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## South Florida Water Management District

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### **BIG CYPRESS BASIN BOARD MEETING AGENDA**

October 27, 2023  
11:00 AM

Collier County Government Center  
Commission Chambers, 3rd Floor  
3299 Tamiami Trail East, Naples, FL 34112  
FINAL

1. Call to Order - Charlette Roman, Chair, Big Cypress Basin Board
2. Pledge of Allegiance
3. Special Recognition Wilson Touchet, Retired Heavy Equipment Operator - Lead
4. Agenda Revisions - Lisa Koehler
5. Agenda Item Abstentions by Board Members
6. Consider Approval of the Minutes of the August 25, 2023 Meeting
7. Basin Administrator's Report - Lisa Koehler
8. General Public Comment
9. Corkscrew Swamp Sanctuary Ecosystem Restoration Project Update - Shawn Clem, Research Director, Corkscrew Swamp Sanctuary (Staff contact, Sean Murphy)
10. Final Report for the Canal Bank Study with Naples Botanical Garden - Chad Washburn, Vice President of Conservation, Naples Botanical Garden (Staff contact, Sean Murphy)
11. Picayune Strand Restoration Project Update by the U.S. Army Corps of Engineers -

Stephen Baisden, Project Manager, Ecosystem Project Section, USACE (Staff contact, Jennifer Leeds)

12. Update on Regional Model Development and Comprehensive Hydrologic & Restoration Corkscrew Watershed Initiative Study - Akin Owosina, Bureau Chief, Hydrology & Hydraulics, SFWMD, and Kim Fikoski, Lead Project Manager, SFWMD
13. Board Comment

#### Technical Reports

14. Field Station Activity Report - Andrew Wolf
15. Water Conditions Report - Brad Jackson

#### Staff Reports

16. Monthly Financial Report - Candida Heater
17. General Public Comment
18. Board Comment
19. Adjourn

Final Presentations for Agenda Items: 9, 10, 11, 12, 14, 15 and 16

#### **Agenda Item Background:**

- [09a Corkscrew Sanctuary](#)
- [09b Corkscrew Sanctuary](#)
- [10a Canal Bank Study](#)
- [10b Canal Bank Study](#)
- [11 PSRP USACE](#)
- [12 Regional Model](#)
- [14 Field Station Report](#)
- [15 Water Conditions Report](#)
- [16 Monthly Financial Report](#)

# Corkscrew Swamp Sanctuary Ecosystem Restoration Project Update

## Big Cypress Basin

October 27, 2023



Sean Murphy  
Staff Engineer  
Big Cypress Basin Service Center



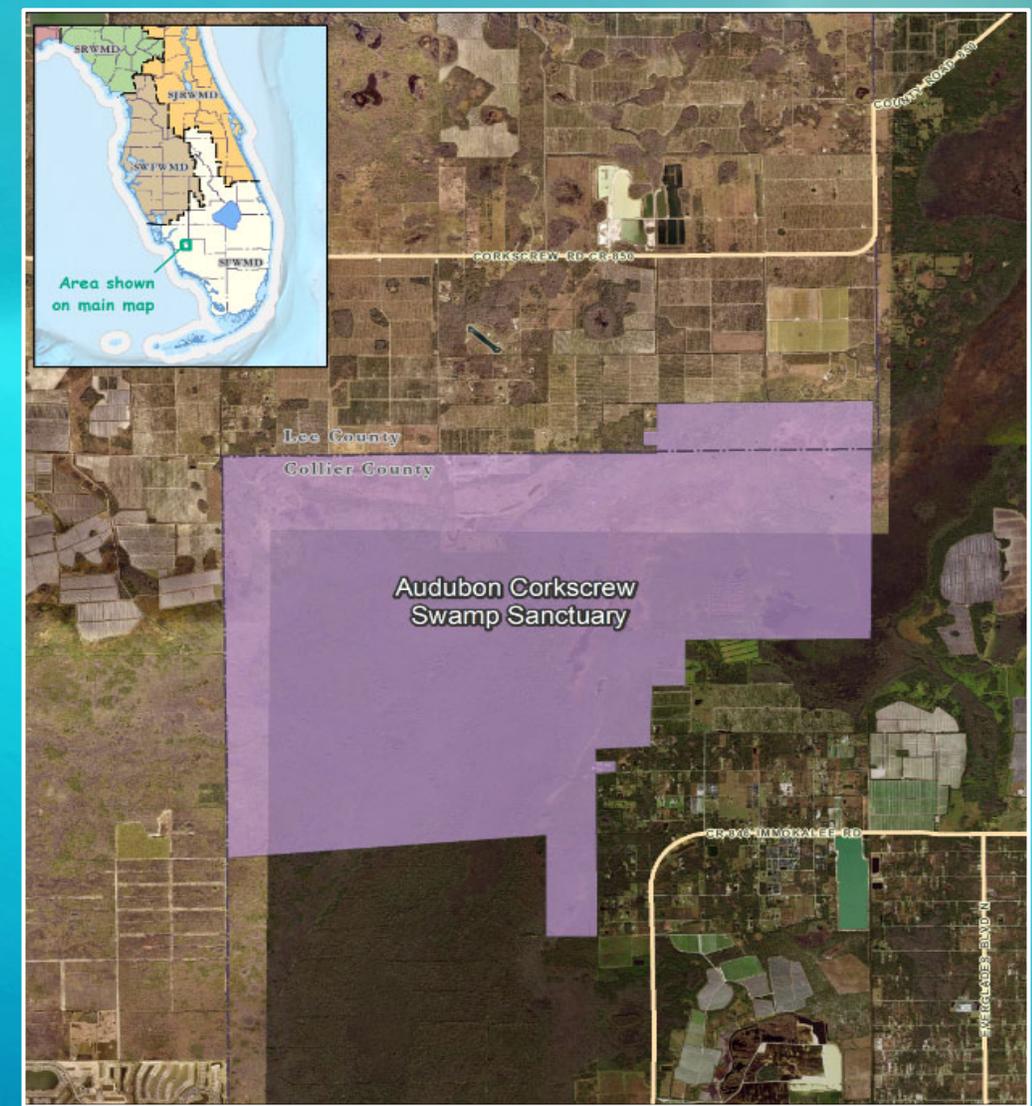


# Ecosystem Restoration



## Regional Partnership Project

- Since 2021 the Basin has provided funding
- Meets objectives for BCB Strategic Plan for water quality and natural systems restoration project
- FY22 - Provided funding for \$174,480
- Funding for 200 acres of willow and other woody vegetation removal





# Ecosystem Restoration

## ➤ Benefits

- Restore marsh and prairie areas
- Improve habitat for native wildlife
- Re-establish native plants



Pre-Harvest



Post-Harvest



6 Months Post-Harvest



# Questions?

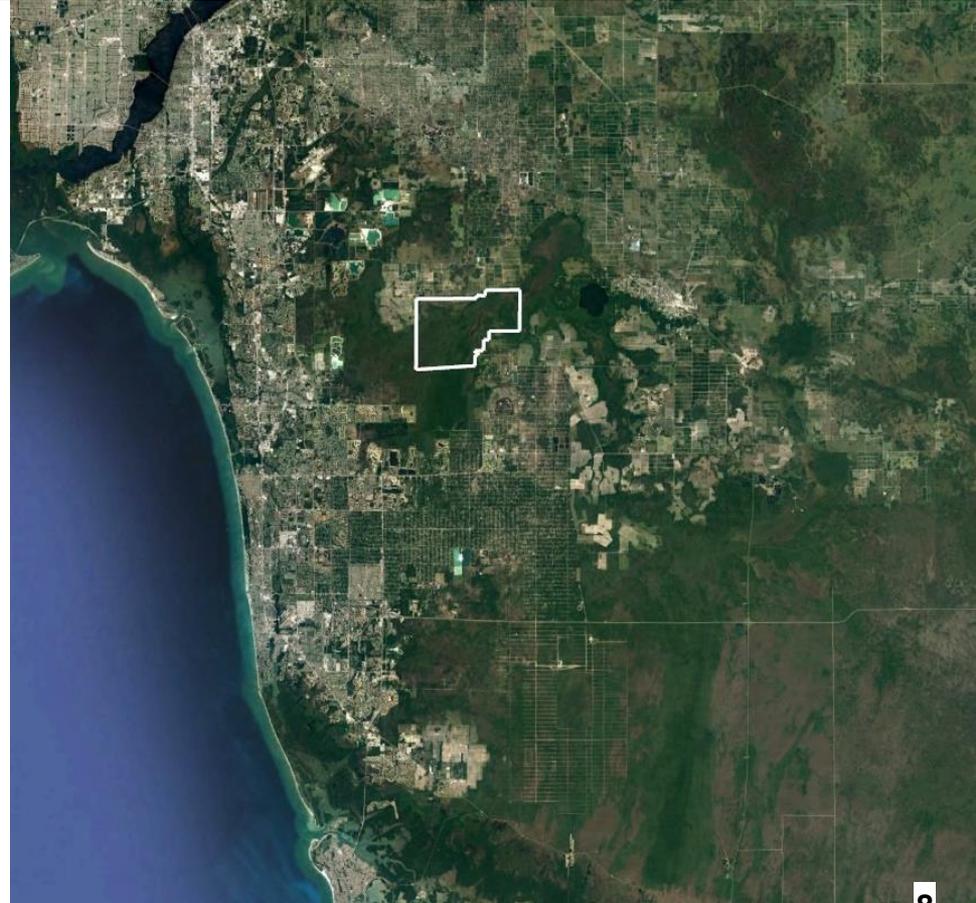
# Corkscrew Swamp Sanctuary Ecosystem Restoration

**Shawn Clem, Ph.D.**  
**Director of Conservation**  
**Audubon's Corkscrew Swamp Sanctuary**  
**Big Cypress Basin Board Meeting**  
**October 27, 2023**



# Audubon's Corkscrew Swamp Sanctuary

- Over 13,000 acres
- Central to Corkscrew Regional Ecosystem Watershed (CREW)
- Recognized internationally for ecologic importance
- Nearly 70 years in conservation



# Native Shrubs & Trees Expanding in Wetlands



Carolina Willow

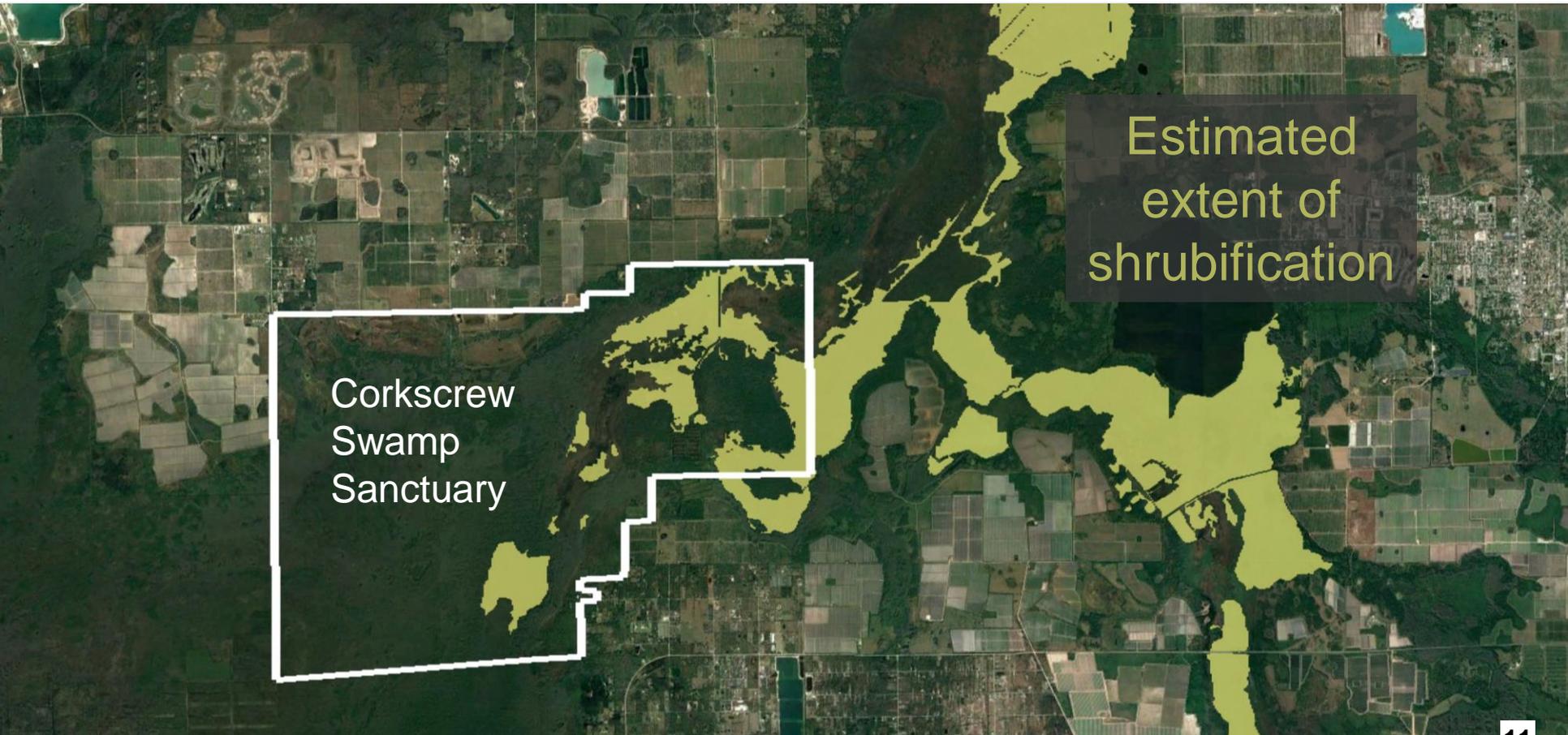


Buttonbush



Red Maple

- 
- Unable to support fire
  - Reduced wildlife habitat
  - Increased water loss
  - Inaccessible for exotics control



# Developed 3-Step Restoration Strategy

Mulching  
Shrubs



Spot Treat  
(3-5 years)



Reintroduce  
Fire



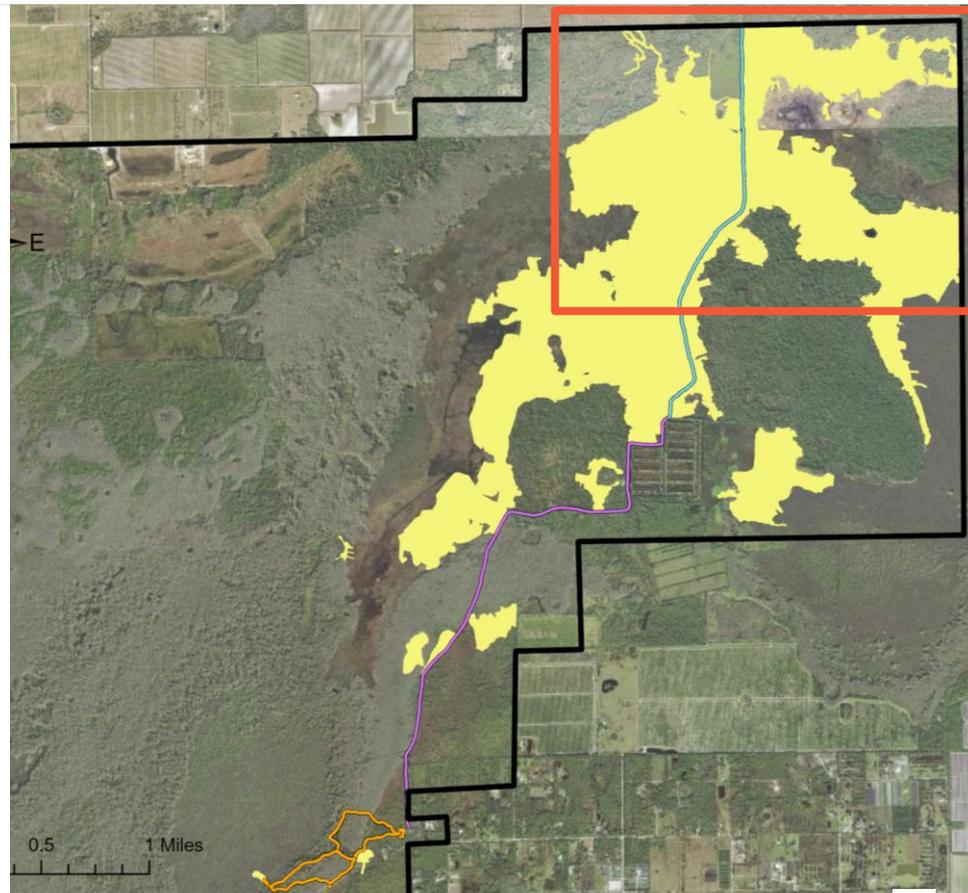


## Strategy that has led to our success includes

- Establishing larger units
- Building on previously mulched units
- Flexibility in site selection
- Mulching just before rainy season marsh refilling
- Focusing on herbicide spot treatment after mulching

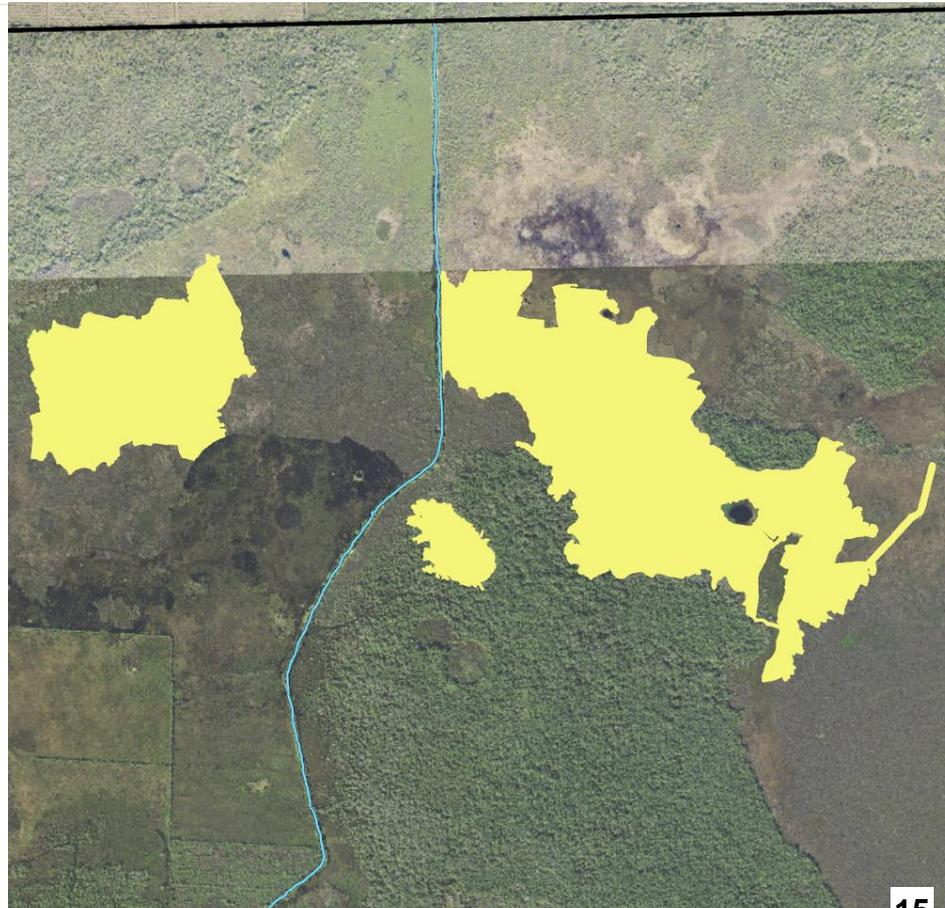
Since 2013, we have mulched **1,377 acres**

Includes support from the Big Cypress Basin in 2021, 2022, and 2023



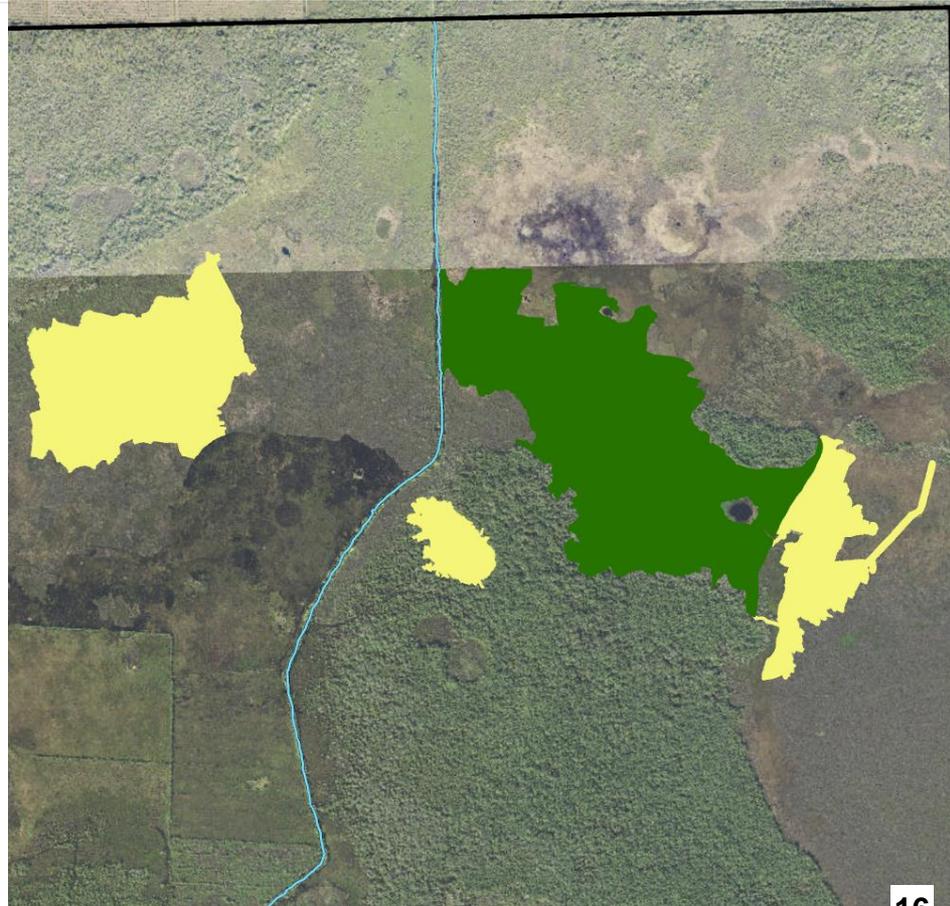
## Summary of 2022 Restoration Work

- 252 acres mulched



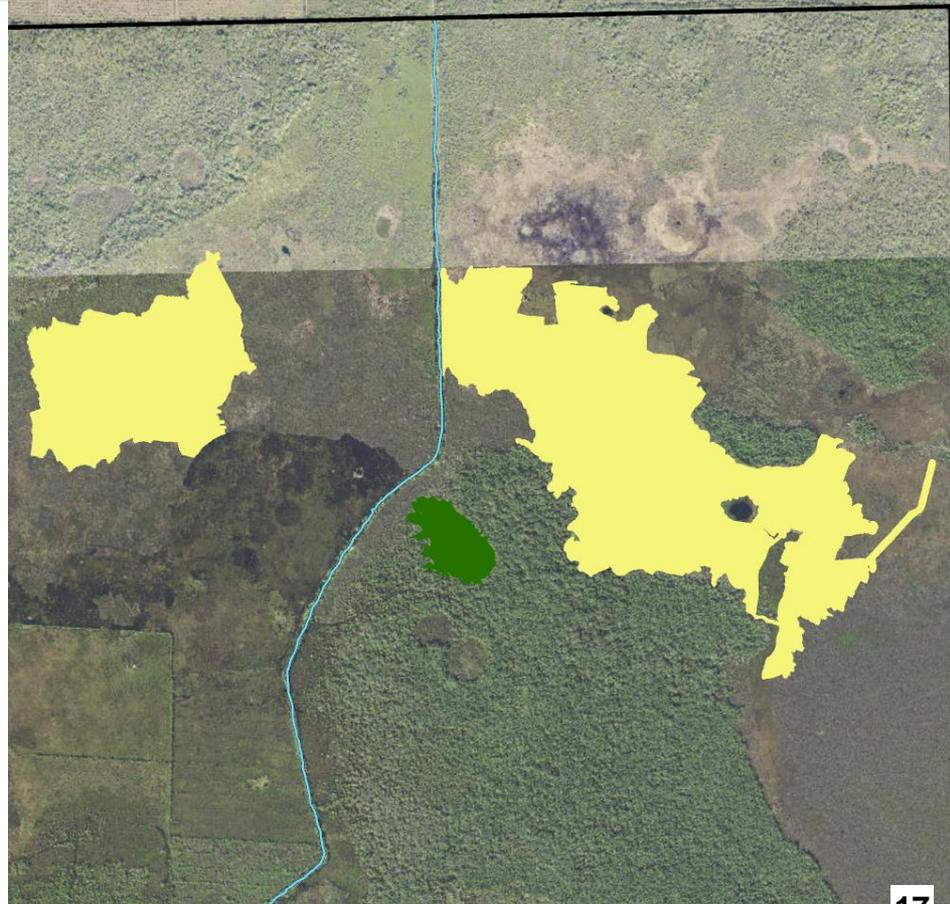
## Summary of 2022 Restoration Work

- 252 acres mulched
  - 2022-D (140 acres)



