

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

MEMORANDUM

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

FROM: SFWMD Staff Environmental Advisory Team

DATE: October 13, 2015

SUBJECT: Weekly Environmental Conditions for Systems Operations

Summary

Stages in East Lake Toho and Toho are approximately at schedule; Kissimmee-Cypress-Hatchineha (KCH) is 0.5 feet below schedule. Discharge from East Toho and Toho is currently zero. Discharge from KCH is currently ~1400 cfs following the discharge zones in the standing recommendation discharge plan for S-65/S-65A. Over the past week, discharge at S-65 averaged 1370 cfs and at S-65A 1480 cfs; discharge at S-65E averaged 2790 cfs over the past week. Tuesday morning discharges: S-65 ~1600 cfs; S-65A ~1485 cfs; S-65C ~2240 cfs; S65E ~2365 cfs. Dissolved oxygen (DO) continues to be low in the Kissimmee River, averaging 1.65 mg/L over the past week and 1.87 mg/L on Sunday. DO is currently rising with the reductions in discharge to the Kissimmee River and lower water temperatures in the past week. Kissimmee River mean floodplain depth is currently 1.44 feet.

Lake Okeechobee is at 14.83 feet NGVD, having risen 0.06 feet over the past week, and 1.10 feet over the past month. This ascension rate remains significantly reduced and is within the preferred rate of no more than 0.5 feet per month. The Lake is in the Low Flow Sub-band.

Over past week, total freshwater inflow to both estuaries were dominated by local basin runoff, averaging 821 cfs to the St. Lucie and 1727 cfs to the Caloosahatchee. In the St. Lucie Estuary, salinity remained in the good range for adult oysters in the mid-estuary. In the Caloosahatchee Estuary, salinity continued to be in the good range for adult oysters at Shell Point and Sanibel, and increased to the fair range at Cape Coral. Salinities were also in the good range for tape grass in the upper Caloosahatchee Estuary. Considering the subsided watershed runoff, current lake level, and the upcoming wetter than normal dry season under the influence of a strong El Nino, pulse releases averaging 200~500 cfs at S-80 and 650~1200 cfs at S-79 under LORS guidance are suggested to transition into future conditions.

Basin-wide stages in the Everglades generally rose except in WCAs -2A and -2B. The 30-day salinity at the Minimum Flows and Levels (MFL) site rose this week to 14.7 psu and the cumulative inflow from the five creeks into Florida Bay decreased to 92,100 acre-feet, remaining below the 105,000 acre-feet criterion. Much more rainfall is required to approach seasonally normal conditions in Florida Bay but the WCAs have met or are approaching stage targets for the late wet season.

Weather Conditions and Forecast

Limited showers today and Wednesday. Drier air has moved in behind a cold front, which has stalled in the Florida Straits. Mid-level energy in the eastern Gulf of Mexico will move across the Florida peninsula this afternoon and evening and should generate some scattered shower activity. Only spotty showers are expected south on Wednesday. A dry cool front will then move into the area Thursday and stall across south Florida. Expect scattered shower activity to develop near this stalled front Thursday night with the potential for some heavier shower activity focused east Friday and Saturday.

KISSIMMEE BASIN

Kissimmee Basin Rainfall

The Upper Kissimmee Basin received 0.31 inches of rainfall in the past week and the Lower Basin received 0.56 inches (SFWMD Daily Rainfall Report 10/12/2015).

Upper Kissimmee Basin

Stages and departures in the Kissimmee Chain of Lakes (KCOL) are shown in Table 1.

Table 1. Departures from KCOL flood regulation (F) or temporary schedules (T, A, or S) (feet NGVD). Discharge and stage data are provisional real-time data from SFWMD OASyS DualTrend; reported values are averages through midnight of the Sunday prior to the report date unless otherwise specified.

Report Date: 10/13/2015

Water Body	Structure/Site	Discharge (cfs), week's average**	Stage Monitoring Site***	Lake Stage (feet)	Schedule*	Regulation (R) or Target (S or T) Stage (feet)	Sunday Departure (feet)						
							10/11/15	10/4/15	9/27/15	9/20/15	9/13/15	9/6/15	8/30/15
Lakes Hart and Mary Jane	S62	0	LKMJ	60.3	R	60.3	0.0	-0.1	-0.1	0.0	0.1	0.4	0.3
Lakes Myrtle, Preston, and Joel	S57	37	S57	61.3	R	61.4	-0.1	0.1	-0.2	0.2	0.4	0.1	-0.1
Alligator Chain	S60	0	ALLI	63.2	R	63.6	-0.4	-0.3	-0.3	-0.3	-0.3	-0.2	-0.1
Lake Gentry	S63	0	LKGT	61.1	R	61.2	-0.1	-0.1	-0.2	-0.3	-0.2	-0.2	0.2
East Lake Toho	S59	0	TOHOE	57.2	R	57.3	-0.1	0.0	0.3	0.8	1.3	1.2	0.4
Lake Toho	S61	0	TOHOW	54.2	R	54.3	-0.1	-0.1	-0.2	-0.1	0.0	0.2	0.3
Lakes Kissimmee, Cypress, and Hatchineha	S65	1370	LKISSP, KUB011, LKIS5B	51.3	R	51.8	-0.5	-0.2	-0.3	-0.2	-0.1	0.0	0.1

* 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.

** Seven-day average of weighted daily means through Sunday midnight.

*** Names of in-lake monitoring sites and structures used to determine lake stage; if more than one site is listed, an average is reported.

Lower Kissimmee Basin

Discharges and stages at Lower Basin structures are shown in Table 2. SFWDAT depth maps for the Phase I restoration area are shown in Figure 11. Kissimmee River floodplain stages at selected stations are shown in Figure 12.

Table 2. Mean weekly discharge at S-65x structures, and mean weekly Phase I area river channel dissolved oxygen and floodplain mean water depth. Discharge and stage data are provisional real-time data from SFWMD OASyS DualTrend; reported values are averages through midnight of the Sunday prior to the report date unless otherwise specified.

Report Date: 10/13/2015

Metric	Location	Sunday's 1-day average	Weekly Average**									
			10/11/15	10/4/15	9/27/15	9/20/15	9/13/15	9/6/15	8/30/15	8/23/15	8/16/15	8/9/15
Discharge (cfs)	S-65	1502	1370	1534	2329	3923	4603	4525	3970	2629	1557	1125
Discharge (cfs)	S-65A	1490	1483	1694	2655	5089	6066	6098	4585	2783	1488	1030
Discharge (cfs)	S-65C	2311	2579	3300	4558	5476	5643	4961	3464	1995	1710	905
Headwater stage (feet NGVD)		36.2	35.3	35.3	35.4	35.5	35.3	35.4	35.3	35.3	35.3	35.4
Discharge (cfs)	S-65D****	2503	2882	3891	5253	6193	6236	5553	3764	2328	1759	1059
Discharge (cfs)	S-65E	2263	2787	3853	5133	6064	5906	5323	3539	2122	1551	885
DO concentration (mg/L)***	Phase I river channel	1.87	1.65	0.93	0.74	0.34	0.58	0.68	0.97	2.23	3.84	3.54
Mean depth (feet)*	Phase I floodplain	1.44	N/A	1.64	2.06	2.76	2.80	2.89	2.24	1.61	1.21	0.91

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

** Seven-day average of weighted daily means through Sunday midnight.

*** DO is the average for PC62 and PC33 starting June 2. PC33 omitted for week of Aug16. DO for week of Sept 15-22 is for PC33 only.

**** S-65D discharge combines discharge at S-65D, S-65DX1, and S-65DX2

***** 1-day spatial average from field measurements in Pools A and BC

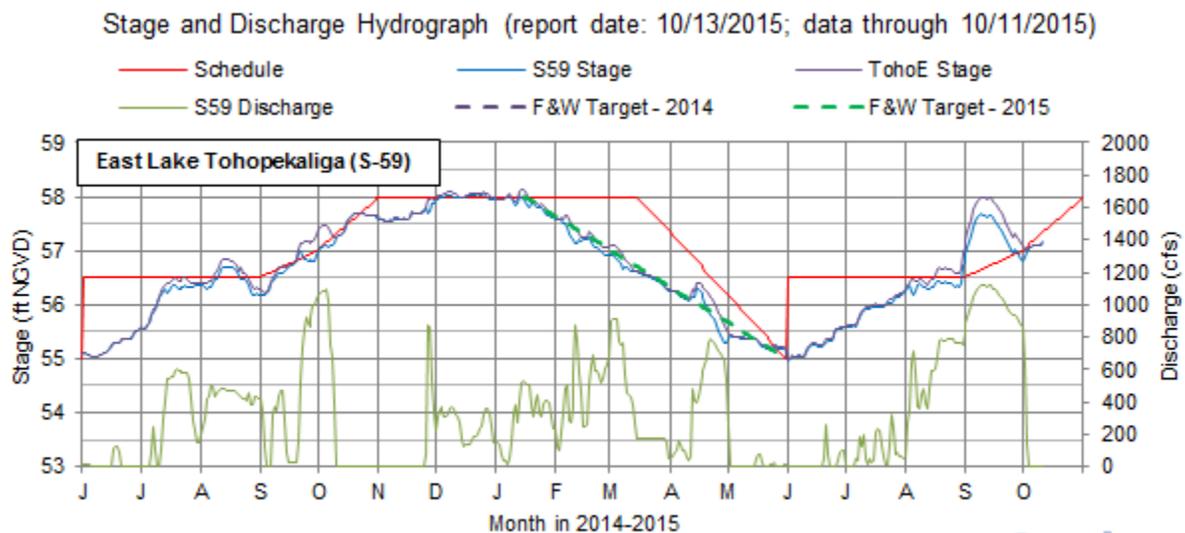
N/A Not applicable or data not available.

Water Management Recommendations

Kissimmee Basin Recommendations and Operational Actions

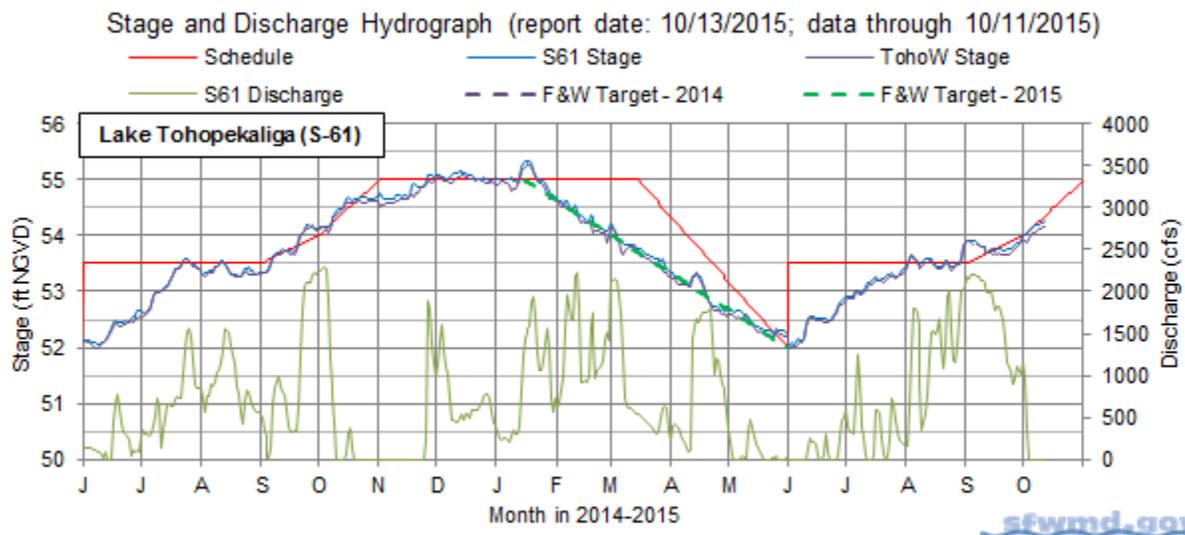
Date	Recommendation	Purpose	Outcome	Source
10/13/2015	No new recommendations.			
10/6/2015	No new recommendations.			
9/28/2015	No new recommendations.			
9/22/2015	No new recommendations.			
9/15/2015	No new recommendations.			
9/8/2015	No new recommendations.			
9/1/2015	No new recommendations.			
8/25/2015	No new recommendations.			
8/18/2015	No new recommendations.			
8/11/2015	No new recommendations.			
8/4/2015	No new recommendations.			
7/28/2015	No new recommendations.			
7/14/2015	No new recommendations.			
6/30/2015	No new recommendations.			
6/23/2015	No new recommendations.			
6/16/2015	No new recommendations.			
6/9/2015	No new recommendations.			
6/1/2015	For S65/65A maintain 300 cfs as long as stage is above 48.5 ft. When stage approaches 50.5 ft begin transitioning to 1400 cfs using the rampup/rampdown guidelines in standing recommendation.	Allow KCH lake stage to rise	Implemented	KB Operations
5/29/2015	2015 KB Wet Season Standing Recommendations provided to Operations Control	Comprehensive wet season guidance	Implemented	KB Operations
5/26/2015	No new recommendations.			
5/19/2015	No new recommendations.			
5/12/2015	No new recommendations.			
5/5/2015	No new recommendations.			
4/7/2015	No new recommendations.			
3/31/2015	No new recommendations.			
3/24/2015	No new recommendations.			
3/17/2015	No new recommendations.			
3/9/2015	No new recommendations.			
3/4/2015	No new recommendations.			
2/23/2015	No new recommendations.			
2/17/2015	No new recommendations.			
2/10/2015	No new recommendations.			
2/3/2015	No new recommendations.			
1/27/2015	Starting today, follow a new SK recession line for KCH, which will be drawn from today's stage to regulation stage on March 1.	Snail kite recession in KCH	Implemented	

KCOL Hydrographs (through Sunday midnight)



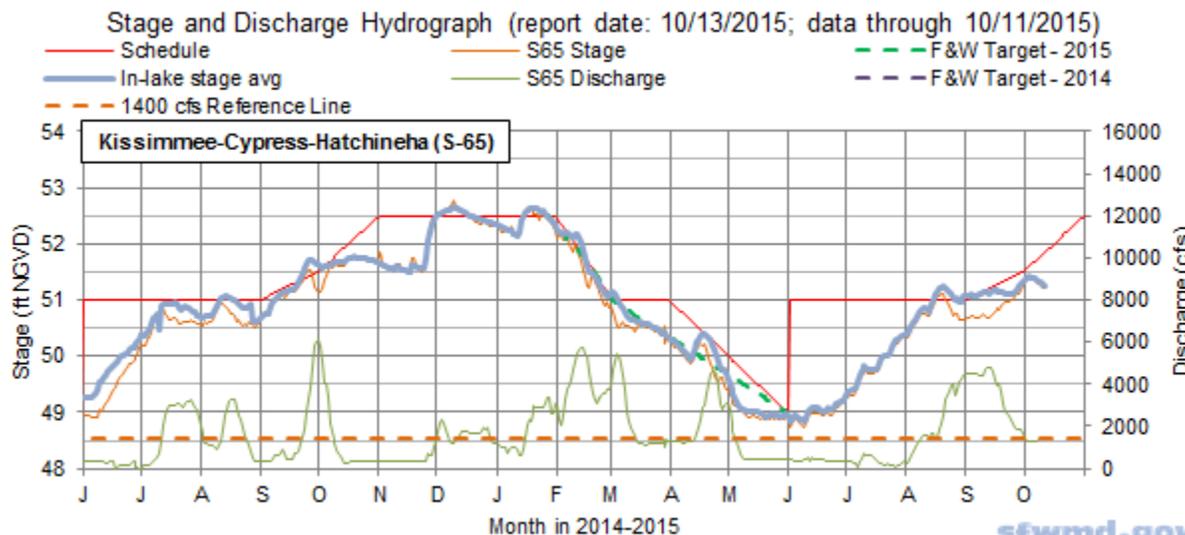
*Departures from schedule are calculated using TohoE stage.

Figure 1.



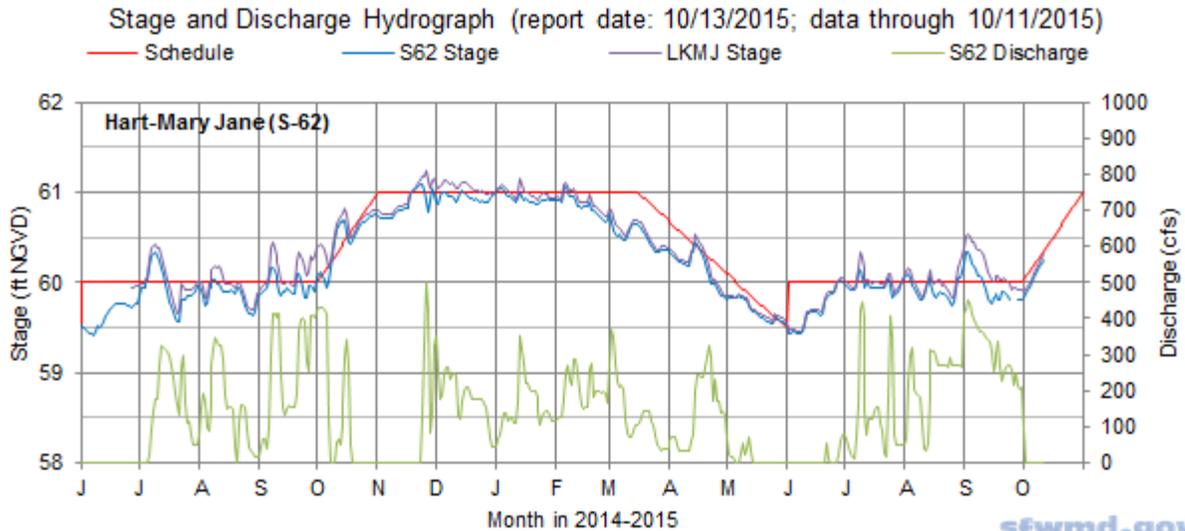
*Departures from schedule are calculated using TohoW stage.

