

Governing Board Meeting
May 13, 2010

Ecological Conditions Update

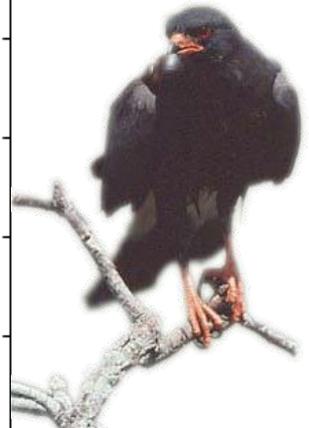
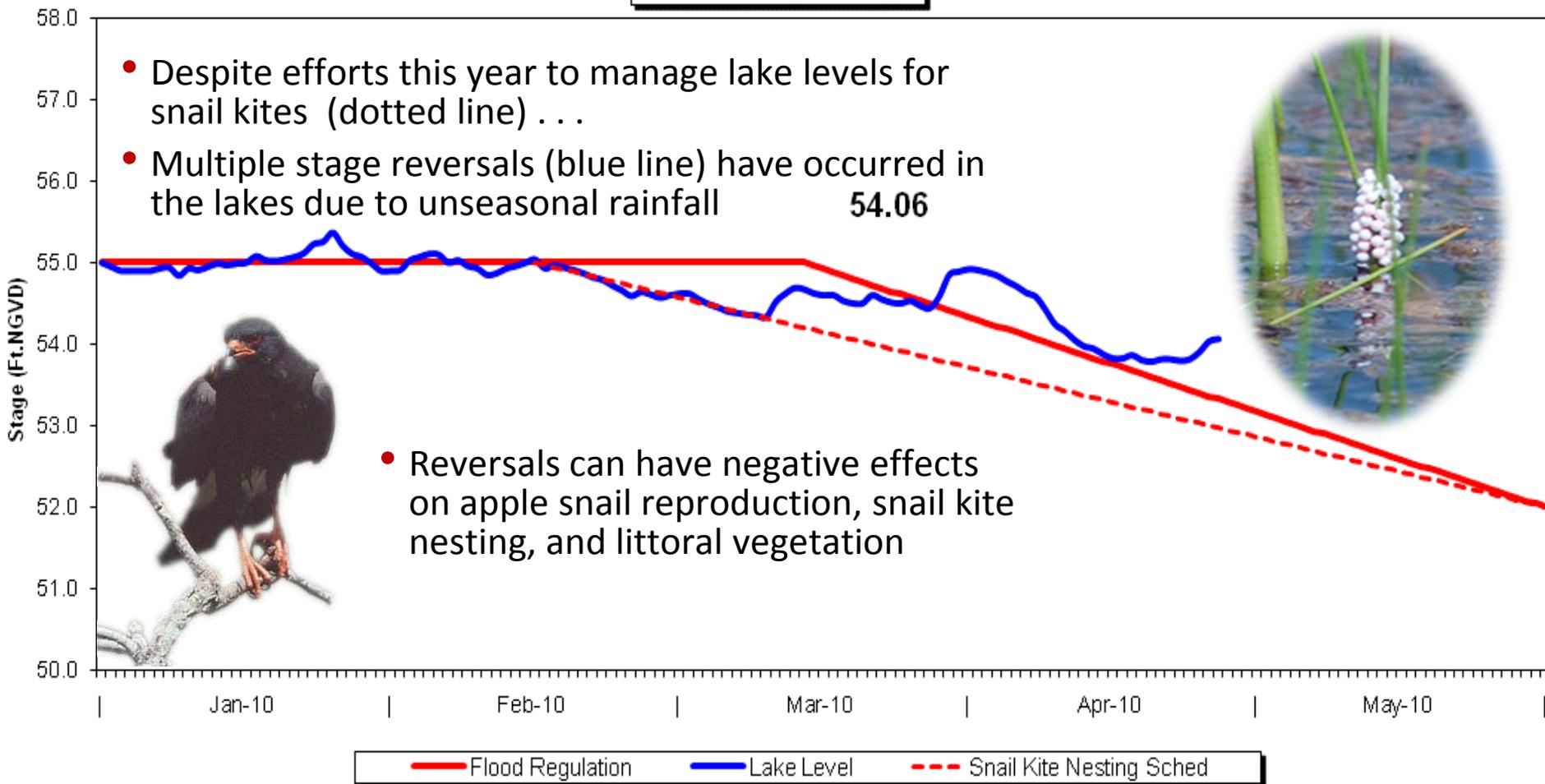
Peter Doering

Chief Environmental Scientist
Restoration Sciences Department

Upper Kissimmee Basin

Lake Tohopekaliga

Published 4/27/2010



Kissimmee Basin

Kissimmee Chain of Lakes Snail Kite Nesting update

Water Body	Active Nests		
	Survey 1 (mid-March)	Survey 2 (early April)	Survey 3 (late April)
Cypress	0	0	0
E. Tohopekaliga	2	3	7
Hatchineha	2	2	2
Jackson	0	1	3
Kissimmee	0	3	3
Marian	0	0	0
Tiger	0	0	0
Tohopekaliga	5	27	29
	9	36	44

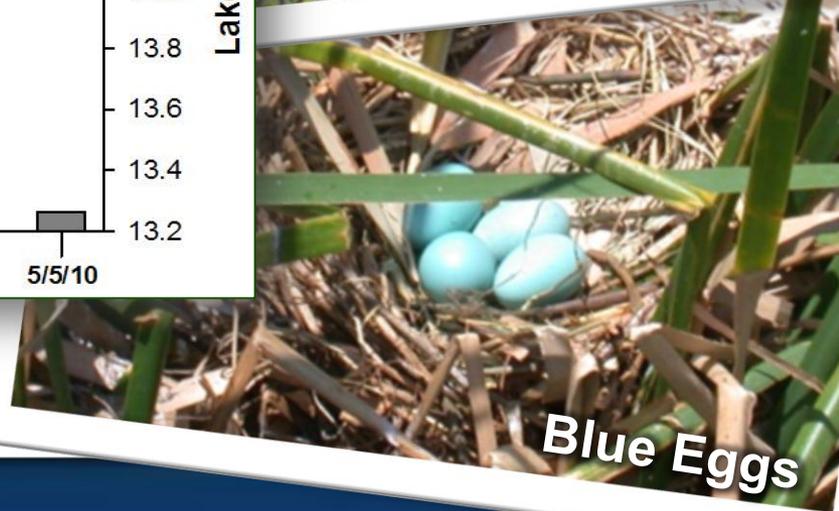
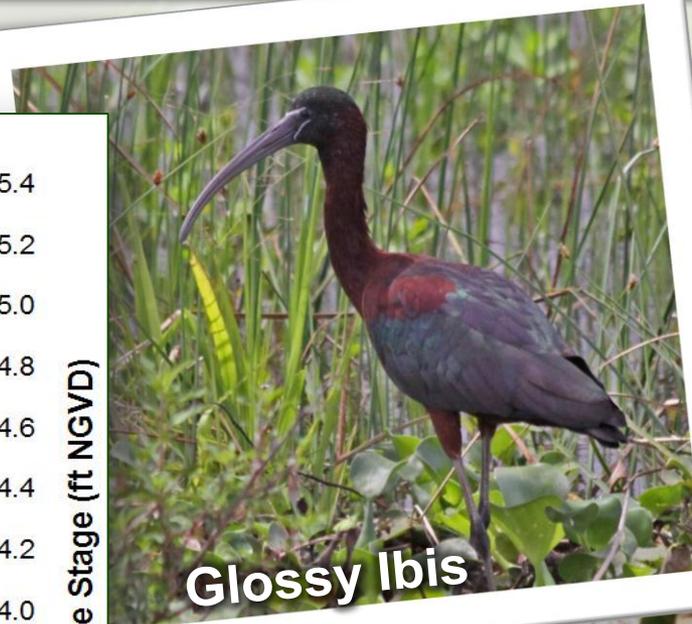
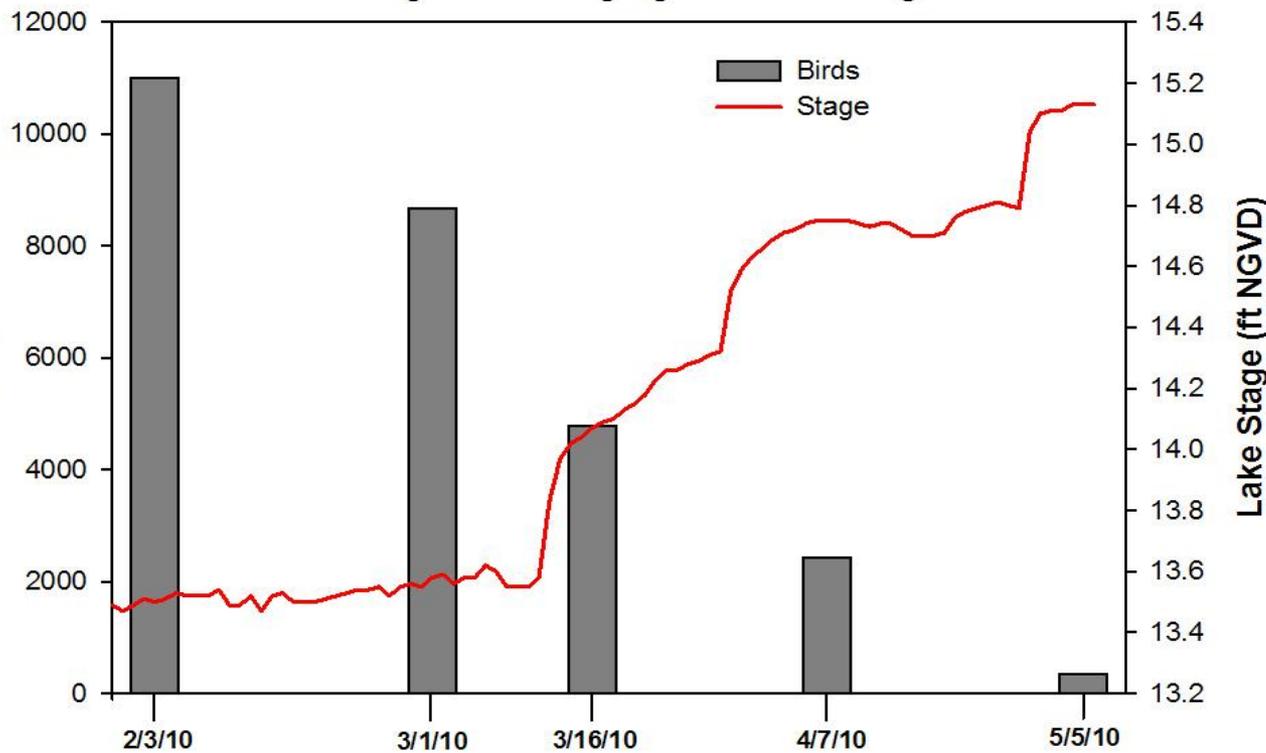
Kissimmee Basin

