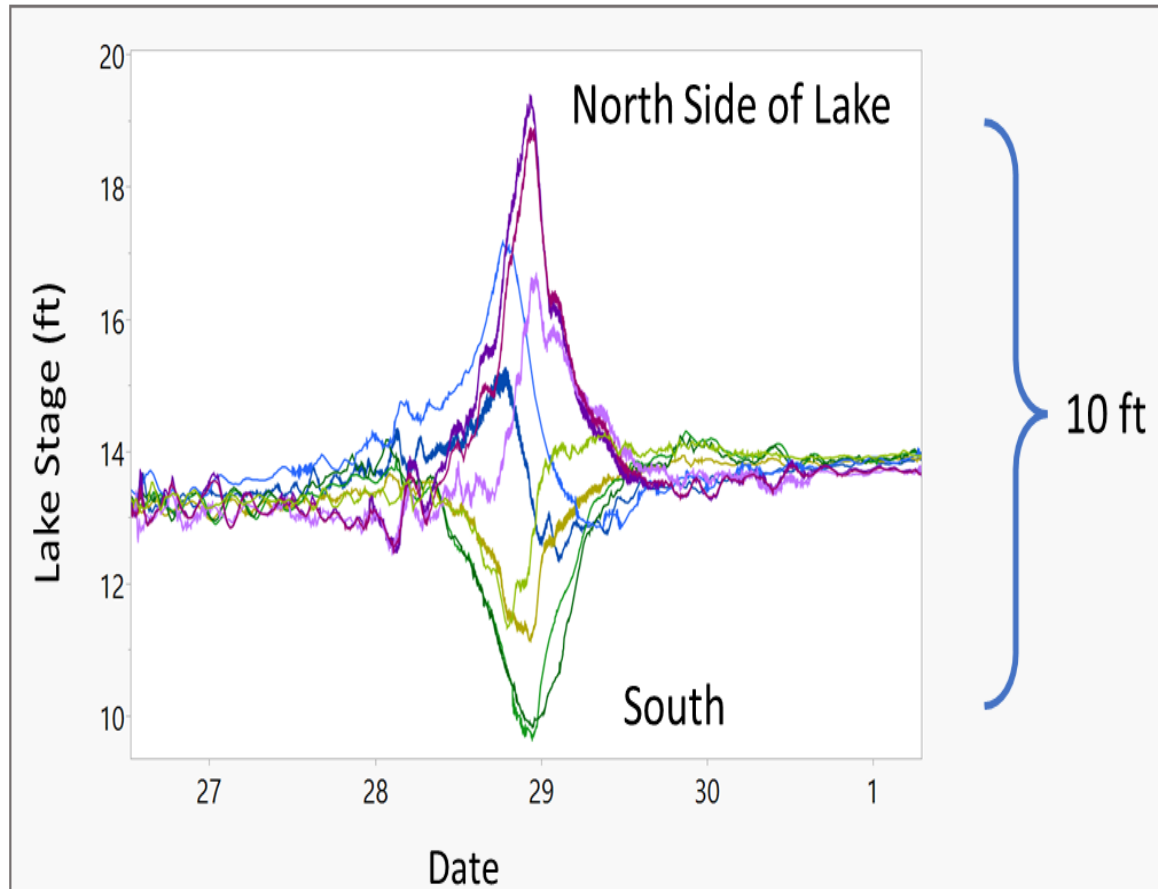


South Florida Ecological Conditions Following Hurricane Ian

Lawrence Glenn – South Florida Water Management District
South Florida Ecosystem Restoration Task Force Meeting
October 19, 2022

Hurricane Effects – Lake Systems

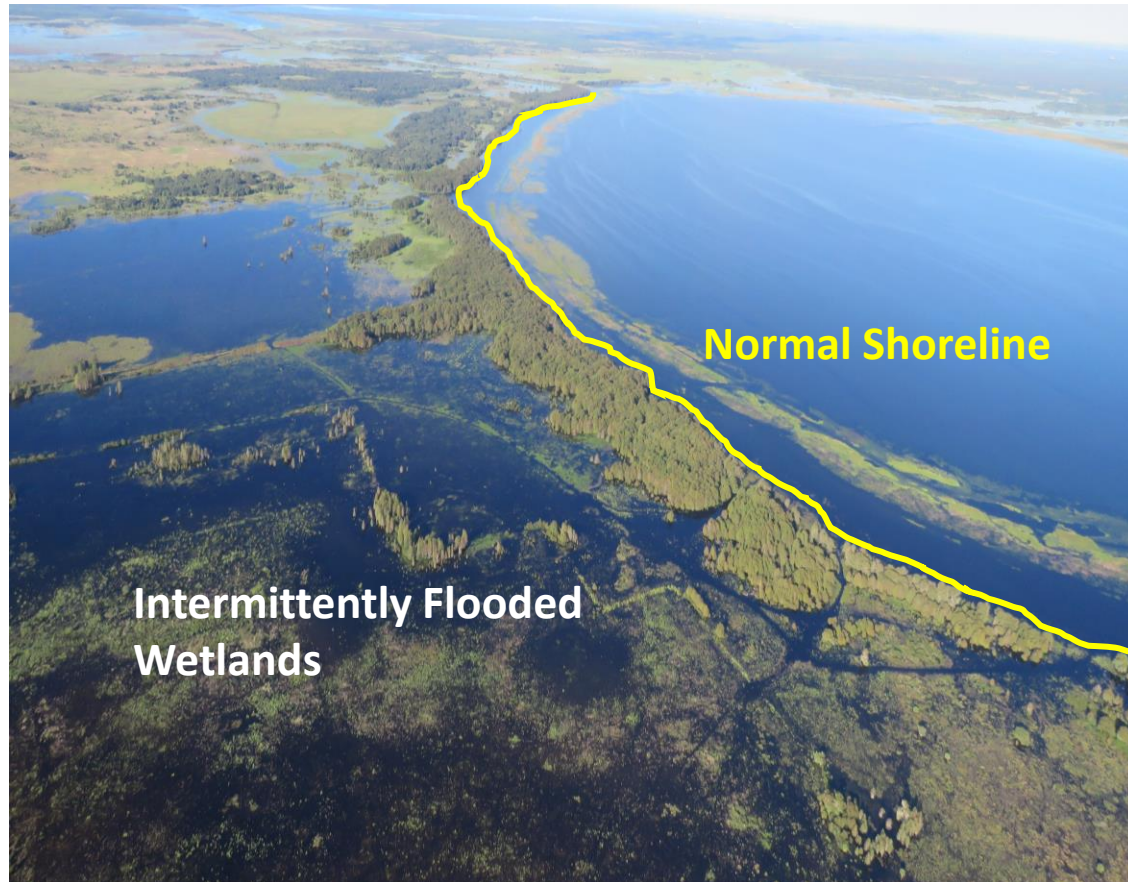
Lake Okeechobee Water Levels – Hurricane Ian



