Update of Lake Okeechobee Operations, CERP and CEPP

Treasure Coast Regional Planning Council
October 16, 2015

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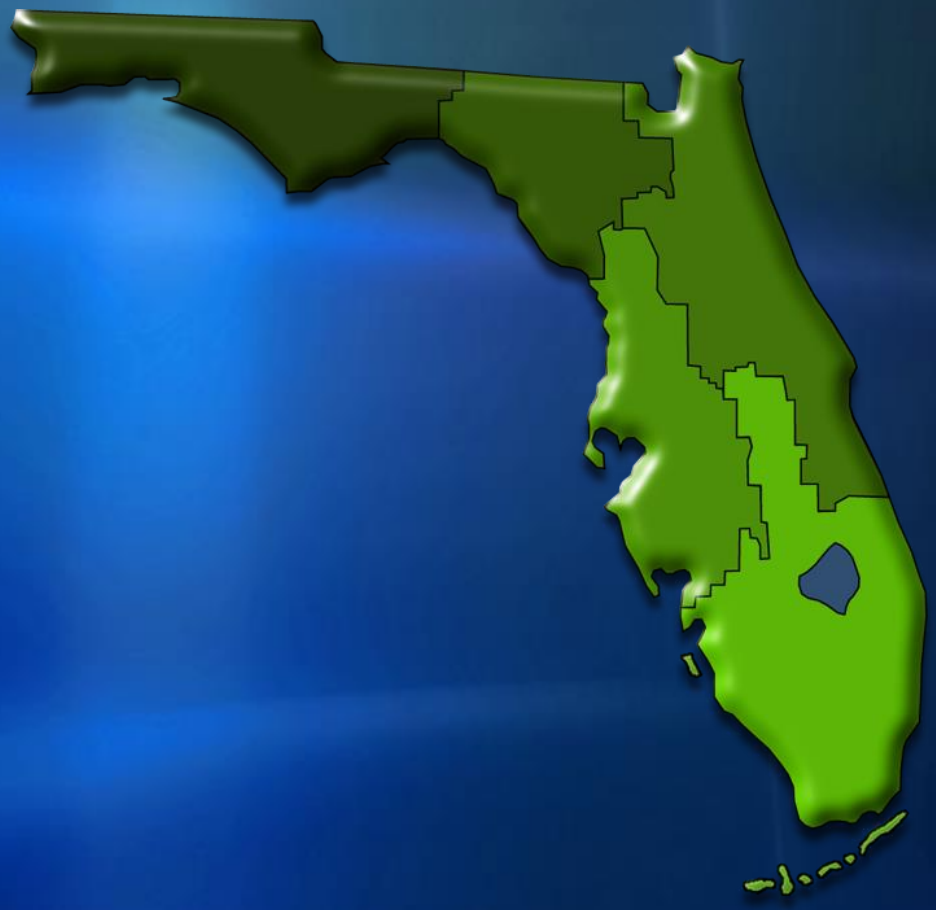
Office of Everglades Policy & Coordination
South Florida Water Management District

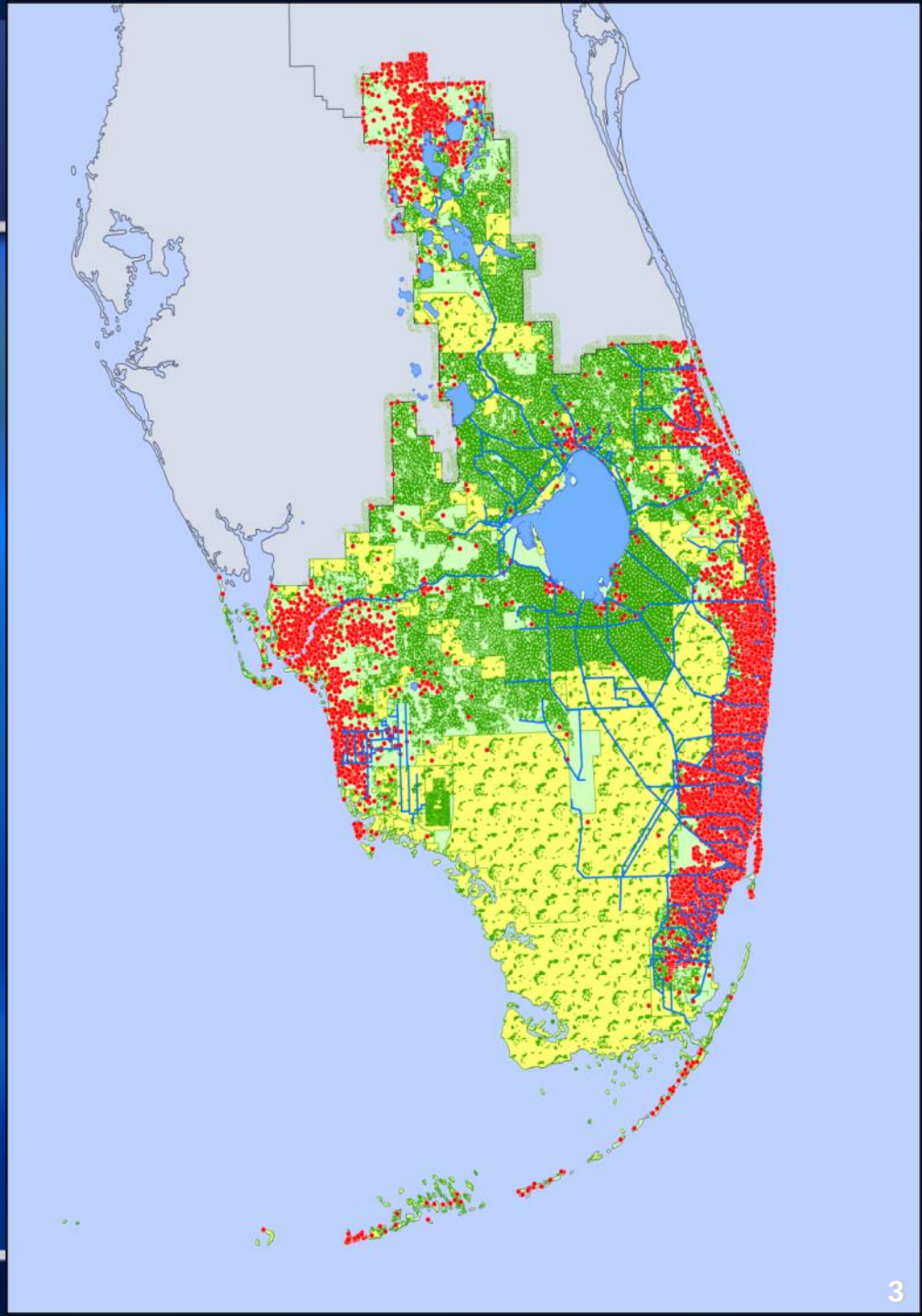
Water Management Districts Created by Legislature to Protect State Resources

- Core Mission
  - √Flood Protection
  - √Water Quality
  - √Water Supply
  - √Natural Systems



