



Lakes Harney and Monroe Basin Management Action Plan (BMAP) 2019 Progress Report

Moira Homann

Florida Department of Environmental Protection (DEP)
Division of Environmental Assessment and Restoration

January 30, 2020



Agenda

- *BMAP Annual Progress Report*
 - Summary of project status and reductions
 - Monitoring activities
- *Local Government Updates*
 - Seminole County
- *Water Management District Updates*
 - Upper St. Johns River Update
- *Next Steps/Future Plans*
 - Options – Alternative Restoration Plans/BMAPs



BMAP Annual Progress

Project Status

- 2 projects completed in 2019
- 10 projects added in 2019
- 26 ongoing projects





BMAP Annual Progress

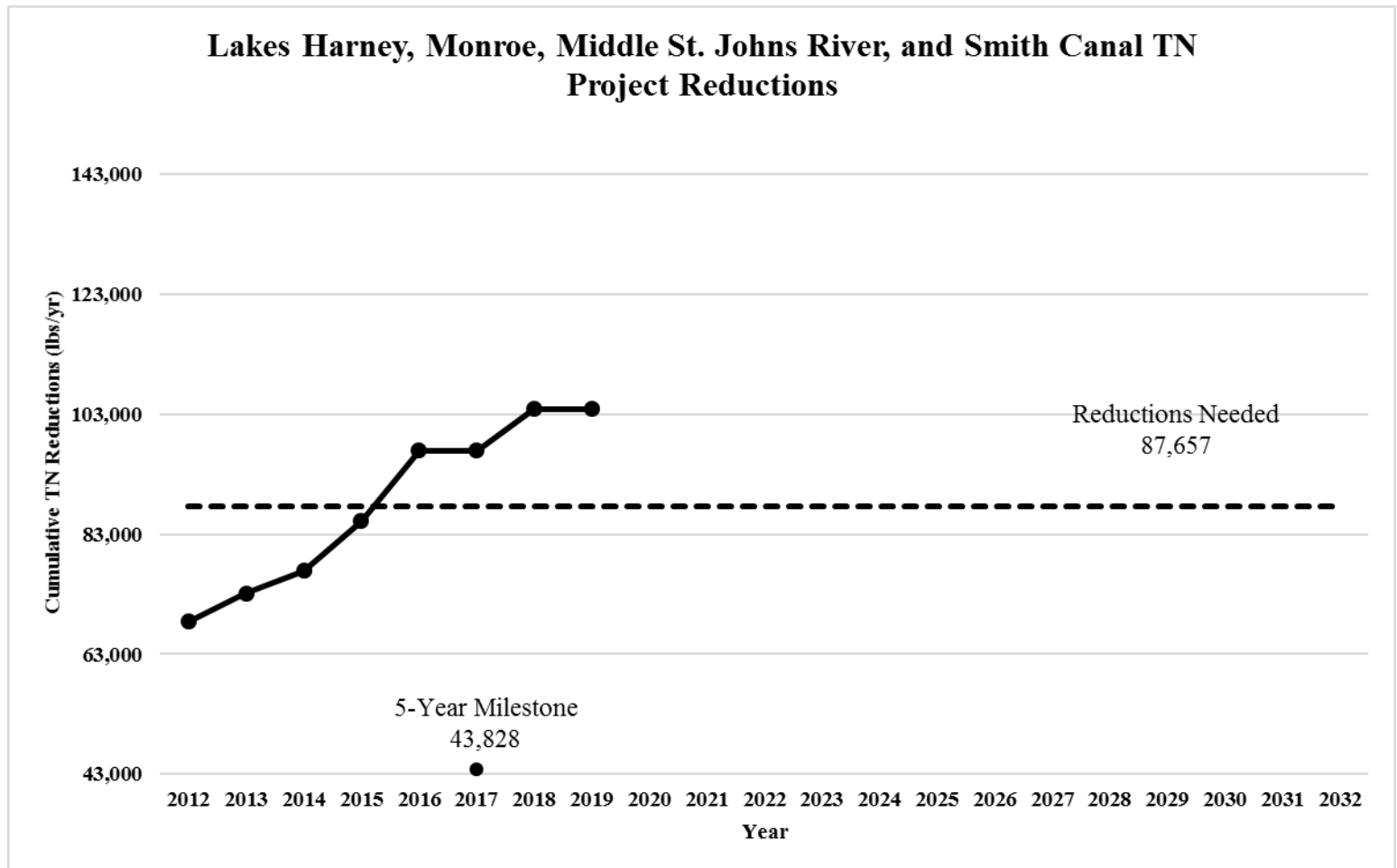
Project Types

Project Type	Count of Project Types
Agricultural Best Management Practices (BMPs)	5
Baffle Boxes- First Generation (hydrodynamic separator)	1
Baffle Boxes- Second Generation	2
Bioswales	11
BMP Cleanout	3
Catch Basin Inserts/Inlet Filter Cleanout	1
Dry Detention Pond	1
Education Efforts	11
Exfiltration Trench	2
Fertilizer Cessation	1
Land Use Change	1
Monitoring/Data Collection	1
Natural Wetlands as Filters	1
Non-contributing Basin	6
On-line Retention BMPs	5
Reclaimed Water	1
Regulations, Ordinances, and Guidelines	3
Stormwater Reuse	4
Street Sweeping	6
Wet Detention Pond	43
Wastewater Treatment Facility (WWTF) Nutrient Reduction	1
Grand Total	110



BMAP Annual Progress

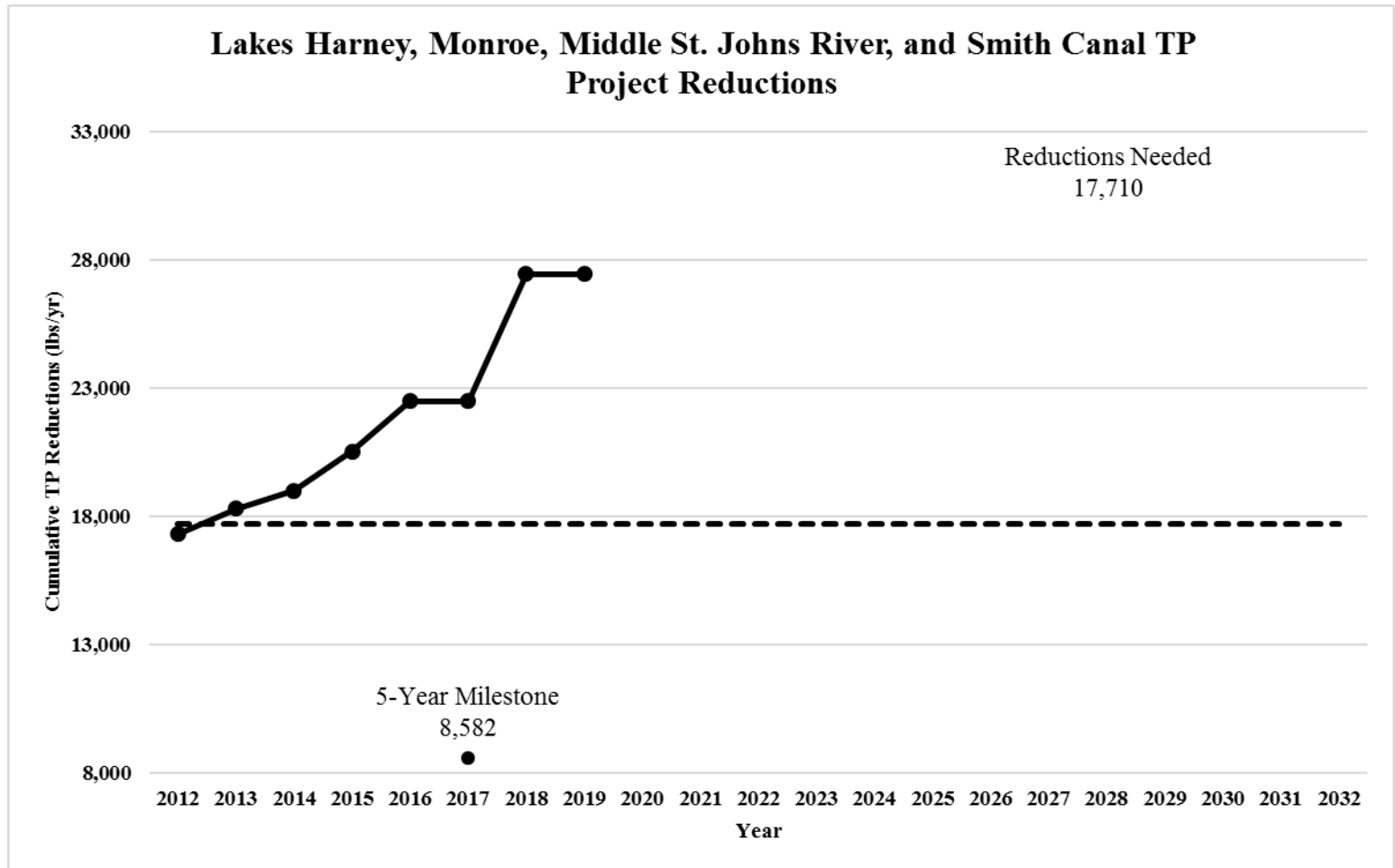
Total Nitrogen (TN) Load Reductions Achieved





BMAP Annual Progress

Total Phosphorus (TP) Load Reductions Achieved





Monitoring Activities

Watershed Information Network (WIN)

- Uploads
- Check-in on Monitoring Network
 - Stations
 - Frequency





Monitoring Activities

Watershed Information Network (WIN)

- Through both the WIN and Florida STORET (STOrage and RETrieval) databases, the Division of Environmental Assessment and Restoration (DEAR) implements Florida statutory requirements, DEP rule requirements and U.S. EPA funding requirements for management of environmental (non-regulatory) data for the state
- DEAR uses of water quality data include but are not limited to:
 - Assessment of waters for purposes of the Impaired Waters Rule (IWR)
 - Development of:
 - Water Quality Criteria
 - Total Maximum Daily Loads (TMDL)
 - Basin Management Action Plans (BMAP)
- Providing data as required to U.S. EPA and to the public
- Currently 85 Organizations actively providing Activity and Result data



Monitoring Activities

Central Data Repository Statute and Rules

- **373.026(2), Florida Statutes (F.S.):** Statutory authority and responsibility for central data repository. All local governments, water management districts, and state agencies are directed to cooperate with the department or its agents in making available to it for this purpose such scientific and factual data as they may have, generate, or possess, as the department deems necessary. The department is authorized to prescribe the format and ensure quality control for all data collected or submitted.
- **Chapter 62-40.540(3), Florida Administrative Code (F.A.C.), Water Resource Implementation Rule:** Rule authority for central data repository. All appropriate water quality data collected by the Department, Districts, local governments, and state agencies shall be placed in the FLORIDA STORET system within one year of collection.
- **Chapter 62-303, F.A.C., Identification of Impaired Surface Waters:** Rule authority for STORET and successors to be primary source of data used for determining whether samples do not meet water quality criteria. As required by subsection 62-40.540(3), F.A.C., the Department, other state agencies, the Water Management Districts, and local governments collecting surface water quality data in Florida shall enter the data into FLASTORET within one year of collection. Other sampling entities that want to ensure their data will be considered for evaluation should ensure their data are entered into FLASTORET.



