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, Assistant Executive Director, Executive Office Staff

FROM: SFWMD Staff Environmental Advisory Team

DATE: January 22, 2020

SUBJECT: Weekly Environmental Conditions for Systems Operations

Summary

Weather Conditions and Forecast

Scattered showers developing mainly east Wednesday and Thursday; potential for some meaningful rain south Monday. A mid and upper level trough will push through the southeastern US to near the Bahamas today and tonight. This trough will help deepen a developing surface low just northeast of the Bahamas. As the low moves slowly eastward away from the District, strong northeast winds and a trough pinwheeling around the low will push moisture and showers wrapping around the low over mainly eastern portions of the District beginning Wednesday morning and continuing into Thursday. A cold front is forecast to push through the District Friday/Saturday, but a lack of good upper level support is expected to limit shower activity with this system. A strong jet streaming across the area then creates the potential for some areas of moderate to heavy rains moving across mainly the southern half of the District Monday. In the extended outlook, a frontal boundary is forecast to move into the District and stall so near-average rainfall is forecast for Week 2.

Kissimmee

Tuesday morning stages were 54.8 feet NGVD (3.2 feet below schedule) in East Lake Toho, 54.5 feet NGVD (0.5 feet below schedule) in Toho, and 51.9 feet NGVD (0.6 feet below schedule) in Kissimmee-Cypress-Hatchineha; headwater stages were 46.6 feet NGVD at S-65A and 25.6 feet NGVD at S-65D. Tuesday morning discharges were 694 cfs at S-65, 685 cfs at S-65A, 767 cfs at S-65D and 495 cfs at S-65E. Dissolved oxygen concentration in the Kissimmee River averaged 8.0 mg/L for the week through Sunday. Kissimmee River mean floodplain depth on Sunday was 0.23 feet. Recommendation: 1/15/2020: Open S-59 gate to manage the East Toho habitat enhancement drawdown. Recommendation: 1/20/2020: Close S-59 gate to manage the East Toho habitat enhancement drawdown.

Lake Okeechobee

Lake Okeechobee stage was 12.93 feet NGVD on January 20, 2020, down 0.13 feet from the previous week, and 0.06 feet lower than the previous month. The Lake remains in the Base Flow sub-band, where it has been since September 11, 2019. Water levels moved below the ecological envelope (which varies seasonally from 12.5 – 15.5 feet NGVD +/- 0.5 feet) on October 15, 2019 and are currently 1.49 feet below the bottom of the envelope. Low Lake stages continue to benefit recovering SAV communities, but also stress higher elevation marshes; areas with elevations greater than approximately 14 feet NGVD have now been dry since late October of 2018. Low stages throughout 2019 likely limited prey production in the marsh and appear to be impacting wading bird use of the Lake prior to the 2020 breeding season.

Estuaries

Total inflow to the St. Lucie Estuary averaged 313 cfs over the past week with no flow coming from Lake Okeechobee. Salinities increased throughout the estuary. Salinity at the US1 Bridge is in the good range for adult eastern oysters.

Total inflow to the Caloosahatchee Estuary averaged 753 cfs over the past week with 487 cfs coming from the Lake. Salinity increased slightly in the upper estuary, but little changed in the lower estuary. Salinities are in the good range for Tape Grass at Val I-75 and in the fair range at Ft. Myers. Salinities are in the good range for adult eastern oysters at Cape Coral and Shell Point and in the fair range at Sanibel.

Lake stage is in the Base Flow sub-band of 2008 LORS. Tributary hydrological conditions are normal. The 2008 LORS release guidance suggests up to 450 cfs at S-79 and up to 200 cfs at S-80.

Stormwater Treatment Areas

Over the past week, 1,500 ac-ft of Lake Okeechobee water was delivered to the FEBs/STAs. The total amount of Lake releases sent to the FEBs/STAs in WY2020 (since May 1, 2019) is approximately 72,000 acre-feet. The total amount of inflows to the STAs in WY2020 is approximately 837,000 acre-feet. Most STA cells are at or near target depths except STA-5/6 cells which are drying out. STA-1E Western Flow-way is offline for West Distribution Cell levee repairs and the Restoration Strategies project to fill and grade Cells 5 and 7. Operational restrictions are in place in STA-1W Northern Flow-way related to STA-1W Expansion #1 startup activities, in STA-3/4 Eastern Flow-way for energy dissipator installation, in STA-1E Central Flow-way, STA-2 Flow-way 3, and STA-2 Flow-way 4 for vegetation management activities, and in STA-5/6 Flow-ways 2 and 3 following the Restoration Strategies project to grade non-effective treatment areas. This week, if 2008 LORS recommends Lake releases to the WCAs and the conditions allow, releases will be sent to STA-2 or A-1 FEB/STA-3/4.

Everglades

Current stages in the WCA-3A remain low for this time of year and salinities are above average in Florida Bay. Conserving fresh water in the Everglades, distributing it to where depths are low (WCA-3A North) and allowing it to flow south has important ecological benefit. One example of this currently taking place is the routing of water from WCA-2A into NE WCA-3A via the S-150 structure (an average of 316 cfs last week). As wading bird nesting begins in the Everglades, ecological recommendations move towards moderating recession rates where and when possible. Generally, this time of year rates from -0.05 to -0.09 feet per week are desirable to optimize conditions for prey concentration and capture. However, given the below average stages in key foraging areas it currently remains ecologically desirable to conserve as much water as possible. This recommendation is expected to change as wading bird nesting increases in the Everglades. Stages decreased in Taylor Slough this week, but depth in the slough remain above average, more so in the northern reaches. As we move into the seasonal CSSS restrictions the continued, consistent westward water movement in South-Dade seems to be slowing the recession in the northern areas of Taylor Slough which is good. Salinities remain above average in Florida Bay, with little estuarine gradient.

Supporting Information

KISSIMMEE BASIN

Kissimmee Basin Rainfall

The Upper Kissimmee Basin received 0.02 inches of rainfall in the past week and the Lower Basin received 0.08 inches (SFWMD Daily Rainfall Report 1/20/2020; Figure 1).

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 2-4.

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: 1/21/2020

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)						
							1/19/20	1/12/20	1/5/20	12/29/19	12/22/19	12/15/19	12/8/19
Lakes Hart and Mary Jane	S-62	72	LKMJ	60.9	R	61.0	**-0.1**	0.0	0.0	0.2	0.0	-0.2	-0.4
Lakes Myrtle, Preston, and Joel	S-57	21	S-57	61.5	R	61.5	**0.0**	0.1	0.1	0.1	0.0	-0.3	-0.5
Alligator Chain	S-60	0	ALLI	63.5	R	64.0	**-0.5**	-0.5	-0.5	-0.7	-0.9	-1.0	-1.1
Lake Gentry	S-63	0	LKGT	61.4	R	61.5	**-0.1**	-0.1	-0.1	-0.3	-0.6	-0.7	-0.7
East Lake Toho	S-59	166	TOHOE	54.8	R	58.0	**-3.2**	-3.1	-2.8	-2.9	-3.1	-3.0	-3.0
Lake Toho	S-61	436	TOHOW, S-61	54.5	R	55.0	**-0.5**	-0.5	-0.5	-0.5	-0.5	-0.4	-0.3
Lakes Kissimmee, Cypress, and Hatchineha	S-65	606	KUB011, LKIS5B	51.9	R	52.5	**-0.6**	-0.6	-0.7	-1.0	-1.4	-1.6	-1.8

[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] A = projected ascension line, R = USACE regulation schedule, S = temporary recession target line, T = temporary schedule, N/A= not applicable or data not available.
DATA ARE PROVISIONAL

Lower Kissimmee Basin

Discharges at Lower Basin structures are shown in **Table 2**, Figures 6-7. SFWDAT depth maps for the Phase I restoration area are shown in Figure 5. Kissimmee River floodplain stages at selected stations are shown in Figure 8.

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: **1/21/2020**

Metric	Location	1-Day Average	Average for the Preceeding 7-Days[1]								
		1/19/2020	1/19/20	1/12/20	1/5/20	12/29/19	12/22/19	12/15/19	12/8/19	12/1/19	11/24/19
Discharge (cfs)	S-65	683	606	408	211	283	317	347	359	358	356
Discharge (cfs)	S-65A[2]	678	612	446	314	317	315	302	318	315	319
Discharge (cfs)	S-65D[2]	851	632	438	553	454	408	344	346	347	330
Headwater Stage (feet NGVD)	S-65D[2]	25.75	25.78	25.76	25.75	25.84	25.76	25.81	25.88	25.90	25.84
Discharge (cfs)	S-65E[2]	905	601	434	502	441	386	342	307	330	345
Discharge (cfs)	S-67	0	0	4	0	0	0	0	0	0	0
DO (mg/L)[3]	Phases I & II/III river channel	6.5	8.0	9.1	9.0	9.2	9.7	9.7	9.3	8.4	8.1
Mean depth (feet)[4]	Phase I floodplain	0.23	0.25	0.20	0.26	0.23	0.16	0.11	0.11	0.14	0.13

[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 KRBN, PC62, PC33, PD62R, and PD42R.

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

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

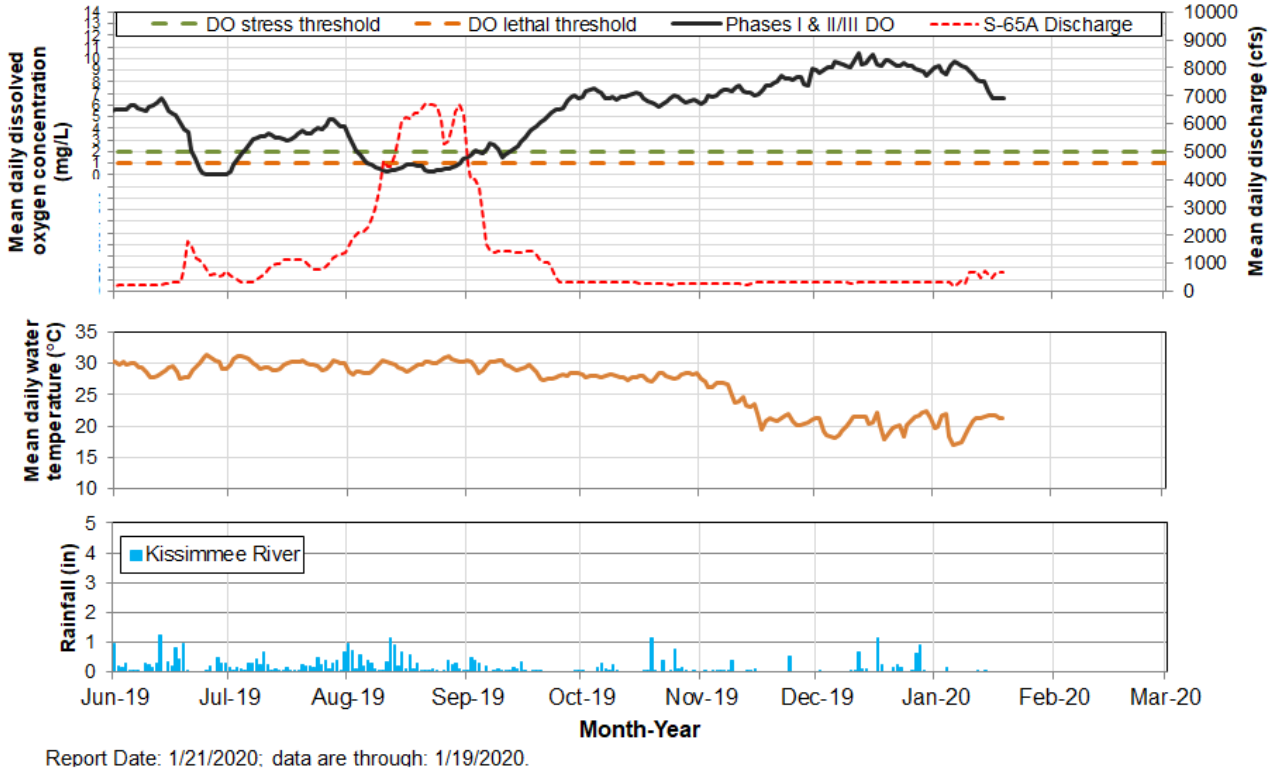


Figure 1. Mean daily dissolved oxygen, discharge, temperature and rainfall in the Phases I/II/III river channel.

KCOL Hydrographs (through Sunday midnight)

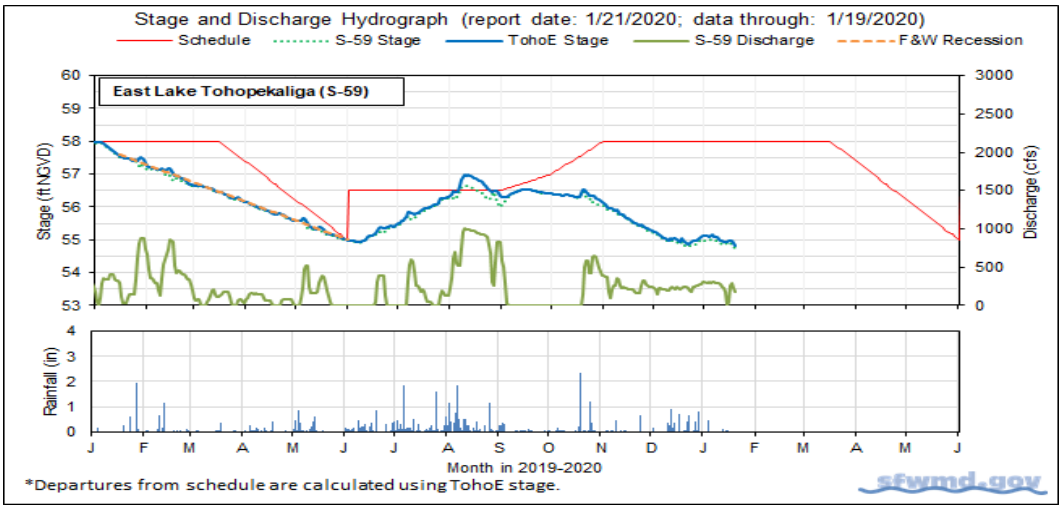


Figure 2.

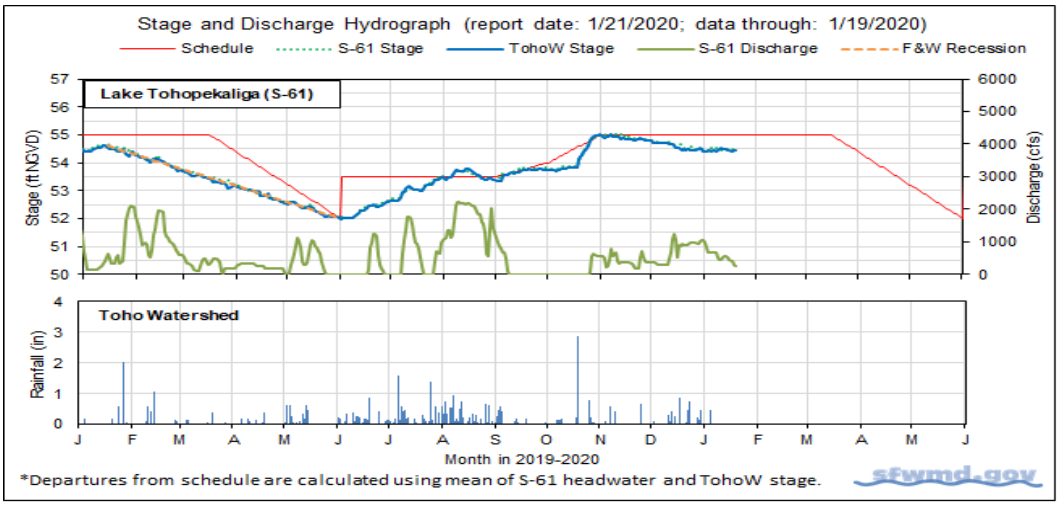


Figure 3.

