Disclaimer: Information contained in the report addresses environmental conditions only and is not the official South Florida Water Management District operations recommendation or decision.

M E M O R A N D U M

TO: John Mitnik, Chief, Operations, Engineering and Construction Bureau
Paul Linton, Chief, Operations Section

FROM: SFWMD Staff Environmental Advisory Team

DATE: July 10, 2018

SUBJECT: Weekly Environmental Conditions for Systems Operations

Summary

Weather Conditions and Forecast

Tropical Storm Chris is currently off the Carolina coastline and a trailing trough associated with the system is moving into south Florida. The trough is expected to bring drier conditions to the Kissimmee Valley and increase thunderstorm development over the southern half of the District today and Wednesday. An upper level low near south Florida is forecast to interact with remnant moisture from Tropical Storm Beryl and increase thunderstorm development over the District Thursday. Less favorable upper level winds over the District as well as some Saharan dust moving across the Florida Straits and the southern end of the peninsula should decrease daily thunderstorm development on Friday. A low- and mid-level trough moving into the District from the north should help develop daily afternoon thunderstorm activity over the District each day Saturday through Monday.

Kissimmee

Tuesday morning stages were 56.4 feet NGVD (0.1 feet below schedule) in East Lake Toho, 53.3 feet NGVD (0.2 feet below schedule) in Toho, and 51.3 feet NGVD (0.3 feet above schedule) in Kissimmee-Cypress-Hatchineha; headwater stages were 46.5 feet NGVD at S-65A and 26.7 feet NGVD at S-65D. Tuesday morning discharges were: 3,809 cfs at S-65, 3,751 cfs at S-65A, and 2,130 cfs at S-65E. Dissolved oxygen concentration in the Kissimmee River averaged 2.7 mg/L for the week. Kissimmee River mean floodplain depth on Sunday was 0.71 feet. A series of four recommendations were made last week to increase discharge at S-65/S-65A to slow the rate of stage rise in Kissimmee-Cypress-Hatchineha in response to continued rainfall/runoff and inflow.

Lake Okeechobee

Lake Okeechobee stage is 14.46 feet NGVD having increased 0.18 feet over the past week and 0.27 feet over the past month. The Lake was below 13.0 feet NGVD for just 10 days this dry season and likely rose too quickly for many recovering submerged aquatic vegetation (SAV) communities to stay in optimal light conditions. The seasonal low for the 2018 growing season of 12.83 feet NGVD was the third highest since 2011, and the third time in six years that stage did not reach the bottom of the preferred stage envelope (12.5 – 15.5 feet NGVD). Due to record rainfall in May, the SAV coverage on the Lake will likely remain at minimal levels throughout the growing season and well into next year, prolonging impacts from high stages in 2016 and Hurricane Irma in 2017. Cyanobacteria blooms have increased rapidly since mid- to late-June, with NOAA's satellite monitoring product (see below) suggesting most of the Lake potentially has a visible bloom on the surface. Some areas within the grass line along the outer marsh edge have dense algal mats where winds have caused accumulations of blooms. Conditions will likely remain favorable for blooms throughout the summer, particularly during stretches of fewer storms and low winds.

Estuaries

Total inflow to the St. Lucie Estuary averaged 2,296 cfs over the past week with no flow coming from Lake Okeechobee. Surface salinity increased throughout the estuary. The seven-day average salinity at the US1 Bridge is in the good range for adult eastern oysters. Total inflow to the Caloosahatchee Estuary averaged 7,004 cfs over the past week with 193 cfs coming from the Lake. Salinity decreased downstream of Ft. Myers Yacht Basin. The 30-day moving average surface salinity is 0.2 at Val I-75 and 0.2 at Ft. Myers. Salinity conditions between Val I-75 and Ft. Myers are good for tape grass. Salinity conditions are in the poor range for adult eastern oysters at Cape Coral and in the good range at Shell Point. Given the current estuarine conditions, there are no ecological benefits associated with freshwater releases from Lake Okeechobee

Stormwater Treatment Areas

Over the past week, the STAs received approximately 61,400 acre-feet of inflows (which includes approximately 3,500 acre-feet of Lake releases). The total amount of inflows to the STAs in WY2019 (since May 1, 2018) is approximately 526,200 acre-feet, which includes approximately 26,900 acre-feet of Lake releases. Most STA cells are at or above target depths. Operational restrictions are in place for vegetation rehabilitation in STA-1E and STA-2, and for construction related activities in STA-1W. STA-5/6 Flow-ways 2 and 3 are offline for initiation of a Restoration Strategies project to grade non-effective treatment areas. The nests of Migratory Bird Treaty Act and Endangered Species Act protected species have been observed in STA-1E. This week, if 2008 LORS recommends Lake releases to the WCAs and the conditions allow, releases will be sent to the STA-1E, A-1 FEB/STA-3/4 and STA-2.

Everglades

Marsh stages within the Water Conservation Areas (WCAs) are still above the regulation schedule. Stage increases have stayed within the recommended weekly ascension rate of less than 0.25 feet per week in most areas, and WCA-2A and WCA-2B stayed within the less preferred 2-week ascension rate of less than 0.5 feet per two weeks. Keeping depths below 2.5 feet at gauge 65 in WCA-3A is important to moderate the stress to tree islands caused by flooding when durations last longer than 60-90 days. Depths reached 2.5 feet on June 13 (5 days earlier than last year). The depth on Sunday at that location was 2.72 feet, a decrease of 0.14 feet over the last week. In Taylor Slough, stages decreased on average by 0.10 feet and are 4 inches above the historical averages. Salinities increased on average by 0.2 psu in Florida Bay compared to last week and are 5 psu below the historical averages.

Supporting Information

KISSIMMEE BASIN

Kissimmee Basin Rainfall

The Upper Kissimmee Basin received 2.03 inches of rainfall in the past week and the Lower Basin received 1.09 inches (SFWMD Daily Rainfall Report 7/9/2018).

Upper Kissimmee Basin

Stages and departures in the Kissimmee Chain of Lakes (KCOL) are shown in **Table 1**. KCOL stage hydrographs with respective regulation schedules and rainfall are shown in Figures 1-7.

Table 1. Average discharge (cfs) for the preceding seven days, one-day stage (feet NGVD), and departures from KCOL flood regulation (R) or temporary schedules (T, A, or S). Provisional, real-time data are from SFWMD.

Report Date: 7/10/2018

Water Body	Structure	7-day Average Discharge (cfs)[1]	Stage Monitoring Site[2]	Lake Stage (feet)	Schedule Type[3]	Schedule Stage (feet)	Daily Departure (feet)						
							7/8/18	7/1/18	6/24/18	6/17/18	6/10/18	6/3/18	5/27/18
Lakes Hart and Mary Jane	S-62	346	LKMJ	60.1	R	60.0	**0.1**	0.2	0.0	0.0	0.0	0.0	-0.1
Lakes Myrtle, Preston, and Joel	S-57	92	S-57	61.0	R	61.0	**0.0**	0.0	0.0	0.0	-0.4	-0.7	0.0
Alligator Chain	S-60	323	ALLI	63.3	R	63.2	**0.1**	0.2	0.0	-0.1	-0.6	-1.0	0.0
Lake Gentry	S-63	440	LKGT	61.0	R	61.0	**0.0**	0.1	-0.5	-0.6	-1.0	-1.3	0.1
East Lake Toho	S-59	503	TOHOE	56.4	R	56.5	**-0.1**	-0.5	-0.9	-1.0	-1.2	-1.4	-0.2
Lake Toho	S-61	1,472	TOHOW, S-61	53.4	R	53.5	**-0.1**	-0.4	-0.9	-0.9	-1.2	-1.4	-0.1
Lakes Kissimmee, Cypress, and Hatchineha	S-65	1,287	KUB011, LKIS5B	51.3	R	51.0	**0.3**	-0.4	-0.9	-0.9	-0.9	-1.1	0.4

[1] Seven-day average of weighted daily means through midnight.
[2] Names of in-lake monitoring sites and structures used to determine lake stage; if more than one site is listed, an average is reported.
[3] T = temporary schedule, R = USACE flood control schedule, S = temporary snail kite schedule, A = projected ascension line, N/A= not applicable or data not available.
DATA ARE PROVISIONAL

Lower Kissimmee Basin

Discharges at Lower Basin structures are shown in Table 2. SFWDAT depth maps for the Phase I restoration area are shown in Figure 8. Kissimmee River floodplain stages at selected stations are shown in Figure 9.

Table 2. One-day and seven-day averages of discharge at S-65x structures, of dissolved oxygen concentration in the Phase I area river channel, and water depth in the Phase I area floodplain. Data are provisional real-time data from SFWMD.

Report Date: **7/10/2018**

Metric	Location	1-Day Average	Average for the Preceeding 7-Days[1]									
		7/8/2018	7/8/18	7/1/18	6/24/18	6/17/18	6/10/18	6/3/18	5/27/18	5/20/18	5/13/18	5/6/18
Discharge (cfs)	S-65	2,344	**1,287**	514	834	1,110	915	1,092	1,271	854	381	338
Discharge (cfs)	S-65A[2]	2,350	**1,294**	466	801	1,224	1,043	1,139	1,142	700	272	245
Discharge (cfs)	S-65D[2]	1,971	**1,827**	1,608	2,094	2,062	1,925	1,869	1,495	781	323	304
Headwater Stage (feet NGVD)	S-65D[2]	26.83	**26.80**	26.79	26.79	26.82	26.86	27.00	26.08	25.72	25.83	25.89
Discharge (cfs)	S-65E[2]	2,206	**2,000**	1,834	2,347	2,261	2,107	2,082	1,623	824	290	263
Discharge (cfs)	S-67	286	**292**	298	277	273	278	282	298	332	71	0
DO (mg/L)[3]	Phase I river channel	2.7	**2.7**	3.4	2.0	1.4	1.7	3.4	4.8	5.7	7.5	7.9
Mean depth (feet)[4]	Phase I floodplain	0.71	**0.59**	0.46	0.75	0.84	0.76	0.66	0.47	0.17	0.06	0.06

[1]Seven-day average of weighted daily means through Sunday midnight.

[2]S-65A discharge combines S-65A with auxillary strucutures; S-65D discharge combines discharge at S-65D, S-65DX1, and S-65DX2; S-65D stage averages stage at S-65D and S-65DX1; S-65E discharge combines S-65E and S-65EX1.

[3]DO is the average for sondes at PC62 and PC33.

[4]1-day spatial average from South Florida Water Depth Assessment Tool (SFWDAT).

DATA ARE PROVISIONAL; N/A indicates that data were not available.

KCOL Hydrographs (through Sunday midnight)

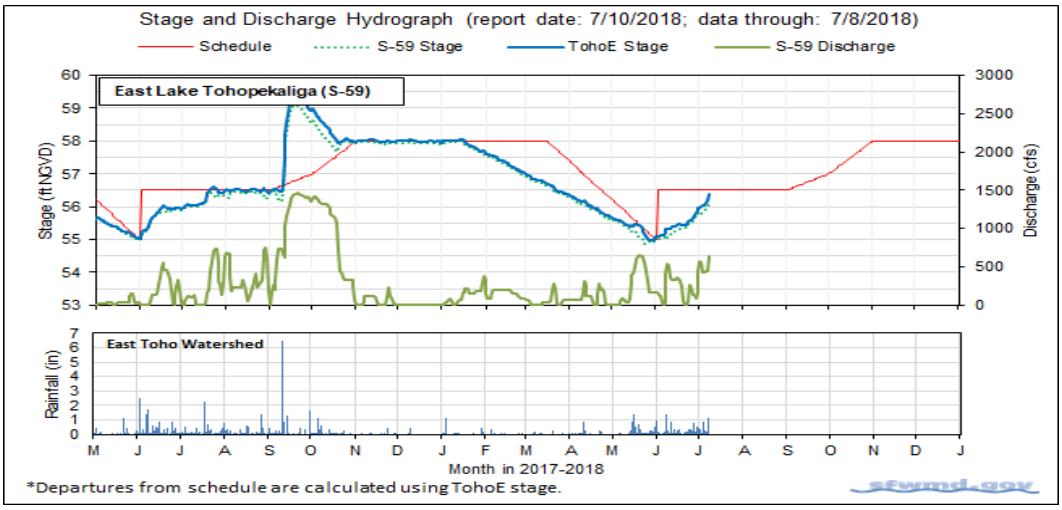


Figure 1.

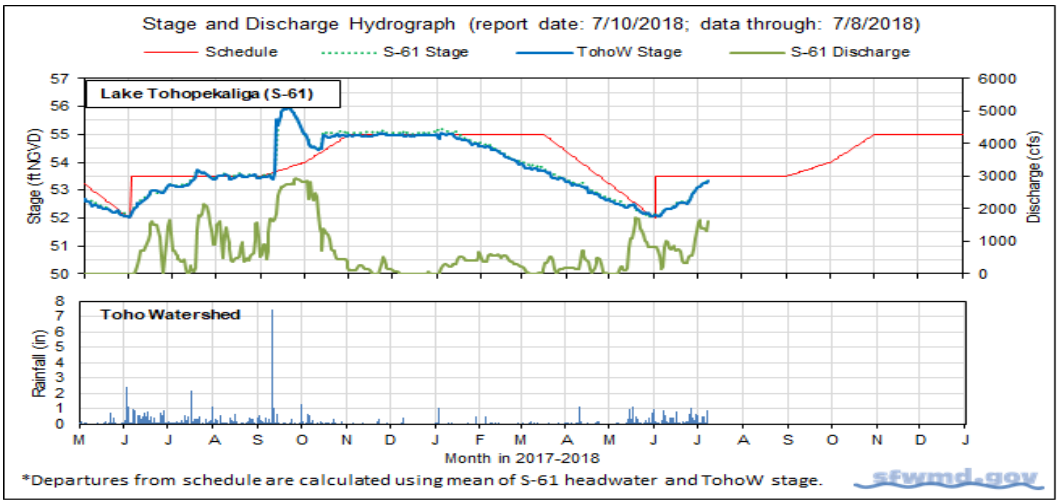


Figure 2.

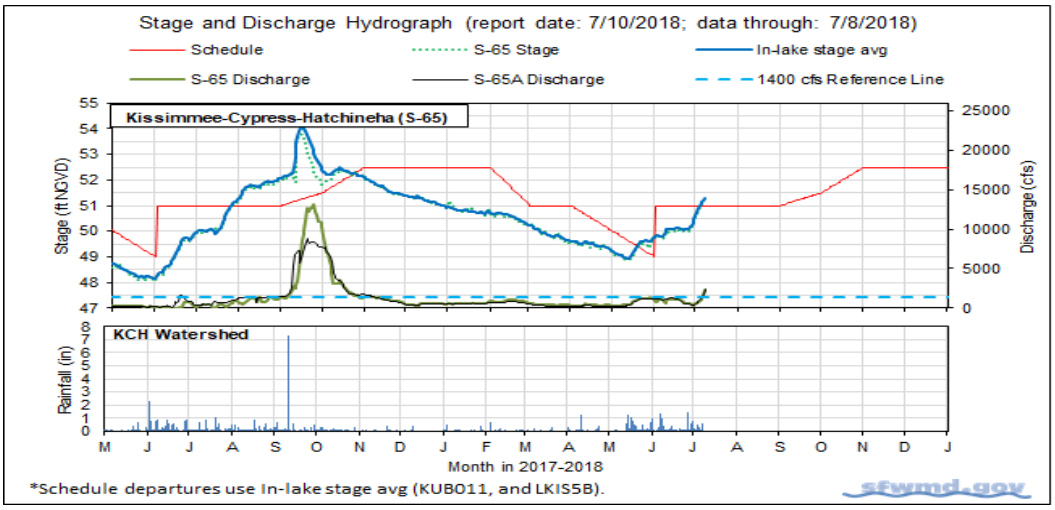


Figure 3.

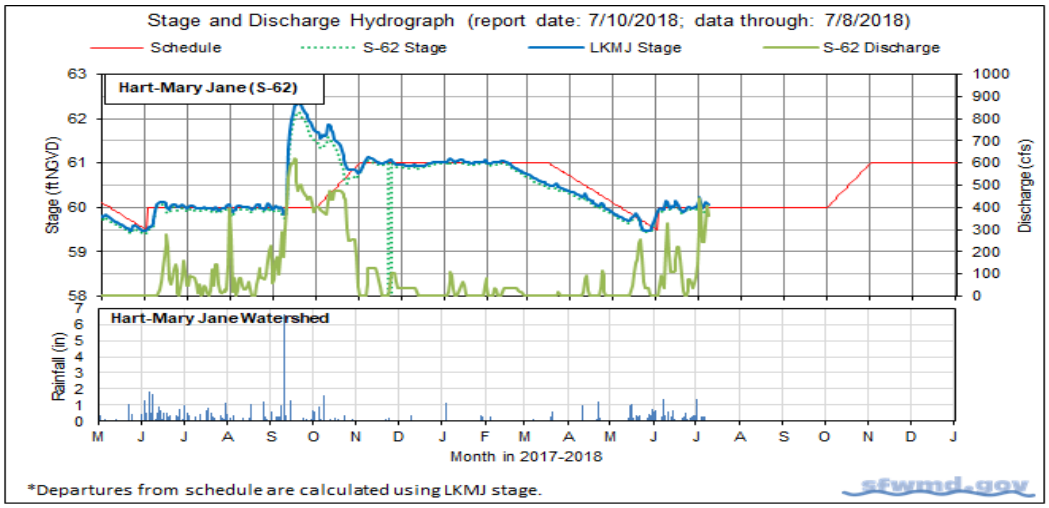


Figure 4.

