

# **2013 Wet Season Response**

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# Topics

- District Facilities and Normal Wet Season Storage
- Private and Public Lands Storage
- Additional Actions this Wet Season

# Kissimmee - Grassy Islands Wetlands



# Kissimmee - Milking R Dairy



# Stormwater Treatment Areas



# EAA Fallow Fields



# Current DWM Efforts to Reduce Discharges to Estuaries

- The District continues to pursue agreements with landowners to pump water from the watershed onto their lands in exchange for reimbursement of direct costs
- Other landowners and drainage districts in the Northern Everglades, including the Caloosahatchee and St. Lucie River basins, have been contacted to see if they are able to retain/store water by temporarily modifying their permitted water control structures to limit discharge. These landowners and districts are cooperating wherever possible; however, viable opportunities are limited as most of the system is already saturated
- Continue operations to maximize storage on District Owned Lands

# DWM - Rafter T Ranch



# DWM – Dixie Ranch



# Martin County - Williamson's Ranch



# Martin County – Allapattah Ranch



# Kissimmee Region - Paradise Run



# Martin & Palm Beach County - Dupuis Marsh

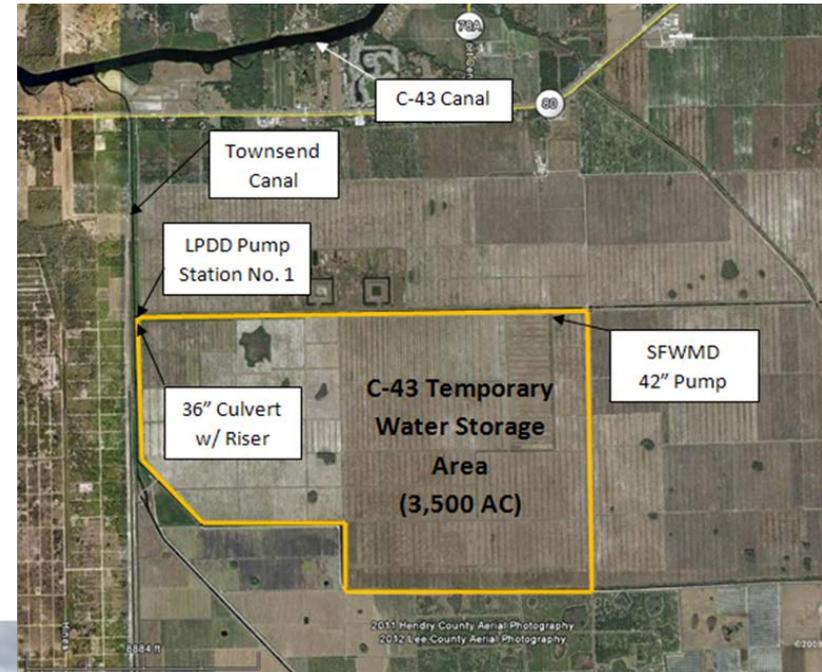


# Hendry County - BOMA Site



# Hendry County - C-43 Reservoir Site

- Pumping started 29-July (estimated 75 cfs)
- 8-hrs per day pumping (estimated volume by 7-Aug approximately 450 acre-feet)



# Additional Actions This Wet Season

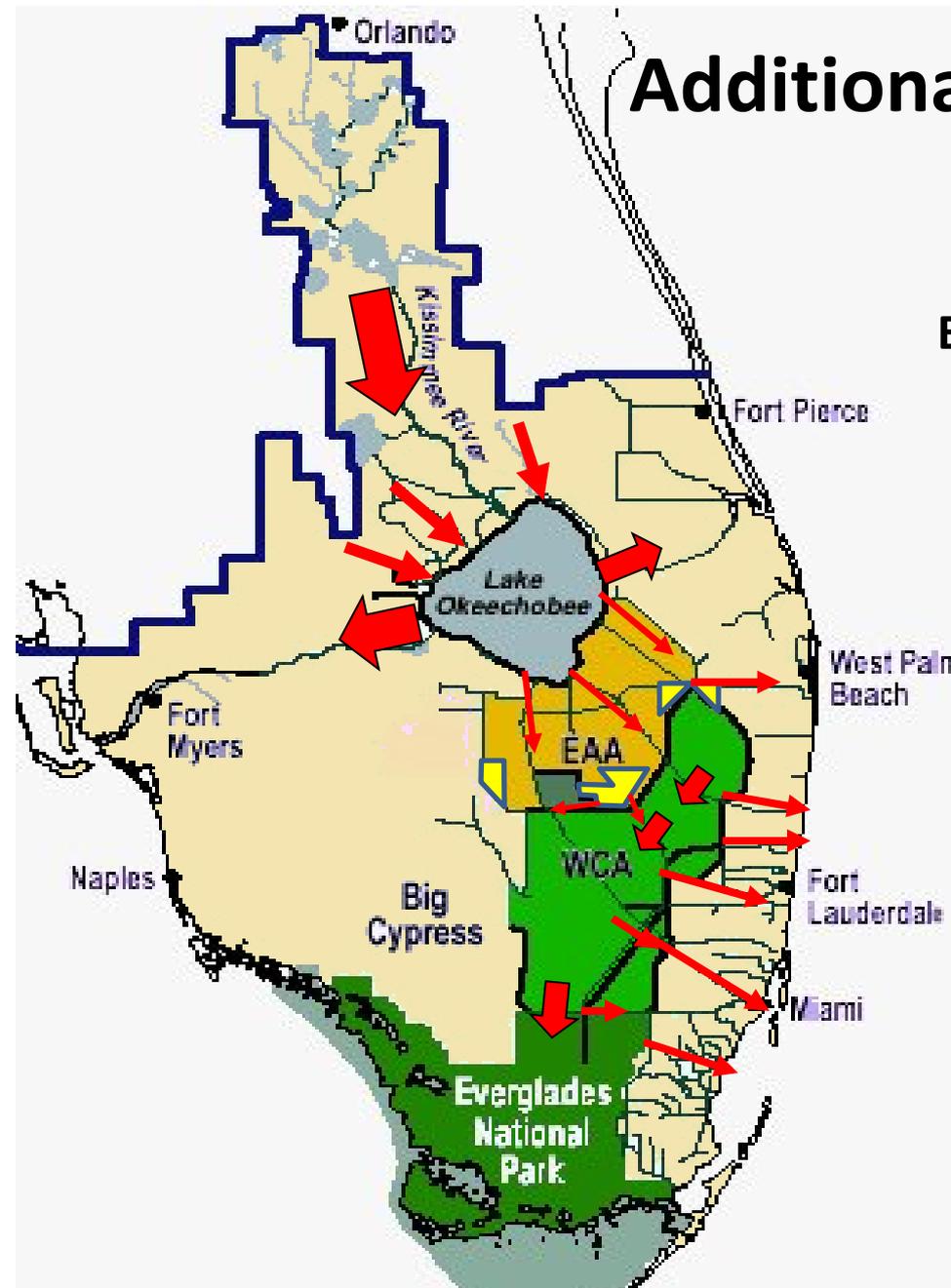
## Constraints Limiting Discharge of Excess Water from Lake Okeechobee

