

U.S. ARMY CORPS OF ENGINEERS (USACE)  
JACKSONVILLE DISTRICT

# LAKE OKEECHOBEE SYSTEM OPERATING MANUAL (LOSOM)

SOUTH FLORIDA RESTORATION TASK FORCE

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03 May 2022



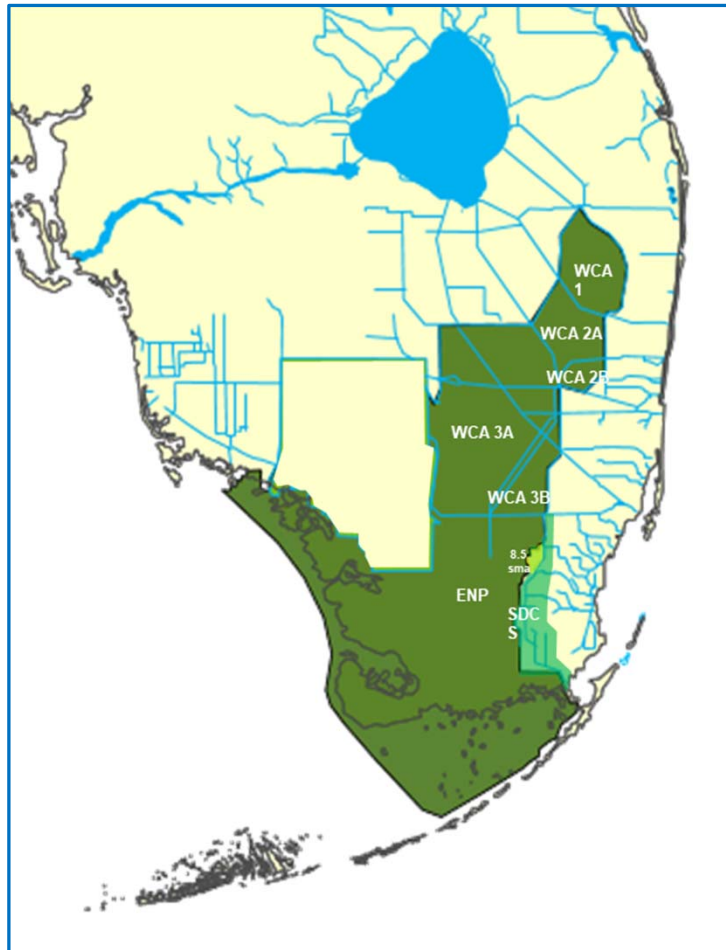
US Army Corps  
of Engineers ®

*"The views, opinions and findings contained in this report are those of the author(s) and should not be construed as an official Department of the Army position, policy or decision, unless so designated by other official documentation."*

NOTE:  
Landscape views  
with graphics



# CENTRAL & SOUTHERN FLORIDA (C&SF) PROJECT



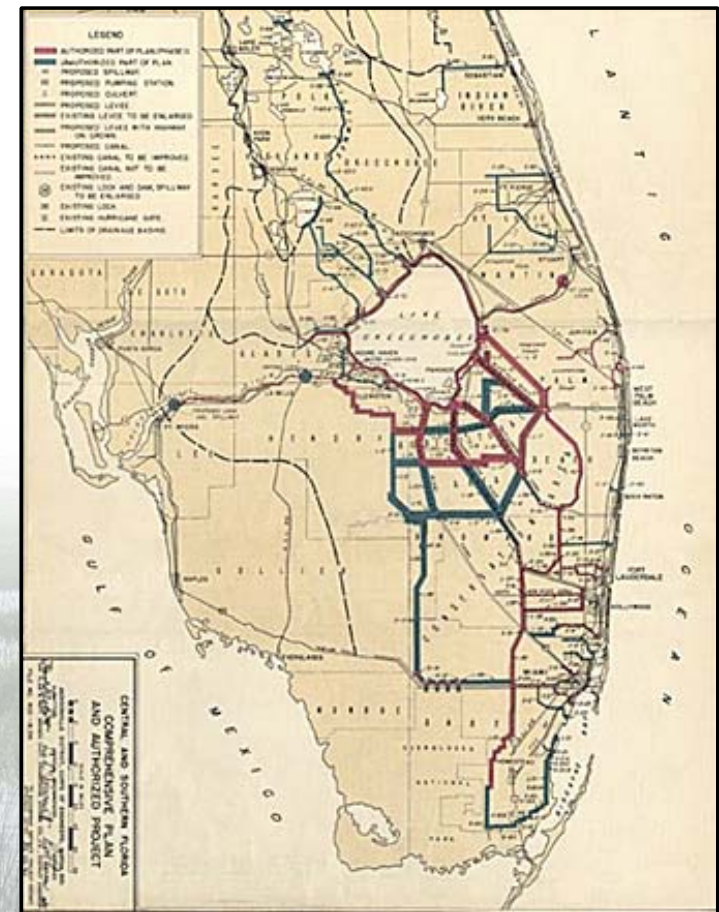
**Balances multiple congressionally-authorized project purposes:**

- Flood control
- Navigation
- Water supply for :
  - ▶ Agriculture
  - ▶ Municipalities
  - ▶ Industry
  - ▶ Everglades National Park
  - ▶ Regional groundwater control
  - ▶ Salinity control
- Enhancement of fish and wildlife
- Recreation

A partnership with South Florida Water Management District (SFWMD)

# LAKE OKEECHOBEE

- Part of the Central & Southern Florida (C&SF) Project (*Authorized 1948 – House Document No. 643*)
- Herbert Hoover Dike (HHD) authorized and constructed in response to deadly hurricane flooding (*Authorized 1930 – House Record 11781*)
- U.S. Army Corps of Engineers operates HHD around Lake Okeechobee as well as other parts of the C&SF Project
- Lake Okeechobee operations are guided by a manual developed through a public process





# SYSTEM OPERATING MANUAL (SOM)



The System Operating Manual documents Central and Southern Florida (C&SF) project features and is broken up into 7 volumes. These documents update the existing Water Control Manuals.

