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, Operations, Engineering and Construction Bureau Paul Linton, Chief, Operations Section
- **FROM:** SFWMD Staff Environmental Advisory Team

DATE: January 16, 2018

SUBJECT: Weekly Environmental Conditions for Systems Operations

Summary

Weather Conditions and Forecast

Weather is forecast to be mainly dry and chilly tomorrow night through Saturday. A weak high pressure will dominate our skies for another 24 hours before a cold front pushes through the District tomorrow afternoon through evening. There is no real moisture with the front, so no associated rainfall is expected. Another round of cold air will filter down the peninsula behind the front tomorrow night through Thursday. There could be some freezing temperatures over the Upper Kissimmee and west of the Lake Thursday morning. Temperatures will rebound faster than with the last cold spell with near normal temperatures returning over the weekend. The next chance for significant rain is about a week away.

Kissimmee

Tuesday morning stages were 58.0 feet NGVD (at schedule) in East Lake Toho, 54.9 feet NGVD (0.1 foot below schedule) in Toho, and 50.8 feet NGVD (1.7 feet below schedule) in Kissimmee-Cypress-Hatchineha; headwater stages were 46.4 feet NGVD at S65A and 25.83 feet NGVD at S65D. Recessions in East Lake Toho and Toho are scheduled to begin on January 15, 2018; recession in Kissimmee-Cypress-Hatchineha began on January 1, 2018, with a rate of 0.1 feet per seven days (preferred maximum rate is 0.2 feet per seven days). Tuesday morning discharges were: 561 cfs at S65, 444 cfs at S65A, and 973 cfs at S65E. S-67 releases to Istokpoga Canal have been ~400 cfs for 28 days and have improved navigation in the canal by increasing the area of canal cross-section at the sandbar by 66%. Dissolved oxygen concentration in the Kissimmee River averaged 8.9 milligrams per liter (mg/L) for the week. Kissimmee River mean floodplain depth on Sunday was 0.24 feet.

Lake Okeechobee

Lake Okeechobee stage is 15.39 feet NGVD having increased 0.04 feet over the past week and decreased 0.36 feet over the last month. Following Hurricane Irma, stages exceeded 16.0 feet NGVD for 72 days, the longest period since late 2004, which was 73 days. Stages also exceeded 15.5 feet NGVD for 105 days, the longest period since late 2004. The submerged aquatic and emergent vegetation coverage in the nearshore areas of the Lake are expected to decline over the coming months and possibly years due to the high water and turbidity from resuspended Lake sediment. The high inflows and resuspended Lake sediment associated with Hurricane Irma also increased water column total phosphorus, which could lead to algal blooms as turbidity continues to decline and water temperatures rise.

Estuaries

Total inflow to the St. Lucie Estuary averaged 807 cfs over the past week with 0 cfs coming from Lake Okeechobee. Salinity decreased throughout the estuary. The seven-day average salinity at the US1

Bridge is in the good range for adult oysters. Average weekly dissolved oxygen levels at HR1 station in the North Fork were 9.34mg/L near the surface and 5.66 mg/L near the bottom.

Total inflow to the Caloosahatchee Estuary averaged 718 cfs over the past week with 169 cfs (24%) coming from the Lake. Salinity increased throughout the estuary. The 30-day moving average surface salinity is 0.3 at Val I-75 and 1.3 at Ft. Myers. The 30-day moving average salinity at Val I-75 is forecast to be 1.5 in two weeks with no flow through S-79. Salinity conditions between Val I-75 and Ft. Myers are good for tape grass. Salinity conditions are in the good range for adult oysters at Shell Point and at Cape Coral. Chlorophyll *a* measurements show low chlorophyll *a* concentration levels near Shell Point (1.97– 4.57µg/L) over the last week. Dissolved oxygen levels at Shell Point were 7.25 – 9.51 mg/L. *Karenia brevis* (Florida red tide dinoflagellate) was observed in very low to medium concentrations in eighteen samples and one high concentration (east of Jug Creek Point in Matlacha Pass) collected from Lee County. Given the current estuarine conditions, there are no ecological benefits associated with freshwater releases from Lake Okeechobee.

