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

M E M O R A N D U M

TO: John Mitnik, Assistant Executive Director, Executive Office Staff

FROM: SFWMD Staff Environmental Advisory Team

DATE: October 23, 2024

SUBJECT: Weekly Environmental Conditions for Systems Operations

Summary

Weather Conditions and Forecast

Tropical Storm Oscar is expected to transition into a post-tropical cyclone as it moves northeast into higher latitudes. At the same time, a strong mid-level high-pressure system is located over the northeastern US, creating a pressure gradient that is driving northeasterly winds across Florida. These winds will bring dry, stable mid-latitude air into the region. However, pockets of shallow oceanic moisture, carrying isolated showers, will occasionally move into parts of the east coast throughout the week. By early next week, an upper-air disturbance over the northeastern Gulf of Mexico could raise moisture levels, increasing the likelihood of showers along the east coast. Much, much below average total SFWMD rainfall is expected for the 7-day period ending next Tuesday morning.

Kissimmee

Releases continued in the last week from East Lake Toho and Lake Toho to lower lake stage back to their respective regulation schedules because of above average rainfall due in part to Hurricane Milton. Weekly average discharge on October 20, 2024, was 3,000 cfs and 4,000 cfs at S-65 and S-65A, respectively. Mean weekly water depth on the Kissimmee River floodplain increased by 0.37 feet to 2.12 feet. Although the daily concentration of dissolved oxygen in the Kissimmee River increased over the last week, the weekly average concentration decreased from 1.3 mg/L the previous week to 0.9 mg/L, which is below both the potentially lethal level of 1.0 mg/L and the stressful level of 2.0 mg/L (**Figure KB-6**).

Lake Okeechobee

Lake Okeechobee stage was 14.72 feet NAVD88 (16.03 ft NGVD29) on October 20, 2024, which was 0.14 feet higher than the previous week and 0.93 feet higher than a month ago. This is the fifth year in a row that stages have exceeded 16 feet NGVD29. Average daily inflows (excluding rainfall) remain elevated, but decreased from 9,320 cfs the previous week, to 7,980 cfs. There have been no discharges from the Lake since the start of September. The most recent non-obscured satellite image from October 16, 2024, suggests minimal bloom activity on Lake Okeechobee. Provisional results from the

October 1-2 routine water quality and phytoplankton monitoring sampling trips showed *Microcystis aeruginosa* dominated communities at 15 of the 30 sites sampled, two sites had detectable (>0.25 µg/L) microcystin toxin concentrations, 7 sites had chlorophyll *a* concentration between 20-40 µg/L, and 10 had concentrations above the SFWMD recognized bloom threshold of 40 µg/L.

Estuaries

Total inflow to the St. Lucie Estuary averaged 2,360 cfs over the past week with no flow coming from Lake Okeechobee. Mean salinities increased at all sites over the past week. Salinity in the middle estuary was in the damaging range (<5) for adult eastern oysters.

Total inflow to the Caloosahatchee Estuary averaged 3,284 cfs over the past week with no flow coming from Lake Okeechobee. Over the past week, data were not recorded at Sanibel, Shell Point, Cape Coral, or Ft. Myers, and was intermittently recorded at S-79. Repairs are underway to get sensors back online after Hurricanes Helene and Milton. Salinities were in the optimal range (0-10) for tape grass in the upper estuary.

Stormwater Treatment Areas

For the week ending Sunday, October 20, 2024, no Lake Okeechobee water was delivered to the FEBs/STAs. The total amount of Lake releases sent to the FEBs/STAs in WY2025 (since May 1, 2024) is approximately 69,200 ac-feet. The total amount of inflows to the STAs in WY2025 is approximately 930,000 ac-feet. STA cells are above target stage. STA-1E Central Flow-way is offline for construction activities. Operational restrictions are in effect in STA-1E Western and Eastern Flow-ways, STA-1W Northern Flow-way, STA-2 Flow-ways 2 and 4, and STA-3/4 Eastern Flow-way for vegetation management activities. This week, there is no capacity for Lake releases in the STAs.

Everglades

Rates of stage change over the week were categorized as good throughout the Everglades Protection Area (EPA). Stages at Gauge 63 are starting to show increased recession rates but still remain in a good position for target water depths above the 9.4 foot-threshold supportive of nesting at the Alley North colony. Stages remain above average across most of the EPA. Average stage in Taylor Slough decreased last week but remains above the average for this time of year. Daily flow entering Florida Bay was above historical levels in the last half of the week, and salinity decreased in all regions of the bay. All regions of the bay now fall below the salinity Interquartile Range. Florida Bay MFL metrics remain well outside thresholds of harm.

Biscayne Bay

Total inflow to Biscayne Bay averaged 1,405 cfs, and the previous 30-day mean inflow averaged 1,731 cfs. The seven-day mean salinity was 13.6 at BBCW8 and 23.7 at BBCW10, both within the ideal salinity range for estuarine organisms in this region (salinity less than 35). Data were provided by Biscayne National Park.

Supporting Information

Kissimmee Basin

Upper Kissimmee

On October 20, 2024, mean daily lake stages were 56.8 feet NAVD88 (0.2 feet above schedule) in East Lake Toho, 53.7 feet NAVD88 (0.3 feet above schedule) in Lake Toho, and 51.1 feet NAVD88 (at the Increment 1 temporary deviation schedule) in Lakes Kissimmee-Cypress-Hatchineha (KCH) (**Table KB-1**, **Figures KB-1-3**).

Lower Kissimmee

For the week ending October 20, 2024, mean weekly discharge was 3,000 cfs and 4,000 cfs at S-65 and S-65A, respectively. Mean weekly discharge from the Kissimmee River was 4,200 cfs and 4,200 cfs at S-65D and S-65E, respectively (**Table KB-2**). Mean weekly headwater stages were 45.8 feet NAVD88 at S-65A and 27.0 feet NAVD88 at S-65D. Mean weekly river channel stage increased by 1.2 feet to 38.3 feet NAVD88 (**Figure KB-4**). Mean weekly water depth on the Kissimmee River floodplain increased by 0.37 feet to 2.12 feet (**Table KB-2**, **Figure KB-5**). The weekly average concentration of dissolved oxygen in the Kissimmee River decreased from 1.3 mg/L the previous week to 0.9 mg/L (**Table KB-2**, **Figure KB-6**).

Water Management Recommendations

Follow the Headwaters Revitalization Schedule (HRS) Increment 1 Temporary Deviation Discharge Plan for S-65/S-65A (**Figure KB-7**). Maintain at least minimum flow (250-300 cfs) at S-65A.

Table KB-1. Average discharge for the preceding seven days, Sunday's average daily stage and Sunday's average daily departure from Kissimmee Chain of Lakes (KCOL) flood regulation lines or temporary schedules. All data are provisional.

Water Body	Structure	Stage Monitoring Site	Weekly (7-Day) Average Discharge (cfs)	Sunday Lake Stage (feet NAVD88)[a]	Schedule Type[b]	Sunday Schedule Stage (feet NAVD88)	Sunday Departure from Regulation (feet)	
							10/20/24	*10/13/24*
Lakes Hart and Mary Jane	S-62	LKMJ	380	59.9	R	59.5	0.4	1.0
Lakes Myrtle, Preston and Joel	S-57	S-57	110	61.5	R	60.6	0.9	1.4
Alligator Chain	S-60	ALLI	130	62.8	R	62.7	0.1	-0.3
Lake Gentry	S-63	LKGT	130	60.4	R	60.2	0.2	-0.1
East Lake Toho	S-59	TOHOE	860	56.8	R	56.6	0.2	0.4
Lake Toho	S-61	TOHOW S-61	1600	53.7	R	53.4	0.3	0.1
Lakes Kissimmee, Cypress and Hatchineha	S-65	KUB011 LKIS5B	3000	51.1	T	51.1	0.0	0.0

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

b. A: projected recession line; R: USACE regulation schedule; S: temporary recession target line; T: temporary schedule; NA: not applicable or not available.

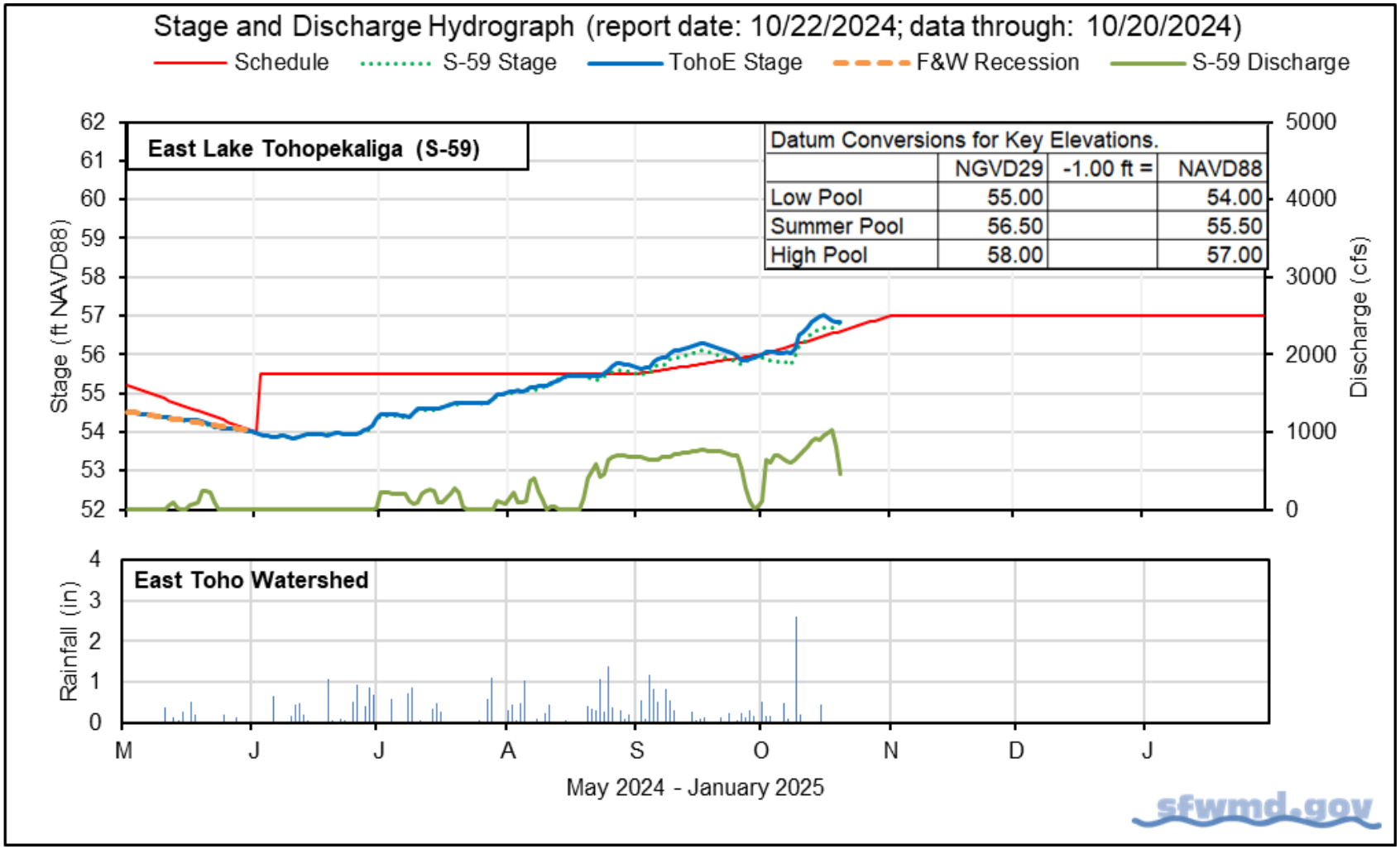


Figure KB-1. East Lake Toho regulation schedule, stage, discharge, and rainfall.

