SOUTH FLORIDA WATER MANAGEMENT DISTRICT

Governing Board Meeting
June 11, 2020

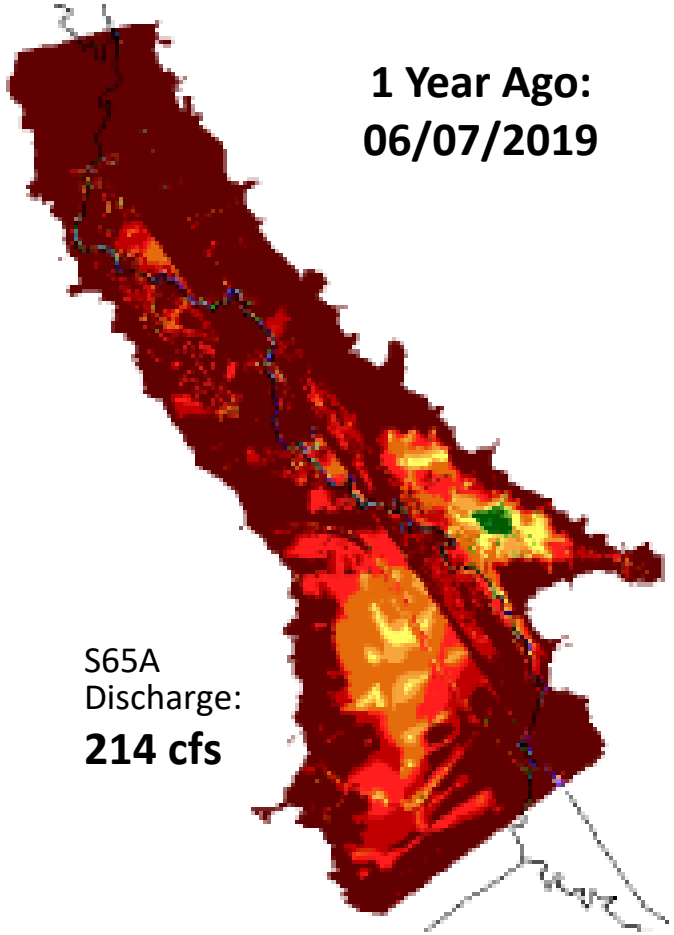
Ecological Conditions Update

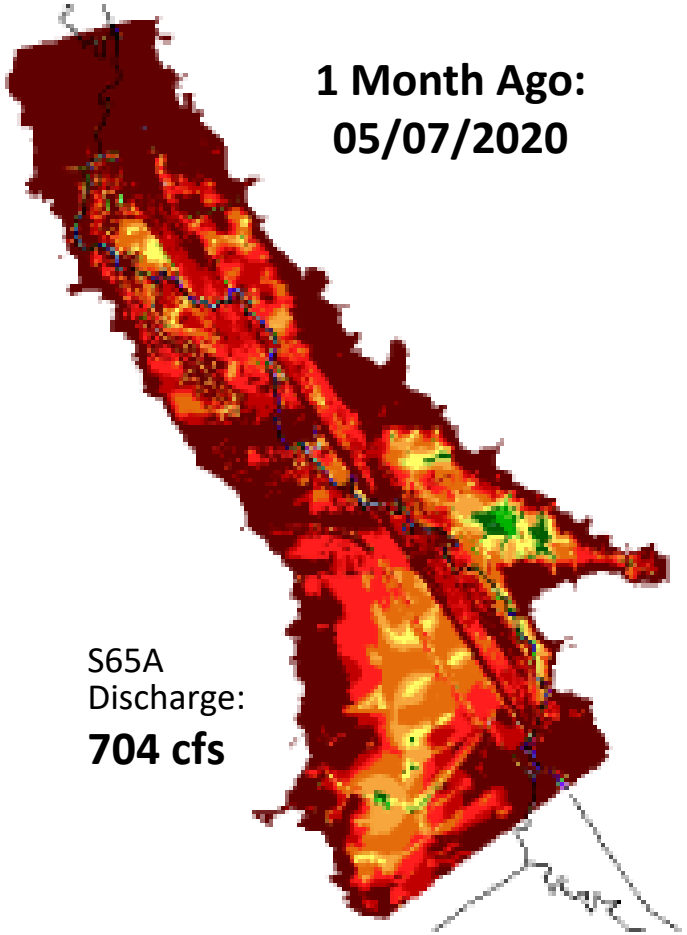
Lawrence Glenn

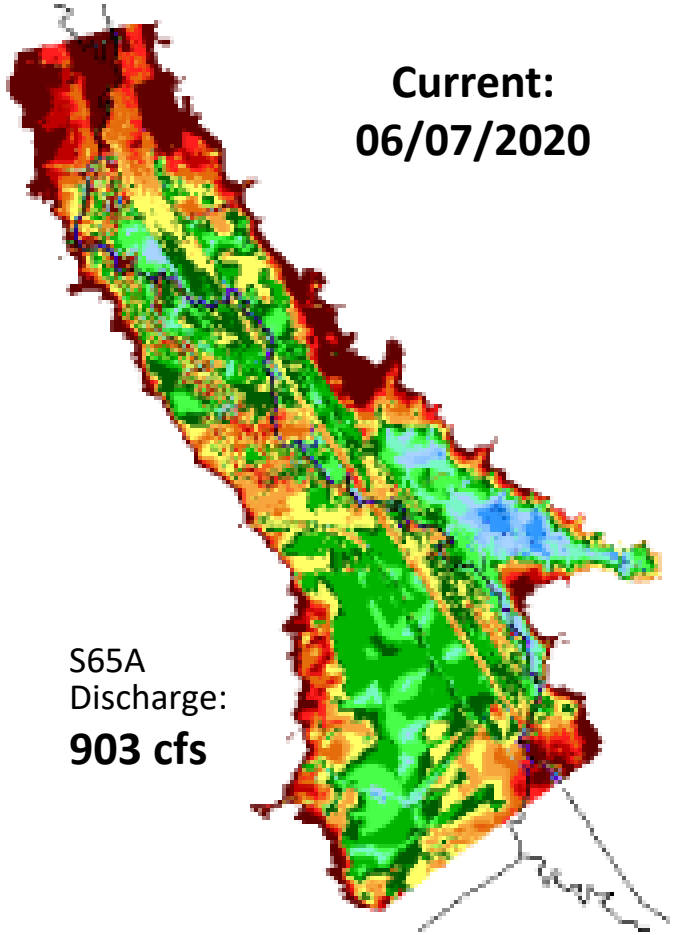
Division Director,
Water Resources

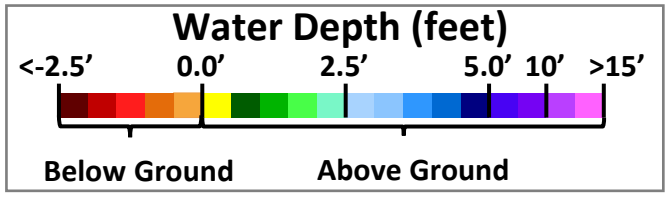
Florida Keys
Photo credit: Anna Wachnicka, SFWMD

Kissimmee River Phase I Restoration Area
Water Depth Maps









Presenter: Lawrence Glenn

East Lake Toho Drawdown Habitat Enhancement

Construction of the northern spoil island. View to south, April 2020

- Habitat enhancement area scraping and spoil islands complete, spoil islands being stabilized
- Temporary pumps at S-59 have been removed

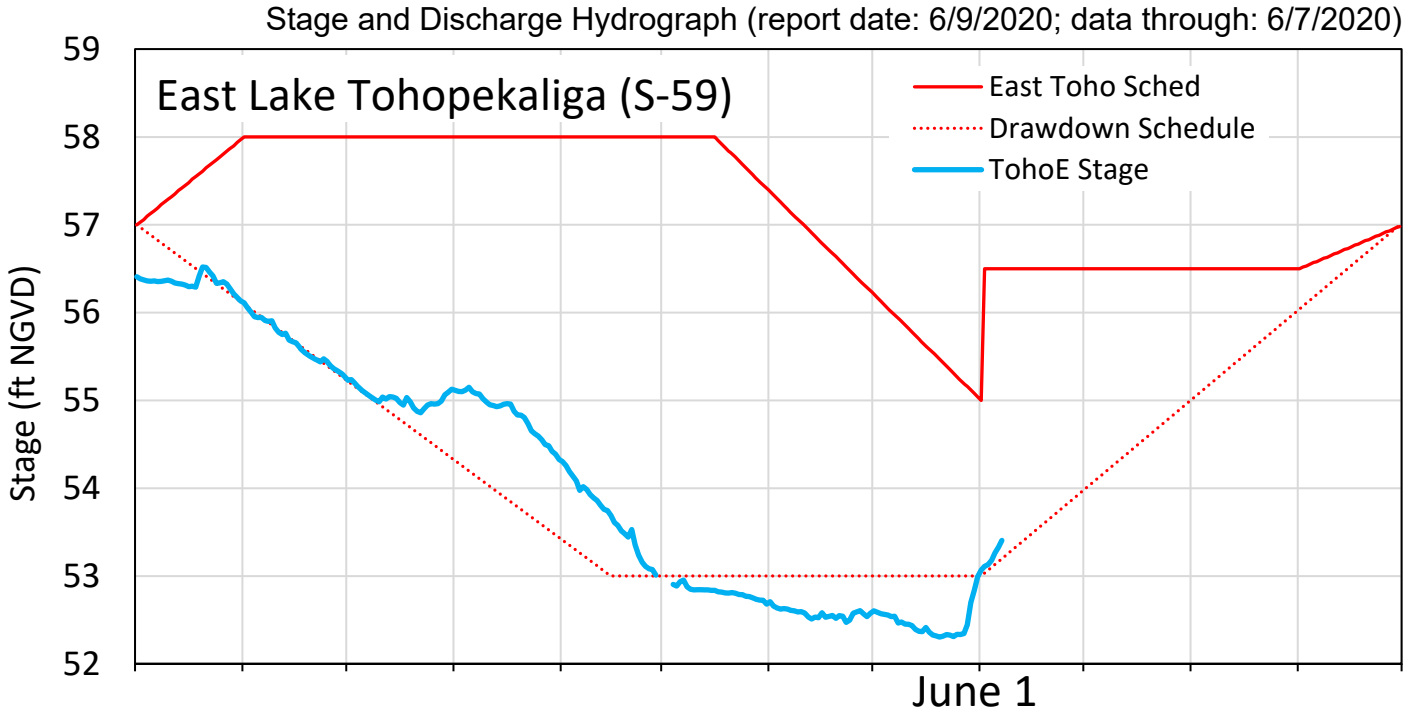
Pumps at S-59, January 2020

Presenter: Lawrence Glenn

East Lake Toho Drawdown Habitat Enhancement

North-side burn conducted 3/12/20 - 3/13/20

- Rx burning—170 acres of dense cattail on north edge of lake burned
- Habitat enhancement project complete and water level is rising



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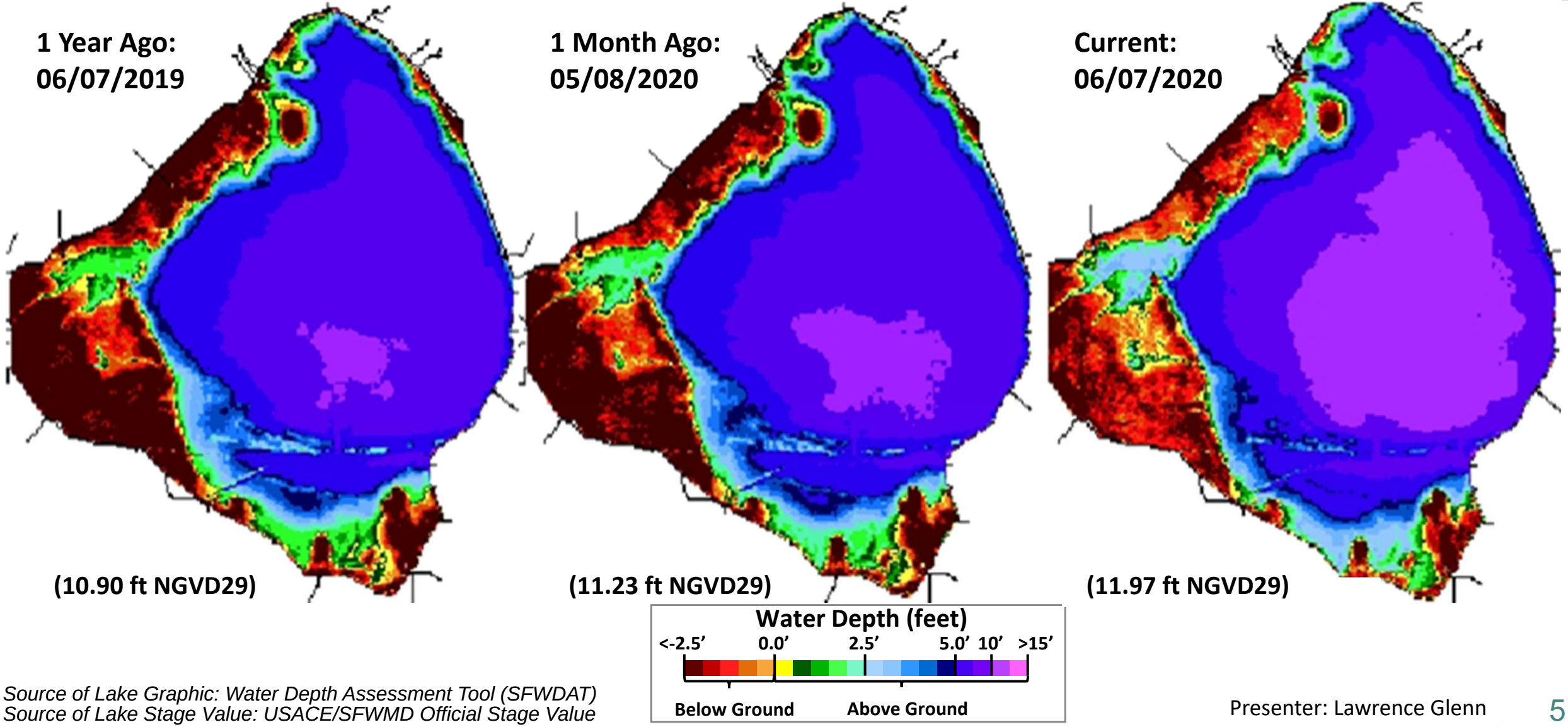
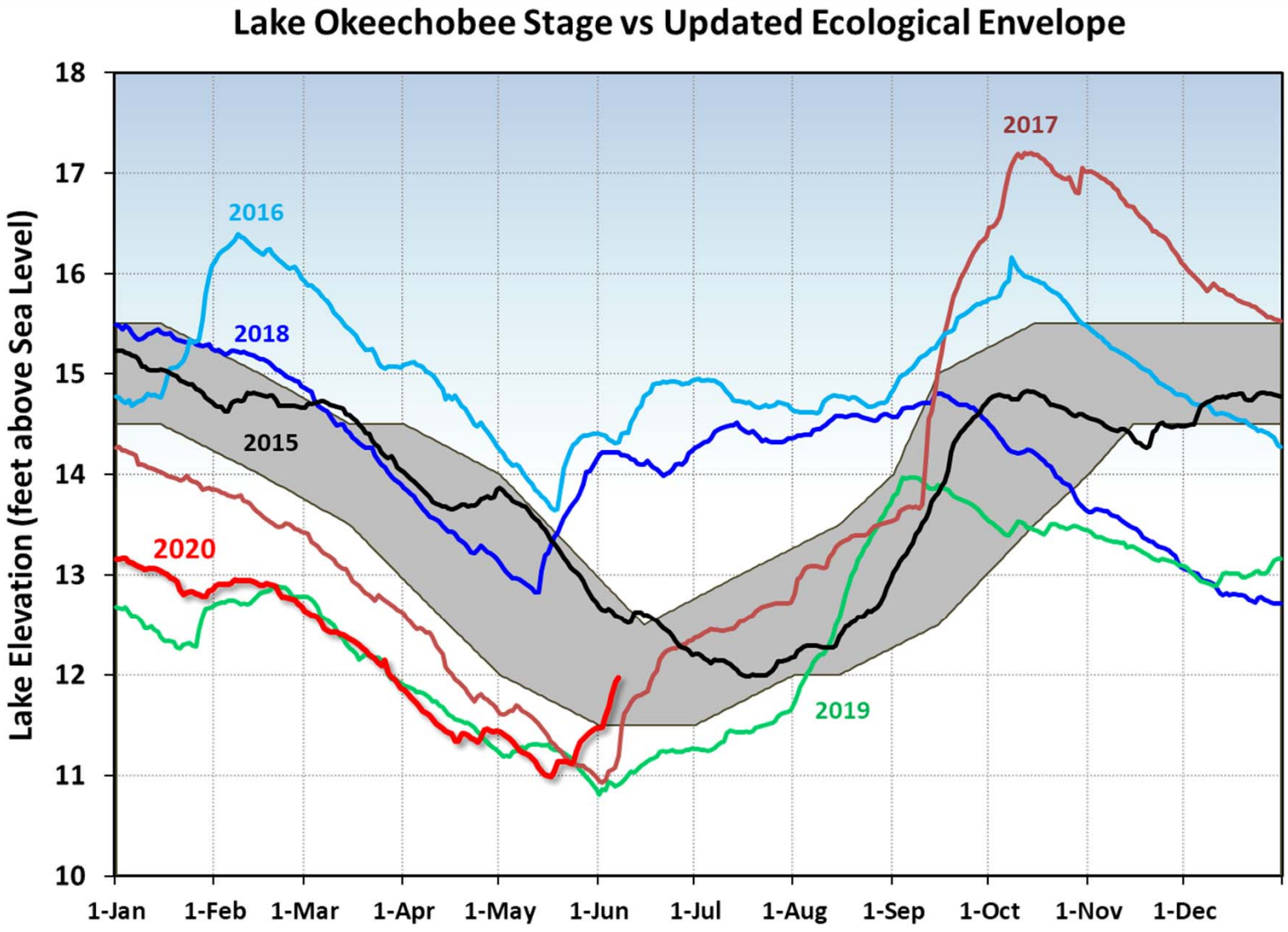
Lake Okeechobee Water Depth Maps