- Loss of plants, loss of habitats due to wind/waves and flooding
 - Physical disturbance
 - Increased turbidity and water depth
- Large inflows and nutrient loads
 - Potential for increase in algal blooms next season

Hurricane Effects - Lake Systems

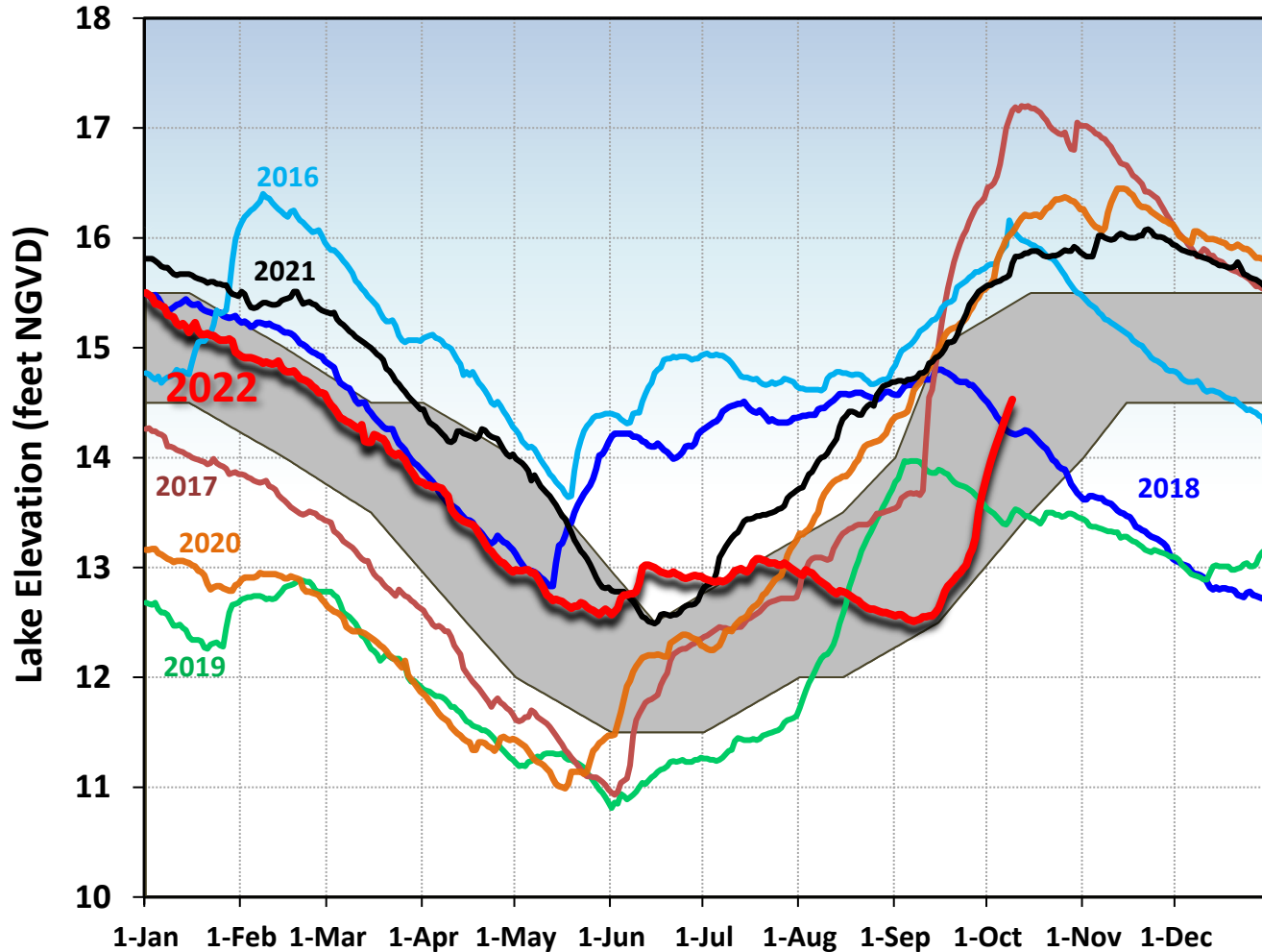
Kissimmee Chain of Lakes



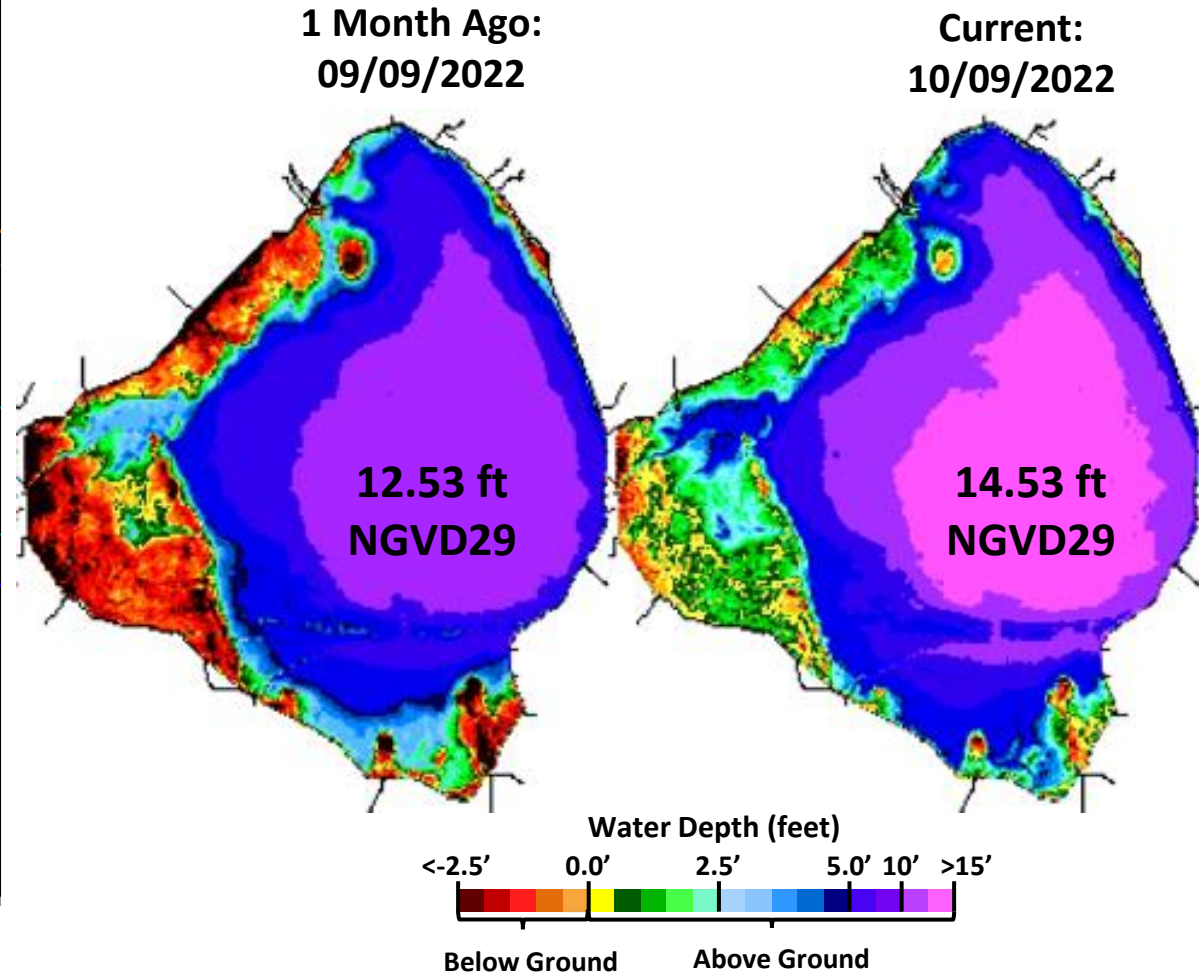
- High prey production in newly flooded areas
- Breeding seasons (fish, wading birds) after floods can be incredibly successful
- These ecosystems are adapted to flood/drought/fire disturbances – essential part of maintaining diversity and productivity

Ecological Envelope and Water Depth

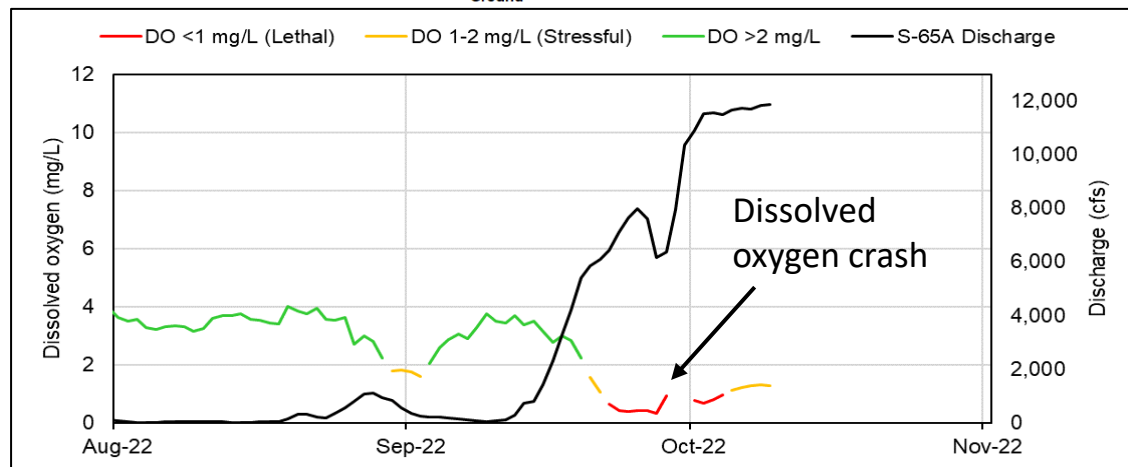
