



Lake Okeechobee Basin Management Action Plan 5-Year Review and BMAP Update

July 30, 2019



Agenda

- *Overview of Lake Okeechobee Basin Management Action Plan (BMAP)*
- *5-Year Review Status*
- *BMAP Update Timeline*
- *Statewide Annual Report*
- *TMDL Prioritization Update*
- *Next Steps*



Overview of Lake Okeechobee BMAP

Lake Okeechobee Total Maximum Daily Load (TMDL)

Lake Okeechobee BMAP



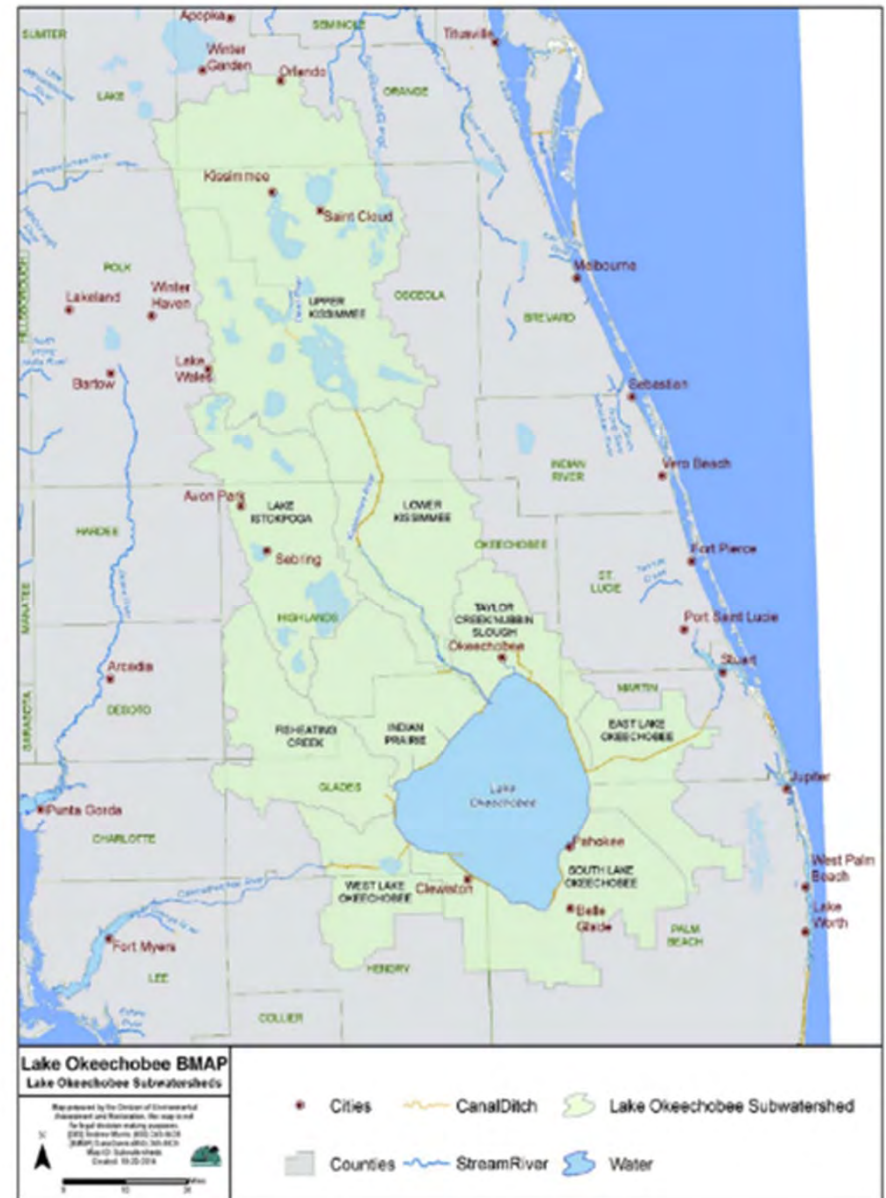
Lake Okeechobee TMDL

- Total maximum daily load (TMDL) for total phosphorus (TP) adopted in 2001
- TMDL is a TP load of 140 metric tons per year (mt/yr):
 - 35 mt/yr fall directly on the lake through atmospheric deposition
 - Remaining 105 mt/yr allocated to the entire Lake Okeechobee Watershed (LOW)
- TMDL attainment calculated using a 5-year rolling average of the monthly loads calculated from measured flow and concentration values



Lake Okeechobee BMAP

- BMAP adopted in December 2014
- Focus is on project implementation in the six sub-watersheds north of Lake Okeechobee
- Project reductions spread over a ten-year time frame:
 - Allows Coordinating Agencies to include long-term projects and develop additional projects to help meet the TMDL



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BMAP 5-Year Review

Tentative Timeline

Status of Chapter 2: Assessing Progress

Status of Chapter 3: Recommendations



5-Year Review

Reminders

- Legislative Requirements for Northern Everglades and Estuaries Protection Program (NEEPP) BMAPs
(Chapter 373.4595 (4), F.S.)
 - BMAP was adopted in **December 2014**
 - 5-Year Review finalized by end of **December 2019**
 - Provided to the Governor, the President of the Senate, and the Speaker of the House of Representatives
- Report Format
 - Chapter 1: Background Information
 - Chapter 2: Assessing Progress
 - Chapter 3: Recommendations



5-Year Review

Tentative Timeline

- August 2018 through February 2019
 - WQ Evaluation
- October 2018 through June 2019
 - LOWCP Review and Recommendations
- March 2019
 - Technical stakeholder meeting/webinar
- **July 2019**
 - **Stakeholder projects collected for milestones**
 - **Public stakeholder meeting**
- October 2019
 - Public stakeholder meeting
- December 2019
 - Finalize 5-Year Review





Assessing Progress

Chapter 2

- Projects to Achieve the TMDL
- Coordinating Agency Projects and Initiatives
- Lake Tohopekaliga Nutrient Reduction Plan (NRP)
- Water Quality Evaluation



Projects to Achieve the TMDL

- Statewide Annual Report Information
 - Through December 31, 2018, 181 projects were completed in the northern subwatersheds.
 - An additional 47 projects that are underway or planned were identified to add to the BMAP.
 - Estimated to achieve total reductions of 169,743 lbs/yr of TP, or 22 % of the reductions needed to meet the TP TMDL
- Total reductions will be updated in 5-Year Review



Coordinating Agency

Projects and Initiatives

- Coordinating Agencies
 - DEP
 - South Florida Water Management District (SFWMD)
 - Florida Department of Agriculture and Consumer Services (FDACS)
- Coordinating additional projects that will also achieve nutrient reductions
- Many of these projects depend on annual legislative funding
- BMAP contains other initiatives to help with water quality





