Lake Okeechobee Basin Management Action Plan (BMAP) Annual Meeting

Via Webinar
April 4, 2024
1:00 PM

Webinar Registration Link:
https://attendee.gotowebinar.com/register/3327269957571528030

Agenda

- Background
- South Florida Water Management District (SFWMD) Updates
- Statewide Annual Report (STAR)
- Progress
- Upcoming 5-Year Review and BMAP UPdate
- Florida Department of Agriculture and Consumer Services (FDACS) Updates

Please note the FTP site for documents pertaining to the various BMAPs:
http://publicfiles.dep.state.fl.us/DEAR/BMAP/
For more information, contact: Diana Turner, 850-245-8825, Diana.M.Turner@FloridaDEP.gov

WEBINAR HOUSEKEEPING

Attendee Participation

Open your control panel.

Join audio:

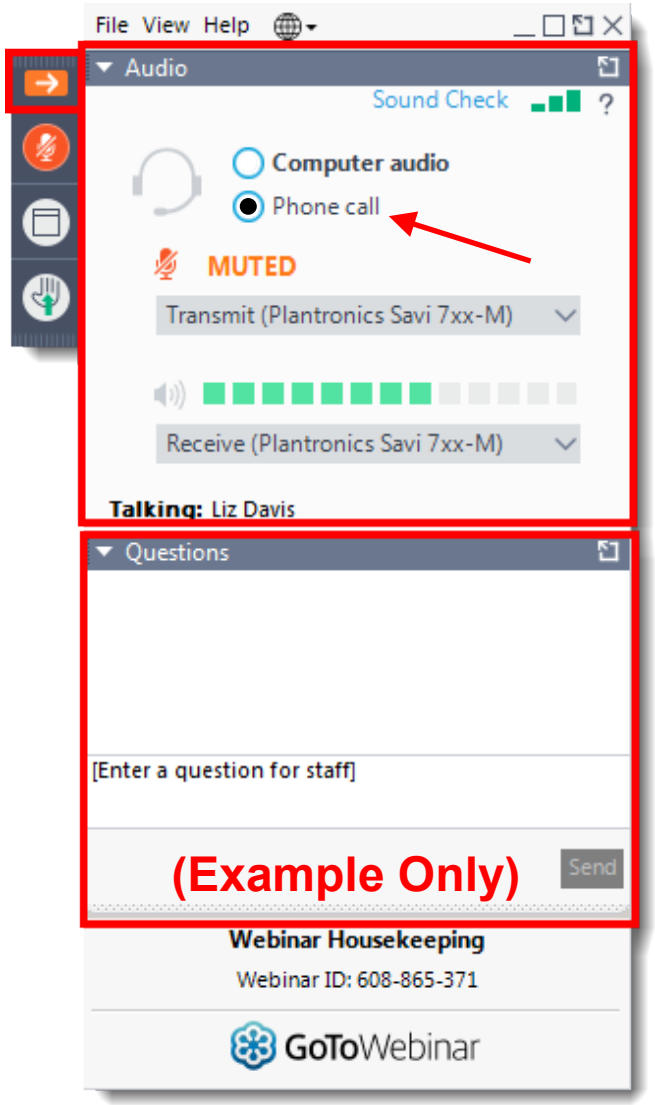
- Choose Computer Audio **or**
- Choose Phone Call and dial using the information provided with your registration.

Attendee audio will automatically be muted.

Submit questions and comments via the ***Questions*** panel.

If viewing this webinar as a group, please provide a list of attendees via the ***Questions*** panel.

Note: Today's presentation is being recorded and will be provided on the file transfer protocol (FTP) site after the webinar.



LAKE OKEECHOBEE BASIN MANAGEMENT ACTION PLAN (BMAP) ANNUAL MEETING

Diana Turner
Division of Environmental Assessment and Restoration
Florida Department of Environmental Protection

GoToWebinar | April 4, 2024

Photo Credit: SFWMD

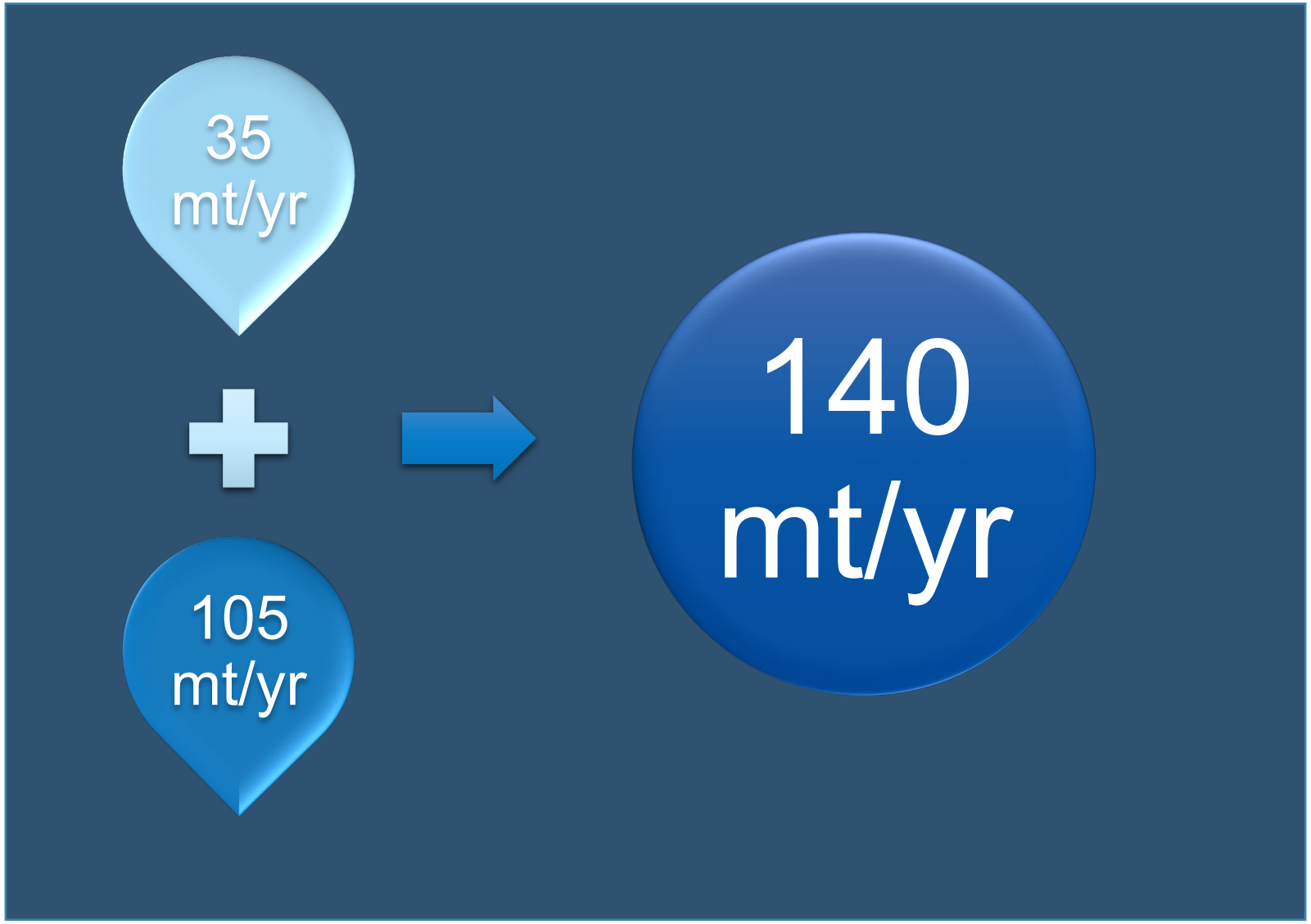
LAKE OKEECHOBEE BMAP ANNUAL MEETING


Photo Credit: SFWMD

Agenda:

- Background.
- South Florida Water Management District (SFWMD) Updates.
- Statewide Annual Report (STAR).
- Annual Progress.
- Upcoming 5-Year Review and BMAP Update.
- Florida Department of Agriculture and Consumer Services (DACS) Updates.

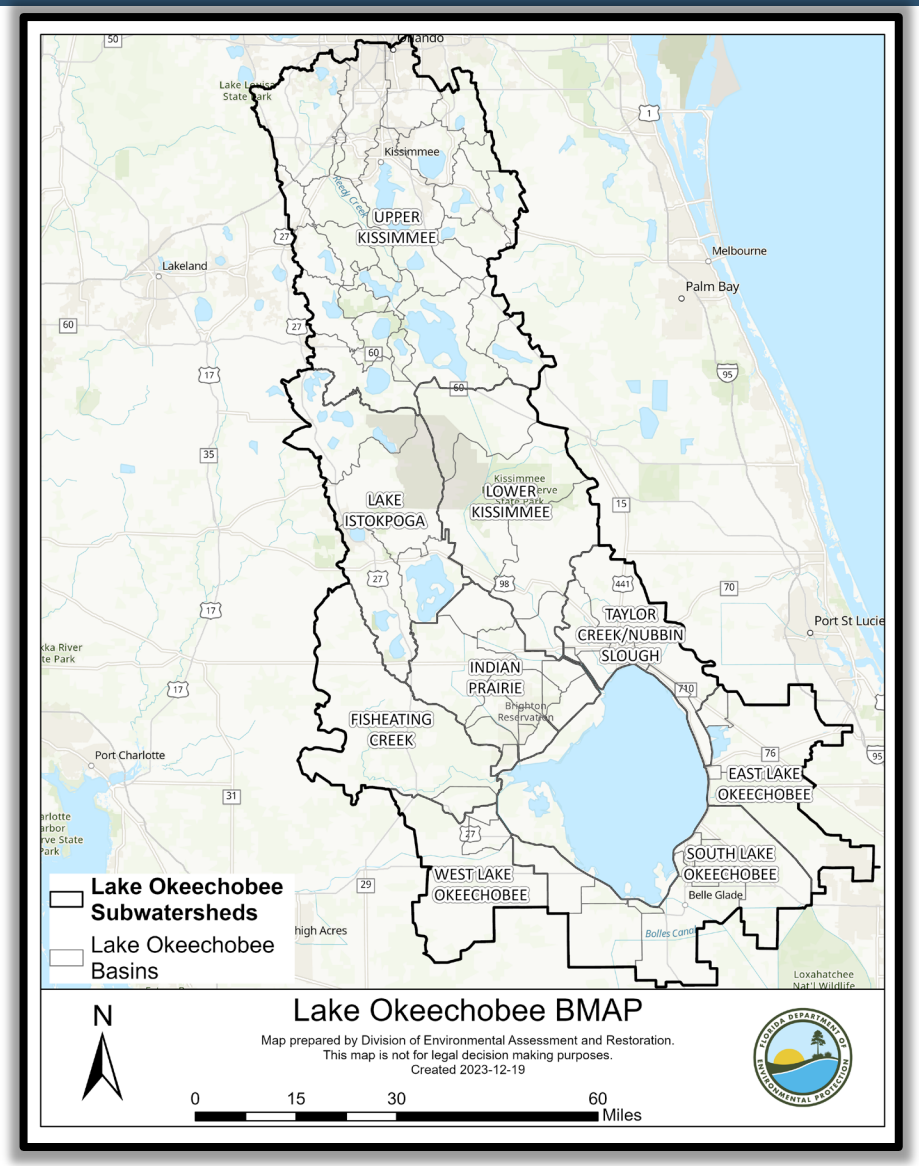
LAKE OKEECHOBEE TOTAL MAXIMUM DAILY LOAD
BACKGROUND



- Total maximum daily load (TMDL) for total phosphorus (TP) adopted in 2001.
- TMDL attainment calculated using a 5-year rolling average of the monthly loads calculated from measured flow and concentration values.
- mt/yr = metric tons per year.

LAKE OKEECHOBEE BMAP
BACKGROUND

- Initially adopted in December 2014.
- First 5-year review completed December 2019.
- Updated BMAP adopted in February 2020.



STAKEHOLDERS
BACKGROUND

Counties

- Glades.
- Hendry.
- Highlands.
- Martin.
- Okeechobee.
- Orange.
- Osceola.
- Palm Beach.
- Polk.

Municipalities

- City of Avon Park.
- City of Clewiston.
- City of Edgewood.
- City of Kissimmee.
- City of Moore Haven.
- City of Okeechobee.
- City of Orlando.
- City of Sebring.
- Town of Lake Placid.
- Town of Windermere.

Government Entities and Special Districts

- Avon Park Air Force Range.
- Okeechobee Utility Authority.
- Central Florida Tourism Oversight District.
- Istokpoga Marsh Watershed Improvement District.
- Spring Lake Improvement District.
- South Florida Conservancy District.
- Valencia Water Control District.

State Agencies

- DACS.
- SFWMD.
- Florida Department of Transportation (FDOT) Districts 1, 4 and 5.

STORYMAP
BACKGROUND

Introduction

Welcome to the Lake Okeechobee Basin Management Action Plan Story Map

A Basin Management Action Plan (BMAP) is a framework for water quality restoration, containing local and state commitments to reduce pollutant loading through current and future projects and strategies. BMAPs contain a comprehensive set of solutions, such as permit limits on wastewater facilities, urban and agricultural best management practices, and conservation programs designed to achieve pollutant reductions established by a Total Maximum Daily Load (TMDL).

These broad-based plans are developed with local stakeholders and rely on local input and commitment for development and successful implementation. BMAPs are

SFWMD Update

Lake Okeechobee Watershed Construction Project

Stacey Ollis, PMP
Principal State Policy Analyst
Everglades & Estuaries Protection Bureau

Lake Okeechobee BMAP Annual Meeting

April 4, 2024

Agenda

Great egret (*Ardea alba*), at Lake Okeechobee

- Northern Everglades Program Overview
- 2023 Lake Okeechobee Watershed Construction Project Review
  - Project Spotlights
  - Water Storage Benefits
- Watershed Protection Plan Reporting

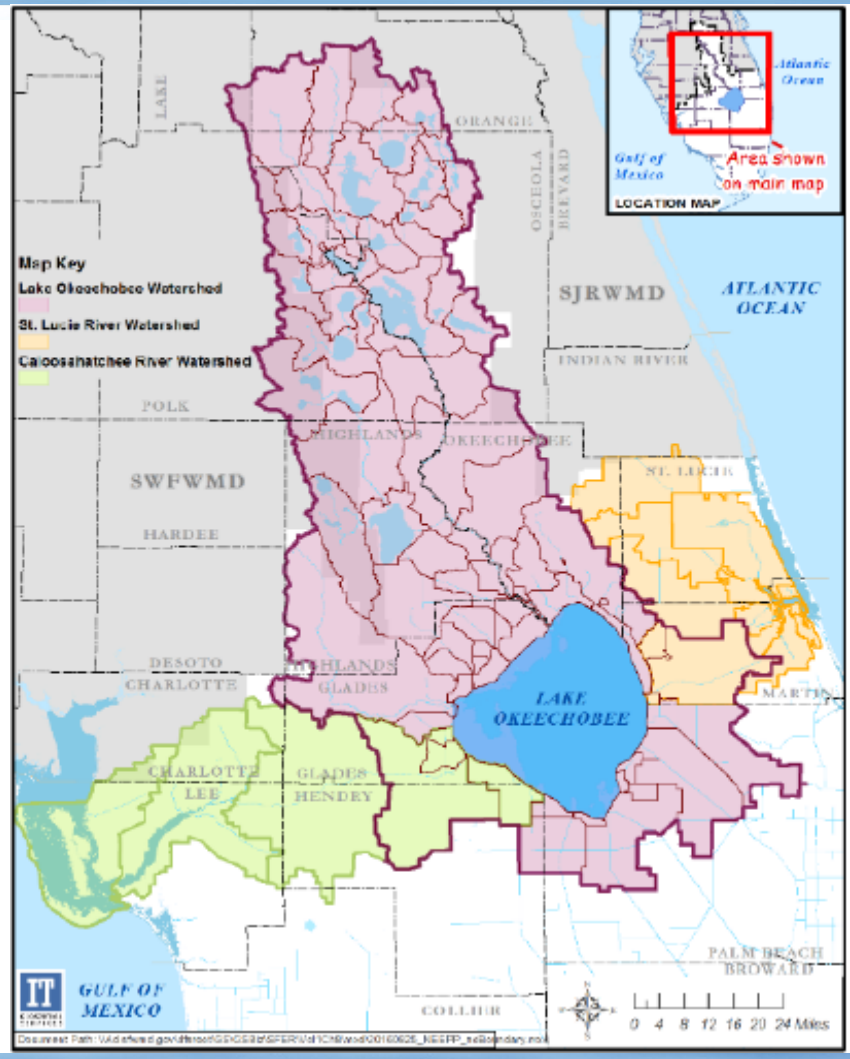
Presenter: Stacey Ollis

Northern Everglades and Estuaries Protection Program (NEEPP)

