CHAPTER 8B: LAKE OKEECHOBEE WATERSHED PROTECTION PLAN ANNUAL PROGRESS REPORT

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HIGHLIGHTS

Project Spotlight: Lake Okeechobee Component A Storage Reservoir (LOCAR)

As a priority in Executive Order 23-06: Achieving *Even More* Now for Florida's Environment, SFWMD is directed to advance Everglades restoration projects to ensure meaningful progress over the next four years, including all Comprehensive Everglades Restoration Plan (CERP) storage components in the Lake Okeechobee Watershed (LOW).

In 2024, SFWMD in partnership with the U.S. Army Corps of Engineers (USACE), completed the final feasibility study and environmental impact study for LOCAR. The feasibility study explored opportunities for aboveground storage, with an estimated storage capacity of 200,000 acre-feet.

In summer 2025, LOCAR advanced with preliminary design efforts. The purpose of the planned 12,500-acre reservoir is to store excess water in the northern watersheds and then release it at times when it is beneficial for the region.

Scenic view of Lake Okeechobee.

Project Spotlight: Basinger Dairy Legacy Phosphorus Study

Site-wide soil sampling grid at the Basinger study site.

In June 2023, SFWMD entered into a 5-year agreement for the Basinger Dairy project to help support the Lake Okeechobee Basin Management Action Plan (BMAP) by reducing a source of legacy phosphorus in the watershed and providing an area to conduct remediation studies.

The 950-acre project property is a former dairy farm in the S-65D NEEPP Priority Basin in the Lower Kissimmee Subwatershed. Most of the project area will be converted to crops to remediate legacy phosphorus.

In April 2025, more than 1,200 surface and core soil samples were collected across the study site to document baseline conditions prior to construction, which is planned to be completed in 2026. Sampling will be repeated after construction and at the end of the study as part of the research to assess phosphorus reductions resulting from this project.

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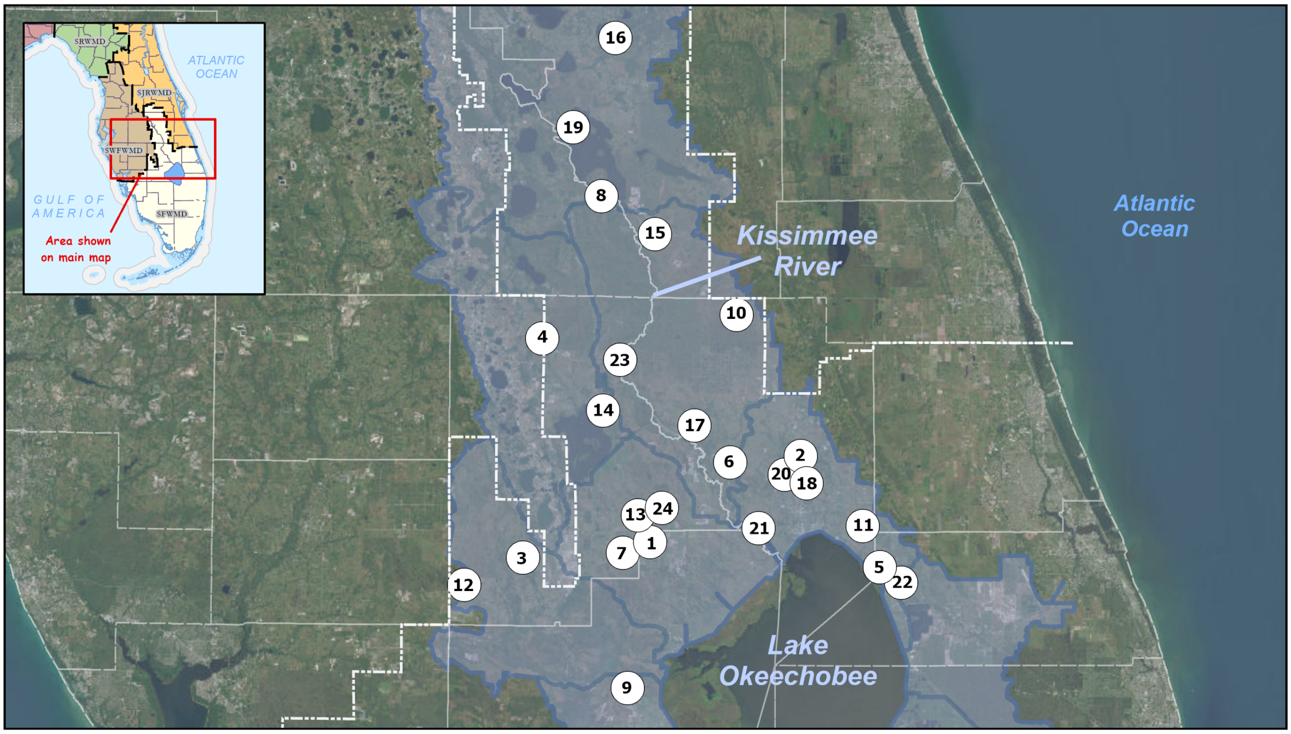
Lake Okeechobee Watershed Protection Plan Highlights

Advancing Watershed Construction Projects



MAJOR PROJECT MILESTONES

COMPLETED AND OPERATIONAL

# PROJECT	PROJECT TYPE	O&M START/ RENEWAL DATE
1. West Waterhole	DWM - Active	2007/2021
2. Taylor Creek STA	STA	2008
3. XL Ranch	DWM - Passive	2008/2023
4. Rafter T Ranch	DWM - Passive	2010/2025
5. Lakeside Ranch STA*	STA	2012/2019
6. Dixie Ranch	DWM - Passive	2012/2022
7. Buck Island Ranch	DWM - Passive	2012/2022
8. Eagle Haven Ranch	DWM - Passive	2013/2023
9. Nicodemus Slough	DWM - Active	2015/2023
10. Abington Preserve	DWM - Passive	2015/2024
11. Nubbin Slough STA*	STA	2016
12. Llano Ranches	DWM - Passive	2017
13. Brighton Valley DWM*	DWM - Active	2020
14. Aguaculture – Lake Istokpoga	Innovative Technology	2024
15. El Maximo Ranch	DWM - Active	2024
16. Partin Family Ranch	DWM - Passive	2024

Ribbon cutting at the El Maximo Ranch project (December 2024).

MAJOR MILESTONES

# PROJECT	PROJECT TYPE	FY2025 ACCOMPLISHMENT	PROJECTED CONSTRUCTION COMPLETION DATE
17. Basinger Dairy Legacy Phosphorus	Study	Completed Design and Initiated Construction	2026
18. TCNS 214 Storage and Treatment	Water Quality	Continued Planning and Design Efforts	2027
19. Kissimmee River Headwaters Revitalization Schedule*	Restoration	Continued Implementing First Phase of Schedule (known as HRS Increment 1 Deviation)	2027
20. Grassy Island FEB	FEB	Completed Conceptual Design	2029
21. Lower Kissimmee Basin STA (LKBSTA)	STA	Continued Planning and Design Efforts	2030
22. Brady Ranch FEB	FEB	Completed Conceptual Design	2031
23. Kissimmee River Restoration – Operations*	Restoration	Continued Evaluation of Restoration Efforts	2031
24. Lake Okeechobee Component A Reservoir (LOCAR)	Reservoir	Initiated Preliminary Design	TBD

* Priority projects under Executive Orders 19-12, Achieving More Now For Florida's Environment and 23-06, Achieving Even More Now for Florida's Environment. Key to Abbreviations: DWM – Dispersed Water Management; FEB – Flow Equalization Basin; O&M – Operations and Maintenance, STA – Stormwater Treatment Area; and TBD – to be determined.

Lake Okeechobee Watershed Protection Plan Highlights

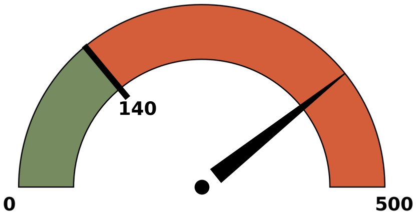
Progress Towards Water Quality and Storage Goals

WY2025 Project Performance in the Lake Okeechobee Watershed

- 28.9 metric tons (t) of total phosphorus retention
- 265.6 t of total nitrogen retention
- 95,441 acre-feet (ac-ft) per year of dynamic storage

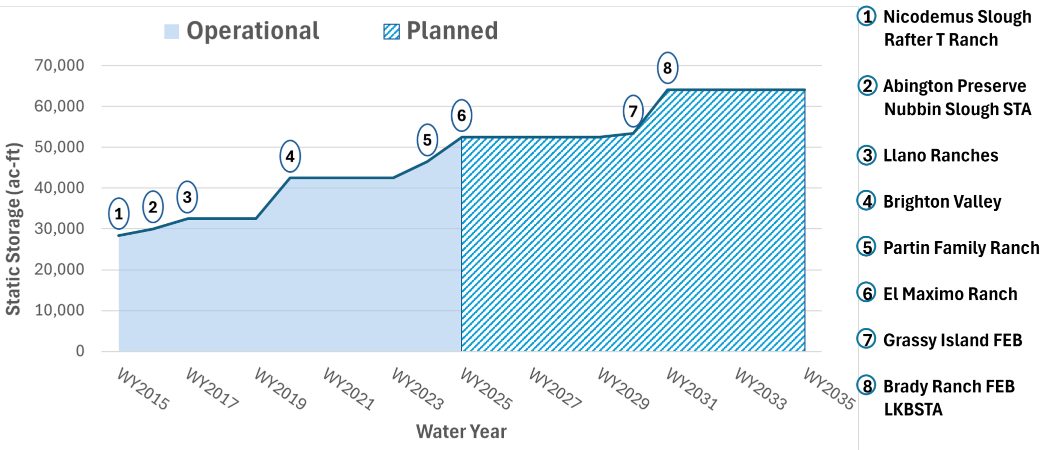
Water Year 2025 (WY2025; May 1, 2024–April 30, 2025)

Total Phosphorus (TP) Loading



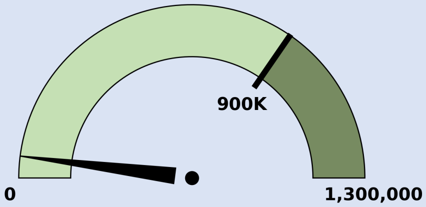
GOAL ≤ 140
5-Year Average = 393
Unit = metric tons

Increasing Storage Capacity in the Lake Okeechobee Watershed



The graph above includes 12,000 ac-ft of storage from existing operational projects prior to WY2015. Plus, more than 353,000 ac-ft of storage is planned beyond 2035 for this watershed.

Total Watershed Static Storage



GOAL ≥ 0.9 - 1.3 million
WY2025 = 52,511
Unit = acre-feet

SFWMD is the lead agency on hydrologic improvements pursuant to the Lake Okeechobee Watershed Protection Plan (in accordance with NEEPP, Section 373.4595, Florida Statutes).

Monitoring at Abington Preserve in the Lower Kissimmee Basin.

Brighton Valley DWM project in the Indian Prairie Basin.

What is DYNAMIC STORAGE? Dynamic storage considers the total volume held over a specific period of time. In this chapter, it is used to assess project performance in the watershed during the WY2025 reporting period.

What is STATIC STORAGE? Static storage for water retention projects is defined as the volume retained at maximum capacity, usually up to the point of discharge. The static storage target for the LOW is 900,000 to 1,300,000 ac-ft (Frye et al. 2025).

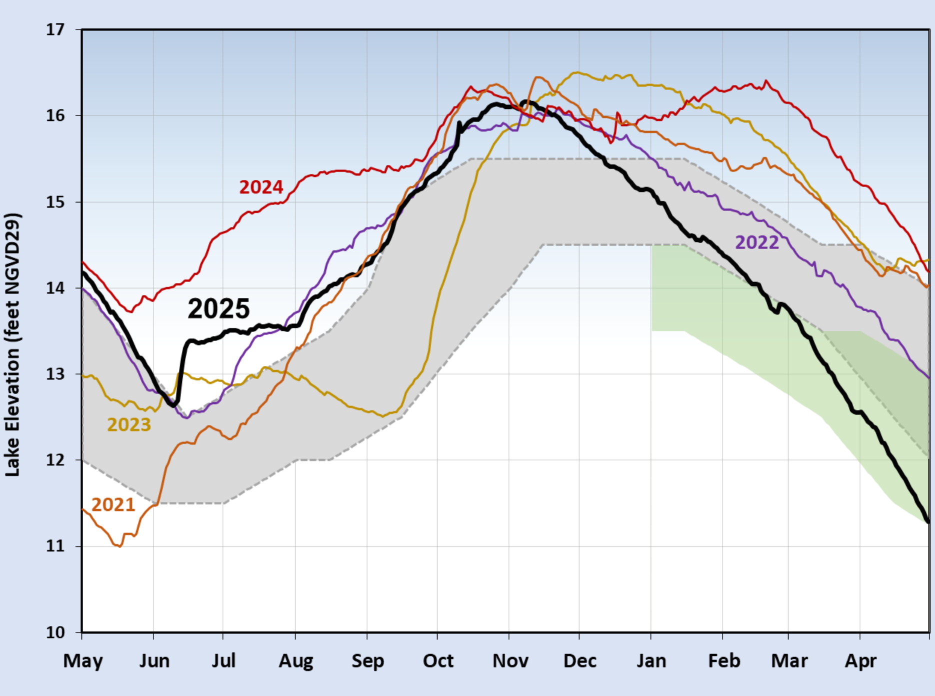
Lake Okeechobee Watershed Protection Plan Highlights

Research and Monitoring Results

Key Lake Okeechobee Rehabilitation Performance Data

Performance Measure	Planned Goal	5-Year Average	WY2025 Results
TP Load	140 tons per year (t/yr)	393 t/yr	337 t/yr
Pelagic TP	40 microgram per liter (µg/L)	158 µg/L	175 µg/L
Nearshore TP	< 40 µg/L	111 µg/L	123 µg/L
Algal Bloom Frequency	Blooms at < 5% of sites	13%	15%
Submerged Aquatic Vegetation (SAV)	Interim Goal, Total SAV > 35,000 acres	6,323 ac	3,705 ac
Water Clarity	Bottom visible at all 60 nearshore long-term monitoring locations	18%	21%
Extremes in low lake stage (current WY)	Maintain stages > 10 feet (ft)	---	Yes
Extremes in high lake stage (current WY)	Maintain stages < 17 ft; not > 15 ft for 4 months or more	---	Yes: > 15 ft for 3.6 months

- Recent monitoring data show that water quality and ecological indicators of lake health fall short of performance targets that were established about 20 years ago as part of the Lake Okeechobee Watershed Protection Plan.
- While these restoration goals will take many years to respond to watershed improvements as plan measures are implemented, research and monitoring results are being used adaptively to help inform decisions to improve lake conditions.



NGVD29 – National Geodetic Vertical Datum of 1929.

Managing Lake Stages to Optimize Recovery

- **Ecological envelope** (*grey band*) reflects a range of lake stages that are ideal for native fish and wildlife and their critical habitats.
- **Recovery envelope** (*green band*) reflects a range of lake stages that help guide recovery operations.
- After back-to-back years of high lake stages, recovery operations were launched under the new Lake Okeechobee System Operating Manual (LOSOM) in December 2024.
- Lower lake levels during the WY2025 dry season (green-shaded area on graph) are beneficial for SAV recovery.

EVEN MORE PROGRESS TOWARD LAKE GOALS

The Vital Role of SAV in Lake Okeechobee Health

- Provides critical habitat for fish and wildlife,
- Stabilizes shoreline sediments, and
- Supports attached algae that help remove nutrients.

The spatial extent of in-lake SAV varies in response to changing water levels and clarity, which both affect light penetration in the water column. SAV is routinely monitored using grids and transects to track responses across temporal and spatial scales.

Since monitoring began in WY2002, SAV coverage has varied greatly, with acute periods of loss and recovery typically associated with hurricanes and droughts, respectively. SAV coverage on the lake has recently been minimal due to high water and turbidity, particularly after hurricane effects in 2022 and 2024. SAV expansion was noted along transects just prior to Hurricane Ian, although lake-wide coverage was still the third lowest on record.

Eelgrass bed along the lake's southwest shore.

Restoration Efforts Advance to Promote In-Lake Vegetation

Floating turbidity curtains in the lake marsh at the pilot study's south plot.

Planting eelgrass (Vallisneria) and bulrush (Schoenoplectus) in Fisheating Bay.

From summer 2024 to summer 2025, SFWMD conducted a novel one-year pilot study to test whether temporary turbidity controls—using in-situ turbidity curtains—can improve water clarity and light penetration to the lakebed in this high energy environment to help promote SAV recovery. The specially designed curtains were strategically positioned to reduce wave energy and suspended solids in two shoreline areas with prior SAV coverage. Key findings of this study will be reported in fall 2025.

Additionally, with low-level conditions in Lake Okeechobee in June 2025, SFWMD and the Florida Fish and Wildlife Conservation Commission (FWC) used this opportunity to work together to help restore habitat in Fisheating Bay and planted 1,000 eelgrass, 7,500 Kissimmee grass, and 22,000 bulrush. These plantings will help jumpstart and protect the growth of SAV in the lake during the growing season. FWC also planted nearly 400 native trees around islands in the bay to enhance wading bird habitat.

These restoration activities are well-aligned with the 2015 Lake Okeechobee Low Lake Level Enhancement Plan, which was prepared by SFWMD to aid in conducting lake habitat enhancement activities. Building on the many ongoing in-lake research and monitoring efforts, more future work—including additional in-lake plantings, full-marsh vegetative mapping, and other protective measures for SAV resilience—is also being planned.

INTRODUCTION

As required by Subsection 373.4595(6), Florida Statutes (F.S.), this chapter, in conjunction with Chapters 8A, 8C, and 8D of this volume, fulfill the specific reporting requirements outlined in the Northern Everglades and Estuaries Protection Program (NEEPP) legislation. The chapter provides an annual review for the Lake Okeechobee Watershed Protection Plan (LOWPP), which is critical to maintaining transparency and accountability in the state's basin management action plan (BMAP) process and for collectively moving towards achievement of total maximum daily loads (TMDLs). The previous 5-year LOWPP update was completed in March 2025 as Chapter 8B in the *2025 South Florida Environmental Report* (SFER) – *Volume I* (Welch et al. 2025).

Specifically, Chapter 8B is organized into three parts and supplemental information is appended as follows:

- Part I – Research and Water Quality Monitoring Program: Lake Okeechobee
- Part II – Research and Water Quality Monitoring Program: Lake Okeechobee Watershed
- Part III – Lake Okeechobee Watershed Construction Project
- Appendix 8B-1 – Water Year 2025 Lake Okeechobee Watershed Upstream Monitoring
- Appendix 8B-2 – Results from Water Year 2025 Expanded Lake Okeechobee Phytoplankton and Water Quality Monitoring Program

For this report, research, and water quality monitoring results are reported through Water Year 2025 (WY2025; May 1, 2024–April 30, 2025), while most project-related information is provided for Fiscal Year 2025 (FY2025; October 1, 2024–September 30, 2025).[3]

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[3] Results reported in Chapter 8B include a mixture of International System of Units (SI) and non-SI units. Non-SI units used in this chapter include surface area as acres (ac), flow rate as cubic feet per second (cfs), water volume as acre-feet (ac-ft), and mass as metric tons (t). Conversion factors to express these values in SI units are as follows: 1 ac = 0.40469 hectare (ha) or 4,046.9 square meters; 1 cfs = 0.02832 cubic meters per second; 1 ac-ft = 1,233.5 cubic meters; and 1 t = 1,000 kilograms.

PART I: RESEARCH AND WATER QUALITY MONITORING PROGRAM - LAKE OKEECHOBEE

Lake Okeechobee is a central part of the interconnected South Florida aquatic ecosystem, the United States Army Corps of Engineers (USACE) regional flood control project, and the Central and Southern Florida Flood Control Project (C&SF Project). The lake is shallow, turbid, and eutrophic, and provides natural habitat for fish, wading birds, and other wildlife (Engstrom et al. 2005, Havens and Gawlik 2005). It has been subject to long-term stresses including excessive nutrient loads, extreme water level fluctuations, harmful algal blooms (HABs), and rapid spread of exotic and nuisance plants in the littoral zone.

The lake receives water from direct rainfall and a watershed that includes the Kissimmee Chain of Lakes, Kissimmee River, Lake Istokpoga, Fisheating Creek, and other tributaries (**Figure 8B-1**). Except for Fisheating Creek, all major inflows to Lake Okeechobee are controlled by gravity-fed or pump-driven water control structures. These hydrologic systems, along with several minor tributaries, are grouped by nine subwatersheds based on hydrology and geography in the Lake Okeechobee Watershed (LOW). These subwatersheds are the Upper Kissimmee (above structure S-65), Lower Kissimmee (between structures S-65E and S-65), Taylor Creek/Nubbin Slough (S-191, S-133, S-135, S-154, and S-154C basins), Lake Istokpoga (above structure S-68), Indian Prairie (C-40, C-41, C-41A, L-48, L-49, L-59E, L-59W, L-60E, L-60W, L-61E, and S-131 basins), Fisheating Creek (Fisheating Creek/L-61W Basin), East Lake Okeechobee (C-44/S-153/Basin 8 and L-8 basins), West Lake Okeechobee (East Caloosahatchee, Nicodemus Slough North, and Nicodemus Slough South basins), and South Lake Okeechobee, which includes the S-4 Basin, and most basins in the Everglades Agricultural Area (EAA), as well as various Chapter 298, F.S., Districts (**Figure 8B-2**).

The WY2025 Research and Water Quality Monitoring Program (RWQMP) for the lake presents the status of items newly added to the program and reviews in-lake research and long-term monitoring used to track ecological conditions in response to operations, hydrology, and restoration activities. Annual status is described for (1) phosphorus (P) and nitrogen (N) budgets, (2) nutrient and phytoplankton dynamics, (3) submerged aquatic vegetation (SAV), and (4) emergent plants and wildlife. A summary of recently completed, ongoing, and proposed in-lake projects for the RWQMP is presented in **Table 8B-1**.

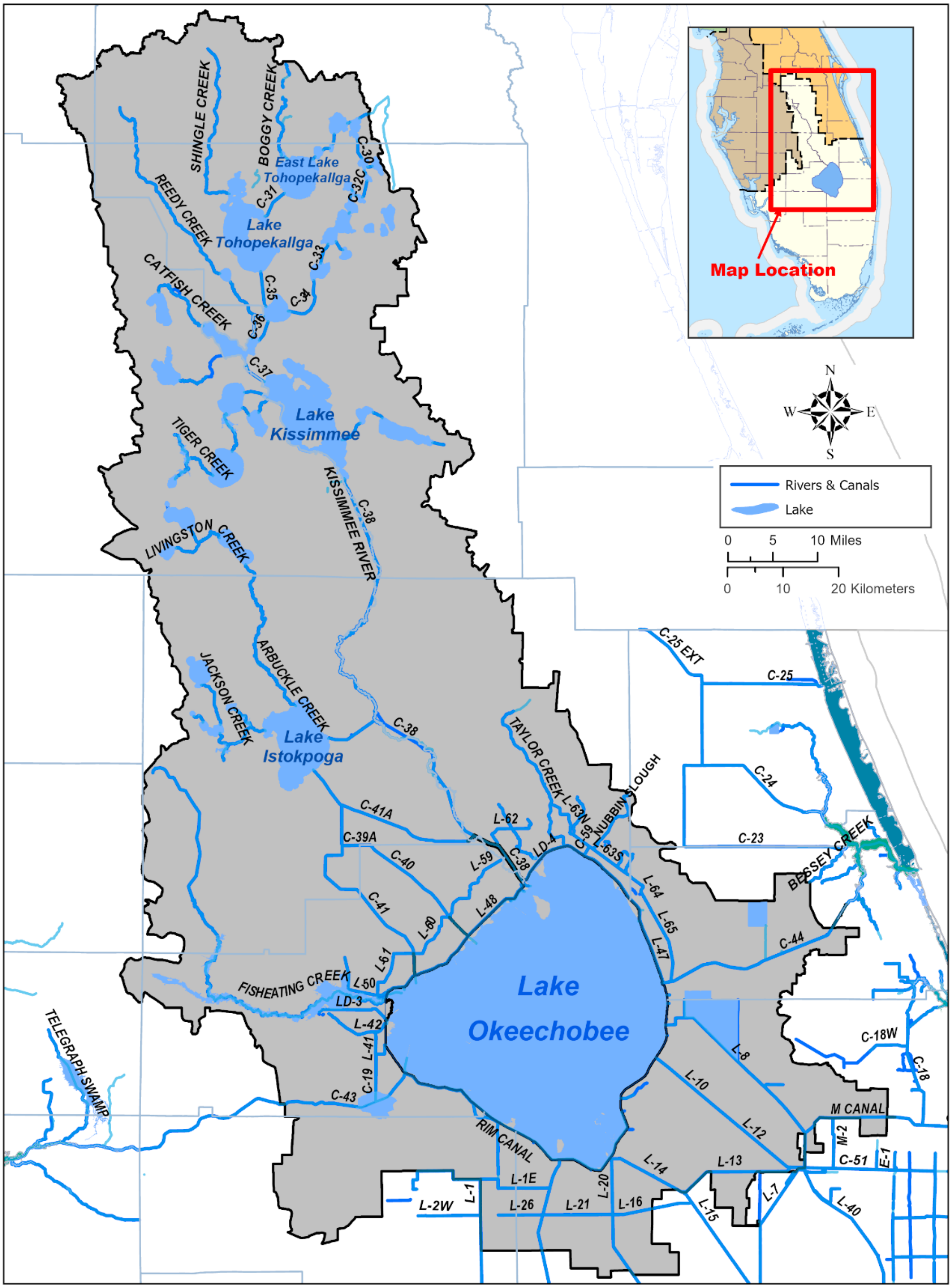
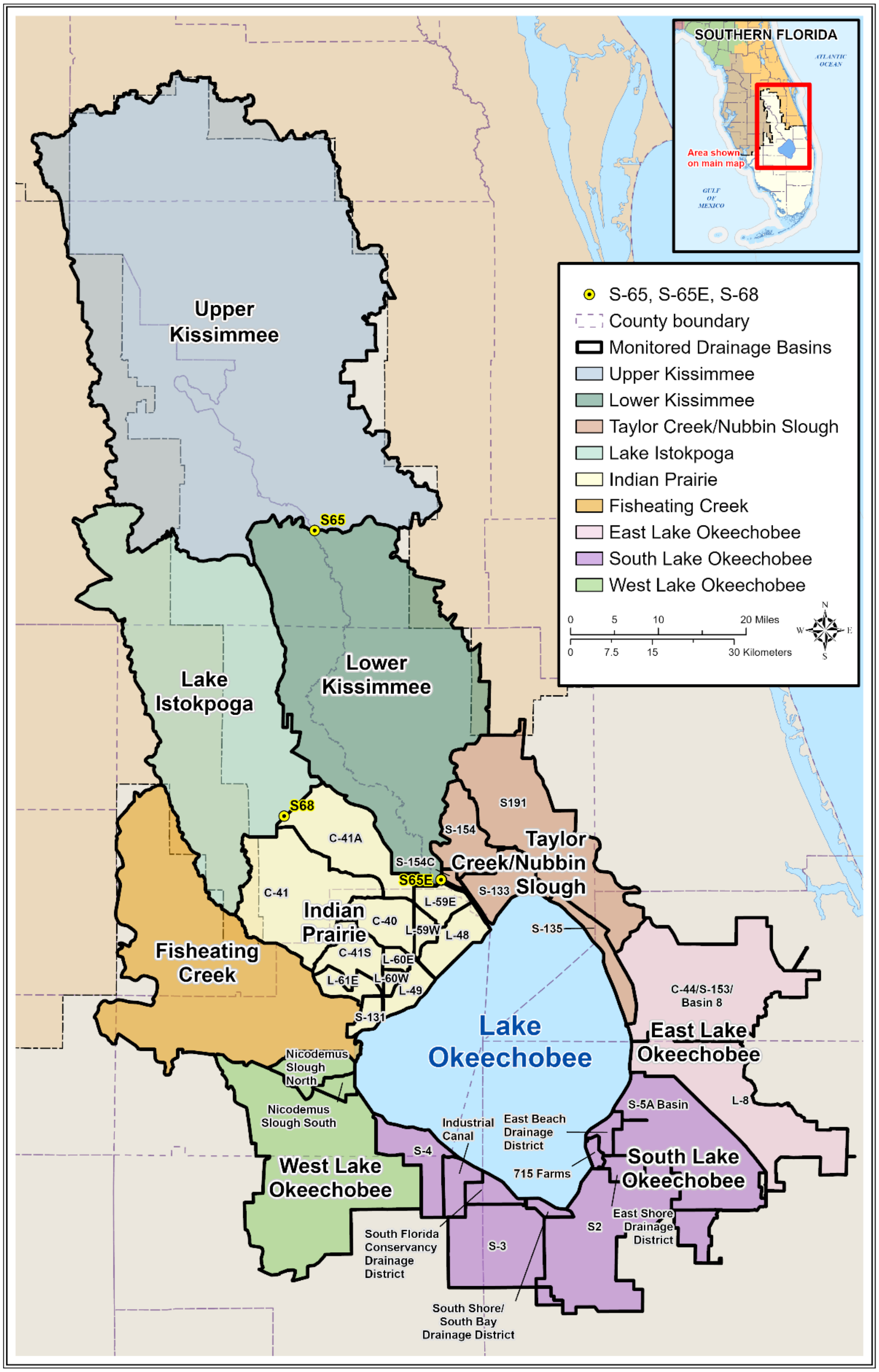


Figure 8B-1. Major hydrologic features in the Lake Okeechobee Watershed (LOW).



User: erios Map Produced on Date: 8/26/2024 9:54 AM \\ad.sfwmd.gov\dfsroot\GS\GSPro\SFER\Vol1_Ch8B\Vol1_Ch8B_2025.aprx Layout: LOW_DrainageBasins_Subwatersheds

Figure 8B-2. Drainage basins and subwatersheds in the LOW.

Table 8B-1. Completed (WY2019–WY2025), ongoing, and planned work under the LOW RWQMP.

Project Name (Investigator) [a]	Description, Major Objectives, and Results	Status and Relevance to LOW RWQMP [b]
Modeling circulation effects of raising underwater weir (Rocky Reef) height (SFWMD)	This project used an updated, high-resolution footprint in the Lake Okeechobee Environmental Model (LOEM) to assess the efficacy of increasing the height of a natural rocky reef structure in the southern portion of the lake to further isolate turbid water from southern littoral areas. Several scenarios were modeled, including adding rip-rap to the western, eastern, or entire stretch of the reef, the latter of which would isolate the southern end of the lake under dry conditions. Model results suggested considerable improvements to sediment loading south of the reef may be possible if the eastern, lower portion of the reef was raised or built up via rip-rap type structures. However, raising only the western side would likely result in increased loading, as the clockwise lake circulation may funnel sediments into the southern end and then be deposited rather than carrying through and out to the west. Further modeling would be needed to determine which elevations could provide the most benefit, and efforts to model potential HAB effects should also be conducted.	Ongoing (b), (e)
Lake Okeechobee Sediment Quality Mapping Project (SFWMD)	This was the fourth comprehensive sediment mapping project of Lake Okeechobee, building on surveys from 1988, 1998, and 2006. This project assessed changes in mud depth and the biogeochemical characteristics of surface sediments and porewater (including total phosphorus (TP), total nitrogen (TN), total carbon, and select metals). Key findings indicated a significant increase in overall mud depth and volume since 2006, partially an artifact of hurricanes influencing the 2006 distribution, with deeper areas consistently acting as settling zones for mud and associated nutrients. While overall sediment TP and TN concentrations have not varied significantly over 40 years, their spatial distribution has changed, likely due to intense storm activity and wind-induced resuspension and redistribution of fine sediments. Mud substrates consistently show the highest concentrations of P and metal cations, underscoring their role in internal nutrient loading.	Ongoing (b), (e)
Aquatic vegetation restoration (SFWMD, FWC)	Taking advantage of lower lake stages in late WY2025, SFWMD and FWC worked together to plant 1,000 *Vallisneria* (SAV) plants, a mix of 30,000 bulrush (*Schoenoplectus californicus*) and Kissimmee grass (*Paspalidium geminatum*), and 400 trees in the western bay of Okeechobee. These plantings should aid in the recovery of aquatic vegetation in places where multiple hurricanes have thinned habitat and denuded shorelines over the past 10 years.	Ongoing (e)
Turbidity reduction study for SAV recovery (SFWMD)	To aid in recovery of SAV communities that were lost to Hurricane Ian and to assess the efficacy of management projects to improve light penetration in areas prone to SAV establishment, SFWMD installed two temporary turbidity curtains (silt screens) along areas of the northwest shoreline in the lake. Each area covered approximately 1,200 linear feet, protecting roughly 3 to 5 acres of shoreline for potential SAV recovery. Data collection includes water quality parameters affecting light penetration, and SAV presence and abundance. The project was installed in early WY2025 and is slated for completion in early WY2026.	Ongoing (a), (e)
Lake Okeechobee dry season littoral marsh aquatic fauna community characteristics (SFWMD)	Wading birds serve as key indicators of wetland health due to their reliance on specific hydrologic patterns to concentrate their prey (i.e., small fish, crustaceans). While water levels are commonly used as indirect ecological indicators, they may not explicitly influence the responses of higher trophic levels. Direct measures of the lake's littoral fauna community may offer a more integrated and effective tool for ecosystem management. To evaluate annual prey concentration comparisons across the littoral marsh, throw-trap sampling was conducted to collect data on water quality and ecological attributes including fish, macroinvertebrates, and aquatic vegetation.	Ongoing (a), (e)
Development of new or revised in-lake ecological performance measures (SFWMD)	New and revised performance measures relating SAV, periphyton, fisheries, and cyanobacterial blooms to Lake Okeechobee water levels were developed based on long-term monitoring data sets. These performance measures are being used to evaluate potential ecological benefits that may accrue over different stage durations. Current efforts are directed at analyzing and interpreting the information generated by this effort.	Ongoing (e)
Wading bird foraging and nesting prediction tool (UF, SFWMD)	This study is part of the Restoration Coordination and Verification (RECOVER) program, which monitors the restoration progress of the Comprehensive Everglades Restoration Plan (CERP). The goal is to develop evaluation tools for Lake Okeechobee's Monitoring and Assessment Plan (MAP), focusing on wading bird foraging and nesting conditions. Wading birds, key ecological indicators, depend on specific hydrologic patterns and prey abundance, which have been altered by hydrological changes in the lake. The project aims to build a predictive model for foraging conditions based on factors like lake stage and prey availability, assess its utility for predicting nesting abundance, and develop a long-term performance metric for evaluating wading bird response to water management strategies.	Ongoing (e)

Table 8B-1. Continued.

Project Name (Investigator) [a]	Description, Major Objectives, and Results	Status and Relevance to LOW RWQMP [b]
Evaluation and development of alternative monitoring techniques (SFWMD)	Satellite and drone imagery is now being used routinely to inform management. SFWMD is evaluating or helping to develop new methods for monitoring ecological parameters in Lake Okeechobee. These include using satellite or drone imagery for use of algal bloom monitoring, SAV monitoring, marsh vegetation classification, and wading bird nest counts and foraging activity.	Ongoing (a), (e)
Routine plankton monitoring (SFWMD)	Initiated in 1994, this long-term zooplankton monitoring project provides information vital to understanding algal and food web dynamics in the lower trophic levels of the pelagic zone. Zooplankton samples are collected monthly from permanent, historically sampled stations located in each of the four ecologically distinct regions of the pelagic zone. This project provides both an update to the historical record as well as information on trophic dynamics during seasons of algal blooms and/or high nutrients. These data also encompass hurricanes, regulation schedule changes, and restoration efforts, creating a standardized lens through which to understand and assess the impacts of these events and timelines.	Ongoing (a)
Zooplankton Mesocosm Project (SFWMD)	While SFWMD has been investigating long-term phytoplankton and zooplankton dynamics in Lake Okeechobee, little is known about how planktivorous fish affect these relationships. SFWMD launched a small-scale mesocosm project to identify how the zooplankton and phytoplankton relationship is affected by grazing pressures from planktivorous fish. This project allows SFWMD to isolate and assess the combined effects of top-down and bottom-up trophic forces on the zooplankton-phytoplankton relationship.	Ongoing (a)
Expanded algal bloom, toxin, and water quality monitoring (SFWMD)	Routine water quality monitoring was expanded in March 2020 in response to the Governor's Executive Order 19-12 and in support of the Blue Green Algae Task Force recommendations. This effort expands on over 40 years of data for the lake and vastly improves our ability to assess spatial and temporal dynamics of water quality and phytoplankton communities in this large water body. One of the goals of ongoing state and federal restoration programs is to reduce the absolute and relative biomass of blue-green algae in the lake water through reductions in nutrient inputs to the lake. This project provides standardized data that will assist in documenting the success of these efforts, and has already demonstrated variations in density, toxicity, and dominant taxon across the lake, both within and between years. These data also support external efforts to develop bloom prediction models by a variety of agency and university partners.	Ongoing (a), (e)
Vegetation mapping (SFWMD)	The emergent marsh in Lake Okeechobee provides important habitat for fish, wading birds, and other wildlife. The composition, distribution, and areal coverage of the plant communities in the marsh are strongly influenced by hydrologic conditions, vegetation management activities, and competition between species, especially when native habitats are impacted by invasive exotic plants. To document and quantify how Lake Okeechobee's emergent marsh community responds to variable hydrologic conditions, management activity, and species competition, detailed vegetation maps are created.	Ongoing (a), (e)
Annual fisheries monitoring (FWC)	Fish are an integral component of Lake Okeechobee's trophic structure and a major source of revenue for the lakeside communities through both commercial and sport fishing. Fish abundance, distribution, and population age structure integrate many important aspects of ecosystem health including hydrology, and the condition of the lake's SAV and emergent aquatic vegetation (EAV) communities. Results over the last decade have clearly shown the devastating impacts of high lake stages and the 2017 hurricane impacts on the fishery, and the relative lack of improvement since, particularly due to several more hurricanes. Of importance are the age class distributions of juvenile largemouth bass and black crappie obtained from this monitoring, as they provide a direct measurement of ongoing successful breeding and recruitment of new individuals.	Ongoing (a), (e)
Wading bird prey availability and selection study (SFWMD)	Wading bird nest success is affected by the abundance and availability of different types of prey during the nesting season. This study looks at gut contents of nestlings to determine prey base used by nesting colonies on Lake Okeechobee under different environmental conditions. These data will help describe how these different wading bird species select prey items in relation to changing hydrological conditions and how this correlates to nesting effort and success.	Ongoing (a), (e)
SAV monitoring (SFWMD)	SAV is a critical resource to fish and wildlife and an excellent indicator of conditions in nearshore areas. Dramatic swings in annual coverage of SAV have occurred during droughts and hurricanes, and this study provides detailed estimates of lake stage effects on this community. Current lake-wide monitoring occurs via systematic grid sampling to estimate total distribution, while fine-scale transect sampling along elevation gradients capture effects of lake stage biomass and stem heights.	Ongoing (a), (e)

Table 8B-1. Continued.

