

**HDR**

## A little bit about myself...

Angie Katerine Quiroga Torres



# Dickinson Bay Island II: A Restoration Success Story in the Texas Gulf Coast.

By Angie Quiroga Torres – Environmental Scientist

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# Agenda

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**1.0** Introduction

**2.0** Project Background

**3.0** Permit Strategy

**4.0** Post-Construction Habitat Assessment

**5.0** Permit Challenges in Coastal Restoration

**6.0** 2026 NWP 27 Modifications

**7.0** Questions

# 1.0 Introduction

# Colonial Waterbird Rookery Habitat in Decline?

- Erosion
- Human Development/Disturbance
- Subsidence
- Presence of Predators
- Sea Level Rise
- Unpredictable Spills...



# Deepwater Horizon Oil Spill

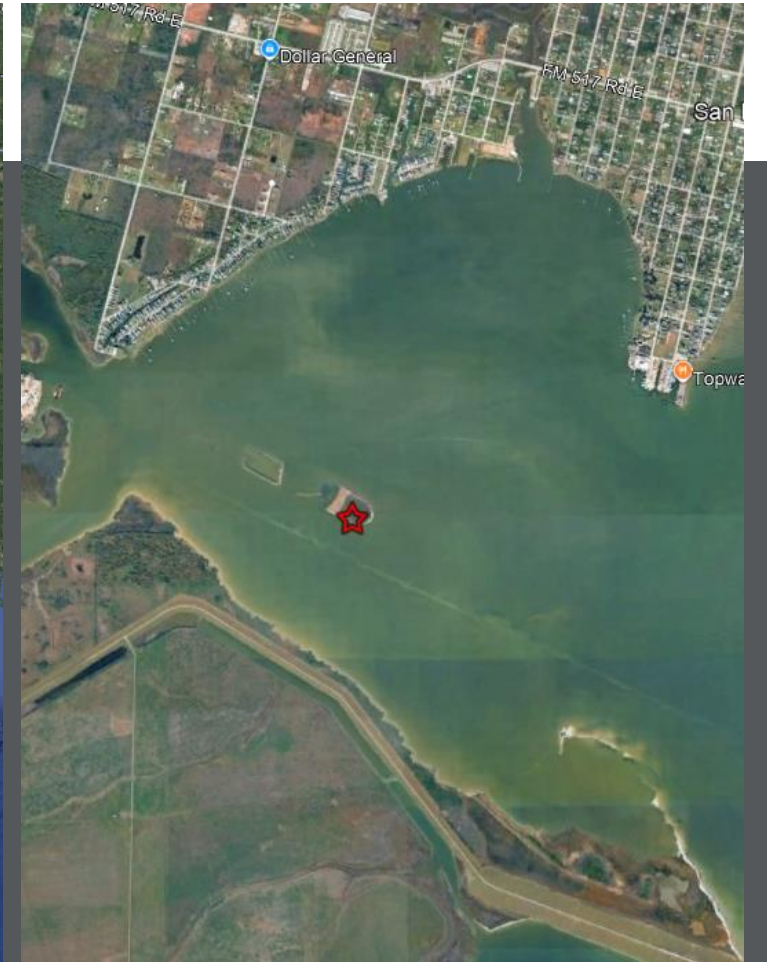
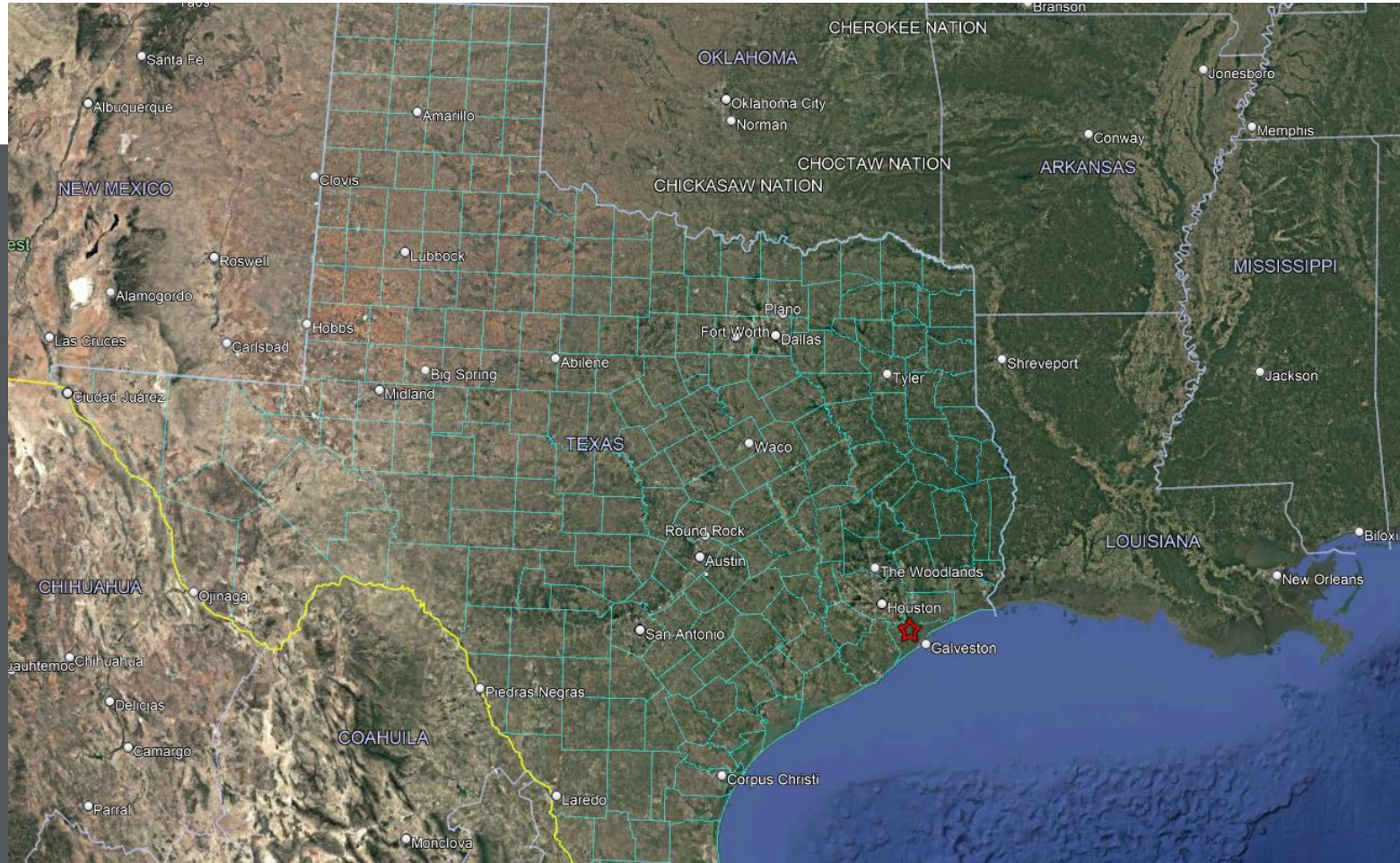
- April 20, 2010
- Largest accidental marine oil spill in U.S. history
- 4.9 million barrels of oil
- 87 days
- 1,300 miles of shoreline
- Environmental Restoration with the establishment of the Deepwater Horizon Natural Resource Damage Assessment (NRDA).