Stormwater Treatment Areas

Over the past week, the STAs/FEBs received approximately 1,600 acre-feet of Lake regulatory releases. The total amount of Lake releases sent to the STAs/FEBs in WY2018 (since May 1, 2017) is approximately 23,600 acre-feet. Most STA cells are at or near target depths. Operational restrictions are in place for vegetation rehabilitation in STA-1E and STA-2. This week, if 2008 LORS recommends Lake releases to the WCAs and the conditions allow, releases will be sent to STA-1E Eastern Flowway, STA-2 Flow-ways 1 and 4, and STA-3/4 Western Flow-way.

Everglades

Stages have dropped significantly in WCA-3A over the last two months. While there continues to be a need to relieve high water conditions in the southern part of that basin, in northern WCA-3A, depth conditions are reaching levels of ecological importance. Slowing the recession rates in northern WCA-3A from 0.19 feet per week to around 0.10 feet per week could help to protect foraging habitat and the important Alley North colony. Keeping depths below 2.5 feet at gauge 65 in WCA-3A is important to moderate the stress to tree islands caused by flooding when durations last longer than 60-90 days. The depth on Sunday at that location increased to 2.67 feet, and has exceeded 2.5 feet for 213 days. In Taylor Slough, water levels remain 3 inches to 16 inches above the historic average for this time of year, and Florida Bay salinities are 5 psu lower than the historic averages for this time of year with the largest divergence occurring in the central nearshore.

Supporting Information

KISSIMMEE BASIN

Kissimmee Basin Rainfall

The Upper Kissimmee Basin received 0.13 inches of rainfall in the past week and the Lower Basin received 0.36 inches (SFWMD Daily Rainfall Report 1/16/2018).

Upper Kissimmee Basin

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

 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: 1/16/2018

		7-day			Schedule Daily Departure (feet)								
Water Body	Structure	Average Discharge (cfs) ¹	Stage Monitoring Site ²	Lake Stage (feet)	Schedule Type ³	Stage (feet)	1/15/18	1/8/18	1/1/18	12/25/17	12/18/17	12/11/17	12/4/17
Lakes Hart and Mary Jane	S62	38	LKMJ	61.0	R	61.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Lakes Myrtle, Preston, and Joel	S57	24	S57	61.5	R	61.5	0.0	0.0	-0.1	0.0	0.0	0.0	-0.1
Alligator Chain	S60	0	ALLI	64.0	R	64.0	0.0	-0.1	-0.1	-0.1	-0.1	0.0	0.0
Lake Gentry	S63	0	LKGT	61.5	R	61.5	0.0	0.0	0.0	0.0	0.0	0.0	0.1
East Lake Toho	S59	51	TOHOE	58.1	R	58.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0
Lake Toho	S61	288	TOHOW, S61	55.0	R	55.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0
Lakes Kissimmee, Cypress, and Hatchineha	S65	566	KUB011, LKIS5B	50.8	R	52.5	-1.7	-1.7	-1.6	-1.4	-1.3	-1.2	-1.1

¹Seven-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.

³T = temporary schedule, R = USACE flood control schedule, S = temporary snail kite schedule, A = projected ascension line, N/A= not applicable or data not available. DATA ARE PROVISIONAL