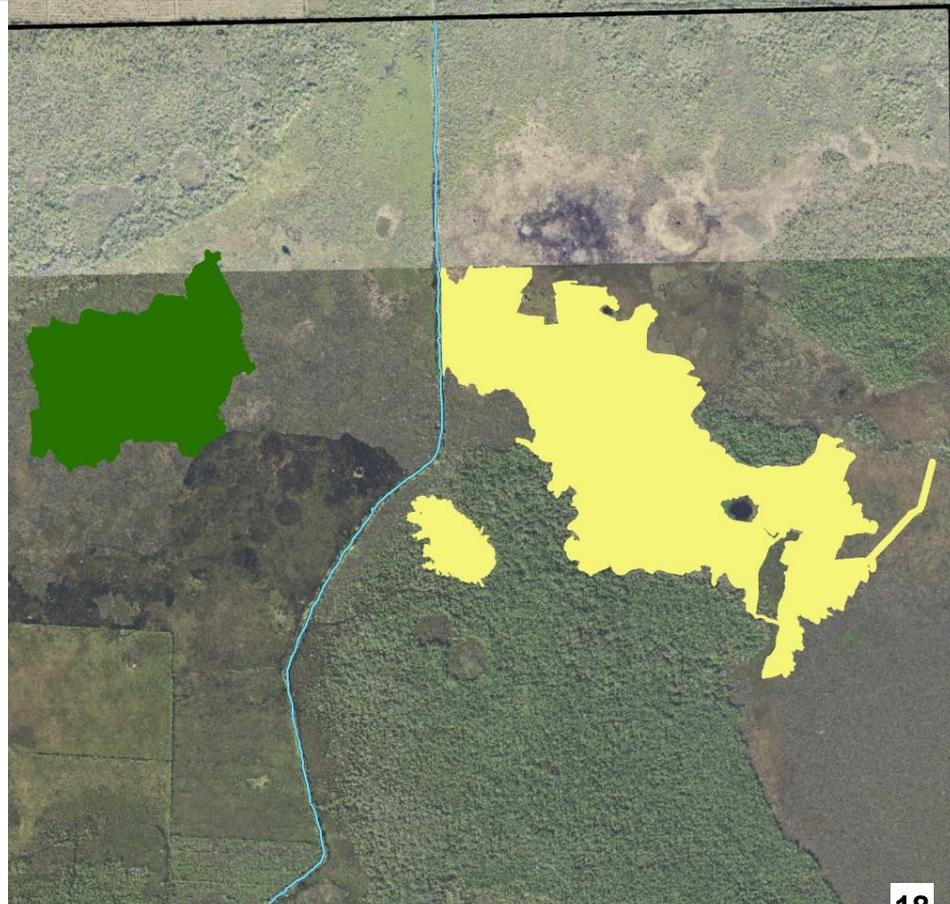
## Summary of 2022 Restoration Work

- 252 acres mulched
  - 2022-D (140 acres)
  - **2022-E (11 acres)**



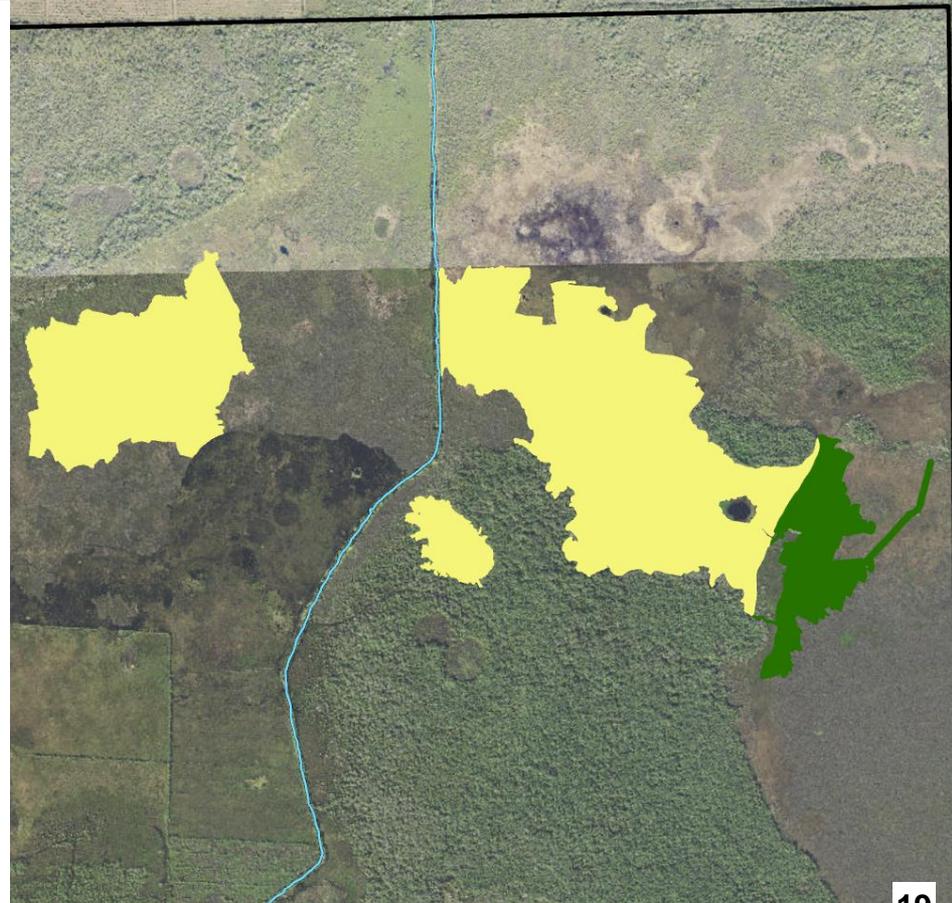
## Summary of 2022 Restoration Work

- 252 acres mulched
  - 2022-D (140 acres)
  - 2022-E (11 acres)
  - **2022-F (71 acres)**



## Summary of 2022 Restoration Work

- 252 acres mulched
  - 2022-D (140 acres)
  - 2022-E (11 acres)
  - 2022-F (71 acres)
  - **2022-G (30 acres)**



# Pre-restoration (early May 2022)



**Restoration Site 2022D, PP1g**

# Post-restoration (late May 2022)



**Restoration Site 2022D, PP1g**

**3 months post-restoration (Sept. 2022)**



**Restoration Site 2022D, PP1g**

# 6 months post-restoration (Dec. 2022)



**Restoration Site 2022D, PP1g**

# 12 months post-restoration (May 2023)



**Restoration Site 2022D, PP1g**

# Pre-restoration (early May 2022)



**Restoration Site 2022D, PP3a**

# Post-restoration (late May 2022)



**Restoration Site 2022D, PP3a**

**3 months post-restoration (Sept. 2022)**



**Restoration Site 2022D, PP3a**

# 6 months post-restoration (Dec. 2022)



**Restoration Site 2022D, PP3a**

# 12 months post-restoration (May 2023)



**Restoration Site 2022D, PP3a**



## Re-introducing Prescribed Fire (June 2023)

*Presenter: Shawn Clem*



Restoration  
outcome is  
visually  
compelling,  
but we are  
working to  
measure  
ecosystem  
response

# Quantitative Monitoring

## PRE-RESTORATION

 Willow	58%
 Primrose-willow	33%
 Red Maple	4%
 Open Canopy	5%



# Quantitative Monitoring

## PRE-RESTORATION

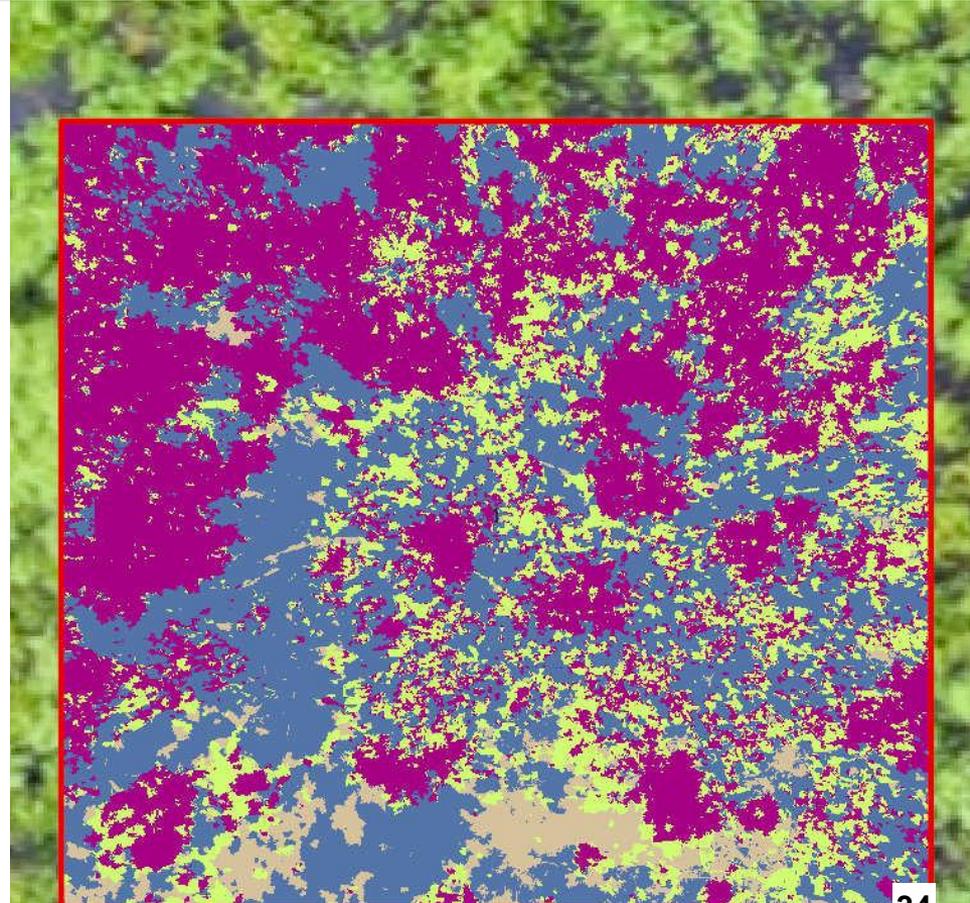
 Willow	58%
 Primrose-willow	33%
 Red Maple	4%
 Open Canopy	5%



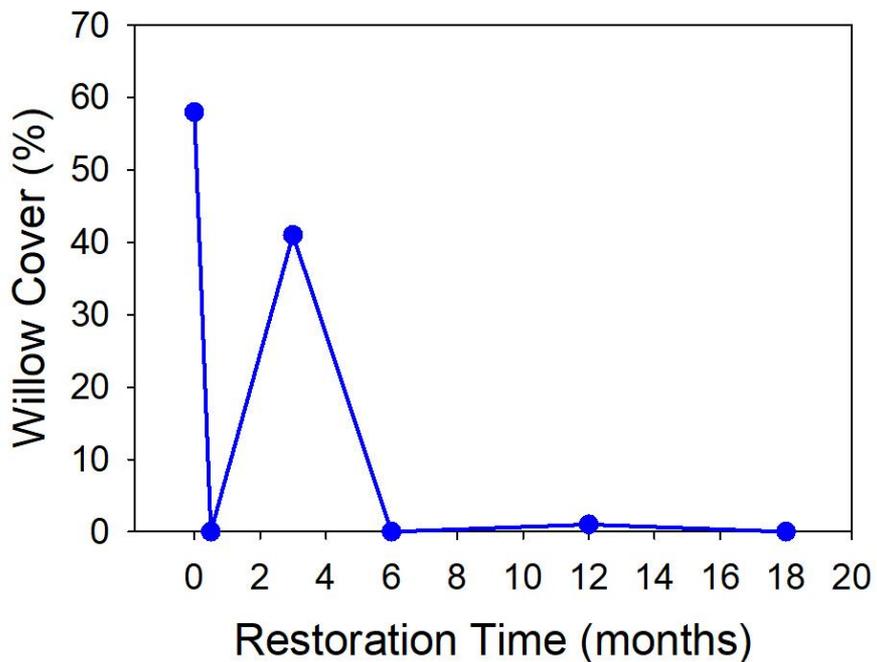
# Quantitative Monitoring

## 3 MO. POST-MULCHING

 Willow	41%
 Primrose-willow	35%
 Red Maple	18%
 Open Canopy	6%



# Quantitative Monitoring

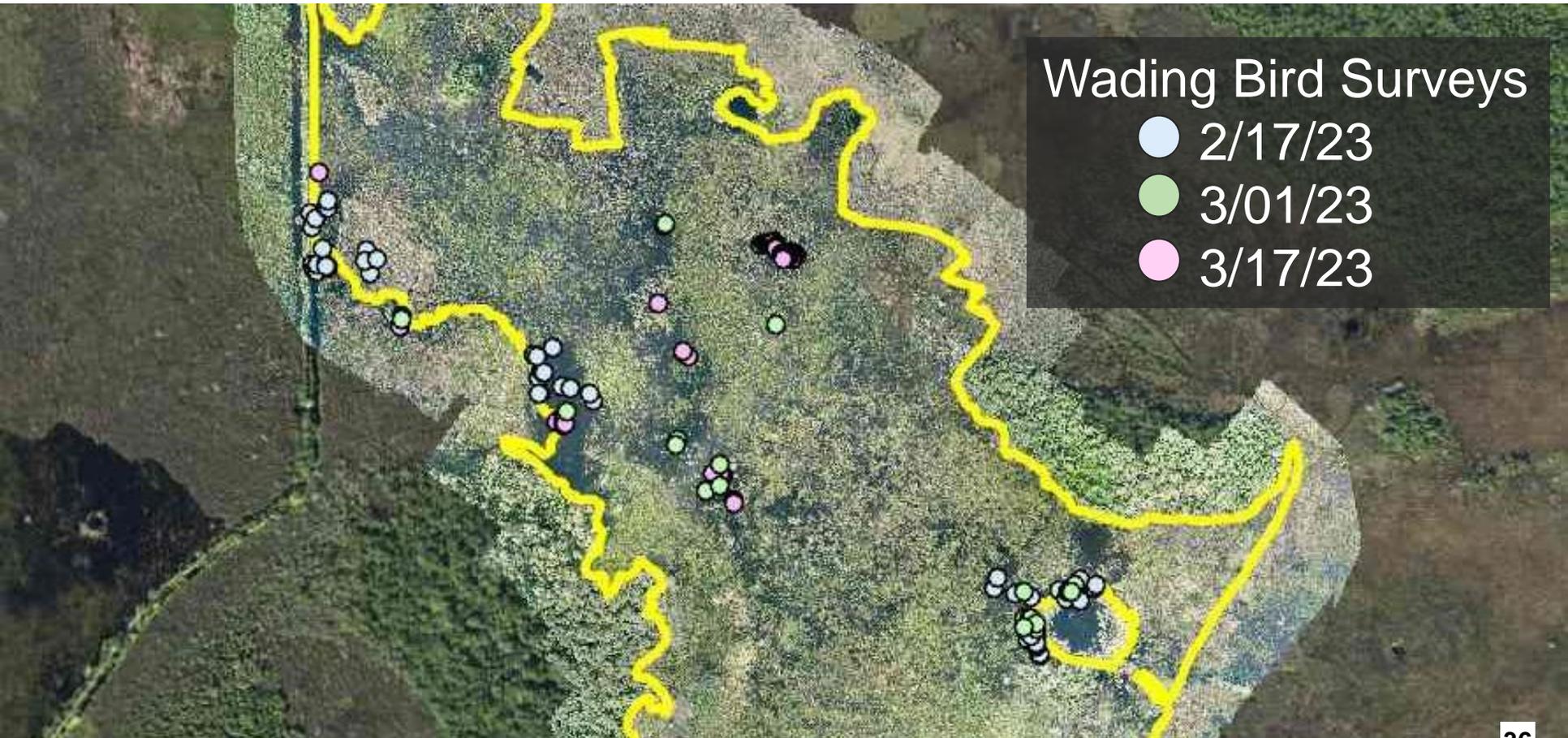


## Wading Bird Surveys

● 2/17/23

● 3/01/23

● 3/17/23



## Next Steps

- 276 acres mulched in 2023
- Continuing to steward mulched units to reach full restoration
- Exploring alternative shrub removal methods that may be more appropriate under some environmental conditions





## Next Steps

- Continuing to work with partners to advance restoration science
- Developing best practices to guide permitting
- Hydrologic restoration is ultimately needed to make this habitat restoration more sustainable

A landscape photograph of a marsh. In the foreground, there is a body of water with several lily pads. The middle ground is filled with tall, green marsh grasses. In the background, a line of trees is visible under a blue sky with scattered white clouds. A vibrant rainbow arches across the sky, spanning from the left side of the frame to the right side.

# Discussion

# Canal Bank Study with Naples Botanical Garden

Sean Murphy, Staff Engineer  
Big Cypress Basin Board Meeting  
October 27, 2023





# Project Purpose



- Use native ground cover on canals to
  - Reduce long term mowing/maintenance costs
  - Improve water quality
  - Ensure stability during high flows

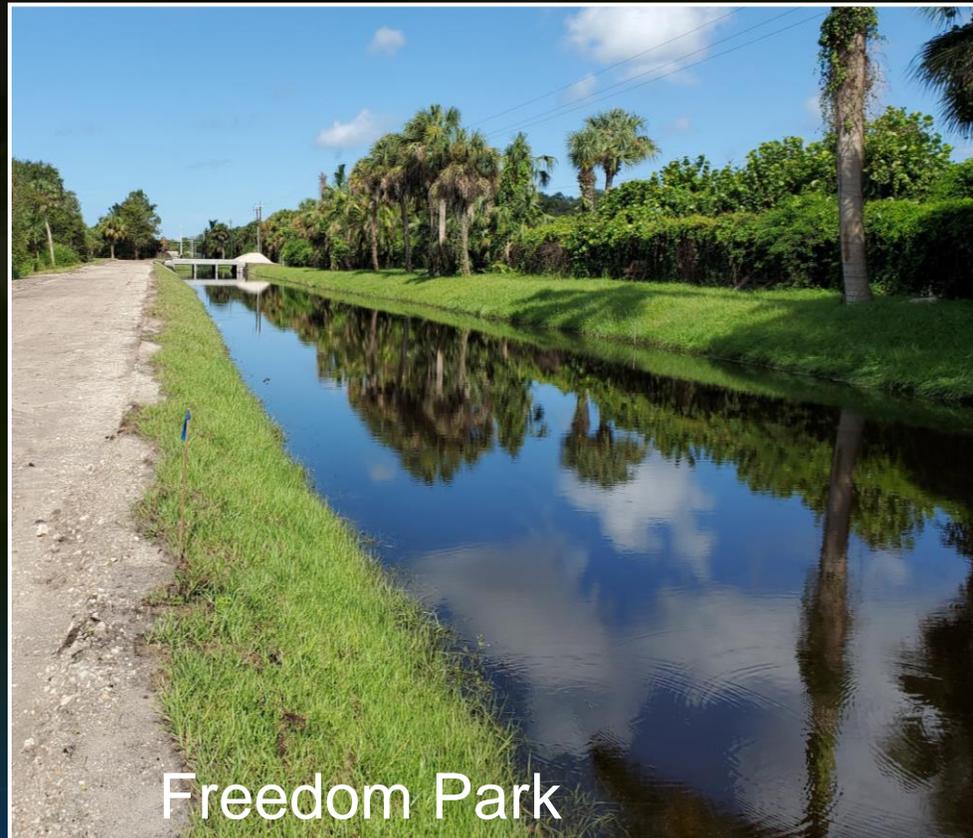




# Project Details



- Naples Botanical Garden
  - Grew plants
  - Installed
  - Monitor and Report
- Collier County
  - Provided study area
- Provided funding in the amount of \$100,000



Freedom Park



An aerial photograph of a golf course. A large, winding body of water flows through the center, crossing a concrete bridge. The golf course is lush green with several sand traps and palm trees. In the background, a city skyline is visible under a clear blue sky.

# QUESTIONS?

*Presenter: Sean Murphy*

# CANAL BANK STUDY USING NATIVE LOW-GROWING GROUND COVER

**Chad Washburn**

**Vice President of Conservation**

**Naples Botanical Garden**

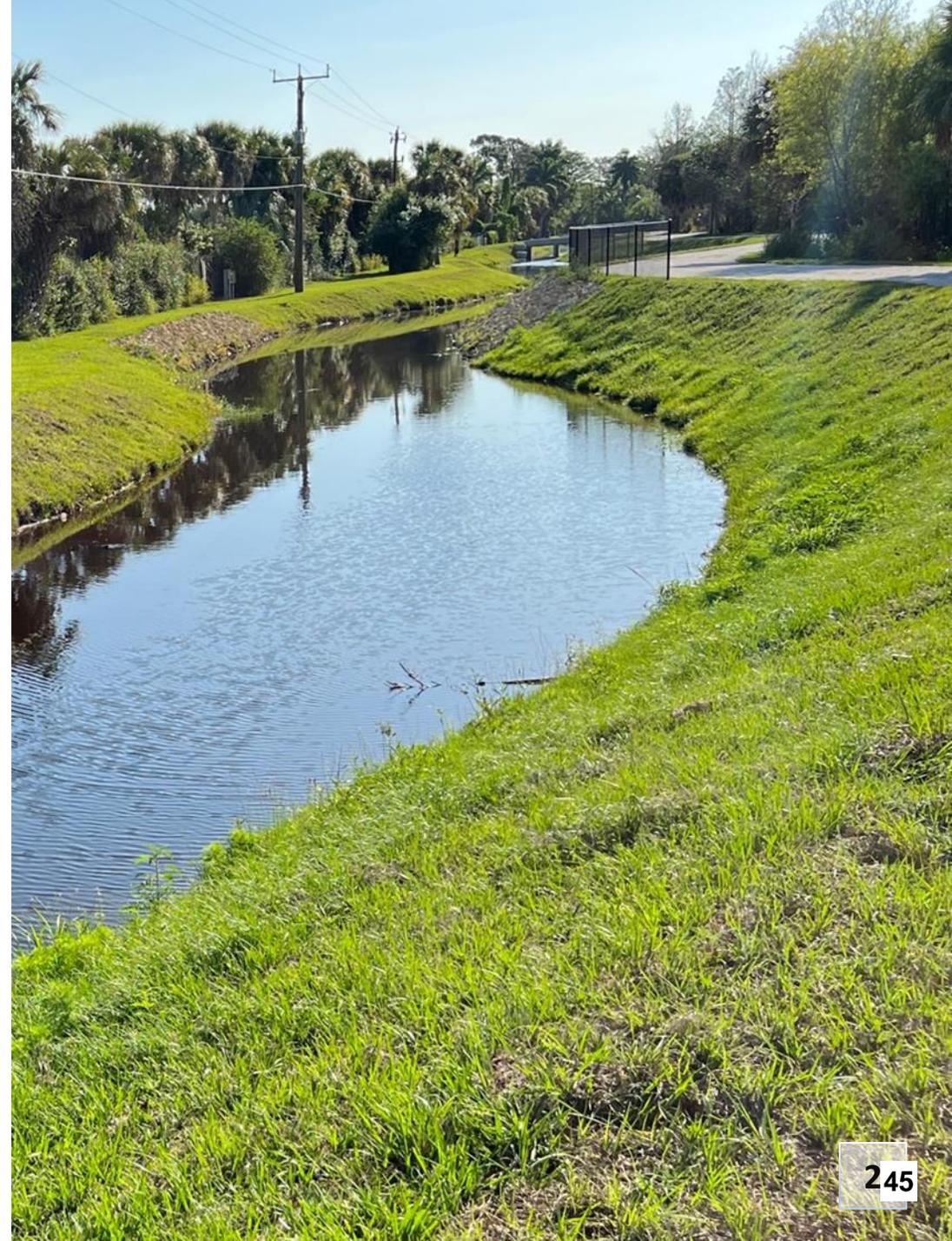
**South Florida Water Management District Board Meeting**

**October 27, 2023**



# Current Practices

- **Planted with Bahiagrass (*Paspalum notatum*) sod**
- **Requires regular mowing**
  - **Significant management costs when performed across large areas**
  - **Increase non-point source pollution**
  - **Increase competition from weeds**





February 15, 2022



February 15, 2022

# Objectives

- **Identify native grass species that require less mowing and maintenance**
  - Reduce nutrient loading
  - Reduce management costs
  - Compete against weeds
- **Criteria**
  - Short mature height
  - Dense perennial growth habit
  - Tolerant of drought, flooding, and highly saline conditions

Saltgrass, seashore dropseed, and seashore paspalum mix growing wild in Flamingo, Florida



# *Distichlis spicata*

- Saltgrass
- Tidal Marshes
- 4" to 24" height
- Dense monotypic stands
- Deep root system
- Flooding and salt tolerant



# ***Sporobolus virginicus***

- Seashore dropseed
- Dunes, coastal strands, grassland, mashes and swales
- 6" to 18" height
- Dense spreading habit
- Drought and saltwater flooding tolerant



# *Paspalum vaginatum*

- Seashore paspalum
- Coastal dunes, strands, swales, and wetlands
- 24" to 36" height
- Pioneer species in large dense patches
- Drought and saltwater flooding tolerant





Goodlette-Frank Road



Freedom Park Bypass Canal

Freedom Park

Golden Gate Parkway



Collier County

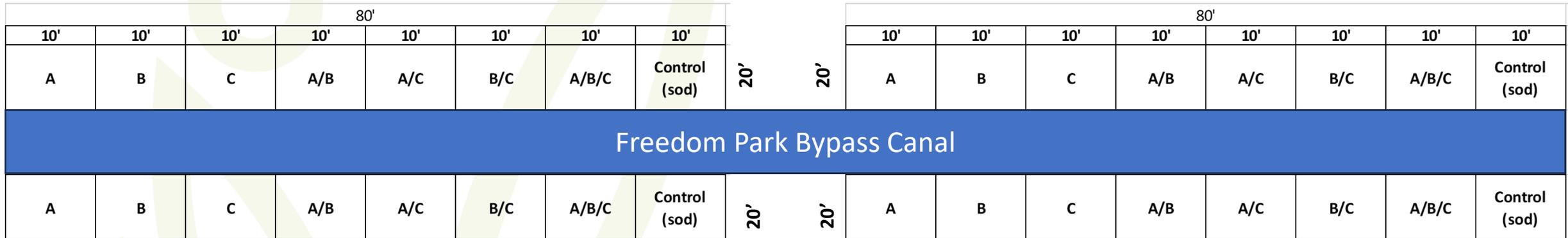
Project Locations

952

General Composition Tips

Google

# Project Layout



**A – *Distichlis spicata***

**B – *Paspalum vaginatum***

**C – *Sporobolus virginicus***

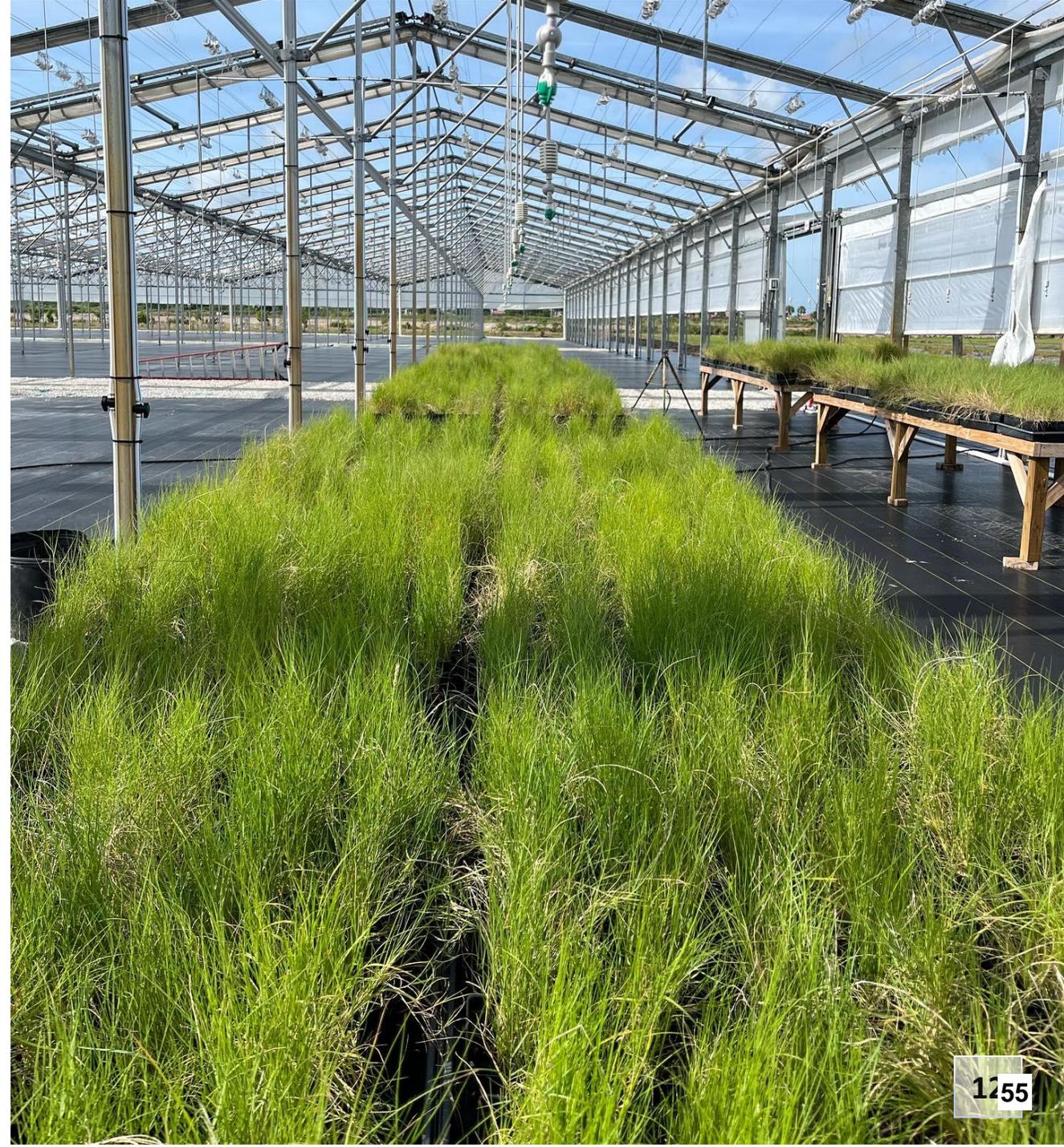
# Project Timeline

<b>March 29, 2022</b>	<b>Purchase 6,000 native grass plugs and grow out at Naples Botanical Garden</b>
<b>June 6, 2022</b>	<b>Herbicide treatment of bahia grass in project plots within Freedom Park Bypass Canal</b>
<b>July 1, 2022</b>	<b>Begin planting 6,000 native 4" grass plugs in project plots</b> <ul style="list-style-type: none"><li>- Monitor and manage plots</li><li>- Collect Data</li></ul>
<b>September 15 – June 15, 2023</b>	<b>Quarterly Reports</b>



