

An aerial photograph of a park area with a river, trees, and a residential neighborhood in the background. The river is on the left, and the park area is in the center. The residential neighborhood is on the right.

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Research Ecologist  
USACE-ERDC  
Wetland and Coastal Ecology



**Research Interest:**

Ecosystems Ecology, EWN using native plant communities, Ecosystems establishment

**Expertise:**

Plant community interaction, Ecological processes

**Project-Related Work:**

Chocolate Bayou DMPA plant establishment

Image: Seneca Bluffs Nature Park — Buffalo River, New York



# Introduction

- Dredged Material Placement Areas potentials are undermined
- Providing resilient and cost effective solutions



<https://geoplatform.usace.army.mil/home/webmap/viewer.html?services=76e5d6741aba4dd8903844f5010d4c6d>

# Introduction Contd.

## Marsh Creation-Ecosystem Restoration-Detroit District

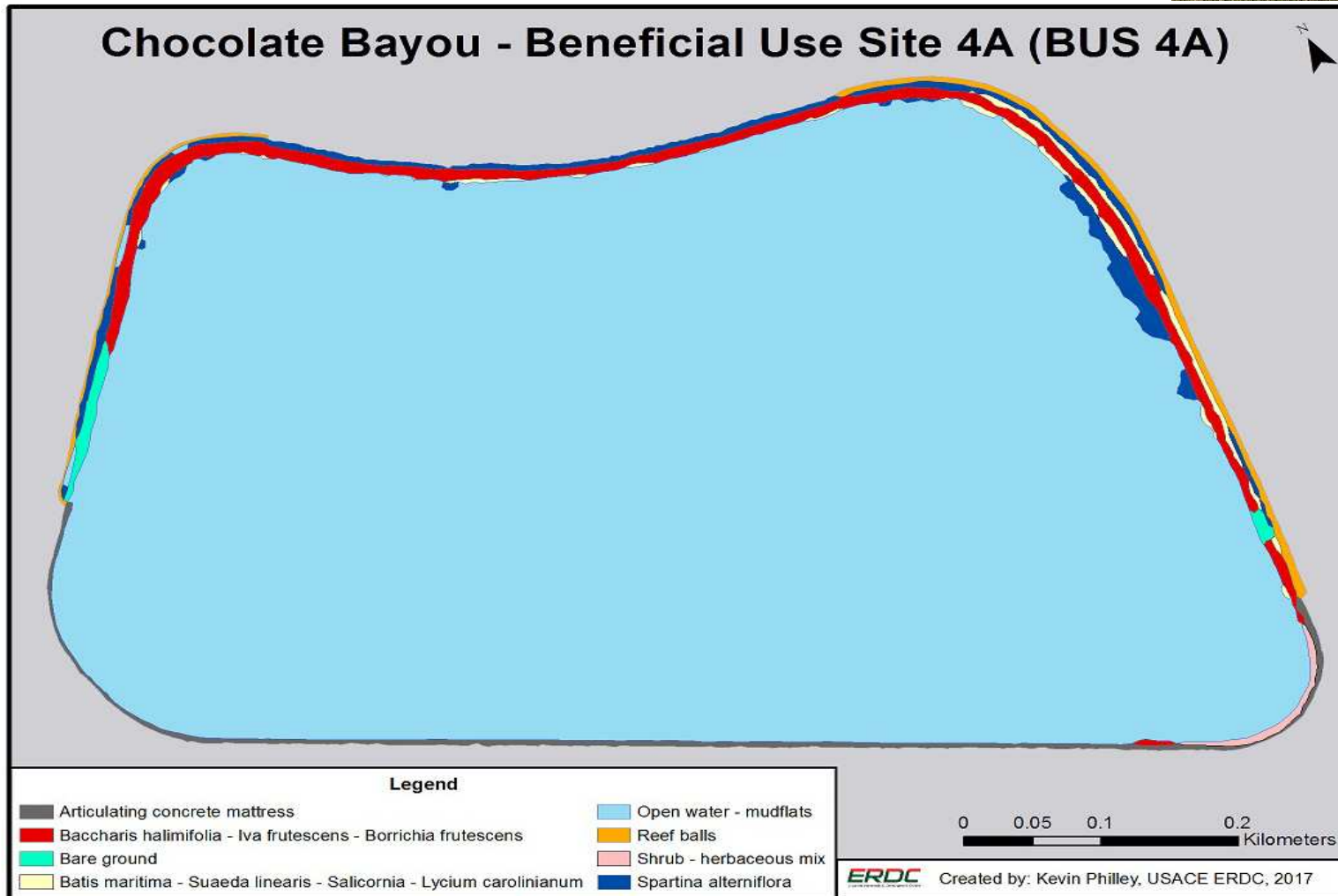
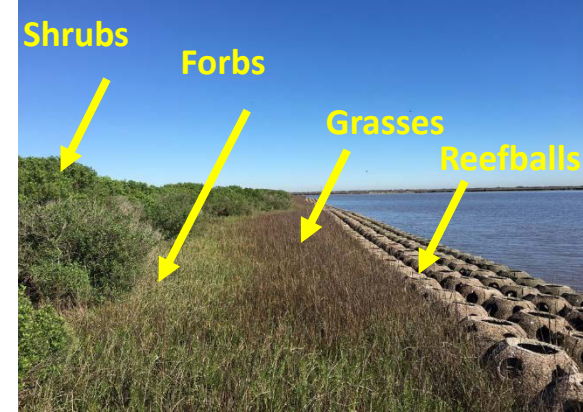
- Wet-mesic coastal savanna
- Limestone cobble shore
- Sedge meadow pocket wetlands
- Large wood debris fish habitat
- Clinton River Mouth Restoration
- Desirable Vegetation
- Sediment Characterization
- Sediment Consolidation
- Water Level Fluctuations





