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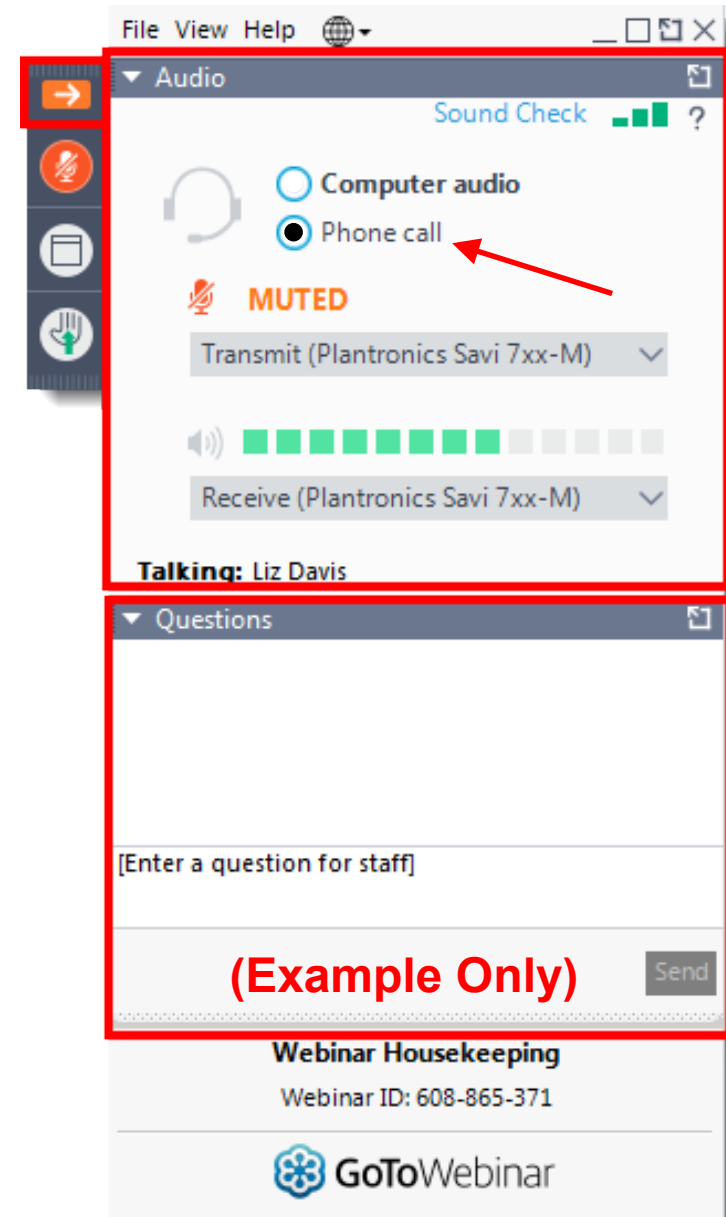
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12/20/2019





Caloosahatchee River and Estuary Basin Management Action Plan Draft BMAP Update Webinar

December 2019



Agenda

- Background
- Overview of the Draft BMAP Update
- Statewide Annual Report
- Next Steps