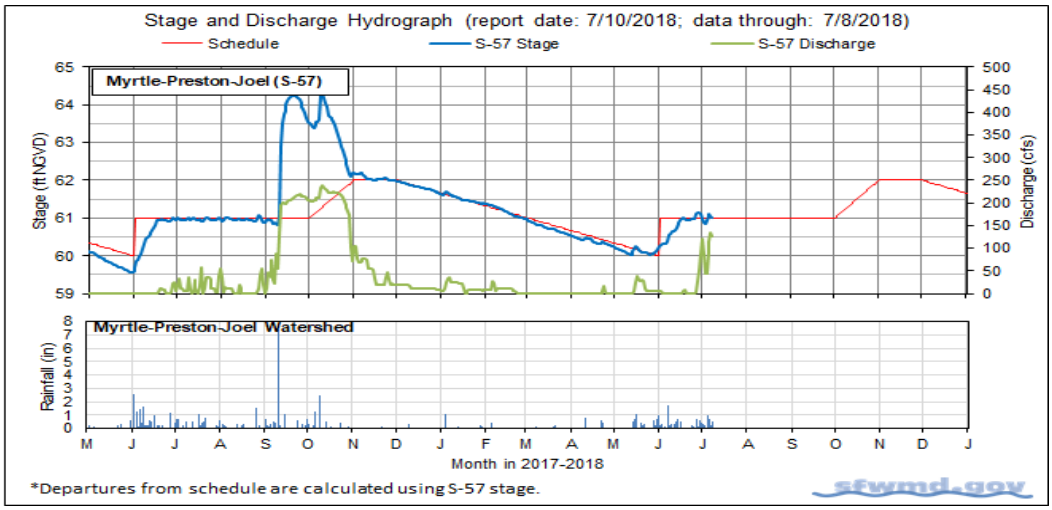


Figure 5.

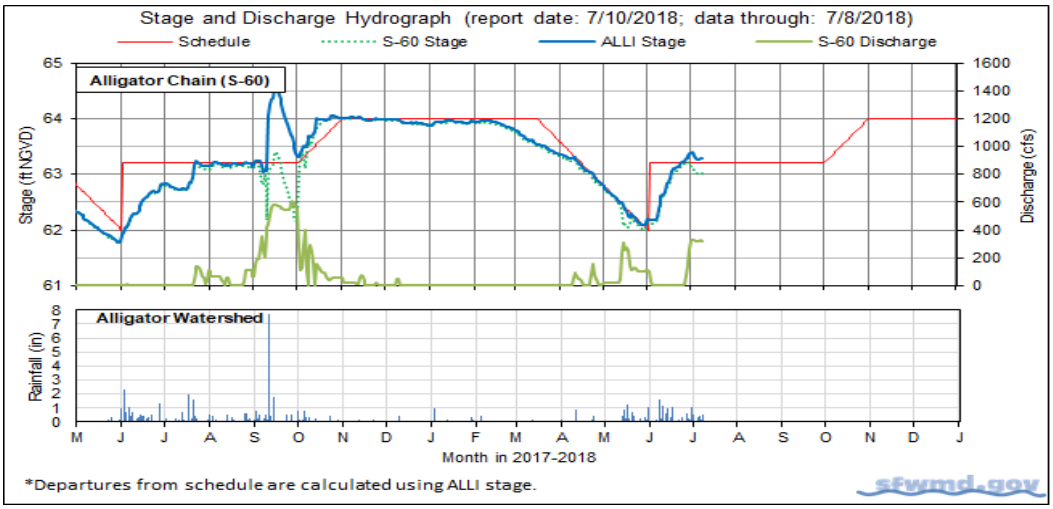


Figure 6.

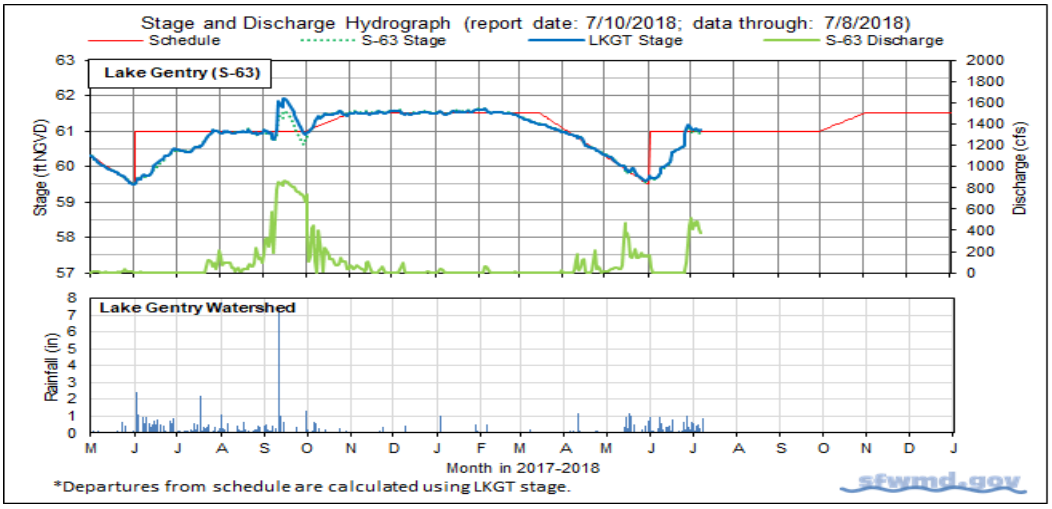


Figure 7.

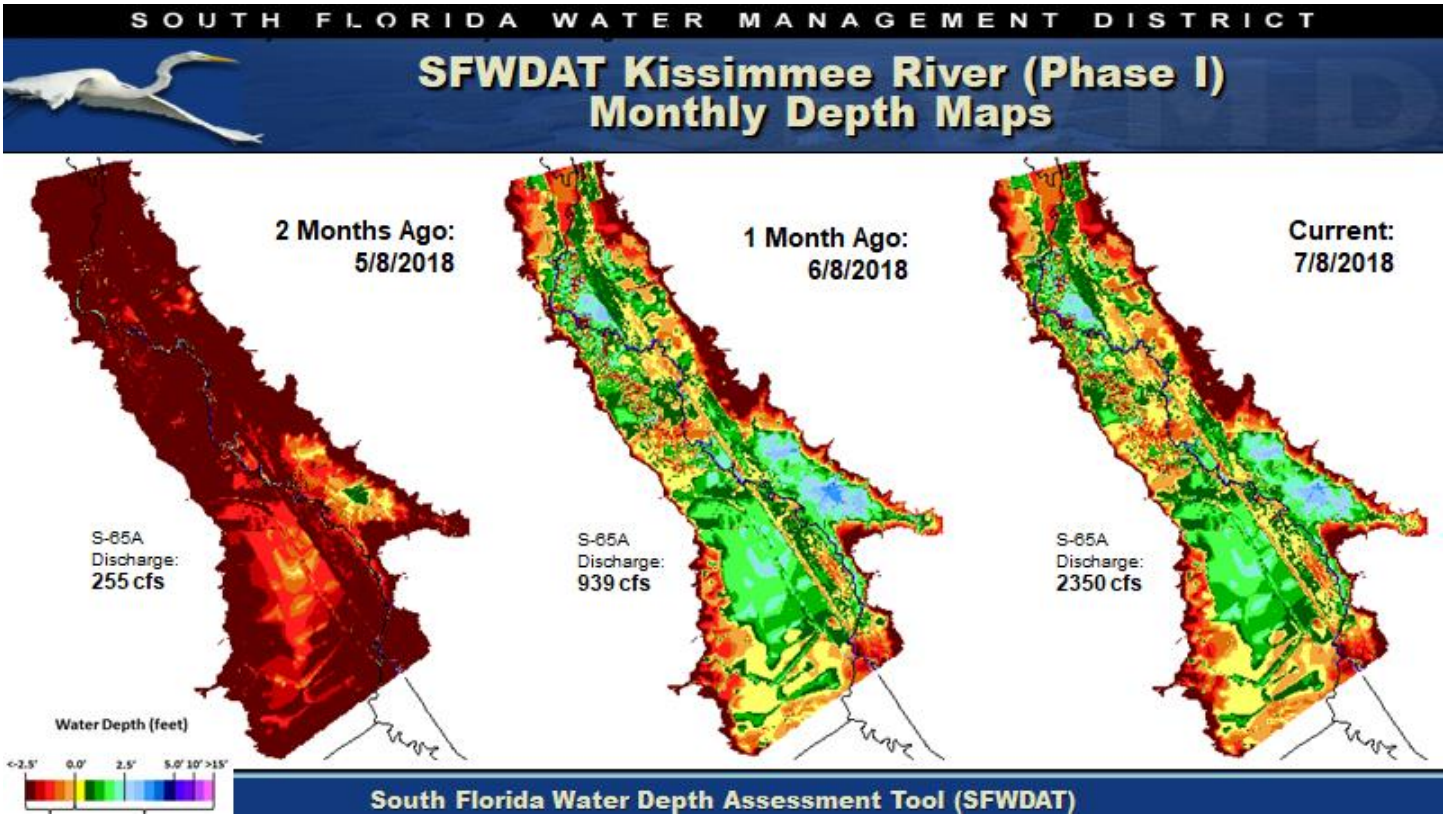


Figure 8. Phase I area floodplain water depths for this week, one month ago, and two months ago. Note that the WDAT color-coding has been modified to accommodate greater water depths; these maps are not directly comparable to Kissimmee Basin WDAT maps published prior to January 16, 2012.

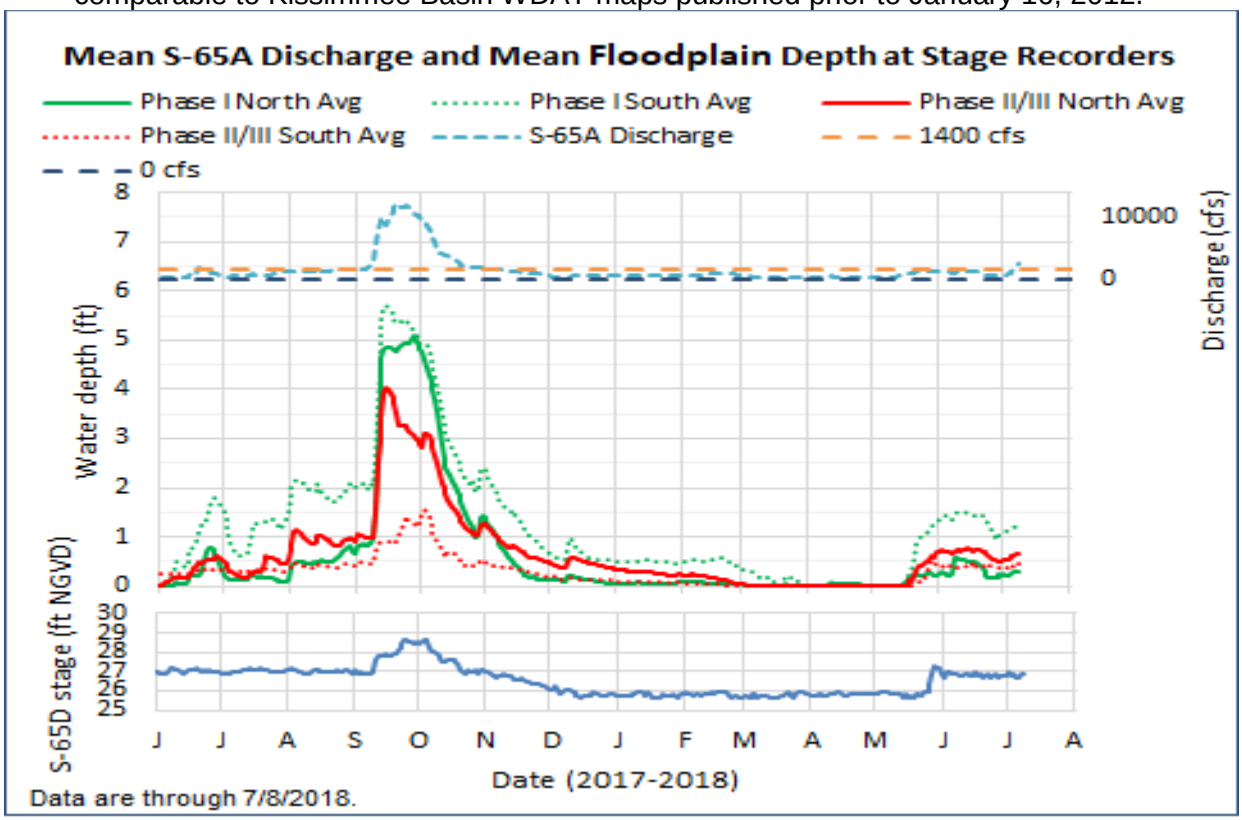
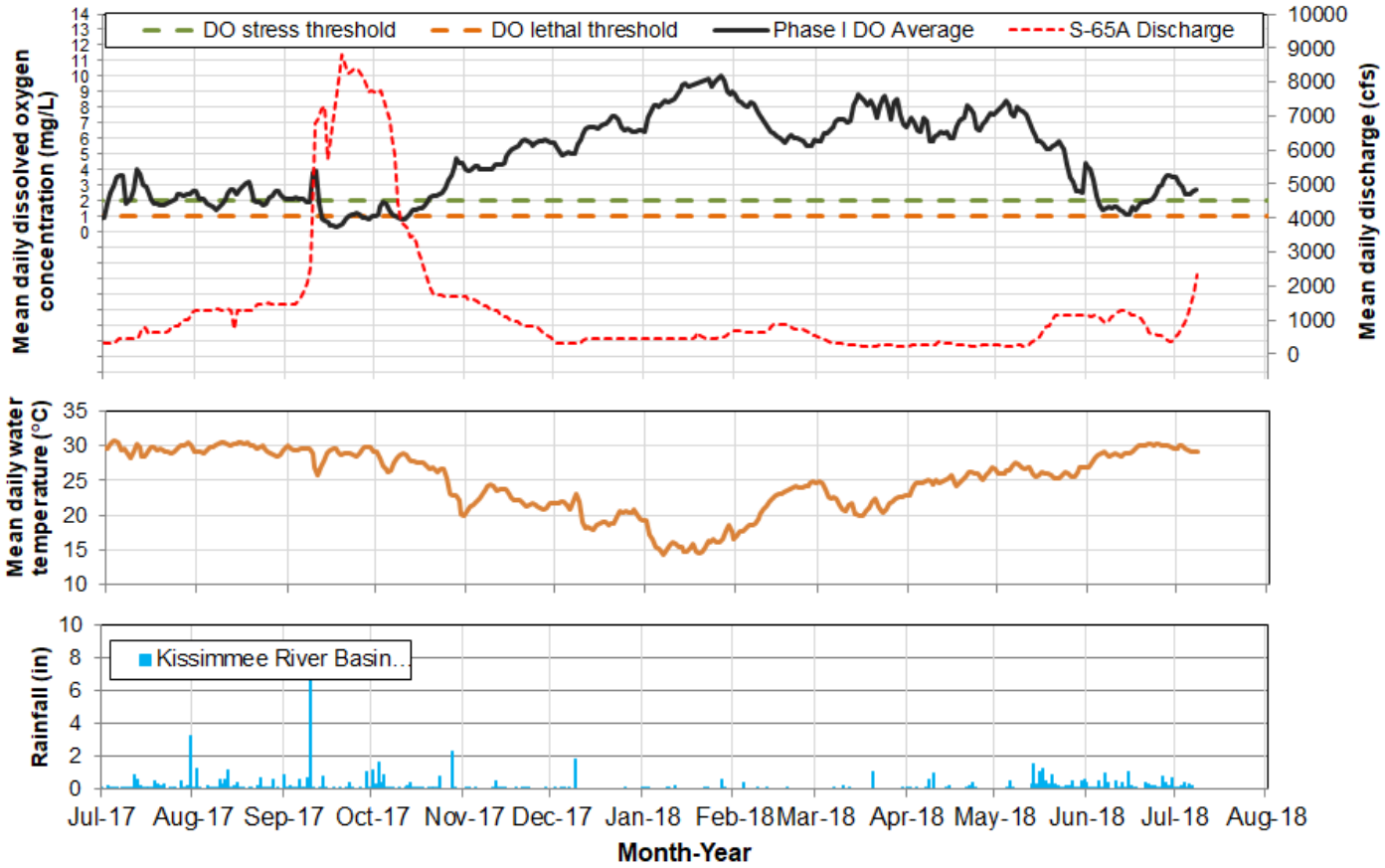


Figure 9. Mean water depth at stage recorders in the northern Phase I, southern Phase I, northern Phase II/III, and southern Phase II/III areas in relation to the S-65A discharge and S-65D headwater stage.