# Plants Growing Operations

- Sod not widely available or unavailable
- 2" Plugs grown out into 4" plants with healthy root systems
- Potential for weeds



# Site Preparation

- **Bahia grass sod treated with an aquatic-labeled herbicide**
- **Left in place to prevent erosion and reduce weeds**
- **Locations marked**



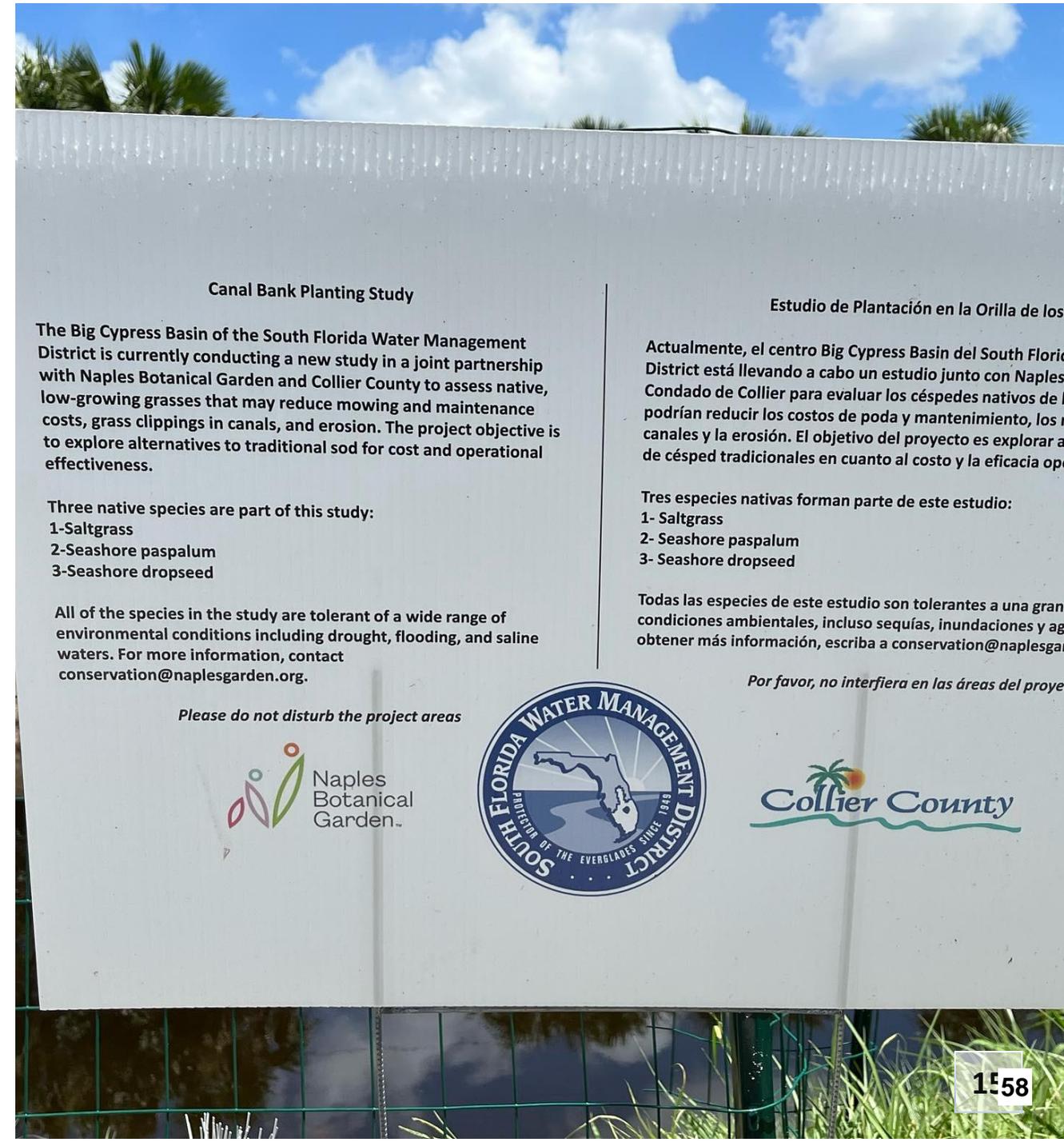
# Layout and Planting

- **Plants laid out according to design**
- **Planted using a drill to minimize impacts to bank**



# Signage and Fencing

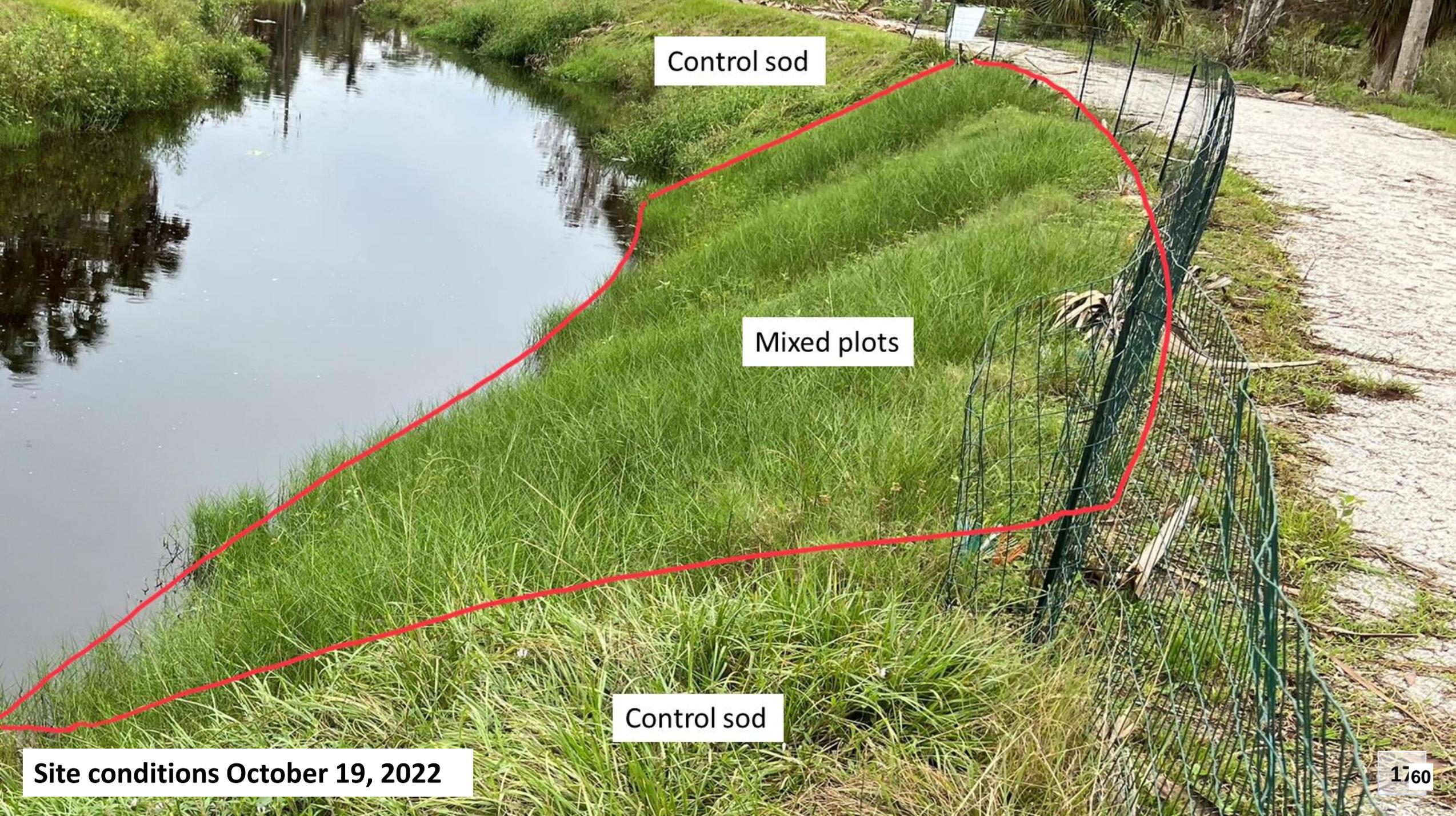
- **Interpretive signage in English and Spanish installed to identify project**
- **Protective fencing installed around the project to prevent unplanned impacts to the project**



# Study Measurements

- Plant height
- Percent cover
- Belowground biomass





Control sod

Mixed plots

Control sod

Site conditions October 19, 2022

1760

# Project Challenges

- **September 23, 2022 – Hurricane Ian**
- **December 2022 – Project site mechanically mown**
- **January 2023 – Lower 2/3 of project site treated with broad spectrum herbicide**

Site conditions April 20, 2023



# **Mechanical Mowing and Herbicide**

**September 22, 2022**

**January 12, 2023**





**Overall site conditions August 29, 2023**

**2063**

# Project Results – Plant Height

- All species were taller at lower elevations compared to higher up the bank
- Saltgrass (14.8cm) and seashore dropseed (22.5 cm) were shorter than bahia grass (33.3 cm) at maturity
- Seashore paspalum (38.4 cm) was taller than bahiagrass (33.3 cm) at maturity



# Project Results – Percent Cover

- After 6 months all native grasses grew from 4” plugs to a range of 60 – 75 percent cover.
- Suggests that native grasses can compete against weeds and provide cover comparable to bahia grass
- Weeds took advantage of any open bare soil in both native and bahia grass control plots equally



# Project Results – Belowground Biomass

- **Belowground biomass results after two months show that only bahiagrass plots at high elevation had significantly higher below ground biomass compared to native grasses.**
- **Suggests that native grasses can produce significant root systems to prevent erosion and tolerate drought**



**Questions?**

# PICAYUNE STRAND RESTORATION PROJECT

## Briefing to:

South Florida Water Management  
Big Cypress Governing Board

## Presenter:

Stephen Baisden  
Project Manager  
Jacksonville District  
October 27, 2023



U.S. ARMY



US Army Corps  
of Engineers



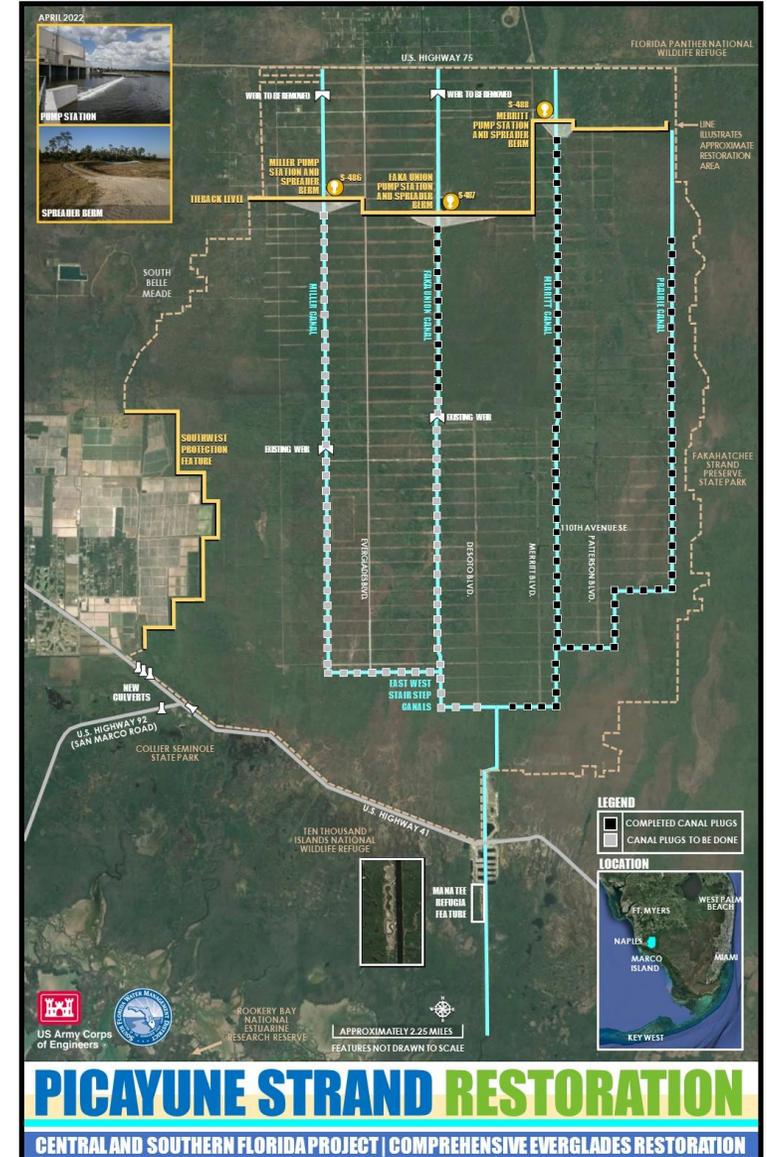
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# PICAYUNE STRAND PROJECT GOALS



## Project Goals:

- Improve aquifer recharge to protect water supply and prevent saltwater intrusion
- Maintain existing level of flood protection for Northern Golden Gate Estates.
- Reduce or eliminate over-drainage of adjacent sensitive ecosystems.
- Reduce freshwater releases (point discharges) to improve the health and productivity of downstream estuaries.
- Improved fire regime; Preserve upland habitat; Control invasive exotic plants



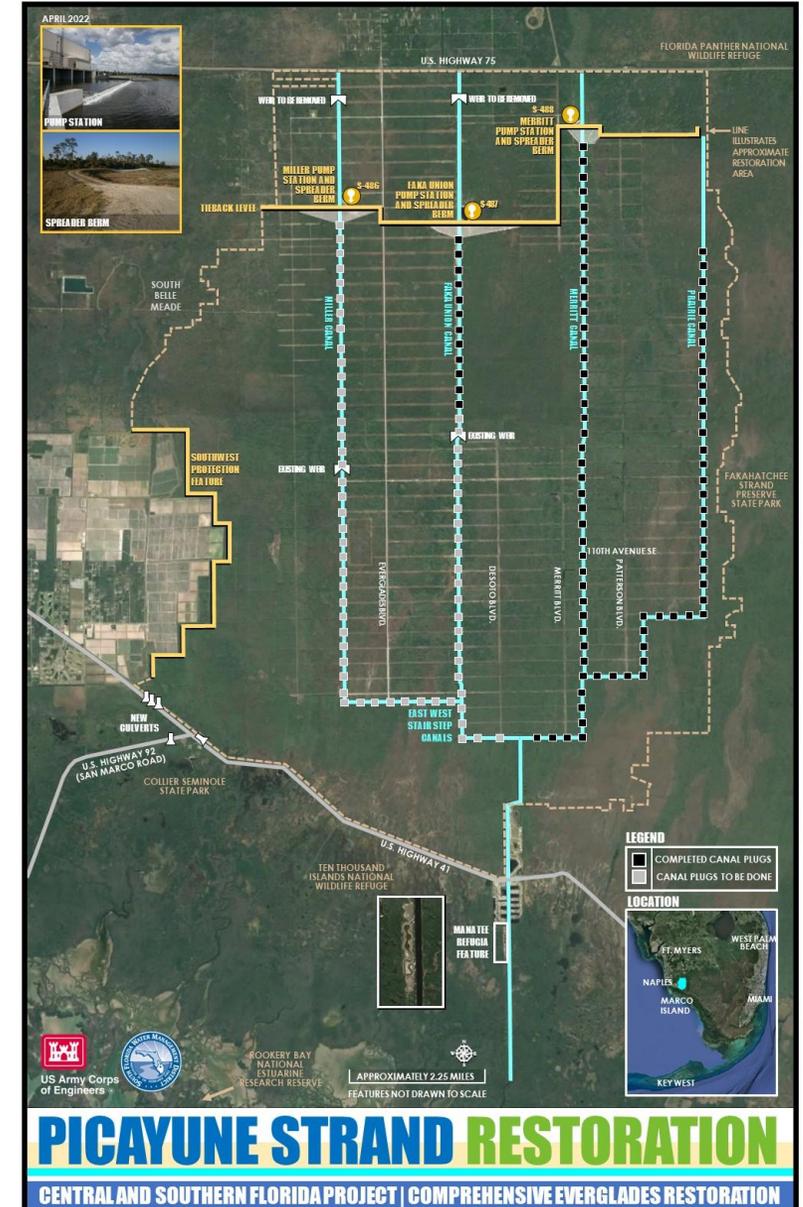


# PICAYUNE STRAND COMPLETED CONSTRUCTION



## Completed Construction

- Merritt Pump Station Sep 2014
- Merritt/Prairie Canal Plugging Sep 2014
- Faka Union Pump Station Jul 2017
- Miller Pump Station May 2019
- Manatee Refugia March 2020
- East-West Stair Step Canal clearing/plugging completed Jun 2021.
- Faka Union Canal northern 3 miles cleared/plugged Jul 2021
- Faka Union and Miller Canal Clearing June 2023
- Miller Tram and Road Removal September 2023



# **PICAYUNE STRAND** **MILLER TRAM AND ROAD REMOVAL**

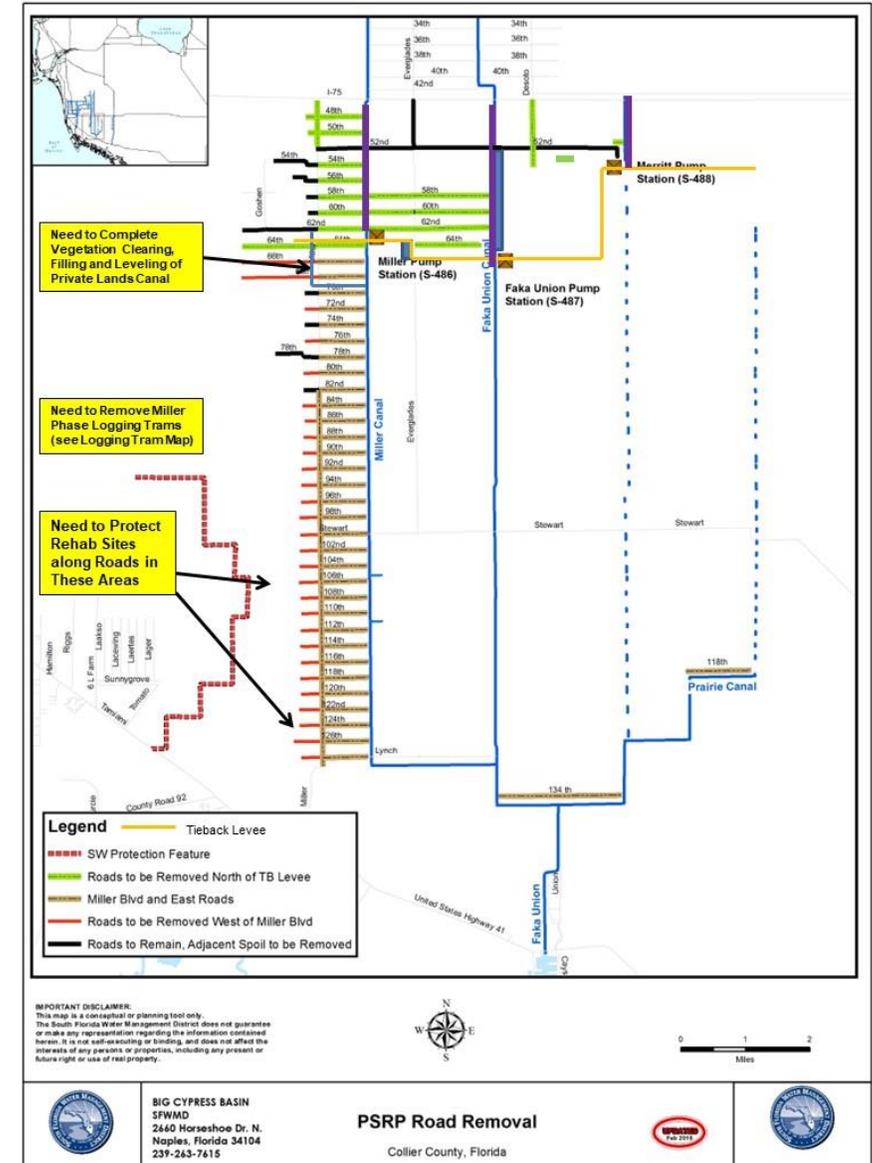


## Status:

- Completed September 2023!
- LJ Clark Construction, Inc.
- Award September 12, 2019
- Contract Amount \$11,618,827.14

## Features:

- Contractor shall remove and regrade all east-west roads (shown on plans), to level undisturbed ground (including logging trams, existing roads and adjacent ditches, swales, and spoil in the area) bounded by Miller Canal to the east, the Tieback Levee to the north, 128th Avenue SE to the south, and to the ends of the roads on the west.
- Miller Boulevard degrade was not included in this contract; however, the spoil and swales along Miller Boulevard shall be leveled to undisturbed ground.





U.S. ARMY

# PICAYUNE STRAND

## SOUTHWEST PROTECTION FEATURE – CONVEYANCE FEATURES



### Status:

- Under Construction
- Awarded September 2020
- Completion June 2024
- Contractor - Douglas N. Higgins, Inc.
- Contract Amount \$8,256,364.38

### Features:

- Install culverts under:
  - US-41 (3) – 11'x4'
  - CR-92 (1) – 10'x3'
  - Indian Village Driveway (1) – 30" HDPE



US-41 Culverts



U.S. ARMY

# PICAYUNE STRAND

## SOUTHWEST PROTECTION FEATURE - LEVEE



### Status:

- Under Construction Awarded September 2020
- Completion June 2024
- Quality Enterprises Inc.
- Contract Amount \$24,296,105
  
- Features:
- The work includes construction of a 7.2-mile levee
- The levee has an adjacent conveyance canal
- There are three separate culvert structures





U.S. ARMY

# PICAYUNE STRAND – RESTORATION PROGRESS



## Status (10 October 2023) Picayune Strand Restoration Project

Roads (99%) and Logging  
Trams (100%) Degraded

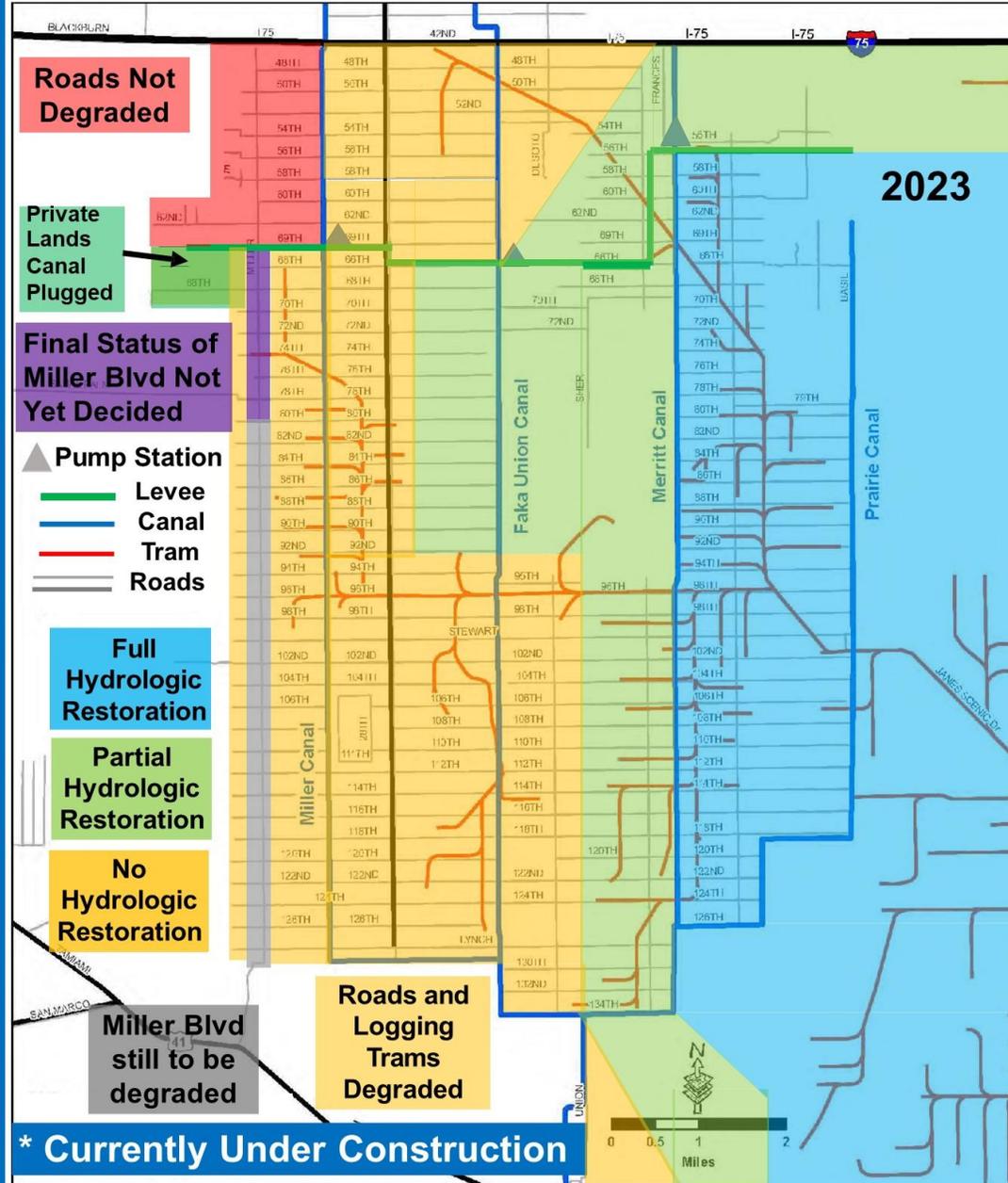
Canals 59% Degraded  
Prairie Canal – 7 Miles  
Merritt Canal – 9 Miles  
Stair-Step Canal – 5 Miles  
FU Canal – 3 Miles

