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, Engineering and Construction Bureau
Paul Linton, Administrator, Water Control Operations Section

FROM: SFWMD Staff Environmental Advisory Team

DATE: September 8, 2015

SUBJECT: Weekly Environmental Conditions for Systems Operations

Summary

Stages in Lakes East Toho, Toho, and Kissimmee-Cypress-Hatchineha (KCH) are at or above their regulation schedule lines. East Toho is almost 1.5 feet above schedule. Discharge from all three-lake groups is being adjusted to return to or below lake regulation lines while moderating changes in flow to the Kissimmee River at S-65/S-65A. On Sunday, discharge at S-65 averaged 4515 cfs and at S-65A 6000 cfs. Discharge at S-65E averaged 5880 cfs over the past week. Tuesday morning discharges: S-65 ~4370 cfs; S-65A ~5875 cfs; S-65C ~6100 cfs; S-65E ~6600 cfs. A dissolved oxygen (DO) crash is in progress in the Kissimmee River that resulted in a small fish kill last week. DO concentration averaged 0.68 mg/L over the past week and 0.29 mg/L on Sunday. Kissimmee River mean floodplain depth is currently 2.35 feet.

Lake Okeechobee is at 13.40 feet NGVD, having risen 0.38 feet over the past week, and 1.11 feet over the past month. This ascension rate continues to be faster than the preferred rate of no more than 0.5 feet per month. The Lake remains in the Base Flow Sub-band.

Over past week, total freshwater inflow to both estuaries was dominated by local basin runoff, averaging 1758 cfs to the St. Lucie and 4847 cfs to the Caloosahatchee. In the St. Lucie Estuary, salinity dropped to the fair range for adult oysters. In the Caloosahatchee Estuary, salinity continued to be in the good range for adult oysters at Shell Point and Sanibel, but remained in the poor range at Cape Coral. Salinities were also in the good range for tape grass in the upper Caloosahatchee Estuary, and are forecasted to remain so over the next two weeks, even with no flow through S-79.

In the greater Everglades, water levels rose last week from last week's rainfall, ranging from 0.88 inches to 1.96 inches. Basin-wide stages rose from 0.07 feet to 0.30 feet. Northeastern WCA-3A remains up to 0.5 feet below ground, but stages are rising. Rainfall was heavy in northern Everglades National Park and this week's rain caused the MFL salinity to decrease to 34.8 psu from last week's 40.8 psu with daily salinity now down to 14.4 psu. Because of equipment failure, cumulative inflow from the five creeks into Florida Bay is unavailable. Much more rainfall is required to approach seasonally normal conditions in the Everglades and particularly in Florida Bay.

Weather Conditions and Forecast

Showers/storms focused interior south today, decreasing to below average tomorrow through Friday. Steering flow is brisk from the south. These relatively strong winds will push showers/storms quickly northward and limit local rainfall. High pressure begins to build in more dominantly on Wednesday with drier and more stable air. As a result, below average rains are expected tomorrow afternoon through Friday. A strong trough drops through the southeast U.S. on Saturday, which should generate above average rains for the District over the weekend.

KISSIMMEE BASIN

Kissimmee Basin Rainfall

The Upper Kissimmee Basin received 1.54 inches of rainfall in the past week and the Lower Basin received 1.86 inches (SFWMD Daily Rainfall Report 9/6/2015).

Upper Kissimmee Basin

Stages and departures in the Kissimmee Chain of Lakes (KCOL) are shown in Table1.

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: **9/8/2015**

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)						
							9/6/15	8/30/15	9/8/15	8/23/15	8/16/15	8/9/15	8/2/15
Lakes Hart and Mary Jane	S62	418	LKMJ	60.4	R	60.0	**0.4**	0.3	0.3	-0.1	0.0	-0.2	0.2
Lakes Myrtle, Preston, and Joel	S57	112	S57	61.1	R	61.0	**0.1**	-0.1	-0.1	-0.1	0.2	-0.2	0.0
Alligator Chain	S60	353	ALLI	63.1	R	63.3	**-0.2**	-0.1	-0.1	-0.3	-0.1	-0.3	-0.1
Lake Gentry	S63	556	LKGT	60.8	R	61.0	**-0.2**	0.2	0.2	-0.2	-0.1	-0.2	0.0
East Lake Toho	S59	959	TOHOE	57.8	R	56.6	**1.2**	0.4	0.4	0.2	0.1	0.0	-0.1
Lake Toho	S61	2172	TOHOW	53.8	R	53.6	**0.2**	0.3	0.3	-0.1	-0.1	-0.1	0.1
Lakes Kissimmee, Cypress, and Hatchineha	S65	4525	LKISSP, KUB011, LKIS5B	51.1	R	51.1	**0.0**	0.1	0.1	0.2	0.1	-0.2	-0.5

* 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.

DATA ARE PROVISIONAL

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: **9/8/2015**

Metric	Location	Sunday's 1-day average	Weekly Average**									
			9/6/15	8/30/15	8/23/15	8/16/15	8/9/15	8/2/15	7/26/15	7/19/15	7/12/15	7/5/15
Discharge (cfs)	S-65	4514	**4525**	3970	2629	1557	1125	250	145	447	513	314
Discharge (cfs)	S-65A	6007	**6098**	4585	2783	1488	1030	345	284	411	597	277
Discharge (cfs)	S-65C	5550	**4961**	3464	1995	1710	905	752	682	762	958	430
Headwater stage (feet NGVD)		37.4	**35.4**	35.3	35.3	35.4	34.8	34.2	34.2	34.2	33.9	33.4
Discharge (cfs)	S-65D****	6142	**5553**	3764	2328	1759	1059	881	774	872	1076	480
Discharge (cfs)	S-65E	5881	**5323**	3539	2122	1551	885	724	550	652	870	325
DO concentration (mg/L)***	Phase I river channel	0.29	**0.68**	0.97	2.23	3.84	3.54	4.30	4.85	4.90	5.15	7.26
Mean depth (feet)*	Phase I floodplain	**2.35**	N/A	1.73	1.29	0.95	1.09	0.51	0.44	0.47	0.68	0.22

* 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 of KRBN and PC62 through May 21,2015; is for PC62 only for May 22-June 1; and is the average for PC62 and PC33 starting June 2.PC33 omitted for week of Aug16.

**** 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.

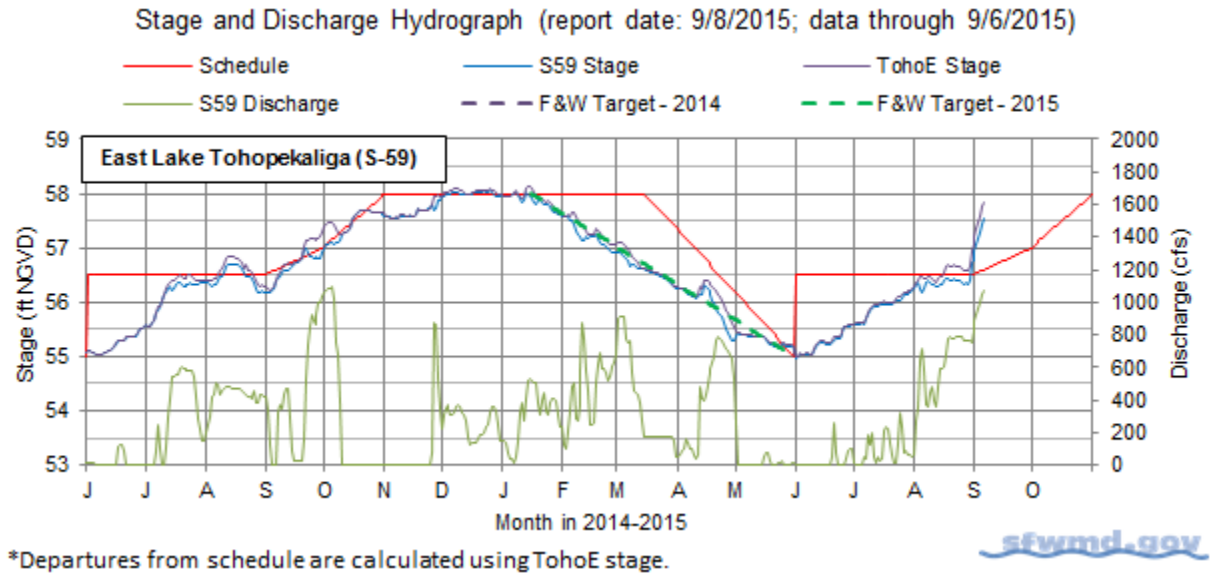
DATA ARE PROVISIONAL

Water Management Recommendations

Kissimmee Basin Recommendations and Operational Actions

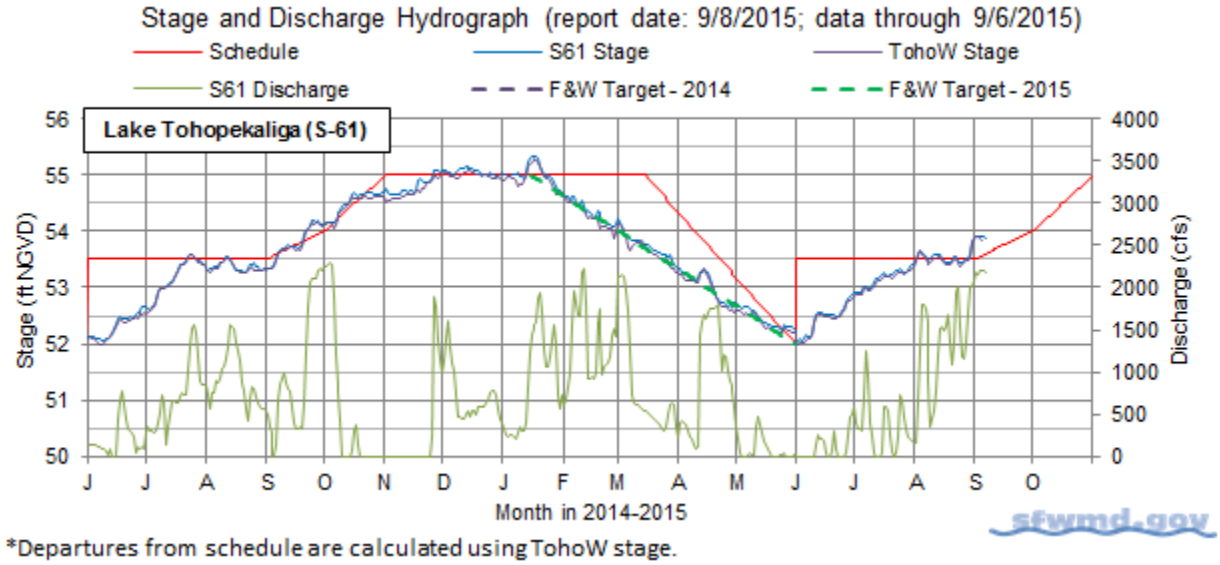
Date	Recommendation	Purpose	Outcome	Source
9/8/2015	No new recommendations.			
9/1/2015	No new recommendations.			
8/25/2015	No new recommendations.			
8/18/2015	No new recommendations.			
8/11/2015	No new recommendations.			
8/4/2015	No new recommendations.			
7/28/2015	No new recommendations.			
7/14/2015	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.			

KCOL Hydrographs (through Sunday midnight)



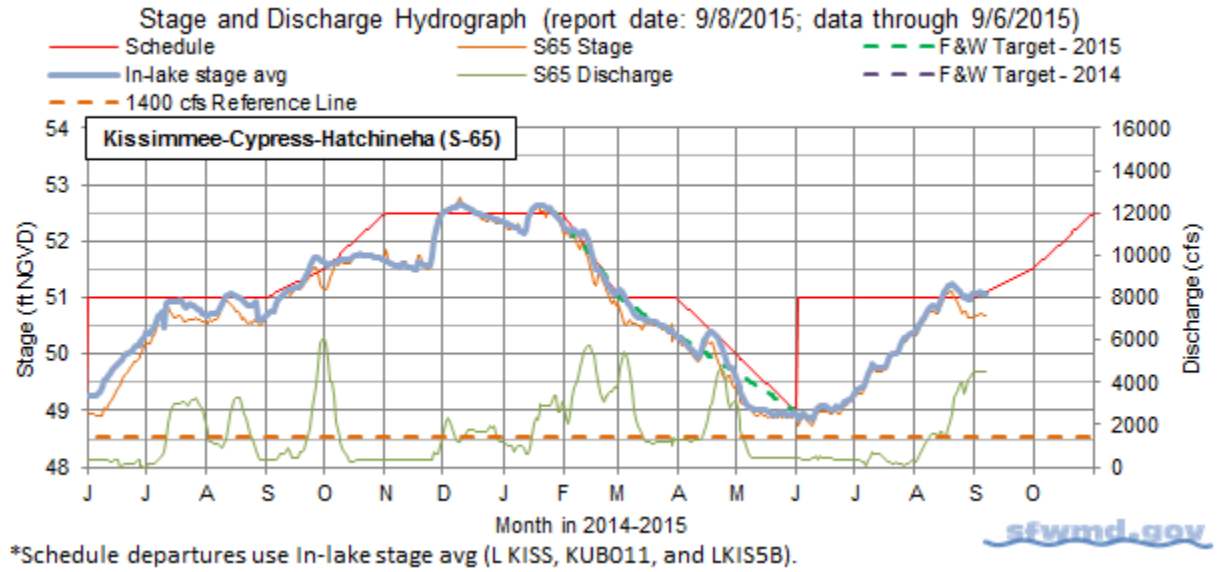
*Departures from schedule are calculated using TohoE stage.

Figure 1.



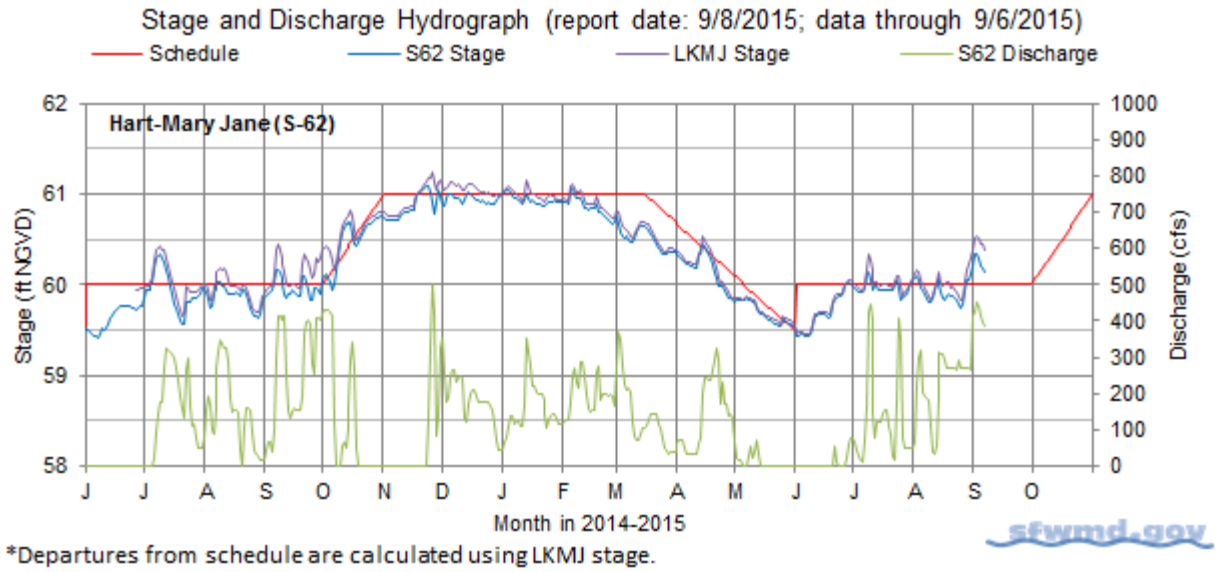
*Departures from schedule are calculated using TohoW stage.

Figure 2.



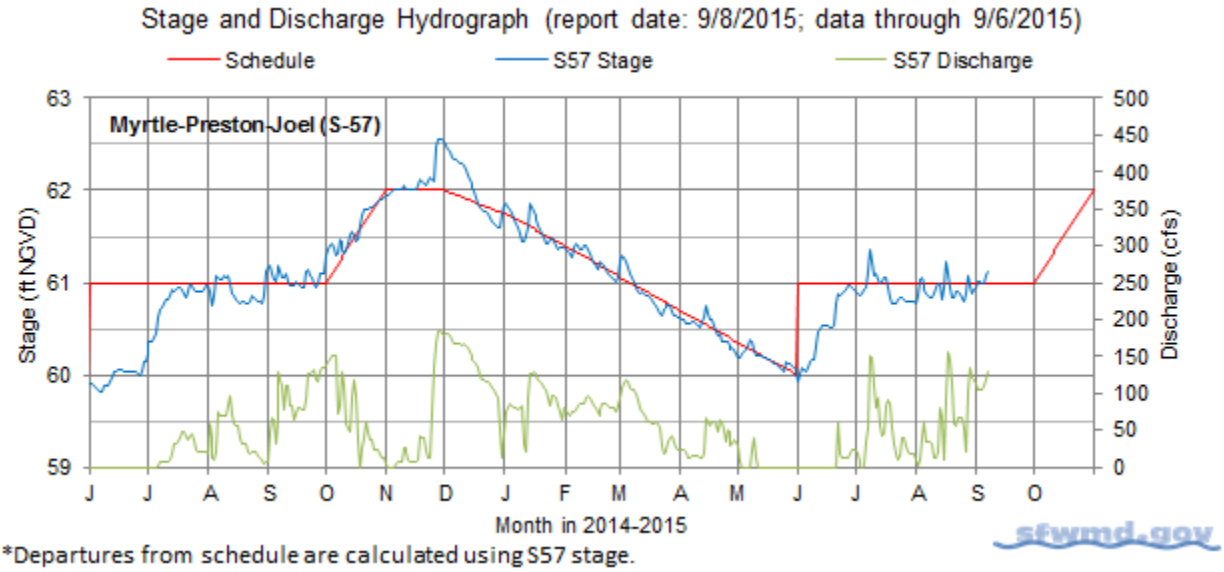
*Schedule departures use In-lake stage avg (L KISS, KUBO11, and LKIS5B).