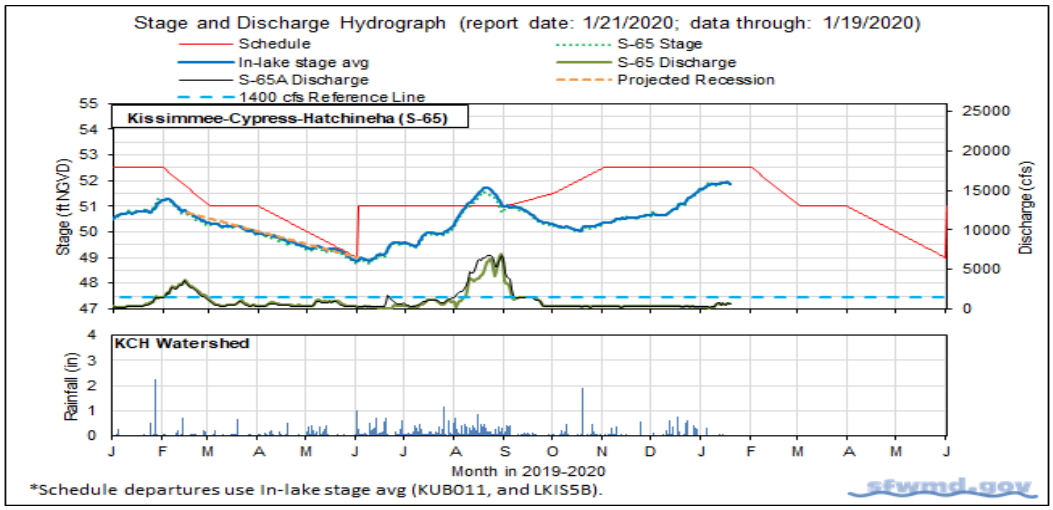


Figure 4.

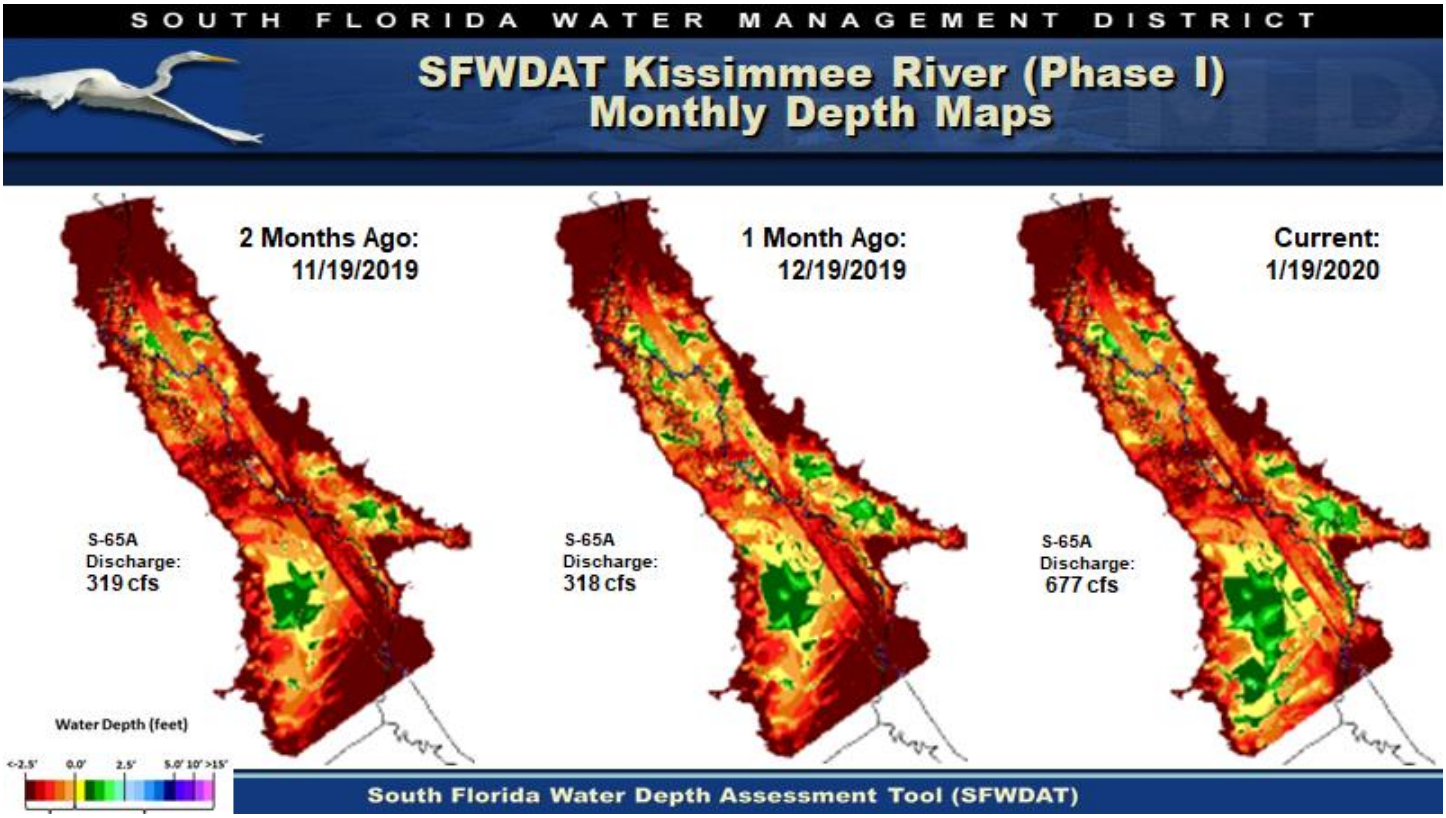


Figure 5. Phase I area floodplain water depths for this week, one month ago, and two months ago. Note that the WDAT color-coding has been modified to accommodate greater water depths; these maps are not directly comparable to Kissimmee Basin WDAT maps published prior to January 16, 2012.

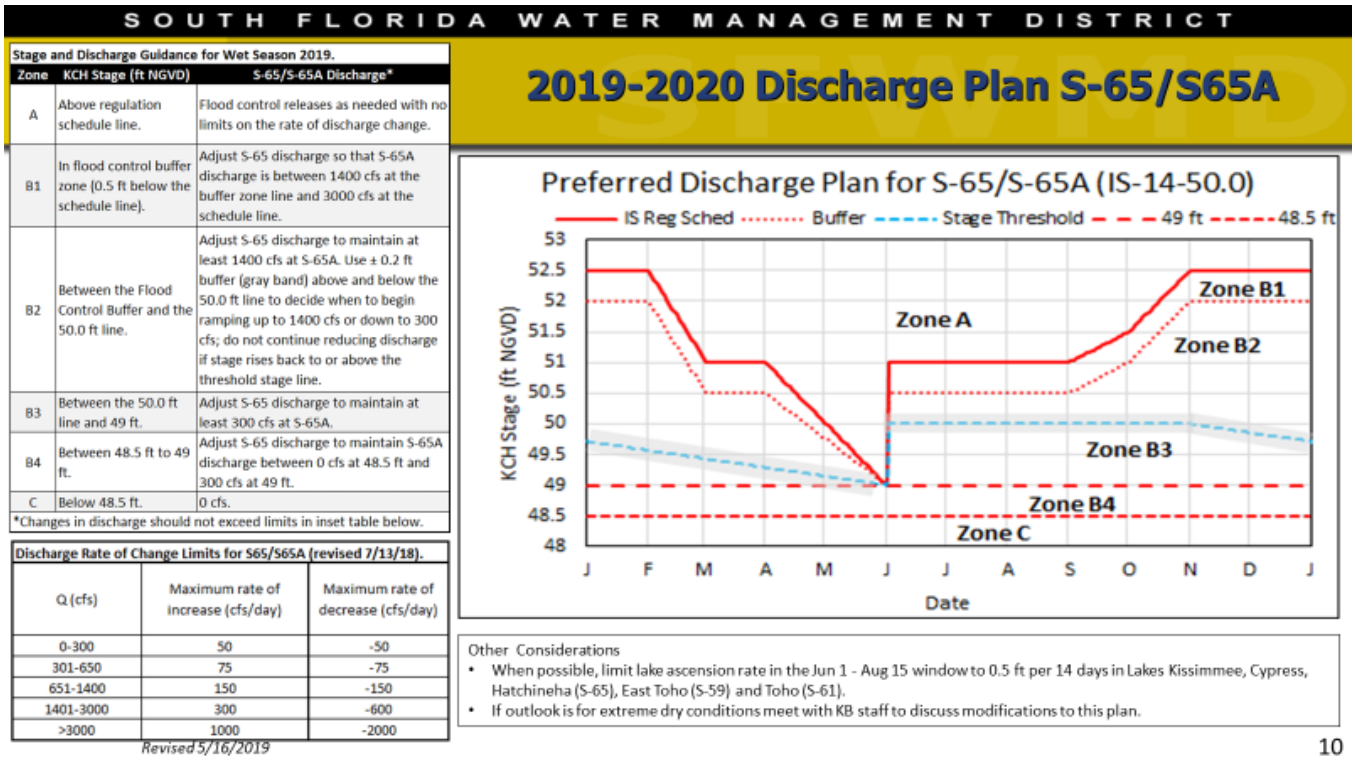


Figure 6. The 2019-2020 Discharge Plan for S-65/S-65A.

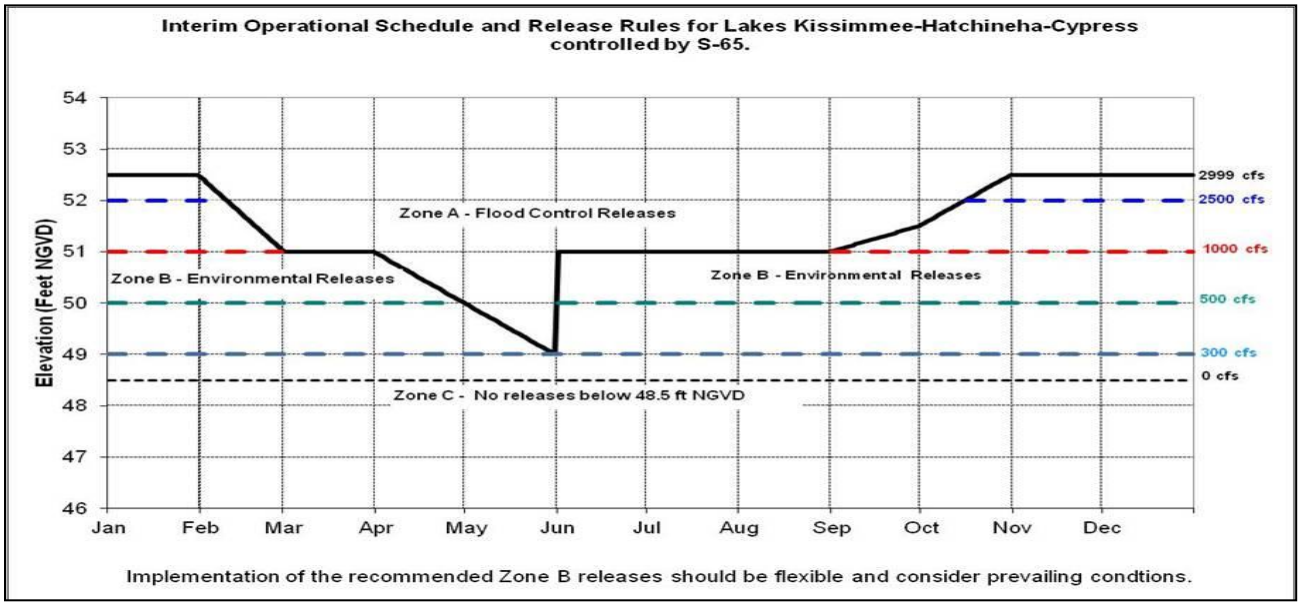


Figure 7. Interim operations schedule for S-65. The discharge schedule shown to the right has not been used in recent years.

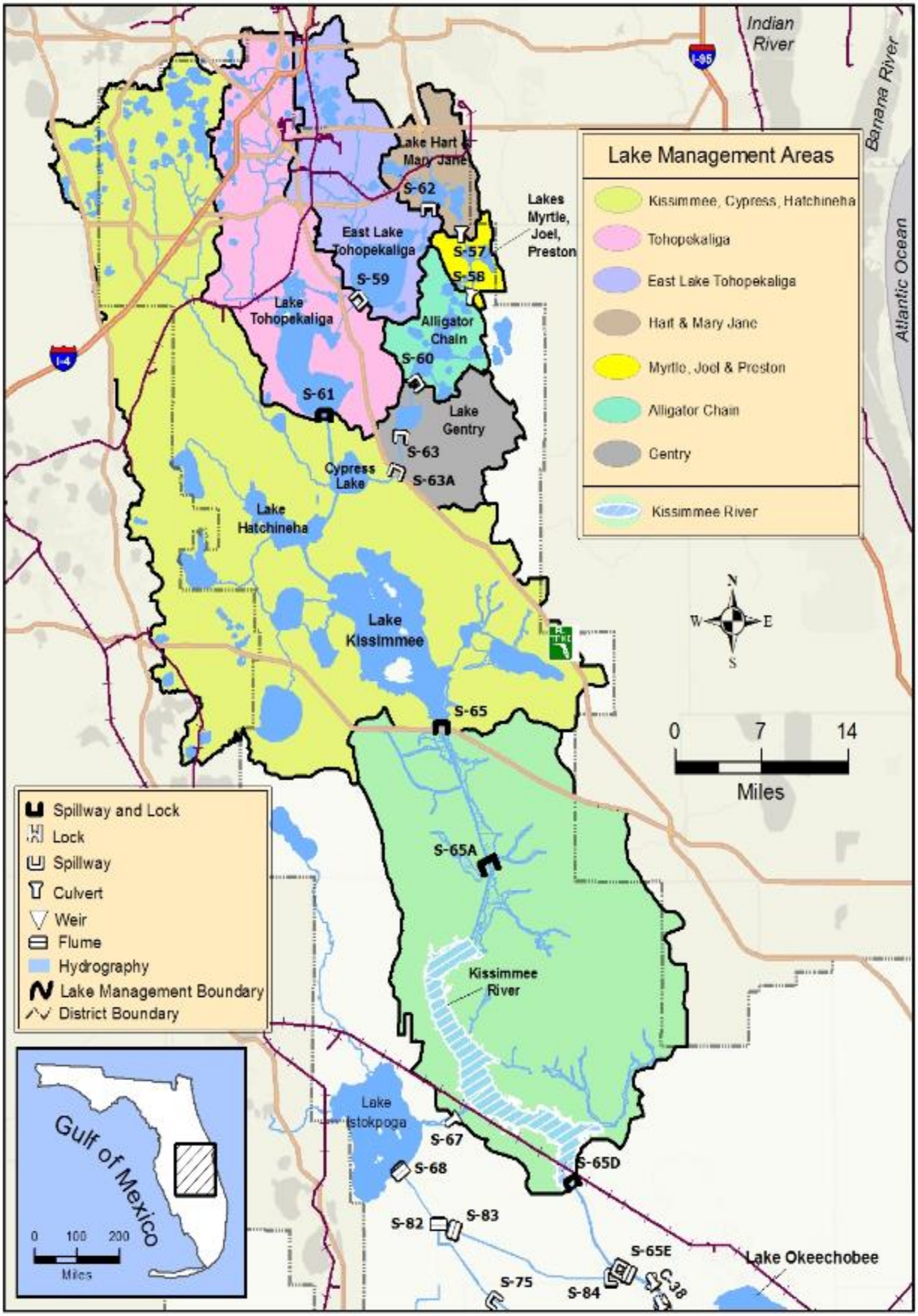


Figure 8. The Kissimmee Basin.

LAKE OKEECHOBEE

According to the USACE web site, Lake Okeechobee average daily lake stage was at 12.93 feet NGVD for January 20, 2020 decreasing 0.13 feet from the previous week. 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, S-4 and S-133). The lake is 0.06 feet lower than a month ago, but 0.65 feet higher than a year ago (Figure 1). The Lake is currently 1.49 feet below the preferred ecological envelope (Figure 2). Lake stages moved up into the Low sub-band on September 4, 2019 then moved back down into the Base Flow sub-band on September 11, 2019 where it has remained since (Figure 3). Lake stage has exhibited a gradual, steady decline since early September 2019 (Figure 4). According to RAINDAR, during the week of January 14 to January 20, 2020, no rain fell directly over the lake, and, as was the case during the previous week, similarly low levels of rain were experienced by much of the watershed (Figure 5).

The average daily inflows (minus rainfall) to the lake were higher than the previous week, increasing slightly to 690 cfs from 467 cfs. Most of the inflow came from the Kissimmee River (S-65E & S-65EX1), which increased from 415 cfs to 650 cfs. Flows from Indian Prairie (S-71, S-72, and S-84/S-84X) remained at zero and flows through S-191 decreased (Table 1).