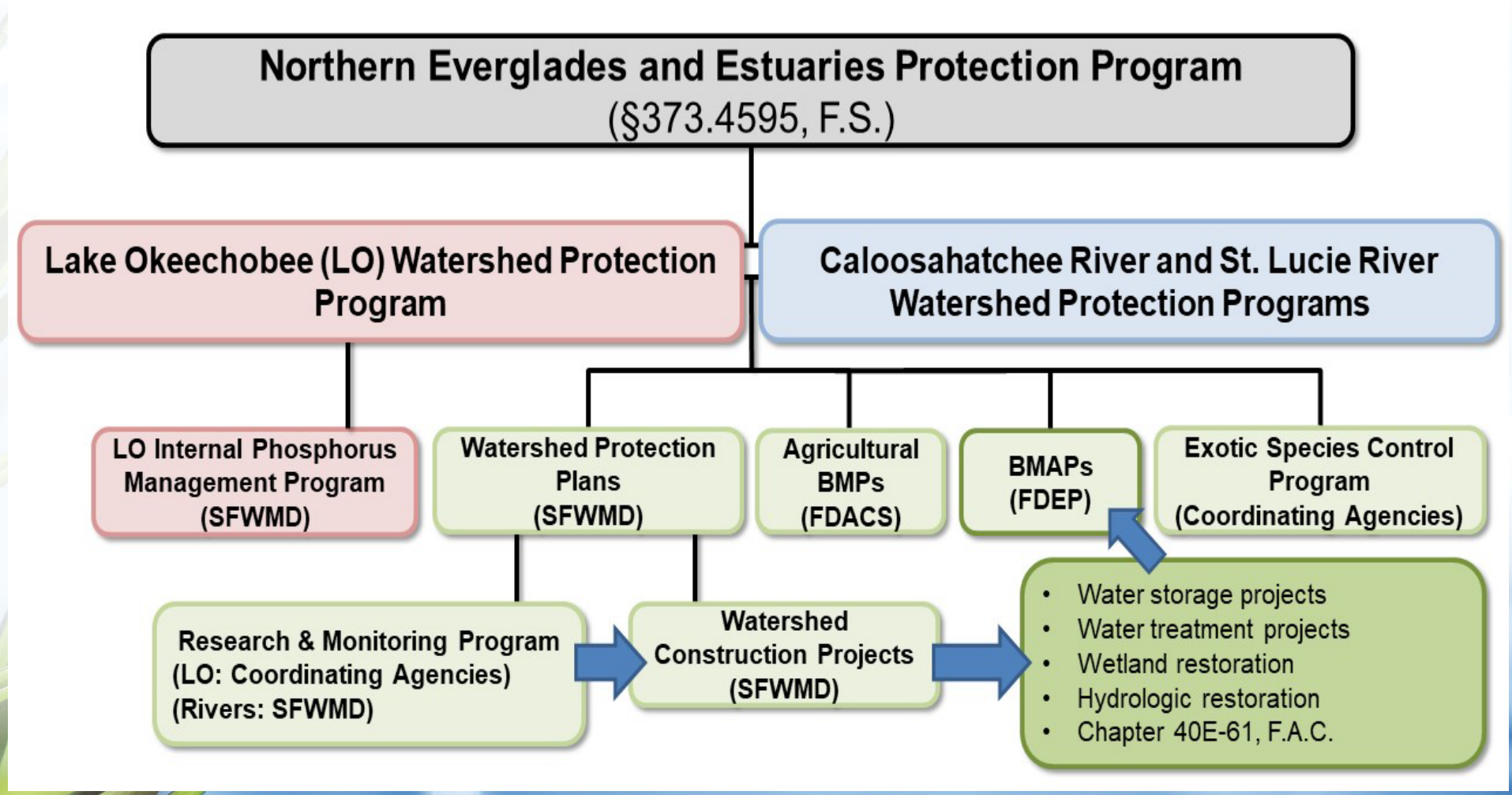
- Purpose: Protect and restore surface water resources by improving hydrology and water quality for the Northern Everglades ecosystem (§373.4595, Florida Statutes)

- Goal: Improve Water Quality
  - Lake Okeechobee: Total Phosphorus (TP)
  - Caloosahatchee Estuary: Total Nitrogen (TN)
  - St. Lucie Estuary: TP and TN

- Goal: Manage Water Quantity
  - Increase water storage north of Lake Okeechobee and in Caloosahatchee and St. Lucie River Watersheds



NEEPP: Coordinating Agencies Roles

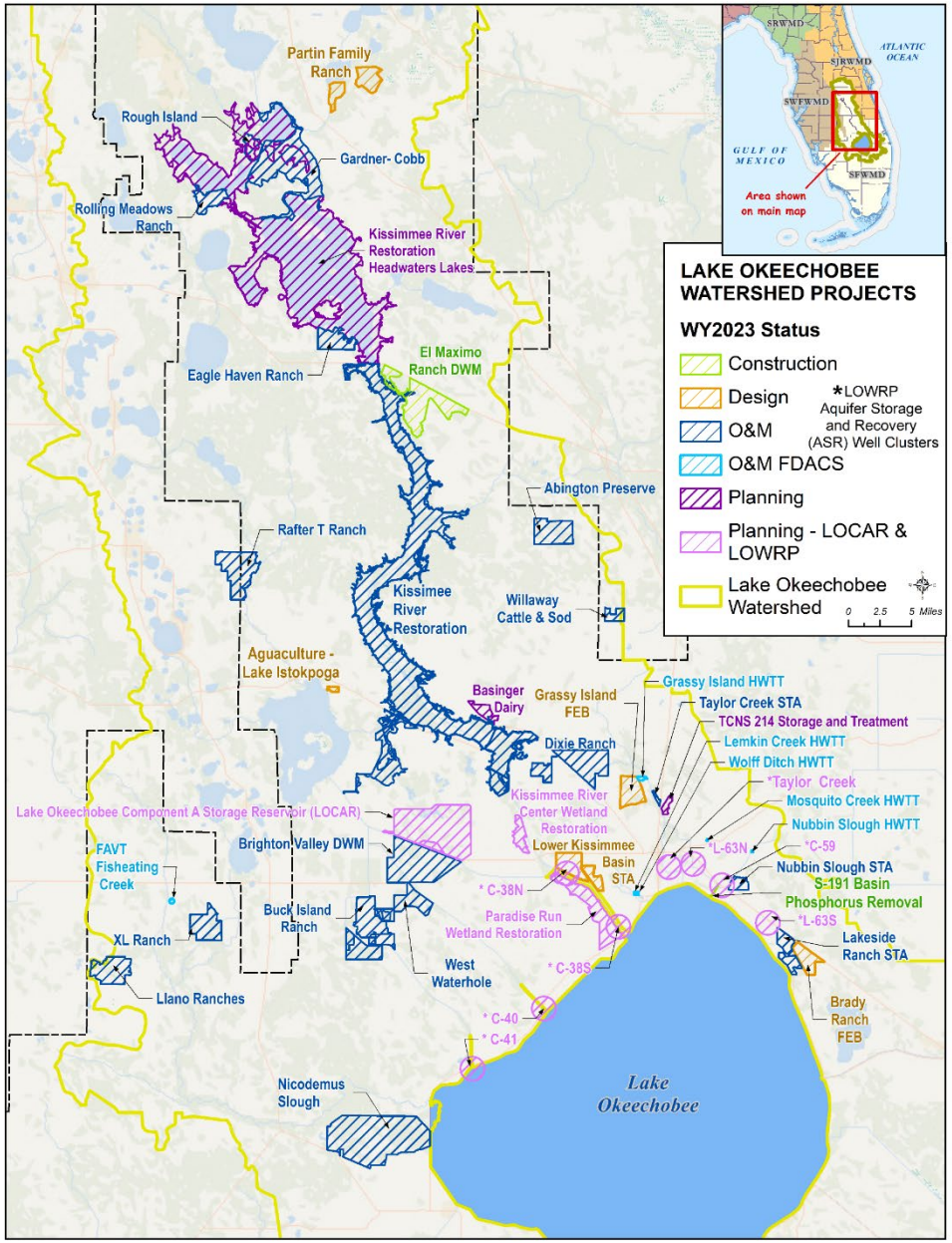


Lake Okeechobee Watershed Construction Project Review

- In 2020, SFWMD initiated annual Lake Okeechobee Watershed Construction Project (LOWCP) reviews, as part of the Watershed Protection Plan (WPP) reviews
- Annual reviews are important to:
  - Maintain transparency and accountability in BMAP process
  - Assist to progressively move toward achieving state's TMDLs
  - Develop and update WPPs required every five years
  - Consolidate into NEEPP annual progress reporting (South Florida Environmental Report, or SFER) per §373.4595(6), F.S.
- Focus: 2023 LOWCP Review
  - Key accomplishments during Fiscal Year (FY) 2023 (Oct. 1, 2022–Sept. 30, 2023)
  - Final 2024 SFER – Volume I, Chapter 8B (March 1, 2024) at SFWMD.gov/SFER

SFWMD Projects

- FY2023 LOWCP Status:
  - 3 projects – planning
  - 5 projects – design
  - 2 projects – construction
  - 18 projects – operations



Project Spotlights

- Kissimmee River Restoration Project & Headwater Lakes Regulation Schedule
- El Maximo Ranch
- Lower Kissimmee Basin Stormwater Treatment Area (STA)
- Grassy Island and Brady Ranch Flow Equalization Basins (FEBs)
- New Northern Everglades Water Retention and Nutrient Load Reduction Projects

El Maximo Ranch,
Lower Kissimmee Subwatershed

US Army Corps of Engineers

Kissimmee River Restoration Project

CONSTRUCTION COMPLETION

- Ribbon Cutting Ceremony July 2021
- 44 miles of historic river channel natural flow reestablished/open to public access

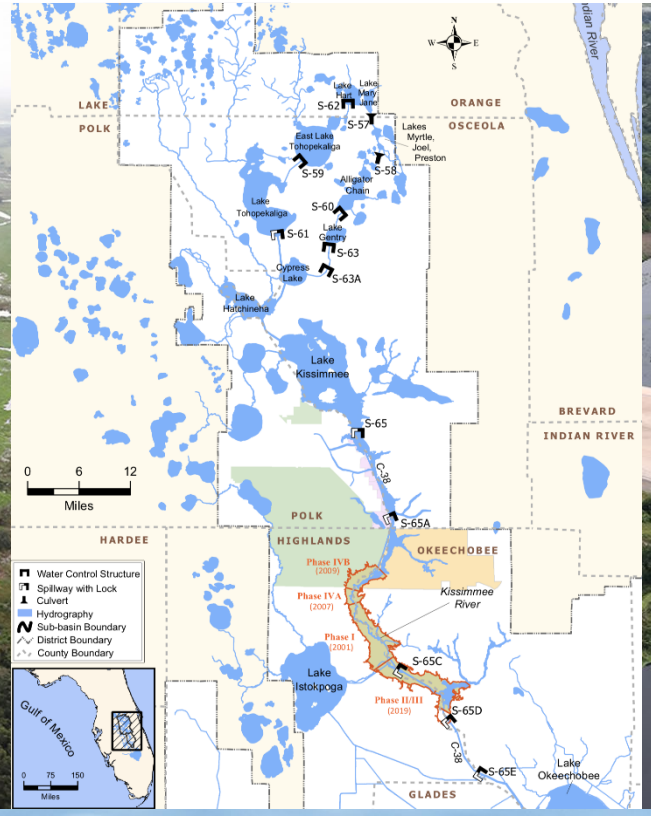
KISSIMMEE HEADWATERS REVITALIZATION REGULATION SCHEDULE

- Incremental Implementation (2023-2026)

EVALUATION MONITORING

- 5-Year Post-Restoration Monitoring Period (2027-2031)

Phase II Restoration Area looking southeast downstream Riverwoods Run and floodplain

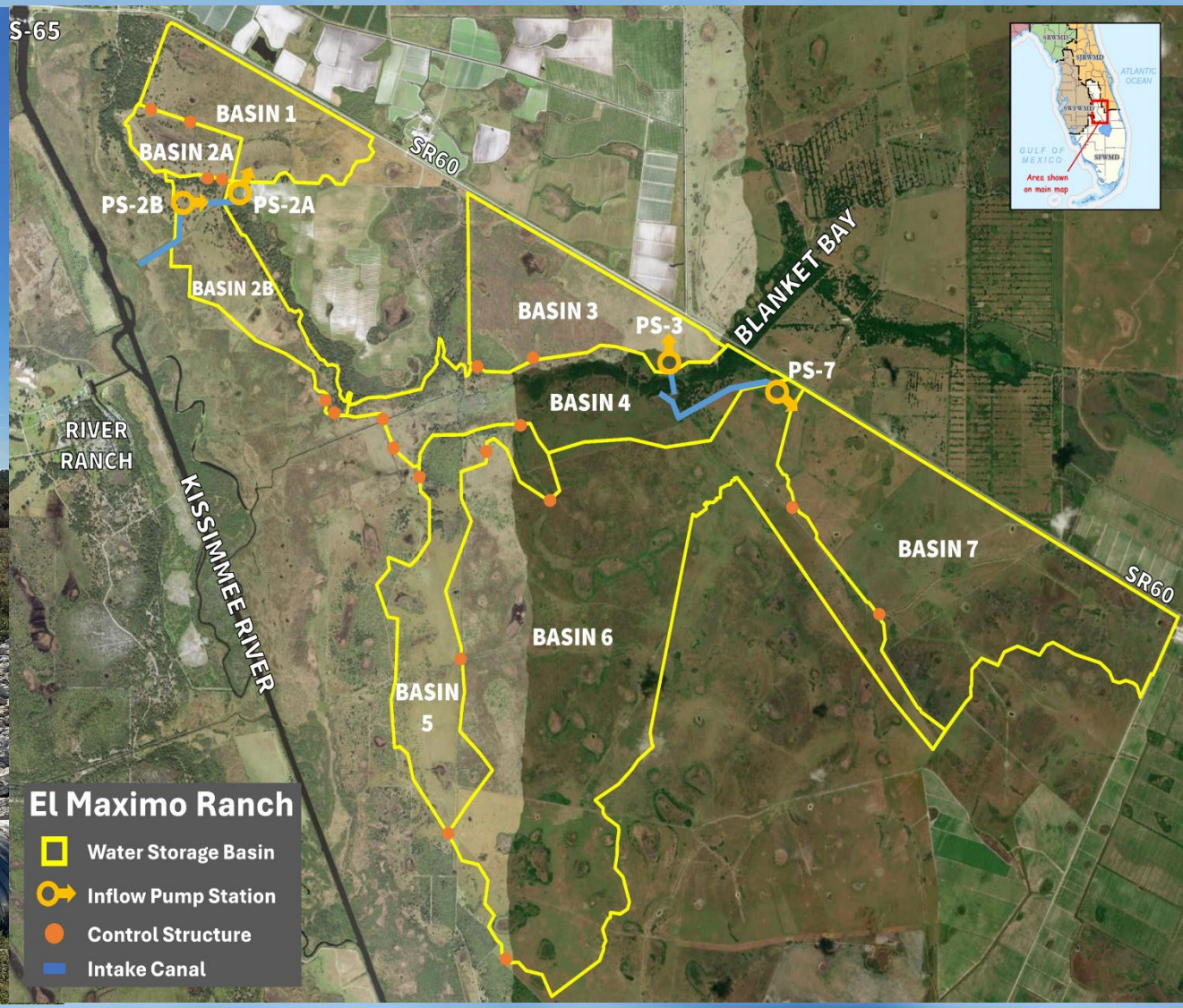


Photographs by Brent Anderson SFWMD, August 2021

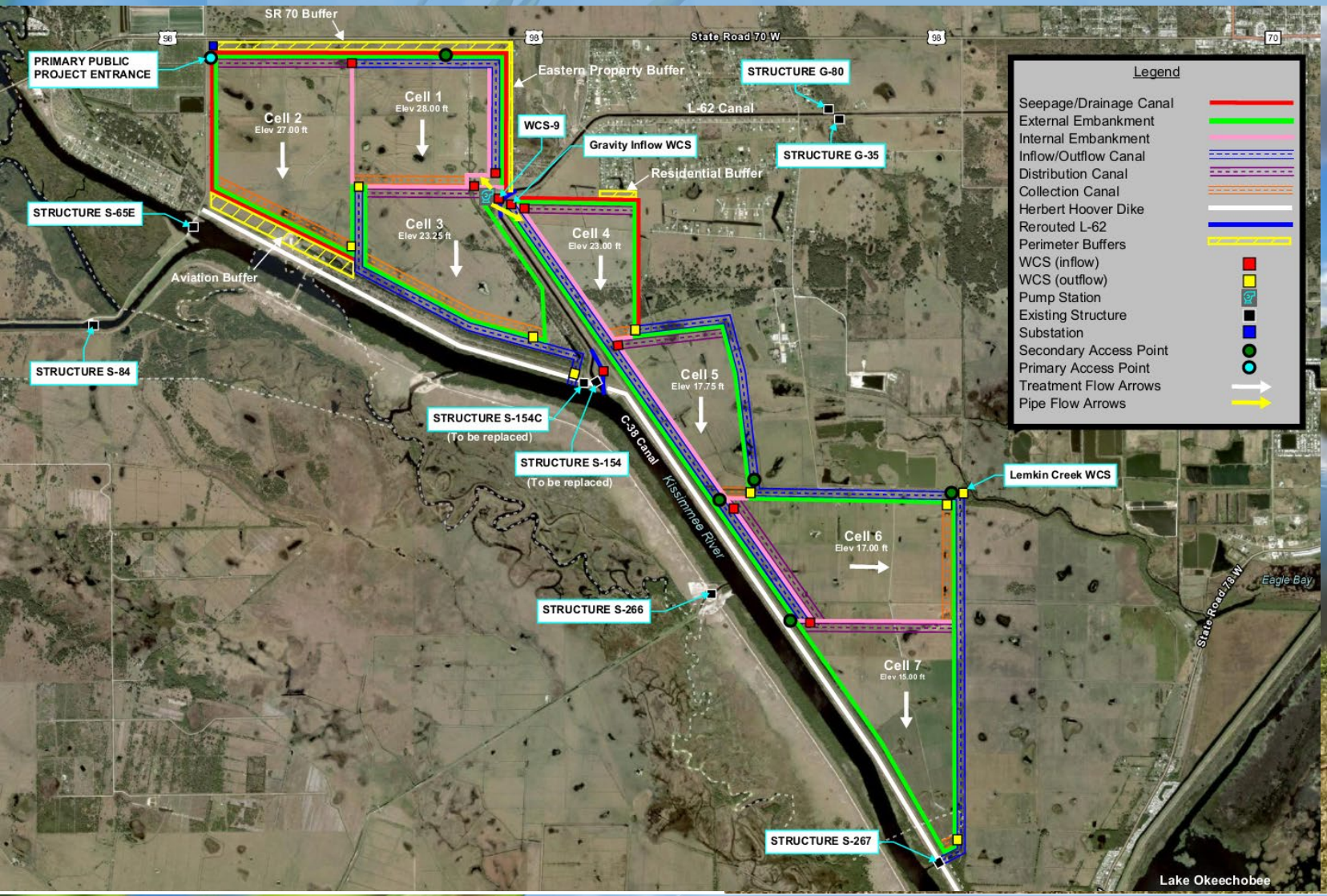
S-69 Weir and Phase III Restoration Area looking upstream

El Maximo Ranch

El Maximo Ranch
under construction (Jan'2024)