Figure 3.



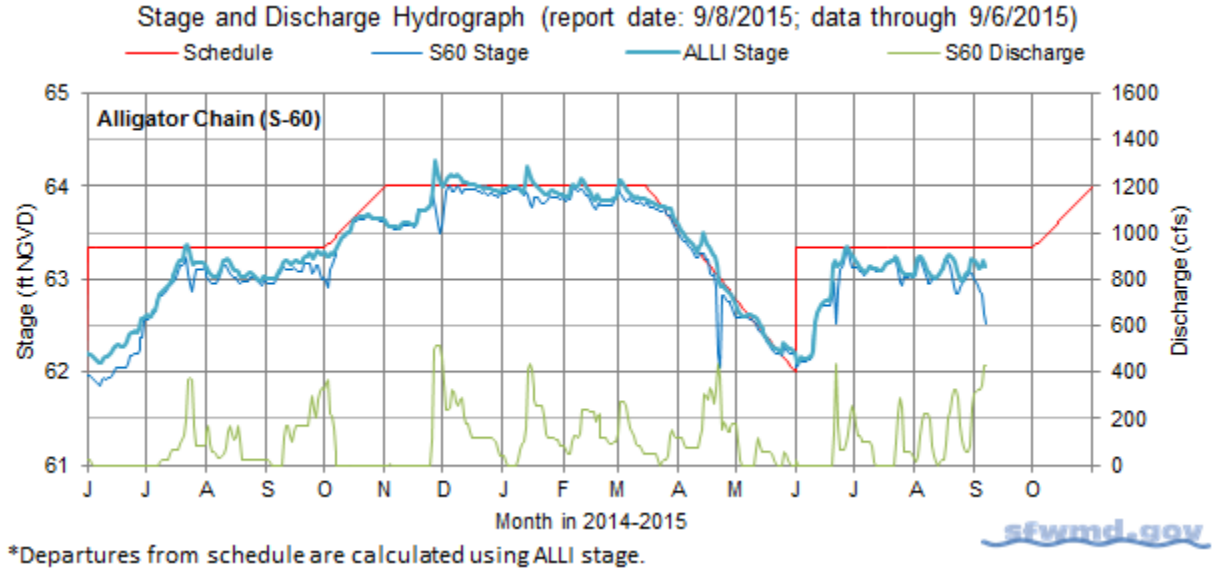
*Departures from schedule are calculated using LKMJ stage.

Figure 4.



*Departures from schedule are calculated using S57 stage.

Figure 5.



*Departures from schedule are calculated using ALLI stage.

Figure 6.

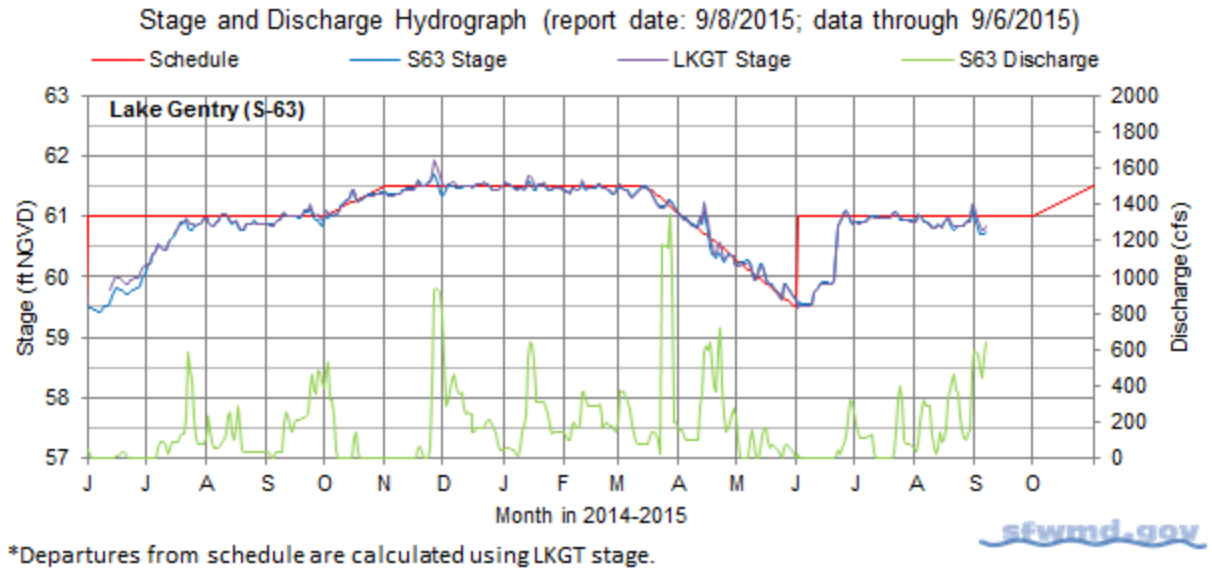


Figure 7.

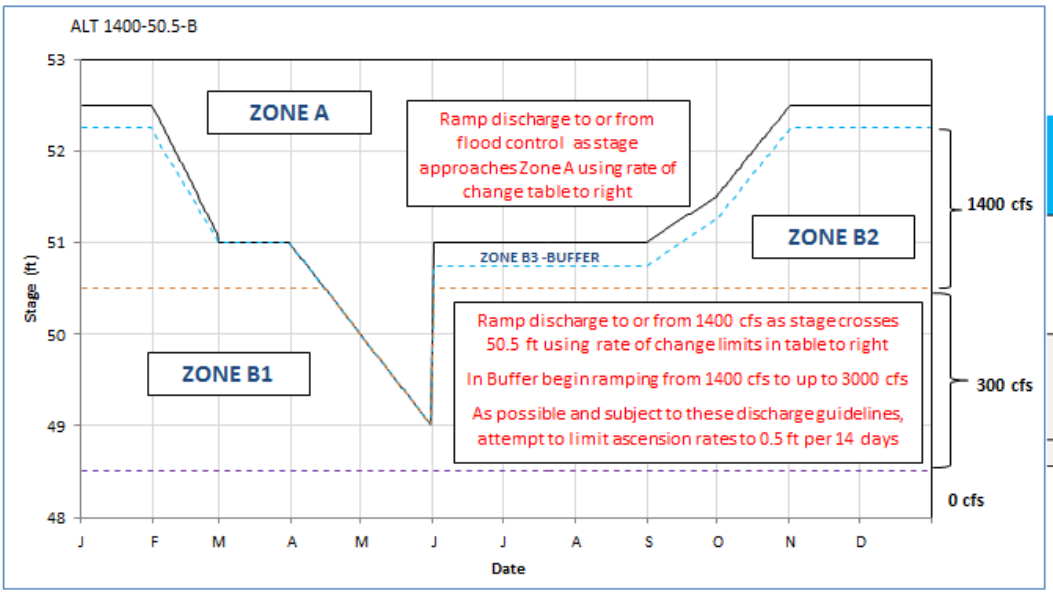


Table 1. Discharge Rate of Change Limits for S65/S65A
****Rate limits apply only in Zone B****

	Q (cfs)	Maximum rate of increase (cfs/day)	Maximum rate of decrease (cfs/day)
Zone B	0-300	50	-50
	300-1400	150	-75
	1400-2500	300	-300
	2500-3000	1000	-1000
Zone A	No limits		

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

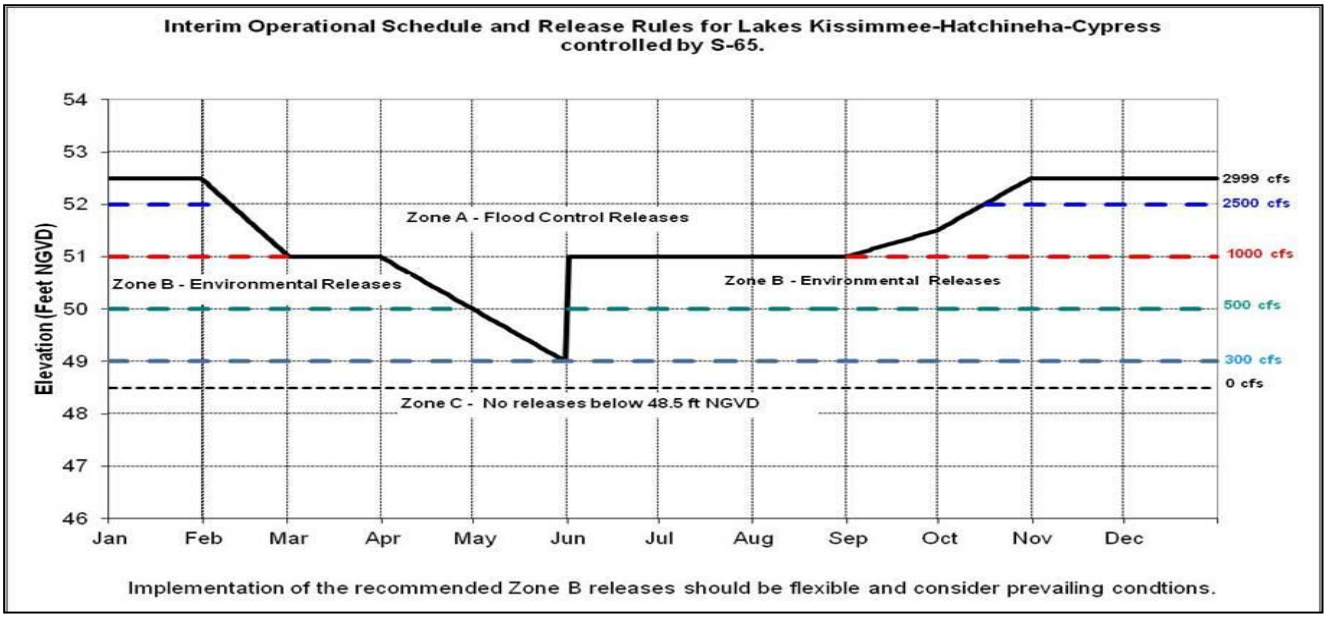


Figure 8b. Interim operations schedule for S-65. The discharge schedule shown to the right has not been used in recent years or in Wet Season 2015.

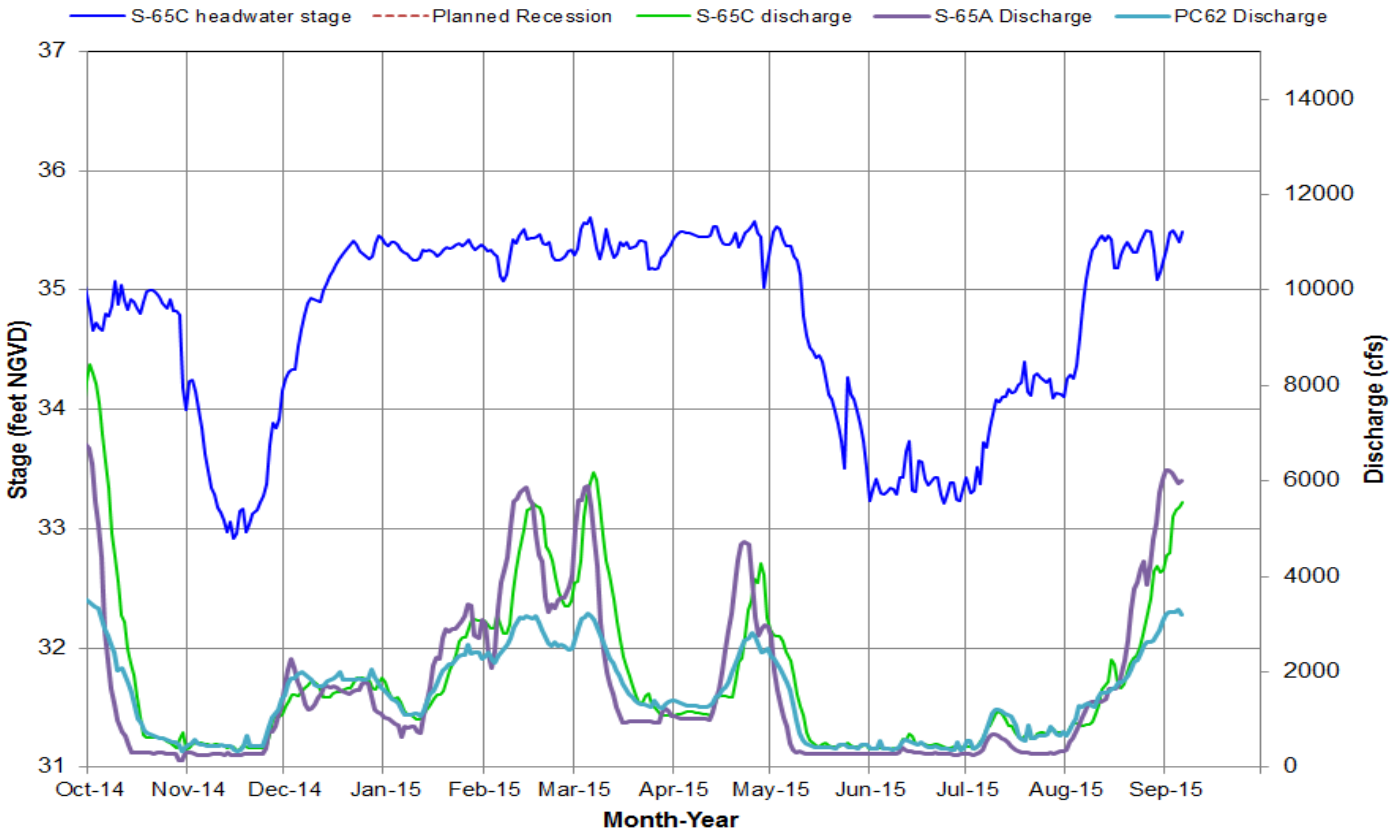


Figure 9. S-65C headwater stage in relation to discharge at S-65C, S-65A, and PC62.