Report Date: 7/10/2018; data are through: 7/8/2018.

Figure 10. Mean daily dissolved oxygen, discharge, temperature and rainfall in the Phase I river channel.

Water Management Recommendations

Kissimmee Basin Adaptive Recommendations and Operational Actions

Recommendation Date	Recommendation	Purpose	Outcome	Source	Report Date
7/9/2018	Increase S-65/S-65A discharge by 300 cfs if needed.	Stablize Lake Kissimmee stage.	N/A	SFWMD Water Mgt/KB Ops	7/10/2018
7/8/2018	Increase S-65/S-65A discharge by 900 cfs today in 3 increments of 300 cfs each.	Stablize Lake Kissimmee stage.	Implemented	KB Ops	7/10/2018
7/5/2018	Increase S-65/S-65A discharge by 300 cfs/day (double the prescribed rate of increase) Thursday through Sunday .	Stablize Lake Kissimmee stage.	Implemented	SFWMD Water Mgt	7/10/2018
7/2/2018	Increase S-65/S-65A discharge by 150 cfs/day (double the prescribed rate of increase).	Stablize Lake Kissimmee stage.	Implemented	SFWMD Water Mgt/KB Ops	7/10/2018
6/30/2018	Increase S-65/S-65A discharge as slowly as feasible	Slow stage ascencsion in Kissimmee-Cypress-Hatchineha	Implemented	KB Ops/SFWMD Water Mgt	7/3/2018
6/28/2018	Continue to reduce discharge at S-65/S-65A as slowly as feasible.	Prevent stage decline in Kissimmee-Cypress-Hatchineha.	Implemented	KB Ops/SFWMD Water Mgt	7/3/2018
6/21/2018	Reduce discharge at S-65/S-65A as slowly as feasible.	Prevent stage decline in Kissimmee-Cypress-Hatchineha.	Implemented	KB Ops/SFWMD Water Mgt	6/26/2018
6/15/2018	Reduce S-65A discharge by 150-300 cfs over the weekend.	Slow or stop DO decline in Kissimmee River.	Implemented	KB Ops	6/19/2018
6/12/2018	No new recommendations.		N/A		6/12/2018
6/5/2018	No new recommendations.		N/A		6/5/2018
5/29/2018	Begin implementation of the 2018 Wet Season Discharge Plan for S-65/S-65A on June 1 (see figure).	Provide variable flow from S-65/S-65A to balance Kissimmee River and Headwaters Lakes objectives including Kissimmee River floodplain inundation, moderated rates of change in discharge, and constrained rate of stage rise in the lakes.	Planned	KB Ops/SFWMD Water Mgt/FWC/FWS	5/29/2018
5/22/2018	Hold Kissimmee-Cypress-Hatchineha at current stage of approximately 49.5 ft until June 1.	(a) Reduce impacts of rising water on DO in the Kissimmee River; and (b) limit stage reversal in KCH to <1 foot to protect snail kite nests.	Implemented	KB Ops/SFWMD Water Mgt	5/29/2018
5/18/2018-5/20/2018	Increase discharge gradually in response to rainfall in consultation with KB staff.	(a) Reduce impacts of rising water on DO in the Kissimmee River; and (b) limit stage reversal in KCH to <1 foot to protect snail kite nests.	Implemented	KB Ops	5/22/2018
5/15/2018	Adjust S-65/S-65A discharge over the next few days to avoid additional stage rise in Kissimmee-Cypress-Hatchineha. Make any needed discharge changes gradually in consultation with Kissimmee Basin staff to reduce potential effects on Kissimmee River dissolved oxygen.	Protect Lake Kissimmee snail kite nests from rising water if there is additional rainfall.	N/A	KB Ops	5/22/2018
5/8/2018	No new recommendations.		N/A		5/8/2018
5/1/2018	No new recommendations.		N/A		5/1/2018
4/24/2018	No new recommendations.		N/A		4/24/2018
4/17/2018	No new recommendations.		N/A		4/17/2018
4/10/2018	No new recommendations.		N/A		4/10/2018

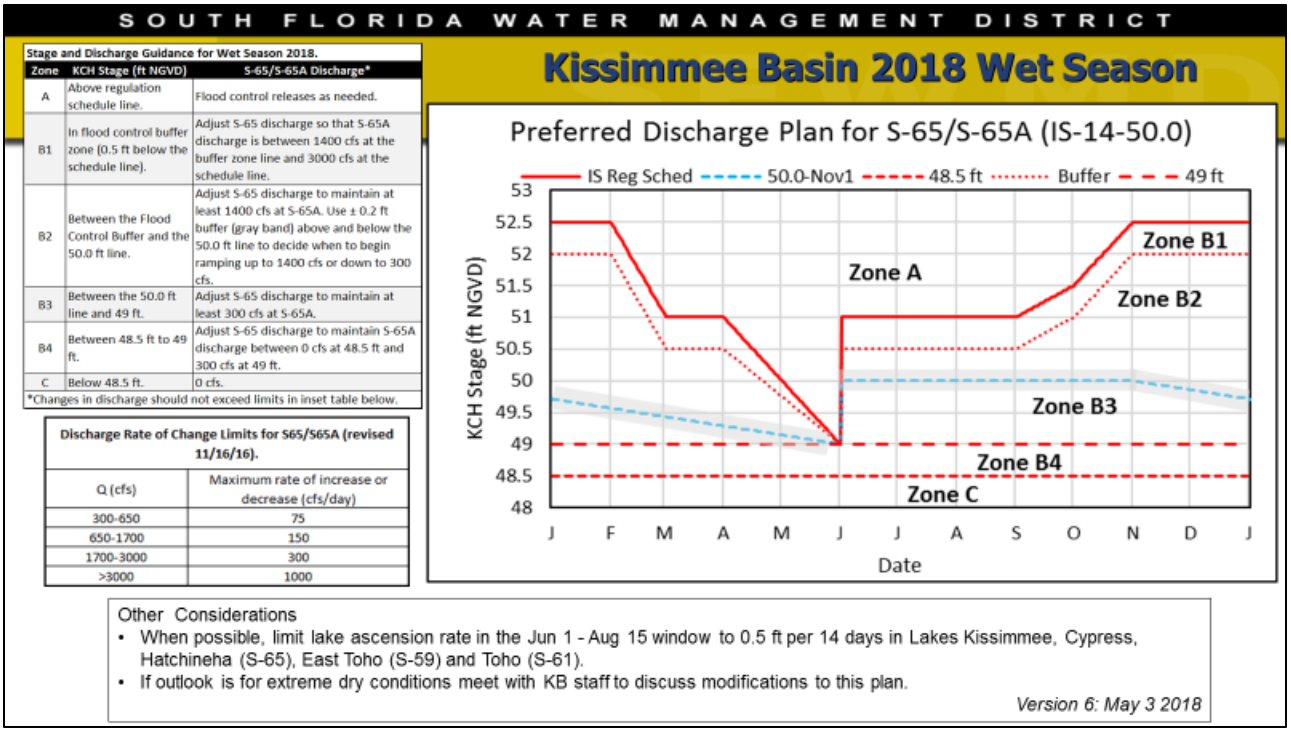


Figure 11. The 2018 Wet Season Discharge Plan for S-65/S-65A.

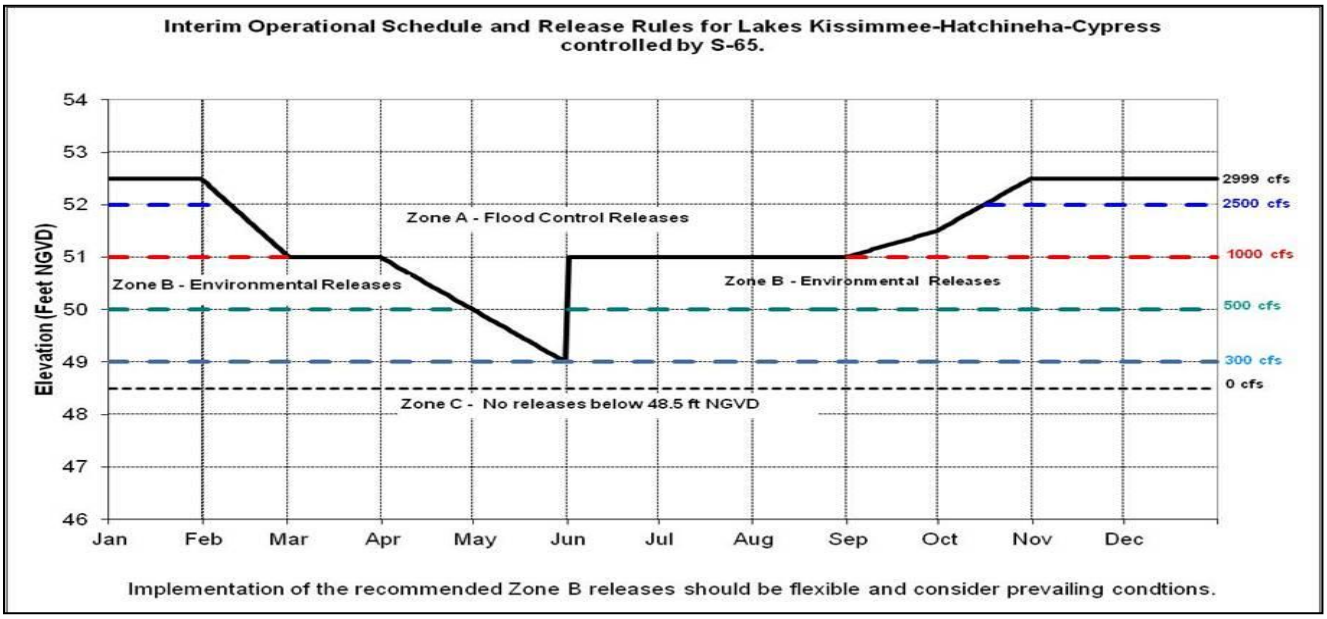


Figure 12. Interim operations schedule for S-65. The discharge schedule shown to the right has not been used in recent years.

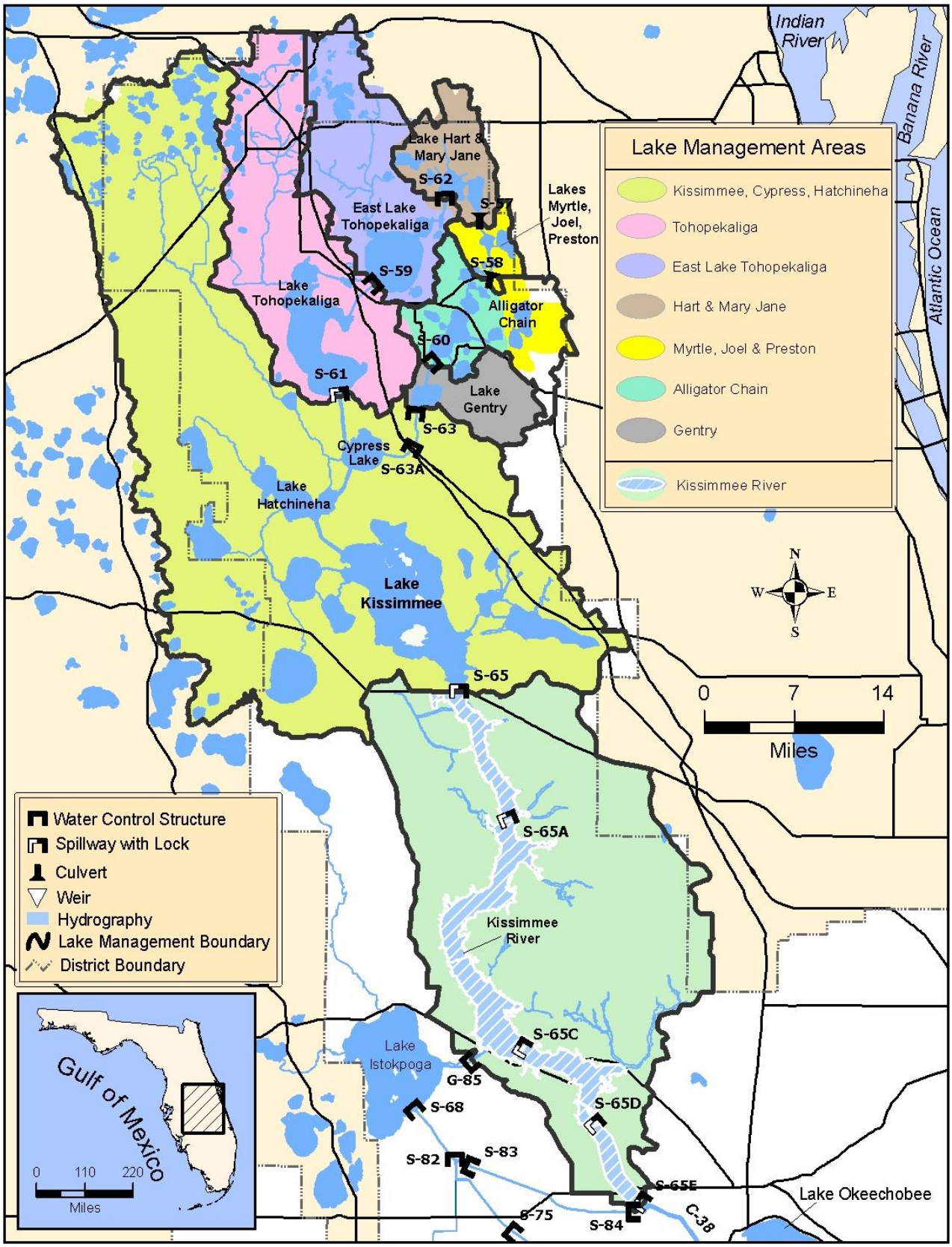


Figure 13. The Kissimmee Basin.

LAKE OKEECHOBEE

According to the USACE web site, Lake Okeechobee stage is at 14.46 feet NGVD for the period ending at midnight on July 9, 2018. This value is based on the use of four interior lake stations (L001, L005, L006 and LZ40) and four perimeter stations (S-308, S-352, S4- and S-133). The Lake is now 0.27 feet higher than it was a month ago and 2.02 feet higher than a year ago (Figure 1). The Lake is now in the Low sub-band (Figure 2). According to RAINDAR, 1.40 inches of rain fell over the Lake during the week July 03, 2018 – July 9, 2018. Much of the northern and western watersheds received similar rainfall, between 0.75 – 3 inches (Figure 3).

Average daily inflows and outflows to the Lake were not tabulated due to issues with data retrieval.

Turbidity (ntu), a measure of water clarity, declined in June after rising slightly in May (Figure 4). The average turbidity from pelagic stations in June was similar to April levels at 46 ntu, near the lowest since Hurricane Irma. Nearshore turbidity followed a similar trend, falling in June to 11 ntu, the lowest value since August of 2017 prior to Hurricane Irma.

Total phosphorus (µg/L) levels in the nearshore also followed a similar pattern, declining from a January high through April before slightly increasing again in May, and then falling in June. The nearshore average went from 178 µg/L to 138 µg/L from May to June, which was the lowest value since August 2017. However, the pelagic zone only fell from 231 µg/L in May to 201 µg/L in June, which was still higher than October, November, December, and April pelagic values (Figure 4). These lingering, relatively high total phosphorus values during summer months and periods of improving turbidity values are likely contributing to large-scale algal blooms.

The most recent satellite imagery using the cyanobacteria monitoring product derived from NOAA's OLCI satellite sensor showed the potential for a cyanobacteria bloom remained high over much of the Lake, with many areas along the shore showing likely bloom accumulations (Figure 5).

Water Management Recommendations

Lake Okeechobee stage is 14.46 feet NGVD having increased 0.18 feet over the past week and 0.27 feet over the past month. The Lake was below 13.0 feet NGVD for just 10 days this dry season and likely rose too quickly for many recovering SAV communities to stay in optimal light conditions. The seasonal low for the 2018 growing season of 12.83 feet NGVD was the third highest since 2011, and the third time in six years that stage did not reach the bottom of the preferred stage envelope (12.5 – 15.5 feet NGVD). Due to record rainfall in May, the SAV coverage on the Lake will likely remain at minimal levels throughout the growing season and well into next year, prolonging impacts from high stages in 2016 and Hurricane Irma in 2017. Cyanobacteria blooms have increased rapidly since mid- to late-June, with NOAA's satellite monitoring product (see below) suggesting the majority of the Lake potentially has a visible bloom on the surface. Some areas within the grass line along the outer marsh edge have dense algal mats where winds have caused accumulations of blooms. Conditions will likely remain favorable for blooms throughout the summer, particularly during stretches of fewer storms and low winds.

