Coastal Wetlands Planning Protection & Restoration Act

32nd Priority Project List

Region 4

Regional Planning Team Meeting

Lead:
Kevin Roy, USFWS

February 8, 2022

Announcements

- PPL 32 RPT meetings to accept project nominees:
  - Region IV, Feb. 8, 2022, 9:30 am
  - Region III, Feb. 9, 2022, 9:30 am
  - Region II, Feb. 10, 2022, 9:30 am
  - Region I, immediately following Region II

Region 4 Parishes

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

RPT Meetings

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

RPT Meetings

- All proposals submitted in advance will go in the order indicated on the agenda.
- A request for all other proposals will occur after advance submissions.
- Limit project proposals to 5 minutes.
- Public comments on project proposals will be accepted verbally during the RPT meetings and in writing by February 17, 2022.
- Limit comments/questions during meeting to PPL 32 subject proposals and processes.

Coastwide Projects

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

Demonstration Projects

- Demonstrates a coastal wetlands restoration technique or material that can be transferred to other areas of the coastal zone
- Engineering/Environmental Workgroups will validate that demos fit CWPPRA Standard Operating Procedures criteria
- All coastal parishes & agencies will vote on selection of up to 6 demos.
- Previous demo candidates must be ***re-nominated*** for PPL 32.

Coastwide Electronic Vote (Feb. 24th) to select:

Projects per Basin

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

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

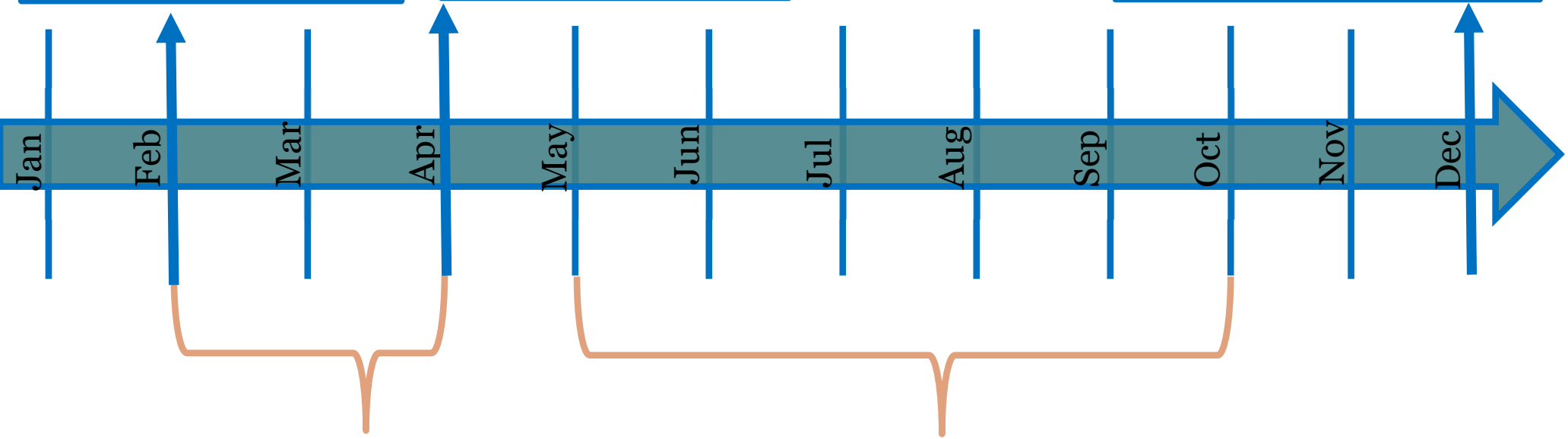
& up to 6 demos

PPL 32 Timeline

Coastwide Electronic Vote (24 Feb)
- 21 Basin
- 1 coastwide
- Up to 6 demos

April Technical Committee Mtg
- 10 candidates
- Up to 3 demos

December Technical Committee Mtg
- Recommend up to 4 projects for Phase 1 funding



March – April 2022
- Agencies assigned to projects
- Fact sheets developed
- Workgroup review
- Workgroups may recommend that no demos move forward

May – October 2022
- Site visits
- Workgroup evaluations

Written Comments

- Send written comments on projects & demos proposed today to the CWPPRA program manager
- **Deadline: February 17, 2022**

Sarah Bradley
U.S. Army Corps of Engineers
CEMVN-PM-R, RM 331
7400 Leake Avenue
New Orleans, LA 70118

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

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

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

Region 4

Mermentau

Agency	Region	Basin	Project ID	Project Name
NRCS	4	ME	R4, ME-01	East Joseph's Harbor Canal Shoreline Protection
NRCS	4	ME	R4, ME-02	Freshwater Bayou Marsh Creation - Increment 2
NRCS	4	ME	R4, ME-03	Mulberry Island Marsh Creation
FWS	4	ME	R4, ME-04	South Pecan Island Restoration
FWS	4	ME	R4, ME-05	Gulf Shoreline Protection - West
NMFS	4	ME	R4, ME-06	Highway 82 South Marsh Creation
NMFS	4	ME	R4, ME-07	Pecan Island Marsh Restoration

Calcasieu/Sabine

Agency	Region	Basin	Project ID	Project Name
NRCS	4	CS	R4, CS-01	East Cove South Marsh Creation
FWS	4	CS	R4, CS-02	East Prong Marsh Creation & Terracing
FWS	4	CS	R4, CS-03	West Cove Marsh Creation and Nourishment (REMOVED)
USACE	4	CS	R4, CS-04	Lambert Lake Marsh Creation
USACE	4	CS	R4, CS-05	Sabine Refuge Marsh Creation Cycles 8 and 9
EPA	4	CS	R4, CS-06	West Cove South Marsh Creation
EPA	4	CS	R4, CS-07	Mud Lake South Marsh Creation
NMFS	4	CS	R4, CS-08	Black Bayou South Marsh Creation & Nourishment
NMFS	4	CS	R4, CS-09	Mud Lake Peninsula Marsh Creation
NMFS	4	CS	R4, CS-10	Sweet Lake Marsh Creation
NMFS	4	CS	R4, CS-11	West Cove Living Shorelines

Region 4 PPL32 Nominated Projects

Calcasieu-Sabine Basin Project

R4-CS-01	East Cove South Marsh Creation
R4-CS-02	East Prong Marsh Creation and Terracing
R4-CS-04	Lambert Lake Marsh Creation
R4-CS-05	Sabine Marsh Creation Cycles 8 & 9
R4-CS-06	West Cove South Marsh Creation
R4-CS-07	Mud Lake South Marsh Creation
R4-CS-08	Black Bayou South Marsh Creation and Nourishment
R4-CS-09	Mud Lake Peninsula Marsh Creation
R4-CS-10	Sweet Lake Canal Marsh Creation
R4-CS-11	West Cove Living Shorelines

Mermentau Basin Project

R4-ME-01	East Joseph's Harbor Shoreline Protection
R4-ME-02	Freshwater Bayou Marsh Creation - Increment 2
R4-ME-03	Mulberry Island Marsh Creation
R4-ME-04	South Pecan Island Restoration
R4-ME-05	Gulf Shore Protection West
R4-ME-06	Highway 82 South Marsh Creation
R4-ME-07	Pecan Island Restoration

Coastwide Project

None

Demonstration Project

DEMO-01	Reefbud: Pursuit of Happiness Farms

4 0 4 8 Kilometers

4 0 4 8 Miles

Region 4 PPL 32
Regional Planning Team Meeting
Virtual Meeting
February 08, 2022
Background Image:
2014 Landsat OLI 8 Mosaic

CWPPRA RPT Region 4

Mermentau

PPL32 PROJECT FACT SHEET
February 8, 2022

Project Name
East Joseph's Harbor Shoreline Protection

Project Location
Region 4, Rockefeller Wildlife Refuge Gulf of Mexico shoreline from Joseph's Harbor Canal eastward for 3 miles.

Problem
Rockefeller Wildlife Refuge provides vital support to important fish and wildlife species. The gulf shoreline of the refuge is being severely impacted by wave & tidal energy impacts generated across the Gulf of Mexico. Wave energy and storm over-wash cause shoreline erosion and breaching of perimeter marshes that protect interior canals and lakes from gulf encroachment. The gulf rim is becoming a threat to the southern boundary of the Mermentau Basin. The 1999-2017 erosion rate along the project area's gulf shoreline averaged 50.2 ft/yr. The 1985-2020 USGS rate of land change for the Rockefeller shoreline mapping unit is -2.57% per year making this an extremely vulnerable area.

Goals
The goal of the project is to protect the gulf shoreline adjacent to the Rockefeller Wildlife Refuge marshes by installing shoreline protection.

Proposed Solutions
A lightweight aggregate core rock breakwater similar to the ME-18 project design will be installed along the shoreline extending from Joseph's Harbor canal east for approximately 3 miles. The project will be designed to reduce shoreline erosion and promote the natural development of oyster habitat and wetland vegetation colonization landward from the structure. Gaps in the breakwater will allow for movement of aquatic organisms and facilitate siltation behind the breakwater.

Preliminary Project Benefits
The project is expected to protect 360 acres of marsh and allow for natural recruitment of wetland vegetation on areas that shoal behind the breakwater.

Preliminary Cost
The fully funded cost range is $15-20M (construction +25%).

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

USDA

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

Data Source: ESRI - JANUARY 2021 IMAGERY

Map Date: JANUARY 27, 2022

PPL 32
EAST JOSEPH'S HARBOR CANAL
SHORELINE PROTECTION
CAMERON PARISH, LA

N
W E
S

Legend

SHORELINE_PROTECTION = 15,610 LF

PPL32
East Joseph's Harbor Canal Shoreline Protection

PPL32

East Joseph's Harbor Canal Shoreline Protection

PPL32
East Joseph's Harbor Canal Shoreline Protection

PPL32
East Joseph's Harbor Canal Shoreline Protection

Problem: Rockefeller Wildlife Refuge provides vital support to important fish and wildlife species. The gulf shoreline of the refuge is being severely impacted by wave & tidal energy impacts generated across the Gulf of Mexico. The shoreline is eroding at a rate of 50.2 ft per year.

Goals: The goal of the project is to protect the gulf shoreline adjacent to the Rockefeller Wildlife Refuge marshes by installing shoreline protection.

Solution: A lightweight aggregate core rock breakwater similar to the ME-18 project design will be installed along the shoreline extending from Joseph's Harbor canal east for approximately 3 miles.

Estimated Benefits: 360 acres
Estimated Cost: $15-20 million (w 25% contingency)

PPL32 PROJECT FACT SHEET
February 8, 2022

Project Name
Freshwater Bayou Marsh Creation – Increment 2

Project Location
Region 4, Mermentau Basin, Vermilion Parish, Louisiana, in an area west of Freshwater Bayou and north of the Freshwater Bayou Locks.

Problem
Dredging of the Freshwater Bayou Canal contributed to 2,610 acres of marsh lost in the area between 1956 and 1974. Saltwater intrusion caused vegetation die off resulting in a net loss of organic soils, and historically low energy freshwater marshes have shifted to tidally influenced, intermediate open water because of the construction of the navigation canal and the erosion of its spoil banks. Further, Hurricane Rita (2005) was responsible the loss of approximately 1,500 acres of marsh due to storm surge. The Freshwater Bayou Bank Stabilization (NAWCA) project and the Freshwater Bayou Wetlands Protection (ME-04) project have been implemented to restore the shoreline. Dedicated dredging is necessary to restore the marsh platform. USGS calculated a historical rate of change for an extended boundary in this area for the period 1984 to 2019. The loss rate during that period was -0.53%/year.

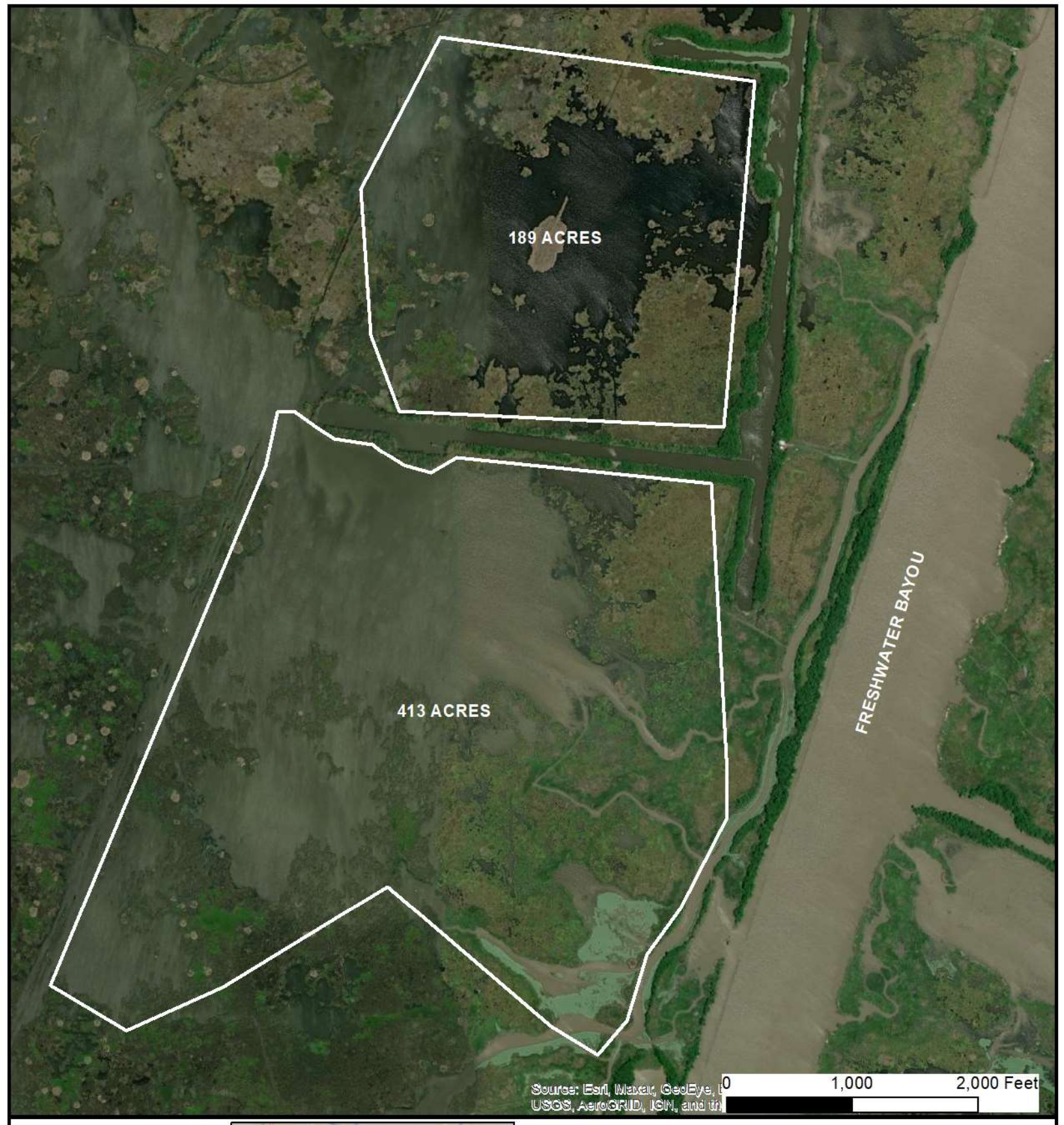
Goals
Restore marsh within the Freshwater Bayou Wetland Complex and along the bank line of the Freshwater Bayou Canal to buffer tidal exchange and reduce salinities within the complex. The project will work synergistically with other efforts to restore the historically low energy freshwater marshes in this area and is part of the State's 2017 Coastal Master Plan (Project ID: 004.MC.100).

Proposed Solution
Project features include creating and/or nourishing approximately 602 acres of marsh in two marsh creation areas using dedicated dredged material from the Freshwater Bayou Canal. Once pumping has been completed, the containment dikes will be gapped and/or degraded no later than TY3. Plantings are proposed at 50% of the project area should the area not vegetate naturally by TY3.

Project Benefits
The project would result in 356 net acres over the 20-year project life.

Project Costs
The construction cost is estimated at $20-25M

Contacts
Angela Trahan, NRCS, 337 291-3142, angela.trahan@usda.gov
Eric Whitney, NRCS, 337/291-3069, eric.whitney@usda.gov



USDA

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

Data Source: ESRI - FEBRUARY 2022

Map Date: JANUARY 27, 2015

PPL 32
FRESHWATER BAYOU
MARSH CREATION
INCREMENT 2
VERMILION PARISH, LA

N
W
E
S

Legend

MARSH_CREATION_INCREMENT_2

PPL32
Freshwater Bayou Marsh Creation – Increment 2

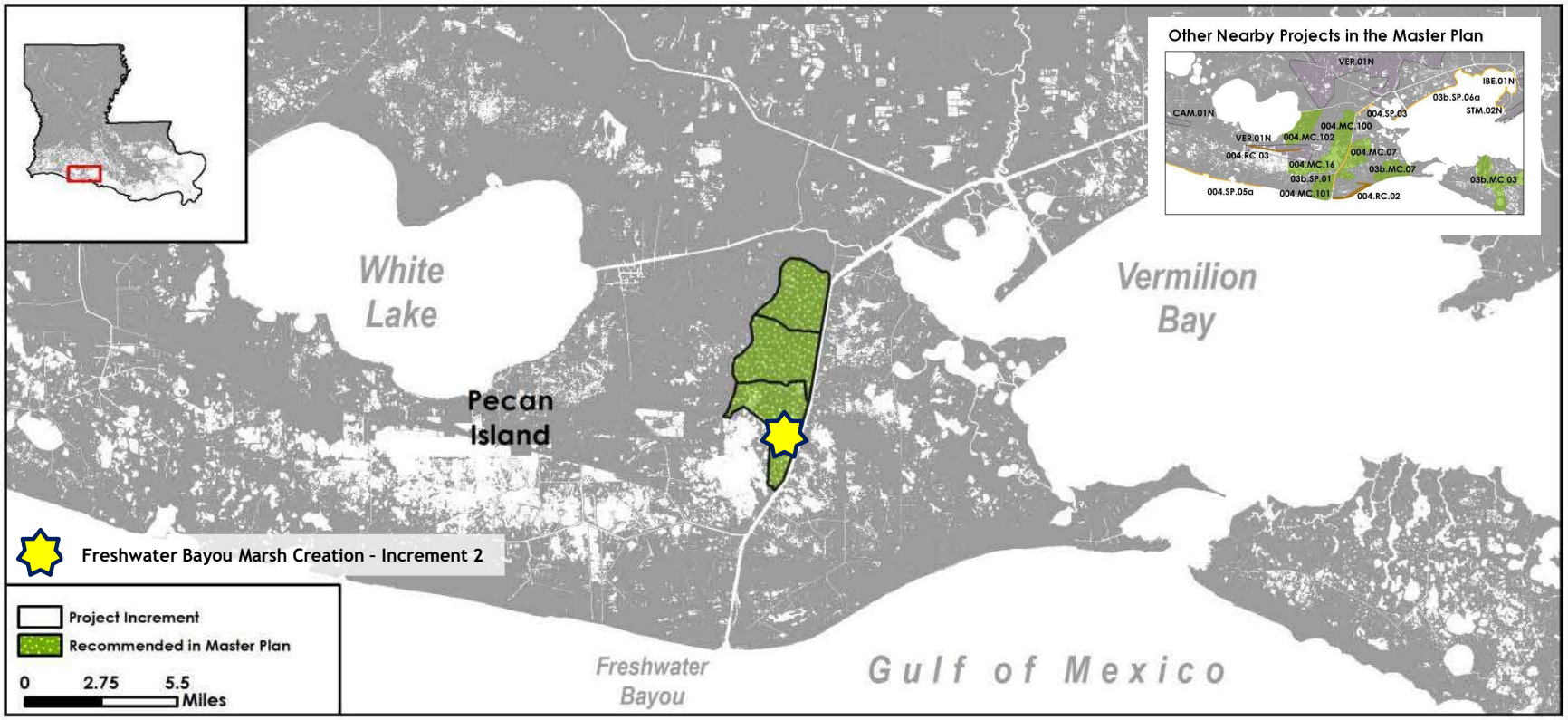
Region 4, Mermentau Basin

Contacts:
Angela Trahan, Angela.Trahan@USDA.gov, 337/291-3142
Eric Whitney, Eric.Whitney@usda.gov, 337/291-3069

Freshwater Bayou North Marsh Creation

Marsh Creation

Project ID: 004.MC.100



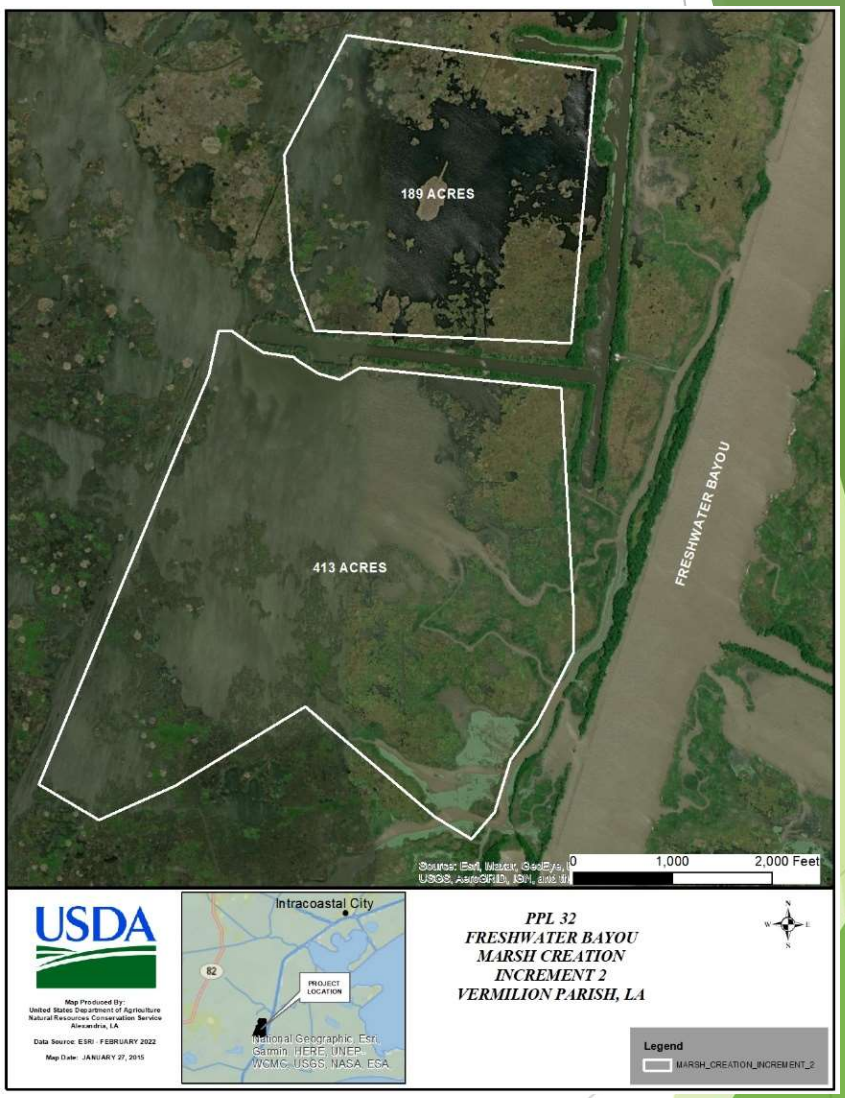
- Dredging of the Freshwater Bayou Canal contributed to 2,610 ac of marsh lost in the area between 1956-1974.
- Saltwater intrusion caused vegetation die off resulting in a net loss of organic soils.
- These historically low energy freshwater marshes have shifted to tidally influenced, intermediate open water.
- Further, Hurricane Rita (2005) was responsible the loss of approximately 1,500 acres of marsh due to storm surge.

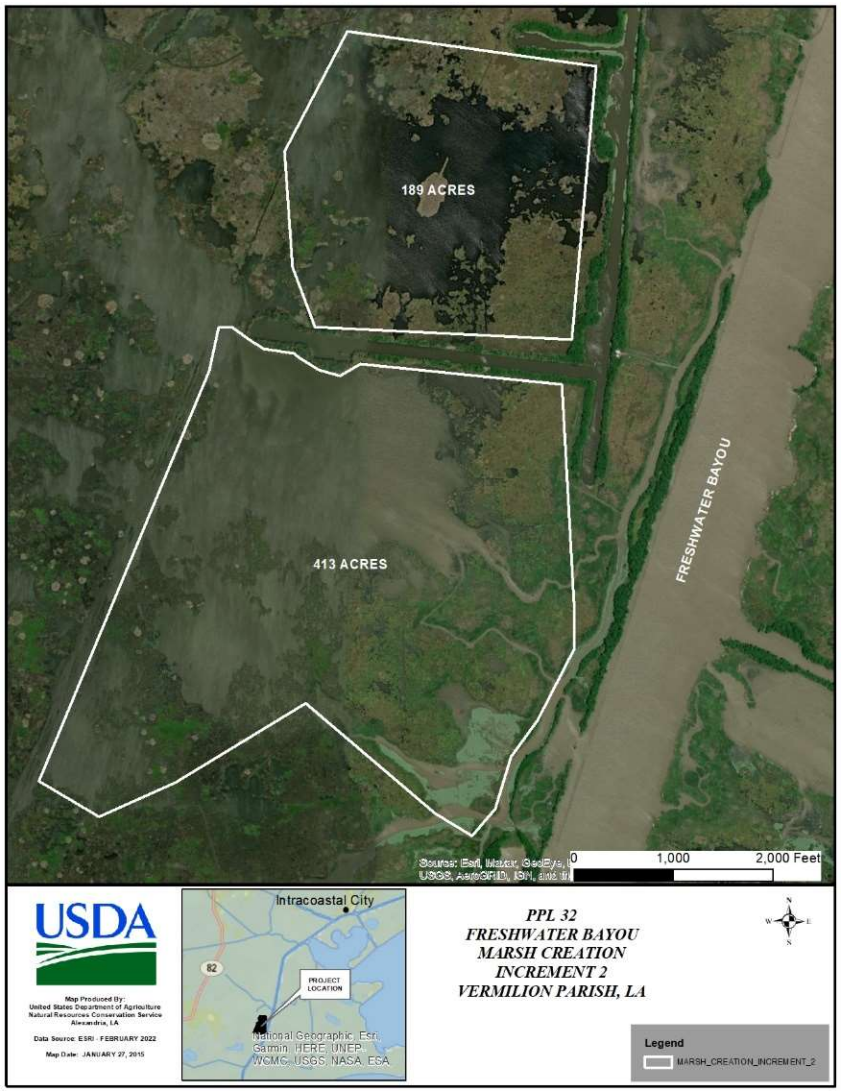
PPL32 – Freshwater Bayou MC – Increment 2

Goal:
Restore marsh within the Freshwater Bayou Wetland Complex and along the bank line of the Freshwater Bayou Canal.

Buffer tidal exchange and reduce salinities in the wetland complex

Work synergistically with other efforts to restore the historically low energy freshwater marshes in this area





Solution:

- 2 Marsh Creation Areas
- 602 acres Marsh Restoration
- Fully contained

Construction Cost Estimate = **$25-30M**

PPL32 PROJECT FACT SHEET
February 8, 2022

Project Name
Mulberry Island Marsh Creation

Project Location
Region 4, Mermentau Basin, Vermilion Parish, north of Mulberry Island and west of Freshwater Bayou Canal.

2017 Master Plan Strategy
004.MC.101: Freshwater Bayou South Marsh Creation

Problem
The marshes in this area have recently deteriorated due to impacts from Hurricane Laura and Delta in 2020, converting to large open water areas. Though there is currently still some protection in place by surrounding embankments and higher elevated land, the project area could become subject to increased tidal exchange and saltwater intrusion if the embankments on the northern boundary of the project area are eroded away, which are now exposed to open water on both sides. The large open water areas will cause the surrounding marsh and embankments to be subjected to increased wave fetch which could cause the area to further deteriorate, which could then affect the surrounding areas as well.

Goals
The goal of this project is to create and nourish marsh by using material dredged from the Gulf of Mexico to restore the project area and prevent the area from deteriorating further.

Proposed Solution
The project would create/nourish approximately 421 acres of marsh within the project area by hydraulically dredging material from the Gulf of Mexico. The project area will be contained by utilizing existing earthen embankments as well as building containment dikes around the project area to contain the fill material.

Preliminary Project Benefits
This project would create/nourish approximately 421 acres of marsh using hydraulically dredged material from the Gulf of Mexico.

Considerations
Considerations for this project include pipelines/utilities and land rights.

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

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

USDA

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

Data Source: ESRI - FEBRUARY 2019 IMAGERY

Map Date: JANUARY 31, 2022

PPL 32
MULBERRY ISLAND
MARSH CREATION
VERMILION PARISH, LA

N
W E
S

Legend

- MARSH_CREATION
- BORROW_AREA
- DREDGE_PIPE_CORRIDOR = 27,507.4 LF

PPL32
Mulberry Island Marsh Creation

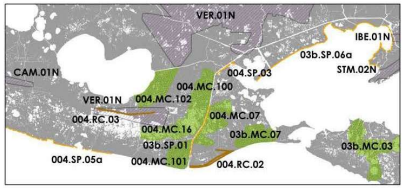
Region 4, Mermentau Basin, Vermilion Parish

United States Department of Agriculture
Natural Resources Conservation Service

Contacts:
Eric Whitney, eric.whitney@usda.gov, (337) 291-3069
Ron Boustany, ron.boustany@usda.gov, (337) 291-3067

2017 Master Plan Strategy

Other Nearby Projects in the Master Plan



Pre Laura/Delta Imagery – 12/02/2019

Imagery source: https://apps.sentinel-hub.com/sentinel-playground

Post Laura/Delta Imagery – 12/29/2021

Imagery source: https://apps.sentinel-hub.com/sentinel-playground

PPL32 – Mulberry Island Marsh Creation

Problem

- Impacts from Hurricanes Laura and Delta in 2020 have resulted in marsh loss within the project area
- Surrounding marsh and embankments are now subject to increased wave fetch due to newly enlarged open water areas, which could cause the area to further deteriorate.

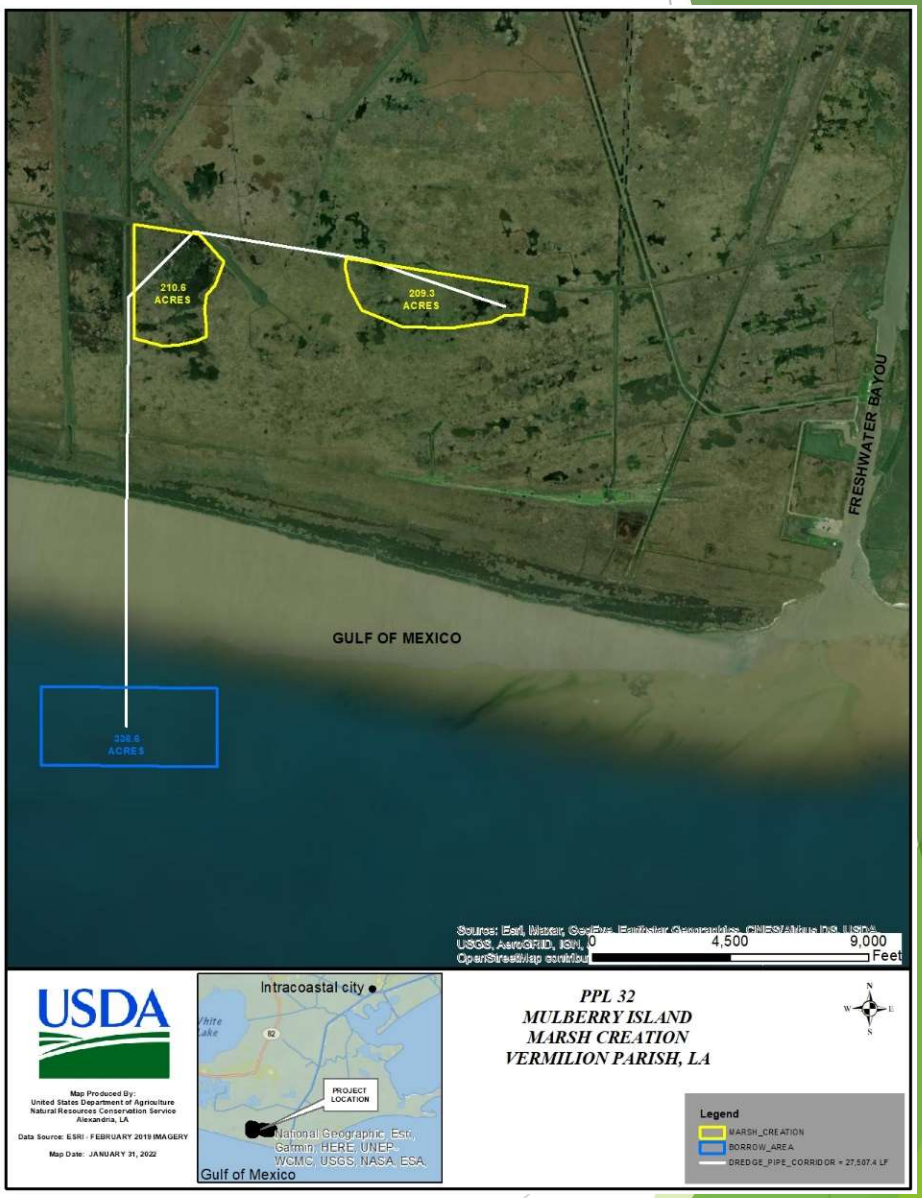
Goal

- Create/nourish marsh by using material dredged from the Gulf of Mexico to restore the project area and prevent the area from deteriorating further.

