



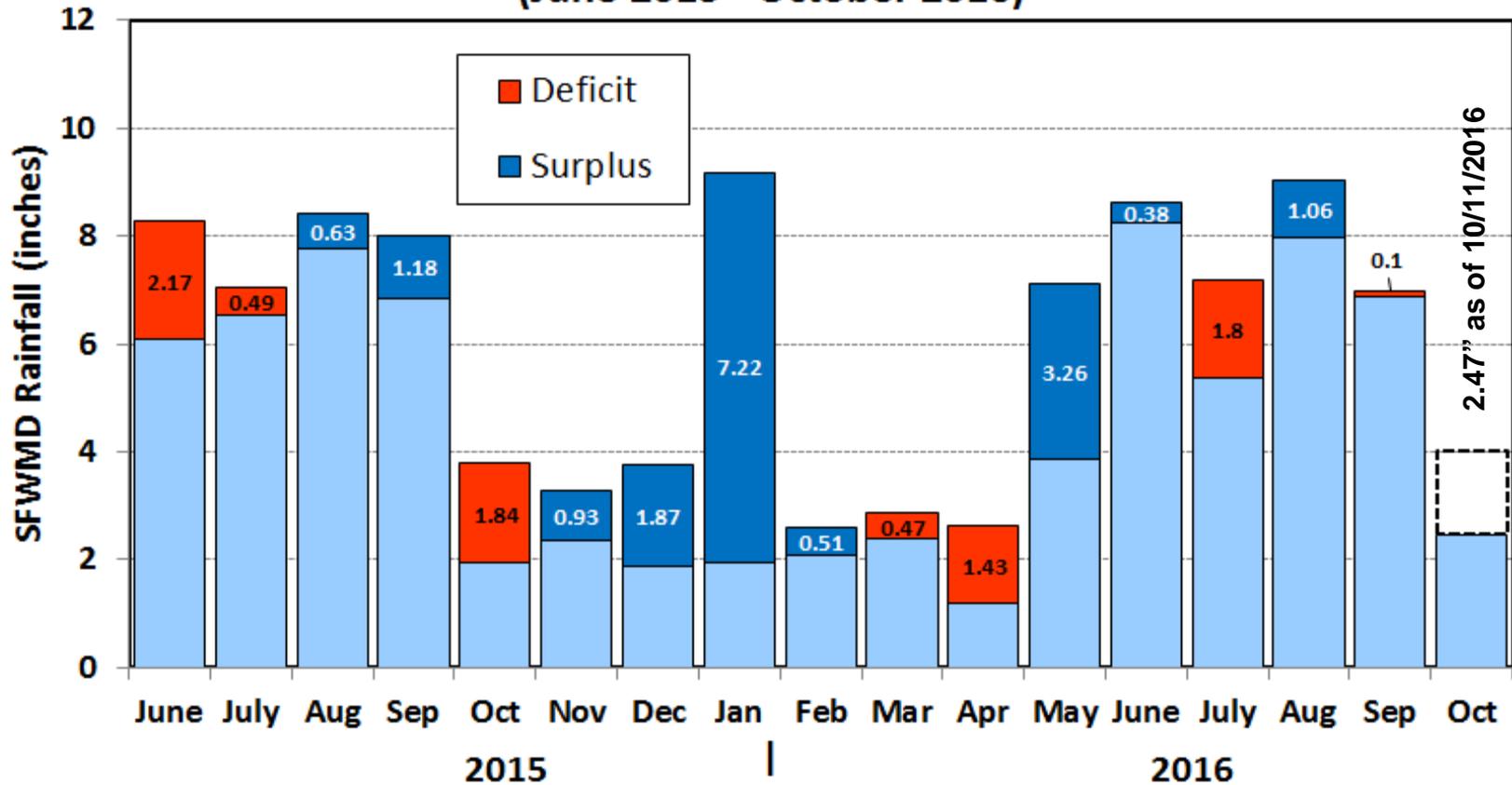
Water Conditions Summary

South Florida Water Management District
Governing Board Meeting Meeting
October 13, 2016

John P. Mitnik, P.E.
Chief District Engineer
Operations, Engineering and Construction

SFWMD Rainfall Distribution Comparison

(June 2015 - October 2016)



2015 WET SEASON:

- Driest May-July since 2004
- Ended below average

2015-16 DRY AND 2016 EARLY WET SEASON:

- Nov 2015-Jan 2016 wettest since 1932
- Jan 2016 wettest since 1932
- Second wettest May since 1976
- Dry season 2015-16 168% above average
- 2016 Wet season is slightly above average

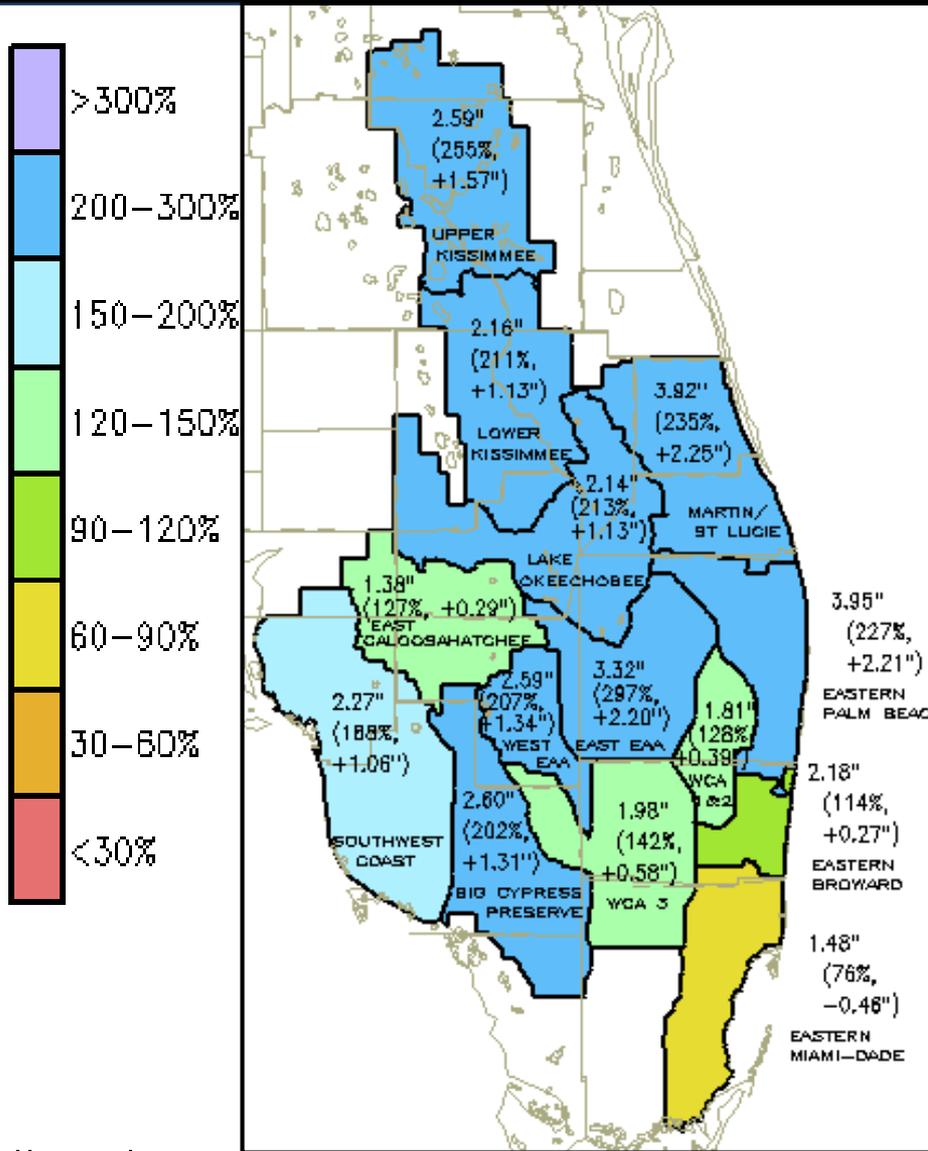
SFWMD

October 2016 Rainfall

(02-Oct to 11-Oct-2016)

DISTRICT-WIDE: 2.47"
191% of Avg, or +1.18"

- October rainfall up to date is above normal
- All areas but one are 114% or higher above normal
- Eastern Miami-Dade is 76% below average
- Around 1.4 " of the total can be attributed to Hurricane Matthew