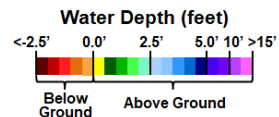
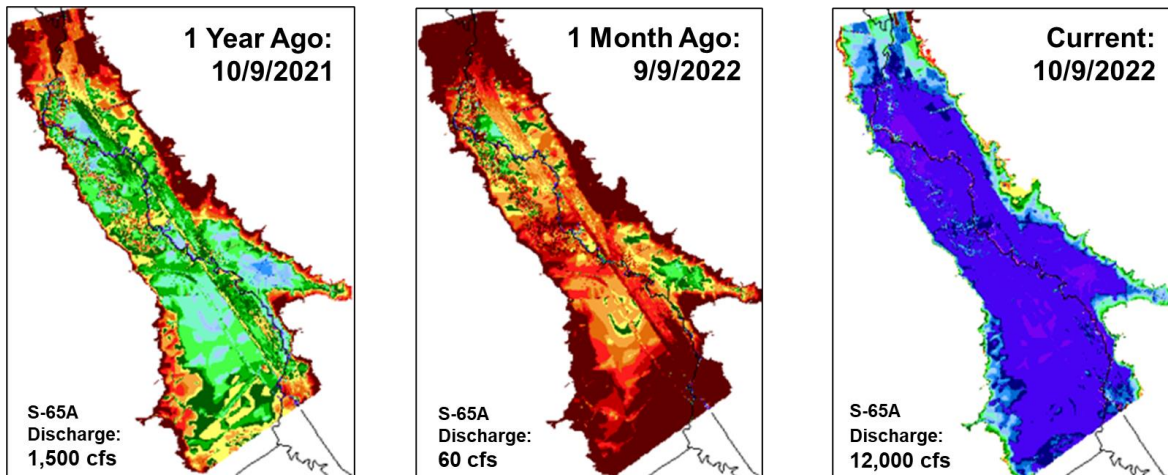
Lake Okeechobee Stage vs Ecological Envelope



Changes in Water Depth



Hurricane Effects – Kissimmee River



- Rainfall and rapid increase in flows and water depths cause oxygen crashes, fish kills.
- Loss of plants, nutrient exports downstream
- Excessively deep inundation of floodplain, temporary shifts to more aquatic habitats, can “reset” vegetation trends
- High flows encourage river channel migration, maintaining diverse habitat (sand, woody debris)
- Periodic disturbance is an essential part of maintaining diversity and productivity
 - Ecosystems are adapted to disturbance (e.g., flood/drought/fire)