## SUMMARY of SOM volumes:

- Volume 1: System-wide
- Volume 2: Kissimmee River–Lake Istokpoga Basin
- **Volume 3: Lake Okeechobee and Everglades Agricultural Area**
- Volume 4: Water Conservation Areas, Everglades National Park, and ENP - South Dade Conveyance System (Completed September 2020)
- Volume 5: East Coast Canals
- Volume 6: Upper St. Johns River Basin
- Volume 7: Southwest Florida

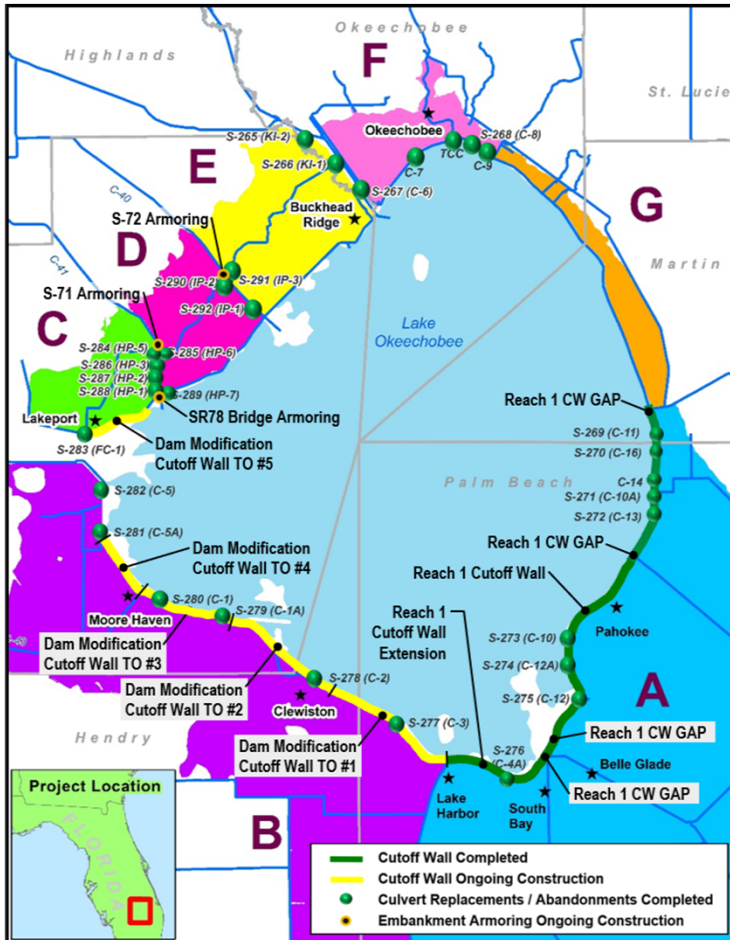
# WHAT ARE WE DOING?

- Reviewing Lake O operations
- **Results in an operational plan**
- Not recommending any new infrastructure





# WHY ARE WE DOING IT NOW?



- LORS 2008 determined lake regulation should be revisited when:
  - ▶ Herbert Hoover Dike (HHD) rehabilitation complete
  - ▶ Comprehensive Everglades Restoration Plan (CERP) Projects C-43 and C-44 complete
- Section 1106 of Water Resources Development Act (WRDA) of 2018