Source of Lake Graphic: Water Depth Assessment Tool (SFWDAT)
Source of Lake Stage Value: USACE/SFWMD Official Stage Value

Presenter: Lawrence Glenn

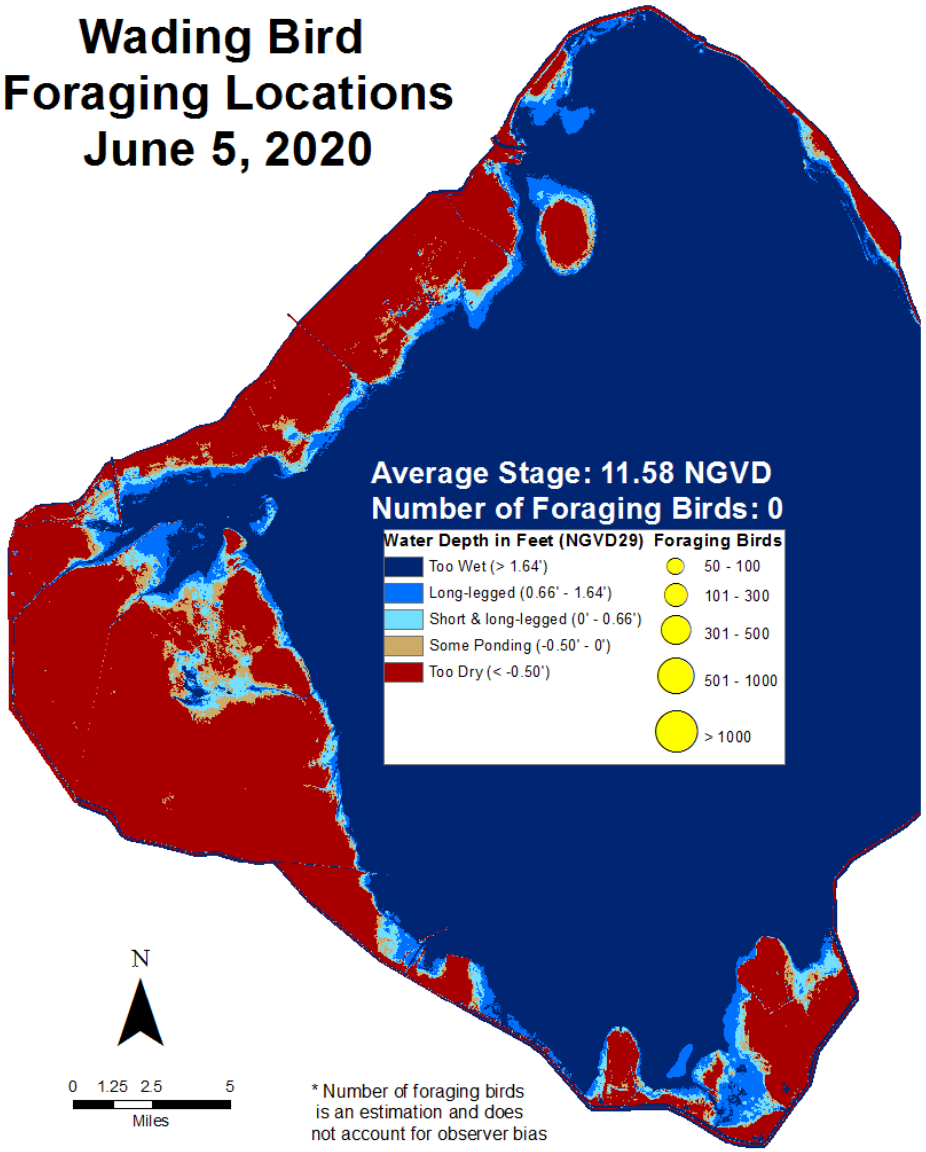
Lake Okeechobee Stages and Ecological Envelope

