

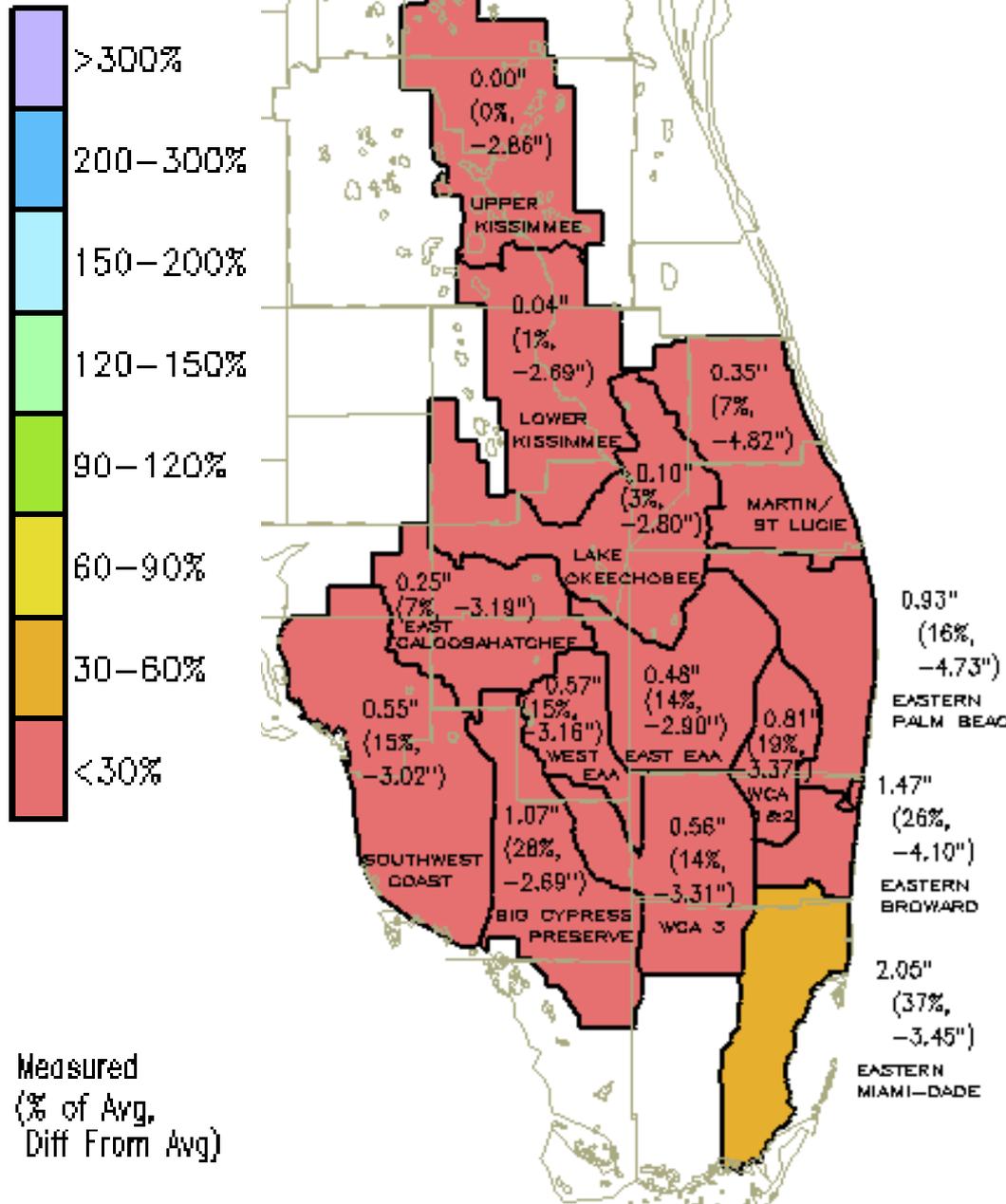
# Water Conditions Summary

*Nov. 10, 2010  
(Rainfall & PA slides updated Nov 3, 2010)*

*Tommy B. Strowd, P.E.  
Deputy Executive Director  
Operations & Maintenance Resources  
South Florida Water Management District*

# SFWMD 2010 October Rainfall Oct 2 – Nov 1

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



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

# SFWMD 2010 Wet Season Rainfall

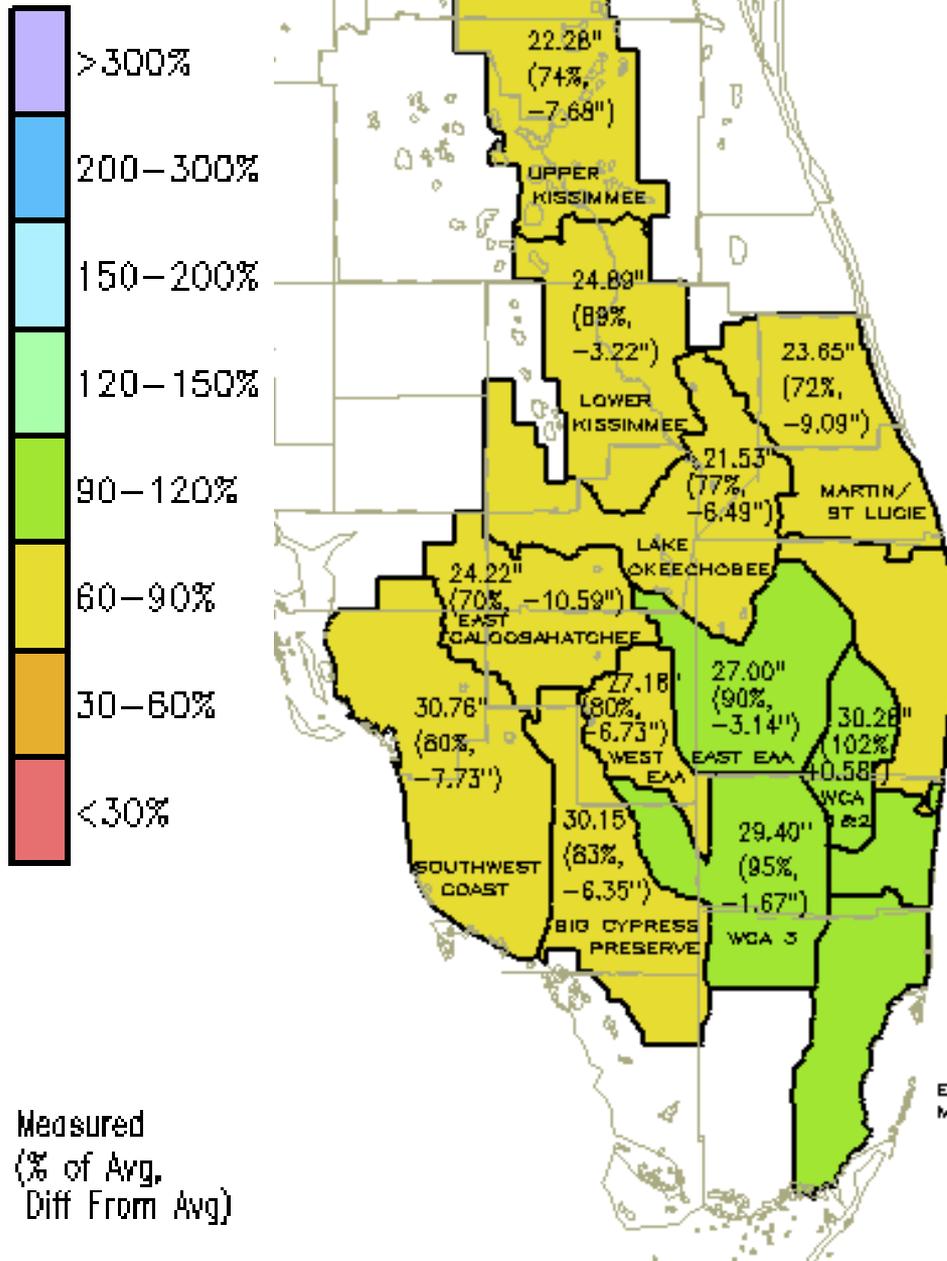
Jun 2 – Oct 26

**DISTRICT-WIDE: 27.12"**  
**(83% of Avg, or -5.36")**  
*Wet Season Average: 33.21"*

No significant rainfall from  
tropical events in 2010

## Wet Season Deficits:

- ~ 6" Lake Okeechobee
- ~ 7" Upper Kissimmee
- ~ 9" Martin/St. Lucie
- ~ 10" E. Caloosahatchee

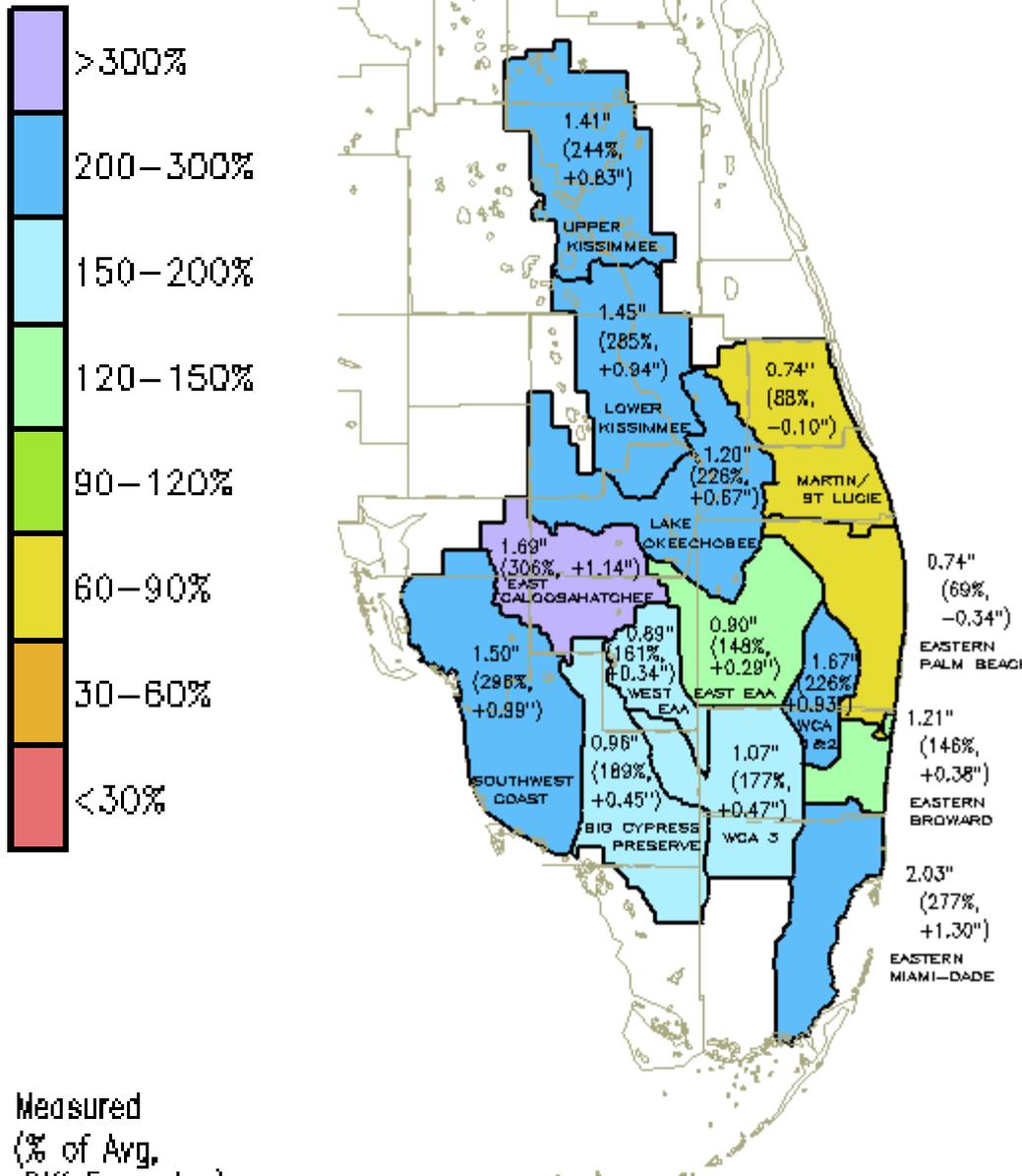


Measured  
(% of Avg,  
Diff From Avg)

