

Water Resource Protection



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LRMCC
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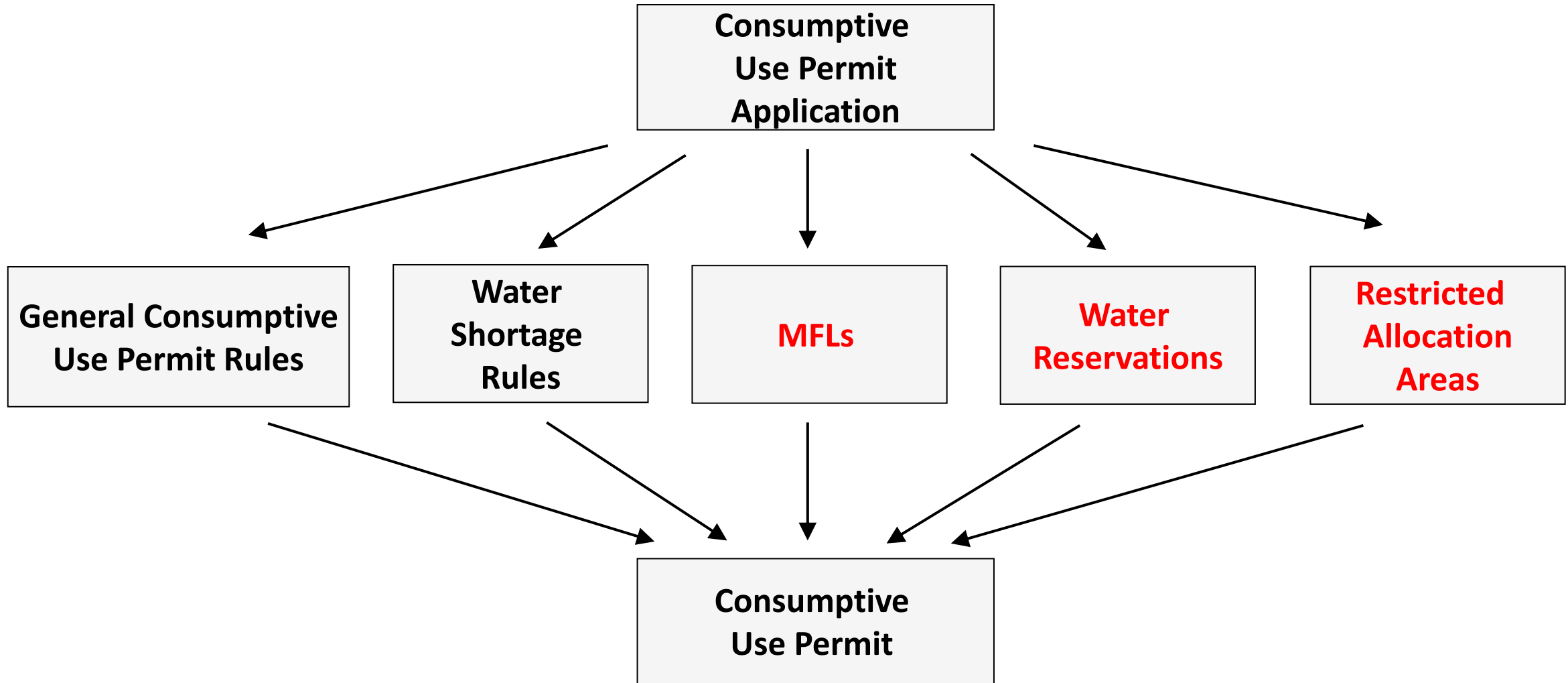
Water Resource Protection Tools

- Minimum flows and minimum water levels (MFLs)
- Water reservations
- Restricted allocation areas (RAAs)
- Consumptive Use Permitting
- All tools are adopted by rule in the Florida Administrative Code (F.A.C.)
- More than one tool can protect a waterbody



Loxahatchee National Wildlife Refuge

Factors Considered in Consumptive Use Permitting



Priority Water Body List and Schedule

South Florida Water Management District 2025 Priority Water Body List and Schedule

Minimum Flows and Minimum Levels:

2025 - 2028 – Florida Bay

- Reevaluate Minimum Flows and Levels Criteria for Florida Bay to include changing hydrological considerations including CERP and sea level rise over a 20-year planning horizon.

2025 - 2028 – Northwest Fork of the Loxahatchee River

- Reevaluate Minimum Flows and Levels Criteria for the Northwest Fork of the Loxahatchee River to include changing hydrological considerations including the Comprehensive Everglades Restoration Plan (CERP) and sea level rise over a 20-year planning horizon.

2026 - 2029 – Biscayne Aquifer

- Reevaluate Minimum Flows and Levels Criteria for the Biscayne Aquifer to include changing hydrological considerations including CERP and sea level rise over a 20-year planning horizon.

Water Reservations and Restricted Allocation Areas:

2025 – 2028 – Western Everglades Restoration Project (WERP)

- Establish a Water Reservation and/or a Restricted Allocation Area for the Western Everglades Restoration Project to protect the quantity, timing, and distribution of water identified in the WERP Final Integrated PIR/EIS (September 2024), ensuring flows are not available for consumptive use.

2025 – 2028 – Lake Okeechobee Component A Reservoir (LOCAR)

- Establish a Restricted Allocation Area (RAA) for the Lake Okeechobee Component A Reservoir as identified in the LOCAR Final Feasibility Study Report (June 2024), to protect the water within the project footprint from consumptive use.

2025 – 2026 – Mid-Hawthorn Aquifer (Cape Coral Area)

Establish a Restricted Allocation Area (RAA) for the Mid-Hawthorn Aquifer in the Cape Coral area. This action is designed to further implement the existing Maximum Developable Limit (MDL) rule by restricting future consumptive uses or issuance of well construction permits in specific areas where the MDL is being exceeded. The MDL rule is the regulatory component of the prevention strategy for the adopted aquifer MFL.

2025 – 2026 – Sandstone Aquifer (Lee County Area)

- Establish a Restricted Allocation Area (RAA) for the Sandstone Aquifer in the Lee County area. This action is designed to further implement the existing Maximum Developable Limit (MDL) rule by restricting future consumptive uses or issuance of well construction permits in specific areas where the MDL is being exceeded. The MDL rule is the regulatory component of the prevention strategy for the adopted aquifer MFL.

2025 – 2028 – Biscayne Bay Coastal Wetlands (BBCW)

- Amend the Water Reservation for BBCW to protect the quantity, timing, and distribution of freshwater now being redistributed from canal outfalls into marsh/creek flow-ways by restoration. This shift means that the traditional canal-gauge metrics no longer accurately represent the freshwater reaching the target ecosystems. Updated protection of restored flow is needed to maintain nearshore mesohaline conditions and ensure it's not compromised for consumptive use.

Minimum Flows and Minimum Water Levels

Recovery Waterbody



Loxahatchee River

- Annual MFL Priority Waterbody List
- Identify the point at which *further withdrawals* cause significant harm to the water resources
- Recovery or Prevention Waterbodies
- Established using “*best available information*”
- Peer-reviewed science

Significant harm: Temporary loss of water resource functions that takes more than 2 years to recover but is less severe than serious harm

May be adopted for surface waters or aquifers

Prevention Waterbody



Loxahatchee watershed

Conceptual Model of Chapter 40E-8 FAC

	Water Resource Protection Tools	Water Resource Protection Standards	Observed Impacts
Water Levels/Flow Decreasing	Permittable Water Reservation of Water	NO HARM (1-in-10 Level of Certainty*)	Normal Permitted Operations Environmental Restoration
	Phase I Water Shortage Phase II Water Shortage	HARM	Temporary loss of water resource functions taking 1 to 2 years to recover
	MINIMUM FLOWS & MINIMUM WATER LEVELS		
Drought Severity Increasing	Phase III Water Shortage	SIGNIFICANT HARM	Water resource functions require multiple years to recover (> 2 year)
	Phase IV Water Shortage	SERIOUS HARM	Permanent or irreversible loss of water resource functions

* 1-in-10 Level of Certainty – Reasonable assurance that the proposed use will not harm water resources or interfere with existing legal water users up to a 1-in-10-year drought condition (a drought condition that occurs only once in 10 years).