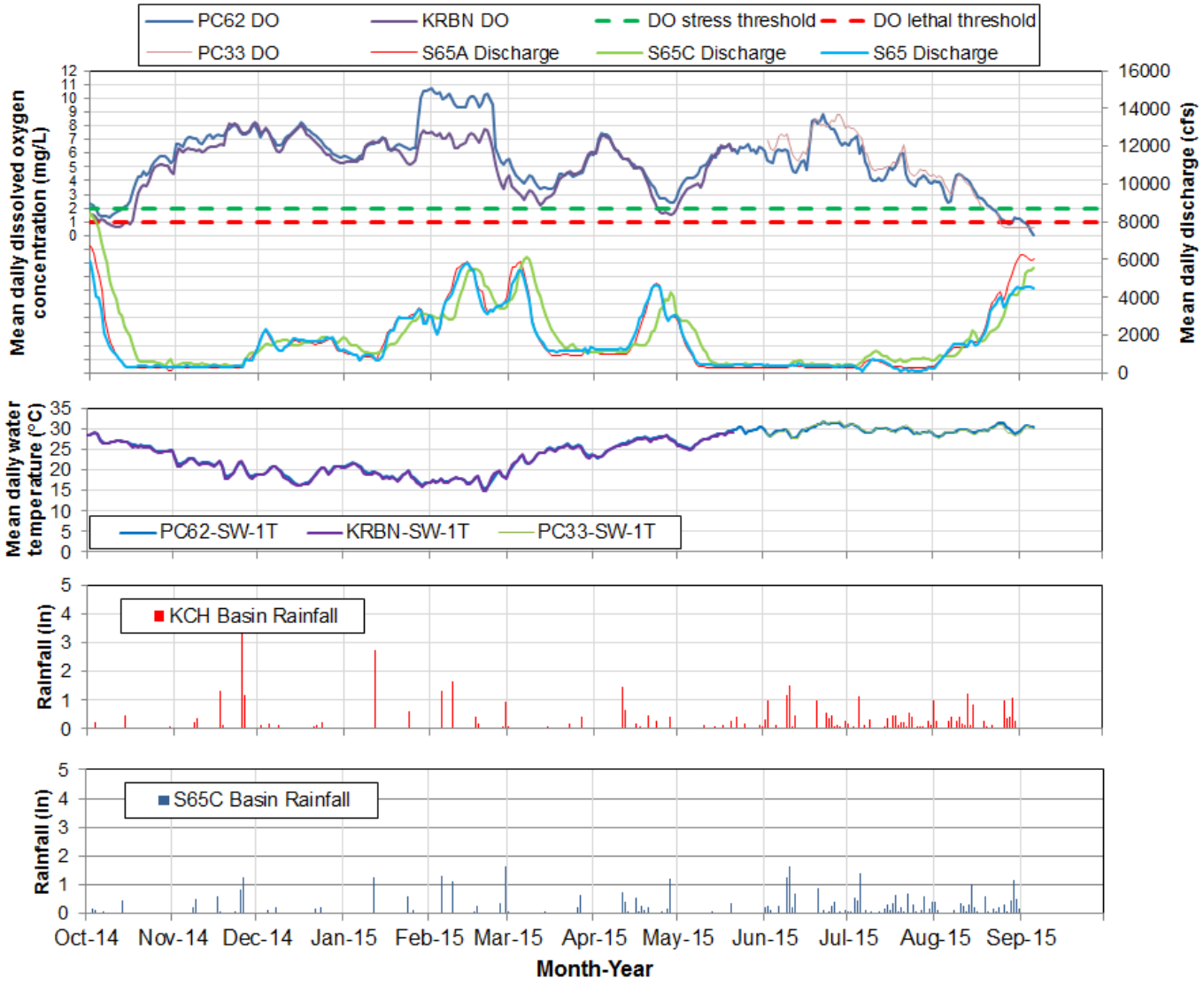
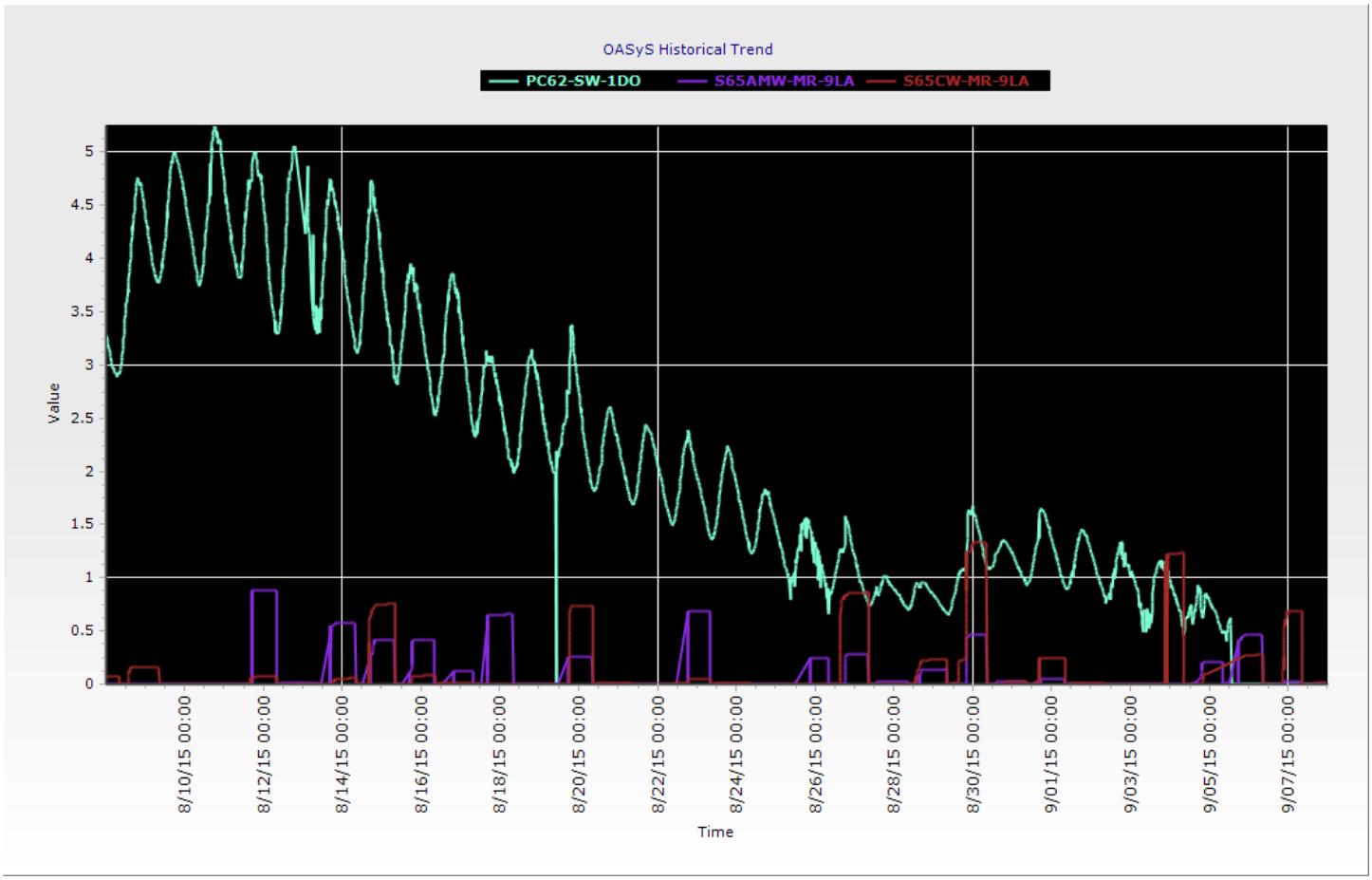


Figure 10. Mean daily DO, discharge, temperature and rainfall in the Phase I river channel.



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

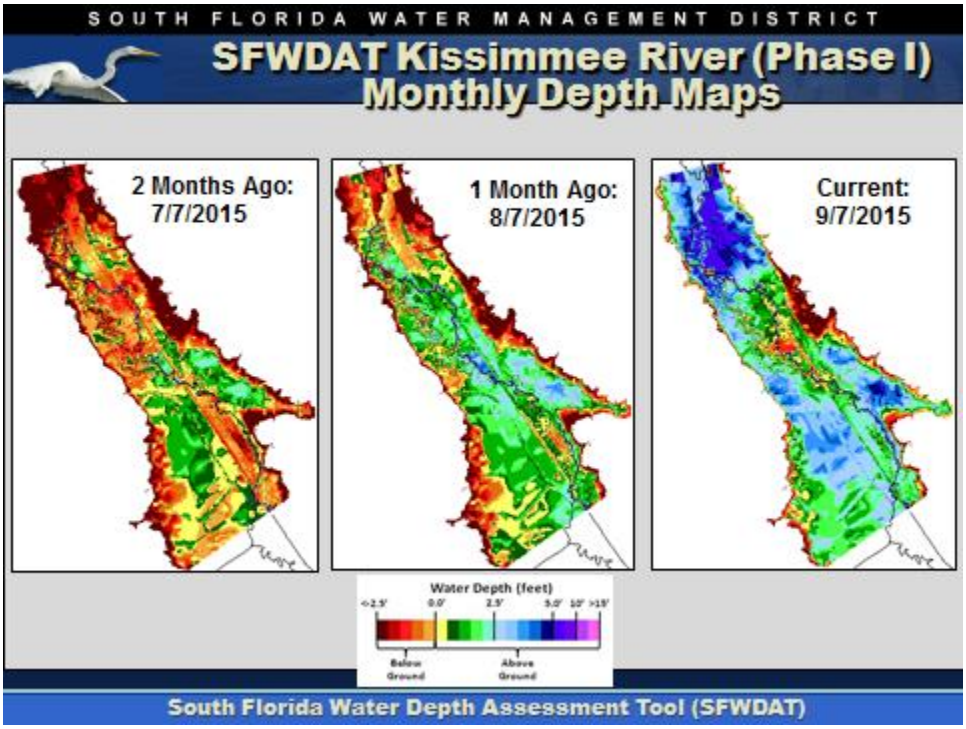


Figure 11. Phase I area floodplain water depths for this week, one month ago, and two months ago. Note that the WDAT color-coding has been modified to accommodate greater water depths; these maps are not directly comparable to Kissimmee Basin WDAT maps published prior to Jan. 16, 2012.

Kissimmee River Hydrographs

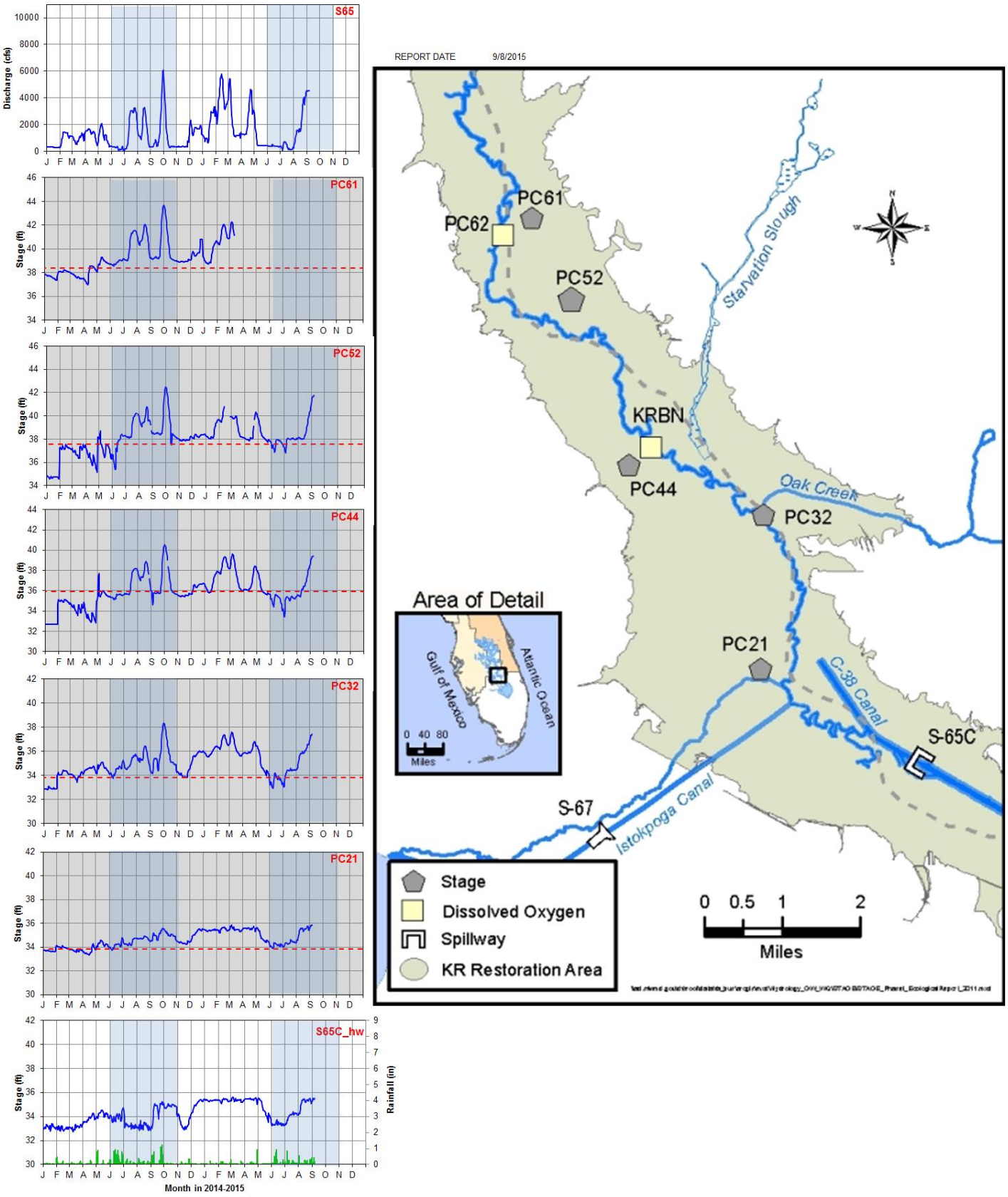


Figure 12. Discharge at S65, stages at five monitoring stations in the Phase I area of the Kissimmee River floodplain, and headwater stage at S65-C since January 1, 2013. The most recent data (~2 weeks) are provisional real-time data from SFWMD DualTrend; previous data are from SFWMD DB-HYDRO (validated).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

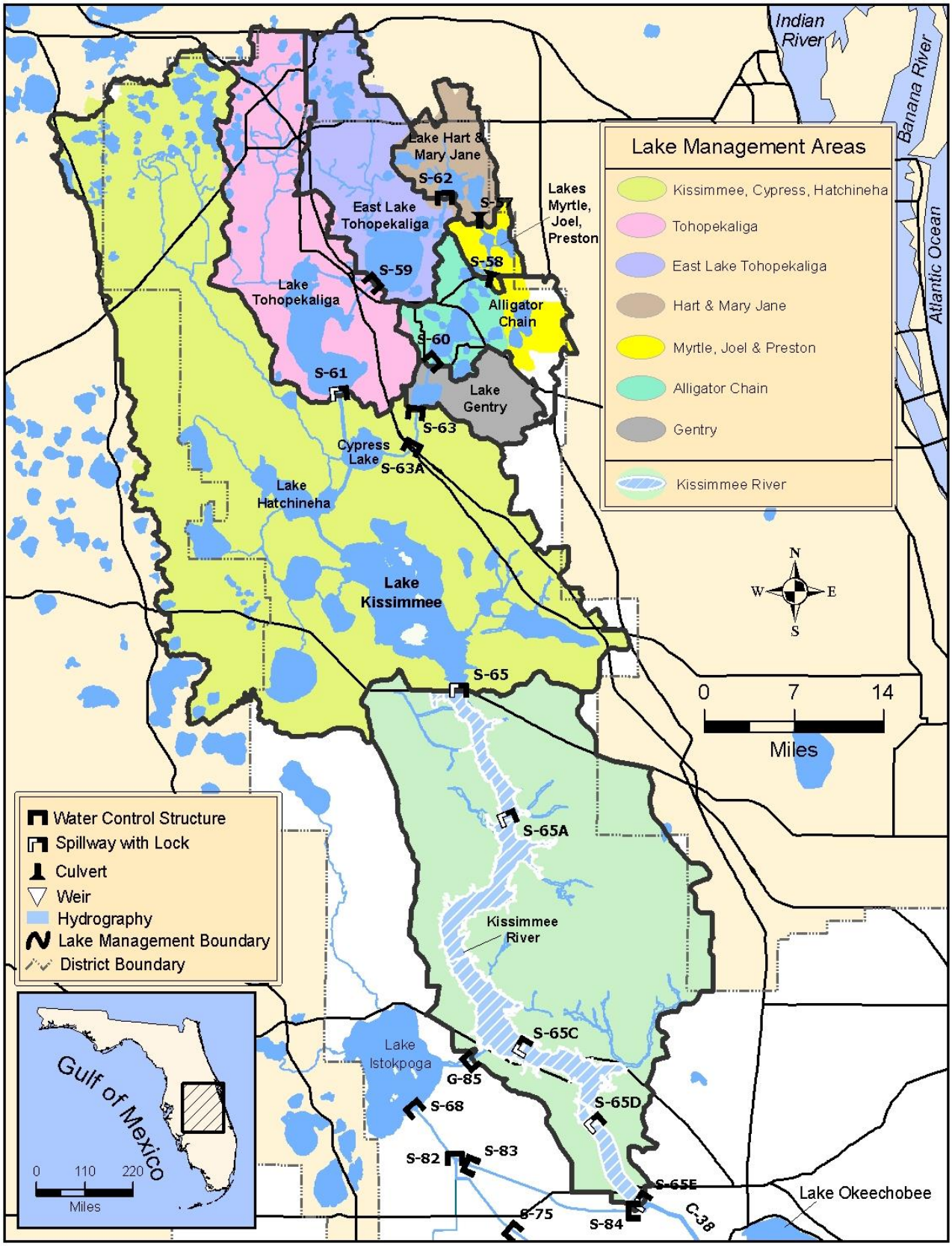


Figure 13. The Kissimmee Basin.

LAKE OKEECHOBEE

According to the USACE web site, Lake Okeechobee stage is at 13.40 feet NGVD for the period ending at midnight on September 7, 2015. Lake stage increased by 0.38 feet over the past week. The Lake is now 1.11 feet higher than it was a month ago and 1.09 feet lower than it was a year ago (Figure 1). The Lake is in the Base Flow Sub-band. (Figure 2). According to RAINDAR, 0.93 inches of rain fell directly over the Lake during the past seven days. Similar to higher amounts of rain fell in most of the surrounding watersheds with significantly higher rainfall in portions of the upper Kissimmee Valley and in the Istokpoga basin (Figure 3).

Based on USACE reported values, current Lake inflow is approximately 13052 cfs consisting of flows as indicated below.

Structure	Flow cfs
S65E	6713
S154	12
S84 & 84X	2625
S71	612
S72	253
C5	0
S191	184
S133 PUMPS	0
S127 PUMPS	93
S129 PUMPS	0
S131 PUMPS	38
S135 PUMPS	0
Fisheating Creek	2615
S2 Pumps	0
S3 Pumps	0
S4 Pumps	0

There were small Lake outflows reported at the S-127 culvert (60 cfs) and the L8 structure (53 cfs) for an overall current outflow of 113 cfs. Average corrected evapotransporation this past week was equivalent to an outflow of 3700 cfs. Change in elevation equivalents and average weekly flows for major structures are presented in Figure 4. There is no MODIS satellite image for the past week.

Water Management Recommendations

The summer increase in Lake levels is continuing with current weekly and monthly ascension rates exceeding the preferred rate of 0.5 feet per month. It is probable that this ascension rate will continue to have some negative impacts on apple snail recruitment due to drowning egg clutches. However, the Lake remains slightly below the optimal stage for this time of year. Future recommendations for the short term will depend in large measure on the remainder of the wet season rainfall patterns and amounts. The operational goal continues to be to maintain a steady increase in Lake stage, not to exceed 0.5 feet per month (0.125 feet/week) throughout the wet season. At this time, any activities which would reduce the current rate of ascension would be beneficial.