Water Quality Evaluation

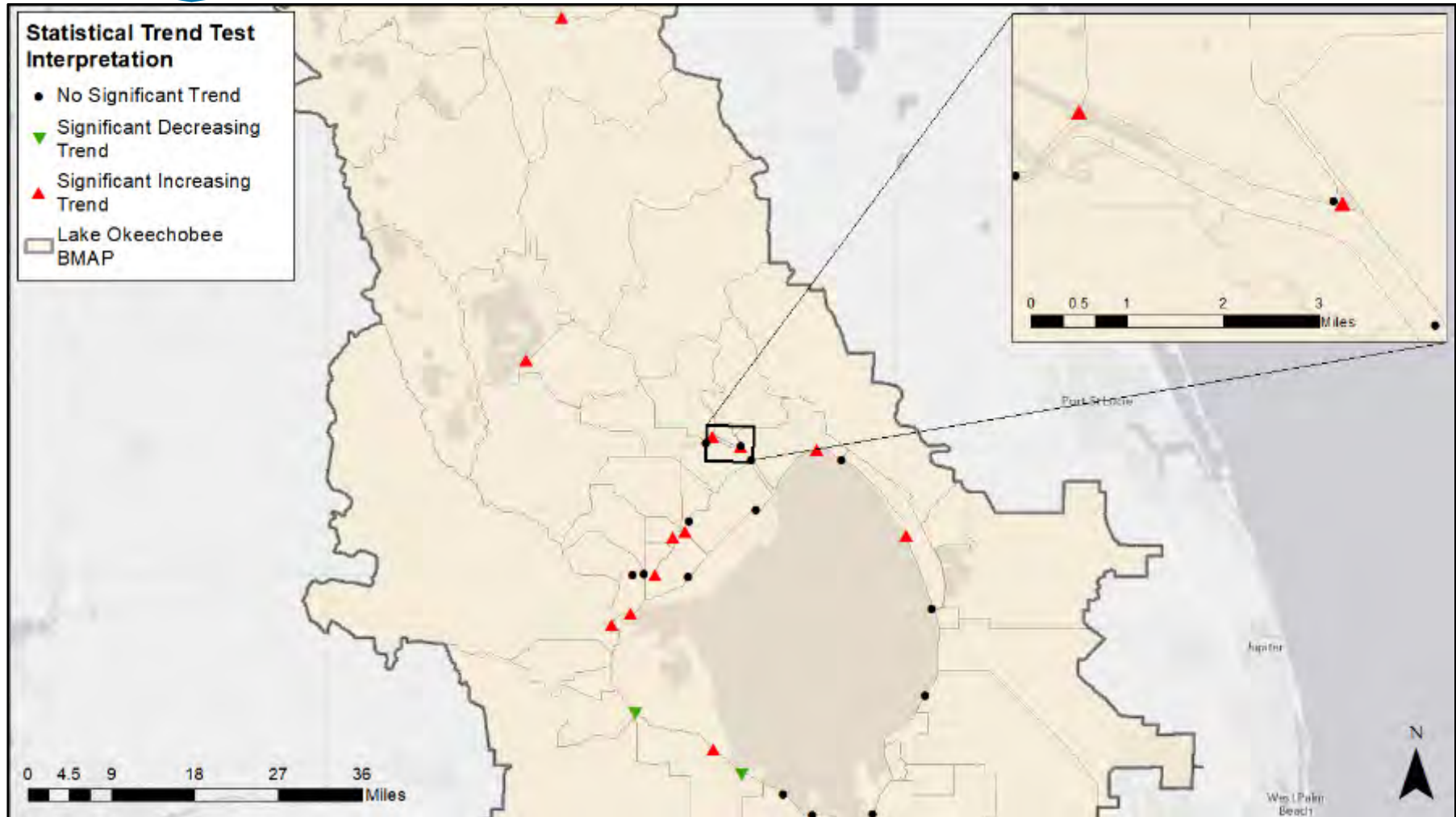
Times Series and Seasonal Kendall Trend Analysis

- SFWMD provided pre-processed data
- Tier 1 Stations
 - Removed outliers
 - Analyzed trends in **loads** and flow weighed means (**FWMs**)
 - Only analyzed stations with >50% of data for water year (WY) 2009 - WY2018
- Tier 2 Stations
 - Appended WIN data for last four months of WY18 when necessary
 - Analyzed trends in TP **concentrations**
 - Only analyzed stations with >50% of data for WY2009 - WY2018
- Statistical significance is indicated by a p-value ≤ 0.05
 - Note: Even if the p-value is statistically significant, the result may not be ecologically significant.



Tier 1 Monthly TP Load

Station Locations and Trend Results



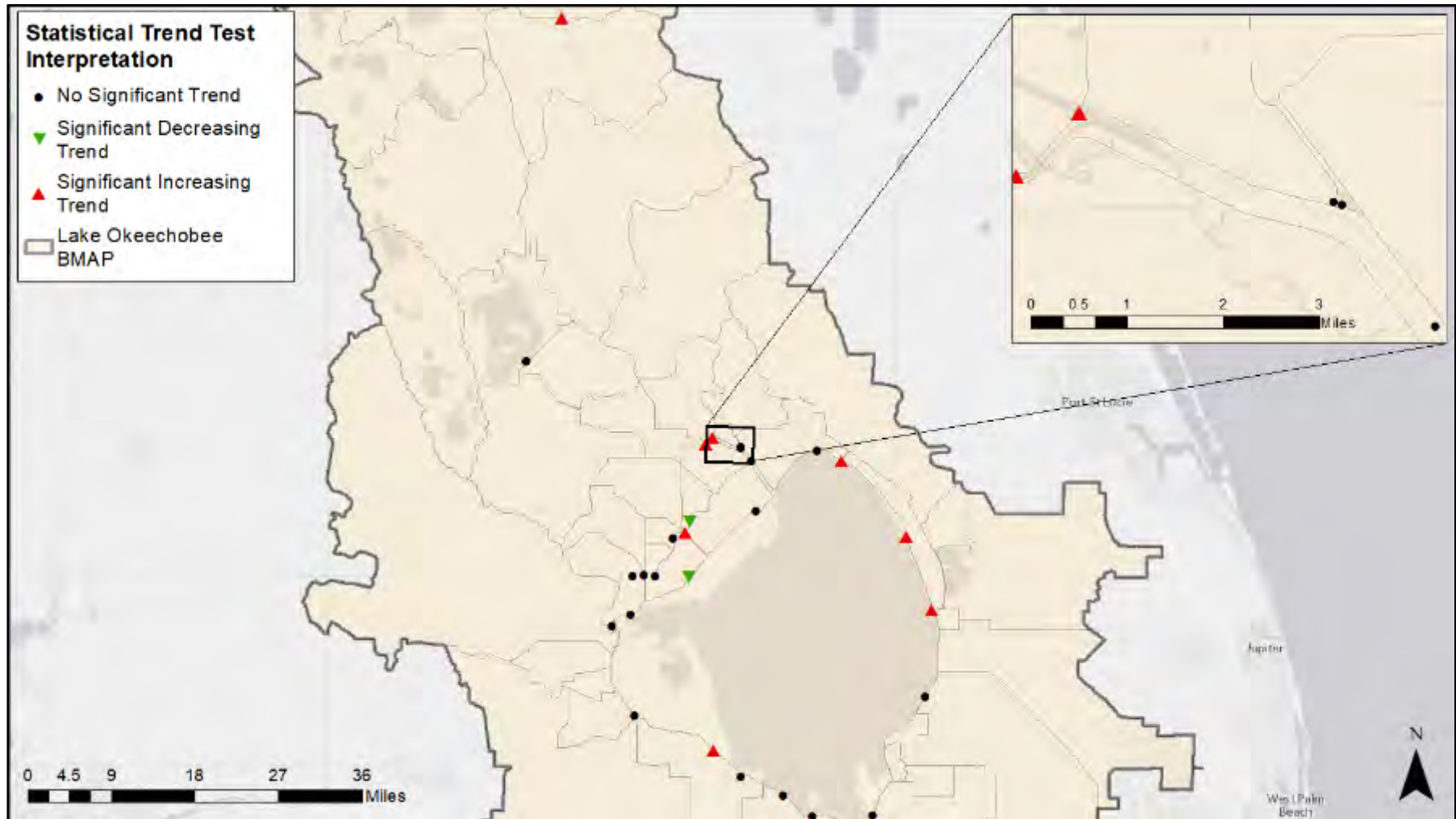
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Tier 1 Monthly TP FWM

