

March 2012 Ecological Conditions Update

Terrie Bates

Director, Water Resources Division

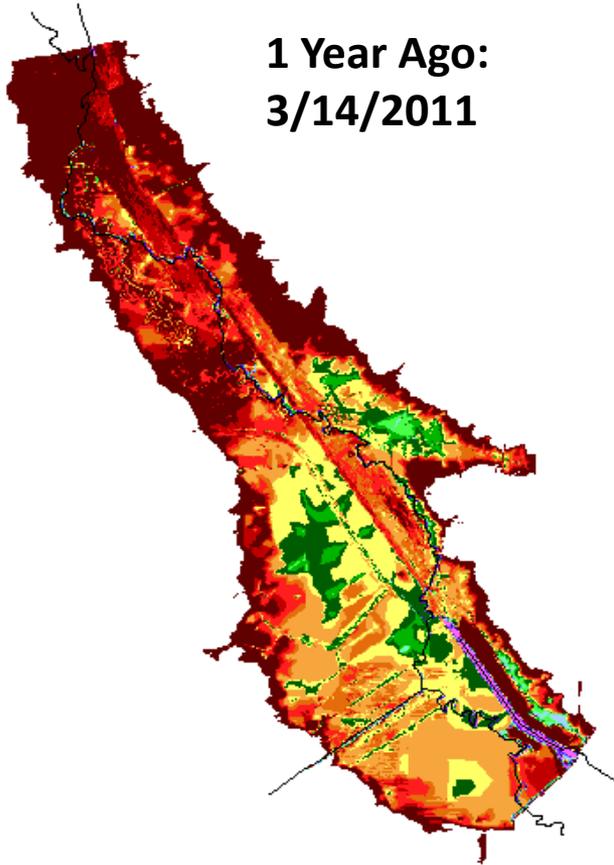


**Governing Board Meeting
March 15, 2012**

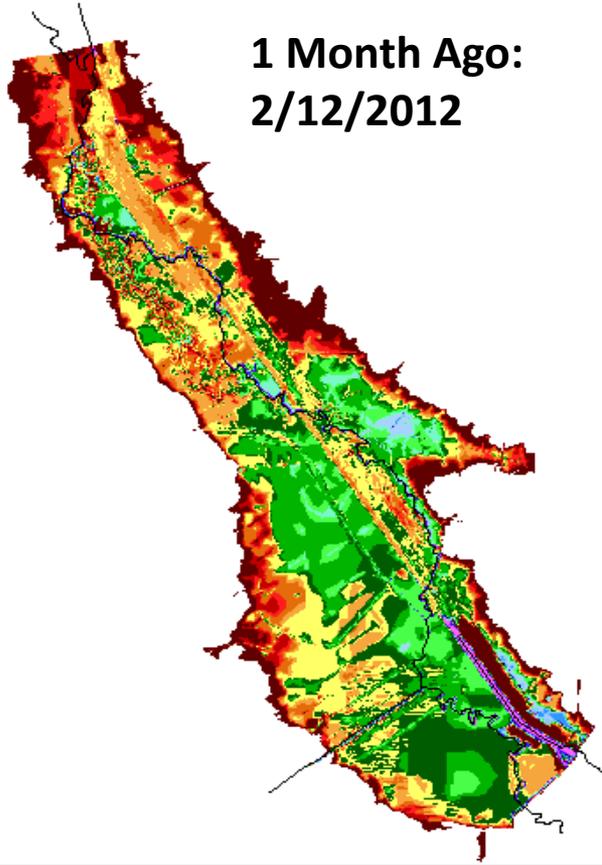
Kissimmee River (Pool C)

Monthly Water Depth Maps

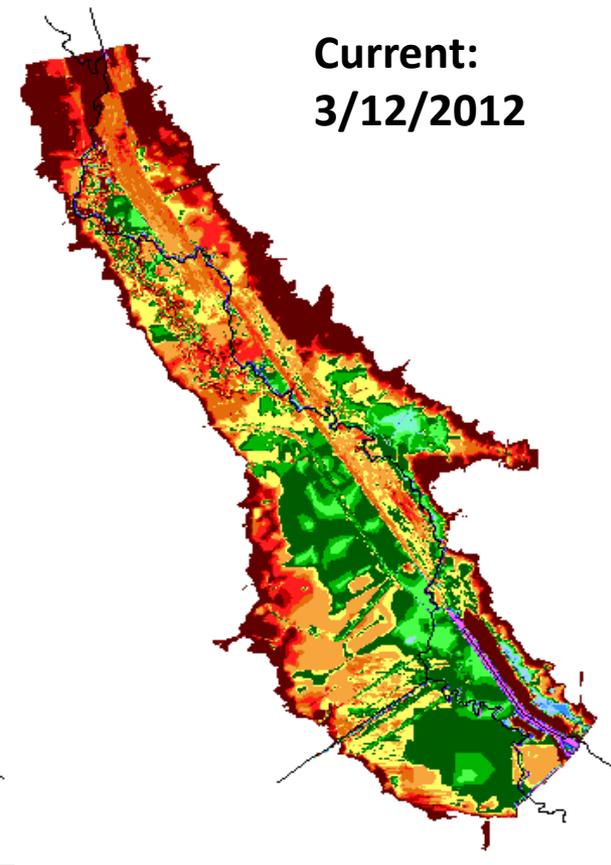
1 Year Ago:
3/14/2011



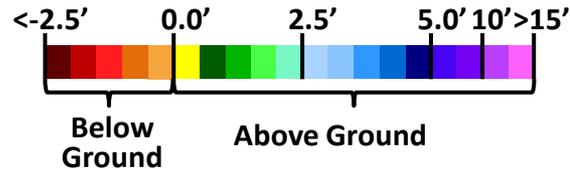
1 Month Ago:
2/12/2012



Current:
3/12/2012



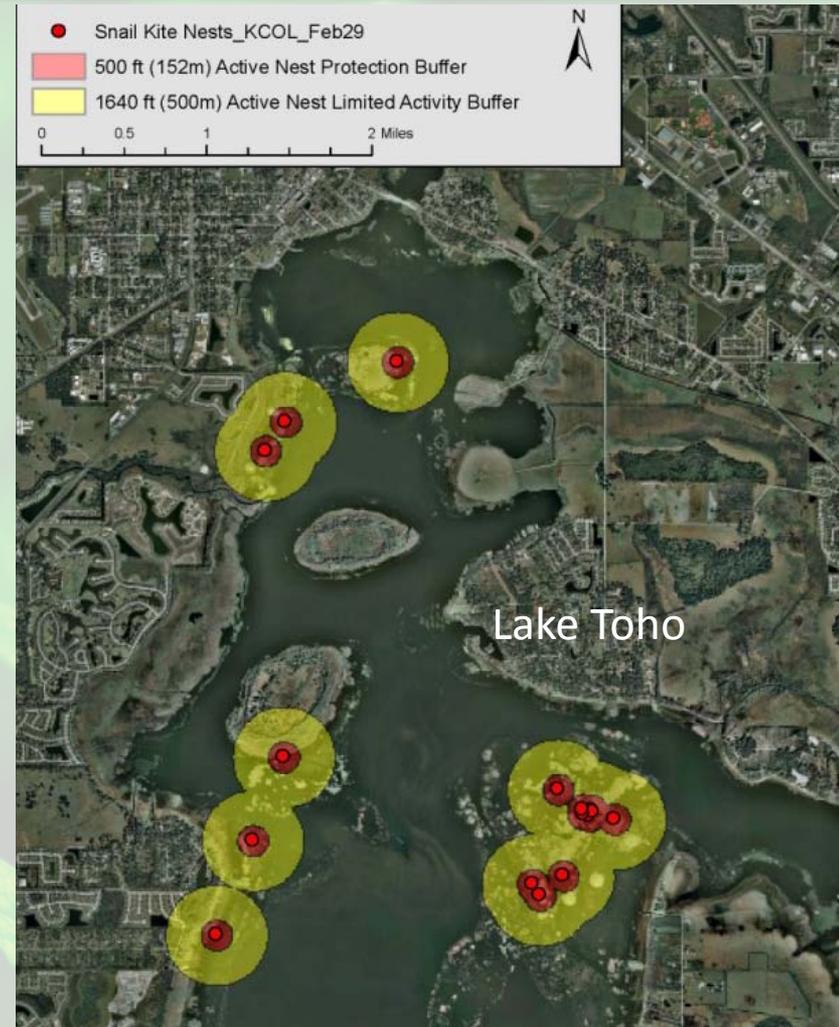
Water Depth (feet)



Upper Kissimmee Basin Snail Kite Nesting

Upper Basin – Snail Kite Nesting

Lake	Survey Date	Nests
Jackson	2/24/2012	3
E. Toho	2/26/2012	9
Toho	2/28/2012	16
Kissimmee	2/25/2012	5