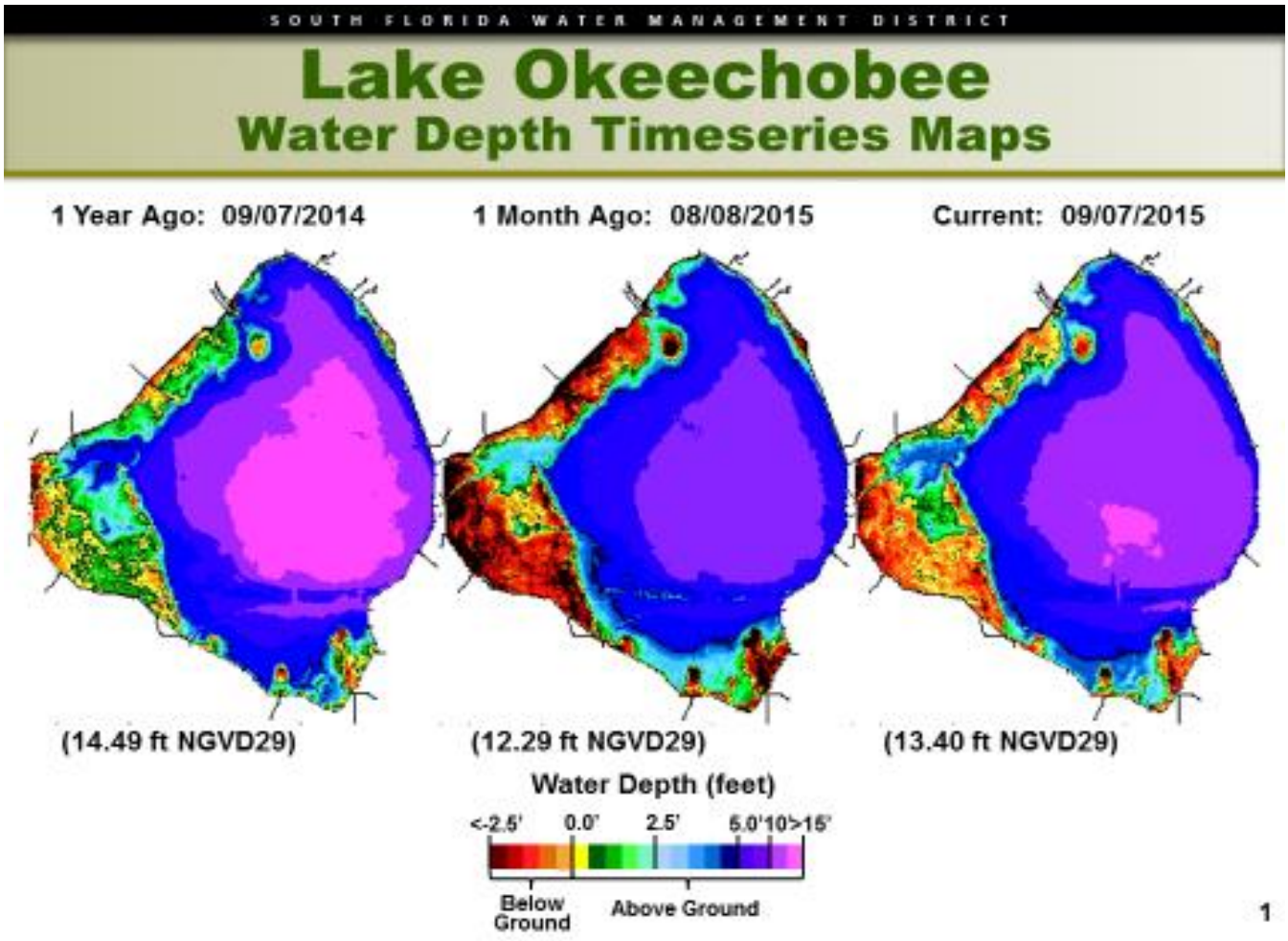

SOUTH FLORIDA WATER MANAGEMENT DISTRICT
Lake Okeechobee
Water Depth Timeseries Maps
1 Year Ago: 09/07/2014
1 Month Ago: 08/08/2015
Current: 09/07/2015
(14.49 ft NGVD29)
(12.29 ft NGVD29)
(13.40 ft NGVD29)
Water Depth (feet)
<-2.5'
0.0'
2.5'
5.0'
10'
>15'
Below Ground
Above Ground
1

Figure 1

SOUTH FLORIDA WATER MANAGEMENT DISTRICT

Lake Okeechobee
Stage Hydrograph

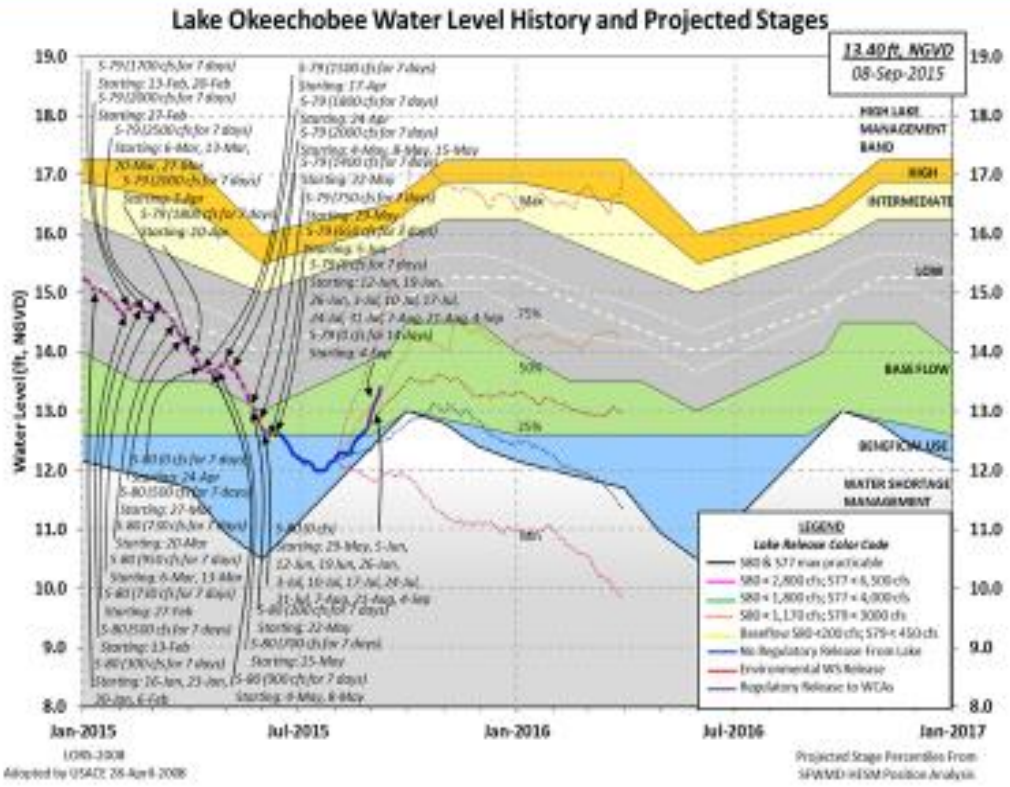


Figure 2

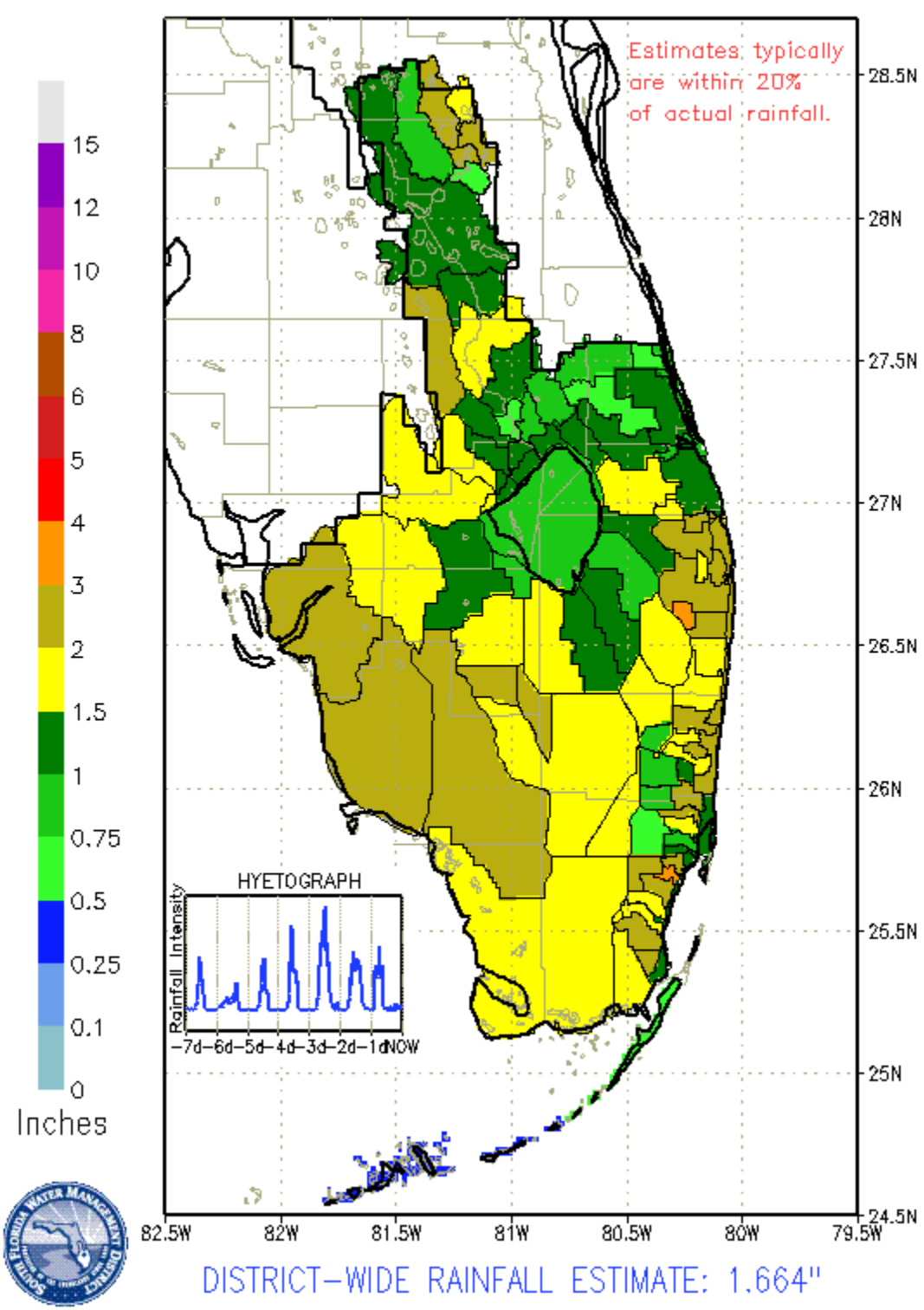

SFWMD PROVISIONAL RAINDAR 7-DAY BASIN RAINFALL ESTIMATES
FROM: 0515 EST, 09/01/2015 THROUGH: 0515 EST, 09/08/2015
Estimates typically are within 20% of actual rainfall.
15
12
10
8
6
5
4
3
2
1.5
1
0.75
0.5
0.25
0.1
0
Inches
HYETOGRAPH
Rainfall Intensity
-7d-6d-5d-4d-3d-2d-1dNOW
28.5N
28N
27.5N
27N
26.5N
26N
25.5N
25N
24.5N
82.5W
82W
81.5W
81W
80.5W
80W
79.5W
DISTRICT-WIDE RAINFALL ESTIMATE: 1.664"

Figure 3

INFLOWS	Average Daily Flow Past Week cfs	Feet of Change Past Week
S65E	5633	0.201
S71 & 72	519	0.018
S84 & 84X	2283	0.081
Fisheating Creek	1519	0.054
Rainfall	N.A.	0.078
OUTFLOWS	**Average Daily Flow Past Week cfs**	**Feet of Change Past Week**
S77	0	0.000
S308	0	0.000
S351	0	0.000
S352	0	0.000
S354	0	0.000
L8	10	0.000
ET	3700	0.132

Figure 4

Lake Istokpoga

Lake Istokpoga stage is 38.65 feet NGVD today and is currently 0.02 feet above its regulation schedule (38.63 feet NGVD) which is now undergoing its annual rise to high pool stage (Figure 5). Average flows into the Lake from Arbuckle and Josephine creeks were 1159 and 224 cfs respectively, more than double the net flow of last week. Average discharge from S-68 and S-68X this past week was 2442 cfs, roughly 2.5 times higher than the preceding week. According to RAINDAR, 2.09 inches of rain fell in the Lake Istokpoga watershed during the past seven days.

There is no updated MODIS satellite imagery for Lake Istokpoga.

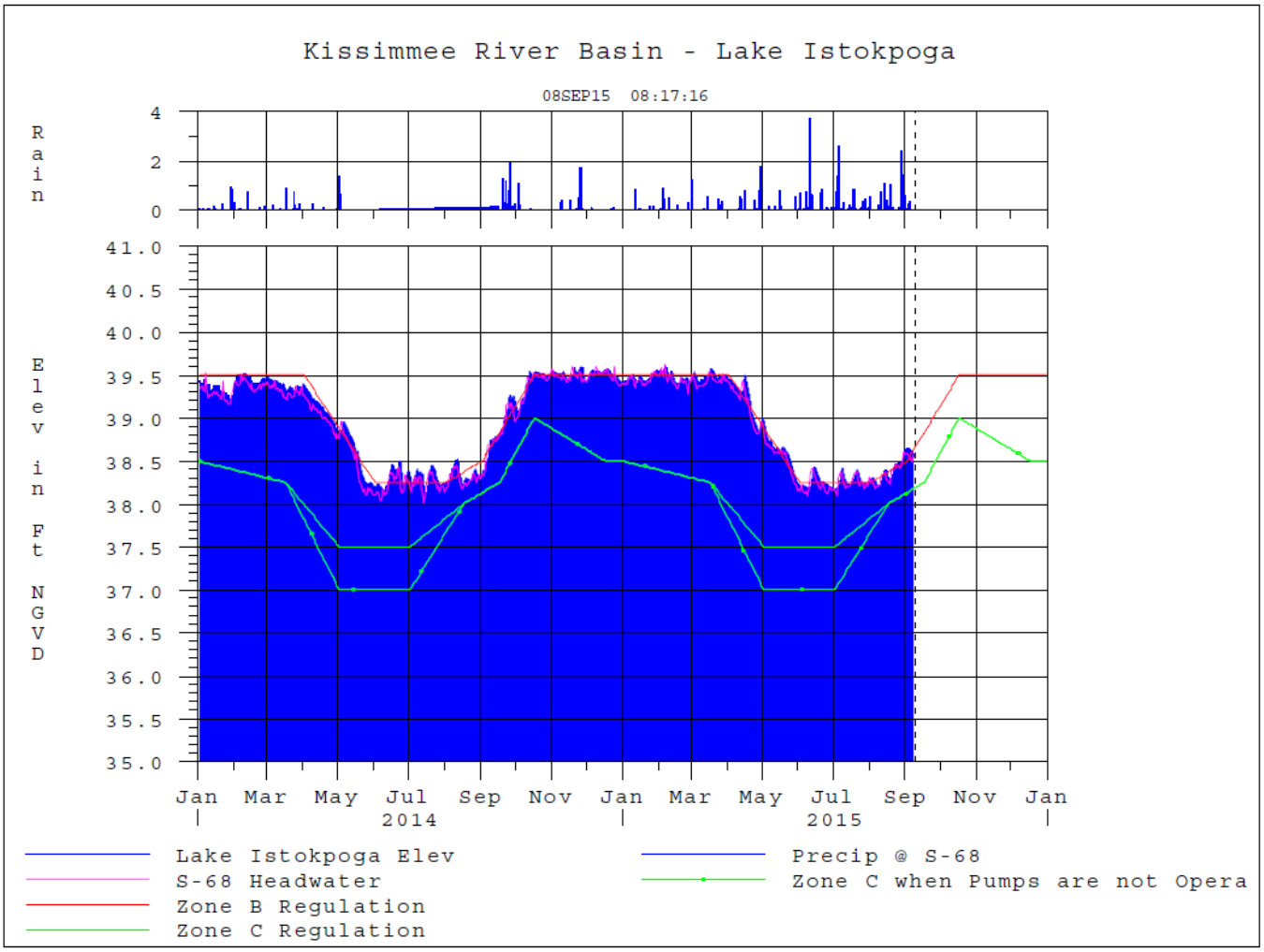


Figure 5

ESTUARIES

St. Lucie Estuary

Over the past week, provisional flows averaged 130 cfs at S-80, 0 cfs at S-308, 662 cfs at S-49 on C-24, 186 cfs at S-97 on C-23, and 247 cfs from Ten Mile Creek at the Gordy Road Structure. Average inflow from tidal basin tributaries is estimated to be 533 cfs (Figures 1 and 2). Total inflow averaged 1758 cfs last week and 1352 cfs over last month.

Over the past week, salinity decreased throughout the estuary (Table 1, Figures 3 and 4). The seven-day moving average salinity of the water column at the US1 Bridge is 9.6. Salinity conditions in the middle estuary have dropped into the fair 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)	**3.0** (6.9)	**7.7** (12.9)	NA[1]
US1 Bridge	**8.2** (12.6)	**11.0** (15.2)	10.0-26.0
A1A Bridge	**17.0** (21.2)	**23.9** (25.3)	NA

[1]Envelope not applicable

Caloosahatchee Estuary

During the past week, provisional flows averaged approximately 0 cfs at S-77, 775 cfs at S-78, and 2945 cfs at S-79. Average inflow from tidal basin tributaries is estimated to be 1902 cfs (Figures 5 and 6). Total inflow averaged 4847 cfs last week and 4820 cfs over last month.

Over the past week, surface salinity decreased throughout the 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 0.2 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	**0.2** (0.2)	**0.2** (0.2)	NA
Cape Coral	**1.2** (1.5)	**1.3** (1.9)	10.0-30.0
Shell Point	**12.6** (14.2)	**15.6** (15.6)	10.0-30.0
Sanibel	**23.8** (24.1)	**26.1** (25.8)	10.0-30.0

[1]Envelope not applicable, [2]Envelope 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.

Salinity forecasts during the next two weeks were constructed for the following two scenarios of flow at S-79: a) no release (Figure 10), and b) 450 cfs pulse release. Due to high levels of flow from the watershed, the predicted daily salinity and the 30-day moving average at the Val I75 location would be 0.3 for both cases by September 22, 2015.

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 *a* (µg/l)	NA	NA	3.1 – 12.0
Dissolved Oxygen (mg/l)	NA	NA	3.5 – 7.2

The Florida Fish and Wildlife Research Institute reported on September 4, 2015, that *Karenia brevis*, the Florida red tide organism, was detected in background concentrations in two samples collected offshore of Manatee and Sarasota counties this week. Additional samples collected throughout southwest Florida did not contain *K. brevis*.