Station Locations and Trend Results



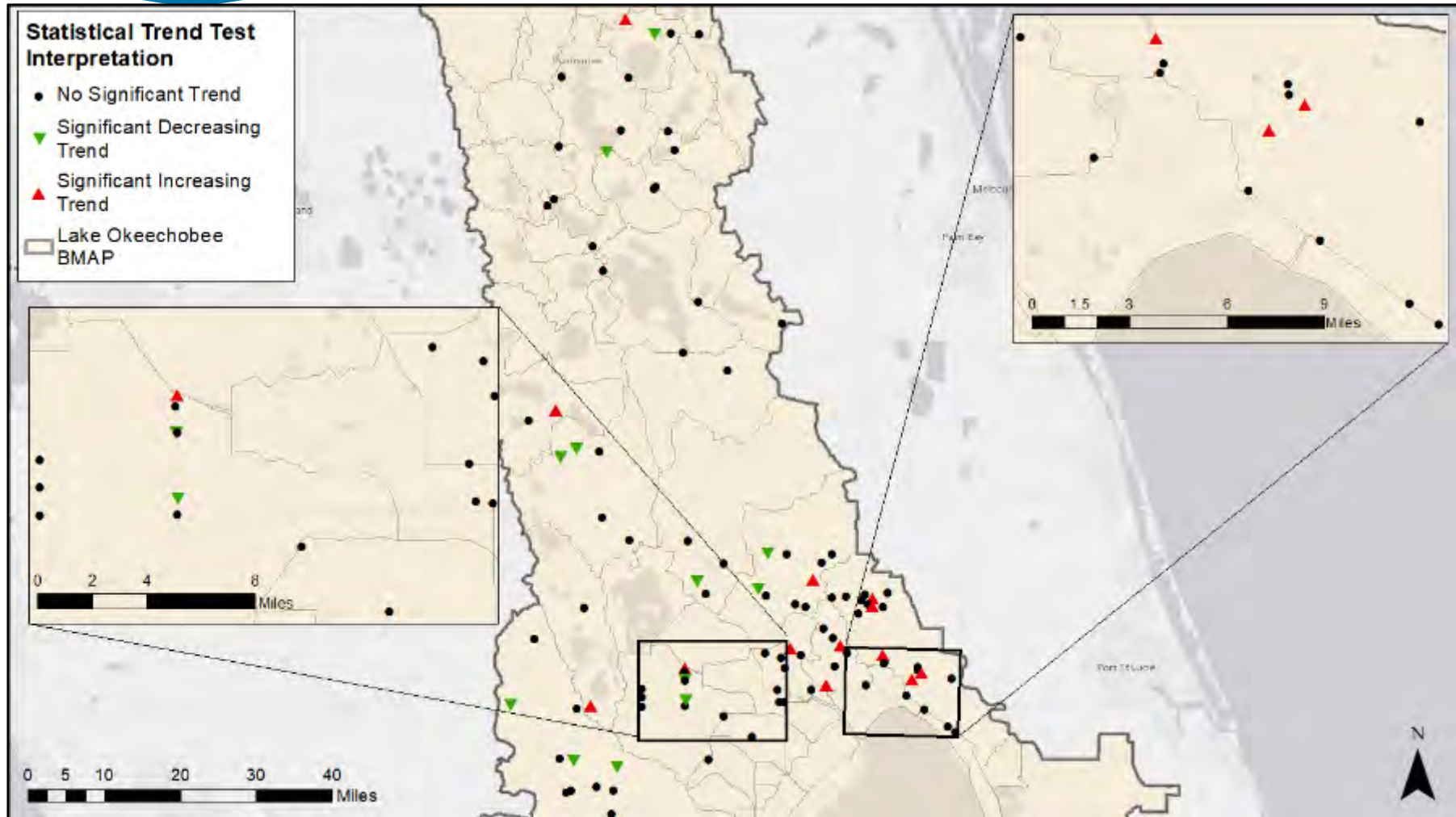
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Tier 2 Monthly TP Concentration

Station Locations and Trend Results





Recommendations

Chapter 3

- Lake Okeechobee Watershed Construction Project (LOWCP) Evaluation and Modifications
- Targeted Restoration Areas
- Milestones
- Water Quality Monitoring Revisions
 - Recommended Tiered Monitoring Network
- BMAP Modeling
 - Expansion of Model Domain
 - Evaluation of Pre-Drainage Condition



LOWCP Evaluation and Modifications

- Chapter 373.4595, F.S. specifies that 5-Year Review should include evaluation of LOWCP
 - In cooperation with the Coordinating Agencies
 - Identify any further load reductions necessary for TMDL
 - Incorporate modifications into BMAP
- SFWMD recommended modifications
 - February 2019 - Workshop with Coordinating Agencies
 - April 2019 - Stakeholder engagements, web-board postings
 - July 2019 - Recommended modifications submitted to DEP

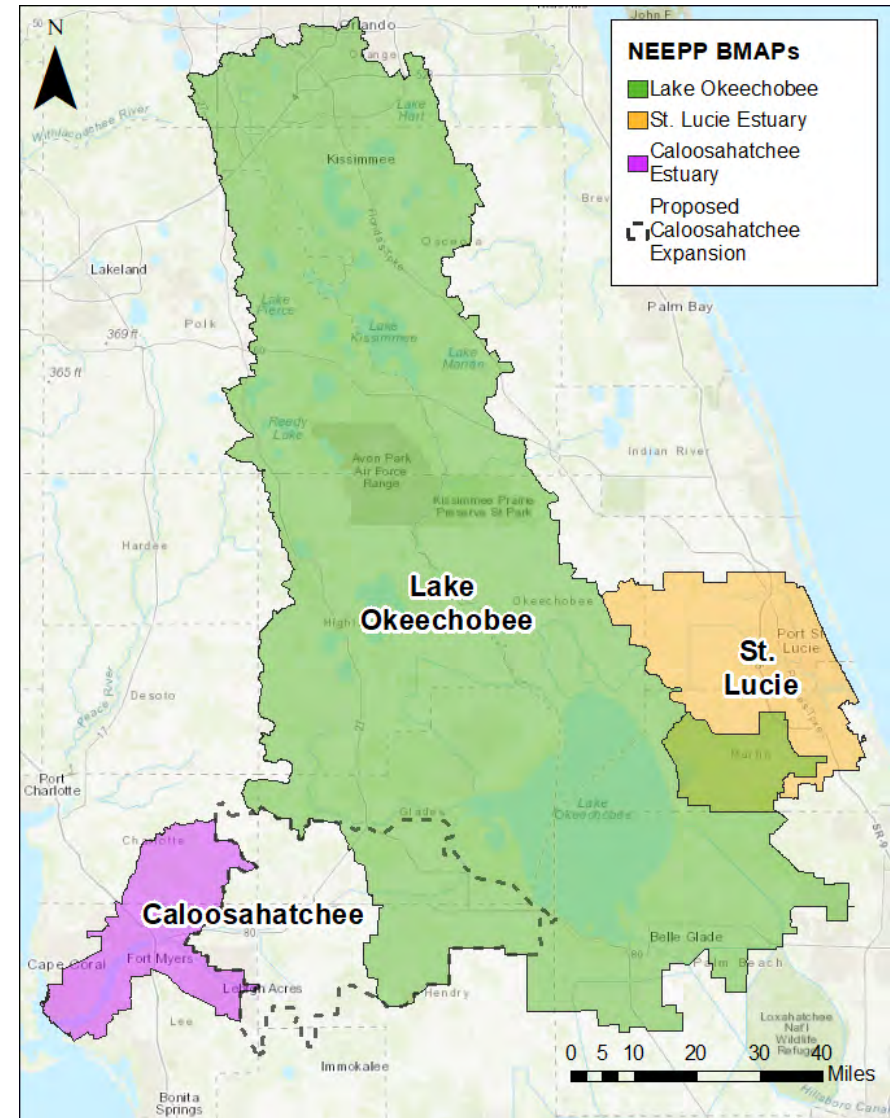


Targeted Restoration Areas

ACHIEVING MORE, NOW

- Data-driven approach
- Focusing on smaller subdivisions called “**targeted restoration areas**” in each BMAP
- Evaluating TN, TP, and flow in all BMAPs
- Prioritize by comparing water quality to appropriate benchmarks

