

Water Conditions Summary

March 10, 2011

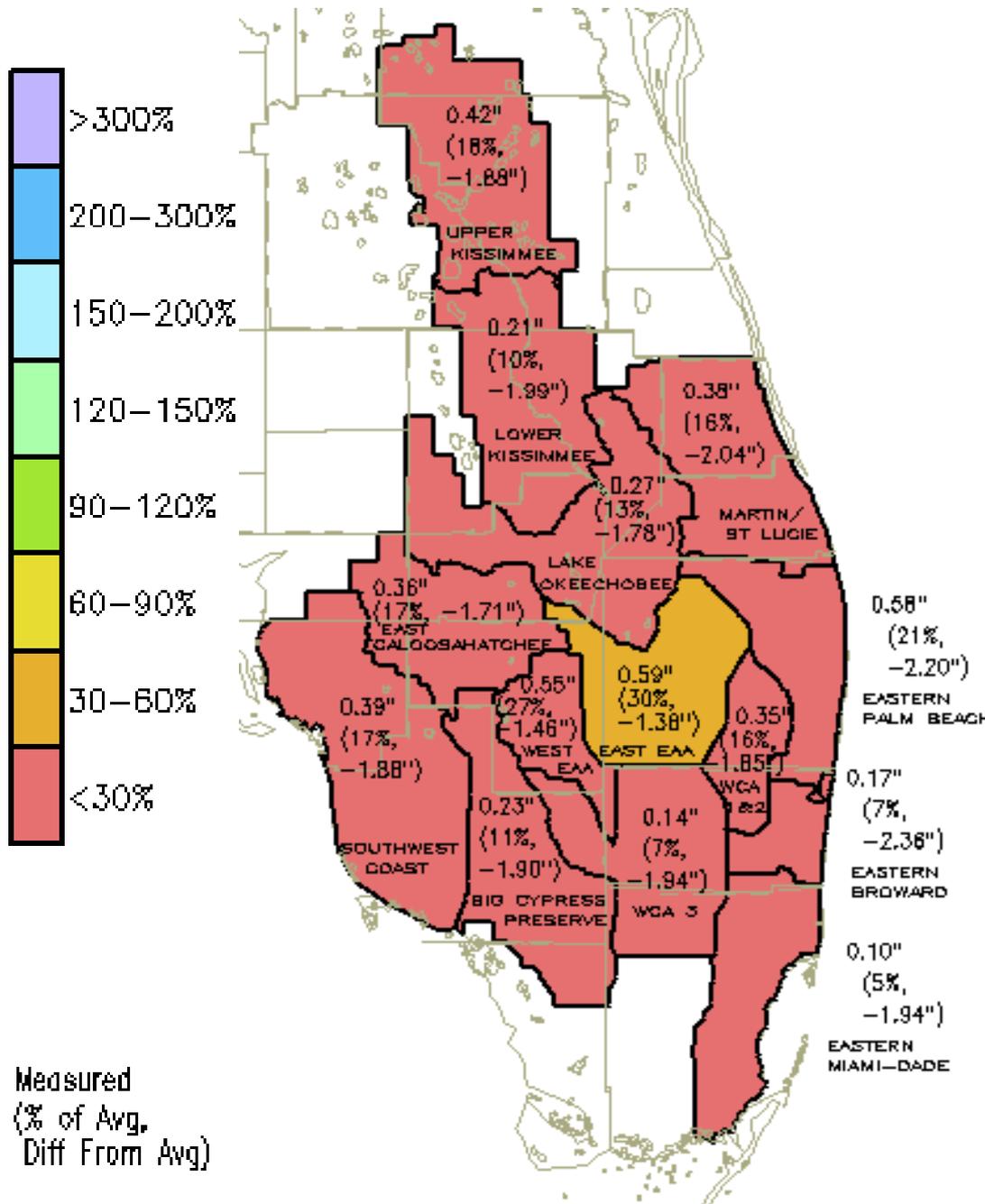
Calvin J. Neidrauer, P.E., Chief Engineer
Operations Control & Hydro Data Management Department
South Florida Water Management District



SFWMD 2011 February Rainfall Feb 2 – Mar 1

**DISTRICT-WIDE: 0.34"
(15% of Avg, or -1.93")**

- 3rd driest February since recordkeeping began in 1932
- All basins received less than 30% of their historical average rainfall
- The most severe deficits were in Broward and Miami-Dade counties and Water Conservation Area 3, which received less than 7% of average



SFWMD 2011

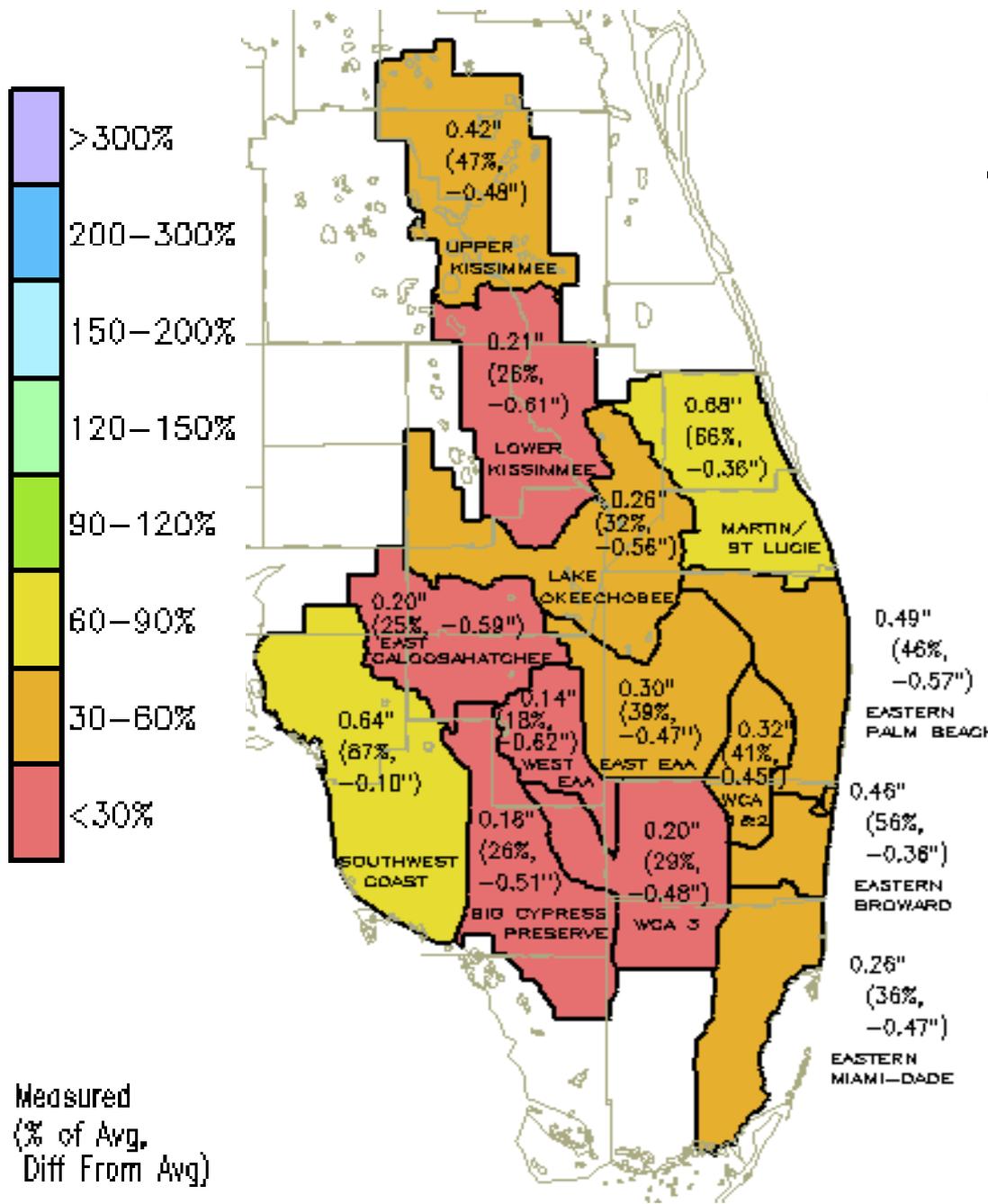
March Rain (so far)

Mar 2 – Mar 9

DISTRICT-WIDE: 0.35"
(43% of Avg, or -0.46")