Water Management Recommendations

Lake Okeechobee's water level is within the Base Flow Sub-band; the tributary hydrological conditions are Very Wet; and the seasonal and multi-seasonal forecasts are Very Wet and Wet, respectively. The current and forecasted 30-day average salinities at the Val-I75 site are below the 5 psu threshold within the next two weeks. The Lake Okeechobee Regulation Schedule (LORS) recommends up to 450 cfs at S-79 and 200 cfs at S-80. The Lake Okeechobee Adaptive Protocols (LOAP) prescribe no Lake releases at S-77.

Currently, the USACE is not releasing water from Lake Okeechobee to the Caloosahatchee and St. Lucie estuaries. Local basin runoff is more than sufficient to maintain salinity within the preferred ranges of oysters and submerged aquatic vegetation in both estuaries. There are no ecological benefits associated with additional releases from Lake Okeechobee.

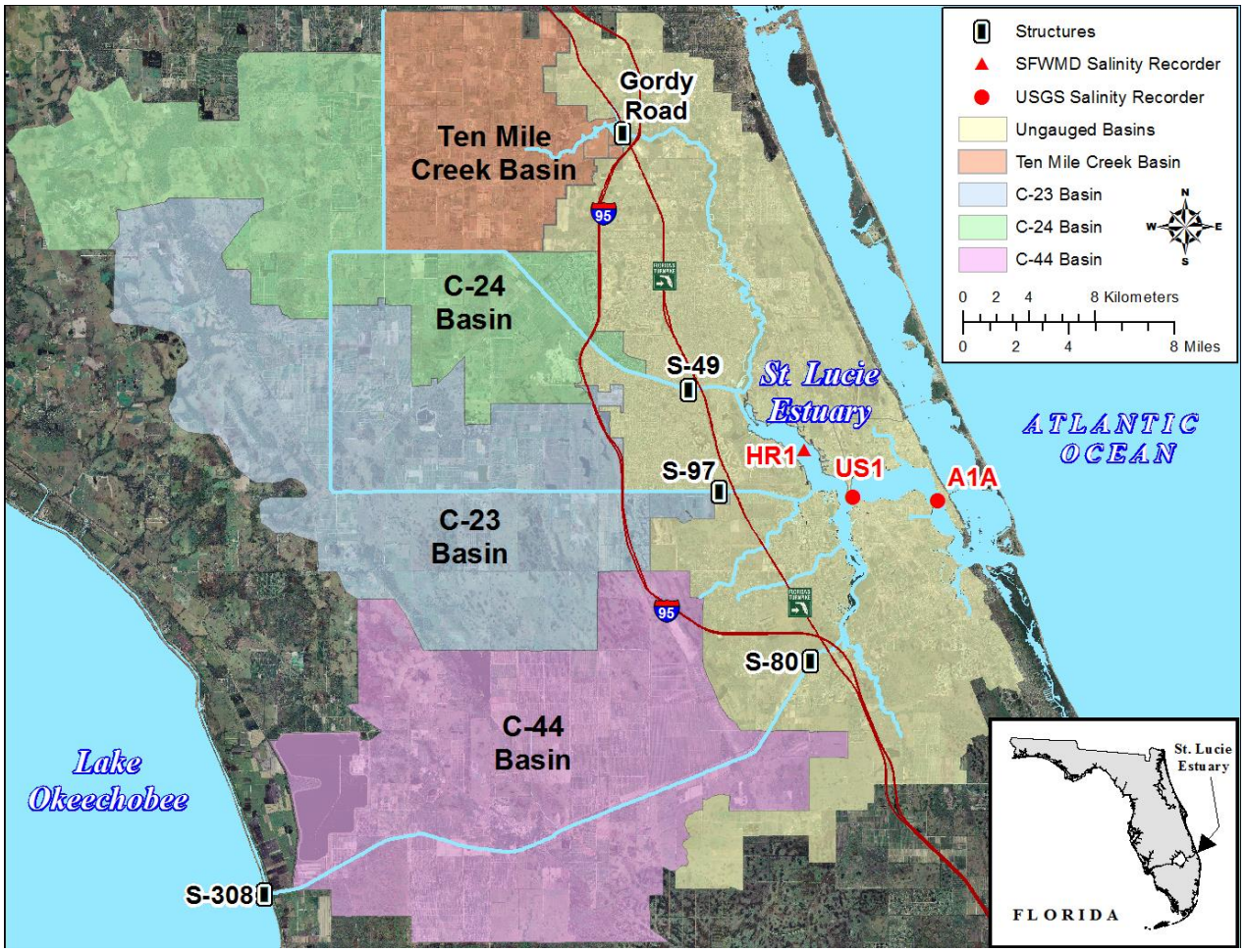


Figure 1. Basins, water control structures, and salinity monitoring for the St. Lucie Estuary.

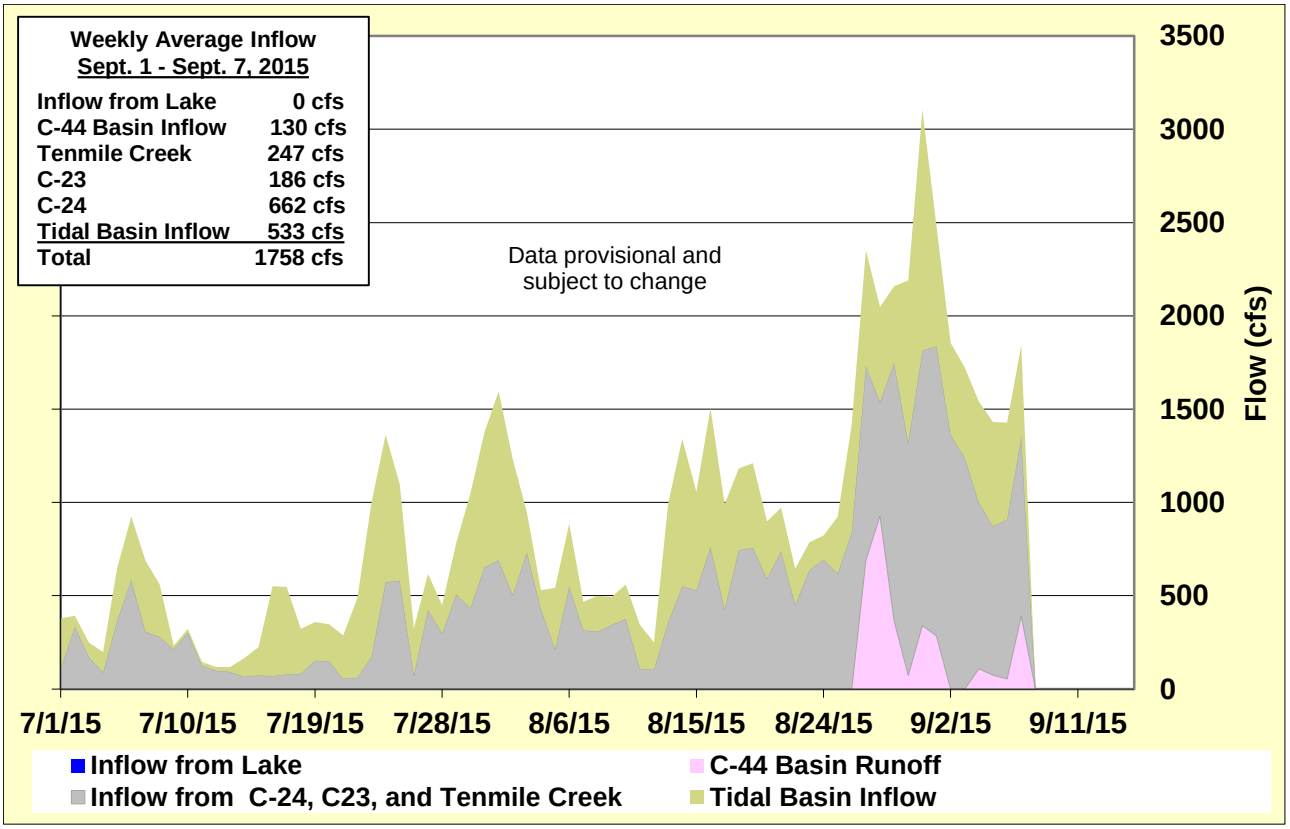


Figure 2. Estimated surface freshwater inflows from Lake Okeechobee and runoff from the C-44, C-23, C-24, Ten Mile Creek, and tidal basins into the St. Lucie Estuary.

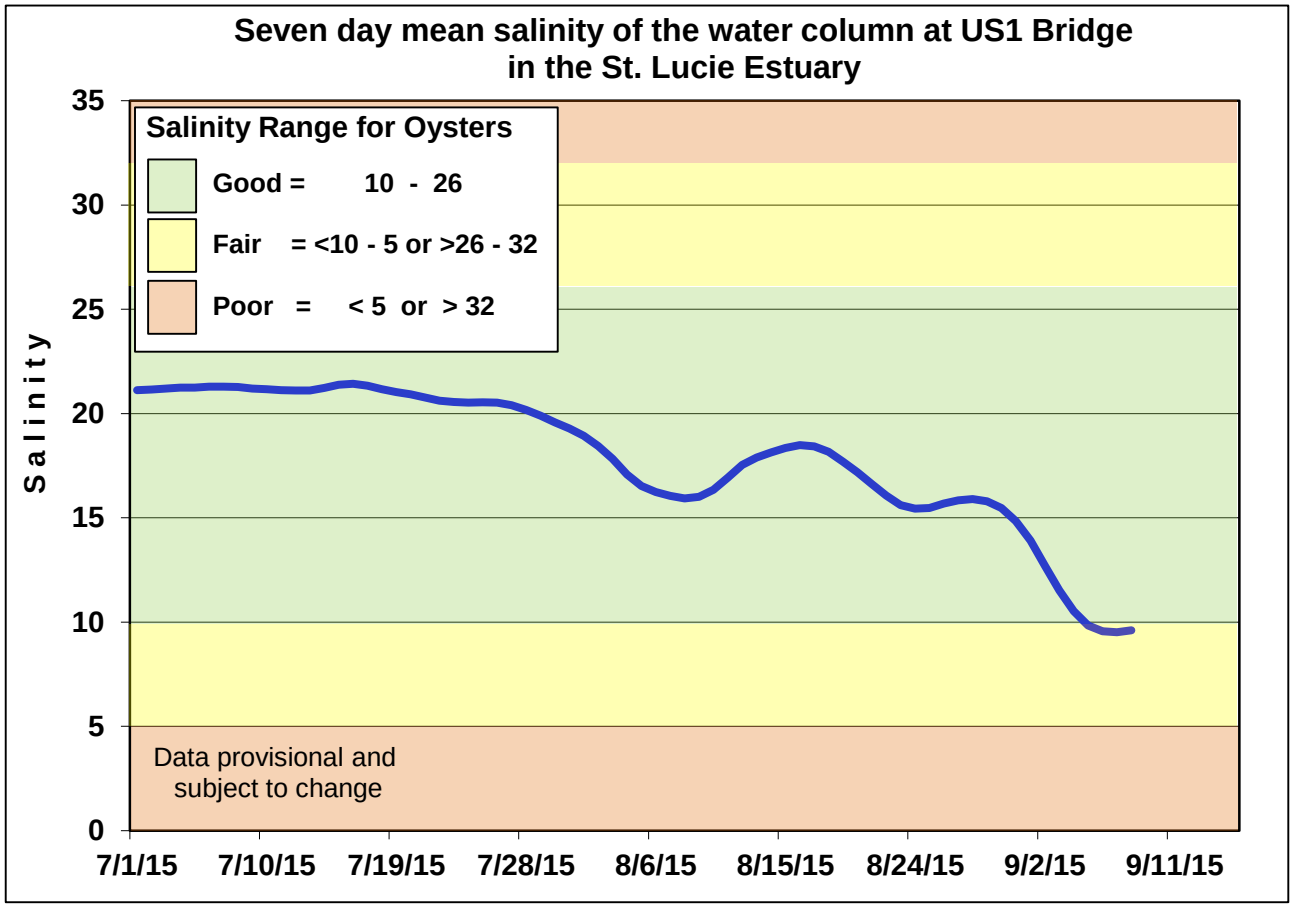


Figure 3. Seven-day mean salinity of the water column at the U.S. Highway 1 Bridge.

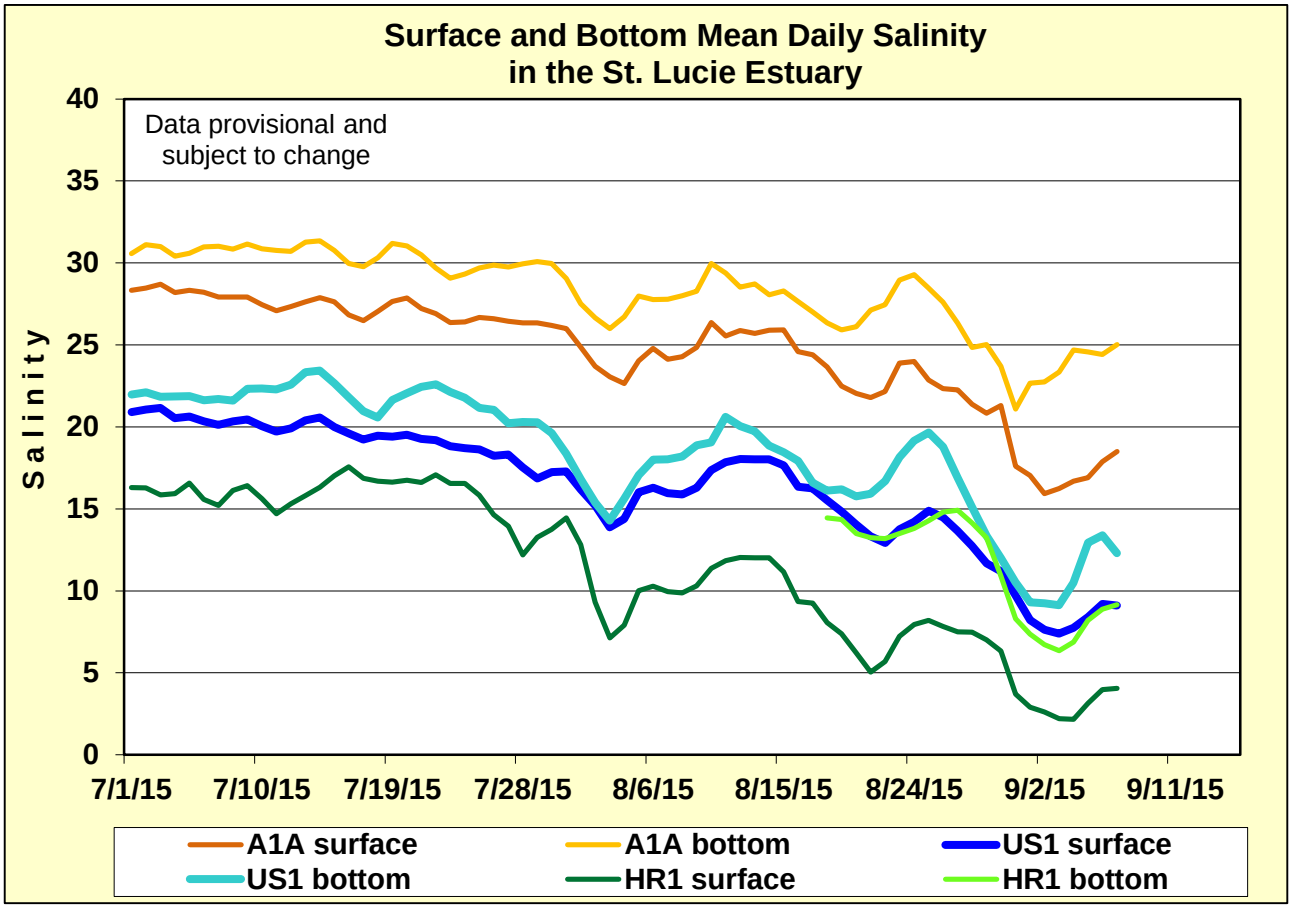


Figure 4. Daily mean salinity at the A1A, US1 and estimated HR1 stations.

