



Caloosahatchee River Watershed Protection Plan

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South Florida Water Management District
September 2, 2020

Objectives

- Engage stakeholders and the public in a collaborative approach to meet Northern Everglades and Estuaries Protection Program (NEEPP) goals
- Identify **projects, activities, and programs** that can be implemented for additional watershed improvements, with an emphasis on meeting reduction goals in TMDL basins.
- Review Caloosahatchee Watershed characteristics, projects and programs, and recent data
- Prioritize areas for SFWMD focused assessments to identify sources and integrated solutions

SFWMD.gov/WPPs

Workshop Schedule



Sanibel Causeway from San Carlos Bay

- June 26 – Kickoff and Overview
- July 21 – Lake Okeechobee Watershed
- August 28 – St. Lucie River Watershed
- **September 2 – Caloosahatchee River Watershed**

[SFWMD.gov/WPPs](http://sfwmd.gov/WPPs)

NEEPP Coordinating Agency Roles

Northern Everglades and Estuaries Protection Program (F.S. 373.4595)

Lake Okeechobee (LO) Watershed Protection Program

Caloosahatchee River Estuary and St. Lucie River Watershed Protection Programs

LO Internal Phosphorus Management Program (SFWMD)

Watershed Protection Plans (WPPs) (SFWMD)

Agricultural BMPs (FDACS)

Basin Management Action Plans (BMAPs) (FDEP)

Exotic Species Control Program (Coordinating Agencies)

Research & Monitoring Program (Primarily SFWMD)

Watershed Construction Projects & Programs (SFWMD)

- Water storage projects
- Water treatment projects
- Wetland restoration
- Hydrologic restoration
- Cost Share Programs
- Chapter 40E-61, FAC

Coordinating Agency Roles

Protection Plans Inform Basin Management Action Plan Annual Reports, 5-Year Reviews, & Updates

- Research and Water Quality Monitoring Program
 - Comprehensive monitoring network
 - Flow, water quality, precipitation, biology, etc.
 - Major structures, upstream, and estuarine
 - Research and modeling of a wide-range of ecosystem processes
- Watershed Construction Projects & Programs
 - Programs
 - Regional projects
 - New Projects
 - Project costs
 - Estimated and measured project performance
- When combined with information from other agencies, Watershed Protection Plans help evaluate the ecosystem, identify problems/deficiencies, and inform restoration activities.



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. Identify potential solutions via projects and programs
6. Feedback to Coordinating Agencies
7. Facilitate discussions to address remaining problems



Initial Assessments

Parameters

- Nutrient Load: 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: Flow commonly expressed in acre-feet (ac-ft), i.e. amount of water required to cover 1 acre of land to a depth of 1 foot.
- Unit Area Load (UAL): Nutrient load per acre of area commonly expressed in lbs/acre.
- Flow Weighted Mean Concentration (FWMC): Represents the average concentration of a constituent relative to the total flow volume.

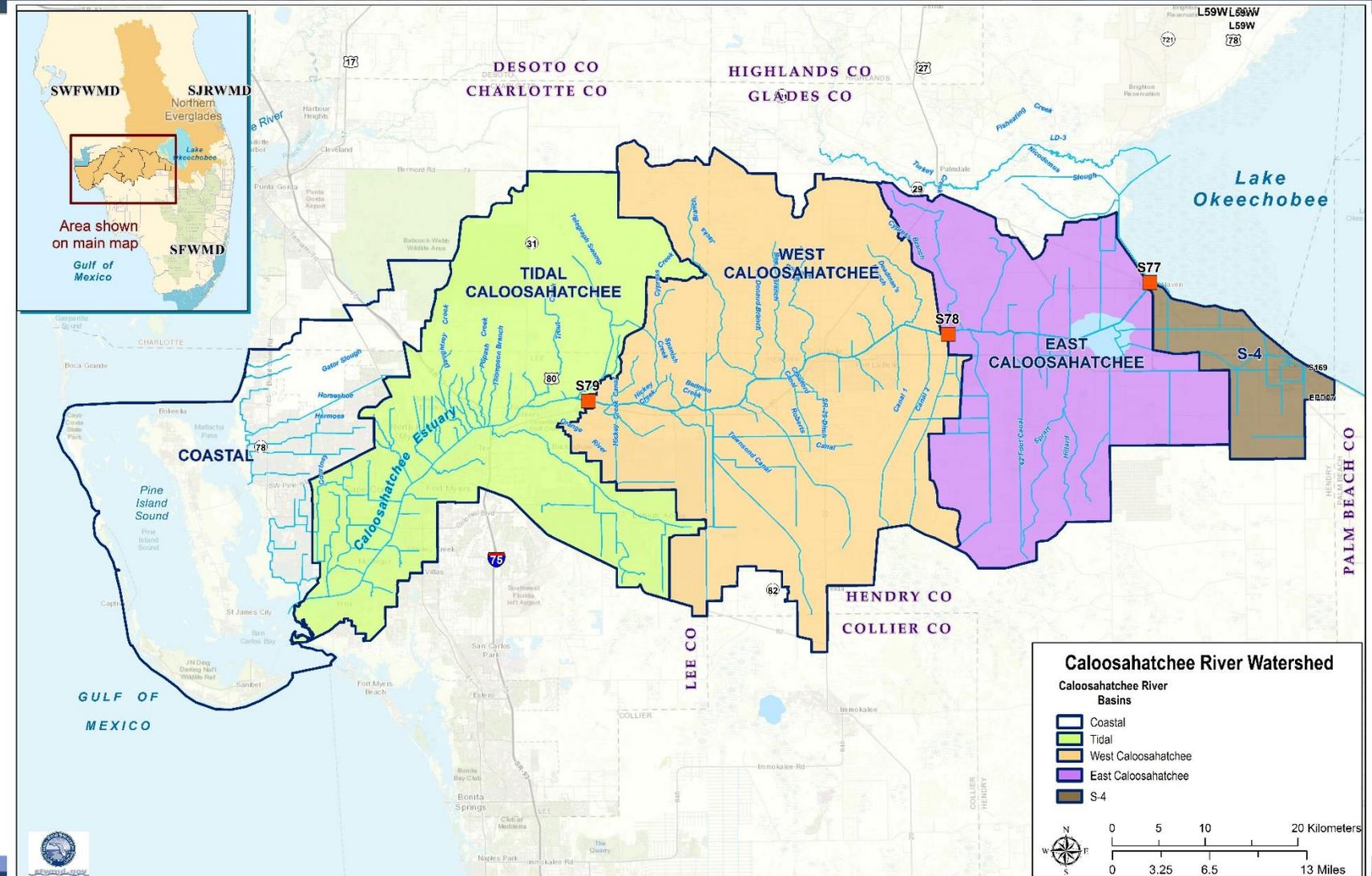
Other

- Watershed objectives
- Existing and planned projects
- Trends in data
- Impact to receiving waterbody