Background

Caloosahatchee Estuary and Tributaries TMDLs

Caloosahatchee River and Estuary BMAP

5-Year Review

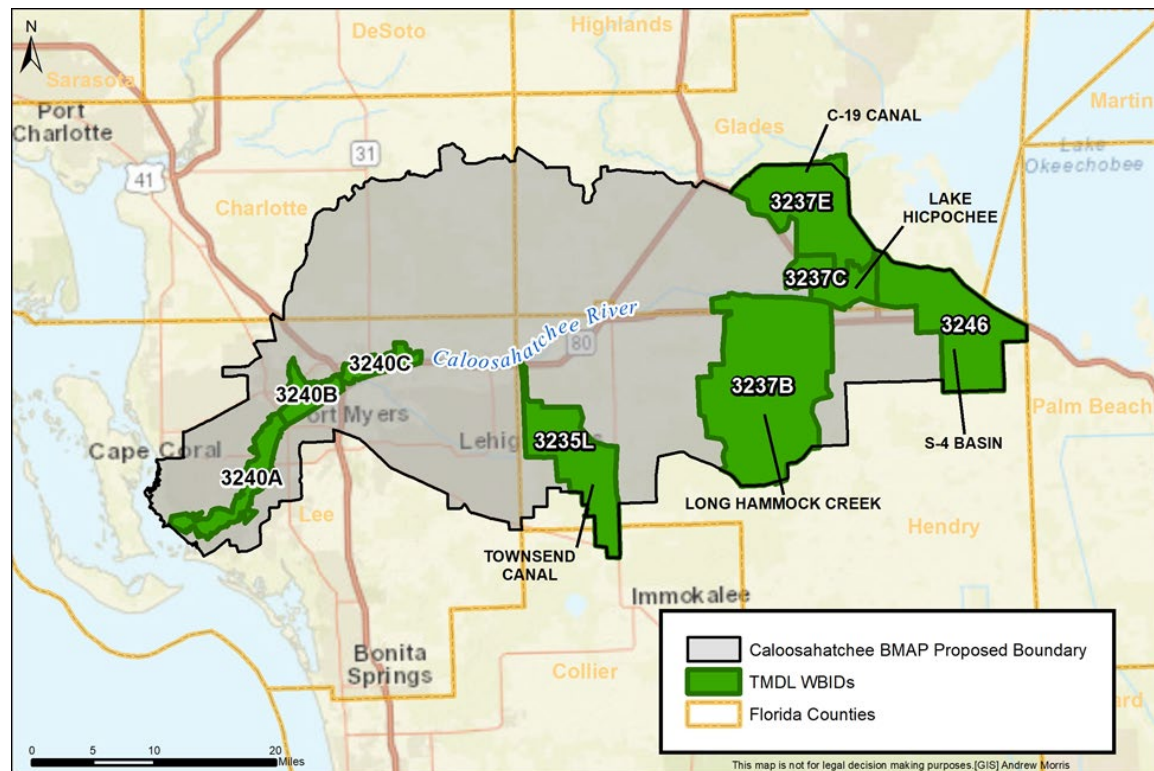
Executive Order 19-12



Background Information

1.1. Caloosahatchee Estuary and Tributary TMDLs

- Estuary total maximum daily load (TMDL) for total nitrogen (TN) adopted in 2009
- Tributaries TMDL for TN and total phosphorus (TP) adopted in 2019

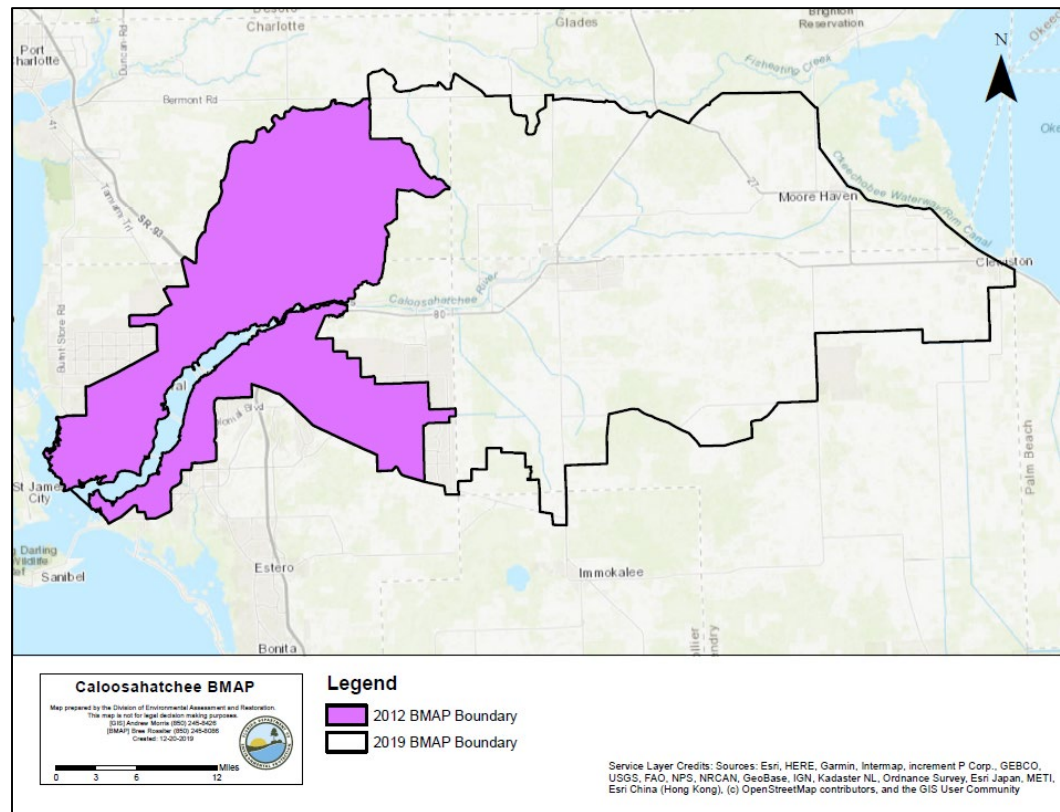




Background Information

1.2. BMAP

- BMAP adopted in November 2012 for tidal watershed
- 5-Year Review completed in November 2017 with recommendations to:
 - Expand BMAP boundary
 - Revise monitoring network
 - Set 5-year milestones
 - Update model and allocations