Lower Kissimmee Basin

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

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

Report Date:	1/16/2018											
		1-Day Average Average for the Preceeding 7-Days ¹										
Metric	Location	1/15/2018	1/15/18	1/8/18	1/1/18	12/25/17	12/18/17	12/11/17	12/4/17	11/27/17	11/20/17	11/13/17
Discharge (cfs)	S-65	568	566	548	515	551	559	372	534	894	1,065	1,319
Discharge (cfs)	S-65A	445	445	453	441	447	448	317	436	784	999	1,303
Discharge (cfs)	S-65D ²	445	798	697	710	771	792	610	912	1,371	1,824	2,380
Stage (feet NGVD)	S-65D ²	25.89	25.86	25.75	25.77	25.81	25.75	25.96	26.12	26.36	26.56	26.80
Discharge (cfs)	S-65E ²	445	856	754	765	846	875	679	906	1,371	1,888	2,427
Discharge (cfs)	S-67	409	406	395	398	380	0	0	0	0	0	0
DO (mg/L) ³	Phase I river channel	9.6	8.9	8.0	6.5	7.1	6.7	5.4	5.6	5.8	5.2	4.2
Mean depth (feet) ⁴	Phase I floodplain	0.236	0.234	0.21	0.23	0.26	0.30	0.27	0.32	0.51	0.77	1.05

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

²S-65D discharge combines discharge at S-65D, S-65DX1, and S-65DX2; S-65D stage averages stage at S65D and S65DX1; S65E discharge combines S65E and S65EX1.

 ^{3}DO is the average for sondes at PC62 and PC33.

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

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

KCOL Hydrographs (through Sunday midnight)











Figure 3.















Figure 7.



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



Figure 9. Mean water depth in the northern Phase I, southern Phase I, northern Phase II/III, and southern Phase II areas in relation to the S65A discharge and S65D headwater stage.



Report Date: 1/16/2018; data are through: 1/15/2018.

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



Figure 11. Phase I river channel dissolved oxygen and water temperature (measured at 15 minute intervals) and Pool BC daily rainfall.

Water Management Recommendations

Date	Recommendation	Purpose	Outcome	Source
1/16/2018	No new recommendations.		N/A	
1/9/2018	No new recommendations.		N/A	
12/19/2017	Begin discharge of 400 cfs from S67 into Istokpoga Canal.	Increase navigability by scouring channel and reducing sandbar at canal mouth.	Implemented	KB Ops/SFWMD Water Mgt
12/19/2017	Begin a stage recession on January 1 in Lakes Kissimmee-Cypress-Hatchineha starting at stage on January 1 to reach low pool on May 31. Recession rate not to exceed 0.2 ft/week as possible. Subject to SFWMD planned operations hierarchy.	Achieve fish and wildlife benefits by slowing lake stage recession rates relative to the regulation schedule recession rates.	-	KB Ops/SFWMD Water Mgt
12/19/2017	Begin stage recessions on January 15 in Lakes East Toho and Toho starting at stage on January 15, to reach low pools on May 31. Recession rate not to exceed 0.2 ft/week if possible. Subject to SFWMD planned operations hierarchy.	Achieve fish and wildlife benefits by slowing lake stage recession rates relative to the regulation schedule recession rates.	-	KB Ops/SFWMD Water Mgt
12/12/2017	No new recommendations.		N/A	
12/5/2017	No new recommendations.		N/A	
11/28/2017	No new recommendations.		N/A	
11/21/2017	No new recommendations.		N/A	
11/13/2017	No new recommendations.		N/A	
11/1/2017	No new recommendations.		N/A	
10/24/2017	No new recommendations.		N/A	
10/17/2017	No new recommendations.		N/A	
10/10/2017	No new recommendations.		N/A	
10/3/2017	No new recommendations.		N/A	
9/25/2017	No new recommendations.		N/A	
9/19/2017	No new recommendations.		N/A	
9/5/2017	No new recommendations.		N/A	
8/29/2017	No new recommendations.		N/A	
8/22/2017	No new recommendations.		N/A	
8/15/2017	No new recommendations.		N/A	
	Increase S65A discharge by 150 cfs to about 1400		-	SFWMD Water Mgt, KB
8/4/2017	cfs.	Reduce rate of stage rise in KCH.		Ops
8/1/2017	No new recommendations.		N/A	-

Kissimmee Basin Adaptive Recommendations and Operational Actions



Figure 12. Limits on rate of discharge change at S65/S65A starting with the 2016-2017 Dry Season.



Figure 13. Interim operations schedule for S-65. The discharge schedule shown to the right has not been used in recent years.



