COASTAL PROTECTION AND RESTORATION AUTHORITY

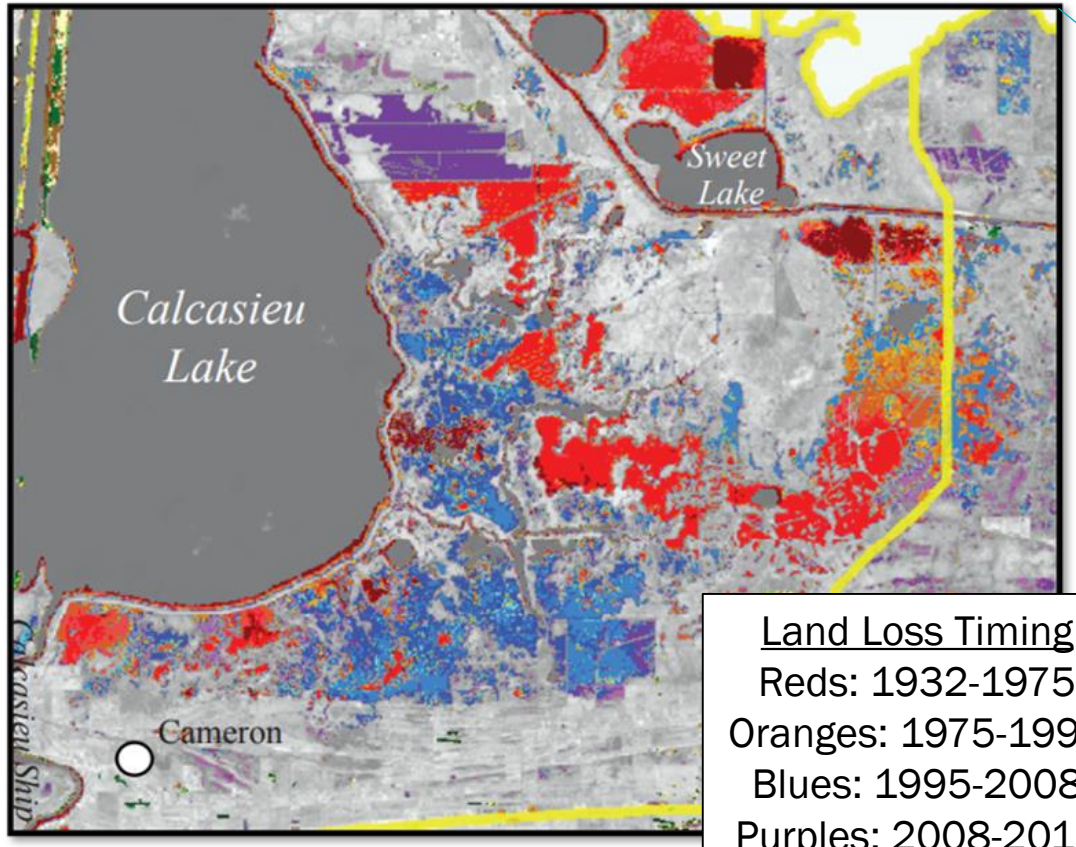
FEBRUARY 2023

Calcasieu-Sabine Large Scale Marsh and Hydrologic Restoration (CS-0087)

