

# Introduction

The South Florida Water Management District (SFWMD or District) develops and updates regional water supply plans to provide for current and future water needs while protecting Central and South Florida’s water resources. This *2024 Lower Kissimmee Basin Water Supply Plan Update* (2024 LKB Plan Update) assesses existing and projected water needs as well as water sources to meet those needs through 2045.

The Lower Kissimmee Basin (LKB) Planning Area includes portions of Glades, Okeechobee, and Highlands counties (generally northwest of Lake Okeechobee) and the Seminole Tribe of Florida’s Brighton Reservation (**Figure 1-1**). This 2024 LKB Plan Update presents population estimates and associated water demands and projections (**Chapter 2**), water resource and water supply development projects (**Chapter 7**), and related water supply planning information for the 2022 to 2045 planning horizon. Designed to be a guide for local and tribal governments, utilities, agricultural operations, and other water users, this 2024 LKB Plan Update provides a framework for local and regional water supply planning and management decisions in the LKB Planning Area.

The LKB Planning Area encompasses approximately 1,805 square miles. To the northeast of the planning area is the St. Johns River Water Management District (SJRWMD), and to the east is the SFWMD’s Upper East Coast Planning Area. At the northern boundary of the planning area are the Avon Park Air Force Range in Polk County and the Kissimmee Prairie Preserve State Park in Osceola County (**Figure 1-1**). The Seminole Tribe of Florida’s Brighton Reservation and the Miccosukee Tribe of Indians of Florida’s Cherry Ranch property also are within the planning area. The western boundary is adjacent to the Southwest Florida Water Management District (SWFWMD). The LKB Planning Area generally is within the larger Lake Okeechobee watershed. There are five subwatersheds (basins) at least partially within the planning area boundaries: Lower Kissimmee River, Taylor Creek/Nubbin Slough, Lake Istokpoga, Indian Prairie, and Fisheating Creek (**Figure 1-2**). These subwatersheds have hydrologic relationships with the Kissimmee River, Lake Istokpoga, Fisheating Creek, and the tributaries and canals associated with these water bodies that eventually drain into Lake Okeechobee.

## TOPICS

- ◆ 2024 LKB Plan Update
- ◆ Goal and Objectives
- ◆ Legal Authority and Requirements
- ◆ Seminole Tribe of Florida Brighton Reservation
- ◆ Regional and Local Planning Linkage
- ◆ Plan Development Process
- ◆ Progress Since the 2019 LKB Plan Update

The primary sources of fresh water throughout the LKB Planning Area are surface water and groundwater. To a much lesser extent, reclaimed water also is reused for nonpotable uses like irrigation. Major surface water resources include Lake Istokpoga and its associated canals in the Indian Prairie Basin, Lake Okeechobee and its hydraulically connected water bodies, and the Kissimmee River. Also discussed in this plan update are Taylor Creek/Nubbin Slough and Fisheating Creek, which drain into Lake Okeechobee. Groundwater resources in the LKB Planning Area include the surficial and Floridan aquifer systems (SAS and FAS). Further information about water source options is provided in **Chapter 5**.