MFL Recovery and Prevention Strategies

Section 373.0421(2), F.S.

Recovery Strategy

- For waterbodies not meeting the MFL at the time of adoption
- Achieve recovery to the established MFL as soon as “practicable”

Prevention Strategy

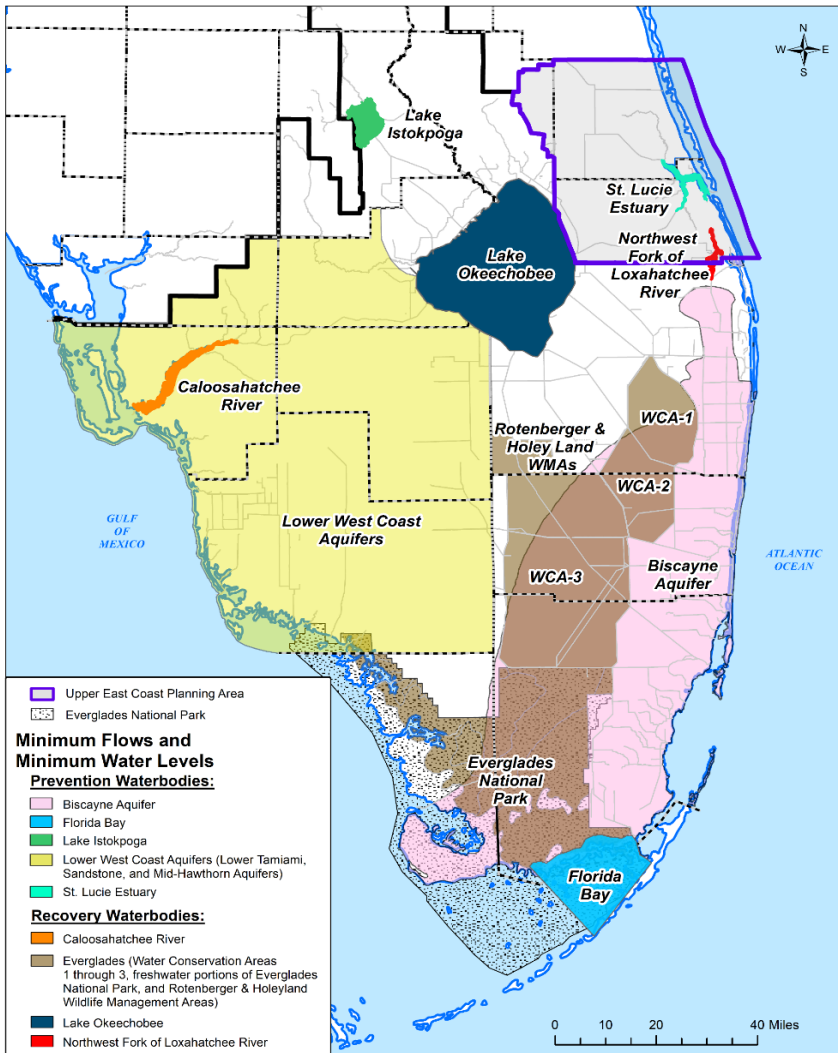
- For waterbodies that are meeting the MFL but are not expected to meet it in 20 years
- Prevent the existing flow or level from falling below the adopted MFL



Great Egret (*Ardea alba*) and American Alligator (*Alligator mississippiensis*)

Source: <https://naturetime.wordpress.com>

MFLs Adopted to Date in SFWMD



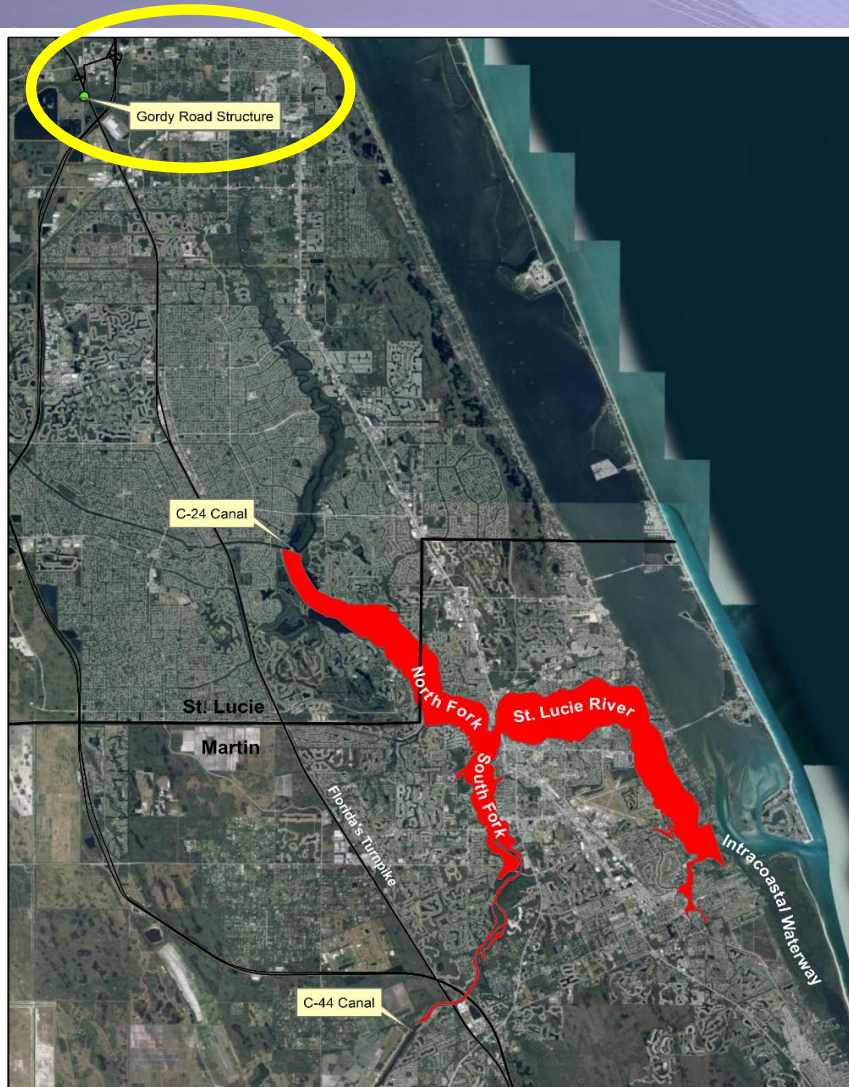
MFL with Prevention Waterbodies

- Biscayne aquifer (2001)
- Lower West Coast aquifers (2001)
- St Lucie Estuary (2002)
- Lake Istokpoga (2006)
- Florida Bay (2006)

MFL with Recovery Waterbodies

- Lake Okeechobee (2001), revised (2007)
- Everglades (2001)
- Caloosahatchee River (2001)
- Northwest Fork of Loxahatchee River (2003)

St. Lucie Estuary MFL



Rule 40E-8.341, F.A.C. (adopted 2002)