### East & West

- C-43 & C-44 Basin runoff
- Available conveyance capacities

### South

- EAA runoff & available conveyance capacities
- STA treatment capability
- WCA storage capacities
- WCA outflow limitations
  - Coastal Basin runoff & available conveyance capacity
  - S-12 discharge capacity
  - Water levels in NESRS
  - Endangered and Protected Species (e.g., CSSS)



# Lake Okeechobee Operations

## Dry Season Jan-May 2013

- Lake O regulatory releases to the Northern Estuaries were consistent with the 2008 LORS
  - 183,900 acre-feet to the Caloosahatchee Estuary at environmentally-friendly rates (typically 650 cfs)
  - 7,400 acre-feet to the St. Lucie Estuary
- Lake O regulatory releases to the WCAs via the STAs were consistent with the 2008 LORS
  - 34,000 acre-feet treated by STAs and pumped to WCA-3A

# Lake Okeechobee Operations (cont)

## Dry Season Jan-May 2013

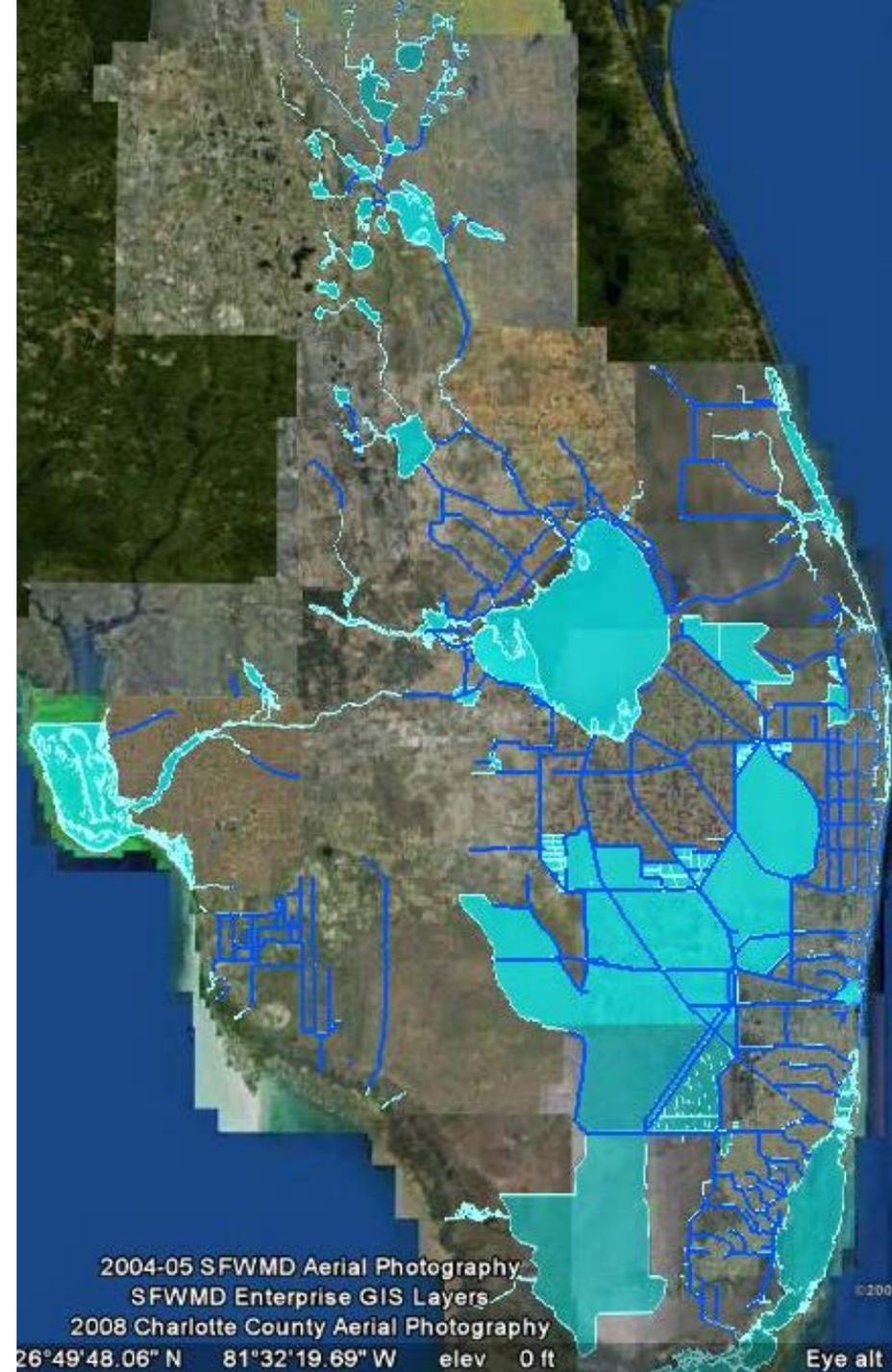
- SFWMD prepared a report containing detailed retrospective analysis of 2013 Lake releases to the WCAs via the STAs
- Report concluded that the STAs could not have taken additional Lake water without causing increased damage to treatment vegetation and subsequent reduction in water quality treatment performance.
- Note that the Everglades STAs are vegetated, shallow water treatment areas and are not designed for water storage