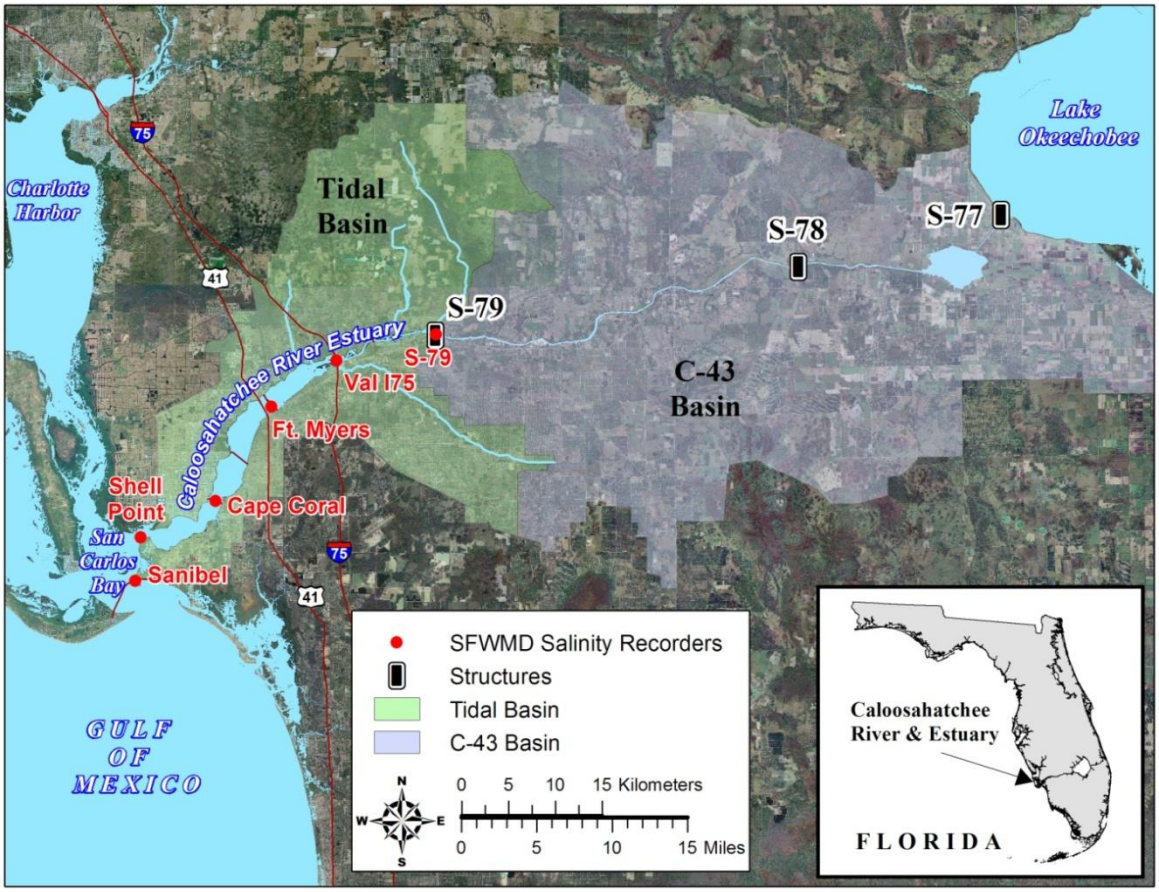


Figure 5. Basins, water control structures, and salinity monitoring for the Caloosahatchee Estuary.

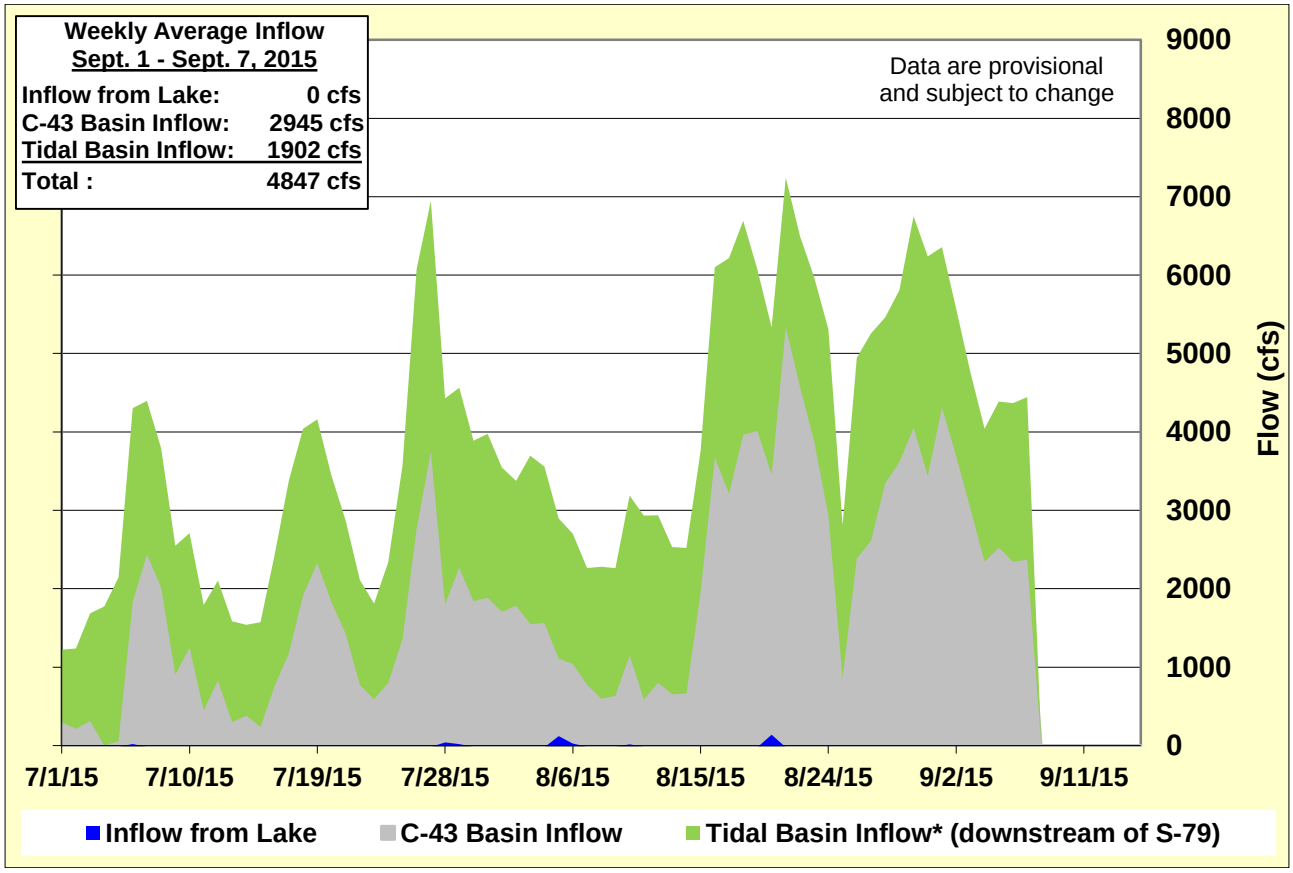
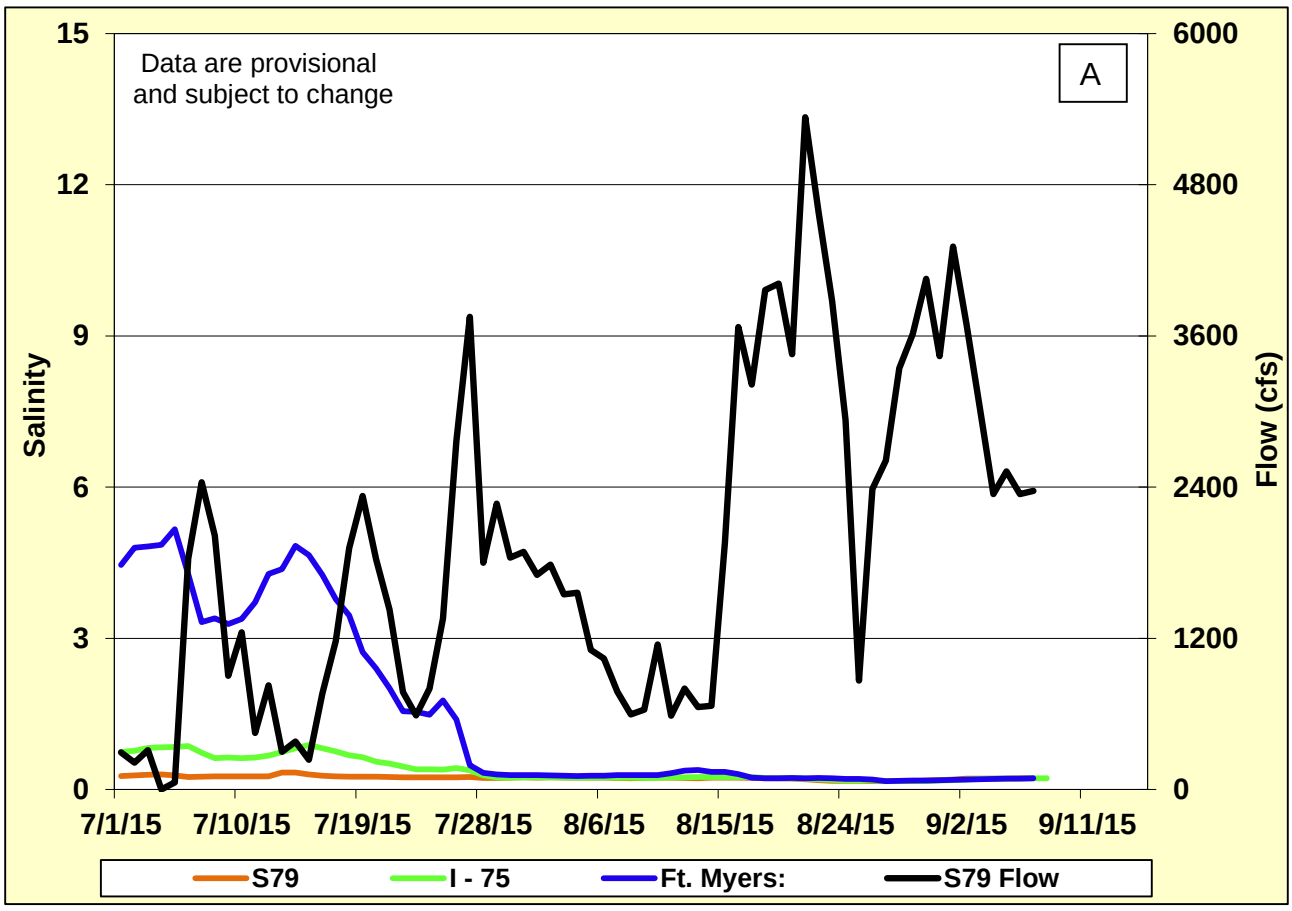


Figure 6. Surface freshwater inflows from Lake Okeechobee, runoff from the C-43 basin, and tributaries in the tidal basin into the Caloosahatchee River Estuary.



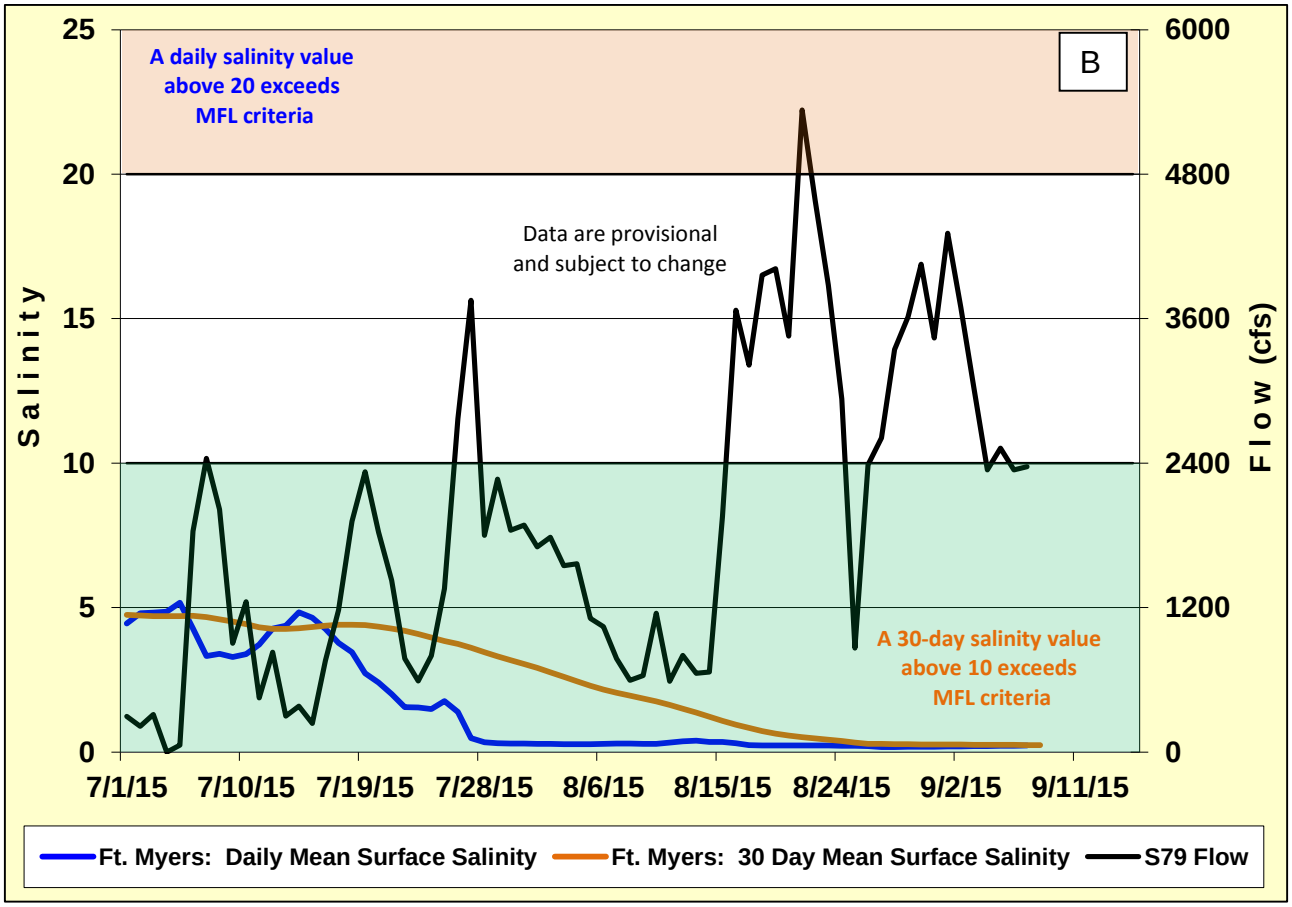


Figure 7. Daily mean flows at S-79 and salinity at upper estuary monitoring stations (A) and 30-day moving average salinity at Ft. Myers (B).

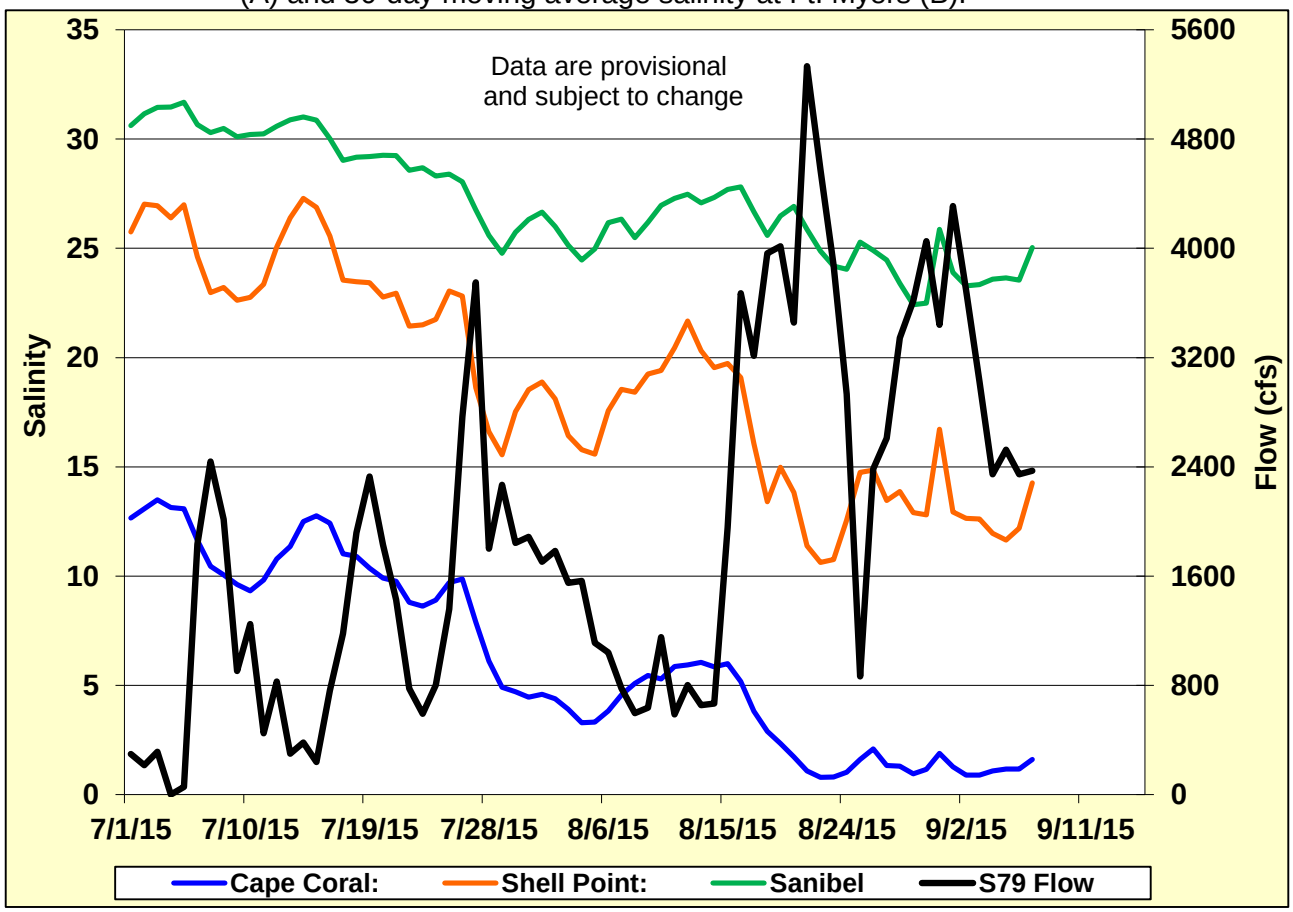


Figure 8. Daily mean flows at S-79 and salinity at lower estuary stations.