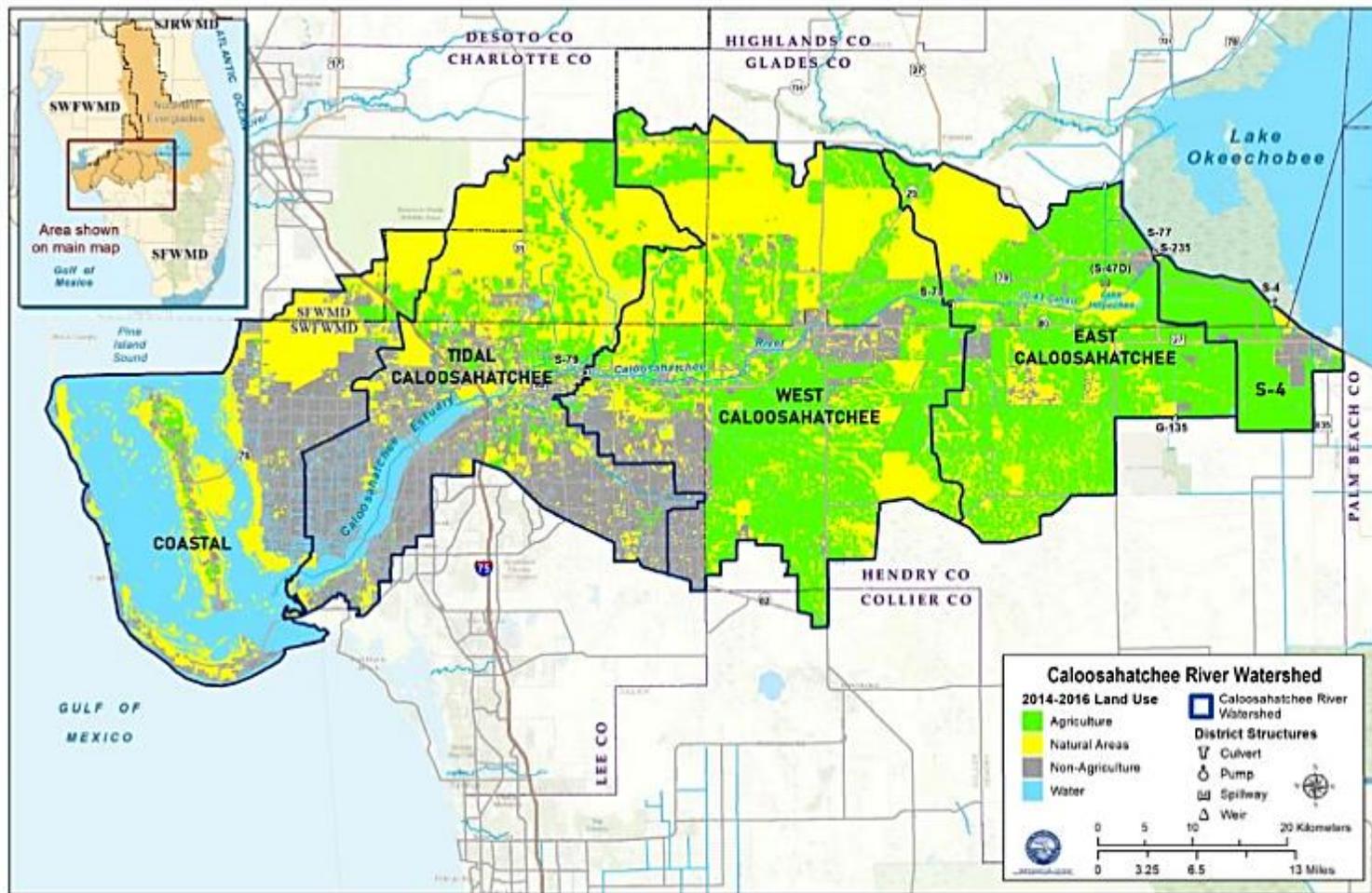


Caloosahatchee River Watershed (CRW)

- Five Basins
- 1,070,000 acres



Caloosahatchee River Watershed (CRW)



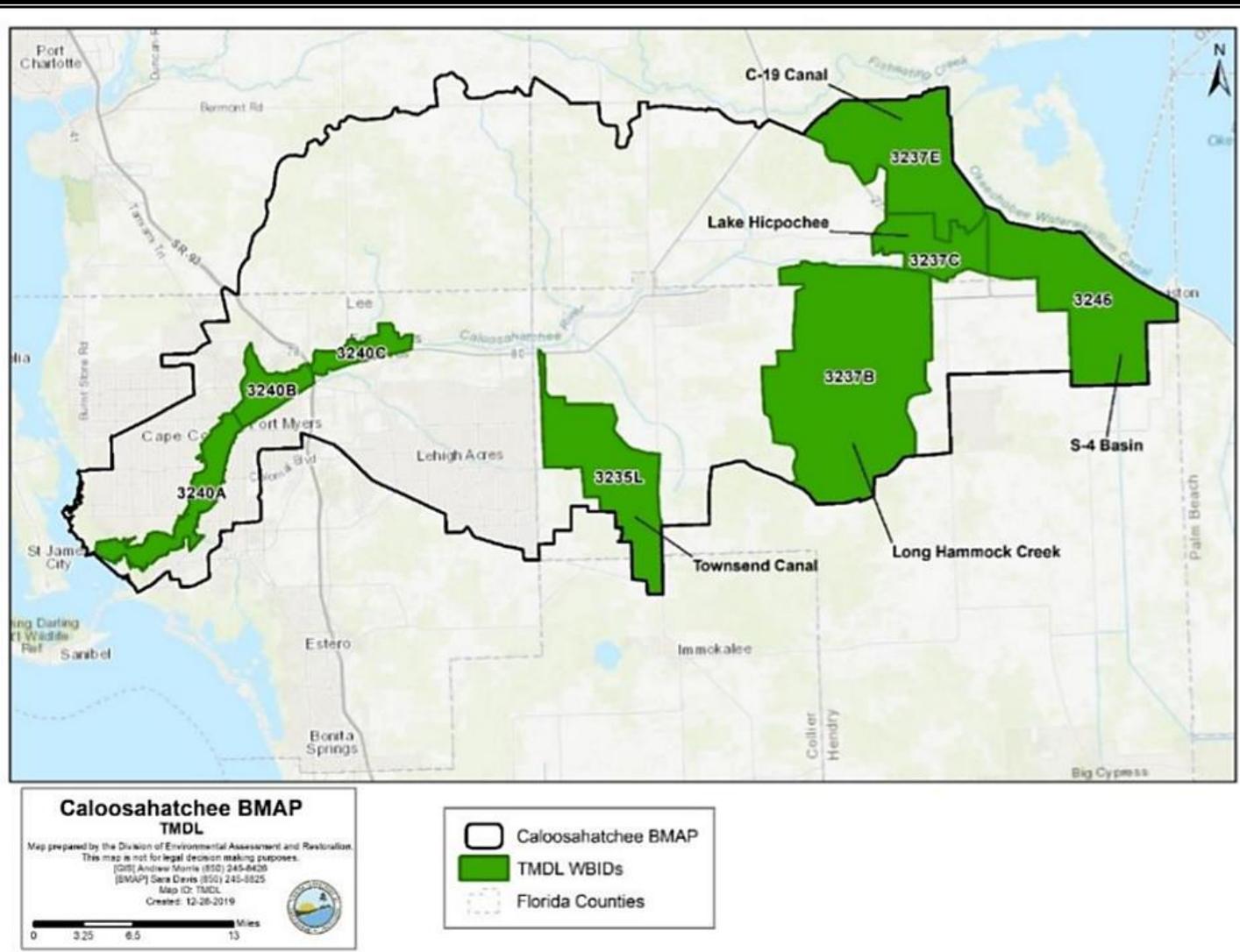
Land Use 2014-2016

Basin	Agriculture	Non-Agriculture	Natural Areas
S-4	82%	14%	4%
Caloosahatchee Basins			
East	67%	5%	28%
West	47%	14%	39%
Tidal	16%	42%	42%
Coastal	6%	37%	57%