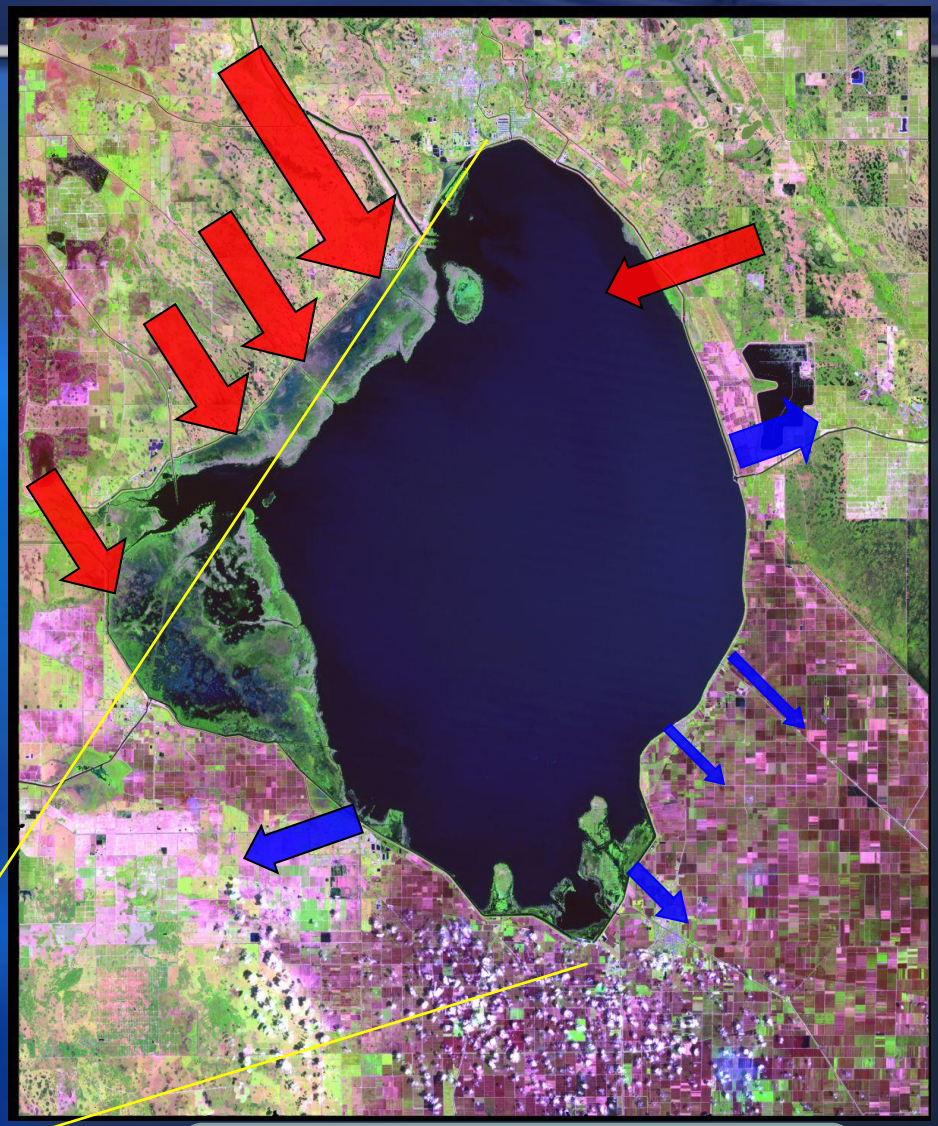
South Florida

- 18,000 square miles
- ~2,100 miles of canals
- ~2,000 miles of levees
- More than 600 water control structures and 625 project culverts
- 70 pump stations
- 8.1 million residents
- More than 3 million acres of agriculture
- Vast protected natural areas

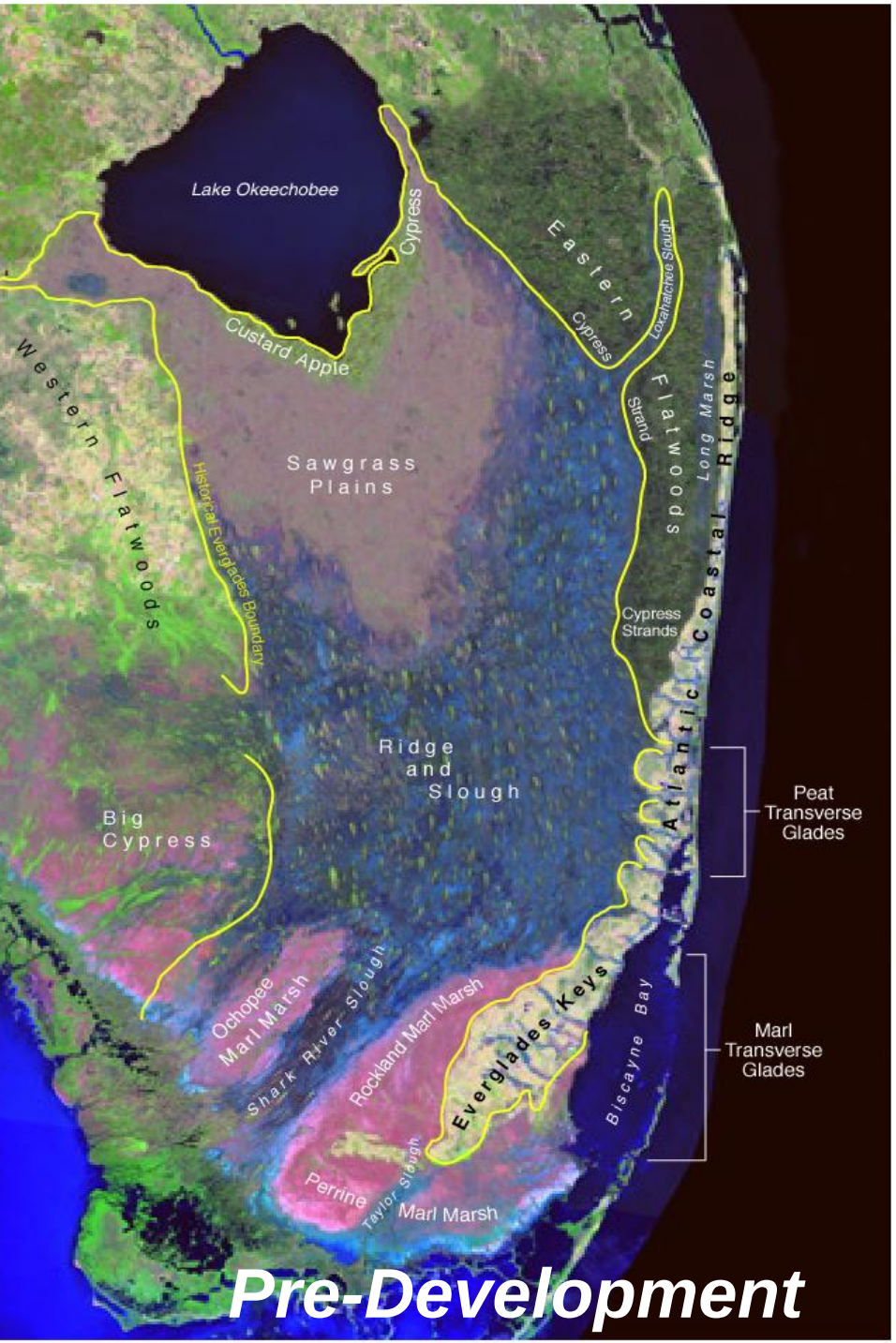


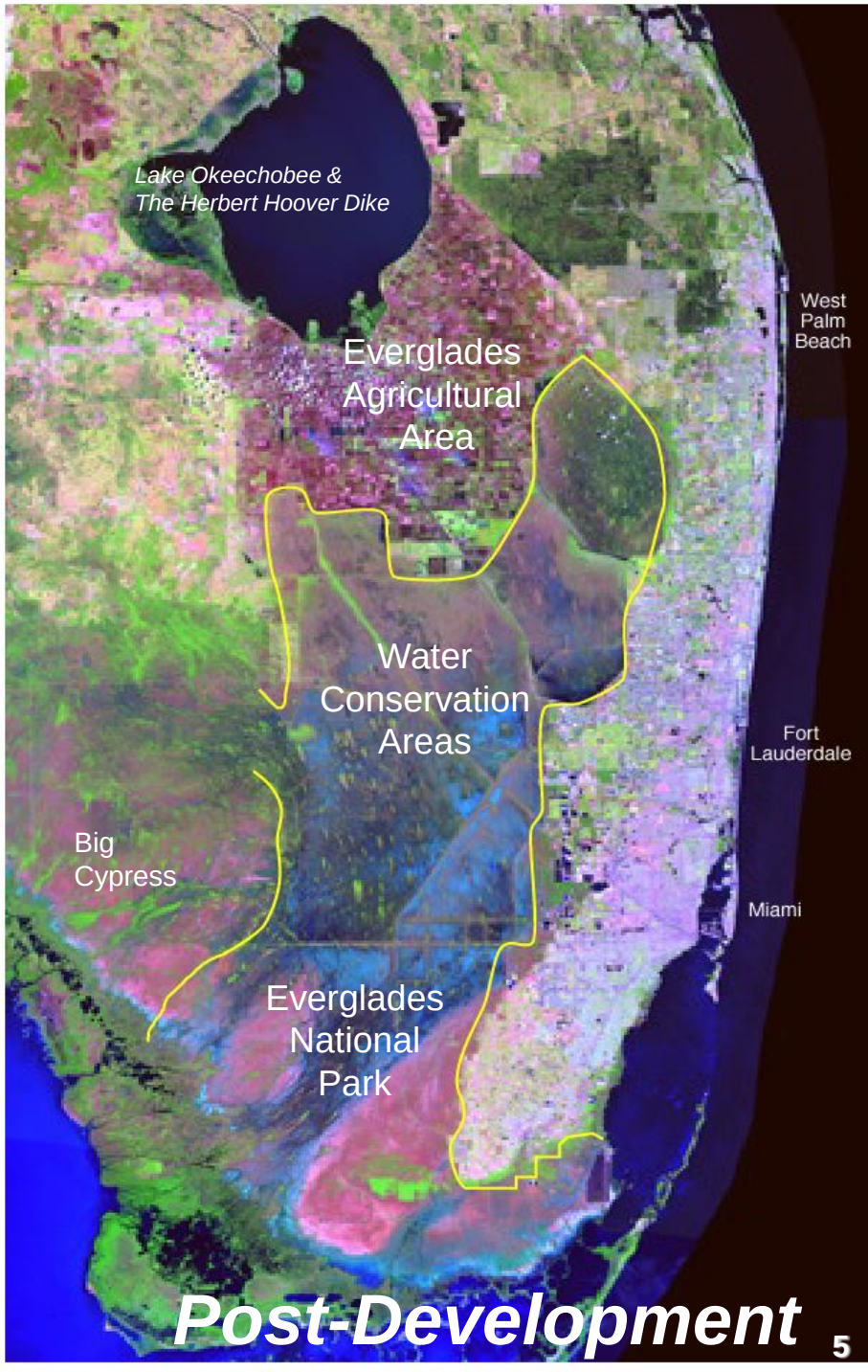
Lake Okeechobee

- Largest lake in southeastern US
- Lake Area: 720 square miles
- Drainage Basin: 5,000 square miles
- Average depth: 9 ft
- Surrounded by a dike built in 1930s, and rebuilt and extended in the 1960s
- Used for multiple objectives