3 Pump Stations Built

**Remaining Work**  
Construct Southwest  
Protection Features 2024\*

Degrade Miller Blvd 2024

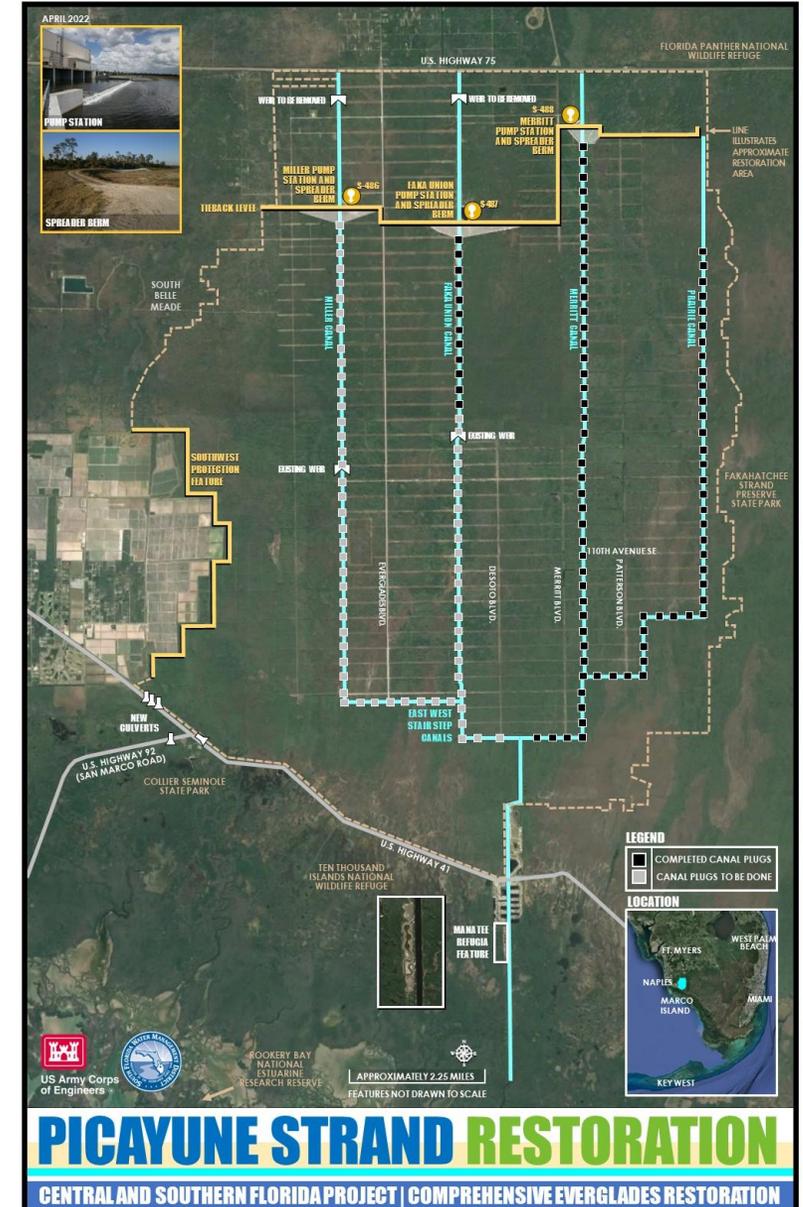
Degrade Canals  
FU Canal – 5 Miles 2024\*  
Miller Canal – 12 Miles 2025\*





### Remaining Features

- Southwest Protection Features (SWPF)
  - Conveyance features (Culverts under US-41 and CR-92) completion June 2024.
  - Levee construction complete June 2024
- Faka Union and Miller Canal plugging construction start FY24, complete 2025.
- Remove remaining portion of Miller Blvd from 80<sup>TH</sup> to 128<sup>TH</sup>





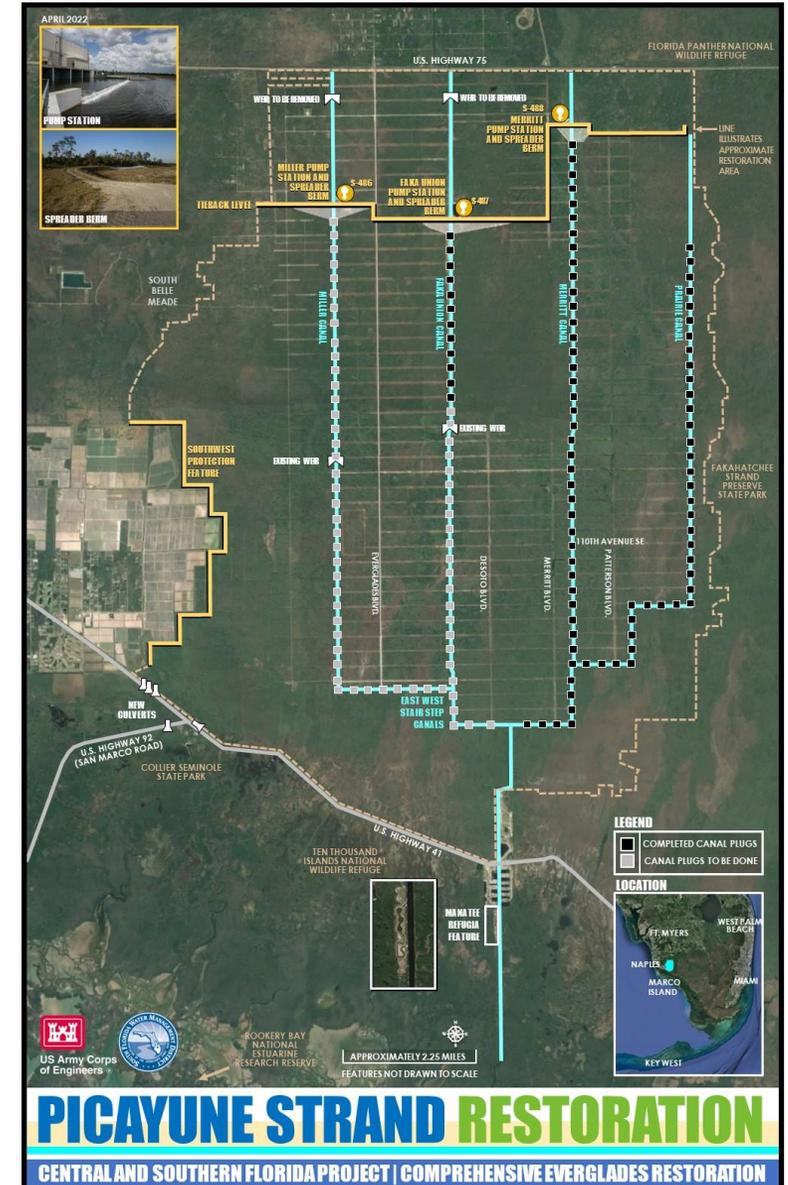
# PICAYUNE STRAND

## ACCELERATE MILLER CANAL PLUGGING



### Desire to Plug a Portion of Miller Canal in 2024

- January 2024 start plugging remaining Faka Union Canal and complete in 2024
- Utilize USACE Heavy Equipment Program with the largest crew size to date
  - Ability to advance the plugging of Miller Canal in March/April 2024. Position restoration for completion in 2025
  - Complete Final Environmental Assessments to advance
  - Red Cockaded Woodpecker Foraging Habitat Analysis required by USFWS as part of Environmental Assessment analysis.





# PICAYUNE STRAND



# QUESTIONS?



27 20:50

# Corkscrew Watershed Initiative (CWI): Comprehensive Hydrologic Modeling and Restoration



Big Cypress Basin  
Board Meeting  
October 27, 2023



**Akintunde Owosina P.E.**  
Chief, Hydrology and Hydraulics Bureau, SFWMD

**Kim Fikoski**  
Lead Project Manager, SFWMD

# Background and Context

## ➤ How we got here

- Flood Studies, Water supply studies & Environmental studies
- Ongoing observed changes in hydroperiod in Corkscrew
- Board interest to comprehensively address the situation
- Charge to staff to engage with Audubon

## ➤ What you will see going forward

- Approaching important preparatory milestone
- Periodic updates to board as we transition from preparation to initiation of study
- First (should I say third) update today

# CORKSCREW REGIONAL ECOSYSTEM WATERSHED (CREW)

## Multiple hydrologic units within the CREW lands

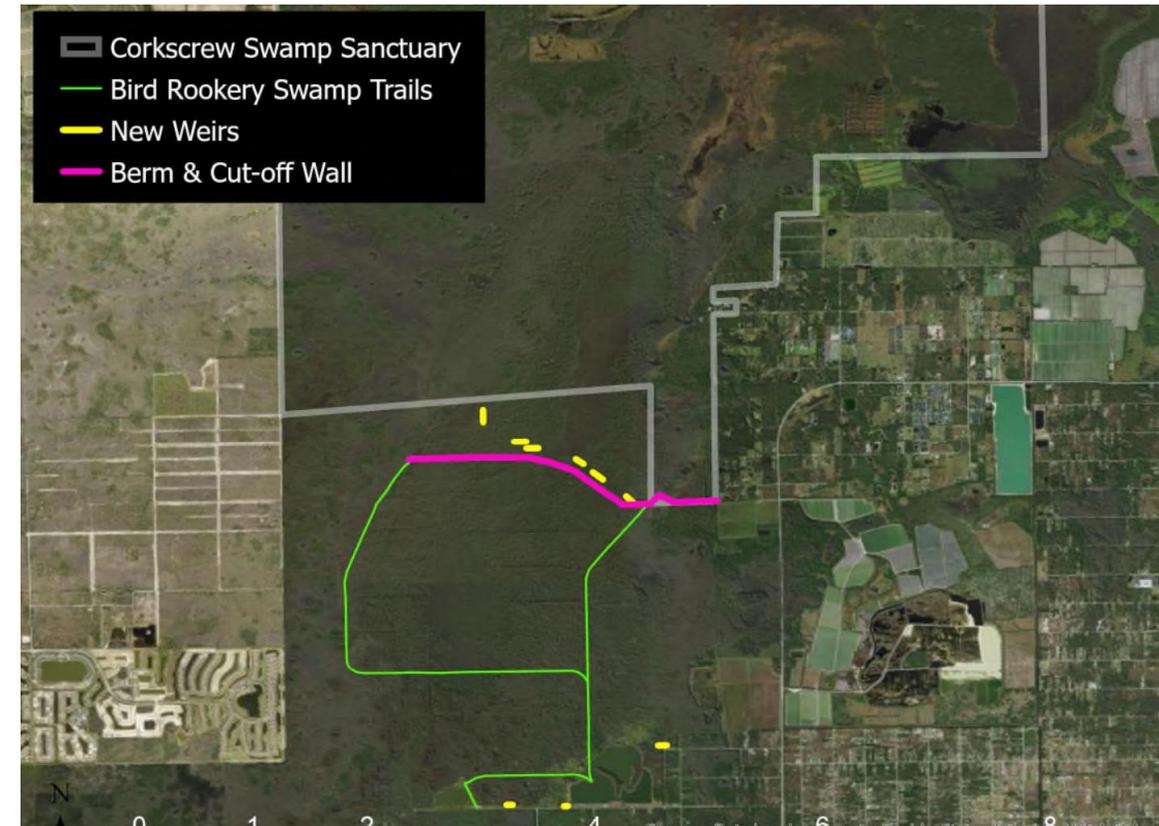
- Flint Pen Strand
- Bird Rookery Swamp
- Corkscrew Swamp Sanctuary
- Corkscrew Marsh
- Camp Keais Strand



# NEXT STEPS

## BCB Board Interest in Detailed Comprehensive Hydrologic Study of Corkscrew System

- Data acquisition (2022 – ongoing)
- Tool preparation and development (2021 – 2023)
- Public planning process with extensive partner and public engagement (2024 - 2026)
- Identify and evaluate projects and restoration/adaptation concepts with flood resiliency (2025 – 2027+)
- Early implementation



Possible restoration or adaptation concepts (Audubon Presentation 2/25/2021)

# Summary of Activities

✓	▪ BCB – Flood Protection Level of Service	Completed (2018)
✓	▪ Lower West Coast Water Supply Plan Updates	Completed (2022)
✓	▪ Corkscrew Swamp Sanctuary Model	Completed (2021)
✓	▪ BCB Audubon Collaboration	
✓	• Expanded topographic surveys	Completed (2022)
✓	• Installation of additional water level monitoring sites	Completed (2022)
	• Hydrogeologic sensitivity assessment	Ongoing (2023)
	• Groundwater contour mapping & additional monitoring siting	Ongoing (2023)
	▪ BCB Regional Watershed Model Update	Ongoing (2023)
	▪ Initiate regional comprehensive Corkscrew study (2024 - 2026)	Spinning up
	▪ Identify and evaluate projects and restoration concepts (2025 – 2027)	Not yet started
	▪ Early restoration project implementation (2026 – 2028+)	Not yet started
	▪ Corkscrew Canal Headwater Improvements Construction (2027 - 2029)	Not yet started

# What To Expect Going Forward

- Engage partners to finalize collaboration and study approach
- Complete tool development and release for application (Ongoing)
- Secure study resources – budget, staffing and project timeframe (Ongoing)
- Initiate study (FY24)
- Periodic updates to the board on study status



# BCB Watershed Model Update Project – Objective & Scope

- Update the BCB FPLOS model from version 2014 to 2022
- Improve the coastal representation and expand model domain (640 sq miles to 1,060 sq. miles)
- Update the DEM with the latest LiDAR and survey data
- Calibrate the model to both long-term, and storm event simulations

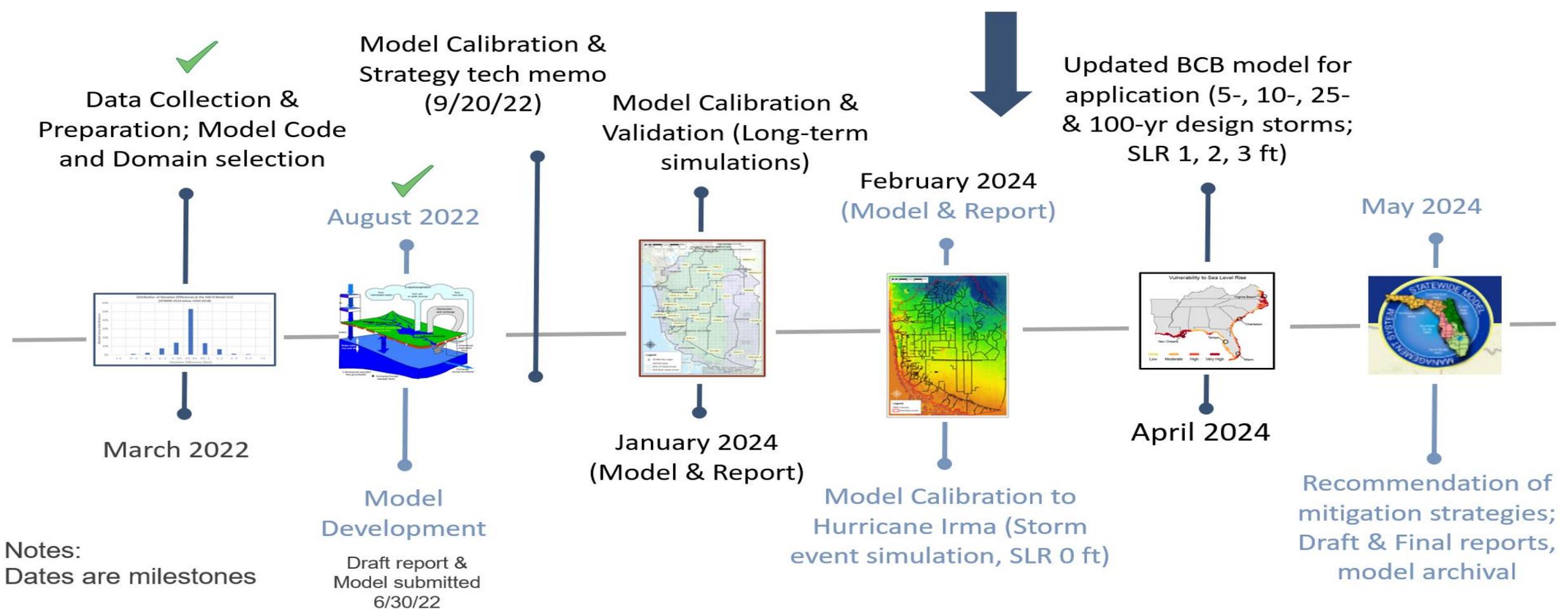
## Post model development

- Tool available for multiple purposes in Collier County and BCB starting with the Corkscrew initiative



# BCB Watershed Model Update Project

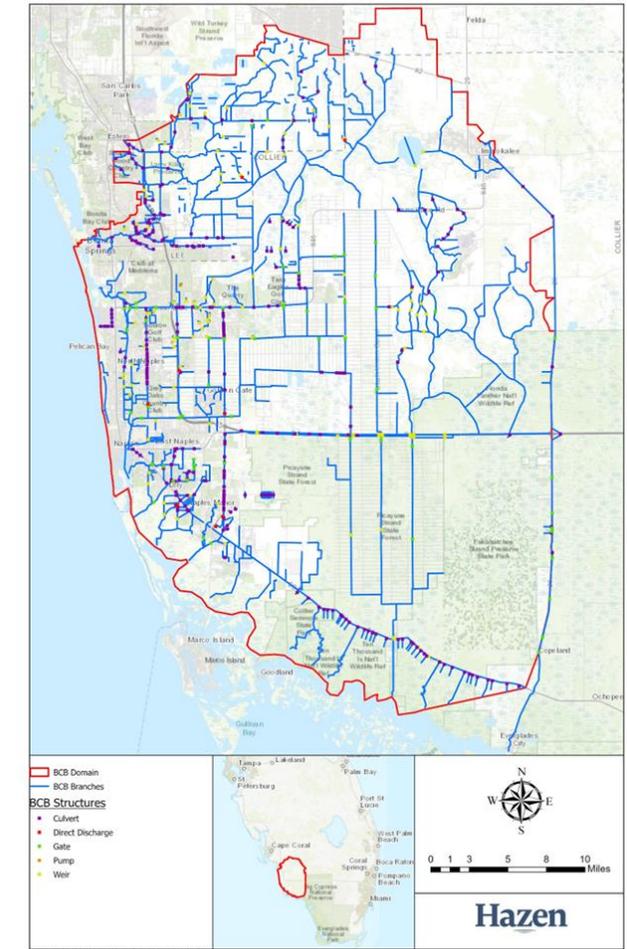
## BCB Model Update: Project Timeline



Notes:  
Dates are milestones

# BCB Watershed Model Update Project - Project Status

- Data Collection - completed
- Model Development – completed
- Model Calibration –
  - Long-term calibration is on-going
  - Storm event calibration is on-going
- Updated BCB Model for Storm Event Application - upcoming



# **Comprehensive Study**

## **Kim Fikoski, Lead Project Manager**

# Corkscrew Watershed Initiative



## Big Cypress Basin 2023-2028 Strategic Plan

RESTORATION OF WATER RESOURCES AND ECOSYSTEMS • WATER SUPPLY  
FLOOD PROTECTION • PUBLIC ENGAGEMENT AND ADMINISTRATION

This document provides the Big Cypress Basin and the public it serves a blueprint to successfully achieve balanced regional water resource management for the next five years and beyond.

Big Cypress Basin resources are focused on safeguarding and restoring Southwest Florida's water resources and ecosystems while protecting communities from flooding and meeting the region's present and future water supply needs.

The commitments and strategies in this document will be put into action in order to make a positive impact.



- Supports BCB Primary Core Missions
  - Restoration of Water Resources & Ecosystems
  - Flood Control
  - Meet region's water needs
  - Connect with the public & stakeholders
- Project development: scope, budget, staff/stakeholder/consultant selection
- Initiate project early 2024 - 2026
- Periodic updates to BCB Board

# Corkscrew Watershed Initiative Process

- Information collection & review
- Determine goals & performance metrics
- Generate initial list of projects for modeling
  - evaluate - select ones that meet goals
- Identify “low hanging fruit” projects
- Refine projects in one or two rounds of modeling
- Preliminary engineering and cost analysis
- Sequence the projects
- Finalize projects in a Tentatively Selected Plan (TSP) to recommend to BCB board



# QUESTIONS



Bird Rooken: Swamp boardwalk

# Big Cypress Basin Field Station Activity Report



**Andrew Wolf**  
**Superintendent BCB Field Station**  
**October 27, 2023**

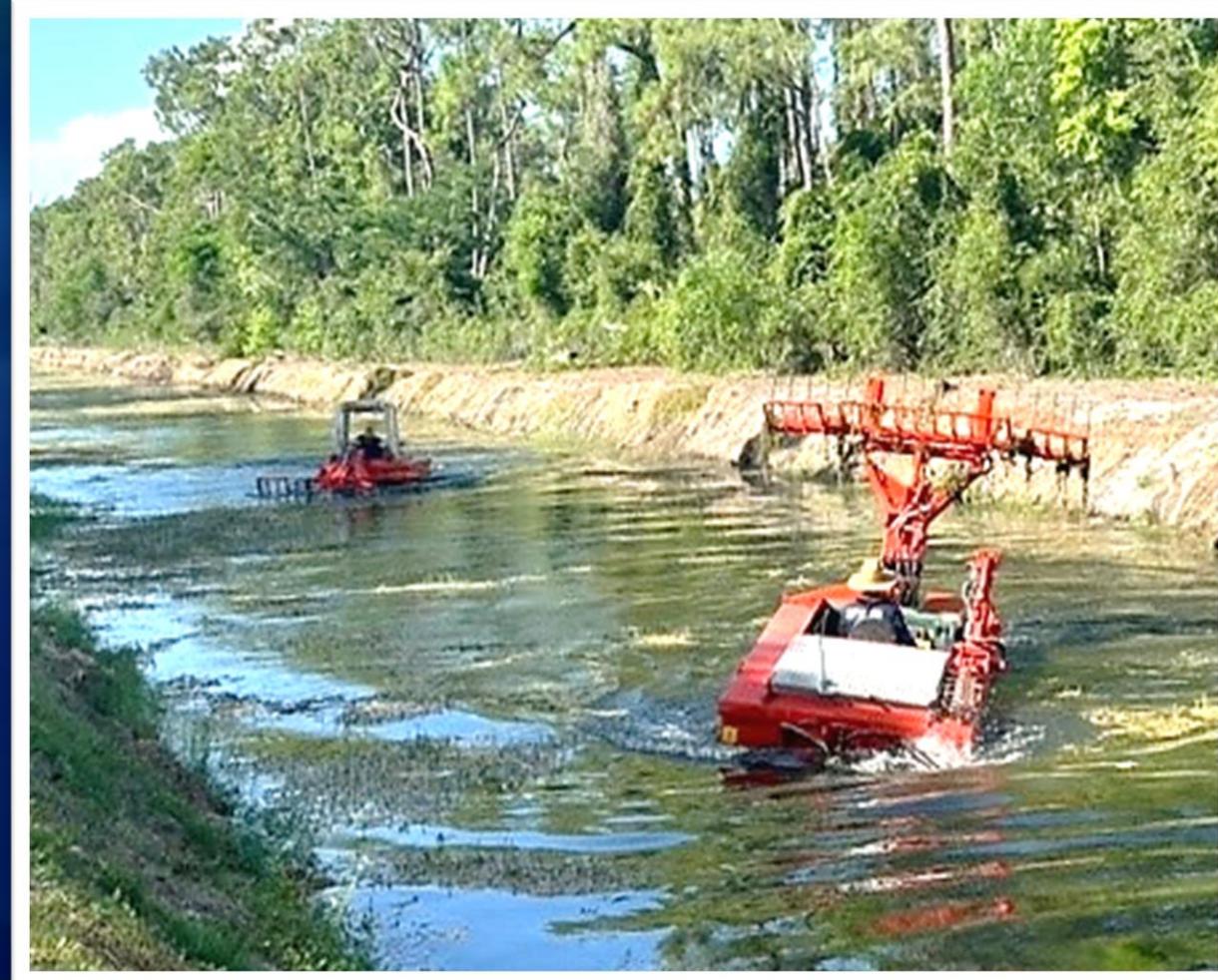
# Overview

- **Field Station Operations**
- **Maintenance Activities**
- **Three Month Outlook**



# Maintenance Activities

## Removing Vegetation in I-75 Canal



# Maintenance Activities

## Tree removal on Airport Rd and C-1 Connector canals



# Maintenance Activities

**Gearbox Prev. Main. Coco#1**

**Actuator Repair Coco#2**



# Maintenance Activities

## Clearing Canal Bank on Golden Gate Main Canal



# Maintenance Activities

## Faka Union #4 Boat Barrier Replacement



# Three Month Outlook

- Canal Maintenance: Remove vegetation and debris in canals.
- Structure Maintenance: Continue performing preventative maintenance and SIP (Structure Inspection Program) repairs.
- System Operations: Continue supporting transition to dry season operational orders.





MERRITT Pump Station  
PS-488



FAKA Union Pump Station  
PS-487



MILLER Pump Station  
PS-486

# Comprehensive Everglades Restoration Projects (CERP) Activity Report

# Pump Station Maintenance

Mowing Levees



Mowing Manatee Mitigation



# Miller Canal Tree Project

Forestry requested gates installed



# Pump Station Maintenance

- Completing monthly preventative maintenance
- LED lights installed on the interior, exterior and lower pump bays of Faka Union Pump Station
- Replaced defective valve in fuel farm at Miller P/S
- Training three new employees on pump operations



# Hazards at Pump Station

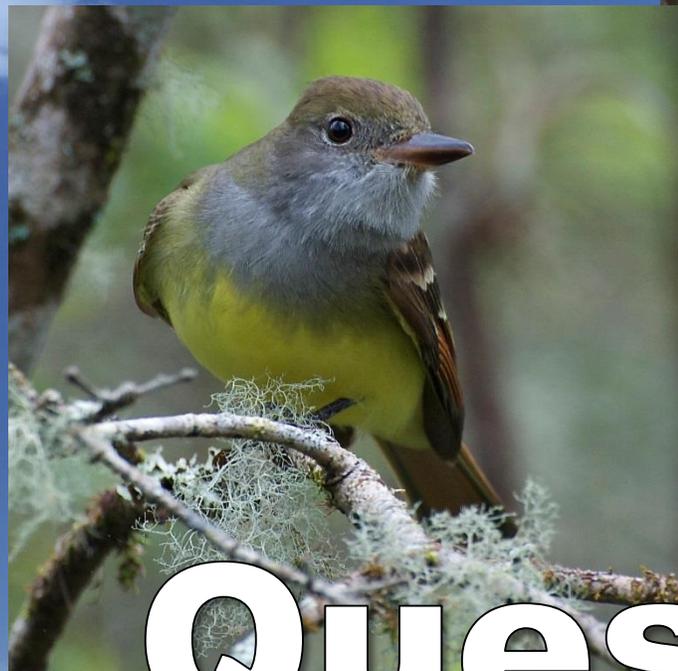
Rattle snake inside Faka Union Pump Station



# Three Month Outlook

- Respond to dry season pump orders and issues.
- Post for two new positions for Miller pump station.
- Prepare for pump shaft replacement at Merritt P/S
- Continue training three new employees on pump station operations.