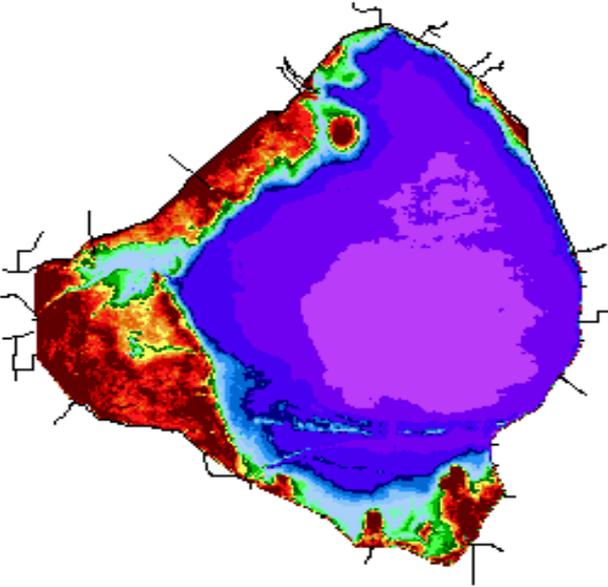
Lake Okeechobee

Water Depth Timeseries Maps

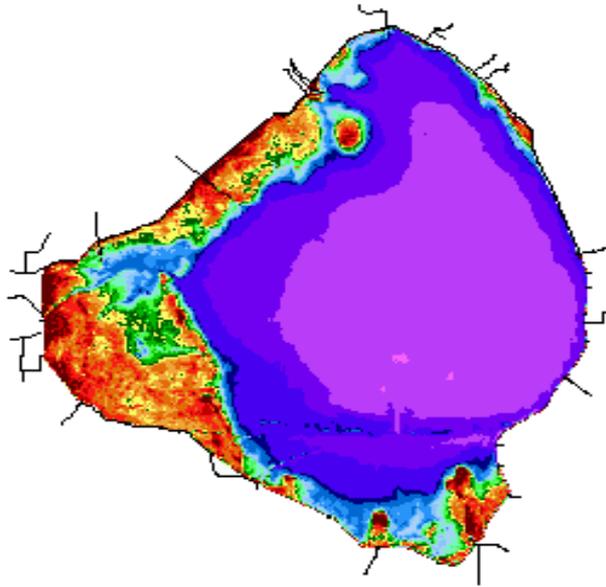
1 Year Ago: 03/12/2011

1 Month Ago: 02/11/2012

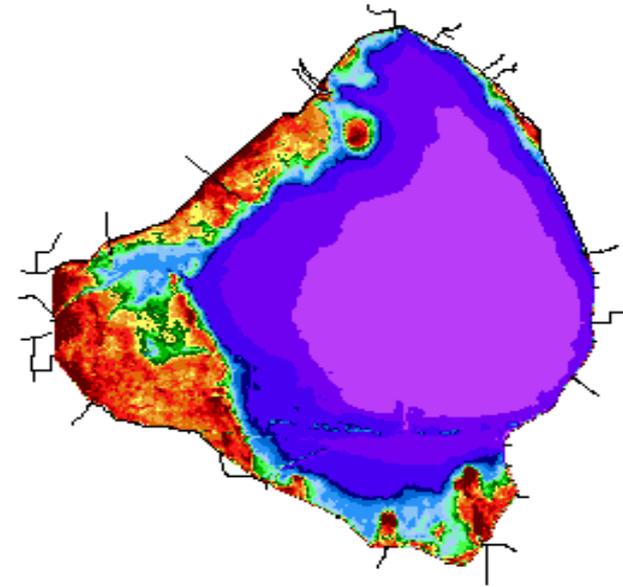
Current: 03/12/2012



(11.91 ft NGVD29)



(13.22 ft NGVD29)

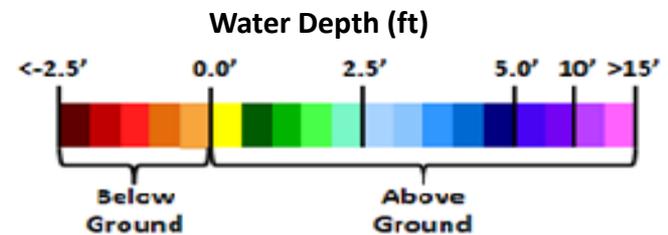


(12.84 ft NGVD29)

Lowest lake stage this year:
9.53 ft NGVD29 (06/24/11)

Record low lake stage:
8.82 ft NGVD29 (7/2/07)

CURRENT LAKE LEVEL:
(12.84 ft NGVD29 3/12/12)

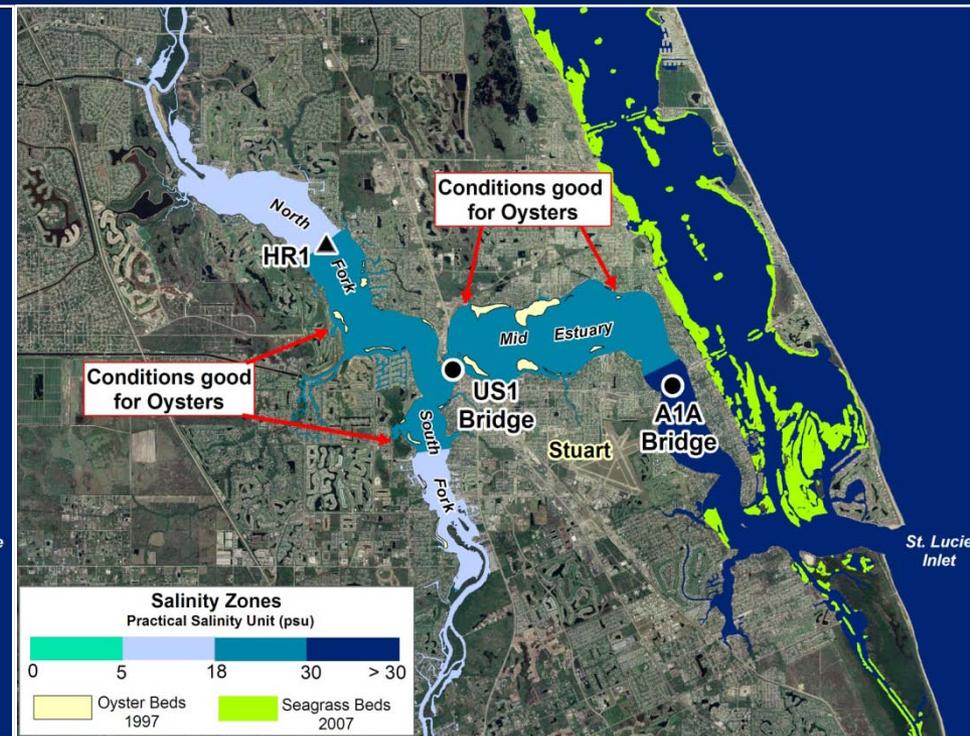
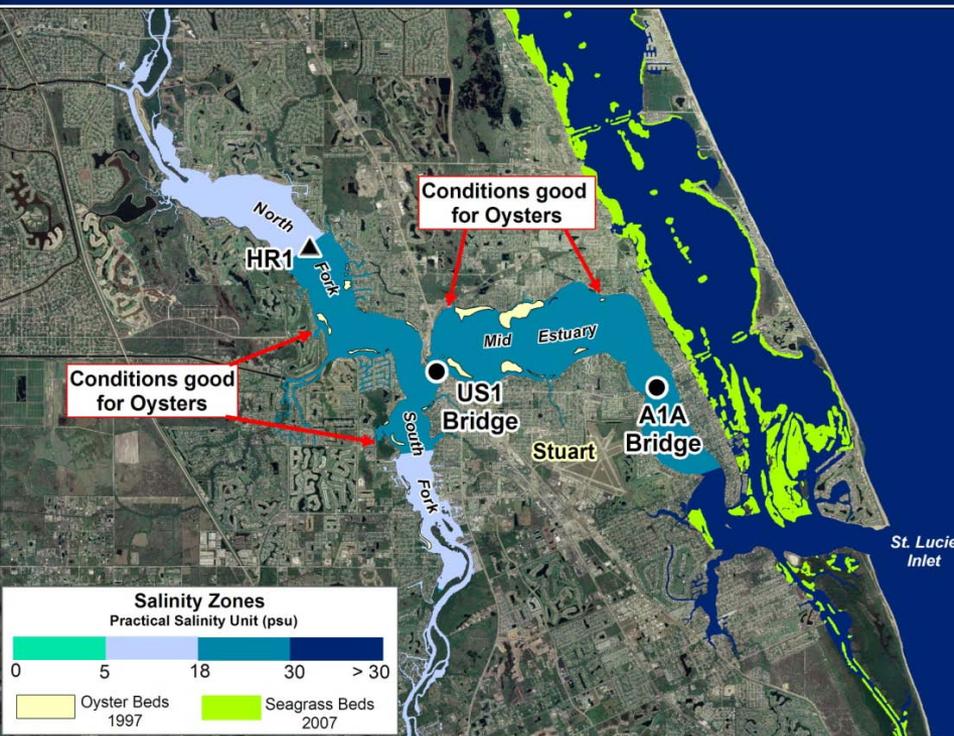


