

Tosin Sekoni, Ph.D.
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

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.

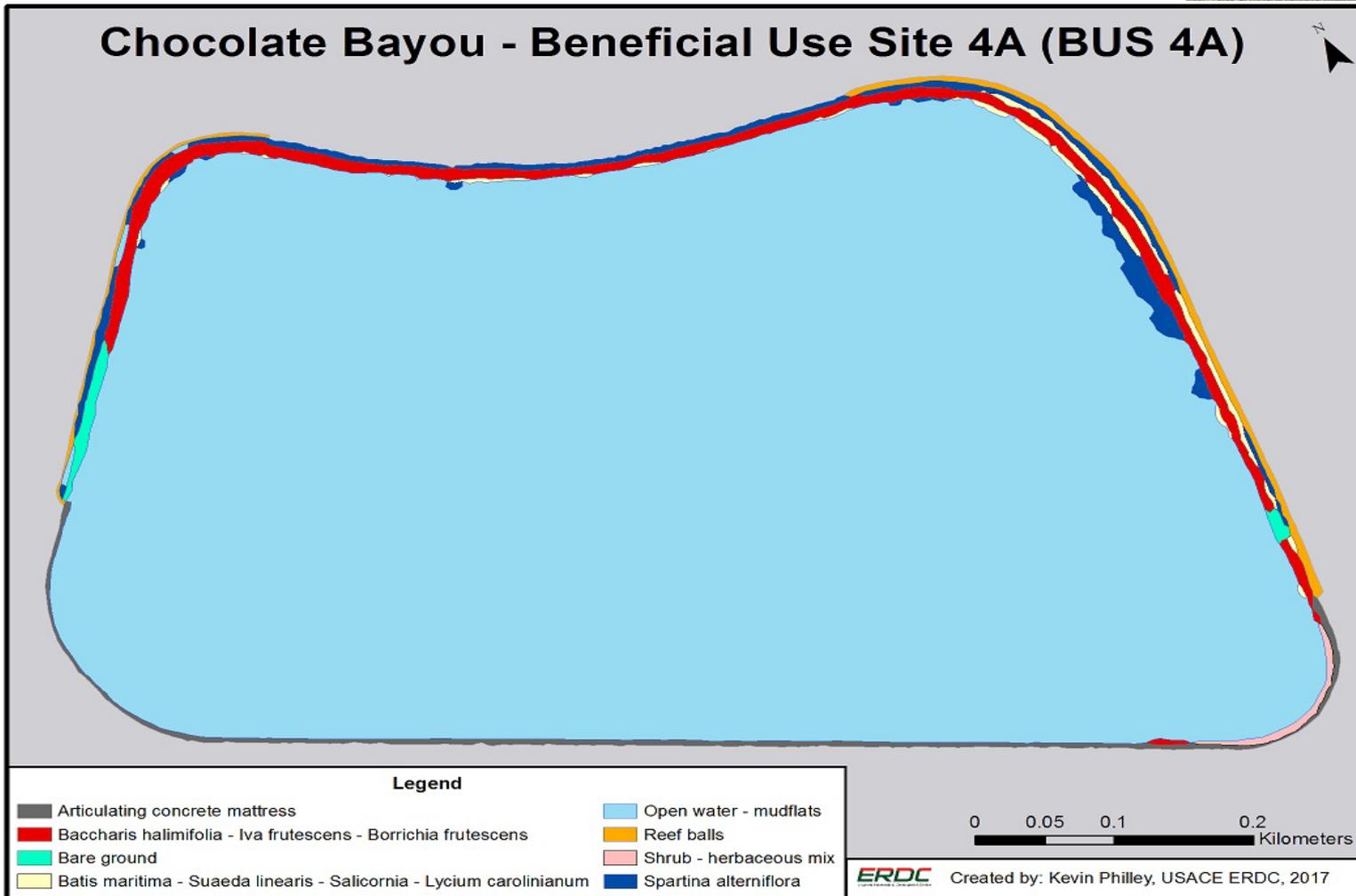
Marsh Creation-Ecosystem Restoration-Detroit District