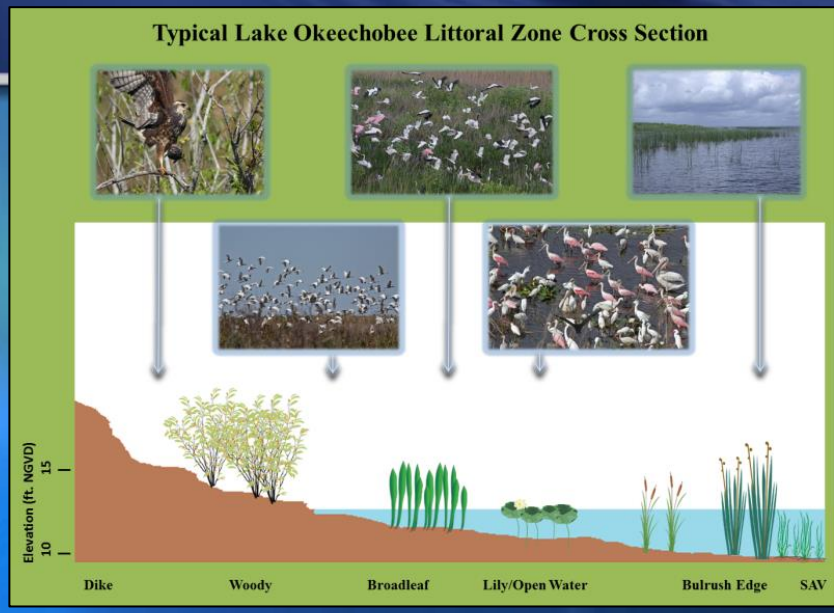
Inflow capacity far exceeds outflow capacity


Lake Okeechobee
Cypress
Eastern
Loxahatchee Slough
Custard Apple
Cypress
Western Flatwoods
Sawgrass Plains
Historical Everglades Boundary
Strand
Flatwoods
Long Marsh
Coastal Ridge
Cypress Strands
Ridge and Slough
Atlantic
Peat Transverse Glades
Big Cypress
Ochopee Marl Marsh
Shark River Slough
Rockland Marl Marsh
Everglades Keys
Biscayne Bay
Marl Transverse Glades
Perrine
Taylor Slough
Marl Marsh
Pre-Development


Lake Okeechobee &
The Herbert Hoover Dike
West Palm Beach
Everglades Agricultural Area
Water Conservation Areas
Fort Lauderdale
Big Cypress
Miami
Everglades National Park
Post-Development

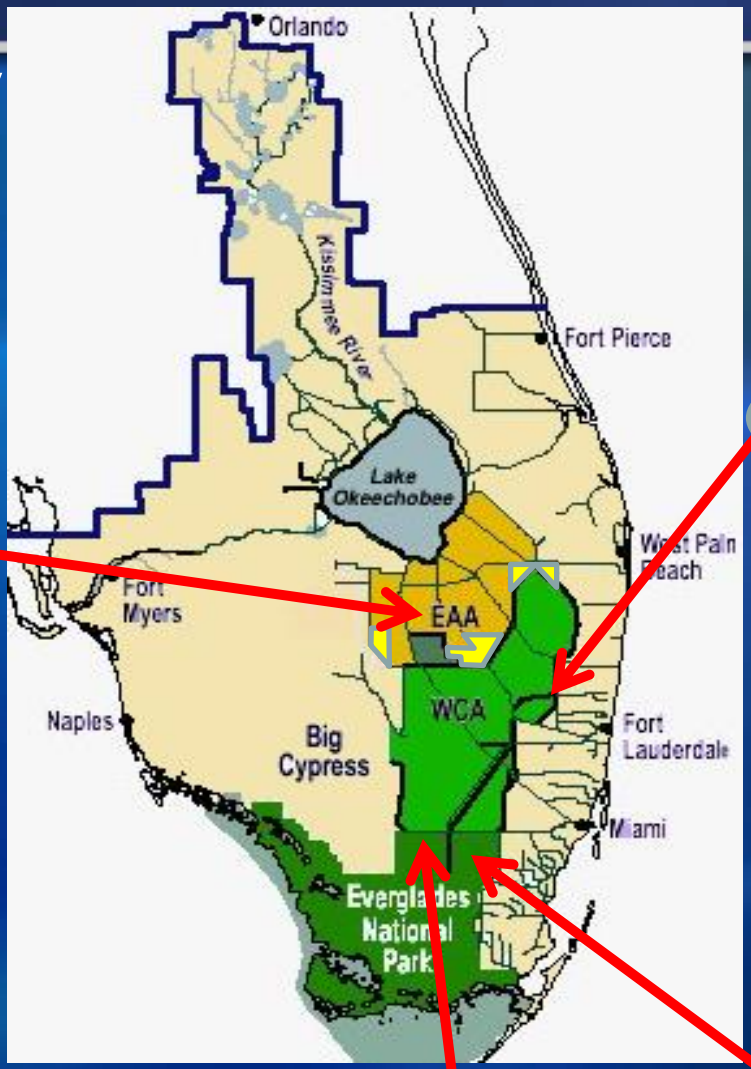
Multi-Objective Operations

- Flood Protection
- Water Supply
- In-Lake Ecosystem
- Estuaries
- Everglades Ecosystem



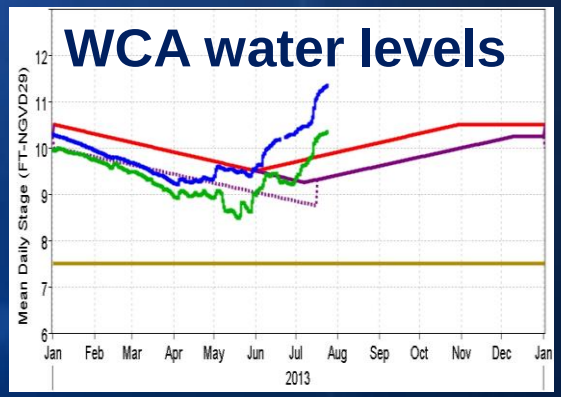
Constraints Limiting Discharges South

STA treatment capability



WCA levee integrity

EAA Flood Control



Protected species

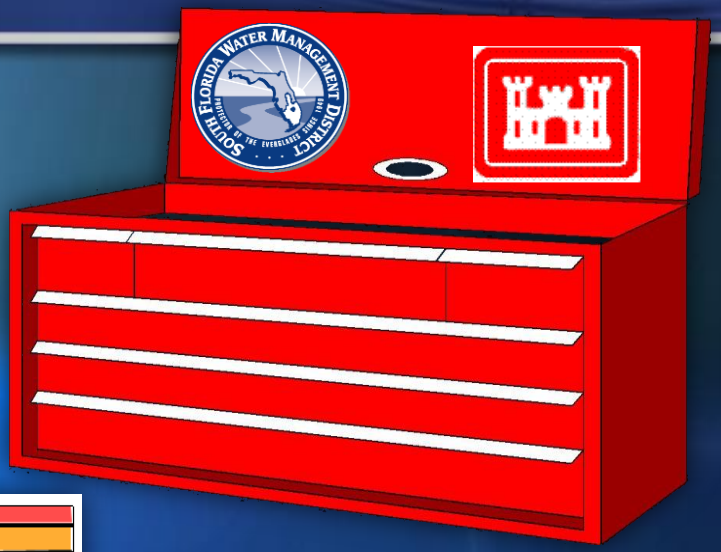
Cape Sable Seaside Sparrow, Source: U.S. FWS