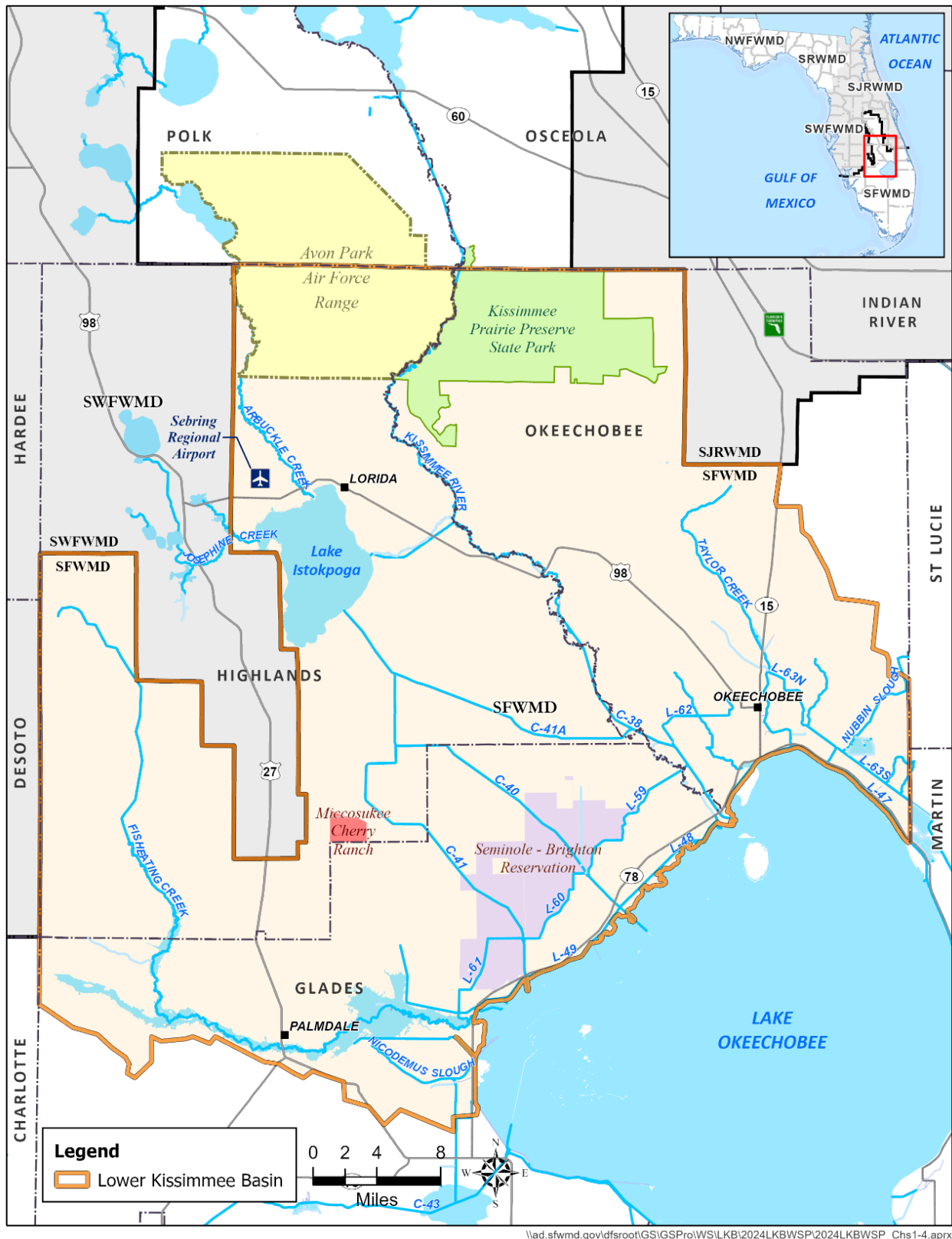


Figure 1-1. LKB Water Supply Planning Area.