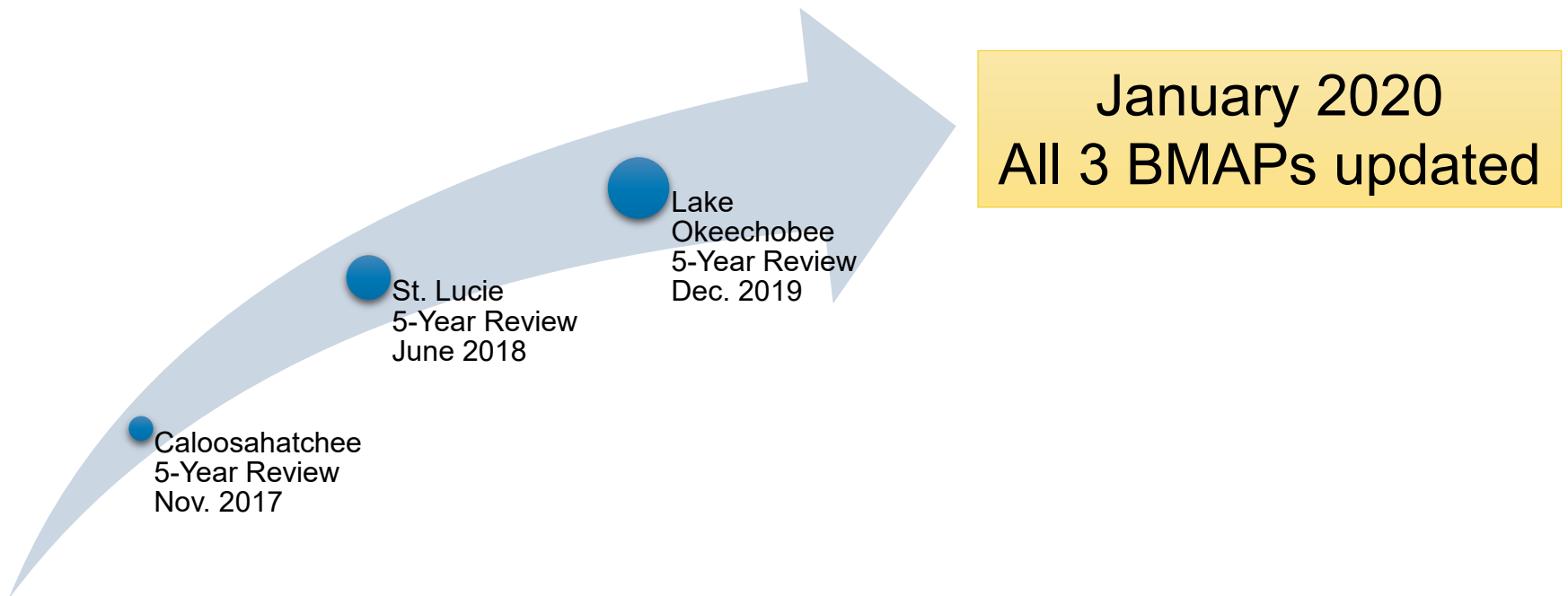




Executive Order 19-12

BMAP Directives

- Update restoration plans impacting South Florida communities within the year, including:





Questions & Comments





Draft BMAP Update

Chapter 2 – Modeling, Load Estimates, and Restoration Approach

Chapter 3 – Subwatersheds

Chapter 4 – Summary

Appendices A through D



Modeling, Load Estimates, and Restoration Approach

Chapter 2

- 2.1 - BMAP Modeling
- 2.2 - Calculation of Existing Loads and Allocations
- 2.3 - Basinwide Sources Approach
- 2.4 - TRA Approach
- 2.5 - Water Quality Monitoring Plan



Modeling, Load Estimates and Restoration Approach

2.1. BMAP Modeling

- 2.1.1 Hydrological Simulation Program - FORTRAN (HSPF) Model and Revision
- 2.1.2 Environmental Fluid Dynamics Code (EFDC) Model and Revisions
- 2.1.3 Use of Model for Allocations
- 2.1.4 Use of Model for Project Estimates



Modeling, Load Estimates, and Restoration Approach

2.2. Calculations of Existing Loads and Allocations

- 2.2.1. Existing Loads
 - The existing or starting TN and TP loads (lbs/yr) for the individual entities are shown in **Table 12**. No required reductions exist for TP.
- 2.2.2. Allocations
 - Geographic Information System (GIS) steps used to generate polygons with loading data for each entity
 - Starting loads
 - Starting load multiplied by required reduction %



Modeling, Load Estimates, and Restoration Approach

2.2 Calculation of Existing Loads and Allocations

Entity	Acres	TN Existing Load (lbs/yr)	TP Existing Load (lbs/yr)
Agriculture	404,890.3	2,815,061.2	172,489.3
Charlotte County	4,141.6	23,132.3	3,861.8
City of Cape Coral	26,404.0	154,986.9	57,471.6
City of Clewiston	1,941.0	6,482.2	982.3
City of Fort Myers	9,742.2	77,536.2	27,173.4
City of LaBelle	2,136.5	11,732.9	2,041.3
City of Moore Haven	641.8	1,795.8	315.0
Collier County	25.8	58.4	10.1
FDOT	5,084.7	25,290.7	5,367.1
Glades County	9,478.0	28,436.9	5,438.1
Hendry County/Port LaBelle CDD	20,190.0	64,165.4	13,423.8
Lee County	42,388.9	235,590.3	90,797.6
Lehigh Acres MSID	54,932.0	162,251.9	27,647.4
Lucaya CDD	41.2	350.1	84.1
Moody River Estates CDD	249.4	1,686.7	324.0
Portico CDD	250.7	1,204.4	138.4
River Hall CDD	1,243.6	6,667.4	718.7
Sail Harbour CDD	44.3	504.9	134.6
Verandah East CDD	452.0	2,119.0	273.7
Verandah West CDD	488.8	3,279.1	529.8
Natural Lands	262,618.4	333,188.7	23,121.5
WCD canals	983.3	3,939.5	536.3
Total	848,368.5	3,959,460.9	432,879.7