# Questions



# BIG CYPRESS BASIN BOARD MEETING

BCB WATER CONDITIONS REPORT  
October 27, 2023

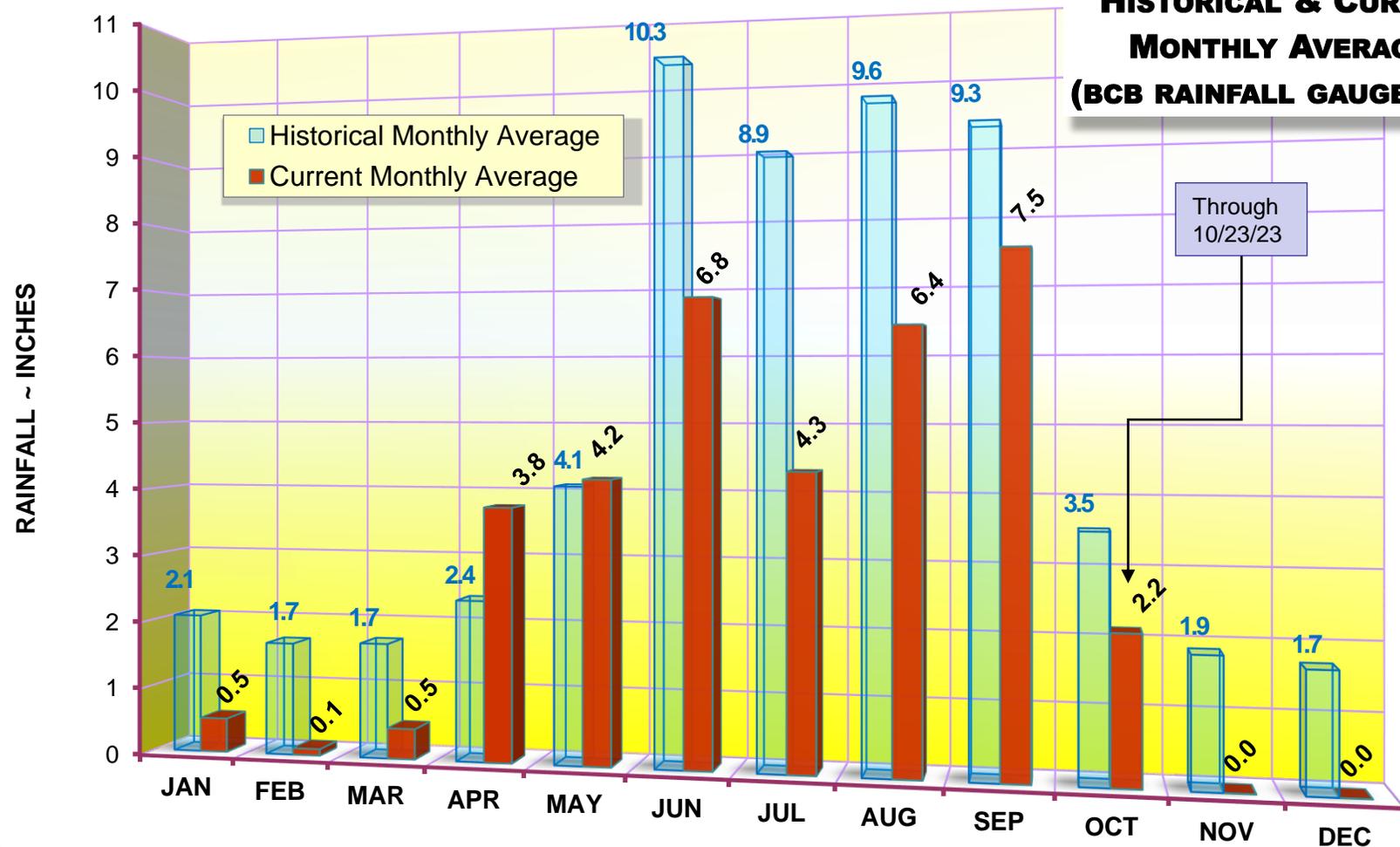


Brad J Jackson, P.E., CFM  
Principal Engineer  
Big Cypress Basin

# Hydrologic Conditions ~ BCB Gauge Rainfall

## 2023 MONTHLY SUMMARY

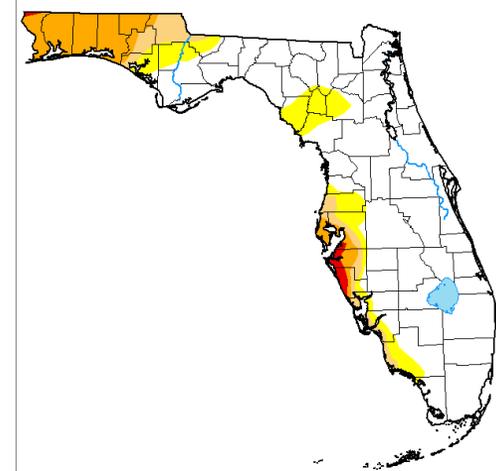
**BCB ANNUAL RAINFALL HISTORICAL & CURRENT MONTHLY AVERAGES (BCB RAINFALL GAUGE DATA)**



- 2023 YTD TOTAL = 36.3 IN
- BASIN AVG TOTAL = 52.7 IN
- 68% OF NORMAL YTD
- 16.4" RAINFALL DEFICIT

U.S. Drought Monitor  
Florida

October 17, 2023  
(Released Thursday, Oct. 19, 2023)  
Valid 8 a.m. EDT



**Intensity:**  
 None  
 D0 Abnormally Dry  
 D1 Moderate Drought  
 D2 Severe Drought  
 D3 Extreme Drought  
 D4 Exceptional Drought

The Drought Monitor focuses on broad-scale conditions. Local conditions may vary. For more information on the Drought Monitor, go to <https://droughtmonitor.unl.edu/About.aspx>

Author:  
Rocky Billotta  
NCEI/NOAA



droughtmonitor.unl.edu

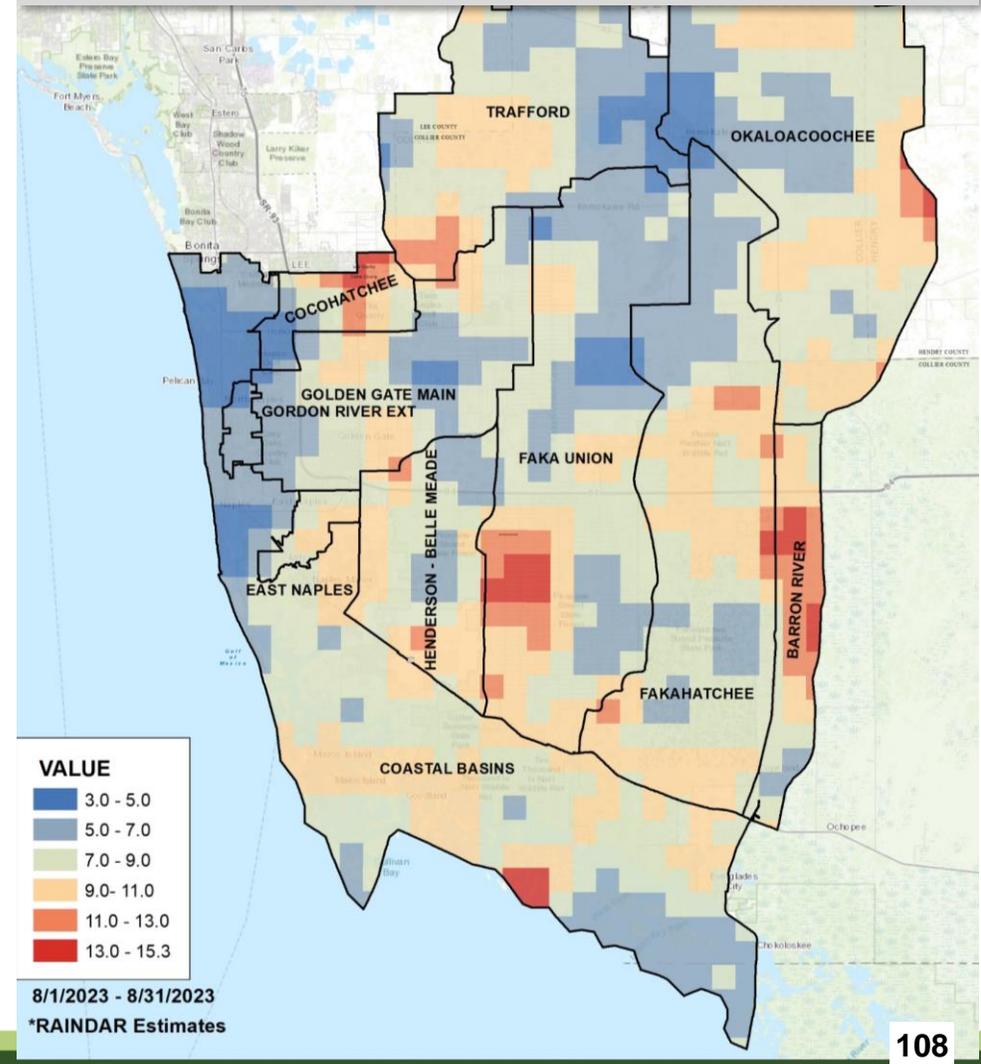
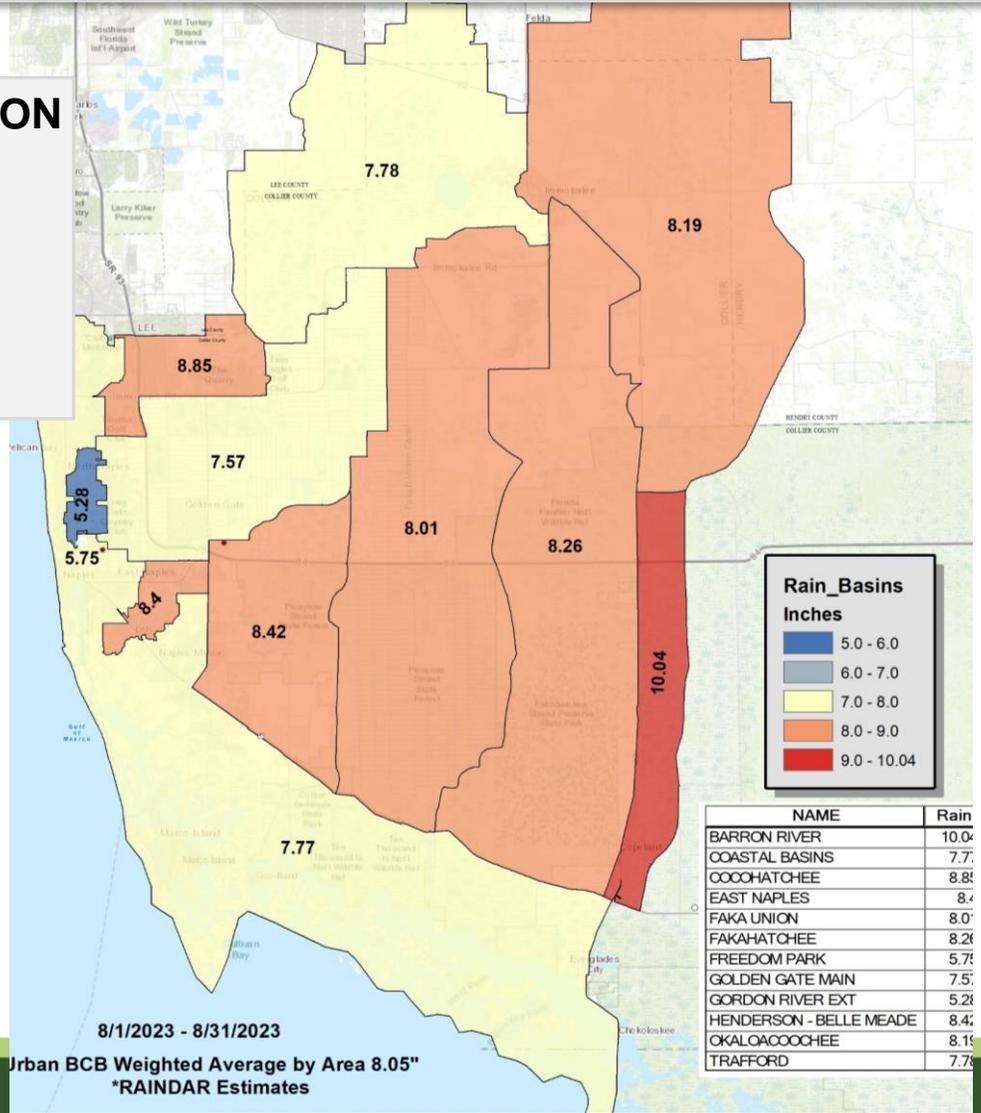
**NOTE: COVERAGE FOR LOCALITIES WITHIN BCB GAUGE NETWORK ONLY**

# Hydrologic Conditions ~ BCB Rainfall

## AUGUST 2023 BY BASIN

## AUGUST 2023 RAINDAR

**HISTORICAL COMPARISON**  
 2023: 6.4"  
 HIGH: 14.6" (2001)  
 LOW: 5.1" (1996)  
 AVG: 9.6"

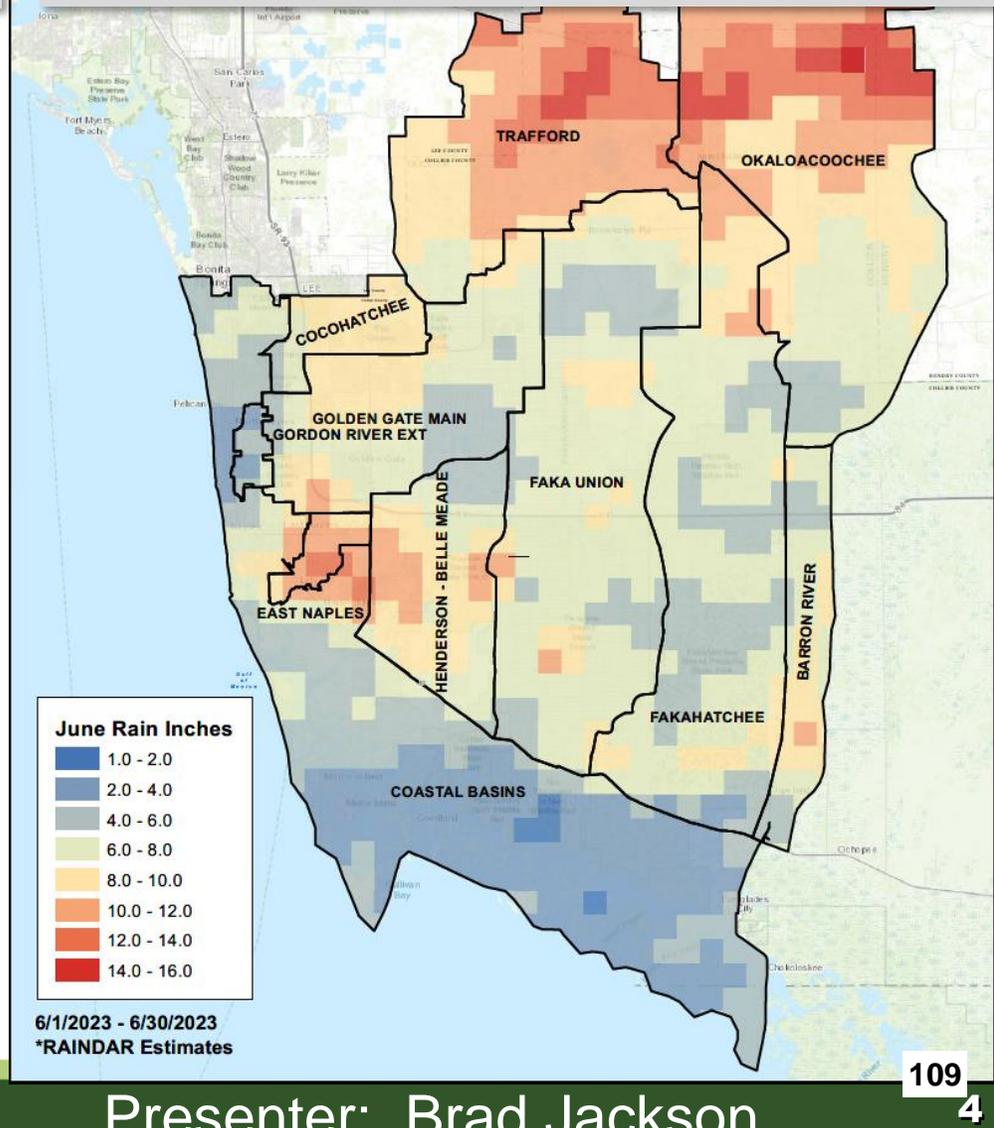
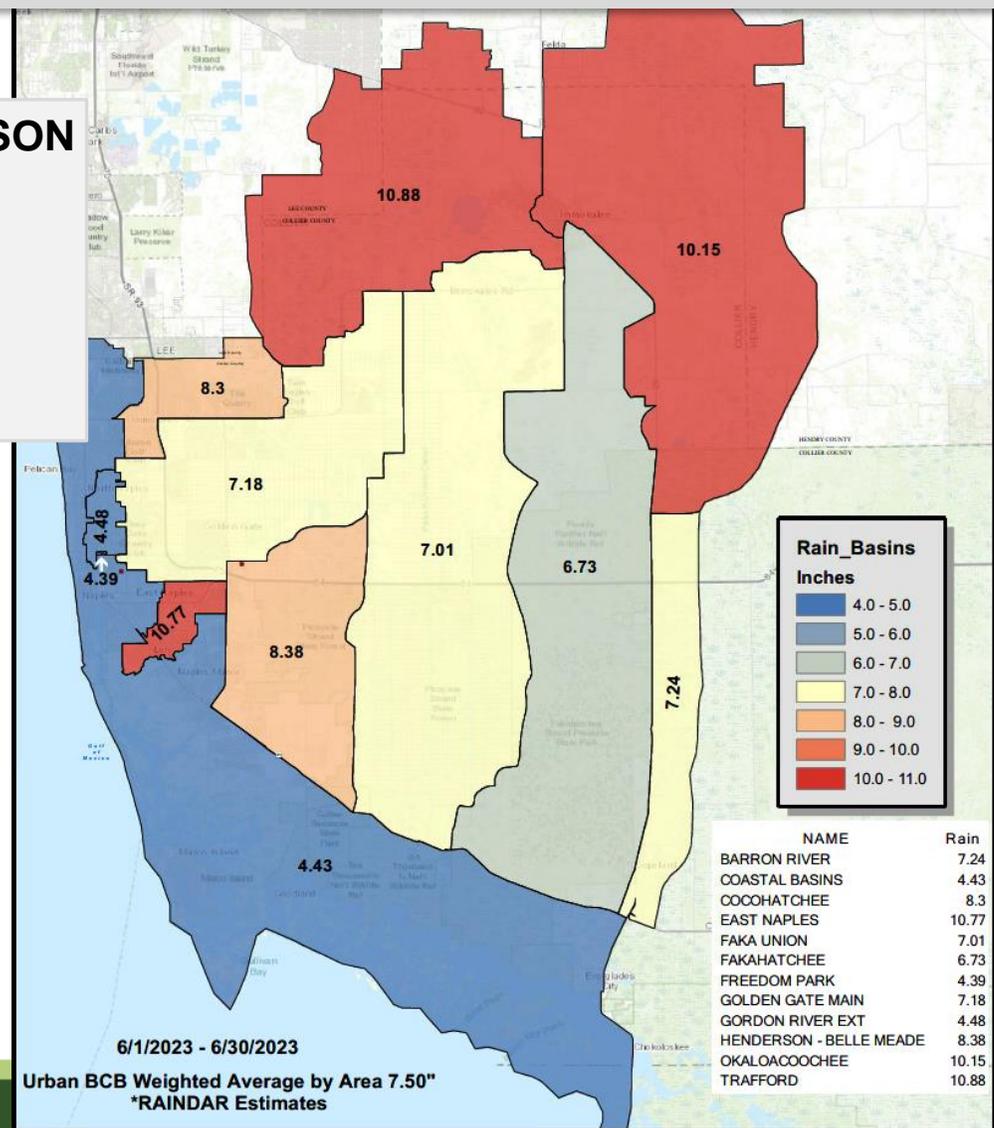


# Hydrologic Conditions ~ BCB Rainfall

## SEPTEMBER 2023 BY BASIN

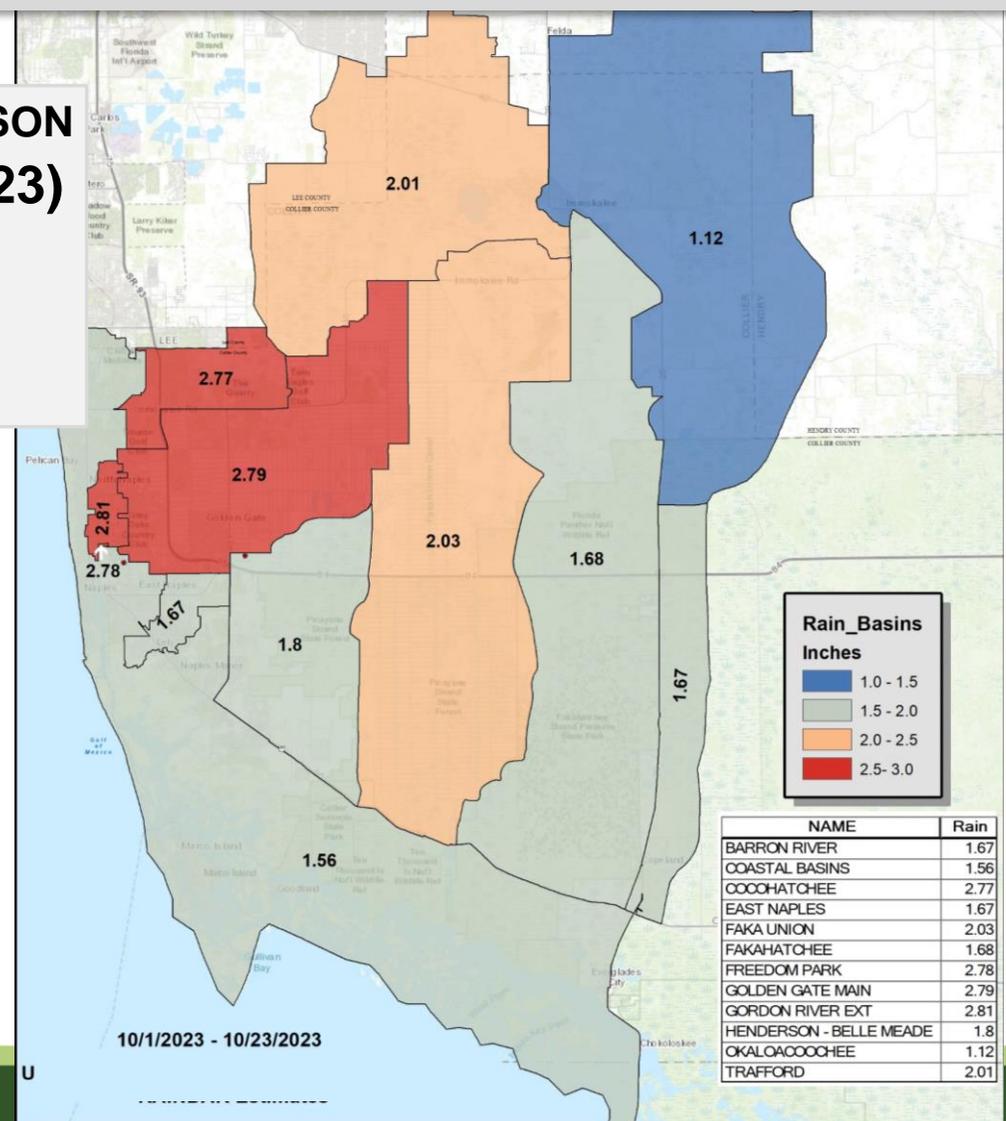
## SEPTEMBER 2023 RAINDAR

**HISTORICAL COMPARISON**  
 2022: 6.8"  
 HIGH: 17.5" (2017)  
 LOW: 2.4" (2019)  
 AVG: 9.6"

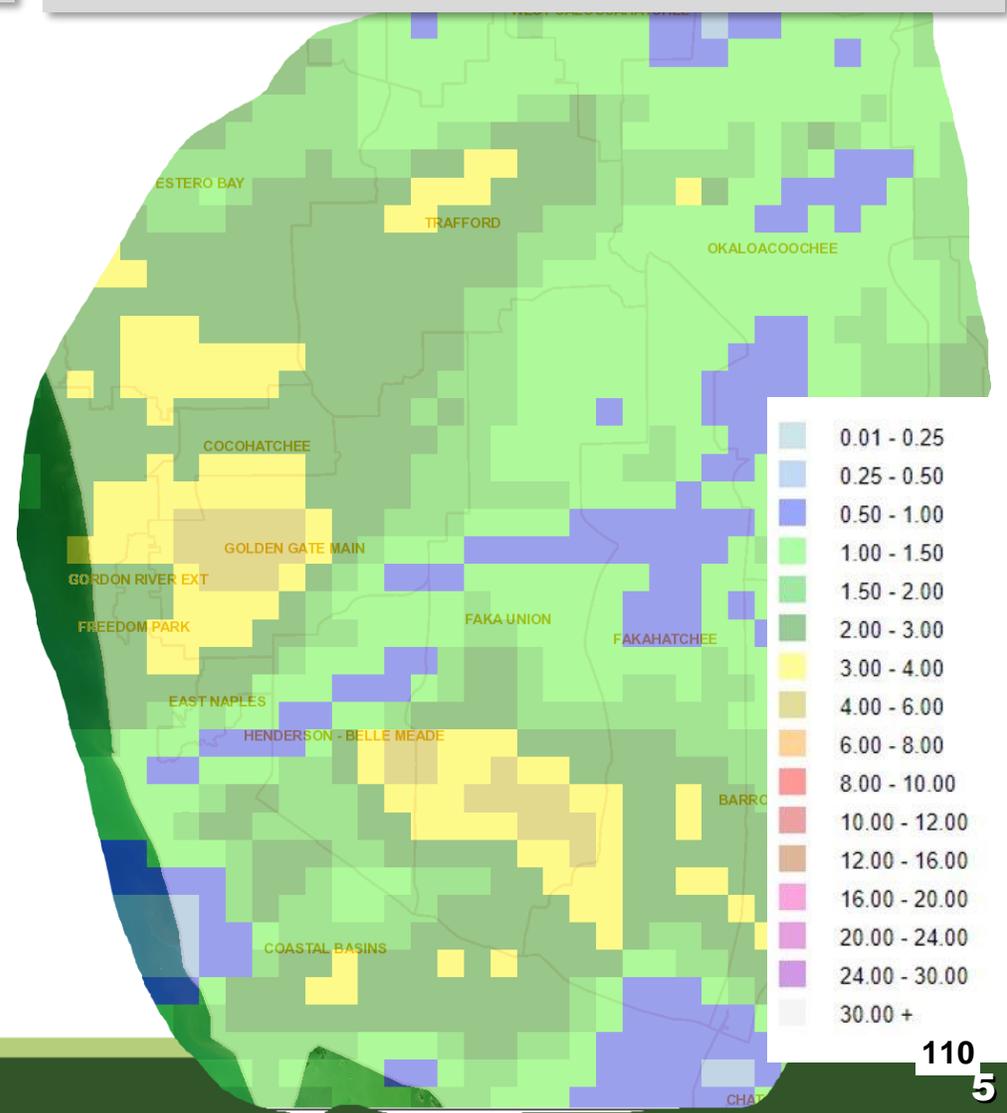


# Hydrologic Conditions ~ BCB Rainfall

## OCTOBER 2023 BY BASIN

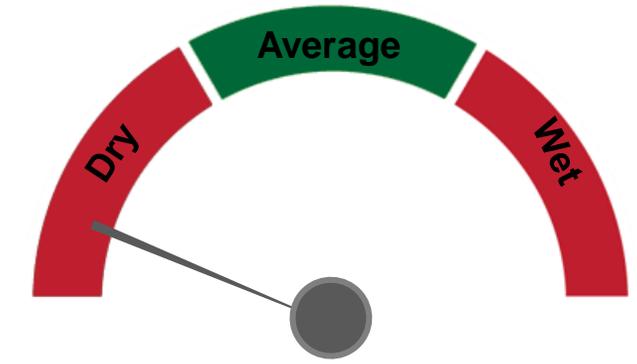
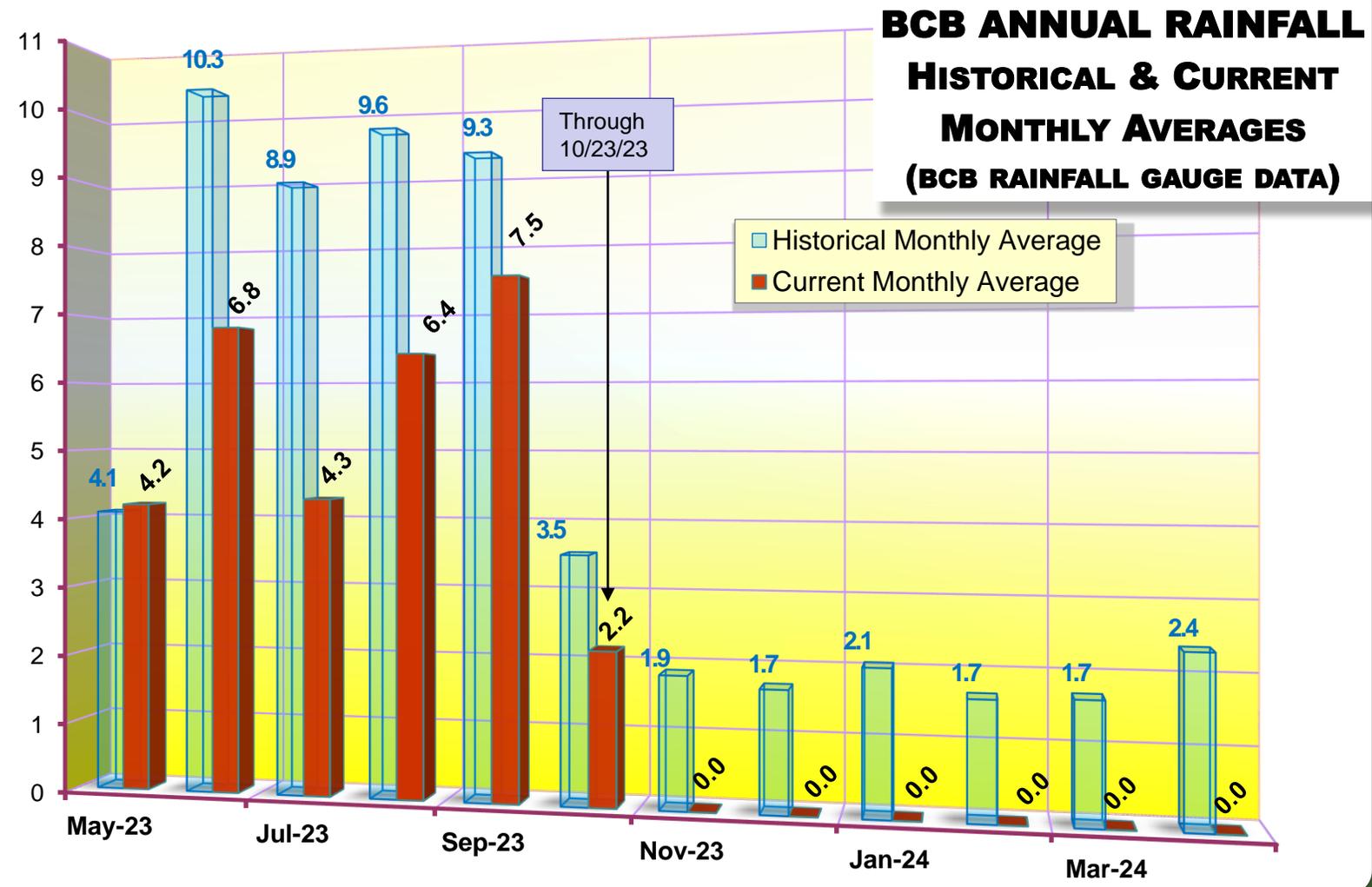