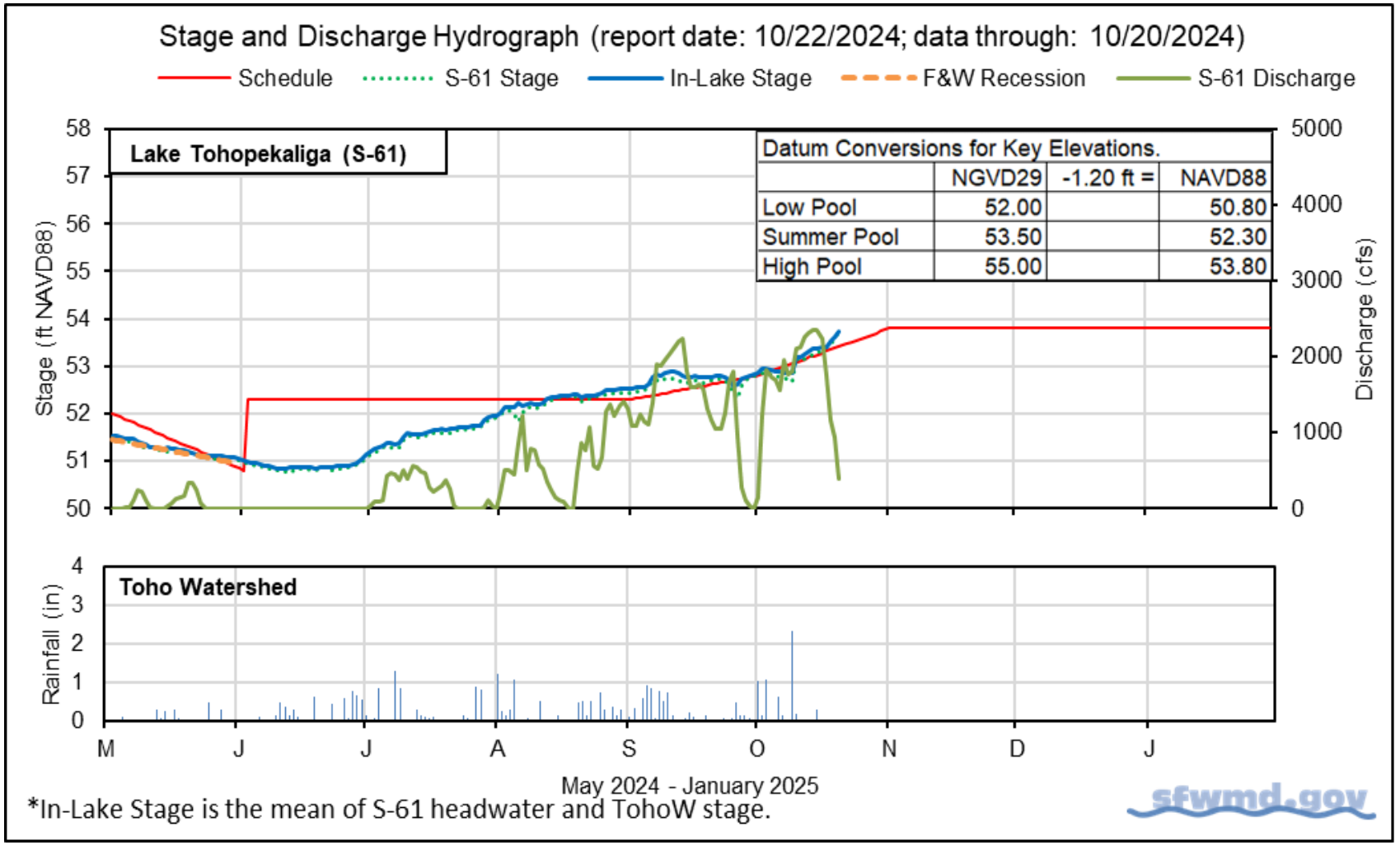


Figure KB-2. Lake Toho regulation schedule, stage, discharge, and rainfall.

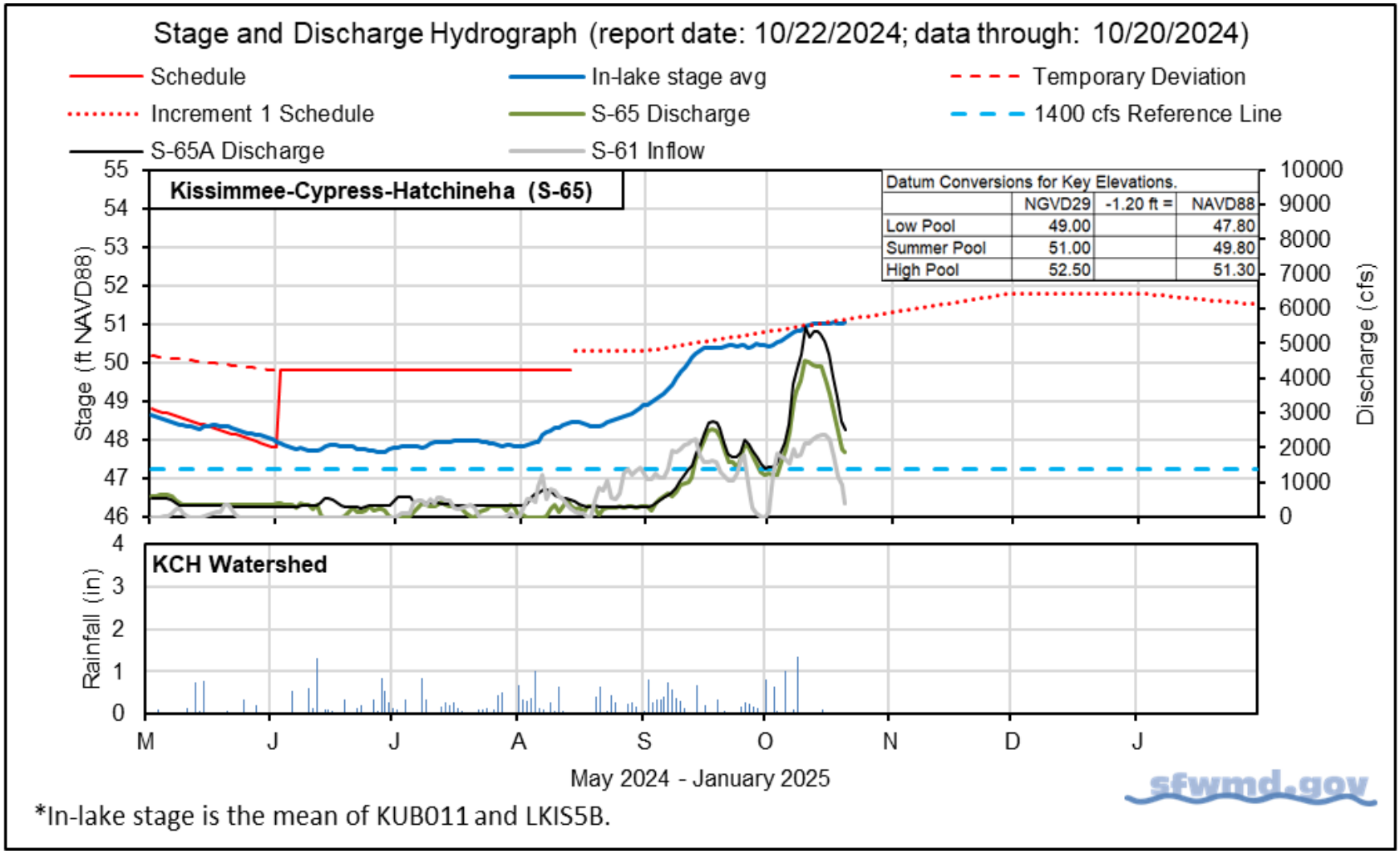


Figure KB-3. Lakes Kissimmee, Cypress and Hatchineha regulation schedule, stage, discharge, and rainfall.

Table KB-2. One- and seven-day average discharge and stage at Lower Kissimmee basin structures, river channel dissolved oxygen concentrations and water depths in the Phase I area floodplain. All data are provisional.

Metric	Location	Sunday Daily Average	Weekly Average for Previous Seven Day Periods			
		10/20/24	10/20/24	10/13/24	10/6/24	9/29/24
Discharge	S-65	1,900	3,000	4,100	1,500	1,700
Discharge	S-65A[a]	2,500	4,000	4,900	1,800	1,900
Headwater Stage (feet NAVD88)	S-65A	45.2	45.8	45.6	44.9	45.0
Discharge	S-65D[b]	4,800	4,200	2,400	2,300	2,100
Headwater Stage (feet NAVD88)	S-65D[c]	27.1	27.0	26.8	26.3	26.1
Discharge (cfs)	S-65E[d]	4,800	4,200	2,600	2,400	2,200
Discharge (cfs)	S-67	0	0	0	0	0
Dissolved Oxygen (mg/L) [e]	Phase I, II/III river channel	1.1	0.9	1.3	0.9	0.5
River channel mean stage (feet NAVD88) [f]	Phase I river channel	38.1	38.3	37.1	36.2	36.4
Mean depth (feet) [g]	Phase I floodplain	1.64	2.12	1.75	1.20	1.36

a. Combined discharge from main and auxiliary structures.

b. Combined discharge from S-65D, S-65DX1, and S-65DX2.

c. Average stage from S-65D and S-65DX1.

d. Combined discharge from S-65E and S-65EX1.

e. Dissolved oxygen is the average of values from sondes KRBN, PC62, PC33, PD62R, and PD42R.

f. Mean of five river channel stations (PC62, KRDR02, KRBN, PC33, PC11) in the Phase I area.

g. One-day spatial average obtained from the South Florida Water Depth Assessment Tool (SFWDAT).

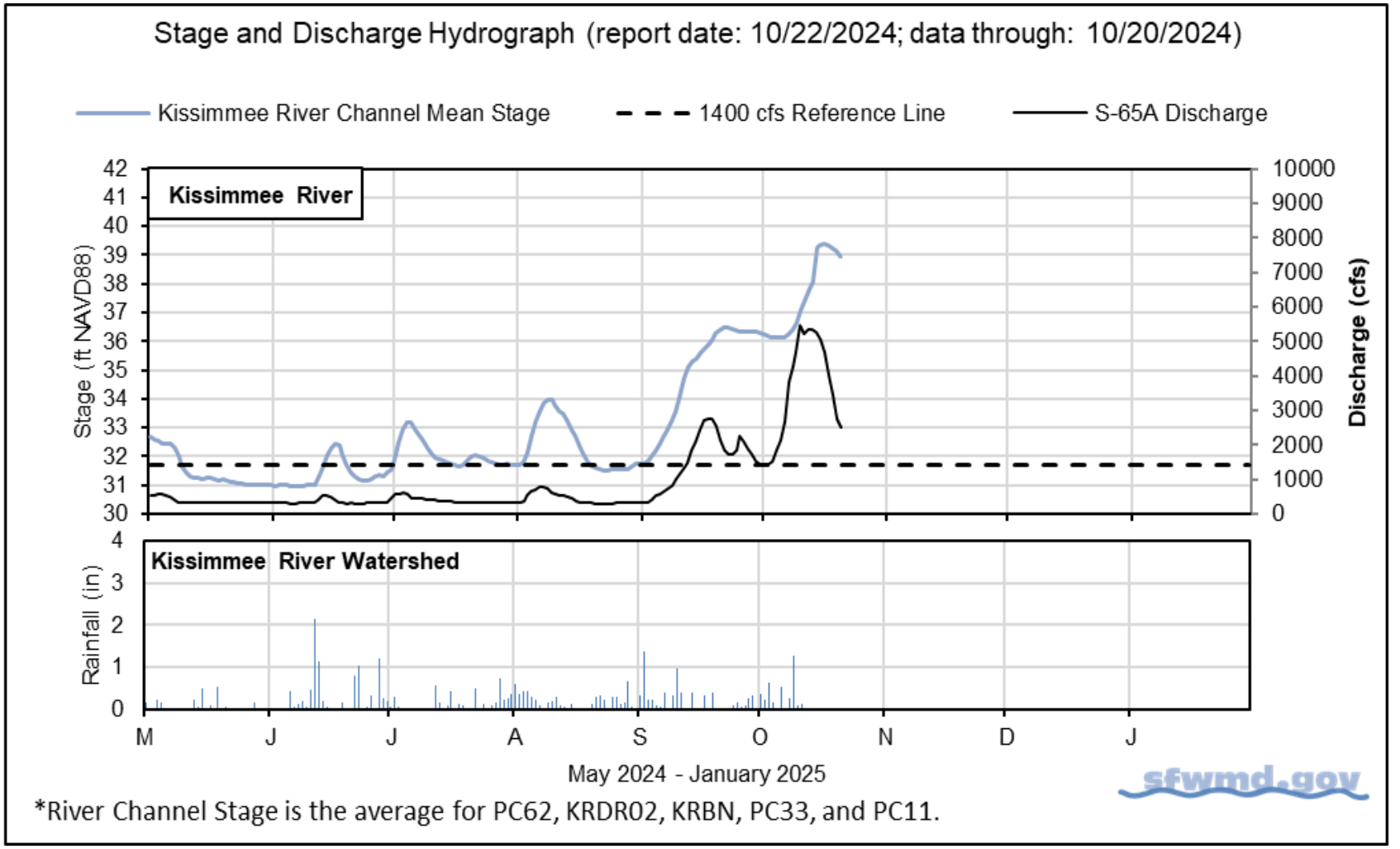


Figure KB-4. Kissimmee River stage, discharge, and rainfall.

