

WELCOME

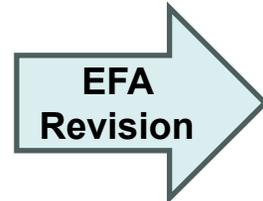


23rd Annual Public Meeting on the Long-Term Plan for Achieving Water Quality Goals for the Everglades Protection Area Tributary Basins

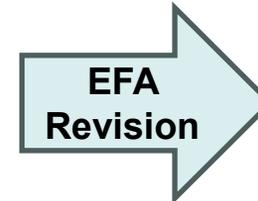
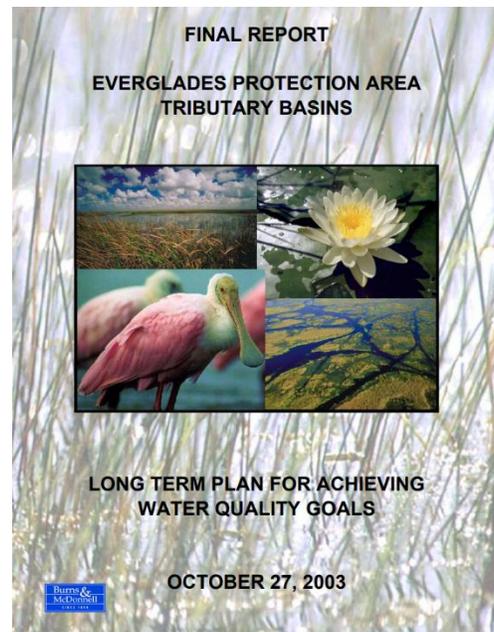
**February 23, 2026
9:00 am**

Everglades Forever Act

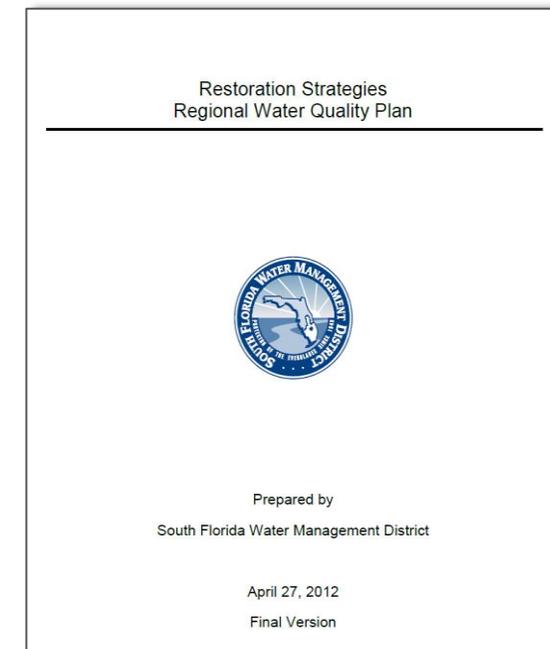
1994



2003



2013



AGENDA

- | | |
|---|-------|
| 1. Welcome and Introduction
<i>Robert Shuford, Everglades and Estuaries Protection Bureau</i> | 9:00 |
| 2. System Conditions
<i>Robert Shuford, Everglades and Estuaries Protection Bureau</i> | 9:15 |
| 3. Everglades Stormwater Treatment Areas Performance Update
<i>Jessica Jenison Applied Sciences Bureau</i> | 9:35 |
| 4. STA Vegetation Management and Enhancement
<i>Jacob Thayer, Land Resources Bureau</i> | 9:55 |
| 5. Adaptive Management Projects for the STAs
5.1 Fire Project, <i>Matt Powers, Applied Sciences Bureau</i>
5.2 SAV Recovery Drawdown, <i>Camille Herteux, Applied Sciences Bureau</i> | 10:15 |
| 6. SFWMD Southern Everglades Nutrient Source Control Program Update
<i>Stephanie Nevadunsky, Everglades and Estuaries Protection Bureau</i> | 10:55 |
| 7. Public Use on SFWMD Stormwater Treatment Areas
<i>James Harbaugh, Land Resources Bureau</i> | 11:15 |
| 8. Public Comment | 11:25 |
| 9. Adjourn | 12:00 |

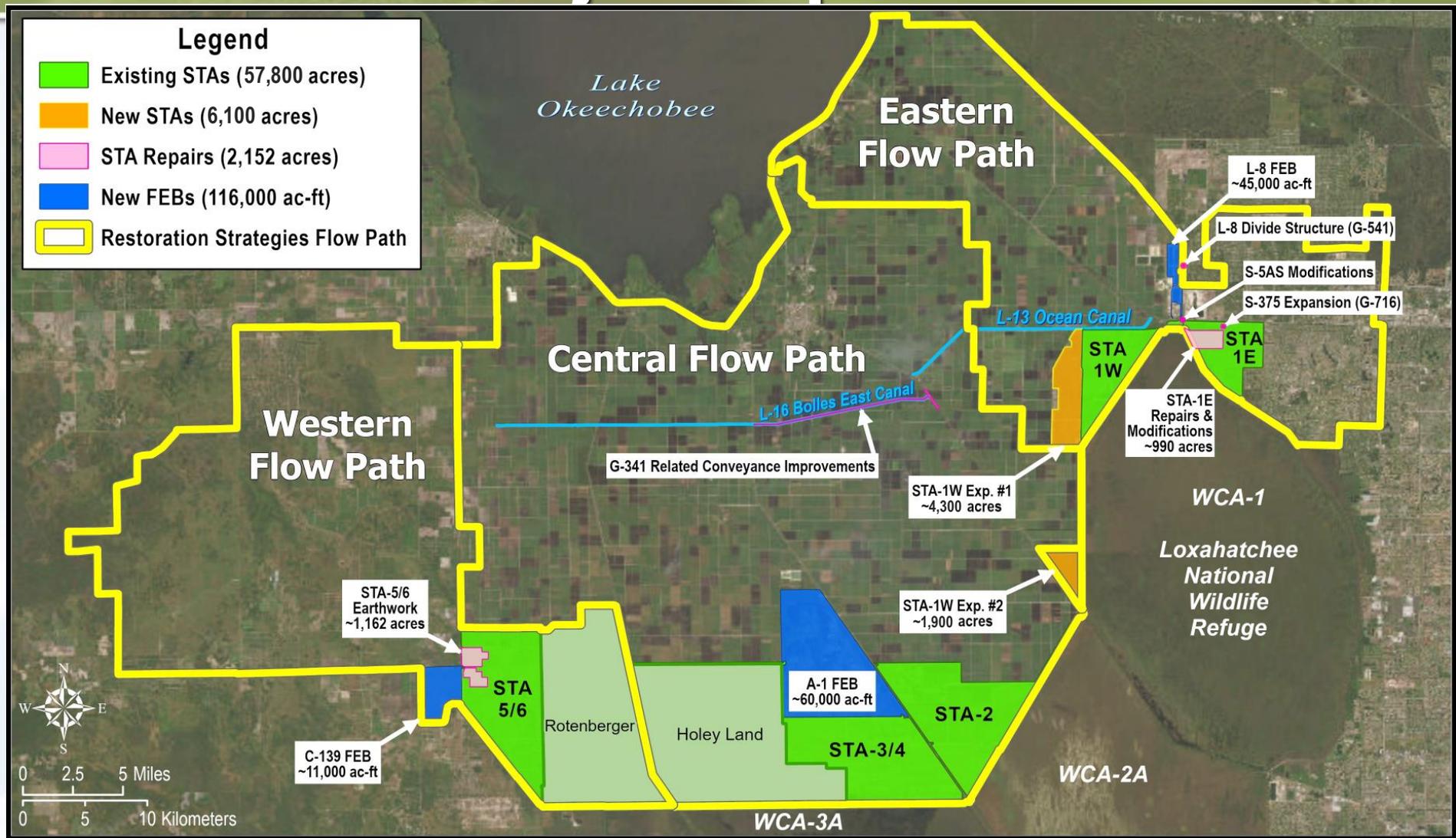
SYSTEM CONDITIONS

Robert Shuford
Lead Scientist
Everglades and Ecosystem Protection Bureau

**23rd Annual Public Meeting on the Long-Term
Plan for Achieving Water Quality Goals for the
Everglades Protection Area Tributary Basins
February 23, 2026**

RESTORATION STRATEGIES

Project Map



Presenter: Robert Shuford

RESTORATION STRATEGIES

Consent Order Requirements

EASTERN FLOW PATH	
STA-1W Expansion #2 COMPLETE - 2024	G-341 Related Conveyance Improvements COMPLETE - 2024
STA-1W Expansion #1 COMPLETE - 2020	L-8 Divide Structure COMPLETE - 2018
STA-1E Repairs and Modifications COMPLETE - 2022	S-5AS Modifications COMPLETE - 2016
L-8 FEB COMPLETE - 2022	S-375 Expansion COMPLETE - 2018

CENTRAL FLOW PATH
STA-2 Expansion: Compartment B COMPLETE - 2014
A-1 FEB COMPLETE - 2018

WESTERN FLOW PATH
STA-5/6 Internal Improvements COMPLETE - 2025
STA-5/6 Expansion: Compartment C COMPLETE - 2014
C-139 FEB COMPLETE - 2024

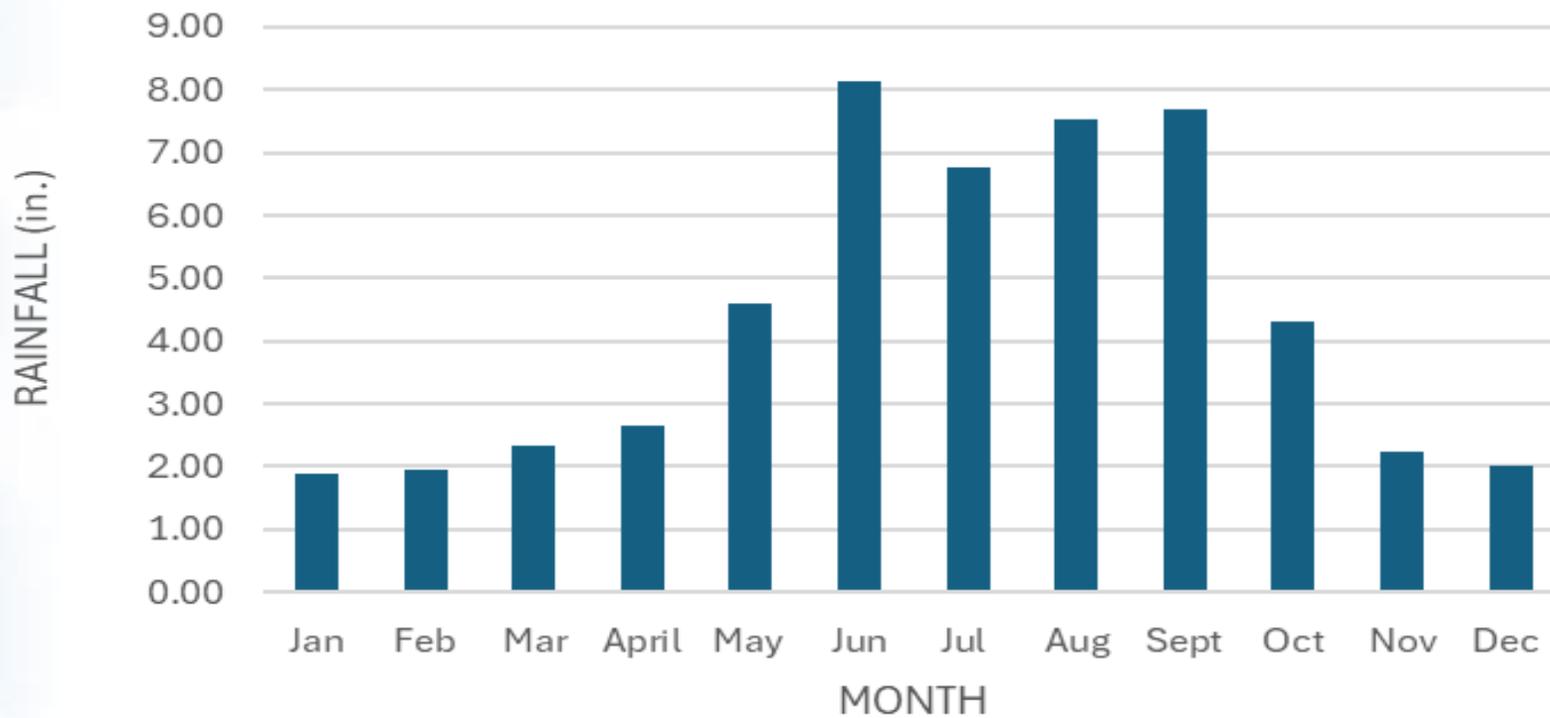
LEGEND

- Flow Equalization Basin
- Stormwater Treatment Area
- Conveyance Improvement

Presenter: Robert Shuford

HISTORIC RAIN PATTERNS

MONTHLY AVERAGE RAINFALL (in.)
POR 1995-2026

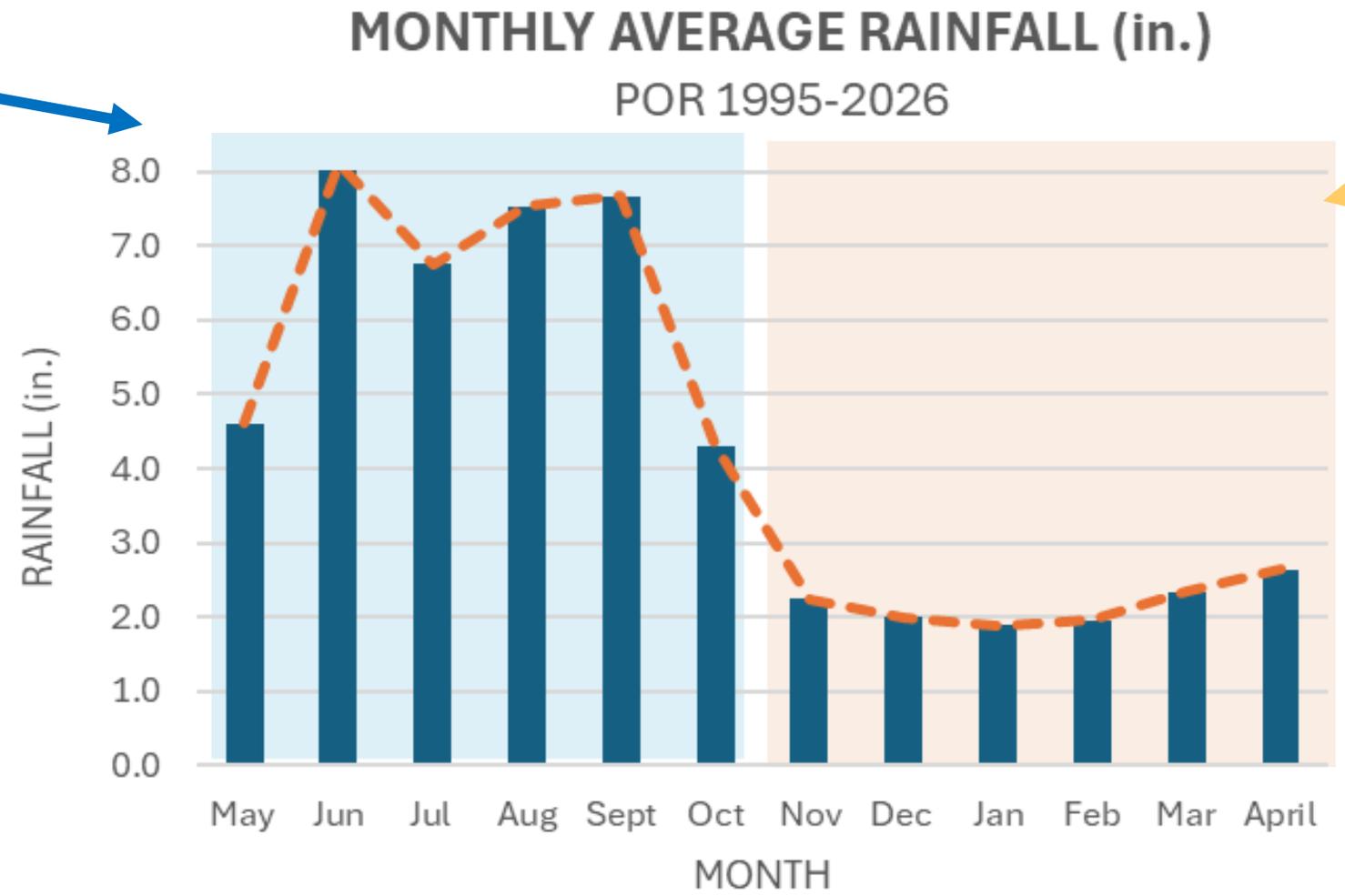


Presenter: Robert Shuford

WATER YEAR

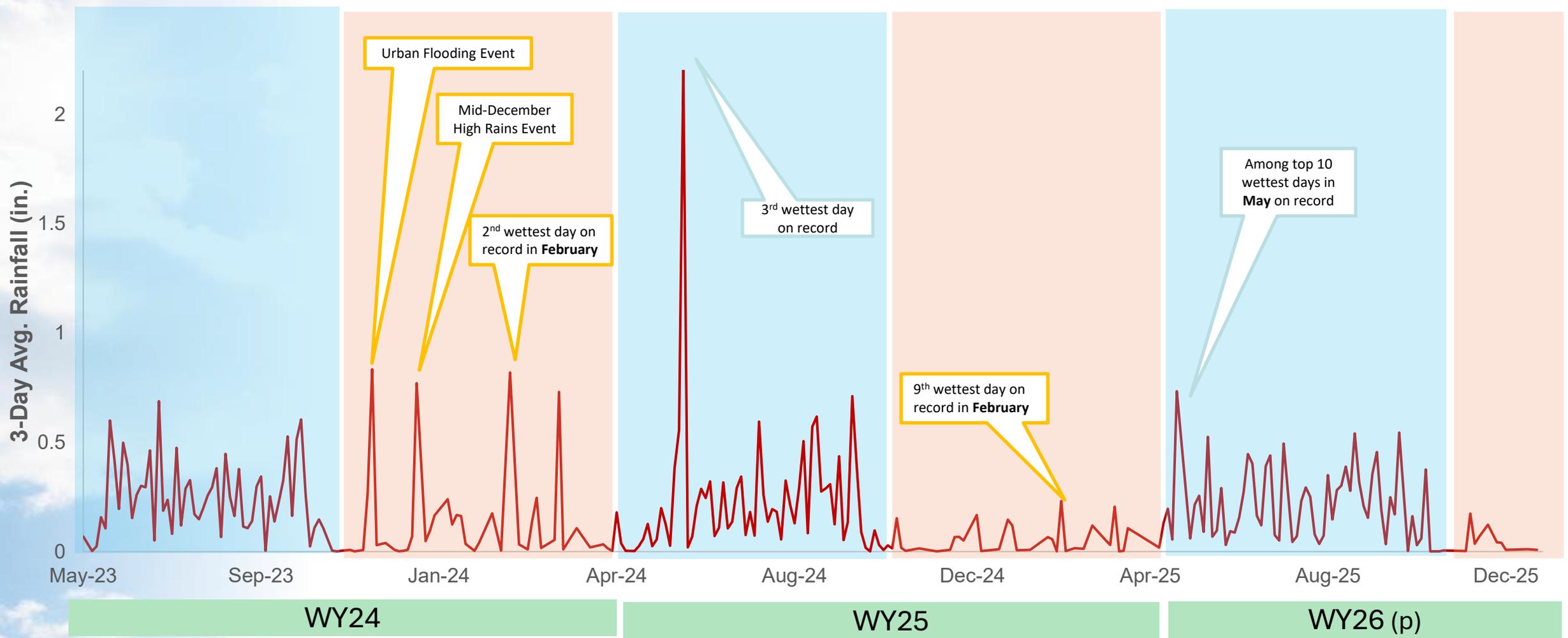
**AVG
WET
40"**

**AVG
DRY
13"**



Presenter: Robert Shuford

SEASONAL RAIN PATTERNS



Presenter: Robert Shuford

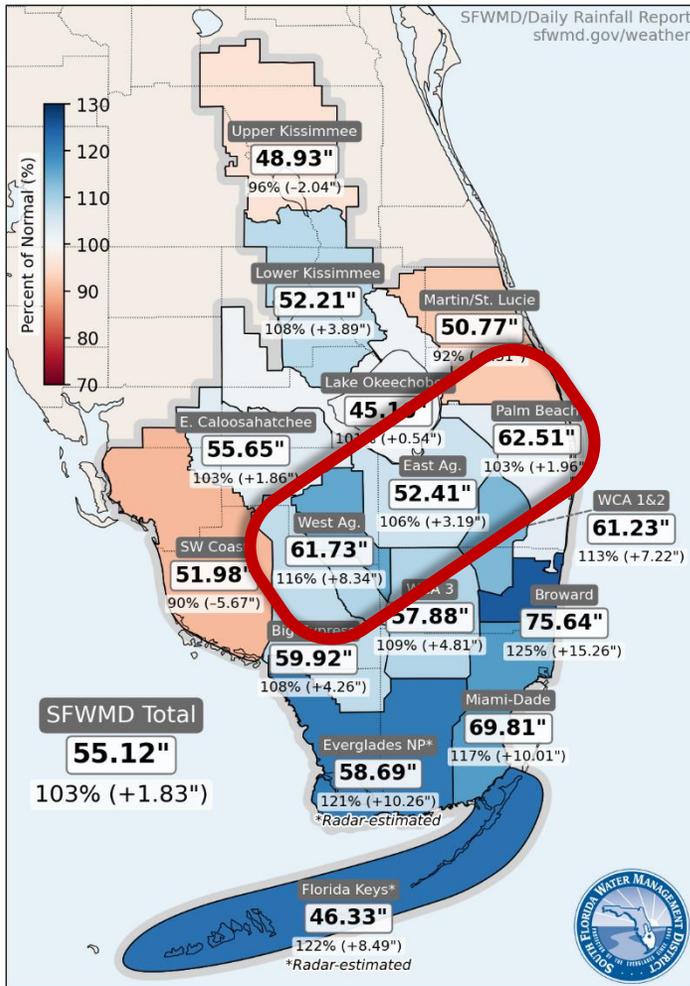
SEASONAL RAINFALL

Water Year 2024

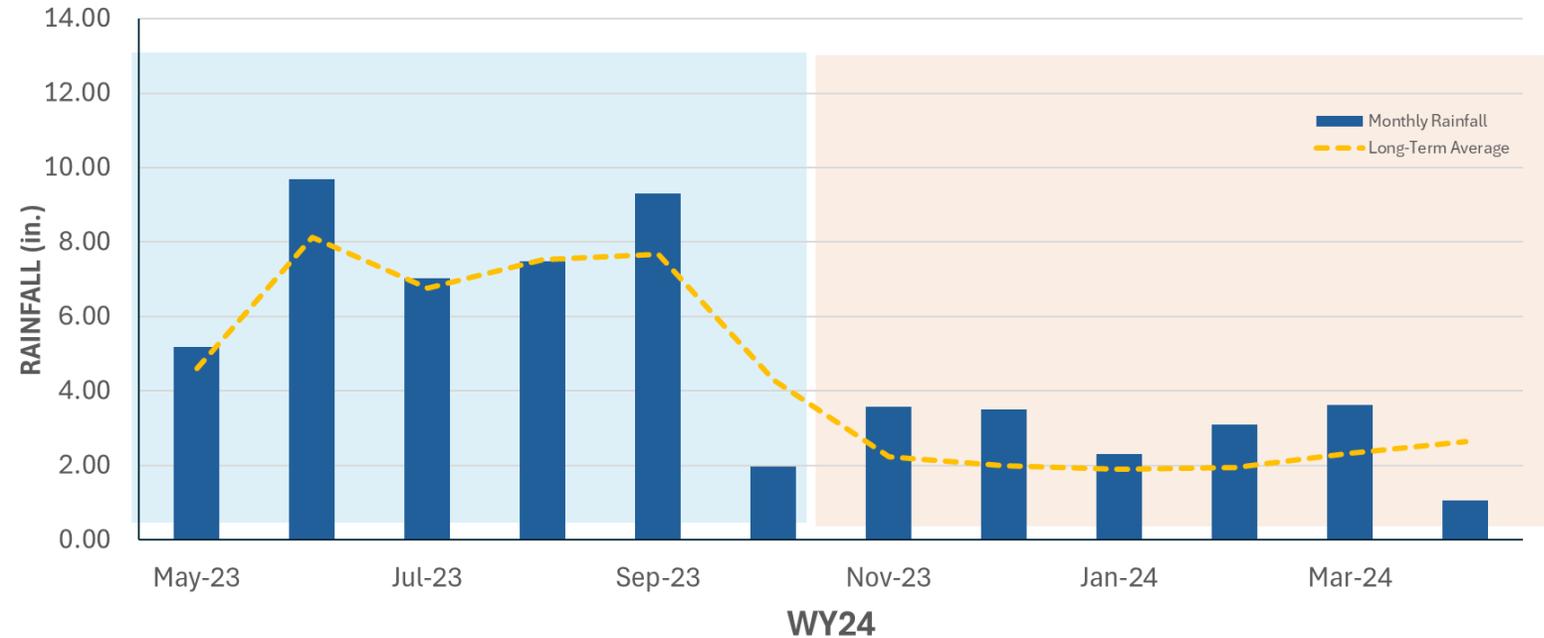
2023-2024 Water Year

5/1/2023 to 4/30/2024

Rainfall, Percent of Normal (shaded), and Departures



MONTHLY RAINFALL



Wet Season

108% of Normal

- Seasonal Surplus: +2.59"

Dry Season

98% of normal

- Seasonal Deficit: - 0.46"

Presenter: Robert Shuford

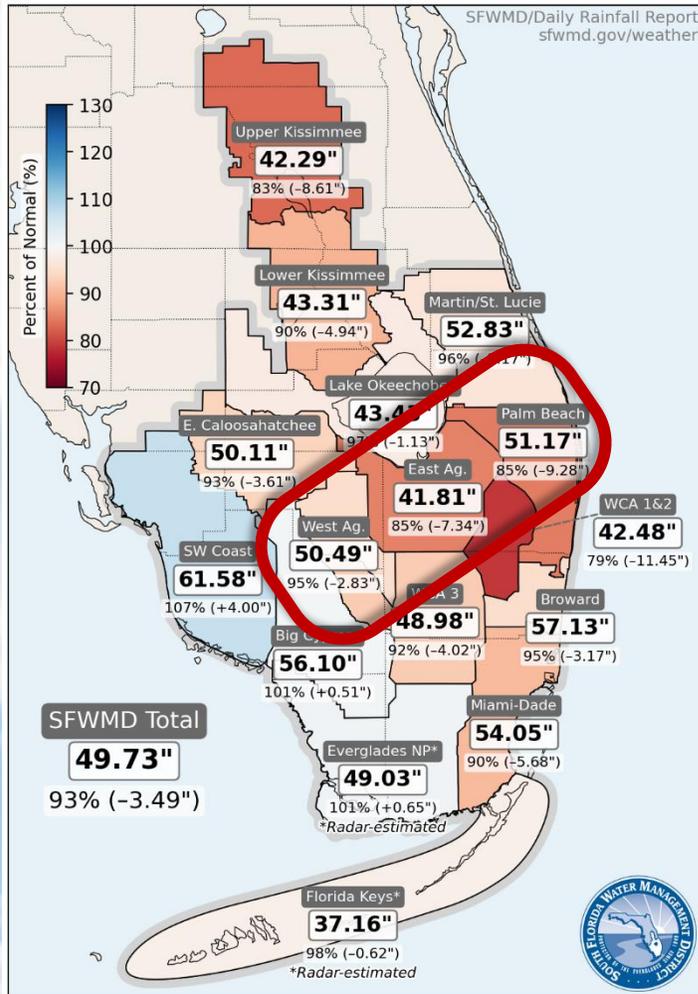
SEASONAL RAINFALL

Water Year 2025

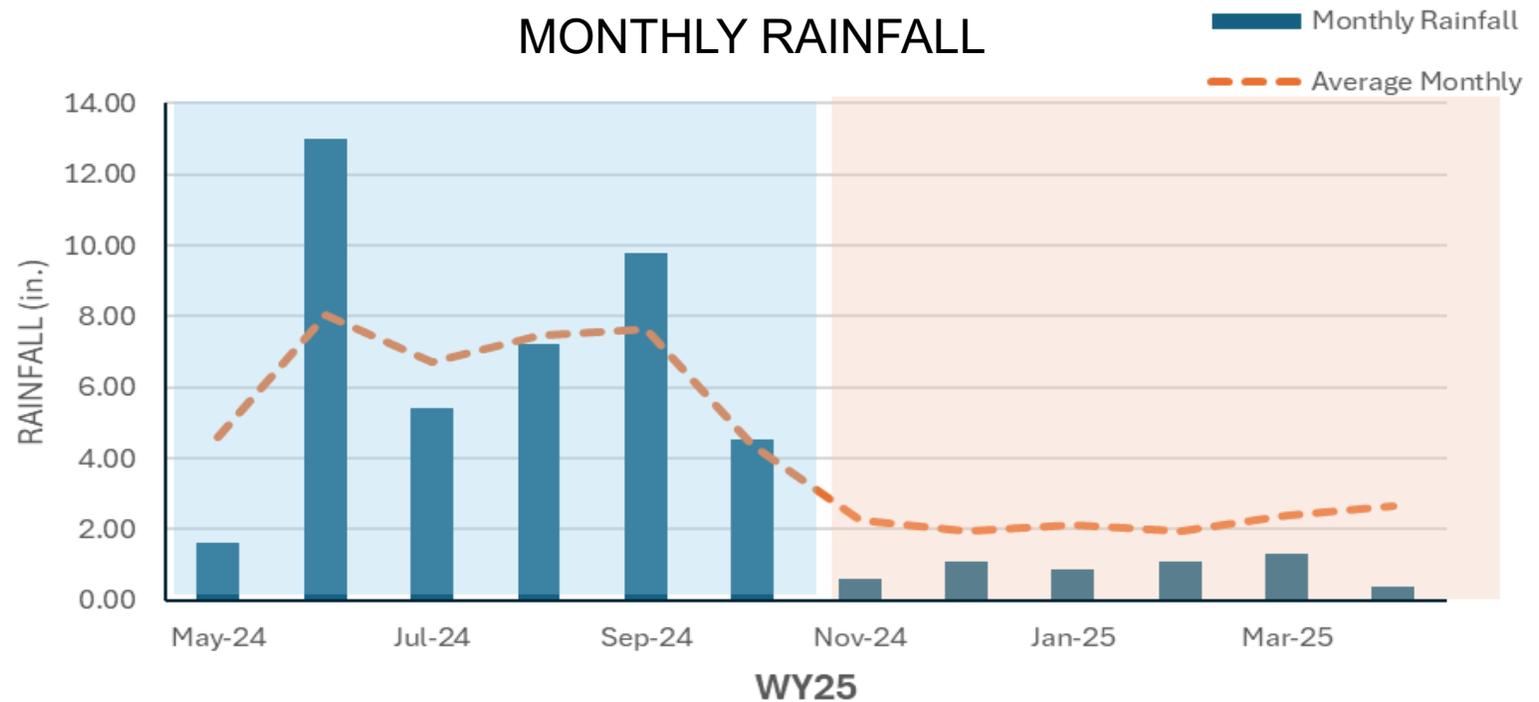
2024-2025 Water Year

5/1/2024 to 4/30/2025

Rainfall, Percent of Normal (shaded), and Departures



MONTHLY RAINFALL



Wet Season
120% of normal

Dry Season
57% of normal

- June Extreme Event : 153% of normal
 - June 12, 2024
 - 4.04" (3rd wettest day)
- Seasonal Surplus: +6.87"
- Seasonal Deficit: -8.44"

Presenter: Robert Shuford

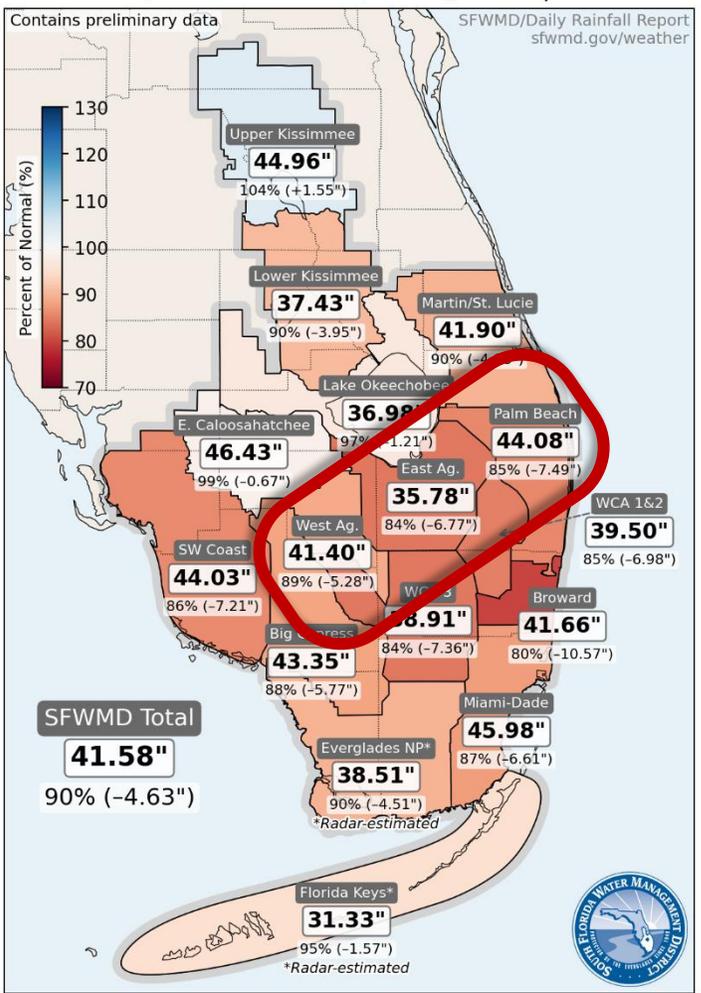
SEASONAL RAINFALL

Water Year 2026

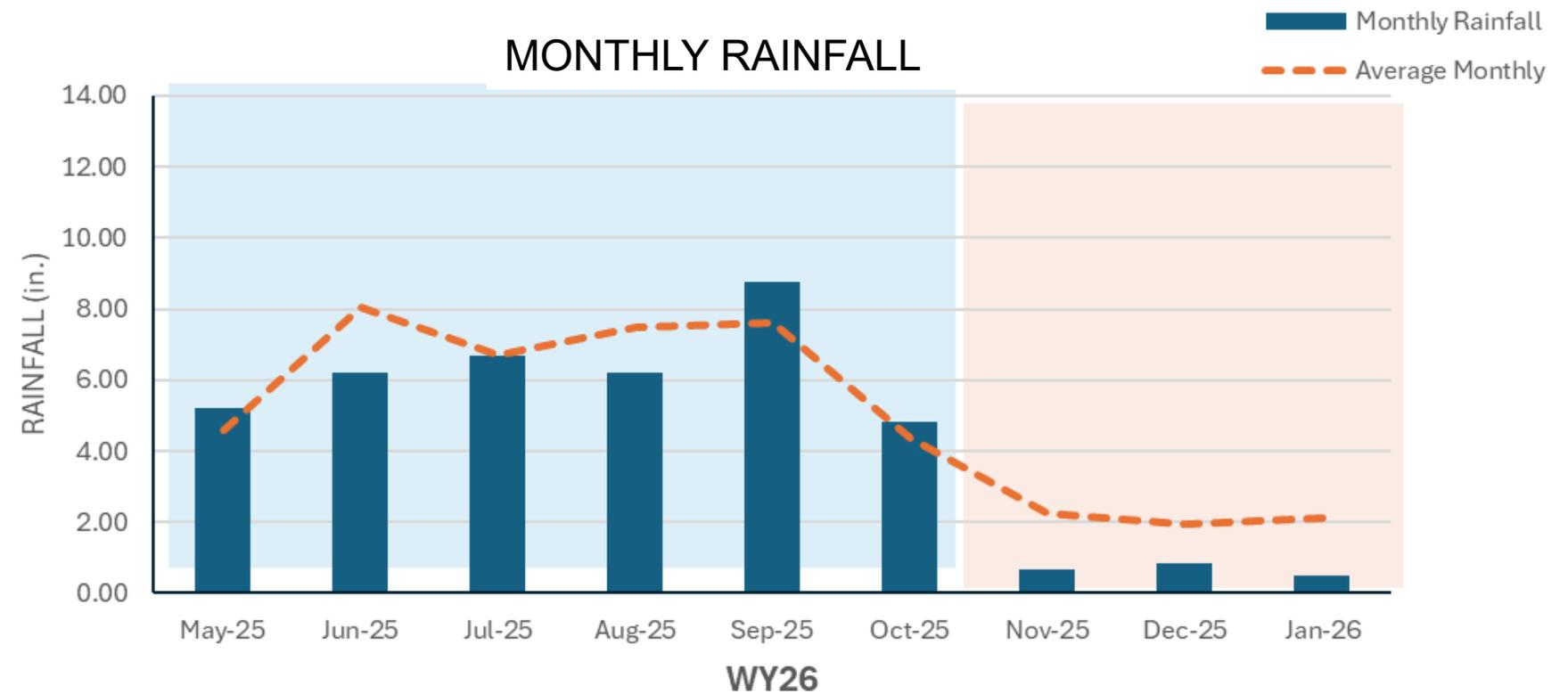
2025-2026 Water Year

5/1/2025 to 2/2/2026

Rainfall, Percent of Normal (shaded), and Departures



MONTHLY RAINFALL



Wet Season
 102% of normal
 Seasonal Surplus: +0.83"