## OCTOBER 2023 RAINDAR



**HISTORICAL COMPARISON**  
**2023: 2.2" (THRU 10/23)**  
**HIGH: 13.3" (1995)**  
**Low: 0.7" (2003)**  
**AVG: 3.5"**

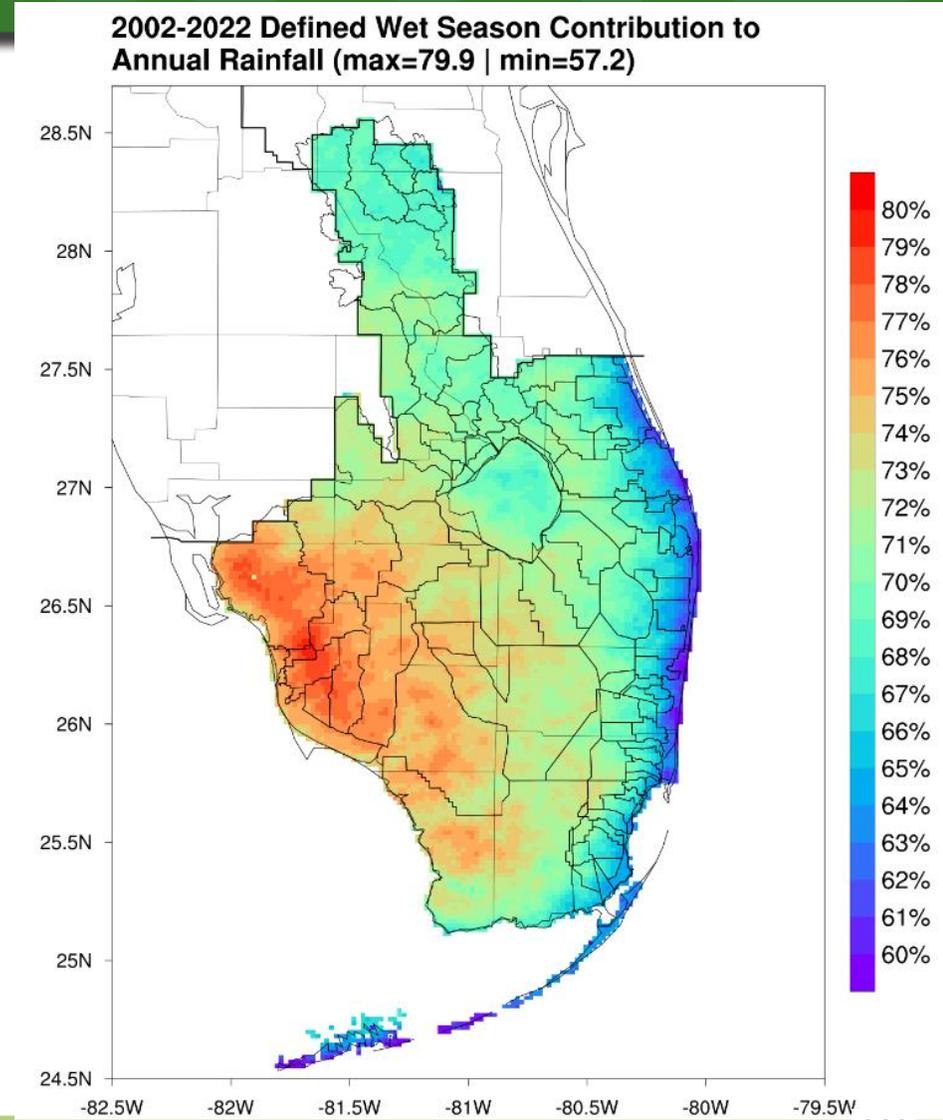
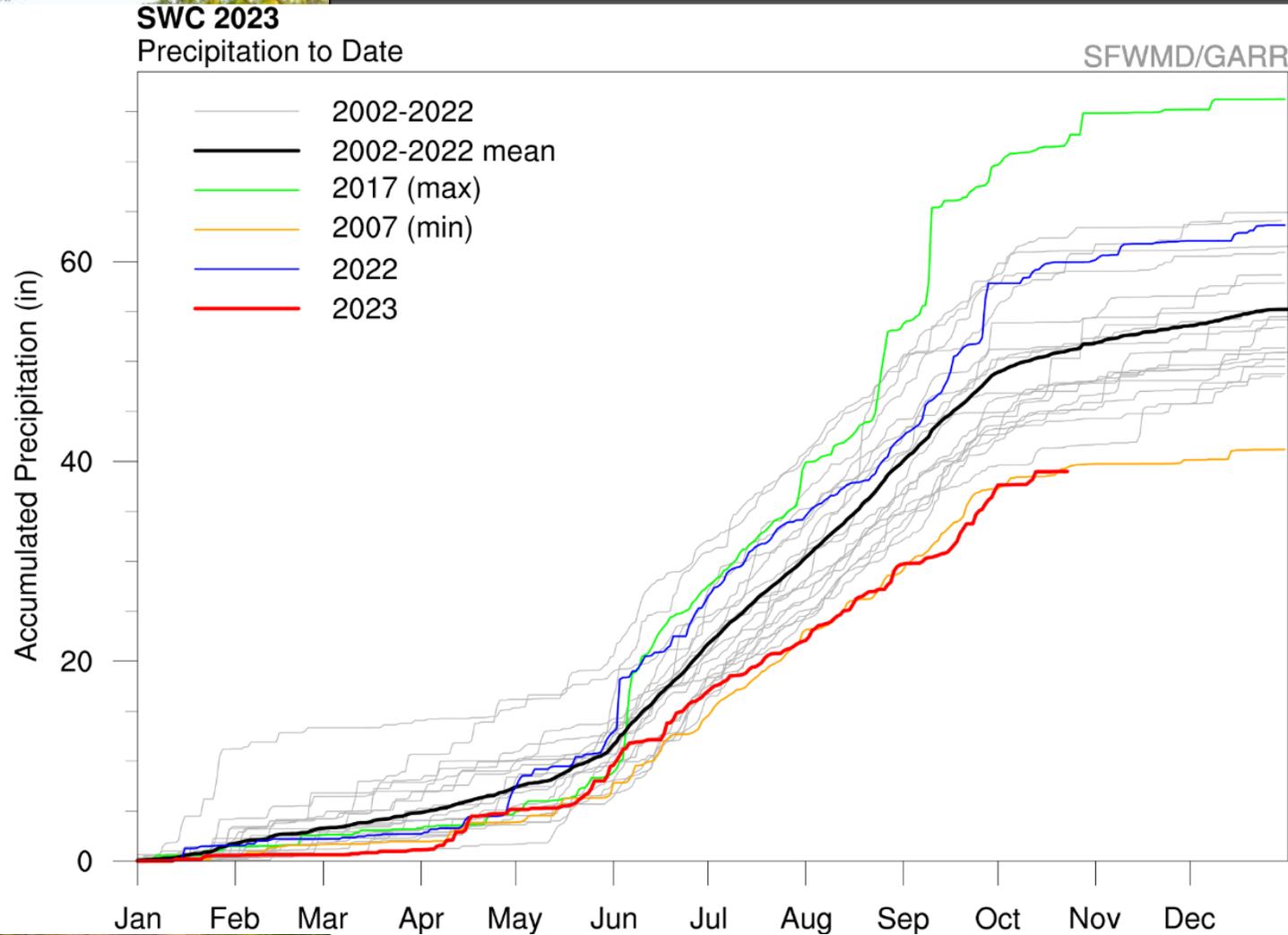
# BCB Water Year Summary



**Water Year Rainfall**  
**May 1, 2023 –**  
**October 23, 2023**  
**BCB Total Rainfall: 31.4"**

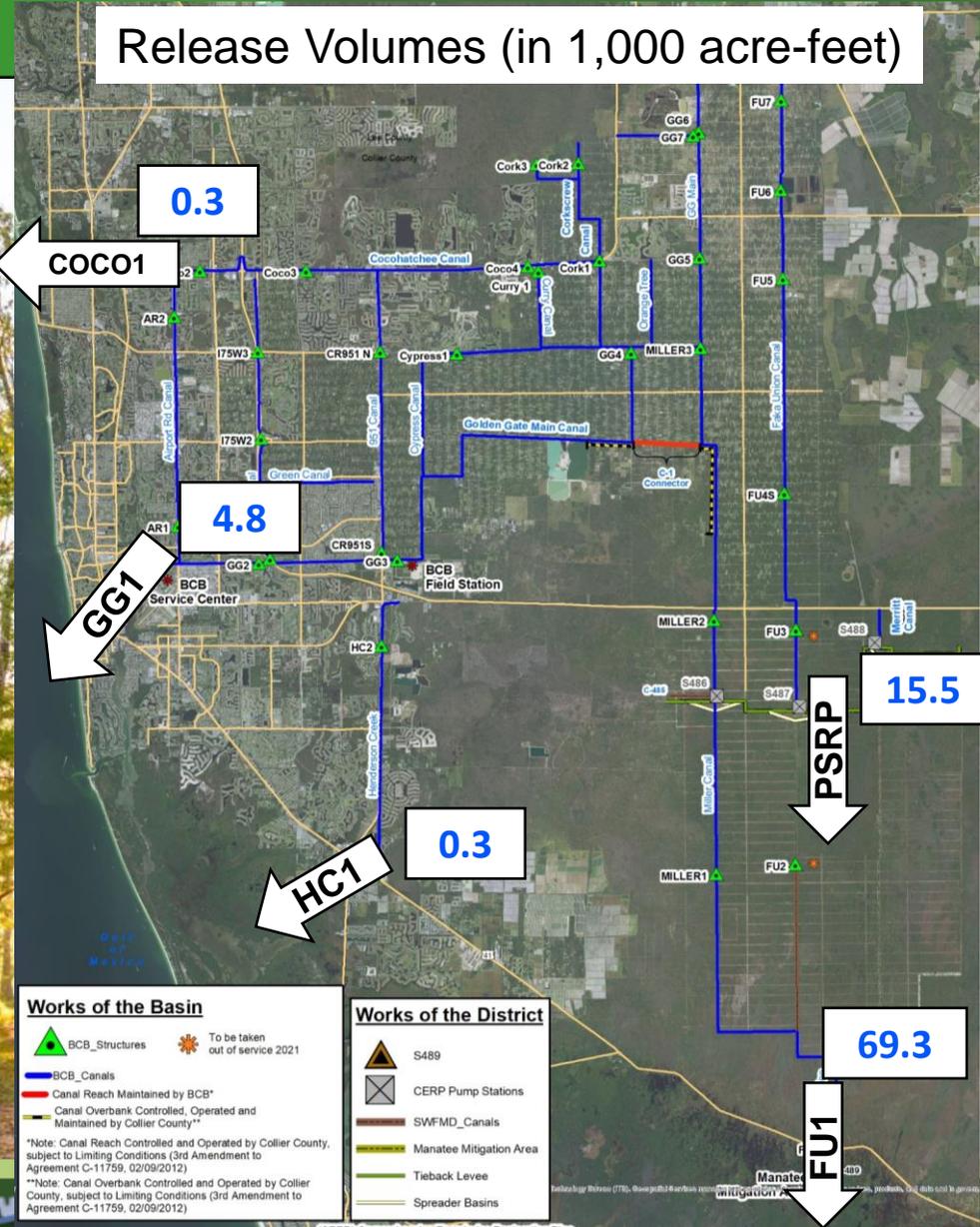
- 66% of average
- Approx. 15.6" deficit
- Wet Season Start - May 14, 2023
- Dry Season Start – Oct. 1, 2023

# BCB Wet Season Rainfall Contribution



# BCB - Outflow Volumes

Release Volumes (in 1,000 acre-feet)



## Wet Season Discharge - 05/14/23 – 09/30/23

Coastal discharge volumes – near zero

GG1 volume ~ 2% of average volume (11 million gallons per day)

COCO1 volume ~ 1% of average volume (170 Olympic pools)

Comparison to 2022 (COCO1) ~ 15,413 Olympic pools

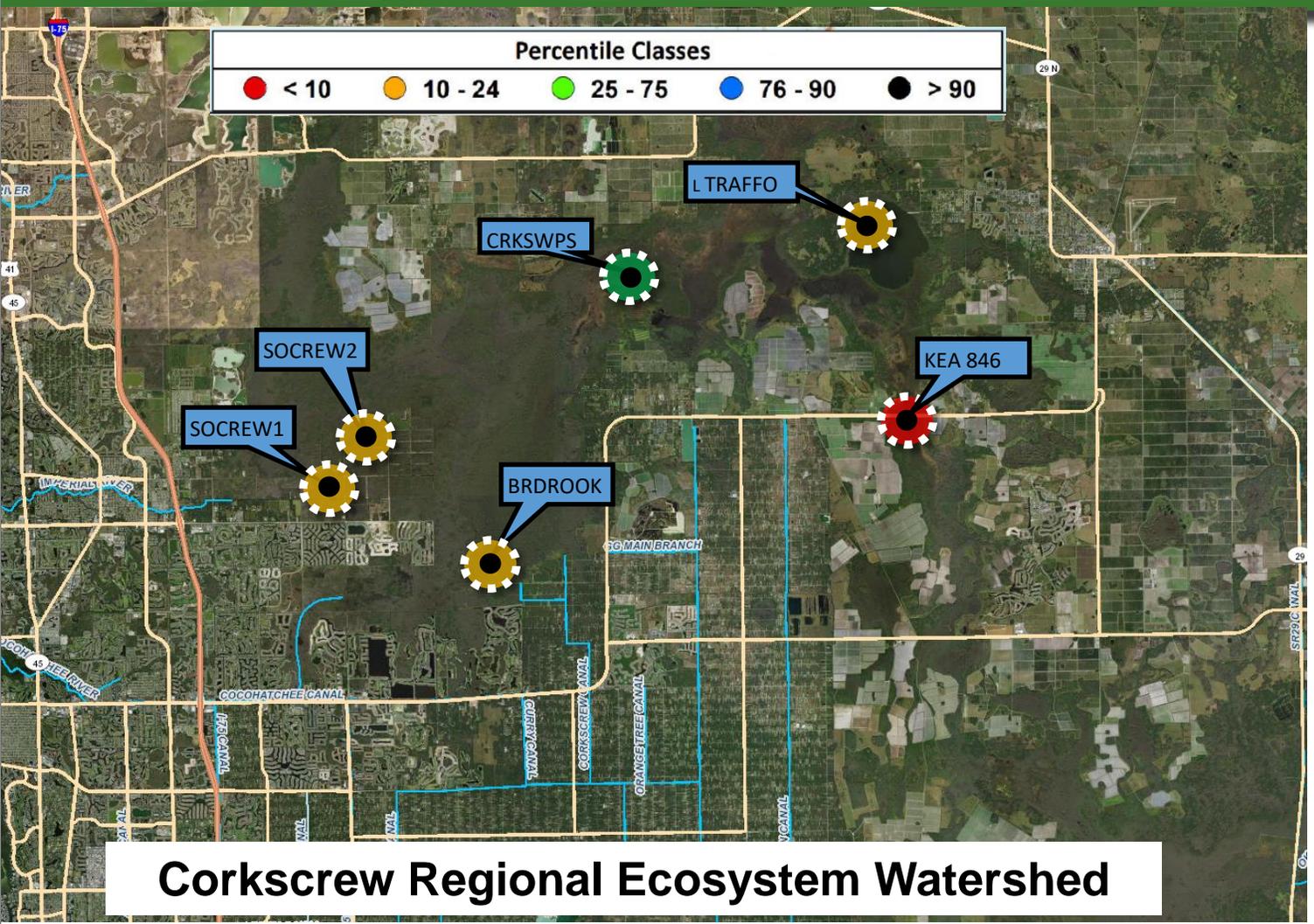
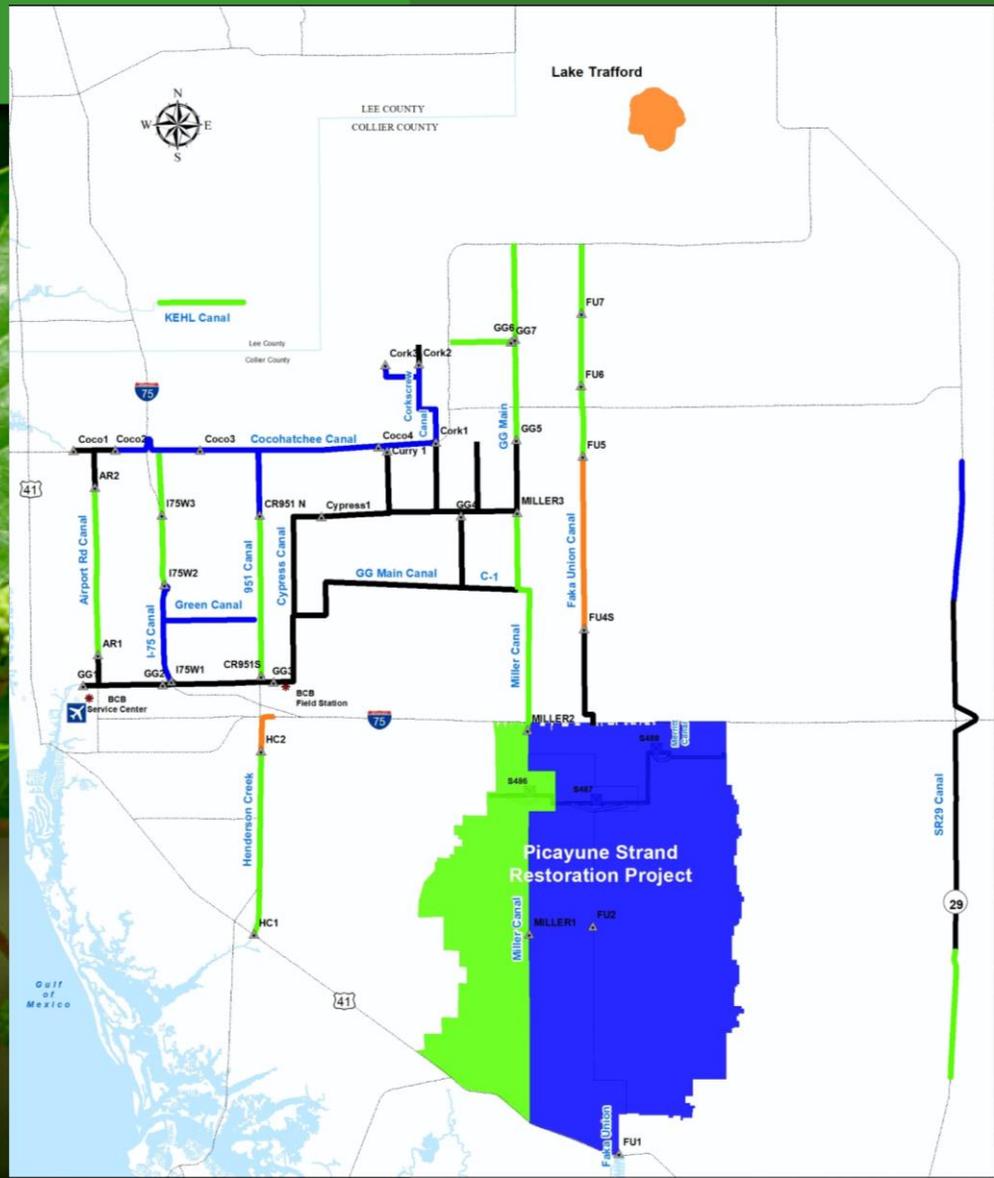


Low Water Airport Canal



Low Water CORK3

# Big Cypress Basin Hydrologic Conditions as of 10/24/2023



Corkscrew Regional Ecosystem Watershed



# BCB Cocohatchee Canal

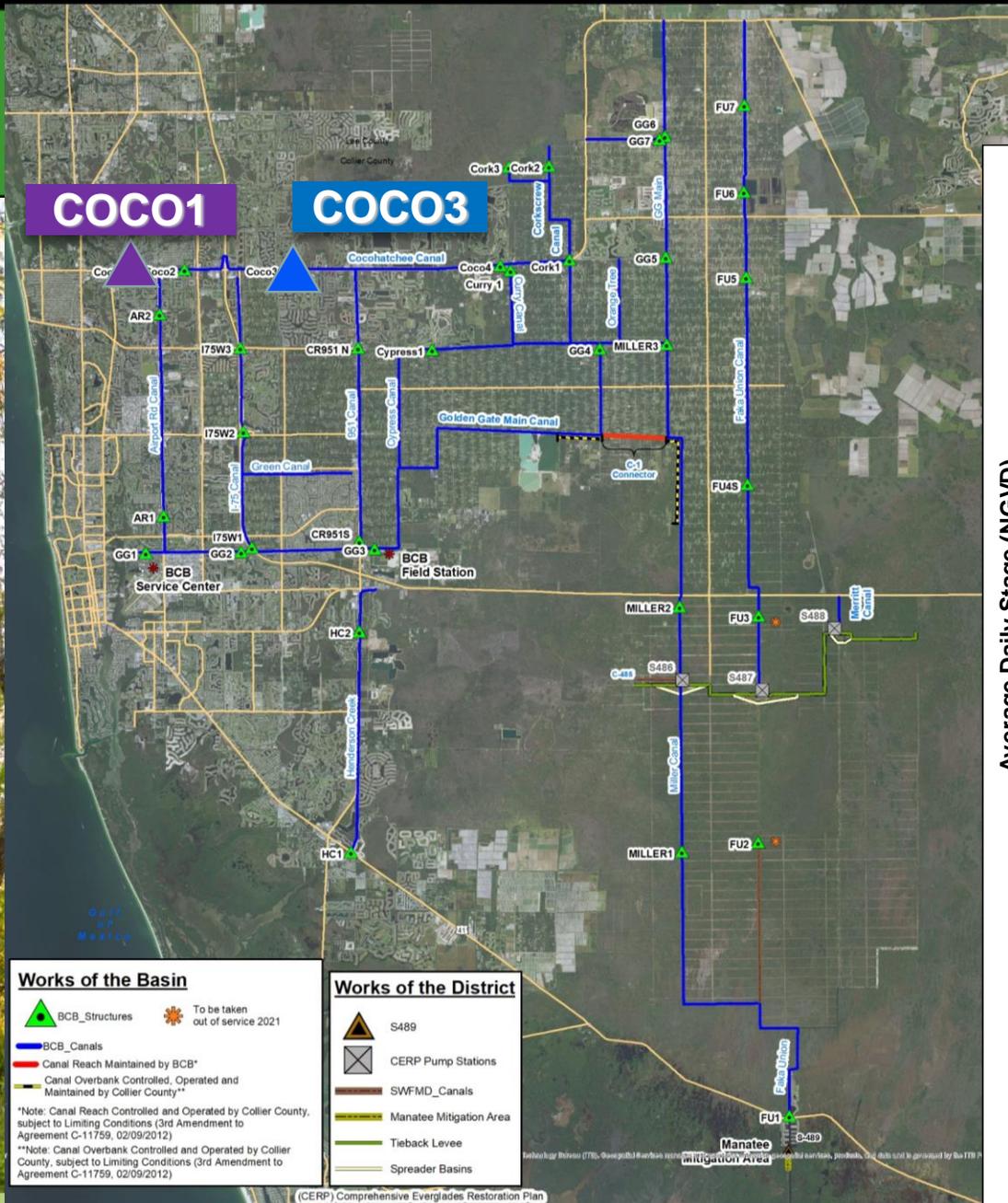
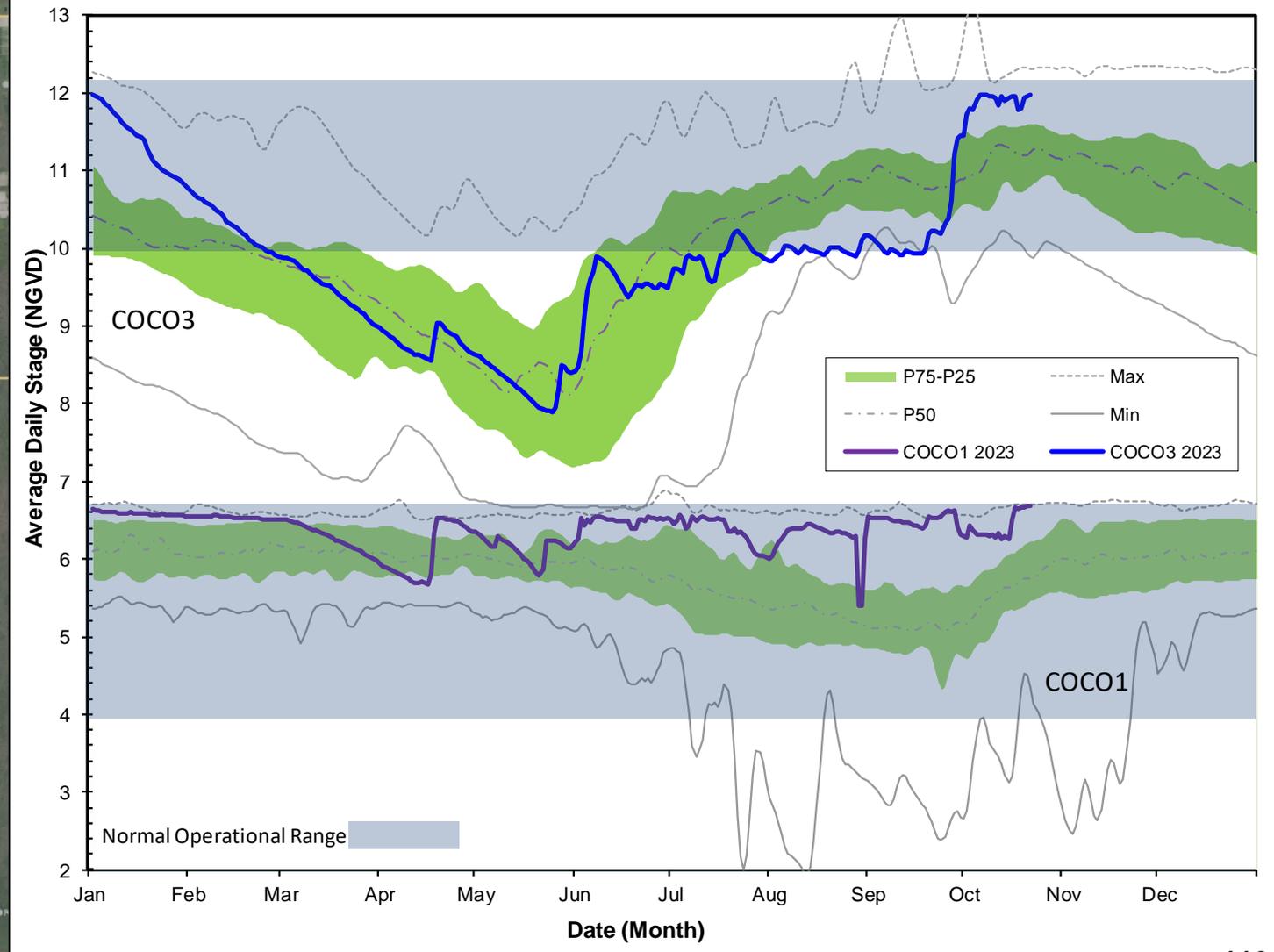