Proposed Solution:

- 2 Marsh Creation Areas
- 421 acres Marsh Creation/Nourishment
- Gulf of Mexico borrow
- Fully contained; potentially utilize existing embankments as well as building containment dikes

Estimated construction cost with contingency: **$25M - $30M**



PPL32 PROJECT NOMINEE FACT SHEET
February 2, 2022

Project Name
South Pecan Island Restoration

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

Problem
Wetland loss in the vicinity of the project area has been caused by impoundments, saltwater intrusion, and hurricane/storm events. Twenty-five percent of the 46,370 acres of marsh south of Pecan Island, from Freshwater Bayou Canal to Rollover Bayou, converted to open water from 1932 to 1990 (Coast 2050). Hurricanes Rita (2005) and Ike (2008) are responsible for much of the recent loss in the project area. A land change analysis conducted by USGS for 254 coastal subunits indicates a 1985-2020 land change rate of -0.21 %/yr for the Rockefeller-Pecan Island Subunit. A project-specific land change analysis conducted for the adjacent Southeast Pecan Island Marsh Creation and Terracing Project (PPL31 Candidate) yielded a 1984-2021 loss rate of -0.83 %/yr.

Goals
Create and nourish approximately 304 acres of intermediate to brackish marshes south of Pecan Island. Specific goals include: 1) Create 274 acres and nourish 30 acres of intermediate to low salinity brackish marsh and 2) Create 24,000 LF (13 acres) of terraces.

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

Proposed Solution
Sediments will be hydraulically dredged in the Gulf of Mexico and pumped via pipeline to create 274 acres and nourish 30 acres of intermediate to brackish marsh south of Pecan Island. Approximately 24,000 LF (13 acres) of earthen terraces will be constructed in open water areas totaling 347 acres. Containment dikes will be gapped or degraded and tidal creeks and ponds will be constructed post-construction in the marsh creation cells to restore area hydrology, allow fisheries access, and improve wetland productivity.

Project Benefits
The project would result in approximately 250-300 net acres over the 20-year project life.

Project Costs
The estimated construction cost plus 25% contingency is $30M - $35M.

Preparer of Fact Sheet
Kevin Roy, USFWS, kevin_roy@fws.gov, 337-291-3120
Billy Broussard, Vermilion Corporation, 337-893-0268, vc1958@vermcorp.com

U.S. Fish & Wildlife Service

Louisiana Ecological Services

Legend

- Management Unit
- Marsh Creation
- Terrace Field

PPL32
South Pecan Island Restoration
Vermilion Parish, Louisiana

REGION IV

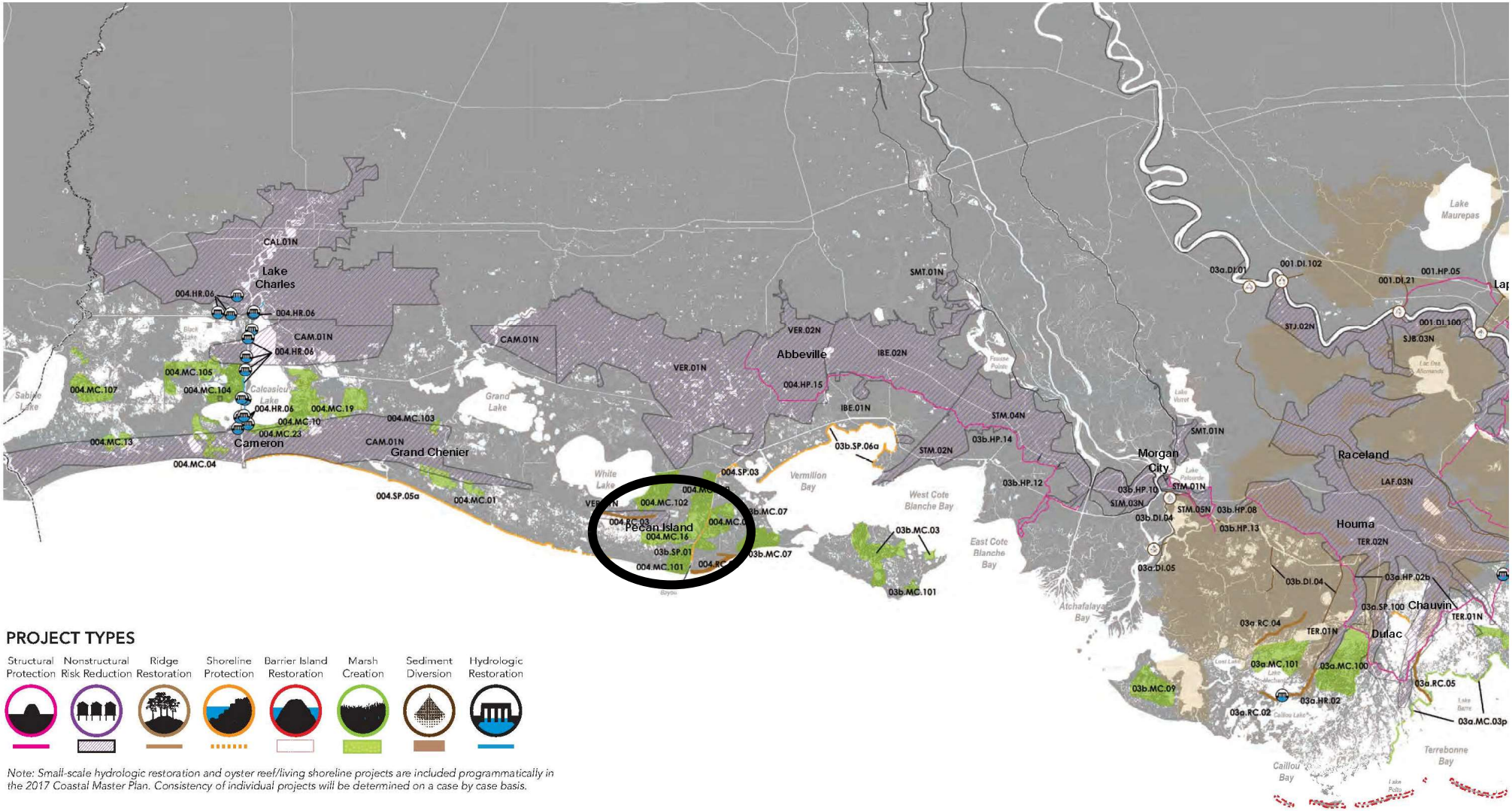
REGIONAL PLANNING TEAM MEETING

MERMENTAU BASIN

February 8, 2022

Kevin Roy
kevin_roy@fws.gov
337-291-3120

2017 State Master Plan – 004.MC.16 – East Pecan Island Marsh Creation



PROJECT TYPES

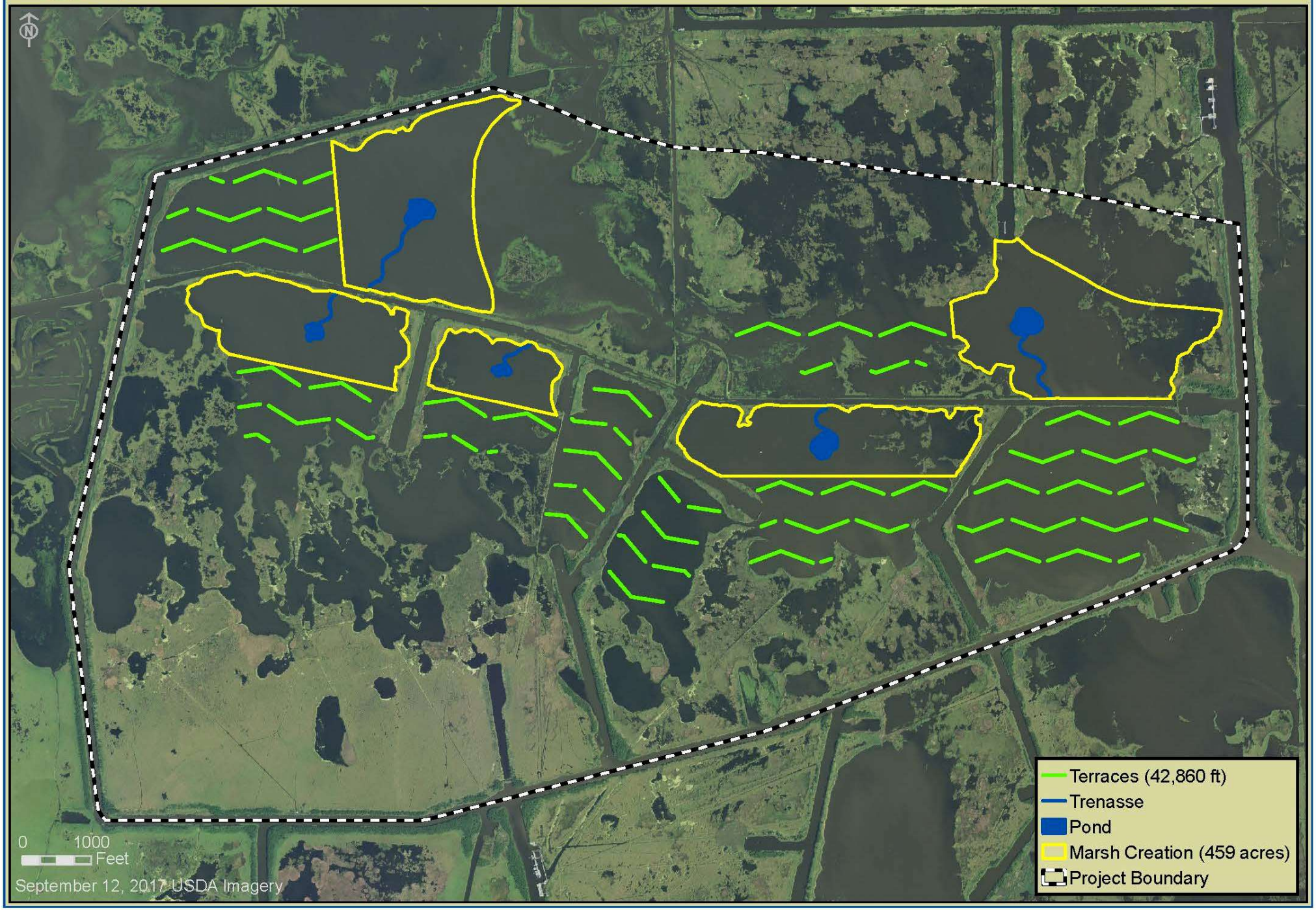
Structural Protection | Nonstructural Risk Reduction | Ridge Restoration | Shoreline Protection | Barrier Island Restoration | Marsh Creation | Sediment Diversion | Hydrologic Restoration

Note: Small-scale hydrologic restoration and oyster reef/living shoreline projects are included programmatically in the 2017 Coastal Master Plan. Consistency of individual projects will be determined on a case by case basis.

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

Louisiana Ecological Services

South Pecan Island Marsh Creation



U.S. Fish & Wildlife Service

Louisiana Ecological Services

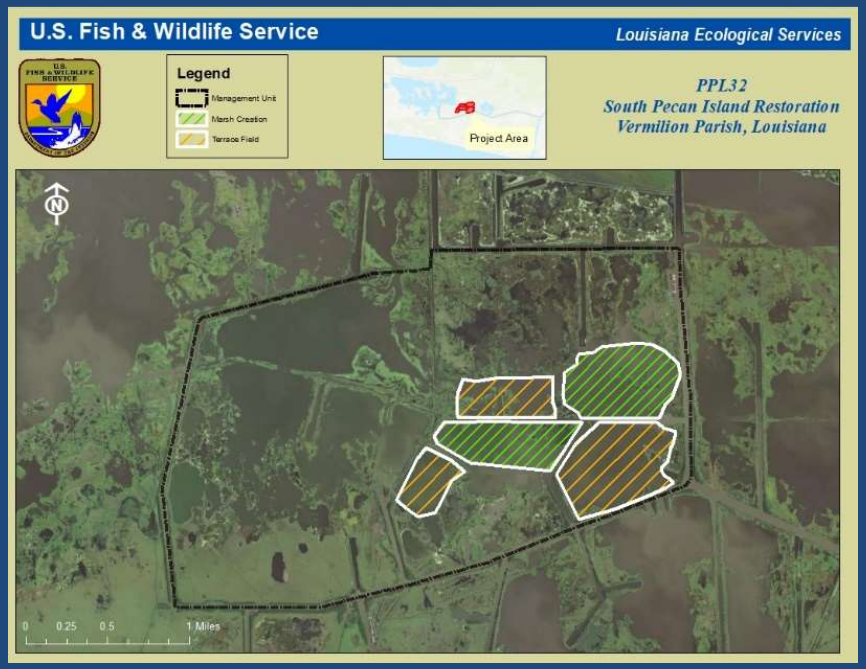
Legend

- Management Unit
- Marsh Creation
- Terrace Field

PPL32
South Pecan Island Restoration
Vermilion Parish, Louisiana

South Pecan Island Restoration

- 651 acres – total project footprint
- 274 acres MC and 30 acres MN
- 24,000 LF of terraces – 13 acres
- Net acres = 250-300
- Gulf of Mexico borrow site (2.1 MCY)
- Construction plus 25% contingency = $30M-$35M



Contributors:
Billy Broussard, Vermilion Corporation

PPL32 PROJECT NOMINEE FACT SHEET
February 8, 2022

Project Name
Gulf Shoreline Protection West

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

Problem
The area along Rockefeller Refuge between Josephs Harbor and Price Lake Road, the Gulf of Mexico shoreline erosion rate has been estimated to be 46 feet per year (1998 to 2010). After recent hurricanes in 2020 the erosion rate is probably even higher. This is the equivalent to approximately 14 acres of shoreline lost per year in the project area. Without protection, the Refuge shoreline will continue to retreat landward, leaving less marsh complex, which could have substantial impacts on the Refuge (including resident endangered species) as well as the surrounding area. Without stabilizing the Gulf shoreline at Rockefeller Refuge, the shoreline may retreat over 900-ft within a 20-year timespan.

Goals
The project goal is to halt erosion of the Gulf shoreline erosion by along a critical 2.5-mile-long reach where continued erosion will threaten the integrity of Price Lake Road and the watershed within Rockefeller Refuge. A total of 279-ac would be protected by the project.

Service goals include the protection of shoreline beaches designated as critical habitat for the threatened piping plover and beaches used by the threatened red knot. The project would also prevent the loss of back beach marshes which is known occupied habitat for the recently listed black rail.

Proposed Solution
The proposed project is similar to the Rockefeller Refuge Gulf Shoreline Stabilization Project (ME-18). The project would construct a 2.5-mile-long foreshore breakwater with light weight aggregate core along the -3.5-ft (NAVD88) contour (approximately 150-ft offshore) generally follow the shape of the shoreline. It would extend from the spot where the ME-37 project ends and parallel the shoreline for 2.5 miles with gaps every 1,500- ft. The project feature may trap sediments from the gulf, which could result in accretion behind the breakwater as has occurred at ME-18. This could be constructed with the ME-35 project which is being designed.

Preliminary Project Benefits

1) *What is the total acreage benefited both directly and indirectly?*
   The total project area is approximately 279 acres would be benefited directly. Indirect benefits could occur due to land creation between the breakwater and shoreline.

2) *How many acres of wetlands will be protected/created over the project life?*
   The net acre benefit range is 200-250 acres after 20 years.

3) *What is the anticipated loss rate reduction throughout the area of direct benefits over the project life (e.g., 50% reduction in the background loss rate)? >75%*
A 93% loss rate reduction is assumed for the Target Years 1-10 and 75% for Target Years 11-20. (Workgroup assumptions for Flat Lake)

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

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 synergistic effects with ME-18, ME-35, ME-37, and the ME-20 project which is currently under construction.

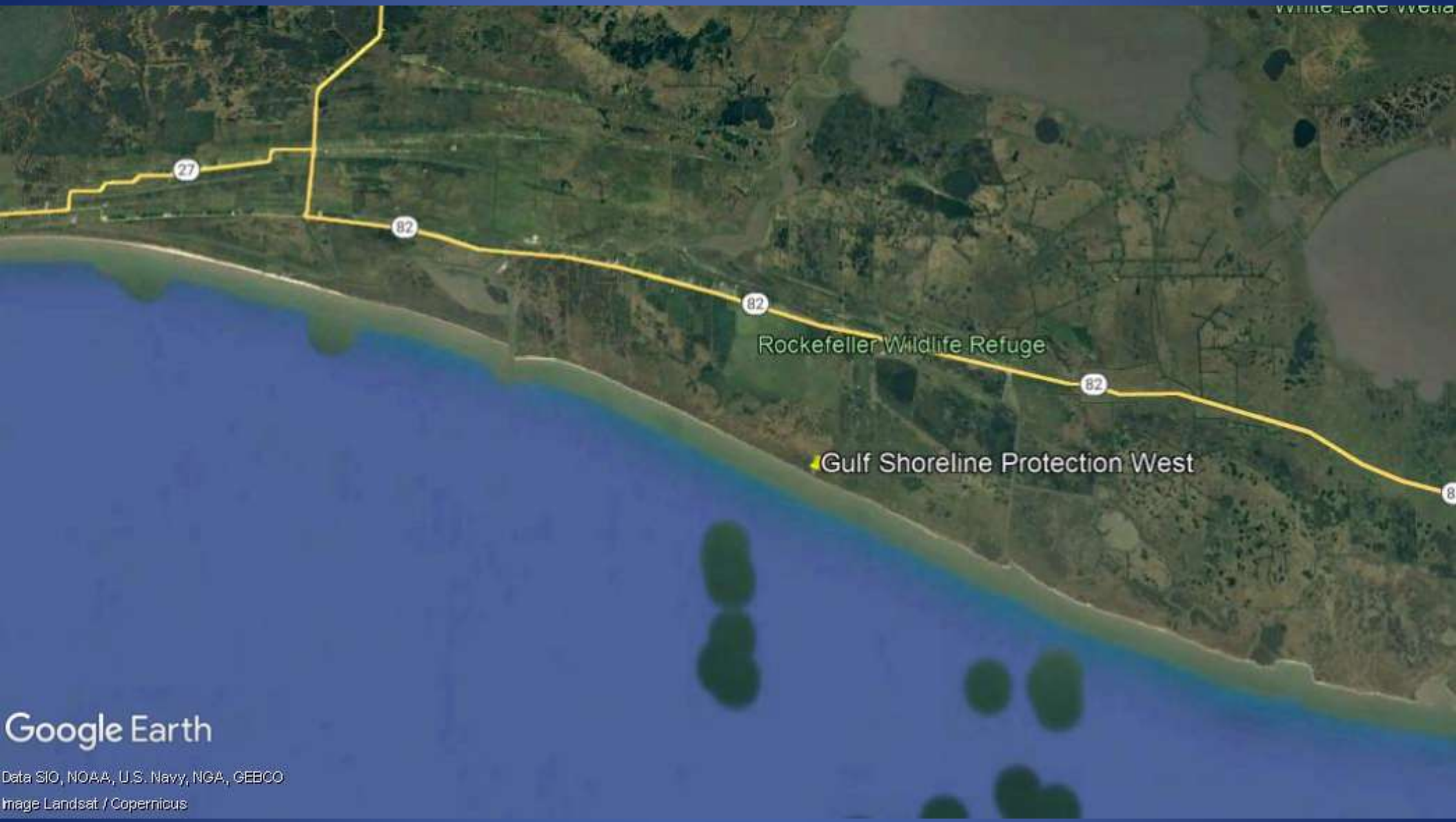
Considerations
Considerations for this project include pipeline/utilities.

Preliminary Costs
The construction cost plus 25% contingency is estimated to be between $30 and $35M.

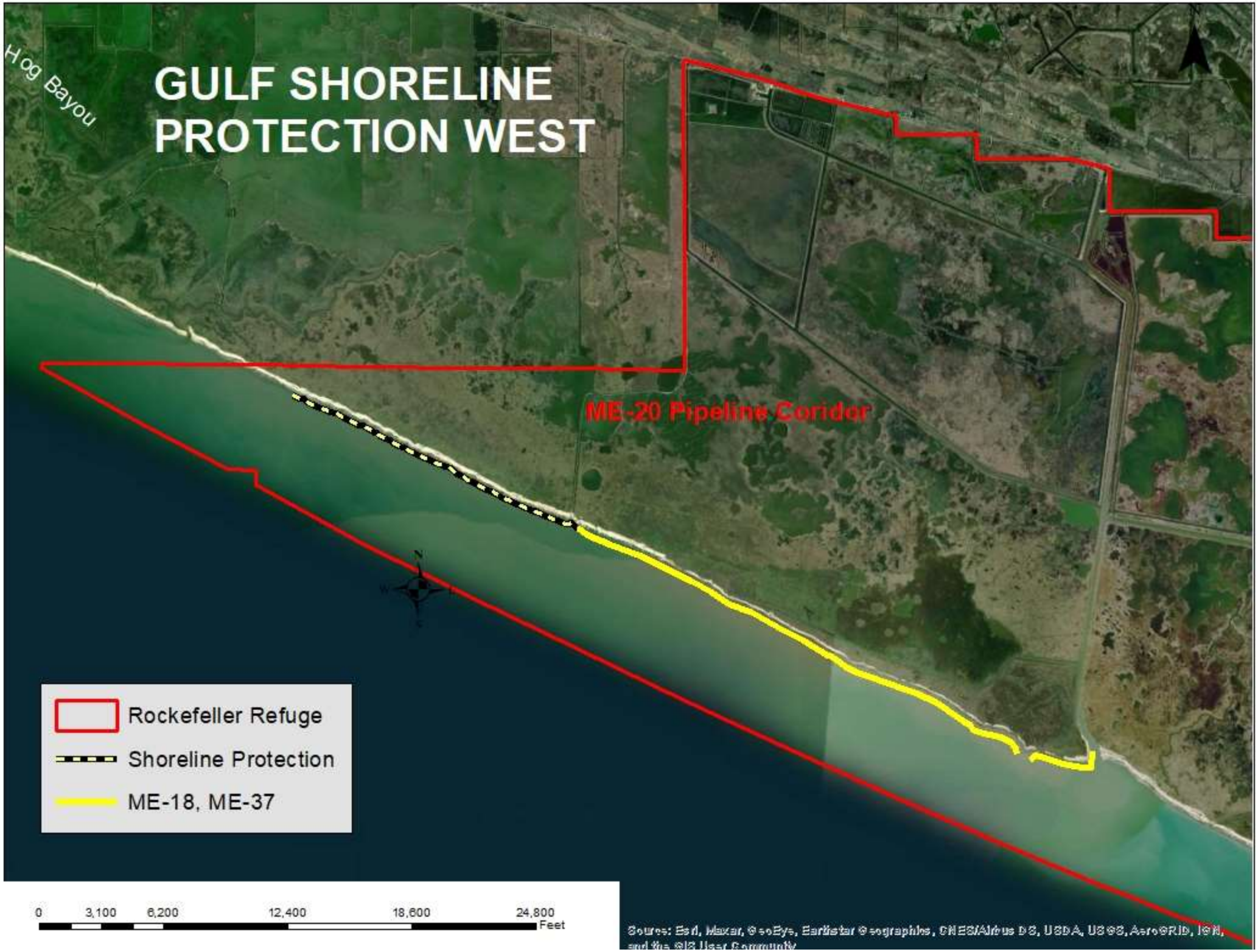
Preparer(s) of Fact Sheet:
Robert Dubois, FWS, 337-291-3127, robert_dubois@fws.gov

GULF SHORELINE PROTECTION

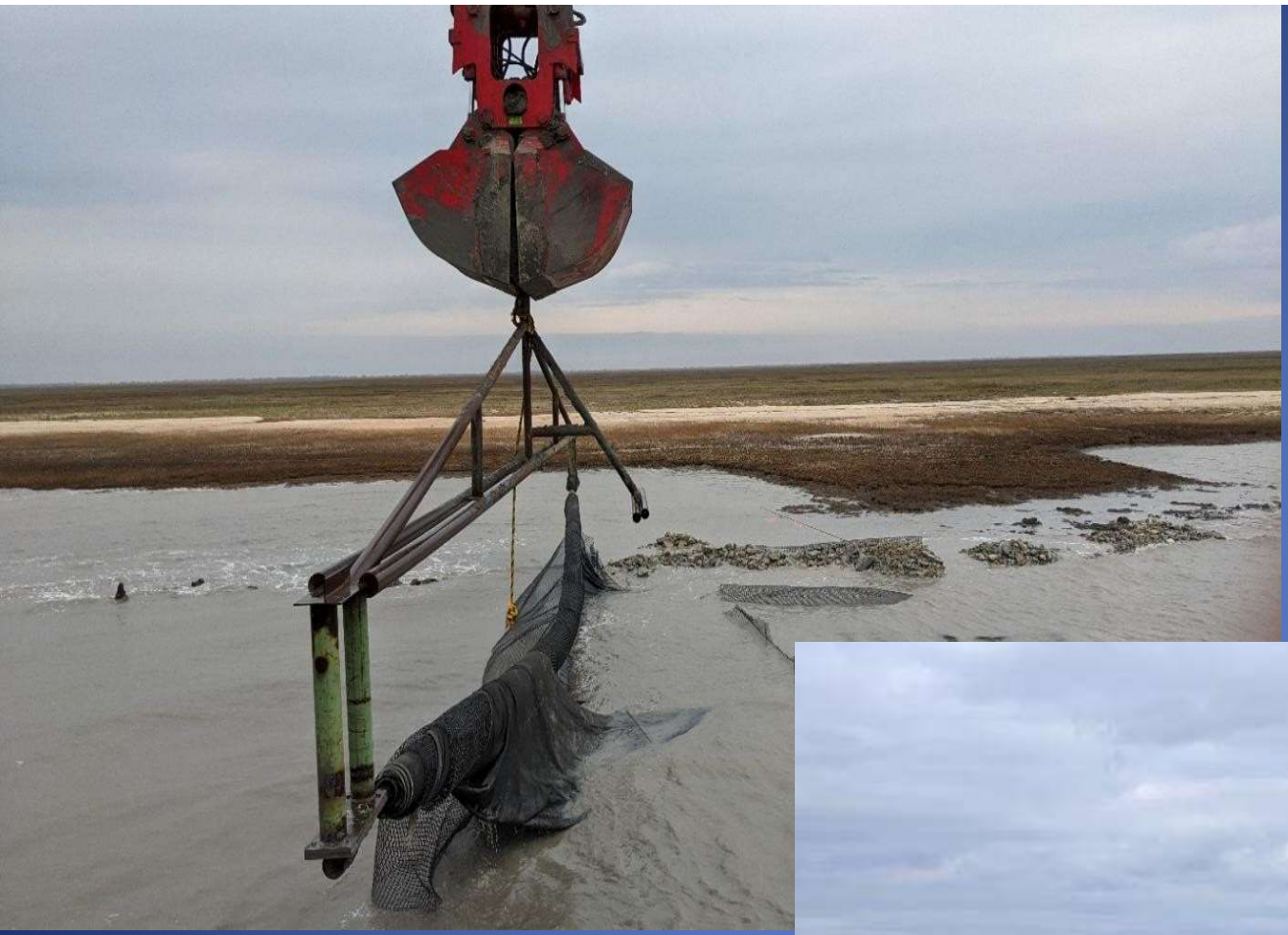
WEST

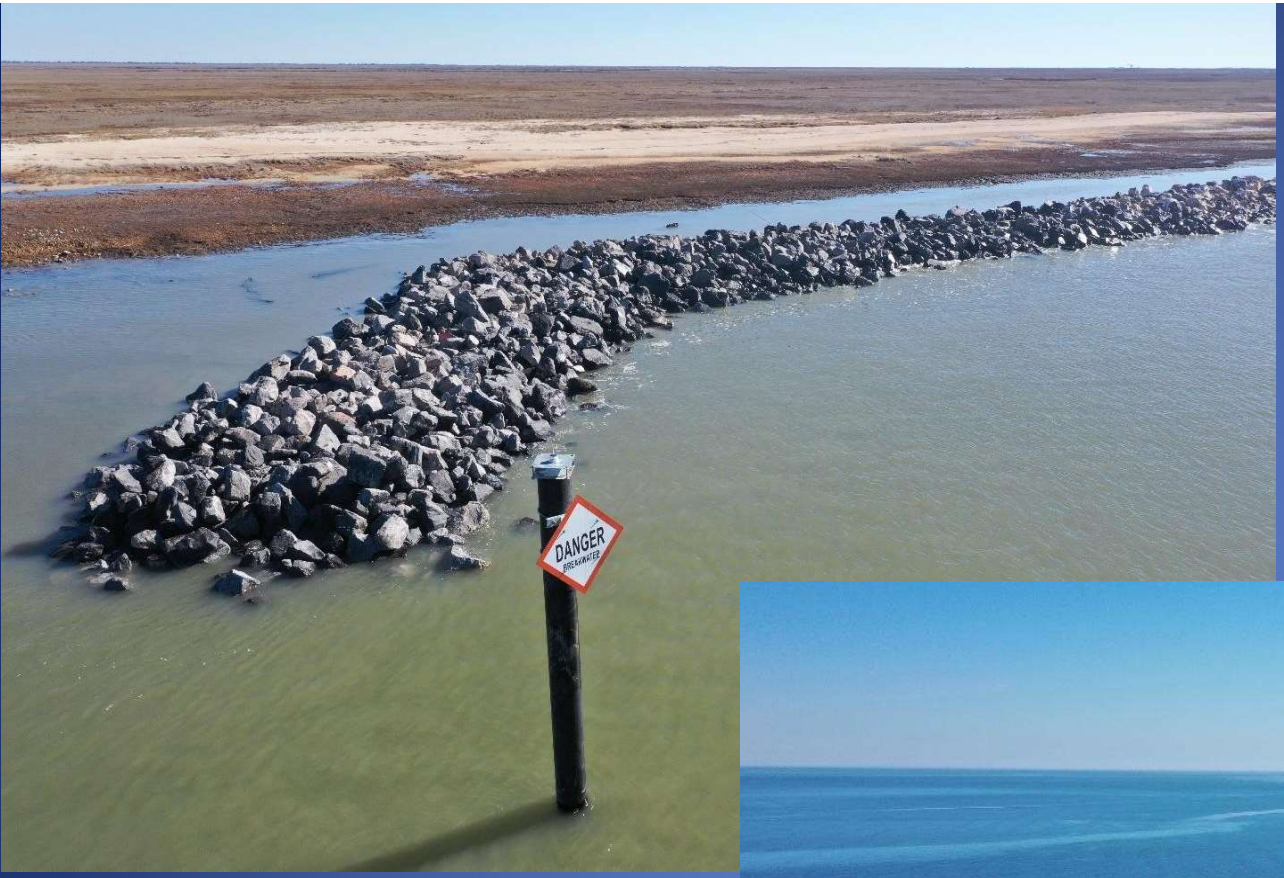

27
82
82
82
Rockefeller Wildlife Refuge
Gulf Shoreline Protection West
Google Earth
Data SIO, NOAA, U.S. Navy, NGA, GEBCO
Image Landsat / Copernicus