St. Lucie Estuary

Salinity Conditions

February 6, 2012

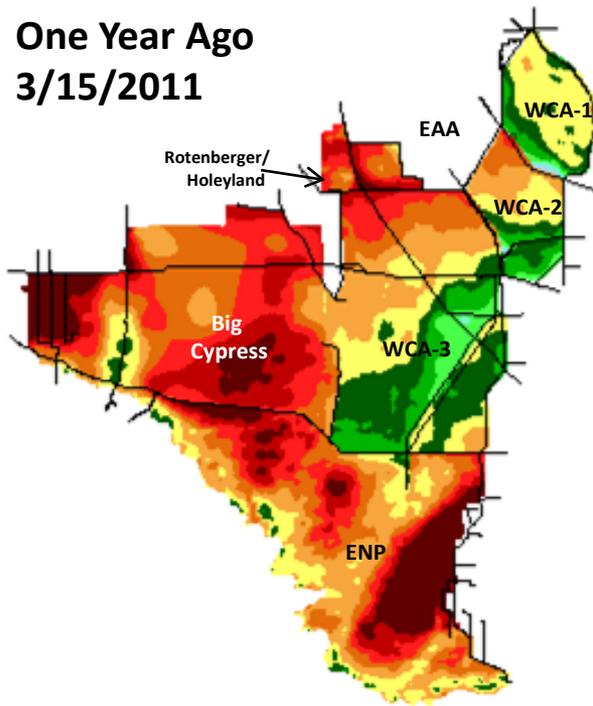
March 12, 2012



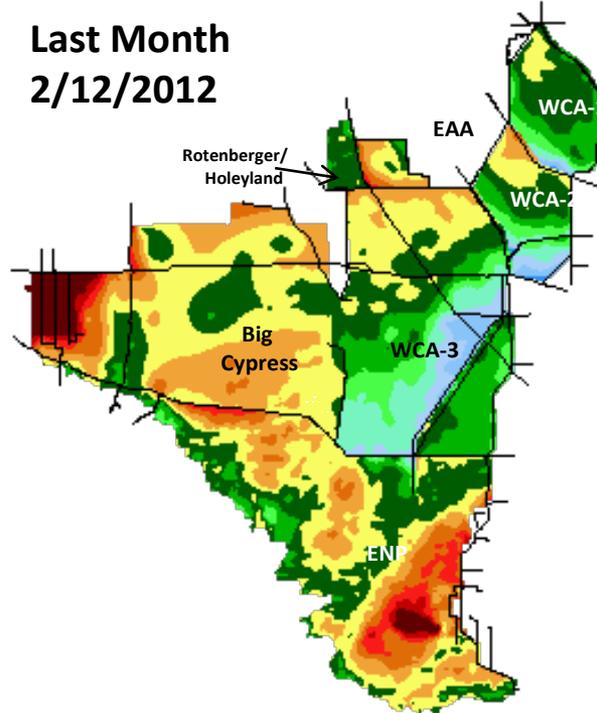
NOTE: Good Range for Oysters: 10 – 30

Greater Everglades Water Depth Monthly Snapshots

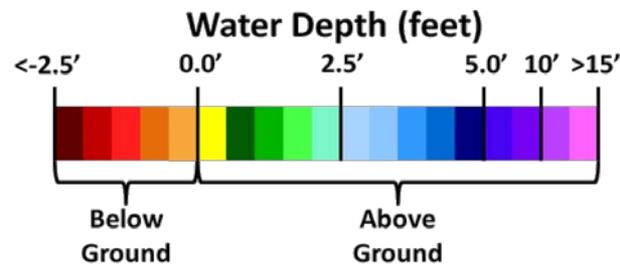
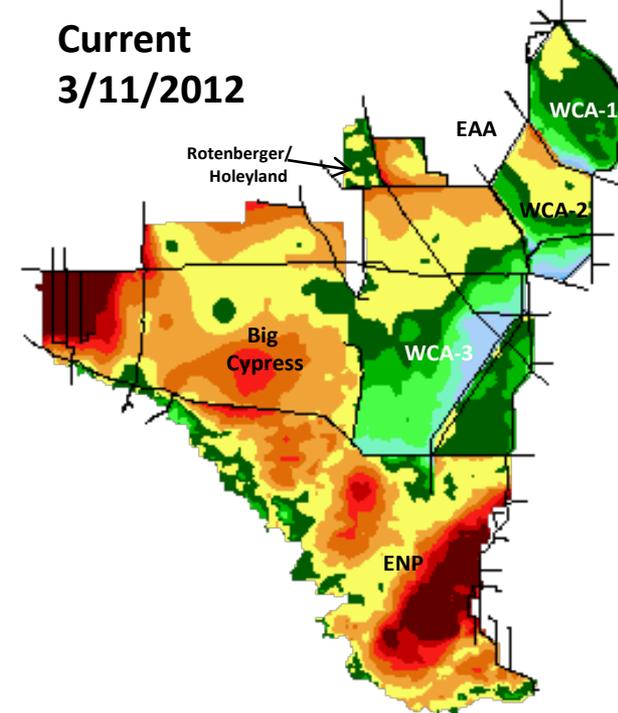
One Year Ago
3/15/2011