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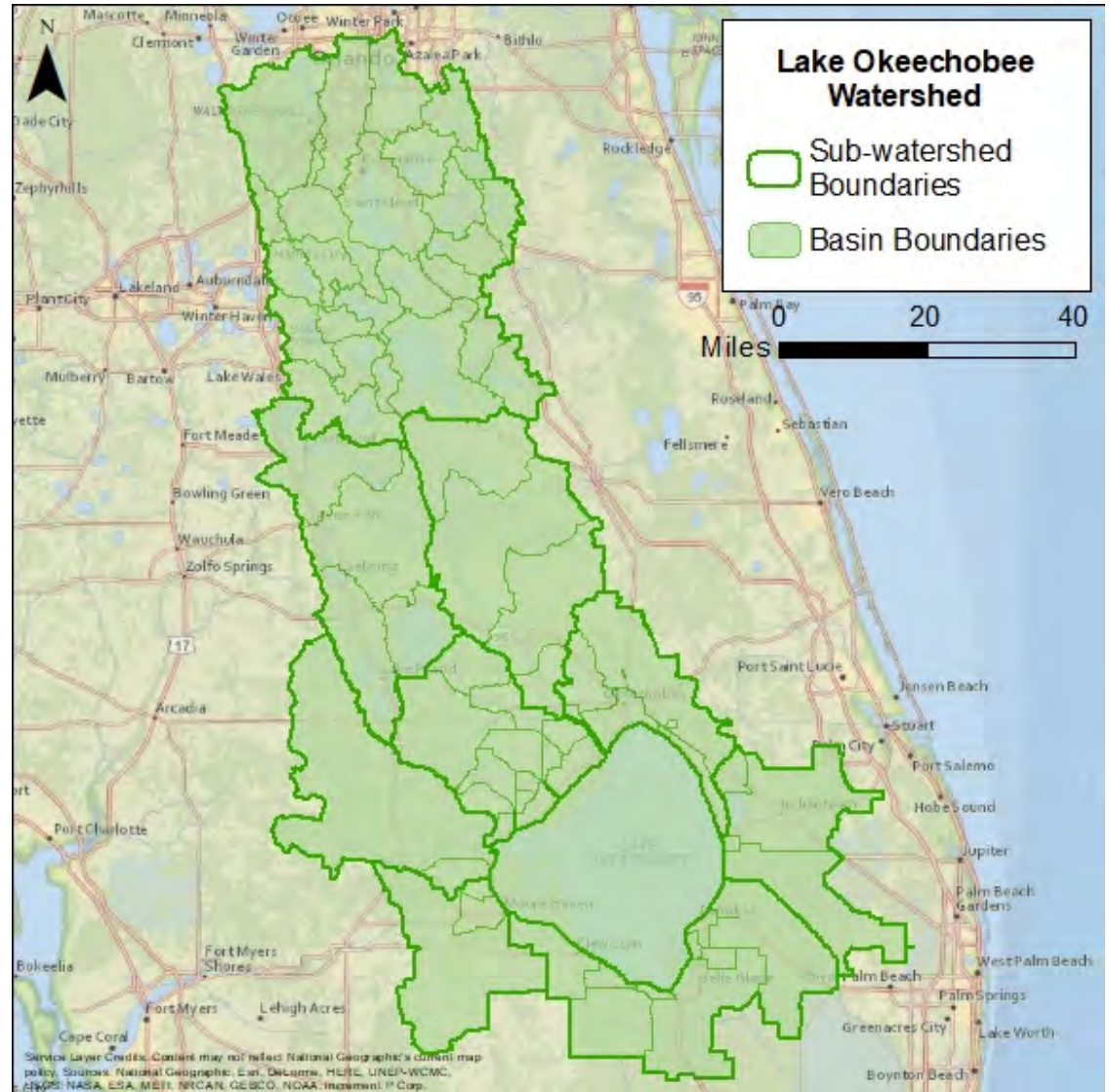
Targeted Restoration Areas

ACHIEVING MORE, NOW

- Using the latest information from SFWMD evaluations, identify projects tailored to each targeted restoration area
- Soliciting stakeholders, local governments, and the public through an RFI for additional projects

(Refer to handout)

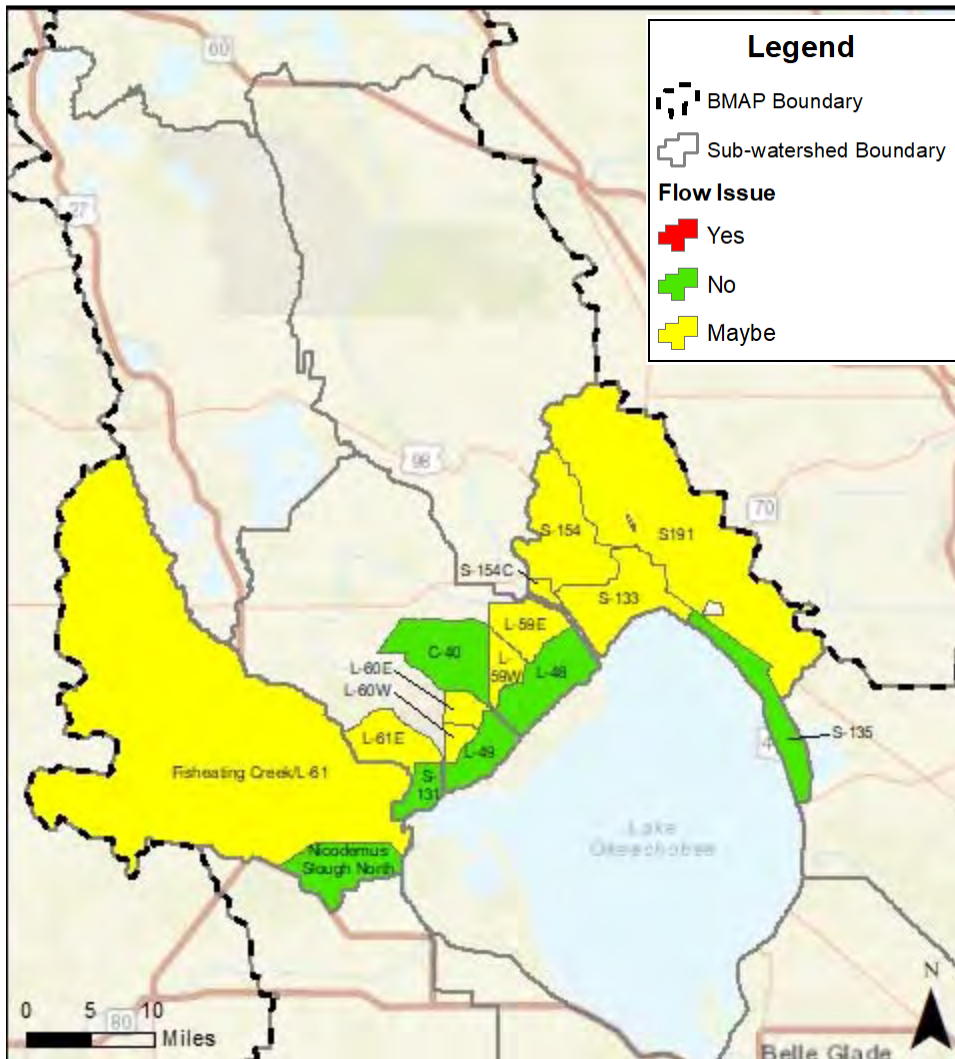
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Targeted Restoration Areas