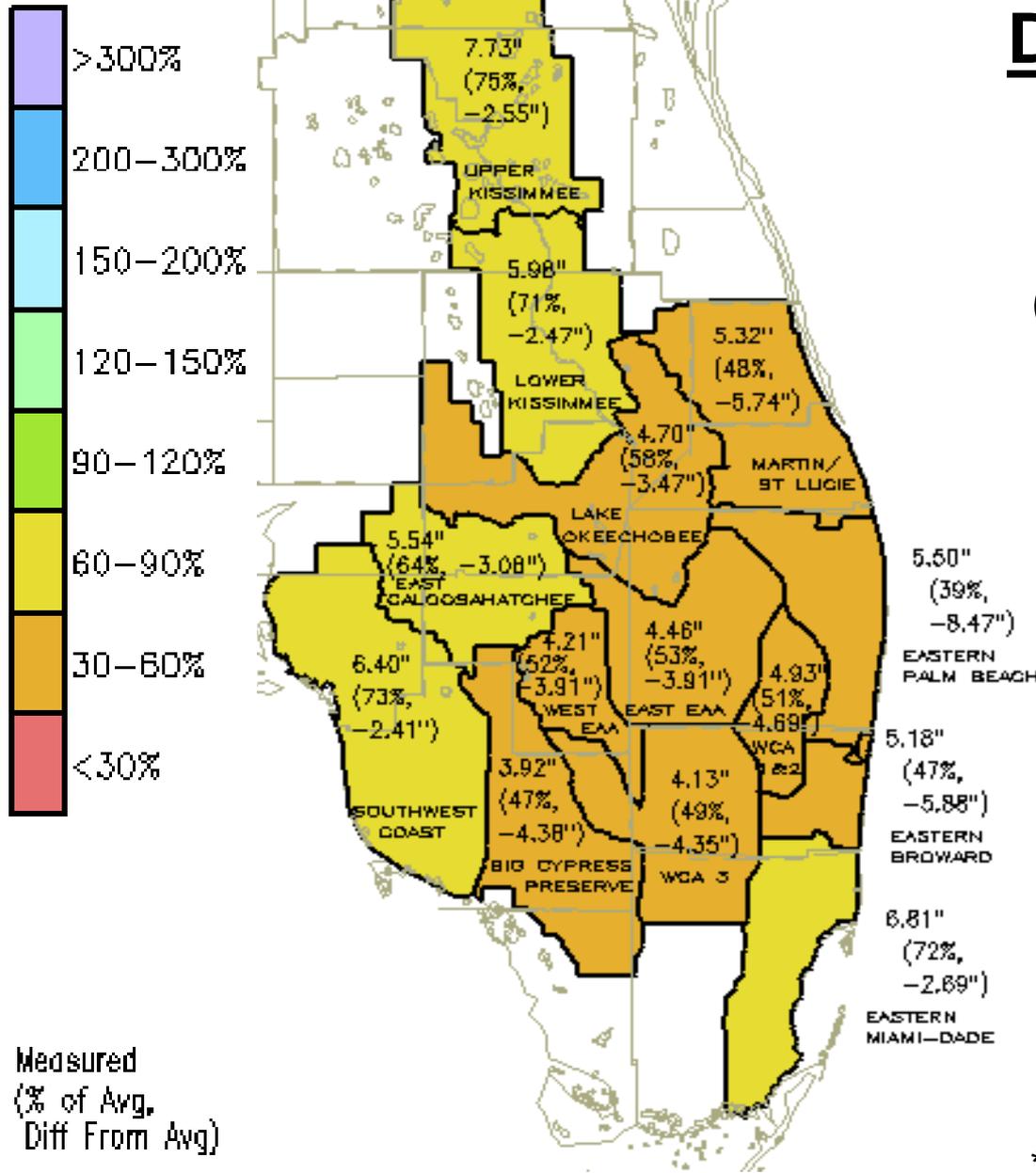
- More rain in 1st 9 days of March than in February

- 2-3 more rain events forecast for March, but not likely to bring enough rain to exceed average



SFWMD 2010-11 Dry Season* Rainfall Nov 2 – Mar 9

**DISTRICT-WIDE: 5.49"
(59% of Avg, or -3.77")**



- Typical influence from La Nina during Nov-Mar is about a 4-inch deficit

- Above-average rain in January

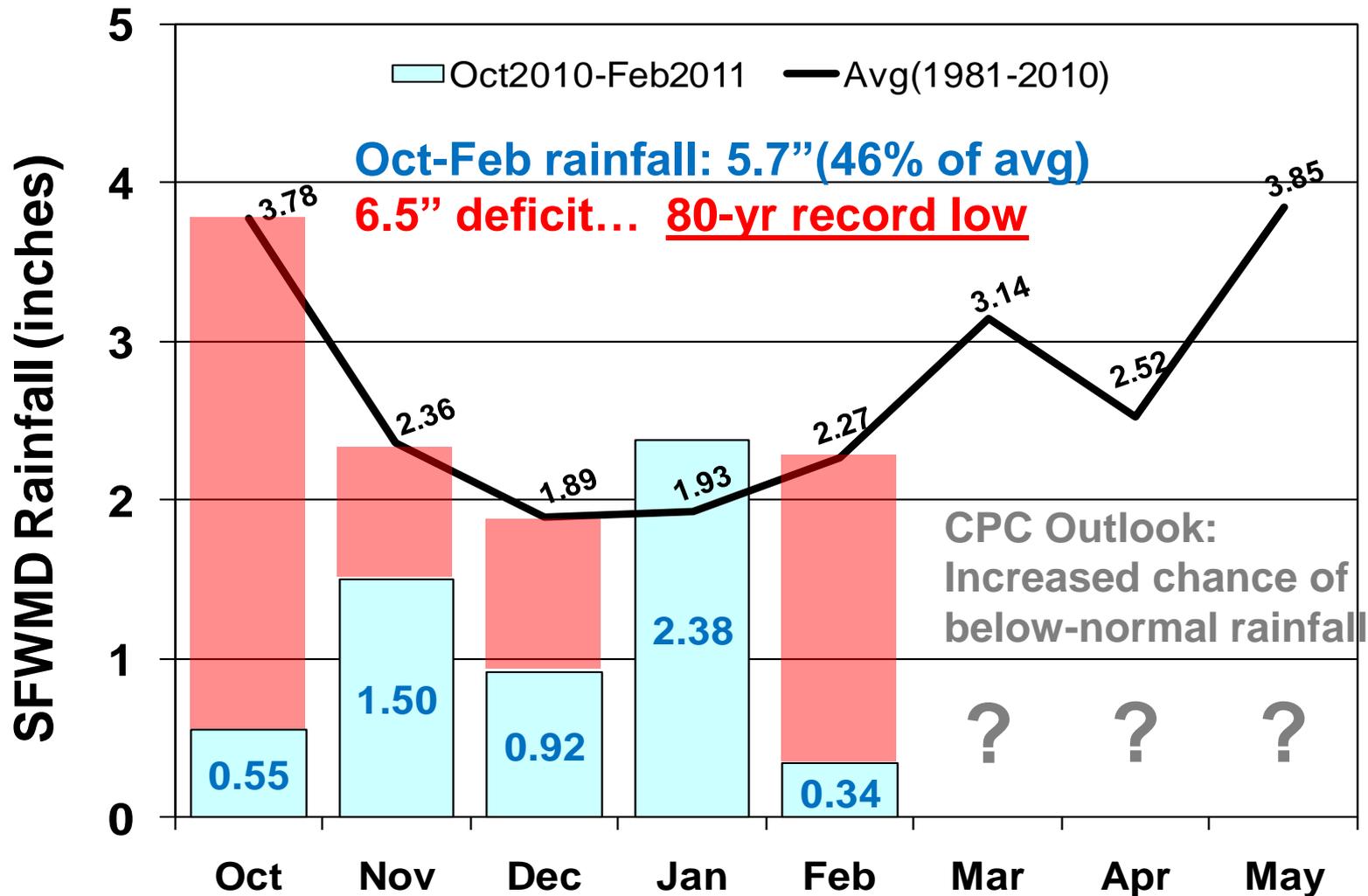
- The dry season started early with a record rainfall deficit in October