# SFWMD 2010 November Rainfall Nov 2 – Nov 8

**DISTRICT-WIDE:  
1.25" (201%, +0.63")**

**Nov Average = 2.37**



# U.S. Drought Monitor

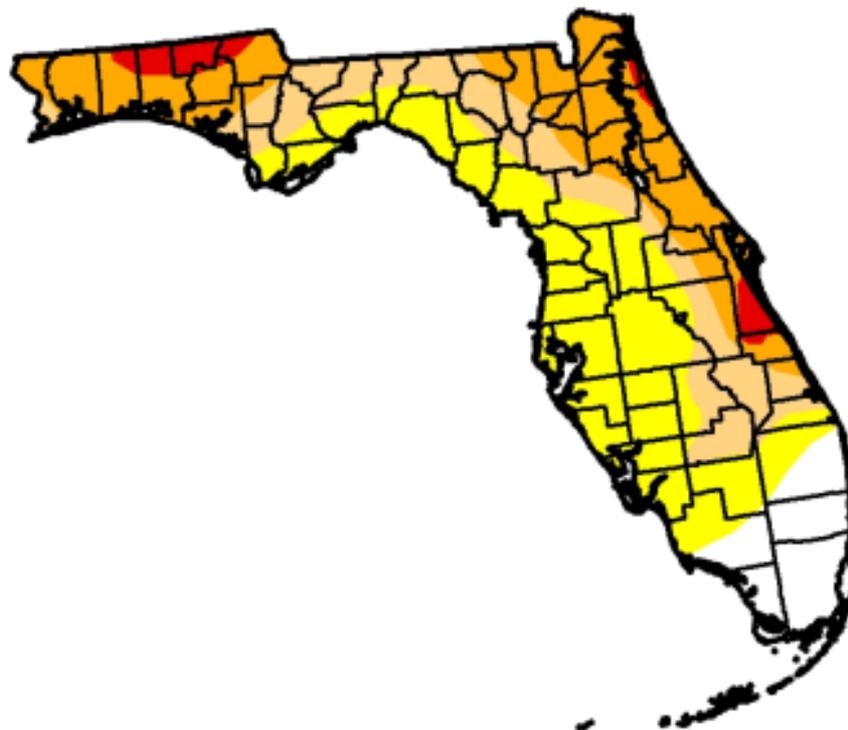
## Florida

November 2, 2010

Valid 7 a.m. EST

Drought Conditions (Percent Area)

	None	D0-D4	D1-D4	D2-D4	D3-D4	D4
Current	11.6	88.4	50.9	29.6	4.3	0.0
Last Week (10/26/2010 map)	21.2	78.8	41.7	24.0	3.9	0.0
3 Months Ago (08/10/2010 map)	71.1	28.9	5.0	0.0	0.0	0.0
Start of Calendar Year (01/05/2010 map)	97.3	2.7	0.0	0.0	0.0	0.0
Start of Water Year (10/05/2010 map)	55.1	44.9	25.4	6.0	0.0	0.0
One Year Ago (11/03/2009 map)	62.4	37.6	0.0	0.0	0.0	0.0



Intensity:

- D0 Abnormally Dry
- D1 Drought - Moderate
- D2 Drought - Severe
- D3 Drought - Extreme
- D4 Drought - Exceptional

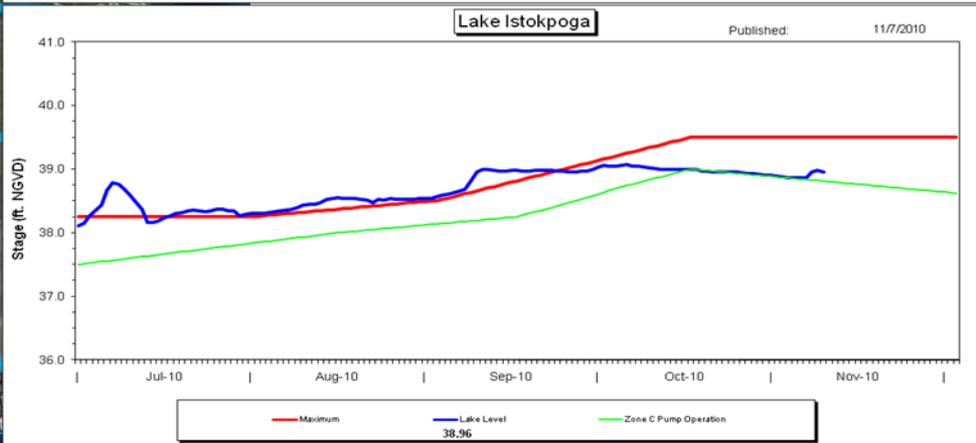
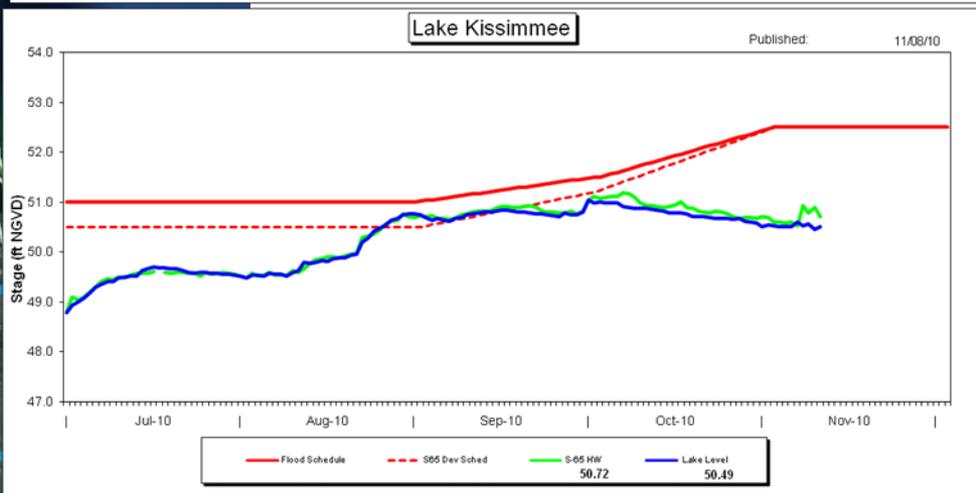
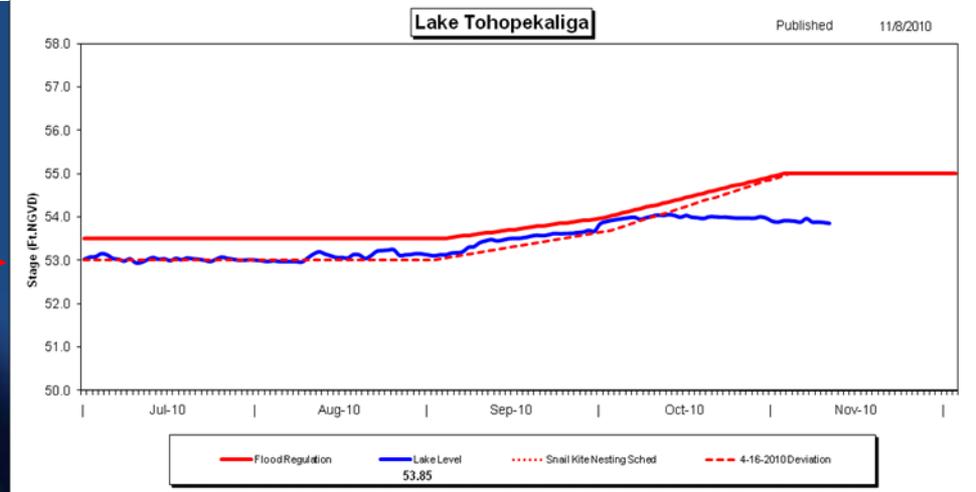
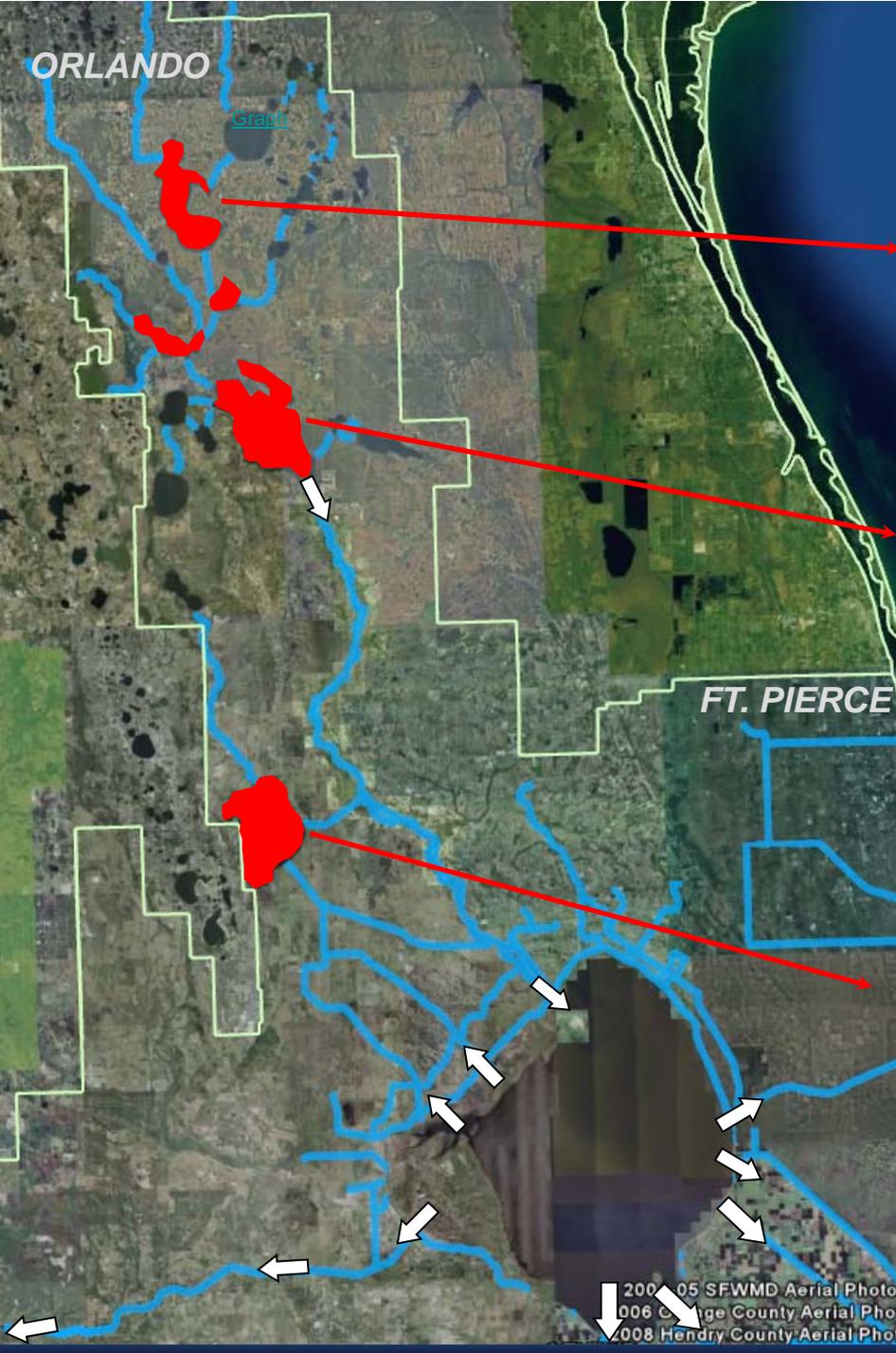
The Drought Monitor focuses on broad-scale conditions. Local conditions may vary. See accompanying text summary for forecast statements

