



Northern Everglades Watershed Protection Planning

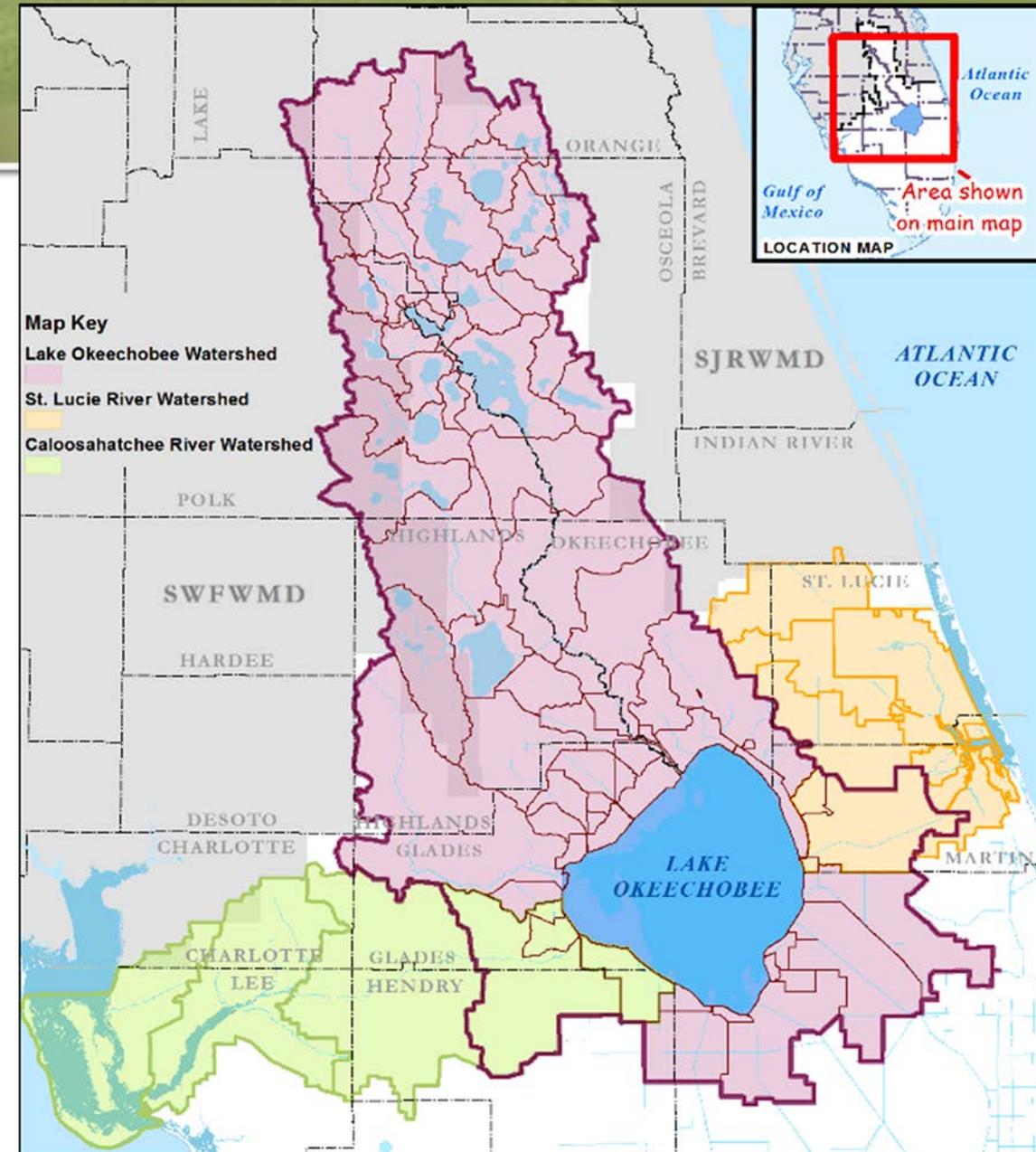
June 26, 2020, Kickoff Meeting

Objectives

- Engage stakeholders and the public in a collaborative approach to meet NEEPP goals
- Identify projects, activities, and programs that can be implemented for additional water quality improvements, with an emphasis on meeting reduction goals in priority basins.
- Review and update of the Northern Everglades Watershed Protection Plans under the Northern Everglades and Estuaries Protection Program (NEEPP) (Section 373.4595, Florida Statute)

Overview of Watersheds

- Lake Okeechobee
 - 3,450,475 acres
 - Phosphorus restoration goal
- St. Lucie
 - 537,600 acres
 - Nitrogen and phosphorus restoration goals
- Caloosahatchee
 - 1,090,560 acres
 - Nitrogen restoration goal (estuary & 5 tributaries)
 - Phosphorus restoration goal (5 tributaries)



Coordinating Agencies



Northern Everglades & Estuaries Protection Program (NEEPP)

2016 NEEPP Legislative Purpose

“... to improve the quality, quantity, timing, and distribution of water in the northern Everglades ecosystem ...” and “... provide a reasonable means of achieving the total maximum daily load requirements and achieving and maintaining compliance with state water quality standards.”

(373.4595(1)(h), F.S.)

Shared Responsibility

The coordinating agencies shall be jointly responsible for implementing the River Watershed Protection Plans and the Lake Okeechobee Watershed Protection Program, consistent with the statutory authority and responsibility of each agency. (373.4595(3)(e) & (4)(e), F.S.)

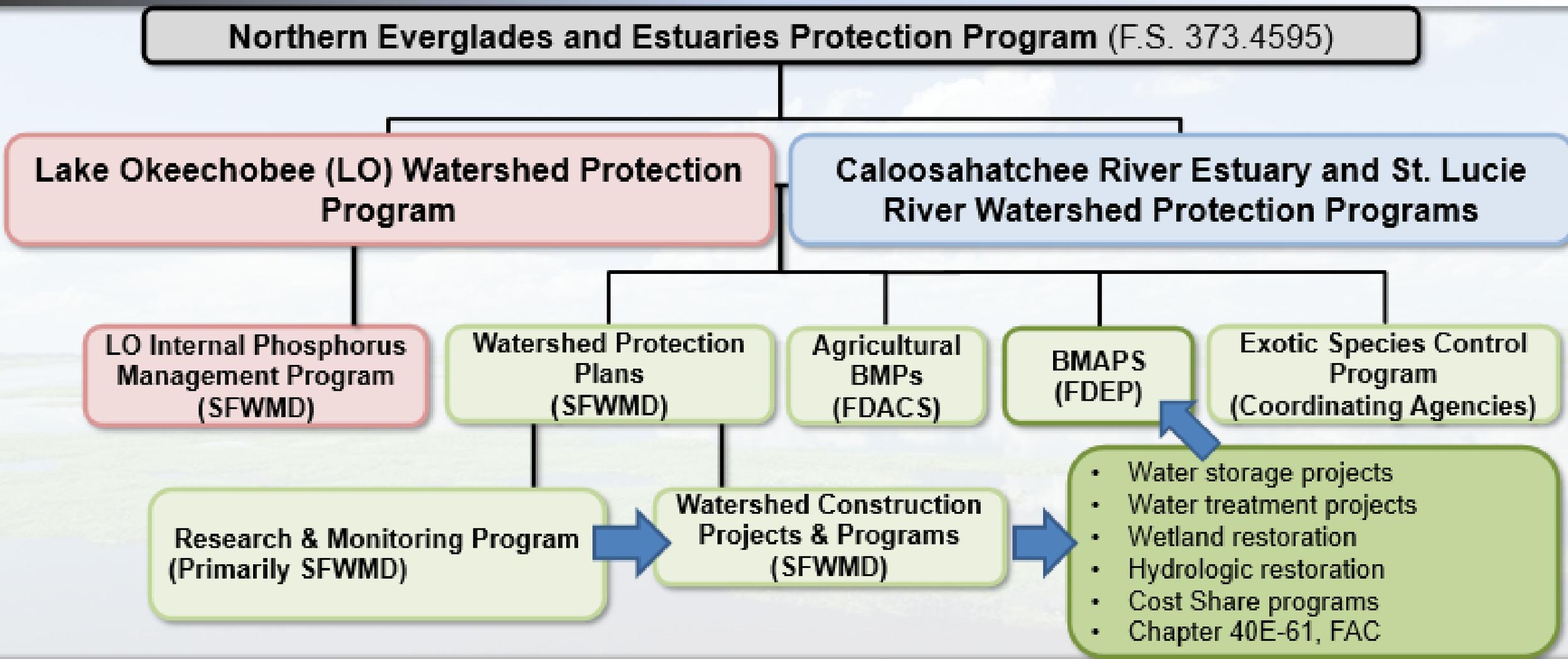
NEEPP Strategy to Achieve Water Quality Standards

Basin Management Action Plans (BMAPs) are the “watershed phosphorus control component for Lake Okeechobee” and the “pollutant control program” for the estuaries to achieve pollutant reduction goals based upon adopted Total Maximum Daily Loads (TMDLs) estimated in accordance with s. 403.067, Florida Statutes.

- “the department taking the lead on water quality protection measures through the Lake Okeechobee Basin Management Action Plan;
- the district taking the lead on hydrologic improvements pursuant to the [Lake Okeechobee Watershed Protection Plan]; and
- the Department of Agriculture and Consumer Services taking the lead on agricultural interim measures, best management practices, and other measures adopted pursuant to s. 403.067.”

(373.4595(3)(b), F.S.)

NEEPP: Coordinating Agency Roles



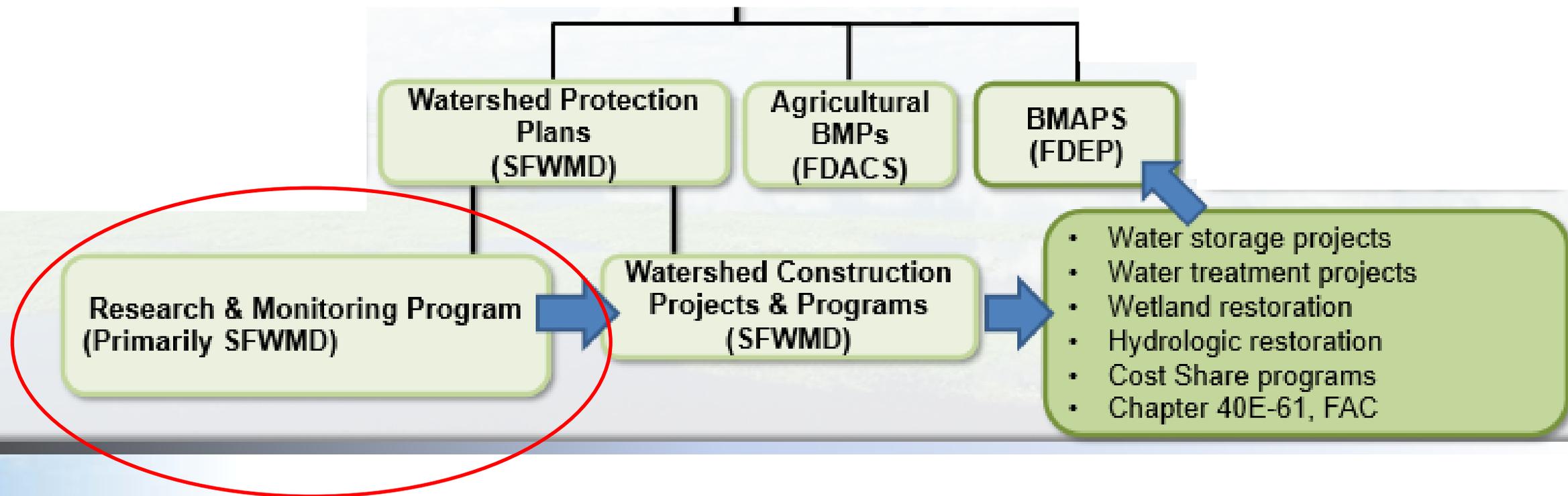
What is a TMDL and Why do they exist?

- Total Maximum Daily Loads (TMDLs) are water quality goals for waterbodies with verified impairments. They establish the maximum amount of pollutant that a waterbody can assimilate without causing exceedances of water quality standards.
- The Florida Department of Environmental Protection (DEP) identified the Lake Okeechobee, the Caloosahatchee Estuary and five tributaries, and the St. Lucie River as water bodies with excess nutrients for which TMDLs were set.
- FDEP adopted BMAPs to achieve TMDLs
 - 2012 – Caloosahatchee Estuary BMAP
 - 2013 – St. Lucie River and Estuary BMAP
 - 2014 – Lake Okeechobee BMAP
 - 2020 – FDEP updated all 3 BMAPs and expanded the Caloosahatchee BMAP boundary

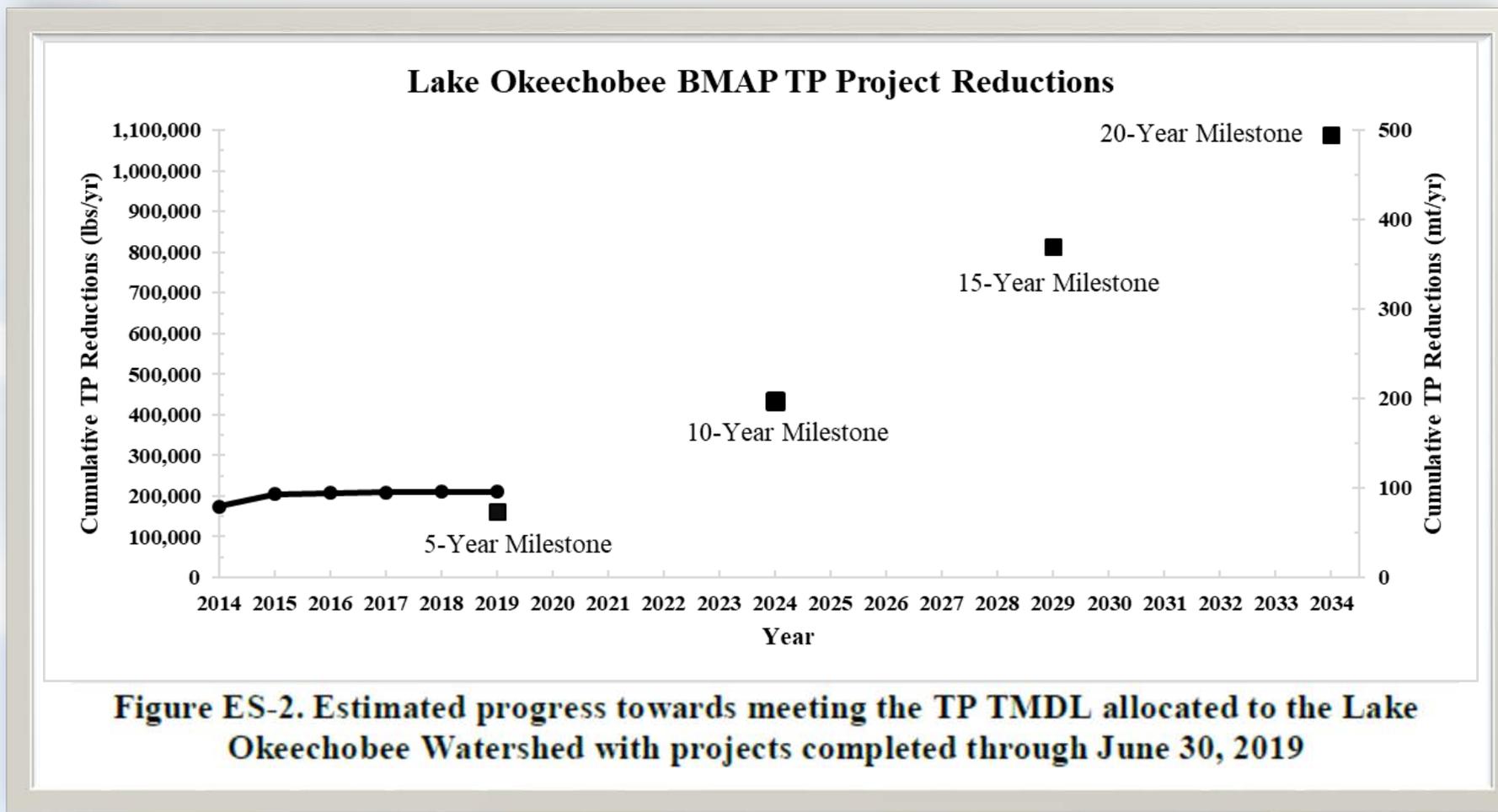
How do BMAPs achieve TMDLs?