Project Name (Investigator) [a]	Description, Major Objectives, and Results	Status and Relevance to LOW RWQMP [b]
Sediment biogeochemical influences on SAV (SFWMD)	SAV recovery in Lake Okeechobee has historically been attributed to fluctuations in water quality and lake stage, but this study examines whether sediment conditions also play a limiting role. This study investigates anoxic conditions and organic matter content across sites with differing SAV histories using controlled mesocosm experiments. Early results support the development of sediment-based frameworks for identifying areas of the lake most suitable for restoration. Ongoing efforts will expand sampling to encompass a broader range of sediment types and SAV persistence patterns. In parallel, in-situ transplant experiments are being conducted to evaluate *Vallisneria* establishment success under natural lake conditions, helping to refine site selection and adaptive management strategies for future SAV restoration initiatives.	Ongoing (a), (e)
SAV predictive tool (UF, SFWMD)	This study is part of the RECOVER program, which monitors the restoration progress of the CERP. The goal is to develop evaluation tools for Lake Okeechobee's MAP, focusing on SAV. The project combines a 24-year data set of SAV presence, species composition, and density across Lake Okeechobee with spatially matched water quality variables to build a model that predicts both the probability of SAV presence and its spatial distribution under varying environmental conditions. This tool aims to improve our understanding of SAV habitat suitability and guide restoration efforts by forecasting areas most likely to support SAV recovery as lake conditions change.	Ongoing (a), (e)
Monitoring of Lake Okeechobee inflows, outflows and water levels (SFWMD)	Lake Okeechobee inflows (rainfall, surface water inflows through water control structures), surface water outflows, and pan evaporation are continuously monitored. The data are analyzed to develop water budgets for the lake and to assess water volumes and timing from the Lake Okeechobee watershed and their relative contribution to the water level changes in Lake Okeechobee and to the timing and volume of water delivered to the estuaries. SFWMD reports these assessments annually in the SFER and weekly during the Environmental Conditions and Operations meetings held with USACE and the Florida Department of Environmental Protection (FDEP).	Ongoing (e)
Floating island (tussock) removal (FWC, SFWMD)	Floating islands of dense vegetation, root mats, and associated sediments are periodically removed from the LOW, primarily from Lake Kissimmee and Lake Istokpoga, but also from other Kissimmee Chain of Lake water bodies. These removals are either for navigation improvements, flood control (when located near water control structures), or habitat improvements, but have ancillary water quality improvements through removal of nutrients accumulated in plant and root tissues and bound sediments.	Ongoing (d), (f)
HAB Mitigation Study (SFWMD, USACE)	Most HABs on Lake Okeechobee are dominated by *Microcystis* spp., and various control methods have been implemented in prior blooms around the state. SFWMD is studying the effect of a floating, hydrogen peroxide-based product (LakeGuard Oxy) on HABs under flowing and non-flowing conditions, including to target (cyanobacteria) and non-target (e.g., diatoms, zooplankton) communities. 4Treating HABs prior to high concentrations may help mitigate dense or toxic bloom development, and this study hopes to assess longevity of treatments, efficacy, and possible non-target effects.	Ongoing (a)
Aquifer storage and recovery (ASR) ecological monitoring (SFWMD, USEPA)	Long-term water storage infrastructure plans associated with CERP and NEEPP include ASR implementation. Part of the review of the performance, efficacy, and effects of these wells includes testing for potential ecological impacts from discharged (stored and then recovered) water as it is released back into the system. This includes ecological risk assessments (lab and mesocosm exposure studies), periphyton monitoring, and long-term monitoring of various flora and faunal components in the project areas.	Ongoing (e)
Protective shoreline barriers for SAV resilience	Wave attenuation devices (WADs) or rubble ridges placed in strategic areas of Lake Okeechobee may reduce damaging wave energy and turbidity, which in turn may improve water clarity and facilitate establishment of SAV and EAV. There are a variety of approaches or designs that could be used, as well as study sites, that will need to be studied and possibly paired with plantings of native vegetation such as bulrush, Kissimmee grass, and SAV. This proposed restoration project will enhance fish and wildlife habitats and provide increased opportunities for fishing and hunting. The study will be a pilot project to test the feasibility, cost-effectiveness, and optimal design of different technologies for the unique environment of Lake Okeechobee. This would be a multi-agency, coordinated effort, with initial progress from FWC.	Planning (f)
Vegetation management to improve aquatic habitat (FWC, SFWMD)	Prescribed burns and targeted herbicide treatments are used in Lake Okeechobee's littoral marshes to manage vegetation. These activities limit woody species expansion, reduce organic thatch, and mitigate wildfire risk. This management enhances aquatic habitat for wading birds and fish, fosters desirable marsh species, and supports improved nutrient removal and water clarity, contributing to the lake's TP reduction goals.	Planning (e)

Table 8B-1. Continued.

Project Name (Investigator) [a]	Description, Major Objectives, and Results	Status and Relevance to LOW RWQMP [b]
Consistent vegetation mapping of Lake Okeechobee littoral zone via satellite imagery (FWC, SFWMD)	Most prior vegetation mapping efforts of Lake Okeechobee's littoral zone have been limited to just portions of the marsh at a time and only occurring every few years, primarily due to various constraints associated with executing such efforts on a larger scale. Yet, advances in satellite imagery resolution and machine learning classification techniques have made full marsh mapping feasible, as funding permits. FWC has produced several annual maps for comparison to historical techniques and plans to work with SFWMD and USACE to create these products every 1 to 2 years, greatly increasing the ability to assess changes in the marsh due to water management, habitat management, or natural conditions like drought or storms.	Planning (e)

a. Investigator abbreviations definitions: FWC – Florida Fish and Wildlife Conservation Commission; SFWMD – South Florida Water Management District; UF – University of Florida; USACE – United States Army Corps of Engineers; and USEPA – United States Environmental Protection Agency.

b. This table summarizes research, monitoring, and modeling efforts, which are aligned with the following components required under Section 373.4595(2), F.S., for the LOW RWQMP:

(a) Evaluation of LOW total phosphorus (TP) data
(b) Development of a Lake Okeechobee water quality model
(c) Determination of TP contributions from identifiable sources
(d) Assessment of TP sources in the Upper Kissimmee Chain of Lakes and Lake Istokpoga
(e) Assessment of and recommendations for water management practices in the LOW
(f) Evaluation of alternative nutrient reduction technologies
(g) Assessment of water volumes and timing of Lake Okeechobee inflows and outflows to the St. Lucie and Caloosahatchee estuaries

HYDROLOGY

Precipitation

WY2025 rainfall in the Upper and Lower Kissimmee areas averaged 43.5 inches and 43.7 inches, respectively. Direct rainfall over Lake Okeechobee was 43.5 inches. Runoff from the entire LOW, computed as inflow volumes divided by total drainage area, was 5.9 inches. At the subwatershed level, the highest surface runoff, based on unit area, came from the Fisheating Creek Subwatershed (12.2 inches), followed by the Indian Prairie Subwatershed (9.5 inches).

Inflows and Outflows

Surface inflows to Lake Okeechobee were approximately 1.68 million acre-feet or ac-ft (2.08 cubic kilometers or km^3) in WY2025 (see **Table 8B-5** in the *Water Quality* subsection within the *Research and Water Quality Monitoring Program Part II: Lake Okeechobee Watershed* section of this chapter for details). This was a 20% decrease from WY2024 (2.11 million ac-ft or 2.60 km^3; **Figure 8B-3**) and 18% below the average of the past five water years (2.06 million ac-ft or 2.54 km^3).

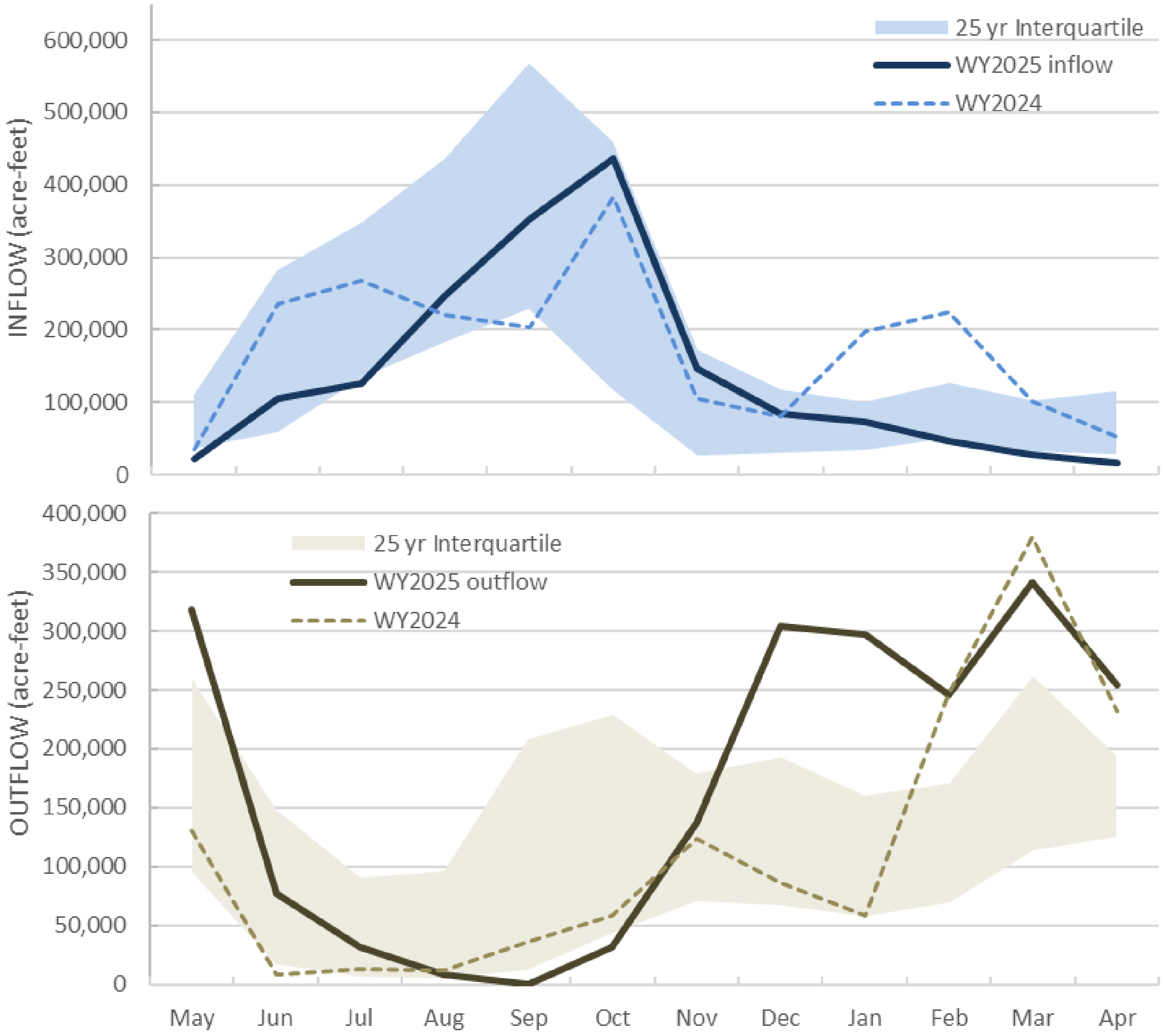


Figure 8B-3. Total monthly inflows (top graph, blue) and outflows (bottom graph, tan) for Lake Okeechobee. Solid lines indicate WY2025 monthly totals and dotted lines indicate WY2024. Shaded areas show interquartile flow ranges (25th–75th percentiles) for the previous 25 years.

Approximately 2.05 million ac-ft (2.53 km^3) of water was released from Lake Okeechobee in WY2025, which was 48% higher than WY2024 (1.38 million ac-ft or 1.71 km^3) (**Figure 8B-3**). The average annual outflow over the past five water years is 1.51 million ac-ft or 1.86 km^3. Releases from Lake Okeechobee were highest during the drier months of the water year, with 70% of the releases occurring between December 2024 and April 2025. Approximately 1.07 million ac-ft (1.33 km^3) of water was released south through the S-351, S-352, S-354, and S-271 structures and the Industrial Canal, constituting 52% of total discharges during WY2025 (**Figure 8B-4**). Around 37% (0.76 million ac-ft or 0.94 km^3) of the releases went west to the C-43 Canal (towards the Caloosahatchee River Estuary) through the S-77 structure, and 10% (0.20 million ac-ft or 0.24 km^3) went east to the C-44 Canal (towards the St. Lucie River Estuary) through the S-308 structure. Therefore, despite a substantial increase in outflows in WY2025, there was less water released to the estuaries than in WY2024. Note releases through S-77 and S-308 do not necessarily equate to estuary inflows due to watershed interactions and downstream structure (S-79 and

S-80) operations. See Chapters 8C and 8D of this volume for Lake Okeechobee contributions to the St. Lucie River and Caloosahatchee River watersheds, respectively.

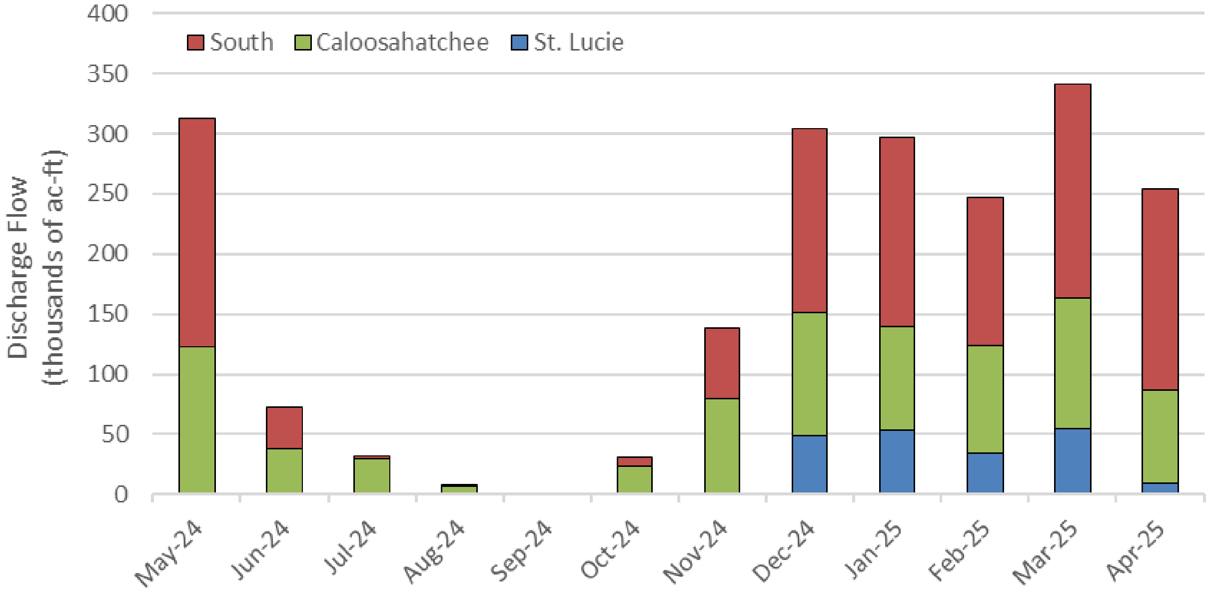


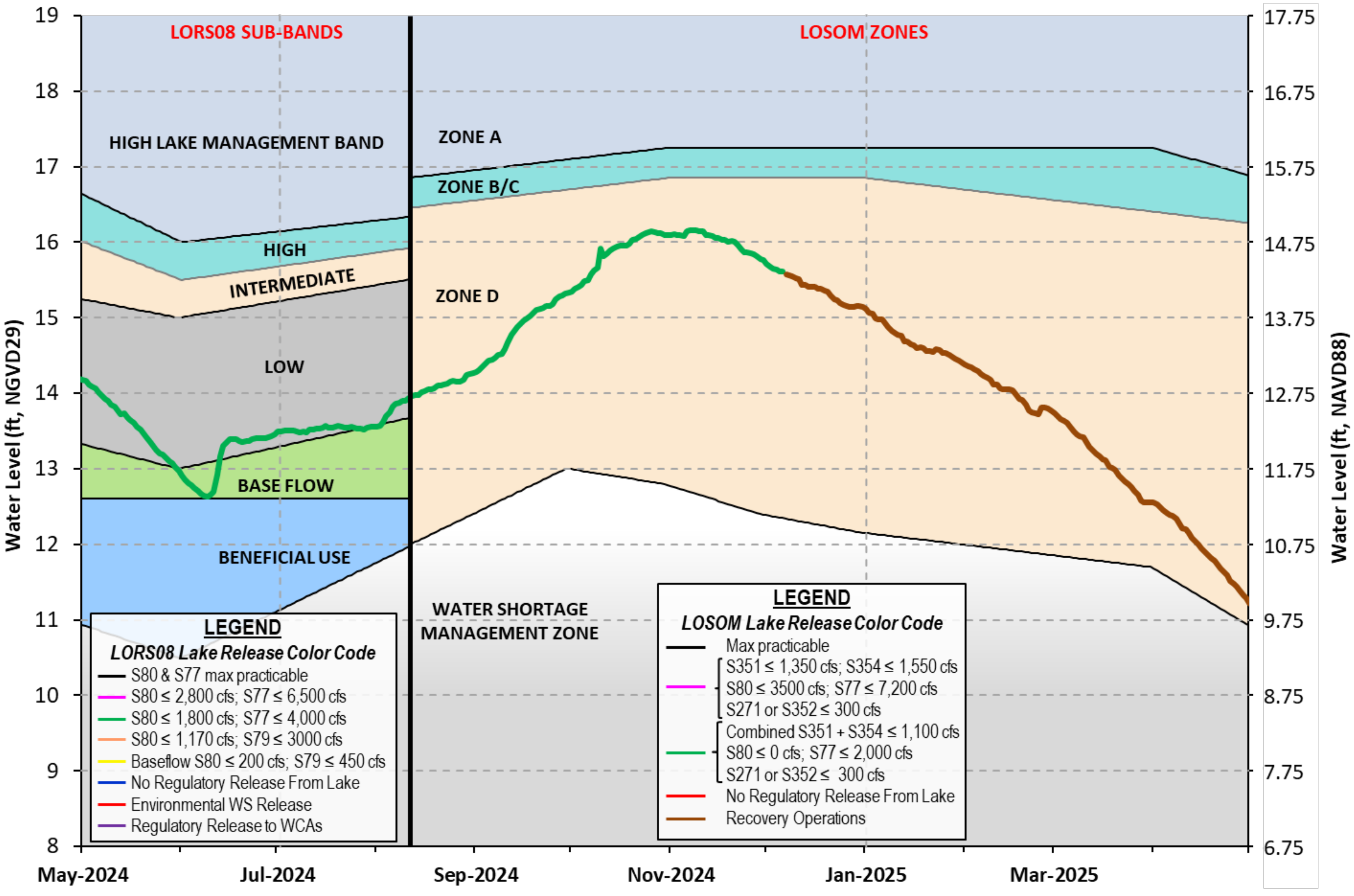
Figure 8B-4. Water discharges from Lake Okeechobee toward the Caloosahatchee River Estuary through S-77, the St. Lucie River Estuary through S-308, and south through the S-351, S-352, S-354, and S-271 structures, and the Industrial Canal.

Lake Stage

Prior to the start of WY2025, the South Florida Water Management District (SFWMD) switched from the National Geodetic Vertical Datum of 1929 (NGVD29) to the North American Vertical Datum of 1988 (NAVD88). However, for historical comparisons and for consistency with USACE reporting, we will report lake stage in NGVD29 for this chapter.

Lake Okeechobee stage elevation was 14.18 feet (ft) NGVD29 on May 1, 2024, which placed water levels in the Low Subband (**Figure 8B-5**). Lake levels receded for the first few weeks of WY2025, dropping to 12.63 ft NGVD29 on June 9. During the rest of June, more than 10 inches of rain fell directly over the lake and inflows also increased, causing water levels to rise steadily. Lake stage reached a WY2025 high of 16.15 ft NGVD29 on November 11, 2024.

On August 12, 2024, USACE officially switched from the LORS08 regulation schedule to the new Lake Okeechobee System Operating Manual (LOSOM) schedule, which reduced the number of management zones and limited discharge to 2,000 cubic feet per second (cfs) or less over a wide range of lake stage. One component of the new control plan was incorporating an option for Recovery operations, which allows for higher discharges in the dry season if lower lake stages are desired. Generally, conditions that may trigger consideration for Recovery operations would be when total SAV cover in the prior year was < 10,000 ac, prior summer minimum stage was > 13 ft NGVD29, or prior year stages exceeded 17 ft NGVD29. The general targeted minimum for Recovery operations would be to have lake stages < 12 ft NGVD29 for 90 days in the April–September window, and/or < 11.5 ft for 60 days (**Figure 8B-6**) to promote the growth and recovery of SAV. These targets were guided by the Lake Okeechobee Lake Stage Performance Measure, developed by the Comprehensive Everglades Restoration Plan's (CERP's) Restoration Coordination and Verification Program (RECOVER) (2020).



LOSOM Adopted by USACE 12-Aug-2024

Figure 8B-5. WY2025 Lake Okeechobee daily lake stage for LORS08 and LOSOM regulation schedules. (Note: max – maximum, WCA – Water Conservation Areas, and WS – water supply.)

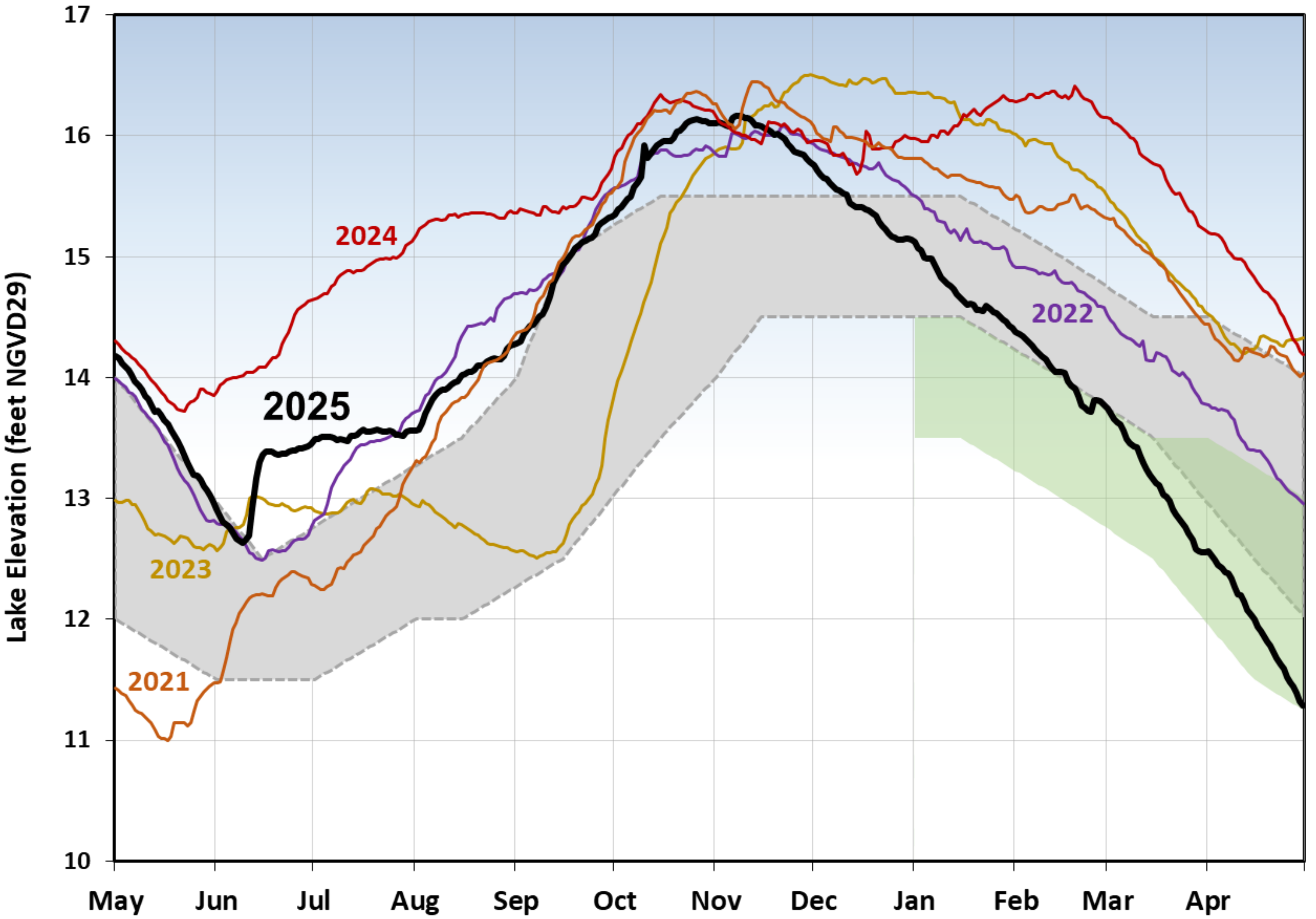


Figure 8B-6. Daily lake stage for each of the past five water years, compared to the Lake Okeechobee ecological envelope (grey band) and the recovery envelope (light green band) that guided recovery operations (RECOVER 2020).

Lake stage exceeded 16 ft NGVD29 in each of the past 5 years, and for 8 of the previous 10 years, and had not been below 12 ft NGVD29 since early June 2020 (WY2021). After many years of high water and with no strong El Niño Southern Oscillation (ENSO) conditions predicted for WY2025, Recovery operations were initiated in December 2024. With lake water releasing through most structures, minimal rainfall, and high evapotranspiration, stage values dropped steadily throughout the remainder of WY2025 and reached 11.29 ft NGVD29 on April 30, 2025 (**Figure 8B-6**). This was the lowest end of water year lake stage since WY2019 (11.21 ft NGVD29

WATER QUALITY

SFWMD expanded the water quality monitoring network at the end of WY2020. In-lake monitoring was expanded from 18 to 32 monthly sampling stations, sampling frequency increased from monthly to semimonthly during peak algal bloom season (May–October), algal identification and toxin testing were expanded from 6 to 32 stations during the bloom season, and several automated sondes were added to permanent stations for continuous monitoring of key water quality parameters. The full set of data are summarized in Appendix 8B-2 of this volume. However, to maintain consistency with previous SFER reports and to calculate long-term historic averages, the water quality analyses summarized in the remainder of this chapter were performed with data from the original 18 sampling stations. Comparisons between water quality data from the original (18) and expanded (32) monitoring stations are included in Appendix 8B-2.

Total Phosphorus Budget and Concentrations

Total phosphorus (TP) loads to the lake from tributaries and atmospheric deposition (estimated as 35 tons per year or t/yr; FDEP 2001) totaled 337 metric tons (t) in WY2025, the third lowest of the last 10 years, but still almost 200 t higher than the recommended TMDL (**Table 8B-2** and **Figure 8B-7**; FDEP 2001). This was a 13% decrease from the WY2024 input (386 t) and is lower than both the 10-year (484 t) and 5-year (393 t) average TP loads. Load reduction is primarily attributed to the 20% lower inflows in WY2025 compared to WY2024, as well as the lack of extreme, short duration, high inflow events (**Figure 8B-3**).

Table 8B-2. TP budget for Lake Okeechobee for the most recent 10 water years.

Water Year (May 1–April 30)	Mean Lake Water Column TP Mass (t)	Net Change in Lake TP Mass [a] (t)	TP Load In [b] (t)	TP Load Out (t)	TP Net Load [c] (t)	TP Accumulation in Sediment [d] (t)	σ_y [e] (per year)
2016	520	188	543	357	187	-1	0.00
2017	680	-199	484	382	102	301	0.44
2018	918	297	1081	548	533	236	0.26
2019	626	-329	445	462	-17	312	0.50
2020	502	43	324	173	151	108	0.22
2021	677	238	520	278	242	4	0.01
2022	655	-22	285	249	36	58	0.09
2023	766	273	438	240	198	-75	-0.10
2024	789	70	386	238	148	78	0.10
2025	780	70	337	463	-126	-196	-0.25
Average	691	63	484	339	145	82	0.13

a. Net Change of in Lake TP Mass is based on the estimate of Mean Lake Water Column TP Mass at the end of each water year (April 30) subtracted by the estimate of Mean Lake Water Column TP Mass at the start of each water year (May 1).

b. Includes 35 t/yr to account for atmospheric deposition.

c. TP Net Load is the difference between TP Load In and TP Load Out.

d. TP Accumulation in Sediment is the difference between TP Net Load and Net Change in Lake TP Mass. A positive value indicates adsorption from the water column and accumulation in sediments.

e. Net sedimentation coefficient, which is calculated as TP Accumulation in Sediment divided by Mean Lake TP Mass.

In the preceding 10-year period, in-lake TP concentrations ranged between a low of 118 micrograms per liter or µg/L (WY2014) and a Hurricane Irma-induced high of 203 µg/L (WY2018) (**Figure 8B-8**). In WY2025, the in-lake TP concentration was 175 µg/L, 13% higher than the WY2024 value of 155 µg/L. These in-lake TP concentration values exceed the TP in-lake goal of 40 µg/L (FDEP 2001). The current 5-year (WY2021–WY2025) moving average in-lake TP concentration is 158 µg/L and remains higher than the period prior to multiple hurricane events in WY2005–WY2006 (57 to 127 µg/L). This is the second year that 5-year inflow average concentrations were lower than outflow concentrations, suggesting that internal loading is increasing the in-lake, and therefore also outflow, concentrations.

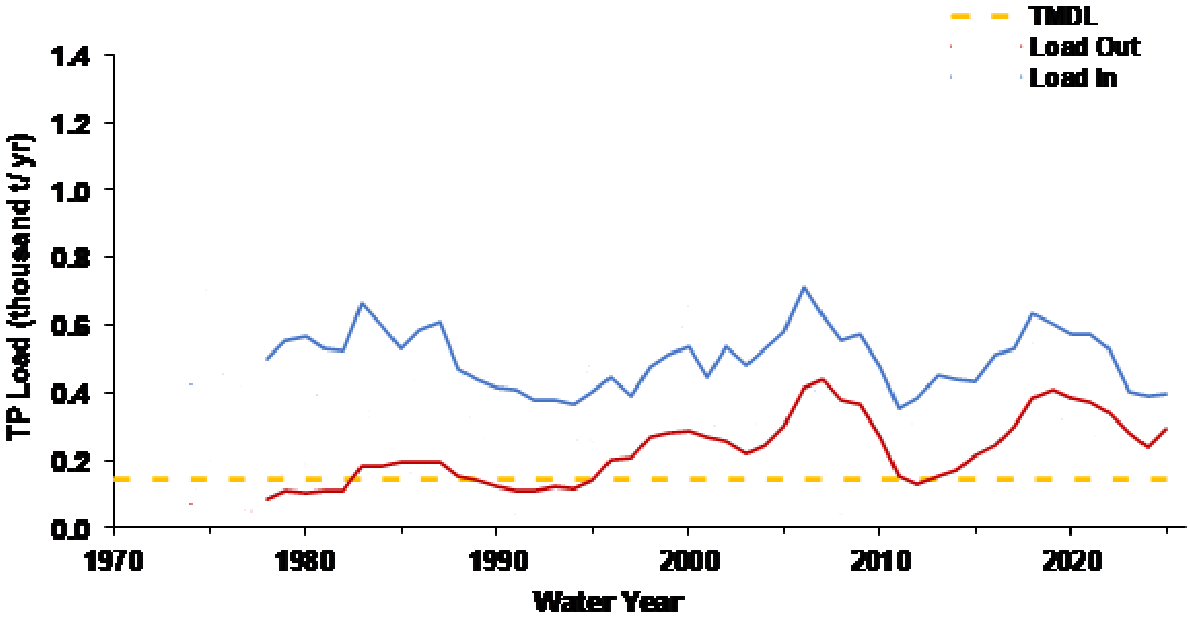


Figure 8B-7. Total annual (WY) TP loads into (excluding atmospheric deposition; blue) and exiting (red) Lake Okeechobee. Dotted lines represent annual values, solid lines show 5-year moving averages. Yellow dashed line shows the TMDL (140 t/yr).

In WY2025, mean lake TP mass was 780 t (**Table 8B-2**). The total water discharged out of Lake Okeechobee was almost 50% higher than in WY2024, but the discharged TP load of 463 t was nearly 200% of WY2024 (238 t). Approximately 57% of the WY2025 TP load (263 t) from the lake was discharged through the southern structures towards the EAA. Approximately 24% (113 t) and 18% (85 t) went through the S-77 structure to the C-43 Canal/Caloosahatchee River, or through the S-308 structure to the C-44 Canal/St. Lucie River, respectively. In WY2025, total outflow volume from the lake was higher than the inflow water volume, and correspondingly, TP loads out were higher than TP loads in, for the first time since WY2019. The net load (inputs minus outputs) for WY2025 was -126 t, and the net change in lake P content was 70 t. The difference between net load and net change suggests there were nearly 200 t of TP removed from the sediments in WY2025, resulting in a net sedimentation coefficient (σ_y) of -0.25 (**Table 8B-2** and **Figure 8B-9**). The TP budget σ_y is the amount of TP that accumulates in the sediment per year divided by the average lake water TP mass. A low σ_y indicates the lake absorbed less of the TP load from the watershed. The past five water years have now all been below 0.2, and the 5-year average TP concentration for inflow is lower than the outflow and in-lake concentrations, further suggesting the lake is at capacity in terms of TP absorption (**Figures 8B-8** and **8B-9**). This means the lake would function more as a pass-through system than a sink, or in some years even a source, absorbing less TP from the watershed before it is passed to downstream systems.

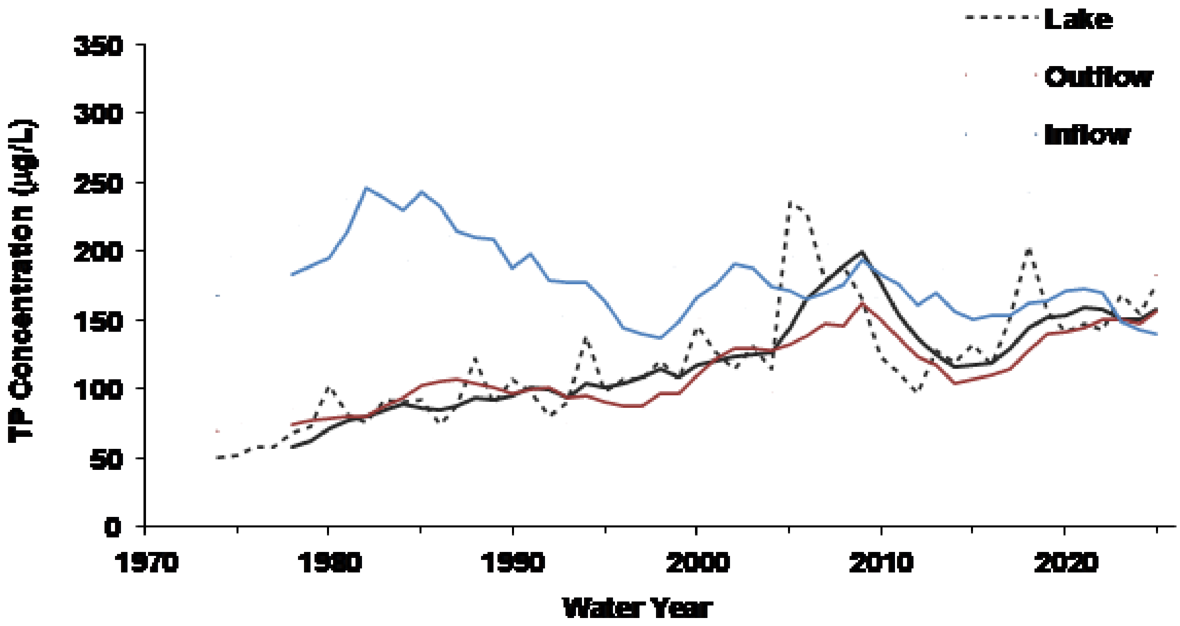


Figure 8B-8. Annual average TP concentrations for inflow (blue), outflow (red), and lake water (dark grey), calculated from the Lake Okeechobee TP budget. Dashed lines represent annual values, solid lines show 5-year moving averages.

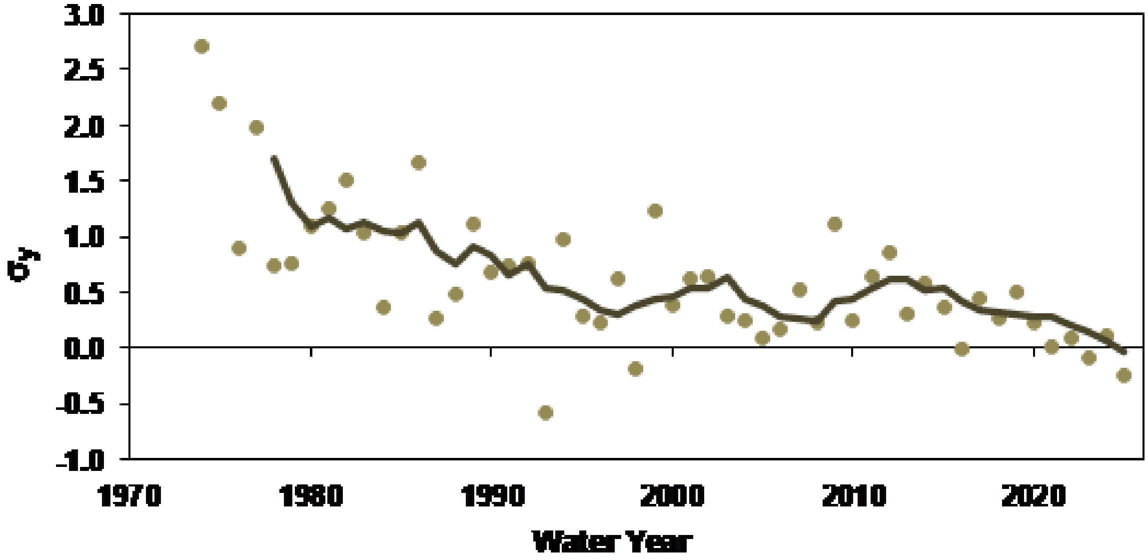


Figure 8B-9. Net sedimentation coefficient (σ_y) timeline calculated from the Lake Okeechobee TP budget. Negative values indicate a net release of TP from the sediment. Positive values indicate accumulation of TP in the sediment. Trend line is a 5-year moving average.

Total Nitrogen Budget and Concentrations

Lake Okeechobee has not been listed as impaired for total nitrogen (TN) so there is no TMDL established by FDEP for N. However, the TN load and TN concentration in the lake contribute to the lake's eutrophication and algal blooms, especially the dissolved inorganic forms. TN loads to the lake from tributaries and atmospheric deposition (estimated as 1,233 t/yr; James et al. 2005) totaled 4,868 t in WY2025, which was 8% lower than in WY2024 (**Table 8B-3** and **Figure 8B-10**). The 5-year moving average TN load (5,280 t) to the lake has been lower for the last two years than any time since the mid-1990s.

Table 8B-3. TN budget for Lake Okeechobee for the most recent 10 water years.

Water Year (May 1–April 30)	Mean Lake Water Column TN Mass (t)	Net Change in Lake TN Mass [a] (t)	TN Load In [b] (t)	TN Load Out (t)	TN Net Load [c] (t)	TN Accumulation in Sediment [d] (t)	σ_y (per year)
2016	5,900	-81	6,750	4,258	2,492	2,573	0.44
2017	6,159	-1,021	6,191	3,311	2,879	3,901	0.63
2018	5,690	1,346	6,875	4,404	2,471	1,125	0.20
2019	5,404	-1,747	5,193	5,192	1	1,748	0.32
2020	4,904	863	4,299	2,252	2,047	1,184	0.24
2021	6,614	2,392	6,295	2,857	3,438	1,046	0.16
2022	5,696	1,339	4,350	2,724	1,626	287	0.05
2023	6,706	1120	5,601	2,272	3,329	2,209	0.33
2024	7,528	1307	5,287	2,848	2,438	1,131	0.15
2025	7,730	-496	4,868	4,976	-108	388	0.05
Average	6,233	502	5,571	3,509	2,061	1,559	0.26

a. Net Change of in Lake TN Mass is based on the estimate of Mean Lake Water Column TN Mass at the end of each water year (April 30) subtracted by the estimate of Mean Lake Water Column TN Mass at the start of each water year (May 1).

b. Includes 1,233 t/yr to account for atmospheric deposition (James et al. 2005).

c. TN Net Load is the difference between TN Load In and TN Load Out.

d. TN Accumulation in Sediment is the difference between TN Net Load and Net Change in Lake TN Mass. A positive value indicates adsorption from the water column and accumulation in sediments.