Figure 2.

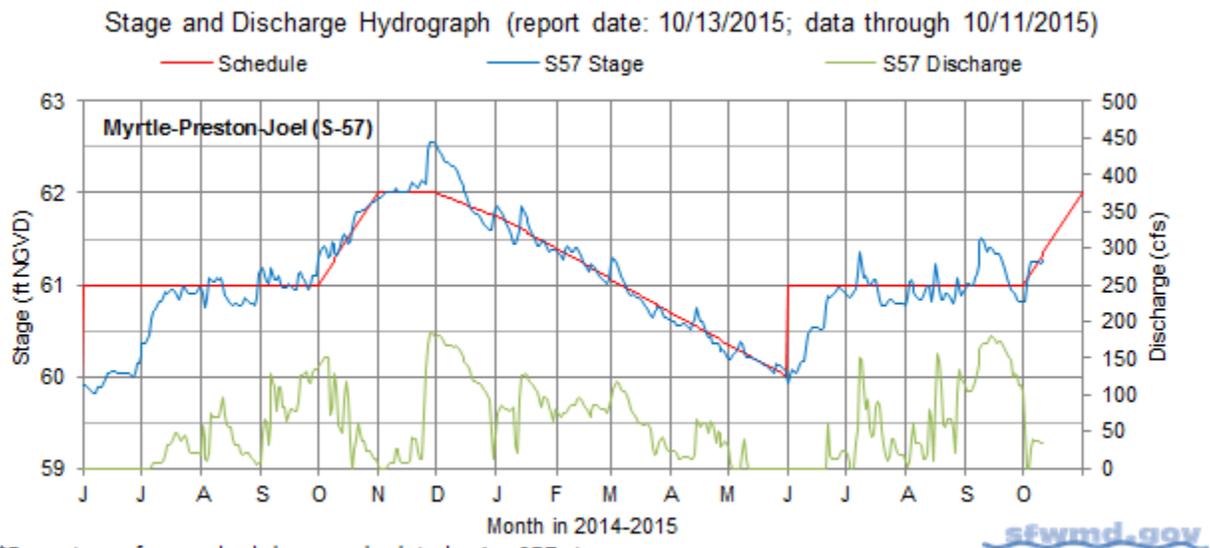


*Schedule departures use In-lake stage avg (L KISS, KUB011, and LKIS5B).

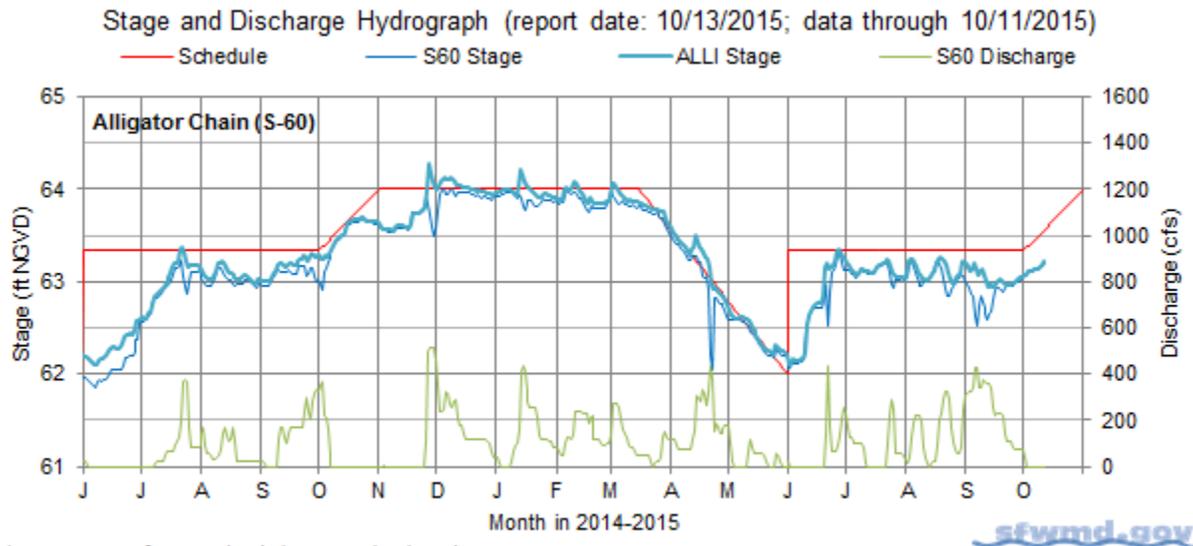
Figure 3.



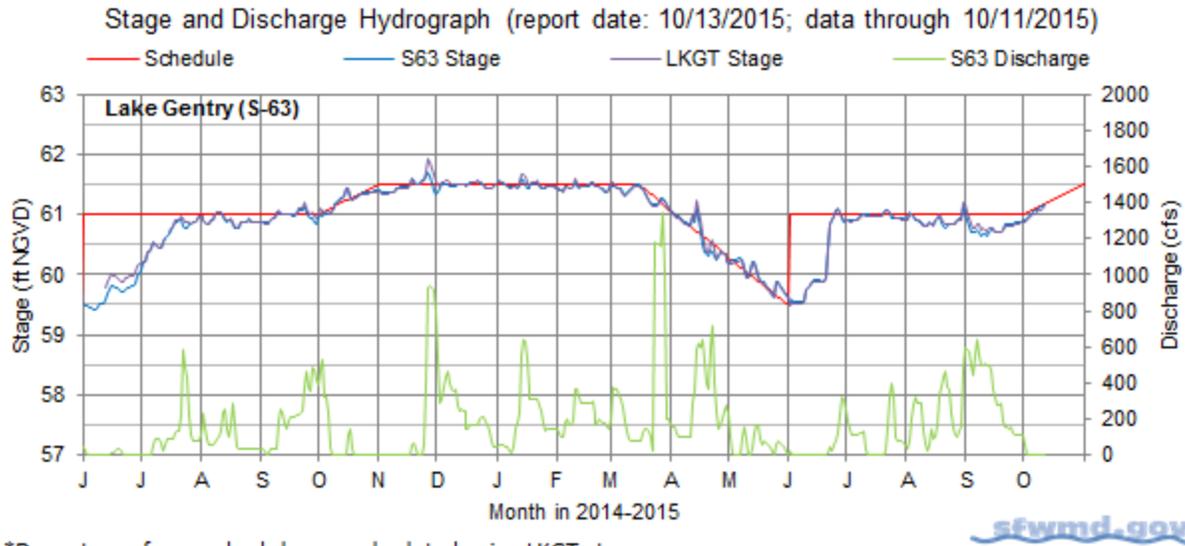
*Departures from schedule are calculated using LKMJ stage.
Figure 4.



*Departures from schedule are calculated using S57 stage.
Figure 5.



*Departures from schedule are calculated using ALLI stage.
Figure 6.



*Departures from schedule are calculated using LKGT stage.

Figure 7.

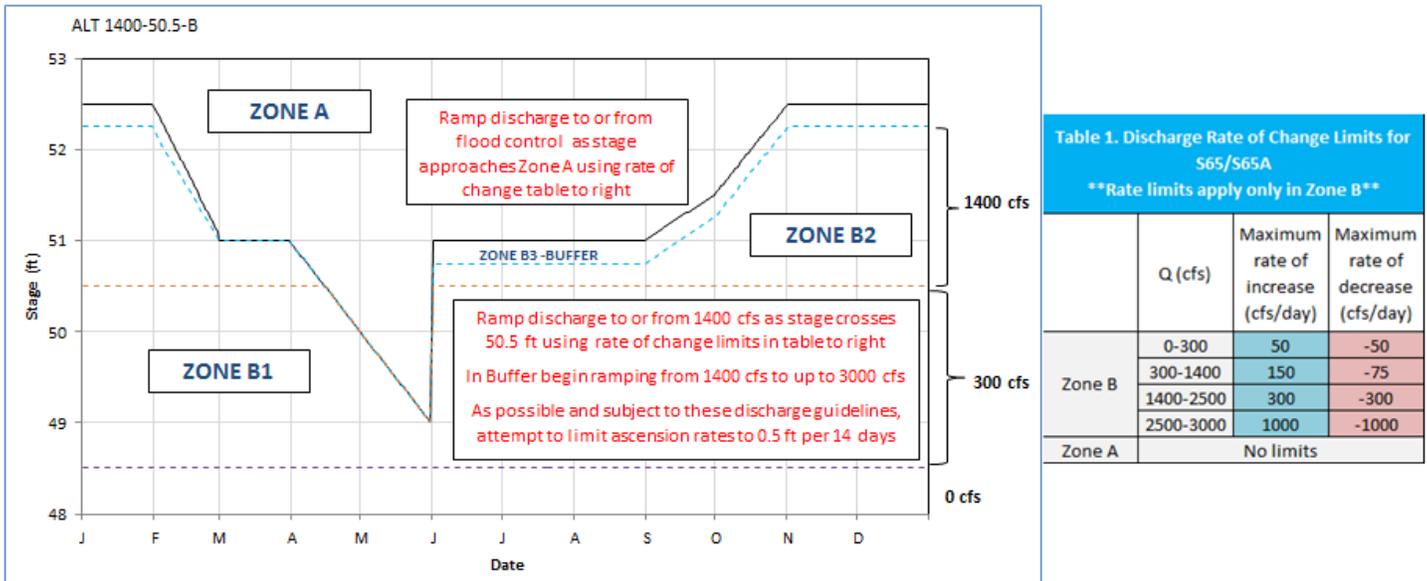


Figure 8a. Final S65 operational plan for Wet Season 2015.

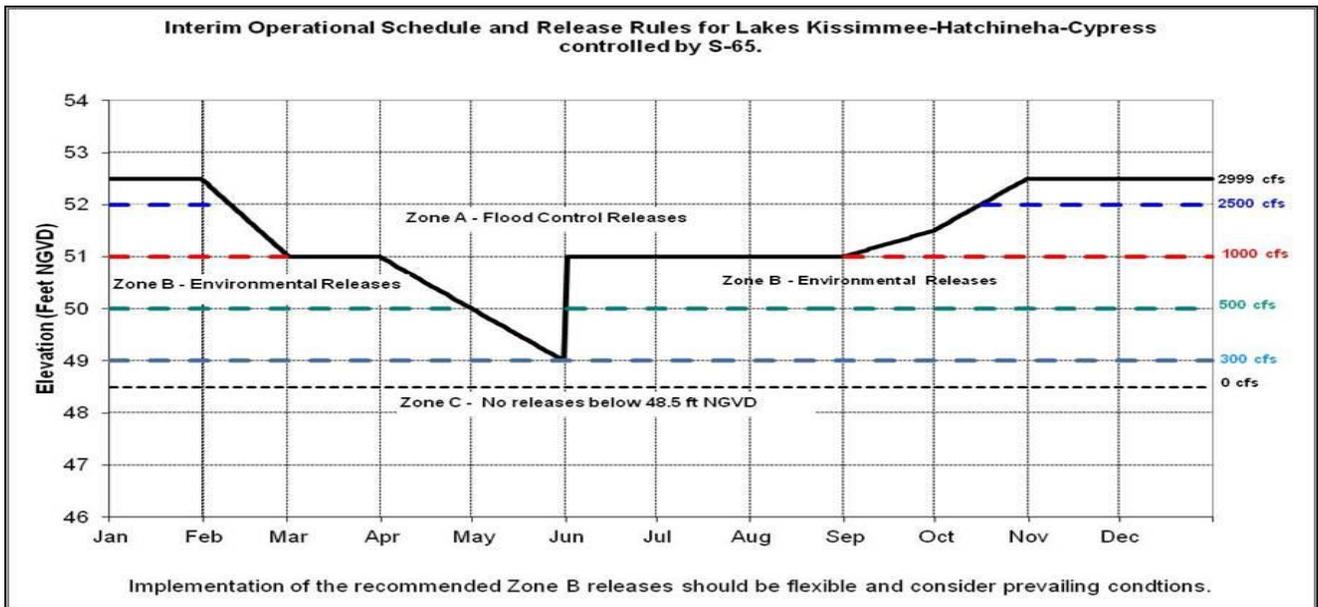
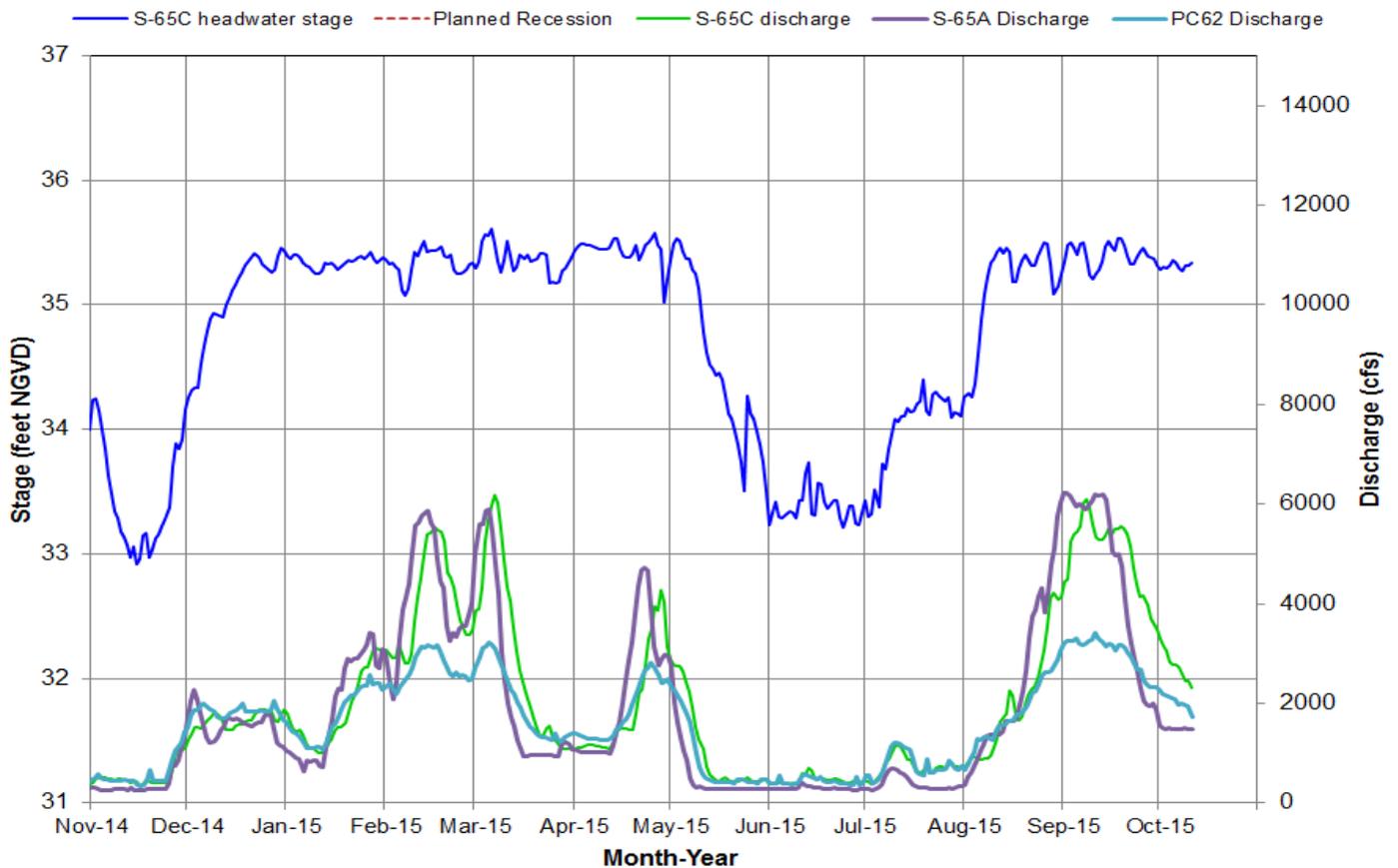


Figure 8b. Interim operations schedule for S-65. The discharge schedule shown to the right has not been used in recent years or in Wet Season 2015.