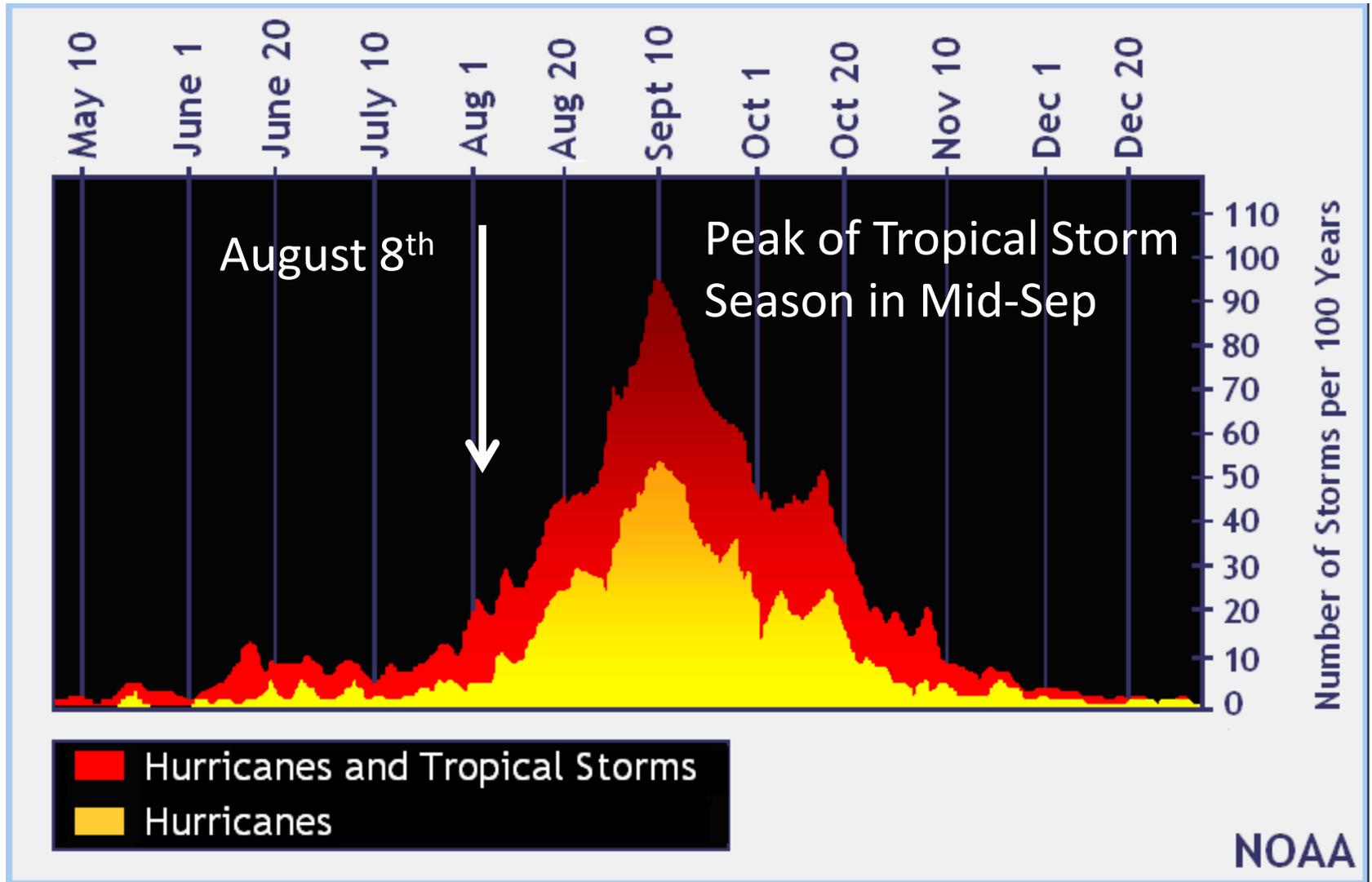
**Example of vegetation damage from excessive inflows (STA-1W 30-July-2013)**

# System Storage Status

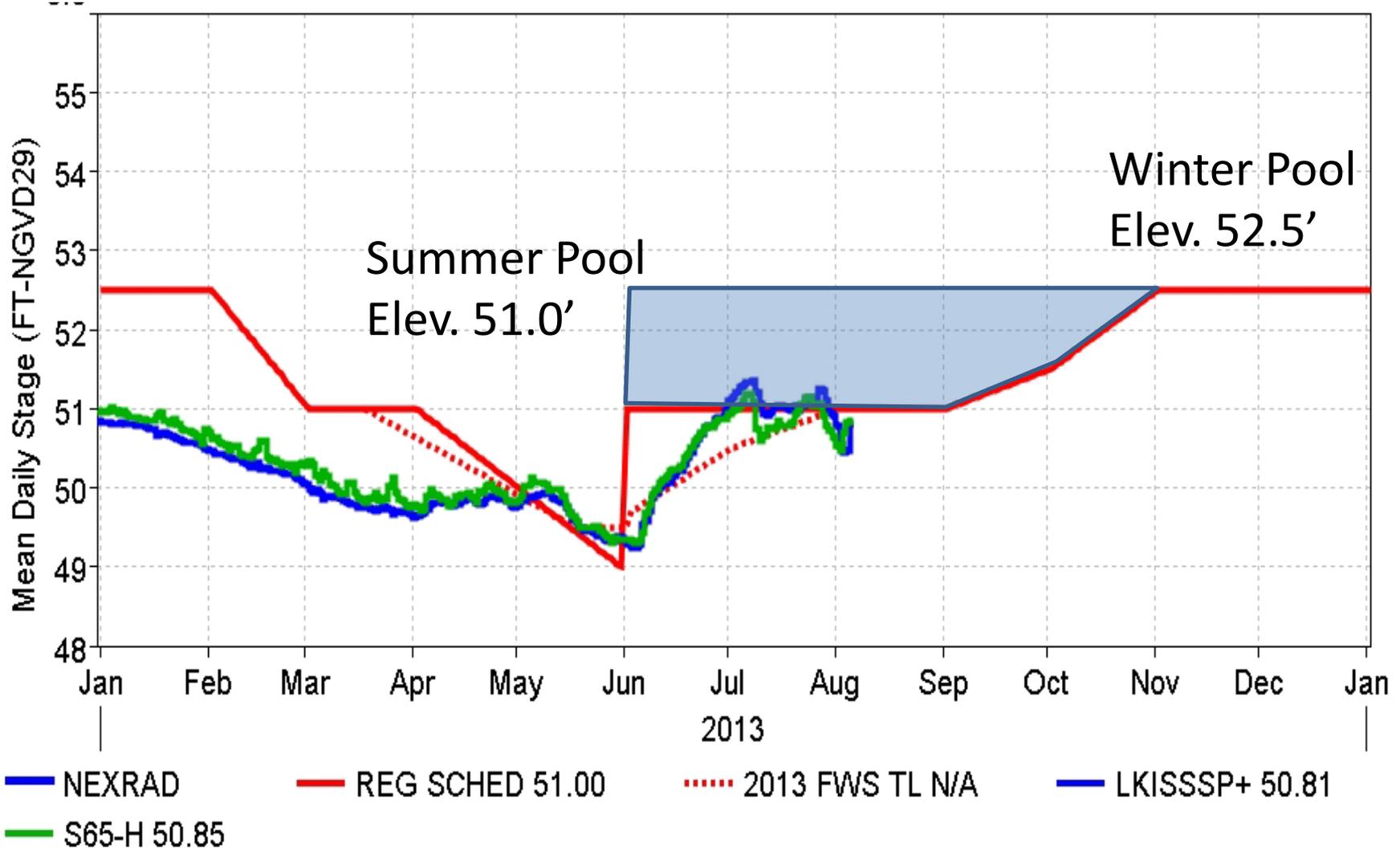
- Kissimmee Basin
  - All Lakes near or above regulation stage
- Lake Okeechobee
  - Above regulation
- Water Conservation Areas
  - Above regulation