- High discharges through the Lower Basin in April resulted in high flow velocity in the Phase I restoration area, causing bank erosion
- Dissolved oxygen concentrations in the Phase I river channel have declined but remain above the level of concern of <2 mg/L

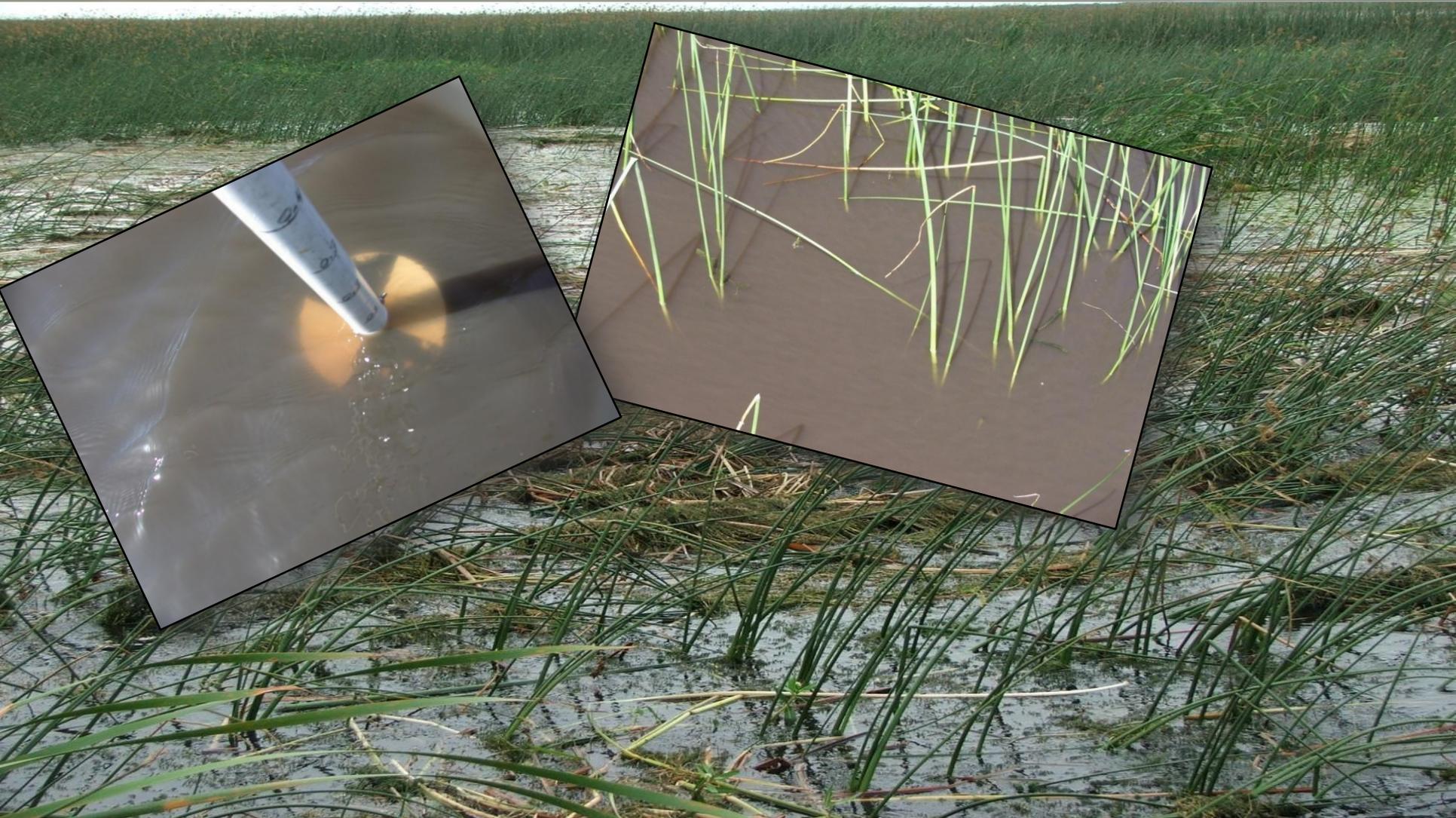


Lake Okeechobee

Wading Bird Foraging vs. Lake Stage



Lake Okeechobee

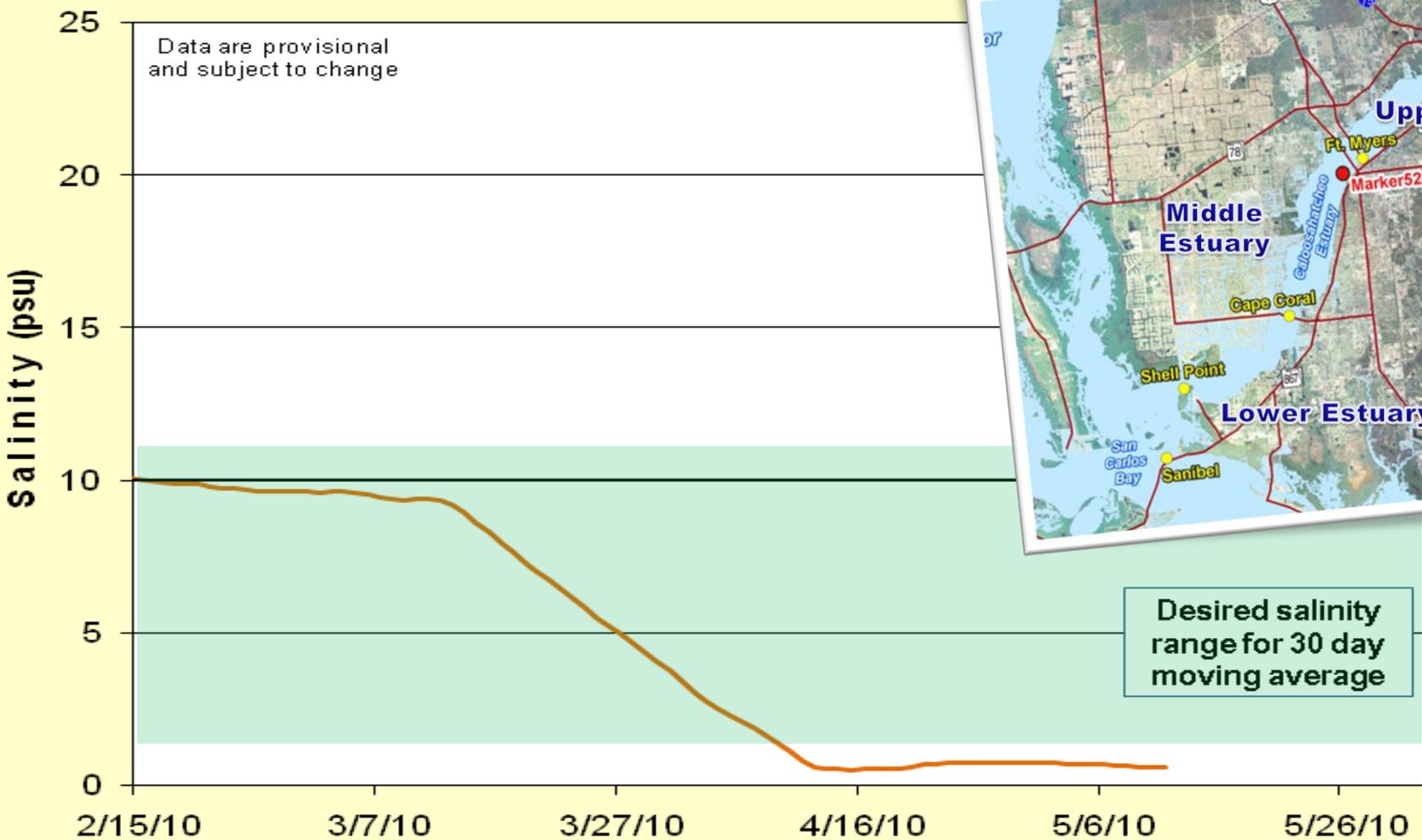


Caloosahatchee Salinity

- Lake releases and local runoff have reduced salinity throughout the Caloosahatchee estuary
- Salinity conditions in the Upper Estuary are favorable for tape grass and associated fauna
- Salinity levels in the Lower Estuary & San Carlos Bay are unfavorably low