Outflow (minus evapotranspiration) increased again from the previous week, going from 1817 cfs to 2403 cfs. Flows west through the S-77 decreased from 737 cfs to 630 cfs, flows east through the S-308 were similar to the previous week at 522 cfs, while flows south through the S-350 structures increased from 494 cfs the previous week to 1235 cfs this past week. Outflows to the L-8 canal via Culvert 10A were minimal, at 16 cfs. The corrected average daily evapotranspiration value for the week based on the L006 and LZ40 weather platform solar radiation increased slightly from the previous week to 0.54 inches.

Total lake inflows and outflows for the past week are detailed in Table 1, as well as the approximate change in lake stage from each major structure's total flows over the period. Figure 6 shows the combined average daily cfs for inflows and outflows for the Lake over the past eight weeks. These data are provisional and are subject to change.

The first wading bird flight of 2020 was conducted on January 16 (Figure 7). There were no flocks of wading birds seen foraging around Lake Okeechobee. The only other time with such a low amount of wading birds using Lake Okeechobee, the lake stage was over 16 feet and the marsh was unsuitable for foraging due to high water levels. In January 2019 lake levels were similar and an average of 14,000 birds were counted. However, from September 2017 to March 2018 lake levels were over 15 feet and inundated the marsh, allowing for prey production to occur throughout these areas. Conversely, water levels have been below 14 feet since October 2018 leaving many areas of the marsh continuously dry for two seasons now. Current conditions on the Lake are not favorable for foraging or nesting.

The most recent available satellite imagery (January 18, 2020) using NOAA's cyanobacteria monitoring product derived from EUMETSAT's Sentinel 3 OLCI sensor data showed that bloom potential is low across the majority of the Lake, with a patch of moderate risk in the western corner near Fisheating Bay (Figure 8).

Water Management Summary

Lake Okeechobee stage was 12.93 feet NGVD on January 20, 2020, down 0.13 feet from the previous week, and 0.06 feet lower than the previous month. The Lake remains in the Base Flow sub-band, where it has been since September 11, 2019. Water levels moved below the ecological envelope (which varies seasonally from 12.5 – 15.5 feet NGVD +/- 0.5 feet) on October 15, 2019 and are currently 1.49 feet below the bottom of the envelope. Low Lake stages continue to benefit recovering SAV communities, but also stress higher elevation marshes; areas with elevations greater than approximately 14 feet NGVD have now been dry since late October of 2018. Low stages throughout

2019 likely limited prey production in the marsh and appear to be impacting wading bird use of the lake prior to the 2020 breeding season.

Table 1. Average daily inflows and outflows and the approximate depth equivalents on Lake Okeechobee for various structures.

INFLOWS	Previous week Avg Daily CFS	Avg Daily Flow cfs	Equivalent Depth Week Total (in)
S-65E & S-65EX1	415	650	0.3
S-71 & S-72	0	0	0.0
S-84 & S-84X	0	0	0.0
Fisheating Creek	19	18	0.0
S-154	0	0	0.0
S-191	34	22	0.0
S-133 P	0	0	0.0
S-127 P	0	0	0.0
S-129 P	0	0	0.0
S-131 P	0	0	0.0
S-135 P	0	0	0.0
S-2 P	0	0	0.0
S-3 P	0	0	0.0
S-4 P	0	0	0.0
L-8 Backflow			
Rainfall	112	0	0.0
Total	**579**	**690**	**0.3**

OUTFLOWS	Previous week Avg Daily CFS	Avg Daily Flow cfs	Equivalent Depth Week Total (in)
S-77	737	630	0.3
S-308	578	522	0.2
S-351	14	509	0.2
S-352	306	223	0.1
S-354	173	503	0.2
L-8 Outflow	10	16	0.0
ET	1134	1196	0.5
Total	**2951**	**3599**	**1.6**

Provisional Data

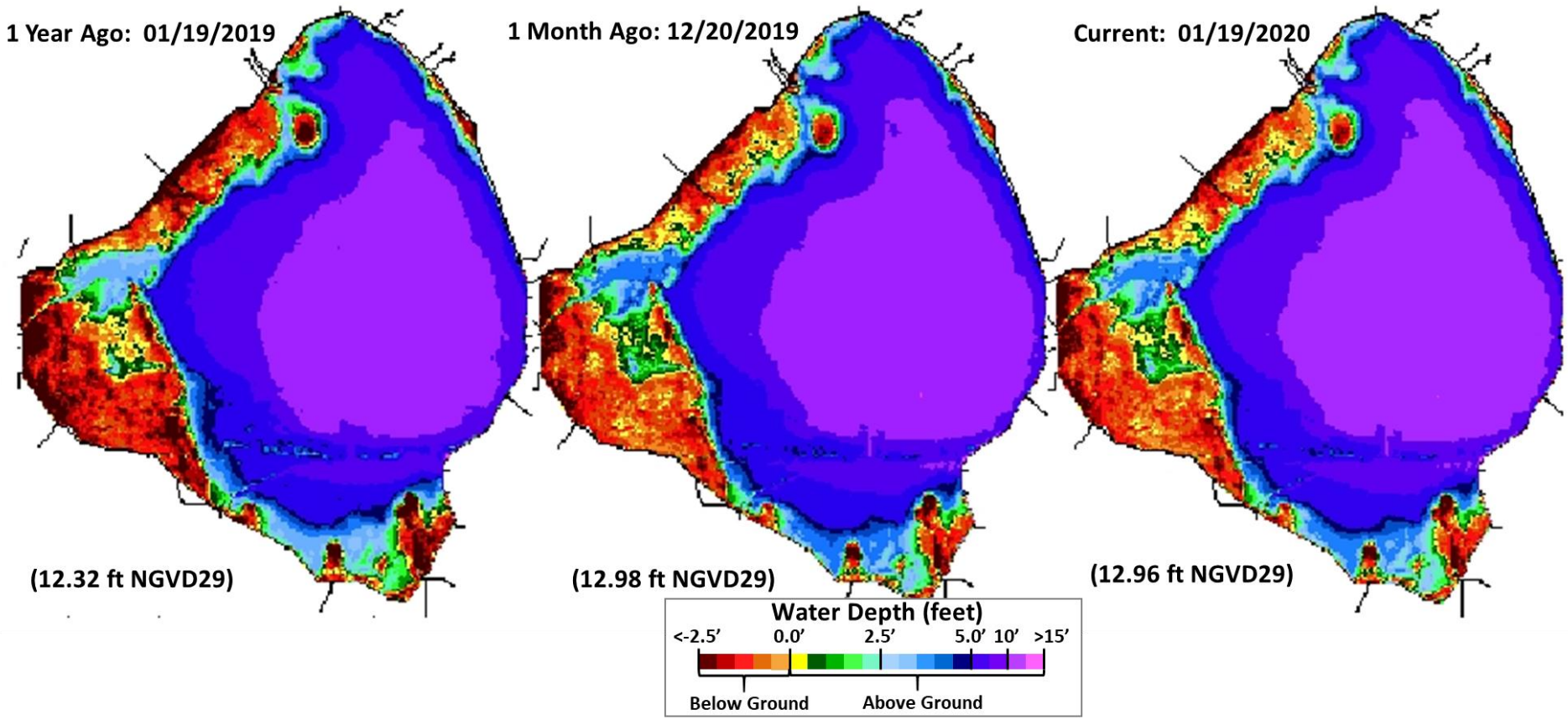


Figure 1. Water depth estimates on Lake Okeechobee based on the South Florida Water Depth Assessment Tool.

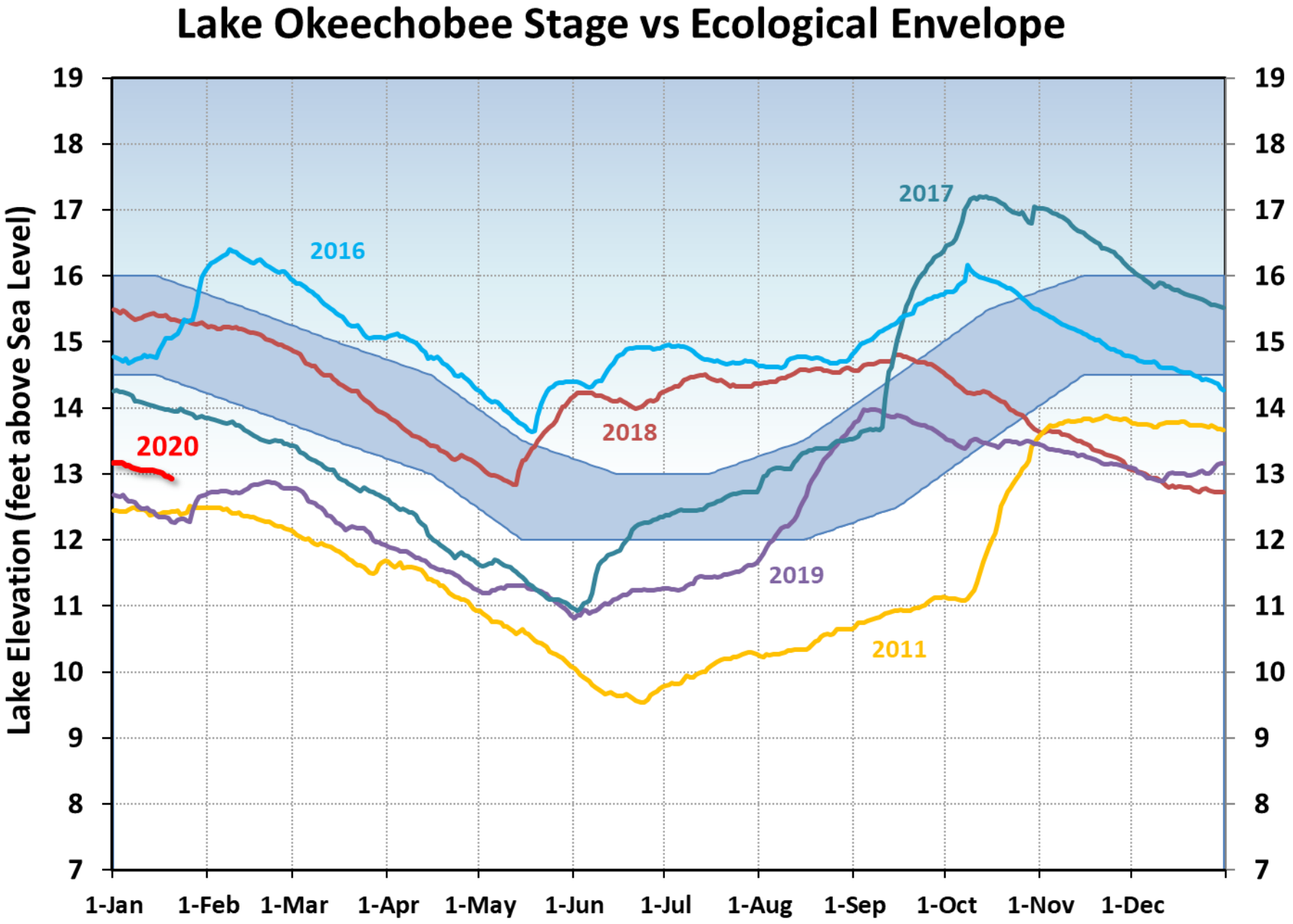


Figure 2. Select annual stage hydrographs for Lake Okeechobee in comparison to the Ecological Envelope.

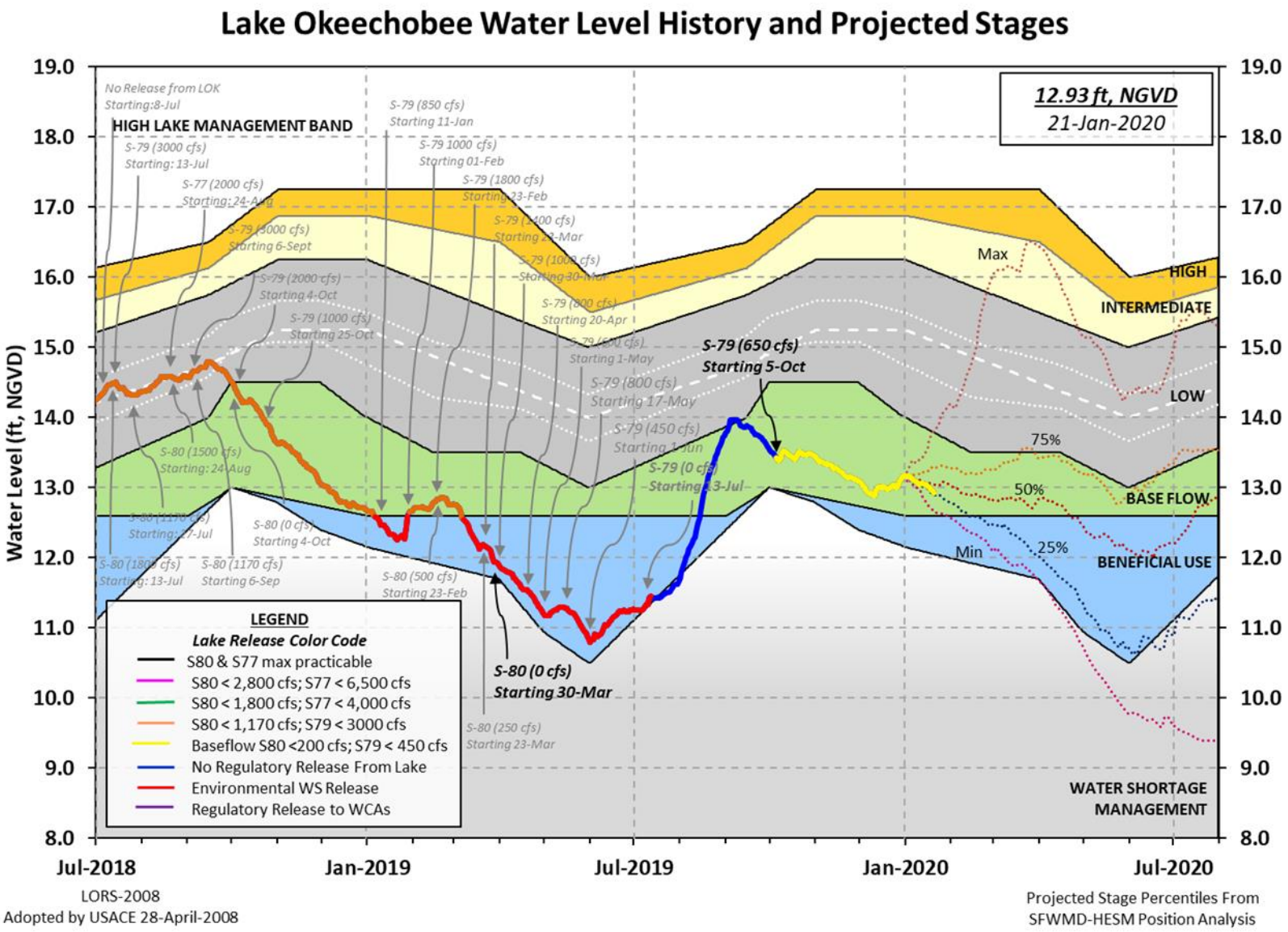


Figure 3. Recent Lake Okeechobee stage and releases, with projected stages based on a dynamic position analysis.