- Statewide Programs for Pollutant Sources:
 - FDACS Agriculture Nonpoint (e.g. Chapters 5M-3, 5M-11, 5M-16, 5M-17, F.A.C. etc.)
 - FDEP Municipal Separate Stormwater Sewer Systems (Chapter 62-624, F.A.C.)
 - FDEP Urban Nonpoint Programs
 - FDEP Wastewater Treatment Facilities (Chapter 62-620, F.A.C.)
- Regional, Subregional and Local Projects and Programs:
 - Local Ordinances and Projects
 - Comprehensive Everglades Restoration Plan (CERP) - Federal Projects considered in planning
 - SFWMD Watershed Protection Plans – State Projects and Programs

Watershed Protection Plans

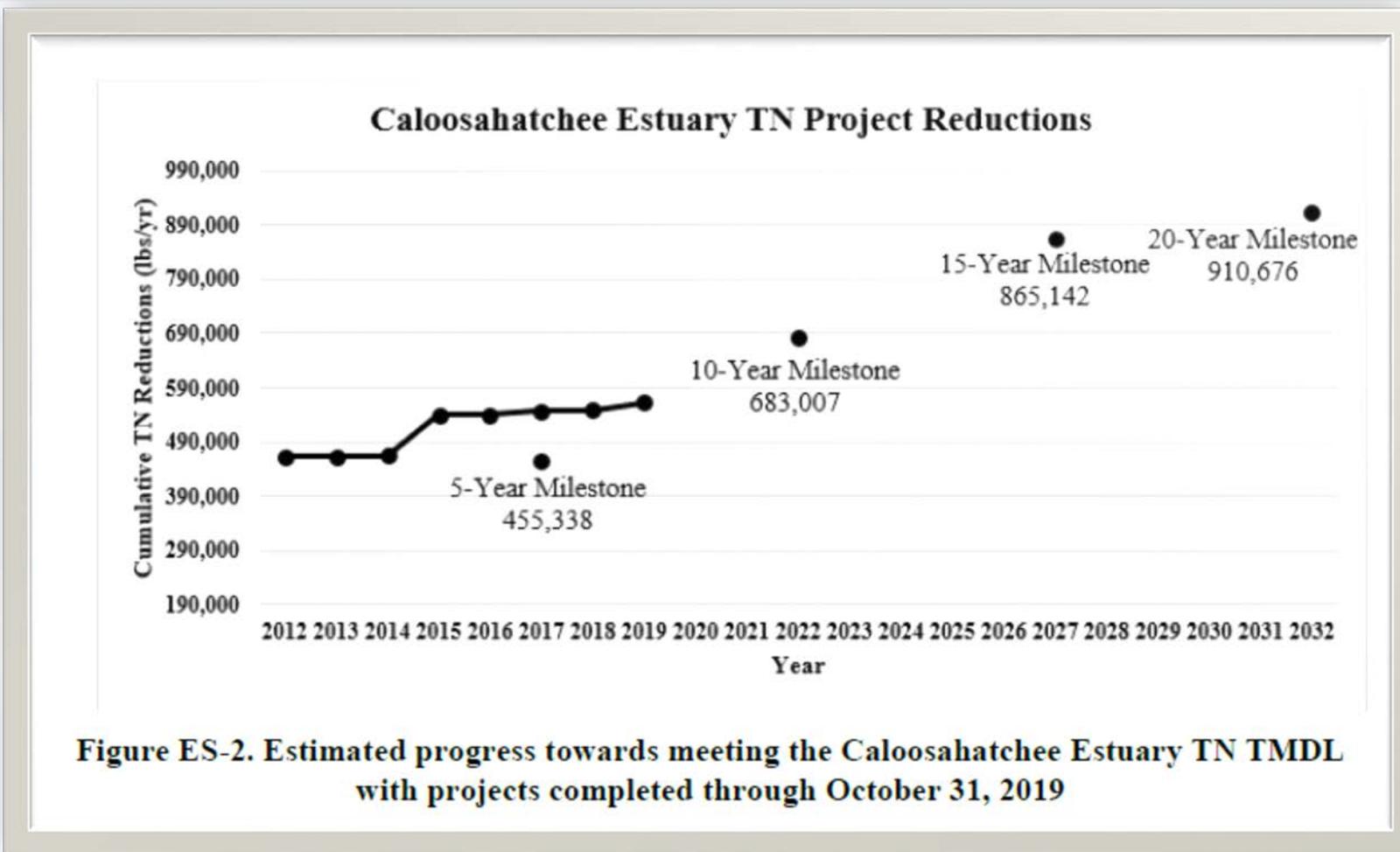


LOW: 2019 Estimated Progress toward Achieving TMDL



Source – 2020 Lake Okeechobee BMAP

CRW: 2019 Estimated Progress toward Achieving TMDL



Source – 2020 Caloosahatchee River and Estuary BMAP

SLRW: 2019 Estimated Progress toward Achieving TMDL

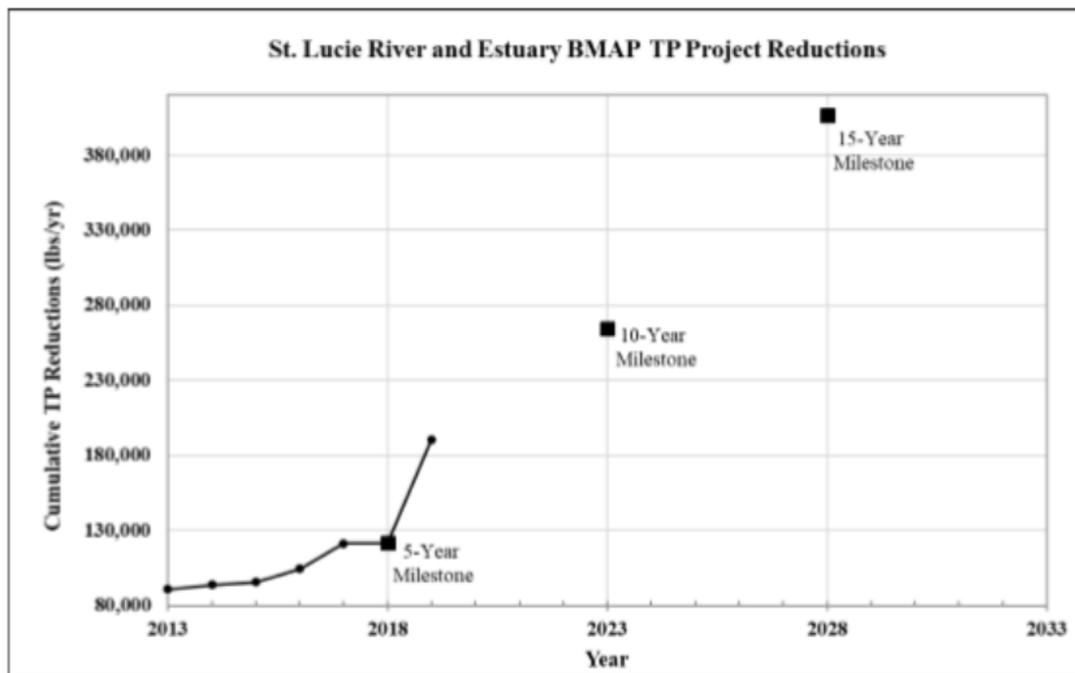


Figure ES-3. Estimated progress towards meeting the TP TMDL allocated to the St. Lucie River and Estuary Watershed with projects completed through June 30, 2019

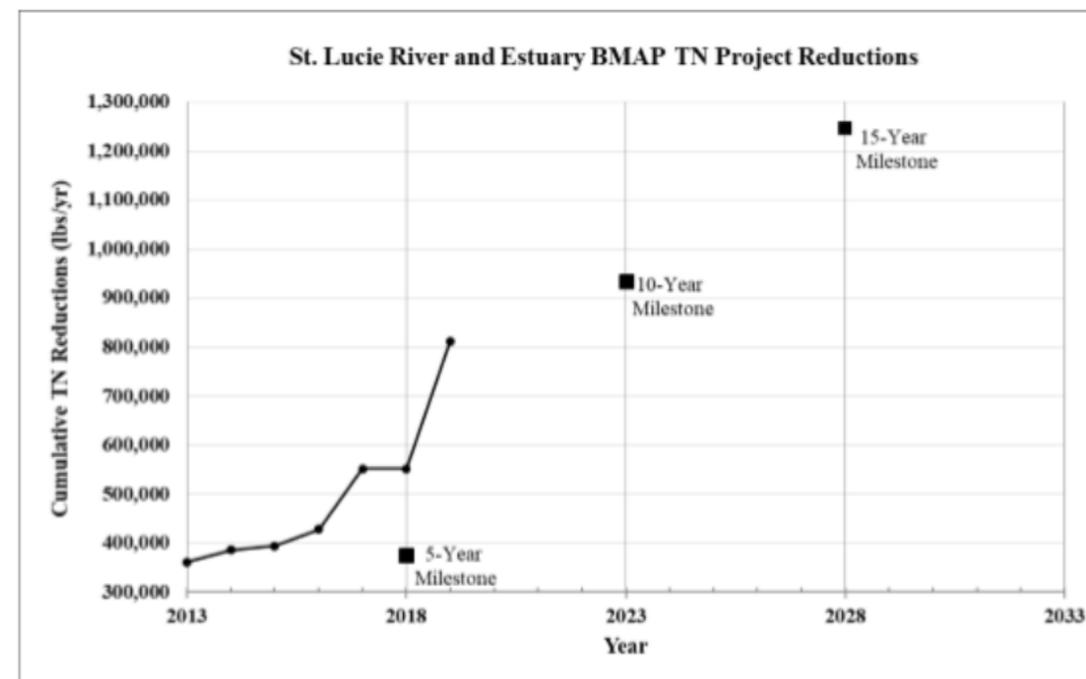


Figure ES-2. Estimated progress towards meeting the TN TMDL allocated to the St. Lucie River and Estuary Watershed with projects completed through June 30, 2019

Source – 2020 St. Lucie River and Estuary BMAP

How will the future reductions be achieved?

- The 2020 BMAPs recognize more reductions are needed
- “...stakeholders must identify and submit additional local projects and the Coordinating Agencies must identify additional regional projects as well as determine the significant funding that will be necessary. “
- “Enhancements to programs addressing basin-wide sources will also be required”

SFWMD Annual Review of WPPs?

- Engage stakeholders and the public as we consider the following questions:
 - Where should we look first in each watershed? What are current water quality data telling us; are there discernable trends; where is there potential for impact; where is “low hanging fruit”?
 - What is the problem in each watershed? What are the dominant mechanisms and factors impacting pollutant levels in the watershed as a whole and in each basin (e.g. nutrients, nutrient speciation, runoff volumes and timing)
 - What are potential solutions?
 - Is there potential for enhancements to existing projects and programs? Which entities have a role in those? e.g. ERP/Dairy/septic tank program/existing STAs
 - Where should new projects be located to get the most bang for the buck?
 - What are the most promising technologies that should be considered?

South Florida Environmental Report

The screenshot shows a web browser window with the URL [sfwmd.gov/science-data/scientific-publications-sfer](https://www.sfwmd.gov/science-data/scientific-publications-sfer). The page features a dark navigation bar with the district's logo and menu items: ASK US, Contact Us, Careers, Locations, Search, WHO WE ARE, OUR WORK, DOING BUSINESS WITH US, COMMUNITY & RESIDENTS, SCIENCE & DATA (highlighted), and NEWS & MEETINGS. Below the navigation bar, a breadcrumb trail reads: Home >> Science data >> SCIENTIFIC PUBLICATIONS SFER. A left-hand sidebar lists menu items: Data (with a right-pointing arrow), Weather, Scientific Publications & SFER, Operational Planning, Geographic Information Systems, Survey Data, Web Board, Modeling (with a right-pointing arrow), Environmental Monitoring, and Hurricane Irma. The main content area has a large heading: **South Florida Environmental Report and Other Publications**. Below the heading, there are three paragraphs of text and three links: [2020 South Florida Environmental Report Highlights](#), [Volume I: The South Florida Environment \[PDF\]](#), [Volume II: District Annual Plans and Reports \[PDF\]](#), and [Volume III: Annual Permit Reports \[PDF\]](#).