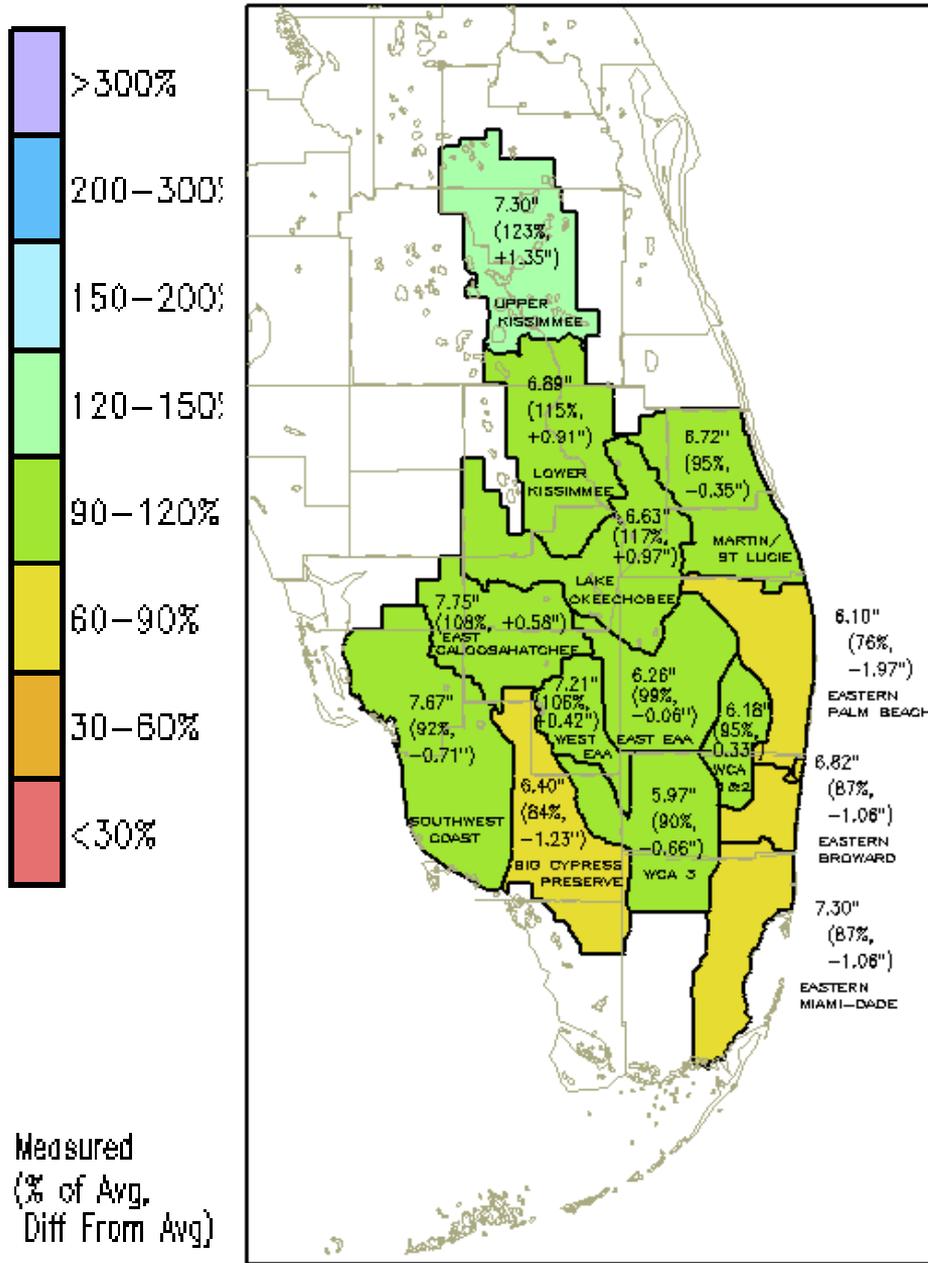
Measured
 (% of Avg,
 Diff From Avg)

SFWMD September 2016 Rainfall

(02-Sep to 01-Oct-2016)

**DISTRICT-WIDE: 6.87"
99% of Avg, or -0.10"**

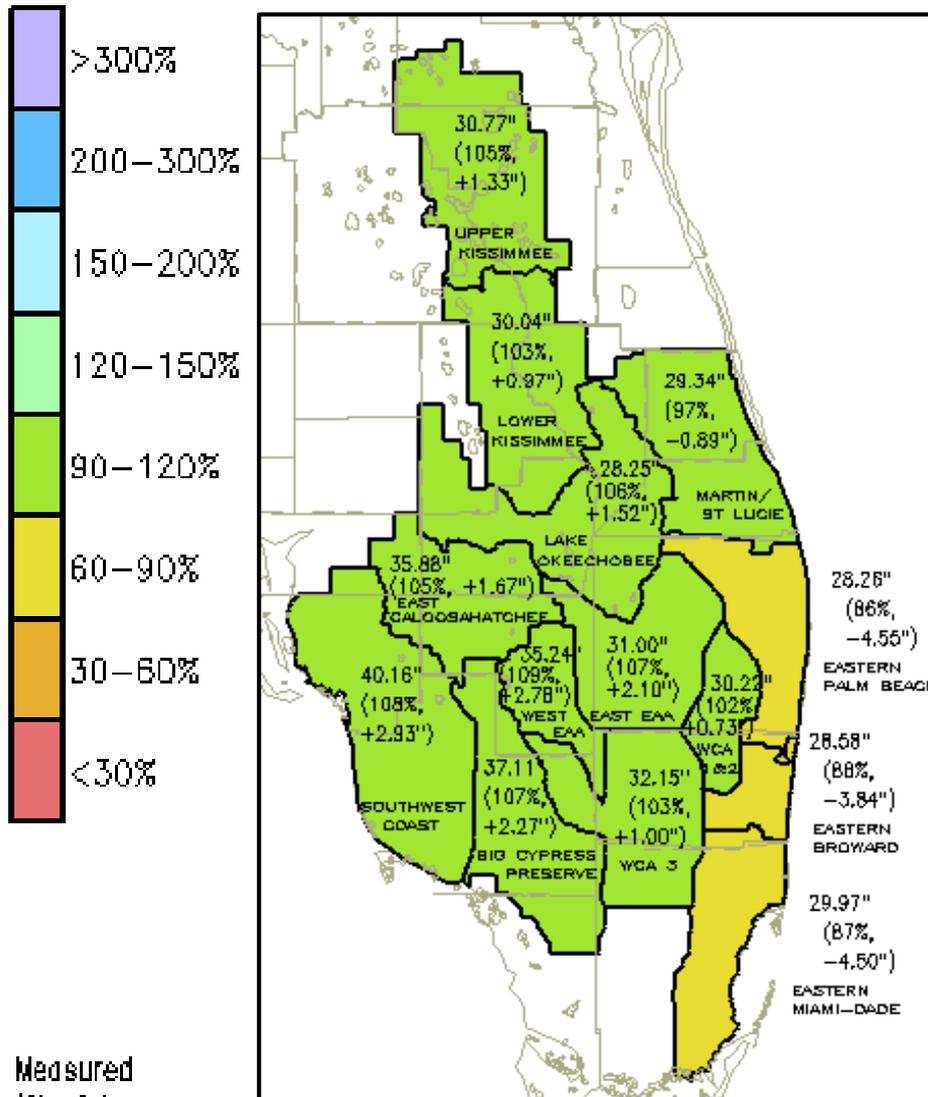
- Most of September rainfall was concentrated in the Kissimmee River Valley.
- WCAs and the LEC Urban areas received below average rainfall for this time of the year



SFWMD 2016 Wet Season Rainfall

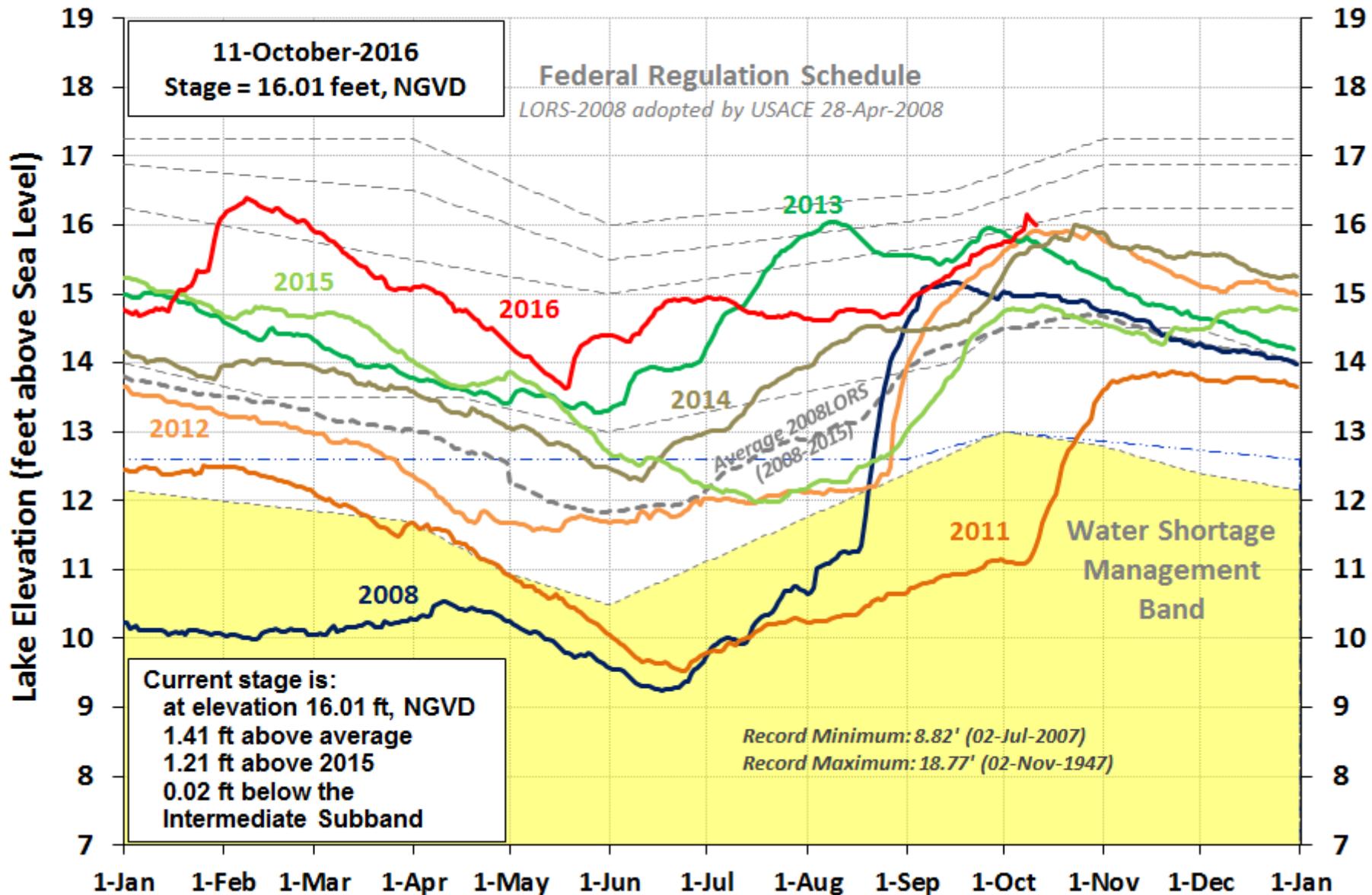
(02-Jun-2016 to 11-Oct-2016
DISTRICT-WIDE: 32.39"
102% of Avg, or +0.72")