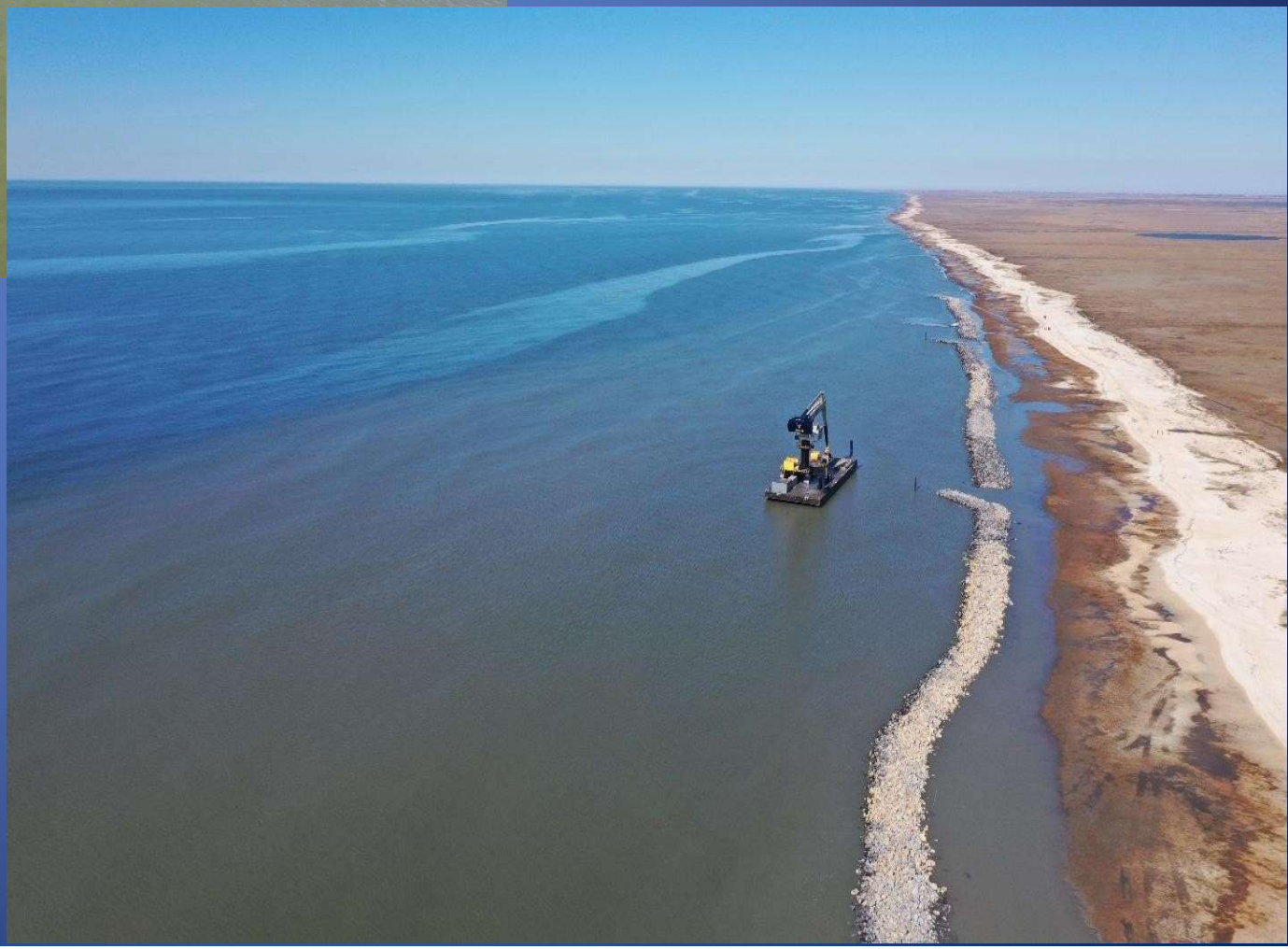

Hog Bayou
1998 to 2013
erosion rate = 42 ft/yr
2050
2039
2013
1998


Hog Bayou
GULF SHORELINE PROTECTION WEST
ME-20 Pipeline Corridor
Rockefeller Refuge
Shoreline Protection
ME-18, ME-37
0
3,100
6,200
12,400
18,600
24,800
Feet
Source: Esri, Maxar, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

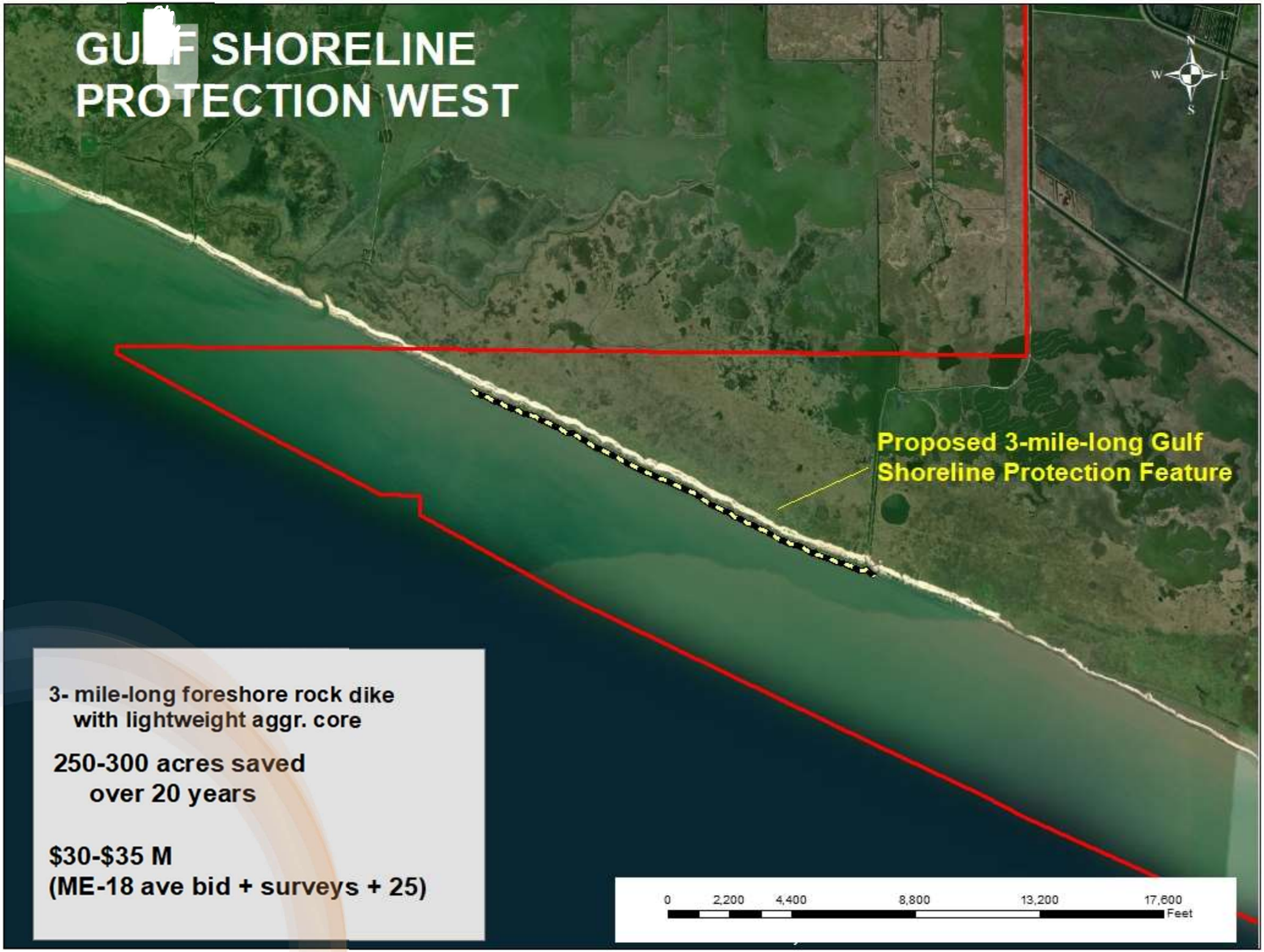

RIGID




DANGER



ME-18 Photo: Scooter Trosclair


GULF SHORELINE
PROTECTION WEST
N
W
E
S
Proposed 3-mile-long Gulf
Shoreline Protection Feature
3- mile-long foreshore rock dike
with lightweight aggr. core
250-300 acres saved
over 20 years
$30-$35 M
(ME-18 ave bid + surveys + 25)
0
2,200
4,400
8,800
13,200
17,600
Feet

PPL32 PROJECT NOMINEE FACT SHEET
February 8, 2022

Project Name
Highway 82 South Marsh Creation

Project Location
Region 4, Mermentau Basin, Cameron Parish

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

Goals
The project goal is to create/nourish approximately 568 acres of marsh. Approximately 500 acres would be marsh creation and 68 acres is marsh nourishment. Sediment for marsh creation/nourishment would be mined offshore of the project area at a distance and design to avoid inducing shoreline erosion. Containment dikes would be constructed around the project area, including the marshes in the north to ensure dredged sediment does not plug existing drainage along the highway and within the project area. Marsh buggy backhoes would be used to construct the containment dikes and the marsh terraces. A hydraulic cutterhead dredge would be used to mine and pump sediments to the project area. Currently 100% of the newly created marsh acreage would be planted with appropriate plant species.

Preliminary Project Benefits

1) *What is the total acreage benefited both directly and indirectly?*
   The total project area is approximately 568 ac.

2) *How many acres of wetlands will be protected/created over the project life?*
   Approximately 568 acres of marsh (68 of those acres are nourishment) will be initially constructed in the marsh creation area. The net acres for the 20 year project life are 250-300 acres.

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

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

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

5) *What is the net impact of the project on critical and non-critical infrastructure?*
The project would have moderate net positive impact to critical infrastructures which consists of LA82, a hurricane evacuation route, and residence of Grand Chenier due to reducing the flooding risk to the state highway by reestablishing a land mass in place of open water.

6) *To what extent does the project provide a synergistic effect with other approved and/or constructed restoration projects?*
The project will have a synergistic effect with two other CWPPRA projects. The ME-20 South Grand Cheniere Marsh Creation project, sponsored by NRCS, is located immediately south of the project area, has construction funding, and is in process of preparing to solicit for bids. The project will create marsh southeast of this project area which may help reduce erosion caused by fetch. The ME-32 South Grand Cheniere - Baker Tract Marsh Creation project, sponsored by NRCS, is located southeast of the project area and is presently funded for Phase 1 engineering and design.

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

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

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

PPL32 Highway 82 South Marsh Creation

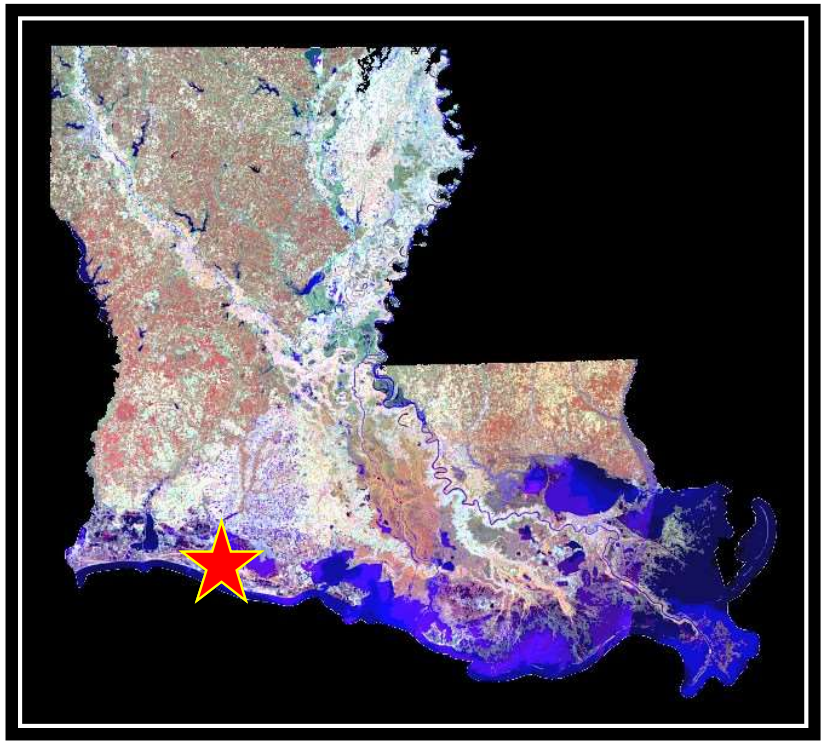
500 Acres Marsh Creation
68 Acres Marsh Nourishment

Federal Sponsor: NOAA Fisheries
2018 Aerial Imagery
Map Date 2-8-2022

Legend

Marsh Creation and Nourishment

Highway 82 South Marsh Creation



REGION 4 – Mermentau Basin

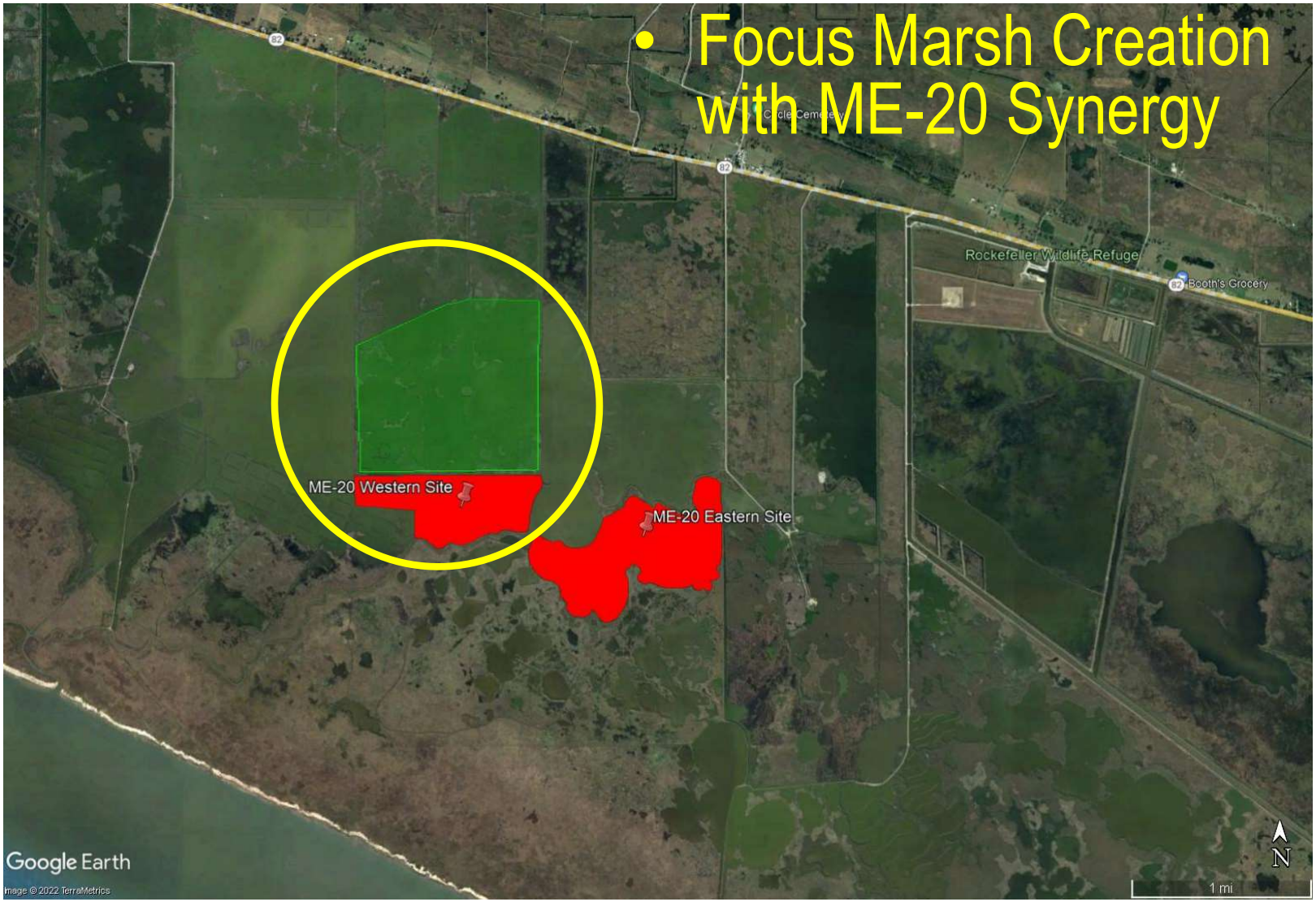
Presenter: Brandon Howard, Fishery Biologist, NOAA

PPL32 CWPPRA Regional Planning Team Meeting

Lake Charles, Louisiana

February 8, 2022

Project Location



Restoration Solution

- 568 Acres of Marsh Creation/Nourishment
  - 500 acres of marsh creation & 68 acres of marsh nourishment
  - Hydraulically dredge material from offshore
  - Contained fill areas with dike gapping after construction

PPL32 Highway 82 South Marsh Creation

500 Acres Marsh Creation
68 Acres Marsh Nourishment

Federal Sponsor: NOAA Fisheries
2018 Aerial Imagery
Map Date 2-8-2022

Legend

Marsh Creation and Nourishment

Project Map

- Offshore Borrow Area
- 568 Acres TOTAL of Marsh Creation/Nourishment
- Approximately 500 acres Creation and 68 acres Nourishment

Summary of Features, Cost, and Benefits

- **568 Acres Total**
  - 500 acres Marsh Creation
  - 68 acres Nourishment
- **Construction Cost + 25% Contingency $25M - $30M**
- **Net Benefits: 400-450 acres**

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

PPL32 PROJECT NOMINEE FACT SHEET
February 8, 2022

Project Name
Pecan Island Marsh Restoration

Project Location
Region 4, Mermentau Basin, southeastern Vermilion Parish, near Pecan Island, Louisiana

Problem
The project is located within the Chenier Sub-basin. Storms, saltwater intrusion, elevated water levels/prolonged flooding, oil and gas exploration, and land use practices have contributed to wetland loss in the project area. Synoptic spikes in wetland loss have occurred with storms along with historic persistent loss. Most of the wetland loss south of Pecan Island occurred in the latter half of the 20th century resulting in expansive open water areas creating risk for and reducing resiliency of habitat and nearby infrastructure. The USGS 1985 to 2020 loss rate is -0.21%/yr for the Rockefeller/Pecan Island mapping unit.

Goals
The project goal is to create approximately 400 acres of marsh and 11,000 linear feet of terraces.

Proposed Solution
The proposed solution is to restore wetland habitat by creating marsh and constructing terraces in a manner parallel to Highway 82. Sediment would be mined from White Lake, delivered by a conveyance pipe down Pecan Island Canal and across Highway 82, and placed in a confined area to create and nourish 402 acres of marsh south of Pecan Island. Crossing Louisiana Highway 82 would either occur through the ME-01a culverts or near the southern terminal end of Pecan Island Canal. Additionally, 10,780 linear feet of earthen terraces would be constructed and planted. The marsh creation area and terrace field is located parallel to Highway 82 along the north side of an expansive open water area south of Pecan Island to break up wave fetch. Containment dikes would be gapped to the constructed marsh fill elevation at the end of construction for dewatering and gapped or degraded no later than year three after construction to establish tidal exchange.

Preliminary Project Benefits
1) *What is the total acreage benefited both directly and indirectly*? The total acres benefited is 556 acres (382 acres marsh creation, 20 acres marsh nourishment, and 154 acres terrace field).

2) *How many acres of wetlands will be protected/created over the project life*? The total net acres of marsh protected/created over the project life is approximately 350 - 400 acres (375 net from marsh creation and 6 acres net from terracing). Additional benefit from promoting colonization of submerged aquatic vegetation is expected.

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

the area of direct benefits (marsh creation and terraces combined) over the project life is 25 – 49%.

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.* Although the project does not directly restore a ridge or chenier, it provides a buffer for Pecan Island.

5) *What is the net impact of the project on critical and non-critical infrastructure*? The project would have a net positive impact on critical infrastructure consisting of Louisiana Highway 82 and residences as well as positive impact and non-critical infrastructure consisting of flowlines.

6) *To what extent does the project provide a synergistic effect with other approved and/or constructed restoration projects*? The project would work synergistically with ME-01a (Pecan Island Freshwater Introduction) and ME-14 (Pecan Island Terracing).

Considerations

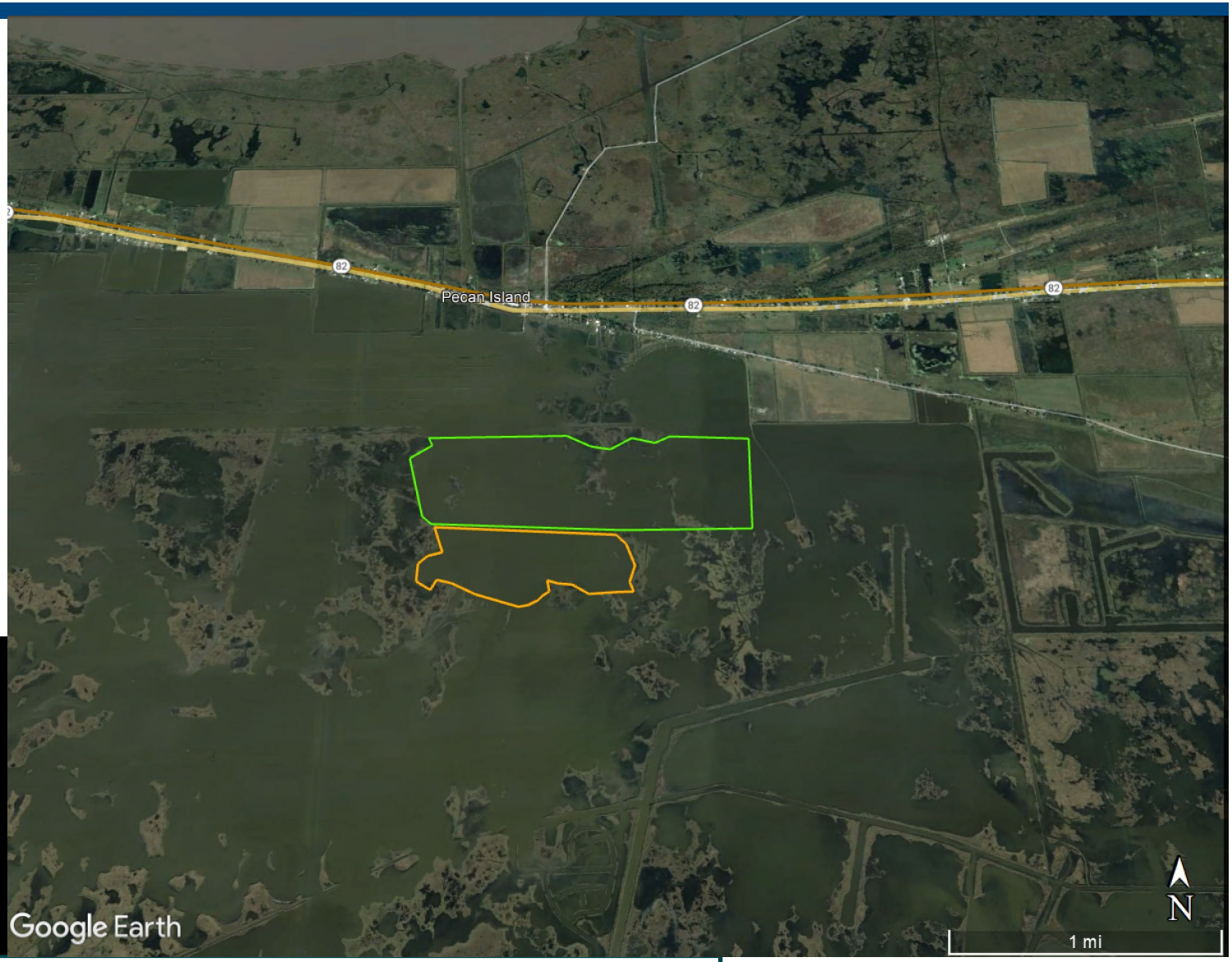
Considerations for this project include pipelines/utilities and Eastern Black Rail.

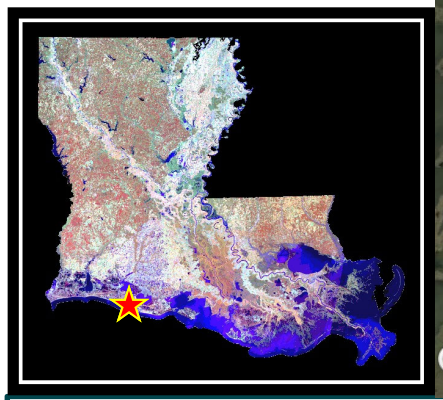
Preliminary Cost

The estimated constructed cost + 25% contingency range is $30M - $35M.