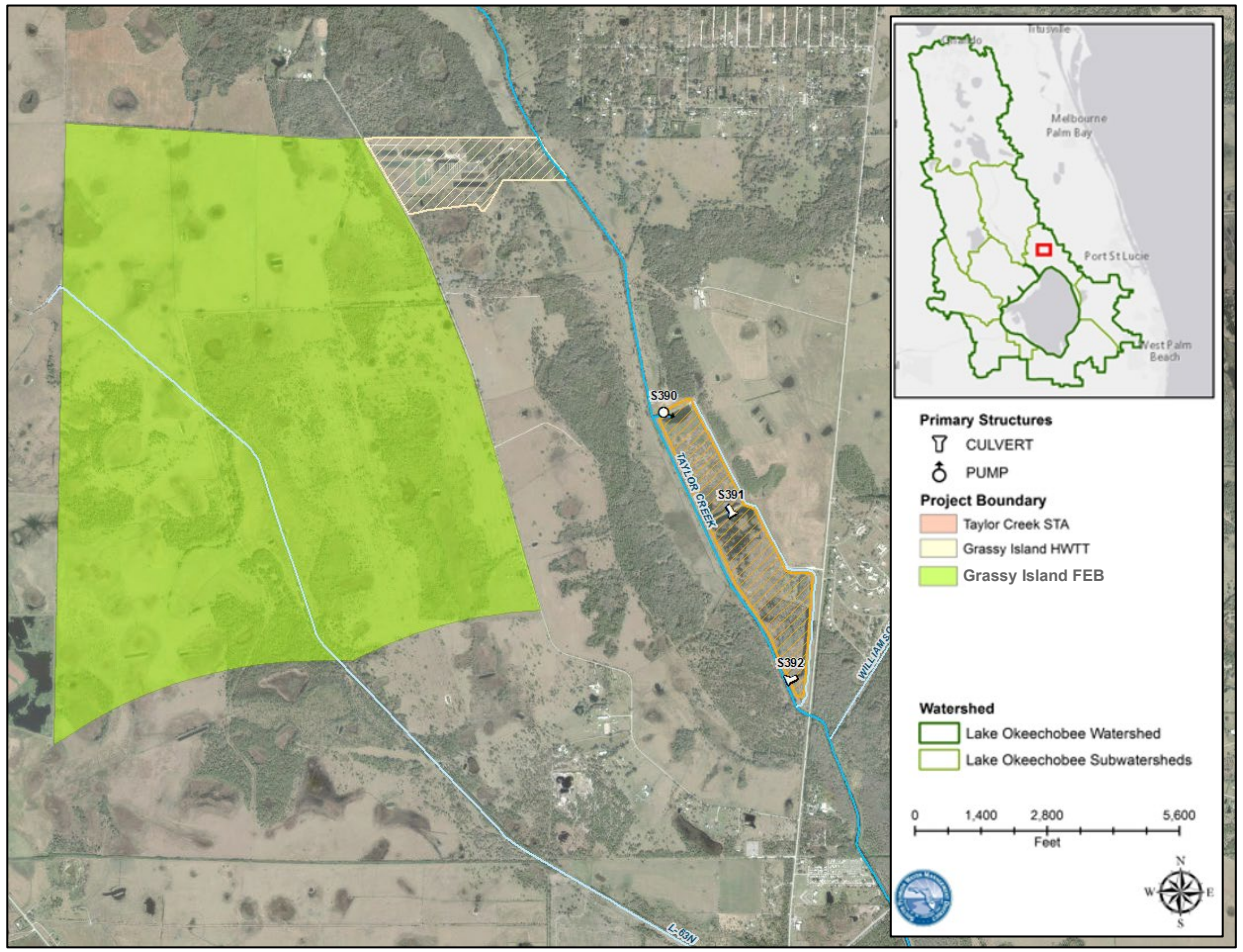


Lower Kissimmee Basin Stormwater Treatment Area

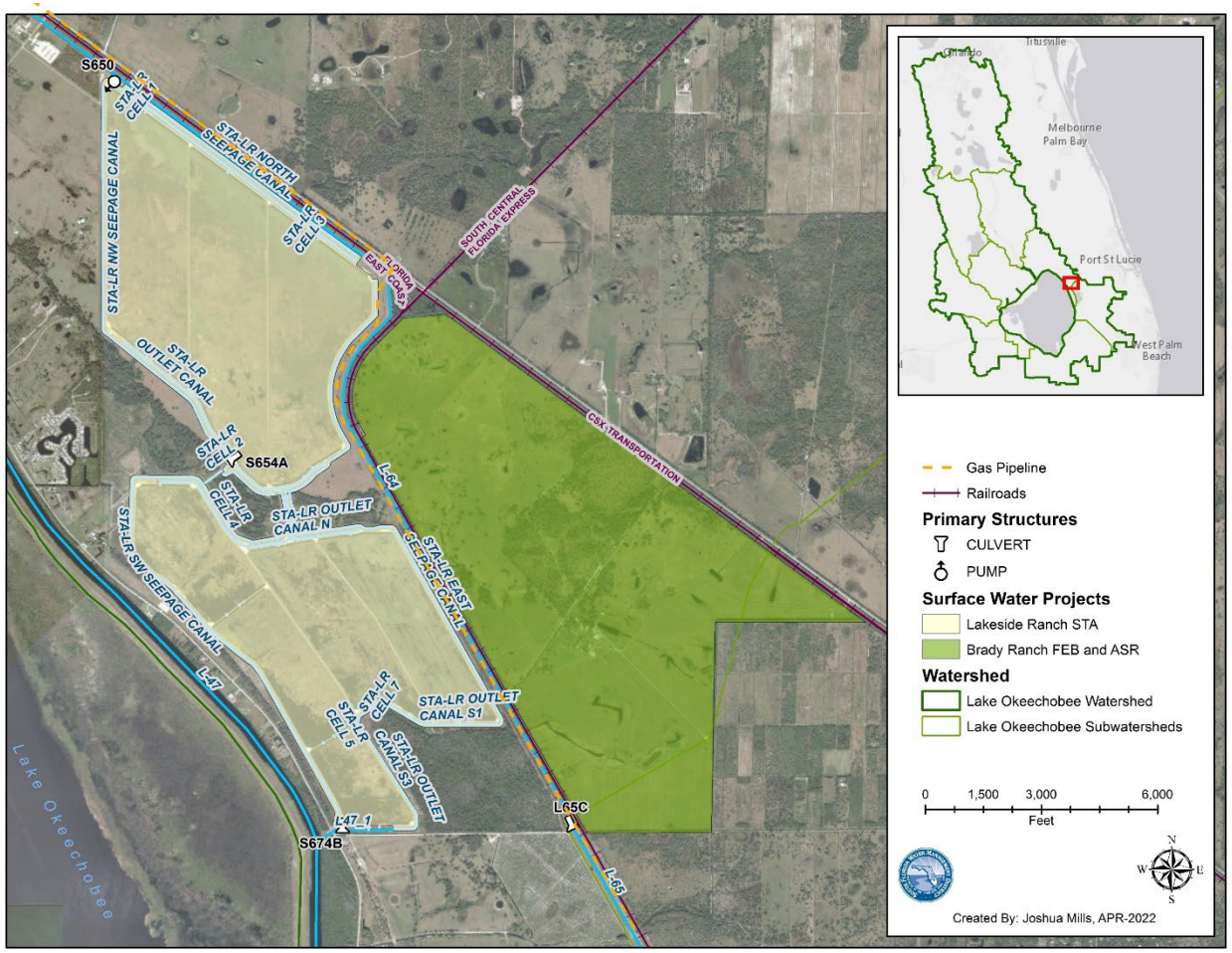


Planned Lower Kissimmee Basin STA Area
West portion of site, Okeechobee County

Grassy Island FEB



Brady Ranch FEB



Northern Everglades Water Retention and Nutrient Load Reduction Projects

Eagle Haven Ranch
(formerly Lost Oak Ranch)

- 730-acre passive storage on private ranchland
- WY2023 benefits:
  - Stored 758 ac-ft
  - Removed 0.1 mt TP
  - Removed 1.2 mt TN


Eagle Haven Ranch,
Upper Kissimmee Subwatershed

Buck Island Ranch
(includes Components 1 & 2)

- 4,796-acre passive storage on private ranchland
- WY2023 benefits:
  - Stored 2,204 ac-ft
  - Removed 0.9 mt TP
  - Removed 9.1 mt TN


Buck Island Ranch,
Indian Prairie Subwatershed


XL Ranch,
Fisheating Creek Subwatershed

XL Ranch
(formerly Lightsey)

- 765-acre passive storage on private ranchland
- WY2023 benefits:
  - Stored 1,720 ac-ft
  - Removed 0.5 mt TP
  - Removed 3.9 mt TN


Dixie Ranch,
Lower Kissimmee & Taylor Creek/
Nubbin Slough Subwatersheds

Dixie Ranch
(includes Dixie West)

- 3,063-acre passive storage on private ranchland
- WY2023 benefits:
  - Stored 632 ac-ft
  - Removed 0.4 mt TP
  - Removed 1.3 mt TN

Northern Everglades Water Retention and Nutrient Load Reduction Projects (cont.)

Aguaculture Nutrient Removal

- Project will divert and retain TP from Lake Istokpoga to reduce nutrient loads to Lake Okeechobee.
  - Mechanical harvesting of nuisance vegetation and unconsolidated muck from Lake Istokpoga
  - To be applied as a nutrient amendment on private lands
- Estimated benefits (per year):
  - 4.5 mt TP removal
  - Pay-for-performance basis

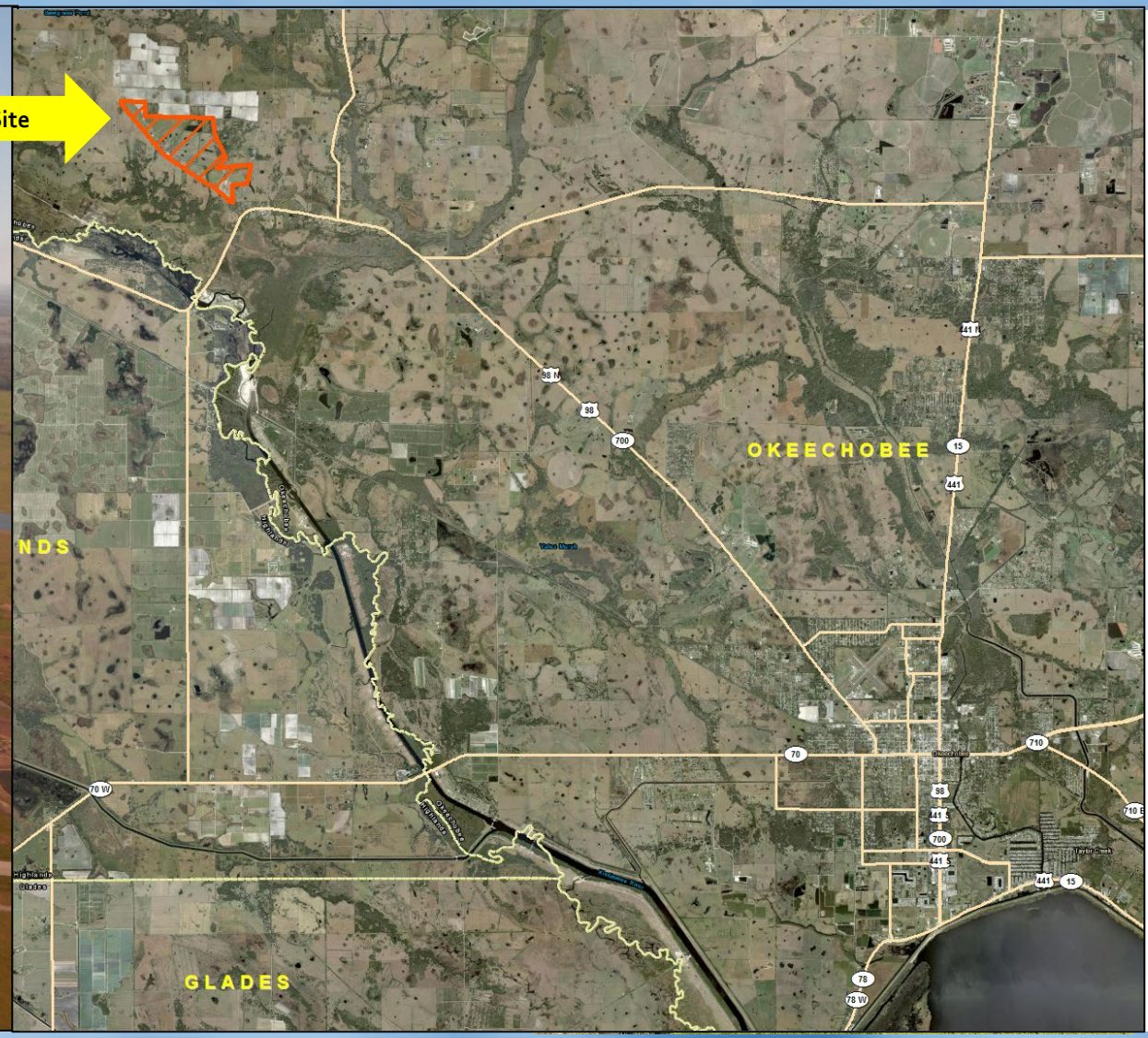
Planned aquatic vegetation removal

Partin Family Ranch

Big Bend Swamp retention area (Feb'2024)

- Water and nutrient retention project
  - 3,050 acres on private land in Osceola County
- Estimated benefits (per year):
  - 4,270 ac-ft storage
  - 0.4 mt TP removal
  - 5.2 mt TN removal

Basinger Dairy Legacy Phosphorus Project

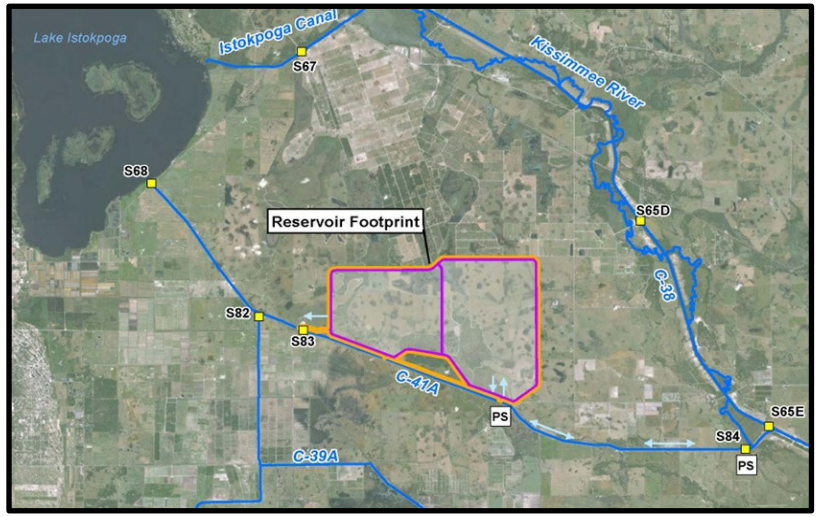


US Army Corps of Engineers

LOW CERP Projects

North of Lake Okeechobee Storage Reservoir Study (LOCAR)

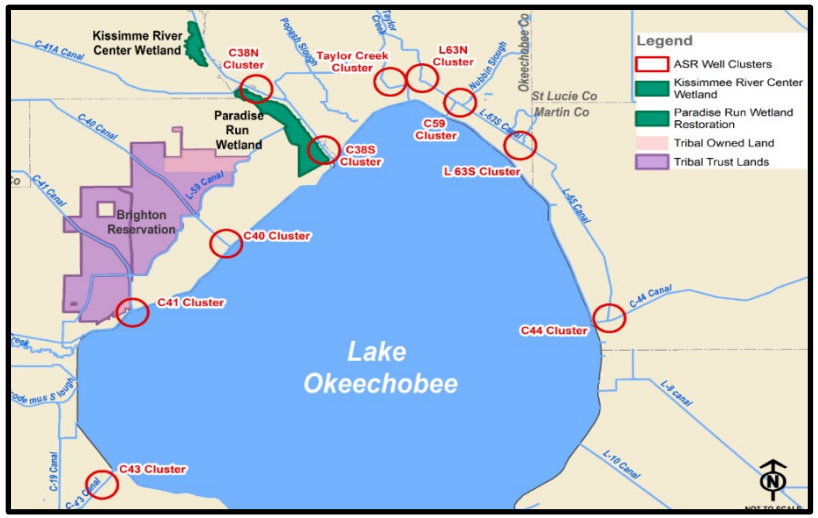
- Primary objective is to store water north of Lake Okeechobee and release excess water at times when it is beneficial for region
  - 12,000 acres - 2 cells with an average depth of 18 ft
- Expected benefits:
  - 200,000 ac-ft storage
  - Operational flexibility and improve lake ecology



SFWMD.gov/LOCAR

Lake Okeechobee Watershed Restoration Project (LOWRP)