KATIE FREER, PROJECT MANAGER

Cameron Creole Land Loss Challenge

Cameron Creole Watershed Land Loss, 1932 to 2016



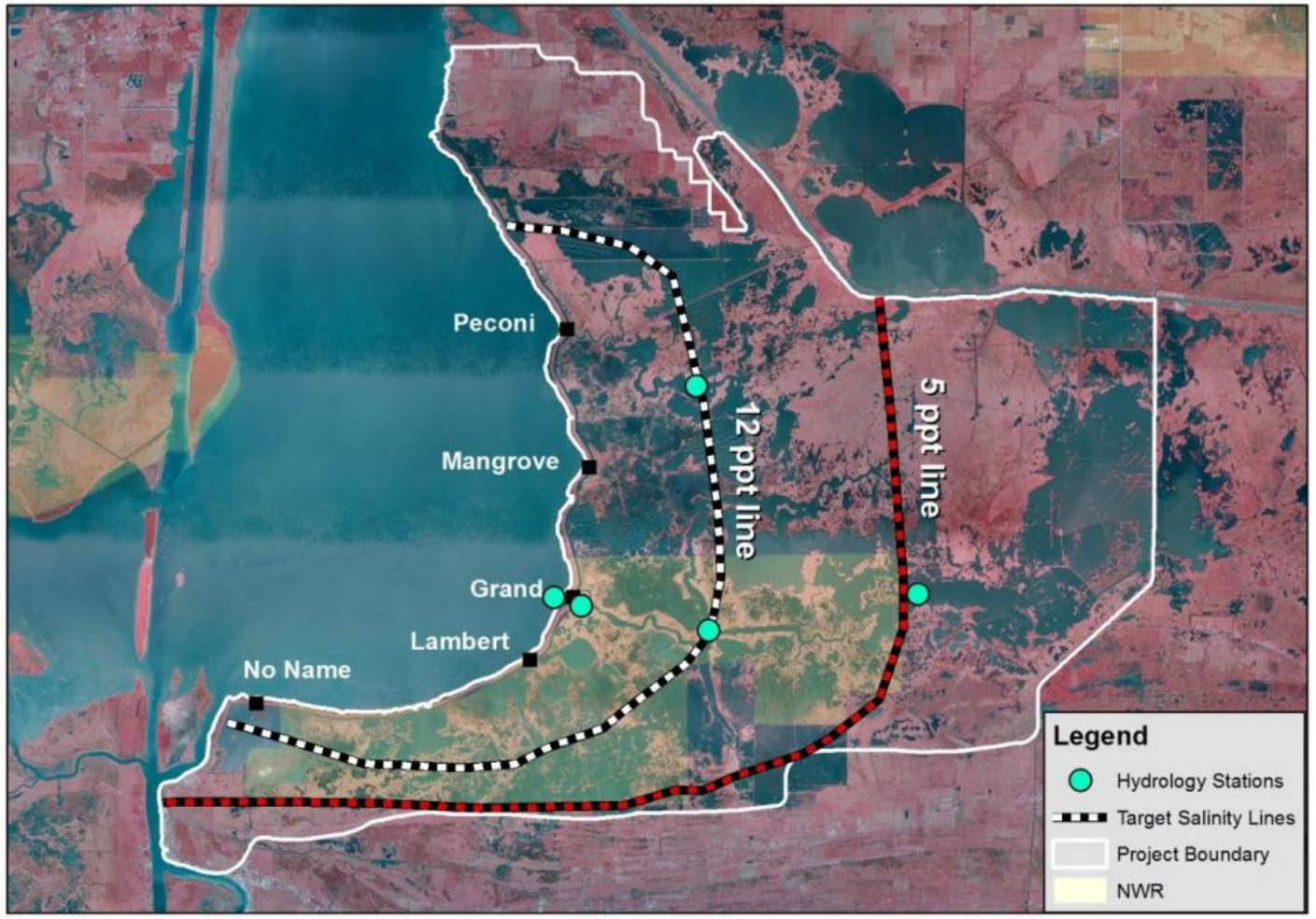
Land Loss Timing
Reds: 1932-1975
Oranges: 1975-1995
Blues: 1995-2008
Purples: 2008-2015

Source: Couvillion, B.R., Beck, Holly, Schoolmaster, Donald, and Fischer, Michelle, 2017, Land area change in coastal Louisiana 1932 to 2016: U.S. Geological Survey Scientific Investigations Map 3381, 16 p. pamphlet, https://doi.org/10.3133/sim3381.

Cameron Creole Land Loss Challenge

Cameron Creole Watershed Management Plan

- Operate 5 gates to:
  - Maintain salinity below targets at isohalines
  - Maintain water levels between 2” above and 6” below marsh elevation