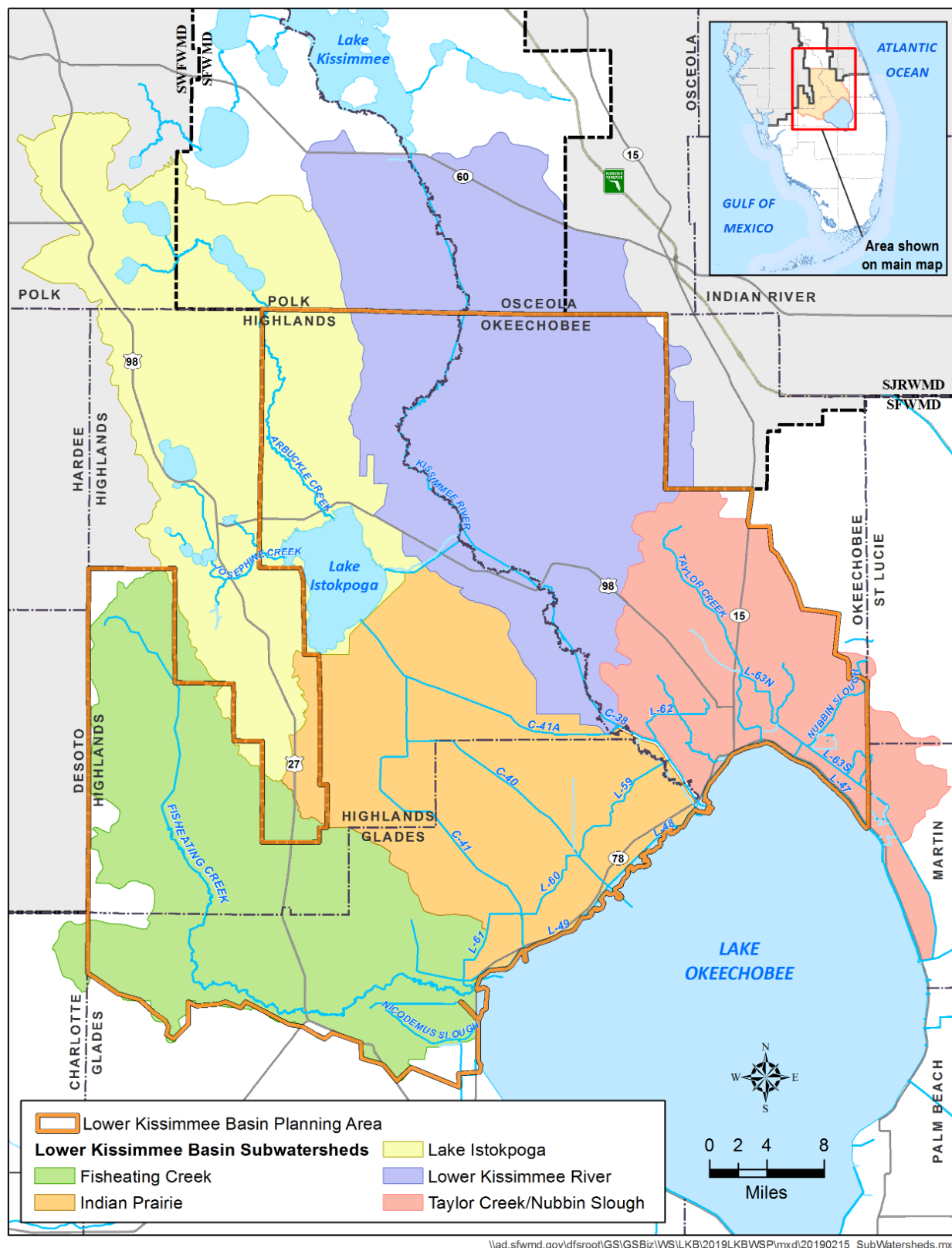


Figure 1-2. Primary subwatersheds within the LKB Planning Area.

# 2024 LKB PLAN UPDATE

The 2024 LKB Plan Update reflects the changes experienced in the LKB Planning Area since 2019 and the effects of those changes on water use and projected demands. This update consists of two documents: a planning document with appendices and the *2021–2024 Support Document for the Water Supply Plan Updates* (2021–2024 Support Document; SFWMD 2021). The planning document and appendices focus on the LKB Planning Area. The support document discusses aspects common to four of the five SFWMD regional planning areas, including the legal authority and requirements for water supply planning. The Upper Kissimmee Basin Planning Area is not included in the support document because it is part of the Central Florida Water Initiative, which has its own support documents. Additional supporting information for the SFWMD’s planning areas is available in the publication titled *Physical Features and Water Resources of the South Florida Water Management District* (SFWMD 2022).

## GOAL AND OBJECTIVES

The goal of the 2024 LKB Plan Update is to identify sufficient water supply sources and future projects to meet existing and future reasonable-beneficial uses during 1-in-10-year drought conditions through 2045 while sustaining water resources and natural systems. The objectives in the *2019 Lower Kissimmee Basin Water Supply Plan Update* (2019 LKB Plan Update; SFWMD 2019) were reviewed and modified for this 2024 LKB Plan Update as follows:

1. **Water Supply** – Quantify sufficient volumes of water and water supply projects to meet the projected demands for reasonable-beneficial consumptive uses projected through 2045 under 1-in-10-year drought conditions.
2. **Natural Systems** – Protect natural systems and water resources, including the Kissimmee River, Lake Istokpoga, Fisheating Creek, Taylor Creek, Nubbin Slough, and other federal, state, and locally identified natural resource areas.
3. **Water Conservation and Alternative Source Development** – Encourage water conservation measures to improve water use efficiency. Continue to encourage development of the FAS as an alternative water supply (AWS) and monitor the aquifers to enhance understanding of the relationships among water use, water levels, and water quality. Develop water storage options, including aquifer storage and recovery (ASR) systems and reservoirs, and promote projects that increase use of reclaimed water.
4. **Linkage with Local and Tribal Governments** – Provide information to support local government Comprehensive Plans. Promote compatibility of the 2024 LKB Plan Update with local and tribal government land use decisions.