Kissimmee River Restoration S69 Weir

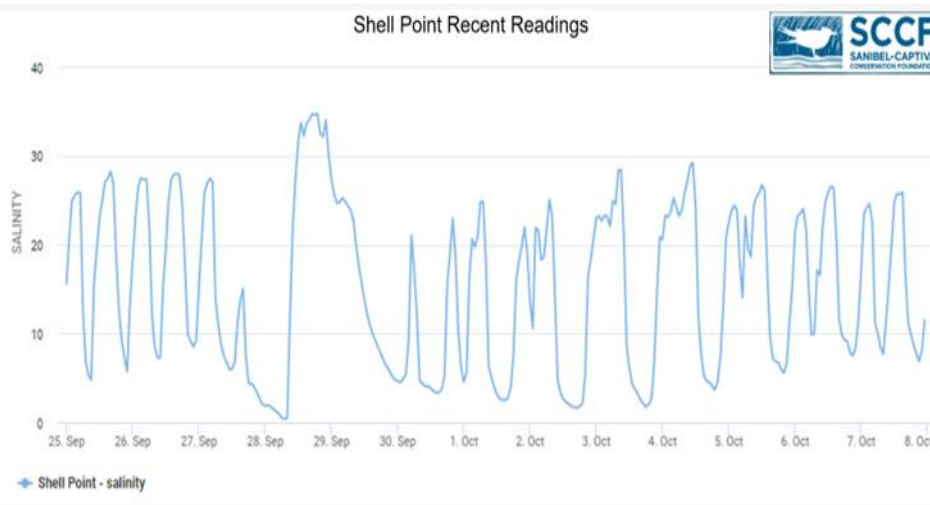
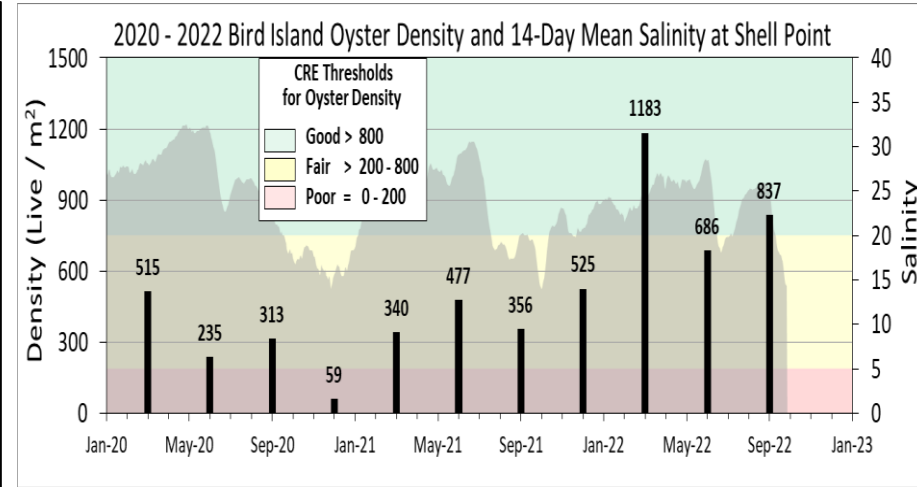
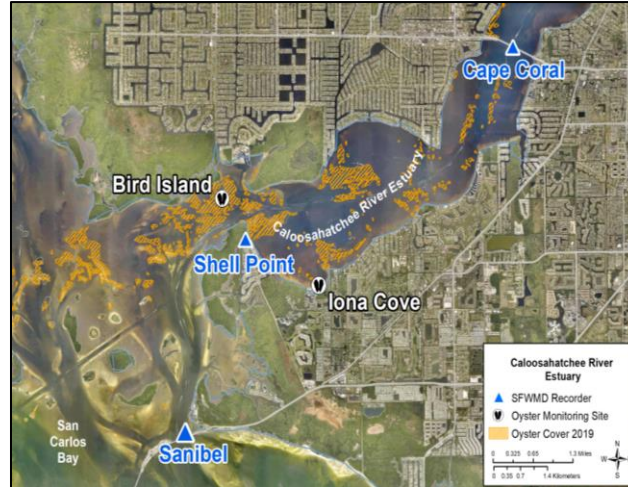
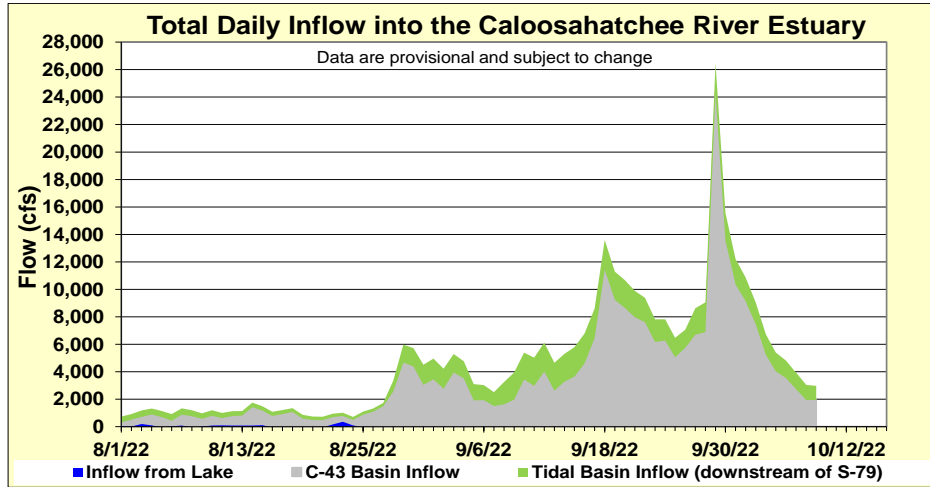
S-69 (U-Shaped Weir) Completed in 2021