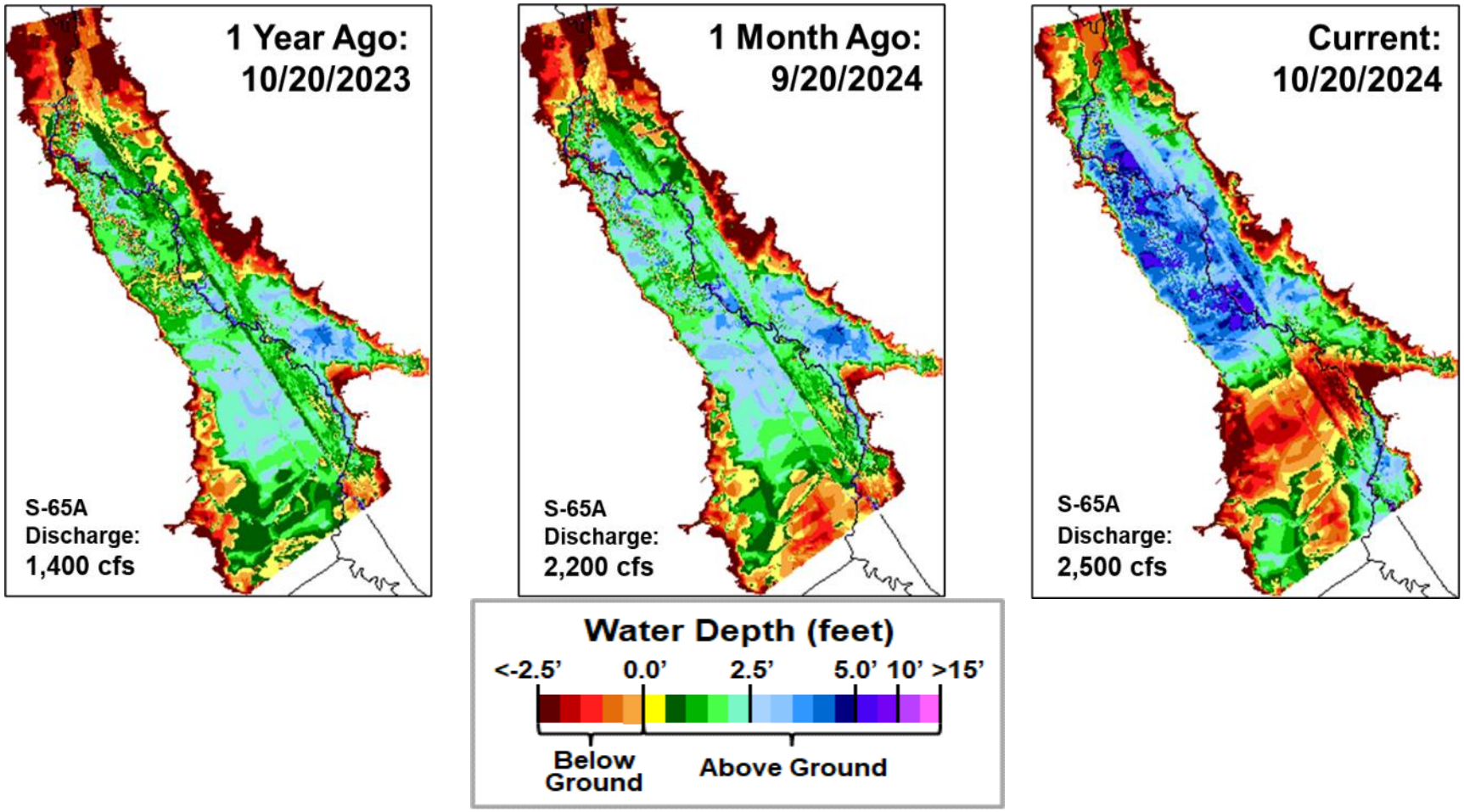


Figure KB-5. Phase I area Kissimmee River floodplain water depths (from left to right) one year ago, one month ago, and current.

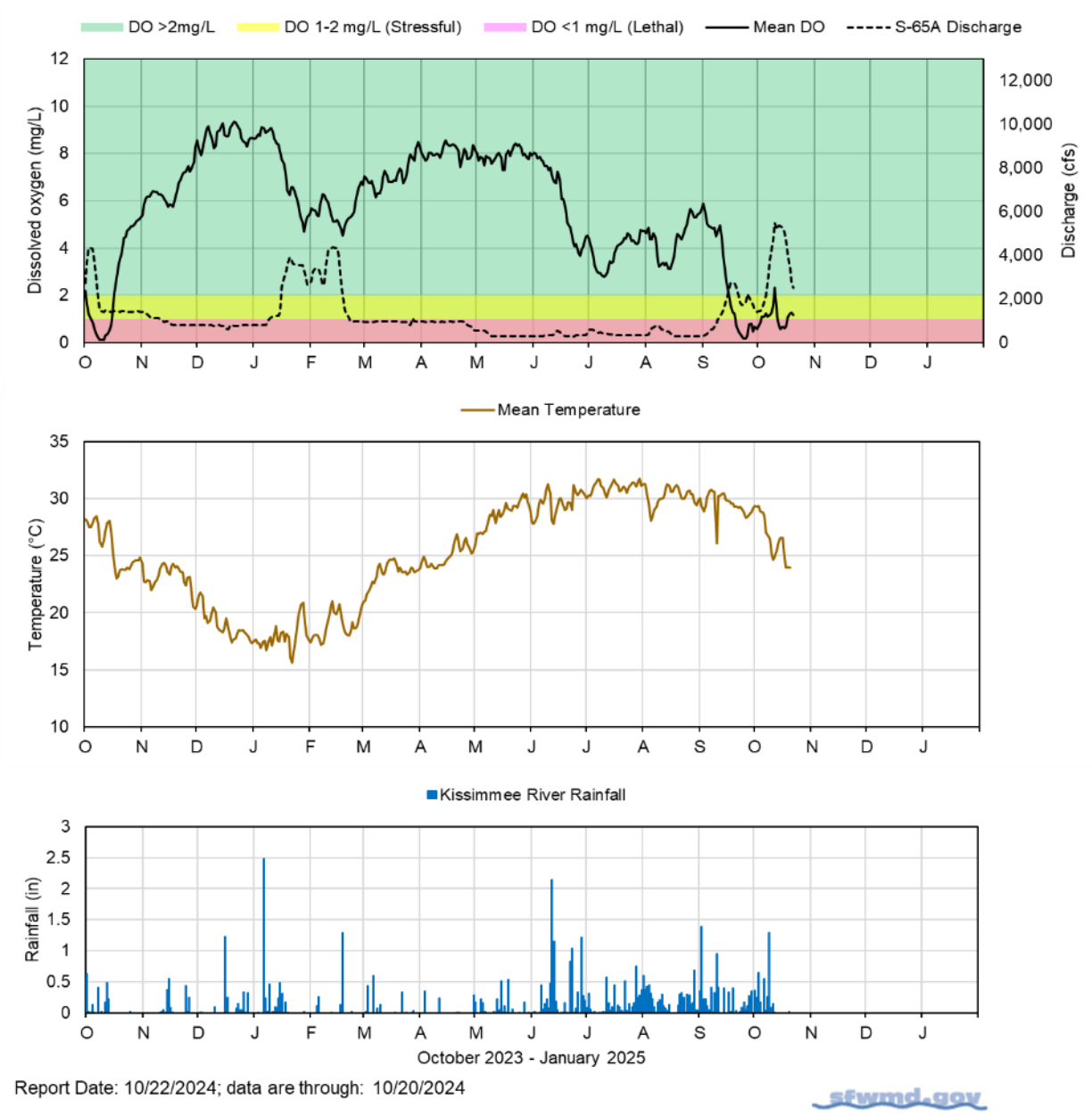


Figure KB-6. Kissimmee River channel mean daily dissolved oxygen concentration (mg/L), S-65A discharge (cfs), temperature (°C) and rainfall (inches). Dissolved oxygen (DO) and temperature are mean daily values averaged for PC62, KRDR02, KRBN, PC33, PC11, PD62R, and PD42R with an average of five stations reporting this week. Rainfall values are daily totals for Kissimmee River (Pool BCD) AHED watershed.

SOUTH FLORIDA WATER MANAGEMENT DISTRICT

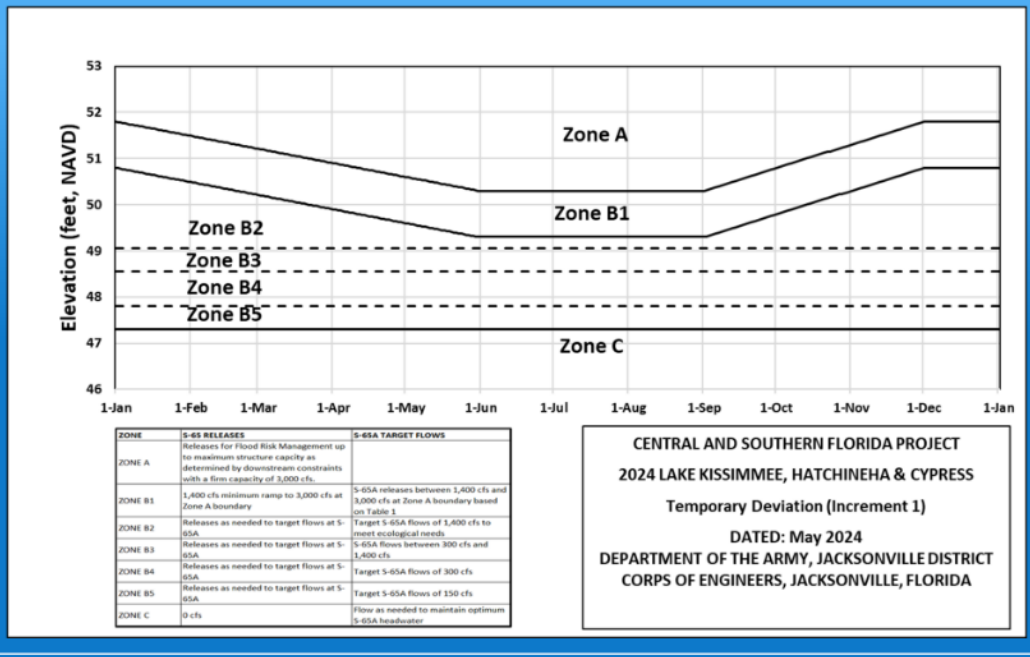
HRS Increment 1 Temporary Deviation Discharge Plan for S-65/S-65A

Discharge Guidance for Increment I Temporary Deviation Discharge Plan		
ZONE	**S-65 RELEASES**	**S-65A TARGET FLOWS**
ZONE A	Releases for Flood Risk Management up to maximum structure capcity as determined by downstream constraints with a firm capacity of 3,000 cfs.	
ZONE B1	1,400 cfs minimum ramp to 3,000 cfs at Zone A boundary	S-65A releases between 1,400 cfs and 3,000 cfs at Zone A boundary based on Table 1
ZONE B2	Releases as needed to target flows at S-65A	Target S-65A flows of 1,400 cfs to meet ecological needs
ZONE B3	Releases as needed to target flows at S-65A	S-65A flows between 300 cfs and 1,400 cfs
ZONE B4	Releases as needed to target flows at S-65A	Target S-65A flows of 300 cfs
ZONE B5	Releases as needed to target flows at S-65A	Target S-65A flows of 150 cfs
ZONE C	0 cfs	Flow as needed to maintain optimum S-65A headwater

Table KB-3. Maximum Rate of Change Limits for S-65A

MAXIMUM Release Rate of Chane Limits for S-65A. **In general recommended rates of change will be slower than shown in this table.**

Q (cfs)	Maximum rate of INCREASE (cfs/day)	Maximum rate of DECREASE (cfs/day)
0-300	50	-50
301-650	75	-75
651-1400	150	-150
1401-3000	300	-600
>3000	1000	-2000



Other Considerations

- When possible, limit lake ascension rate in the Jun 1 - Aug 15 window to 0.25 ft per 7 days in Lakes Kissimmee, Cypress, Hatchineha (S-65), East Toho (S-59) and Toho (S-61).
- If outlook is for extreme dry conditions meet with KB staff to discuss modifications to this plan.

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Slide Revised 7/29/2024

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Figure KB-7. Headwaters Revitalization Schedule (HRS) Increment 1 Temporary Deviation Discharge Plan for S-65/S-65A.

Lake Okeechobee

Lake Okeechobee stage was 14.72 feet NAVD88 (16.03 ft NGVD29) on October 20, 2024, which was 0.14 feet higher than the previous week and 0.93 feet higher than a month ago (**Figure LO-1**). This is the fifth year in a row that stages have exceeded 16 feet NGVD29 and marks the eighth occurrence over the last ten years. Lake stage is in Zone D of the regulation schedule (**Figure LO-2**) and was 1.03 feet above the upper limit of the recovery ecological envelope (**Figure LO-3**). According to NEXRAD, 0.02 inches of rain fell directly over the Lake last week.

Average daily inflows (excluding rainfall) decreased from 9,320 cfs the previous week, to 7,980 cfs. The largest single inflow came from the Kissimmee River via the S-65E structure (4,240 cfs) followed by Fisheating Creek (1,980 cfs). Average daily outflows (excluding evapotranspiration) were zero again, there have been no releases from the Lake since the start of September. **Figures LO-4 and LO-5** show the combined average daily inflows and outflows for the Lake over the past eight weeks, and average inflows and outflows last week, respectively.

In the most recent non-obscured satellite image from October 16, 2024, NOAA's Harmful Algal Bloom Monitoring System suggests minimal bloom activity on Lake Okeechobee (**Figure LO-6**).

The provisional results from the October 1-2 routine water quality and phytoplankton monitoring sampling trips showed *Microcystis aeruginosa* dominated communities at 15 of the 30 sites sampled, and *Dolichospermum* dominated at one other. Two sites had detectable (>0.25 µg/L) microcystin toxin concentrations, 7 sites had chlorophyll *a* concentration between 20-40 µg/L, and 10 had concentrations above the SFWMD recognized bloom threshold of 40 µg/L (**Figure LO-7**).

Note: All data presented in this report are provisional and are subject to change.