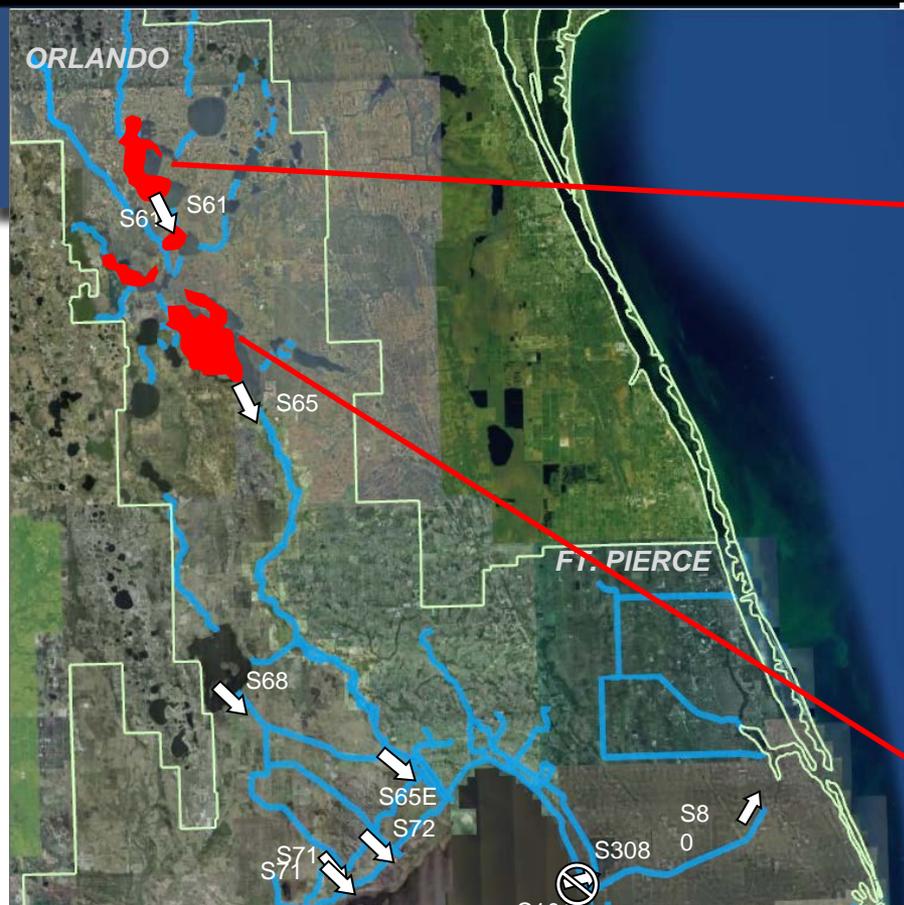
- District rainfall slightly above average for the 2016 wet season to date.
- Lower East Coast areas are below normal (86 to 88%)
- Martin/St. Lucie is 97% of average
- All other areas north and west are higher than 100% of normal



Measured
(% of Avg,
Diff From Avg)

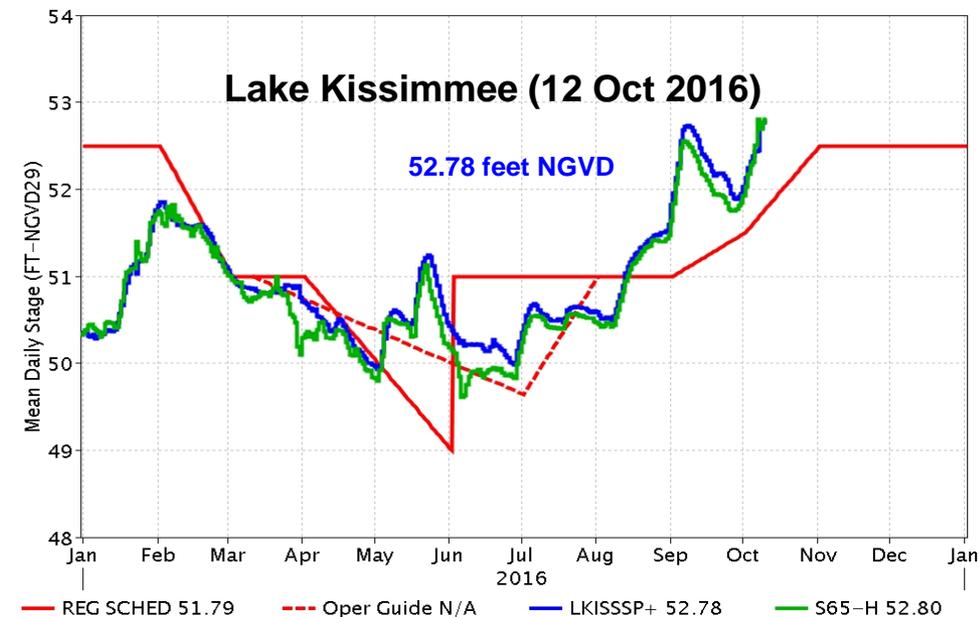
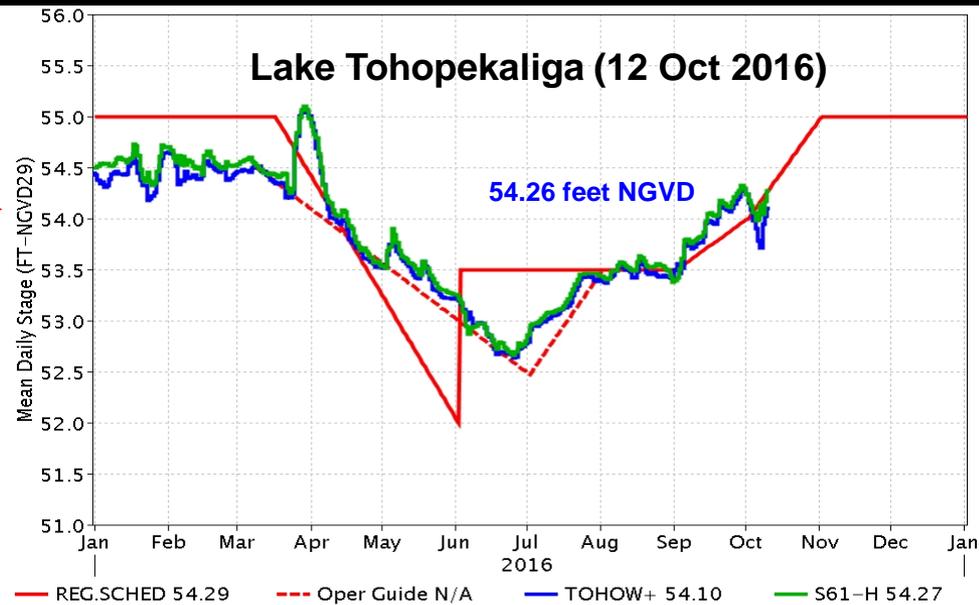
Lake Okeechobee Water Level Comparison