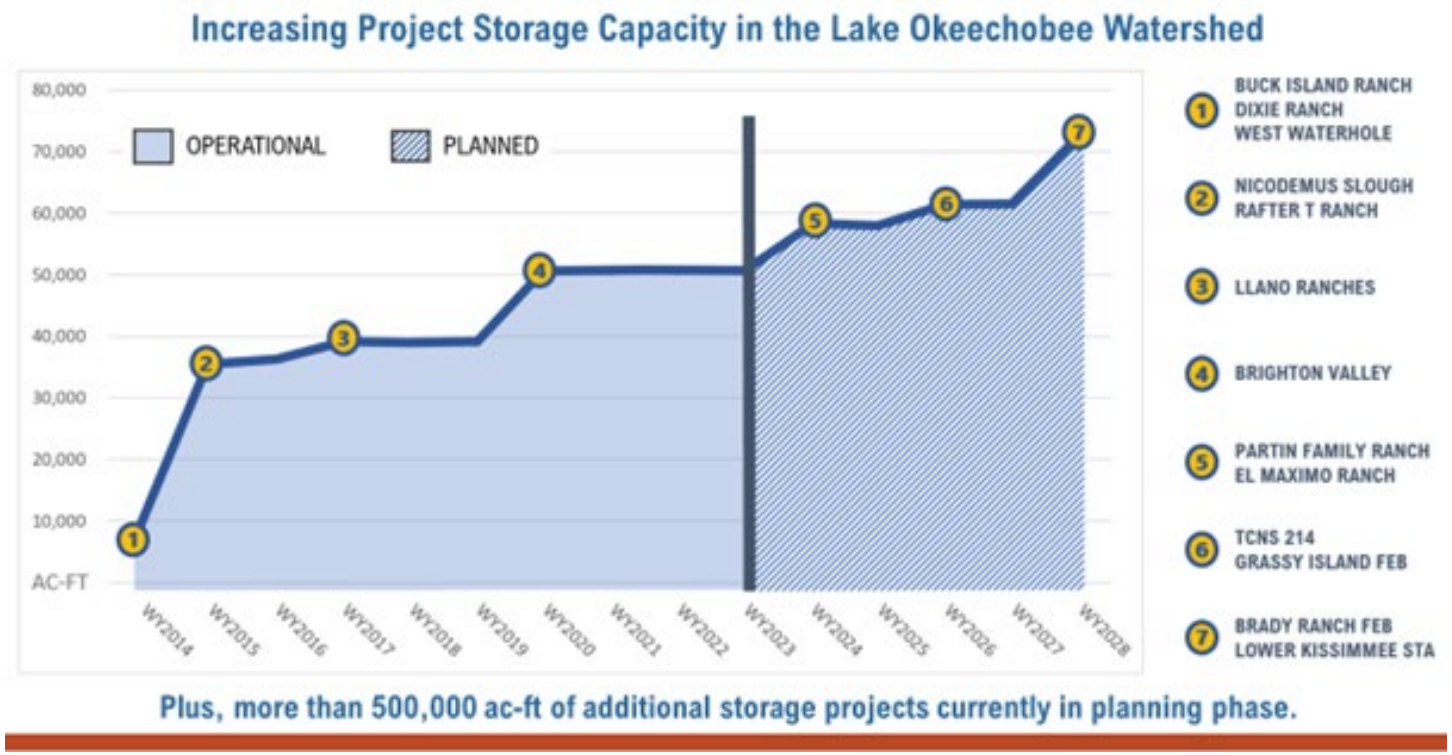
- Recommended Plan in 2022: 2 wetland restoration areas; up to 55 Aquifer Storage & Recovery (ASR) wells
- Expected benefits:
  - Restore 5,900 acres of wetland habitat
  - Improve lake stage levels
  - Reduce discharges to northern estuaries



SFWMD.gov/LOWRP

Water Storage Benefits

- Key DWM program benefits:
  - Reduces runoff/discharge to and stores/treats water in regional system
  - Promotes hydrologic enhancement, groundwater recharge, improves habitat
  - Avoids high cost of land purchase and keeps private lands on local tax rolls
  - Storage and/or treatment provided exceeds permit requirements
- In Water Year 2023, 18 SFWMD projects provided ~66,806 ac-ft of storage (59,531 ac-ft, 14 DWM; 7,275 ac-ft, 4 regional)
- Future projects are planned to add storage capacity of 23,070 ac-ft over the next 5 years; more than 500,000 ac-ft is also in longer-term planning



Watershed Protection Plan Reporting

For more information, visit:

SFWMD.gov/WPPs

and

SFWMD.gov/SFER

(Final 2024 SFER – Volume I, Chapter 8B)

Mark Your Calendars

2024 SFER Open House
Poster Sessions

April 10 & 11, 2024 at 1 pm

SFWMD Headquarters
B-1 Auditorium & Lobby
3301 Gun Club Road
West Palm Beach, FL

For more information, visit:
SFWMD.gov/news-events/meetings

Contact Information

Stacey Ollis, PMP
Principal State Policy Analyst
Everglades & Estuaries Protection Bureau
South Florida Water Management District
sollis@sfwmd.gov; 561-682-2039

sfwmd.gov

STAR
STATEWIDE ANNUAL REPORT

The Statewide Annual Report 2022

The state of Florida is prioritizing the protection and restoration of our waterways by implementing sound, science-based solutions to current and future environmental challenges. Under the leadership of Governor Ron DeSantis, the Florida Department of Environmental Protection (DEP) is working with local, state and federal partners on short- and long-term strategies to protect water quality and quantity, including investment in long-term restoration projects. DEP has prepared the 2022 Statewide Annual Report (STAR) to detail the status of many of these strategies in an interactive application format, which is best viewed on a desktop computer screen using Google Chrome or Microsoft Edge.

As required by section 403.0675, Florida Statutes, and to report on additional restoration efforts, this report updates the status of protection and restoration actions through total

Total Maximum Daily Loads

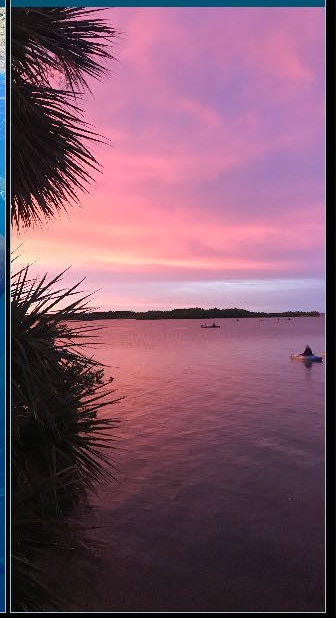
Basin Management Action Plans

Alternative Restoration Plans

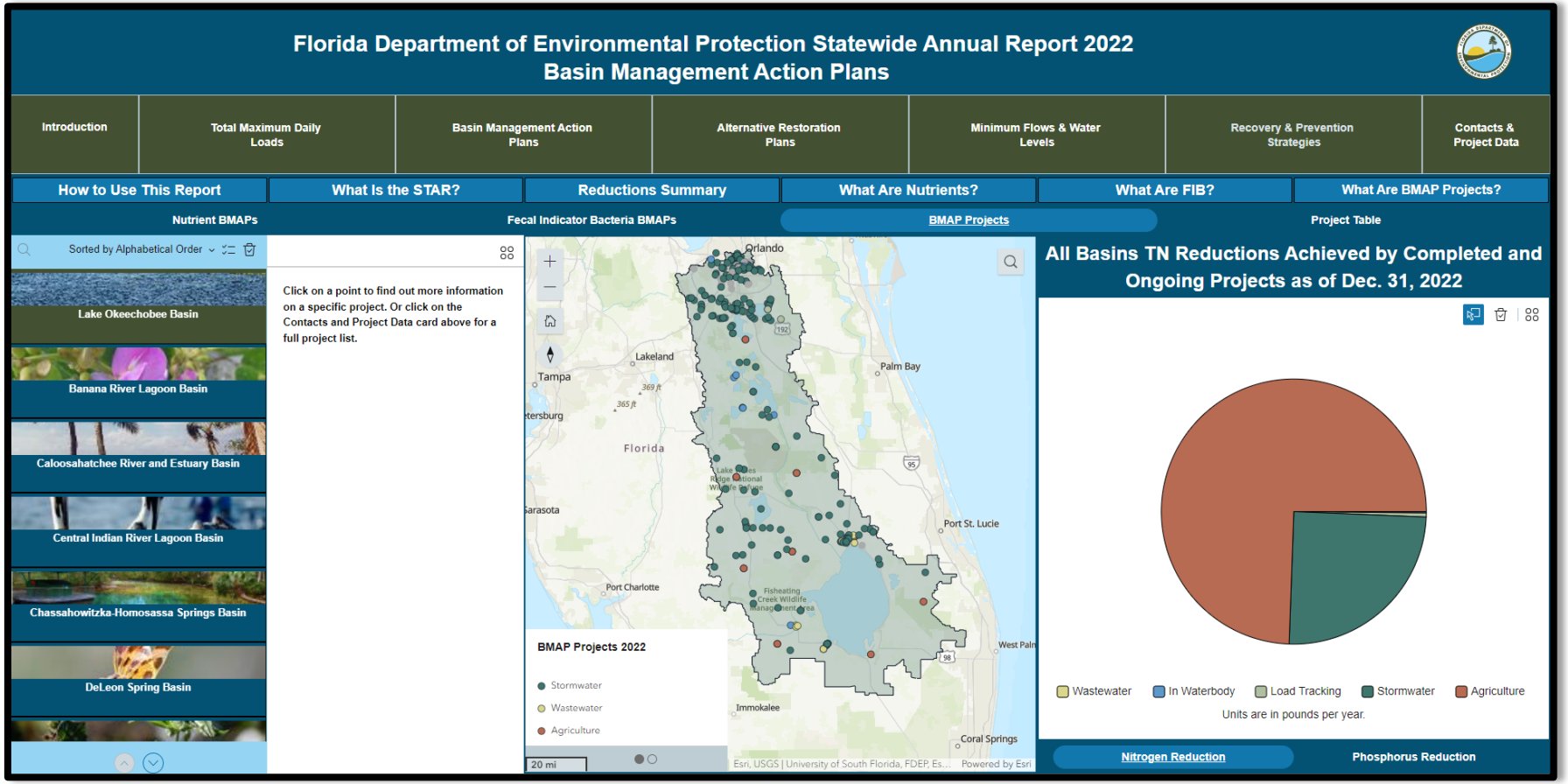
Minimum Flows and Water Levels

Recovery and Prevention Strategies

Contacts and Project Data



STAR
STATEWIDE ANNUAL REPORT

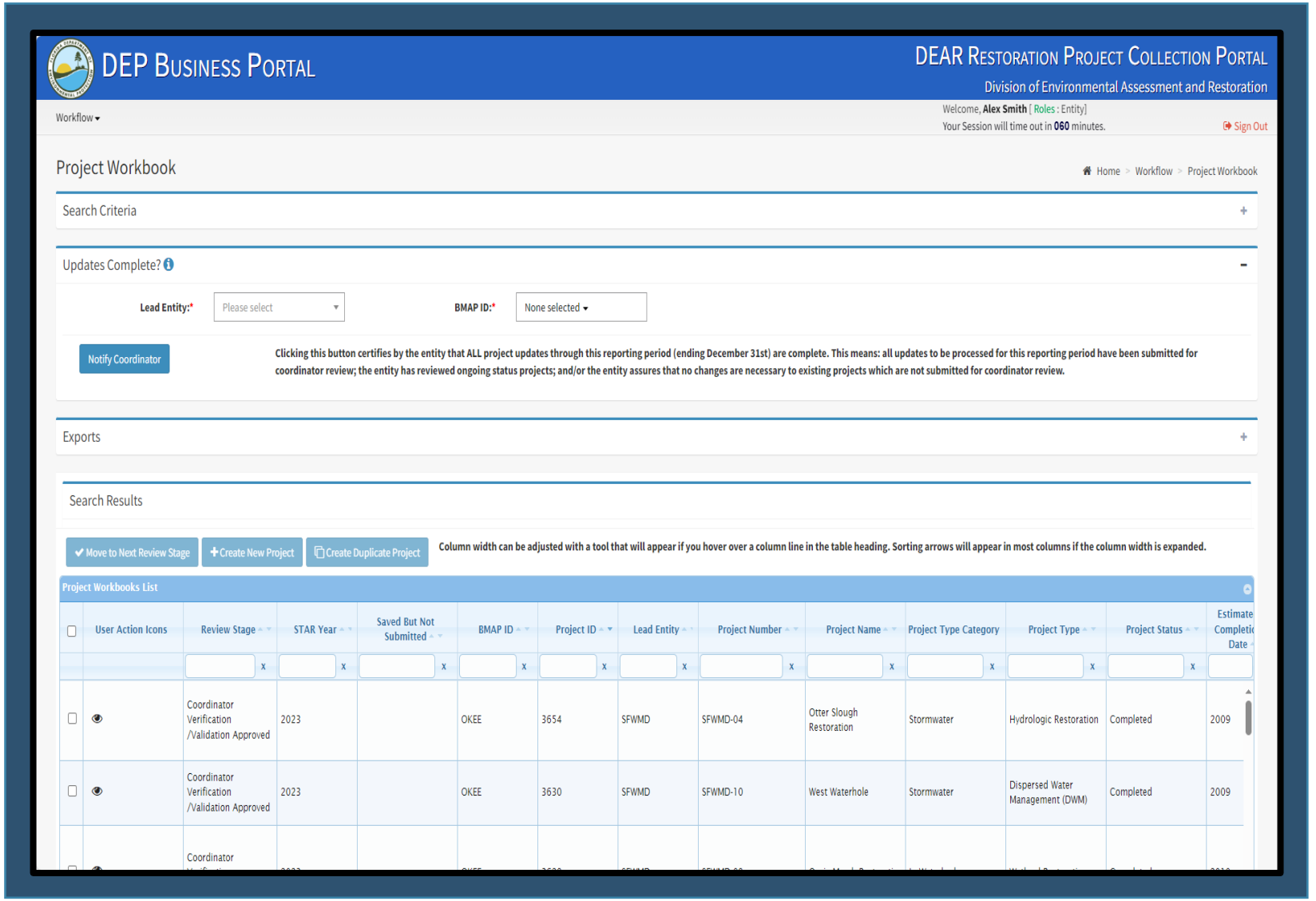


- Report published by July 1, 2024, with reporting through Dec. 31, 2023.
- Summarizes accomplishments in the BMAPs statewide.
- Reports on restoration projects and management strategies.
- Data download available.

https://floridadep.gov/STAR

STAR
BMAP PORTAL FOR PROJECT COLLECTION

- Be sure to let your BMAP coordinator know if changes in access to your projects in the portal are needed.



STATUS OF PROJECTS

THROUGH DEC. 31, 2023 *PRELIMINARY

Lead Entity	Canceled	Completed	Ongoing	Planned	Underway	Grand Total
Avon Park Air Force Range	0	1	0	0	0	1
City of Avon Park	0	2	1	0	0	3
City of Clewiston	0	2	3	0	0	5
City of Edgewood	0	0	3	0	0	3
City of Kissimmee	0	5	2	2	0	9
City of Moore Haven	0	1	0	1	0	2
City of Okeechobee	0	3	3	0	2	8
City of Orlando	1	7	10	1	1	20
City of Sebring	0	1	1	0	0	2
Coordinating Agency	1	0	0	0	0	1
FDACS	0	7	18	0	0	25
FDOT District 1	0	2	6	1	1	10
FDOT District 4	0	1	5	0	0	6
FDOT District 5	0	35	2	0	0	37
Glades County	0	3	2	0	3	8
Hendry County	0	0	0	3	1	4
Highlands County	0	3	4	0		7
Istokpoga Marsh Watershed Improvement District	0	1	0	0	1	2

STATUS OF PROJECTS

THROUGH DEC. 31, 2023 *PRELIMINARY

Lead Entity	Canceled	Completed	Ongoing	Planned	Underway	Grand Total
Martin County	0	0	0	0	1	1
Okeechobee County	0	8	0	0	0	8
Orange County	4	63	8	2	20	97
Osceola County	2	30	3	0	0	35
Polk County	0	1	3	0	0	4
SFWMD	0	22	0	1	0	23
Spring Lake Improvement District	1	1	0	0	0	2
Town of Windermere	0	1	0	0	0	1
Valencia WCD	0	1	1	0	0	2
SFWMD - Coordinating Agency	1	8	0	8	2	19
FDACS - Coordinating Agency	0	4	0	4	1	9
Okeechobee Utility Authority	0	0	0	1	2	3
Town of Lake Placid	0	0	0	0	1	1
Central Florida Tourism Oversight District	0	0	3	0	0	3
Turnpike Enterprise	0	0	1	0	0	1
Grand Total	**10**	**213**	**79**	**24**	**36**	**362**

SUBWATERSHED GOALS

TARGETS SUMMARY

Subwatershed	WY2014–WY2018 TP Load (mt/yr)	% Contribution of Load	TP Load Required Reduction (mt/yr)	TP Target (mt/yr)	WY2019–WY2023 TP Load (mt/yr)	% Contribution of Load	TP Load Required Reduction (mt/yr)	TP Target (mt/yr)
Fisheating Creek	72.4	12	59.7	12.7	39.70	10.8	28.3	11.4
Indian Prairie	102.5	17	84.5	18.0	48.10	13.1	34.3	13.8
Lake Istokpoga	47.7	8	39.3	8.4	34.50	9.4	24.6	9.9
Lower Kissimmee	125.9	21	103.8	22.1	80.00	21.8	57.1	22.9
Taylor Creek/Nubbin Slough	113.6	19	93.7	19.9	58.20	15.8	41.6	16.6
Upper Kissimmee	90.5	15	74.6	15.9	79.80	21.7	57.0	22.8
East Lake Okeechobee	16.8	3	13.9	2.9	15.40	4.2	11.0	4.4
South Lake Okeechobee	29.0	5	23.9	5.1	11.50	3.1	8.2	3.3
West Lake Okeechobee	0.0	0	0	0.0	0.00	0.0	0.0	0.0
Total	**598.4**	100	**493.4**	105.0	**367.2**	100.0	**262.2**	105.0

SUBWATERSHED GOALS

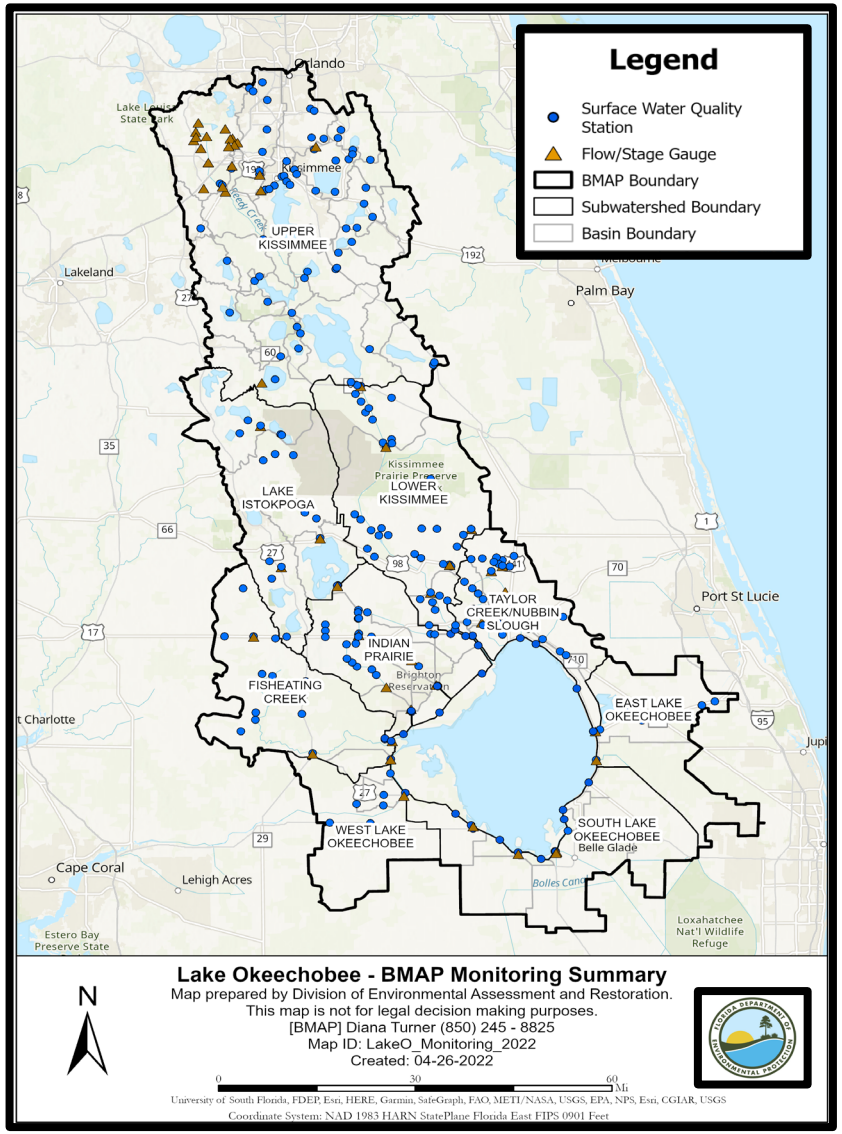
PROGRESS *PRELIMINARY

Subwatershed	TP Load Required Reduction (mt/yr)	TP Reduction Through Dec. 31, 2023 (mt/yr)	TP Reductions Achieved Through Dec. 31, 2023 (%)
Fisheating Creek	28.3	15.4	54%
Indian Prairie	34.3	22.7	66%
Lake Istokpoga	24.6	2.7	11%
Lower Kissimmee	57.1	13.5	24%
Taylor Creek/Nubbin Slough	41.6	32.3	78%
Upper Kissimmee	57.0	18.2	32%
East Lake Okeechobee	11.0	2.3	21%
South Lake Okeechobee	8.2	3.0	37%
West Lake Okeechobee	0.0	0.6	100%
Total	**262.2**	**110.7**	**42%**

MONITORING NETWORK

BMAP-WIDE

- 309 stations.
- 3-tiered network.
- Monitored by local entities, DEP, SFWMD, and U.S. Geological Survey (USGS).