Monitoring Network

Chemistry Stations

- Deltona
- Seminole County
- Sanford/Seminole County
- St. Johns River Water Mgt. District
- Volusia County
- U.S. Geological Survey



Monitoring Network

Biology and Vegetation

- Seminole County
- St. Johns River Water Mgt. District



Updates



Lake Harney and Lake Monroe water quality summary

Rolland Fulton

rfulton@sjrwmd.com

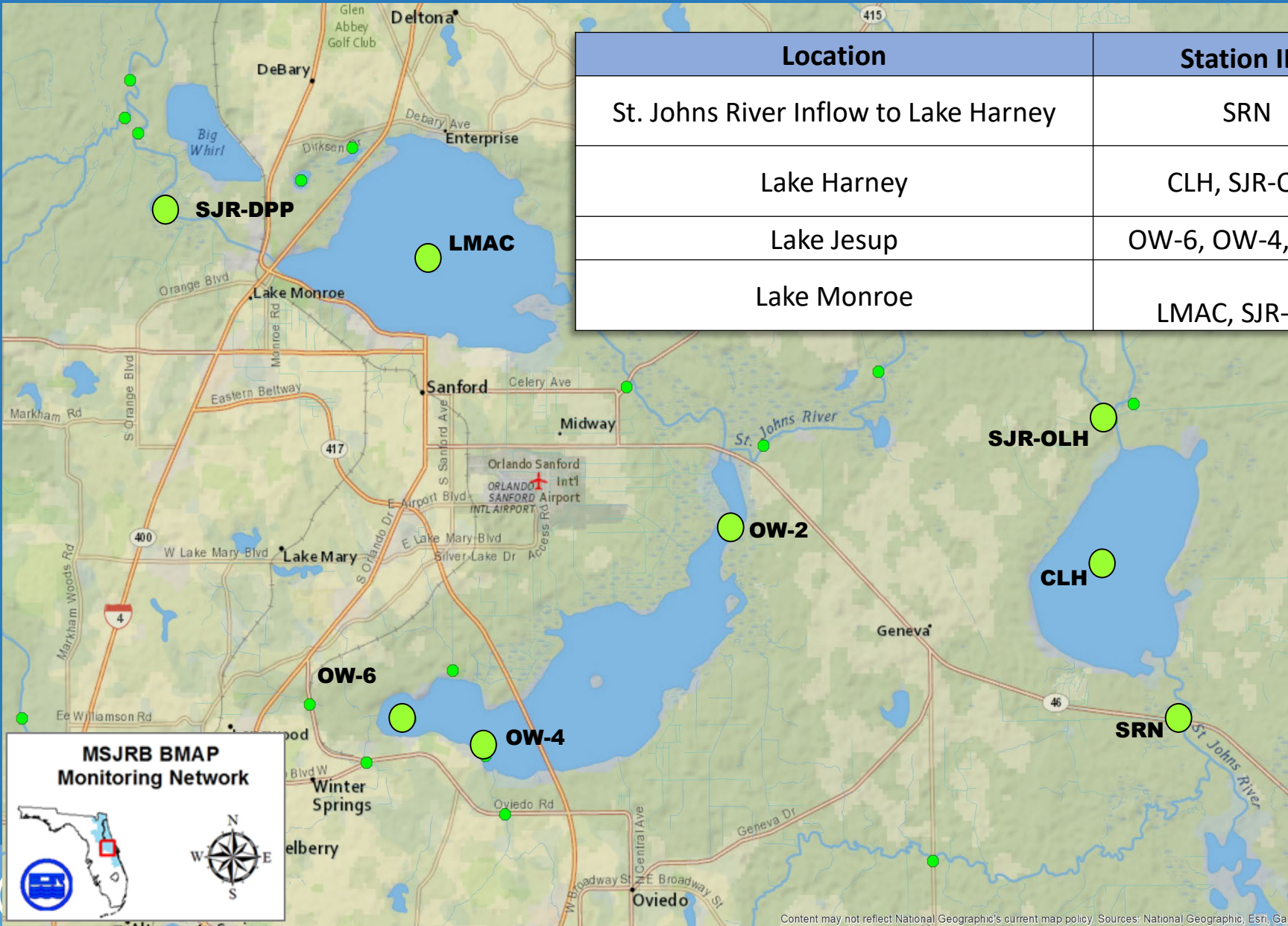
January 30, 2020

Water quality assessment

- Limited to SJRWMD stations from Middle Basin lakes and mainstem St. Johns River
- Nutrients:
 - Total Phosphorus
 - Total Nitrogen
- Chlorophyll-a
- Secchi transparency
- Phytoplankton biovolumes

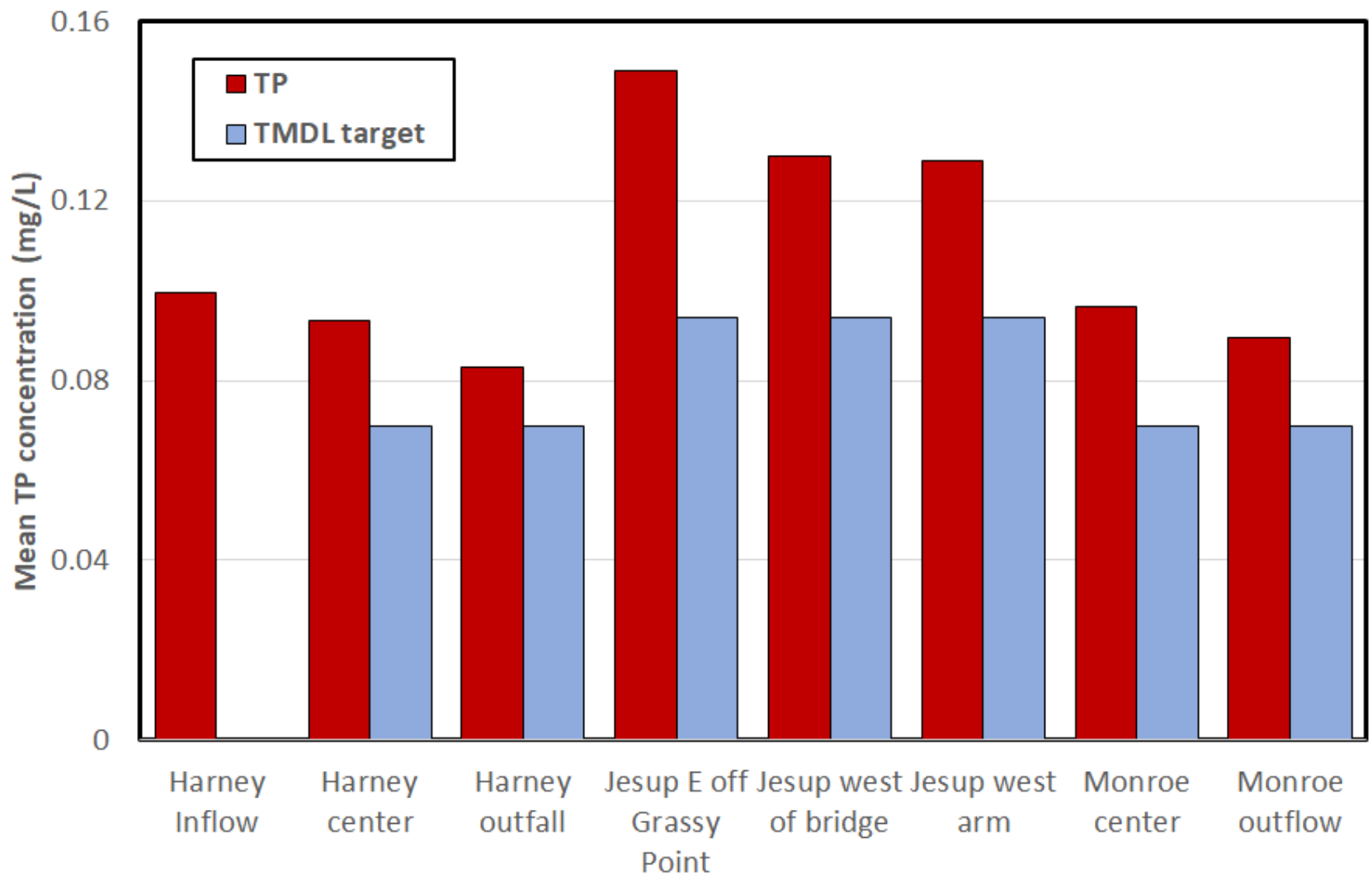


Station Locations

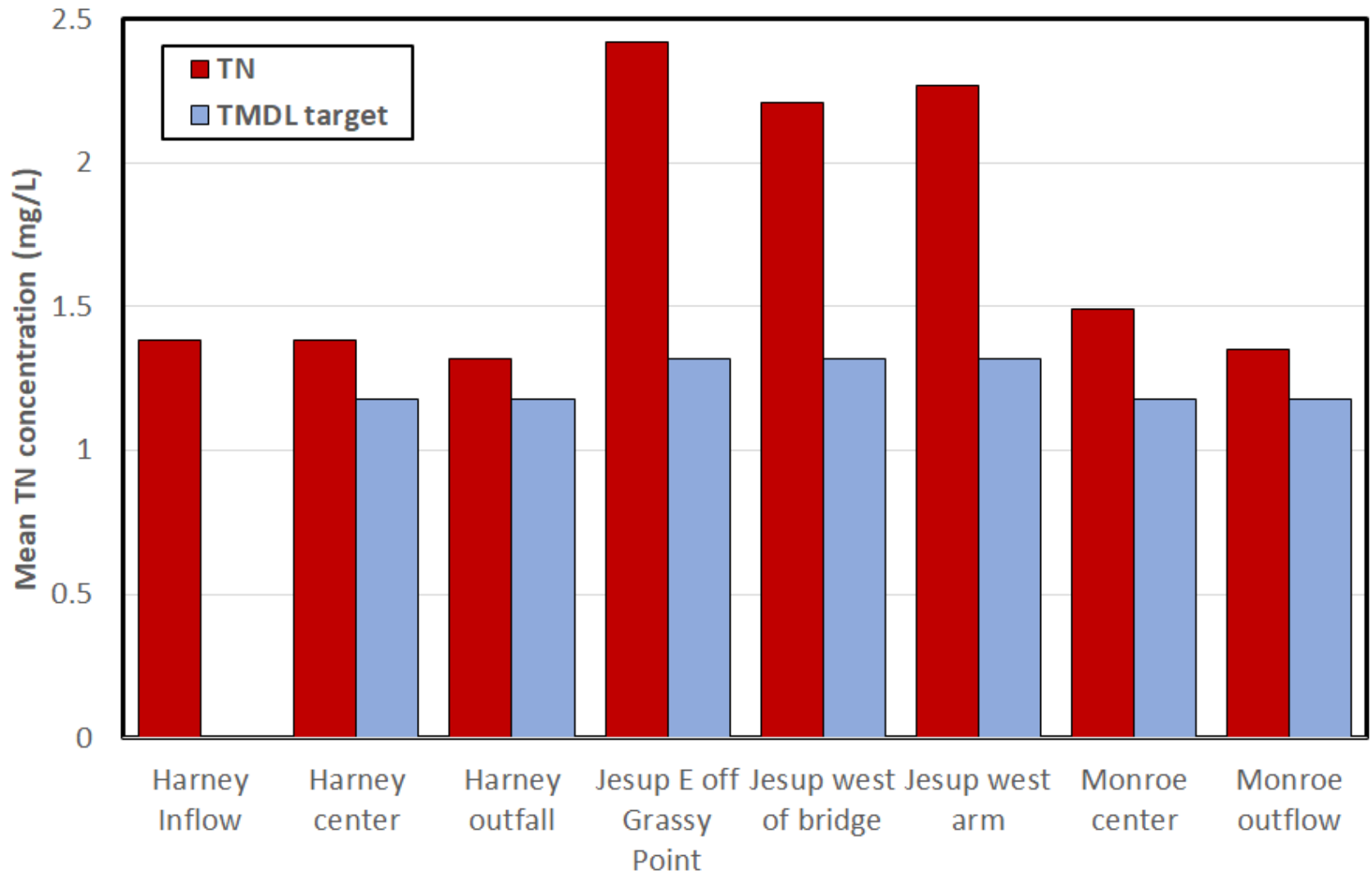


Location	Station IDs
St. Johns River Inflow to Lake Harney	SRN
Lake Harney	CLH, SJR-OLH
Lake Jesup	OW-6, OW-4, OW-2
Lake Monroe	LMAC, SJR-DPP