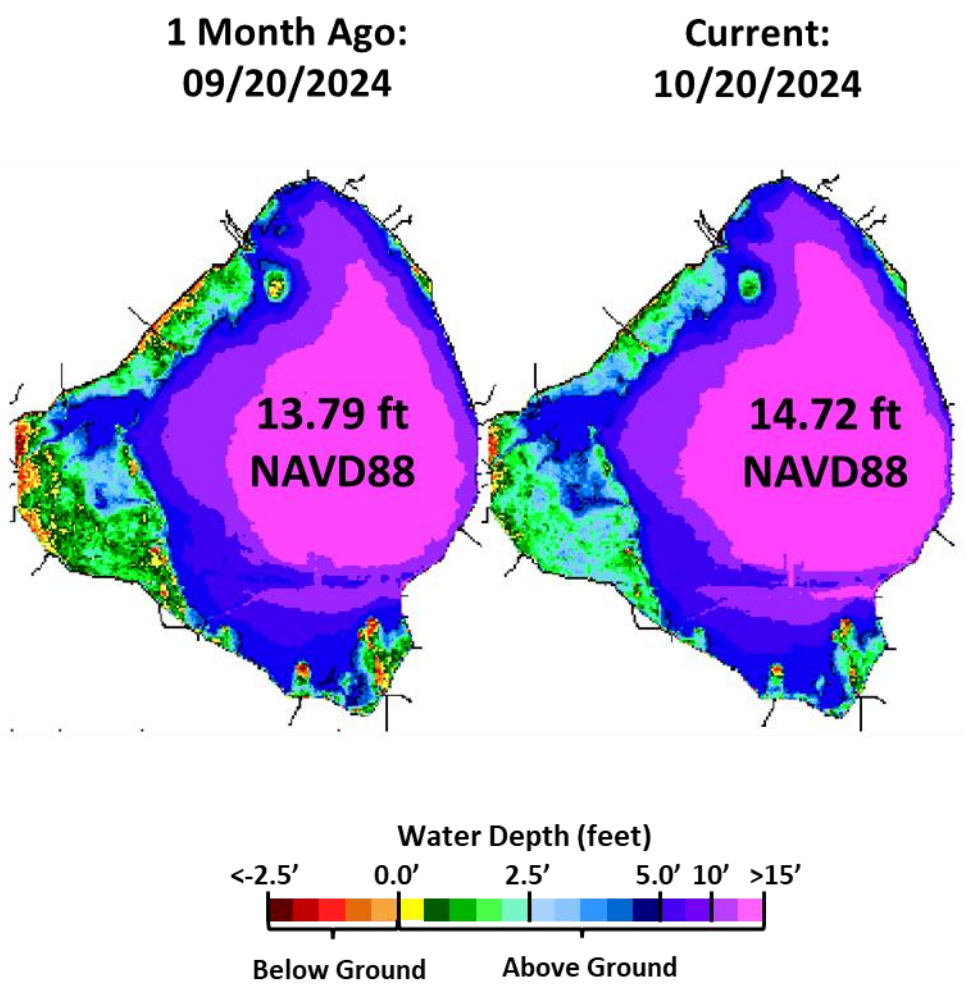


Figure LO-1. Lake Okeechobee water depth estimates based on South Florida Water Depth Assessment Tool (SFWDAT).

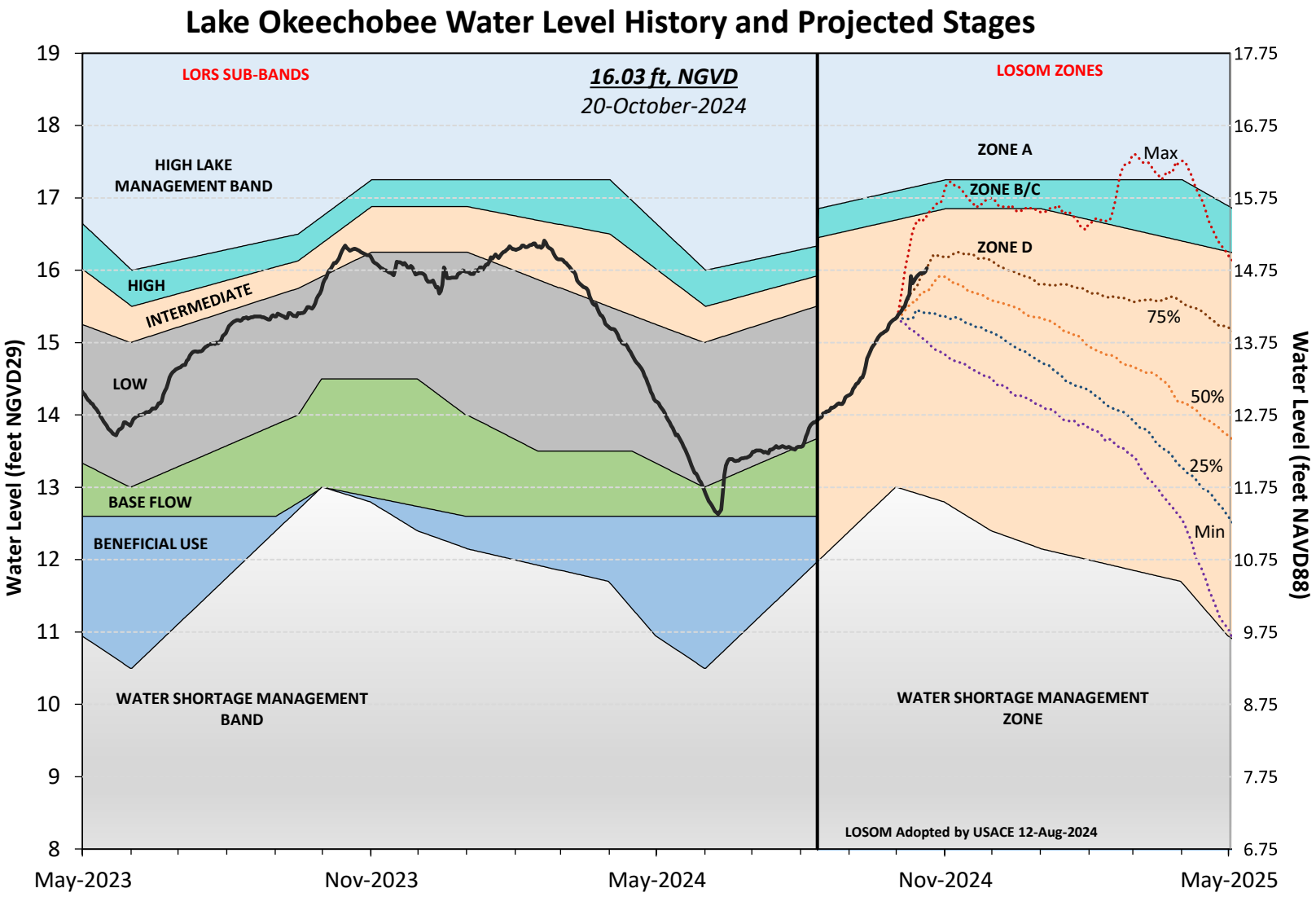


Figure LO-2. Recent Lake Okeechobee stages with projected stages based on a dynamic position analysis.
Note: stages are in NGVD29, approximate NAVD88 values are shown for reference.

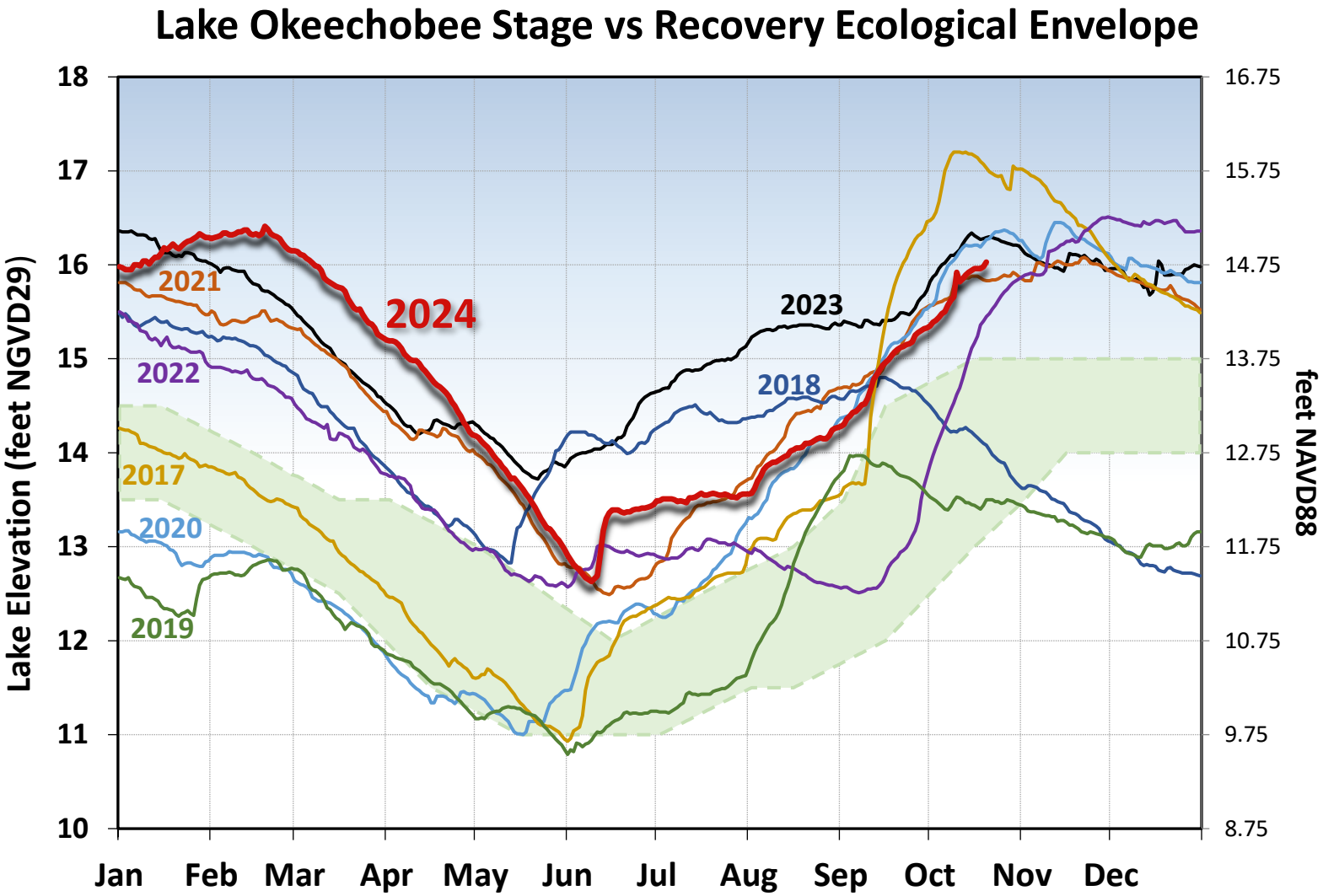


Figure LO-3. The current and seven prior year's annual stage hydrographs for Lake Okeechobee in comparison to the recovery envelope (light green). A shift from the normal ecological envelope to the recovery envelope occurred because the 30-day minimum lake stage (elevations exposed for at least 30 days, nonconsecutively) in the June 1 – July 31, 2023, window was >13 ft NGVD29 (11.75 ft NAVD88).

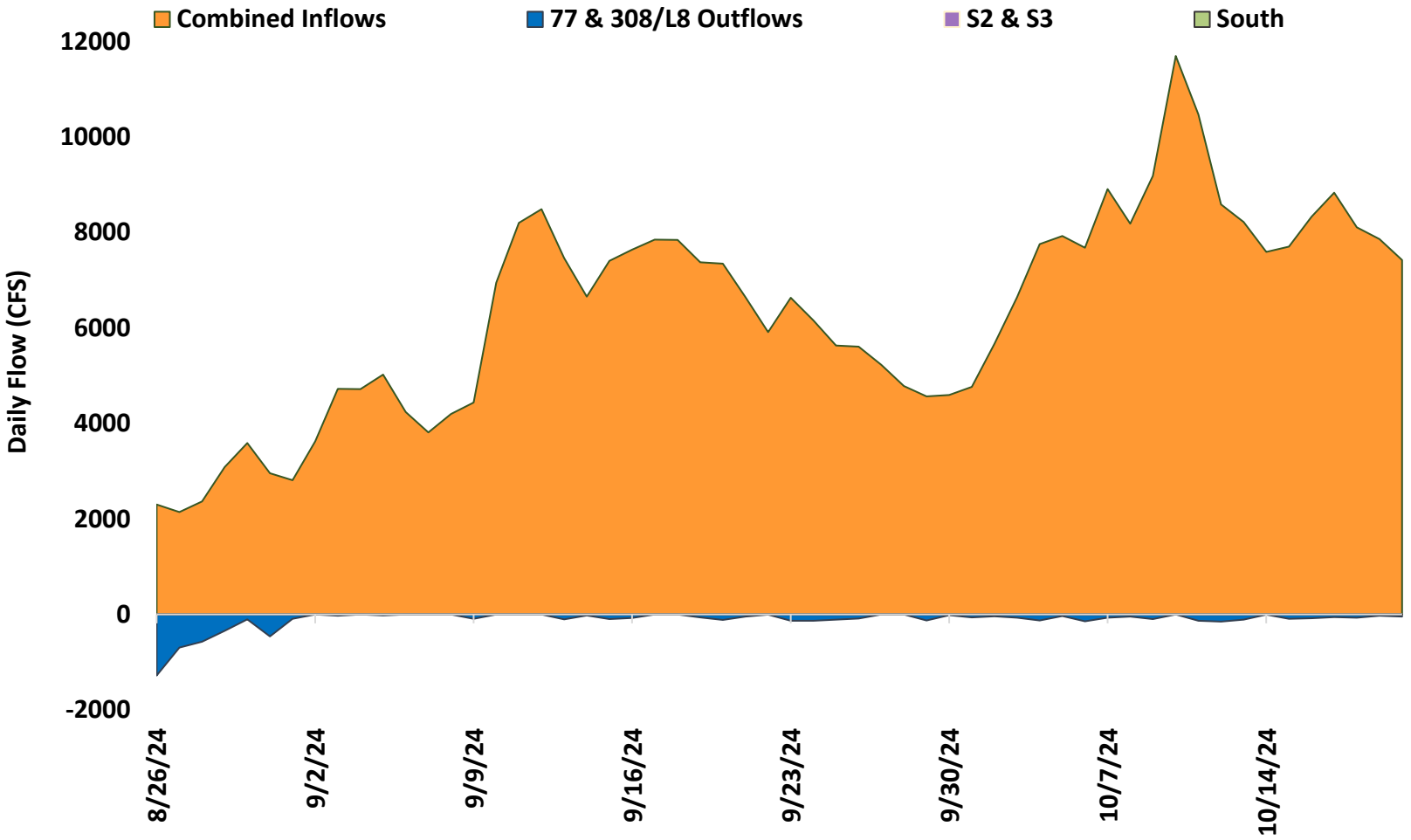


Figure LO-4. Major inflows (orange) to and outflows east and west (blue) from Lake Okeechobee. Outflows south are shown in green. Flows into Lake Okeechobee from the L-8 canal through S-271 (formerly Culvert 10A) or from the C-44 canal through the S-308 are included as inflows. Conversely, flows from Lake Okeechobee into the L-8 or C-44 canals are included with outflows. Inflows are shown as positive values; outflows are negative. Outflows through the S-77 (Caloosahatchee) and S-308 (C-44 Canal) structures are based on downstream gauges to include flows to lock openings for navigation.