# Atlantic Tropical Storm & Hurricane Season 1-June to 30-November

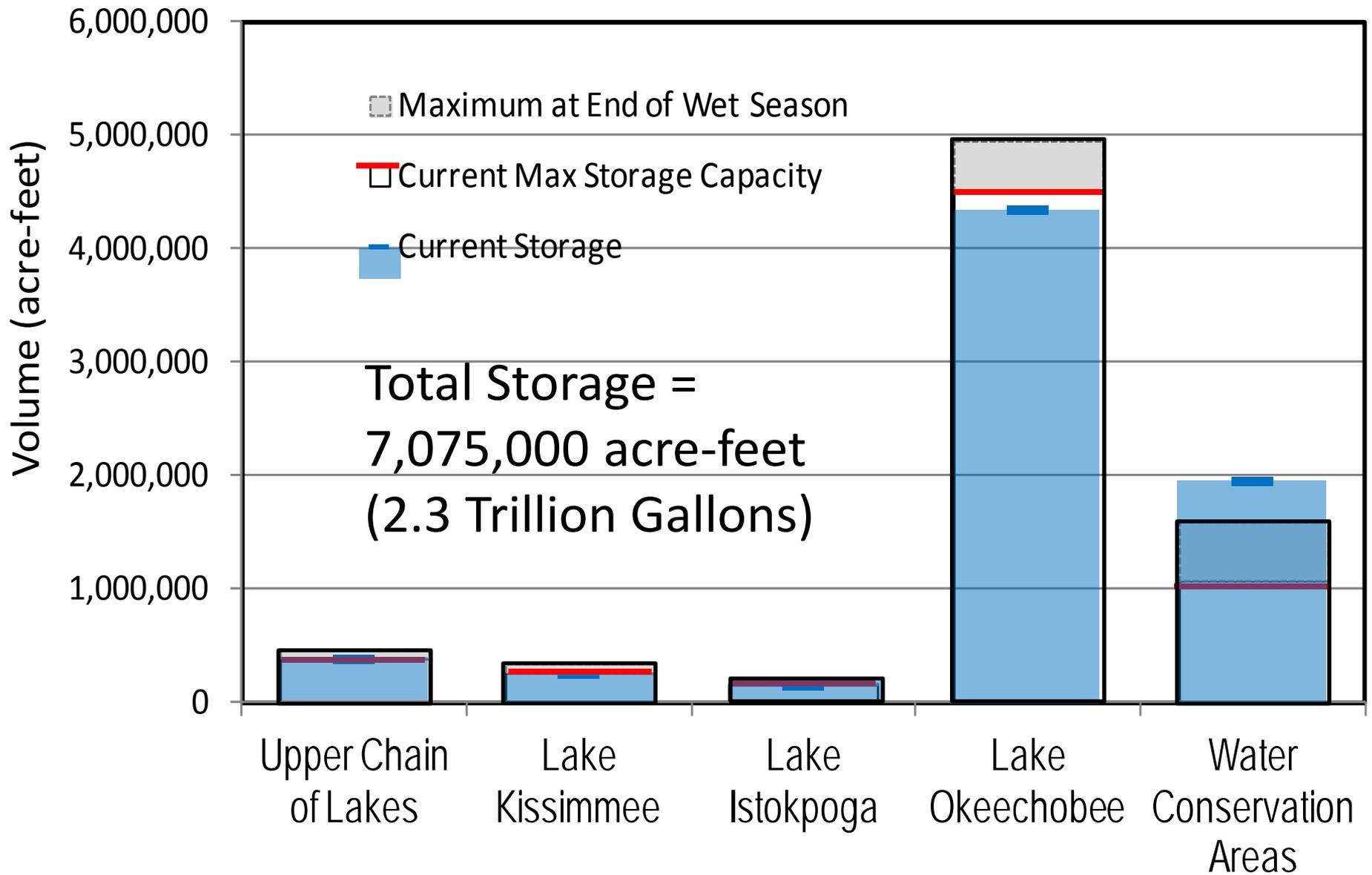


# Lake Kissimmee, Hatchineha & Cypress Water levels & Regulation Schedule



# System Storage Status

5-Aug-2013



# Discharges to Tide

## June-July 2013 (provisional flow data)

Discharge Volumes to:	June	July	Jun+Jul
LEC in acre-feet	586,000	615,000	1,202,000
Billion Gallons	191	201	392
CRE in acre-feet	256,000	715,000	971,000
Billion Gallons	83	233	316
SLE in acre-feet	97,000	270,000	367,000
Billion Gallons	32	88	120
Total (acre-feet)	939,000	1,600,000	2,540,000
Billion Gallons	306	522	828

LEC: Lower East Coast (includes WCA discharges)