- 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

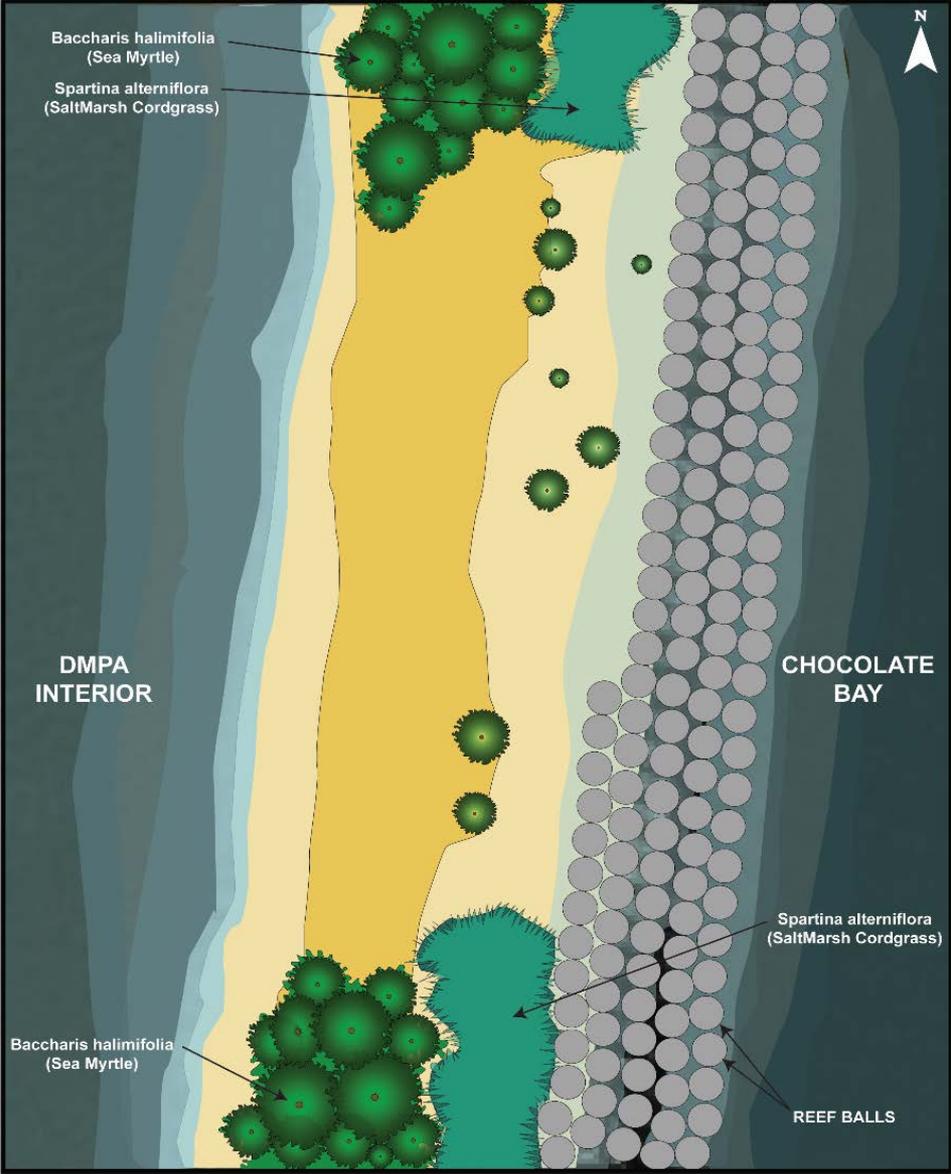
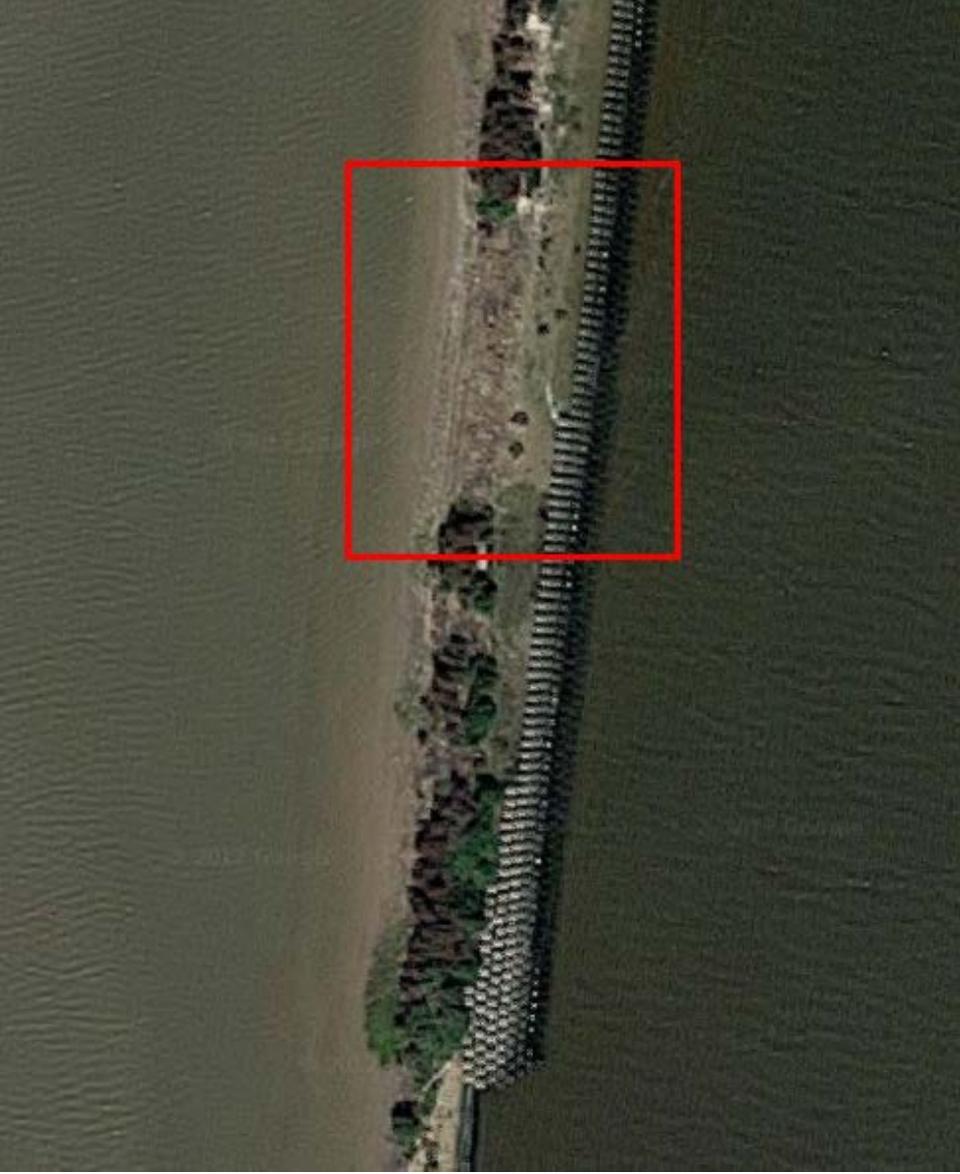