 <https://www.sfwmd.gov/sfer>

Workshop Schedule



Freddy playing kickball

- June 26 - Kickoff and Overview
 - NEEPP & BMAP Water Quality Goals
 - Purpose of Watershed Protection Plans
 - Workshop Approach for Identifying Solutions
 - Examples of Information available
- July 21 – Lake Okeechobee Watershed
- August 28 - St. Lucie River Watershed
- September 2 – Caloosahatchee River Watershed

Workshop Approach for Identifying Solutions

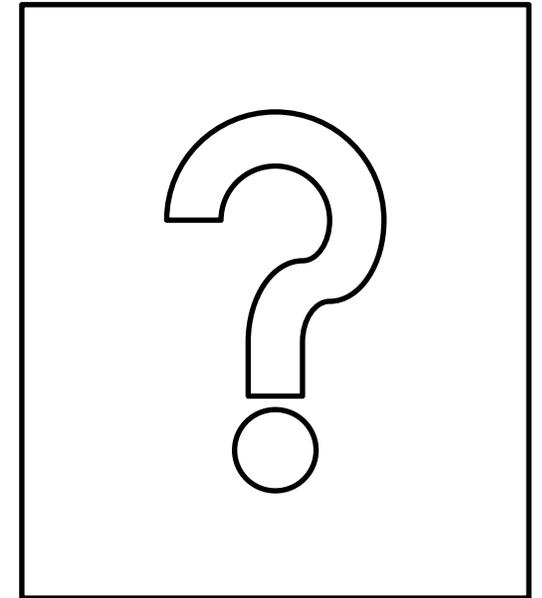
1. Summarize Water Quality Data
2. Identify areas of focus
3. Account for existing projects and programs
4. Define the gaps & remaining “problems”
5. Facilitate discussions to solve the problems
6. Identify potential solutions via projects and programs



Question & Answer Period

Have a question?

- Please use the Q & A feature using zoom to type in your question so that we respond.

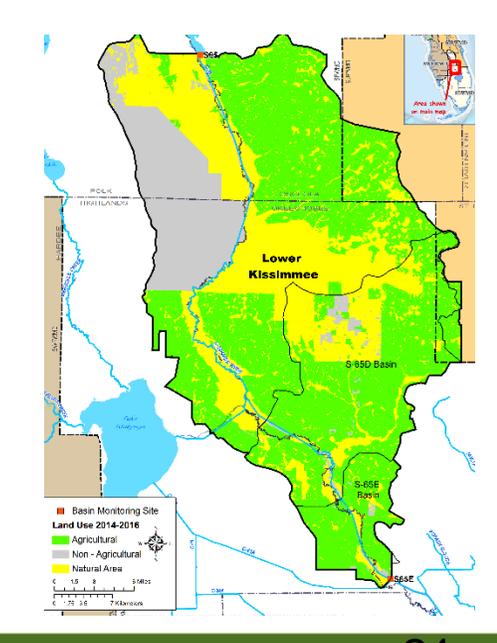
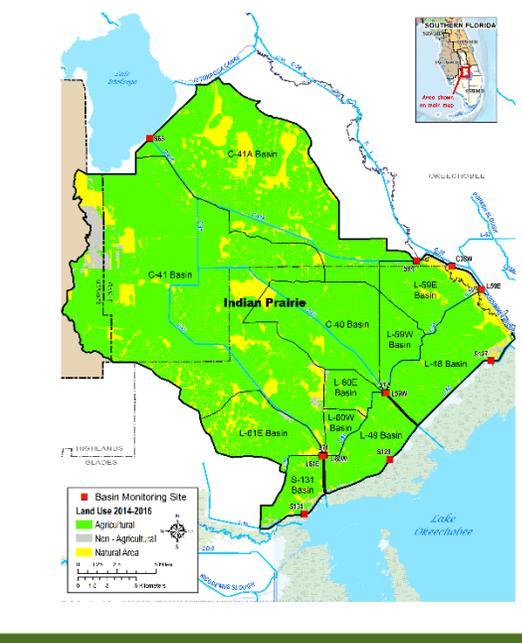
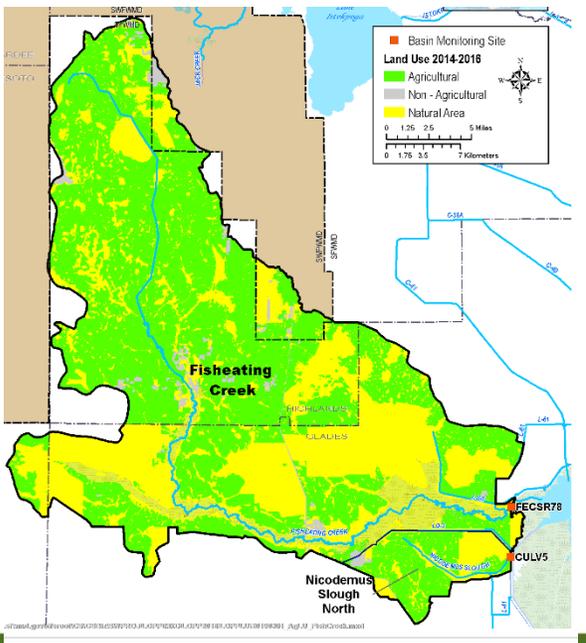
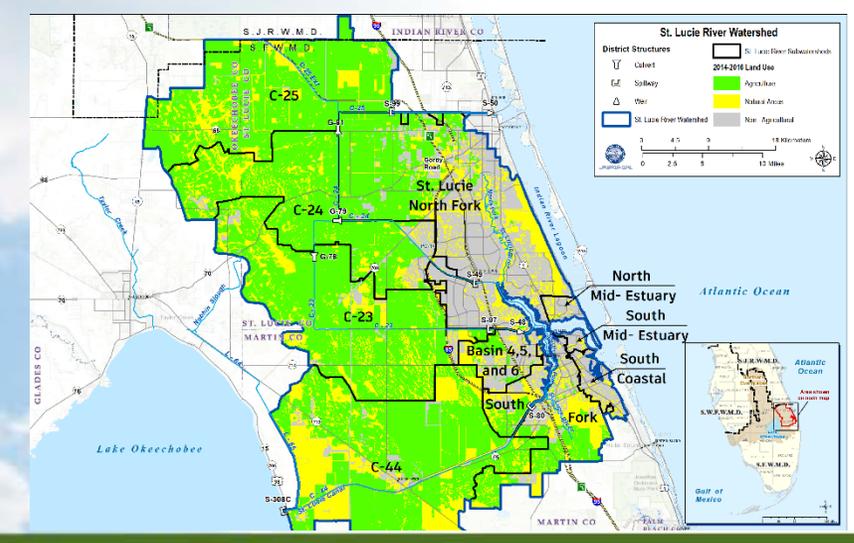
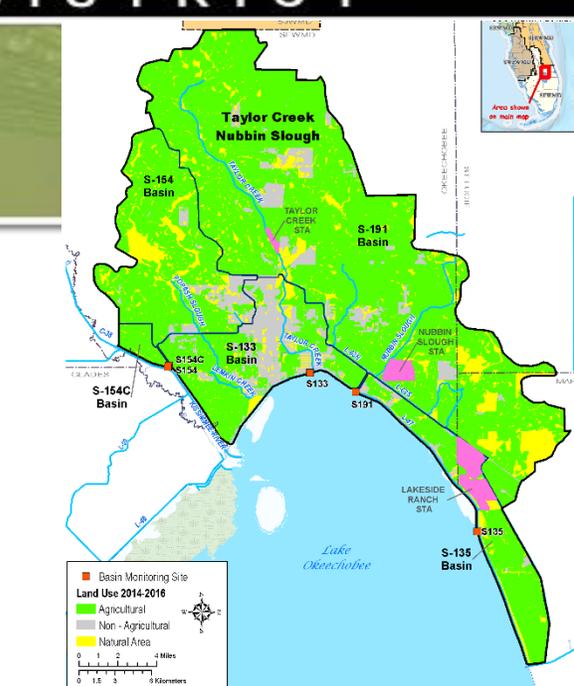
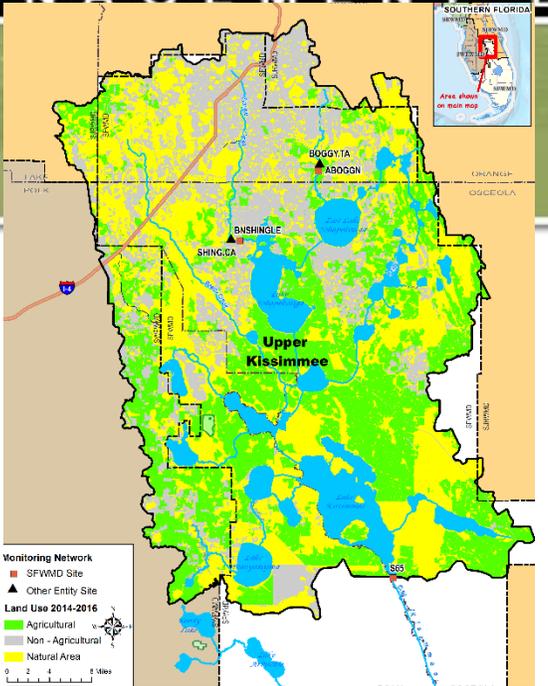
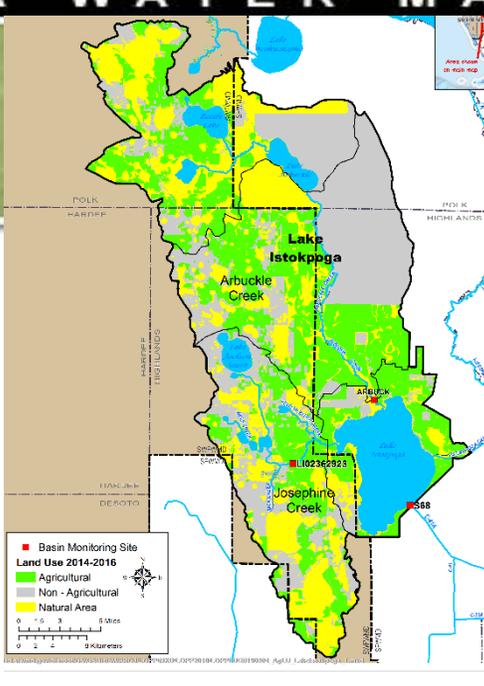
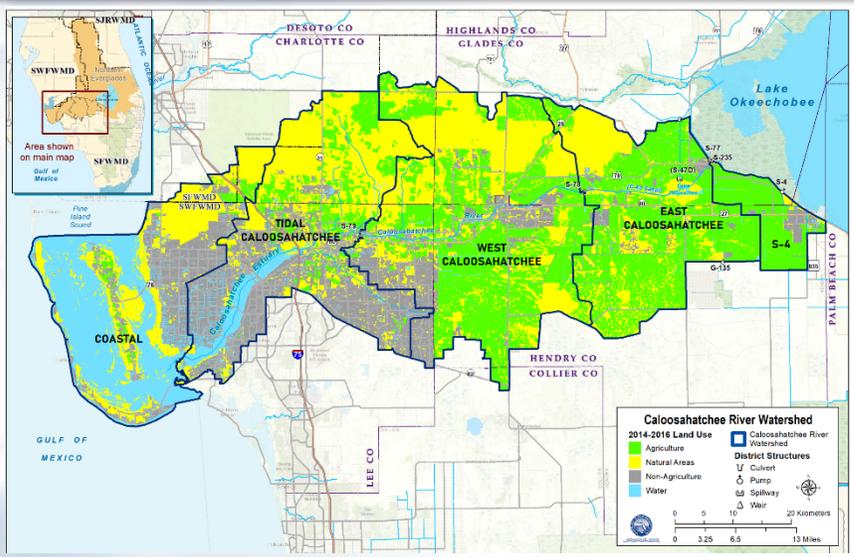