# LOSOM PROCESS

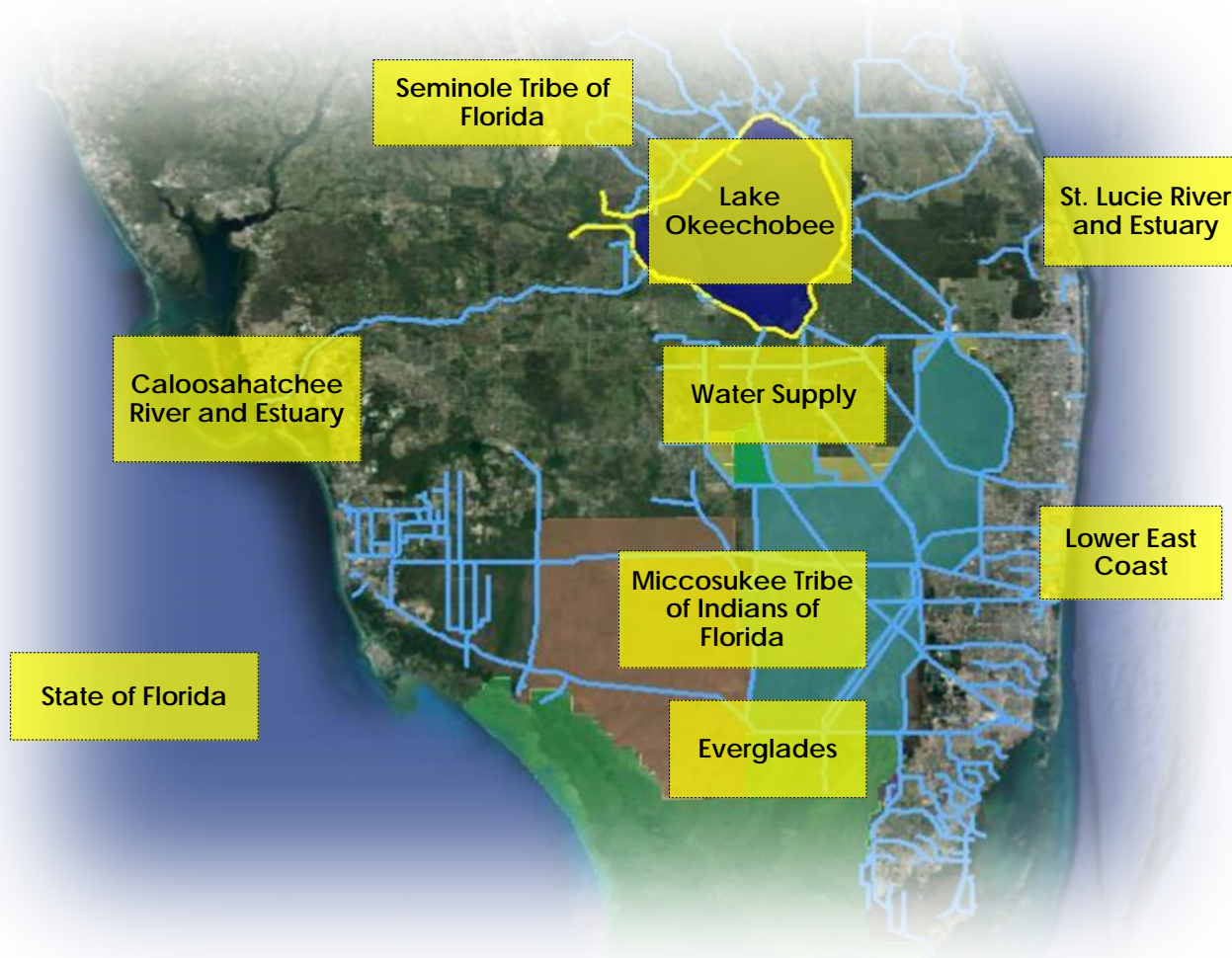
2019

2023



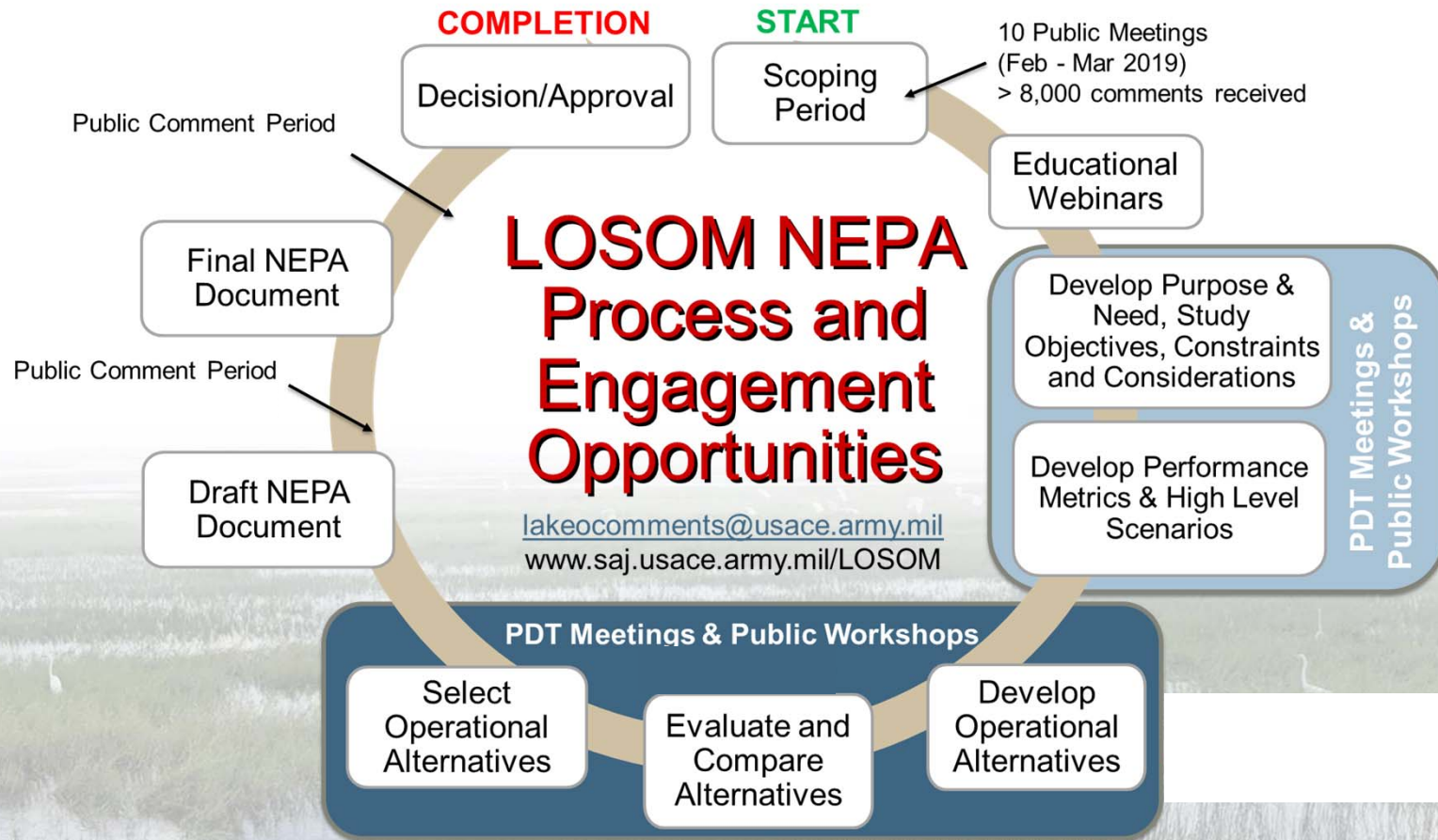


# STAKEHOLDER PERSPECTIVES IN LOSOM





# LOSOM STAKEHOLDER ENGAGEMENT



\* Multiple forums to gather stakeholder input in the **Corps Decision-Making Process**

# LOSOM GOALS AND OBJECTIVES

## STUDY GOAL

Incorporate flexibility in Lake Okeechobee operations while balancing congressionally authorized project purposes.

## STUDY OBJECTIVES

There are four study objectives, each with their own sub-objectives:

### Objective 1:

Manage risk to public health and safety, life and property

**1A:** Dam safety

**1B:** Algal bloom risk in Lake Okeechobee

**1C:** Algal bloom risk in Caloosahatchee Estuary

**1D:** Algal bloom risk in St. Lucie Estuary

### Objective 2:

Continue to meet authorized purposes for navigation, recreation, and flood control

**2A:** Navigation

**2B:** Recreation

**2C:** Flood control

### Objective 3:

Improve water supply performance

**3A:** Lake Okeechobee Service Area

**3B:** Seminole Tribe of Florida

**3C:** Lower East Coast Service Area

### Objective 4:

Enhance ecology in Lake Okeechobee, northern estuaries and across the south Florida ecosystem.