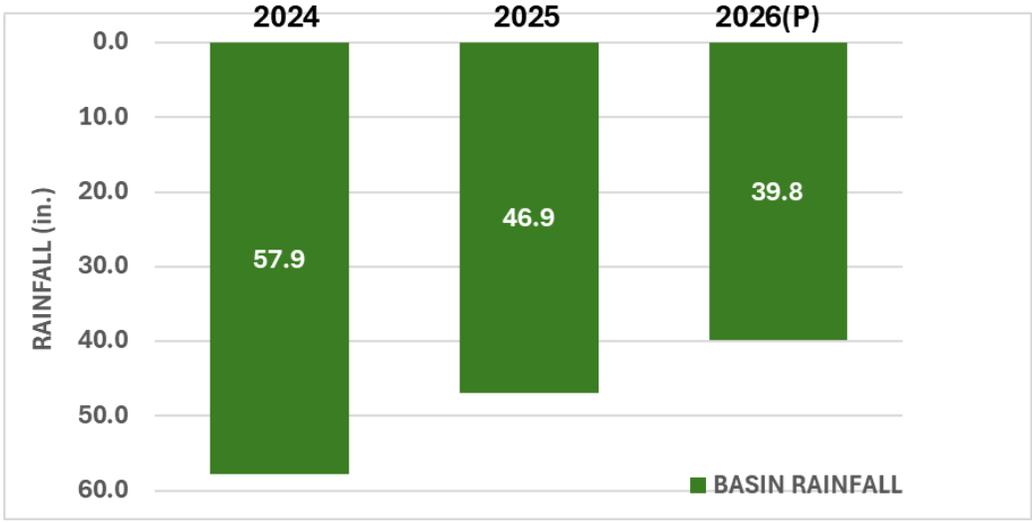
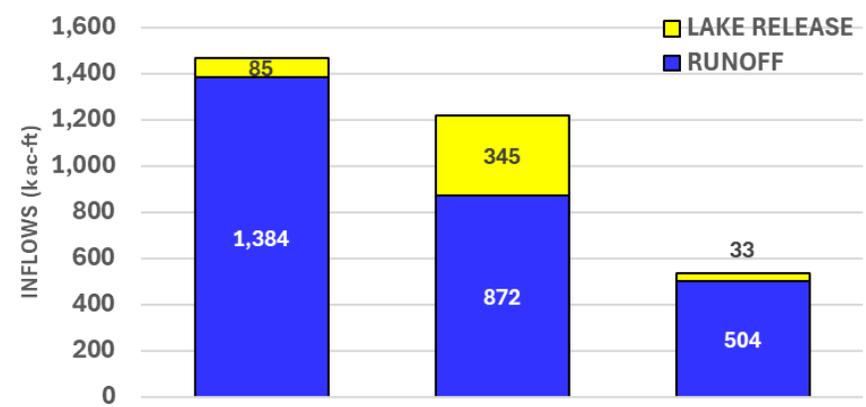
Dry Season
 37% of normal
 Seasonal Deficit: -4.75"

Presenter: Robert Shuford

INFLOWS AND RAINFALL

TOTAL INFLOWS

2024	1,469 k ac-ft
2025	1,216 k ac-ft
2026(p)	537 k ac-ft



Presenter: Robert Shuford

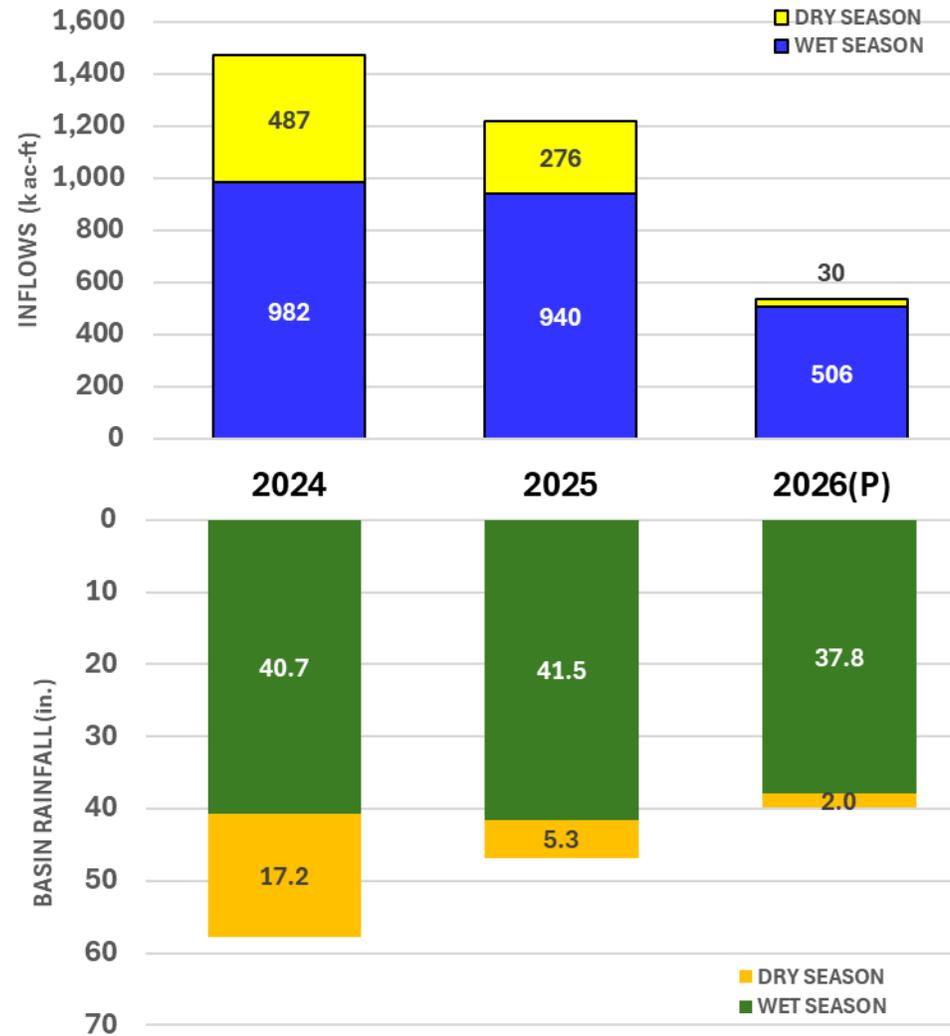
SEASONAL INFLOWS AND RAINFALL

TOTAL INFLOWS

2024	1,469 k ac-ft
2025	1,216 k ac-ft
2026(p)	536 k ac-ft

TOTAL RAINFALL

2024	57.9"
2025	46.9"
2026(p)	39.8"



Presenter: Robert Shuford

Contact Information

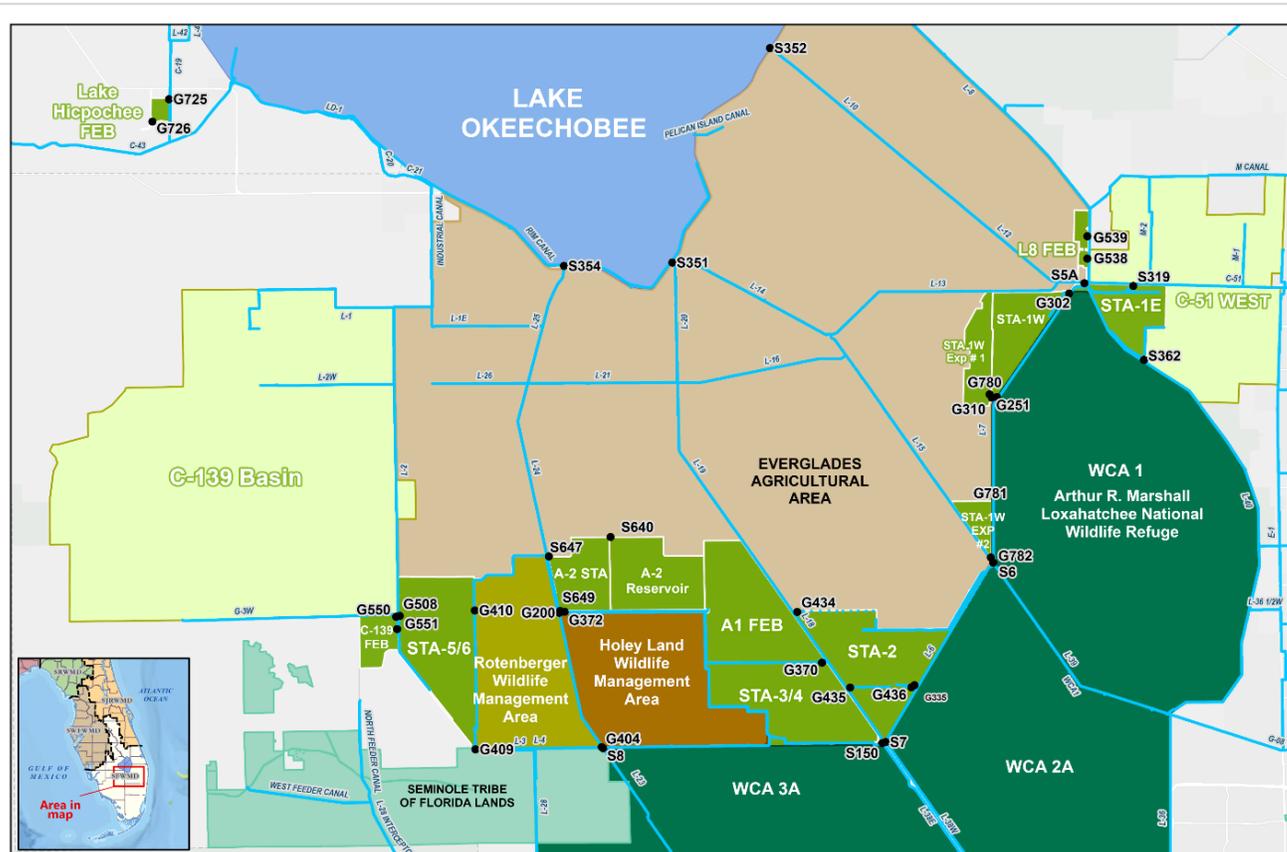
Robert Shuford
rshufor@sfwmd.gov

Everglades Stormwater Treatment Areas Performance Update

Jessica Jenison, Scientist 4
Michael Breslin, Senior Data Scientist
Applied Sciences Bureau

23rd Annual Public Meeting on the Long-Term Plan for Achieving Water Quality Goals for the Everglades Protection Area Tributary Basins
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Introduction



- STA Performance
 - Flow volumes
 - Total phosphorus (TP) loads
 - Flow-Weighted Mean Concentration (FWMC)
- Yearly and monthly variation
 - Water Year (May 1 to April 30)
- Construction and operational restrictions

STA Ecological Conditions Map

BASE CREDITS:
State plane projection, Florida east zone, NAD 83-HARN, US feet.

South Florida Water Management District
3301 Sun Club Rd., West Palm Beach, Florida 33406
(561) 686-8800; www.sfwmd.gov

IMPORTANT DISCLAIMERS:
This map is a computerized or planning tool only. The South Florida Water Management District does not guarantee or make any representation regarding the information contained herein. It is not a substitute for or binding, and does not affect the interests of any persons or properties, including any present or future right or use of real property.

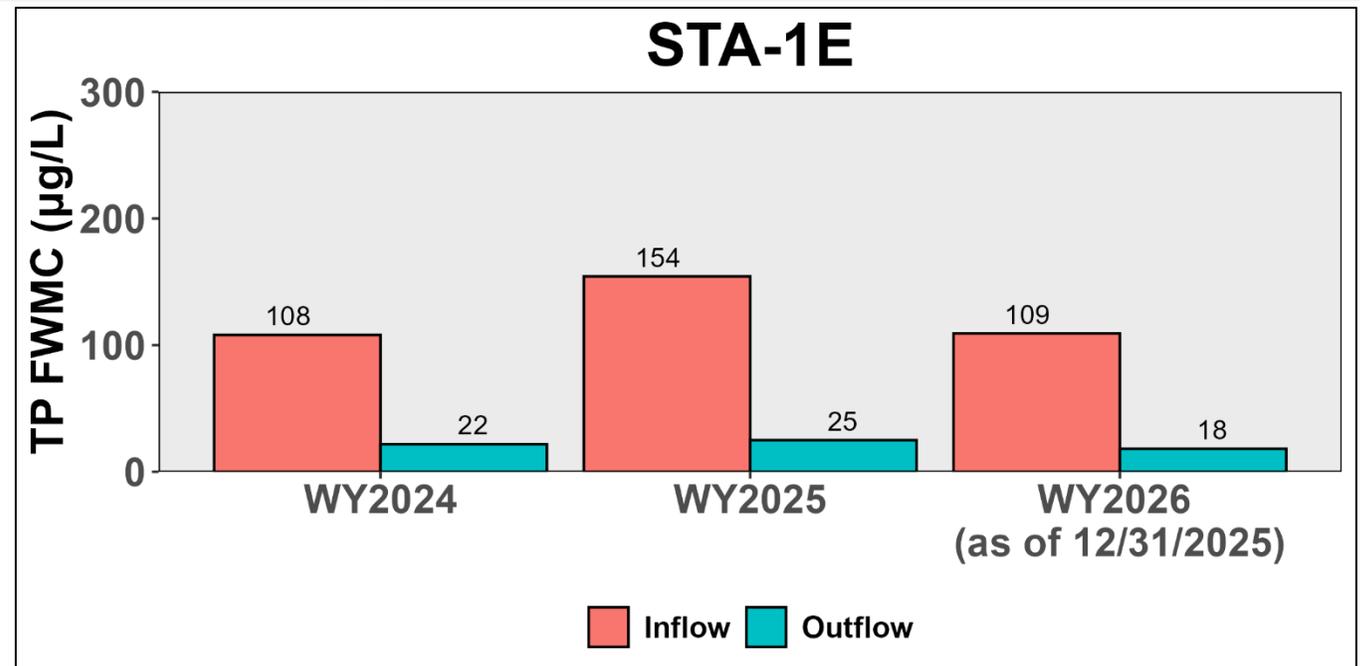
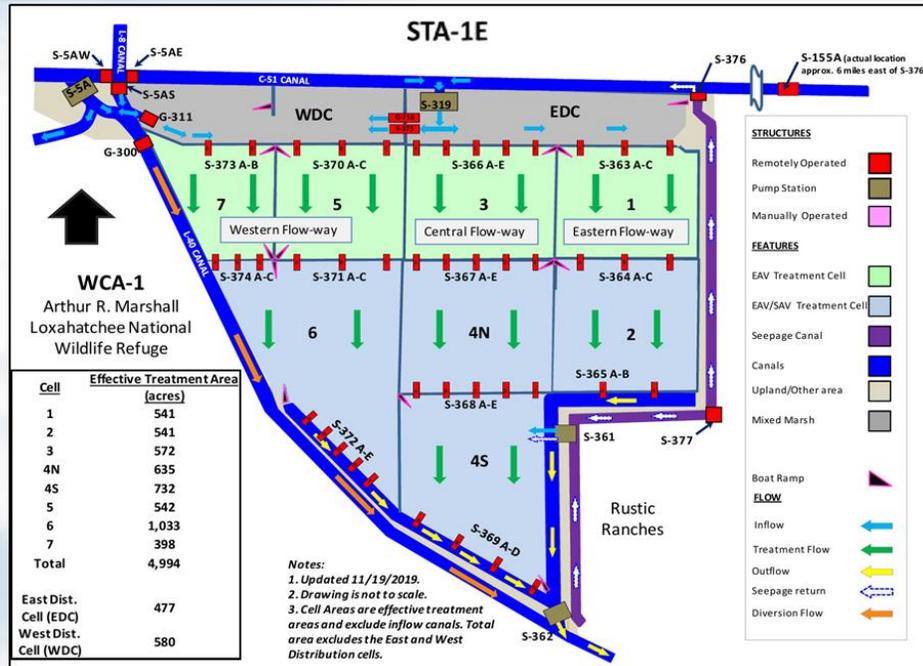
Map Date: September 2024

User Name: dalvarez Remedy Ticket: 216727 Map Produced on Date: 10/22/2024 12:19 PM

IT GEOSPATIAL SERVICES

Presenter: Jessica Jenison

STA-1E Performance Comparison by Water Year

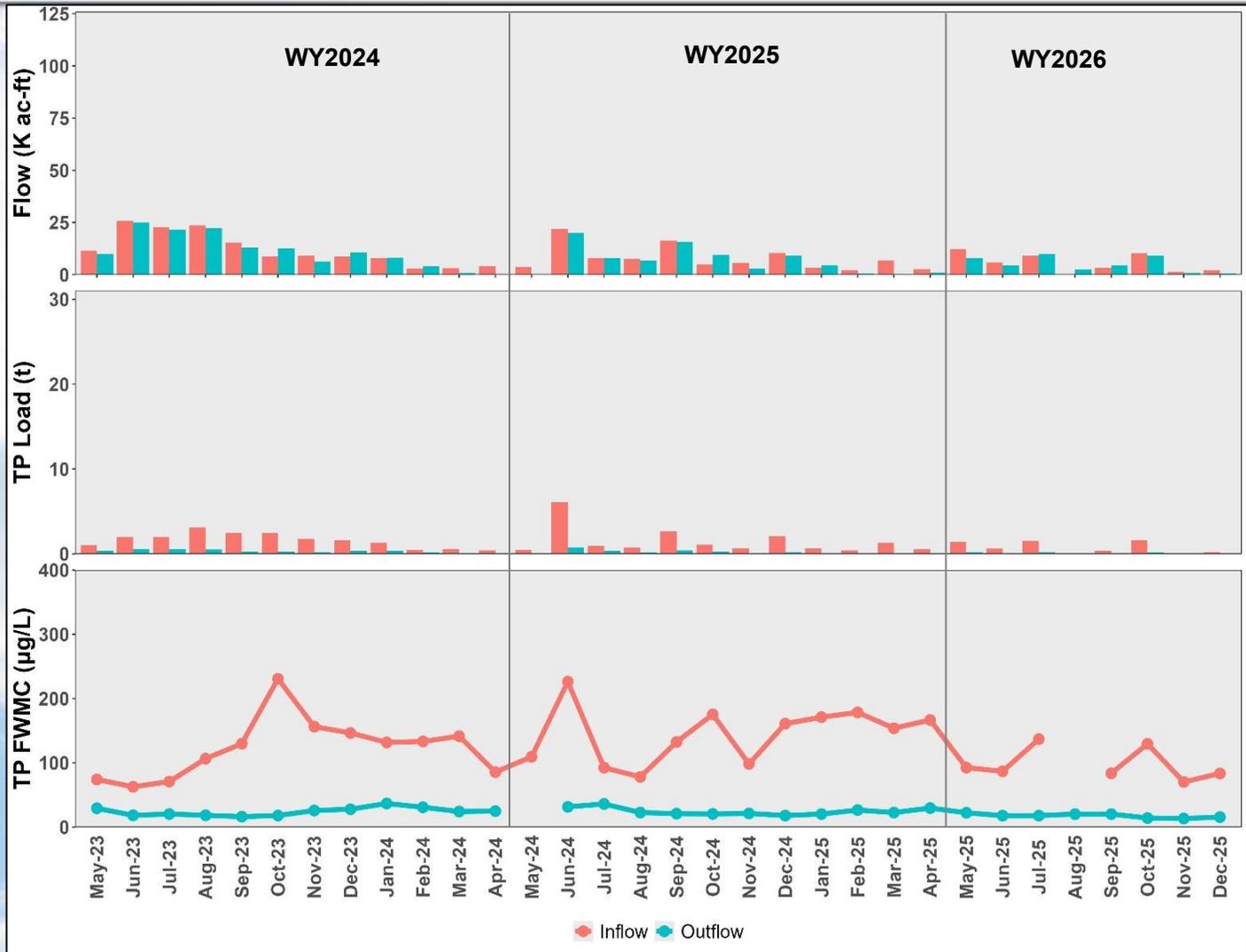


	WY2024	WY2025	Partial WY2026 (05/01/2025 - 12/31/2025)
Total inflow (k acre-feet)	144	92	43
Lake releases (k acre-feet)	1	28	4
TP FWMC inflow / outflow (µg/L)	108 / 22	154 / 25	109 / 18
TP load inflow / outflow (tons)	19 / 4	18 / 2	6 / 1
Reduction in TP FWMC / load	80% / 81%	84% / 86%	83% / 85%

Includes preliminary data

Presenter: Jessica Jenison

STA-1E Monthly Inflows and Outflows



- Lower inflow volumes in WY2026 compared to WY2024 and WY2025
- Downward trend in monthly inflow and outflow TP FWMC in WY2026 compared to WY2024 and WY2025

Includes preliminary data

Presenter: Jessica Jenison

STA-1E Operational Restrictions

(Jan. 1, 2025 – Dec. 31, 2025)

- Central Flow-way offline for construction activities (leveling)
- Western Flow-way online with restriction for vegetation grow-in

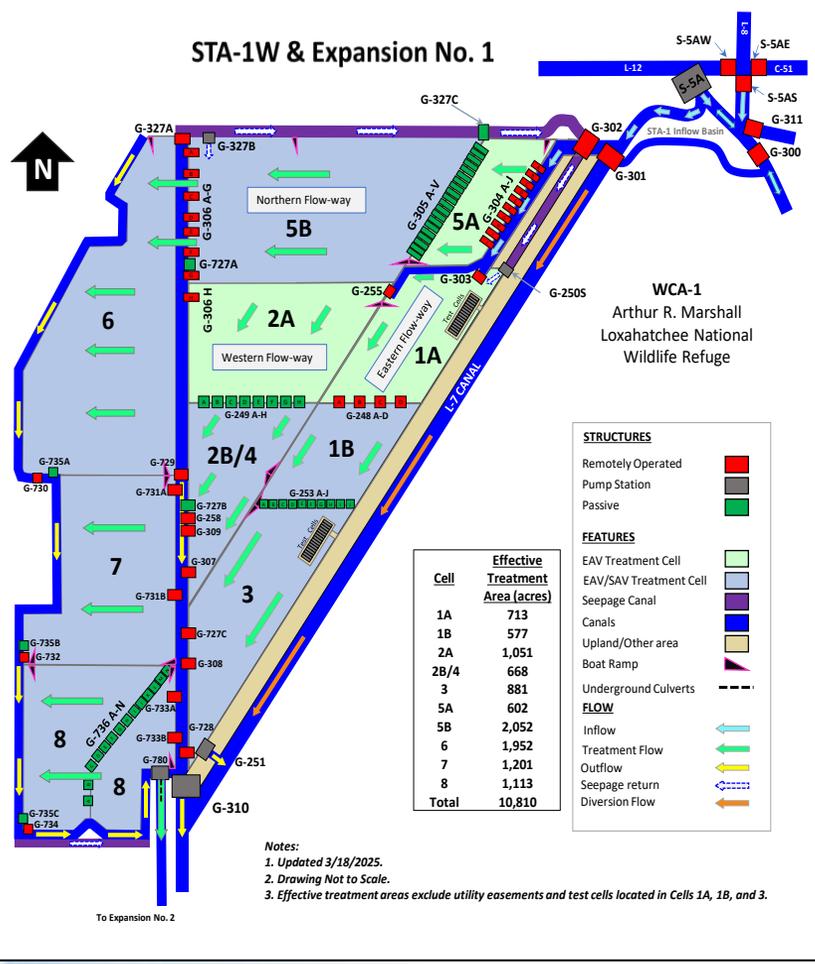


STA 1E Cell 3 (CFW) Construction

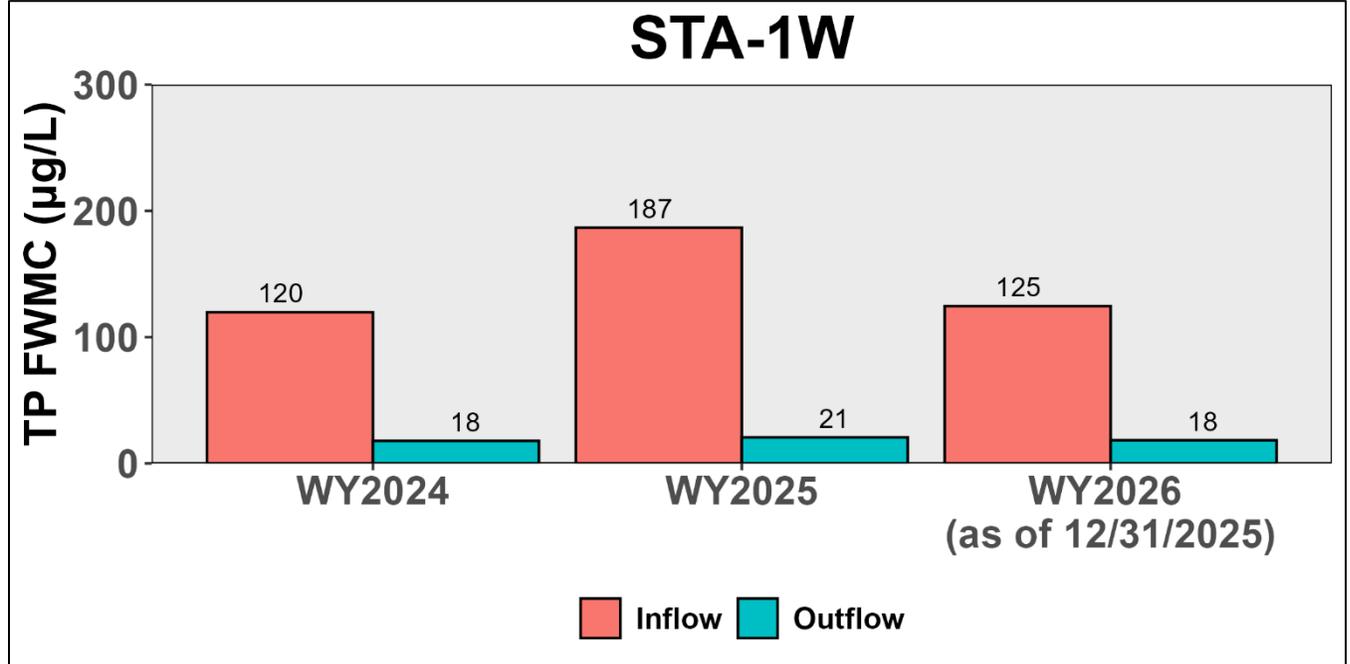


STA 1E Cell 7 Planting to repair short circuit
(J. Thayer)

STA-1W Performance Comparison by Water Year



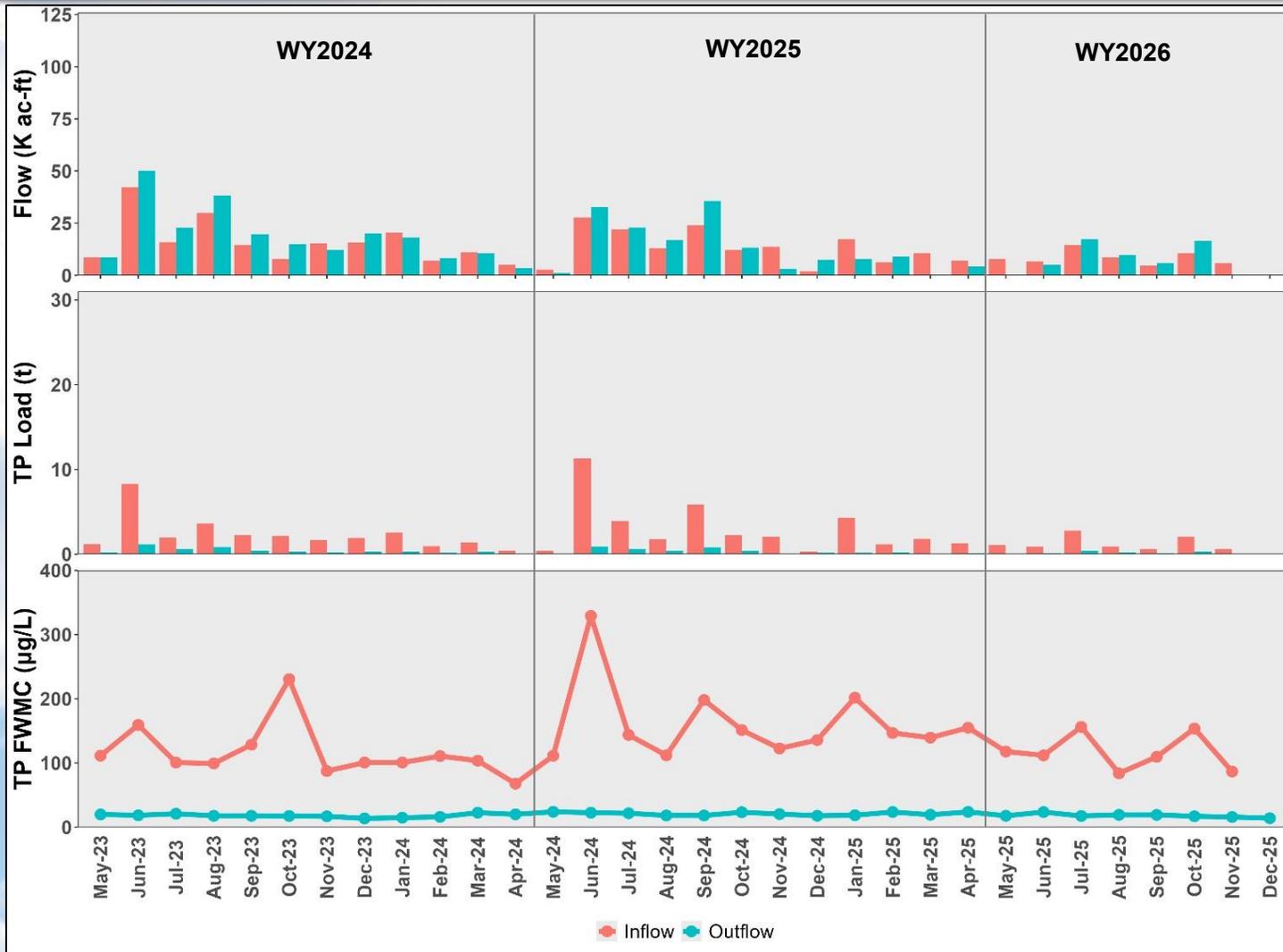
Includes preliminary data



	WY2024	WY2025	Partial WY2026 (05/01/2025 - 12/31/2025)
Total inflow (k acre-feet)	193	158	59
Lake releases (k acre-feet)	1	39	13
TP FWMC inflow / outflow (µg/L)	120 / 18	187 / 21	125 / 18
TP load inflow / outflow (tons)	28 / 5	36 / 4	9 / 1
Reduction in TP FWMC / load	85% / 83%	89% / 89%	85% / 86%

Presenter: Jessica Jenison

STA-1W Monthly Inflows and Outflows



- Lower inflow volumes in WY2026 compared to WY2024 and WY2025
- Downward trend in monthly inflow and outflow TP FWMC in WY2026