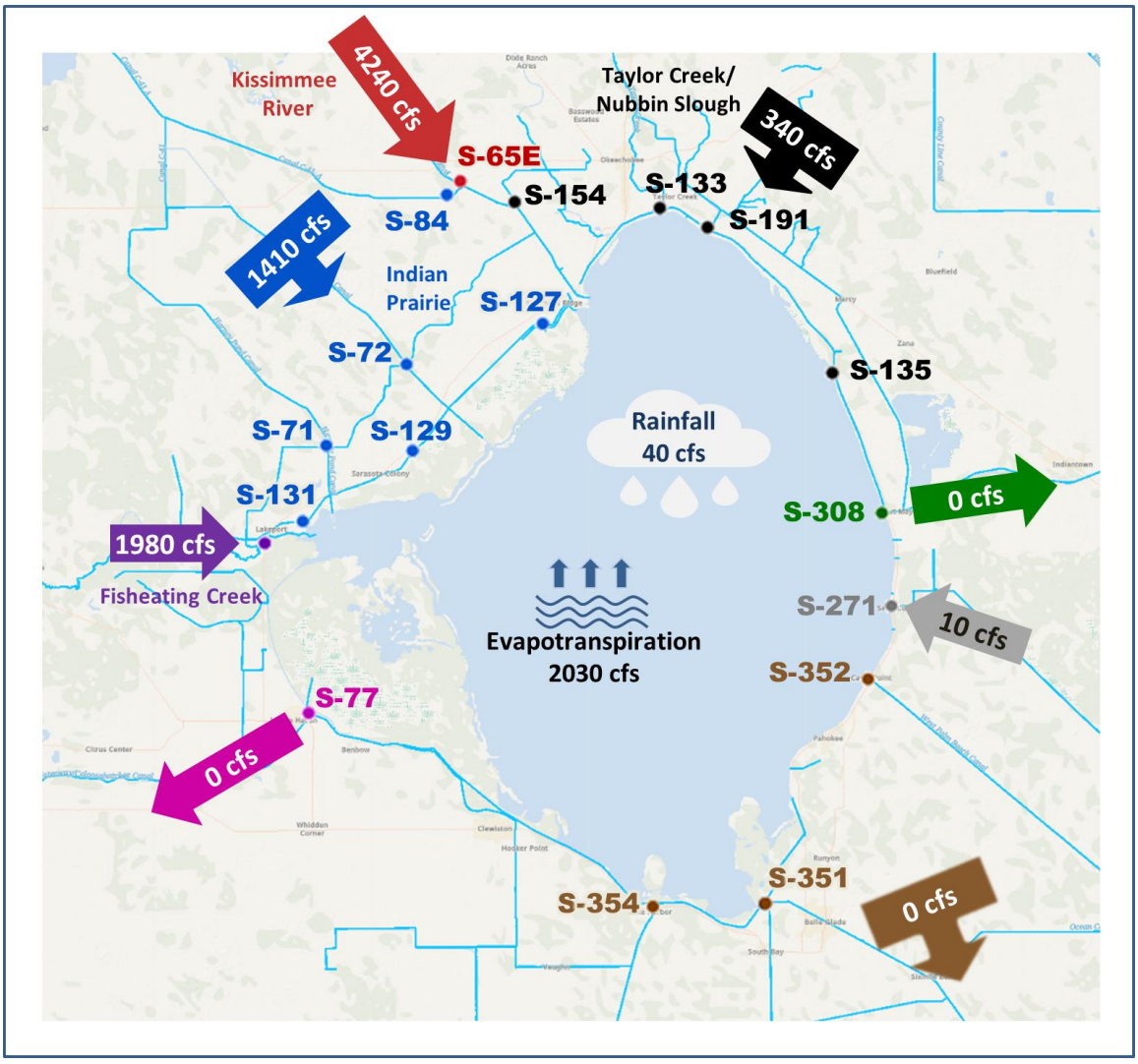


Figure LO-5. Inflows into Lake Okeechobee from Indian Prairie basins, Taylor Creek/Nubbin Slough, Kissimmee River and Fisheating Creek, and outflows to the west via S-77, to the east via S-308, to the south via S-351, S-352, S-354, and to southeast via S-271 (formerly Culvert 10A) for the week of October 14 –20, 2024.

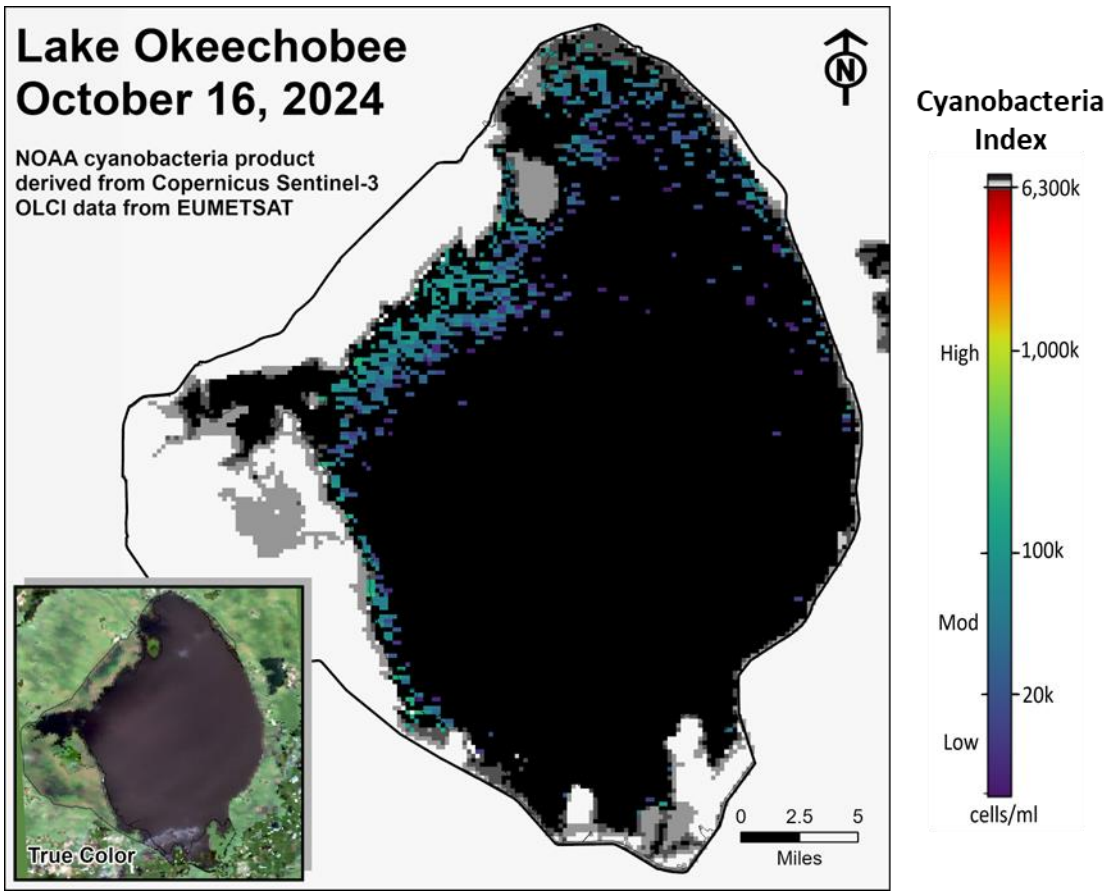


Figure LO-6. Cyanobacteria bloom index level on Lake Okeechobee, based on NOAA's harmful algal bloom monitoring system. Gray color indicates cloud cover. *Provisional NOAA image, subject to change*.

Collection Date: October 1-2, 2024

Station	CHL*a* (ug/L)	TOXIN (ug/L)	TAXA
FEBIN	*NS*	*NS*	*NS*
FEBOUT	*NS*	*NS*	*NS*
KISSR0.0	13.3	BDL	*mixed*
L005	53.7	BDL	*Microcys*
LZ2	54.6	BDL	*mixed*
KBARSE	46.1	BDL	*Microcys*
RITTAE2	77.3	BDL	*Dolichos*
PELBAY3	69.2	BDL	*mixed*
POLE3S	72.4	BDL	*mixed*
LZ25A	27.3	BDL	*mixed*
PALMOUT	50.2	BDL	*Microcys*
PALMOUT1	40.2	BDL	*mixed*
PALMOUT2	28.6	BDL	*Microcys*
PALMOUT3	14.8	BDL	*Microcys*
POLESOUT	57.2	BDL	*Microcys*
POLESOUT1	52.2	0.8	*Microcys*
POLESOUT2	23.6	2.1	*Microcys*
POLESOUT3	19.3	BDL	*Microcys*
EASTSHORE	17.5	BDL	*mixed*
NES135	19.3	BDL	*Microcys*
NES191	25.7	BDL	*mixed*

Station	CHL*a* (ug/L)	TOXIN (ug/L)	TAXA
L001	25.4	BDL	*mixed*
L004	13.0	BDL	*mixed*
L006	7.4	BDL	*Microcys*
L007	33.9	BDL	*mixed*
L008	11.4	BDL	*Microcys*
LZ30	11.8	BDL	*Microcys*
LZ40	8.4	BDL	*mixed*
CLV10A	16.0	BDL	*Microcys*
NCENTER	22.6	BDL	*Microcys*
S308C	13.7	BDL	*mixed*
S77	1.2	BDL	*mixed*

- SFWMD considers >40 µg/L Chlorophyll *a* (Chl*a*) an algal bloom
- BDL – Below Detectable Limit of **0.25** µg/L
- ND – No Dominant taxa
- P – Pending (white squares)
- NS – Not Sampled
- Station bold font – crew observed possible BGA
- Chlorophyll *a* analyzed by SFWMD
- Toxin and Taxa analyzed by FDEP:
  Microcys = Microcystis; Raphidio = Raphidiopsis; Planktol = Planktolyngbya; Dolicho = Dolichospermum; Pseud = Pseudanabaena; Cylindro = Cylindrospermopsis

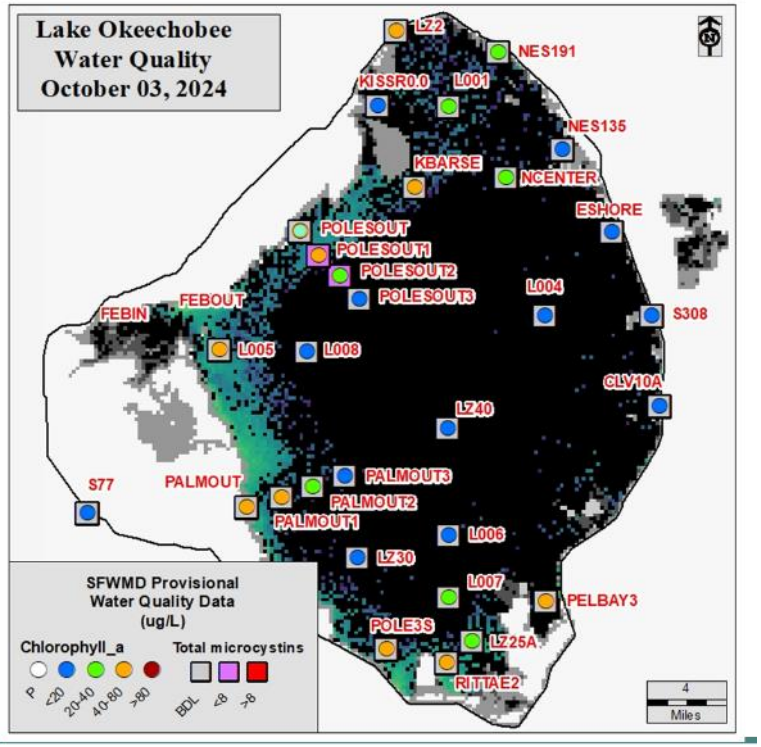


Figure LO-7. Dominant taxa, total microcystin (µg/L) and chlorophyll a (µg/L) concentration data from October 1-2, 2024. Sampling locations, chlorophyll a, and total microcystin concentrations are overlaid on the October 3, 2024, image from NOAA's harmful algal bloom monitoring system. Gray color indicates cloud cover.