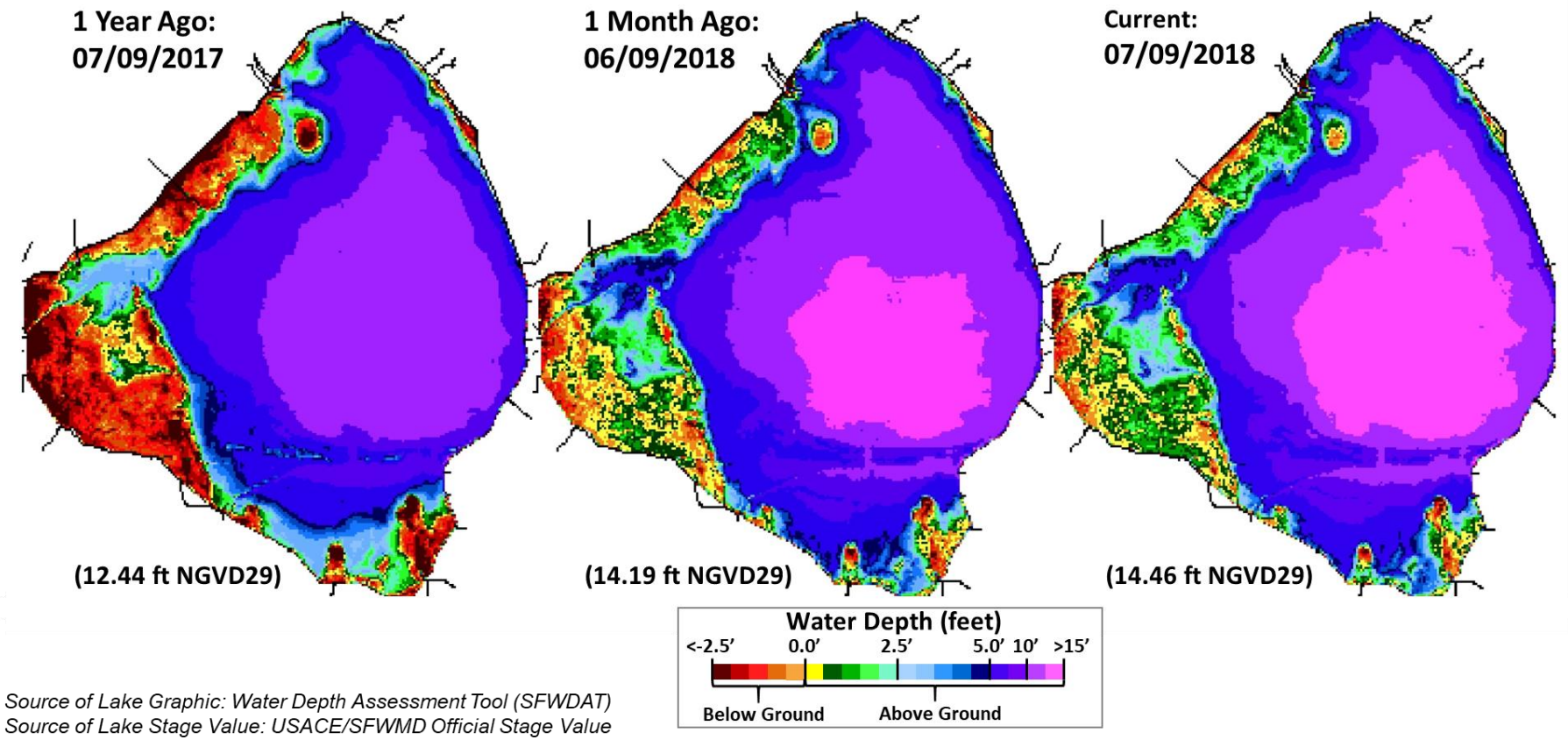


Figure 1. Water depth estimates on Lake Okeechobee based on the South Florida Water Depth Assessment Tool.

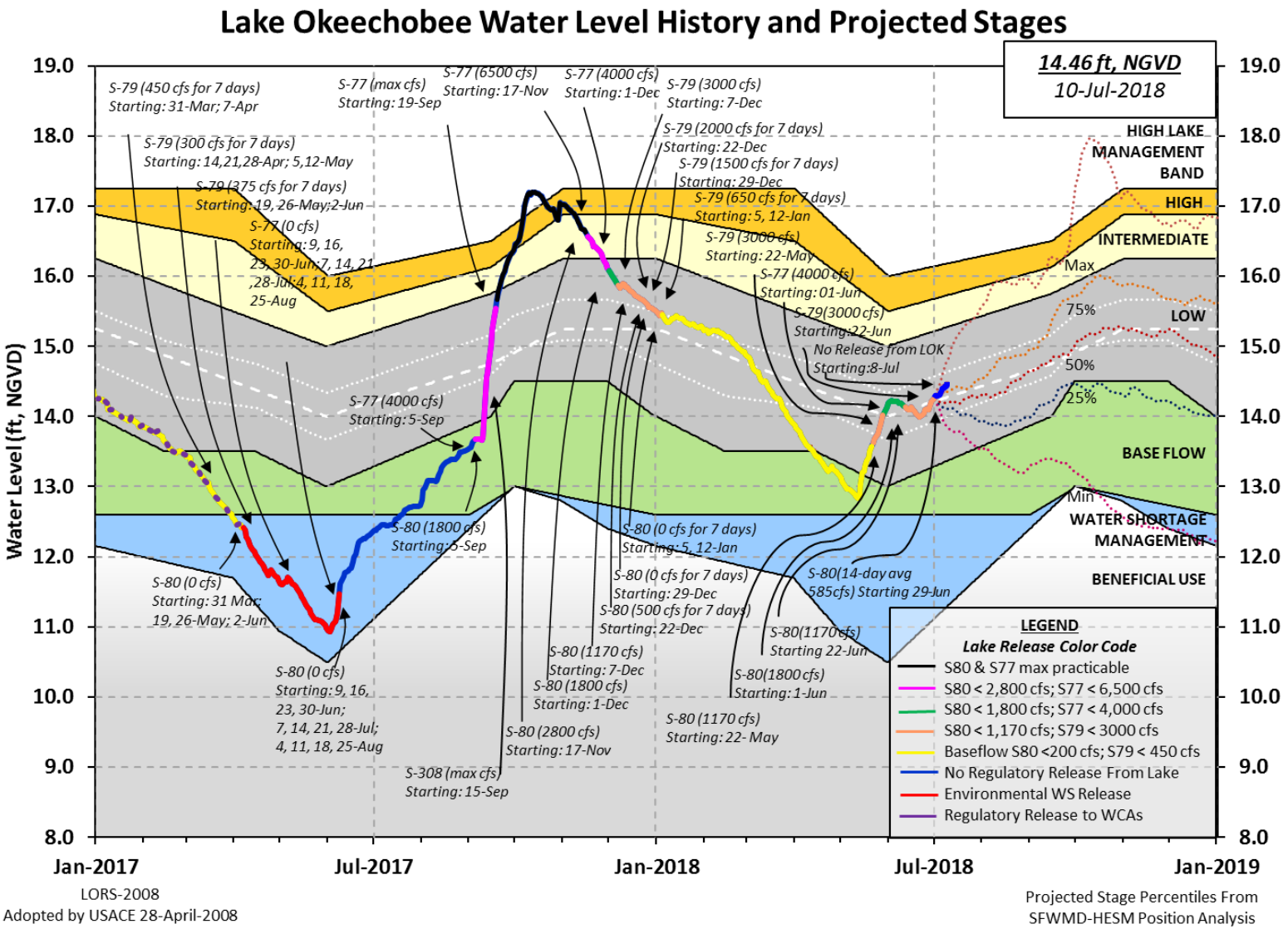


Figure 2. Recent Lake Okeechobee stage and releases, with projected stages based on a dynamic position analysis.

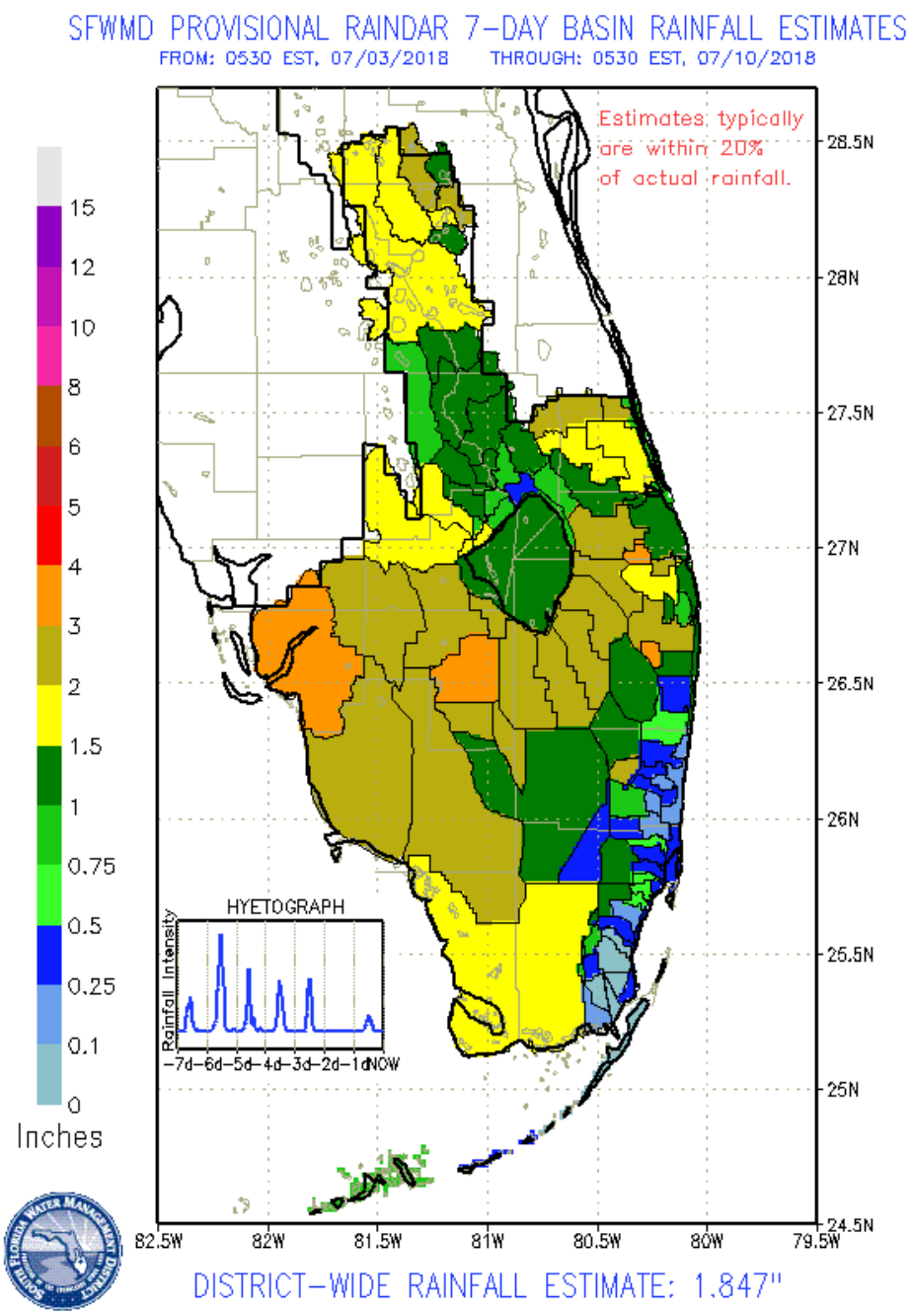


Figure 3. Rainfall estimates by basin.

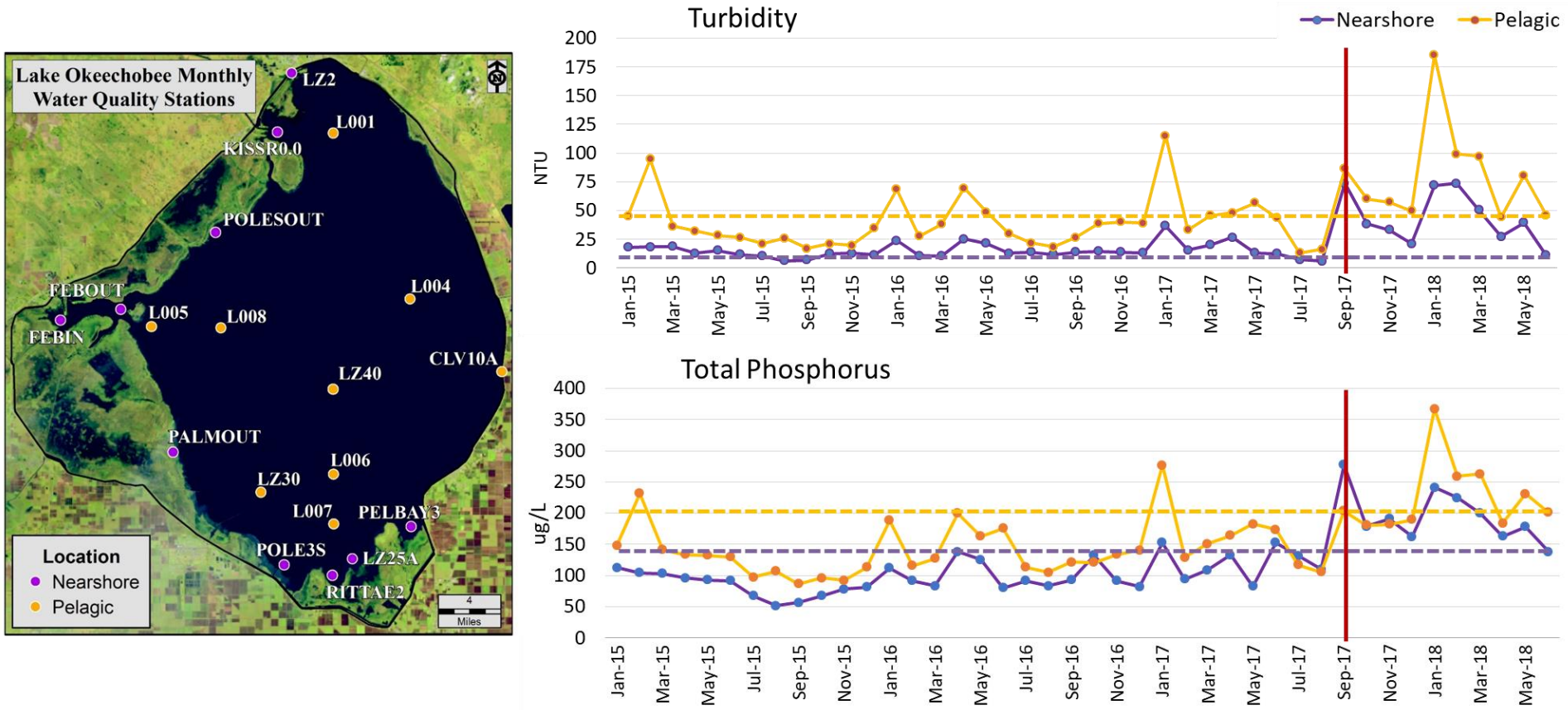


Figure 4. Turbidity (ntu) and Total Phosphorus (mg/L) values from mid-January 2015 through mid-June 2018 for nearshore (purple) and pelagic (yellow) zones. Fisheating Bay stations were not included due to sporadic sampling across the period of record.