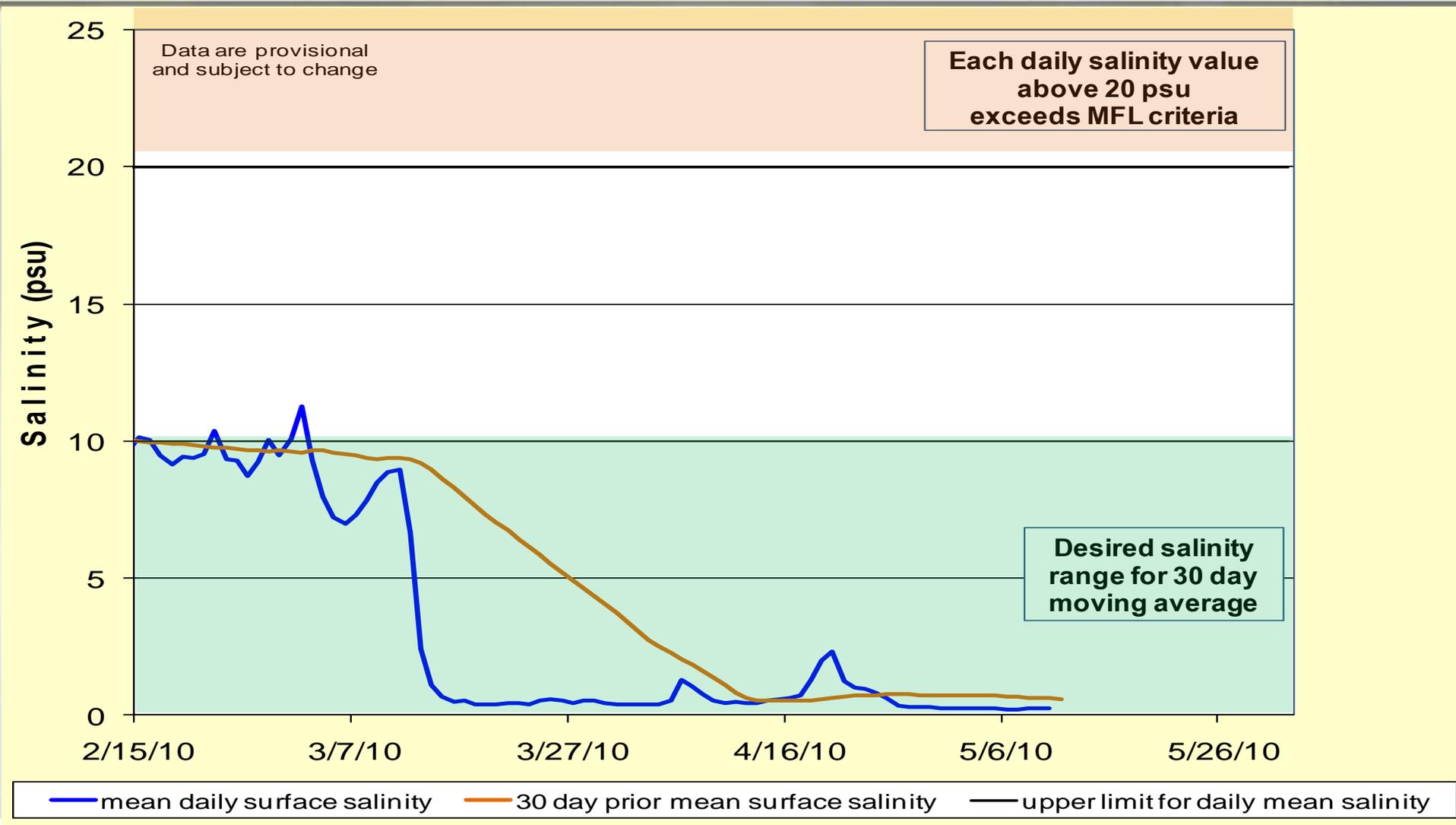
Caloosahatchee Salinity: Upper Estuary - Fort Myers



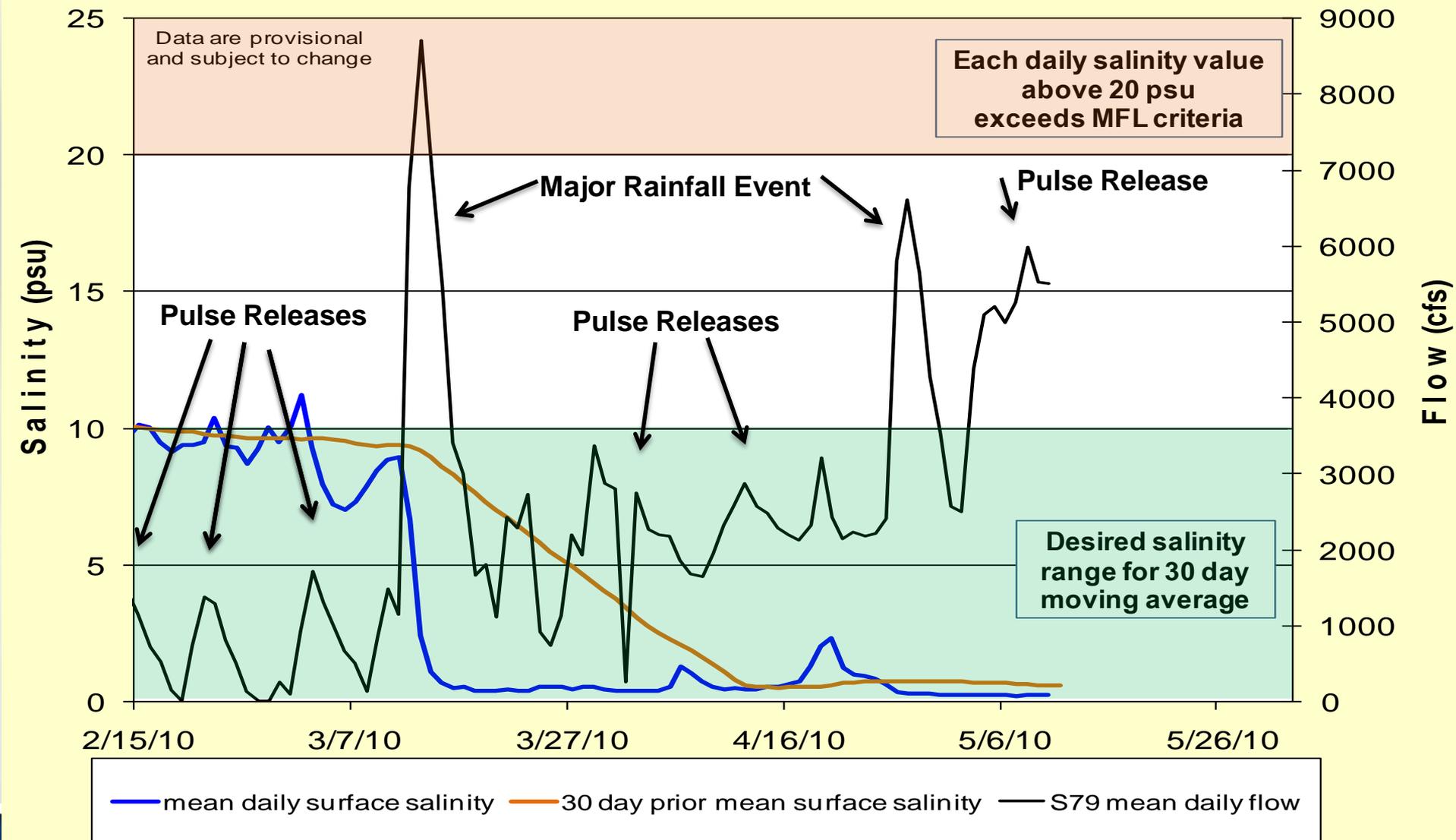
Desired salinity range for 30 day moving average