Last Month
2/12/2012

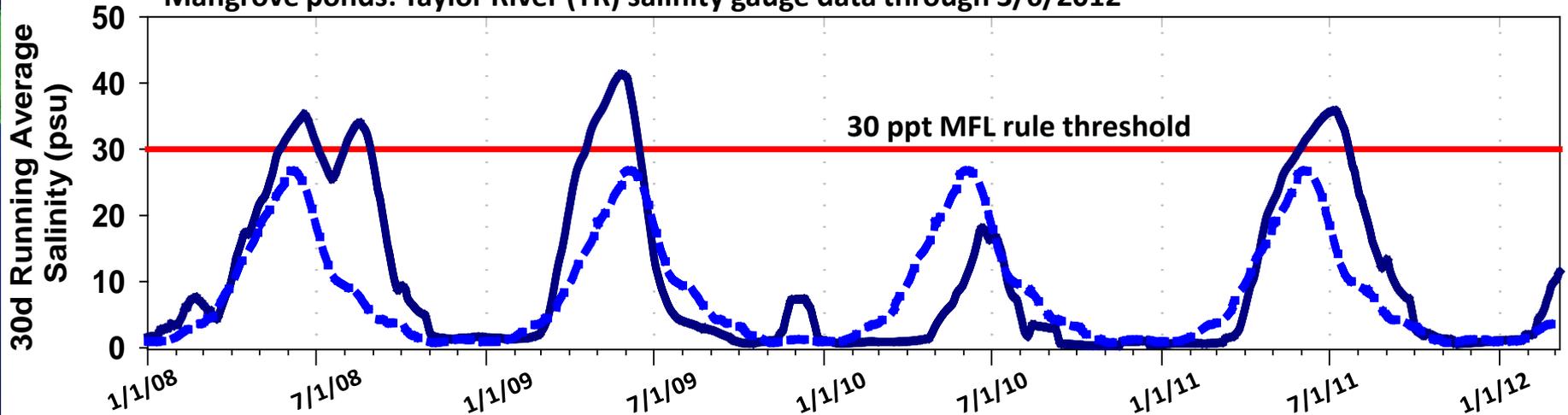


Current
3/11/2012



Tracking Salinity in Florida Bay

Mangrove ponds: Taylor River (TR) salinity gauge data through 3/6/2012



--- Typical conditions

— Actual conditions

Florida Bay MFL salinity threshold was exceeded in late June of 2011

TR

- ★ Salinity gauge
- ★ Creek flow gauge

Florida Bay Spoonbills

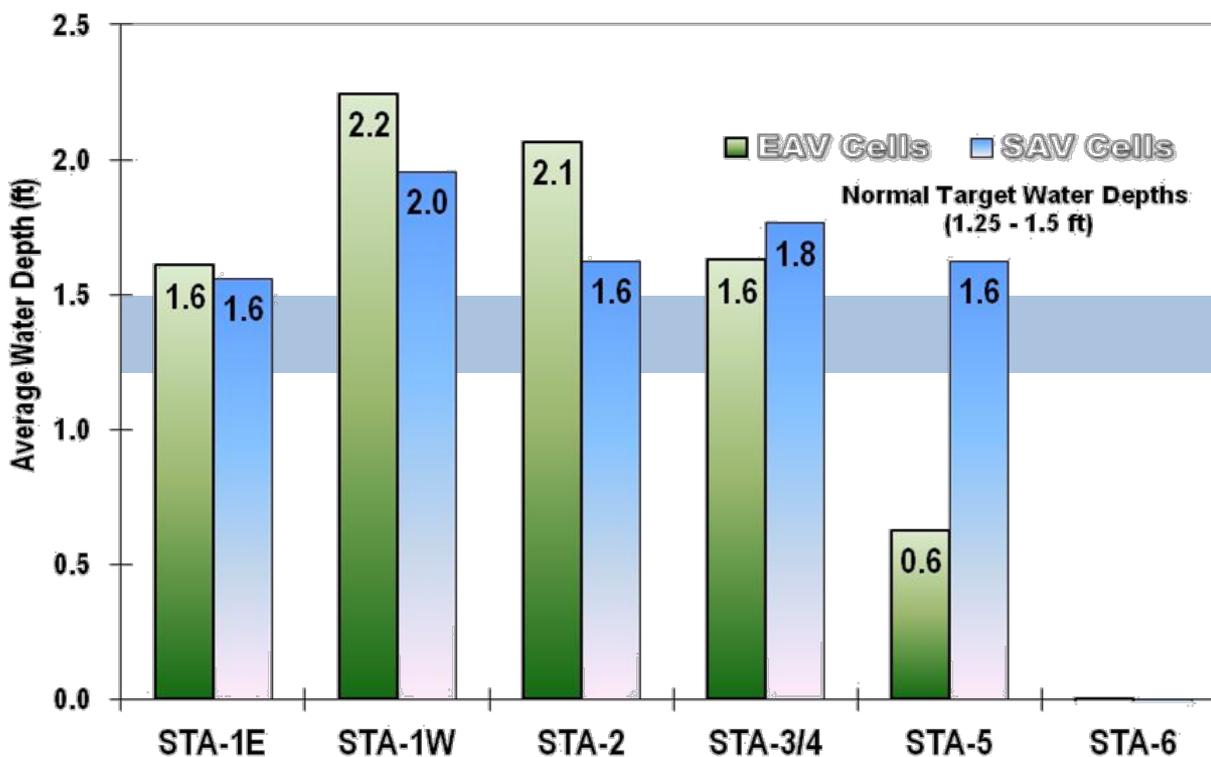
<u>2011</u>	<u>2012</u>	<u>Mean 1984-2011</u>
69	182	513



- Nesting effort appears to be increasing in the interior Everglades.
- Efforts are underway to determine if birds are leaving FL. Bay for interior colonies.

Water Depths in the STAs

3/5/2012



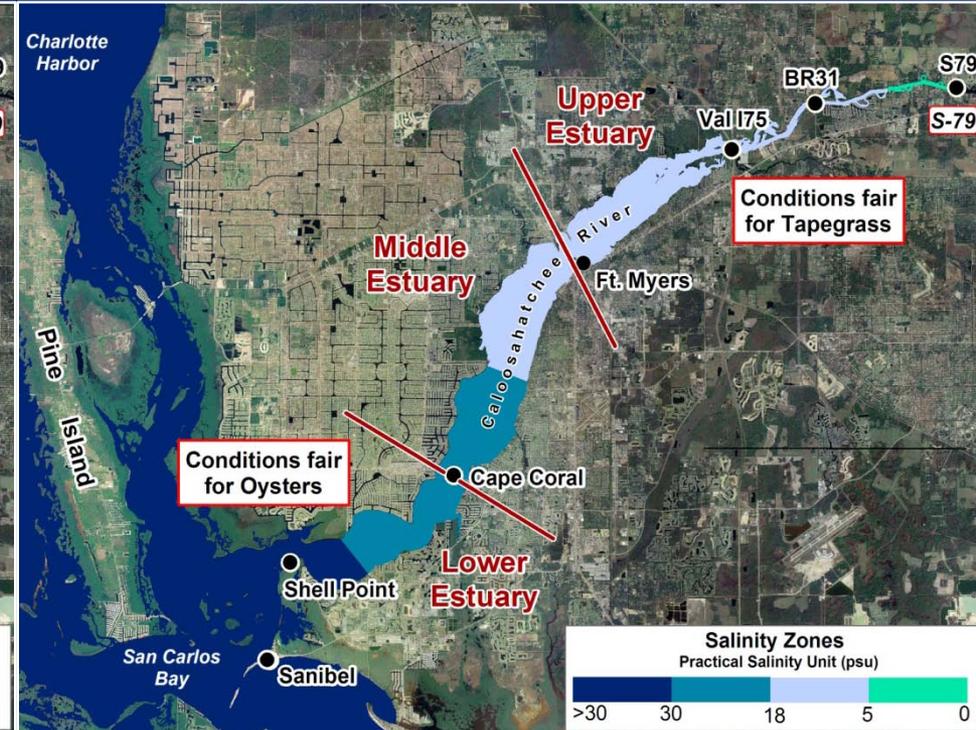
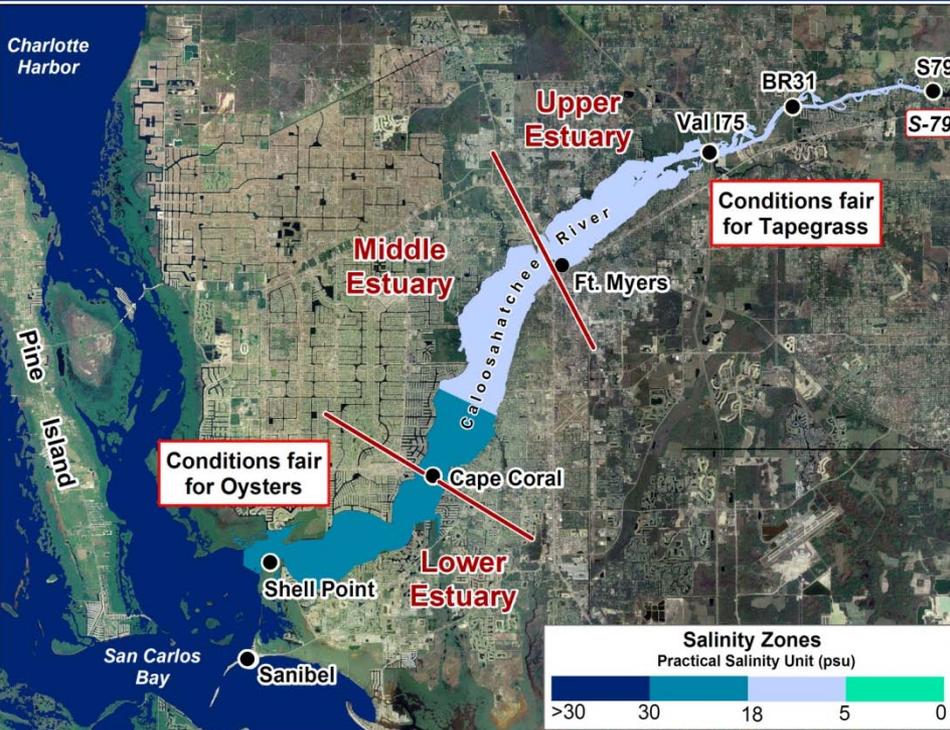
- Target depth for optimal vegetation growth: 1.25-1.5 ft
- Target depths are raised by 0.5 ft in most cells during drought periods
- **Currently dry:**
 - STA-1E Eastern Flow-way
 - STA-6 Cells 3 and 5 (emergent vegetation)