\* flows at all structures south of S-80

CRE: Caloosahatchee River Estuary

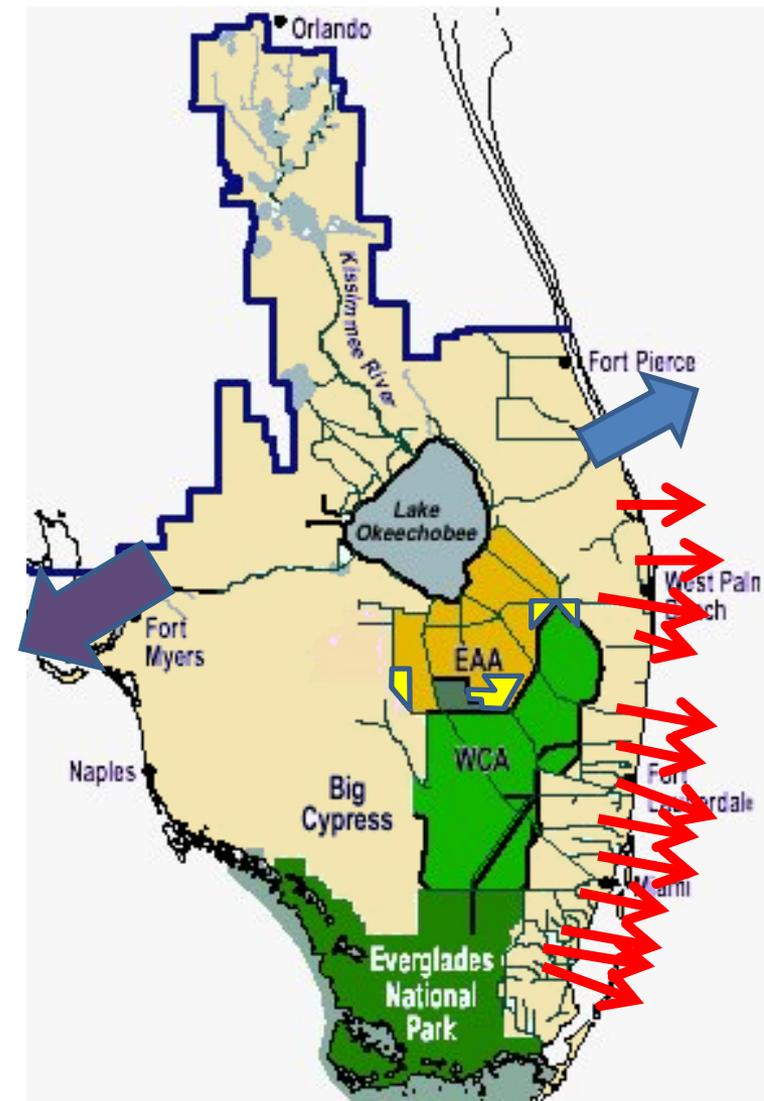
\* flows at S-79 + Tidal Basin

\* 30% from Lake O

SLE: St. Lucie Estuary

\* flows at S-80, S-49, S-97, & Gordy

\* 30% from Lake O

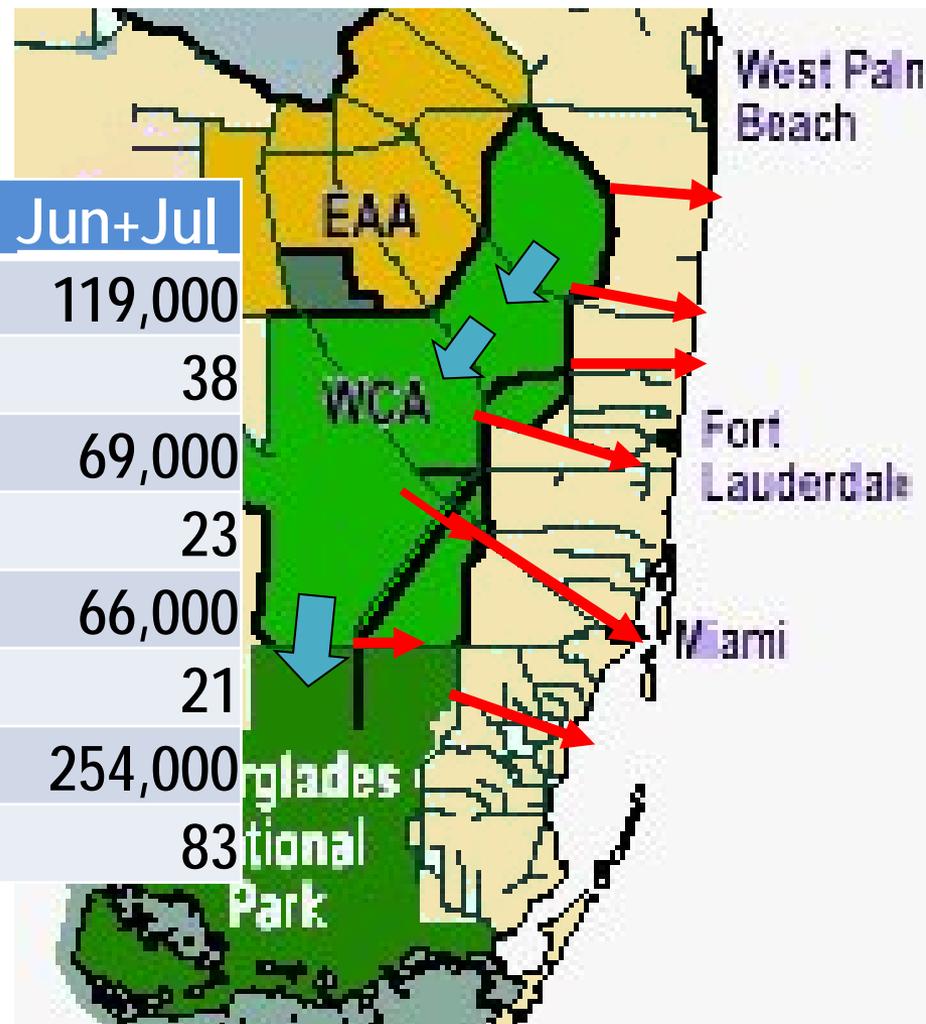


# Water Conservation Areas

## Discharges to Tide

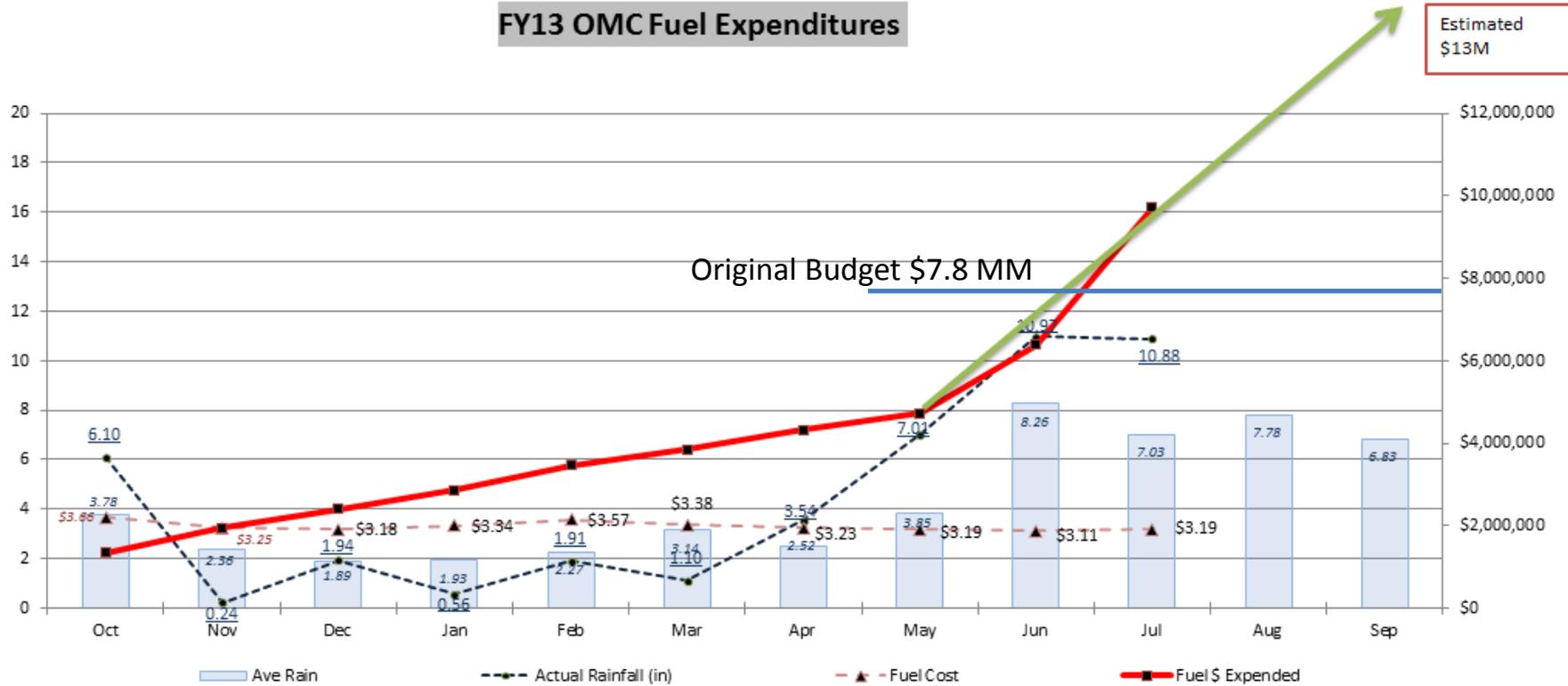
June-July 2013 (provisional flow data)