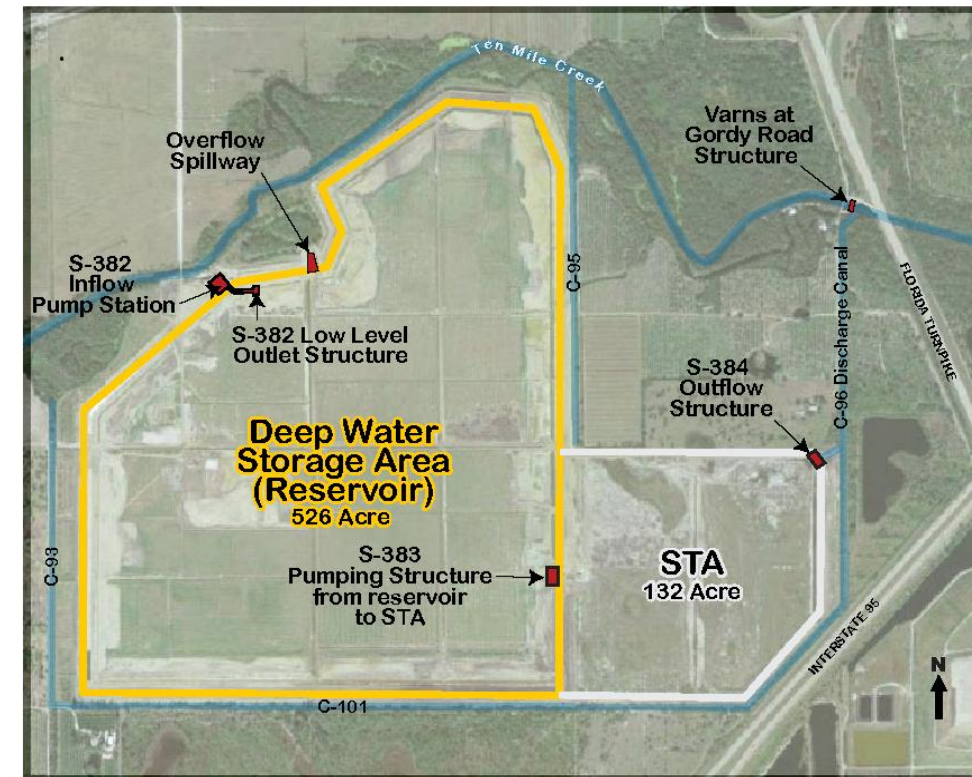
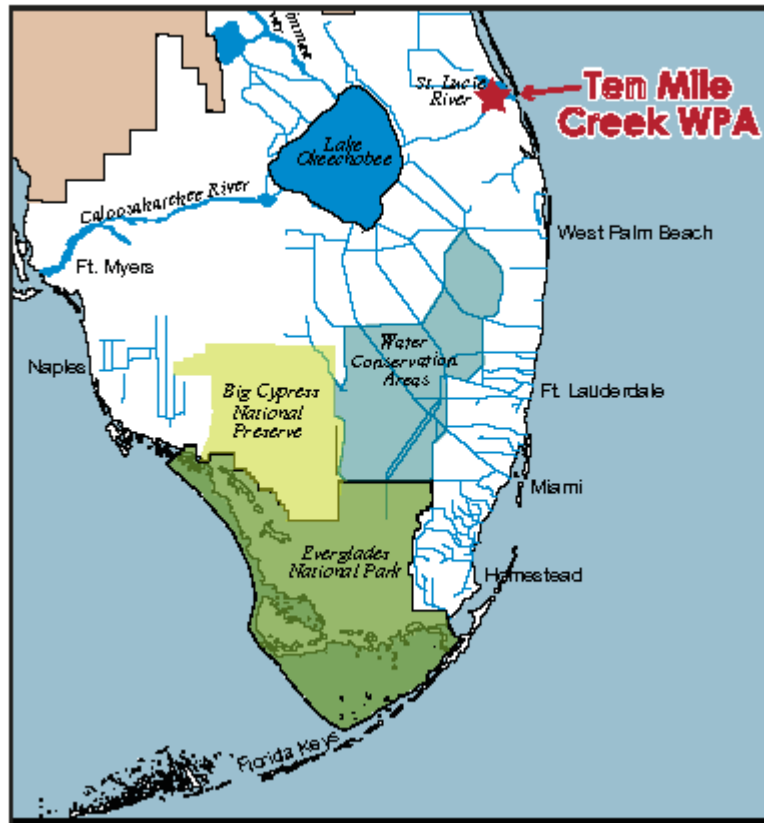
Defined in Subsection 40E-8.021(29), F.A.C, as... “the surface water body south of the confluence of the St. Lucie River North Fork and the C-24 Canal; north of the confluence of the St. Lucie River South Fork and the C-44 Canal; and west of the western boundary of the Intracoastal Waterway, exclusive of canals”

- Minimum mean monthly flow of 28 cubic feet per second (cfs) at the Gordy Road Structure
- An MFL violation occurs when:
 - Mean monthly flow at the Gordy Road Structure declines below 28 cfs, for two consecutive months, during a 365-day period, for two consecutive years

St. Lucie Estuary Prevention Strategy

Subsection 40E-8.421(5), F.A.C., and Upper East Coast Water Supply Plan

Discharges from the North Fork are managed within the operational protocols of the Ten Mile Creek Project



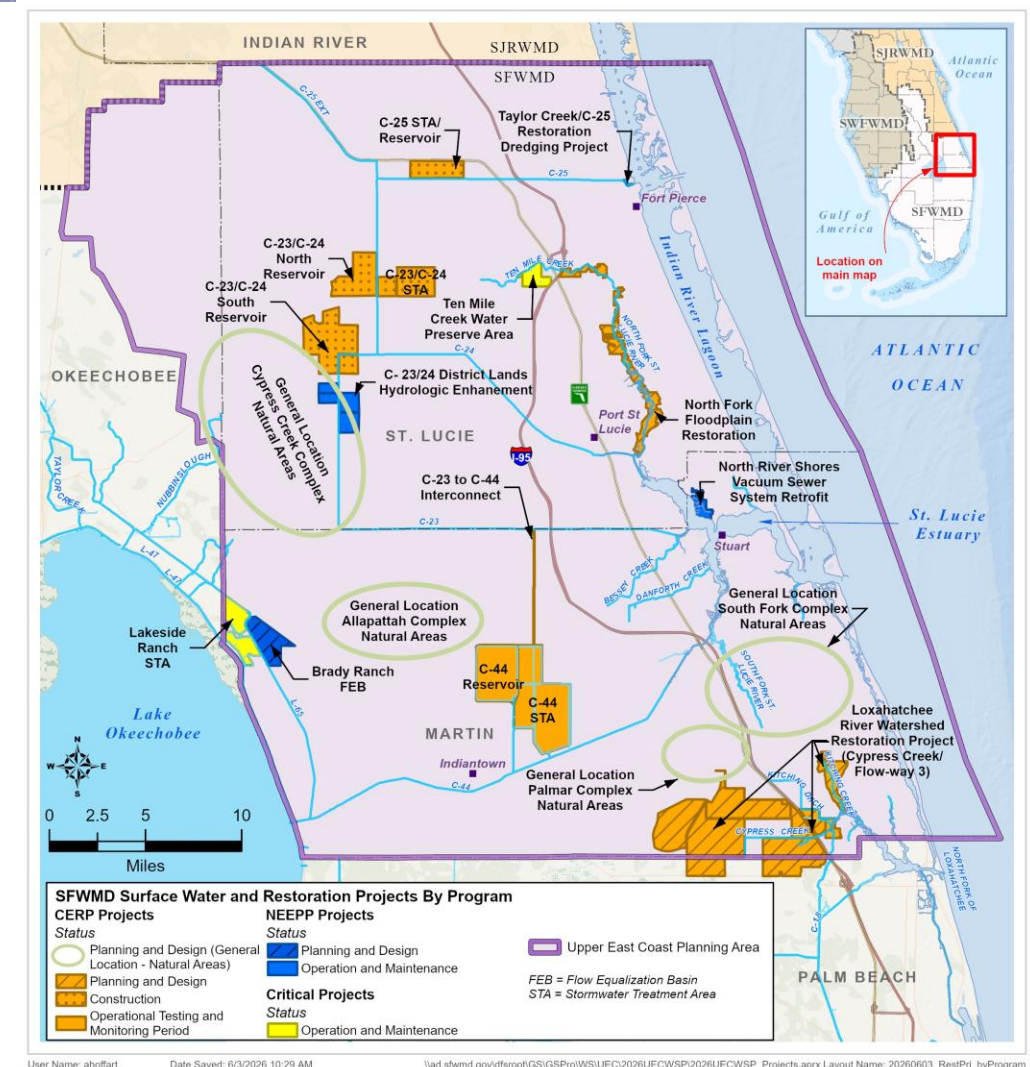
Ten Mile Creek Project components.