Caloosahatchee Estuary



Caloosahatchee Estuary

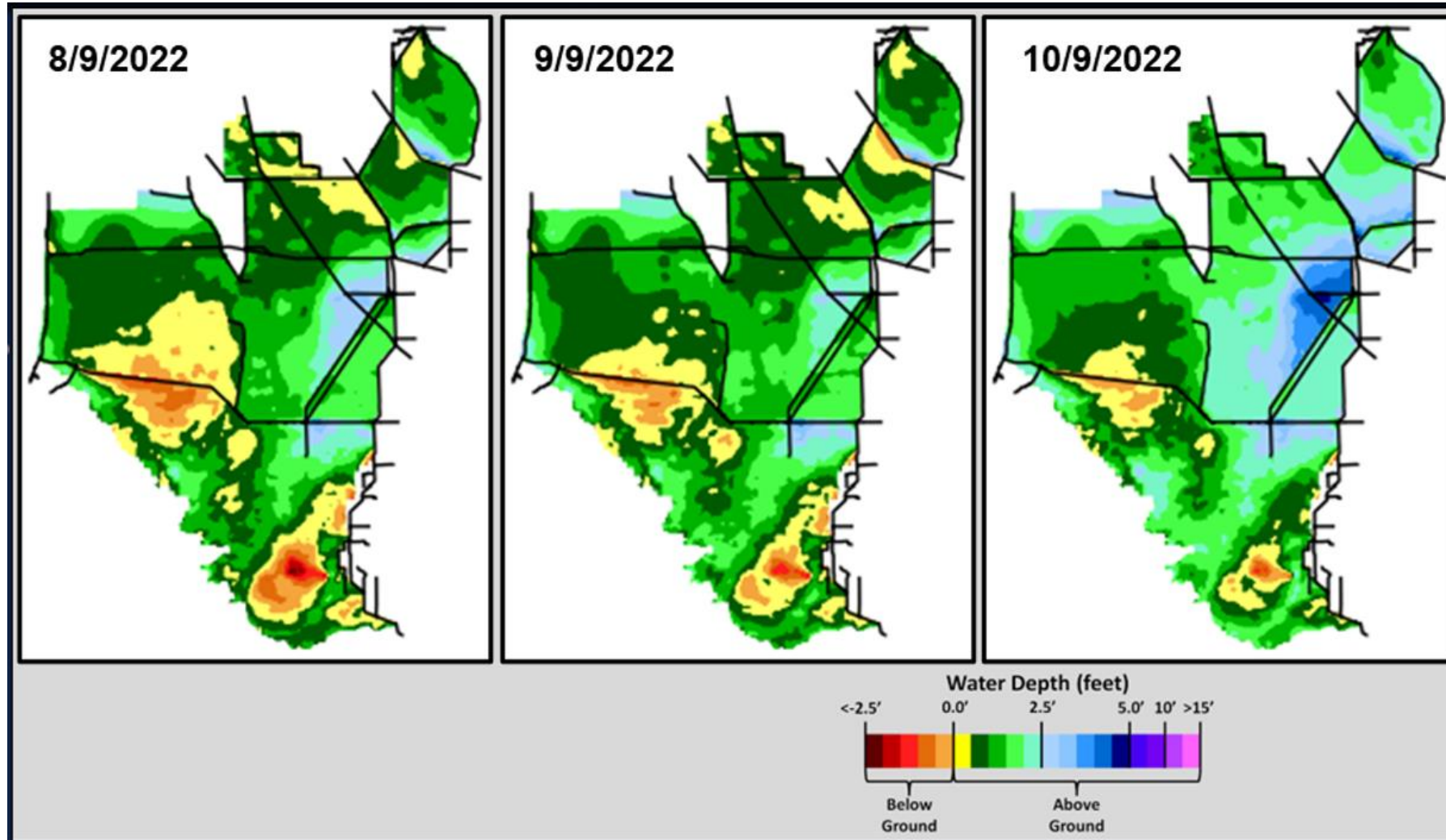


Potential impacts of Hurricane Ian on oysters

Oyster beds buried or damaged by sand and debris from wind and storm surge

- Watershed runoff decreases salinities to stressful (<10) or damaging (<5) levels for extended period causing widespread oyster die-off
 - Optimal salinity (10-25)