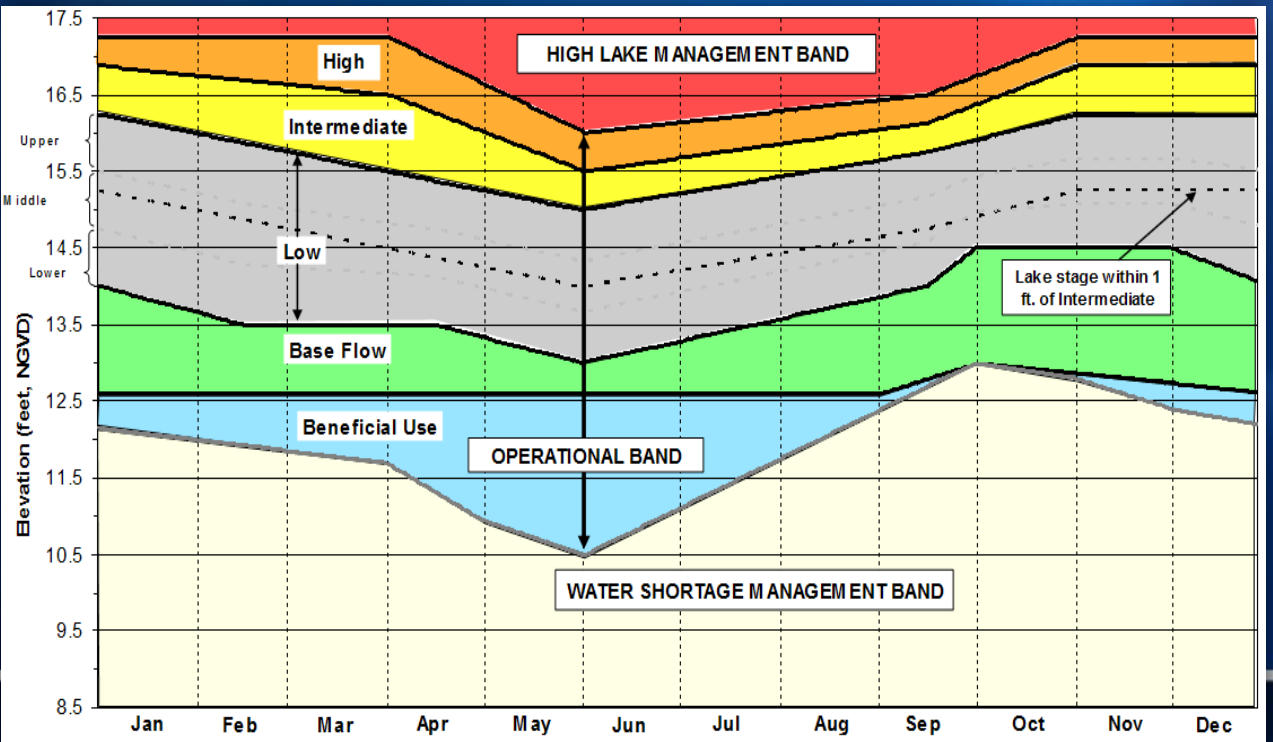
S-12 discharge capacity

Water levels in NE Shark River Slough

Tools for Managing Lake Stages

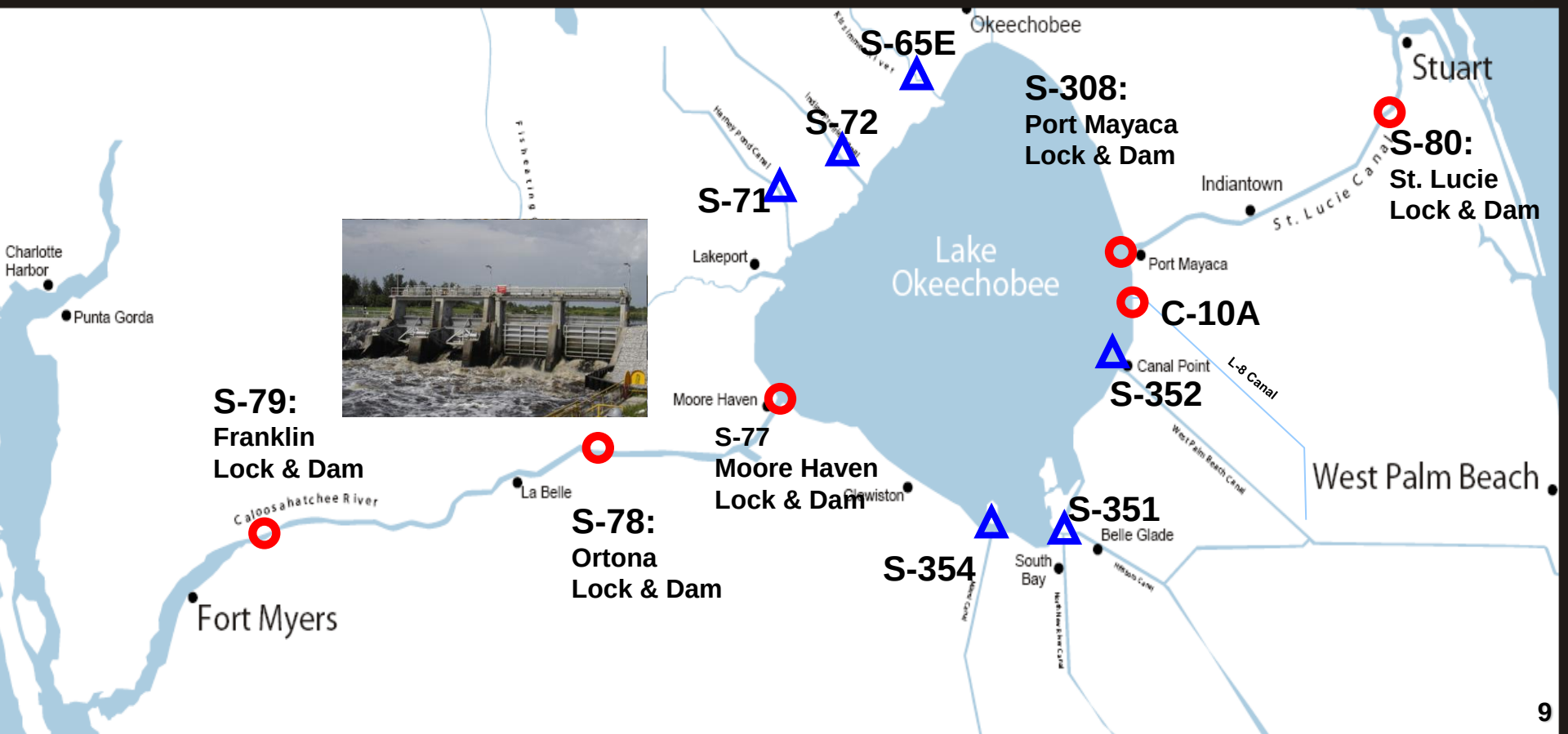
- Regulation Schedule
- Water Shortage Management Plan
- Adaptive Protocols