<http://drought.unl.edu/dm>



Released Thursday, November 4, 2010

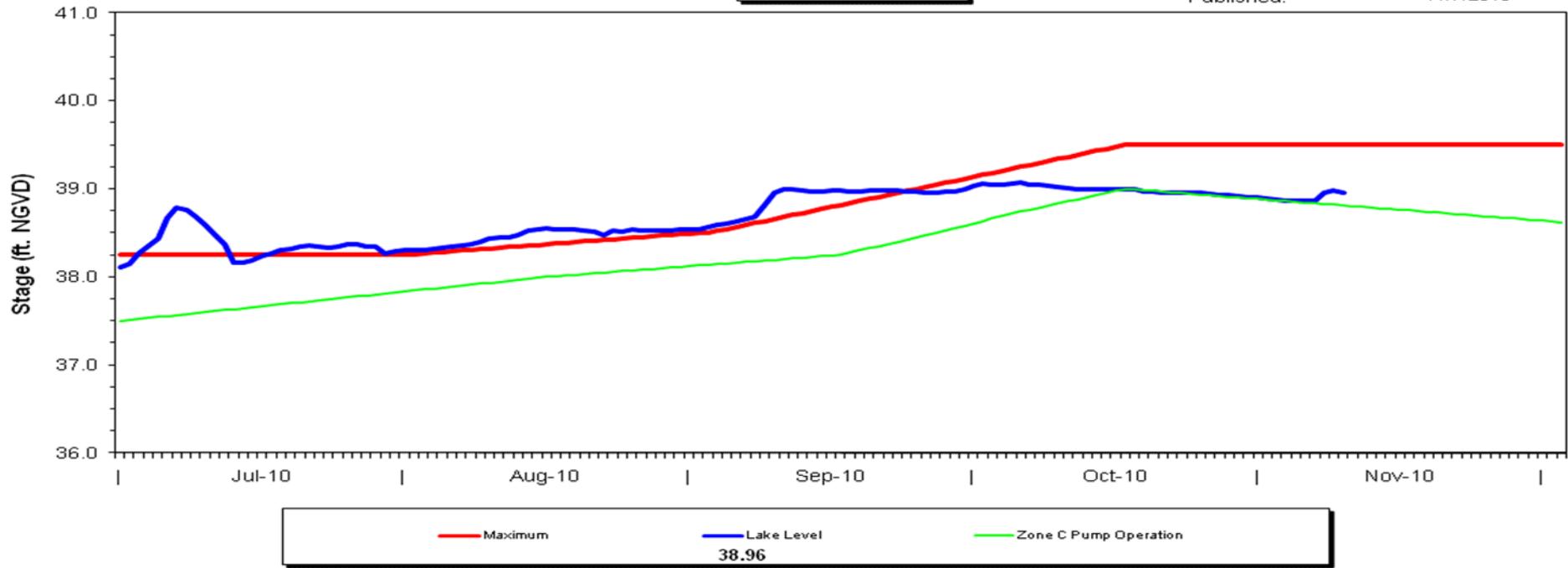
Author: Mark Svoboda, National Drought Mitigation Center



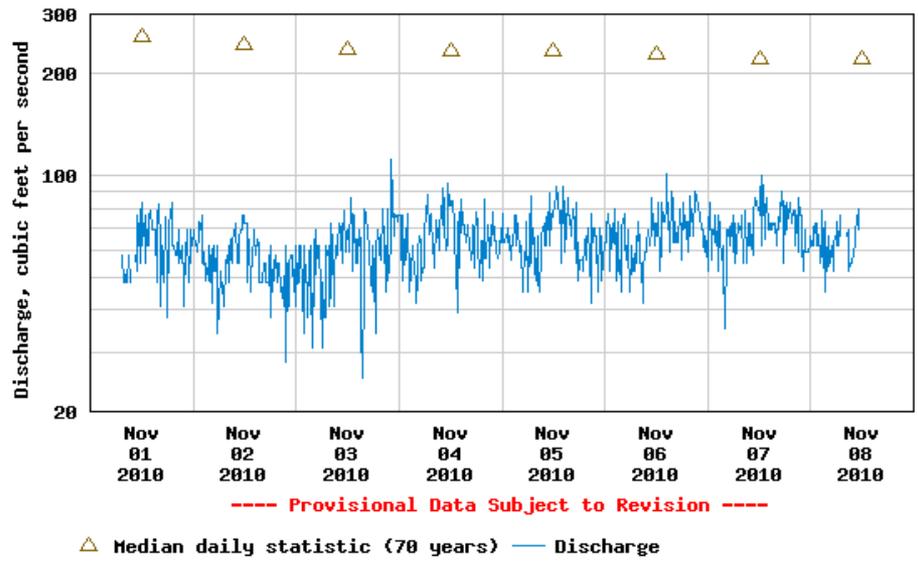
# Lake Istokpoga

Published:

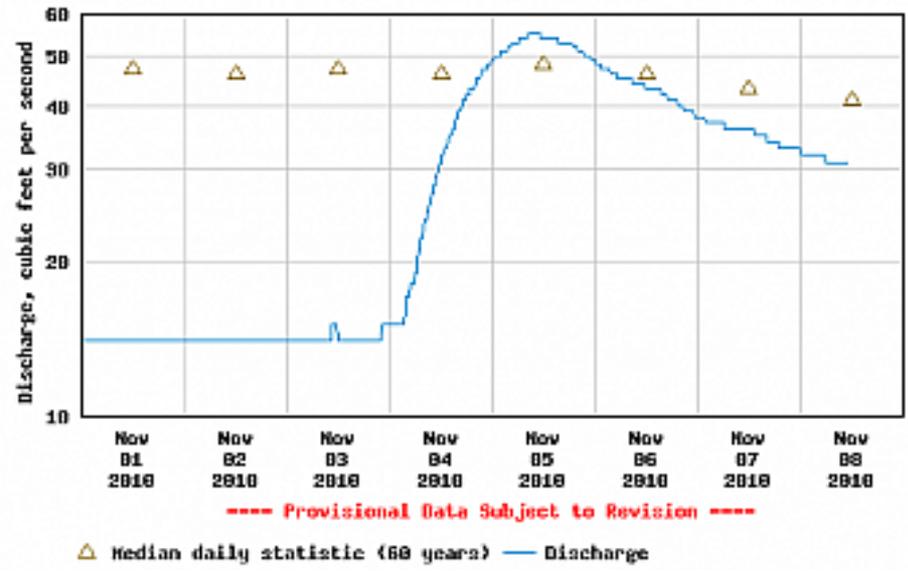
11/7/2010



USGS 02270500 ARBUCKLE CREEK NEAR DE SOTO CITY, FL

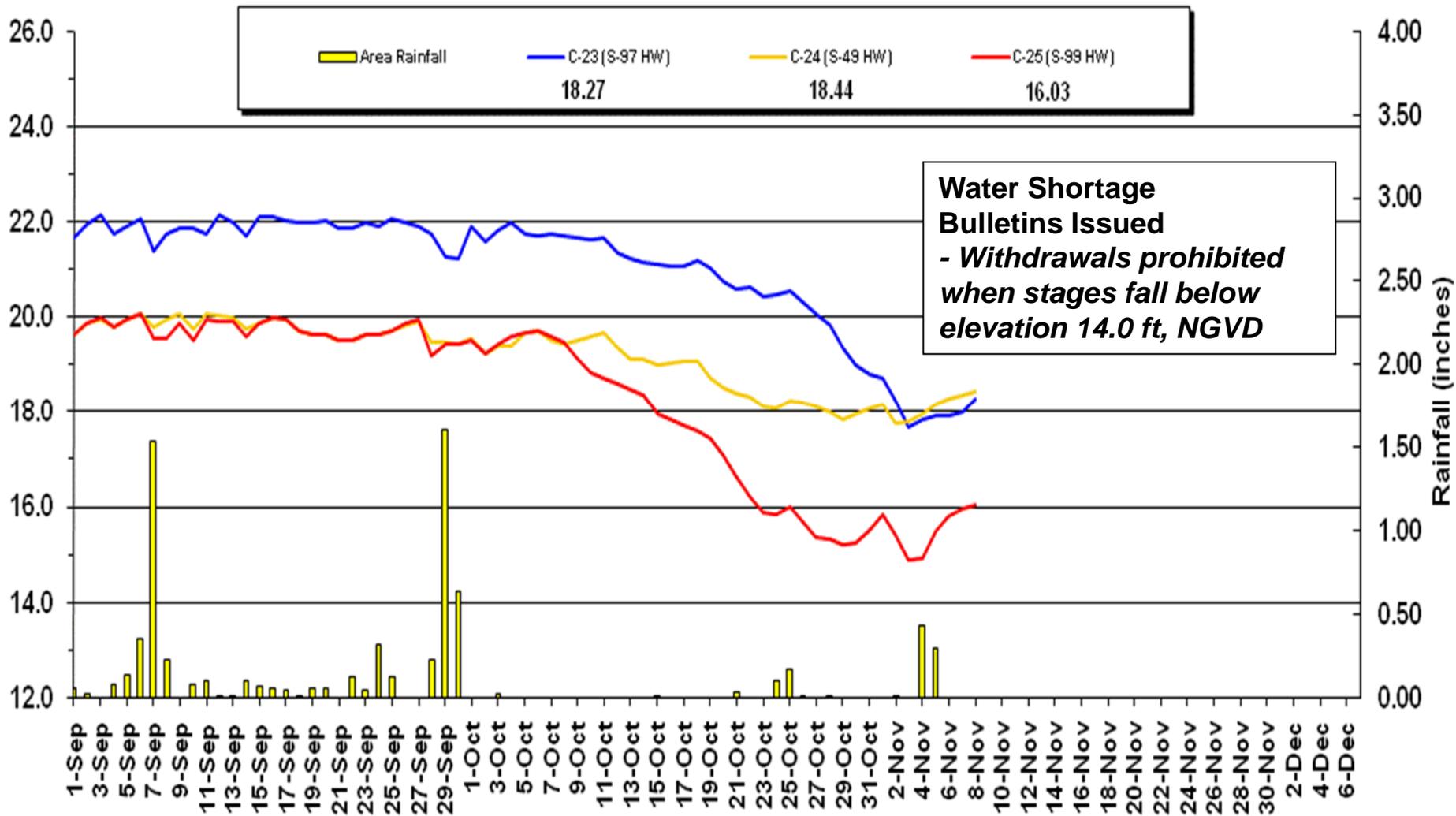


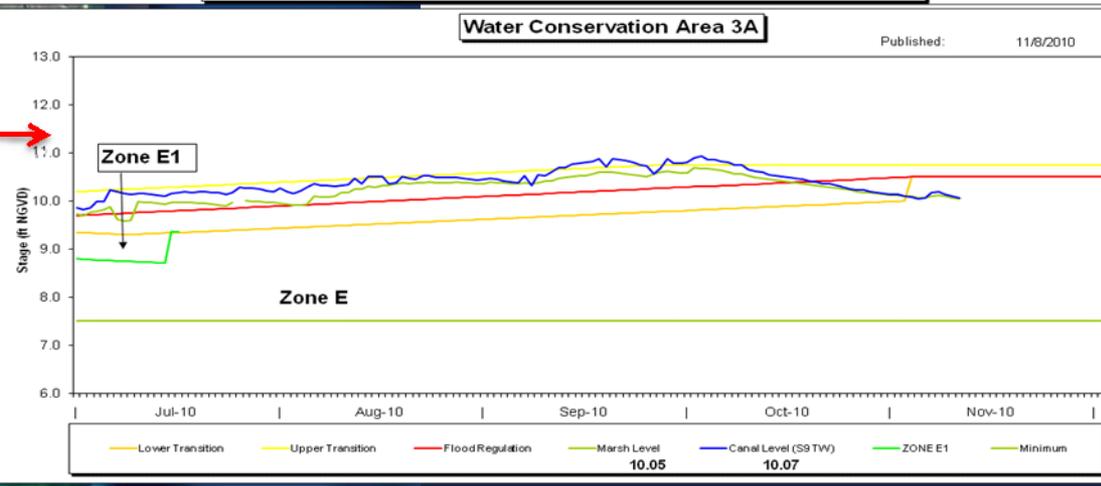
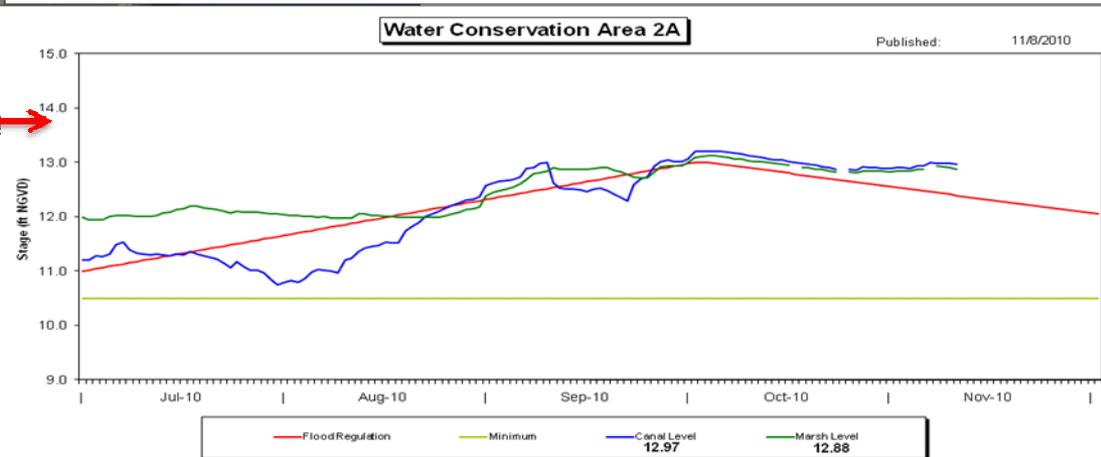
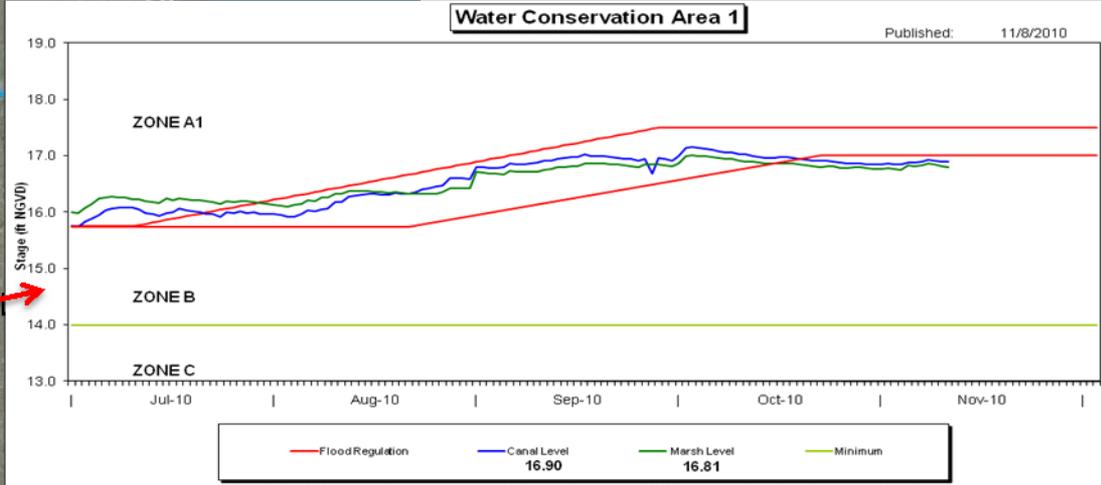
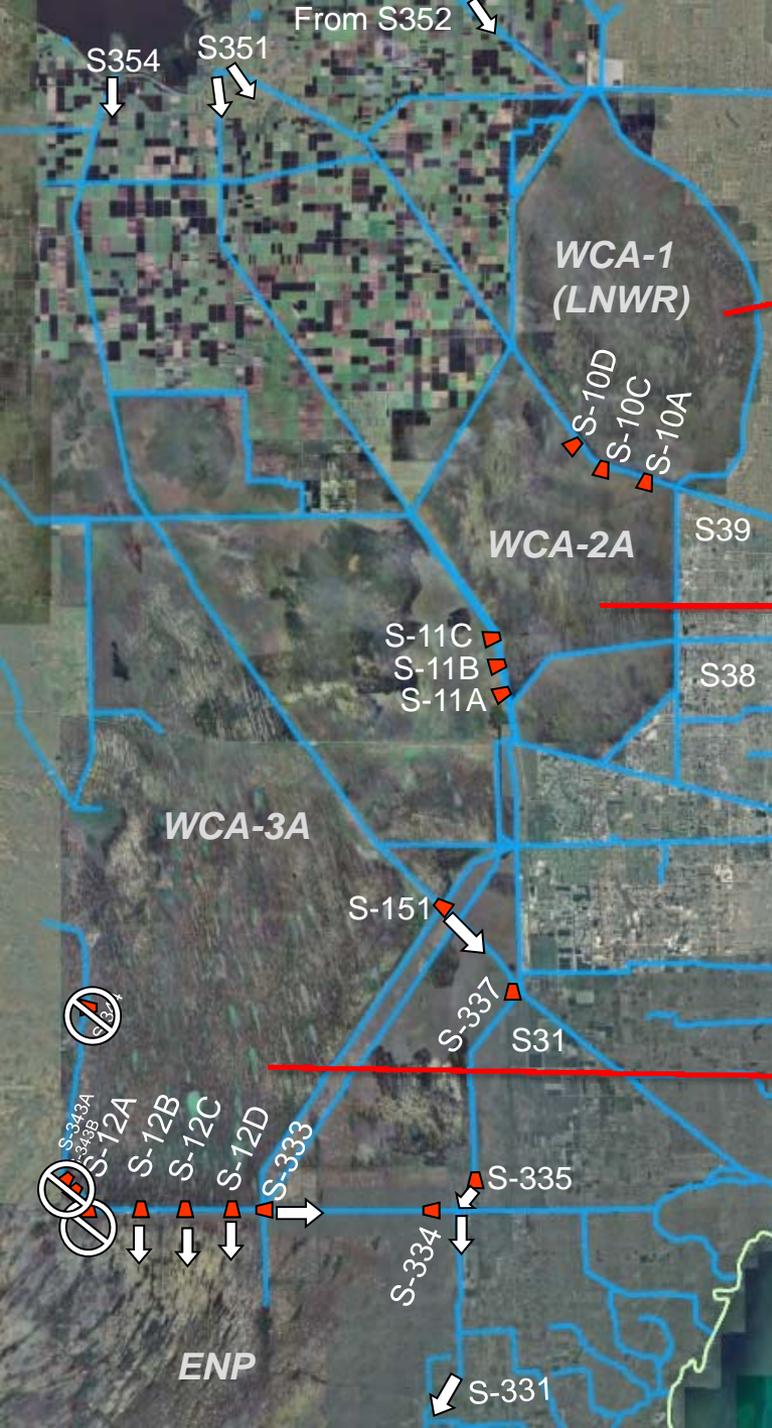
USGS 02271500 JOSEPHINE CREEK NEAR DE SOTO CITY FL