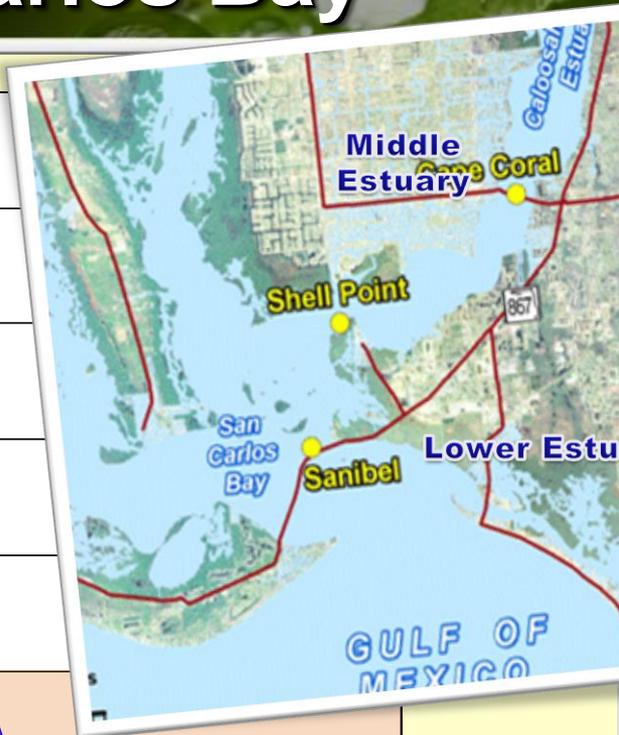
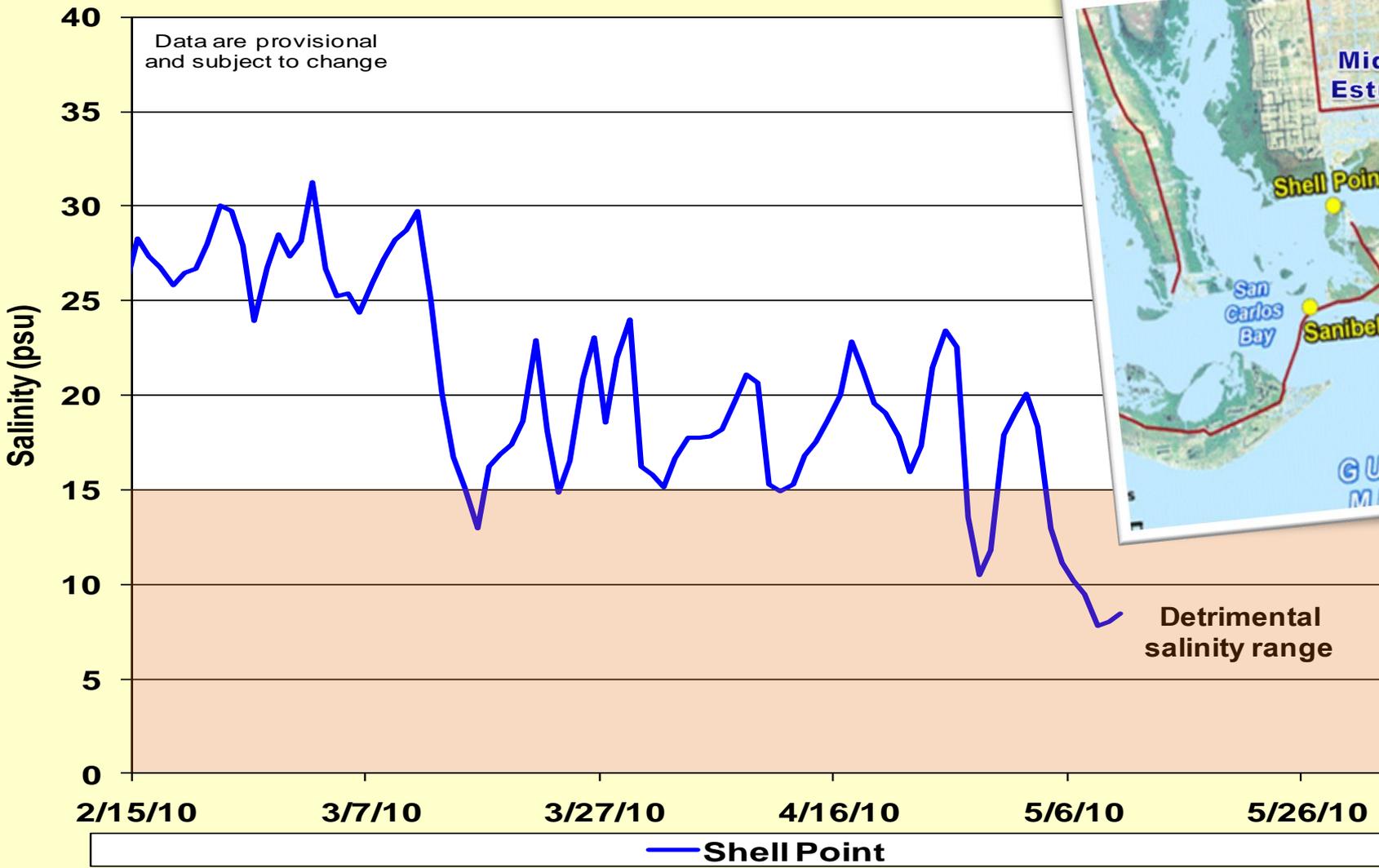
Caloosahatchee Salinity: Upper Estuary - Fort Myers



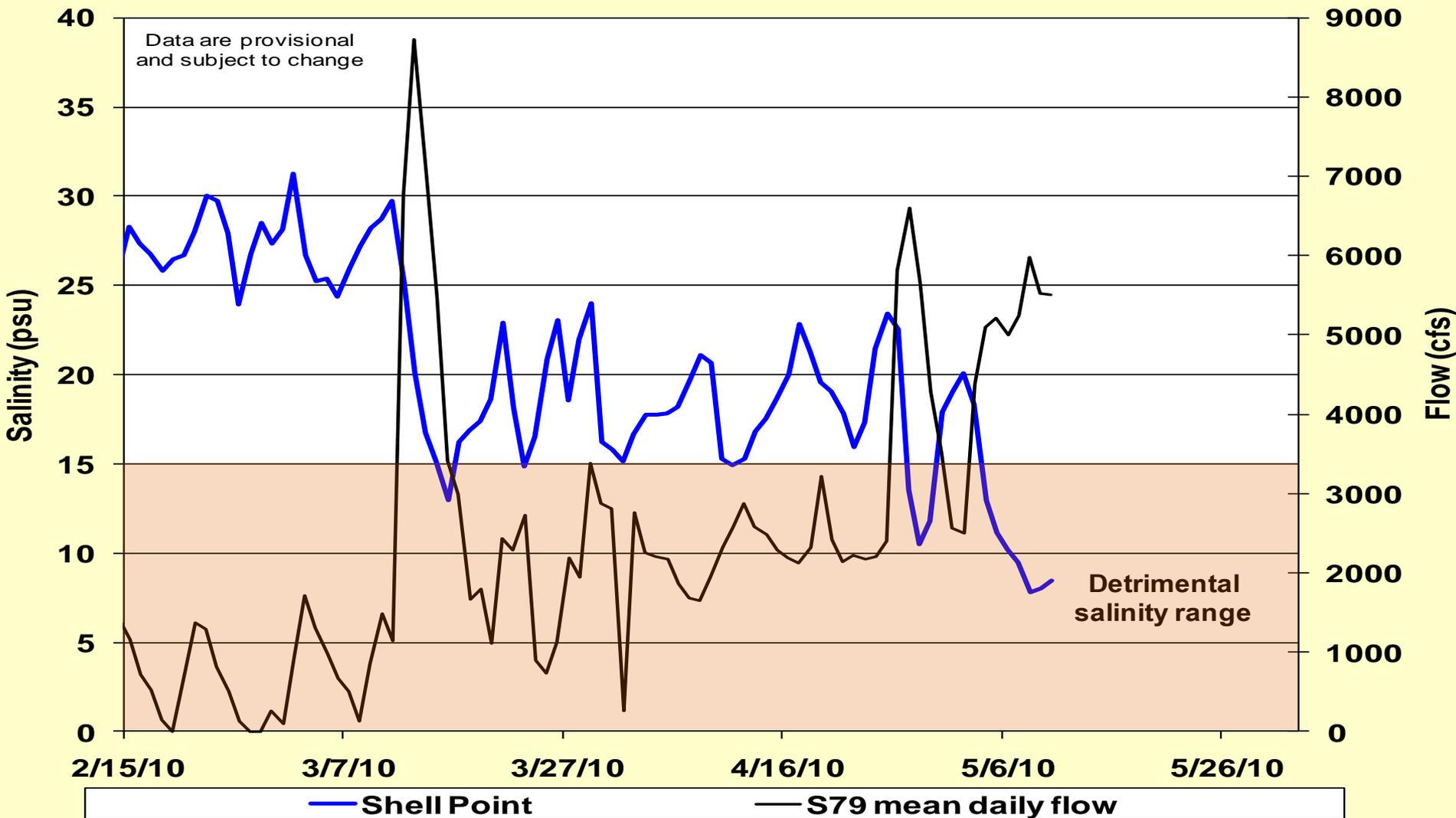
Caloosahatchee Salinity: Upper Estuary - Fort Myers



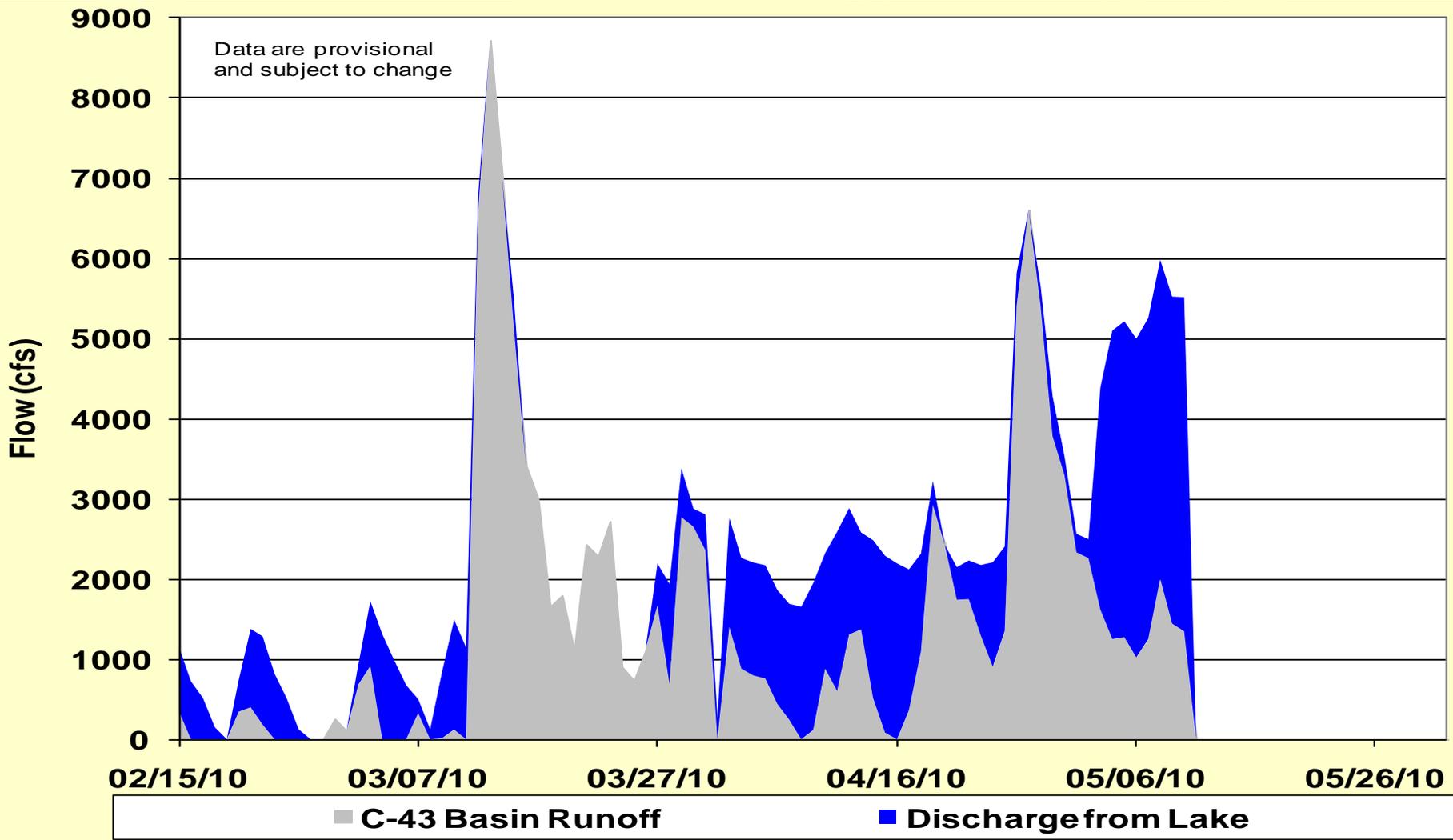
Caloosahatchee Salinity – Lower Estuary and San Carlos Bay