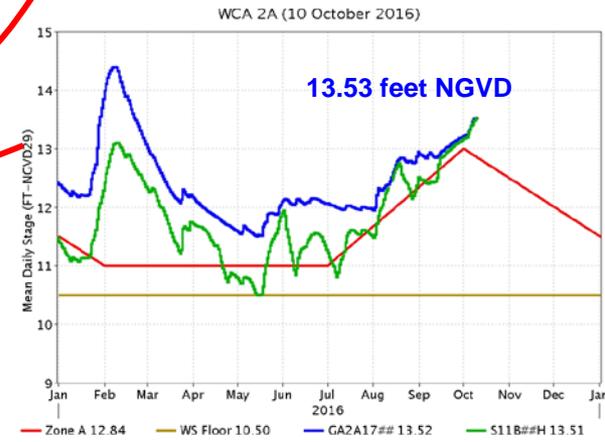
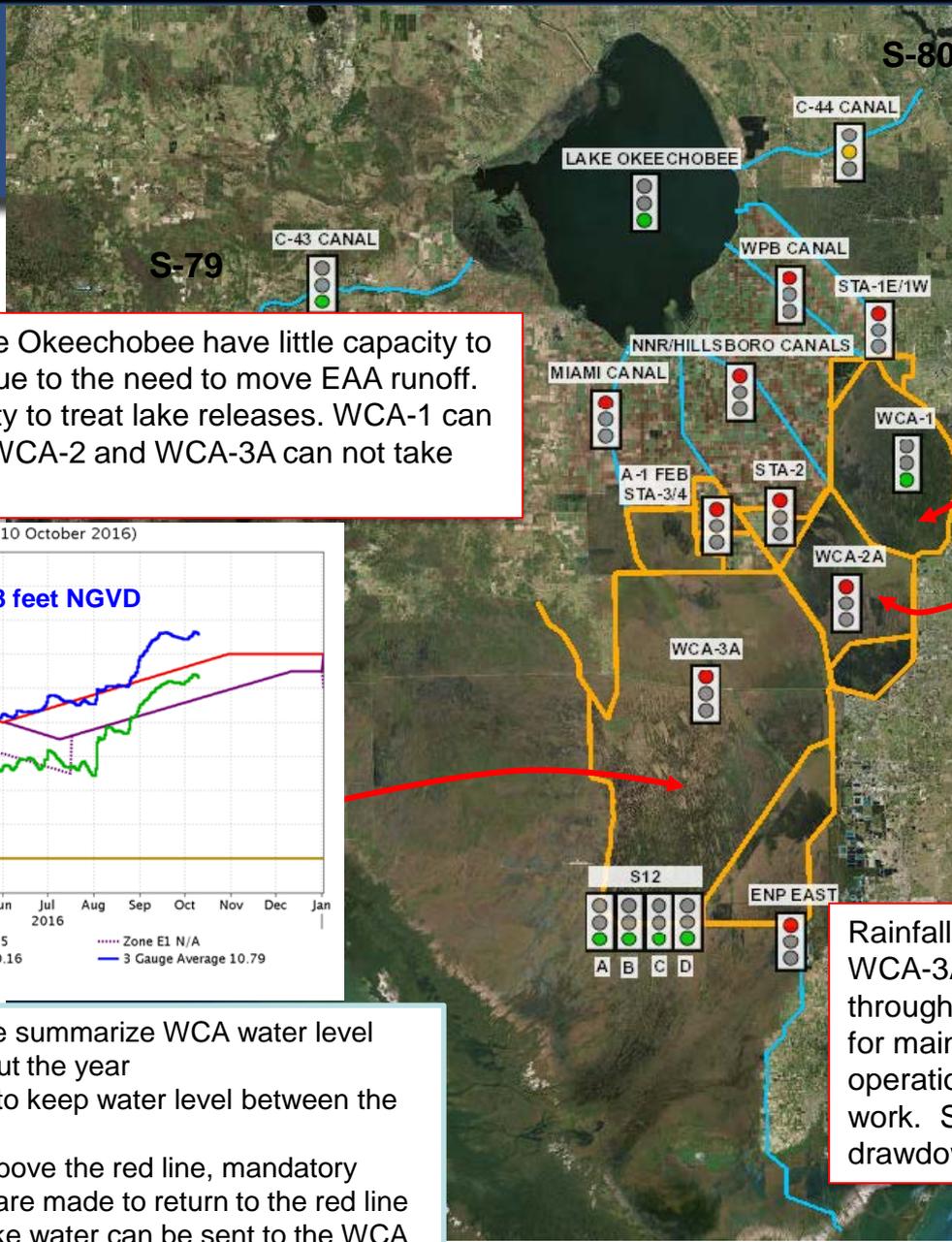




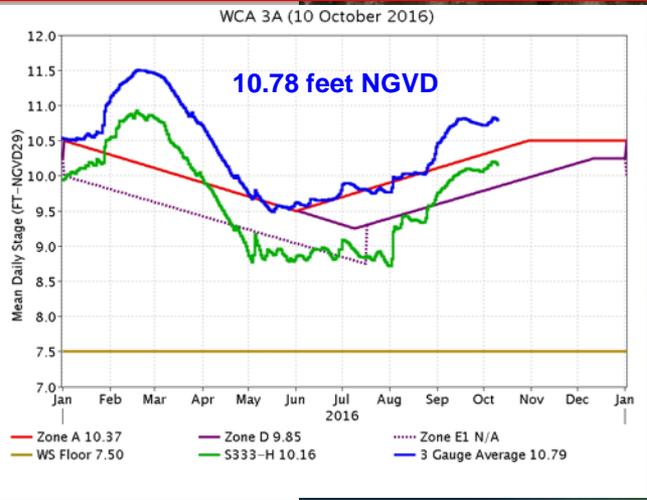
Kissimmee Basin

- Stages at Kissimmee-Cypress-Hatchineha are ~0.2 ft above winter pool.
- Stage at East Toho is ~0.1 ft above schedule.
- Stage at Toho is ~ 0.2 ft below schedule.
- Lakes Myrtle and Hart are ~0.4 ft above regulation schedule.
- All other lakes are below schedule, rising to winter pool elevation.





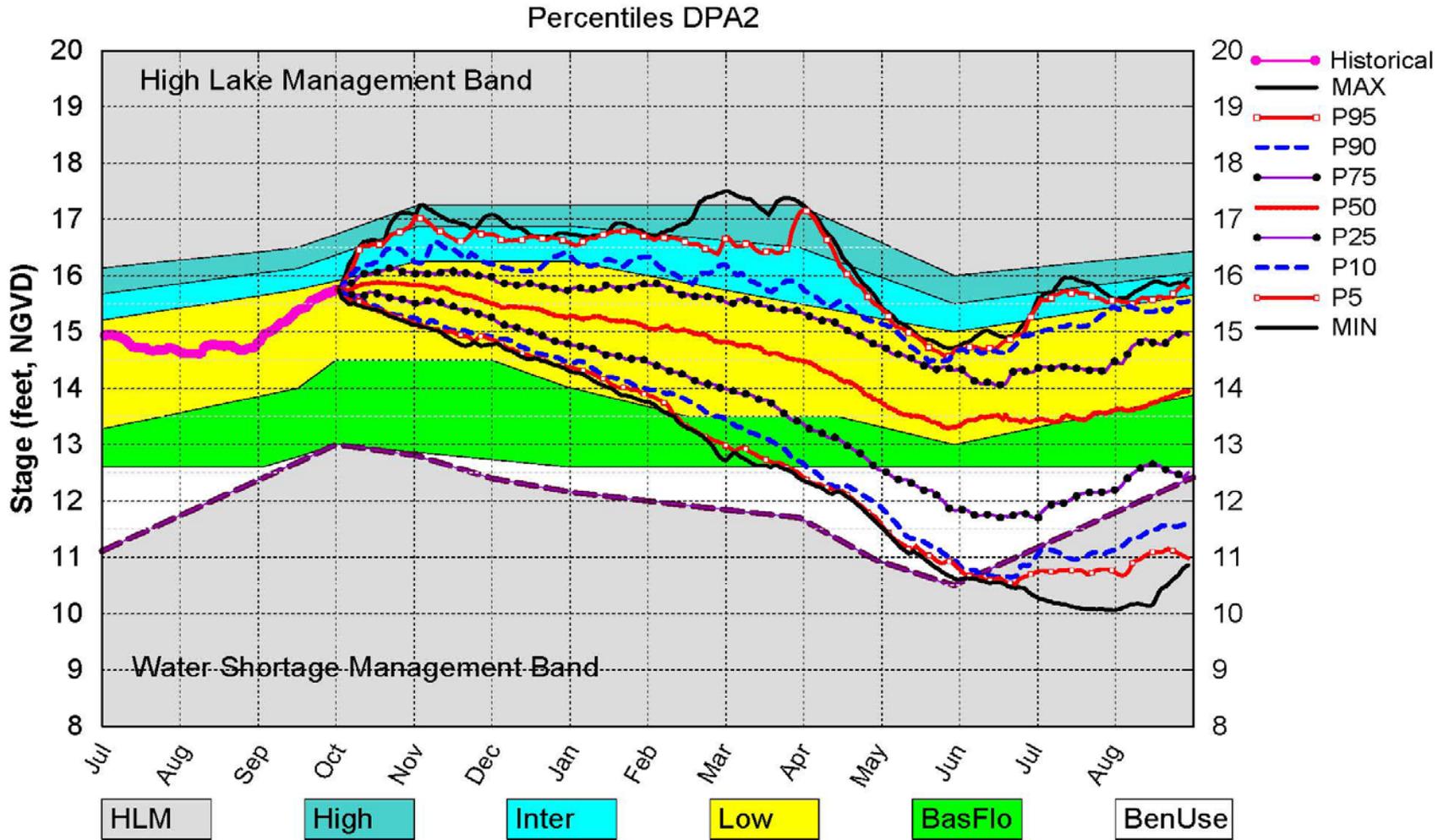
Canals south of Lake Okeechobee have little capacity to take lake releases due to the need to move EAA runoff. STAs had no capacity to treat lake releases. WCA-1 can take lake releases. WCA-2 and WCA-3A can not take lake releases.



Rainfall Plan calls for maximum releases from WCA-3A. Currently discharging ~ 2,000 cfs through S-12A to D. S-333 and S-334 are closed for maintenance. S-332BN was used for pre-storm operations. It is secured again due to construction work. S-197 was opened to assist with pre-storm drawdown operations, but it is closed now.