DRAFT Results



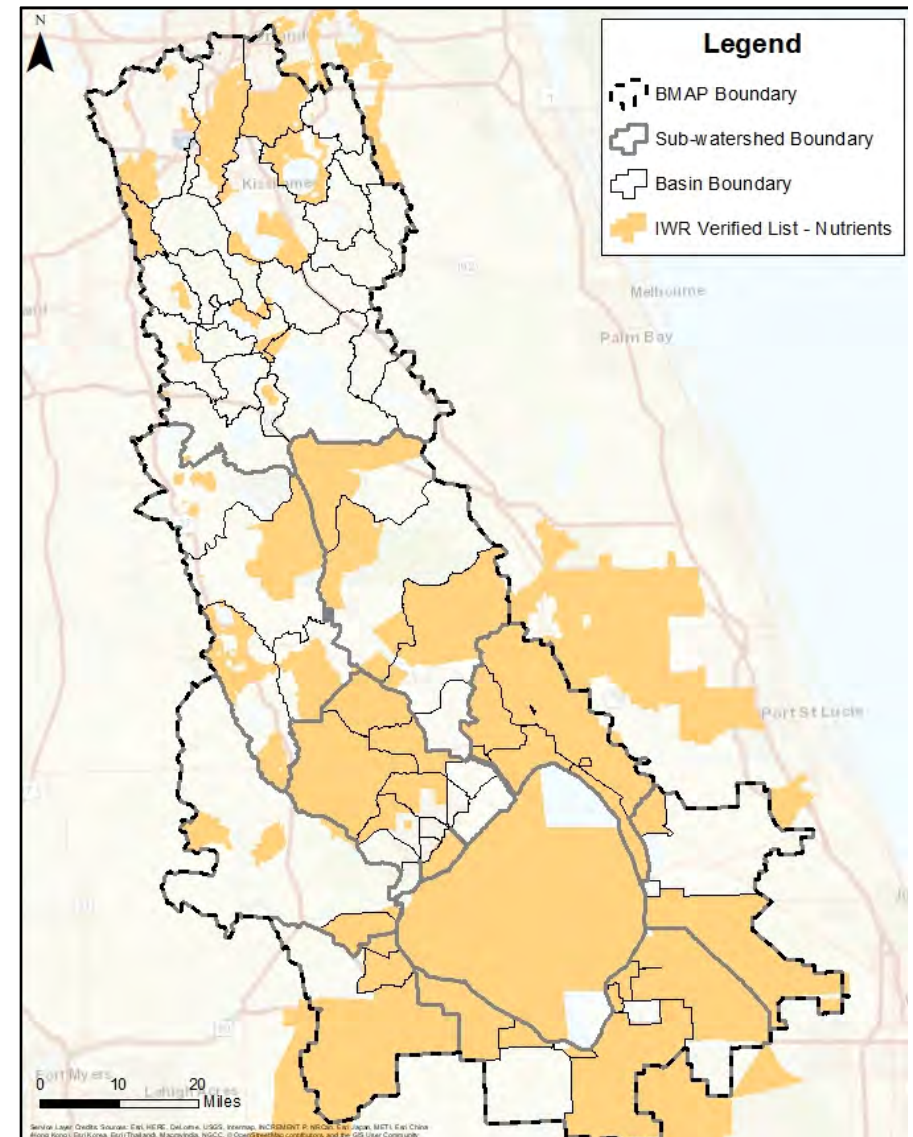
- Working with SFWMD to determine where load is driven by flow and more storage is needed
- Relying on existing storage goals in the watershed
- Can rerun storage model in the future if needed and funding is available



Targeted Restoration Areas

Additional Considerations

- Reviewing DEP data for verified impaired waterbodies

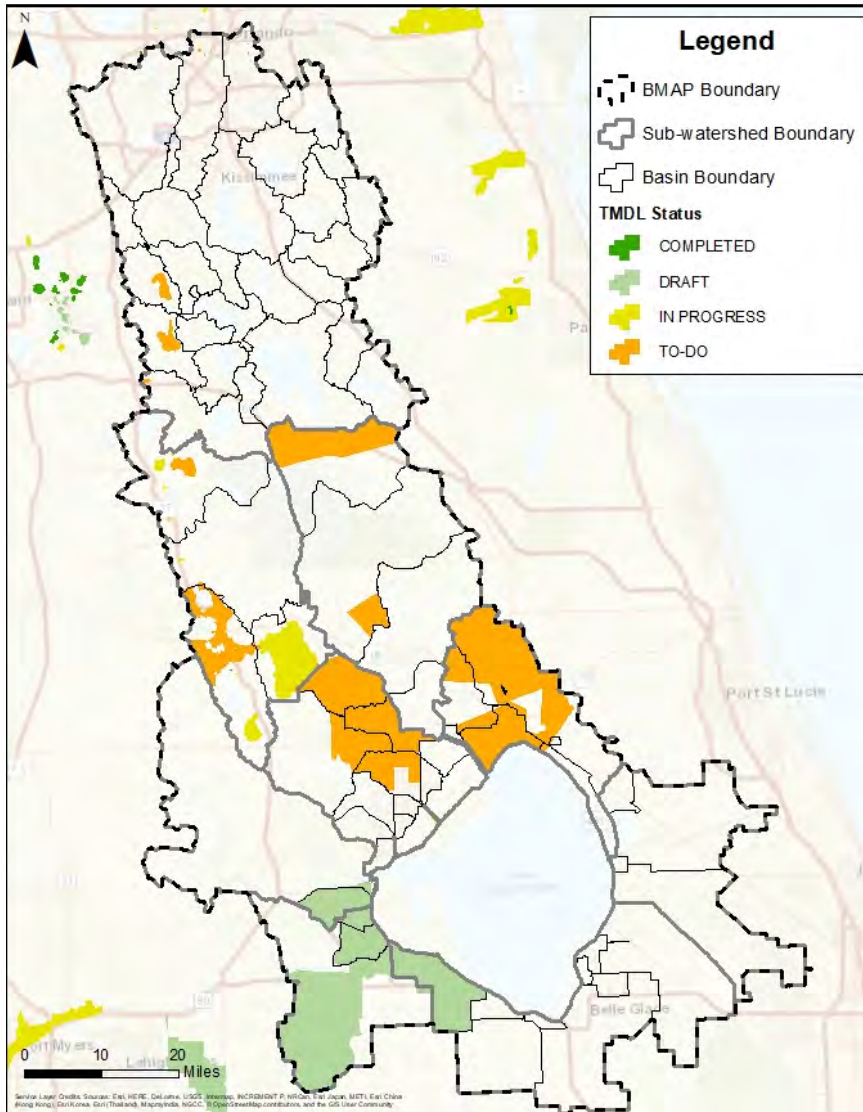


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Targeted Restoration Areas

Additional Considerations



- Developing TMDLs within the Lake Okeechobee Watershed
- Setting local restoration targets will also provide benefits to Lake Okeechobee