Published: 11/08/10

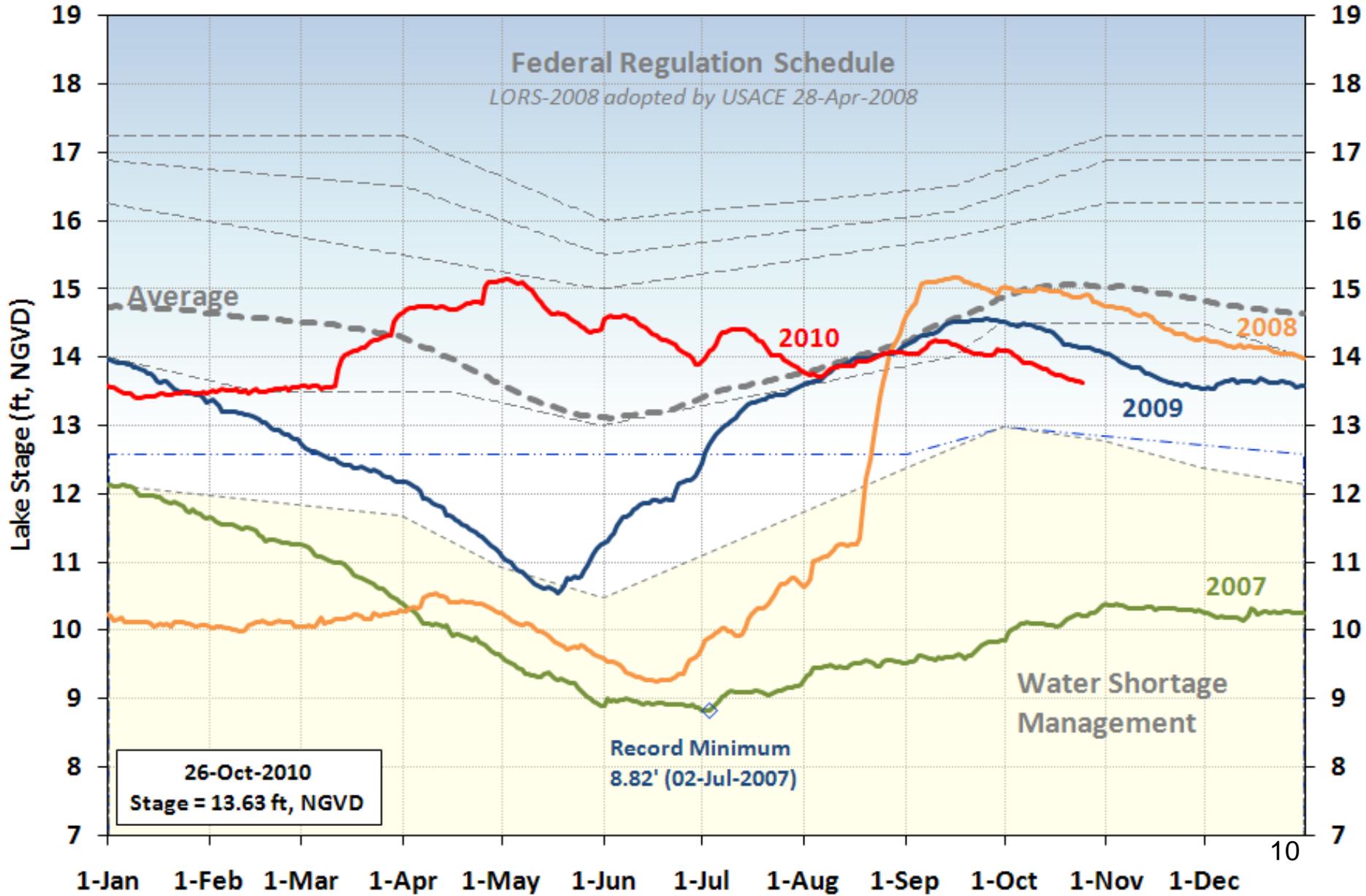
# St Lucie Structures on C23, C24 & C25 Canals





# Lake Okeechobee Stage Hydrograph Comparison

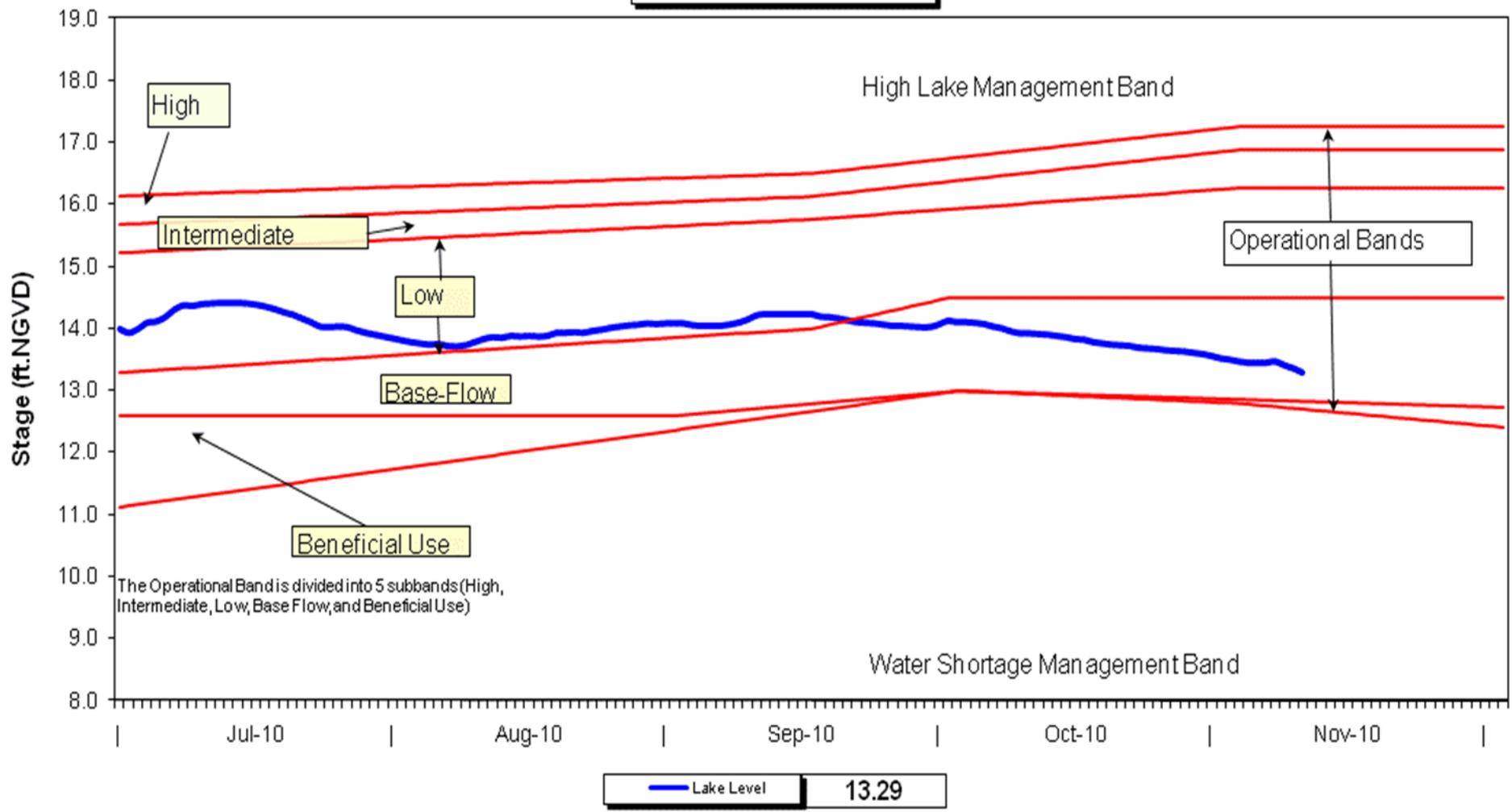
--- Average (1965-2007)    — 2007    — 2008    — 2009    — 2010



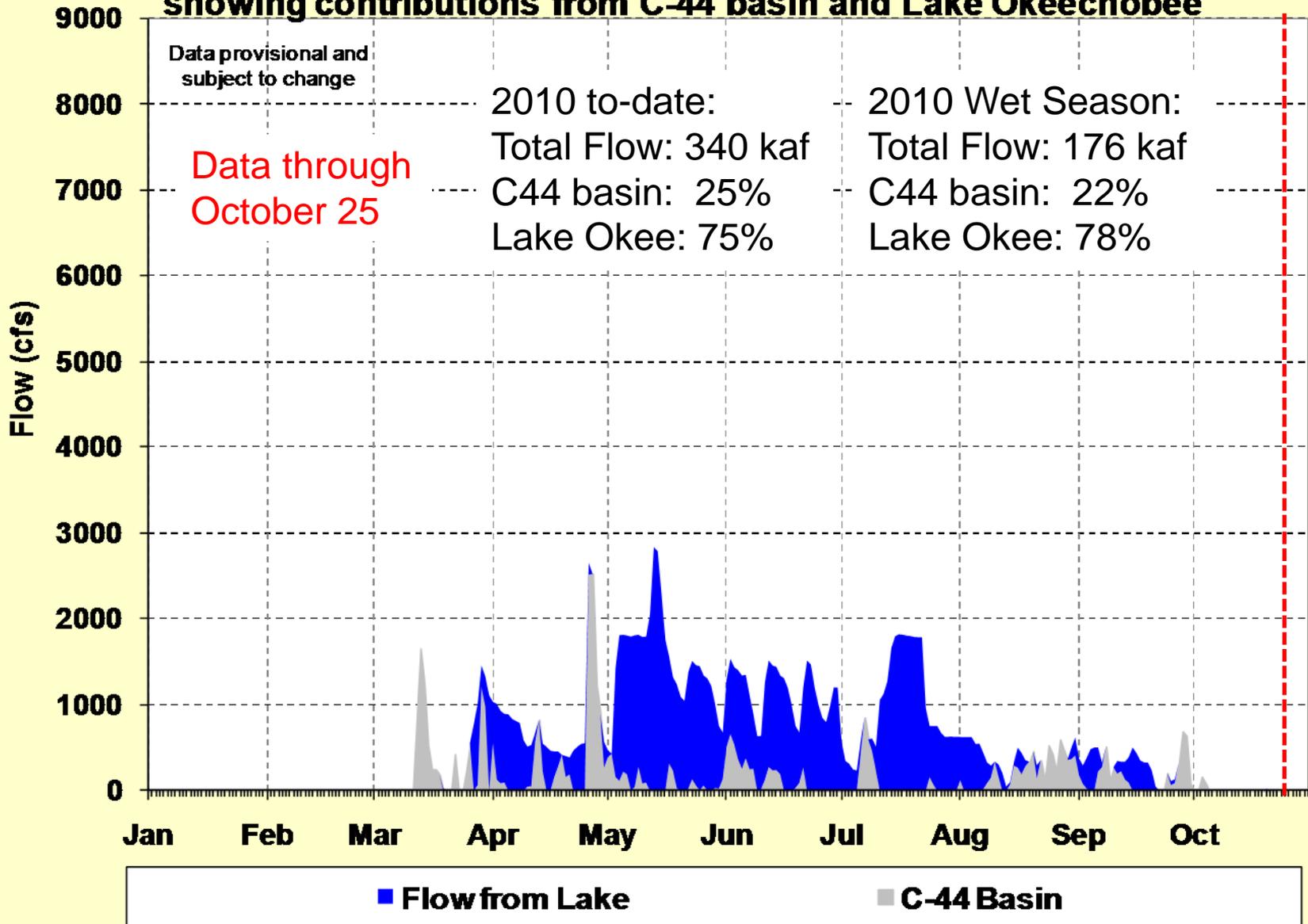
# Lake Okeechobee

Published:

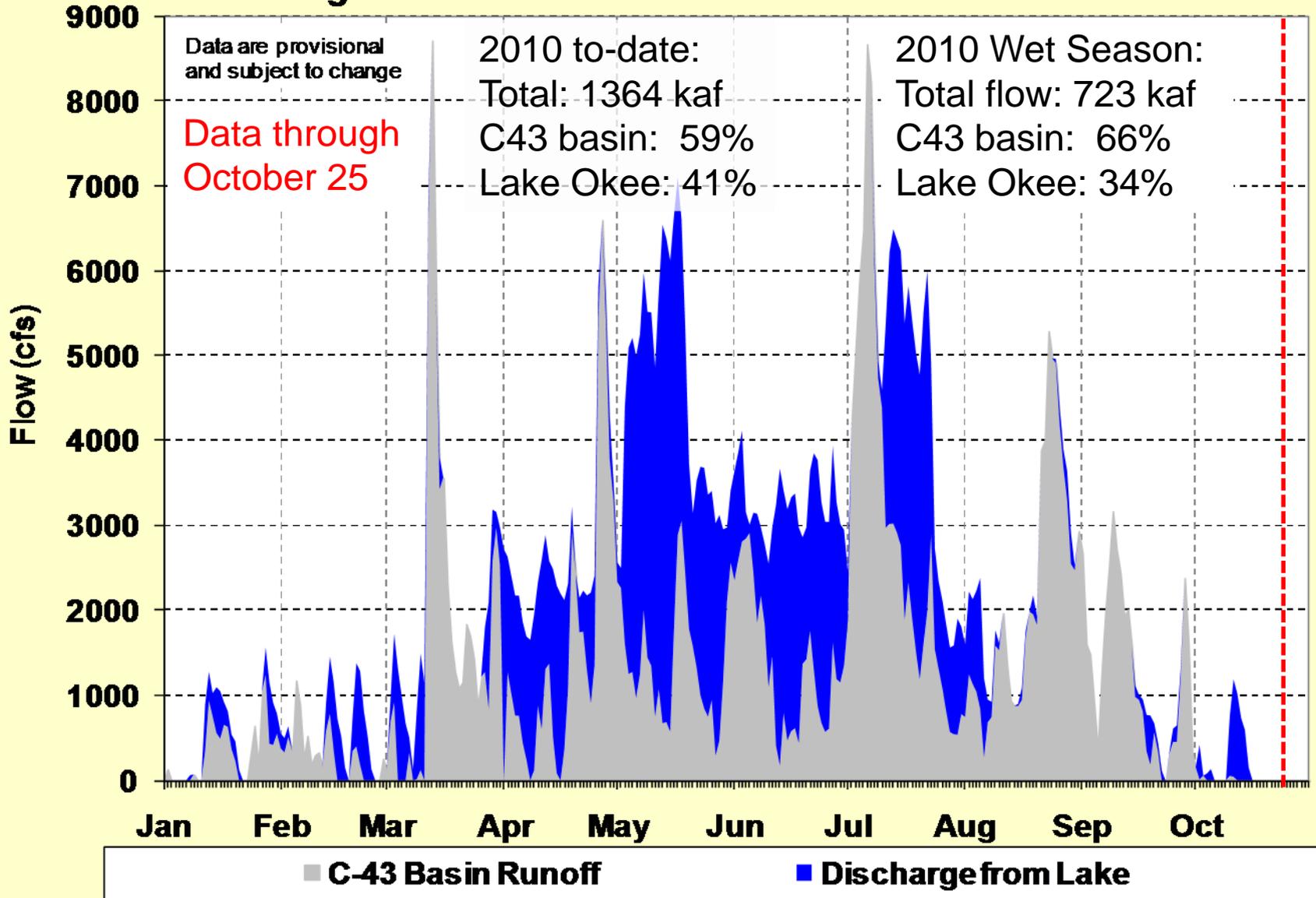
11/8/2010



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



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



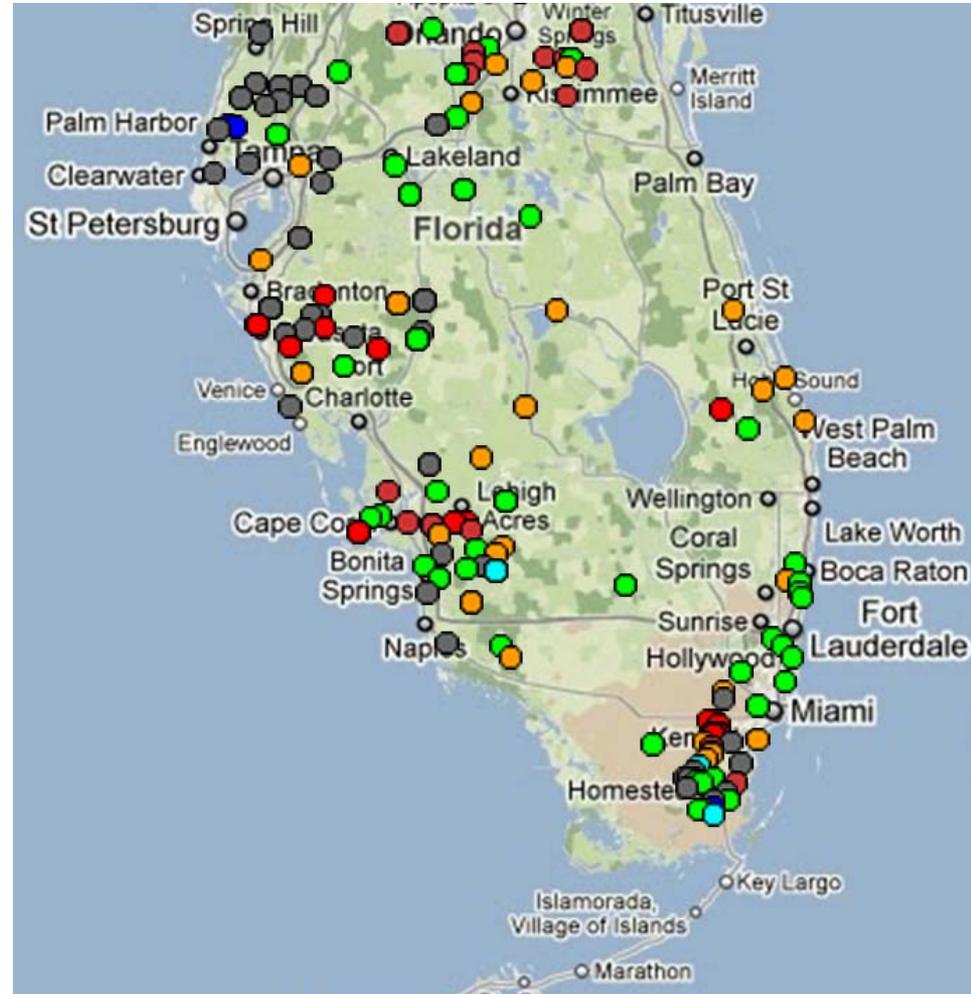
# Groundwater Levels & Water Supply Status

- Groundwater Levels receding in both the surficial and confined aquifers
- Many monitoring wells have water levels below the 30<sup>th</sup> percentile levels, and some are below the 10<sup>th</sup> percentile levels for this time of year.
- Water Supply Risk increasing

## Water Supply Risk Evaluation

Area	Indicator	Value	Color Coded Scoring Scheme
LOK	Projected LOK Stage for the next two months	Base Flow Sub-Band	M
	Palmer Index for LOK Tributary Conditions	-1.96 (Dry)	M
	CPC Precipitation Outlook	1 month: Below Normal 3 months: Below Normal	M
	LOK Seasonal Net Inflow Forecast AMO warm/ENSO La Niña	-0.50 ft (Very Dry)	H
	LOK Multi-Seasonal Net Inflow Forecast AMO warm/ENSO La Niña	1.63 ft (Normal)	M

Water levels at selected sites in South Florida, based on PROVISIONAL DATA, as of October 26, 2010

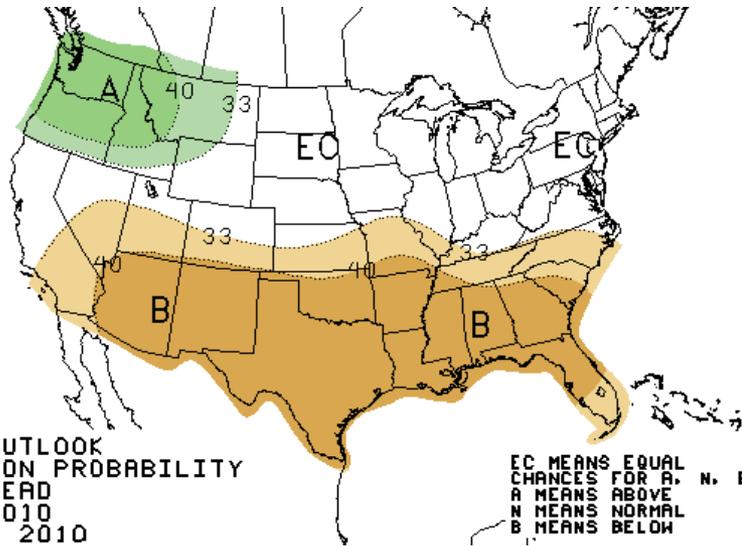


Explanation - Percentile classes (symbol color based on most recent measurement)							
	●	●	●	●	●	●	●
	<10	10-24	25-75	76-90	>90	New High	Not Ranked
New Low	Much Below Normal	Below Normal	Normal	Above Normal	Much Above Normal		

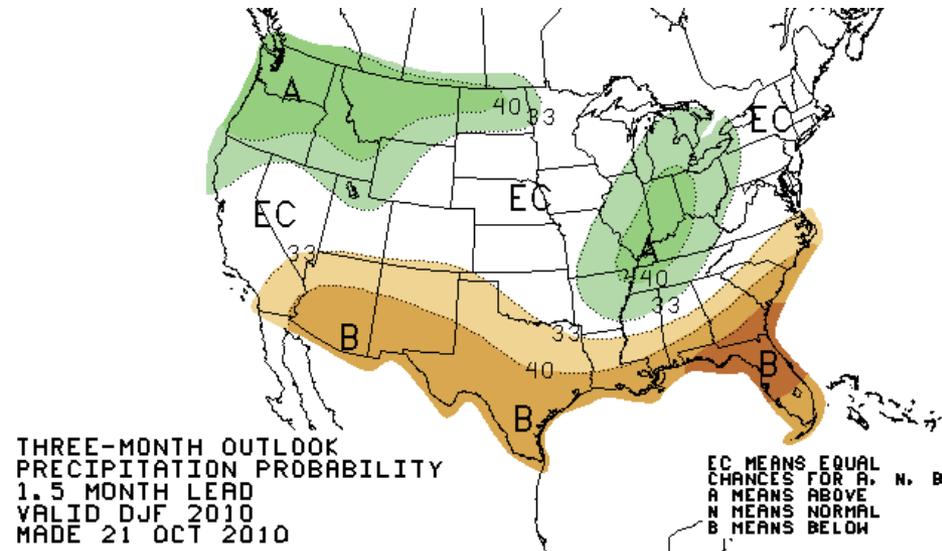
# U. S. Seasonal Precipitation Outlook

National Climate Prediction Center (CPC)

November



Dec-Feb



## La Nina conditions are expected to continue into 2010-2011 dry season

The current precipitation outlook for central and southern Florida is:

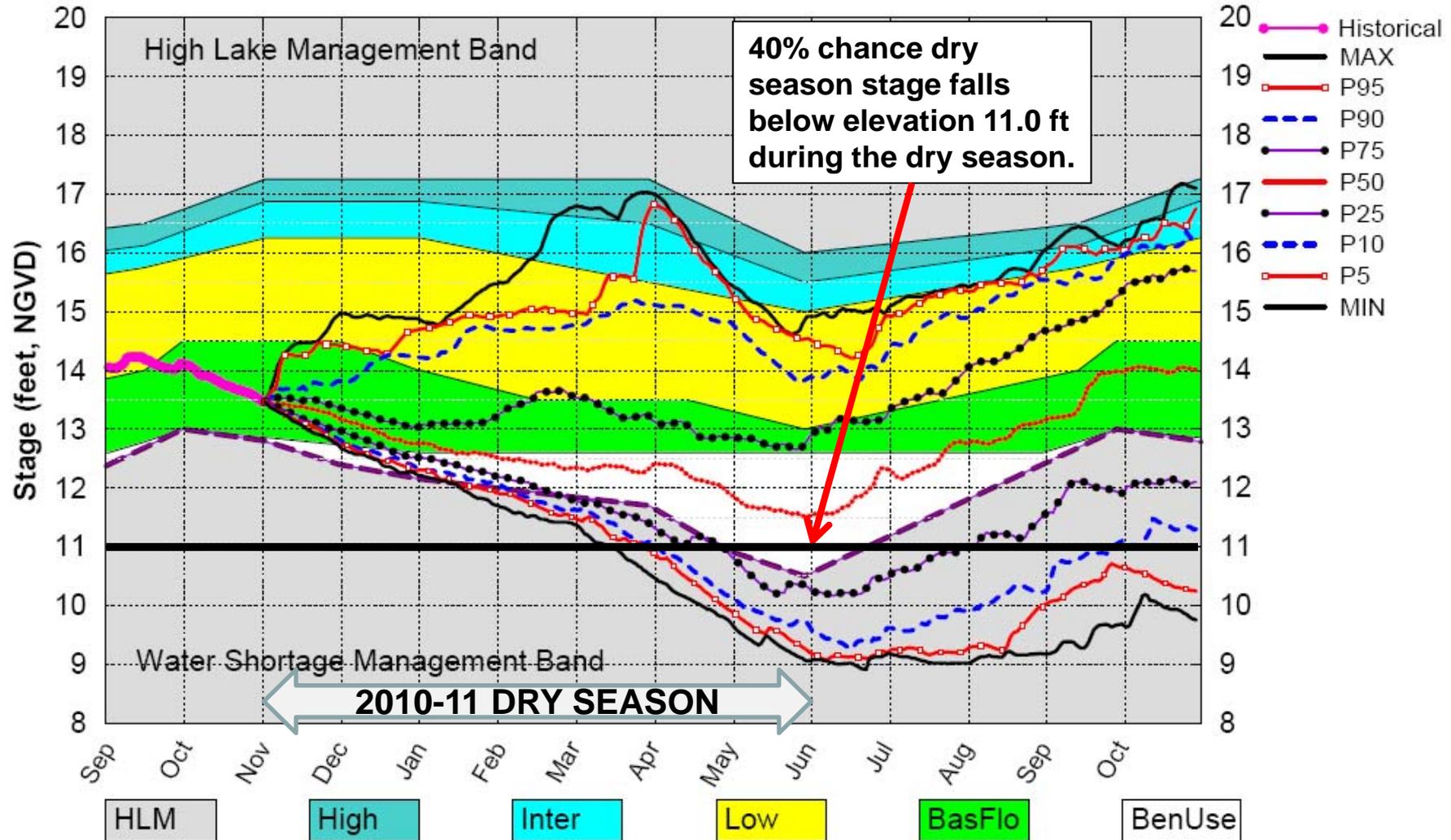
- increased chance of below-normal (B) rainfall for November.
- increased chance of below-normal (B) rainfall for Dec-Feb
- increased chance of below-normal (B) rainfall for the entire 2010-11 dry season

# ***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 November 2010 Position Analysis

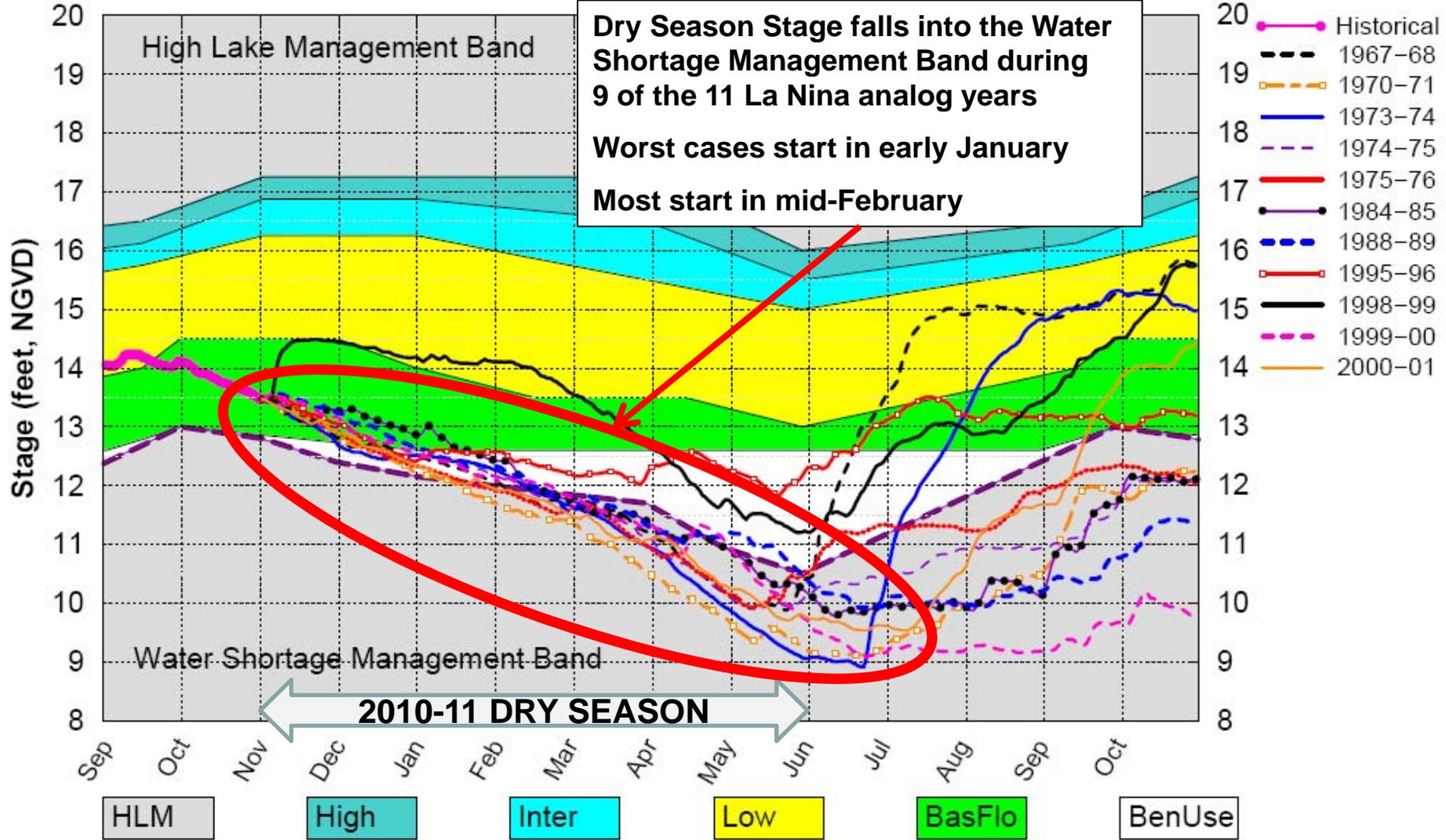
Percentiles PA\_V3



(See assumptions on the Position Analysis Results website)

# Lake Okeechobee SFWMM November 2010 Position Analysis

All La Nina Years Plot PA\_V3

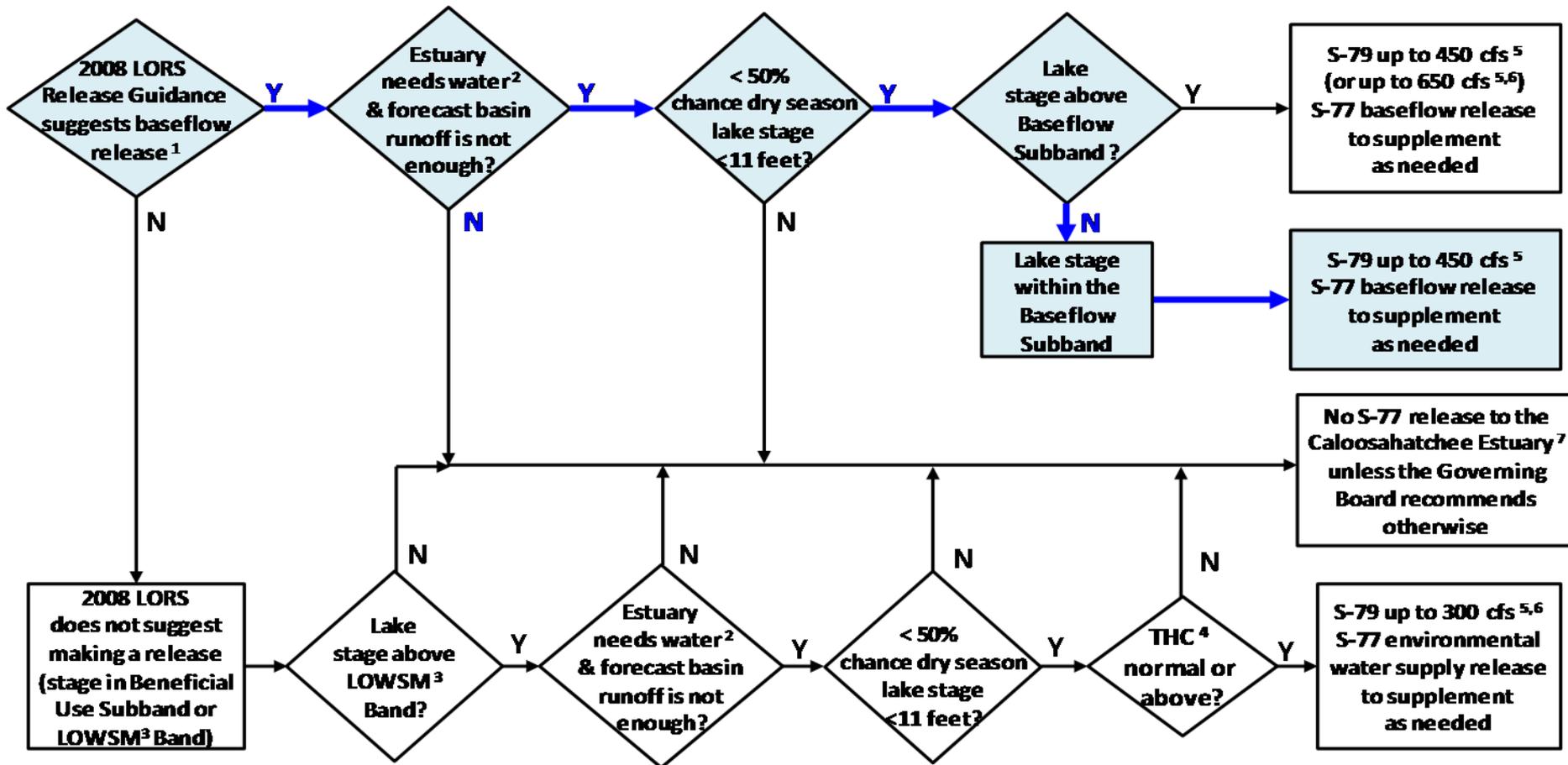


(See assumptions on the Position Analysis Results website)

# ***Lake Okeechobee Operations***

- **USACE's Lake O Regulation Schedule (2008 LORS) continues to suggest baseflow releases**
  - S-79: from 0 up to 450 cfs
  - S-80: from 0 up to 200 cfs
- **SFWMD Lake O Adaptive Protocol implemented**
  - Dry season began early
  - Release guidance currently suggests up to 450 cfs releases to the Caloosahatchee Estuary
    - AP criteria suggests estuary needs water
      - Val I-75 30-day moving average salinity is forecast to rise above 5 psu within the next two weeks
    - November PA indicates 40% chance stage will fall below 11' before end of dry season
    - 40% < 50%, so AP criteria suggests release

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



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

<sup>2</sup>Estuary “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.