## **2.0 Project Background**

# Dickinson Bay Island II

Galveston County, TX



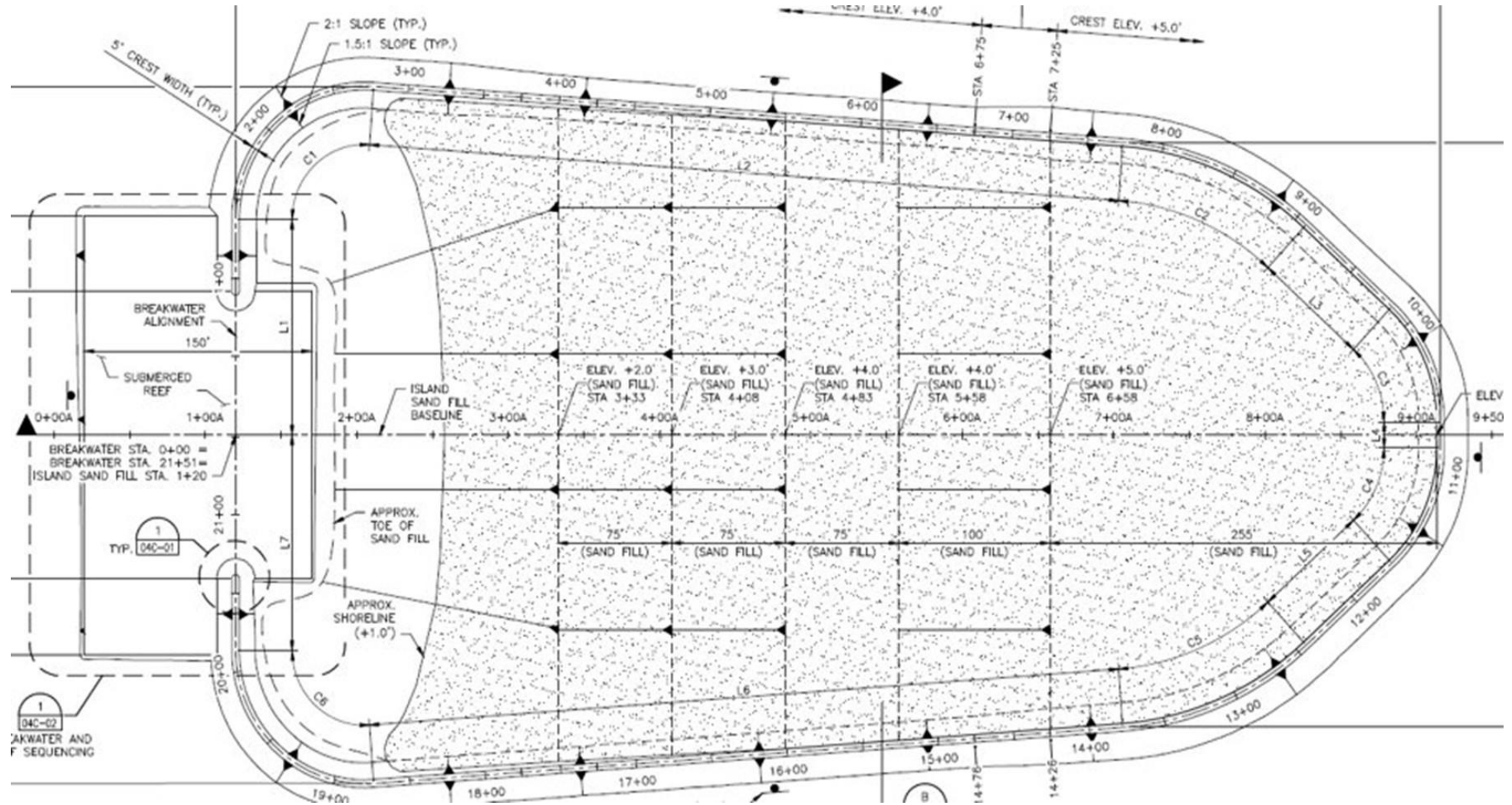
# Dickinson Bay Island Complex 1960s



# Dickinson Bay Island Complex 1990s



# Dickinson Bay Island II Design



# 3.0 Permit Strategy

# Nationwide Permit (NWP) 27

- Nationwide Permit 27 authorizes activities in waters of the U.S. associated with the restoration, enhancement, and establishment of tidal and non-tidal wetlands and the rehabilitation or enhancement of tidal streams, tidal wetlands, and tidal open waters, provided those activities result in net increases in aquatic resources functions and services. The construction of small nesting islands is one of many activities listed as an authorized activity by Nationwide Permit (USACE, 2022).