Information Available to Inform Solutions

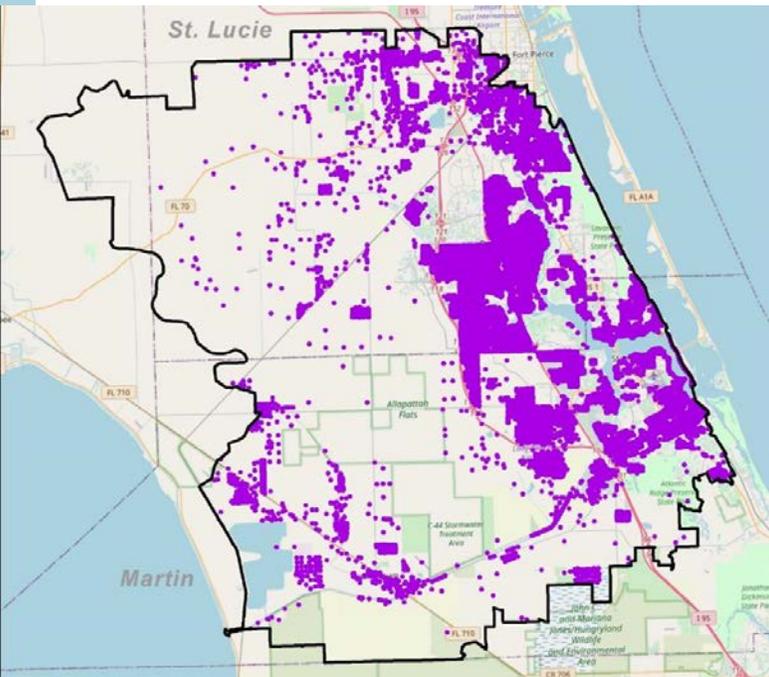
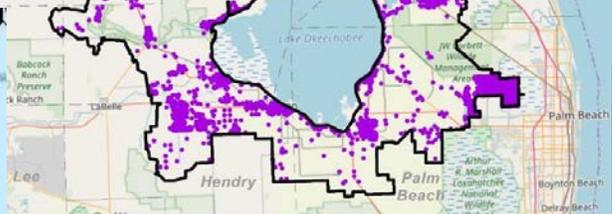
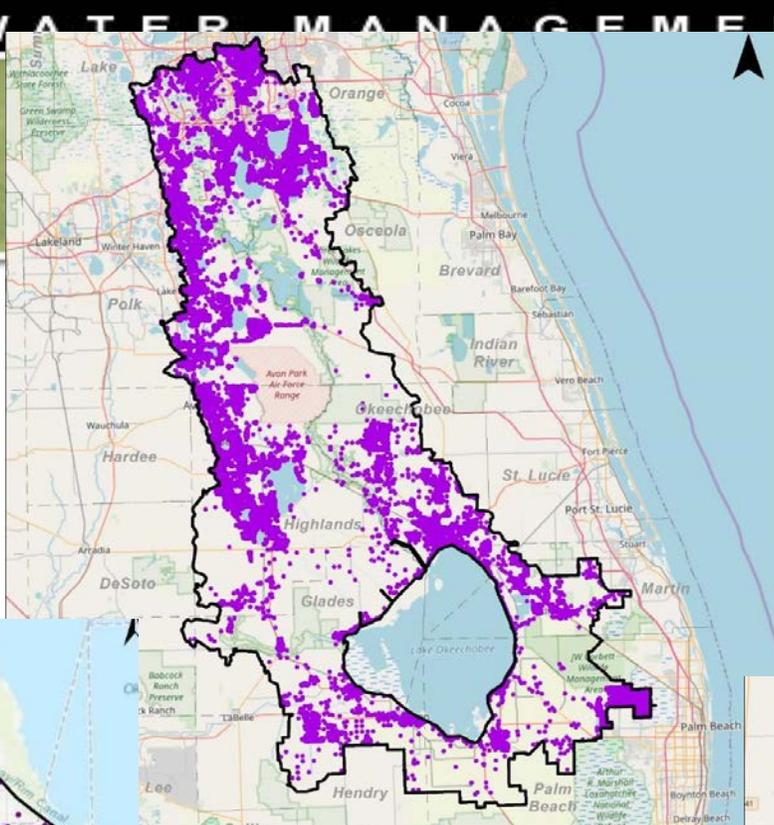
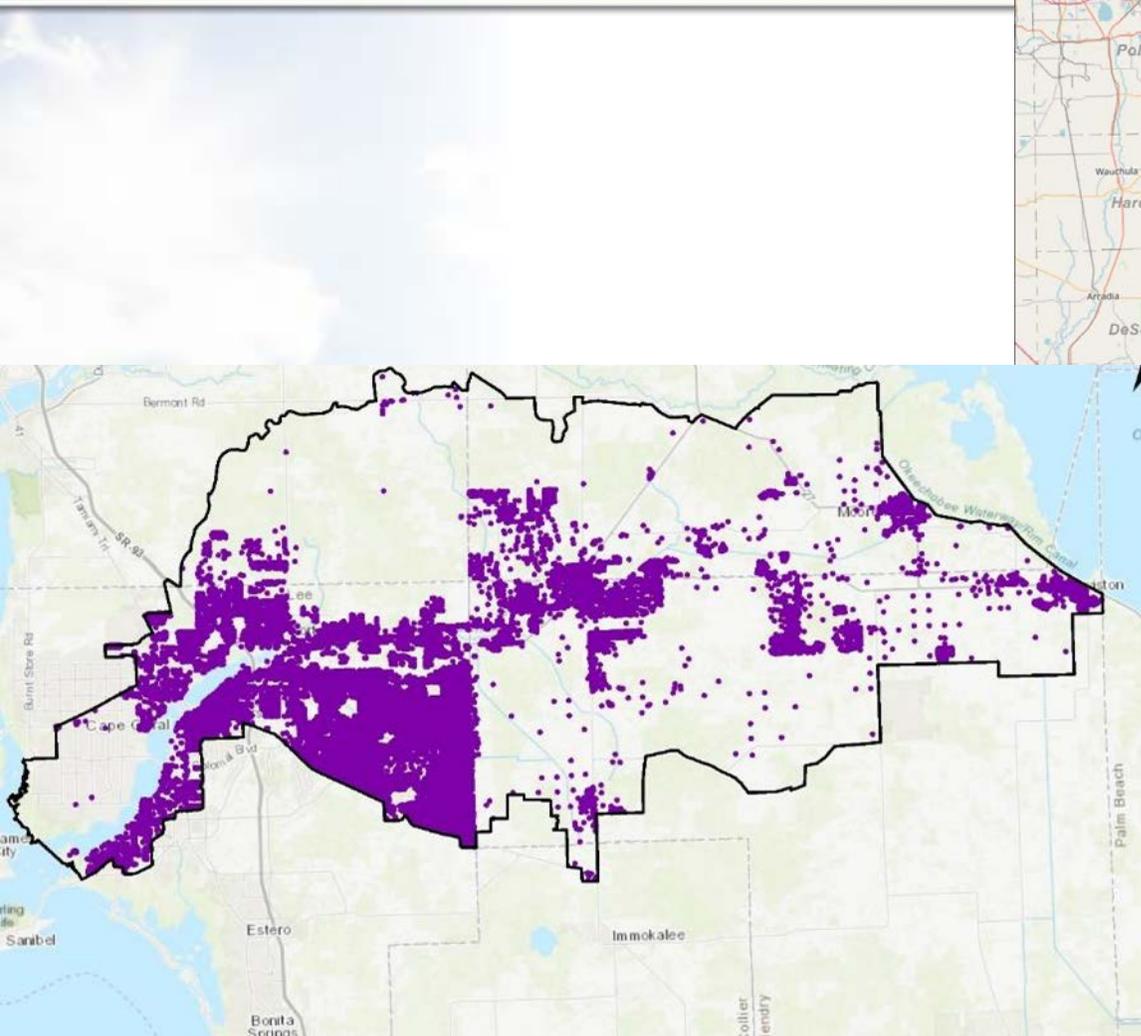
- Land Use Data
- Septic Tank Locations
- Regulatory Permit Information
 - NPDES
 - ERP/SW
- Existing Project Location & Performance
- FDACS BMP Program Information
- BMAP Targeted Restoration Areas
- Water Quality Data



Land Use

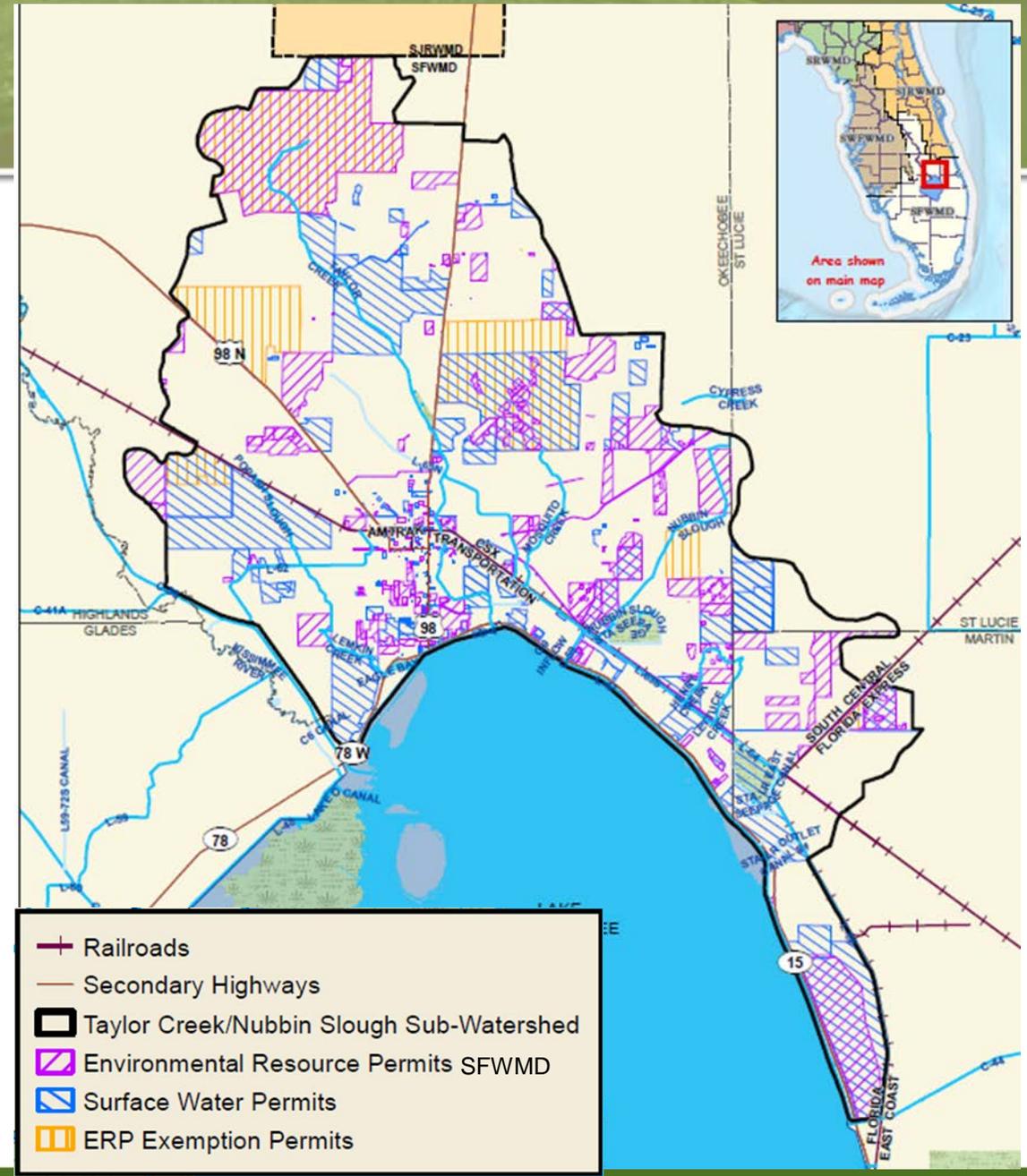
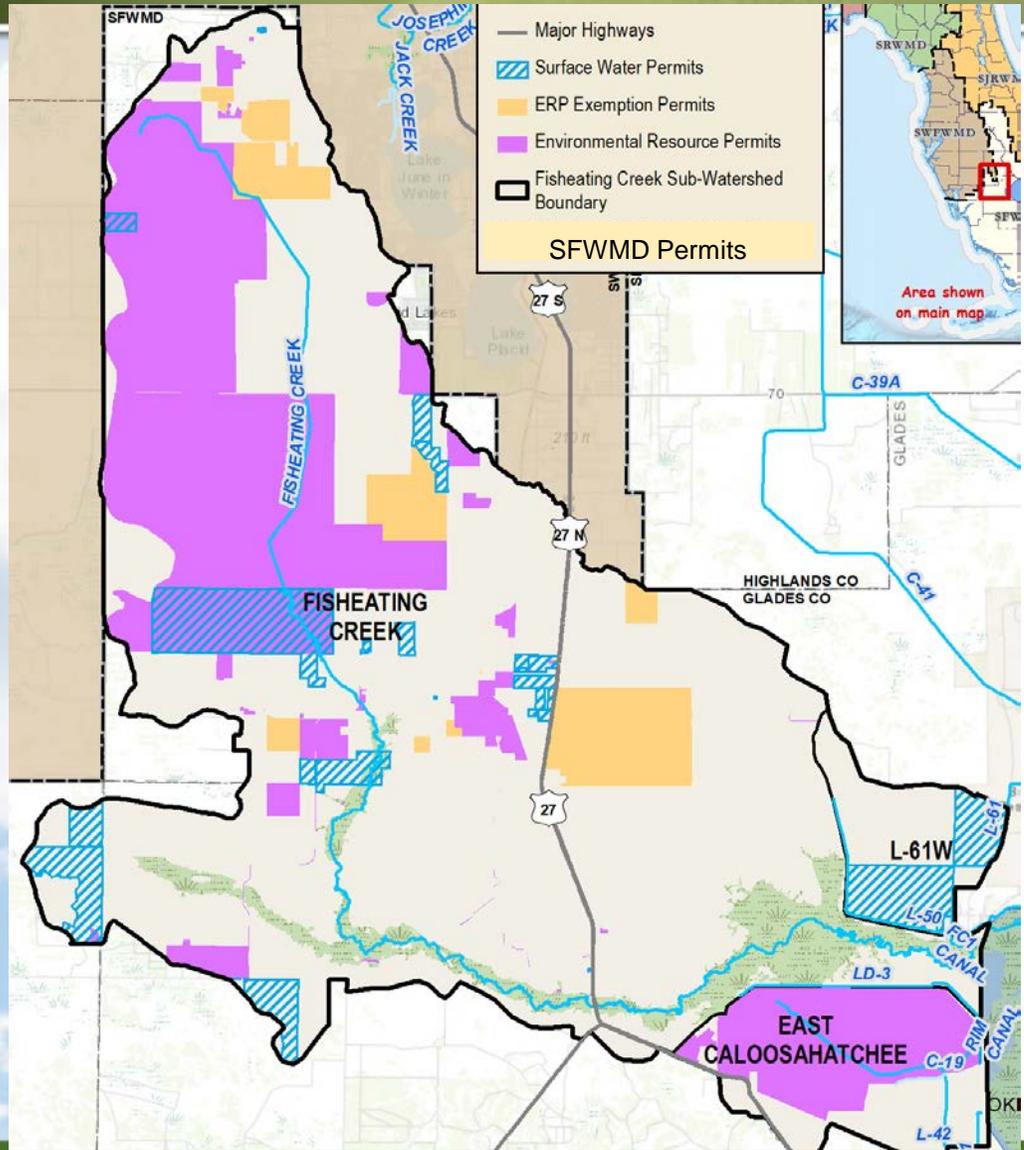