Preparer of Fact Sheet

Patrick Williams (225) 329-9268, patrick.williams@noaa.gov





Pecan Island Marsh Restoration

382 acres Marsh Creation
20 acres Marsh Nourishment

2019 Aerial Imagery
Map Date 02-01-2022

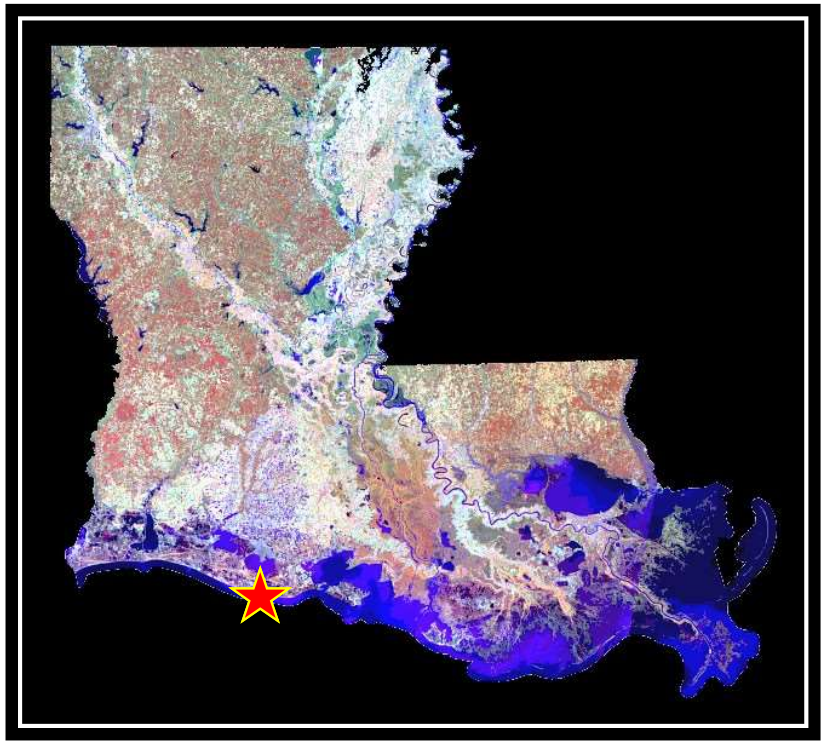
Legend

Marsh Creation

Terraces

Pecan Island Marsh Restoration

NOAA FISHERIES



REGION 4 – Mermentau Basin

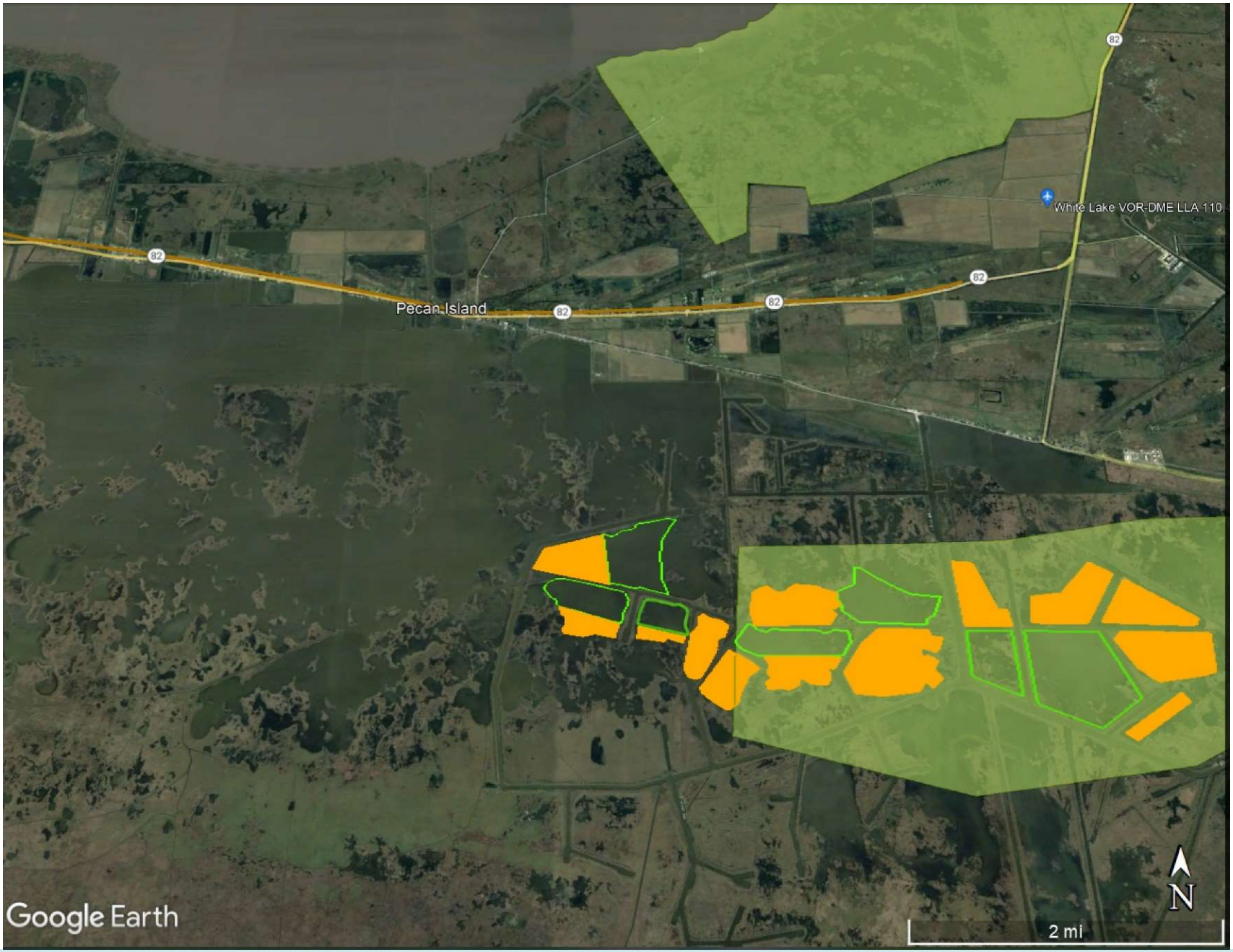
Presenter: Patrick Williams, NOAA

PPL32 CWPPRA Regional Planning Team

Virtual Meeting

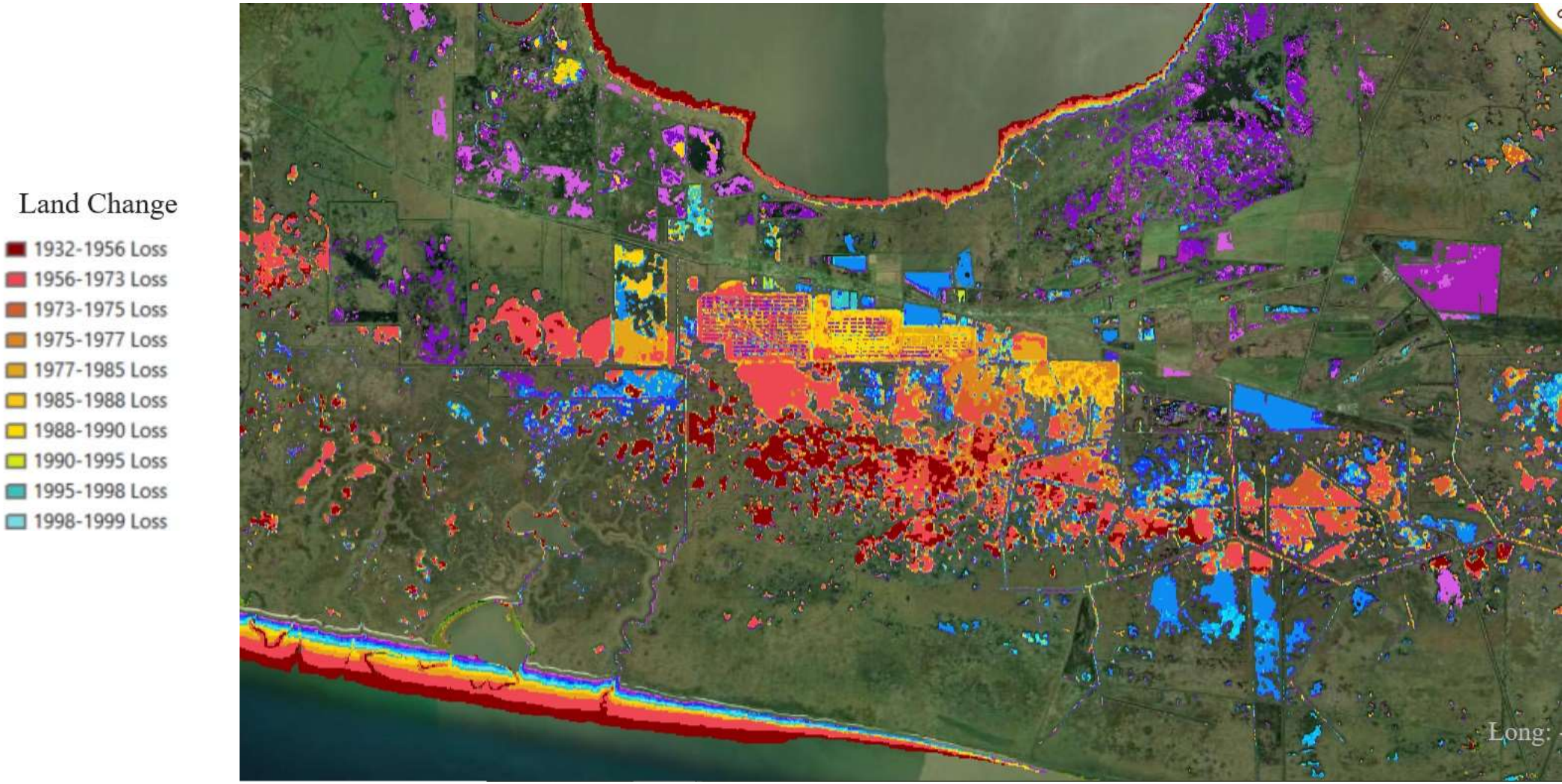
February 8, 2022

Project Vicinity

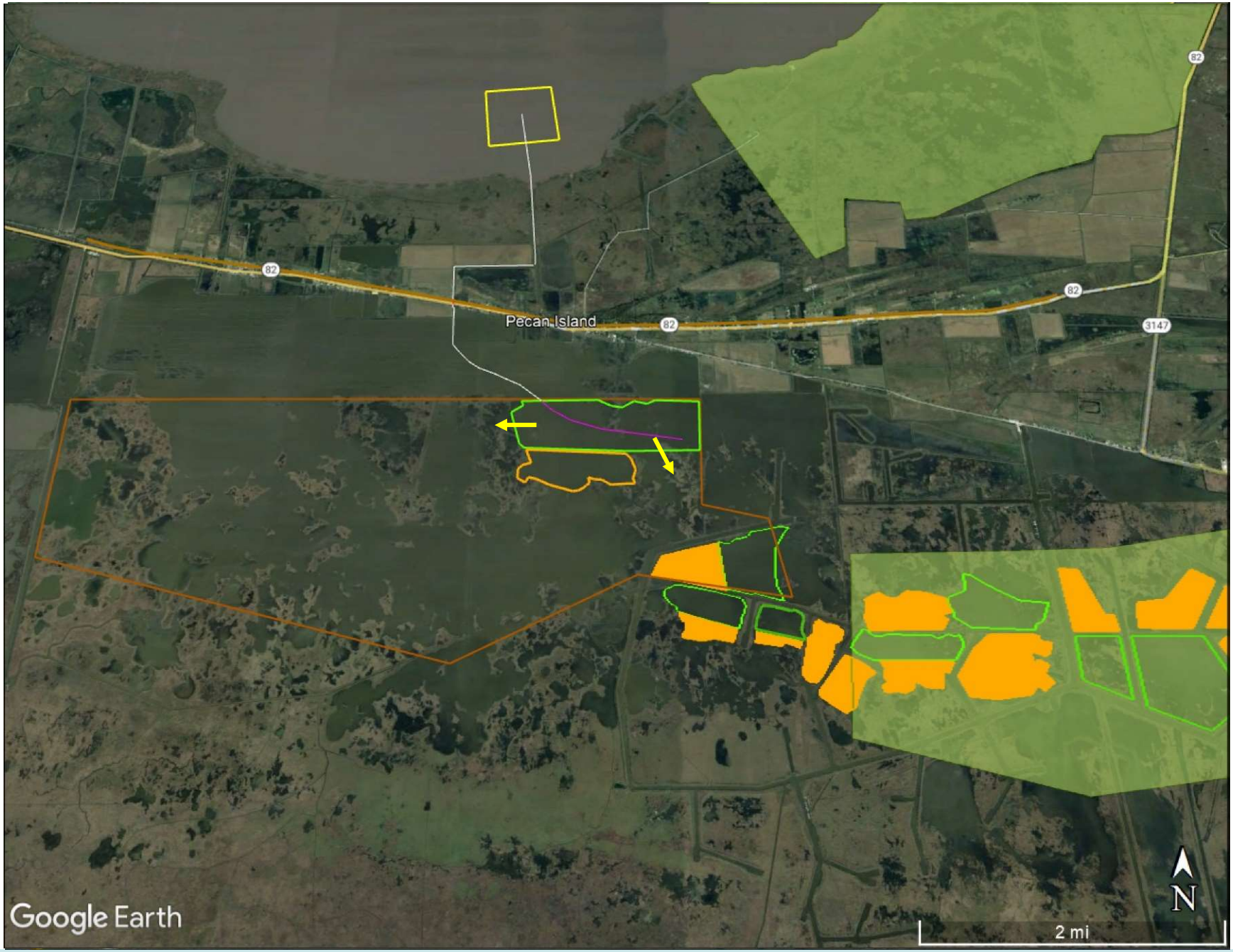


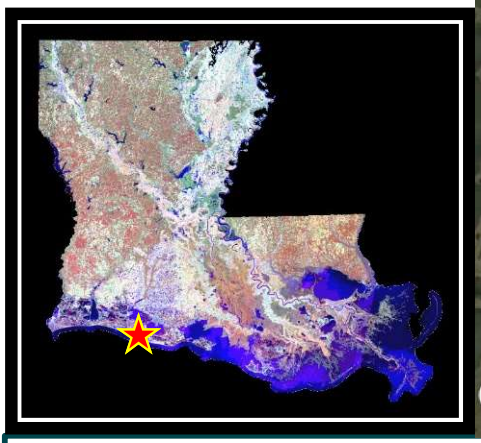
Project Area Degradation

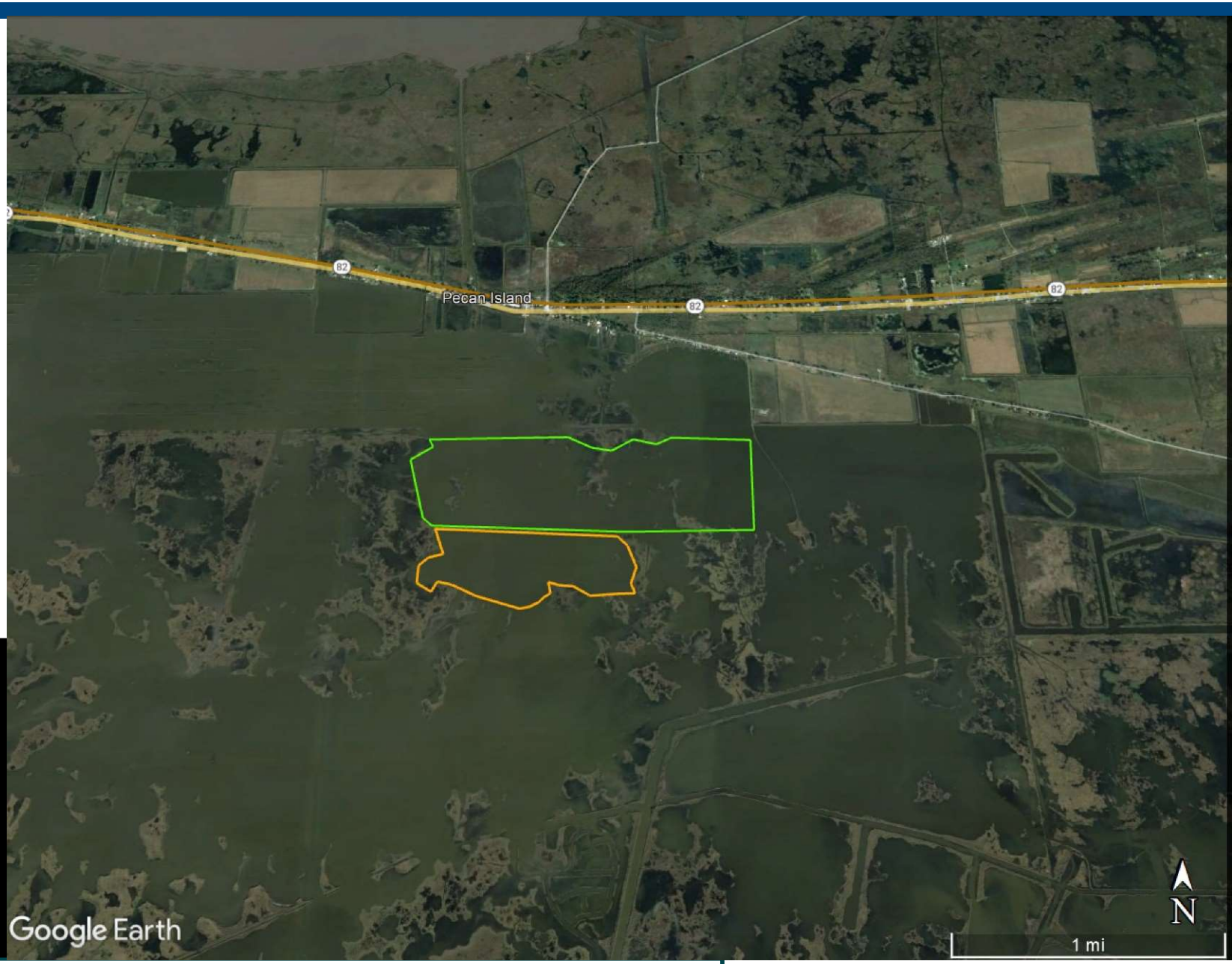
-0.21%/yr 1985 to 2020



Project Area







Pecan Island Marsh Restoration

382 acres Marsh Creation
20 acres Marsh Nourishment

2019 Aerial Imagery
Map Date 02-01-2022

Legend

Marsh Creation

Terraces

Proposed Project Solution

- 2017 State Master Plan Polygon 004.MC.16
- 402 Acres of Marsh Creation/Nourishment
  - White Lake Borrow
  - Dike gapping after construction
- 10,780 LF of terraces with planting
- -0.21%/yr 1985 to 2020 loss rate

Summary

- ~400 Acres Marsh Creation/Nourishment
- ~11,000 LF Terraces
- Construction Cost + 25% Contingency $30M - $35M
- **Net Benefits: 381 acres**

Synergy

- Synergy with other Restoration projects: ME-01a, ME-14

Contact information:
Patrick Williams, 225-329-9268
patrick.Williams@noaa.gov

CWPPRA RPT Region 4

Calcasieu/Sabine

PPL32 PROJECT FACT SHEET
February 8, 2022

Project Name
East Cove South Marsh Creation

Project Location
Region 4, Calcasieu/Sabine Basin, Cameron Parish, East Cove Unit of the Cameron Prairie National Wildlife Refuge along the south shore of Calcasieu Lake.

Problem
The marshes within the Cameron Creole Watershed have suffered extensive losses due to subsidence, sea level rise, salinity intrusion and Hurricanes Rita, Ike and, most recently, Hurricane Laura. According to the Calcasieu-Sabine Basin Report (2019), saline and brackish marsh in this area is degraded and impounded causing flood stress to the point of low productivity resulting in greater elevation and land loss, especially during high-energy storm events. Based on analysis conducted by USGS, loss rates for an extended boundary are estimated to be -1.89% per year for the period 1984 to 2020.

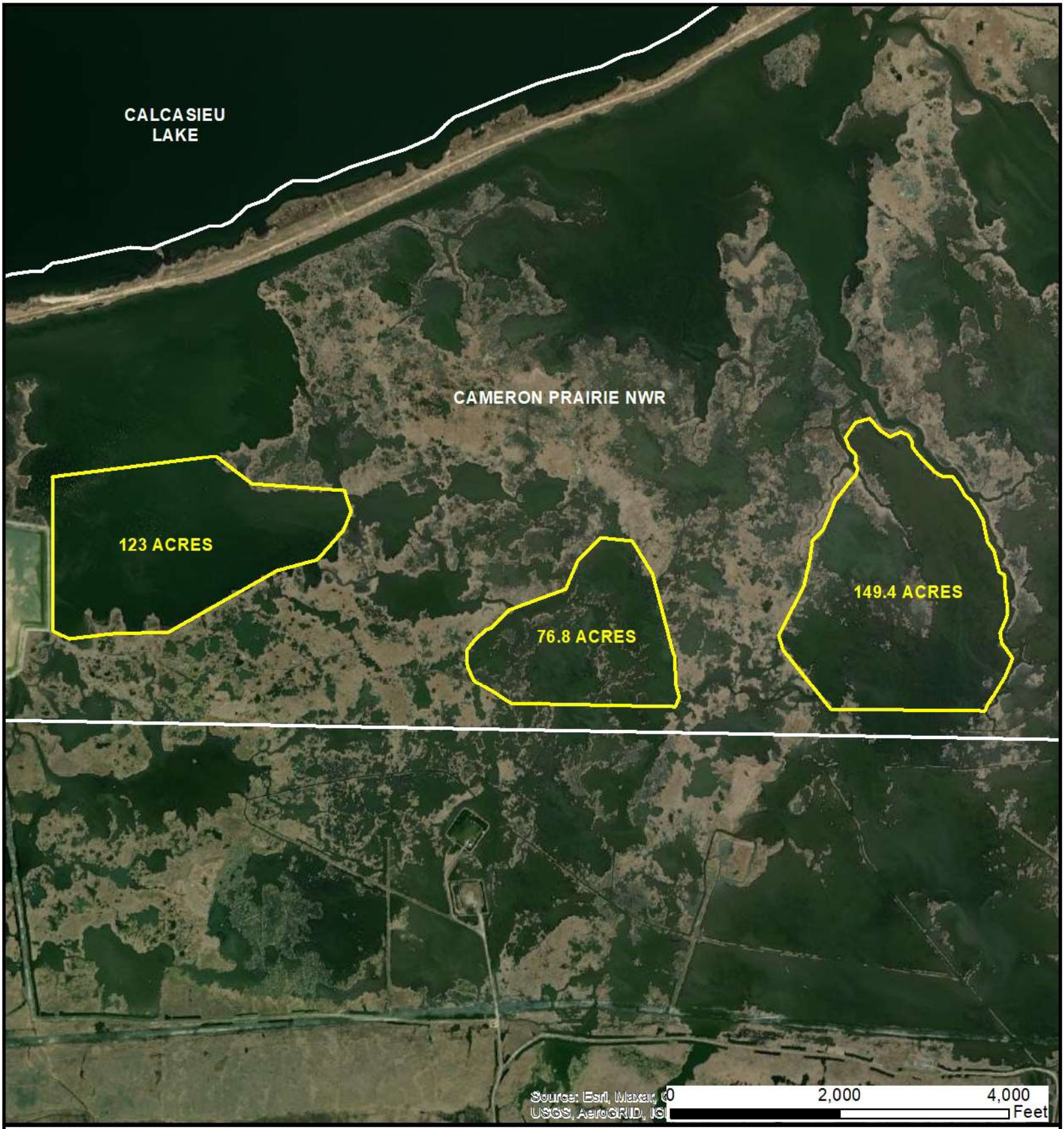
Goals
The goal of the project is to restore brackish and saline marsh within the Cameron Creole Watershed. This project is part of an overall, long-range, restoration goal which would create/nourish 3,100 acres of marsh south of Calcasieu Lake near Cameron to create new wetland habitat and restore degraded marsh. (2017 Coastal Master Plan No. 004.MC.23, Calcasieu Ship channel Marsh Creation).

Proposed Solution
A pipeline route from the Gulf is being investigated that is approximately 5 miles. Alternatively, sediment will be hydraulically dredged from a borrow area in Calcasieu Lake and approximately 2.8 million cubic yards will be placed into three marsh creation areas totaling 349 acres to an elevation conducive for marsh creation. Target elevations will be designed to support saline to brackish marsh, to ensure it is within the optimal inundation range, and in consideration of the prolonged flooding of the basin. Containment dikes will be gapped and/or degraded no later than TY3. Plantings are proposed at 50% of the project area should the area not vegetate naturally by TY3.

Project Benefits
The project would result in 243 net acres over the 20-year project life.

Project Costs:
Construction Cost: $20-25M

Contacts:
Angela Trahan, NRCS, 337/291-3142, angela.trahan@usda.gov
Jackie Jones, NRCS, 337/291-3055, Jacqueline.Jones@usda.gov

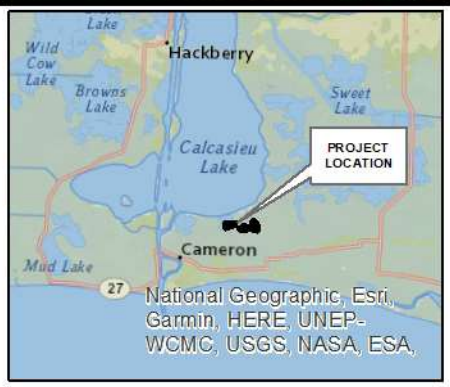


USDA

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

Data Source: ESRI - JANUARY 2021

Map Date: JANUARY 27, 2022



PPL 32
EAST COVE SOUTH
MARSH CREATION
CAMERON PRAIRIE NWR
CAMERON PARISH, LA

N
W E
S

Legend

MARSH_CREATION

CAMERON_PRAIRIE_NWR_BOUNDARY_GIS

PPL32

East Cove South Marsh Creation

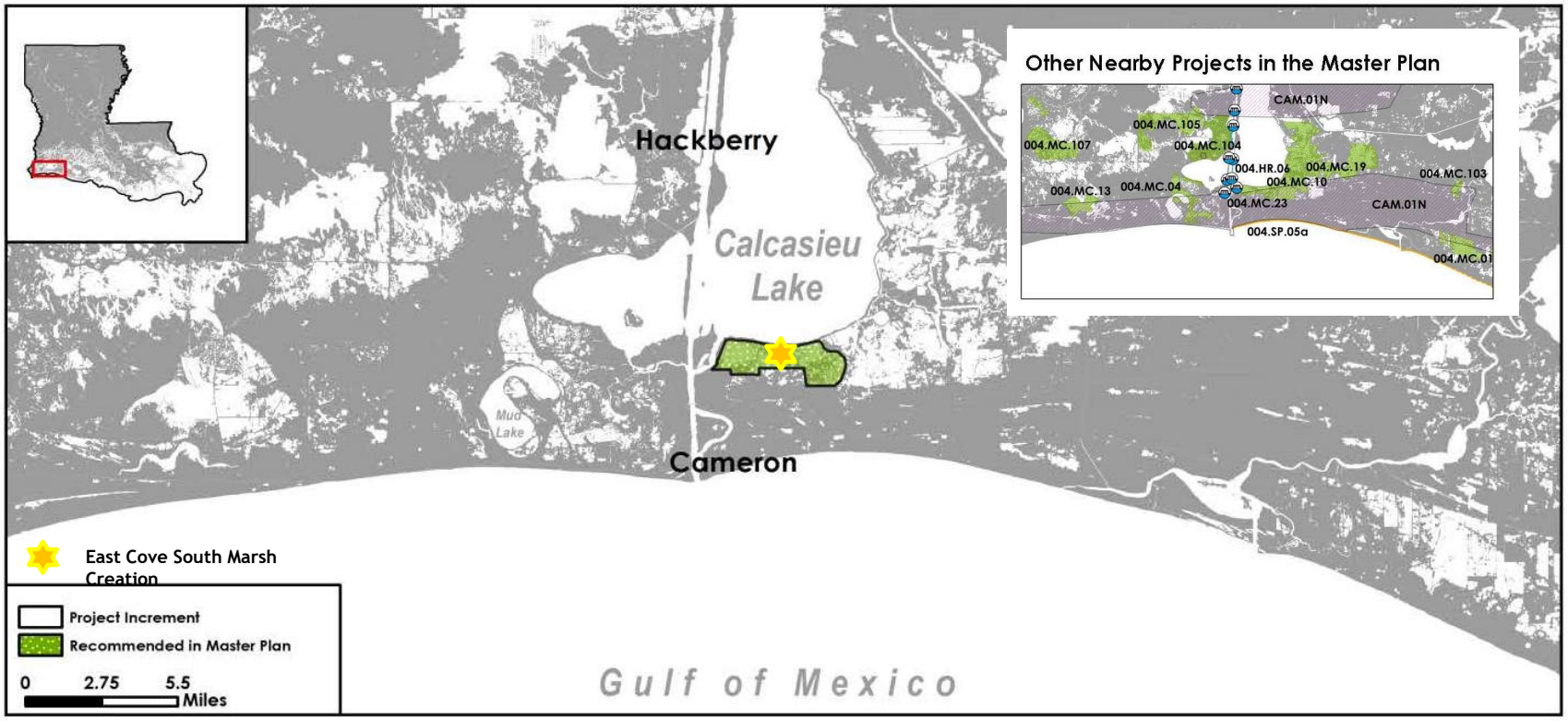
Region 4, Cal-Sab Basin

Contact:
Angela Trahan, Project Manager, Angela.Trahan@USDA.gov, 337/291-3142
Jackie Jones, Planning Engineer, Jacqueline.jones@usda.gov, 337291-3055

Calcasieu Ship Channel Marsh Creation

Marsh Creation

Project ID: 004.MC.23



Saline and brackish marsh in this area is degraded and impounded causing flood stress to the point of low productivity resulting in greater elevation and land loss, especially during high-energy storm events.

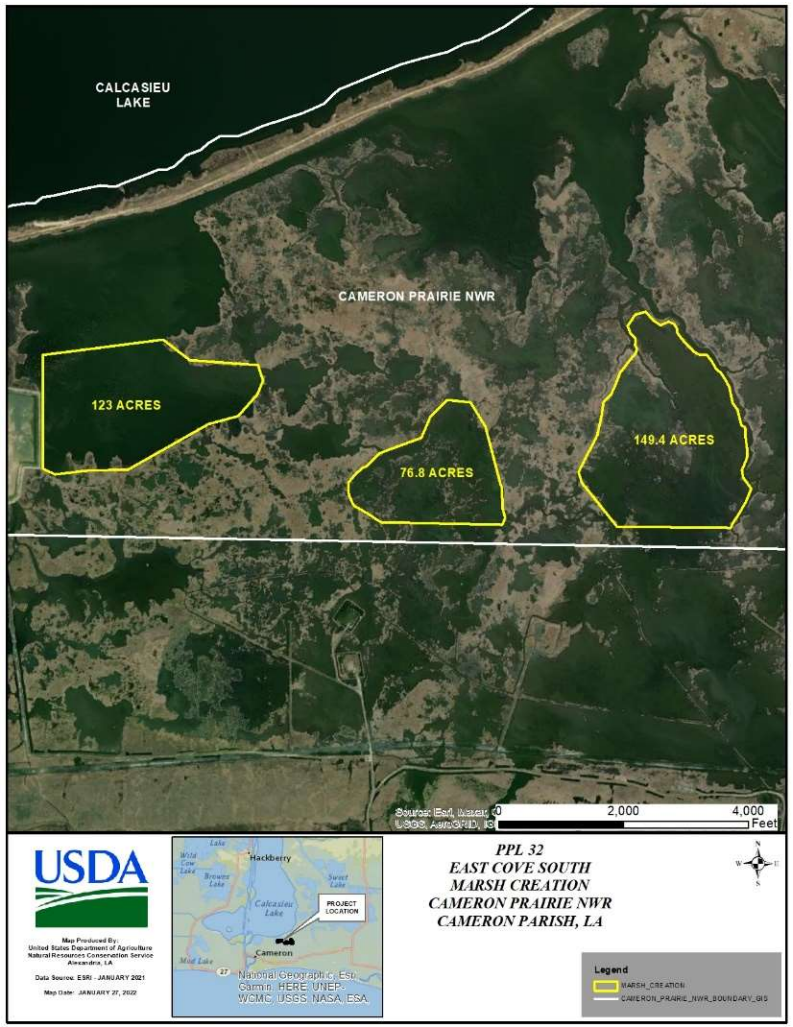
Photo taken April 28, 2021

PPL32 – East Cove South MC

Goal:

- Restore brackish and saline marsh within the Cameron Creole Watershed
- Target optimal elevations for marsh productivity
- Compliments adjacent marsh restoration projects

PPL32 – East Cove South MC



Solution:

- Gulf Borrow
- 3 MCAs located on the NWR
- **349** acres (~20% marsh)
- Fully contained

Construction Cost Estimate is $20-25M

PPL32 PROJECT CANDIDATE FACT SHEET
February 8, 2022

Project Name
East Prong Marsh Creation & Terracing

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

Problem
Historically this area was dominated by saw grass marsh. Loss of the historical saw grass marsh can be attributed to saltwater intrusion from the Calcasieu Ship Channel (CSC) in the 1950s. Hurricane Audrey (1957) exacerbated the impacts to the dying saw grass system, clearing away the dead and deteriorated saw grass stands. A combination of human-induced hydrologic changes and severe storm events has resulted in virtually all of the habitat changes and land losses in the Calcasieu-Sabine Basin (Hydrologic Investigation of the Chenier Plain Report 2002). The Cameron-Creole Watershed Project (CCWP) was implemented by the NRCS in 1989 to reduce saltwater intrusion and stimulate restoration through revegetation. Land loss is estimated to be -0.06 %/yr. based on USGS data from 1984 to 2019. Comparatively, USGS - LA Land Change Trends data from 1985-2020, estimates land change for the Calcasieu–Sabine Basin, Lambert Lake Unit at -1.00 %/yr.

Goals
Project goals include restoring and nourishing brackish marsh to elevations that are sustainable, constructing terraces, and reestablishing channel depths to help dewater project and surrounding marsh for the benefit fish and wildlife resources on Cameron Prairie NWR. Restoring brackish marshes in the Cameron-Creole Watershed is a conservation strategy identified by the FWS' *Vision for a Healthy Gulf of Mexico Watershed,* and would benefit trust resources such as migratory waterfowl, shorebirds, and wading birds. Additionally, restoring these marshes may be beneficial to at-risk species such as the black rail (proposed for listing as a threatened species), seaside sparrow, and salt-marsh topminnow.

Specific Goals: 1) Create 450 acres of brackish marsh, 2) Nourish approximately 150 acres of marsh 3) Create 38,500 ft of terraces (20 acres of marsh), and 4) Deepen 55,308 LF of natural bayous which would nourish an additional 101 acres of marsh.

Proposed Solution
Material will be dredged from Calcasieu Lake to restore 600 acres (450 mc + 150 MN) of brackish marsh. Terraces (38,500 linear feet, 20 acres of benefits) will be constructed in 550 acres of open water to create additional habitat. Approximately 379,000 CY of material are available through dredging 55,308 LF of the natural bayous: assuming a 5-foot bottom depth, a 12-foot bottom width, and a 1:5 side slope. Spray dredging can nourish approximately 100 feet from the marsh bank line resulting in approximately 101 acres (100*55,308/43560) of nourished marsh. In addition, dredging the bayous would increase the storage capacity of those bayous and reestablish the natural tidal ingress and egress of the watershed.

Preliminary Project Benefits
1) *What is the total acreage benefited both directly and indirectly*? The project would create 470 (450+20) acres and nourish 251 (150+101) acres of brackish marsh in the CCWP and reestablish a more natural tidal hydrology. Indirect benefits would occur to surrounding marshes and within the 550-acre terrace field (minus 20 acres marsh), for a total of 1,251 acres benefited directly and indirectly.

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 estimated to be between 400 and 450 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 50-74% for marsh creation, nourishment and terraces.

4) *Do any project features maintain or restore structural components of the coastal ecosystem such as barrier islands, natural or artificial levee ridges, beach and lake rims, cheniers, etc.* The project will restore the areas hydrology to a more natural flow.

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

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

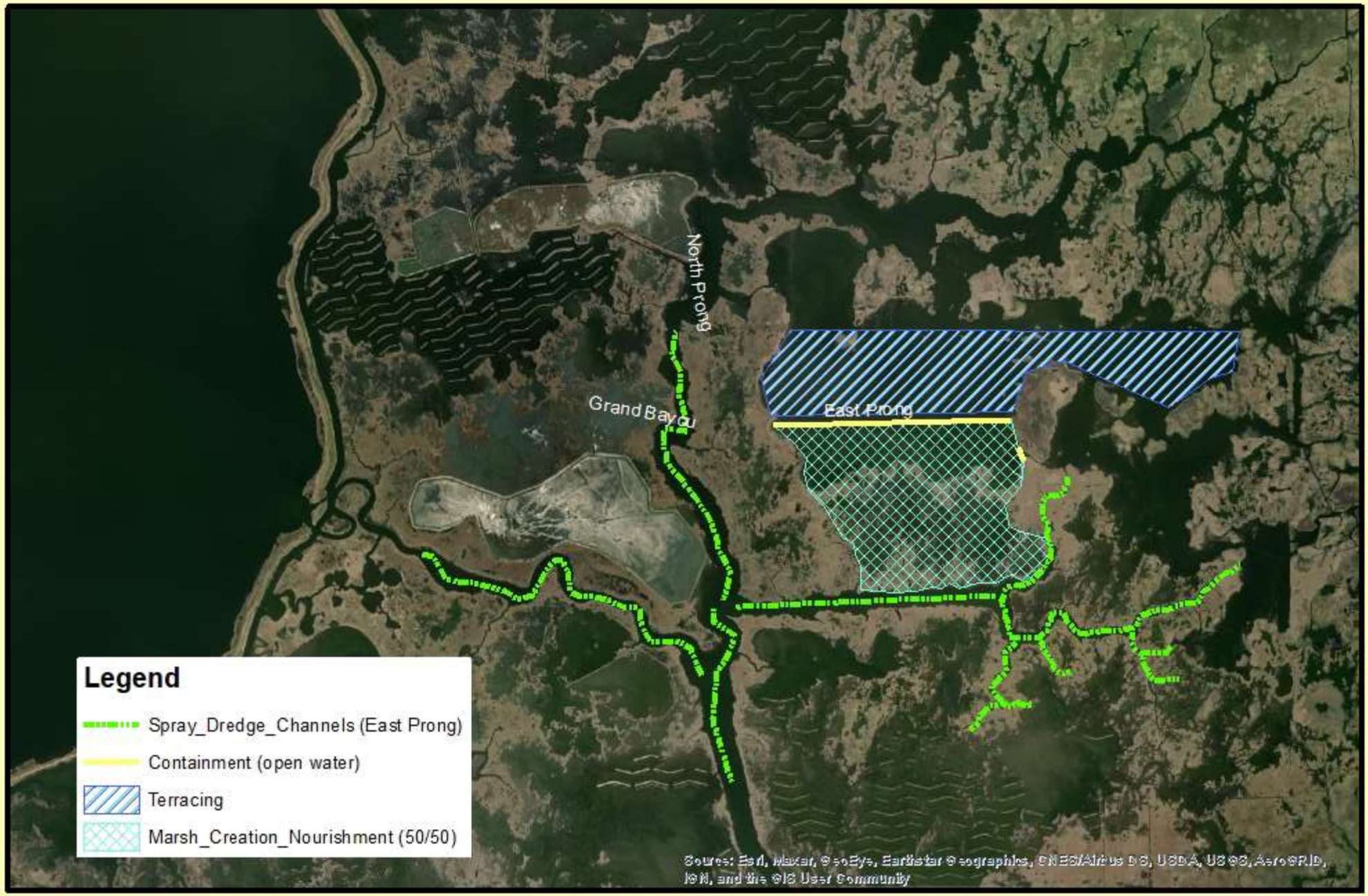
Considerations
Calcasieu Lake Oyster Seed Grounds

Preliminary Cost
The estimated construction cost plus 25% contingency is between $25 and $30M.