Figure 14. The Kissimmee Basin.

LAKE OKEECHOBEE

According to the USACE web site, Lake Okeechobee stage is at 15.39 feet NGVD for the period ending at midnight on January 15, 2018. This value is based on the use of four interior lake stations (L001, L005, L006 and LZ40) and four perimeter stations (S308, S352, S4 and S133). Lake stage last peaked at 17.20 feet NGVD on October 13, 2017 before declining to 16.8 feet NGVD on October 28, 2017 and then back up to 17.02 feet NGVD. The Lake is now 0.36 feet lower than it was a month ago, but 1.37 feet higher than a year ago (Figure 1). The Lake is now in the Low sub-band (Figure 2). According to RAINDAR, 0.65 inches of rain fell over the Lake during the week January 9, 2018 – January 15, 2018 with much of the watershed receiving less than 0.5 inches (Figure 3).

Average daily inflows to the Lake were the same as the past week, at roughly 1,200 cfs. Most of the inflows were from the Kissimmee River via the S65E and S84 structures, which averaged 856 cfs and 105 cfs daily, respectively. The S71 and S72 structures, along with Fisheating Creek, contributed a combined 121 average daily cfs as well.

Average daily outflows for the Lake also decreased from the previous week, going from 1,294 cfs to 552 cfs, due primarily to reductions in S77 discharges. S77 discharges decreased from 748 cfs the previous week to 221 cfs this past week, while S308 discharges went from 0 cfs to 29 cfs. Discharges south through the S350 structures decreased from an average of 547 cfs the previous week to 144 cfs this past week. Discharges to the L8 canal via Culvert 10A were made last week, averaging 158 daily cfs. The corrected evapotranspiration value based on the L006 weather platform solar radiation data was 0.08 inches for the past week.

Total Lake inflows and outflows for the last 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 4 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.

Satellite imagery indicates that algal bloom potential has remained very low over the past four months, based on NOAA's cyanobacteria monitoring product derived from the OLCI satellite sensor. Potential for elevated cyanobacterial levels were last observed in the northern portion of the Lake in early September 2017 (Figure 5). Along with decreasing temperatures, high winds from Hurricane Irma may have further reduced bloom potential on the Lake by increasing turbidity, but elevated TP levels from high inflows and resuspended Lake sediment are expected to produce high bloom potentials next year as turbidity continues to decline and temperatures increase.

Based on the Lake Okeechobee wading bird habitat suitability index, there are approximately 41,626 acres of suitable foraging habitat for long-legged birds and 8,362 acres for long and short legged birds on the Lake (Figure 6).

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

INFLOWS	Avg Daily Flow cfs	Equivalent Depth Week Total (in)
S65E & S65EX1	856	0.3
S71 & 72	84	0.0
S84 & 84X	105	0.0
Fisheating Creek	37	0.0
S154	13	0.0
S191	13	0.0
S133 P	36	0.0
S127 P	8	0.0
S129 P	7	0.0
S131 P	0	0.0
S135 P	33	0.0
S2 P	0	0.0
S3 P	0	0.0
S4 P	0	0.0
C5	0	0.0
Rainfall	1802	0.7
Total	2995	1.1

OUTFLOWS	Avg Daily Flow cfs	Equivalent Depth Week Total (in)
S77	221	0.1
S308	29	0.0
S351	18	0.0
S352	0	0.0
S354	126	0.0
L8	158	0.1
ET	1516	0.6
Total	2068	0.8

PROVISIONAL DATA

Water Management Recommendations

The Lake stage is 15.39 feet NGVD having increased 0.04 feet from the week prior, but decreased 0.36 feet over the past month. Submerged and emergent vegetation communities in the nearshore region have experienced stages >16.0 feet NGVD three times in less than two years, and stages >15.5 feet NGVD for 105 consecutive days this water year, the longest period since late 2004 (112 consecutive days). These stages, combined with turbid conditions from Hurricane Irma's winds, will likely cause substantial declines in these communities over the coming months and/or years. Lower Lake stages near the end of WY2018 would help to recover these important communities, and long, steady recessions of water levels throughout the dry season may help promote another productive year for wading birds on the Lake as well.



