Coastal Wetlands Planning Protection & Restoration Act

32nd Priority Project List

Region 3

Regional Planning Team Meeting

Lead:
Ron Boustany, NRCS

February 9, 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 3 Parishes

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

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

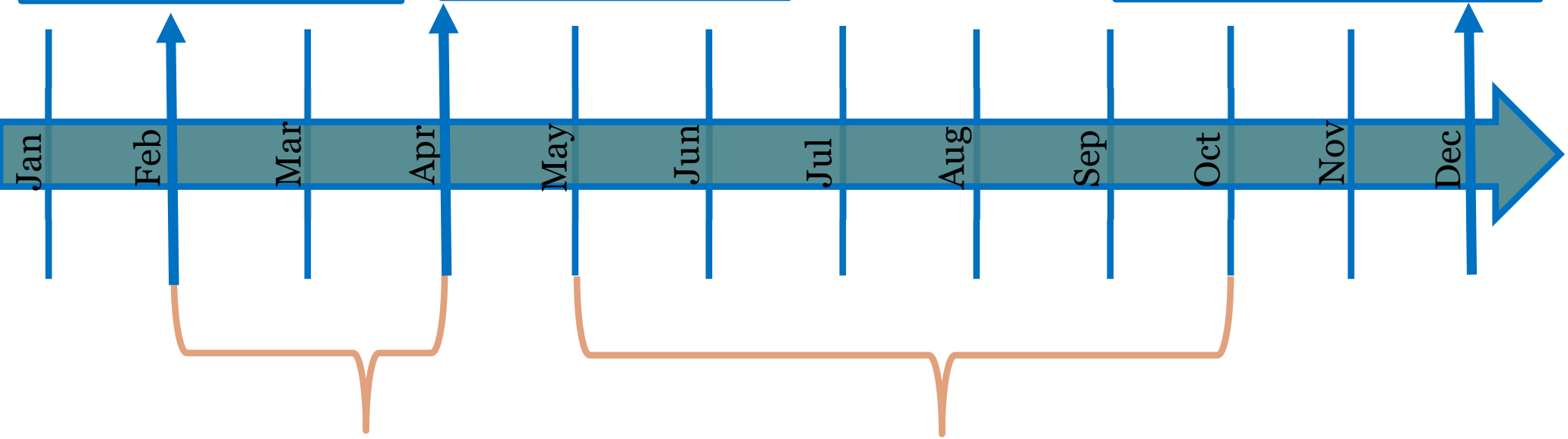
& up to 6 demos

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 3

Atchafalaya

Agency	Region	Basin	Project ID	Project Name

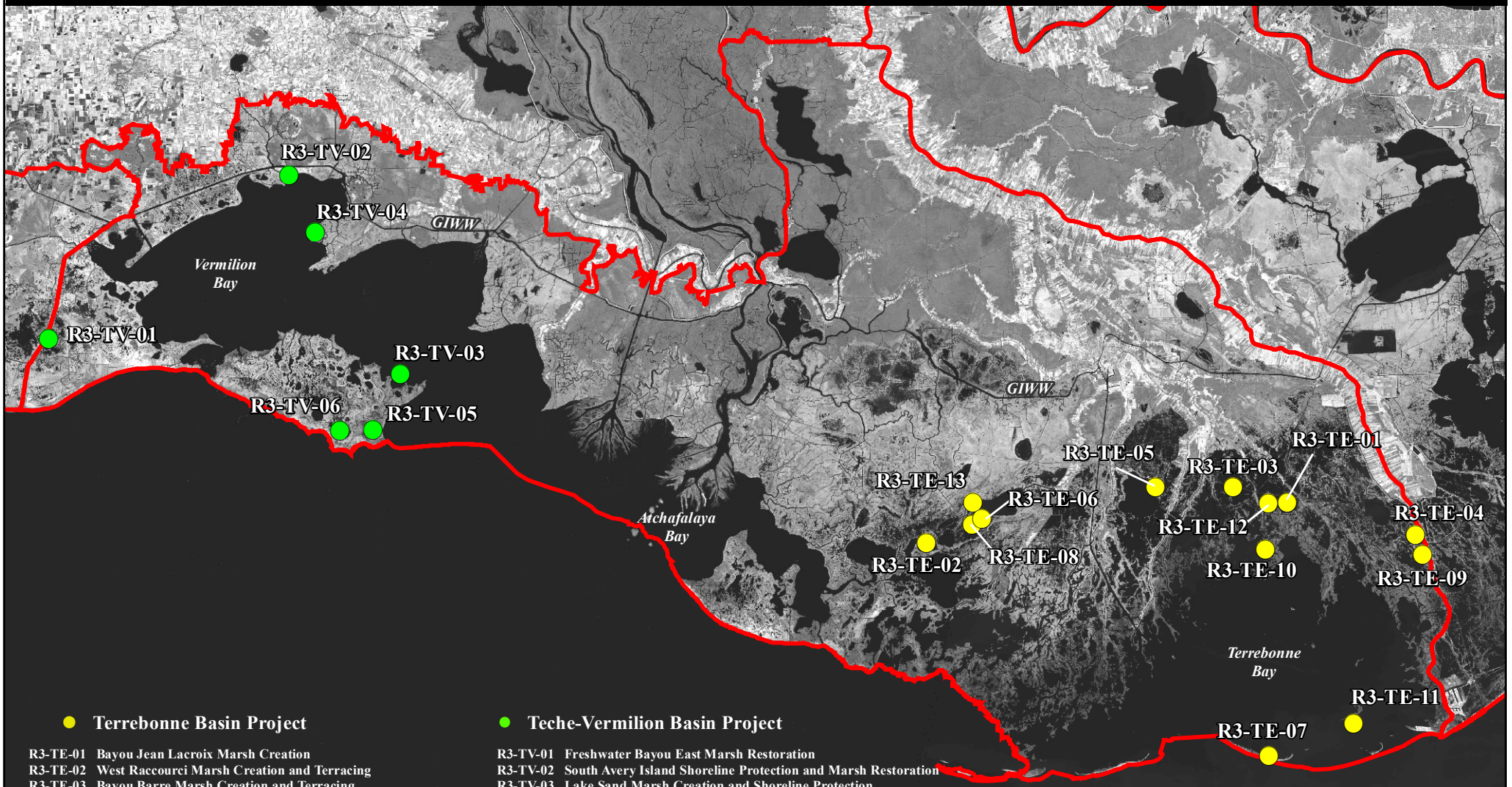
Teche-Vermilion

Agency	Region	Basin	Project ID	Project Name
NRCS	3	TV	R3, TV-01	Freshwater Bayou East Restoration
NRCS	3	TV	R3, TV-02	South Avery Island Shoreline Protection & Marsh Restoration
NRCS	3	TV	R3, TV-03	Lake Sand Marsh Creation & Shoreline Protection
NRCS	3	TV	R3, TV-04	Shark Island Shoreline Protection
EPA	3	TV	R3, TV-05	Southeast Marsh Island Marsh Creation and Nourishment
NMFS	3	TV	R3, TV-06	West Branch Marsh Creation on Marsh Island, LA

Terrebonne

Agency	Region	Basin	Project ID	Project Name
NRCS	3	TE	R3, TE-01	Bayou Jean Lacroix Marsh Creation
NRCS	3	TE	R3, TE-02	West Raccourci Marsh Creation & Terracing
FWS	3	TE	R3, TE-03	Bayou Barre Marsh Creation and Terracing
FWS	3	TE	R3, TE-04	Southwest Golden Meadow Marsh Creation
FWS	3	TE	R3, TE-05	North Lake Boudreaux Shoreline Protection and Marsh Creation
FWS	3	TE	R3, TE-06	South Lake Decade Marsh Creation
EPA	3	TE	R3, TE-07	Timbalier Island Shoal Nourishment & Backbarrier Marsh Creation
EPA	3	TE	R3, TE-08	South Bayou Decade Marsh Creation
NMFS	3	TE	R3, TE-09	West Louisiana Highway 1 Marsh Creation
NMFS	3	TE	R3, TE-10	Lake Chien & Tambour Living Shorelines
NMFS	3	TE	R3, TE-11	Calumet Island Restoration
NMFS	3	TE	R3, TE-12	Isle de Jean Charles Marsh Creation & Nourishment
NMFS	3	TE	R3, TE-13	Northwest Lake DeCade Marsh Creation

Region 3 PPL32 Nominated Projects



Terrebonne Basin Project

R3-TE-01 Bayou Jean Lacroix Marsh Creation
R3-TE-02 West Raccourci Marsh Creation and Terracing
R3-TE-03 Bayou Barre Marsh Creation and Terracing
R3-TE-04 Southwest Golden Meadow Marsh Creation
R3-TE-05 North Lake Boudreaux Shoreline Protection and Marsh Creation
R3-TE-06 South Lake DeCade Marsh Creation
R3-TE-07 Timbalier Island Shoal Nourishment and Backbarrier Marsh Creation
R3-TE-08 South Bayou Decade Marsh Creation
R3-TE-09 West Louisiana Highway 1 Marsh Creation
R3-TE-10 Lakes Chien and Tambour Living Shorelines
R3-TE-11 Calumet Island Restoration
R3-TE-12 Isle de Jean Charles Marsh Creation and Nourishment
R3-TE-13 Northwest Lake DeCade Marsh Creation

Teche-Vermilion Basin Project

R3-TV-01 Freshwater Bayou East Marsh Restoration
R3-TV-02 South Avery Island Shoreline Protection and Marsh Restoration
R3-TV-03 Lake Sand Marsh Creation and Shoreline Protection
R3-TV-04 Shark Island Shoreline Protection
R3-TV-05 Southeast Marsh Island Marsh Creation and Nourishment
R3-TV-06 West Branch Marsh Creation on Marsh Island

Coastwide Project

None

Demonstration Project

DEMO-01 Reefbud: Pursuit of Happiness Farms

5 0 5 10 Kilometers

5 0 5 10 Miles

Region 3 PPL 32
Regional Planning Team Meeting
Virtual Meeting
February 09, 2022
Background Image:
2014 Landsat OLI 8 Mosaic

CWPPRA RPT Region 3

Teche-Vermilion

PPL32 PROJECT FACT SHEET
February 9, 2022

Project Name
Freshwater Bayou East Marsh Restoration

Project Location
Region 3, Teche/Vermilion Basin, Vermilion Parish, East bank of Freshwater Bayou about 4-6 miles north of the Freshwater Bayou lock system

Problem
The marshes adjacent to Freshwater Bayou have degraded significantly by a combination of natural and man-induced conditions. Hurricanes has scoured out large areas very quickly, but numerous anthropogenic activities and alterations have allowed the area to be much more vulnerable. Various restoration measures have been employed in this area with high degree of success including protection of the bankline of the navigation channel and adjacent marsh creation and terracing. The proposed location for this project is one that has not been addressed and continues losses. USGS estimates that the area has a loss rate of about -0.33 %/y and the state estimates subsidence at about 3.8 mm/y. Additionally, that location being adjacent to the navigation channel experiences significant bankline erosion (12-15 ft/y).

Goals
The primary goals of this project are to 1) create/restore approximately 247 acres of marsh habitat via marsh creation/nourishment, 2) reduce fetch and wave energy in open water areas by the construction of terraces and 3) preserve approximately 120 acres of marsh along the bank of the channel through shoreline protection.

Proposed Solution
1. Sediments will be hydraulically dredged and pumped via pipeline from a borrow site located in the Freshwater Bayou Canal to create/nourish approximately 247 acres of marsh.
2. Approximately 28,420 linear feet of terraces will be constructed.
3. 18,439 linear feet of shoreline projection along the Freshwater Bayou Canal.

Preliminary Project Benefits
Preliminary benefits will be to create/nourish/protect approximately 391 acres of marsh.

Preliminary Cost
The estimated cost for construction plus contingency (25%) is $20-25 million.

Preparer of Fact Sheet
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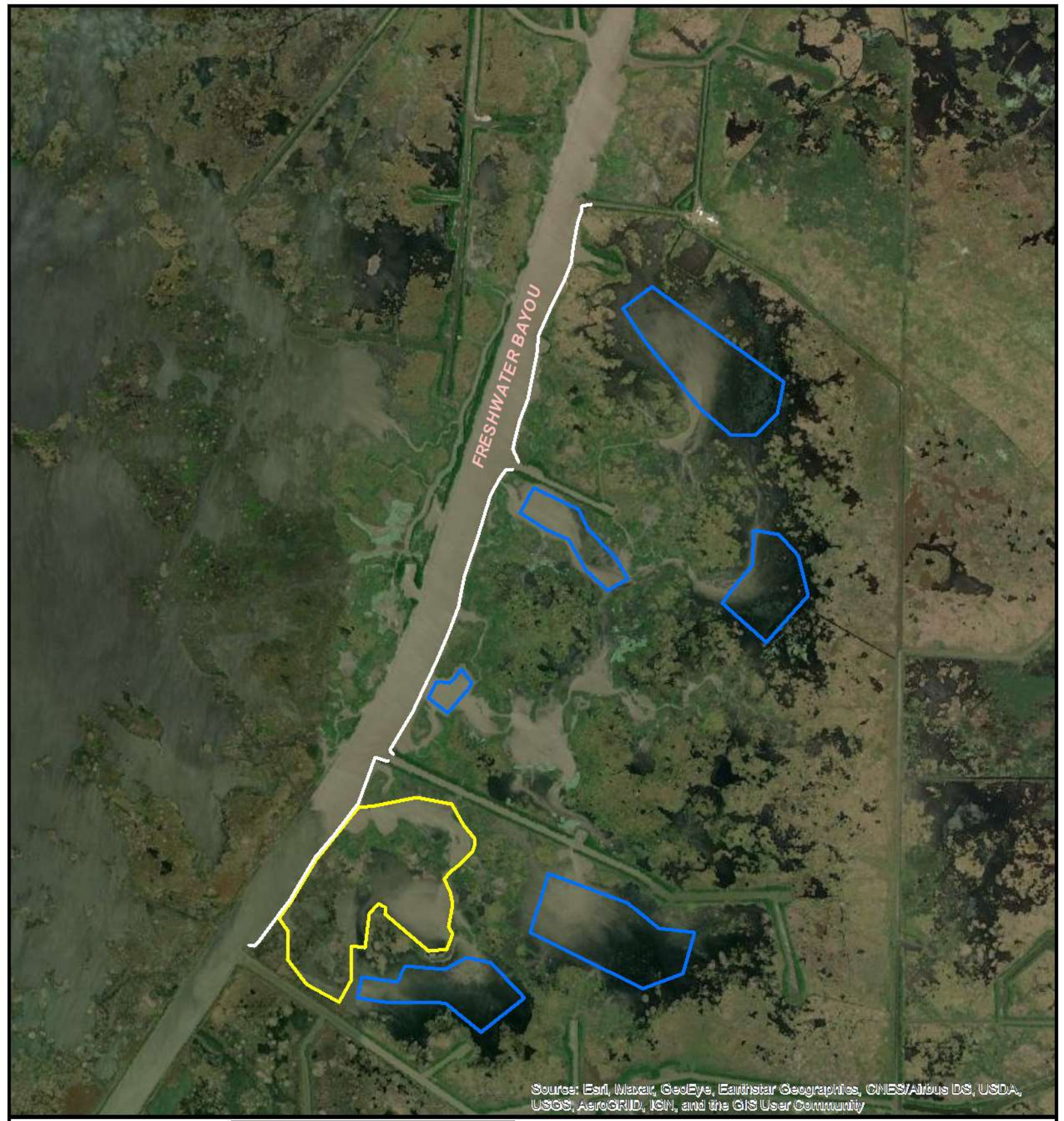


USDA

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

Data Source: ESRI - APRIL 2020 IMAGERY

Map Date: JANUARY 26, 2022

PPL 32
FRESHWATER BAYOU EAST
MARSH RESTORATION
VERMILION PARISH, LA

N
W E
S

0 2,000 4,000 Feet

Legend

- SHORELINE_PROTECTION_PPL32
- MARSH_CREATION_PPL32
- TERRACE_FIELDS_PPL32

PPL 32
Freshwater Bayou East Marsh Restoration Project

Natural Resources Conservation Service

NRCS

PPL 32 Freshwater Bayou East Marsh Restoration

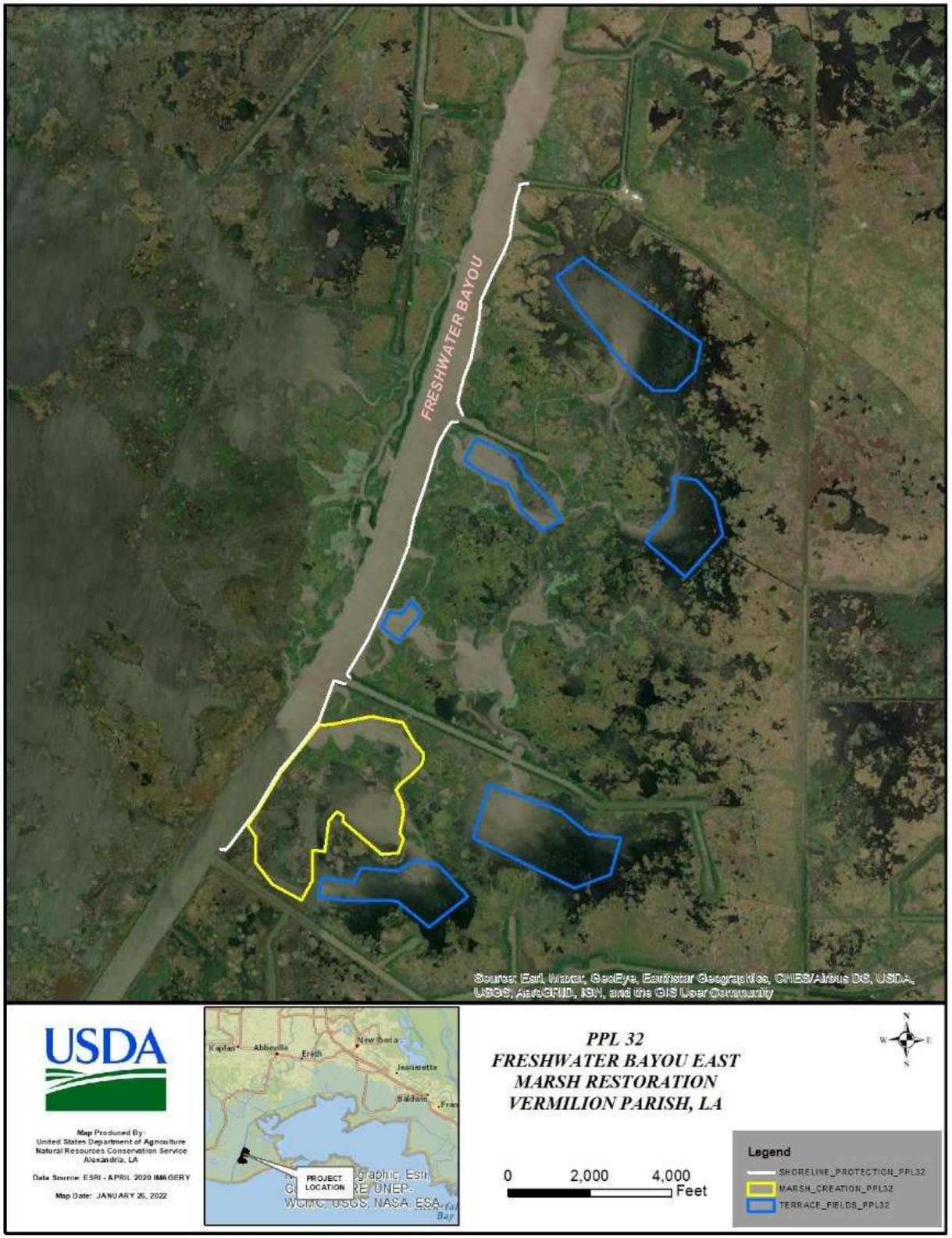
2017 State Master Plan

NRCS


Belle Isle
1998 to 2020 shoreline loss = 126 acres
1 mi

Project would build 18,439 linear ft of shoreline protection (red line), borrow from the FWB Canal for marsh creation/nourishment (247 acres) and 28,420 linear ft of terraces on the interior.

NRCS



PPL 32

Freshwater Bayou East Restoration

Problem: The project area has suffered marsh loss from wave erosion along the FW Bayou Canal as well as subsidence and erosion of interior marshes.

Project Goals: The project will stabilize the shoreline of FWB Canal by protecting the shoreline, restore interior marsh by creating/nourishing marsh from material borrowed from FWB, and reduce fetch in interior open water areas with terraces.

Project Benefits:

18,439 linear feet of shoreline projection (126 acres)
Create/Nourish 247 acres of marsh
Create 28,420 linear feet of terraces (11 acres)

Estimated Cost: $20-25M (Const+25%)

PPL 32 PROJECT NOMINEE FACT SHEET
February 08, 2022

Project Name:
South Avery Island Shoreline Protection and Marsh Restoration Project

Louisiana's 2017 Coastal Mater Plan
Shoreline Protection: 03b.SP.06a

Project Location:
Region 3, Teche-Vermilion Basin, located on the south side of the Intracoastal Canal between the Avery Canal and Weeks Bay, immediately south of Avery Island.

Problem:
The project would restore Vermilion Bay shoreline and adjacent marsh to offset levels of historic and ongoing wetland loss. Based upon aerial photography analysis of 2016-2020, land in this area was at a rate of 11%, or 58.1 acres/year for the project area. Hydrologic isolation (inundation) coupled with 2020 hurricane induced losses have resulted in interior marsh breakup and removal. Shoreline retreat from the 2016-2021 period is highly varied but ranged from between 15' – 190' (most of which can be attributed to the 2020 hurricane season) and is currently threatening to coalesce Vermilion Bay into the interior lakes and the GIWW.

Goals:
Restore approximately 10,400 LF of bay rim habitat and approximately 450 acres of coastal marsh habitat.

Proposed Solution:
Locally mined Bay rim material would be used to create those features (+3.5' NAVD 88, 15' crown). Sediment would be mined from within the Bay (2 potential source locations are shown on the map). The sediment receiving areas would not be contained, as hurricane wrack, marsh elevation, and planned shoreline features are enough to allow the target elevation of placed material to be reached. Although marsh creation via dedicated dredging of sediment would be the primary technique, opportunities may exist to include some terracing where warranted, but that is not included in the benefit/cost estimates at this time.

Preliminary Construction Costs:
The cost plus 20% contingency range is $25-$30 million (450 acres).

Preparers of the Fact Sheet:
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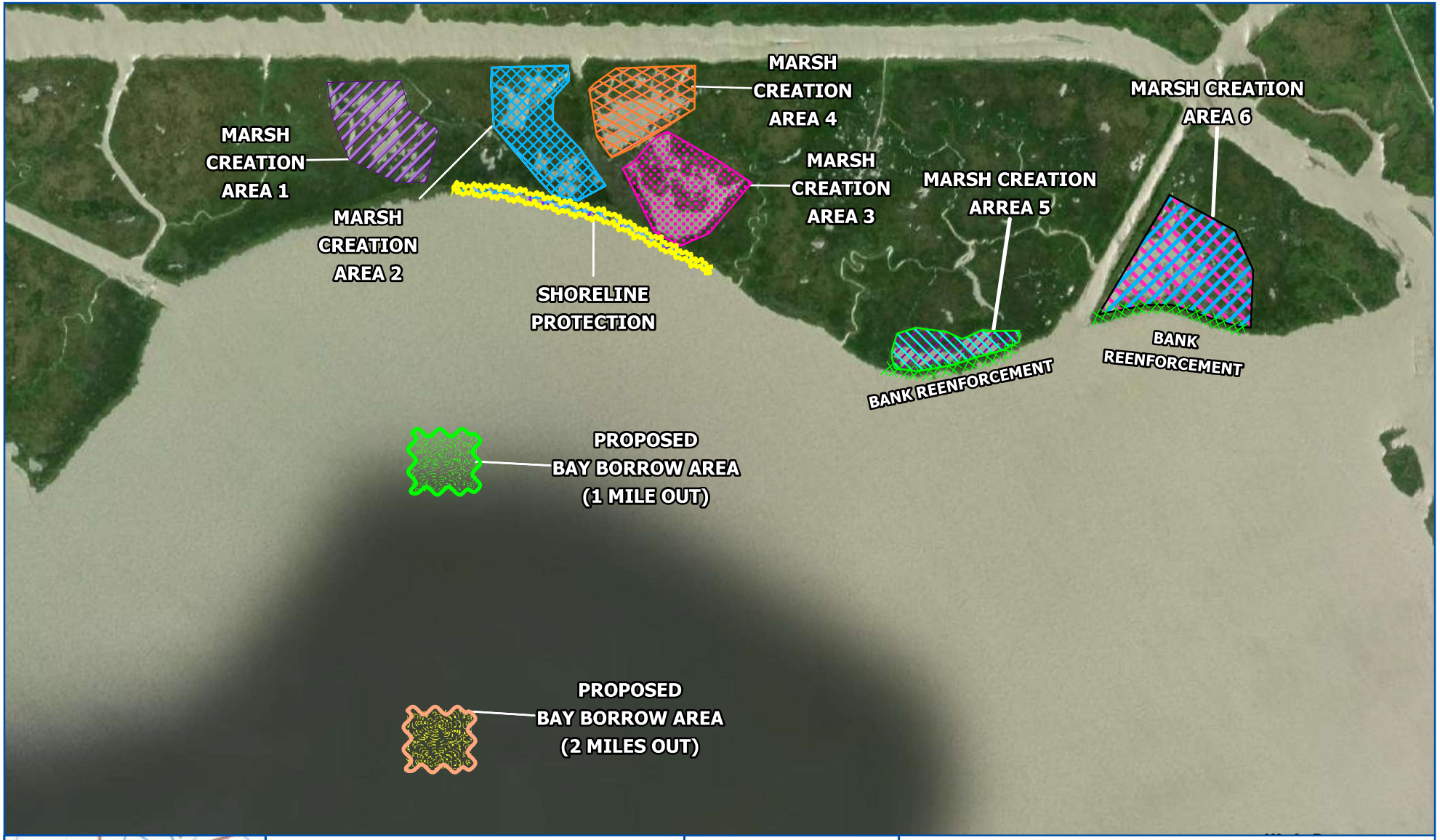


0 0.5 1 Miles

- Marsh Creation Area 1
- Marsh Creation Area 2
- Marsh Creation Area 3
- Marsh Creation Area 4
- Northern Shoreline Protection
- Bay Borrow Area 1 Mile Out
- Bay Borrow Area 2 Miles Out
- MC1-110 acres
- MC2-34 acres
- Shoreline Protection

N W E S

SOUTH AVERY ISLAND SHORELINE PROTECTION & MARSH RESTORATION PROJECT

IBERIA PARISH, LOUISIANA

REVISED BY: ETB
DATE: 1/19/2022
PROJ. MGR: JDF

Path: R:\Proposals__Proposals - OneCompany\Rainey Conservation Alliance\Avery Island Marsh Creation\Avery Island Marsh Creation_Elliot_2_0.aprx

C.H. Fenstermaker & Associates, L.L.C. 135 Regency Sq. Lafayette, LA 70508, Ph. 337-237-2200 Fax. 337-232-3299 www.fenstermaker.com

South Avery Island Shoreline Protection & Marsh restoration project

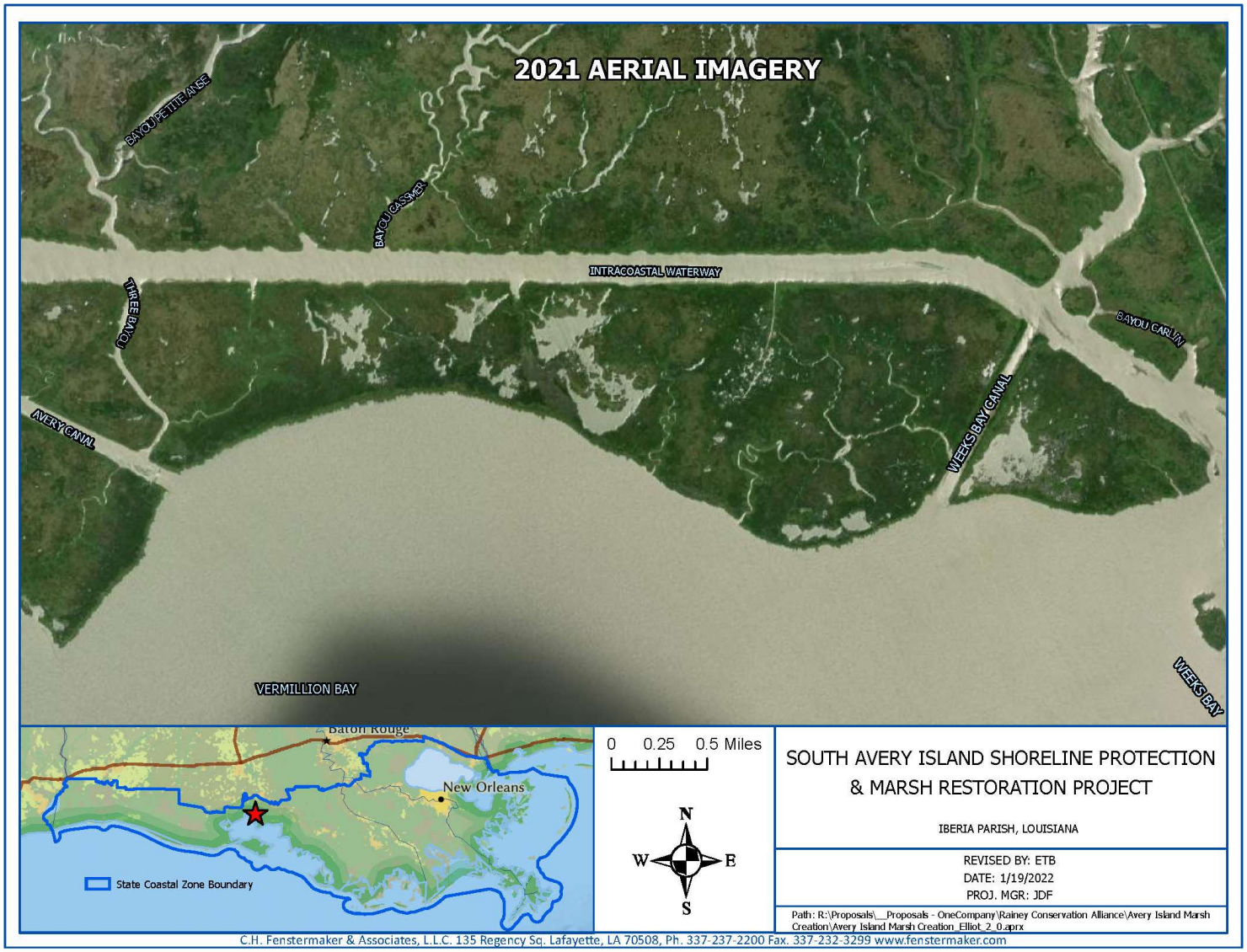
CWPPRA Project Priority List 32, Region 3 Nomination

February 9, 2022

South Avery Island Shoreline Protection and Marsh Restoration Project

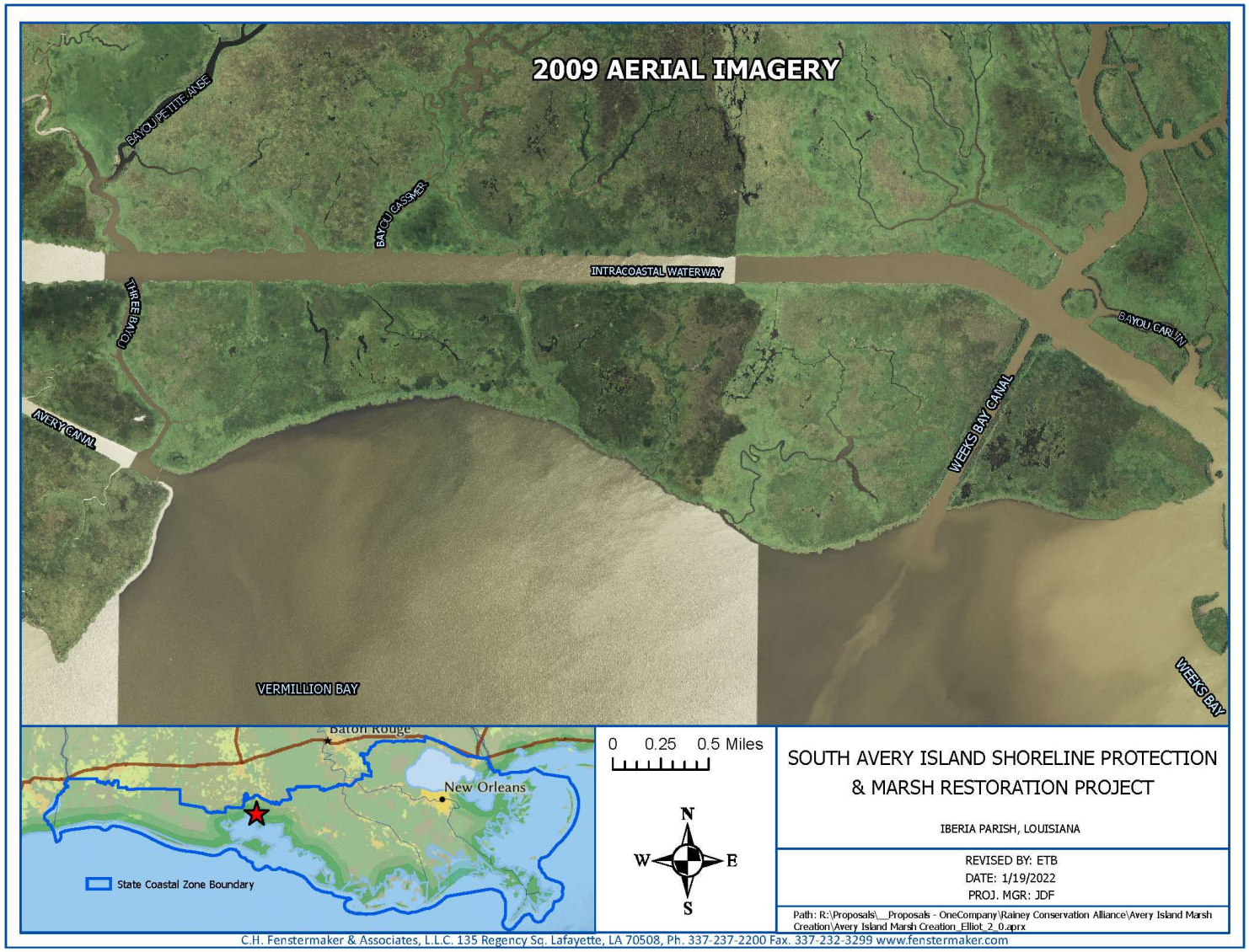
Louisiana's 2017 Coastal Mater Plan
Shoreline Protection:
03b.SP.06a

Project Location:
Region 3, Teche-Vermilion Basin, located on the south side of the Intracoastal Canal between the Avery Canal and Weeks Bay, immediately south of Avery Island.



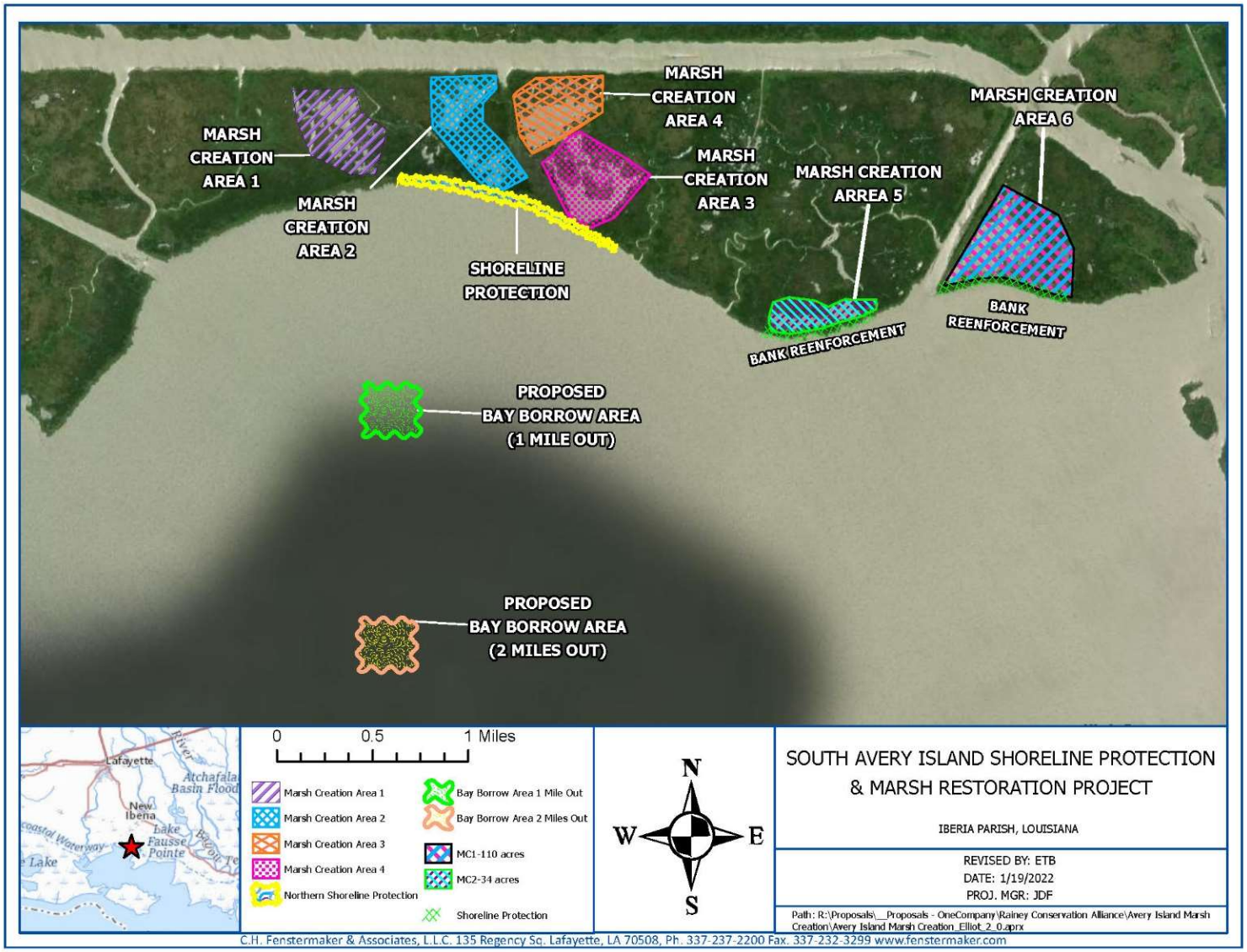
Problem:

The project would restore Vermilion Bay shoreline and adjacent marsh to offset levels of historic and ongoing wetland loss. Based upon aerial photography analysis of 2016-2020, land loss in this area was at a rate of 11% for the project area. Hydrologic isolation (inundation) coupled with 2020 hurricane induced losses have resulted in interior marsh breakup and removal. Shoreline retreat from the 2016-2021 period is highly varied but ranged from between 15' – 190' and is currently threatening to coalesce Vermilion Bay into the interior lakes and the GIWW.

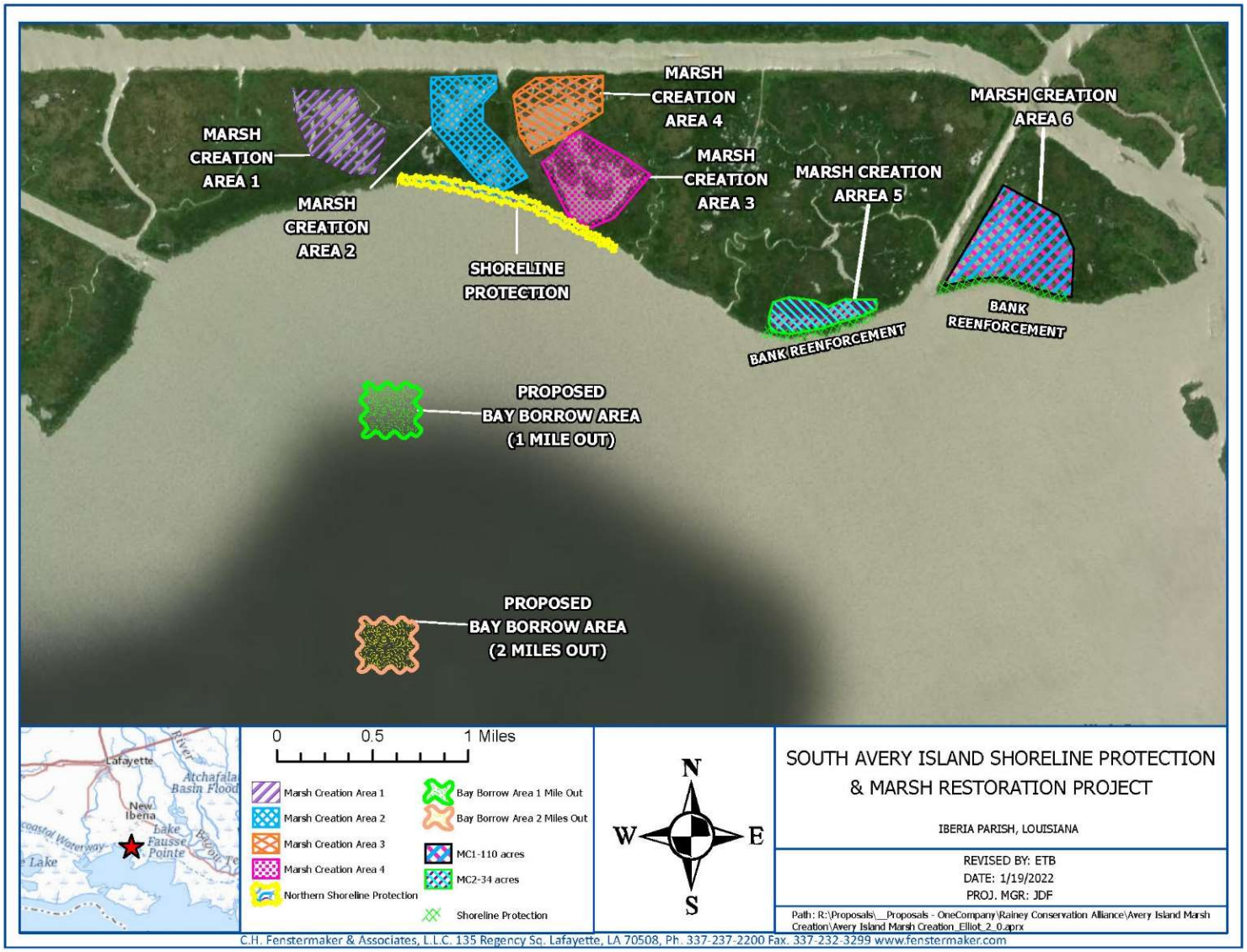


Goals:
Restore approximately 10,400 LF of bay rim habitat and approximately 450 acres of coastal marsh habitat.