From: <https://www.saj.usace.army.mil/Media/Fact-Sheets/Article/479985/ten-mile-creek-water-preserve-area/>

St. Lucie Estuary Prevention Strategy

Subsection 40E-8.421(5), F.A.C., and Upper East Coast Water Supply Plan

Flow targets are consistent with the Comprehensive Everglades Restoration Plan (CERP) performance requirements for Indian River Lagoon as part of the CERP Indian River Lagoon – South (IRL-S) Project



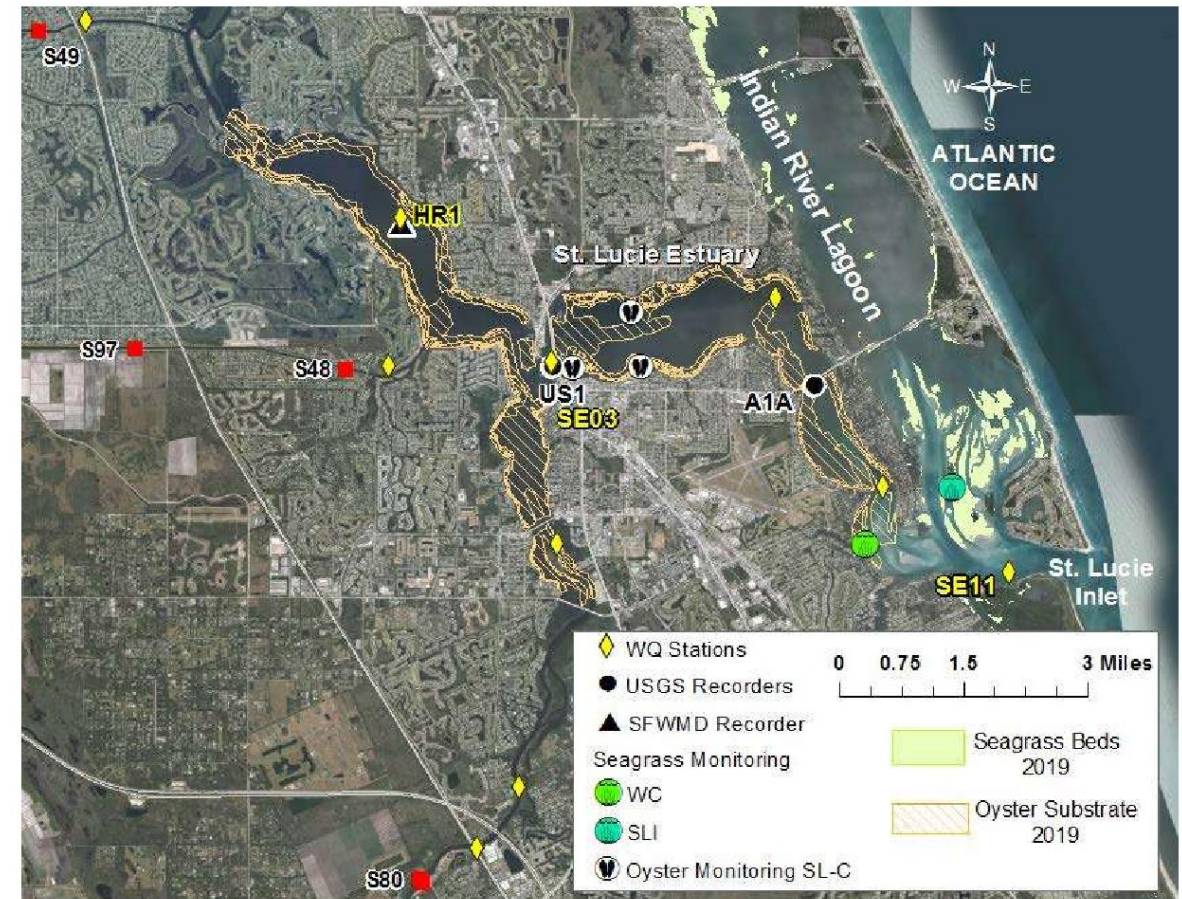
St. Lucie Estuary Prevention Strategy

Subsection 40E-8.421(5), F.A.C., and Upper East Coast Water Supply Plan

Ongoing research and monitoring are conducted in the North and South Forks of the St. Lucie River



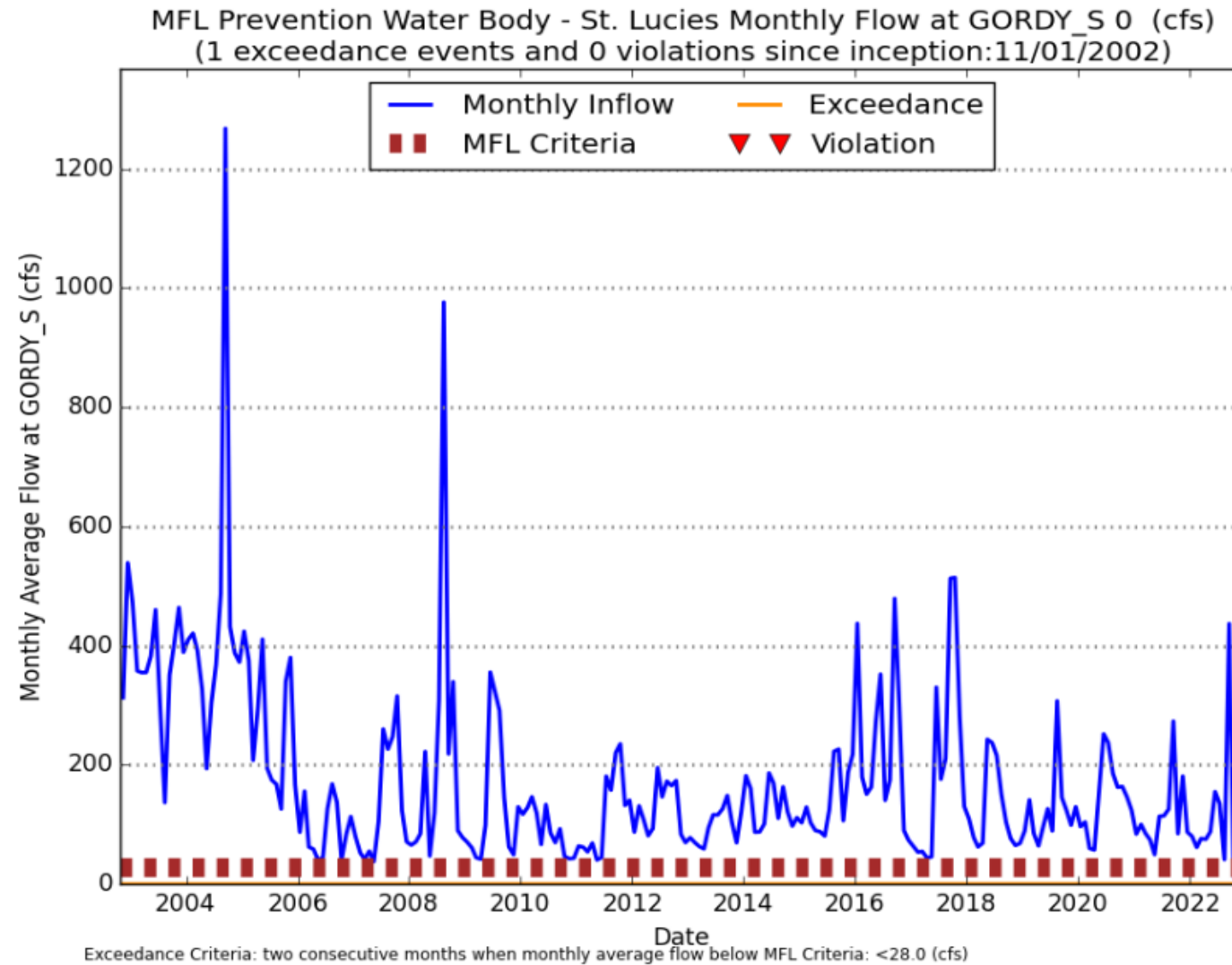
Eastern Oyster (*Crassostrea virginica*).



St. Lucie Estuary monitoring locations for water quality (HR1, SE03, and SE11), salinity (US1 and A1A salinity recorders), seagrass (Willoughby Creek= WC and St. Lucie Inlet= SLI sites), and oysters (St. Lucie Central Site = SL-C, stations C1, C2, and C3). Also shown are the seagrass cover maps from aerial photography conducted in 2019 of the Southern IRL and lower SLE, and the 2019 sidescan-sonar mapping results for oyster substrate, which includes live oysters and oyster shell.