Preparer of Fact Sheet
Robert Dubois, U.S. Fish and Wildlife Service, (337) 291-3127, robert_dubois@fws.gov

U.S. Fish and Wildlife Service | Louisiana Ecological Services Office

East Prong Marsh Creation & Terracing



East Prong Marsh Creation

U.S. FISH & WILDLIFE SERVICE

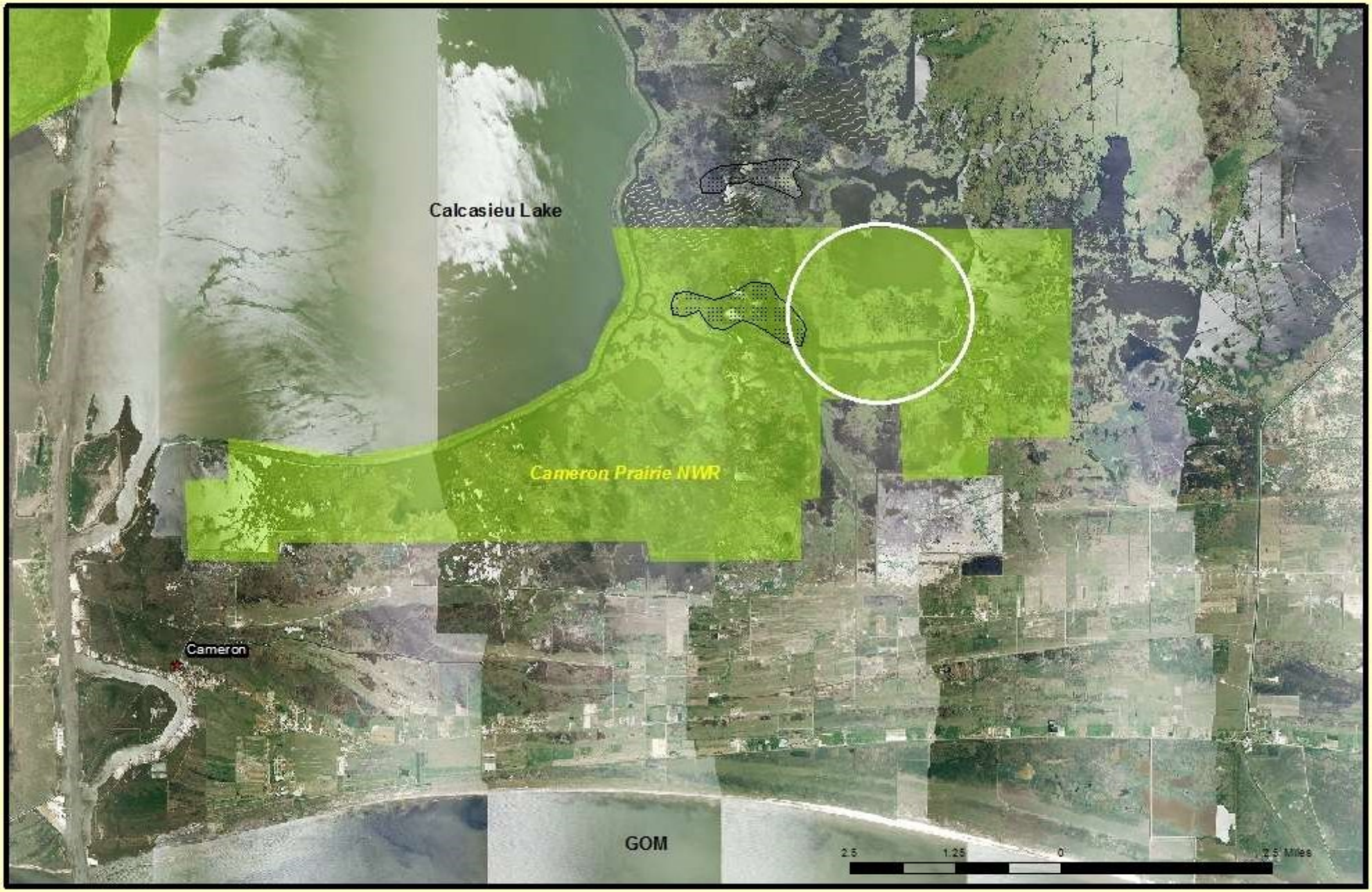
DEPARTMENT OF THE INTERIOR

Region 4, Calcasieu - Sabine Basin

Fish and Wildlife Service

Louisiana Ecological Services Office

East Prong Marsh Creation Project



Fish and Wildlife Service

Louisiana Ecological Services Office

CWPPRA Cameron Creole Watershed Projects

2013 DOQQ, 20140123; ACT

East Prong Marsh Creation

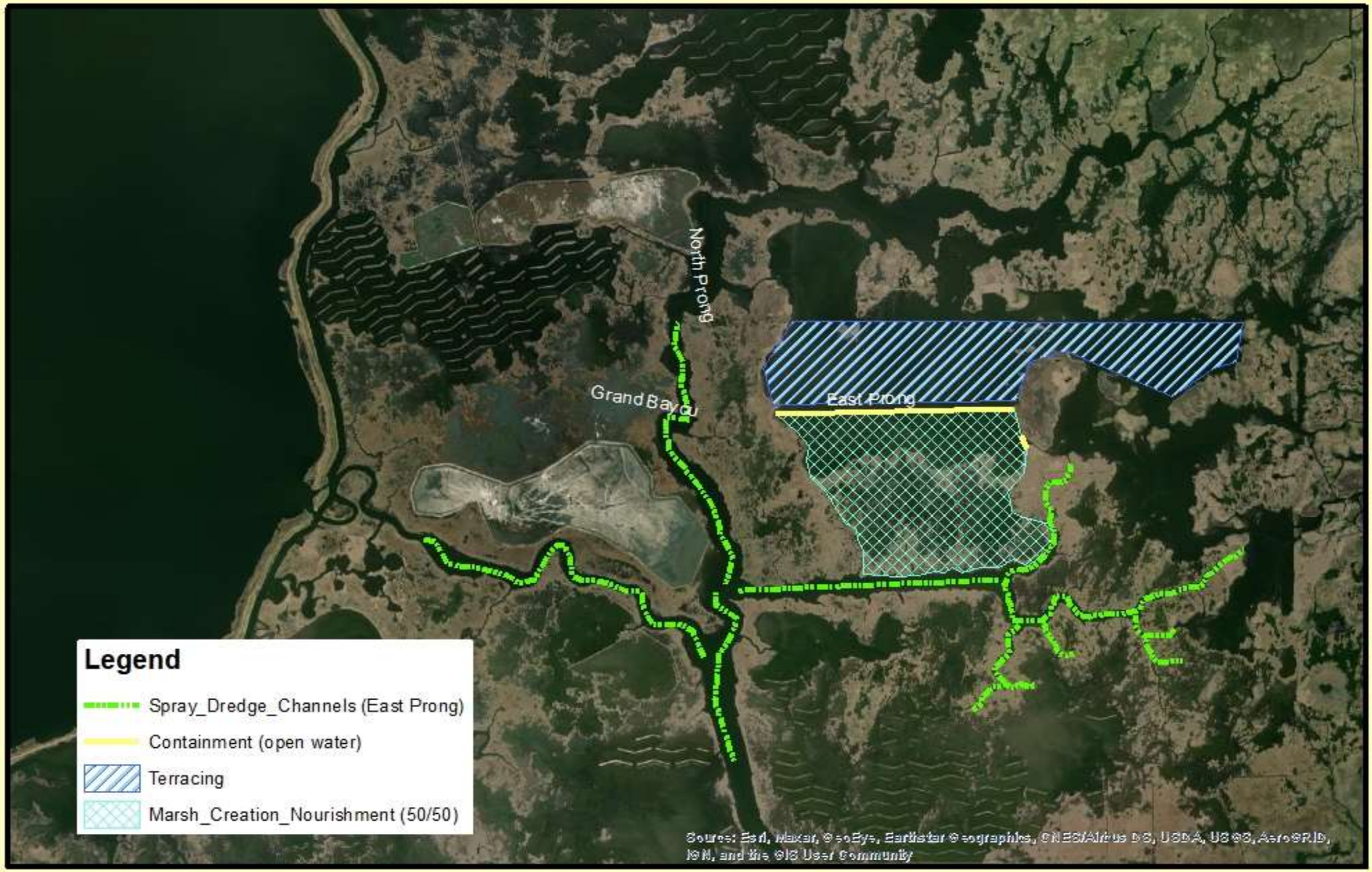
Problem: saltwater intrusion, wave induced erosion, storm-induced impacts, and prolonged inundation

Goal:

1) **Create marsh in open water areas,**
2) **Nourish fragmented marsh,**
3) **Reduce fetch with the creation of terraces in open water areas**
4) **Restore natural hydrology by dredging natural bayous to help increase dewatering of marshes**

U.S. Fish and Wildlife Service | Louisiana Ecological Services Office

East Prong Marsh Creation & Terracing



Benefits

- Marsh Creation – 450 acres
- Marsh Nourishment – 150 acres
- Marsh Nourishment (Spray Dredge – 101 acres
- Terrace Field – 550 acres (20 acres of Marsh)
- All located on Cameron Prairie NWR
- Creating Potential Black Rail Habitat

East Prong Marsh Restoration

- Potential Issues – Calcasieu Lake borrow site

- Total Project Area 1,251 acres
- Estimated Cost (25% contingency): $25-$30M
- Total Net Acres 400-450 acres

REMOVED
R4, CS-03

PPL32 PROJECT NOMINEE FACT SHEET
February 8, 2022

Project Name: West Cove Marsh Creation and Nourishment

Project Location:
Region 4, Calcasieu-Sabine Basin, Cameron Parish. Marshes west of the West Cove shoreline.

Problem:
Historic aerial photography indicates the marsh to the west of the West Cove shoreline have experienced a pronounced degradation. Subsidence, canal dredging, saltwater intrusion, and altered hydrology (levees) are all important factors contributing to the loss of marsh habitat within and surrounding the project area. Since 2000, the area has lost a significant amount of its wetlands. The wetland loss rate for areas near the project area is -0.49%/year based on USGS hyper temporal data from 1985 to 2020.

Goals:
The goals of the project are to: 1) create approximately 197 acres of marsh and nourish an additional 135 acres of marsh with material dredged from West Cove.

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 could benefit the Black Rail which is listed as threatened and several species that are species of concern. These include, but are not limited to Least Bittern, Mottled Duck, King Rail, and Saltwater topminnow.

Proposed Solutions:
The current proposed project would create 197 acres of marsh and nourish an additional 135 acres of marsh using sediment hydraulically dredged from West Cove. Existing canal spoil banks, emergent marsh, and segments of containment dikes will be used to contain the dredge material. Containment dikes will be degraded and/or gapped as necessary to reestablish hydrologic connectivity with adjacent wetlands.

Preliminary Project Benefits:
1) What is the total acreage benefited both directly and indirectly? Approximately 361 acres would be benefited.

2) How many acres of wetlands will be protected/created over the project life? The total net acres protected/created over the project life are approximately 181 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%). Loss rate reduction should be 50>74%.

4) Do any project features maintain or restore structural components of the coastal ecosystem such as barrier islands, natural or artificial levee ridges, beach and lake rims, cheniers, etc. This project would help maintain the West Cove shoreline by enhancing or creating marsh directly adjacent to the shoreline.

5) What is the net impact of the project on critical and non-critical infrastructure? Would protect a large oil and gas field including several roads and oil and gas infrastructure. Would also protect important habitat on Sabine NWR.

6) To what extent does the project provide a synergistic effect with other approved and/or constructed restoration projects? Would work with several marsh creation projects in the Mud Lake area.

Identification of Potential Issues:
Borrow area is considered oyster seed grounds possible pipelines.

Preliminary Construction Costs:
The estimated construction cost range plus 25% contingency is $10 and $15M.

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

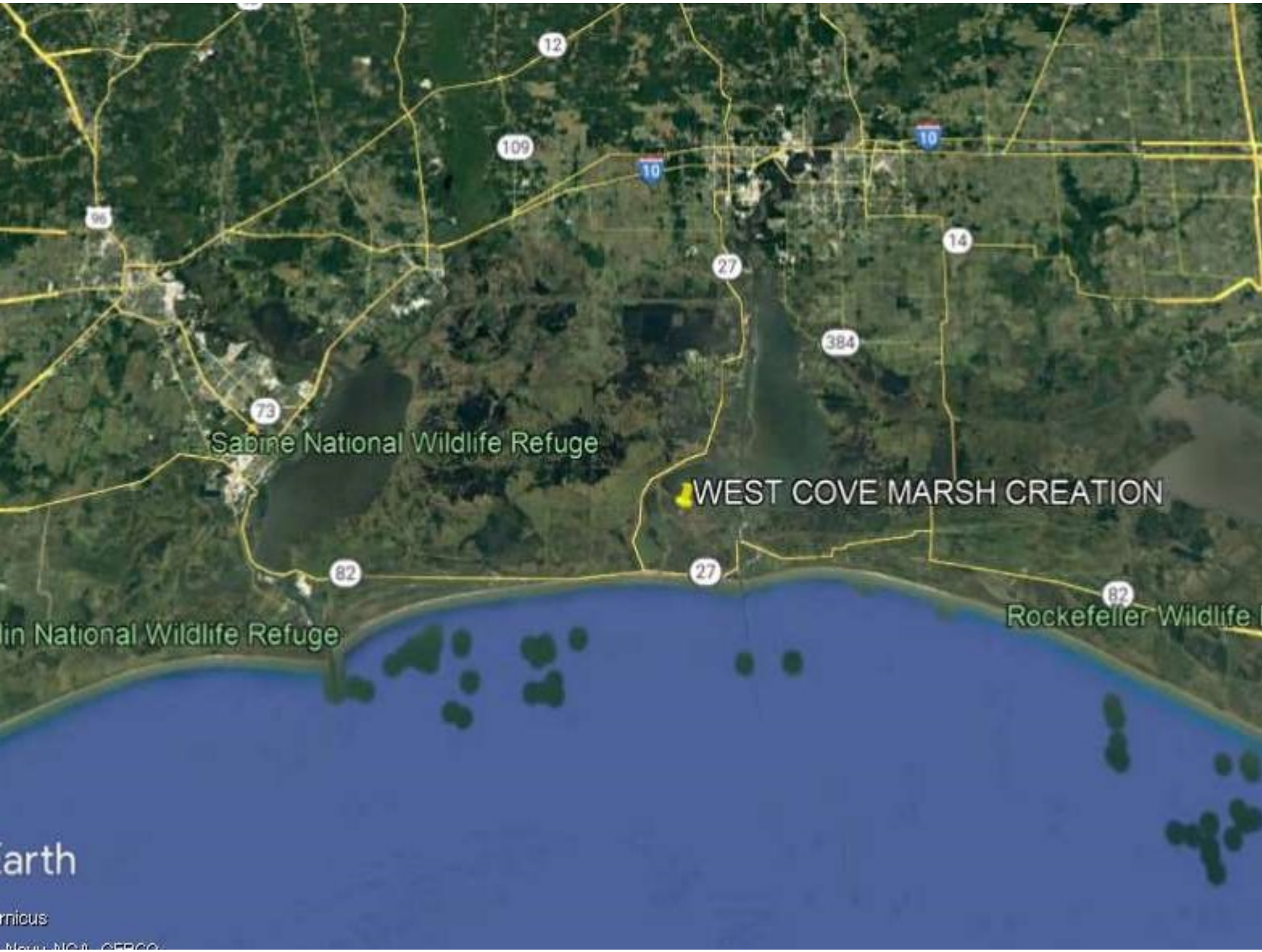
U.S. Fish & Wildlife Service

Louisiana Ecological Services Field Office

West Cove Marsh Creation and Nourishment

National Wildlife Refuges

WEST COVE MARSH CREATION


12
109
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96
14
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384
73
Sabine National Wildlife Refuge
WEST COVE MARSH CREATION
82
27
82
Rockefeller Wildlife
in National Wildlife Refuge
arth
rnicus

WEST COVE MARSH CREATION

Problem:

- **Hurricane Rita and several of the more recent hurricanes have had a negative impact in this area**

- **The interior marsh is highly fragmented and susceptible to shoreline breaches into West Cove**

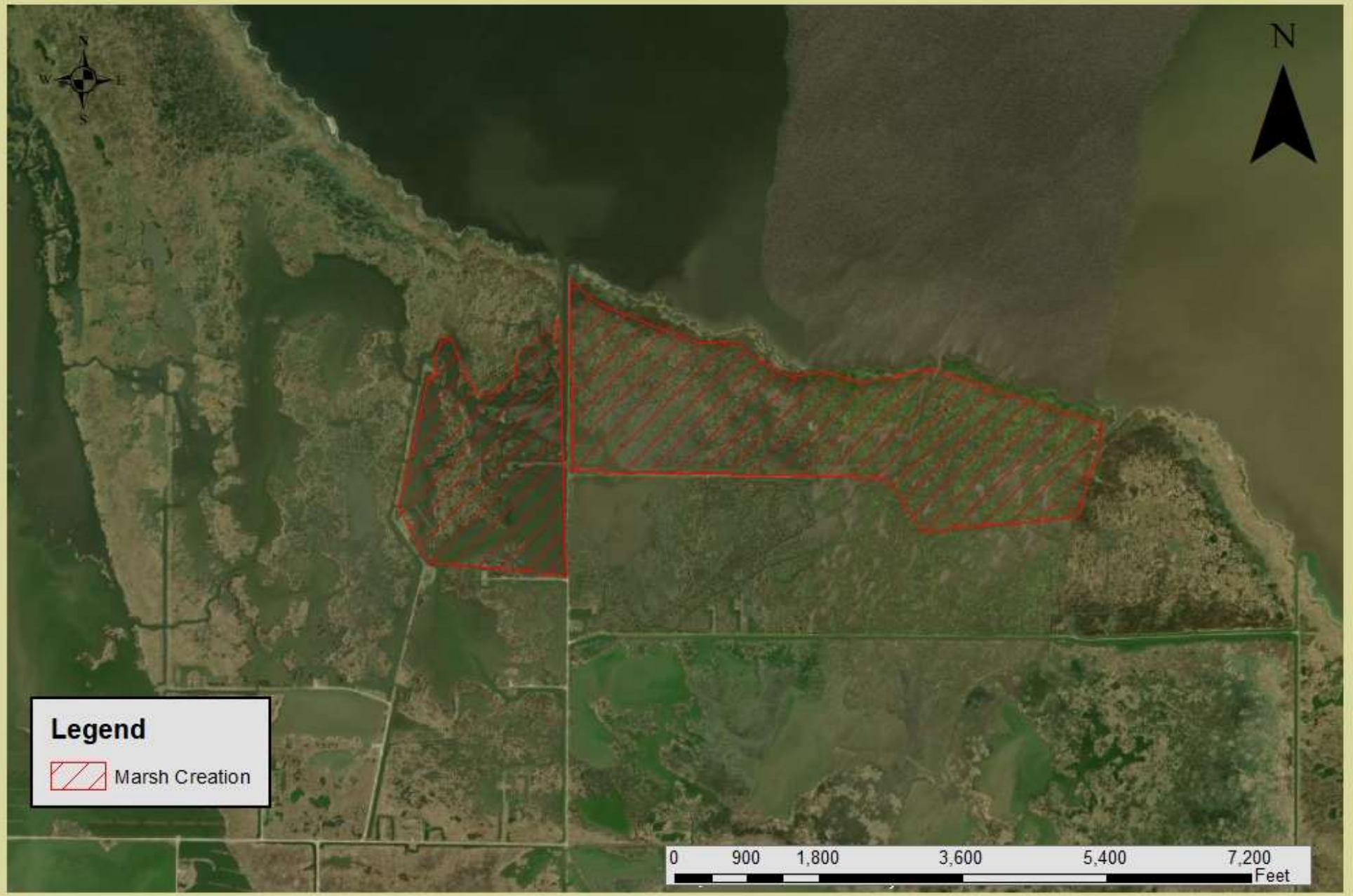

th

U.S. Fish & Wildlife Service

Louisiana Ecological Services Field Office

West Cove Marsh Creation and Nourishment

National Wildlife Refuges



West Cove Marsh Creation

Goals:

- **Create 180 acres and nourish 180 acres of broken/fragmented marsh west of the west Cove shoreline.**

Net Acres:

- **Total net acres = 150-200 acres**

Preliminary Construction Costs:

- **The estimated construction cost range plus 25% contingency $10-15M**

SPECIES OF CONCERN AND RARE SPECIES

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

PPL32 PROJECT NOMINEE FACT SHEET
February 2022

Project Name
Lambert Lake Marsh Creation

Project Location
Region 4, Calcasieu-Sabine Basin, Cameron Parish. Southeast of Calcasieu Lake and approximately 6 miles northeast of Cameron, Louisiana.

Problem
The marshes of Cameron Prairie National Wildlife Refuge provide habitat for migratory birds as well as shrimp, crabs, and various species of fish. However, over the last 90 years, the area has lost nearly one third of its marshes and thus habitat for wildlife and fisheries due to subsidence, saltwater intrusion and tropical storms. In 2020, two hurricanes made landfall in southwestern Louisiana, further contributing to land and habitat loss in the region. With increasing storm frequency and subsequent declining stability of surrounding marsh, the rim of Lambert Lake is vulnerable to storm surge and further deterioration.

Goals
Restoration of the southern rim of Lambert Lake through creation and nourishment of an estimated 240 acres of marsh.

Proposed Solution
Utilizing dredged material from Calcasieu Lake, 2.2 million cubic yards of sediment will be hydraulically pumped to two marsh creation sites. The western cell consists of 170 acres of new marsh, while in the eastern cell, 150 acres of marsh will be created. An additional 38 acres of marsh will be nourished. To achieve a functional marsh, containment dikes will be gapped or degraded following construction to support estuarine fisheries access.

Preliminary Project Benefits

1) *What is the total acreage benefited both directly and indirectly?*
   The total project area is approximately 320 acres of created marsh and 38 acres of nourished marsh.

2) *How many acres of wetlands will be protected/created over the project life?*
   The net acre benefit range is 240-245 acres after 20 years.

3) *What is the anticipated loss rate reduction throughout the area of direct benefits over the project life (e.g., 50% reduction in the background loss rate)?*
   A 50% loss rate reduction is assumed for the marsh creation and marsh nourishment. USGS data from 1985 to 2016 shows from -0.665%/year with the project and -1.33% without the project.

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 marshes surrounding the southern rim of Lambert Lake will be restored thus reducing the effects of coastal storm surge and maintaining the integrity of the lake's ecosystem. The project will also provide a storm surge buffer to the southeastern shore of Calcasieu Lake.

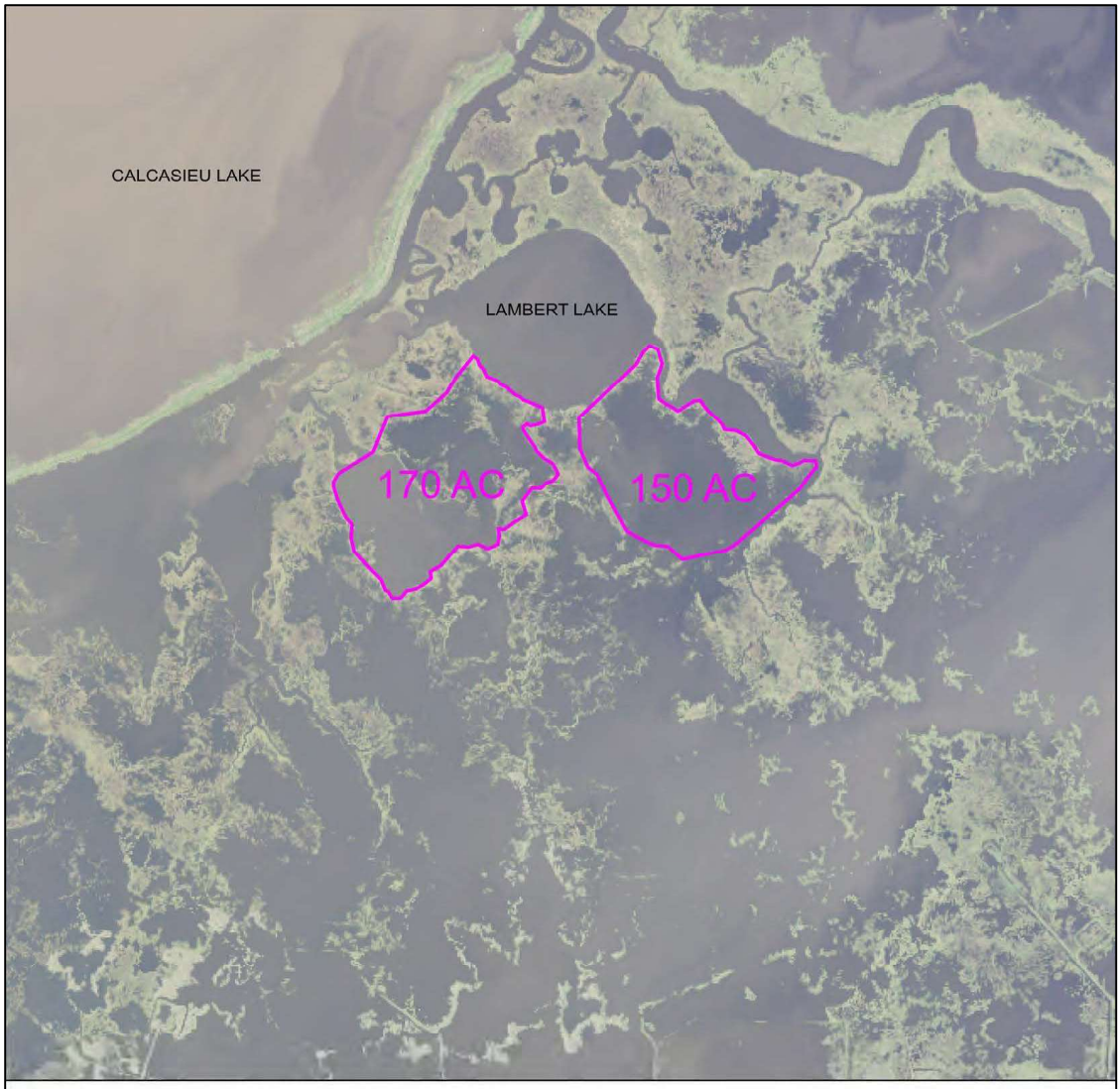
5) *What is the net impact of the project on critical and non-critical infrastructure?*
The project may have minor net positive impact to non-critical infrastructure comprised of pipelines and oil and gas wells and camps.

6) *To what extent does the project provide a synergistic effect with other approved and/or constructed restoration projects?*
The synergistic effects of this project coincide with Cameron-Creole Watershed Grand Bayou Marsh Creation, CS-54 as well as the recently approved Engineering and Design project, East Cove Marsh Creation.

Considerations
Threatened species such as the West Indian Manatee and migratory birds like the Eastern Black Rail are considerations in the area. Additionally, public oyster seed grounds are in the vicinity.

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

Preparer(s) of Fact Sheet:
Amy Dixon, USACE, amy.dixon@usace.army.mil, 504.862.1193



Lambert Lake Marsh Creation

Sheet Legend

Proposed Marsh Creation/Nourishment Platform

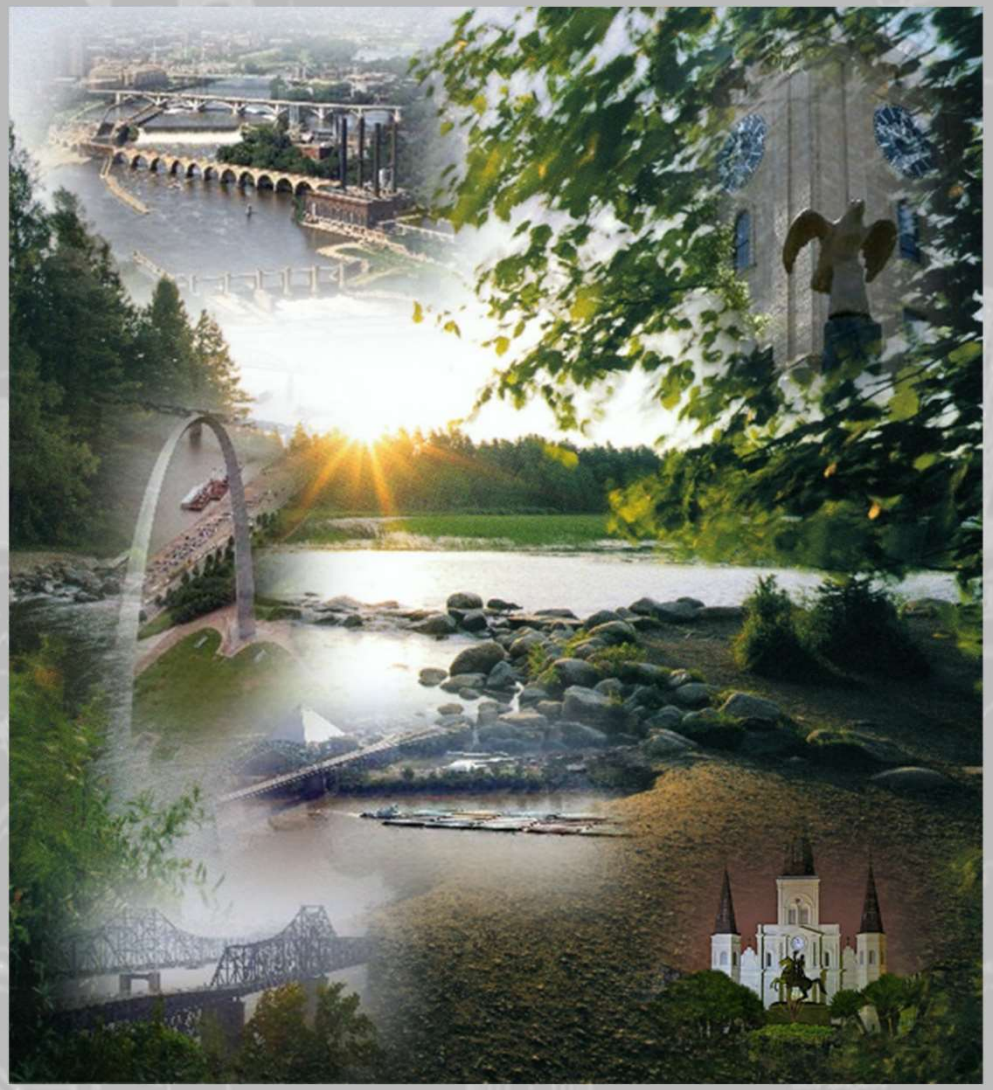
Satellite Imagery: 2017 LA NAIP

N

US Army Corps of Engineers
NEW ORLEANS DISTRICT

0 3000' 6000'

LAMBERT LAKE MARSH CREATION



Regional Planning Team Meeting
Region 4
8 Feb 2022
Calcasieu-Sabine Basin

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STATE MASTER PLAN

004.MC.10 Southeast Calcasieu Lake Marsh Creation: Creation of new wetland habitat and restoration of degraded marsh of approximately 9,000 acres of marsh southeast of Calcasieu Lake.