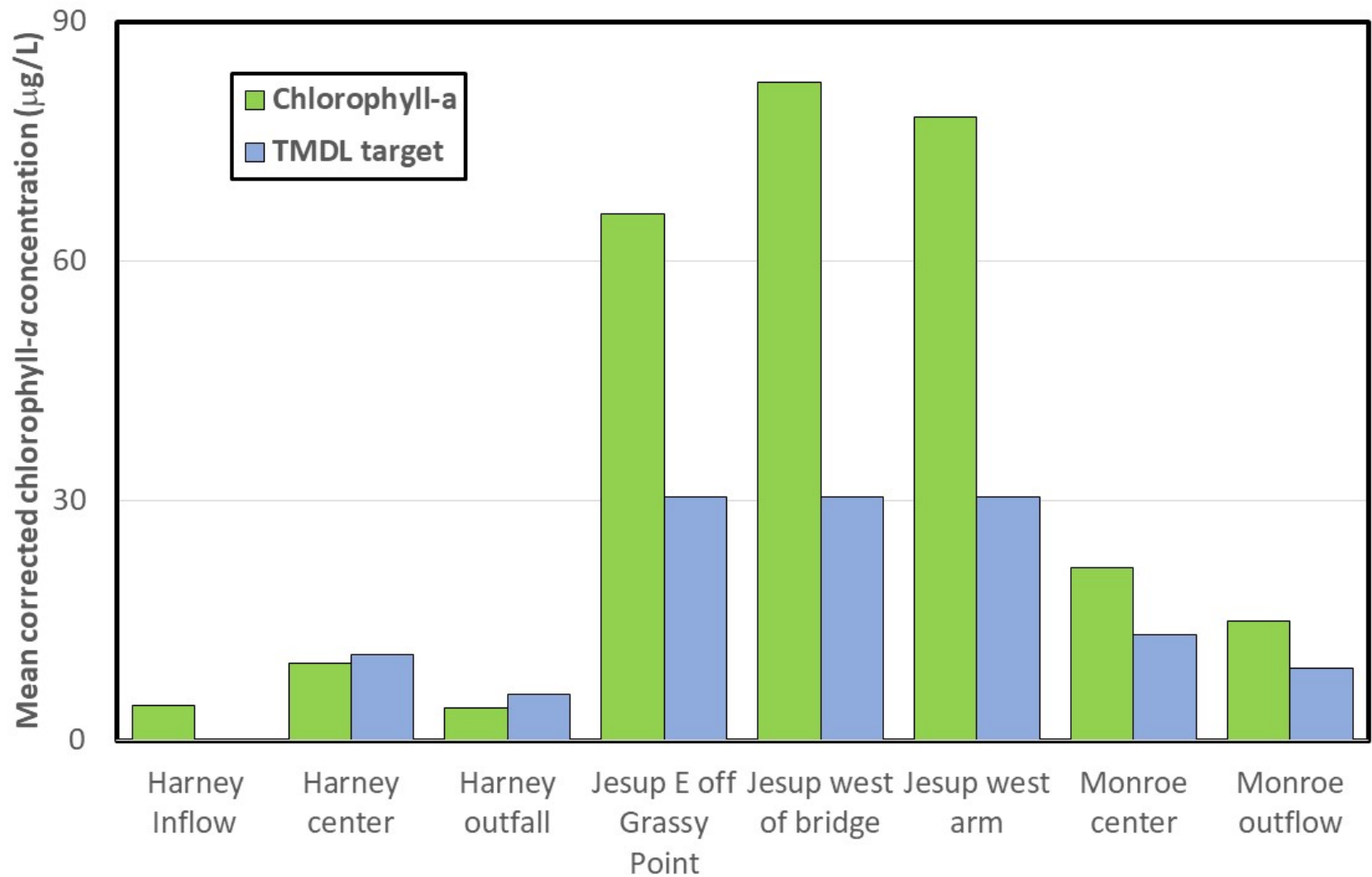
Middle St. Johns Basin lakes mean total phosphorus concentrations 2015-2019



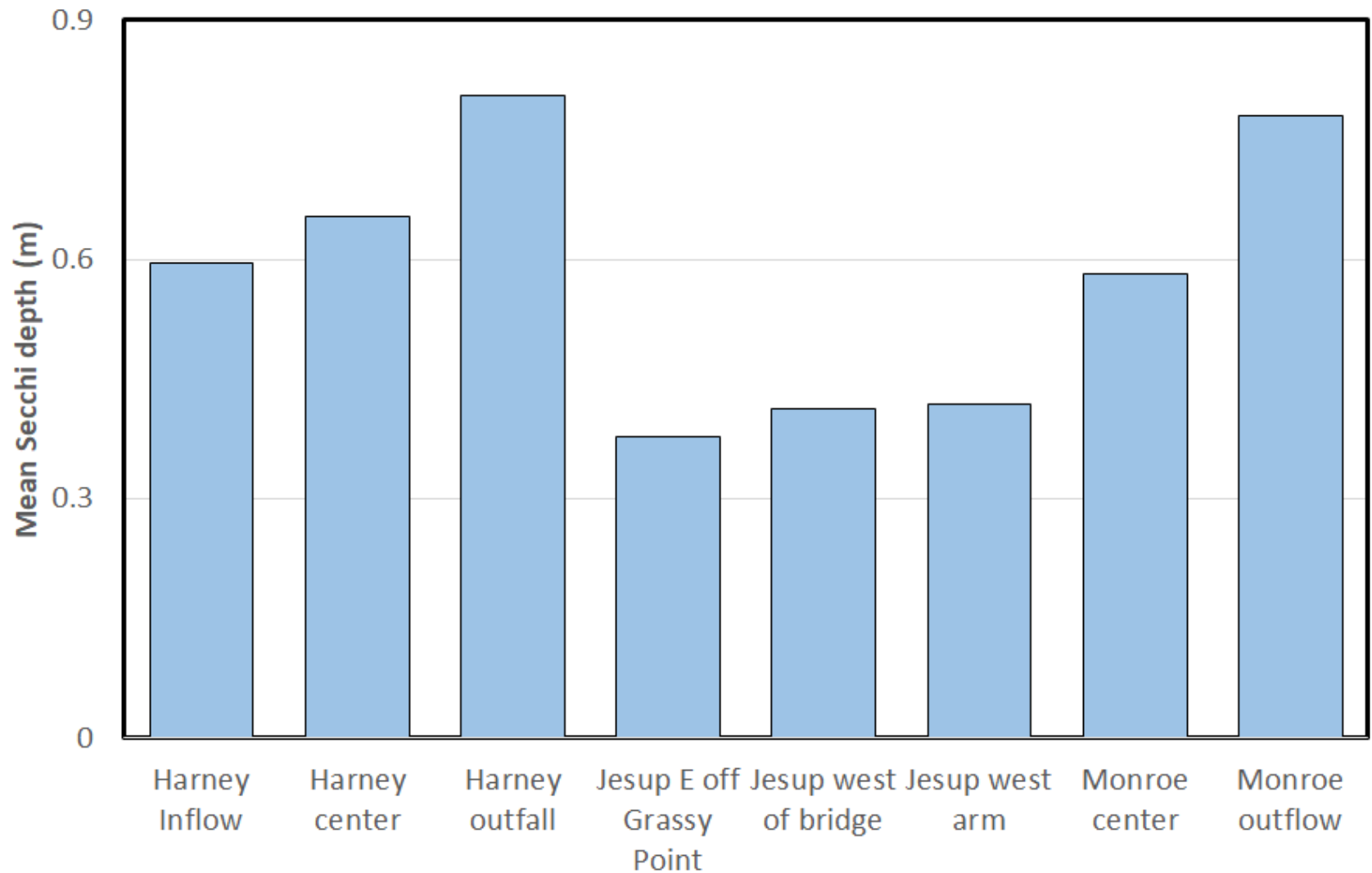
Middle St. Johns Basin lakes mean total nitrogen concentrations 2015-2019



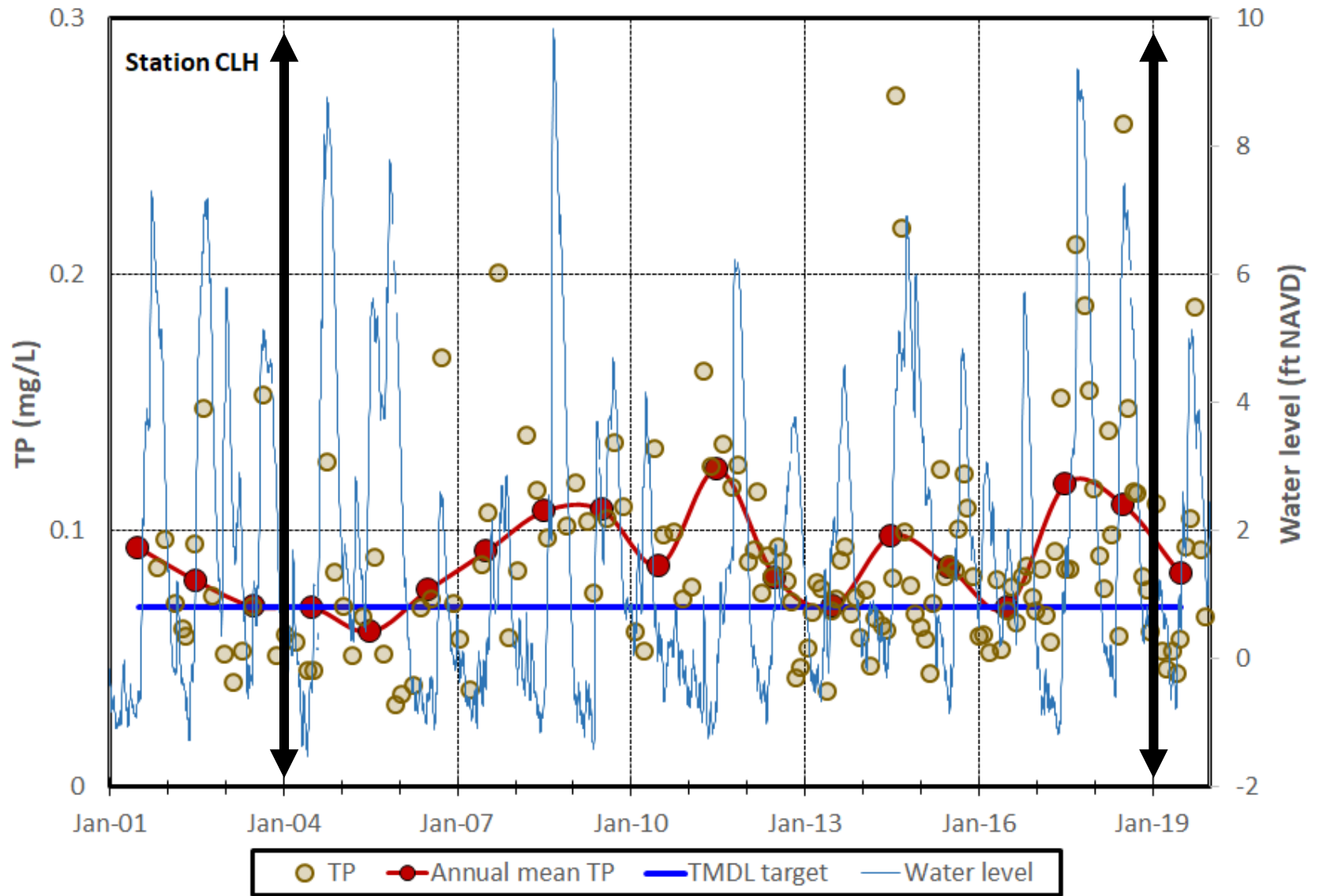
Middle St. Johns Basin lakes mean chlorophyll-*a* concentrations 2015-2019