From: 2021 South Florida Environmental Report https://apps.sfwmd.gov/sfwmd/SFER/2021_sfer_final/v1/chapters/v1_ch8c.pdf

MFL Flow Compliance Data



Lake Okeechobee Adopted MFL

Subsection 40E-8.221(1), F.A.C

Lake level of 11' NGVD

An MFL “exceedance” occurs when:

- Lake level declines below 11', for > 80 consecutive or non-consecutive days, during an 18-month period
- 18-month period shall not include more than one wet season (May 31 through October 31)

An MFL violation occurs when an exceedance occurs more than once every 6 years (return frequency)

Lake Okeechobee Recovery Strategy

- **Subsection 40E-8.421(2), F.A.C.**
- Environmental Enhancement Projects
 - Native vegetation planting, sediment scraping, prescribed burns, etc.
- Lake Water Consumptive Use Constraints
 - Restricted Allocation Areas
- Water Restrictions
 - Phases 1 through 4 as needed
- Capital Projects to Improve Storage Capacity in and adjacent to lake
 - Lake Okeechobee Watershed Restoration Project
 - LOCAR

NW Fork of Loxahatchee River Adopted MFL

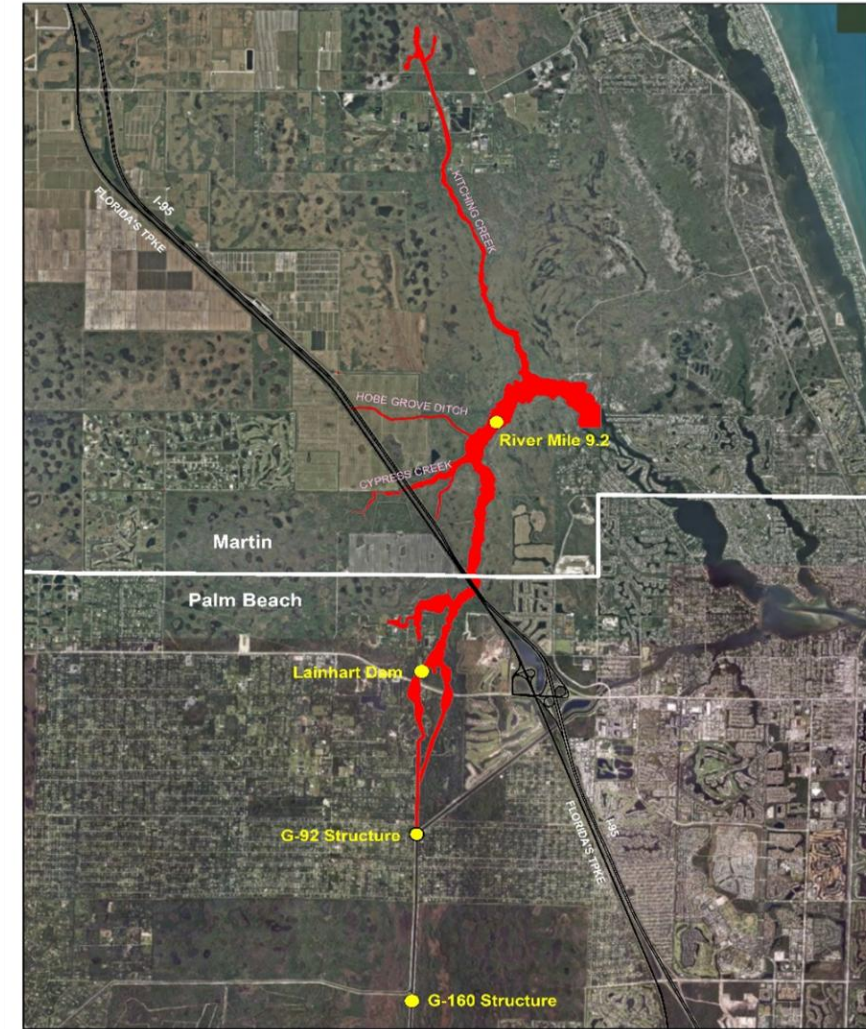
Subsection 40E-8.221(4), F.A.C.

Flow of 35 cfs over Lainhart Dam; and average daily salinity of ≤ 2 at river mile 9.2

An MFL exceedance occurs when:

- Flows decline below 35 cfs for > 20 consecutive days; or
- Salinity, expressed as 20-day rolling average, is > 2 at river mile 9.2

An MFL violation occurs when an exceedance occurs more than once in a 6-year period



Northwest Fork of the Loxahatchee River (in red)

Presenter: Shimelis Setegn

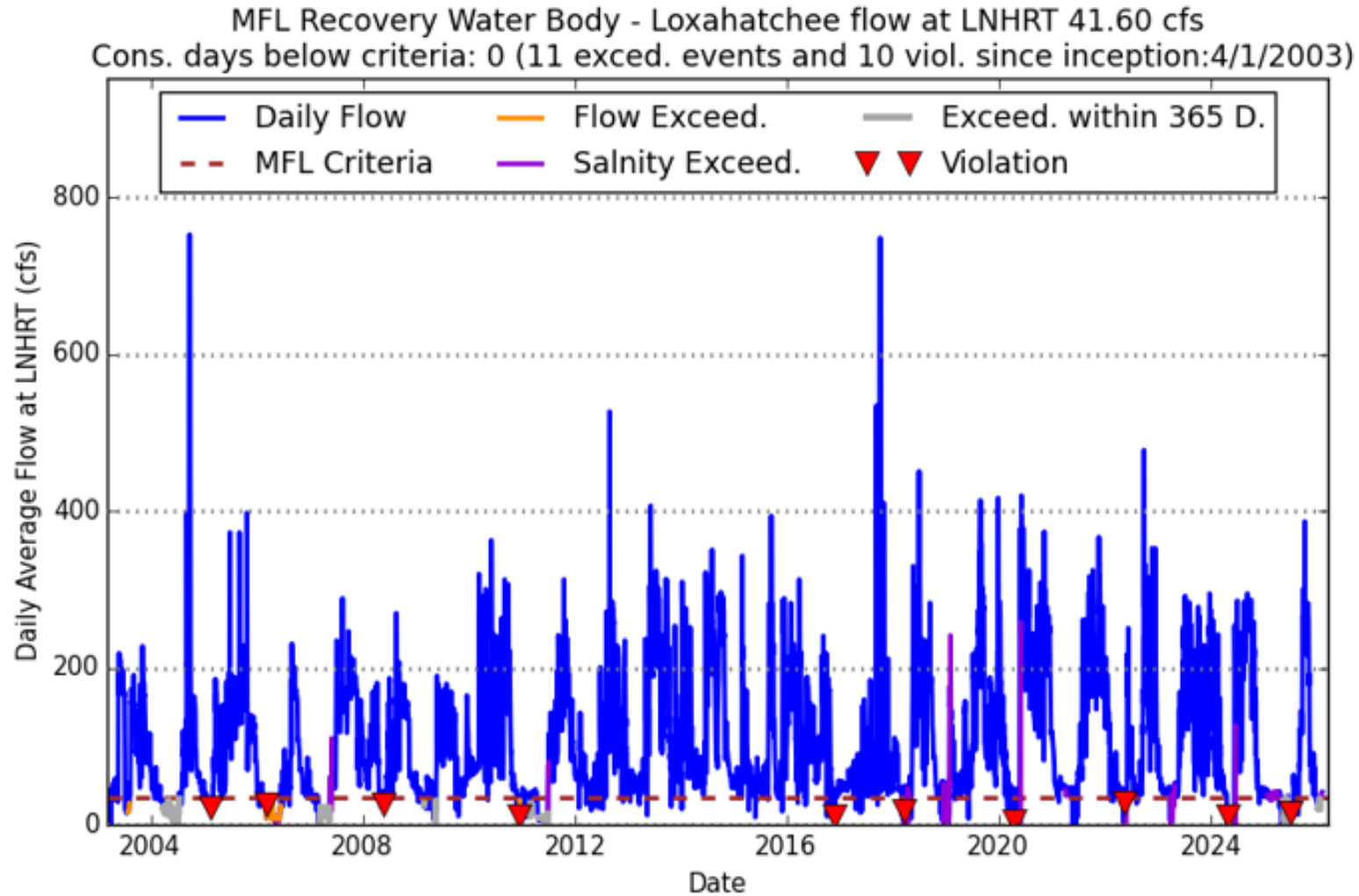
NW Fork of Loxahatchee River Recovery Strategy

Subsection 40E-8.421(6), F.A.C.