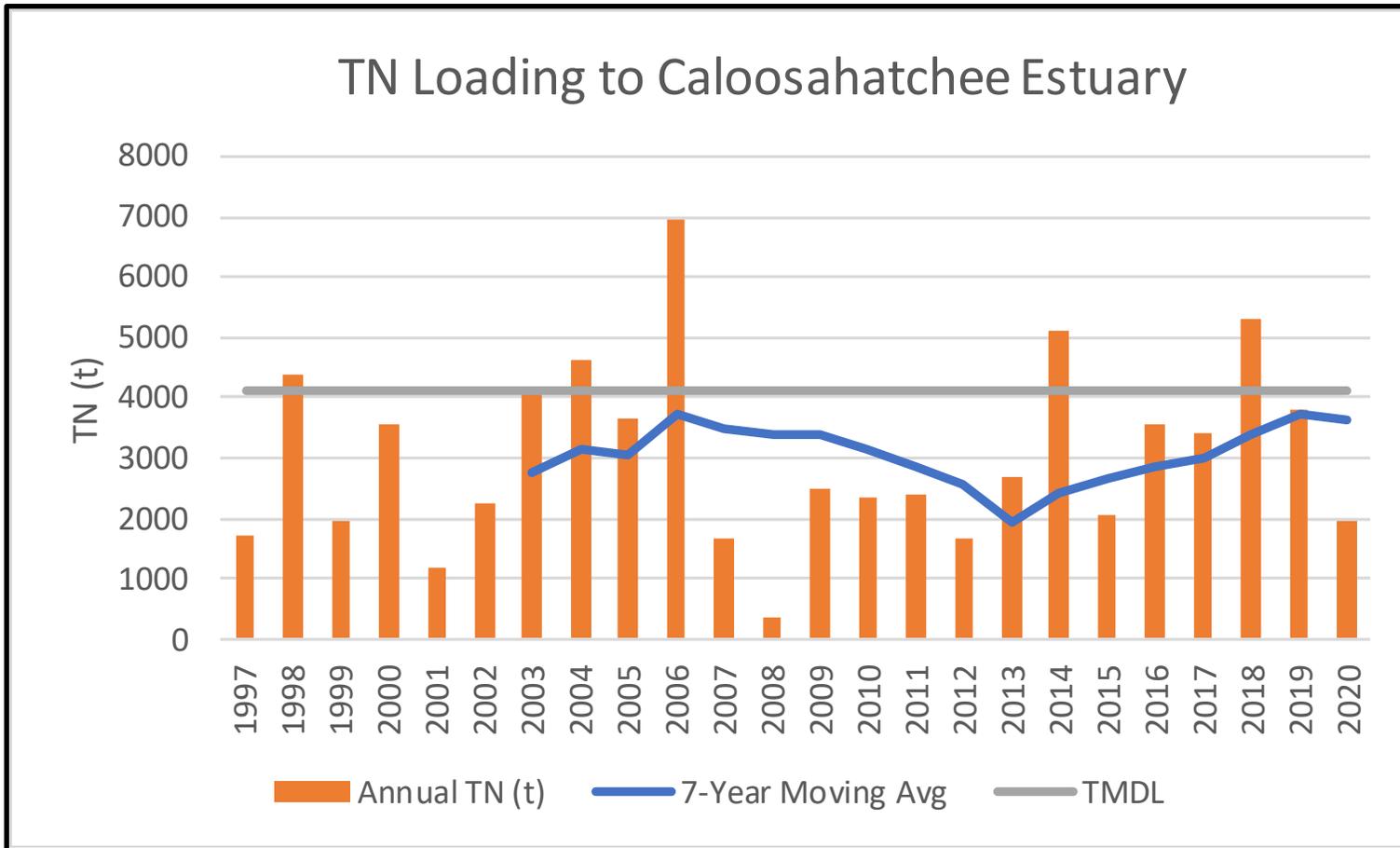
Watershed Protection Plan Objectives

Caloosahatchee TMDLs



Source: FDEP 2020 BMAP Update

Caloosahatchee Estuary TMDL



- Caloosahatchee Estuary TN TMDL adopted by FDEP in 2009
 - 23% Reduction
 - ≈ 9M lbs (≈ 4,100 metric tons)

- SFWMD Calculated Load
 - S-79 + Tidal Basin (modeled)

Caloosahatchee Tributaries TMDL

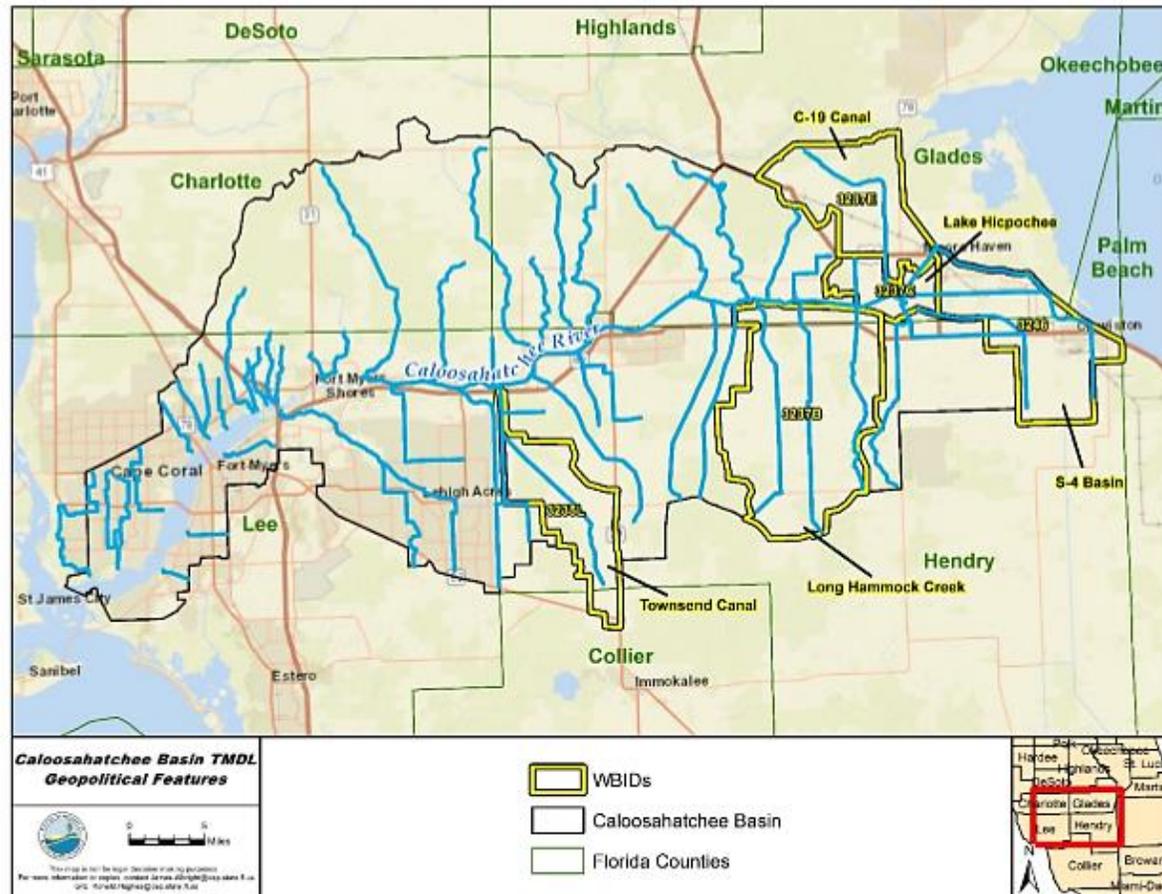


Figure I.1. Overview map showing the location of the S-4 Basin (WBID 3246), C-19 Canal (WBID 3237E), Lake Hicpochee (WBID 3237C), Long Hammock Creek (WBID 3237B), and Townsend Canal (WBID 3235L) in the greater Caloosahatchee River Basin

- TMDL adopted by FDEP in 2019 for Caloosahatchee Tributaries
 - S-4
 - C-19
 - Lake Hicpochee
 - Long Hammock Creek
 - Townsend Canal
- Establishes reductions for TN, TP, and BOD

Source: FDEP 2019 Caloosahatchee Tributaries TMDL

Caloosahatchee Tributaries TMDL

Table 5.1. TMDL components for nutrients in the Caloosahatchee River Basin tributaries

¹ The TMDL represents a 7-year rolling average of annual loads, not to be exceeded. Dividing by 365 yields daily TMDL loads.

² The required percent reductions listed in this table represent the reduction from all sources.

³ MOS is implicit.

NA = Not applicable

Waterbody (WBID)	Parameter	TMDL (maximum 7-year average load in lbs) ¹	WLA Wastewater (% reduction) ^{2,3}	WLA NPDES Stormwater (% reduction) ^{2,3}	LA (% reduction) ^{2,3}
S-4 Basin (3246)	TN	430,844	NA	23	23
S-4 Basin (3246)	TP	28,622	NA	27	27
S-4 Basin (3246)	BOD	664,946	NA	28	28
C-19 Canal (3237E)	TN	78,114	NA	48	48
C-19 Canal (3237E)	TP	5,167	NA	48	48
C-19 Canal (3237E)	BOD	186,354	NA	48	48
Lake Hicpochee (3237C)	TN	4,175,743	NA	2	2
Lake Hicpochee (3237C)	TP	227,423	NA	2	2
Lake Hicpochee (3237C)	BOD	5,768,701	NA	3	3
Long Hammock Creek (3237B)	TN	330,381	NA	42	42
Long Hammock Creek (3237B)	TP	25,384	NA	42	42
Long Hammock Creek (3237B)	BOD	773,946	NA	42	42
Townsend Canal (3235L)	TN	300,564	NA	37	37
Townsend Canal (3235L)	TP	28,749	NA	38	38
Townsend Canal (3235L)	BOD	673,151	NA	37	37