**4A:** Lake Okeechobee

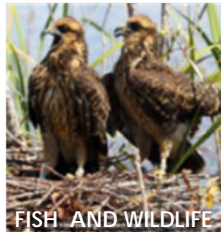
**4B:** Caloosahatchee Estuary

**4C:** St. Lucie Estuary

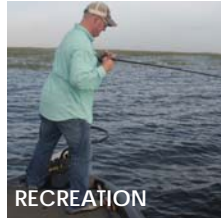
**4D:** South Florida



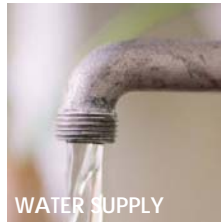
FLOOD CONTROL



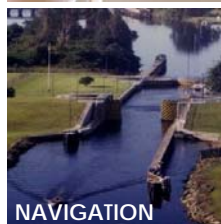
FISH AND WILDLIFE



RECREATION



WATER SUPPLY



NAVIGATION



Caloosahatchee Estuary

# THE LOSOM PREFERRED ALTERNATIVE

Lake Worth Lagoon

St. Lucie Estuary

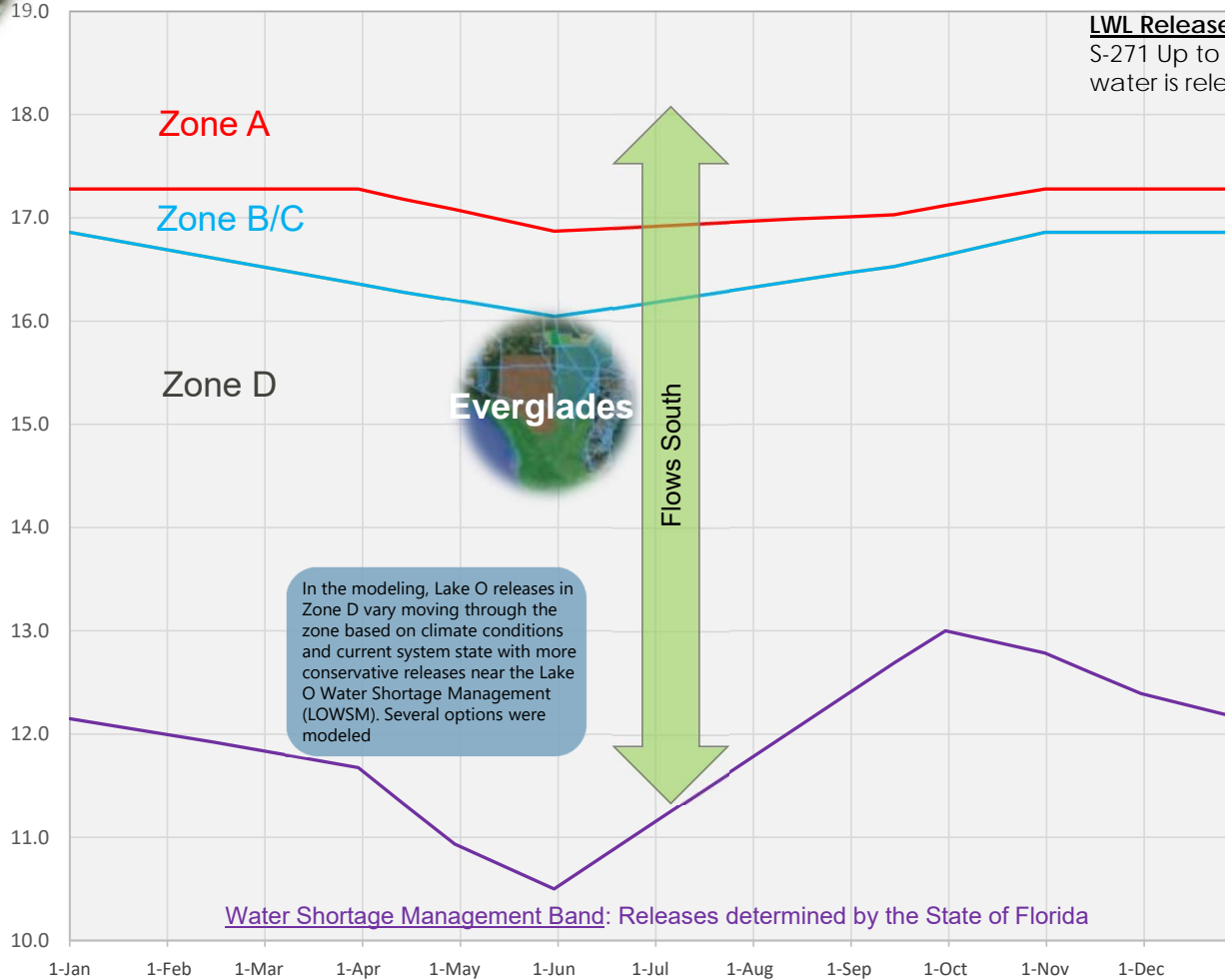
Up to Maximum Releases

X cfs S-77

≤2000 cfs S-79<sup>1</sup>



<sup>1</sup> Release LOK water at S-77 such that the LOK will not cause S-79 flow to exceed this target; local runoff can still cause flow higher than this value at S-79



**LWL Release Guidance:**  
S-271 Up to 300 cfs when LOK water is released at S-80

Up to Maximum Releases

X cfs S-80<sup>2</sup>

<sup>2</sup> Release LOK water at S-308 such that the LOK will not cause S-80 flow to exceed this target

0 cfs S-80<sup>3</sup>

<sup>3</sup> Local runoff can still cause flow at S-80

**Operational Guidance Note:**  
The agency responsible for allocating water from Lake Okeechobee is SFWMD.

# LOSOM IS AN IMPROVEMENT OVER LORS

- **Benefits-focused**
- **System with holistic perspective**
- **Utilizes real time knowledge of climate conditions, weather data, climate projections, and system needs to make educated decisions about how releases are made**





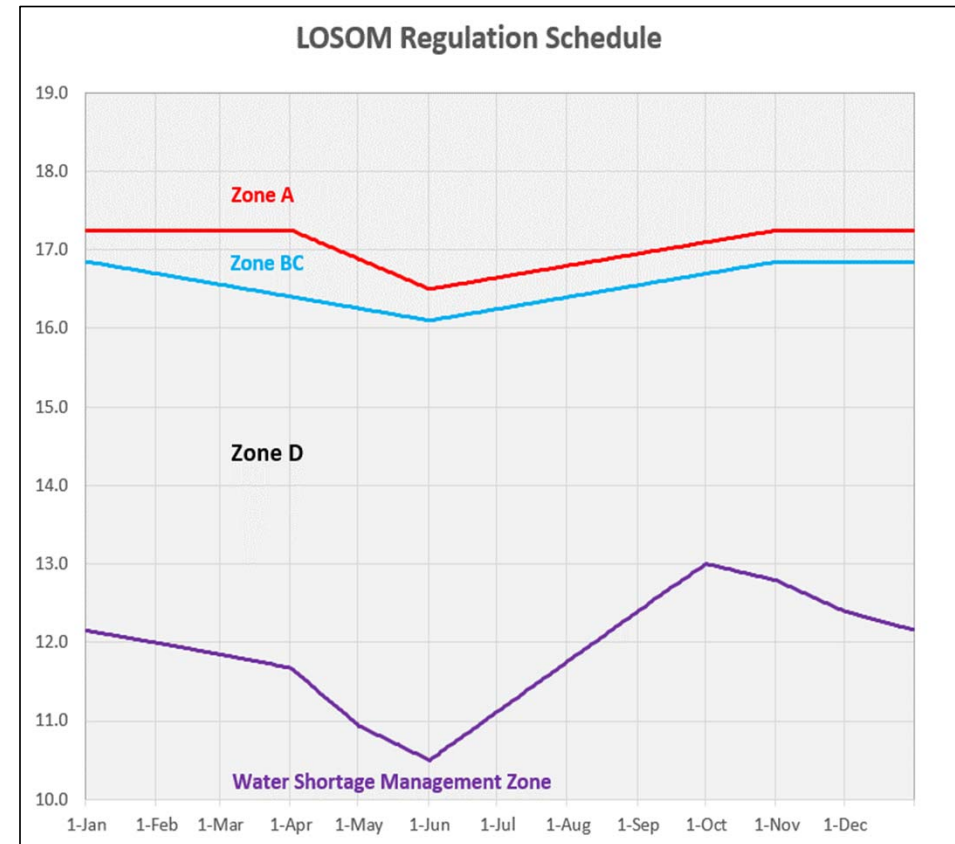
# OVERALL PLAN FOR WATER MANAGEMENT



**Intent:** Balance of LOSOM aims to achieve synergy with project purposes and maximize system-wide benefits with available water thru flexible water management operations (detailed in Section 7 of the SOM).