- Regulation Schedule summarize WCA water level thresholds throughout the year
- Current objective is to keep water level between the red and purple lines
- If water levels rise above the red line, mandatory regulatory releases are made to return to the red line and no additional lake water can be sent to the WCA

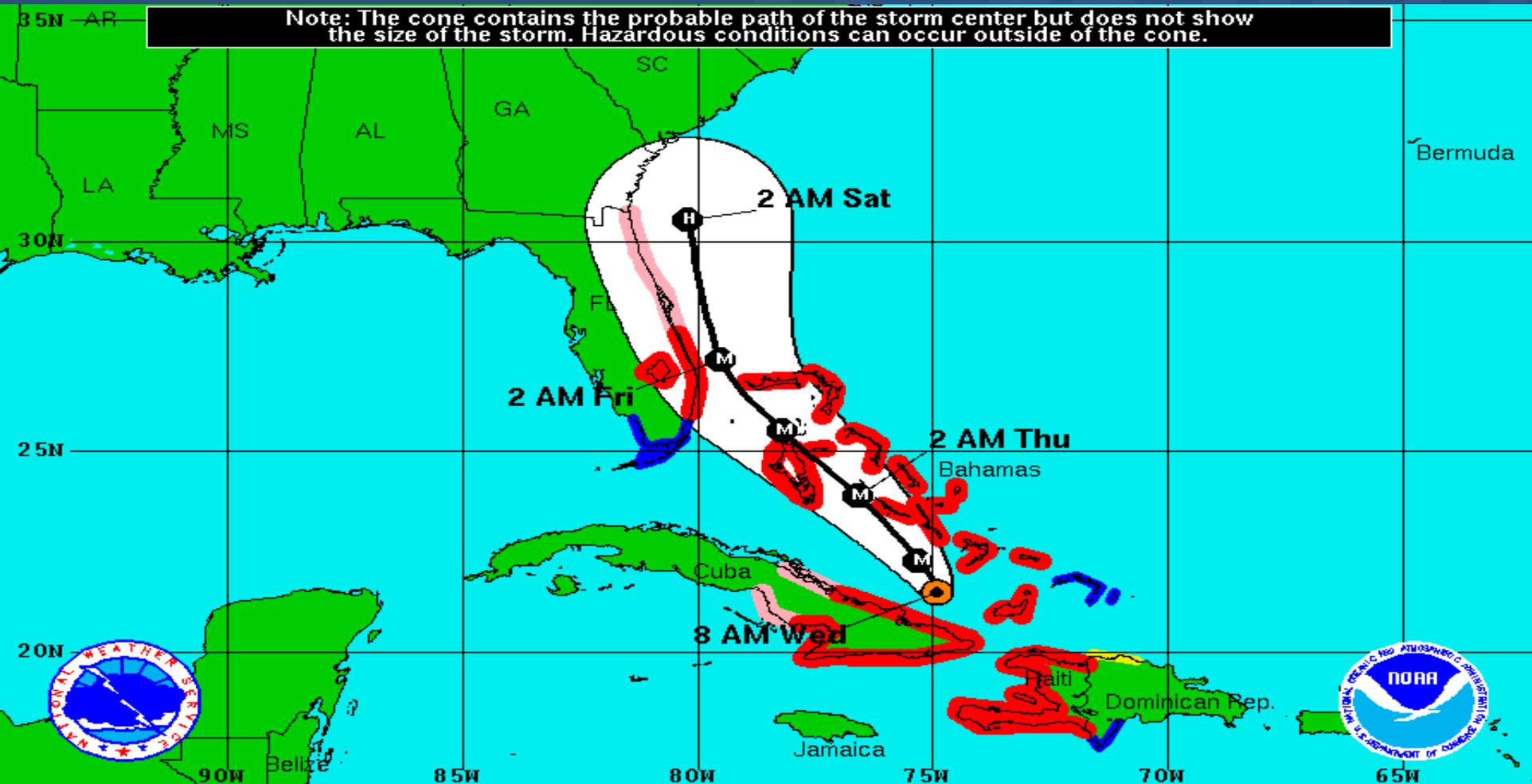
Lake Okeechobee SFWMM October 2016 Dynamic Position Analysis



(See assumptions on the Position Analysis Results website)

Hurricane Matthew

Note: The cone contains the probable path of the storm center but does not show the size of the storm. Hazardous conditions can occur outside of the cone.

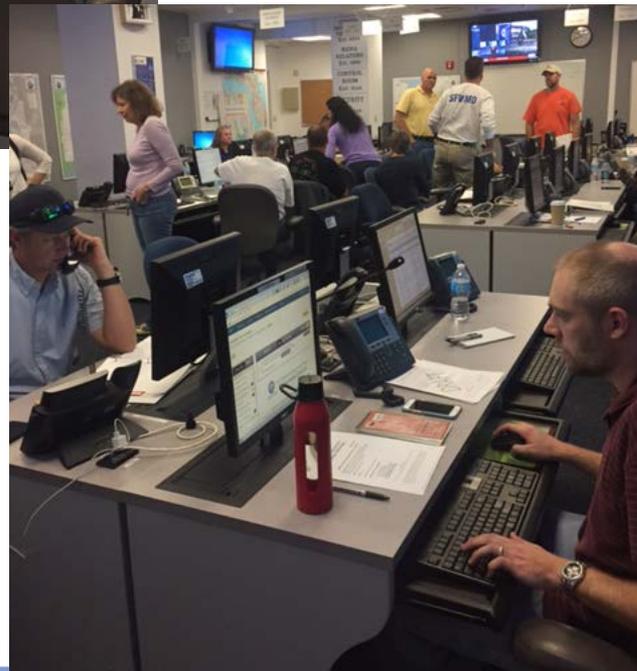


<p>Hurricane Matthew Wednesday October 5, 2016 8 AM EDT Intermediate Advisory 29A NWS National Hurricane Center</p>	<p>Current Information: ● Center Location 21.5 N 74.9 W Max Sustained Wind 115 mph Movement NNW at 10 mph</p>	<p>Forecast Positions: ● Tropical Cyclone ○ Post-Tropical Sustained Winds: D < 39 mph S 39-73 mph H 74-110 mph M > 110mph</p>
<p>Potential Track Area:  Day 1-3</p>	<p>Watches:  Hurricane  Trop.Storm</p>	<p>Warnings:  Hurricane  Trop.Storm</p>

Pre-storm Operations

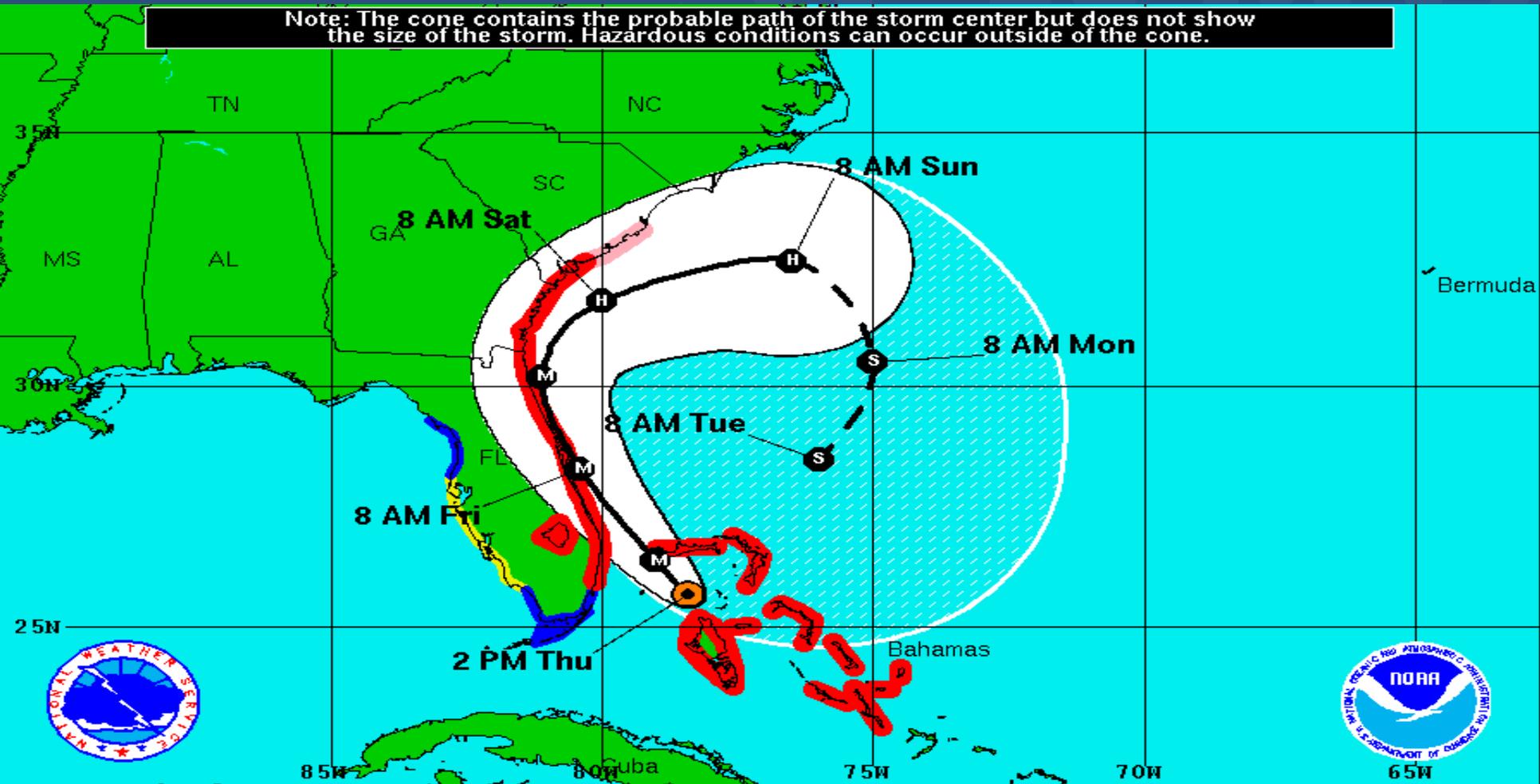
- October 1st and 2nd
 - Pre-storm drawdown operations in the ENP-South Dade Conveyance System were initiated
- October 4th
 - Some areas of the District experienced seasonally wet conditions (EAA, 8.5 SMA)
 - Most canals in the east coast were operating under low range to facilitate pre-storm operations
 - Releases to tide from the WCAs were terminated to facilitate lowering of canal stages in urban areas
 - Instructions for staffing and pumping shifts for all pump stations were issued
 - Coordination calls with 298 and Special Districts were initiated

Activated the Emergency Operations Center on Thursday



Hurricane Matthew

Note: The cone contains the probable path of the storm center but does not show the size of the storm. Hazardous conditions can occur outside of the cone.