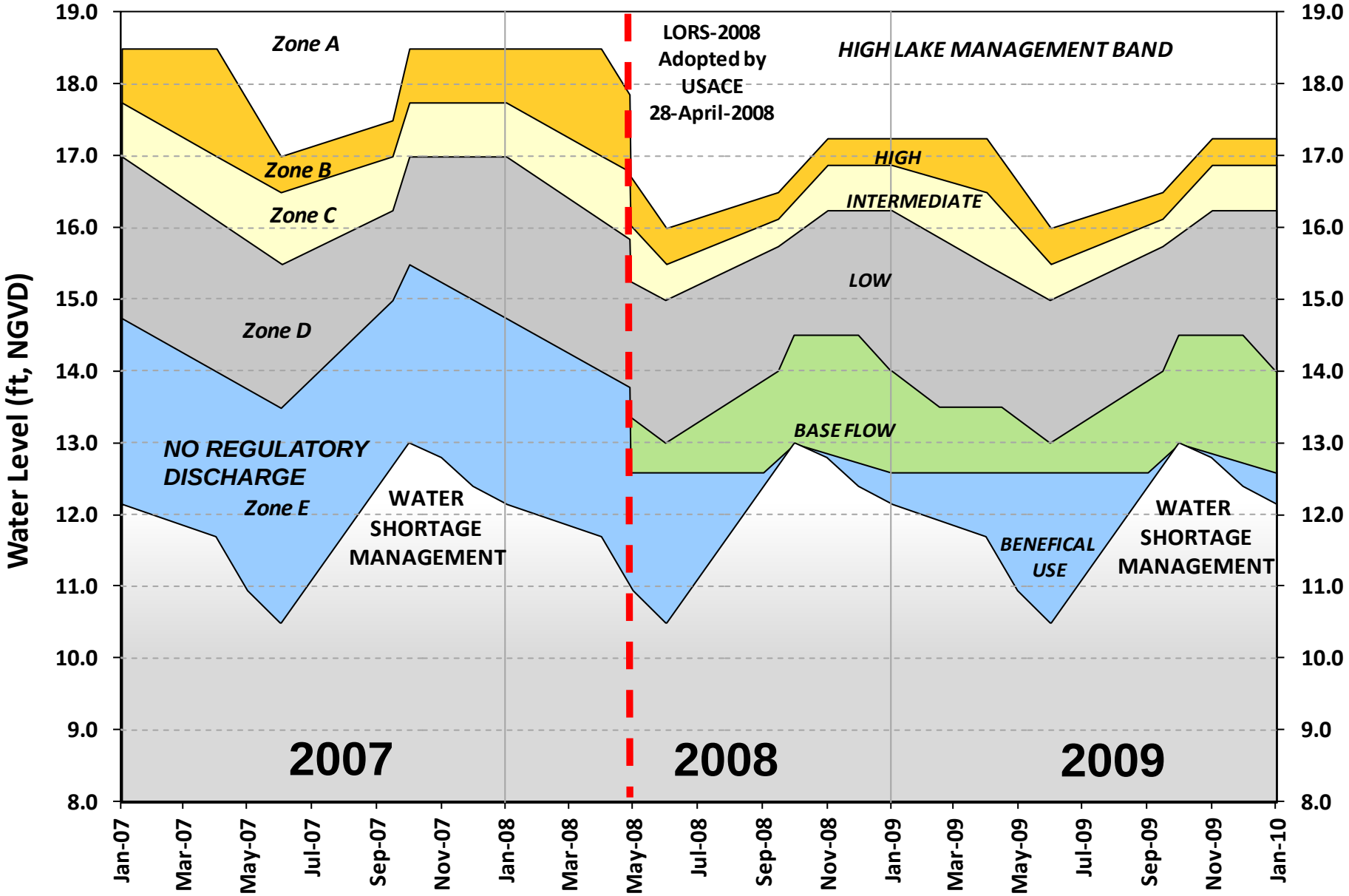


Lake Okeechobee Major Structures

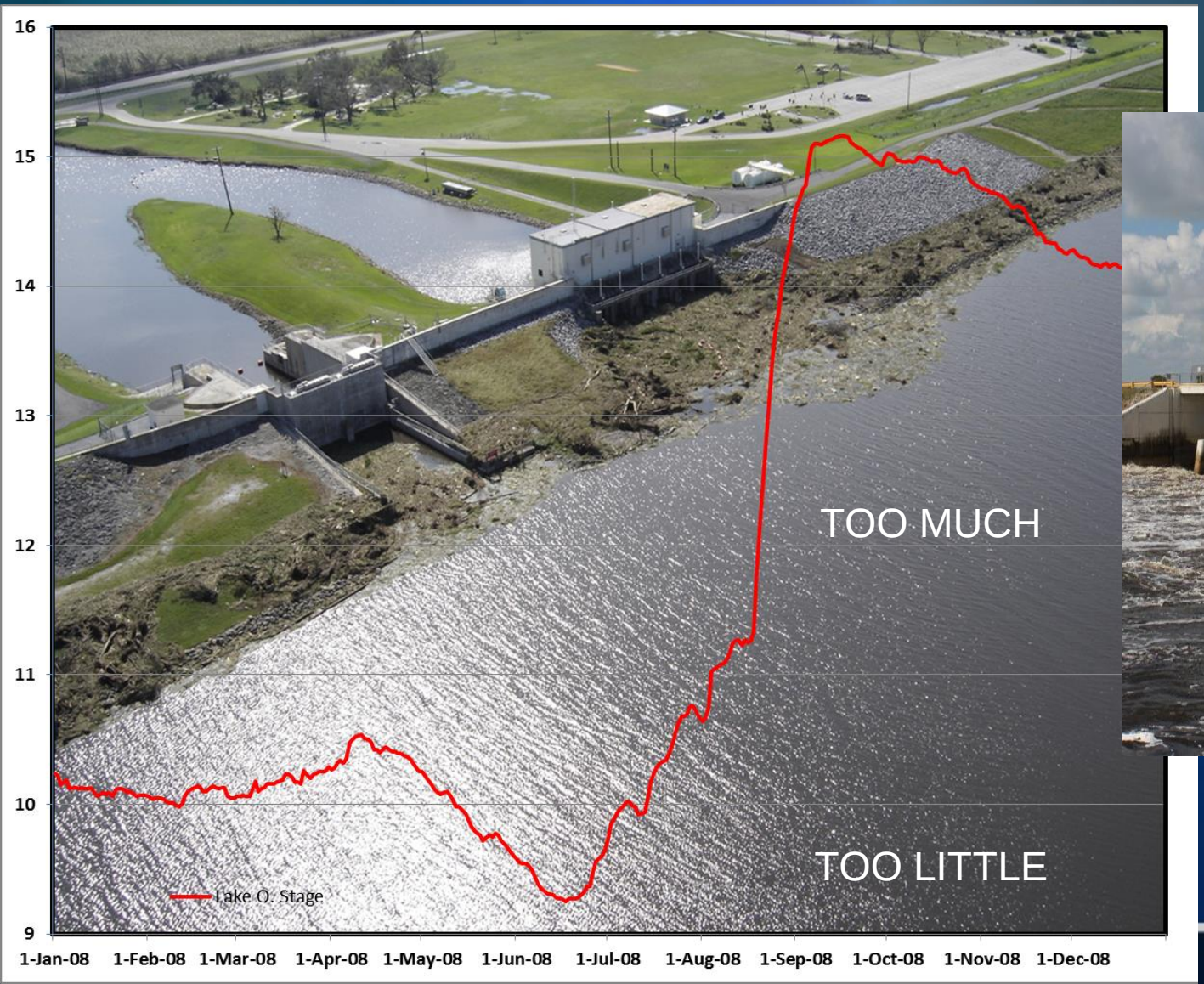
Managed by the USACE (red⭘) and the SFWMD (blue△)

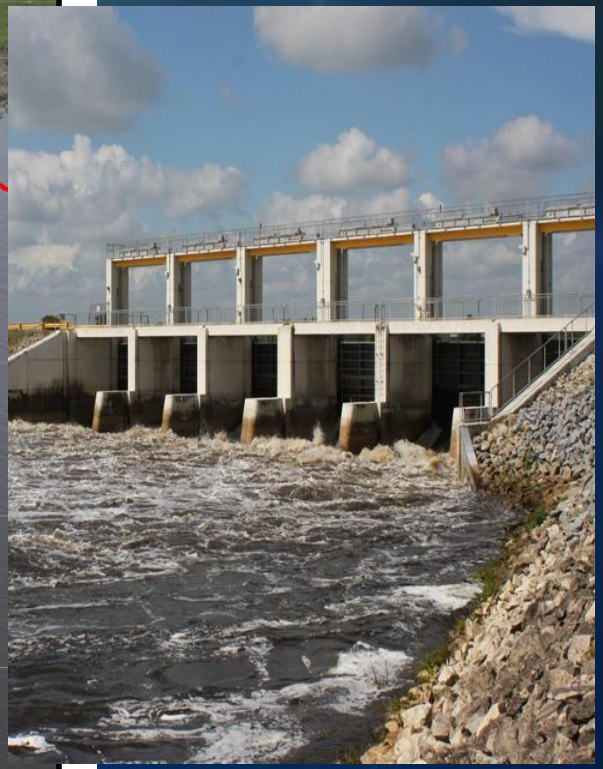


Lake Okeechobee Regulation Schedule Lowered in 2008

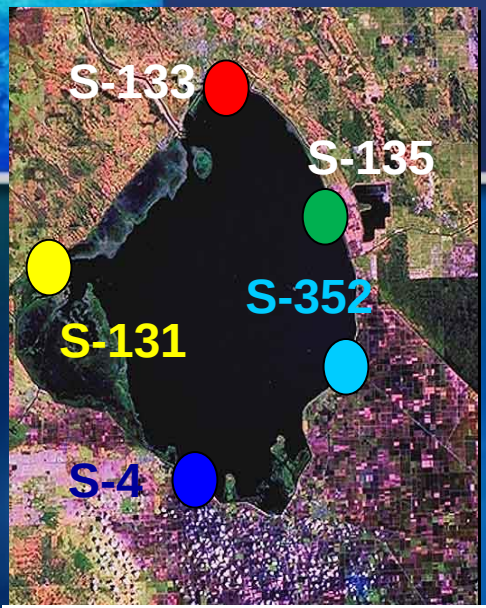


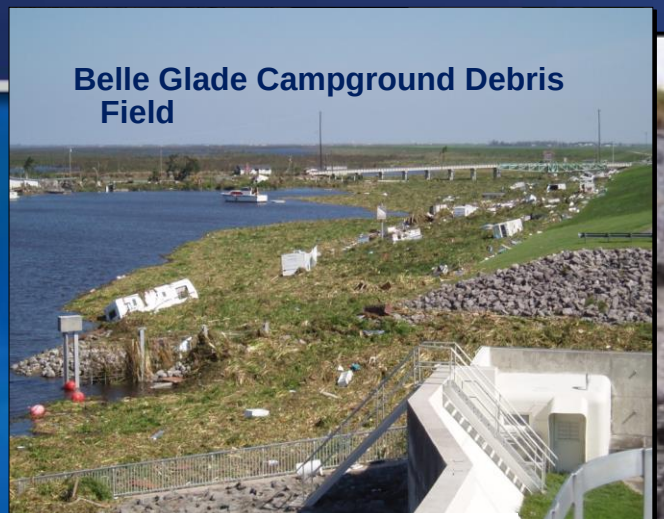
Challenges in Keeping Lake O Levels at the Desired Range