Discharge from:	June	July	Jun+Jul
WCA-1 (acre-feet)	47,000	72,000	119,000
Billion Gallons	15	23	38
WCA-2A (acre-feet)	35,000	34,000	69,000
Billion Gallons	12	11	23
WCA-3A (acre-feet)	35,000	31,000	66,000
Billion Gallons	11	10	21
Total (acre-feet)	117,000	136,000	254,000
Billion Gallons	38	44	83



# Financial Impact

FY13 OMC Fuel Expenditures



- June 2013 EOG/FDEP/Governing Board approved \$3.0M additional transfer authority
- June & July expended \$4.2M or \$2.0M more during same period
- July 2013 \$1.3M or 186% increase over July 2012
- Estimated \$4.2M August & September
- August 2013 EOG/FDEP/Governing Board request for an additional \$3.0M transfer authority

# Constraints Limiting Discharge of Excess Water from Lake Okeechobee to the Water Conservation Areas

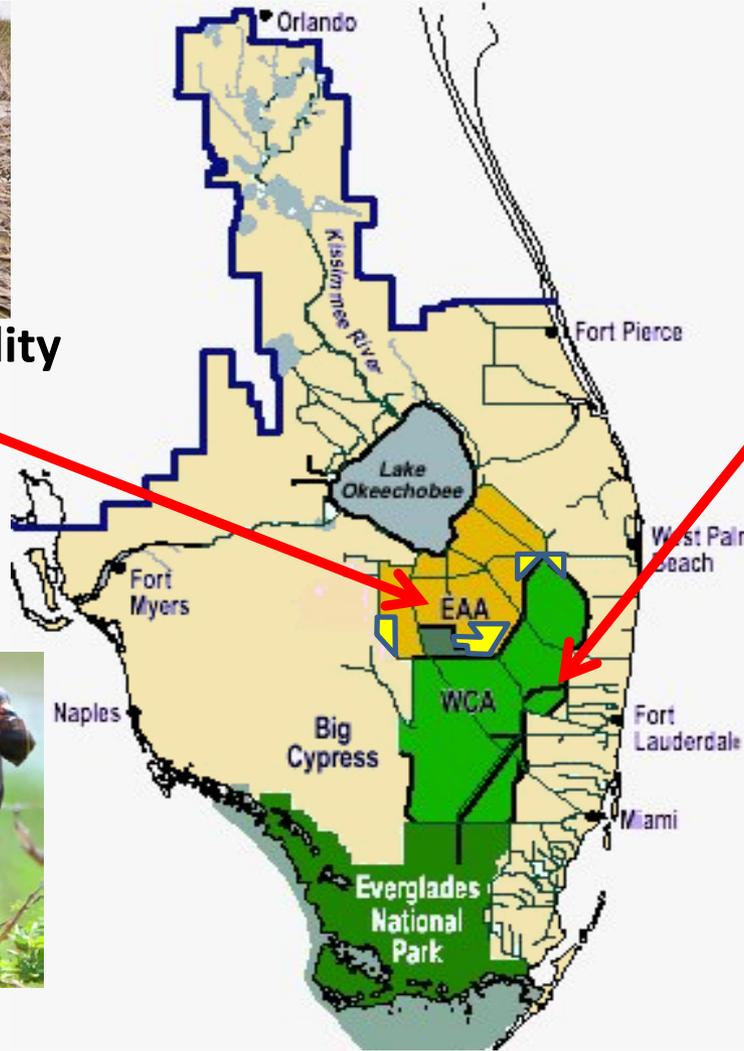


STA treatment capability

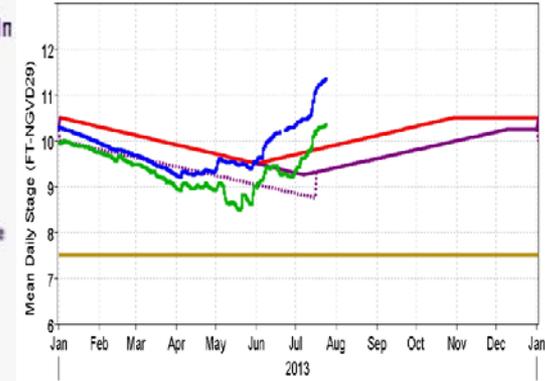
EAA Flood Control



Protected Species  
(Everglade Snail Kite, Black-necked Stilt)

