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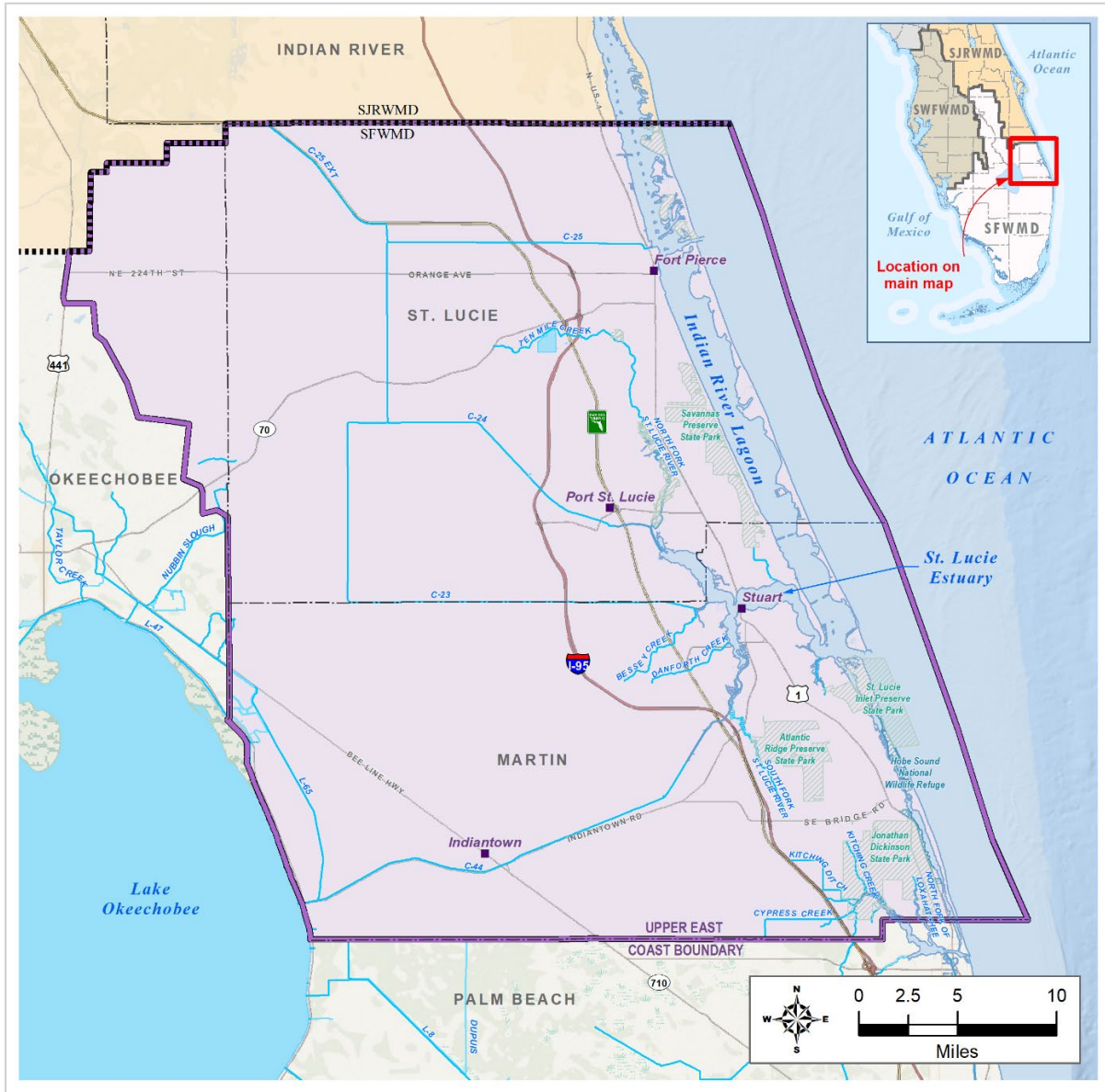
## Introduction

The South Florida Water Management District (SFWMD or District) develops and updates regional water supply plans to address current and future water needs while protecting central and southern Florida’s water resources. This *2021 Upper East Coast Water Supply Plan Update* (2021 UEC Plan Update) assesses existing and projected water demands as well as water sources to meet those demands through 2045 for Martin and St. Lucie counties and the northeastern portion of Okeechobee County (**Figure 1-1**). The plan update presents population estimates, water demands and projections (**Chapter 2**), water resource and water supply development projects (**Chapters 7 and 8**, respectively), and related water supply planning information for the 2019 to 2045 planning horizon. Designed to be a planning guide for local governments, utilities, agricultural operations, and other water users, this 2021 UEC Plan Update provides a framework for water supply planning and management decisions in the UEC Planning Area.