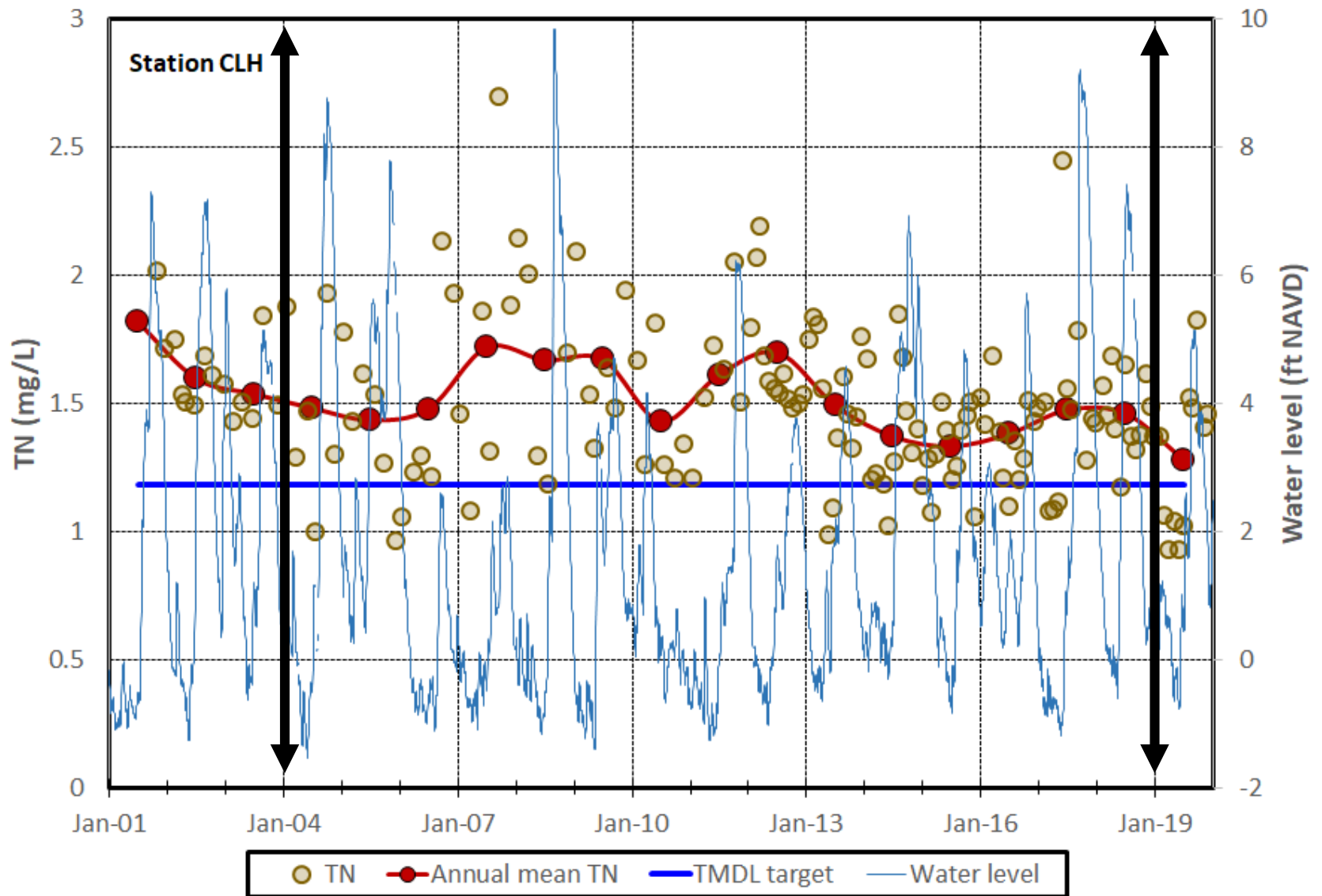
Middle St. Johns Basin lakes mean Secchi transparency 2015-2019



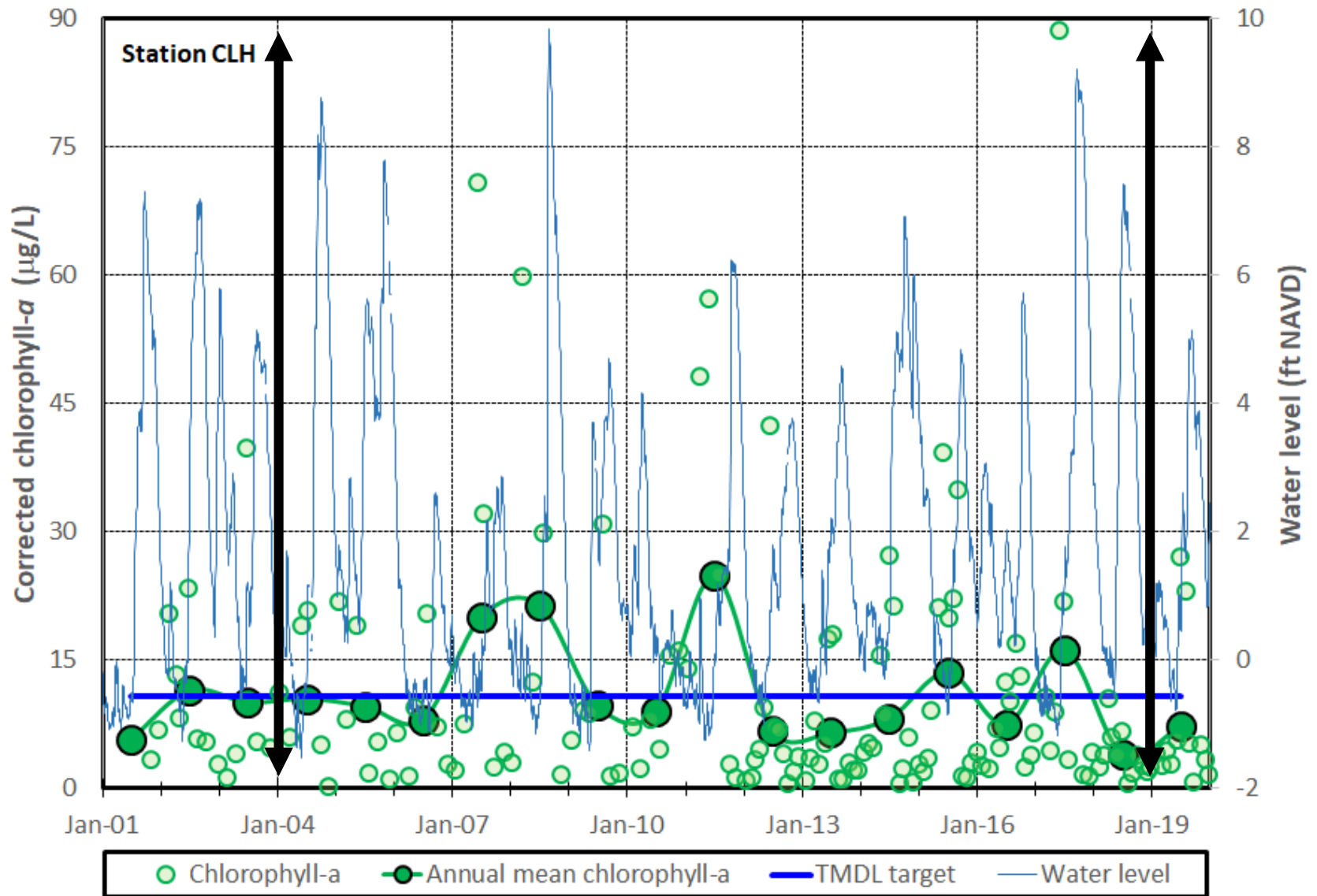
Center Lake Harney total phosphorus concentrations



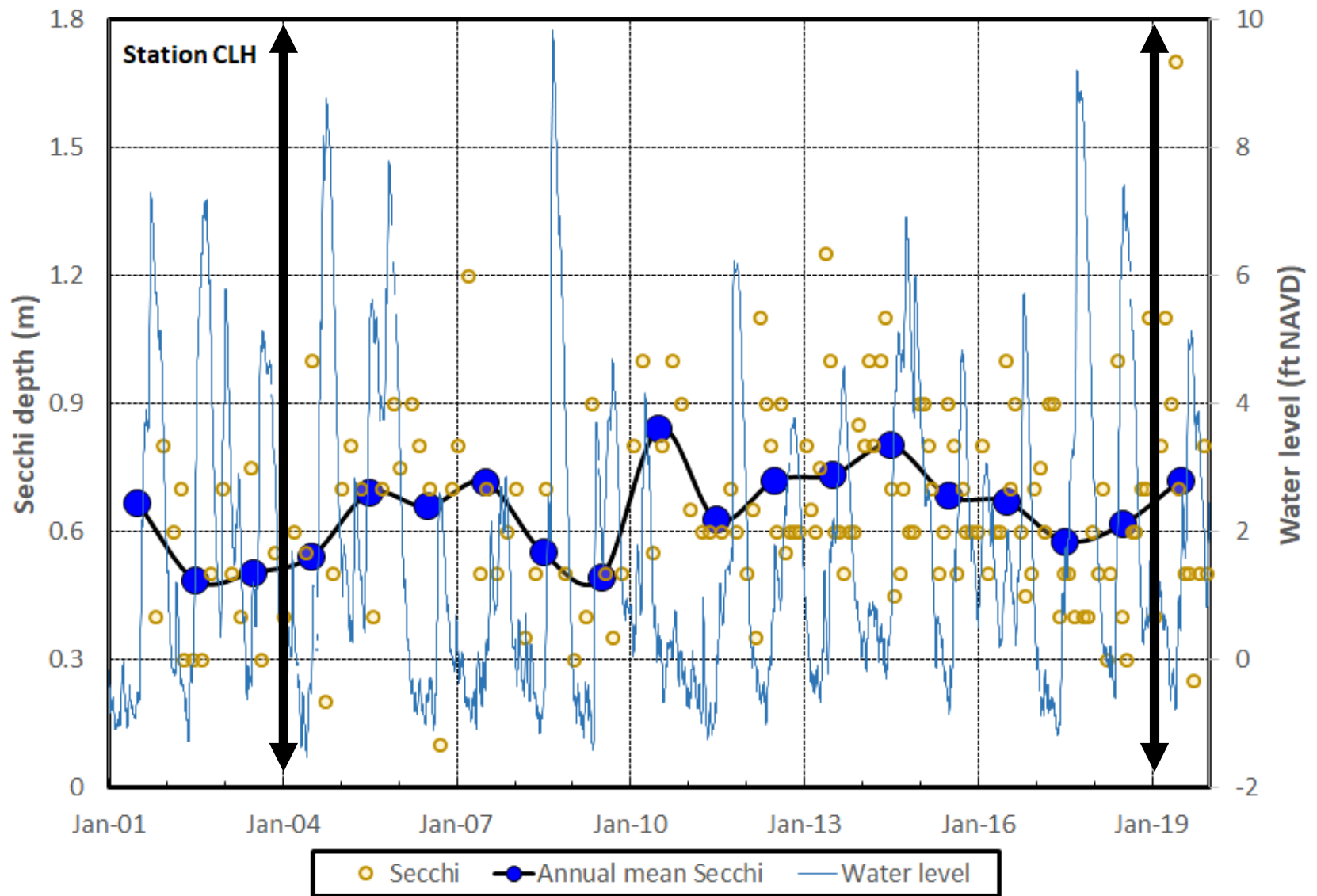
Center Lake Harney total nitrogen concentrations