Includes preliminary data

STA-1W Operational Restrictions

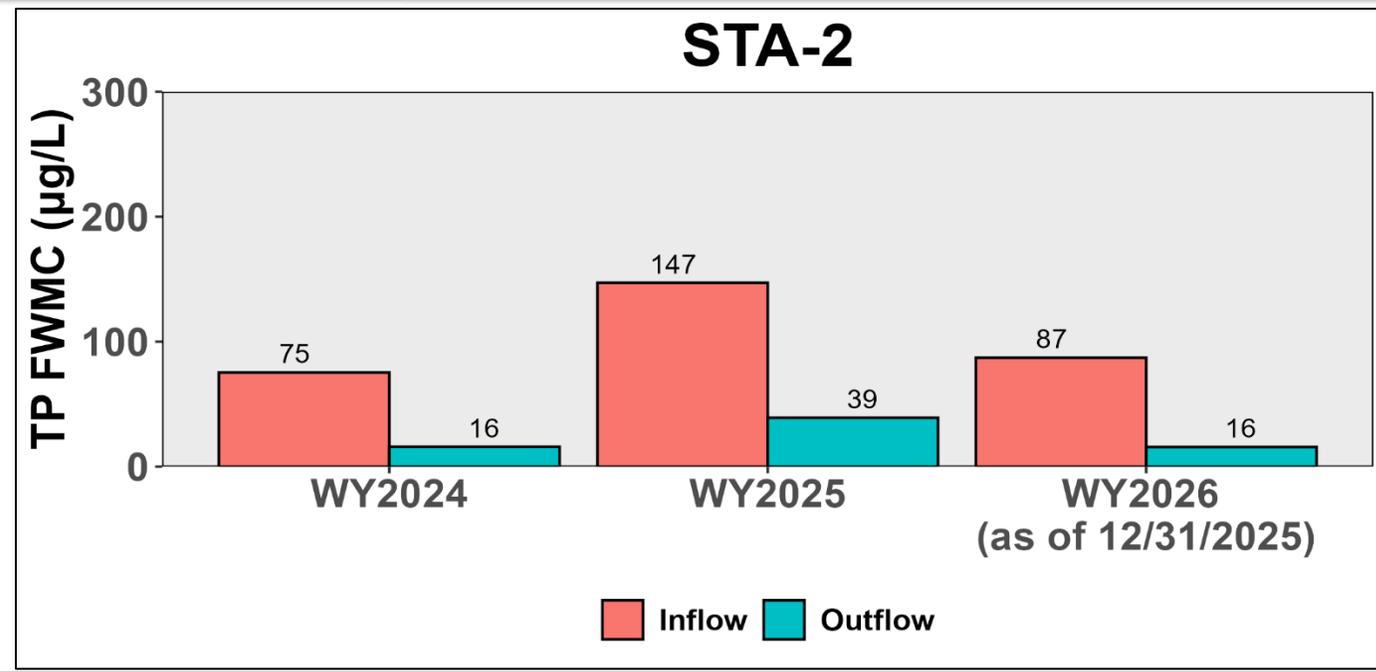
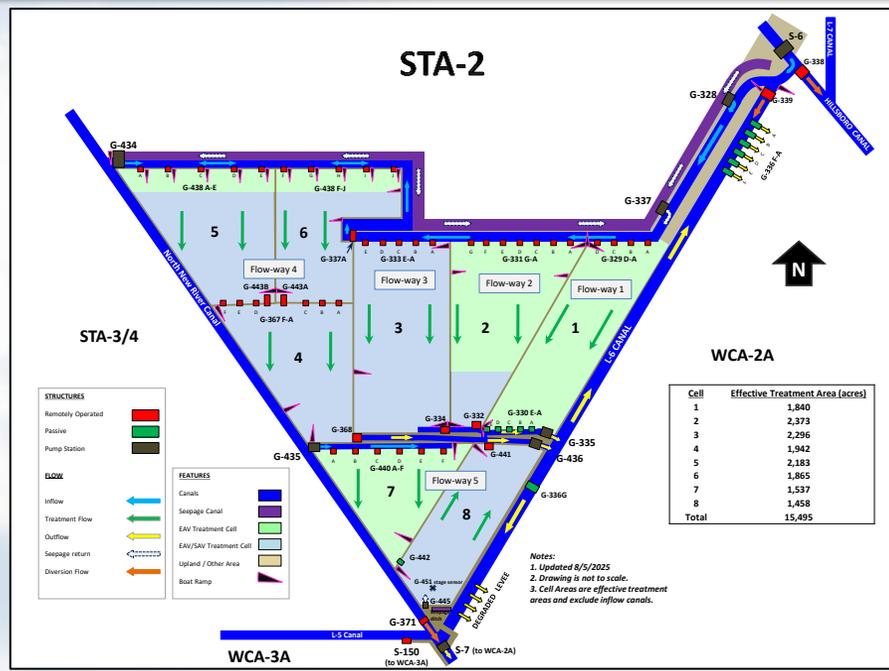
(Jan. 1, 2025 – Dec. 31, 2025)

- Eastern Flow-way online with restrictions for culvert replacements (March 2025-November 2025)
- Eastern Flow-way offline for vegetation management activities as of November 2025
- Periodic restrictions in most flow-ways
 - Vegetation management in the Northern Flow-way
 - BNS (Black-necked stilt) nesting in the Eastern Flow-way, and Cells 6, 7, and 8



Presenter: Jessica Jenison

STA-2 Performance Comparison by Water Year

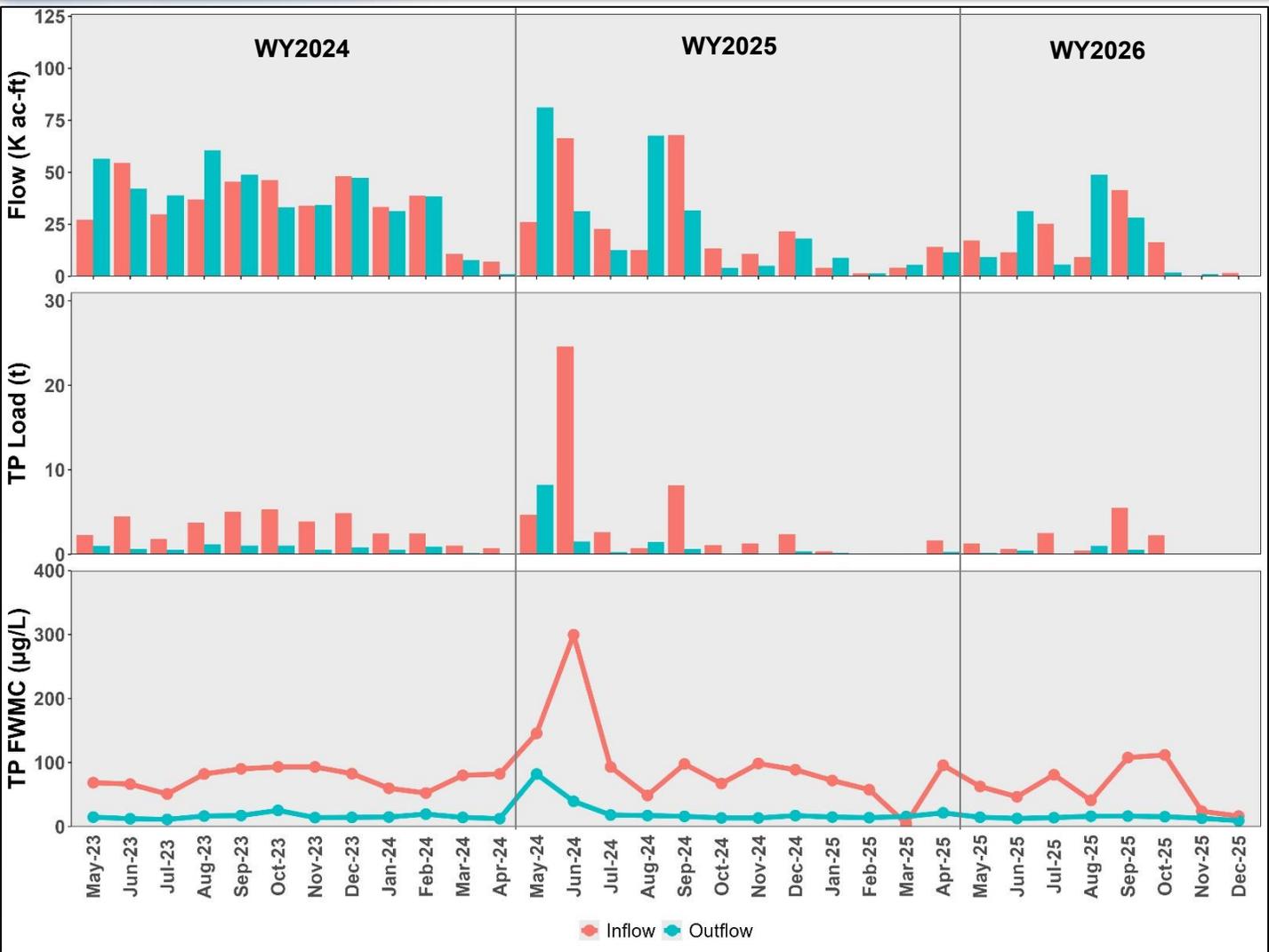


	WY2024	WY2025	Partial WY2026 (05/01/2025 - 12/31/2025)
Total inflow (k acre-feet)	405	258	134
Lake releases (k acre-feet)	7	61	12
TP FWMC inflow / outflow (µg/L)	75 / 16	147 / 39	87 / 16
TP load inflow / outflow (tons)	38 / 9	47 / 13	14 / 3
Reduction in TP FWMC / load	79% / 77%	73% / 72%	82% / 82%

Includes preliminary data

Presenter: Jessica Jenison

STA-2 Monthly Inflows and Outflows



- Lower inflow volumes in WY2026 compared to WY2024 and WY2025
- Downward trend in monthly inflow and outflow TP FWMC for WY2026

Includes preliminary data

STA-2 Operational Restrictions

(Jan. 1, 2025 – Dec. 31, 2025)

- Flow-way 3 offline for SAV recovery drawdown
- Periodic restrictions in all flow-ways
 - Inflow canal dredging in Flow-way 1
 - Vegetation management activities in Flow-ways 2 and 4
 - BNS nesting in Flow-way 3



Black-Necked Stilt (BNS) STA 2
Cell 5 (B. Garrett)



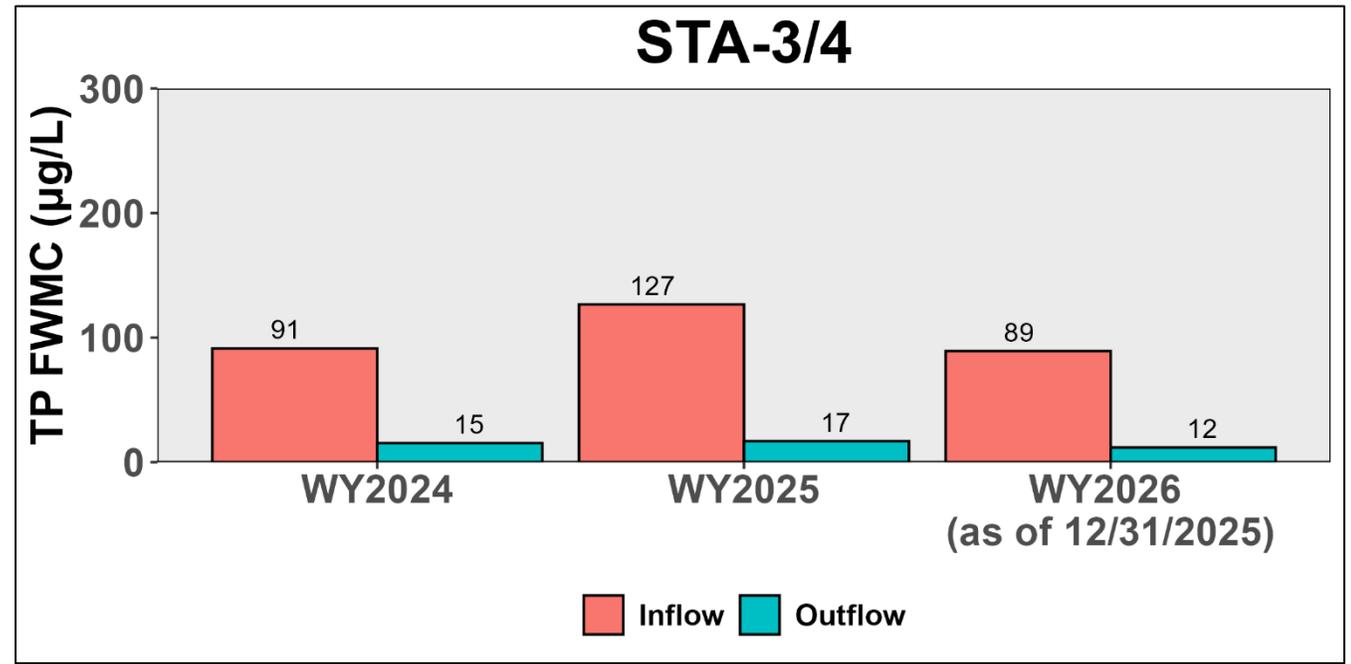
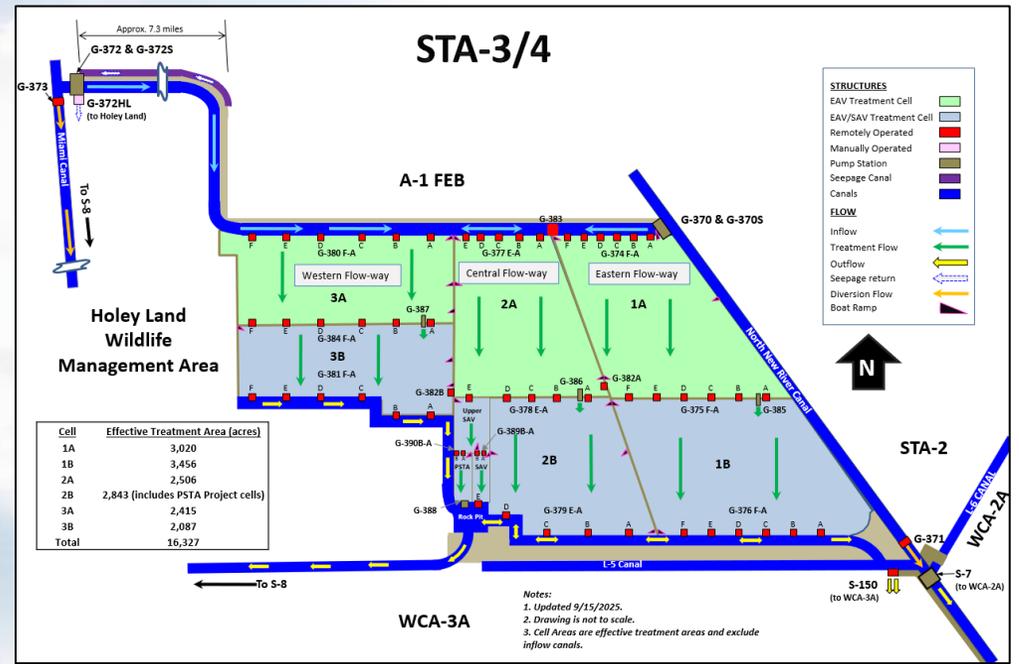
STA-2 FW 3 (N. Gavin)



Temporary pumps for STA-2 FW 3
drawdown (C. Herteux)

Presenter: Jessica Jenison

STA-3/4 Performance Comparison by Water Year

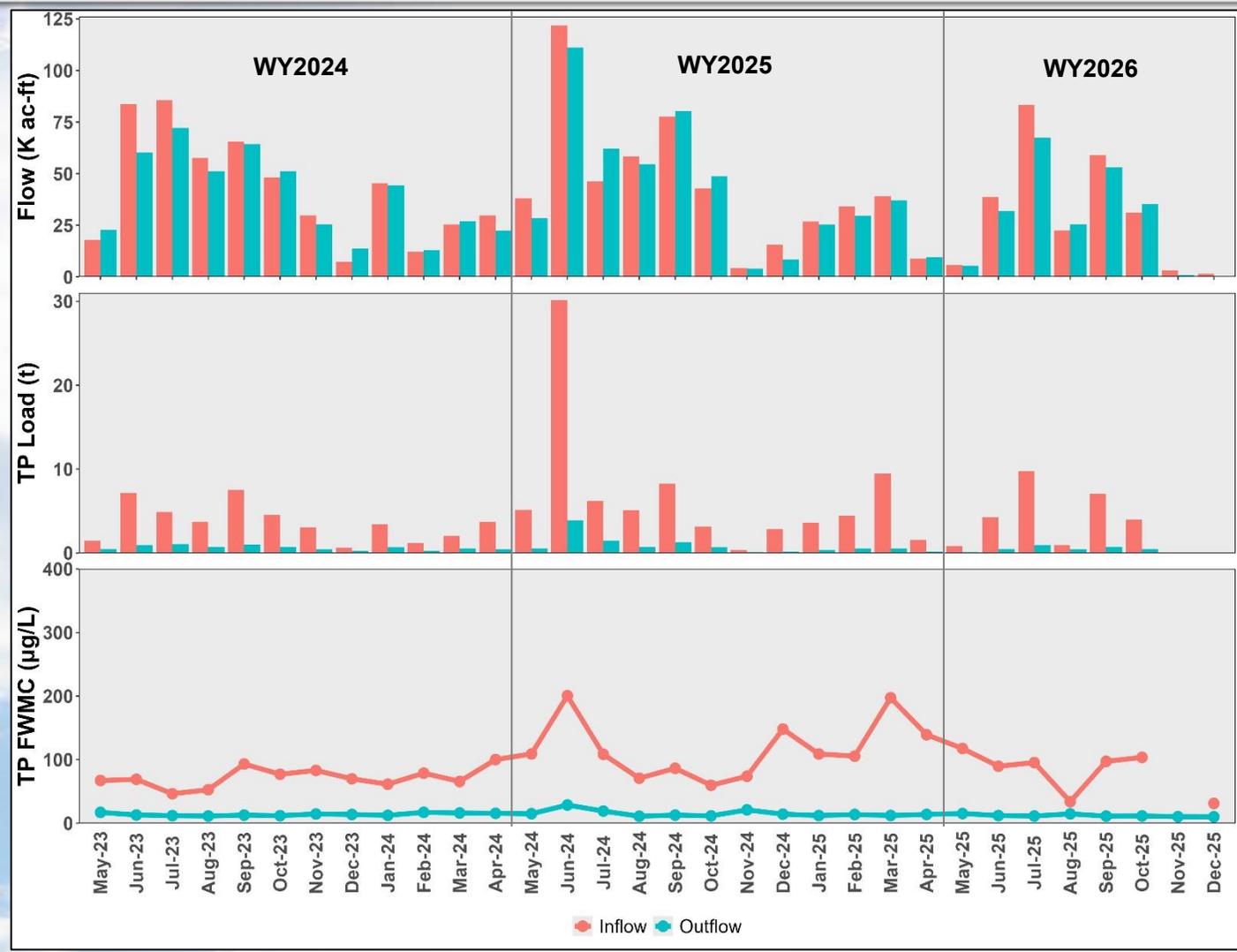


	WY2024	WY2025	Partial WY2026 (05/01/2025 - 12/31/2025)
Total inflow (k acre-feet)	330	514	245
Lake releases (k acre-feet)	64	152	8
TP FWMC inflow / outflow (µg/L)	91 / 15	127 / 17	89 / 12
TP load inflow / outflow (tons)	37 / 6	80 / 10	27 / 3
Reduction in TP FWMC / load	83% / 84%	87% / 87%	87% / 88%

Includes preliminary data

Presenter: Jessica Jenison

STA-3/4 Monthly Inflows and Outflows



- Lower inflow volumes in WY2026 compared to WY2025
- Downward trend in WY2026 monthly outflow TP FWMC compared to WY2025

Includes preliminary data

Presenter: Jessica Jenison

STA-3/4 Operational Restrictions (Jan. 1, 2025 – Dec. 31, 2025)

- Eastern Flow-way online with restrictions for vegetation grow-in
- Western Flow-way Fire Study

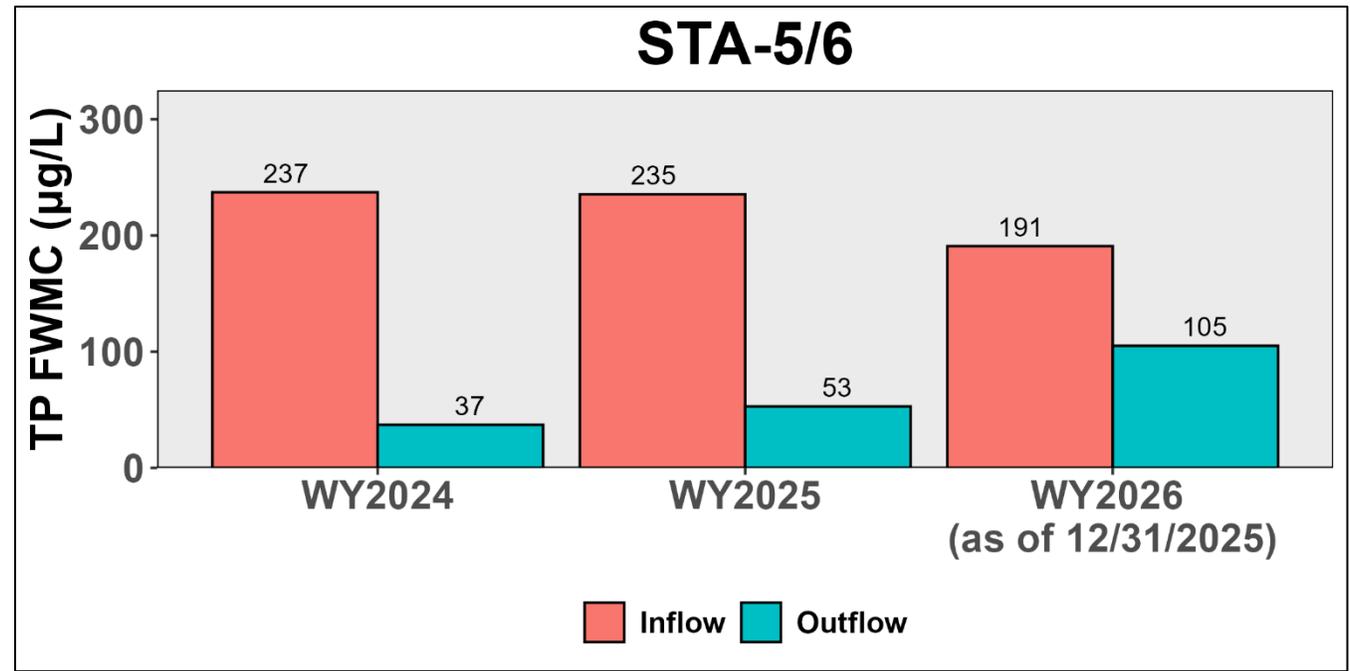
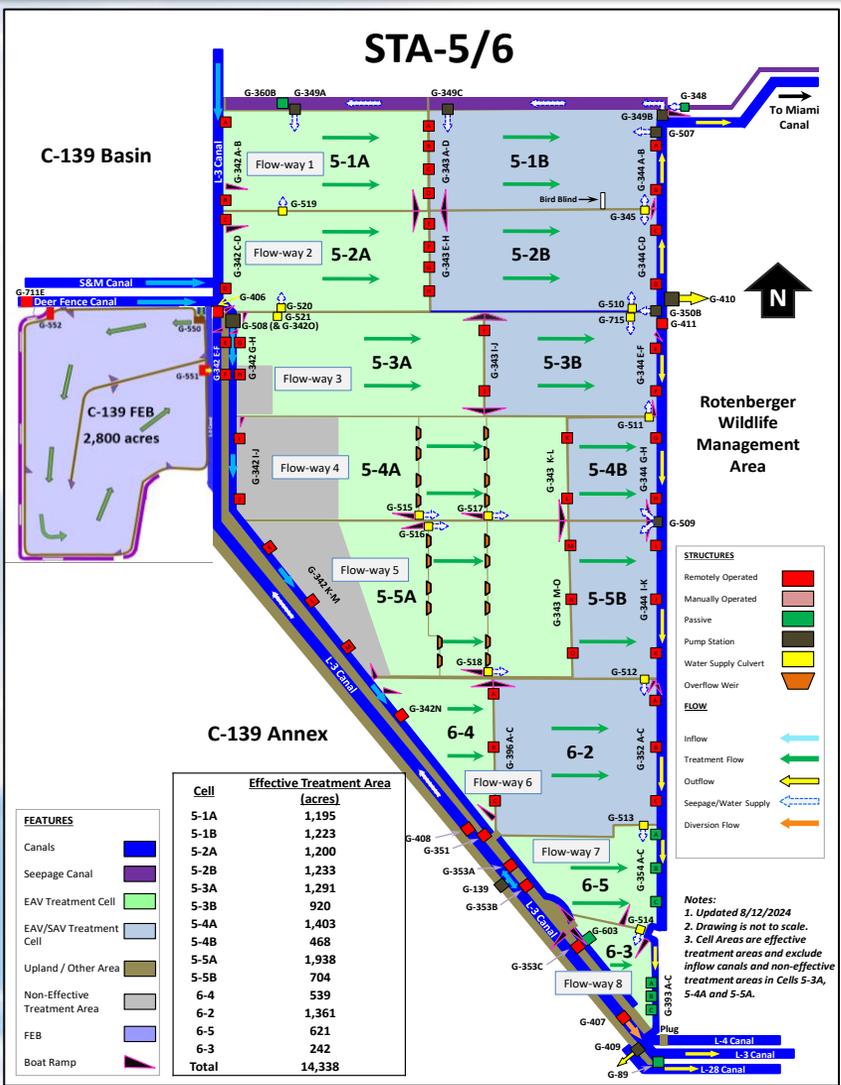


STA -3/4 Cell 2B



STA-3/4 Cell 3B (T. Adeagbo)

STA-5/6 Performance Comparison by Water Year

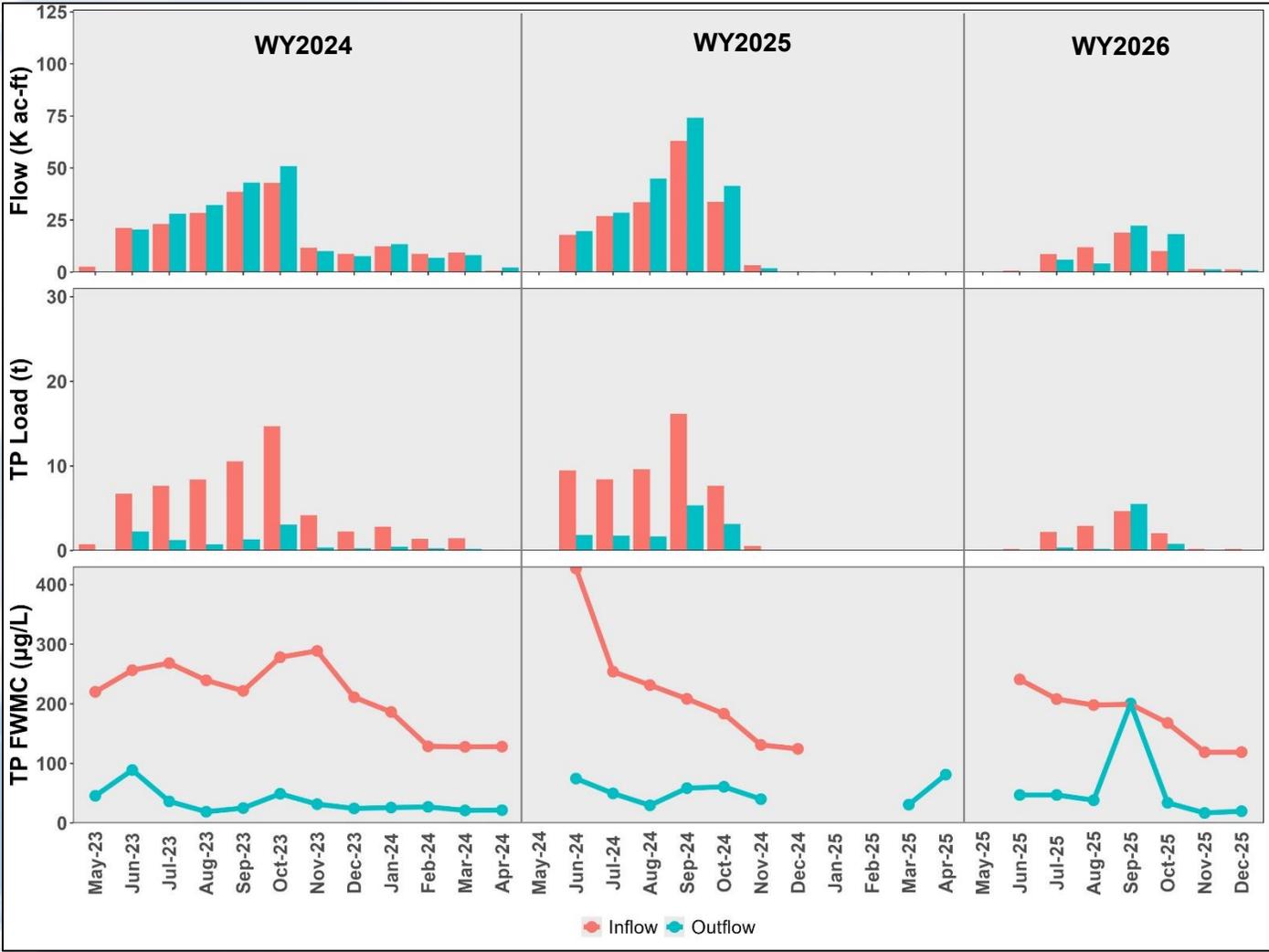


	WY2024	WY2025	Partial WY2026 (05/01/2025 - 12/31/2025)
Total inflow (k acre-feet)	208	178	53
TP FWMC inflow / outflow (µg/L)	237 / 37	235 / 53	191 / 105
TP load inflow / outflow (tons)	61 / 10	52 / 14	12 / 7
Reduction in TP FWMC / load	84% / 83%	78% / 73%	45% / 45%

Includes preliminary data

Presenter: Jessica Jenison

STA-5/6 Monthly Inflows and Outflows



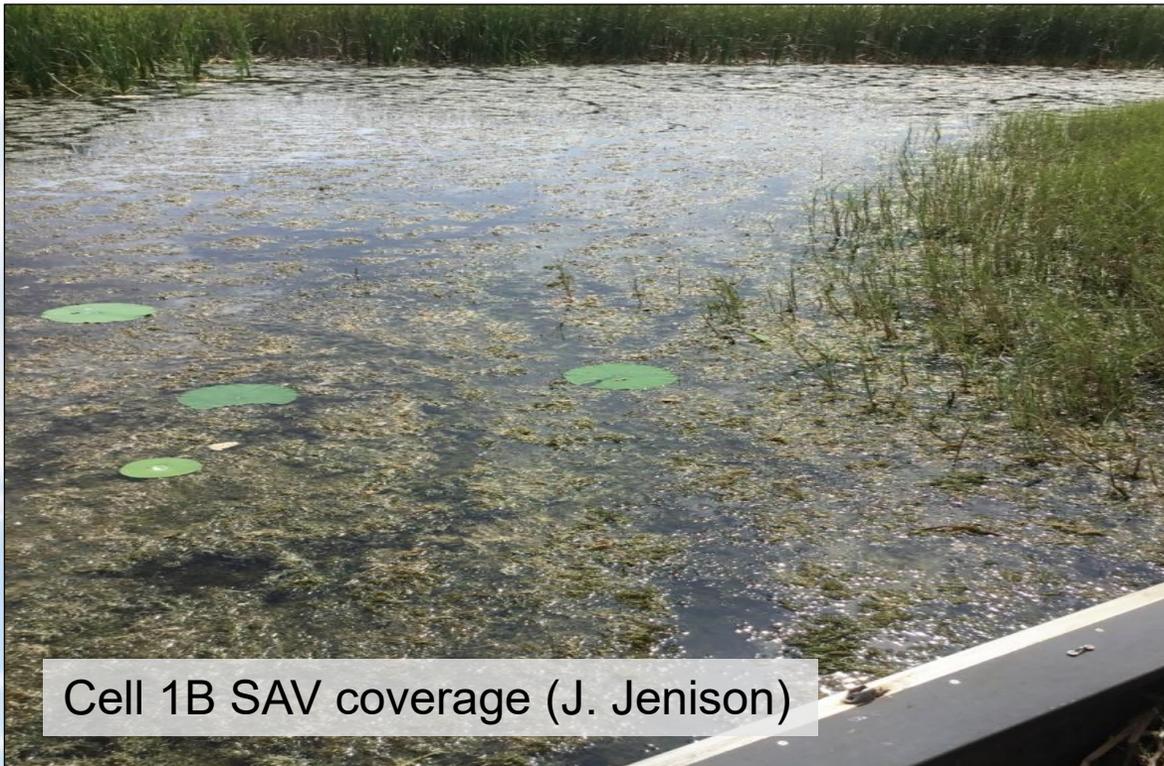
- Lower inflow volumes in WY2026 compared to WY2024 and WY2025
- Numerous STA cells experience dry-out during dry seasons
- Elevated outflow TP FWMC following STA dry-out
 - C-139 FEB is expected to reduce frequency and duration of dry-out

Includes preliminary data

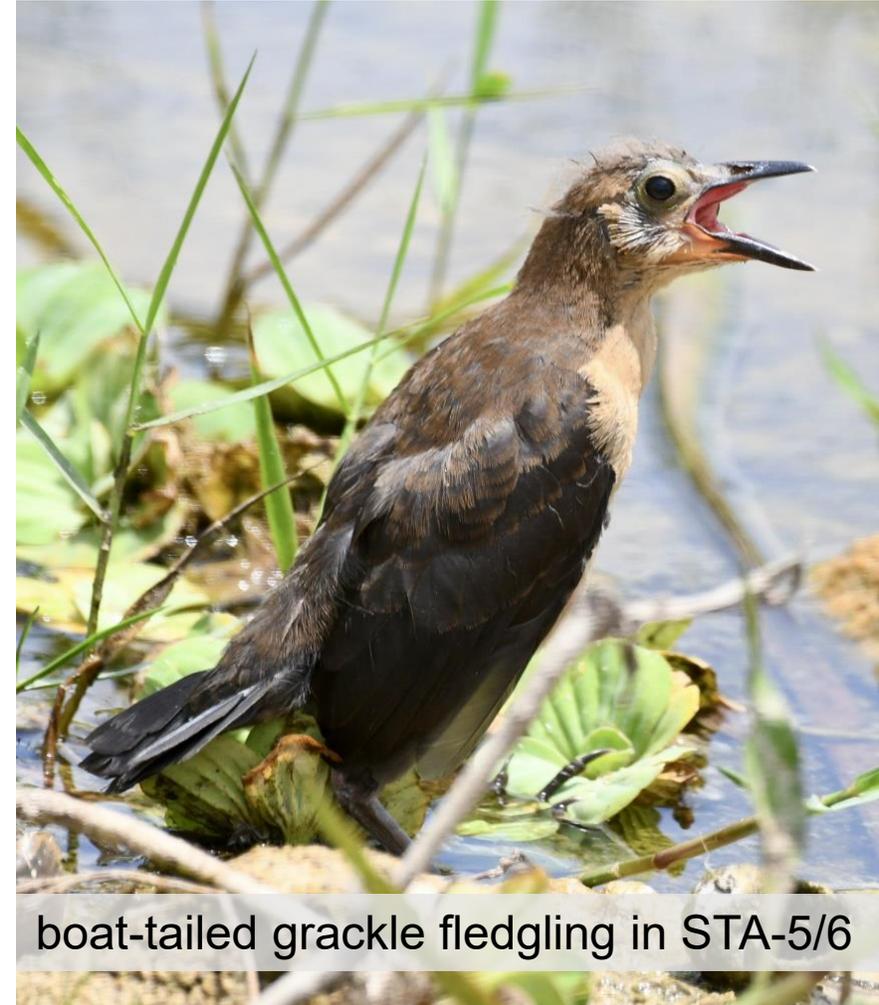
Presenter: Jessica Jenison

STA-5/6 Operational Restrictions (Jan. 1, 2025 – Dec. 31, 2025)