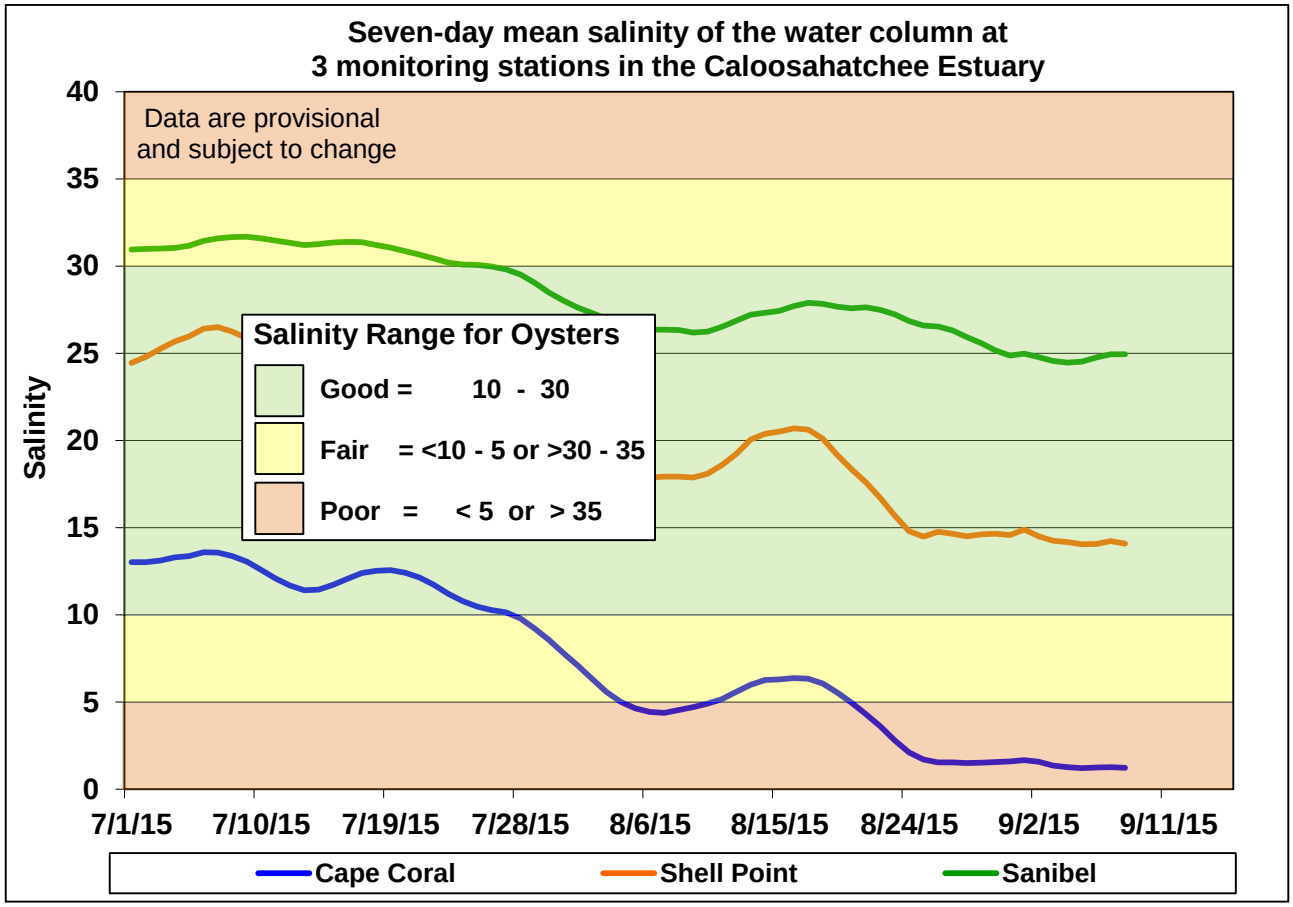


Figure 9. Seven-day mean salinity at Cape Coral Bridge, Shell Point and Sanibel Bridge monitoring stations.

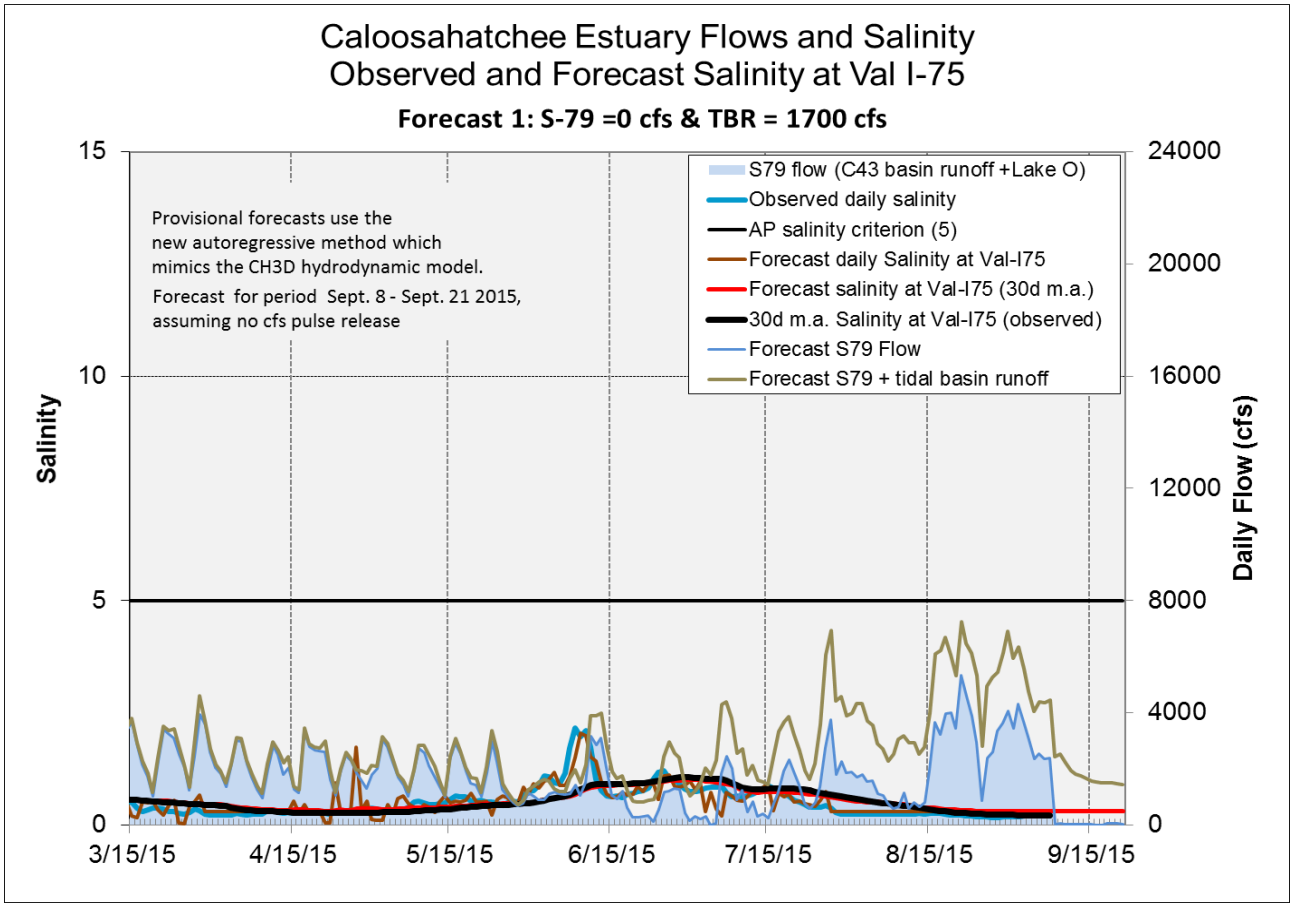
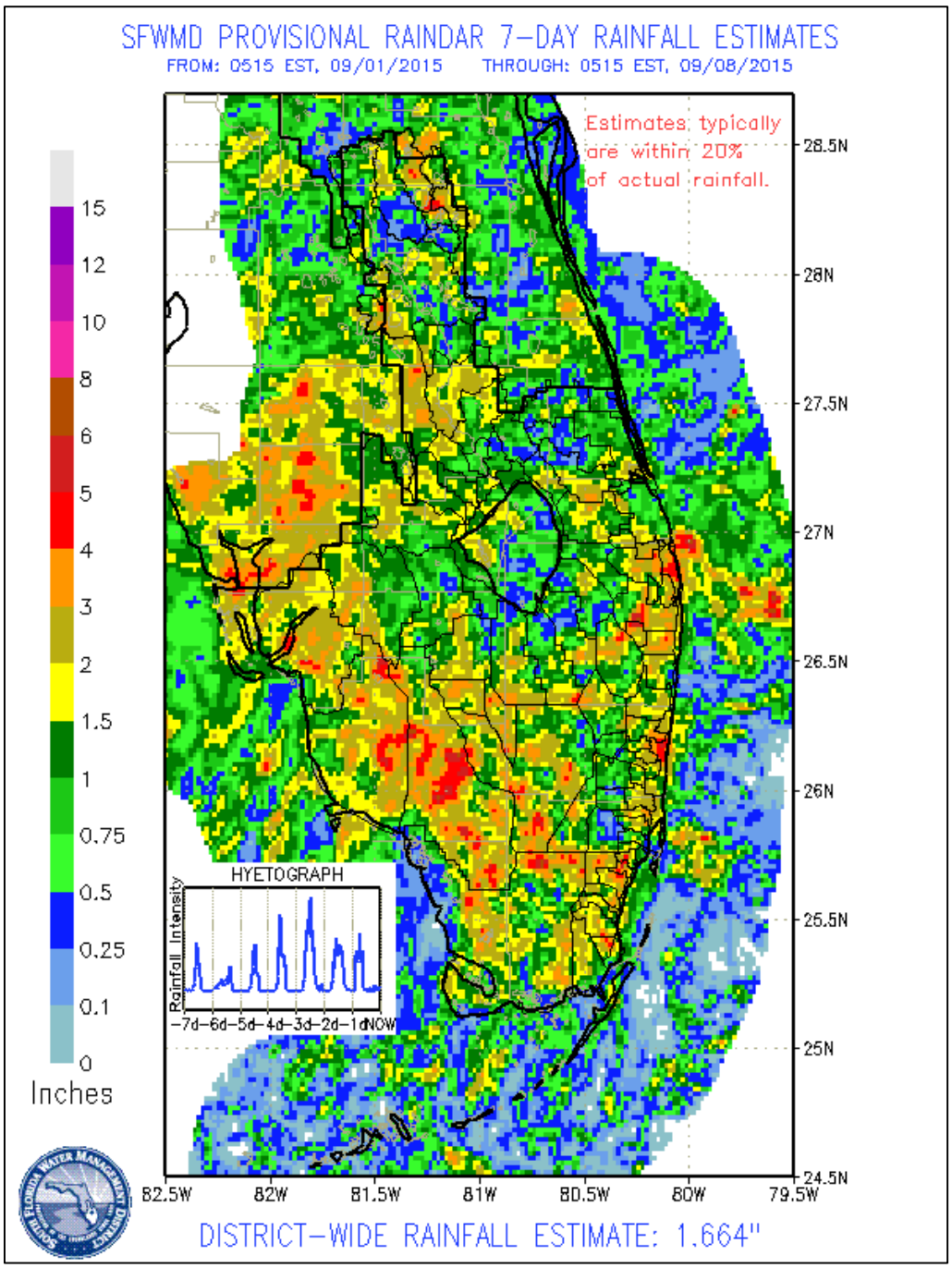


Figure 10. Two-Week Salinity Forecast for Caloosahatchee Val I-75 location assuming 0 cfs flow from S-79.

GREATER EVERGLADES

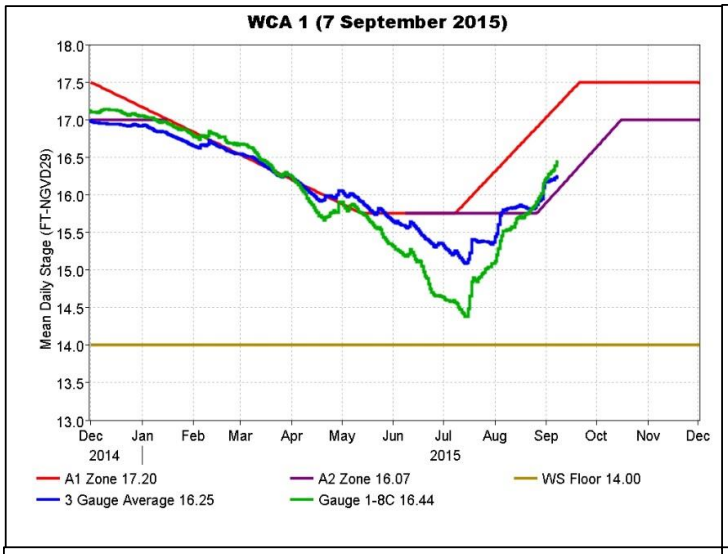
Rainfall was moderate with basin averages ranging from 0.88 inches in WCA-2B to 1.96 inches in WCA-3A. The local basin maximum rainfall was 6.39 inches in Everglades National Park (ENP) and over four inches in northern Taylor Slough. Stages rose from 0.07 feet to 0.30 feet throughout the Everglades.

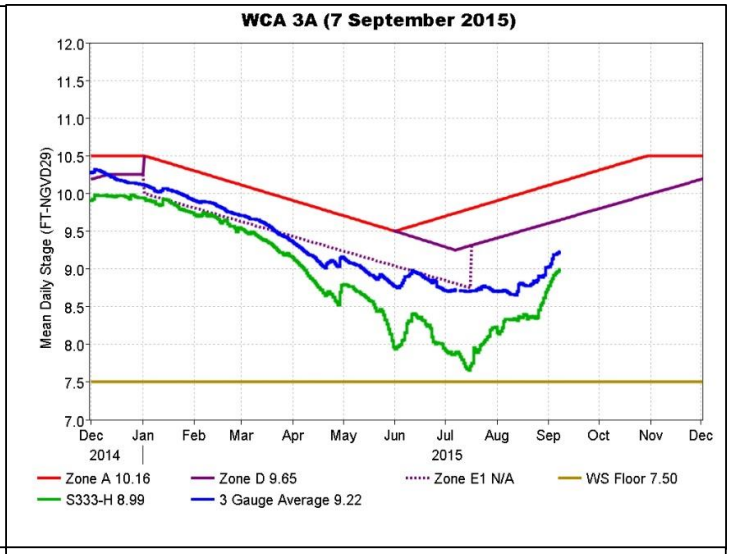
Everglades Region	Rainfall (Inches)	Stage Change (feet)
WCA-1	1.56	0.09
WCA-2A	1.63	0.12
WCA-2B	0.88	0.30
WCA-3A	1.96	0.22
WCA-3B	1.61	0.07
ENP	1.53	0.16

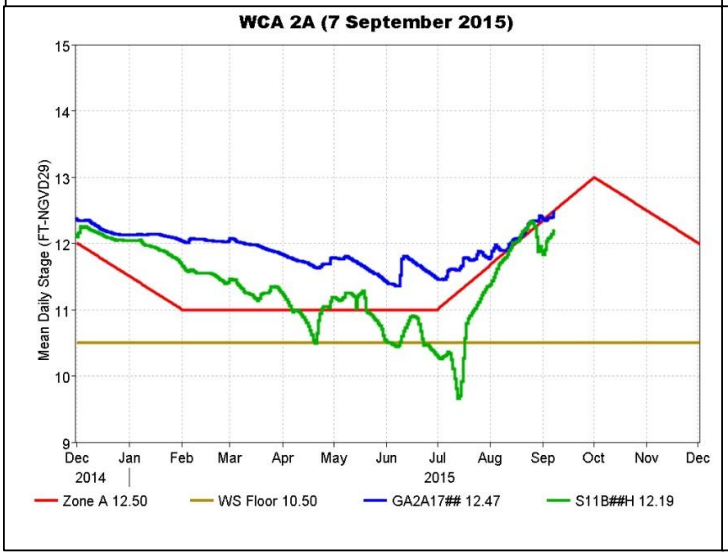


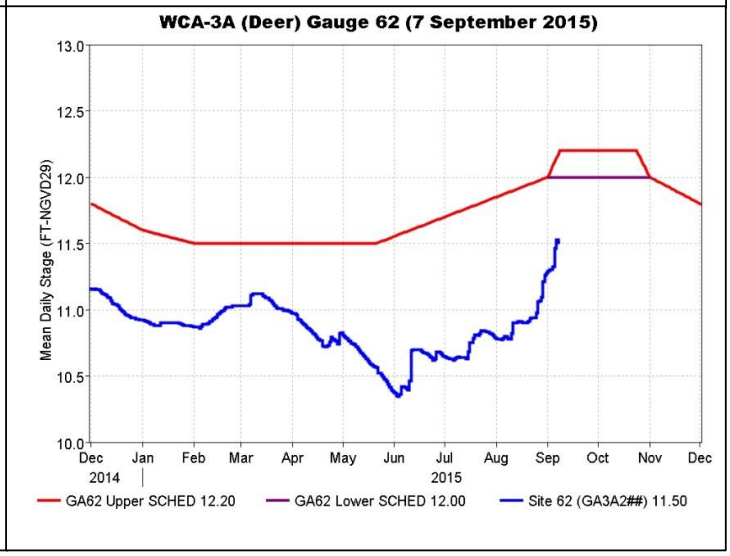
Regulation Schedules

Following last week's rainfall, stages rose throughout the Everglades. In WCA-1, the three gauge average wetlands stage is 0.18 feet above the rising Zone A2 line and 0.95 feet below regulation. The WCA-2A stage is 0.03 feet below regulation. In WCA-3A, stages remain low; the three-gauge average is 0.43 feet below Zone D and 0.94 feet below regulation. The water level at the northwestern WCA-3A gauge stage (gauge 62) is now 0.70 feet below the upper regulation schedule.