Proposed Solution:
Locally mined Bay rim material would be used to create those features (+3.5' NAVD 88, 15' crown). Sediment would be mined from within the Bay (2 potential source locations are shown on the map). The sediment receiving areas would not be contained, as hurricane wrack, marsh elevation, and planned shoreline features are enough to allow the target elevation of placed material to be reached.



Preliminary Construction Costs:
The cost plus 20% contingency range is $25-$30 million (450 acres).



Preparers of the Fact Sheet:
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Ron Boustany, NRCS, (337) 291.3067; ron.boustany@usda.gov

PPL32 PROJECT FACT SHEET
February 9, 2022

Project Name
Lake Sand Marsh Creation and Shoreline Protection

Project Location
Region 3, Teche-Vermilion Basin, Iberia Parish, northeast Marsh Island

Problem
Marsh Island Refuge serves as the crucial geomorphic structure in maintaining the estuarine character of the Vermilion-Cote Blanche Bays system and provides vital support to important fish and wildlife species. Marsh Island's eastern area is being severely impacted by wave & tidal energy impacts generated across the Gulf of Mexico and East & West Cote Blanche Bays. Wave energy and storm overwash cause shoreline erosion and elevational loss, resulting in narrowing and breaching of perimeter marshes that protect large interior lakes from bay encroachment. The 1998-2019 erosion rate along the project area's bay shoreline averaged 14 ft/yr, and Lake Sand interior shoreline erosion averaged 4 ft/yr. The 1985-2016 USGS rate of land change for the entire E. Marsh Island mapping unit is -0.04% per year and regional subsidence is 3.8 mm/y.

Goals
The project goals are to prevent West Cote Blanche Bay from capturing the shallow lake-marsh system by 1) to creating/nourishing the thin band of interior brackish marsh to counter fragmentation and breach into Lake Sand and 2) by protecting the exposed sections of shoreline to avert breaching of narrow bands of marsh between Lake Sand and the Bay.

Proposed Solutions
The project will complete the shoreline protection across the entire area tying in additional foreshore rock dike (8,832 linear ft) and create/nourish 243 acres of marsh to increase the land area along the bay front.

Preliminary Project Benefits
The project is expected to create 153 acres of marsh and nourish another 90 acres of existing marsh. The shoreline protection will protect about 57 acres of marsh (20 years) and prevent the bay from coalescing with the interior lake system.

Preliminary Cost
The fully funded cost range is $19.7M (construction +25%).

Preparer(s) of Fact Sheet
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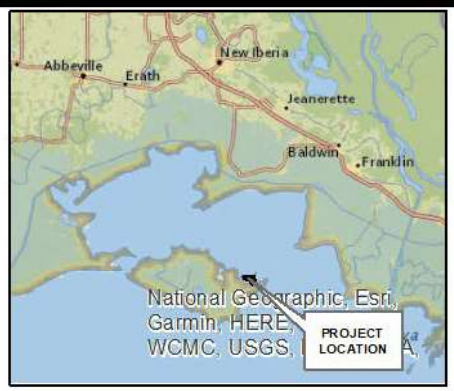
USDA

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

Data Source: ESRI - APRIL 2021

Map Date: FEBRUARY 1, 2022



PPL 32
LAKE SAND
MARSH CREATION AND
SHORELINE PROTECTION
IBERIA PARISH, LA

N
W
E
S

Legend

MARSH_CREATION

SHORELINE_PROTECTION = 8831 LF

USDA United States Department of Agriculture

Natural Resources Conservation Service

February 9, 2022

Project Priority List 32

Lake Sand
Marsh Creation and Shoreline Protection

Region III, Teche-Vermilion Basin
Iberia Parish

Contacts:
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1998 to 2019 Shoreline Loss
(57 acres loss in 20yrs)
Lake Sand
Hawkins Bayou
USDA
United States
Department of
Agriculture
Natural Resources Conservation Service
N
3000 ft

Louisiana's Comprehensive Master Plan for a Sustainable Coast
Effective June 2, 2017

03b.MC.03

Marsh Island Marsh Creation

COASTAL PROTECTION AND RESTORATION AUTHORITY
CPRA

PPL-32
Lake Sand Marsh Creation and Shoreline Protection

Problem: Lake Sand is at risk of coalescing with West Cote Blanche bay.

Goal: To stop shoreline erosion and breach into the lake system and create marsh to create land between bay and lake system.

Project Benefits: Project will create/nourish 243 acres of marsh and protect another 57 acres of marsh from bank erosion.

Estimated Cost:
$19.7M (construction + 25%)

PPL32 PROJECT NOMINEE FACT SHEET
FEBRUARY 9, 2022

Project Name
Shark Island Shoreline Protection Project

Project Location
Region 3, Teche-Vermilion Basin, along Shark Island of Weeks Bay in Iberia Parish, LA

Problem
Final Closeout Report for LA-16 (McGinnis, II T.E., 2018):

> Both historically and recently, the northeast Vermilion Bay shoreline along Shark Island has retreated at a high rate. The Barrier Island Comprehensive Monitoring Program (BICM) reported that the Cypermort Point – West shoreline, which includes Shark Island, eroded 22.1 ft/yr (6.7 m/yr) from 1930s to 2005 which were among the highest rates west of the Atchafalaya River including along the Gulf of Mexico (Martinez et al. 2009; Fig. 2). More recently, the shoreline erosion rate along Shark Island ranged from 20 to 40+ ft/yr from 2004 to 2012 (Byrnes et al. 2016).

An erosion rate of 37 ft/yr has been determined for this project based on an analysis of aerial photography from 2004 to 2020.

Goals
The goal is to construct 11,578 LF, 2.2 miles, of foreshore breakwater to maintain shoreline integrity along Shark Island and stabilize the eastern shoreline of Vermilion Bay. A total of 198-ac would be protected by the project. A reduction in benefits by 7% during the first nine years is assumed based on results from the Bio-Engineered Oyster Reef Demonstration project (LA-08). A 25% reduction in the following 11 years is applied due to settlement of the breakwater, sea level rise, and no maintenance of the structure (same calculation as ME-18).

Proposed Solution
A breakwater with light weight aggregate core, or non-rock alternative design, would be constructed along the -1.5 ft to -2.0 ft (NAVD88) contour, approximately 50-100 feet from the shoreline, and generally follow the shape of the shoreline. The breakwater will extend from the western point of Shark Island to the east for approximately 11,578 linear feet and will include gaps approximately every 1,000-ft. The project feature may trap sediments and allow for accretion behind the breakwater as has occurred at ME-18.

Preliminary Project Benefits

1) *What is the total acreage benefited both directly and indirectly?*
   Approximately 180 acres of marsh would be benefited directly through reduction in shoreline erosion rate. Indirect benefits could occur due to accretion behind the proposed structure.

2) *How many acres of wetlands will be protected/created over the project life?*
   Approximately 100-150 acres of marsh will be protected/created over the project life.

3) *What is the anticipated loss rate reduction throughout the area of direct benefits over the project life (e.g., 50% reduction in the background loss rate)?*
The anticipated land loss rate reduction throughout the area of direct benefits will be 75-100%.

4) *Do any project features maintain or restore structural components of the coastal ecosystem such as barrier islands, natural or artificial levee ridges, beach and lake rims, cheniers, etc?*
The project would maintain shoreline integrity and stabilize critical areas of Weeks Bay by reducing shoreline erosion and facilitating accretion behind the shoreline protection.

5) *What is the net impact of the project on critical and non-critical infrastructure?*
The project will provide indirect benefits to the GIWW, a federally maintained navigation waterway, and the Weeks Island salt dome, where a U.S. Department of Energy Strategic Petroleum reserve facility is located.

6) *To what extent does the project provide a synergistic effect with other approved and/or constructed restoration projects?* Rock breakwaters have been constructed in the area under the State of Louisiana Wetland Conservation and Restoration Program (TV-72) Quintana Canal/Cypremort Point project built in 1998 and the Cypremort Point State Park Beach Breakwater project funded by FEMA (2018).

Considerations
The project has landowner support. The breakwaters are proposed within designated state water bottoms and designated oyster seed ground (Tier 3).

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

Preparer(s) of Fact Sheet:
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Jackie Jones, Planning Engineer, Jacqueline.Jones@USDA.gov, 337/291-3055

USDA

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

Data Source: ESRI - APRIL 2021 IMAGERY

Map Date: JANUARY 26, 2022

PPL 32
SHARK IALAND
SHORELINE PROTECTION
IBERIA PARISH, LA

N
W E
S

0 1,000 2,000
Feet

Legend
SHORELINE_PROTECTION_SEGMENT_1 = 8503 LF
SHORELINE_PROTECTION_SEGMENT_2_ALTERNATIVE = 3075 LF

PPL32

Shark Island Shoreline Protection

Region 3, Teche-Vermilion Basin

Contacts:

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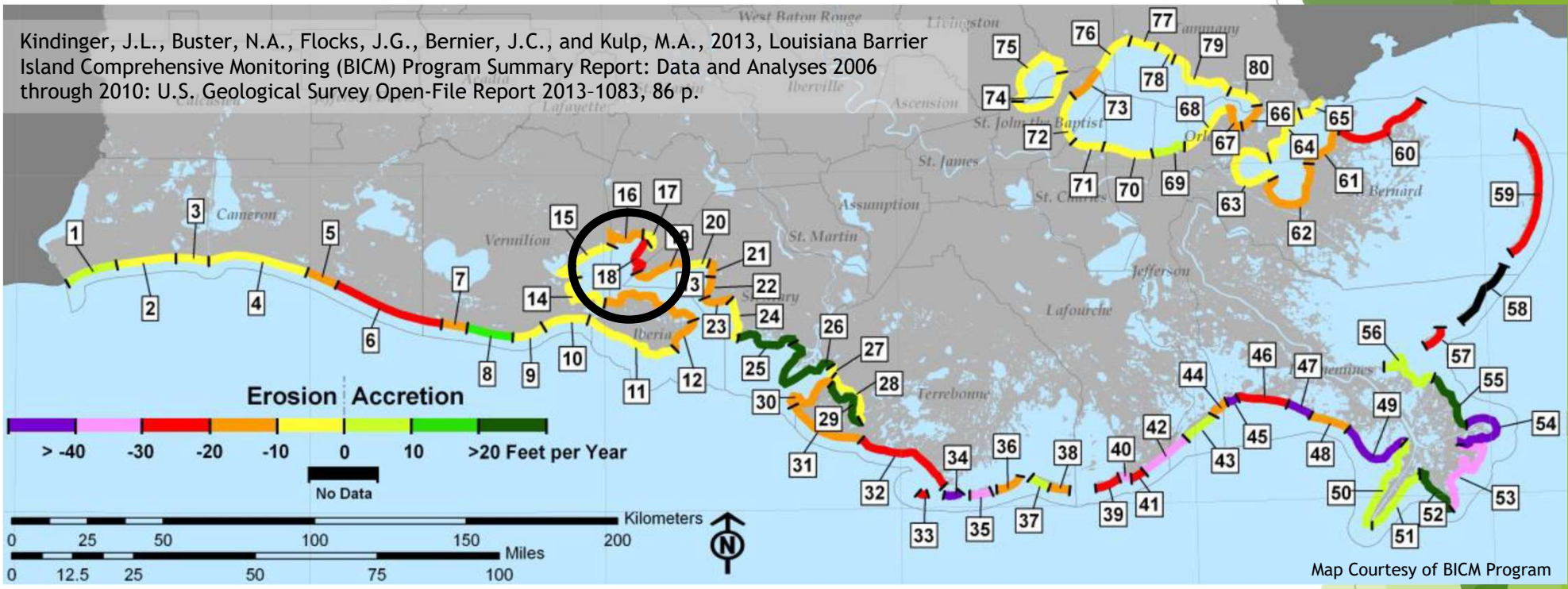
PPL32 – Shark Island Shoreline Protection



Both historically and recently, the northeast Vermilion Bay shoreline along Shark Island has retreated at a high rate.

Among the highest rates west of the Atchafalaya River including along the Gulf of Mexico (Martinez et al. 2009)

Cypermort Point – West shoreline (Segment 18) eroded 22.1 ft/yr from 1930s to 2005 (BICM Program)

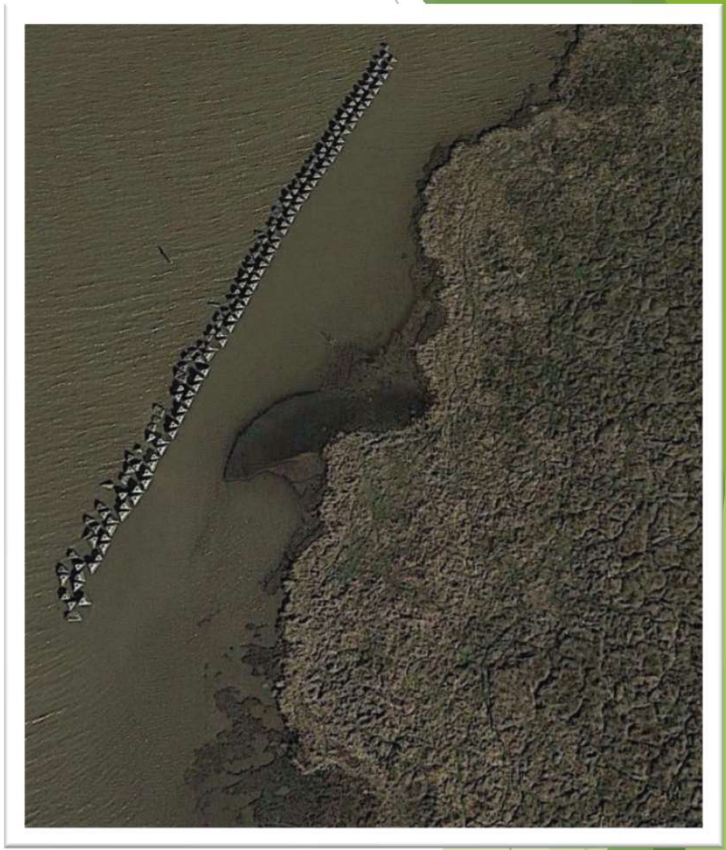
Documented Erosion Rates

Time Period	Erosion Rate (ft/y)	Source
1930s - 2005	22.1	BICM, Martinez et al. 2009
2004 - 2012	20 - 40+	BICM, Byrnes et al. 2016
2014 - 2017	51	LA-16 Demo, McGinnis 2018

LA-16 Non-Rock Alternatives to Shoreline Protection Demonstration Project:

Wave Attenuation Devices (WADs) – Living Shoreline Solutions, Inc.

- pyramid shaped structures
- 9.5 ft tall, 6.75 tons each
- double row alignment
- 60-130 feet from the shoreline



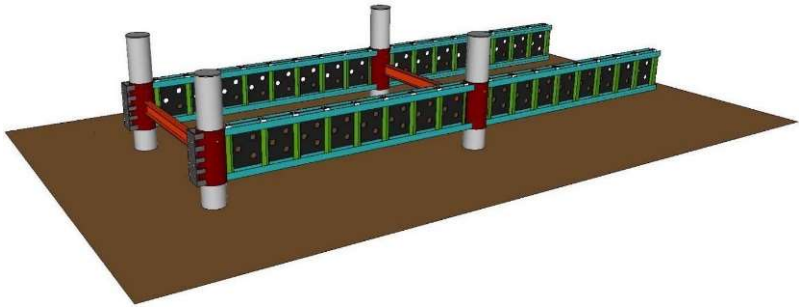
Shoreline Change = - 2.6 ft/y
~ 95% slower than the Reference Area

Positive Soil Elevation Change behind the WADs

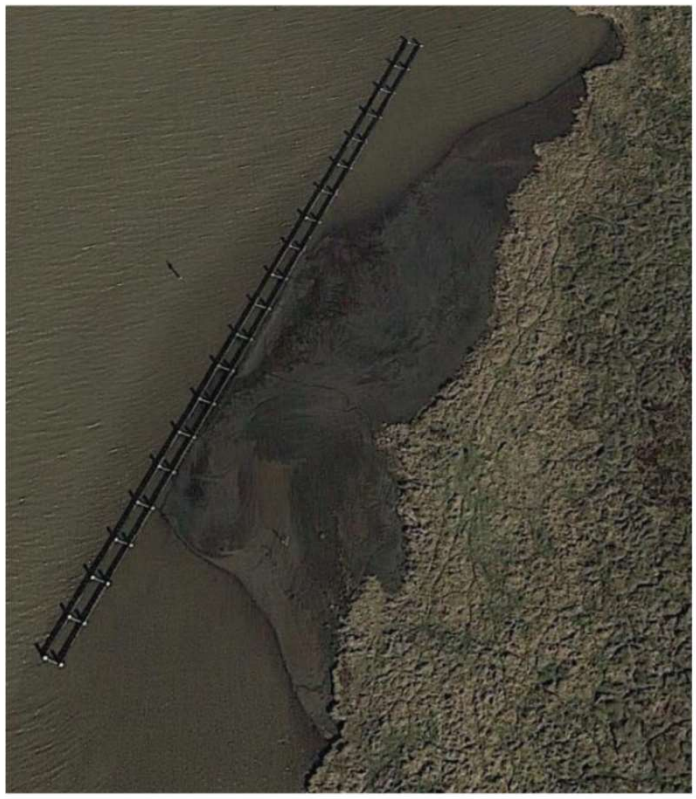
Information Provided by Final Closeout Report for LA-16 & 2018 SOC Lessons Learned Presentation (McGinnis, II T.E., 2018)

LA-16 Non-Rock Alternatives to Shoreline Protection Demonstration Project:

Wave Screen System(WSS) – Integrated Shoreline Solutions, LLC (Designed by Royal Engineers & Consultations)



- Double Wall of HDPE sheets supported by steel pilings and framing, with 6-inch holes
- 125-150 ft from shoreline (~4 ft of water)
- Screens hung down about 4 feet, about 1-1.5 ft above the bay bottom



Shoreline Change = - 1.8 ft/y
~ 98% slower than the Reference Area

Positive Soil Elevation Change behind the WSS
Accretion of 0.63ft underneath

Information Provided by Final Closeout Report for LA-16 & 2018 SOC Lessons Learned Presentation (McGinnis, II T.E., 2018)

Rockefeller Refuge Shoreline Stabilization (ME-18):

Photos courtesy of SW LA Regional Update
(2020 Carroll, J. CPRA)

PPL32 – Shark Island Shoreline Protection

Goal:
Maintain shoreline integrity and stabilize critical areas of Vermilion and Weeks Bays by reducing shoreline erosion

Solution:

- Construct 11,578 LF (2.2 miles) of shoreline protection
- Gaps Every 1,000 feet
- -1 to -1.5 ft contour, ~50 to 100 feet from shoreline

Direct Benefits: 180 Acres (100-150 Net Acres)

Est. Construction Cost + Contingency: $10-15M

PPL32 PROJECT FACT SHEET
February 9, 2022

Project Name
Southeast Marsh Island Marsh Creation and Nourishment

Master Plan Strategy
Southeast Marsh Island (2017 Master Plan 03b.MC.101): Creation of approximately 1,200 acres of marsh on the eastern tip of Marsh Island to create new wetland habitat and restore degraded marsh.

Project Location
Region 3, Teche-Vermilion Basin, Iberia Parish, Southeast end of Marsh Island Wildlife Refuge.

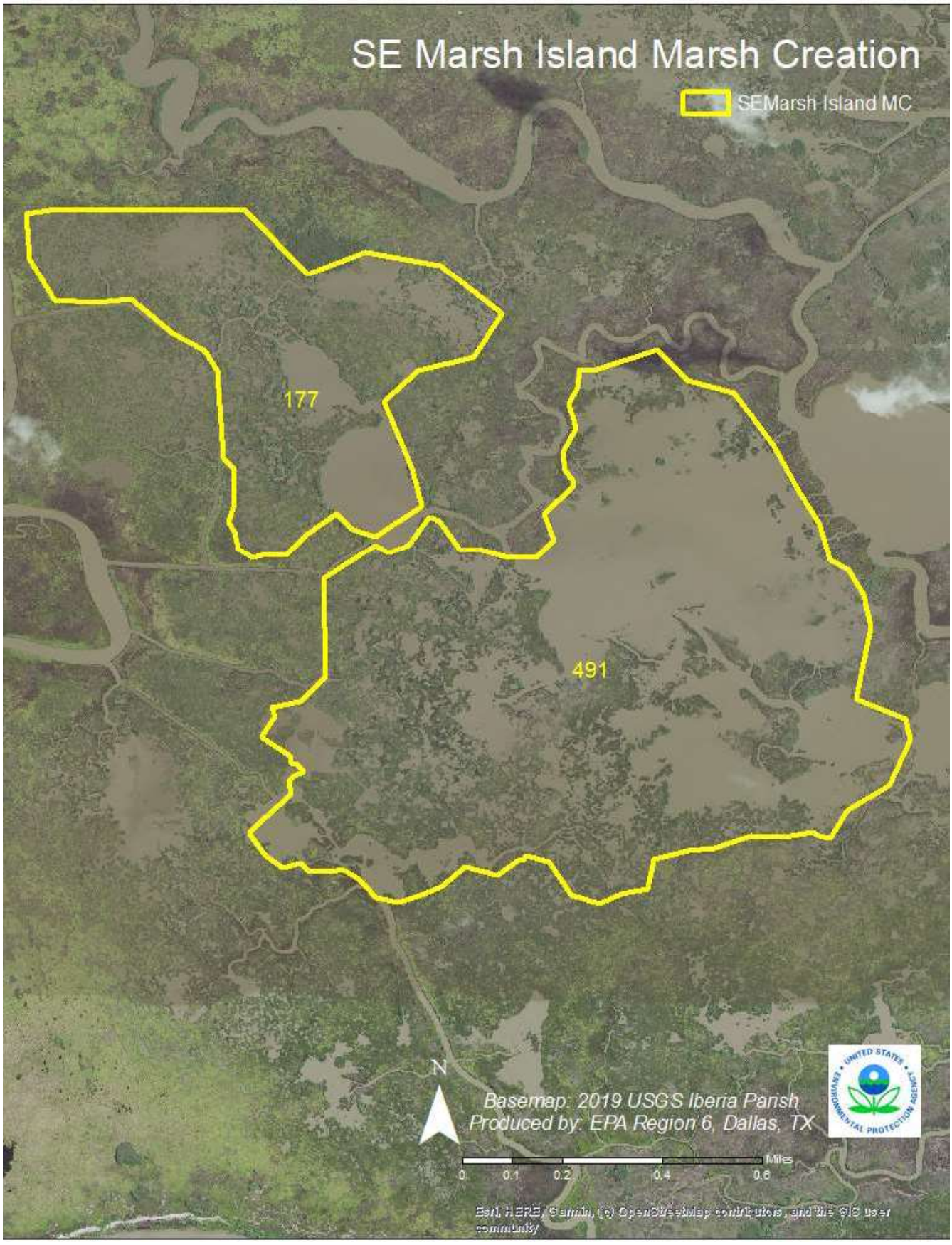
Problem
Areas of emergent marsh in the interior of Marsh Island have been converted to open water, primarily due to hurricane activity and subsidence. Marsh Island provides protection to tens of thousands of wetland acres and over 75 miles of shorelines on the mainland to the north, west and east of the island (Iberia, Vermilion and St. Mary parishes). It provides crucial protection to over 10,000 acres of susceptible/fragile marsh to the west and northwest of the project. Marsh Island has been projected to lose 12.9% of its marsh habitat through 2050. Areas targeted by this project are those with the greatest historic land loss and are proximal to East Cote Blanche Bay. The marsh creation cell is located near the West Branch MC Candidate (WVA) which shows a land loss rate of -0.58%/yr.

Proposed Solution
The project would use hydraulic dredging from Cote Blanche Bay to create/nourish approximately 668 acres of emergent marsh by filling in open water and deteriorated areas. Unconfined or limited confinement techniques will be used allowing finer material to flow through the interior marsh areas and provide nourishment. Efforts will be made to limit water quality impacts and minimize impacts to potential oyster bed areas. This project would complement the constructed Marsh Island Hydrologic Restoration (TV-14) and the East Marsh Island Marsh Creation (TV-21) projects on the east-end of Marsh Island.

Project Benefits
Create/nourish approximately 668 acres of emergent marsh (402 acres created, 286 acres nourished) using dredged sediment.

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

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


SE Marsh Island Marsh Creation
SEMarsh Island MC
177
491
N
Basemap: 2019 USGS Iberia Parish
Produced by: EPA Region 6, Dallas, TX
Miles
0
0.1
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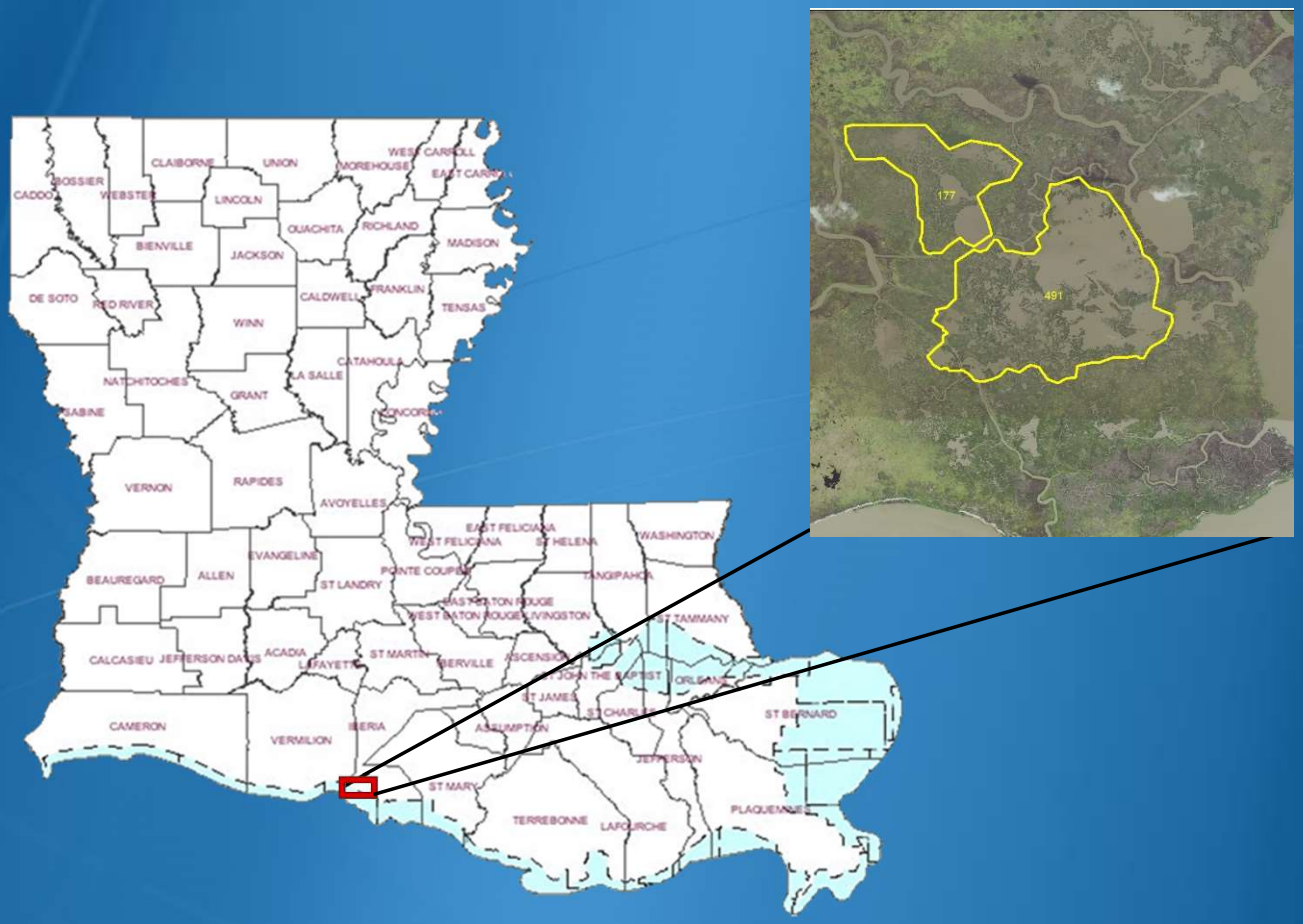
0.4
0.6
Esri, HERE, Garmin, (c) OpenStreetMap contributors, and the GIS user community

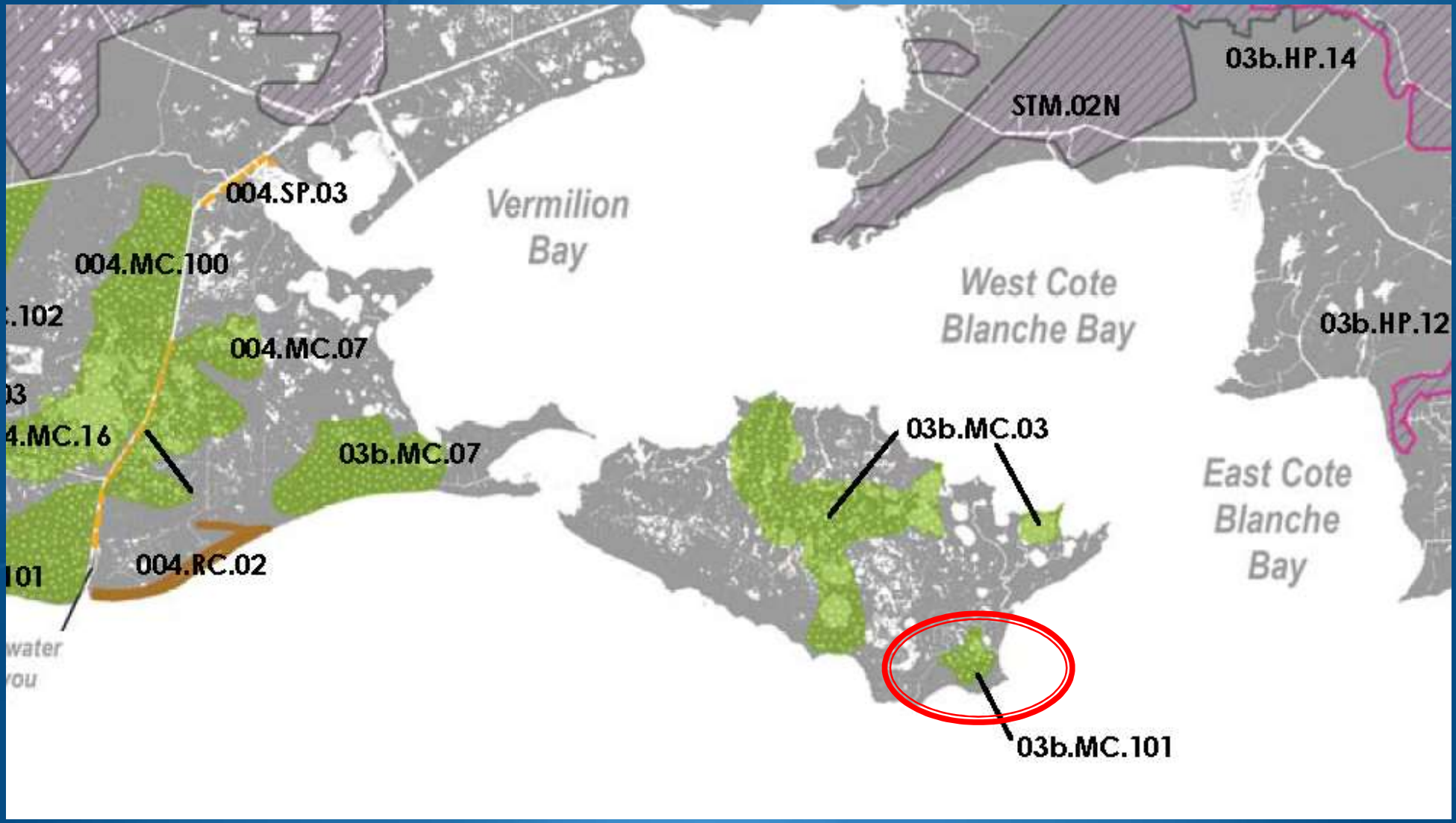
SE Marsh Island Marsh Creation



Coastal Wetlands Planning, Protection and Restoration Act

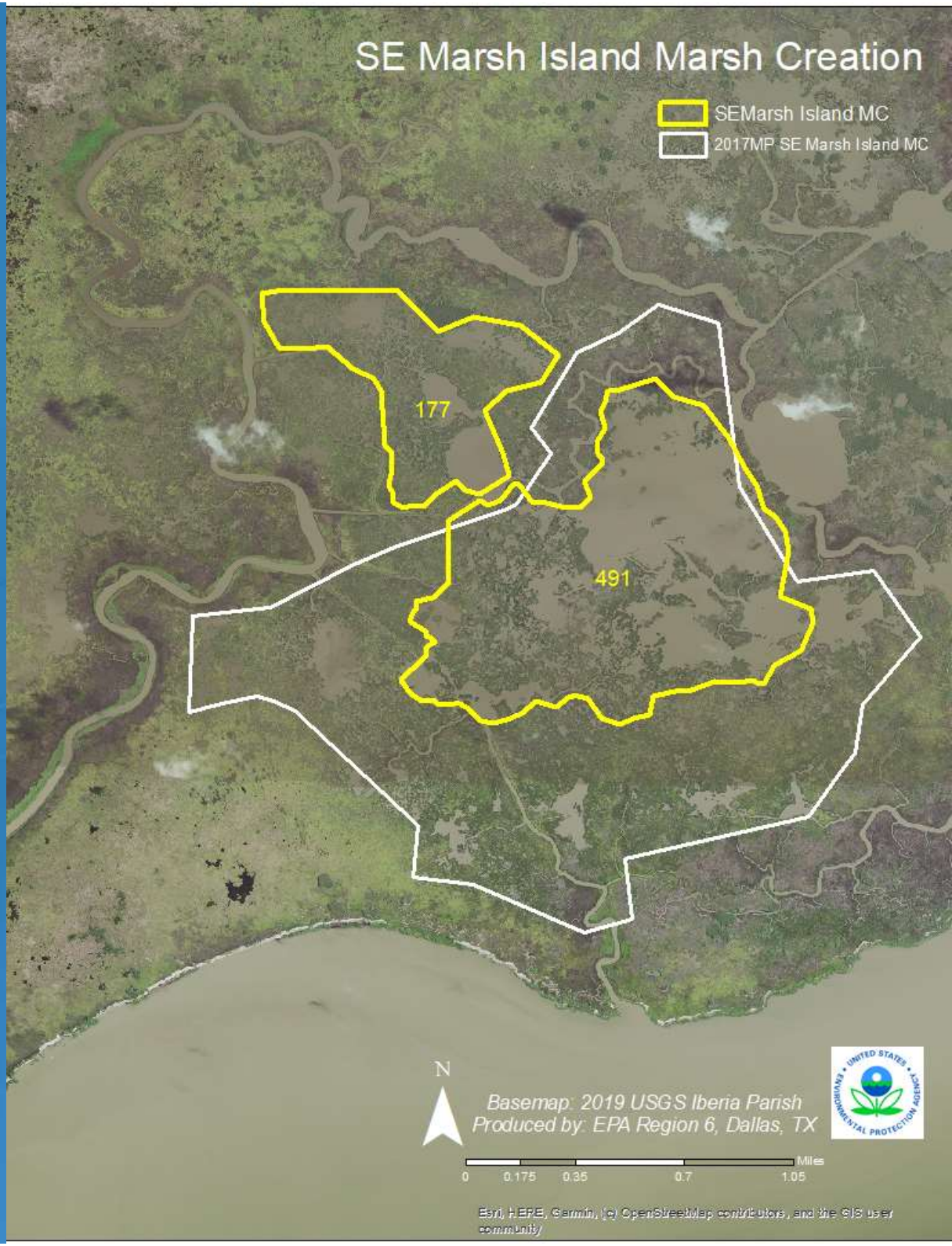
2017 Master Plan Solution

03b.MC.101 Southeast Marsh Island Marsh Creation : Creation of approximately 1,200 acres of marsh on the eastern tip of Marsh Island to create new wetland habitat and restore degraded marsh.



2017 Master Plan Consistency & Project Synergy

- 03b.MC.101 Southeast Marsh Island Marsh Creation
- Synergistic with TV-21 & TV-14
- TV 21 borrow source may be used for this proposal (Cote Blanche Bay)
- Construction with 25% contingency is $25-$30M



Problems/Concerns

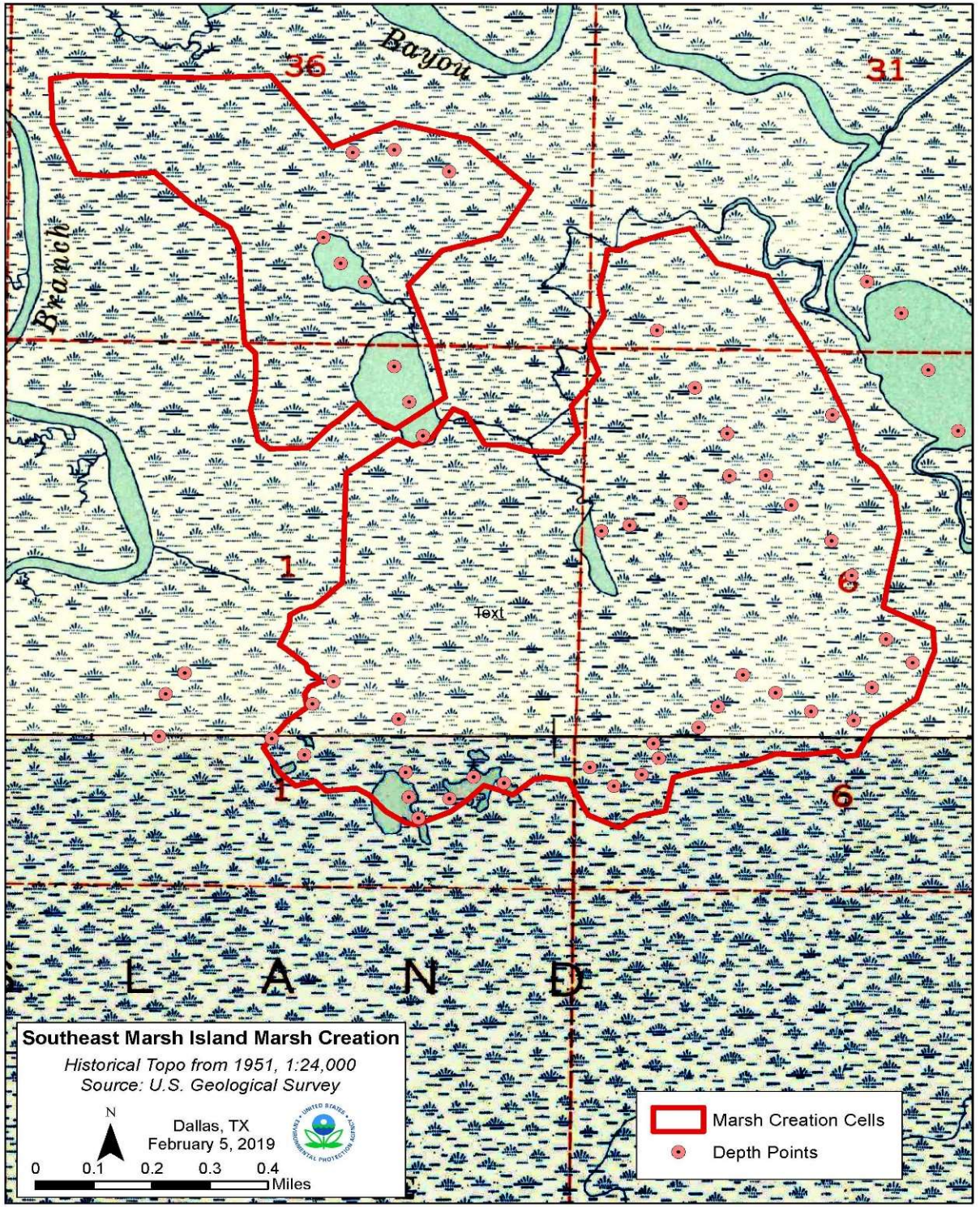
- Subsidence, storm and hurricane activity have increased wetland loss
- Iberia Parish could lose an additional 12.9% of its land area over the next 50 years and face severe storm surge flood risk (2017 MP).
- 90% or more of Marsh Island would experience 15ft + storm surge and would be lost in 50 years under the medium scenario (2017MP)

Project Significance

- Marsh Island provides protection to tens of thousands of wetland acres and over 75 miles of shorelines on the mainland to the north, west and east of the island (Iberia, Vermilion and St. Mary parishes).
- Provide crucial protection to over 10,000 acres of susceptible/fragile marsh to the west and northwest of the project.