# Concepts

- BUS 4A-Chocolate Bay-Galveston District





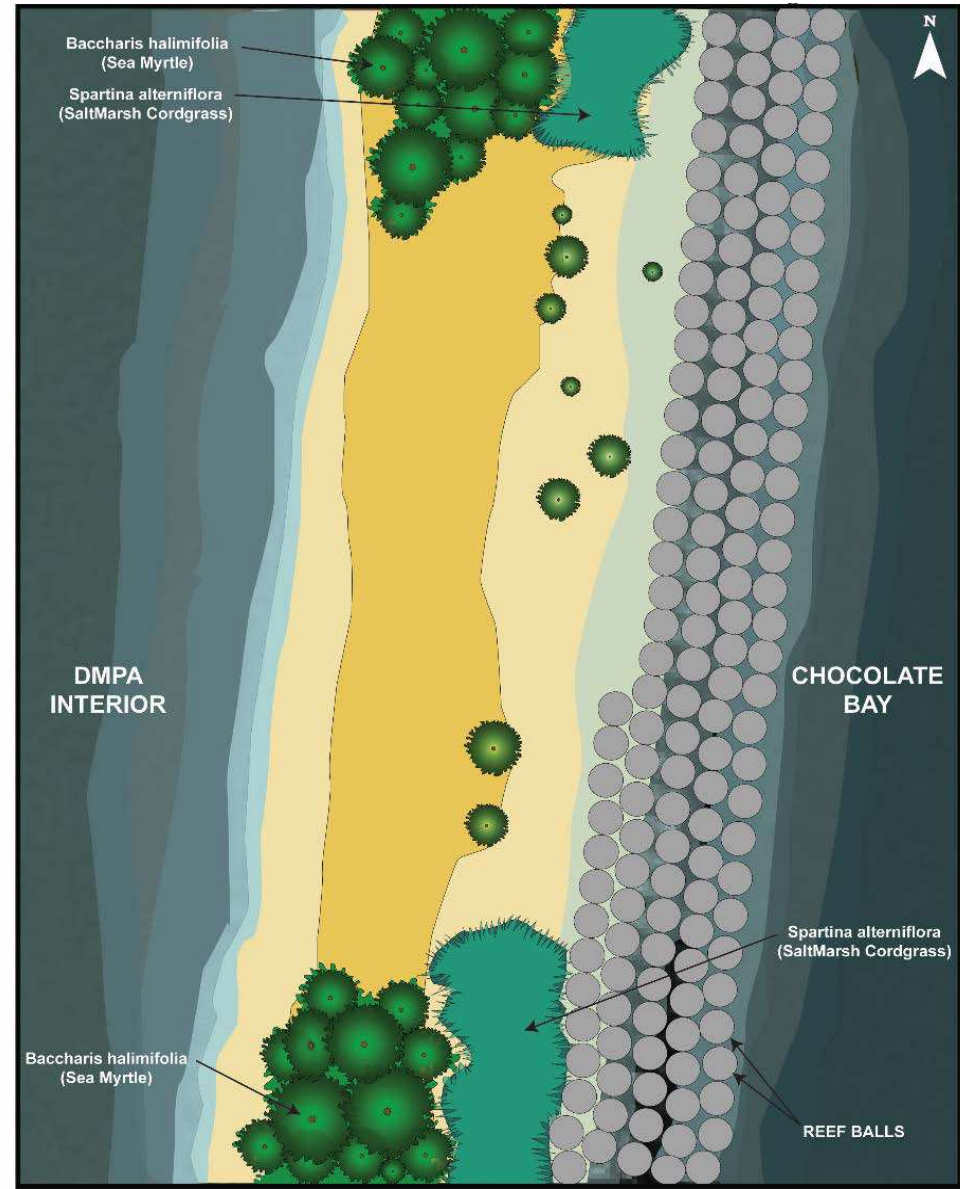
# Method

- Technology Transfer
- Workshop
- Engagement and Participation
- Use of NNBF
- Zoning Scheme