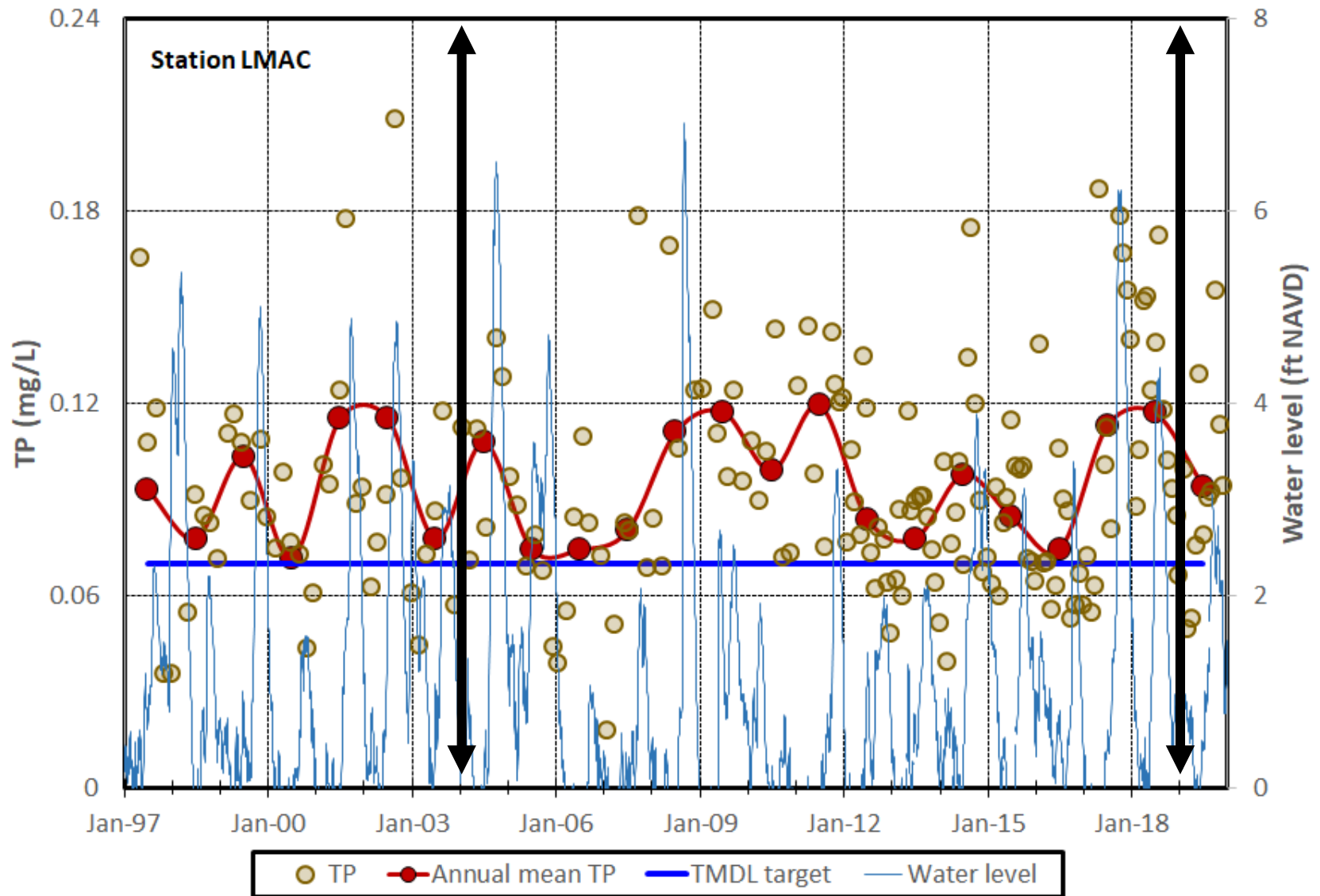
Center Lake Harney chlorophyll-*a* concentrations



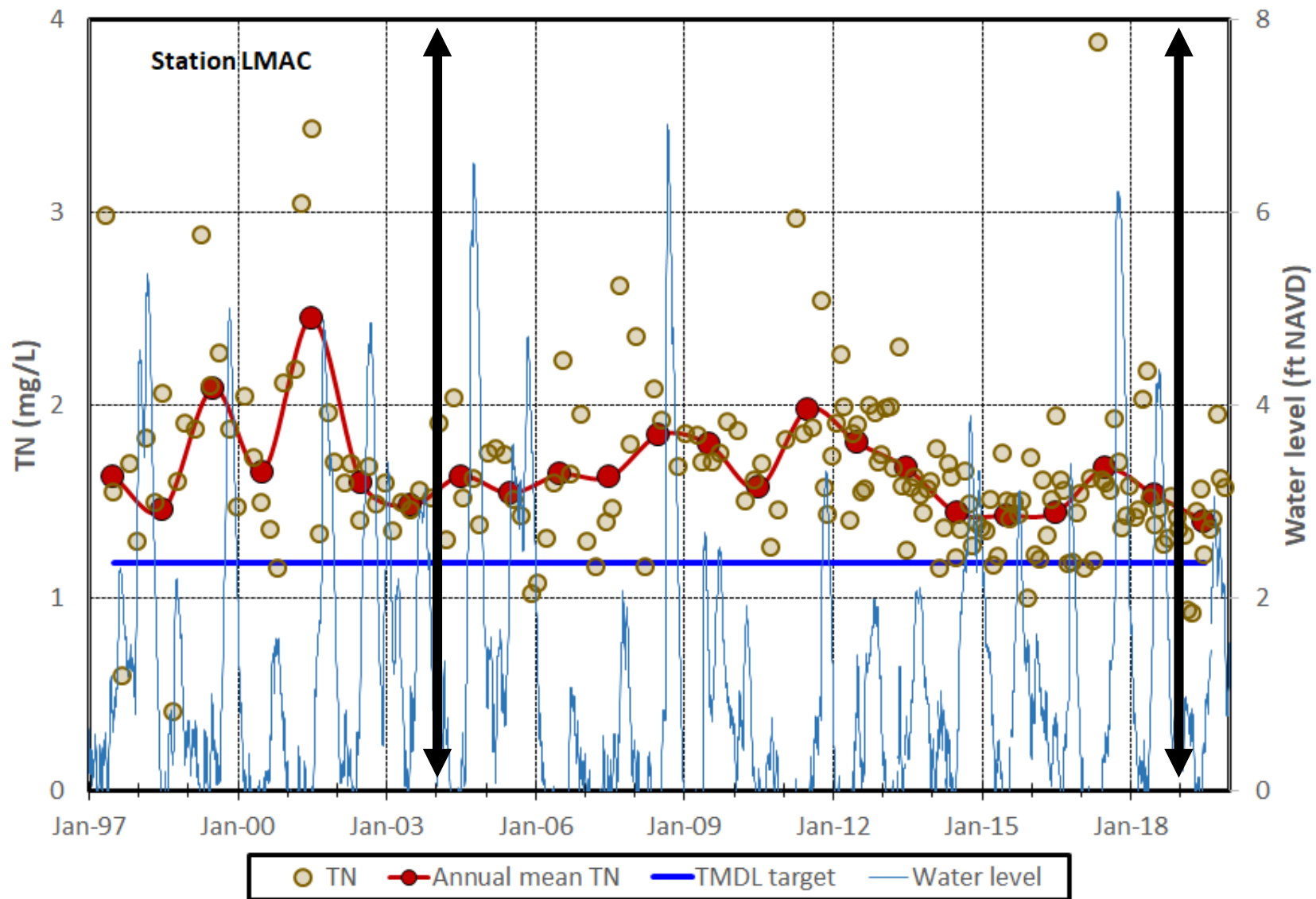
Center Lake Harney Secchi transparency



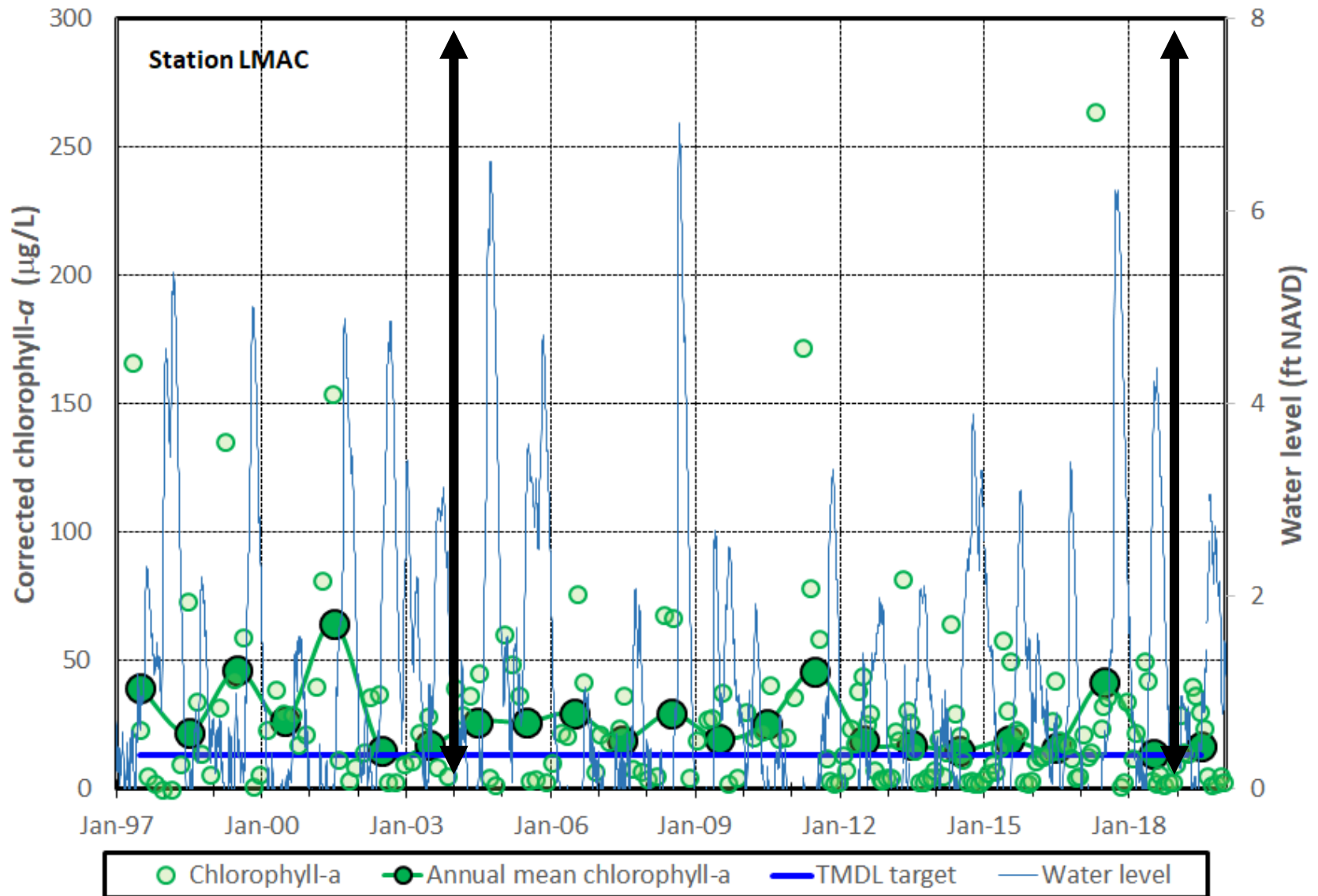
Center Lake Monroe total phosphorus concentrations