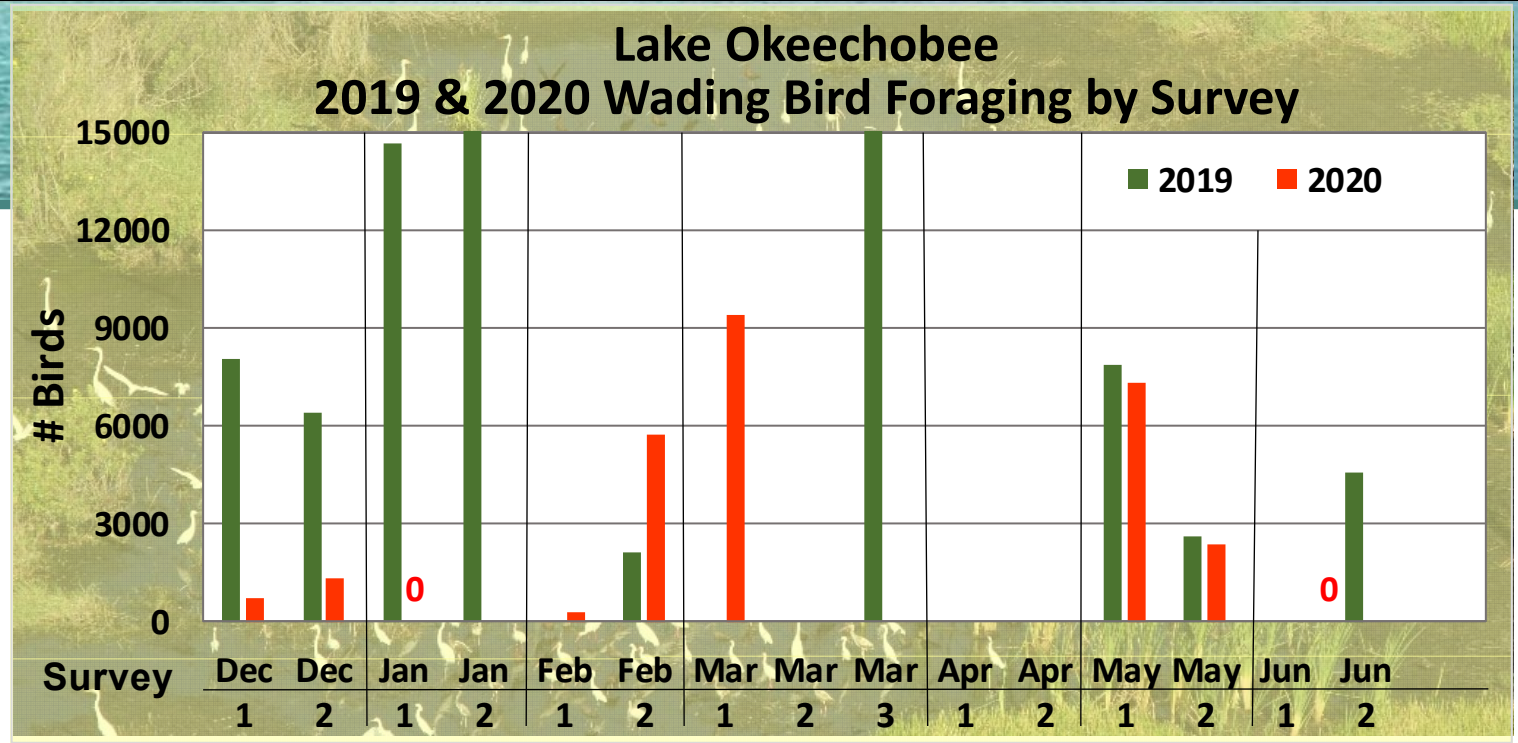


Vallisneria, NW Shore 2020

Presenter: Lawrence Glenn

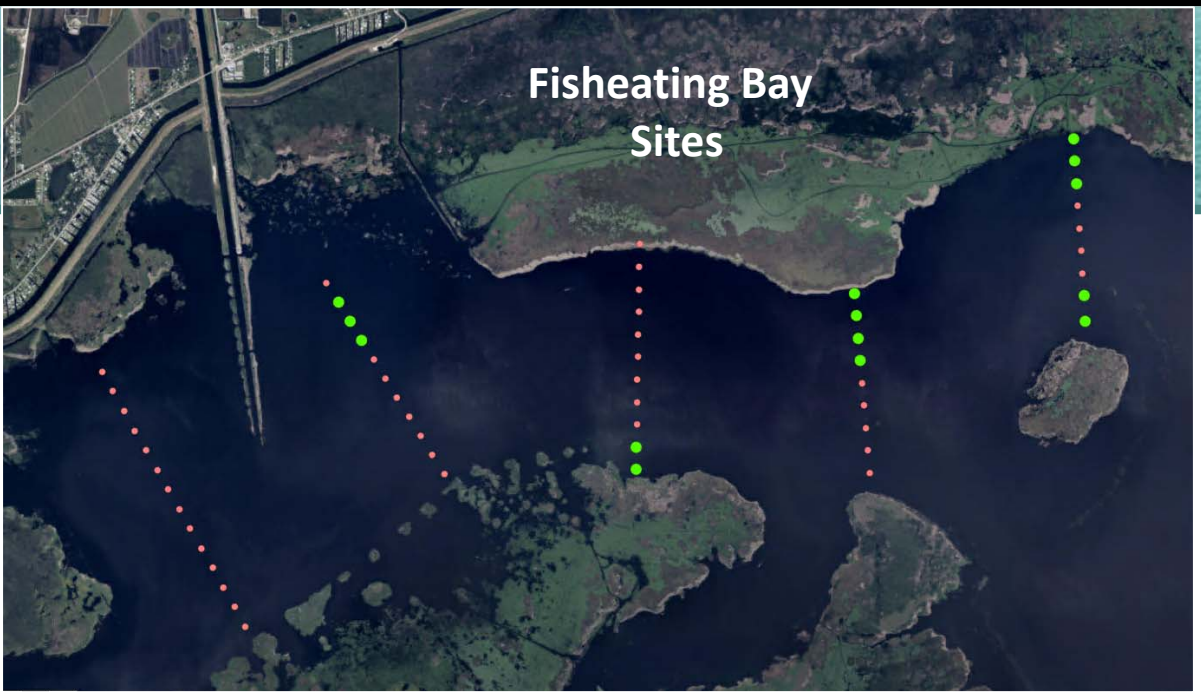
Lake Okeechobee
Foraging Wading Birds

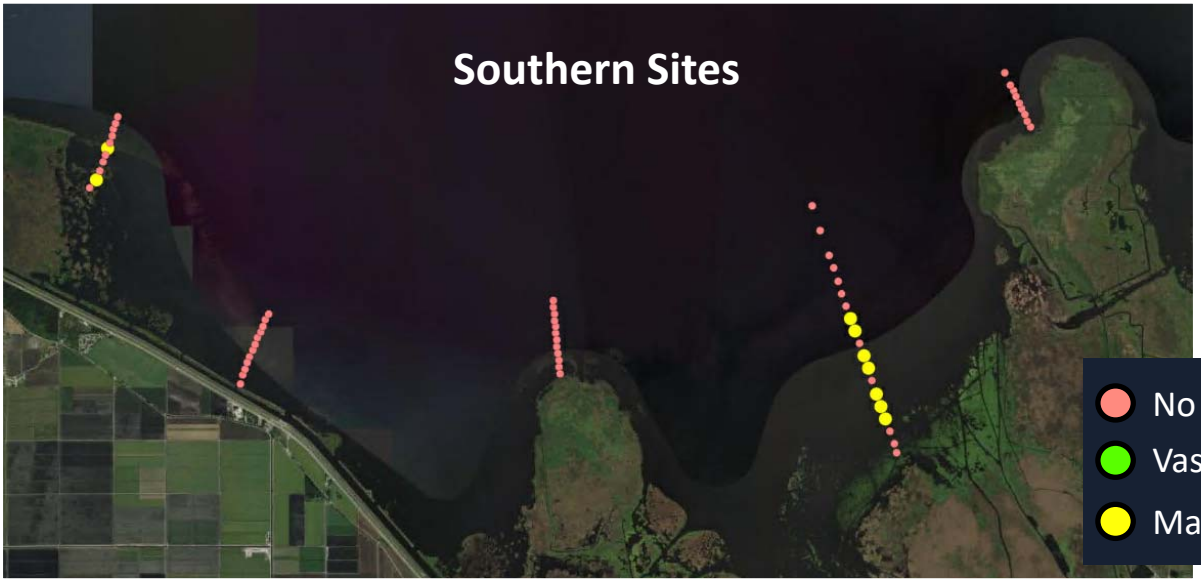


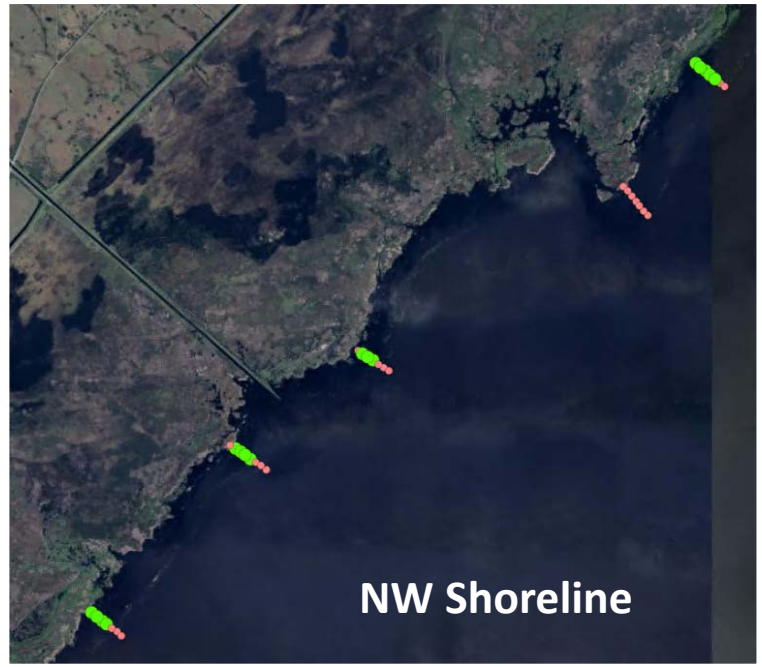


Presenter: Lawrence Glenn

Lake Okeechobee
SAV Spring Monitoring



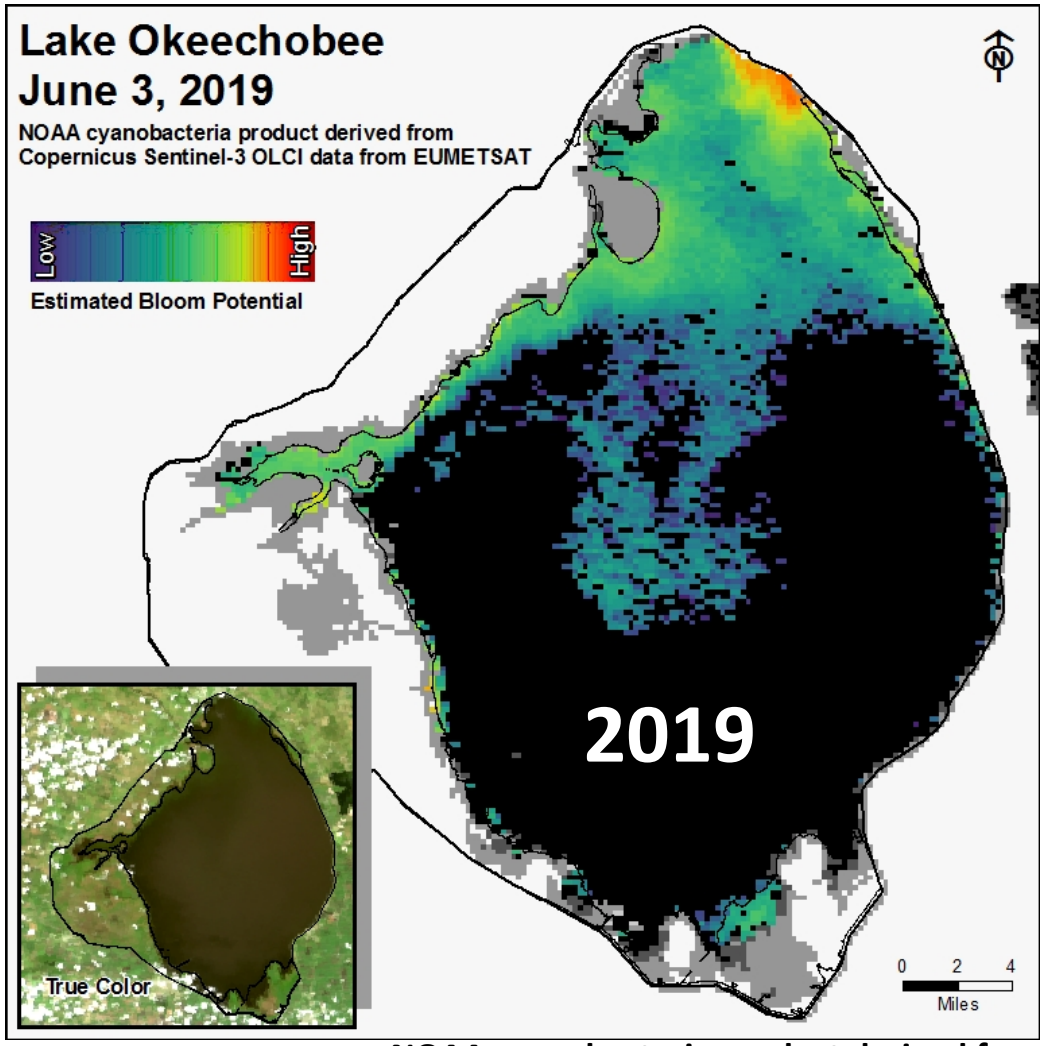


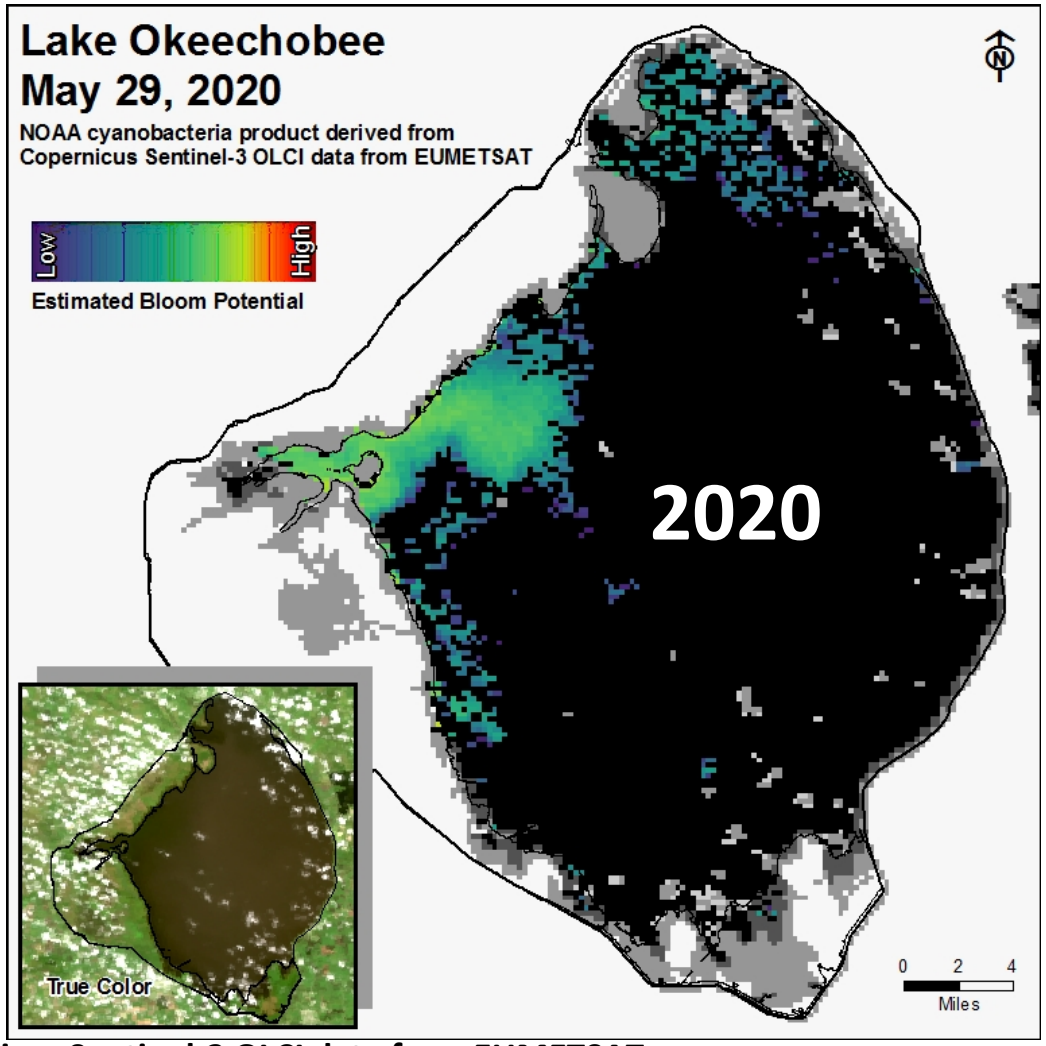


- Dense *Vallisneria* along NW/SW shores
- FEB – patchy, dense in some areas
- Little recovery in south, all Chara (no vascular species)

* SAV = Submerged Aquatic Vegetation

Lake Okeechobee
Cyanobacteria Bloom Potential





NOAA cyanobacteria product derived from Copernicus Sentinel-3 OLCI data from EUMETSAT

SOUTH FLORIDA WATER MANAGEMENT DISTRICT

Lake Okeechobee Water Quality

Provisional Data

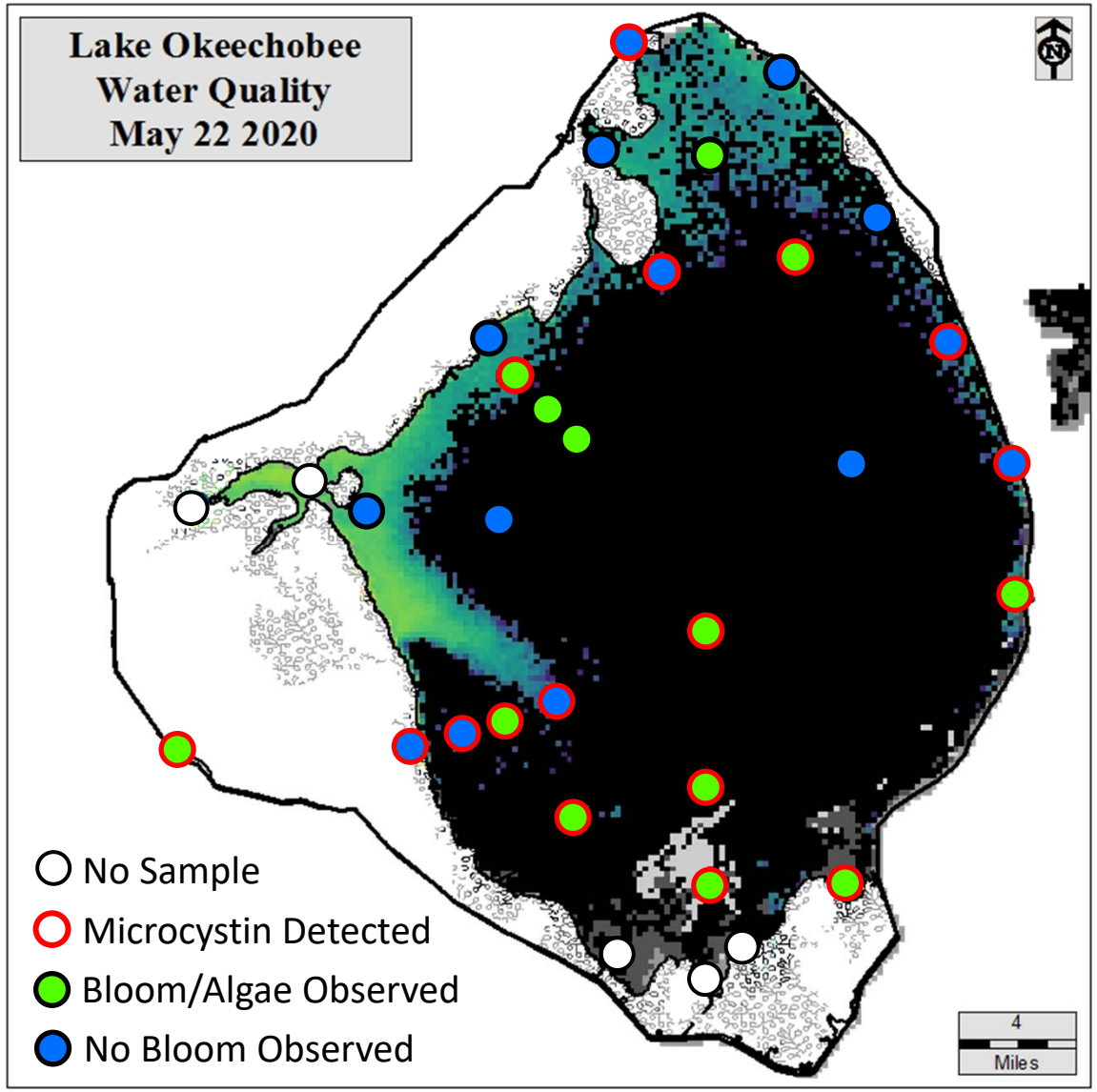
Samples collected on May 18 - 21, 2020

NEARSHORE	CHLa (ug/L)	TOXIN (ug/L)	TAXA
FEBIN	NS	NS	NS
FEBOUT	NS	NS	NS
KISSR0.0	**39.7**	BDL	ND
L005	**78.0**	BDL	*Cylindro*
LZ2	**34.8**	0.66	ND
KBARSE	**29.6**	0.30	*Microcystis*
RITTAE2	NS	NS	NS
PELBAY3	7.9	**5.67**	ND
POLE3S	NS	NS	NS
LZ25A	NS	NS	NS
PALMOUT	17.4	BDL	*Microcystis*
PALMOUT1	15.5	0.50	*Microcystis*
PALMOUT2	**20.9**	**3.89**	*Microcystis*
PALMOUT3	**25.8**	0.48	*Microcystis*
POLESOUT	**35.0**	BDL	*Cylindro*
POLESOUT1	**23.2**	0.63	*Microcystis*
POLESOUT2	15.6	BDL	*Microcystis*
POLESOUT3	9.9	BDL	ND
EASTSHORE	**44.9**	0.78	*Microcystis*
NES135	**39.8**	BDL	*Microcystis*
NES191	**36.4**	BDL	*Planktol*

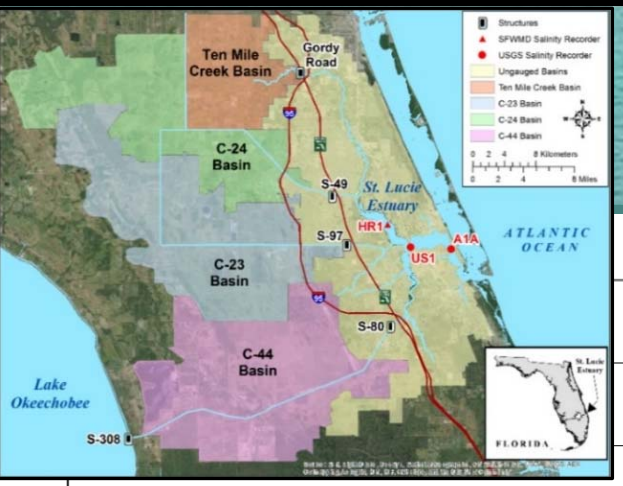
PELAGIC	CHLa (ug/L)	TOXIN (ug/L)	TAXA
L001	**29.6**	BDL	*Microcystis*
L004	9.6	BDL	ND
L006	**21.6**	**12.60**	*Microcystis*
L007	4.76	**26.50**	*Microcystis*
L008	8.9	BDL	ND
LZ30	11.5	**3.40**	*Microcystis*
LZ40	9.5	**7.05**	*Microcystis*
CLV10A	17.3	0.55	*Dolicho*
NCENTER	18.6	0.39	ND
S-308	**32.3**	0.48	*Microcystis*
S-77	12.7	0.26	*Microcystis*

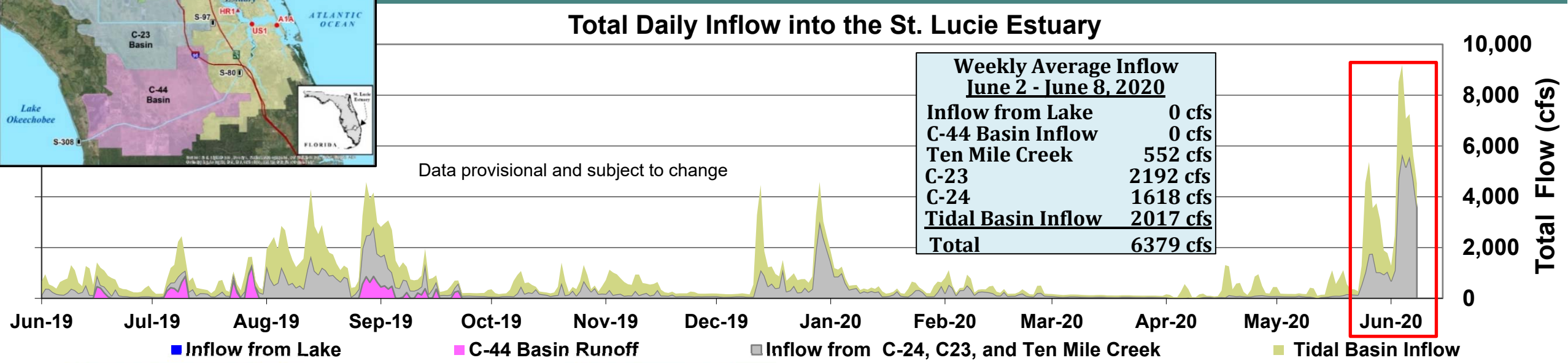
- SFWMD considers >40 µg/L Chlorophyll *a* (Chl*a*) an algal bloom
- BDL – Below Detectable Limit of **0.25** µg/L
- ND – No Dominant taxa
- P – Pending
- NS – Not Sampled
- Bold – crew observed possible bloom
- Chlorophyll *a* analyzed by SFWMD
- Toxin and Taxa analyzed by FDEP

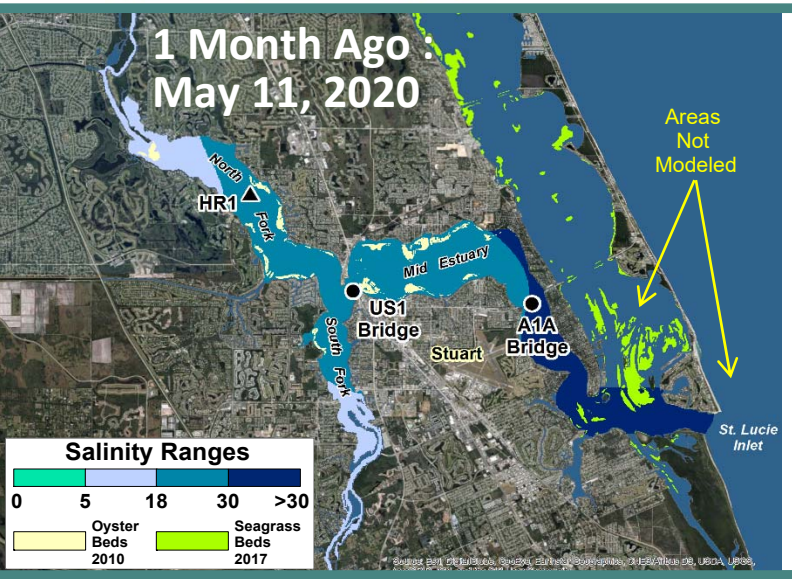
Cylindro = Cylindrospermopsis
Planktol = Planktolyngbya
Dolicho = Dolichospermum

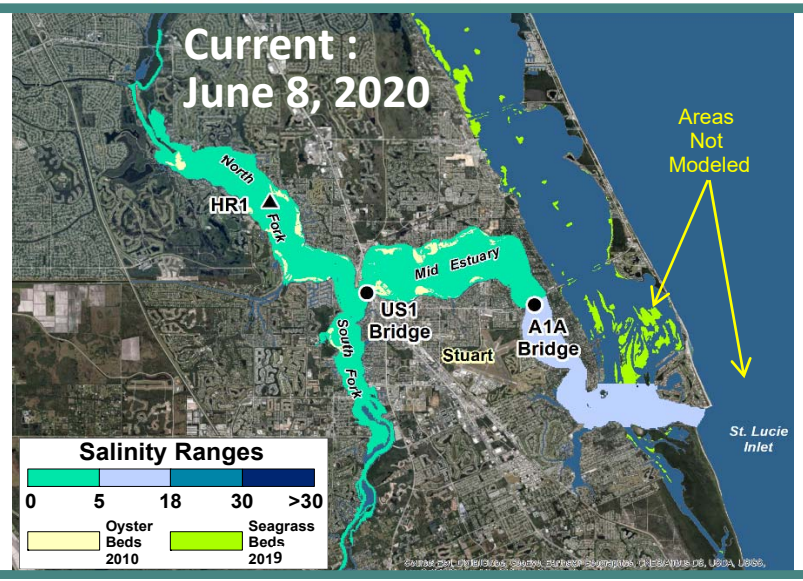


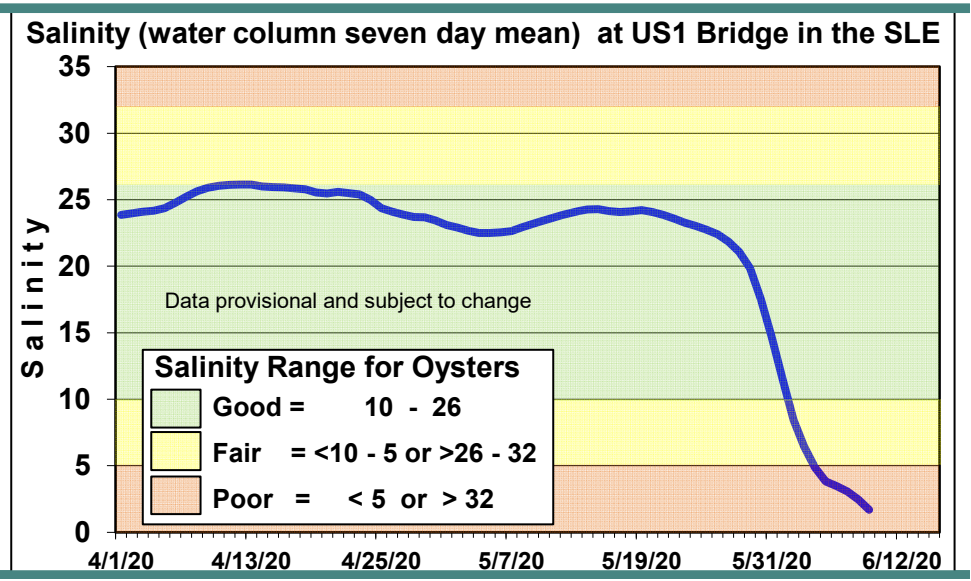
St. Lucie Inflows and Salinity Conditions