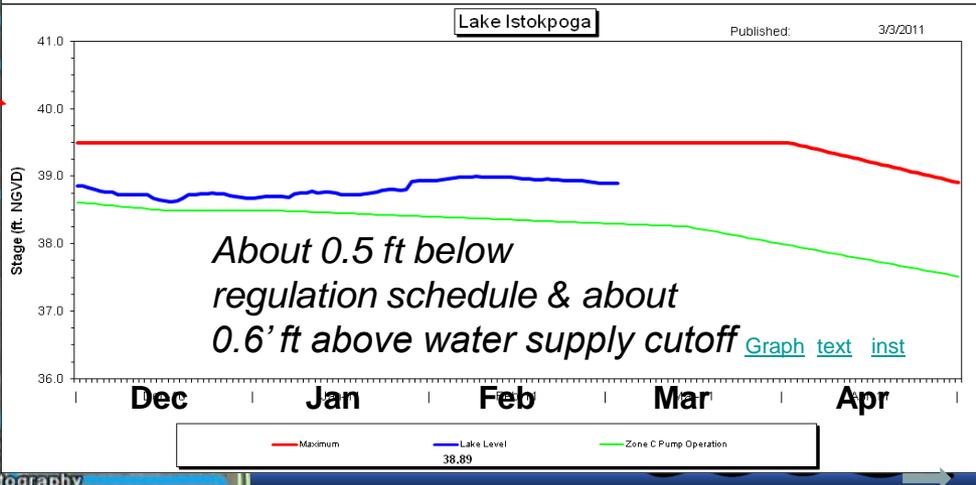
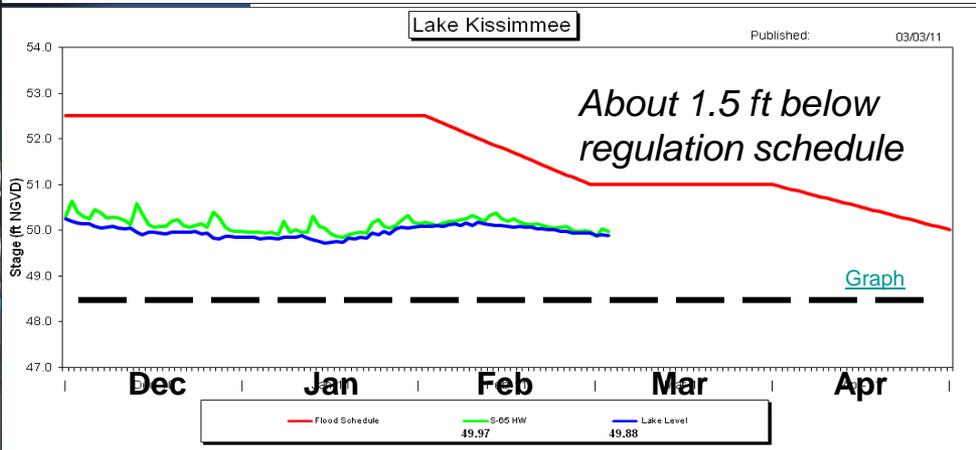
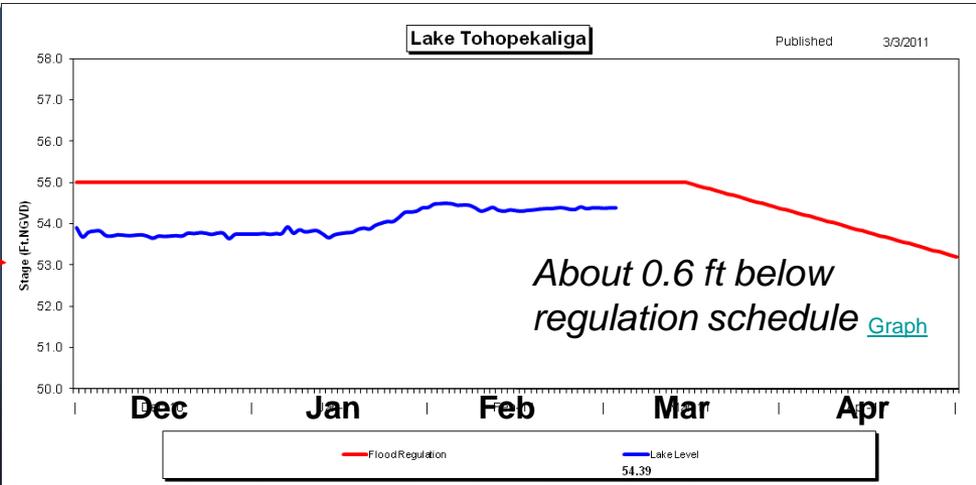
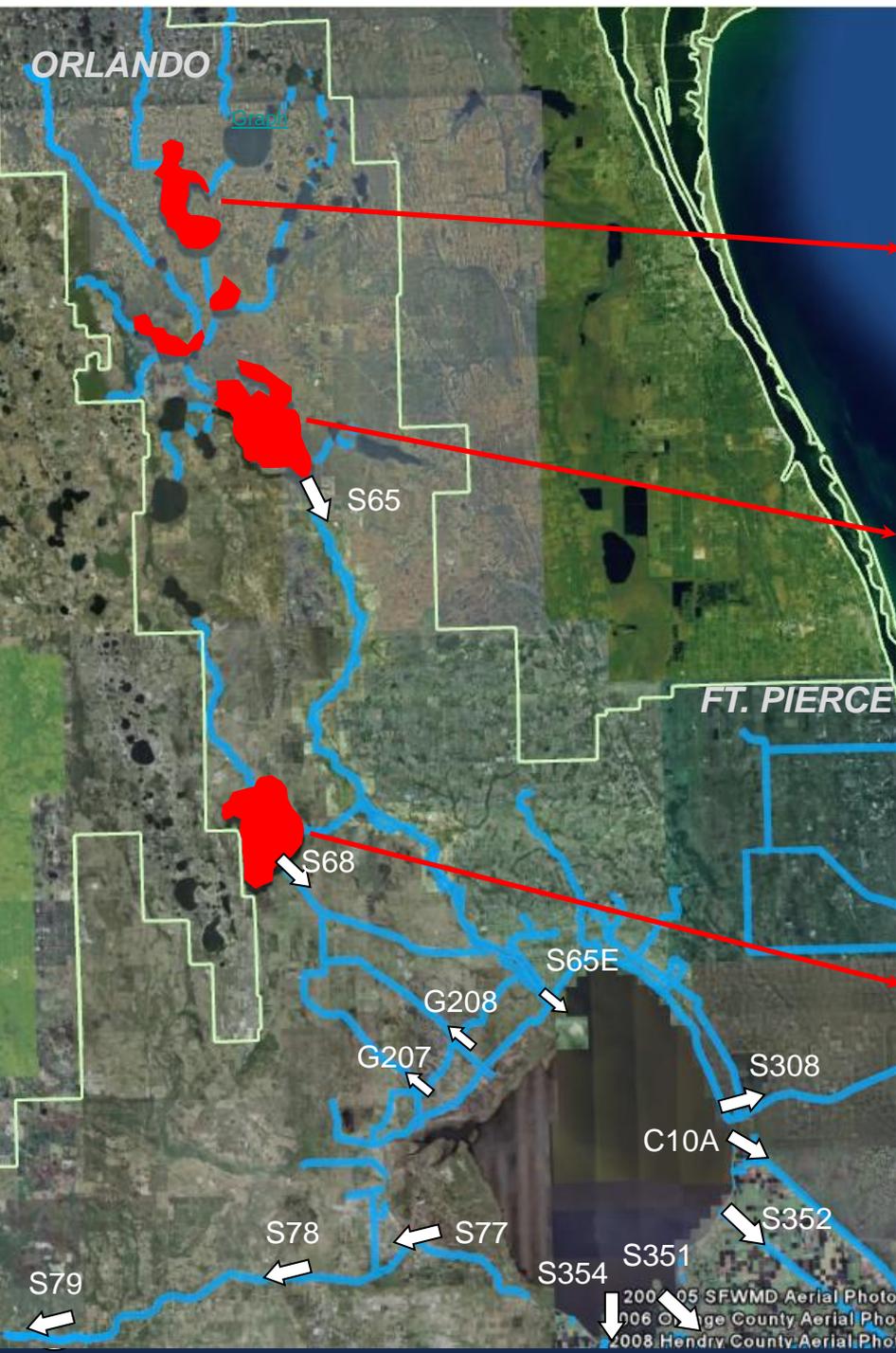
- October-Feb rainfall was less than half the average. A record low since recordkeeping began in 1932