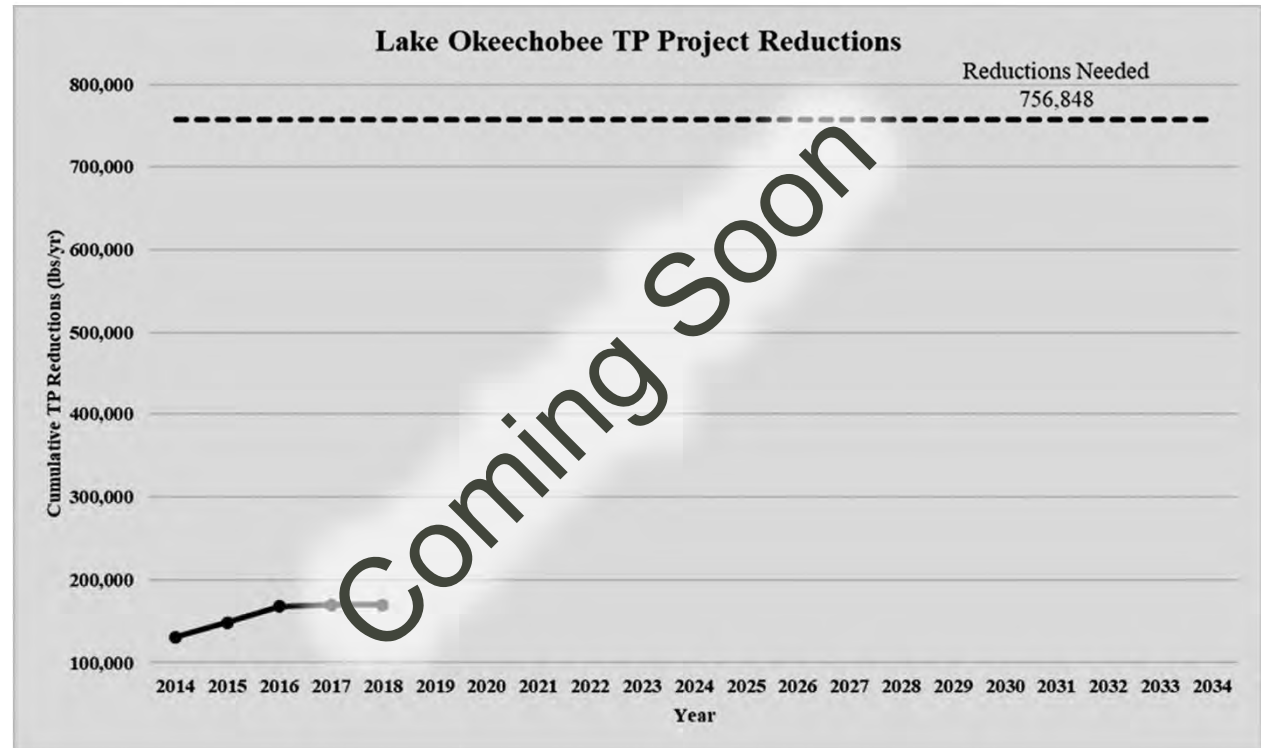
Questions & Comments





Milestones

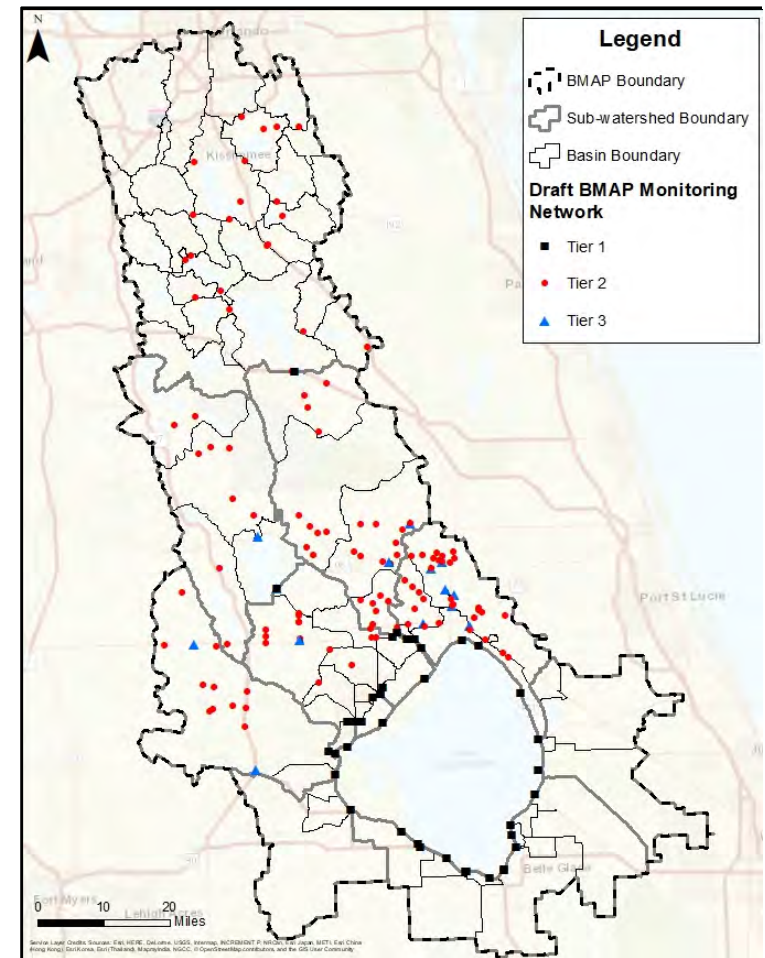
- Collecting projects to develop implementation milestones
 - Conceptual projects on the horizon for the next 15 years or more
 - Deadline:
July 31, 2019





Water Quality Monitoring Revisions

- Potential Revisions: restructure network into tiers, identify areas where monitoring is needed and add new stations, remove stations not used
- Proposed Tiers:
 - Tier I – Basin loading stations
 - Tier II – Watershed stations
 - Tier III – USGS stations
 - Tier IV – Temporary stations

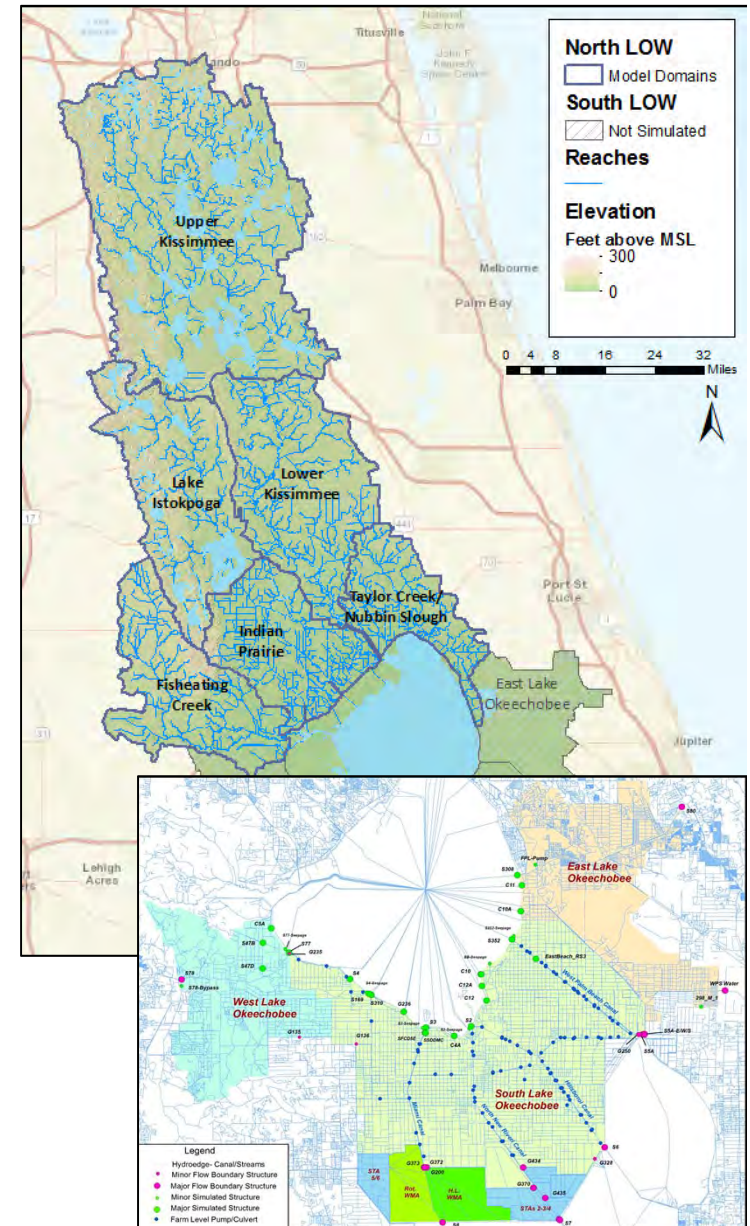




BMAP Modeling

- Modeling can help support new approach
 - Evaluate projects submitted for RFI
 - Compare loads within targeted restoration areas
 - Estimate project baseloads for reductions
- Expansion of Model Domain
- Abatement Strategies