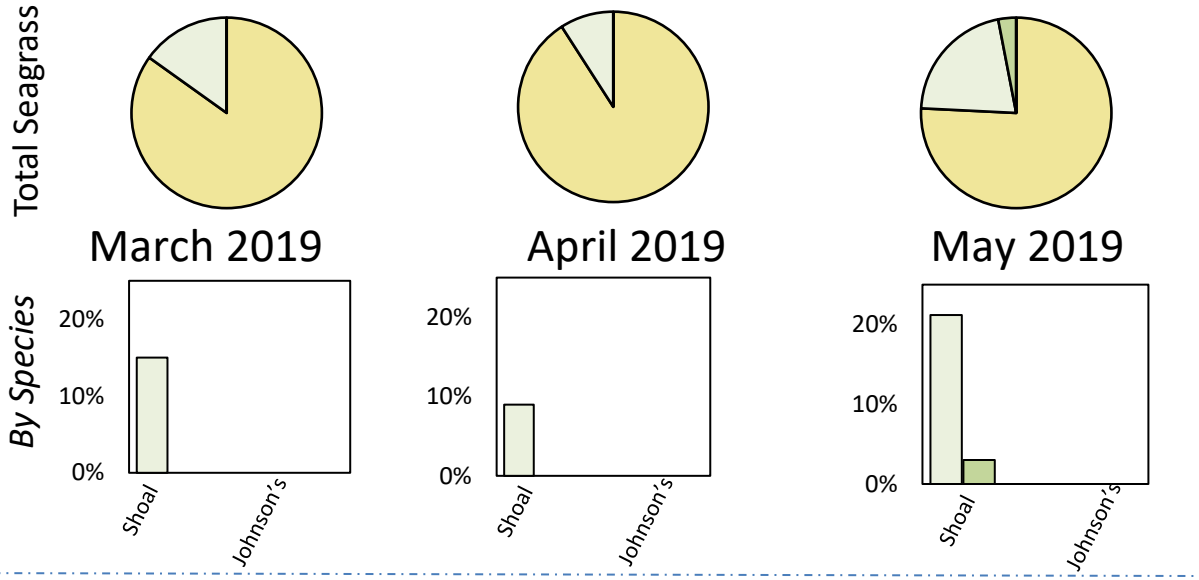


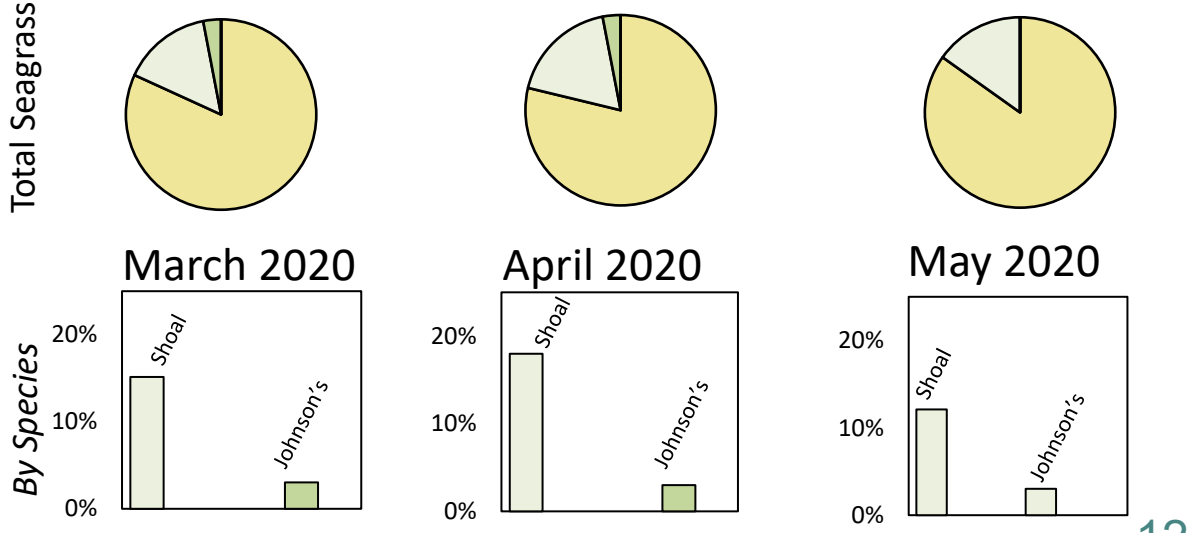




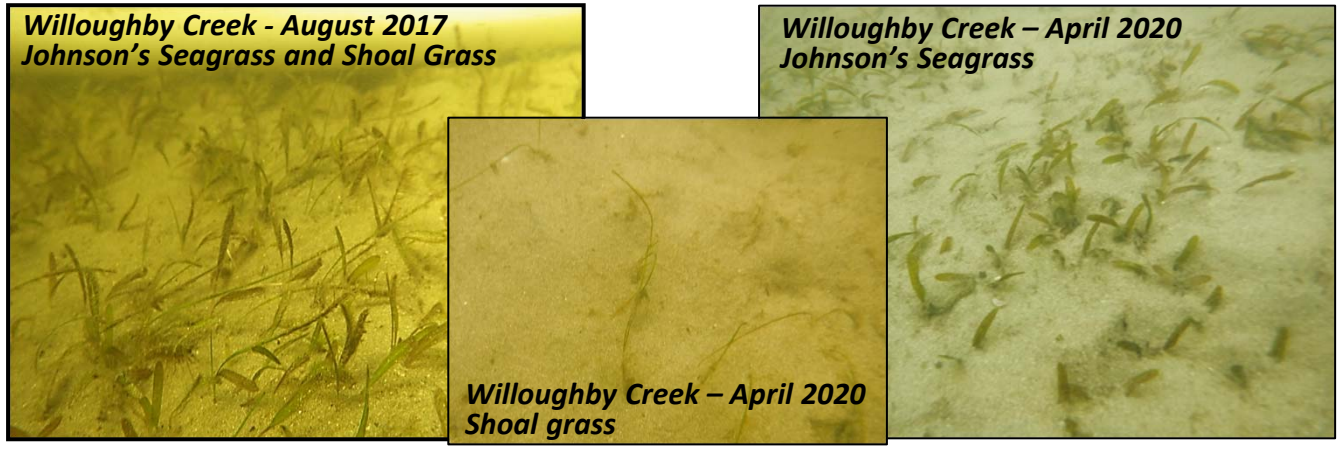
St. Lucie Estuary Seagrass – Willoughby Creek Site

Seagrass % cover categories:
- 0 %
- < 5%
- 6-25%
- 26-50%
- 51-75%





- March-May 2019 (top figures) and 2020 (bottom figures)
- Relative number of quadrats along the transects in each of the percent seagrass cover categories by total seagrass (pie charts) and by species (bar graphs)



Presenter: Lawrence Glenn

St. Lucie Seagrass – St. Lucie Inlet Site

Seagrass % cover categories:
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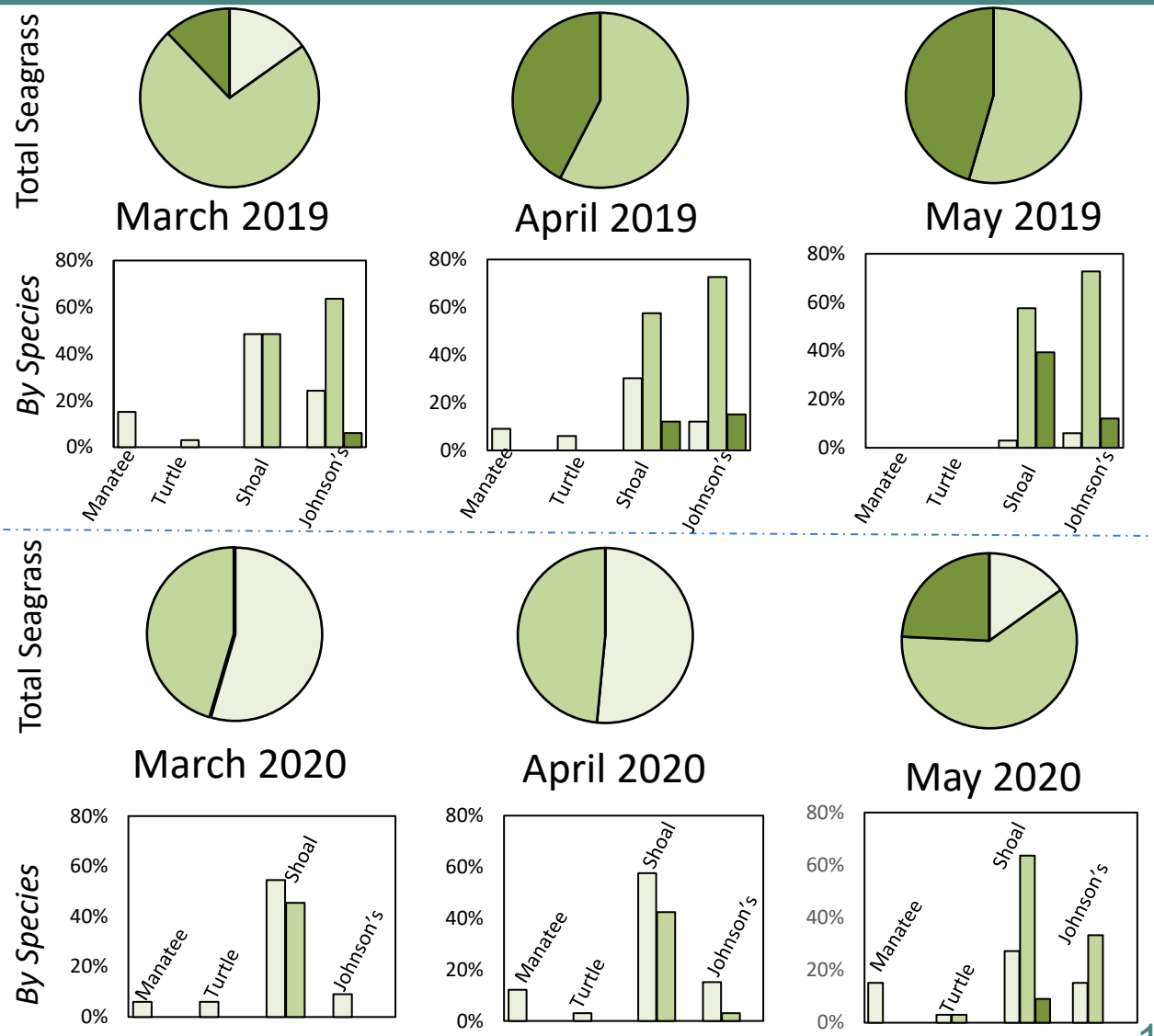
- 51-75%



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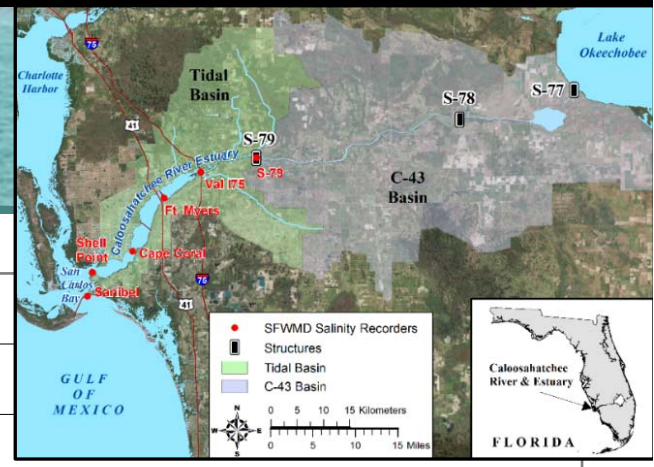
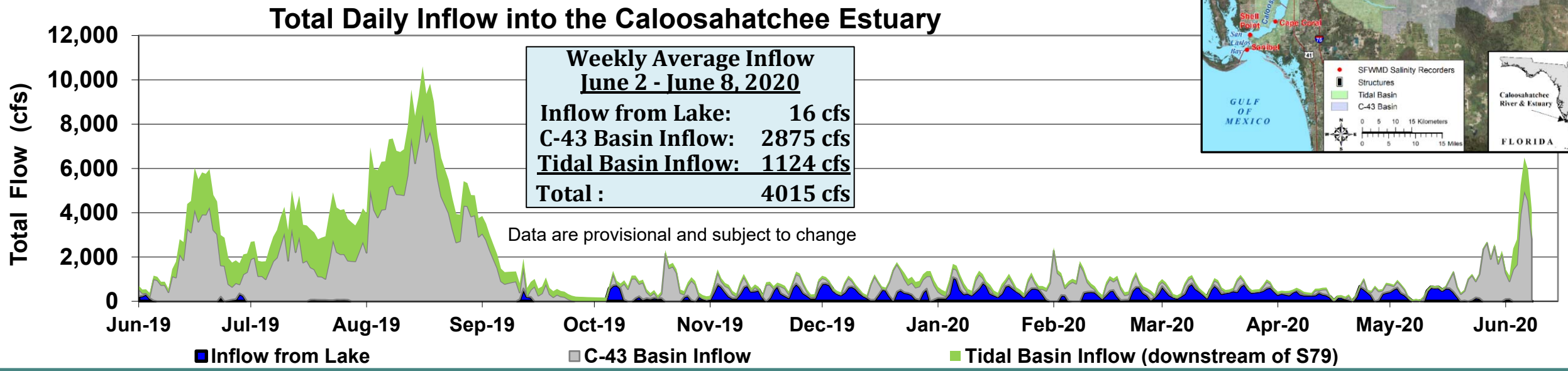
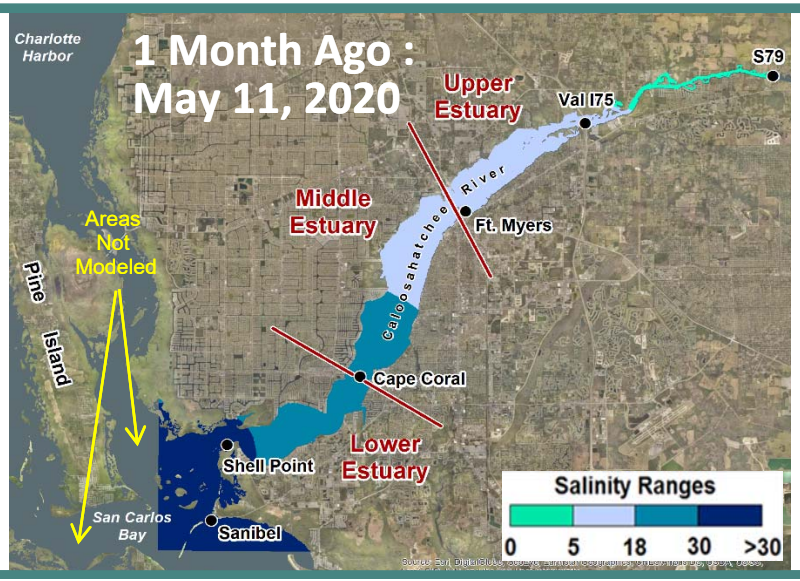
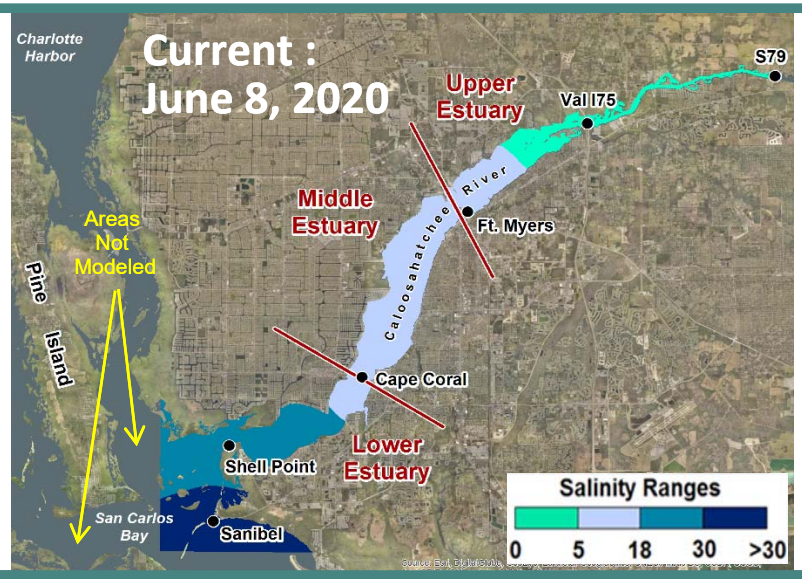
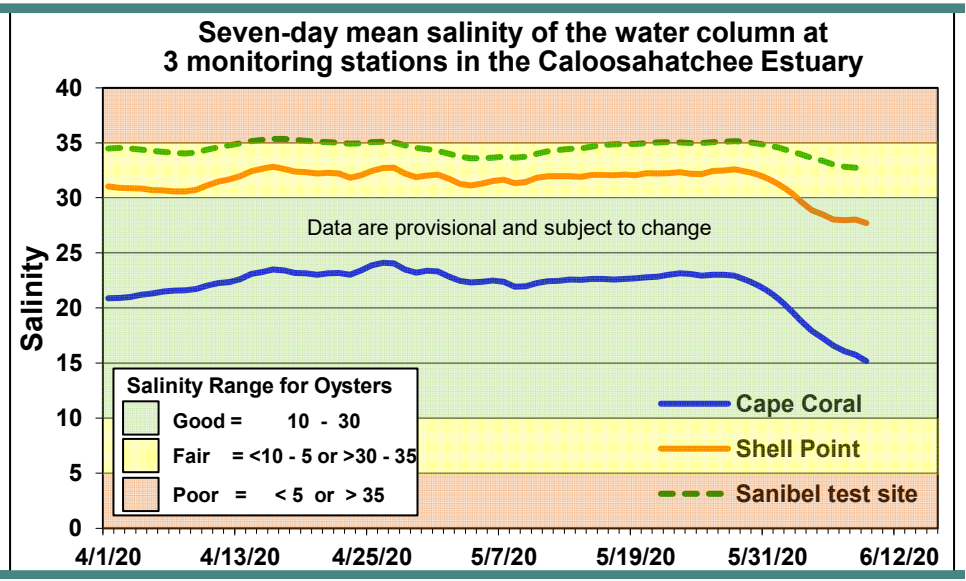
Caloosahatchee Inflows and Salinity Conditions