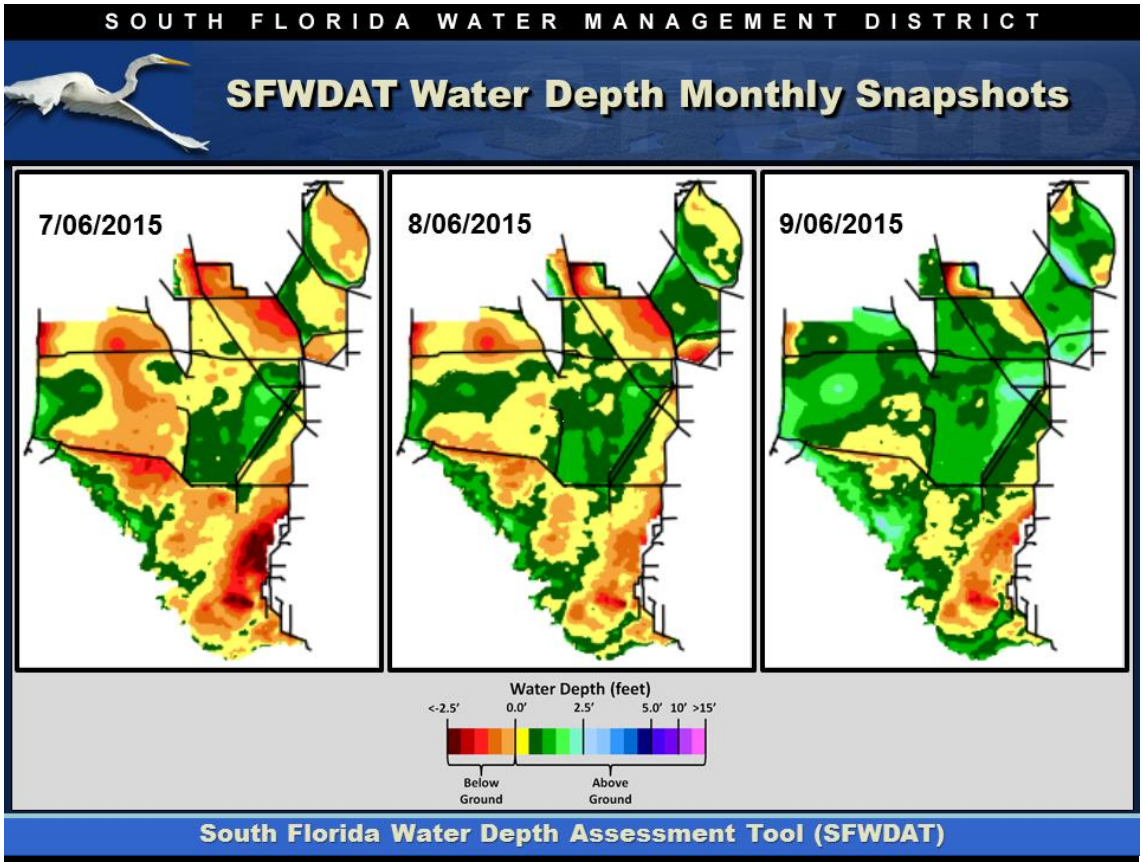


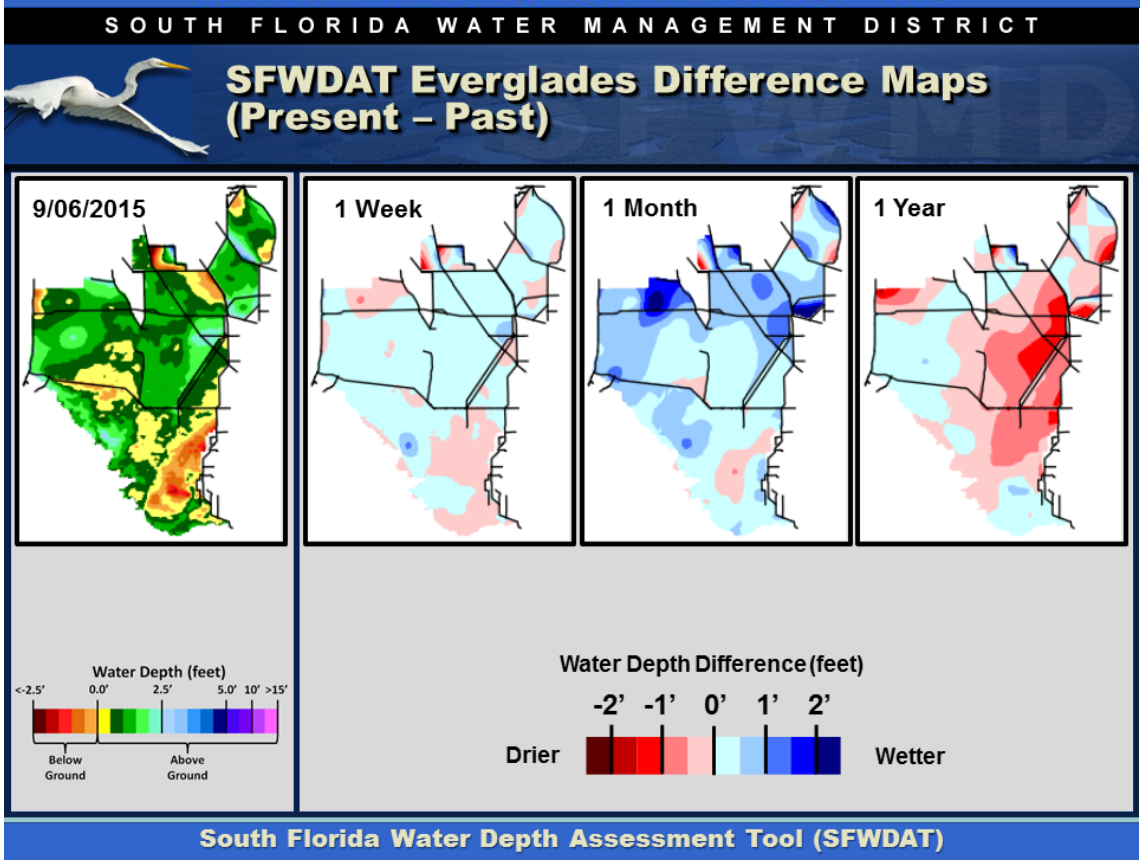


Water Depths and Changes

Water levels are higher than a month ago and two months ago, and are beginning to be more typical of earlier in the wet season. Water depths at the monitored gauges range from 0.49 feet in northeastern WCA-3A to 1.67 feet in southern WCA-3A. Over the last couple of weeks, depths have been rising in far northeastern WCA-3A and now appear to be 0.5 feet or less below ground.

Stages are higher than a week ago and up to two feet or more above stages a month ago. Compared to a year ago, stage differences are less but remain up to 1.5 feet lower. WCA-2B stage gauge changes represented both the lowest and the highest changes: -0.03 feet to 0.62 feet.

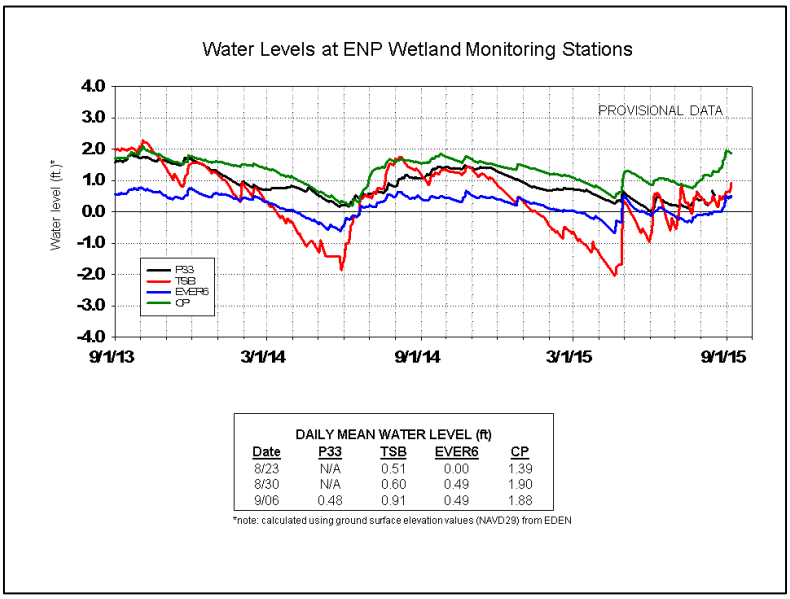




Everglades National Park (ENP) and Florida Bay

Water levels are higher than a month ago, but changes last week are mixed. In northern Taylor Slough, where rainfall was highest, water levels increased 0.3 feet, but closer to the shoreline, water levels

changed little. Compared to long term averages, central and southwestern Taylor Slough are now 0.7 to 1.4 inches above average. The site at Taylor Slough Bridge in northern Taylor Slough is low at 7.6 inches below average.



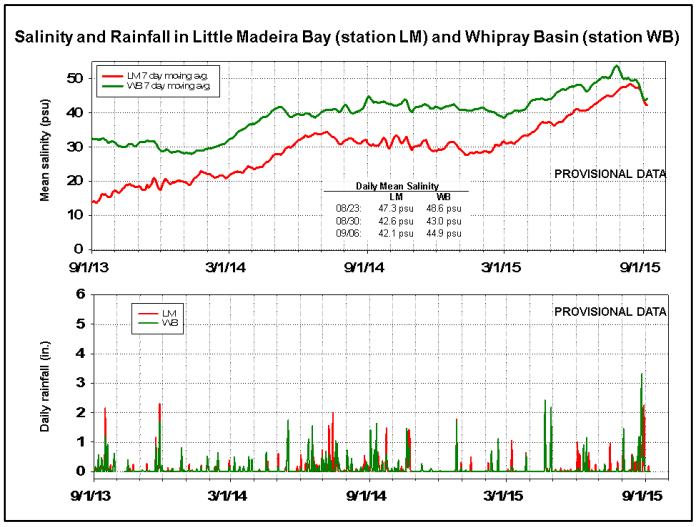
DAILY MEAN WATER LEVEL (ft)

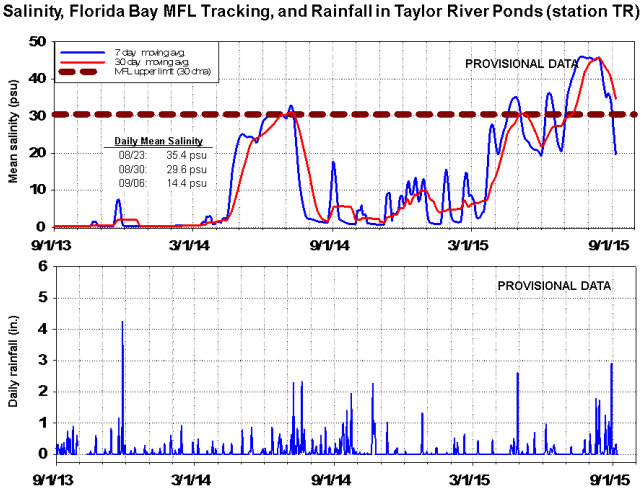
Date	P33	TSB	EVER6	CP
8/23	N/A	0.51	0.00	1.39
8/30	N/A	0.60	0.49	1.90
9/06	0.48	0.91	0.49	1.88

*note: calculated using ground surface elevation values (NAVD29) from EDEN

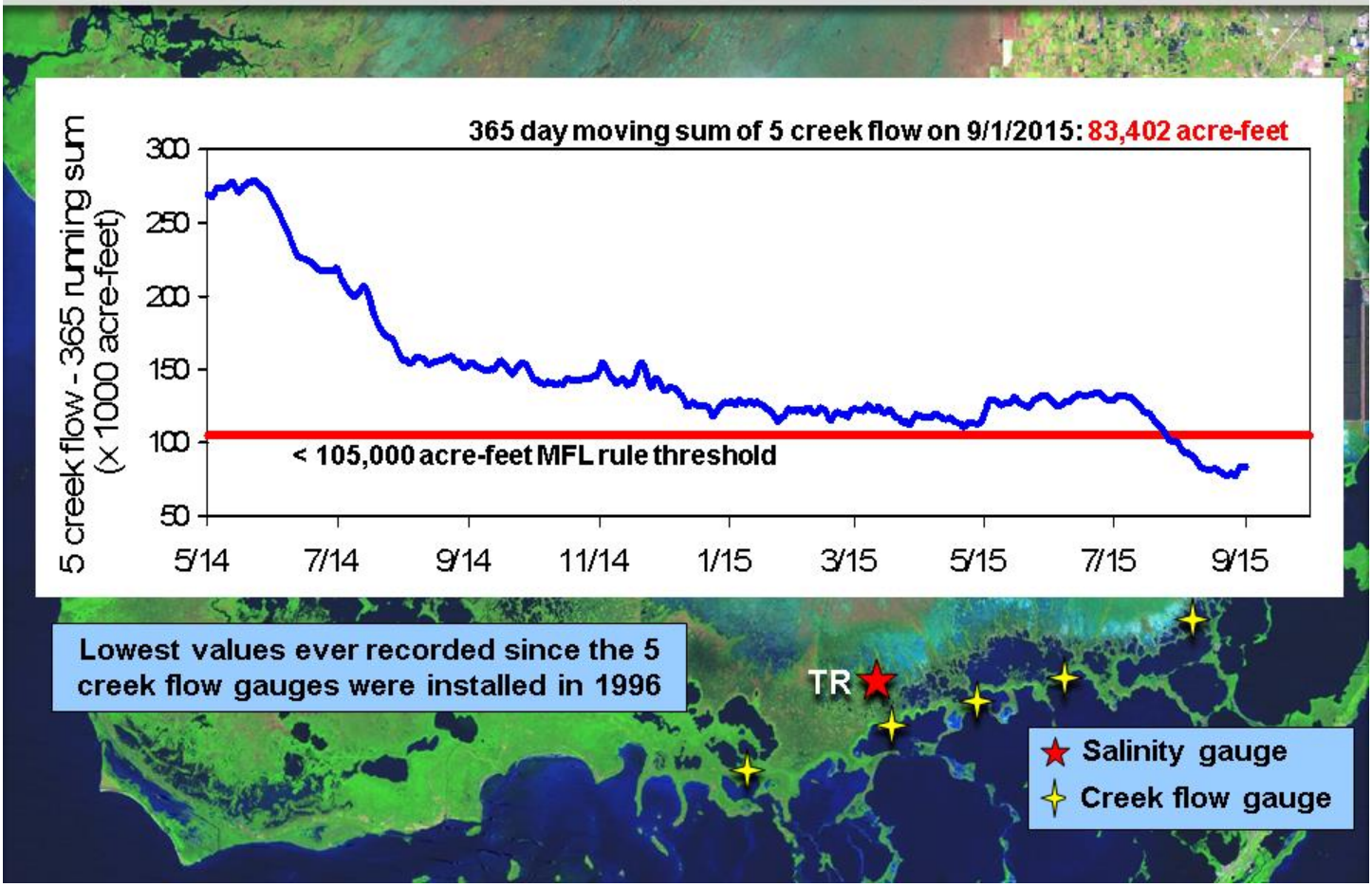
Salinities in Florida Bay remain 7 to 28 psu above average but are decreasing as a result of the rainfall and recent flows. The largest change was at the Minimum Flows and Levels (MFL) sentinel site, which decreased 15.2 psu last week to 14.4 psu. The 30-day moving average salinity decreased to 34.8, still above the 30 psu MFL criterion.

The gauge at the mouth of Taylor River stopped reporting on September 1 so the last reading available for the 365-day cumulative flow from the five creeks feeding Florida Bay was 83,402 acre-feet. While this value is still below the 105,000 acre-feet criteria for the Florida Bay MFL, inflow was increasing before the gauge failed. Creek flow data are provisional data from the U.S. Geological Survey.





Florida Bay Flow Update



Water Management Recommendations

- Water levels rose last week again. However, meeting the end of wet season stage targets for ecosystem needs (prey species, peat protection, and vegetation) requires ongoing rainfall assisted by water management.
- We recommend moving water south into ENP and storing water whenever possible in the WCAs.
- We continue to recommend releases into northeastern WCA-3A while stages remain below ground. Stages in northeastern WCA-3A are rising but remain up to 0.5 feet below ground. This region continues to need as much inflow as possible to rehydrate all of the wetlands.

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

Summary of Everglades Recommendations, September 8, 2015 (SFWMD) (red is new text)

Area	Current Condition	Cause(s)	Recommendation	Reasons
WCA-1	Stages increased from 0.01' to 0.23'	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 increased 0.12'	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 (12.52' on 9/8)	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 changed -0.03' to 0.62'.	Rainfall, ET, management	Recommend ascension rates up to 0.25 ft/wk, or 0.5 ft/14 days.	High stages preclude wading bird use, but provide good habitat for ducks.
WCA-3A NE	Stage increased 0.24'; gauge 63 is 0.49' above ground	Rainfall, ET, management	Water levels at gauge 63 are above ground, and water levels farther northeast are rising. Recommend continuing releases into far NE 3A to protect peat and wetlands until all water levels are above ground again. Average water stage of gauges 62 and 63 should remain under 11.60 feet. 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 also to allow taking advantage of rain events.
WCA-3A NW	Stage increased 0.21'	Rainfall, ET, management		
Central WCA-3A S	Stage increased 0.05'	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 (9.24' on 9/8). 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 increased 0.38'	Rainfall, ET, management		
WCA-3B	Stages increased from 0.01' to 0.14'	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 0.16'	ET, rainfall, topography, management	Discharges to the Park with the ERTP 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 appears to be complete. Conditions are still fairly dry.	Rainfall, ET, management	Request for extended closures for S-12A and S-12B is ended.	Provide habitat and appropriate nesting conditions for CSSS.
Taylor Slough	7.6 inches below average in the north. 1.4 inches above average in southwest.	Rain, ET, inflows	Move water southward as possible	Provide freshwater buffer for ecosystems and freshen saline conditions downstream
FB- Salinity	Hypersaline but decreasing. Still 7-28 psu above average	Rain, ET, inflows, wind.	Move water southward as possible	Southward flows are still needed to reverse/slow salinity increases