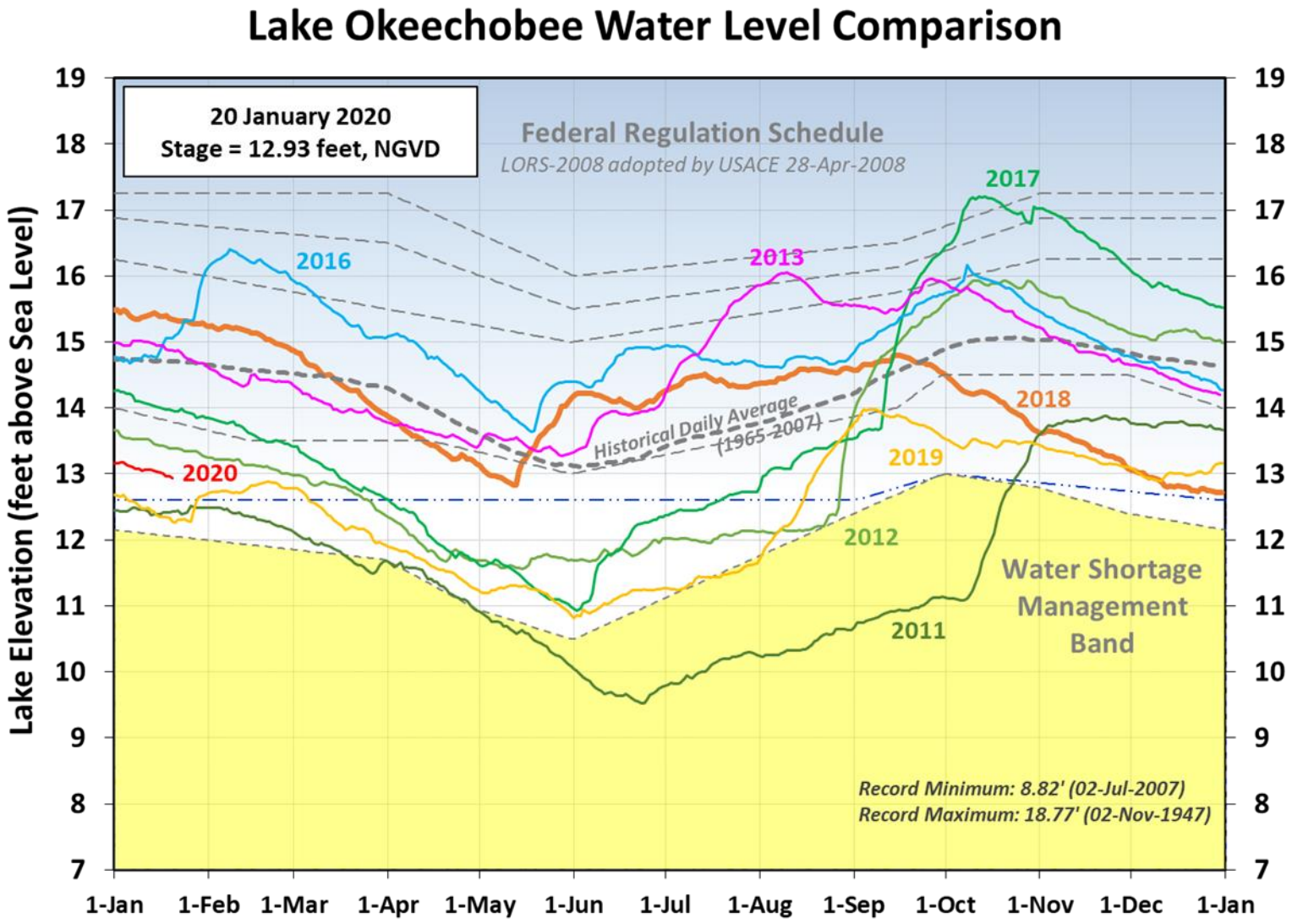


Figure 4. Select annual stage hydrographs for Lake Okeechobee from 2010 – 2019.

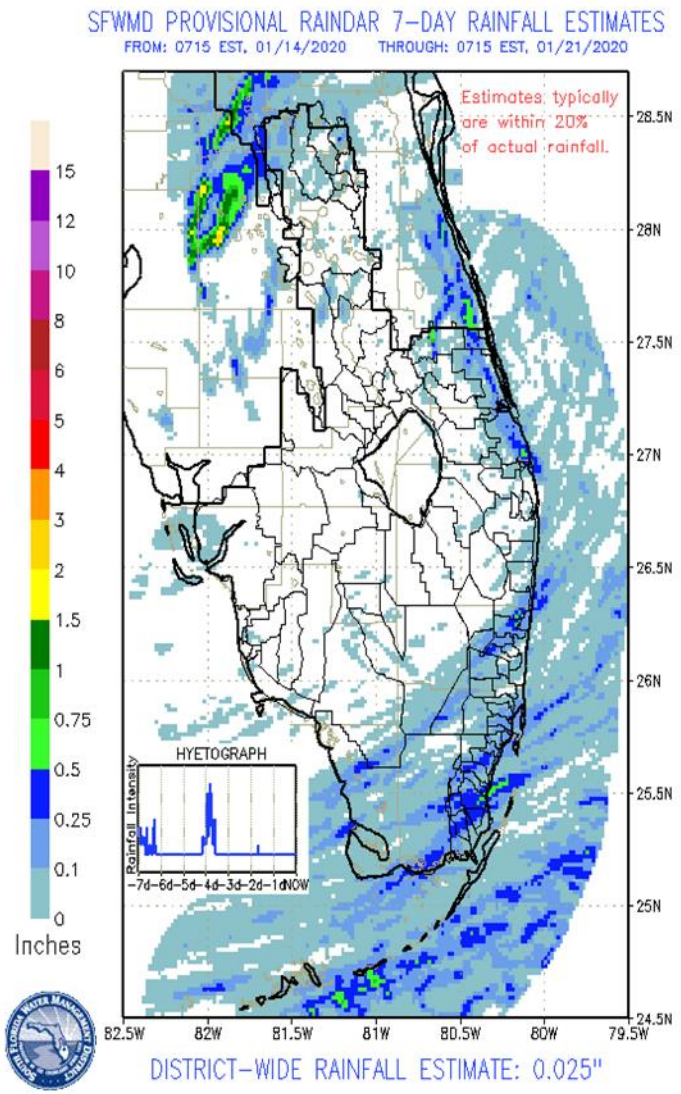


Figure 5. 7-Day rainfall estimates by RAINDAR.

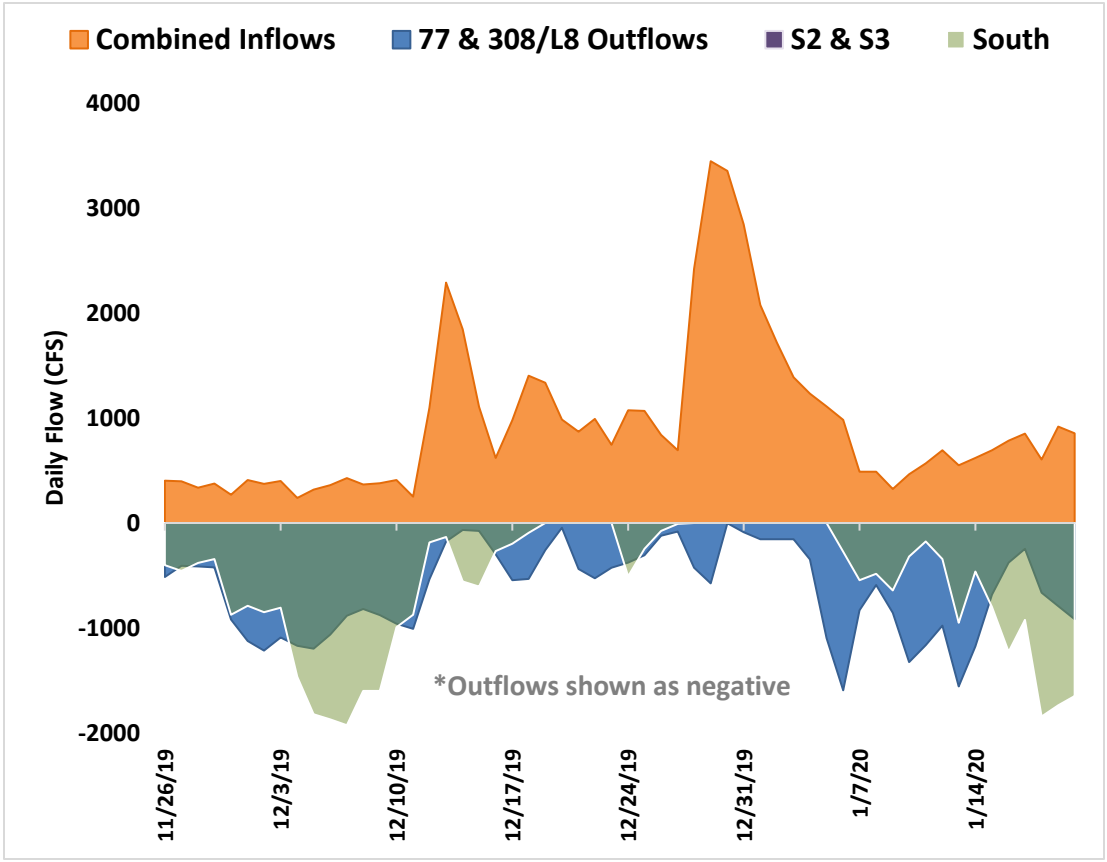
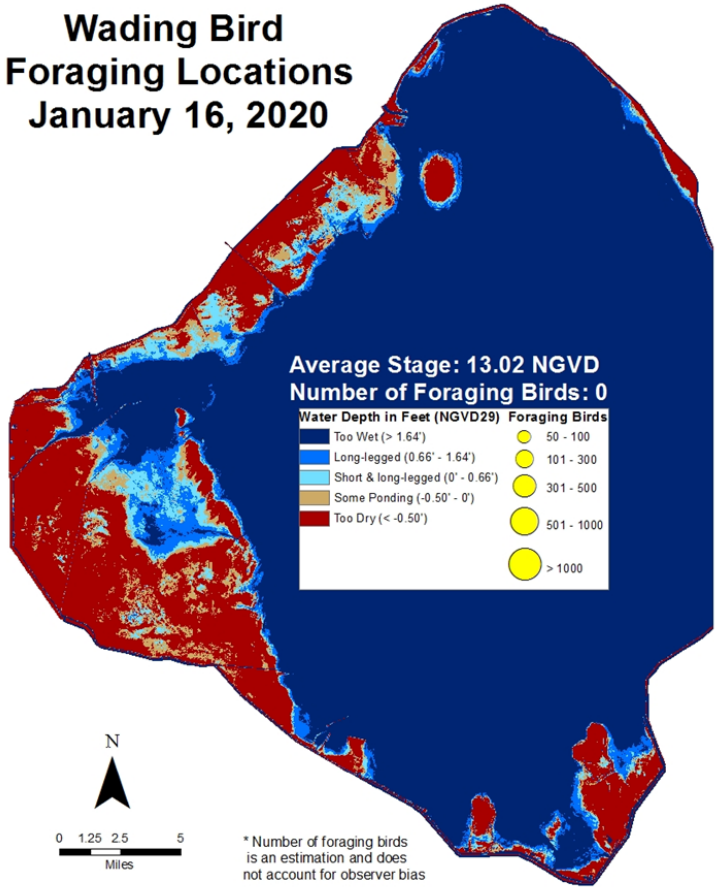


Figure 6. Major inflows (orange) and outflows (blue) of Lake Okeechobee, including the S-350 structures designated as South (green). The L-8 Canal flows through Culvert 10A are included as outflows when positive, and as inflows when backflowing into the lake. All inflows and outflows are shown as positive and negative, respectively, for visual purposes. Outflows through the S-77 and S-308 structures are shown based on their downstream gauges to account for lock openings for navigation.



Lake Stage

	Maximum	Minimum
2018	15.49	12.72
2019	13.97	10.79

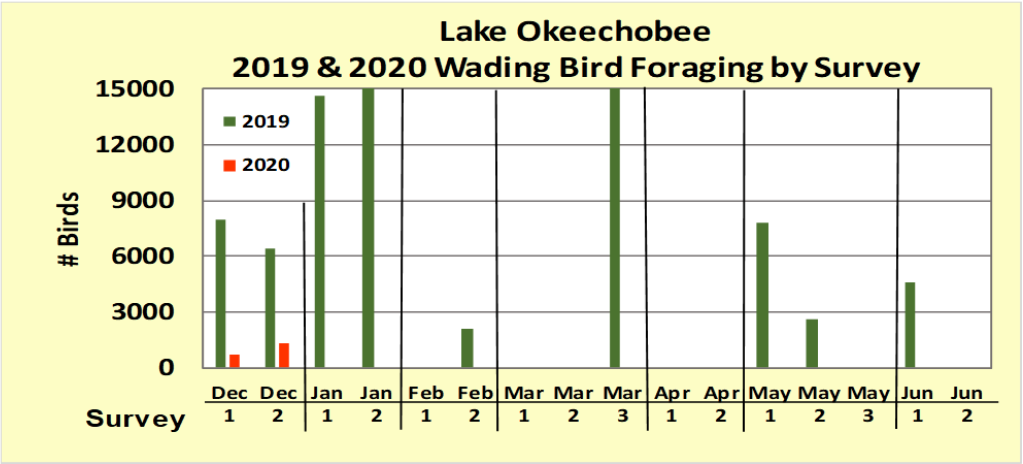


Figure 7. Results of wading bird survey flight from January 16, 2020, and comparison to previous surveys.

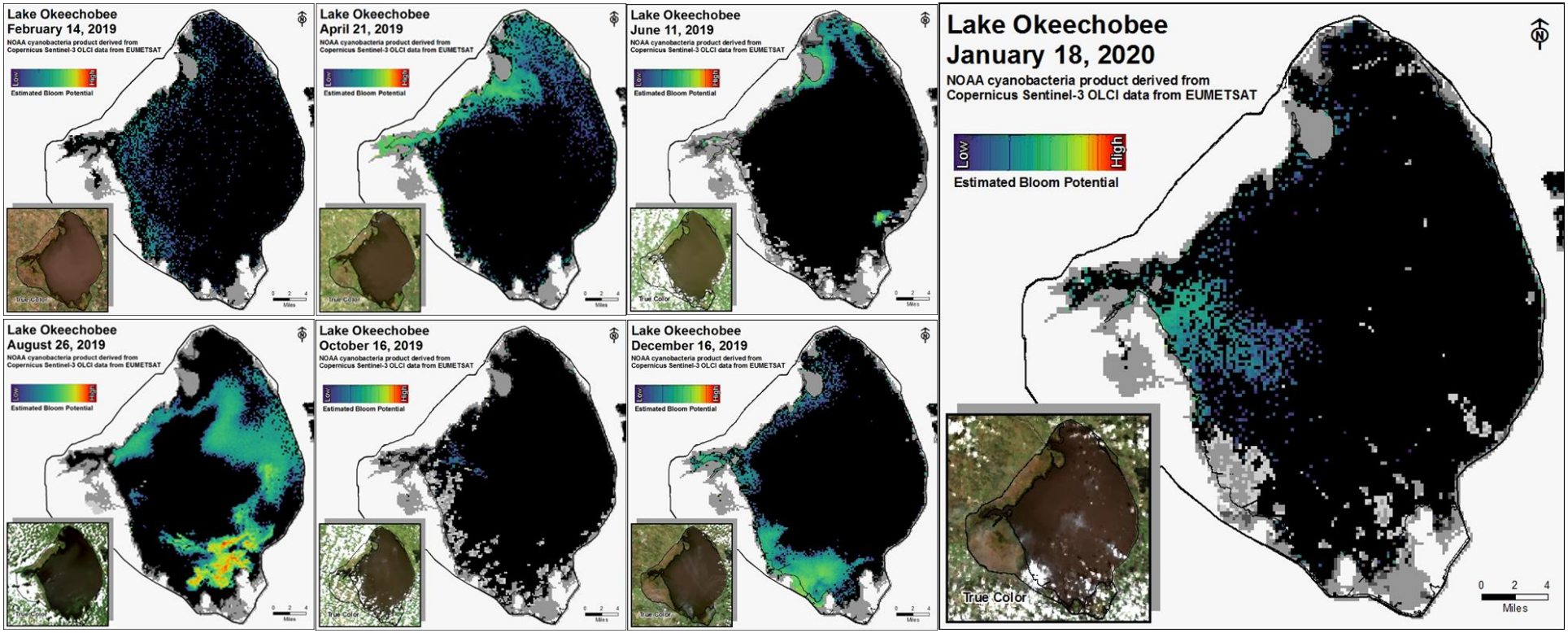


Figure 8. Potential for cyanobacterial blooms on Lake Okeechobee in 2020, based on NOAA's harmful algal bloom monitoring system derived from Copernicus Sentinel-3 OLCI data from EUMETSAT. Gray indicates cloud cover.