Septic Tanks

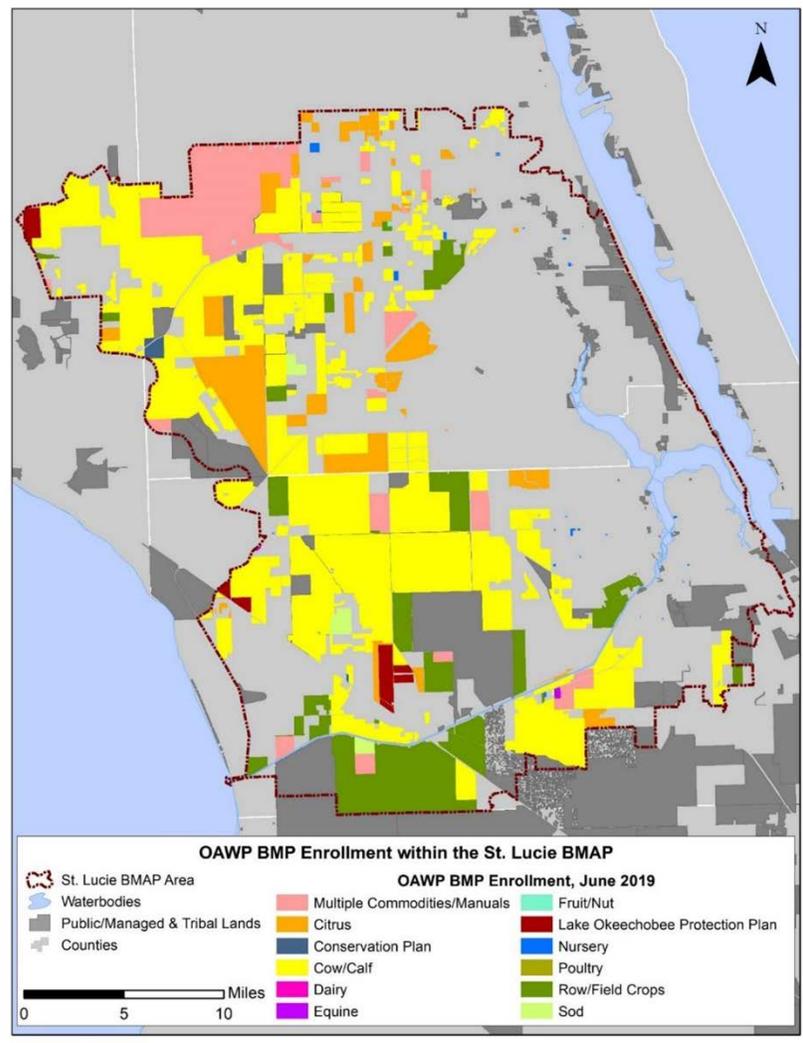
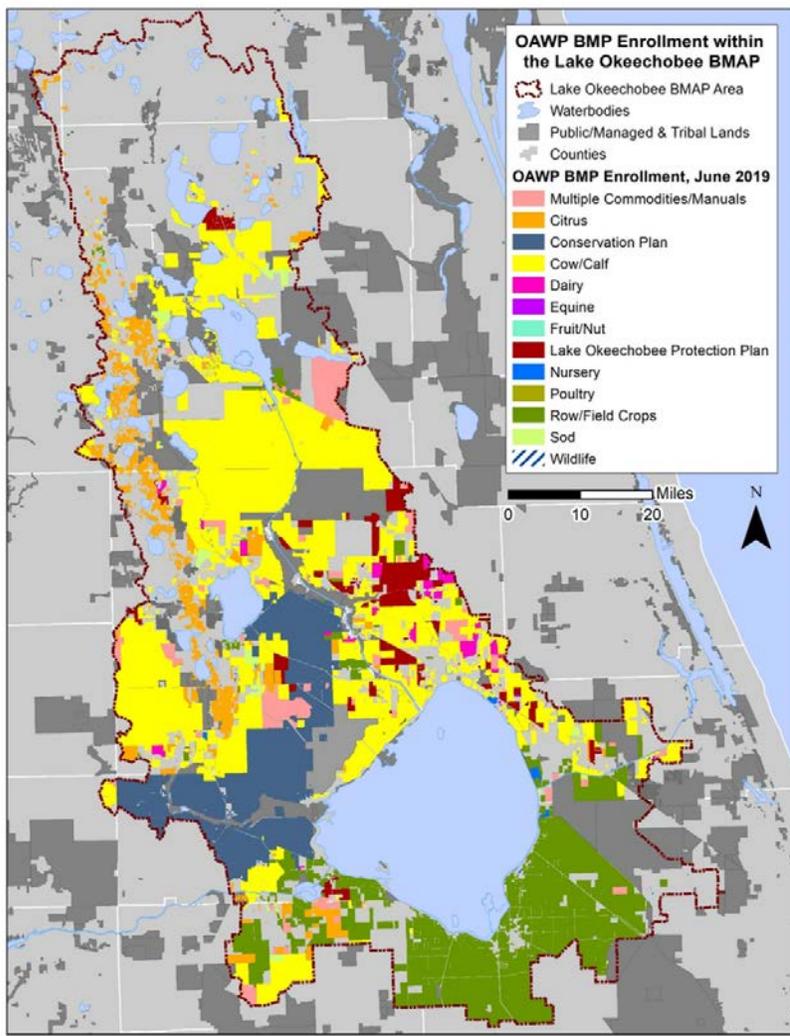
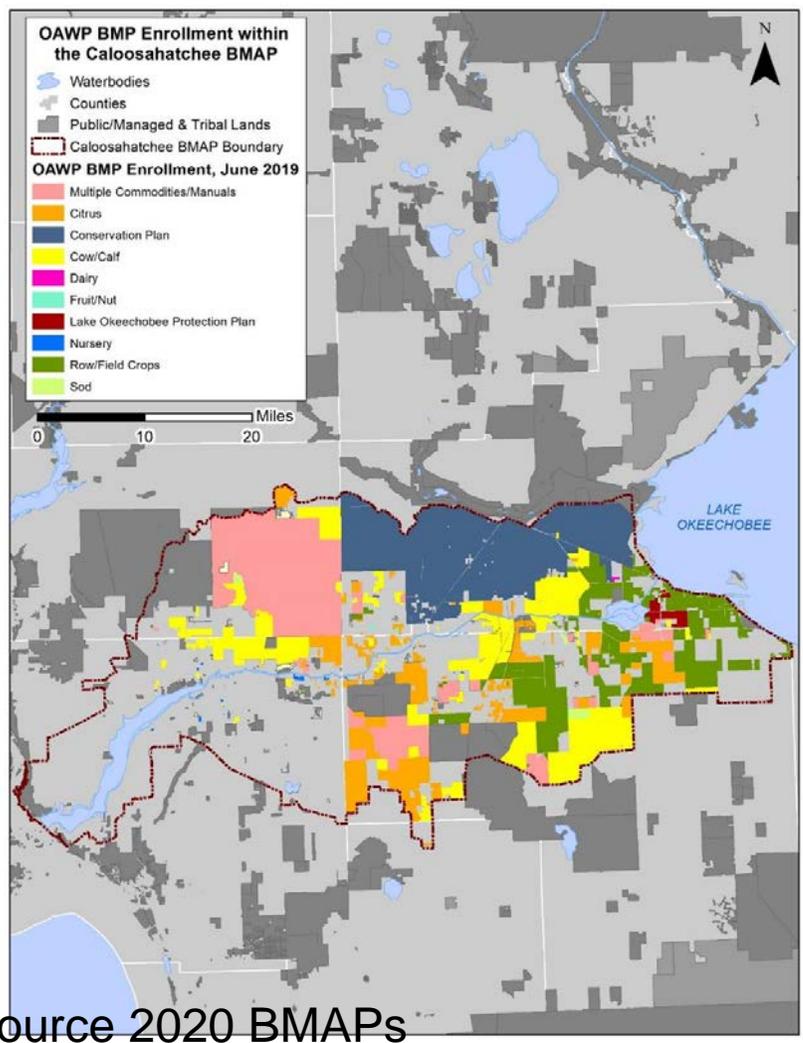


Source 2020 BMAPs

Regulatory Permits



FDACS BMP Program Enrollment as of June 2019



Source 2020 BMAPs

BMAP Targeted Restoration Areas

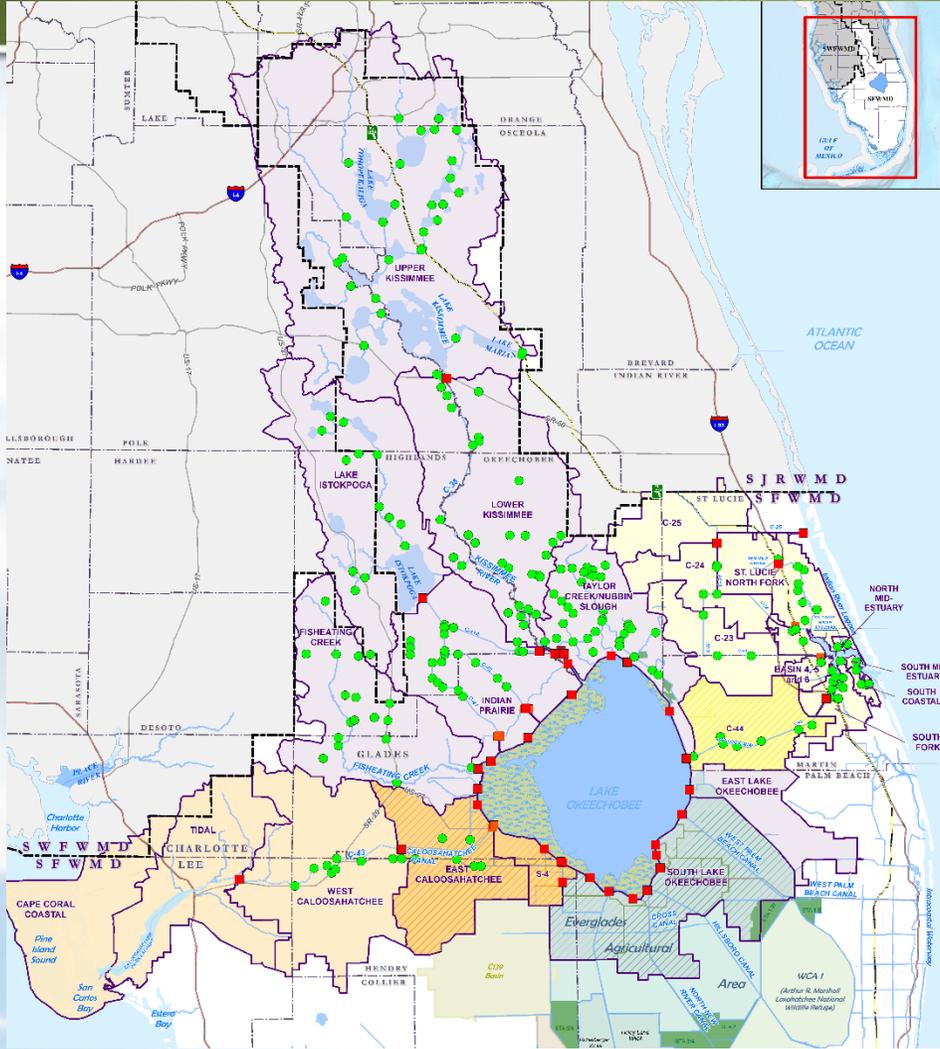
Table 81. Summary of the TRA evaluation results

*SFWMD determined that additional investigations are needed regarding whether water quantity is an issue.

Basin	TN Priority	TP Priority
North Fork	3	3
Ten Mile Creek	2	1
C-24	1	1
C-23	1	1
C-44/S-153	1	1
Basin 4/5	2	1
Basin 6	2	2
South Fork	2	2
South Coastal	2	2
South Mid-Estuary	3	3
North Mid-Estuary	2	3

Source – 2020 St. Lucie River and Estuary BMAP

Overview of SFWMD Monitoring Networks



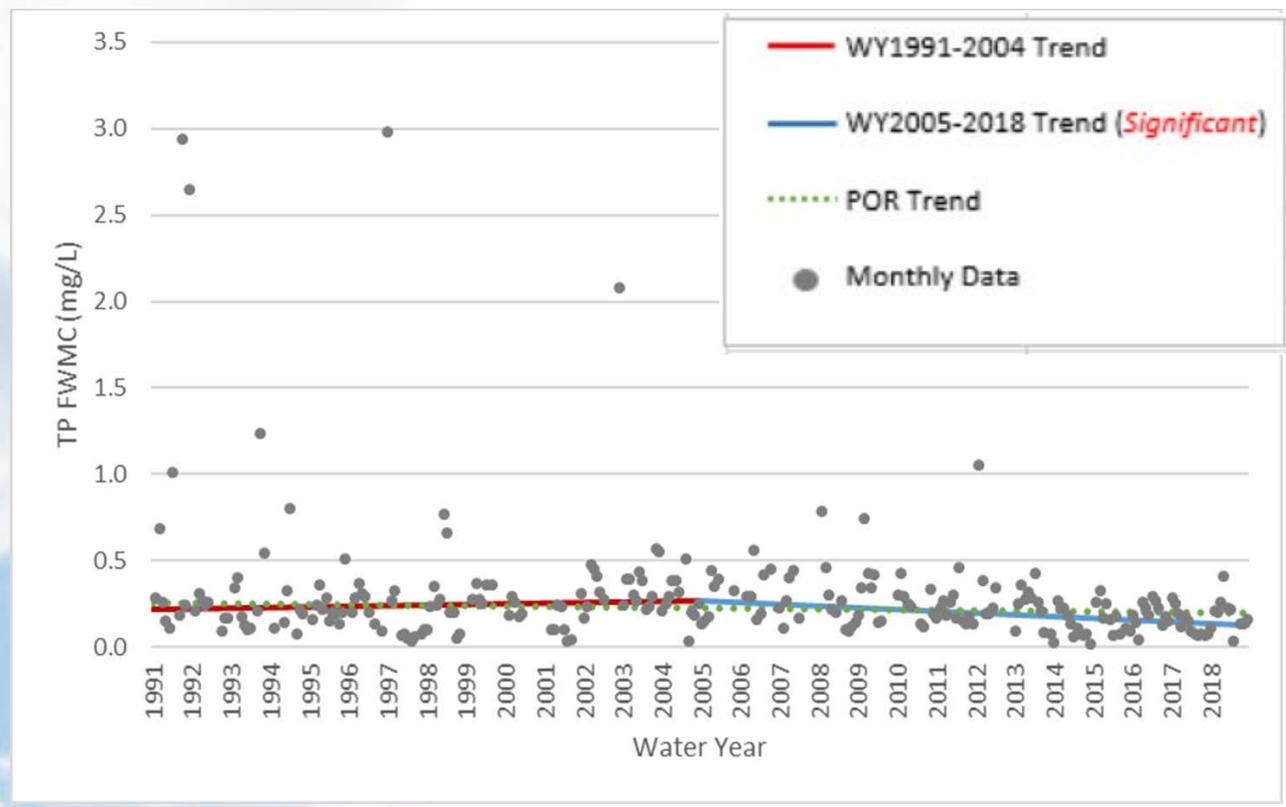
■ Basin sites ● Upstream sites

Watershed	Monitoring	
	Basin	Upstream
Lake Okeechobee	36	150
St. Lucie	7	46
Caloosahatchee	7	15
Total	50	211