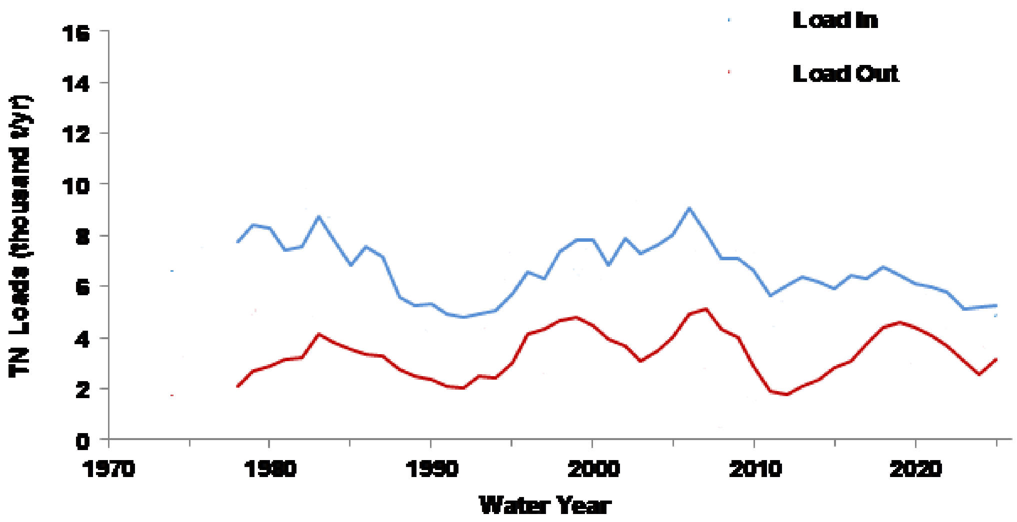


Figure 8B-10. Total annual (WY) TN loads into (excluding atmospheric deposition; blue) and exiting (red) Lake Okeechobee. Dotted lines represent annual values, and solid lines show 5-year moving averages.

Discharge TN loads were 75% higher than the previous year and the net TN load was -388 t (**Table 8B-3** and **Figure 8B-10**). There were 4,976 t of TN released from Lake Okeechobee in WY2025, and approximately 56% (2,806 t) of that was discharged through the southern structures towards the EAA. Approximately 30% (1,481 t) and 13% (671 t) went through S-77 to the C-43 Canal/Caloosahatchee River, or through S-308 to the C-44 Canal/St. Lucie River, respectively. The average annual inflow, in-lake, and outflow TN concentrations all increased by around 15% compared to WY2024 (**Figure 8B-11**).

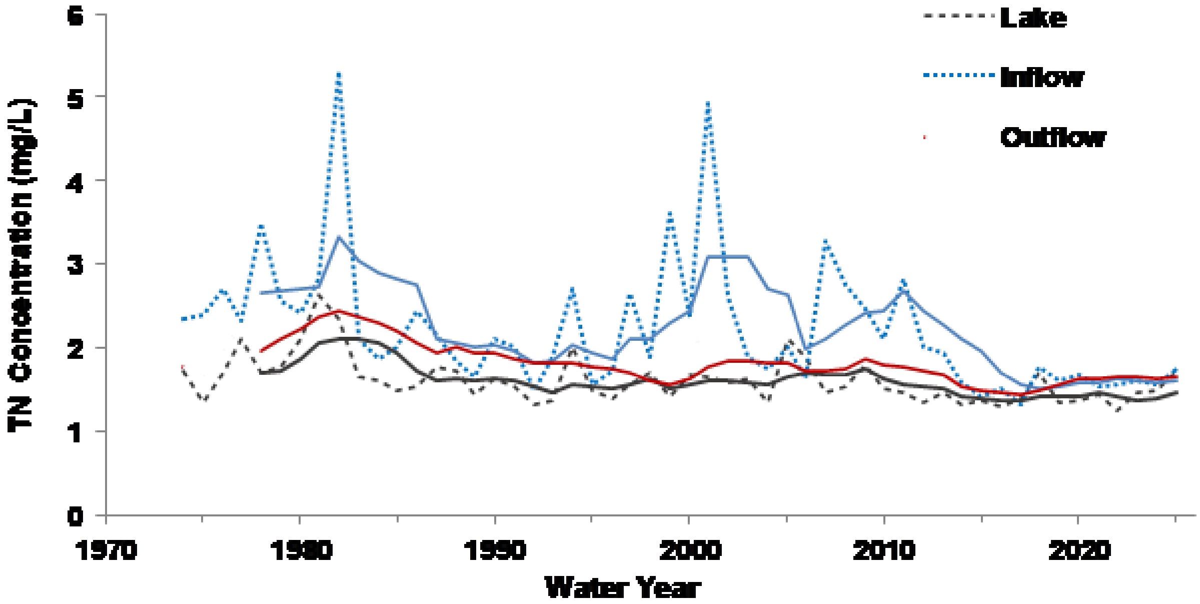


Figure 8B-11. Annual average TN concentrations for inflow (blue), outflow (red), and lake water (black), calculated from the Lake Okeechobee TN budget. Dashed lines represent annual values, and solid lines show 5-year moving averages.

Total Nitrogen to Total Phosphorus Ratio

The mean annual lake pelagic zone TN to TP (mass) ratio (TN:TP) was 9.9 for WY2025 and 9.6 for the most recent five water years. This is well below the target of 22.1:1 or greater established in the Lake Okeechobee Protection Program (see **Table 8B-4** in the *Performance Measures* subsection and SFWMD et al. 2004, Havens et al. 2005). Analyses of water chemistry data from Lake Okeechobee suggest that in-lake TN:TP ratios have declined since 1975, and that these changes have been accompanied by a trend towards increasing TN-limitation of phytoplankton growth in the lake. The potential for cyanobacterial dominance and planktonic N fixation has increased, leading to an increased likelihood of cyanobacterial blooms. Strategies that prioritize reducing TP loading will maximize TN:TP loading ratios, and maximize in-lake TN:TP ratios, which may help minimize the frequency and intensity of N-fixing cyanobacterial blooms in Lake Okeechobee. That said, the most problematic bloom taxa on the lake, in terms of toxicity and acute HAB formation, is *Microcystis*, which is not an N-fixing genera. See below and Appendix 8B-2 of this volume for more information regarding dominant algal communities.

Algal Bloom Monitoring

Routine water quality monitoring was expanded in March 2020 in response to the Governor’s Executive Order 19-12 and in support of the Blue Green Algae Task Force recommendations. Additional sites and sampling frequency improve the capability to monitor, predict, and potentially mitigate harmful algal blooms (HABs) on Lake Okeechobee. In general, the expanded monitoring has helped to both document the variety of bloom-forming species present on the lake and identify how their distribution, relative dominance, and toxicity varies spatially and temporally from year to year. Detailed reviews of these data are provided in Appendix 8B-2 of this volume.

Results from WY2025 showed phytoplankton biomass was highest between May and July, with the highest number of bloom events (115) recorded since the expanded monitoring program was initiated (WY2021). Blooms were primarily concentrated in the north/northwest nearshore and transitional regions of the lake. While Hurricanes Ian and Nicole in 2022 had suppressed blooms the following spring due to disturbed sediments and unfavorable light conditions, Hurricane Milton in October 2024, despite causing increased inflows and turbidity, did not have the same effect. Blooms developed early in 2025, in both February and April.

Microcystins, the most prevalent toxins in Lake Okeechobee, were detected in 21.6% of samples in WY2025, with 9.3% exceeding the United States Environmental Protection Agency (USEPA) recreational water standard of 8 µg/L. The highest lake-wide concentration reached 44 µg/L in early July 2024. This proportion of samples with microcystins was substantially lower in WY2025 compared to previous years, however, with the exception of WY2021. This was likely due to lower nutrient concentrations, particularly N, which can be affected by rainfall and local runoff.

Microcystis aeruginosa remained a dominant bloom-forming species, especially in central and south-central regions, though mixed communities were more frequent in the dry season and near inflow points where different phytoplankton groups and nutrients intermix. Continuous monitoring, supported by satellite imagery, remains crucial for understanding these dynamics and informing management strategies for Lake Okeechobee's ecosystem.

ECOLOGICAL RESEARCH AND MONITORING

Introduction and Objectives

The following subsections provide WY2025 updates on long-term in-lake monitoring projects used to track the ecological condition of Lake Okeechobee and its response to operational, climatological, and restoration activities. A number of these projects are components of the RECOVER *CERP Monitoring and Assessment Plan* (RECOVER 2009) and can be leveraged for plans under NEEPP (see **Table 8B-4** in the *Performance Measures* subsection below).

Submerged Aquatic Vegetation

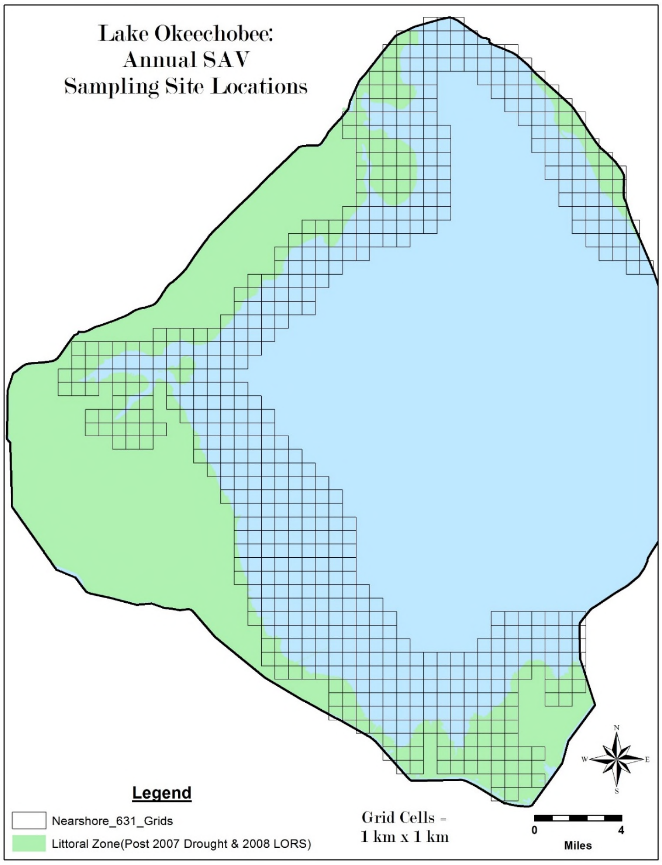


Figure 8B-12. Map showing the geographic area defined as nearshore SAV sites (631 grid cells) that are sampled approximately every August or September. Each grid cell size is 1 square kilometer (km^2).

Submerged aquatic vegetation (SAV) is a key indicator of lake ecological health and a critical resource in shallow lakes (Havens et al. 2004). On Lake Okeechobee, SAV is monitored using grids and transects to track environmental responses across different temporal and spatial scales. Total coverage has been mapped annually after peak growing season (August–September), since WY2002 using standard grid protocols (Sharfstein and Zhang 2017) (**Figure 8B-12**). Biomass measurements on transects have been conducted biannually since WY2018 (Zhang et al. 2020).

Grid Monitoring

Over the past six water years, total areal coverage of SAV has varied annually from a high of approximately 26,000 acres (ac; 10,500 hectare or ha) in WY2020 to a low of 2,700 ac (1,100 ha) in WY2024 (**Figure 8B-13**). In WY2025, SAV coverage increased by approximately 1,000 ac (400 ha) to a total of 3,700 ac (1,500 ha), showing SAV has still not recovered from the effects of Hurricane Ian in WY2023 (Betts et al. 2024).

Over the 24-year period of record, SAV coverage has varied dramatically, with acute periods of loss and recovery generally associated with hurricanes and droughts, respectively (Betts et al. 2020, 2024). Following consecutive losses of approximately 12,500 and 9,500 ac in WY2023 and WY2024 surveys, SAV coverage in WY2025 rebounded slightly to levels measured in WY2022.

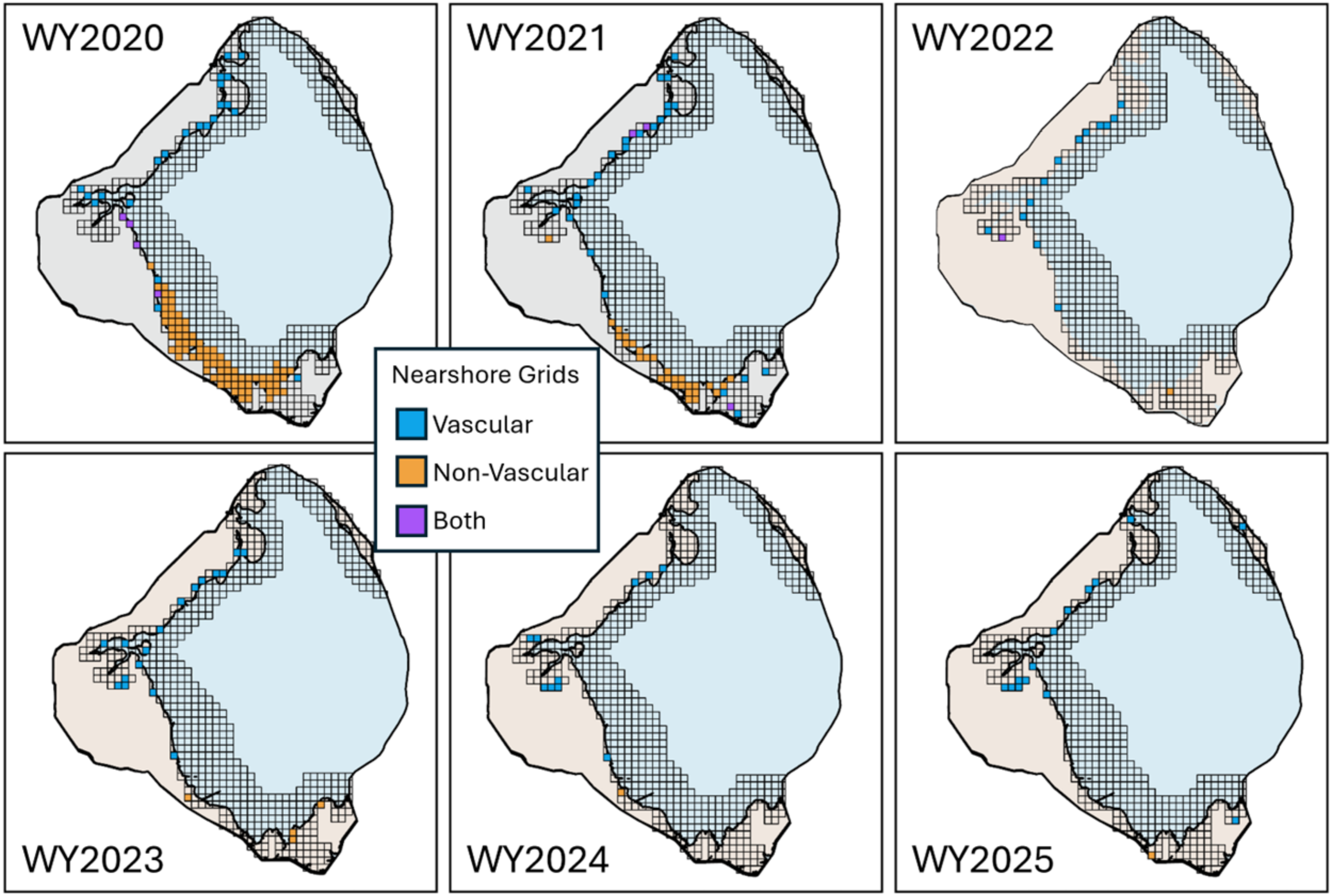


Figure 8B-13. Annual nearshore SAV mapping results for vascular and non-vascular species from WY2020–WY2025.

SAV coverage in WY2025 was the third lowest recorded since long-term sampling began in WY2002, another hurricane-affected year (**Figure 8B-14**). In WY2025, Hurricane Milton traversed the LOW from the Gulf of Mexico to the Atlantic Ocean in early October 2024, causing substantial winds and wave energy on the lake and potentially disrupting further recovery from Hurricane Ian (WY2023) (see the *Transect Monitoring* subsection below). Four sites showed recovery in WY2025 compared to WY2024, with one site exhibiting increased species diversity, while one site with *V. americana* was lost by WY2025. However, these results were pre-Hurricane Milton. While hurricanes can cause substantial short-term losses, the SAV community has rebounded in the past under favorable conditions (i.e., lower water levels).

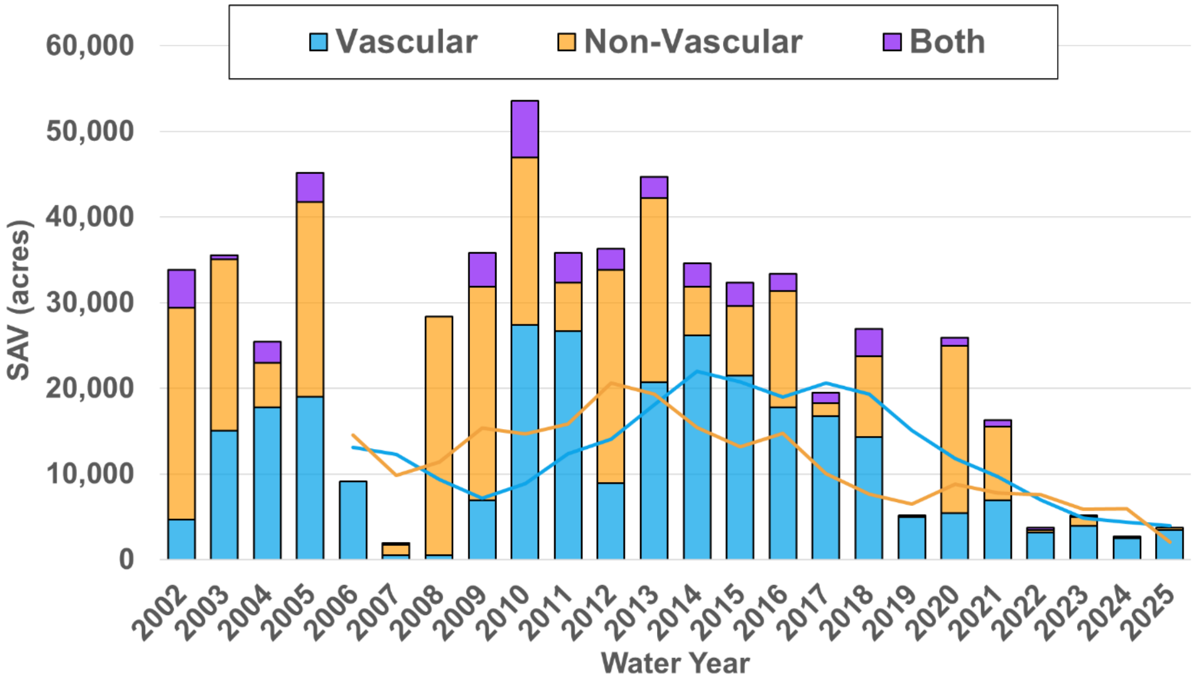


Figure 8B-14. Estimated coverage of vascular and non-vascular (macroalgae) SAV on Lake Okeechobee for WY2002–WY2023.

Contrasts of SAV coverage and dominant vegetation type between the last six water years (WY2020–WY2025) are provided in **Figure 8B-13**. The vascular SAV, *V. americana*, more than doubled in coverage since the last reporting year, adding an additional 960 ac of coverage. Three sites documented *V. americana* for the first time in WY2025: two northern sites that had not supported SAV since WY2015 (previously mixed communities of *Ceratophyllum demersum* and *Hydrilla verticillata*), and one southern site that had been without SAV since WY2017 (previously supported *Chara* spp., *C. demersum*, and *Utricularia* spp.). One site with consistent SAV coverage experienced a significant loss of diversity in the WY2024 survey, dropping from four to one species, but regained three species in the WY2025 survey (*H. verticillata*, *Najas guadalupensis*, and *V. americana*). Several sites along the western marshes have seen complete losses of dense *V. americana* beds compared to the past few water years, as well as decreases in diversity, with few areas containing multiple species in recent surveys.

Chara spp. had notable losses (790 ac) in the southern peat-soils portion of the lake after WY2023, and coverage remained minimal in WY2024 and WY2025, with only one site containing *Chara* spp. This nonvascular species has had very low coverage in general since WY2021, as its coverage tends to be greater when stages are low. Several southern sites that supported *Potamogeton* and *Chara* from WY2009 until WY2019 have contained only *Chara* or no SAV since that time. *Najas* spp., which was found in limited distributions across the lake since WY2019, was not recorded in WY2024, but was surveyed again at two sites in WY2025. In summary, lower lake stages compared to WY2024 coincided with slight SAV expansion and greater abundance at several sites, at least prior to Hurricane Milton.

Lake stages in WY2025 began (May 2024) approximately 0.2 ft above the ecological envelope (EE), the closest to ideal conditions since April of WY2023. After briefly entering the EE in late May, stages rose due to spring storms and remained above the envelope until peaking in November, before re-entering the EE in December. USACE Recovery operations in January 2025 involved deliberate efforts to lower lake stages through increased regulatory releases, resulting in substantial declines in water levels from 0.7 ft above the EE in November to 0.74 ft below the EE by April 2025—a total decline of 2.9 ft. The prolonged high water from WY2024 through the WY2025 growing season likely impacted SAV recovery, particularly affecting lower elevation communities and younger *V. americana* populations with limited vertical growth capacity. Lower stages beginning in January should promote SAV recovery in WY2026 by improving light penetration and reducing nutrient-rich pelagic material introduction into nearshore areas.

Higher-than-optimal stages throughout the growing season potentially influenced *Chara*'s lack of expansion and its minimal coverage since WY2021 (**Figure 8B-13**). Between the two reporting years, decreases of approximately 250 ac of *C. demersum* and 200 ac of *H. verticillata* were recorded, while there were limited expansions of 220 ac *Najas*, 250 ac of *Utricularia*, and 960 ac of *V.americana*.

The RECOVER nearshore SAV interim goal targets is at least 35% of the estimated 100,000 ac of potentially colonizable area vegetated with vascular and non-vascular SAV during peak summer growing season (July–August) (**Table 8B-4** in the *Performance Measures* subsection below). WY2020–WY2025 achieved only 74, 47, 11, 15, 8, and 11% of this goal, respectively, with WY2025 representing a 3% increase over the previous reporting year. The target has been met only twice in the past decade (WY2012 and WY2013), with WY2014–WY2016 coming within 2,000 ac of the goal.

Transect Monitoring

SAV transects are located along elevation gradients from shallow water and dense vegetation to offshore depths devoid of plant growth, with samples located roughly every 10 to 20 centimeters (cm) of elevation change. In each sample event, points are sampled up to a few hundred meters beyond the edge of the emergent littoral extent until no SAV is observed in consecutive samples (**Figure 8B-15**). Collections start from points as far upslope as possible, near the edge of dense emergent marsh (generally *Typha* spp. or floating tussock). At each sample location, biomass (wet weight as measured in the field) and approximate maximum stem heights are recorded for each species by using modified garden rakes to collect three samples covering a total of approximately 1 square meter (m^2) of substrate. Sampling occurs in the spring and fall, beginning in WY2018, with spring 2025 the most recent event summarized here. The 2018 sample coincided with the first growing season after Hurricane Irma caused widespread impacts in September 2017 (see Welch et al. 2019 for summary of effects).

Due to lower water levels in 2019 and 2020, SAV rebounded after near elimination from Hurricane Irma, with peak coverage and biomasses occurring in fall 2020 (**Figure 8B-16**). While median biomass remained high through spring 2022, substantial declines were evident prior to Hurricane Ian, likely due to consecutive winters with high lake stages (> 16 ft NGVD29). The first increase in biomass and frequency after Hurricane Ian was not evident until fall 2024, when many locations had new regrowth along the western shorelines. However, Hurricane Milton appears to have sent recovery back to square one, with spring 2025 having the second lowest frequency and biomass of SAV since 2018. As mentioned above, lower lake stages in early WY2026 may spark substantial recovery next year (similar to fall 2019) if wet season stage ascension rate is slow enough to promote continued growth of germinating SAV.

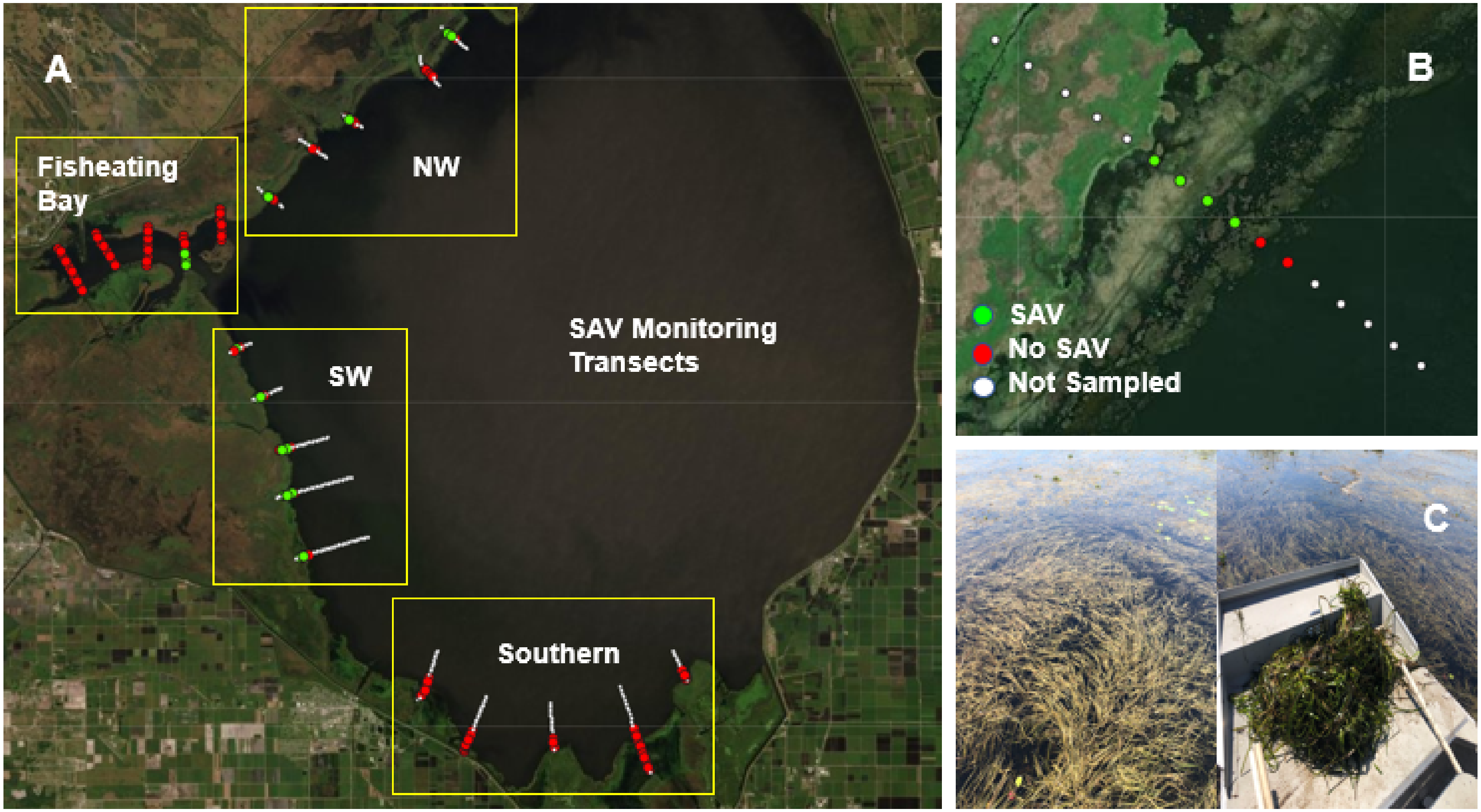


Figure 8B-15. (A) Locations of SAV transects, which extend from dense emergent aquatic vegetation (EAV) to beyond the photic zone offshore. Transects have been grouped into northwest sites (NW), Fisheating Bay sites, southwest sites (SW), and southern sites. (B) Example of transect with SAV in shallower areas but not beyond the edge of sparse grasses and bulrush. (C) Example of dense *V. americana* on a northwestern transect in spring 2022 and biomass from approximately 1 m^2 of substrate.

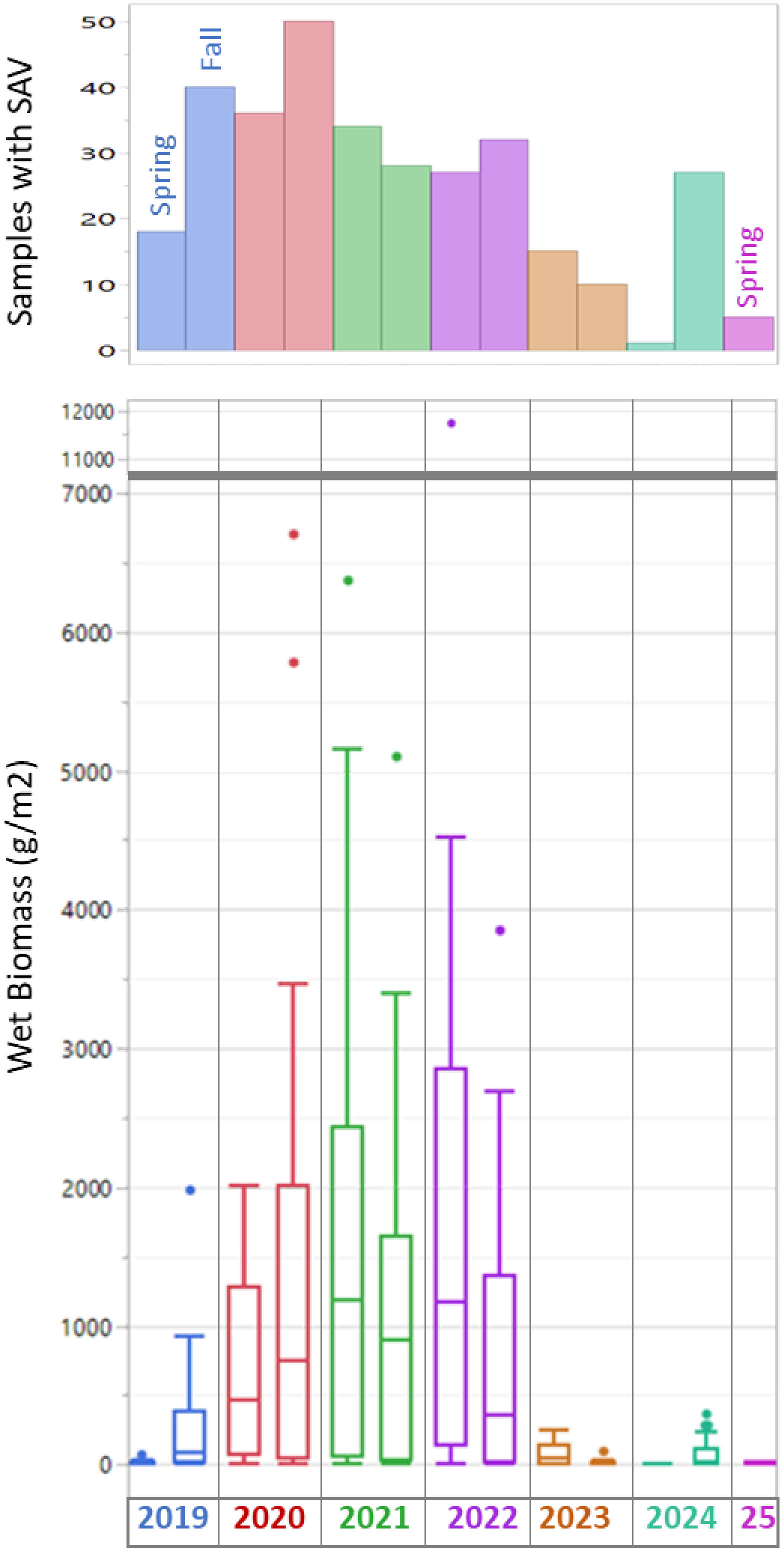


Figure 8B-16. Total samples with SAV by season and year for the northwestern and southwestern sites (top panel). Boxplots of SAV abundance (biomass in grams per square meter [g/m^2] wet weight) at the northwestern and southwestern sites from spring 2019 to spring 2025, separated by years and seasons. Note the break in the y-axis to show a spring 2022 outlier.

Wading Birds

Lake Okeechobee historically supported large numbers of nesting wading birds, which requires a continuous supply of easily accessible prey resources during the period of nest initiation through fledging of offspring. Current wading bird foraging on the lake mainly occurs in the shallow littoral zone as lake stages recede throughout the spring. SFWMD began monitoring wading bird foraging on Lake Okeechobee in 2010 to better assess ecological conditions related to wading bird nesting and overall use of the lake (James and Zhang 2011).

Helicopter surveys are conducted every two weeks from December through June along east-west transects established at 2-kilometer (km) intervals throughout the entire littoral zone of the lake to document locations of wading bird foraging flocks. The wading bird foraging surveys are conducted by SFWMD, while the wading bird nesting surveys are conducted by the University of Florida for the CERP RECOVER program. Further details regarding survey methods are described in Chapter 8 of the 2012 SFER – Volume I (Zhang and Sharfstein 2012). These nesting season surveys span water years (which are May to April), so we report nesting totals for the 2025 calendar year, which technically includes WY2025 and WY2026. For simplicity's sake, we refer to this as the WY2025 breeding season below.

Hydrology

At the beginning of the surveys (December 2024) for the WY2025 breeding season, lake levels were at approximately 15.76 ft NGVD29 and continued to recede to a low of 10.9 ft NGVD29 in mid-May (**Figure 8B-17**). Recession rates were well above a preferred range of roughly 0.075 to 0.125 ft/week (0.3 to 0.5 ft/month) for 70% of the survey period (December–June) and for the entire peak nesting season months (April–May), culminating at 0.37 ft/week. Lake levels dropped 1.27 ft in April. Only 6% of the survey period had ideal recession rates, with 2% occurring during the peak of the nesting season. The significant recession rate decline in late May and June (**Figure 8B-17**) marked the beginning of the rainy season (and subsequent rise in water levels).

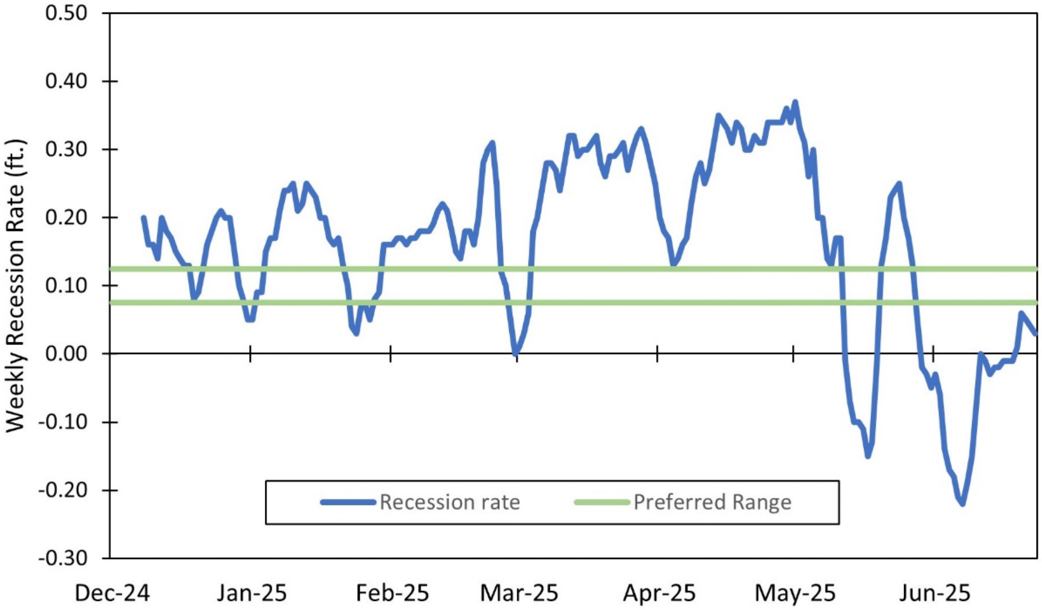


Figure 8B-17. Seven-day recession rates during the WY2025 wading bird nesting season. The green outlined area represents the preferred range of weekly recession rates. Negative values indicate an increase in water depths.

Foraging

Lake Okeechobee continues to serve as critical foraging habitat for wading birds across South Florida. During the WY2025 breeding season, the abundance of wading birds foraging markedly increased once lake stages fell below 14.0 ft NGVD29. Observations peaked in mid-April at 12,660 birds, following a seasonal low of just 600 birds recorded in December (**Figure 8B-18**). Survey totals remained above the 5-year interquartile range throughout most of the spring, with 8,360 birds observed in mid-May—exceeding the 75th percentile—as lake levels receded further below 14.0 ft NGVD29.

Wading birds responded positively to improved foraging access as water levels declined during peak nesting months. However, by the time the lake dropped below 11.0 ft NGVD29, foraging habitat within the littoral zone was severely limited, with usable areas restricted primarily to Moonshine Bay and a narrow band along the outside edge of the marsh (**Figure 8B-19**). Despite the continuous recession from December through May—including the critical April–May nesting window—the rapid rate of water level decline likely shortened the window of prey concentration events as the marsh dried out, limiting the duration and spatial extent of high-quality foraging habitat available to support nesting wading birds.

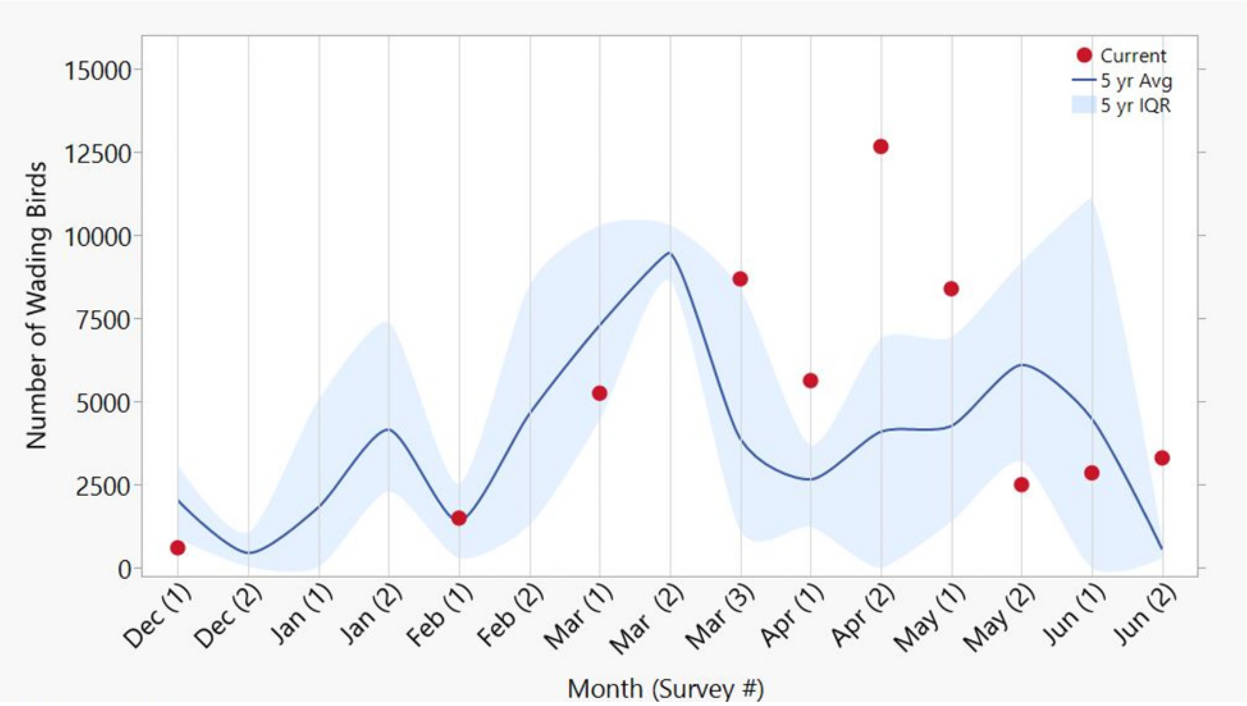


Figure 8B-18. Total number of foraging birds surveyed each month in 2025 relative to the interquartile range of the prior 5 years.