# Impact Assessment



**Eastern Oysters**



**Endangered Species**



**Wetlands/Seagrass**

# Existing Conditions - Impacts

## Aquatic Resources – Impact Calculation

DBI 2 bird rookery Impact Assessment-Characterization for Oyster Habitat				
Average Density of Oyster Shells in Project Footprint <sup>1</sup> :		1.9 (Shell/SF)		
Average Oyster Shell Area (footprint) <sup>2</sup>				
Height:	5 inches			
Length:	3 inches			
Total Area (footprint):		0.10 SF		
Average Oyster Coverage of Bay Bottom in Priority Area 1 (Density to Area)				
Density	x	Area	=	SF Oyster/SF Bay Bottom
1.9	x	0.10	=	0.2 SF Oyster/SF Bay Bottom
Proposed Rookery Island Footprint:		5.5 acres (within shell/hash area)		
Calculated Impacts to Oyster Habitat				
SF Oyster/SF Bay Bottom	x	Proposed Island Footprint		
0.2	x	5.5	=	1.09 Acres of Impacts to Oyster Habitat

<sup>1</sup> From field oyster dredge survey - considers all shell (live & dead) in quadrat

<sup>2</sup> Based on marketable size - 8 to 13 cm (3 to 5 in), and conservatively considers the area a rectangle rather than the curved shape of the shell

# Construction



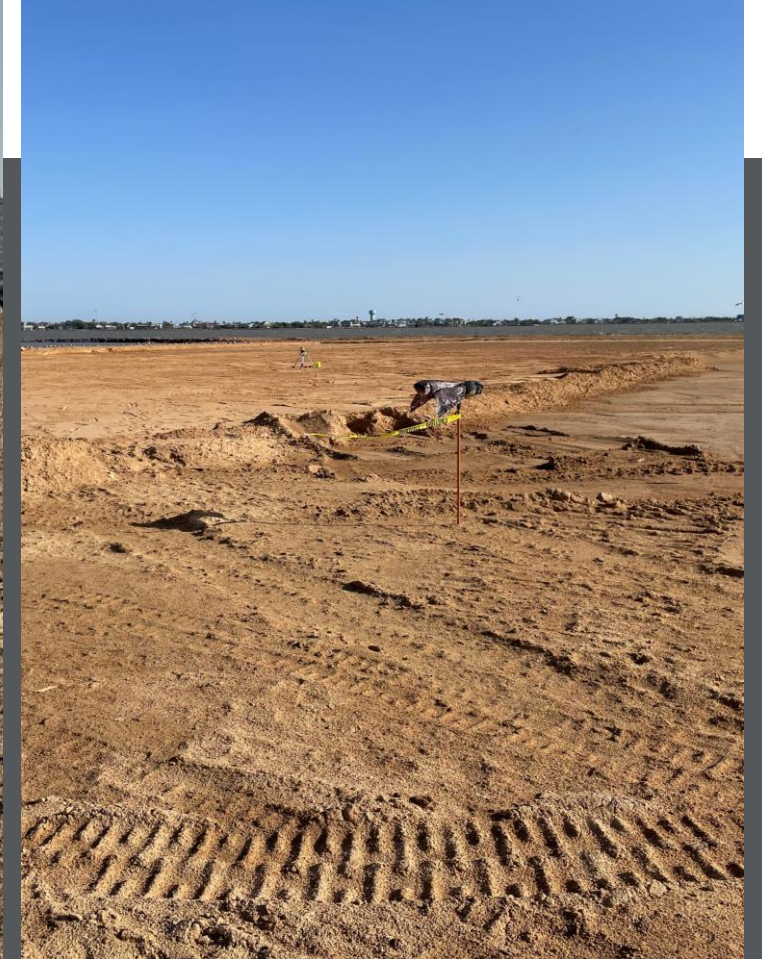
# Construction



# Construction



What else would be useful during construction?



# 4.0 Post-Construction Habitat Assessment

# Post-Construction

- Topsoil to support primary species
- But not all primary species are welcome here...