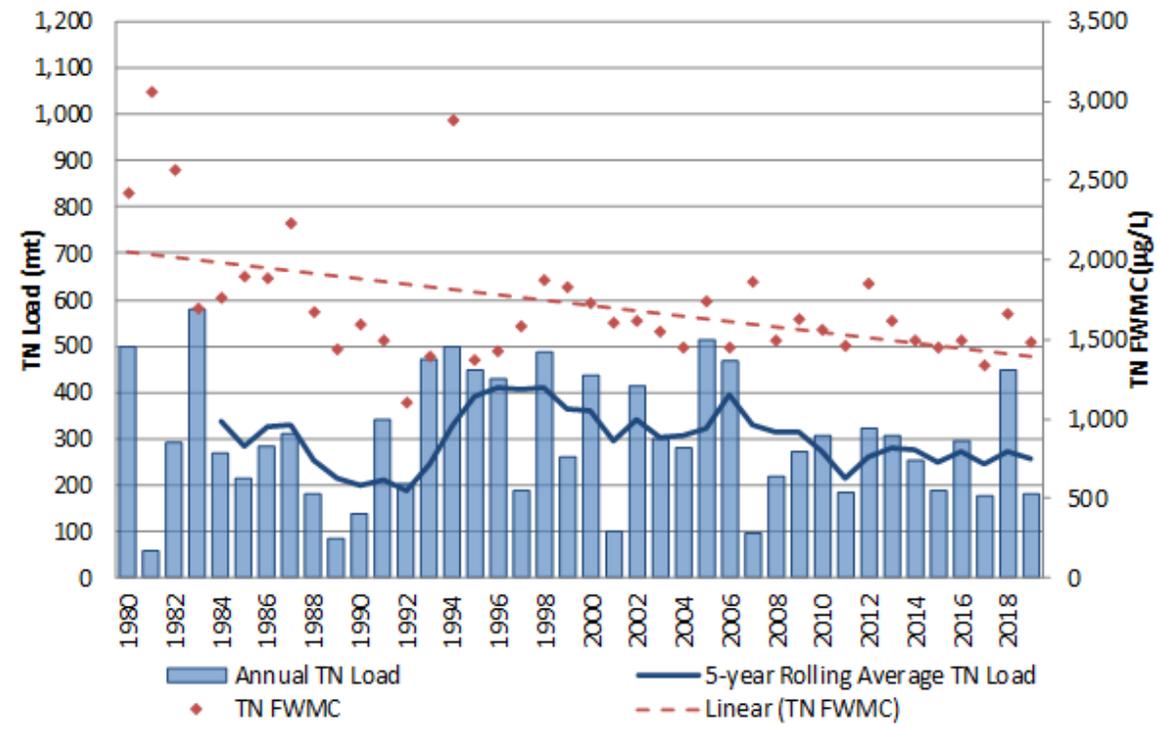
- Parameters: TP, OPO4, TN, NH4, NOx, pH, Temperature, Dissolved Oxygen, Conductivity
- Other Entity Monitoring Sites

Basin Water Quality Data Trends

Indian Prairie - TP

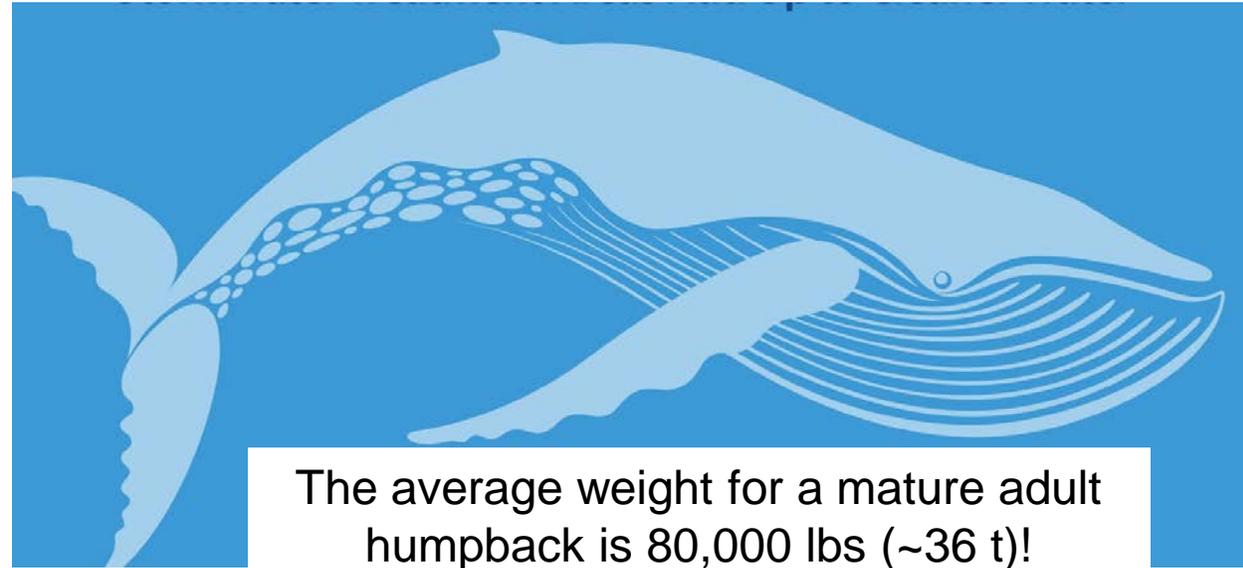


C-24 - TN



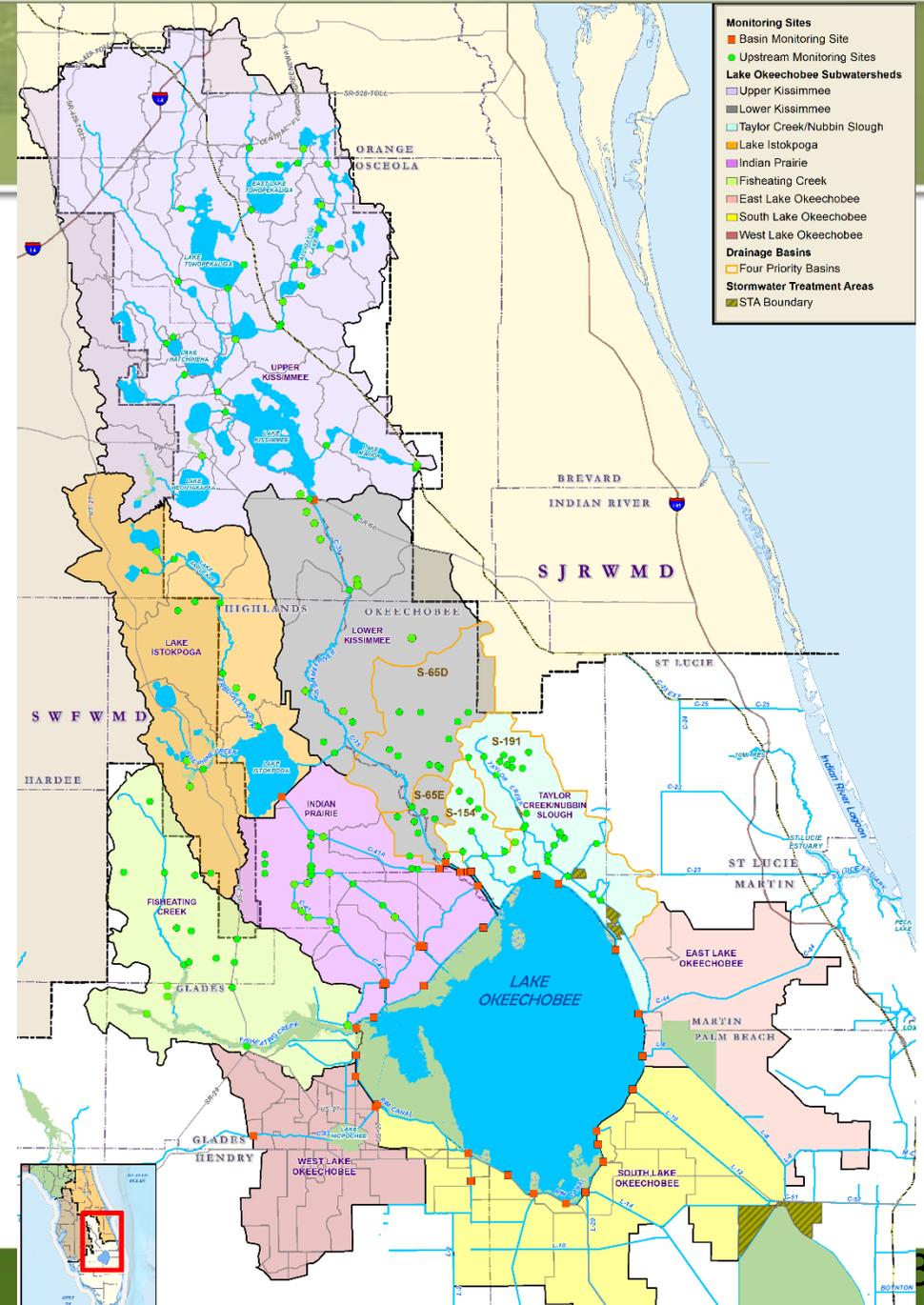
Data Terminology

- **Nutrient Load:** The cumulative weight of a constituent transported (usually by stormwater) passed the point of measurement. Commonly expressed in pounds (lbs) or metric tons (t).
- **Discharge Volume (acre-feet):** Amount of water required to cover 1 acre of land to a depth of 1 foot.
- **UAL: Unit Area Load** is the nutrient load per acre of area
- **FWMC: Flow Weighted Mean Concentration:** Represents the average concentration of a constituent that passes through a structure relative to the total flow volume passing through.



Lake Okeechobee Watershed (LOW)

- Nine Subwatersheds
- 3,450,475 acres



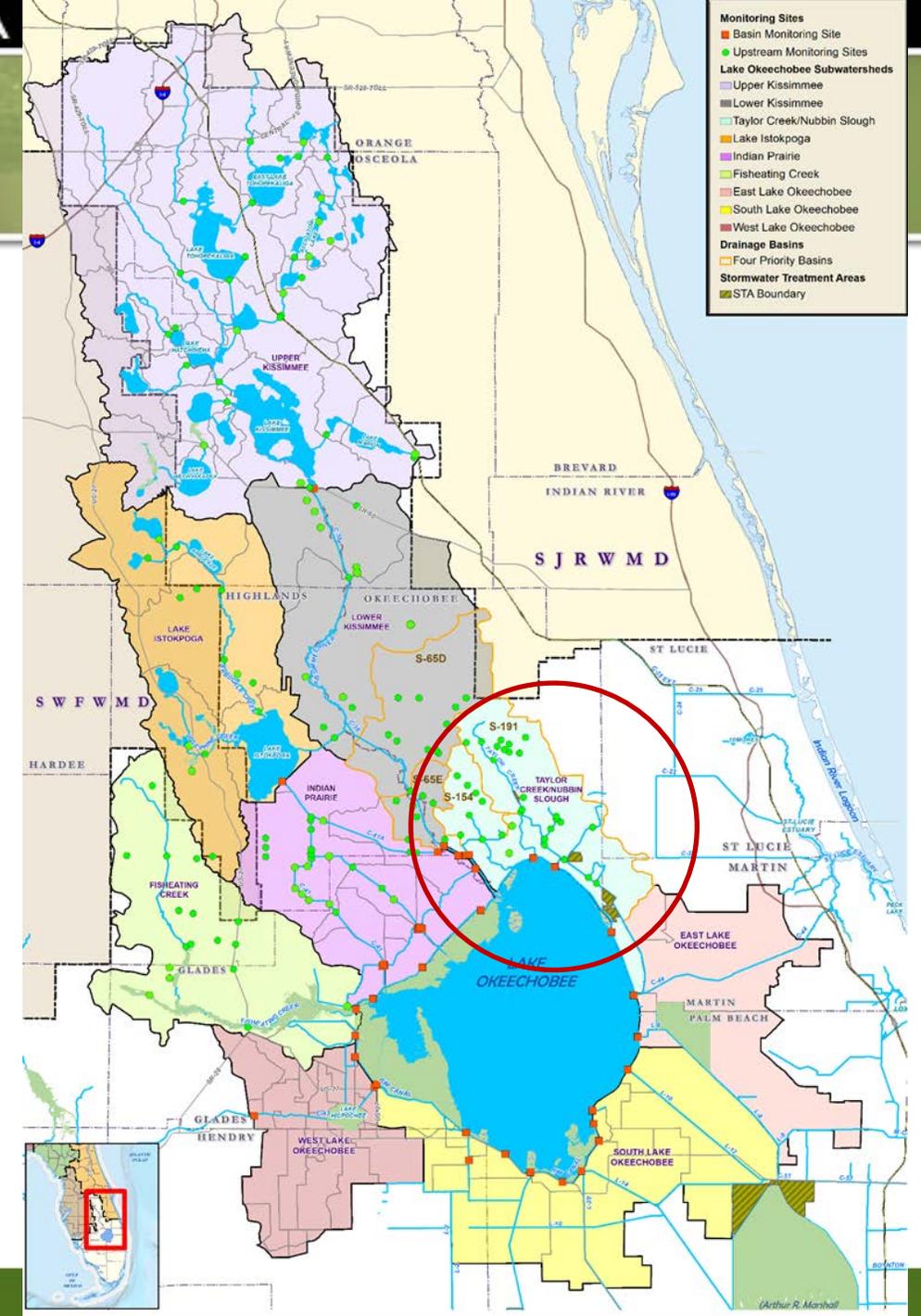
LOW 5-year Average for WY2015-WY2019

Subwatershed	UAL (lb/ac)	FWMC ($\mu\text{g/L}$)	TP Load (t)	Discharge (ac-ft)	Area (ac)
Taylor Creek/Nubbin Slough	1.17	477	104.7	178,000	197,795
Indian Prairie	0.7	223	87.3	317,000	276,577
Lower Kissimmee	0.64	229	124.7	441,000	429,188
Fisheating Creek	0.44	175	63.6	295,000	318,042
Lake Istokpoga	0.27	97	47.7	400,000	394,203
Upper Kissimmee	0.2	78	93.4	976,000	1,028,421
South Lake Okeechobee	0.16	279	26.8	77,700	363,141
East Lake Okeechobee	0.15	191	16.7	71,100	239,013
West Lake Okeechobee	0	168	0	36	204,094

Source 2020 SFER

Taylor Creek/Nubbin Slough Subwatershed

- Five Basins
 - S-133
 - S-135
 - S-154
 - S-154C
 - S-191
- 197,795 acres



Taylor Creek/Nubbin Slough Basin Data

5-year average for WY2015-WY2019

Taylor Creek/Nubbin Slough	UAL (lb/ac)	FWMC ($\mu\text{g/L}$)	TP Load (t)	Discharge (ac-ft)	Area (ac)
S-154C Basin	2.71	711	2.6	2,990	2,134
S-191 Basin	1.28	627	69.7	90,100	120,464
S-154 Basin	1.22	580	17.6	24,700	31,815
S-133 Basin	0.75	243	8.7	29,000	25,626
S-135 Basin	0.75	157	6.1	31,300	17,756
Subwatershed Total	1.17	477	104.7	178000	197795