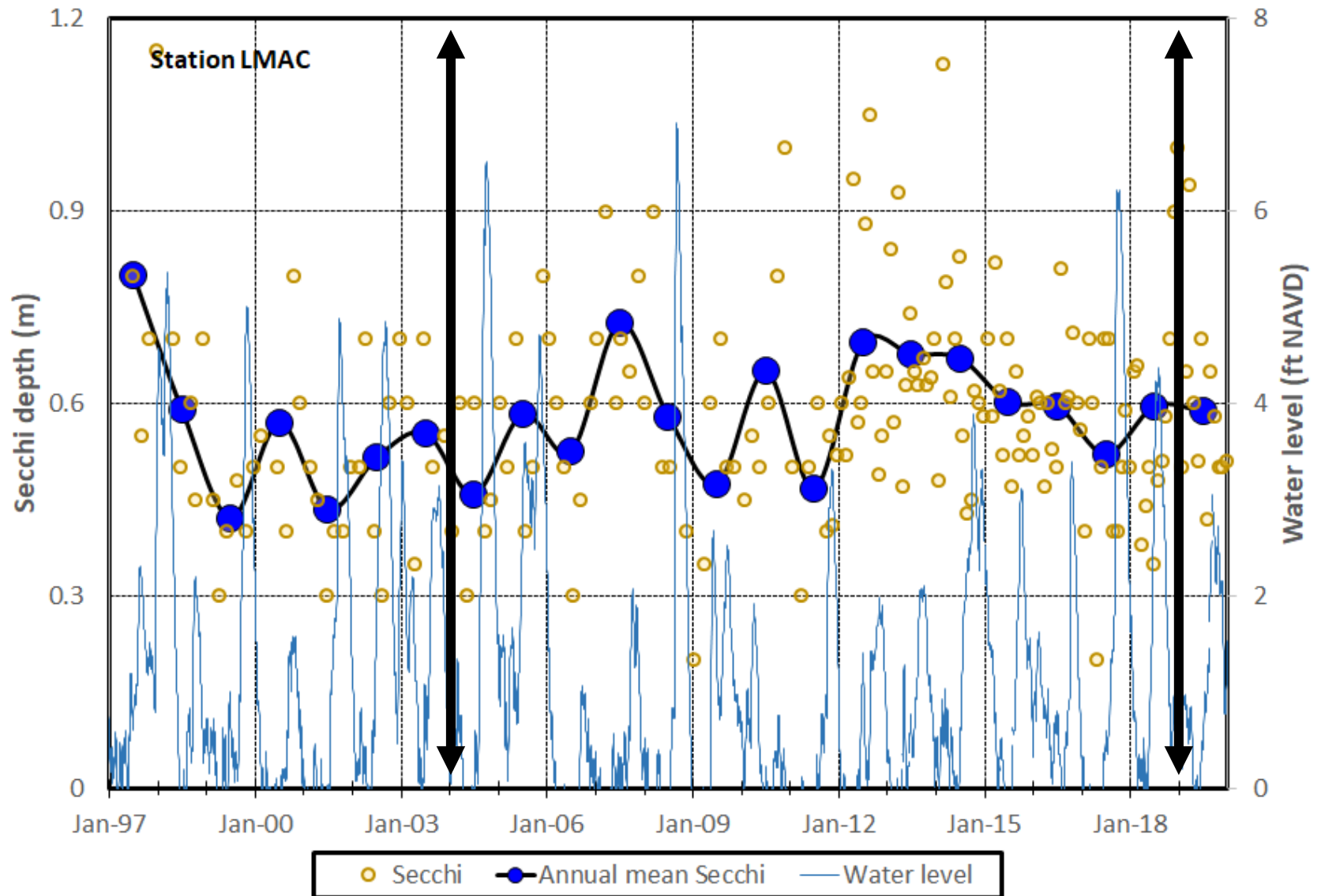
Center Lake Monroe total nitrogen concentrations



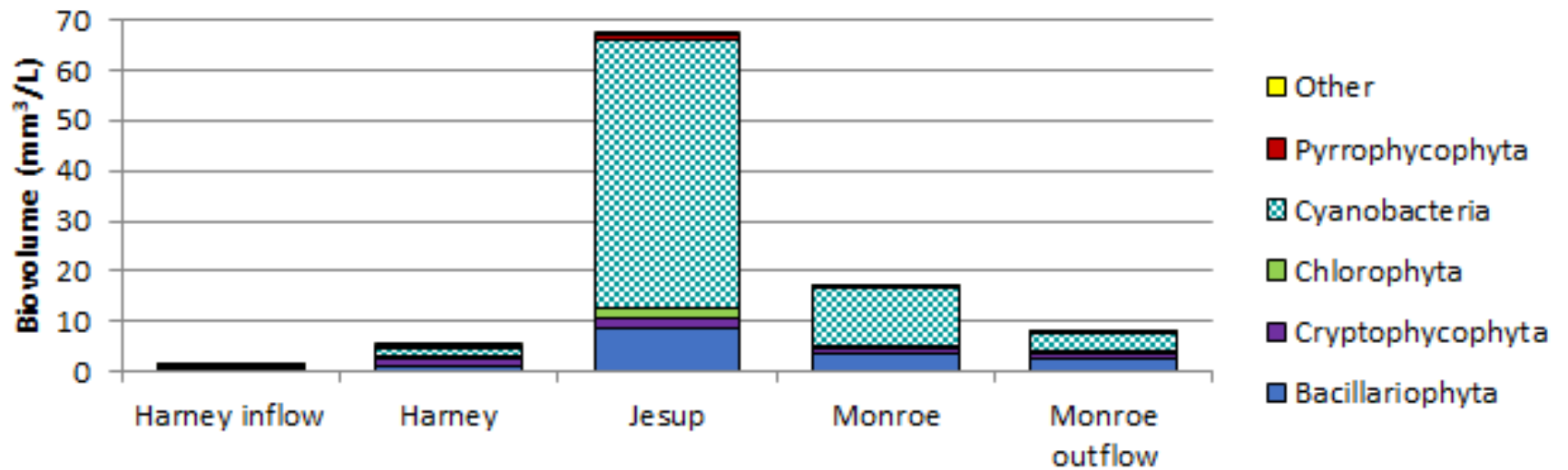
Center Lake Monroe chlorophyll-*a* concentrations