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



Lake Okeechobee Water Level History and Projected Stages





Figure 3. Rainfall estimates by basin.

Figure 4. Major inflows and outflows of Lake Okeechobee, including the S350 structures designated as South.



Figure 5. Potential for cyanobacterial blooms on Lake Okeechobee based on NOAA's harmful algal bloom monitoring system derived from Copernicus Sentinel-3 OLCI data from EUMETSAT.



Figure 6. Wading bird habitat suitability index for Lake Okeechobee based on the South Florida Water Depth Assessment Tool.

LAKE ISTOKPOGA

Lake Istokpoga stage is 39.22 feet NGVD as of midnight January 15, 2018 and is currently 0.28 feet below its regulation schedule to accommodate construction on downstream structures (Figure 7). Average daily flows into the lake from Josephine Creek for the week January 9, 2018 – January 15, 2018 were the same as the previous week, at 48 cfs. No data have been reported for Arbuckle Creek since July 4, 2017 as the gauge is being recalibrated after construction in the area. Average daily discharge from S68 and S68X over the past week decreased to 168 cfs from 325 cfs the week prior. According to RAINDAR, only 0.3 inches of rain fell in the Lake Istokpoga basin over the past week.



Figure 7. Recent stages on Lake Istokpoga.

ESTUARIES

St. Lucie Estuary:

Last week total inflow into the St. Lucie Estuary averaged about 807 cfs (Figures 1 and 2) and last month inflow averaged about 846 cfs. Last week's provisional averaged inflows from the tidal basin and the structures are shown in Table 1.

Location	Flow (cfs)
Tidal Basin Inflow	255
S-80	201
S-308	29
S-49 on C-24	125
S-97 on C-23	87
Gordy Rd. structure on Ten Mile Creek	139

Table 1.	Weekly average	ge inflows	(data is	provisional)).

Over the past week, salinity decreased throughout the estuary (Table 2, Figures 3 and 4). The sevenday moving average salinity of the water column (an average of the surface and bottom salinity) at the US1 Bridge is 14.9. Salinity conditions in the middle estuary are in 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 ovsters (*Crassostrea virginica*) in the middle estuary.

Sampling Site	Surface	Bottom	Envelope
HR1 (North Fork)	10.4 (13.5)	14.1 (16.3)	NA ¹
US1 Bridge	13.4 (16.3)	16.4 (20.3)	10.0-26.0
A1A Bridge	20.7 (24.9)	24.6 (26.9)	NA ¹

¹Envelope not applicable.

Continuous monitoring of water quality is conducted at HR1 in the North Fork. Weekly dissolved oxygen data are summarized in Table 3.

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Location	Depth	Average DO (mg/l)	Minimum DO (mg/l)	Maximum DO (mg/l)
HR1	surface	9.34	7.17	11.60
HR1	bottom	5.66	2.91	8.10

Caloosahatchee Estuary:

Last week total inflow into the Caloosahatchee Estuary averaged about 718 cfs (Figures 5 and 6) and last month inflow averaged about 1,939 cfs. Last week's provisional averaged inflows from the structures are shown in Table 4.

Table 4. Weekly average inflows (data is provisional)					
Location	Flow (cfs)				
S-77	221				
S-78	272				
S-79	608				

Over the past week, salinity increased throughout the estuary (Table 5, 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 (Figure 9). Salinity data were not available at Sanibel. The 30-day moving average surface salinity is 0.3 at Val I-75 and 1.3 at Ft. Myers. With no flow through S-79, daily salinity at Val I-75 is forecast in two weeks to be 4.1, and the 30-day moving average is forecast to be 1.5 (Figure 10). Salinity conditions between Val I-75 and Ft. Myers are good for tape grass.