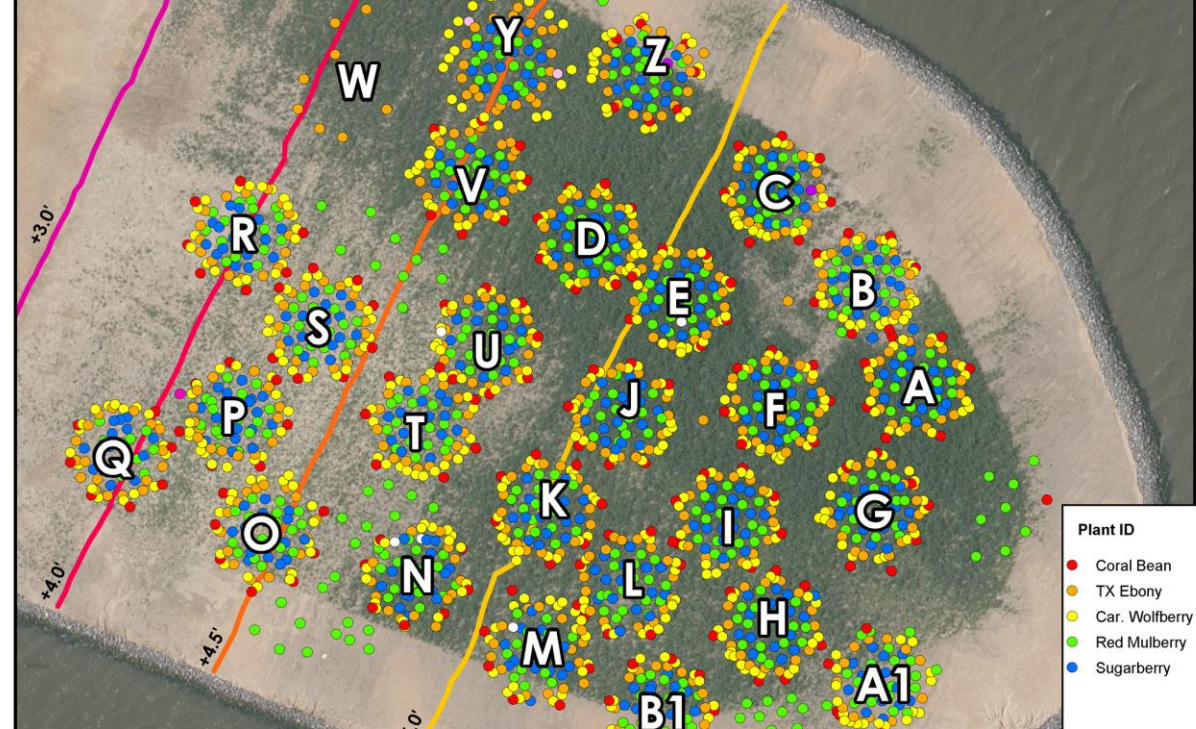
Johnson Grass at about 10 feet in height!



# Post-Construction

Volunteer groups and staff from Galveston Bay Foundation and other agencies planted about 2,022 trees/shrubs.

- Red Mulberry (*Morus rubra*): 508
- Sugar Hackberry (*Celtis laevigata*): 413
- Texas Ebony (*Ebenopsis ebano*): 431
- Carolina Wolfberry (*Lycium carolinianum*): 491
- Coral Bean (*Erythrina herbacea*): 177
- Lime Prickly Ash (*Zanthoxylum fagara*): 2





# Monitoring Requirements

- **Island Infrastructure**
  - Visually inspect at a minimum once annually
- **Colonial Nesting Birds**
  - Bird survey annually in April, May, and June
- **Vegetation Establishment**
  - Transplant survival
    - Monitor transplanted areas at least once annually
    - Percent survival target is 60%
- **Aerial Coverage**
  - Annual Analysis



# May 2023 – Nesting Pairs

- 4,320 Laughing Gull
- 29 Caspian Tern
- 315 Royal Tern
- 20 Sandwich Tern
- 4 Black Skimmer