TOPICS 	
◆	2021 UEC Plan Update
◆	Goal and Objectives
◆	Legal Authority and Requirements
◆	Regional and Local Planning Linkage
◆	Plan Development Process
◆	Progress Since the 2016 UEC Plan Update

The UEC Planning Area covers approximately 1,230 square miles and generally reflects the watersheds of the C-23, C-24, C-25, and C-44 canals. To the north of the UEC Planning Area is the St. Johns River Water Management District, to the west is the Lower Kissimmee Basin Planning Area and Lake Okeechobee, to the south is the Lower East Coast Planning Area, and to the east is the Atlantic Ocean. In the eastern portion of the planning area, there are metropolitan areas from Fort Pierce to Stuart, and in the western portion, there is a mixture of agricultural and urban areas from Okeechobee to Indiantown. Along the eastern boundary of the planning area are the St. Lucie Estuary and Indian River Lagoon, which provide critical habitat to a wide variety of species.

Notable water resources that are partially in and affect the UEC Planning Area include the Northwest Fork of the Loxahatchee River and Lake Okeechobee. Because these two water bodies span more than one planning area, they are noted in this plan update but are fully addressed in the *2018 Lower East Coast Water Supply Plan Update* (SFWMD 2018). The Northwest Fork of the Loxahatchee River extends from southern Martin County into northern Palm Beach County. Lake Okeechobee serves as a boundary for four of the SFWMD’s water supply planning areas. The Lake Okeechobee Service Area includes portions of Palm Beach, Martin, Okeechobee, Hendry, Glades, and Lee counties that depend on surface water from Lake Okeechobee and its connected conveyance canals for supplemental water supply.



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Figure 1-1. Upper East Coast Water Supply Planning Area.

Determining the availability of water needed to meet projected demands requires consideration of the area’s water resources. The primary sources of fresh water throughout the UEC Planning Area are surface water and groundwater. To a much lesser extent, reclaimed water also is used. Major surface water resources for the UEC Planning Area include the C-23, C-24, C-25, and C-44 canals as well as Lake Okeechobee and its hydraulically connected water bodies. The availability of surface water in the planning area is limited, primarily due to water resource protection criteria (**Chapter 4**). Groundwater resources in the UEC Planning Area include the surficial and Floridan aquifer systems (SAS and FAS). Further information about water source options is provided in **Chapter 5**.

# 2021 UEC PLAN UPDATE

The 2021 UEC Plan Update reflects the changes experienced in the UEC Planning Area since 2016, and their effect on water use and projected water demands. The 2021 UEC Plan Update consists of two documents: the planning document with appendices, and the *Support Document for the 2021-2024 Water Supply Plan Updates* (2021-2024 Support Document; SFWMD 2021). The planning document and appendices focus on the UEC Planning Area. The 2021-2024 Support Document discusses aspects common to four of the SFWMD regional planning areas, including the legal authority and requirements for water supply planning. The Upper Kissimmee Basin is not included in the Support Document because it is part of the Central Florida Water Initiative, which has its own support documents.

## GOAL AND OBJECTIVES

The goal of the 2021 UEC 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 of the 2016 UEC Plan Update were reviewed and modified to develop the following objectives for this 2021 UEC Plan Update:

1. **Water Supply** – Quantify sufficient volumes of water and water supply projects to meet reasonable-beneficial consumptive uses projected through 2045 under 1-in-10 year drought conditions.
2. **Natural Systems** – Protect and enhance natural systems and water resources including the St. Lucie River and Estuary, the Indian River Lagoon, the Northwest Fork of the Loxahatchee River, and other federal, state, and locally identified natural 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 Governments** – Provide information to support local government Comprehensive Plans. Promote compatibility of the plan update with local government land use decisions.
5. **Compatibility and Linkage with Other Efforts** – Achieve compatibility and integration with the following planning-related activities:
  - ♦ Other state and federal water resource initiatives in the planning area;
  - ♦ Existing and proposed environmental projects;
  - ♦ Modifications to operating schedules for regional systems, including Lake Okeechobee; and
  - ♦ Water use permitting process, Minimum Flow and Minimum Water Level (MFL) criteria, water reservations, and restricted allocation areas (RAAs).