Caloosahatchee Estuary

Salinity Conditions

February 6, 2012

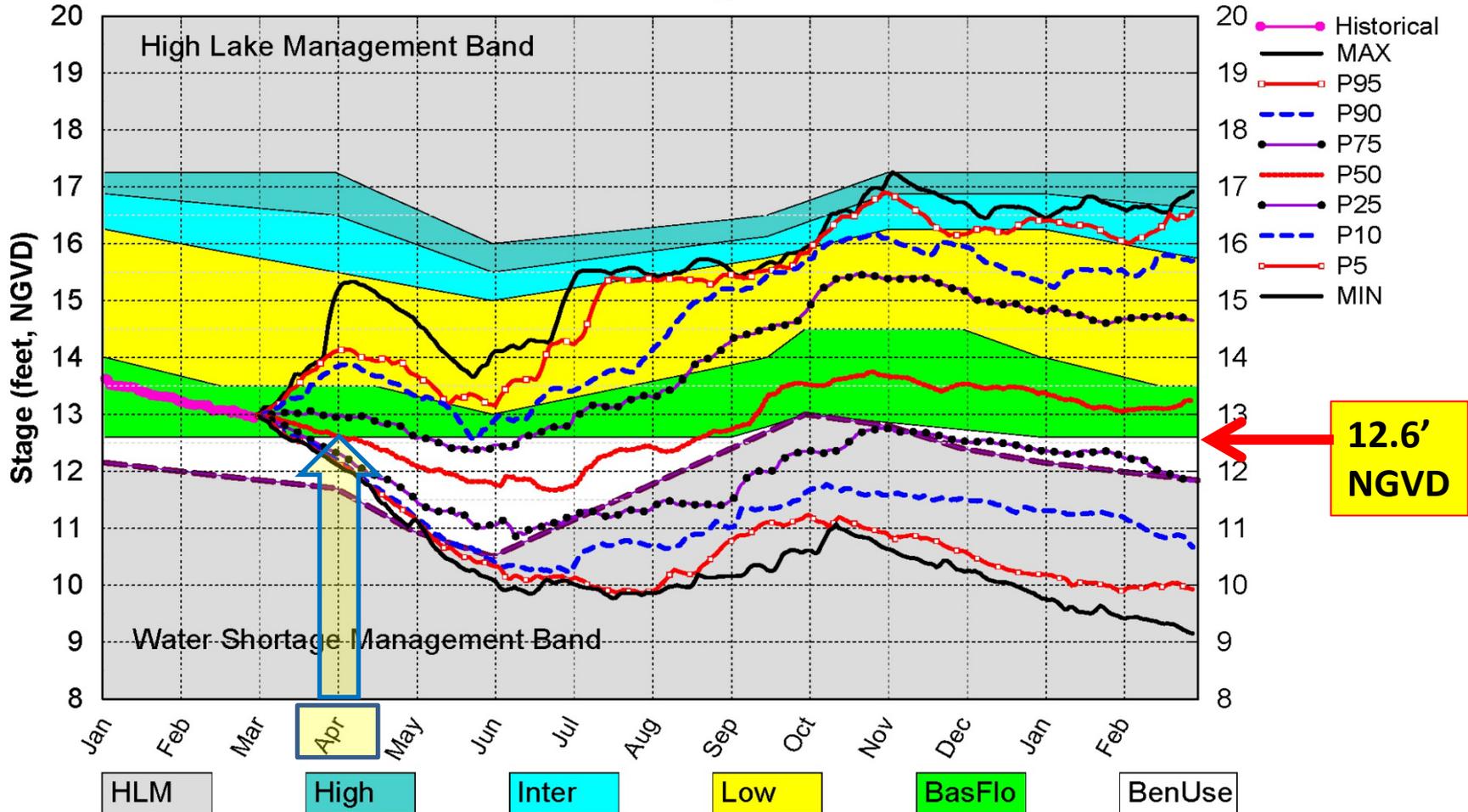
March 12, 2012



NOTE: Good Range for Oysters: 10 – 30 Optimal Range for Tape Grass: 0 – 5

Lake Okeechobee SFWMM March 2012 Position Analysis

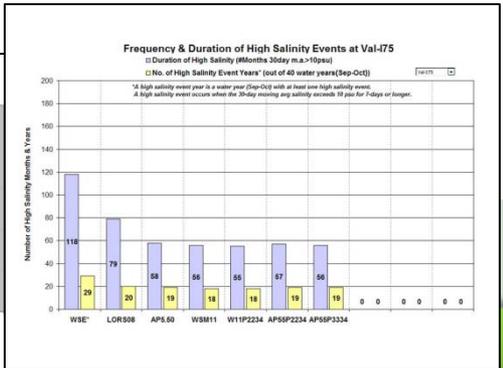
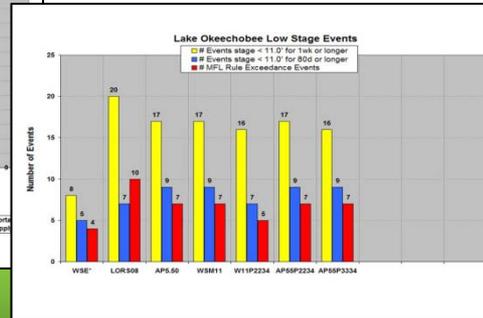
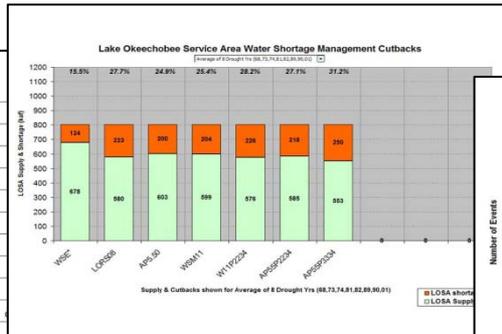
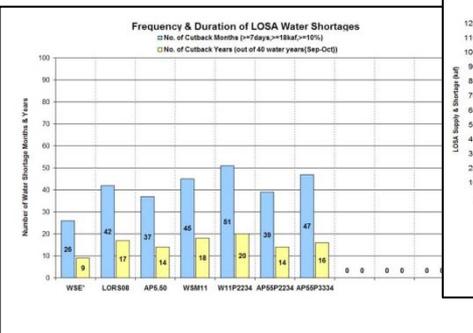
Percentiles PA_V4



(See assumptions on the Position Analysis Results website)

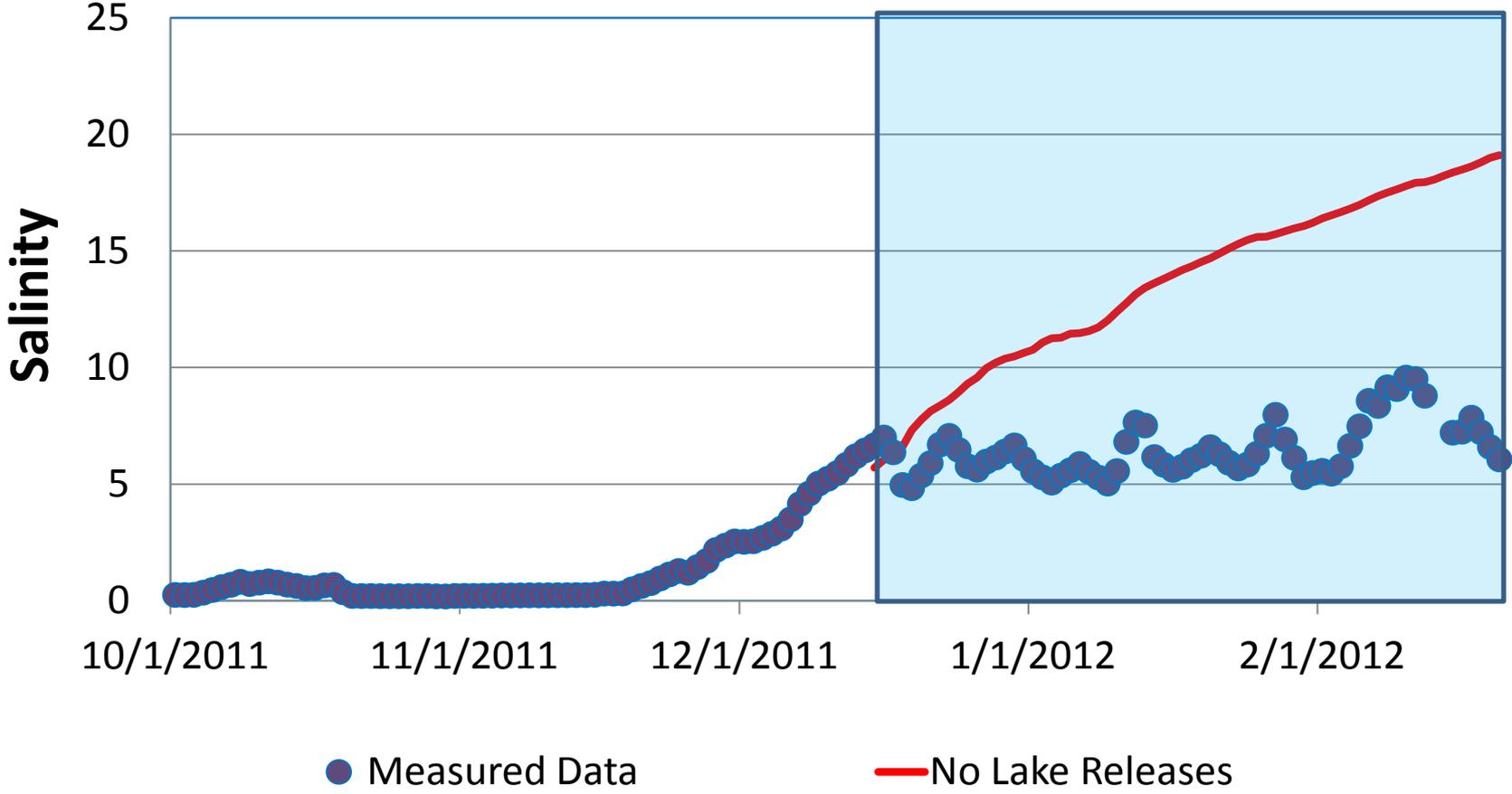
Adaptive Protocols

- Provide guidance for discretionary releases for ecosystem benefits or to improve conditions to C&SF Project purposes
- Designed to identify potential “win-win” situations in which one or more environmental resources may benefit from a lake release and where minimal or no adverse effect on meeting permitted agricultural, urban and tribal water supply needs
- Extensive, 15 month-long stakeholder process to evaluate performance measures to define “win-win” or “win-neutral”