- No operational restrictions
- C-139 FEB operational as of June 2025



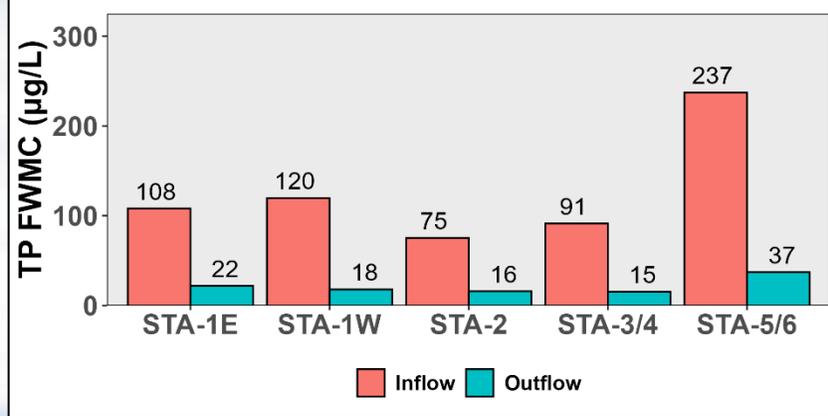
Cell 1B SAV coverage (J. Jenison)



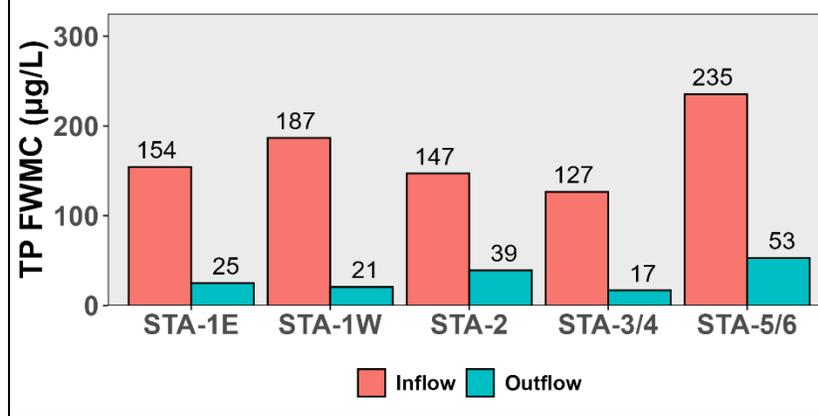
boat-tailed grackle fledgling in STA-5/6

All STAs Performance Comparison by WY

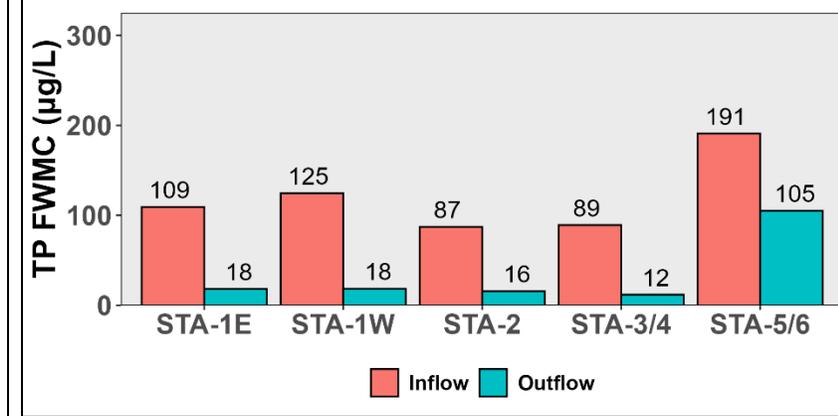
WY2024 Performance



WY2025 Performance



Partial WY2026 Performance



	WY2024	WY2025	Partial WY2026 (05/01/2025 - 12/31/2025)
Total inflow (k acre-feet)	1084	1469	534
Lake releases (k acre-feet)	43	83	134
TP FWMC inflow / outflow (µg/L)	144 / 25	103 / 19	104 / 24
TP load inflow / outflow (tons)	193 / 33	187 / 35	69 / 15
Reduction in TP FWMC / load	83% / 83%	82% / 81%	77% / 78%

Includes preliminary data

Presenter: Jessica Jenison

Contact info

[Jessica Jenison - jewilson@sfwmd.gov](mailto:jewilson@sfwmd.gov)

[Mike Breslin - mbreslin@sfwmd.gov](mailto:mbreslin@sfwmd.gov)

STA Vegetation Management and Enhancement

Jake Thayer
STA Wetland Scientist
Land Resources Bureau

**23rd Annual Public Meeting on the Long-Term
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The Need for Vegetation Management

Cultivate a marsh ecosystem best suited for nutrient uptake

Increase desirable species

Promote a diverse plant community

Structurally and Genetically

Eliminate invasive floating vegetation

Reduce invasive emergent vegetation

Reduce nuisance native plants where possible



Floating plants invading planted area

STA Vegetation Management Goals

Effective STA Marsh

Stabile soil

Sheet flow

Mixed marsh ecosystem

Emergent and submersed plants

Structure for Periphyton



Effective STA Marsh

Ineffective STA Marsh

Unstable sediment

Floating tussock formation

Treatment bypass

Physical disruption of desirable vegetation

Scouring (short circuits)

Low Biodiversity



Ineffective STA Marsh

Vegetation Management Process

Regularly monitor vegetation

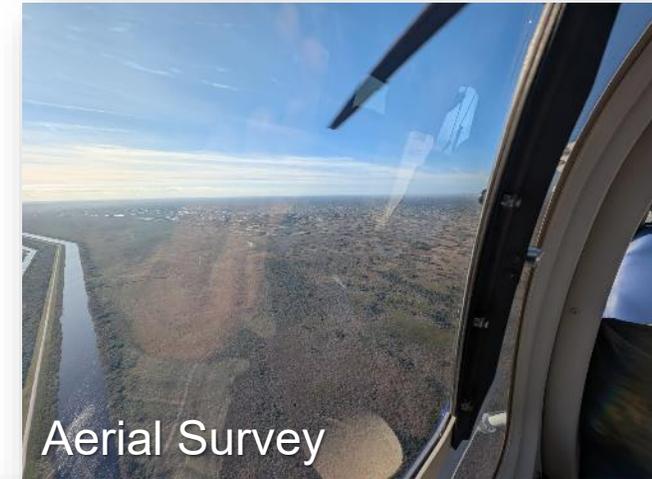
Proactively manage observed nuisance vegetation

SAV inoculations

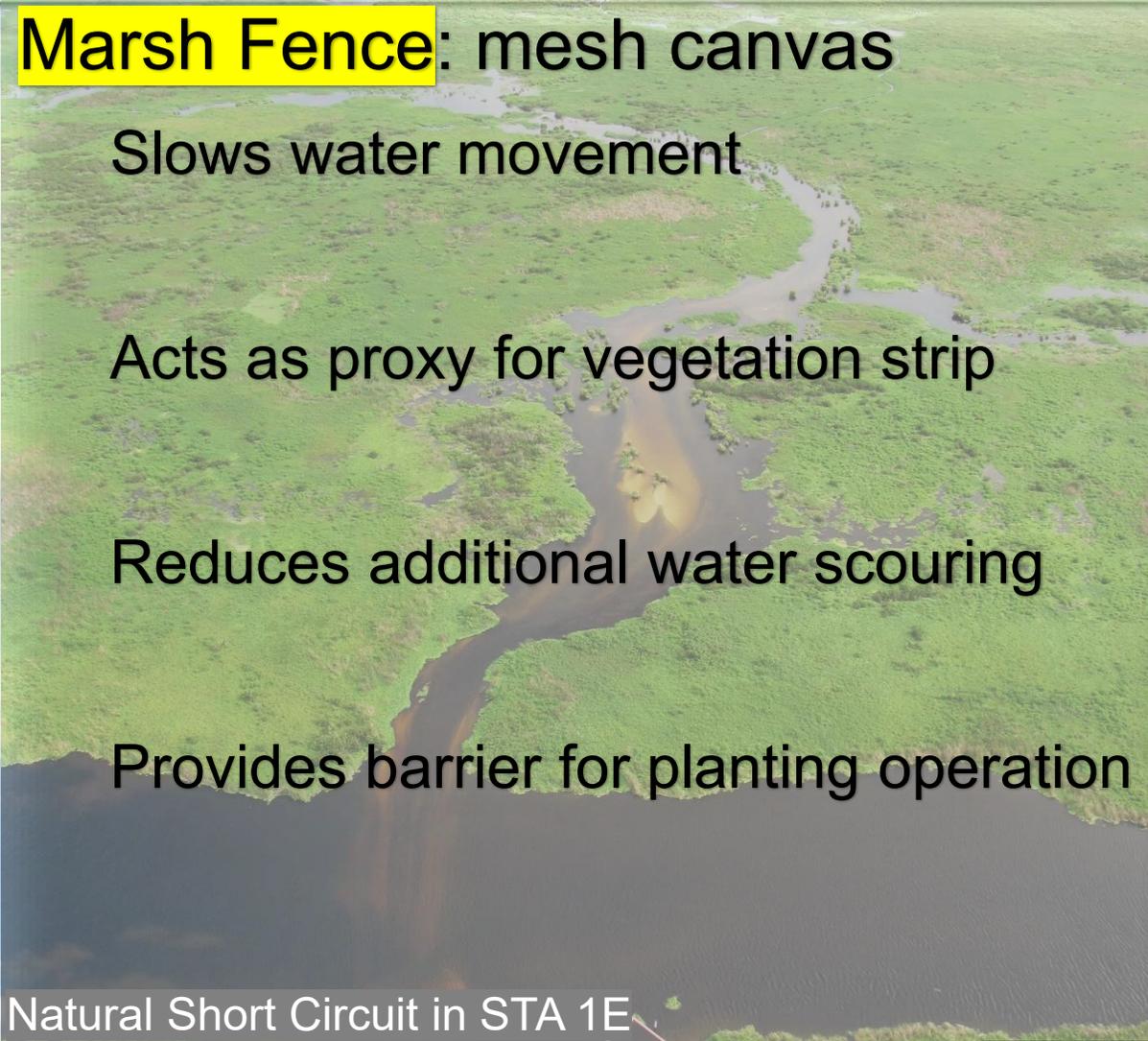
Repair desirable vegetation

Restore functionality

Physical barriers



Physical Barriers in the STAs



Marsh Fence: mesh canvas

Slows water movement

Acts as proxy for vegetation strip

Reduces additional water scouring

Provides barrier for planting operation

Natural Short Circuit in STA 1E

Marsh Fence in STA 3/4

STA-1E Central Flow-way

Rehydration of Cell 3 and Substantial Completion of Cell 4N



Cell 3 Re-grading



Cell 3 Re-hydration

STA 1 Complex

STA-1 East

Cell 4S plantings

Repair in preparation of central flow-way coming back online

Cell 5 replanting operation

Cell 6 supplemental planting

Cell 7 short circuit repairs

Constant invasive plant management in all hydrated cells



Cell 7 Short Circuit Repair



STA-1 COMPLEX



STA-1 West

Eastern flow-way refurbishments

Mechanical shredding

Large-scale replanting operation

Cell 3 culvert replacements modified completion schedule

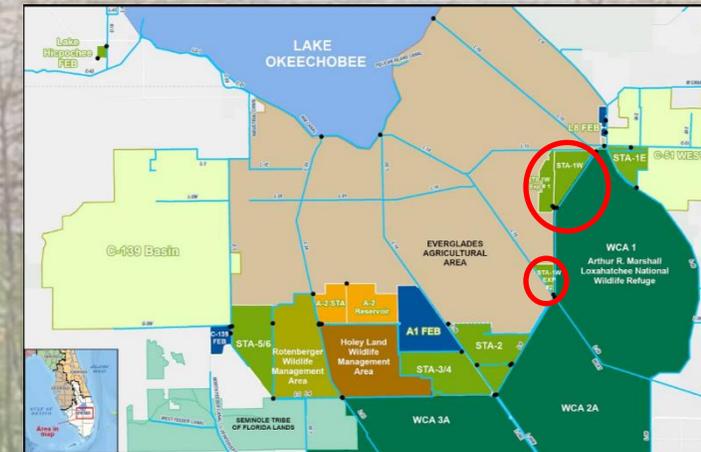
Cell 8 marsh fence

Coincided with substantial plantings

STA 1 West Expansion 2

General continued plantings

Cell 11 willow removal



STA 2 and 3/4

STA 2

Cell 1 inflow dredged

Pumped to the NE corner of the cell

Cell 2 and 3 Marsh Fence installation

Cell 3 drawdown

Cell 5 planting

Inflow repairs

All cells SAV inoculation

Illinois pondweed

STA 3/4

3B Marsh Fence installation

Performed a cattail burn

Selective cattail reduction

Analysis is ongoing



STA planting operation



C-139 Flow Equalization Basin (FEB)

C-139 FEB

Hydrated

General grow in of plantings

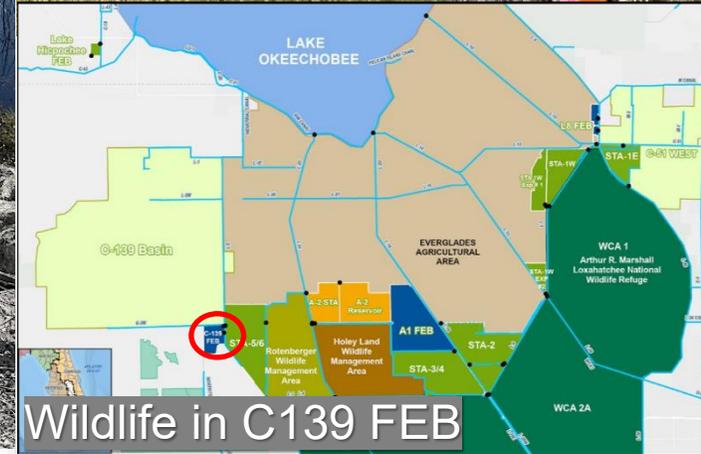
West Indian marsh grass management

Floating invasive plant management

Hydrilla presence noted in SE corner



Vegetation Strip in C139 FEB



Wildlife in C139 FEB

Presenter: Jake Thayer

STA Inflows

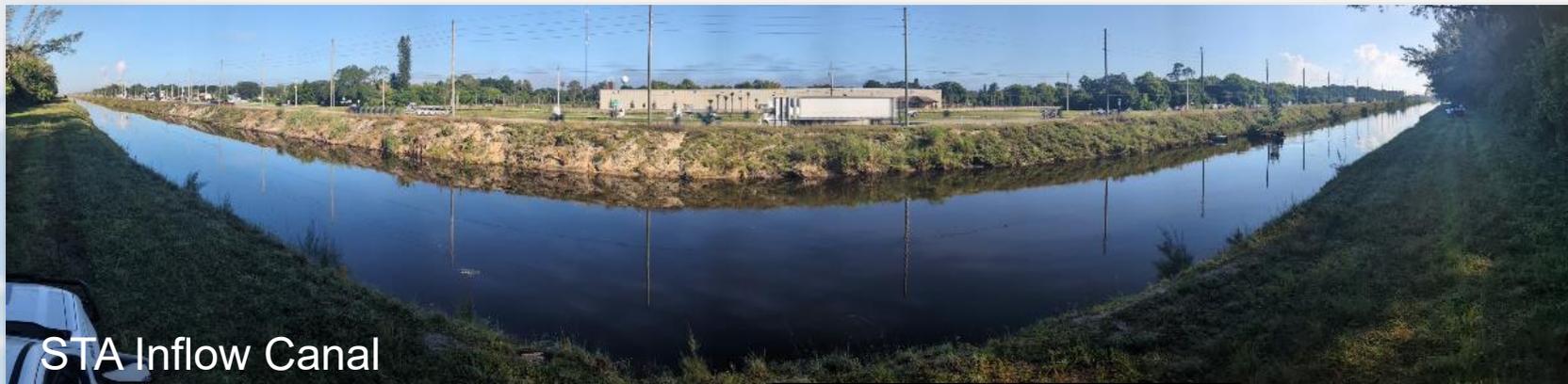
Major effort to manage invasive vegetation in STA inflows

Valuable field station support

Requires continuous, intensive maintenance

Canal management actions can be broad spectrum

STA management must be selective



Performance Plan

Aggressive STA refurbishment strategy in place

Created a timeline for each cell

- Significant planting efforts

- Selective aerial invasive plant management

- Constant monitoring and management

- Expectations are outlined and adapted to current conditions

Adaptive management

- Mechanical management

 - Shredding delaminated vegetation/sediment

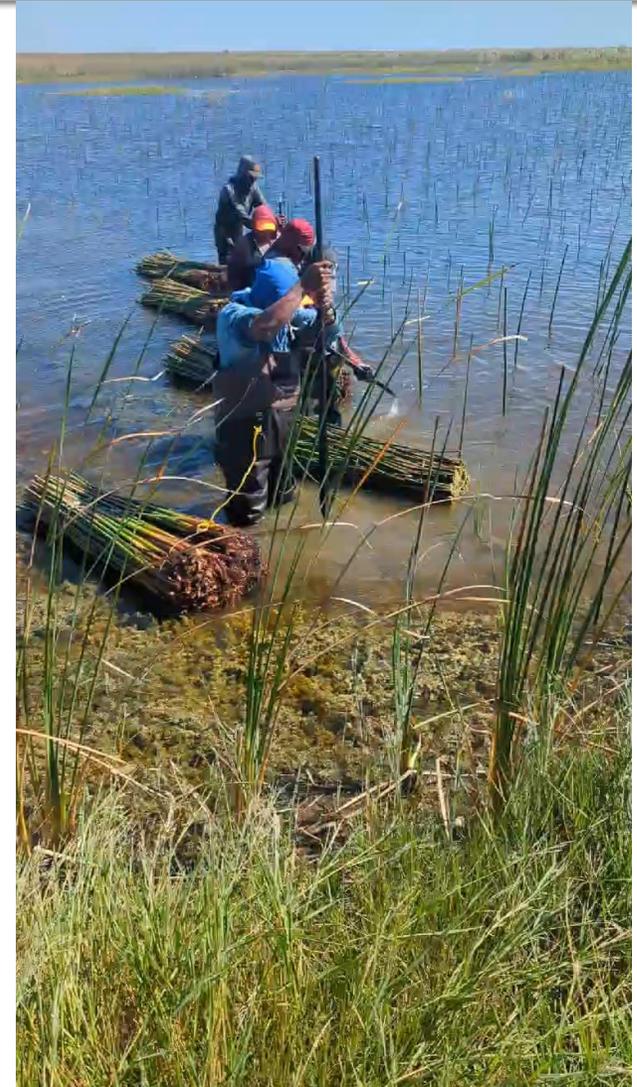
 - Physical removal of nuisance vegetation

- Management for SAV beds

 - Compartmentalization

 - Inoculations

 - Cattail management



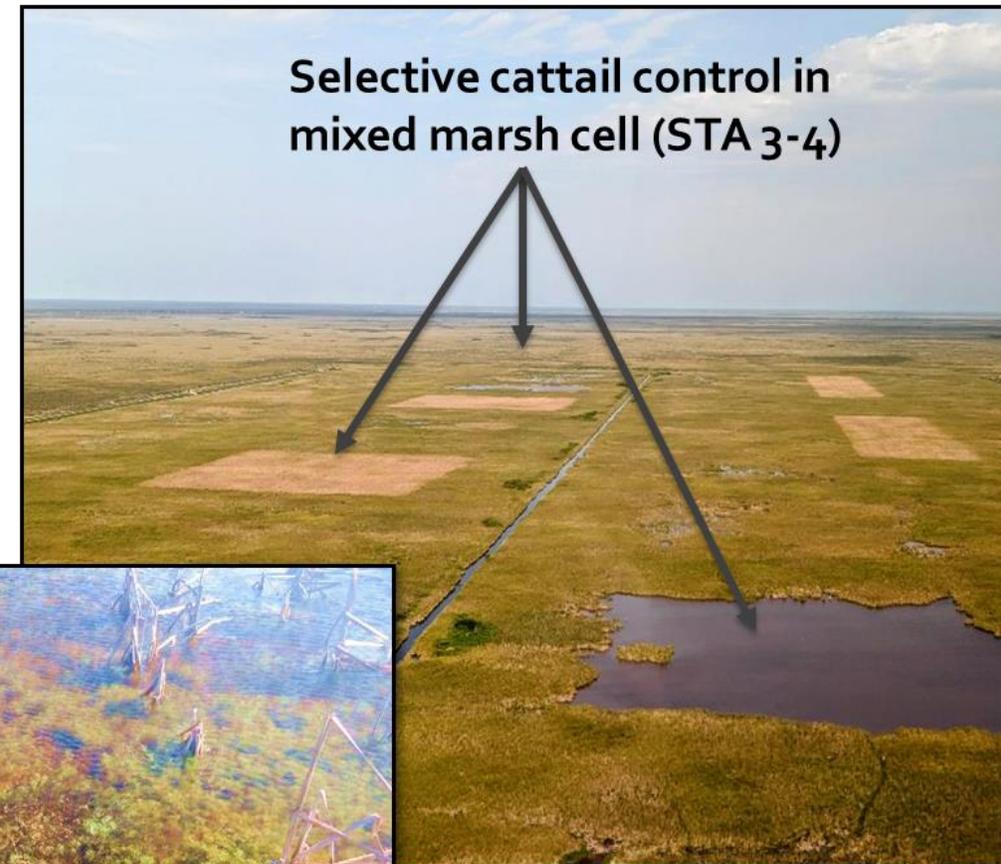
Specialized STA Management

Maintaining vegetation balance in mixed marsh systems:

Emergent vegetation (e.g., cattail) stabilizes sediments and reduces water movement, supporting submerged plants.

Excessive emergent cover displaces submerged vegetation and reduces nutrient sequestration.

Vegetation management scientists monitor emergent cover and selectively control cattail to promote SAV growth.



Recovery of SAV after cattail reduction

CONTACT INFORMATION

Jake Thayer

jthayer@sfwmd.gov

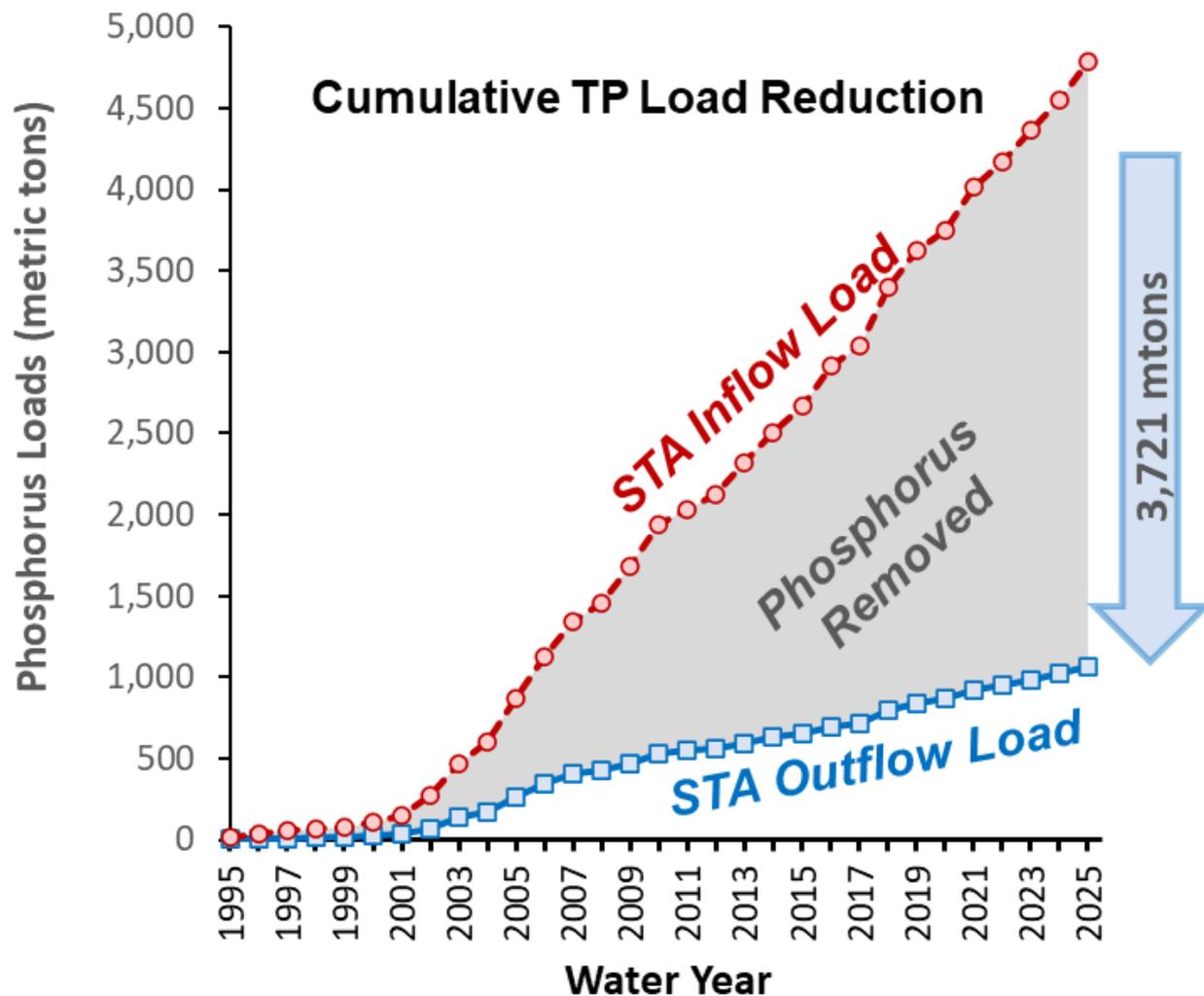
Applied Sciences and Adaptive Management of the Everglades Stormwater Treatment Areas (STAs)

**Matt Powers, Lead Scientist
Camille Herteux, Scientist 4
Applied Sciences Bureau**

**23rd Annual Public Meeting on the Long-Term
Plan for Achieving Water Quality Goals for the
Everglades Protection Area Tributary Basins
February 23, 2026**

Stormwater Treatment Areas

- STAs are comprised of five treatment wetlands constructed to reduce phosphorus (P) concentration
- STAs combined have reduced P loads by 77% and achieved an average outflow total P (TP) concentration of 30 $\mu\text{g}/\text{L}$
- STAs must meet water quality based effluent limit (WQBEL) requirement



STA Adaptive Management

- Restoration Strategies Science Plan completed 2024
 - Results developed 20 potential management strategies to improve phosphorus retention in STA flow-ways
- Two adaptive management studies implemented to restore and optimize vegetation and improve STA performance

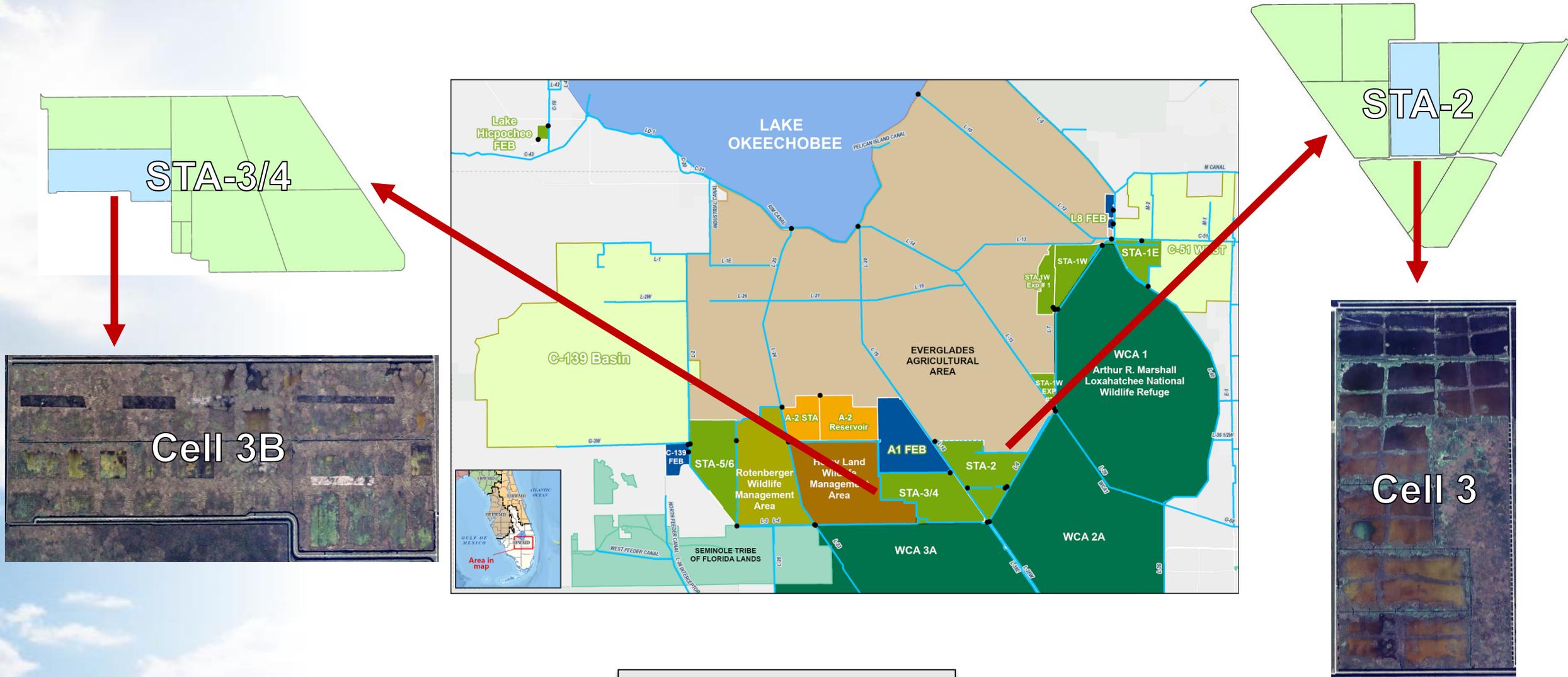
Fire as a Management Tool Study



SAV Recovery Drawdown Study



Study Locations



Evaluation of Fire as a Management Tool in the STAs

Matt Powers
Lead Scientist
Stormwater Treatment Science

**23rd Annual Public Meeting on the Long-Term
Plan for Achieving Water Quality Goals for the
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Background

- STAs are designed as mix of EAV and SAV
 - EAV at inflow
 - SAV at outflow
- Cattail can outcompete SAV reducing SAV coverage in outflow areas
- Prior research has found prescribed fire, herbicide, or combination can reduce cattail coverage however effects are not known for very dense cattail areas like STAs



Study Objectives

- Measure the effects of prescribed fire, herbicide application, and combined herbicide and fire
 - Short-term water quality
 - Long-term water quality
 - Vegetation
- Develop management strategies using these treatments
 - Promote SAV at outflow



Experimental Design

- Two by two factorial design
 - 4 Treatments
 - Untreated
 - Herbicide
 - Burn
 - Herbicide and Burn
 - 3 replicates
 - 12 total plots



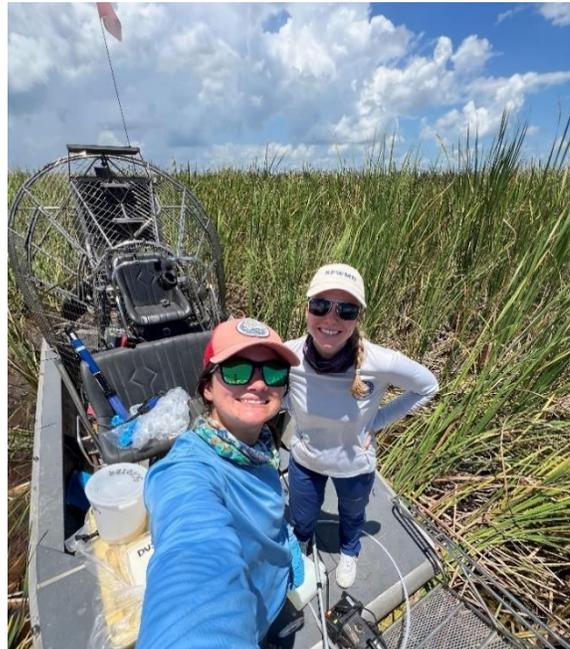
Methods

➤ Surface Water

- Water quality
- Physico-chemical

➤ Vegetation

- Ground surveys
- Drone surveys
- Biomass collection



Herbicide Application

Untreated

Six weeks after treatment



Herbicide treatment applied January 13th, 2025

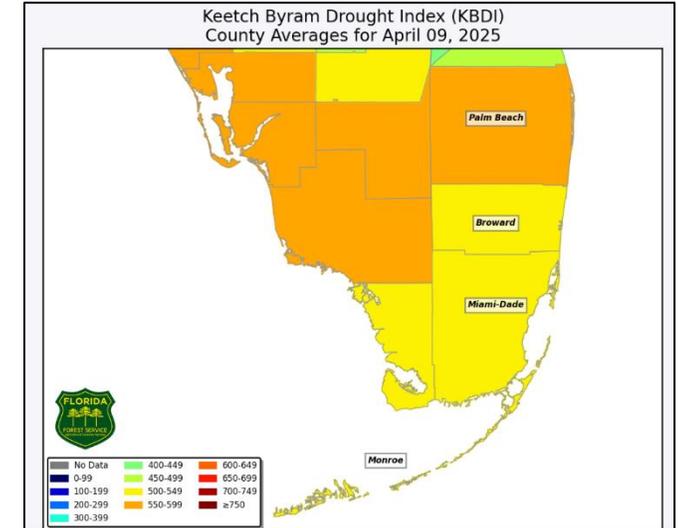
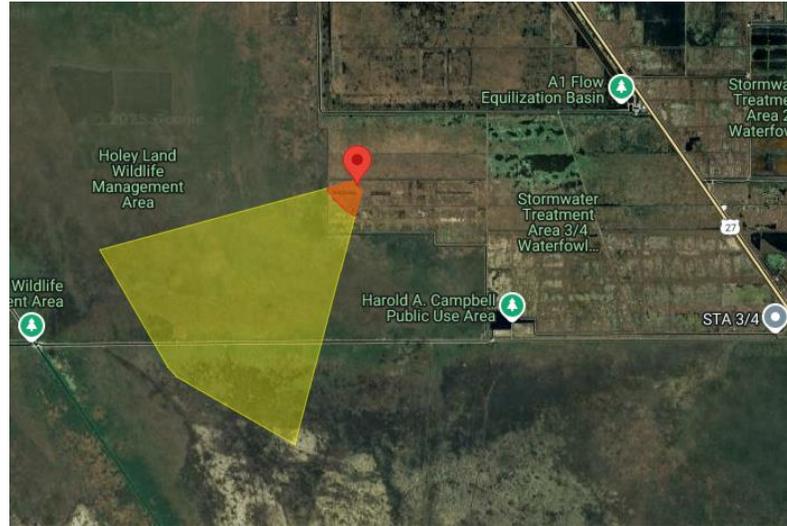
Prescribed Burn Preparation