Table 12. TN and TP existing loads



Modeling, Load Estimates, and Restoration Approach

2.2 Calculation of Existing Loads and Allocations

Entity	TN Existing Load (lbs/yr)	TN Required Reduction (lbs/yr)	% Reduction
Agriculture	2,815,061.2	707,723.1	25.14%
Lee County	235,590.3	59,228.8	25.14%
Lehigh Acres MSID	162,251.9	40,791.1	25.14%
City of Cape Coral	154,986.9	38,964.6	25.14%
City of Fort Myers	77,536.2	19,493.1	25.14%
Hendry County/ Port LaBelle CDD	64,165.4	16,131.6	25.14%
FDOT	25,290.7	6,358.2	25.14%
Glades County	28,436.9	7,149.2	25.14%
Charlotte County	23,132.3	5,815.6	25.14%
City of LaBelle	11,732.9	2,949.7	25.14%
River Hall CDD	6,667.4	1,676.2	25.14%
City of Clewiston	6,482.2	1,629.7	25.14%
Verandah West CDD	3,279.1	824.4	25.14%
Verandah East CDD	2,119.0	532.7	25.14%
City of Moore Haven	1,795.8	451.5	25.14%
Moody River Estates CDD	1,686.7	424.0	25.14%
Portico CDD	1,204.4	302.8	25.14%
Sail Harbour CDD	504.9	126.9	25.13%
Lucaya CDD	350.1	88.0	25.14%
Collier County	58.4	14.7	25.19%

Table 13. TN required reductions



Modeling, Load Estimates, and Restoration Approach

2.2 – Calculation of Existing Loads and Allocations

Project Credit Calculations

- Create load estimation shapefile
- Clip load estimation shapefile to project treatment areas to obtain project starting loads
- Use project starting loads in calculation worksheets and calculate credits



Restoration Approach

2.3. Basinwide Sources Approach

Addressing nutrients from various source categories through programmatic and policy updates

- 2.3.1. Agriculture
- 2.3.2. Septic Systems
- 2.3.3. Stormwater
- 2.3.4. Wastewater Treatment



Restoration Approach

2.3. Basinwide Sources (Continued)

- **Agriculture**

- Provide list of all unenrolled landowners within one year
- Perform onsite inspections every two years
- Update and reevaluate existing BMP manuals and revise rules as necessary within five years
- Implement additional agricultural projects or practices

- **Septic Systems**

- Develop master wastewater treatment feasibility analyses to identify specific areas to be sewerred within 20 years
 - Urbanized areas and urban clusters
- Identify alternative methods to address loads from septic systems in areas not targeted for sewerred
- Identify sources of funding to address nutrient loading from septic systems



Restoration Approach

2.3. Basinwide Sources (Continued)

- **Stormwater**

- BMAP designates all U.S. Census–designated urban clusters as a regulated Phase II municipal separate storm sewer system (MS4)
- Update the stormwater design and operation requirements in Environmental Resource Permit rules
 - Incorporate the most recent scientific information available to improve nutrient reduction benefits

- **Wastewater Treatment**

- BMAP sets TP and TN effluent limits for individually permitted wastewater facilities and activities
- 53 individually permitted facilities or activities in Caloosahatchee watershed
 - 8 NPDES permits authorize discharge directly to surface waters



Restoration Approach

2.4 TRA Approach

- 2.4.1 Overview

- Used measured data to evaluate TP and TN concentrations, as well as flow
- Compared with benchmarks to identify highest priority basins
 - Benchmarks not intended to measure progress towards restoration; only to prioritize resources