Improved Salinity From Adaptive Protocol Recommendations

Surface Salinity at I-75



Caloosahatchee Estuary

Pulse Releases Averaging 450 cfs

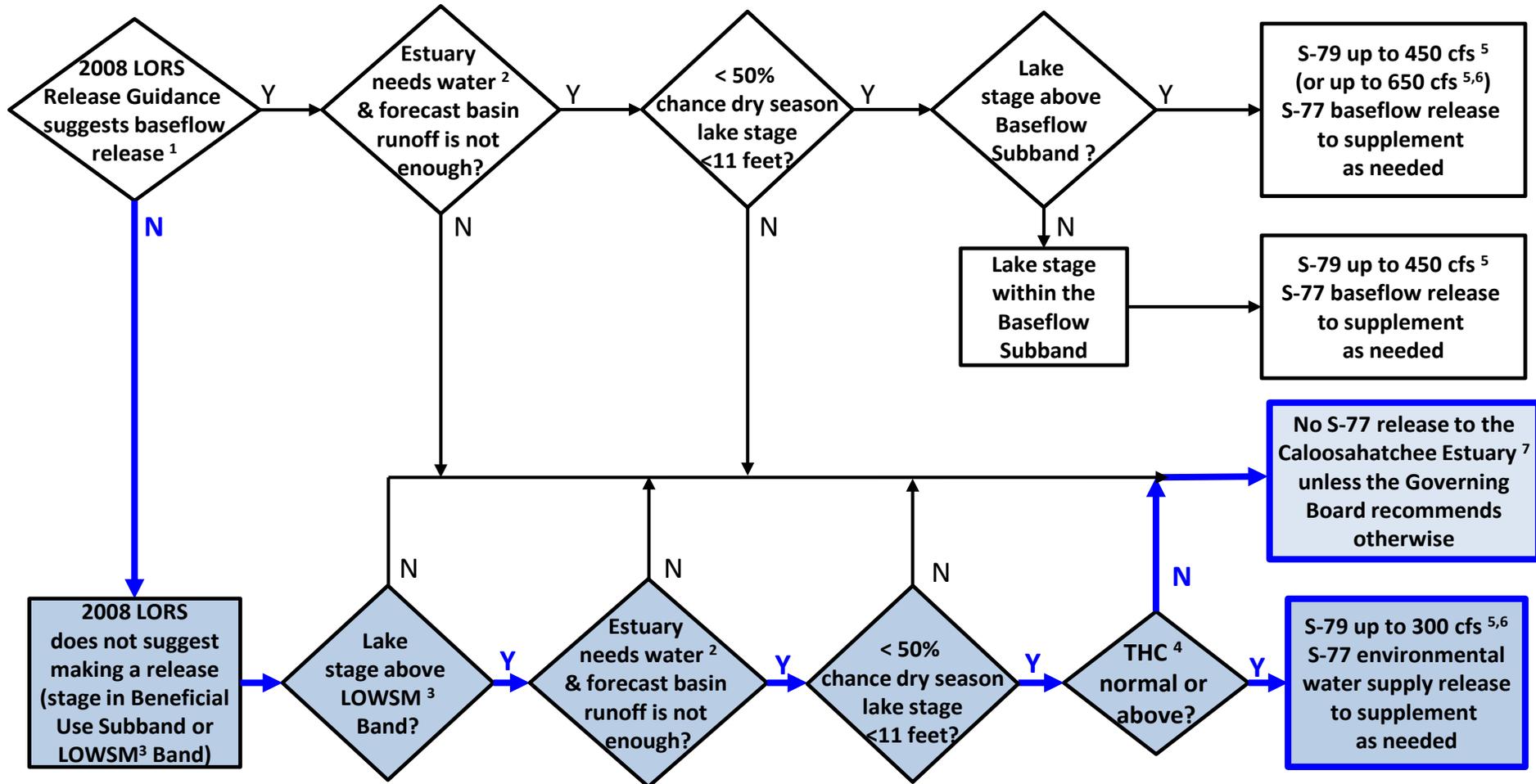
Pattern 1: 7-day Pulse	
Day	cfs
1	1000
2	1200
3	600
4	350
5	0
6	0
7	0

Pattern 2: 2-day Oscillation	
Day	cfs
1	900
2	0
3	900
4	0
5	900
6	0
7	900
8	0

Pattern 3: 10-day Pulse			
Day	cfs	Day	cfs
1	1100	6	100
2	1600	7	0
3	850	8	0
4	500	9	0
5	350	10	0

Provisional Forecasts use the
New autoregressive method which
Mimics the CH3D hydrodynamic model.
Forecast with no pulse release
for period: Mar 13– Mar 27, 2012

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.

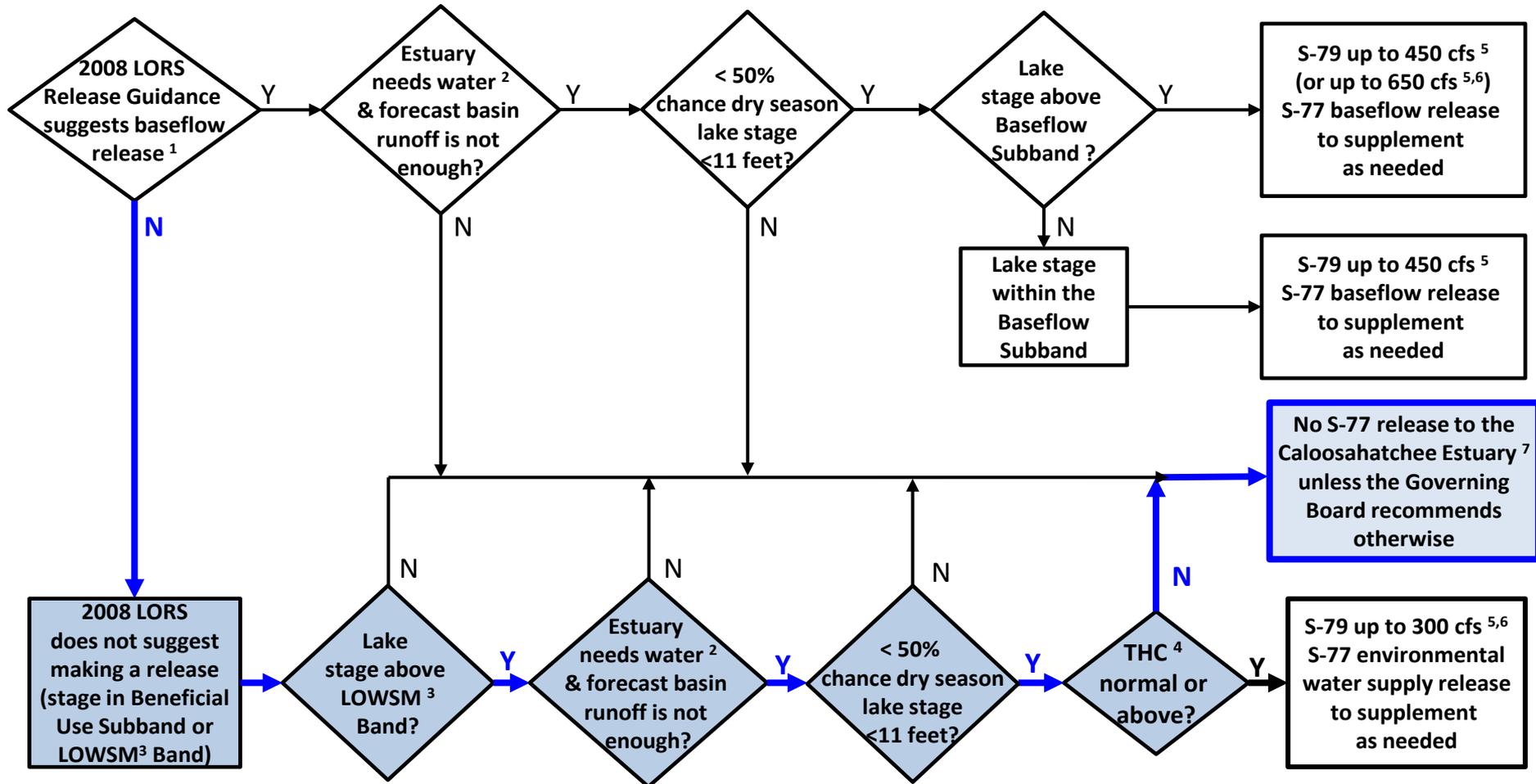
⁴Tributary Hydrologic Condition (THC) is based on classification of Lake Okeechobee Net Inflow and Palmer Index.

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.