Table 5. 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*)

Sampling Site	Surface	Bottom	Envelope				
S-79 (Franklin Lock)	0.3 (0.2)	0.5 (0.2)	NA ¹				
*Val 175	0.5 (0.2)	1.8 (0.4)	0.0-5.0 ²				
Ft. Myers Yacht Basin	3.9 (0.7)	7.6 (1.7)	NA				
Cape Coral	10.3 (7.1)	14.1 (9.0)	10.0-30.0				
Shell Point	20.3 (18.5)	21.4 (18.0)	10.0-30.0				
Sanibel	NR ³ (NR)	NR (NR)	10.0-30.0				

¹Envelope not applicable, ²Envelope is based on a 30-day average, and ³Not Reporting. *Val I75 is temporarily unavailable (salinity values are estimated using models developed for this site).

Monitoring data collected by the River, Estuary and Coastal Observing Network of Sanibel-Captiva Conservation Foundation using continuous sensors are summarized in Table 6 as concentration ranges of chlorophyll *a* and dissolved oxygen at Beautiful Island, Ft. Myers, and Shell Point in the Caloosahatchee Estuary.

Table 6. 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.

Parameter Name	RECON Monitoring Stations		
Farameter Name	Beautiful Island	Ft. Myers	Shell Point
Chlorophyll <i>a</i> (µg/l)	Down for maintenance	No Data	1.97 – 4.57
Dissolved Oxygen (mg/l)	Down for maintenance	No Data	7.25 – 9.51

The Florida Fish and Wildlife Research Institute reported on January 12, 2018, that *Karenia brevis, the Florida red tide dinoflagellate,* was observed in very low to medium concentrations in eighteen samples and one high concentration (east of Jug Creek Point in Matlacha Pass) collected from Lee County.

Water Management Recommendations

Lake stage is in the Low sub-band of 2008 LORS. Tributary hydrological conditions are normal. The 2008 LORS recommends up to 450 cfs at S-79 and up to 200 cfs at S-80. Given the current estuarine conditions, there are no ecological benefits associated with freshwater releases from Lake Okeechobee.



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



Figure 2. 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 US1 Bridge.



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



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



Figure 6. 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.





monitoring stations.



EVERGLADES

Over the last week individual gauge changes in the WCAs ranged from +0.03 feet (southern WCA-3A and WCA-1) to -0.20 feet (Everglades National Park).

Everglades Region	Rainfall (Inches)	Stage Change (feet)
WCA-1	0.54	+0.00
WCA-2A	0.64	-0.14
WCA-2B	0.54	-0.05
WCA-3A	0.45	-0.06
WCA-3B	0.21	-0.07
ENP	0.19	-0.20



Regulation Schedules: WCA-1 three-gauge average continues trending along the top of the Zone A1 schedule, at 0.17 feet above. WCA-2A (subject to a temporary deviation – see inset) marsh stage at gauge GA2A17 remains 1.09 feet above Zone A1, below the temporary schedule, and continues trending away from temporary schedule. WCA-3A three-gauge average stage remains 0.06 feet below Zone A and continues to decrease. Stage difference between the marsh and the canal is 0.34 feet. WCA-3A at gauge 62 (northwest corner) remains 0.39 feet below the upper schedule.



Water Depths and Changes: The WDAT tool for spatial interpolation of depth indicates a range from a low of 0.0 feet to 0.5 feet along the northern perimeter of WCA-3A and northern WCA-2A, to a high of 3.5 feet to 4.0 feet along the northern L-67A canal in southern WCA-3A. Comparing WDAT water levels from present, water depths over the last week fell across the entire Everglades, with the exception being the northeastern and southwestern regions of WCA-1. Looking back one month, stages in all the WCAs are lower, with a majority of WCA-3A and 2A being significantly lower. Pan evaporation was estimated at 0.77 inches over the last week.



Taylor Slough stages: Water level changes in Taylor Slough this past week ranged from -0.04 feet to -0.06 feet, while the ENP panhandle increased by 0.01 feet which is similar patterning to last week. Water levels are 3 inches to 16 inches above the historic average for this time of year with the highest divergence occurring in northern Taylor Slough.