TARGETED RESTORATION AREA (TRA) EVALUATION UPDATE

APPROACH

Step 1

Concentration five-year average

↓

Compare to Numeric Nutrient Criteria (NNC) benchmark

Priority 1: Greater than twice the benchmark.

Priority 2: Greater than benchmark, but less than twice benchmark value.

Priority 3: Equal to or less than benchmark.

or

Step 2

Concentration + Flow

↓

Flow weighted mean (FWM) concentration (five-year average)

↓

Compare to NNC benchmark

Priority 1: Greater than twice the benchmark.

Priority 2: Greater than benchmark, but less than twice benchmark value.

Priority 3: Equal to or less than benchmark.

Step 3

Attenuated Loading + Acreage

↓

Attenuated Unit Area Load (UAL)

↓

Compare to subwatershed target UAL (target load/acres)

Move up one priority: Greater than 50% above subwatershed target UAL.

Maintain priority: Less than 50% above watershed target UAL.

Move down one priority: less than subwatershed target UAL.

Step 4

Five-Year Review Water Quality Analysis

↓

TN or TP trend (FWM concentration if available, otherwise use concentration)

↓

Statistically significant trend

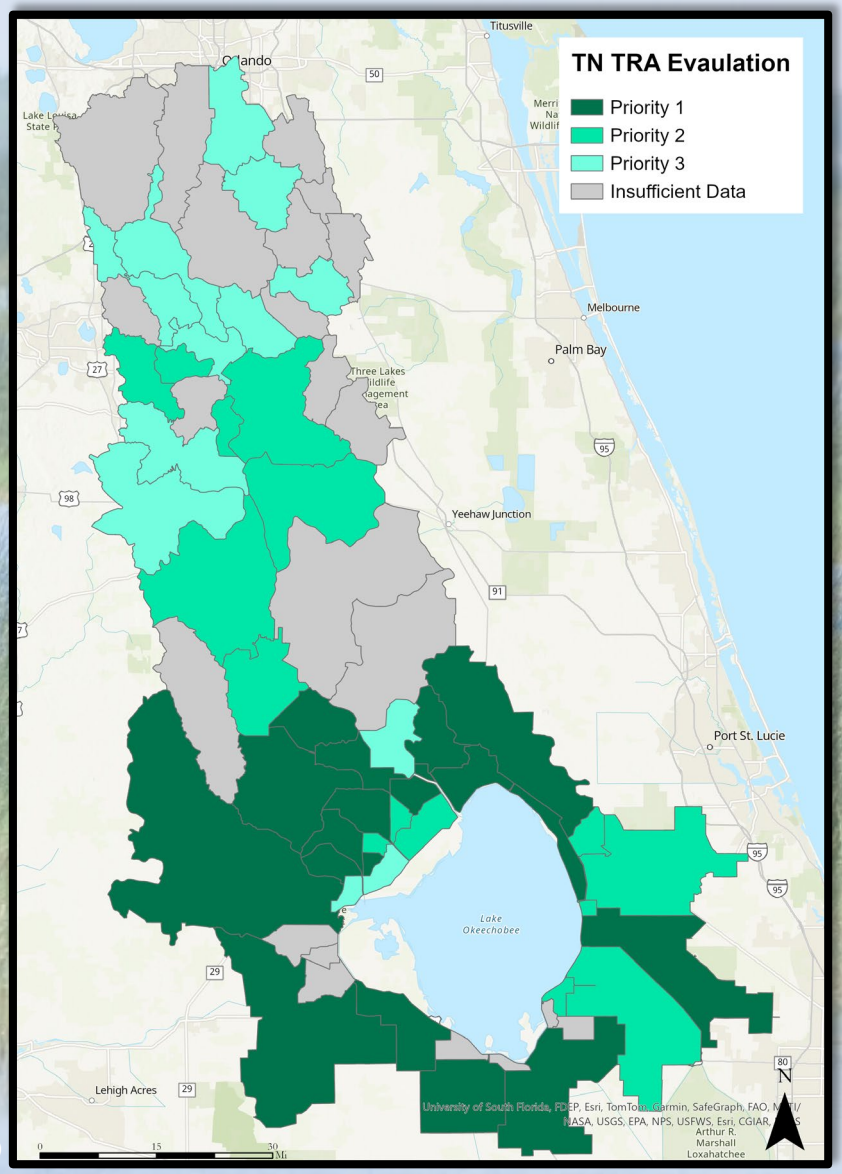
Move up one priority: Statistically significant increasing trend.

Maintain priority: No statistically significant trend.

Move down one priority: Statistically significant decreasing trend.

TRA EVALUATION UPDATE

RESULTS



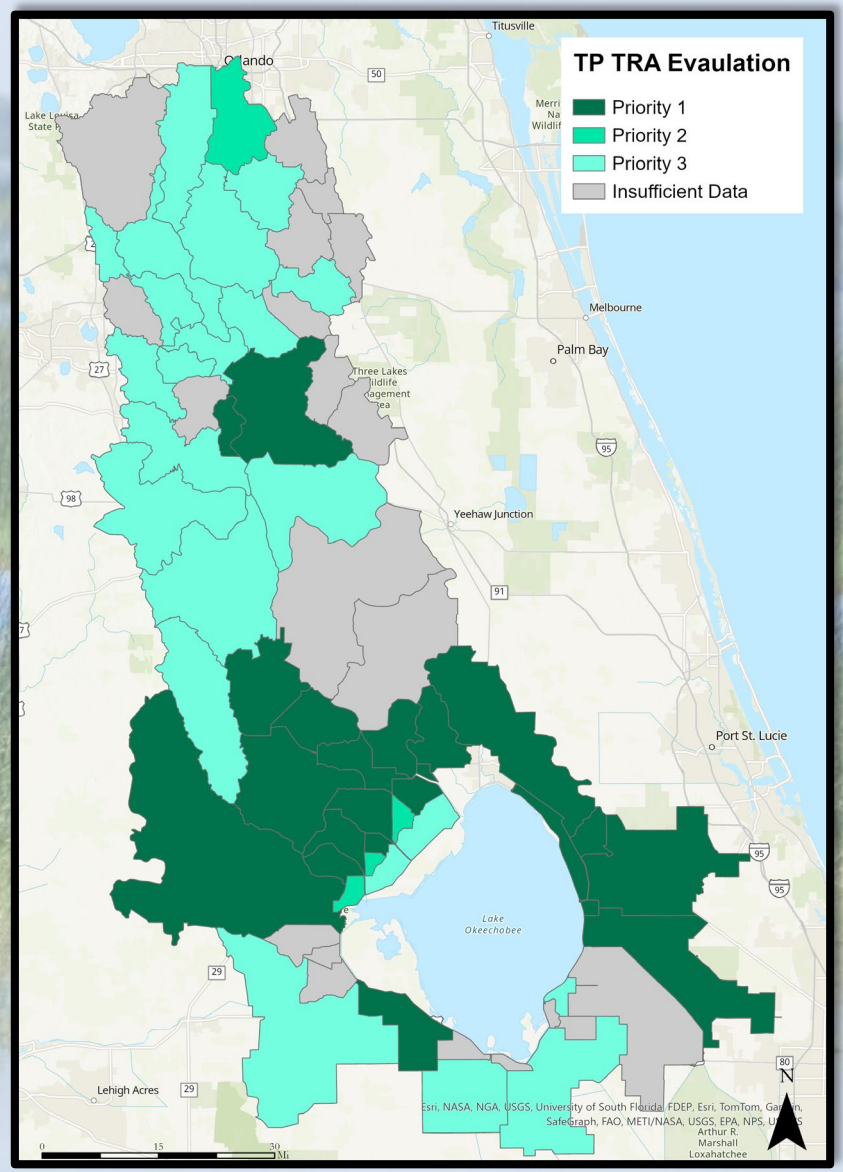


Photo Credit: SFWMD

WHAT'S NEXT FOR THE BMAP?

- 2024 5-Year Review to be published in December 2024.
- BMAP Update to completed by July 1, 2025.

Photo Credit: SFWMD

2024 5-YEAR REVIEW


Photo Credit: SFWMD

The Northern Everglades and Estuaries Protection Plan BMAPs (St. Lucie, Caloosahatchee, Lake Okeechobee) are required to provide a review every five years on the progress the BMAP is making (paragraph 373.4595(4)(d), Florida Statutes).

2024 5-YEAR REVIEW
COMPONENTS

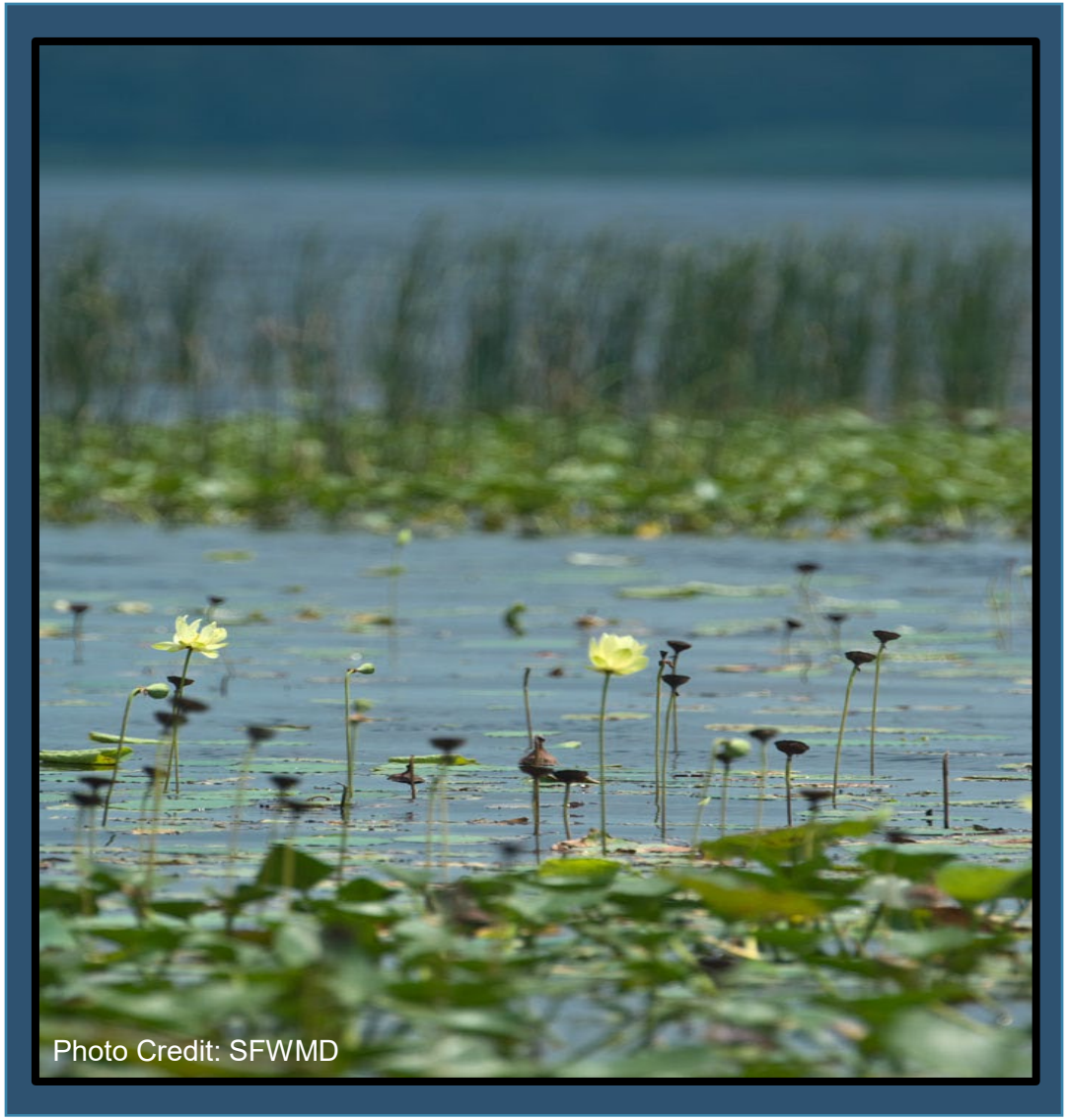
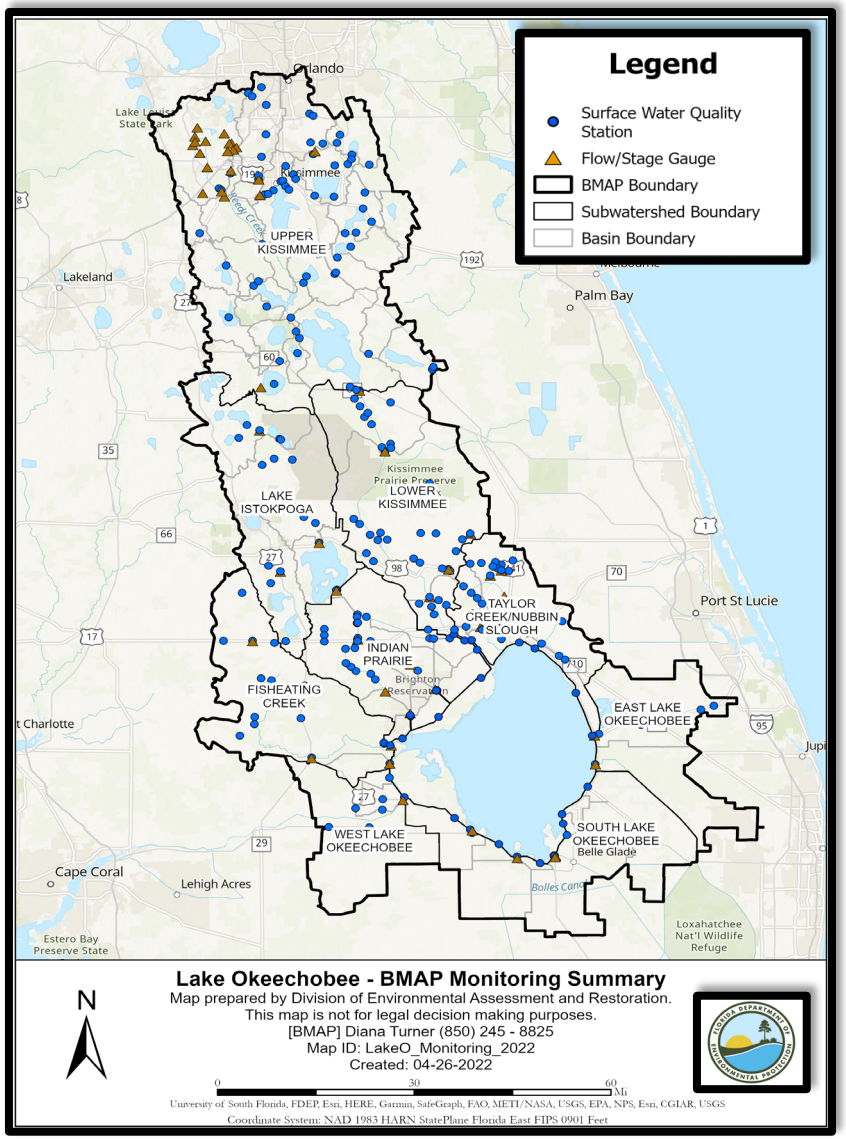


Photo Credit: SFWMD

- Water quality analyses.
  - TRA evaluation.
  - Trend analyses.
  - Hot spot analysis.
- Evaluating milestones.
- Evaluating monitoring network.
- Evaluating model needs.
- Coordinating agencies' updates.
- Making recommendations for BMAP Update.