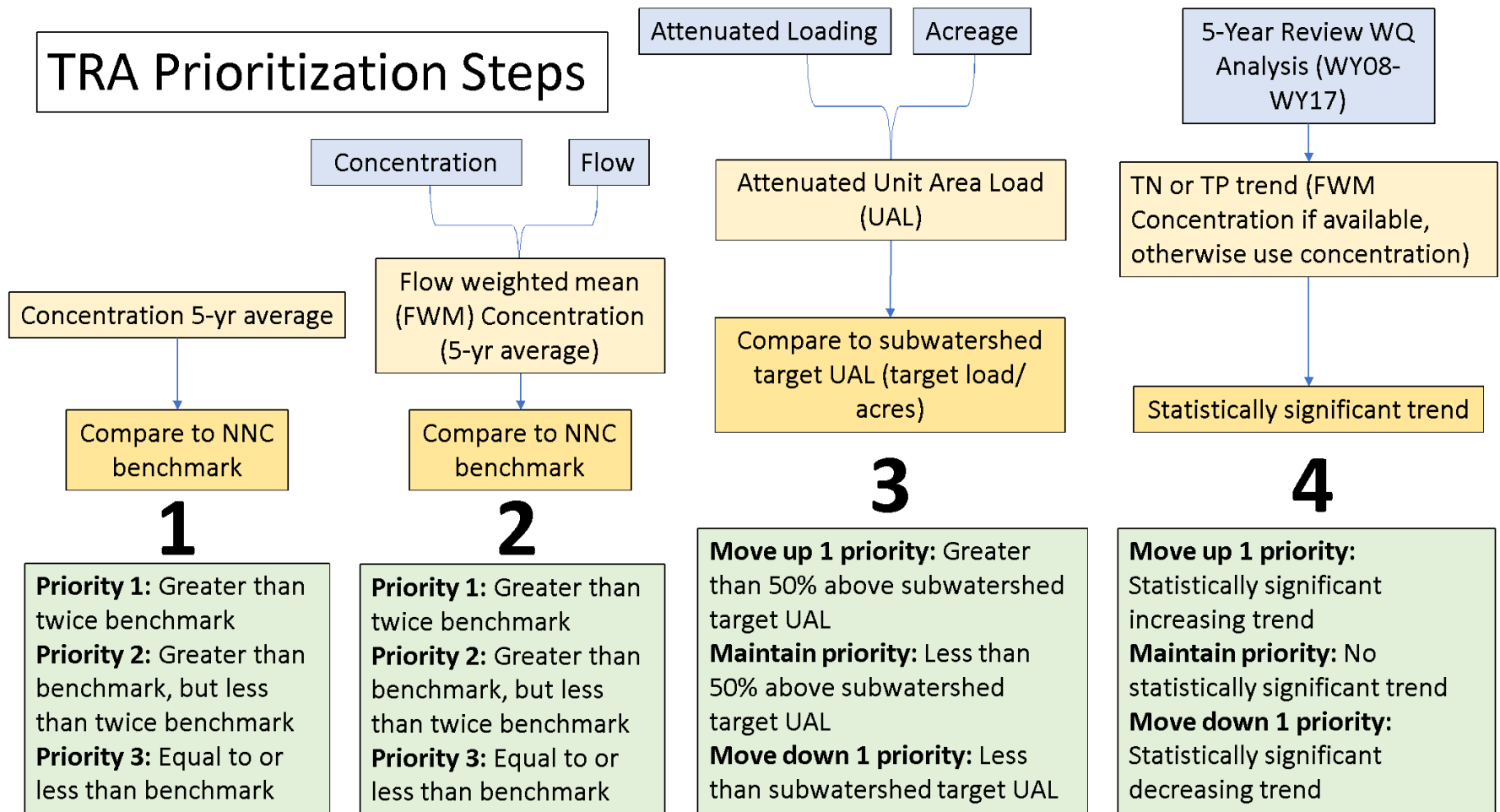
- 2.4.2. Evaluation

- Assessed and prioritized systematically



Restoration Approach

2.4. TRA Approach (Continued)





Restoration Approach

2.5 Water Quality Monitoring Plan

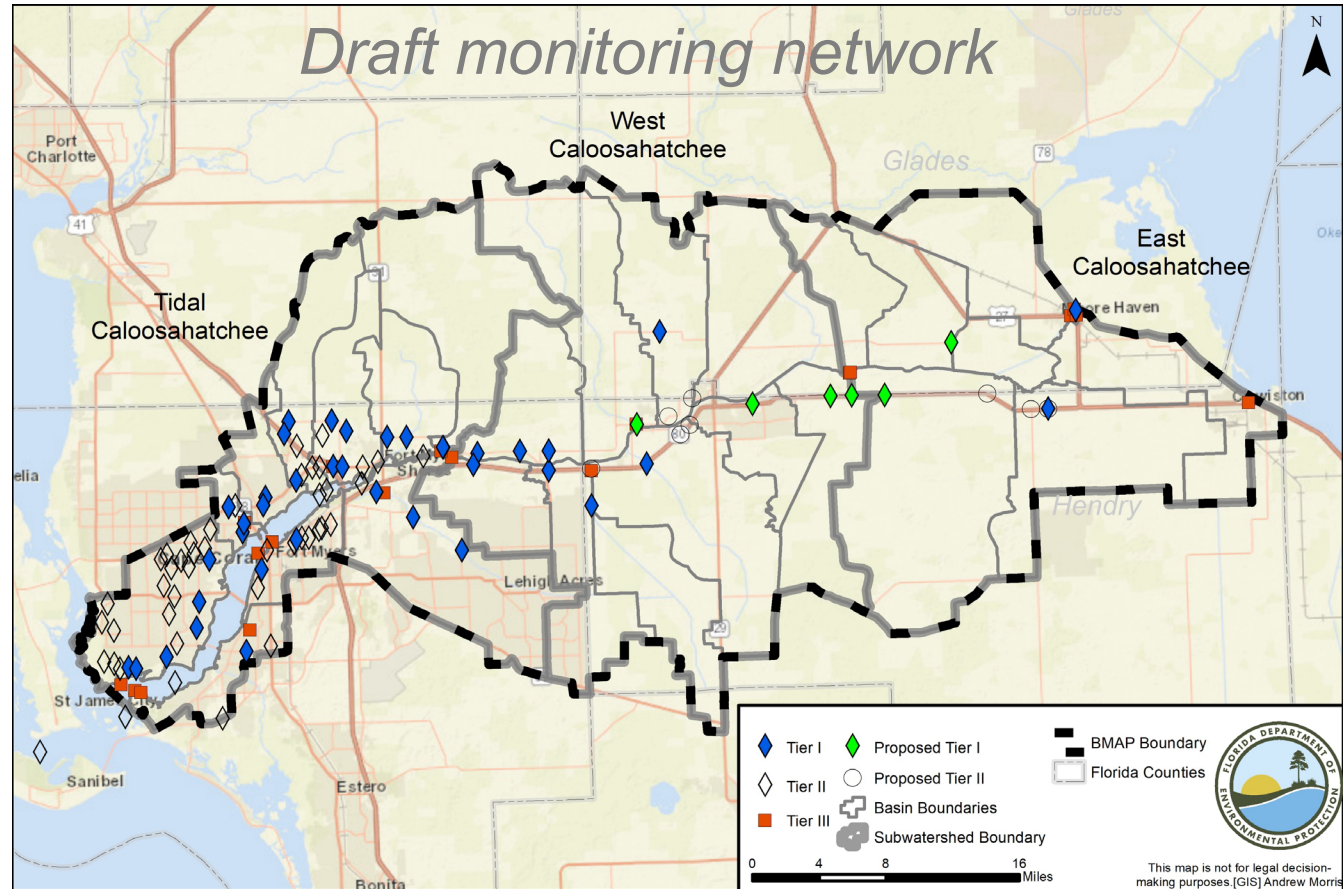
- 2.5.1. Objectives, Parameters, Frequency
 - Primary Objective: track trends in TN and TP loads and concentrations by subwatershed and basin
 - Secondary Objectives: better focus management efforts, measure the effectiveness of individual or collective projects
- 2.5.2. Monitoring Network
 - Over 50 stations
- 2.5.3. Data Management and QA/QC
 - Upload once every six months to WIN