Caloosahatchee Salinity – Lower Estuary and San Carlos Bay



Total Flow from W. P. Franklin Lock & Dam (S-79) divided into Lake Release and C-43 Basin Runoff



Caloosahatchee Estuary Salinity Gradient On May 6, 2010

Charlotte Harbor

Pine Island

San Carlos Bay

Seagrass and Oysters Stressed

Cape Coral

Fort Myers

Beautiful Island

Shell Point

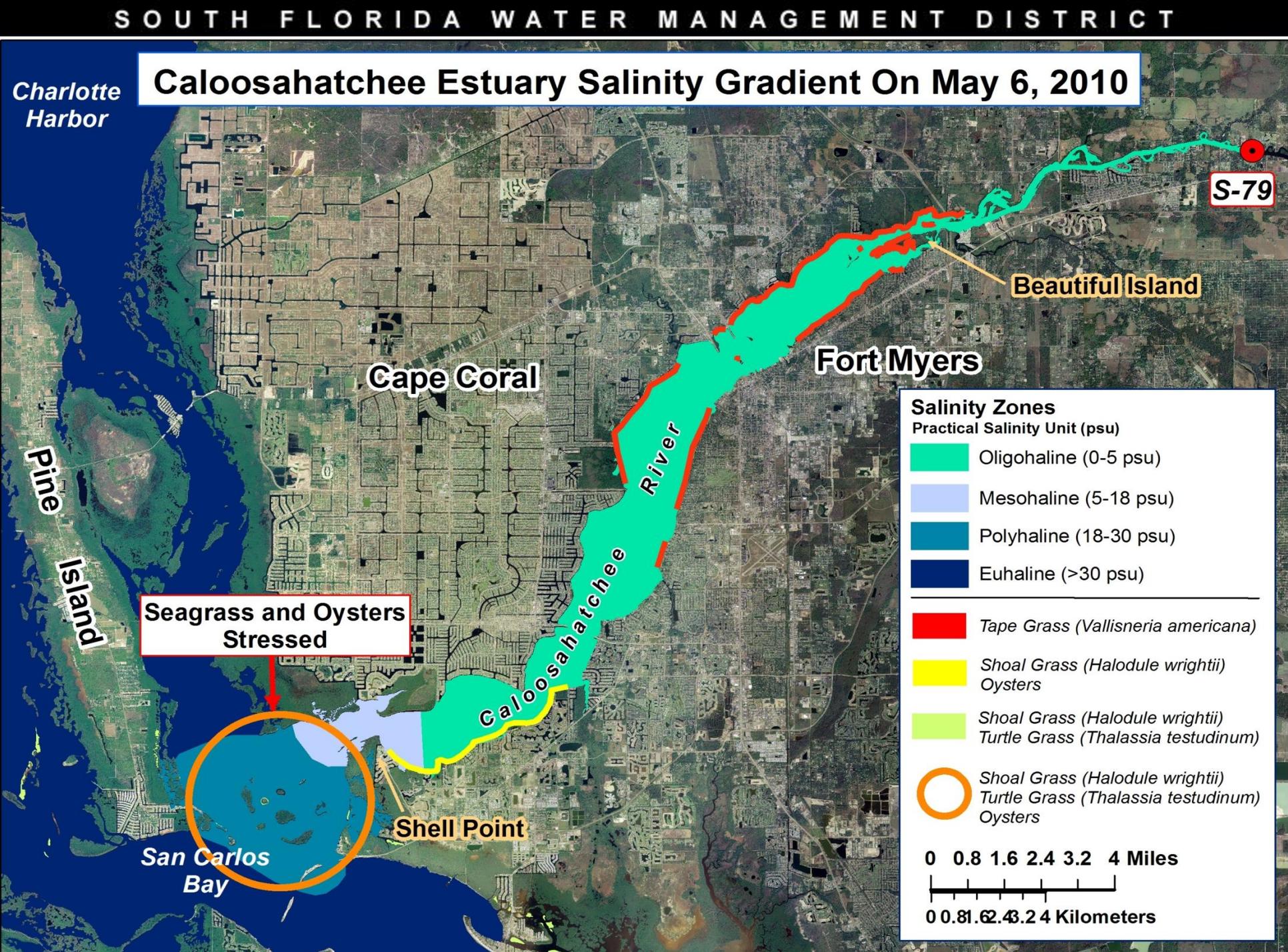
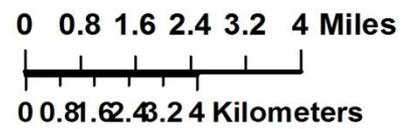
Caloosahatchee River

S-79

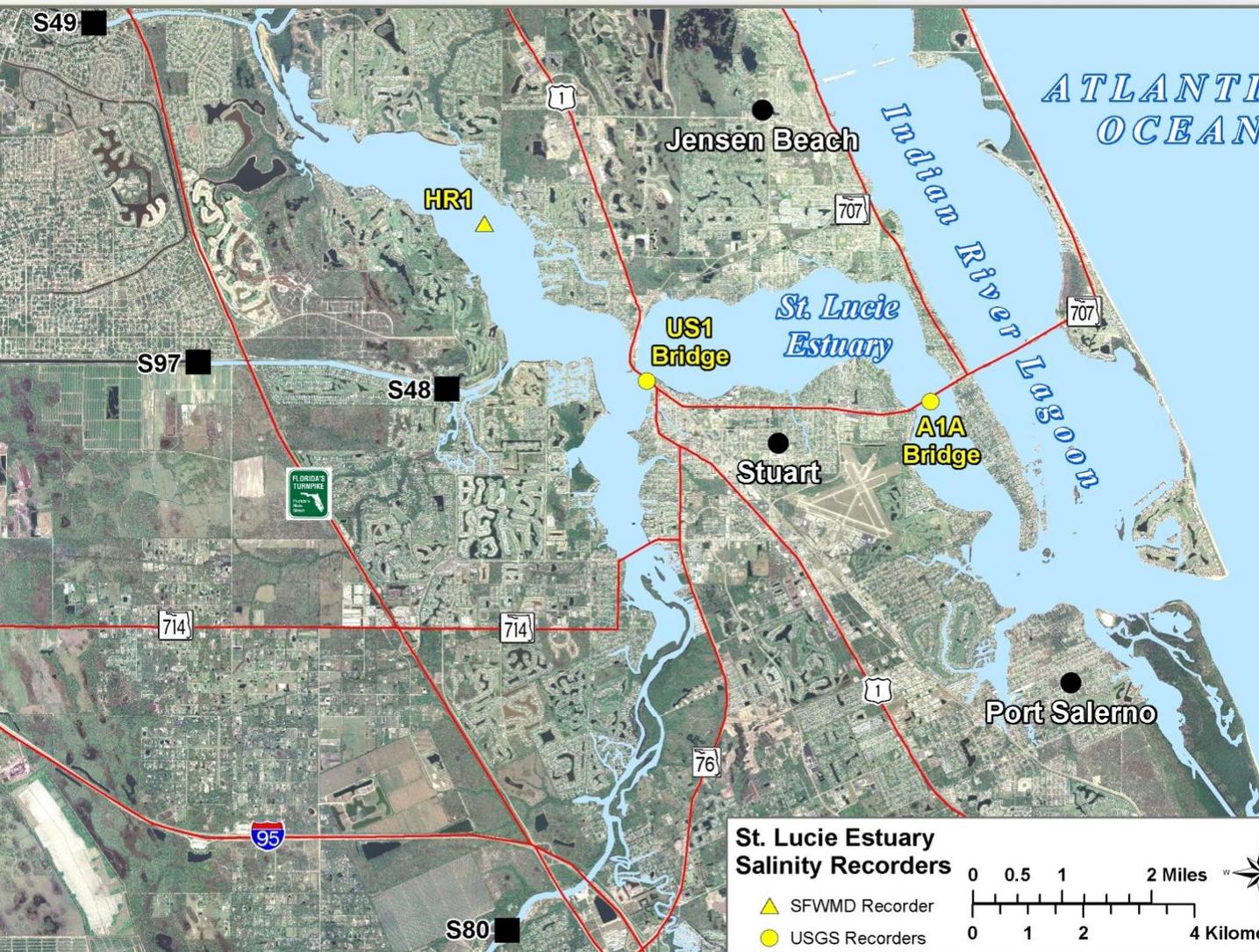
Salinity Zones
Practical Salinity Unit (psu)