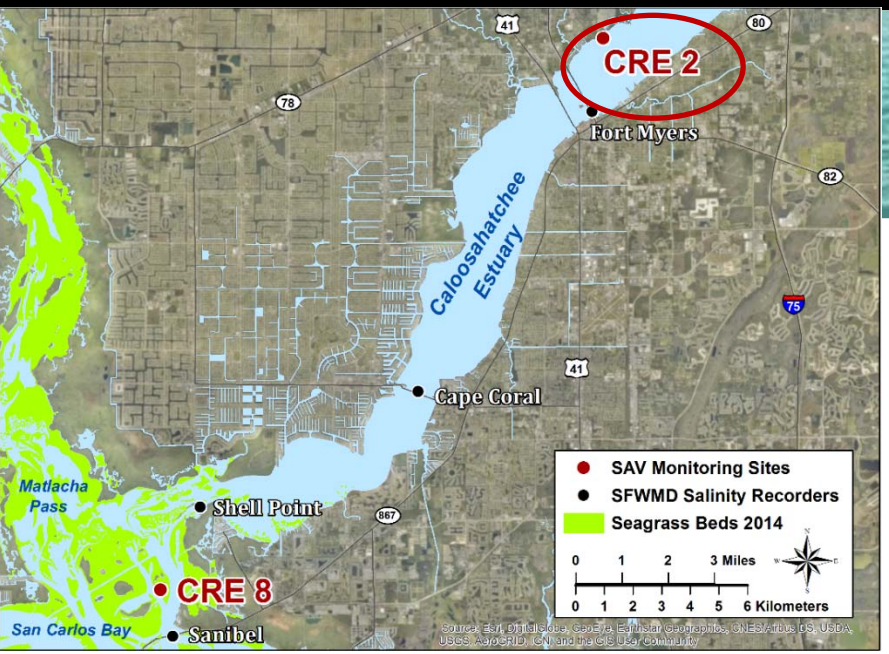








Caloosahatchee River Estuary – CRE 2 SAV (Submerged Aquatic Vegetation)



SAV
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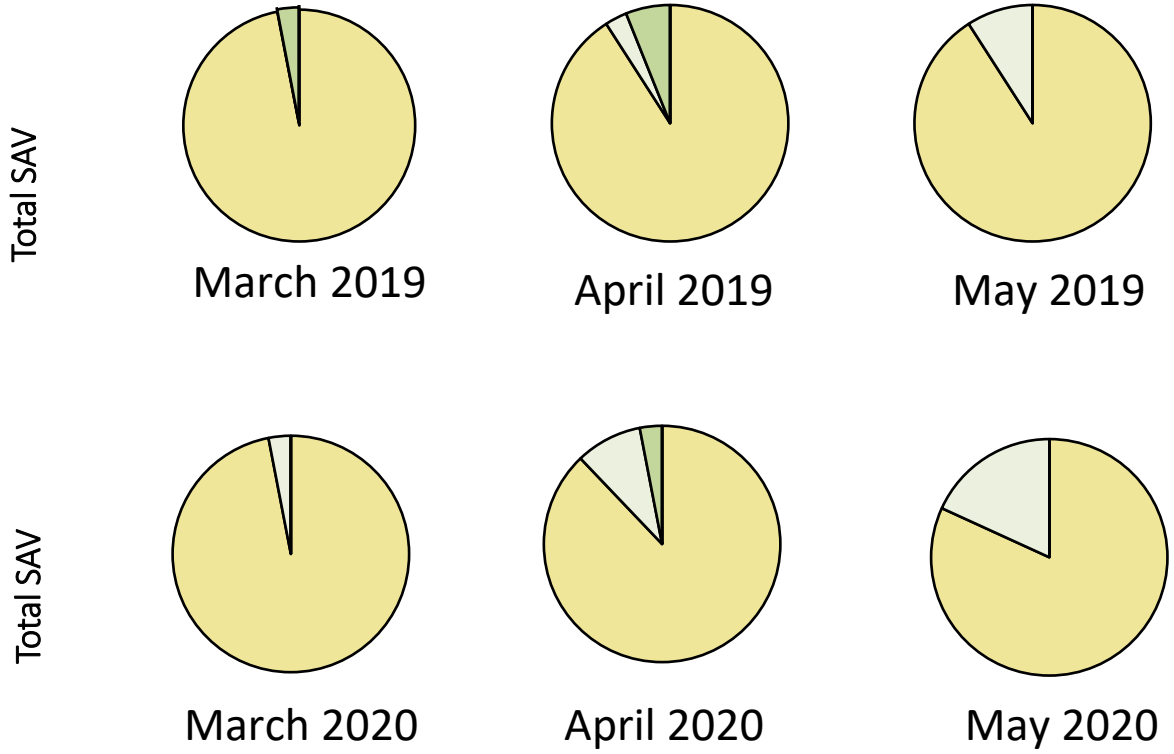
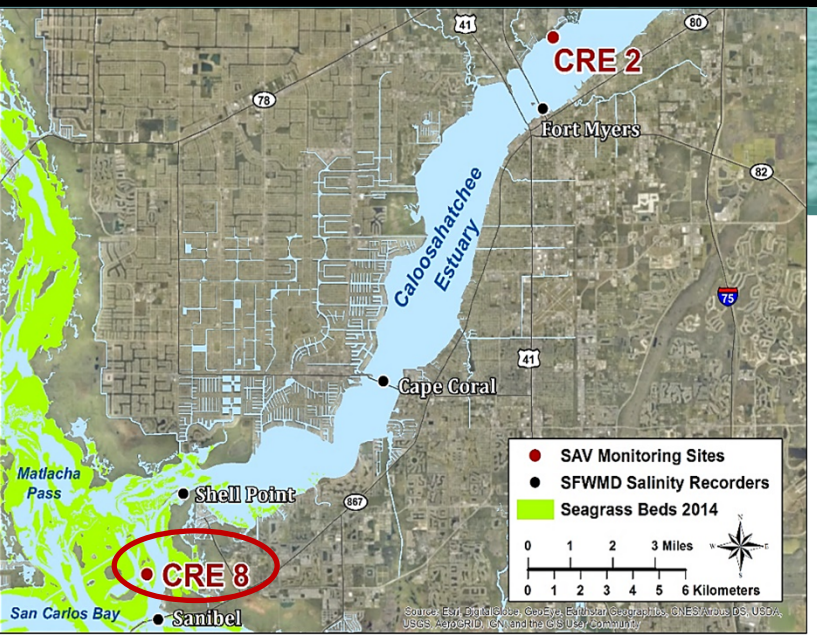


- March-May 2019 (top figures) and 2020 (bottom figures)
- Relative number of quadrats along the transects in each of the percent seagrass cover categories by total seagrass
- The only species of SAV observed in the quadrats on these sampling dates was widgeon grass (*Ruppia maritima*)

Presenter: Lawrence Glenn

Caloosahatchee River Estuary - CRE 8 Seagrass



Seagrass % cover categories:

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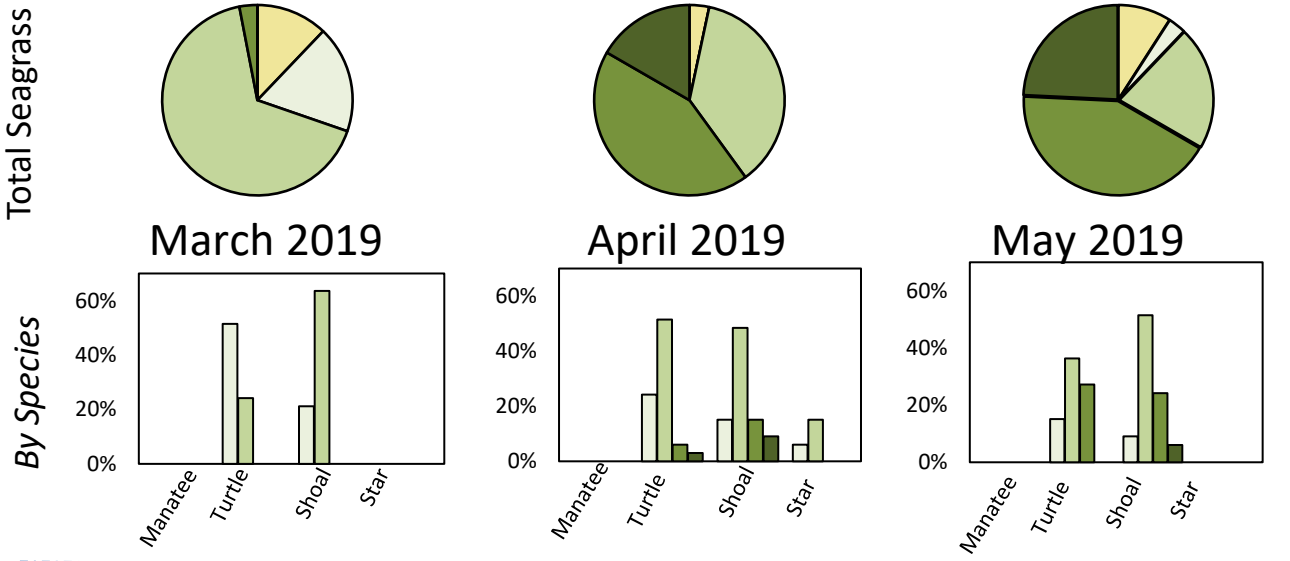
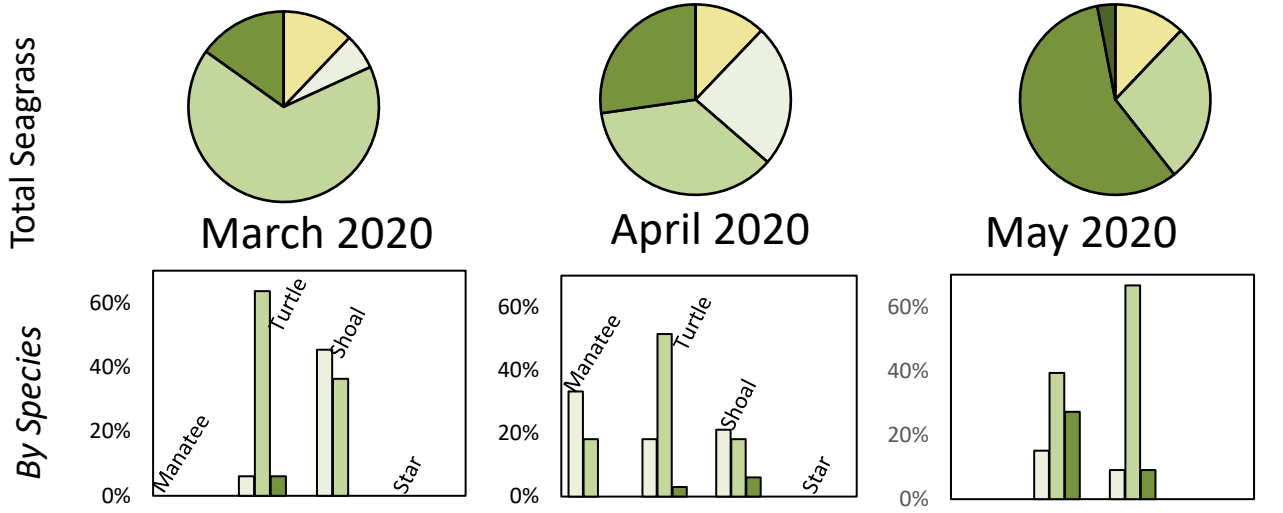
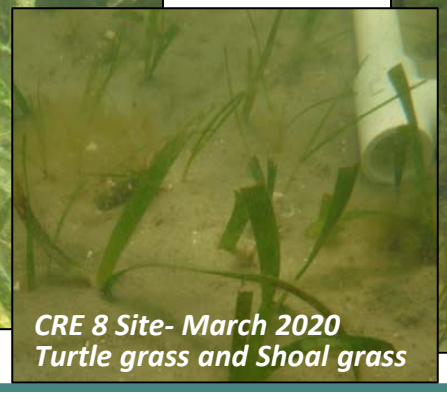




- March-May 2019 (top figures) and 2020 (bottom figures)
- Relative number of quadrats along the transects in each of the percent seagrass cover categories by total seagrass (pie charts) and by species (bar graphs)

CRE 8 Site- May 2019
Turtle grass and Shoal grass


CRE 8 Site- March 2020
Turtle grass and Shoal grass

CRE 8 Site- May 2020
Turtle grass and Shoal grass

Presenter: Lawrence Glenn

Everglades Stormwater Treatment Areas (STAs)

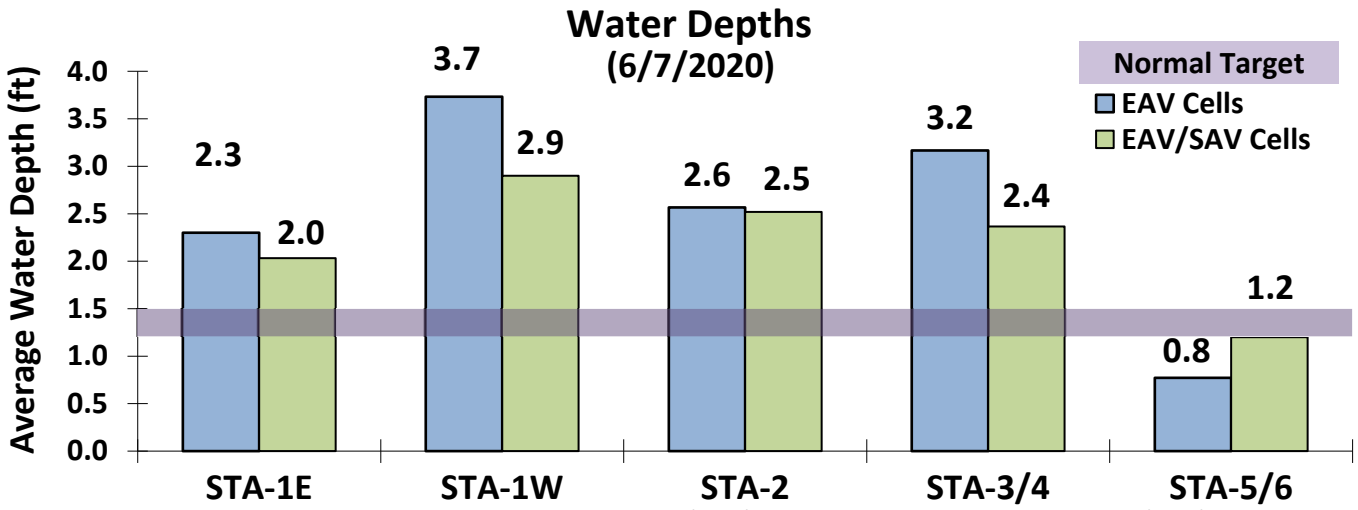
- STAs treated basin runoff and Lake Okeechobee releases in May and early June
  - Total Inflows to STAs in WY2021 ~169,000 ac-ft
  - Lake Okeechobee releases to STAs in WY2021 ~ 9,500 ac-ft (6% of total)