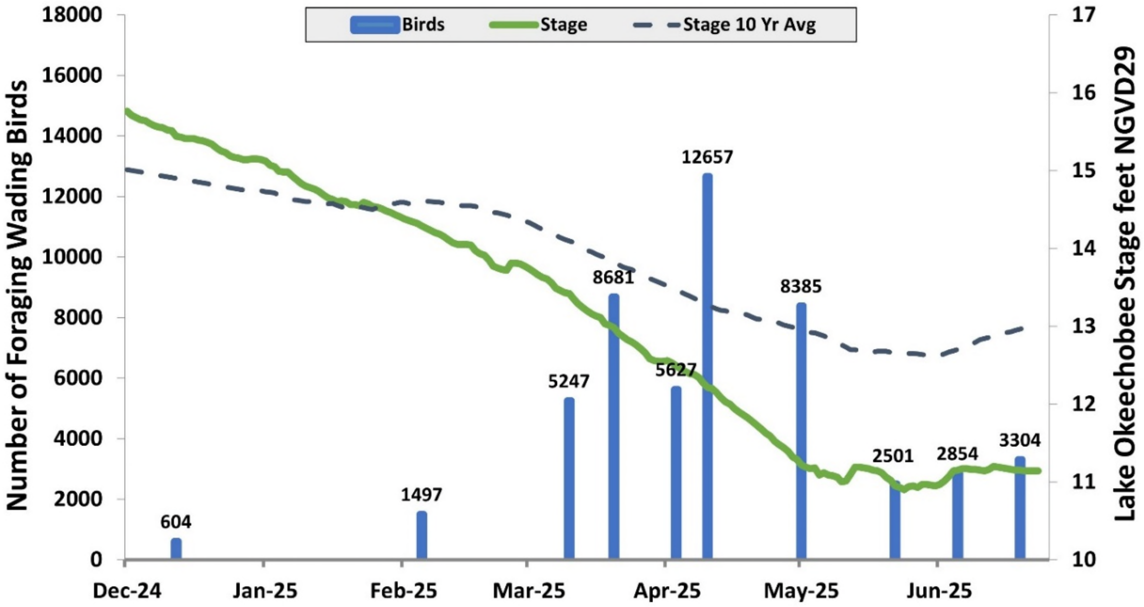


Figure 8B-19. A comparison of the total number of foraging birds surveyed each month in the WY2025 breeding season in relation to lake stage (the green line) and ten-year average lake stage.

Nesting

In WY2025, approximately 2,200 nests (preliminary data) were observed for three species: great egret (*Ardea alba*), snowy egret (*Egretta thula*), and white ibis (*Eudocimus albus*) (**Figure 8B-20**). This was the sixth year in a row with below average nesting numbers, continuing the trend of declining nesting abundance since 2006 when continuous nesting surveys began. Although we reached below the 14-ft threshold prior to peak nesting, which should have led to a higher nesting response, high recession rates were likely the reason wading bird nesting abundance remained below average, limiting the prey availability needed during peak nesting season.

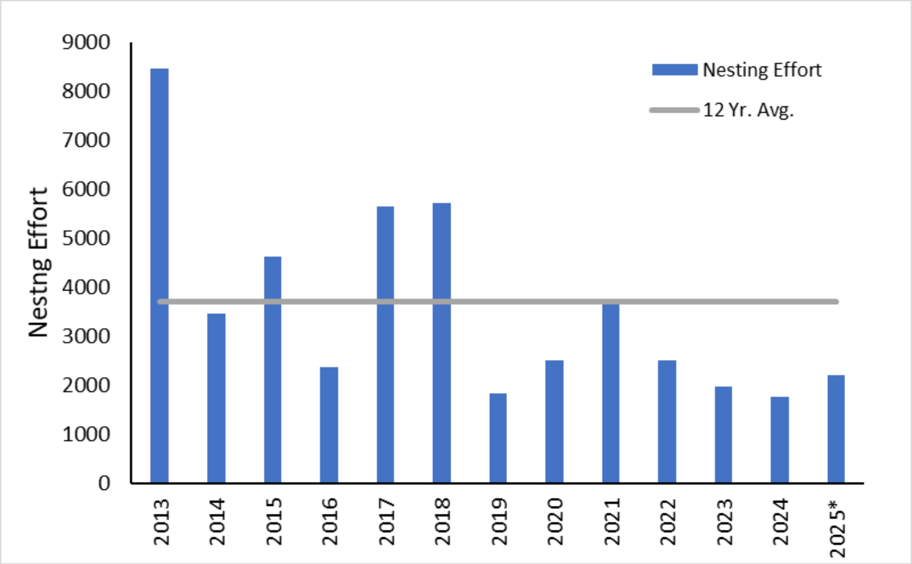


Figure 8B-20. Nest abundance of three species (great egret, snowy egret, and white ibis from WY2013 to WY2025, versus the average for the period (grey line). WY2025 data is preliminary.

Performance Measures

Measurements of TP, TN, chlorophyll *a*, phytoplankton, SAV, and water levels are used as quantitative in-lake performance measures. These measures describe the status of the ecosystem and its responses to implemented restoration programs. Measures are 5-year averages to ensure consistency with TMDL reporting, reduce year-to-year variation due to climate and hydrology, and improve understanding of underlying trends. These values are compared to quantitative restoration goals (**Table 8B-4**). The *Lake Okeechobee Protection Program, Lake Okeechobee Protection Plan* reports (SFWMD et al. 2004, Havens et al. 2005) provide a technical foundation for these restoration goals. The WY2024 averaged observations document this year's water quality and lake level conditions.

There was a 13% decrease in TP loads and an 8% decrease in TN loads in WY2025 compared to WY2024, which can be attributed primarily to lower inflow from the LOW over the previous year. Outflows increased by 48% compared to WY2024, and the average lake volume was about 12% lower. This lower water volume potentially caused an enhanced influence of internal loading, which could partially explain the higher in-lake TP (13%) and TN (18%) concentrations. The TN:TP ratio increased from to 9.5:1 to 9.9:1 (**Table 8B-4**); however, none of the nutrient performance measures achieved targets.

Biological performance measures did not achieve their targets in WY2025. The algal bloom frequency was exceeded, as 20.9% of sample stations recorded bloom conditions over the water year, resulting in a 5-year average of 17.8%. The total SAV acreage (3,700 ac) increased slightly in WY2025, though the 5-year average dropped to the lowest on record, less than a third of the target value. The proportion consisting of vascular species remained high at 93%, mostly due to a near total absence of *Chara* spp., whose coverage is highly correlated with low summer water levels.

Table 8B-4. Summary of Lake Okeechobee rehabilitation performance measures, rehabilitation program goals, and lake conditions for the most recent 5-year average (WY2021–WY2025), WY2024, and WY2025.

Performance Measure	Goal	5-Year Average	WY2025	WY2024
Nutrient				
TP load	140 t/yr	393 t/yr	337 t/yr	386 t/yr
TN load	Not applicable	5,280 t/yr	4,868 t/yr	5,287 t/yr
Pelagic TP	40 µg/L	158 µg/L	175 µg/L	155 µg/L
Pelagic TN	Not applicable	1.47 mg/L	1.73 mg/L	1.48 mg/L
Pelagic TN:TP	> 22:1	9.6:1	9.9:1	9.5:1
Nearshore TP	< 40 µg/L	111 µg/L	123 µg/L	105 µg/L
Biological				
Algal bloom frequency	< 5% of sites chlorophyll *a* > 40 µg/L	18%	21%	17%
SAV [a]	Interim goal, total SAV > 35,000 ac	6,323 ac	3,705 ac	2,717 ac
	Vascular SAV > 50% of total acres	80%	93%	91%
Physical				
Water clarity	Secchi disk visible on lake bottom at all nearshore SAV sampling locations from May to September	14%	3%	2%
Hydrology				
Extremes in low lake stage (current water year)	Maintain stages > 10 ft (3 meters or m)	Not applicable	Yes	Yes
Extremes in high lake stage (current water year)	Maintain stages < 17 ft (5.2 m); stage not > 15 ft (4.6 m) for 4 months or more	Not applicable	Yes: > 15 ft for 3.6 months	No: > 15 ft for 8.5 months
Spring recession (January–June) without reversals	Stage recession from near 15 ft (4.6 m) in January to near 12 ft (3.7 m) in June	Not applicable	No: 15.1 to 11.0 ft (4.6 to 3.4 m)	No: 16.0 to 12.9 ft (5.0 to 4.2 m)

a. Mean yearly acreages (from August 2017–August 2021 maps).

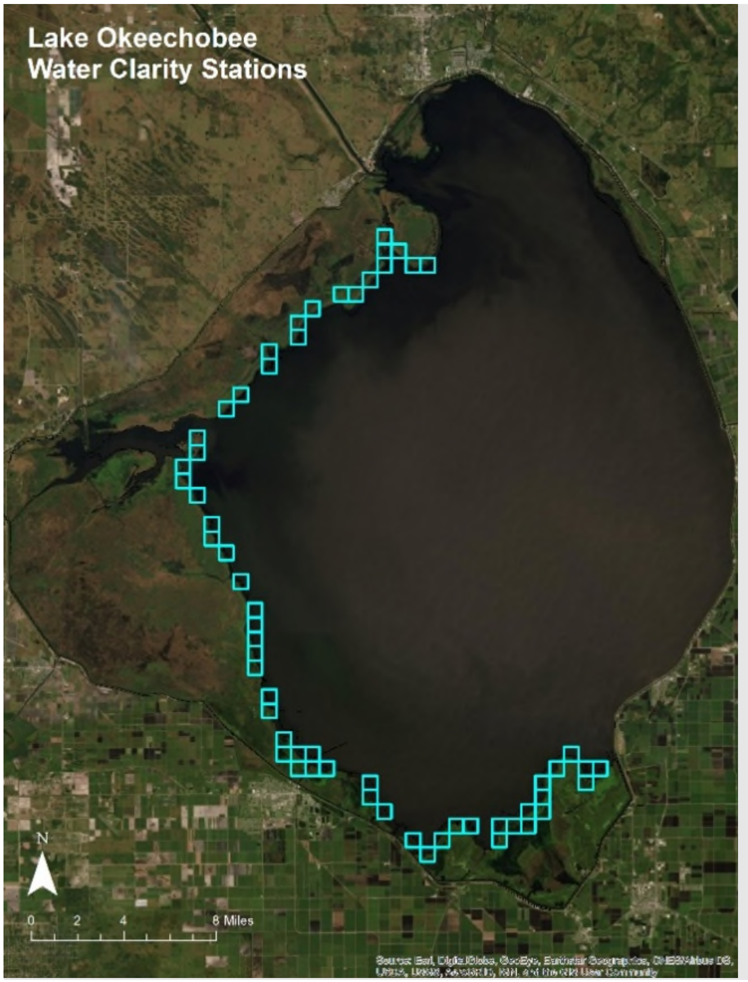


Figure 8B-21. Water clarity monitoring locations (60) sampled annually in August during routine SAV monitoring events.

Calculation of Secchi depth transparency to total water depth ratio indicates the depth of light penetration in the water column. When the Secchi depth transparency and total depths are the same (meaning visible light reaches the bottom), conditions are optimal for SAV growth. The ratio of Secchi depth transparency to total depth is tallied at 60 shallow sites where annual August SAV sampling occurs (**Figure 8B-21**). The performance metric target is for all those stations to have a ratio of 1.0 (100% light penetration). For more information on the development and evolution of this metric, see Zhang et al. 2022.

In WY2025, only 2 of 59 stations had the Secchi disk visible at the bottom, among the worst on record and the fifth time in the last 6 years with 15% or fewer stations (**Figure 8B-22**). Annual performance has been variable but generally lower over the past decade compared to the 10 years prior, and WY2013 was the last time that 75% or more sites had a ratio of 1.0 (**Figure 8B-23**). While conditions were poor in WY2022, they continued to worsen through WY2025, with the lowest consecutive years on record. With lower lake stages at the end of WY2025, light conditions and SAV coverage are expected to increase, depending on duration of low stages and subsequent ascension rates.

Two of three stage metrics were met, which were the hydrology goals of staying above 10.0 ft (3.05 meters or m) NGVD29 and staying below the 17.0 ft (5.18 m) NGVD29 extreme high stage, as well as not exceeding 15.0 ft (4.57 m) NGVD29 for more than four months. This was the first time in four years that stages did not exceed the 15.0 ft duration target. The annual winter-spring recession target of having stages fall from near 15.0 ft (4.57 m) in January to near 12.0 ft (3.66 m) in June was almost met, though managers specifically targeted lower stages to aid in SAV recovery, ending a foot (0.3 m) below the metric of 12.0 ft (3.66 m). Stages did recede consistently throughout the spring, though fell at a rapid pace as managers prioritized lower lake stages over slow recession rates.

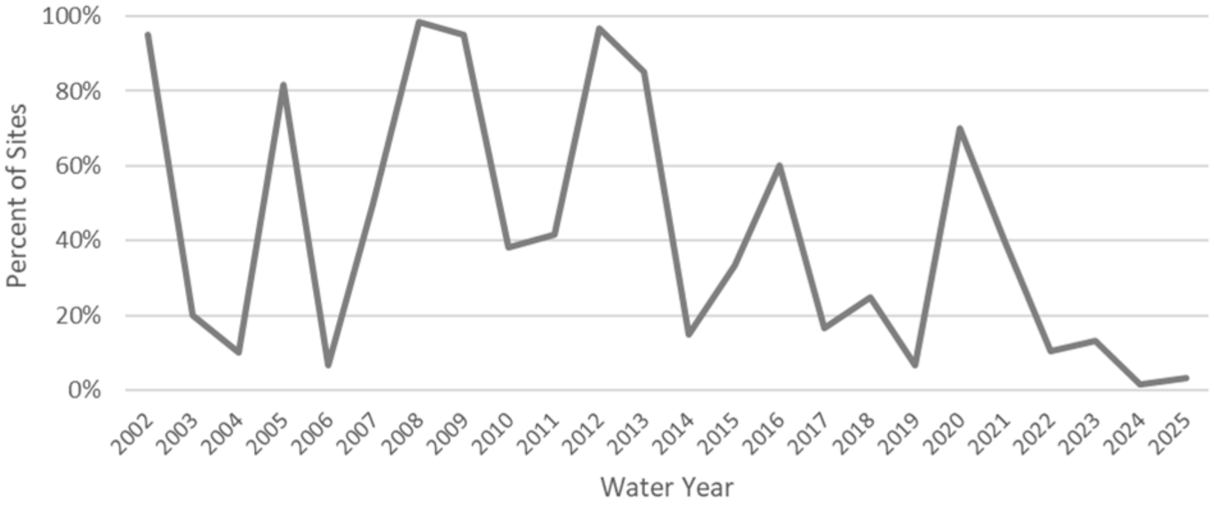


Figure 8B-22. Percent of sites with Secchi depths equal to total depth (based on the August sampling event). The performance measure target is for Secchi depth to be equal to total depth at 100% of sites.

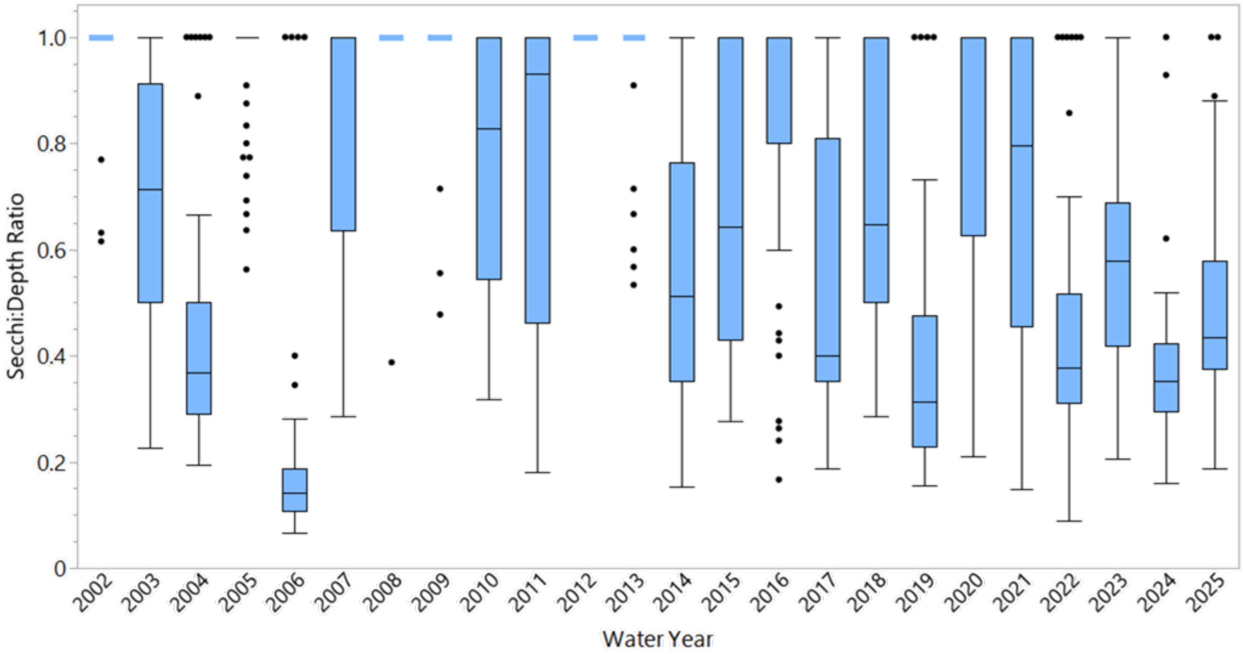


Figure 8B-23. Ratios of Secchi depth visibility to total water column depth at monitoring sites from WY2002 to WY2025. Small blue bars at 1.0 represent water years where the entire interquartile range was 1.0, with only outliers with a ratio of < 1.0.

PART II: RESEARCH AND WATER QUALITY MONITORING PROGRAM - LAKE OKEECHOBEE WATERSHED

This section reports on the status of the Lake Okeechobee Watershed (LOW) and contains a brief report on conditions of hydrology, and nutrient concentrations and loads (TP and TN) in WY2025.

The LOW comprises approximately 3.45 million ac (13,960 km^2) and is grouped into nine subwatersheds (see **Figure 8B-24** in the *Water Quality* subsection below). It includes 32 drainage basins within six subwatersheds and the remaining three subwatersheds (Upper Kissimmee, Lower Kissimmee, and Lake Istokpoga) are presented at the subwatershed level only in this section due to the unavailability of flow data at the drainage basin level.

WATER QUALITY

As part of the RWQMP, SFWMD maintains a long-term water quality monitoring network within the LOW. The network stations are continuously reviewed by the Coordinating Agencies—SFWMD, Florida Department of Agriculture and Consumer Services (FDACS), and Florida Department of Environmental Protection (FDEP)—for efficiency and to ensure all data collection objectives associated with legislatively-mandated and permit-required monitoring are being met. Data collected allow FDEP to evaluate water quality to measure progress and ensure that the appropriate projects and programs are being designated and incorporated into the *Lake Okeechobee Basin Management Action Plan* (BMAP; FDEP 2020). SFWMD coordinates monitoring efforts with FDEP, FDACS, and the United States Geological Survey (USGS) to leverage monitoring sites and reduce duplication of efforts.

SFWMD's current monitoring network consists of stations at two hydrologic levels within the LOW: (1) subwatershed and basin level (basin monitoring sites), and (2) subbasin level (upstream monitoring sites) (**Figure 8B-24**). Flow and nutrient (TP and TN) concentrations are monitored, and nutrient loads are calculated at the basin loading sites. The calculated nutrient load from the basin monitoring sites is then used to determine the nutrient load for the subwatershed or entire watershed by summing the loading from the sites discharging from those areas. Nutrient grab samples are typically collected biweekly at upstream monitoring sites when a visible flow is observed.

In WY2020, the SFWMD Governing Board expanded the existing upstream monitoring program in response to Governor's Executive Order 19-12. The expanded monitoring included 37 additional upstream monitoring sites, additional water quality monitoring parameters, and an increase in sampling frequency. The monitored parameters are TP, orthophosphate (OPO_4), TN, ammoniacal nitrogen (NH_3-N), nitrate + nitrite (NO_X), dissolved oxygen (DO), specific conductance, pH, and temperature. The expanded monitoring fulfilled a recommendation of the 5-year Lake Okeechobee Watershed Protection Plan (LOWPP) update (Betts et al. 2020). WY2025 water quality data for the upstream monitoring sites including results collected under the expanded monitoring are presented in Appendix 8B-1 of this volume. This information is supplemental to the main chapter, and it provides data to fulfill the NEEPP requirement for the Coordinating Agencies to evaluate all available existing water quality data concerning TP in the LOW.

Flow and water quality data sets for the 18 drainage basins and six subwatersheds in the northern LOW (**Figure 8B-2**) reside in SFWMD's corporate environmental database, DBHYDRO. Basin monitoring data for the subwatersheds and basins in the LOW for WY2025 and the most recent 5 years (WY2021–WY2025) are presented in the subsection below.

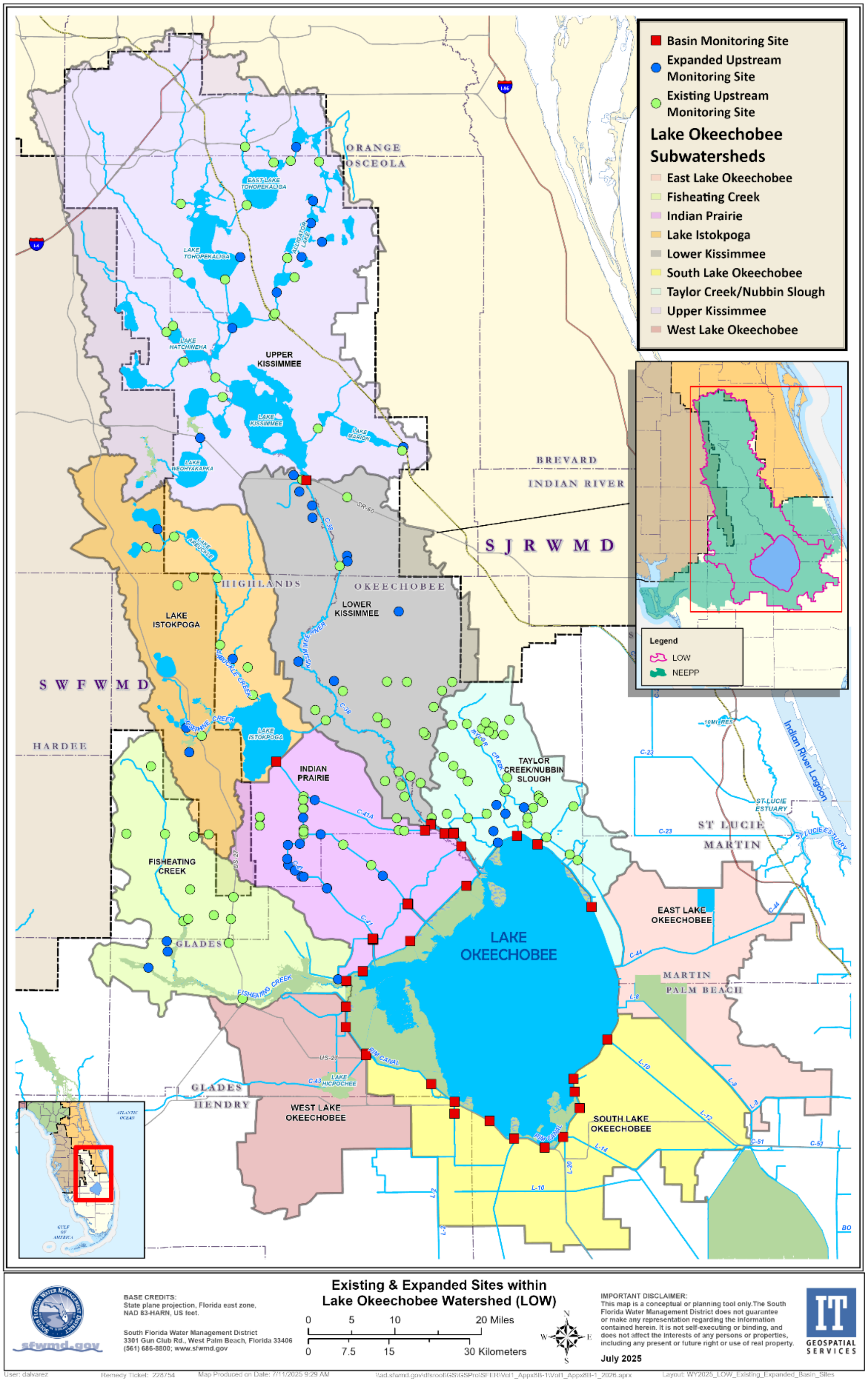


Figure 8B-24. Subwatershed/basin monitoring sites (red squares) and existing (green circles) and expanded (blue circles) subbasin/upstream monitoring sites within the LOW.

Nutrient Loads to Lake Okeechobee

Total Phosphorus Loading

TP loading rates into Lake Okeechobee vary from year to year due to fluctuating rainfall and weather patterns, changes in land use, and varying operations of water control structures (**Table 8B-5**). TP loads to the lake from tributaries and atmospheric deposition (estimated as 35 t/yr; FDEP 2001) totaled 337 t in WY2025 (**Table 8B-7** later in this section). This load is a decrease of 49 t compared to the previous water year load of 386 t and lower than the most recent 5-year (WY2021–WY2025) average load of 393 t (**Tables 8B-5** and **8B-7**; see the *Total Phosphorus Loading Data by Drainage Basin and Subwatershed* subsection below). As mentioned in the previous section, the decrease in TP loading to the lake in WY2025 is likely due to lower-than-average inflows and rainfall compared to WY2024 (see **Figure 8B-3** earlier in this chapter and Chapter 2A of this volume for a complete description of hydrology).

Table 8B-5. Annual flow and TP loads to Lake Okeechobee for the previous 25 years. [a]

Water Year (May–April)	Flow (million ac-ft)	Measured TP Load from Watershed (t)	TP Load to Lake Okeechobee [b] (t)	Long-Term TP Load (5-Year Moving Average) [b] (t)	Long-Term Over-Target Load (5-Year Moving Average) [b,c] (t)
2001	0.42	96	131	447	307
2002	2.48	612	647	543	403
2003	3.67	642	677	496	356
2004	3.09	540	575	545	405
2005	3.70	964	999	606	466
2006	3.81	777	812	742	602
2007	0.64	196	231	659	519
2008	1.07	228	263	576	436
2009	2.23	660	695	600	460
2010	2.46	451	486	498	358
2011	0.93	143	178	371	231
2012	1.94	342	377	400	260
2013	2.15	534	569	461	321
2014	2.83	574	609	444	304
2015	2.86	415	450	437	297
2016	3.01	508	543	510	370
2017	2.49	449	484	531	391
2018	3.42	1,046	1,081	633	493
2019	1.99	410	445	600	460
2020	1.48	289	324	575	435
2021	2.69	485	520	571	431
2022	1.61	250	285	531	391
2023	2.22	403	438	402	262
2024	2.11	351	386	390	250
2025	1.68	302	337	393	253
Average	2.28	467	502		

a. Some load values in this table are slightly different from previously published SFERs as data were extensively reviewed and updated for the trend analyses in the 2025 NEEPP plan update.

b. Includes an atmospheric load of 35 t/yr based on the Lake Okeechobee TMDL document (FDEP 2001).

c. Target is the Lake Okeechobee TMDL of 140 t compared to the 5-year moving average.

For WY2001–WY2025, the highest TP loading rate was 1,081 t in WY2018 followed by the WY2005 TP load of 999 t and WY2006 TP load of 812 t. The most recent 5-year average load for the WY2021–WY2025 period was 393 t, which exceeds the TMDL by 253 t (**Table 8B-5**). The target of 140 t of TP loading for Lake Okeechobee is established in the Lake Okeechobee TMDL, which is being implemented through FDEP's *Lake Okeechobee Basin Management Action Plan* (FDEP 2014, 2020).

Total Nitrogen Loading

The WY2025 TN load to the lake including atmospheric deposition of 1,233 t/yr (James et al. 2005) was estimated at 4,868 t. This load is a decrease of over 400 t compared to the previous water year load of 5,287 t (**Table 8B-6**). The most recent 5-year rolling average (WY2021–WY2025) TN load was 5,280 t (**Table 8B-6**). From WY2001 through WY2025, the highest TN loading rate was 8,796 t in WY2005, followed by 8,745 t in WY2018, and 8,302 t in WY2003.

Table 8B-6. Annual TN loads to Lake Okeechobee and the watershed-wide TN:TP ratio for the previous 25 years. [a]

Water Year (May–April)	Measured TN Load from Watershed (t)	TN Load to Lake Okeechobee [b] (t)	Long-Term TN Load (5-Year Moving Average) [b] (t)	Measured TP Load from Watershed (t)	Watershed-wide TN:TP
2001	1,286	2,519	5,652	96	13.4
2002	6,594	7,827	6,628	612	10.8
2003	7,069	8,302	6,096	642	11.0
2004	5,308	6,541	6,418	540	9.8
2005	7,563	8,796	6,797	964	7.8
2006	6,554	7,787	7,851	777	8.4
2007	1,510	2,743	6,834	196	7.7
2008	2,266	3,499	5,873	228	9.9
2009	5,417	6,650	5,895	660	8.2
2010	5,133	6,366	5,409	451	11.4
2011	1,591	2,824	4,416	143	11.1
2012	3,553	4,786	4,825	342	10.4
2013	5,164	6,397	5,404	534	9.7
2014	5,517	6,750	5,424	574	9.6
2015	4,958	6,191	5,389	415	11.9
2016	5,642	6,875	6,200	508	11.1
2017	4,066	5,299	6,302	449	9.1
2018	7,512	8,745	6,772	1046	7.2
2019	3,960	5,193	6,461	410	9.7
2020	3,066	4,299	6,082	289	10.6
2021	5,062	6,295	5,966	485	10.4
2022	3,117	4,350	5,776	250	12.5
2023	4,368	5,601	5,147	403	10.9
2024	4,054	5,287	5,166	351	11.6
2025	3,635	4,868	5,280	302	12.0
Average	4,559	5,792	5,923	467	10.2

a. Some load values in this table are slightly different from previously published SFERs, as data were extensively reviewed and updated for the trend analyses in the 2025 NEEPP plan update.

b. Includes atmospheric load of 1,233 t/yr to account for atmospheric deposition (James et al. 2005).

Total Nitrogen:Total Phosphorus Ratio of Nutrient Loading

The TN:TP ratio of nutrient loading to the lake from its watershed from WY2001 through WY2025 is shown in **Table 8B-6**. WY2025 was only the third year in the past 25 with a TN:TP ratio above 12, indicating loading to the lake from this watershed has been TN-limited for the entire period. Although there is no LOW goal for TN:TP, these ratios are well below the in-lake goal of 22.1:1. This suggests efforts to reduce loads of both TN and TP from the LOW should be considered, especially given the sensitivity of downstream estuarine water bodies to TN inputs.

Total Phosphorus Loading Data by Drainage Basin and Subwatershed

Surface water flow and TP loads to the lake for WY2025 and the most recent five water years (WY2021–WY2025) were calculated for major drainage basins using measured data from the basin loading stations and discharges from Lake Istokpoga and Lake Kissimmee. These lakes are the outfalls of subwatersheds that collect water flow and nutrient loads from surrounding drainage basins. Data are based on monitoring stations where flow is continuously monitored, and TP and TN samples are collected biweekly, based on flow, or monthly at a minimum. Note that the East, West, and South Lake Okeechobee subwatersheds predominantly receive water from the lake but may backflow (or backpump) into the lake under certain conditions.

As shown in **Table 8B-7**, the total discharge to the lake from the LOW was 1.68 million ac-ft in WY2025, which was lower than the most recent 5-year average value of 2.06 million ac-ft. The watershed-wide averaged inflow TP concentration of 144 µg/L was similar to the 5-year average value of 140 µg/L. The watershed-wide unit area load (UAL) of TP, defined as the total load divided by the total contributing area, averaged 0.19 pound per acre (lb/ac) in WY2025, which is lower than the current 5-year average (0.23 lb/ac).

At the drainage basin level, the S-154C Basin in the Taylor Creek/Nubbin Slough Subwatershed had the highest TP flow-weighted mean concentration (FWMC) value of 596 µg/L in WY2025, followed by the S-191 Basin (396 µg/L), both in the Taylor Creek/Nubbin Slough Subwatershed (**Table 8B-7**). This trend is the same for the most recent 5-year period (WY2021–WY2025), with the S-154C Basin having the highest 5-year average TP FWMC (612 µg/L) followed by the S-191 Basin (474 µg/L).

In terms of UAL from drainage basins, the S-154C Basin also had the highest UAL of TP in WY2025, at 1.50 lb/ac, followed by the Industrial Canal Basin, in the South Lake Okeechobee subwatershed (1.20 lb/ac). The highest UAL of TP for the 5-year period was from the Industrial Canal (1.19 lb/ac) (**Table 8B-7**).

At the subwatershed level, the largest surface water inflow was from the Upper Kissimmee Subwatershed (above structure S-65) (0.63 million ac-ft) followed by the Fisheating Creek (0.30 million ac-ft) subwatershed, with the largest TP load coming from the Fisheating Creek (70 t) subwatershed (**Table 8B-7**). The Upper Kissimmee Subwatershed covers about 30% of the drainage area in the LOW and contributed approximately 37% of total inflow, but only 17% of total TP loads during WY2025. In contrast, the Taylor Creek/Nubbin Slough Subwatershed comprises 6% of the drainage area in the LOW, contributed about 9% of total inflow, but provided 19% of TP loads during WY2025. The comparative values of discharges and TP loads to Lake Okeechobee from each subwatershed are shown in **Figure 8B-25**.

Table 8B-7. Five-year average (WY2021–WY2025) and WY2025 surface water inflows, TP loads, TP FWMC, TP UALs, and runoff from the drainage basins and subwatersheds (SW) to Lake Okeechobee. [a]

Source	Area (ac)	WY2021–WY2025					WY2025				
		Flow (ac-ft)	TP Load (t)	TP UAL (lb/ac)	TP FWMC (µg/L)	Runoff (inches)	Flow (ac-ft)	TP Load (t)	TP UAL (lb/ac)	TP FWMC (µg/L)	Runoff (inches)
East Lake Okeechobee SW	**232,038**	**62,700**	**10.5**	**0.10**	**136**	**3.2**	**52,900**	**6.5**	**0.06**	**100**	**2.7**
C-44/S-153/Basin 8 (S-308 at St. Lucie Canal)	131,903	21,400	5.2	0.09	198		2,170	0.5	0.01	190	
L-8 Basin (Culvert 10A)	100,135	41,200	5.3	0.12	103		50,700	6.0	0.13	96	
Fisheating Creek SW	**298,694**	**221,000**	**46.9**	**0.35**	**172**	**8.9**	**304,000**	**69.7**	**0.51**	**186**	**12.2**
Fisheating Creek at Lakeport/L-61W Basin	298,694	221,000	46.9	0.35	172		304,000	69.7	0.51	186	
Indian Prairie SW	**276,579**	**227,000**	**48.0**	**0.38**	**165**	**9.8**	**219,000**	**35.7**	**0.28**	**121**	**9.5**
C-40 Basin [(S-72) – w * (S-72)] [b]	24,076	37,400	7.6	0.70	165		48,700	7.3	0.67	121	
C-41 Basin [(S-71) – w * (S-71)] [b]	116,632	46,600	16.8	0.32	291		59,600	14.1	0.27	192	
C-41A Basin [(S-84) – w * (S-84)] [b]	57,748	110,000	17.9	0.68	132		82,900	8.2	0.31	80	
L-48 Basin (S-127 total)	20,798	11,300	1.9	0.21	139		6,300	0.9	0.09	112	
L-49 Basin (S-129 total)	11,955	10,600	0.5	0.10	42		8,810	0.6	0.11	53	
L-59E Basin [(G-33) + (G-34)]	12,589	1,520	0.2	0.03	104		-	0.0	0.00	-	
L-59W Basin (G-74)	6,598	-	0.0	0.00	-		-	0.0	0.00	-	
L-60E Basin (G-75)	4,946	711	0.1	0.07	166		-	0.0	0.00	-	
L-60W Basin (G-76)	3,462	550	0.1	0.06	143		-	0.0	0.00	-	
L-61E Basin [c]	10,653	0	1.7	0.35	-		-	2.9	0.60	-	
S-131 Basin	7,122	9,020	1.2	0.36	104		13,000	1.8	0.54	109	
Taylor Creek/Nubbin Slough SW	**201,259**	**146,000**	**58.6**	**0.64**	**324**	**8.7**	**145,000**	**56.2**	**0.62**	**313**	**8.6**
S-133 Basin	25,650	28,200	7.1	0.61	204		24,200	5.3	0.45	176	
S-135 Basin	17,651	39,100	6.8	0.85	141		33,200	8.5	1.06	206	
S-154 Basin	31,815	18,200	9.0	0.62	399		18,800	8.2	0.57	354	
S-154C Basin	2,134	964	0.7	0.75	612		1,980	1.5	1.50	596	
S-191 Basin	124,009	59,900	35.0	0.62	474		67,300	32.8	0.58	396	

Table 8B-7. Continued.