UPCOMING BMAP UPDATE
COMPONENTS

- Evaluation of wastewater effluent limits.
- OSTDS requirements for new systems on lots one acre or less.
- Inclusion of regional projects.
- Inclusion of a hot spot analysis.
- Inclusion of additional water quality analyses.
- Inclusion of any needed updates to the monitoring network.
- Inclusion of the Clean Waterways Act requirements.
- Inclusion of recommendations from the 2024 5-Year Review.



HOT SPOT ANALYSIS DEVELOPMENT

OVERVIEW

Purpose:

- To find more specific areas to focus restoration activities.
- To highlight areas where projects might have stronger results.
- To highlight areas where more investigation is needed.

Analysis is NOT to determine BMAP or TMDL compliance.

Compliment to the TRA Evaluation:

- Analysis uses stations with between two and five years of data, allowing more monitoring stations to be used.
- Can help narrow down more specific areas in need of attention within the TRA basins.
- Components are independent, rather than sequential.

HOT SPOT ANALYSIS DEVELOPMENT

COMPONENTS OF THE HOT SPOT INDEX

These four statistics calculated for the BMAP overall and used to compare against each station average:

- TN or TP concentration average.
- TN or TP 90th percentile.
- TN or TP Standard Deviation (SD).
- TN or TP Percent Frequency of Samples over BMAP Threshold.

BMAP Threshold:

- Lake Okeechobee:
  - TN – Peninsular NNC – 1.54 mg/L
  - TP – TMDL – 0.04 mg/L

HOT SPOT ANALYSIS DEVELOPMENT

INDEX RANKING APPROACH

Station Concentration Average Rank

Compare to BMAP Threshold and overall BMAP average.

Rank 0: Station average below BMAP threshold.

Rank 1: Station average above threshold but below BMAP average.

Rank 2: Station average 2x above BMAP average.

Percentiles Rank

Compare to BMAP Threshold and 90th percentile for the whole BMAP.

Rank 0: Station average below BMAP threshold.

Rank 1: Station average above threshold but below 90th percentile.

Rank 2: Station average above 90th percentile.

Standard Deviation (SD) Rank

Compare to overall BMAP SD.

Rank 0: Station average below BMAP average + 0.5 SD.

Rank 1: Station average at or above average + 0.5 SD but less than BMAP average + 1 SD.

Rank 2: Station average at or above BMAP average + 1 SD..

Frequency Rank

Compare to BMAP Threshold.

Rank 0: Station percent exceedance below 5% of samples.

Rank 1: Station exceedances between 5% and 49% of samples.

Rank 2: Station exceedances over 50% of samples.

HOT SPOT ANALYSIS DEVELOPMENT

FINAL OVERALL RANK

Average Rank
+
Percentile Rank
+
SD Rank
+
Frequency Rank

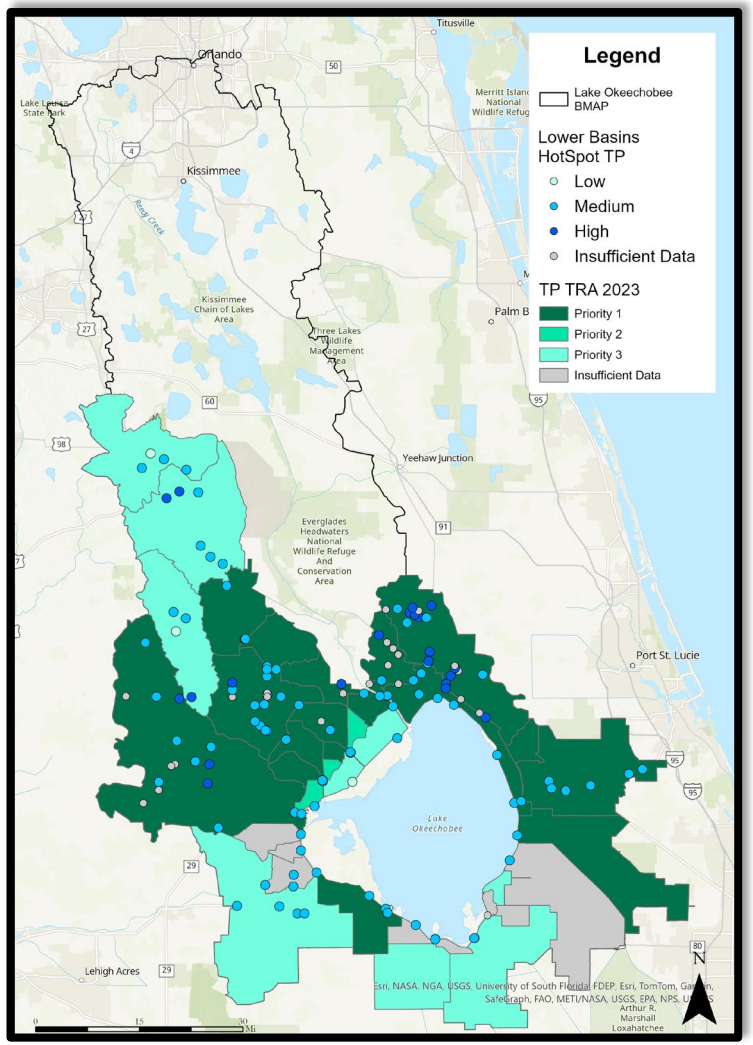
=

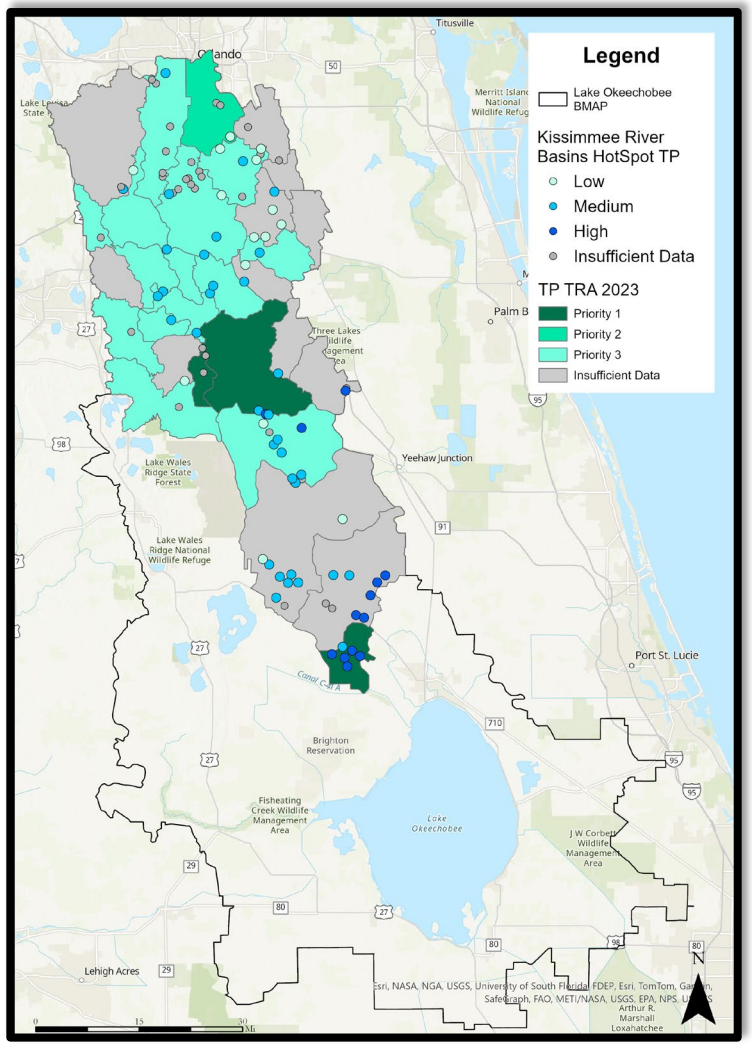
Total Index Rank

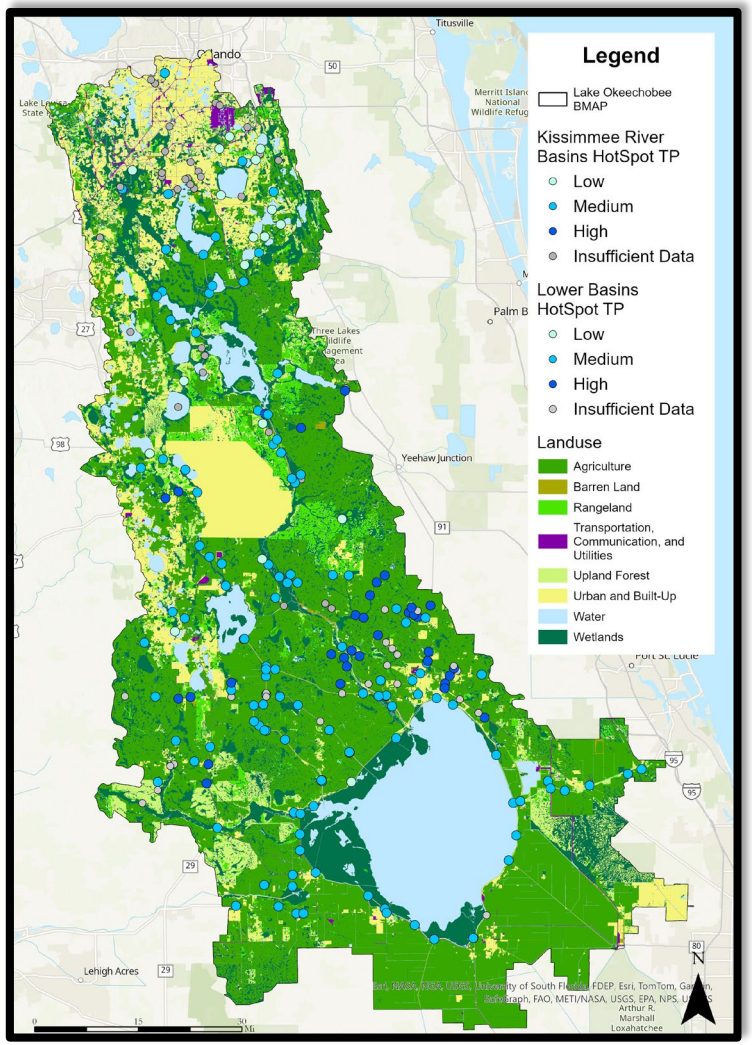
Rank 0 = Least Concern
Rank 8 = High Concern

HOT SPOT ANALYSIS RESULTS EXAMPLE

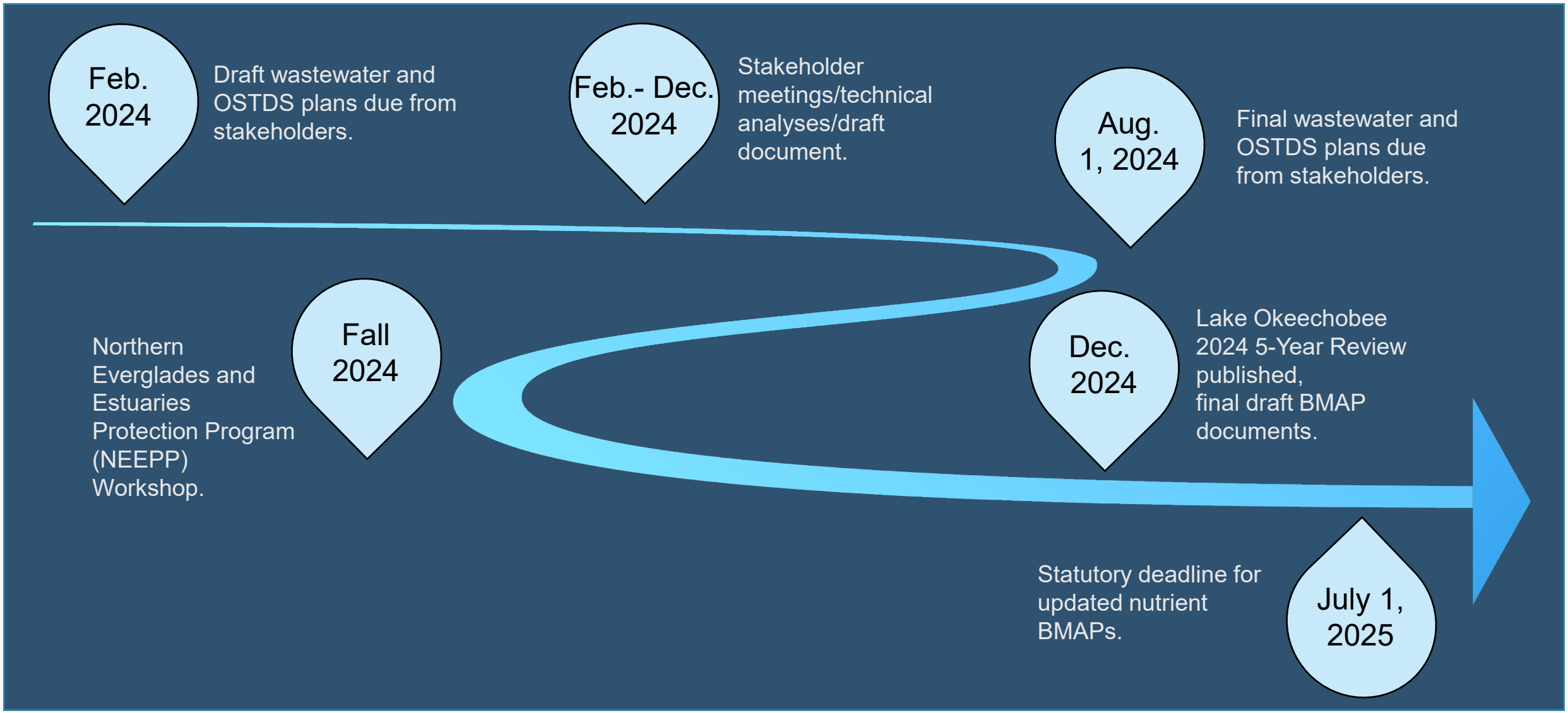
LAKE OKEECHOBEE TP RESULTS







UPCOMING SCHEDULE



Lake Okeechobee BMAP Annual Meeting

April 4, 2024

Jennifer Thera

Florida Department of Agriculture and Consumer Services

Office of Agricultural Water Policy

Overview

- Office of Agricultural Water Policy (OAWP) Staff and Responsibilities
- Agricultural Best Management Practices (BMP)
- BMP Manual Update
- Enrollments within the Lake Okeechobee Basin
  - Unenrolled Agricultural Lands Classification
- BMP Implementation Verification (IVs)
- BMP Enrollment Viewer Web App
- Legislative Report

Office of Agricultural Water Policy (OAWP)

- **West Gregory;** Director West.Gregory@FDACS.gov
- **J.P. Fraites;** Asst. Director John.Fraites@FDACS.gov
- **Bret Prater;** Asst. Director Bret.Prater@FDACS.gov
- **Angela Chelette;** Chief of Policy Planning and Coordination Angela.Chelette@FDACS.gov
- **Steve Smith;** Chief of Field Services Steve.Smith@FDACS.gov

OAWP Staff

- **Yesenia Escribano;** Environmental Administrator-BMAPs Yesenia.Escribano@fdacs.gov
- **Jennifer Thera;** Environmental Consultant-PPC Jennifer.Thera@fdacs.gov
- **Rebecca Elliott;** Environmental Consultant-PPC Rebecca.Elliott@fdacs.gov
- **Raulie Raulerson**; Environmental Administrator-Field Services Raulie.Raulerson@fdacs.gov
- **Vacant**; Environmental Manager-Field Services
- **Sheila Kitaif;** Biological Administrator-Field Services Sheila.Kitaif@fdacs.gov

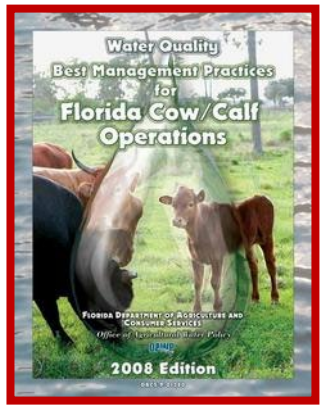
OAWP Responsibilities

- Development and implementation of agricultural best management practices (BMPs)
- Implementation of cost share programs
- Water supply and water quality planning and coordination
- Scientific and technical research
- Other policy development and statutory responsibilities
- Binding determinations

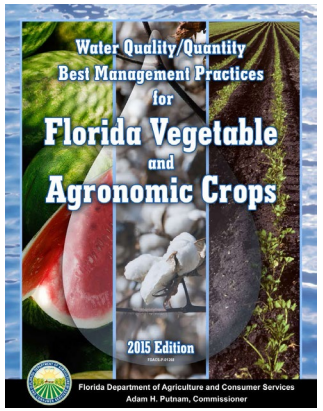
Benefits of Agricultural Best Management Practices

- Management strategies, tools and practices that improve water quality, conserve water, and protect water resources (Efficiency)
- Best available science and technology
- Technical and economic feasibility (Manual)
- Balance productivity with water quality improvement
- Proper implementation confirmed through implementation verification (IV) site visits

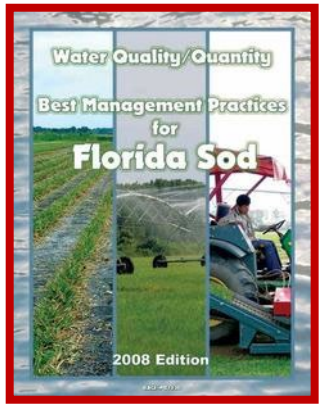
BMP Manuals

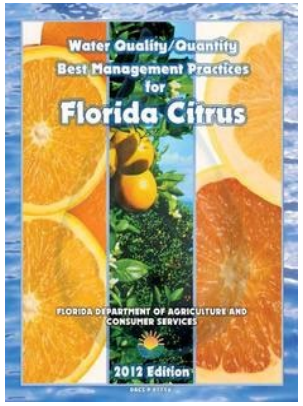

Water Quality
Best Management Practices
for
Florida Cow/Calf Operations
2008 Edition

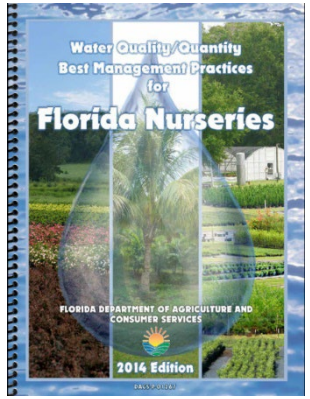

Water Quality/Quantity
Best Management Practices
for
Florida Specialty Fruit and Nut Crops
2011 Edition