ESTUARIES

St. Lucie Estuary:

Last week total inflow to the St. Lucie Estuary averaged approximately 313 cfs (Figures 1 and 2) and last month inflow averaged about 1,109 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	161
S-80	0
S-308	522
S-49 on C-24	3
S-97 on C-23	62
Gordy Rd. structure on Ten Mile Creek	87

Over the past week, salinity increased throughout the estuary (Table 2, Figures 3 and 4). The seven-day moving average of the water column (an average of the surface and bottom salinity) at the US1 Bridge is 13.2. Salinity conditions in the middle estuary are estimated to be 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)	**6.5** (5.7)	**10.5** (8.2)	NA[1]
US1 Bridge	**12.8** (10.3)	**14.8** (12.1)	10.0-26.0
A1A Bridge	**23.2** (21.3)	**27.6** (25.3)	NA[1]

[1]Envelope not applicable

Caloosahatchee Estuary:

Last week total inflow to the Caloosahatchee Estuary averaged approximately 753 cfs (Figures 5 and 6) and last month inflow averaged about 929 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	630
S-78	526
S-79	626
Tidal Basin Inflow	127

Over the past week in the estuary, salinity increased to Cape Coral and remained about the same there and downstream (Table 4, Figures 7 & 8). The seven-day average salinity values are within the good range for adult eastern oysters at Cape Coral and at Shell Point and in the fair range at Sanibel (Figure 9). The seven-day average surface salinities (Table 4) are in the good range for Tape Grass at Val I-75 and in the fair range at Ft. Myers.

Table 4. Seven-day average salinity at six monitoring stations in the Caloosahatchee Estuary. Current average is in bold, previous average in parentheses. The envelope reflects the preferred salinity range for associated sampling sites.

Sampling Site	Surface	Bottom	Envelope
S-79 (Franklin Lock)	**4.2** (2.7)	**4.2** (2.7)	NA[1]
Val I75	**4.3** (3.2)	**5.9** (4.2)	0.0-5.0[2]
Ft. Myers Yacht Basin	**10.8** (9.5)	**12.6** (11.5)	NA
Cape Coral	**17.2** (17.2)	**19.5** (19.1)	10.0-30.0
Shell Point	**27.7** (27.5)	**28.3** (27.6)	10.0-30.0
Sanibel	**31.8** (30.6)	**32.2** (32.3)	10.0-30.0

[1]Envelope not applicable and [2]Envelope is based on a 2-week forecast 30-day average (see Table 5 below).

Forecast of surface salinity (Table 5 and Figure 10) at Val I-75 for the next two weeks using the autoregression model (Qiu and Wan, 2013) coupled with a linear reservoir model for the tidal basin predicts daily salinity ranging from 4.6 to 8.9 at the end of the next two weeks for pulse release at S-79 ranging from 0 to 800 cfs and Tidal Basin inflows of 110 cfs. The 30-day moving average surface salinity at Val I-75 is forecast to be between 3.9 and 5.4 within two weeks (Table 5). The current salinity conditions at Val I-75 are within the envelope of salinity 0.0-5.0 for this site (Table 4).

Table 5. Predicted salinity at Val I-75 at the end of forecast period

Scenario	Q79 (cfs)	TB runoff (cfs)	Daily salinity	30 day Mean
A	0	110	8.9	5.4
B	300	110	7.5	4.9
C	450	110	6.3	4.5
D	650	110	4.8	4.0
E	800	110	4.6	3.9

Red tide

The Florida Fish and Wildlife Research Institute reported on January 17, 2020, that *Karenia brevis, the Florida red tide dinoflagellate,* was observed at background to very low concentrations in six samples collected offshore of Lee County. *Karenia brevis* was not observed in samples collected from St. Lucie or Palm Beach counties (no samples were analyzed this week from Martin, Broward or Miami-Dade counties).

Water Management Recommendations

Lake stage is in the Base Flow sub-band. Tributary conditions are normal. SFWMD's Lake Okeechobee Adaptive Protocol's Release Guidance suggests up to 450 cfs @ S-79 and up to 200 cfs @S-80.

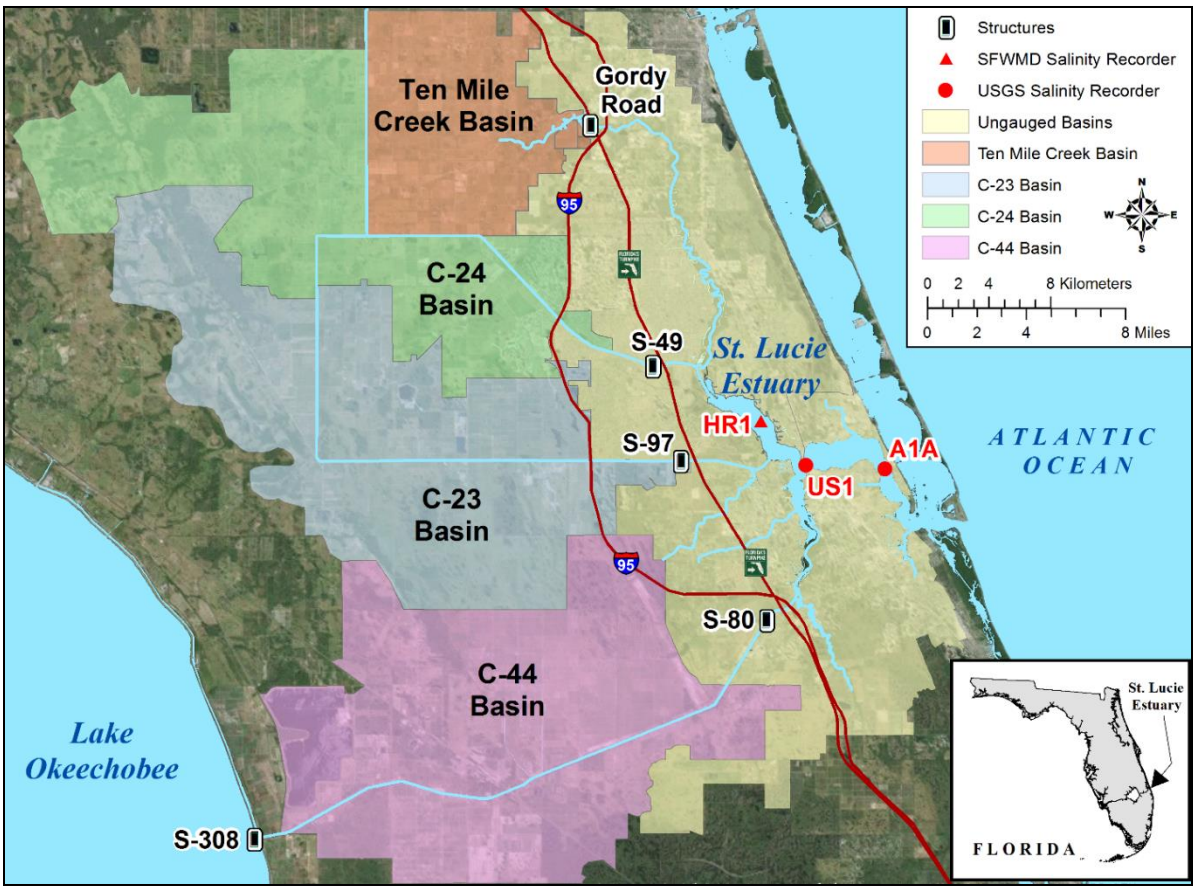


Figure 1. Basins, water control structures, and salinity monitoring for the St. Lucie Estuary.

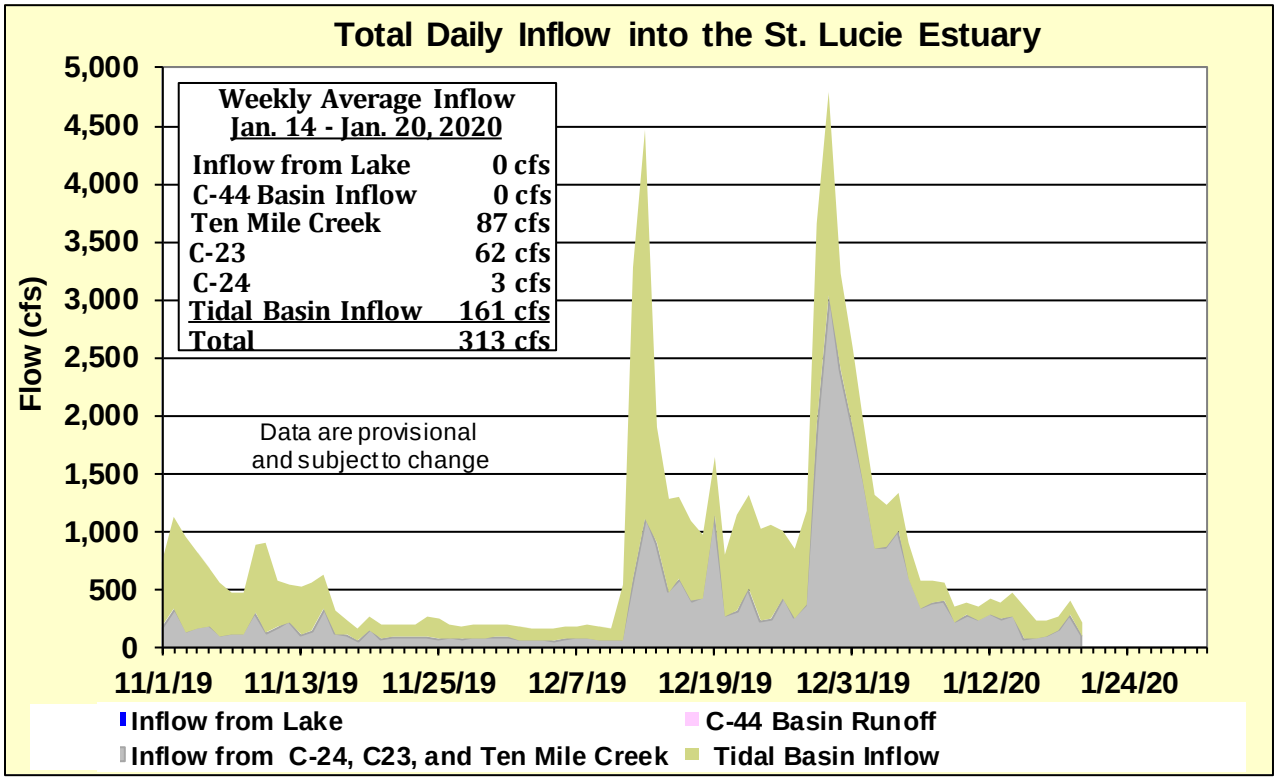


Figure 2. Total daily inflows from Lake Okeechobee and runoff from the C-44, C-23, C-24, Ten Mile Creek, and tidal basin into the St. Lucie Estuary.

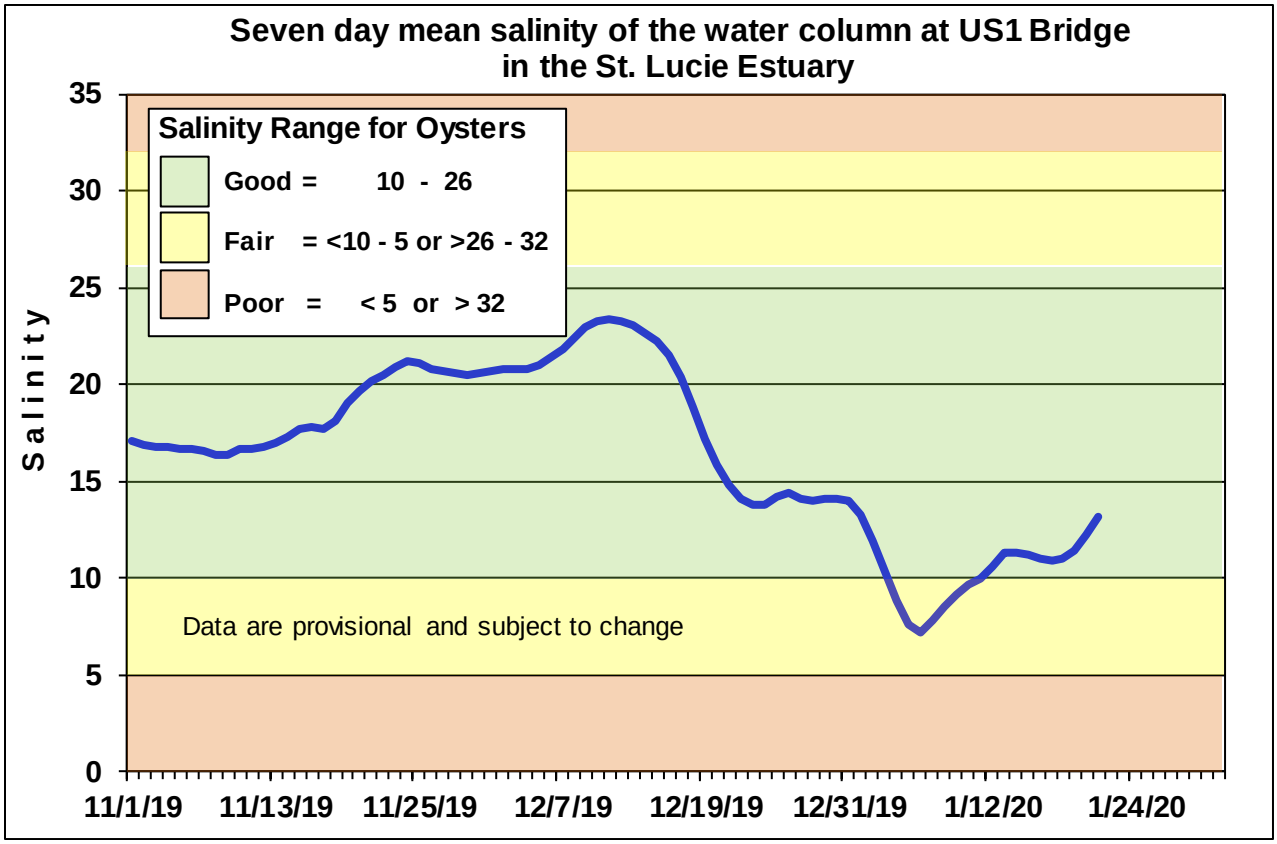


Figure 3. Seven-day mean salinity of the water column at the US1 Bridge.

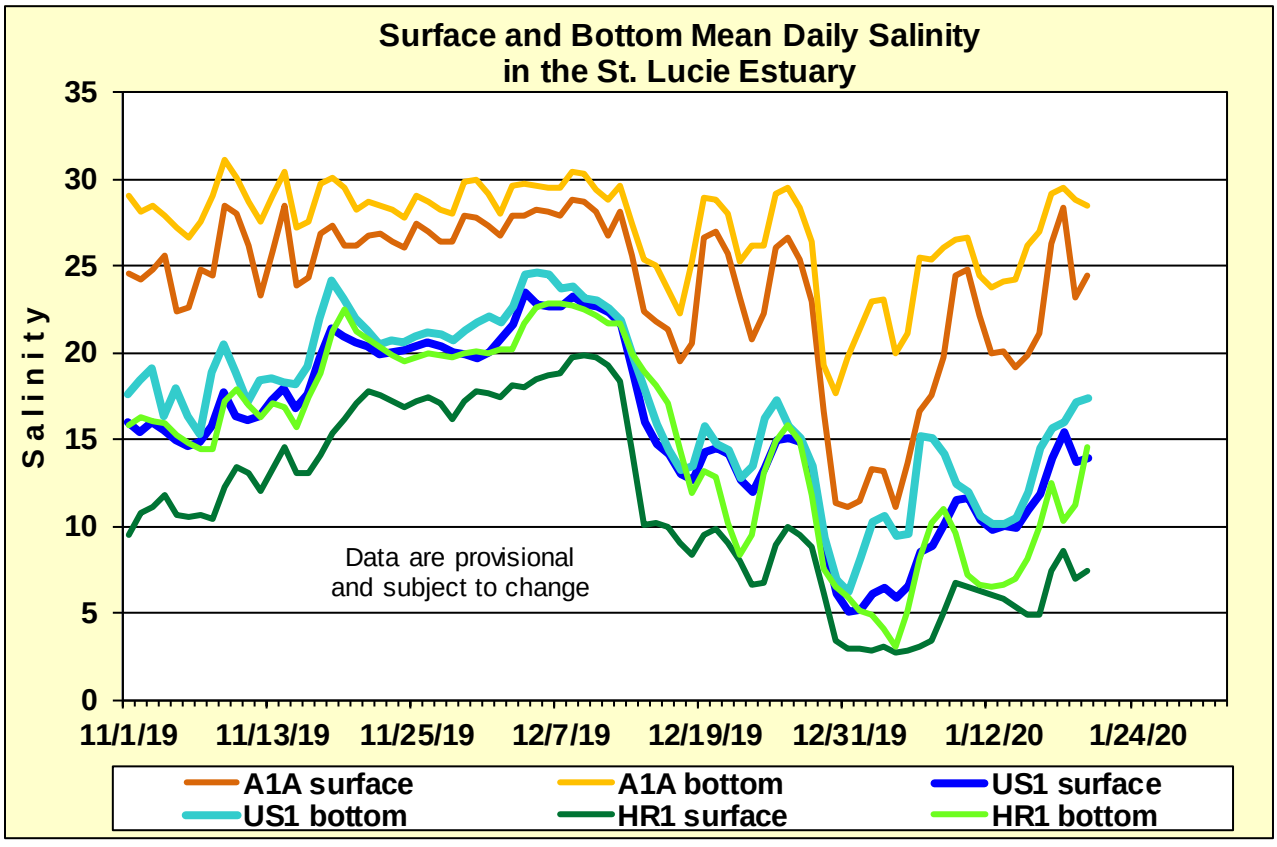


Figure 4. Daily mean salinity at the A1A, US1, and HR1 stations.