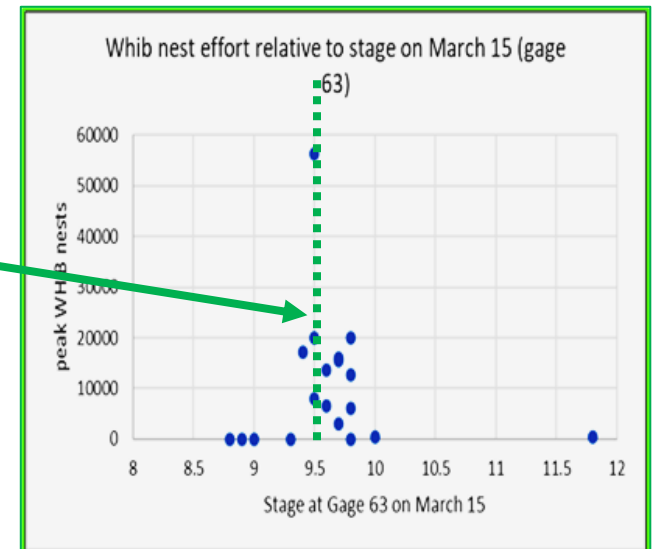
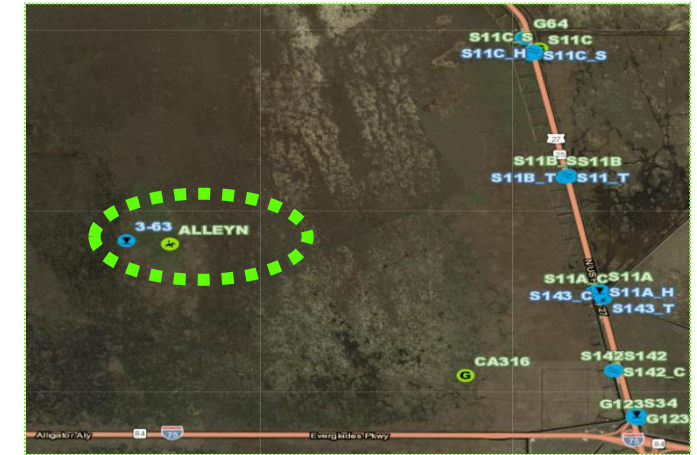
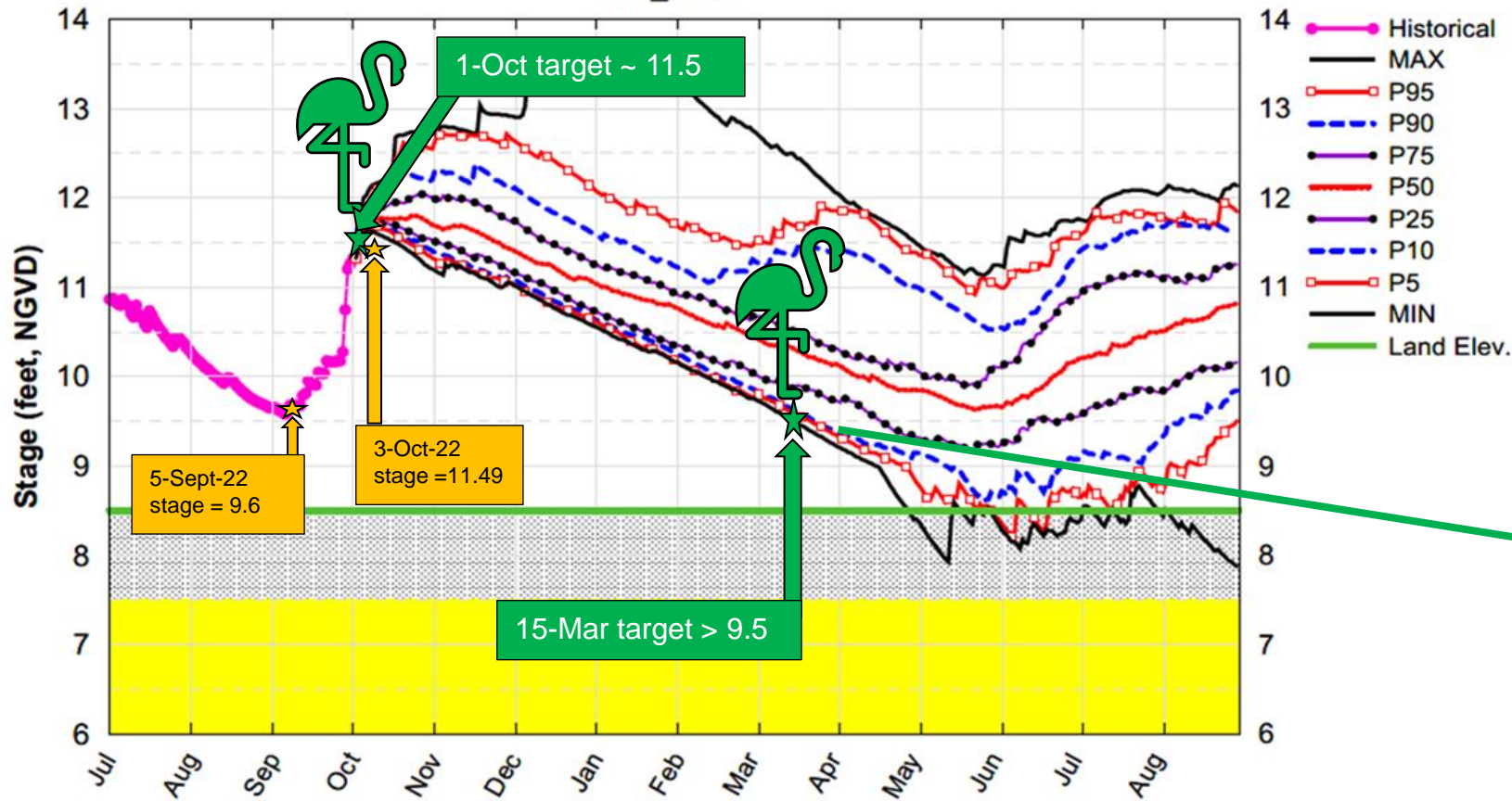
Everglades Water Depths