Restoration Approach

2.5. Water Quality Monitoring (Continued)

- Over 50 stations
- Sampled by:
 - Local entities
 - DEP
 - SFWMD
 - USGS
- Tiers 1, 2, 3





Subwatersheds

Chapter 3

- **Section 3.1 through Section 3.3**
- Land use summaries based on HSPF
- Monitoring network stations
- Priority results of the TRA evaluation
- Project tables
 - Existing and Planned
 - Future



Subwatersheds

(Continued)

Table 35. Summary of land uses in the West Caloosahatchee Subwatershed

HSPF Land Use Code	Land Use Description	Acres	% Total
1	Low Density Residential	36,140	10.6
2	Developed Open Space/Disturbed	7,888	2.3
3	Medium Density Residential	2,752	0.8
4	High Density Residential	235	0.1
5	Commercial/Institutional/Transportation	1,334	0.4
6	Industrial/Extractive	1,066	0.3
7	FDOT Right-of-Way	1,569	0.5
8	Sugar Cane	2,290	0.7
9	Row and Field Crops	9,822	2.9
10	Nurseries/Ornamentals/Vineyards	931	0.3
11	Citrus Groves/Other Groves	54,891	16.2
12	Improved Pasture	58,592	17.2
13	Rangeland/Unimproved Pasture/Shrub	46,977	13.8
14	Upland Forest	55,589	16.4
15	Wetland	56,212	16.5
16	Water	3,476	1.0
	Total	339,764	100.0