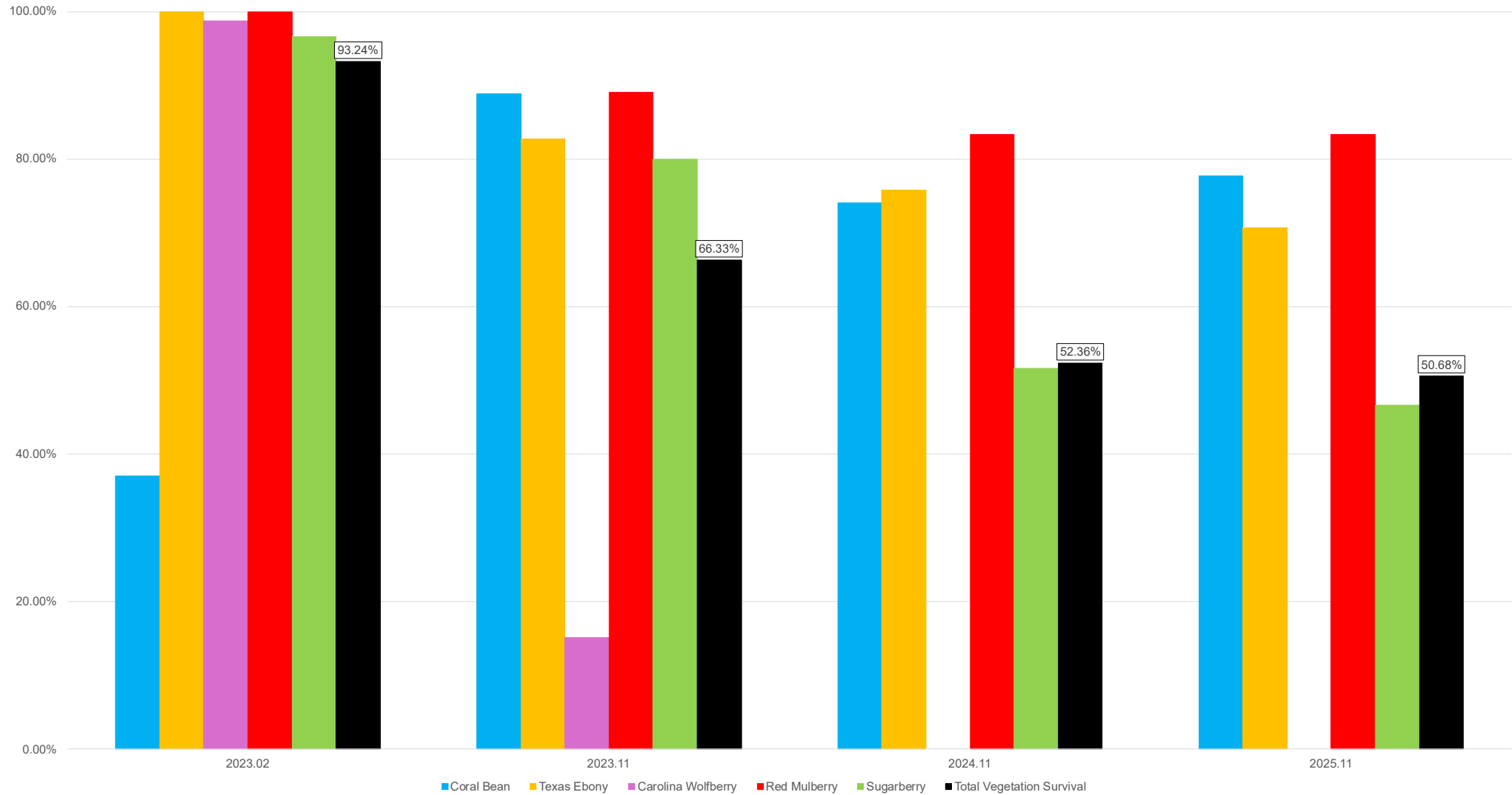


# May 2025 – Nesting Pairs

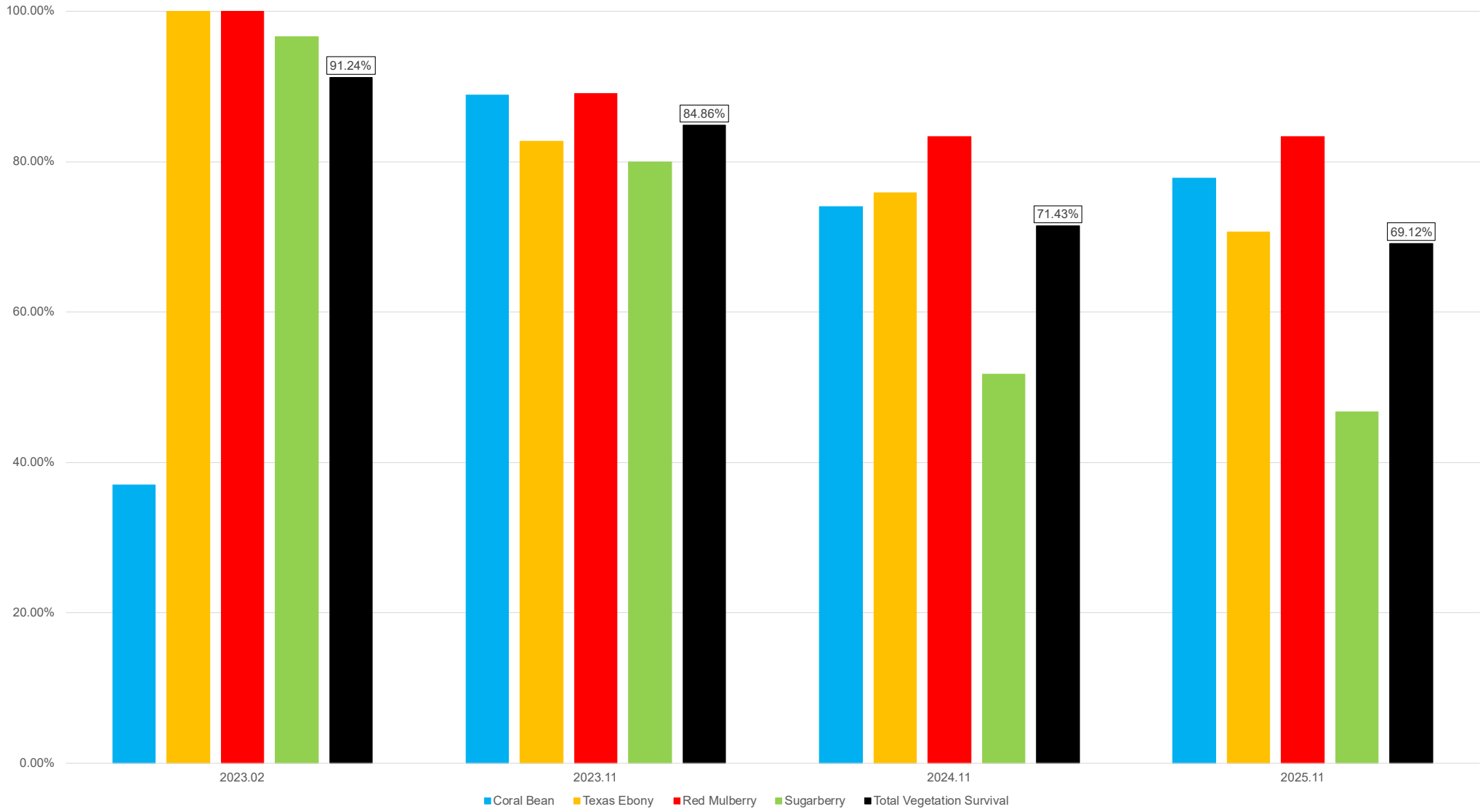
- 1,920 Laughing Gull
- 124 Royal Tern
- 12 Snowy Egret
- 7 Little Blue Heron
- 61 Tricolored Heron
- 101 White Ibis
- 48 Neotropic Cormorant
- 50 Sandwich Tern
- 4 Great Blue Heron
- 26 Great Egret
- 295 Cattle Egret
- 2 Brown Pelican