Source: FDEP 2019 Caloosahatchee Tributaries TMDL

BMAP Progress

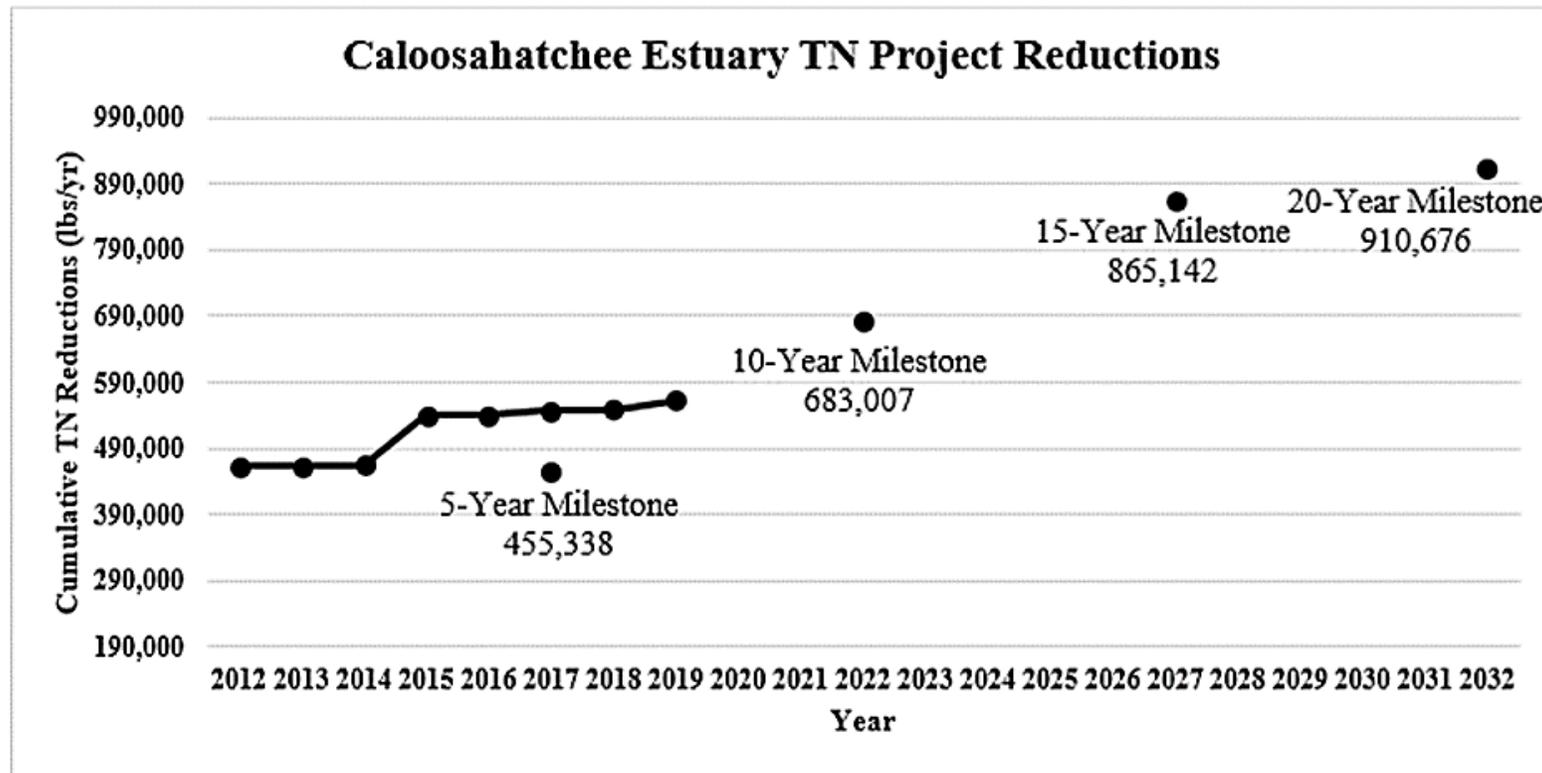


Figure ES-2. Estimated progress towards meeting the Caloosahatchee Estuary TN TMDL with projects completed through October 31, 2019

Source: FDEP 2020 BMAP Update

Minimum Flows & Minimum Water Levels Rule