- Most treatment cells are above target depth except for STA-5/6 which is rehydrating after dry-out

Water Year 2021
5/1/2020 to 6/7/2020

	STA-1E	STA-1W	STA-2	STA-3/4	STA-5/6
Inflow TP Concentration (ppb)	97	178	115	62	237
Outflow TP Concentration (ppb)	17	26	18	14	n/a
365-day Phosphorus Loading Rate ($g/m^2/yr$)	1.5	1.3	0.5	0.3	0.7
Inflow Volume (ac-ft)	32,000	42,000	54,000	38,000	2,700

Includes preliminary data; all concentrations are flow-weighted means



Includes preliminary data; Emergent Aquatic Vegetation (EAV); Submerged Aquatic Vegetation (SAV)

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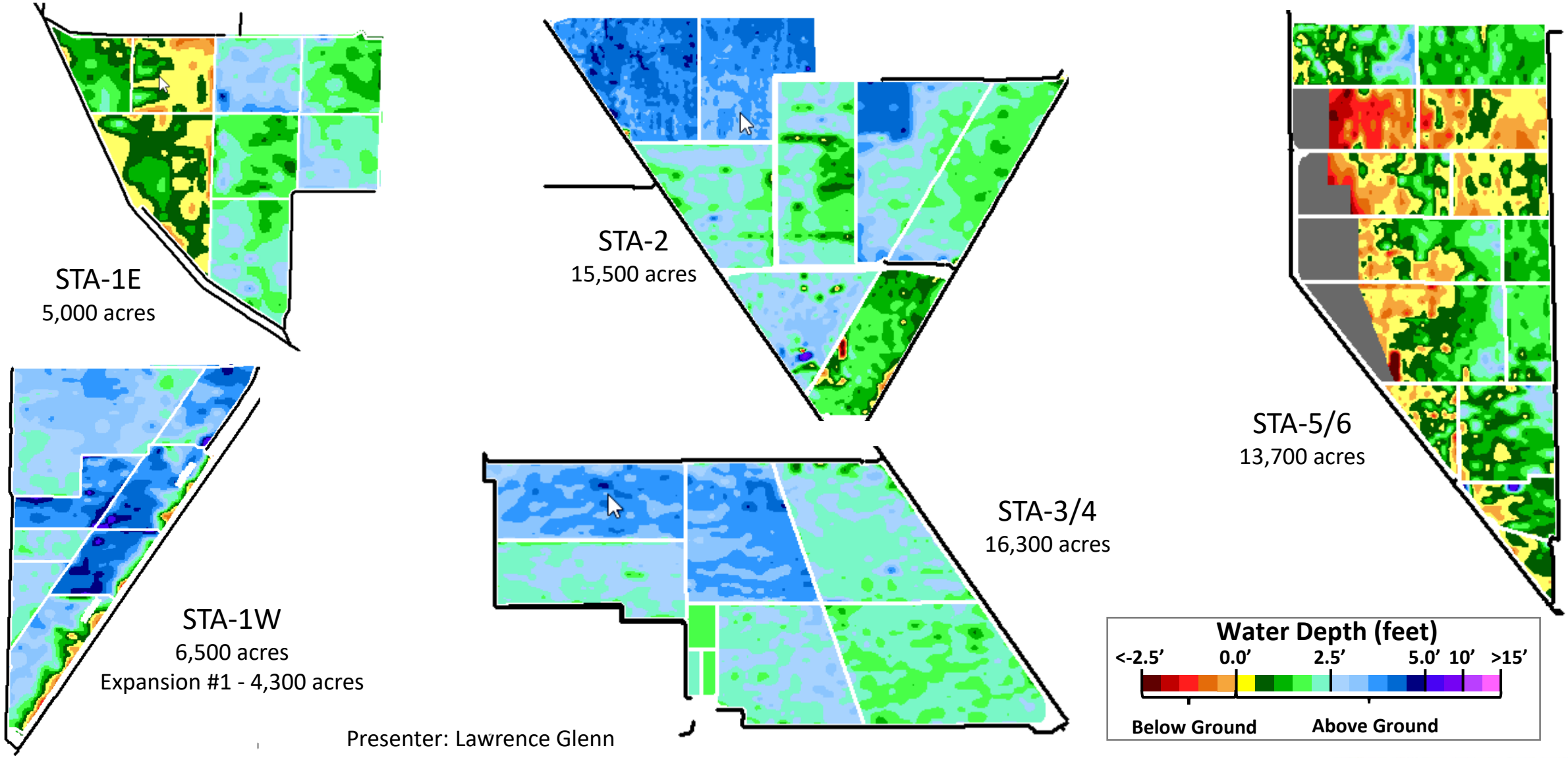
Everglades Stormwater Treatment Ares