# Transplant Survival

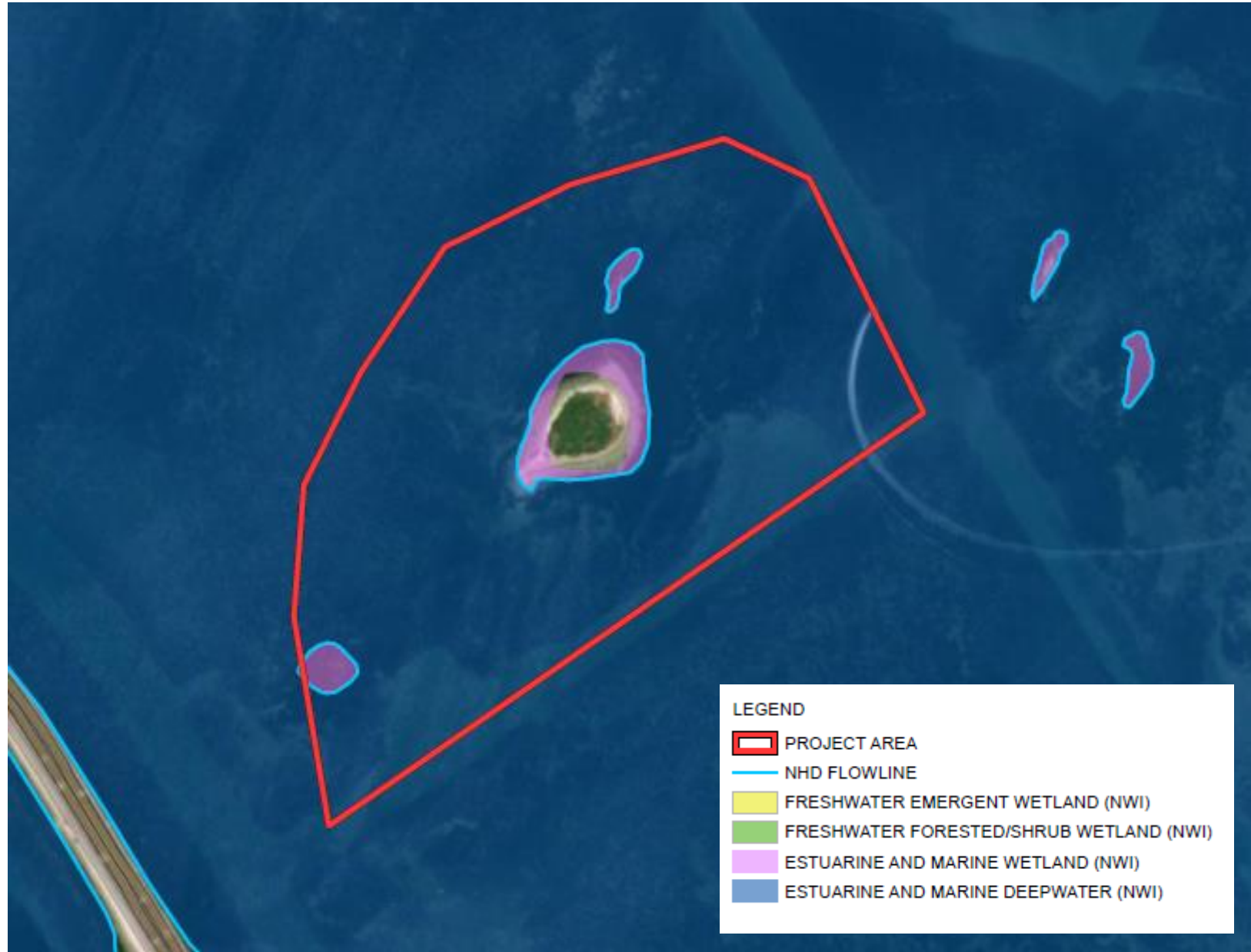


# Transplant Survival – Excluding Carolina Wolfberry



# 5.0 Permit Challenges in Coastal Restoration

# Tern Rookery Island on the Texas Gulf Coast



# 6.0 Nationwide Permit 27 Modifications

## 2022 NWP 27

- Ecological reference site is based on intact habitats of the same region.
- Authorizes the construction of small nesting islands and oyster habitat over unvegetated bottom tidal waters.
- Does not authorize conversion of aquatic habitat types (stream-wetland)

## 2026 NWP 27

- Expands the ecological reference site to cultural ecosystems and regional ecological knowledge.
- Removes “small nesting islands” language and encourages nature-based solutions.
- Authorizes conversion of aquatic habitat types (stream- wetland)



# Special Thanks to the NRDA Trustees and Project Partners!



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# 7.0 Questions?

# References

- HDR. 2026. Portfolio. Dickinson Bay Island II Habitat Restoration. Available Online: <https://www.hdrinc.com/portfolio/dickinson-bay-island-ii-habitat-restoration>.
- USACE. 2022. Nationwide Permits. Virtual Portal. Available Online: [https://www.swt.usace.army.mil/Portals/41/docs/missions/regulatory/2021%20NWP/NWP-27.pdf?ver=2Lce-C9I\\_3zKSuZfvvgv-lw%3D%3D](https://www.swt.usace.army.mil/Portals/41/docs/missions/regulatory/2021%20NWP/NWP-27.pdf?ver=2Lce-C9I_3zKSuZfvvgv-lw%3D%3D).
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