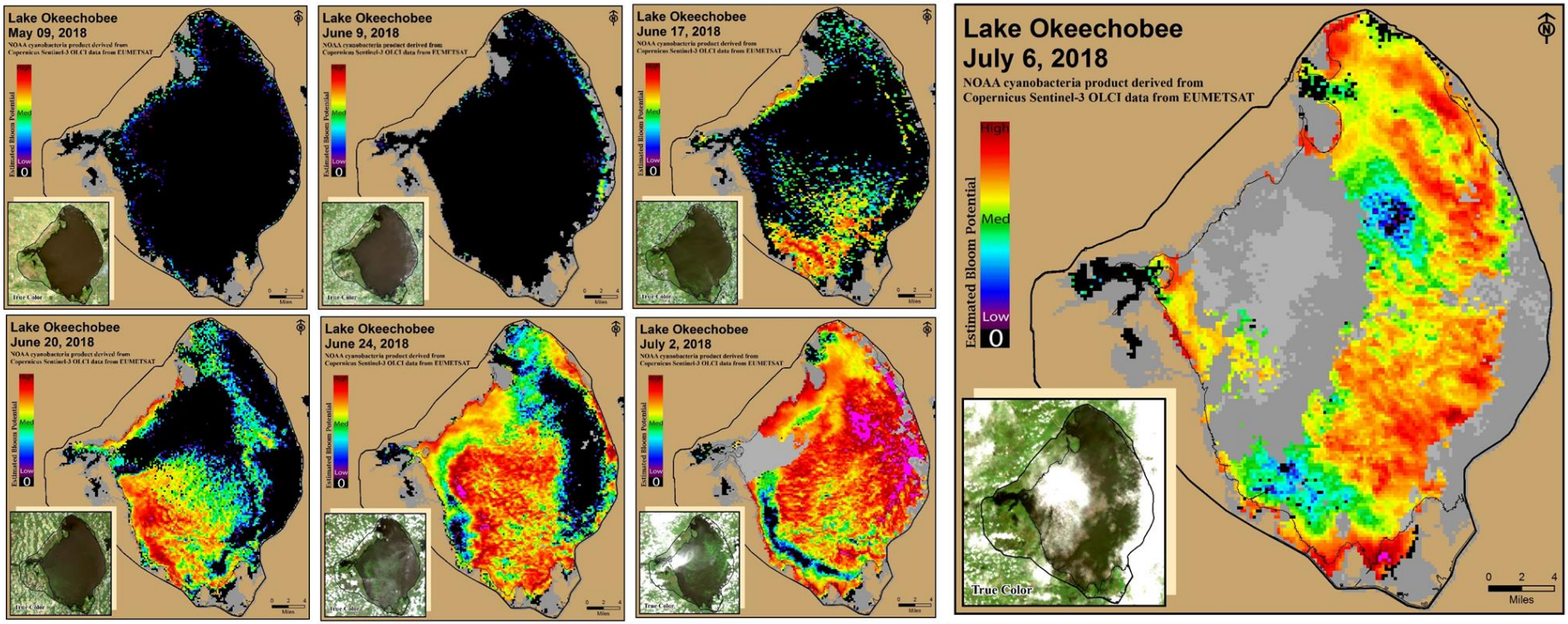


Figure 5. Potential for cyanobacterial blooms on Lake Okeechobee based on NOAA's harmful algal bloom monitoring system derived from Copernicus Sentinel-3 OLCI data from EUMETSAT. Gray indicates cloud cover. All data are experimental and unvalidated at this point in product development.

ESTUARIES

St. Lucie Estuary:

Last week total inflow to the St. Lucie Estuary averaged about 2,296 cfs (Figures 1 and 2) and last month inflow averaged about 3,133 cfs. Last week's provisional averaged inflows from the tidal basin and the structures are shown in Table 1.

Table 1. Weekly average inflows (data are provisional).

Location	Flow (cfs)
Tidal Basin Inflow	530
S-80	454
S-308	0
S-49 on C-24	142
S-97 on C-23	197
Gordy Rd. structure on Ten Mile Creek	973

Over the past week, salinity increased throughout the estuary (Table 2, Figures 3 and 4). The seven-day moving average salinity of the water column (an average of the surface and bottom salinity) at the US1 Bridge is estimated to be 14.1. Salinity conditions in the middle estuary are within the good range for adult eastern oysters (Figure 3).

Table 2. Seven-day average salinity at three monitoring sites in the St. Lucie Estuary. Current average is in bold face type, previous average in parentheses. The envelope reflects the preferred salinity range for adult eastern oysters (*Crassostrea virginica*) in the middle estuary.

Sampling Site	Surface	Bottom	Envelope
HR1 (North Fork)	**1.0** (NR[2])	**3.9** (NR)	NA[1]
US1 Bridge	**4.5** (2.1)	**23.7** (13.0)	10.0-26.0
A1A Bridge	**12.7** (8.1)	**22.1** (19.0)	NA[1]

[1]Envelope not applicable and [2]Not Reporting.

Caloosahatchee Estuary:

Last week total inflow to the Caloosahatchee Estuary averaged about 7,004 cfs (Figures 5 and 6) and last month inflow averaged about 6,482 cfs. Last week's provisional averaged inflows from the structures are shown in Table 3.

Table 3. Weekly average inflows (data is provisional).

Location	Flow (cfs)
S-77	193
S-78	1,419
S-79	4,683
Tidal Basin Inflow	2,321

Over the past week in the estuary, salinity decreased downstream of Ft. Myers Yacht Basin (Table 4, Figures 7 & 8). The seven-day average salinity values are in the good range for adult eastern oysters at Shell Point, in the poor range at Cape Coral (Figure 9) and were not available at Sanibel. The 30-day moving average surface salinity is 0.2 at Val I-75 and 0.2 at Ft. Myers. Salinity conditions between Val I-75 and Ft. Myers are good for tape grass.

Table 4. Seven-day average salinity at six monitoring stations in the Caloosahatchee Estuary. Current average is in bold face type, previous average in parentheses. The envelope reflects the preferred salinity range for tape grass (*Vallisneria americana*) at Val I-75 and for adult eastern oysters (*Crassostrea virginica*) elsewhere.

Sampling Site	Surface	Bottom	Envelope
S-79 (Franklin Lock)	**0.2** (0.2)	**0.2** (0.2)	NA[1]
Val I75	**0.2** (0.2)	**0.2** (0.2)	0.0-5.0[2]
Ft. Myers Yacht Basin	**0.2 (**0.2)	**0.2** (0.2)	NA
Cape Coral	**1.4** (2.1)	**2.1** (3.2)	10.0-30.0
Shell Point	**11.7** (15.6)	**11.6** (14.7)	10.0-30.0
Sanibel	**NR**[3](NR)	**NR** (NR)	10.0-30.0

[1]Envelope not applicable, [2]Envelope is based on a 30-day average, and [3]Not Reporting.

The Florida Fish and Wildlife Research Institute reported on July 6, 2018, that *Karenia brevis,* the Florida red tide dinoflagellate, was observed at background to high concentrations in 32 samples collected from or offshore of Lee County. Fish kills and respiratory irritation were reported in Lee County over the past week.

Water Management Recommendations

Lake stage is in the Low sub-band of 2008 LORS. Tributary hydrological conditions are very wet. The 2008 LORS recommends up to 4,000 cfs at S-77 and up to 1,800 cfs at S-80. Given the current estuarine conditions, there are no ecological benefits associated with freshwater releases from Lake Okeechobee.

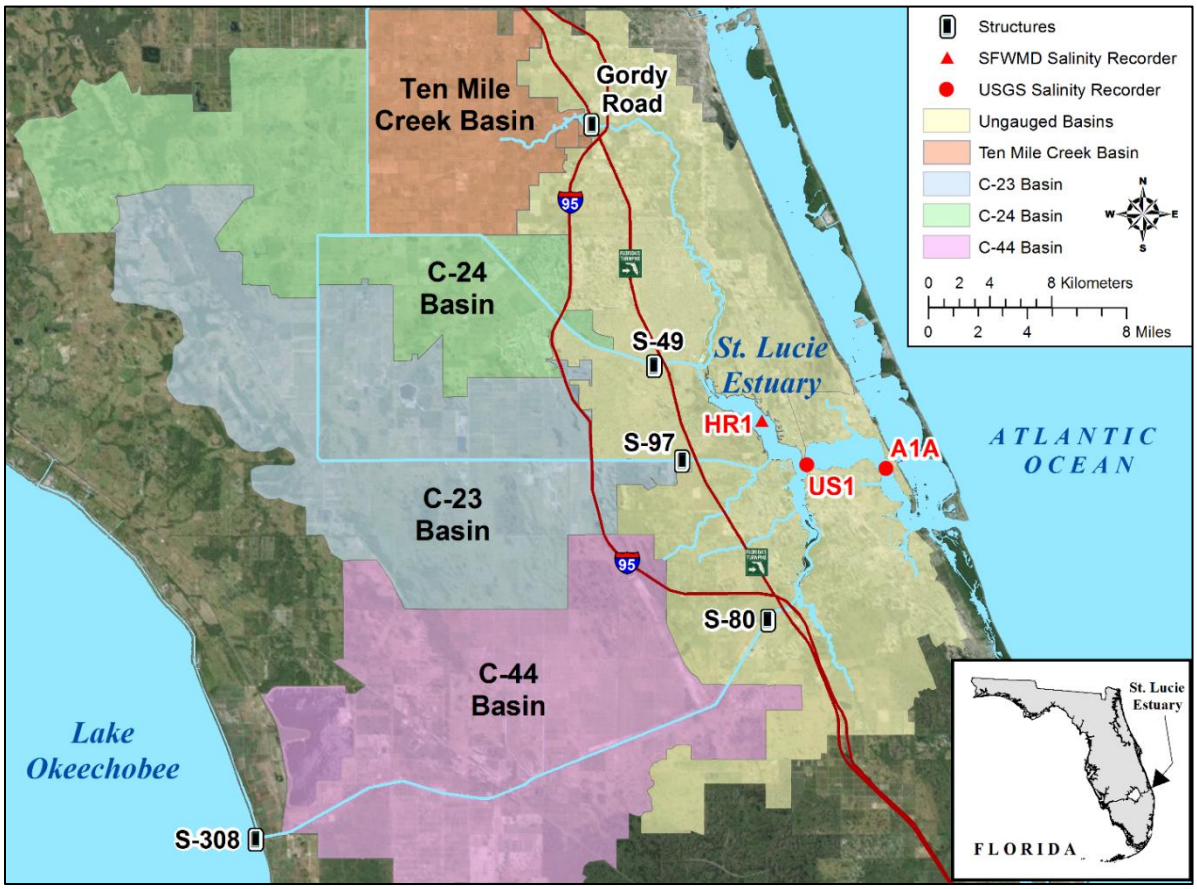


Figure 1. Basins, water control structures, and salinity monitoring for the St. Lucie Estuary.

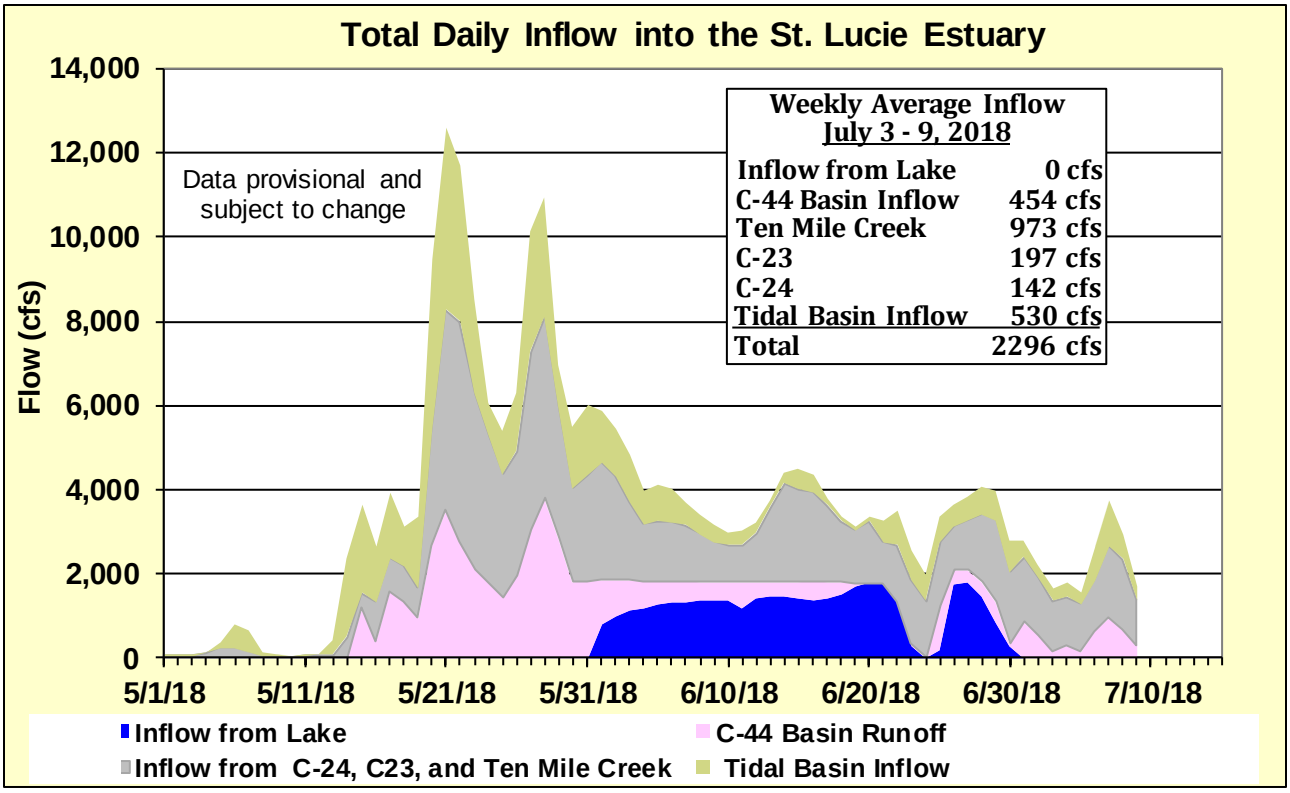


Figure 2. Total daily inflows from Lake Okeechobee and runoff from the C-44, C-23, C-24, Ten Mile Creek, and tidal basins into the St. Lucie Estuary.

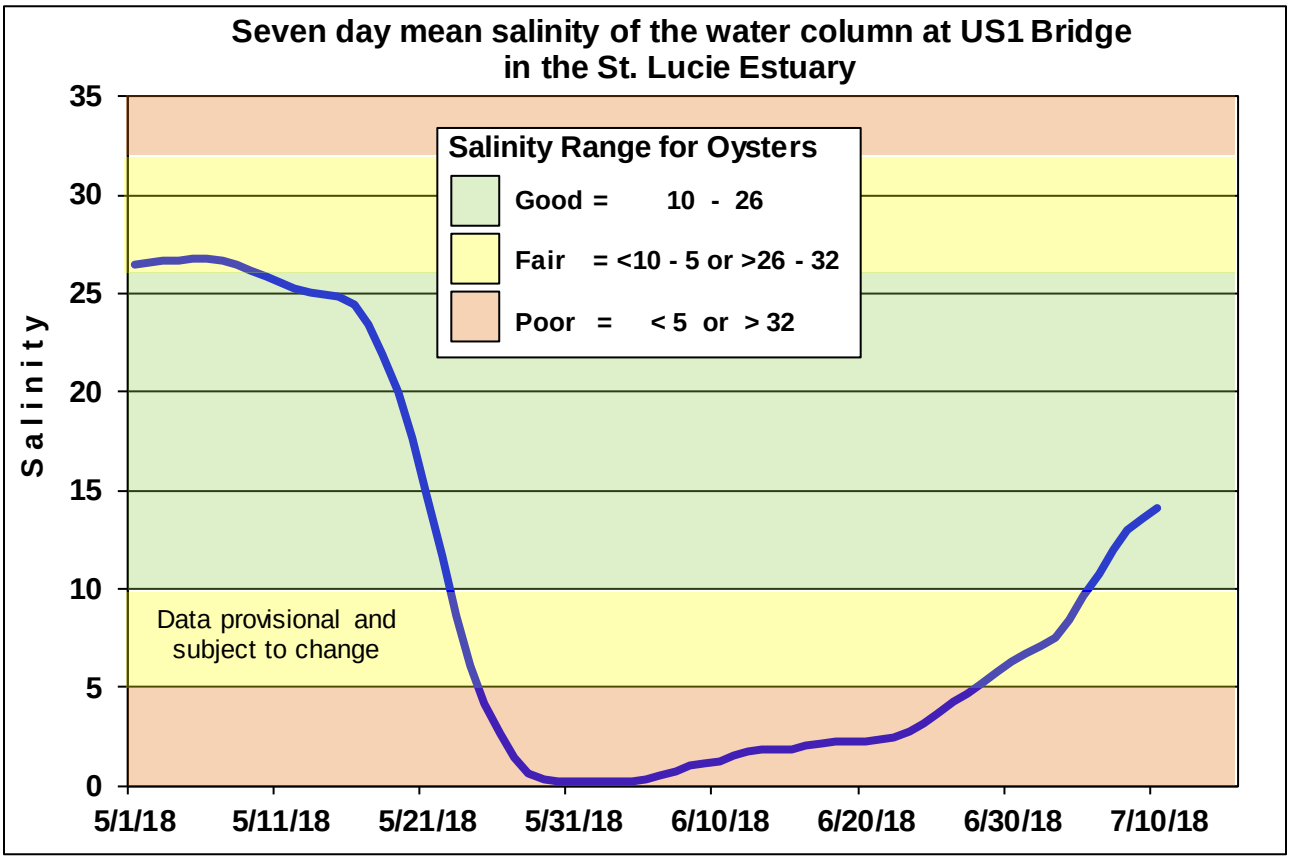


Figure 3. Seven-day mean salinity of the water column at the US1 Bridge.