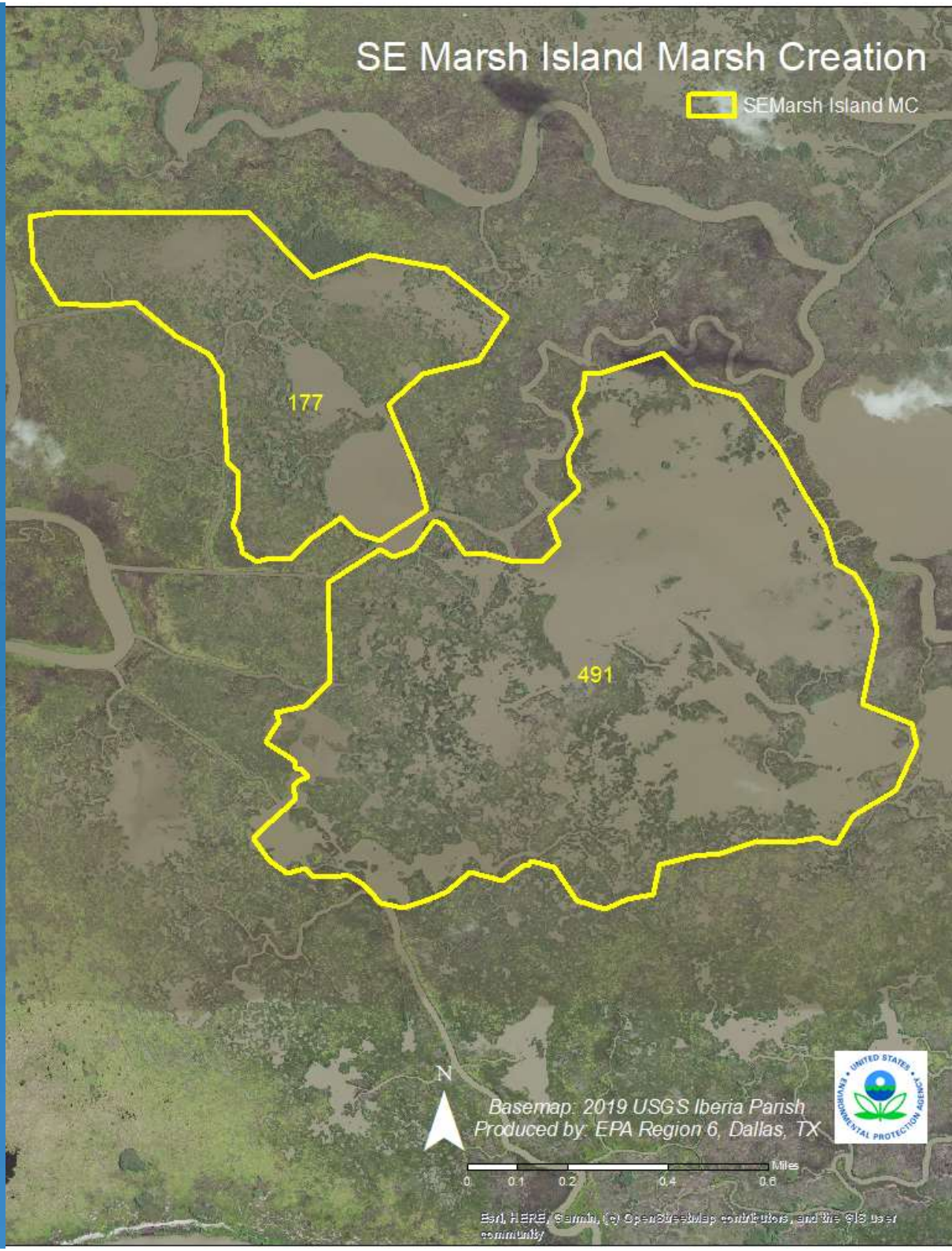
Historical Reference

- 1951 Topo
- Mostly solid marsh



- Create/nourish 668 acres emergent marsh with sediment from bay or offshore
- Restore degraded wetland habitat
- Marsh Island serves to protect more inland areas in Iberia Parish
- Construction plus 25% contingency = $25M-$30M

Project Features



PPL32 PROJECT NOMINEE FACT SHEET
February 9, 2022

Project Name
West Branch Marsh Creation on Marsh Island, LA

Louisiana's 2017 Coastal Master Plan
Marsh Creation – 03b.MC.03

Project Location
Region 3, Teche-Vermilion Basin, Marsh Island in Iberia Parish, LA

Problem
Earliest reports of deteriorating marsh at the project area describe the geology and human alterations of Marsh Island. Orton (1959) describes how the construction of Dynamite Ditch (linked to the east branch of Oyster bayou) prior to 1932 may have led to the increased salinity along the western branch of Oyster bayou. The construction of Dynamite Ditch appears to have initiated 90 years of multiple recorded stresses on the marsh, including marsh fires, and muskrat, nutria and waterfowl eat-outs.

Ted O'Neil conducted a survey of muskrat in the area during 1941 and 1942, when populations were so numerous as to completely denude hundreds of acres of marsh. He described the proposed project area as healthy saltmarsh where lower salinity marshes had previously been. The marsh was solid and well drained into the 1960s, and classified as intermediate (low salinity) marsh in 1979. While the marsh is primarily brackish marsh, the variations record the areas propensity for (or susceptibility to) change.

The geology differs from the sandy foundation of areas immediately to the south and west, and peaty soils farther north which may contribute to this area being more susceptible to the combined saltwater and water level fluctuations. Attempts at managing water level on the island – while successful at minimizing water fluctuations and increasing SAV – did little to slow the marsh loss (Nyman 1990 and Merino et al. 2005). Land loss primarily occurred after 2002. The conversion to open water is visible in March 2004 (google earth), and rapidly declines concurrent with the significant hurricanes of 2005, 2008 and 2020.

None of these stresses, however, are comparable to the marsh losses of the 2000's. The vast majority of land loss in this area primarily occurred after 2002. The conversion to open water is visible in March 2004 (google earth), and rapidly declines concurrent with the significant hurricanes of 2005 and 2008. Many tropical systems in the 2000's have caused storm induced scouring, folding, or sub-sediment wash out. There are no opportunities for the necessary quantities of sediment to reach this portion of the island naturally, but the foundation should be ideal for recreating marsh with dredged soils.

Goals
The project goals include: re-creating the continuous band of marsh that once existed in the West Branch Oyster Bayou area on Marsh Island, restoring intertidal marsh habitat between Oyster Lake and East Branch Oyster Bayou. 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 567 acres (383 acres created and 184 acres nourished). The project is conceptualized to be constructed in two separate fill cells. The western most cell (285 acres total) is proposed in its entirety as a fill cell. The eastern most cell is an area in which approximately half of total investigated area (half of 566 acres = 283 acres) will be selected for marsh creation. Opportunities for project expansion will be investigated as the project moves forward through the implementation process. Sediment would be hydraulically dredged from a Gulf of Mexico borrow areas into these shallow marsh creation areas. 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 567 acres (383 acres created and 184 acres nourished).

2) *How many acres of wetlands will be protected/created over the project life?*
The net acres 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 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. Marsh Island is a critical barrier coastal feature for this portion of Louisiana.

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 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 other CWPPRA project investments in the area. TV-14 and TV-21.

Considerations
Pipelines and other infrastructure, as well as oyster resources in the vicinity are considerations in the project design.

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

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

PPL32West Branch Marsh Creation Project

on Marsh Island, LA

Federal Sponsor: NOAA Fisheries

383 Acres Marsh Creation
184 Acres Marsh Nourishment

2018 Aerial Imagery
Map Date 01-21-2020

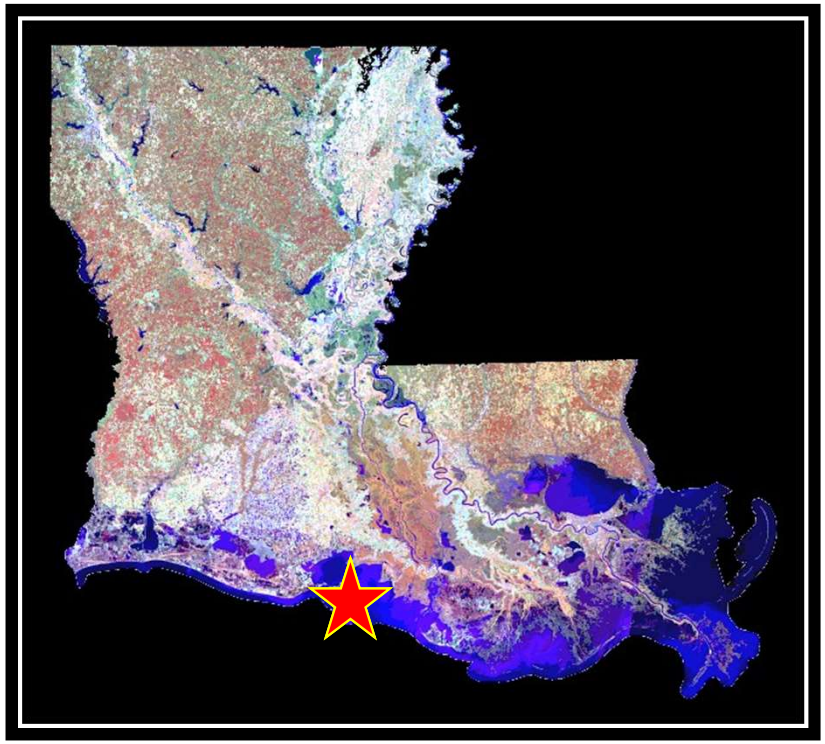
Legend

Marsh Creation

Borrow Area

West Branch Marsh Creation Project

on Marsh Island, Louisiana

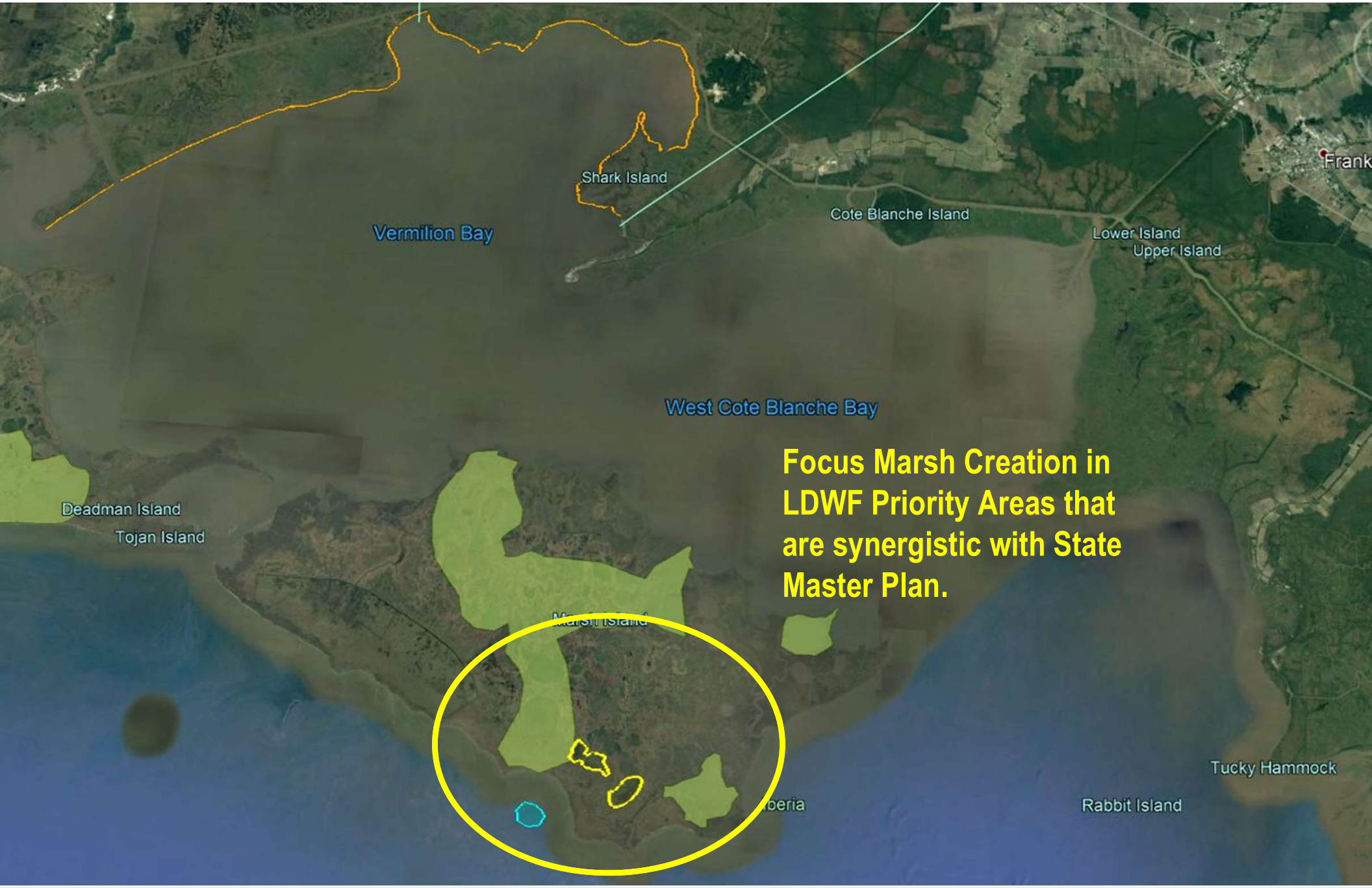


REGION 3– Teche Vermilion Basin

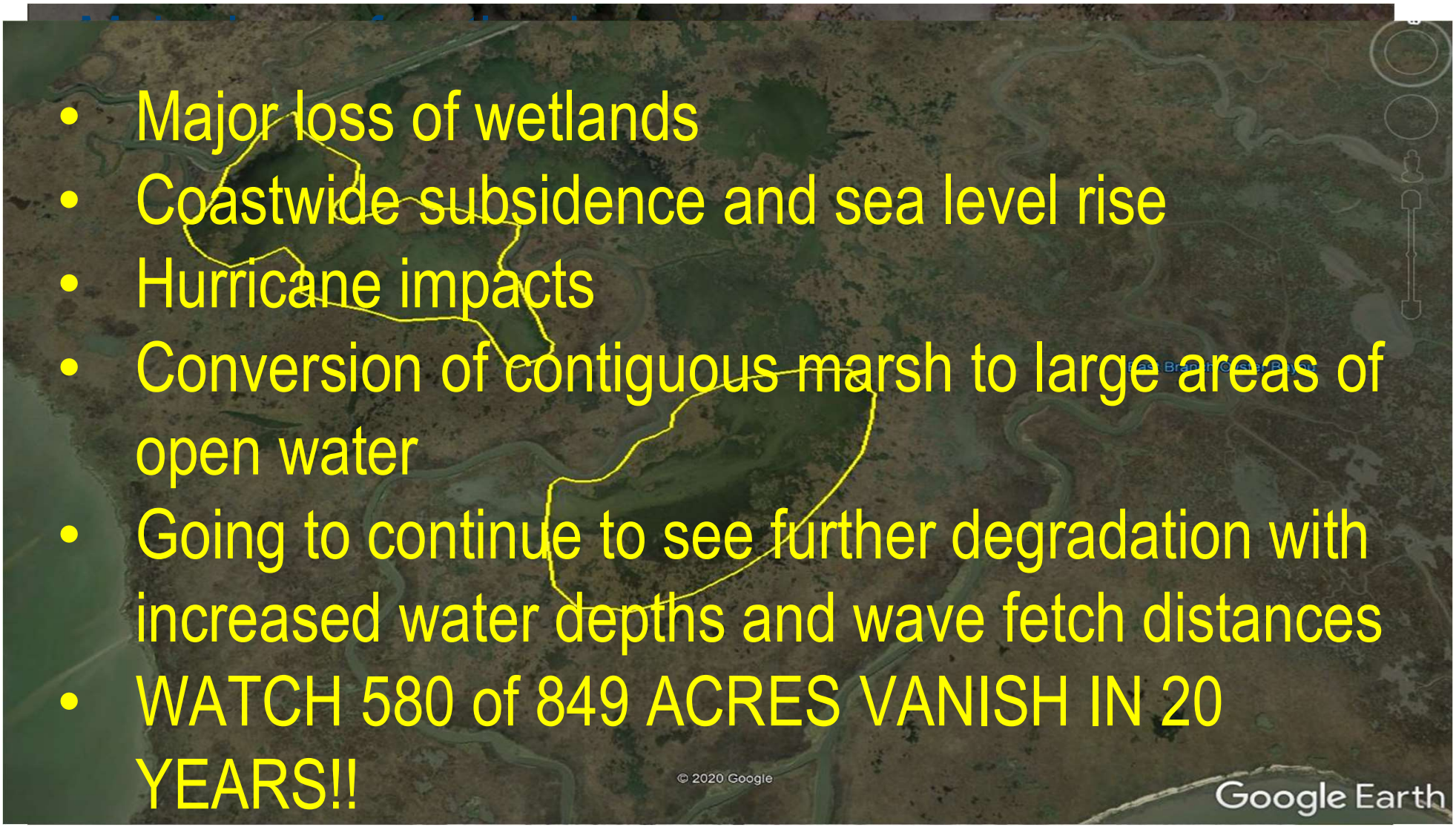
Presenter: Jennifer Smith, NOAA

Special Thanks
Lance, Vaughn, Tyson at LDWF
CPRA
Jason Kroll and NOAA Team

PPL32 CWPPRA Regional Planning Team Meeting
Virtual Meeting
February 9, 2022


Shark Island
Vermilion Bay
Cote Blanche Island
Lower Island
Upper Island
West Cote Blanche Bay
Deadman Island
Tojan Island
Tucky Hammock
Rabbit Island
Focus Marsh Creation in LDWF Priority Areas that are synergistic with State Master Plan.

Project Area Problem



- Major loss of wetlands
- Coastwide subsidence and sea level rise
- 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
- WATCH 580 of 849 ACRES VANISH IN 20 YEARS!!

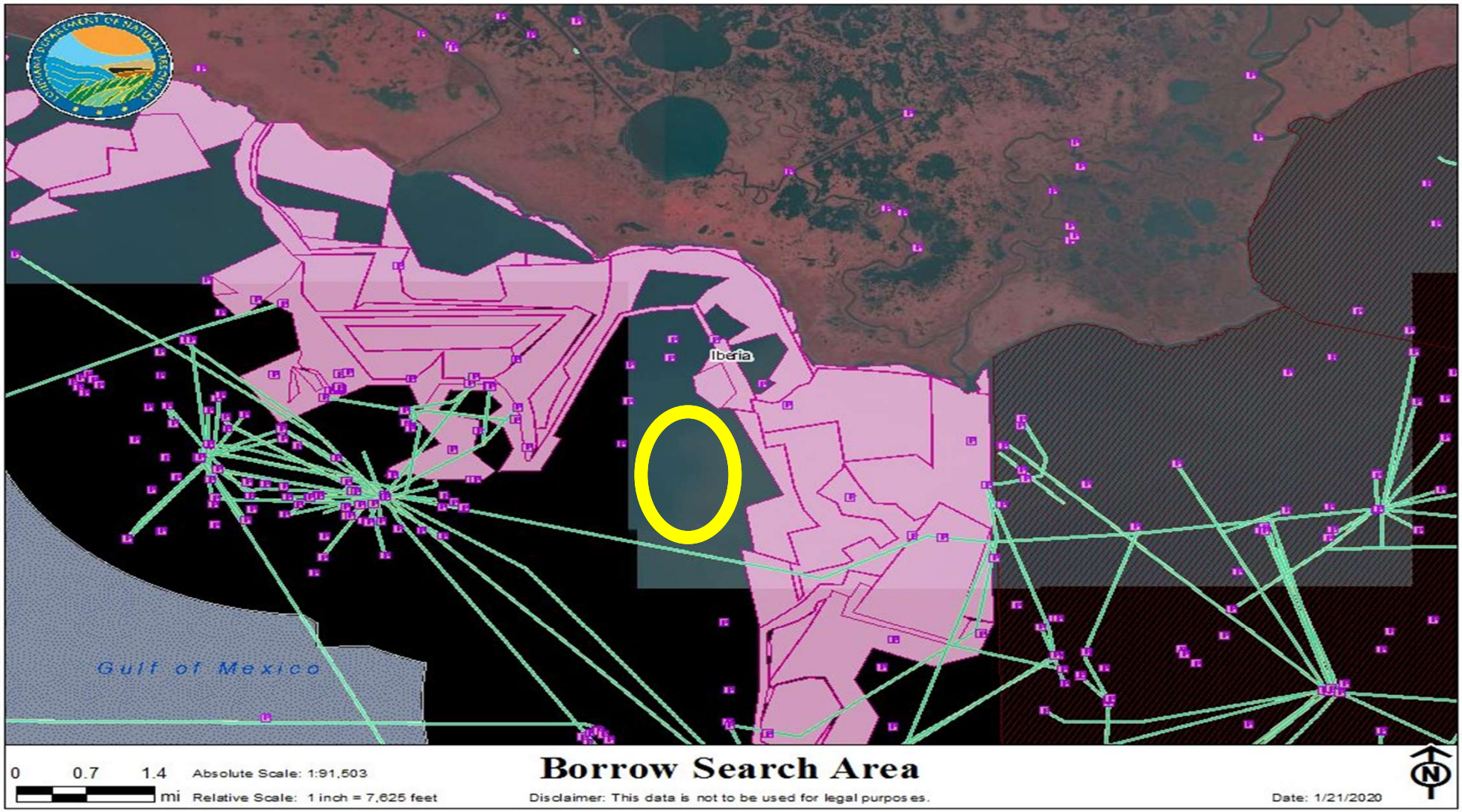
Project Goals

- Marsh Creation and Nourishment
  - Re-create the continuous band of marsh that once existed in this targeted area.
  - Restore intertidal marsh habitat Between Oyster Lake and East Branch Oyster Bayou.
  - Design and construct resilient wetlands to maximize wetland benefits throughout the 20 year project life.

Restoration Solution

- 567 Acres of Marsh Creation/Nourishment
  - All of the eastern cell and about half of the western cell as shown on the maps.
  - 383 Acres of marsh creation & 184 Acres of marsh nourishment
  - Hydraulically dredge material from Gulf of Mexico.
  - Contained fill areas with dike gapping after construction

Restoration Solution



Project Map

PPL32West Branch
Marsh Creation Project
on Marsh Island, LA

383 Acres Marsh Creation
184 Acres Marsh Nourishment

Federal Sponsor: NOAA Fisheries
2018 Aerial Imagery
Map Date 01-21-2020

Legend

Marsh Creation

Borrow Area

- Synergistic with 03b .MC.03 and 30b.MC.101 of the 2017 State Master Plan
- Gulf of Mexico Borrow Area
- 567 Acres TOTAL of Marsh Creation/Nourishment
- Approximately 383 acres Creation and 184 acres Nourishment

Summary of Features, Cost, and Benefits

- **567 Acres Total**
  - 383 acres Marsh Creation
  - 184 acres Nourishment
- **Construction Cost + 25% Contingency $25M - $30M**
- **Net Benefits: 350-400 acres**

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CWPPRA RPT Region 3

Terrebonne

PPL32 PROJECT NOMINEE FACT SHEET
February 9, 2022

Project Name
Bayou Jean Lacroix Marsh Creation

Project Location
Region 3, Terrebonne Basin, Terrebonne Parish, Bayou Jean Lacroix just south of the twin pipelines.

Problem
The marshes of Eastern Terrebonne Parish have suffered extensive damage from subsidence, erosion, salinity intrusion and sea level rise. These areas are particularly vulnerable because the area set in a position where waters from the Mississippi and Atchafalaya Rivers have the least amount of influence. Terrebonne Parish has consistently expressed most concern for these marshes because so many of their cultural heritage communities are increasingly threatened. The regional loss in the area is -1.71% per year with a subsidence rate of 8.8 mm/y (moderate scenario). Therefore, projects in the Eastern Terrebonne Basin are a high priority. Much like the other basins of the Deltaic Plain, building synergy in the form of a landbridge may be feasible in the Eastern Terrebonne Basin.

Goals
The primary goals of this project are to 1) create/nourish marsh habitat in the degraded marsh and open water via marsh creation and nourishment, 2) reduce fetch and wave energy in open water areas with the construction of terraces and 3) bank restoration to reconstitute the flow channel.

Proposed Solution
Sediments will be hydraulically dredged and pumped via pipeline from a borrow site located in near Lake Felicity to create/nourish approximately 374 acres of marsh. 8,400 linear feet of terraces will be constructed adjacent to the marsh creation area along the bayou. 9,959 linear feet of bank restoration will be constructed adjacent to the project area along Bayou Jean Lacroix.

Project Benefits
The project is expected to initially create/nourish approximately 374 acres of marsh and an additional 8 acres of marsh with terraces.

Preliminary Cost
The construction cost range is $25M - $30M (+25% Contingency).

Preparer of Fact Sheet
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Eric Whitney, NRCS, Engineer, (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 26, 2022

PPL 32
BAYOU JEAN LACROIX
MARSH CREATION
TERREBONNE PARISH, LA

N
W E
S

0 1,000 2,000 Feet

Legend

- MARSH_CREATION
- EARTHEN_BANK_RESTORATION
- TERRACE_FIELD

PPL32

Bayou Jean LaCroix Marsh Creation

Ron Boustany, Biologist, NRCS

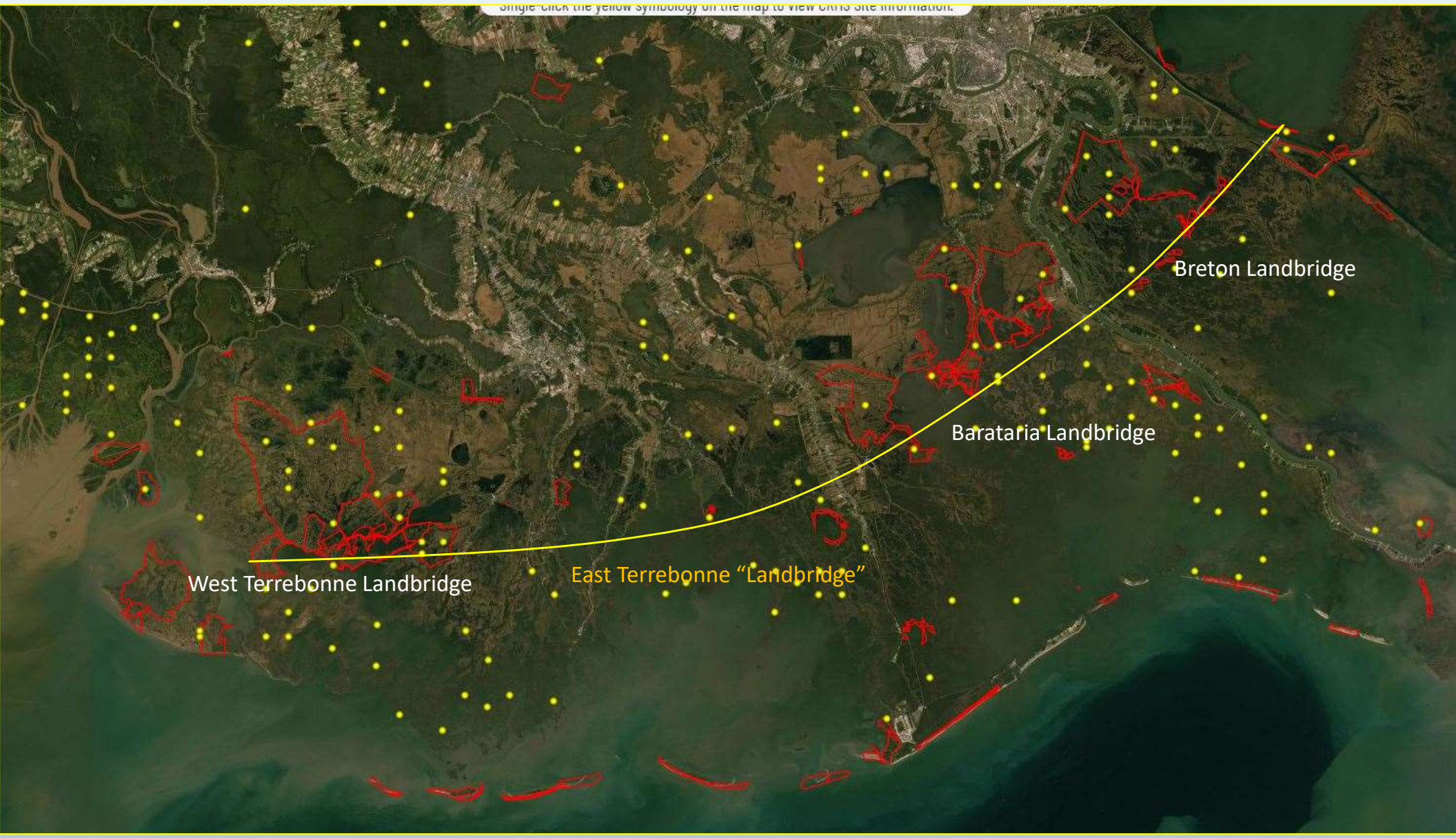
Eric Whitney, Engineer, NRCS

USDA/Natural Resources Conservation Service

Regional Planning Team Meeting

February 9, 2022

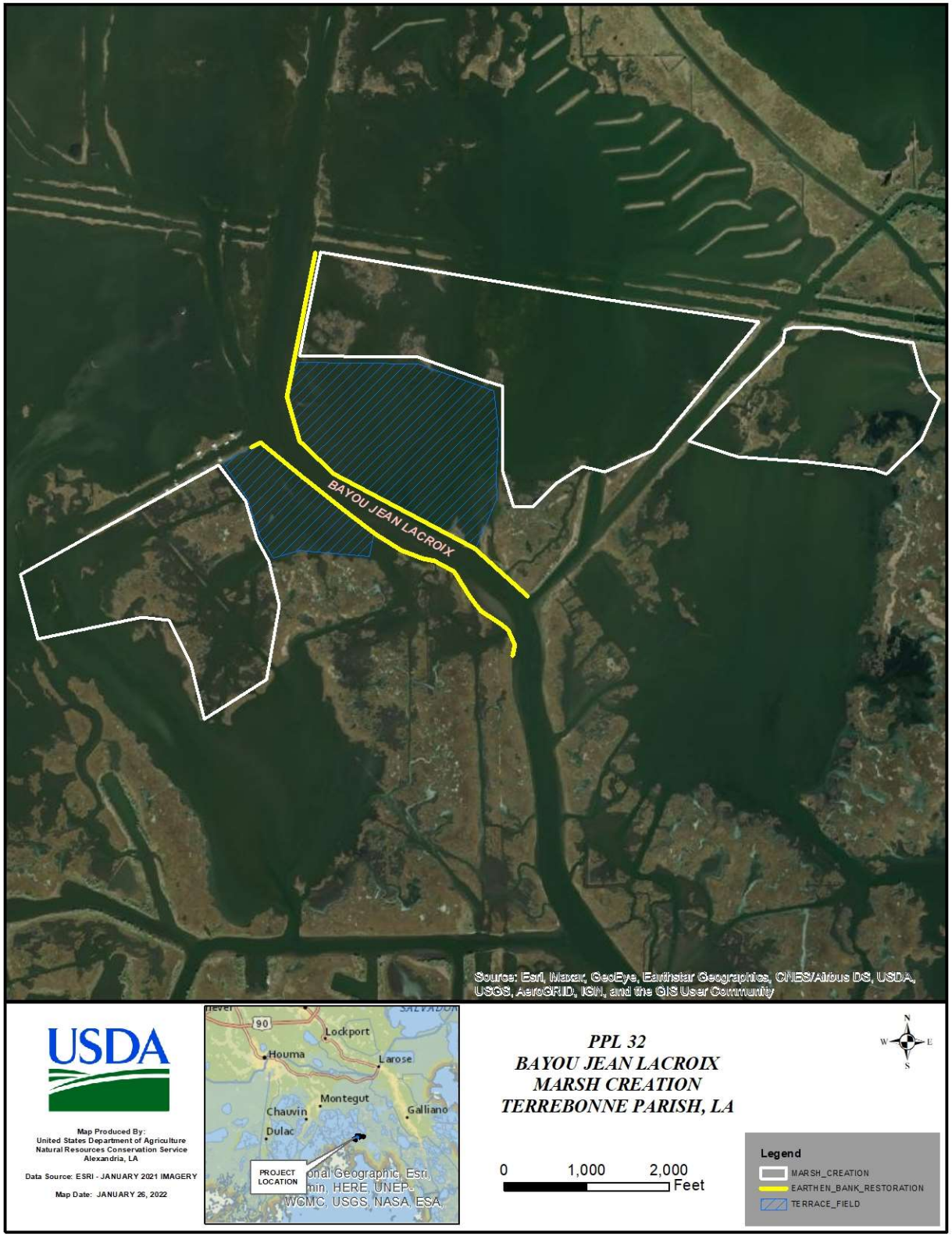
Coastal Landbridge Efforts



East Terrebonne “Landbridge” Concept

Project location in relation to CWPPRA projects and State Master Plan (yellow line shows alignment of projects)

PPL32
Bayou Jean Lacroix Marsh Creation



Problem: The eastern Terrebonne basin has suffered much loss due to subsidence, erosion, salinity intrusion and sea level rise.

Project Goals: To create marsh and terraces and stabilize the banks of Bayou Jean Lacroix. Build synergy with a potential "landbridge" projects across Eastern Terrebonne Basin.

Project Benefits: The project will create/nourish 374 acres of marsh, 8,400 lf of terraces and 9,959 lf of bankline restoration.

Preliminary Cost: $25-30M (const+25%)

PPL32 NOMINEE FACT SHEET
February 9, 2022

Project Name
West Raccourci Marsh Creation and Terracing

Project Location
Region 3, Mechant/de Cade Basin, Terrebonne Parish; located north of Lake Mechant and south of Bayou Decade between Bay Raccourci and Lake Pagie

Problem
Subsidence, canal dredging and storm damage have contributed significantly to the loss of marsh in the area. The zone of intermediate marsh is located just north of Lake Mechant. High salinity water has infiltrated through oil and gas canals and Bayou Raccourci and entered lower salinity marshes surrounding Bay Raccourci and eventually entering Bayou Decade. Increased freshwater input from Atchafalaya River water to the lower Penchant marshes influences the area. Much of that influence is filling in open bays and lakes. A loss rate was calculated for the area by USGS to be -0.21% /yr between years 1984 to 2019 (Bay Raccourci Inc II Marsh Creation).

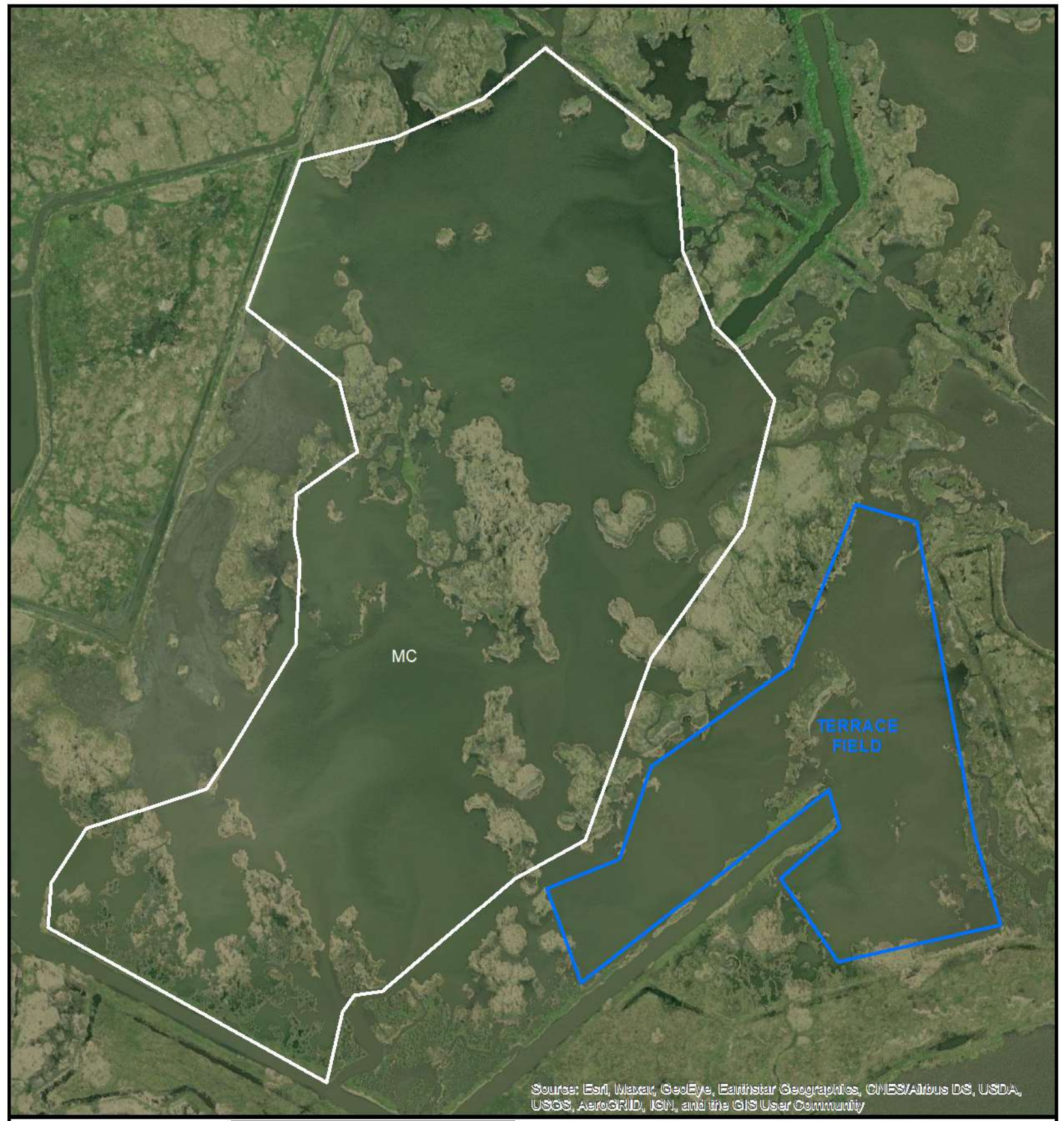
Goals
The goal of this project is to restore low salinity brackish/intermediate marsh north of the "Y" canal to slow the movement of saline water north. The construction of terraces will help to buffer salinities, restore habitat and continue to allow for the beneficial influence of freshwater flows south through the marsh. Restoration of this marsh will compliment adjacent marsh restoration projects and may help alleviate the need for the long-term maintenance of some of the structural components of TE-44.

Proposed Solution
Sediment will be dredged from a borrow site in Lake Pagie and pumped via pipeline to create/nourish approximately 652 acres (429 MC +223 MN) of marsh. Earthen containment dikes will be constructed around the perimeter of marsh creation cells. Containment dikes will be gapped at the end of construction or by target year 3. Approximately 11,830 LF of terraces will be constructed in a 167-acre area influenced by freshwater flow from Raccourci Bay. Terraces are proposed with a 15 ft top width, 1:5 side slopes, and 250 ft spacing.

Considerations
Oil and gas infrastructure

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

Preparer(s) of Fact Sheet:
Angela Trahan, Project Manager, Angela.Trahan@USDA.gov, 337/291-3142
Jackie Jones, Planning Engineer, Jacqueline.Jones@USDA.gov, 337/291-3055

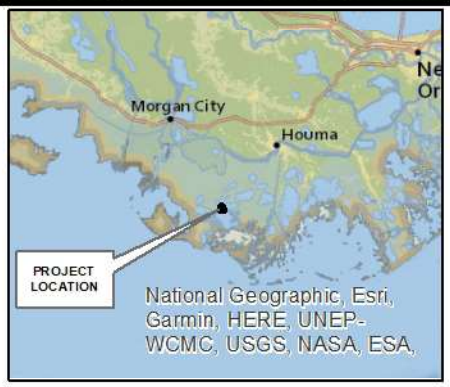


USDA

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

Data Source: ESRI - APRIL 2021 IMAGERY

Map Date: JANUARY 26, 2022



PPL 32 WEST RACCOURCI
MARSH CREATION AND TERRACING
TERREBONNE PARISH, LA

N
W E
S

0 600 1,200
Feet

Legend

MARSH_CREATION

TERRACE_FIELD

PPL32

West Raccourci Marsh Creation and Terracing

Region 3, Terrebonne Basin

Contacts:

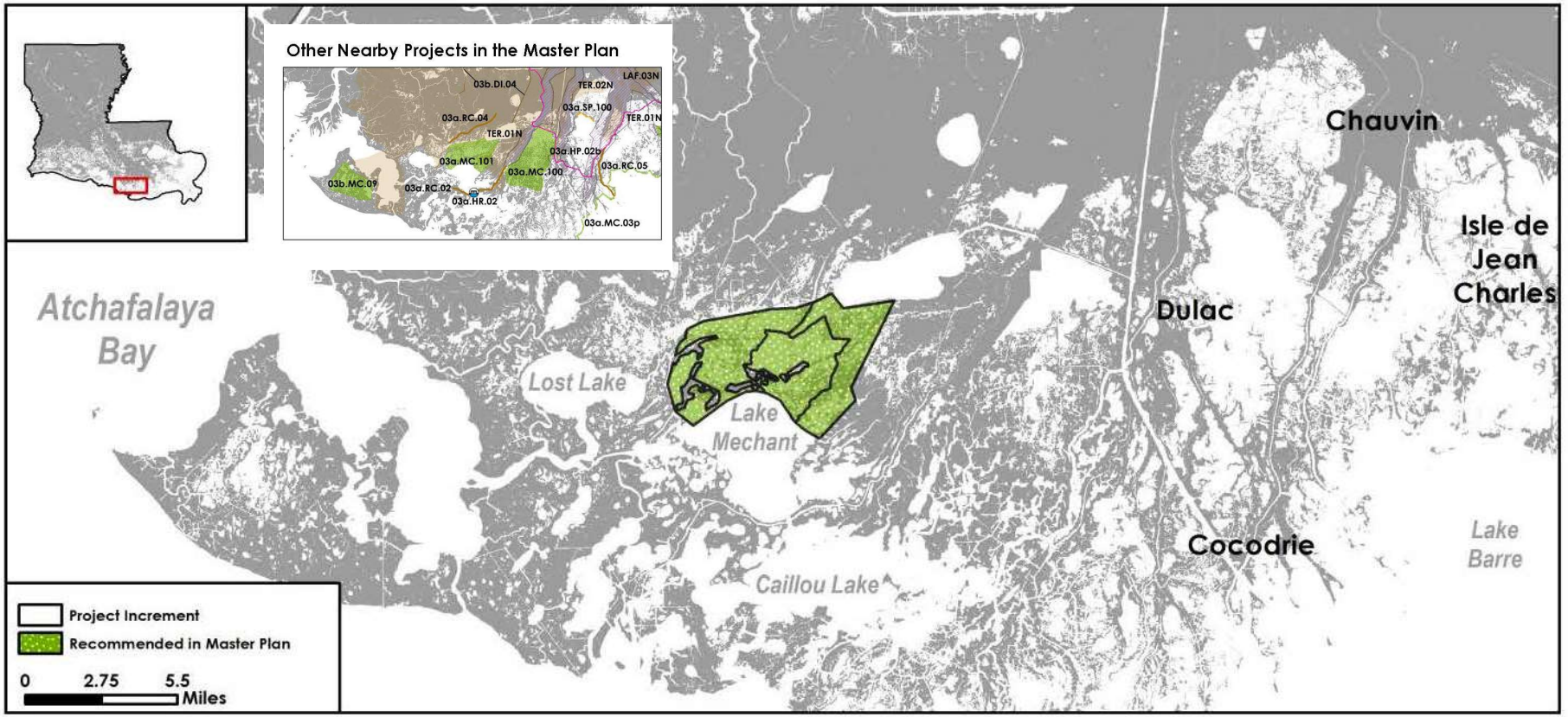
Angela Trahan, Project Manager, Angela.Trahan@USDA.gov, 337/291-3142

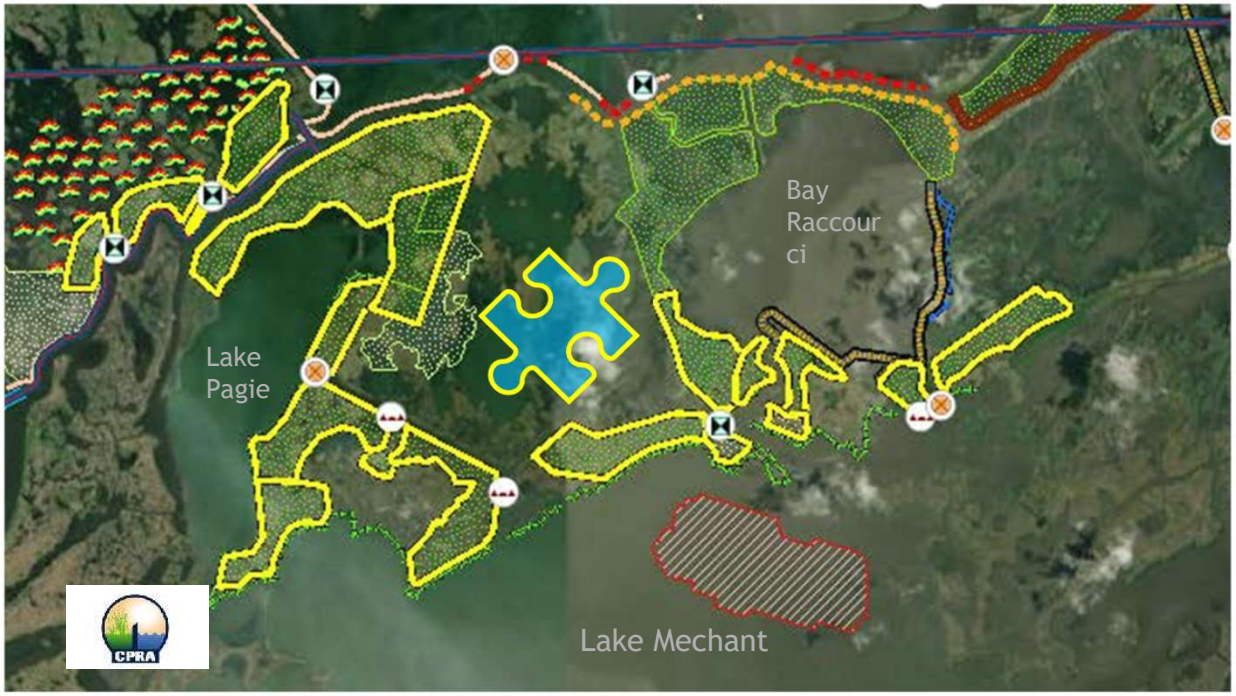
Jackie Jones, Planning Engineer, Jacqueline.Jones@USDA.gov, 337/291-3055

North Lake Mechant Marsh Creation

Marsh Creation

Project ID: 03a.MC.101





Problem:

- high salinity water has infiltrated through oil and gas canals & through Lake Pagie and Bayou Raccourci and entered lower salinity marshes surrounding these open water areas.