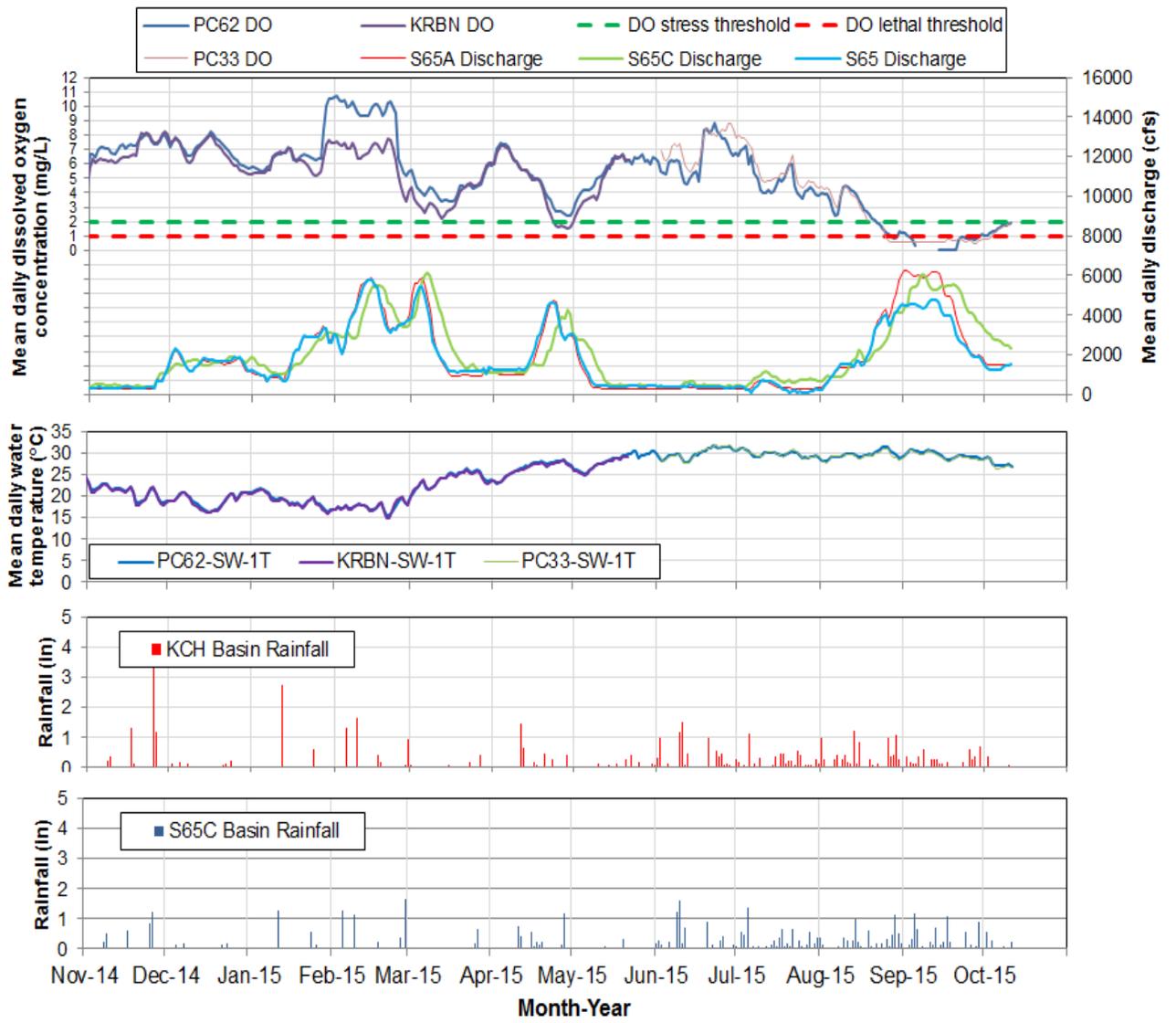
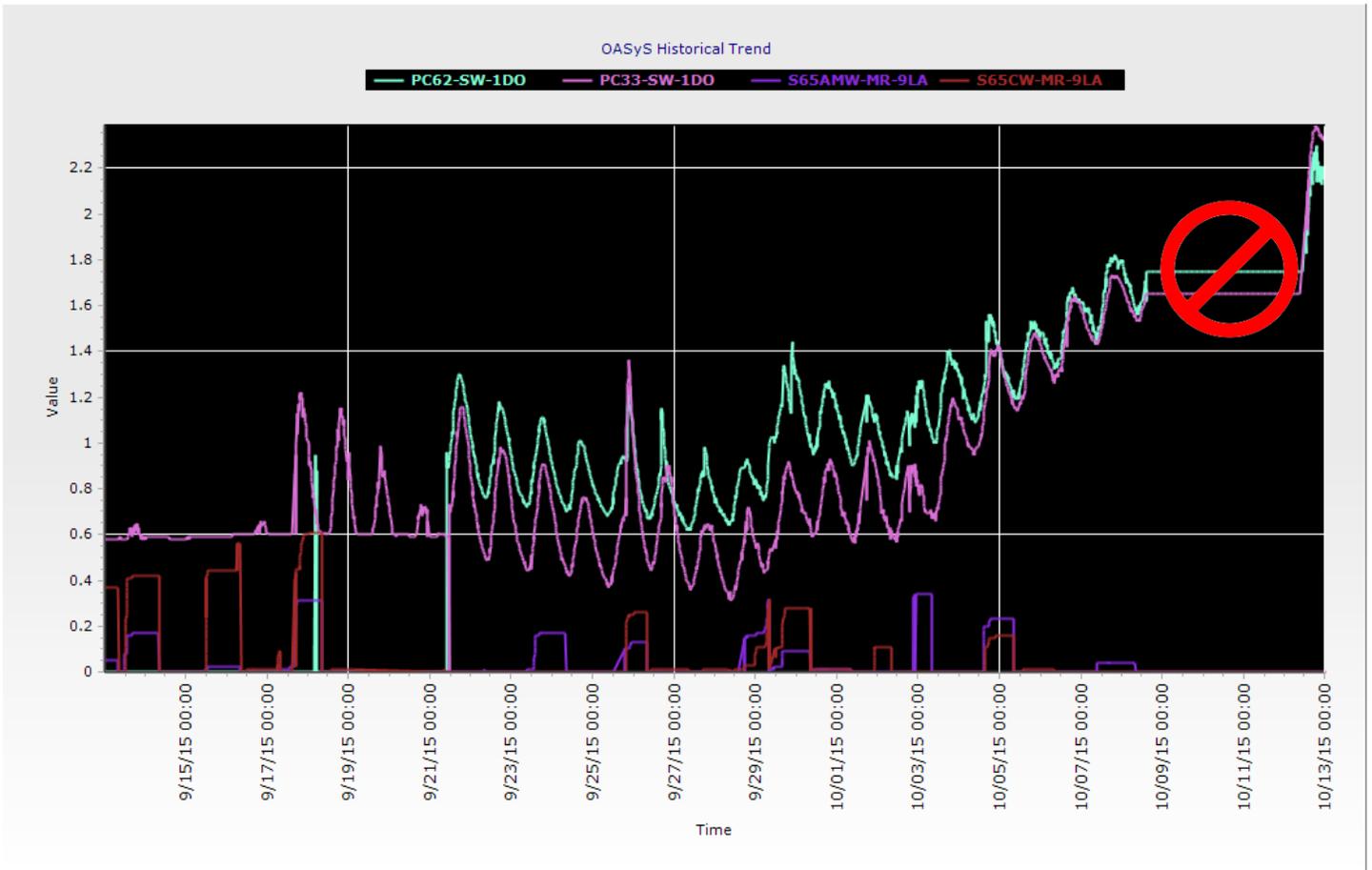


Figure 10. Mean daily DO, discharge, temperature and rainfall in the Phase I river channel.



Insert A. Phase I river channel DO (measured at 15 minute intervals) and rainfall at S65A and S65C.

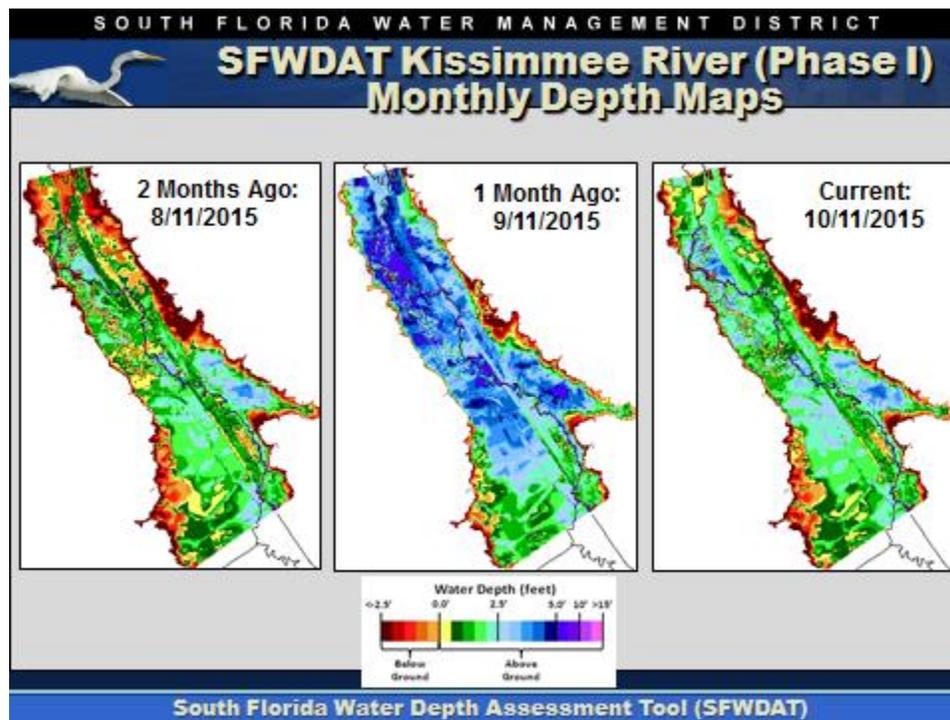


Figure 11. Phase I area floodplain water depths for this week, one month ago, and two months ago. Note that the WDAT color-coding has been modified to accommodate greater water depths; these maps are not directly comparable to Kissimmee Basin WDAT maps published prior to Jan. 16, 2012.

Kissimmee River Hydrographs

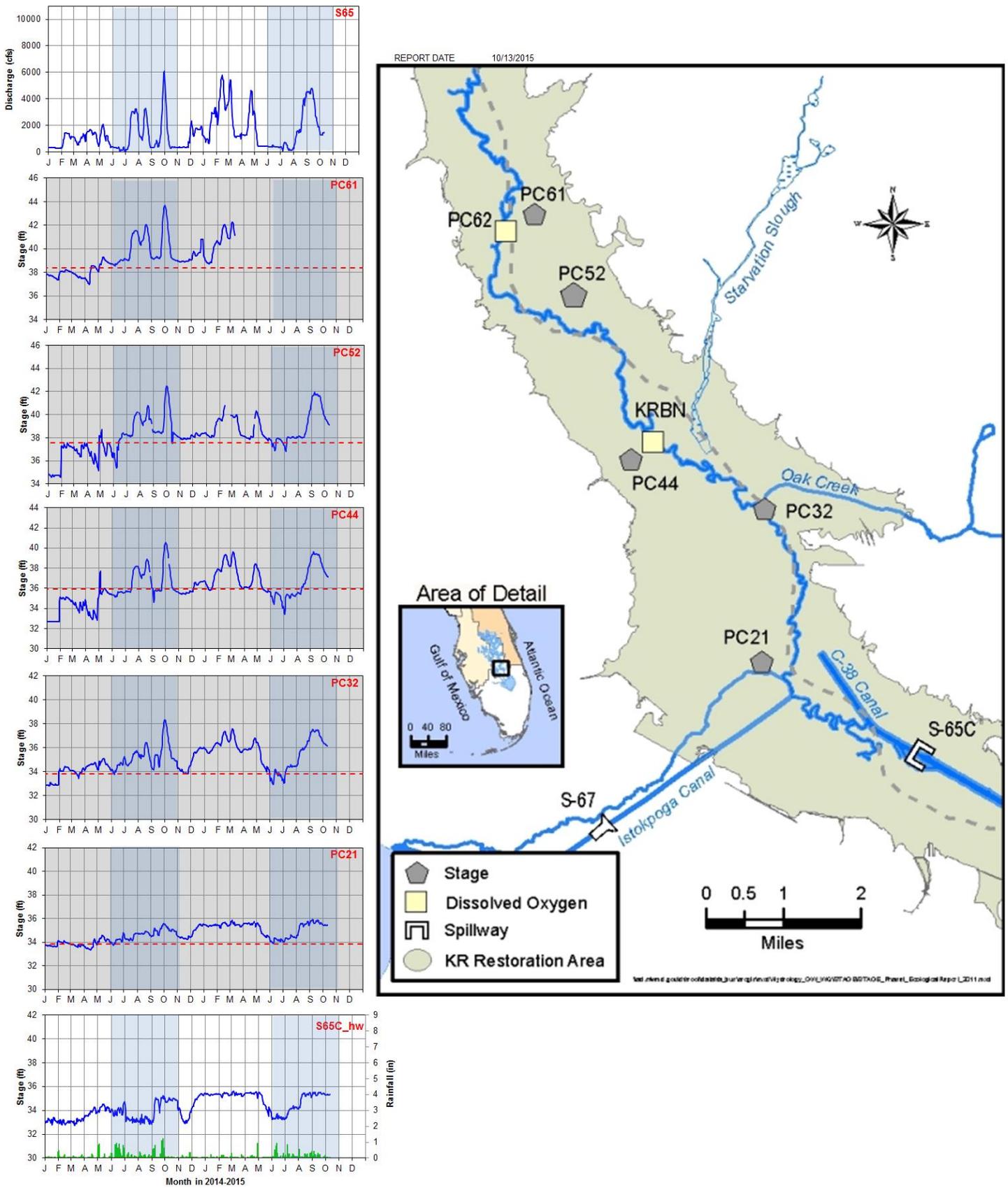


Figure 12. Discharge at S65, stages at five monitoring stations in the Phase I area of the Kissimmee River floodplain, and headwater stage at S65-C since January 1, 2013. The most recent data (~2 weeks) are provisional real-time data from SFWMD DualTrend; previous data are from SFWMD DB-HYDRO (validated). Dashed lines are ground elevations.

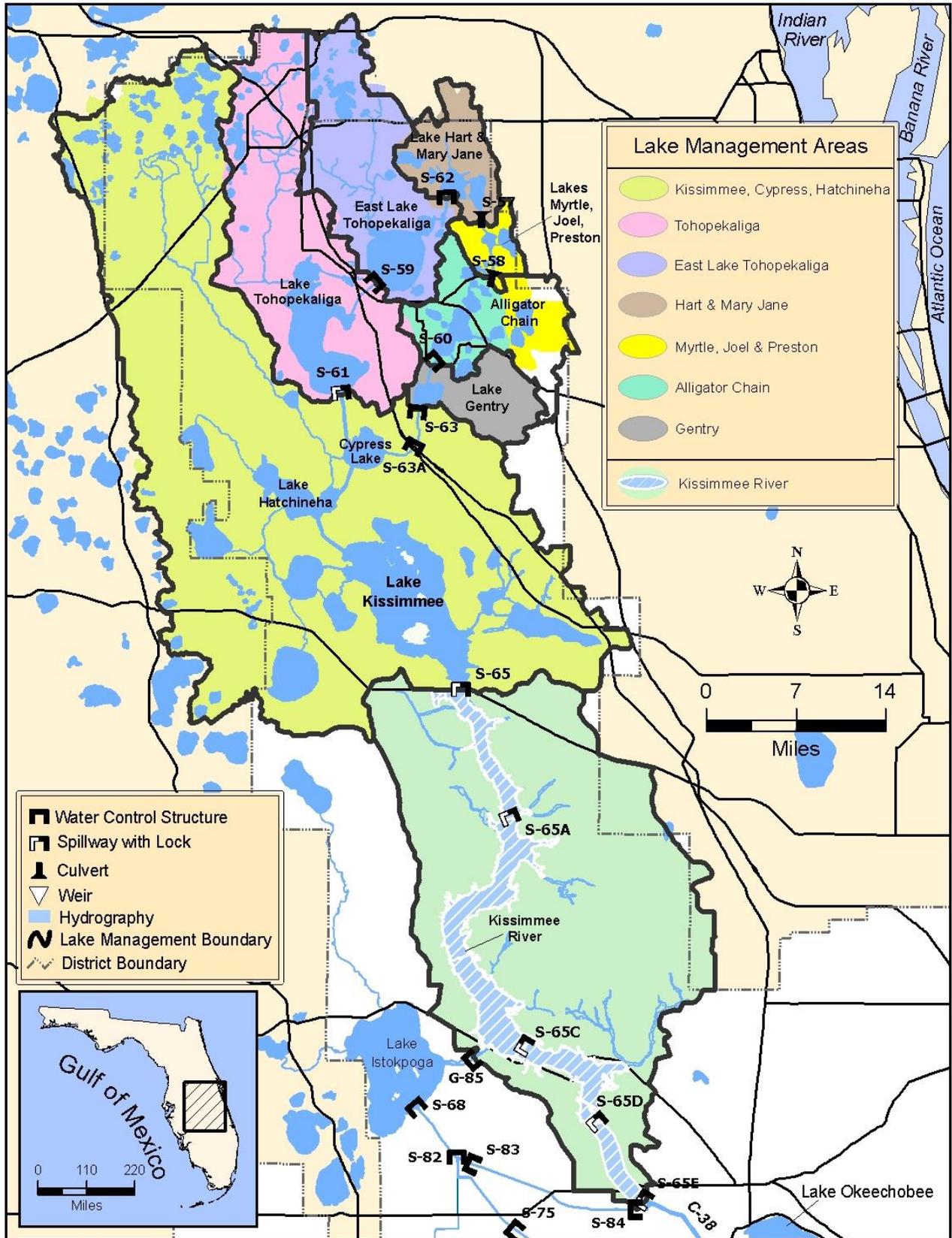


Figure 13. The Kissimmee Basin.