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Questions & Comments





BMAP Update

Executive Order 19-12

Tentative Timeline

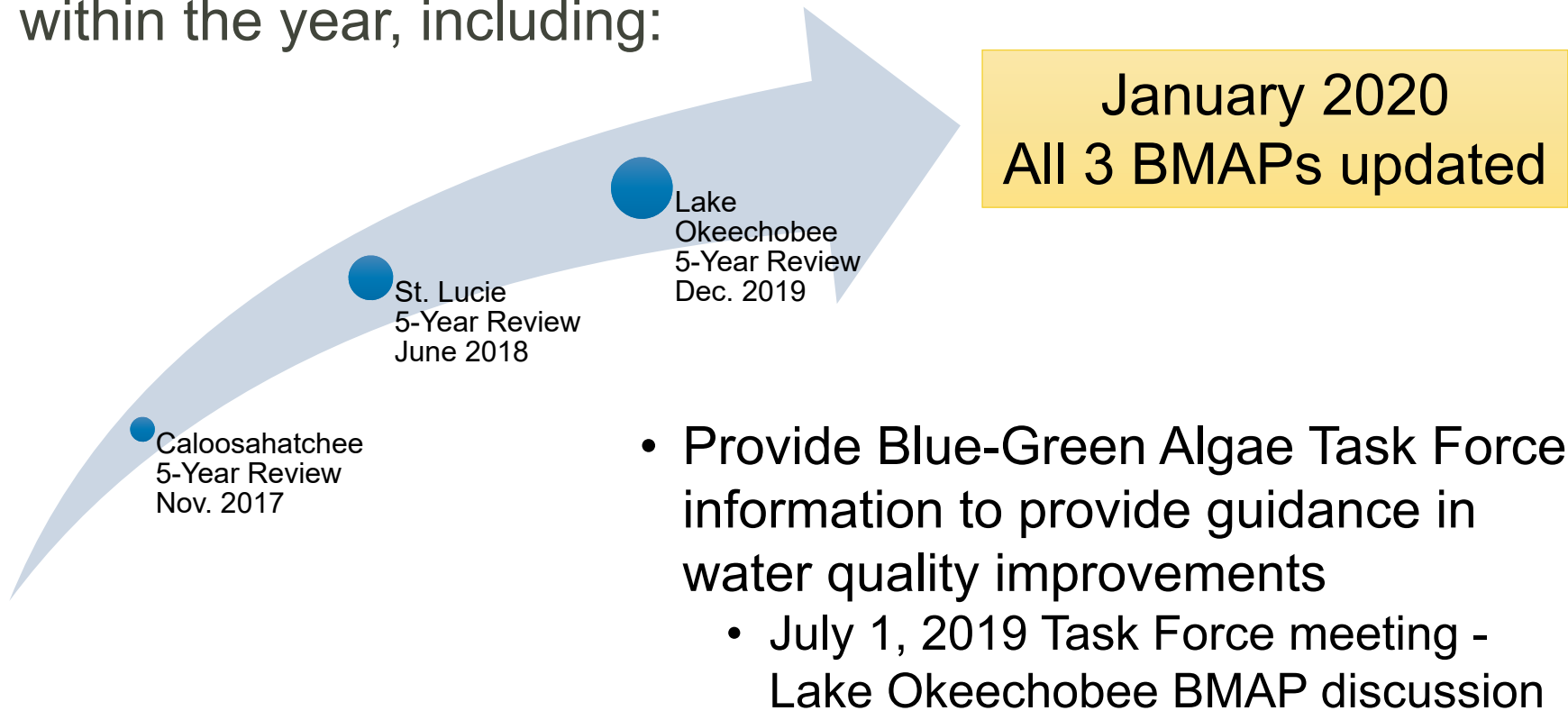


BMAP Update

Executive Order 19-12

BMAP Directives:

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





BMAP Update

Tentative Timeline

- July 30, 2019
 - Public meeting; Stakeholder project information due
- September 2019
 - Meetings with stakeholders as needed
- October 2019
 - Public Meeting (followed by release of draft 5YR/BMAP)
- January 2020
 - Final BMAP report submission deadline





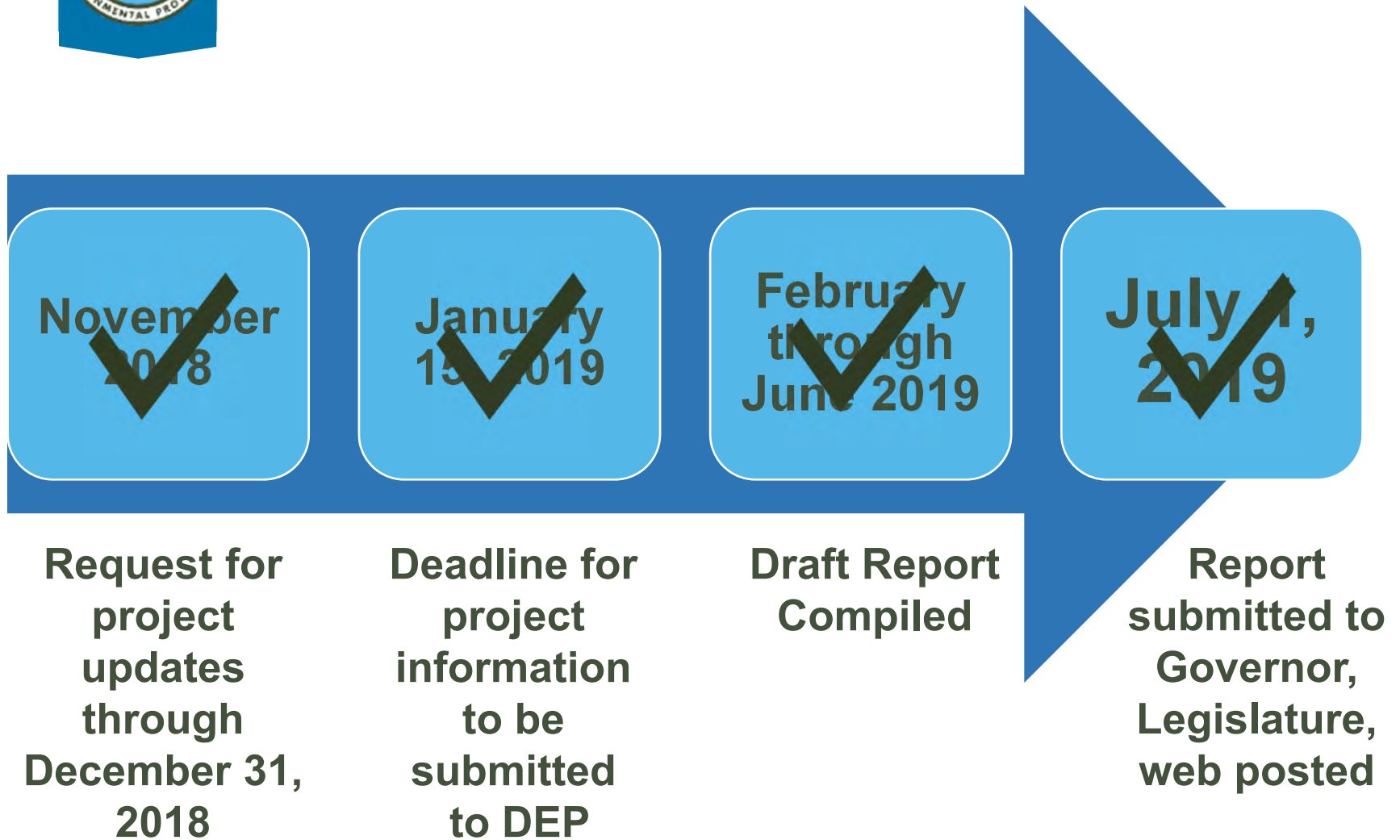
Statewide Annual Report (STAR)

STAR 2019 Timeline

New STAR Storymap



STAR 2019 Timeline





New STAR Storymap

- <https://floridadep.gov/dear/water-quality-restoration/content/statewide-annual-report>
 - [Interactive Webpage](#)

Florida Statewide Annual Report

Published June 28, 2019

Introduction Total Maximum Daily Loads Basin Management Action Plans Minimum Flows and Minimum Water Levels Recovery and Prevention Strategies Contacts and Data

Troubleshooting

Basin Management Action Plans

A BMAP is a blueprint for restoring impaired waters by reducing pollutants to meet the allowable loadings established in a TMDL. BMAPs contain a comprehensive set of strategies, such as permit limits on wastewater facilities, urban and agricultural best management practices, and conservation programs designed to implement pollutant reductions established by a TMDL. These broad-based plans are developed with local stakeholders and rely on local input and commitment for development and successful implementation. BMAPs are adopted by DEP Secretarial Order and are legally enforceable. This report provides details and information for 24 BMAPs adopted as of December 31, 2018.

Navigation

Select any of the following topics for additional information about BMAPs. Clicking on the dots in the column to the left of the page links to these same sections, and clicking on the home icon returns you to the top of this page.