- Increased freshwater input from Atchafalaya River through the lower Penchant marshes influences the area. Much of that influence is filling in open bays and lakes.

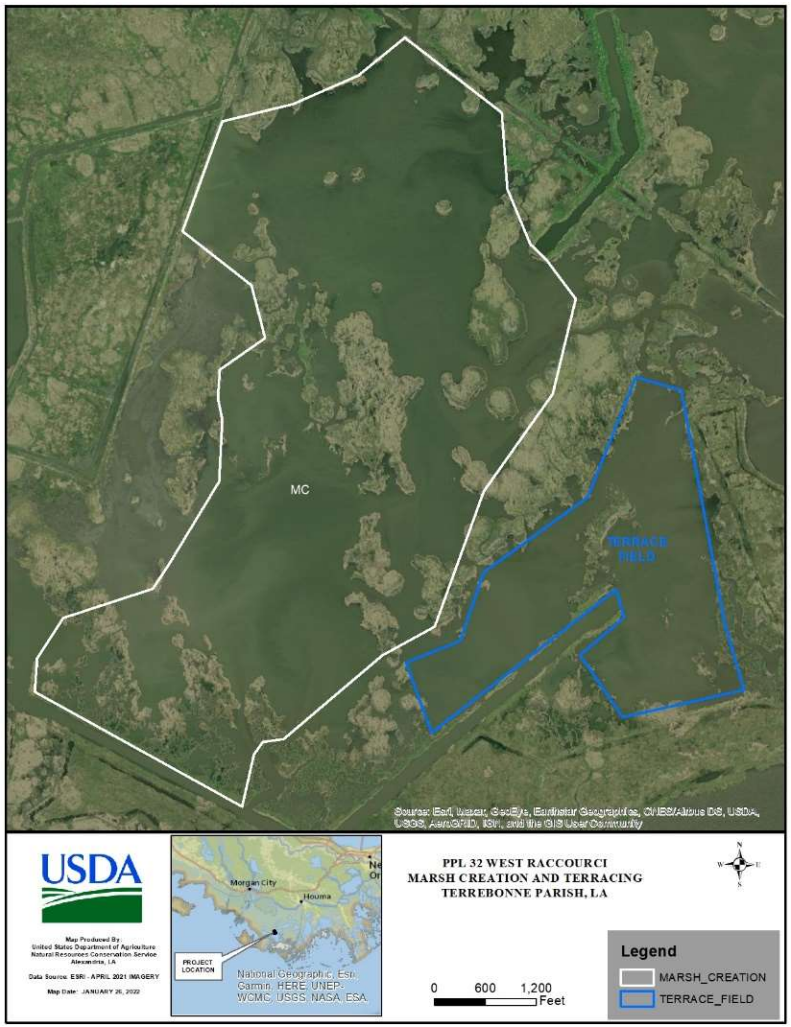
PPL32 – West Raccourci Marsh Creation & Terracing

Goal:

1) restore low salinity brackish/intermediate marsh north of the "Y" canal (BA = Lake Pagie)
2) Construct terraces to reduce fetch and buffer salinities & continue to allow for the beneficial influence of freshwater flows south through the marsh

- Compliments adjacent marsh restoration projects
- May help alleviate the need for the long-term maintenance of some of the structural components of TE-44

PPL32 – West Raccourci Marsh Creation & Terracing



Solution:

Lake Pagie Borrow

429 acres Marsh Creation

223 acres Marsh Nourishment

652 acres Total

167-acre Terrace Field

11,830 LF Terraces

Total Area of Benefits = **819 acres**

Construction Costs + 25% Continency =

$25-30M

PPL 32 PROJECT NOMINEE FACT SHEET
February 13, 2019

Project Name:
Bayou Barre Marsh Creation and Terracing

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

Problem:
The marshes near the Madison Bay area have experienced tremendous wetland loss due to a variety of factors, including subsidence, saltwater intrusion, a lack of sediment supply, and oil and gas activities. The loss of the marshes have exposed significant infrastructure to open water conditions and has made the area less suitable for various wildlife and fisheries. The 1985 to 2016 loss rate for the Wonder Lake area is 1.67%/yr. With high wetland loss in the vicinity, the Morganza Hurricane Protection Levee to the north of the project area has become extremely susceptible to high wave energies with the increase in fetch.

Goals :
This project would nearly tie together two ridges (Bayou Terrebonne Ridge, Bayou St. Jean Charles Ridge).

Specific goals: 1) Create 370 acres of brackish intertidal marsh.

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

Proposed Solution:
This project would propose to create approximately 370 acres of emergent marsh by utilizing a small hydraulic dredge to pump material from Maddison Bay borrow area. The distance required to pump that material could be kept under 15,000 feet. That material would be placed in shallow open water areas between Wonder Lake and Maddison Bay. Utilizing a small dredge would reduce the height of the containment dikes needed to create marsh in open water areas. At this time there are remnant dikes that are still in tack surrounding most of the marsh creation cells. Dredge material would be placed to a height conducive for the creation of healthy intertidal marsh. All constructed containment dikes would be sufficiently gapped or degraded no later than 3 years post construction to allow for fisheries access.

Preliminary Project Benefits:
1) What is the total acreage benefited both directly and indirectly?
This total project area is 370 acres.

2) How many acres of wetlands will be protected/created over the project life?
Approximately 332 ac of brackish marsh will be protected/created over the 20 year project life.

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

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

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

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

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

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

Preparer(s) of Fact Sheet:
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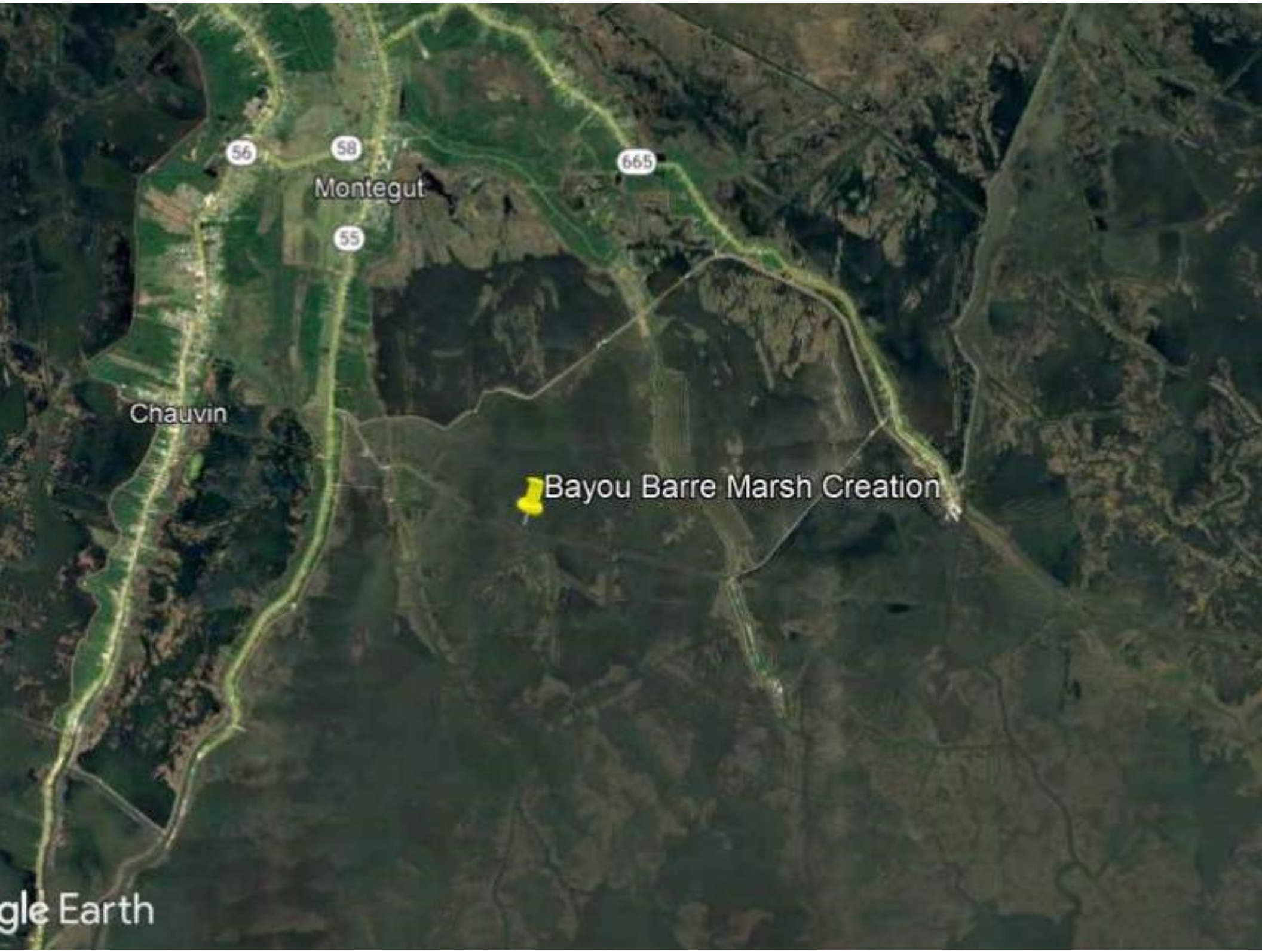
Fish & Wildlife Service

Louisiana Ecological Services Field Office

Bayou Barre Marsh Creation

BAYOU BARRE MARSH CREATION AND TERRACING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58
665
Montegut
55
Chauvin
Bayou Barre Marsh Creation
gle Earth

BAYOU BARRE MARSH CREATION AND TERRACING

Problem:

- **Project area wetlands loss is due to subsidence, saltwater intrusion, a lack of sediment supply, and oil and gas activities.**

- **The 1985 to 2020 loss rate -1.08%/yr. (Wonder Lake)**

- **Losses have exposed infrastructure to open water conditions and has made habitats in the area less suitable for various fish and wildlife species.**

Fish & Wildlife Service

Louisiana Ecological Services Field Office

Bayou Barre Marsh Creation

BAYOU BARRE MARSH CREATION AND TERRACING

Perceived Concerns:

1) Issues with crossing pipeline (CPRA)

- We have recently crossed pipeline with very little cover (Bayou Bonfouca and other projects).
- Private pipeline companies have said this would not be a problem in this area with the depth of water above the pipeline.

2) Issues with poor soils and constructing containment dikes

- With the small dredge (16-18 inch dredge) overbuilt containment dikes are not needed. Low velocity pumping allows water/material being pumped to remain at lower levels.
- The area we are looking at building marsh are almost completely surrounded by some type of levee or containment dike. Most have been there for nearly 30 years. We have a base for the containment dikes.

BAYOU BARRE MARSH CREATION AND TERRACING

- **This area is an incredible area of need. No CWPPRA project has been constructed in the entire Eastern Terrebonne area.**

- **This project would show that we can tie together several ridges (Bayou Terrebonne Ridge, Bayou St. Jean Charles Ridge, and Point au Chene Ridge) which would be very strategic in this area.**

- **Tie synergistically with two other CWPPRA projects (Island Road Marsh Creation project-Phase *II*)**

Fish & Wildlife Service

Louisiana Ecological Services Field Office

Bayou Barre Marsh Creation

BAYOU BARRE MARSH CREATION AND TERRACING

Goals:

- **Create 370 acres of marsh.**

Net Acres:

- **Total net acres = 332 acres of marsh**

Potential Issues:

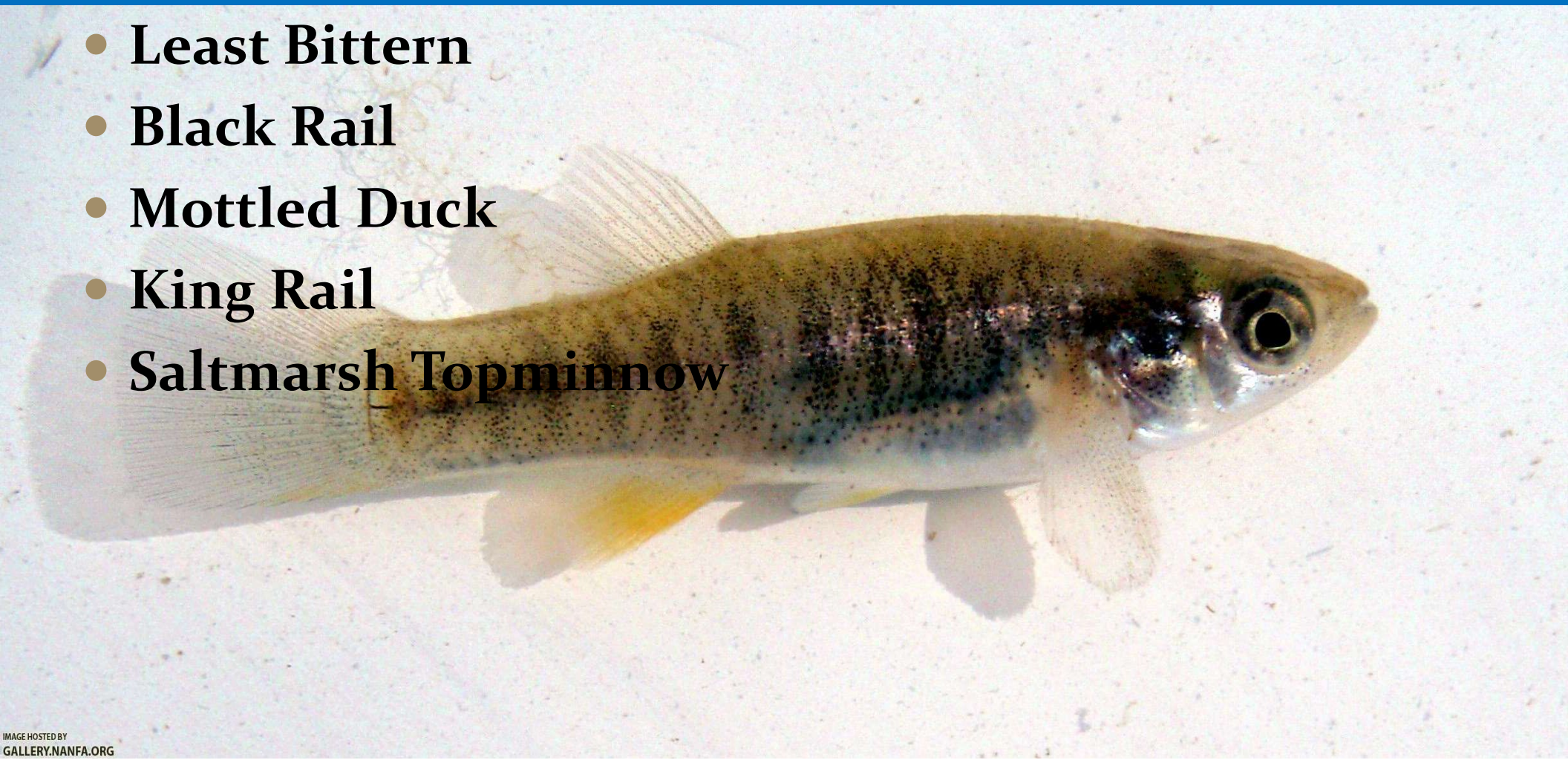
- **Multiple pipelines and poor soils.**

Preliminary Construction Costs

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

Species of Concern and Rare Species

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



PPL32 PROJECT NOMINEE FACT SHEET
February 9, 2022

Project Name: Southwest Golden Meadow Marsh Creation

Project Location:
Region 3, Terrebonne Basin, Lafourche Parish, South and West of Golden Meadow

Problem:
Since 1932, the Terrebonne Basin has lost approximately 20% of its wetlands. Current loss rates range from approximately 4,500 to 6,500 acres /year. This loss amounts to 130,000 acres during the next 20 years. One-third of the Terrebonne Basin's remaining wetlands would be lost to open water by the year 2040. Historic aerial photography indicates significant marsh loss in the project area west of Golden Meadow near Catfish Lake. 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. The most recent significant land loss in the area has been the recent hurricanes that have passed directly over or near the project area, including Hurricane Ida. The wetland loss rate for areas near the project area is -0.97%/year based on USGS hyper temporal data from 1985 to 2020.

Goals:
The goals of the project are to: 1) protect approximately 13,500 feet of hurricane protection levee, 2) create approximately 320 acres of marsh and nourish an additional 10 acres of marsh with material dredged from large open water south and west of project.

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

Proposed Solutions:
The current proposed project would create 320 acres of marsh and nourish an additional 10 acres of marsh using sediment hydraulically dredged from an unnamed lake south and west of the project area. 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 330 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 is estimated to be between 250 and 300 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 contribute to the protection of the Larose to Golden Meadow Hurricane Protection Levee. Directly protect several homes and business.

5) What is the net impact of the project on critical and non-critical infrastructure? Would protect the Larose to Golden Meadow Hurricane Protection Levee and several homes and business outside of the levee system including a portion of Hwy 1.

6) To what extent does the project provide a synergistic effect with other approved and/or constructed restoration projects? Would work with the Catfish Lake MC and Shoreline Protection project (Phase I funding) and North Catfish Lake Marsh Creation project (Phase I).

Identification of Potential Issues:
Could be oyster leases located in the borrow site.

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

Preparer(s) of Fact Sheet:
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GOLDEN MEADOW - WEST MARSH CREATION
Legend
MARSH CREATION
Google Earth
Image © 2021 Maxar Technologies
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PPL32
SOUTHWEST GOLDEN MEADOW MARSH CREATION

SOUTHWEST GOLDEN MEADOW MARSH CREATION

Problem:

- **Subsidence, canal dredging, saltwater intrusion, and altered hydrology**
- **Hurricane Damage**
- **Shoreline Erosion**
- **Erosion rates between 9-60 ft./yr.**
- **Interior loss rates 0.97%/yr.**

U.S. Fish & Wildlife Service

Louisiana Ecological Services Field Office

Southwest Golden Meadow Marsh Creation

Project Area 01-2021

Southwest Golden Meadow Marsh Creation

SOUTHWEST GOLDEN MEADOW MARSH CREATION

Solution:

- **Create 320 acres and nourish 10 acres of marsh.**
- **Hydraulically dredge material from open water area south and west of project site.**

SOUTHWEST GOLDEN MEADOW MARSH CREATION

Goals:

- Protect 13,500 feet of critical Hurricane Protection Levee.
- Create 320 acres of marsh.
- Nourish 10 acres of marsh.

Net Acres:

- Total net acres = 250-300 acres marsh

Potential Issues:

- Potential oyster leases in borrow area.

Preliminary Construction Costs

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

Species of Concern and Rare Species

- **Least Bittern**
- **Mottled Duck**
- **King Rail**

PPL32 PROJECT NOMINEE FACT SHEET
February 9, 2022

Project Name: North Lake Boudreaux Shoreline Protection and Marsh Creation

Project Location:
Region 3, Terrebonne Basin, Terrebonne Parish, South of Houma, Northern Shoreline of Lake Boudreaux

Problem:
Historic aerial photography indicates significant marsh loss in the project area north of Lake Boudreaux. 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. High saline waters enter Lake Boudreaux via Robinson and Boudreaux Canals impacting low salinity marshes north of Lake Boudreaux. USGS calculated a 1985-2020 area loss rate of -1.24% per year. Shoreline erosion rates are very high in the areas without rock or a maintained earthen shoreline. Much of the lake shoreline has shoreline protection through the Corps and Parish Mitigation projects and CWPPRA West Lake Boudreaux (TE-46) project. There are approximately 8,800 feet of shoreline between and adjacent to these existing projects that are in need of protection.

Goals:
The goals of the project are to: 1) protect approximately 8,800 feet of critical shoreline, 2) protect approximately 55 acres of marsh habitat, 3) create approximately 200 acres of marsh and nourish an additional 55 acres of marsh with material dredged from Lake Boudreaux, and 4) create 35,000 LF of terraces (19 acres of marsh).

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

Proposed Solutions:
The current proposed project would include 8,800 ft. of rock foreshore dike built to a settled height of +3.0 NAVD 88 along Lake Boudreaux shoreline at the -2 ft. contour. The proposed project would also create 200 acres of marsh and nourish an additional 55 acres of marsh using sediment hydraulically dredged from Lake Boudreaux. 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. The current proposal would also create 35,000 LF of terraces (20 acres of marsh) in the open water area north and east of the lake which would protect the Ward 7 levee.

Preliminary Project Benefits:
1) What is the total acreage benefited both directly and indirectly? Approximately 480 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 200-250 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 contribute to protection of the Lake Boudreaux shoreline and the Ward 7 Levee.

5) What is the net impact of the project on critical and non-critical infrastructure? Oil and gas facilities would be protected along with the newly constructed Terrebonne Non-Federal Levee, and Ward 7 Levee. The project would also help protect the city of Houma, Chauvin, and Boudreaux.

6) To what extent does the project provide a synergistic effect with other approved and/or constructed restoration projects? This project would work synergistically with TE-46 and the Terrebonne Parish Ward 7 mitigation.

Identification of Potential Issues:
There could be pipelines in the marsh creation and terracing areas.

Preliminary Construction Costs:
The fully funded cost range is between $20-25 M.

Preparer(s) of Fact Sheet:
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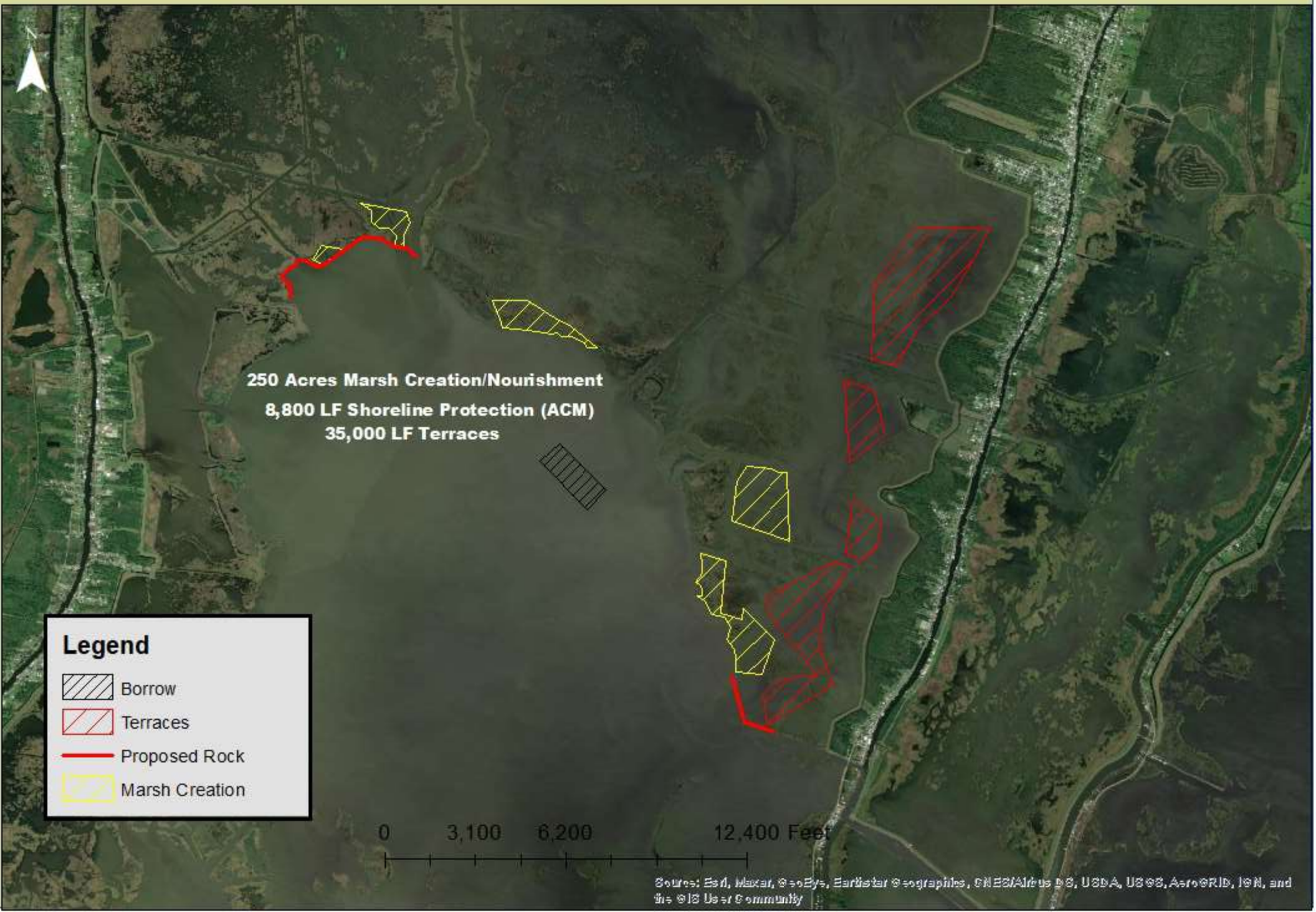
U.S Fish and Wildlife Service - Louisiana Ecological Sevices Field Office

North Lake Boudreaux Marsh Creation and Shoreline Protection



NORTH LAKE BOUDREAUX MARSH CREATION AND SHORELINE PROTECTION

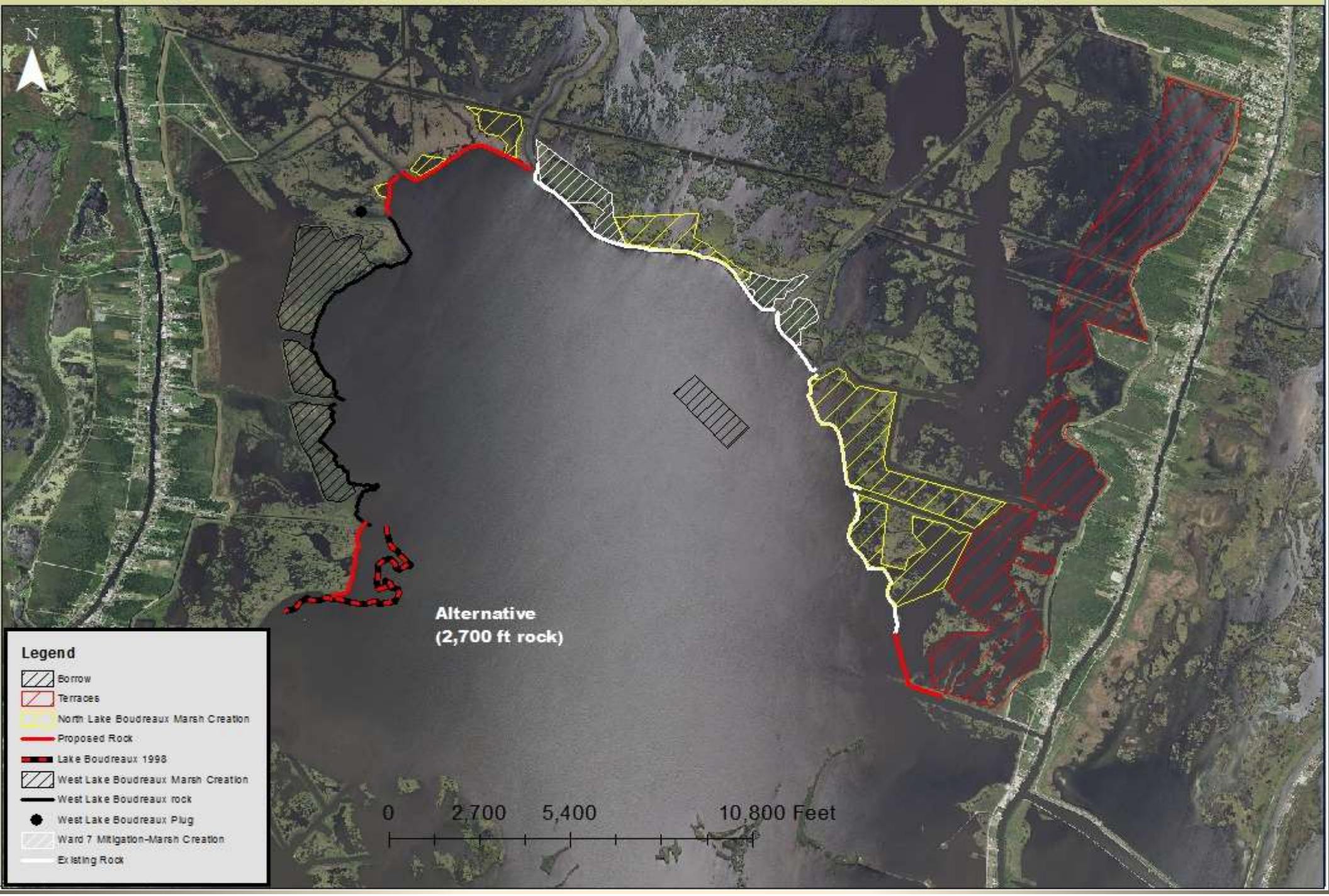
NORTH LAKE BOUDREAUX MARSH CREATION AND SHORELINE PROTECTION

Problem:

- **Subsidence, canal dredging, saltwater intrusion, and altered hydrology**
- **Shoreline Erosion**
- **Erosion rates between 9-60 ft./yr.**

U.S Fish and Wildlife Service - Louisiana Ecological Sevices Field Office

PPL28 - North Lake Boudreaux Marsh Creation and Shoreline Protection



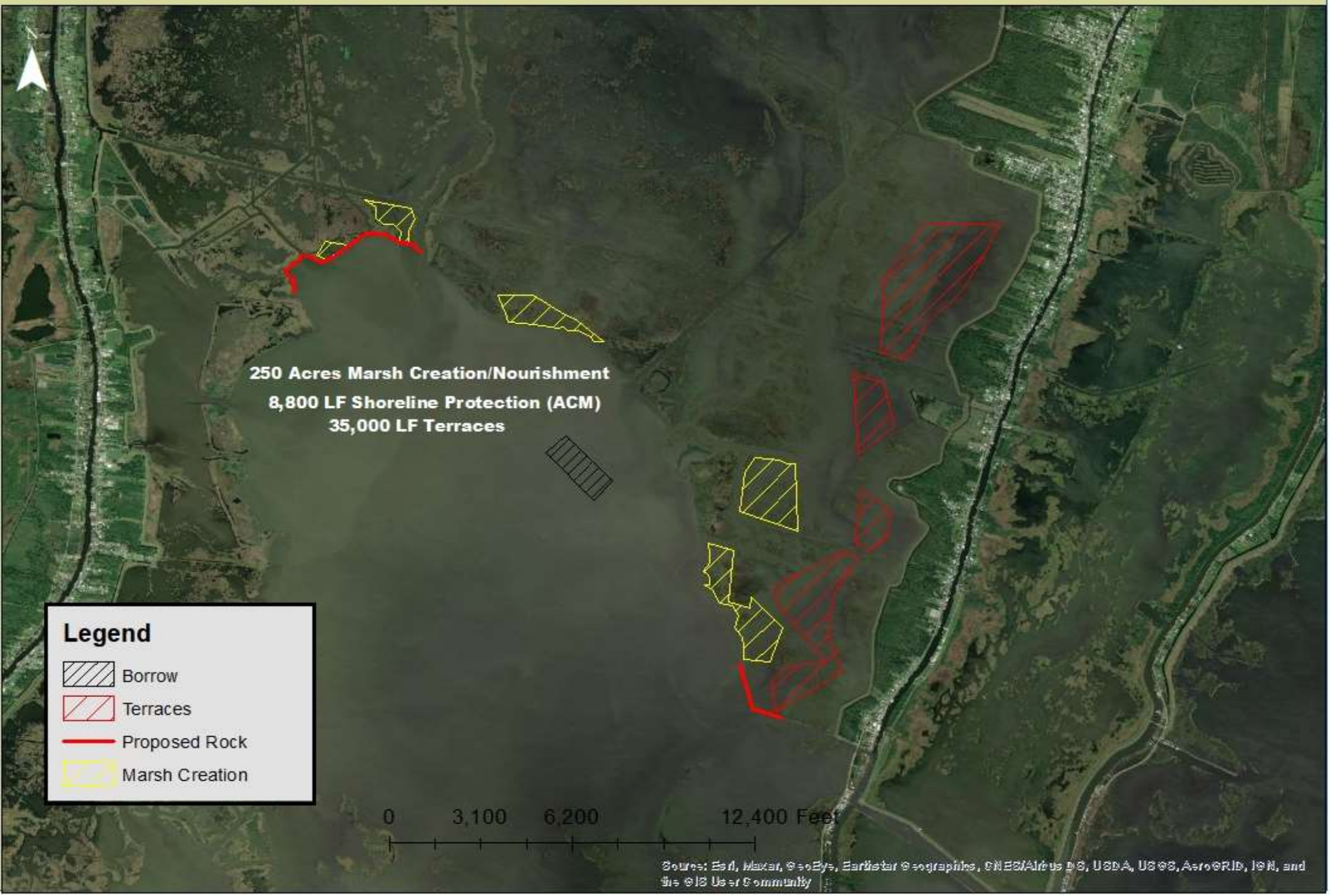
NORTH LAKE BOUDREAUX MARSH CREATION AND SHORELINE PROTECTION

Solution:

- **Install 8,800 LF of articulated concrete mat**
- **Hydraulically dredge sediment from Lake Boudreaux water bottom to create 200 acres and nourish 55 acres of marsh.**
- **Construct 35,000 lf of Terraces (19 acres of Marsh).**

U.S Fish and Wildlife Service - Louisiana Ecological Sevices Field Office

North Lake Boudreaux Marsh Creation and Shoreline Protection



NORTH LAKE BOUDREAUX MARSH CREATION AND SHORELINE PROTECTION

Goals:

- Protect 8,500 feet of critical shoreline and 50 acres of marsh with the installation of Articulated Concrete Mats.
- Create 200 acres of marsh.
- Nourish 55 acres of marsh.
- Create 35,000 lf of terraces (19 acres of marsh).

Net Acres:

- Total net acres = 200-250 acres marsh (not including shoreline protection)

Potential Issues:

- There are two existing borrow site that could be utilized if needed.

Preliminary Construction Costs

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

Species of Concern and Rare Species

- Saltmarsh Topminnow
- Least Bittern
- Mottled Duck
- King Rail

PPL32 PROJECT NOMINEE FACT SHEET
February 10, 2022

Project Name:
South Lake De Cade Marsh Creation

Project Location:
Region 3, Terrebonne Basin, Terrebonne Parish

Problem:
Historically, subsidence and numerous oil and gas canals and pipelines in the area have contributed significantly to wetland losses. Since 1932, the Terrebonne Basin has lost approximately 20% of its wetlands. Current loss rates range from approximately 4,500 to 6,500 acres/year. This loss amounts to about 130,000 acres over the next 20 years. One-third of the Terrebonne Basin's remaining wetlands would be lost to open water by the year 2040. The loss rate is estimated to be -0.11% per year for the period of 1985 to 2020 for the USGS Lake Mechant subunit.

Goals:
The primary goal of the project is to restore marsh habitat in the open water areas south of Lake de Cade through the placement of dredged material via hydraulic dredging. The project would work synergistically and create continuity with the Bayou De Cade Ridge and Marsh Creation (TE-138) project, extending the restoration of the lake shoreline eastward. The specific goal of the project is to hydraulically dredge riverine sediments from Lake de Cade and pump the sediments via pipeline to create and nourish 471 acres of marsh.

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

Proposed Solution:
Sediments from Lake de Cade will be hydraulically dredged and pumped via pipeline to create/nourish approximately 471 acres of marsh (354 acres of creation; 117 acres of nourishment). Dewatering and compaction of dredged sediments should produce elevations conducive to the establishment of marsh within the intertidal range. Perimeter containment dikes will be constructed where necessary. Containment dikes will be gapped at the end of construction or by target year 3. The project would work synergistically with the Bayou De Cade Ridge and Marsh Creation (TE-138) project which was approved for Phase II funding in 2019.

Preliminary Project Benefits

1) *What is the total acreage benefited both directly and indirectly?*
   Approximately 471 acres would be directly benefited directly by marsh creation/nourishment.

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 350-400 acres.

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

4) *Do any project features maintain or restore structural components of the coastal ecosystem such as barrier islands, natural or artificial levee ridges, beach and lake rims, cheniers, etc?*
The project will restore 471 acres of emergent marsh along the rim of Lake De Cade.

5) *What is the net impact of the project on critical and non-critical infrastructure?*
The project would afford some protection to the residences along Bayou De Cade.

6) *To what extent does the project provide a synergistic effect with other approved and/or constructed restoration projects?*
The project will have a synergistic effect with the Bayou De Cade Ridge and Marsh Creation (TE-138) project to the east.

Considerations
Landrights, and pipelines/utilities will need to be considered in project design.