## LEGAL AUTHORITY AND REQUIREMENTS

The legal authority and requirements for water supply planning are included in Chapters 163, 187, 373, and 403, 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 that 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 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*, which is referenced as needed in this plan update.

## 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 2021 UEC 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. Local Comprehensive Plans also include Water Supply Facilities Work Plans (Work Plans), which are required by statute. In addition, local governments are required by statute to update their Work Plans and adopt revisions to their Comprehensive Plans within 18 months following approval of this 2021 UEC 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 requirement 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 website (<https://www.sfwmd.gov/doing-business-with-us/work-plans>). Additional information about developing a Work Plan is available from the Florida Department of Economic Opportunity website ([www.floridajobs.org/community-planning-and-development/programs/community-planning-table-of-contents/water-supply-planning](http://www.floridajobs.org/community-planning-and-development/programs/community-planning-table-of-contents/water-supply-planning)).

# PLAN DEVELOPMENT PROCESS

This 2021 UEC Plan Update describes how anticipated water supply needs will be met in the UEC Planning Area through 2045. The planning process used to develop this 2021 UEC Plan Update is outlined below.

PLAN DEVELOPMENT PROCESS 			
<h1>1</h1> <p><b>Planning and Assessment</b></p> <p>The process incorporated public participation and coordination with local stakeholders, including water supply utilities, agricultural operations, nongovernmental environmental groups, local 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 2016 UEC Plan Update were key starting points.</p>	<h1>2</h1> <p><b>Data Collection, Analysis, and Issue Identification</b></p> <p>Using the 2016 UEC Plan Update 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 protections (<b>Chapter 4</b>), water supply source options (<b>Chapter 5</b>), and water resource issues (<b>Chapter 6</b>).</p>	<h1>3</h1> <p><b>Evaluation of Water Resources and Water Source Options</b></p> <p>This phase of the planning process involved reviewing existing monitoring data and updated regional modeling used for evaluation of water resources to identify issues. Where projected demand exceeds available supplies, water supply project options were identified, including alternative water supplies and water conservation.</p>	<h1>4</h1> <p><b>Identify Water Resource and Water Supply Development Projects</b></p> <p>Where resource conditions warranted, water resource development projects were identified (<b>Chapter 7</b>). 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. Additionally, the projects were screened for permitting feasibility (<b>Chapter 8</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 direction and projects are appropriate for future water needs. Due to the COVID-19 pandemic, the SFWMD held virtual workshops for this water supply plan update. Stakeholders representing a variety of interests in the region, such as agriculture, industry, environment, utilities, local government planning departments, and state and federal agencies as well as the general public, 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, 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 AWS development efforts were discussed. Additionally, presentations regarding the plan update were made to the District Governing Board.

## PROGRESS SINCE THE 2016 UEC PLAN UPDATE

Since the 2016 UEC Plan Update, the following activities and programs in the UEC Planning Area are enhancing the region's water resources, water supply, and natural systems.

### Modeling and Hydrologic Studies

- ◆ **FAS Monitoring Network** – The SFWMD maintains and updates a network of more than 117 FAS monitor wells, 16 of which are within the UEC 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.
- ◆ **East Coast Floridan Model** – The East Coast Floridan Model (Giddings et al. 2014) was updated and used to identify potential changes in water quality, flows, and water levels in the FAS for the 2019 and 2045 withdrawal scenarios (Billah et al. 2021). **Chapter 6** provides information about the modeling effort for this plan update.
- ◆ **Hydrogeologic Studies** – Between 2016 and 2020, the SFWMD and its partners completed the following hydrogeologic investigations:
  - ◆ Caulkins Water Farm Pilot Project, part of the SFWMD's Dispersed Water Management Program – water quality monitoring commenced in 2016 and is ongoing (Janzen et al. 2017).
  - ◆ Geochemistry of the Upper Floridan aquifer and Avon Park permeable zone (Geddes et al. 2018).
- ◆ **Updated Delineation of the Saltwater Interface in Martin and St. Lucie Counties** – The SFWMD reviewed water quality data from Martin and St. Lucie counties and updated maps to compare the 2009, 2014, and 2019 extent of saltwater intrusion within the SAS.