Figure 6A Cocohatchee Canal Historic Average Daily Headwater Percentiles



# BCB Faka Union Canal

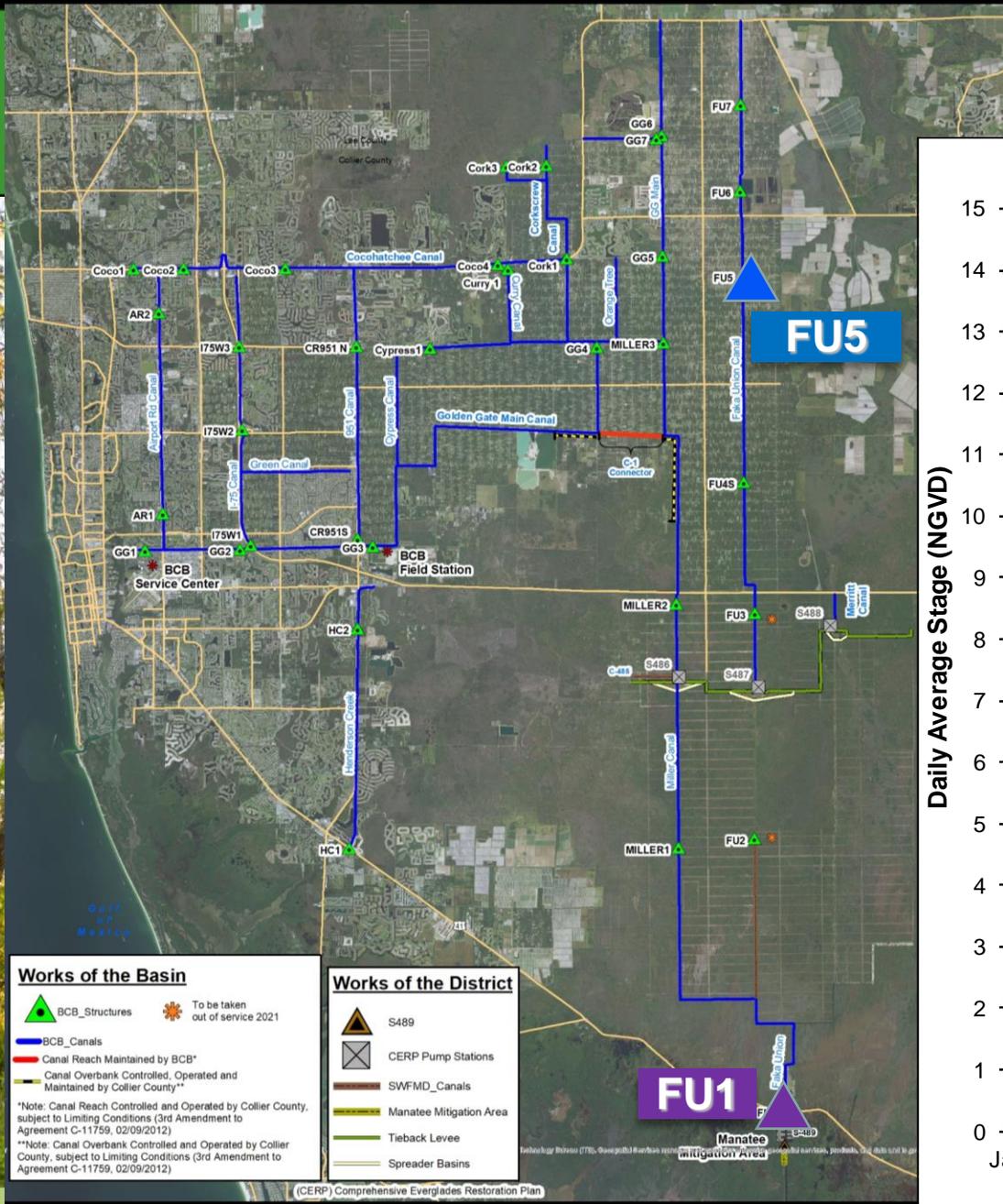
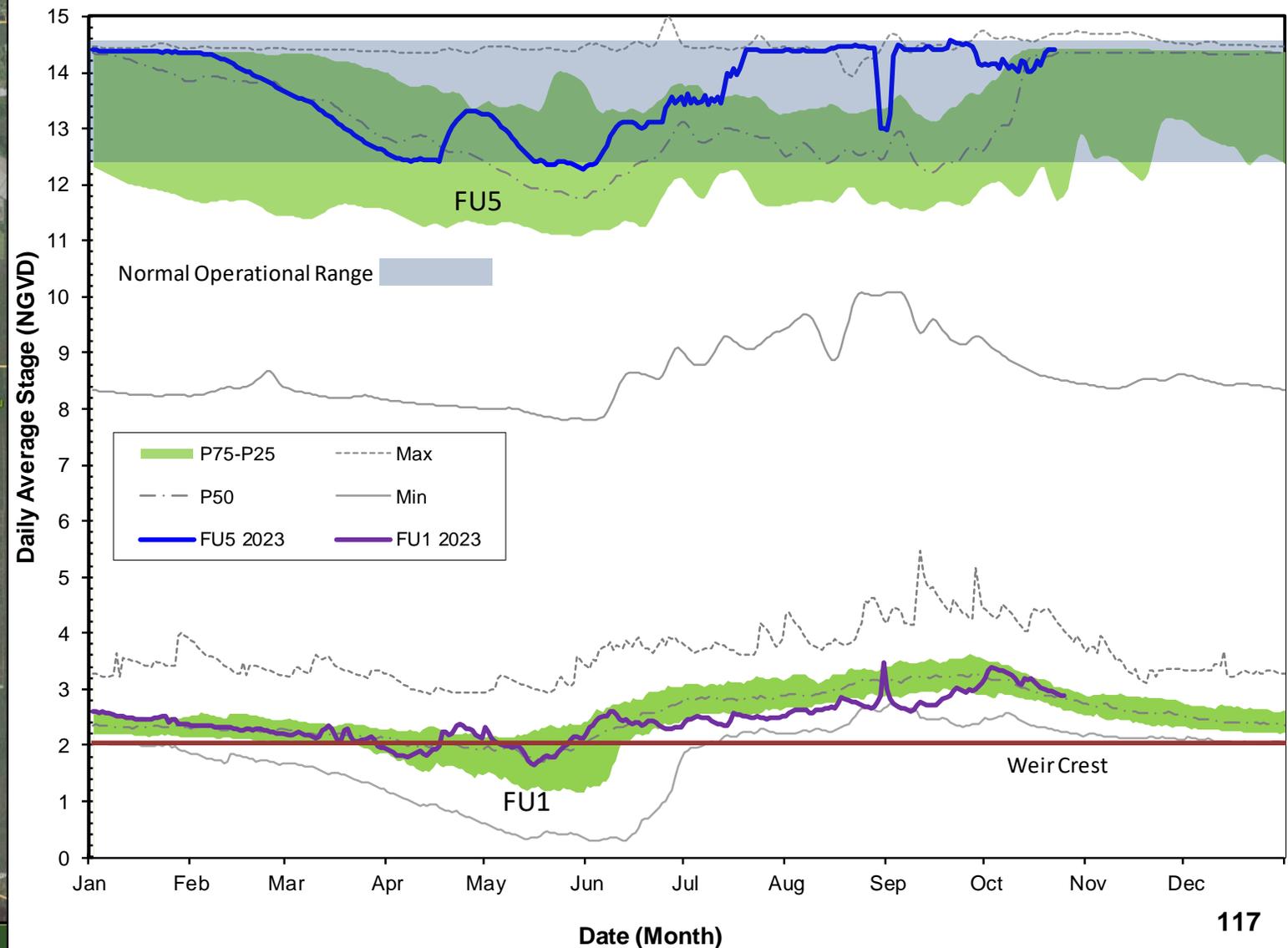


Figure 7A Faka Union Canal Historic Average Daily Headwater Percentiles



**Works of the Basin**

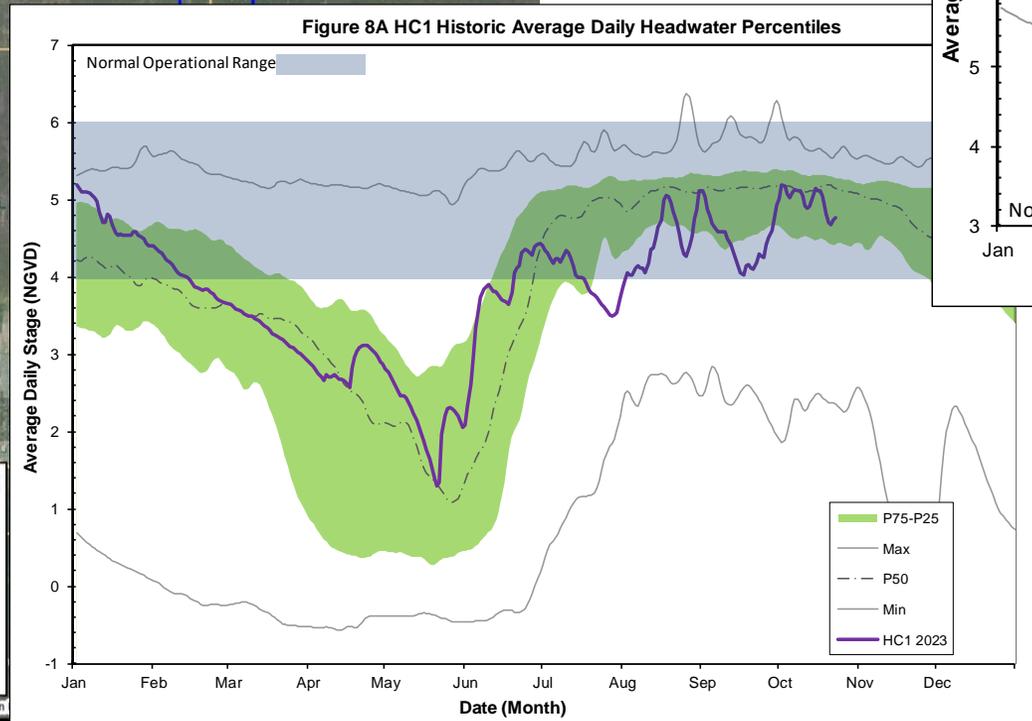
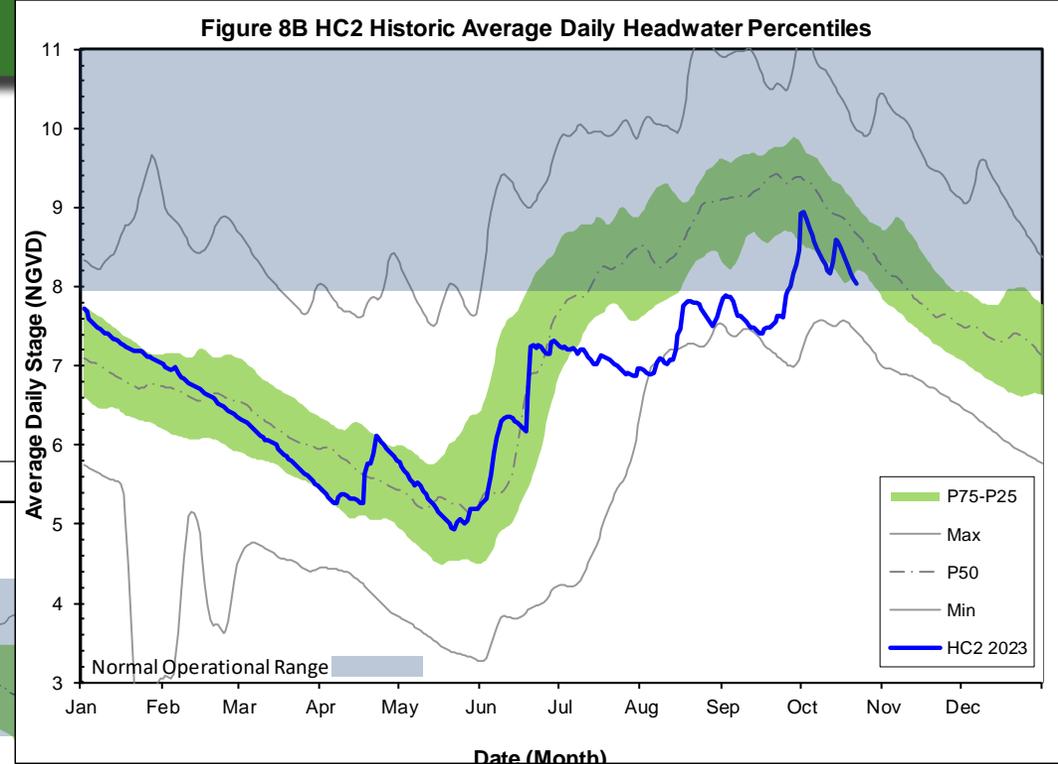
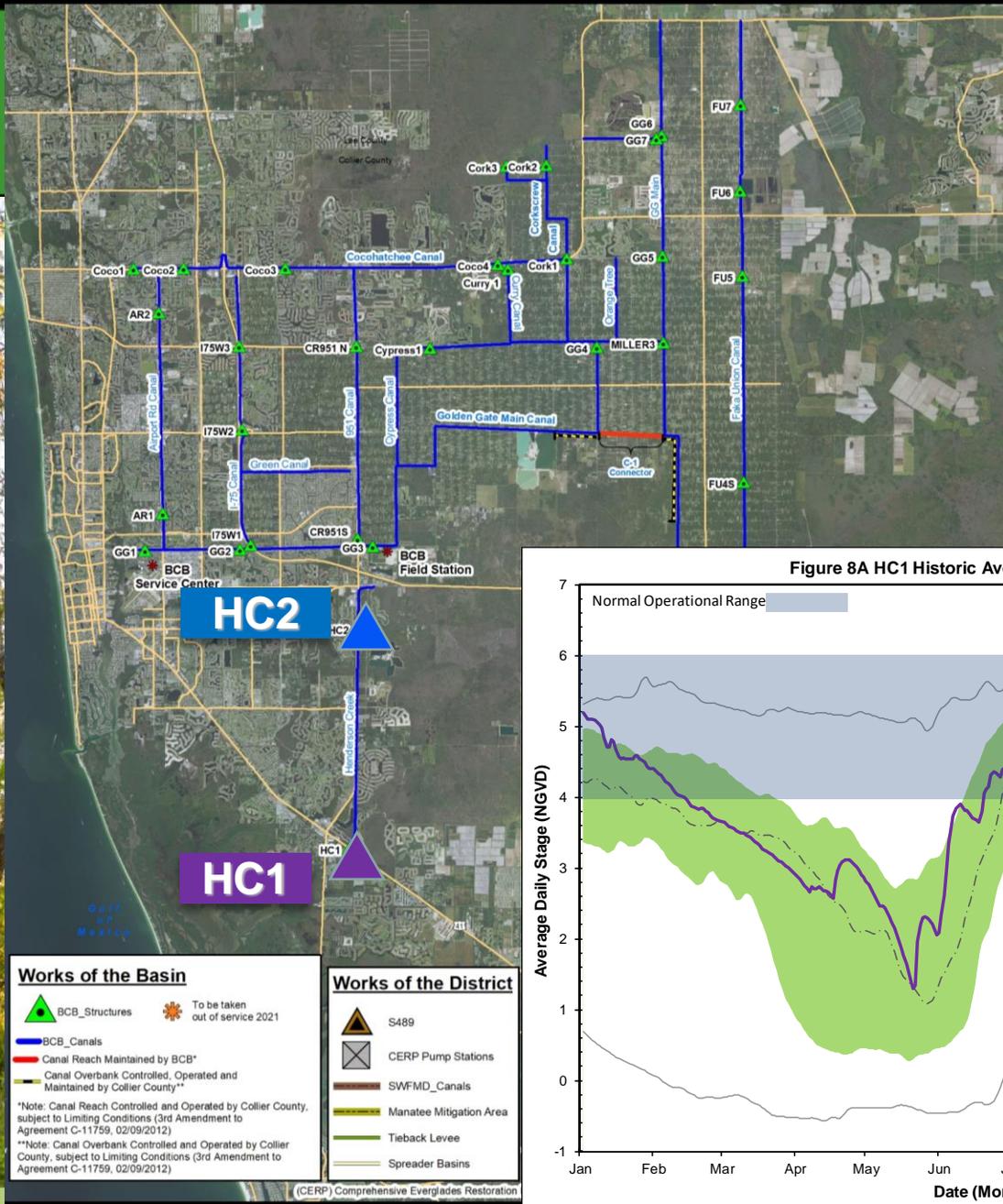
- BCB Structures
- To be taken out of service 2021
- BCB Canals
- Canal Reach Maintained by BCB\*
- Canal Overbank Controlled, Operated and Maintained by Collier County\*\*

\*Note: Canal Reach Controlled and Operated by Collier County, subject to Limiting Conditions (3rd Amendment to Agreement C-11759, 02/09/2012)  
\*\*Note: Canal Overbank Controlled and Operated by Collier County, subject to Limiting Conditions (3rd Amendment to Agreement C-11759, 02/09/2012)

**Works of the District**

- S489
- CERP Pump Stations
- SWFMD Canals
- Manatee Mitigation Area
- Tieback Levee
- Spreader Basins

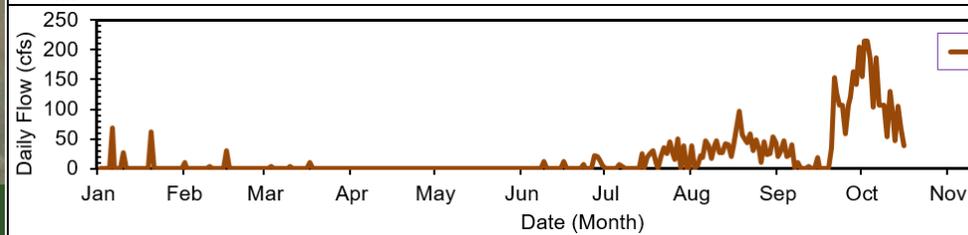
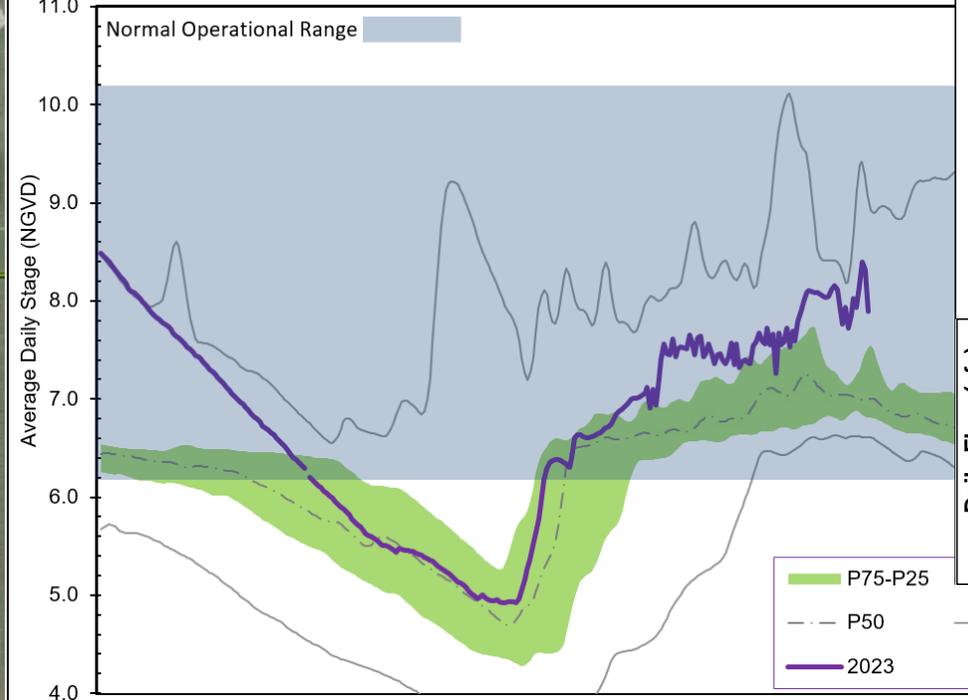
# BCB Henderson Creek Canal



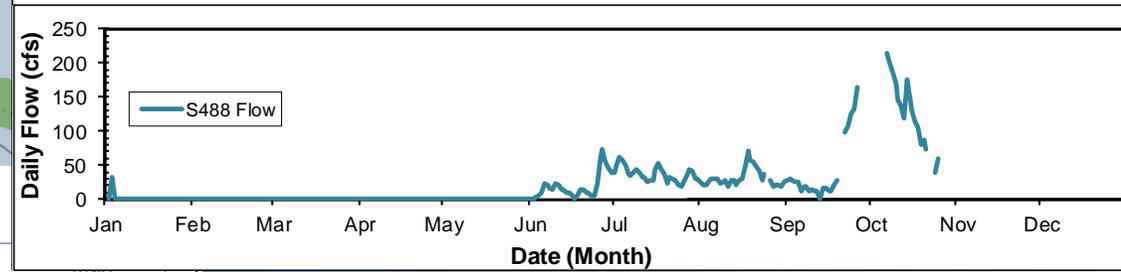
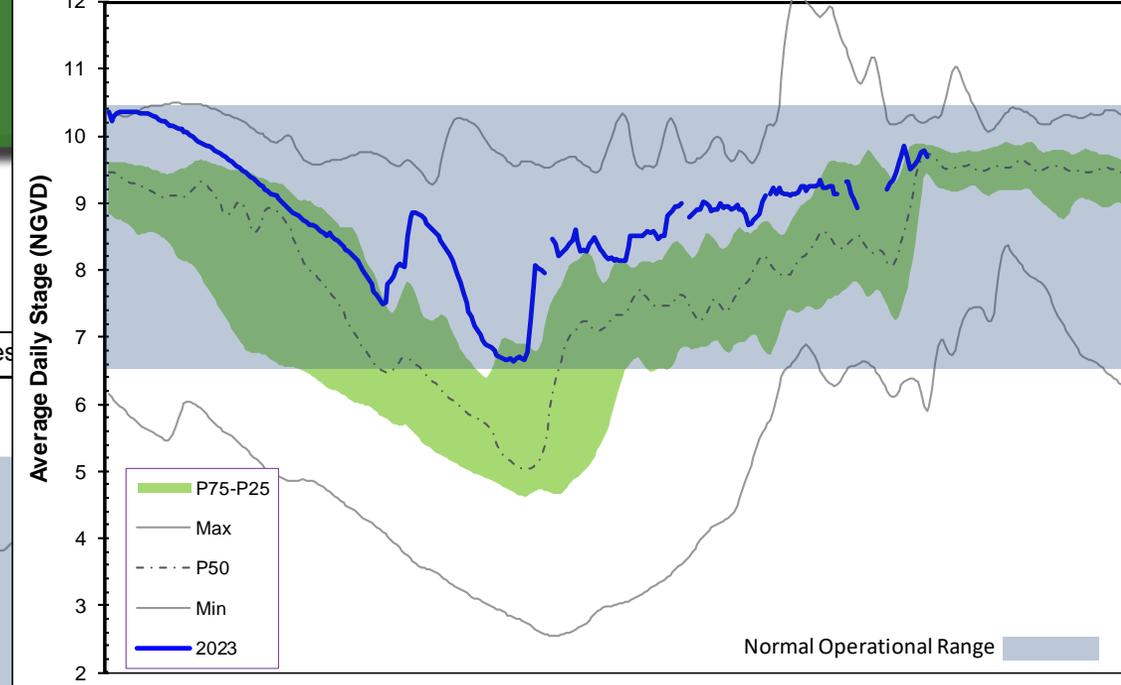
# Picayune Strand Restoration Project Operations



Faka Union at S487 Historic Average Daily Headwater Percentiles

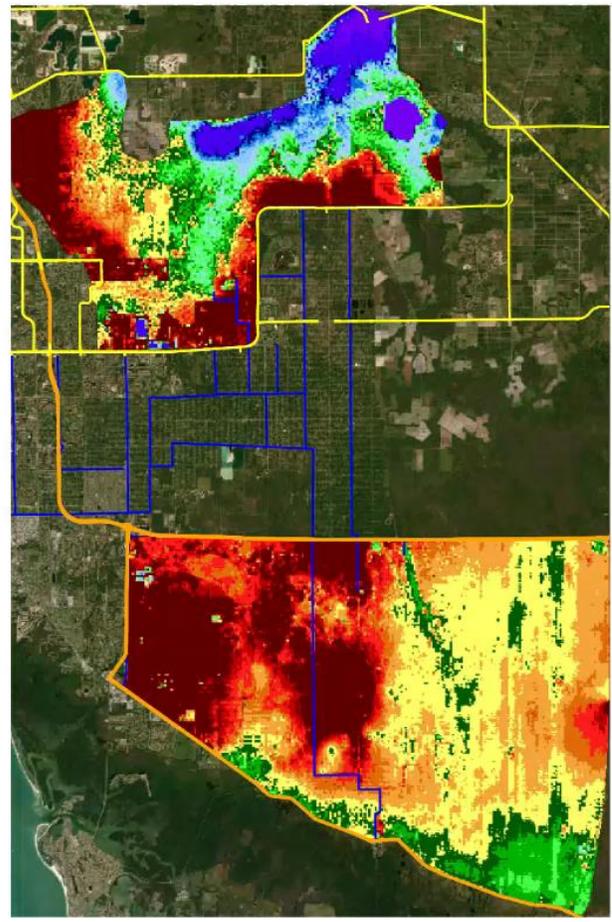
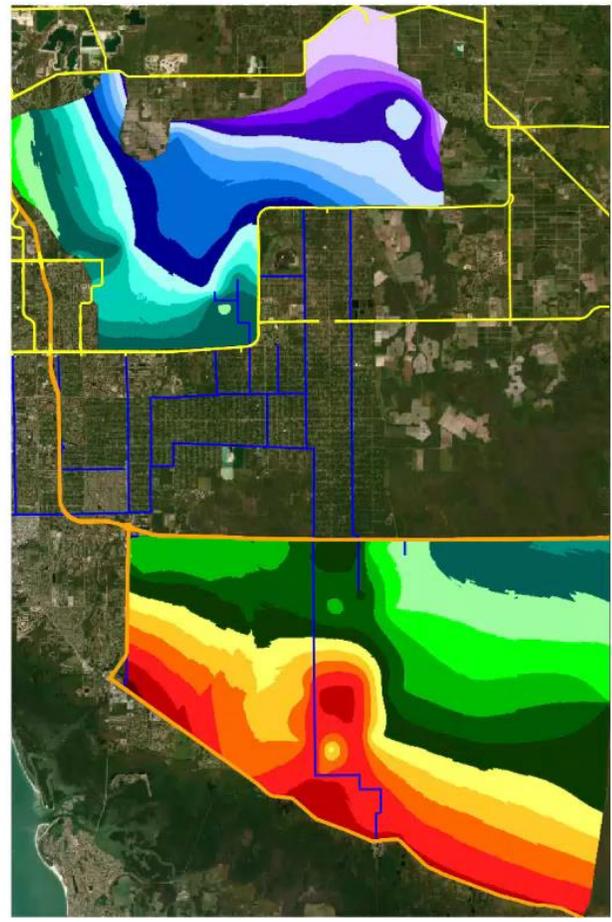