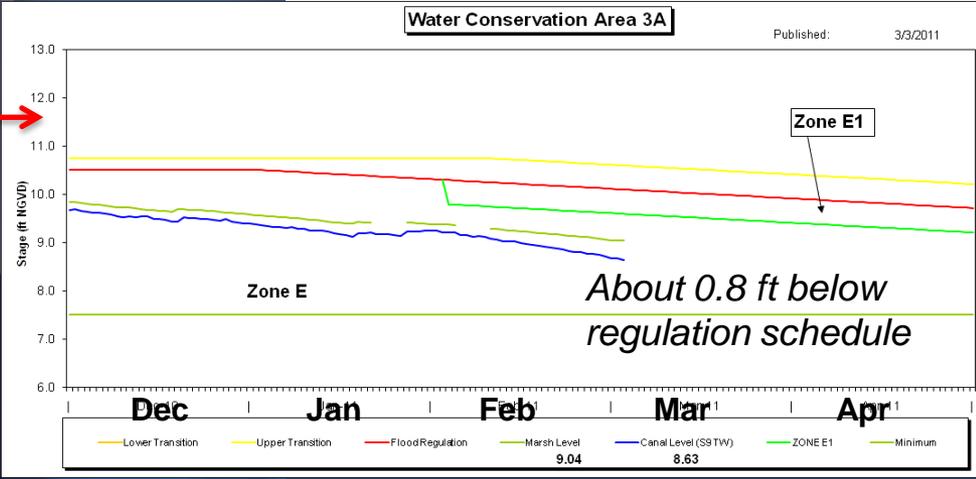
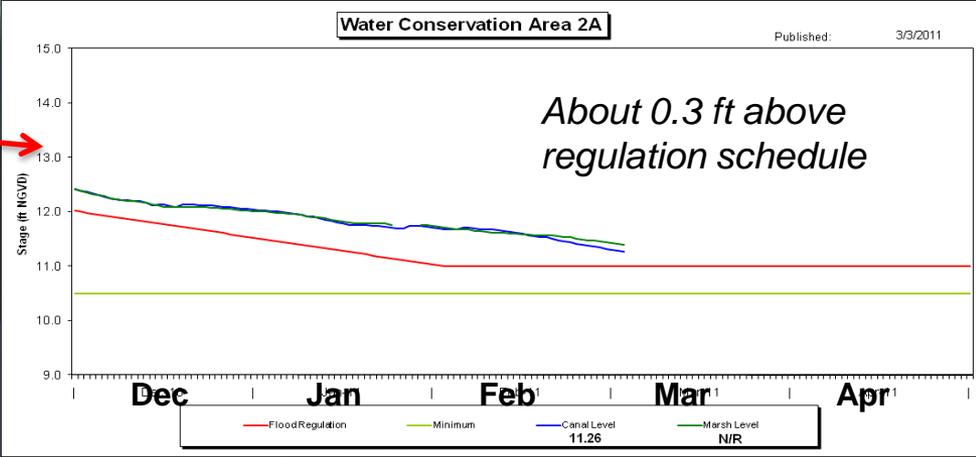
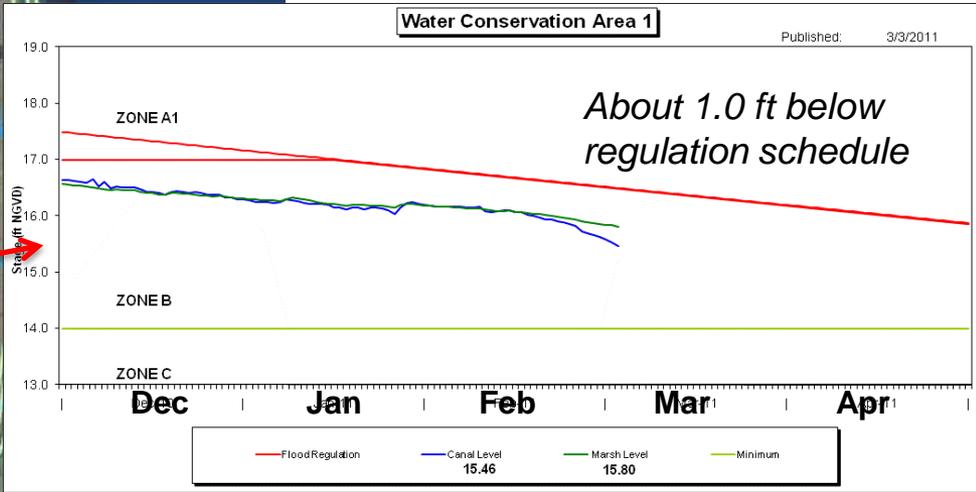
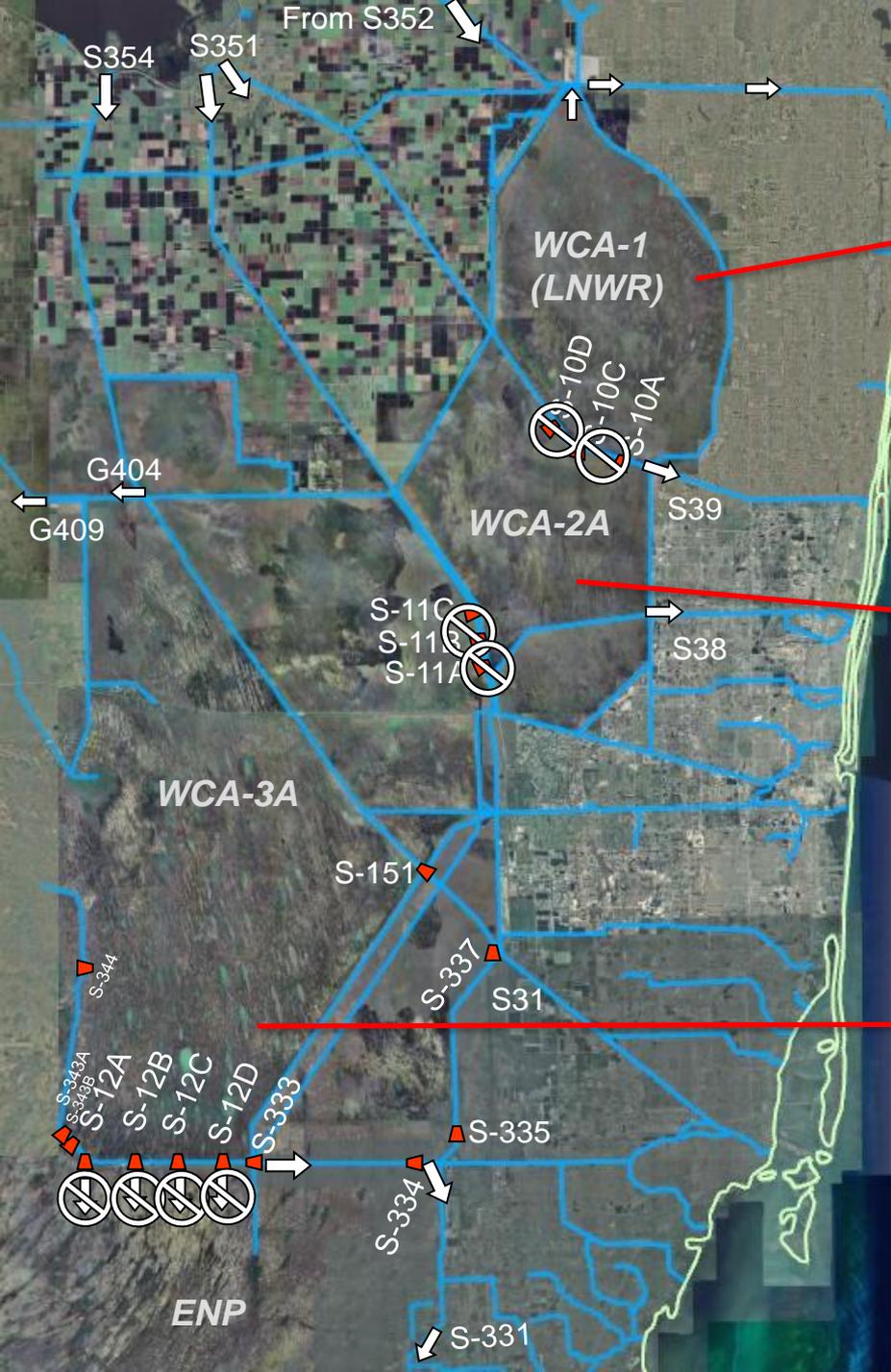
- Eastern Palm Beach County had the biggest shortfall since October (32% of Avg, or -12.4 inches)

* 2010-11 Dry season started in October

SFWMD Rainfall Distribution Comparison (October-May)