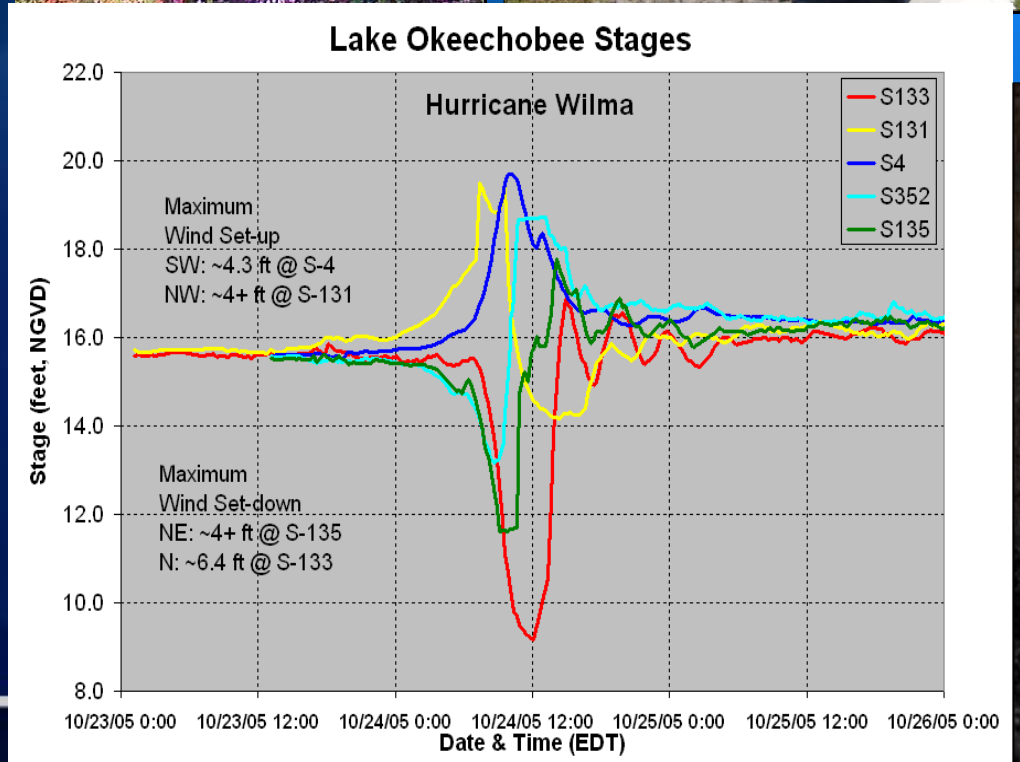


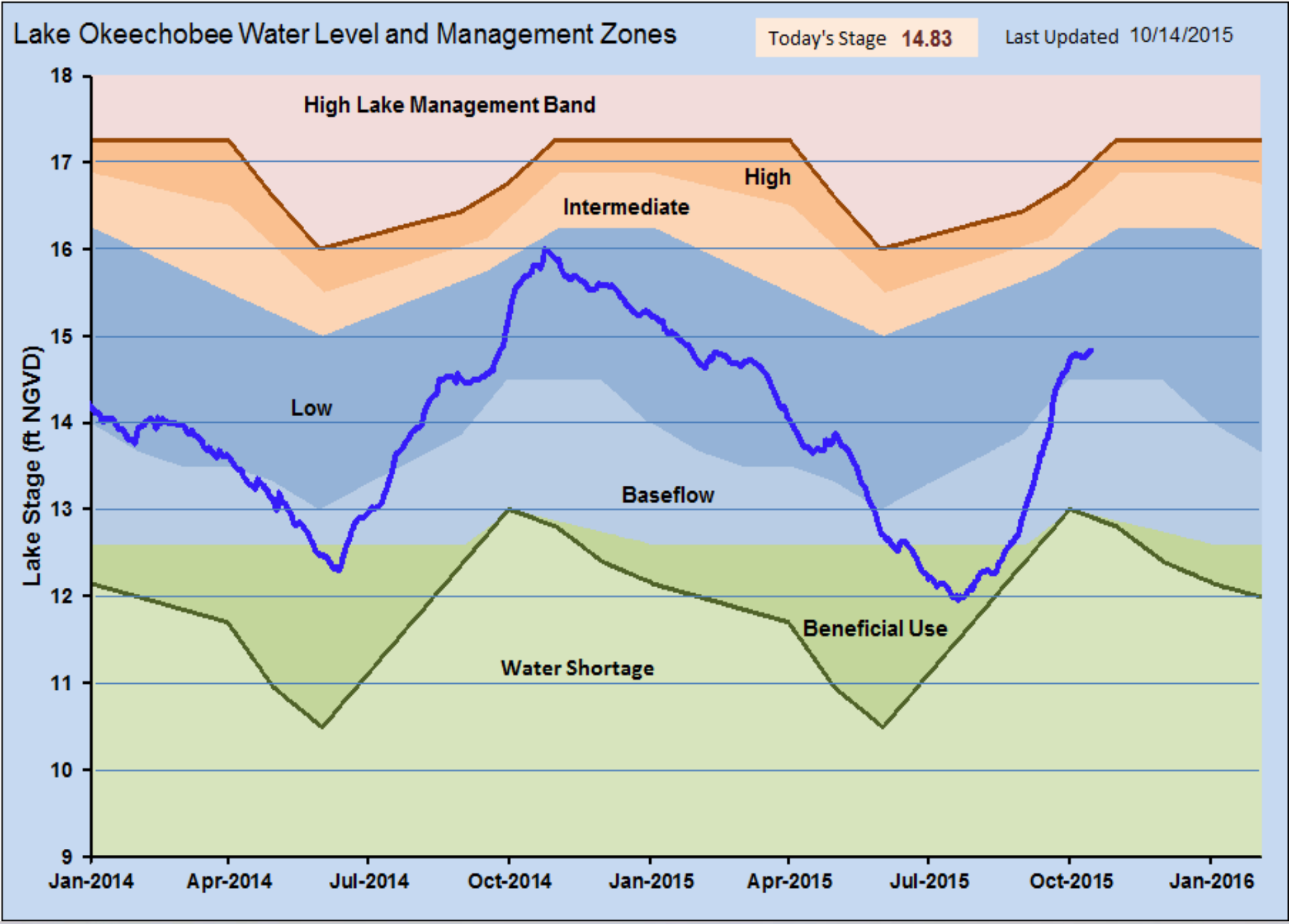


Lake Okeechobee "Slosh" Effect



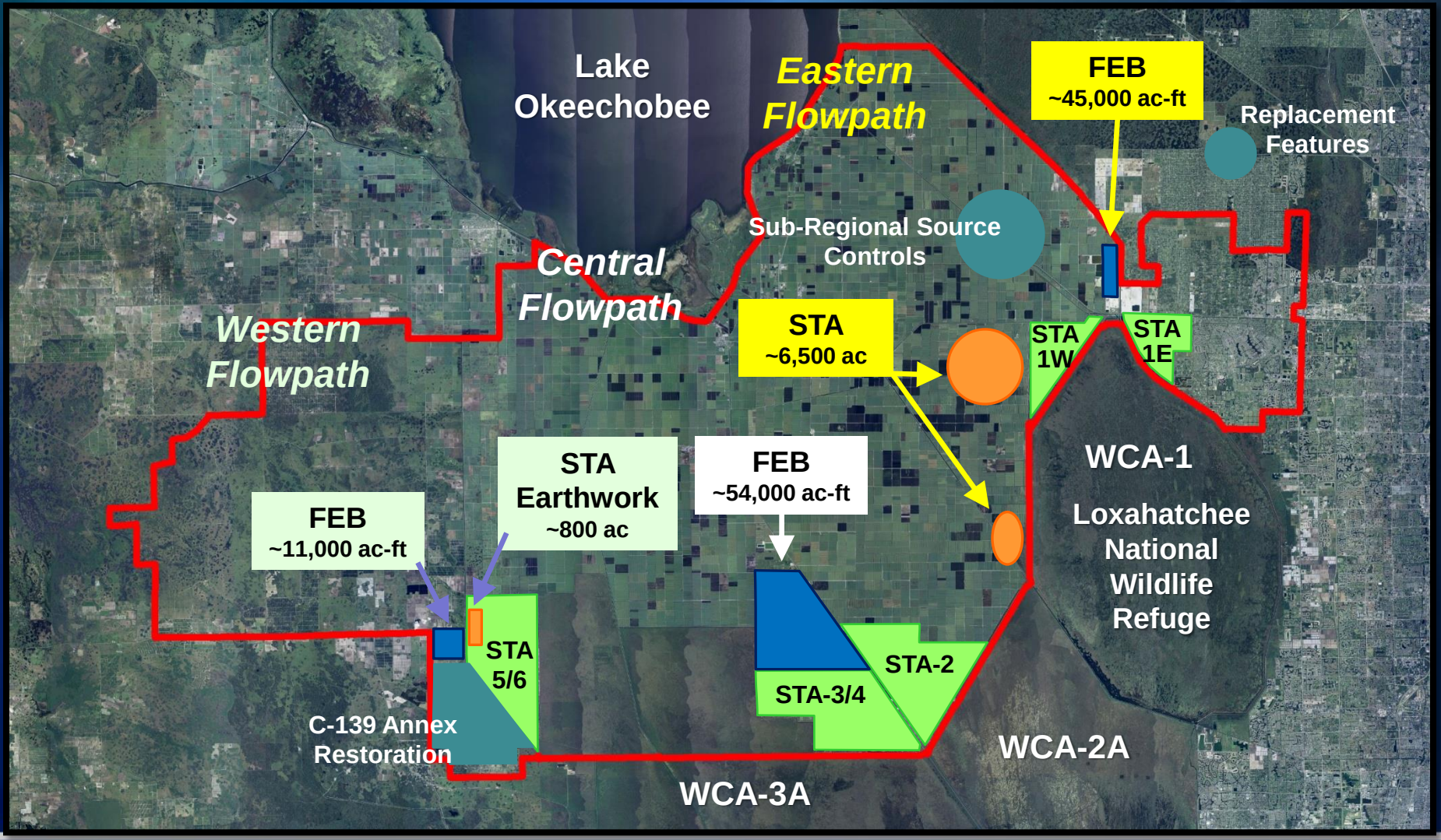





Lake Okeechobee Water Level and Management Zones
Today's Stage 14.83
Last Updated 10/14/2015
High Lake Management Band
High
Intermediate
Low
Baseflow
Beneficial Use
Water Shortage
Lake Stage (ft NGVD)
18
17
16
15
14
13
12
11
10
9
Jan-2014
Apr-2014
Jul-2014
Oct-2014
Jan-2015
Apr-2015
Jul-2015
Oct-2015
Jan-2016

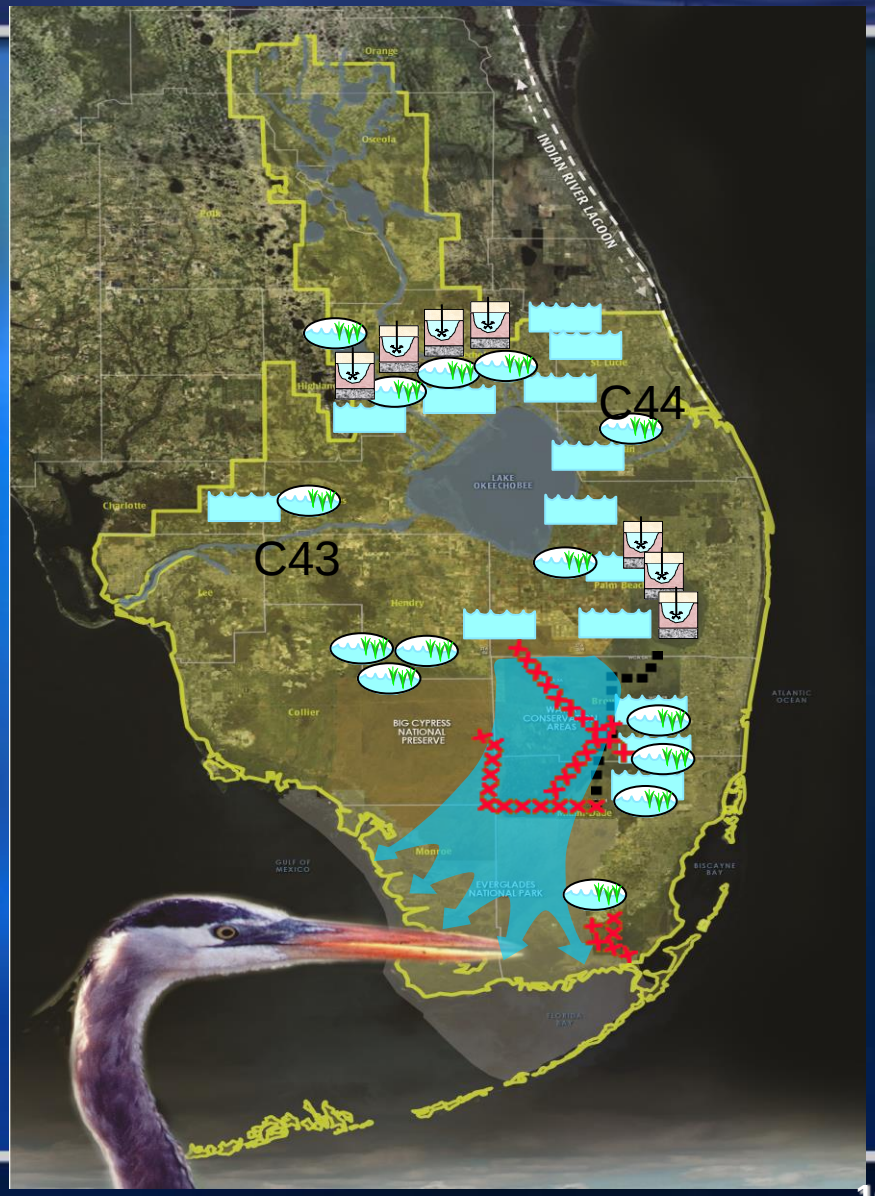
Restoration Works – Kissimmee River

Restoration Strategies – State Plan to Address Water Quality Concerns; $880M/ 12 years

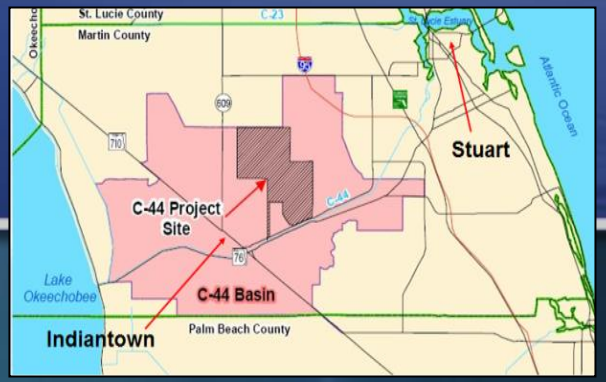


Comprehensive Everglades Restoration Plan (CERP)

- 68 Components
  - Storage
    - Surface & ASR
  - STAs for water quality
  - Seepage management
  - Removing barriers to flow
  - Revised operations