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

Preparer(s) of Fact Sheet:
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U.S. Fish & Wildlife Service

Louisiana Ecological Services

Legend

- Marsh Creation
- Borrow Area

PPL32
South Lake De Cade Marsh Creation
Terrebonne Parish, Louisiana

PPL32

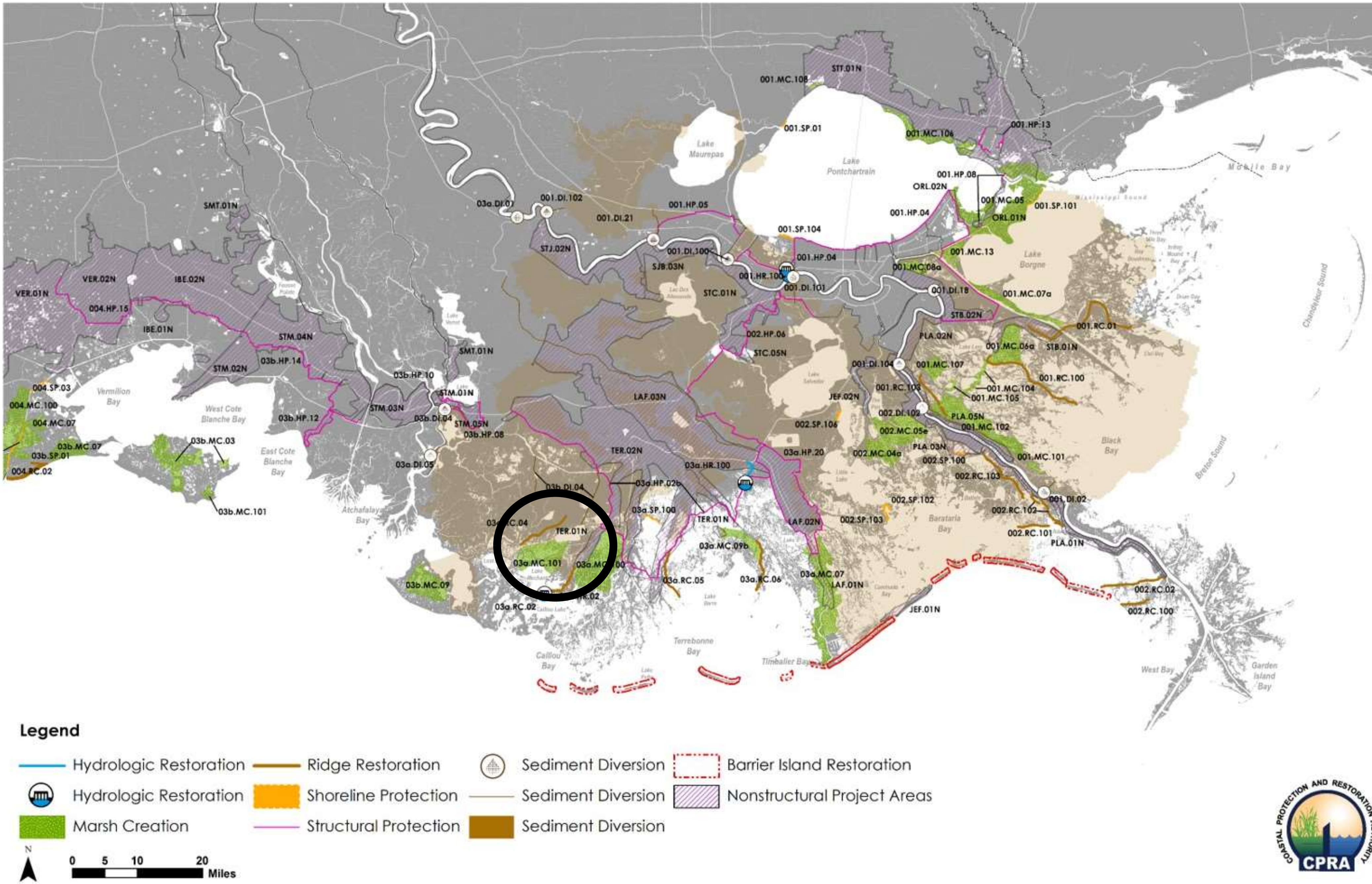
South Lake De Cade Marsh Creation

Region 3, Terrebonne Basin

Contacts:

Kristen Ramsey
Fish and Wildlife Biologist
kristen.ramsey@fws.gov
(337) 291-3137

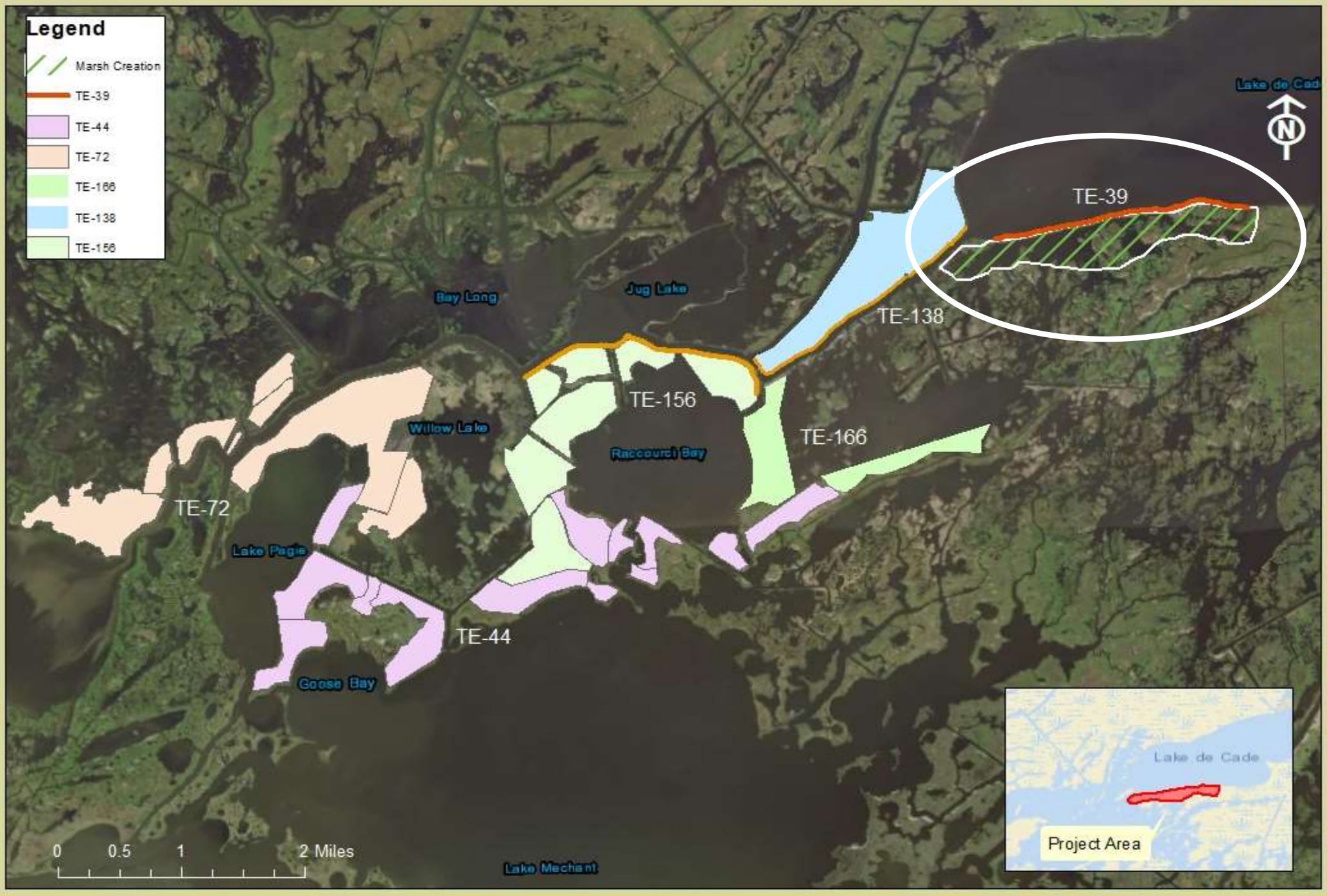
2017 State Master Plan - North Lake Mechant MC (03a.MC.101)



U.S. Fish & Wildlife Service

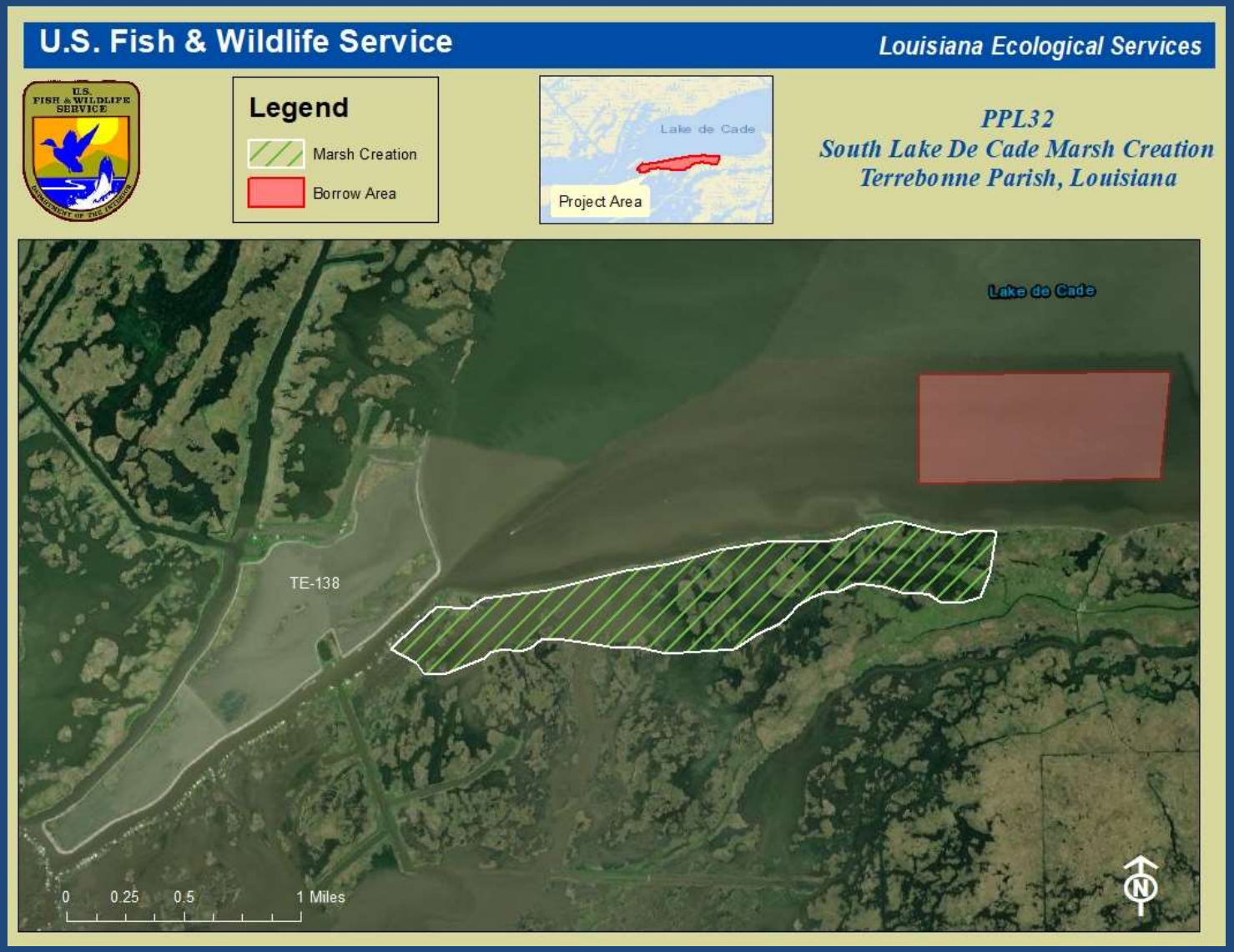
Louisiana Ecological Services

South Lake De Cade Marsh Creation



South Lake De Cade Marsh Creation

South Lake De Cade Marsh Creation



- 354 acres of marsh creation
- 117 acres of marsh nourishment
- Lake De Cade borrow
- Net acres = 350 - 400
- Construction plus contingency $20M - $25M
- Project synergy – TE-39 South Lake Decade Freshwater Introduction
- TE-138 Bayou Decade Ridge Restoration and Marsh Creation

REGION III

REGIONAL PLANNING TEAM MEETING

TERREBONNE BASIN

February 9, 2022

Kristen Ramsey
kristen_ramsey@fws.gov
337-291-3137

Questions?

PPL32 PROJECT FACT SHEET
February 9, 2022

Project Name: Timbalier Island Shoal Nourishment and Backbarrier Marsh Creation

Master Plan Strategy: Barrier Island Restoration

Project Location: Region 3, Terrebonne Basin, Terrebonne Parish. Timbalier Island is located south of Terrebonne Bay and west of East Timbalier Island in Terrebonne Parish, Louisiana, approximately 13 miles offshore.

Problem
Barrier islands are the first line of defense against storm surge, protecting interior wetlands and infrastructure from the effects of wave action from the open ocean. They ensure the estuaries they protect are low energy environments capable of supporting wetlands and emerging deltas. CWPPRA implemented a dune and marsh creation project in 2005 restoring 2.2 miles on the eastern end of the island. Several significant storms have since occurred resulting in substantial impacts to the island. In October 2020, Category 2 Hurricane Zeta made landfall in Cocodrie, Louisiana passing over or very close to Timbalier Island with wave heights measuring 50 feet at the Louisiana Offshore Oil Platform. In August 2021, Category 4 Hurricane Ida caused additional impacts. Post storm aerial imagery indicates a breach and substantial movement of sediment from the eastern end of the island. The area is a high energy environment and suffers from an inadequate supply of sediment for natural healing to occur. This concept works synergistically with the CPRA TE-143 project currently under construction and just west of this concept location.

Goals:
1) nourish 117 acres including the breach and the back marsh platform to foster island migration and increase the structural integrity of Timbalier island
2) increase the width of the island, thus extending its presence and protection to interior wetlands and communities
3) protect Terrebonne Bay wetlands from direct exposure to the wave action of the Gulf of Mexico
4) reduce water depths and add sand to this sand-starved barrier island system

Proposed Solution
Dredged material will be placed into the breach and on the bayside of the island creating additional backbarrier marsh/platform. Potential borrow sources include the Little Pass area; other sediment sources will be explored. Fortifying the bayside marsh will provide a stable backbarrier platform onto which the island sand can continue to migrate landward and provide additional sand for redistribution by currents and waves along the entire island. Sediments will be placed unconfined as much as possible with the goal of reducing the water depths and supplying sediment for natural processes to occur.

Project Benefits
This project benefits approximately 117 acres of barrier island habitat and maintains strategic components of the coastal ecosystem (barrier island). The project provides a synergistic effect with previous CWPPRA projects (TE-18 and TE-40) and other restoration projects on the island including the TE-143 project currently under construction.

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

Preparers of Fact Sheet:
Patty Taylor, EPA Region 6, (214) 665-6403, taylor.patricia-a@epa.gov
Sharon Osowski, EPA Region 6, (214) 665-7506, osowski.sharon@epa.gov


N
Timbalier Island Beach and Shoal Nourishment
62
27
27
117 acres of “shoal” nourishment
0 0.125 0.25 0.5 0.75 1
Miles
Esri, HERE, Garmin, (c) OpenStreetMap contributors, and the GIS user community

Timbalier Island Shoal Nourishment & Back Barrier Marsh Creation

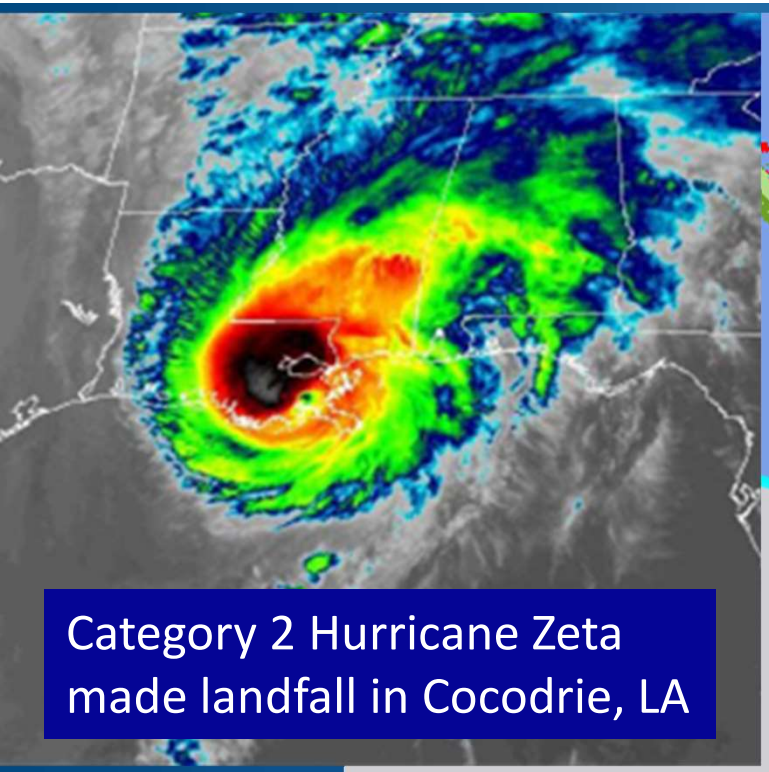
Coastal Wetlands Planning, Protection and Restoration Act

First Line of Defense

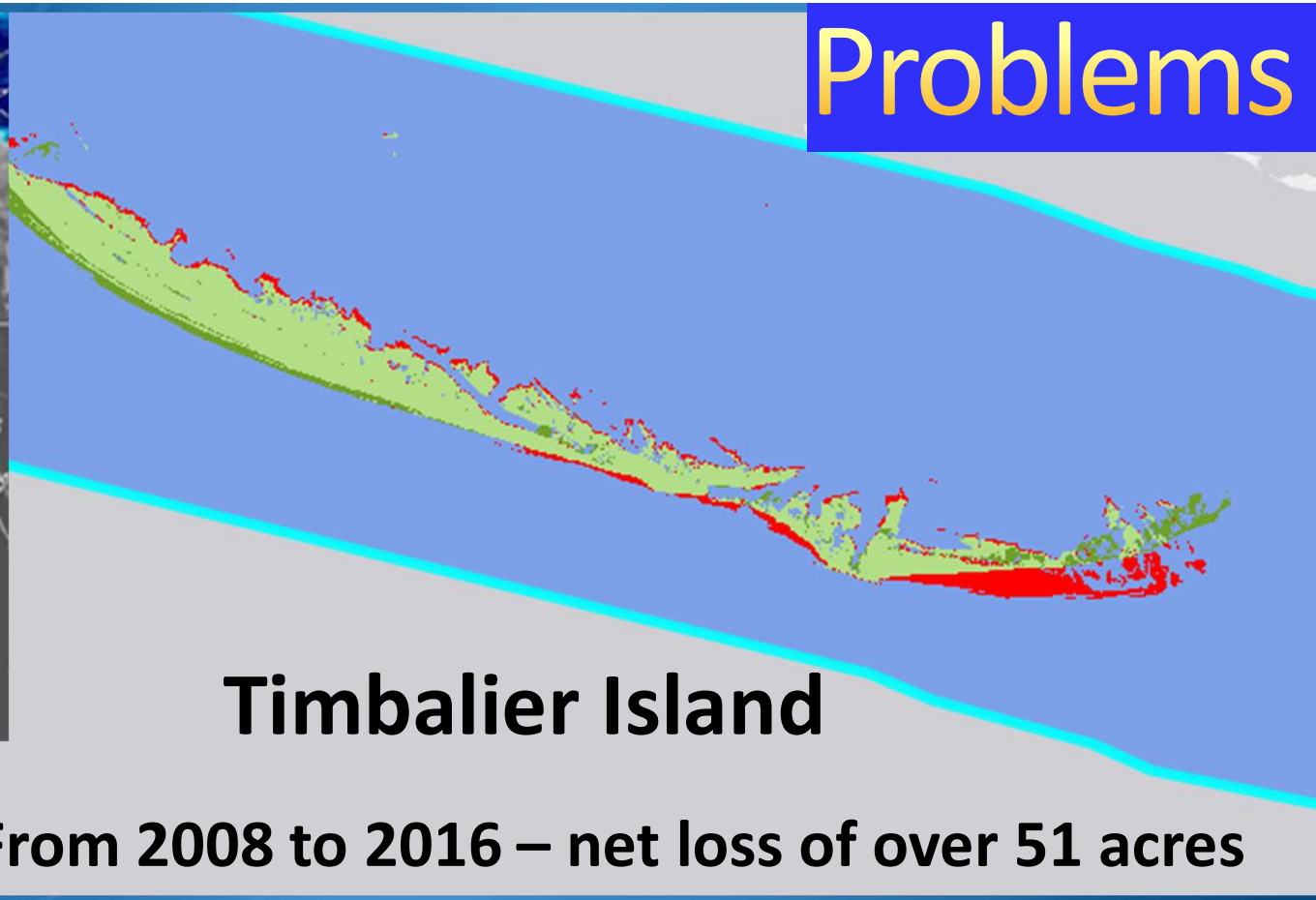
"Sustaining our barrier islands is a vital component of coastal protection. They protect interior wetland systems. They stand in front of our protection systems. And they are positioned in front of our communities. Each of these layers must work together to provide holistic storm protection,"

Gov. Edwards, September 13, 2019

Problems



Category 2 Hurricane Zeta made landfall in Cocodrie, LA



Timbalier Island

From 2008 to 2016 – net loss of over 51 acres

- Sediment starved environment
- Lack of beach and backbarrier marsh
- Natural landward migration inhibited
- Barrier islands are not “one and done”
- Numerous storms: Zeta (2020), Ida (2021)
- Islands are the first line of defense against storm surge

Timbalier Island Shoal Nourishment & BB MC

Timbalier Island – October 29, 2020
One day after Hurricane Zeta landfall

Timbalier Island – October 29, 2020
One day after Hurricane Zeta landfall

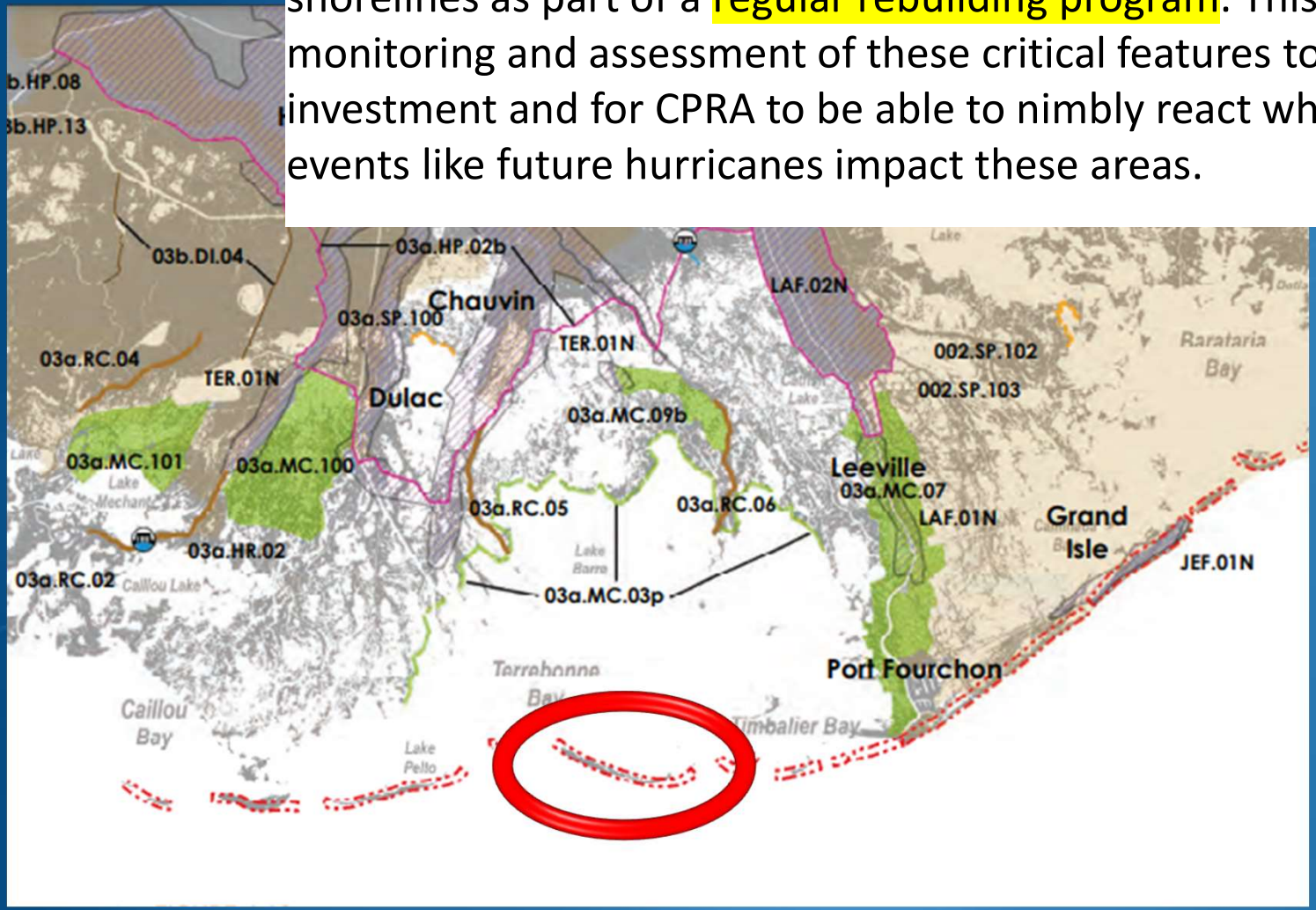
Image source: DigitalGlobe

Timbalier Island – September 11, 2021
Two weeks after Hurricane Ida landfall

Image source: DigitalGlobe

2017 Master Plan Solution

Rather than recommending specific barrier island and shoreline projects and assigning them to a certain implementation period, CPRA intends to restore the Terrebonne, Timbalier, and Barataria barrier islands and shorelines as part of a regular rebuilding program. This will allow monitoring and assessment of these critical features to drive project investment and for CPRA to be able to nimbly react when catastrophic events like future hurricanes impact these areas.



Why Invest in Barrier Islands?

- Buffer full force and effects of wave action
- Provide marsh to capture sediments washing over the islands
- Reduce saltwater intrusion, storm surge and tidal currents on adjacent estuaries and wetlands
- Provide habitat for endangered and threatened species
- CWPPRA has approximately 20 BI projects – about 10% of the program projects

Project Goals

- fill approximately 117 acres of open water to create shoal and back barrier habitat
- protect Terrebonne Bay wetlands from direct exposure to GOM
- add sand to sand-starved barrier island system
- Construction cost + 25% contingency is $20M - $25M

PPL32 PROJECT FACT SHEET
February 9, 2022

Project Name
South Bayou Decade Marsh Creation

Master Plan Strategy
North Lake Mechant Marsh Creation (2017 Master Plan 03a.MC.101): Creation of approximately 12,100 acres of marsh between Lake Decade and Lake Mechant to create new wetland habitat and restore degraded marsh.

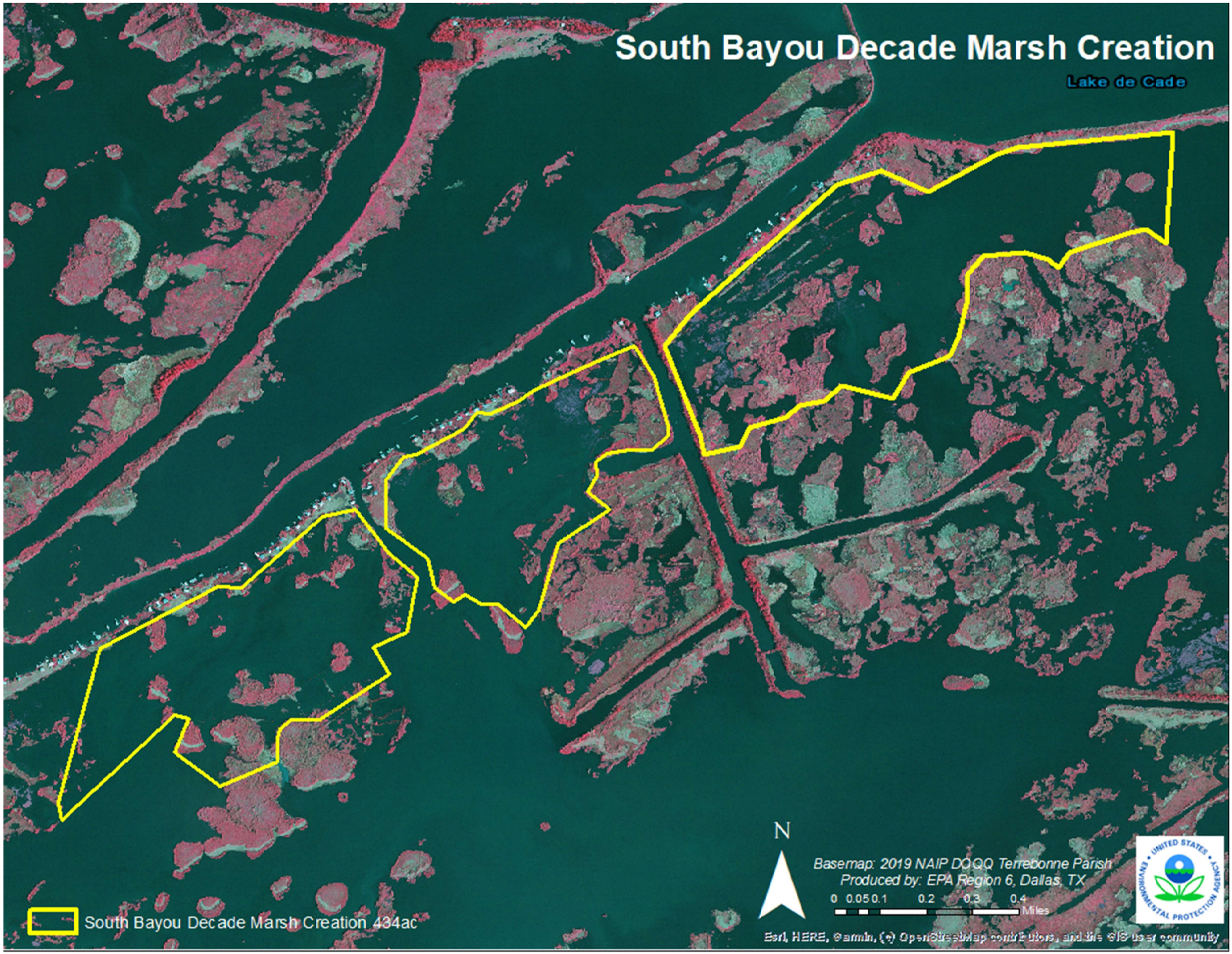
Project Location
Region 3, Terrebonne Basin, Terrebonne Parish, South of Bayou Decade

Problem
The marsh along Bayou Decade have seen a significant amount of deterioration over the past few decades. Wetland loss in the area has been primarily attributed to subsidence, saltwater intrusion and the numerous gas and oil pipelines and canals. Current loss rates in the basin range from approximately 4,500 to 6,500 acres/year. This loss amounts to up to 130,000 acres during the next 20 years. One-third of the Terrebonne Basin's remaining wetlands would be lost to open water by the year 2040. The marsh creation cell is located near the NOAA Bayou Decade MC project (WVA) which shows a land loss rate of -0.79%/yr.

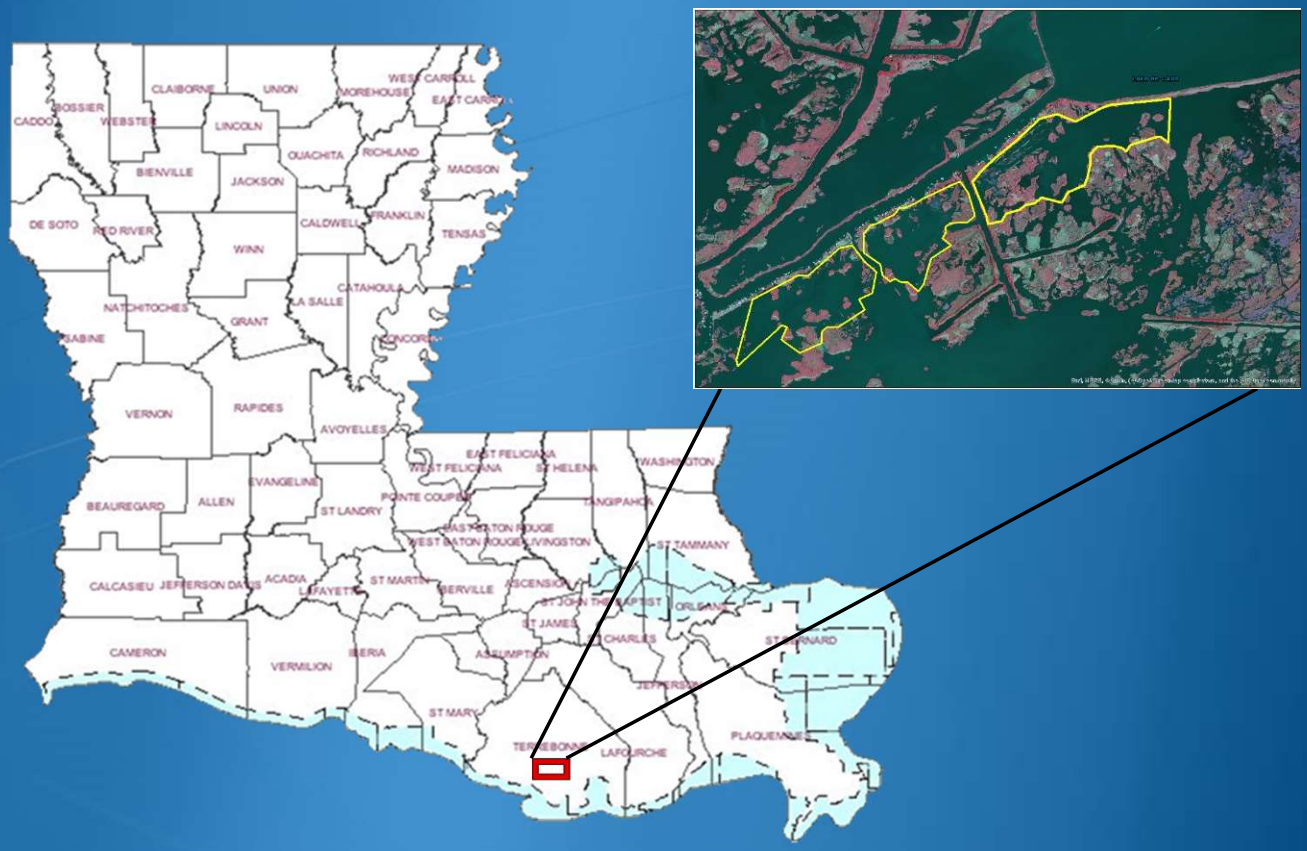
Proposed Solution
The proposed project would create/nourish approximately 434 acres (340 acres marsh creation and 94 acres marsh nourishment) of marsh using sediment dredged from Lake Mechant. Temporary containment dikes will be constructed and gapped within three years of construction to allow greater tidal exchange and estuarine organism access.

Project Costs
The cost + 25% contingency range is $25M - $30M.

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


South Bayou Decade Marsh Creation
Lake de Cade
South Bayou Decade Marsh Creation 434ac
N
Basemap: 2019 NAIP DOQQ Terrebonne Parish
Produced by: EPA Region 6, Dallas, TX
0 0.05 0.1 0.2 0.3 0.4
Miles
Esri, HERE, Garmin, (c) OpenStreetMap contributors, and the GIS user community

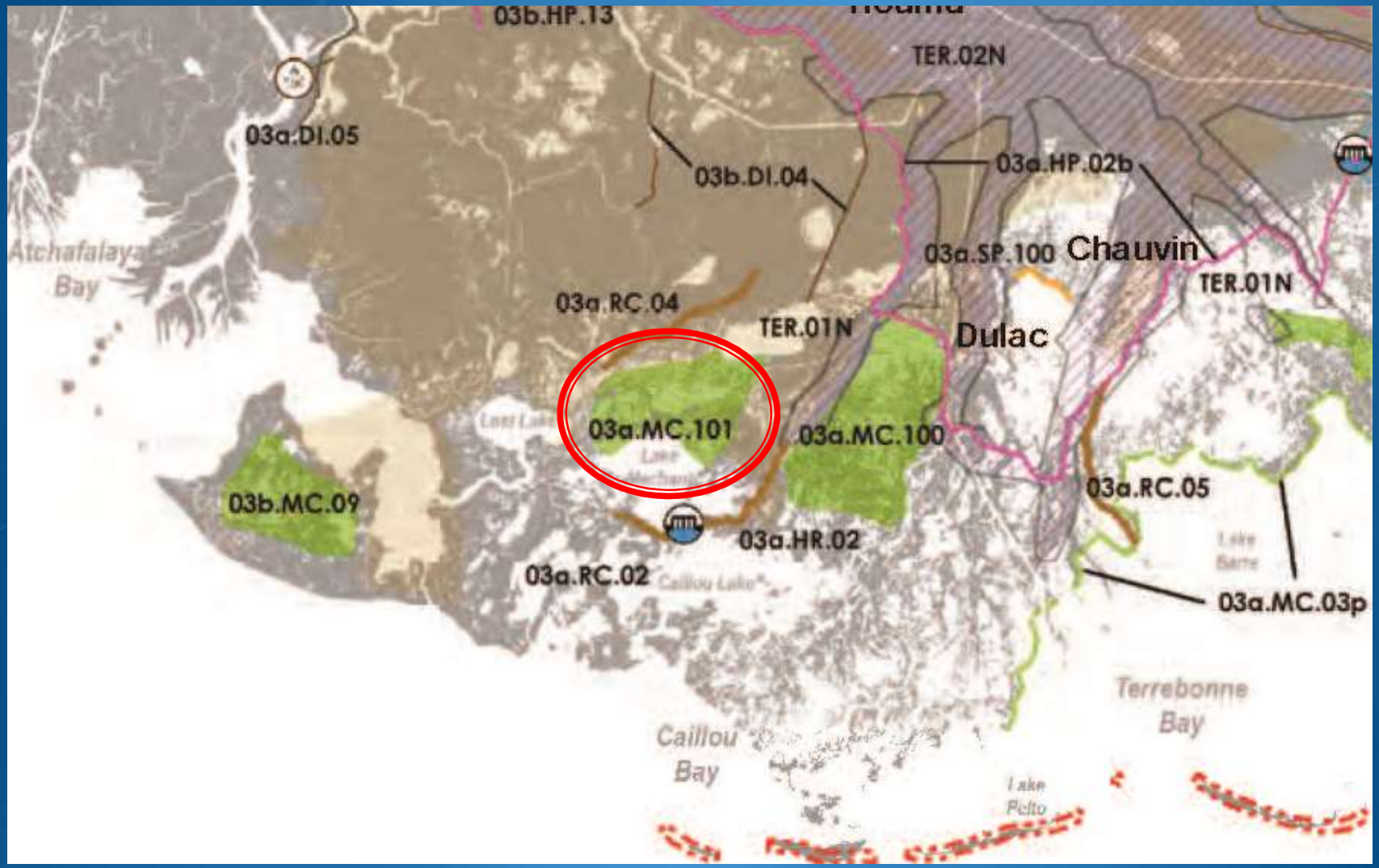
South Bayou Decade Marsh Creation



Coastal Wetlands Planning, Protection and Restoration Act

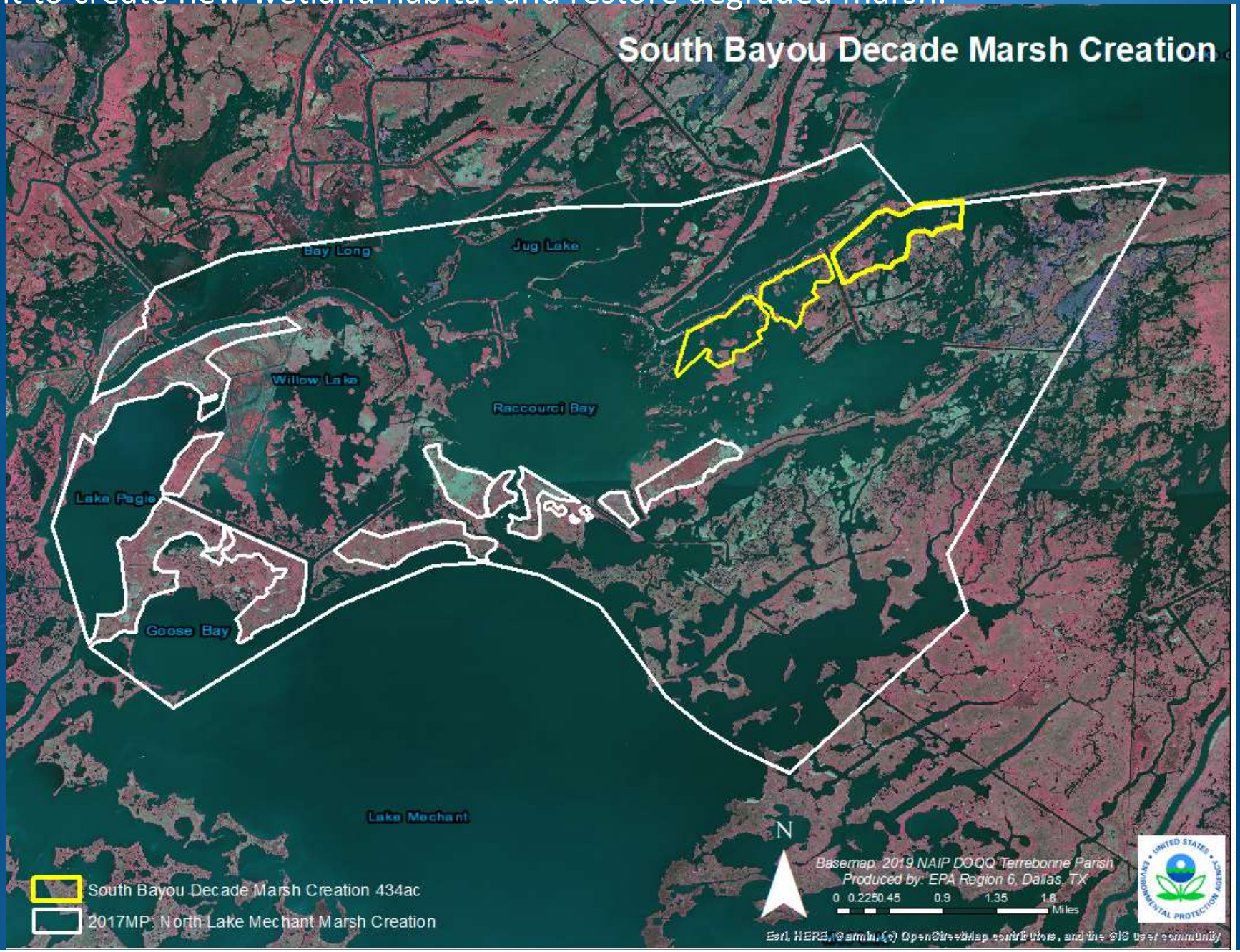
2017 Master Plan Solution

<u>03a.MC.101 North Lake Mechant Marsh Creation :</u> Creation of approximately 12,100 acres of marsh between Lake Decade and Lake Mechant to create new wetland habitat and restore degraded marsh.



2017 Master Plan Consistency

03a.MC.101: Creation of approximately 12,100 acres of marsh between Lake Decade and Lake Mechant to create new wetland habitat and restore degraded marsh.