➤ Fire Breaks: 3/11/2025

- Burn Plan
- Safety
- Approach - Ground
- Infrastructure - Boat Ramp

➤ Wait

- Cell Water Level ~1.5ft
- Drought Index
- Weather/Wind (13+)
- Local conditions



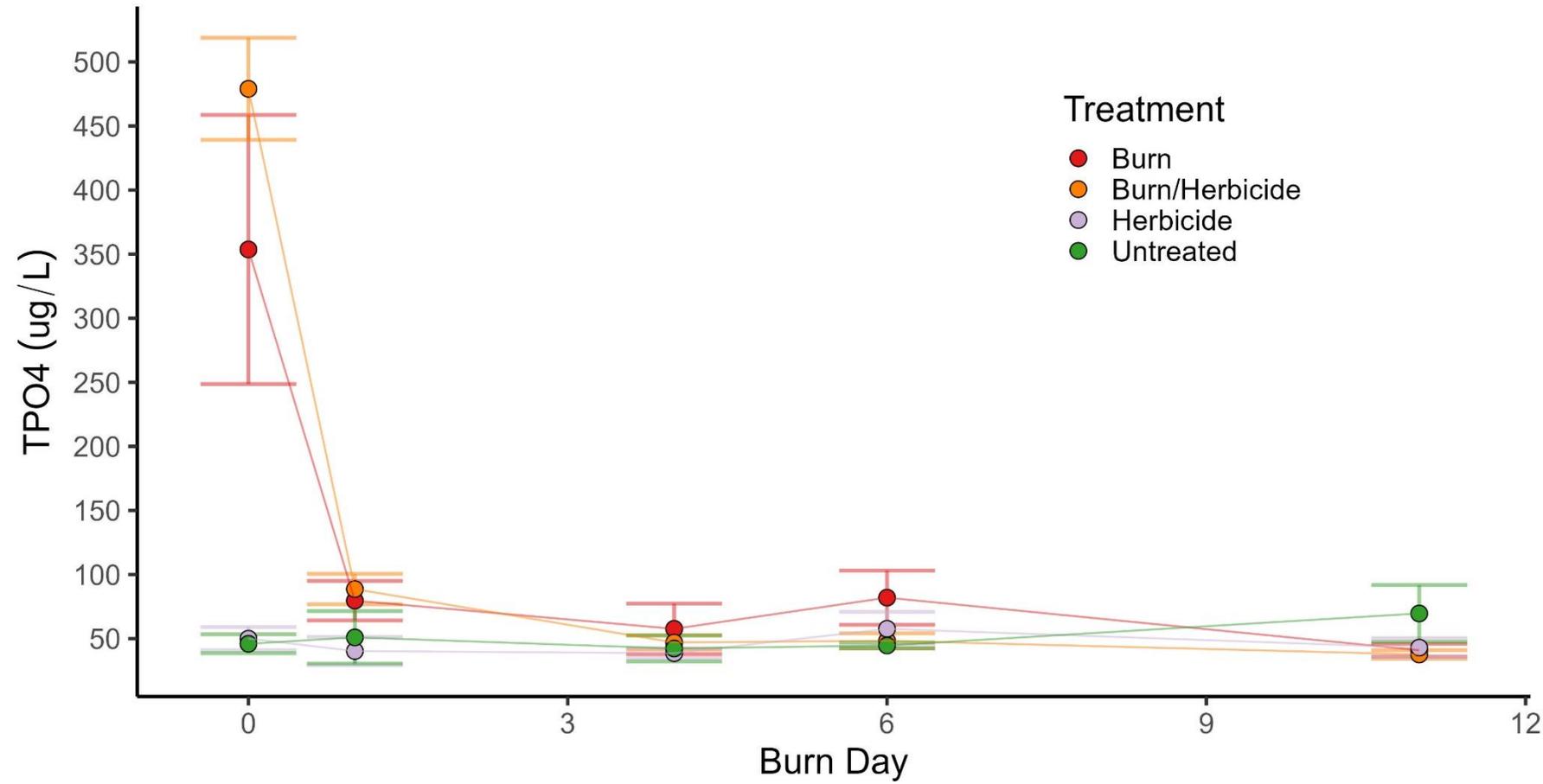
Presenter: Matt Powers

Burn Day



Short-term Water Quality Effects

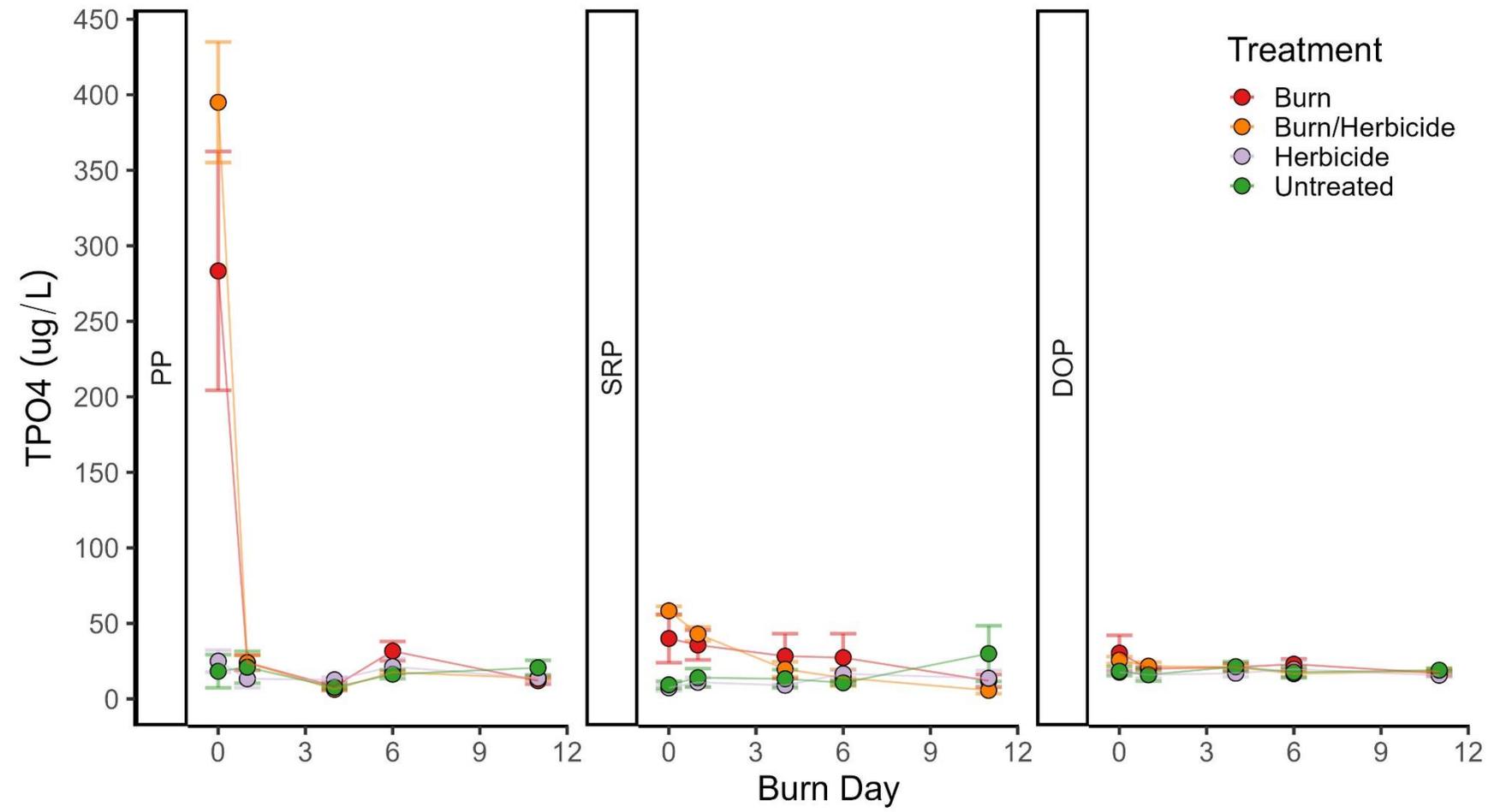
- Water quality effects of fire are acute but short-lived
 - Over 400 $\mu\text{g/L}$ increase
 - Duration 4-6 days



Presenter: Matt Powers

Short-term Water Quality Effects

- Majority of phosphorus increase is in particulate form (PP)
- Small increase in soluble reactive phosphorus (SRP) and dissolved organic phosphorus (DOP)

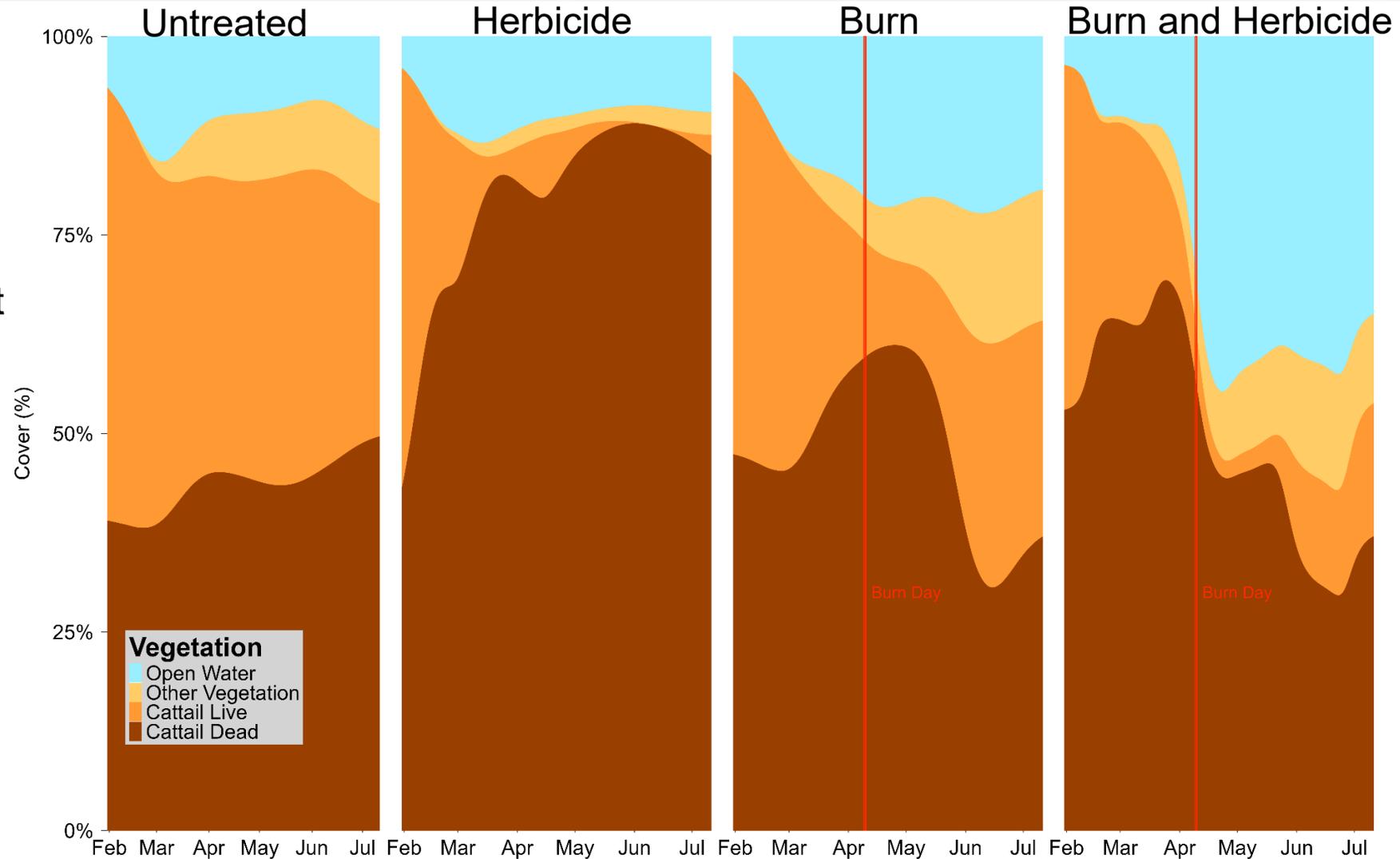


Presenter: Matt Powers

Vegetation Coverage

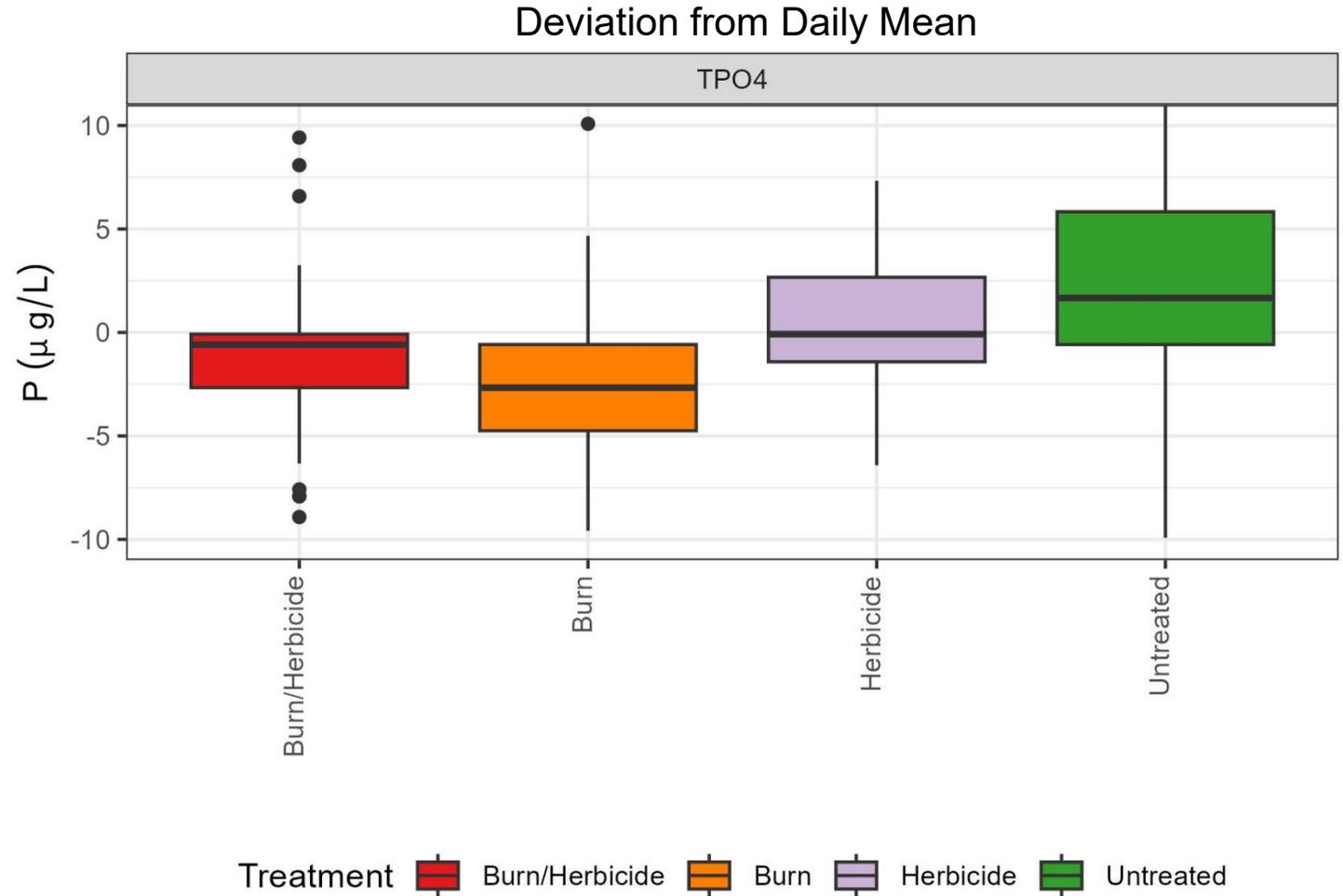
➤ Vegetation Effects

- Without treatment live and dead cattail coverage is relatively stable
- Herbicide kills live cattail but litter/dead cattail remains
- Burning without herbicide will remove dead cattail but live cattail recovers quickly
- Burning combined with herbicide creates open areas for SAV



Post-treatment Effects (ongoing)

- How will treatments affect long-term water quality?
- What processes are responsible for effects?
- What are the long-term vegetation effects?



Findings

- Prescribed burning will release large pulse of nutrients to the water column
- Pulse is short-lived, returning pre-burn conditions within a few weeks
- Burning will remove dead vegetation and litter
- If herbicide isn't applied prior to burn live cattail will recover within in months
- Herbicide alone will kill cattail but will not open create open areas
- Herbicide combined with burning will create open areas

Management Strategies

- Prescribed fire combined with herbicide can be used to create open areas from dense EAV areas to promote SAV in outflow areas of the STAs
- The dry season provides a window to burn without discharging brief high nutrient pulse



Contact Information

Matt Powers

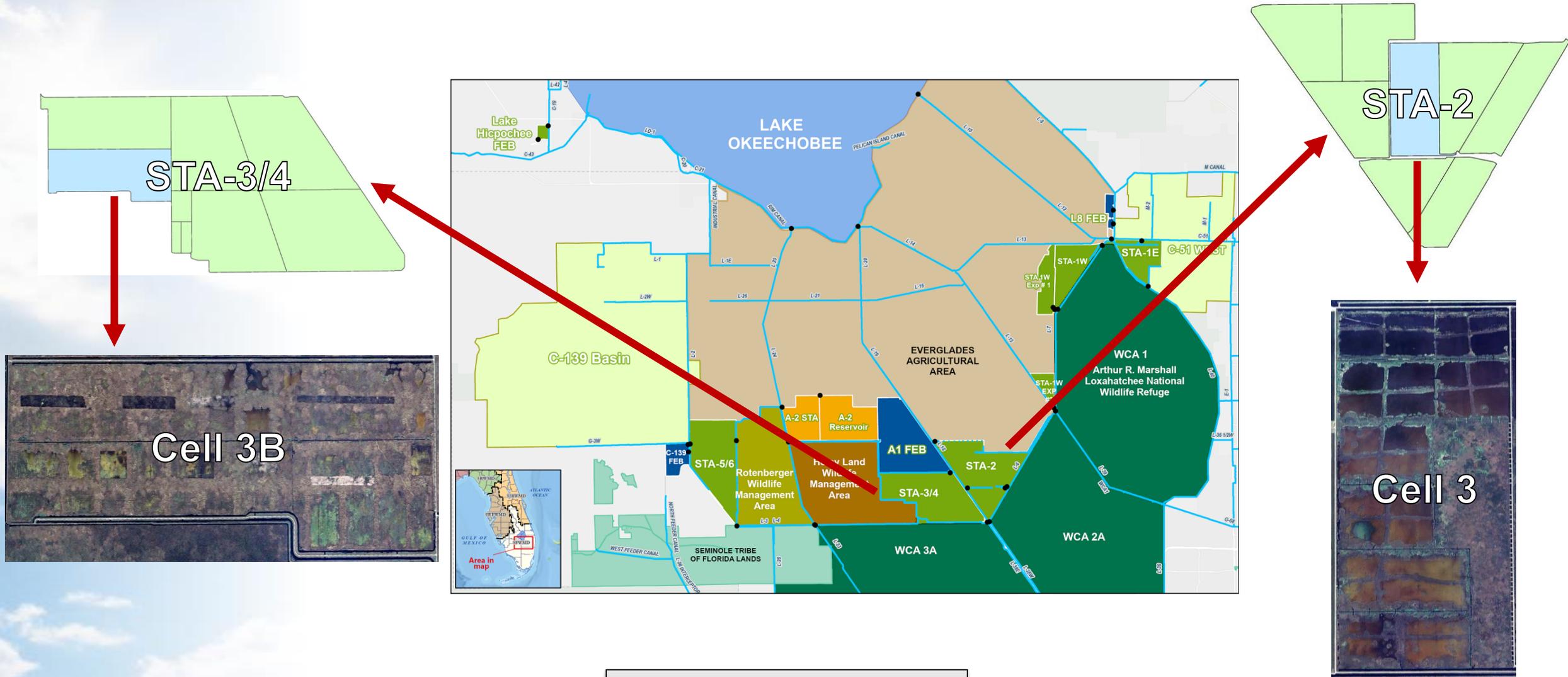
mpowers@sfwmd.gov

Submerged Aquatic Vegetation Recovery: STA-2 Cell 3 Drawdown

Camille Herteux
Scientist 4
Applied Sciences Bureau

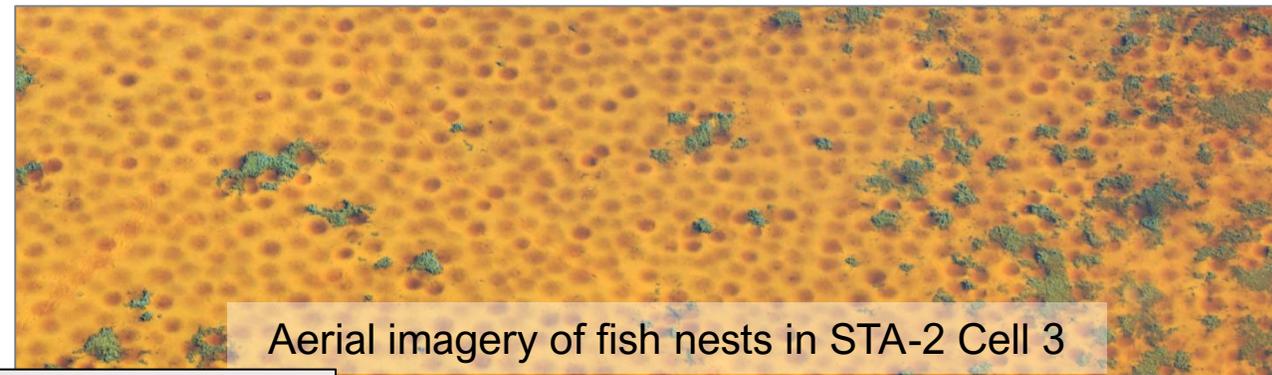
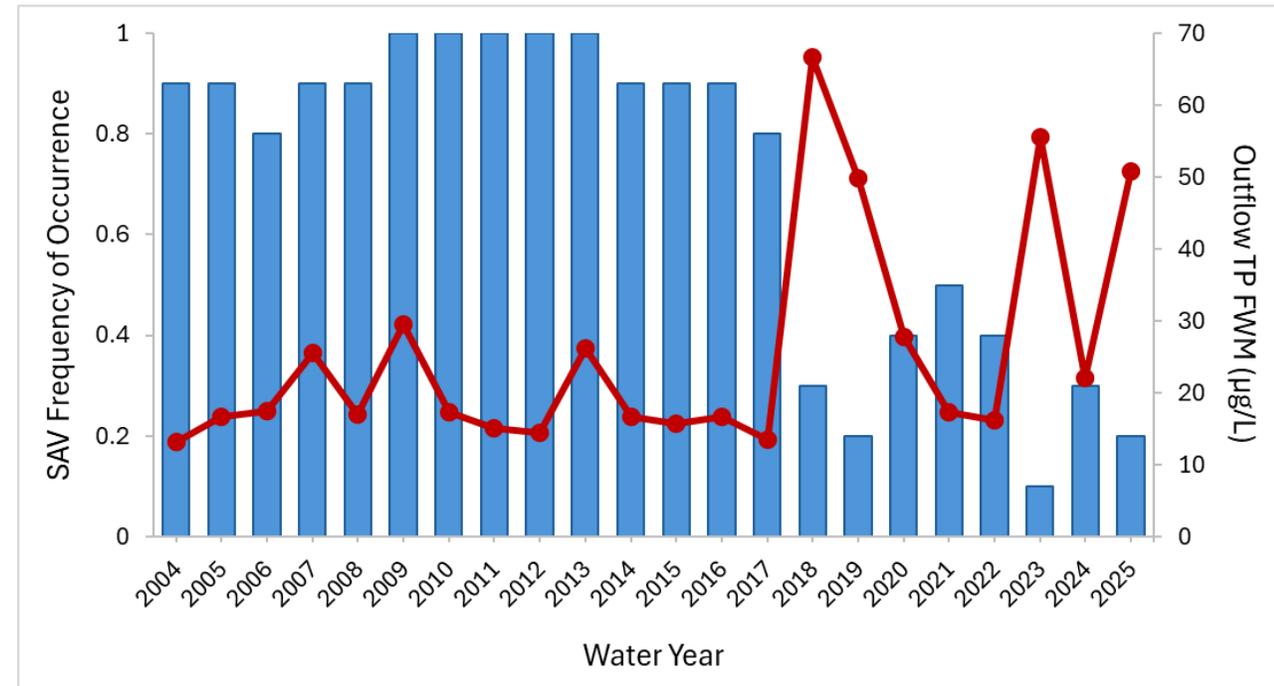
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Study Locations



STA-2 Cell 3 SAV Loss

- Submerged aquatic vegetation (SAV) decreased significantly in Cell 3 since 2017, likely linked to decrease in cell performance
- Possible causes of SAV loss include accumulation of deep mineral soils and SAV damage from invasive fish (cichlids)
 - Cichlids make up greatest biomass of large fish in STAs



Aerial imagery of fish nests in STA-2 Cell 3

Drawdown as a Management Tool

- Prior Restoration Strategies Study Plan research shows water level drawdown can consolidate soil and trigger SAV germination
- Drawdown can increase cichlid vulnerability to predation by concentrating fish in deep water refugia

SAV Resilience Study mesocosms:



Cell 3 soil
continuously
hydrated

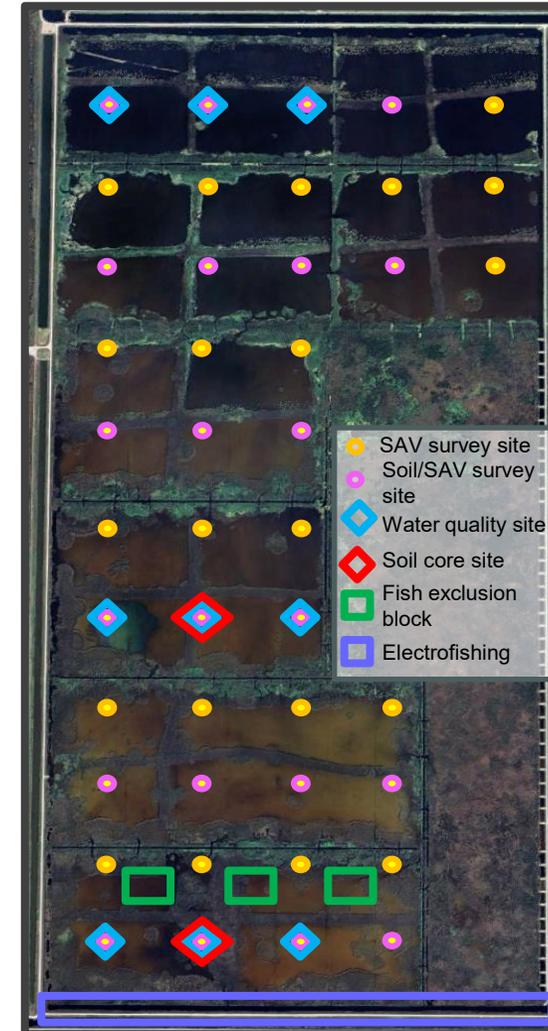


Dried Cell 3 soil five
weeks post-
rehydration

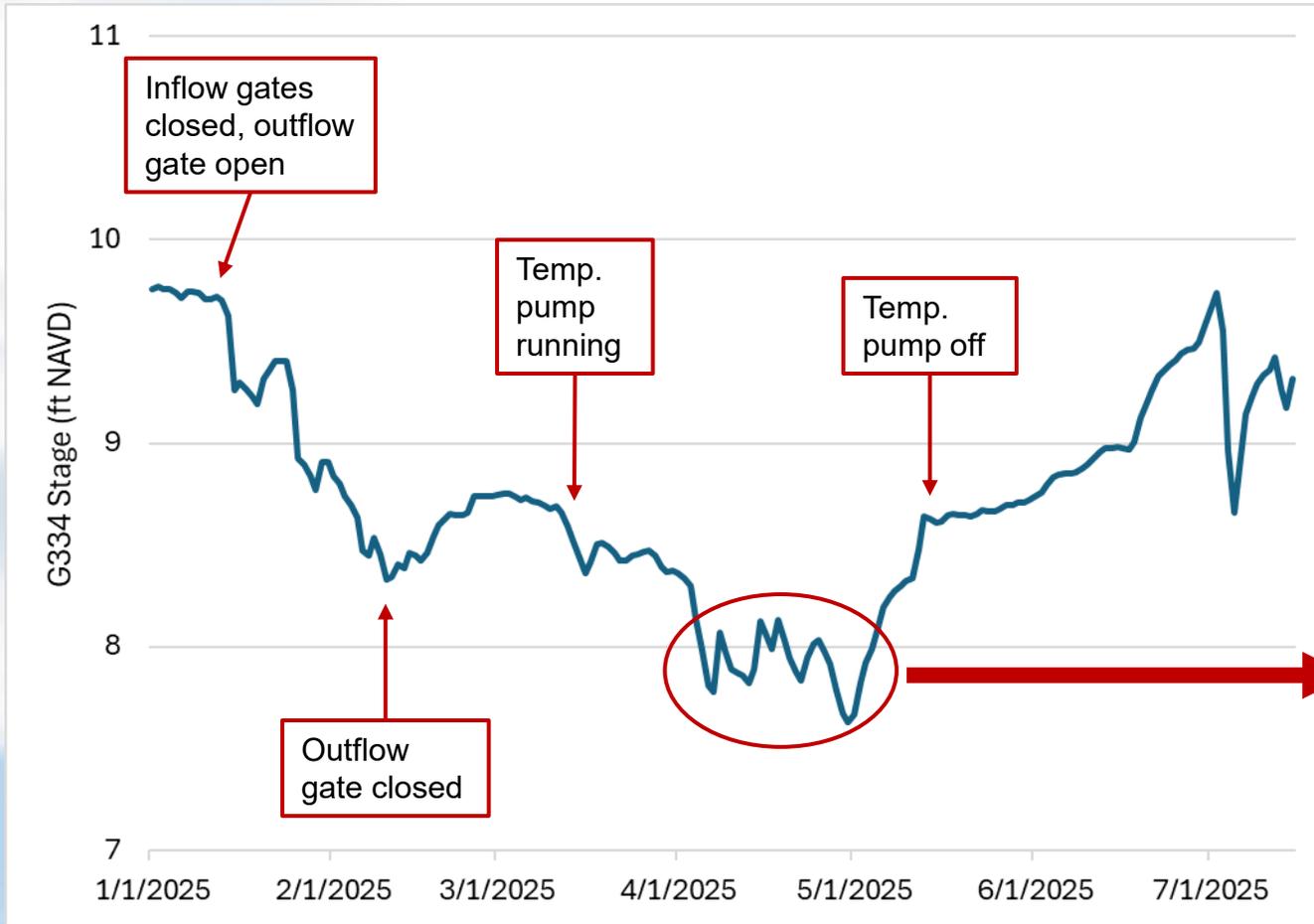
Drawdown Objectives and Methods

	<p>1. How does drawdown affect SAV coverage?</p>	<p>• SAV surveys • Drone imagery</p>
	<p>2. How does drawdown affect water quality?</p>	<p>• Surface water grab sampling</p>
	<p>3. How does drawdown affect soil?</p>	<p>• Soil surveys • Soil coring</p>
	<p>4a. Do large fish negatively affect SAV? 4b. How does drawdown affect large fish?</p>	<p>• Large fish exclosures • Electrofishing surveys</p>

STA-2 Cell 3



Drawdown Timeline



Exposed soil near Cell 3 outflow during drawdown

	<p>1. How does drawdown affect SAV coverage?</p>	<p>→</p> <ul style="list-style-type: none"> • SAV surveys • Drone imagery
	<p>2. How does drawdown affect water quality?</p>	<p>→</p> <ul style="list-style-type: none"> • Surface water grab sampling
	<p>3. How does drawdown affect soil?</p>	<p>→</p> <ul style="list-style-type: none"> • Soil surveys • Soil coring
	<p>4a. Do large fish negatively affect SAV? 4b. How does drawdown affect large fish?</p>	<p>→</p> <ul style="list-style-type: none"> • Large fish exclosures • Electrofishing surveys

SAV Recovery- Drone Imagery

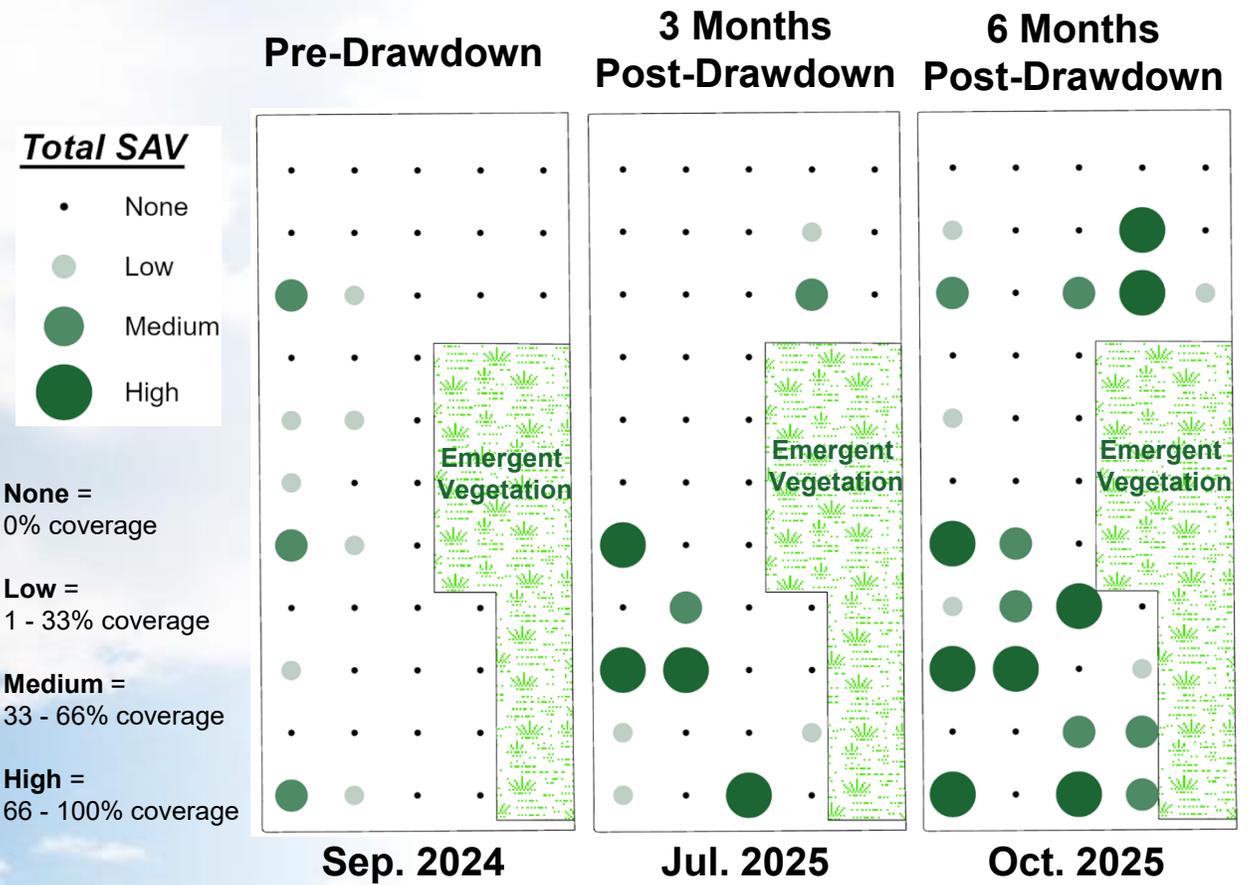
STA-2 Cell 3 outflow region:
Mid-drawdown