C-44 Reservoir and STA



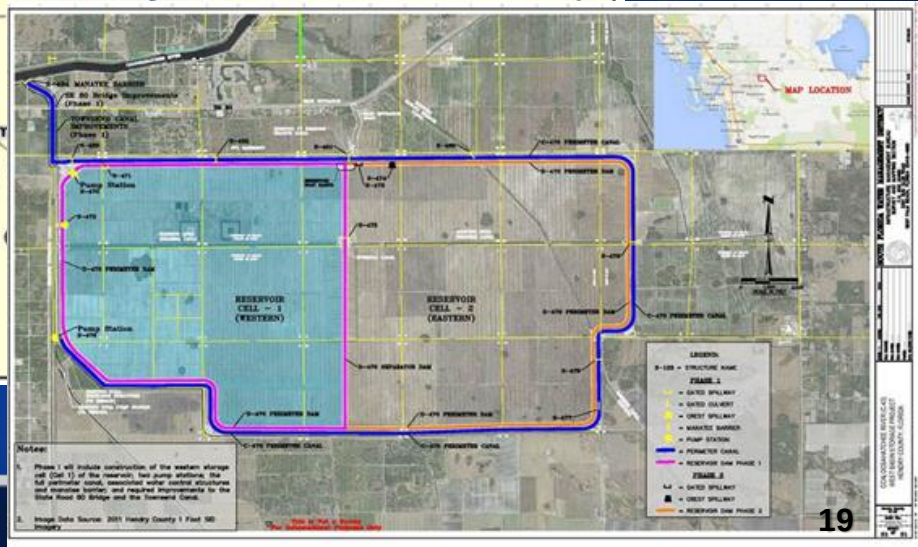
- SFWMD construction of the Stormwater Treatment Area, discharge system and pump station is underway
- USACE will construct the reservoir

http://www.sfwmd.gov/c44cam

C-43 Reservoir

S.W.F.W.M.D.
S.F.W.M.D.
GLADES CO
CHARLOTTE CO
LEE CO
HENDRY CO
COLLIER
Port Charlotte
Punta Gorda
Peace River
Charlotte Harbor
Palmdale
Lake Okeechobee
Moore Haven
S-77
S-78
Lake Hicpochee
Clewiston
S-4
EAST CALOOSAHATCHEE
WEST CALOOSAHATCHEE
TIDAL CALOOSAHATCHEE
COASTAL
Jacks Branch
C-43
LaBelle
S-79
C-43 West Basin Storage Reservoir (Future)
Townsend Canal
Orange River
Gator Slough
North Fort Myers
Fort Myers
Cape Coral
Caloosahatchee
Matlacha Pass
Pine Island
Pine Island Sound
Lehigh Acres
Boundary of
Captiva
San Carlos Bay
Shell Point
Sanibel
Estero Bay
Bonita Springs
Naples Park
Lake Trafford
GULF OF MEXICO