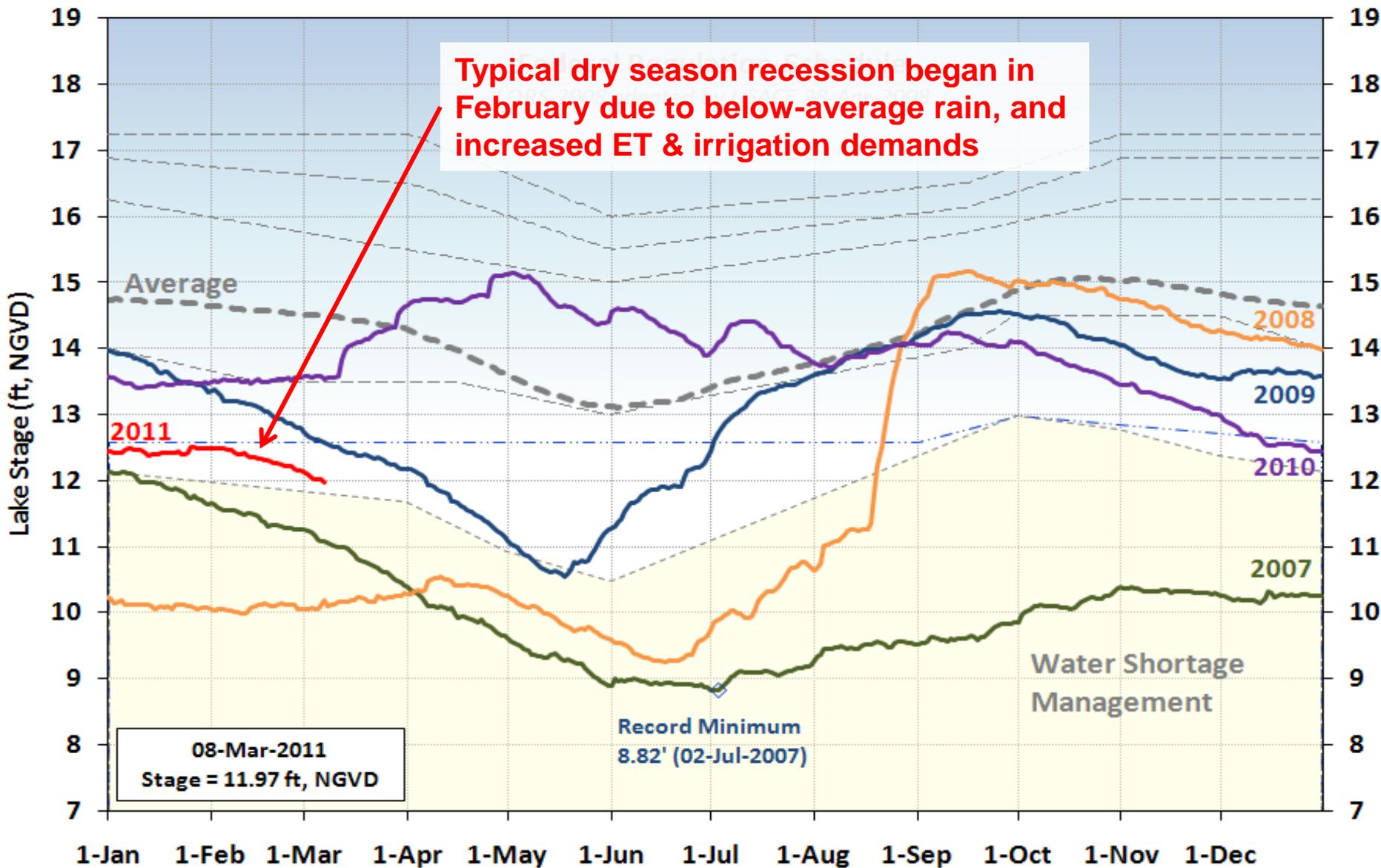




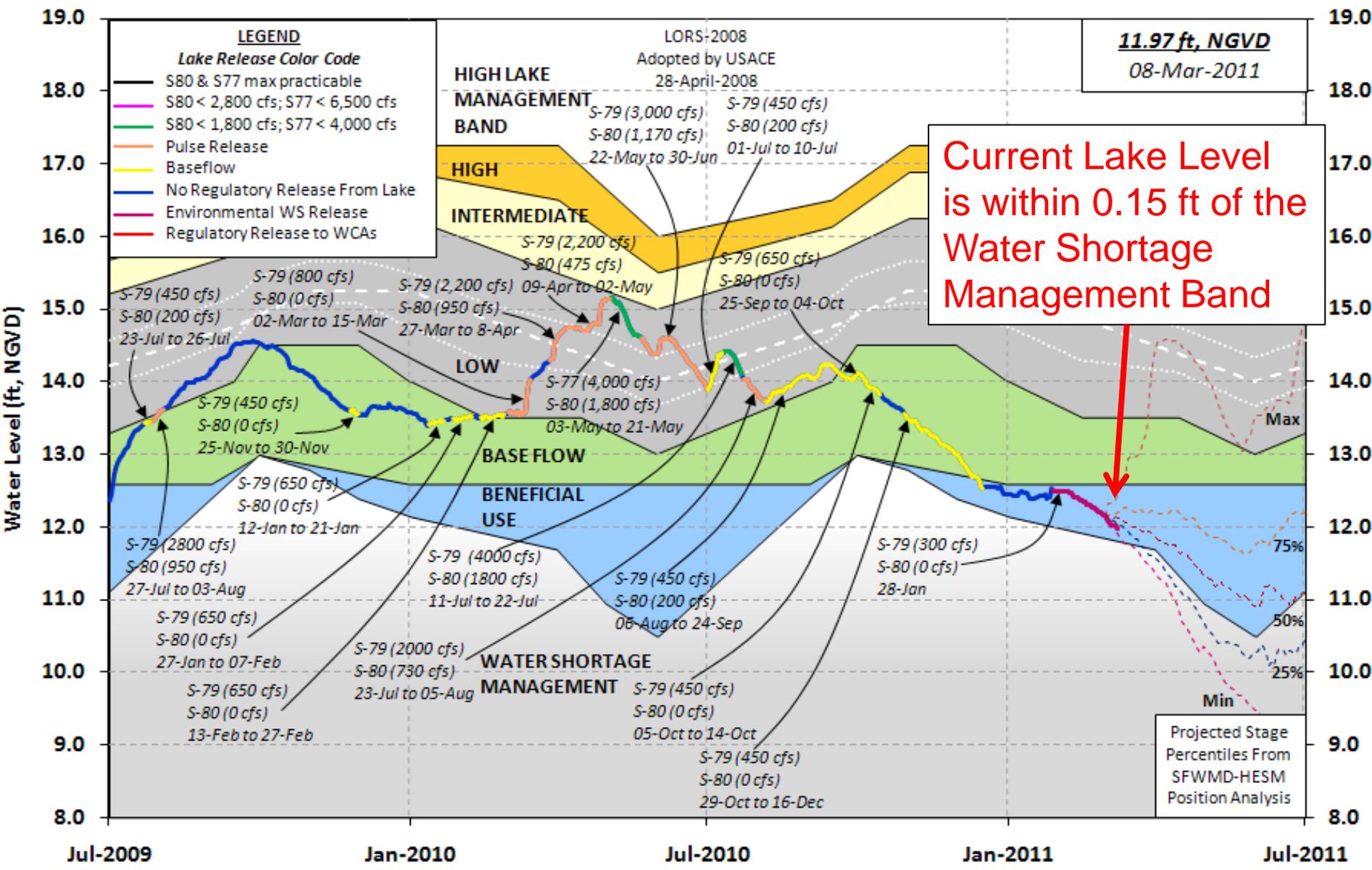


Lake Okeechobee Stage Hydrograph Comparison

--- Average (1965-2007)
 — 2007
 — 2008
 — 2009
 — 2010
 — 2011



Lake Okeechobee Water Level History and Projected Stages



Current Lake Level is within 0.15 ft of the Water Shortage Management Band

http://my.sfwmd.gov/portal/page/portal/xrepository/sfwmd_repository_pdf/lokstg.pdf

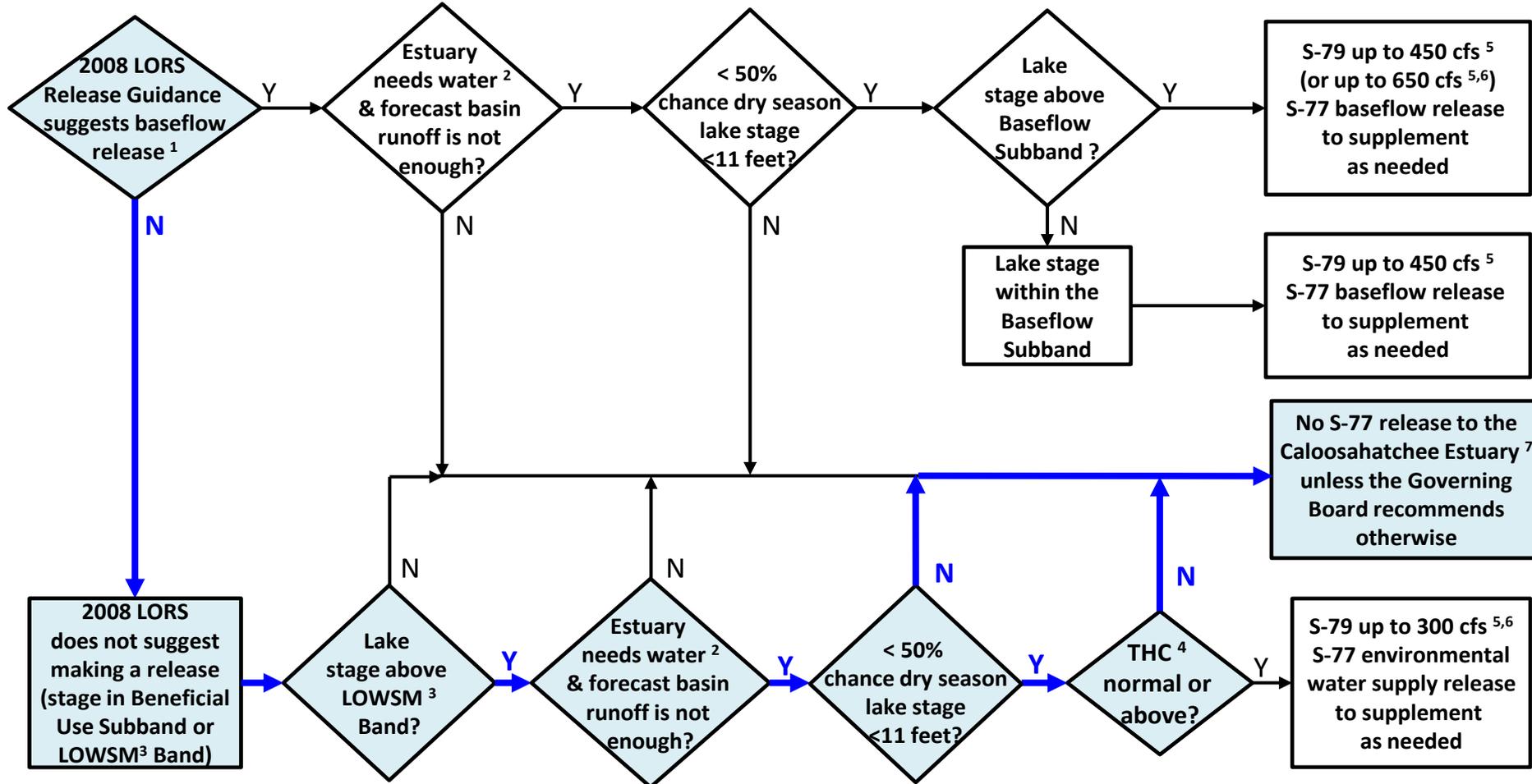
Lake Okeechobee Operations

- **USACE's Lake Okeechobee Regulation Schedule (2008 LORS)**
 - **March 9th Stage is 11.94 ft, NGVD**
 - **within the Beneficial Use Subband**
 - **about 0.15 ft above the Water Shortage Management Band**
- **Federal Water Control Plan refers to SFWMD's Adaptive Protocols or other SFWMD Authorities for environmental releases in the Beneficial Use Subband**