Merritt at S488 Historic Average Daily Headwater Percentiles

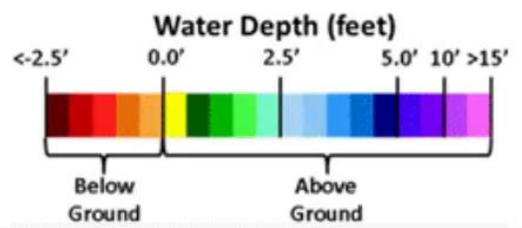
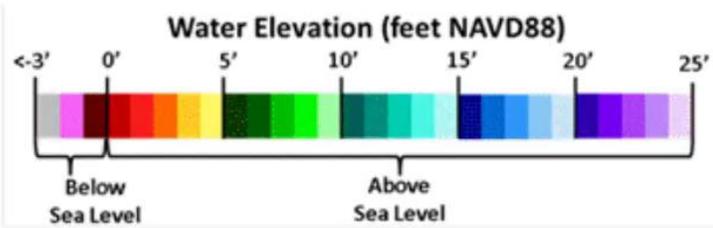


# BCB Water Depth Maps

- Estimated daily water depth & contour map for past 365 days
- Utilizes extensive network of SFWMD & USGS monitoring sites
- Updated to include comprehensive topographic survey completed last year in Bird Rookery & Corkscrew Swamp Sanctuary
- Focus on Corkscrew Regional Ecosystem Watershed (CREW) & Picayune Strand Restoration Project (PSRP)

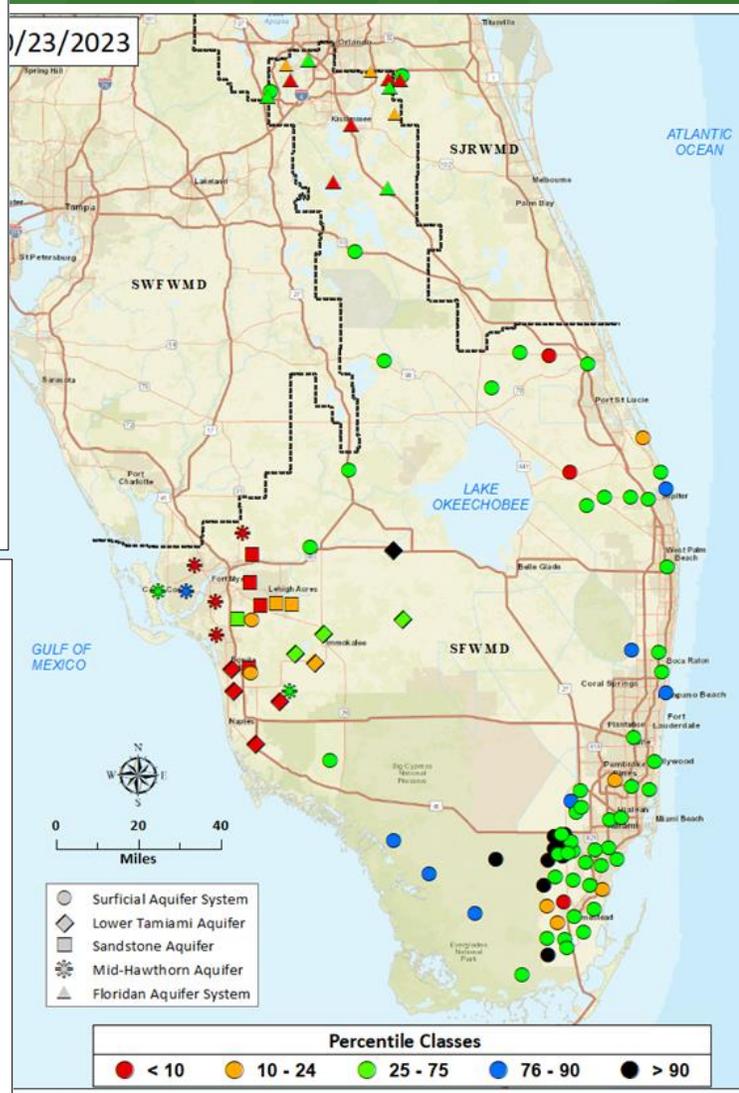
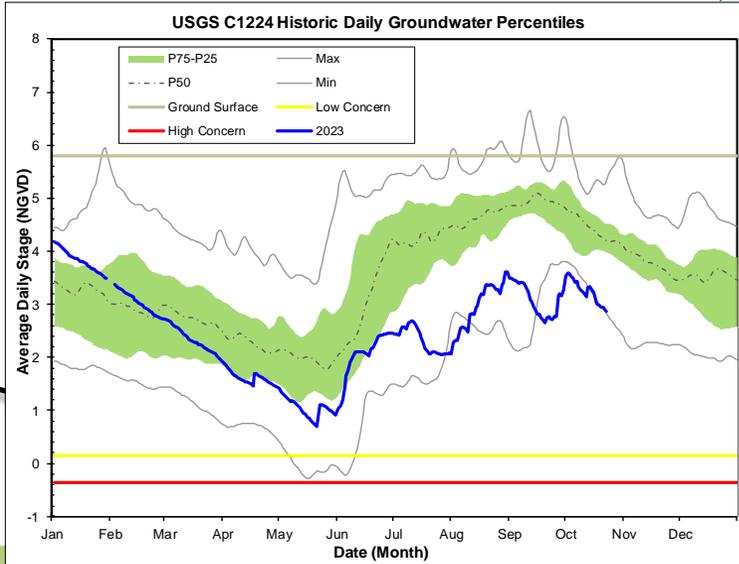
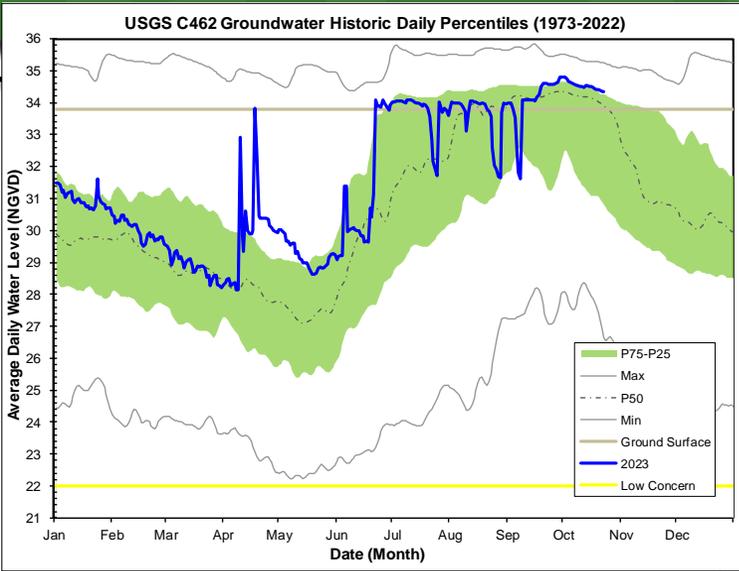
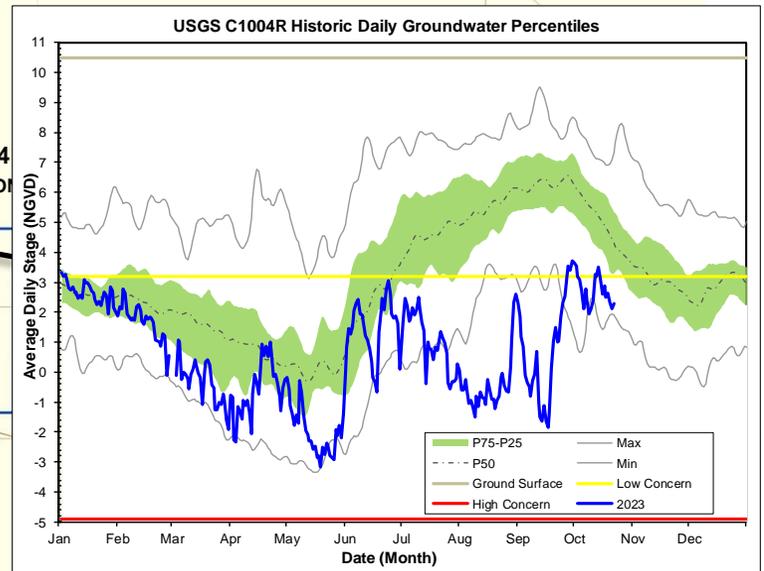
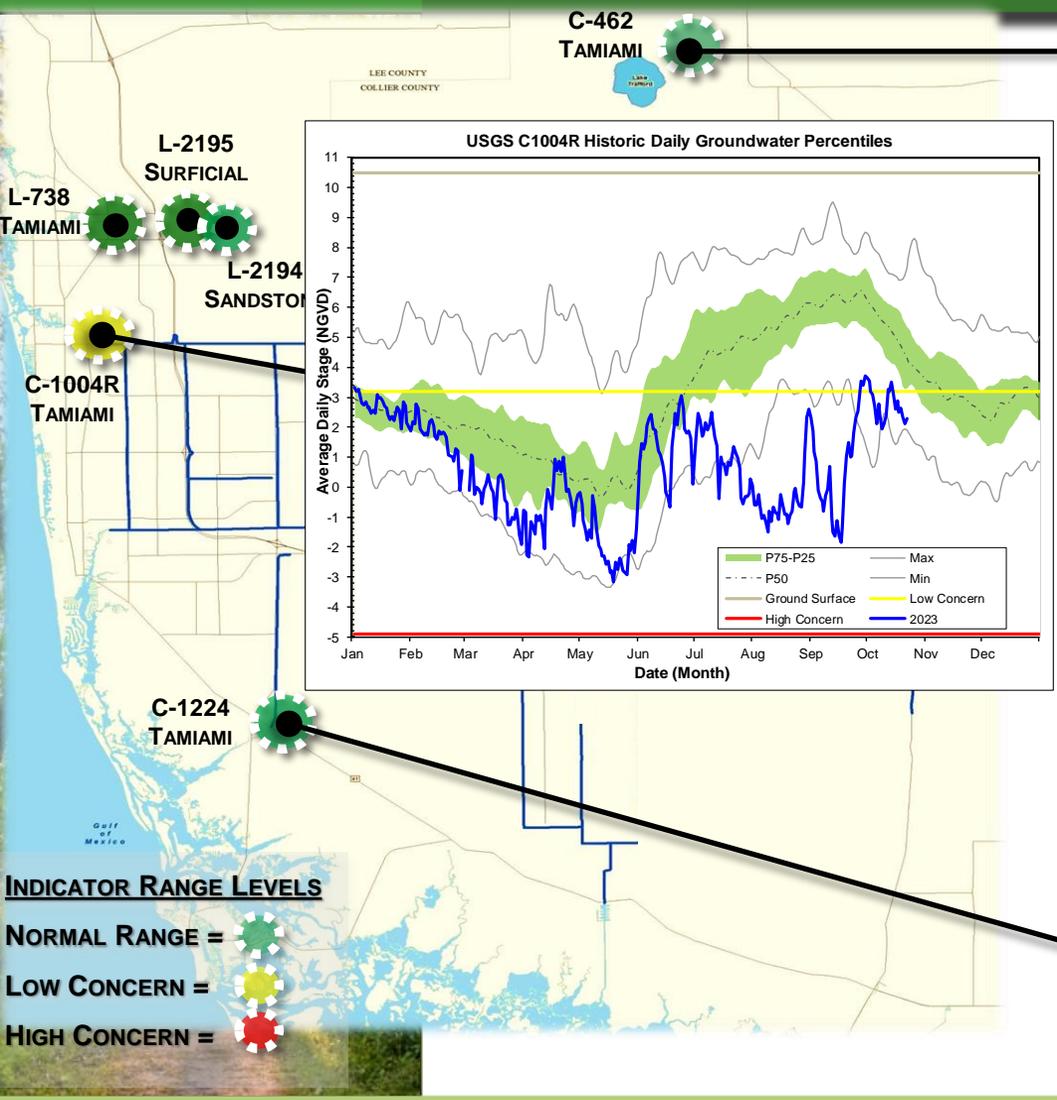


10/16/2022

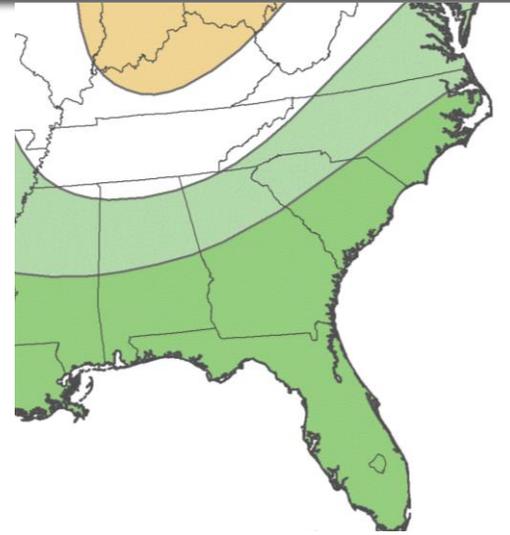
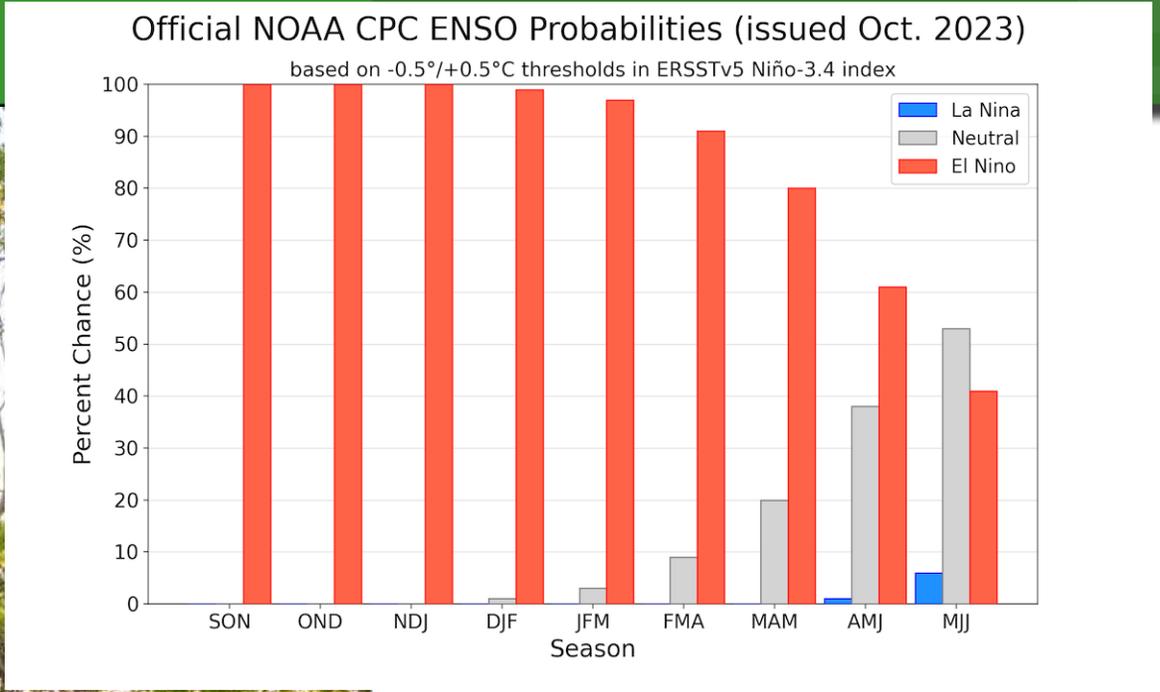


SOURCE: WATER DEPTH ASSESSMENT TOOL (SFWDAT)  
 ALL WDAT PRODUCTS BASED ON PROVISIONAL DATA

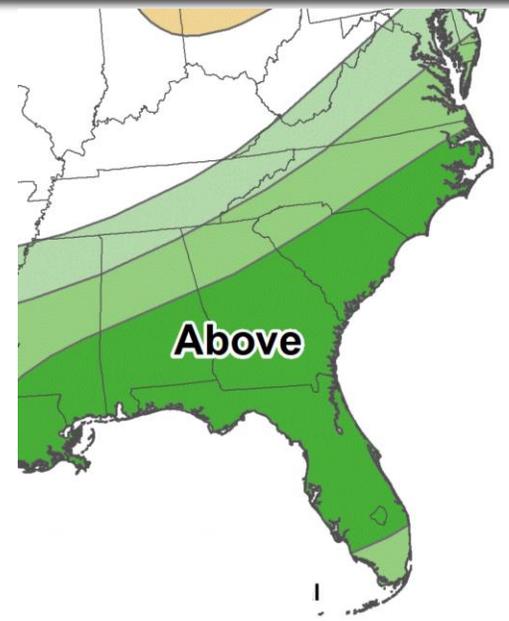
# Groundwater Level Trends



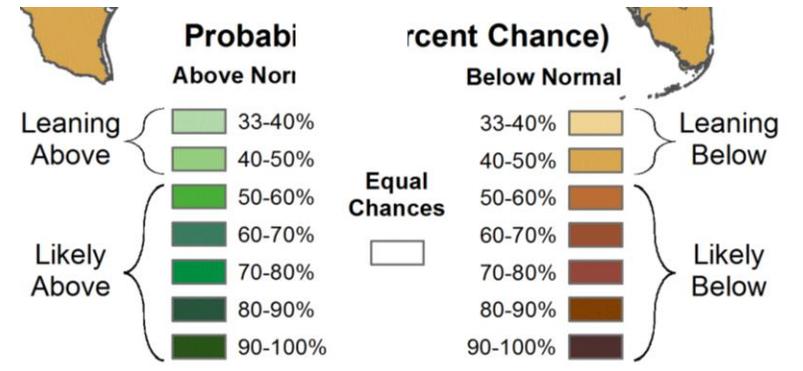
# Long-Range Precipitation Outlook



Dec 2023 – Feb 2024

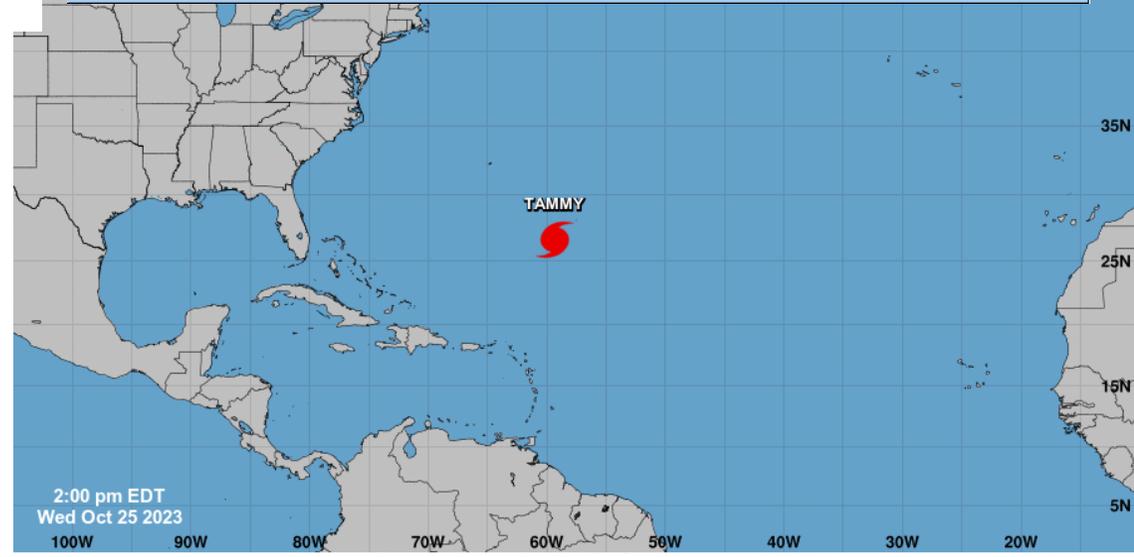
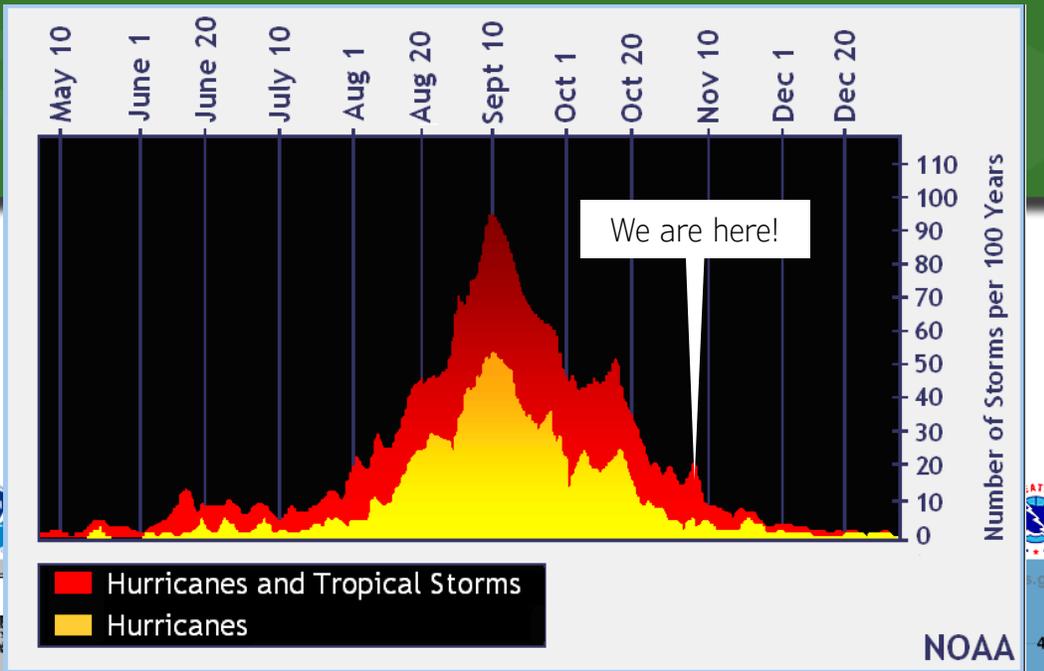
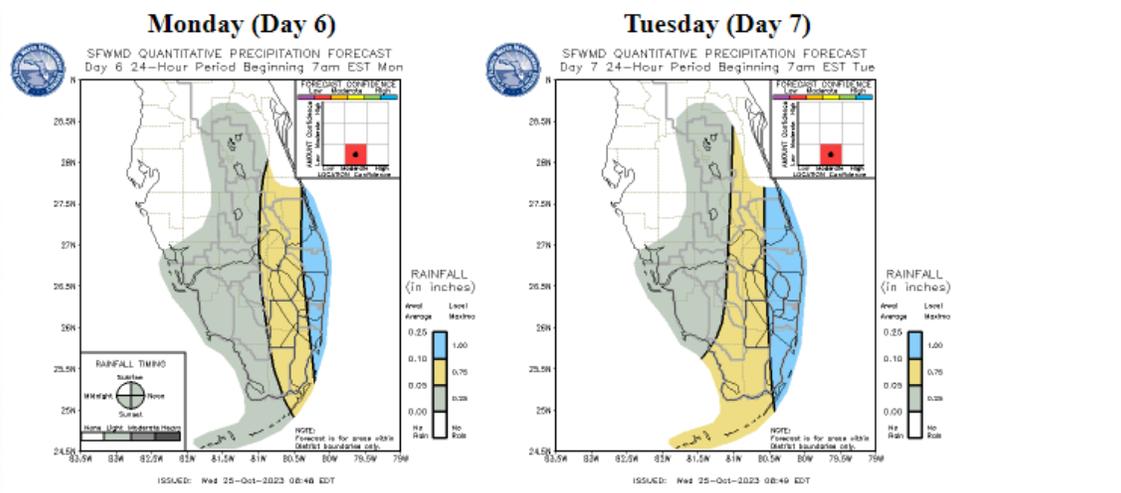
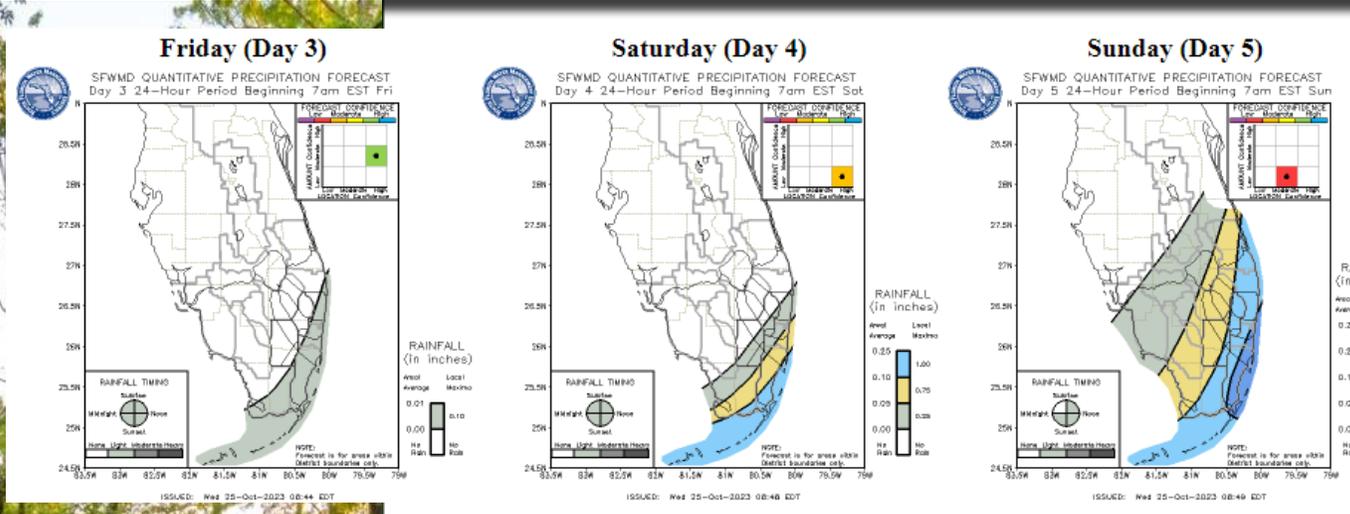


Nov 2023 – Jan 2024



- El Niño conditions to continue at least through early Summer 2024; transition to neutral
- How El Niño generally effects climate in Florida
  - Winter – Generally wetter & cooler than average

# Short Term Forecast



Current Disturbances and Seven-Day Cyclone Formation Chance: ✕ < 40% ✕ 40-60% ✕ > 60%

Tropical or Sub-Tropical Cyclone: ○ Depression ◓ Storm ◓ Hurricane

⊙ Post-Tropical Cyclone or Remnants

# BCB Water Conditions Report

QUESTIONS ?





# **Big Cypress Basin**

## **Monthly Financial Statement**

### **August 2023**

**Candida Heater**  
**Administrative Services Division Director**  
**October 27, 2023**