- Amended in 2019
 - 457 cfs 30-day moving average at S-79
 - Maintain a salinity gradient that prevents significant harm to indicator species
 - MFL recovery strategy to be fully implemented and operational

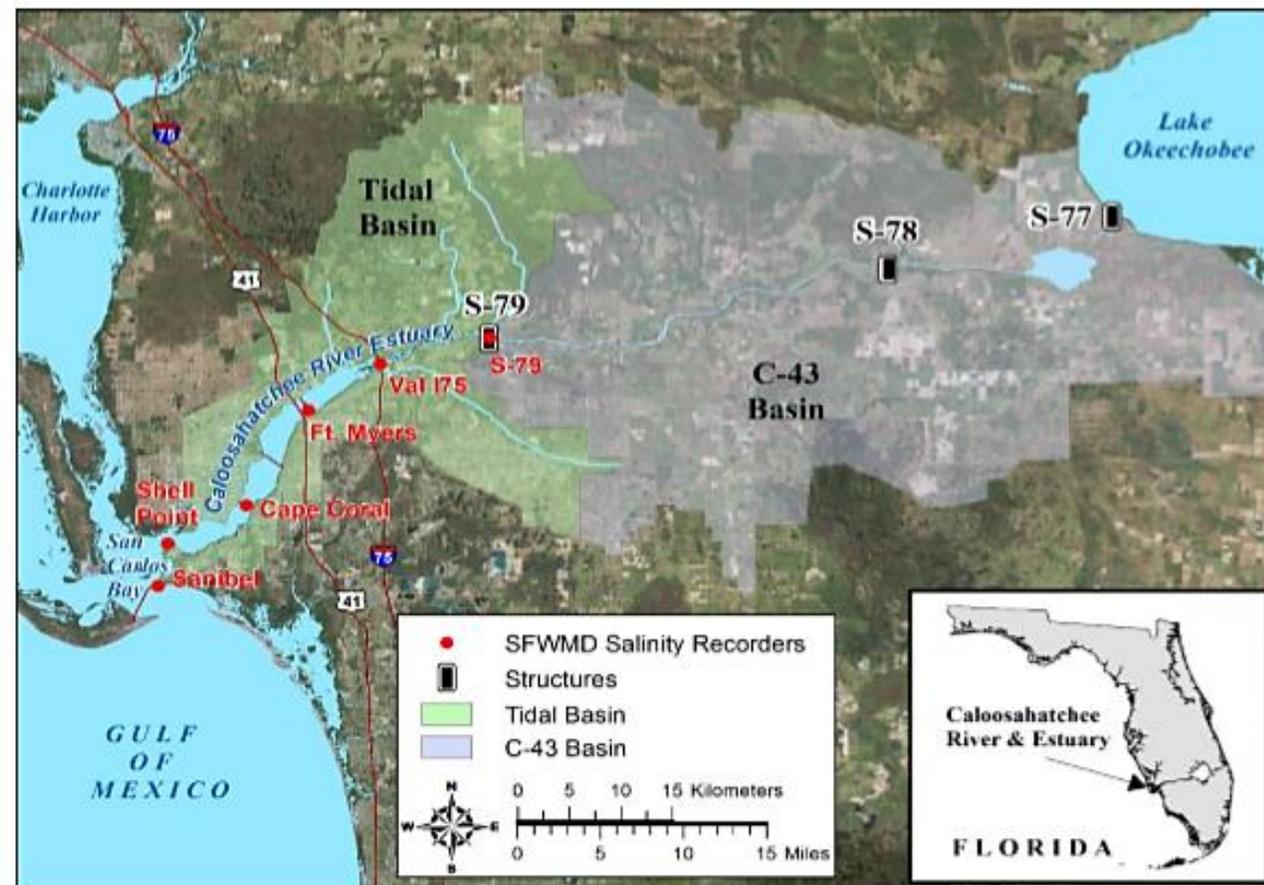
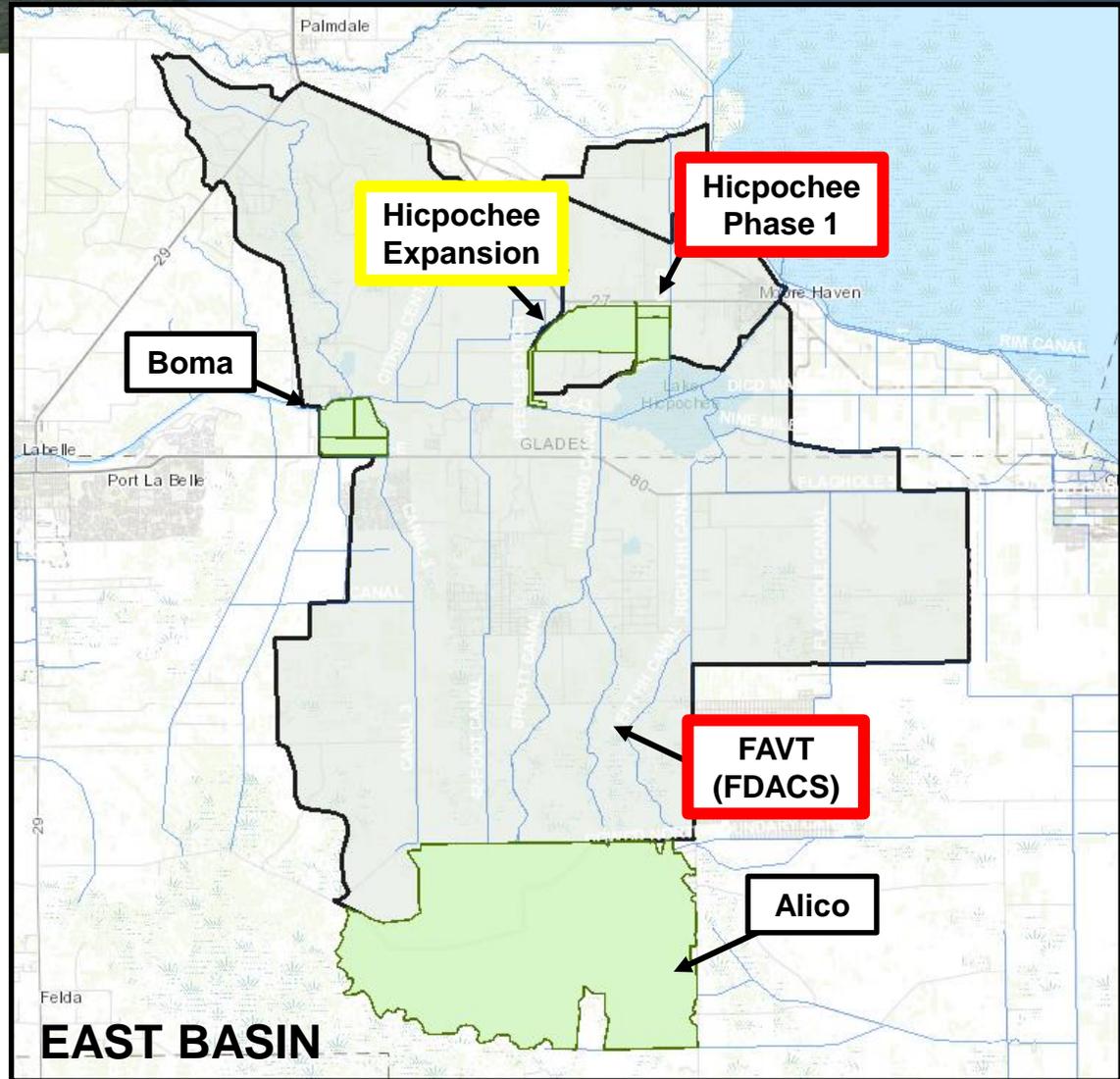
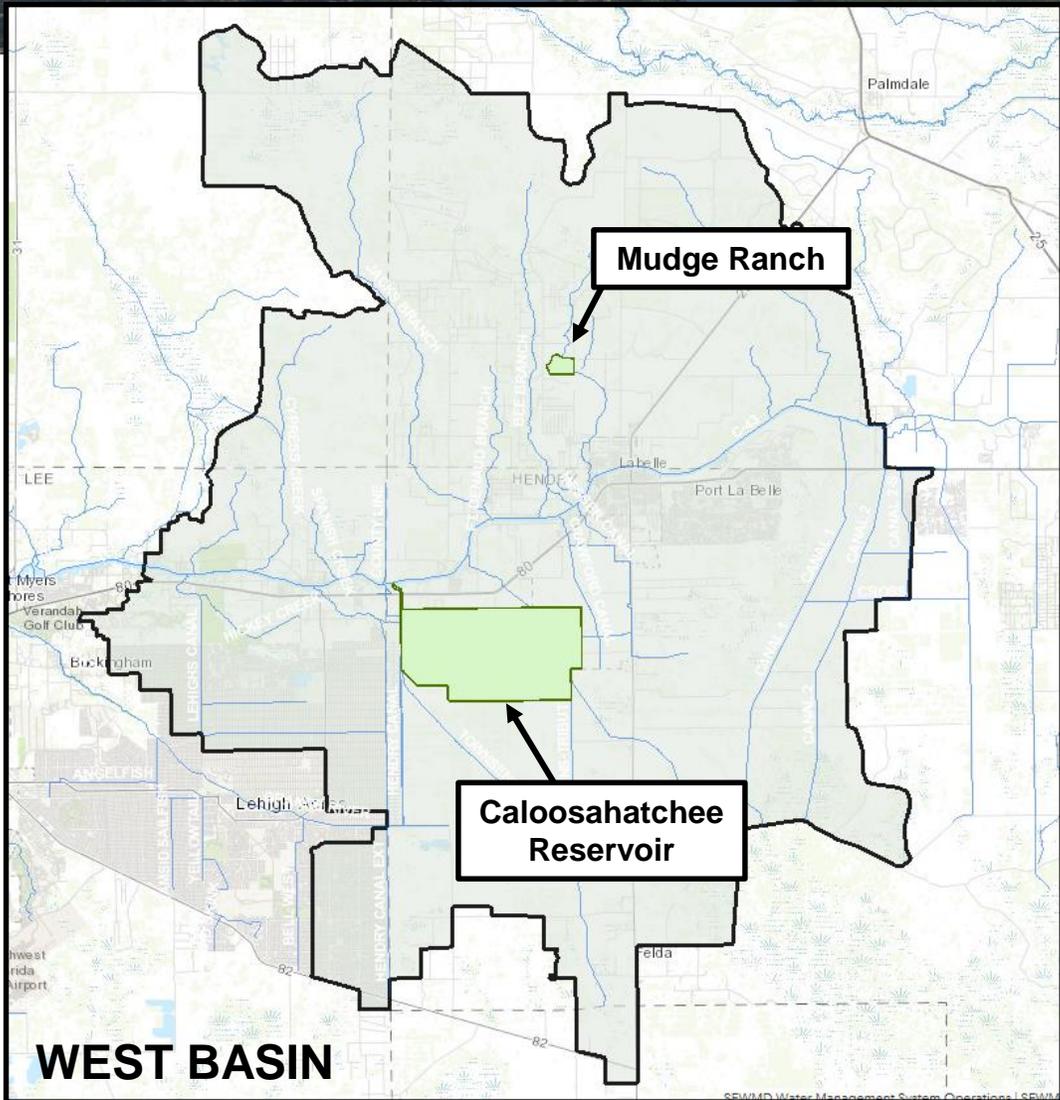