Lake Okeechobee Operations (cont'd)

- **SFWMD's Lake O Adaptive Protocol (2010)**
 - **Jan 28 – Feb 25: 5 consecutive weeks of releases**
 - AP Release guidance suggested up to 300 cfs release to the Caloosahatchee Estuary via S-79, with S-77 environmental water supply release to supplement as needed
 - **Starting Mar 4: AP Guidance suggests no releases**
 - Tributary Hydrologic Condition is in the “dry” class
 - 51% Chance that Lake stage falls below 11.0' before June 1st
 - SFWMD staff recommends no releases
- **USACE initiated 300 cfs environmental water supply release Mar 4 and intends to continue releases until stage falls into Water Shortage Management Band**
- **SFWMD staff recommends no releases per Adaptive Protocol Release Guidance**

Flowchart to Guide Recommendations for Lake Okeechobee Releases to the Caloosahatchee Estuary for 2008 LORS Baseflow & for Environmental Water Supply



¹The 2008 LORS Release Guidance (Part D) can suggest baseflow releases in the Intermediate, Low, or Baseflow Subbands.

²Estuary “needs” water when the 30-day moving average salinity at I-75 bridge is projected to exceed 5 practical salinity units (psu) within 2 weeks.

³LOWSM = Lake Okeechobee Water Shortage Management.

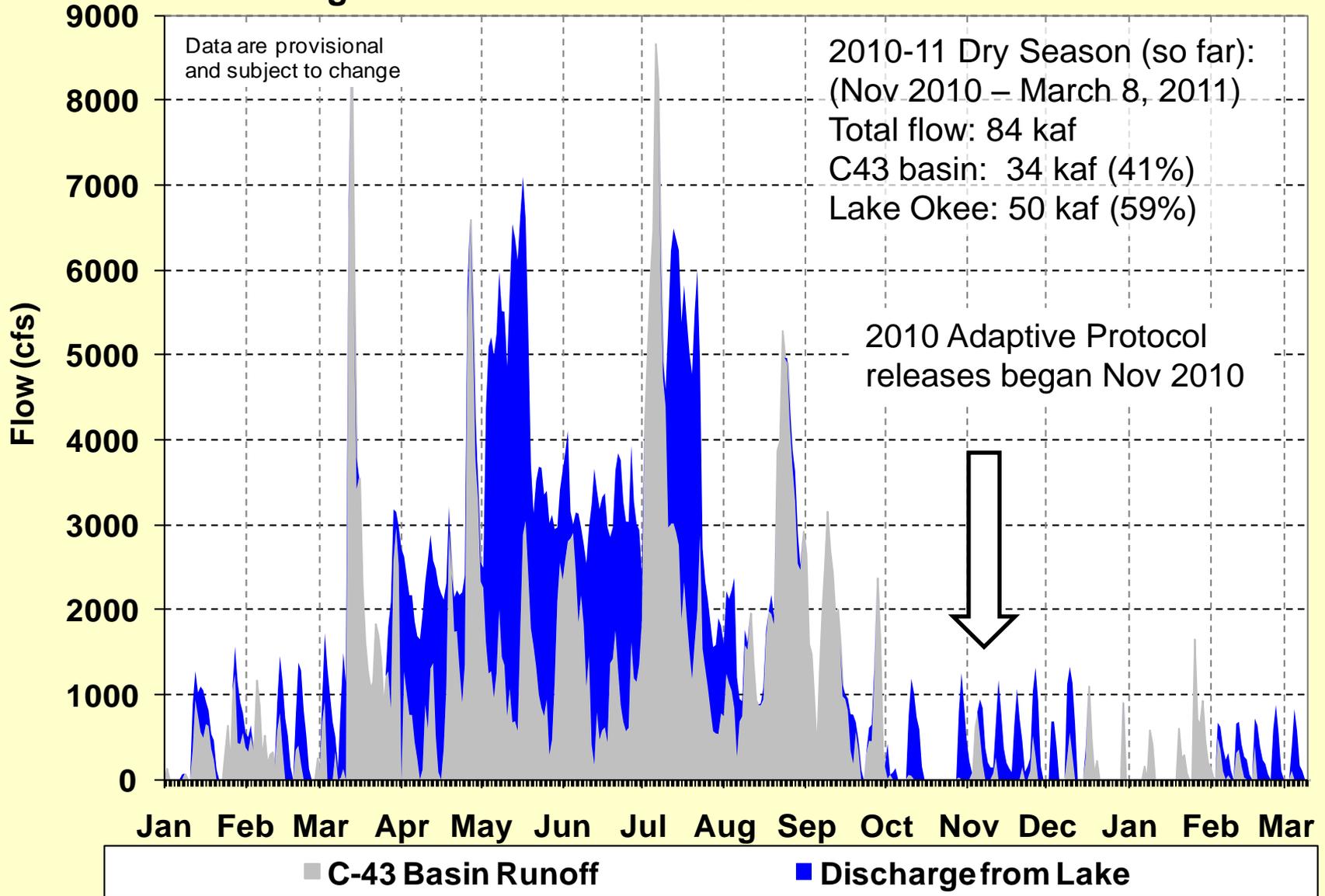
⁴Tributary Hydrologic Condition (THC) is based on classification of Lake Okeechobee Net Inflow and Palmer Index.

⁵Can release less than the “up to” limit if lower release is sufficient to reach or sustain desired estuary salinity; cfs = cubic feet per second.

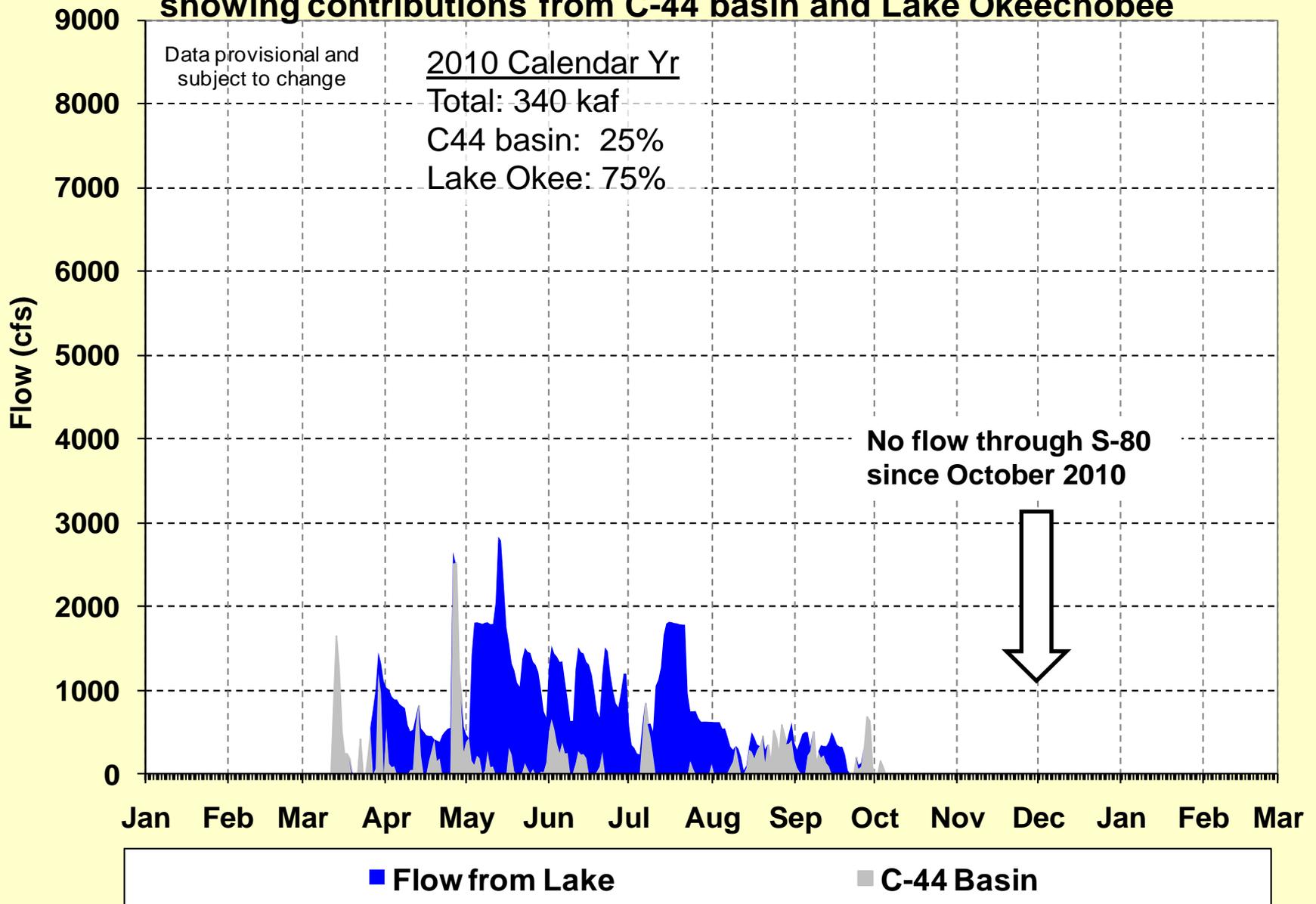
⁶After reviewing conditions in Water Conservation Areas (WCAs), Stormwater Treatment Areas (STAs), ENP, St. Lucie Estuary and Lake Okeechobee.