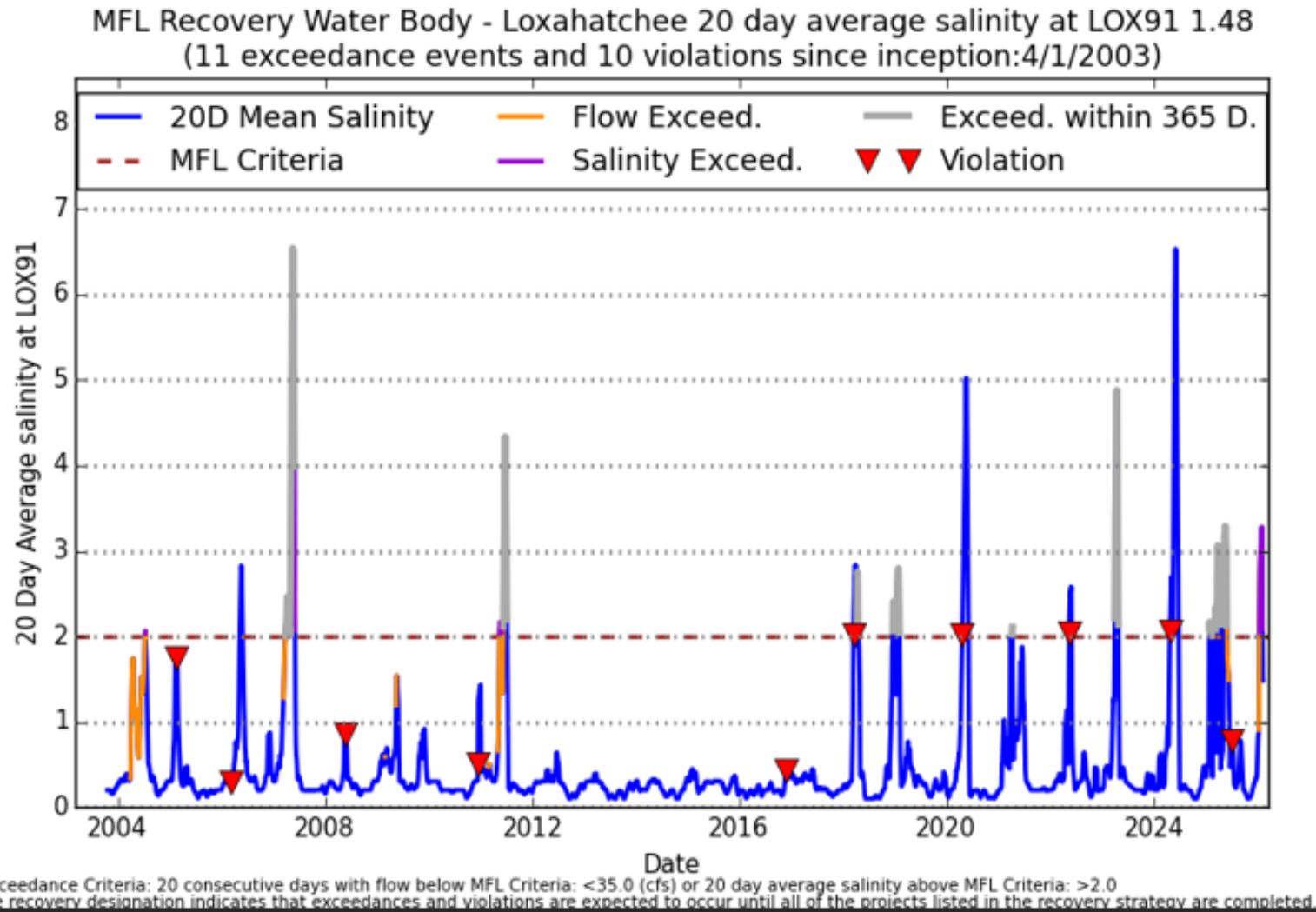
- Structural Improvements to increase water storage and delivery capabilities
 - G-160 and G-161 Structure Projects
 - Loxahatchee River Watershed Restoration Project
- Operational Protocols at G-92 to provide flows ≥ 50 cfs at Lainhart Dam when supplies are available
- Regulatory Activities - SFWMD regulatory program, water shortage plans, and the North Palm Beach County/ Loxahatchee River Watershed Restricted Allocation Area



MFL Flow Compliance Data



MFL Salinity Compliance Data



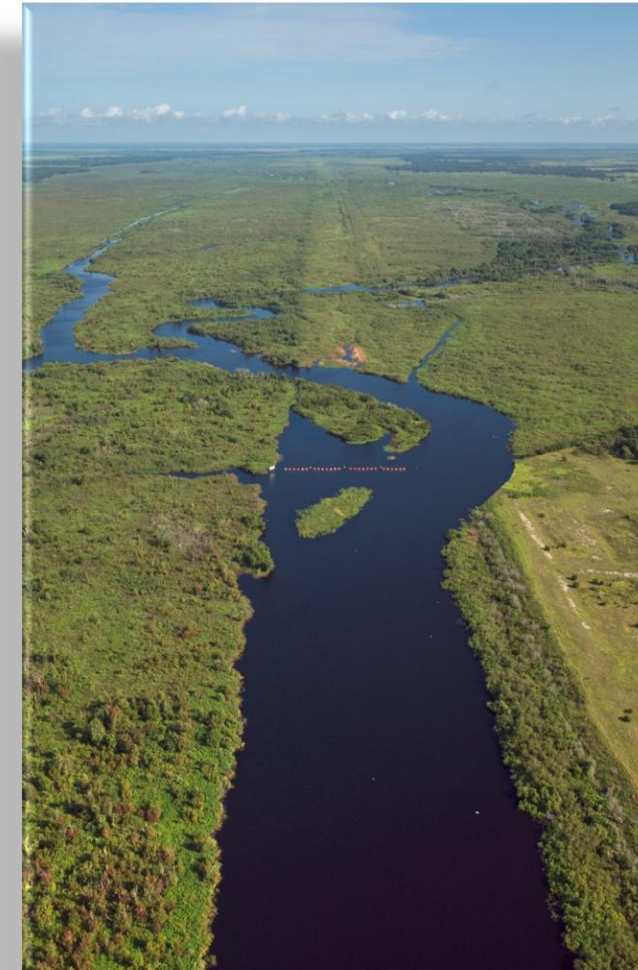
Loxahatchee MFL Re-Evaluation

- The re-evaluation is framed around the current adopted minimum-flow and salinity criteria and their ecological basis, while incorporating new data, watershed restoration actions, and updated.
- Sea-level rise and higher tidal tailwater can shift the salinity-flow relationship
- Restoration projects and operations change timing, storage, and delivery pathways
- Expanded ecological indicators can reduce risk of relying on one resource response

Water Reservations

Sets aside water for the protection of fish and wildlife (or public health and safety)

- Based on scientifically defensible determination of water needed for protection of fish and wildlife
- Reserves water from allocation to consumptive uses
- Required for Comprehensive Everglades Restoration Plan (CERP) projects.



Water Reservations

Statutory Authority: Chapter 373, F.S.

Functions and Considerations

- Reserve water for the protection of fish and wildlife or public health and safety
- Prevent use of reserved water for consumptive uses
- Required for CERP projects per federal Water Resources Development Act of 2000 (WRDA 2000)
- May be used as MFL recovery or prevention strategies

Adopted for both surface waters and groundwaters



Osprey (*Pandion haliaetus*) with bass (*Micropterus* sp.) on Merritt's Mill Pond
Source: <http://nykography.weebly.com>

Water Reservations Do Not...