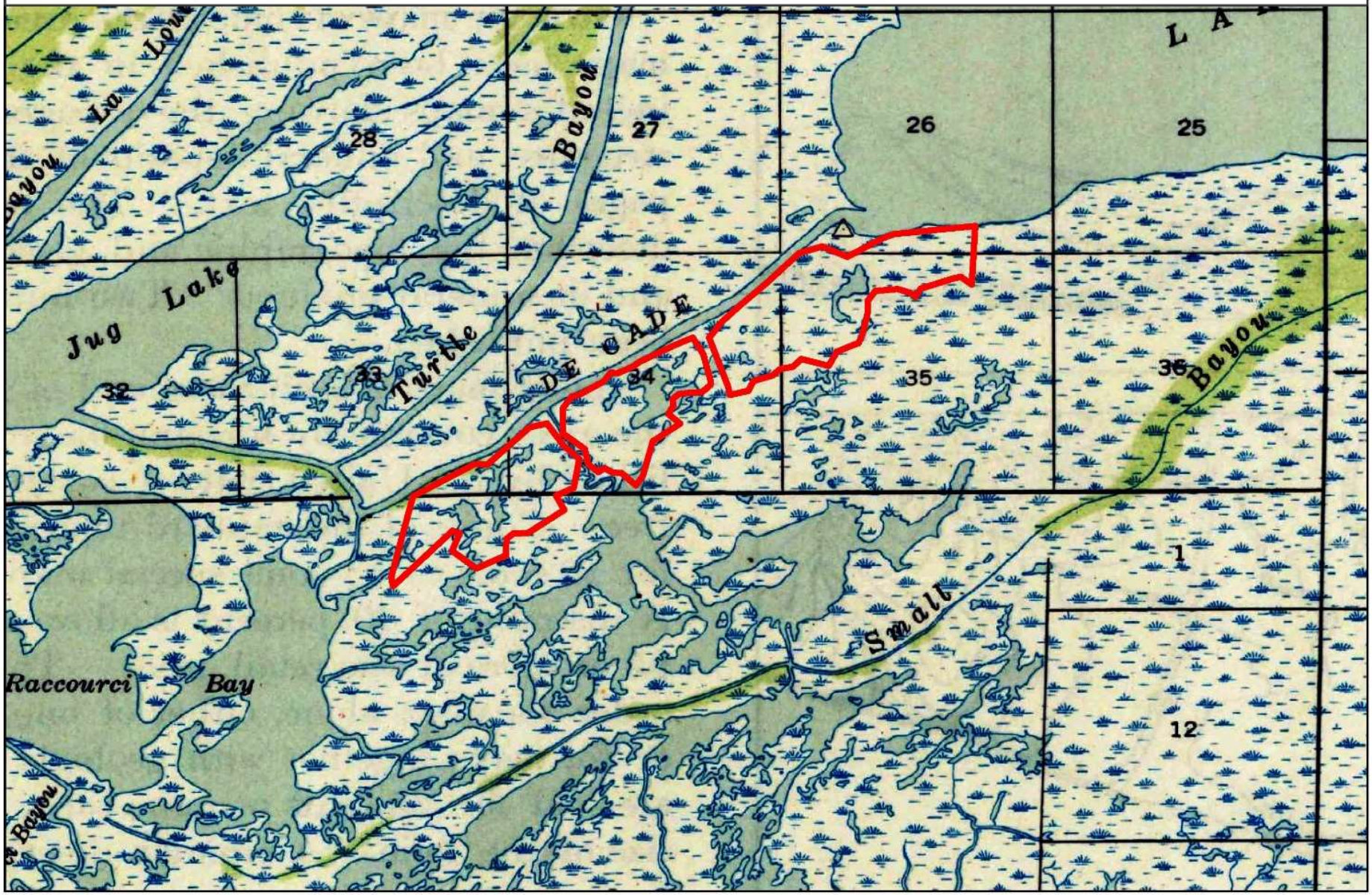
Problems

- This area has experienced wetland loss due to:
  - Subsidence
  - Saltwater intrusion
  - Sediment deprivation
  - Erosion
  - Construction of pipeline canals
- Terrebonne Parish could experience the second highest land loss of any parish (2017 MP)
- One-third of the Terrebonne Basin's remaining wetlands could be lost to open water by the year 2040 without restoration efforts

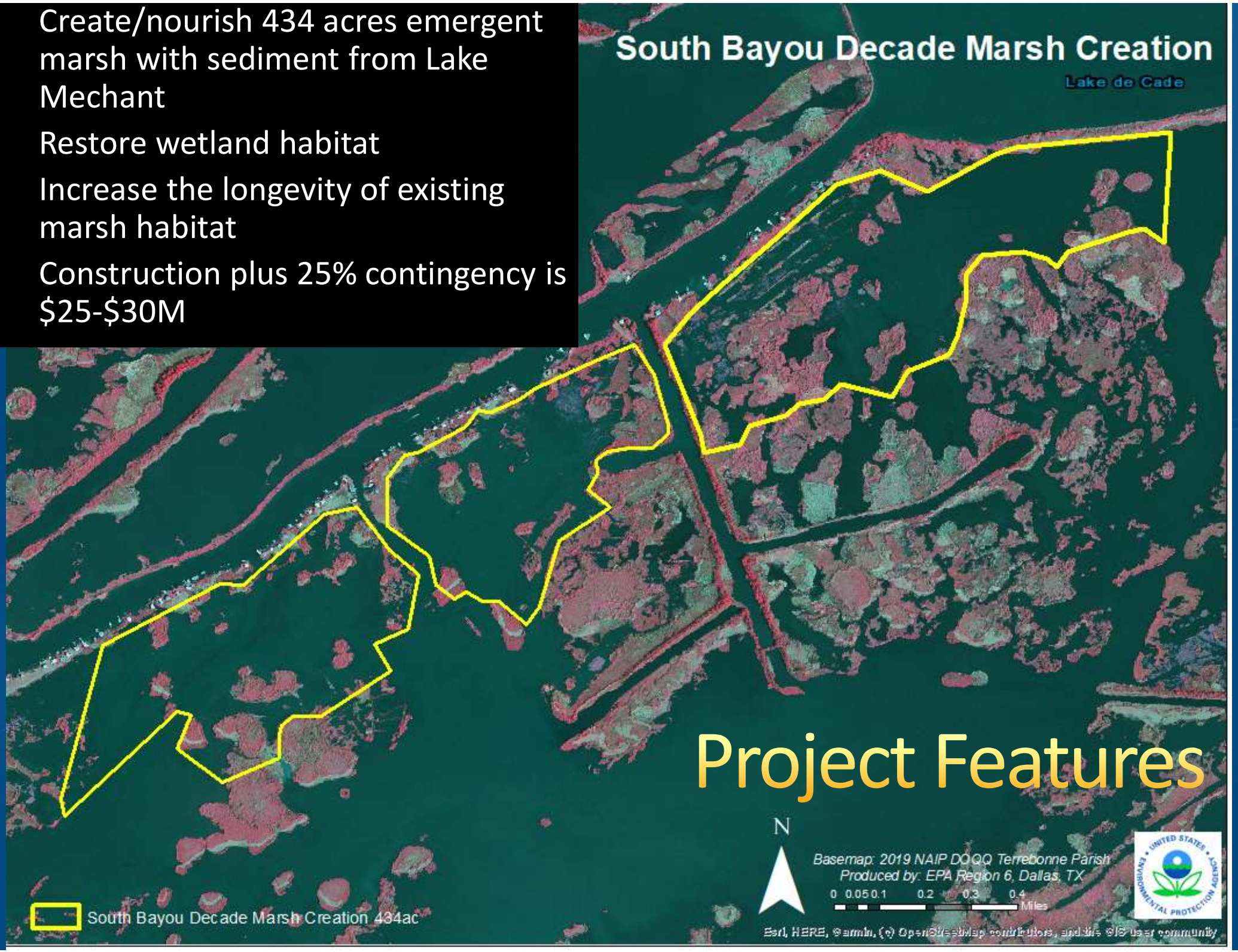
S. Bayou Decade
USGS Historical Topo

0 0.3 0.6 1.2 Miles

Dallas, TX
January 25, 2021



- Create/nourish 434 acres emergent marsh with sediment from Lake Mechant
- Restore wetland habitat
- Increase the longevity of existing marsh habitat
- Construction plus 25% contingency is $25-$30M



PPL32 PROJECT NOMINEE FACT SHEET
February 9, 2022

Project Name
West Louisiana Highway 1 Marsh Creation

Project Location
Region 3, Terrebonne Basin, Lafourche Parish

Problem
The Terrebonne Basin is an abandoned delta complex, characterized by a thick section of unconsolidated sediments that are undergoing dewatering and compaction, contributing to high subsidence, and a network of old distributary ridges extending southward from Houma. Historically, subsidence and numerous oil and gas canals and pipelines in the area have contributed significantly to wetland losses. Since 1932, the Terrebonne Basin has lost approximately 20% of its wetlands. Current loss rates range from approximately 4,500 to 6,500 acres/year. This loss amounts to up to 130,000 acres during the next 20 years. One-third of the Terrebonne Basin's remaining wetlands would be lost to open water by the year 2040. The wetland loss rate for the project area is -1.02% per year based on USGS hyper temporal data from 1984 to 2021.

The Louisiana Highway 1 corridor has been getting more attention lately due to the active 2020 storm season where five of six storms forced closures of the highway. The cost-benefit analysis for Phase 2 of the new elevated Louisiana 1 Project showed that each day that Louisiana Highway 1 is closed, inhibiting access to an open Port Fourchon, costs the U.S. $46 million in oil and gas production and $528 million in total gross domestic product (Infrastructure for Rebuilding America Grant Program 2020). Creating marsh in this area will help reduce flooding and provide a buffer from storm surge along the highway.

Goals
The project goals are to create and/or nourish up to 313 acres of emergent brackish marsh

Proposed Solution
The proposed project's primary feature is to create and/or nourish approximately 313 acres of emergent brackish marsh (262 acres of marsh creation and 51 acres of marsh nourishment). In order to achieve this, sediment will be hydraulically pumped from a borrow source in Laurier Bayou. Containment dikes will be constructed around the marsh creation area to retain sediment during pumping. The containment dikes will be degraded and/or gapped no later than three years post construction. The project will include planting smooth cordgrass plugs installed in strategic locations based on 10% of the acreage.

Preliminary Project Benefits

1) *What is the total acreage benefited both directly and indirectly?*
   This total project area is approximately 313 acres (262 acres of marsh creation and 51 acres of marsh nourishment).

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

3) *What is the anticipated loss rate reduction throughout the area of direct benefits over the project life (e.g., 50% reduction in the background loss rate)?*
A 50% loss rate reduction is assumed for the marsh creation and 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.?*
The project will help restore the backside of the natural Bayou Lafourche bank.

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

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

Considerations
The proposed project has potential utility/pipeline issues along with oyster leases along the dredge pipeline path.

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

Preparer(s) of Fact Sheet:
Dawn Davis, NOAA Fisheries, 225-380-0041, dawn.davis@noaa.gov

West Louisiana Highway 1 Marsh Creation
(PPL32 Nominee)

Marsh Creation *

Project Boundary

* denotes proposed features

0.5 0 0.5 Kilometers

0.5 0 0.5 Miles

Scale 1:35,000

Map ID: USGS-NWRC 2019-11-0019
Map Date: July 30, 2019

USGS science for a changing world

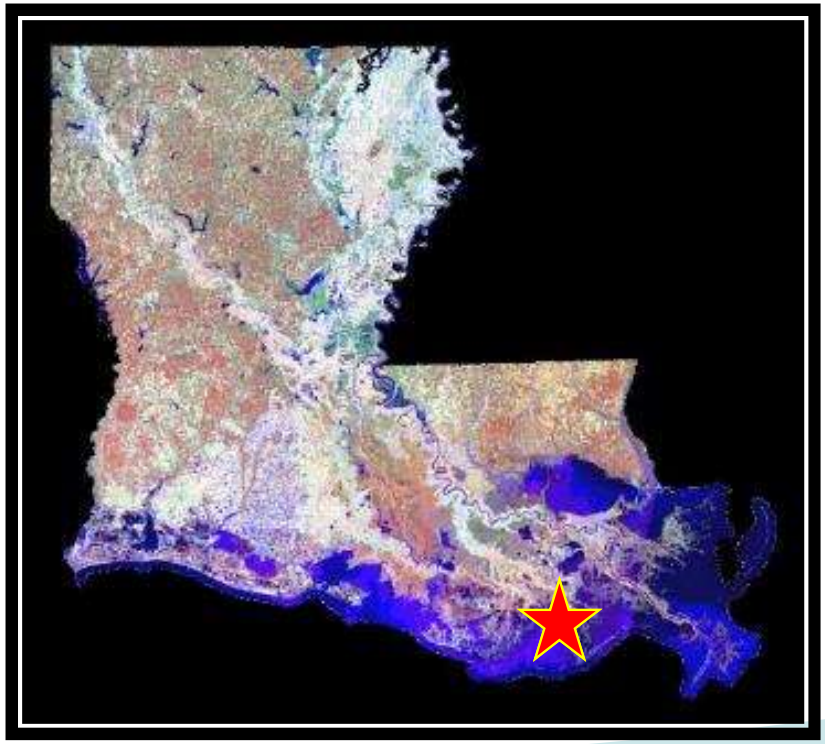
Produced by:
U.S. Department of the Interior
U.S. Geological Survey
Wetland and Aquatic Research Center
Coastal and Ocean Restoreation Branch
Baton Rouge, La

Image Source:
2017 NAIP Photography

PPL32 West Louisiana Highway 1 Marsh Creation

NOAA FISHERIES

Habitat Conservation Division



REGION 3 – Terrebonne Basin

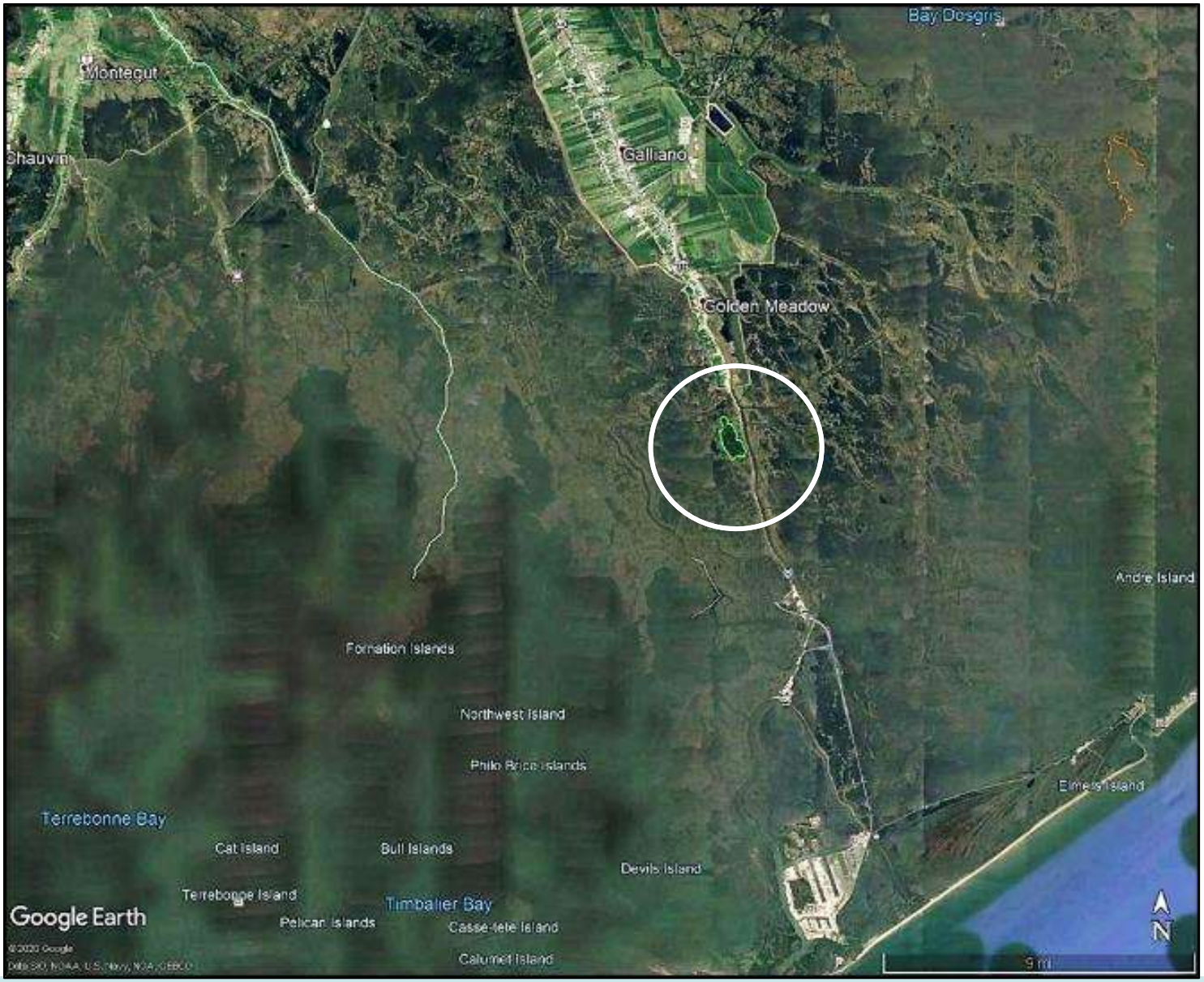
Presenter: Dawn Davis, Fishery Biologist

PPL32 CWPPRA Regional Planning Team Meeting

Virtual

February 9, 2022

Project Location



Project Area Problem

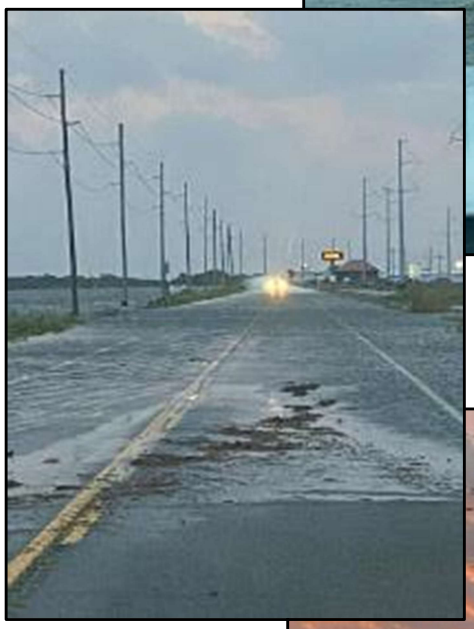
- High land loss rates in Terrebonne Basin, 20% since 1932 and currently 4,500-6,500 acres lost per year
- High subsidence in the area, 0.5 ft/20 yr, 2017 Coastal Master Plan (mod 8.8 mm/yr rate)
- Limited protection to either side of LA Hwy 1
- Wetland loss rate for the project area is -1.02% per year based on USGS hyper temporal data

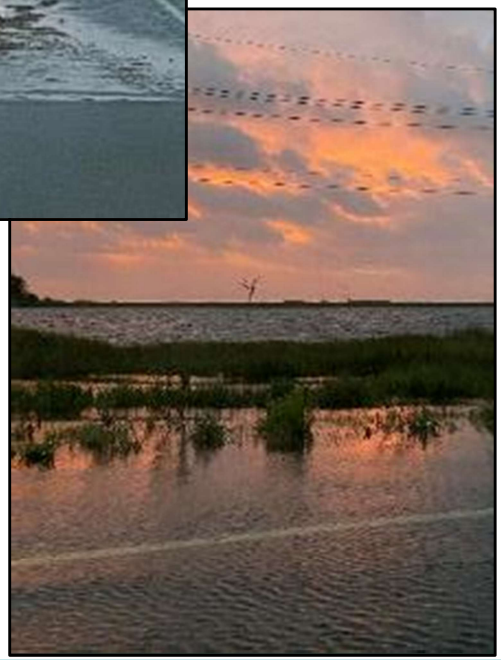
News from the LA 1 Coalition

2020 Hurricane Season Highlights Need for Elevated Highway

The 2020 active storm season forced closures of low-lying LA 1 for five of the six storms that impacted our region, including Tropical Storm Cristobal and Hurricanes Laura, Beta, Delta and Zeta.

We have learned from the cost-benefit analysis for Phase 2 of the LA 1 Project compiled for the INFRA Grant Program that each day that LA 1 is closed, inhibiting access to an open Port Fouchon, costs the U.S. $46 million in oil & gas production and $528 million in total GDP. These significant costs justify the needed local/state/federal investment of $445 million in the elevated highway from Golden Meadow to Leeville in order to avoid the economic impacts of highway closures to our local, state and national economies.






200 feet
Google earth
N
900 ft

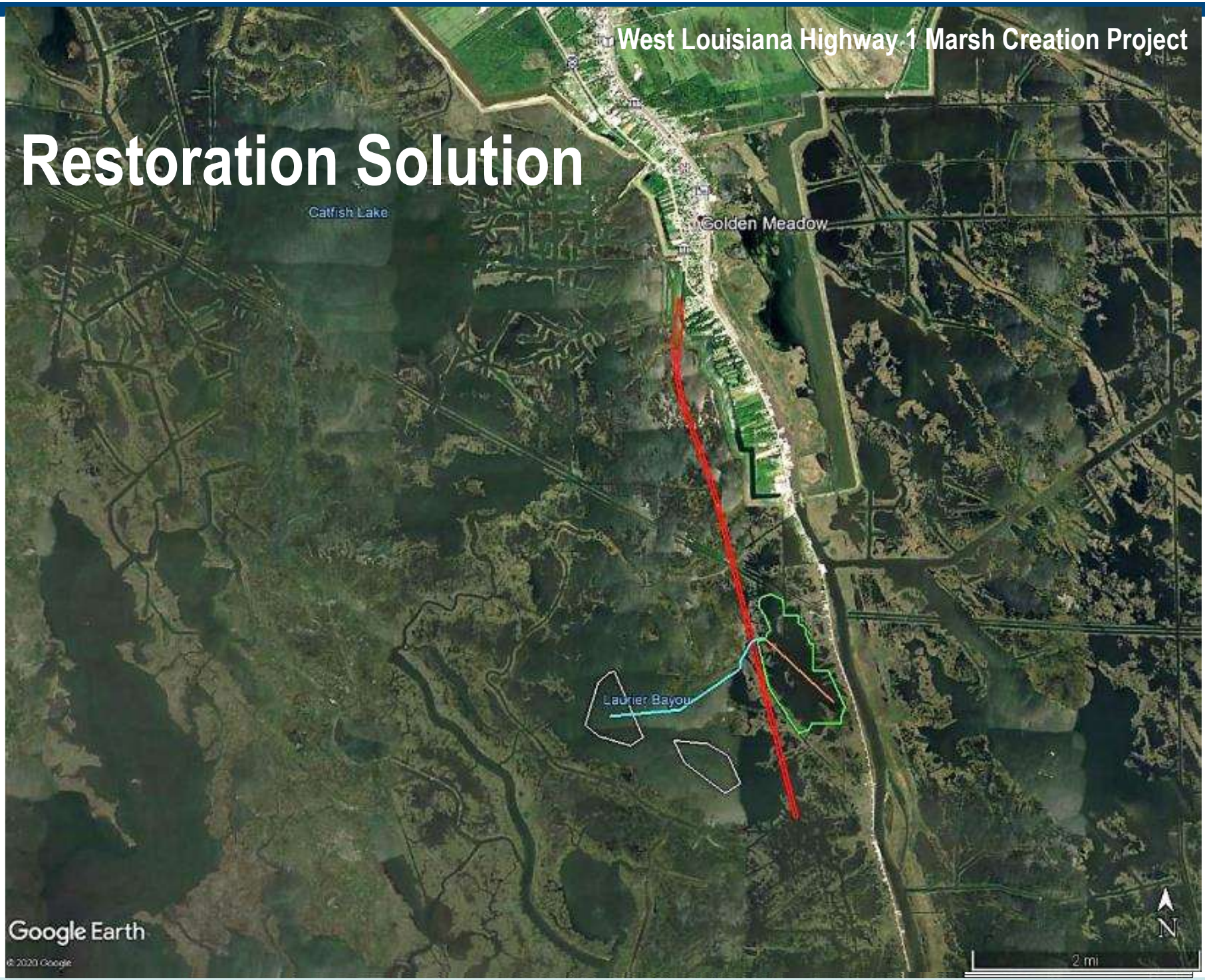
ONE-TO-ONE 1
News from the LA1 Coalition

Contract Awarded to James Construction for Phase 2 of the LA 1 Project

LA DOTD Secretary Shawn Wilson executed a $463 million contract last month between the state and James Construction for construction of the much-anticipated 8.3-mile elevated highway from Golden Meadow to Leeville, known as Phase 2 of the LA 1 Improvement Project. (Highlighted in red, yellow and green in map below)

DOTD expects to issue the Notice to Proceed to James Construction by January 31, 2021. Following an assembly period, the contracted construction period of 1,740 calendar days will begin. On this schedule, the highway could be open in fall 2027. The LA 1 Coalition will provide updates on the construction timeline in 2022 and beyond, and the Coalition plans to host a groundbreaking ceremony in 2022 when construction begins.

"The execution of a contract for construction of Phase 2 is a milestone achievement for the Coalition, Greater Lafourche Port Commission, Lafourche Parish, the State of Louisiana, and all of the industry stakeholders who depend on a safe and reliable LA 1 to fuel and feed our nation. Thank you to Governor Edwards, Secretary Wilson, our federal and state delegation, and many local and industry partners who have worked with us for over two decades to make construction of this elevated highway between Golden Meadow and Leeville possible," said LA 1 Coalition Chairman Chett


West Louisiana Highway 1 Marsh Creation Project
Restoration Solution
Catfish Lake
Golden Meadow
Laurier Bayou
Google Earth
© 2020 Google
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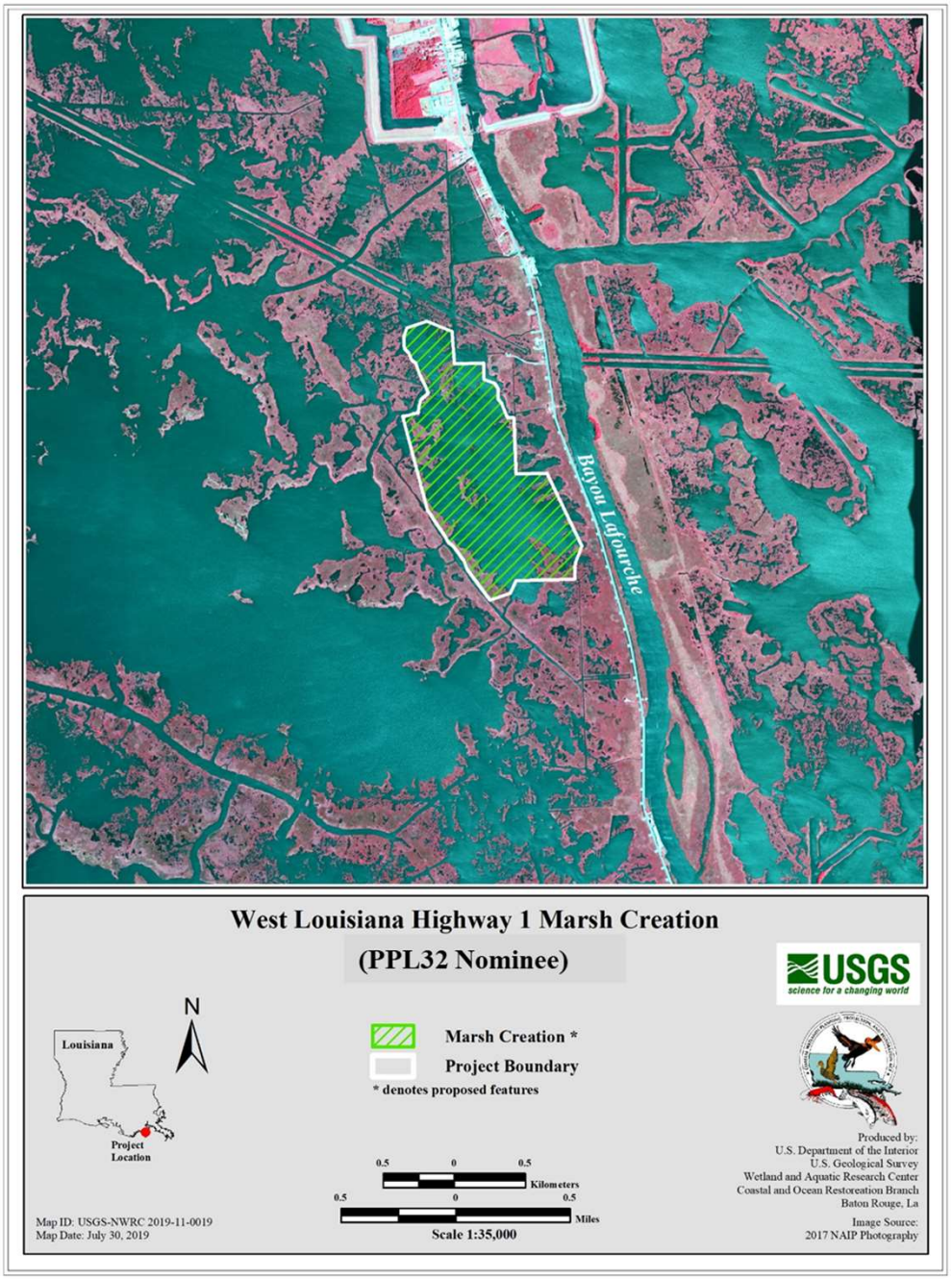
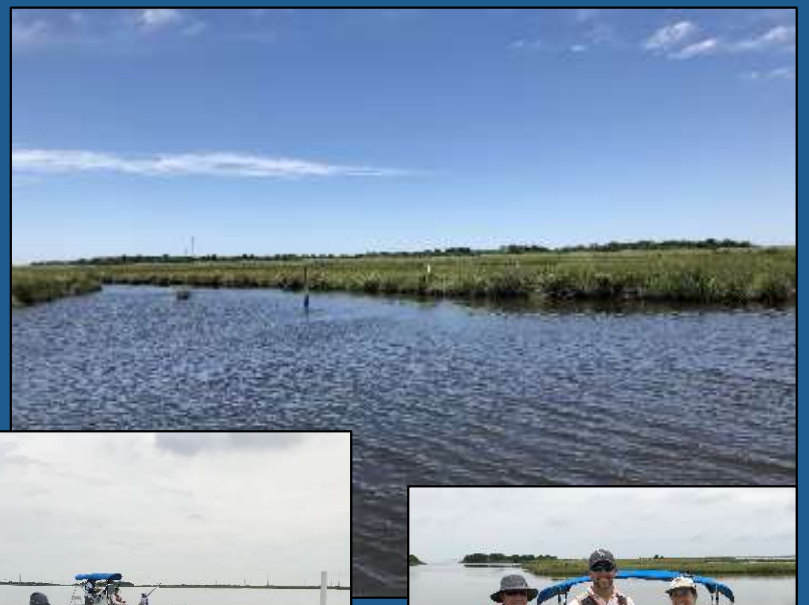


Project Features and Benefits

- 262 acres of marsh creation and 51 acres of marsh nourishment
- Borrow from Laurier Bayou
- 2017 Coastal Master Plan, Marsh Creation Subunit – 03a.MC.07, Belle Pass-Golden Meadow Marsh Creation
- Supports "T9" Concept (Twin Pipelines) for Lafourche Parish, 5th Annual Coastal Restoration Workshop
- Promotes protection to LA HWY 1

Summary of Features, Cost, and Benefits



- Total: 313 ac
  - Marsh Creation: 262 ac
  - Marsh Nourishment: 51 ac
- Estimated net acres: 200-250 ac
- Estimated construction cost:

  $15M - $20M plus contingency

Contact information:
Dawn Davis, 225-380-0041
dawn.davis@noaa.gov
Jason Kroll, 225-757-5411
jason.kroll@noaa.gov

PPL32 PROJECT RPT NOMINEE FACT SHEET
February 9, 2022

Project Name
Lakes Chien and Tambour Living Shorelines

Project Location
Region 3, Terrebonne Basin, Terrebonne Parish

Problem
Energy from wind driven waves is the primary driver of marsh-edge retreat, causing significant shoreline erosion throughout coastal Louisiana. Shoreline erosion accounts for approximately a quarter of coastal land loss in the deltaic plain of the Mississippi River, with an average yearly retreat rate of 12.4 feet/year for the Terrebonne Bay region. These losses have been exacerbated by recent tropical system landfalls, particularly with the direct impacts of Hurricane Ida in 2021. The cumulative impacts have resulted in the erosion and removal of significant amounts of marsh vegetation and wetland soils, while also increasing the turbidity in system. 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 deltaic estuaries. Left unchecked, the erosion and collapse of marsh edges and loss of naturally occurring oyster reefs perpetuates a negative feedback loop of increased soil erosion, loss of habitat, and additional negative impacts to marsh ecosystems.

Goals
The primary goal of the project is to provide shoreline protection in the upper Terrebonne Bay region to attenuate waves and directly reduce marsh edge erosion along the northern lake rims of Lake Chien and Lake Tambour. The secondary goal of the project is promoting oyster growth in the immediate project area to facilitate the reduction of marsh edge loss, while also serving to enhance oyster production and recruitment for the adjacent public oyster seed grounds. The project would also seek to explore all available source materials in a cost-effective, hybrid nature-based solution to effectively maximize ecosystem benefits.

Proposed Solution
The project is a partnership with Terrebonne Parish Consolidated Government, and their contractor T. Baker Smith, to bring their ongoing planning and design efforts to construction. The project would incorporate successful living shoreline techniques observed in the Terrebonne Bay Shoreline protection Demonstration (TE-45) project, with the use of gabion mats to reduce shoreline erosion rates along the northern lake rims of Lake Chien and Lake Tambour. This would be achieved by constructing approximately 4.0 miles of permanent oyster reef living shorelines along alignments that span entire stretches of existing marsh platforms to avoid induced erosion at the terminal ends of the features. Where applicable and allowable, access dredge material would be utilized to construct marsh terraces as protective shoreline berms with application of living shoreline techniques on the shore face. Additional living shoreline restoration techniques may also be included where suitable 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?

This total project area includes approximately 117 acres of marsh conserved through the construction of 4.0 miles of living shoreline oyster reefs along the northern lake rims of Lake Chien and Lake Tambour. The reefs will provide hard substrate to support oyster recruitment, thereby enhancing oyster habitat in the project area while helping support the resiliency of the nearby public oyster seed grounds. Additional marsh acres may be created through the construction of marsh terrace shoreline berms as additive living shoreline features.

2) *How many acres of wetlands will be protected/created over the project life?*
Approximately 100 – 150 ac 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 95% 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 project will help protect 4.0 miles of eroding marsh shoreline along the northern lake rims of Lakes Chien and Tambour, to prevent further coalescence into open water.

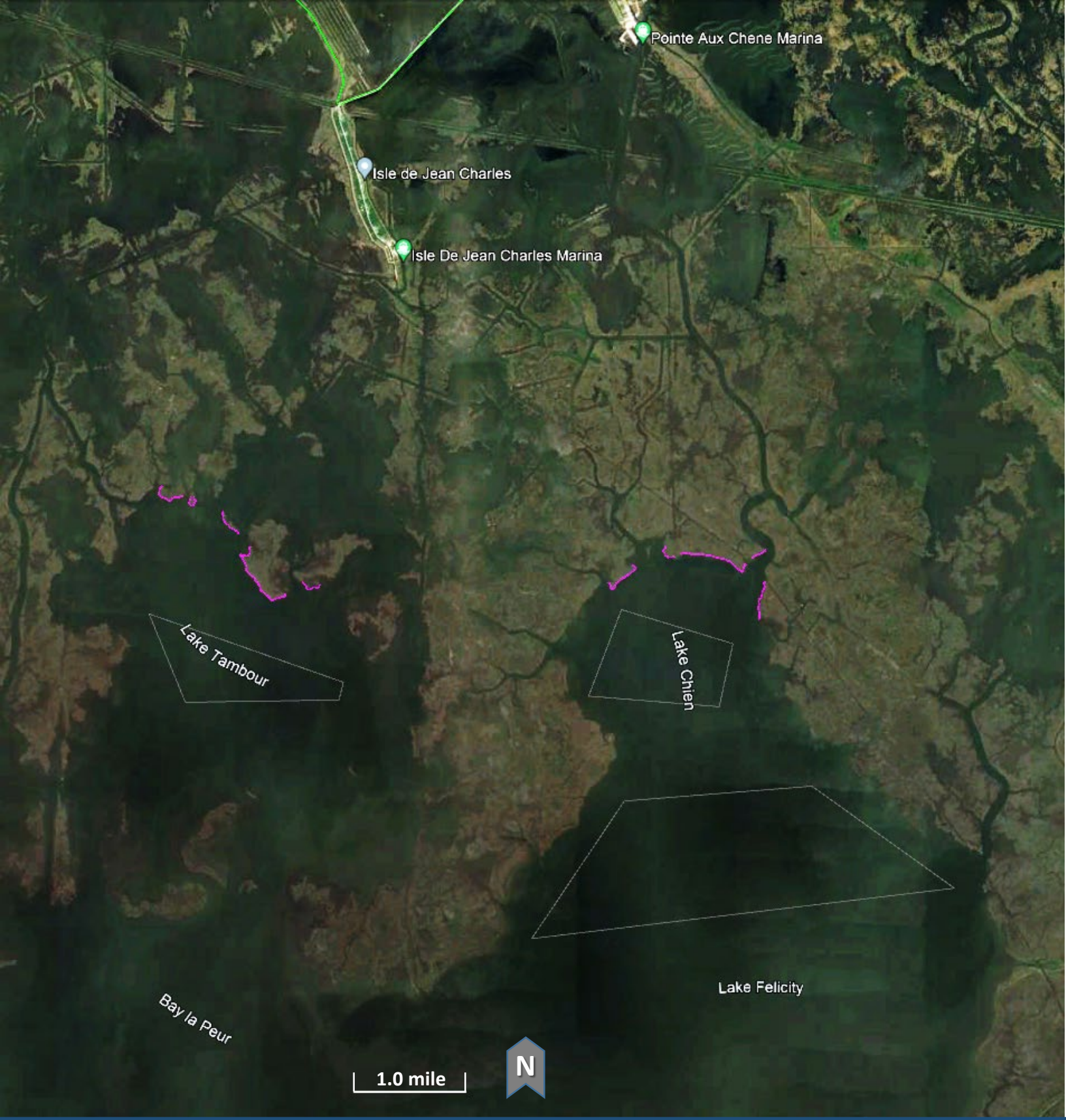
5) *What is the net impact of the project on critical and non-critical infrastructure?*
The project may have minor net positive impact to non-critical infrastructure comprised of pipelines and public access points. The project would also provide additional protective features for the Isle de Jean Charles and Pointe-aux-Chenes communities, Island Road, Isle de Jean Charles and Pointe-aux-Chenes marinas, and the Pointe-aux-Chenes Wildlife Management Area.

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 in the area including the Island Road Marsh Creation and Nourishment project (TE-117), Terrebonne Basin Ridge and Marsh Creation – Bayou Terrebonne Increment (TE-0139), Island Road Fishing Piers (TE-0144), a variety of marsh terrace projects, and multiple Coalition to Restore Coastal Louisiana's Pointe-aux-Chenes community living shoreline reefs.