⁷Should this condition be reached, the Governing Board will be briefed at their next regularly scheduled meeting as part of the State of the Water Resources agenda item.

Total Flow From W.P. Franklin Lock and Dam (S-79) showing contributions from C-43 basin and Lake Okeechobee



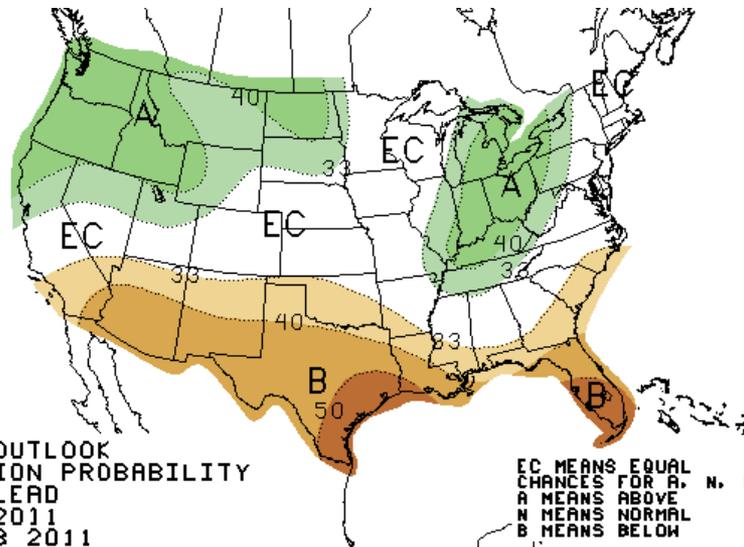
Total Flow From St. Lucie Lock and Dam (S-80) showing contributions from C-44 basin and Lake Okeechobee



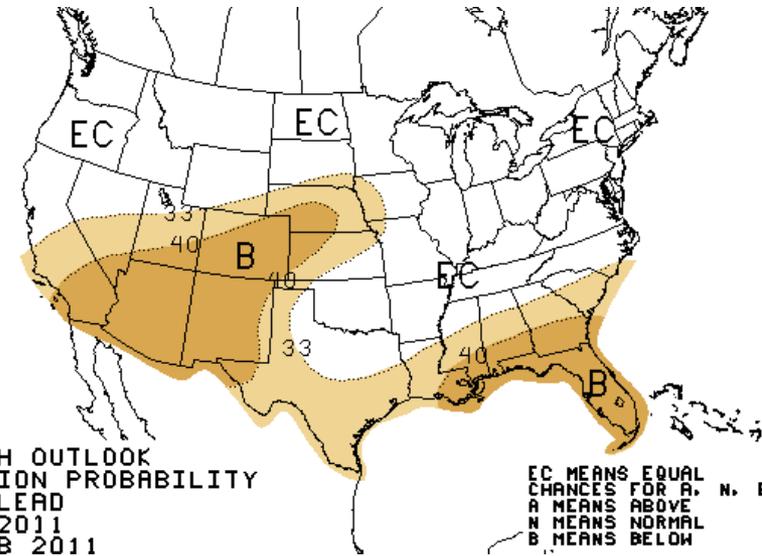
U. S. Seasonal Precipitation Outlook

National Climate Prediction Center (CPC)

Mar 2011



Mar-May 2011



La Nina conditions are expected to continue through the 2010-2011 dry season

The current precipitation outlook for central and southern Florida is:

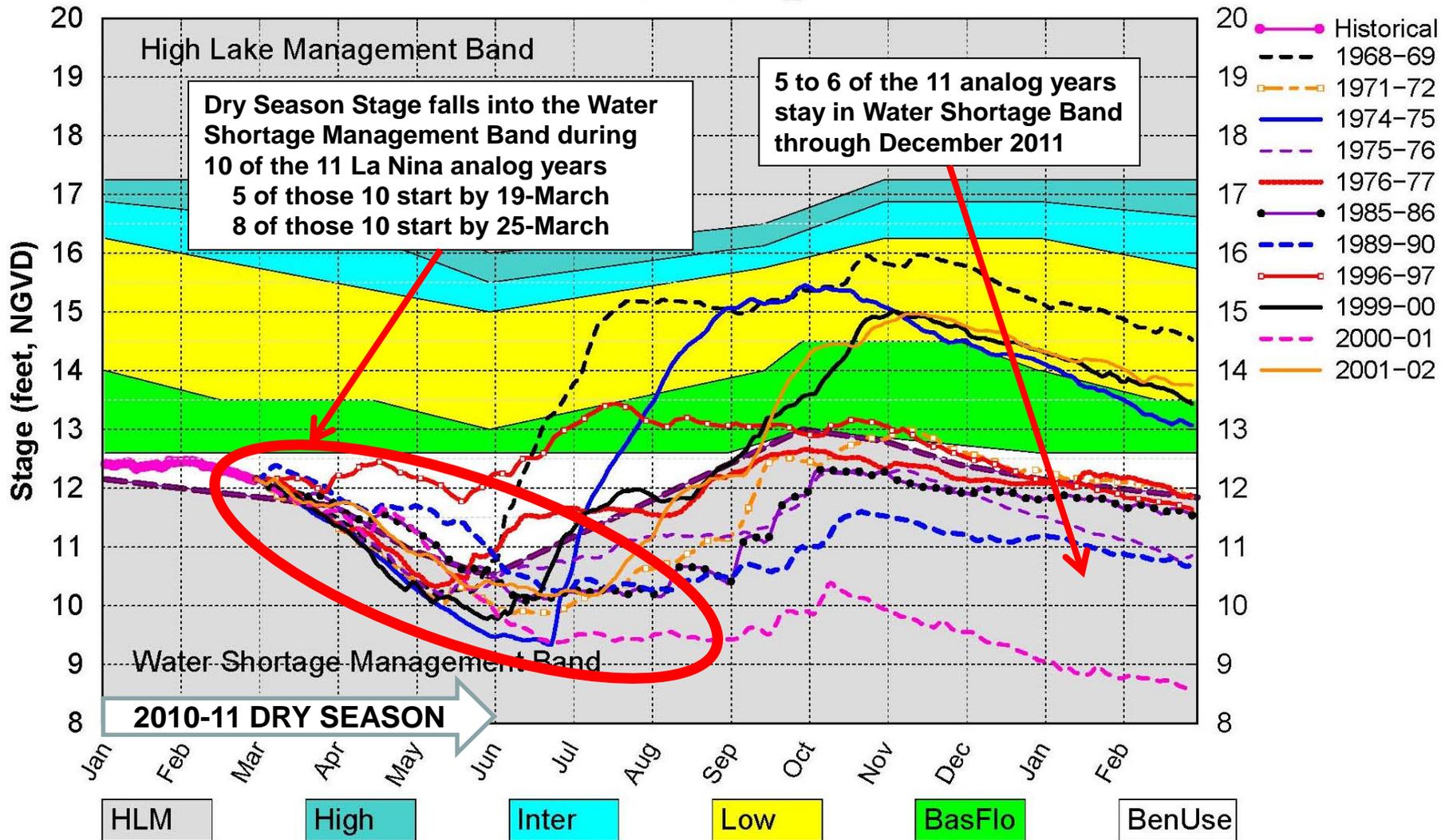
- increased chance of below-normal (B) rainfall for March
- increased chance of below-normal (B) rainfall for remainder of the dry season

Lake Okeechobee Stage Forecast

- **Future Lake stage depends on future rainfall**
- **Projections provided monthly by SFWMD Hydrologic and Environmental Systems Modeling (HESM) Department**
 - Don Ketprakong, Paul Trimble, Danielle Morancy, Luis Cadavid, Jayantha Obeysekera*
- **Position Analysis**
 - **Each year starts with current hydrologic conditions**
 - **41 1-yr simulations of system response to historical rainfall conditions**
 - **Statistical summaries used to display projections**

Lake Okeechobee SFWMM March 2011 Position Analysis

All La Nina Years Plot PA_V10



(See assumptions on the Position Analysis Results website)

Questions??