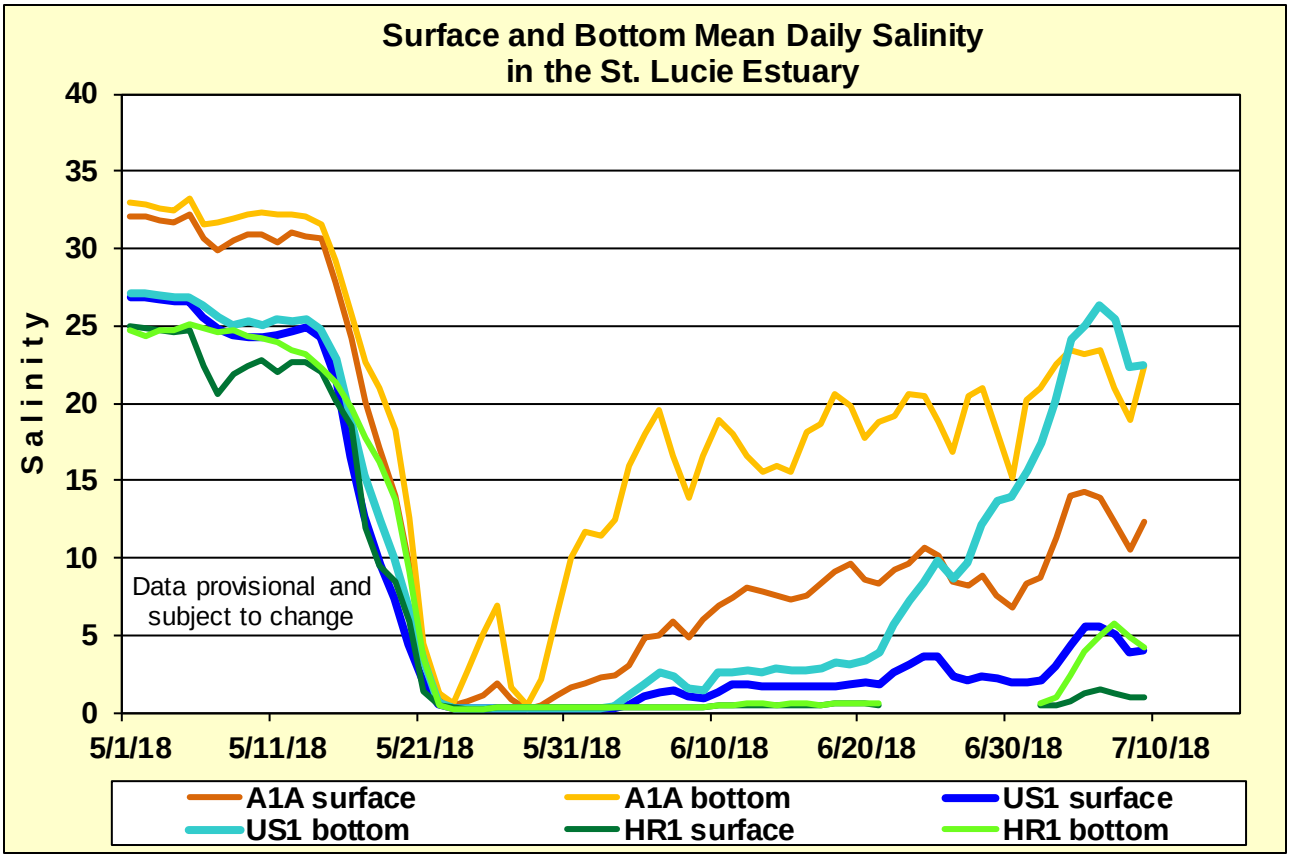


Figure 4. Daily mean salinity at the A1A, US1 and estimated HR1 stations.

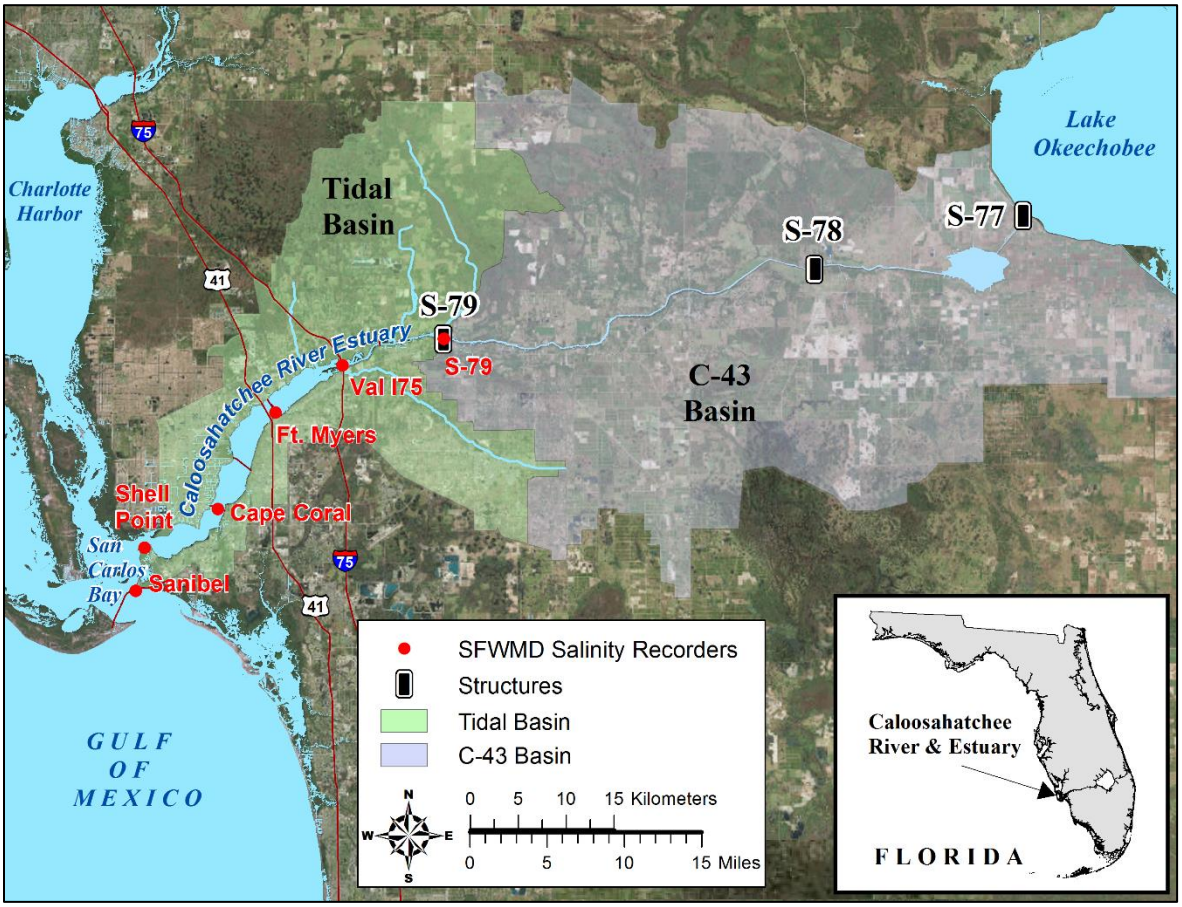


Figure 5. Basins, water control structures, and salinity monitoring for the Caloosahatchee Estuary.

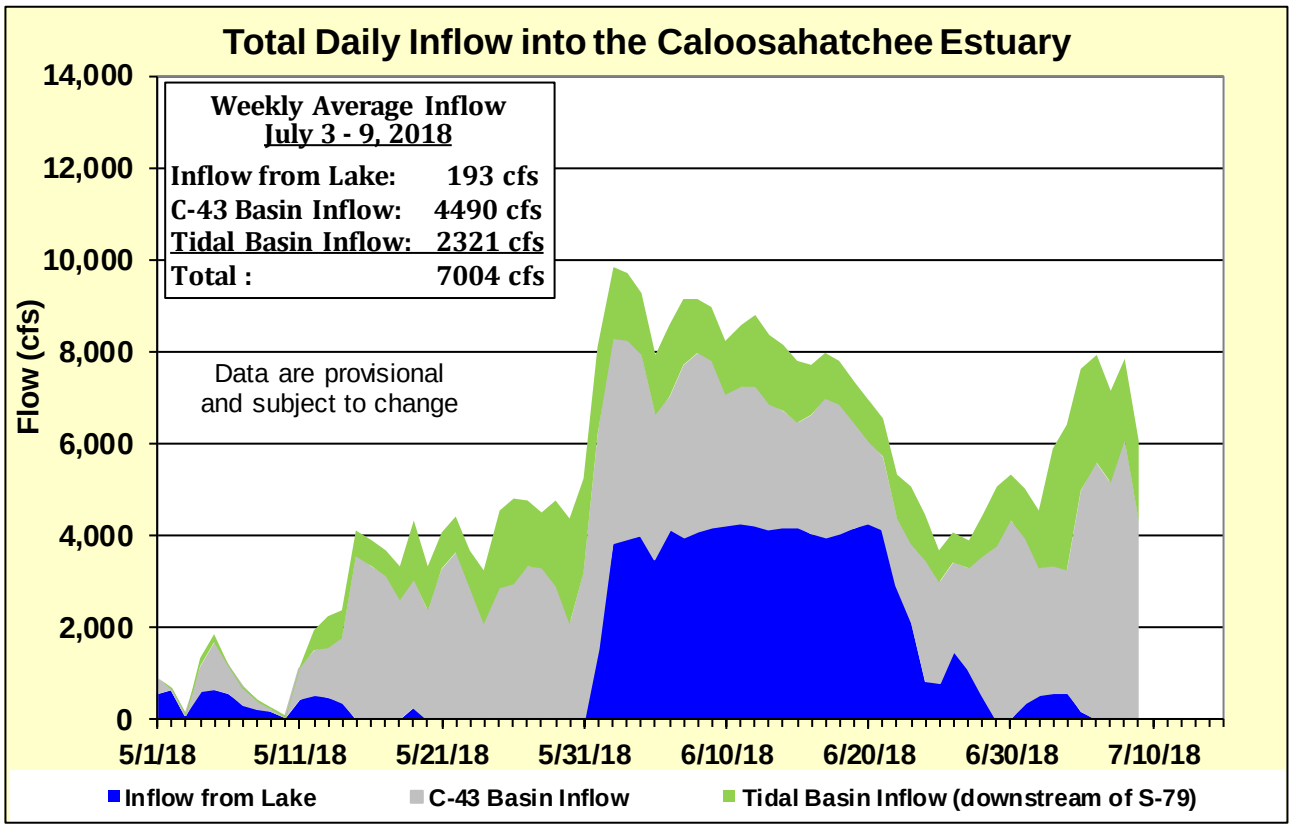


Figure 6. Total daily inflows from Lake Okeechobee, runoff from the C-43 basin, and tributaries in the tidal basin into the Caloosahatchee River Estuary.

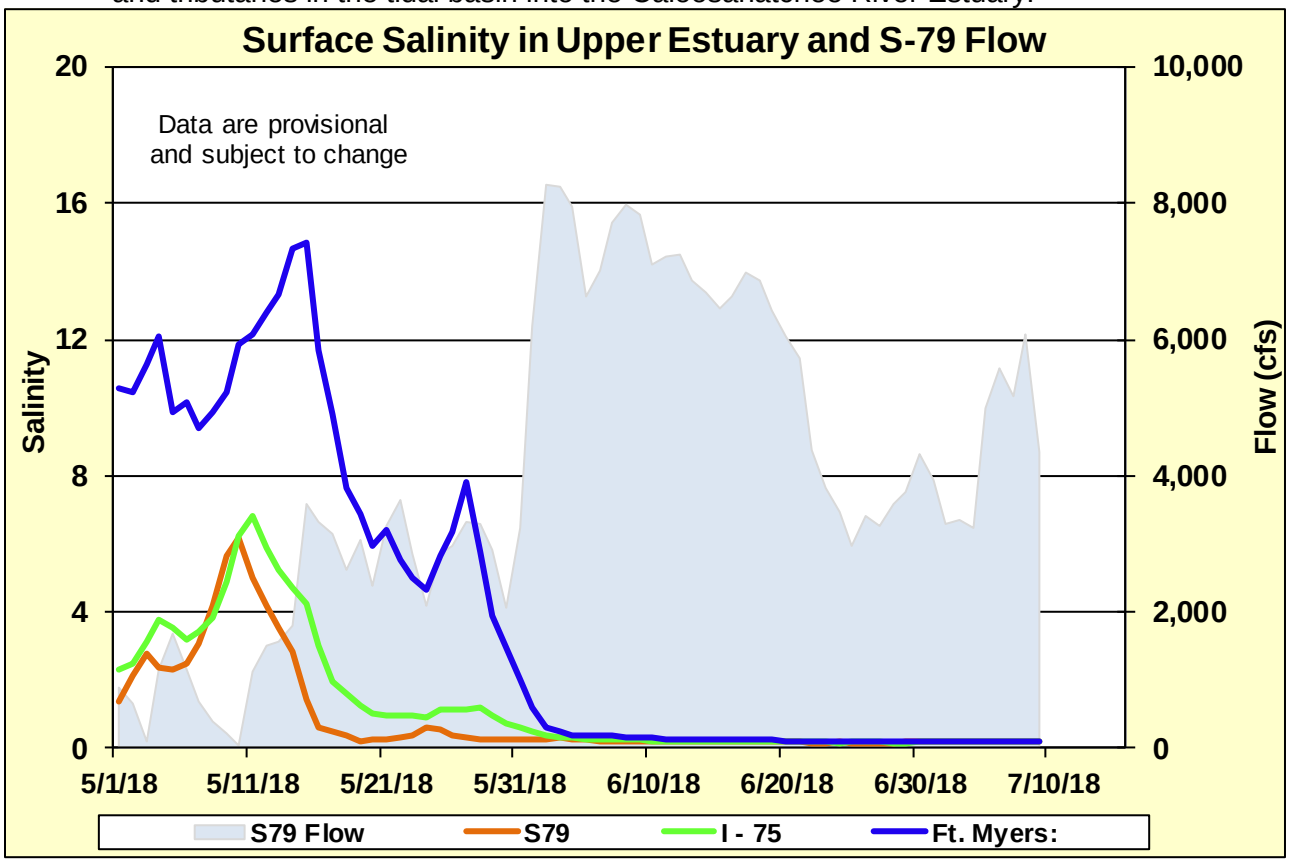


Figure 7. Daily mean flows at S-79 and salinity at upper estuary monitoring stations.

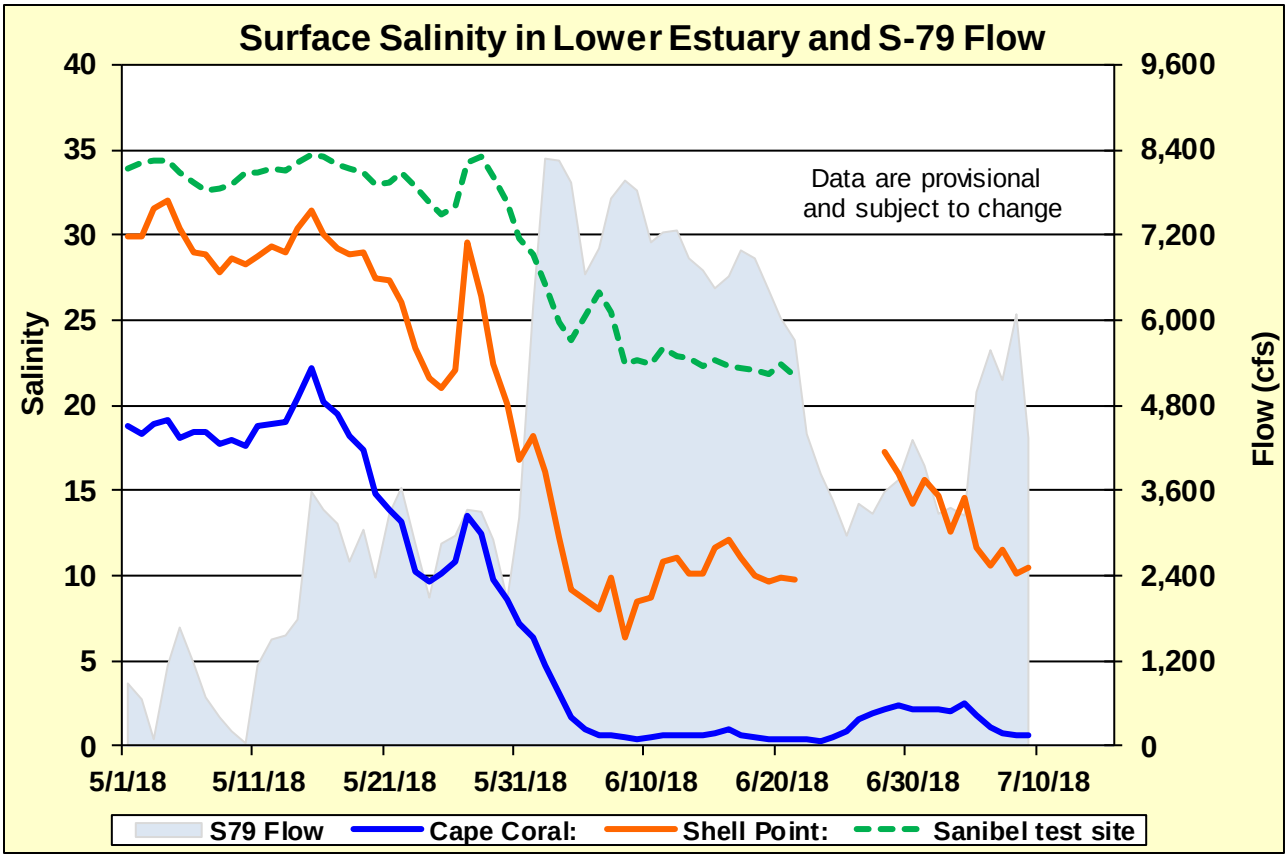


Figure 8. Daily mean flows at S-79 and salinity at lower estuary stations.