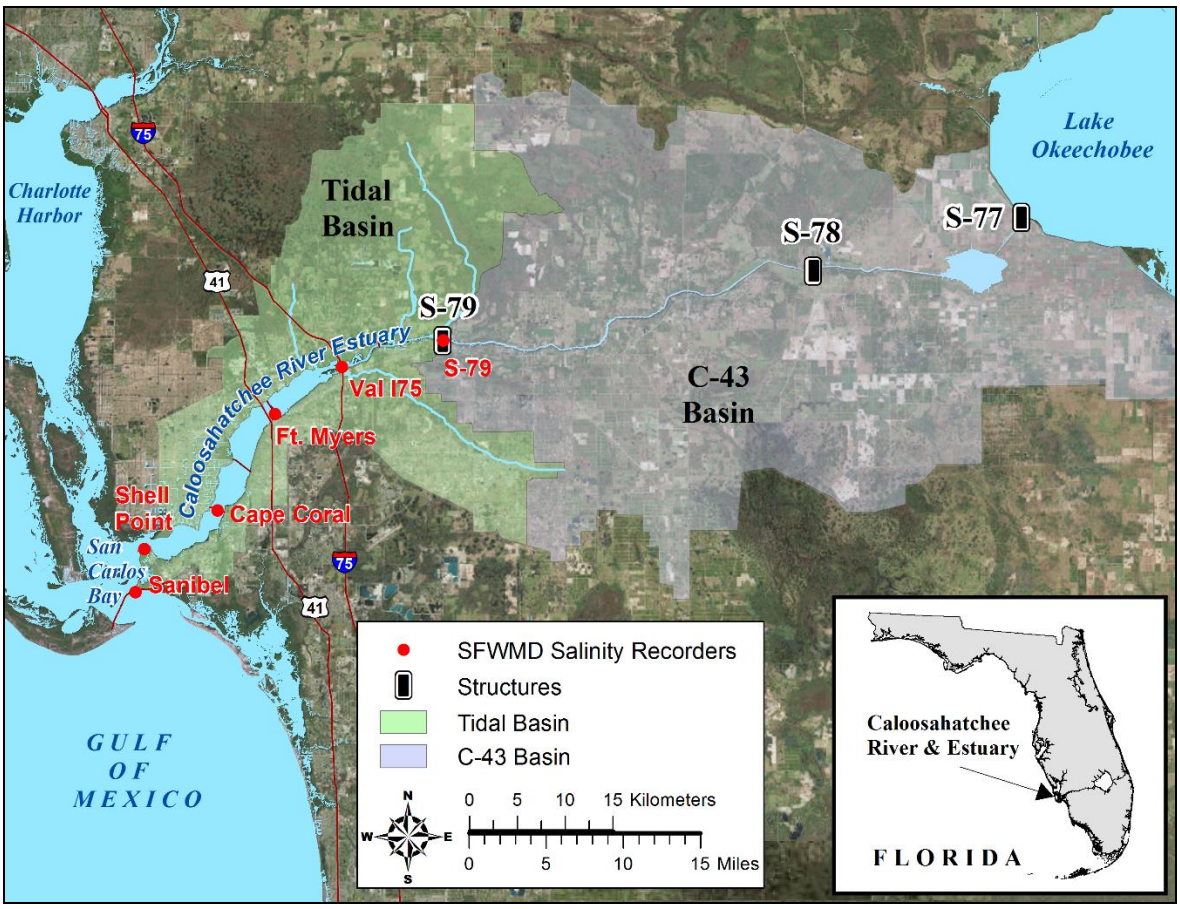


Figure 5. Basins, water control structures, and salinity monitoring for the Caloosahatchee Estuary.

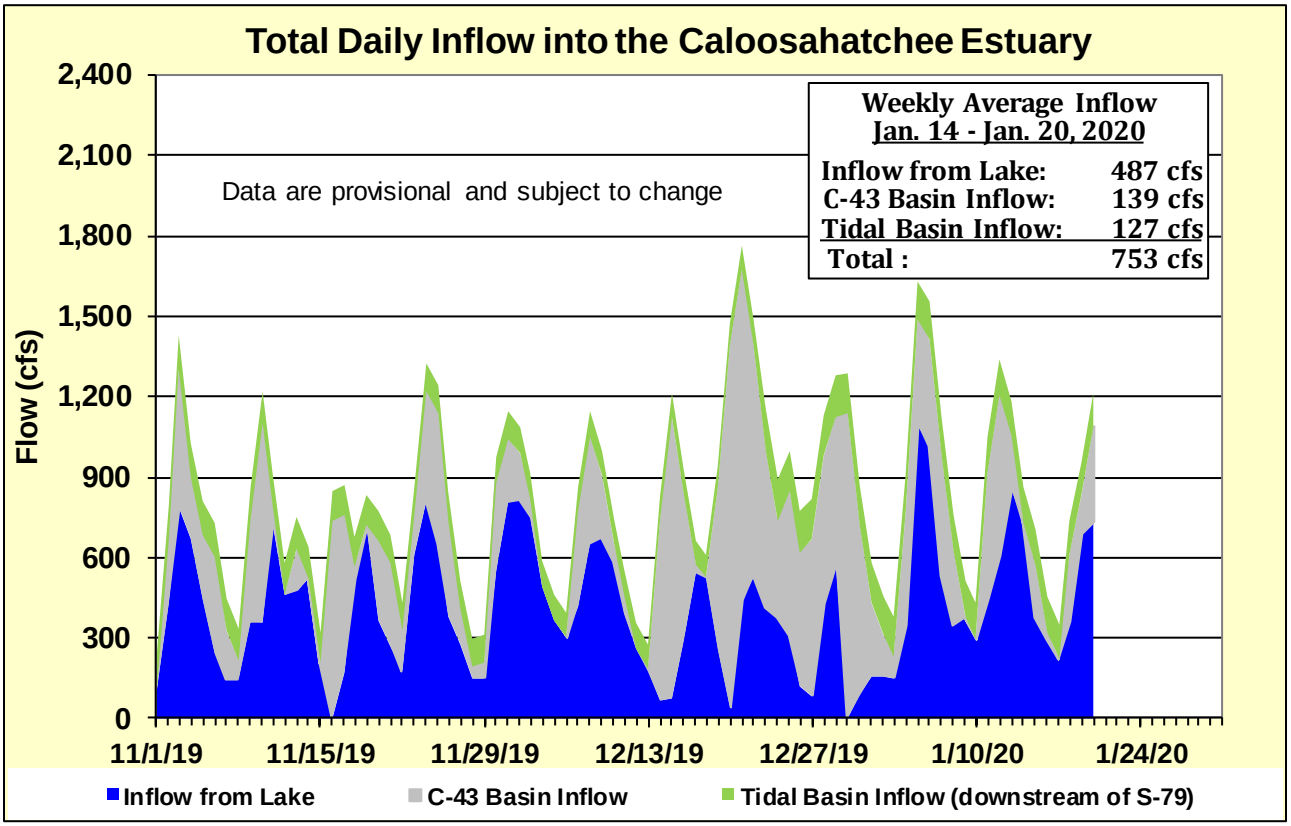


Figure 6. Total daily inflows from Lake Okeechobee, runoff from the C-43 basin

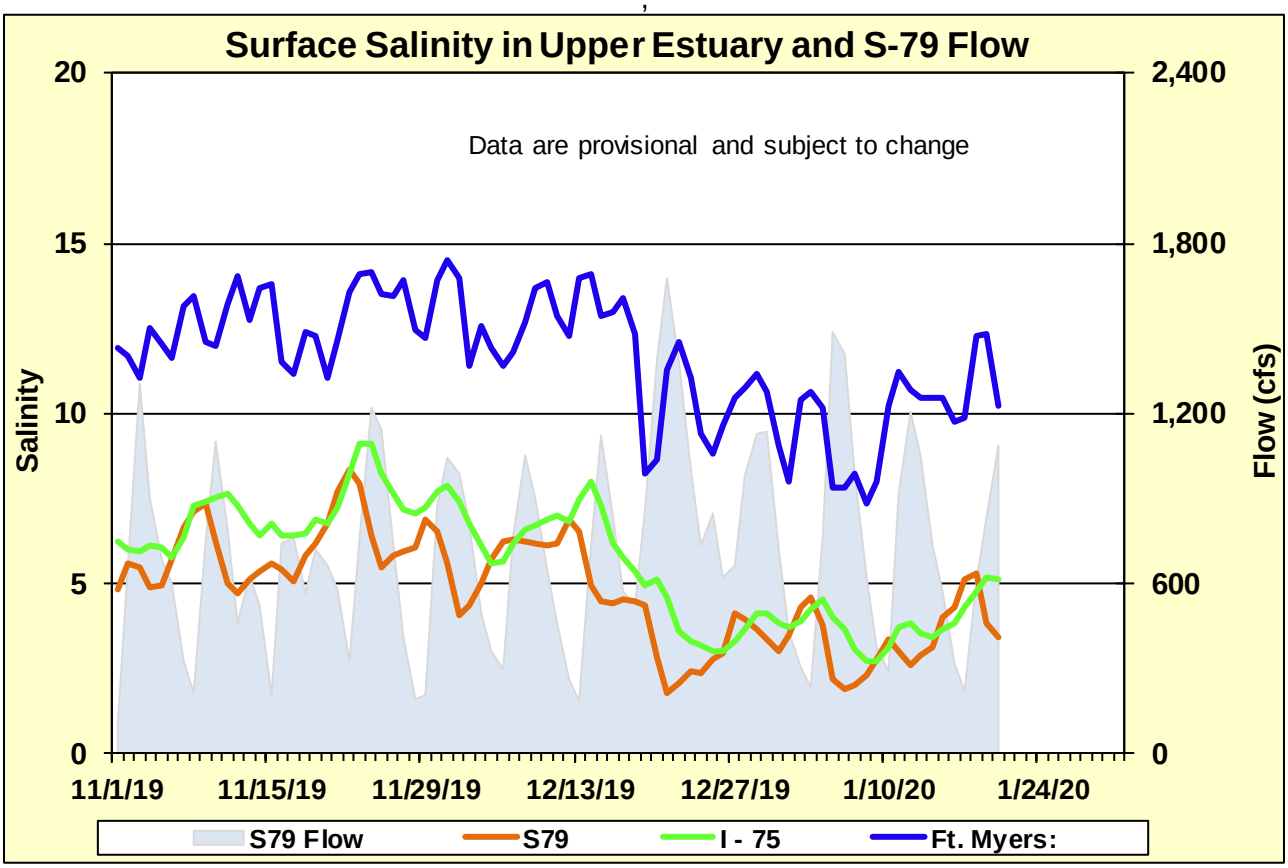


Figure 7. Daily mean flows at S-79 and salinity at upper estuary monitoring stations.

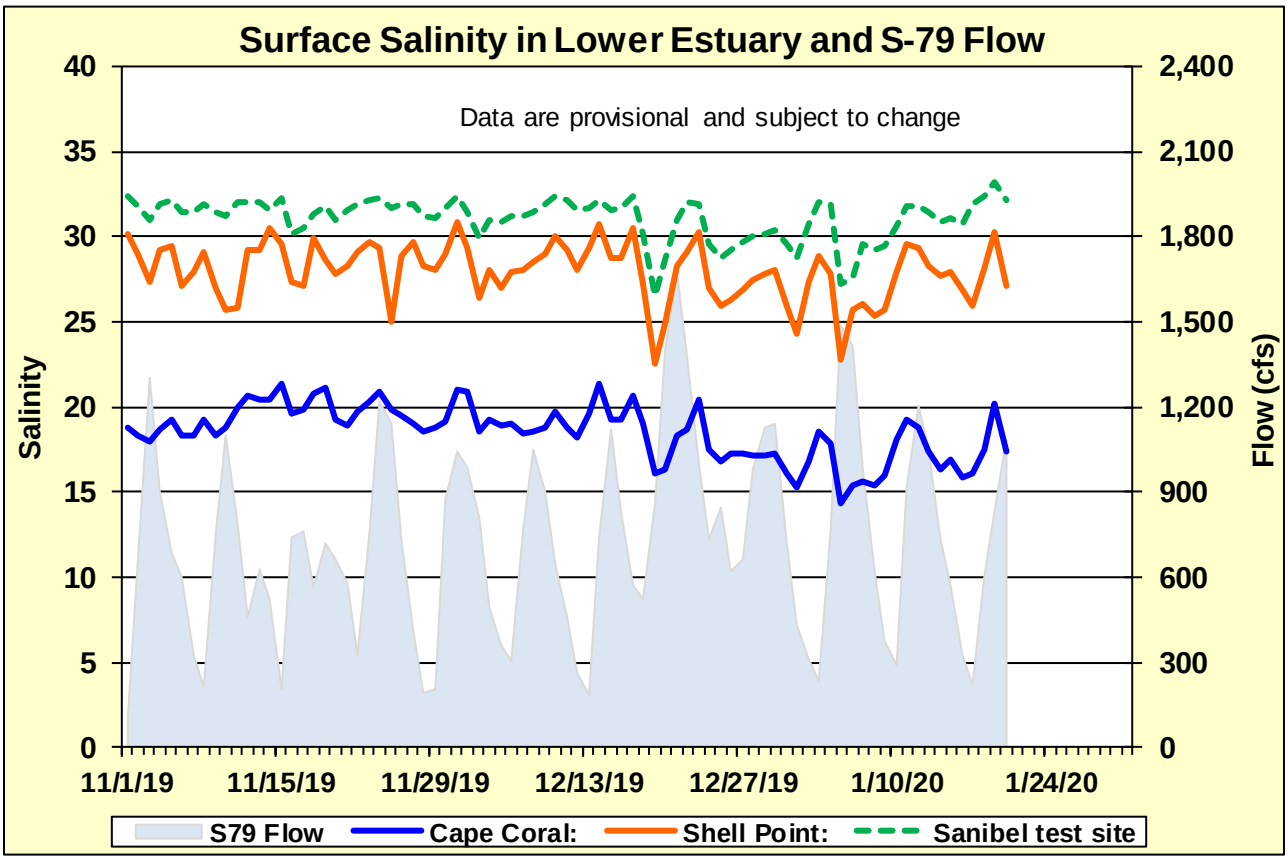


Figure 8. Daily mean flows at S-79 and salinity at lower estuary stations.