Photo: February 2011 Kissimmee River (Photography by Brent Anderson Branders @SFWMD.gov)

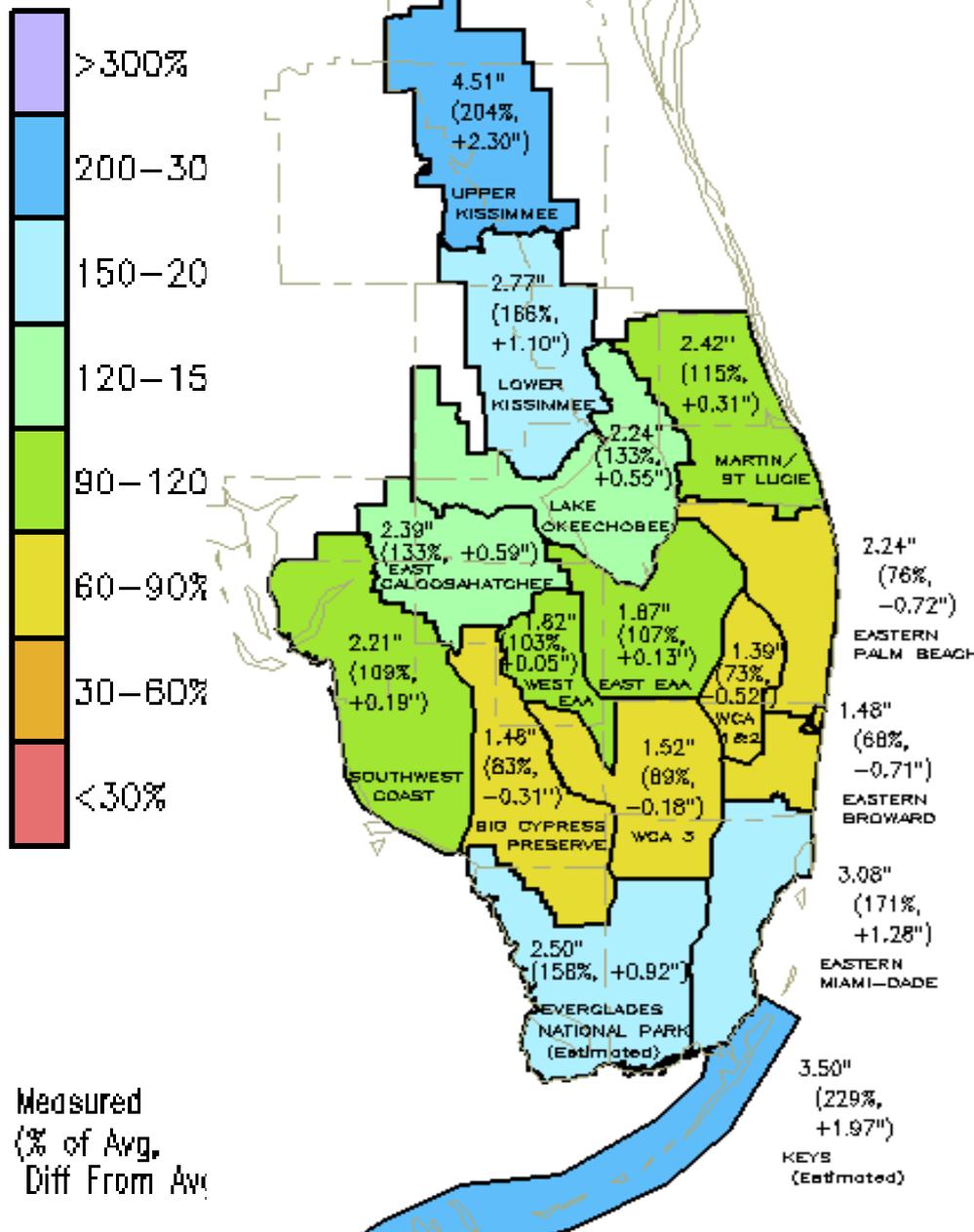
SFWMD 2011 January Rainfall Jan 1 – Jan 31

**DISTRICT-WIDE: 2.38"
(123% of Avg, or +0.45")**

Jan 25th cold front provided much needed rainfall to the region with an average of 1.1 inches falling over the District.

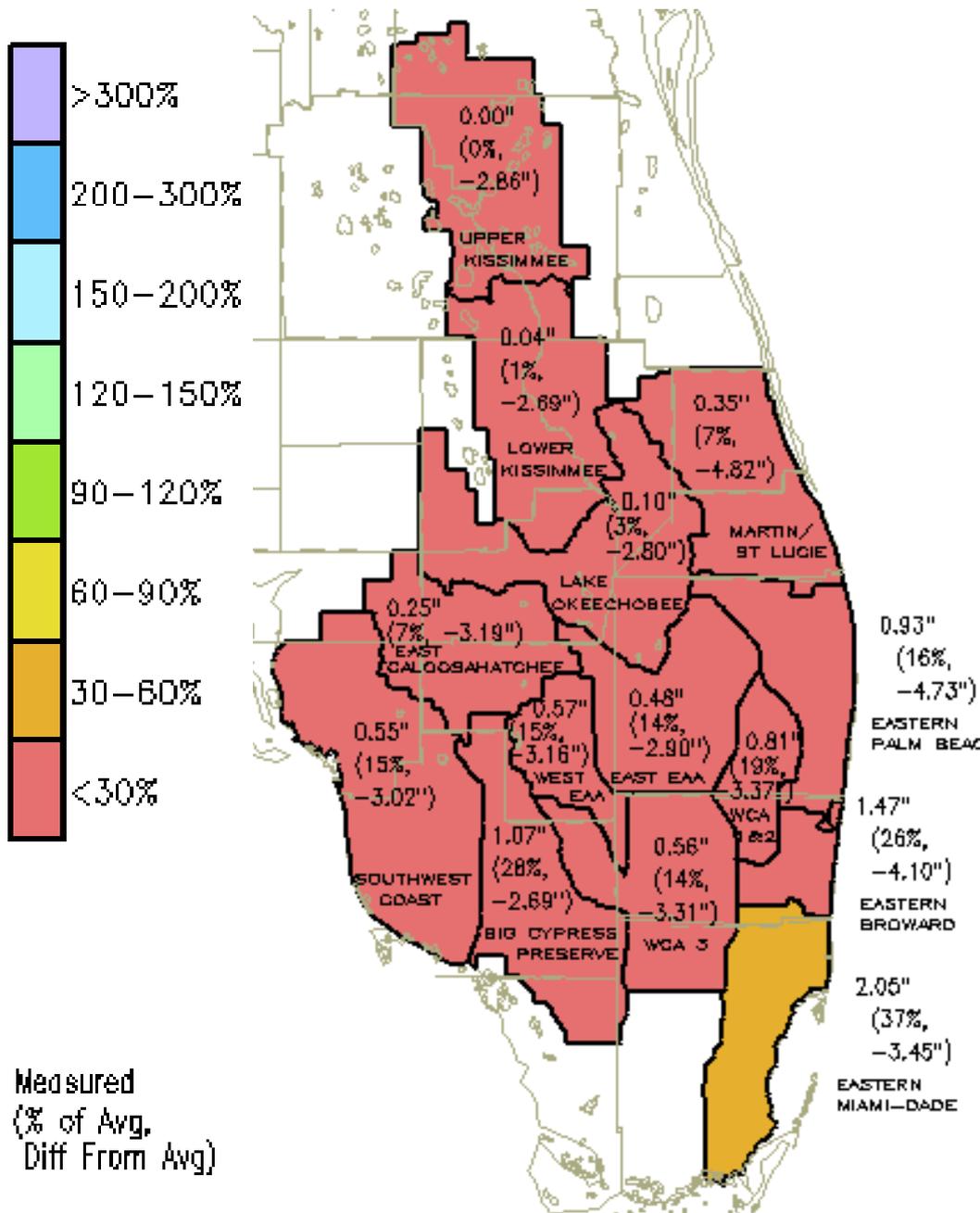
The District averages only six of these one-inch rain days per year. We have varied between two and 10 of these events per year since 1993.

These one-inch rain days are critical to maintaining water supply. On average, one-sixth of our annual rainfall occurs from these events.



SFWMD 2010 October Rainfall Oct 1 – Oct 30

**DISTRICT-WIDE:
0.55" (15%, - 3.21")**



- Driest October in South Florida since recordkeeping began in 1932
- Upper Kissimmee received zero inches this month.