Hurricane Matthew
 Thursday October 6, 2016
 2 PM EDT Intermediate Advisory 34A
 NWS National Hurricane Center

Current Information: ●
 Center Location 25.7 N 78.4 W
 Max Sustained Wind 140 mph
 Movement NW at 14 mph

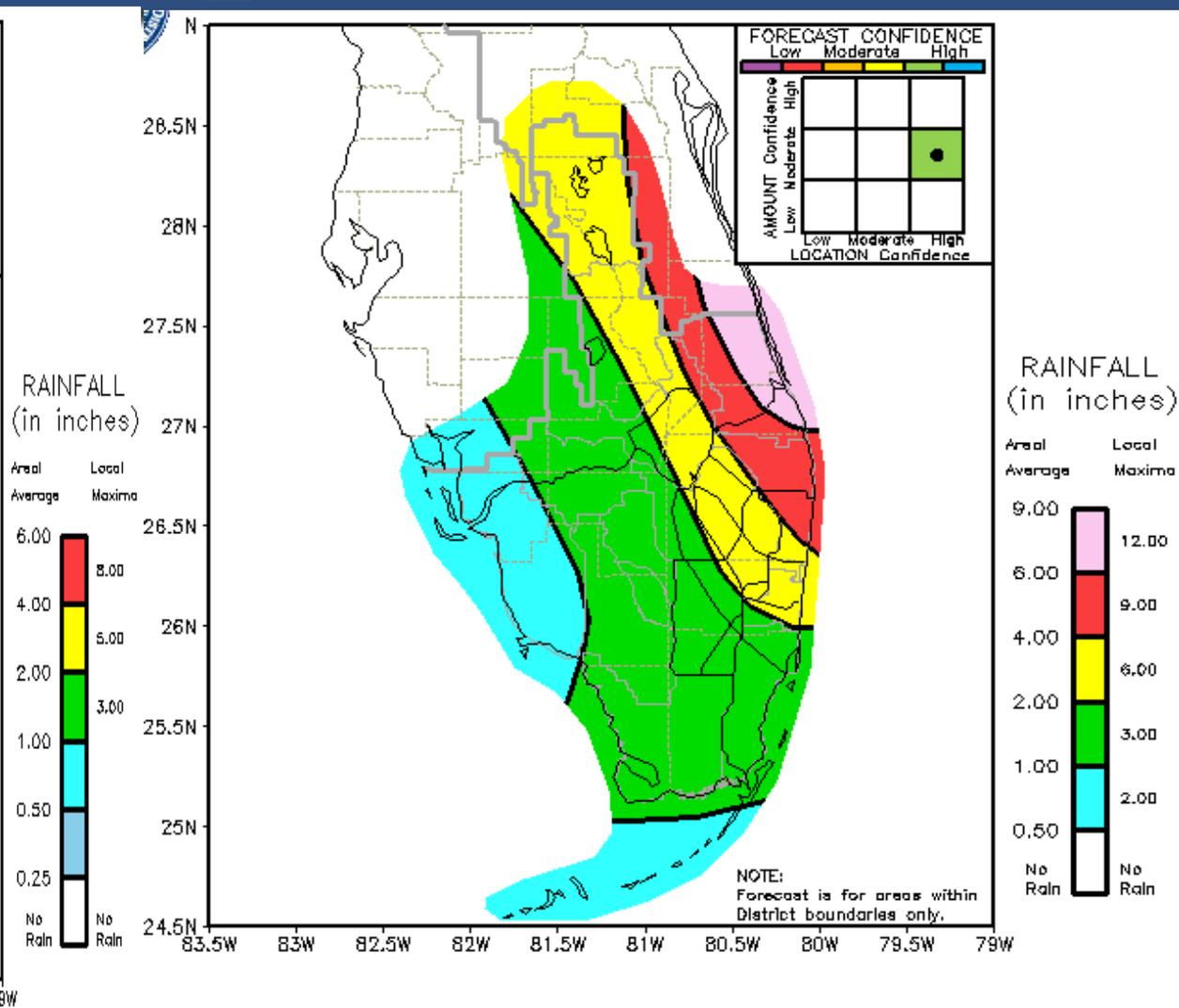
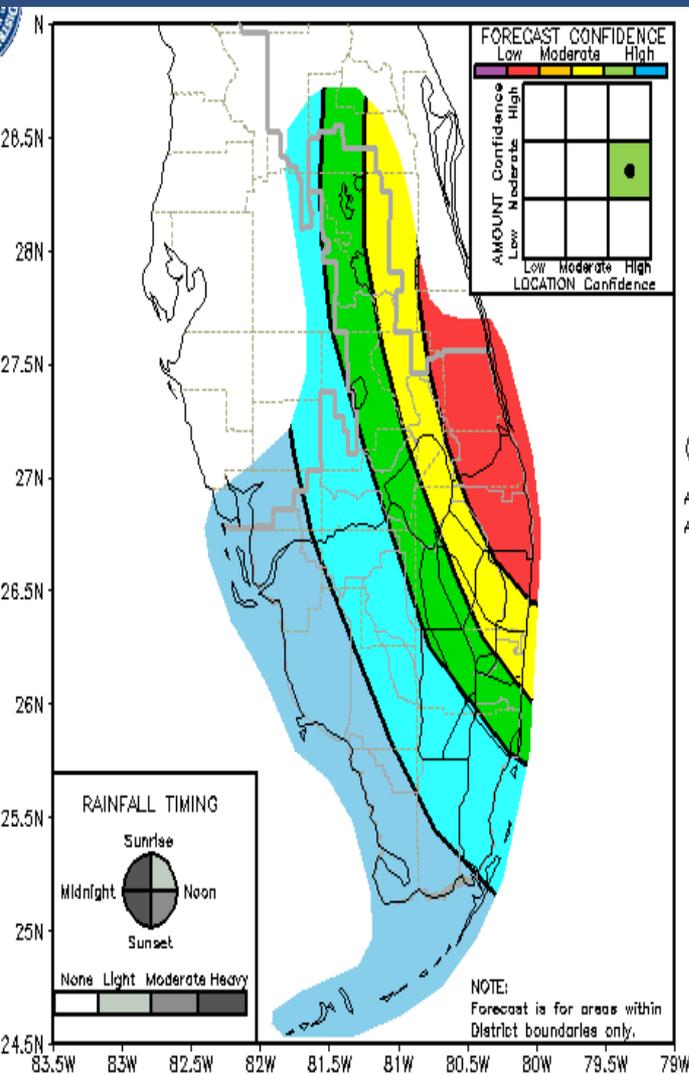
Forecast Positions:
 ● Tropical Cyclone ○ Post-Tropical
 Sustained Winds: D < 39 mph
 S 39-73 mph H 74-110 mph M > 110mph