**Utilize all available information to make informed decisions.**

- Current climate conditions
- Climate forecasts
- Hydrologic/Tropical outlooks
- Water supply conditions (LOSA, LECSA, STOF)
- Estuary conditions
- Lake Okeechobee stage and ecological conditions
- HAB conditions
- STAs conditions
- WCAs conditions
- ENP conditions
- Minimum Flows and Minimum Levels (MFLs)



# RELEASES SOUTH

**Zone A and BC:** Maximum practicable based on downstream constraints.

- WCAs ability to receive water (levee safety limits and other considerations)
- Treatment capability of the STAs
- EAA runoff and opportunities to flow Lake O water to the STAs (flow-through capacity)
- Structure and canal conveyance capacity

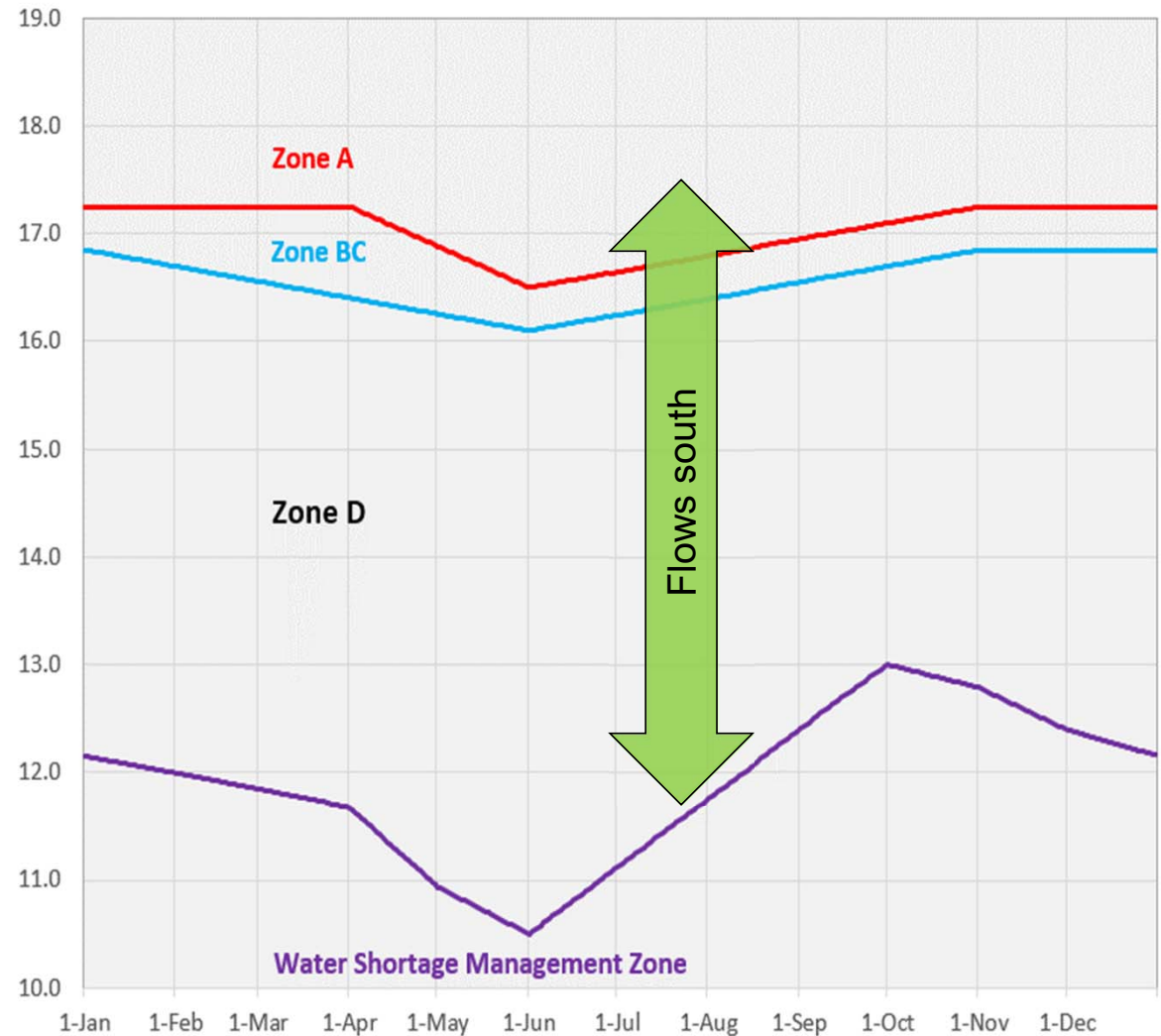
**Zone D:** Maximum desirable.

Provide water for water replenishment, when possible, of the Everglades water conservation areas for fish and wildlife and recreational purposes.