Florida Bay Salinities: Salinities were fairly stable last week with weekly changes being less than 3.5 psu. Current salinities range from 5 psu in the northeastern embayments to 30 psu in the central and western bay. Salinities are as much as 5 psu lower than the historic averages for this time of year with the largest divergence occurring in the central nearshore.







Florida Bay MFL: Mangrove zone daily average salinity remains near fresh at 0.6 psu and has started to slowly increase. The 30-day moving average is 0.6 psu. The weekly cumulative flow from the five creeks denoted by yellow stars on the map decreased by about 2,000 acre-feet over the last week to end at just under 4,500 acre-feet. This is double the historical average for this time of year. Flows are expected to decrease as the dry season progresses. The 365-day moving sum of flow from the five creeks identified by yellow stars on the map decreased about 1,700 acre-feet over the last week to end at 318,262 acre-feet (still greater than the long-term average of 257,628 acre-feet). Creek flow is provisional data from the USGS and is highly variable.



Water Management Recommendations

Deep water conditions persist in southern WCA-3A causing stress to tree islands, however the severity is lessening. Water managers should continue using all practicable means to lower water levels in southern WCA-3A until that region reaches appropriate depths for wading bird foraging. However, northern WCA-3A stages are receding quickly (approximately 0.18 feet per week) to depths of ecological importance as the wading bird nesting season begins. Wading bird reconnaissance flights resume next week. Slowing the recession rates in northern WCA-3A from around 0.20 feet per week to 0.10 feet per week could help to protect foraging habitat and the important Alley North colony by maintaining open water around the historic colony tree islands. More specific recommendations appear in the summary table below. The red text represents new or modified information or recommendations.

Everglades Ecological Recommendations, January 16th, 2018 (red is new)						
Area	Current Condition	Cause(s)	Recommendation	Reasons		
WCA-1	Stages were unchanged	Rainfall, ET, management	Maintain depths at high end of regulation schedule or slightly above.	Protect habitat and facilitate invasive plant treatments.		
WCA-2A	Stages decreased -0.14'	Rainfall, ET, management	Maintain depths at temporary regulation schedule or slightly above.	Protect downstream habitat and wildlife from high water stress.		
WCA-2B	Stages decreased -0.05'	Rainfall, ET, management	Maintain depths at regulation schedule or slightly above.	Protect downstream habitat and wildlife from high water stress.		
WCA-3A NE	Stages decreased -0.14'	Rainfall, ET, management	Moderate recession rates as stages reach regulation	Protect habitat and wildlife, foster conditions for optimal wading bird foraging and protect nesting habitat.		
WCA-3A NW	Stages decreased -0.04'	Rainfall, ET, management	schedule.			
Central WCA-3A S	Stages decreased -0.09'	Rainfall, ET, management	Moderate recession rates as stages reach regulation	Water depths above 2.5 feet at gauge 65 are indicative that tree islands are fleaded and under chees. Depths exceeded that mark on 19 lune		
Southern WCA-3A S	Stages increased +0.02'	Rainfall, ET, management	schedule. Manage for relief of high water conditions.	meaning the tree islands have been flooded for 213 days.		
WCA-3B	Stages decreased -0.07'	Rainfall, ET, management	Maintain depths at regulation schedule.	Protect habitat and wildlife from high water stress.		
ENP-SRS	Stages decreased -0.20'	ET, rainfall, topography, management	Make discharges to the Park according to the 2012 WCP rainfall plan.	Keep peat wet to promote native habitat and maintain wetland plant and animal communities. Protect habitat and wildlife, including apple snail reproduction.		
Taylor Slough	Stage changes ranged from -0.06' to +0.01'	Rain, ET, inflows	Move water southward as possible	When available, provide freshwater buffer for downstream conditions.		
FB- Salinity	Salinity changes ranged -1.5 to +3.1 psu.	Rain, ET, inflows, wind	Move water southward as possible	When available, provide freshwater to main low salinity buffer and promote water movement.		