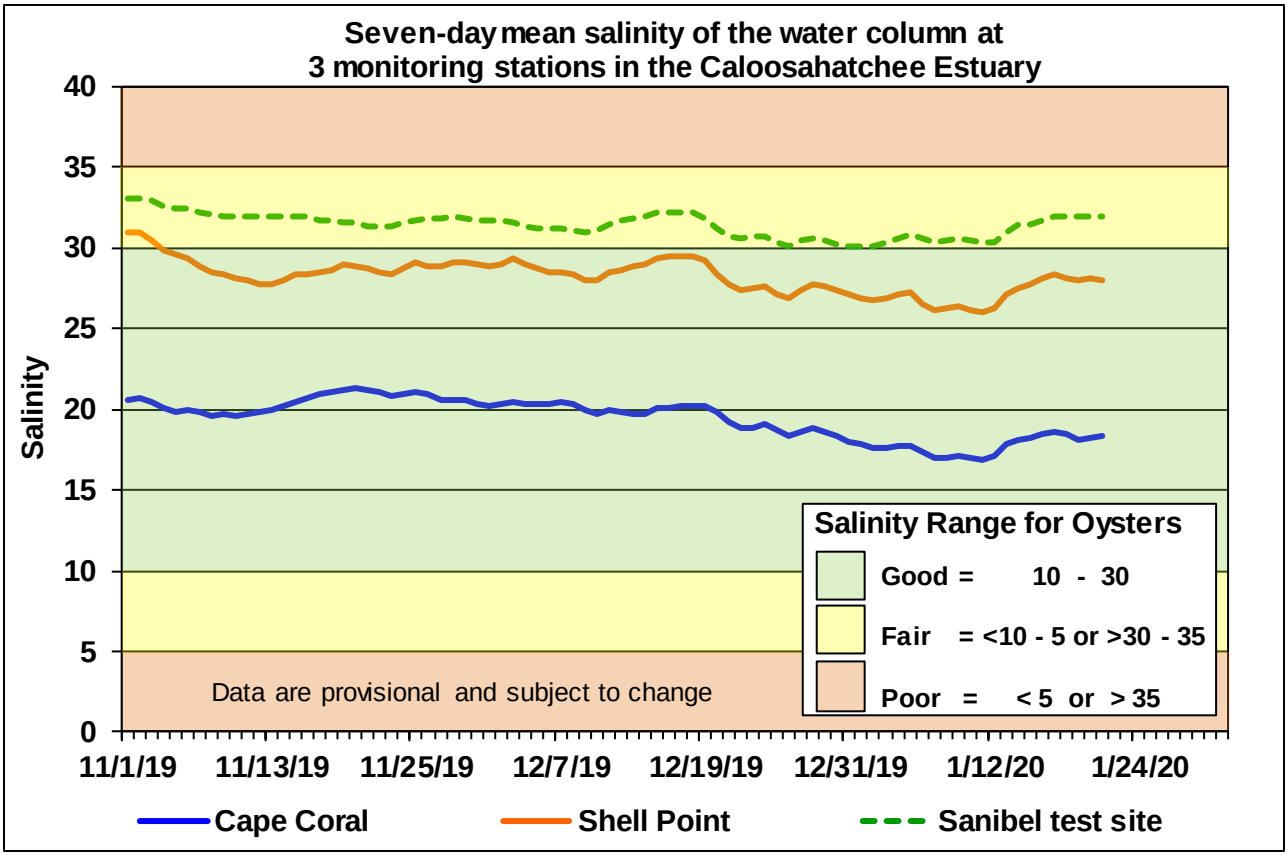


Figure 9. Seven-day mean salinity at Cape Coral, Shell Point, and Sanibel monitoring stations.

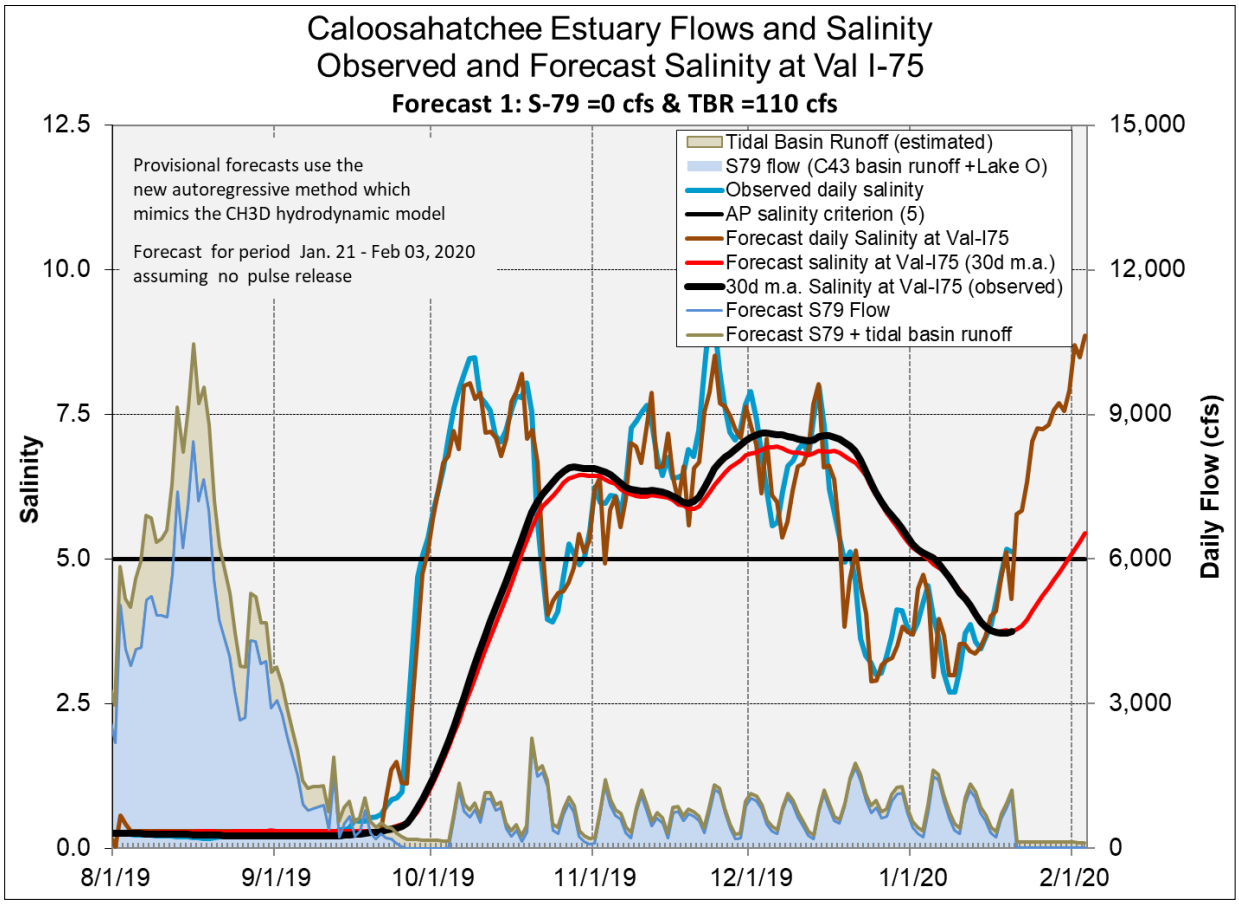


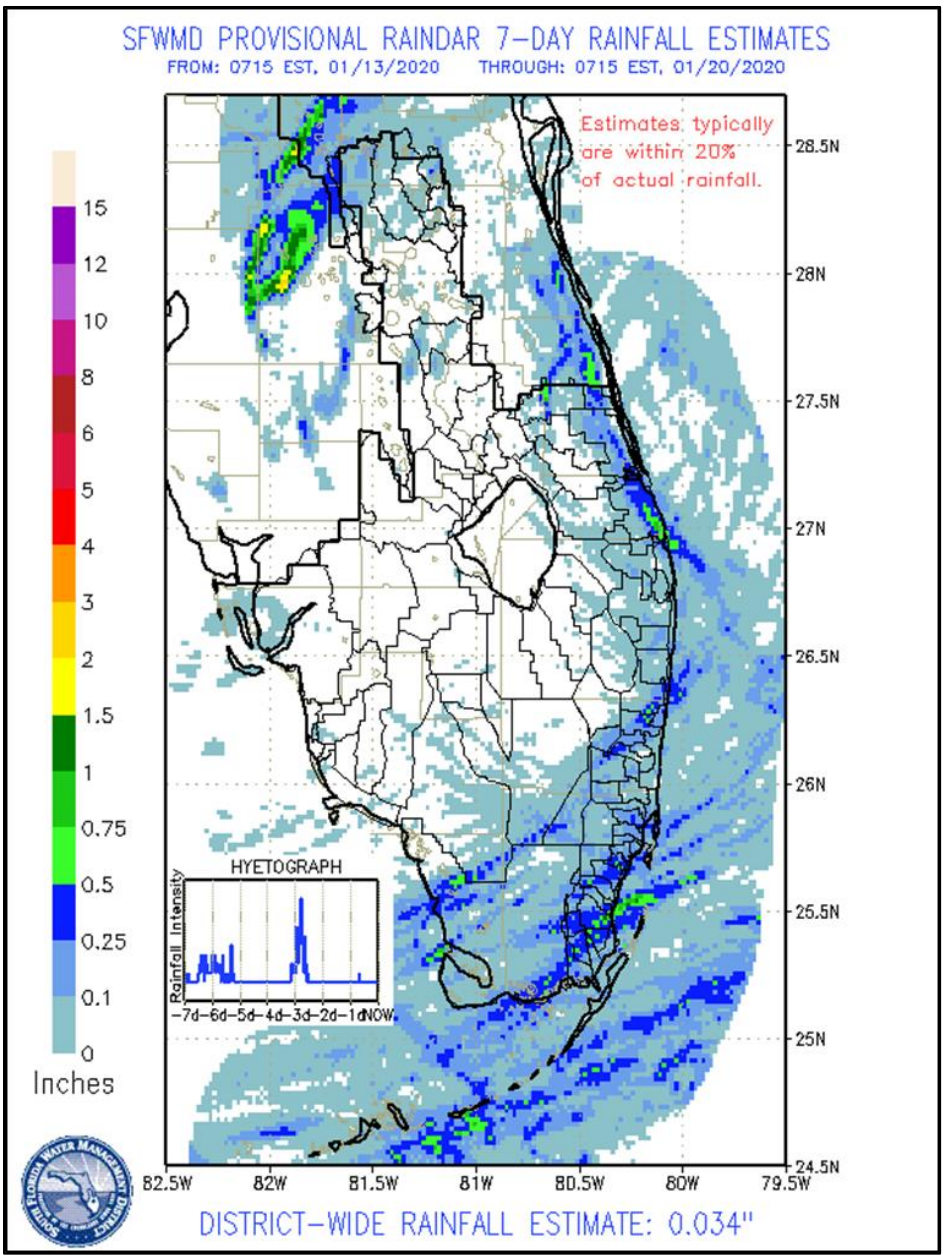
Figure 10. Forecasted Val I-75 surface salinity assuming no pulse release at S-79.

EVERGLADES

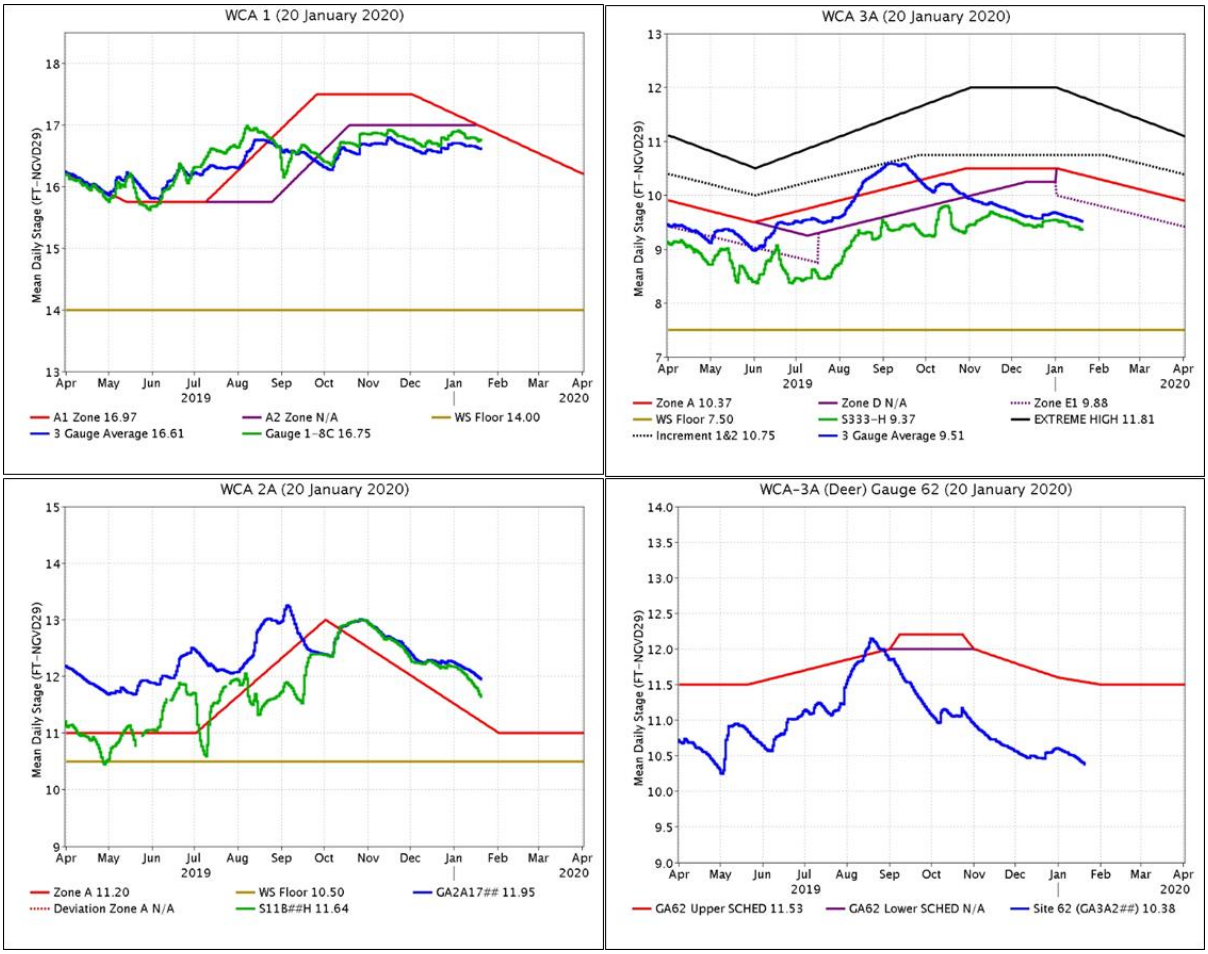
Very little precipitation fell in the WCAs last week with more to the south. Stages fell across the Everglades. Pan evaporation was estimated at 0.97 inches. At the gauges monitored for this report stages fell on average 0.07 feet last week, about the same as the previous weeks rate of change.

Everglades Region	Rainfall (Inches)	Stage Change (feet)
WCA-1	0.01	−0.05
WCA-2A	<0.01	−0.13
WCA-2B	0.10	−0.08
WCA-3A	0.02	−0.08
WCA-3B	0.12	−0.06
ENP	0.11	−0.09