Figure 5. Basins, water control structures, and salinity monitoring for the Caloosahatchee Estuary.

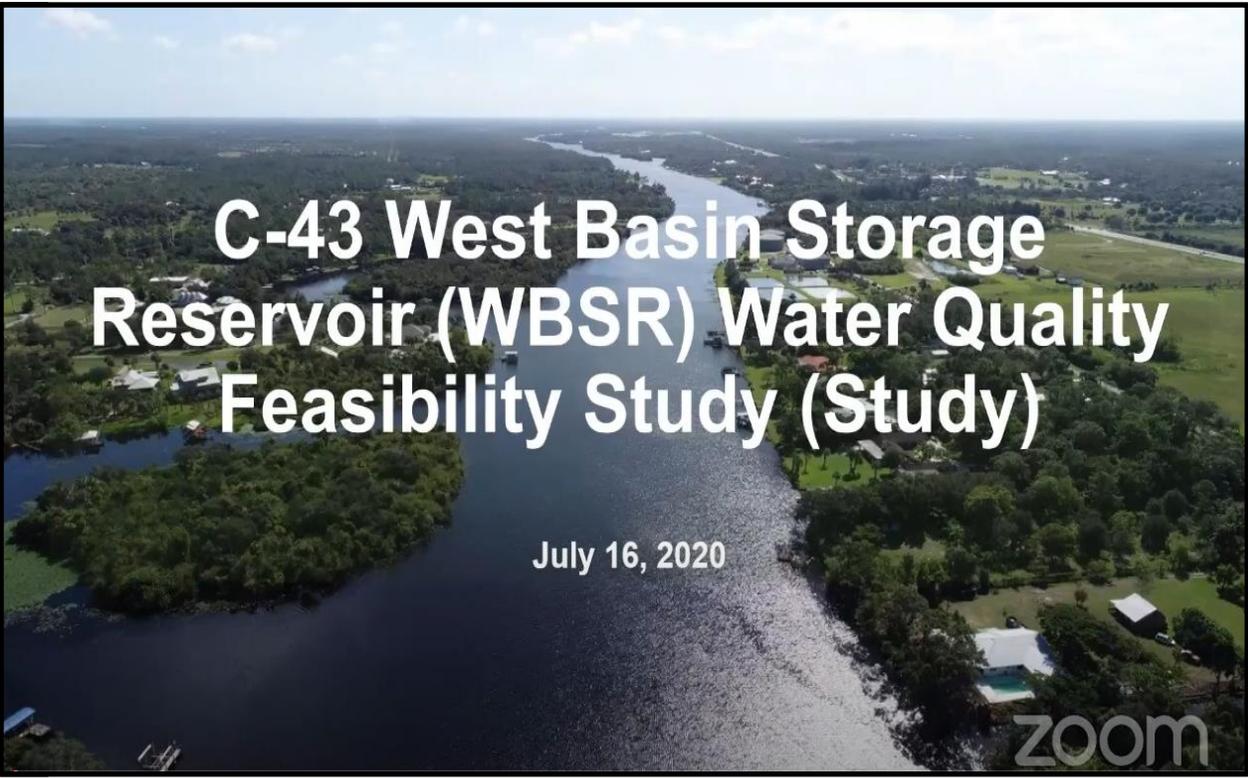
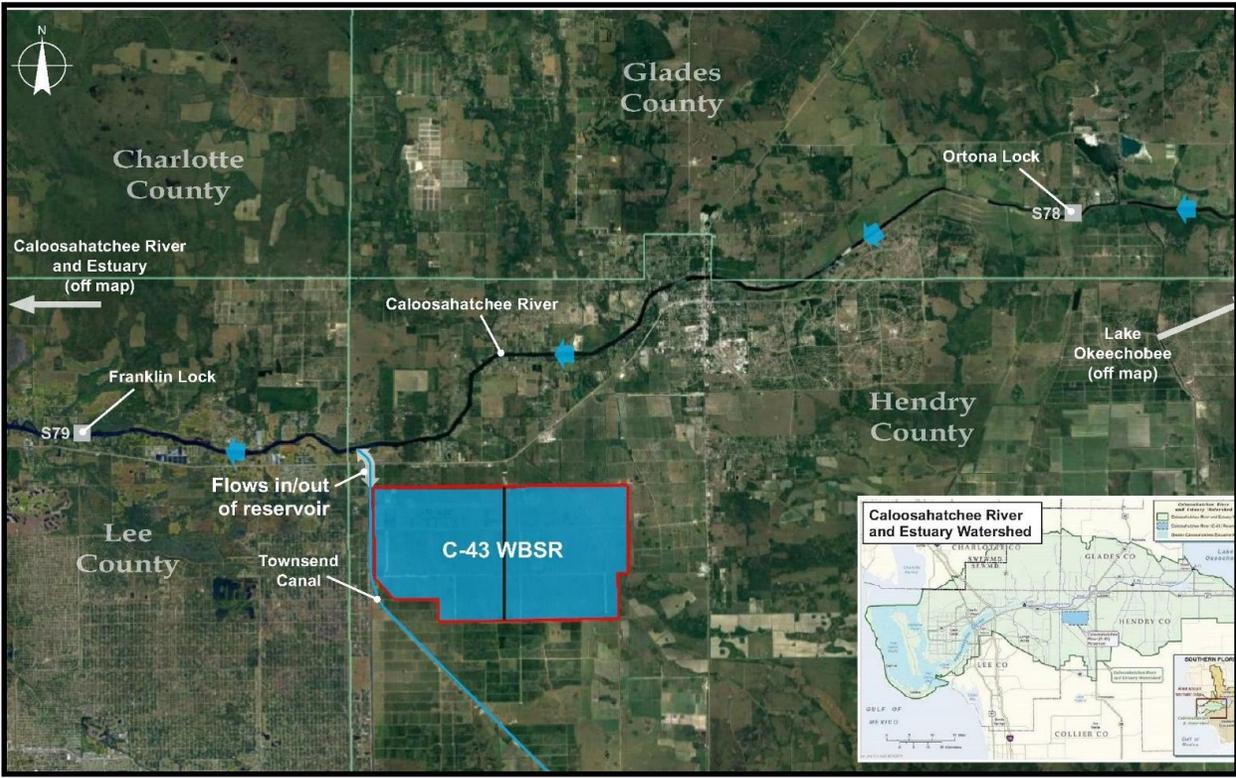