5. **Compatibility and Linkage with Other Efforts** – Achieve compatibility and integration with planning-related activities within the region including:
- ♦ The Comprehensive Everglades Restoration Plan (CERP) and other environmental restoration projects
  - ♦ Other state and local water resource initiatives
  - ♦ Existing and proposed environmental projects
  - ♦ Modifications to operating schedules for the regional system, including Lake Okeechobee
  - ♦ Water use permitting process, minimum flow and minimum water level (MFL) criteria, water reservations, and restricted allocation areas (RAAs)
  - ♦ Local, District, and state resiliency efforts addressing the impacts of climate change, including changing rainfall and flood patterns

## LEGAL AUTHORITY AND REQUIREMENTS

The legal authority and requirements for water supply planning are included in Chapters 373, 403, 187, and 163, Florida Statutes (F.S.). In accordance with Florida’s Water Protection and Sustainability Program, regional water supply plans and local government Comprehensive Plans must ensure adequate potable water facilities are constructed and concurrently available to meet the demands of new development. The water supply planning region identified in this plan shall be considered a Water Resource Caution Area under Rule 62-40.520(2), Florida Administrative Code and for purposes of Section 403.064, F.S., and affected parties may challenge the designation pursuant to Section 120.569, F.S.

In addition to water supply planning, the SFWMD is required by statute to provide updates for a variety of resource development, restoration, and monitoring programs implemented within the District’s boundaries. Such updates are provided in the annual publication of the *South Florida Environmental Report* ([www.sfwmd.gov/sfer](http://www.sfwmd.gov/sfer)), which is referenced as needed in this plan update.

## SEMINOLE TRIBE OF FLORIDA BRIGHTON RESERVATION

The Seminole Tribe of Florida is a federally recognized Indian Tribe organized pursuant to Section 16 of the Indian Reorganization Act of 1934 and recognized by the State of Florida pursuant to Chapter 285, F.S. The Seminole Tribe of Florida’s Brighton Reservation encompasses 35,295 acres within the southern portion of the LKB Planning Area (**Figure 1-1**). Much of the land is used for various agricultural purposes and a small population of fewer than 1,000 permanent residents.

## REGIONAL AND LOCAL PLANNING LINKAGE


The SFWMD’s regional water supply planning process is closely coordinated and linked to the local water supply planning of municipal/county governments and utilities. Coordination and collaboration among all water supply planning entities is needed throughout the regional water supply plan development and approval process.

While this 2024 LKB Plan Update addresses regional and Districtwide water supply issues, local governments are required to plan for their water and wastewater needs (as well as other infrastructure and public service elements) through their Comprehensive Plans. These Comprehensive Plans also include Water Supply Facilities Work Plans (Work Plans), which are required by statute. Local governments are required by Chapter 163, F.S., to update their Work Plans and adopt revisions to their Comprehensive Plans within 18 months following approval of this 2024 LKB Plan Update. Revisions may include population projections, established planning periods, existing and future water resource projects, intergovernmental coordination activities, conservation and reuse measures, and the capital improvements element. More information on Comprehensive Plan and Work Plan requirements is provided in the 2021-2024 Support Document (SFWMD 2021).

To assist local governments in updating their Comprehensive Plans and Work Plans, the SFWMD has developed technical assistance tools and informational documents, which are available on the SFWMD webpage (<https://www.sfwmd.gov/doing-business-with-us/work-plans>). Additional information about developing a Work Plan is available from the Florida Department of Commerce webpage (<https://www.floridajobs.org/community-planning-and-development/programs/community-planning-table-of-contents/water-supply-planning>).

This 2024 LKB Plan Update describes how anticipated water supply needs will be met in the LKB Planning Area through 2045. The planning process used to develop this plan update is outlined below.