Estuaries

St. Lucie Estuary

Over the past week, mean total inflow to the St. Lucie Estuary was 2,360 cfs (**Figures ES-1** and **ES-2**), and the previous 30-day mean inflow was 3,500 cfs. For comparison, the historical provisional mean inflows from the contributing areas are shown in **Figure ES-2**.

Over the past week, salinities increased at the all sites over the past week (**Table ES-1** and **Figure ES-3**). The seven-day moving average of the surface and bottom salinities at the US1 Bridge was 3.8. Salinity conditions in the middle estuary were estimated to be within the damaging range for adult eastern oysters (**Figure ES-4**). The mean larval oyster recruitment rate reported by the Fish and Wildlife Research Institute (FWRI) was 0.2 spat/shell for September, which was slightly lower than the previous month (**Figure ES-5**).

Caloosahatchee River Estuary

Over the past week, mean total inflow to the Caloosahatchee River Estuary was 3,284 cfs (**Figures ES-6** and **ES-7**), and the previous 30-day mean inflow was 5,483 cfs. For comparison, the historical provisional mean inflows from the contributing areas are shown in **Figure ES-7**.

Over the past week, data were not recorded at Sanibel, Shell Point, Cape Coral, Ft. Myers and was intermittently recorded at S-79. Available data at S-79 and Val I-75 remained below 1 throughout the week (**Table ES-2** and **Figures ES-8** and **ES-9**). The seven-day mean salinities (**Table ES-2**) were in the optimal range (0-10) for tape grass in the upper estuary. The seven-day mean salinity values were not available for the three lower estuary sites (**Figure ES-10**). The mean larval oyster recruitment rate reported by the FWRI was 14.3 spat/shell at Iona Cove and 70.3 spat/shell at Bird Island for September, which is an increase at both sites from the previous month (**Figures ES-11 and ES-12**).

Surface salinity at Val I-75 was forecast for the next two weeks using an autoregression model (Qiu and Wan, 2013[1]) coupled with a linear reservoir model for the tidal basin. Model scenarios included pulse releases at S-79 ranging from 450 to 2,000 cfs with estimated tidal basin inflows of 570 cfs. Model results from all scenarios predict daily salinity and the 30-day moving average surface salinity to be 0.3 at the end of the two-week period for all release scenarios (**Table ES-3** and **Figure ES-13**). This keeps predicted salinities in the upper estuary within the optimal salinity range (0-10) for tape grass.

[1] Qui, C., and Y. Wan. 2013. Time series modeling and prediction of salinity in the Caloosahatchee River Estuary. *Water Resources Research* 49:5804-5816.

Red Tide

The FWRI reported on October 18, 2024, that *Karenia brevis*, the Florida red tide dinoflagellate, was not observed in any samples collected within the District region.

Water Management Recommendations

Lake stage is in Zone D. Current climatological and hydrological conditions are wet. The LOSOM release guidance suggests up to 2,000 cfs release at S-79 to the Caloosahatchee River Estuary and no releases at S-80 to the St. Lucie Estuary.

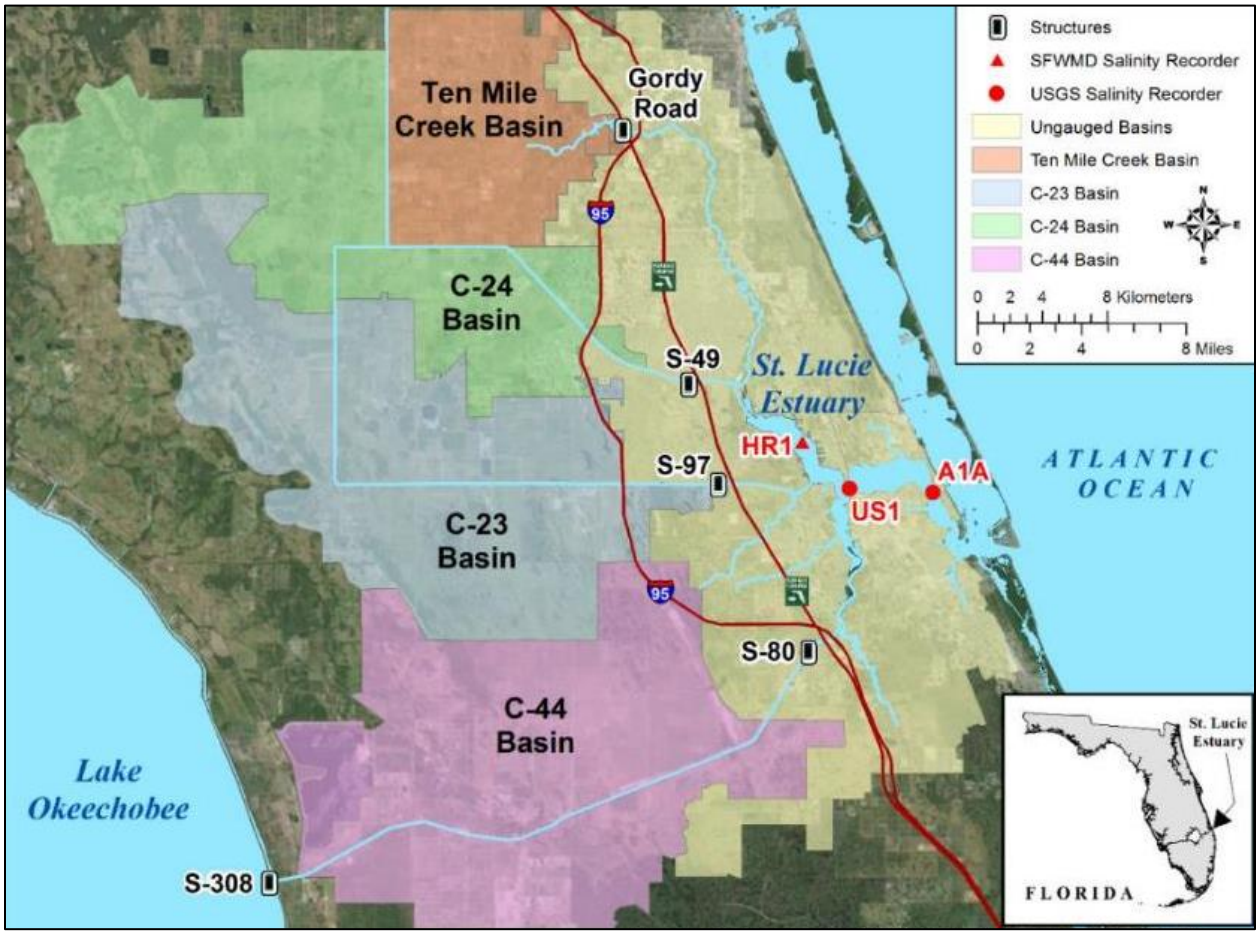


Figure ES-1. Basins, water control structures and salinity monitoring sites in the St. Lucie Estuary.

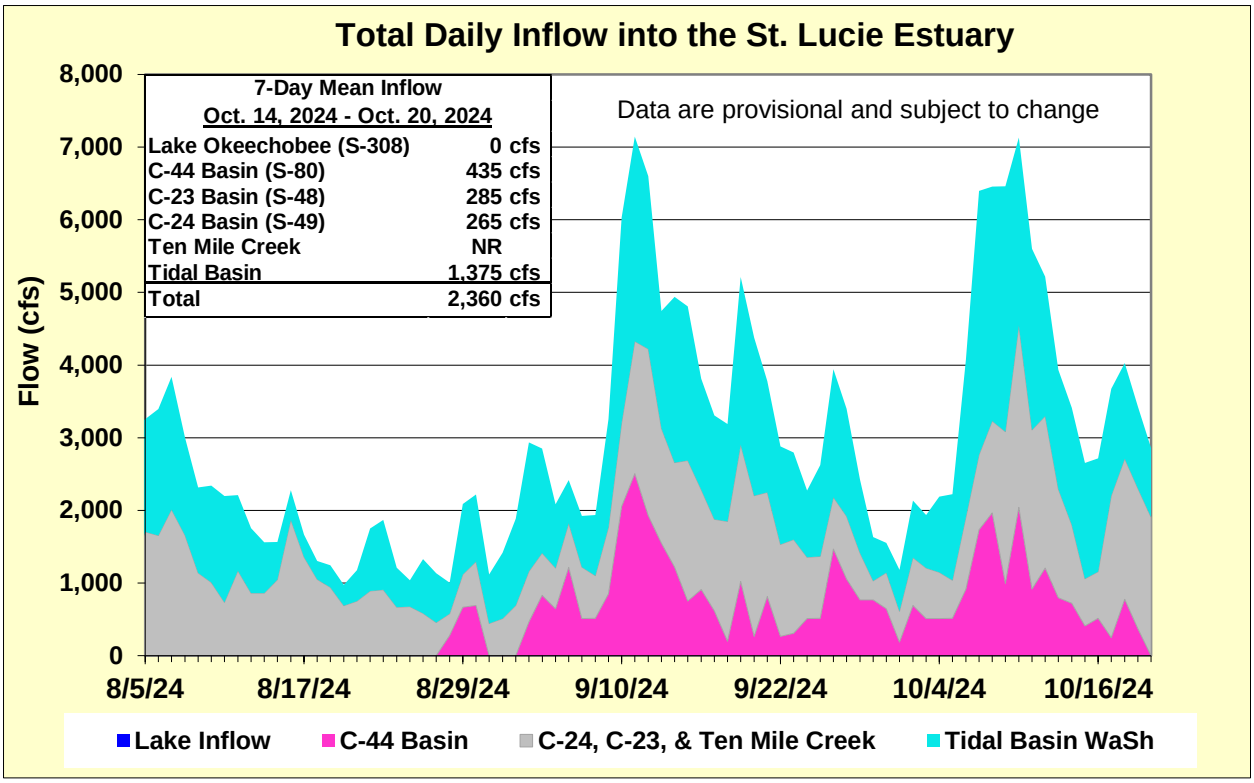


Figure ES-2. Total daily inflows from Lake Okeechobee and runoff from the C-44, C-23, C-24, Ten Mile Creek, and Tidal Basins into the St. Lucie Estuary.

Table ES-1. Seven-day mean salinity at oyster monitoring sites in the St. Lucie Estuary. Current means are in bold font; previous week's means are in parentheses. The envelope reflects the optimum salinity range for adult eastern oysters (*Crassostrea virginica*) in the estuary. Data are provisional.

Sampling Site	Surface	Bottom	Optimum Envelope
HR1 (North Fork)	**0.8** (0.5)	**1.6** (1.0)	10.0 – 25.0
US1 Bridge	**3.5** (1.6)	**4.2** (2.2)	10.0 – 25.0
A1A Bridge	**13.7** (5.6)	**20.9** (14.1)	10.0 – 25.0

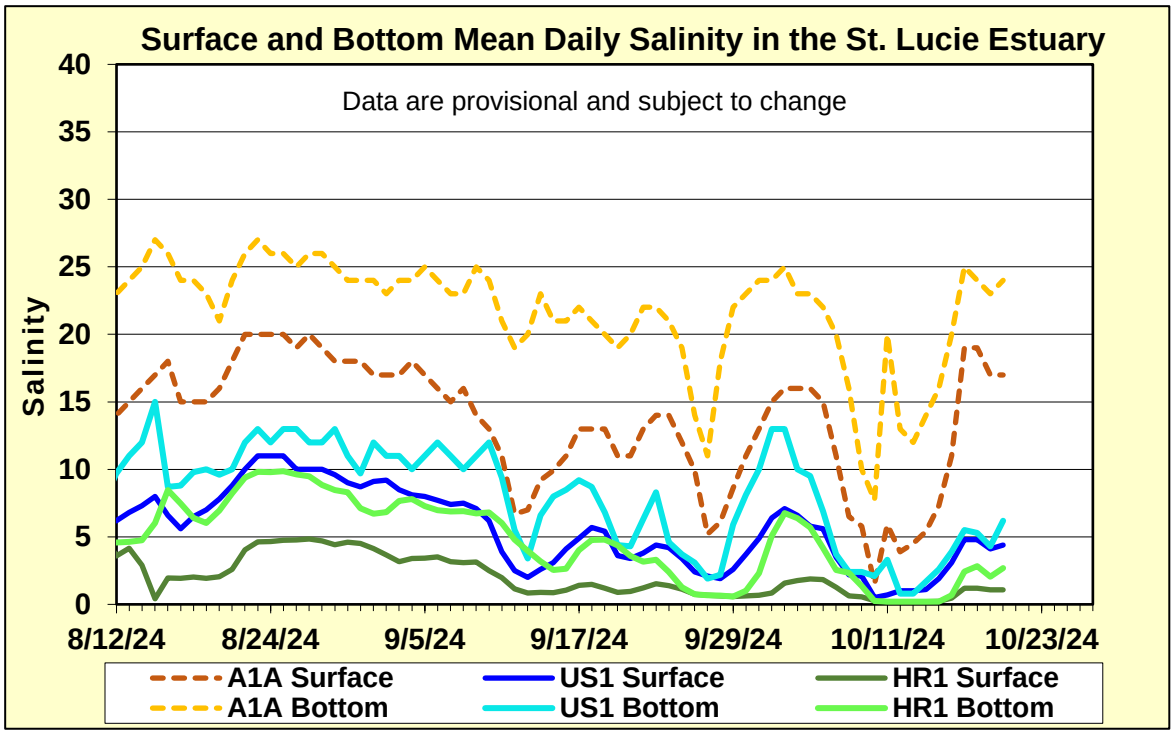


Figure ES-3. Mean daily salinity at the A1A, US1, and HR1 sites in the St. Lucie Estuary.