STA-2 Cell 3 outflow region:
Three months post-drawdown



SAV Recovery

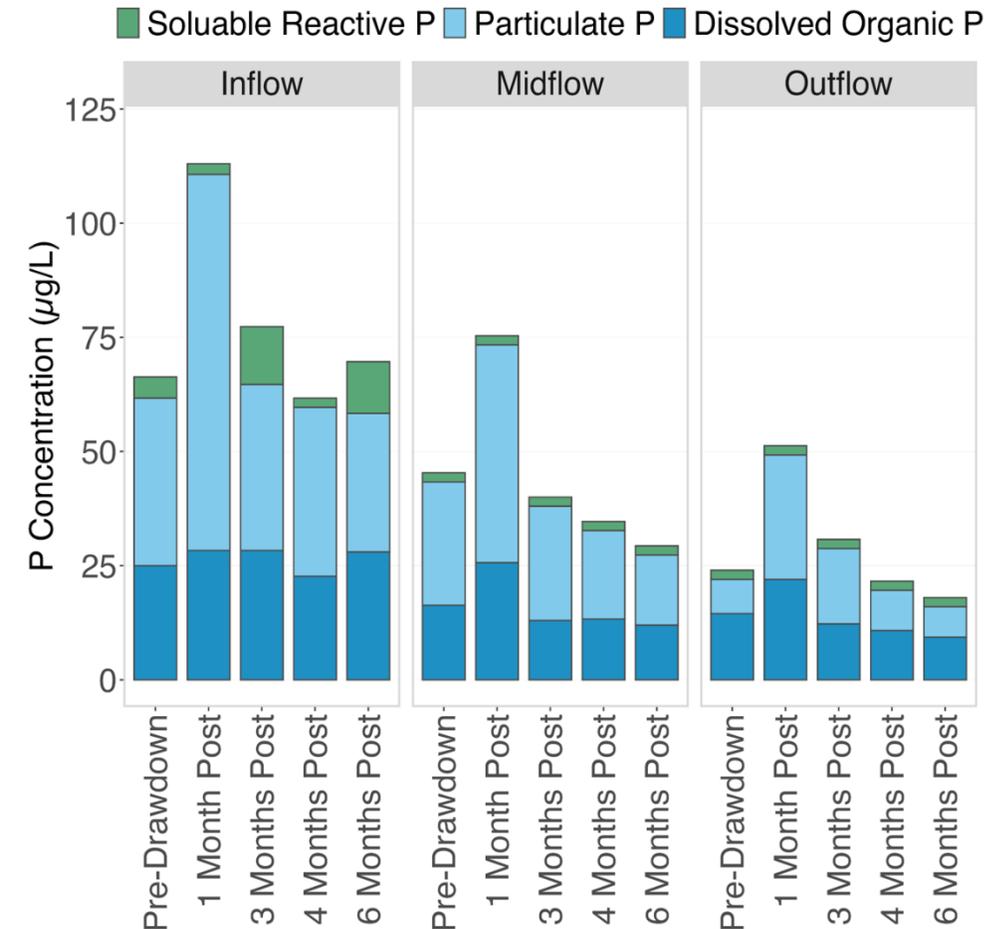


- 3 months post-drawdown
 - SAV at a similar number of sites as pre-drawdown, but high-coverage sites increased
- 6 months post-drawdown
 - SAV frequency of occurrence doubled
 - Average coverage values increased

	<p>1. How does drawdown affect SAV coverage?</p>	<ul style="list-style-type: none"> • SAV surveys • Drone imagery
	<p>2. How does drawdown affect water quality?</p>	<ul style="list-style-type: none"> • Surface water grab sampling
	<p>3. How does drawdown affect soil?</p>	<ul style="list-style-type: none"> • Soil surveys • Soil coring
	<p>4a. Do large fish negatively affect SAV? 4b. How does drawdown affect large fish?</p>	<ul style="list-style-type: none"> • Large fish exclosures • Electrofishing surveys

Water Quality

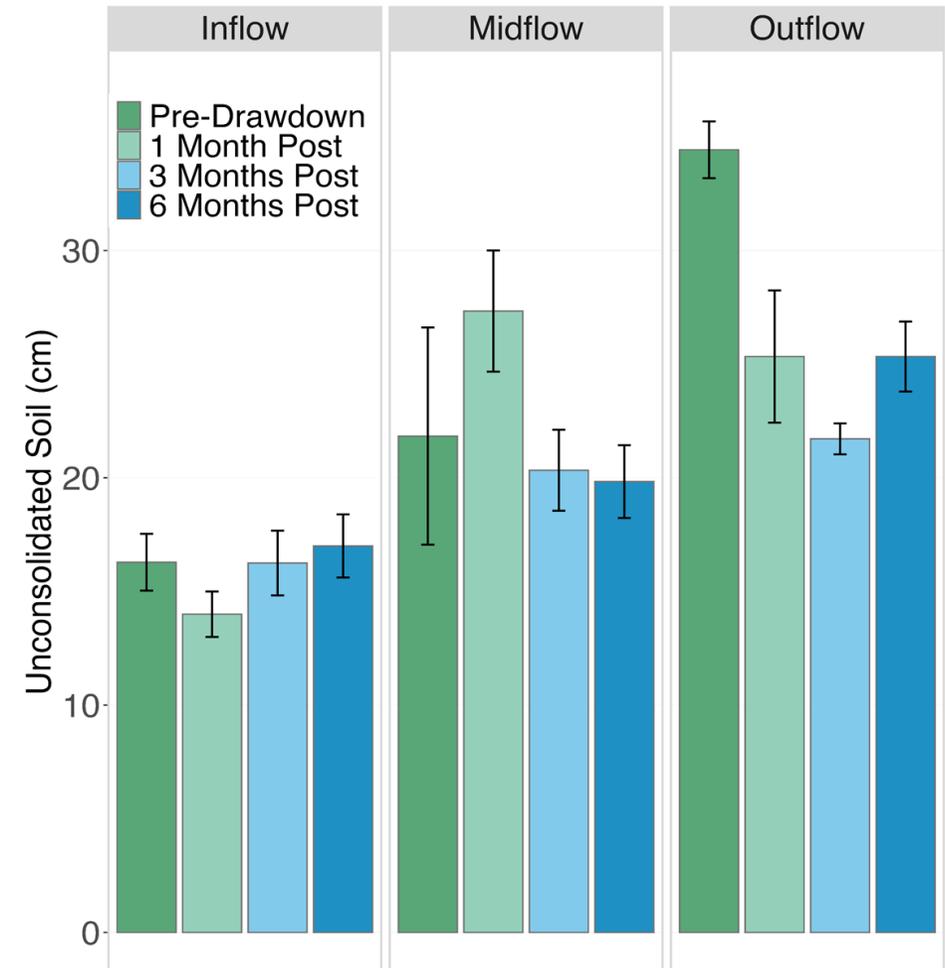
- Surface water grab samples collected at 10 sites, ~6 weeks apart
 - Analyzed for phosphorus (P) species
- Total P (TP) increased post-drawdown- increase in particulate P
- TP trend of decline across most sites over time post-drawdown
- Outflow TP 18 $\mu\text{g/L}$ at most recent sampling event, within WQBEL target

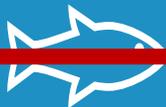


	<p>1. How does drawdown affect SAV coverage?</p>	<ul style="list-style-type: none"> • SAV surveys • Drone imagery
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	<p>4a. Do large fish negatively affect SAV? 4b. How does drawdown affect large fish?</p>	<ul style="list-style-type: none"> • Large fish exclosures • Electrofishing surveys

Soil Consolidation

- Soil surveys measured unconsolidated soil depth
- Soil cores measured soil physical stability
- Consolidation highest in outflow region
 - Greatest extent of soil exposed during drawdown
- Greater soil stability post-drawdown, with stability decreasing over time



	<p>1. How does drawdown affect SAV coverage?</p>	<ul style="list-style-type: none"> • SAV surveys • Drone imagery
	<p>2. How does drawdown affect water quality?</p>	<ul style="list-style-type: none"> • Surface water grab sampling
	<p>3. How does drawdown affect soil?</p>	<ul style="list-style-type: none"> • Soil surveys • Soil coring
	<p>4a. Do large fish negatively affect SAV?</p>	<ul style="list-style-type: none"> • Large fish exclosures
	<p>4b. How does drawdown affect large fish?</p>	<ul style="list-style-type: none"> • Electrofishing surveys

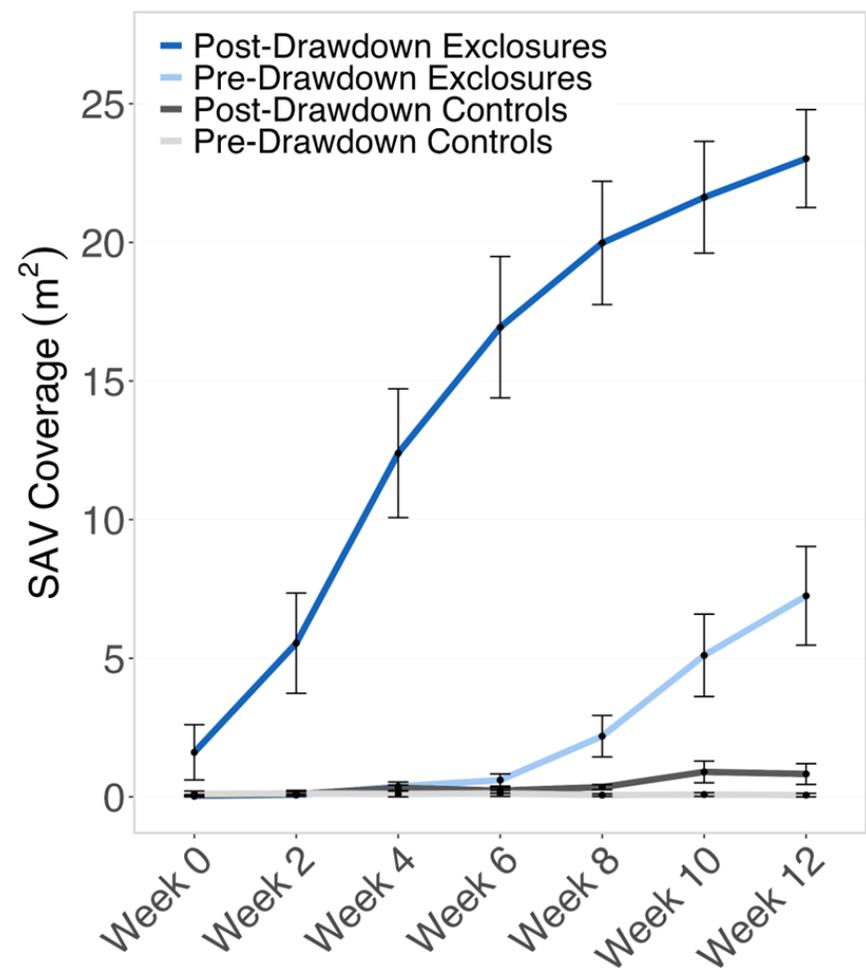
Fish Exclosures

- 12 - 5x5 m fish exclusion nets, 12 open controls
- Plots arranged into 3 blocks, set up on bare soil areas in the outflow region
- Bi-weekly SAV coverage monitoring conducted for two 12-week study periods (pre- and post-drawdown)
- At the end of both monitoring periods, SAV coverage significantly higher in exclosures compared to controls
 - Large fish likely inhibit SAV establishment on bare soil



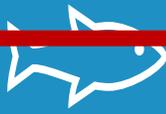
Fish Enclosures

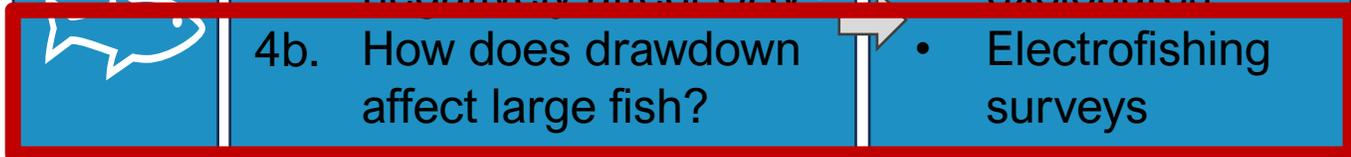
- Final SAV coverage significantly higher in post-drawdown enclosures compared to pre-drawdown
 - SAV coverage increase related to soil consolidation, dryout



Fish enclosures after 12 weeks post-drawdown

Presenter: Camille Herteux

	1. How does drawdown affect SAV coverage?	<ul style="list-style-type: none"> • SAV surveys • Drone imagery
	2. How does drawdown affect water quality?	<ul style="list-style-type: none"> • Surface water grab sampling
	3. How does drawdown affect soil?	<ul style="list-style-type: none"> • Soil surveys • Soil coring
	4a. Do large fish negatively affect SAV?	<ul style="list-style-type: none"> • Large fish exclosures
	4b. How does drawdown affect large fish?	<ul style="list-style-type: none"> • Electrofishing surveys



Tilapia Populations

- Cichlids (tilapia) make up greatest biomass of large fish in the STAs
- Cichlid foraging and nesting behavior disrupts SAV
- Tilapia densities monitored over time in outflow canal



Aerial imagery of cichlid nests in STA-2 Cell 3

Tilapia Populations

- Catch-per-unit-effort surveys indicated no change in tilapia abundance during drawdown
- Tilapia likely maintained access to marsh habitat during drawdown due to complex cell topography



Large tilapia captured during electrofishing survey

Conclusions

- Promising trends for outflow water quality, but cell operations limited in 2025
- Multiple mechanisms positively influence SAV growth including soil consolidation, soil exposure to air, and flow reduction



SAV beds in Cell 3 outflow region post-drawdown

Conclusions

- Removing fish foraging and nesting pressure allows SAV to establish on bare soil
- Drawdown restricts fish access to cell interior, can serve as a large-scale method of fish exclusion



Tilapia investigating SAV after exclosure net removal

Contact Information

Camille Herteux
cherteux@sfwmd.gov

SOUTHERN EVERGLADES NUTRIENT SOURCE CONTROL PROGRAM UPDATE

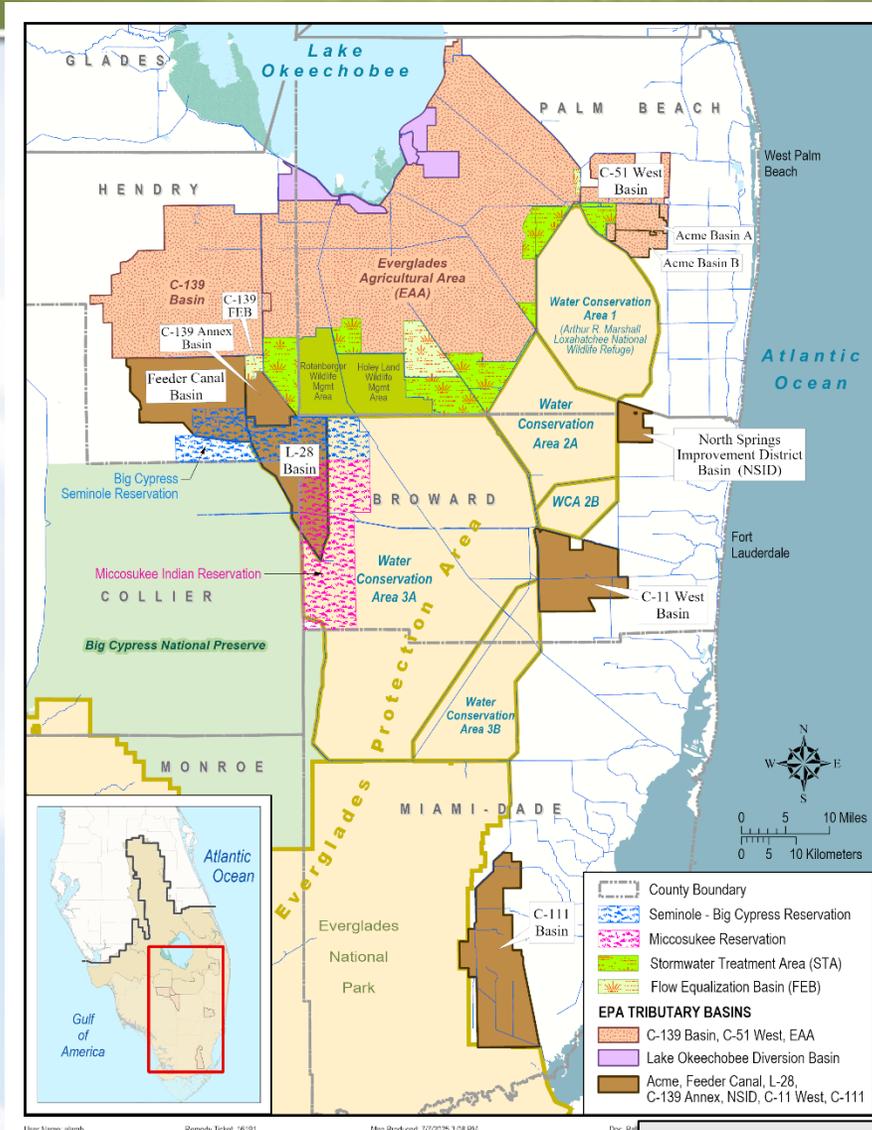
Stephanie Nevadunsky
Senior Engineer
Everglades and Estuaries Protection Bureau

**23rd Annual Public Meeting on the Long-Term
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SOURCE CONTROL PROGRAMS



BASINS TRIBUTARY TO THE EVERGLADES

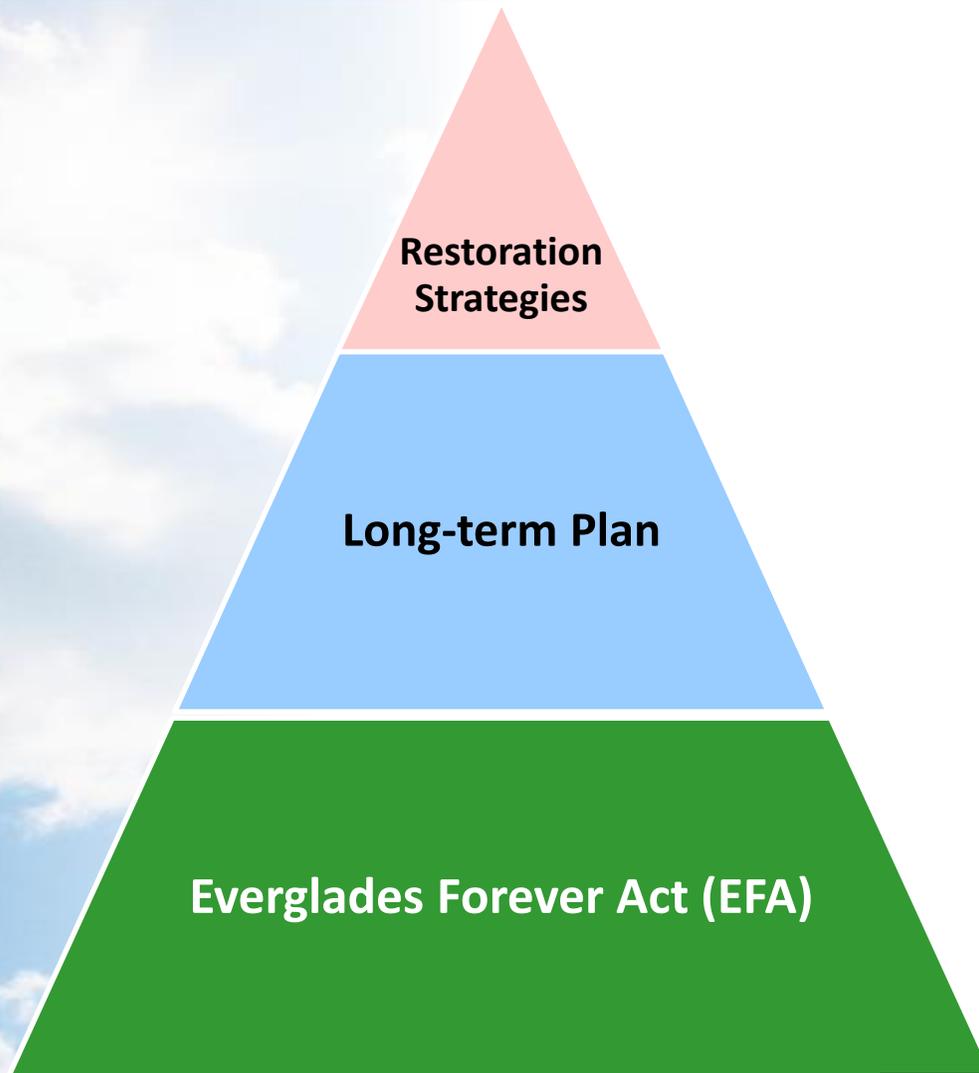


- **Everglades Construction Project (ECP) Basins**
 - Everglades Agricultural Area (EAA)
 - C-139
 - C-51 West /ACME

- **Non-ECP Basins**
 - Feeder Canal
 - L-28
 - North Springs Improvement District (NSID)
 - C-11 West
 - C-111

Presenter: Stephanie Nevadunsky

LONG-TERM PLAN PROJECT OBJECTIVES

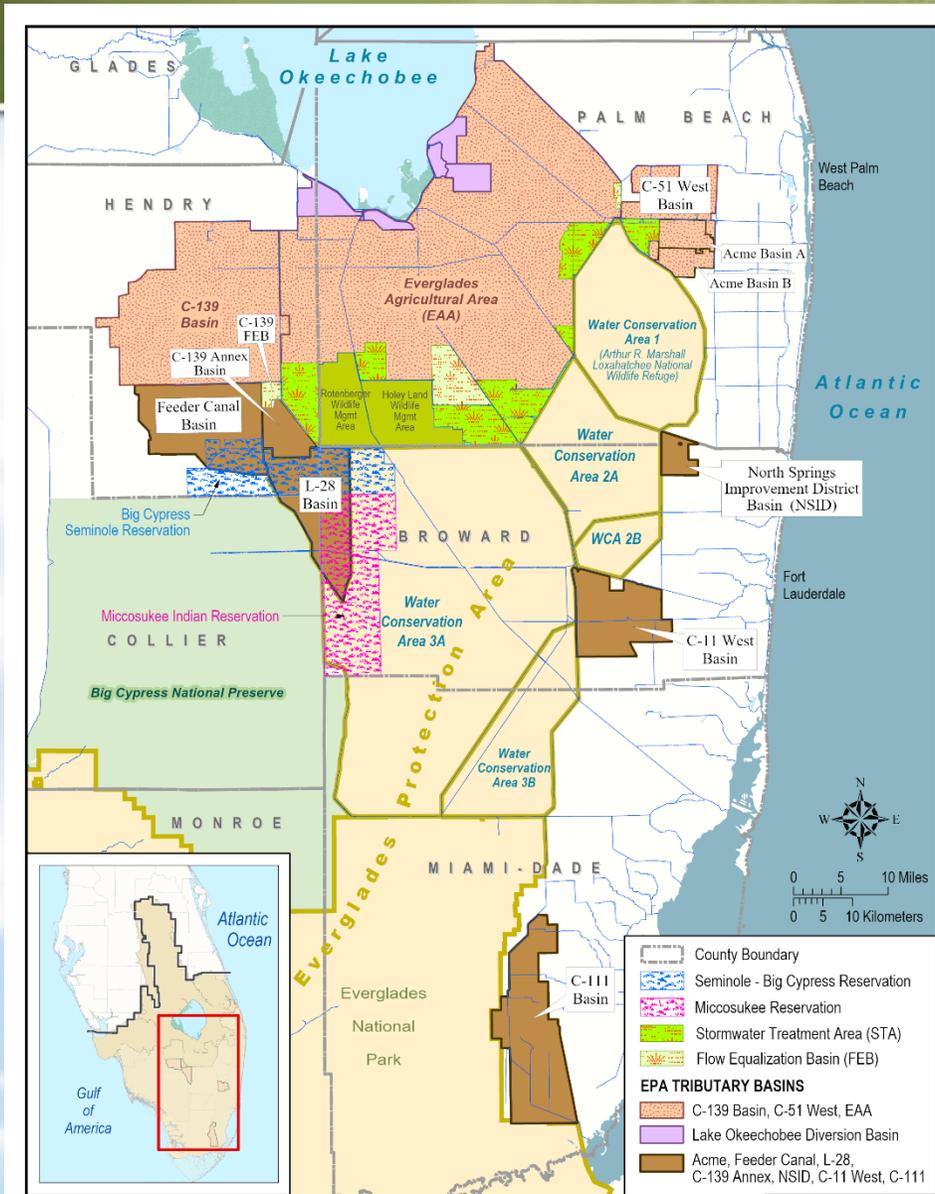


The Long-Term Plan recommends activities designed to:
“***Maintain and improve** upon the contribution of source controls to overall water quality improvement goals.*”

Specifically:

- **Identify** discharges that are candidates for implementation of **cost-effective** source controls
- Characterize management practices on lands or processes tributary to those discharges
- Implement these source controls **in concert with** landowners or municipalities

CONTENTS



➤ EAA and C-139 Basins

- Regulatory compliance and activities
- Research and demonstration projects
- Sub-regional source control projects

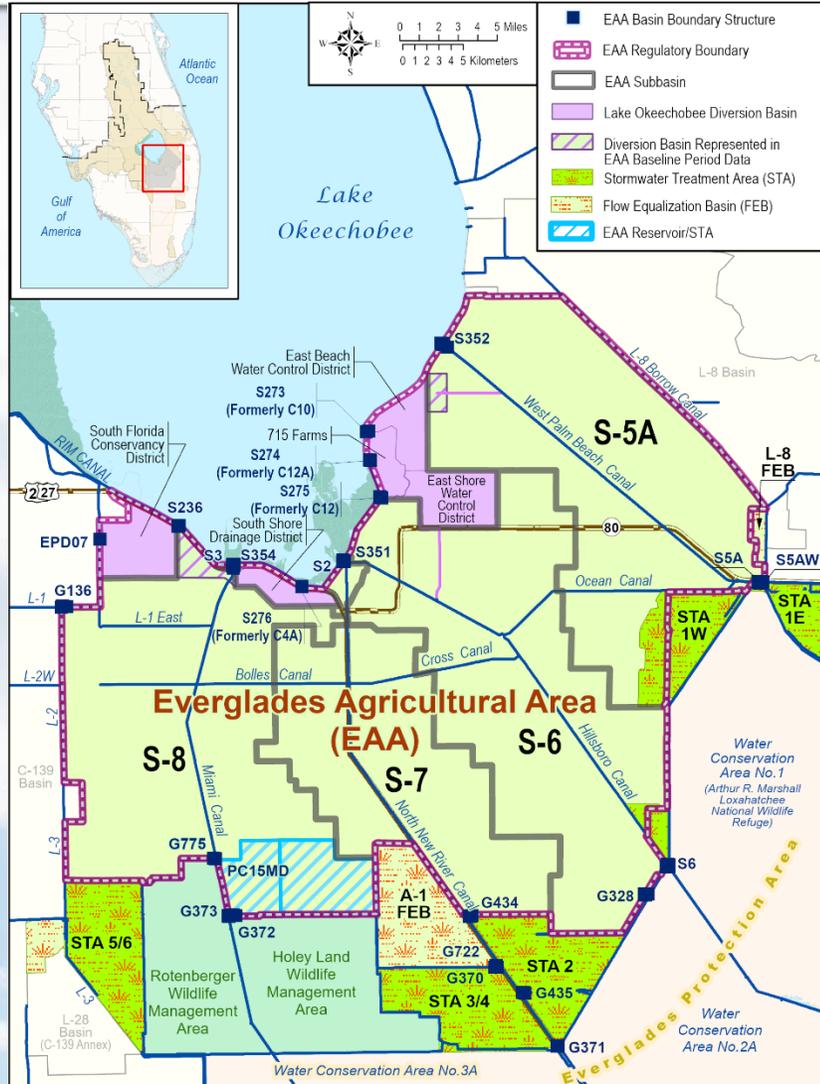
➤ Other Tributary Basins

- Regulatory and cooperative activities
- Environmental Resource Permit (ERP) integration

TOTAL PHOSPHORUS (TP) RUNOFF DATA BY BASIN

Basin	Receiving Water Body	WY2025 TP Load (t)	WY2025 TP FWMC (µg/L)
Everglades Agricultural Area (EAA)	STAs and Lake Okeechobee	134	144
C-139	STA 5/6 and EAA	54	222
Feeder Canal	WCA-3A	22	123
L-28	WCA-3A	18	96
C-51 West (incl. Acme Improvement District)	STA-1E, C-51 East Basin, and WCA-1	9	136
C-111	ENP	4	8
C-11 West	WCA-3A	3	18
North Springs Improvement District (NSID)	WCA-2A	0	-

EAA BASIN SOURCE CONTROL PROGRAMS

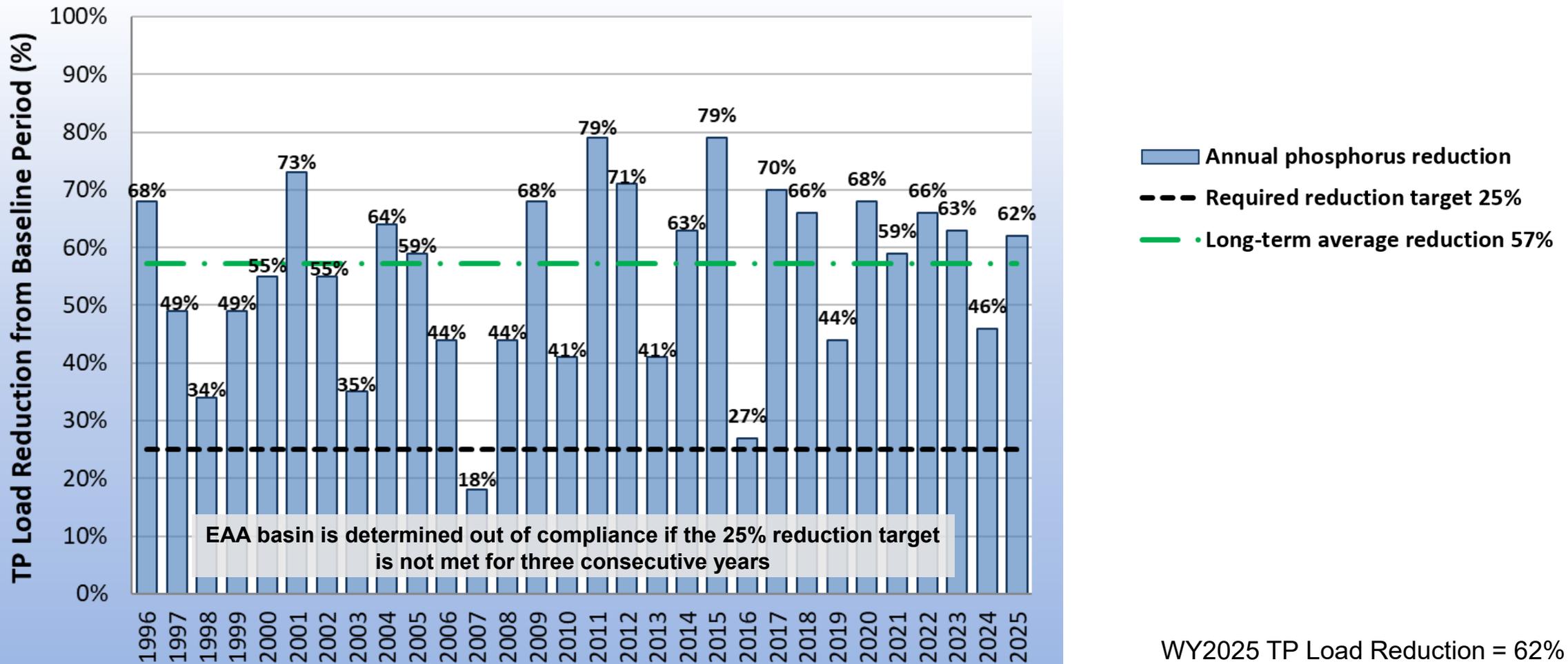


- EAA Basin level water quality compliance
- Permit level compliance
- Research and demonstration projects
 - EAA Environmental Protection District (EAAEPD) Research Master Permit
- Sub-regional source control projects (S-5A Sub-basin)

User Name: alamb Remedy Ticket: 228003 Map Produced: 6/27/2025 4:41 PM \sfd.sfwmd.gov\dfsroot\GIS\SPProj\SPFER\Vol1.D

Presenter: Stephanie Nevadunsky

EAA BASIN LEVEL COMPLIANCE



EAA PERMIT LEVEL COMPLIANCE

- Comprehensive best management practices (BMP) plan
- Permittee water quality monitoring plan
- Post-permit compliance activities

Nutrient Management

Controlled application



Water Management

Water control structure



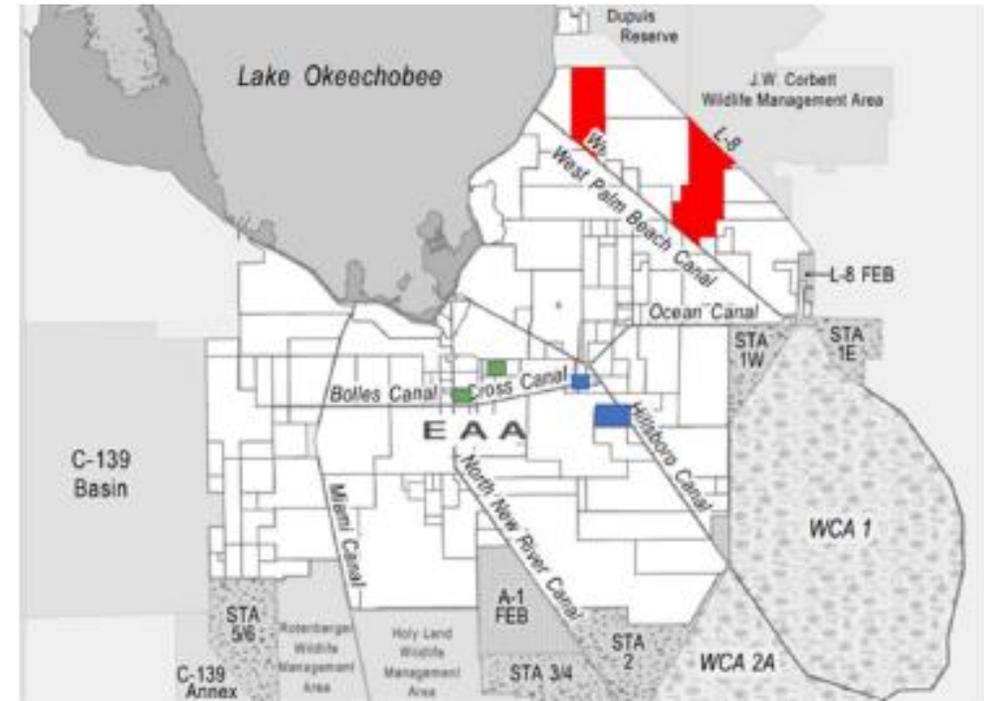
Particulate Matter and Sediment Controls

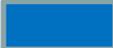
Canal cleaning, sumps and vegetated banks



EAA BMP MASTER RESEARCH PERMIT

- The Everglades Forever Act (EFA) requires a comprehensive program of research, field testing and implementation of BMPs.
- A 5-year EAA-EPD Master Research Permit renewal was issued in September 2025.
- This research evaluates performance differences between EAA farm basins with similar BMPs.
- Six farms were selected for this research project that started in October 2020.
- Fifth interim annual report completed in July 2025.