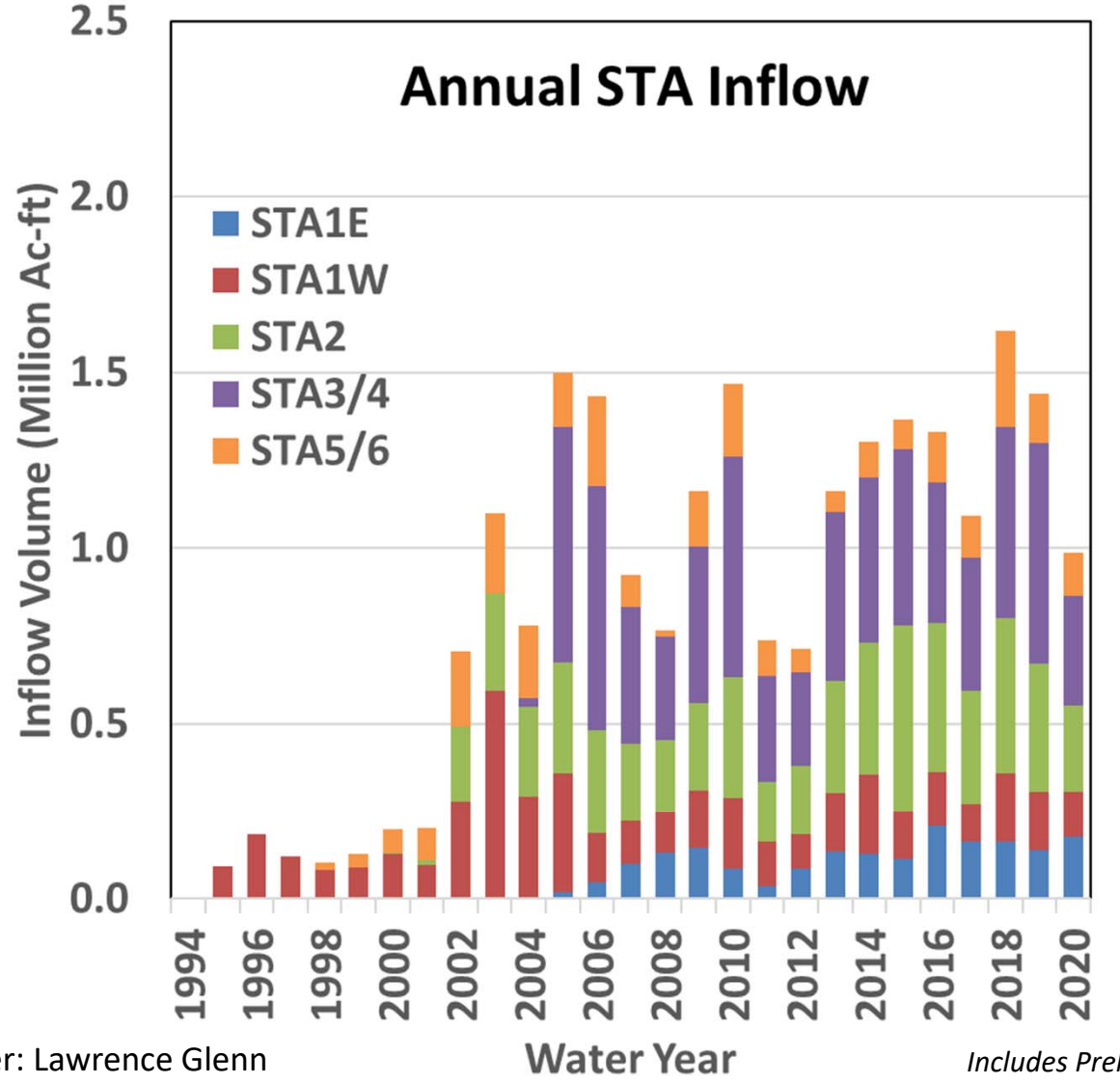
Daily Average Water Depths on 6/7/2020

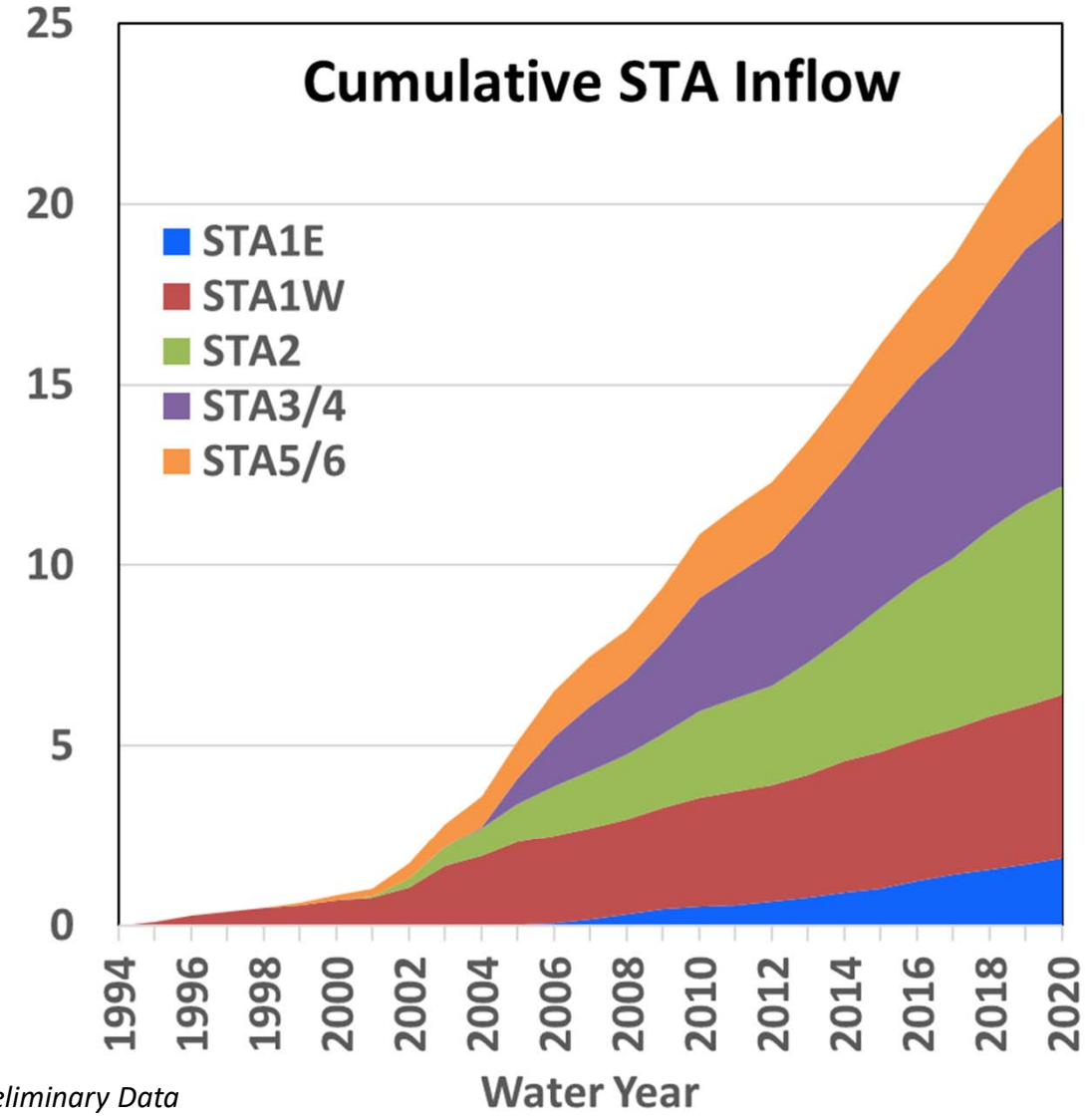


Presenter: Lawrence Glenn

Everglades Stormwater Treatment Areas

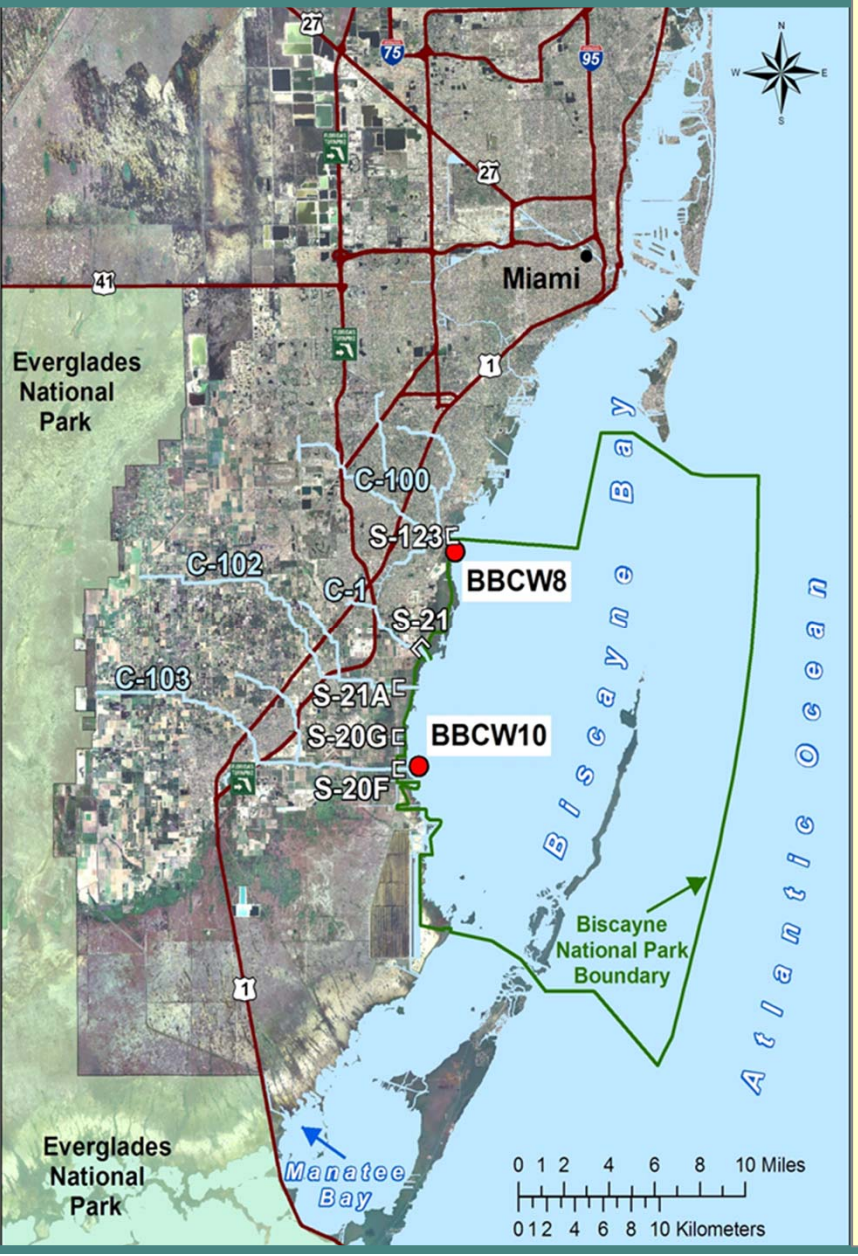
Period of Record Inflow Volumes

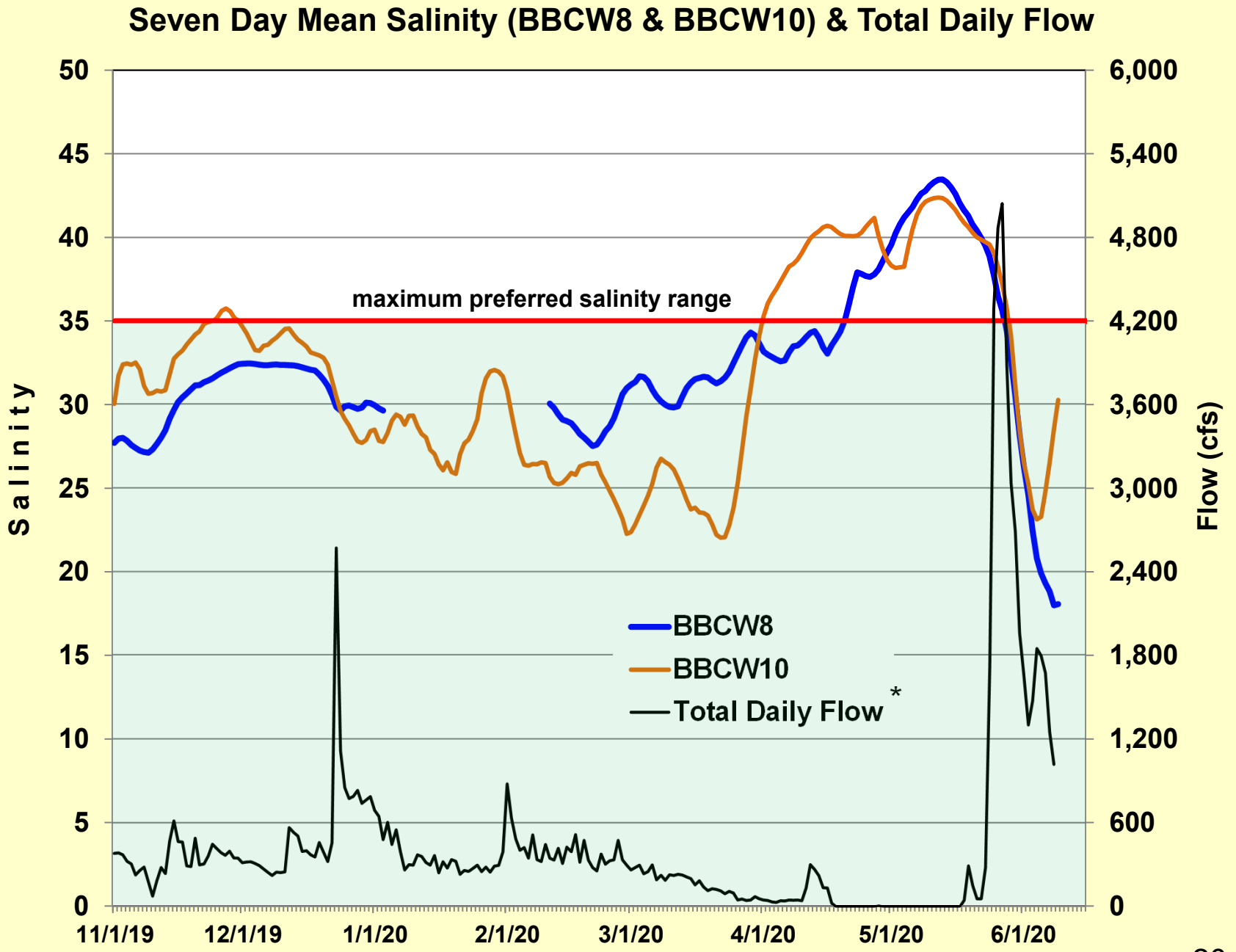




Includes Preliminary Data

Biscayne Bay

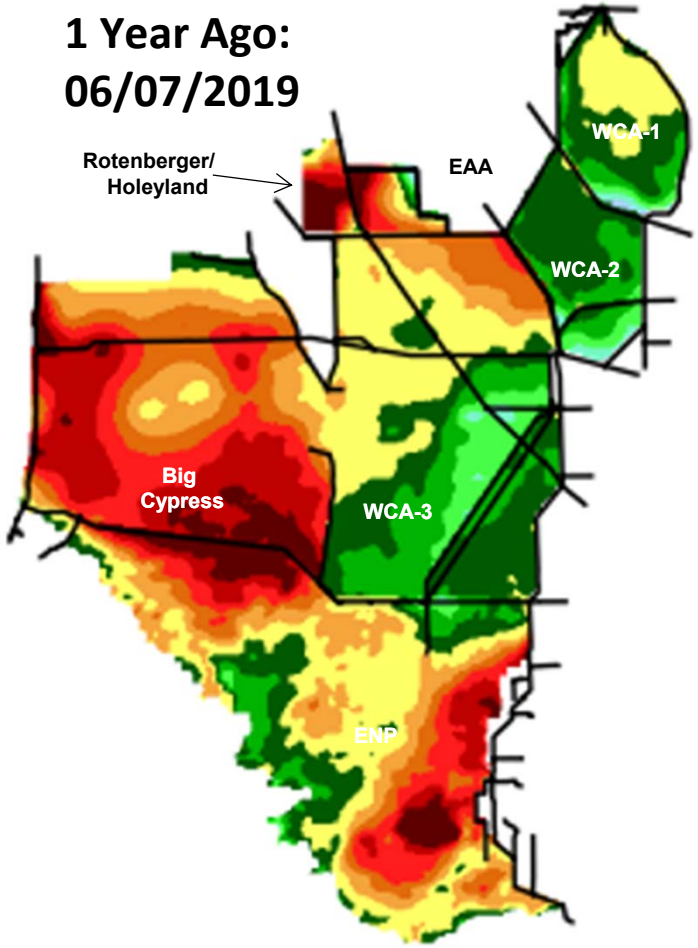




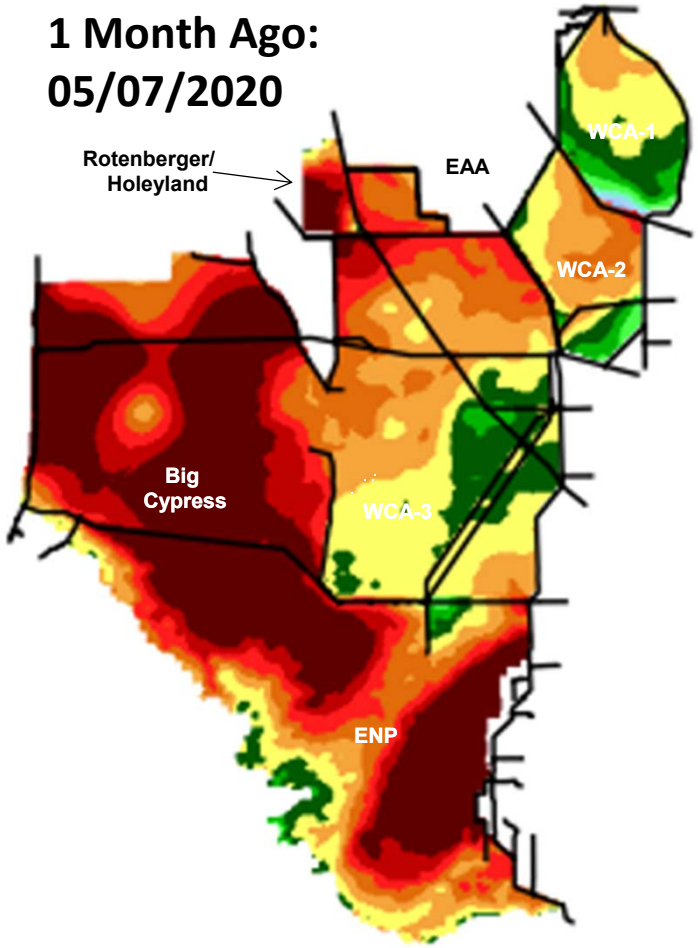
* Total flow from S20G, S20F, S21, S21A, S123, S700P