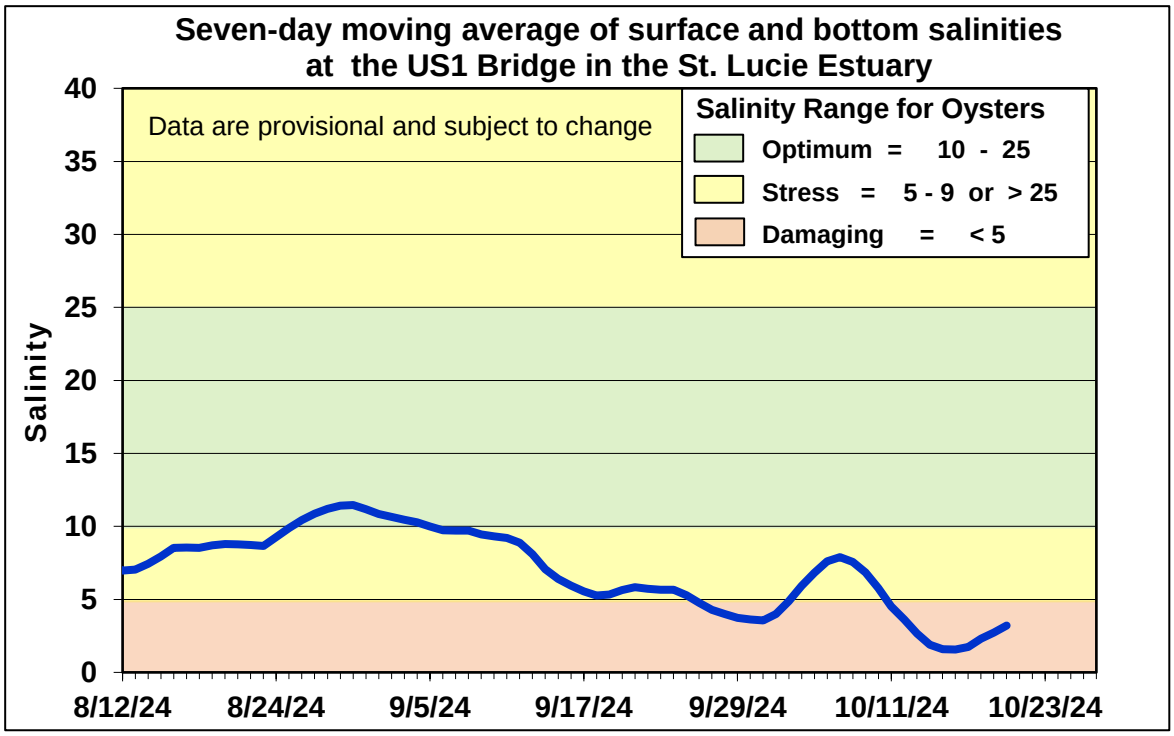


Figure ES-4. Seven-day moving average of the surface and bottom salinities at the US1 Bridge in the St. Lucie Estuary.

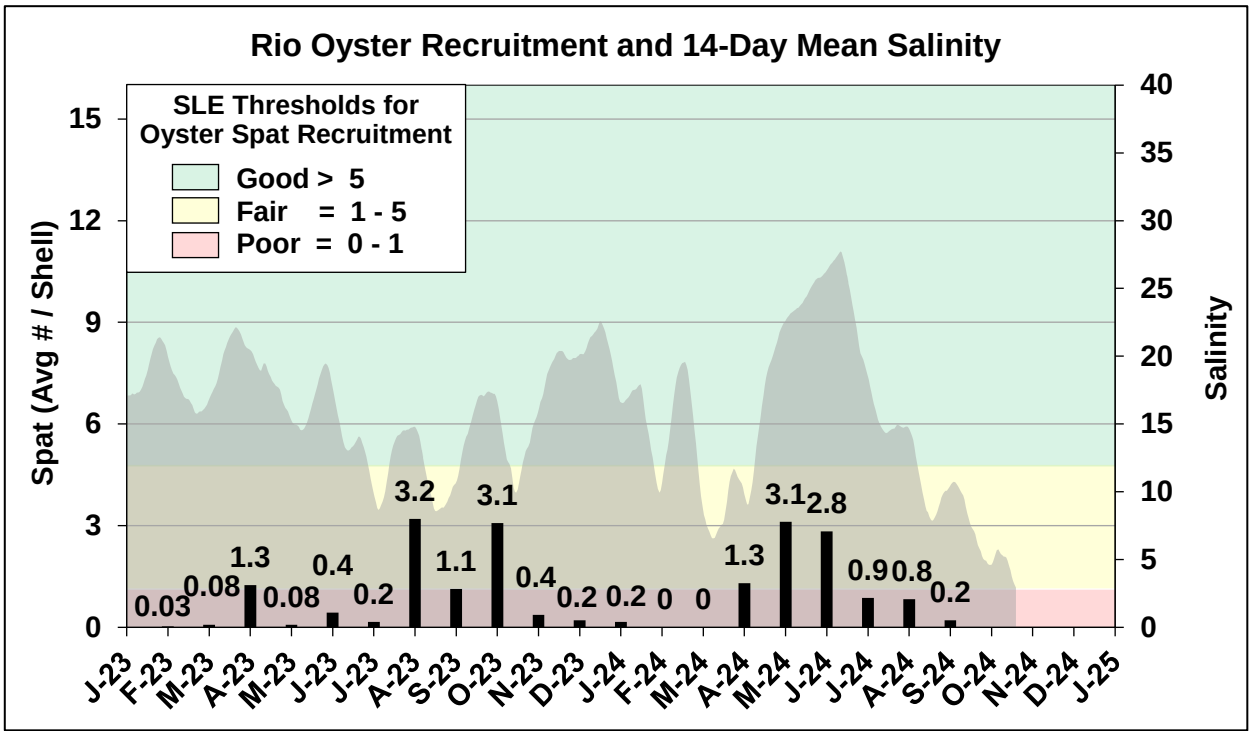


Figure ES-5. Mean oyster recruitment at the Rio oyster monitoring station and 14-day mean salinity at US1 Bridge.

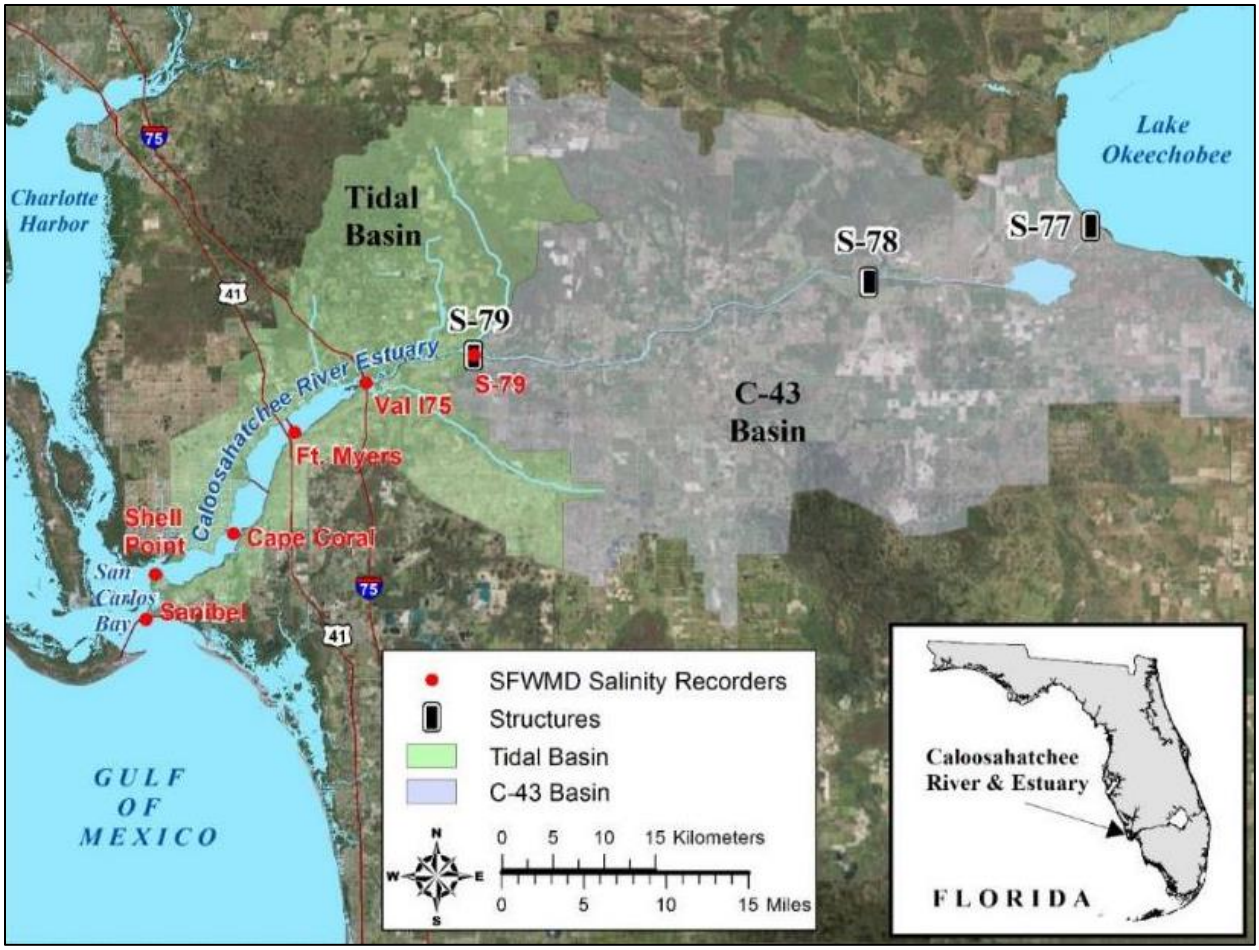


Figure ES-6. Basins, water control structures, and salinity monitoring sites in the Caloosahatchee River Estuary.

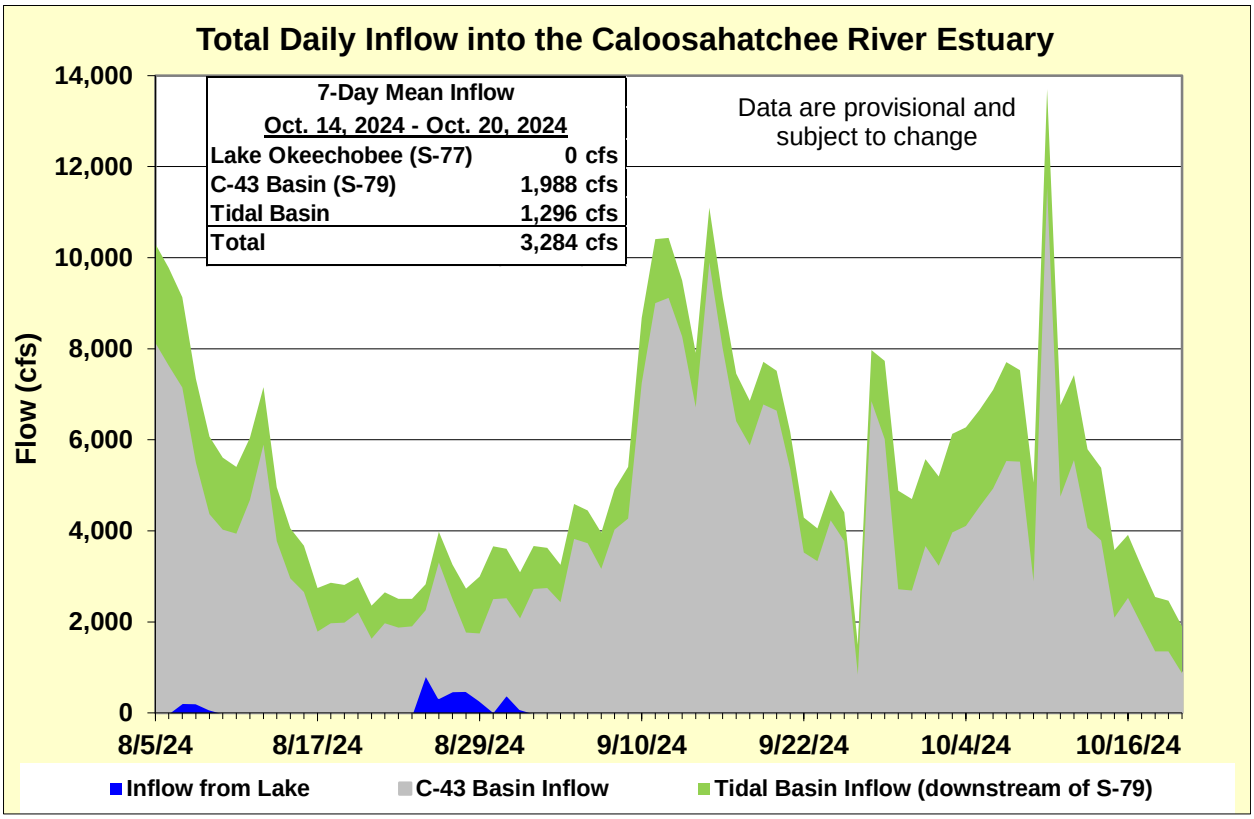


Figure ES-7. Total daily inflows from Lake Okeechobee, and runoff from the C-43 and Tidal basins into the Caloosahatchee River Estuary.