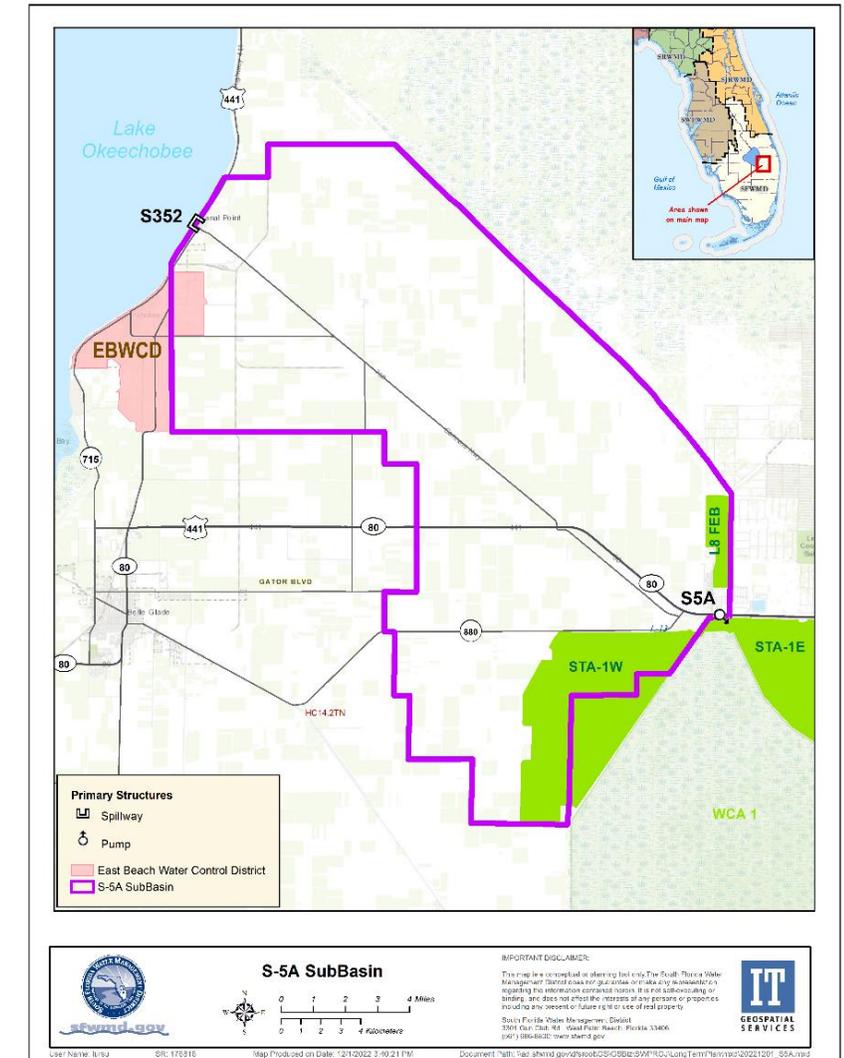


Legend	Farm Basin ID
	50-018-01 and 50-018-03
	50-028-01 and 50-048-01
	50-061-07 and 50-061-12

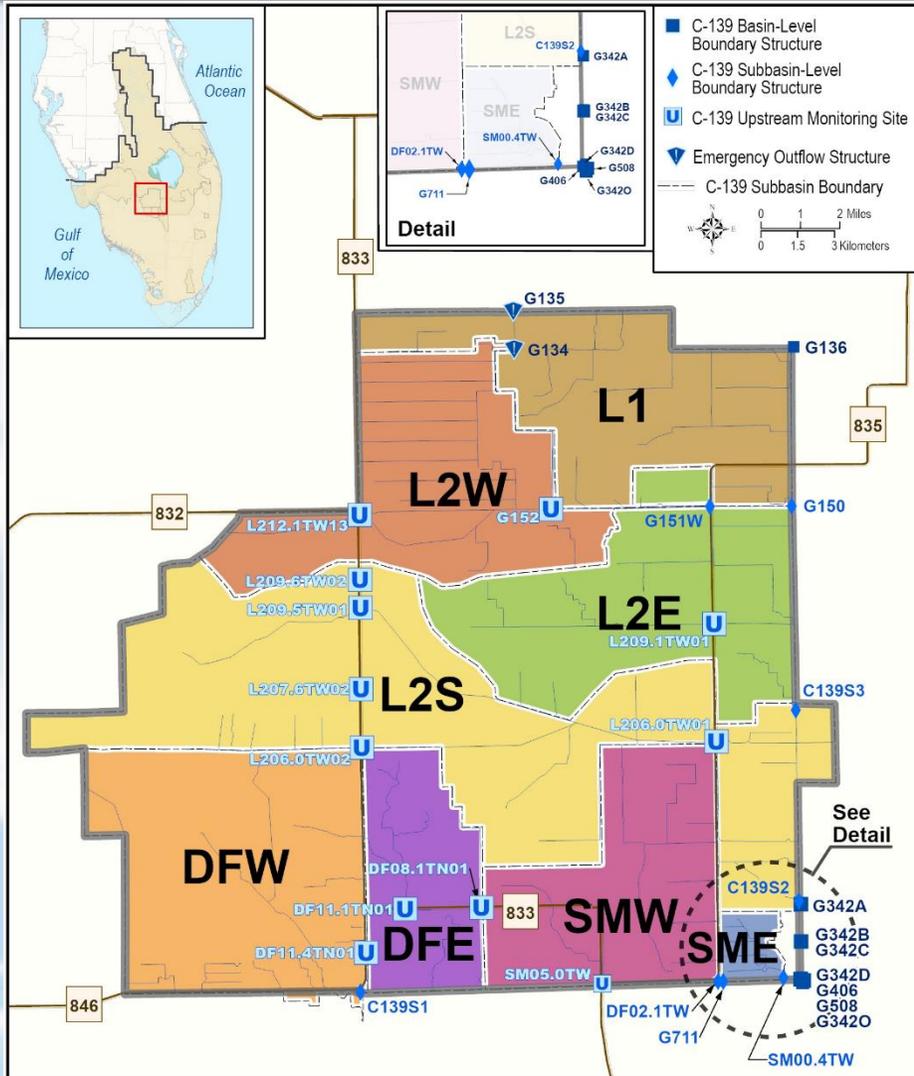
Presenter: Stephanie Nevadunsky

SUB-REGIONAL SOURCE CONTROL PROJECTS

- Built upon the success of the EAA Regulatory Program
- It's one of the “safety factors” for Restoration Strategies
- To reduce total phosphorus (TP) from the S-5A source basin into STA-1E and STA-1W (Eastern Flow Path)
- Two sub-regional source control projects are under consideration to further reduce TP into the STAs
 - Dredge the West Palm Beach Canal near S5-A
 - Test an innovative technology in the C-4 canal of the East Beach Water Control District



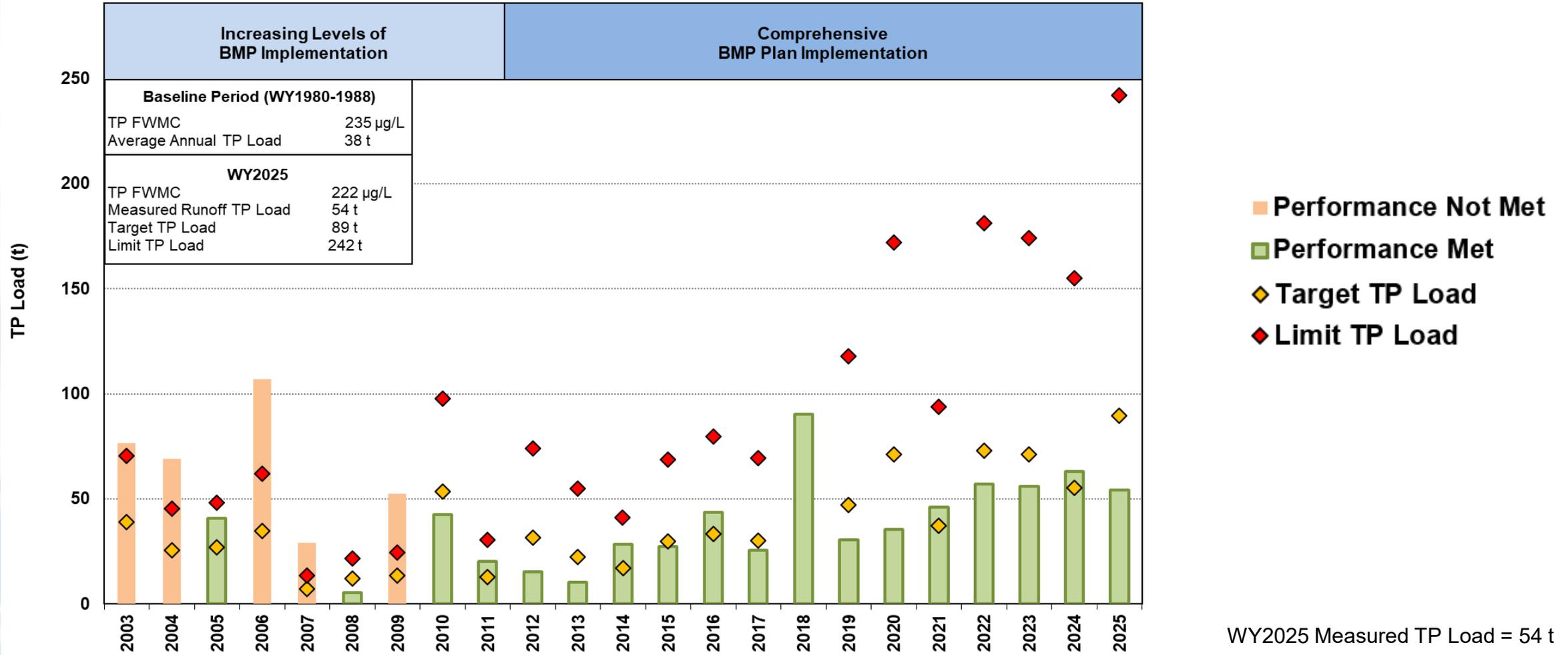
C-139 BASIN SOURCE CONTROL PROGRAMS



- Implements comprehensive BMPs similar to the EAA
- Basin-level water quality compliance
- Sub-basin water quality monitoring
 - Upstream water quality monitoring
 - Post-permit compliance activities

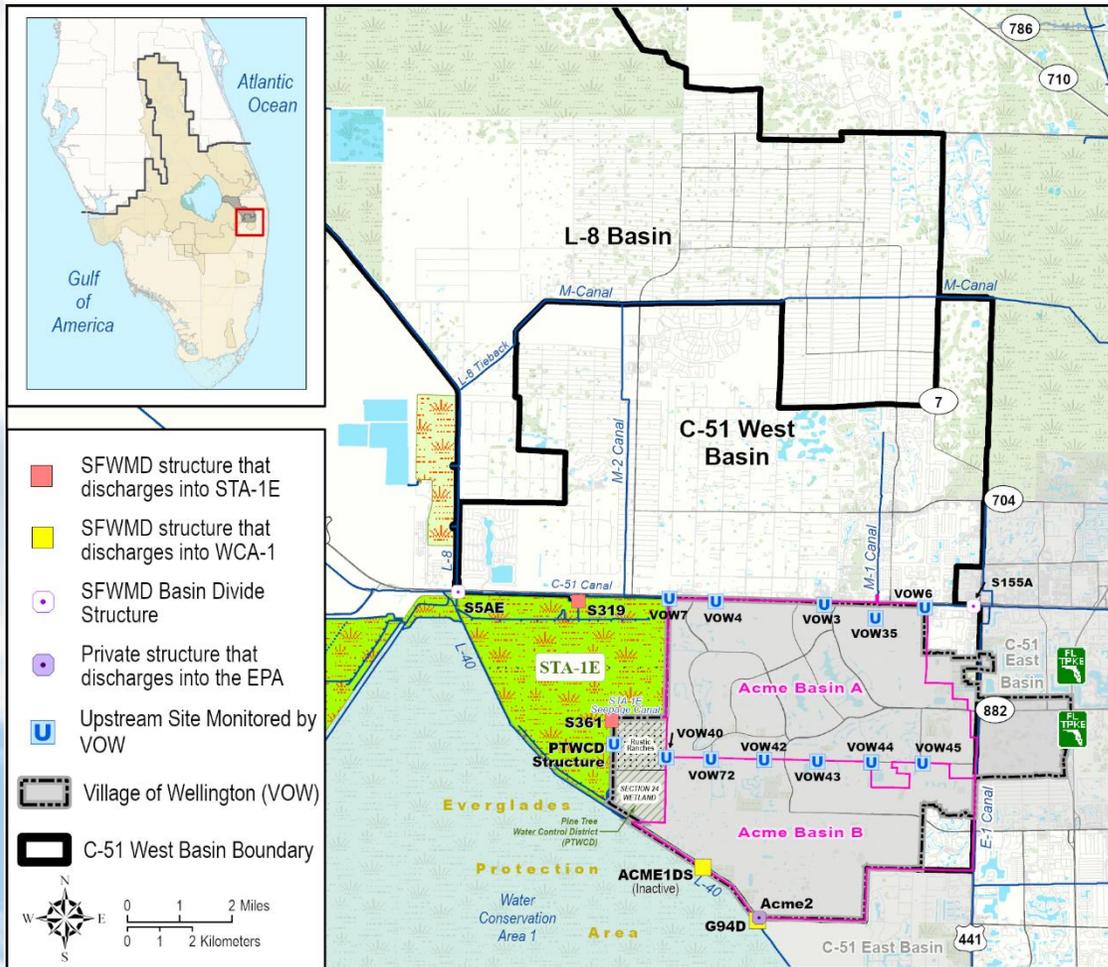
C-139 BASIN LEVEL COMPLIANCE

C-139 Basin TP Load Summary by Water Year



WY2025 Measured TP Load = 54 t

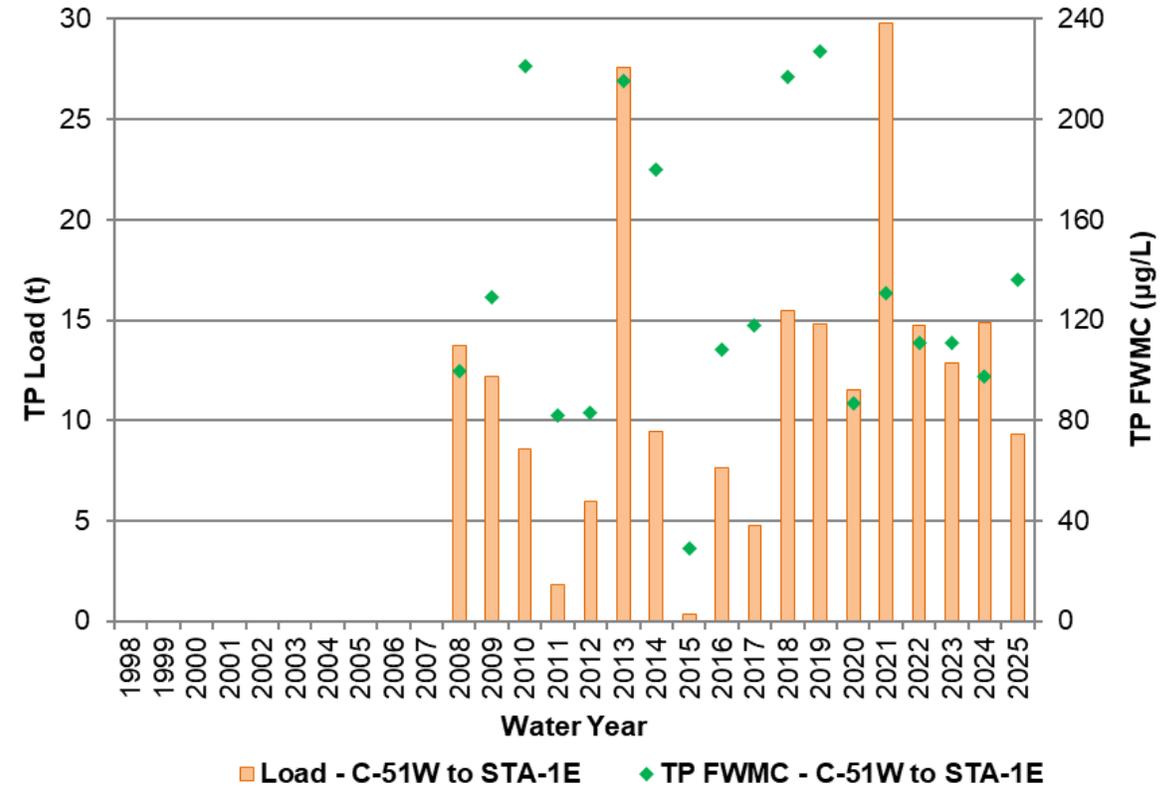
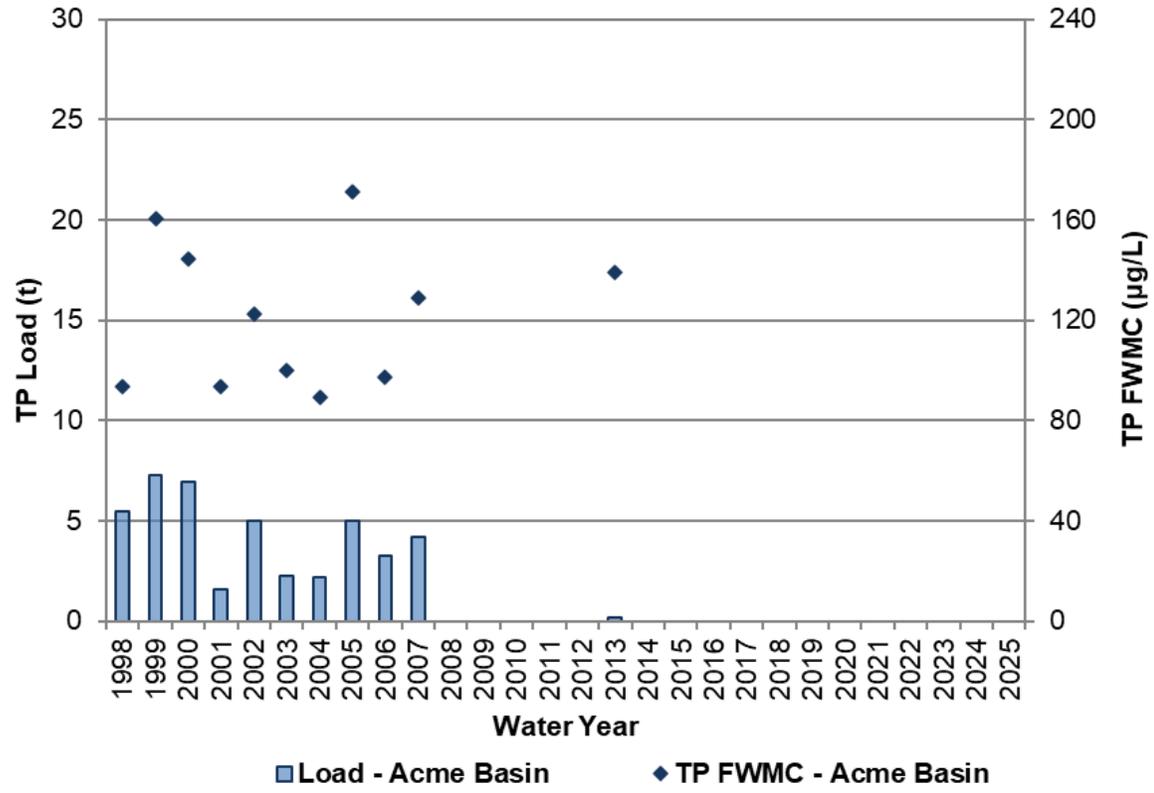
C-51 WEST AND ACME BASIN



User Name: dalvarez Remedy Ticket: 208669 Map Produced on Date: 7/30/2025 10:12 AM Doc Path: \\ad.sfwmd.gov\dfsroot\GIS\GSPro\SFER\Vol11_Ch4\Vol11_Ch4_2026.aprx

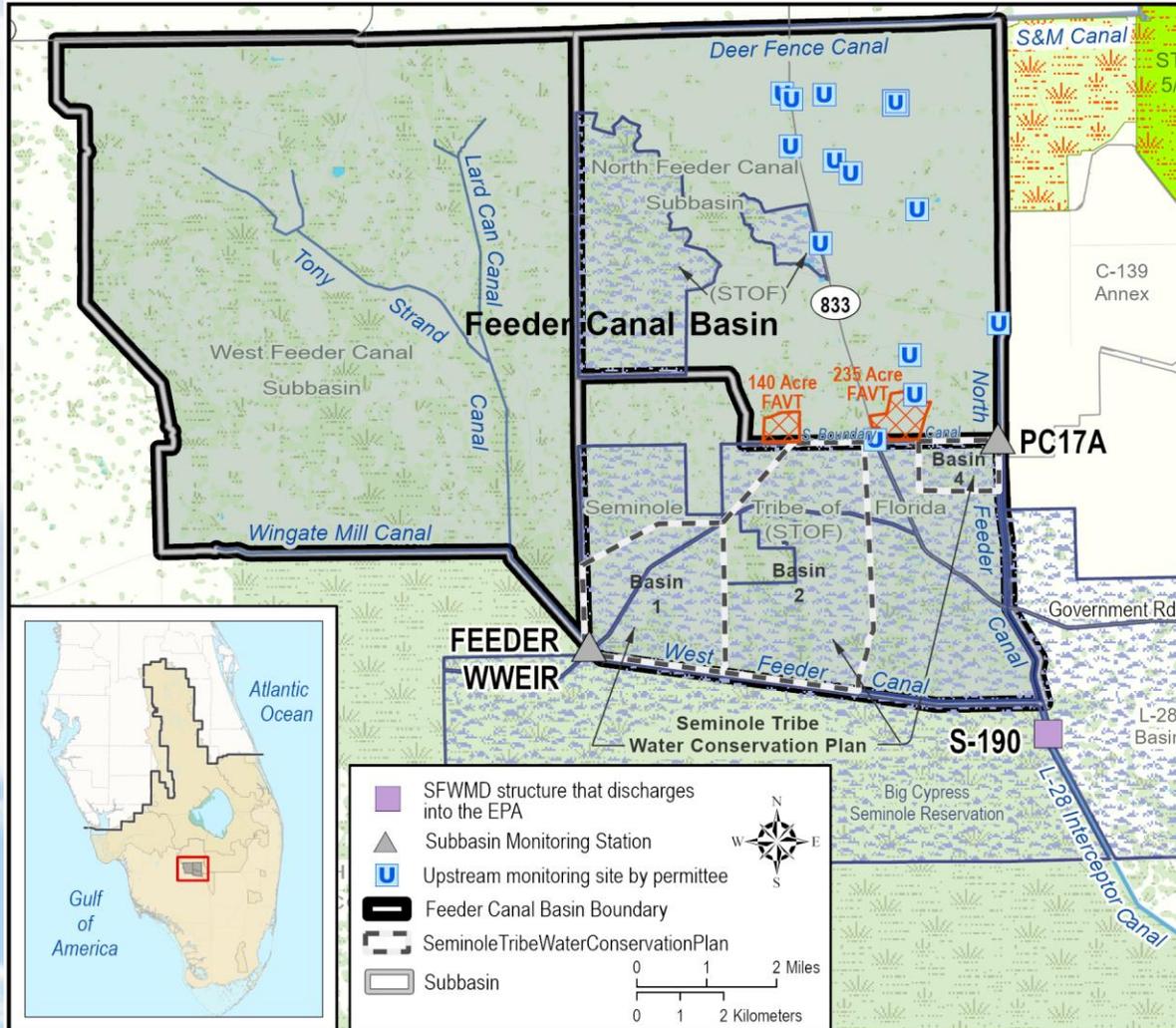
- ERPs and ordinances in Village of Wellington include conditions that require
 - BMPs and livestock waste storage and disposal requirements in coordination with FDACS
 - Water quality monitoring program throughout the Acme basin (**U** markers)

ACME BASIN AND C-51 WEST



Discharge through Structure S-319 to STA-1E
 WY2025 Measured TP Load = 9 t

FEEDER CANAL BASIN

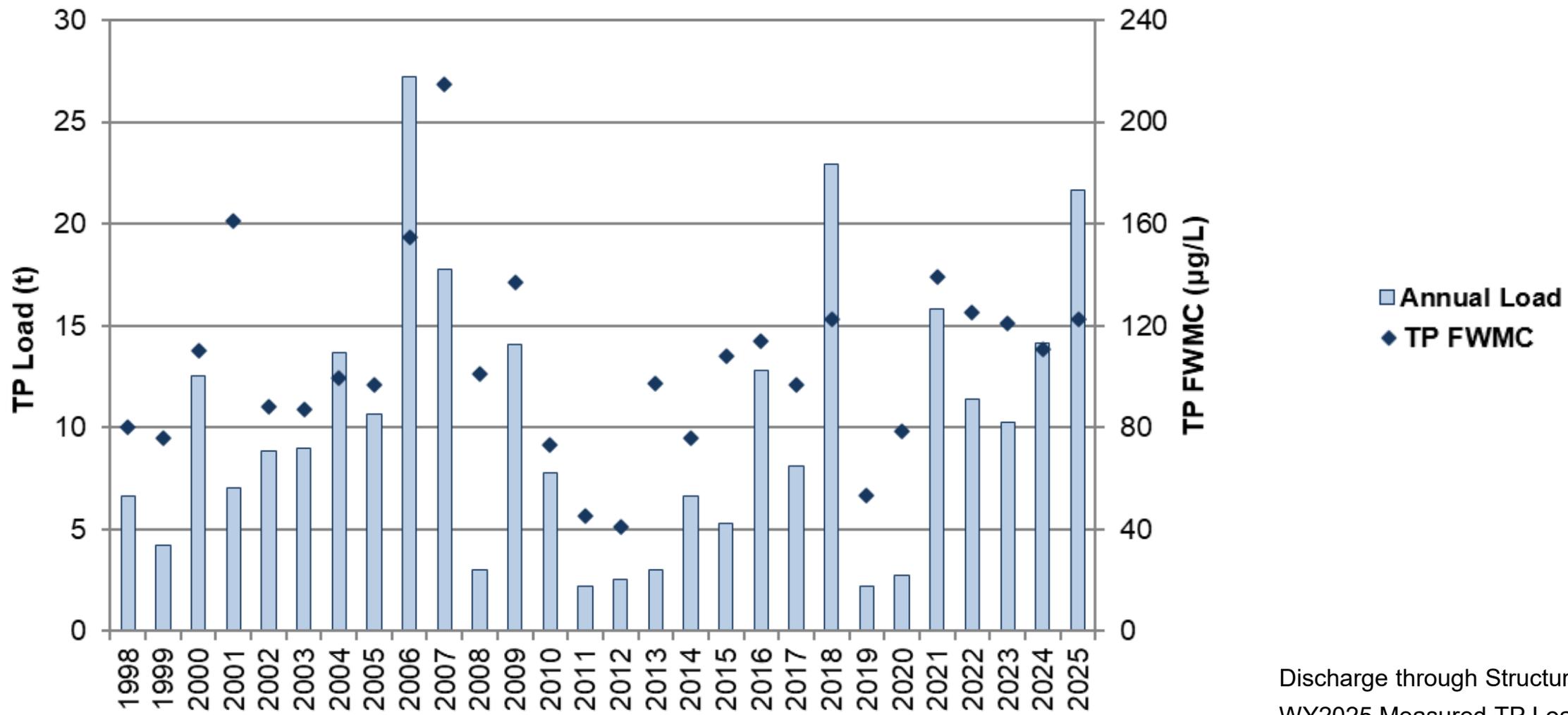


- North Feeder Subbasin:
 - Landowner ERPs require BMPs and water quality monitoring
 - Voluntary FAV (Floating Aquatic Vegetation) tilling projects
- West Feeder Subbasin:
 - Landowners can enroll in the FDACS (Florida Department of Agriculture and Consumer Services) BMP program.
 - ERPs as required
- CERP Big Cypress/L-28 Interceptor Modification (WERP) and State water quality efforts

User Name: alamb Remedy Ticket: 229003 Map Produced on Date: 6/27/2025 5:08 PM Doc Path: \\ad.sfwmd.gov\dfsroot\GIS\GSP\SF\Vol1_Ch4\Vol1_Ch4_2026.aprx

Presenter: Stephanie Nevadunsky

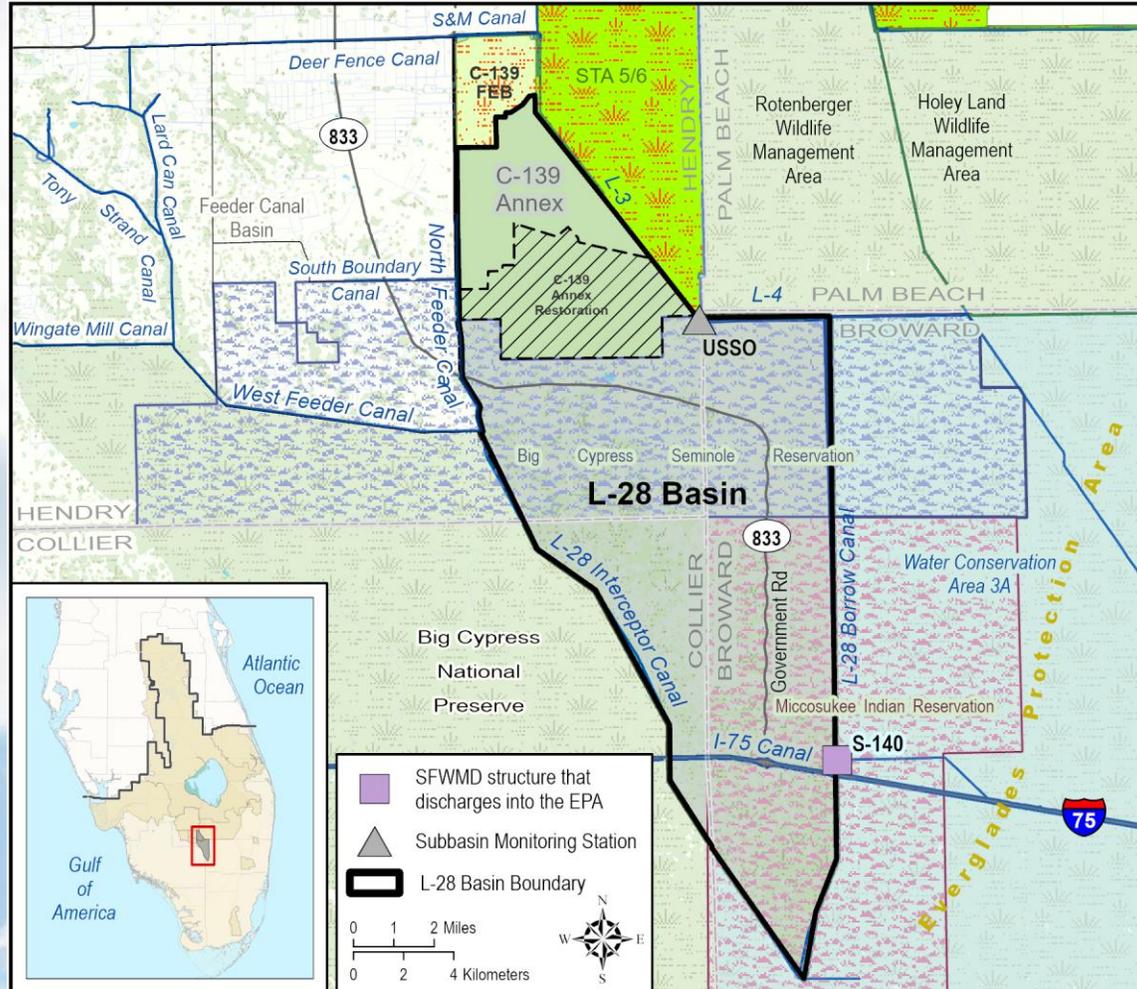
FEEDER CANAL BASIN



Discharge through Structure S-190
 WY2025 Measured TP Load = 22 t

Presenter: Stephanie Nevadunsky

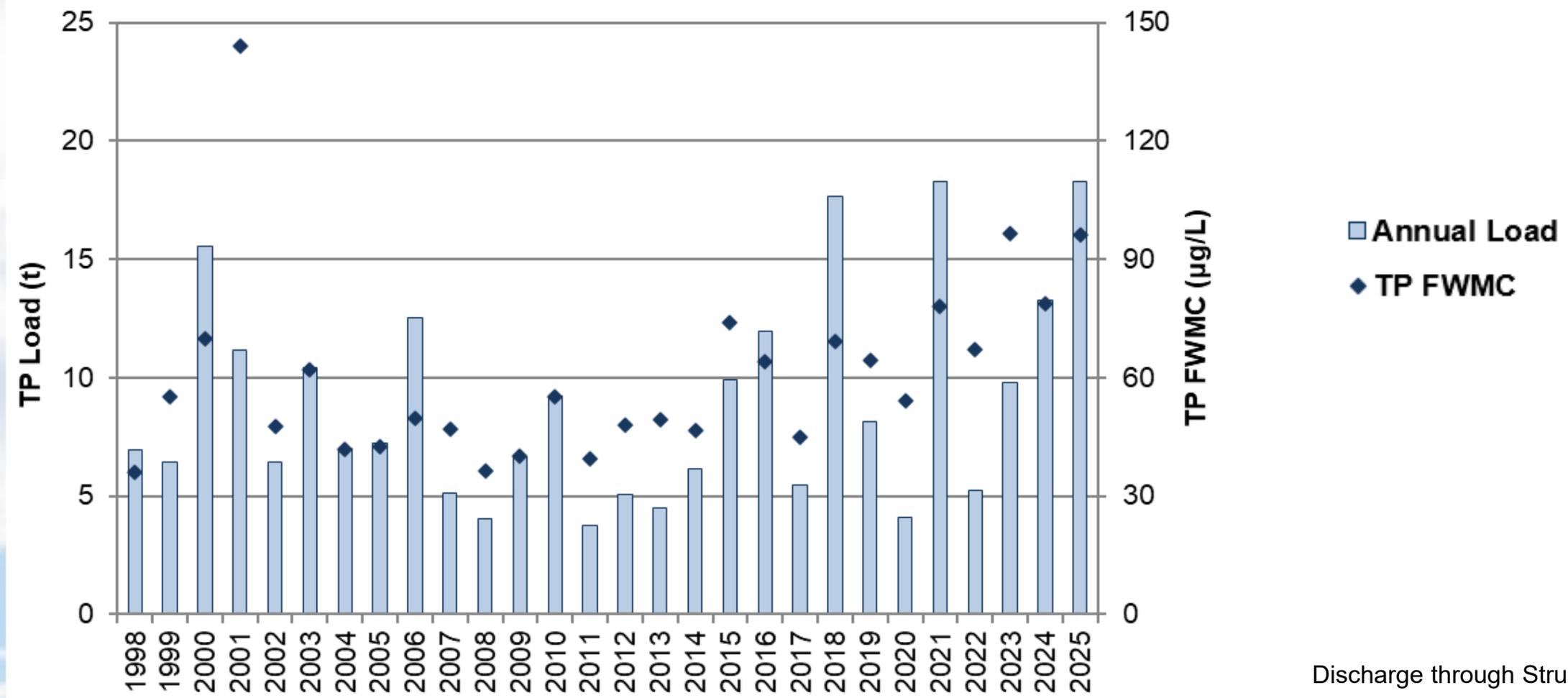
L-28 BASIN



- SFWMD-owned and operated C-139 Annex at the north end.
- Seminole Big Cypress Reservation, Miccosukee Tribe of Indians Reservation and Big Cypress National Preserve make up the remainder of the basin.
- CERP projects:
 - CERP Big Cypress/L-28 Interceptor Modification (WERP)
 - Future site of Feeder Canal Basin STA in the C-139 Annex
- Other basin projects:
 - Sam Jones Abiaki Prairie Restoration ~ 60% complete