LAKE OKEECHOBEE

According to the United States Army Corps of Engineers (USACE) web site, Lake Okeechobee stage is at 14.83 feet NGVD for the period ending at midnight on October 12, 2015. Lake stage increased by 0.06 feet over the past week. The Lake is now 1.10 feet higher than it was a month ago and 0.87 feet lower than it was a year ago (Figure 1). The Lake is in the Low Flow Sub-band. (Figure 2). According to RAINDAR, 0.92 inches of rain fell directly over the Lake during the past seven days. Similar to mostly lower amounts of rain fell in most of the surrounding watershed with higher amounts of rain fell in small areas of the northern and the western portions of the watershed (Figure 3).

Based on USACE reported values, current Lake inflow is approximately 4,956 cfs, consisting of inflows as indicated below.

Structure	Flow cfs
S65E	2635
S154	27
S84 & 84X	1386
S71	177
S72	9
C5	0
S191	43
S133 PUMPS	12
S127 PUMPS	73
S129 PUMPS	0
S131 PUMPS	0
S135 PUMPS	0
Fisheating Creek	594
S2 Pumps	0
S3 Pumps	0
S4 Pumps	0

Outflows consisted of 2,245 cfs exiting through S-351 (474 cfs), S-354 (657 cfs), S-352 (775 cfs) and to the L-8 canal through Culvert 10A (304 cfs). Corrected evapotranspiration this past week was equivalent to an outflow of 2,467 cfs. Change in elevation equivalents and average weekly flows for major structures are presented in Figure 4.

Water Management Recommendations

Lake levels continue to increase but the current monthly ascension rate is now within the preferred rate of no more than 0.5 feet per month. The Lake is near the top of its optimal stage range for this time of year. Any activities which contribute to maintaining the reduction in the current rate of rise in Lake stage would be ecologically beneficial.

Future recommendations for the short term will depend in large measure on the near-term rainfall patterns and amounts. The operational goal continues to be to maintain a steady increase in water levels not to exceed 0.5 feet per month (0.125 feet/week) until the November Lake stage of 15.5 feet NGVD is reached.

SOUTH FLORIDA WATER MANAGEMENT DISTRICT

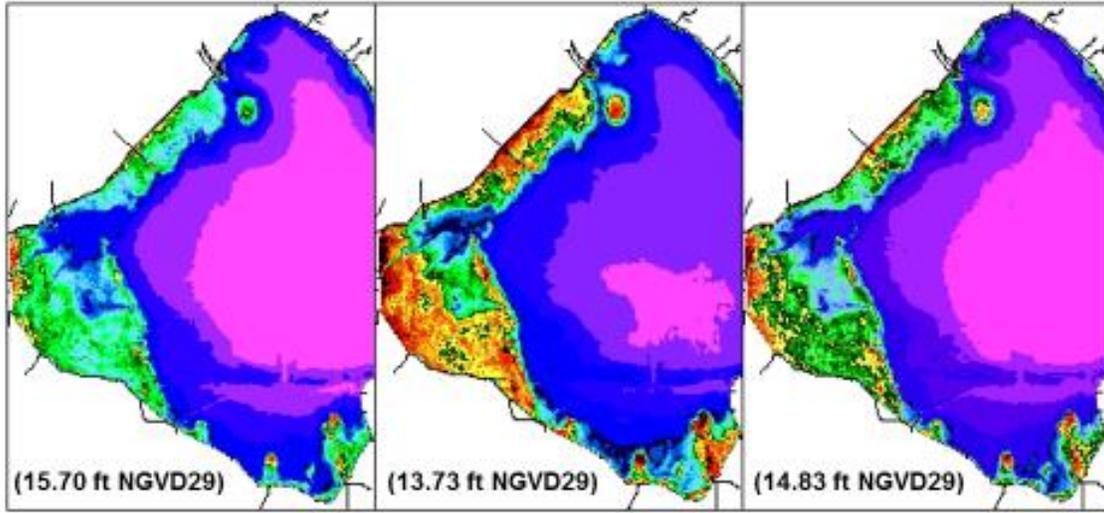
Lake Okeechobee

Water Depth Timeseries Maps

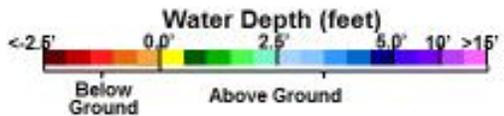
1 Year Ago: 10/12/2014

1 Month Ago: 09/12/2015

Current: 10/12/2015



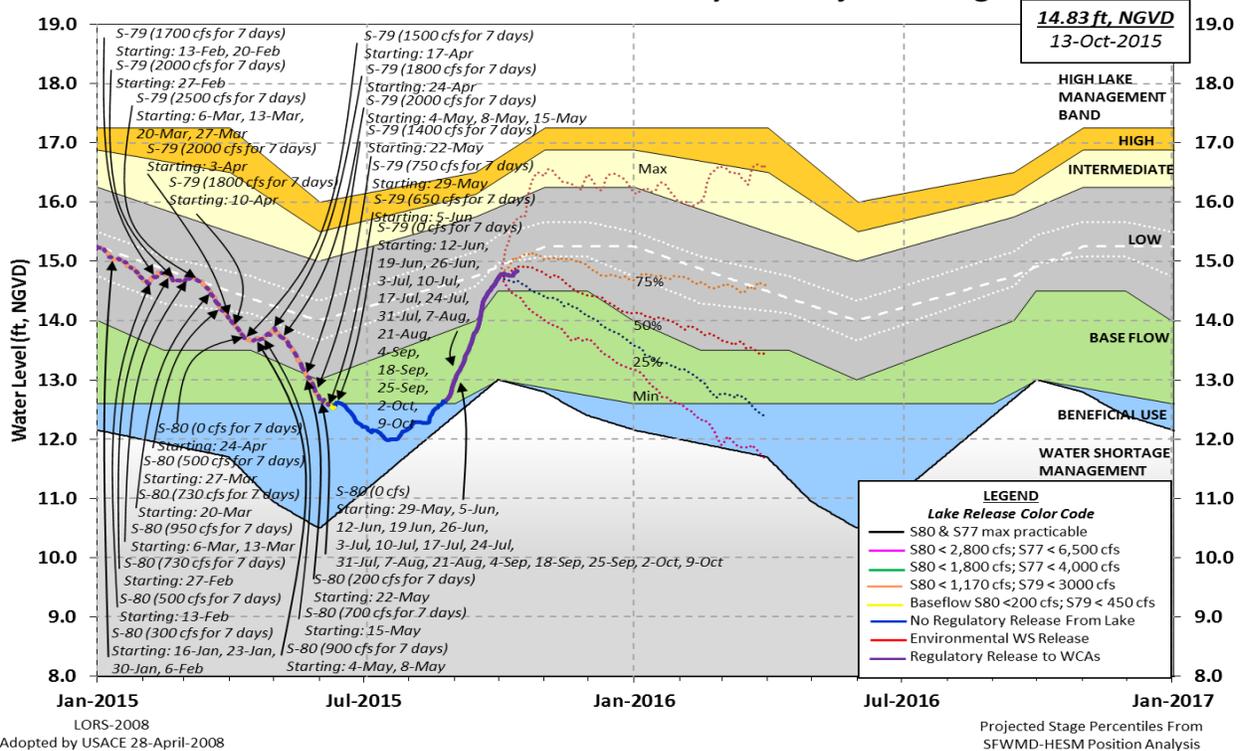
Source of Lake Graphic: Water Depth Assessment Tool (SFWDAT)
 Source of Lake Stage Value: USACE/SFWM Official Stage Value



2

Figure 1

Lake Okeechobee Water Level History and Projected Stages



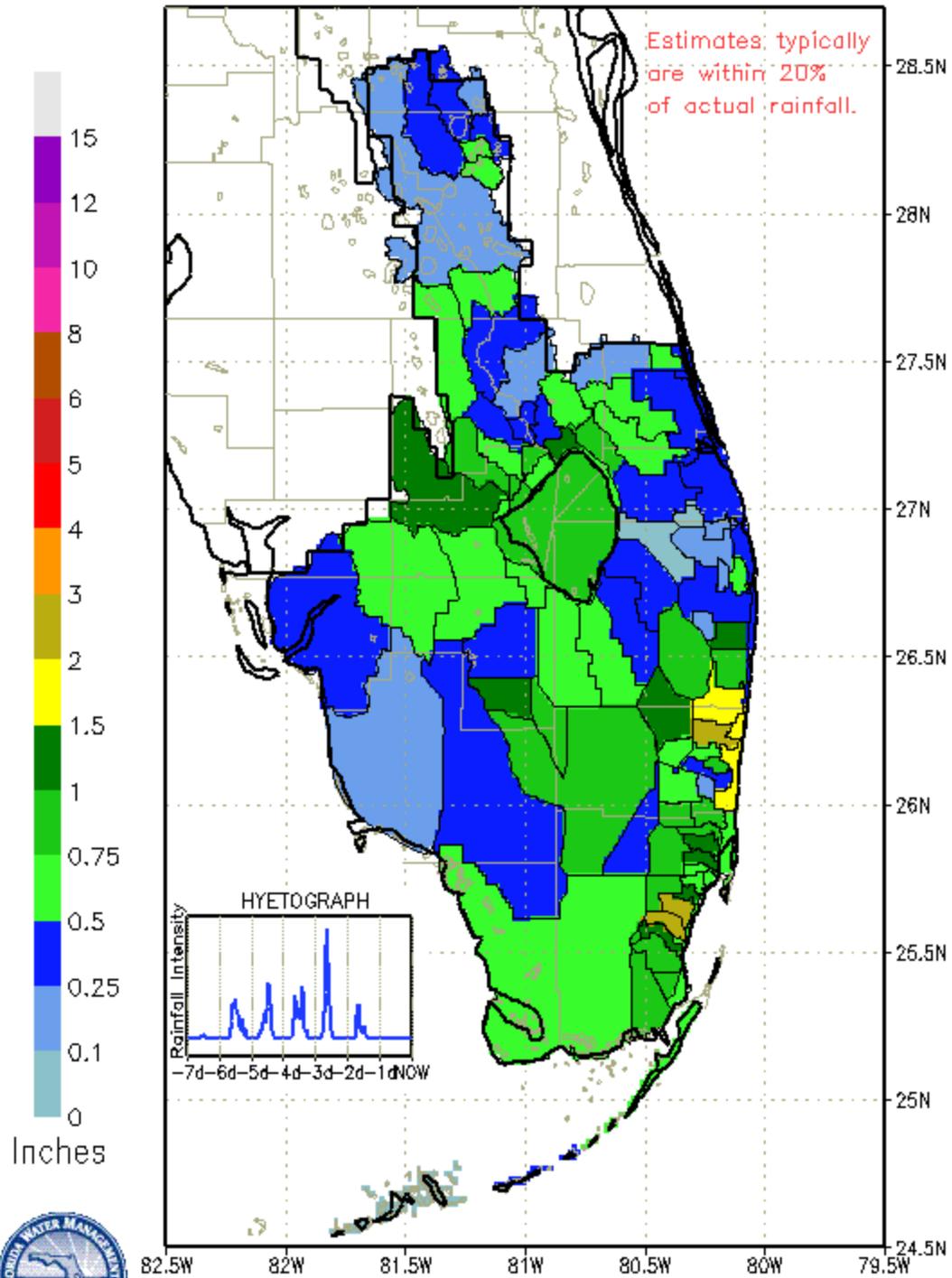
LORS-2008
 Adopted by USACE 28-April-2008

Projected Stage Percentiles From SFWMD-HESM Position Analysis

Figure 2

SFWMD PROVISIONAL RAINFAR 7-DAY BASIN RAINFALL ESTIMATES

FROM: 0530 EST, 10/06/2015 THROUGH: 0530 EST, 10/13/2015



DISTRICT-WIDE RAINFALL ESTIMATE: 0.617"

Figure 3

INFLOWS	Average Daily Flow Past Week cfs	Feet of Change Past Week
S65E	2655	0.088
S71 & 72	85	0.003
S84 & 84X	548	0.018
Fisheating Creek	1411	0.036
Rainfall	N.A.	0.042
OUTFLOWS	Average Daily Flow Past Week cfs	Feet of Change Past Week
S77	0	0.000
S308	0	0.000
S351	762	0.025
S352	846	0.028
S354	886	0.029
L8	317	0.011
ET	2467	0.082

Figure 4

Lake Istokpoga

Lake Istokpoga stage is 39.43 feet NGVD today and is currently 0.02 feet above its regulation schedule (39.41 feet NGVD) which is near its annual rise to high pool stage (Figure 5). Average flows into the Lake from Arbuckle and Josephine creeks were 754 and 119 cfs respectively, a net decrease from last week. Average discharge from S-68 and S-68X this past week was 378 cfs, a significant reduction of almost 70%, compared to the preceding week. According to RAINDAR, 0.75 inches of rain fell in the Lake Istokpoga watershed during the past seven days.

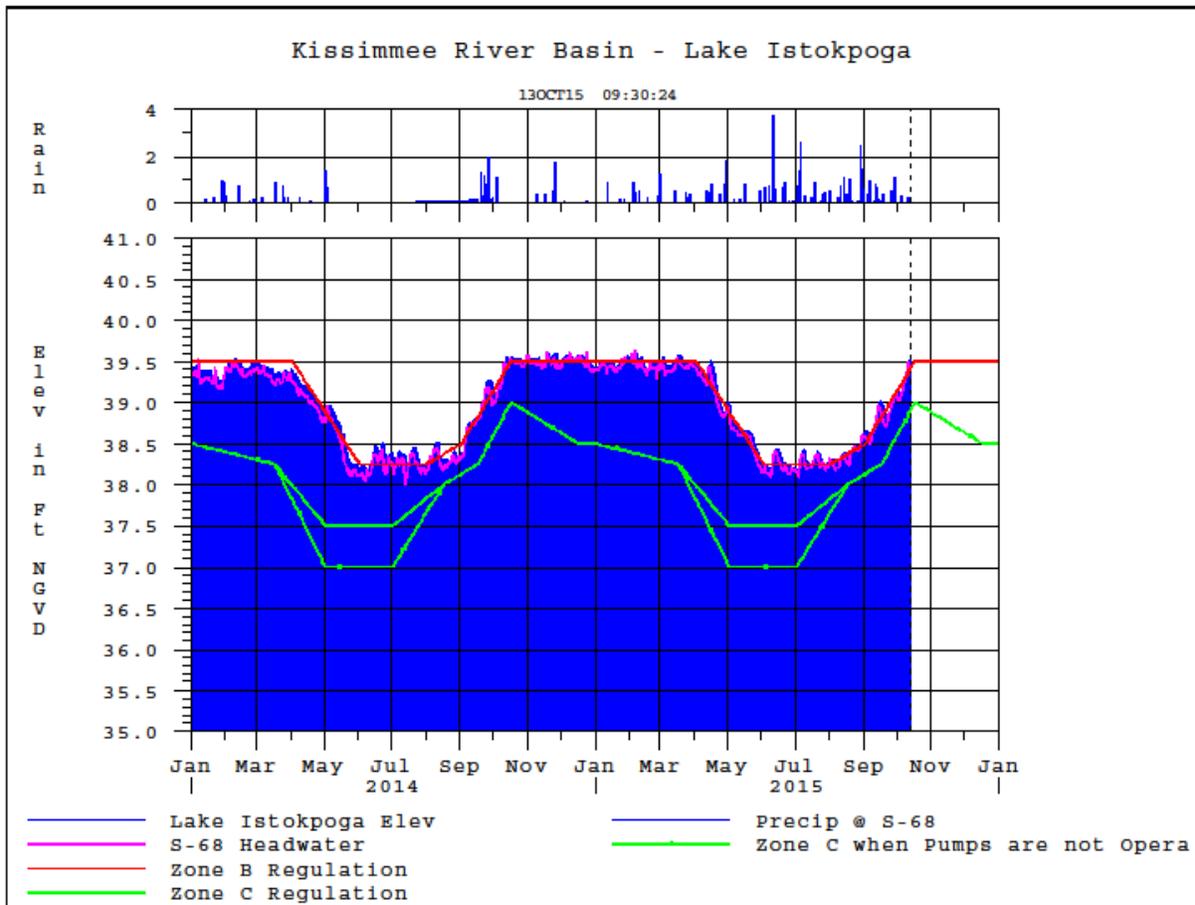


Figure 5

ESTUARIES

St. Lucie Estuary:

Over the past week, provisional flows averaged 244 cfs at S-80, 0 cfs at S-308, 115 cfs at S-49 on C-24, 146 cfs at S-97 on C-23, and 120 cfs from Ten Mile Creek at the Gordy Road Structure. Average inflow from tidal basin tributaries is estimated to be 195 cfs (Figures 1 and 2). Total inflow averaged about 821 cfs last week and 1949 cfs over last month.