Everglades Water Depth Maps

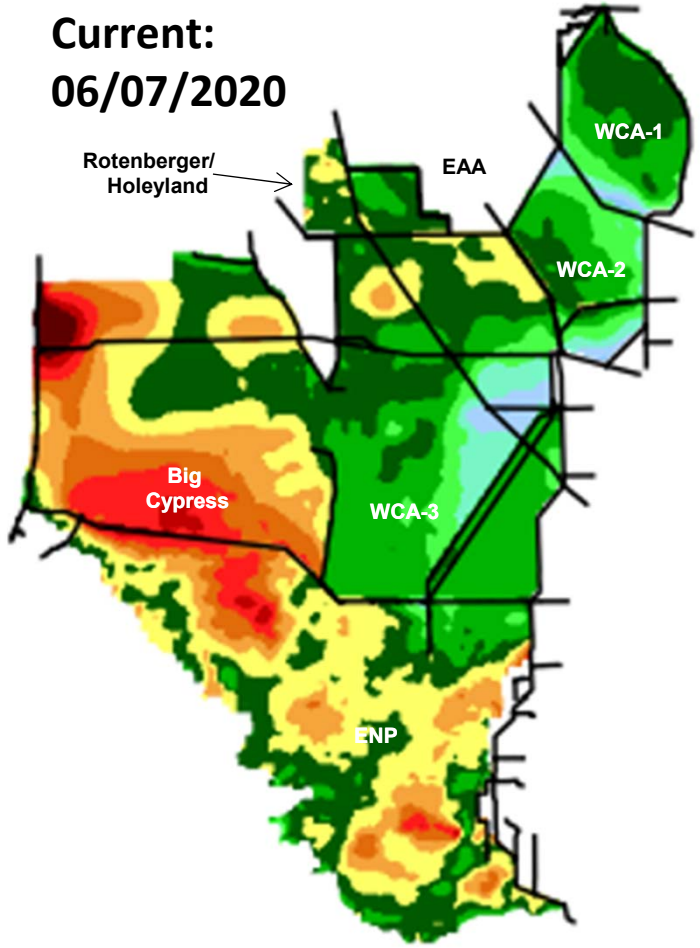
1 Year Ago:
06/07/2019

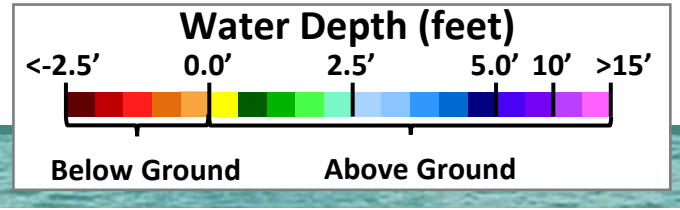


1 Month Ago:
05/07/2020

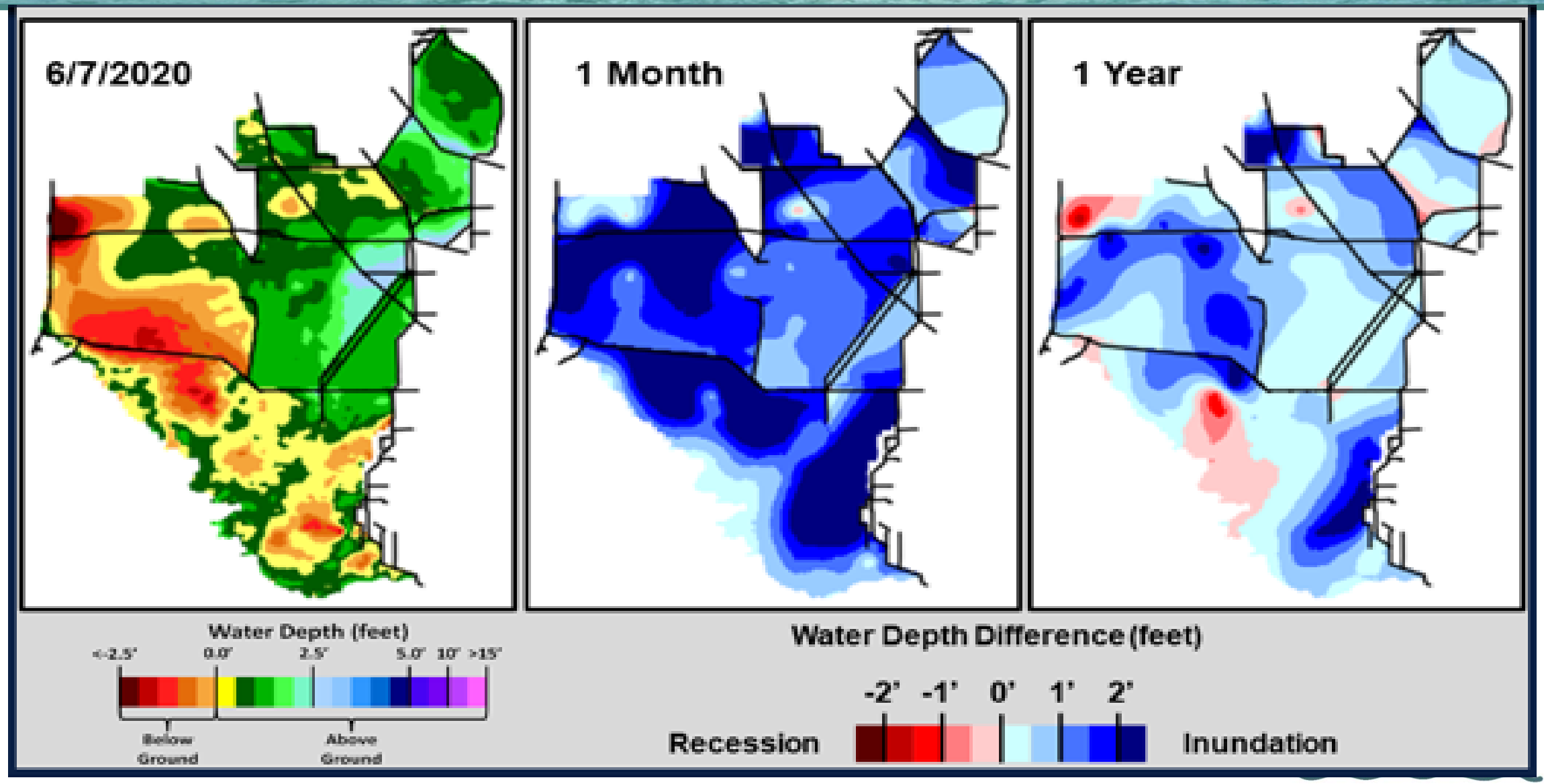


Current:
06/07/2020

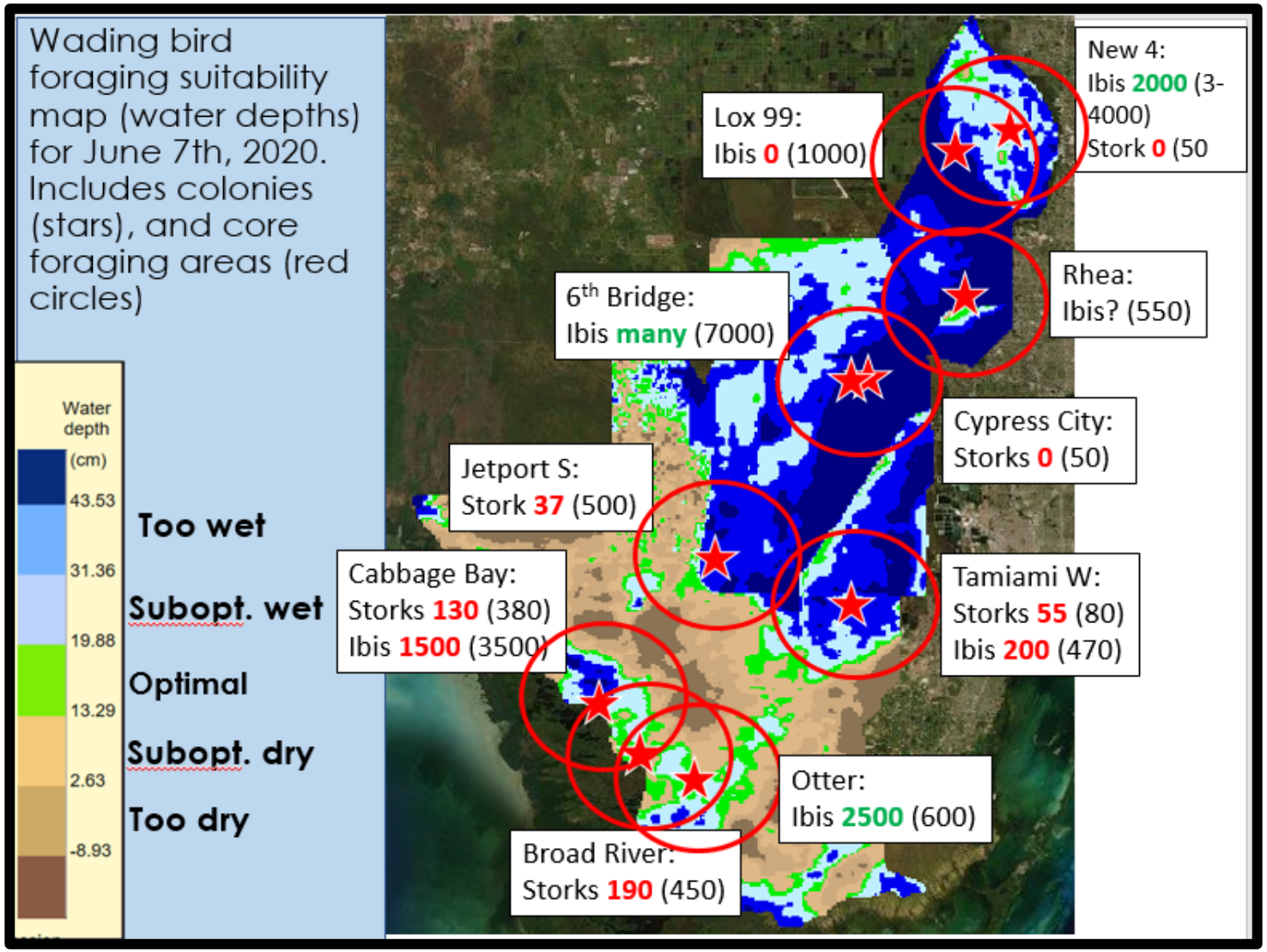




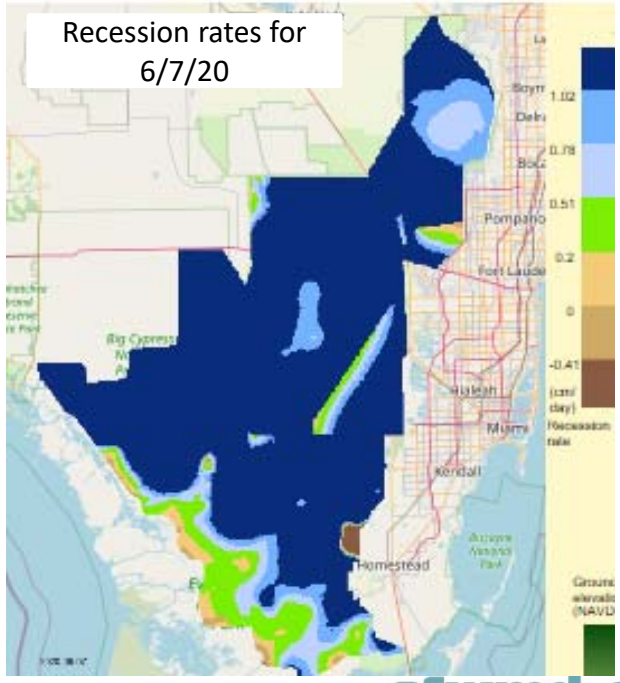
Everglades Water Depth Difference Maps



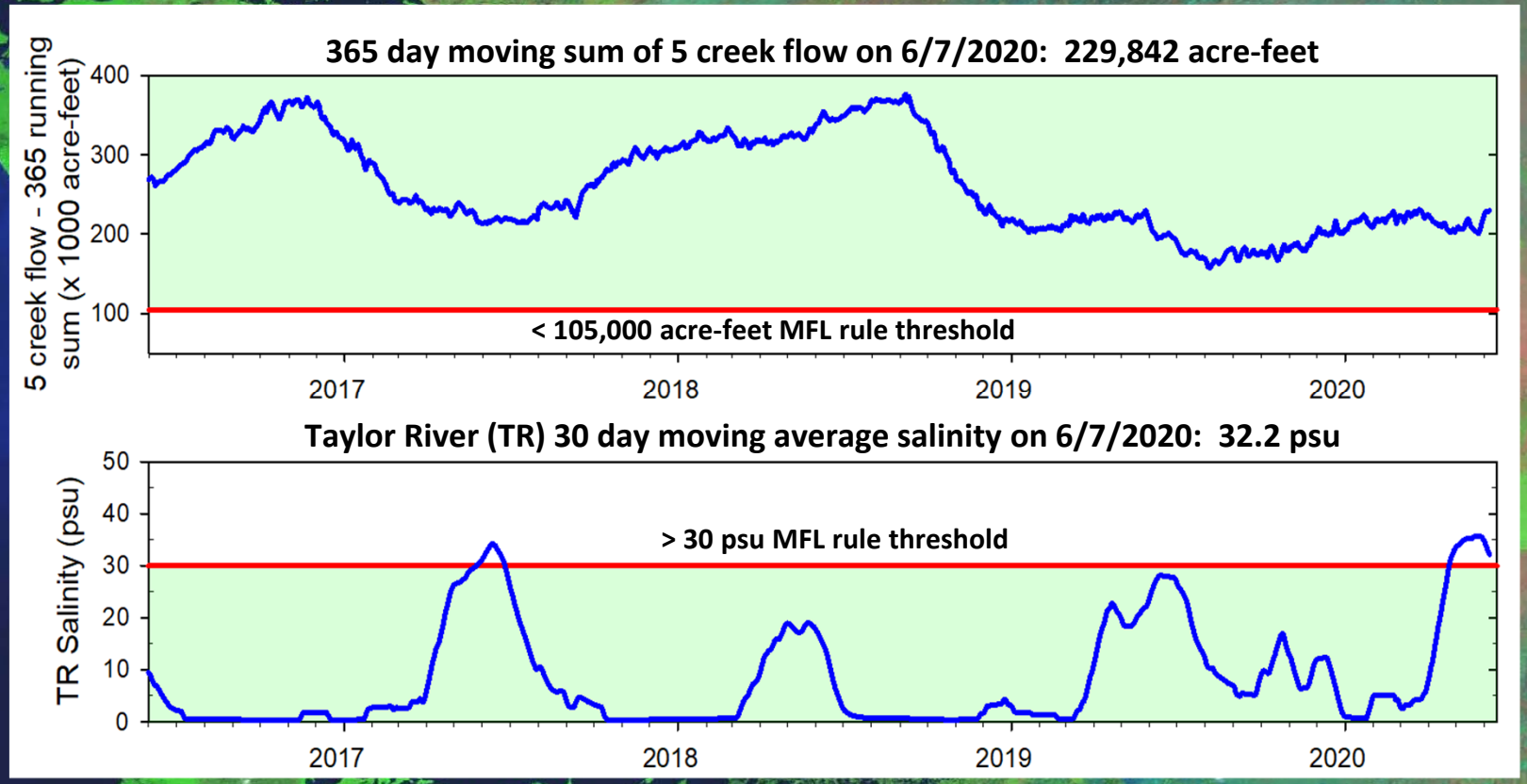
Everglades Wading Bird Survey



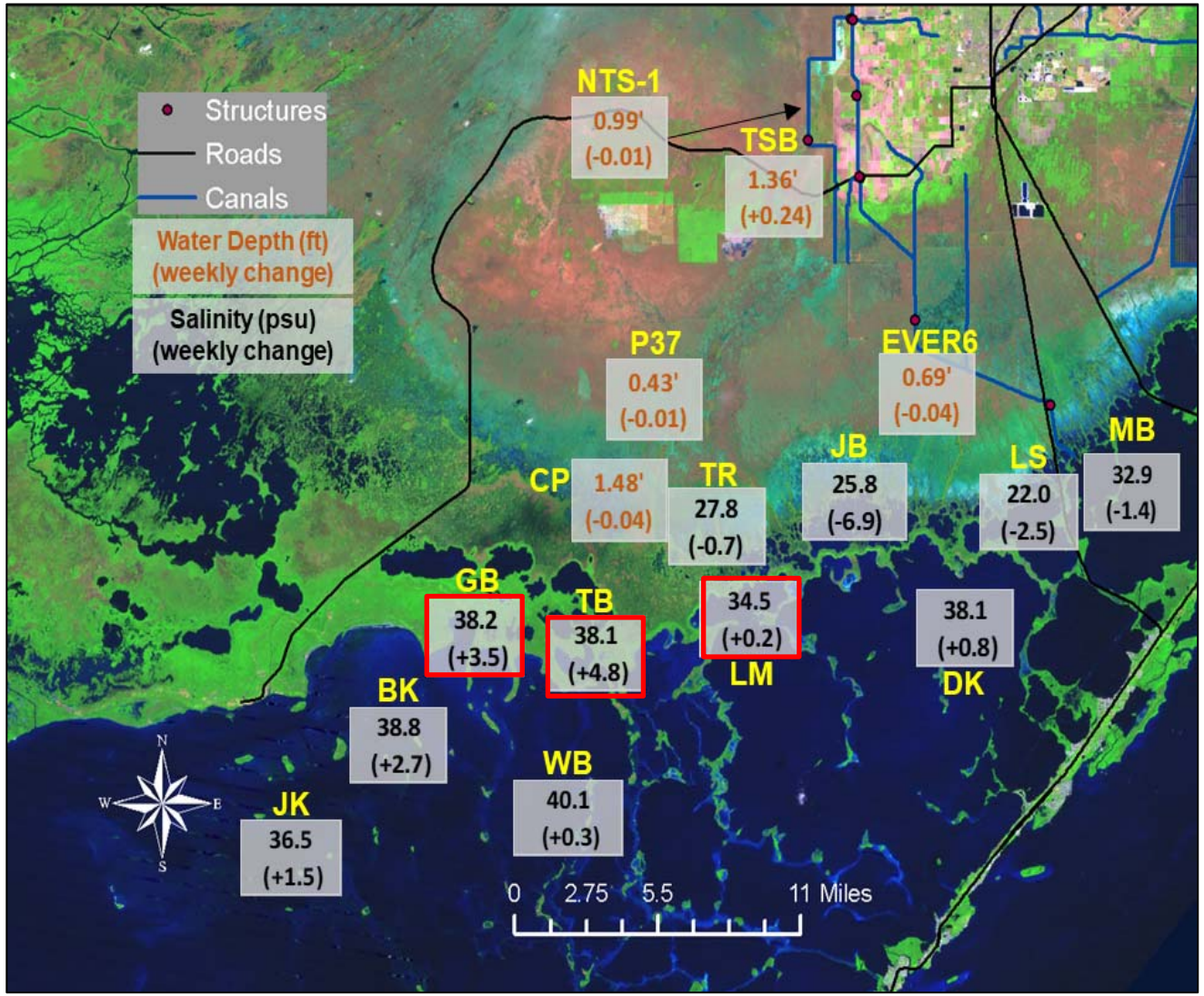
- In WCA-1 white ibis continue nesting activity but appear to be foraging in the suburban fringe of the Refuge.
- Multiple cohorts of nesting was observed for white ibis

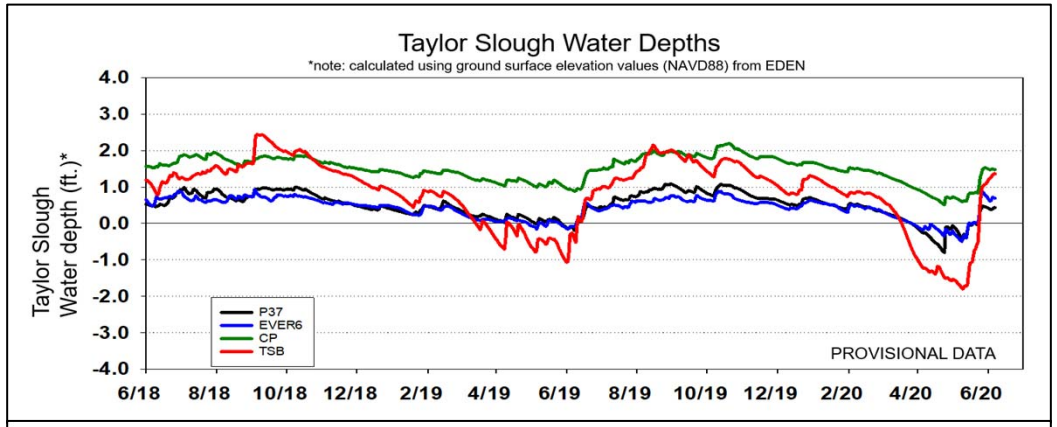


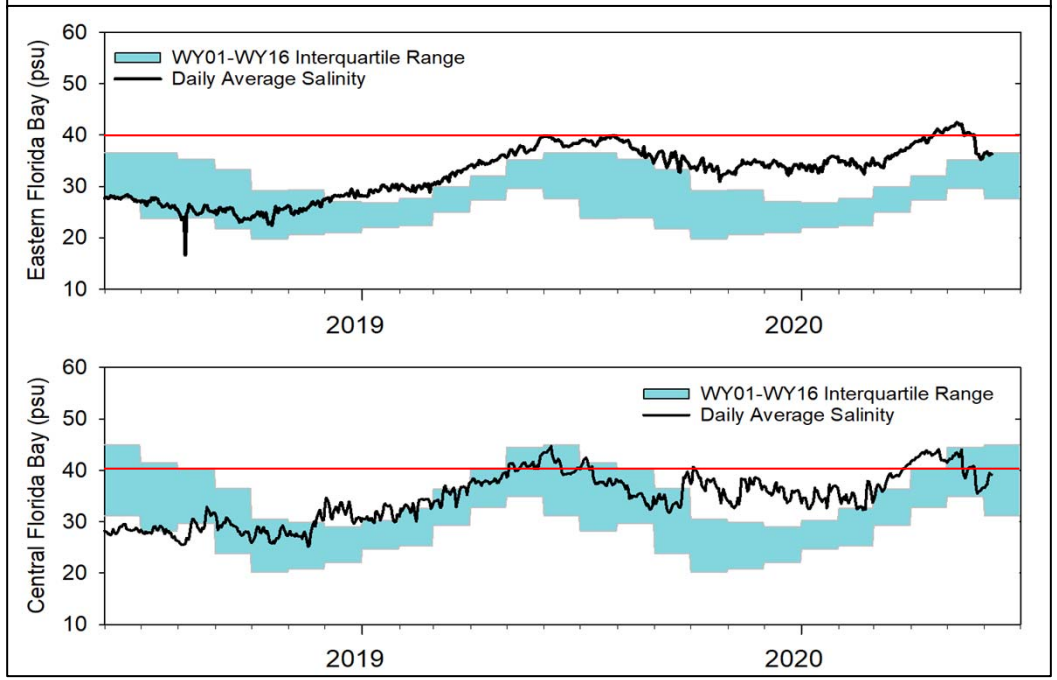
Northeast Florida Bay MFL



Taylor Slough Stages and Florida Bay Salinity

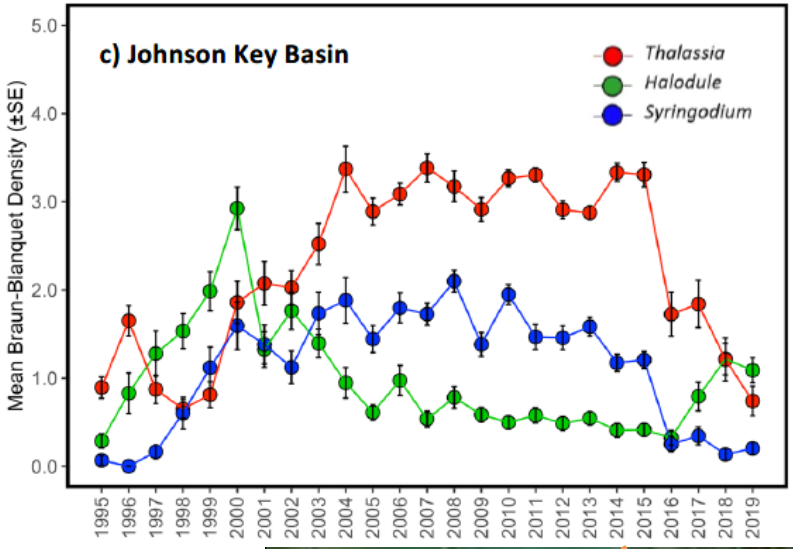


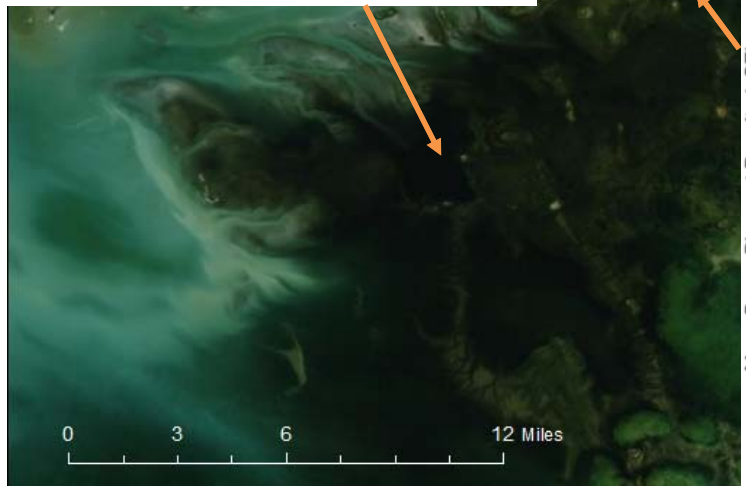


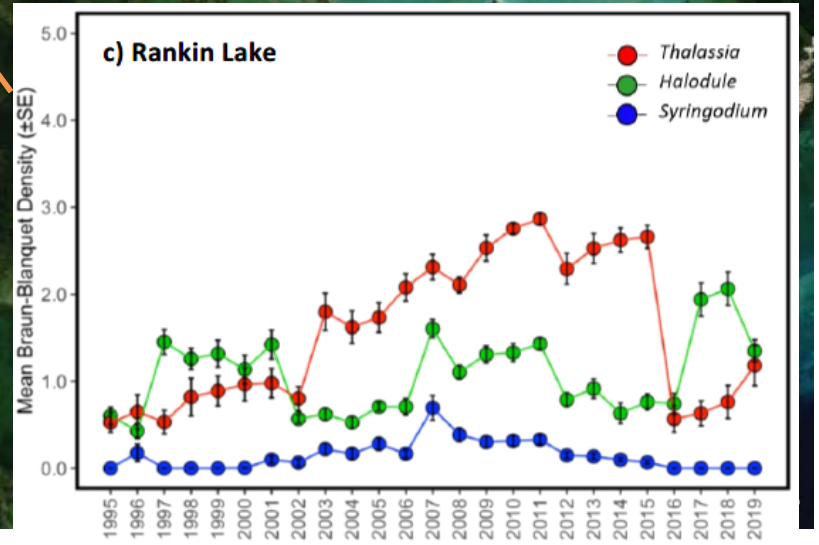


2019 Florida Bay Seagrass Update

- At Johnson Key Basin and Rankin Lake effects of the 2015 seagrass die-off can still be seen in the monitoring data as of May 2019
- *Halodule wrightii* (green line), has started the successional recovery in both basins
- In Rankin Lake (central bay), the dominant *Thalassia testudinum* (red line) has begun recovery, but Johnson Key Basin's (western bay) recovery has stalled with further declines in the dominant species likely due to light limitation
- 2020 sampling has been postponed until Everglades National Park facilities reopen







Least Terns in L-8 FEB
Photographed by
unknown SFWMD employee