Source	Area (ac)	WY2021–WY2025					WY2025				
		Flow (ac-ft)	TP Load (t)	TP UAL (lb/ac)	TP FWMC (µg/L)	Runoff (inches)	Flow (ac-ft)	TP Load (t)	TP UAL (lb/ac)	TP FWMC (µg/L)	Runoff (inches)
South Lake Okeechobee SW	**357,871**	**42,000**	**13.3**	**0.08**	**257**	**1.4**	**62,400**	**20.7**	**0.13**	**268**	**2.1**
715 Farms (Culvert 12A)	3,353	0	0.0	0.00	-		-	0.0	0.00	-	
East Beach Drainage District (Culvert 10)	6,657	3	0.0	0.00	233		-	0.0	0.00	-	
East Shore Drainage District (Culvert 12)	8,409	0	0.0	0.00	-		-	0.0	0.00	-	
Industrial Canal (S-310 in S-4 Basin)	13,144	22,200	7.1	1.19	260		22,000	7.2	1.20	263	
S-2 Basin	115,655	7,860	2.1	0.04	216		21,400	6.6	0.13	252	
S-3 Basin	65,889	5,620	1.6	0.05	226		13,900	4.8	0.16	280	
S-4 Basin	29,014	6,280	2.5	0.19	329		5,200	2.1	0.16	325	
South Florida Conservancy Drainage District (S-236)	9,931	-	0.0	0.00	-		-	0.0	0.00	-	
South Shore/South Bay Drainage District (Culvert 4A)	4,036	-	0.0	0.00	-		-	0.0	0.00	-	
S-5A Basin (S-352 West Palm Beach Canal)	101,783	-	0.0	0.00	-		-	0.0	0.00	-	
West Lake Okeechobee SW	**221,689**	**30**	**0.0**	**0.00**	**103**	**0.0**	**-**	**0.0**	**0.00**	**-**	**0.0**
East Caloosahatchee Basin (S-77)	196,445	30	0.0	0.00	103		-	0.0	0.00	-	
Nicodemus Slough North (Culvert 5)	19,329	-	0.0	0.00	-		-	0.0	0.00	-	
Nicodemus Slough South (Culvert 5A)	5,915	0	0.0	0.00	-		-	0.0	0.00	-	
Lake Istokpoga SW (S-68)	**394,203**	**278,000**	**34.5**	**0.19**	**101**	**8.5**	**156,000**	**23.8**	**0.13**	**124**	**4.7**
Lower Kissimmee SW [(S-65E) - (S-65)]	**428,886**	**269,000**	**78.4**	**0.40**	**236**	**7.5**	**116,000**	**38.4**	**0.20**	**268**	**3.2**
Upper Kissimmee SW (S-65)	**1,019,713**	**815,000**	**67.7**	**0.15**	**67**	**9.6**	**627,000**	**50.7**	**0.11**	**66**	**7.4**
Totals from LOW	3,430,932	2,062,000	358			7.2	1,683,000	302			5.9
LOW Average Values				0.23	140				0.19	144	
Atmospheric Deposition			35					35			
Total Loads to Lake Okeechobee			393					337			

a. Values shown in this table only account for contributions from the basins to Lake Okeechobee. It does not capture contributions from these basins to other basins or other surface waters.

b. Weighting factor (w) = S-68 / [(S-71) + (S-72) + (S-84)]. It was estimated based on annual values.

c. TP loads from the L-61E Basin are estimates based on downstream water qualilty data. Since flow is not available for this basin, loads were not included when computing the subwatershed- and watershed-wide FWMCs.

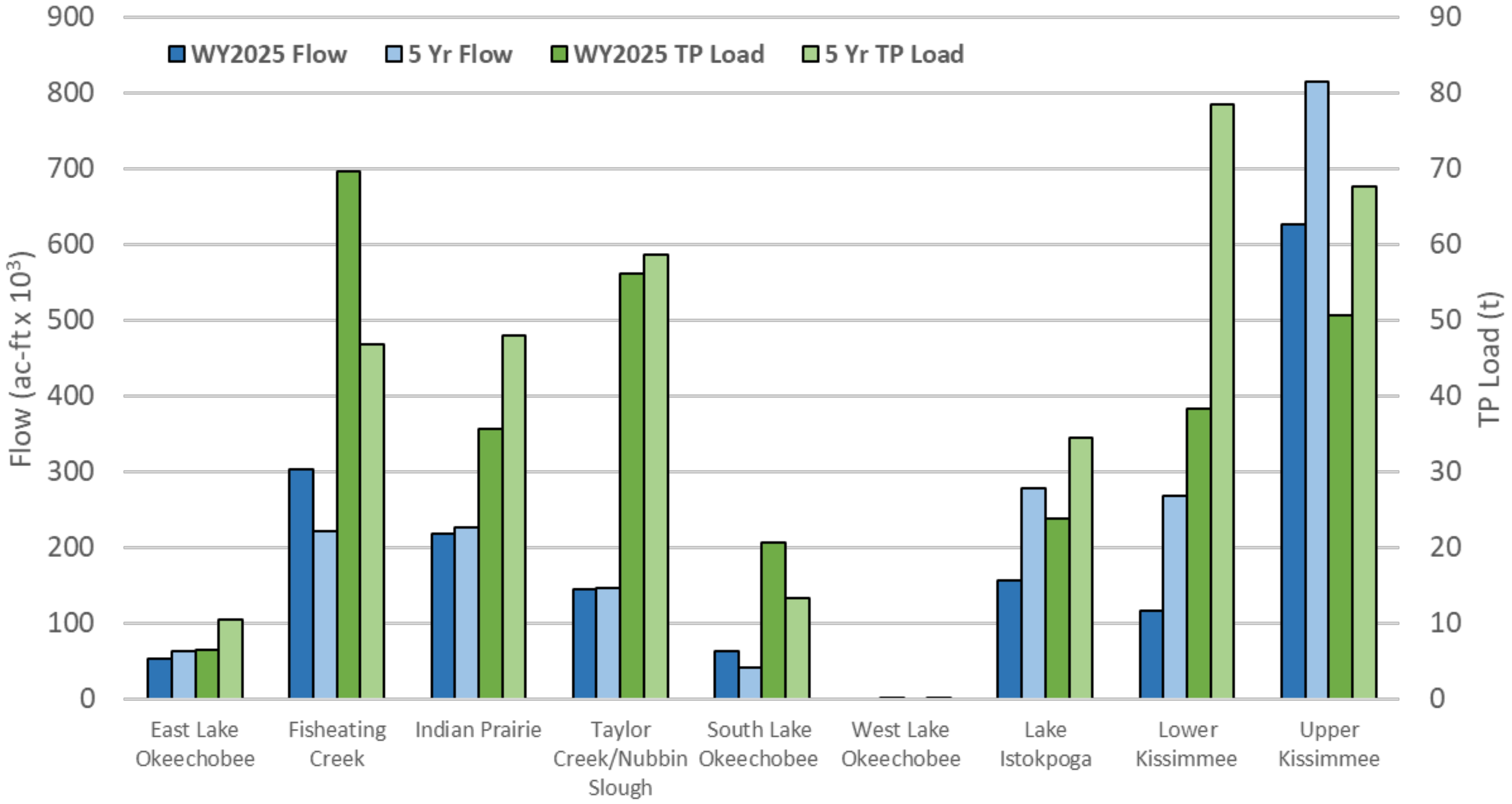


Figure 8B-25. The comparative values and 5-year average discharges in 1,000 ac-ft (x 10^3 ac-ft) and TP loads to Lake Okeechobee from the contributing subwatersheds in WY2025, and the 5-year averages for WY2021–WY2025.

During WY2025, the highest UAL of TP was from the Taylor Creek/Nubbin Slough Subwatershed (0.62 lb/ac), which also has the highest 5-year average UAL of TP (0.64 lb/ac), the highest FWMC of TP (313 µg/L), and the highest 5-year average TP FWMC (324 µg/L) (**Table 8B-7**). When comparing runoff (unit area flow) values at the subwatershed level, the highest surface runoff that reached the lake in WY2025 came from the Fisheating Creek (12.2 inches), while the highest runoff for the most recent 5-year period (WY2021–WY2025), was the Indian Prairie Subwatershed (9.8 inches) (**Table 8B-7**). There continues to be disproportionately high UALs from the Taylor Creek/Nubbin Slough Subwatershed, and these contributions may be exacerbated by drier conditions, which usually reduce the frequency of structure openings and, therefore, allow the accumulation and concentration of nutrients in the waterways upstream of the structures.

Annual Flow Volume and Total Phosphorus Data for the Most Recent 5 Years

The nutrient loading rates into Lake Okeechobee varied over the past 5 years due to various factors, mainly the climatic conditions (see Chapter 2A of this volume), but also land use changes and nutrient reduction projects within the LOW (Jones et al. 2023). **Figure 8B-26** shows the recent 5-year (WY2021–WY2025) average TP load and FWMC contributions for each subwatershed in the LOW and the proportion of total loads and flow for each. Comparisons of year-to-year values, the annual flow, TP load, TP UALs, and TP FWMC from each of nine subwatersheds are presented in **Table 8B-8**. Between WY2021 and WY2025, the Upper Kissimmee Subwatershed had the highest annual flow of 1,214,000 ac-ft in WY2023, while the Taylor Creek/Nubbin Slough Subwatershed had the highest annual TP load of 123 t in WY2021. The highest TP FWMC came from the Lower Kissimmee Subwatershed in WY2021 (412 µg/L) and the lowest TP FWMC was from the Upper Kissimmee Subwatershed, which has a 5-year average of 67 µg/L. In terms of the TP UAL, the Taylor Creek/Nubbin Slough Subwatershed had the highest value of 1.35 lb/ac in WY2021, and the Lower Kissimmee Subwatershed had the lowest value of 0.09 lb/ac in WY2022 (**Table 8B-8**). The UAL from the East, West, and South Lake Okeechobee subwatersheds were not ranked since they drain a small portion to the lake and deliver largely to the east, west, and south, respectively.

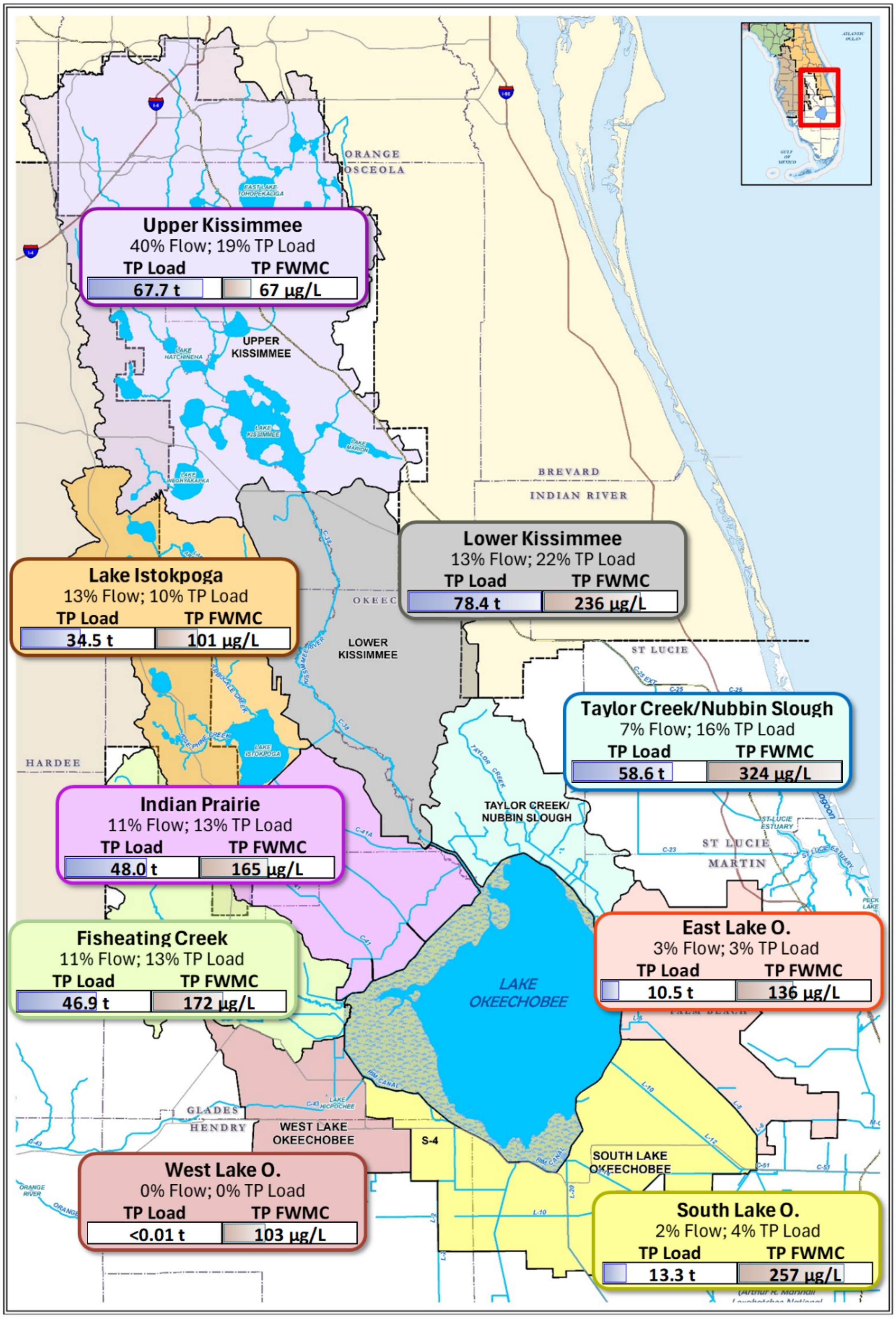


Figure 8B-26. Five-year average (WY2021–WY2025) relative flow and TP load contributions, expressed as percentages of total, by watershed. TP load and FWMC magnitudes are shown in bar graphs.

Table 8B-8. Annual flow volumes and TP loads, UAL, and FWMCs by subwatershed for WY2021–WY2025.

Water Year (May–April)	East Lake Okeechobee	Fisheating Creek	Indian Prairie [a]	Taylor Creek/ Nubbin Slough	South Lake Okeechobee	West Lake Okeechobee	Lake Istokpoga	Lower Kissimmee	Upper Kissimmee	Total
Area (ac)	232,038	298,694	276,579	201,259	357,871	221,689	394,203	428,886	1,019,713	3,430,932
Flows (x 10^3 ac-ft)										
WY2021	121	164	252	268	27	0.2	448	527	883	2,689
WY2022	65	157	168	122	27	-	282	101	690	1,611
WY2023	59	189	134	74	65	-	262	224	1,214	2,220
WY2024	15	292	364	123	29	-	244	379	659	2,105
WY2025	53	304	219	145	62	-	156	116	627	1,683
5 WY Average	63	221	227	146	42	0.0	278	269	815	2,062
5 WY %	3%	11%	11%	7%	2%	0%	13%	13%	40%	100%
TP Load (t)										
WY2021	24	28	68	123	8	0	46	120	68	485
WY2022	11	31	42	43	6	-	30	18	70	250
WY2023	9	53	30	33	23	-	42	114	99	403
WY2024	2	54	64	38	9	-	31	102	51	351
WY2025	6	70	36	56	21	-	24	38	51	302
5 WY Average.	10	47	48	59	13	0	35	78	68	358
5 WY %	3%	13%	13%	16%	4%	0%	10%	22%	19%	100%
UAL (lb/ac)										
WY2021	0.22	0.20	0.54	1.35	0.05	0.00	0.26	0.62	0.15	0.31
WY2022	0.11	0.23	0.33	0.47	0.04	0.00	0.17	0.09	0.15	0.16
WY2023	0.09	0.39	0.24	0.36	0.14	0.00	0.23	0.58	0.21	0.26
WY2024	0.02	0.40	0.51	0.41	0.06	0.00	0.17	0.52	0.11	0.23
WY2025	0.06	0.51	0.28	0.62	0.13	0.00	0.13	0.20	0.11	0.19
5 WY Average	0.10	0.35	0.38	0.64	0.08	0.00	0.19	0.40	0.15	0.23
TP FWMC (µg/L)										
WY2021	158	136	215	374	234	103	84	185	62	146
WY2022	141	158	192	283	189	-	86	142	83	125
WY2023	123	226	181	362	288	-	129	412	66	147
WY2024	108	150	139	249	253	-	103	218	62	134
WY2025	100	186	121	313	268	-	124	268	66	144
5 WY Avgerage	126	171	170	316	246	103	105	245	68	139
5 WY FWMC	136	172	165	324	257	103	101	236	67	140

a. TP loads from the L-61E Basin are estimates based on downstream water quuality data. Since flow is not available for this basin, loads were not included when computing the subwatershed- and watershed-wide FWMCs.

b. 5-WY FWMC is the overall FWMC for the 5-year period (calculated from 5-year load and 5-year flow).

Total Nitrogen Loading Data by Drainage Basin and Subwatershed

The TN loads to Lake Okeechobee for WY2025 and the most recent five water years (WY2021–WY2025) were calculated for the major drainage basins using data from the basin loading stations, as well as discharges from Lake Istokpoga and Lake Kissimmee. As shown in **Table 8B-9**, during WY2025, TN load to the lake from all drainage basins and atmospheric deposition (estimated as 1,233 t) was 4,868 t, which is below the 5-year average load of 5,280 t. At the subwatershed level the highest total TN load came from the Upper Kissimmee (1,151 t), followed by Fisheating Creek (626 t) in WY2025. While the basin with the highest individual TN load was the C-41A Basin (166 t) in the Indian Prairie Subwatershed.

During WY2025, the UAL of TN averaged 2.34 lb/ac for the LOW, lower than the 5-year average value of 2.60 lb/ac (**Table 8B-9**). At the drainage basin level, during WY2025, the highest UAL of TN was from the Industrial Canal Basin (11.74 lb/ac) in the South Lake Okeechobee Subwatershed followed by the C-40 Basin (9.05 lb/ac) in the Indian Prairie Subwatershed, The Industrial Canal Basin (10.22 lb/ac) also had the highest average UAL for the most recent 5 years. At the subwatershed level, the highest WY2025 UAL for TN was from the Fisheating Creek Subwatershed (4.62 lb/ac), while the Indian Prairie Subwatershed (4.26 lb/ac) had the highest 5-year average UAL (**Table 8B-9**).

The TN FWMCs in WY2025 averaged 1.75 mg/L for the LOW, which is higher than the 5-year average (1.59 mg/L) (**Table 8B-9**). At the drainage basin level, during WY2025, the S-3 Basin (5.50 mg/L) and the S-2 Basin (4.36 mg/L) in the South Lake Okeechobee Subwatershed had considerably higher TN FWMC's than the LOW average, which often occurred in water years when backpumping was necessary. For the most recent 5 years, the average value of the highest TN FWMC was the South Lake Okeechobee Subwatershed (2.98 mg/L) followed by the West Lake Okeechobee (2.09 mg/L) and Lake Istokpoga (1.98 mg/L) subwatersheds.

The comparative values of discharges and TN loads to Lake Okeechobee from each subwatershed for WY2025 are shown in **Figure 8B-27**. Some subwatersheds contributed a considerably higher percentage of the TP load to the lake than their contribution of total flows. The TN loads tend to follow a more proportional distribution, with the percent contribution of flows and TN loads being similar for most subwatersheds. However, while not as conspicuous as the TP loads, there continues to be higher TN UALs from the Indian Prairie, Taylor Creek/Nubbin Slough, and Lake Istokpoga subwatersheds due to relatively higher TN concentrations. For more information on TN concentrations within the LOW, see Appendix 8B-1 of this volume.

Annual Flow Volume and Total Nitrogen Data for the Most Recent 5 Years

The most recent 5-year (WY2021–WY2025) average TN load and FWMC contributions for each subwatershed in the LOW, and the proportion of total loads and flow for each are shown in **Figure 8B-28**. The annual flows, TN loads, TN UALs, and TN FWMCs from each of the nine subwatersheds are presented in **Table 8B-10**.

Table 8B-9. Five-year average (WY2021–WY2025) and WY2025 surface water inflows, TN loads, TN FWMCs, and TN UALs from the drainage basins and subwatersheds (SW) to Lake Okeechobee. [a]

Source	Area (ac)	WY2021–WY2025					WY2025				
		Flow (ac-ft)	TN Load (t)	TN UAL (lb/ac)	TN FWMC (mg/L)	Runoff (inches)	Flow (ac-ft)	TN Load (t)	TN UAL (lb/ac)	TN FWMC (mg/L)	Runoff (inches)
East Lake Okeechobee SW	**232,038**	**62,700**	**141.9**	**1.35**	**1.84**	**3.2**	**52,900**	**115.1**	**1.09**	**1.76**	**2.7**
C-44/S-153/Basin 8 (S-308 at St. Lucie Canal)	131,903	21,400	38.1	0.64	1.44		2,170	5.2	0.09	1.94	
L-8 Basin (Culvert 10A)	100,135	41,200	103.8	2.29	2.04		50,700	109.9	2.42	1.76	
Fisheating Creek SW	**298,694**	**221,000**	**465.1**	**3.43**	**1.71**	**8.9**	**304,000**	**625.9**	**4.62**	**1.67**	**12.2**
Fisheating Creek at Lakeport/L-61W Basin	298,694	221,000	465.1	3.43	1.71		304,000	625.9	4.62	1.67	
Indian Prairie SW	**276,579**	**227,000**	**535.0**	**4.26**	**1.87**	**9.8**	**219,000**	**489.5**	**3.90**	**1.77**	**9.5**
C-40 Basin [(S-72) – w * (S-72)] [b]	24,076	37,400	78.8	7.22	1.71		48,700	98.8	9.05	1.64	
C-41 Basin [(S-71) – w * (S-71)] [b]	116,632	46,600	137.4	2.60	2.39		59,600	160.9	3.04	2.19	
C-41A Basin [(S-84) – w * (S-84)] [b]	57,748	110,000	238.1	9.09	1.76		82,900	165.8	6.33	1.62	
L-48 Basin (S-127 total)	20,798	11,300	27.4	2.91	1.96		6,300	13.5	1.43	1.74	
L-49 Basin (S-129 total)	11,955	10,600	19.3	3.57	1.48		8,810	16.3	3.00	1.50	
L-59E Basin [(G-33) + (G-34)]	12,589	1,520	4.1	0.72	2.19		-	0.0	0.00	-	
L-59W Basin (G-74)	6,598	-	0.0	0.00	-		-	0.0	0.00	-	
L-60E Basin (G-75)	4,946	711	1.7	0.77	1.96		-	0.0	0.00	-	
L-60W Basin (G-76)	3,462	550	1.3	0.85	1.96		-	0.0	0.00	-	
L-61E Basin [c]	10,653	0	10.7	2.22	-		-	10.4	2.16	-	
S-131 Basin	7,122	9,020	16.0	4.96	1.44		13,000	23.7	7.34	1.48	
Taylor Creek/Nubbin Slough SW	**201,259**	**146,000**	**326.4**	**3.58**	**1.81**	**8.7**	**145,000**	**344.1**	**3.77**	**1.92**	**8.6**
S-133 Basin	25,650	28,200	62.0	5.33	1.78		24,200	53.8	4.62	1.80	
S-135 Basin	17,651	39,100	74.1	9.25	1.54		33,200	64.9	8.11	1.58	
S-154 Basin	31,815	18,200	47.9	3.32	2.13		18,800	57.6	3.99	2.48	
S-154C Basin	2,134	964	3.1	3.21	2.61		1,980	5.9	6.14	2.44	
S-191 Basin	124,009	59,900	139.3	2.48	1.89		67,300	161.9	2.88	1.95	

Table 8B-9. Continued.

Source	Area (ac)	WY2021–WY2025					WY2025				
		Flow (ac-ft)	TN Load (t)	TN UAL (lb/ac)	TN FWMC (mg/L)	Runoff (inches)	Flow (ac-ft)	TN Load (t)	TN UAL (lb/ac)	TN FWMC (mg/L)	Runoff (inches)
South Lake Okeechobee SW	**357,871**	**42,000**	**154.3**	**0.95**	**2.98**	**1.4**	**62,400**	**296.1**	**1.82**	**3.84**	**2.1**
715 Farms (Culvert 12A)	3,353	0	0.0	0.00	-		-	0.0	0.00	-	
East Beach Drainage District (Culvert 10)	6,657	3	0.0	0.00	3.88		-	0.0	0.00	-	
East Shore Drainage District (Culvert 12)	8,409	0	0.0	0.00	-		-	0.0	0.00	-	
Industrial Canal (S-310 in S-4 Basin)	13,144	22,200	60.9	10.22	2.23		22,000	70.0	11.74	2.58	
S-2 Basin	115,655	7,860	41.6	0.79	4.29		21,400	114.8	2.19	4.36	
S-3 Basin	65,889	5,620	33.6	1.13	4.85		13,900	94.0	3.14	5.50	
S-4 Basin	29,014	6,280	18.1	1.37	2.34		5,200	17.3	1.32	2.70	
South Florida Conservancy Drainage District (S-236)	9,931	-	0.0	0.00	-		-	0.0	0.00	-	
South Shore/South Bay Drainage District (Culvert 4A)	4,036	-	0.0	0.00	-		-	0.0	0.00	-	
S-5A Basin (S-352 West Palm Beach Canal)	101,783	-	0.0	0.00	-		-	0.0	0.00	-	
West Lake Okeechobee SW	**221,689**	**30**	**0.1**	**0.00**	**2.09**	**0.0**	**-**	**0.0**	**0.00**	**-**	**0.0**
East Caloosahatchee Basin (S-77)	196,445	30	0.1	0.00	2.09		-	0.0	0.00	-	
Nicodemus Slough North (Culvert 5)	19,329	-	0.0	0.00	-		-	0.0	0.00	-	
Nicodemus Slough South (Culvert 5A)	5,915	0	0.0	0.00	-		-	0.0	0.00	-	
Lake Istokpoga SW (S-68)	**394,203**	**278,000**	**679.6**	**3.80**	**1.98**	**8.5**	**156,000**	**454.0**	**2.54**	**2.36**	**4.7**
Lower Kissimmee SW [(S-65E) - (S-65)]	**428,886**	**269,000**	**387.1**	**1.99**	**1.17**	**7.5**	**116,000**	**159.9**	**0.82**	**1.12**	**3.2**
Upper Kissimmee SW (S-65)	**1,019,713**	**815,000**	**1357.7**	**2.94**	**1.35**	**9.6**	**627,000**	**1150.6**	**2.49**	**1.49**	**7.4**
Totals from LOW	3,430,932	2,062,000	4,047			7.2	1,683,000	3,635			5.9
LOW Average Values				2.60	1.59				2.34	1.75	
Atmospheric Deposition			1,233					1,233			
Total Loads to Lake Okeechobee			5,280					4,868			

a. Values shown in this table only account for contributions from the basins to Lake Okeechobee. It does not capture contributions from these basins to other basins or other surface waters.

b. Weighting factor (w) = S-68 / [(S-71) + (S-72) + (S-84)]. It was estimated based on annual values.

c. TN loads from the L-61E Basin are estimates based on downstream water quality data. Since flow is not available for this basin, loads were not included when computing the subwatershed- and watershed-wide FWMCs.

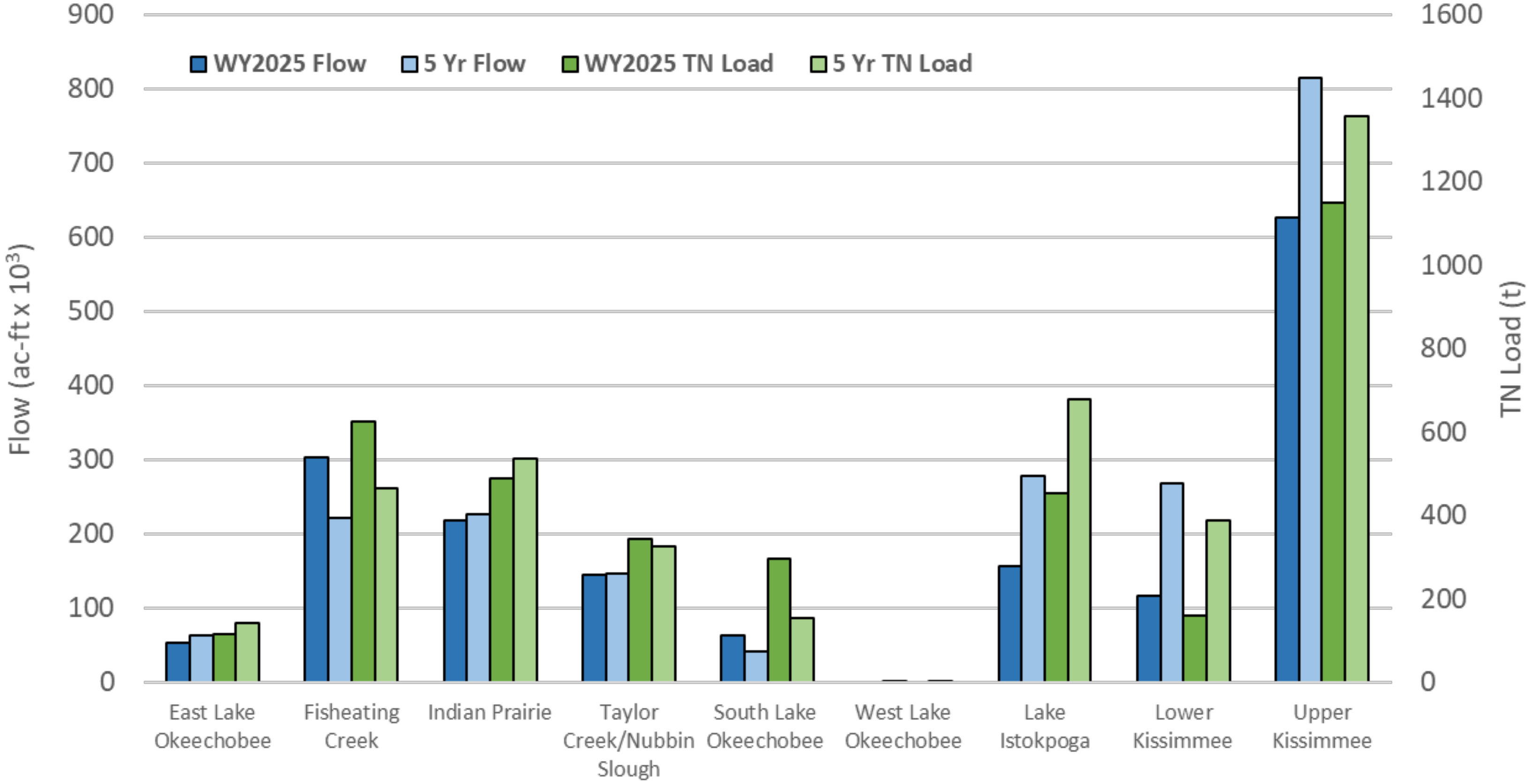


Figure 8B-27. The comparative values and 5-year average discharges in 1,000 ac-ft (x 10^3 ac-ft) and TN loads to Lake Okeechobee from the contributing subwatersheds in WY2025, and the 5-year averages for WY2021–WY2025.

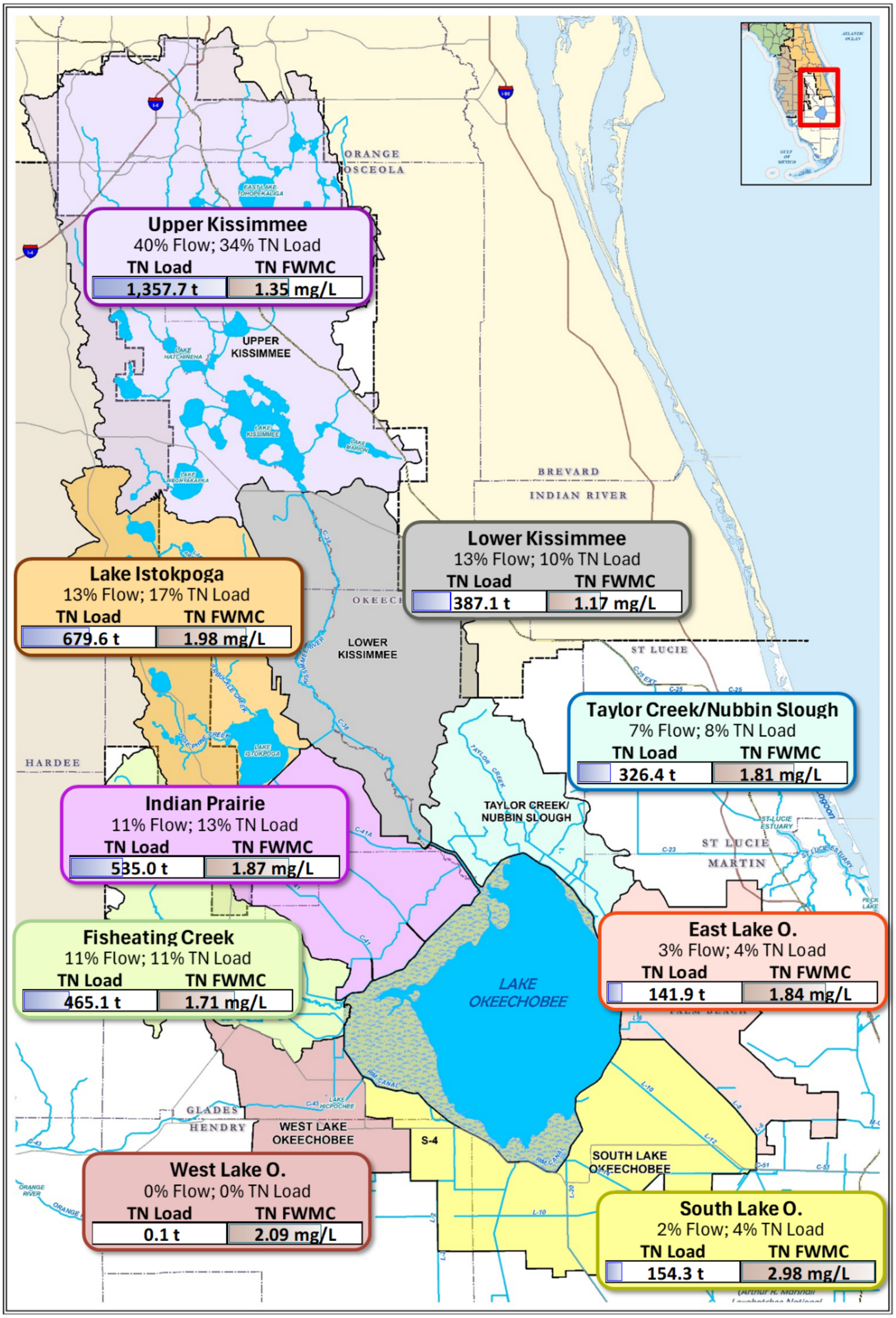


Figure 8B-28. Summary of 5-year average (WY2021–WY2025) flow and TN contributions from each subwatershed.

Table 8B-10. Annual flow volumes, and TN loads, UAL, and FWMCs by subwatershed for WY2021–WY2025.

Water Year (May–April)	East Lake Okeechobee	Fisheating Creek	Indian Prairie [a]	Taylor Creek/ Nubbin Slough	South Lake Okeechobee	West Lake Okeechobee	Lake Istokpoga	Lower Kissimmee	Upper Kissimmee	Total
Area (ac)	232,038	298,694	276,579	201,259	357,871	221,689	394,203	428,886	1,019,713	3,430,932
Flow (x 10^3 ac-ft)										
WY2021	121	164	252	268	27	0.2	448	527	883	2,689
WY2022	65	157	168	122	27	-	282	101	690	1,611
WY2023	59	189	134	74	65	-	262	224	1,214	2,220
WY2024	15	292	364	123	29	-	244	379	659	2,105
WY2025	53	304	219	145	62	-	156	116	627	1,683
5 WY Average	63	221	227	146	42	0.0	278	269	815	2,062
5 WY %	3%	11%	11%	7%	2%	0%	13%	13%	40%	100%
TN Load (t)										
WY2021	279	348	595	607	80	0	996	724	1,431	5,062
WY2022	160	330	393	259	72	0	635	-	1,300	3,117
WY2023	127	430	480	168	247	0	684	314	1,917	4,368
WY2024	29	591	717	254	76	0	629	768	990	4,054
WY2025	115	626	489	344	296	0	454	160	1,151	3,635
5 WY Average	142	465	535	326	154	0	680	387	1,358	4,047
5 WY %	4%	11%	13%	8%	4%	0%	17%	10%	34%	100%
UAL (lb/ac)										
WY2021	2.65	2.57	4.75	6.65	0.49	0.00	5.57	3.72	3.09	3.25
WY2022	1.52	2.44	3.13	2.84	0.44	0.00	3.55	-0.16	2.81	2.00
WY2023	1.21	3.18	3.83	1.84	1.52	0.00	3.82	1.62	4.15	2.81
WY2024	0.28	4.36	5.71	2.78	0.47	0.00	3.52	3.95	2.14	2.60
WY2025	1.09	4.62	3.90	3.77	1.82	0.00	2.54	0.82	2.49	2.34
5 WY Average	1.35	3.43	4.26	3.58	0.95	0.0008	3.80	1.99	2.94	2.60
TN FWMC (mg/L)										
WY2021	1.87	1.72	1.91	1.84	2.43	2.09	1.80	1.11	1.31	1.53
WY2022	1.99	1.71	1.85	1.72	2.14	-	1.83	-	1.53	1.56
WY2023	1.74	1.84	2.88	1.85	3.11	-	2.12	1.14	1.28	1.59
WY2024	1.53	1.64	1.53	1.67	2.14	-	2.09	1.64	1.22	1.55
WY2025	1.76	1.67	1.77	1.92	3.84	-	2.36	1.12	1.49	1.75
5 WY Average	1.78	1.72	1.99	1.80	2.73	2.09	2.04	0.95	1.37	1.60
5 WY FWMC	1.84	1.71	1.87	1.81	2.98	2.09	1.98	1.17	1.35	1.59

a. TN loads from L-61E Basin in the Indian Prairie Subwatershed were estimated for these water years, therefore, these loads were not included when computing the subwatershed- and watershed-wide FWMCs.

b. 5-WY FWMC is the overall FWMC for the 5-year period (calculated from 5-year load and 5-year flow).

PART III: LAKE OKEECHOBEE WATERSHED CONSTRUCTION PROJECT

In accordance with the NEEPP, beginning March 1, 2020, and every 5 years thereafter, SFWMD shall update the Lake Okeechobee Watershed Protection Plan (LOWPP) to ensure that it is consistent with the Lake Okeechobee BMAP adopted pursuant to Section 403.067, F.S. SFWMD completed the most recent update in March 2025 (Welch et al. 2025). The next 5-year update is due on March 1, 2030. Since 2020, SFWMD also conducts annual reviews of the Lake Okeechobee Watershed Construction Project (LOWCP), which consists of projects and programs to improve the hydrology and water quality of Lake Okeechobee and downstream receiving waters, including the Caloosahatchee and St. Lucie River estuaries. These annual reviews are critical to maintain transparency and accountability in the BMAP process and to assist in progressively achieving TMDLs.

Part III of Chapter 8B describes how the collective efforts of the Coordinating Agencies—FDEP, FDACS, and SFWMD—contribute to the LOWPP and documents progress made for the reporting period. Information is summarized within the following subsections:

- Overview of Project Benefits
- Overview of Programs
- Subwatershed Updates

The LOWCP is SFWMD's comprehensive strategy for tracking project and program benefits (e.g., water storage/attenuation and nutrient reductions) and planning new efforts to assist in achieving the Lake Okeechobee TMDL and other watershed restoration objectives. This iterative strategy utilizes an adaptive management approach consistent with FDEP's BMAP process and the Florida Watershed Restoration Act, Subparagraph 403.067(7)(a)1, F.S. The LOWCP annual review considers the latest results of the RWQMP (Parts I and II above) and project-specific monitoring to verify project benefits and identify new projects. This approach achieves improved hydrology, water quality, and aquatic habitat through implementation of projects and programs while simultaneously monitoring system conditions and researching important environmental dynamics (sources and response variables) for improved management.

A key aspect of the annual LOWCP review is the subwatershed updates. The objective of the updates is to relate project and program activities within each subwatershed to measured progress in hydrology and water quality metrics. The sections below present subwatershed characteristics such as a description of the regional drainage system and basin-level monitoring stations. Information on subwatershed upstream-level monitoring stations can be found in Appendix 8B-1 of this volume. Subwatershed updates also present an inventory of Coordinating Agencies projects and associated attributes including location, status (e.g., planning, design, construction, and operation), and project benefits (storage and nutrient reductions).