HISTORIC LAND LOSS

August 2003

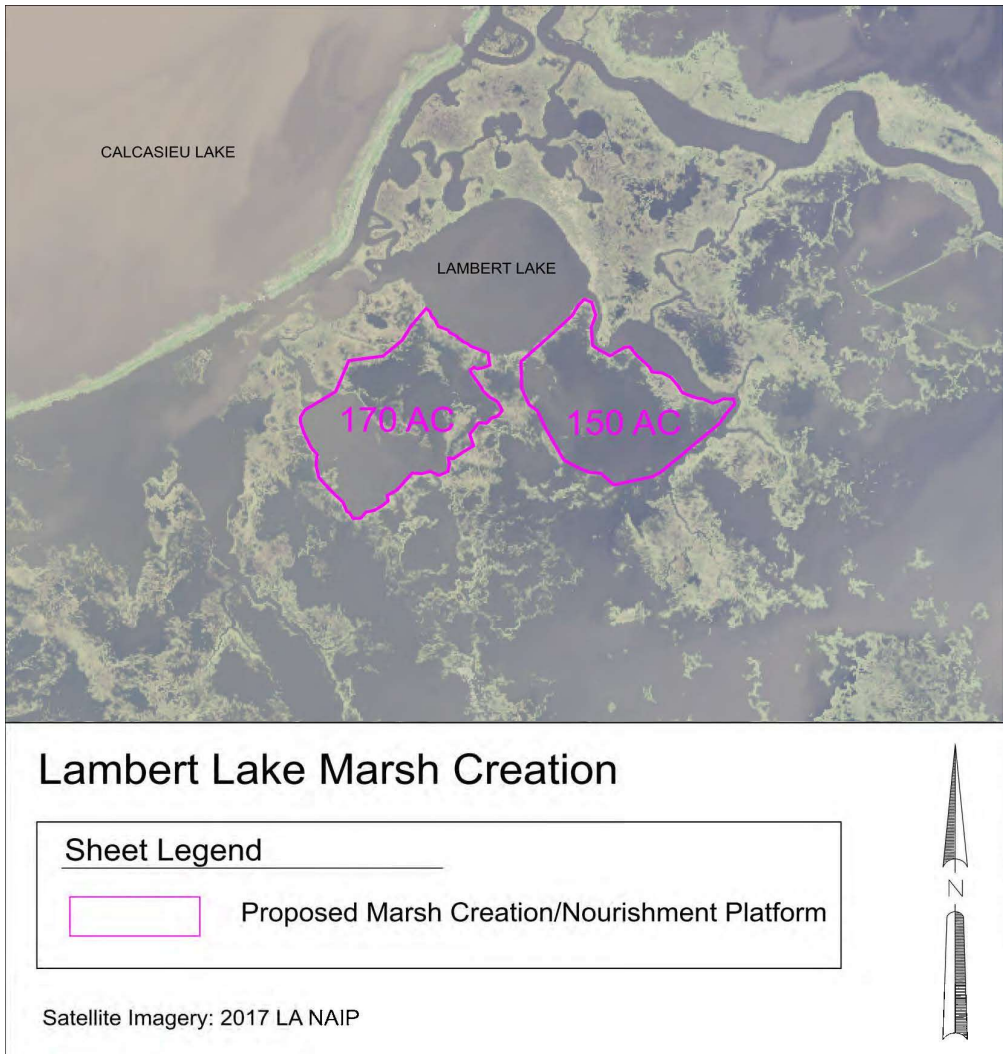
September 2020

PROJECT PROPOSAL

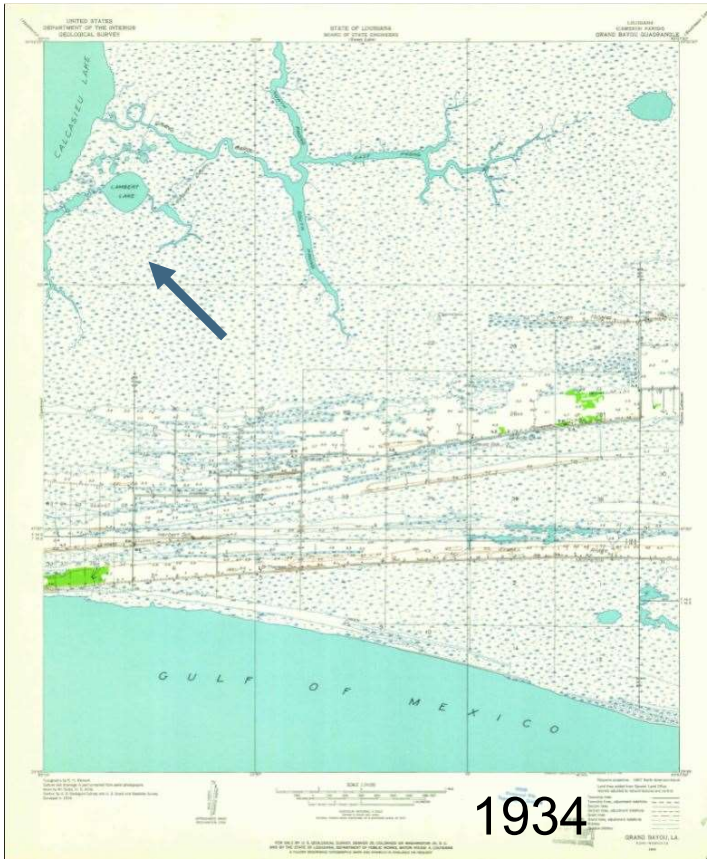
Acres: 320
- 282 Marsh Creation
- 38 Marsh Nourishment

Estimated Cost: $15-$20M
- 25% contingency

Borrow Source: Calcasieu Lake



CURRENT SIGNIFICANCE AND NEED



- Restore southern rim of Lambert Lake
- Maintain integrity of lake's ecosystem
- Reduce the effects of coastal storm surge
- Reestablish natural habitat for threatened species
  - West Indian Manatee, migratory birds like the Eastern Black Rail

PPL32 PROJECT NOMINEE FACT SHEET
8 February 2022

Project Name
Sabine Refuge Marsh Creation Cycles 8 and 9

Project Location
Region 4, Calcasieu-Sabine Basin, Cameron Parish, approximately six miles west of Calcasieu Ship Channel.

Problem
Developed in 1937, the Sabine National Wildlife Refuge marshes provide for a community of over 300 types of birds, 40 types of reptiles and amphibians, and 25 types of mammals. Over 130 different species of fish swim in the waters of the nearly 125,000-acre refuge. Both an influx of saltwater and wave action triggered by winds are degrading the saw grass marsh habitats within the refuge. The clay soils in the Chenier Plain can be more susceptible to erosion from both. The destruction of the intermediate marshes was caused in part from hurricanes and from the Calcasieu River Ship Channel. Based on land trend data from 1985 to 2016, USGS land loss rate for this area is -1.17%/year, without the project.

Goals
With the creation of new marsh and the nourishment of remaining marsh to beneficial elevations, the saltwater disturbance and wind induced erosion can be reduced thus preserving a healthy habitat for the variety of animals that call the refuge home. A net benefit of approximately 569 acres is estimated over the life of the project.

Proposed Solution
Utilizing dredged material from the Calcasieu Ship Channel, in total, approximately 4.5 million cubic yards of sediment will be hydraulically pumped to the two marsh creation sites over two dredging cycles. The sediment will be pumped using the permanent pipeline from Cycle 2 and then through a proposed temporary pipeline to each of the cells. To encourage tidal exchange and provide access for estuarine fisheries, containment dikes will be gapped or degraded after construction.

Preliminary Project Benefits

1) *What is the total acreage benefited both directly and indirectly?*
   The total area benefitted directly and indirectly is approximately 576 acres, a western cell with 266 acres of marsh creation and an eastern cell with 284 acres of marsh creation and 26 acres of marsh nourishment.

2) *How many acres of wetlands will be protected/created over the project life?*
   The net acre benefit range is approximately 565-570 acres after 20 years.

3) *What is the anticipated loss rate reduction throughout the area of direct benefits over the project life (e.g., 50% reduction in the background loss rate)?*
   A 50% loss rate reduction is assumed for the marsh creation and marsh nourishment.

USGS data from 1985 to 2016 shows from -0.585%/year with the project and -1.17% without the project.

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 historic marsh areas in the Sabine National Wildlife Refuge.

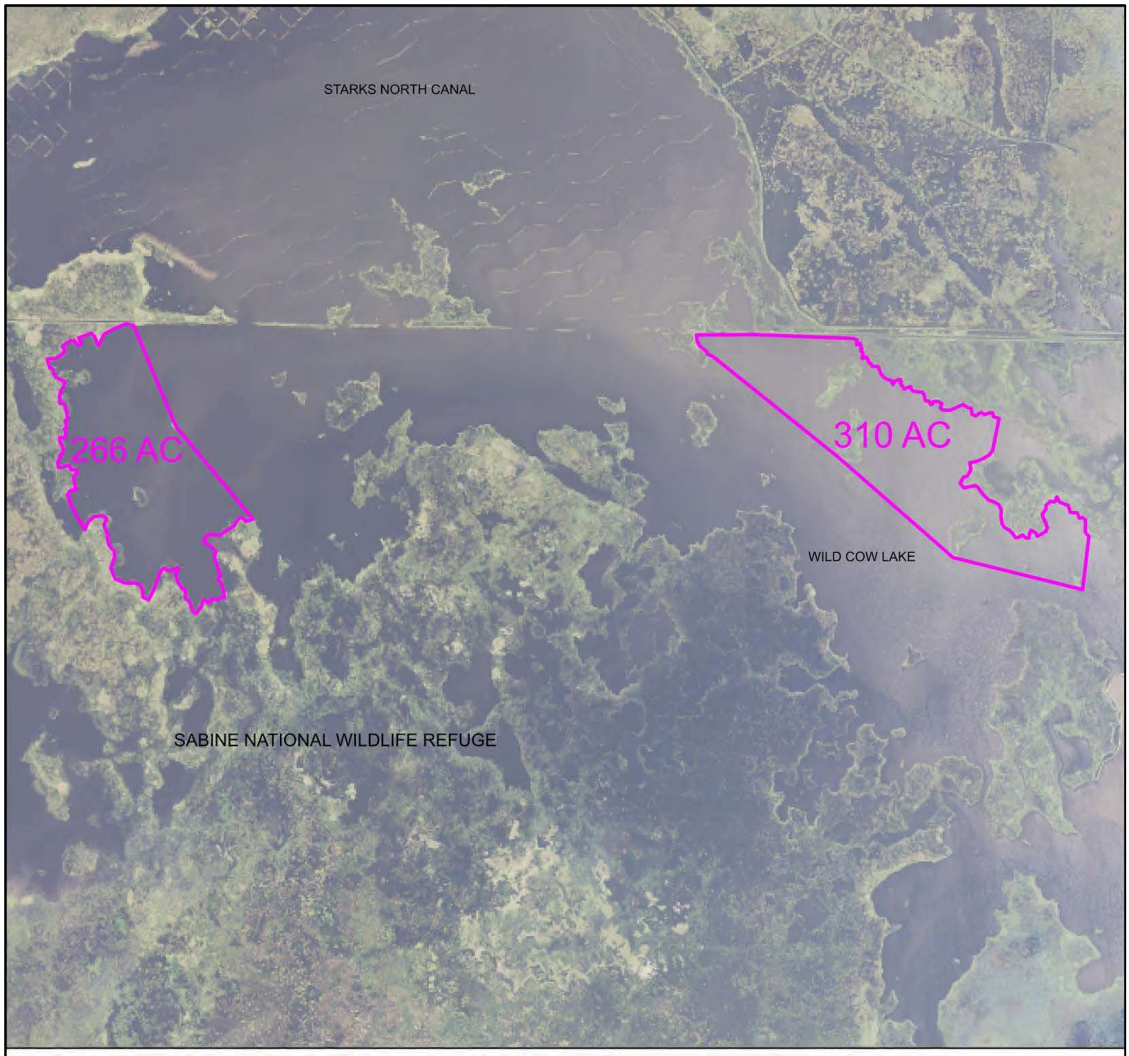
5) *What is the net impact of the project on critical and non-critical infrastructure?*
The project may have minor net positive impact to non-critical infrastructure comprised of pipelines and oil and gas wells and camps.

6) *To what extent does the project provide a synergistic effect with other approved and/or constructed restoration projects?*
The synergistic effects of this project include the previous seven cycles of marsh creation and nourishment projects in the Sabine National Wildlife Refuge.

Considerations
Threatened species such as the West Indian Manatee and migratory birds like the Eastern Black Rail are considerations in the area.

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

Preparer(s) of Fact Sheet:
Alice Kerl, USACE, Alice.P.Kerl@usace.army.mil, 504.862.2396



Sabine Marsh Creation Cycles 8 and 9

Sheet Legend

Proposed Marsh Creation/Nourishment Platform

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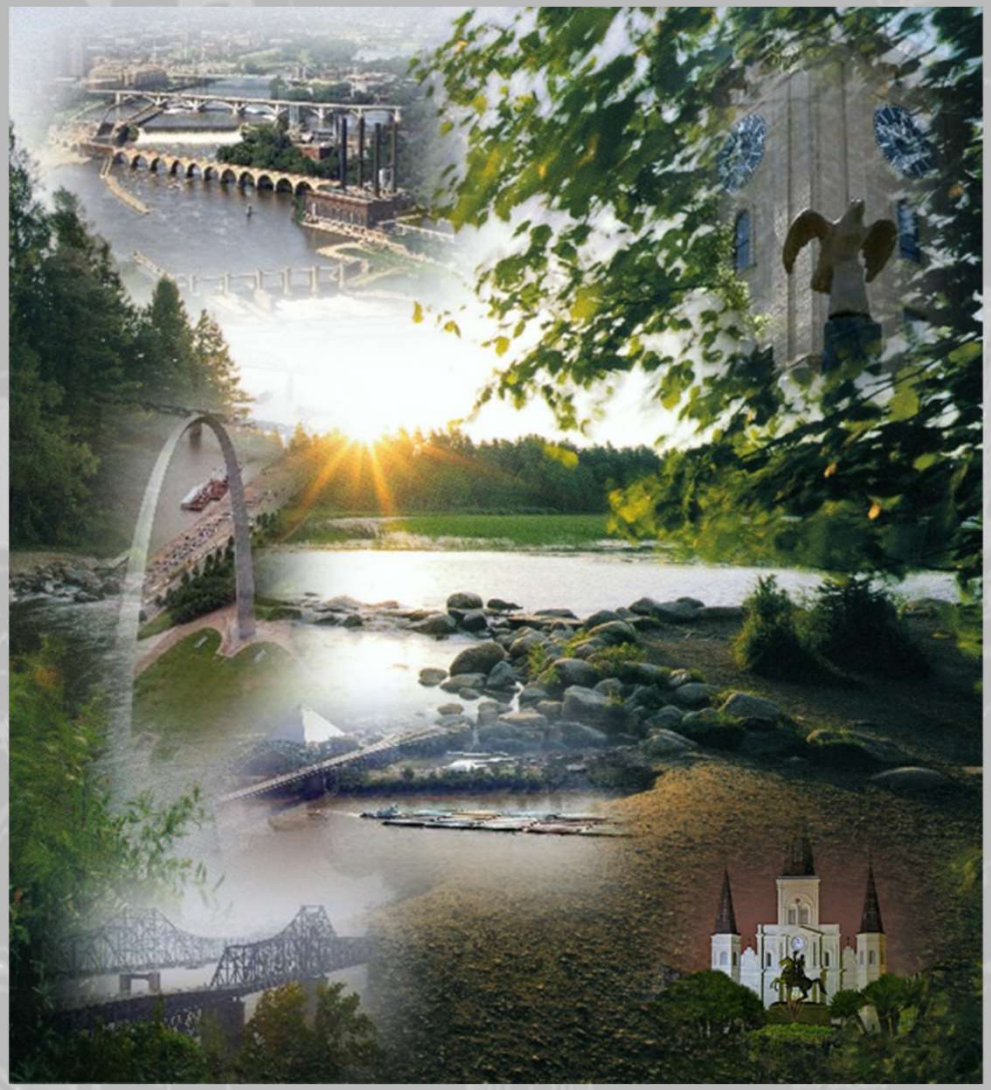
Satellite Imagery: 2017 LA NAIP

US Army Corps of Engineers
NEW ORLEANS DISTRICT

0 3000' 6000'

SABINE REFUGE MARSH CREATION CYCLES 8 & 9



Regional Planning Team Meeting
Region 4
8 Feb 2022
Calcasieu-Sabine Basin

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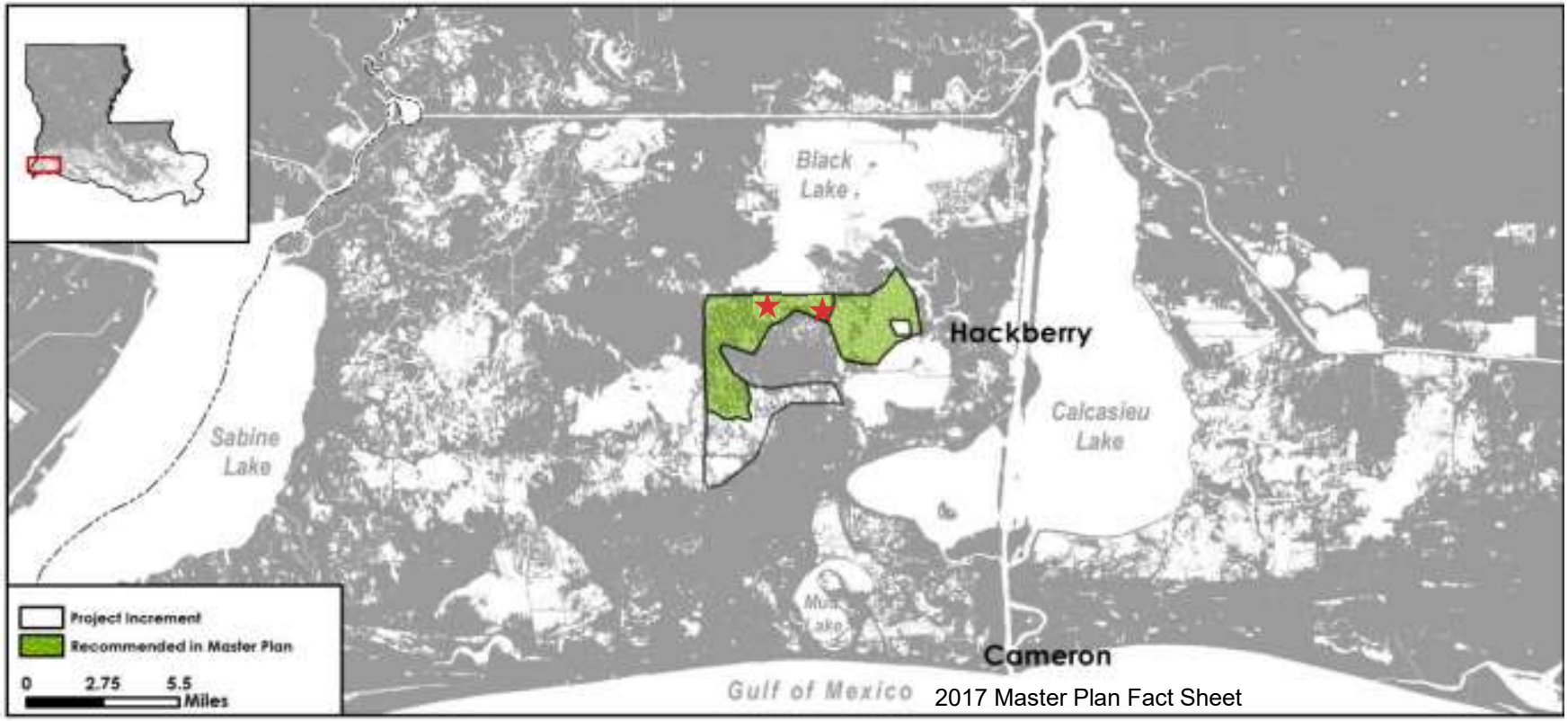
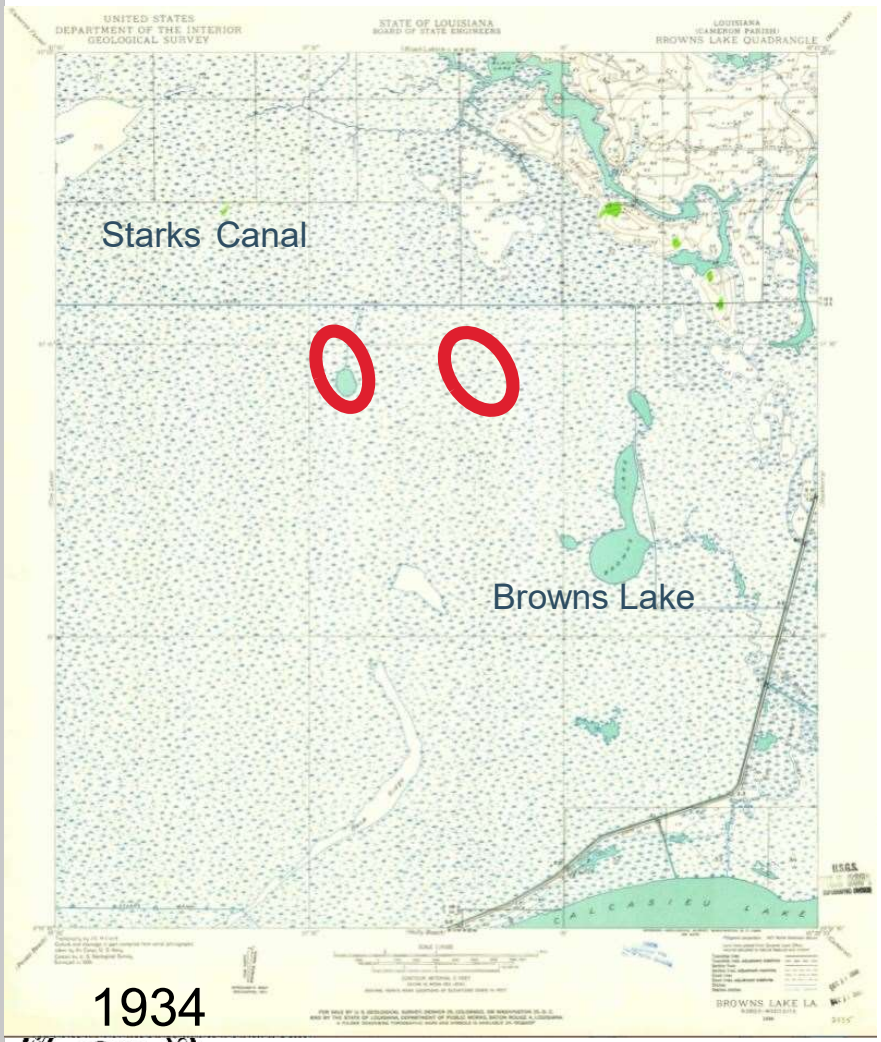
MASTER PLAN



2017 Master Plan Fact Sheet

004.MC.105 West Brown Lake Marsh Creation: Creation of approximately 8,400 acres of marsh in Cameron Parish south of Black Lake to create new wetland habitat and restore degraded marsh.

HISTORIC LAND LOSS



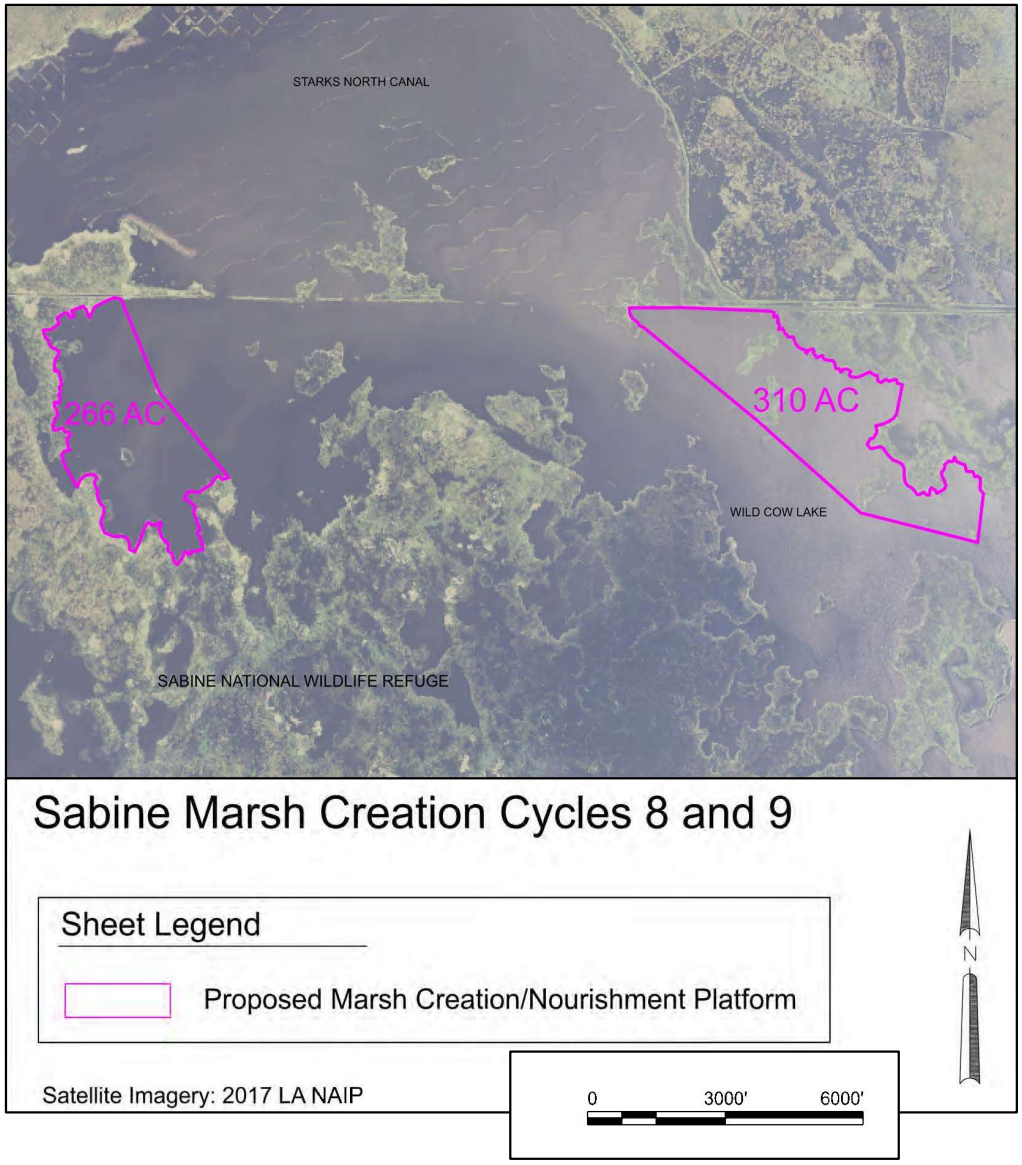
December 2020

PROJECT PROPOSAL

Acres: 576
- 266 Marsh Creation, Cell West
- 284 Marsh Creation, Cell East
- 26 Marsh Nourishment, Cell East

Estimated Cost: $15-$20M
- 25% contingency

Borrow Source: Calcasieu Ship Channel



CURRENT SIGNIFICANCE AND NEED

- Preserving a healthy habitat of 125,000-acre refuge
  - more than 300 types of birds, 40 types of reptiles and amphibians,
  - 25 types of mammals
  - 130 different species of fish

- Beneficially utilizing dredged material from the Calcasieu Ship Channel
- Synergistic with previous 7 Sabine cycles
  - Cycles 1 through 5 constructed, 6 & 7 in Engineering & Design
- Reduce saltwater disturbance and wind induced erosion

PPL32 PROJECT FACT SHEET
February 8, 2022

Project Name
West Cove South Marsh Creation

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

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

Problem
The project proposed is a fragmented wetland area water located immediately southeast of West Cove, approximately 1 mile north of Mud Lake. The project area is located near the Mud Lake South Marsh Creation project (WVA) which shows a land loss rate of -0.71%/yr.

Proposed Solution
The proposed project would create/nourish approximately 728 acres of marsh using sediment dredged from the Calcasieu Ship Channel. The dredged material may be fully contained or partially contained depending upon the borrow sediment characteristics and site conditions. Containment dikes would be degraded as necessary to reestablish hydrologic connectivity with adjacent wetlands.

Project Benefits
Create/nourish approximately 728 acres (create 441 acres and nourish 287 acres) of marsh using sediment dredged from the Calcasieu Ship Channel.