- Prevent use of unreserved water or water allocated under CUPs
- Establish an operating regime
- Drought-proof the natural system
- Ensure wildlife proliferation



Lake Okeechobee under drought conditions
Source: SFWMD

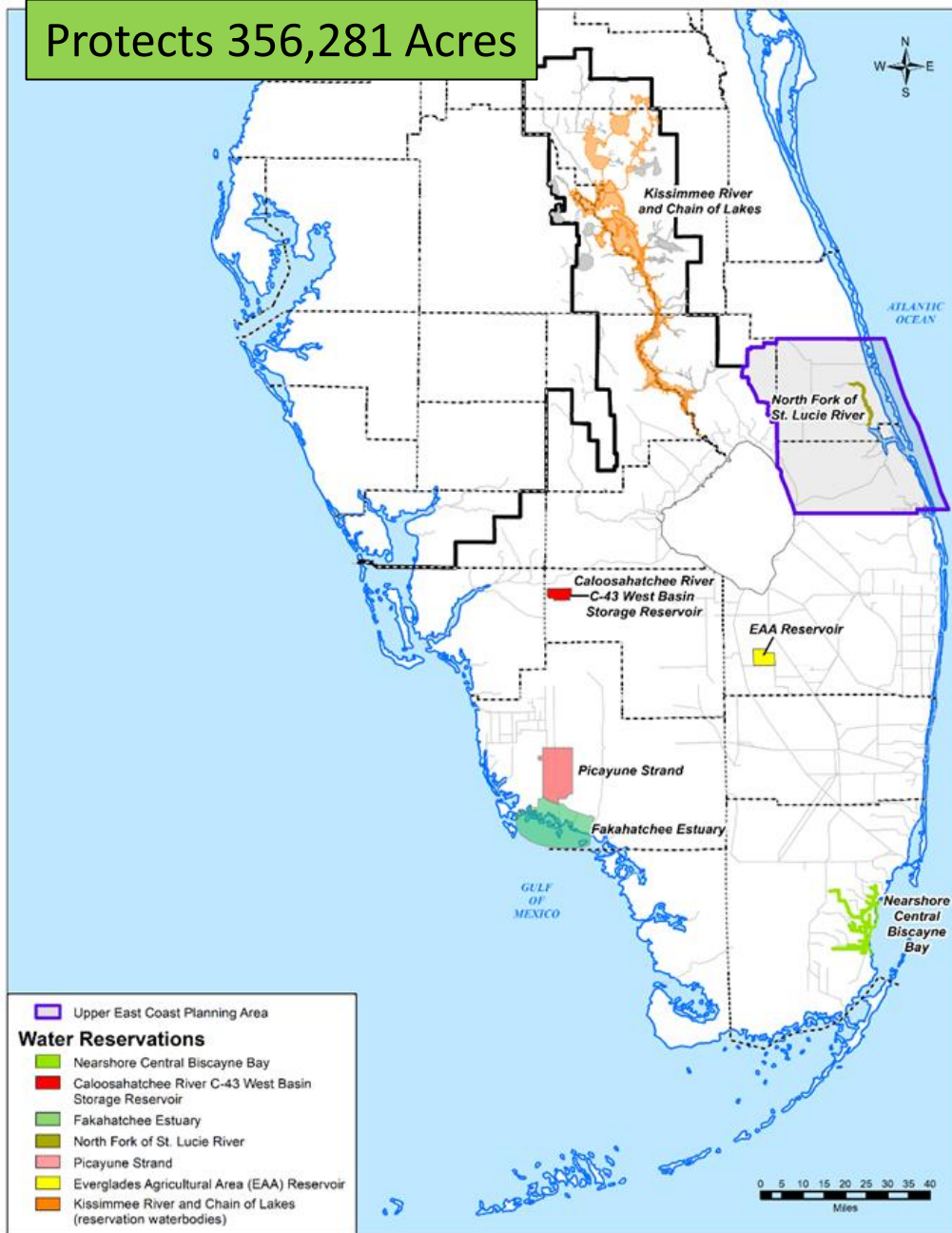


American Alligator (*Alligator mississippiensis*)
Source: <http://www.photodrom.com>

Protects 356,281 Acres

Water Reservations in the SFWMD

- Picayune Strand – 2009
- Fakahatchee Estuary – 2009
- North Fork of the St. Lucie River – 2010
- Nearshore Central Biscayne Bay – 2013
- CERP Caloosahatchee River (C-43) West Basin Storage Reservoir – 2014
- The Everglades Agricultural Area (EAA) Reservoir – 2021
- Kissimmee River & Chain of Lakes – 2021



Water Reservations Adopted in the UEC

North Fork of the St. Lucie River, Subsection 40E-10.051, F.A.C.

For the protection of fish and wildlife

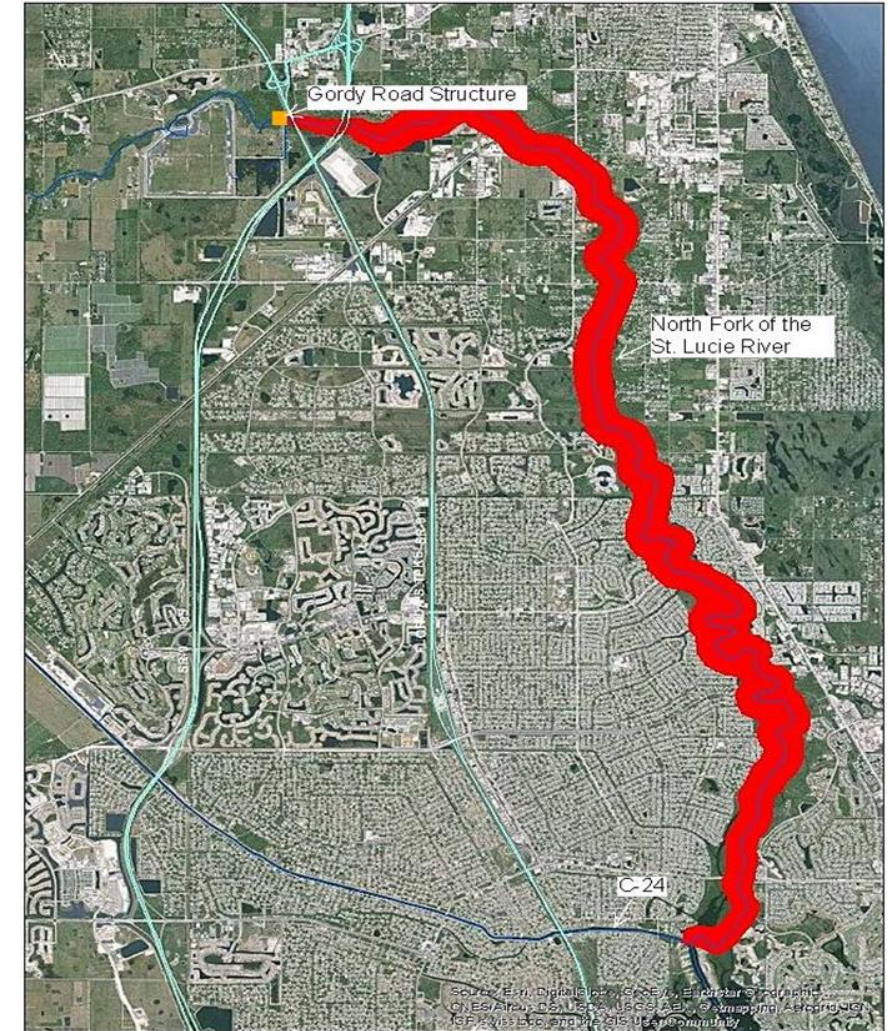


West Indian manatee (*Trichechus manatus latirostris*)
Source: James R. D. Scott
<https://www.gettyimages.com>

North Fork of St. Lucie River Water Reservation

Section 40E-10.051, F.A.C.