User Name: alamb Remedy Ticket: 229003 Map Produced on Date: 7/1/2025 10:14 AM Doc Path: \\lad.sfwmd.gov\dfsroot\GIS\GSProl\SFER\Vol1_Ch4\Vol1_Ch4_2026.aprx

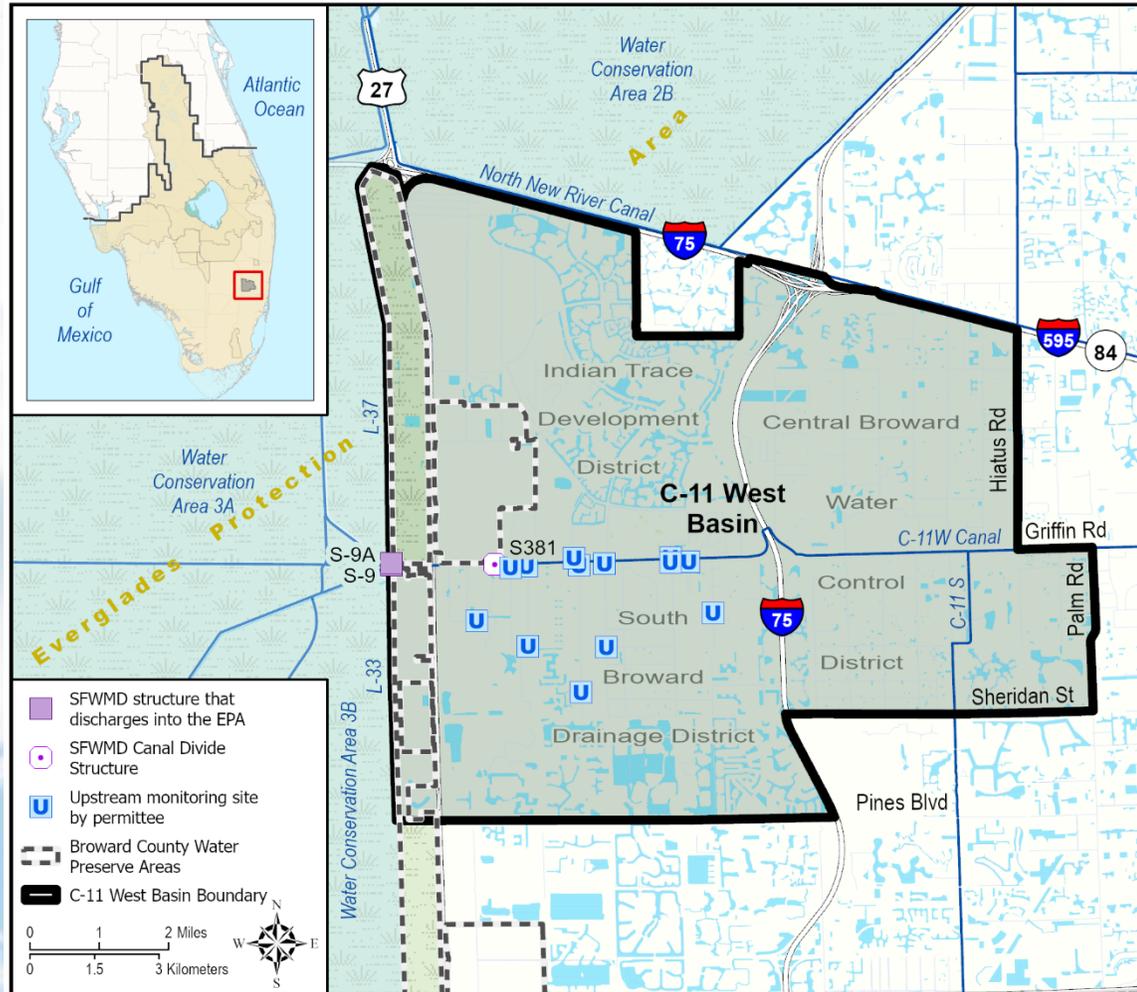
L-28 BASIN



Discharge through Structure S-140
 WY2025 Measured TP Load = 18 t

Presenter: Stephanie Nevadunsky

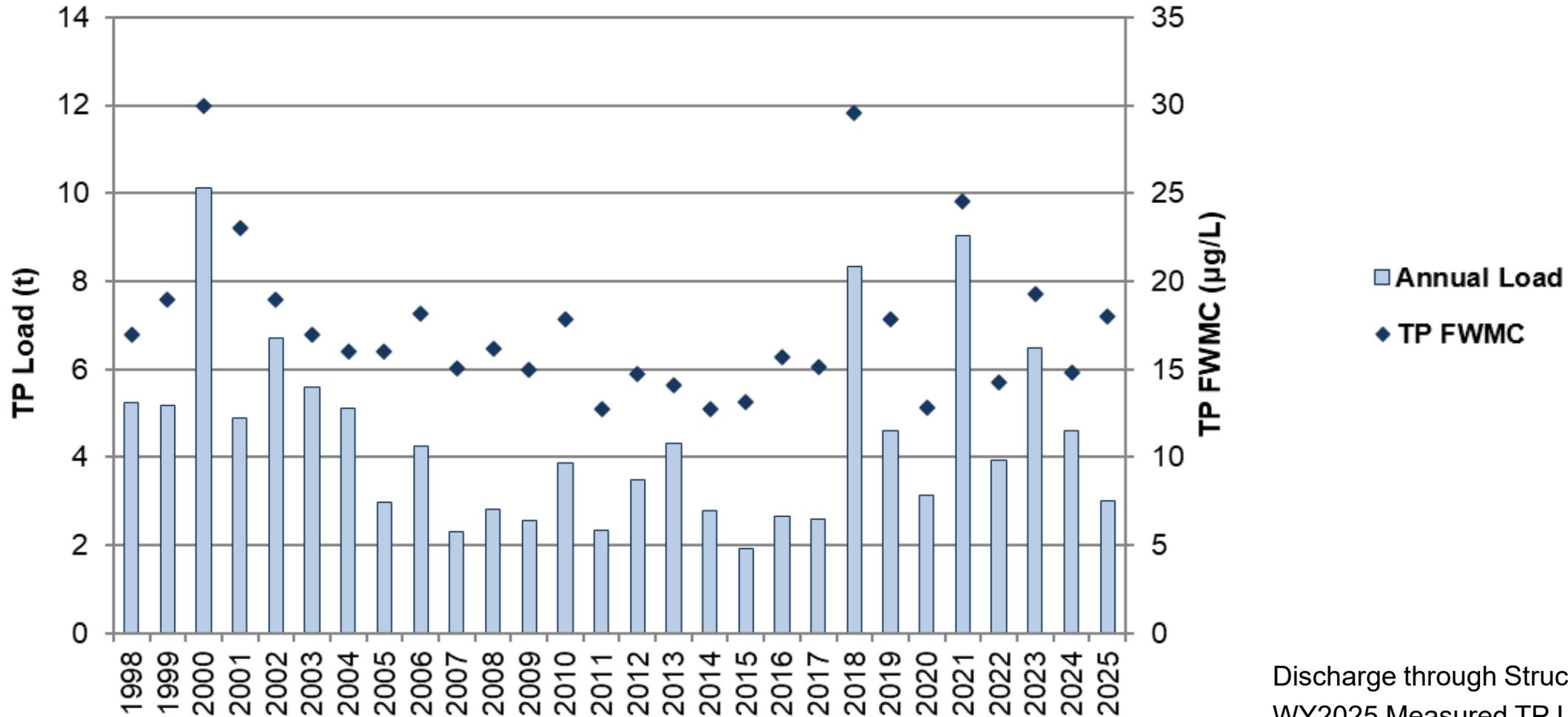
C-11W BASIN



User Name: alamb Remedy Ticket: 165580 Map Produced on Date: 5/18/2023 3:31 PM Doc Path: \\ad.sfwmd.gov\dfsroot\GIS\GSP\SFER\Vol1_Ch4\Vol1_Ch4_2024.aprx

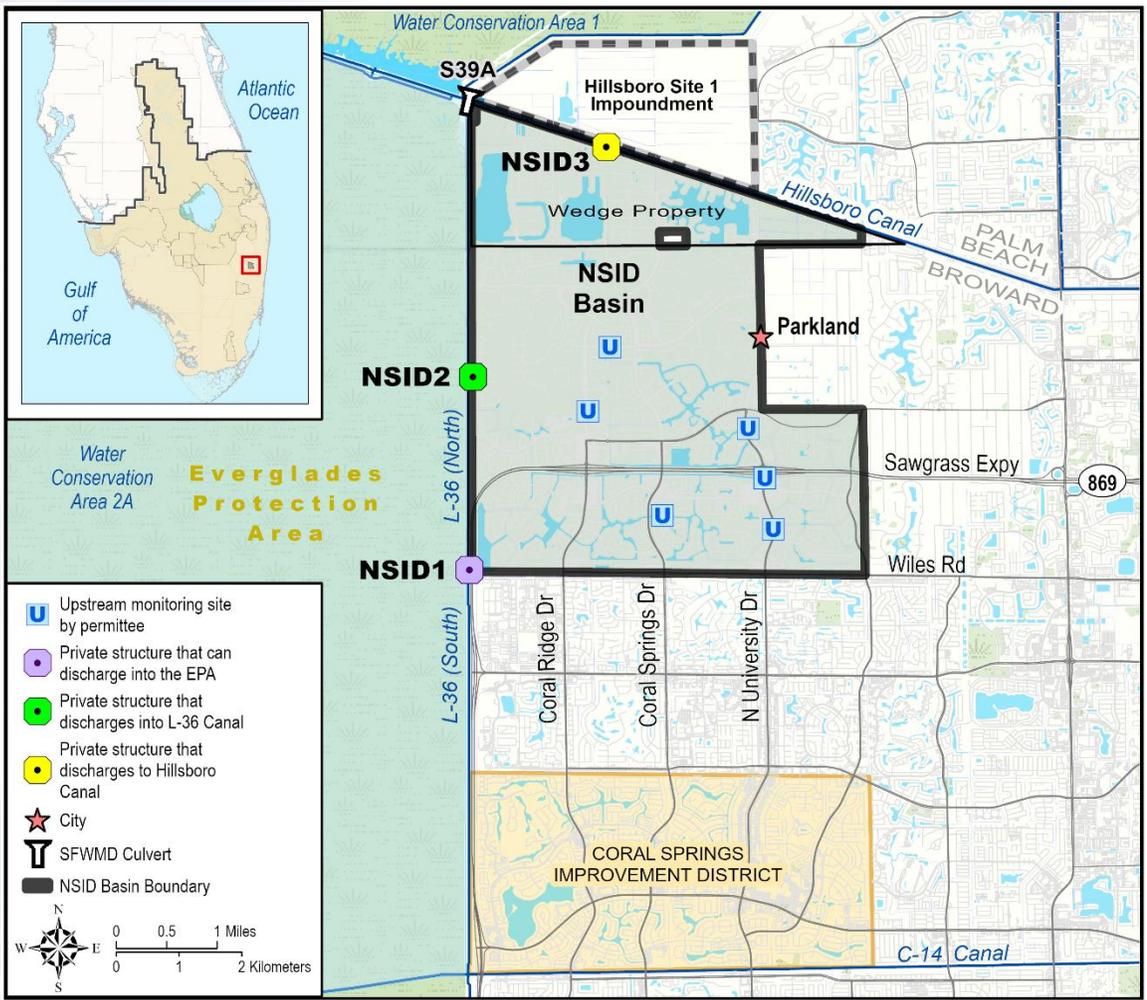
- ERPs issued to water control districts include conditions for BMPs including optimized detention of runoff and water quality monitoring
- CERP project:
 - CERP Broward County Water Preserve Area Project.

C-11W BASIN



Discharge through Structures S-9 & S-9A
 WY2025 Measured TP Load = 3 t

NSID BASIN

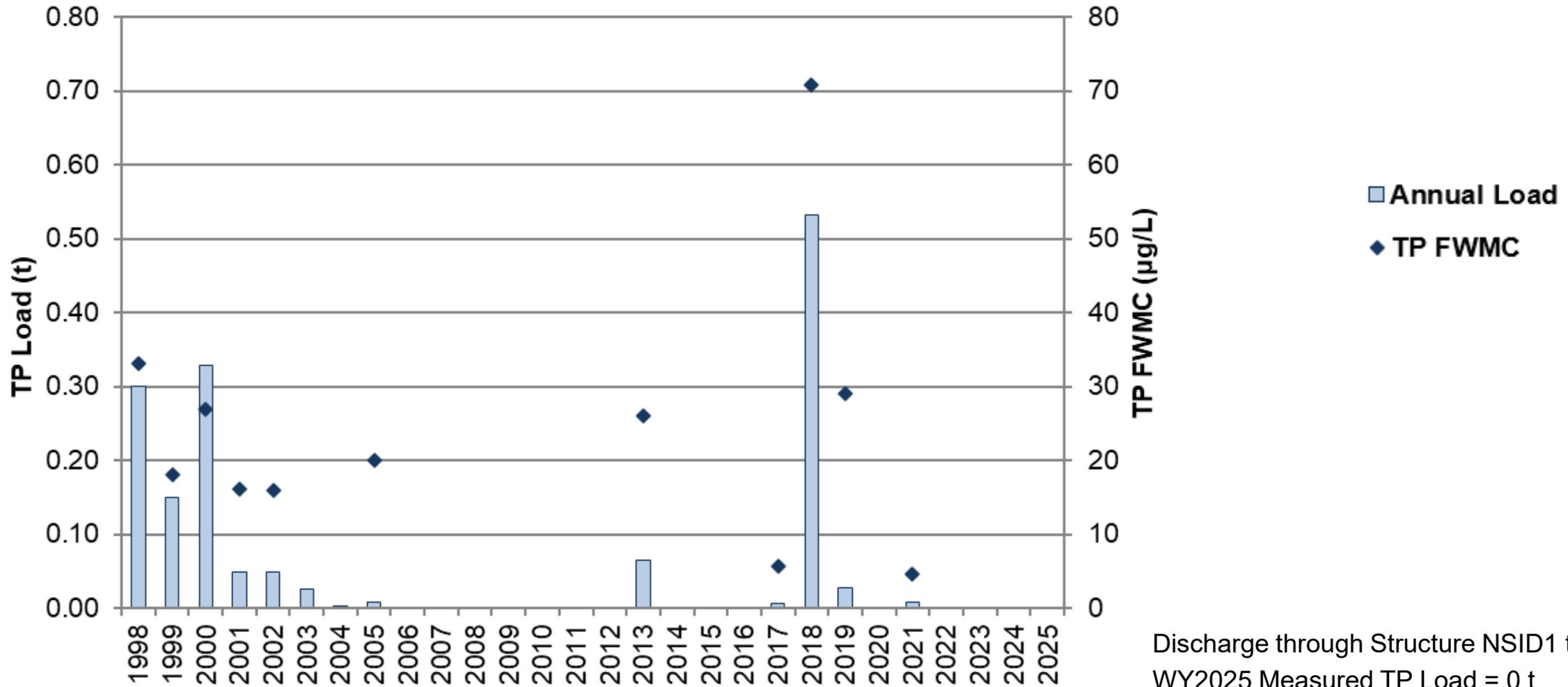


- ERPs issued to NSID include conditions requiring BMPs implementation, water quality reporting, and phosphorus load limits for discharges to WCA-2A.
- CERP project:
 - CERP Hillsboro Site 1 Impoundment Phase 2 needs congressional authorization before moving forward

User Name: aeden ServiceNow Ticket: INCO069513 Map Produced on Date: 12/2/2025 11:20 AM Doc Path: \\ad.sfwmd.gov\dfsroot\GIS\GISPro\SFER\Vol1_Ch4\Vol1_Ch4_2024.aprx

Presenter: Stephanie Nevadunsky

NSID BASIN



Presenter: Stephanie Nevadunsky

SUMMARY

- For the EAA basin, WY2025 TP load reduction is 62%. With the WY2025 results, the 30-year average annual TP load reduction for the program is 57%.
- For the C-139 Basin, WY2025 remained in compliance. The measured runoff TP load is below the target phosphorus load.
- For the other tributary basins during WY2025, voluntary BMP implementation and progress toward the completion of CERP projects continued.
- The continued success of and ongoing improvements to the Southern Everglades source control program rely on verifying BMP implementation, continuing meaningful research and tracking program performance based on WQ data and basin-specific metrics.

Contact Information

Stephanie Nevadunsky
snevadun@sfwmd.gov

Public Use on SFWMD Stormwater Treatment Areas

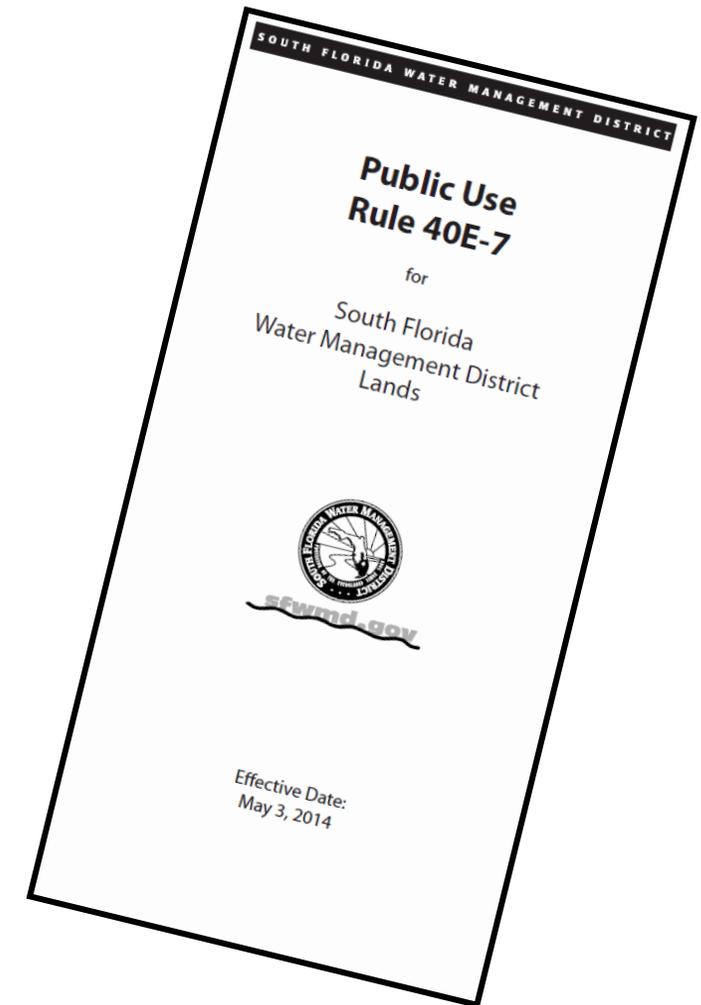


James Harbaugh
Recreation Project Manager
Land Resources Bureau

**23rd Annual Public Meeting on the Long-Term
Plan for Achieving Water Quality Goals for the
Everglades Protection Area Tributary Basin
February 23, 2026**

Mission

- **Why have Public Use?**
- **Florida Statutes 373.4592 - Everglades improvement and management ...** These lands shall be made available for recreational use unless ... such uses are incompatible with the restoration goals of the Everglades Construction Project or the water quality and hydrological purposes of the STAs or would otherwise adversely impact the implementation of the project.
- **Florida Administrative Code: 40E - 7**



Nature Based Recreation Types

- **Nature based recreation from levees**
 - Hiking
 - Wildlife Viewing
 - Biking
 - Day use picnic
 - Fishing
- **Recreation within cells**
 - Hunting



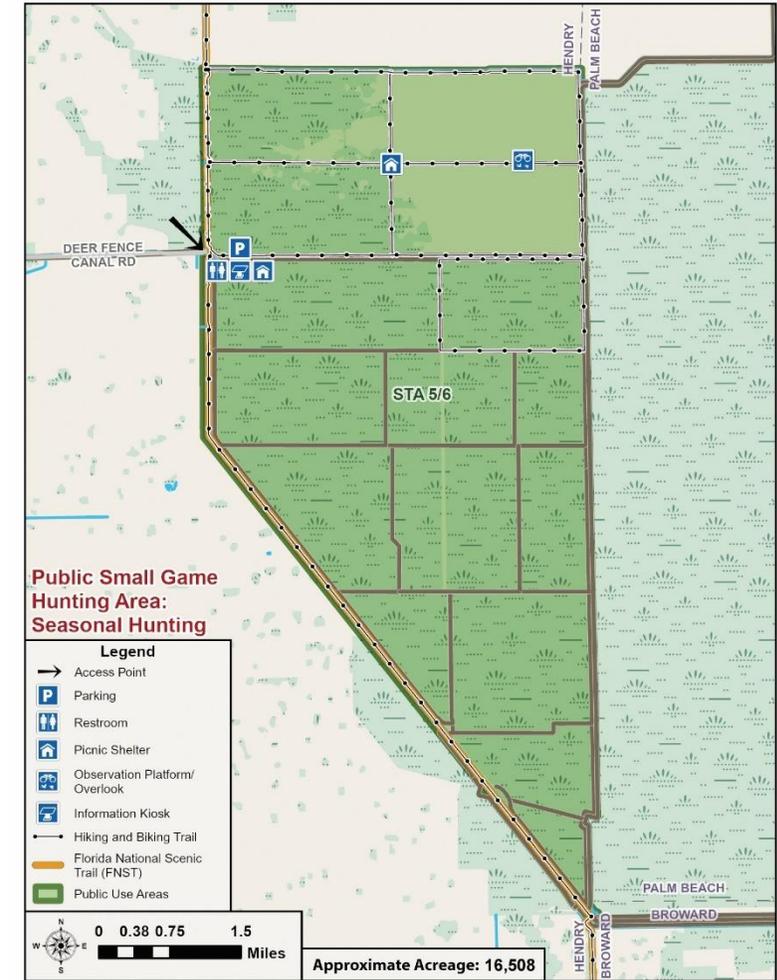
Partnerships

- **SFWMD**
 - Responsibility is to provide recreation opportunities
- **Stakeholders/Partners**
 - Florida Fish and Wildlife Conservation Commission – FWC
 - Florida National Scenic trail – FNST
 - Audubon Society
 - Conservation/Recreation Clubs
 - United Waterfowlers of Florida
 - Florida Sportsman Conservation Association –FSCA
 - South Florida Amateur Astronomers Association



Nature Based Recreation

- **Guided Wildlife Viewing**
 - STA - 5/6
 - Hendry Glades Audubon
 - STA - 1E
 - Everglades Audubon
- **Hiking/Biking**
 - All STA's
 - Fri - Mon

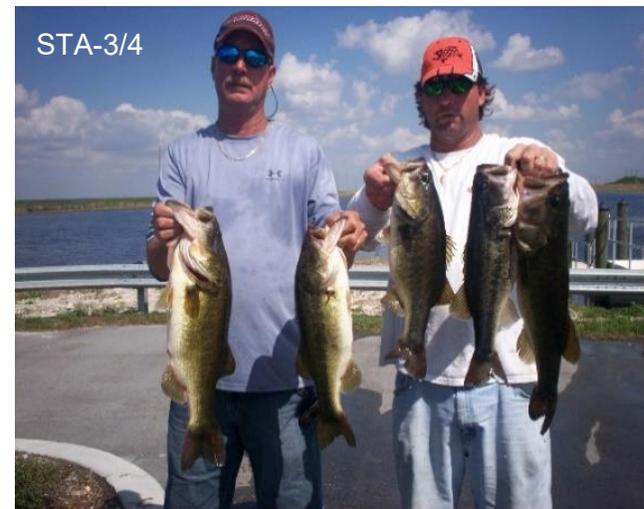


Nature Based Recreation

- **FWC quota hunt**
 - Waterfowl & Alligator
 - Access into cells limited
 - Designated access points
- **FWC Youth Hunt Program**
 - Alligator hunts
- **Other specialty hunts**
 - Wounded Warrior - waterfowl

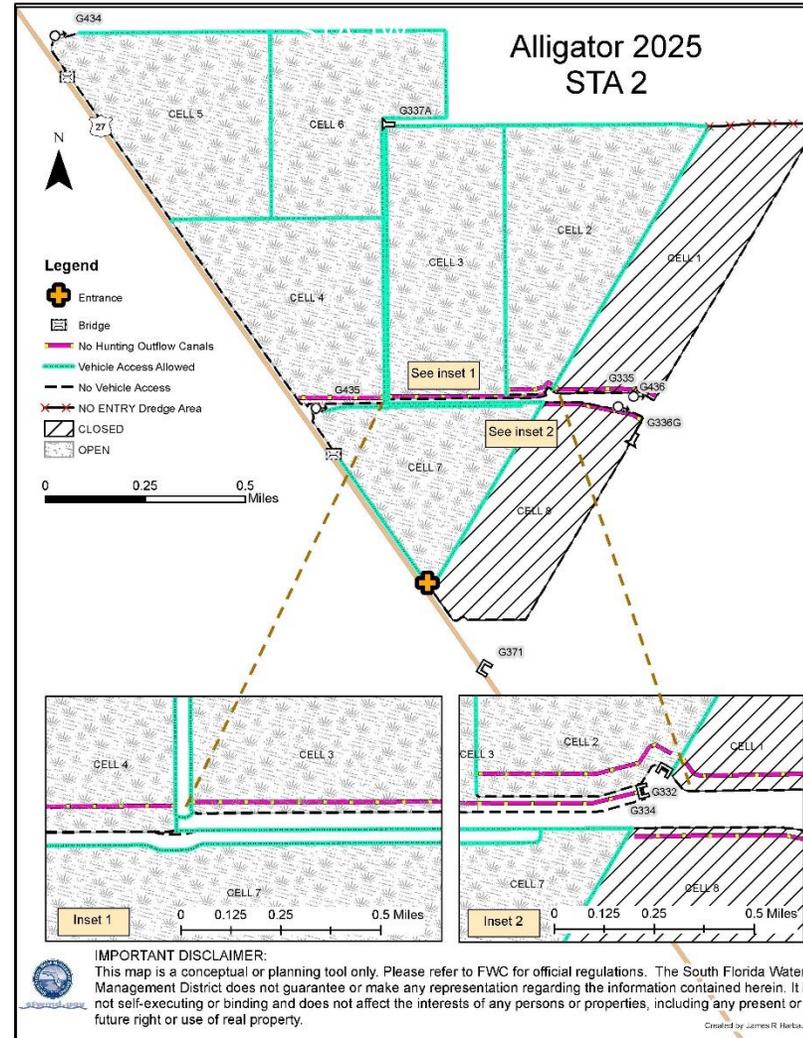


- **Fishing outside project area**
 - Discharge canals
 - STA - 1E & 1W
 - Bank fishing
 - STA - 3/4, Harold Campbell
 - Motorboat access



STA Function vs Public Use

- **A working property**
 - Constructed wetland to improve water quality
- **Access coordination**
 - Field Operations
 - Public access hours
 - Fri - Mon
 - Land Stewardship
 - T/E Wildlife
 - STA Management Team
 - Construction - Project Manager



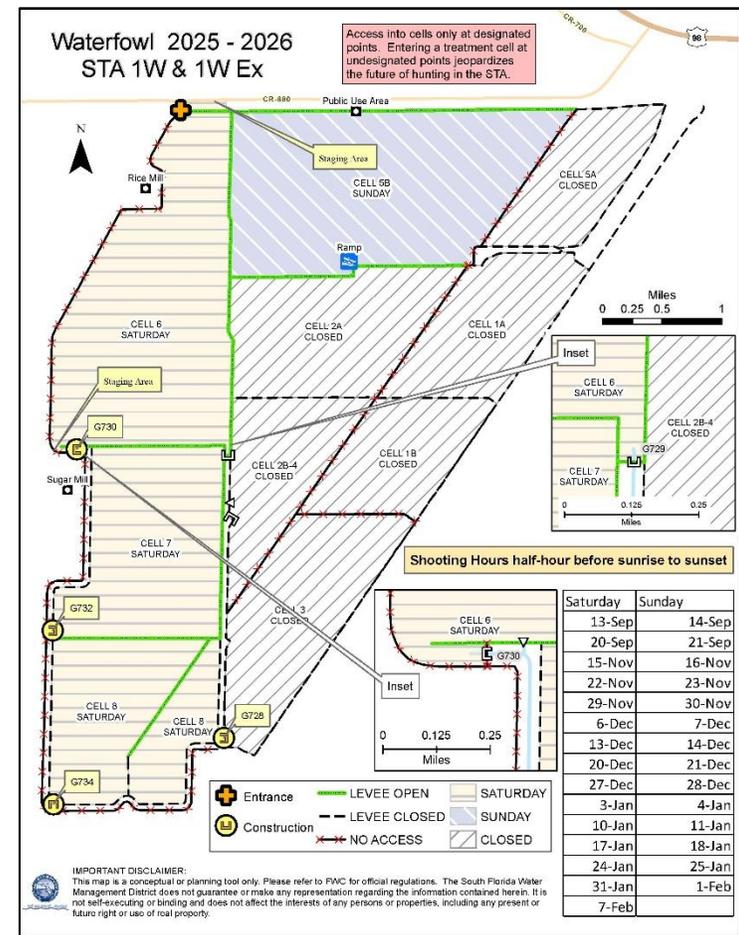
Public Communication

- **Preserve function**
 - Additional signage
 - Restrict alligator hunting
 - Collection canals
 - Levee access
 - Assist with enforcement
 - Education
 - Website STA information linked on FWC Waterfowl Hunting webpage to SFWMD Recreation webpage
 - [Questions & Answers – What You Need to Know about Visiting Stormwater Treatment Areas \(STAs\) \[PDF\]](#)



Construction & Maintenance

- **Necessary Closures**
 - Construction zone
 - Safety/Deadlines
 - Critical Canals



Maintenance

Parking areas

- Grounds keeping
 - Planted trees trimmed
- Border fence
 - Replaced with low maintenance design



New Restrooms

- Composters
 - Past life expectancy
 - High maintenance
- New concrete vault toilet



Moving forward – phase involvement

- Rec Infrastructure Standards incorporated in design phase
- Implement construction
- Construction completion
- Testing phase/finalizing rec infrastructure
 - ADA considerations, facilities, access points, barriers, etc.
- Consulting with internal staff
- Public Input
 - Recreation considerations
 - Hunting
 - Birding tours
 - Etc.
- Testing completion
- Governing Board approval



Public Participation

- Public Meetings - SFWMD
 - [Public Meetings and Forums | South Florida Water Management District \(sfwmd.gov\)](https://www.sfwmd.gov/public-meetings-and-forums)
 - Rec Forum – 3 meetings annually
 - 3rd Monday of March, June & September
- Proposed Rule Changes - FWC
 - [Proposed Rule Changes | FWC \(myfwc.com\)](https://www.myfwc.com/proposed-rule-changes)



Home >> News Events >> Meetings

Public Meetings and Forums

All Governing Board meeting materials are posted on this page. In addition, the District's other public meetings and forums are also posted on this page. Meeting formats may vary, and some meetings may be in-person only, virtual only, or a hybrid of both formats. Subscribe [here](#) to get email updates and meeting notifications from the SFWMD. Videos from past public meetings may sometimes take a few days to appear in the table below. If you experience difficulty finding a video of a public meeting, [click here for our most recent videos on YouTube](#) or contact the webmaster@sfwmd.gov. If you need help watching a video, please click [here](#).

- [Loxahatchee River Preservation Initiative Meeting: February 2, 2026 \(In-Person\)](#)
- [Flood Protection Level of Service \(FPLoS\) Program C7 Basin Adaptation and Mitigation Planning Study: February 5, 2026 \(Hybrid\)](#)
 - [Zoom Registration Link](#)

Name	Date	Agenda	eComments	Agenda Packet	Meeting Format
Governing Board	February 12, 2026 - 09:00 AM				Hybrid
Big Cypress Basin Board	February 27, 2026 - 11:00 AM				Hybrid

Search Archives: [Advanced Search](#) [RSS feeds](#) [Details](#) [Mobile](#) [Video Player](#)

Past Meetings

2026 2025 2024 2023 2022 2021 2020 2019

- + Governing Board
- + Big Cypress Basin Board
- + Recreational Public Forum
- + Resiliency
- + Other Public Meetings

Contact Information

James Harbaugh
jharbaug@sfwmd.gov

Everglades
National
Park

PUBLIC COMMENT

23rd Annual Public Meeting on the Long-Term Plan for Achieving Water Quality Goals for the Everglades Protection Area Tributary Basins

February 23, 2026

PUBLIC COMMENT

If you're participating in person – please fill out a comment card and give to a meeting attendant

If you're participating via Zoom – use the Raise Hand feature

If you're participating via Phone –

*9 Raises Hand

*6 Mutes/Unmutes

PUBLIC COMMENT