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

Preparer(s) of Fact Sheet:
Brandi Spano, EPA Region 6, (214) 665-7329, spano.brandi@epa.gov

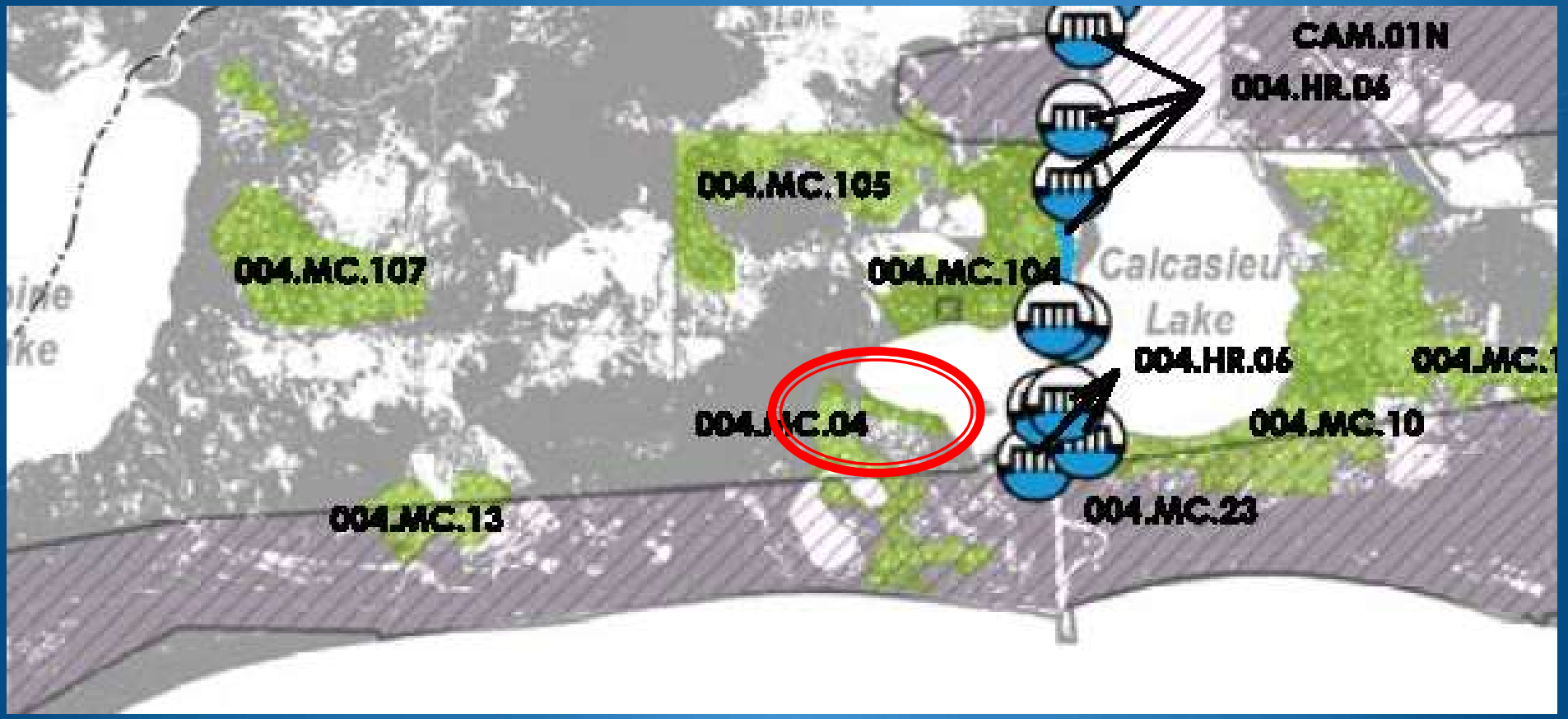

West Cove South MC
West Cove S Marsh Creation
West Cove S Marsh Creation Expansion Cells
340
384
N
Basemap: 2019 NAIP DOQQ
Cameron Parish
Produced by EPA Region 6, Dallas, TX
0 0.075 0.15 0.3 0.45 0.6
Miles
Esri, HERE, Garmin, (c) OpenStreetMap contributors, and the GIS user community

West Cove South Marsh Creation

Coastal Wetlands Planning, Protection and Restoration Act

2017 Master Plan Solution

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

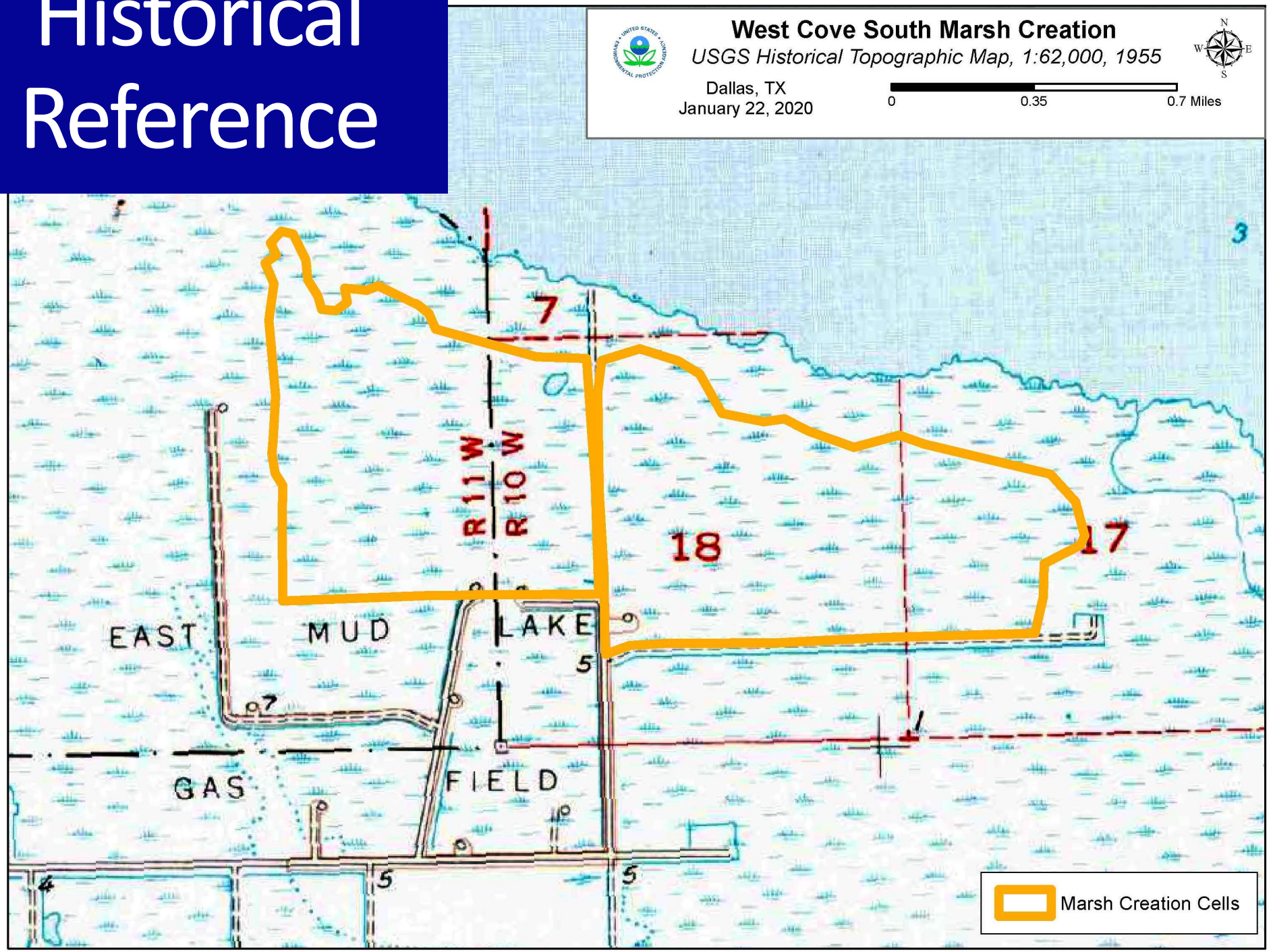



West Cove South MC
West Cove S Marsh Creation
West Cove S Marsh Creation Expansion Cells
2017 Master Plan
340
384
N
Basemap: 2019 NAIP DOQQ
Cameron Parish
Produced by EPA Region 6, Dallas, TX
0 0.1 0.2 0.4 0.6 0.8
Miles
Esri, HERE, Garmin, (c) OpenStreetMap contributors, and the GIS user community

Problems

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

Historical Reference



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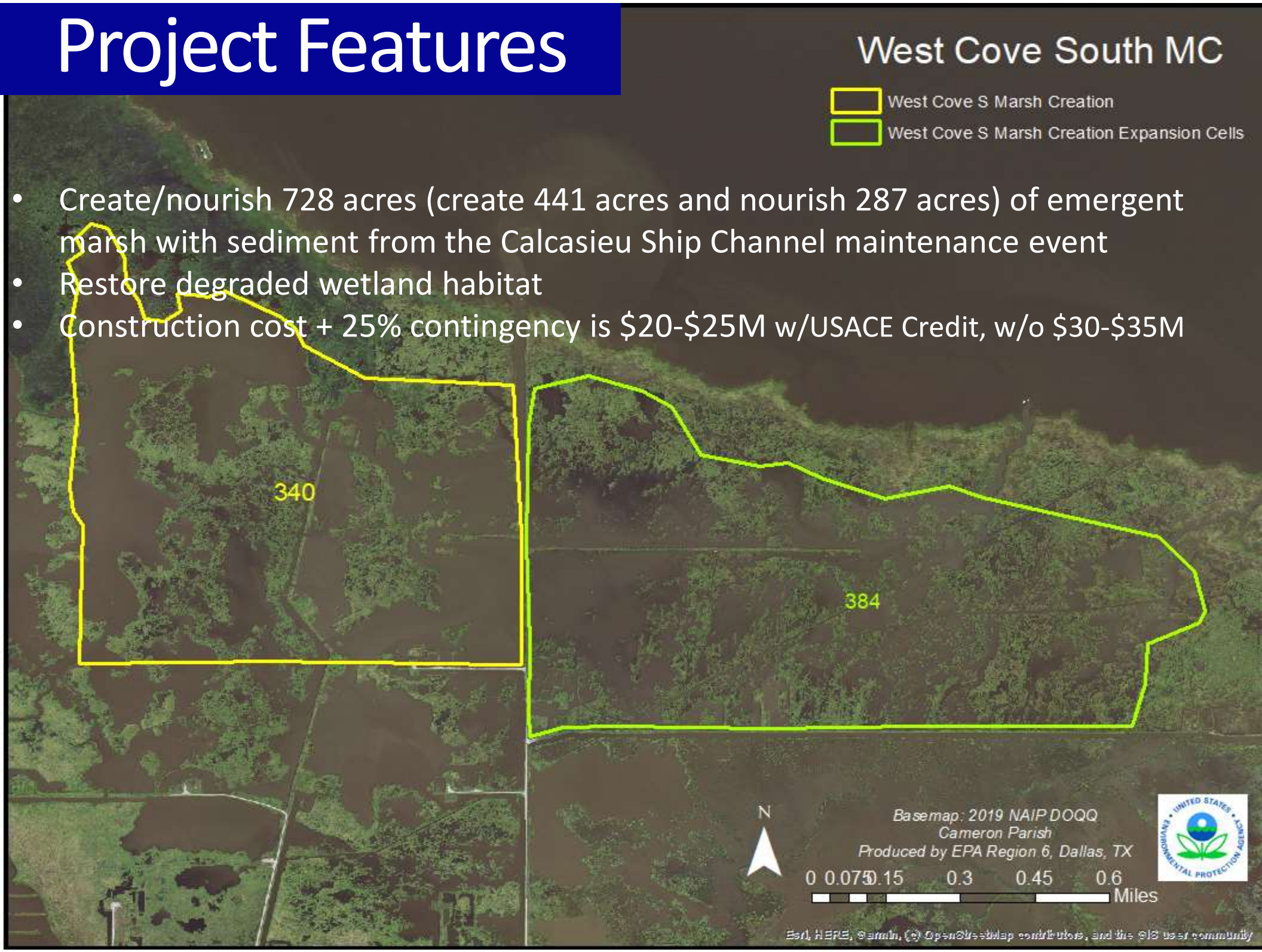
Project Features



- Create/nourish 728 acres (create 441 acres and nourish 287 acres) of emergent marsh with sediment from the Calcasieu Ship Channel maintenance event
- Restore degraded wetland habitat
- Construction cost + 25% contingency is $20-$25M w/USACE Credit, w/o $30-$35M

PPL32 PROJECT FACT SHEET
February 8, 2022

Project Name
Mud Lake South Marsh Creation

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

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

Problem
The project proposed is a fragmented wetland area water located immediately west of Mud Lake, just north of LA Hwy 27. The project area has experienced substantial wetland loss due to subsidence, oil and gas activity, saltwater intrusion, construction of the Calcasieu Ship Channel, LA Highway 27 and storm damage. In August of 2020, Hurricane Laura made landfall in Cameron Parish as a Category 4 hurricane and decimated the town of Holly Beach, LA. The Mud Lake S Marsh Creation Candidate polygon is less than 1 mile north and east of Holly Beach. The land loss rate for the area as determined for the PPL31 WVA is -1.05%/yr.

Proposed Solution
The proposed project would create/nourish approximately 321 acres of marsh using sediment dredged from the Gulf of Mexico. The dredged material may be fully contained or partially contained depending upon the borrow sediment characteristics and site conditions and containment dikes would be degraded as necessary to reestablish hydrologic connectivity with adjacent wetlands. The proposed project would be synergistic with Oyster Bayou Marsh Creation and Terracing (CS-59), Oyster Lake Marsh Creation and Nourishment (CS-79), East Mud Lake Marsh Management (CS-20) to the northwest, and Holly Beach Sand Management (CS-31).

Project Benefits
This project would create 271 acres of marsh and nourish at least 50 acres of existing fragmented emergent marsh near Mud Lake in areas that were historically marshland but are now largely open water. Tidal creeks/ponds (6.5 acres) would also be created. The proposed project features will help maintain the marshes adjacent to and separating Mud Lake and Mud Pass and will provide support as a barrier marsh to the Gulf of Mexico shoreline. Nearby infrastructure would benefit from this project.

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

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

Mud Lake South Marsh Creation

Marsh Creation *

Project Boundary

* denotes proposed features

0.25 0 0.25 0.5 Kilometers

0.25 0 0.25 0.5 Miles

Scale: 1:35,000

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

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

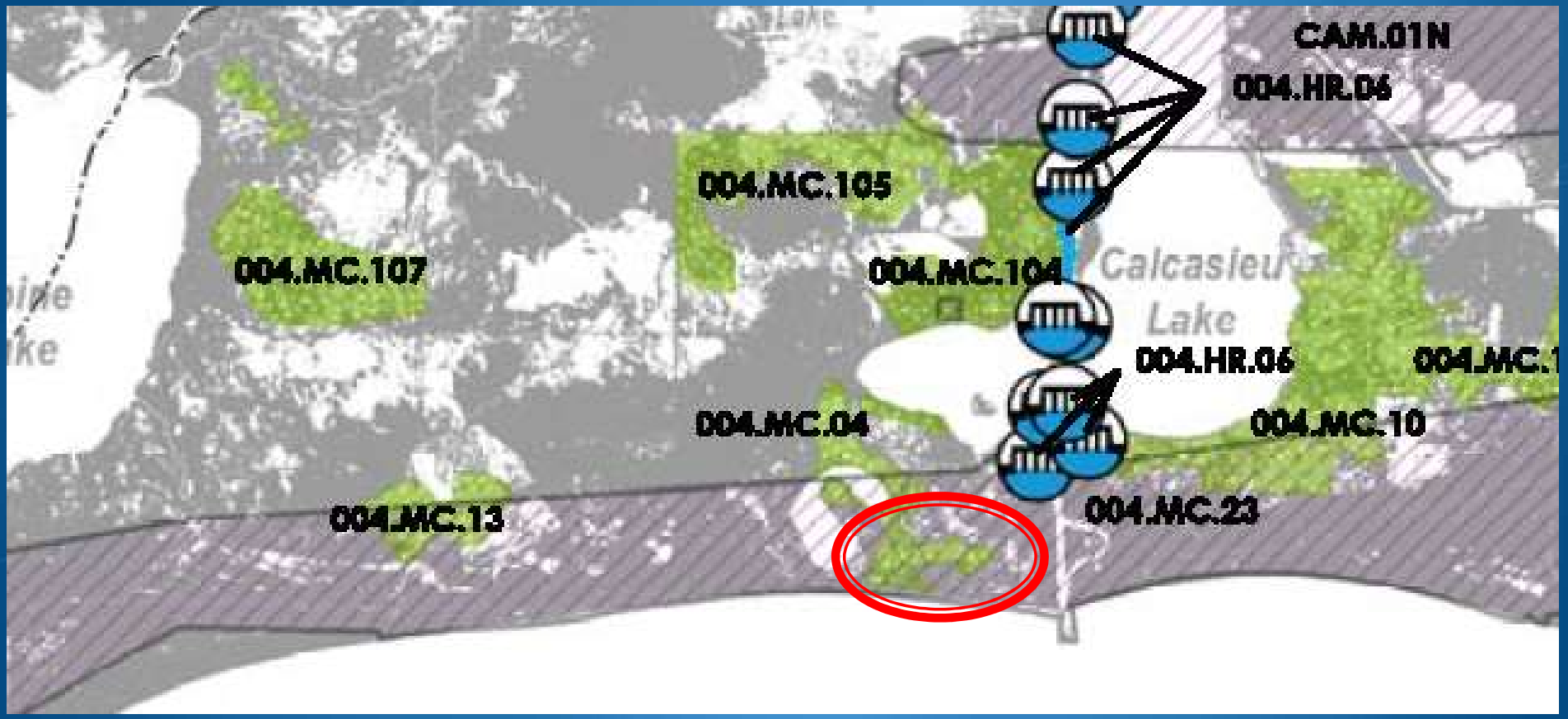
Image Source:
2017 NAIP

Mud Lake South Marsh Creation

Coastal Wetlands Planning, Protection and Restoration Act

2017 Master Plan Solution

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



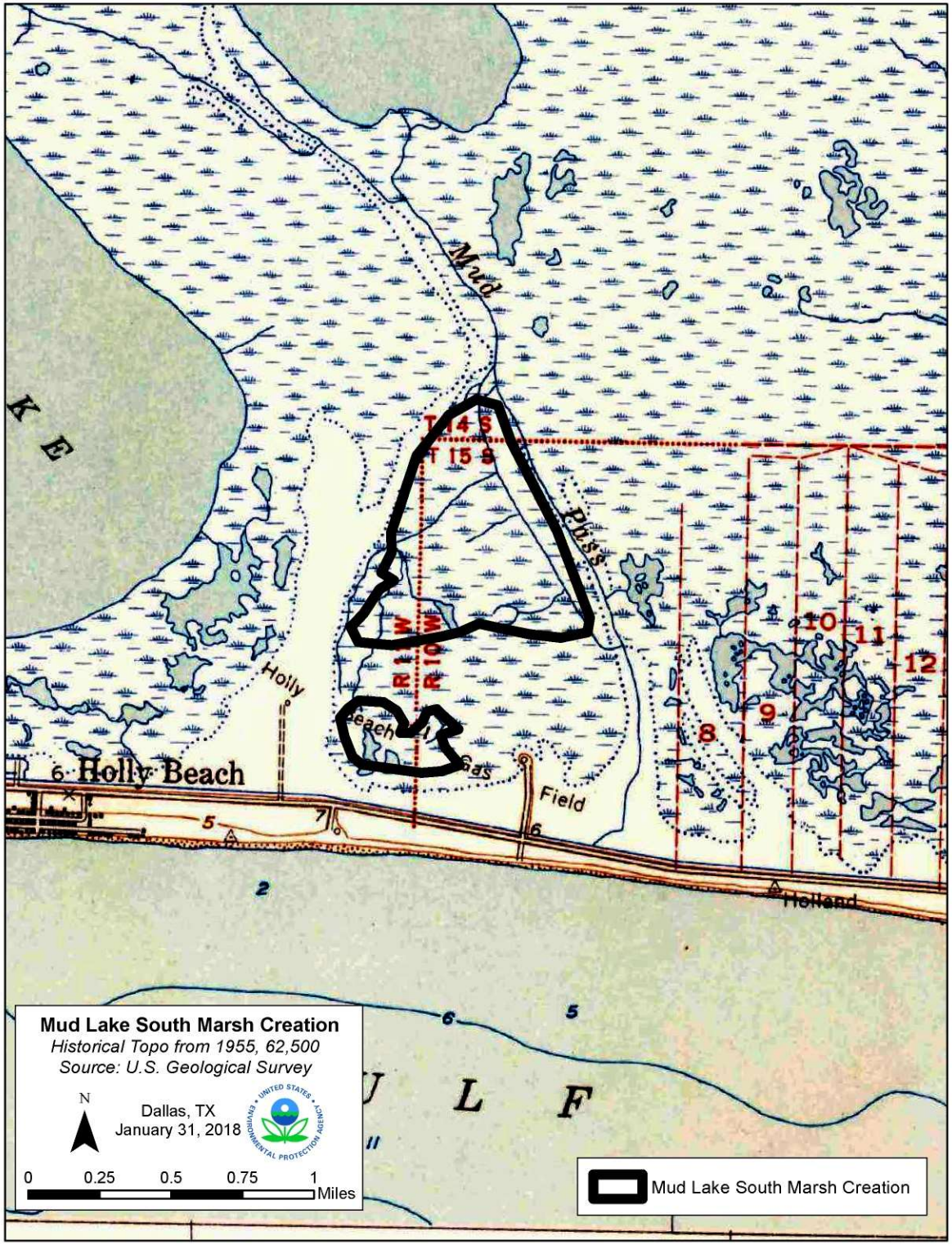
2017 Master Plan Consistency & Project Synergy

Oyster Bayou MC (CS-59) and Oyster Lake (CS-79) to the E

Problems

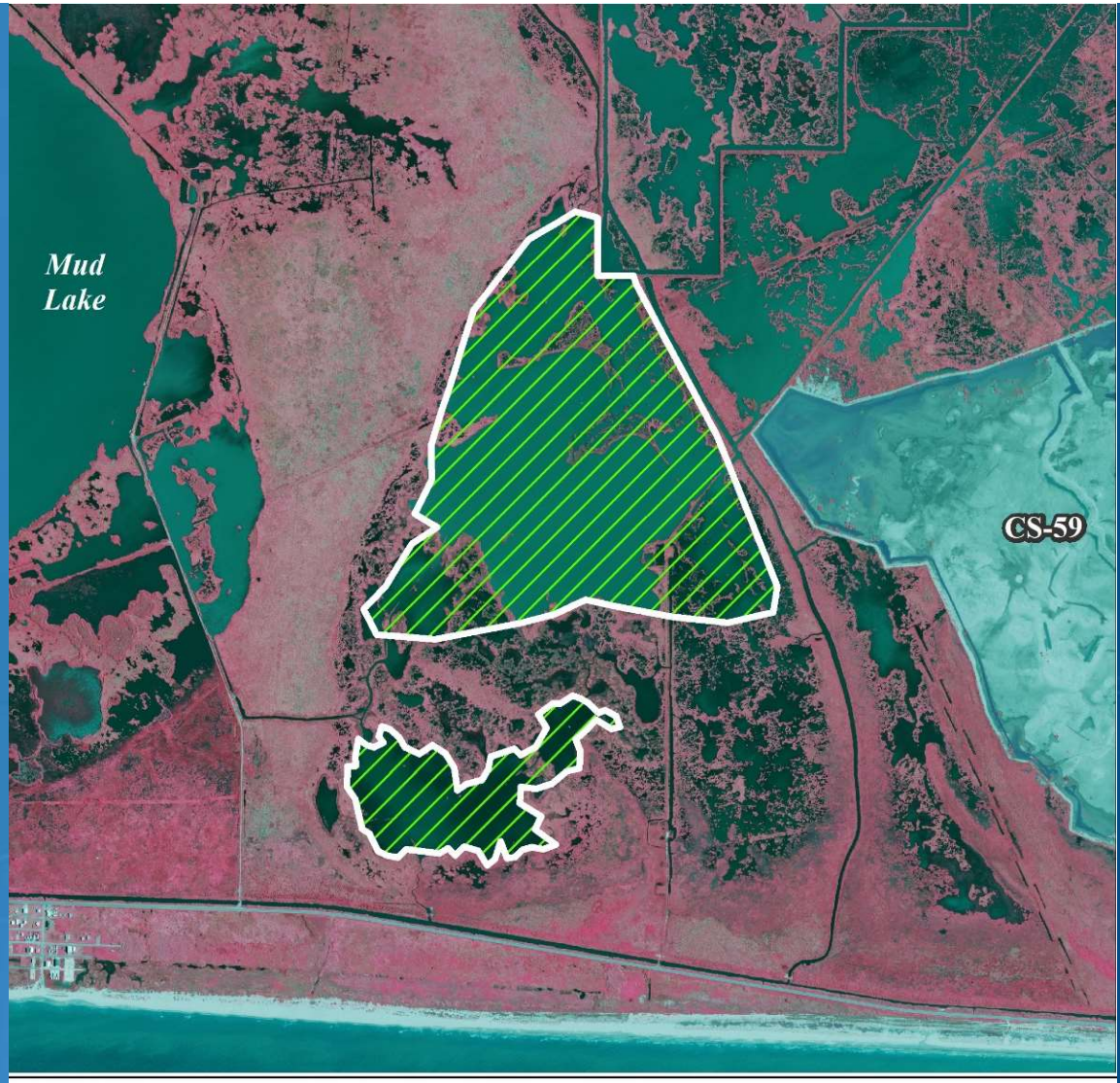
- Wetland loss due to storm and hurricane impacts (as recent as Aug 2020)
- Subsidence
- Saltwater intrusion
- Cameron Parish could lose an additional 40% of its land area, especially to coastal towns, over the next 50 years and face severe storm surge flood risk (2017 MP).

Historical Reference



Project Features

- Create/nourish 321 acres (create 267 acres and nourish 54 acres) of emergent marsh with sediment from the Gulf of Mexico
- Provide increased protection for nearby infrastructure
- Restore degraded wetland habitat
- Construction cost + 25% contingency is $15-$20M



Mud Lake South Marsh Creation (PPL31 Candidate)

N

Marsh Creation *

Project Boundary

* denotes proposed features

0.25 0 0.25 0.5 Kilometers

0.25 0 0.25 0.5 Miles

Scale: 1:20,000

USGS science for a changing world

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

Image Source:
2019 NAIP CIR

Map ID: 2021-11-0019
Map Date: July 7, 2021

PPL32 PROJECT NOMINEE FACT SHEET
February 8, 2022

Project Name
Black Bayou South Marsh Creation and Nourishment

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

Problem
Wetland loss in the project area is due to hurricanes (Rita 2005, Ike 2008, Laura 2020, and Delta 2020), subsidence, sea level rise, and conversion to open water. Wind erosion and saltwater intrusion have also resulted in loss of marsh vegetation and wetland soils. The loss of marsh has also enabled the establishment of an increase in cross-system hydrologic connection between Sabine Lake (via The Pines Canal) and Black Bayou. The USGS estimates land loss rates in the project area at -0.21%/yr from 1985 to 2020.

Goals
The project goal is to create and nourish approximately 544 acres (ac) of emergent brackish marsh on the Sabine National Wildlife Refuge and private lands.

Proposed Solution
The project goal is to create and nourish approximately 544 acres (ac) of marsh (393 ac creation 151 ac nourishment). Sediment would be dredged from the Sabine River north of the project area and placed via pipeline. Preliminary estimates based on information provided by the U.S. Army Corps of Engineers, Galveston District, indicate approximately 5.5-6.5 miles of the federally maintained navigation channel would need to be dredged to provide sufficient materials for the project as proposed. The cell layout would halt the cross-system hydrologic connection that currently exacerbates wetland loss. During both Phase 0 and Phase 1, opportunities would be explored to increase the amount of marsh creation.

Preliminary Project Benefits

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

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

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

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

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

6) *To what extent does the project provide a synergistic effect with other approved and/or constructed restoration projects?*
The project will have a synergistic effect CS-27 to the north and CS-32.

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

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

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

PPL32 Black Bayou South Marsh Creation and Nourishment

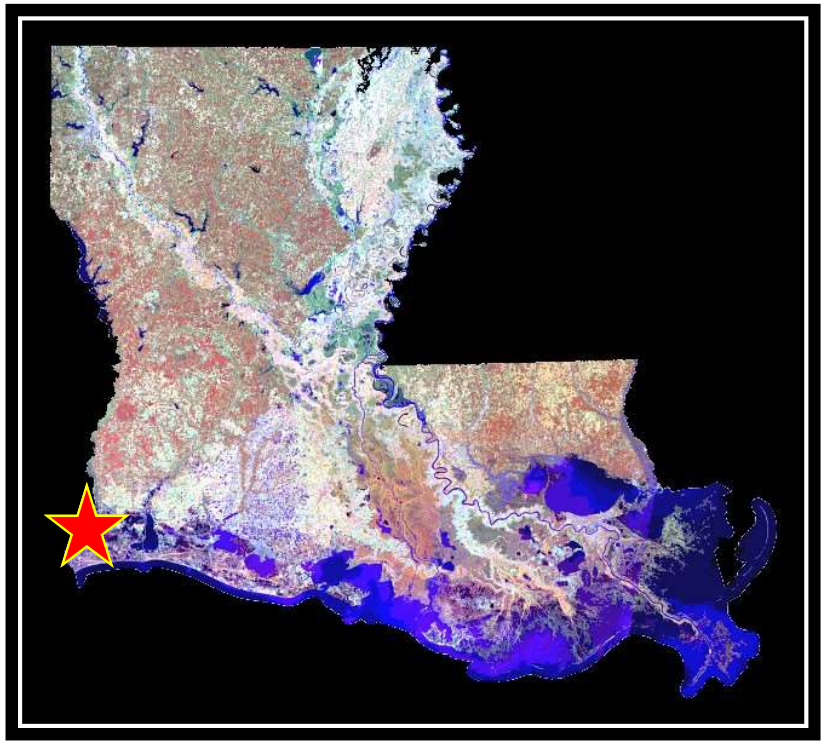
393 acres of marsh creation
151 acres of marsh nourishment

Federal Sponsor: NOAA Fisheries
2019 Aerial Imagery
Map Date 2-2-2021

Legend

Marsh Creation and Nourishment

Black Bayou South Marsh Creation and Nourishment Project



REGION 4 – Calcasieu Sabine Basin

Presenter: Brandon Howard, Fishery Biologist, NOAA

Special Thanks

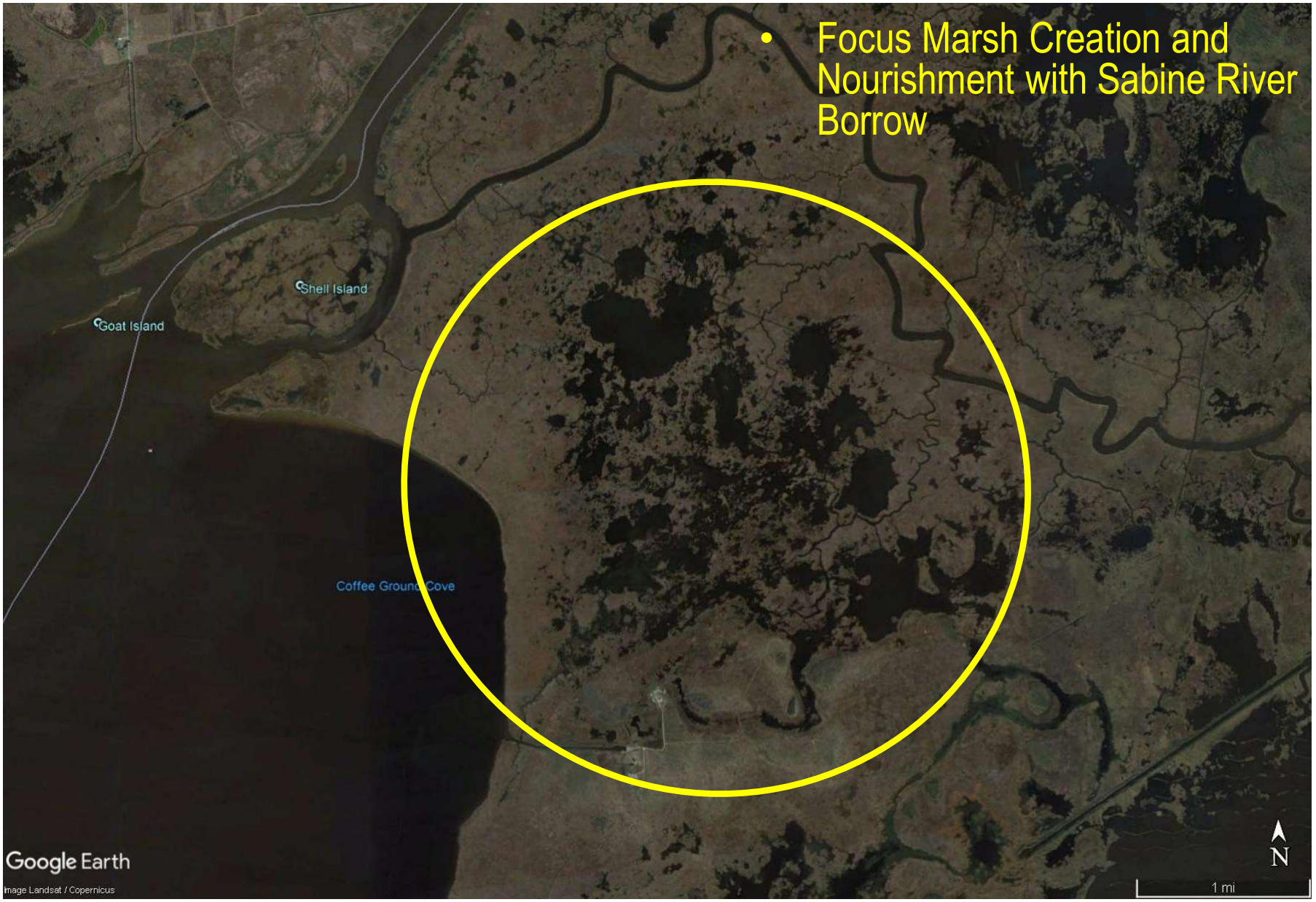
Cameron Parish

Belynda Kinman, USACE-SWG

PPL32 CWPPRA Regional Planning Team Meeting

February 8, 2022

Project Location



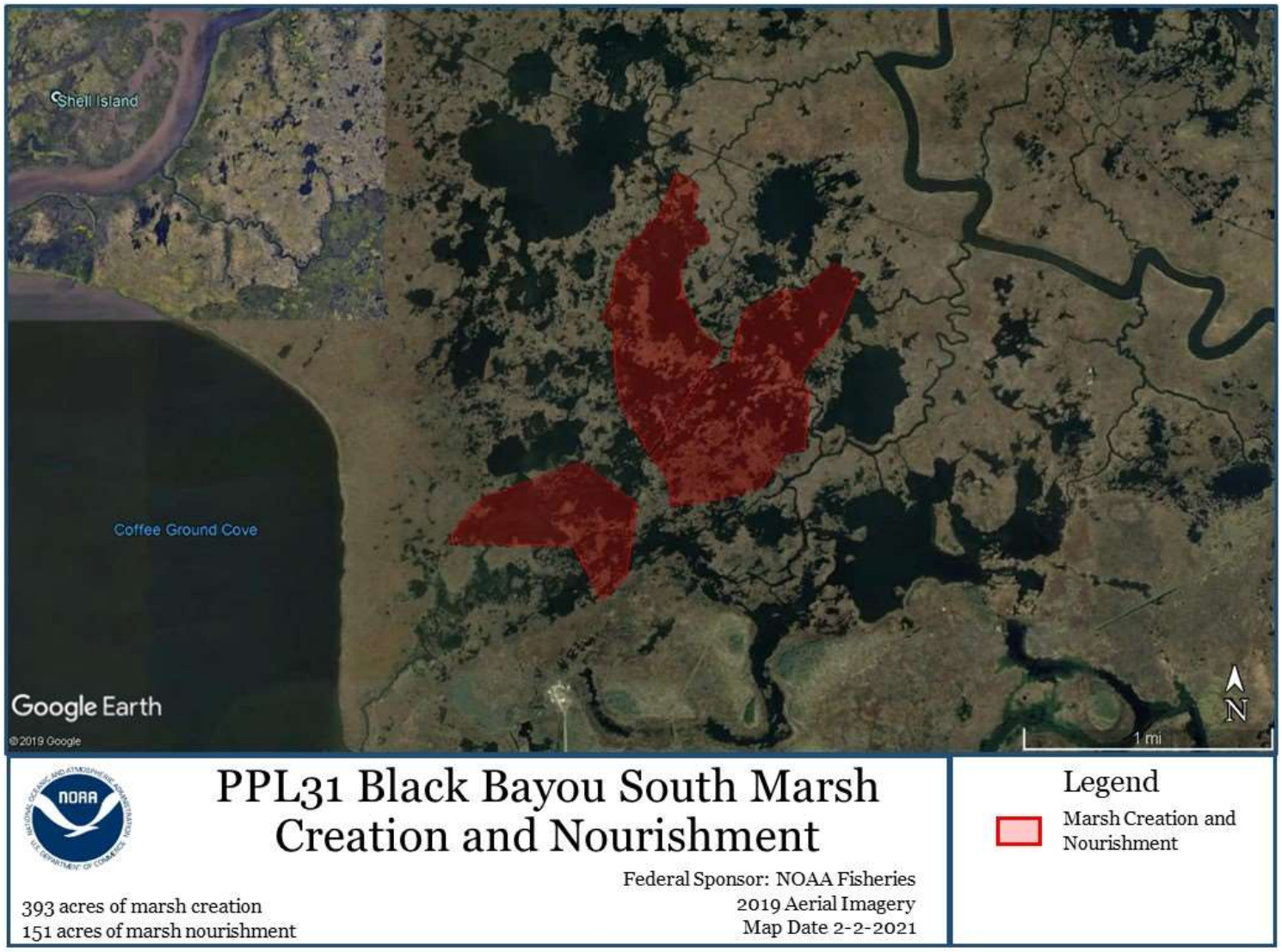
Project Goals

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

Restoration Solution

- 544 Acres of Marsh Creation/Nourishment
  - 393 acres of marsh creation &151 acres of marsh nourishment
  - Hydraulically dredge material from the Sabine River
  - Contained fill areas with dike gapping after construction
  - Incremental cost sharing with USACE-SWG

Project Map



- 2017 State Master Plan Polygon 004.MC.107
- 544 Acres TOTAL of marsh creation/nourishment
- Approximately 393 acres of creation and 151 acres of nourishment
- Sabine River borrow area

Summary of Features, Cost, and Benefits

- **544 Acres Total**
  - 393 acres Marsh Creation
  - 151 acres Nourishment
- **Construction Cost + 25% Contingency $15M - $20M**
- **Net Benefits: 350-400 acres**

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

PPL32 PROJECT NOMINEE FACT SHEET
February 8, 2022

Project Name
Mud Lake Peninsula Marsh Creation

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

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

Problem
The wetlands in this portion of Cameron Parish have been significantly altered by hydrologic modifications, saltwater intrusion, and conversion of marsh to open water. Anthropogenic factors, including the construction of the Calcasieu Ship Channel and LA Highway 27 have caused significant hydrologic changes to this system. In addition, rapid fluid extraction may have contributed to the surface downwarping within this area. These factors contributed to the weakening of the wetland plant community, reducing its ability to respond to increasing salinities and flood duration. Wetlands also converted to open water during increased tidal action (i.e. tropical events), leaving open water areas. Hurricane Rita in 2005, Hurricane Ike in 2008, and Laura in 2020 resulted in marsh loss in the area. Salinity levels and flood duration have improved with time; however, water depths are not conducive to reestablish emergent vegetation. In addition, submerged aquatic vegetation development in the project area is limited by wave action and turbidity within the large, open water areas.