- [Northern Everglades and Estuaries Protection Program BMAPs](#)
- [Outstanding Florida Springs BMAPs](#)
- [Other Surface Water BMAPs](#)
- [Fecal Indicator Bacteria BMAPs](#)

How to Use This Report

The management actions listed in the BMAPs comprise local projects proposed and committed to by counties, municipalities, special

LEGEND

BMAPs

Adopted as of December 31, 2018

BMAPs

Pending as of December 31, 2018

Esri, HERE, Garmin, FAO, NOAA, USGS, EPA, NPS



Questions & Comments





TMDL Mid-Process Update

Prioritization Update

Updated Priority List

Erin Rasnake

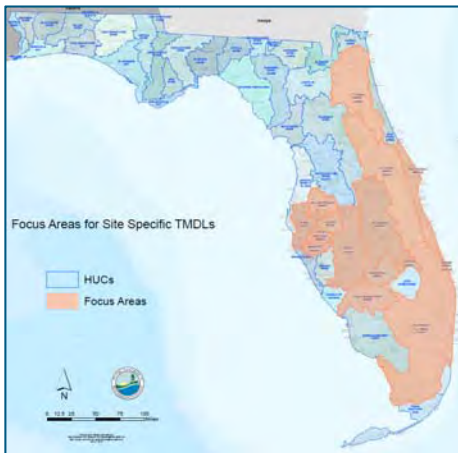
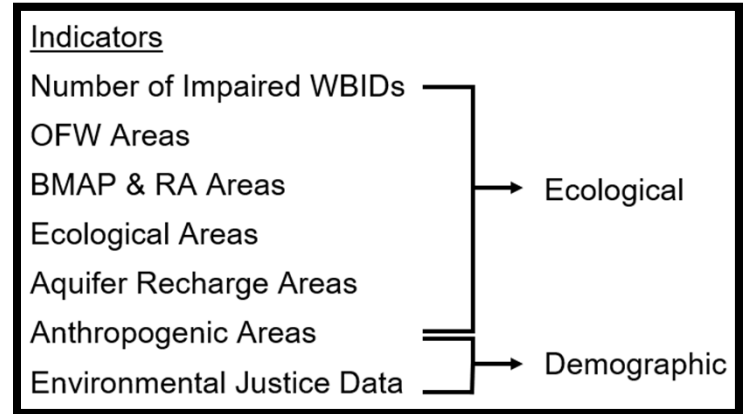
Water Quality Evaluation and TMDL Program



TMDL Prioritization Update

303(d) Long-Term Vision announced in Dec. 2013

- Provided a framework for greater efficiency & success in achieving WQ
- Removes the “one size fits all” expectations
- Ensures accountability through new measures (areas addressed by TMDLs & recognition of TMDL alternatives)
- Implemented in FFY16 (Oct. 2015)



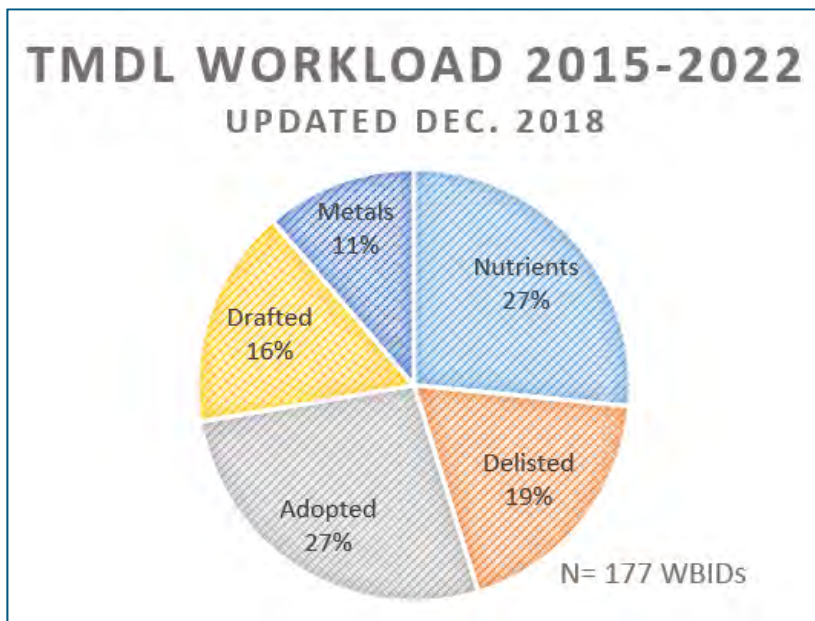
Check-In period (re-evaluate) FFY19

- Perform the original analysis but with updated data and layers
- Top ranking HUCs selected has not changed (15 total)
- WBIDs added are concentrated in the Kissimmee River HUC, Fisheating Creek HUC and Taylor Creek HUC
- Aligns with Governor Executive Order #19-12 (*Achieving More Now For Florida's Environment*)

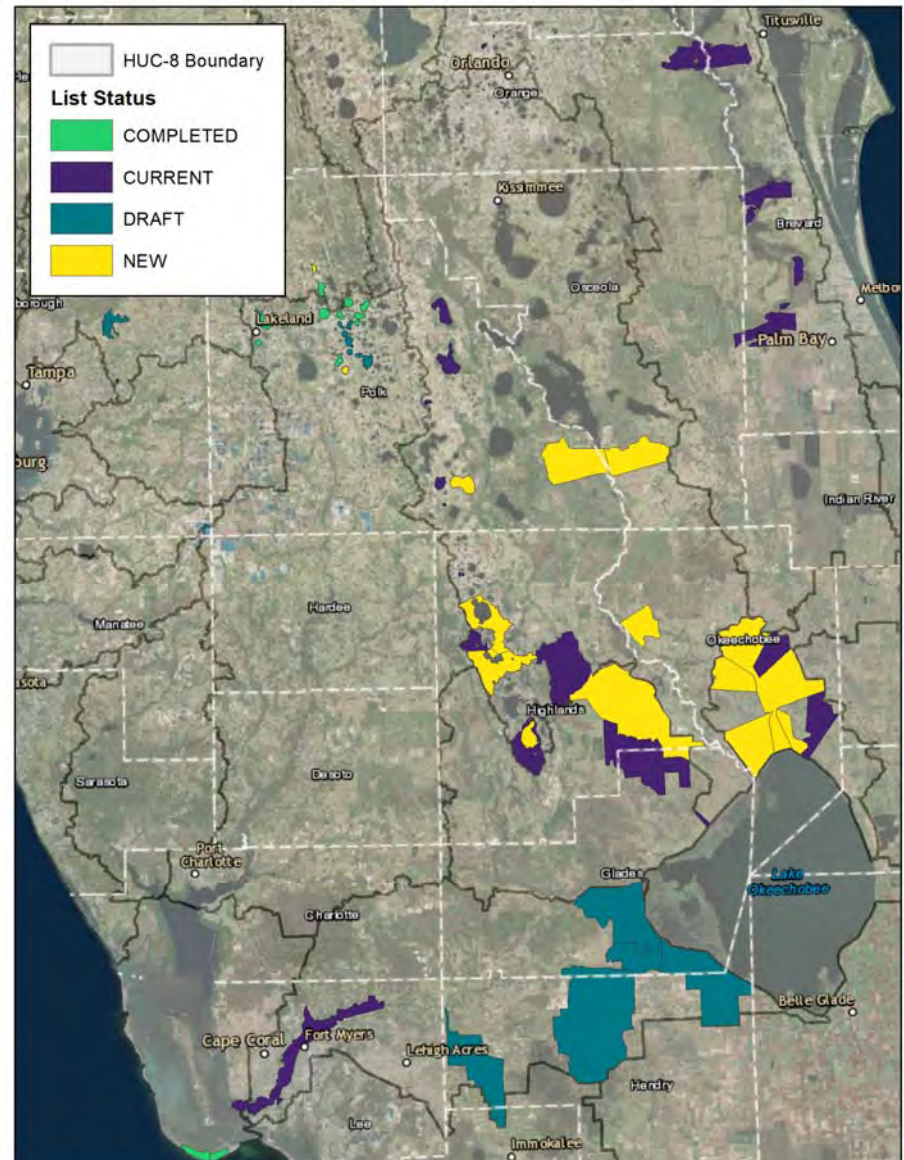


Updated Priority List

- Necessary due to DEP reaching goals early!
- Required following the process (using previous methods) with updated data



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Questions?

Contact:

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(850) 245-8338

Documentation:

<https://floridadep.gov/dear/water-quality-evaluation-tmdl>

Story Map: <https://arcg.is/LvC10>



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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

- *Projects collected by **July 31, 2019***
- *Submit feedback on approach by **August 13, 2019***
 - *RFI **September 2019***
- *Additional stakeholder meeting/webinar tentatively **October 2019***
- *Draft 5-Year Review/BMAP **November 2019***
 - *Updated BMAP **January 2020***



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Questions & Comments