# Method



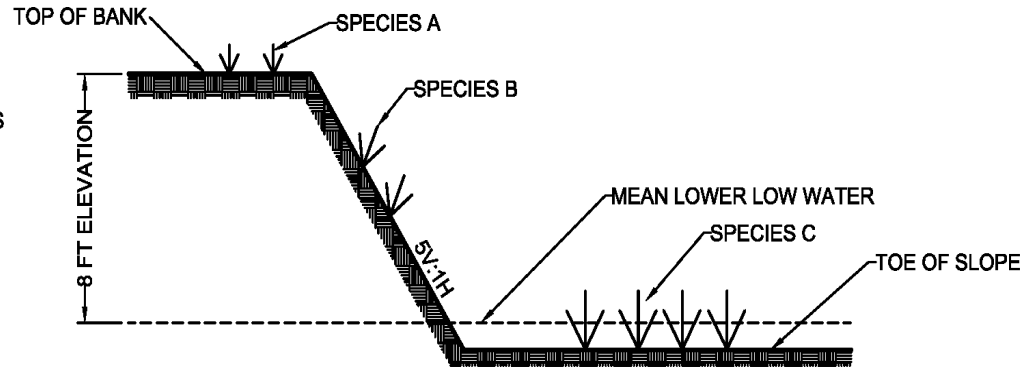
# Method

## BENEFICIAL USE SITE 4A CROSS SECTION PROFILE

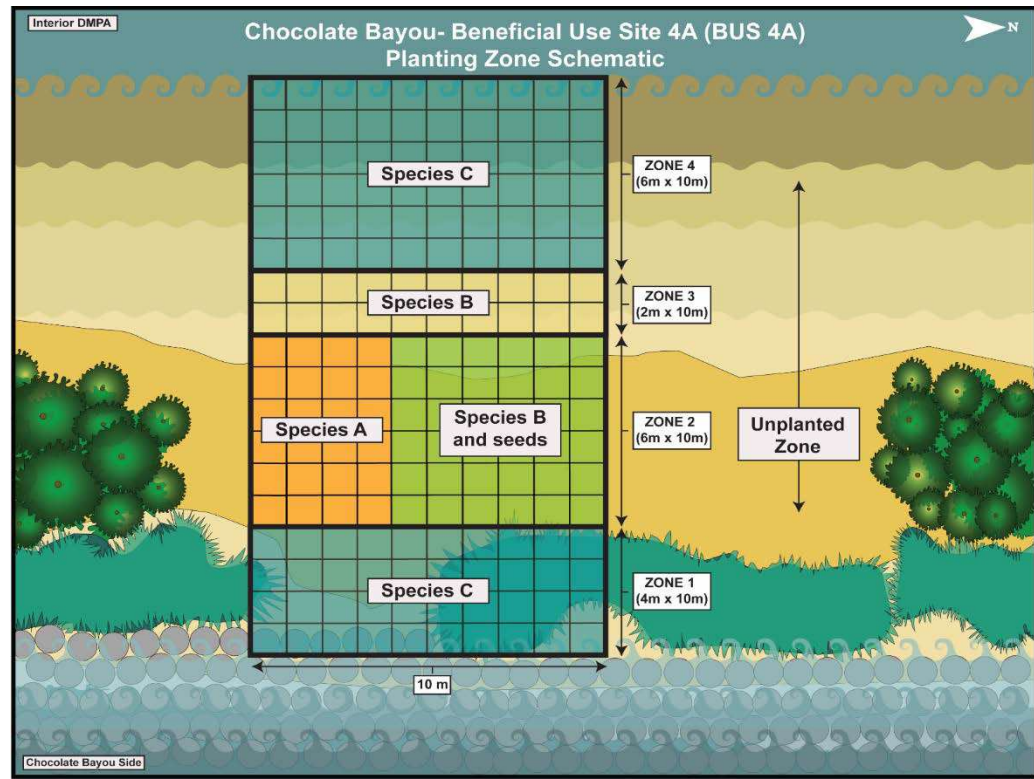
SPECIES A  
FORESTICA ACUMINATE  
ERYTHRINA HERBACEA  
MORELLA CERIFERA  
ILEX VOMITORIA

SPECIES B  
SPARTINA PATHENS  
SCHOENOPLECTUS MARITIMUS  
DISTICHILIS PISCATA  
LYCIUM CAROLINIANUM

SPECIES C  
SPARTINA ALTERNIFLORA  
PASPALUM VIRGINIATUM  
SPOROBOLUS VIRGINIANUS  
IVA FRUTESCENS  
BORICHIA FRUTESCENS



NOT TO SCALE





# Team

Tosin Sekoni - Research Ecologist - Principal Investigator

Susan Bailey - Research Engineer - Dredging Focus

Kevin Philley - Research Botanist

Brian Durham - Research Biologist - Biotechnical Planting SME

Matt Balazik - Research Ecologist – Coconut Fiber SME

Jason Pietroski - Research Ecologist

Scott Alford – Soil Scientist- USDA Plant material SME