- Oligohaline (0-5 psu)
- Mesohaline (5-18 psu)
- Polyhaline (18-30 psu)
- Euhaline (>30 psu)

- Tape Grass (*Vallisneria americana*)
- Shoal Grass (*Halodule wrightii*)
Oysters
- Shoal Grass (*Halodule wrightii*)
Turtle Grass (*Thalassia testudinum*)
- Shoal Grass (*Halodule wrightii*)
Turtle Grass (*Thalassia testudinum*)
Oysters

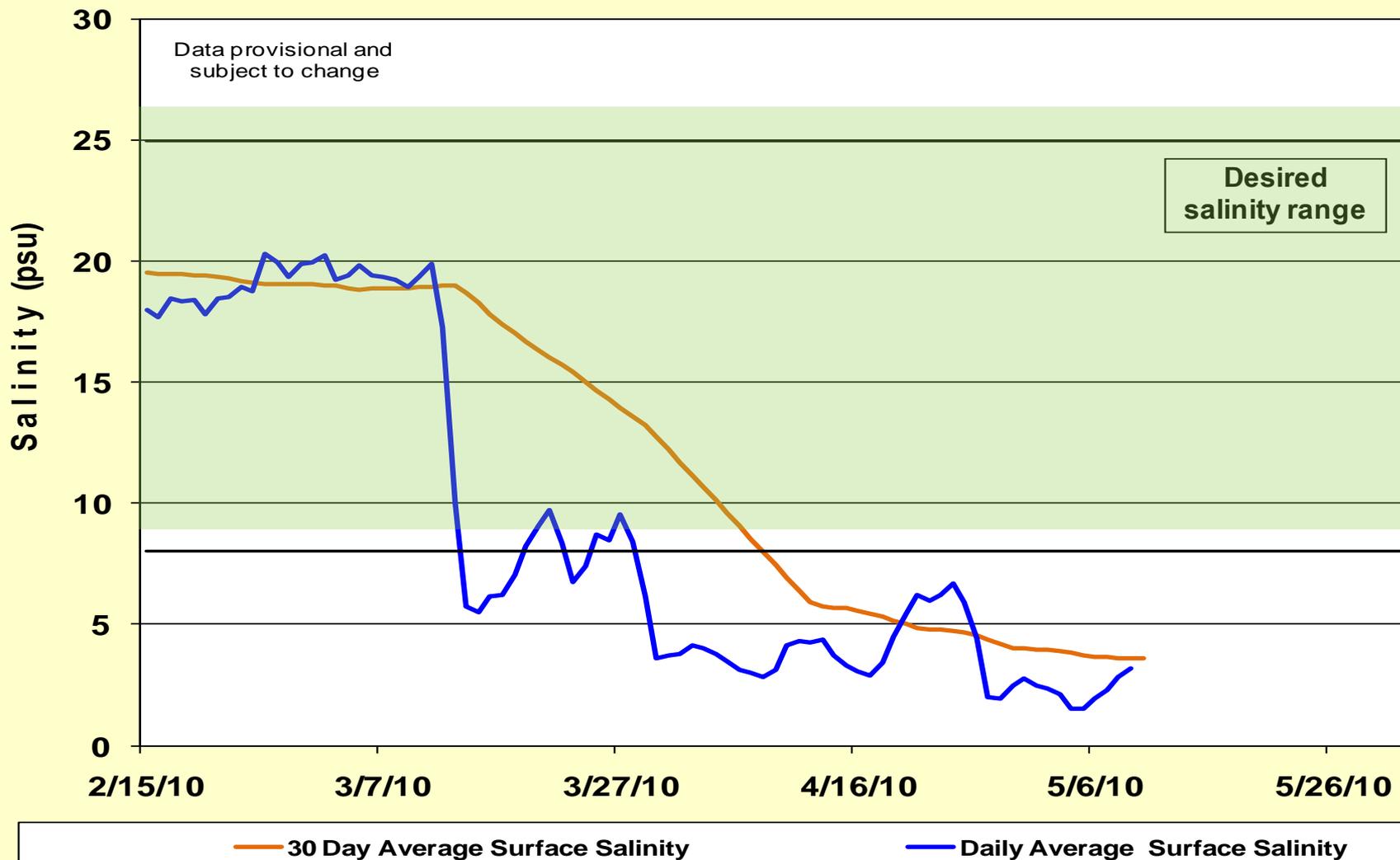


St. Lucie Salinity: US 1 Bridge

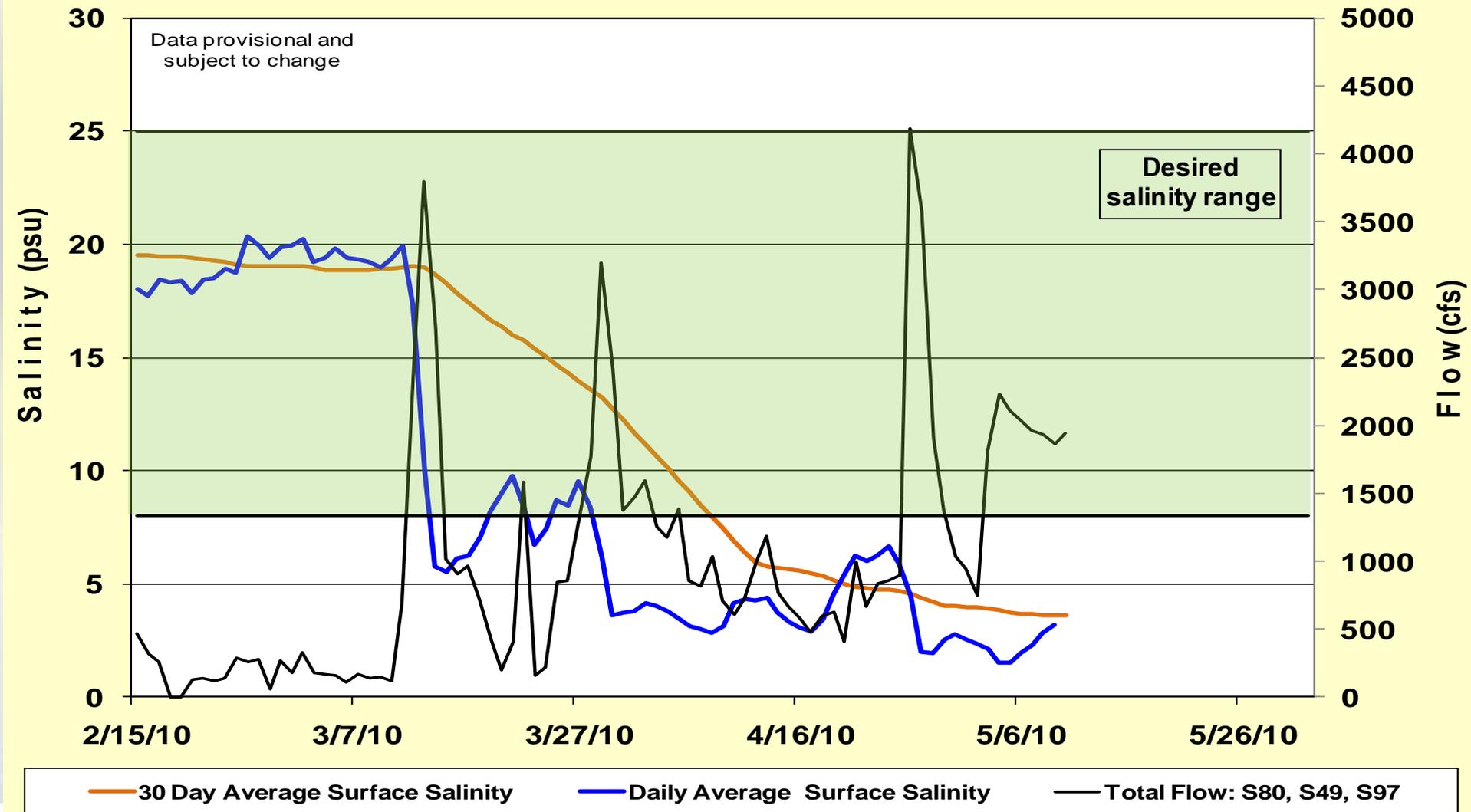


In the St. Lucie, the daily salinity at the US1 Bridge was below the salinity envelope, threatening oyster survival