## Water Storage, Construction, and Restoration Projects

- ◆ **Herbert Hoover Dike/Lake Okeechobee** – In 2007, the United States Army Corps of Engineers (USACE) designated the Herbert Hoover Dike as a Class I risk, the highest risk for dam failure. Of the 32 culverts slated to be replaced, removed, or abandoned, 27 have been completed and the remaining 5 are under construction. The Dam Safety Modification Study identified 56.3 miles of the dam as needing improvement, of which 40 miles (71%) have been completed. Construction of all works are currently scheduled for completion by the end of 2022.



- ◆ **Lake Okeechobee Watershed Restoration Project** – Part of the Comprehensive Everglades Restoration Plan (CERP), the purpose of the Lake Okeechobee Watershed Restoration Project 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 project team prepared a Final Integrated Project Implementation Report and Environmental Impact Statement that was released in August 2020 for public review. A Final Chief's Report and Congressional authorization is pending for the project. The recommended plan includes construction of up to 80 ASR wells located in clusters throughout the Lake Okeechobee watershed. The Florida State Legislature appropriated \$100 million [\$50 million in Fiscal Year (FY) 2020 and \$50 million in FY2021] to the SFWMD for the design, engineering, and construction of the specific project components designed to achieve the greatest reductions in harmful discharges to the Caloosahatchee and St. Lucie estuaries.
- ◆ **Indian River Lagoon – South Project** – The Indian River Lagoon – South (IRL-S) project is part of CERP and was authorized by the Water Resource Development Act of 2007. The purpose of the IRL-S Project is to restore, preserve, and protect the Indian River Lagoon, St. Lucie Estuary, and associated watershed while maintaining the existing level of flood control and water supply. Structural project components for the IRL-S Project, such as reservoirs and stormwater treatment areas (STAs), will capture, store, and treat local runoff to the Indian River Lagoon and St. Lucie Estuary from the C-44, C-23, C-24, and C-25 basins. Since 2016, the C-44 Reservoir and STA have been constructed and are in initial testing stages. The other structural components of the IRL-S Project (C-23 to C-44 Interconnect and the C-23/C-24 and C-25 STAs and reservoirs) are discussed in **Chapter 7**.
- ◆ **Ten Mile Creek Water Preserve Area** – The Ten Mile Creek Water Preserve Area consists of a 526-acre water storage area and 132-acre polishing cell that improves the quantity and timing of water discharged into the North Fork of the St. Lucie River. Originally constructed by the USACE, the project was transferred to the SFWMD in May 2016. Rehabilitation of the water preserve area was completed, and routine operation at a 4-foot maximum depth commenced in August 2017. See **Chapter 7** for more details.

- ◆ **Lakeside Ranch STA** – The Lakeside Ranch STA is a key component of the Northern Everglades and Estuaries Protection Program designed to reduce phosphorus loads to Lake Okeechobee. Located in northwestern Martin County, the Lakeside Ranch STA project consists of canals, levees, treatment cells, a central preserve area, and a southern preserve area on a 2,700-acre parcel of land adjacent to Lake Okeechobee. Phase II consisted of constructing STA-South, which was completed in January 2019, and the S-191A pump station, which is expected to be completed in August 2021. See **Chapter 7** for more details.

## Grant Funding Program

As part of the regional water supply plans' water resource development component (**Chapter 7**), and to assist local water users in implementation of the water supply development component (**Chapter 8**), the SFWMD periodically provides funding assistance to public water suppliers, local governments, special districts, homeowners' associations, water users, and other public and private organizations for AWS and water conservation projects that are consistent with the SFWMD's core mission. Water supply development projects are those that involve "planning, design, construction, operation, and maintenance of public or private facilities for water collection, production, treatment, transmission, or distribution for sale, resale, or end use" [Section 373.019(26), F.S.] and are primarily the responsibility of local water providers. In 2019, the Florida Department of Environmental Protection and SFWMD initiated annual funding for the construction and implementation of AWS and water conservation projects to qualified applicants through the AWS Funding Program.

- ◆ **Alternative Water Supply** – From FY2016 through FY2021, the SFWMD provided AWS project funding for four projects that were completed or are under construction in the UEC Planning Area, generating 9.5 million gallons per day (mgd) of additional water capacity.
- ◆ **Water Conservation** – From FY2016 through FY2021, the SFWMD provided funding for eight water conservation projects that were completed or are being implemented in the UEC Planning Area. The projects are estimated to save 1.10 mgd.



## REFERENCES

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