USDA-NRCS Ecocenter plant nursery



# Funding Source

- Engineering with Nature (EWN)



- Dredging Operations Technical Support (DOTS)



- Water operations Technical Support (WOTS)



# Implementation

- Series of Coordination
- Transparency and buy-in
- Site visits/Site selection
- Pre-workshop activities
- Onsite and offsite harvest site
- Workshop





# Outcomes/Impacts

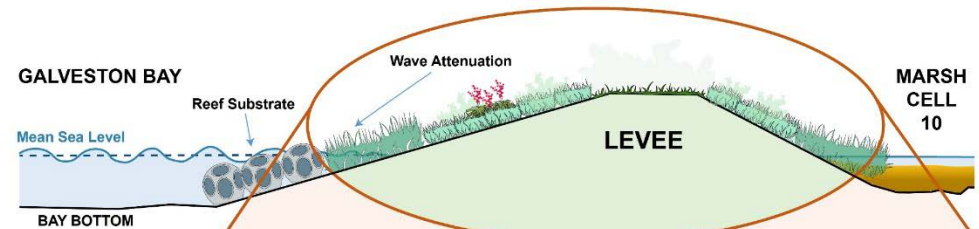
- PA 14 Marsh Cell 10 Planting in Mar. 2018



Proposed Planting Site Aerial Photo



## Cross Section Profile with Proposed Plant Materials



*Spartina alterniflora*  
(Smooth Cordgrass)



*Paspalum vaginatum*  
(SeaShore Paspalum)



*Erythrina herbacea*  
(Coral Bean)



*Cynodon dactylon*  
(Bermuda Grass)



*Spartina patens*  
(SaltMeadow Cordgrass)



*Distichlis spicata*  
(SaltGrass)

Emergent Plants

Upland Plants

Slope Plants