Subwatershed updates also lay the foundation for more detailed assessments, which focus additional resources on priority areas by gathering information, identifying water quality concerns, evaluating existing and planned projects, and recommending strategic actions where deficits can be identified. Two assessments in the LOW were published in April 2023 (SFWMD 2023, Olson et al. 2023). Additionally, a high-level assessment for the LOW was presented in Appendix 8B-4 of the 2025 LOWPP 5-Year Update (Olson et al. 2025a). The *Focus Assessment Report for the Upper Kissimmee Subwatershed* and the *Focus Assessment Report for the Lower Kissimmee Subwatershed* were both published in November 2025 (Olson et al. 2025b, c). All the assessment reports are available at www.sfwmd.gov/wpps (see the *Key Information and References, Focus Area Assessments* section). Further detailed assessments for remaining priority areas are underway.

OVERVIEW OF PROJECT BENEFITS

As hydrologic and water quality concerns are identified, this information is used to develop new projects, refine existing projects. and make effective progress in achieving watershed objectives (e.g. Lake Okeechobee TMDL, lake stage ecological envelope). Of the nine subwatersheds that comprise the LOW, most projects providing direct benefit to Lake Okeechobee are located in the six subwatersheds north of the lake. These six subwatersheds also contribute the majority of the total flow volume and nutrient load to Lake Okeechobee as shown above (**Figures 8B-26** and **8B-28**). Projects in the East, West, and South Lake Okeechobee subwatersheds are typically managed for downstream water bodies where the primary flow is ultimately directed. Projects located within these subwatersheds are discussed in the associated chapters within this volume for the primary receiving bodies: St. Lucie River Estuary (Chapter 8C), Caloosahatchee River Estuary (Chapter 8D), and the Everglades Protection Area (Chapters 4 and 5A).

The LOWCP static storage target is 900,000 to 1,300,000 ac-ft (SFWMD et al. 2008, Frye et al. 2025), and the TMDL target for the 5-year average TP load is 140 t (FDEP 2001). Static storage in a water detention project is defined as the volume retained at maximum capacity, usually up to the point of discharge. In contrast, dynamic storage considers the total volume held throughout a particular period (i.e., a water year), considering storage changes from hydrologic conditions and project operations, and it is typically reported to assess performance over time (**Figure 8B-29**). Both types of storage are presented in the tables below. In some instances, initial estimates for dynamic storage match the static storage until the project is further along in design or operational.

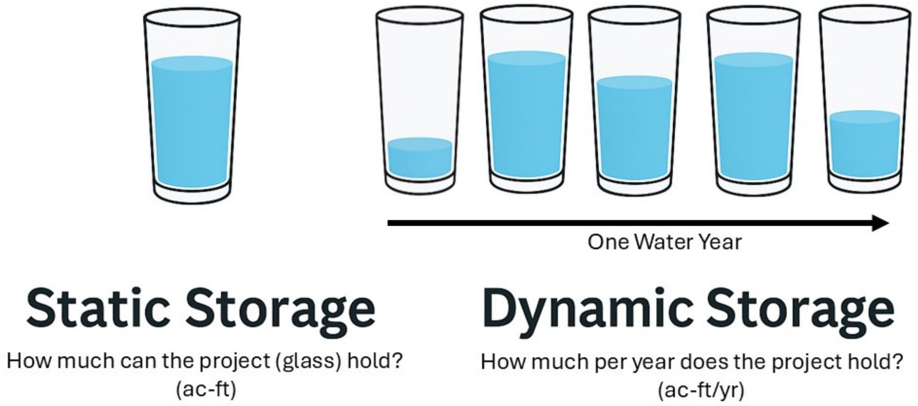


Figure 8B-29. Conceptual illustration of static versus dynamic storage.

As part of the 2025 LOWPP 5-Year Update, SFWMD undertook a comprehensive reevaluation of storage in the Northern Everglades watersheds. The reevaluation built upon the *Lake Okeechobee Watershed Construction Project Phase II Technical Plan* (SFWMD et al. 2008) and utilized the Regional Simulation Model – Basins (RSMBN) to evaluate existing, future, and various potential alternatives. The RSMBN assessment included an updated evaluation of existing LOWCP planning targets (900,000 to 1,300,000 ac-ft of static storage) and estimated the impact of planned and conceptual water storage and treatment projects to improve watershed objectives (e.g., lake stage ecological envelope, estuary salinity targets). The LOWCP storage planning target of 900,000 to 1,300,000 ac-ft includes 50,000 ac-ft of storage in existing operational projects, 369,000 ac-ft of storage in future planned projects, and 481,000 to 881,000 ac-ft of unmet storage needs to be developed and implemented as part of the iterative LOWCP process. Additional information regarding the Northern Everglades and Estuaries Protection Planning and Regional Simulation Model Update can be found in the final 2025 SFER – Volume I, Appendix 8A-1 (Frye et al. 2025). Note the model static storage numbers may not reflect storage numbers presented in **Table 8B-11** as the model represents a certain point in time. The static storage numbers in **Table 8B-11** include the latest information.

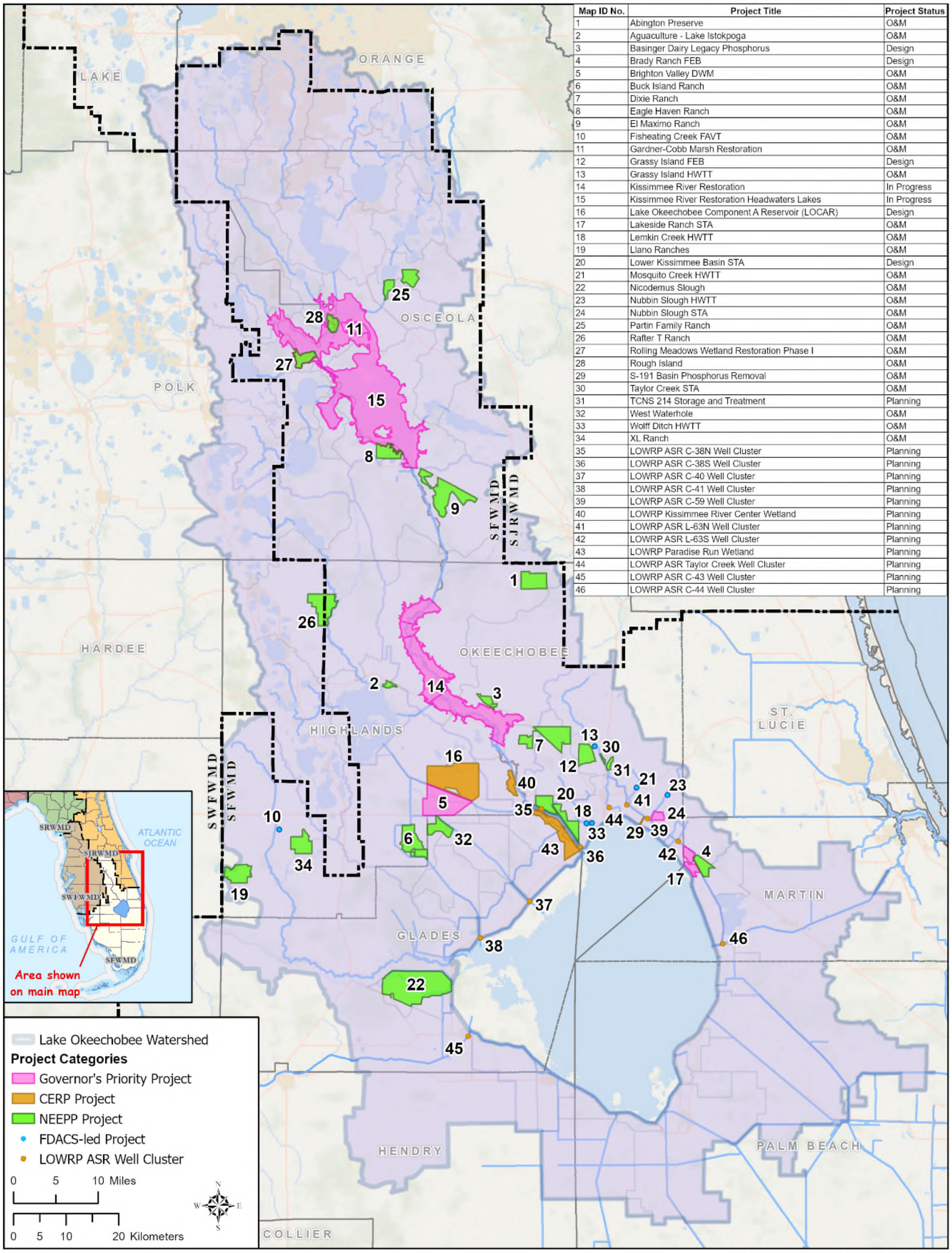
A summary of WY2025 project reductions, storage, and estimated project benefits are provided in **Table 8B-11**. Note, in this table and throughout data reporting in this section, WY2025 dynamic storage and nutrient (TP and TN) removal reflect measured data collected for projects in operation. Also, note that **Tables 8B-11**, **8B-13**, **8B-15**, **8B-17**, **8B-19**, **8B-21**, **8B-23**, and **8B-25** include information on planned as well as operating projects for static storage, estimated dynamic storage, and the estimated nutrient removals. Inclusion of planning estimates for future projects provides the information needed to determine how much and where future reductions are expected, which informs project decision making. Also, as part of the protection plan process, future project reductions are compared to water quality data to determine where additional projects are needed (Olson et al. 2025a). It should also be noted that project planning estimates are based on long-term timeframes, five years or more and are developed using an assortment of methods each having a wide variety of assumptions. Actual annual project performance can vary from year to year based on rainfall, hydrology, operations, etc., so the results can be higher or lower than the estimated long-term averages. In the LOW Select Coordinating Agency projects removed an estimated 28.9 t of TP load and 265.6 t of TN load from operating projects in WY2025. FDEP's *2024 Statewide Annual Report on Total Maximum Daily Loads, Basin Management Action Plans, Minimum Flows or Minimum Water Levels, and Recovery or Prevention Strategies* (FDEP 2025) provides the estimated total TP and TN reductions from all completed and ongoing BMAP projects through December 31, 2024. The Lake Okeechobee BMAP (FDEP 2020) states: "To achieve the TMDL in 20 years, stakeholders must identify and submit additional local projects and the Coordinating Agencies (DEP, Florida Department of Agriculture and Consumer Services [FDACS], and South Florida Water Management District [SFWMD]) must identify additional regional projects as well as determine the significant funding that will be necessary. Enhancements to programs addressing basinwide sources will also be required." Additional reductions can be accomplished through projects and programs implemented by local BMAP stakeholders and the Coordinating Agencies. An overview of the LOW and select Coordinating Agency projects is provided in **Figure 8B-30**. Refer to the Lake Okeechobee BMAP (FDEP 2020) and Statewide Annual Report (FDEP 2025) for a comprehensive list of other local stakeholder projects.

Table 8B-11. Estimates of static storage, dynamic storage, and estimated nutrient removal for planned and existing projects along with WY2025 storage and nutrient removal estimates for select Coordinating Agencies' existing projects in each subwatershed.

Subwatershed	Project Static Storage (ac-ft)	Project Estimated Dynamic Storage (ac-ft/yr)	WY2025 Dynamic Storage (ac-ft/yr)	Estimated TP Removal (t/yr)	WY2025 TP Removal Performance (t/yr)	Estimated TN Removal (t/yr)	WY2025 TN Removal Performance (t/yr)
Upper Kissimmee	6,932	10,244	4,824	0.8	0.4	6.6	8.9
Lower Kissimmee	6,171	3,212	381	2.6	0.1	7.8	0.5
Taylor Creek/Nubbin Slough	17,061	36,075	8,372	67.3	16.6	121.6	55.6
Lake Istokpoga	1,517	3,347	2,590	4.7	1.3	4.1	29.0
Indian Prairie	215,674	223,502	43,018	14.2	5.5	78.5	92.7
Fisheating Creek	2,477	4,323	2,369	3.2	1.2	22.6	12.5
West Lake Okeechobee [a]	14,300	24,600	33,887	2.2	3.7	37.4	66.6
East Lake Okeechobee [a]	-	-	-	-	-	-	-
South Lake Okeechobee [a]	-	-	-	-	-	-	-
Regional Projects	-	153,000	-	-	-	-	-
Lake Okeechobee Totals [b]	**264,131**	**458,303**	**95,441**	**95.0**	**28.9**	**278.6**	**265.6**

a. Projects located in the East, West, and South Lake Okeechobee subwatersheds primarily benefit other receiving water bodies where their flow is ultimately directed. Therefore, projects located within these subwatersheds are discussed in the relevant chapters (Chapters 8C and 8D of this volume).

b. Totals do not include projects where information is unavailable and do not include other BMAP efforts within the watershed. The estimated storage and nutrient removal totals include planning numbers.



Map ID No.	Project Title	Project Status
1	Abington Preserve	O&M
2	Aguaculture - Lake Istokpoga	O&M
3	Basinger Dairy Legacy Phosphorus	Design
4	Brady Ranch FEB	Design
5	Brighton Valley DWM	O&M
6	Buck Island Ranch	O&M
7	Dixie Ranch	O&M
8	Eagle Haven Ranch	O&M
9	El Maximo Ranch	O&M
10	Fisheating Creek FAVT	O&M
11	Gardner-Cobb Marsh Restoration	O&M
12	Grassy Island FEB	Design
13	Grassy Island HWTT	O&M
14	Kissimmee River Restoration	In Progress
15	Kissimmee River Restoration Headwaters Lakes	In Progress
16	Lake Okeechobee Component A Reservoir (LOCAR)	Design
17	Lakeside Ranch STA	O&M
18	Lemkin Creek HWTT	O&M
19	Llano Ranches	O&M
20	Lower Kissimmee Basin STA	Design
21	Mosquito Creek HWTT	O&M
22	Nicodemus Slough	O&M
23	Nubbin Slough HWTT	O&M
24	Nubbin Slough STA	O&M
25	Partin Family Ranch	O&M
26	Rafter T Ranch	O&M
27	Rolling Meadows Wetland Restoration Phase I	O&M
28	Rough Island	O&M
29	S-191 Basin Phosphorus Removal	O&M
30	Taylor Creek STA	O&M
31	TCNS 214 Storage and Treatment	Planning
32	West Waterhole	O&M
33	Wolff Ditch HWTT	O&M
34	XL Ranch	O&M
35	LOWRP ASR C-38N Well Cluster	Planning
36	LOWRP ASR C-38S Well Cluster	Planning
37	LOWRP ASR C-40 Well Cluster	Planning
38	LOWRP ASR C-41 Well Cluster	Planning
39	LOWRP ASR C-59 Well Cluster	Planning
40	LOWRP Kissimmee River Center Wetland	Planning
41	LOWRP ASR L-63N Well Cluster	Planning
42	LOWRP ASR L-63S Well Cluster	Planning
43	LOWRP Paradise Run Wetland	Planning
44	LOWRP ASR Taylor Creek Well Cluster	Planning
45	LOWRP ASR C-43 Well Cluster	Planning
46	LOWRP ASR C-44 Well Cluster	Planning

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Figure 8B-30. Overview of the LOW and select Coordinating Agencies projects.
(Notes: Circles depicted on map are centroids of the general location and do not represent the boundary for project area. Key to abbreviations: ASR – Aquifer Storage and Recovery; DWM – Dispersed Water Management; FAVT – Floating Aquatic Vegetation Tilling; FEB – Flow Equalization Basin; HWTT – Hybrid Wetland Treatment Technology; LOWRP – Lake Okeechobee Watershed Restoration Project; O&M – Operations and Maintenance; and STA – Stormwater Treatment Area.)

Regional Projects

For the purpose of this chapter, regional projects include large-scale efforts that impact more than one subwatershed. Projects that reside within a single subwatershed are included in the relevant *Subwatershed Updates* subsections below. Regional projects in the LOW include the Kissimmee River Restoration Project (KRRP) and Lake Okeechobee Watershed Restoration Project (LOWRP). These are federal projects with specific purposes that do not have a defined water quality benefit.

KRRP is a major, regional project shared equally between USACE and SFWMD. Final phases of construction were completed in 2021 and physically restored one-third of the Kissimmee River and its floodplain after the river was channelized in the 1960s. A new stage regulation schedule for the S-65 structure, the Kissimmee River Headwaters Revitalization Schedule, will be incrementally implemented to allow successively higher stages in Lakes Kissimmee, Cypress, and Hatchineha and reestablish historic flow patterns to the Kissimmee River. Notably, the first incremental increase was approved and implemented in August 2024 by USACE in coordination with SFWMD. For full details on the KRRP and Kissimmee River Headwaters Revitalization Schedule, please see Chapter 9 of this volume.

LOWRP is supported through a partnership between USACE and SFWMD to increase water storage capacity in the LOW, improve water levels in Lake Okeechobee, improve the quantity and timing of discharges to the St. Lucie and Caloosahatchee river estuaries, and restore wetlands. The current recommended plan includes two primary components: (1) up to 55 aquifer storage and recovery (ASR) wells and (2) approximately 5,900 ac of wetland restoration along the Kissimmee River (Kissimmee River Center and Paradise Run). The Florida legislature has appropriated funding for the design, engineering, and construction of specific LOWRP components.

SFWMD began advancing ASR exploration in the LOW in 2019 with siting evaluations, continuous cores, and test wells that have been completed at several well cluster locations. However, the LOWRP ASR Well Program has a number of uncertainties and risks that are being addressed through a stepwise scientific approach. The first peer reviewed ASR Science Plan was published in June 2021 (SFWMD and USACE 2021), and the second plan was finalized after input from the ASR peer review panel and released on October 31, 2024, for a 30-day review, ending on December 1, 2024 (SFWMD and USACE 2024). The final version of the ASR Science Plan Version 2 includes additional studies proposed by the United States Army Engineer Research and Development Center (ERDC) to assist in addressing the uncertainties with ASR technology. Estimated storage benefits for LOWRP ASR wells are included under "Regional Projects" in **Table 8B-11.** While the 2022 project implementation report, indicated a maximum project storage of 308,000 ac-ft (SFWMD and USACE 2022), SFWMD determined from modeling that the annual average storage is estimated to be 153,000 ac-ft (Frye et al. 2025) as shown in **Table 8B-11**. Further details on regional LOWRP progress can be found at https://www.sfwmd.gov/our-work/cerp-project-planning/lowrp and further information on ASR can be found at Aquifer Storage and Recovery | South Florida Water Management District.

OVERVIEW OF PROGRAMS

Table 8B-12 provides an overview of existing nutrient source control programs. These incentive-based and regulatory programs of the Coordinating Agencies are essential for controlling nutrients at the source and reducing nutrient loads to Lake Okeechobee. Both point and nonpoint nutrient sources are addressed through these collective programs (SFWMD et al. 2011). SFWMD is responsible for two source control programs: (1) Environmental Resource Permitting (ERP) and (2) Chapter 40E-61, Florida Administrative Code (F.A.C.). Updates on FDACS and FDEP programs can be found in Chapter 8A of this volume.

SFWMD's ERP program regulates any activity involving the alteration of surface water flows and includes residential and commercial development, roadway construction, and agriculture. An operating agreement specifies the division of responsibilities between FDEP and SFWMD and is used to determine which agency processes the ERP applications. Senate Bill 712 required FDEP and the water management districts to initiate rulemaking to update ERP rules to include best management practices (BMPs) and design criteria to increase the removal of nutrients from stormwater discharges. In response, SFWMD published a Notice of Rule Development regarding Rule 40E-4.091 on December 18, 2020. SFWMD has updated the *Environmental Resource Permit Applicant's Handbook Volume II for Use within the Geographic Limits of the South Florida Water Management District* (SFWMD 2024a) in conjunction with FDEP's rulemaking effort in accordance with Section 5 of Chapter 2020-150, Laws of Florida, to update the stormwater design and operation regulations adopted under Section 373.4131, F.S., using the most recent scientific information available. FDEP and SFWMD have developed amendments to update the stormwater design and operation regulations and have considered and addressed low-impact design BMPs and design criteria that increase the removal of nutrients from stormwater discharges, and measures for consistent application of the net improvement performance standard to ensure significant reductions of any pollutant loadings to a water body. FDEP's rulemaking includes amendments to Chapter 62-330, F.A.C., and the *Environmental Resource Permit Applicant's Handbook Volume I (General and Environmental)* (FDEP et al. 2018) that applies statewide. SFWMD adopted its rule on April 13, 2023, and FDEP adopted its rule on April 28, 2023. Senate Bill 7040 ratified the rule, which became effective on June 28, 2024.

Under the 2016 NEEPP legislation, SFWMD was directed to amend Chapter 40E-61, F.A.C., to provide a monitoring program for nonpoint source dischargers that are required to monitor water quality under Section 403.067, F.S. In 2020, SFWMD conducted a series of public workshops related to the amendments, and amendments to Chapter 40E-61 became effective in April 2021. The rules were expanded to encompass the entirety of the three Northern Everglades watersheds and provide a monitoring program for nonpoint source dischargers not implementing BMPs to submit a SFWMD-approved water quality monitoring plan and regularly report associated monitoring data.

Table 8B-12. Overview of Northern Everglades source control programs.

Source Control Program Name	Responsible Entity	Description
FDACS BMP Program	FDACS	FDACS develops and adopts BMPs by rule for different types of agricultural commodities and utilizes cost-share programs to encourage enrollment in their agricultural nonpoint source BMP programs. Agricultural operations enrolled in the FDACS BMP Program are presumed compliant with state water quality standards, pursuant to Chapter 403.067, F.S.
Urban Turf Fertilizer Rule	FDACS	The Urban Turf Fertilizer Rule is a statewide regulatory program targeting nonpoint source phosphorus in urban discharge. The rule, which is led by FDACS and was adopted in 2007, limits the phosphorus and nitrogen content of fertilizers used for urban turf and lawns.
Biosolids Rule (formerly Land Application of Residuals Rule)	FDEP	FDEP adopted amendments to Chapter 62-640, F.A.C., which improves site accountability and management of biosolids. The rule became effective in June 2021.
Florida Yards and Neighborhoods	FDEP	Through the Florida Yards and Neighborhoods Program, a sub-program of the Florida-Friendly Landscaping Program, citizens and developers learn about proper landscape design to reduce the use of pesticides, fertilizers, and irrigation.
Environmental Resource Permitting Regulatory Program	SFWMD	An Environmental Resource Permit is required for development or construction activities to prevent flooding, protect the water quality of Florida's lakes and streams from stormwater pollution, and protect wetlands and other surface waters.
National Pollution Discharge Elimination System (NPDES) Stormwater Program	FDEP	Federal program established by Section 402 of the Clean Water Act. The NPDES Stormwater Program requires point source dischargers to obtain permits that place limits on the type and quantity of pollutants that can be released into the nation's waters. USEPA has delegated authority to FDEP to administer the NPDES Program in the State of Florida.
Comprehensive Planning – Land Development Regulations	FDEP	Watershed-wide work with cities and counties to review current comprehensive plans, plan amendments, and reports in order to eliminate, reduce, or mitigate adverse impacts to water bodies, wetlands, and Everglades restoration efforts, among other important state resources. For more information on FDEP's comprehensive planning and land development regulation efforts, please visit https://floridadep.gov/oip/oip/content/comprehensive-plan.
Agricultural Conservation Easement Program	United States Department of Agriculture Natural Resources Conservation Services	The 2014 Farm Bill streamlined and consolidated three former programs (Wetlands Reserve Program, Grassland Reserve Program, and Farm and Ranch Land Protection Program) into the new Agricultural Conservation Easement Program. Although these programs were consolidated in the 2014 Farm Bill, all existing easements remain valid.
Northern Everglades Basins, Chapter 40E-61, F.A.C.	SFWMD	Chapter 40E-61, F.A.C., Northern Everglades Basins (formerly the Lake Okeechobee Works of the District Rule) was originally authorized by the Surface Water and Improvement Management Act (1987), which became NEEPP in 2007. Amendments to Chapter 40E-61 became effective in April 2021. Rules were expanded to encompass the three Northern Everglades watersheds and provide a monitoring program for nonpoint source dischargers not implementing BMPs to submit a SFWMD-approved water quality monitoring plan and report associated monitoring data.
Environmental Resource Permit Program (Water Quality) – Statewide Stormwater Rule	FDEP	Also known as the Statewide Environmental Resource Program. The rule became effective in July 2024, and addresses minimum performance standards for nutrients (TP, TN) and total suspended solids, stormwater management system design flexibilities, and maintenance and operations requirements.
Environmental Resource Permitting Program (Hydrology) - Northern Everglades Discharge Volume BMPs	SFWMD	The purpose of this management measure is to ensure that stormwater discharges from new development activities do not increase average annual pollutant loading to downstream Outstanding Florida Waters and water bodies not achieving standards. In August 2014, the *Environmental Resource Permit Applicant's Handbook, Volume II for Use within the Geographic Limits of the South Florida Water Management District*, was amended to codify the pre-existing guidance memorandum. In June 2024, relevant portions of Chapter 62-330, F.A.C., *Environmental Resource Permit Applicant's Handbook Volume I (General Environmental)* and *Environmental Resource Permit Applicant's Handbook, Volume II for Use within the Geographic Limits of the South Florida Water Management District* were amended to adopt new statewide water quality performance standards to ensure that stormwater discharges from new development activities do not increase average annual pollutant loading to any downstream water body.

SUBWATERSHED UPDATES

A subwatershed update is presented for each of the nine subwatersheds within the LOW: Upper Kissimmee, Lower Kissimmee, Taylor Creek/Nubbin Slough, Lake Istokpoga, Indian Prairie, Fisheating Creek, East Lake Okeechobee, West Lake Okeechobee, and South Lake Okeechobee. General hydrologic characteristics are described and comprehensive updates for LOWCP projects are provided for each subwatershed.

Each section presents updates for projects where SFWMD is the lead agency or provides funding and other select Coordinating Agency projects. Closed projects that are no longer active and providing water quality benefits are not included in the tables.

The first table in each subwatershed subsection provides general information about the projects and lists the status as of the end of FY2025. Projects may be described as passive storage, when the primary objective is to retain direct rainfall and reduce runoff to the regional system, or active storage where project inflow is actively pumped from the regional drainage system into the project for storage. This table also contains available information for storage capacity (static and dynamic) and nutrient retention associated with each project and is summarized for each subwatershed. Note that all subwatersheds are also aggregated in **Table 8B-11**. Project estimates represent expected long-term annual average performance based on observed data or a modeled simulation. Project-specific monitoring data are analyzed to determine actual WY2025 project benefits. In addition to the benefits quantified here, projects may provide a myriad of secondary benefits such as wetland hydration, groundwater recharge, and flow attenuation, among others. A detailed description of all projects is presented at the end of this chapter in **Table 8B-27**.

The second table in each subwatershed section displays a project timeline including the project phase(s) for the previous 10 fiscal years and projected phase(s) for the next 5 fiscal years. Associated costs for each project, including total project costs and planned 5-year (FY2026–FY2030) funding information for SFWMD-funded BMAP projects, are presented in Volume II, Appendix 5A-1.

Lastly, results from SFWMD's comprehensive upstream monitoring program within each subwatershed of the LOW can be found in Appendix 8B-1 of this volume.

Upper Kissimmee Subwatershed

The Upper Kissimmee Subwatershed is approximately 1,019,713 ac and is the northernmost subwatershed in the LOW. It consists of multiple lakes that make up the "Upper Chain of Lakes" in this region. Throughout this subwatershed, the general flow direction is south and usually flowing from one lake to the next. Most of the major lakes have small, gated structures operated by SFWMD to control flows to and from lakes. Flow from the Upper Kissimmee Subwatershed is controlled by the S-65 structure located at the southern boundary of the subwatershed and immediately downstream of Lake Kissimmee along the C-38 Canal or Kissimmee River. Flow and nutrient observations made at S-65 are used to calculate the annual nutrient loads from the Upper Kissimmee Subwatershed. The ability of Lake Kissimmee to be a phosphorus sink or a source is not known.

SFWMD projects within the Upper Kissimmee Subwatershed are displayed in **Figure 8B-31** and described in **Table 8B-13**. A timeline for each project and FY2025 project status are shown in **Table 8B-14**. Significant projects and key milestones that were accomplished in the Upper Kissimmee Subwatershed during the reporting period are as follows:

- The first full water year of operations for Partin Family Ranch, a public-private partnership dispersed water management (DWM) project located near Lake Gentry. This 3,000-ac project retains direct rainfall and stormwater runoff within two large detention areas to reduce excess discharges to Lake Okeechobee.
- Eagle Haven Ranch (formerly Lost Oak Ranch) is a passive storage project adjacent to Lake Kissimmee. This 730-ac project retains stormwater runoff within five water management areas.
- Gardner-Cobb Marsh Restoration, Rolling Meadows Wetland Restoration Phase I, and Rough Island Restoration projects include more than 5,000 ac of wetland restorations located near Lakes Kissimmee, Cypress, and Hatchineha. These projects restore wetland habitats by increasing water storage elevations and reestablishing historic flow patterns.

Lastly, the Kissimmee River Headwaters Revitalization Schedule is a component of the regional KRRP and is currently in progress. The final Kissimmee River Headwaters Revitalization Schedule will revise the stage regulation schedule for the S-65 structure to provide the appropriate timing and flow volumes needed to achieve the goals of the KRRP downstream. The Kissimmee River Headwaters Revitalization Schedule began phased implementation in 2024, with full implementation projected by 2027. Subsequently, the final phase of KRRP (post-restoration monitoring) is planned (2027–2032). Further details on the KRRP and Kissimmee River Headwaters Revitalization Schedule are presented in Chapter 9 of this volume.

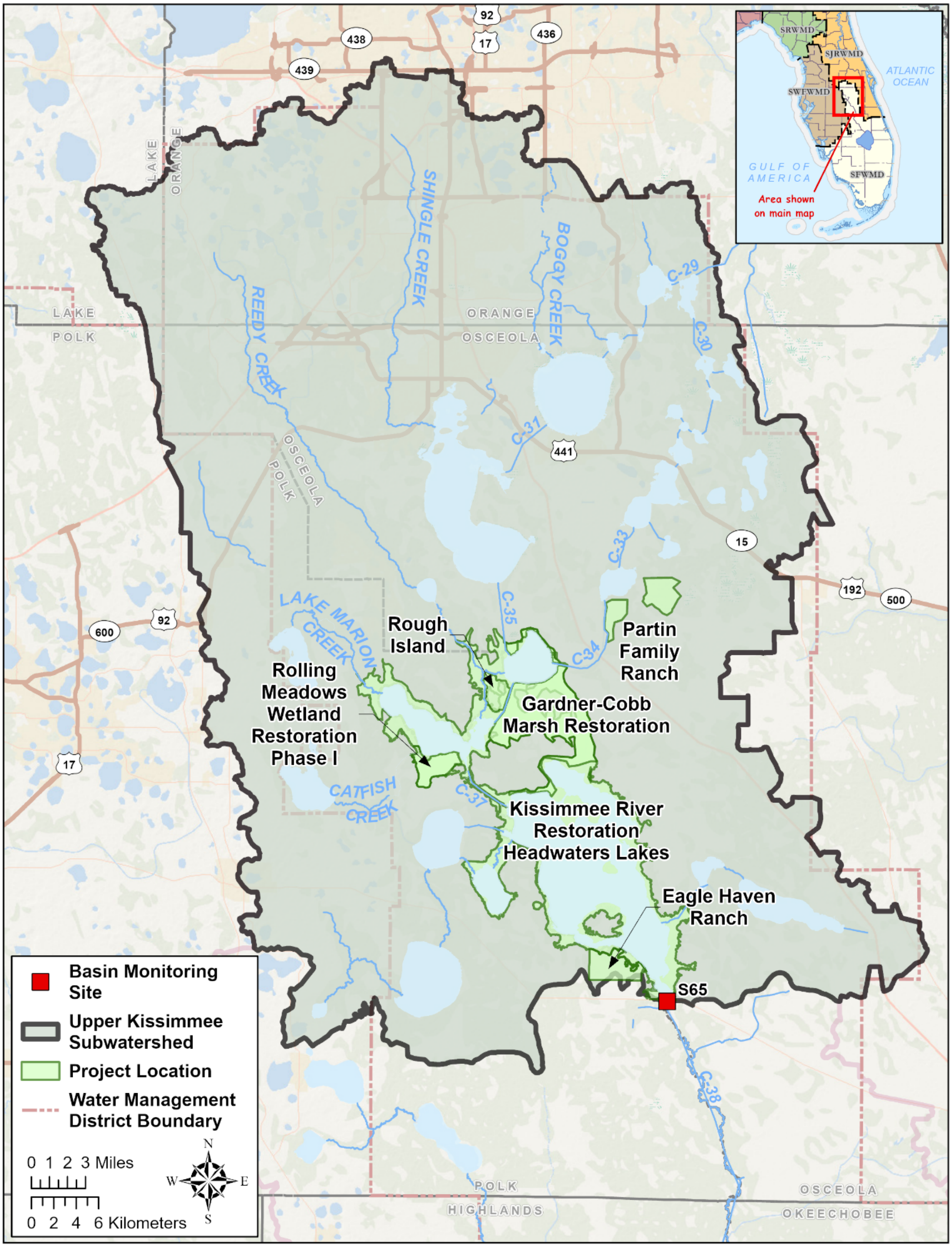

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Figure 8B-31. SFWMD projects in the Upper Kissimmee Subwatershed.

Table 8B-13. Estimates of static storage, dynamic storage, and estimated nutrient removal for planned and existing projects along with WY2025 storage and nutrient removal estimates for select Coordinating Agencies' existing projects in the Upper Kissimmee Subwatershed. (Note: N/A – not applicable.)

Project Name	Project Area (ac)	Project Status FY2025	Project Type	Static Storage (ac-ft)	Estimated Dynamic Storage (ac-ft/yr)	WY2025 Dynamic Storage (ac-ft/yr)	Estimated TP Removal (t/yr)	WY2025 TP Removal Performance (t/yr)	Estimated TN Removal (t/yr)	WY2025 TN Removal Performance (t/yr)
Eagle Haven Ranch	730	O&M	DWM - Passive	222	374	554	0.1	<0.1 [a]	1.4	1.0 [a]
Partin Family Ranch	3,050	O&M	DWM - Passive	4,030	4,270	4,270	0.4	0.3	5.2	7.8
Gardner-Cobb Marsh Restoration	2,500	O&M	Restoration	1,694	2,500	N/A	0.3	N/A	N/A	N/A
Rough Island	1,000	O&M	Restoration	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Rolling Meadows Wetland Restoration Phase I	1,972	O&M	Restoration	986	3,100	N/A	N/A	N/A	N/A	N/A
Upper Kissimmee Subwatershed Totals [b]				**6,932**	**10,244**	**4,824.1**	**0.8**	**0.4**	**6.6**	**8.9**

a. No site-specific water quality monitoring. Nutrient benefits calculated using observed project storage and subwatershed/basin FWMC.

b. Totals do not include projects where information is unavailable and do not include other BMAP efforts within the subwatershed. The estimated storage and nutrient removal totals include planning numbers.

Table 8B-14. Project timeline for SFWMD projects in the Upper Kissimmee Subwatershed.

Project Name	Project Status FY2025	FY2016	FY2017	FY2018	FY2019	FY2020	FY2021	FY2022	FY2023	FY2024	FY2025	FY2026	FY2027	FY2028	FY2029	FY2030
Eagle Haven Ranch	O&M	🟦	🟦	🟦	🟦	🟦	🟦	🟦	🟦	🟦	🟦	🟦	🟦	🟦	🟦	🟦
Partin Family Ranch	O&M								🟨	🟦	🟦	🟦	🟦	🟦	🟦	🟦
Gardner-Cobb Marsh Restoration	O&M	🟩	🟩	🟩	🟩	🟩	🟦	🟦	🟦	🟦	🟦	🟦	🟦	🟦	🟦	🟦
Rough Island	O&M	🟦	🟦	🟦	🟦	🟦	🟦	🟦	🟦	🟦	🟦	🟦	🟦	🟦	🟦	🟦
Rolling Meadows Wetland Restoration Phase I	O&M	🟦	🟦	🟦	🟦	🟦	🟦	🟦	🟦	🟦	🟦	🟦	🟦	🟦	🟦	🟦

🟧 **Planning** 🟨 **Design** 🟩 **Construction** 🟦 **O&M**

Lower Kissimmee Subwatershed

The Lower Kissimmee Subwatershed is approximately 428,886 ac and is located north of Lake Okeechobee. The C-38 Canal/Kissimmee River is the primary conveyance through this subwatershed and receives flow from numerous smaller tributaries. The Lower Kissimmee Subwatershed also receives flow from the Upper Kissimmee Subwatershed through the S-65 structure. Water then generally flows south along the Kissimmee River to the S-65E structure. Flow from the Lower Kissimmee Subwatershed toward Lake Okeechobee is controlled by S-65E. Nutrient loads derived from flow and water quality observations at S-65 are subtracted from nutrient loads at S-65E to determine the annual nutrient loading from the Lower Kissimmee Subwatershed.

SFWMD projects within the Lower Kissimmee Subwatershed are displayed in **Figure 8B-32** and described in **Table 8B-15**. A timeline for each project and FY2025 project status are shown in **Table 8B-16**. Significant projects and key milestones that were accomplished in the Lower Kissimmee Subwatershed during the reporting period are as follows:

- Construction was completed and operations began in December of 2024 (WY2025) for the El Maximo Ranch which is a 7,000-ac water quality treatment public-private partnership project that redirects water from the Kissimmee River and Blanket Bay Slough for flow attenuation and nutrient retention.
- An alternatives analysis was completed, and pre-construction soil sampling and water quality monitoring was conducted for the Basinger Dairy Legacy Phosphorus Project. This is a 5-year research project that targets legacy phosphorus on a 950-ac former dairy farm that began in June 2023. Final design is expected to be complete, and construction is expected to begin in fall 2025
- The KRRP is a major, regional project in this subwatershed cost-shared equally between USACE and SFWMD. Construction of the final phases were completed in 2021 and physically restored one-third of the Kissimmee River and its floodplain after the river was channelized in the 1960s. Phased implementation began in 2024 to provide the appropriate timing and flow volumes needed for the KRRP downstream. Full implementation is expected in 2027. Further information on the KRRP is presented in Chapter 9 of this volume

Lastly, the C-38N and C-38S LOWRP ASR well clusters are planned within the Lower Kissimmee Subwatershed (**Figure 8B-32**). More information about the LOWRP can be found in the *Regional Projects* section above.