Projects & Initiatives

Watershed Construction Projects



Caloosahatchee Reservoir & Water Quality Feasibility Study



Storage Targets

➤ 2009 CRWPP

- Preferred Plan set 400,000 acre-ft storage target

Basin	Existing/Planned Storage (ac-ft)
East Caloosahatchee	120,000
West Caloosahatchee	170,000
CRW Total	290,000

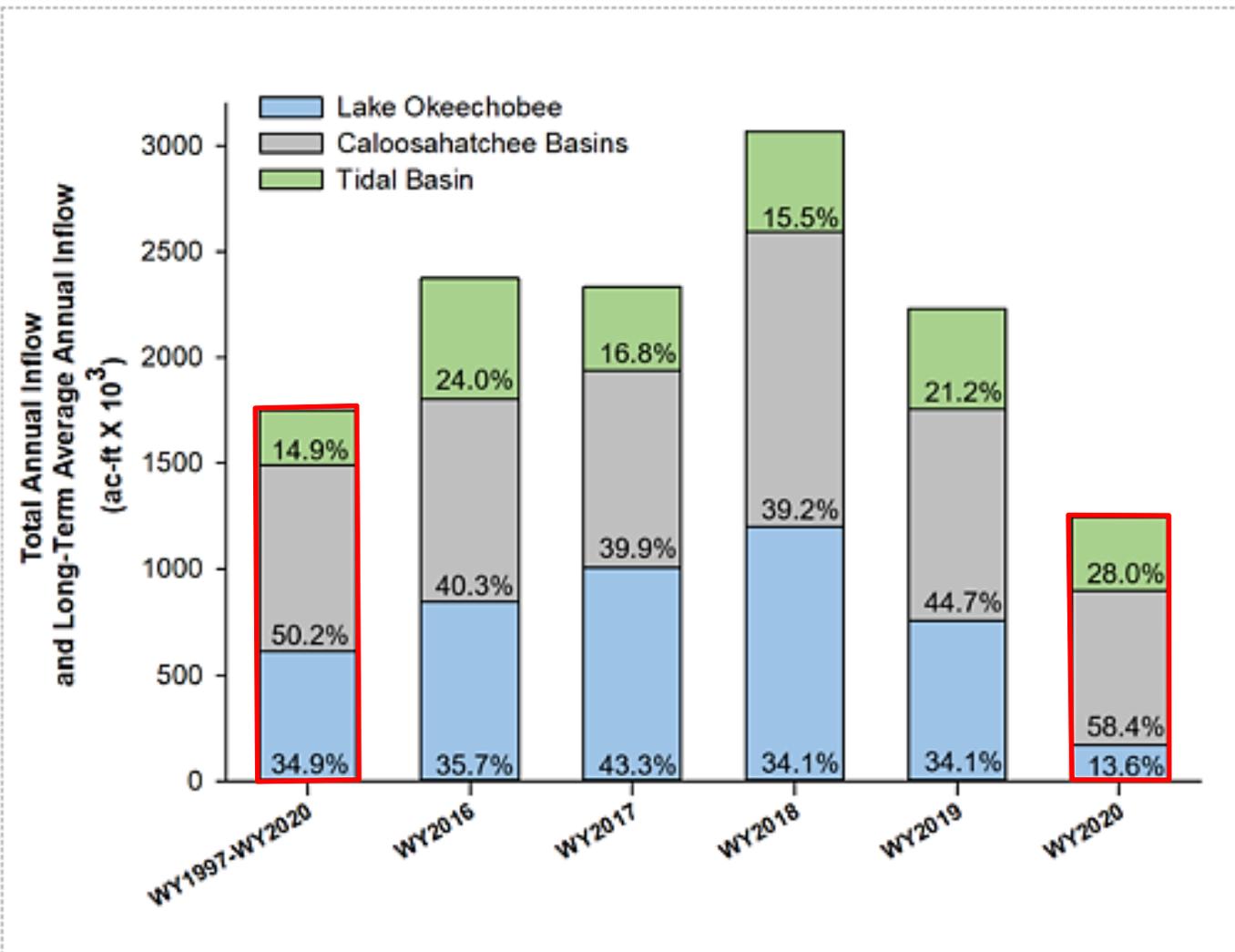
➤ Model Update

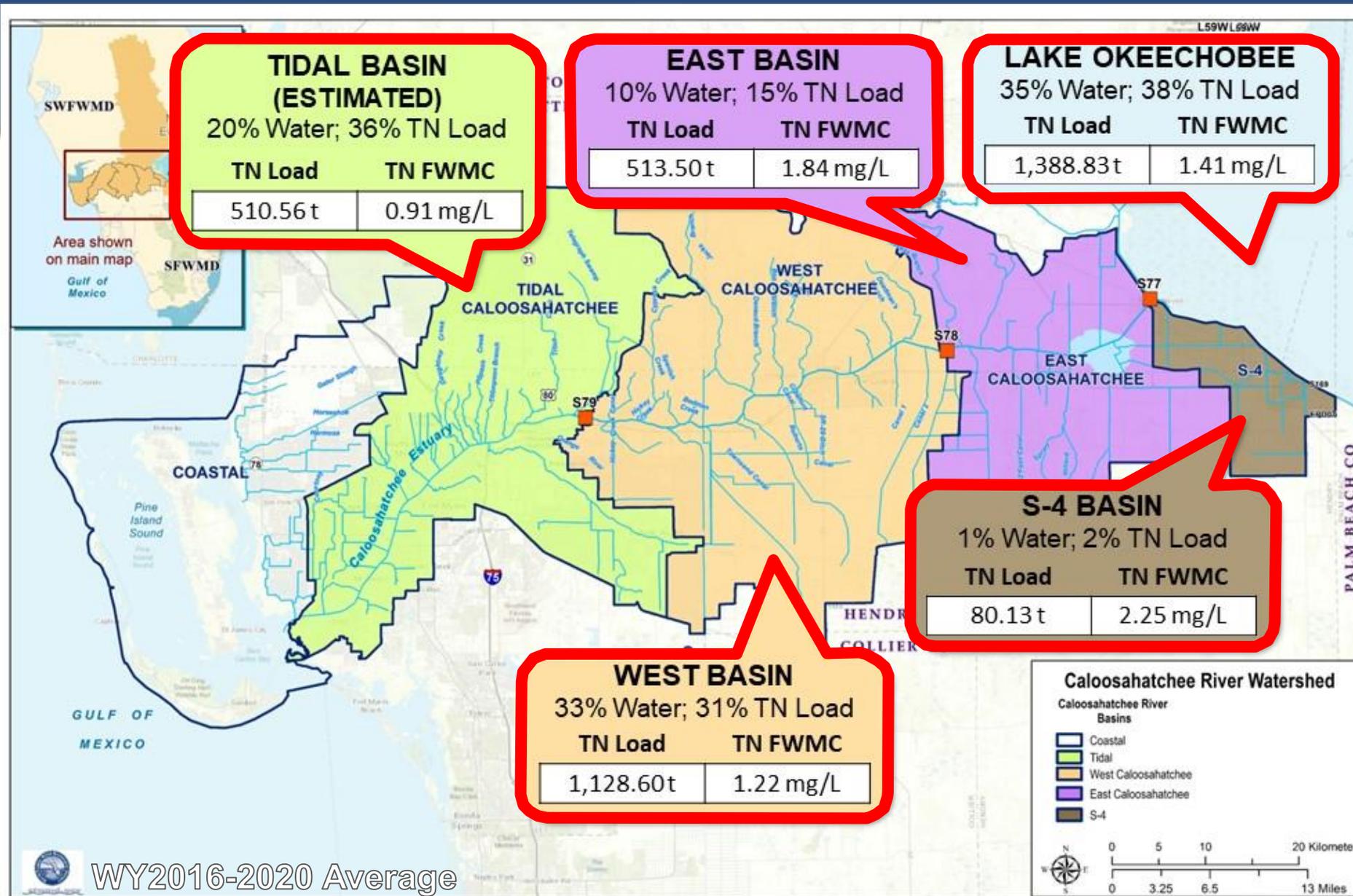
- Evaluate storage requirements

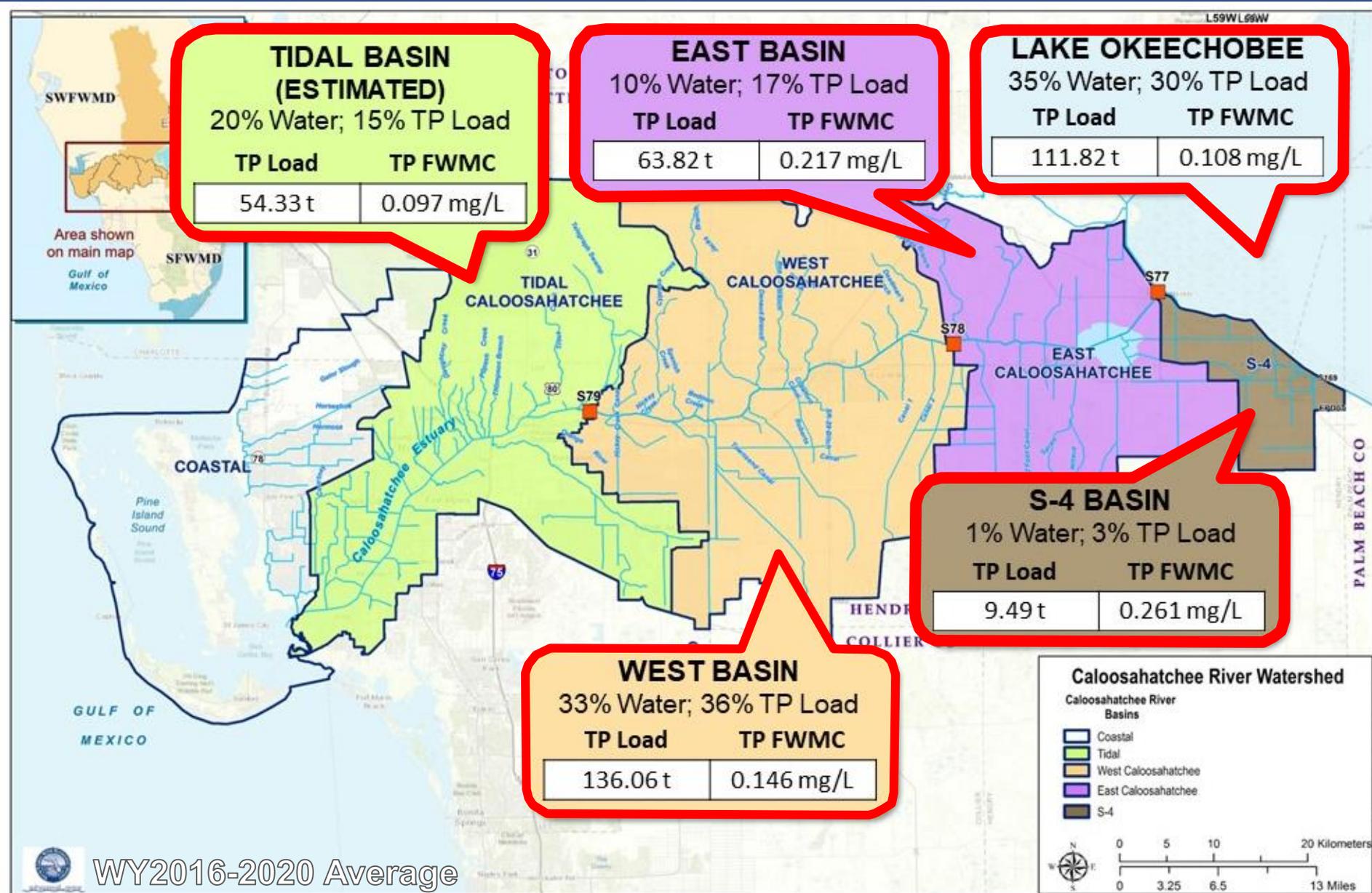


Basin Evaluations

Relative Contributions



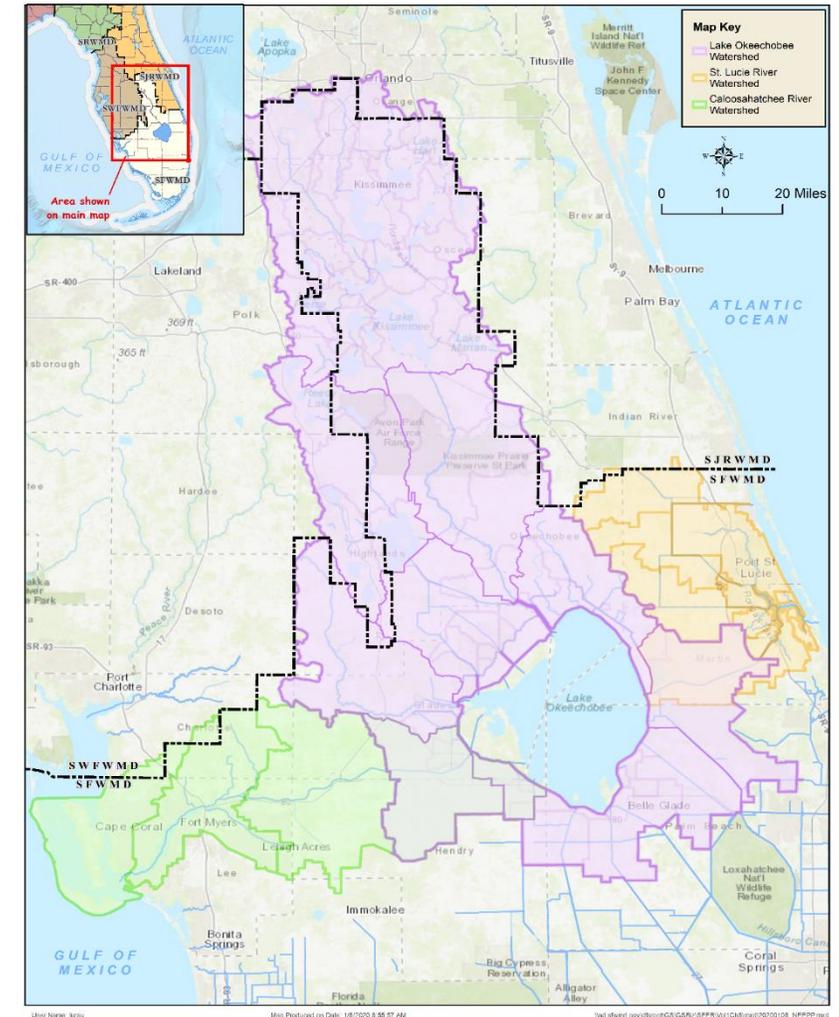




WY2016-2020 Average

Lake Okeechobee Contributions

- Interconnected Northern Everglades watersheds
- Each watershed has individual restoration goals and BMAPs
- Detailed assessments will focus on local drainage basins while important regional efforts continue