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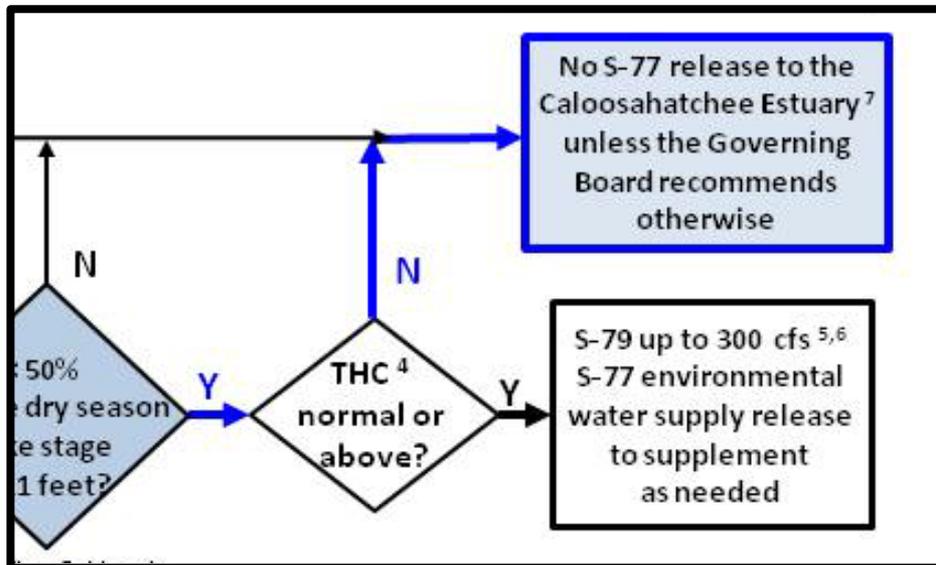
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Adaptive Protocols

- The decision tree “recommendation box” of no releases to the estuary explicitly includes discretion
- “No S-77 release to the Caloosahatchee Estuary unless the Governing Board recommends otherwise”

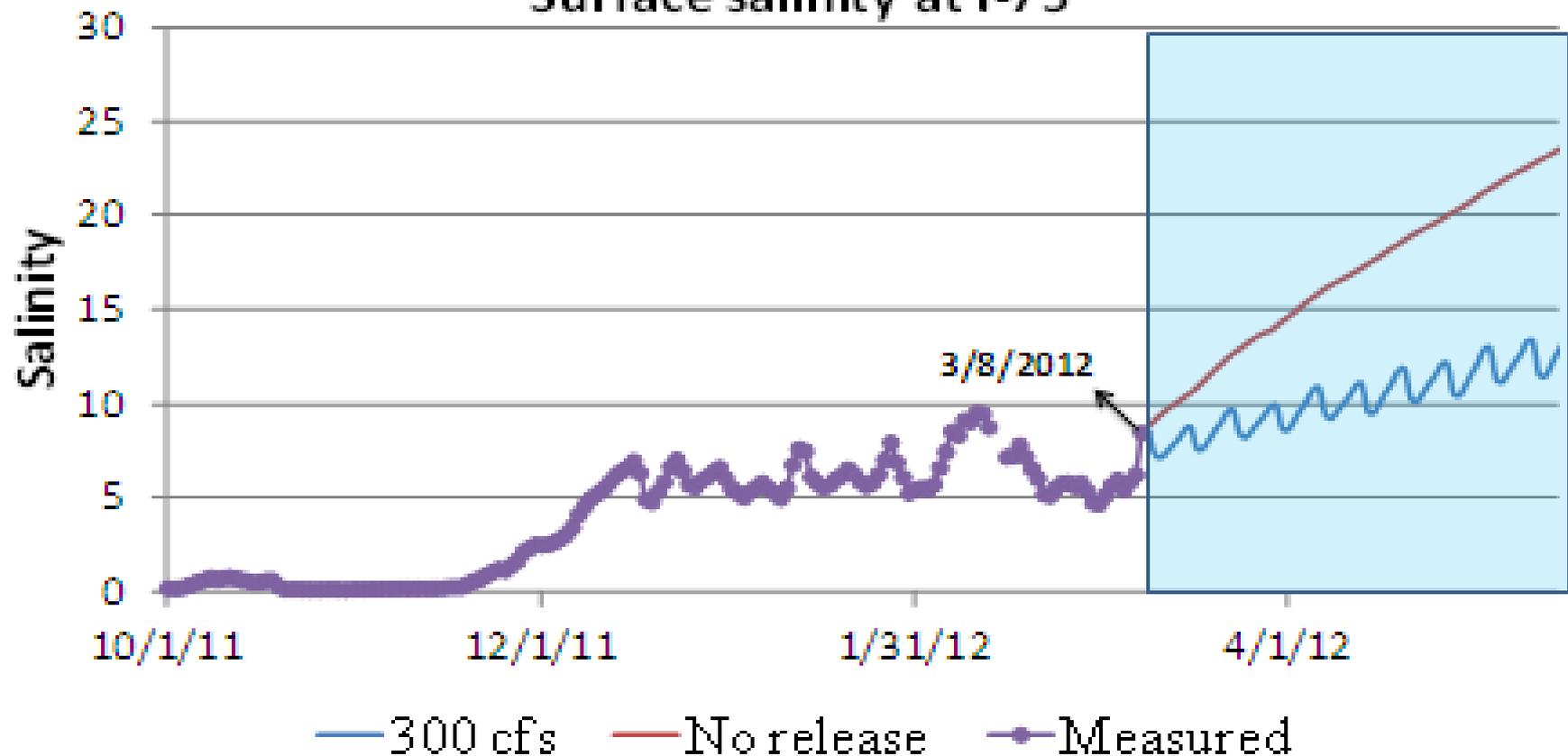


- Governing Board briefed each month on water & ecological conditions
- Provides opportunity for Governing Board guidance to staff

Caloosahatchee Estuary

Salinity Forecast Assuming 300 cfs Pulse Releases

Surface salinity at I-75

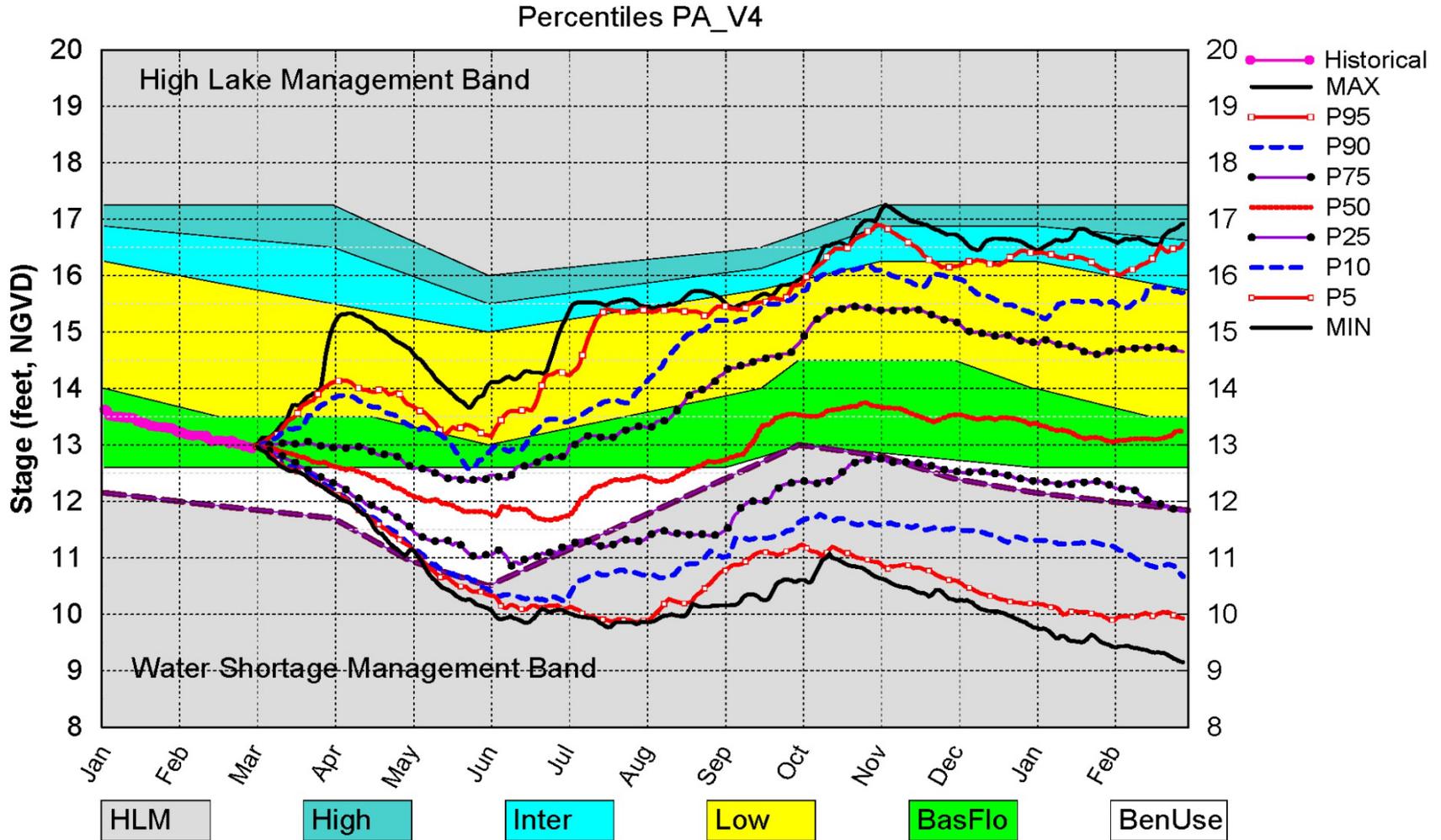


Ecological Benefits of Continuing Some Level of Releases to Caloosahatchee

- Provides for salinity gradient downstream of S-79
- Provide nutrients to support growth and survival
- March-June is period of high recruitment for young fish, crabs and other estuarine organisms.
- Provide some lower salinity nursery area
- Helps maintain spatial separation from predators and subsequent mortality of larvae and early juveniles at S-79
- Helps prevent stagnation & algal blooms upstream of S-79