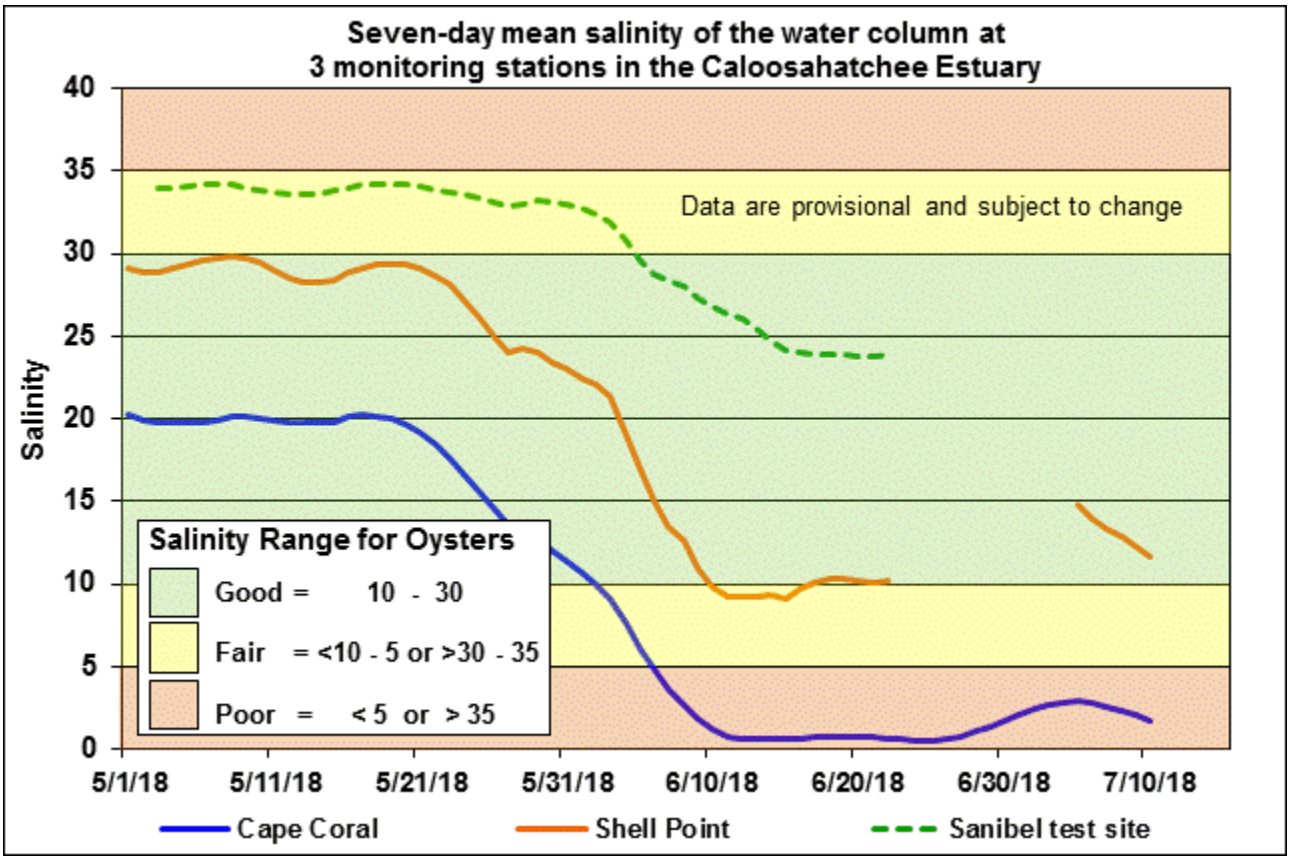
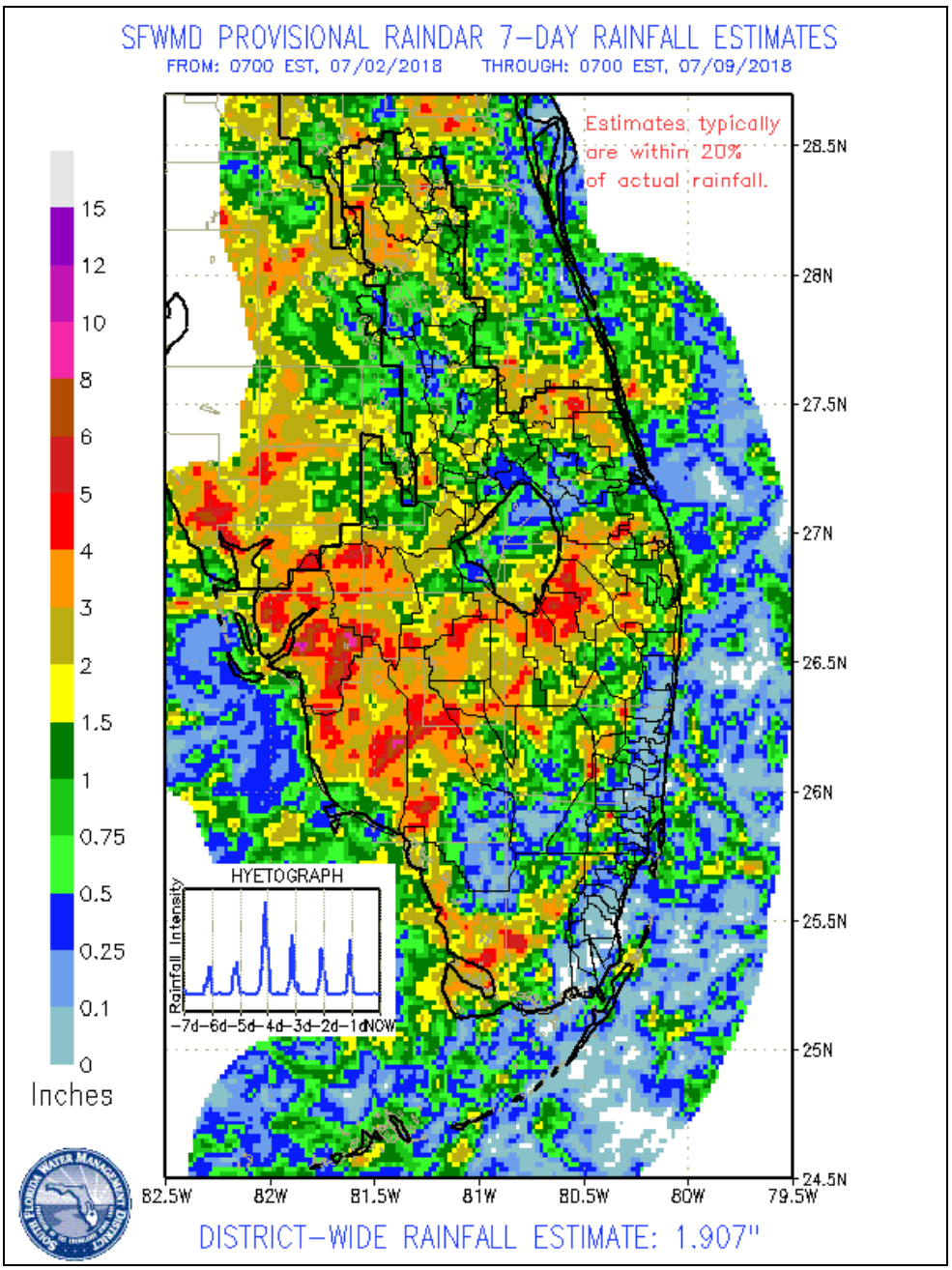


Figure 9. Seven-day mean salinity at Cape Coral, Shell Point, and Sanibel monitoring stations.

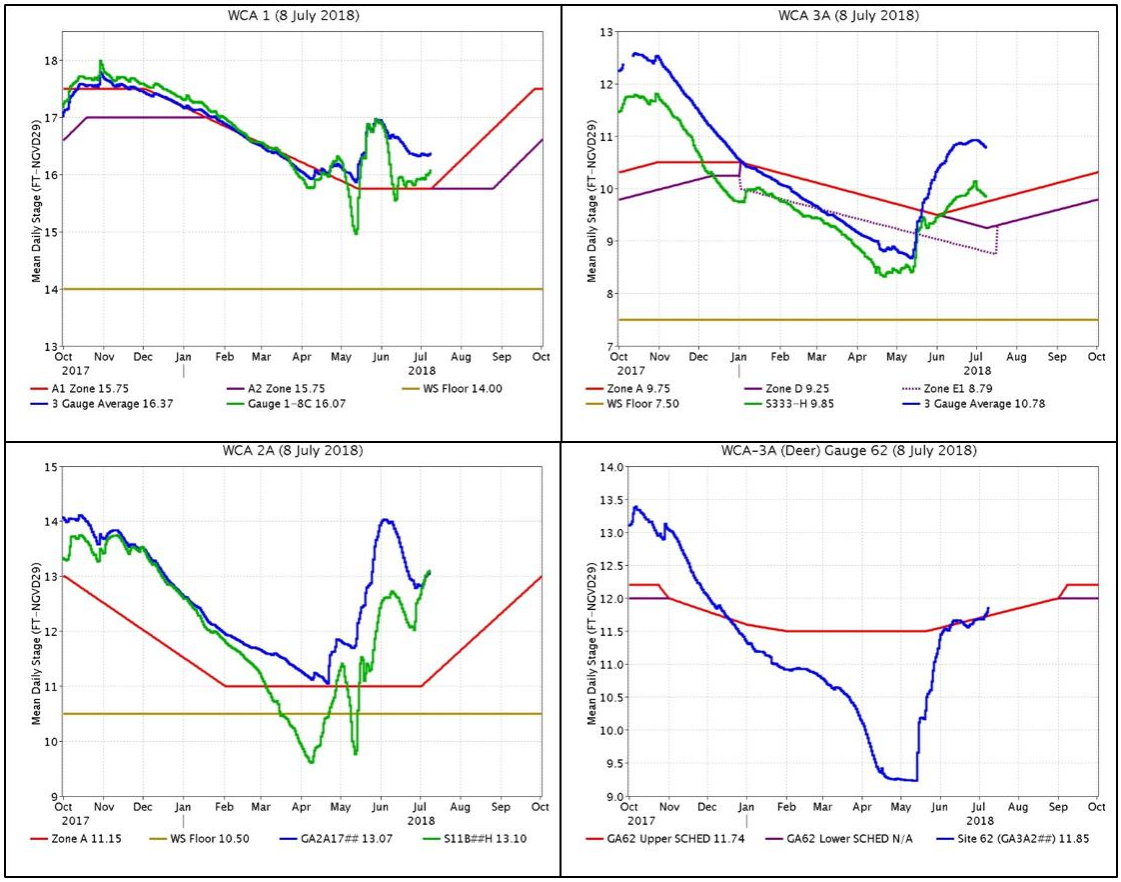
EVERGLADES

At the gauges monitored for this report, the stages in WCA-2A and -2B rose 0.28 feet. Individual gauge changes within the WCAs ranged from −0.23 feet (WCA-3A) to +0.28 feet (WCA-2B). Pan evaporation was estimated at 1.73 inches.

Everglades Region	Rainfall (Inches)	Stage Change (feet)
WCA-1	1.43	−0.01
WCA-2A	1.46	+0.27
WCA-2B	2.37	+0.28
WCA-3A	1.40	−0.07
WCA-3B	0.88	+0.00
ENP	1.77	+0.15



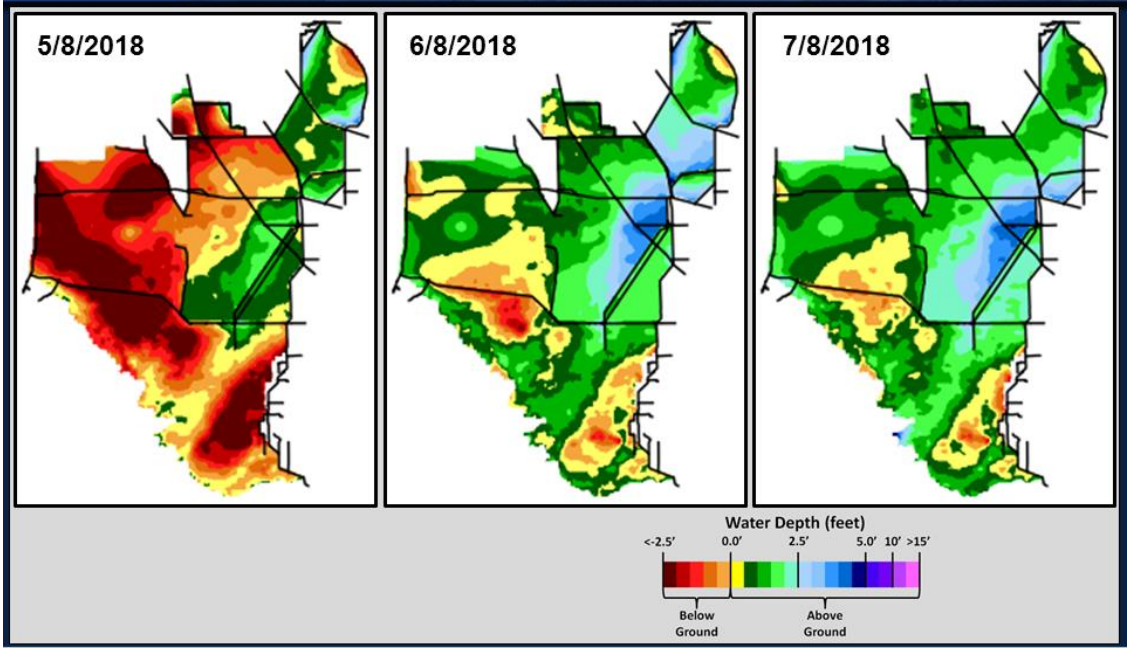
Regulation Schedules: WCA-1 three-gauge average stage is 0.62 feet above Zone A1 with a slight uptick to end the week. Stage at gauge 1-8C is 0.32 feet above schedule. WCA-2A marsh stage is 1.92 feet above Zone A. S-11B headwater stage is 1.95 feet above schedule. WCA-3A three-gauge average stage is now 1.03 feet above Zone A. WCA-3A stage at gauge 62 (northwest corner) increased to 0.11 feet above the upper schedule.



Water Depths and Changes: The WDAT tool for spatial interpolation of depth monthly snapshots indicates a rapidly hydrating WCA-3A, ponding along the northern reaches of the L-67 in southern WCA-3A and somewhat drier conditions in WCA-2A compared to last month. Water depths decreased this last week across portions of WCA-1 and WCA-3A while increasing in WCA-2A and Shark River Slough. Compared to a month ago, WCA-3A is considerably wetter at this time while WCA-1 and -2A are drier than a month ago. Looking back one year ago, WCA-1, -2A, and -3A are drier while WCA-2B, -3B, and most of ENP are wetter.