Subwatersheds

Draft monitoring in the West subwatershed

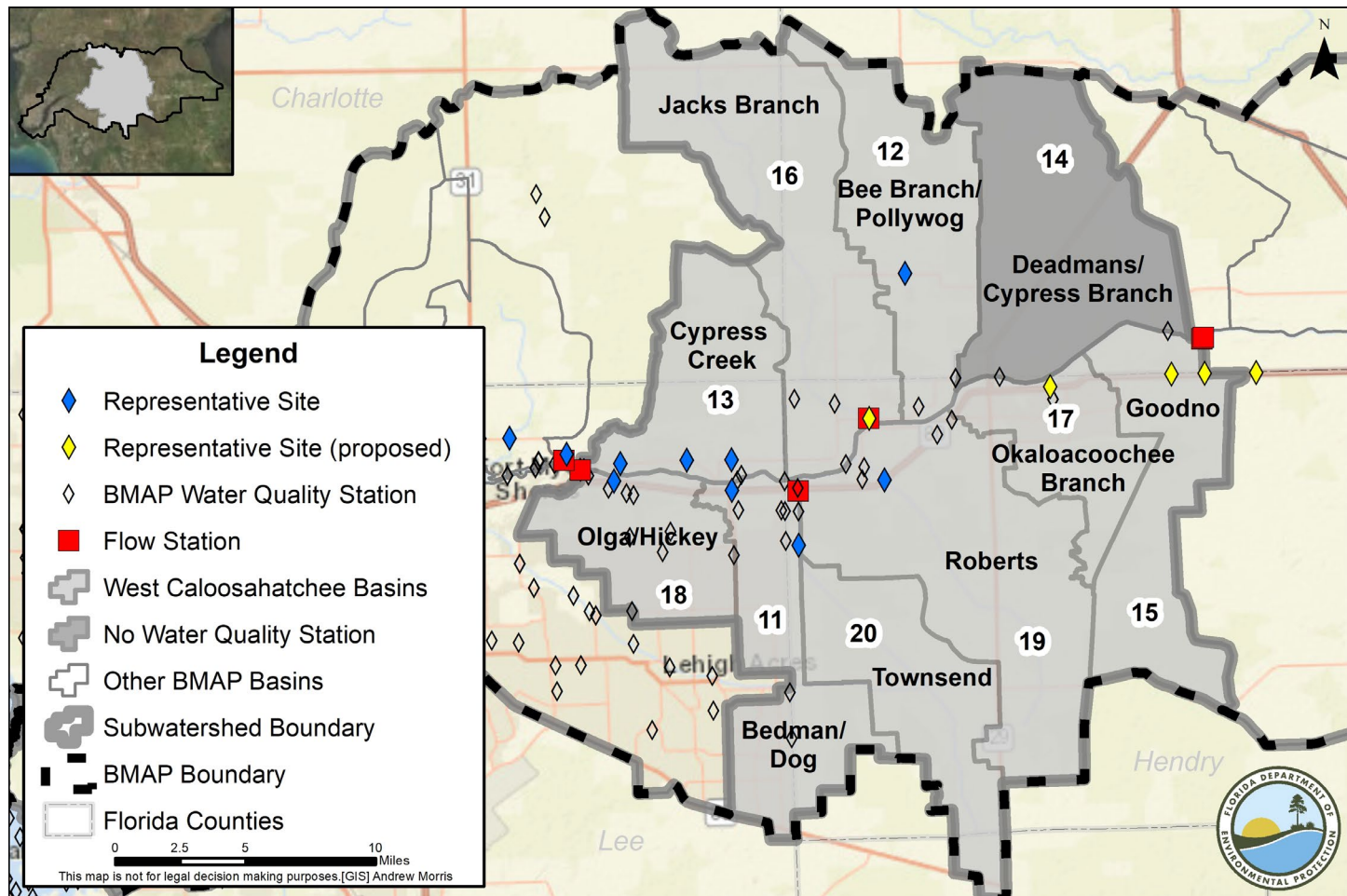


Figure 6. West Caloosahatchee Subwatershed monitoring stations



Summary

Chapter 4

- 4.1 TRA Evaluation Results
- 4.2 Request for Information (RFI) Summary
- 4.3 Future Growth
- 4.4 Compliance



Summary

4.1. TRA Evaluation Results

- Process discussed in 2.4.
- Summary table of results for all basins within all subwatersheds
- Results being finalized, and will be included in draft report.



Summary

4.2. RFI Responses

- RFI process generated 33 responses
 - Mainly from the private sector
- Submittals included:
 - On-the-ground projects, such as STAs
 - Technologies that could be implemented in both aquatic and terrestrial environments
- All submittals were reviewed and included in Appendix D
 - Additional details on all responses are on file with DEP and may be considered as opportunities arise in the future



Summary

4.3. *Future Growth*

- New development categories
 - Urban development
 - Agriculture
- Addressed through a variety of mechanisms as well as other provisions of Florida law
- BMAP specific elements to address all current and future WWTF effluent, septic systems, and stormwater sources
- Any additional loading will be evaluated during future BMAP review efforts
 - Additional restoration actions may be required to remediate impacts



Appendix A

BMAP Projects Supporting Information

- Provides additional details for the project tables included in **Chapter 3**
- Explains the standardized categories for the project status
- Includes definitions of the terms used in the tables



Appendix B

Agricultural Enrollment and Reductions

- Language provided by FDACS
 - FDACS role in BMP implementation and followup
 - Adopted BMAP agricultural land use and enrollment
 - Enrollment information by subwatershed
 - Unenrolled agricultural acreage
 - Recommended updates to land use
 - Potential site-specific nutrient management measures
- Figure and table structure provided for some data that hasn't been finalized. Will be included in final report using this structure.



Appendix C

Water Control Districts and Special Districts

- In lieu of numeric allocations, WCDs commit to implementing specific canal and right-of-way BMPs and other activities.
 - Report annually to DEP
- Background information and BMP plans specific to each WCD available in this appendix



Appendix D

RFI Responses

- **Table D-1** summarizes the submittals.
- Location Information
 - References TRA IDs and subwatersheds in **Chapter 3** maps
- Submitted by
 - Name of company that submitted RFI
- Project Name
 - DEP assigned project name based on RFI information
- Project Type
 - DEP assigned project type based on RFI information

Table D-1. Summary of responses received for RFI 2020018

Location Information	Submitted by	Project Name	Project Type
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Questions & Comments





Statewide Annual Report (STAR)

STAR Background

STAR 2019 Progress

STAR 2020 Timeline



STAR Background

- Requirement under Section 403.0675 Florida Statutes (F.S.) to provide an annual update to the Governor and Legislature
- Summarizes accomplishments in the BMAPs statewide
- Reports on restoration projects and management strategies
- All BMAP reporting periods align with calendar year
- Submitted to the Governor and the Legislature by July 1 of each year
- Annual meetings → opportunity to highlight stakeholder activities