Method

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



Method



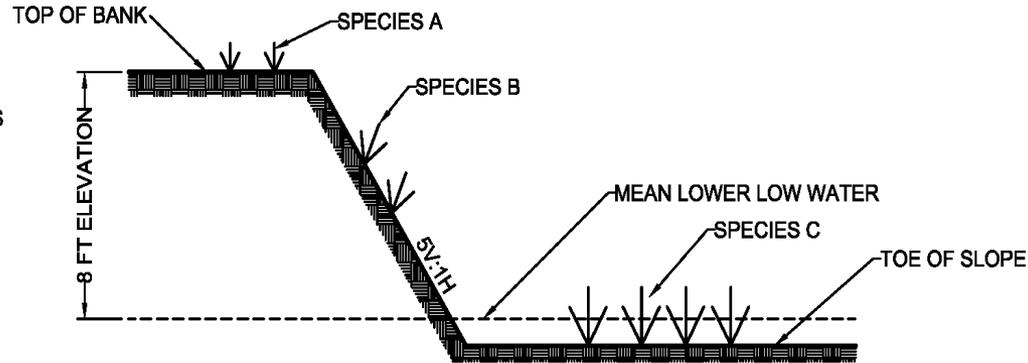
Method

BENEFICIAL USE SITE 4A CROSS SECTION PROFILE

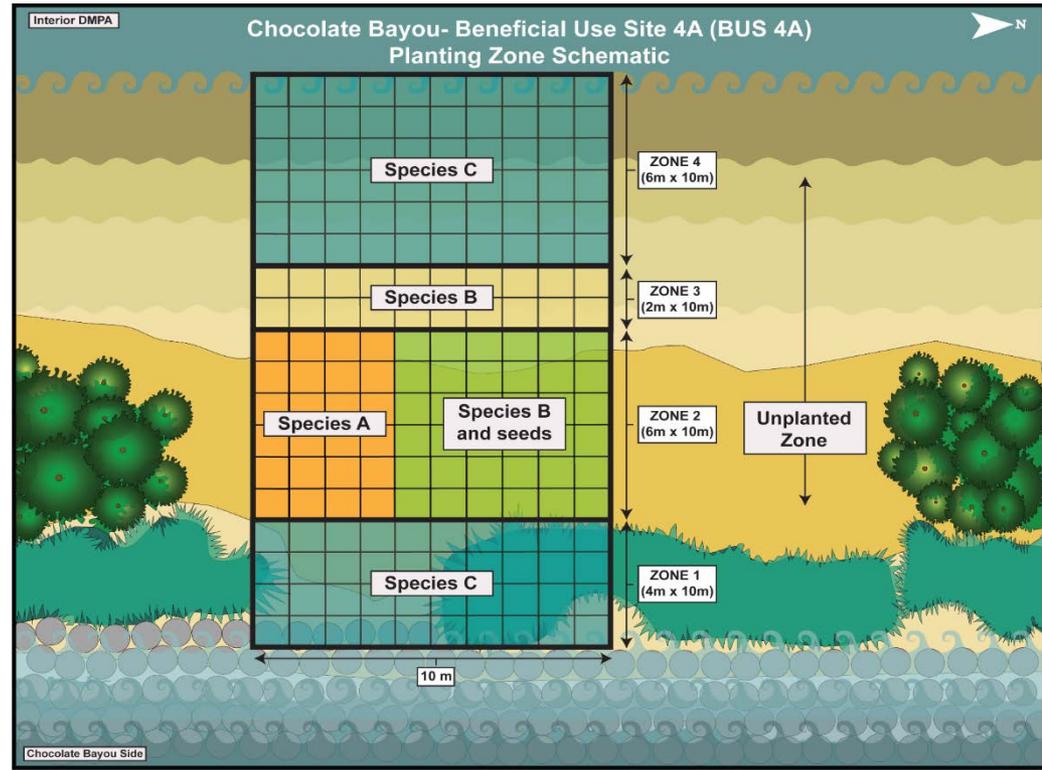
SPECIES A
 FORESTICA ACUMINATE
 ERYTHRINA HERBACEA
 MORELLA CERIFERA
 ILEX VOMITORIA

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

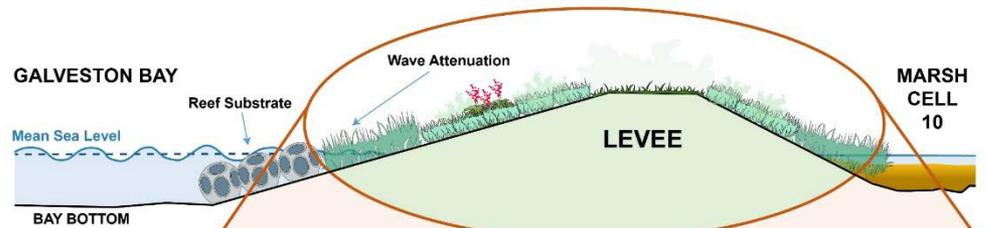
- PA 14 Marsh Cell 10 Planting in Mar. 2018



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