# PLAN DEVELOPMENT PROCESS

PLAN DEVELOPMENT PROCESS 			
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<b>Planning and Assessment</b>	<b>Data Collection, Analyses, and Issue Identification</b>	<b>Evaluation of Water Resources and Water Source Options</b>	<b>Identification of Water Resource and Water Supply Development Projects</b>
<p>The process incorporated public participation and coordination with local stakeholders, including water supply utilities, agricultural operations, nongovernmental environmental groups, local and tribal governments, the Florida Department of Environmental Protection, the Florida Department of Agriculture and Consumer Services, and other appropriate state and federal agencies. A review of previous planning efforts in the region and documentation of activities since the approval of the 2019 LKB Plan Update (SFWMD 2019) were key starting points.</p>	<p>Using the 2019 LKB Plan Update (SFWMD 2019) as a foundation, developing this plan update involved collecting the latest information on current and projected population and water demands (<b>Chapter 2</b>), water conservation (<b>Chapter 3</b>), water resource protection (<b>Chapter 4</b>), water source options (<b>Chapter 5</b>), and water resource analyses (<b>Chapter 6</b>).</p>	<p>This phase of the planning process involved reviewing existing monitoring data and regional modeling used for evaluation of water resources to identify issues. Where projected demands exceed available supplies, water supply project options were identified, including alternative water supplies and water conservation.</p>	<p>In areas where water resource conditions warranted, water resource development projects were identified (<b>Chapter 7</b>). If needed, water supply development projects intended to meet water needs over the planning horizon were identified, compiled, and evaluated by the SFWMD with input from stakeholders, the public, and other agencies. The SFWMD also considers water supply projects in local government Work Plans, Tribal Work Plans, and adopted Sector Plans, which are required to identify needed water supplies and available water sources pursuant to Section 163.3245(3)(a)2., F.S. Additionally, the projects were screened for permitting feasibility (<b>Chapter 7</b>).</p>



## Public Participation

Public participation is a key component of the water supply plan development process to ensure the plan addresses the issues and concerns of stakeholders, and that the future direction and projects are appropriate to meet future water needs. The SFWMD held two virtual workshops within the LKB Planning Area during the water supply plan update process. Stakeholders representing a variety of interests in the LKB Planning Area—agriculture, tribal, industry, environmental protection, utilities, local government planning departments, and state and federal agencies—were invited to attend the workshops. The workshops provided participants with an opportunity to review and comment on projected demands, water supply issues, the condition of regional water resources, water source options, groundwater modeling, and other key aspects of the water supply plan update.

Individual meetings were held throughout the planning process with public supply utilities, the Seminole Tribe of Florida, other planning agencies, local government planning departments, and agricultural representatives to discuss water demand projections and coordinate planning efforts. During meetings with the region’s major utilities and local governments, population and demand estimates and projections were reviewed and verified, and the condition of regional water resources and any AWS development efforts were discussed. Additionally, presentations were made to the District’s Governing Board, providing overviews of the plan update, and soliciting comments. Following the public comment period, the final version of the plan update was brought to the District’s Governing Board for consideration of approval.

## PROGRESS SINCE THE 2019 LKB PLAN UPDATE

Since the 2019 LKB Plan Update (SFWMD 2019), the following activities and programs have been improving the understanding of, while enhancing and protecting, the LKB Planning Area’s water resources, water supplies, and natural systems.

### Hydrologic Studies and Modeling

- ◆ **FAS Monitoring Network** – The SFWMD continues to maintain and update a network of more than 105 FAS monitor wells, 12 of which are within the LKB Planning Area. Water level data from the monitor wells are evaluated to help manage use of the FAS as a water supply source. In addition, water quality sampling and analyses are conducted periodically to observe any trends that might signal overuse of the resource.
- ◆ **Hydrogeologic Studies** – Since 2019, the SFWMD and its partners completed the following hydrogeologic investigations relevant to the LKB Planning Area:
  - ◆ Seismic characterization of the FAS near Lake Okeechobee (Michelsen and Jansen 2020)
  - ◆ Groundwater chemistry of the Lower Floridan aquifer (Geddes et al. 2020)

## Water Supply Studies

- ◆ **Annual Estimated Water Use Reports** – The SFWMD prepares annual reports that summarize estimated use (based on reported withdrawals) for the water use categories: Public Supply, Domestic Self-Supply, Agriculture, Commercial/Industrial/Institutional, Landscape/Recreational, and Power Generation. A copy of the annual reports can be found at <https://www.sfwmd.gov/our-work/water-supply>.
- ◆ **2023 Water Supply Cost Estimation Study** – The SFWMD funded an engineering evaluation of the capital and operational costs of various AWS options and treatment facilities, including groundwater wellfields, surface water facilities, water treatment processes, storage, piping, and distribution facilities as well as other ancillary components. A copy of the report completed in 2023 can be found at <https://www.sfwmd.gov/our-work/water-supply>.