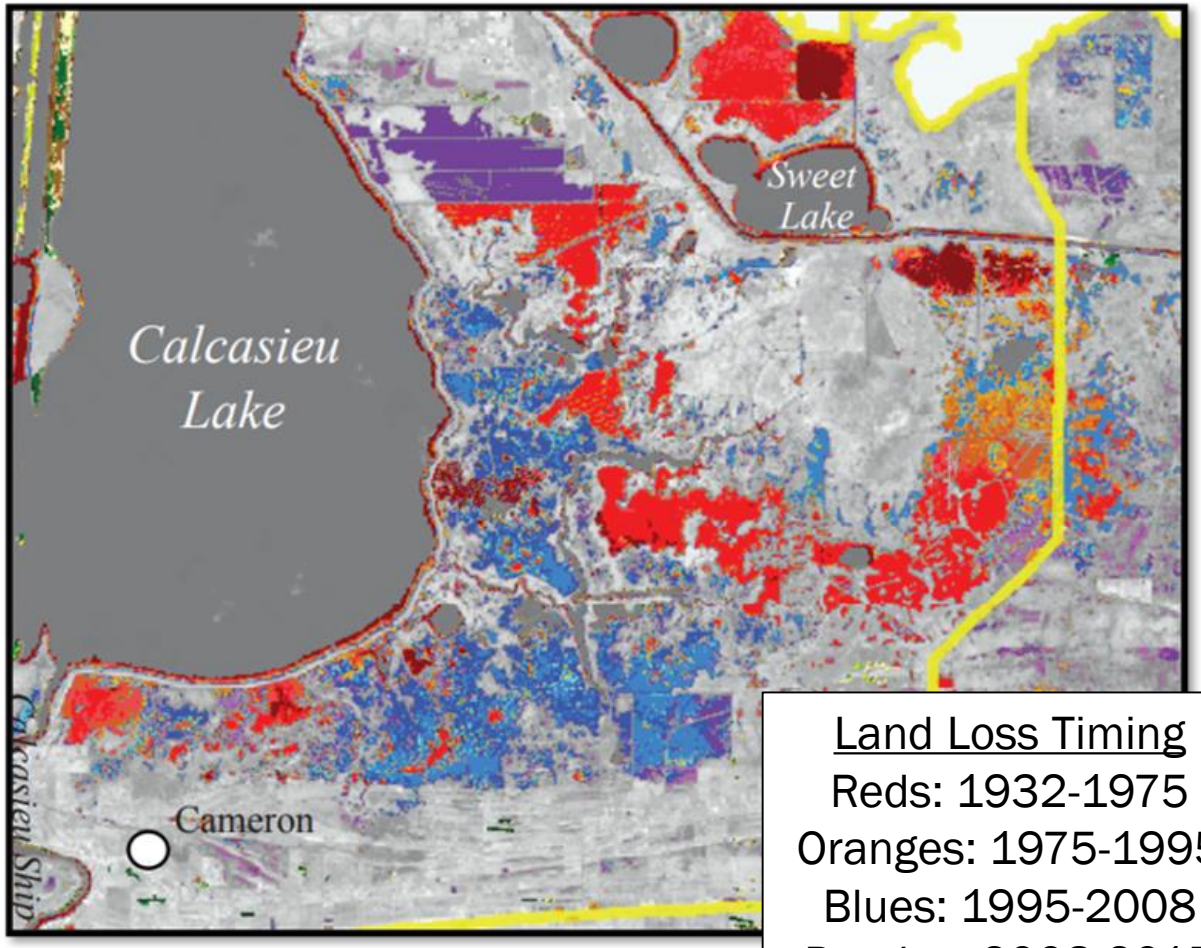
Project Purpose

PROJECT GOAL: Reduce land loss in the Calcasieu Sabine Basin

PROJECT OBJECTIVES

- Reduce marsh stress from flood inundation through:
  - Improved marsh drainage into Calcasieu Lake
  - Increased elevation capital with dredged sediment
- Maintain marsh salinity levels achieved through existing CCW management practices

Cameron Creole Watershed Land Loss, 1932 to 2016



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Project Funding & Genesis

Funding Source: RESTORE Act Direct Component (Bucket 1)

- Full $260.97M Bucket 1 allocation for Louisiana dedicated to this project
- This project replaces the discontinued Calcasieu Ship Channel Salinity Control Measures Project

October 2020
CS-0065 Project reevaluation and alternatives analysis complete

April 2021
RESTORE MYIP Amendment

September 2021
RESTORE Grant Amendment

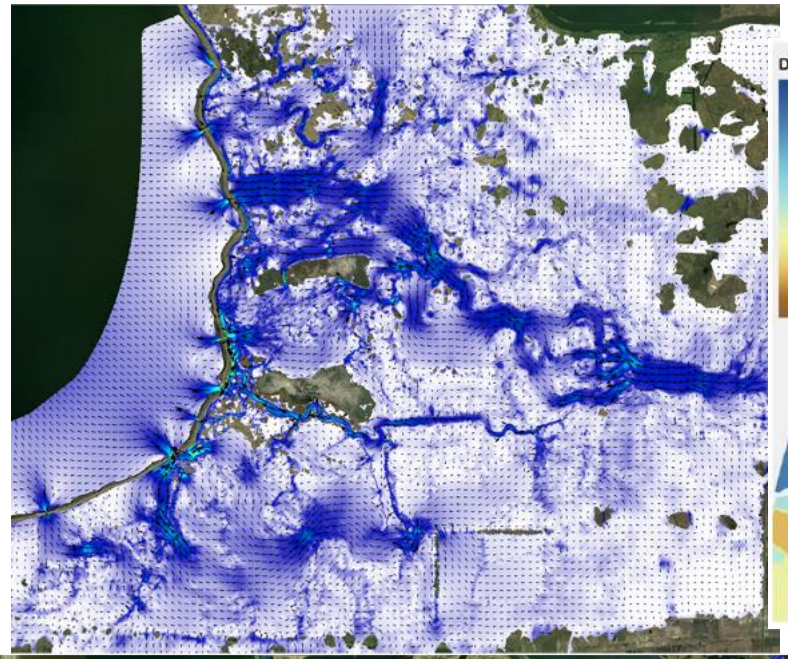
Summer 2022
Design Optimization Phase Complete