- Availability of lake water to meet downstream desirable flow
- Water levels and hydroperiods throughout greater Everglades
- Nesting and breeding activities of birds and other wildlife
- STA/WCA conditions

LOSOM Regulation Schedule

14



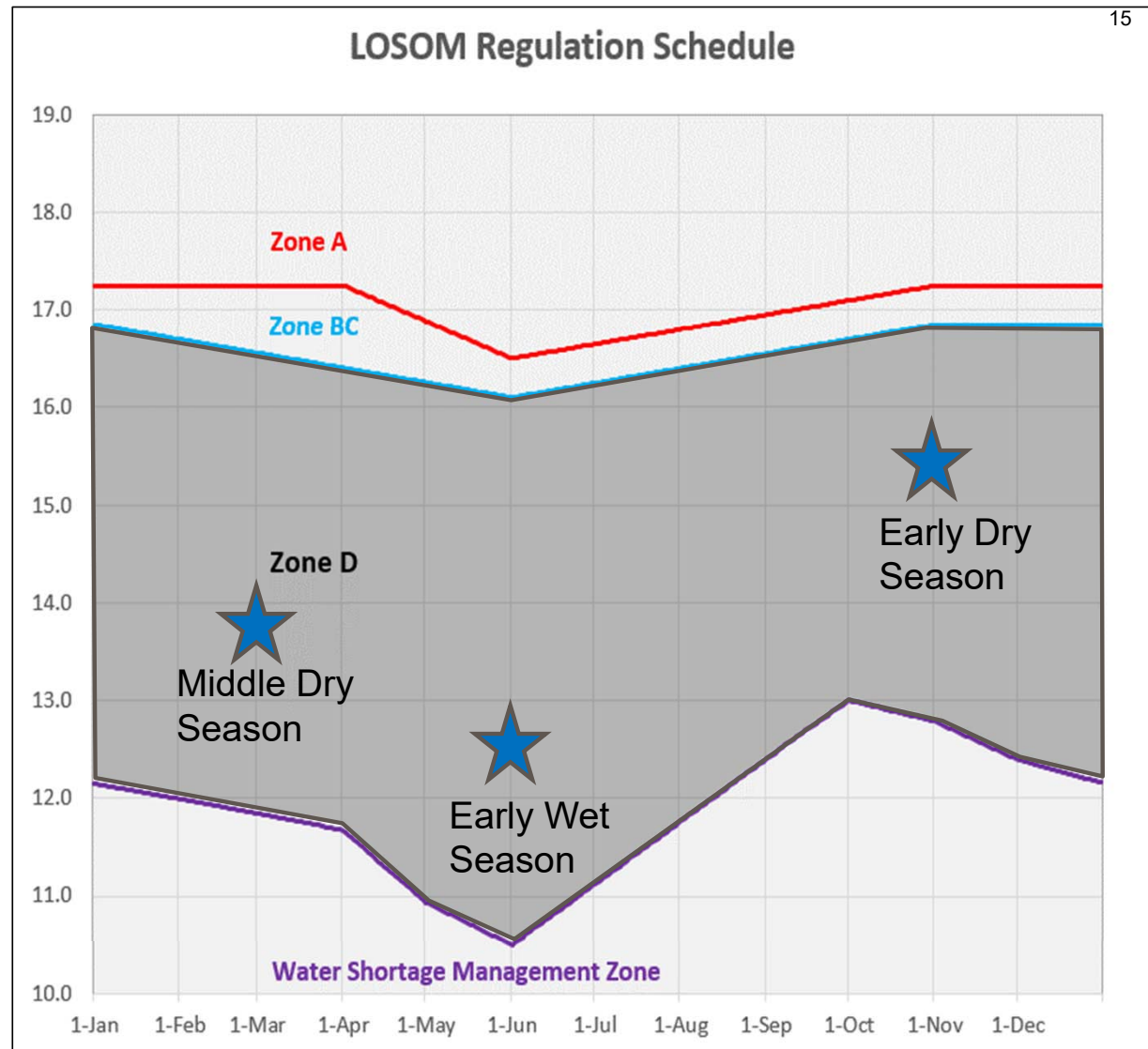
# ZONE D OPERATIONS

**Intent:** Manage water in order to make beneficial releases to downstream users and ecosystems

**Triggers:** Key seasonal assessment points to analyze the past, the present, and the anticipated/desired future conditions

## Releases:

- Up to 2,000 cfs at S-79
- No lake releases at S-80
- Beneficial releases up to 300 cfs to LWL
- Up to Max Desirable South





# HARMFUL ALGAL BLOOM (HAB) OPERATIONS



## Intent:

- Reduce risk of water management actions increasing risk to public health when HAB present