## Regulations and Operations

- ◆ **Kissimmee River and Chain of Lakes Water Reservations** – In 2021, the Kissimmee River Restoration Project was completed and water reservation rules were adopted for the Kissimmee River and Chain of Lakes that identify and reserve from consumptive use the water needed to protect fish and wildlife in the Upper Chain of Lakes, Headwaters Revitalization Lakes, and the Kissimmee River and floodplain.
- ◆ **Lake Okeechobee System Operating Manual (LOSOM)** – A re-evaluation of the lake regulation schedule by the United States Army Corps of Engineers (USACE) began in 2019 to coincide with the Herbert Hoover Dike repairs which were completed in 2023. The process is ongoing, and completion of the water control plan is anticipated by the end of 2024.

## Water Storage, Construction, and Restoration Projects

- ◆ **Kissimmee River Restoration Project** – In partnership with the USACE, the Kissimmee River Restoration Project was completed in July of 2021 to restore historical water flows to the floodplain ecosystem. This project covers more than 40 square miles of the river floodplain ecosystem, 20,000 acres of wetlands, and 44 miles of historic river channel.



- ◆ **Herbert Hoover Dike/Lake Okeechobee** – In 2006, the USACE designated the Herbert Hoover Dike surrounding Lake Okeechobee as a Level 1 risk, the highest risk for dam failure. Rehabilitation and repair of the Herbert Hoover Dike was completed in 2023. Twenty-eight water control structures were replaced with new structures, one culvert was removed, and three were filled in. Construction of all works are completed, and the Dam Safety Action Classification rating improved from a Level 1 to a Level 4 (lowest risk of dam failure).

- ◆ **Lake Okeechobee Watershed Restoration Project (LOWRP)** – The purpose of the LOWRP, as part of CERP, is to improve the ecology of Lake Okeechobee, decrease regulatory releases to the St. Lucie and Caloosahatchee estuaries, restore freshwater wetlands in the watershed, and improve water supply for existing legal users. The LOWRP Final Integrated Project Implementation Report (PIR) and Environmental Impact Statement (EIS) were released for public and agency review in 2020. The recommended plan included aboveground storage, referred to as the wetland attenuation feature (WAF), underground storage with 80 ASR wells, and two wetland restoration sites. Concerns related to the acceptability and cost of the plan received during state, agency, and tribal review resulted in direction to refine the recommended plan by removing the WAF component and its 25 WAF-assisted ASR wells, creating a revised Recommended Plan called Alternative ASR with 55 ASR wells and two wetland restoration sites. The SFWMD and USACE determined the ASR well component would provide the greatest benefits to the estuaries. Since 2019, the SFWMD has been implementing the design and construction for the ASR well component in a phased approach while addressing the remaining uncertainties and stakeholder concerns regarding regional implementation of this technology. The current revised project components in the Recommended Plan (Alternative ASR) that are under consideration include the 55 ASR wells and approximately 5,900 acres of wetland restoration (**Figure 7-3**). The project team is currently preparing the Final Integrated PIR/EIS and intend to submit the report to Congress for approval in 2024.
- ◆ **Lake Okeechobee Component A Reservoir (LOCAR)** – The SFWMD, working in conjunction with the USACE, conducted and prepared a Feasibility Study and EIS for a separate project known as LOCAR. The Feasibility Study and EIS explored opportunities for 200,000 acre-feet of aboveground water storage north of Lake Okeechobee to maintain the basin storage in the original recommended plan for LOWRP. The study area covers a large portion of the Lake Okeechobee Watershed north of Lake Okeechobee and the project will provide ecological benefits to the lake and the northern estuaries. The feasibility study and EIS were submitted on February 28, 2024, to the Assistant Secretary of the Army for Civil Works for consideration by Congress in the Water Resources Development Act of 2024. By creating additional water storage north of Lake Okeechobee, the LOWRP ASR systems, in addition to the LOCAR project, can improve flexibility in the timing and distribution of water in the lake to the estuaries and throughout the watershed. Water can be stored during wet times to reduce damaging high lake levels and be released into the lake during dry times to reduce adverse impacts of low lake levels, thereby improving the reliability of water supplies.

## REFERENCES

- Geddes, E., S. Coonts, and R. Carroll. 2020. *Groundwater Chemistry of the Lower Floridan Aquifer–Upper Permeable Zone in Central and South Florida*. Technical Publication WS-57. South Florida Water Management District, West Palm Beach, FL. December 2020.
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- SFWMD. 2019. *2019 Lower Kissimmee Basin Water Supply Plan Update*. South Florida Water Management District, West Palm Beach, FL. December 2019.
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