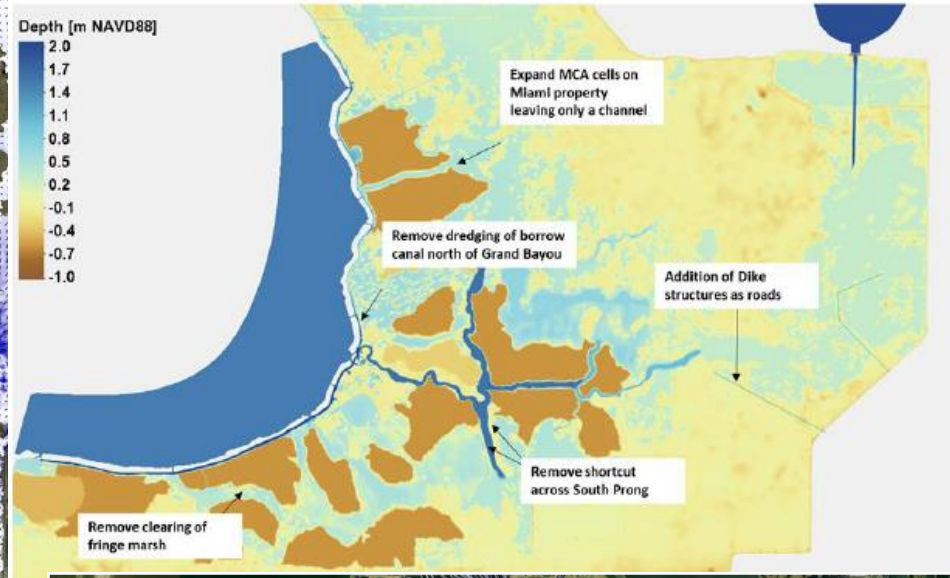
Current
Full E&D in Progress

Regional Optimization Modeling

MIKE-21 model simulated watershed drainage with and without project feature alternatives

- Evaluated varying lake rim drainage sizes and locations
- Ensured marsh creation does not further impound water
- Identified effective drainage pathway improvements