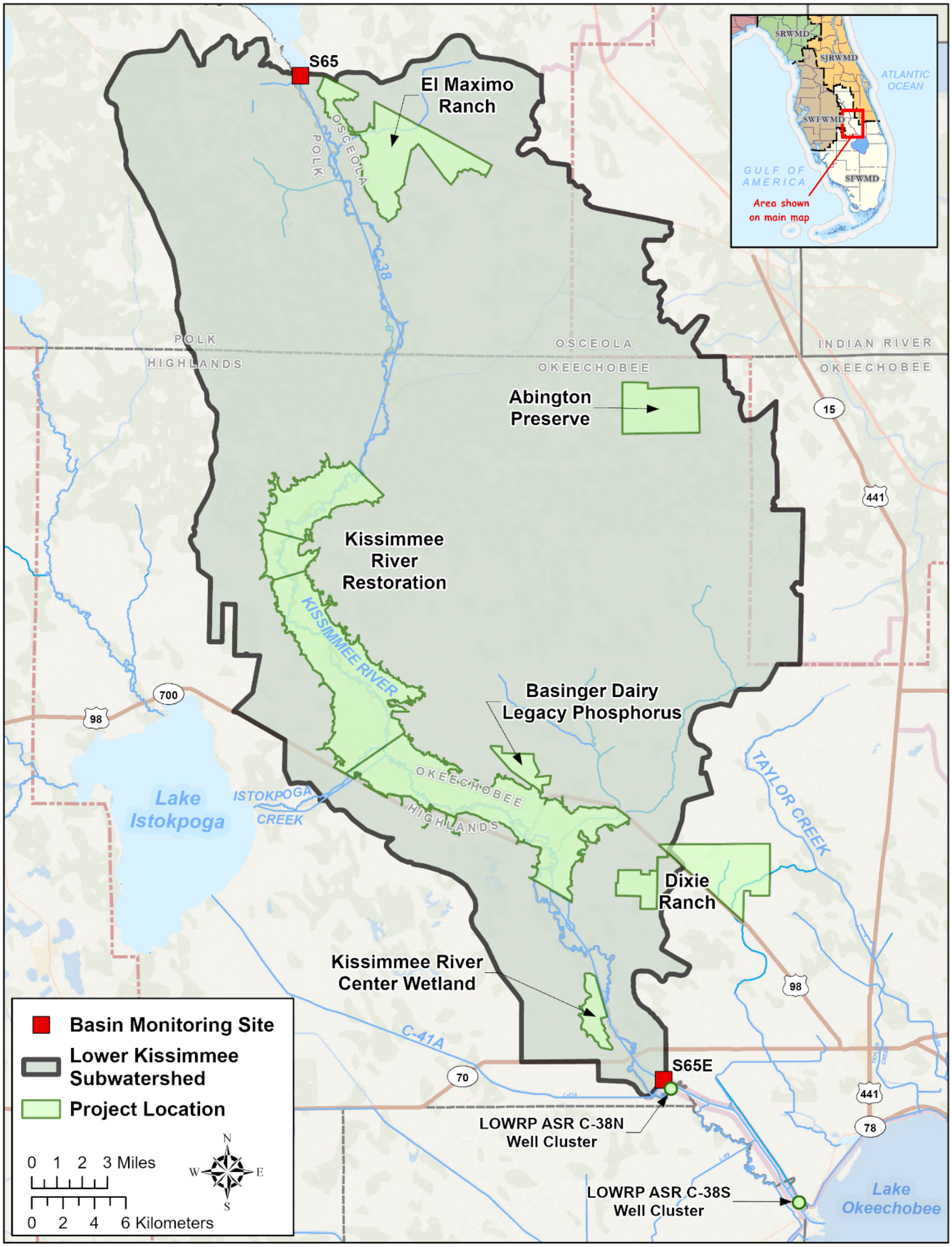

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Figure 8B-32. SFWMD projects in the Lower Kissimmee Subwatershed.
Note: ASR well clusters are planned components of the regional LOWRP.

Table 8B-15. Estimates of static storage, dynamic storage, and estimated nutrient removal for planned and existing projects along with WY2025 storage and nutrient removal estimates for select Coordinating Agencies' existing projects in the Lower Kissimmee Subwatershed. (Note: TBD – to be determined.)

Project Name	Project Area (ac)	Project Status FY2025	Project Type	Static Storage (ac-ft)	Estimated Dynamic Storage (ac-ft/yr)	WY2025 Dynamic Storage (ac-ft/yr)	Estimated TP Removal (t/yr)	WY2025 TP Removal Performance (t/yr)	Estimated TN Removal (t/yr)	WY2025 TN Removal Performance (t/yr)
Dixie Ranch [a]	766	O&M	DWM - Passive	78	315	315	0.1	0.1	0.5	0.4
Abington Preserve	106	O&M	DWM - Passive	89	397	66	0.1	0.0 [b]	0.3	0.1 [b]
El Maximo Ranch	7,030	O&M	DWM - Active	6,004	2,500	-	2.4	-	7.0	-
Basinger Dairy Legacy Phosphorus	950	Design	Study	TBD	TBD	-	TBD	-	TBD	-
Lower Kissimmee Subwatershed Totals [c]				**6,171**	**3,212**	**381.2**	**2.6**	**0.1**	**7.8**	**0.5**

a. The Dixie Ranch project has components in both the Lower Kissimmee and Taylor Creek/Nubbin Slough subwatersheds (see **Table 8B-17**). Only Lower Kissimmee Subwatershed benefits are shown here.

b. No site-specific water quality monitoring. Nutrient benefits calculated using observed project storage and subwatershed/basin FWMC.

c. Totals do not include projects where information is unavailable and do not include other BMAP efforts within the subwatershed. The estimated storage and nutrient removal totals include planning numbers.

Table 8B-16. Project timeline for current SFWMD projects in the Lower Kissimmee Subwatershed.

Project Name	Project Status FY2025	FY2016	FY2017	FY2018	FY2019	FY2020	FY2021	FY2022	FY2023	FY2024	FY2025	FY2026	FY2027	FY2028	FY2029	FY2030
Dixie Ranch	O&M	🟦	🟦	🟦	🟦	🟦	🟦	🟦	🟦	🟦	🟦	🟦	🟦	🟦	🟦	🟦
Abington Preserve	O&M	🟦	🟦	🟦	🟦	🟦	🟦	🟦	🟦	🟦	🟦	🟦	🟦	🟦	🟦	🟦
El Maximo Ranch	O&M					🟨	🟨	🟨	🟩	🟩	🟦	🟦	🟦	🟦	🟦	🟦
Basinger Dairy Legacy Phosphorus	Design								🟧	🟨	🟩	🟦	🟦	🟦	🟦	🟦

🟧 **Planning** 🟨 **Design** 🟩 **Construction** 🟦 **O&M**

Taylor Creek/Nubbin Slough Subwatershed

The Taylor Creek/Nubbin Slough Subwatershed is approximately 201,259 ac and is located directly adjacent to Lake Okeechobee. This subwatershed consists of five basins: S-133, S-135, S-154, S-154C, and S-191. For the most part, all five basins within this subwatershed do not receive water from any other area and flow directly into Lake Okeechobee through the associated structures for each basin (S-133, S-135, S-154, S-154C, and S-191). Flow and nutrient data observed at these structures were used to calculate the annual nutrient loads for each basin and summed to obtain the subwatershed load. Popash Slough, Lemkin Creek, Taylor Creek, Mosquito Creek, and Nubbin Slough are five major tributaries in this subwatershed that generally flow south towards Lake Okeechobee.

SFWMD projects within the Taylor Creek/Nubbin Slough Subwatershed are displayed in **Figure 8B-33** and described in **Table 8B-17**. A timeline for each project and FY2025 project status are shown in **Table 8B-18**. Significant projects and key milestones that were accomplished in the Taylor Creek/Nubbin Slough Subwatershed during the reporting period are as follows:

- Design continued on the Lower Kissimmee Basin Stormwater Treatment Area (STA). This planned STA is located at the confluence of the S-154 and S-154C structures and the Kissimmee River. When completed it is expected to remove 21 t TP. Further details on the Lower Kissimmee Basin STA can be found at www.sfwmd.gov/LKBSTA.
- Conceptual design work continued on the Grassy Island Flow Equalization Basin (FEB) and Brady Ranch FEB. These projects are intended to capture peak stormwater flows before discharge to Lake Okeechobee and assist in hydrating adjacent STAs for improved nutrient removal.
- WY2025 was the first full water year of operation for the S-191 Basin Phosphorus Removal project, which is an innovative technology project located along the C-59 Canal that treats pumped water for nutrient removal. Unfortunately, the project has been withdrawn by the operator.
- SFWMD operates three regional STAs (Taylor Creek, Nubbin Slough, and Lakeside Ranch) in the Taylor Creek/Nubbin Slough Subwatershed, which removed approximately 13.3 t of TP and 45.6 t of TN in WY2025. Note that estimated long-term nutrient P removal performance for the STAs were revised in 2022 as part of the S-191 Basin Assessment effort (Olson et al. 2023) and were calculated using existing monitoring data and observed project operations. The Nubbin Slough STA TP removal performance was further revised in July 2023 with updated inflow values. This year, a similar methodology was used to provide an estimate for long-term N removal performance. These long-term annual averages are for watershed planning purposes, and actual performance may vary according to regional system conditions and other factors inherent to biological processes within an STA.
- Planning continues for the TCNS 214 Storage and Treatment, which will store and treat water from a major tributary to Taylor Creek.

In addition to these SFWMD projects, FDACS operates five hybrid wetland treatment technologies (HWTT) facilities that combine wetland and chemical treatment technologies to provide nutrient reduction. Lastly, four ASR well clusters are planned in this subwatershed as part of the regional LOWRP (**Figure 8B-33**).

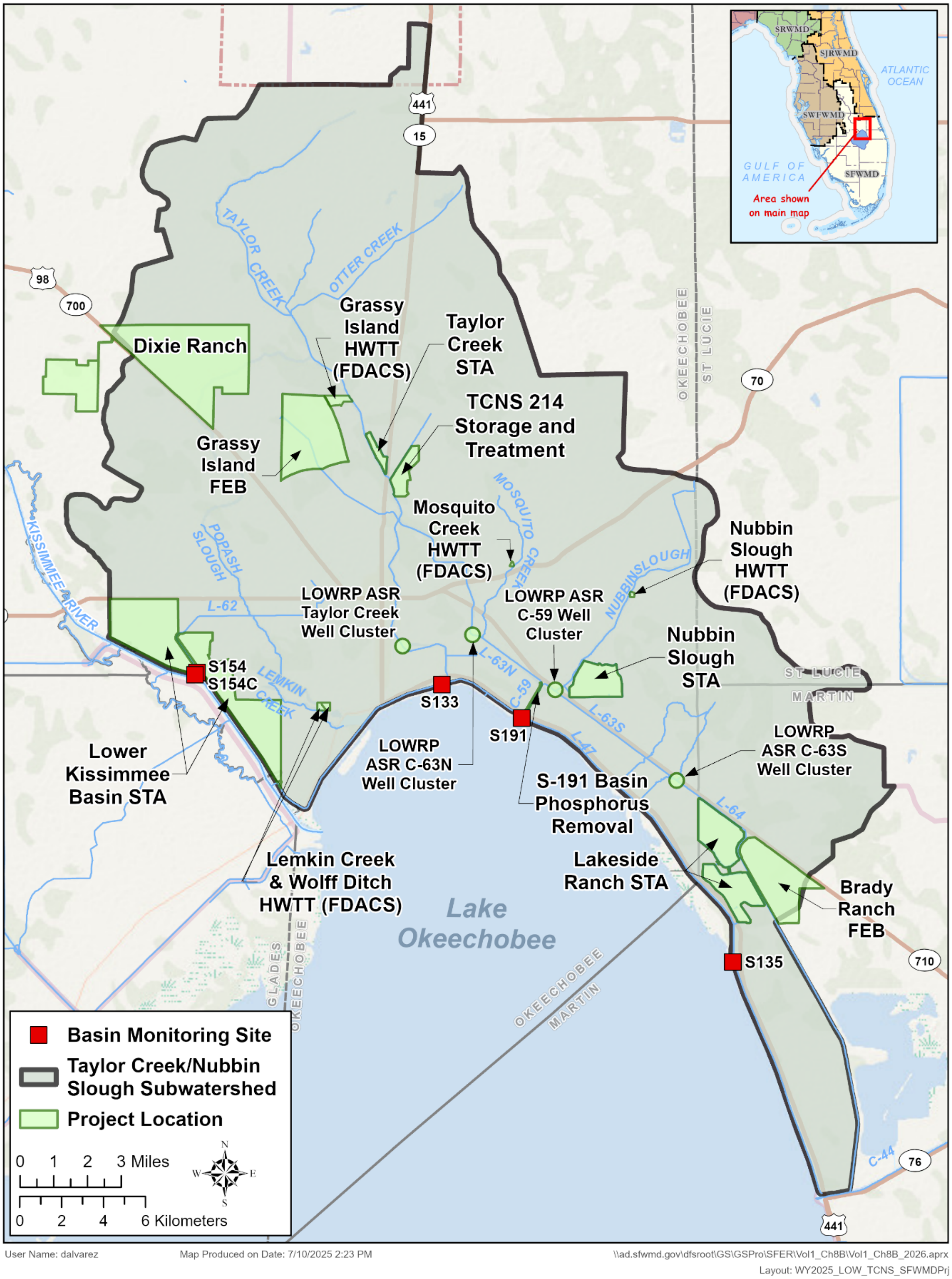


Figure 8B-33. SFWMD projects in the Taylor Creek/Nubbin Slough Subwatershed. The five HWTTs shown on the map are operated by FDACS. Note: ASR well clusters are planned components of the regional LOWRP.

Table 8B-17. Estimates of static storage, dynamic storage, and estimated nutrient removal for planned and existing projects along with WY2025 storage and nutrient removal estimates for select Coordinating Agencies' existing projects in the Taylor Creek/Nubbin Slough. Subwatershed. (Note: N/A – not applicable and TBD – to be determined.)

Project Name	Project Area (ac)	Project Status FY2025	Project Type	Static Storage (ac-ft)	Estimated Dynamic Storage (ac-ft/yr)	WY2025 Dynamic Storage (ac-ft/yr)	Estimated TP Removal (t/yr)	WY2025 TP Removal Performance (t/yr)	Estimated TN Removal (t/yr)	WY2025 TN Removal Performance (t/yr)
Dixie Ranch [a]	2,297	O&M	DWM - Passive	245	856	645	0.5	0.3 [b]	1.8	2.0 [b]
Lakeside Ranch STA	1,707	O&M	STA	3,414	N/A	4593 [c]	14.4 [d]	9.2 [c]	28.1 [d]	33.1 [c]
Nubbin Slough STA	773	O&M	STA	1,546	N/A	2901 [c]	3.2 [d]	3.8 [c]	8.7 [d]	10.9 [c]
Taylor Creek STA	118	O&M	STA	236	N/A	233 [c]	1.0 [d]	0.3 [c]	2.6 [d]	1.6 [c]
Brady Ranch FEB	1,800	Design	FEB	5,232	23,600	-	14.8	-	55.0	-
Grassy Island FEB	2,400	Design	FEB	988	5,719	-	1.4	-	N/A	-
Lower Kissimmee Basin STA	3,600	Design	STA	5,400	5,900	-	21.0	-	N/A	-
TCNS 214 Storage and Treatment	410	Planning	Water Quality	TBD	TBD	-	3.9	-	13.8	-
S-191 Basin Phosphorus Removal	N/A	O&M	Alternative Technology	N/A	N/A	-	2.9	0.1	N/A	-
Lemkin Creek HWTT	2	O&M	HWTT	N/A	N/A	-	0.2	0.3	0.8	0.9
Wolff Ditch HWTT	5	O&M	HWTT	N/A	N/A	-	0.3	0.3	1.0	1.2

Table 8B-17. Continued.

Project Name	Project Area (ac)	Project Status FY2025	Project Type	Static Storage (ac-ft)	Estimated Dynamic Storage (ac-ft/yr)	WY2025 Dynamic Storage (ac-ft/yr)	Estimated TP Removal (t/yr)	WY2025 TP Removal Performance (t/yr)	Estimated TN Removal (t/yr)	WY2025 TN Removal Performance (t/yr)
Grassy Island HWTT	50	O&M	HWTT	N/A	N/A	-	2.3	1.5	6.7	4.5
Mosquito Creek HWTT	1	O&M	HWTT	N/A	N/A	-	0.8	0.7	2.0	0.8
Nubbin Slough HWTT	4	O&M	HWTT	N/A	N/A	-	0.6	0.2	1.1	0.6
Taylor Creek/Nubbin Slough Subwatershed Totals [e]				**17,061**	**36,075**	**8,372.0**	**67.3**	**16.6**	**121.6**	**55.6**

a. The Dixie Ranch project has components in both the Lower Kissimmee (see **Table 8B-15**) and Taylor Creek/Nubbin Slough subwatersheds. Only the Taylor Creek/Nubbin Slough Subwatershed benefits are shown here.

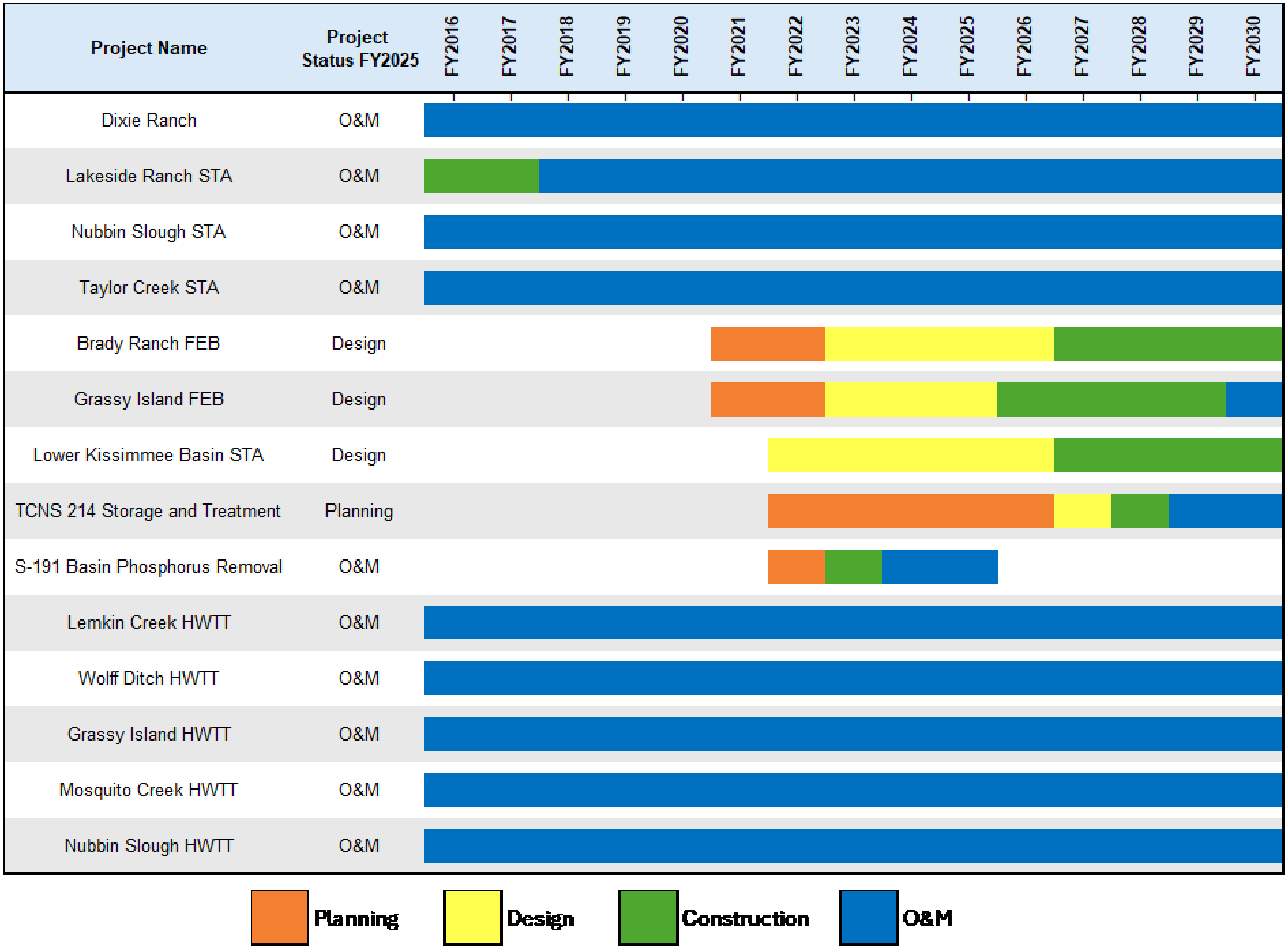
b. No site-specific water quality monitoring. Nutrient benefits calculated using observed project storage and subwatershed/basin FWMC.

c. Calculated as the WY2024 project inflow minus project outflow, as reported in Volume III, Appendices 4-2, 4-3, and 4-4.

d. Estimated long-term TP and TN removal performance for STAs were calculated using existing monitoring data and observed project operations. These long-term annual averages are for watershed planning purposes, and actual performance may vary according to regional system conditions and other factors inherent to biological processes within an STA.

e. Totals do not include projects where information is unavailable and do not include other BMAP efforts within the subwatershed. The estimated storage and nutrient removal totals include planning numbers.

Table 8B-18. Project timeline for SFWMD and select Coordinating Agencies' projects in the Taylor Creek/Nubbin Slough Subwatershed.



Project Name	Project Status FY2025	FY2016	FY2017	FY2018	FY2019	FY2020	FY2021	FY2022	FY2023	FY2024	FY2025	FY2026	FY2027	FY2028	FY2029	FY2030
Dixie Ranch	O&M	🟦	🟦	🟦	🟦	🟦	🟦	🟦	🟦	🟦	🟦	🟦	🟦	🟦	🟦	🟦
Lakeside Ranch STA	O&M	🟩	🟩	🟦	🟦	🟦	🟦	🟦	🟦	🟦	🟦	🟦	🟦	🟦	🟦	🟦
Nubbin Slough STA	O&M	🟦	🟦	🟦	🟦	🟦	🟦	🟦	🟦	🟦	🟦	🟦	🟦	🟦	🟦	🟦
Taylor Creek STA	O&M	🟦	🟦	🟦	🟦	🟦	🟦	🟦	🟦	🟦	🟦	🟦	🟦	🟦	🟦	🟦
Brady Ranch FEB	Design						🟧	🟧	🟨	🟨	🟨	🟨	🟩	🟩	🟩	🟩
Grassy Island FEB	Design						🟧	🟧	🟨	🟨	🟨	🟩	🟩	🟩	🟩	🟦
Lower Kissimmee Basin STA	Design							🟨	🟨	🟨	🟨	🟨	🟩	🟩	🟩	🟩
TCNS 214 Storage and Treatment	Planning							🟧	🟧	🟧	🟧	🟧	🟨	🟩	🟦	🟦
S-191 Basin Phosphorus Removal	O&M							🟧	🟩	🟦	🟦					
Lemkin Creek HWTT	O&M	🟦	🟦	🟦	🟦	🟦	🟦	🟦	🟦	🟦	🟦	🟦	🟦	🟦	🟦	🟦
Wolff Ditch HWTT	O&M	🟦	🟦	🟦	🟦	🟦	🟦	🟦	🟦	🟦	🟦	🟦	🟦	🟦	🟦	🟦
Grassy Island HWTT	O&M	🟦	🟦	🟦	🟦	🟦	🟦	🟦	🟦	🟦	🟦	🟦	🟦	🟦	🟦	🟦
Mosquito Creek HWTT	O&M	🟦	🟦	🟦	🟦	🟦	🟦	🟦	🟦	🟦	🟦	🟦	🟦	🟦	🟦	🟦
Nubbin Slough HWTT	O&M	🟦	🟦	🟦	🟦	🟦	🟦	🟦	🟦	🟦	🟦	🟦	🟦	🟦	🟦	🟦

🟧 Planning 🟨 Design 🟩 Construction 🟦 O&M

Lake Istokpoga Subwatershed

The Lake Istokpoga Subwatershed is approximately 394,203 ac and does not receive water from another subwatershed. Arbuckle and Josephine creeks are the two main tributaries to Lake Istokpoga. Arbuckle Creek generally flows south and Josephine Creek flows east into Lake Istokpoga. Josephine Creek has two upstream branches: Yellow Bluff Creek, which flows into Josephine Creek from the north, and Jack Creek, which flows into Josephine Creek from the south. Water leaves the subwatershed after passing through Lake Istokpoga and flows are controlled by the S-68 structure. The ability of Lake Istokpoga to be a phosphorus sink or a source is not known. Flow and nutrient data observed at the S-68 structure are used to calculate annual nutrient loads for the Lake Istokpoga Subwatershed.

SFWMD projects within the Lake Istokpoga Subwatershed are displayed in **Figure 8B-34** and described in **Table 8B-19**. The timeline and FY2025 project status are shown in **Table 8B-20**. Significant projects and key milestones that were accomplished in the Lake Istokpoga Subwatershed during the reporting period are as follows:

- Operations for the Aguaculture public-private partnership project began in November 2024 (WY2025). This project uses innovative technology to mechanically harvest unconsolidated muck from Lake Istokpoga for transport and long-term retention on privately-owned parcels in Highlands County. It was designed in coordination with existing Lake Istokpoga management efforts to reduce overall nutrient loading to Lake Okeechobee.
- A one-year extension was executed to prepare for a 10-year renewal for the Rafter T Ranch Project, which is a passive storage project adjacent to Arbuckle Creek. This public-private partnership project retains stormwater runoff and direct rainfall within low-lying pasture and reservoir areas totaling more than 2,600 ac.

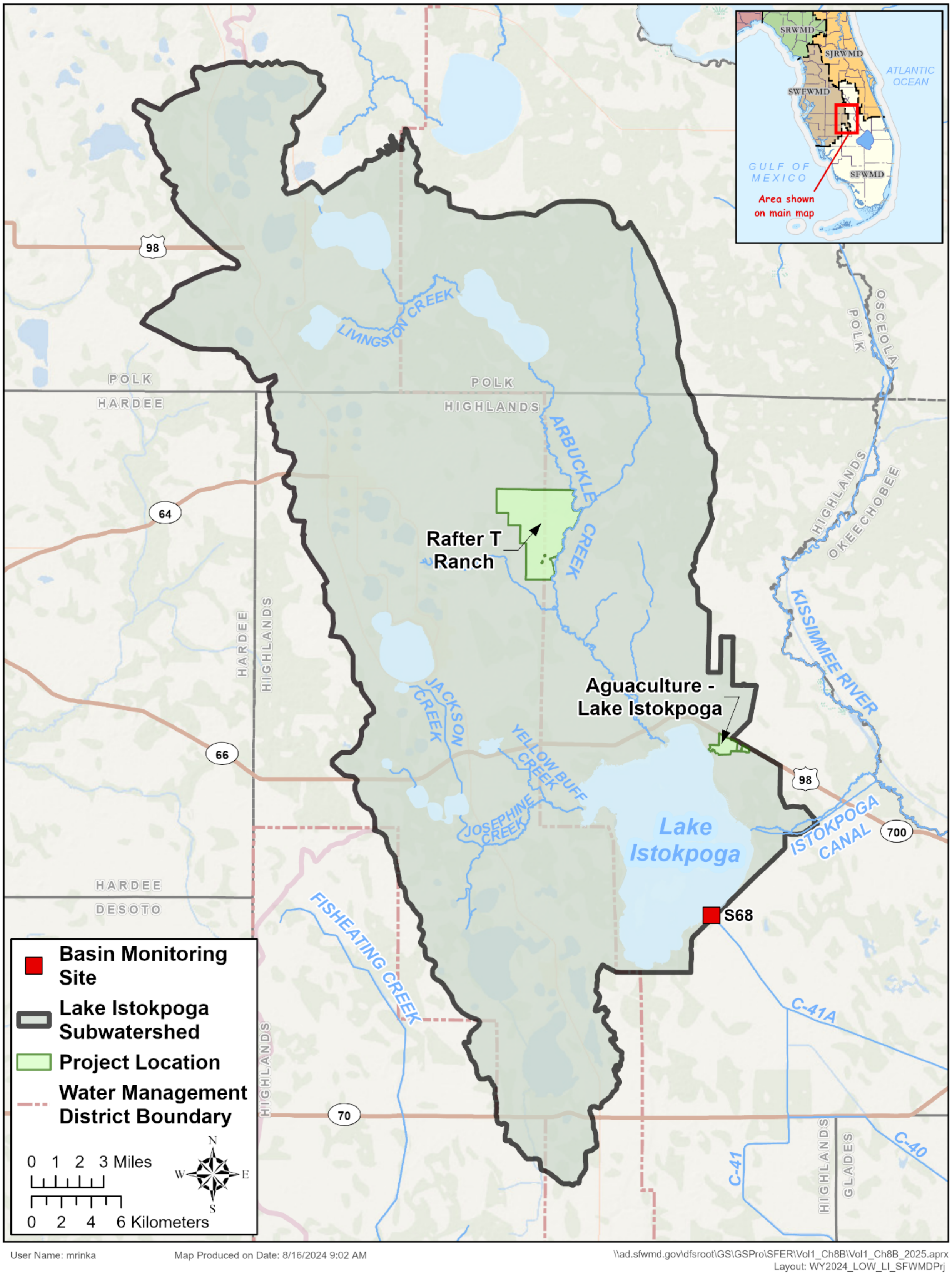


Figure 8B-34. SFWMD projects in the Lake Istokpoga Subwatershed.

Table 8B-19. Estimates of static storage, dynamic storage, and estimated nutrient removal for planned and existing projects along with WY2025 storage and nutrient removal estimates for select Coordinating Agencies' existing projects in the Lake Istokpoga Subwatershed. (Note: N/A – not available.)

Project Name	Project Area (ac)	Project Status FY2025	Project Type	Static Storage (ac-ft)	Estimated Dynamic Storage (ac-ft/yr)	WY2025 Dynamic Storage (ac-ft/yr)	Estimated TP Removal (t/yr)	WY2025 TP Removal Performance (t/yr)	Estimated TN Removal (t/yr)	WY2025 TN Removal Performance (t/yr)
Rafter T Ranch	2,602	O&M	DWM - Passive	1,517	3,347 [a]	2,590 [a]	0.2	0.4 [b]	4.1	7.5 [b]
Aguaculture – Lake Istokpoga	N/A	O&M	Alternative Technology	N/A	N/A	N/A	4.5	1.0 [c]	N/A	21.4 [c]
Lake Istokpoga Subwatershed Totals [d]				**1,517**	**3,347**	**2,590.2**	**4.7**	**1.3**	**4.1**	**29.0**

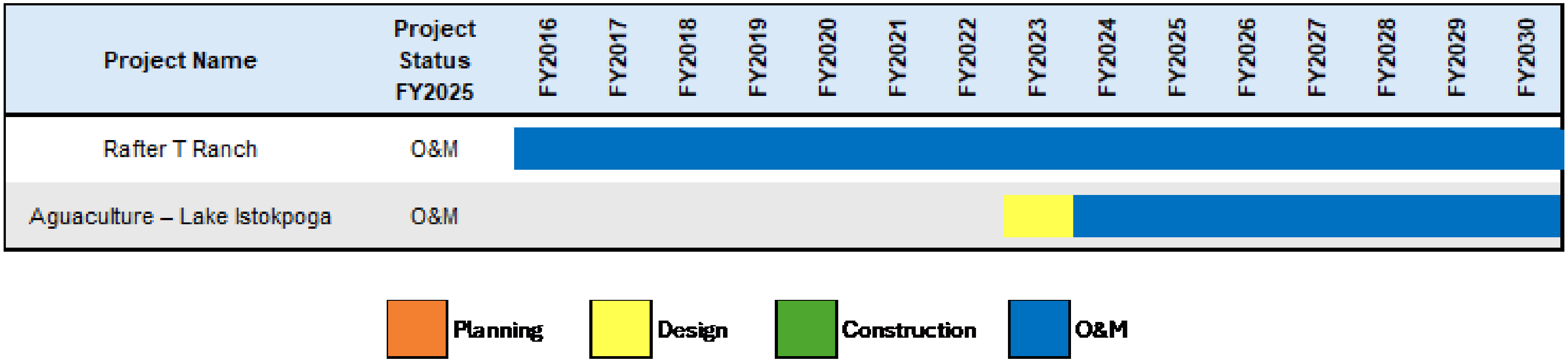
a. Includes quantification of storage in two basins that were not previously monitored

b. No site-specific water quality monitoring. Nutrient benefits calculated using observed project storage and subwatershed/basin FWMC.

c. Project was only operation for a portion of WY2025.

d. Totals do not include projects where information is unavailable and do not include other BMAP efforts within the subwatershed. The estimated storage and nutrient removal totals include planning numbers.

Table 8B-20. Project timeline for SFWMD projects in the Lake Istokpoga Subwatershed.



Project Name	Project Status FY2025	FY2016	FY2017	FY2018	FY2019	FY2020	FY2021	FY2022	FY2023	FY2024	FY2025	FY2026	FY2027	FY2028	FY2029	FY2030
Rafter T Ranch	O&M	🟦	🟦	🟦	🟦	🟦	🟦	🟦	🟦	🟦	🟦	🟦	🟦	🟦	🟦	🟦
Aguaculture – Lake Istokpoga	O&M								🟨	🟦	🟦	🟦	🟦	🟦	🟦	🟦

🟧 Planning 🟨 Design 🟩 Construction 🟦 O&M

Indian Prairie Subwatershed

The Indian Prairie Subwatershed is approximately 276,579 ac and is located directly adjacent to Lake Okeechobee. The subwatershed receives flow from the Lake Istokpoga Subwatershed through the S-68 structure and has multiple structures discharging to Lake Okeechobee. The Indian Prairie Subwatershed consists of 11 basins: C-41A, C-41, C-40, L-59E (S-266 structure), L-59W (S-291 structure), L-60W (S-285 structure), L-60E (S-290 structure), L-61E (S-284 structure), L-48, L-49, and S-131, which all flow into Lake Okeechobee or the C-38 Canal downstream of the S-65E structure. The C-41A, C-40, and C-41 canals are the three major tributaries within this subwatershed. Nutrient loads calculated at the S-68 structure are subtracted from loads calculated at the discharge structures to Lake Okeechobee to determine the overall nutrient loading for this subwatershed. The proportion of flow and load generated among the C-40, C-41, and C-41A basins is currently estimated by an algebraic equation. Additionally, flow monitoring is not available for the L-61E Basin and nutrient loads must be estimated.

SFWMD projects within the Indian Prairie Subwatershed are displayed in **Figure 8B-35** and described in **Table 8B-21**. A timeline for each project and FY2025 project status are shown in **Table 8B-22**. Significant projects and key milestones that were accomplished in the Indian Prairie Subwatershed during the reporting period are as follows:

- SFWMD, as the non-federal sponsor for CERP, completed the final feasibility study and environmental impact statement (EIS) for the North of Lake Okeechobee Component A Reservoir (LOCAR) and received Congressional authorization in the Water Resources Development Act (WRDA) of 2024 (SFWMD 2024b). The feasibility study and EIS explored opportunities for aboveground water storage north of Lake Okeechobee with an estimated capacity of 200,000 ac-ft. Preliminary design began in summer 2025. Further details on regional LOCAR progress can be found in at https://www.sfwmd.gov/our-work/lake-okeechobee-component-reservoir-locar.
- Operation continued at three public-private partnership projects—Buck Island Ranch, West Waterhole, and Brighton Valley—during WY2025. These projects provide water storage and nutrient retention on a combined 15,000 ac of privately-owned land. Brighton Valley pumped more than 75,000 ac-ft of water from C41-A canal for storage and treatment in WY2025.

Lastly, the LOWRP Paradise Run Wetland and two LOWRP ASR well clusters are planned within the Indian Prairie Subwatershed (**Figure 8B-35**). More information about the LOWRP can be found in the *Regional Projects* section above.

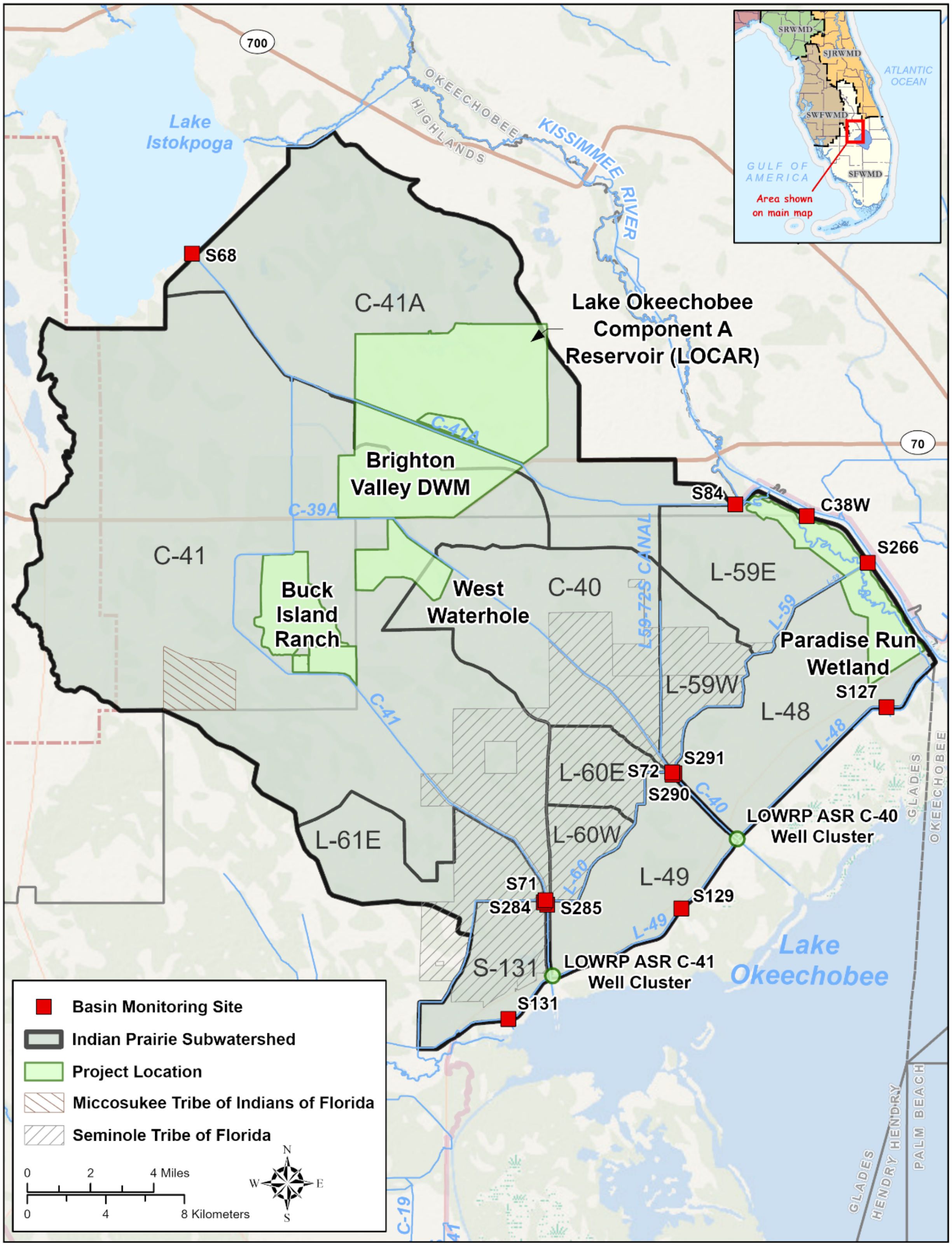


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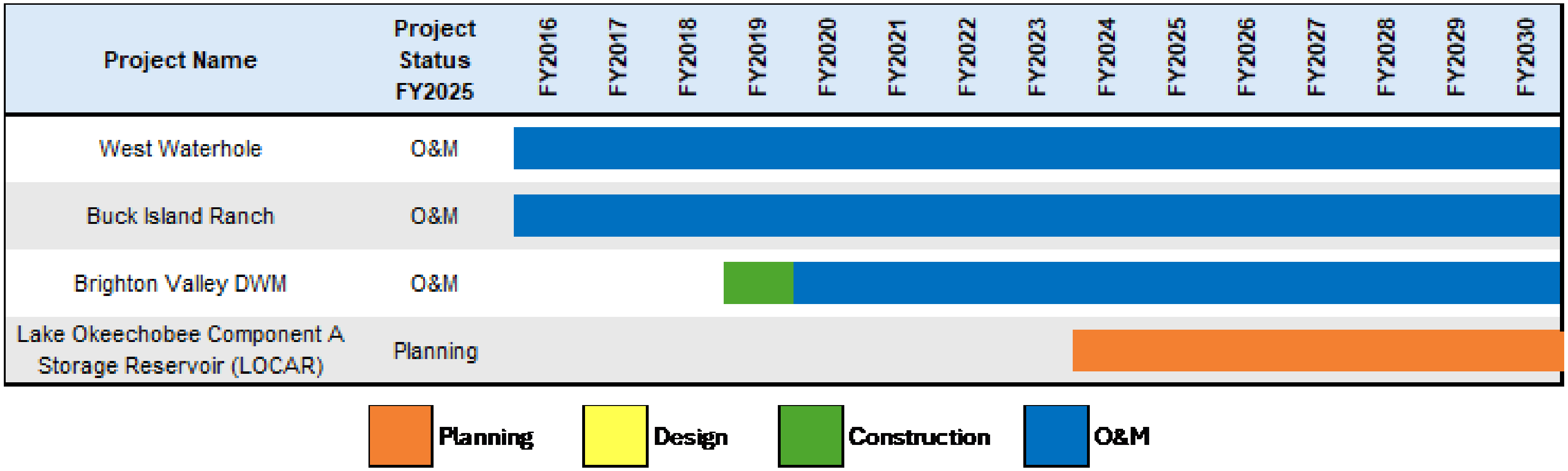
Figure 8B-35. SFWMD projects in the Indian Prairie Subwatershed.
(Note: ASR well clusters are planned components of the regional LOWRP.)