- Prospective reservation - water available to fish and wildlife when the CERP C-23/C-24 North and South Reservoirs and STA Project components are operational
- Mean monthly flow of 130 cfs over Gordy Road Structure from November 1 through May 31



Restricted Allocation Areas (RAAs)

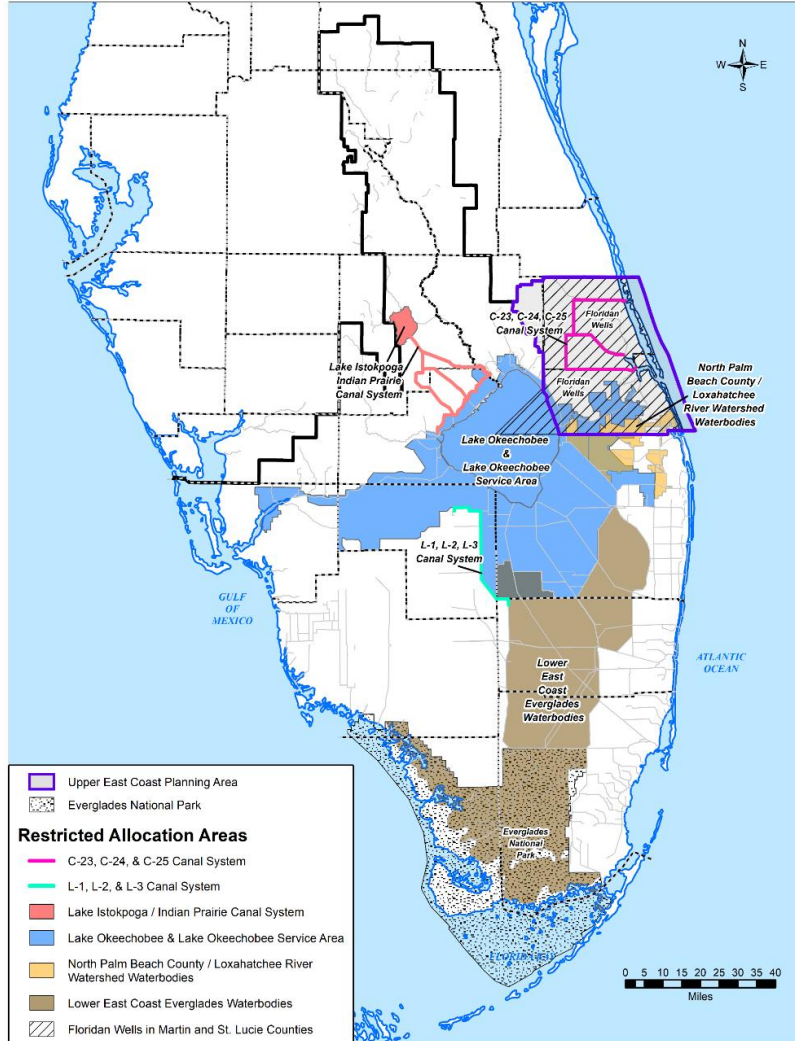
Listed in **Section 3.2.1 of the SFWMD *Applicant's Handbook*¹**, incorporated by reference in **Rule 40E-2.091, F.A.C.**

Definition and Uses

- Areas from which new or increased water allocations are restricted
- Regional in scope, for specific sources or areas of the SFWMD
- Implemented where water for projected needs is insufficient
- Protect water for natural systems and future restoration projects (CERP)
- May be designated as part of MFL recovery or prevention strategies

¹ SFWMD. 2025. *Applicant's Handbook for Water Use Permit Applications within the South Florida Water Management District*. South Florida Water Management District, West Palm Beach, FL. March of 2021.

Restricted Allocation Areas in the SFWMD



- C-23, C-24, & C-25 Canal System
- L-1, L-2, & L-3 Canal System
- Lake Istokpoga/Indian Prairie Canal System
- Lower East Coast Everglades Waterbodies
- North Palm Beach County/Loxahatchee River Watershed Waterbodies
- Pumps on Floridan Wells in Martin and St. Lucie Counties
- Lake Okeechobee & Lake Okeechobee Service Area

Cover > 4.3 million acres Districtwide

Restricted Allocation Area Criteria

Lake Istokpoga/Indian Prairie Canal System

- No additional surface water will be allocated from District controlled surface water bodies over and above existing allocations. No increase in surface water pump capacity will be recommended.

C-23, C-24, and C-25 Canal System

- No additional surface water allocations from these canals, or directly connected canals, above existing allocations
- No increase in surface water pump capacity

L-1, L-2 and L-3 Canal System

- No additional surface water will be allocated from District canals L-1, L-2 and L-3 over and above existing allocations. No increase in surface water pump capacity will be recommended.

Northern Palm Beach County/Loxahatchee River Watershed Waterbodies

- Water allocations are limited to base condition uses described in *Applicant's Handbook*

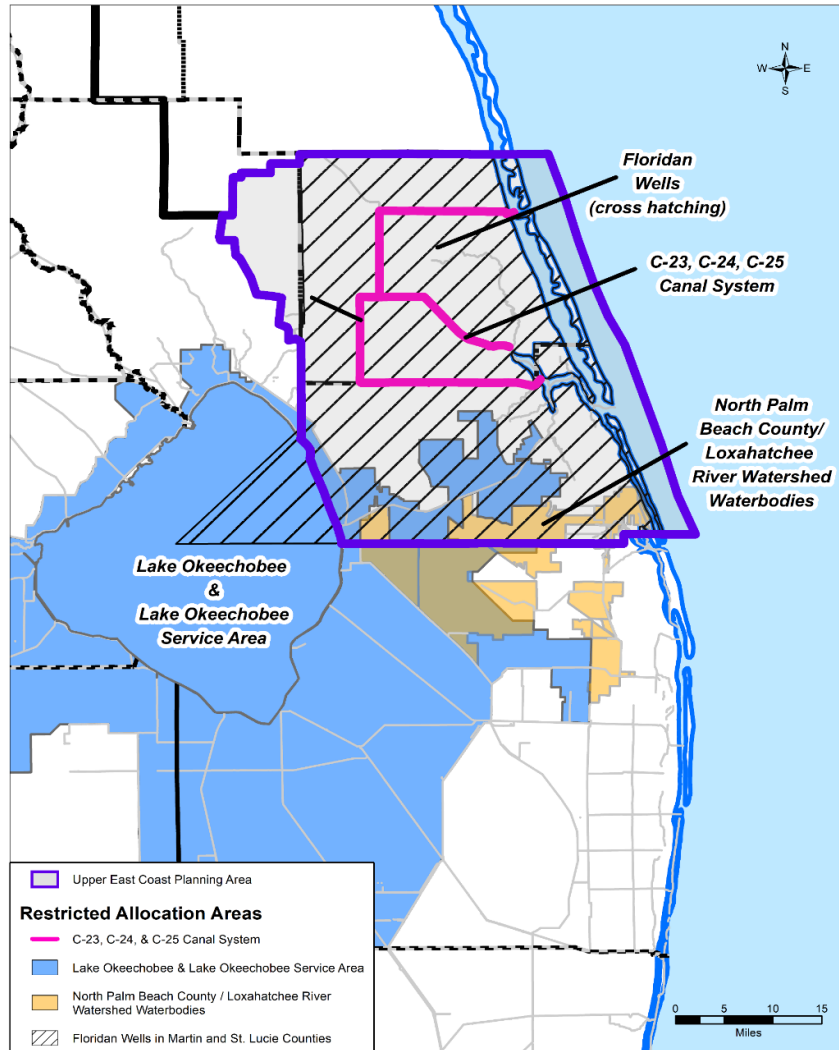
Floridan Wells in Martin and St. Lucie Counties

- No pumps on flowing Floridan aquifer wells in Martin and St. Lucie counties, except under *Applicant's Handbook* guidelines

Lake Okeechobee and Lake Okeechobee Service Area

- Water allocations are limited to historical condition water uses that occurred from April 1, 2001, to January 1, 2008

Restricted Allocation Areas Adopted in the UEC



Osprey (*Pandion haliaetus*) nest just off the C-23 Canal.
Source: <https://www.SFWMD.gov>



Florida Agriculture Along Lake Okeechobee, Aerial View, 1974.
Source: Southeast Florida Memories by Philip Abromats
<https://www.pinterest.com/pin/592856738421422043/>

Questions and Public Comment



North Fork of the St. Lucie River
Source: <https://www.flamingomag.com>

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<https://www.sfwmd.gov/our-work>