Potential Track Area:
 ▽ Day 1-3 ◁ Day 4-5

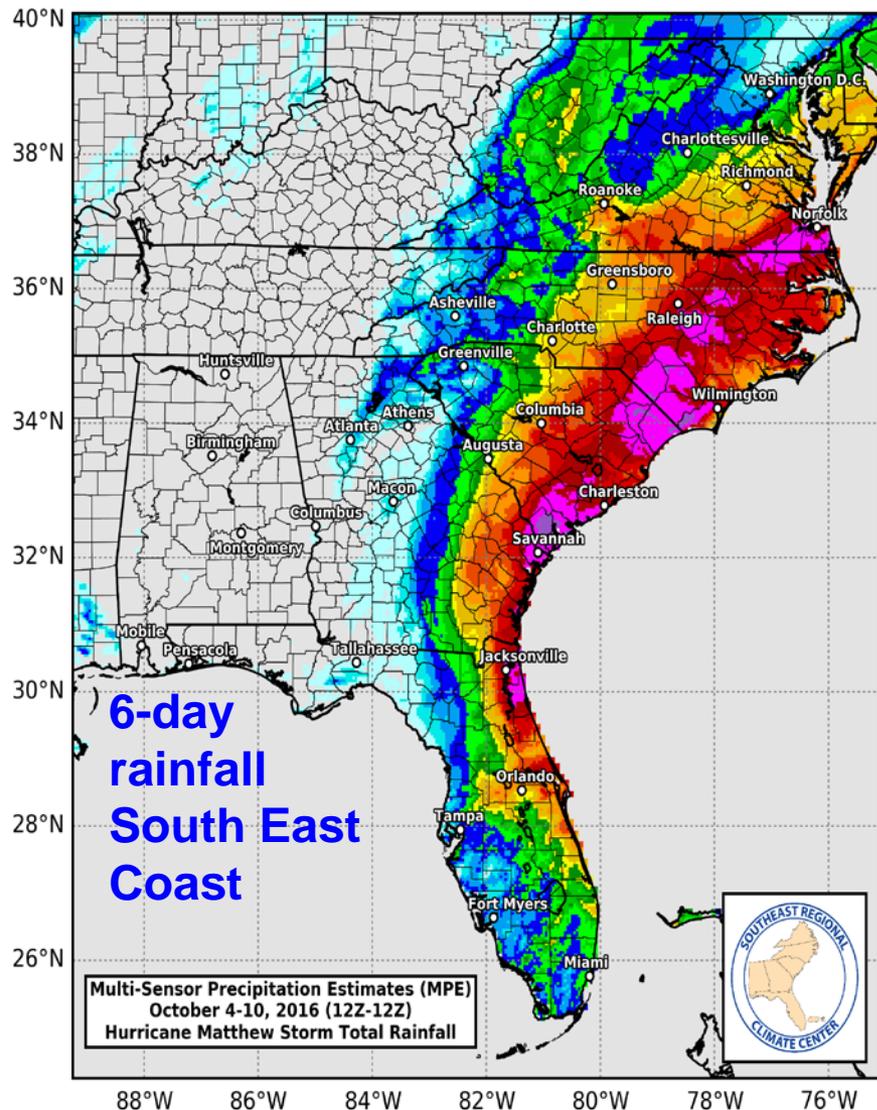
Watches:
 ■ Hurricane ■ Trop.Storm

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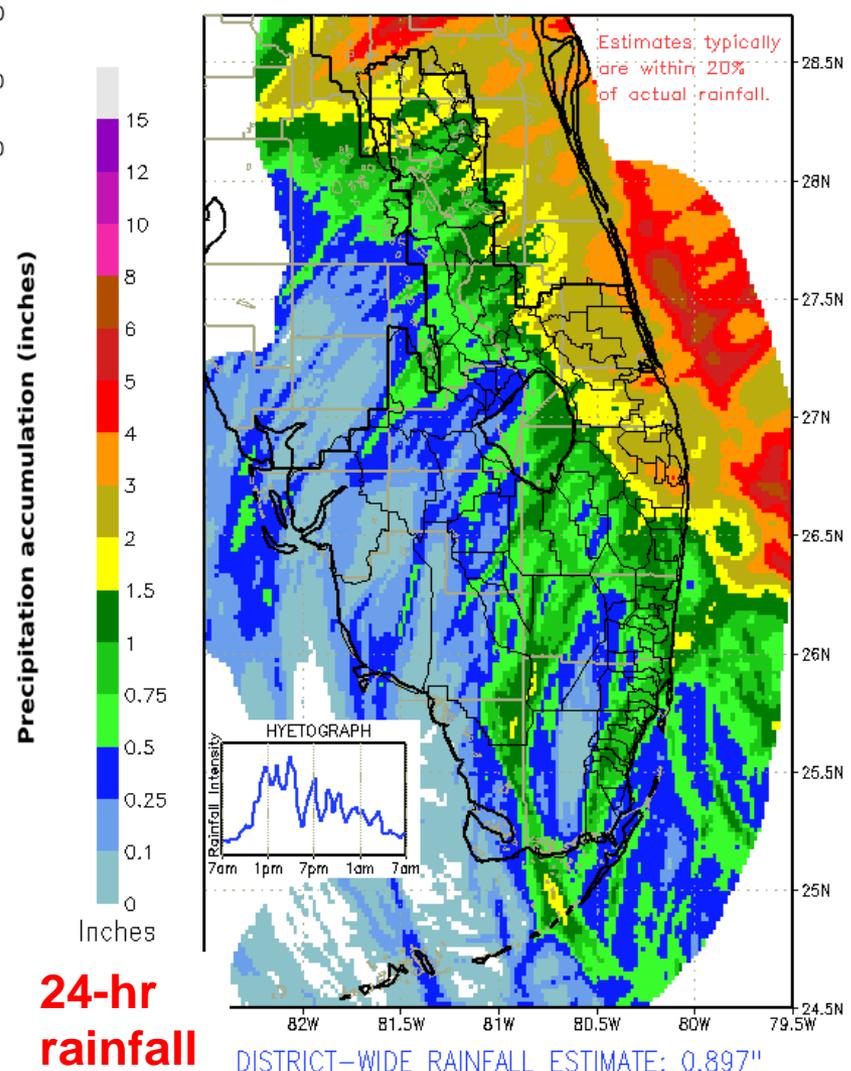
Hurricane Matthew



Matthew Impact on the US East Coast



SFWMD PROVISIONAL RAINFALL EOD DAILY RAINFALL ESTIMATES
FROM: 0700 EST, 10/06/2016 THROUGH: 0700 EST, 10/07/2016

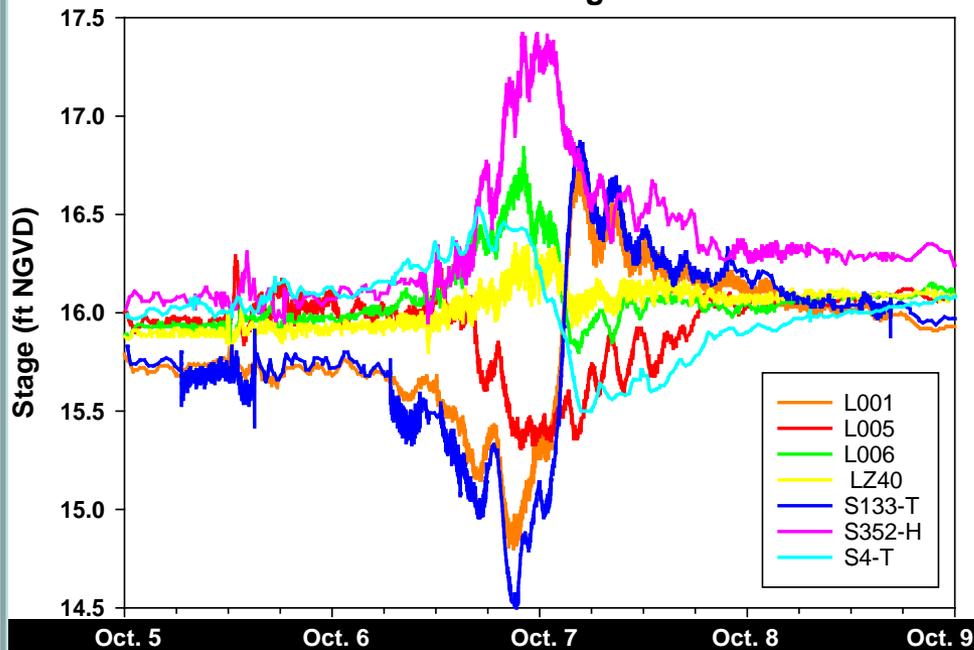


Hurricane Matthew Impact on SFWMD

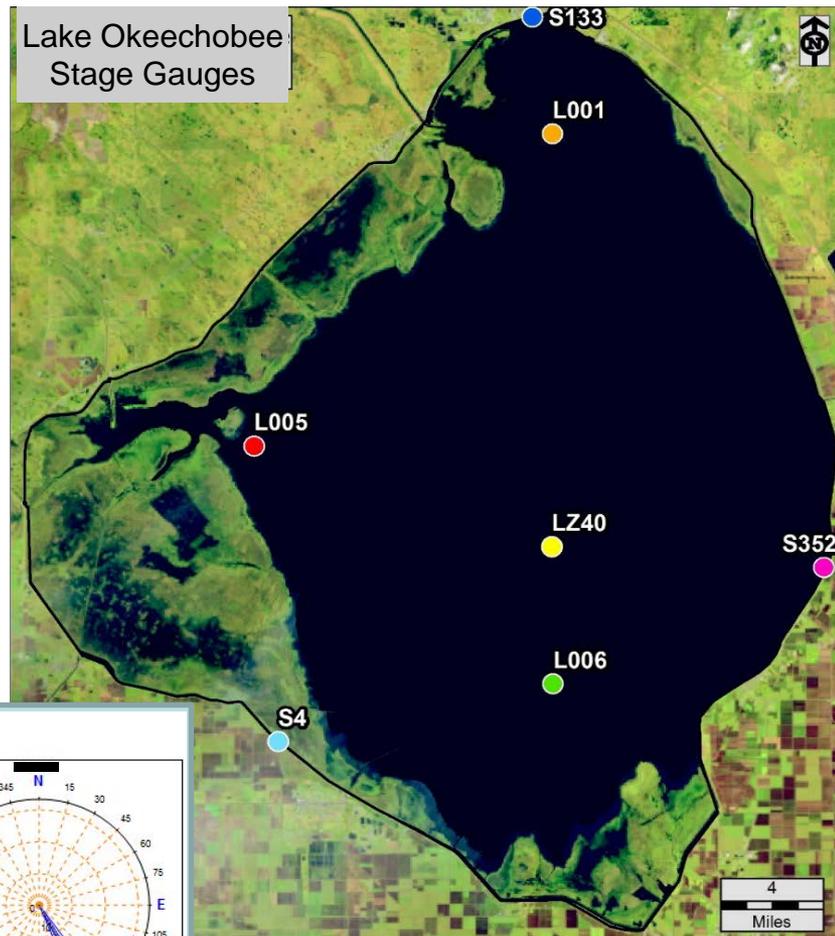
- Wind damage was minimal throughout the SFWMD
- Canals and water control structures across the District were able to handle the observed rainfall without any major problems
- By Monday October 10th
 - SFWMD has returned to normal operations
 - Releases to tide from WCA-2A and WCA-3A have resumed