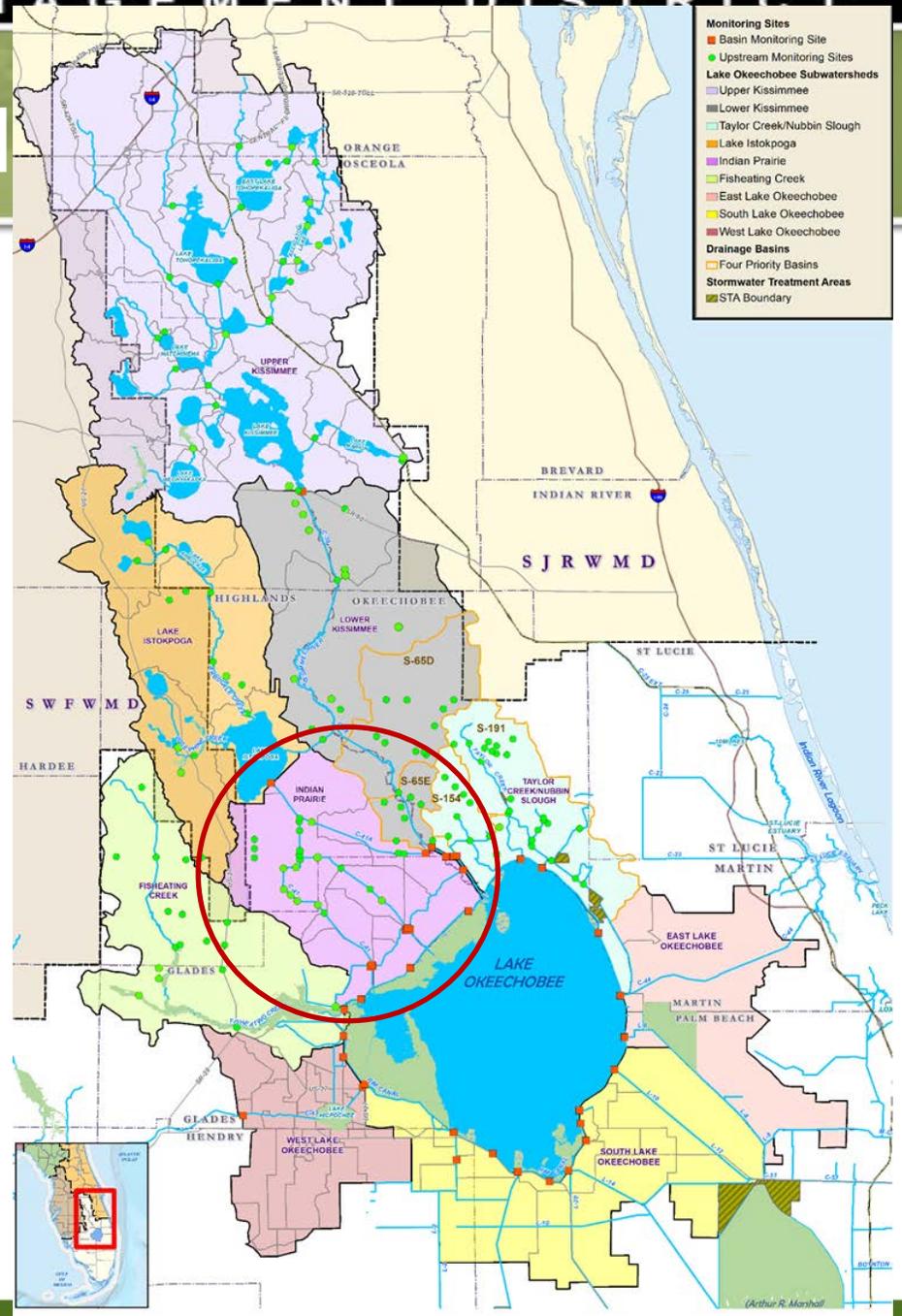
Source 2020 SFER

Indian Prairie Subwatershed

➤ Eleven Basins

- C-40, C-41, C-41A
- L-48, L-49
- L-59 E and W
- L-60 E and W
- L-61 E
- S-131

➤ 276,577 acres



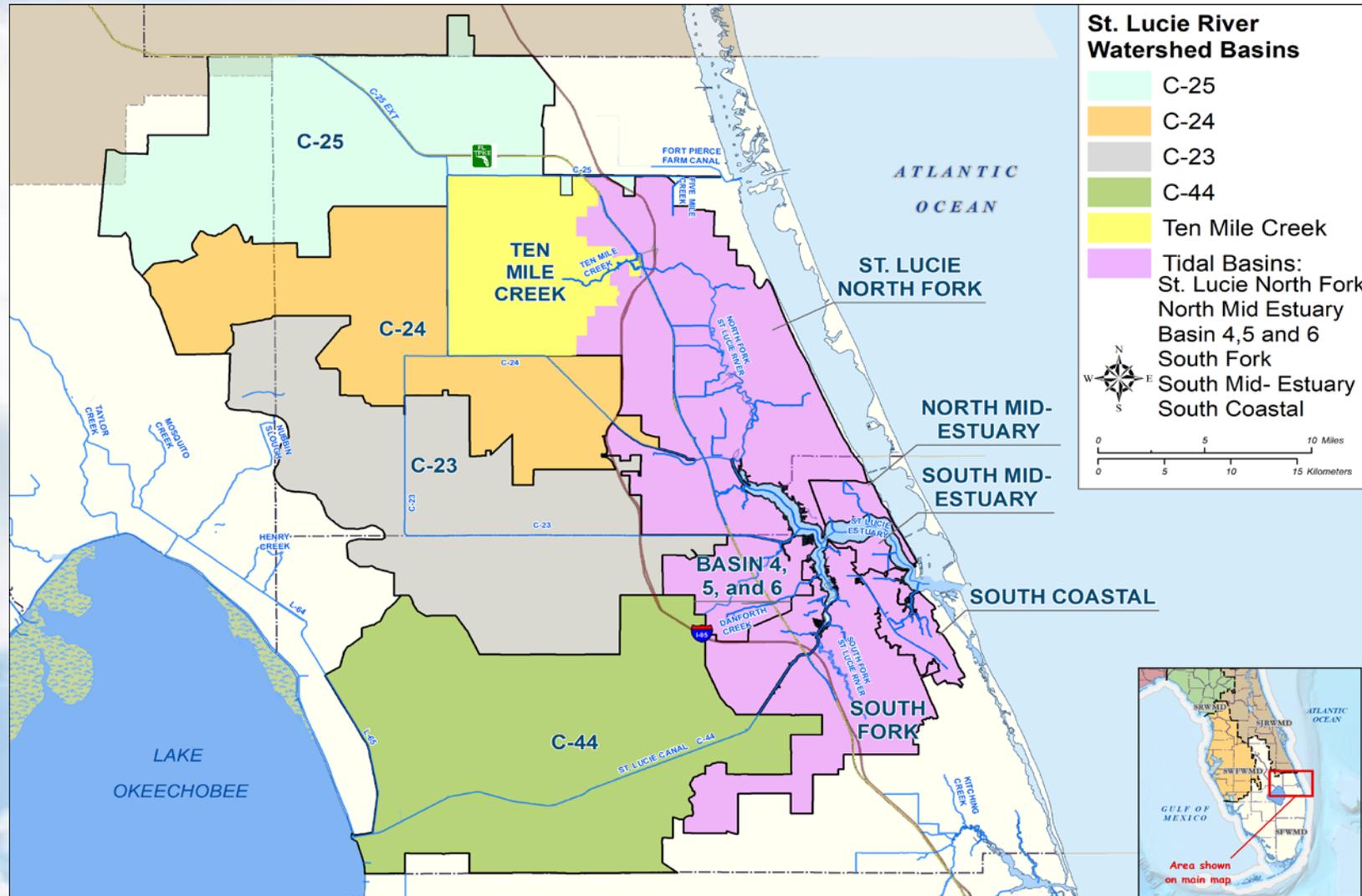
Indian Prairie Basin Data

**5-year average for
WY2015-WY2019**

Indian Prairie	UAL (lb/ac)	FWMC ($\mu\text{g/L}$)	TP Load (t)	Discharge (ac-ft)	Area (ac)
L-59W Basin	3.07	237	9.2	31,400	6,596
C-41A Basin	1.13	160	29.5	150,000	57,748
L-60E Basin	1	192	2.2	9,460	4,944
L-61E Basin	0.7	142	4.6	26,100	14,407
C-40 Basin	0.69	475	7.5	12,800	24,076
C-41 Basin	0.53	488	27.2	45,300	112,880
L-48 Basin	0.41	189	3.9	16,700	20,798
L-60W Basin	0.3	134	0.5	2,860	3,453
S-131 Basin	0.26	99	0.8	6,770	7,122
L-59E Basin	0.2	193	1.2	4,920	12,589
L-49 Basin	0.13	52	0.7	10,700	11,966
Subwatershed Total	0.7	223	87.3	317,000	276,577

Source 2020 SFER

St. Lucie River Watershed (SLRW)



St. Lucie River Watershed Basins

- C-25
- C-24
- C-23
- C-44
- Ten Mile Creek
- Tidal Basins:
St. Lucie North Fork
North Mid Estuary
Basin 4,5 and 6
South Fork
South Mid- Estuary
South Coastal

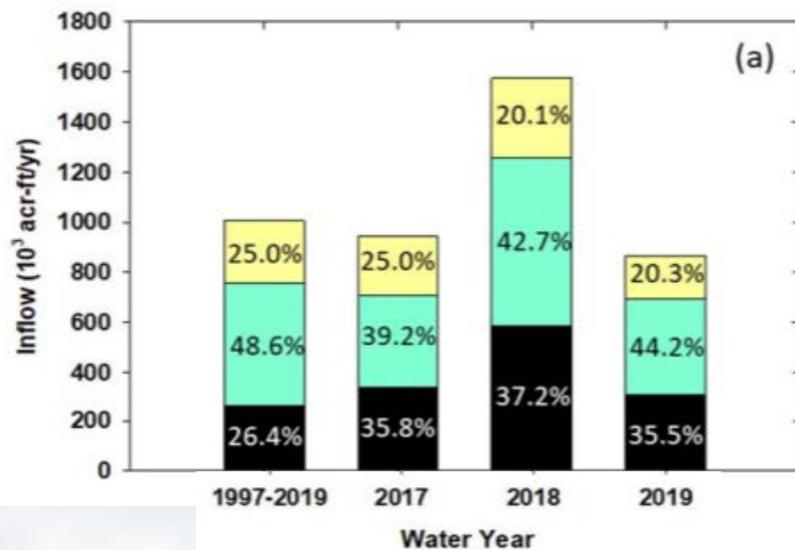
Scale: 0 to 10 Miles / 0 to 15 Kilometers

➤ Nine Basins

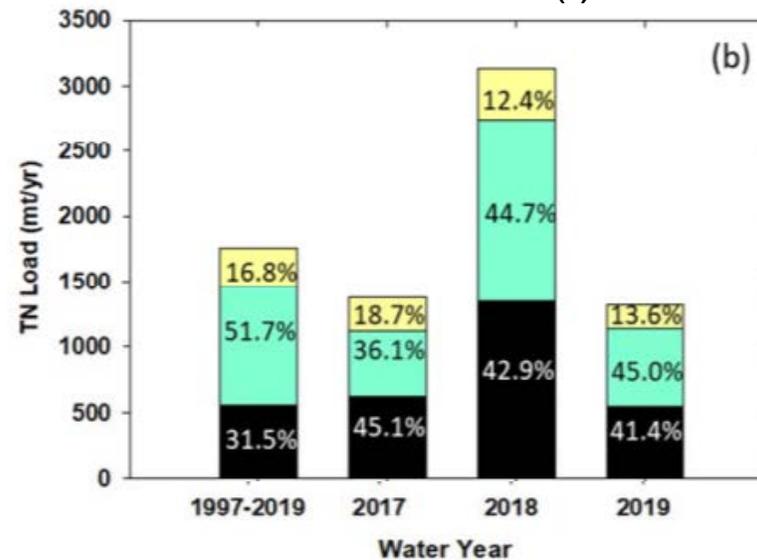
➤ 537,600 acres

St. Lucie River Watershed Data Summary

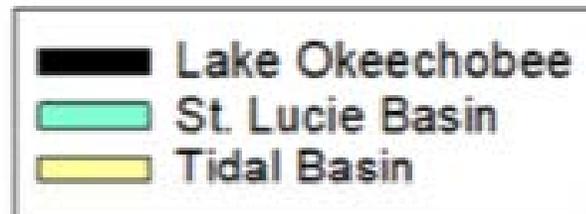
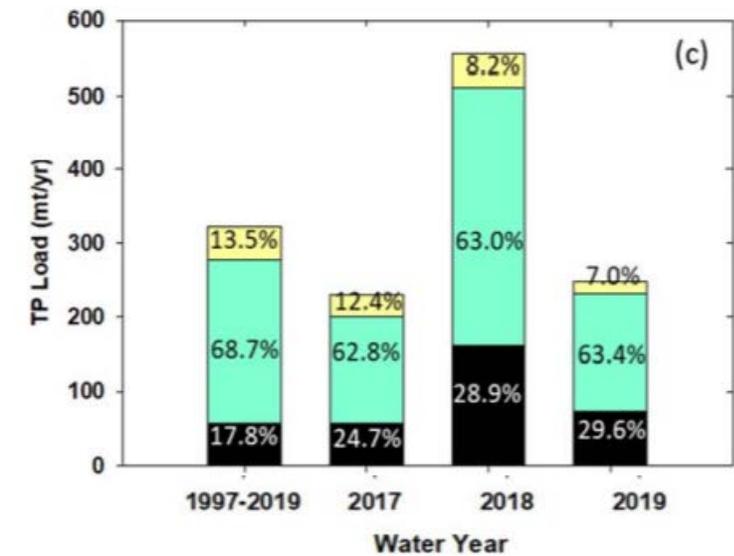
Flow (ac-ft)



TN Load (t)



TP Load (t)