SOUTH FLORIDA WATER MANAGEMENT DISTRICT

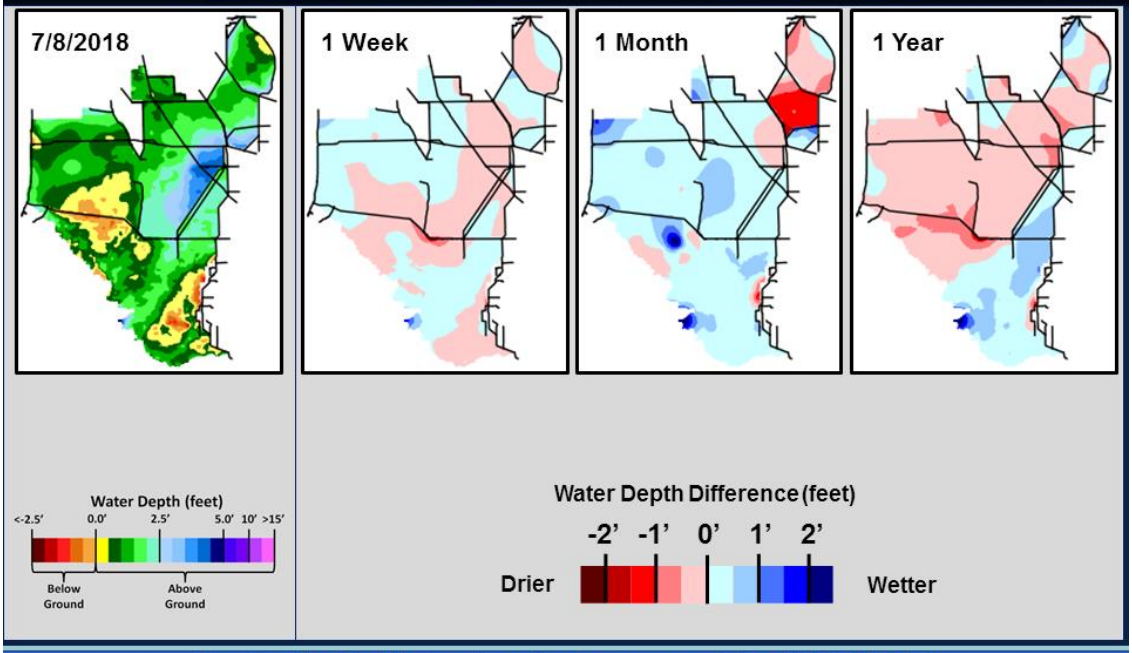
SFWDAT Water Depth Monthly Snapshots



South Florida Water Depth Assessment Tool (SFWDAT)

SOUTH FLORIDA WATER MANAGEMENT DISTRICT

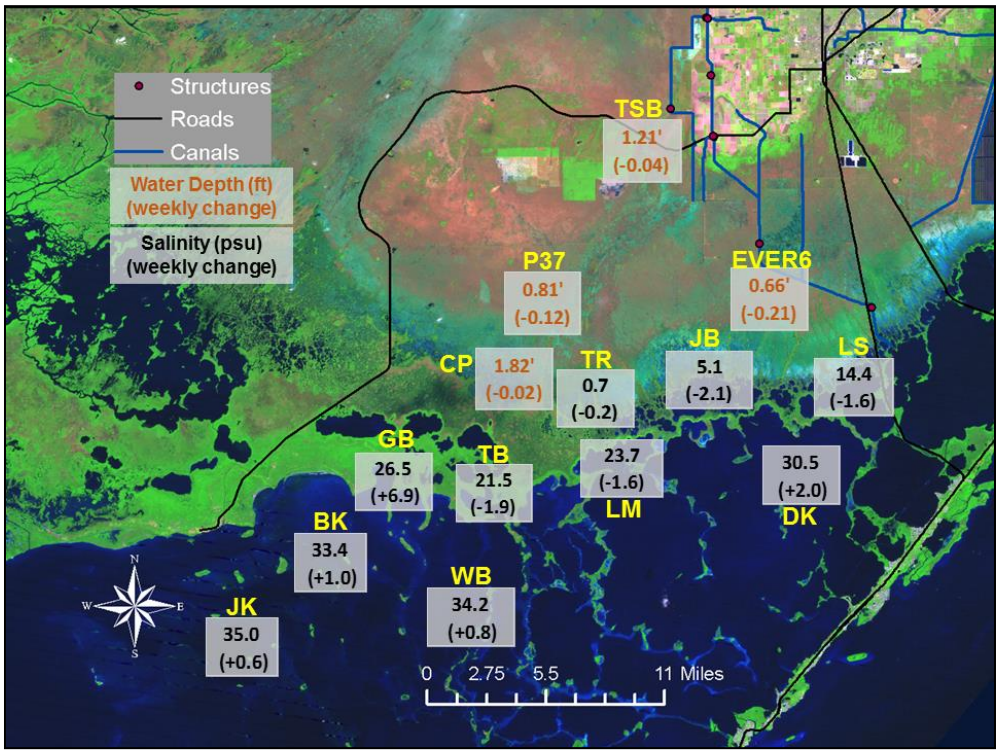
SFWDAT Everglades Difference Maps (Present – Past)

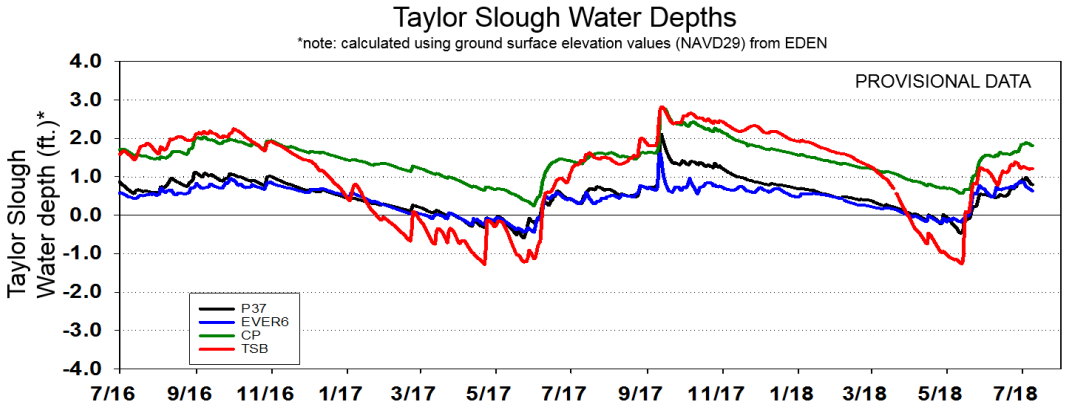


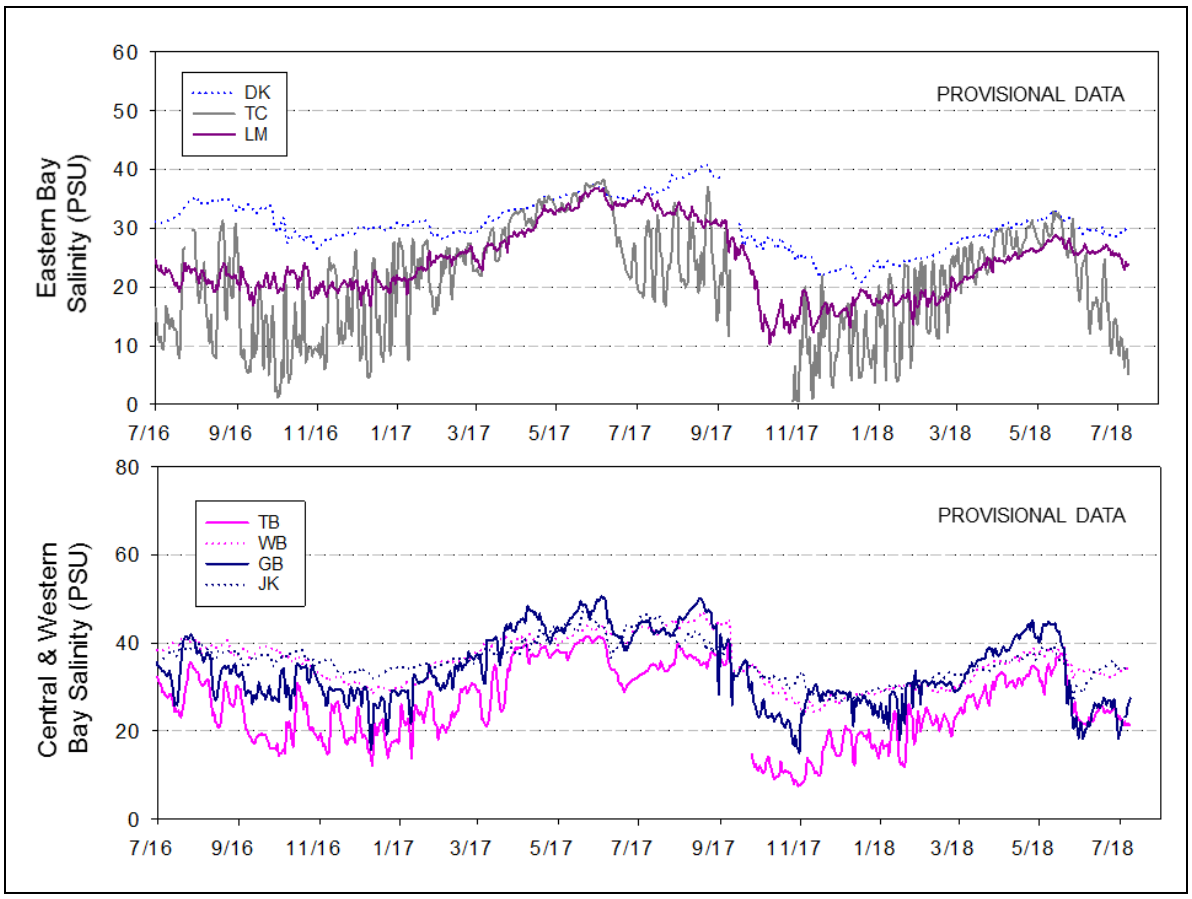
South Florida Water Depth Assessment Tool (SFWDAT)

Taylor Slough Water Levels: An average of only 0.26 inches of rain fell on Taylor Slough and Florida Bay. Stages decreased an average of 0.10 feet this past week with individual station changes ranging from −0.21 feet to −0.02 feet. Water depths are 3 to 6 inches above the historical averages.

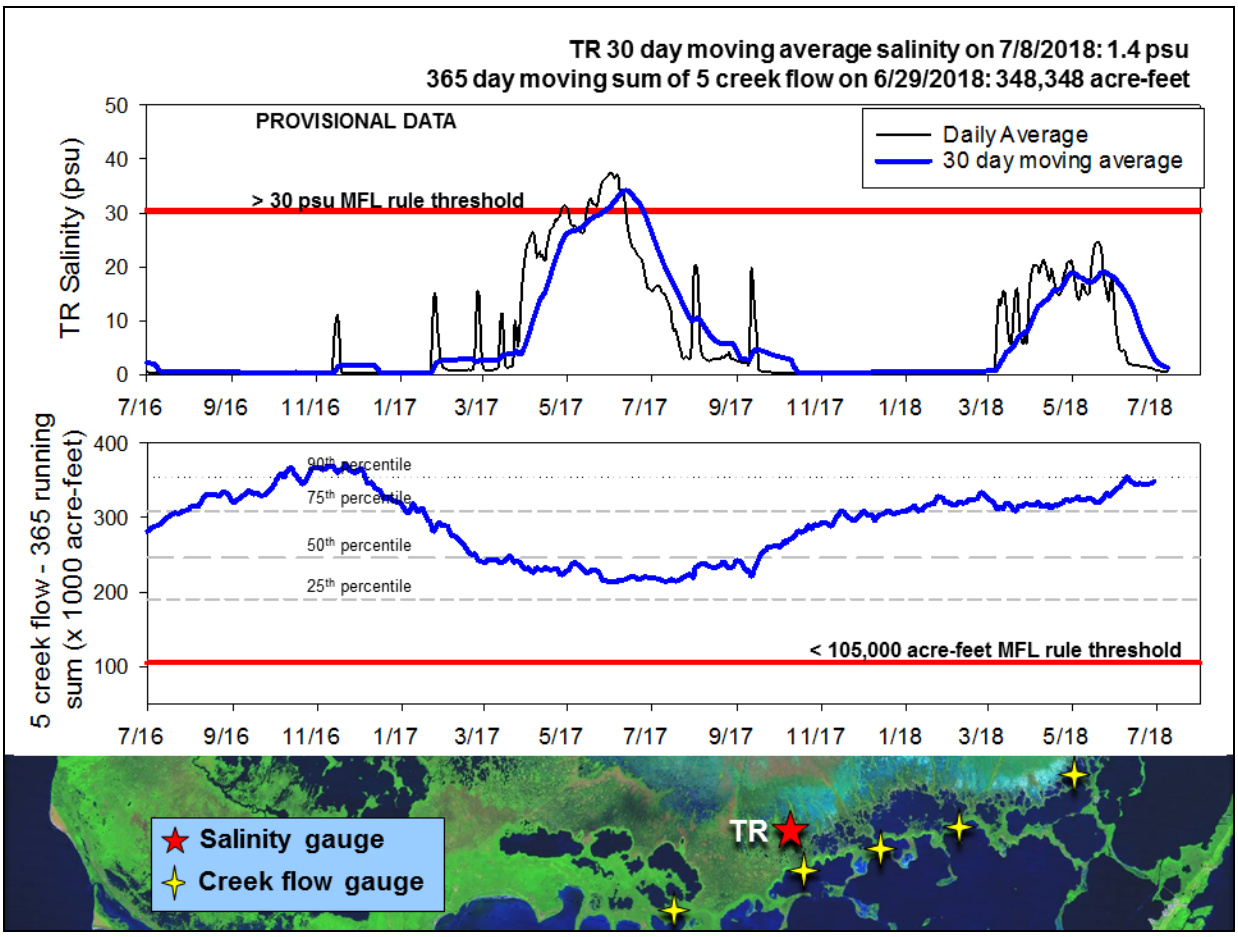
Florida Bay Salinities: Salinities increased 0.2 psu on average across Florida Bay, with individual station changes ranging from −2.1 psu to +6.9 psu. Salinities ranged from 5 psu in the northeast to 35 psu in the western bay. This range is 5 psu below the historical average for the bay with individual stations ranging from 1 to 11 psu below the historical averages.







Florida Bay MFL: Mangrove zone daily average remains near fresh this week at 0.7 psu. The 30-day moving average decreased 1.0 psu over the week to end at 1.4 psu. A sensor malfunction at the middle creek of the five creeks denoted by yellow stars on the map prevents calculation of the five-creek total beyond June 29, 2018.



Water Management Recommendations

Inflows to northernmost WCA-3A create the least ecological stress when compared to flows to southern WCA-3A or WCA-2A. Incremental change in the rate of structure flows (i.e., when changing flow rates from 0 cfs to 1,000 cfs, make 500 cfs adjustment per week) to the WCAs is more ecologically sensitive than abrupt rate changes. Ascension rates are now critical for apple snail reproduction in the Everglades. The current recommended stage ascension rate is less than 0.25 feet per week (or 0.5 feet per 2 weeks). Due to elevated levels of phosphorus in the S-332D detention area and the Frog Pond detention area, a recommendation is being made to limit the increase in depths within the L-31W to no more than 3 inches per day over the course of 3 to 4 weeks when S-332D, S-328, and/or G-737 are opened. More specific recommendations appear in the summary table below. The red text represents new or modified information or recommendations.

SFWMD Everglades Ecological Recommendations, July 10th, 2018 (red is new)			
Area	Weekly change	Recommendation	Reasons
WCA-1	Stage decreased by 0.01'	Maintain depths at regulation schedule.	Protect upstream/downstream habitat and wildlife.
WCA-2A	Stage increased by 0.27'	Maintain depths at or above regulation schedule.	Protect upstream/downstream habitat and wildlife.
WCA-2B	Stage increased by 0.28'	Maintain depths at regulation schedule. Manage for a rate of ascension less than +0.25' per week, or less than +0.5 per 2 weeks.	Protect upstream/downstream habitat and wildlife.
WCA-3A NE	Stage decreased by 0.23'	Maintain depths at regulation schedule.	Protect habitat including peat soil development and wildlife.
WCA-3A NW	Stage increased by 0.16'	Maintain depths at regulation schedule.	
Central WCA-3A S	Stage decreased by 0.06'	Maintain depths at regulation schedule. Manage for a rate of ascension less than +0.25' per week, or less than +0.5 per 2 weeks.	Protect habitat and wildlife.
Southern WCA-3A S	Stage decreased by 0.14'		
WCA-3B	Stage changes ranged from −0.06' to +0.04'	Maintain depths at or above regulation schedule. Manage for a rate of ascension less than +0.25' per week, or less than +0.5 per 2 weeks.	Protect upstream/downstream habitat and wildlife.
ENP-SRS	Stage increased by 0.15'	Make discharges to the Park according to the 2012 WCP rainfall plan.	Protect upstream/downstream habitat and wildlife.
Taylor Slough	Stage changes ranged from −0.06' to +0.25'	Move water southward as possible. Limit increases in the L-31W to less than 3 inches per day for 3-4 weeks to allow for reductions in phosphorus concentrations.	When available, provide freshwater buffer for downstream conditions. Decrease potential for high phosphorus input to ENP.
FB- Salinity	Salinity changes ranged −7.4 to +1.1 psu.	Move water southward as possible	When available, provide freshwater to maintain low salinity buffer and promote water movement.