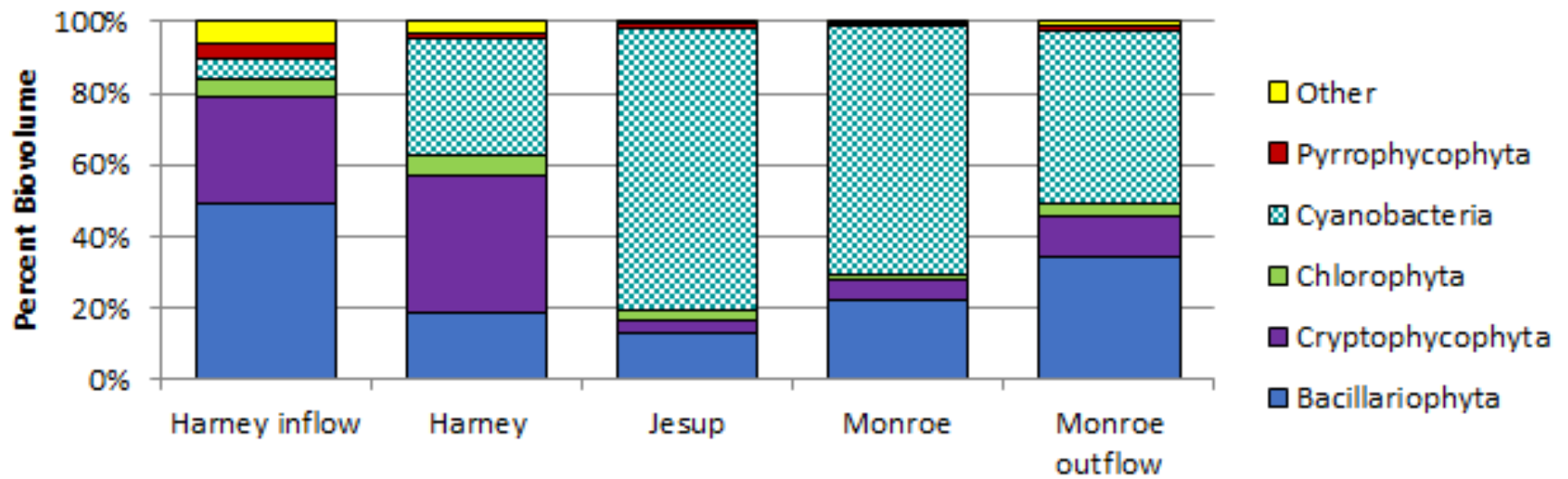
Center Lake Monroe Secchi transparency



Middle St. Johns River Basin Mean 2014-2017 Phytoplankton Biovolumes



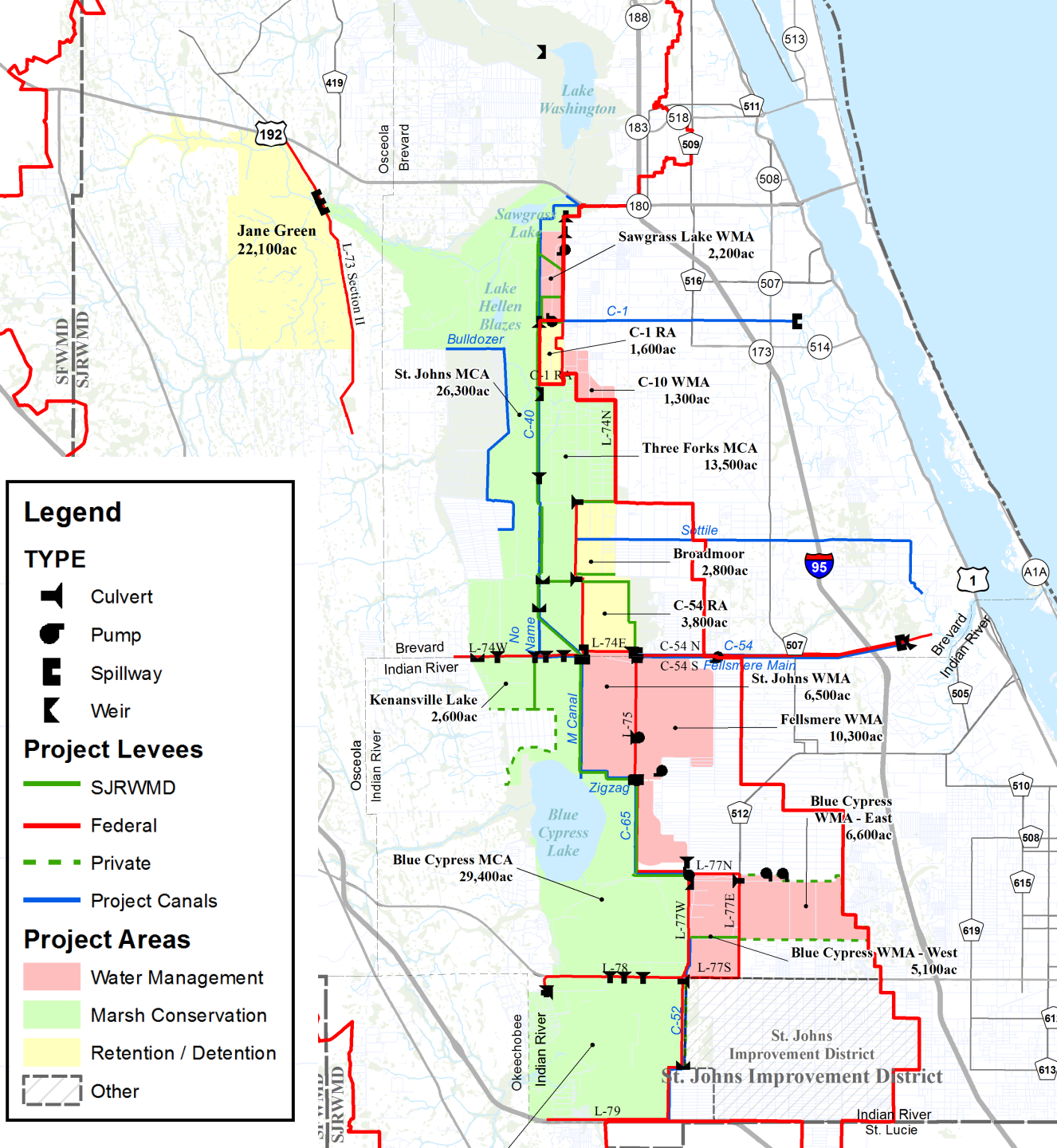
Middle St. Johns River Basin Mean Percent 2014-2017 Phytoplankton Biovolumes



Questions?

USJ Project Objectives

- Flood mitigation
- Habitat optimization
- Enhance water supply
- Treatment of waters from:
 - Reclaimed ag lands
 - Recaptured urban areas
- Facilitate recreational use



Legend

TYPE

- Culvert
- Pump
- Spillway
- Weir

Project Levees

- SJRWMD
- Federal
- Private
- Project Canals

Project Areas

- Water Management
- Marsh Conservation
- Retention / Detention
- Other

SJRWMD WQ Trends Assessment 2019* Nitrogen and Phosphorus

Blue Cypress
Lake

TN

TP

TN

TP

US 192

SR 520

TN

TP

($p=0.066$)

TN

TP

SR 50

Econlockhatchee
River

TN

TP

SR 46

TN

TP

Lake
Harney

Lake
Jesup

Lake
Monroe

Trending Down

Trending Up

Stable

Image Landsat / Copernicus
© 2019 Google

Mann-Kendall Nonparametric Trend
Test 2004-2018
Data SIO, NOAA, U.S. Navy, NGA, GEBCO



Water Quality Restoration Alternatives to TMDLs

Ben Ralys

Moirra Homann



Restoration Alternatives

Two types of Restoration Alternative Plans

1) Reasonable Assurance Plan

- Assessment Category 4b
- Not Placed on the 303(d) List

2) Pollutant Reduction Plans

- Assessment Category 4e
- Included on the 303(d) List

These plans are addressed in the Impaired Waters Rule in
Section 62-303.600, F.A.C.



Benefits of an Alternative Restoration Plan

- Provides a faster path to restoration
- Allows stakeholders to control their destiny
 - Developing a plan prior to state or federal action provides the best way for stakeholders to plan for efficient and effective management
 - Avoid TMDL-related regulatory requirements
- Acknowledges proactive efforts
 - Stakeholders receive credit for pollutant reductions
 - Benefits to downstream impaired waters
- Provides time for good targets to be developed
- Enhances public relations



Restoration Alternatives

<https://floridadep.gov/dear/alternative-restoration-plans>

Category 4b Assessments and Documentation

click here for 4b plans
and guidance



EPA regulations allow states to place certain impaired water bodies into Category 4b of the Integrated Report Categories instead of Category 5 – Impaired and needs a TMDL. The Florida Watershed Restoration Act (Section 403.067(4), F.S.) explicitly allows DEP to not list impaired waters under Category 5 if they already have control programs in place that will ensure water quality standards will be restored. These types of waterbodies – impaired, but with control programs already being implemented to reduce pollutant loadings – are placed in assessment Category 4b for Clean Water Act section 303(d) reporting purposes.

Category 4e Assessments and Documentation

Click here for 4e
plans and guidance



A waterbody can be placed in category 4e (Ongoing Restoration Activities) if it's impaired but recently completed or ongoing restoration activities are underway to restore the designated uses of the waterbody. For 4e plans, the waterbody is still included on the 303(d) list, but placement on the Verified List is postponed for one five-year assessment cycle, to allow for implementation of the 4e plan and evaluation of progress toward restoration.



Reasonable Assurance (4b) Plans

- **Basic Requirements:**

- Description of Impaired Waterbody
- Description of Water Quality or Aquatic Ecological Goals
 - The water quality – based targets or aquatic ecological goals (both interim and final) that have been established for the pollutant(s) of concern.
- Description of Proposed Management Actions To Be Undertaken
 - Schedule for restoration projects, including funding sources
- Description of Procedures for Monitoring and Reporting Results
- Description of and Commitment to Proposed Corrective Actions



Course of Action

- Develop a RA Plan
- Submit to the Department for Approval
- RA Plan is approved by the Department and adopted by the Secretary
- Updates are provided to the Department based on the schedule established in the plan
- Updates are reviewed for confirmation of reasonable progress
- Implementation of plan continues until targets are achieved



Reasonable Assurance Plans

We currently have 5 Reasonable Assurance or 4b plans that have been adopted.

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Reasonable Assurance Plans (RAPs) Category 4b Assessments and Documentation

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Alternative Restoration Plans Quick Links

[Category 4e Assessments and Documentation](#)

Reasonable Assurance Plans (RAPs): Category 4b Assessments and Documentation

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Reasonable Assurance Plans

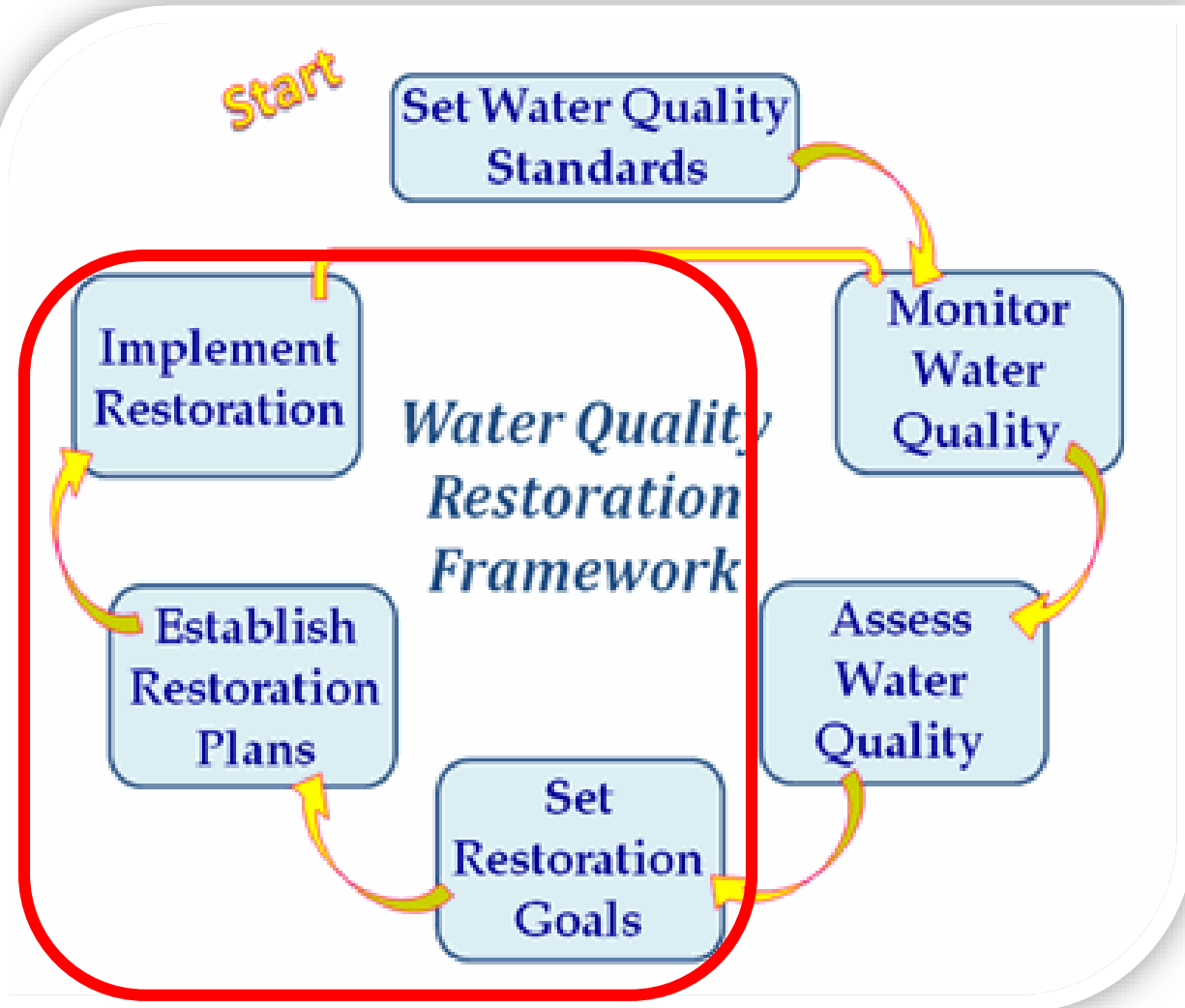
Reasonable Assurance plans (4b) provide an implementation schedule and resource commitments that there are, or will be, pollutant loading reductions that will result in the waterbody achieving water quality targets to attain and maintain the designated use.

Main inclusions in a Reasonable Assurance Plan:

- A restoration target (e.g. water quality, pollutant load)
- A list of projects and/or activities that will achieve the restoration target
- An implementation schedule that can span multiple years
- Funding commitments
- Requires EPA approval



Watershed Restoration



Done
altogether
in an RA
Plan.