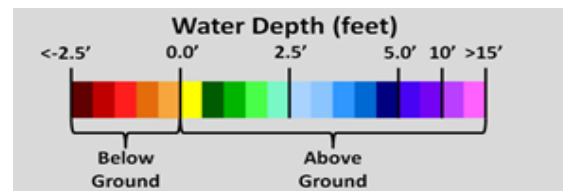
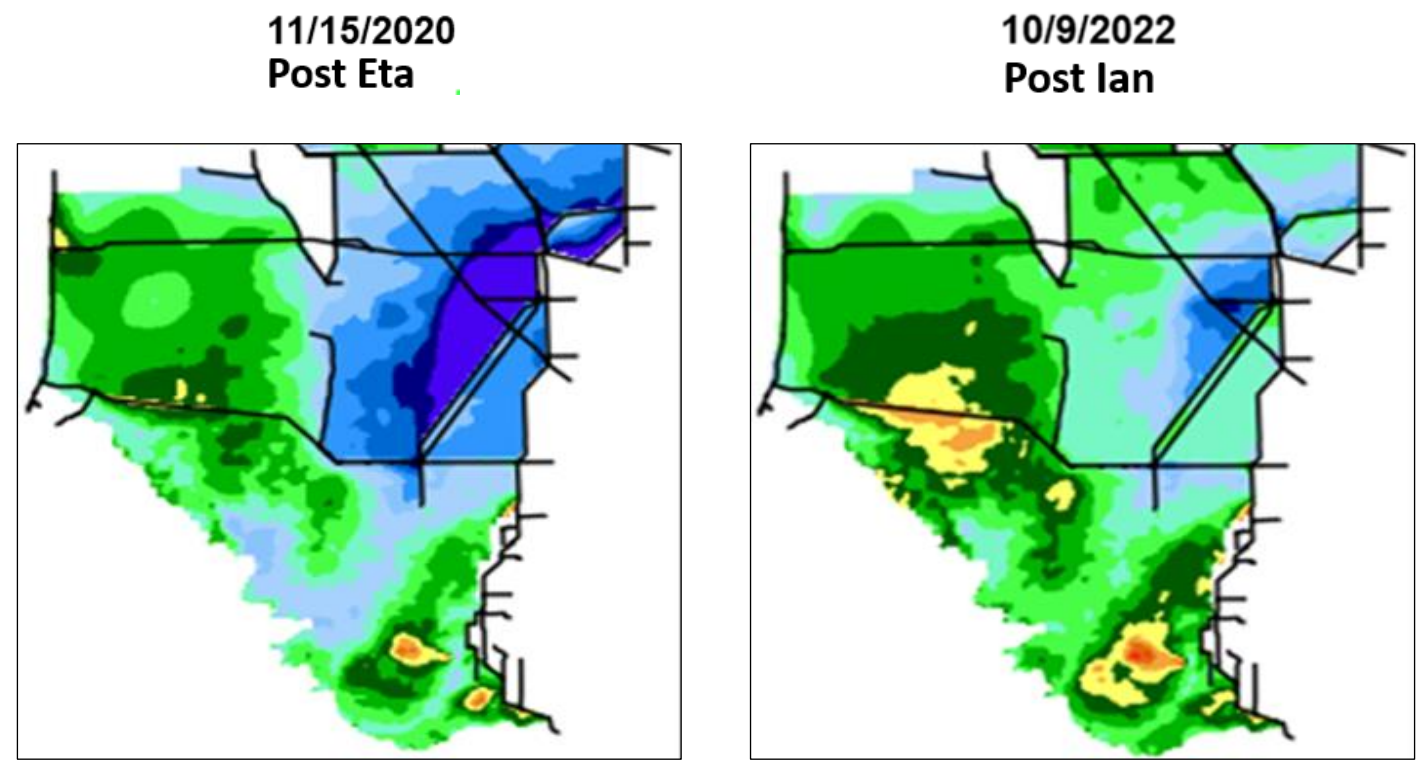
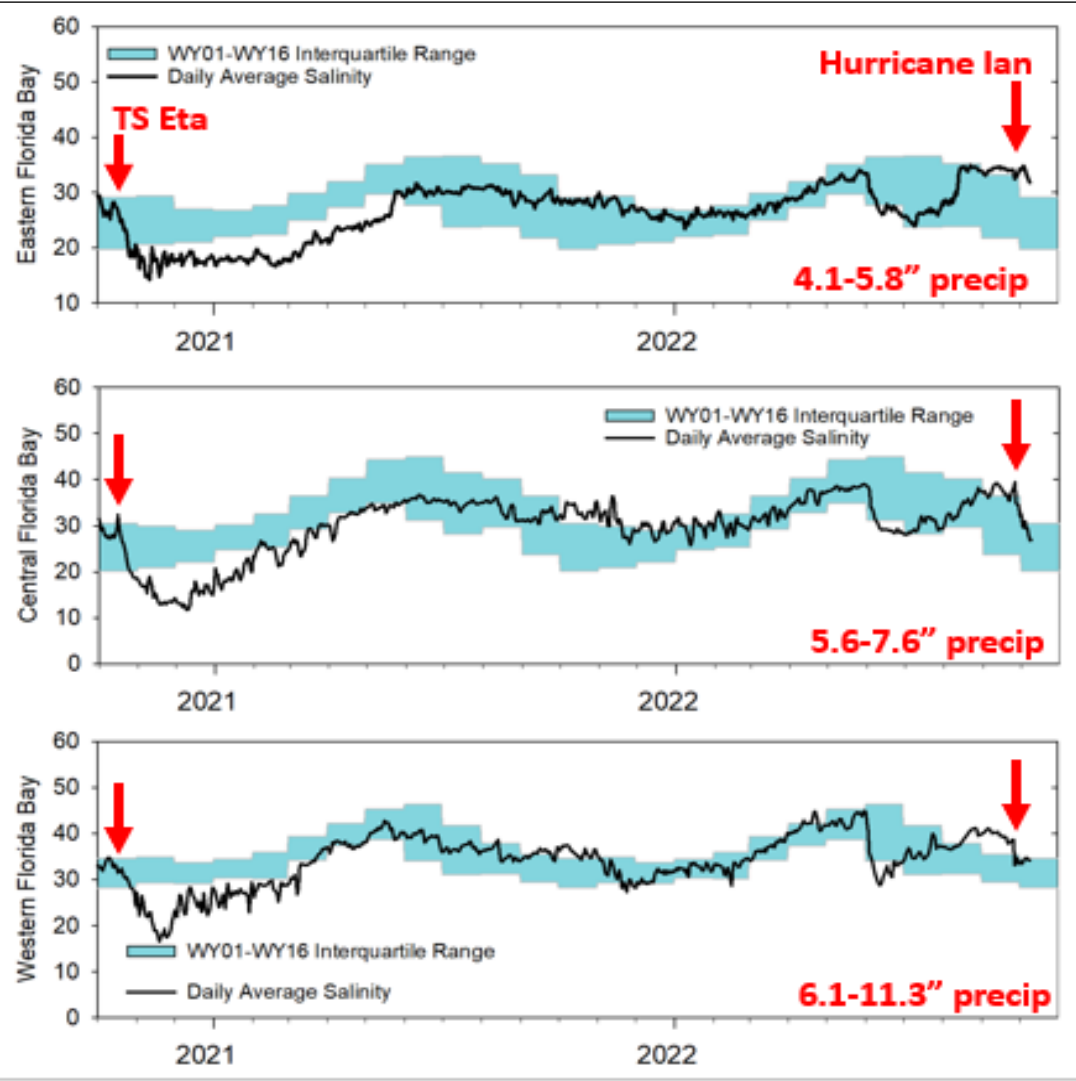
WCA-3A Northeast – The Alley North Colony