## Triggers:

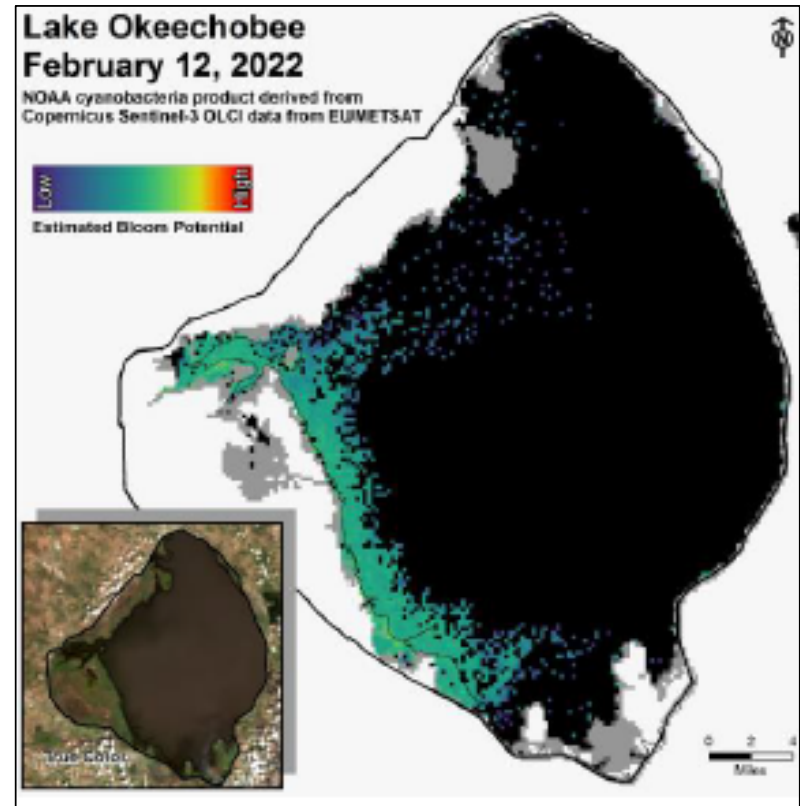
- Toxin sampling, visual observation, chlorophyll-a data, bloom potential satellite imagery
- Recommendations by state agencies (FDEP, SFWMD, FDOH) on risk level

## Considerations:

- Risk of entering Zone A and dam safety
- All project purposes
- Agency and stakeholder recommendations for mitigation action and risk levels

## Releases in Zone BC and D

- Releases east/west could be paused or delayed if HAB risk is high
- Releases to LWL could be paused or delayed if HAB risk is high
- High flow short duration pulses to flush a bloom in canals







# LAKE RECOVERY



## Intent:

- Recover Lake Okeechobee ecology

## Triggers:

- If stages rise above 17 FT or do not recede below 13 FT (for 30 days in the summer)
- SAV coverage in the lake significantly reduced (<11,000 acres)

## Considerations :

- Moderate to strong El Niño-Southern Oscillation (ENSO) event likely for the winter/spring
- Lake stages have receded below 11 FT in the last 5 years already
- Ecological and Snail kite conditions
- Water supply

## Success

- Stage < 12.0 FT for 90 days OR
- Stage < 11.5 FT for 60 days

## Releases

- Up to 2,100 cfs at S-79
- Up to 1,400 cfs at SLE
- Up to 300 cfs at S-271
- Up to max south





## ACKNOWLEDGING THE STATE OF FLORIDA AUTHORITY FOR WATER SUPPLY DELIVERIES IN LOSOM

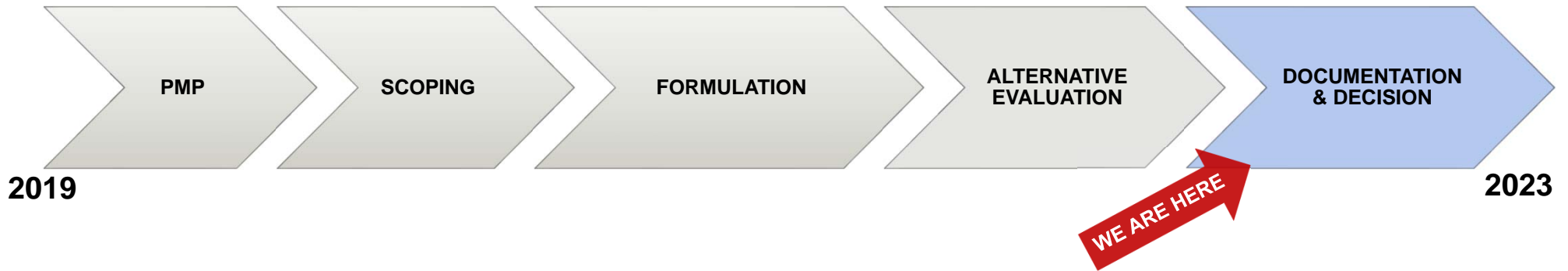


The operations in this WCP defines water management operations for the system that are intended to meet the project purposes while recognizing the State of Florida's responsibility to allocate water supplies within its borders. Regarding Lake Okeechobee, the agency responsible for allocating water is the SFWMD. SFWMD's decisions regarding water supply allocations are not modified by the USACE.

SFWMD may request water releases for the Seminole Tribe of Florida (STOF) as a separate and distinct water user, municipal and agricultural water supply, aquifer protection, to maintain appropriate salinity envelope in the estuaries, environmental releases south to the Everglades as well as to other portions of the system, or any other beneficial uses the SFWMD deems appropriate.

USACE intends to make releases that are consistent with the SFWMD's requests and does not anticipate a conflict with federal project purposes in any zone of the schedule. USACE will make SFWMD requested water releases above the water shortage management zone consistent with the Lake Okeechobee System Operating Manual.

# LOSOM PROCESS AND NEXT STEPS



MILESTONE	STATUS
Scoping	✓
Plan Formulation & Performance Evaluation Finalized	✓
Evaluation of Alternative Lake Schedules – Identification of Preferred Alternative Lake Schedule	✓
Draft EIS Release	
Final EIS Release	
Record of Decision (ROD)	



**USACE | JACKSONVILLE DISTRICT**

**SOUTH FLORIDA ECOSYSTEM  
RESTORATION PROGRAM**

**THANK YOU!**