Category 4e Plans

Category 4e Assessments and Documentation

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[Category 4b Assessments and Documentation](#)

[Documentation in Support of Category 4e](#)

[Map including RAPs adopted and in progress](#)

[Guidance on Developing Restoration Plans](#)

[All Alternative Restoration Plans Content](#)

Category 4e Assessments and Documentation

A waterbody can be placed in category 4e (Ongoing Restoration Activities) if it's impaired but recently completed or ongoing restoration activities are underway to restore the designated uses of the waterbody. For 4e plans, the waterbody is still included on the 303(d) list, but placement on the Verified List is postponed for one five-year assessment cycle, to allow for implementation of the 4e plan and evaluation of progress toward restoration. If at any time the department determines that reasonable assurance or reasonable progress are not being met, the Verified List will be amended accordingly. This indicates that where a 4e plan is approved, the decision to develop a TMDL is deferred until additional information is submitted to complete the pollutant reduction plan, or until additional water quality data are collected documenting that a waterbody is no longer impaired and consideration for Category 2 (not impaired) is warranted.

The goal of a 4e plan is to implement appropriate restoration activities and, if necessary, additional study so that by the next assessment cycle either a 4b Reasonable Assurance Plan (RAP) can be approved or the waterbody attains water quality standards for the parameter causing the impairment. If the waterbody is still identified as impaired by the next assessment cycle and a 4b plan has not been approved, then the waterbody would likely be placed in Category 5 and included on the Verified List, unless there are additional and substantial restoration efforts scheduled that justify keeping the waterbody in Category 4e for another assessment cycle.



Pollutant Reduction Plans

Pollutant reduction plans (4e) provide a demonstration that there are, or will be, management actions in place that will result in the waterbody achieving water quality targets (e.g. assessment thresholds or water quality standards) to attain the designated use before the next assessment cycle.

Main points of a Pollutant Reduction Plan:

- A restoration target is typically the water quality criterion
- Planned or on-going restoration activities
- A list of projects and/or activities that will achieve the restoration target
- An implementation schedule
- Expected to attain water quality standards by the next time the waterbody is assessed by DEP (e.g. 5 years)
- Does not require EPA approval



Plan Development

- Development of these plans is stakeholder driven
- DEP has resources to assist stakeholders
 - Facilitation
 - Technical Analysis
 - Review and Feedback





Surface Water Grant (SWAG) Considerations

<https://floridadep.gov/wra/319-tmdl-fund>

State grant for projects that reduce stormwater pollutant loadings in impaired waterbodies

- ~\$5 million total is appropriated annually to DEP through the Florida legislature
- “Shovel ready” capital improvement projects for treating waters not attaining standards (i.e., impaired)
- New combined project proposals for all NPS grants, will be accepted year-round
- Project selection expected twice per year
 - Generally March-April and October-November
- No set maximum or minimum funding request caps
- No match required
 - Cost sharing encouraged for project prioritization



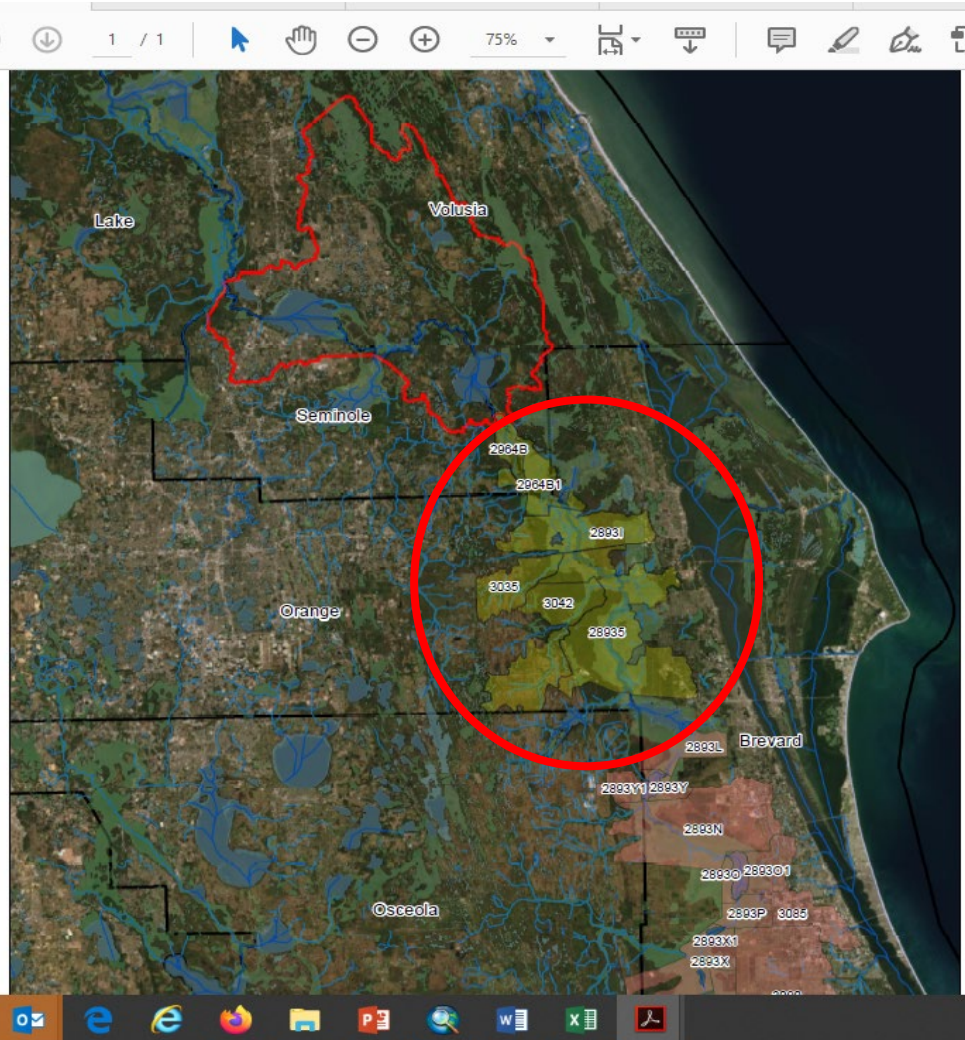
Next Steps/ Future Plans

Upper St. Johns River

- Alternative Restoration Plan?
- BMAP?



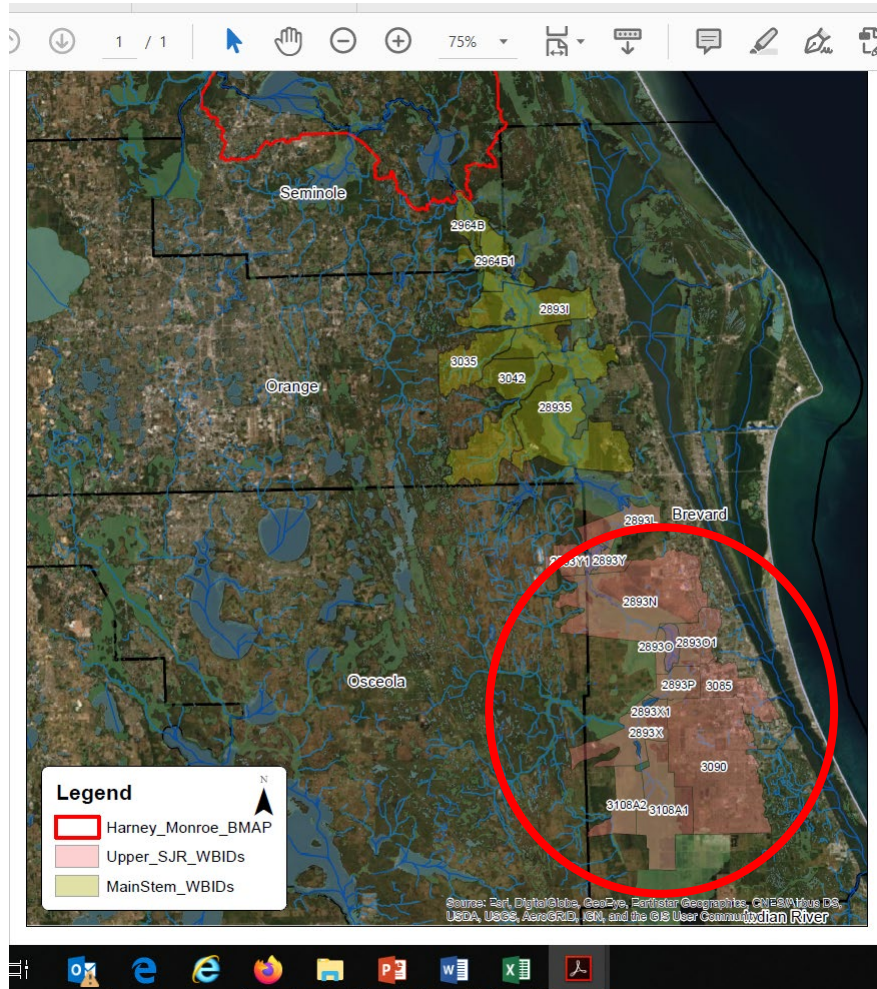
Upper St. Johns River



Waterbody Name	WBID	MS/USJR	Biology (SCI or LVI) Cycle 3 Assessment Call	Chlorophyll-a (µg/L) Cycle 3 Assessment Call	Total Nitrogen (mg/L) Cycle 3 Assessment Call	Total Phosphorus (mg/L) Cycle 3 Assessment Call	Dissolved Oxygen (percent Saturation) Cycle 3 Assessment Call
Tootoosahatchee Creek	3035	MS	3a	2	3b	3b	2
Jim Creek	3042	MS	3b	2	3b	3b	4d
Puzzle Lake	2964B	MS	3b	3b	2	5	2
Puzzle Lake Drain	2964B1	MS	3a	3b	4d	3b	4d
St. Johns River above Puzzle Lake (South Segment)	28935	MS	3c	3b	4d	3b	2
St. Johns River above Puzzle Lake	2893I	MS	3a	3b	4d	3b	5



Upper St. Johns River



Waterbody Name	WBID	MS/USJR	Biology (SCI or LVI) Cycle 3 Assessment Call	Chlorophyll-a (µg/L) Cycle 3 Assessment Call	Total Nitrogen (mg/L) Cycle 3 Assessment Call	Total Phosphorus (mg/L) Cycle 3 Assessment Call	Dissolved Oxygen (percent Saturation) Cycle 3 Assessment Call
St Johns River above Lake Poinsett	2893L	USJR	3a	2	4a	3b	2
St Johns River above Lake Winder	2893N	USJR	3c	3b	3b	4d	4d
Lake Washington	2893O	USJR	4d	2	2	2	2
Lake Washington Drain	2893O1	USJR	3a	2	3b	3b	2
St Johns River above Lake Washington	2893P	USJR	3c	3b	5	3b	2
St Johns River above Sawgrass Lake	2893X	USJR	3c	3c	3c	3c	4a
Sawgrass Lake Drain	2893X1	USJR	3a	3b	4d	3b	5
Lake Winder	2893Y	USJR	4d	2	2	2	2
Lake Winder Drain	2893Y1	USJR	3a	3b	3b	3b	4d
Melbourne-Tillman (C-1) Canal	3090	USJR	3a	2	3b	3b	4d
Three Forks Marsh Run/C40 Canal	3108A1	USJR	3a	3b	4d	3b	4d
South Mormon Canal	3108A2	USJR	3a	3b	3b	3b	4d
Crane Creek	3085	USJR	3a	2	3b	3b	2
Crane Creek	3085B	USJR	NA	NA	NA	NA	NA
Crane Creek (M1 Canal)	3085C	USJR	NA	NA	NA	NA	NA
Big Bass Lake Outlet	2795	USJR	No Data	No Data	No Data	No Data	No Data



Questions?