Project Features

Lake Rim Drainage

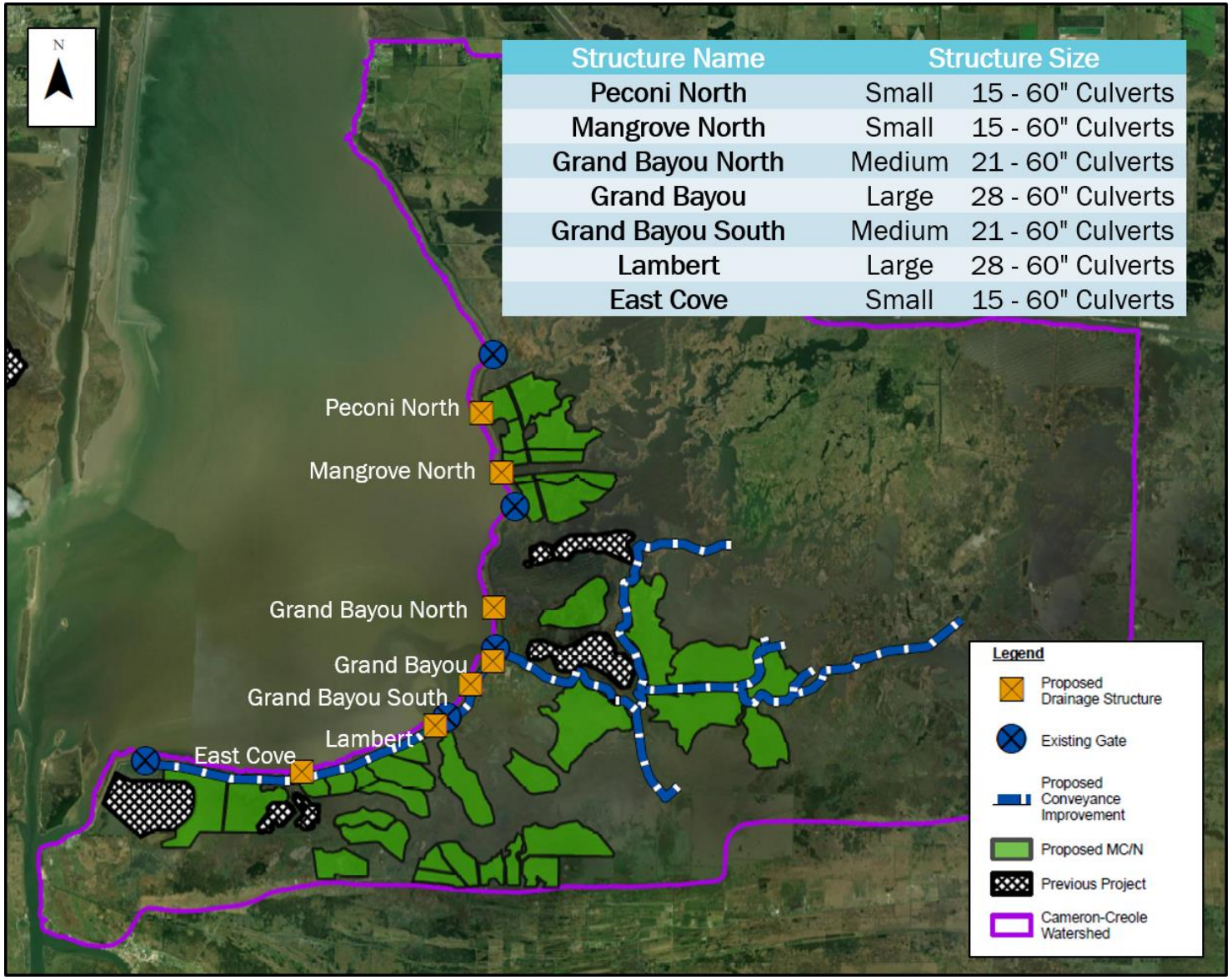
- Seven (7) proposed gravity drainage structures with backflow prevention

Conveyance

- Up to 18 miles of channel improvements
  - Improve drainage from back of the marsh to the Lake Rim

Marsh Creation

- Over 3,000 of 7,000 shown acres to be built through CS-87
  - Using dredged material from channel improvements, CSC, and offshore



Structure Name	Structure Size	
Peconi North	Small	15 - 60" Culverts
Mangrove North	Small	15 - 60" Culverts
Grand Bayou North	Medium	21 - 60" Culverts
Grand Bayou	Large	28 - 60" Culverts
Grand Bayou South	Medium	21 - 60" Culverts
Lambert	Large	28 - 60" Culverts
East Cove	Small	15 - 60" Culverts

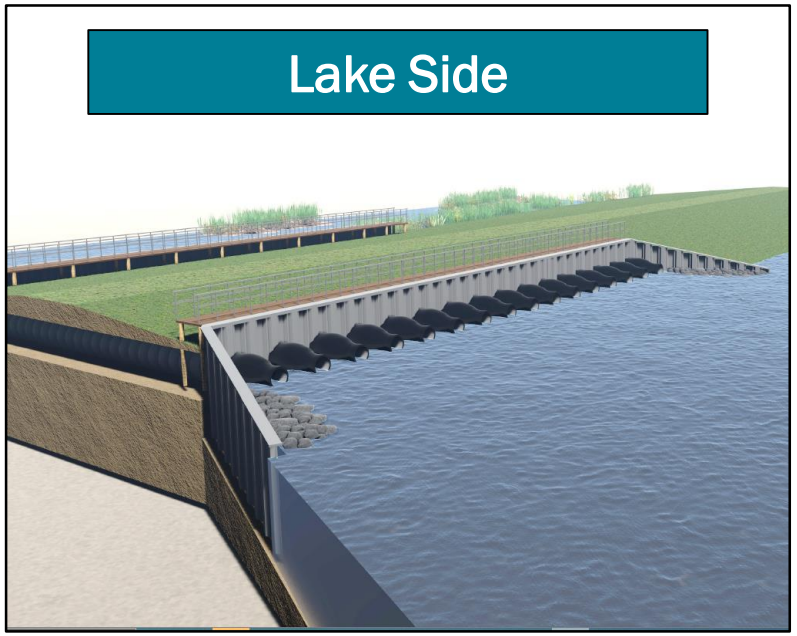
Gravity Drainage Concept

The preferred civil layout of the proposed lake rim gravity drainage structures includes:

- Multi-barrel round culvert structure
- Timber supported if required by geotechnical recommendations
- Trash and debris screens
- Backflow prevention devices attached to the culverts

Cost estimates entering 15% design:

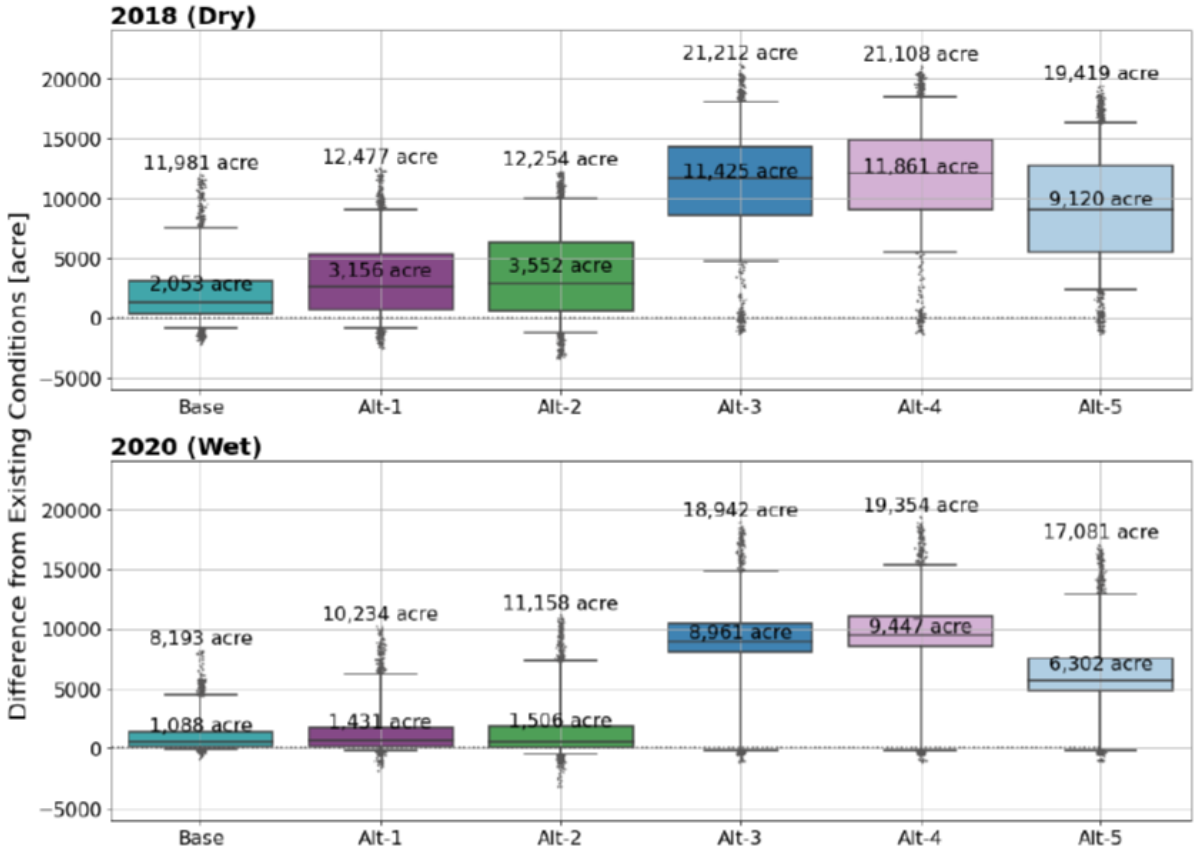
- Construction: $76M
- Operations & Maintenance: <$500K annually



Project Benefits

Water level reductions in the marsh
- Average 1.9 inches
- Peak reduction of 17 inches after a high-water event

Increased total marsh area not under flood stress by 6,300 (2020) – 9,100 (2018) acres 50% of the time