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

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

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



PPL32 Lakes Chien and Tambour Living Shorelines

4.0 miles/9 acres oyster reef living shorelines
117 acres marsh shoreline conservation

Federal Sponsor: NOAA Fisheries | 2019 Aerial Imagery | Map Date 02-07-2022

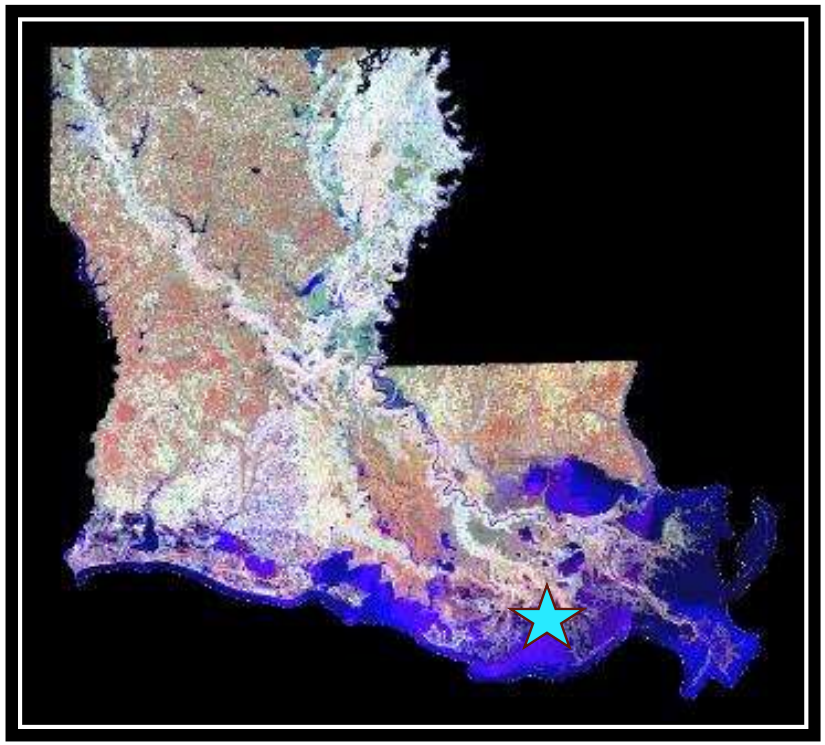
Legend

Oyster Reef Living Shorelines

Public Oyster Seed Grounds

Lakes Chien and Tambour
Living Shorelines

NOAA FISHERIES



REGION 3: Terrebonne Basin

Presenter: Craig Gothreaux, Fisheries Biologist, NOAA

Special Thanks

Terrebonne Parish Consolidated Government (TPCG)

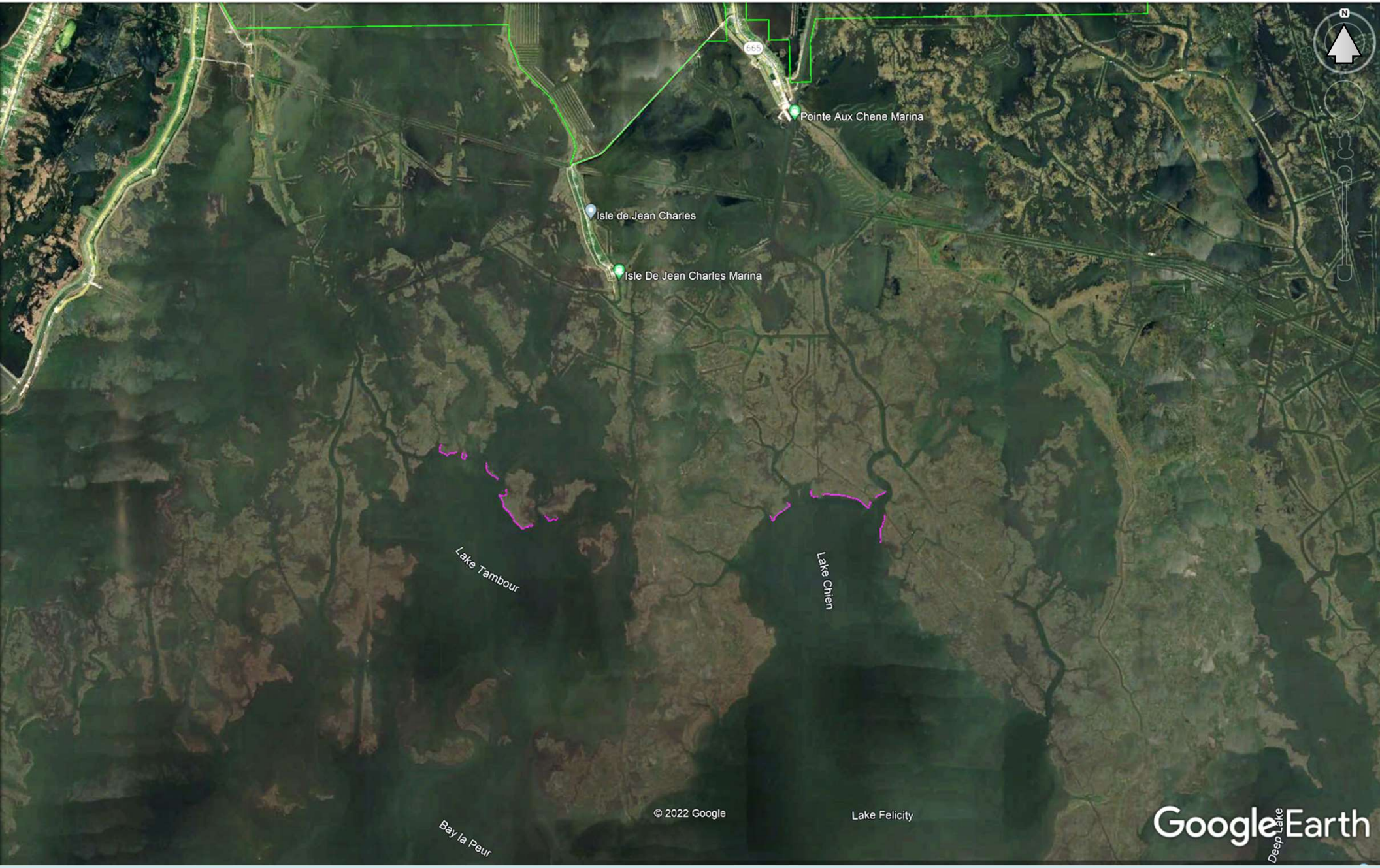
T. Baker Smith (TBS)

PPL32 CWPPRA Regional Planning Team Meeting

February 9, 2022

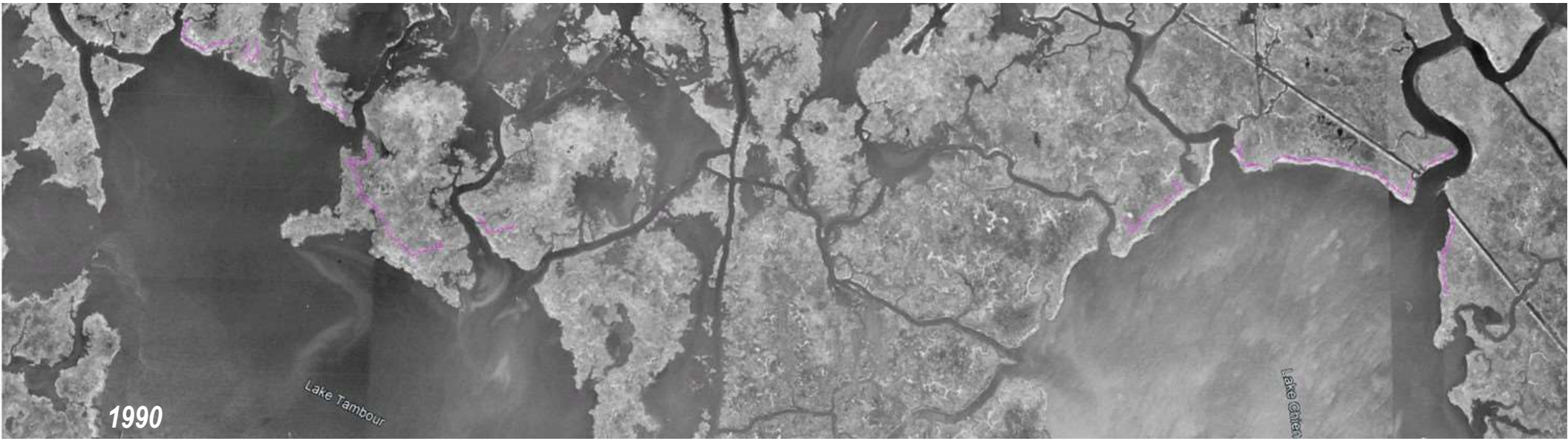
Project Vicinity

Lakes Chien and Tambour LS



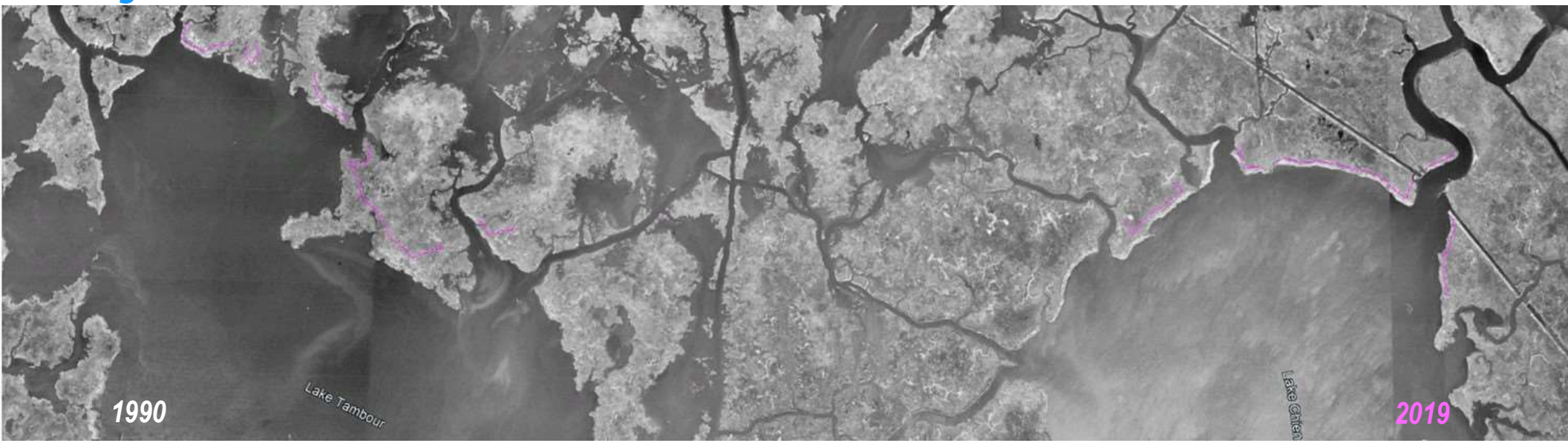
Project Area Problems

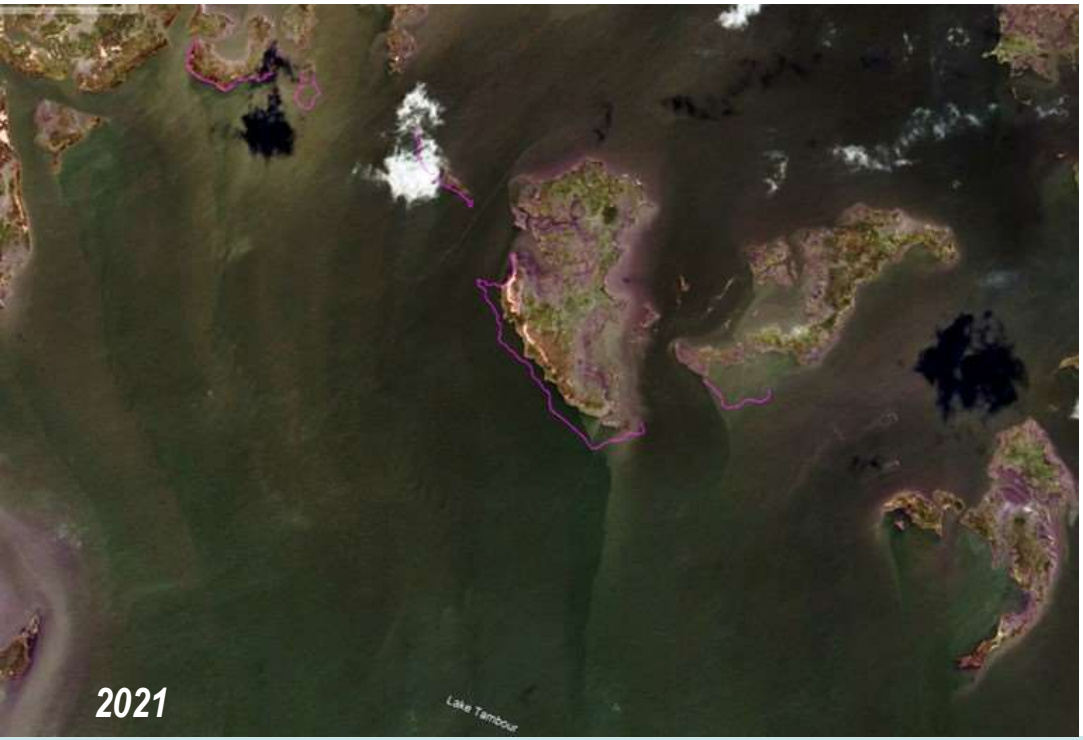
Lakes Chien and Tambour LS



Project Area Problems

Lakes Chien and Tambour LS





Project Considerations

Lakes Chien and Tambour LS

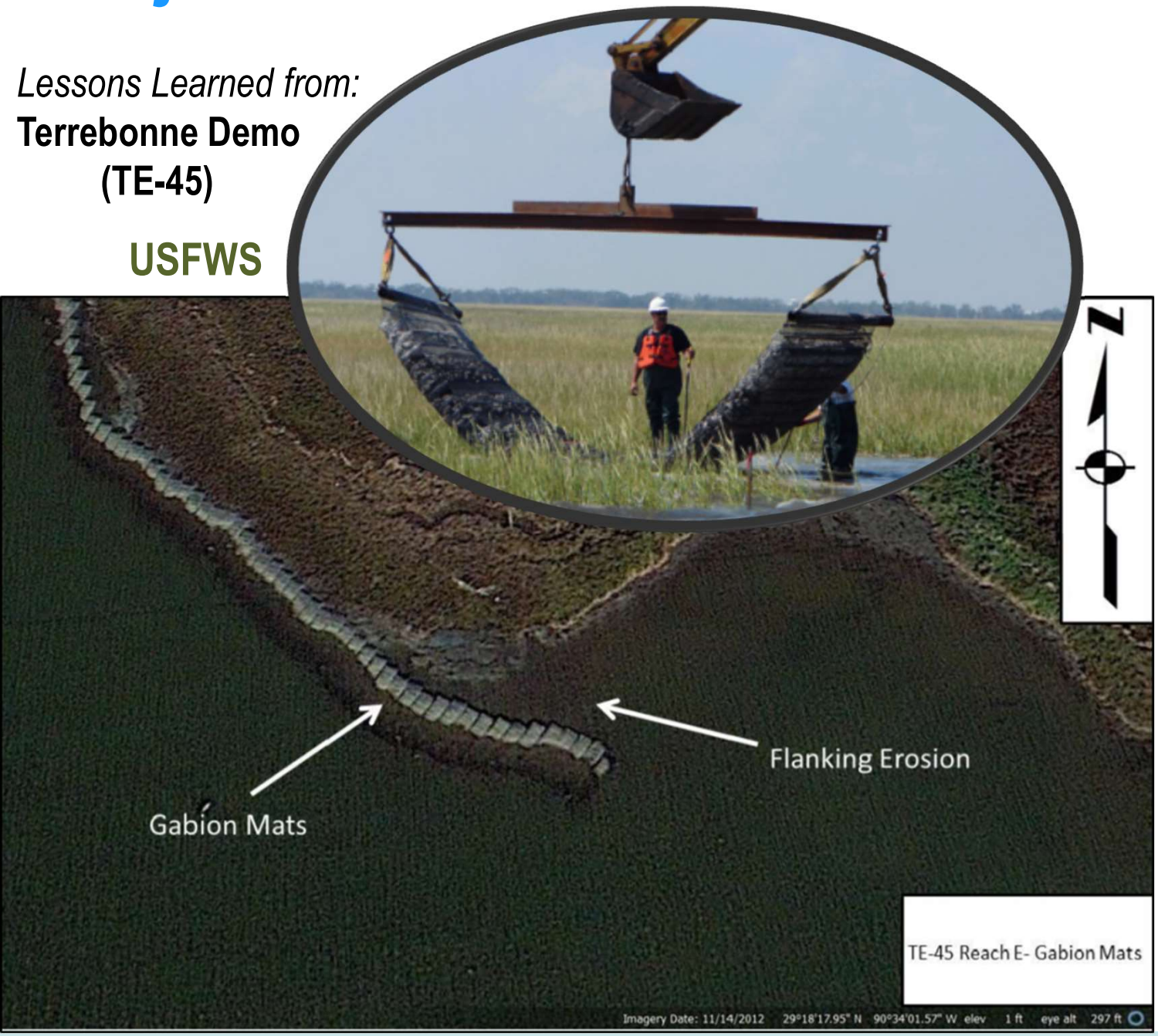
Public Oyster Seed Grounds | *Cultch Plants* | *Private Oyster Leases* | *Land Ownership* | *Pipelines*

Project Area Solutions

Lakes Chien and Tambour LS

Lessons Learned from:
Terrebonne Demo (TE-45)

USFWS



BASIS OF DESIGN REPORT

OYSTER BED SURGE PROTECTION PROJECT
TPCG Project No. 17-OYS-37
Terrebonne Parish, Louisiana

Prepared For

TERREBONNE PARISH

February 14, 2019

Prepared By

TBS T. BAKER SMITH

Jason M. Chauvin, P.E.
License No. 3997

STATE OF LOUISIANA
JASON M. CHAUVIN
License No. 39979
PROFESSIONAL ENGINEER
CIVIL ENGINEERING

TPCG & TBS

Gabion Mats and/or Articulated Concrete Mats

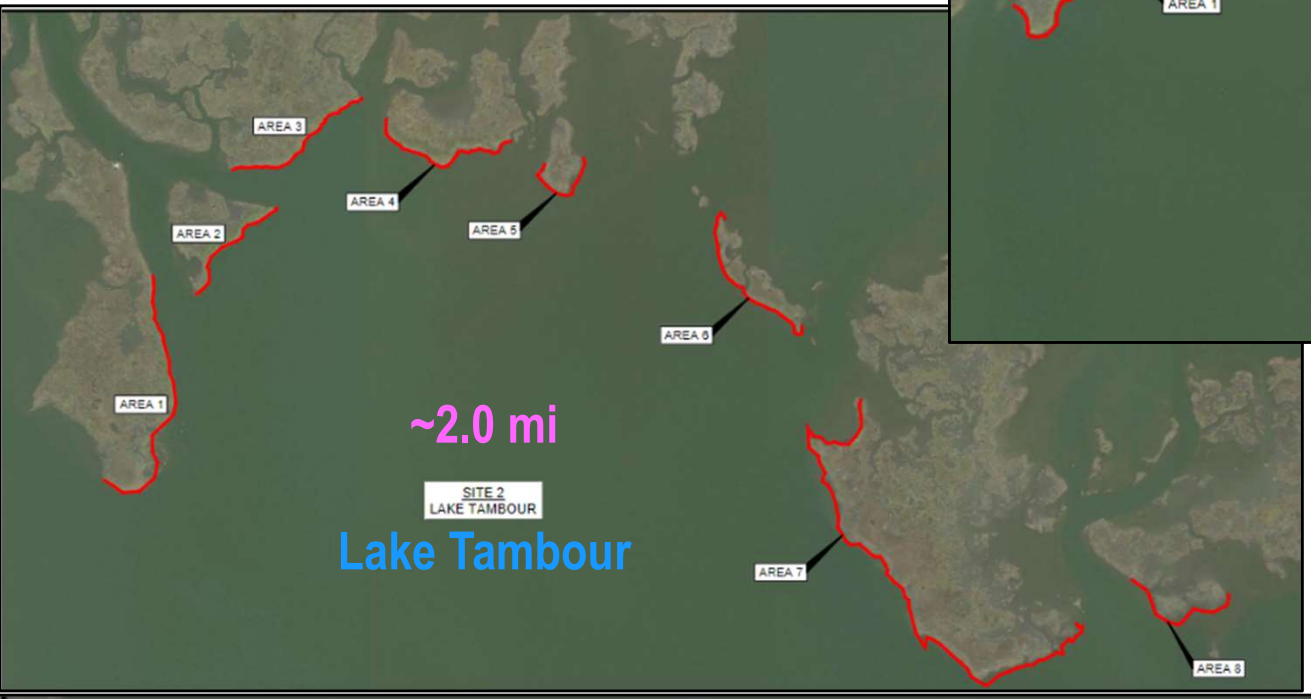
Access dredge material used for marsh terrace shoreline berm

Project Area Solutions

Lakes Chien and Tambour LS

***117 acres** marsh shoreline conserved*

Additional marsh acreage possible via beneficial use of access dredge material



20,000+ linear feet of living shorelines

***~9 acres** oyster reef habitat*

T. BAKER SMITH
A CENTURY OF SOLUTIONS

TERREBONNE PARISH

CPRA

OYSTER BED SURGE PROTECTION PROJECT
TPCG PROJECT NO. 17-OYST-37
SHORELINE PROTECTION OF EXISTING MARSH
IN LAKE CHIEN AND LAKE TAMBOUR
TERREBONNE PARISH, LOUISIANA

Summary

Lakes Chien and Tambour Living Shorelines Project

- **126 Total Project Acres**
  - ~117 Acres Marsh Conserved/Protected
  - ~9 Acres of Oyster Reefs Created (~4 miles)
    - *Maintain integrity of lake rims with living shorelines*
    - *Potentially add marsh terrace acres via protective berm*
    - *Brood reef habitat to enhance public oyster seed grounds*

- **Construction Cost + 25% Contingency: $10M – $15M**

- **Net Benefits: 100 – 150 Acres**

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

PPL32 PROJECT NOMINEE FACT SHEET
February 9, 2022

Project Name
Calumet Island Restoration

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

Problem
Casse-Tete and Calumet Islands are located in Timbalier Bay just north of Little Pass Timbalier. Hurricane Ida in 2021 reduced the remnants of East Timbalier Island primarily into a shoal leaving Casse-Tete and Calumet Islands as the first line of defense for the Timbalier Bay estuary. Casse-Tete and Calumet Islands historically have been marsh islands with loss indicative of subsidence and erosion around the margins. Approximately 75% of Casse-Tete in length is forecasted to be gone by 2035 without restoration. Timing is critical to establish barrier island geomorphic form and ecologic function on these islands prior to their further loss and fragmentation. The USGS 1985 to 2020 loss rate is -1.03%/yr for the Timbalier Bay mapping unit.

Goals
The project goal is to establish barrier island geomorphic form and function on Casse-Tete or Calumet Islands. The concept goal for Calumet Island is to create 50 acres of beach and dune and 70 acres of back barrier salt marsh.

Proposed Solution
The proposed solution is to evaluate both Casse-Tete and Calumet Islands to determine which island is most time critical and provides the greatest direct and indirect benefits to restore first. At this time, Calumet Island is proposed and consists of a CWPPRA-scaled version of the NFWF Alternative Two design which includes beach, dune, and back barrier salt marsh. Sand would be mined from the ebb-tidal shoals of Little Pass Timbalier. The borrow area would be designed to not adversely impact littoral processes including sediment supply to Timbalier Island. The conceptual dune is +100 feet wide at +7 feet NAVD88 with 1V:25H slopes. The beach is approximately 100 feet wide at +4.8 feet NAVD88 with 1V:25H slope. The beach and dune sum to 50 acres. The dune would be planted and sand fencing installed. Approximately 70 acres of back barrier marsh creation is included via confined or semi-confined disposal. Dikes would be gapped to establish tidal function no later than year three if they do no not erode.

Preliminary Project Benefits
1) *What is the total acreage benefited both directly and indirectly*? The total acres benefited is 270 acres (100 acres beach and dune fill footprint, 100 acres of existing island, 70 acres back barrier marsh creation).

2) *How many acres of wetlands will be protected/created over the project life*? The total net acres of barrier island habitat protected/created over the project life is approximately 100 - 150

acres. Indirect benefit to Casse-Tete Island and open water habitat between the islands may result.

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 is 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.* Yes. The project would create barrier island habitat and re-establish transitional habitat from the estuarine to marine environments.

5) *What is the net impact of the project on critical and non-critical infrastructure*? No.

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 the littoral processes including TE-40 (Timbalier Island Dune and Marsh Creation), TE-52 (West Belle Pass Headland Restoration), and TE-143 (Terrebonne Basin Barrier Island and Beach Nourishment).

Considerations

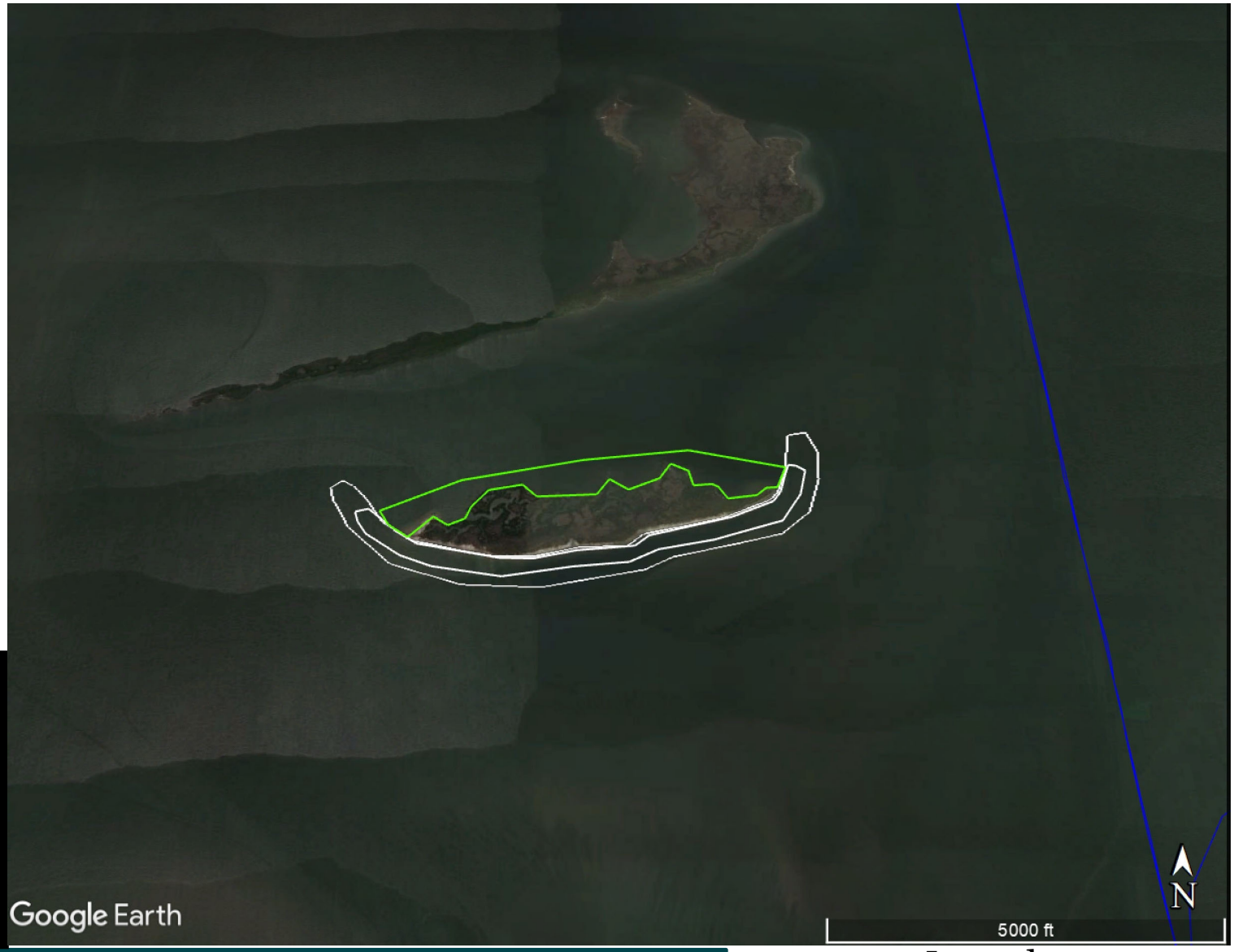
Considerations for this project include pipelines/utilities.

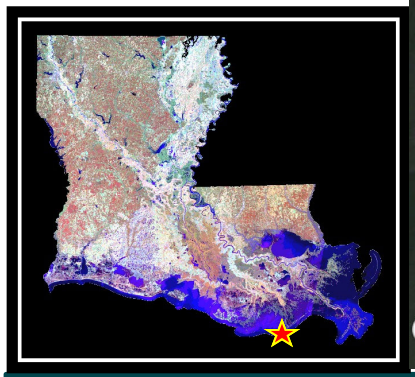
Preliminary Cost

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

Preparer of Fact Sheet

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





Calumet Island Restoration

50 acres Beach and Dune Creation
70 acres Back Barrier Marsh Creation

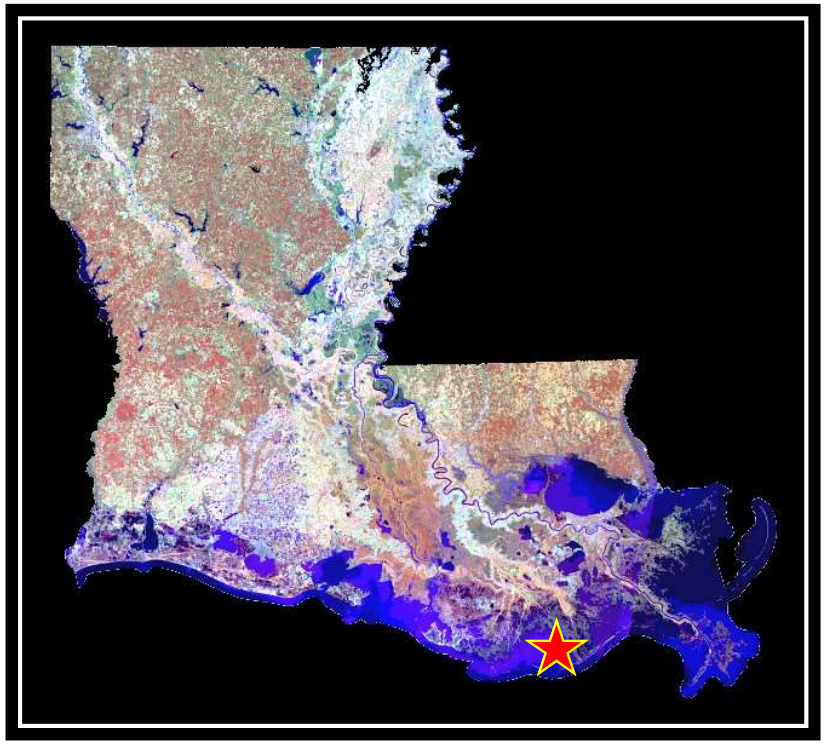
2021 Aerial Imagery
Map Date 02-07-2022

Legend

Beach & Dune Creation

Back Barrier Marsh Creation

Calumet Island Restoration



REGION 3 – Terrebonne Basin

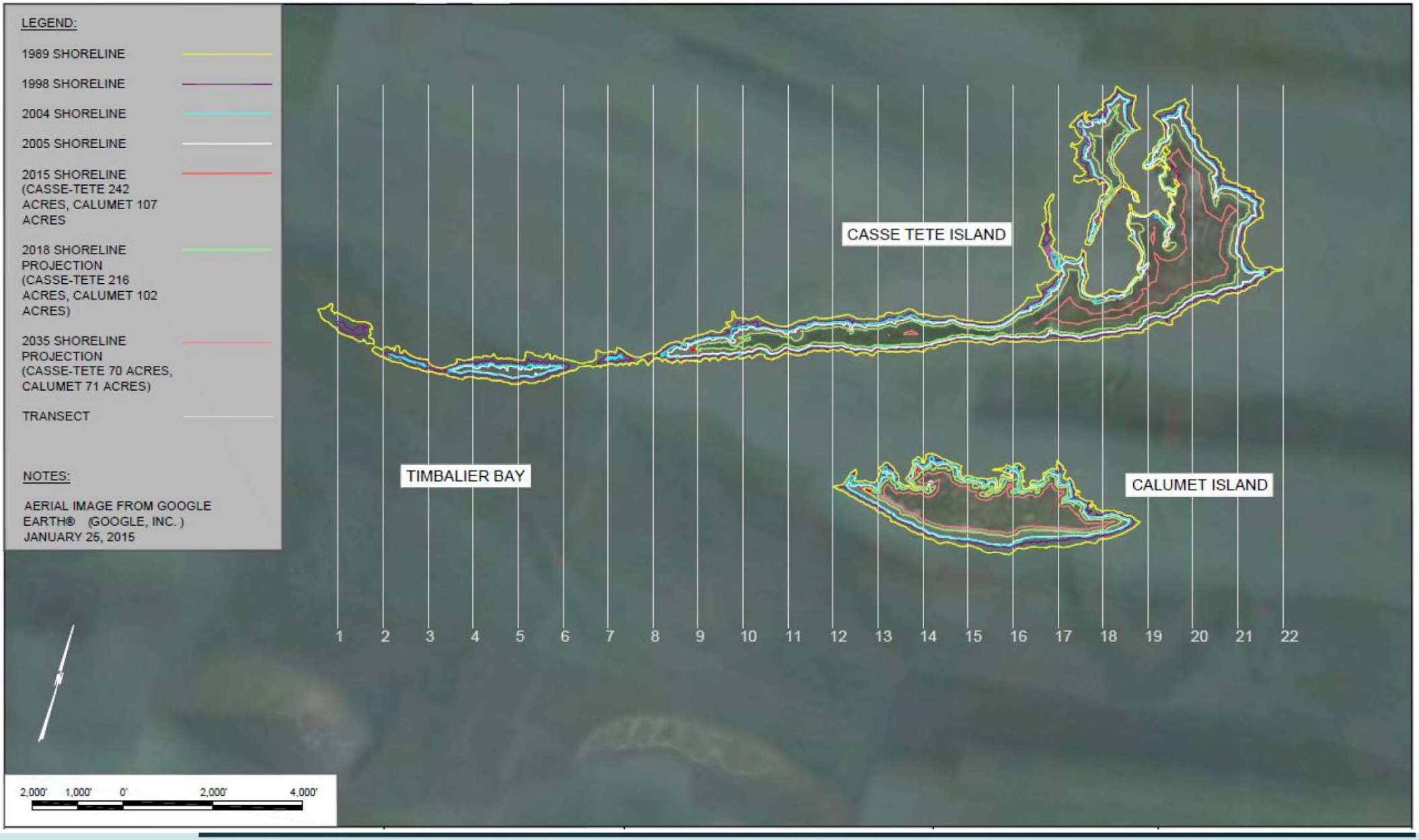
Presenter: Patrick Williams, NOAA

Special Thanks
CPRA
Stantec/CECI

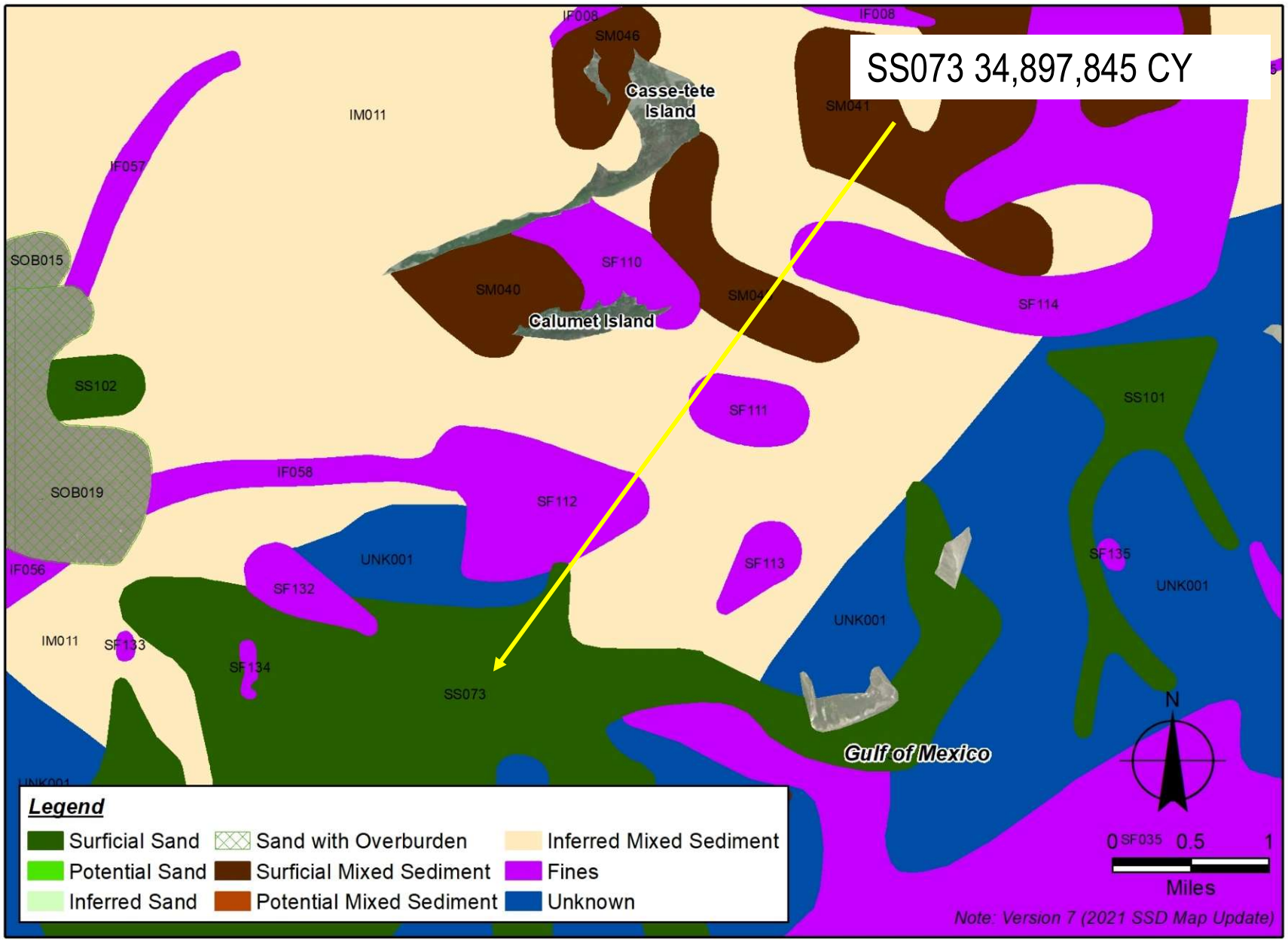
PPL32 CWPPRA Regional Planning Team
Virtual Meeting
February 9, 2022

Project Area Degradation

-1.06%/yr 1985 to 2020



Louisiana


SS073 34,897,845 CY
IF008
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Casse-tete Island
IM011
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Calumet Island
SF114
SS102
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IF058
SOB019
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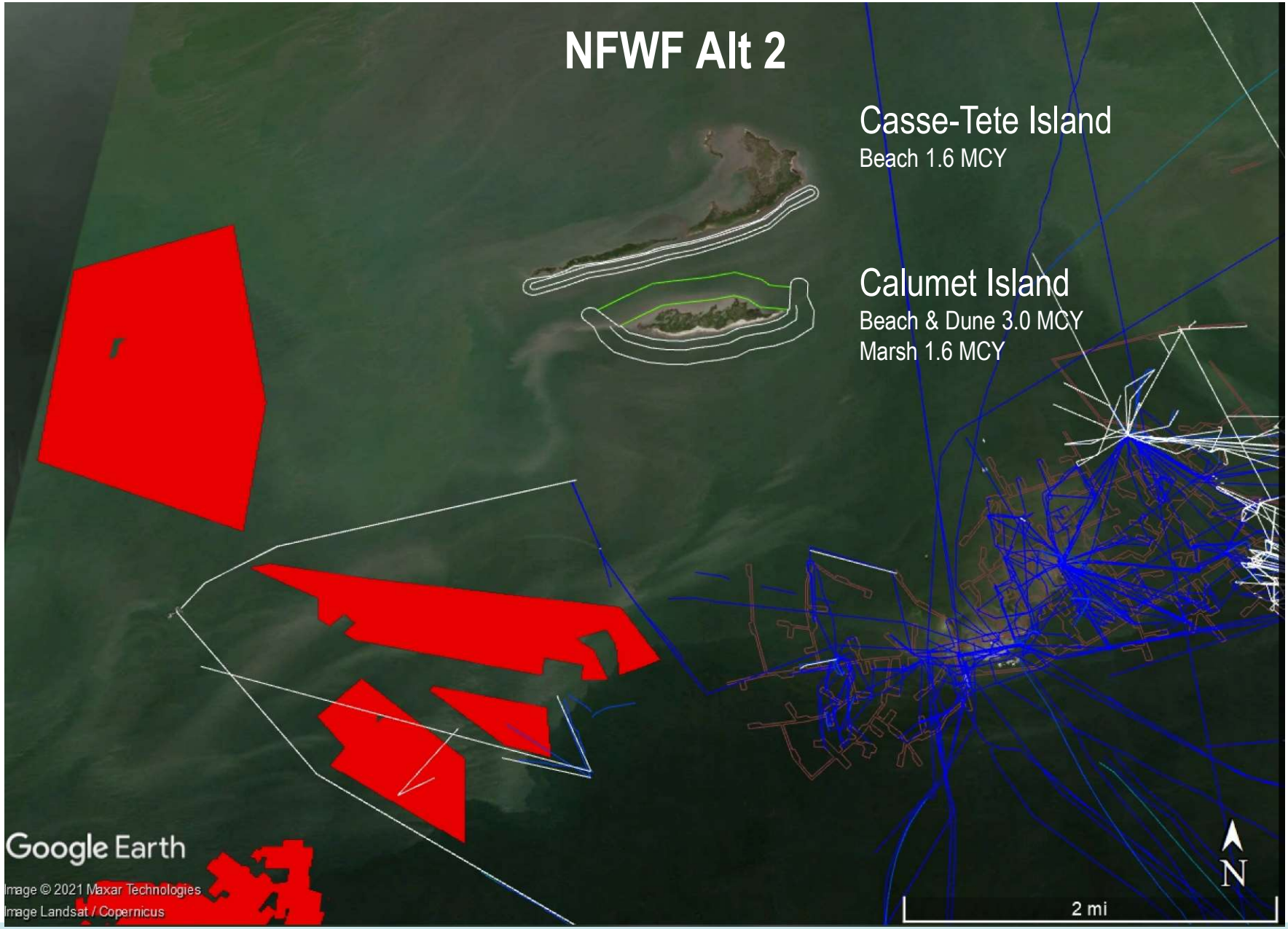
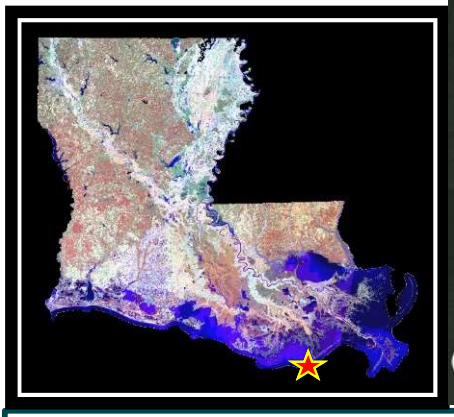
UNK001
SF113
SF135
IF056
SF132
UNK001
UNK001
IM011
SF133
SF134
SS073
Gulf of Mexico
N
0 SF035 0.5 1
Miles
Legend
Surficial Sand
Sand with Overburden
Inferred Mixed Sediment
Potential Sand
Surficial Mixed Sediment
Fines
Inferred Sand
Potential Mixed Sediment
Unknown
Note: Version 7 (2021 SSD Map Update)

Project Vicinty



Calumet Island Restoration

	Calumet (acres)	Casse-Tete (acres)
Beach and Dune	50	77 (beach)
Marsh Creation	70	70
Existing Island	100	210
Total	220	357
Net	125	203
Total Hydraulic Fill Volume	2.3 MCY	2.2 MCY



Calumet Island Restoration

50 acres Beach and Dune Creation
70 acres Back Barrier Marsh Creation

2021 Aerial Imagery
Map Date 02-07-2022

Legend

Beach & Dune Creation

Back Barrier Marsh Creation

Calumet Island Plan Summary

- 50 acres Beach Creation
- 70 acres Back Barrier Marsh Creation
- Ebb-tidal shoal Borrow
- Construction Cost + 25% Contingency $30M - $35M
- Net Benefits: 100 - 150 acres

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

PPL32 PROJECT NOMINEE FACT SHEET
February 9, 2022

Project Name
Isle de Jean Charles Marsh Restoration

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

Problem
The project is located south of Pointe aux Chenes, southeast of Isle de Jean Charles, and west of Bayou Jean Lacroix. The project vicinity contains organic and highly compressible soils with expansive open water areas. Subsidence, wind erosion, storms, and canal and pipeline construction all have contributed to widespread historic and continued rapid land loss within the project vicinity. The USGS 1985 to 2020 loss rate is -1.33%/yr for the Terrebonne Bay mapping unit. As interior marsh has converted to open water, there is more exposure risk from increased wave fetch and tidal and storm surge flooding.

Goals
The project goal is to create 215 acres and nourish 104 acres of salt marsh and construct 7,280 linear feet of earthen terraces.

Proposed Solution
The proposed solution is to create and nourish salt marsh through hydraulic and mechanical dredging. Sediment would be mined from either Lakes Tambour or Chien pending conclusion of coordination with landowners and avoidance of oyster resources. Hydraulically dredged sediment would be pumped approximately 5.5 miles and placed into four confined disposal areas. Approximately 2,780 linear feet of earthen terraces would be constructed and planted. 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 function.

Preliminary Project Benefits
1) *What is the total acreage benefited both directly and indirectly*? The total acres benefited is 423 acres (215 marsh creation, 104 acres marsh nourishment, and 104 acres of 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 200 - 250 acres. Indirect benefit to additional marsh acres and promotion of submerged aquatic vegetation may occur.

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 is 25-49% (percent rate reduction for marsh creation/nourishment and terracing combined).

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. However, the project would aid in re-establishing the structural framework of marshes adjacent to Isle de Jean Charles and tributaries of Bayou Saint Jean Charles and Bayou Jean Lacroix.

5) *What is the net impact of the project on critical and non-critical infrastructure*? The project would have minor net positive impact on critical infrastructure consisting of a local flood protection levee 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 TE-117 (Island Road Marsh Creation and Nourishment) and Ducks Unlimited Terraces (Phases 1 & 2).