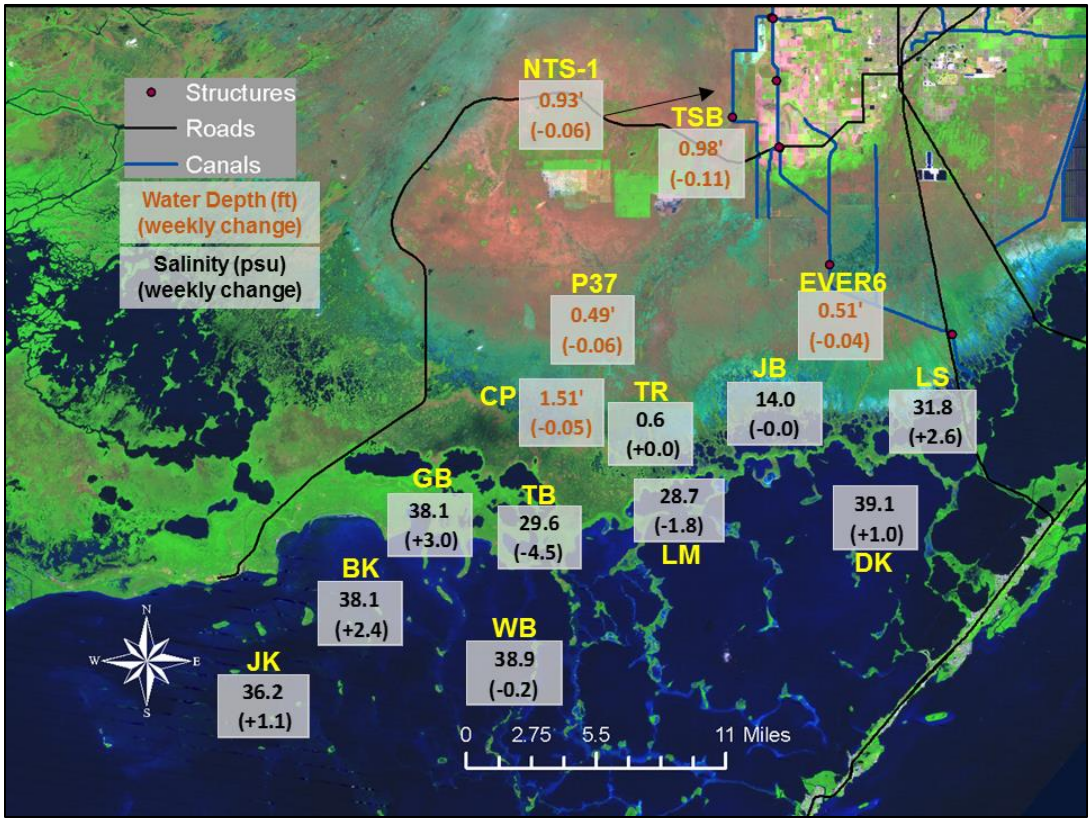
Good
Fair
Poor

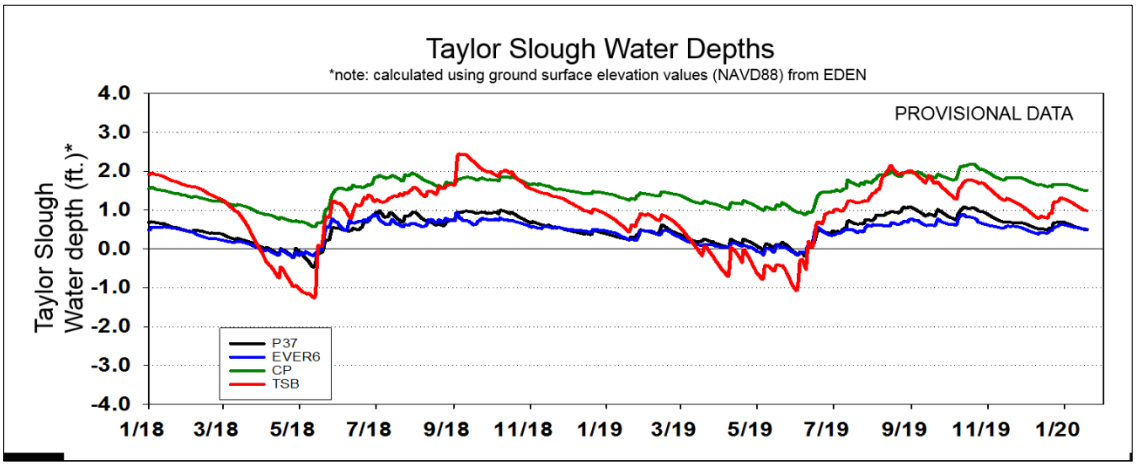


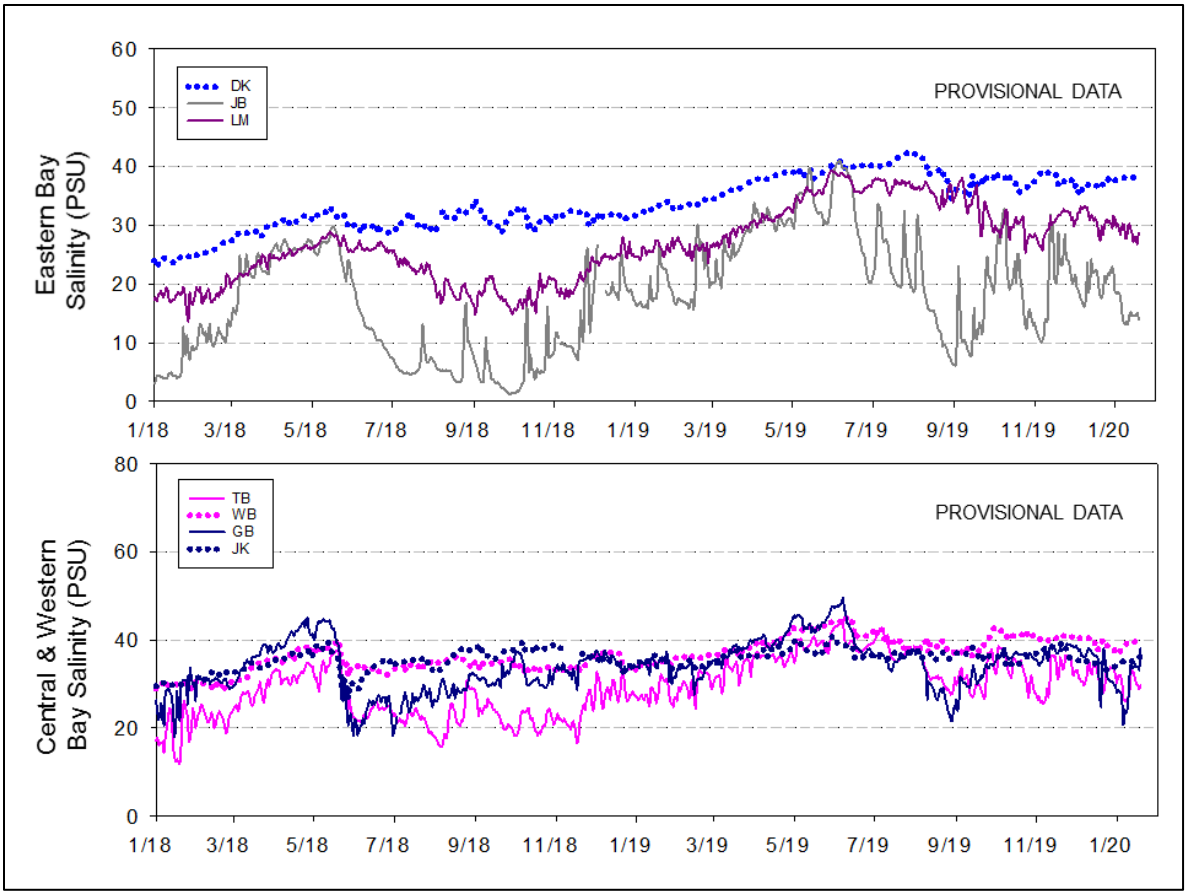
Regulation Schedules: WCA-1: The three-gauge average and stages at the 1-8C Gauge descends parallel to the Zone A2 reg line last week, currently at 0.35 feet and 0.21 feet respectively below the falling regulation line. WCA-2A: Stages at Gauge 2A-17 parallel the Zone A regulation line now 0.76 above the falling regulation line. WCA-3A: The three-gauge average stage falls parallel the falling Zone E1 regulation line last week, currently 0.37 feet below that line. WCA-3A at Gauge 62 (northwest corner): Stage dropped 0.10 last week and generally trends downward away from the falling upper schedule, currently 1.15 feet below.

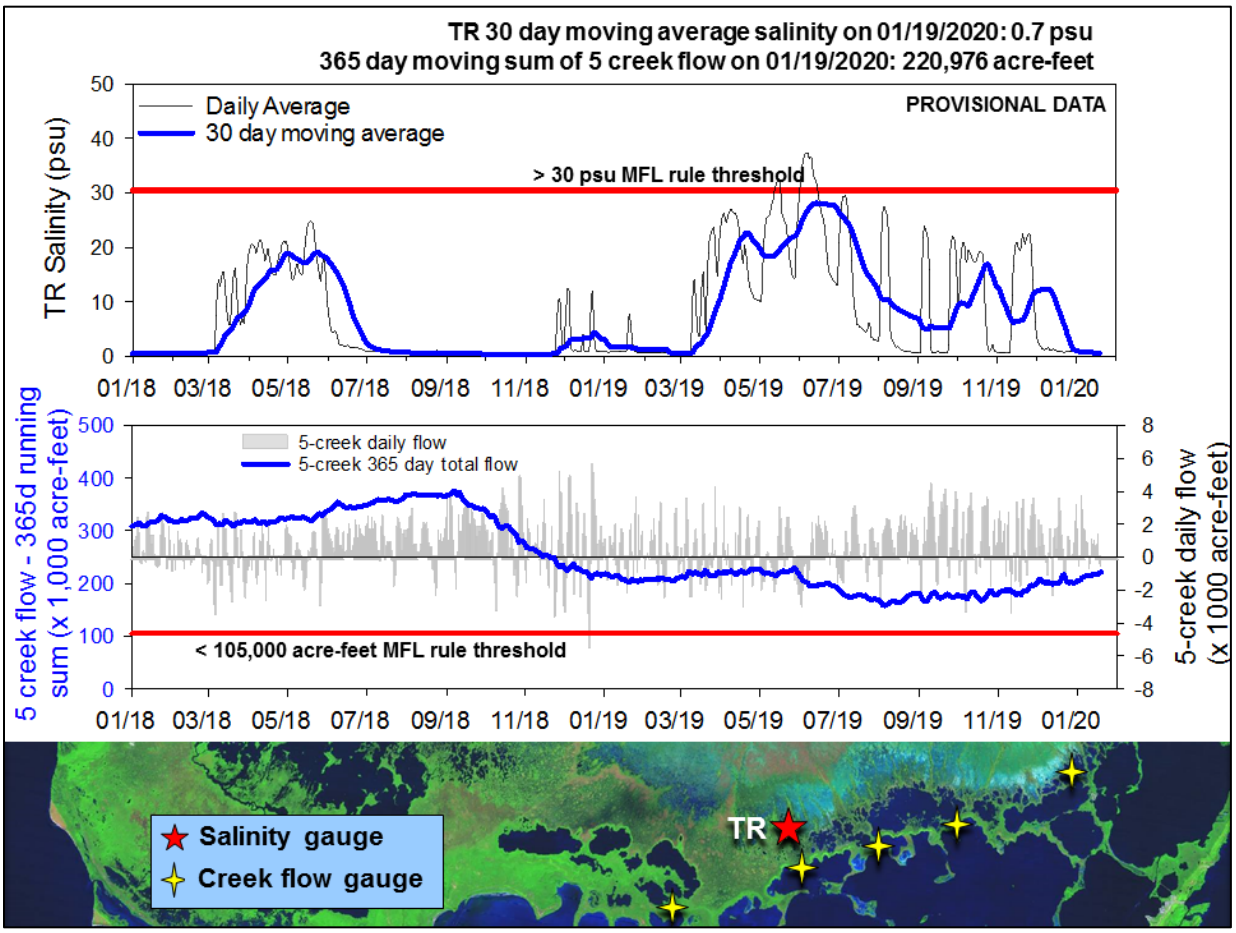


Taylor Slough Water Levels: An average of 0.22 inches of rain fell over Taylor Slough and Florida Bay this last week with stages decreasing an average of 0.06 feet. Upper Taylor Slough (west of S-332D impoundment) is 12 inches higher than its historical average while the rest of Taylor Slough is 4 inches higher than the historical average. The continued westward water movement in South-Dade is slowing the recession in the northern areas of Taylor Slough which is good. Florida Bay Salinities: Average salinity in Florida Bay increased 1 psu to end at 33 psu this past week (still 8 psu above average). The nearshore area is 10 psu above average presenting very little estuarine gradient within the bay which is problematic as the dry season progresses.


Structures
Roads
Canals
Water Depth (ft)
(weekly change)
Salinity (psu)
(weekly change)
NTS-1
0.93'
(-0.06)
TSB
0.98'
(-0.11)
P37
0.49'
(-0.06)
EVER6
0.51'
(-0.04)
CP
1.51'
(-0.05)
TR
0.6
(+0.0)
JB
14.0
(-0.0)
LS
31.8
(+2.6)
GB
38.1
(+3.0)
TB
29.6
(-4.5)
28.7
(-1.8)
LM
39.1
(+1.0)
DK
BK
38.1
(+2.4)
WB
38.9
(-0.2)
JK
36.2
(+1.1)
N
W
E
S
0 2.75 5.5 11 Miles


Taylor Slough Water Depths
*note: calculated using ground surface elevation values (NAVD88) from EDEN
PROVISIONAL DATA
Taylor Slough
Water depth (ft.)*
4.0
3.0
2.0
1.0
0.0
-1.0
-2.0
-3.0
-4.0
P37
EVER6
CP
TSB
1/18
3/18
5/18
7/18
9/18
11/18
1/19
3/19
5/19
7/19
9/19
11/19
1/20


Eastern Bay Salinity (PSU)
DK
JB
LM
PROVISIONAL DATA
60
50
40
30
20
10
0
1/18
3/18
5/18
7/18
9/18
11/18
1/19
3/19
5/19
7/19
9/19
11/19
1/20
Central & Western Bay Salinity (PSU)
TB
WB
GB
JK
PROVISIONAL DATA
80
60
40
20
0


TR 30 day moving average salinity on 01/19/2020: 0.7 psu
365 day moving sum of 5 creek flow on 01/19/2020: 220,976 acre-feet
TR Salinity (psu)
Daily Average
30 day moving average
PROVISIONAL DATA
> 30 psu MFL rule threshold
50
40
30
20
10
0
01/18
03/18
05/18
07/18
09/18
11/18
01/19
03/19
05/19
07/19
09/19
11/19
01/20
5 creek flow - 365d running sum (x 1,000 acre-feet)
5-creek daily flow
5-creek 365 day total flow
< 105,000 acre-feet MFL rule threshold
500
400
300
200
100
0
8
6
4
2
0
-2
-4
-6
-8
5-creek daily flow (x 1000 acre-feet)
Salinity gauge
Creek flow gauge
TR

Florida Bay MFL: Salinity at the TR station in the mangrove zone (tracked for the Florida Bay MFL) has been staying near fresh (<1 psu). The 30-day moving average ended at 0.7 psu (0.1 psu lower than last week). Weekly flow from the 5 creeks identified by yellow stars on the map totaled about 5,000 acre-feet last week with only one day having negative flows (Sunday). The 365-day moving sum of flow from the five creeks (tracked as part of the Florida Bay MFL criteria) increased 5,700 acre-feet this week to end at 220,976 acre-feet, between the 25th percentile (192,885 acre-feet) and the median (249,091 acre-feet). Creek flow are provisional USGS data.

Water Management Recommendations

Current stages in WCA-3A are low for this time of year and salinities are high in Florida Bay. Conserving water within the WCA-3A and moving low nutrient water south has water has many ecological benefits, these benefits are unrealized when flows are lost to tide. Discharges into NE WCA-3A have the potential to slow recessions near the important Alley North wading bird colony and the only foraging flocks of note currently in the WCAs. Maintaining saturated soils in over-drained portions of the Everglades, like WCA-3A Northwest, conserves peat and lowers the risk of muck fires, and depths there are well below average. At the present time flows into the northeast of WCA-3A take priority over those into northwest WCA-3A, however this may change as it becomes more certain in what locations wading birds will nest this dry season. Flows towards Taylor Slough and Florida Bay freshen salinity conditions within the nearshore areas of Florida Bay and decrease the currently stressful conditions for seagrasses and fauna as nearshore salinities remain elevated, decreasing the estuarine gradient within the bay. More specific recommendations appear in the summary table below. The red text represents new or modified information or recommendations.

SFWMD Everglades Ecological Recommendations, January 21st, 2020 (red is new)

Area	Weekly change	Recommendation	Reasons
WCA-1	Stage decreased by 0.05'	Conserving water in this basin has ecological benefit as current water depths are below seasonal averages.	Protect tree islands, upstream/downstream habitat and wildlife.
WCA-2A	Stage decreased by 0.13'	Conserving water in this basin has ecological benefit as current water depths are below seasonal averages.	Protect tree islands, upstream/downstream habitat and wildlife.
WCA-2B	Stage decreased by 0.07'	Conserving water in this basin has benefit as current water depths are below seasonal averages.	Protect within basin habitat and wildlife.
WCA-3A NE	Stage decreased by 0.08'	Conserving water in this basin has ecological benefit as current water depths are below seasonal averages. Inflows to this region continue to have ecological benefit.	Protect stage conditions conducive to wading bird foraging and peat soil conservation.
WCA-3A NW	Stage decreased by 0.10'	Conserving water in this basin has ecological benefit as current water depths are below seasonal averages.	
Central WCA-3A S	Stage decreased by 0.07'	Conserving water in this basin has ecological benefit as current water depths are below seasonal averages.	Protect upstream/downstream habitat and wildlife.
Southern WCA-3A S	Stage decreased by 0.06'		
WCA-3B	Stage decreased by 0.06'	Conserving water in this basin has benefit as current water depths are below seasonal averages.	Protect tree islands, upstream/downstream habitat and wildlife.
ENP-SRS	Stage decreased by 0.09'	Make discharges to the Park according to the 2012 WCP rainfall plan.	Protect upstream/downstream habitat and wildlife.
Taylor Slough	Stage changes ranged from −0.04' to −0.11'	Move water southward as possible	When available, provide freshwater buffer for downstream conditions.
FB- Salinity	Salinity changes ranged −4.5 to +3.0 psu	Move water southward as possible	When available, provide freshwater to maintain low salinity buffer and promote water movement.