Hourly Area Below Upper Target Water Level Change from Existing Conditions

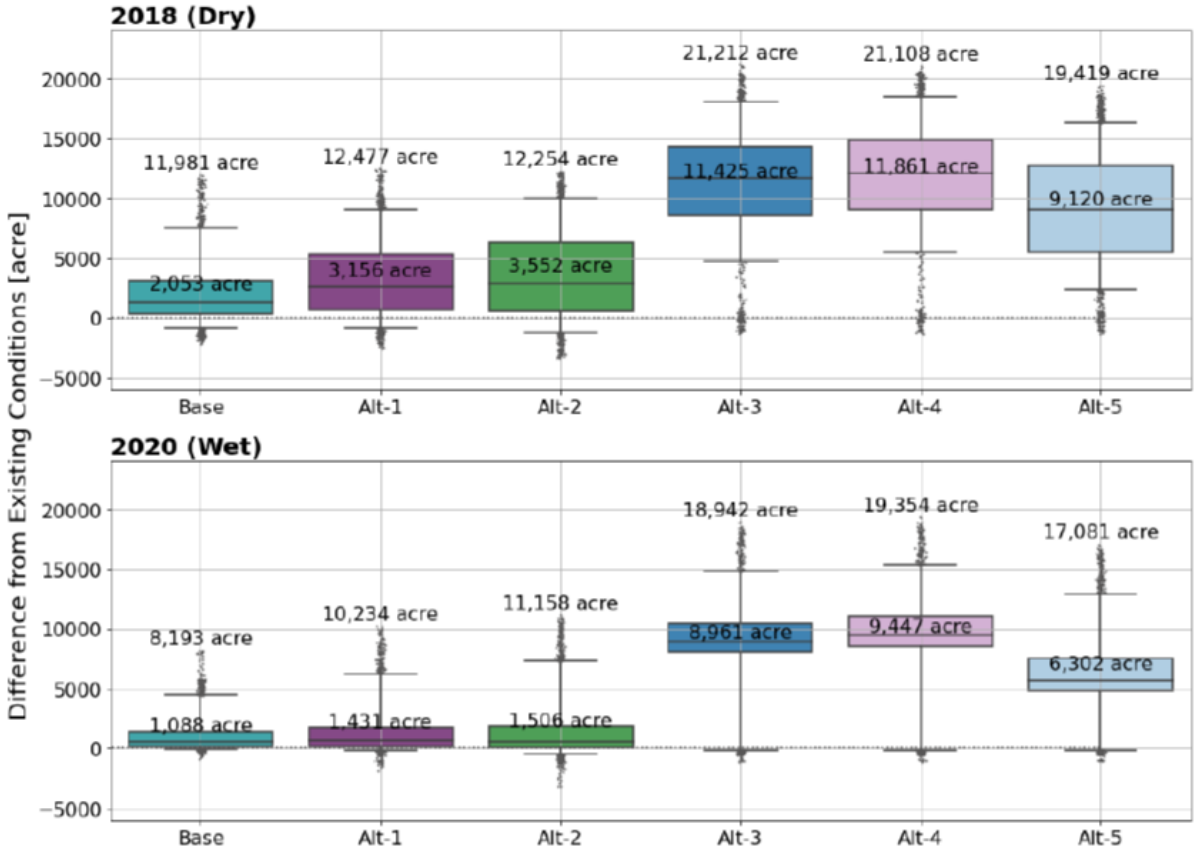
The box represents 25th, median, and 75th percentile values and whiskers represent 5th and 95th percentile limits.

Project Benefits

- **Base:** All drainage capacity concentrated in two locations
  - Averages 1,000 – 2,000 more acres not under flood stress than existing conditions

- **Alt 2:** Refined drainage locations and sizing
  - Averages 400 – 1,500 more acres not under flood stress than the base alternative

- **Alt 5:** Alt 2 + conveyance improvements and 4,000 acres of marsh creation
  - Averages 5,200 – 7,000 more acres not under flood stress than the base alternative