Considerations

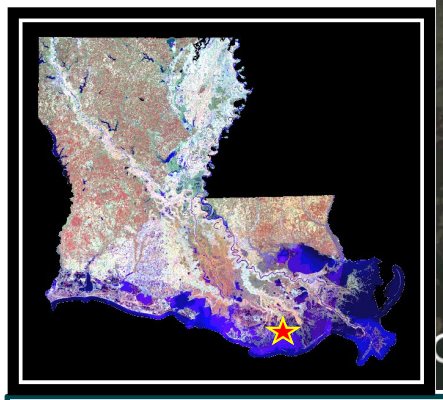
Considerations for this project include pipelines/utilities, oysters, West Indian Manatee, and Eastern Black Rail.

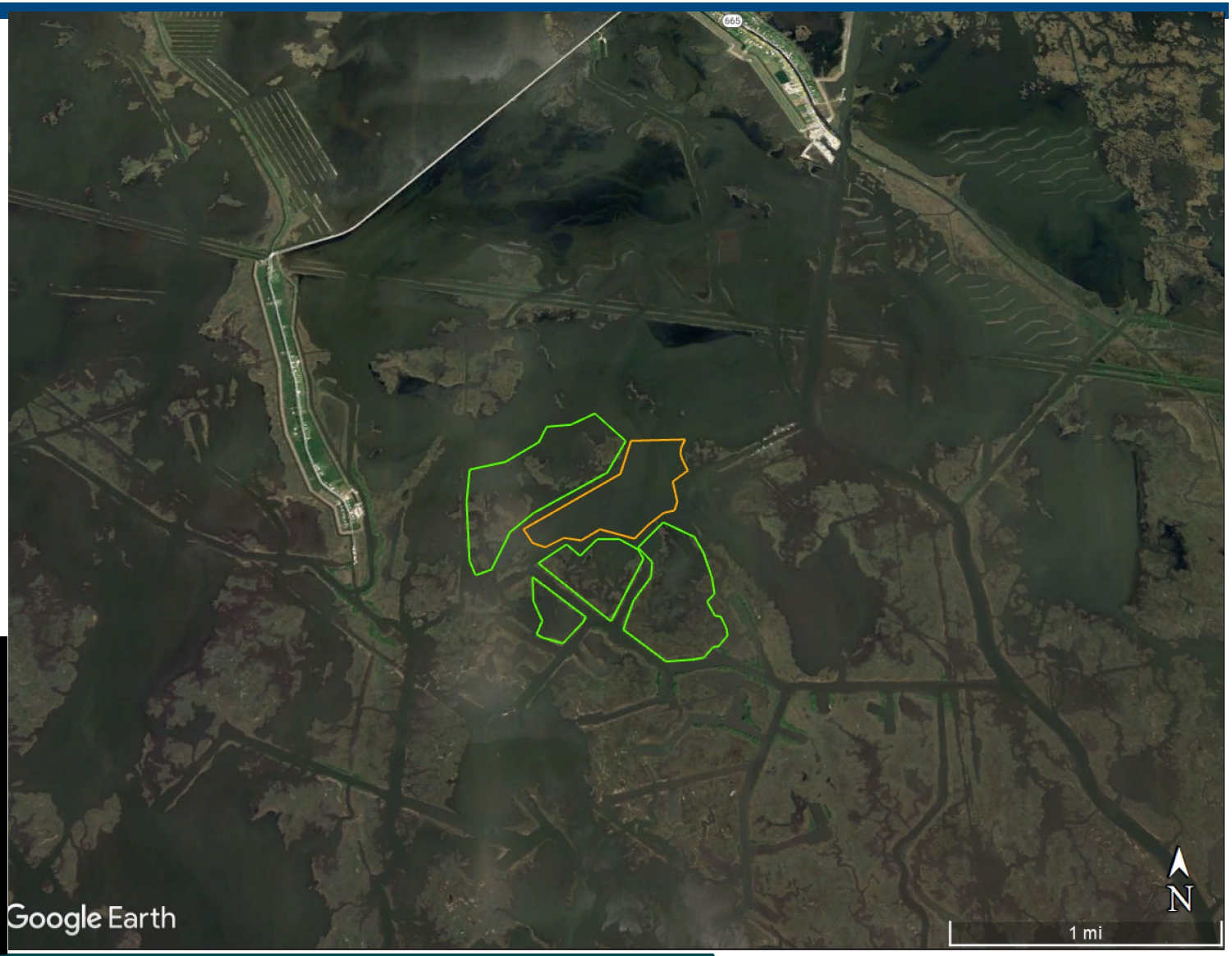
Preliminary Cost

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

Preparer of Fact Sheet

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





Isle de Jean Charles Marsh Restoration

215 Marsh Creation
104 Marsh Nourishment
7,280 LF Terraces

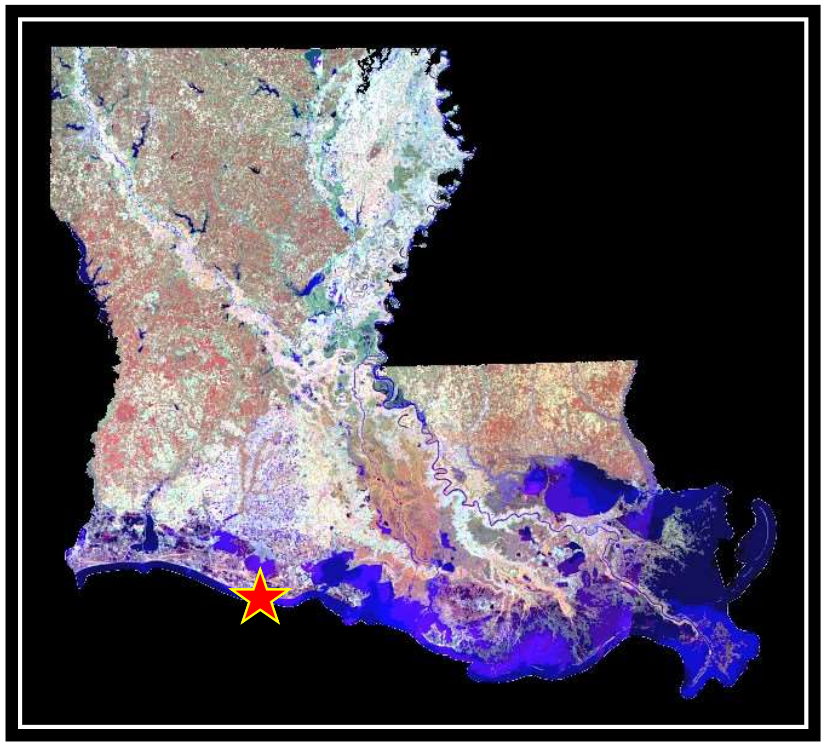
2021 Aerial Imagery
Map Date 02-01-2022

Legend

Marsh Creation and Nourishment

Terracing

Isle de Jean Charles Marsh Restoration



REGION 3 – Terrebonne Basin

Presenter: Patrick Williams, NOAA

Special Thanks

Terrebonne Parish Consolidated Government

ConocoPhillips

Apache Louisiana Minerals Inc

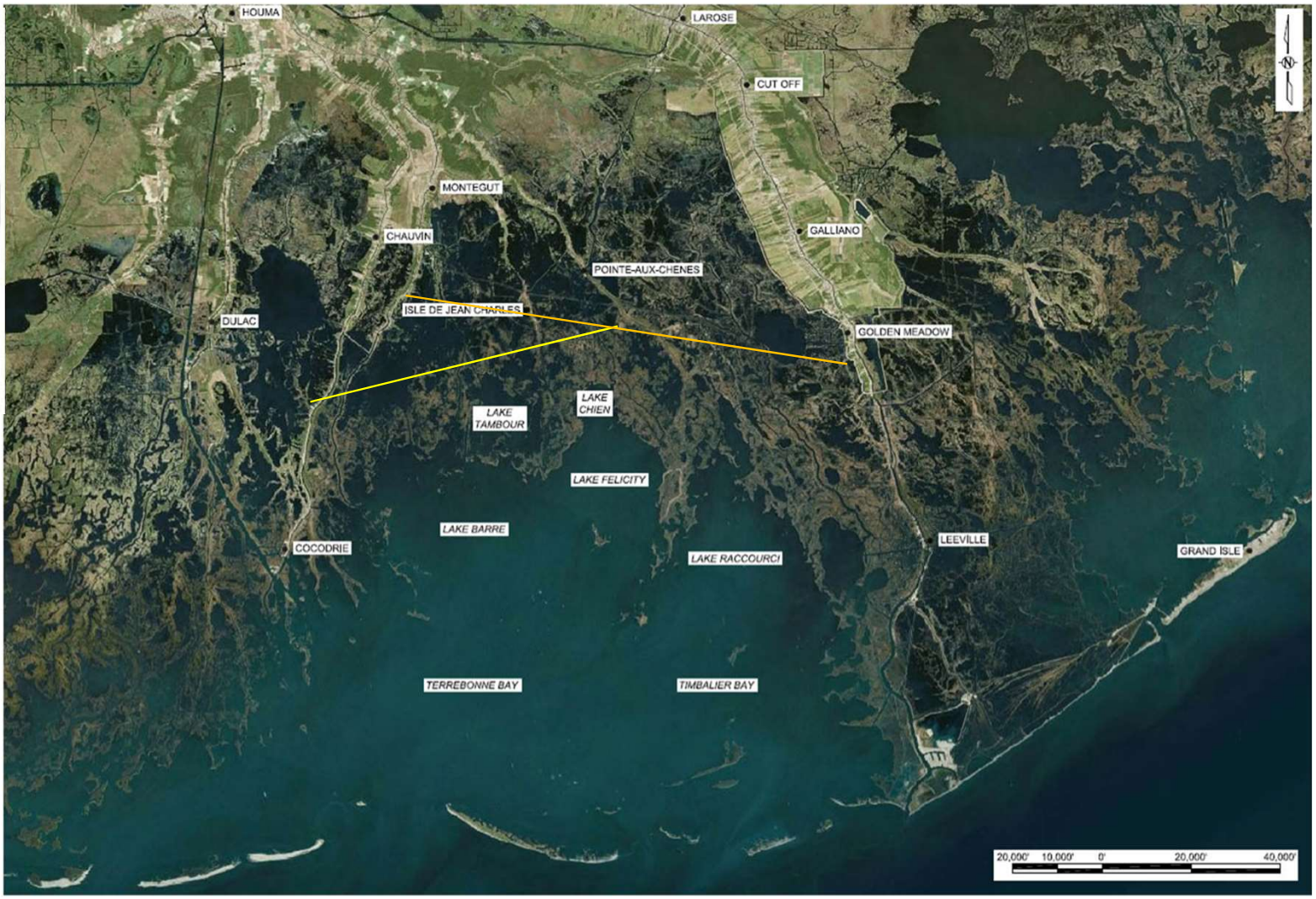
Ducks Unlimited

PPL32 CWPPRA Regional Planning Team

Virtual Meeting

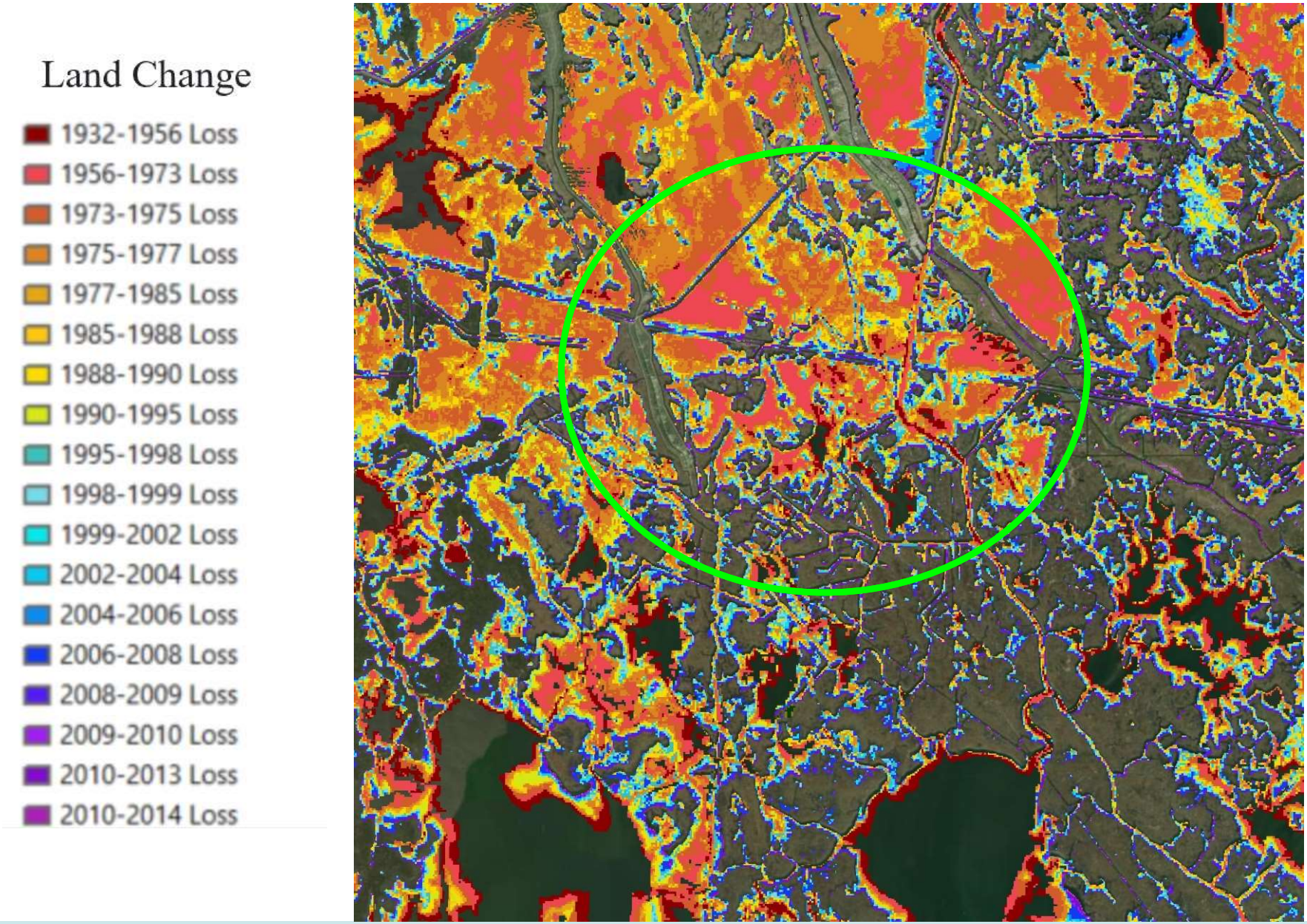
February 9, 2022

Project Location

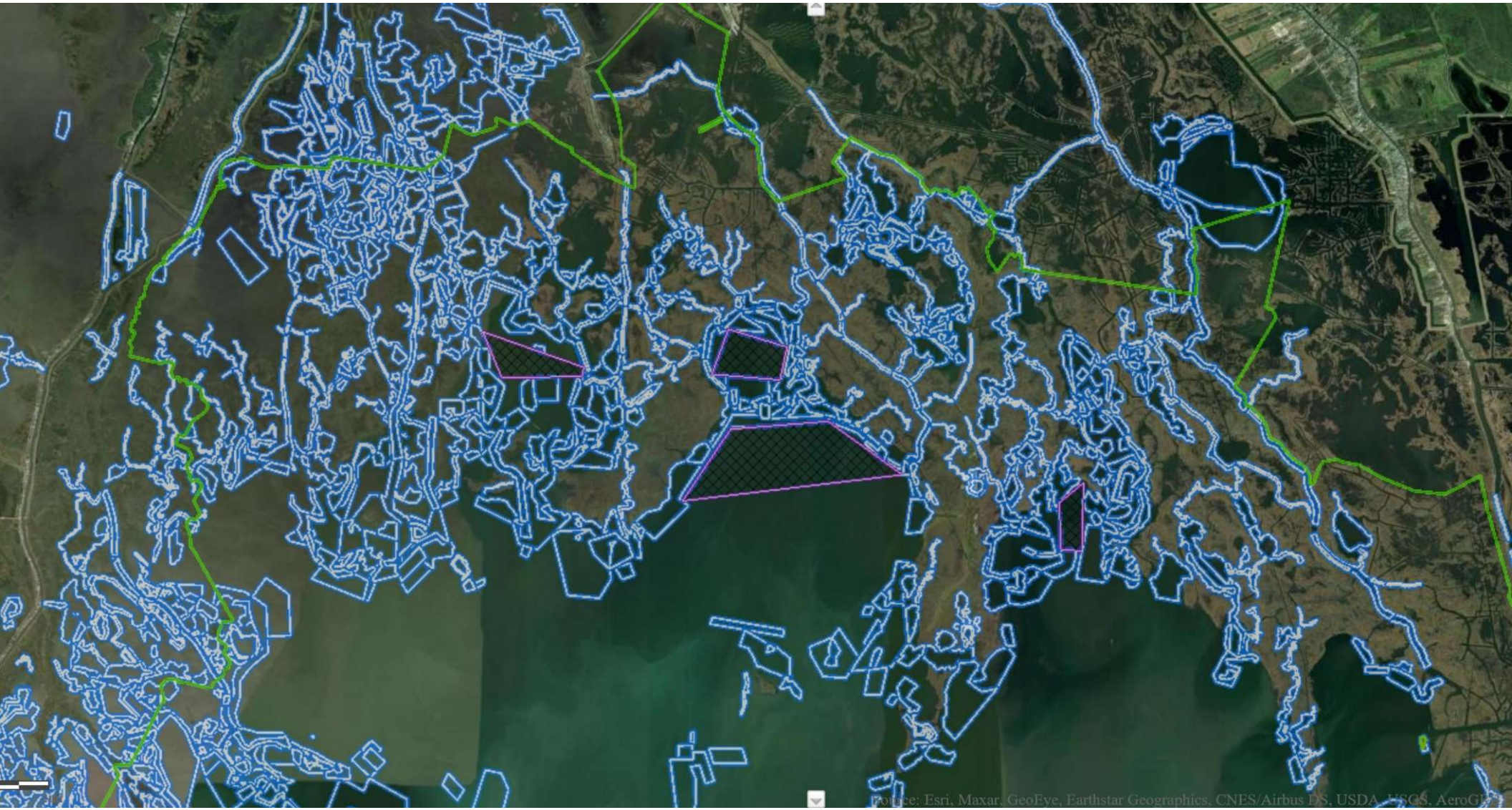


Project Area Degradation

-1.33%/yr 1985 to 2020



Oysters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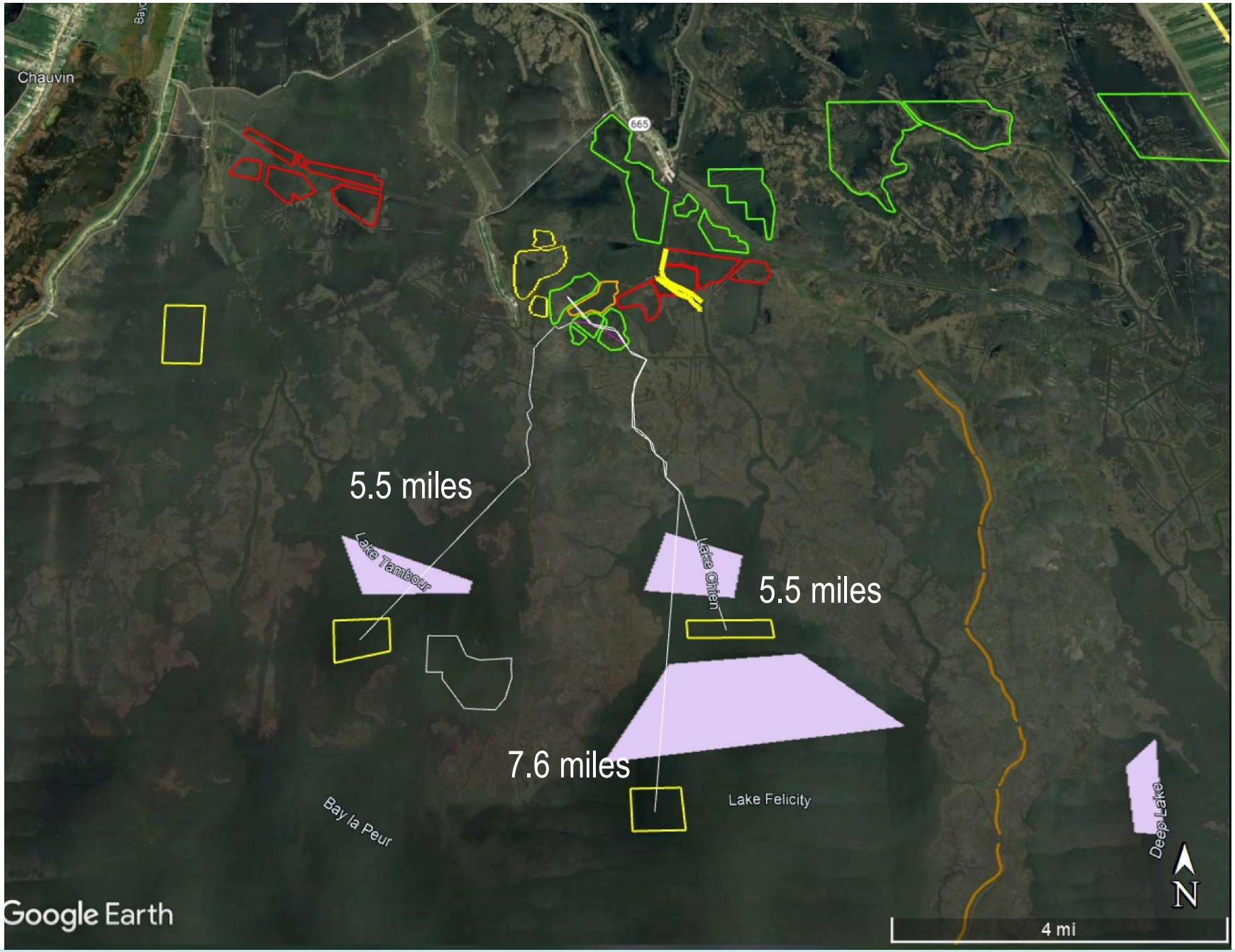
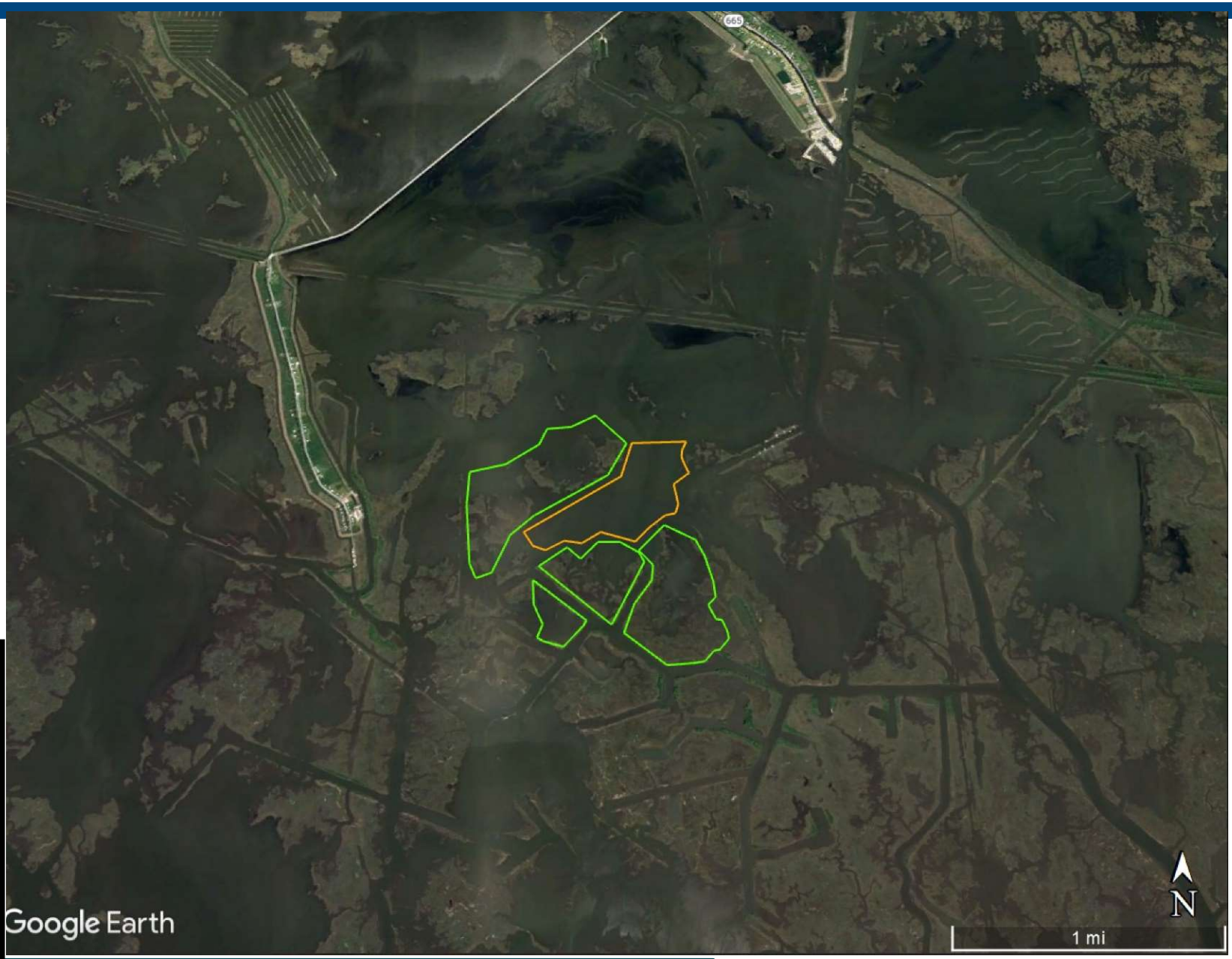
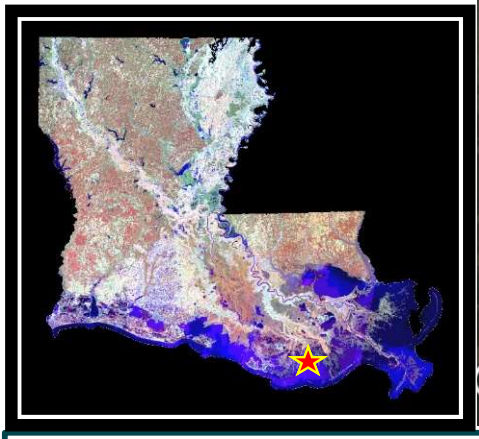
Borrow Alternatives







Isle de Jean Charles Marsh Restoration

215 Marsh Creation
104 Marsh Nourishment
7,280 LF Terraces

2021 Aerial Imagery
Map Date 02-01-2022

Legend

Marsh Creation and Nourishment

Terracing

Summary

- 215 acres Marsh Creation
- 104 acres Marsh Nourishment
- 7,280 LF of Terraces
- Lakes Tambour or Chien Borrow
- Construction Cost + 25% Contingency $25M - $30M
- **Net Benefits: 203 acres**

Photo Courtesy of Outside the Levees

Synergy

- Synergy with other Restoration projects: Ducks Unlimited Terraces & TE-117

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

PPL32 PROJECT NOMINEE FACT SHEET
February 9th, 2022

Project Name
Northwest Lake De Cade Marsh Creation Project

Project Location
Region 3, Terrebonne Basin, Terrebonne Parish, Northwest of Lake De Cade

Problem
The Terrebonne Basin is an abandoned delta complex, characterized by a thick section of unconsolidated sediments that are undergoing dewatering compaction, contributing to high subsidence. Historically, subsidence, saltwater intrusion, hurricanes, and numerous oil and gas pipelines in the area have contributed significantly to wetland losses. Since 1932, the Terrebonne Basin has lost approximately 20% of its wetlands. Current loss rates range from approximately 4,500 to 6,500 acres/year. This loss amounts to approximately 130,000 acres over the next 20 years. One-third of the Terrebonne Basin's remaining wetlands would be lost to open water by the year 2040. The wetland loss rate in the area is -0.32%/year estimated by USGS with a subsidence of at least 3.6mm/y.

Goals
The project goals are to create and/or nourish 592 acres of intermediate marsh.

Proposed Solution
Sediments from Bayou De Cade will be hydraulically dredged and pumped via pipeline to create/nourish 592 acres of marsh. Dewatering and compaction of dredged sediments should produce elevations conducive to the establishment of emergent marsh and within the intertidal range. Containment dikes will be constructed around each marsh creation cell. Where practicable, material will be borrowed from perimeter lakes and bayous. Containment dikes will be gapped at the end of construction or by TY3.

Preliminary Project Benefits
1) *What is the total acreage benefited both directly and indirectly*? Approximately 592 acres would be benefited directly and indirectly. Direct benefits include 355 acres of marsh creation and 237 acres of marsh nourishment. Indirect benefits could occur to surrounding marsh and open water areas.

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

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

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

5) *What is the net impact of the project on critical and non-critical infrastructure*? The project would help protect oil and gas infrastructure in the area.

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 the North Lake Mechant Landbridge Restoration Project (TE-44), the Lost Lake Project Marsh Creation Hydrologic Restoration (TE-72), and the Bayou De Cade Marsh Creation Project (TE-138).

Considerations

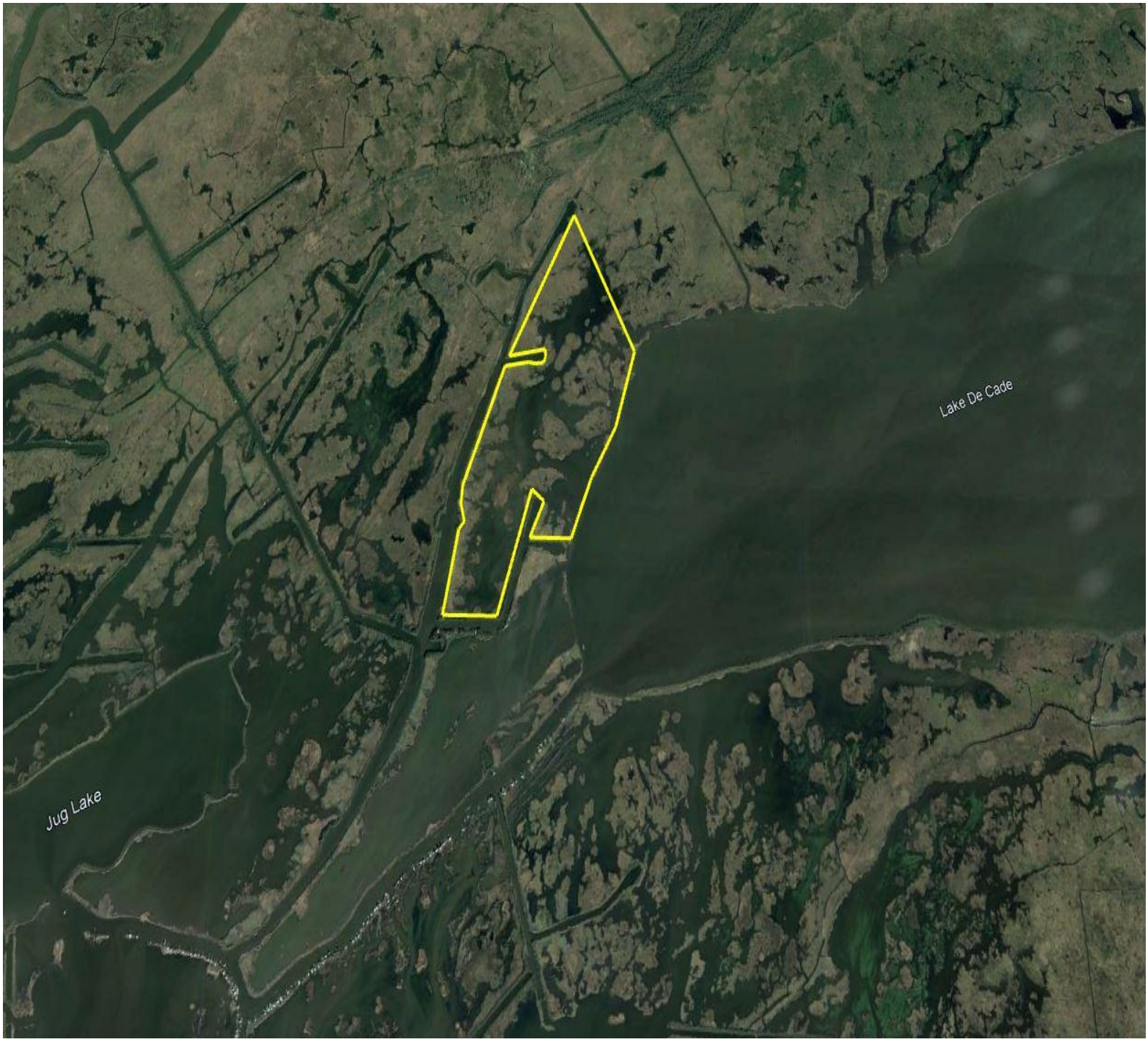
Considerations for this project include pipelines/utilities. Only one landowner.

Preliminary Cost

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

Preparer of Fact Sheet

Jennifer Smith, NOAA, (225) 954-6654, jennifer.smith@noaa.gov
Jason Kroll, NOAA, (225) 335-9659, jason.kroll@noaa.gov



PPL32 Northwest Lake De Cade Marsh Creation Project

355 Acres Marsh Creation
237 Acres Marsh Nourishment

2021 Aerial Imagery
Map Date 02-02-2022

Federal Sponsor: NOAA Fisheries

Legend

Marsh Creation

Northwest Lake De Cade Marsh Creation Project

NOAA FISHERIES

REGION 3 – Terrebonne Basin

Presenter: Jennifer Smith, Project Manager, NOAA

Special Thanks:
Apache Louisiana Minerals, LLC
Terrebonne Parish

PPL32 CWPPRA Regional Planning Team Meeting

Virtual Meeting

February 9, 2022

Project Location

Project Location

Project Area Problem

- Wetland degradation
  - Sea Level Rise
  - Subsidence
  - Hurricane impacts
  - Conversion of marsh to open water
  - Nutria foraging

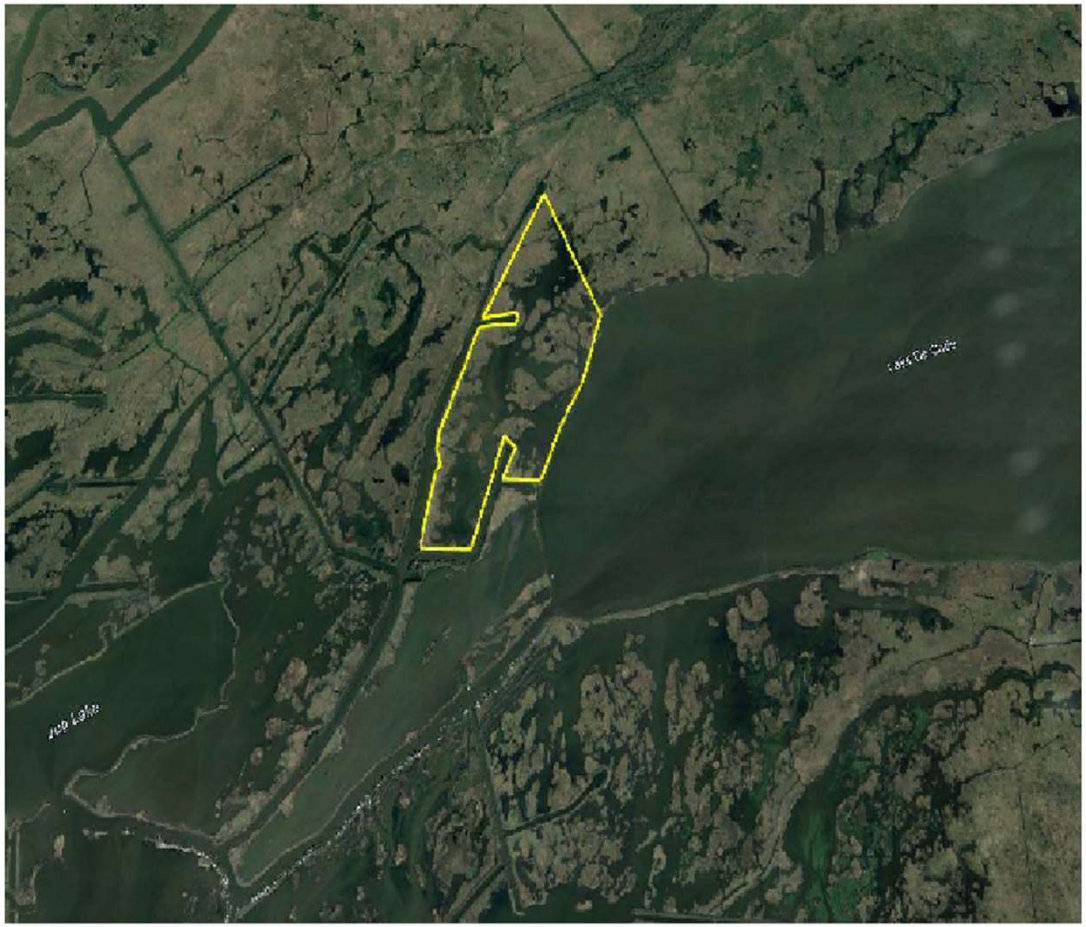
Project Goals

- Marsh Creation/Nourishment and Terracing
  - Restore intertidal marsh habitat
  - Design and construct resilient wetlands to maximize wetland benefits throughout the 20 year project life.

Restoration Solution

- 592 Acres of Marsh Creation/Nourishment
  - 355 Acres of Marsh Creation & 237 Acres of Marsh Nourishment
  - Hydraulically dredge material from Lake De Cade
  - Contained Fill areas with dike gapping after construction
  - Short pumping distance, less than 1.5 miles

Project Map



PPL32 Northwest Lake De Cade Marsh Creation Project

355 Acres Marsh Creation
237 Acres Marsh Nourishment

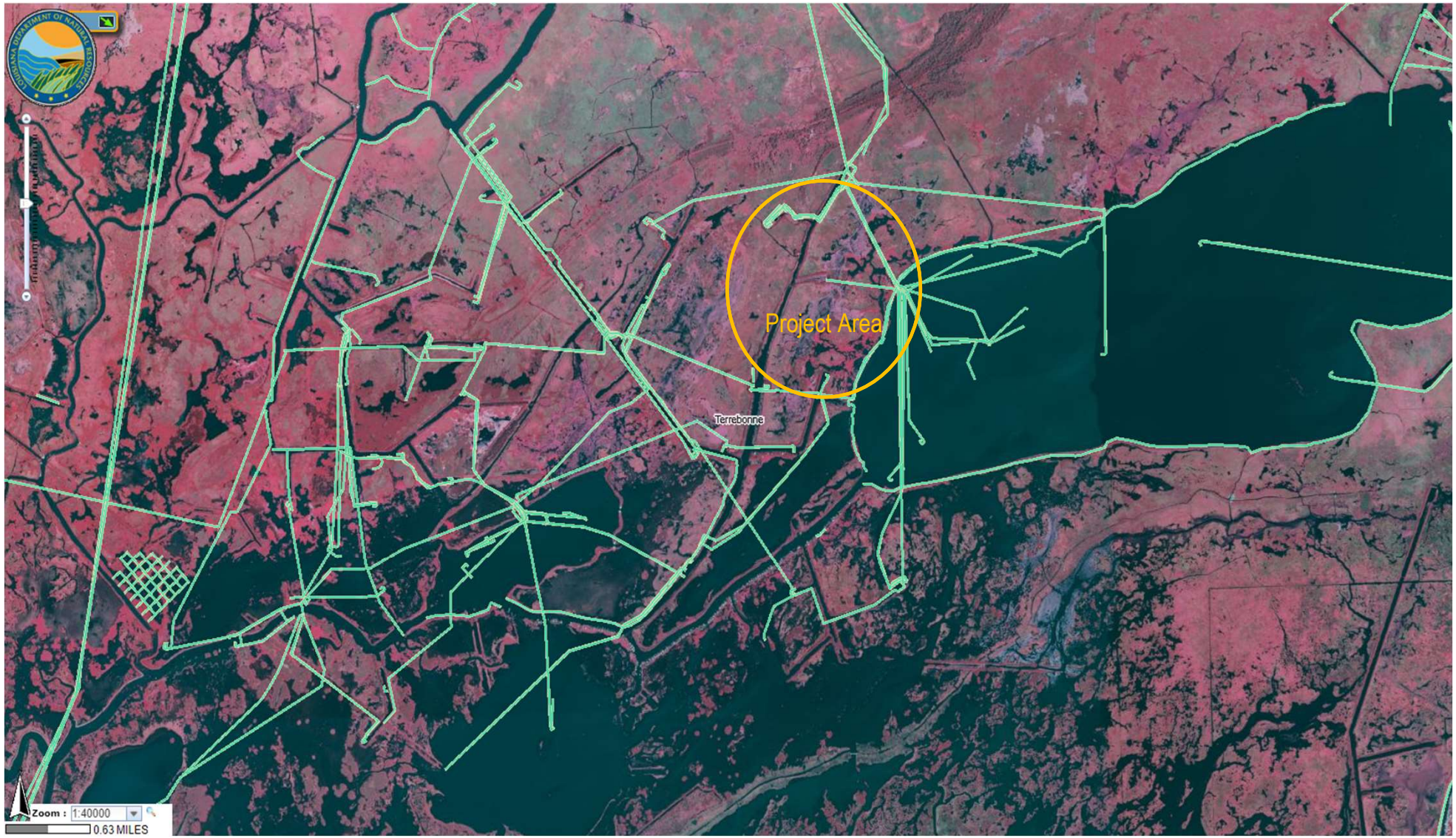
2021 Aerial Imagery Federal Sponsor: NOAA Fisheries
Map Date 02-02-2022

Legend

Marsh Creation

- 2017 State Master Plan Polygon 03a.MC.101
- Lake De Cade Borrow
- 592 Acres TOTAL of Marsh Creation/Nourishment
- Approximately 355 acres Creation and 237 acres Nourishment

Pipelines



Summary of Features, Cost, and Benefits

- **592 Acres Marsh Creation/Nourishment**
  - 355 acres Marsh Creation
  - 237 acres Nourishment

- **Construction Cost + 25% Contingency $25M - $30M**
- **Net Benefits: 300-350 acres**

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