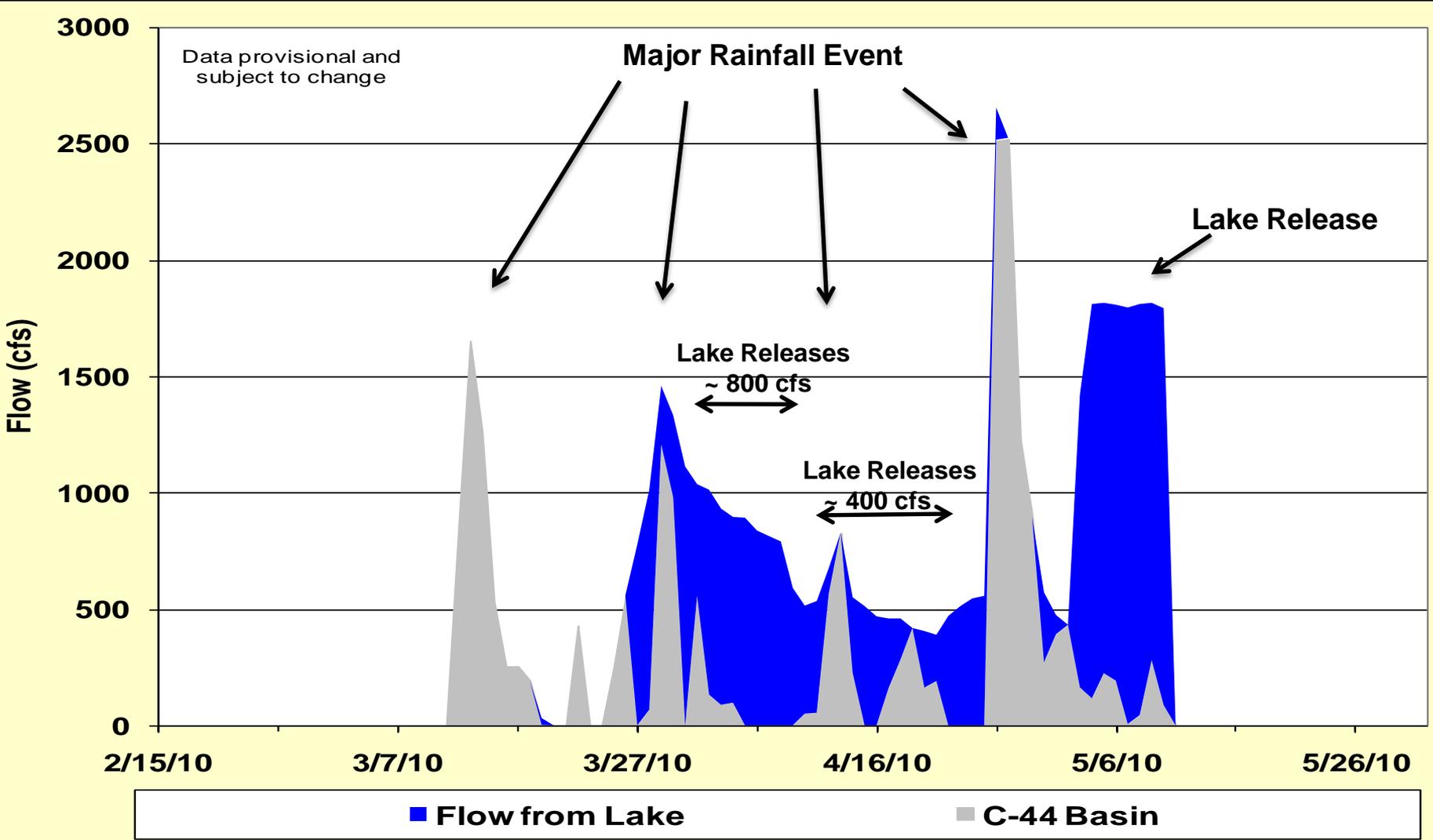
St. Lucie Salinity: US 1 Bridge



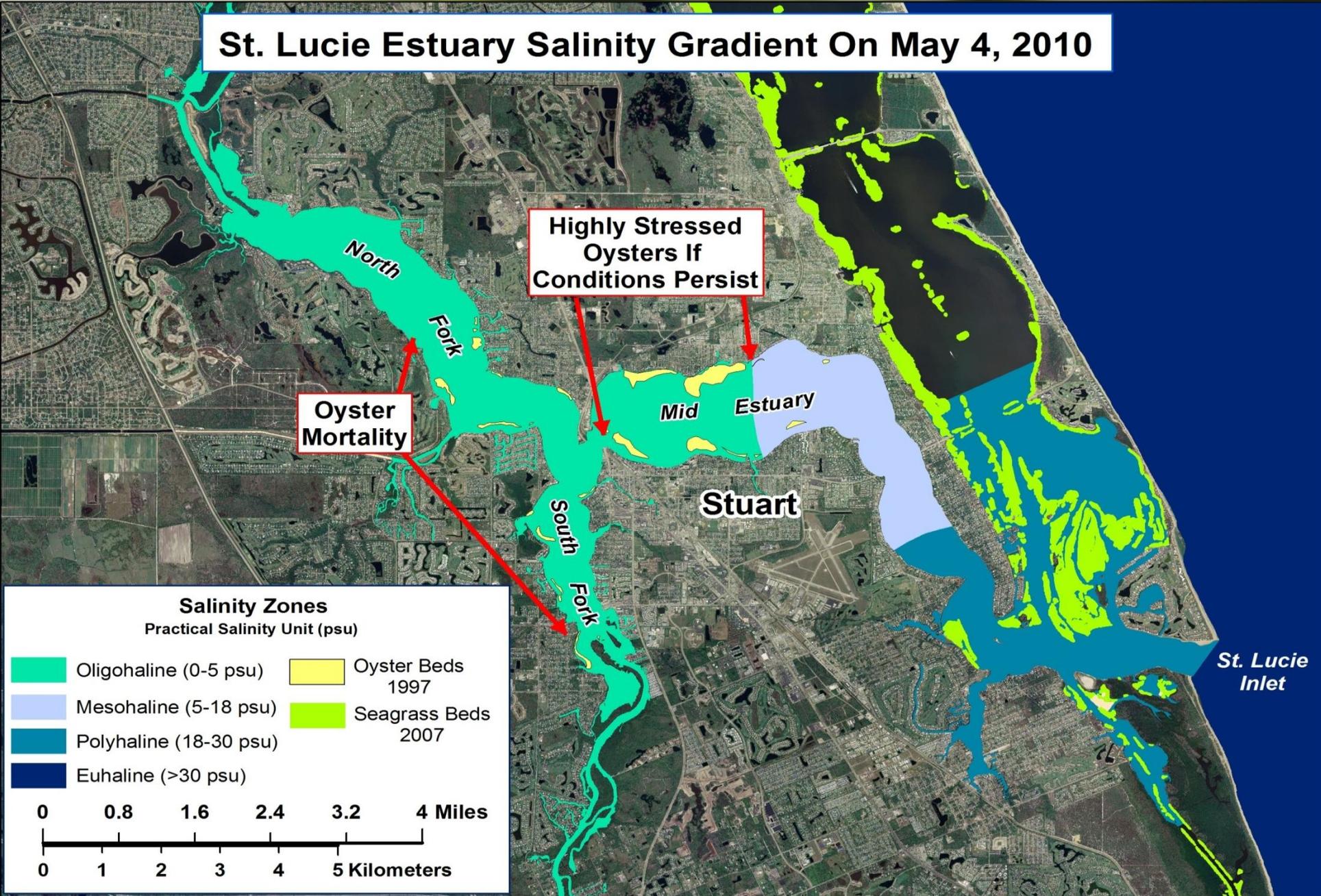
St. Lucie Salinity: US 1 Bridge



Total Flow from St. Lucie Lock and Dam (S-80) divided into Lake Release and C-44 Basin Runoff