Over the past week, salinity increased throughout the estuary (Table 1, Figures 3 and 4). The seven-day moving average salinity of the water column at the US1 Bridge is 16.3. Salinity conditions in the middle estuary remain the good range for the adult eastern oyster.

Table 1. Seven-day average salinity at three monitoring stations 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 (N. Fork)	10.6 (4.9)	15.7 (10.3)	NA ¹
US1 Bridge	14.3 (9.6)	18.5 (14.0)	10.0-26.0
A1A Bridge	21.4 (17.2)	26.9 (24.9)	NA

¹Envelope not applicable

Caloosahatchee Estuary:

During the past week, provisional flows averaged approximately 0 cfs at S-77, 83 cfs at S-78, and 693 cfs at S-79. Average inflow from tidal basin tributaries is estimated to be 1034 cfs (Figures 5 and 6). Total inflow averaged 1727 cfs last week and 4314 cfs over last month.

Over the past week, salinity remain the same in the upper estuary but increased in the lower estuary (Table 2, Figures 7 and 8). The seven-day average salinity values are within the good range for oysters at Shell Point and Sanibel, but within the poor range at Cape Coral (Figure 9). The 30-day moving average surface salinity is 0.2 at Val I-75 and 0.3 at Ft. Myers. Salinity conditions at Val I-75 are in the good range for tape grass.

Table 2. 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	0.6 (0.2)	0.8 (0.2)	NA
Cape Coral	4.7 (3.1)	6.9 (3.8)	10.0-30.0
Shell Point	19.2 (15.7)	22.0 ** (17.6)	10.0-30.0
Sanibel	28.1 (24.8)	29.4 (27.0)	10.0-30.0

¹Envelope not applicable, ²Envelope is based on a 30-day average.

*Val I75 is temporarily offline due to bridge construction.

Salinity values are estimated using models developed for the site.

** Bottom salinity at Shell Point were not available on October 11 and 12, 2015 due to a technical problem.

Monitoring data collected by the River, Estuary and Coastal Observing Network of Sanibel-Captiva Conservation Foundation using continuous sensors are summarized in Table 3 as concentration ranges of Chlorophyll *a* and dissolved oxygen at Beautiful Island, Ft. Myers, and Shell Point in the Caloosahatchee Estuary.

Table 3. Weekly ranges of Chlorophyll *a* (a measure of algal biomass) and dissolved oxygen concentrations at three monitoring stations maintained by the Sanibel-Captiva Conservation Foundation.

	RECON Monitoring Stations		
	Beautiful Island	Ft. Myers	Shell Point
Chlorophyll <i>a</i> (µg/l)	NA	NA	2.8 – 6.0
Dissolved Oxygen (mg/l)	NA	NA	6.5 – 7.4

The Florida Fish and Wildlife Research Institute reported on October 9, 2015, that blooms of *Karenia brevis*, the Florida red tide organism, are present along and offshore of Bay and Gulf counties in northwest Florida, and along and offshore of Manatee, Sarasota, and northern Charlotte counties in Southwest Florida. Background to high concentrations of *K. brevis* were detected in 12 samples collected in and alongshore of Bay, Gulf, and Franklin counties, and background concentrations were detected in one sample collected offshore of Levy County. In addition, *K. brevis* has been detected in background to low concentrations in 26 samples collected in, along, and offshore of Manatee, Sarasota, Charlotte, and Lee counties. Within the Gulf of Mexico, *Karenia brevis* was not detected in or alongshore of Escambia, Okaloosa, Walton, Wakulla, Pinellas, or Collier counties. No samples have been analyzed so far this week from Santa Rosa, Jefferson, Taylor, Dixie, Citrus, Hernando, Pasco, or

Monroe counties. Extensive fish kills have been reported at Mexico Beach (Bay County) in Northwest Florida. Respiratory irritation has not been recently reported, but is possible in bloom areas.

Water Management Recommendations

Lake Okeechobee's water level is within the Low Operational Sub-band; the tributary hydrological conditions are Wet; and the seasonal and multi-seasonal forecasts are Very Wet and Wet, respectively. The Lake Okeechobee Regulation Schedule (LORS) recommends up to 3000 cfs at S-79 and 1170 cfs at S-80.

Currently, the USACE is not releasing water from Lake Okeechobee to the Caloosahatchee and St. Lucie estuaries. Considering the subsided watershed runoff, current lake level, and the upcoming wetter than normal dry season under the influence of a strong El Nino, pulse releases averaging 200~500 cfs at S-80 and 650~1200 cfs at S-79 under LORS guidance are suggested to transition into future conditions. The releases should be conducted in a pulse pattern to mitigate potential stratification and phytoplankton accumulation in the water column. Suggested pulse schedules are given below in Table 4.

Table 4. Schedules for 7-day pulse releases at S-80 and S-79

7-day pulses at S-80								
Day	200 cfs	300 cfs	400 cfs	500 cfs	650 cfs	800 cfs	950 cfs	1170 cfs
1	200	300	400	500	650	800	950	1290
2	600	700	800	900	1100	1200	1400	1800
3	300	500	650	800	900	1100	1200	1500
4	200	300	450	600	800	900	1100	1300
5	100	200	300	400	600	700	900	1000
6	0	100	200	300	400	600	700	800
7	0	0	0	0	100	300	400	500
7-day pulses at S-79								
Day	650 cfs	800 cfs	1000 cfs	1200 cfs	1500 cfs	2000 cfs	2600 cfs	3000 cfs
1	1150	1300	1500	1700	2000	2500	3100	3500
2	1400	1700	1900	2100	2400	3100	3900	4300
3	900	1100	1600	1800	2100	2600	3400	3800
4	600	700	900	1100	1400	1900	2500	2900
5	400	500	700	900	1200	1700	2300	2700
6	100	300	400	600	900	1400	2000	2400
7	0	0	0	200	500	800	1000	1400

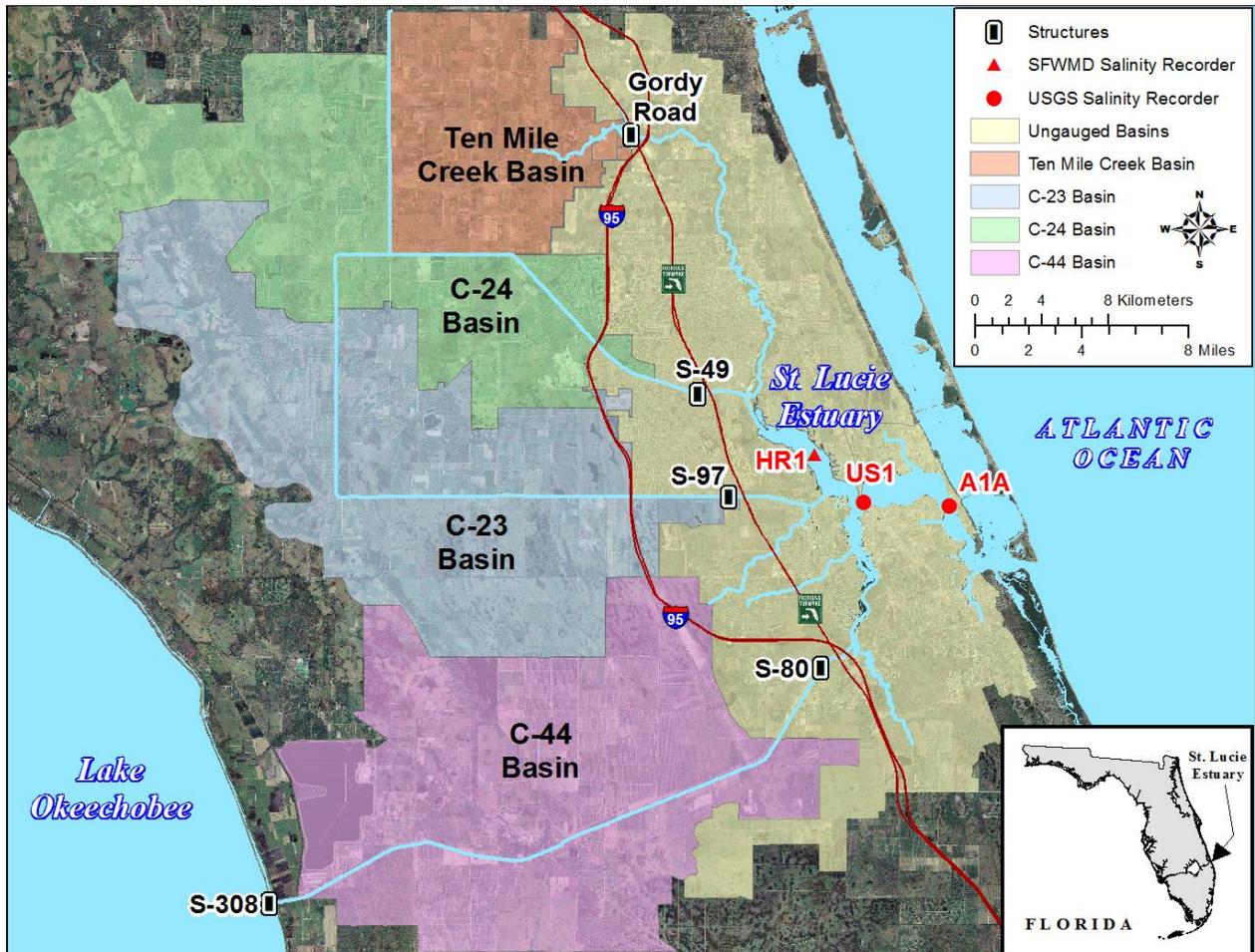


Figure 1. Basins, water control structures, and salinity monitoring for the St. Lucie Estuary.

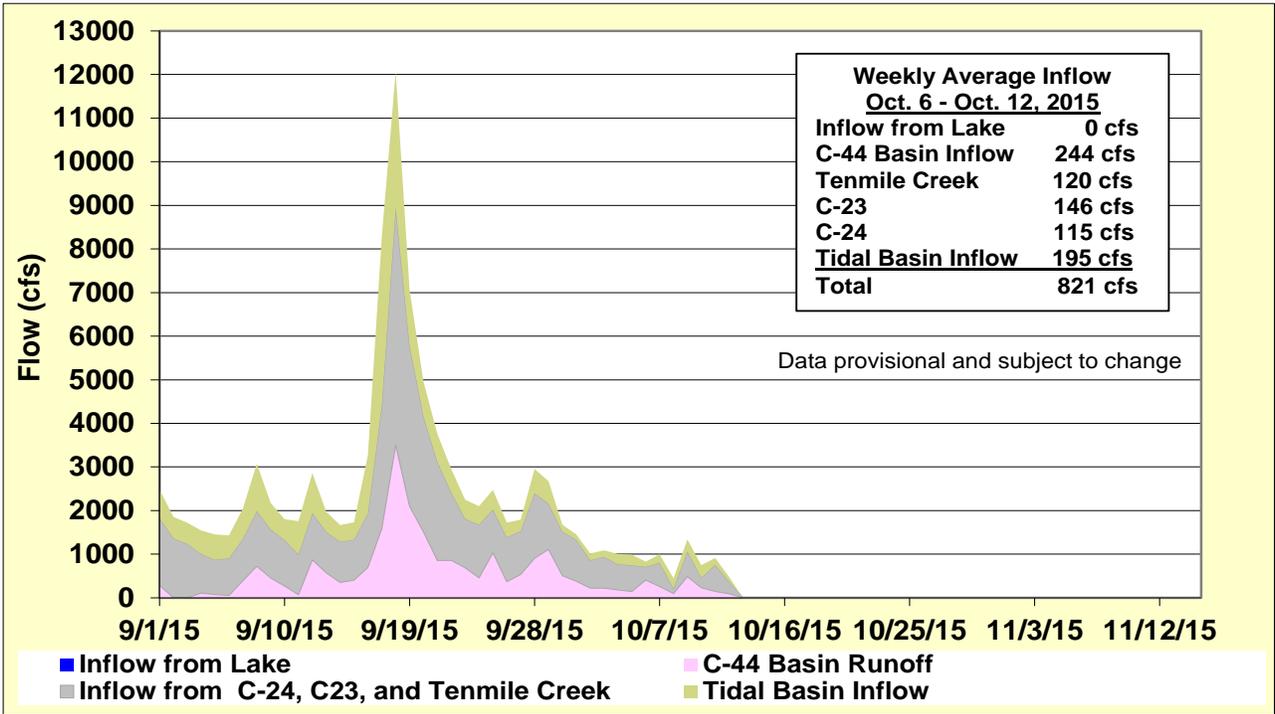


Figure 2. Estimated surface freshwater inflows from Lake Okeechobee and runoff from the C-44, C-23, C-24, Ten Mile Creek, and tidal basins into the St. Lucie Estuary.

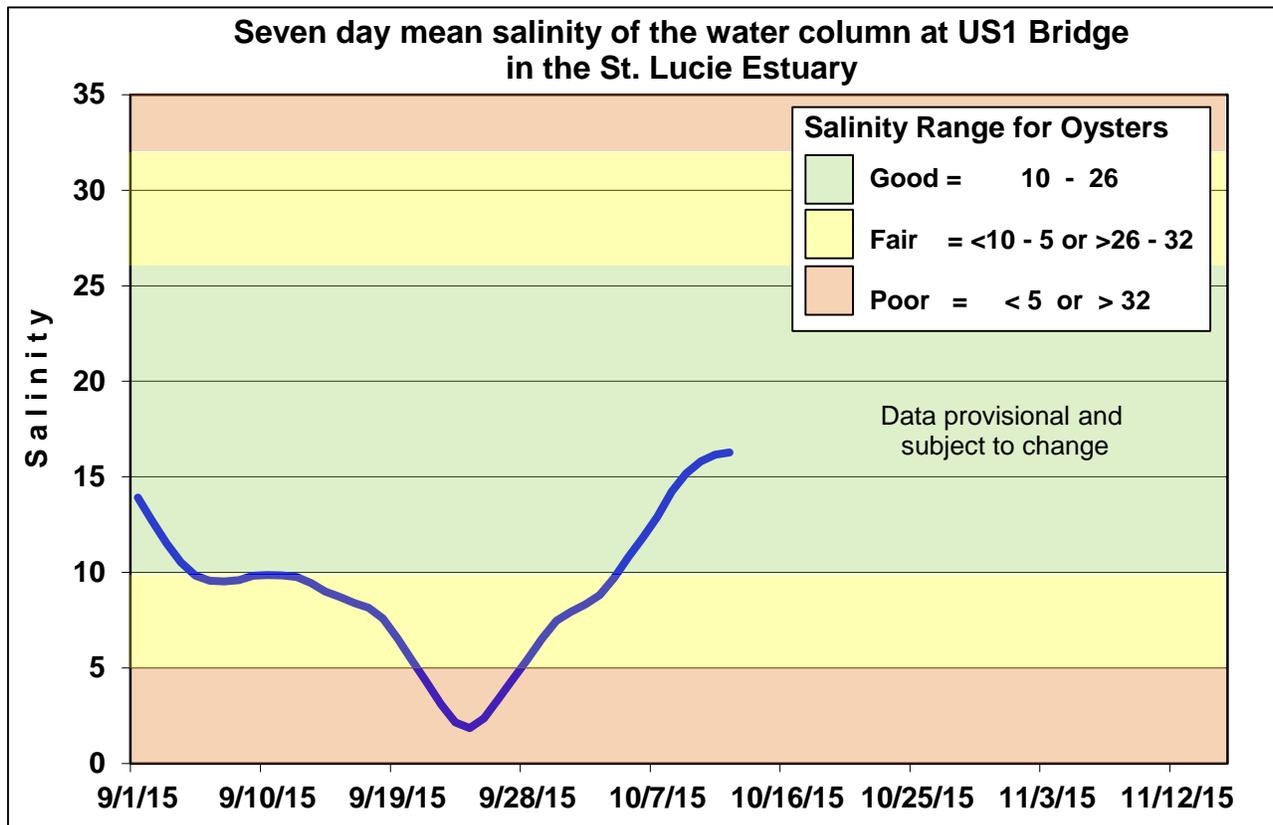


Figure 3. Seven-day mean salinity of the water column at the U.S. Highway 1 Bridge.