Table 8B-21. Estimates of static storage, dynamic storage, and estimated nutrient removal for planned and existing projects along with WY2025 storage and nutrient removal estimates for select Coordinating Agencies' existing projects in the Indian Prairie Subwatershed. (Note: N/A – not applicable.)

Project Name	Project Area (ac)	Project Status FY2025	Project Type	Static Storage (ac-ft)	Estimated Dynamic Storage (ac-ft/yr)	WY2025 Dynamic Storage (ac-ft/yr)	Estimated TP Removal (t/yr)	WY2025 TP Removal Performance (t/yr)	Estimated TN Removal (t/yr)	WY2025 TN Removal Performance (t/yr)
West Waterhole	2,370	O&M	DWM - Active	4,626	5,214	2,801	5.3	1.0	24.0	3.1
Buck Island Ranch	4,796	O&M	DWM - Passive	1,050	6,736	1,815	5.7	0.4	27.2	4.9
Brighton Valley DWM	8,142	O&M	DWM - Active	9,998	11,552	38,402	3.2	4.0	27.3	84.7
Lake Okeechobee Component A Storage Reservoir (LOCAR)	12,316	Design	Reservoir	200,000	200,000	-	N/A	-	N/A	-
Indian Prairie Subwatershed Totals [a]				**215,674**	**223,502**	**43,017.7**	**14.2**	**5.5**	**78.5**	**92.7**

a. Totals do not include projects where information is unavailable and do not include other BMAP efforts within the subwatershed. The estimated storage and nutrient removal totals include planning numbers.

Table 8B-22. Project timeline for SFWMD projects in the Indian Prairie Subwatershed.



Project Name	Project Status FY2025	FY2016	FY2017	FY2018	FY2019	FY2020	FY2021	FY2022	FY2023	FY2024	FY2025	FY2026	FY2027	FY2028	FY2029	FY2030
West Waterhole	O&M	🟦	🟦	🟦	🟦	🟦	🟦	🟦	🟦	🟦	🟦	🟦	🟦	🟦	🟦	🟦
Buck Island Ranch	O&M	🟦	🟦	🟦	🟦	🟦	🟦	🟦	🟦	🟦	🟦	🟦	🟦	🟦	🟦	🟦
Brighton Valley DWM	O&M				🟩	🟦	🟦	🟦	🟦	🟦	🟦	🟦	🟦	🟦	🟦	🟦
Lake Okeechobee Component A Storage Reservoir (LOCAR)	Planning									🟧	🟧	🟧	🟧	🟧	🟧	🟧

🟧 Planning 🟨 Design 🟩 Construction 🟦 O&M

Fisheating Creek Subwatershed

The Fisheating Creek Subwatershed is approximately 298,694 ac and consists of a single basin that flows directly into Lake Okeechobee. Fisheating Creek generally flows south and east before flowing into Lake Okeechobee. Fisheating Creek is the only tributary that flows naturally and uncontrolled directly into Lake Okeechobee. It originates in western Highlands County and flows south through Cypress Swamp into Glades County. The L-61W Basin was historically considered separately from the Fisheating Creek Basin but are now included together because the water from the L-61W Basin in the L-50 Canal flows south through a structure into Fisheating Creek. A control structure was installed that also allows flood water to flow infrequently from the L-50 Canal into the S-131 Basin of the Indian Prairie Subwatershed. Flow and nutrient data observed at the outlet of Fisheating Creek are used to calculate the annual nutrient loads for the subwatershed. The Nicodemus Slough North Basin was moved from the Fisheating Creek Subwatershed to the West Lake Okeechobee Subwatershed as part of the 2025 NEEPP boundary update to reflect the operation of the Nicodemus Slough Water Management project. More information on the 2025 NEEPP boundary update can be found in the LOWPP 2025 update (Welch et al. 2025).

SFWMD projects within the Fisheating Creek Subwatershed are displayed in **Figure 8B-36** and described in **Table 8B-23**. A timeline for each project and FY2025 project status are shown in **Table 8B-24**. Significant projects and key milestones that were accomplished in the Indian Prairie Subwatershed during the reporting period are as follows:

- XL Ranch and Llano Ranches are two public-private partnership passive storage projects that retain stormwater runoff and direct rainfall within existing pasture and wetland areas to reduce overall loading to Lake Okeechobee.
- FDACS Fisheating Creek Floating Aquatic Vegetation Tilling (FAVT) project is a constructed wetland that utilizes floating vegetation to absorb nutrients from the water column.

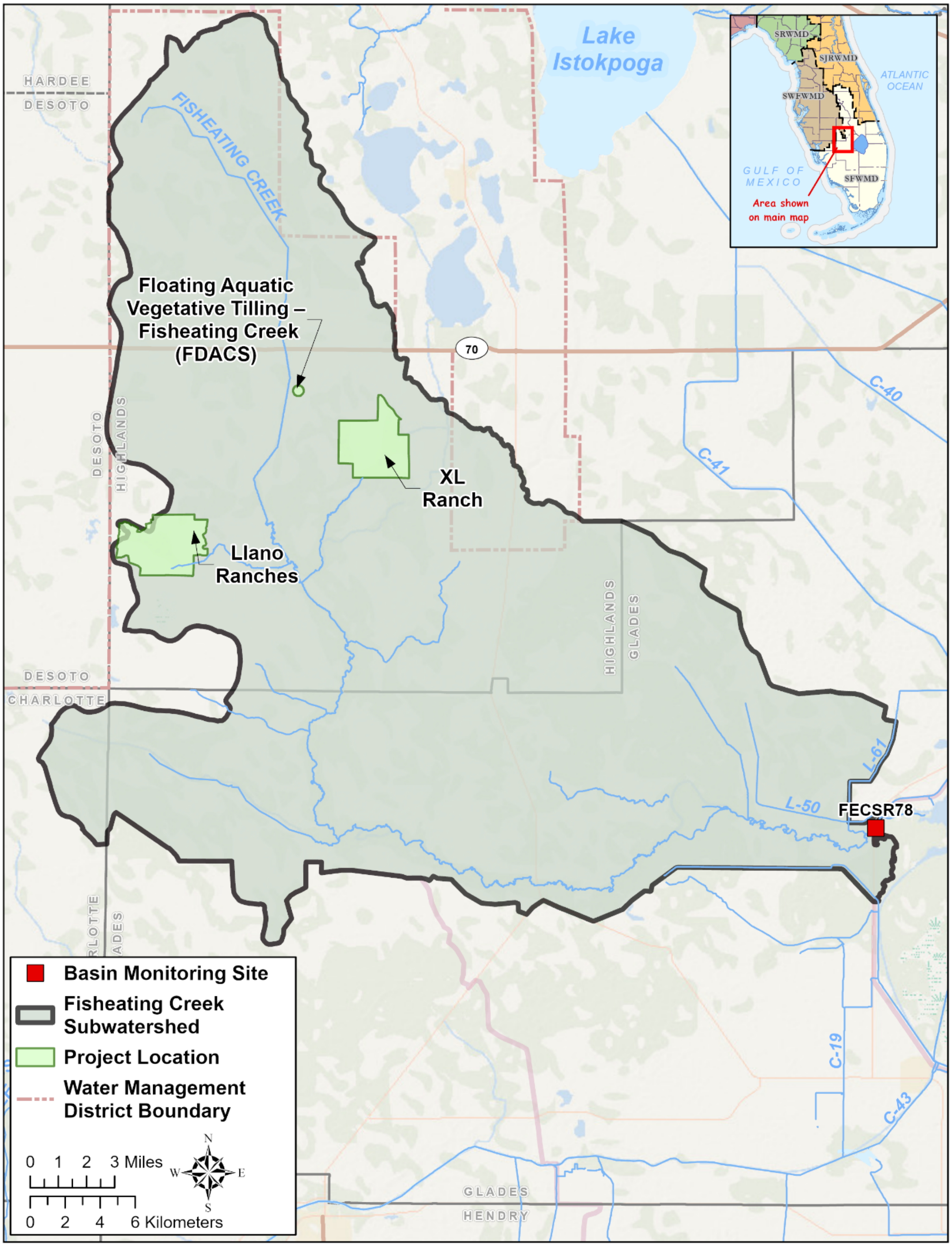


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Figure 8B-36. SFWMD projects in the Fisheating Creek Subwatershed.
The FAVT project shown on the map is operated by FDACS.

Table 8B-23. Estimates of static storage, dynamic storage, and estimated nutrient removal for planned and existing projects along with WY2025 storage and nutrient removal estimates for select Coordinating Agencies' existing projects in the Fisheating Creek Subwatershed. (Note: N/A – not applicable.)

Project Name	Project Area (ac)	Project Status FY2025	Project Type	Static Storage (ac-ft)	Estimated Dynamic Storage (ac-ft/yr)	WY2025 Dynamic Storage (ac-ft/yr)	Estimated TP Removal (t/yr)	WY2025 TP Removal Performance (t/yr)	Estimated TN Removal (t/yr)	WY2025 TN Removal Performance (t/yr)
Llano Ranches	3,507	O&M	DWM - Passive	2,434	2,681	2,206	0.7	0.5 [a]	7.1	4.5 [a]
XL Ranch	765	O&M	DWM - Passive	42	1,642	162	0.7	< 0.1 [a]	3.0	0.3 [a]
Fisheating Creak FAVT	265	O&M	FAVT	N/A	N/A	N/A	1.8	0.7	12.5	7.6
Fisheating Creek Subwatershed Totals [b]				**2,477**	**4,323**	**2,368.6**	**3.2**	**1.2**	**22.6**	**12.5**

a. No site-specific water quality monitoring. Nutrient benefits calculated using observed project storage and subwatershed/basin FWMC.

b. Totals do not include projects where information is unavailable and do not include other BMAP efforts within the subwatershed. The estimated storage and nutrient removal totals include planning numbers.

Table 8B-24. Project timeline for SFWMD and select Coordinating Agencies projects in the Fisheating Creek Subwatershed.

Project Name	Project Status FY2025	FY2016	FY2017	FY2018	FY2019	FY2020	FY2021	FY2022	FY2023	FY2024	FY2025	FY2026	FY2027	FY2028	FY2029	FY2030
Llano Ranches [a]	O&M		🟦	🟦	🟦	🟦	🟦	🟦	🟦	🟦	🟦	🟦	🟦			
XL Ranch	O&M	🟦	🟦	🟦	🟦	🟦	🟦	🟦	🟦	🟦	🟦	🟦	🟦	🟦	🟦	🟦
Fisheating Creak FAVT	O&M	🟩	🟦	🟦	🟦	🟦	🟦	🟦	🟦	🟦	🟦	🟦	🟦	🟦	🟦	🟦

🟧 **Planning** 🟨 **Design** 🟩 **Construction** 🟦 **O&M**

a. Existing contract term is shown for interim projects and may be subject to contract renewal or other extension.

West Lake Okeechobee Subwatershed

The West Lake Okeechobee Subwatershed is approximately 221,689 ac located directly west of Lake Okeechobee and consists of three basins: East Caloosahatchee, Nicodemus Slough South, and Nicodemus Slough North (**Figure 8B-37**). The primary conveyance in the subwatershed is the C-43 Canal (Caloosahatchee River) and the primary flow direction is west from Lake Okeechobee to the C-43 Canal. However, there are times when water flows east from this subwatershed through the associated structures for each basin (S-77, S-281, and S-282) and directly into Lake Okeechobee. Only flows from this subwatershed into Lake Okeechobee are discussed in this chapter; Chapter 8D of this volume discusses basin runoff and flows from Lake Okeechobee towards the Caloosahatchee Estuary. Flow and nutrient data observed at the associated basin structures are used to calculate the annual nutrient loads for each basin and summed to obtain the overall subwatershed load. As part of the 2025 NEEPP boundary update, the Nicodemus Slough North Basin was moved from the Fisheating Creek Subwatershed to the West Lake Okeechobee Subwatershed. Flow from this basin was determined by SFWMD staff to be toward Lake Okeechobee through S-282 and toward C-19 through S-342 but since the operation of the Nicodemus Slough Water Management project, the majority of the flow is south toward C-19. More information on the 2025 NEEPP boundary update can be found in the LOWPP 2025 update (Welch et al. 2025).

SFWMD projects within the West Lake Okeechobee Subwatershed that impact Lake Okeechobee are displayed in **Figure 8B-37** and described in **Table 8B-25**. A timeline for each project and FY2025 project status are shown in **Table 8B-26**. Significant projects and key milestones that were accomplished in the West Lake Okeechobee Subwatershed during the reporting period are as follows:

- The Nicodemus Slough Water Management Project is a public-private partnership, which has been operational since 2015, providing water storage and nutrient retention within aboveground impoundments.

The C-43 LOWRP ASR well cluster is planned within the West Lake Okeechobee Subwatershed (**Figure 8B-37**). More information about the LOWRP can be found in the *Regional Projects* section above.

Since the primary flow direction in the West Lake Okeechobee Subwatershed is east to west, most projects in this subwatershed are operated to benefit the Caloosahatchee Estuary. Therefore, these additional projects are presented in Chapter 8D of this volume as part of the East Caloosahatchee Basin of the Caloosahatchee River Watershed.

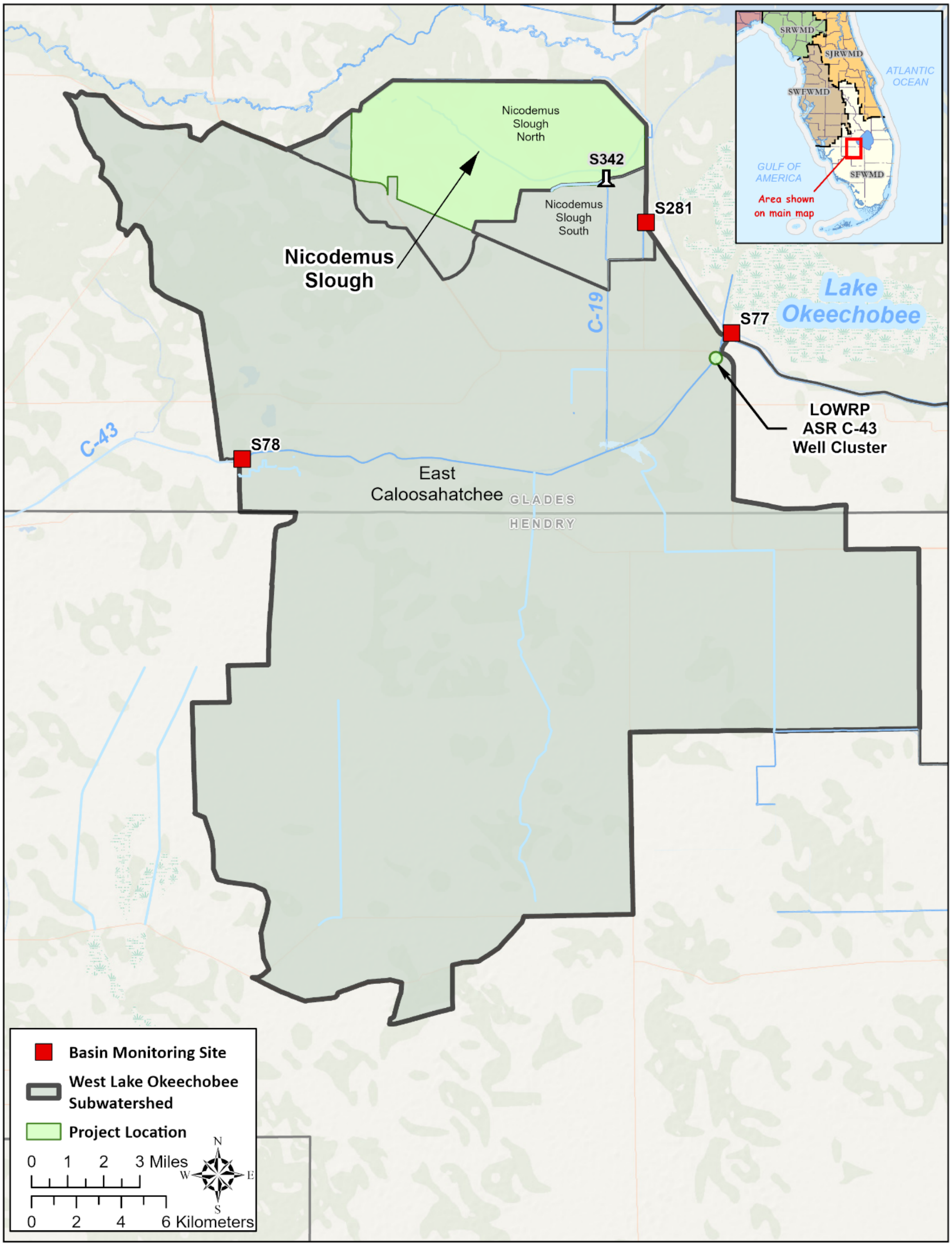

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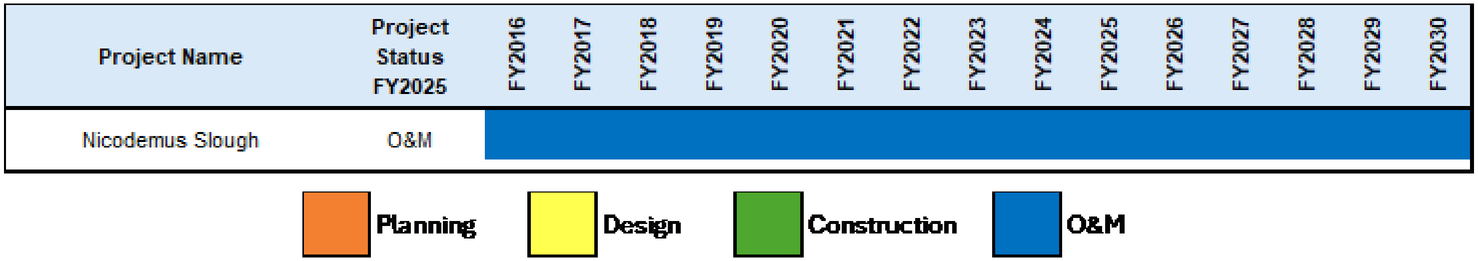
Figure 8B-37. LOW SFWMD projects in West Lake Okeechobee Subwatershed. (Note: ASR well clusters are planned components of the regional LOWRP.)

Table 8B-25. Estimates of static storage, dynamic storage, and estimated nutrient removal for planned and existing projects along with WY2025 storage and nutrient removal estimates for select Coordinating Agencies' existing projects in the West Lake Okeechobee Subwatershed.

Project Name	Project Area (ac)	Project Status FY2025	Project Type	Static Storage (ac-ft)	Estimated Dynamic Storage (ac-ft/yr)	WY2025 Dynamic Storage (ac-ft/yr)	Estimated TP Removal (t/yr)	WY2025 TP Removal Performance (t/yr)	Estimated TN Removal (t/yr)	WY2025 TN Removal Performance (t/yr)
Nicodemus Slough	15,858	O&M	DWM - Active	14,300	24,600	33,887	2.2	3.7	37.4	66.6
West Lake Okeechobee Subwatershed Totals				**14,300**	**24,600**	**33,887.4**	**2.2**	**3.7**	**37.4**	**66.6**

Table 8B-26. Project timeline for current SFWMD and select Coordinating Agencies projects in the West Lake Okeechobee Subwatershed.



Project Name	Project Status FY2025	FY2016	FY2017	FY2018	FY2019	FY2020	FY2021	FY2022	FY2023	FY2024	FY2025	FY2026	FY2027	FY2028	FY2029	FY2030
Nicodemus Slough	O&M	🟦	🟦	🟦	🟦	🟦	🟦	🟦	🟦	🟦	🟦	🟦	🟦	🟦	🟦	🟦

🟧 **Planning** 🟨 **Design** 🟩 **Construction** 🟦 **O&M**

East Lake Okeechobee Subwatershed

The East Lake Okeechobee Subwatershed is approximately 232,038 ac located directly east of Lake Okeechobee and consists of the C-44 and L-8 basins (**Figure 8B-38**). The primary conveyance in the subwatershed is the C-44 Canal (St. Lucie River) and the primary flow direction is east from Lake Okeechobee into the C-44 Canal. However, there are times when water flows west from this subwatershed through the S-308 lock directly into Lake Okeechobee. Only flows from this subwatershed into Lake Okeechobee are discussed in this chapter; Chapter 8C of this volume discusses flows from Lake Okeechobee towards the St. Lucie Estuary. Flow and nutrient data observed at the associated basin structures were used to calculate the annual nutrient loads for each basin and summed to obtain the overall subwatershed load.

The C-44 LOWRP ASR well cluster is planned within the West Lake Okeechobee Subwatershed (**Figure 8B-38**). More information about the LOWRP can be found in the *Regional Projects* section above.

While flow from this subwatershed is sometimes directed toward Lake Okeechobee, the primary flow direction is west to east, and projects in this subwatershed are generally managed for downstream water bodies. Accordingly, more detail about East Lake Okeechobee Subwatershed projects can be found in Chapter 8C of this volume as part of the C-44 Basin of the St. Lucie River Watershed.

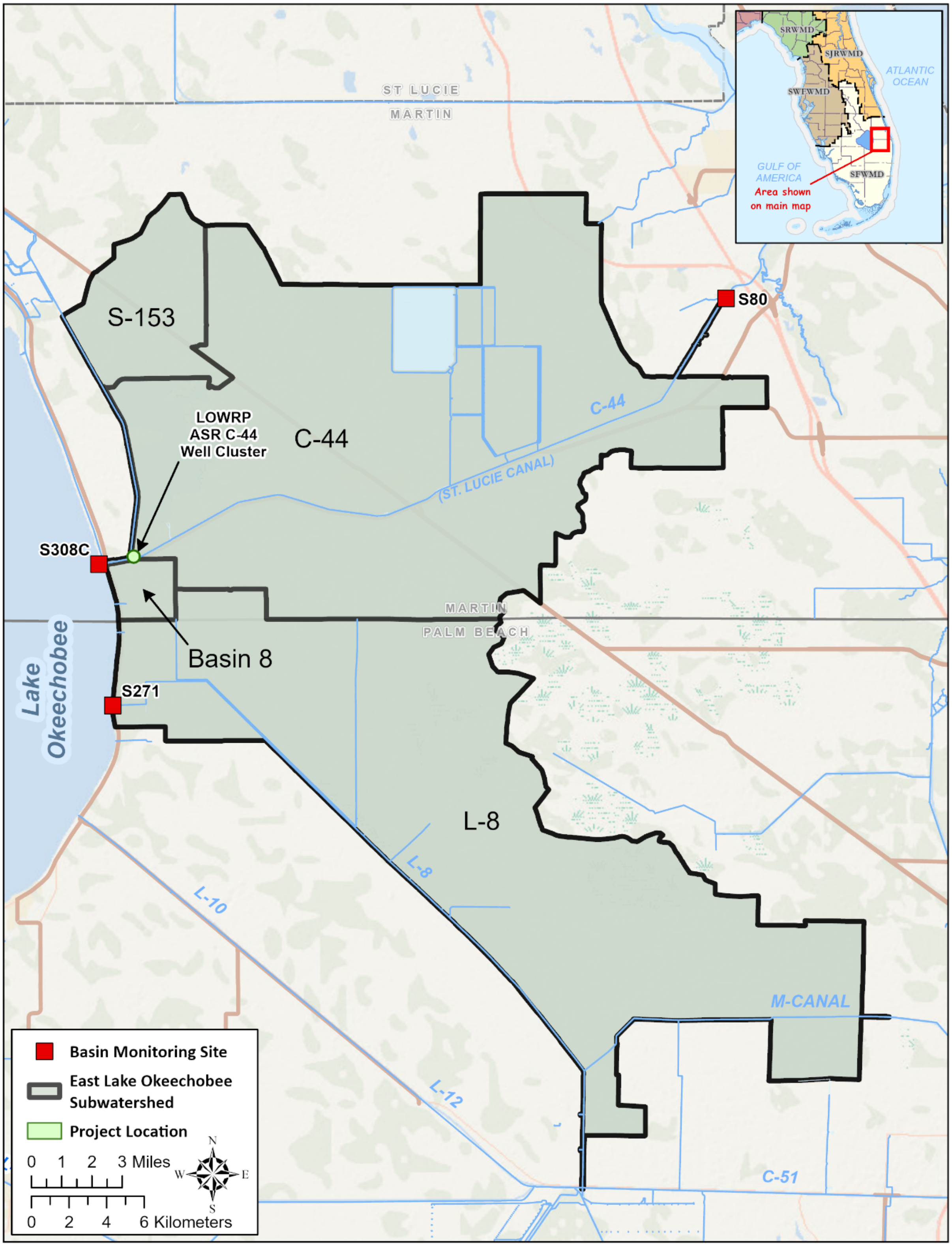


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Figure 8B-38. East Lake Okeechobee Subwatershed showing basin monitoring sites. (Note: ASR well clusters are planned components of the regional LOWRP.)

South Lake Okeechobee Subwatershed

The South Lake Okeechobee Subwatershed is approximately 357,871 ac located directly south of Lake Okeechobee and consists of ten basins: 715 Farms, East Beach Drainage District, East Shore Drainage District, Industrial Canal, S-2 Basin, S-3 Basin, S-4 Basin, South Florida Conservancy Drainage District, South Shore/South Bay Drainage District, and S-5A Basin (**Figure 8B-39**). The primary flow direction in this subwatershed is south. However, there are times when water is pumped north from this subwatershed directly into Lake Okeechobee. Only flows from this subwatershed into Lake Okeechobee are discussed in this chapter (Chapter 4 of this volume discusses flows from this region south towards the Everglades Protection Area). Flow and nutrient data observed at the associated basin structures are used to calculate the annual nutrient loads for each basin and summed to obtain the overall subwatershed load.

While flow from this subwatershed is sometimes directed toward Lake Okeechobee, the primary flow direction is north to south, and projects in this subwatershed are generally managed for downstream water bodies. Accordingly, more detail about South Lake Okeechobee Subwatershed projects can be found in Chapter 8D (S-4 Basin of the Caloosahatchee River Watershed) and Chapters 4 and 5A (Everglades Agricultural Area and Restoration Strategies, respectively) of this volume.

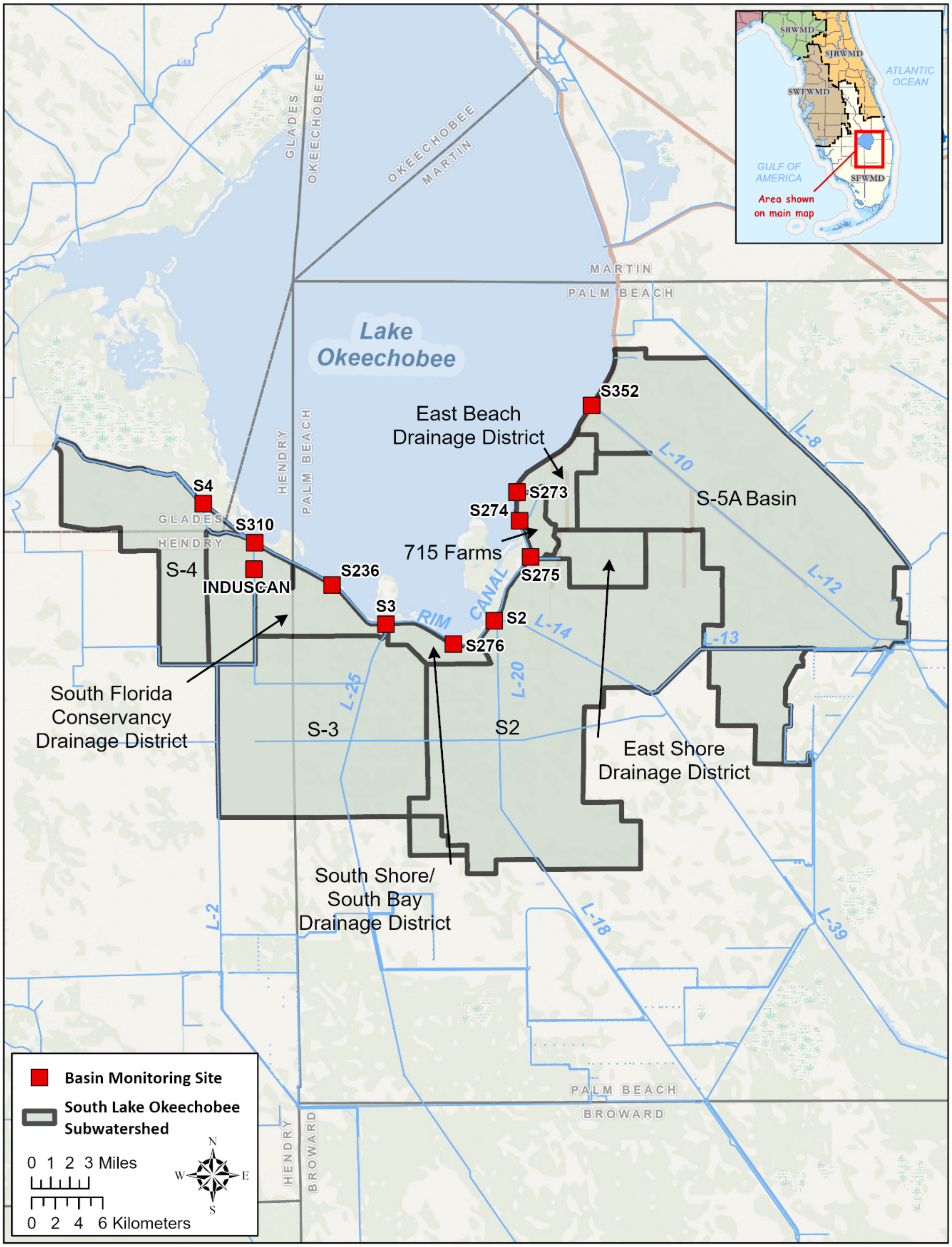

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Figure 8B-39. South Lake Okeechobee Subwatershed showing basin monitoring sites. (Note: Basin boundaries are approximate.)

DETAILED PROJECT DESCRIPTIONS

Table 8B-27 below provides a detailed description of each LOW project.

Table 8B-27. Detailed project descriptions.

Project Name	Subwatershed	Description
Eagle Haven Ranch	Upper Kissimmee	As a public-private partnership, this passive storage project consists of weirs installed in an existing ditch network to retain stormwater runoff. The project is formerly known as Lost Oak Ranch.
Partin Family Ranch	Upper Kissimmee	As a public-private partnership, this project near Lake Gentry retains direct rainfall and stormwater runoff within two large detention areas to reduce excess discharges to Lake Okeechobee.
Gardner-Cobb Marsh Restoration	Upper Kissimmee	The project includes various activities (e.g., ditch plugs, berm removal, exotic vegetation treatment, and culvert replacement) to help attenuate regional stormwater runoff. It may also provide ancillary water quality benefits due to nutrient plant uptake from overland flows in marsh. (Note: This project was completed in 2021.)
Rough Island	Upper Kissimmee	The project included various activities (e.g., ditch plugs, ditch filling, exotic removal) to help attenuate regional stormwater runoff and provide incidental nutrient reductions due to plant uptake from overland flows. (Note: This project was completed in 2009.)
Rolling Meadows Wetland Restoration Phase I	Upper Kissimmee	The project restores historic Lake Hatchineha floodplain wetlands and habitat within the Rolling Meadows property, which was purchased jointly with FDEP. (Note: This project was completed in 2017.)
Dixie Ranch	Lower Kissimmee	As a public-private partnership, this passive storage project is located on a private ranchland that detains direct rainfall and runoff from surrounding areas. The current project includes former Dixie Ranch and Dixie West projects.
Abington Preserve	Lower Kissimmee	As a public-private partnership, this passive storage project consists of a reservoir and a mixed area of wetlands that vary from temporarily to seasonally flooded. The water management area drains downstream into the Kissimmee Prairie Preserve State Park and the Kissimmee River via Seven Mile Slough. The project is formerly known as Triple A Ranch.
El Maximo Ranch	Lower Kissimmee	As a public-private partnership, this active treatment and flow attenuation project detains water from the Kissimmee River and Blanket Bay Slough before discharging to the Kissimmee River downstream of S-65.
Basinger Dairy Legacy Phosphorus	Lower Kissimmee	As a public-private partnership, this 5-year research project is located on a 950-ac former dairy farm in Okeechobee County. Project will help reduce a source of legacy phosphorus in the watershed and provide an in-situ location to conduct a series of remediation studies. Most of the area is planned to be converted to crops selected to remediate legacy phosphorus.
Dixie Ranch	Taylor Creek/Nubbin Slough	As a public-private partnership, this passive storage project is located on a private ranchland that detains direct rainfall and runoff from surrounding areas. The current project includes former Dixie Ranch and Dixie West projects.
Lakeside Ranch STA	Taylor Creek/Nubbin Slough	The 8-celled STA diverts and treats runoff from the S-191 Basin before it enters Lake Okeechobee. Phase I included the northern STA and inflow pump station (S-650), which began operating in 2012. Phase II Included the southern STA and pump station (S-191A), also known as Phase III, to manage rim canal levels during high flow and potentially recirculate lake water back to STA for further TP removal.
Nubbin Slough STA	Taylor Creek/Nubbin Slough	The 2-celled STA diverts and treats runoff from Nubbin Slough before it enters Lake Okeechobee.
Taylor Creek STA	Taylor Creek/Nubbin Slough	The 2-celled STA diverts and treats runoff from Upper Taylor Creek before it enters Lake Okeechobee.
Brady Ranch FEB	Taylor Creek/Nubbin Slough	The FEB will detain excess stormwater and provide operational flexibility to the adjacent Lakeside Ranch STA.

Table 8B-27. Continued.

Project Name	Subwatershed	Description
Grassy Island FEB	Taylor Creek/Nubbin Slough	The FEB will detain excess stormwater and provide operational flexibility to the adjacent Taylor Creek STA.
Lower Kissimmee Basin STA	Taylor Creek/Nubbin Slough	As a public-private partnership, the STA will remove TP from the S-154 and S-154C basins and reduce nutrient loading to Lake Okeechobee.
TCNS 214 Storage and Treatment	Taylor Creek/Nubbin Slough	The project will pump excess stormwater from Williamson Ditch into a shallow water storage and treatment feature before discharging to Taylor Creek.
S-191 Basin Phosphorus Removal	Taylor Creek/Nubbin Slough	Innovative technology project to remove phosphorus from the C-59 Canal and reduce nutrient loading to Lake Okeechobee. As of July 2025, this project has been withdrawn at the operator’s request.
Lemkin Creek HWTT	Taylor Creek/Nubbin Slough	HWTT technology combines attributes of treatment wetlands and chemical treatment systems. Operational since 2011, this FDACS-led project has a treatment capacity of approximately 5 cfs (0.14 cubic meters per second or m^3/s).
Wolff Ditch HWTT	Taylor Creek/Nubbin Slough	HWTT technology combines attributes of treatment wetlands and chemical treatment systems. Operational since 2011, this FDACS-led project has a treatment capacity of approximately 20 cfs (0.57 m^3/s).
Grassy Island HWTT	Taylor Creek/Nubbin Slough	HWTT technology combines attributes of treatment wetlands and chemical treatment systems. Operational since 2012 and with expansion in 2014, this FDACS-led project has a treatment capacity of approximately 30 cfs (0.85 m^3/s).
Mosquito Creek HWTT	Taylor Creek/Nubbin Slough	HWTT technology combines attributes of treatment wetlands and chemical treatment systems. Operational since 2008, this FDACS-led project has a treatment capacity of approximately 6 cfs (0.17 m^3/s).
Nubbin Slough HWTT	Taylor Creek/Nubbin Slough	HWTT technology combines attributes of treatment wetlands and chemical treatment systems. Operational since 2008, this FDACS-led project has a treatment capacity of approximately 7.4 cfs (0.21 m^3/s).
Rafter T Ranch	Lake Istokpoga	As a public-private partnership, this passive storage project has three water management areas designed to retain water in wetlands, low-lying pastures, and a reservoir to reduce runoff to Arbuckle Creek.
Aguaculture – Lake Istokpoga	Lake Istokpoga	As a public-private partnership, this project includes mechanical harvesting of vegetation and/or unconsolidated muck from Lake Istokpoga for application as a nutrient amendment and long-term retention on privately owned lands in Highlands County.
West Waterhole	Indian Prairie	As a public-private partnership, this project includes a flow-through detention system that pumps water from the C-40 Canal north of the S-75 structure attenuates water in two aboveground impoundments, and discharges back to the C-40 Canal south of S-75.
Buck Island Ranch	Indian Prairie	As a public-private partnership, this passive storage project retains and treats stormwater within an existing network of ditches, improved pastures, and wetland forage areas. The current project includes previous Buck Island Ranch, Water Management Area Component 1, and Water Management Area Component 2 projects.
Brighton Valley DWM	Indian Prairie	As a public-private partnership, excess water is pumped from the C-41A Canal and detained in two aboveground impoundments. Rainfall and pumped volume are attenuated and detained for nutrient removal before discharging to the C-40 Canal.
Lake Okeechobee Component A Storage Reservoir (LOCAR)	Indian Prairie	LOCAR is a partnership between USACE and SFWMD and received congressional authorization in WRDA 2024. In summer 2024, SFWMD and USACE revised both the final feasibility study and EIS for LOCAR. The purpose of this project is to construct a 200,000-ac-ft reservoir to store water north of Lake Okeechobee during wet periods for later use during dry periods and offer operational flexibility to draw and store water from the lake and the basin to improve its littoral ecosystems.
Llano Ranches	Fisheating Creek	As a public-private partnership, this passive storage project retains stormwater in an existing ditch network and surrounding wetlands and pastures. The project is formerly known as La Hamaca.

Table 8B-27. Continued.

Project Name	Subwatershed	Description
XL Ranch	Fisheating Creek	As a public-private partnership, this passive storage project employs wetland and reservoir areas to store water for pasture irrigation using gravity flow systems.
Fisheating Creek FAVT	Fisheating Creek	FAVT technology uses the direct assimilation of nutrients from the water column using floating plant roots, and all the biomass is rapidly incorporated directly into the soil through tilling. Operational since 2016, this project is comprised of 250 ac (101 ha) of FAV and SAV communities and has a treatment capacity of approximately 100 cfs (2.8 m^3/s).
Nicodemus Slough	West Lake Okeechobee	As a public-private partnership, this project pumps water from Lake Okeechobee through the S-282 structure into the west side of the project aboveground impoundment. Local runoff and pumped volume sheet flow east and discharge either back to Lake Okeechobee through the S-282 structure or south through the S-342 structure.

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