St. Lucie Estuary Salinity Gradient On May 4, 2010

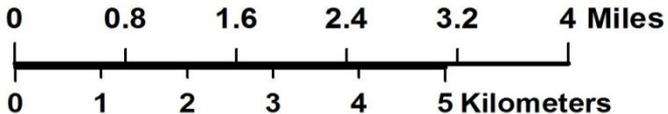


Oyster Mortality

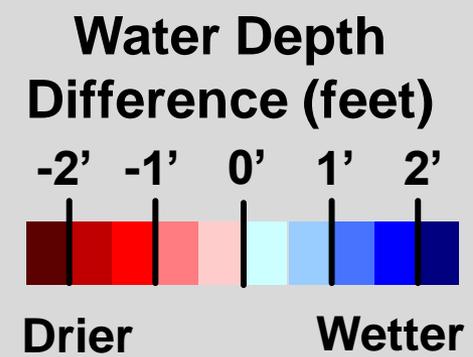
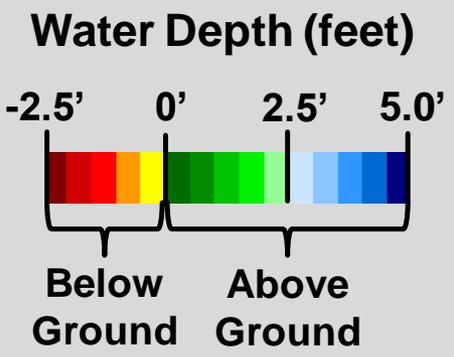
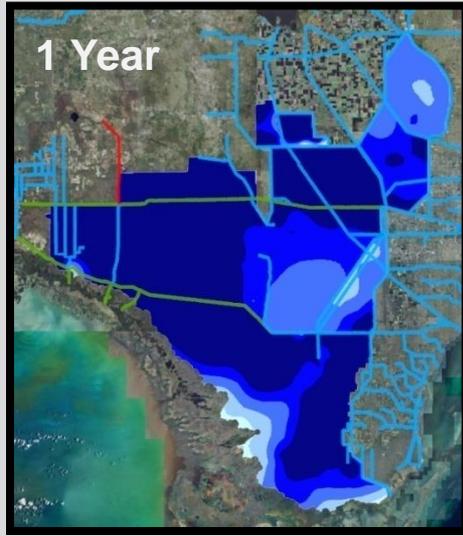
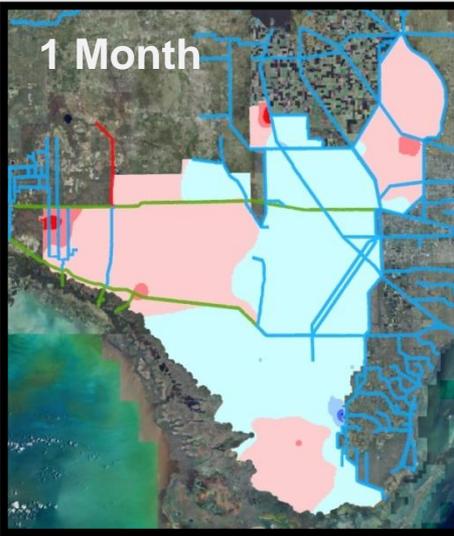
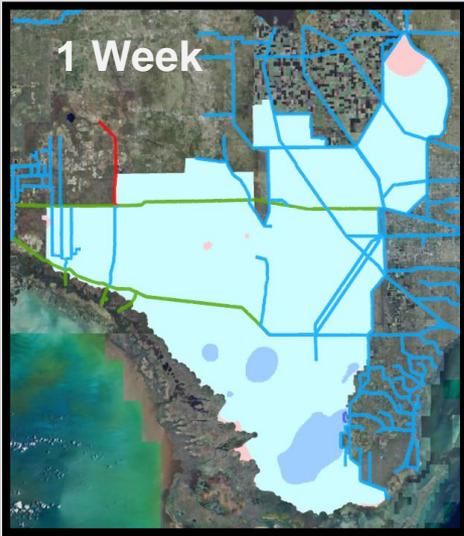
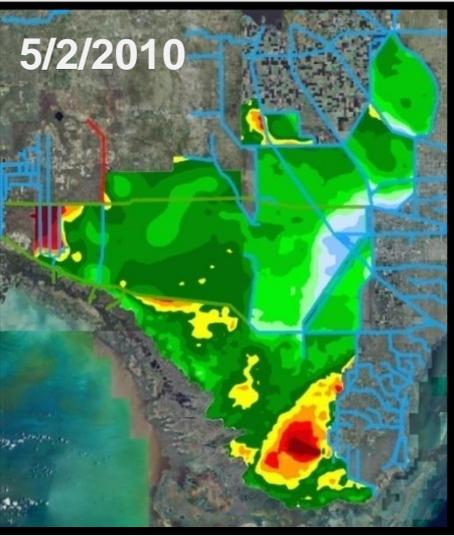
Highly Stressed Oysters If Conditions Persist

Salinity Zones
Practical Salinity Unit (psu)

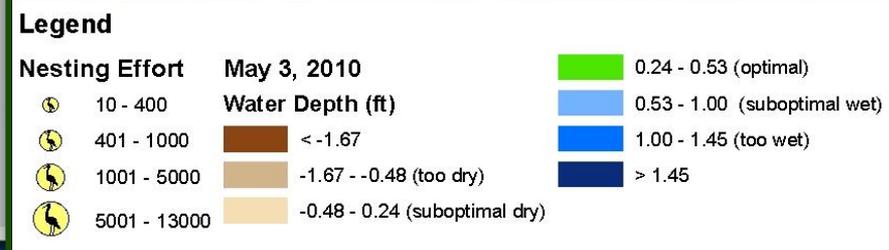
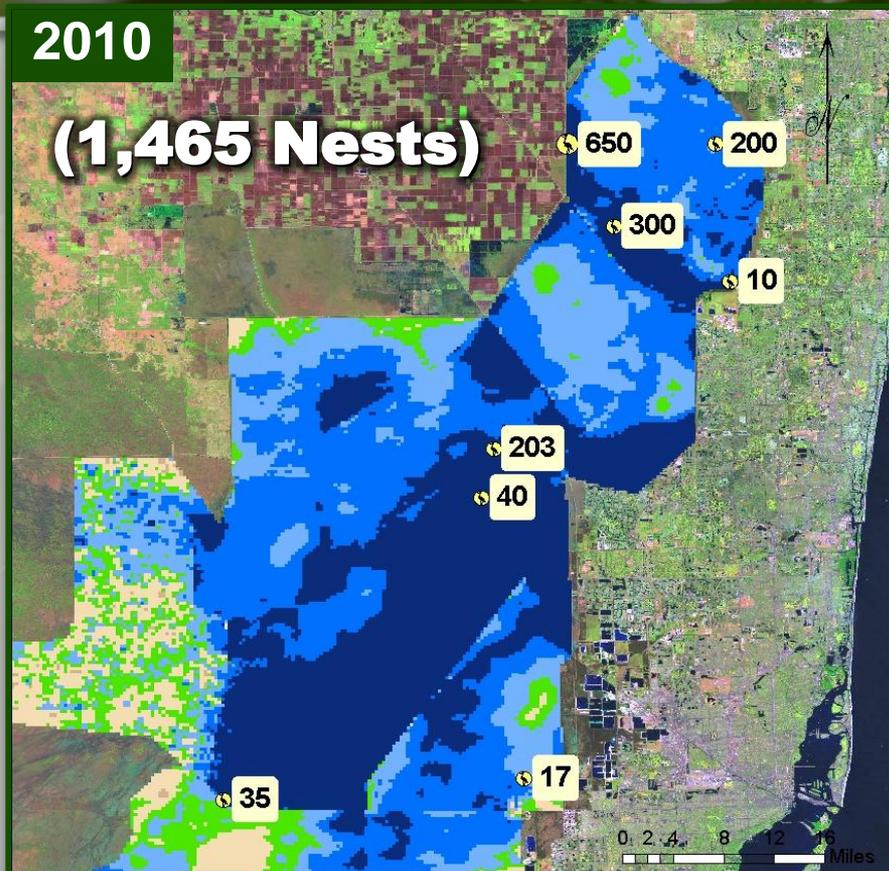
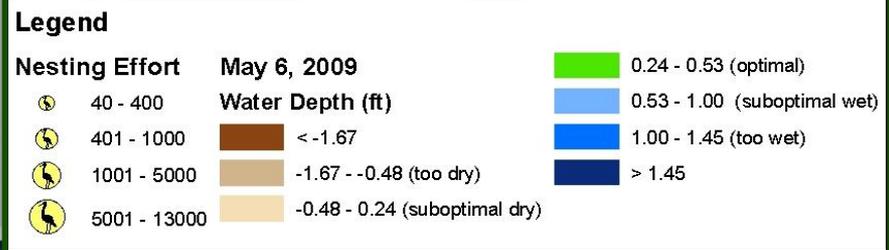
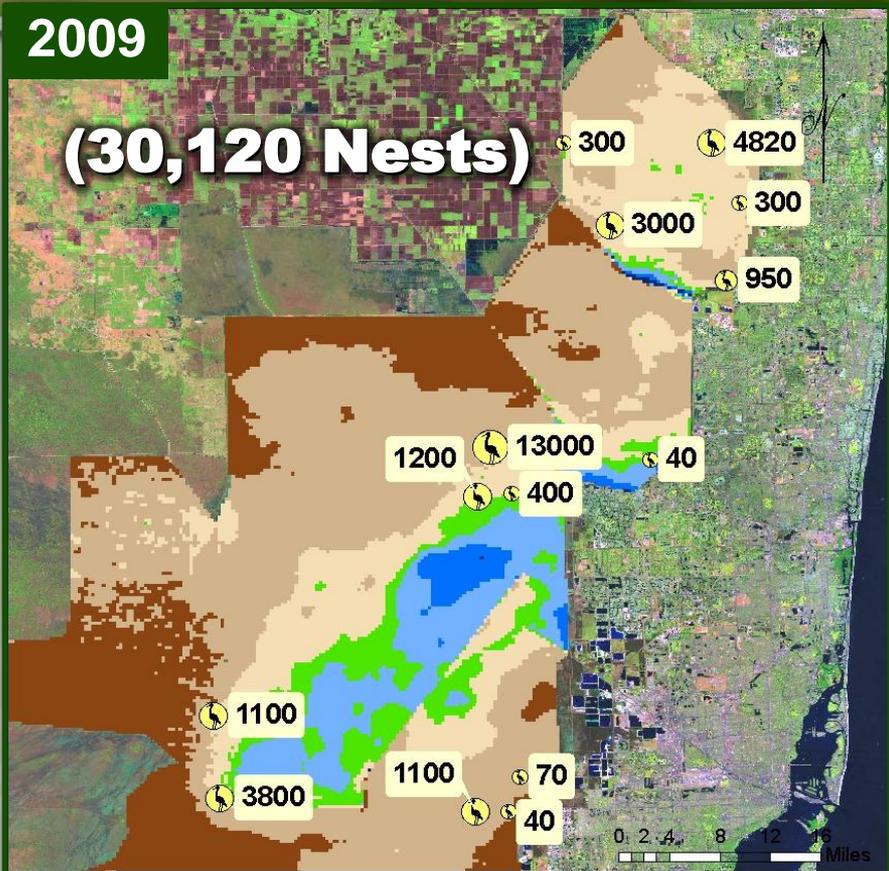
- Oligohaline (0-5 psu)
- Mesohaline (5-18 psu)
- Polyhaline (18-30 psu)
- Euhaline (>30 psu)
- Oyster Beds 1997
- Seagrass Beds 2007



Everglades Water Depths and Difference Maps (Present minus Past)



Wading Bird Nesting Effort Declined in 2010 Due to Reversals & High Water



Ecological Conditions Update



Thank You!

Peter Doering
Chief Environmental Scientist
Restoration Sciences Department