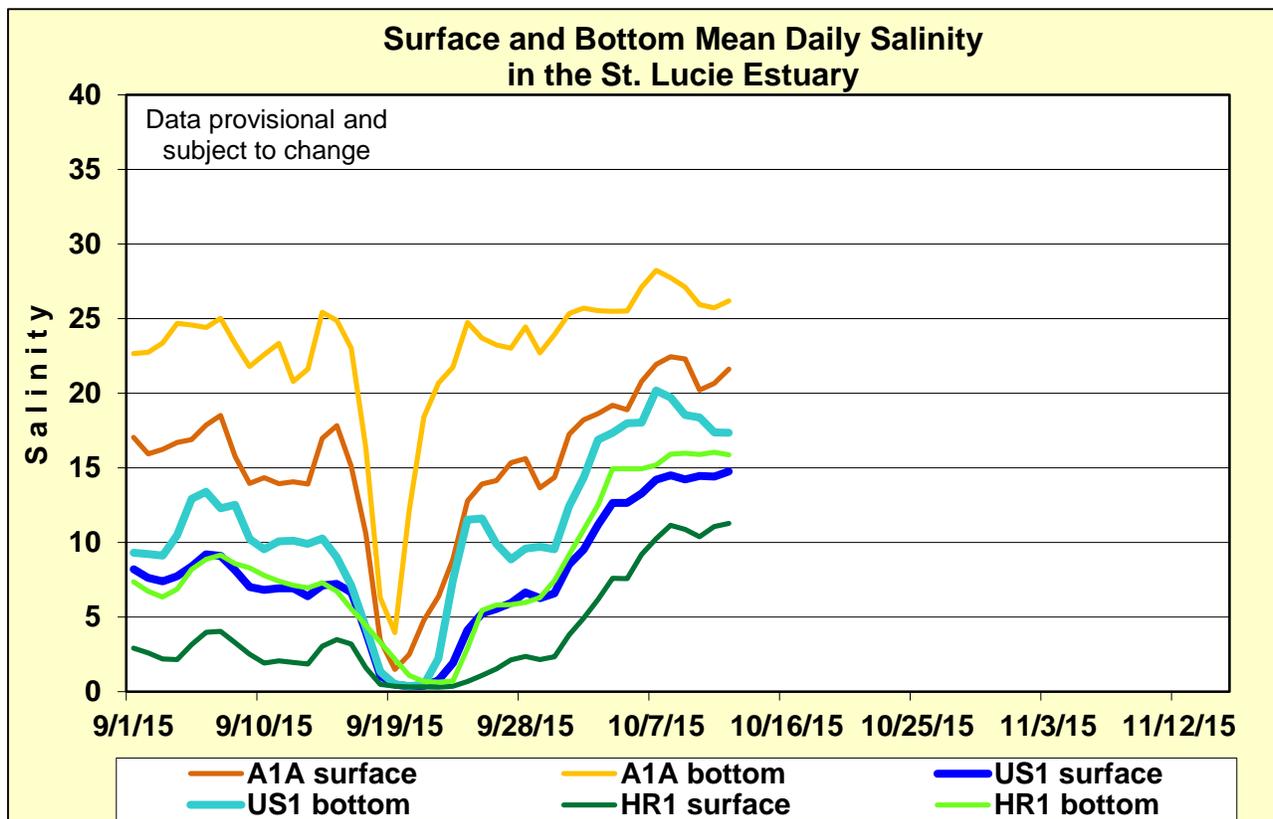


Figure 4. Daily mean salinity at the A1A, US1 and estimated HR1 stations.

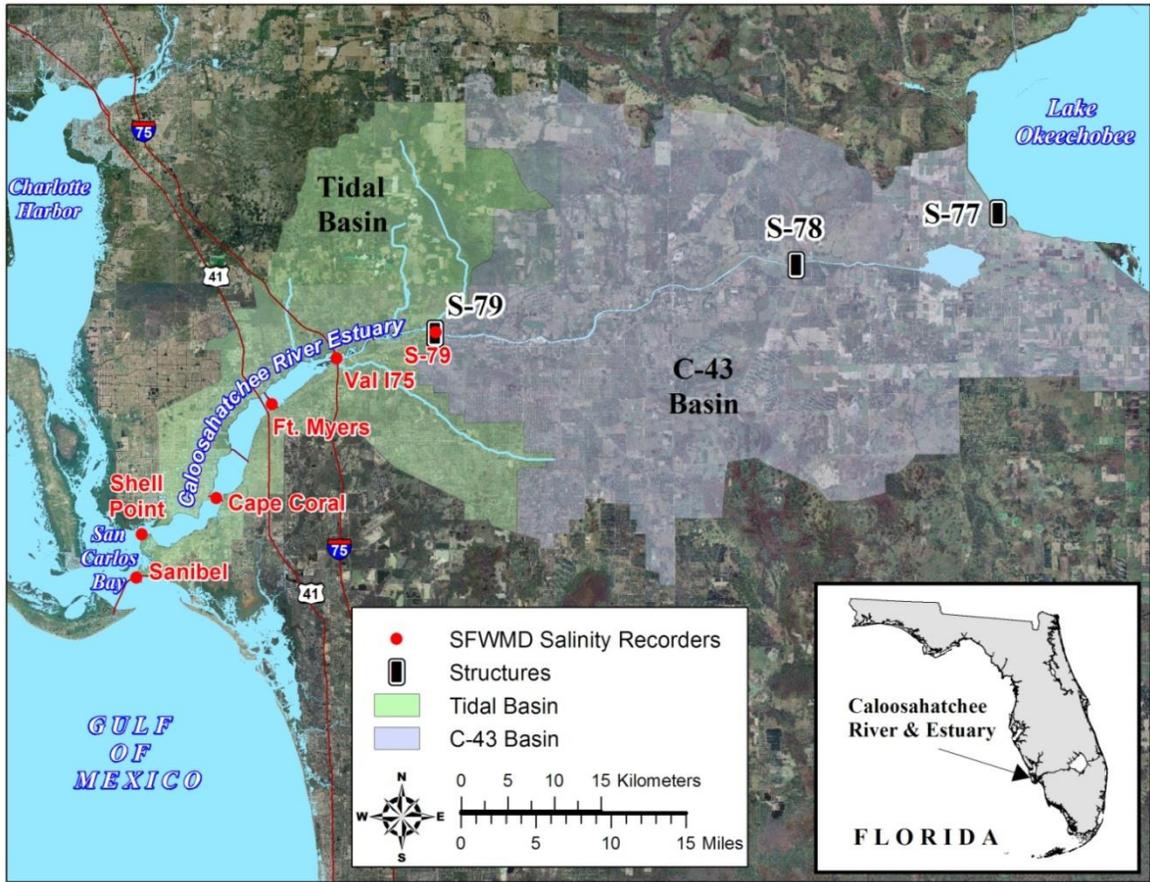


Figure 5. Basins, water control structures, and salinity monitoring for the Caloosahatchee Estuary.

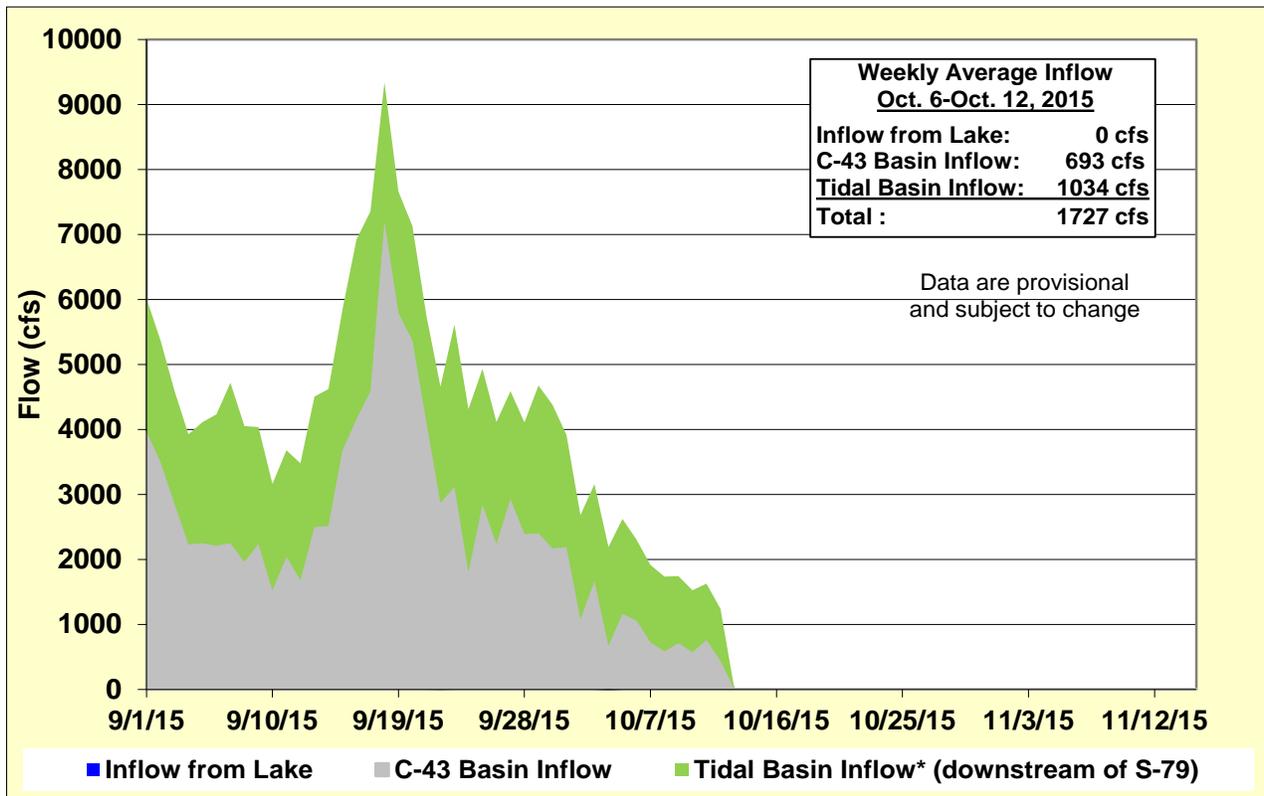


Figure 6. Surface freshwater inflows from Lake Okeechobee, runoff from the C-43 basin, and tributaries in the tidal basin into the Caloosahatchee River Estuary.

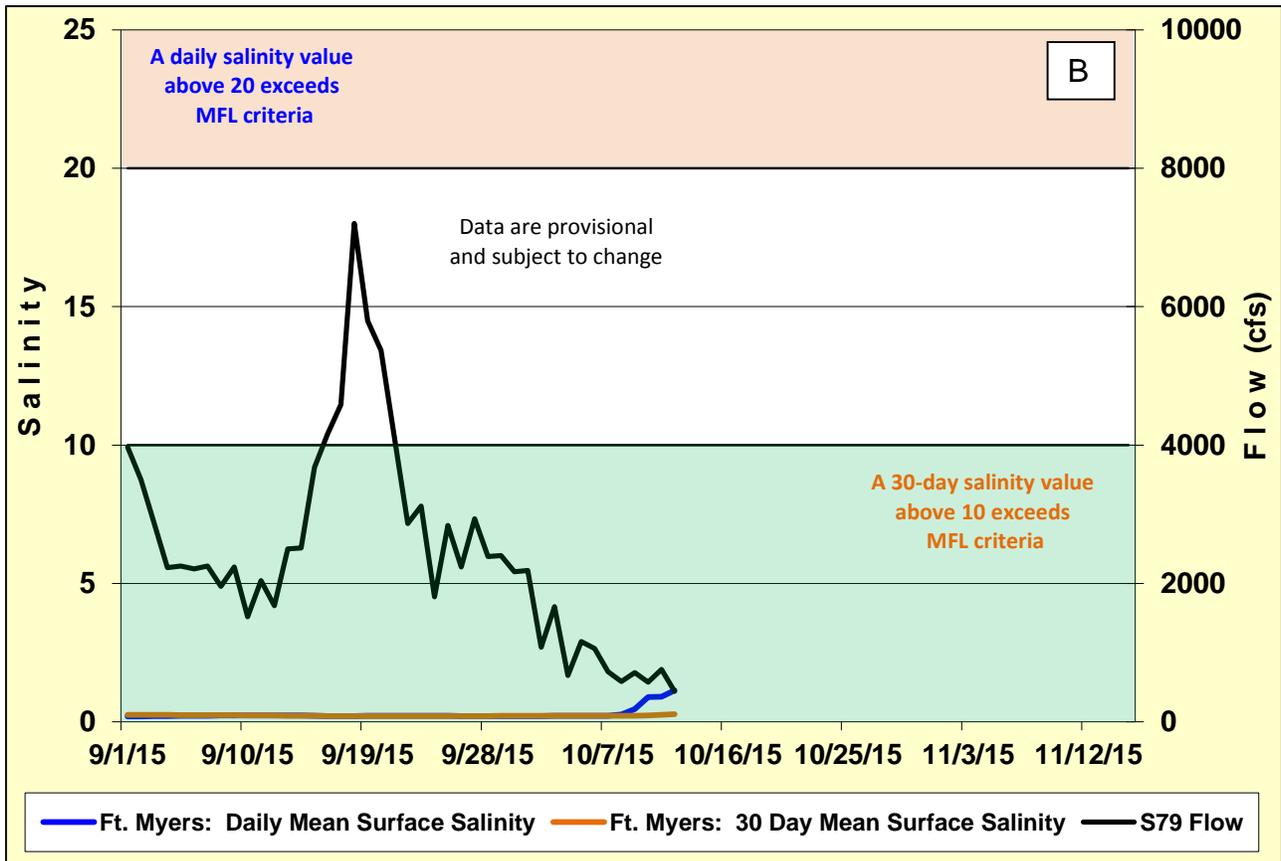
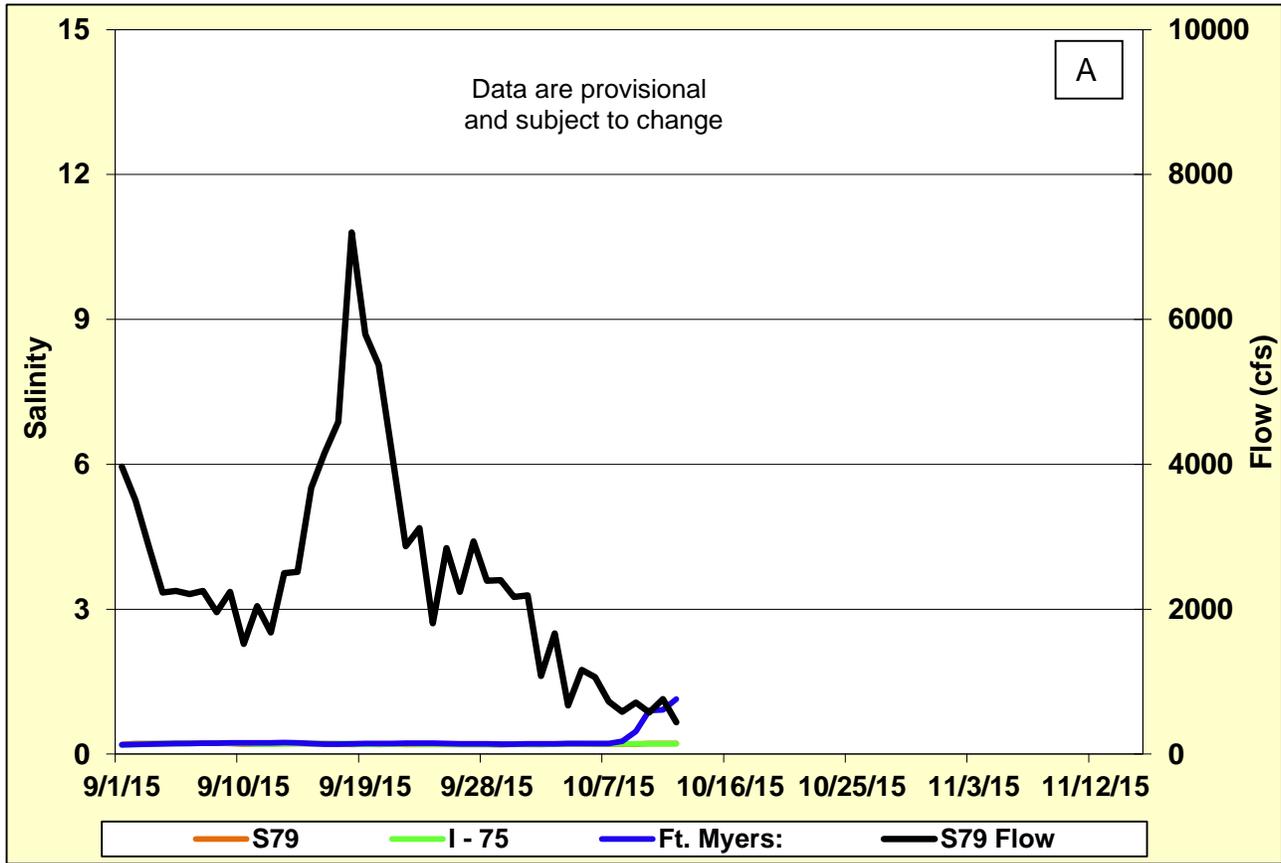


Figure 7. Daily mean flows at S-79 and salinity at upper estuary monitoring stations (A) and 30-day moving average salinity at Ft. Myers (B).