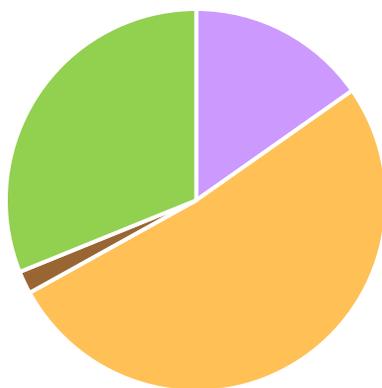




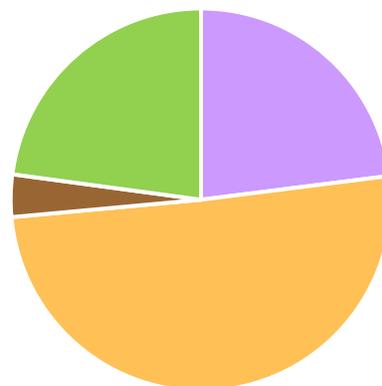
5-Year Average (WY2016 - 2020)

	TN (mt)	TN FWM (mg/L)	TN UAL (lbs/ac)	TP (mt)	TP FWM (mg/L)	TP UAL (lbs/ac)	Flow (ac-ft x 10 ³)	Area (acres)
West	1128.6	1.22	7.1	136.06	0.147	0.856	751.14	350,115
East	513.5	1.88	5.542	63.82	0.233	0.689	221.77	204,093
Tidal Basins	510.56	0.92	4.529	54.33	0.097	0.482	451.98	248,298
S-4	80.13	2.29	4.187	9.49	0.271	0.496	28.36	42,155

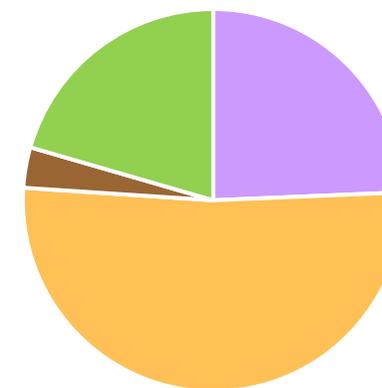
Flow (ac-ft)



TN (mt)



TP (mt)



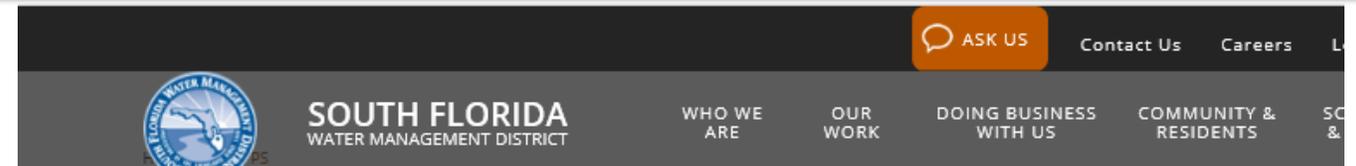
West
 East
 Tidal
 S-4

Next Steps

- Gather detailed information on focus area
- Perform detailed assessments to identify contributing sources and responsible entities
- Future workshops to discuss findings and recommendations
- Comments due by September 20, 2020.

Watershed Protection Planning Website

sfwmd.gov/WPPs



Northern Everglades Watershed Protection Plans

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

The 2016 Northern Everglades and Estuaries Protection Program (NEEPP; [Section 373.4595, F.S.](#)) describes the legislative intent to protect and restore surface water resources and achieve and maintain compliance with water quality standards in the Northern Everglades through a phased, comprehensive and innovative protection program that includes long-term solutions based upon the state's total maximum daily loads (TMDLs) established in accordance with [Section 403.067, F.S.](#) The Northern Everglades watersheds include Lake Okeechobee watershed and the Caloosahatchee and St. Lucie River watersheds and estuaries (see map).

NEEPP requires watershed protection programs to improve the quality, quantity, timing and distribution of water in the Northern Everglades ecosystem. The programs are watershed specific and comprised of research and monitoring, development and implementation of best management practices, refinement of existing regulations, and structural and nonstructural projects, including public works. The programs are driven by FDEP's Basin Management Action Plans (BMAPs) and supported, in part, by the Watershed Protection Plans (WPPs) developed by the District and integrated with FDEP and FDACS programs to control nutrient sources at the local, subregional, and regional levels.

GEOGRAPHIC AREA

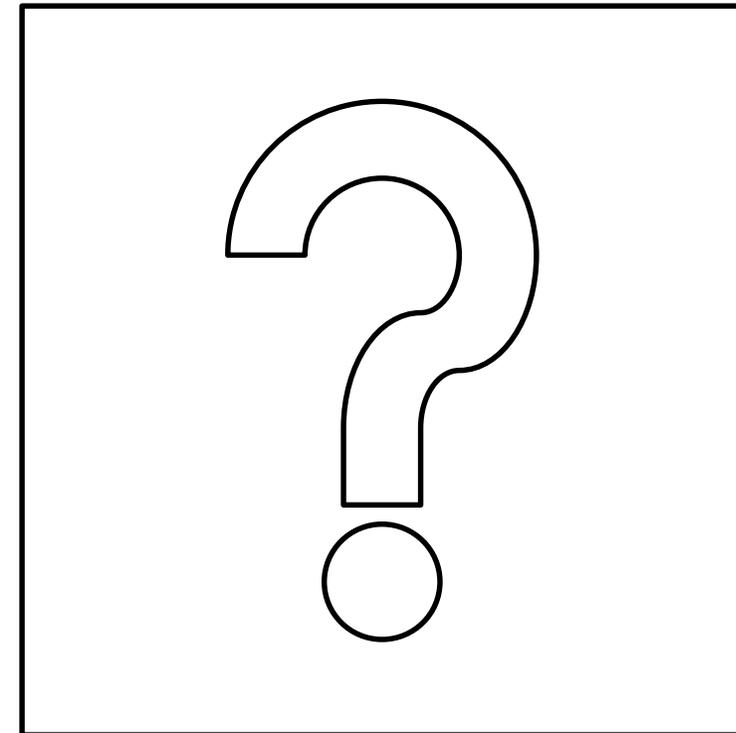
Northern Everglades map:

[Map of current Northern Everglades and Estuaries Protection Program boundaries](#)

Question & Answer Period

Have a question?

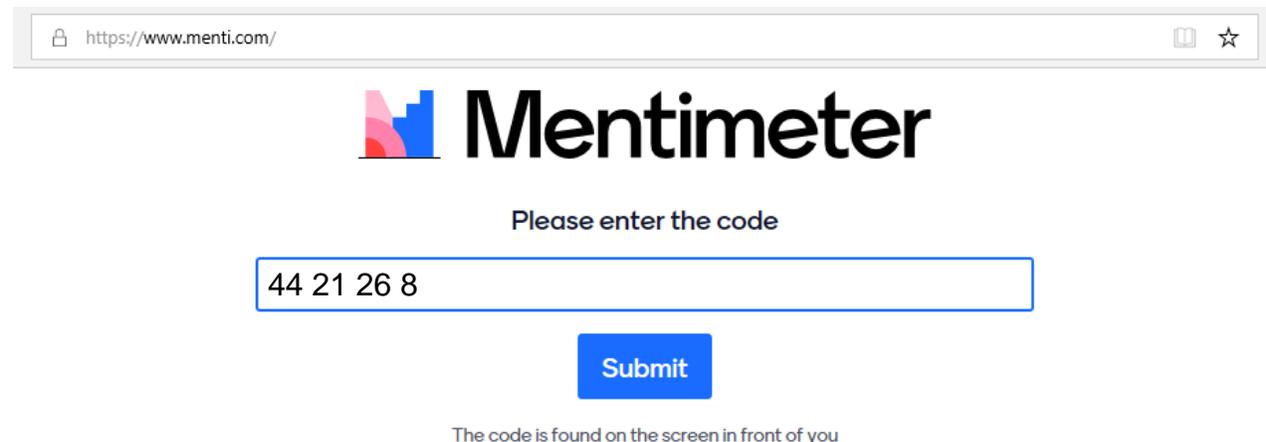
- Please use the Q & A feature in Zoom to type in your question so that we respond.



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- Step 1: Open a new internet browser on your computer or smart phone. (Leave the Zoom meeting window open)
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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
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- Phone
 - If you're participating via phone:
 - *9 Raises Hand
 - *6 Mute/Unmute



3:00



[SFWMD.gov/WPPs](https://www.sfwmd.gov/WPPs)