Goals
The project goal is to restore intertidal marsh habitat on the perimeter and within the peninsula of land located in and around Mud Lake. The project should be designed and constructed to maximize wetland benefits throughout the twenty year project life.

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

Preliminary Project Benefits

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

2) *How many acres of wetlands will be protected/created over the project life?*
   The net acres benefit is 300-350 acres after 20 years.

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

A 50% loss rate reduction is assumed for the marsh creation and nourishment area over the project life.

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

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

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

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

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

Preparer(s) of Fact Sheet:
Jennifer Smith; NOAA Fisheries Service, 225-954-6654, Jennifer.Smith@noaa.gov
Jason Kroll; NOAA Fisheries Service, 225-335-9659, Jason.Kroll@noaa.gov

PPL32 Mud Lake Peninsula Marsh Creation

Approximately
307 Acres Marsh Creation
105 Acres Marsh Nourishment

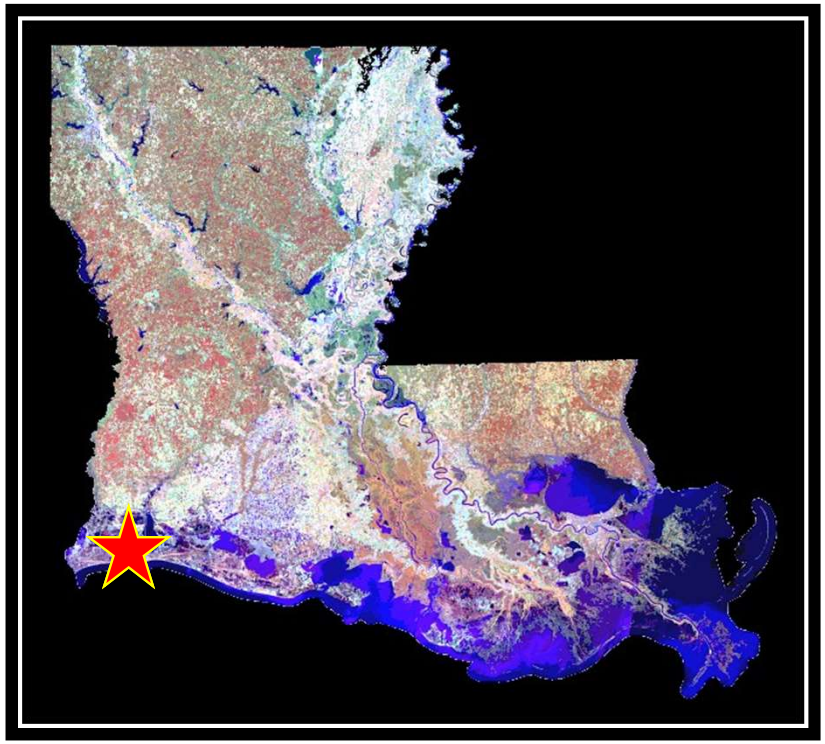
Federal Sponsor: NOAA Fisheries
2017 Aerial Imagery
Map Date 01-23-2020

Legend

- Marsh Creation
- Potential Borrow Areas

Mud Lake Peninsula Marsh Creation Project

NOAA FISHERIES



REGION 4 Calcasieu-Sabine Basin

Presenter: Jennifer Smith, NOAA

Special Thanks

Tim Allen and Francis Fields with Apache Corp.
David Richard and Stream Properties
Jason Kroll and NOAA Team

PPL32 CWPPRA Regional Planning Team Meeting
Virtual Meeting
February 8, 2022

Project Vicinity

Project Area Problems

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

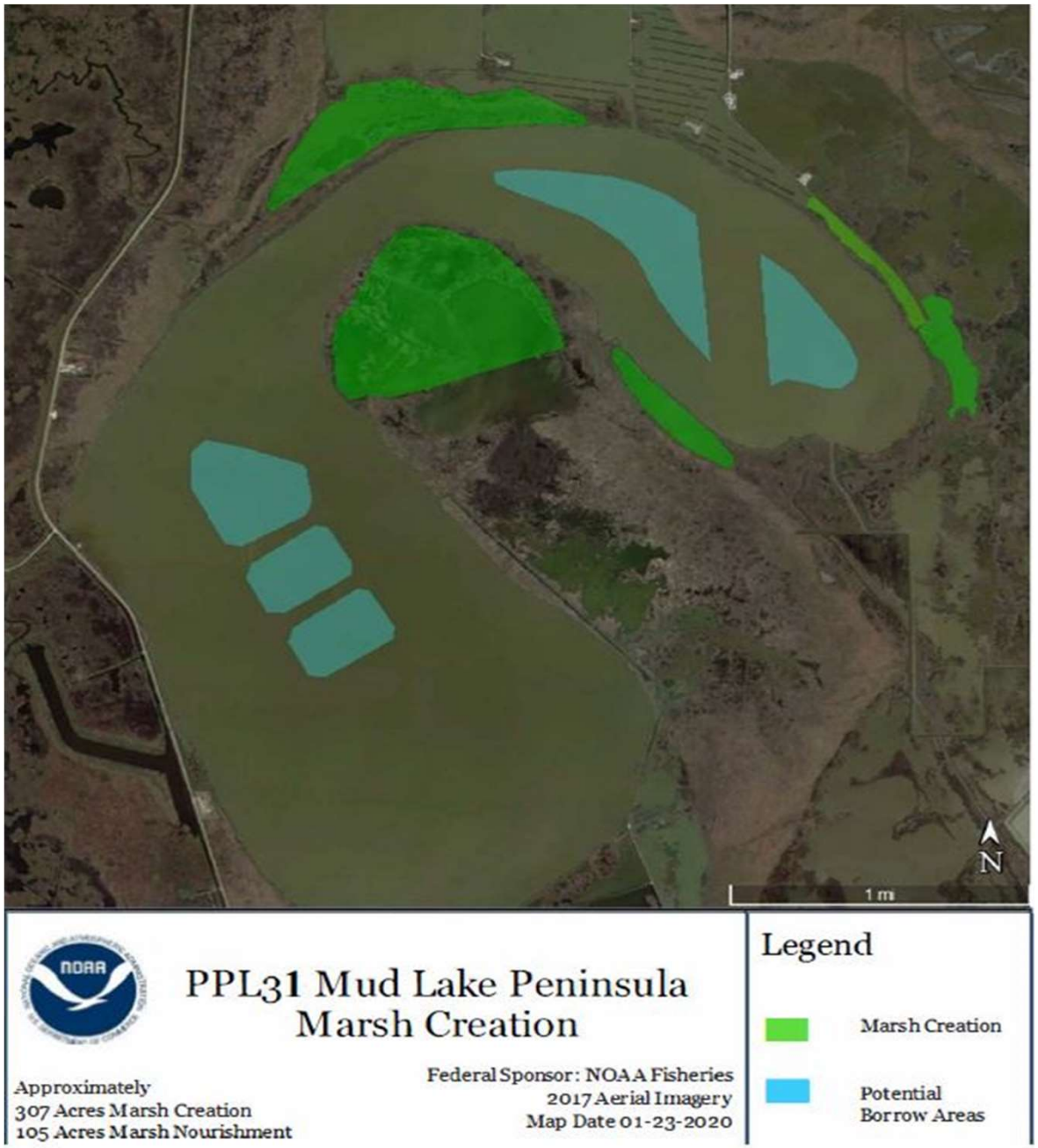
Project Goals

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

Proposed Project Solution

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

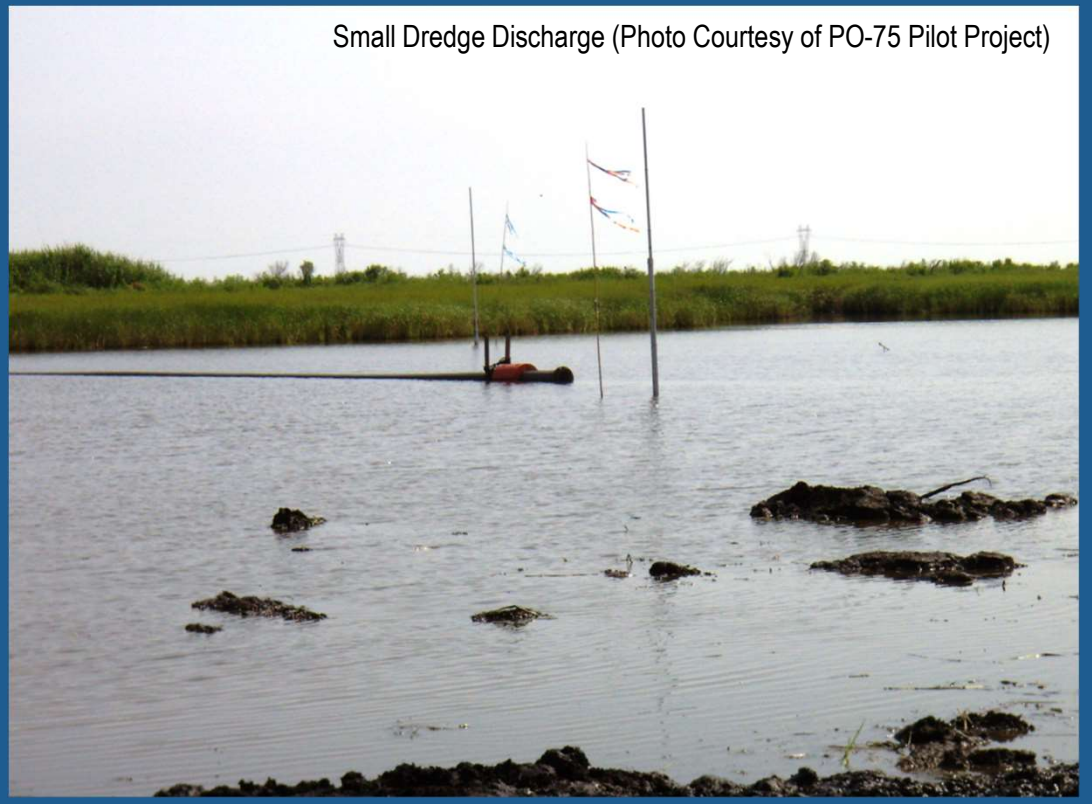
Project Map



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

Summary

- 412 Acres of Marsh Restoration Total
- 307 Acres Marsh Creation
- 105 Acres Marsh Nourishment
- Estimated Construction Cost plus 25% Contingency is $15M - $20M
- Estimated 300-350 NET ACRES



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

Contact information:
Jenny Smith, 225-954-6654
jennifer.smith@noaa.gov
Jason Kroll, 225-335-9659
jason.kroll@noaa.gov

PPL32 PROJECT RPT NOMINEE FACT SHEET
February 8, 2022

Project Name
Sweet Lake Canal Marsh Creation

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

Problem
Wetland loss in the Calcasieu-Sabine Basin is due to altered hydrology, drought and inundation stress, subsidence, and hurricane-induced damage. The USGS land change trend from 1985 to 2020 for the Sweet Lake Canal subunit (046) is 0.14% gain per year. However, the current condition of the project area is predominately open water, with eroding and relic terraces from a previously constructed restoration project.

Goals
The project goal is to restore approximately 402 acres of tidal marsh in the Cameron Creole Watershed east of Calcasieu Lake.

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

Preliminary Project Benefits

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

2) *How many acres of wetlands will be protected/created over the project life?*
   The net acre benefit range is 350-400 acres after 20 years.

3) *What is the anticipated loss rate reduction throughout the area of direct benefits over the project life (e.g., 50% reduction in the background loss rate)?*
   A 50% loss rate reduction is assumed for the marsh creation and marsh nourishment.

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

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

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

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

Considerations
Calcasieu Lake public oyster seed grounds.

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

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

PPL32 Sweet Lake Canal Marsh Creation

402 Total Project Acres

360 Acres Marsh Creation 12 Acres Marsh Nourishment

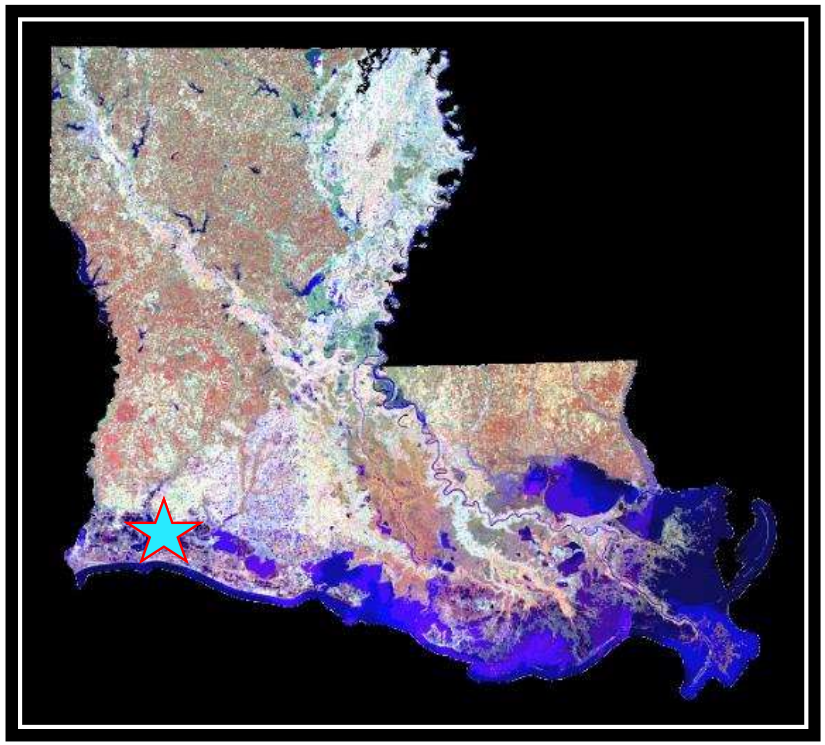
30 Acres Tidal Ponds

Federal Sponsor: NOAA Fisheries 2017 Aerial Imagery Map Date 02-07-2022

Legend

- Earthen Containment Dikes
- Marsh Creation Areas
- Tidal Ponds

Sweet Lake Canal
Marsh Creation Project



REGION 4: Calcasieu-Sabine Basin

Presenter: Craig Gothreaux, Fisheries Biologist, NOAA

Special Thanks

Sweet Lake Land

Miami Corporation

PPL32 CWPPRA Regional Planning Team Meeting

February 8, 2022

Project Vicinity

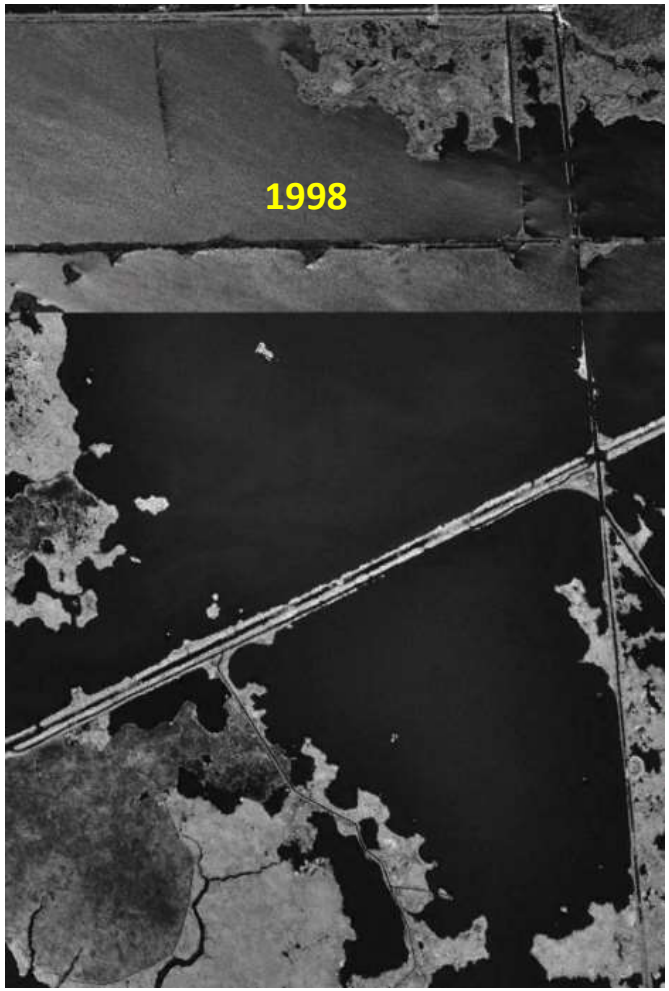
Sweet Lake Canal MC

Considerations

Sweet Lake Canal MC

Project Area Problems

Sweet Lake Canal MC



Land change rate (1985-2020 USGS data) for the Sweet Lake Canals subunit is +0.14%/yr

Project Elements

Sweet Lake Canal MC

Proposed Project Solution

Sweet Lake Canal MC

Summary

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

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

PPL32 PROJECT RPT NOMINEE FACT SHEET
February 8, 2022

Project Name
West Cove Living Shorelines

Project Location
Region 4, Calcasieu Basin, Cameron Parish

Problem
Energy from wind driven waves is the primary driver of marsh-edge retreat, causing significant shoreline erosion throughout coastal Louisiana. This results in the loss of significant amounts of marsh vegetation and wetland soils, while also increasing the turbidity in the system. In West Cove, the shoreline erosion rate is approximately 4 feet/year. Fringing oyster reefs can attenuate wave energy and help to stabilize marsh edges; however, the hard substrate required to establish, encrust, and grow new reefs is a limiting factor across our estuaries. This problem is exacerbated in Calcasieu Lake which is designated as a public seed ground, with overharvest and removal of natural reefs resulting in a tragedy of the commons scenario. Left unchecked, the continued erosion and collapse of marsh edges combined with loss of naturally occurring oyster reefs perpetuates a negative feedback loop of increased soil erosion, loss of habitat, and additional negative impacts to the Calcasieu Lake ecosystem.

Goals
The goal of this project is to build upon The Nature Conservancy's efforts to establish protective oyster reef living shorelines in West Cove, and help conserve the integrity of three additional vulnerable shorelines in Calcasieu Lake. Living shorelines will integrate proven techniques and adaptive management principles to establish fringing oyster reefs thereby reducing wave energy and shoreline erosion. Additionally, the project seeks to explore all available source materials in a cost-effective, hybrid nature-based solution to effectively maximize ecosystem benefits.

Proposed Solution
The project would construct approximately three miles of living shorelines to reduce marsh edge erosion along three distinct and unique shoreline sections in West Cove. The areas of focus for this project include the southwestern shoreline of West Cove, the southern shoreline of Hog Island, and the southeastern shoreline of Rabbit Island. The primary restoration technique would incorporate the oyster reef gabion baskets developed and deployed by The Nature Conservancy on the western shoreline of West Cove, which allows for deployment without the need for access dredging, thereby minimizing associated construction impacts. Additional living shoreline restoration techniques may also be included where suitable and based on site specific conditions to maximize environmental benefits while minimizing costs.

Preliminary Project Benefits
1) *What is the total acreage benefited both directly and indirectly?*
   The total project area will conserve approximately 30 acres of marsh shoreline through the construction of three miles of oyster reef living shorelines. The reefs will also serve as brood stock reefs with the additional habitat to support the surrounding public oyster seed grounds and other aquatic resources.

2) *How many acres of wetlands will be protected/created over the project life?*
Approximately 0 – 50 acres of marsh will be protected/conserved 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)?*
A 90% loss rate reduction is assumed for the marsh protected by the living shoreline reefs.

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 Hog Island section will help to maintain the integrity of the northern West Cove lake rim and adjacent terrace field, while the Rabbit Island section will serve to enhance the recently constructed bird restoration project by protecting the portions of the island that were not restored.

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

6) *To what extent does the project provide a synergistic effect with other approved and/or constructed restoration projects?*
The project will have synergistic effects with multiple restoration projects including The Nature Conservancy's West Cove oyster reef living shorelines, the Hog Island terrace field, and the Rabbit Island bird restoration project.

Considerations
The proposed project has potential considerations for public oyster grounds, land rights, and oil and gas infrastructure.

Preliminary Construction Costs
The estimated construction cost plus 25% contingency is $5M - $10M.

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

PPL32 West Cove Living Shorelines

~ 3 miles of oyster reef living shorelines
~ 30 acres of marsh shoreline conservation

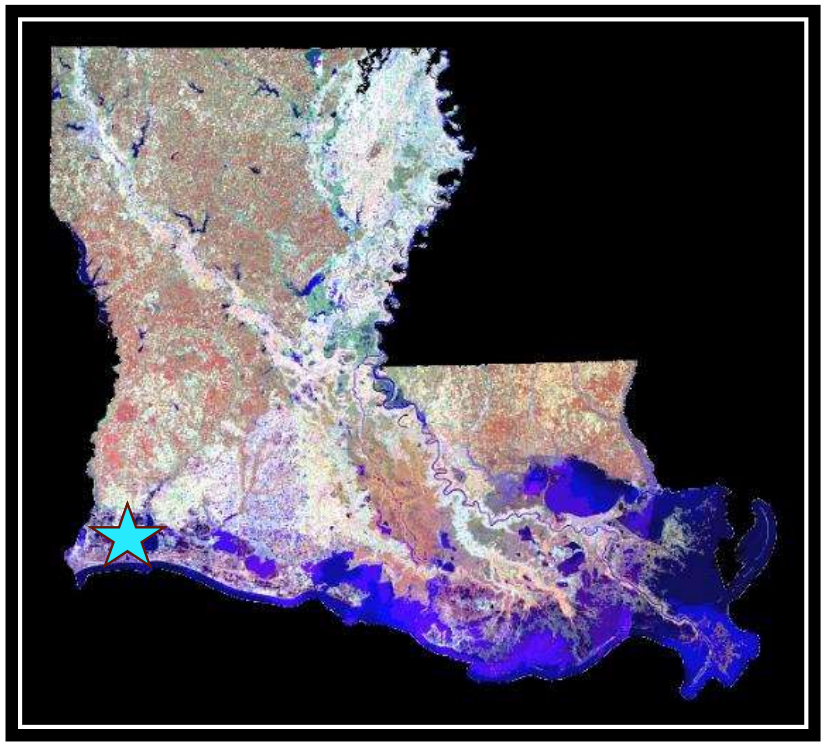
Federal Sponsor: NOAA Fisheries 2017 Aerial Imagery Map Date 02-07-2022

Legend

Proposed Living Shorelines

The Nature Conservancy's Oyster Reef Living Shorelines

West Cove
Living Shorelines



REGION 4: Calcasieu-Sabine Basin

Presenter: Craig Gothreaux, Fisheries Biologist, NOAA

Special Thanks

The Nature Conservancy (TNC)

PPL32 CWPPRA Regional Planning Team Meeting

February 8, 2022

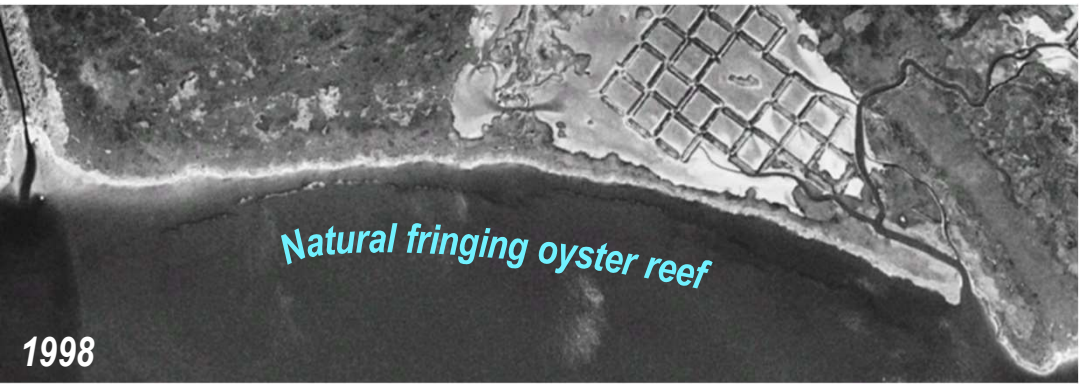
Project Vicinity

West Cove LS

Project Area Problems

West Cove LS

Hog Island Section



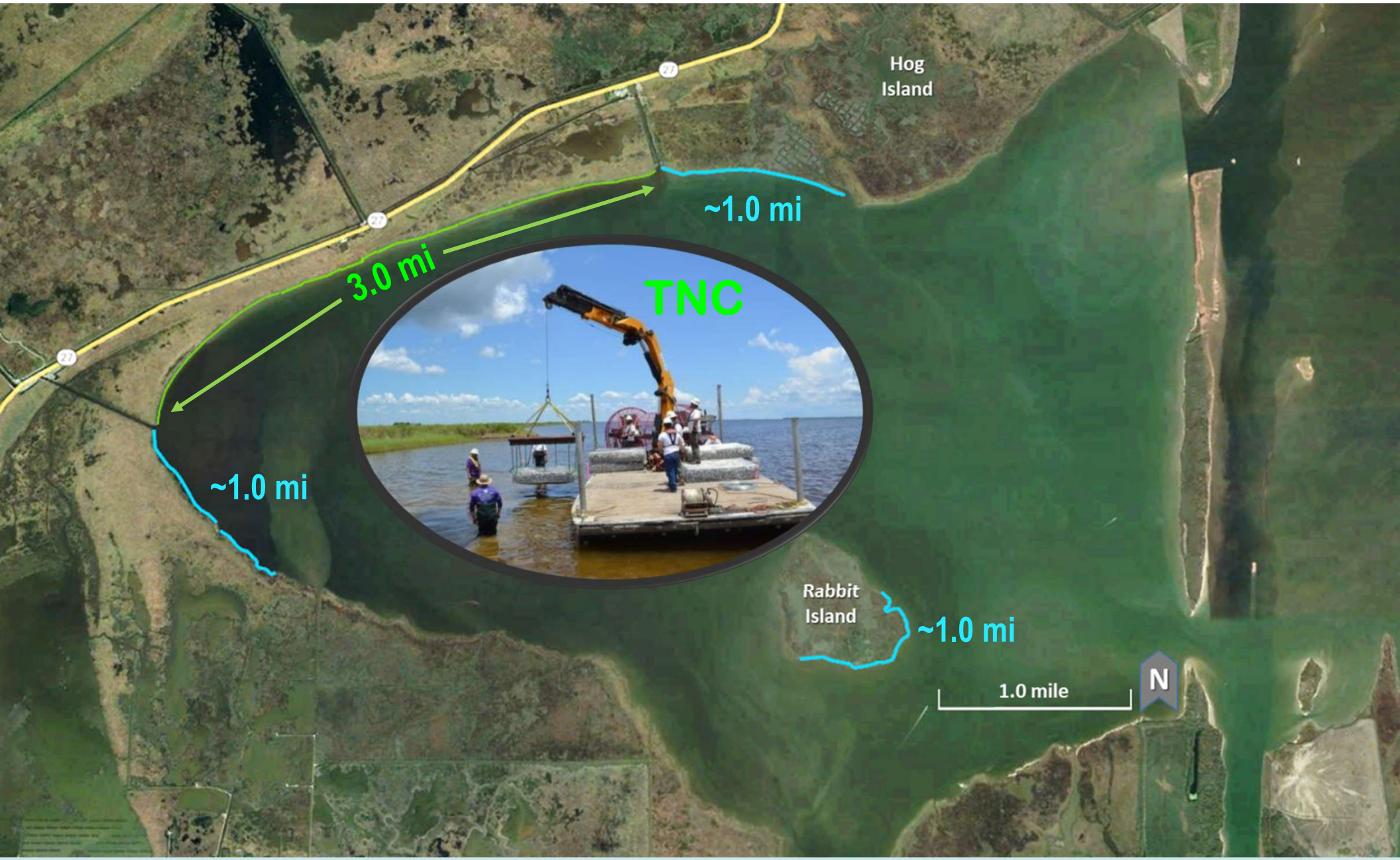
Rabbit Island Section

Project Area Solutions

West Cove LS

Project Synergy

West Cove LS



Summary

West Cove Living Shorelines Project

- **35 Total Project Acres**
  - ~30 Acres Marsh Conserved/Protected
  - ~5 Acres of Oyster Reefs Created (~3.0 miles)
    - *Prevention of lake rim breach at Hog Island*
    - *Enhancement of Rabbit Island bird restoration project*
    - *Brood reef habitat to enhance public oyster seed grounds*
- **Construction Cost + 25% Contingency: $5M – $10M**
- **Net Benefits: 0 – 50 Acres**

Contact information:
Craig Gothreaux, 225-380-0078
craig.gothreaux@noaa.gov