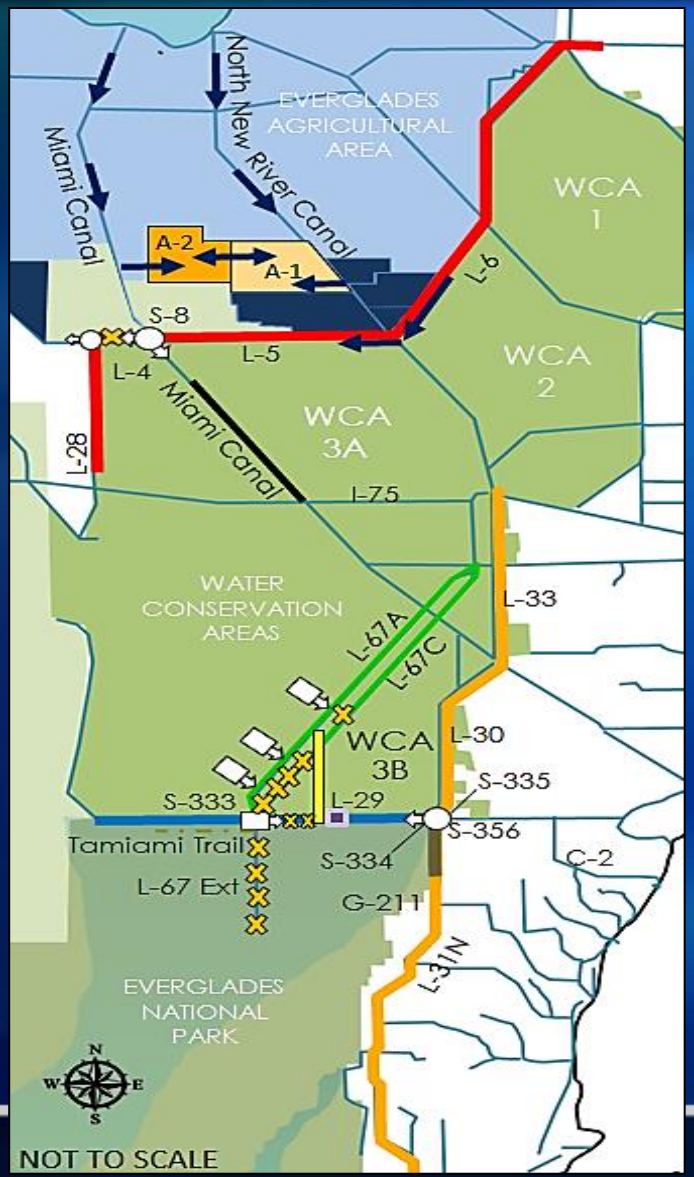
Disclaimer:
The South Florida Water Management District does not warrant, guarantee, or make any representations regarding the use of the information on this map.



A 20-Year Commitment to Everglades Restoration

- Dedicated source of funding
- $5 billion in state funding over the next 20 years
- $4 billion in matching federal funds anticipated
- Implementation of the Governor's plan will deliver critical benefits to the Everglades ecosystem:
  - Capture and store 1 million acre-feet (330 billion gallons) of fresh water, which will significantly decrease the frequency and intensity of harmful freshwater discharges to the northern estuaries
  - Reduce phosphorus loads to Lake Okeechobee, Caloosahatchee Estuary, St. Lucie Estuary and the Everglades by 252 metric tons per year

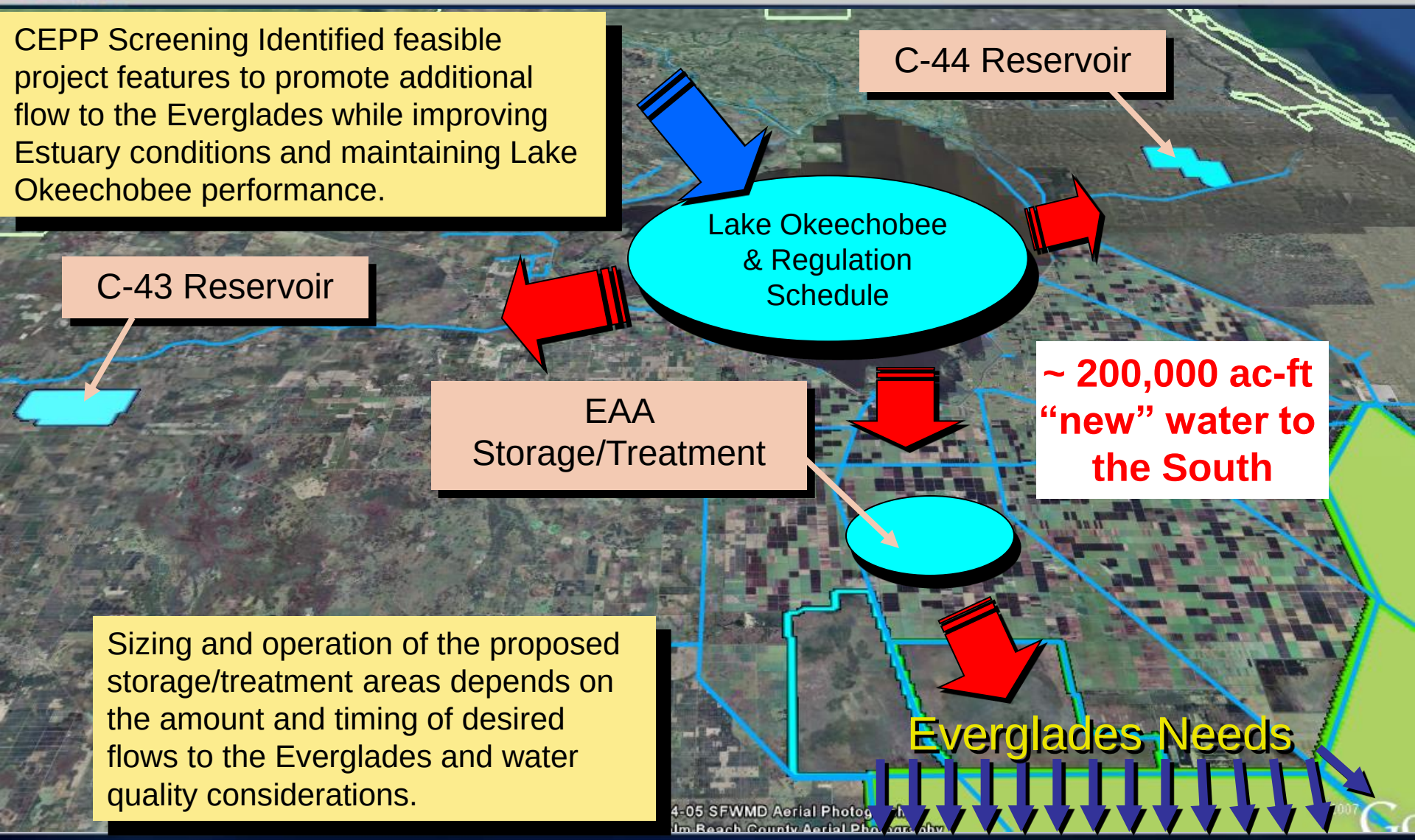
Central Everglades Planning Project



- Increases storage, treatment and conveyance of water south of Lake Okeechobee
  - Sends ~200,000 ac-ft of water south from the Lake
- Removes and/or plugs canals and levees within the central Everglades
- Improves hydroperiod and flow through Everglades National Park while protecting urban and agricultural areas to the east from flooding

Addition of CEPP Storage

CEPP Screening Identified feasible project features to promote additional flow to the Everglades while improving Estuary conditions and maintaining Lake Okeechobee performance.



Sizing and operation of the proposed storage/treatment areas depends on the amount and timing of desired flows to the Everglades and water quality considerations.

Questions