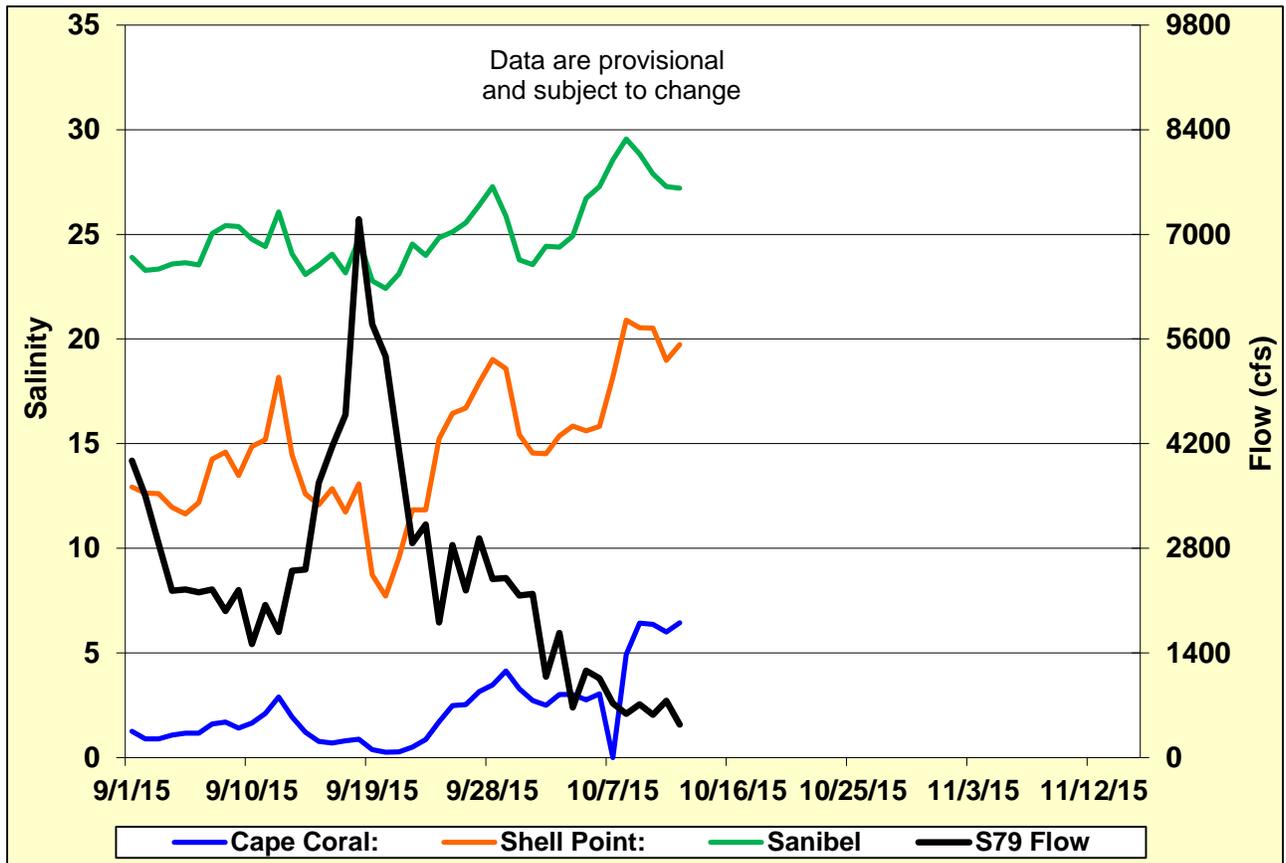


Figure 8. Daily mean flows at S-79 and salinity at lower estuary stations.

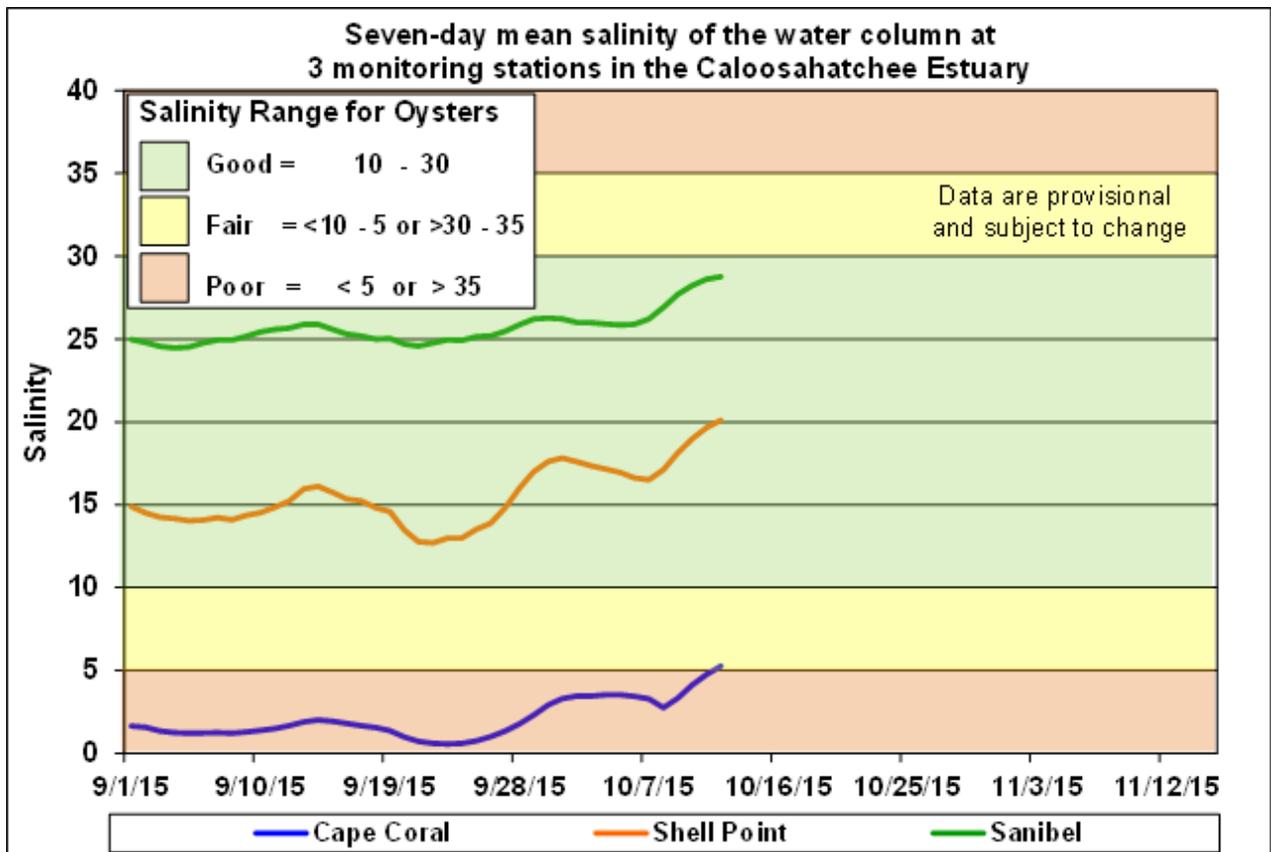


Figure 9. Seven-day mean salinity at Cape Coral Bridge, Shell Point and Sanibel Bridge monitoring stations.

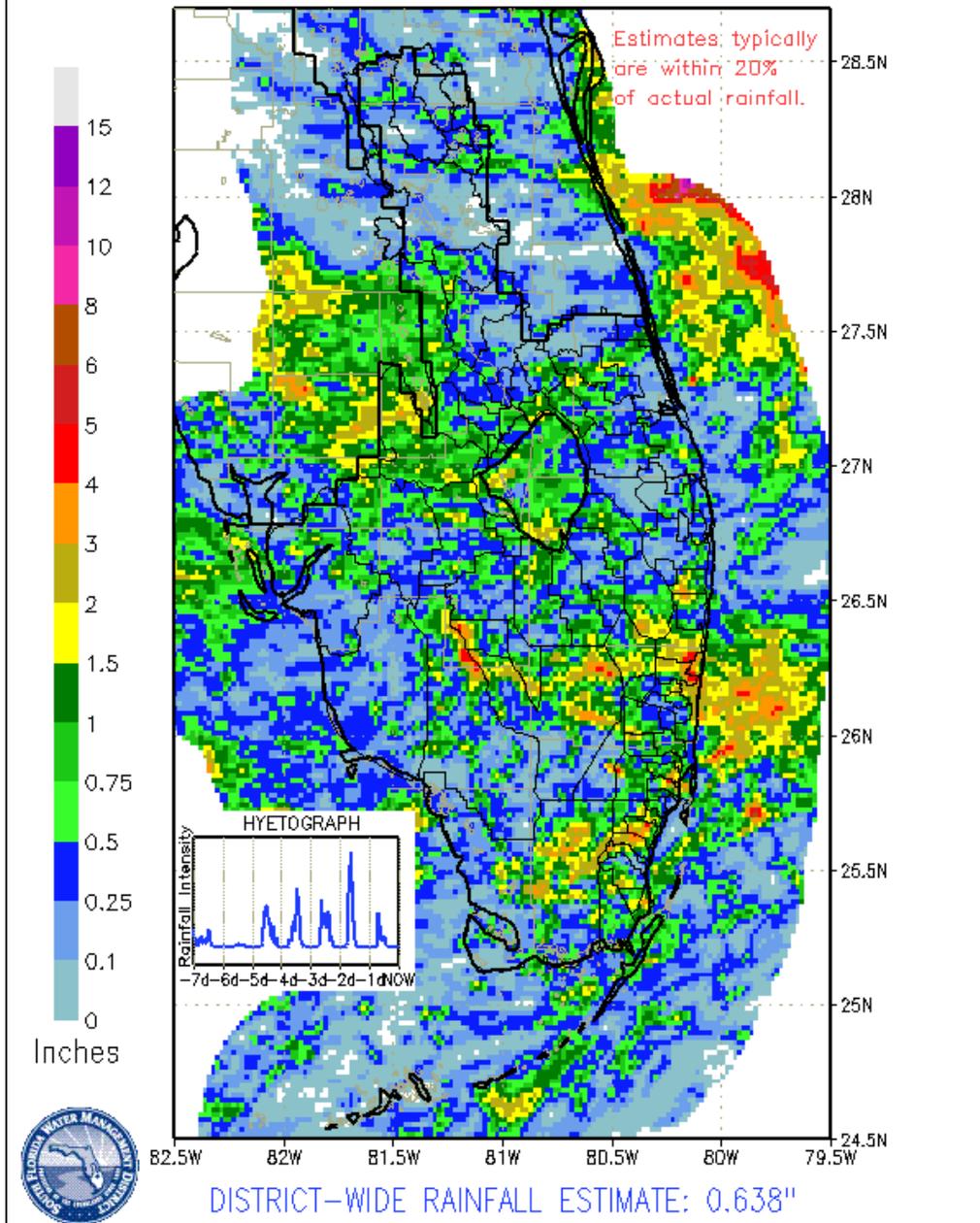
GREATER EVERGLADES

Rainfall was light with basin averages generally below an inch. The local basin maximum rainfall was 4.45 inches in northern WCA-3A. Basin-wide stage changes were slightly higher than last week and ranged from -0.06 feet to 0.09 feet. Pan evaporation remains close to the 1.21 inch pre-project average.

Everglades Region	Rainfall (Inches)	Stage Change (feet)
WCA-1	0.92	0.09
WCA-2A	1.18	-0.06
WCA-2B	0.74	-0.05
WCA-3A	1.01	0.07
WCA-3B	0.42	0.01
ENP	0.70	0.07

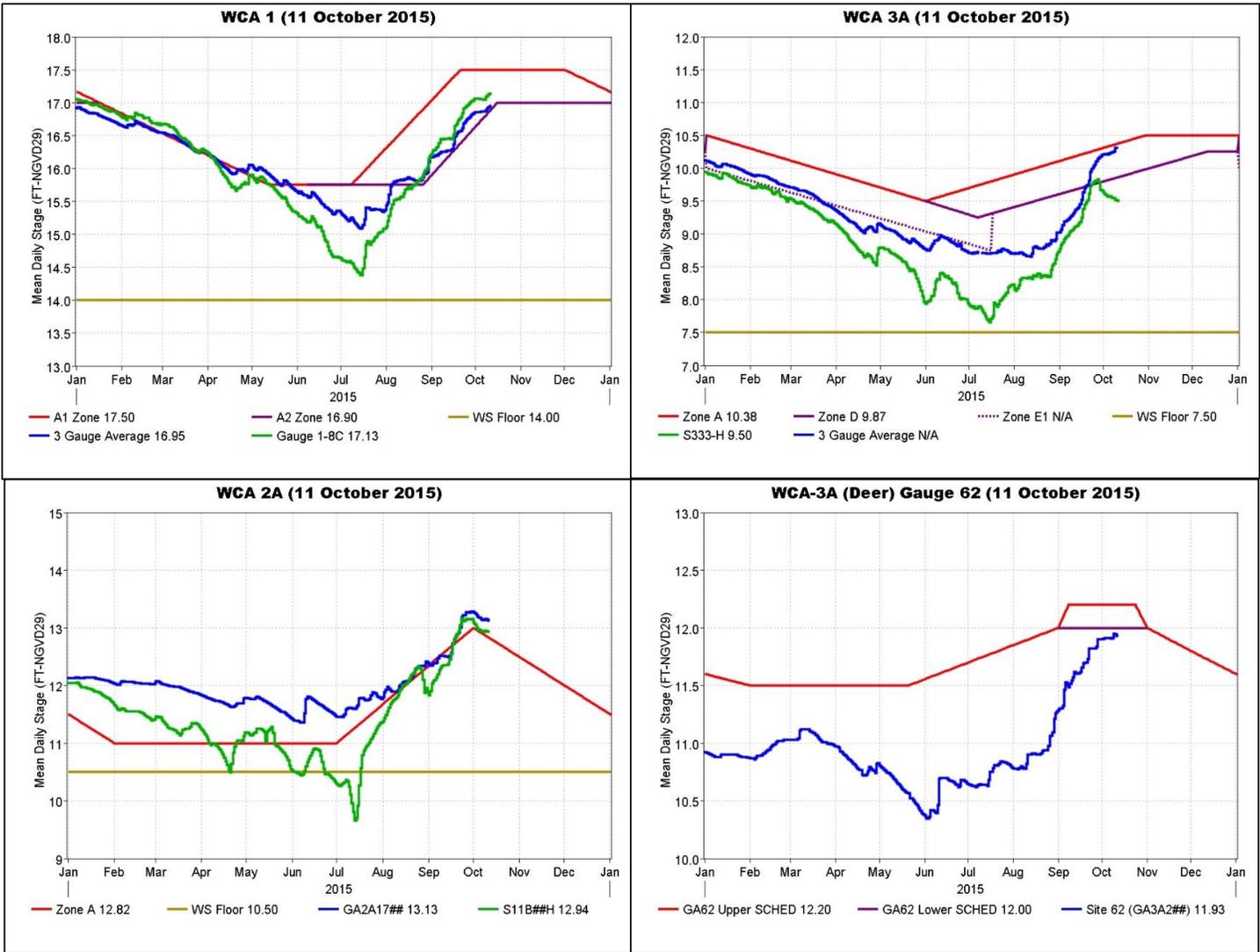
SFWM D PROVISIONAL RAINDAR 7-DAY RAINFALL ESTIMATES

FROM: 0530 EST, 10/05/2015 THROUGH: 0530 EST, 10/12/2015



Regulation Schedules

Stages rose at most regulation schedule sites last week. In WCA-1, the three gauge average wetlands stage is 0.55 feet below regulation and slightly above Zone A2 line. The WCA-2A stage is 0.31 feet above regulation. In WCA-3A, stages are in Zone D and 0.06 feet below regulation. The water level at the northwestern WCA-3A gauge stage (gauge 62) is 0.07 feet below the lower regulation schedule.



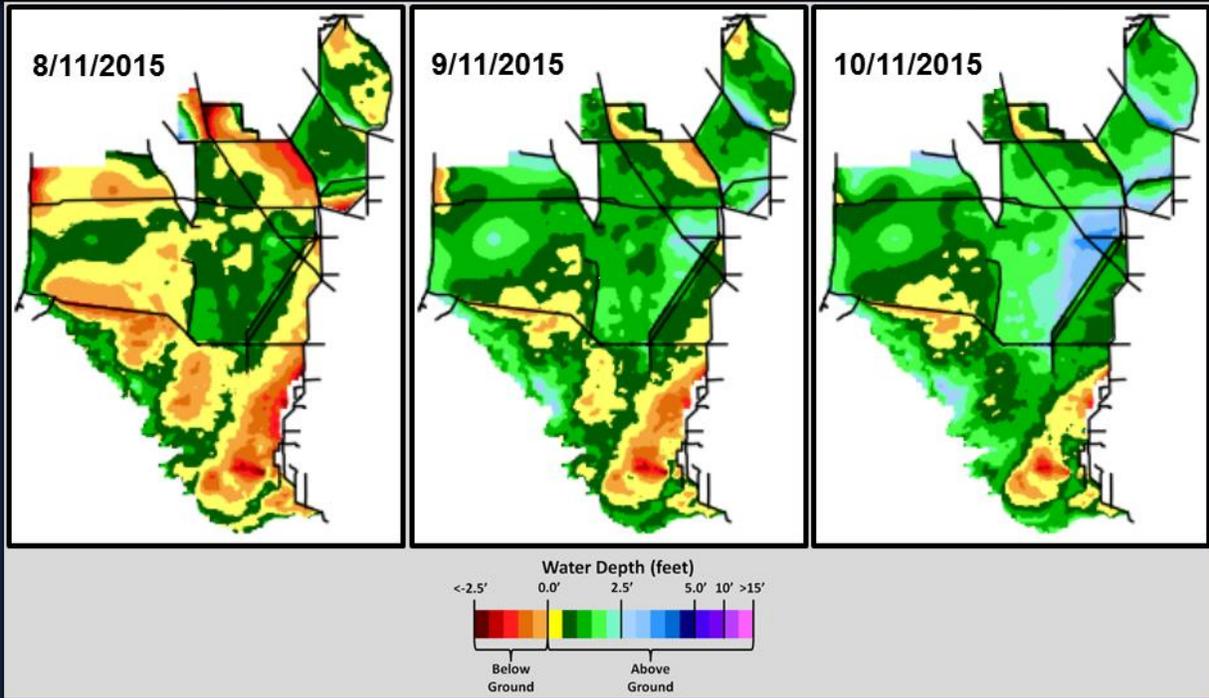
Water Depths and Changes

Water levels are well above those one and two months ago. Most areas are inundated except those at higher elevations (parts of Everglades National Park {ENP} and Holey Land Wildlife Management Area). Water depths at the monitored gauges range from 1.09 feet (WCA-3B) to 3.30 feet (WCA-2B).

