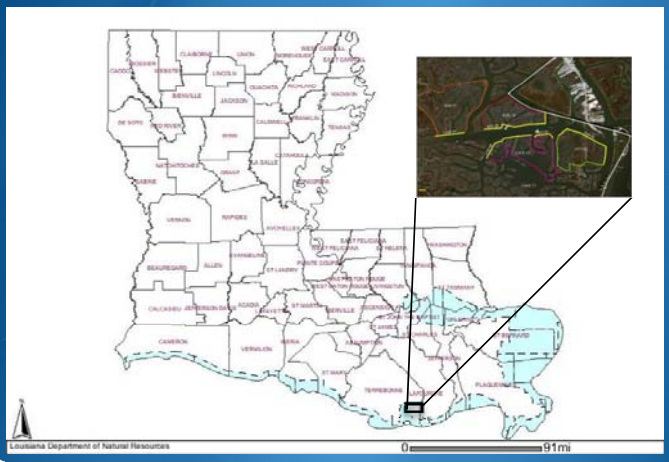
11660.52
8256.18
3672.22
1390.38
1000.26
3698.82
2780.88
15211.13
8273.62
13690.23
Leeville Canal Backfill and Marsh Creation
Basemap: 2013 NAIP DOQQ
Produced by: EPA Region 6, Dallas, TX
N
Miles
0 0.075 0.15 0.3 0.45

West Leeville Marsh Creation and Shoreline Stabilization



Coastal Wetlands Planning, Protection and Restoration Act

Solution

State Master Plan: 03a.MC.07 Belle Pass-Golden Meadow Marsh Creation (1st Period Increment): Creation of approximately 14,420 acres from Belle Pass to Golden Meadow to create new wetland habitat, restore degraded marsh, and reduce wave erosion.

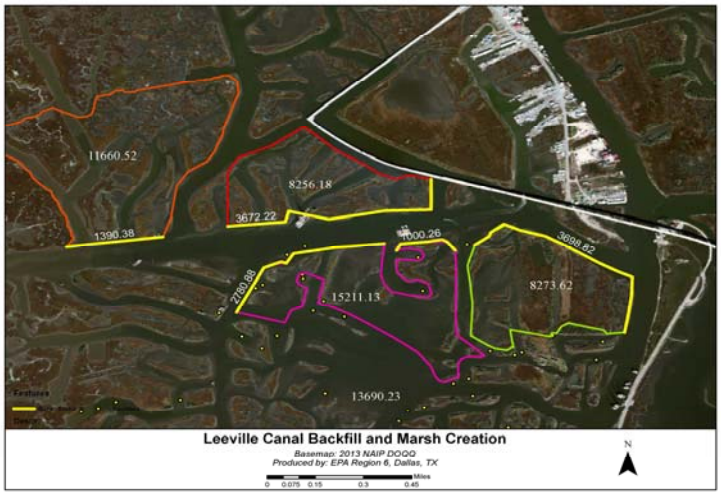
Coastal Wetlands Planning, Protection and Restoration Act

Problem

- Terrebonne Basin's vulnerability to land loss
  - ~324,000 ac lost from 1932-2010
  - Highest land loss rate across state from 1985-2004
- Compound effects driving marsh loss
  - Subsidence, storm losses, & human intervention
  - Numerous oil & gas canals in project area have altered hydrology

Coastal Wetlands Planning, Protection and Restoration Act

Project Features



Coastal Wetlands Planning, Protection and Restoration Act

Project Goals

- Create/nourish 400 acres emergent marsh with sediment from Little Lake
- Armor approximately 12,500 linear feet of shoreline along the Southwestern Louisiana Canal
- Estimated preliminary cost w/25% contingency is $24.3 million
- Fully funded cost range $25M-$30M.

Coastal Wetlands Planning, Protection and Restoration Act

Questions?

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EPA Region 6
chavarria.adrian@epa.gov

Coastal Wetlands Planning, Protection and Restoration Act