Hourly Area Below Upper Target Water Level Change from Existing Conditions

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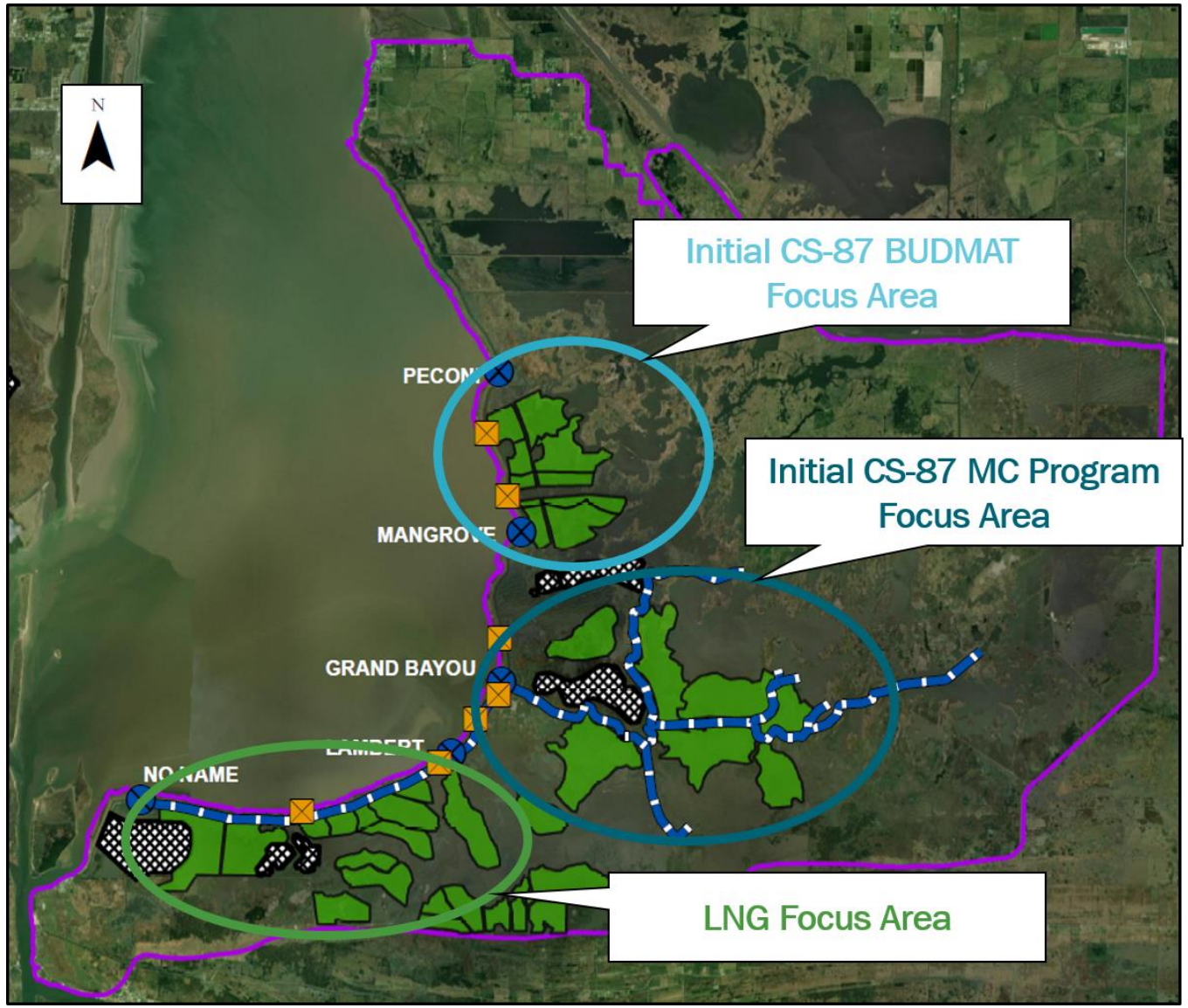
Multi-Program Synergies

Project optimization provides a cohesive Cameron Creole restoration framework other programs can complement

- USACE Beneficial Use of Dredged Material (BUDMAT) Program
  - 600 to 1,200 acres
  - Est. construction in FY26 or FY28
  - Reduces CPRA's cost per acre by ~80-90%

- CWPPRA
  - Enhanced performance of Cameron Creole Freshwater Introduction Project (CS-49)
  - Enables integration of future projects with watershed framework

- LNG dredged material placement
  - Ensure any spoil placed in Cameron Creole allows drainage to CS-87 structures



Milestone Completion Schedule

Milestone	Lake-Rim Drainage	MC/N with Conveyance Channel Borrow	MC/N with Offshore Borrow	MC/N with BUDMAT
Design Optimization	July 2022	July 2022	July 2022	
★ 15% Design	Mid 2023	Late 2023	Early 2024	
JPA Submittal	Mid 2023	Mid - Late 2023	Mid 2024	
30% Design	Late 2023	Early 2024	Mid 2024	
90% Design	Mid 2024	Late 2024	Early 2025	Early 2024
Advertise for Bids	Mid/Late 2024	Early 2025	Mid 2025	Fed FY 26 or FY 28

★ Current Project Phase