With no releases to Caloosahatchee Estuary in Beneficial Use Zone

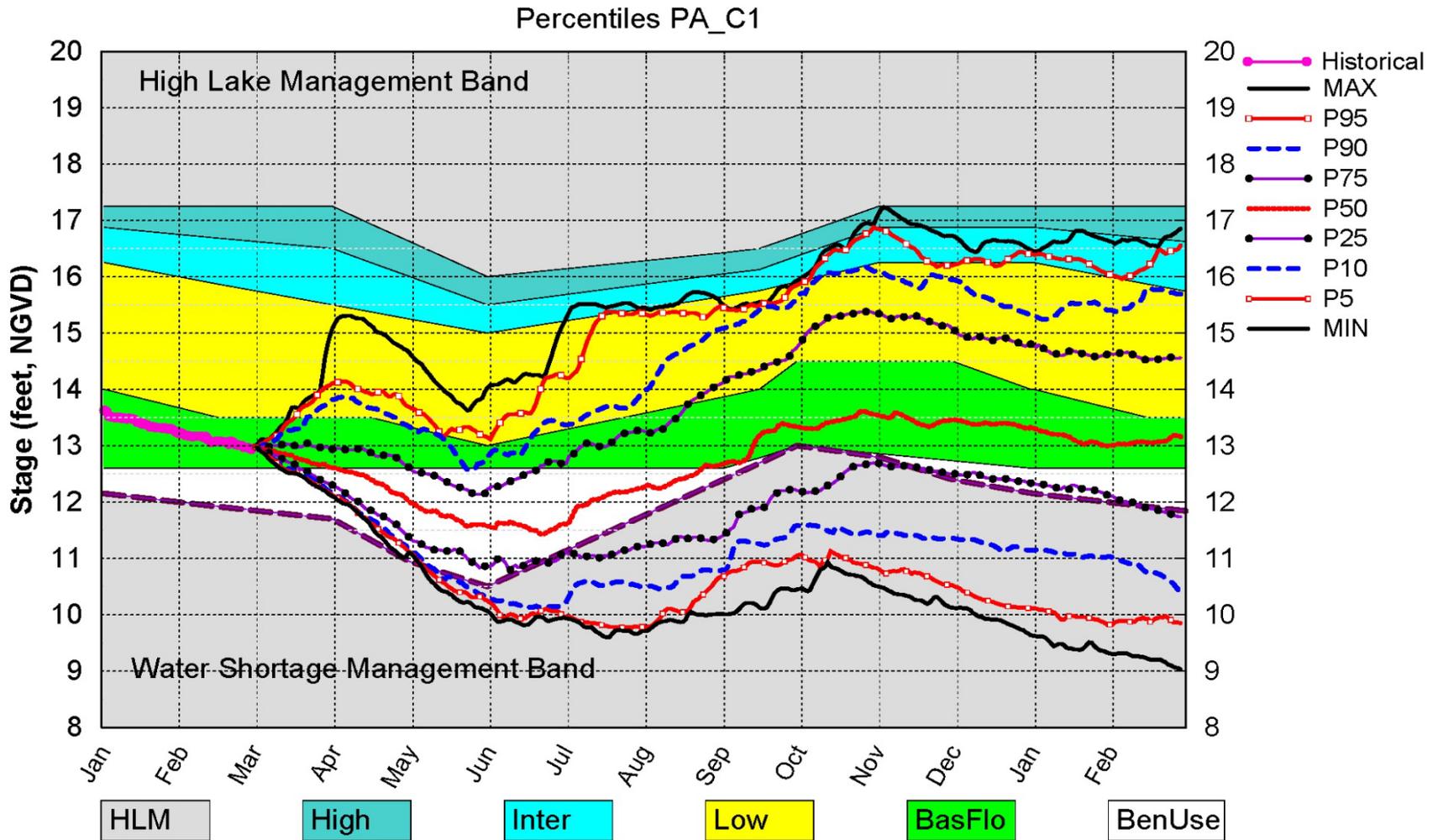
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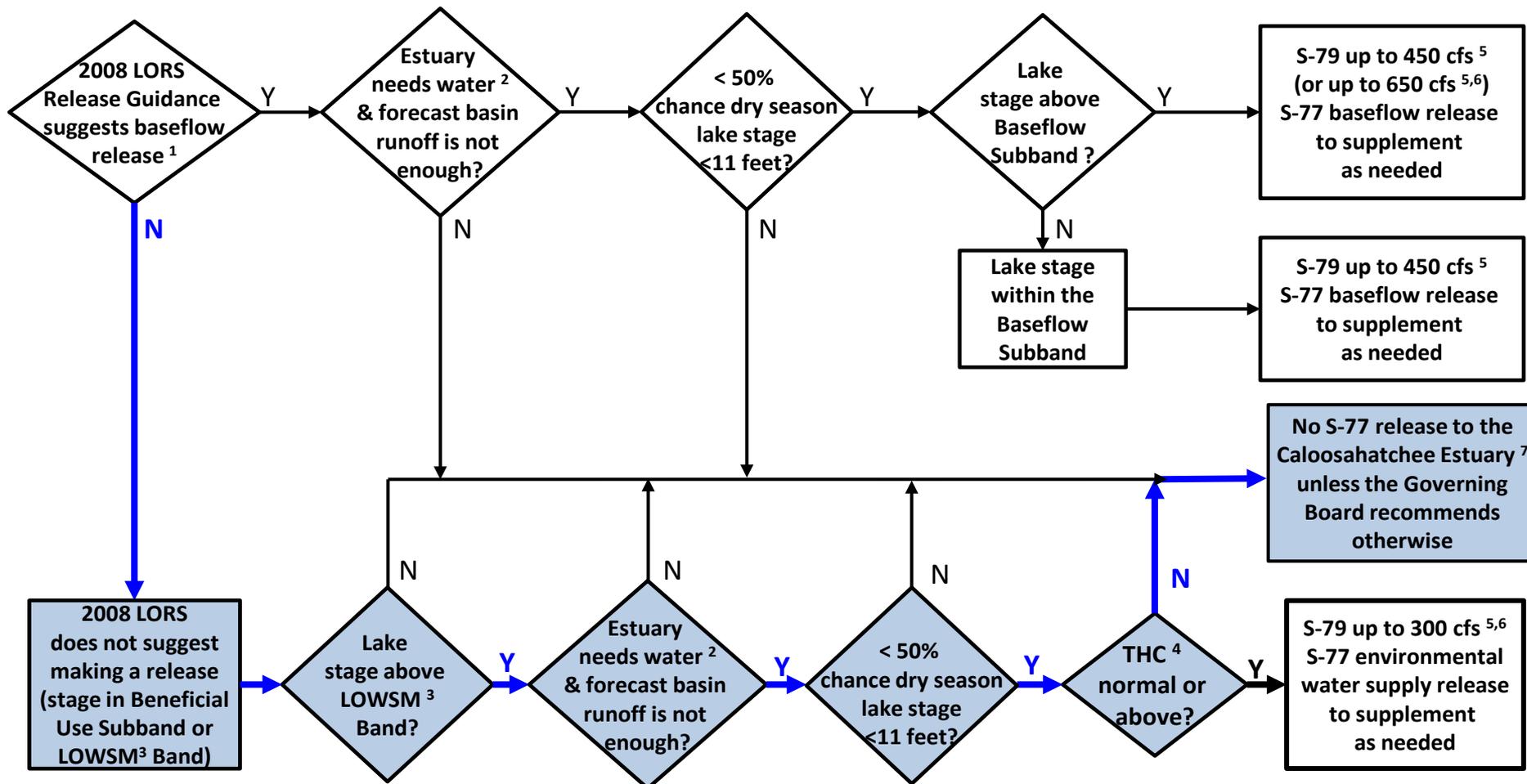
With 300 cfs releases to Caloosahatchee Estuary in Beneficial Use Zone

Lake Okeechobee SFWMM March 2012 Position Analysis



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Thank You!

American Coots spotted during
a wading bird survey flight.
STA 1E, February 2012