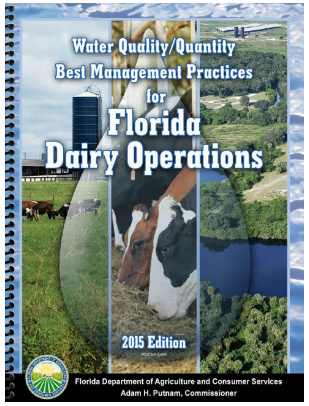

Water Quality/Quantity
Best Management Practices
for
Florida Vegetable
and
Agronomic Crops
2015 Edition
Florida Department of Agriculture and Consumer Services
Adam H. Putnam, Commissioner

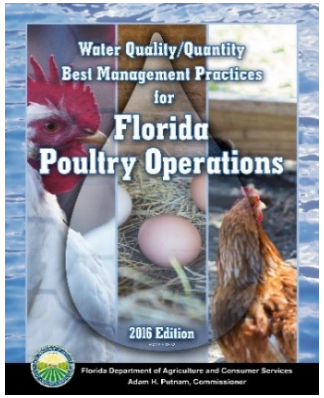

Water Quality/Quantity
Best Management Practices
for
Florida Equine Operations
2011 Edition

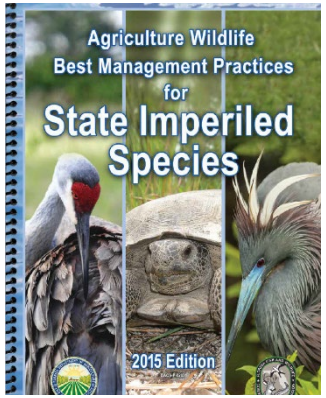

Water Quality/Quantity
Best Management Practices
for
Florida Sod
2008 Edition


Water Quality/Quantity
Best Management Practices
for
Florida Citrus
2012 Edition


Water Quality/Quantity
Best Management Practices
for
Florida Nurseries
2014 Edition


Water Quality/Quantity
Best Management Practices
for
Florida Dairy Operations
2015 Edition
Florida Department of Agriculture and Consumer Services
Adam H. Putnam, Commissioner


Water Quality/Quantity
Best Management Practices
for
Florida Poultry Operations
2016 Edition
Florida Department of Agriculture and Consumer Services
Adam H. Putnam, Commissioner

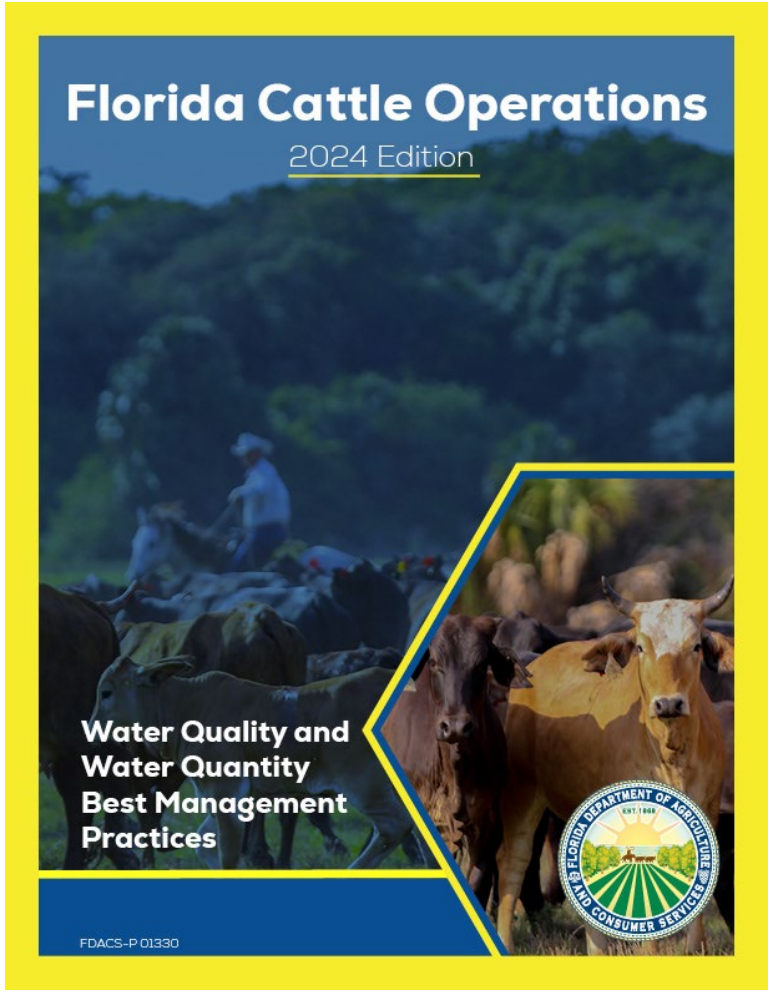

Agriculture Wildlife
Best Management Practices
for
State Imperiled Species
2015 Edition

Update BMP Manuals: Status

Best Management Practices (BMPs)

The producer agrees to perform the following items either checked as "In Use" or "Planned:

Nutrient Management					
Do you apply nutrients or plan to apply nutrients in any form on the operation associated with this NOI?			**Yes**	**No**	**-**
			In Use	**Planned**	**N/A**
1.1	**Right Source**				
	1	If using commercial fertilizer (including Class AA biosolids), identify and document the nitrogen (N), phosphorus (P), and potassium (K) concentrations using the guaranteed analysis or product label information prior to application.			
	2	If using manures, poultry litter, compost, or other sources, determine and document the N, P, and K concentrations of those materials prior to application. Acceptable alternatives to laboratory analysis include supplier analysis, NRCS guidelines or values established in scientific literature.			
	3	If using Class A or Class B biosolids, account for the nutrient concentrations and follow the requirements of the FDEP permit.			
1.2	**Right Rate**				



Producer Options in BMAP Areas

1. Sign a Notice of Intent (NOI) and properly implement applicable BMPs for presumption of compliance, OR

2. Follow an FDEP or WMD-prescribed water quality monitoring plan at a producer's expense

Enrollments within the Lake Okeechobee BMAP

Subwatershed	Total Ag Acres	Enrolled Ag Acres	% Enrolled	Irrigated Acres	Enrolled Irrigated Acres	% Enrolled
East Lake Okeechobee	93,938	73,489	**78%**	39,367	36,180	**92%**
Fisheating Creek	213,478	194,859	**91%**	18,429	15,442	**84%**
Indian Prairie	230,073	185,700	**81%**	52,065	42,782	**82%**
Lake Istokpoga	128,608	102,733	**80%**	47,567	41,316	**87%**
Lower Kissimmee	262,491	204,821	**78%**	21,185	20,040	**95%**
South Lake Okeechobee	327,524	319,149	**97%**	321,883	316,055	**98%**
Taylor Creek/Nubbin Slough	148,203	124,520	**84%**	12,434	11,277	**91%**
Upper Kissimmee	270,861	186,537	**69%**	40,364	32,450	**80%**
West Lake Okeechobee	150,080	133,535	**89%**	81,216	76,512	**94%**

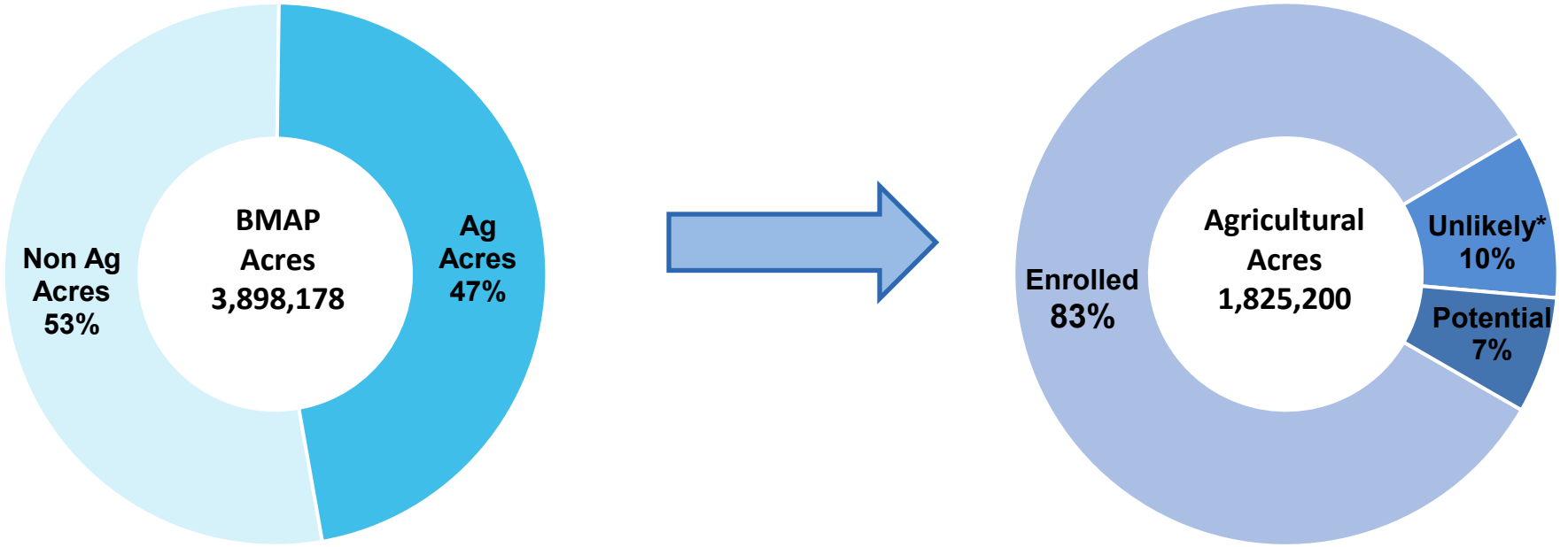
BMP enrollment as of Dec 31, 2023, and the 10th Florida Statewide Agricultural Irrigation Demand (FSAID) Geodatabase

Agricultural Acres Enrolled within Lake Okeechobee BMAP

BMP Manual	Acres
Citrus	91,117
Conservation Plan	160,294
Cow/Calf	523,355
Dairy	1,963
Equine	740
Fruit/Nut	1,128
LOPP	1,143
Multiple Commodities	332,727
Nursery	3,928
Poultry	135
Row/Field Crop	398,032
Sod	10,281
Total	**1,524,843**

Agricultural Lands within Lake Okeechobee BMAP

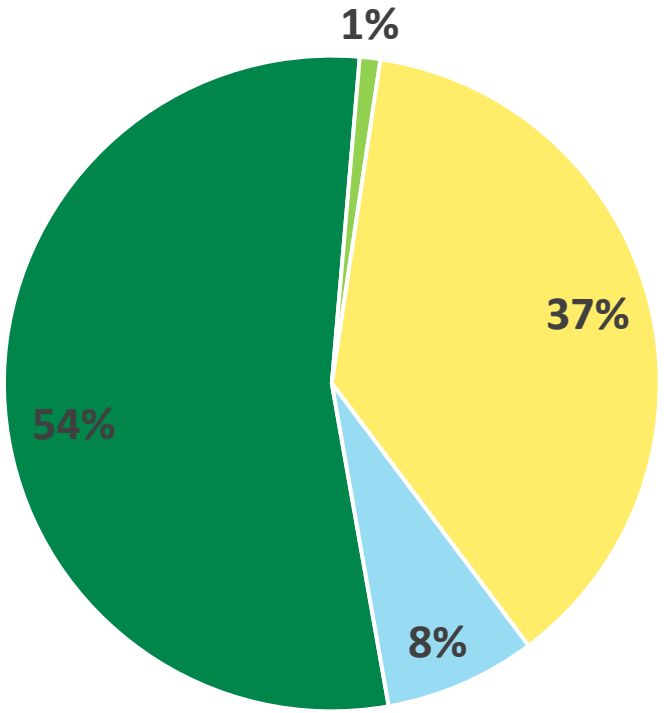
Non-Agricultural Acres	Agricultural Acres	Enrolled Agricultural Acres	Unenrolled - Unlikely Enrollable Acres *	Unenrolled - Potentially Enrollable Acres
2,072,978	1,825,200	1,524,843	174,010	126,212



*This value includes acreages within state-owned properties and/or surface water project areas

Unenrolled - Unlikely Enrollable Acres within Lake Okeechobee BMAP

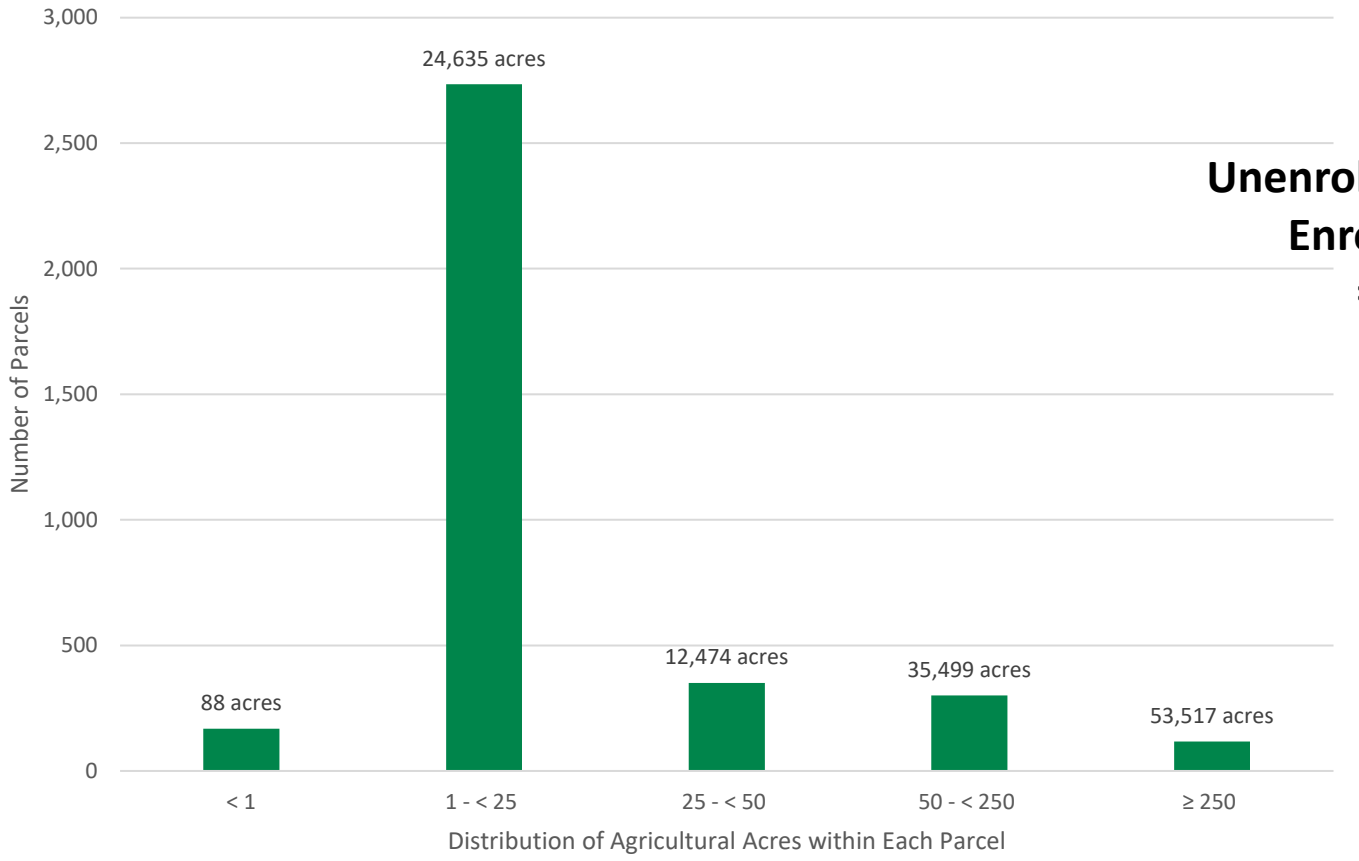
Category	Acres
State Lands, Surface Water Projects	94,206
Timberland and Aquaculture**	1,765
Not Agriculture [e.g., DOR Use Code 70-99 (industrial or institutional use, acreage not zoned agricultural)]	65,048
Not Enrollable [e.g., missing parcel information, no overlap, conflicting parcel info, slivers]	12,991



Unenrolled - Unlikely Enrollable Acres = 174,010

** *May be eligible to be enrolled under the FDACS Florida Forest Service's Silviculture BMP Manual or the FDACS Division of Aquaculture's Aquaculture BMP manual.*