Lake Okeechobee Hurricane Matthew

Lake Okeechobee Stage Time Series

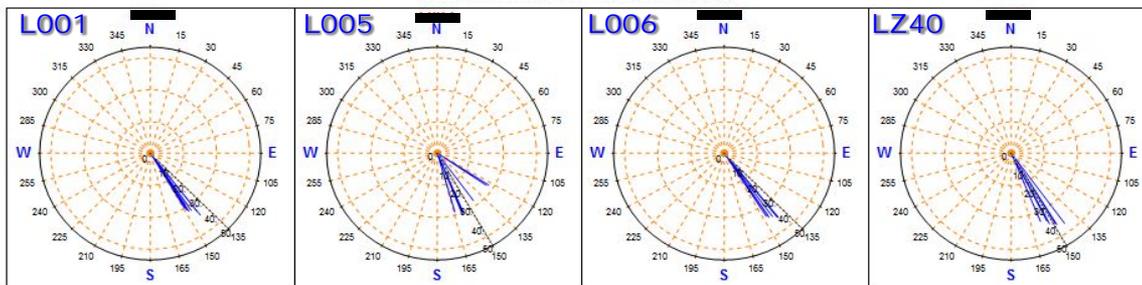


Lake Okeechobee Stage Gauges



Lake Okeechobee Wind Vectors

2016-10-06 19:45 to 2016-10-06 21:45



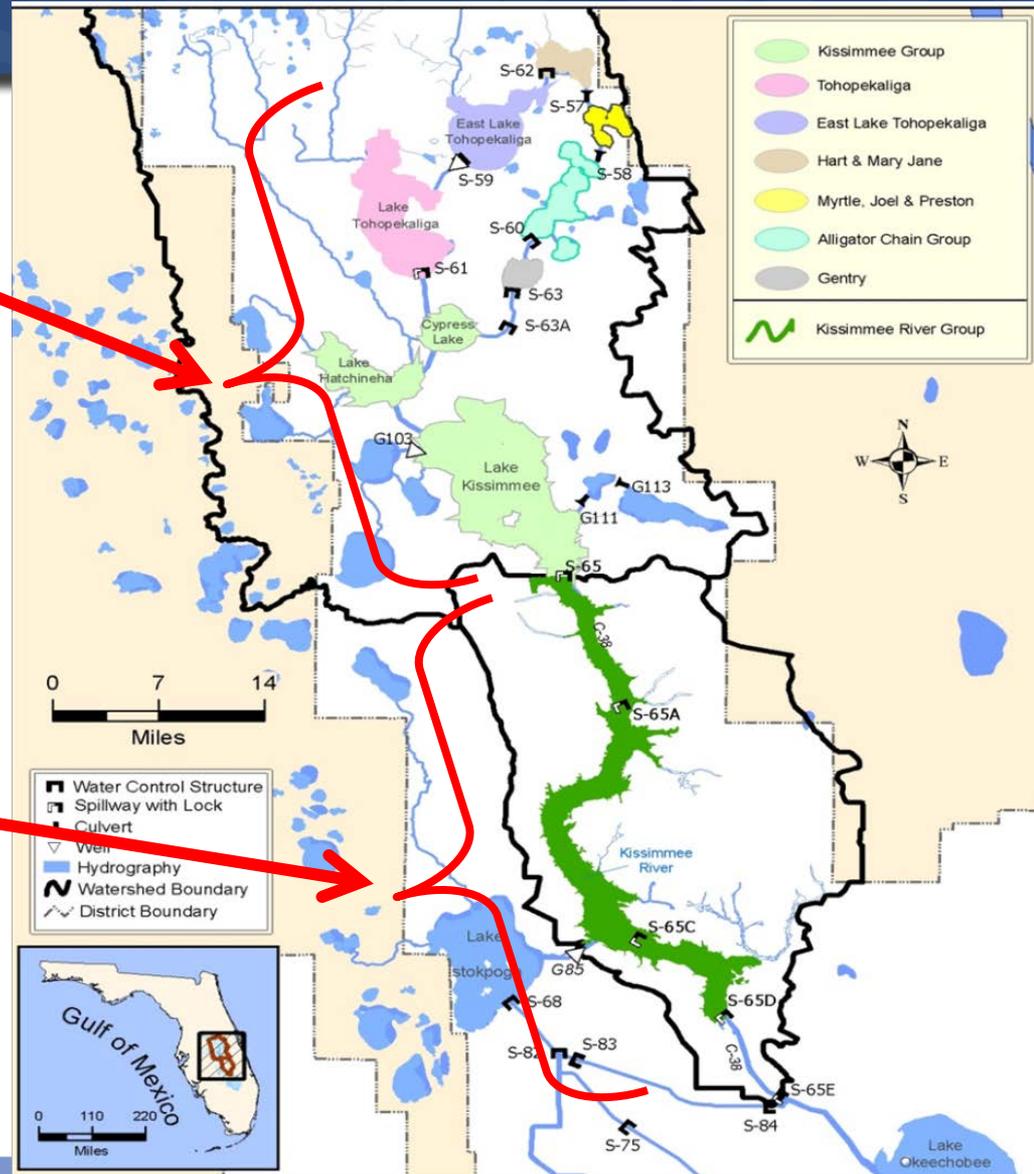
Kissimmee River Restoration Project

Implement restoration hydrology

- Headwaters Revitalization Schedule

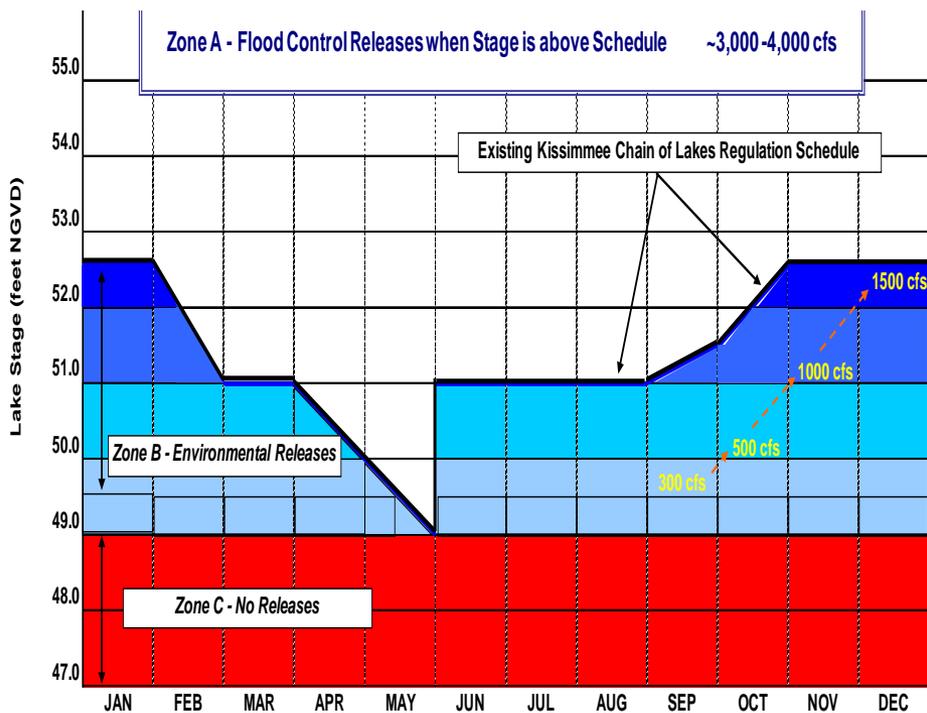
Restore the physical form of the river

- fill C-38 Canal
- remove water control structures
- reconnect river oxbows

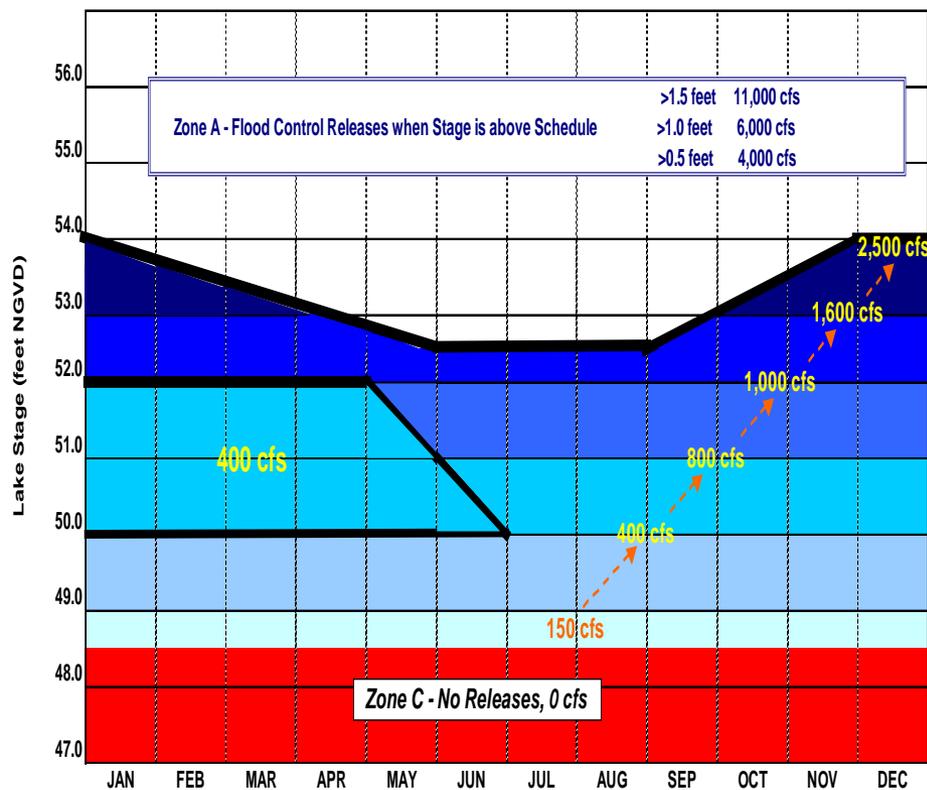


Headwaters Revitalization Regulation Schedule

Interim Regulation Schedule



Final Regulation Schedule





Questions?