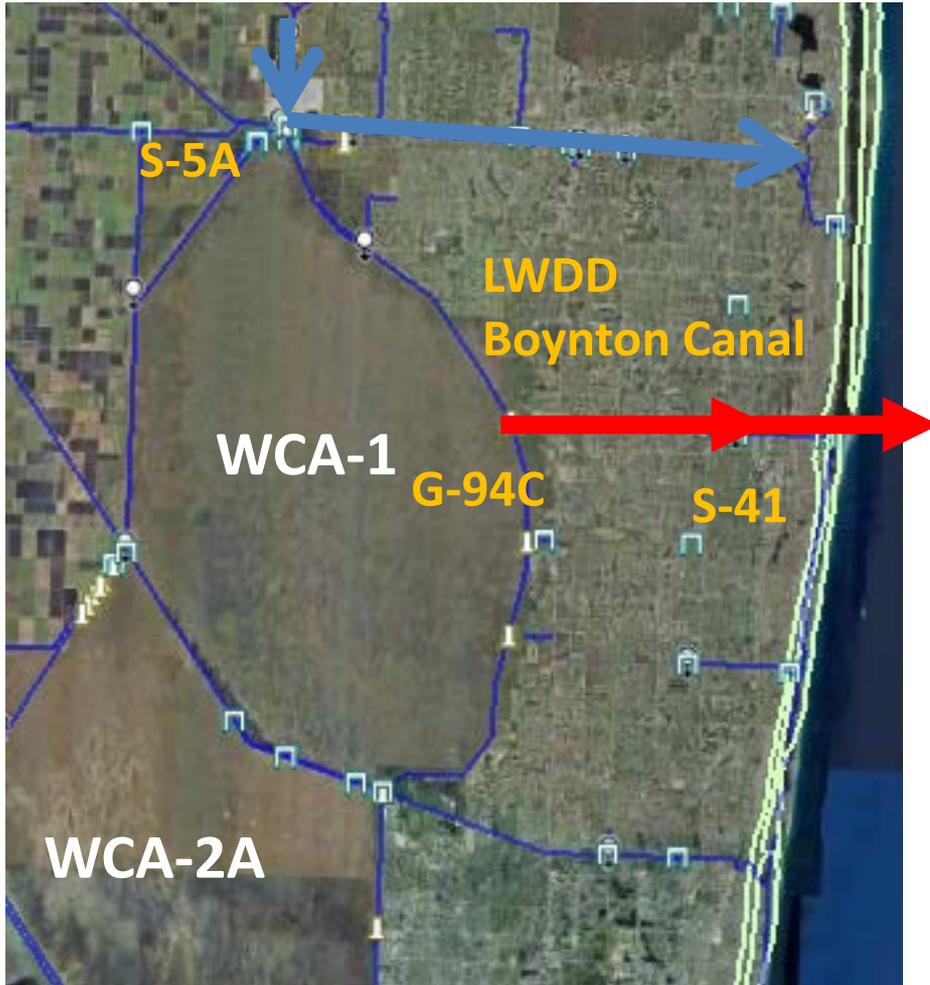


WCA levee integrity



WCA water levels

# WCA-1 Regulatory Discharge to tide through the LWDD

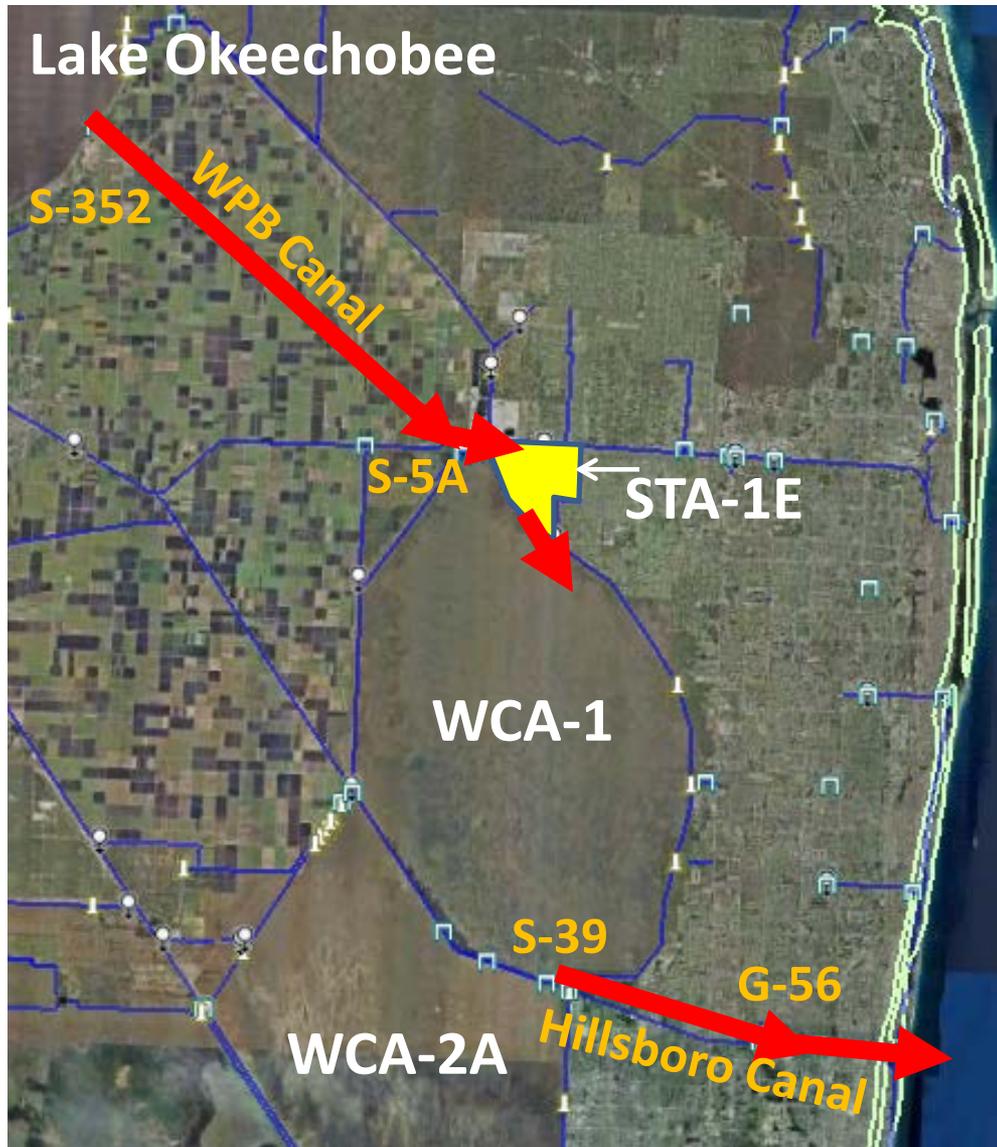


When Capacity is available in the LWDD Boynton Canal

- Release from WCA-1 via G-94C to SFWMD C-16 Discharge from C-16 to tide via S-41

Discharges through C-51 Canal from Lake O started in October 2012 with construction of L8 FEB