3A-3 Gage SFWMM October 2022 Position Analysis

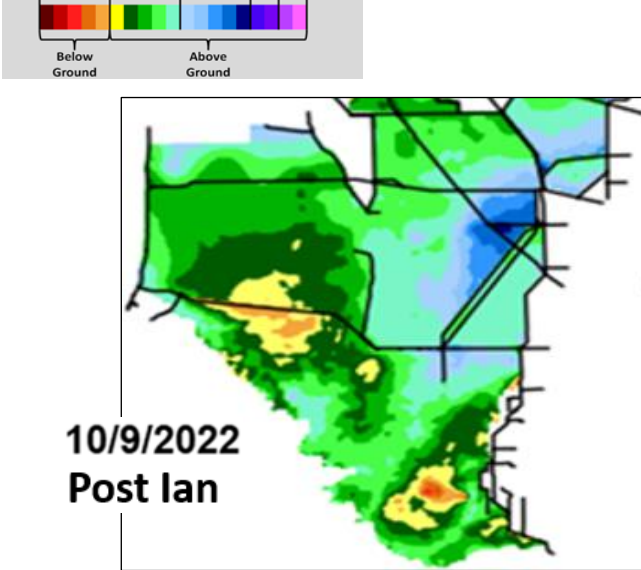
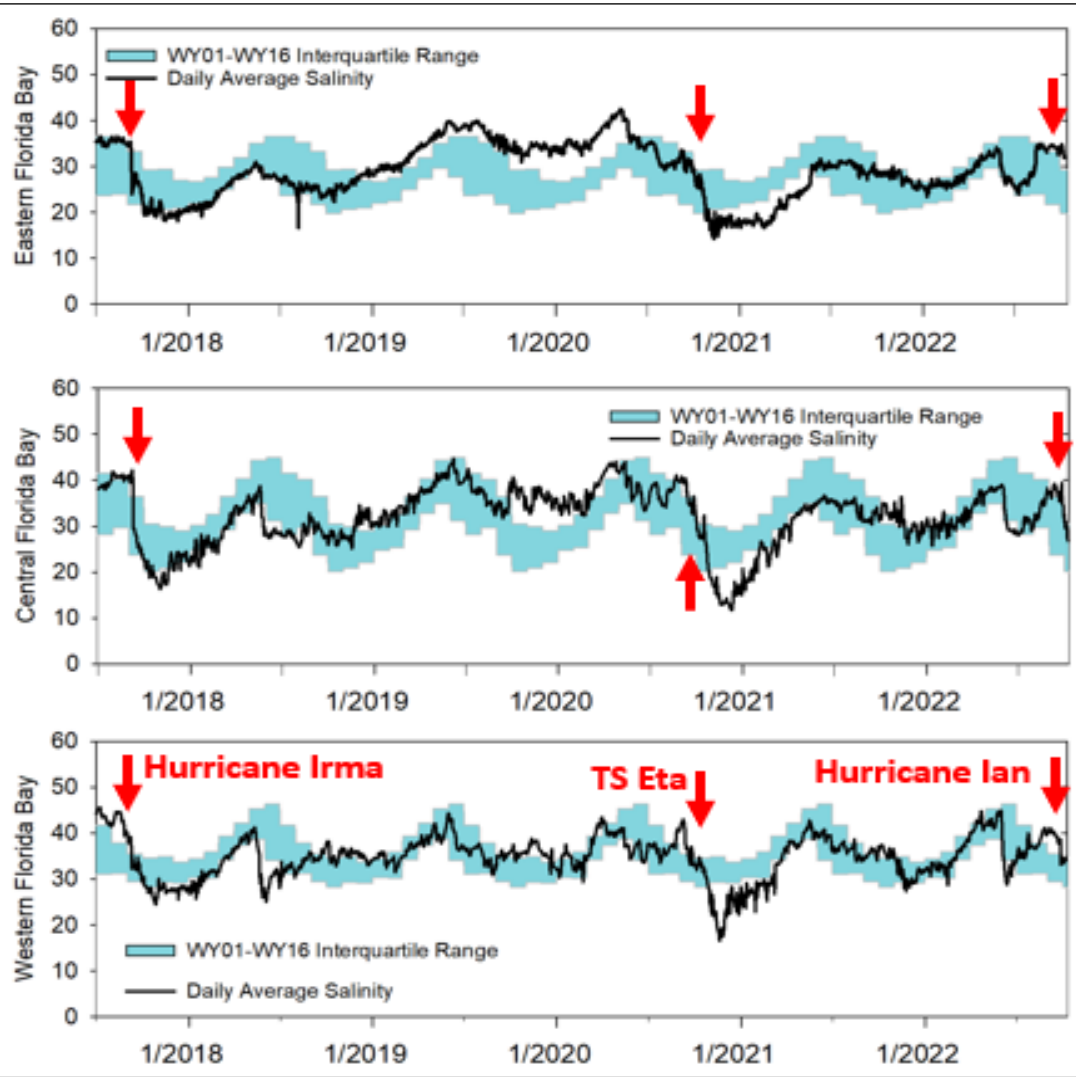
PA_CR2



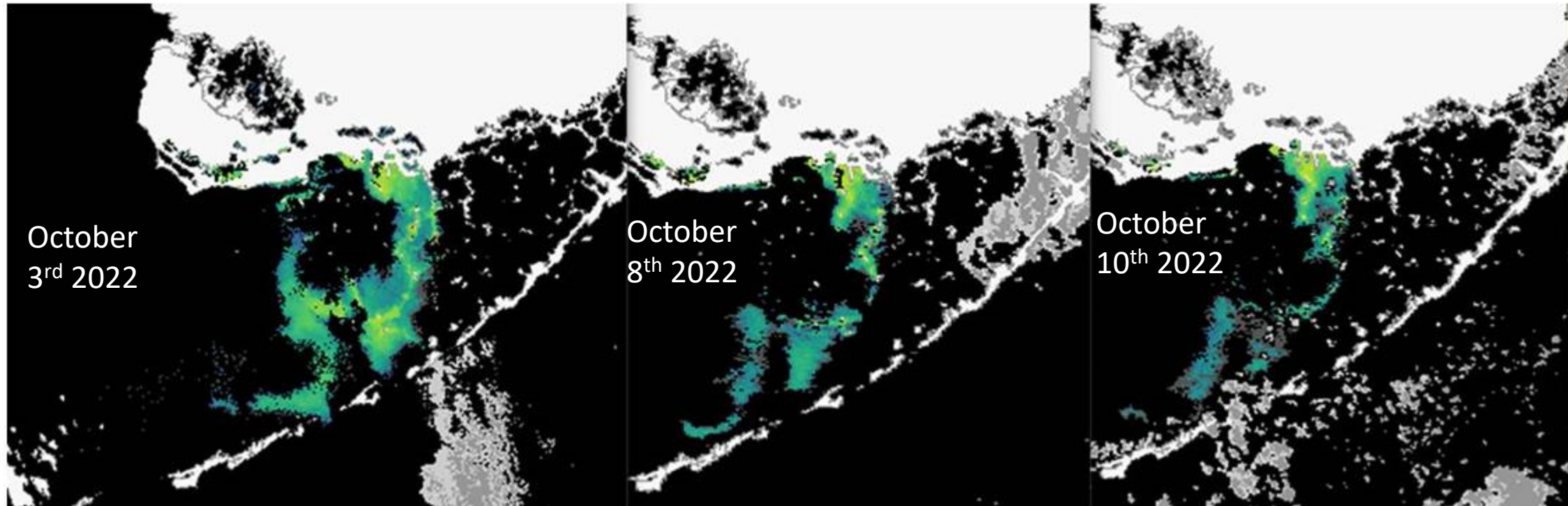
Everglades Water Depth and Florida Bay Salinity



Everglades Water Depth and Florida Bay Salinity



Post storm algal bloom potential in western Florida Bay



- The western section of blooms appear to be dissipating, but less so in the east near Snake and Garfield
- Those areas might be flowing and adding nutrients to the system
- Florida Bay crew will be conducting an evaluation of the Bay this week and next

Questions



*Wading birds in the Kissimmee River Phase II Restoration Area
Photograph courtesy of Brent Anderson, SFWMD*