Stages are mixed relative to a week ago and over 1.5 feet higher than a month ago. Compared to a year ago, however, stage differences remain lower (1.0 feet or more) than in 2014 in some areas and up to 1.5 feet higher in ENP. Stage gauge changes last week ranged from -0.06 feet to 0.26 feet.



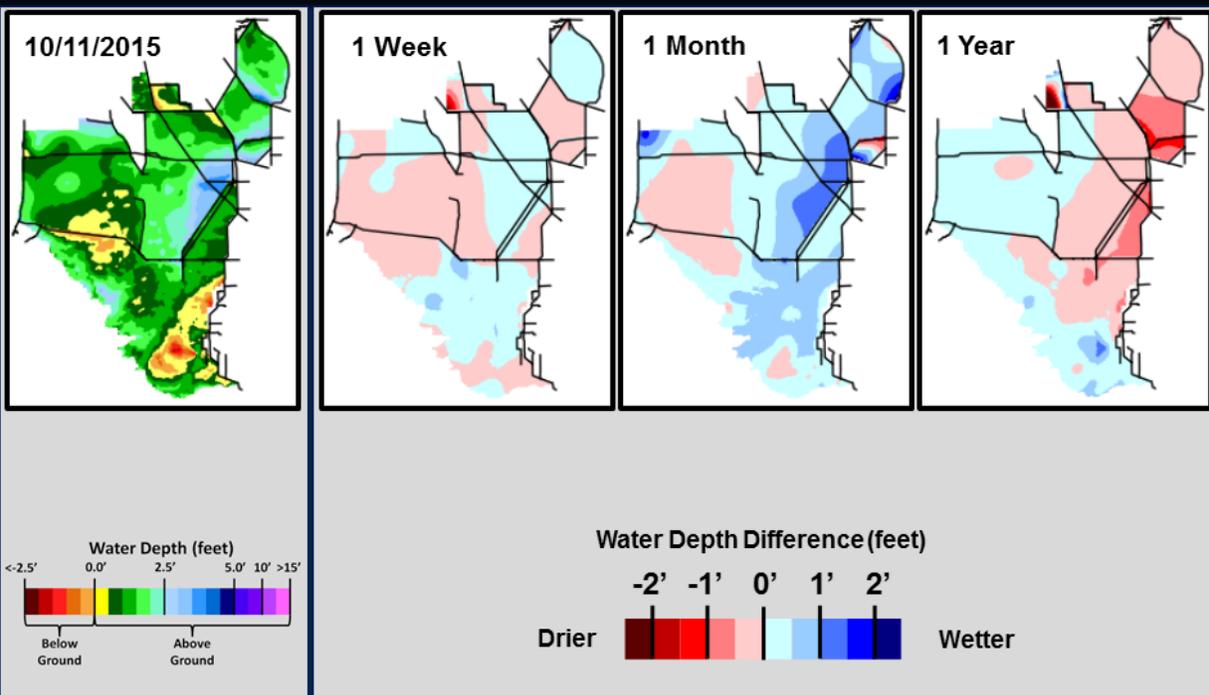
SFWDAT Water Depth Monthly Snapshots



South Florida Water Depth Assessment Tool (SFWDAT)



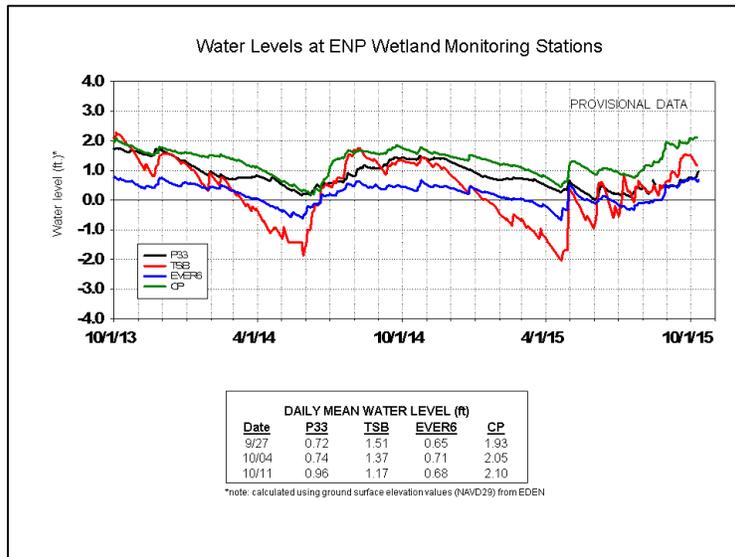
SFWDAT Everglades Difference Maps (Present - Past)



South Florida Water Depth Assessment Tool (SFWDAT)

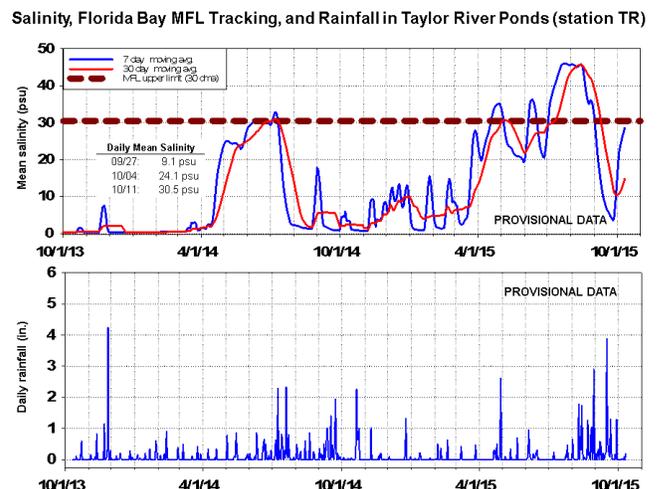
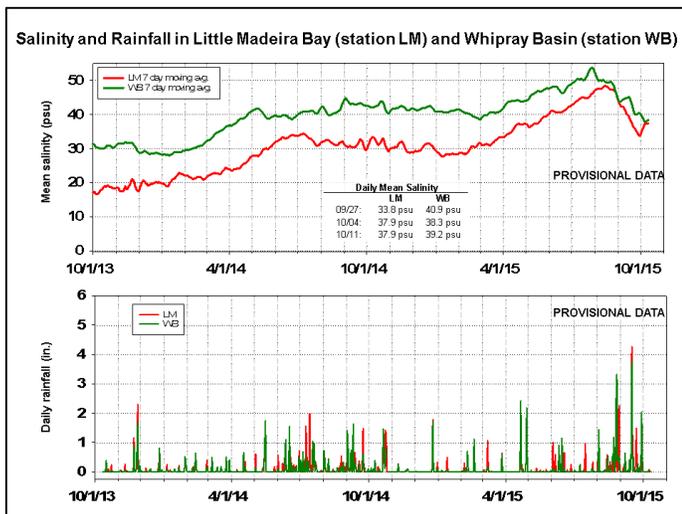
Everglades National Park (ENP) and Florida Bay

Water levels are still higher than a month ago in Taylor Slough and the ENP panhandle. Water levels in Taylor Slough are decreasing, but two gauges in northern and southwestern Taylor Slough stopped reporting on Friday. The stage in northern Taylor Slough remains six inches below average and in southern Taylor Slough remains about average.

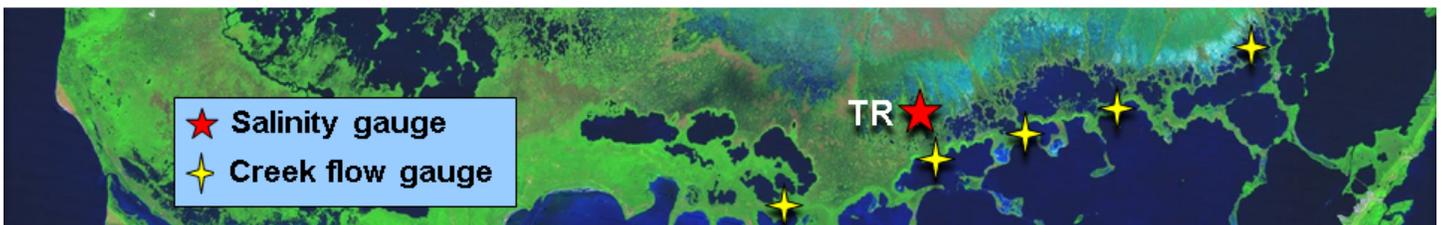
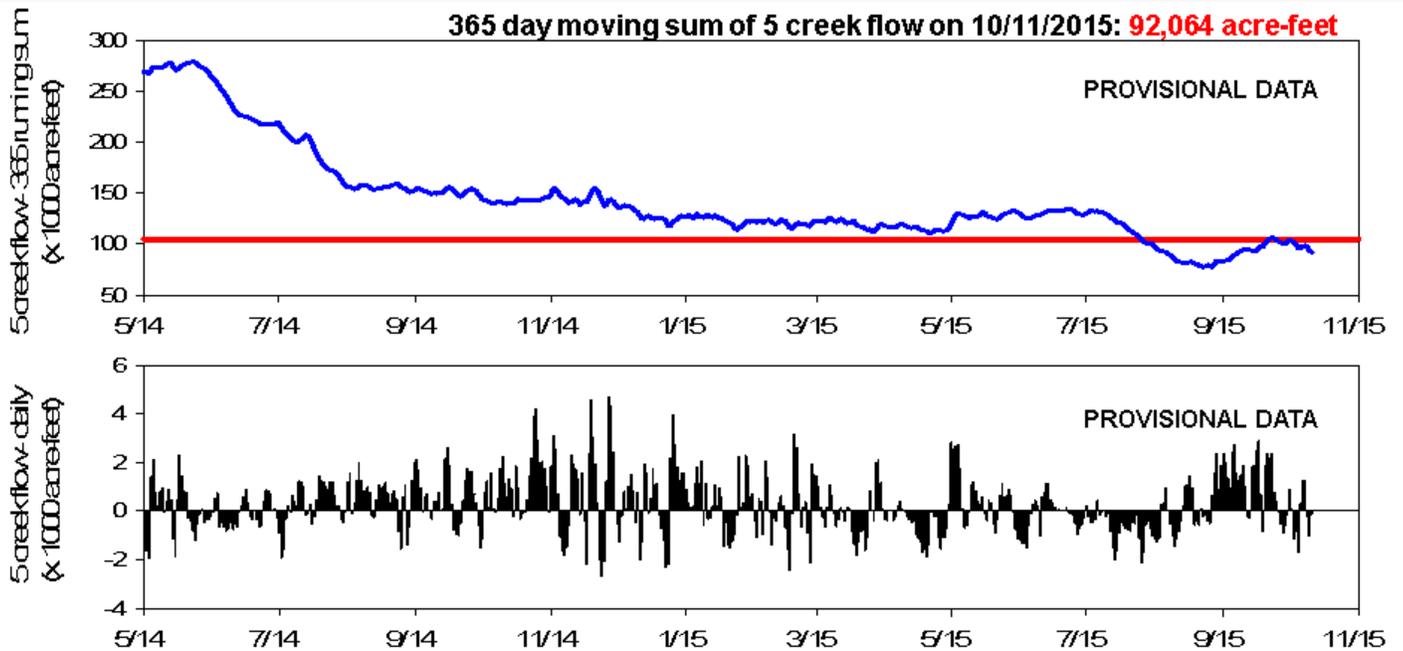


Salinities in Florida Bay were stable last week with changes less than one psu. Salinities in Florida Bay are now seven to 21 psu above average for this time of year. The daily average salinity at the MFL sentinel site of TR increased another 6.4 psu over the past week to reach 30.5 psu (one psu or less is typical for this time of year). The 30-day moving average salinity increased to 14.7 psu, higher than last week but still below the 30 psu MFL criterion.

The 365-day running sum of the cumulative flow from the five creeks flowing into Florida Bay was 92,064 acre-feet, remaining below the 105,000 acre-feet criterion. Daily differences in the 365-day running sum represent the difference between current daily flow and flow a year ago. Cumulative flow from the five creeks for the last week (Oct. 5-11) was negative at -280 acre-feet, but it was less negative than the previous week's flow of -2,688 acre-feet. Creek flow data are provisional.



5 Creek Cumulative Flow and Florida Bay MFL Flow Criteria Tracking



Water Management Recommendations

- We recommend moving as much water south into ENP as possible.

Site-specific recommendations appear in the summary table below. The red text represents new or modified information or recommendations.

Summary of Everglades Recommendations, October 12, 2015 (SFWMD) (red is new text)

Area	Current Condition	Cause(s)	Recommendation	Reasons
WCA-1	Stages increased from 0.08' to 0.09'	Rainfall, ET, management	Target rainfall driven wetland stages at the top of Zone A2. Recommend ascension rates up to 0.25 ft/wk, or 0.5 ft/14 days.	Promote native habitat and maintain wetland plant communities. Moderate ascension rates to protect habitats and sensitive species and to take advantage of rain events.
WCA-2A	Stage decreased -0.06'	Rainfall, ET, management	Recommend ascension rates up to 0.25 ft/wk, or 0.5 ft/14 days. High season target stage of 13 ft NGVD at 2-17 on Oct 1 (13.12' on 10/12)	Promote native habitat and maintain wetland plant communities. Moderate ascension rates to protect habitats and sensitive species and to take advantage of rain events.
WCA-2B	Stage decreased -0.05' to -0.06'	Rainfall, ET, management	Water inflow normally flowing into WCA-2B should cease because of the presence of high numbers of apple snail egg clusters. Water should be routed instead into northern WCA-3A.	High stages preclude wading bird use, but provide good habitat for ducks.
WCA-3A NE	Stage increased 0.26'	Rainfall, ET, management	Water levels in northeastern WCA-3A are now above ground. Continuing releases into far northeastern 3A are optional now, but can continue as desired. Average water stage of gauges 62 and 63 should remain under 11.60 feet (11.38' on 10/12) for terrestrial wildlife. Recommend ascension rates up to 0.25 ft/wk, or 0.5 ft/14 days maximum.	Promote native habitat and maintain wetland plant communities. Moderate ascension rates to protect habitats and sensitive species in 3A, and also to allow taking advantage of rain events.
WCA-3A NW	Stage unchanged.	Rainfall, ET, management		
Central WCA-3A S	Stage increased 0.08'	Rainfall, ET, management	Move water into WCA-3A as much as possible. Season's dry conditions are improving, but eat and prey populations need higher water levels for the upcoming dry season conditions. Wet season target is 10.67 3AVG by Oct 30 (10.32' on 10/12). Recommend ascension rates up to 0.25 ft/wk, or 0.5 ft/14 days.	Promote native habitat and maintain wetland plant communities. Moderate ascension rates to protect habitats and sensitive species in 3A, and take advantage of rain events. Avoid or minimize discharge through S-12A and S-12B through at least August 15 and as long as possible to benefit Cape Sable seaside sparrow nesting and habitat conditions.
Southern WCA-3A S	Stage decreased -0.06'	Rainfall, ET, management		
WCA-3B	Stages changed from -0.02' to +0.04'	Rainfall, ET, management	Recommend ascension rates up to 0.25 ft/wk, or 0.5 ft/14 days.	Promote native habitat and maintain wetland plant communities. Provide foraging habitat for wading birds.
ENP-SRS	Stage increased 0.07'	ET, rainfall, topography, management	Discharges to the Park according to the ERTF rainfall plan. Water deliveries to Shark Slough should be made through S-333, then through S-12D and S-12C.	Promote native habitat and maintain wetland plant communities.
ENP-CSSS habitats	Nesting is complete. Conditions are now wet.	Rainfall, ET, management	Follow rainfall plan for releases	Provide habitat and appropriate nesting conditions for CSSS.
Taylor Slough	6" below average in the north to average in southwest	Rain, ET, inflows	Move water southward as possible	Provide freshwater buffer for ecosystems and freshen saline conditions downstream
FB- Salinity	Still 7-21 psu above average	Rain, ET, inflows, wind.	Move water southward as possible	Southward flows are still needed to reverse/slow salinity increases