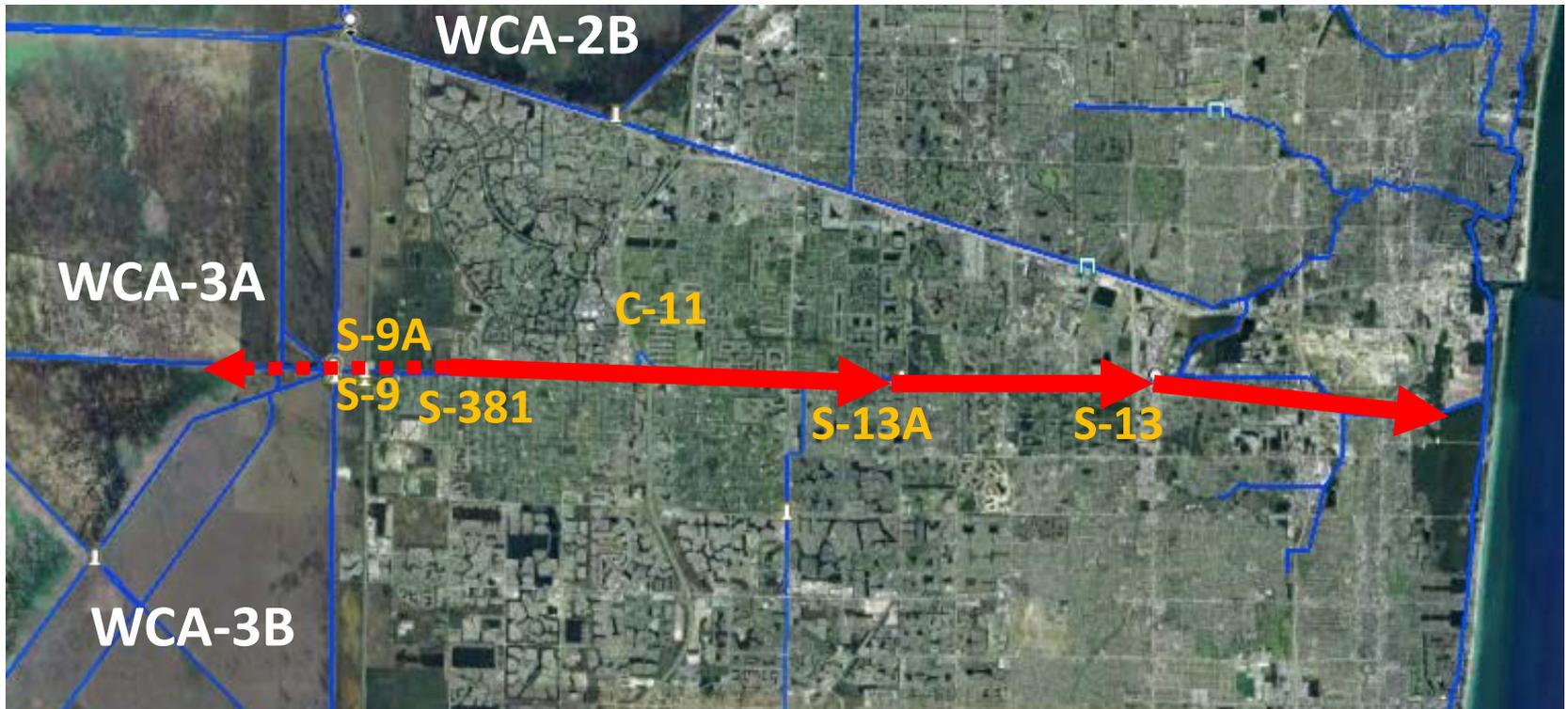
# Lake Okeechobee Regulatory Discharge to tide through STA-1E & WCA-1



When WCA-1 stage falls below top of regulation schedule:

- Release from Lake O to WPB Canal via S-352
- S-5A pumps water into STA-1E (via G-311) which is subsequently pumped into WCA-1 by S-362
- A volume equal to (or larger) is released from WCA-1 by S-39
- Requires sufficient conveyance capacity in the Hillsboro Canal

# Western C-11 Basin Pumping to Tide (reduces inflows to WCA-3A)



When eastern C-11 basin conveyance capacity is available:

- Direct western C-11 Basin flow eastward via S-13AW
- Pump S-13 continuously to provide capacity for S-13AW discharges
  - Cost of \$43,000/month for ~11,000ac-ft or \$3.94/ac-ft
- Results in less C-11 West Basin water pumped into WCA-3A

# Constraints Limiting Discharge of Excess Water from Lake Okeechobee to the Water Conservation Areas



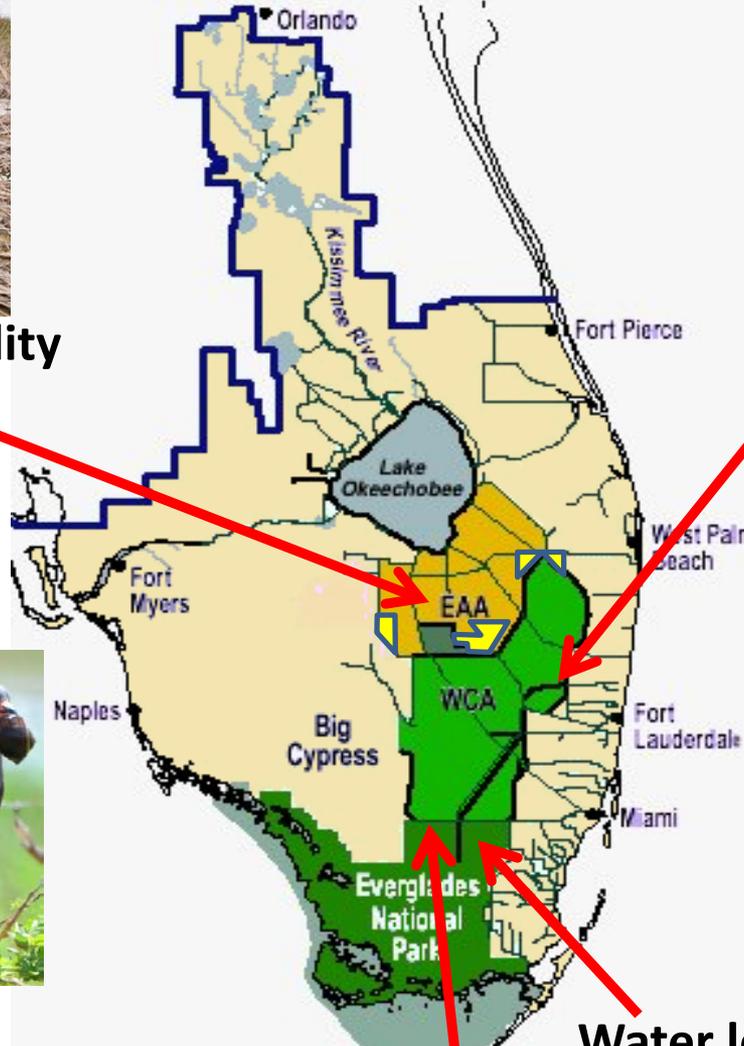
STA treatment capability

EAA Flood Control

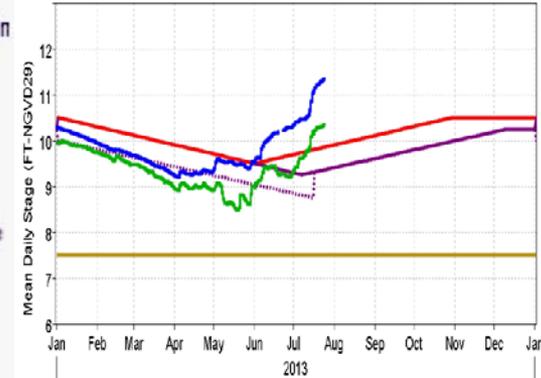


Cape Sable Seaside Sparrow, Source: U.S. FWS

Protected Species  
(Everglade Snail Kite, Black-necked Stilt)  
& Cape Sable Seaside Sparrow



WCA levee integrity



Water levels in NESRS

S-12 discharge capacity

# Maximizing WCA-3A Regulatory Discharge to tide through South Dade Conveyance System using S-197



When conveyance capacity is available:

- Partially open S-197 to release excess water sufficient to maximize S-331 pumping (3<sup>rd</sup> pump) & maintain drainage
- Release additional flow from WCA-3A via S-333 and S-334 to L-31N Canal
- Maximize pumping at S-331 to L-31N and C-111
- Maximize pumping to SDCS detention areas

# Questions