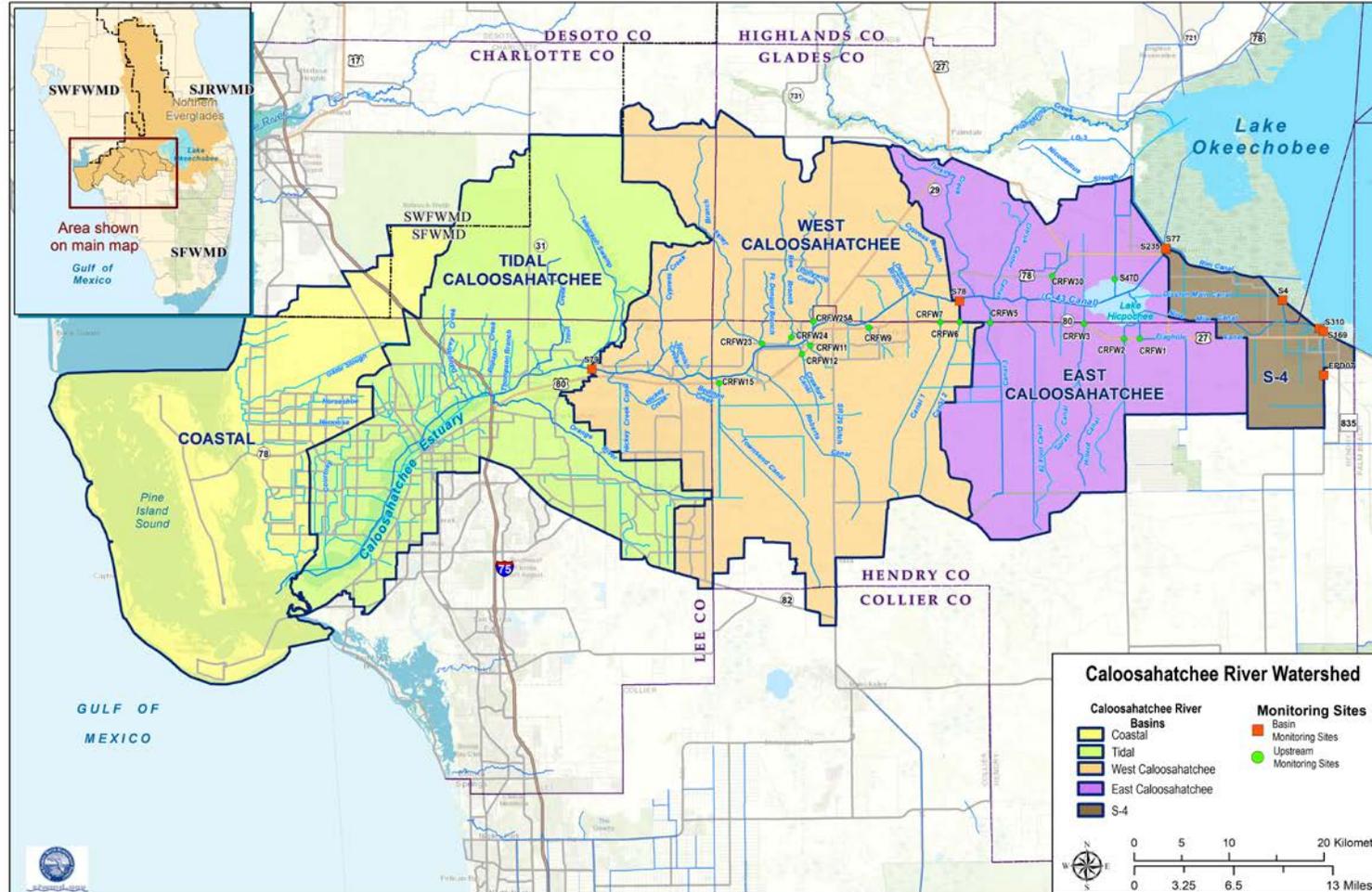
Source 2020 SFER

SLRW 5-year Average for WY2015 – WY2019

Basin	TP FWMC (µg/L)	TP Load (t)	TP UAL (lb/ac)	Discharge (ac-ft)	Area (ac)
C-23 Basin	377	54.8	1.09	117,870	110,872
C-44 Basin	352	50.0	0.83	115,252	132,705
C-24 Basin	345	57.6	1.52	135,444	83,373
Ten Mile Creek	300	42.8	2.34	115,504	40,327
Tidal Basin	98	30.5	0.39	252,178	170,509
Basin	TN FWMC (µg/L)	TN Load (t)	TN UAL (lb/ac)	Discharge (ac-ft)	Area (ac)
C-23 Basin	1.57	228.2	4.54	117,870	110,872
C-24 Basin	1.54	257.3	6.80	135,444	83,373
C-44 Basin	1.32	187.8	3.12	115,252	132,705
Ten Mile Creek	1.05	149.2	8.16	115,504	40,327
Tidal Basin	0.9	279.1	3.61	252,178	170,509

Source 2020 SFER

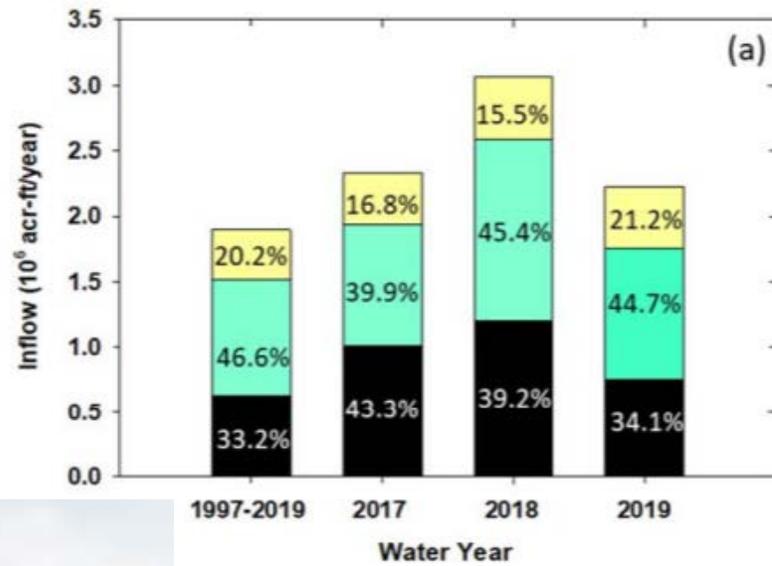
Caloosahatchee River Watershed (CRW)



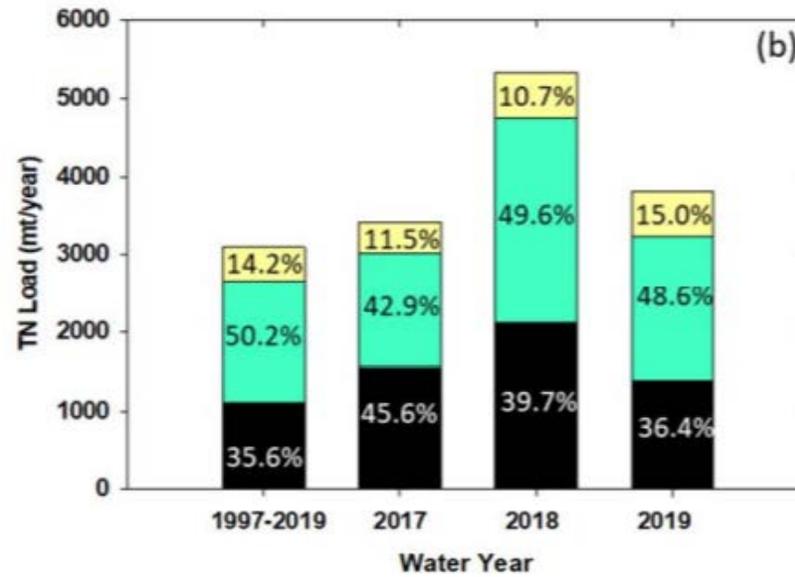
- Five Basins
- 1,090,560 acres

Caloosahatchee River Watershed Data Summary

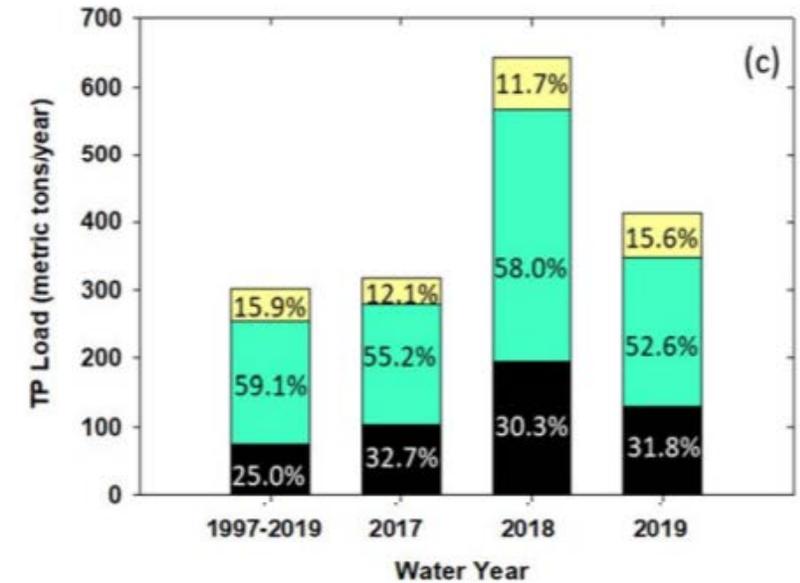
Flow (ac-ft)



TN Load (t)



TP Load (t)



Source 2020 SFER

CRW 5-year Average for WY2015 – WY2019

Basin	TP UAL (lb/ac)	TP FWMC (µg/L)	TP Load (t)	Discharge (ac-ft)	Area (ac)
C-43 and S-4 Basins	0.78	169	210.0	1,005,024	596,353
Tidal Caloosahatchee Basin	0.43	99	51.5	421,950	264,705
Inflow from Lake Okeechobee		110	116.7	861,858	

Basin	TN UAL (lb/ac)	TN FWMC (µg/L)	TN Load (t)	Discharge (ac-ft)	Area (ac)
C-43 and S-4 Basins	6.26	1,370	1,693	1,005,024	596,353
Tidal Caloosahatchee Basin	3.91	900	469	421,950	264,705
Inflow from Lake Okeechobee		1,390	1,478	861,858	

Source 2020 SFER

Links to Additional Information

➤ NEEPP Statute

http://www.leg.state.fl.us/Statutes/index.cfm?App_mode=Display_Statute&URL=0300-0399/0373/Sections/0373.4595.html

➤ BMAPs

<https://floridadep.gov/dear/water-quality-restoration/content/basin-management-action-plans-bmaps>

➤ Impaired Waters Rule

<https://www.flrules.org/gateway/ChapterHome.asp?Chapter=62-303>

Links to Additional Information

➤ Best Management Practices (BMPs)

- Agricultural

<https://www.fdacs.gov/Agriculture-Industry/Water/Agricultural-Best-Management-Practices>

- Non-Agricultural

<https://floridadep.gov/dear/dear/documents/bestmanagement-practices-enhancement-environmentalquality-golf-courses>

https://ffl.ifas.ufl.edu/pdf/GIBMP_Manual_Web_English_2015.pdf

<https://floridadep.gov/sites/default/files/BMP%20Efficiencies%20July%202018.pdf>

Links to Additional Information

➤ Watershed Protection Plans

- Lake Okeechobee

https://apps.sfwmd.gov/sfwmd/SFER/2020_sfer_final/v1/appendices/v1_app8a-1.pdf

- Caloosahatchee and St. Lucie River Watersheds

https://apps.sfwmd.gov/sfwmd/SFER/2015_sfer_final/v1/chapters/v1_ch10.pdf

Watershed Protection Planning Website


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SOUTH FLORIDA
WATER MANAGEMENT DISTRICT

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Northern Everglades Watershed Protection Plans

The District is starting the process to update the Watershed Protection Plans for the Lake Okeechobee watershed, and the St. Lucie and Caloosahatchee River watersheds and estuaries. To begin this process, the District is hosting an initial planning meeting on Friday, June 26 at 2 p.m.

At this first public meeting, the District will engage the public and stakeholders for input on the planning process for water quality improvements in the Northern Everglades. Watershed Protection Plans will identify projects, activities and programs to improve the quality, quantity, timing and distribution of water in the Northern Everglades to support Basin Management Action Plans (BMAPs) adopted by the Florida Department of Environmental Protection (DEP) to achieve Total Maximum Daily Loads (TMDLs) for the Lake Okeechobee watershed, and the St. Lucie and Caloosahatchee River watersheds and estuaries. The District will consider local and regional expertise in tailoring actions for the most effective holistic approach for water quality improvements, both near- and long-term, as the District develops the latest Watershed Protection Plans.

[Lake Okeechobee Watershed](#)
[St. Lucie River Watershed](#)
[Caloosahatchee River Watershed](#)

Lake Okeechobee Watershed

Learn more about the [Lake Okeechobee Watershed Construction Project](#).

GEOGRAPHIC AREA

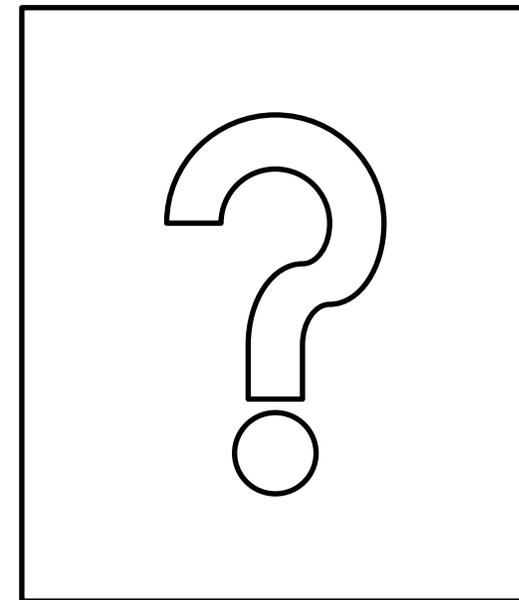
Northern Everglades map:

<https://www.sfwmd.gov/wpps>

Question & Answer Period

Have a question?

- Please use the Q & A feature using zoom to type in your question so that we respond.



Public Comment

Want to comment?

- Each speaker will have 3 minutes complete their comment
- Please remember to first state your name and who you are representing for the record.
- Zoom audio/microphone
 - If you're participating via zoom – use the Raise Hand feature
- Phone
 - If you're participating via you phone –
 - *9 Raises Hand
 - *6 Mutes/Unmutes your phone



3:00