<sup>3</sup>LOWSM = Lake Okeechobee Water Shortage Management.

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

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

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

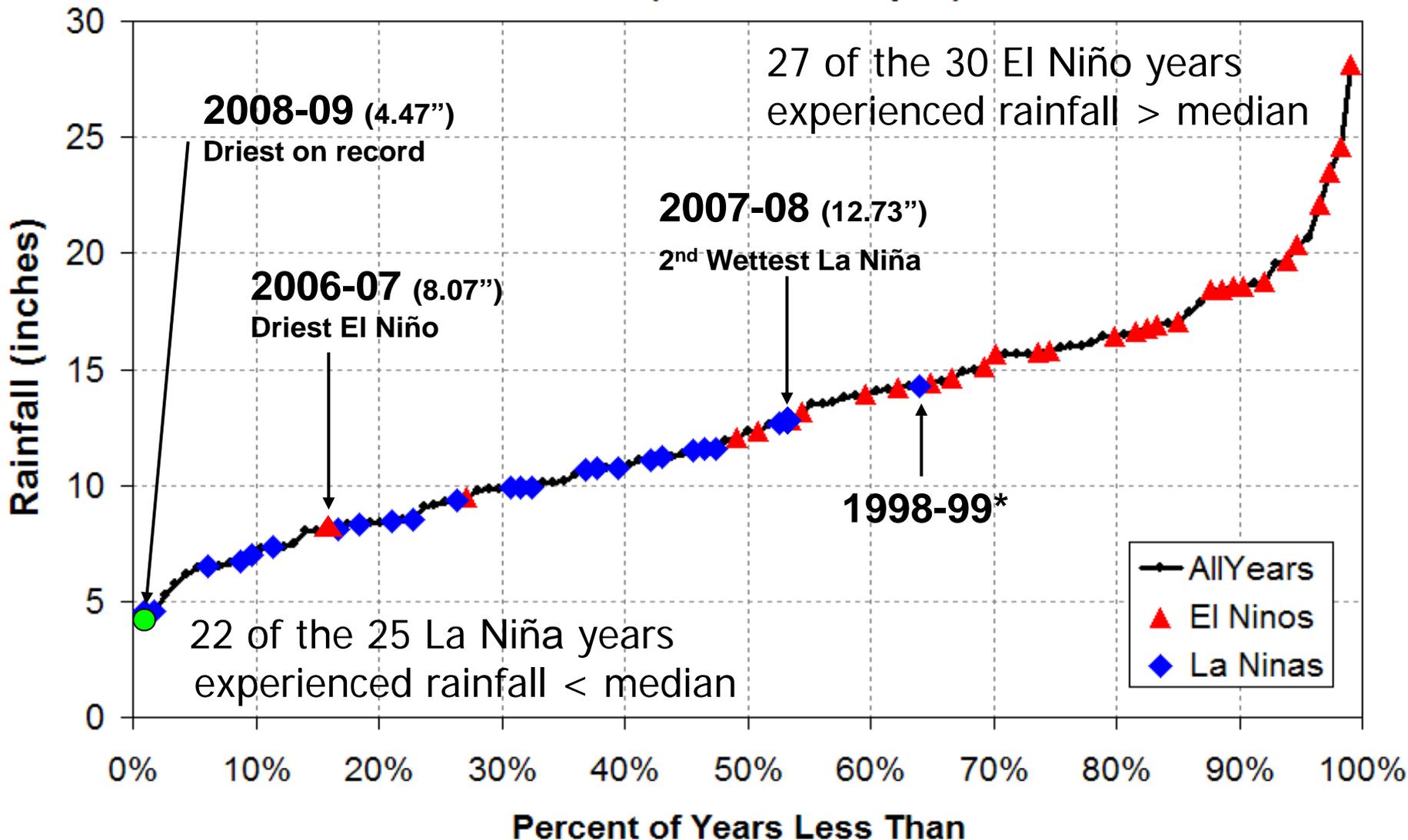
<sup>7</sup>Should this condition be reached, the Governing Board will be briefed at their next regularly scheduled meeting as part of the State of the Water Resources agenda item.

An aerial photograph of a winding river, likely the Fisheating Creek, flowing through a lush green landscape. The river is dark blue and curves through the terrain, surrounded by dense vegetation and small ponds. The sky is clear and blue.

**NEXT:  
Water Supply Report - Water  
Shortage Planning Actions  
&  
Ecological Conditions Report**

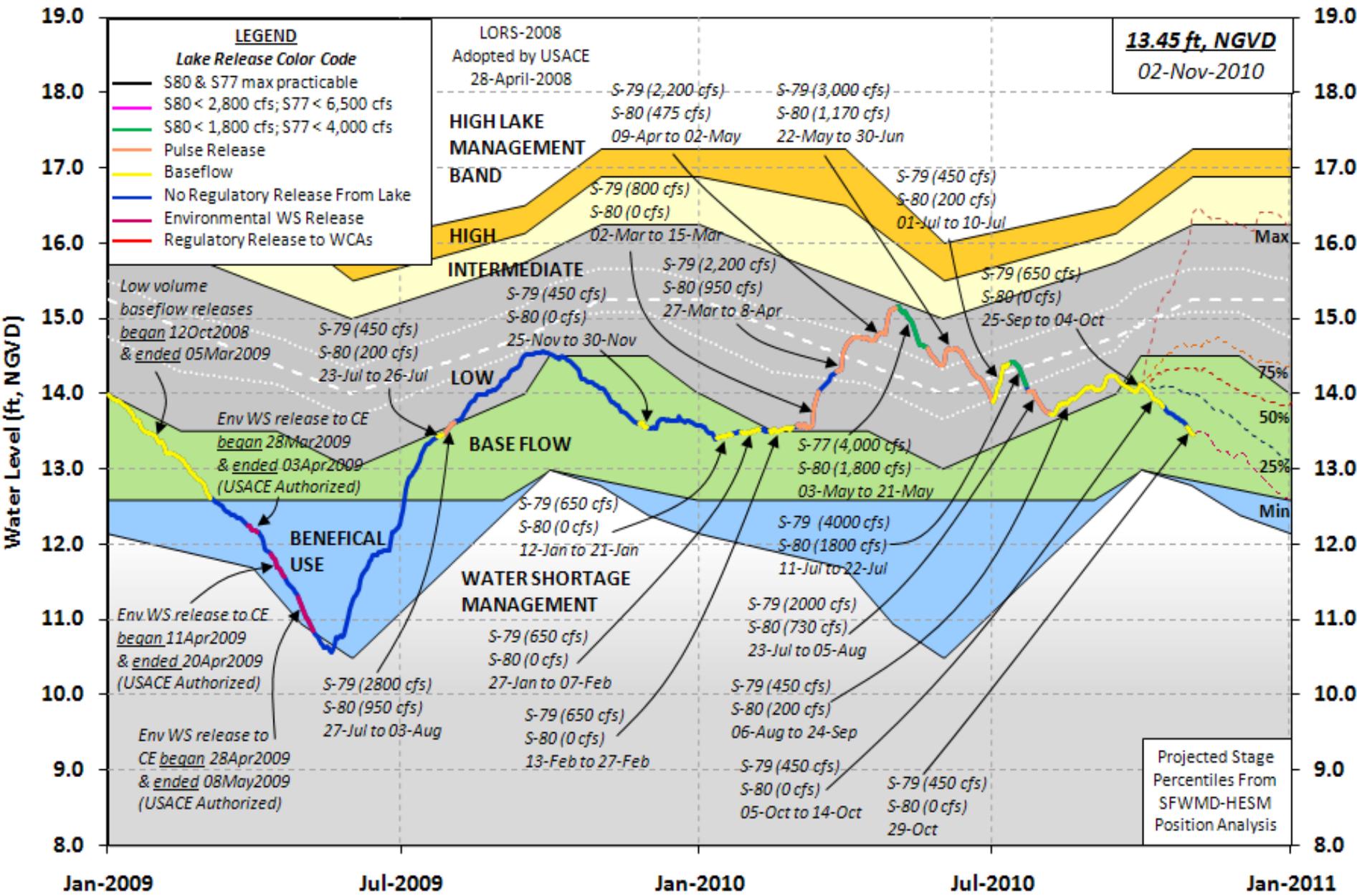
# Historical SFWMD Dry Season Rainfall

1896-2008 (November-April)

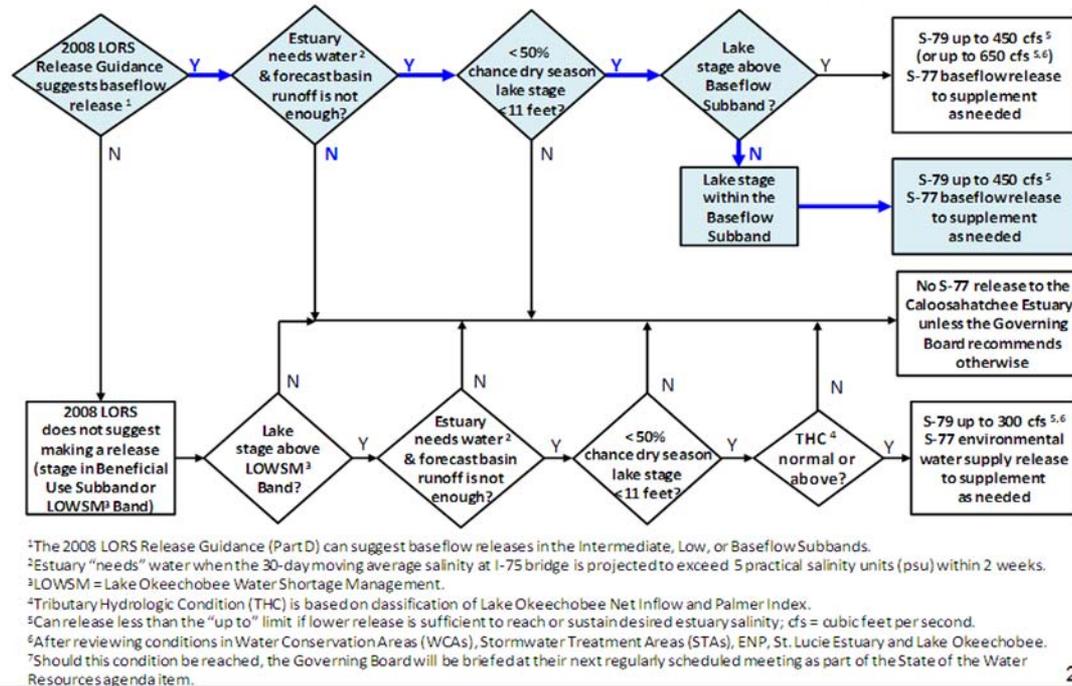


\*1998 - 99 Heavily influenced by T.S. Mitch in Nov 1998 (5.6")

# Lake Okeechobee Water Level History and Projected Stages



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



21

- November PA indicates 40% chance stage will fall below 11' before end of dry season
- 40% < 50%, so AP criteria suggests release
- May exceed 50% within 2-4 weeks (dependent on rainfall)
- Continuous monitoring and weekly recommendations to USACE in accordance with the 2010 Adaptive Protocols