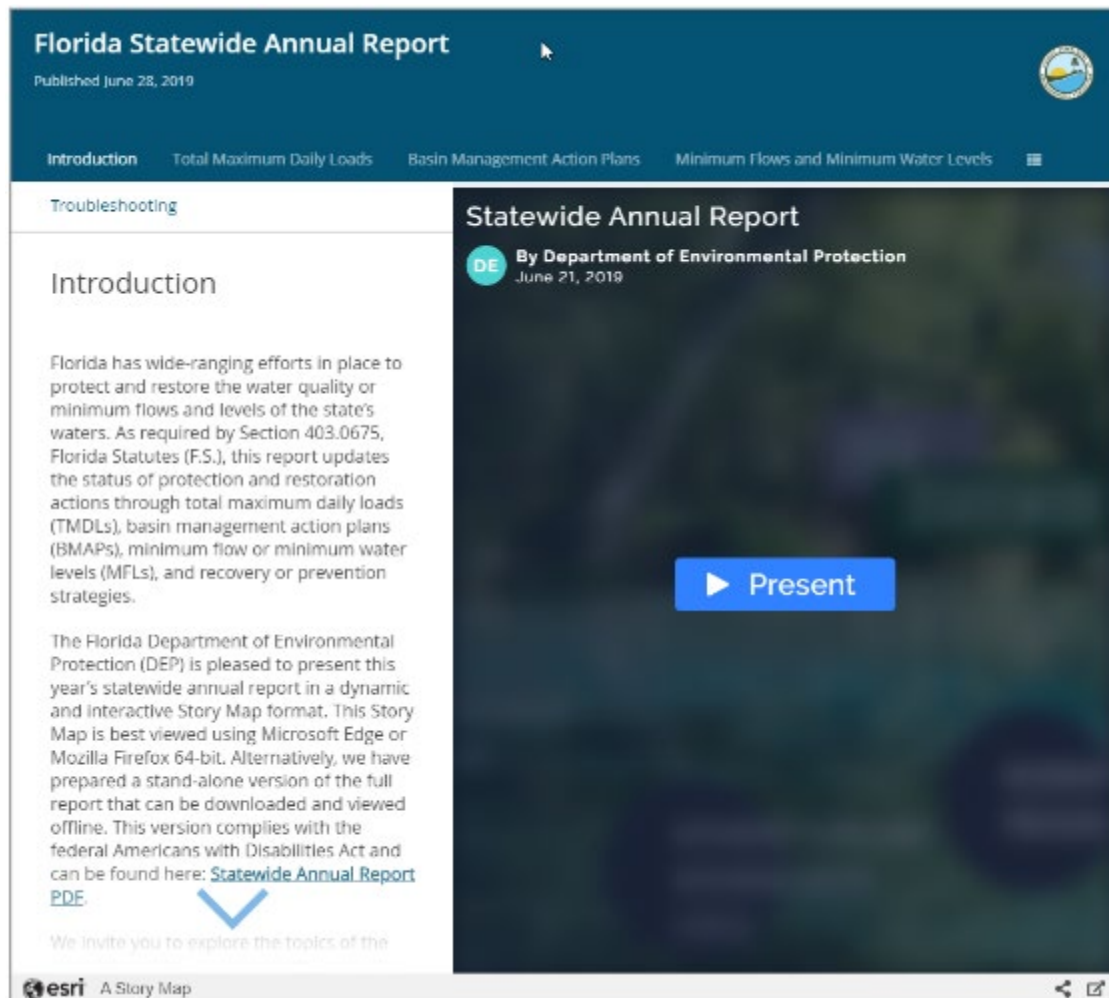


STAR

Second STAR submitted to the Governor and the Legislature June 28, 2019

Viewable as interactive story map

<https://floridadep.gov/STAR>





STAR Timeline





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GovDelivery Notifications

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12/20/2019

Basin Management Action Plans (BMAP) Updates/Notifications Topics	Notifications on upcoming public meetings and the department's activities related to the development and implementation of BMAPs
<u>All Updates/Notification</u>	For all BMAPs statewide
<u>Bacteria BMAPs</u>	For Bacteria (pathogen) BMAPs statewide
<u>Central Florida</u>	For waters in the Central Florida region including the Lake Harney, Lake Monroe, Middle St. Johns River, and Smith Canal, Lake Jesup Watershed, Ocklawaha River, Orange Creek, and Wekiva River BMAPs.
<u>Indian River Lagoon</u>	Indian River Lagoon Basin
<u>Northeast Florida</u>	For waters in the Northeast Florida region including the Lower St. Johns BMAP
<u>Northern Everglades</u>	For waters in the Northern Everglades region including the Caloosahatchee River and Estuary, Lake Okeechobee, and St. Lucie River and Estuary BMAPs.
<u>Northwest Florida</u>	For waters in the Northwest Florida region including Apalachicola River, Chipola River, Choctawhatchee Bay, St Andrews Bay, Pensacola, and Perdido Bay BMAPs
<u>Southeast Florida</u>	For waters in the Southeast Florida region including Lake Worth Lagoon, Palm Beach Coast, Southeast Coast, and Biscayne Bay BMAPs
<u>Southwest Florida</u>	For waters in the Southwest Florida region including the Everglades West Coast BMAP, Charlotte Harbor Basin, Sarasota River, Peace River, Myakka River, and Upper Peace Chain Of Lakes.
<u>Springs</u>	For Springs BMAPs statewide



Next Steps

- Submit comments on draft BMAP by **January 15, 2020** to Brianna.Rossiter@FloridaDEP.gov
- Submit STAR project updates by **January 15, 2020**
- Tentative Public meeting late **January 2020**
- Updated BMAP **January 2020**



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