Potentially Enrollable Parcels & Agricultural Acres within Lake Okeechobee BMAP



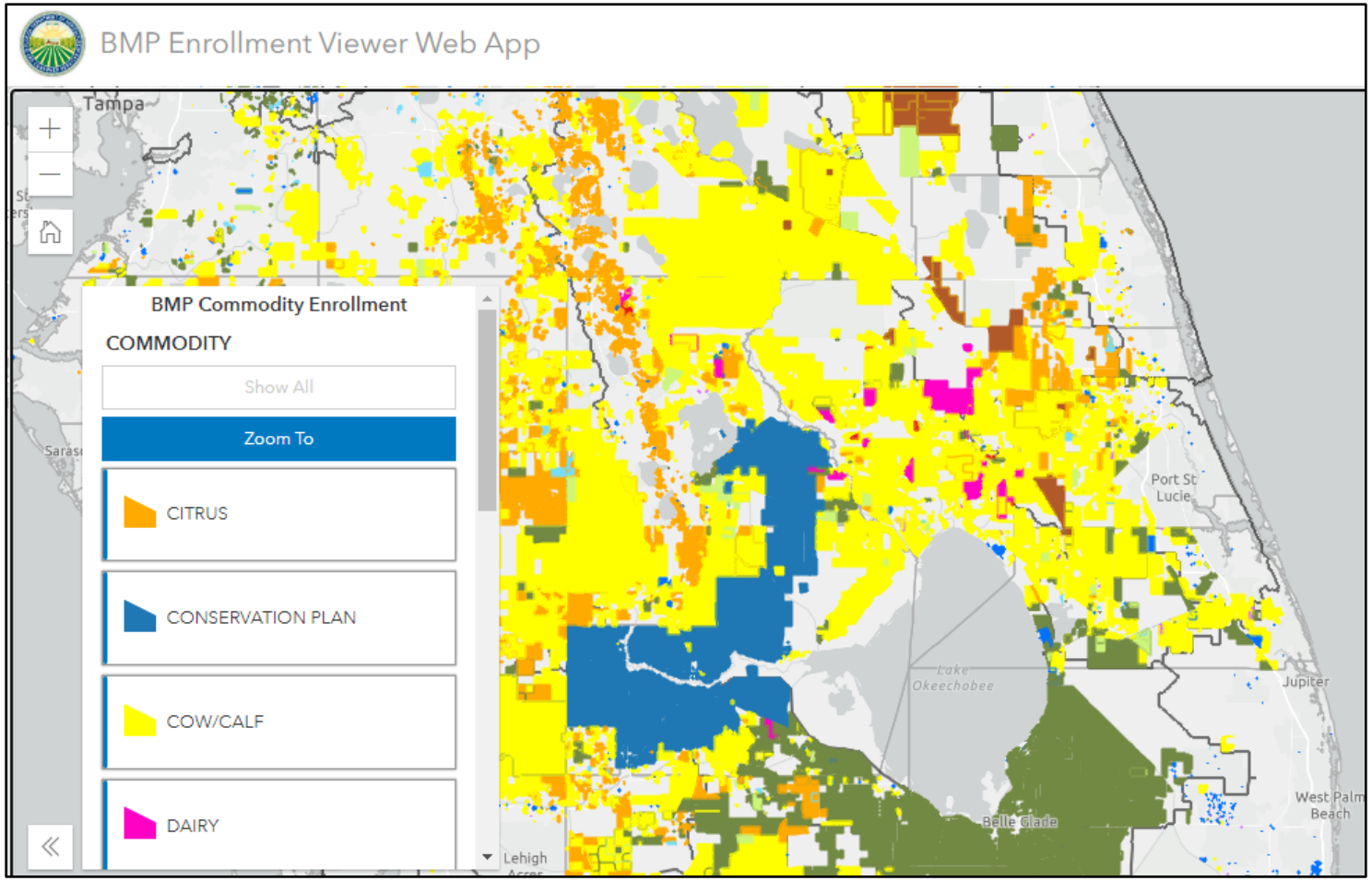
Unenrolled - Potentially Enrollable Acres = 126,212

BMP Implementation Verification (IV)

- Process to verify the status of implementation of BMPs
- **Clean Waterways Act - SB 712 (July 2020)**
  - Requires IV site visits every 2 years
    - 85% completed**
  - Requires collection, review, and retention of N and P fertilizer records
    - Nutrient Application Record Form (NARF)
  - FDACS reports total N and P applications to FDEP for utilization in BMAP assessments

** IVs completed as of Dec 31, 2023

BMP Enrollment Viewer Web App



[Office of Agricultural Water Policy: BMP Enrollment Map (fdacs.gov)]

2024 FDACS Legislative Report

Florida Department of Agriculture and Consumer Services

Office of Agricultural Water Policy

Status of Implementation of Agricultural Nonpoint Source Best Management Practices

Report to the Governor, the President of the Senate, and the Speaker of the House
Pursuant to Section 403.0675(2), F.S.

Publication No: FDACS-P-01924 Rev. 07/22

Status of Implementation of Agricultural Best Management Practices (BMPs)
Statewide

Table 1

Non-Agricultural Acres	Agricultural Acres	Enrolled Agricultural Acres	Unenrolled - Unlikely Enrollable Acres *	Unenrolled - Potentially Enrollable Acres
34,544,529	7,539,880	4,571,656	858,331	1,883,959

*This value includes acreages within state-owned properties and/or surface water project areas

Figure 1

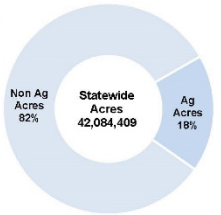


Figure 2

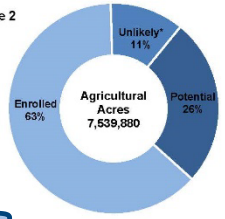


Figure 3
Potentially Enrollable Parcels & Agricultural Acres

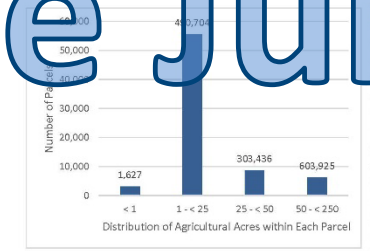


Table 2
Enrolled Agricultural Acres by Manual

BMP Manual	Acres
Citrus	284,539
Conservation Plan	26,336
Cow/Calf	71,781
Dairy	4,786
Equine	188
Fruit/Nut	8,204
Multiple Commodities	251,414
Nursery	22,363
Poultry	19
Row/Field Crop	727,756
Sod	16,640
Temporarily Inactive	2,119
Wildlife	10
Total	1,415,975

Figure 4
Cost Share Summary

1

Status of Implementation of Agricultural Best Management Practices (BMPs)
in the Lake Okeechobee BMAP

Table 1

Non-Agricultural Acres	Agricultural Acres	Enrolled Agricultural Acres	Unenrolled - Unlikely Enrollable Acres *	Unenrolled - Potentially Enrollable Acres
2,072,978	1,825,200	1,524,843	174,010	126,212

*This value includes acreages within state-owned properties and/or surface water project areas

Figure 1

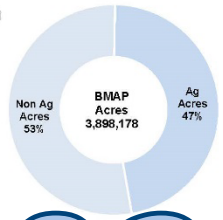


Figure 2

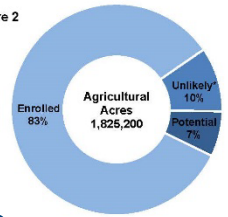


Figure 3
Potentially Enrollable Parcels & Agricultural Acres

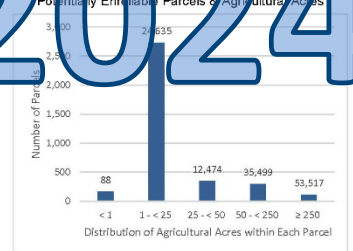


Table 2
Enrolled Agricultural Acres by Manual

BMP Manual	Acres
Citrus	91,117
Conservation Plan	160,294
Cow/Calf	523,355
Dairy	1,963
Equine	740
Fruit/Nut	1,128
LOPP	1,143
Multiple Commodities	332,727
Nursery	3,928
Poultry	135
Row/Field Crop	398,032
Sod	10,281
Total	1,524,843

Figure 4
Cost Share Summary

1

Available July 1, 2024

https://www.fdacs.gov/Divisions-Offices/Agricultural-Water-Policy

Thank You!

http://www.fdacs.gov/Divisions-Offices/Agricultural-Water-Policy

Jennifer Thera, Environmental Consultant
Jennifer.Thera@FDACS.gov – (850) 617-1722

THANK YOU

Diana Turner
Division of Environmental Assessment and Restoration
Florida Department of Environmental Protection

Contact Information:
Phone: (850) 245-8825
Email: Diana.M.Turner@FloridaDEP.gov

Photo Credit: SFWMD

Lake Okeechobee Basin Management Action Plan (BMAP)
Webinar Summary
Thursday, April 4, 2024
1:00 pm – 2:11 pm

Participants

Silvia Alderman, Akerman
Jana Ash, RES
Christian Avila, SFWMD
Bill Baker, MacVicar Consulting
Lisa Bally, ATM
Bethany Barnes, Tampa Bay Times
Terrie Bates, Citizen
Evelyn Becerra, DEP
Diana Bello, Kimley Horn
Julie Bortles, Orange County
Patricia Burke, SFWMD
Lauren Campbell, DEP
Amy Castaneda, Miccosukee Tribe
Stacy Cecil, SJRWMD
Carolin Ciarlariello, DEP
Kelly Cox, Audubon
Kevin Coyne, AMP
Nina Cudahy, Toho Water
Susan Dahod, Citizen
Sean Dallas, Oversight District
Amy Eason, Martin County
Katherine English, Pavese Law
Amanada Exposito-Ferree, Atkins Realis
Elizabeth Fata Carpenter, Everglades Law
Jay Ferrin, Florida Senate
Jessica Fetgatter, DEP
Phil Flood, SJRWMD
Marcy Frick, Tetra Tech
Aubrey Frye, SFWMD
Joe Gilio, Citizen
Susan Gosselin, Osceola County
Raichel Gulde, RES
Christopher Guth, Federico & Associates
Elizabeth Guthrie, Ducks Unlimited
Bret Hammel, Palm Beach County Water
Sam Hankinson, DEP
Maddy Hart, FDACS
John Hayford, Okeechobee Utility Authority
Kenny Hayman, DEP
Carolina Hernandez, SFWMD
Margarita Hernandez, DEP
Ray Hodge, United Dairy Farmers
Moira Homann, DEP
Danielle Honour, CDM Smith
Nenad Iricanin, SFWMD
Danielle Ivey, Audubon
Megan Jacoby, SFWMD
Paul Jones, SFWMD
Chandler Keenan, DEP
Chris Keller, Wetland Solutions
Elizabeth Kelly, Martin County
Steven Kelly, FDOT
Evan Key, Florida Senate
Lee Killinger, Florida Crystals
Lisa Krimsky, UF
Jacob Landfield, SFWMD
Ivette Leiva, FDOT
Heather Lindell, Orange County
Lisa Lotti, City of Orlando
Jonathan Madden, SFWMD
Sarah Malone, ATM
Deborah Manzo, Okeechobee County
Brian Megic, Liquid Solutions Group
Valentina Miele, FL Oceanographic Society
Jessica Mostyn, DEP
Stacey Ollis, SFWMD
Steffany Olson, SFWMD
Timothy Perry, Gardner Bist Attorneys
Libby Pigman, SFWMD
Nicolas Pisarello, ATM
Jeff Prater, USACE
Irene Quincey, Pavese Law
Jennifer Reynolds, SFWMD
Dawn Ritter, Highlands County
Maya Robert, Cape Coral
Ellen Rogers, Florida Senate
Beth Ross, Gunster
Samantha Russo, SJRWMD
Warren Schirado, Citizen
Brent Setchell, FDOT
Marlene Severino, DEP
Kimberly Shugar, DEP

Gil Smart, Friends of the Everglades
Drew Thacker, Westervelt
The Florida Channel
Jennifer Thera, FDACS
Raychel Thomas, Pavese Law
Ansley Tilley, RES
Scott Towler, Answer Advisory
Diana Turner, DEP
David Tyler, DEP
Rachel Vitek, RES
Tommy Walker, Alico
Youchao Wang, SFWMD
Benita Whalen, Dispersed Water
Jesse Wineberg, Orange County
Manuel Zamorano, SFWMD

The full webinar recording and supporting materials are posted to the Florida Department of Environmental Protection (DEP) file transfer protocol (FTP) site at: https://publicfiles.dep.state.fl.us/DEAR/BMAP/LakeOkeechobee/Meetings/23%20Annual_Meeting_2024/.

Questions and Answers During Meeting

Question on the DEP presentation: Can the portal be opened after July 1 but before November so stakeholders have a little more time to add information?
Answer from Marcy Frick, Tetra Tech: Moira Homann responded to this in the chat but the long-term goal is to have the Portal open for longer periods of time, but we are not going to be able to accommodate that this year. As Diana mentioned, this is still a new tool so we use this time to make updates based on your feedback.

Question on the DEP presentation: Is the targeted restoration area (TRA) analysis showing a downward trend for total nitrogen (TN) or total phosphorus (TP) in the basins?
Answer from Marcy Frick, Tetra Tech: We are not using the TRA to determine a trend. We have a separate trend evaluation that we do. This is really just to show where we seem to be getting higher concentrations and loads to focus resources.

Question on the DEP presentation: When you do a hotspot ranking for each gage location, does it account for if the numeric nutrient criteria (NNC) is a stream versus lake, or is the whole watershed using 1.54 milligrams per liter (mg/L) for all gages?
Answer from Diana Turner, DEP: The whole watershed uses that 1.54 mg/L. It is a higher level tool so we do not break it down to be that granular.

Question on the DEP presentation: Do conditions that occur during an event like a hurricane get included in hotspot analysis?
Answer from Marcy Frick, Tetra Tech: We use all the available data but I do not think sampling during an extreme event like that typically occurs.
Answer from Diana Turner, DEP: I do not know if we would have sampling that would occur in that event. We do have a list of qualifier codes that we exclude and I can look those up and let you know. I am not sure there would be a lot of sampling during a hurricane event.

Question on the DEP presentation: Are the hotspot locations and TRAs available in geographic information system (GIS) format?
Answer from Marcy Frick, Tetra Tech: Once those are finalized, we can put those on the FTP site, as well.
Answer from Diana Turner, DEP: Yes, we can do that.

Question on the Florida Department of Agriculture and Consumer Services (FDACS) presentation: What sort of meetings and timelines can stakeholders expect to see for the release of new best management practice (BMP) manuals?
Answer from Jennifer Thera, FDACS: We are working on trying to get them all updated this year through rulemaking. We have a bunch of different working groups going on right now. Some are going through our internal process to go to rule development. They are in various stages. If you would like more information, you can sign up for our Florida Administrative Record (FAR) notifications.

Additional Questions Submitted

Question: What is more effective in BMAP reductions: less TN and/or TP applied to agriculture or efficiency of BMPs?
Answer: Both reducing nutrient applications and implementing BMPs are effective in making BMAP reductions. Nutrient application practices are one type of BMP that producers implement.

Question: Have efficiency removals been based on models concentrations, actual analysis, or both?
Answer: Both. Depending on the project type, we use the BMAP model for the starting load as well as defined nutrient removal efficiencies based on studies and literature values to calculate the reductions. Other projects do have measured reductions that we report on.

Question: Indiantown is its own municipality within the C-44 basin and has maintenance responsibilities of its own stormwater system. Please include them in the process.
Answer: Noted. If you have a contact at Indiantown, please let them know to sign up for BMAP notifications.

Question: We appreciate the additional storage and treatment of the South Florida Water Management District (SFWMD) projects that are underway. How will the reductions from these projects be distributed to the stakeholders? Martin County has previous agreements with the SFWMD due to our financial contribution to the project on the distribution of the reductions from the C-44 reservoir that should be honored during the next update.
Answer: The reductions from regional projects completed by the Coordinating Agencies (SFWMD, DEP, and FDACS) will go towards achieving reductions needed on agricultural lands that are above and beyond requirements for owner implemented BMPs.

Question: As a suggestion, please include within the TRA analysis the availability of public lands for projects. Targeting basins on the water quality data should be priority, but if land is not available in the basin, it will be hard to create projects to provide reductions.
Answer: This suggestion is noted. Consideration for public lands can be a factor used once the high priority basins have been identified and additional analyses are occurring.

Question: According to the TRA and the hotspot analysis, it appears that the C-44 basin is identified as priority 1. Most of that basin is agricultural, yet according to FDACS' presentation, most of the land has been enrolled in the BMP NOI program. How will projects be prioritized in this basin if agricultural land is presumed under rule to meet the water quality requirements when they are enrolled in the program?
Answer: Agricultural producers in a BMAP are required to either implement BMPs from the appropriate FDACS manual or monitor water quality. The owner implemented BMPs will achieve a

portion of the reductions needed from the agricultural lands. The Coordinating Agencies will work with producers and local stakeholders to identify additional projects (such as agricultural cost-share or regional treatment) to meet the remaining required reductions.

Question: In the TRA analysis, the C-44 is a priority 1 yet in the St. Lucie BMAP it is a priority 2. How is the overlap of these BMAPs being taken into consideration?
Answer: The TRA evaluation uses target concentrations and unit area loads specific to each BMAP area, which is why the priorities can vary. Since this basin is ranking as a higher priority in both BMAPs, resources should be focused in this area to improve water quality.

Question: The target load for total phosphorus is 0.04 mg/L yet for the St. Lucie BMAP it is 0.081 mg/L. How are these targets being reconciled in the C-44 Basin?
Answer: The targets in each BMAP are based on the total maximum daily load (TMDL) for each focus waterbody. These target concentrations must be achieved in the focus waterbody but the concentrations may vary throughout the watershed. Projects implemented in this basin will benefit both waterbodies and will receive credits in each BMAP.

Question: Please take note that most of the hotspots are in agricultural areas and provide solutions on how we can address these areas in the next BMAP iteration.
Answer: Owner-implemented agricultural BMPs will achieve a portion of the reductions needed from the agricultural lands. The Coordinating Agencies will work with producers and local stakeholders to identify additional projects (such as agricultural cost-share or regional treatment) to meet the remaining required reductions. If you have potential project ideas and/or project locations, please share those with DEP for evaluation.

Question: We appreciate FDACS showing a slide on the agricultural rule. How will FDACS address water quality impairments on agriculture that is enrolled in the BMP NOI program? If a municipal separate storm sewer system (MS4) samples an agricultural area that is enrolled and discovers that it is not meeting the BMAP, what should the MS4 do? Report it to FDACS?
Answer: Owner-implemented BMPs may not fully achieve nutrient reductions needed to meet TMDL and BMAP requirements. If an MS4 identifies potential water quality concerns on an agricultural property, they can contact FDACS for follow up.

Question: When the DEP Stormwater Rule gets signed by the governor, how will the extra reductions be handled? The stormwater rule requires 95% reduction in Outstanding Florida Waters (OFWs). This will be extra load reductions for the watershed. Will each MS4 need to track the extra reductions?
Answer: BMAP credits are assigned for nutrient reductions that occur above and beyond any permit requirements. Future projects implemented under the revised stormwater rule requirements will need to be meet the new required treatment efficiencies. If additional reductions are provided beyond those requirements, BMAP credit could be provided for that additional treatment. The higher treatment requirements under the new rule will reduce the water quality impacts from development.

Question: Please include TN as an impairment. Based on sampling, the lake is clearly impaired not only by the numeric nutrient criteria but based on the TMDL for the St. Lucie River and Estuary as well.
Answer: Lake Okeechobee has not been verified as impaired for TN. As part of the BMAP, reductions in TN loads from projects are being tracked.