Table ES-2. Seven-day mean salinity at six monitoring sites in the Caloosahatchee River Estuary. Current means are in bold font; previous week's means are in parentheses. Missing or not reported values are represented by NR. The envelope in the upper estuary sites is for the protection of tape grass and the envelope in the lower estuary is the optimum salinity range for adult eastern oysters (*Crassostrea virginica*). Data are provisional.

Sampling Site	Surface	Bottom	Optimum Envelope
S-79 (Franklin Lock)	**0.2** (0.2)	**0.2** (0.2)	0.0 – 10.0
Val I-75	**0.2** (0.2)	**0.2** (0.2)	0.0 – 10.0
Fort Myers Yacht Basin	**NR** (0.2)	**NR** (0.2)	0.0 – 10.0
Cape Coral	**NR** (NR)	**NR** (NR)	10.0 – 25.0
Shell Point	**NR** (17.4)	**NR** (22.0)	10.0 – 25.0
Sanibel	**NR** (NR)	**NR** (NR)	10.0 – 25.0

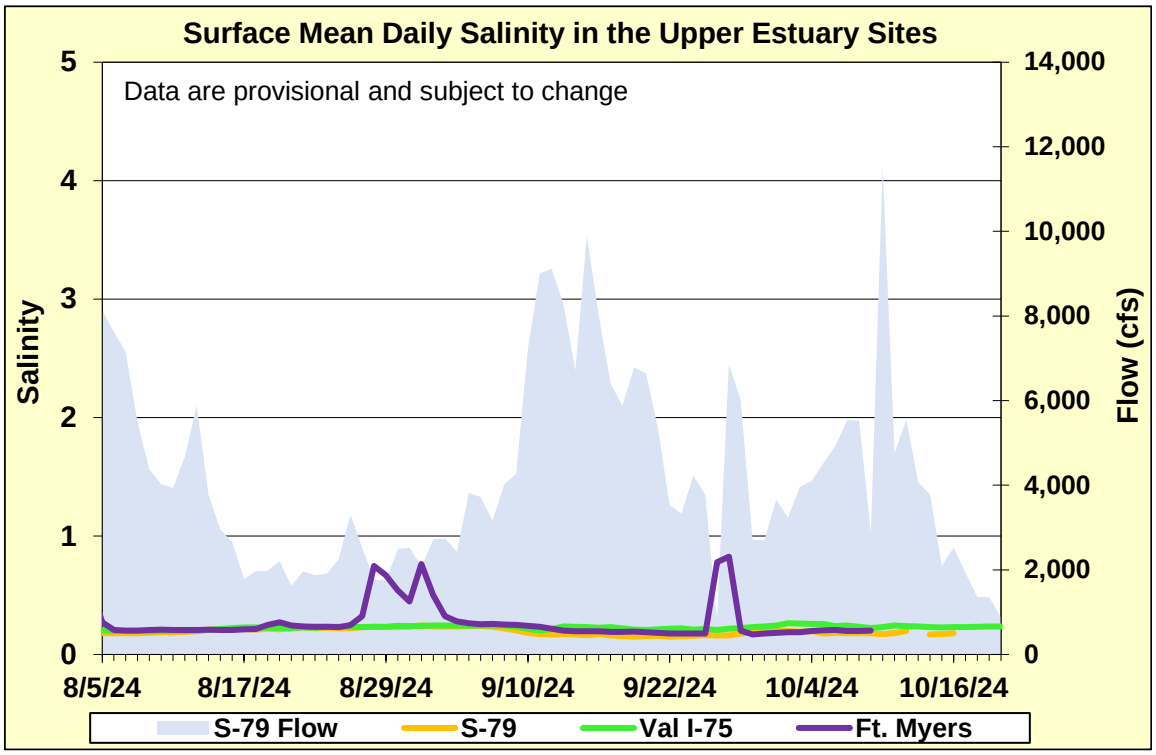


Figure ES-8. Mean daily salinity at upper Caloosahatchee River Estuary monitoring sites and mean daily flow at S-79.

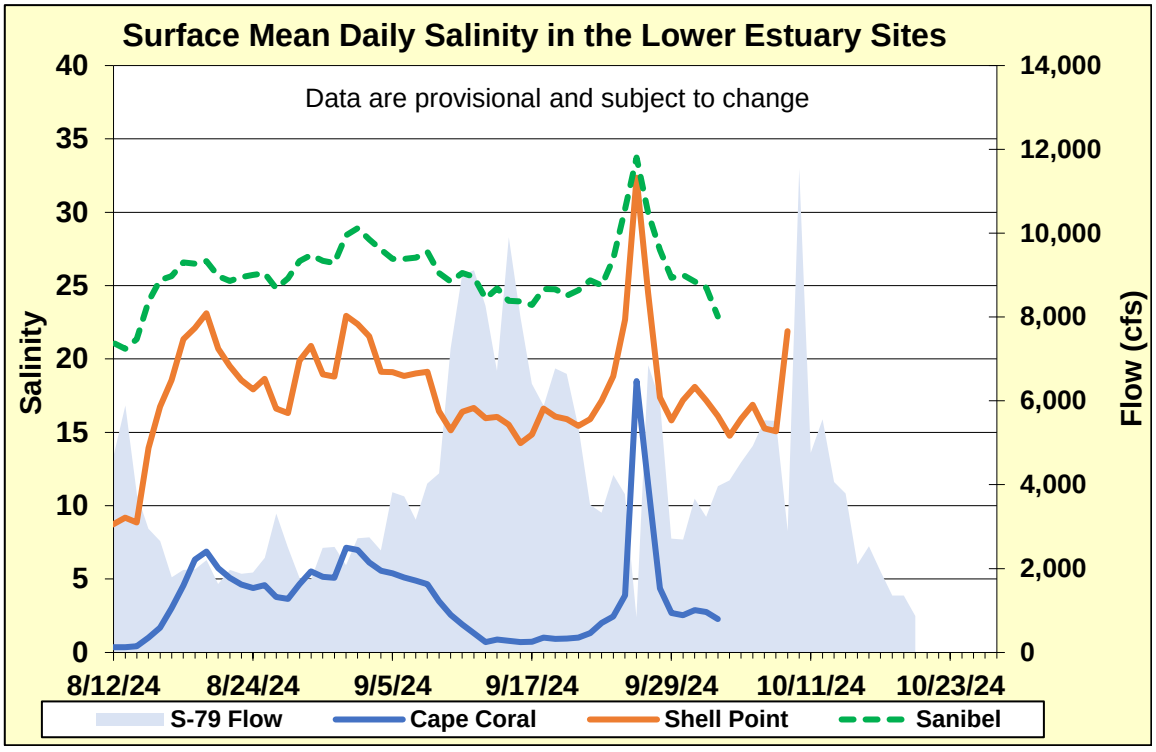


Figure ES-9. Mean daily surface salinity at lower Caloosahatchee River Estuary monitoring sites and mean daily flow at S-79.

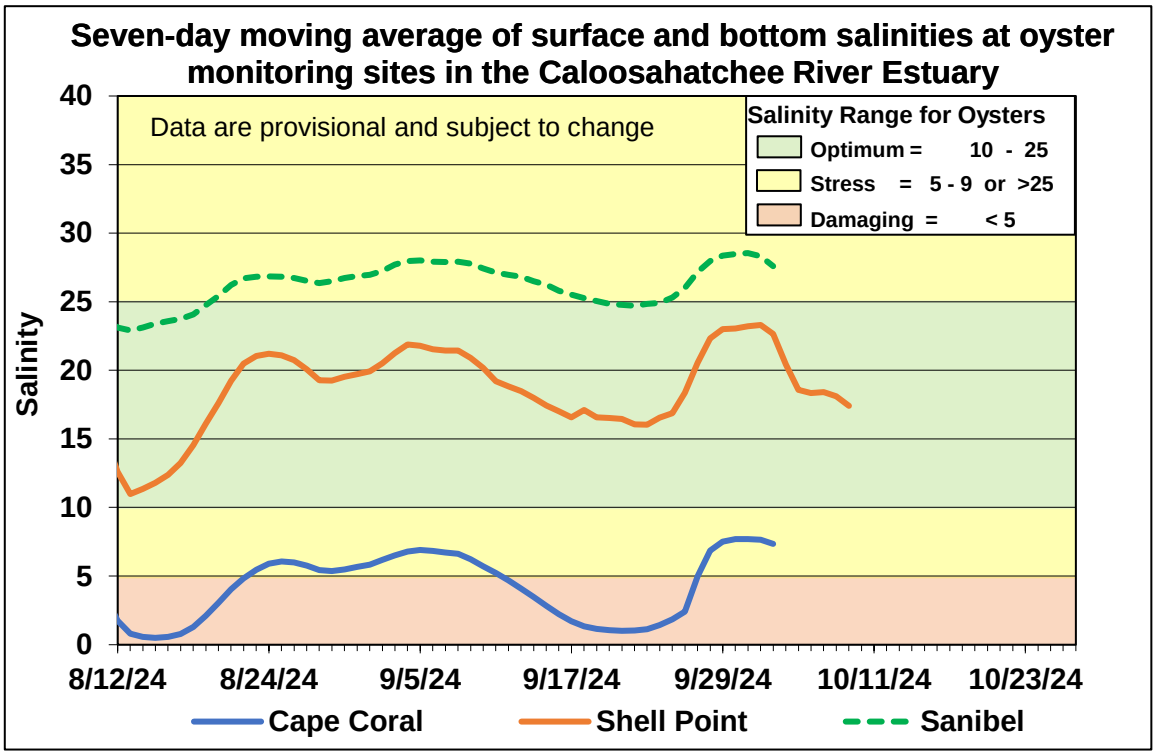


Figure ES-10. Seven-day moving average of surface and bottom salinities at Cape Coral, Shell Point, and Sanibel monitoring sites in the Caloosahatchee River Estuary.

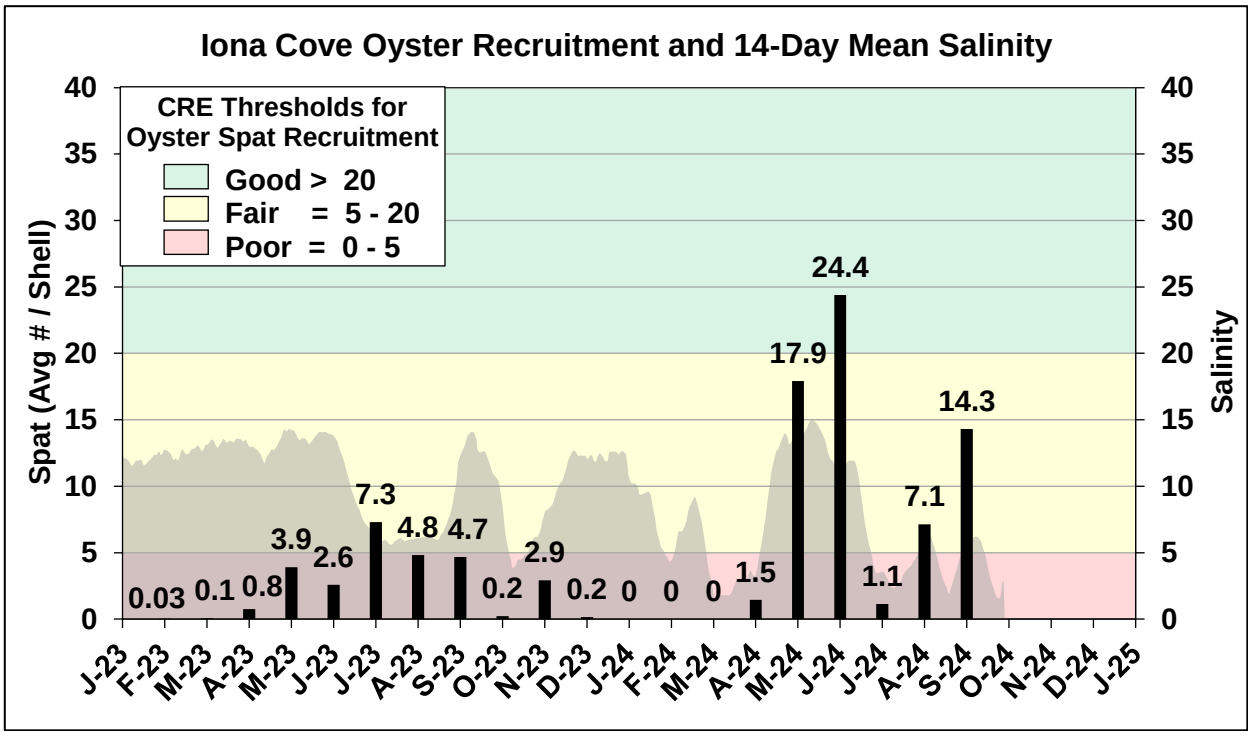


Figure ES-11. Mean oyster recruitment at the Iona Cove oyster monitoring station and 14-day mean salinity at Cape Coral.

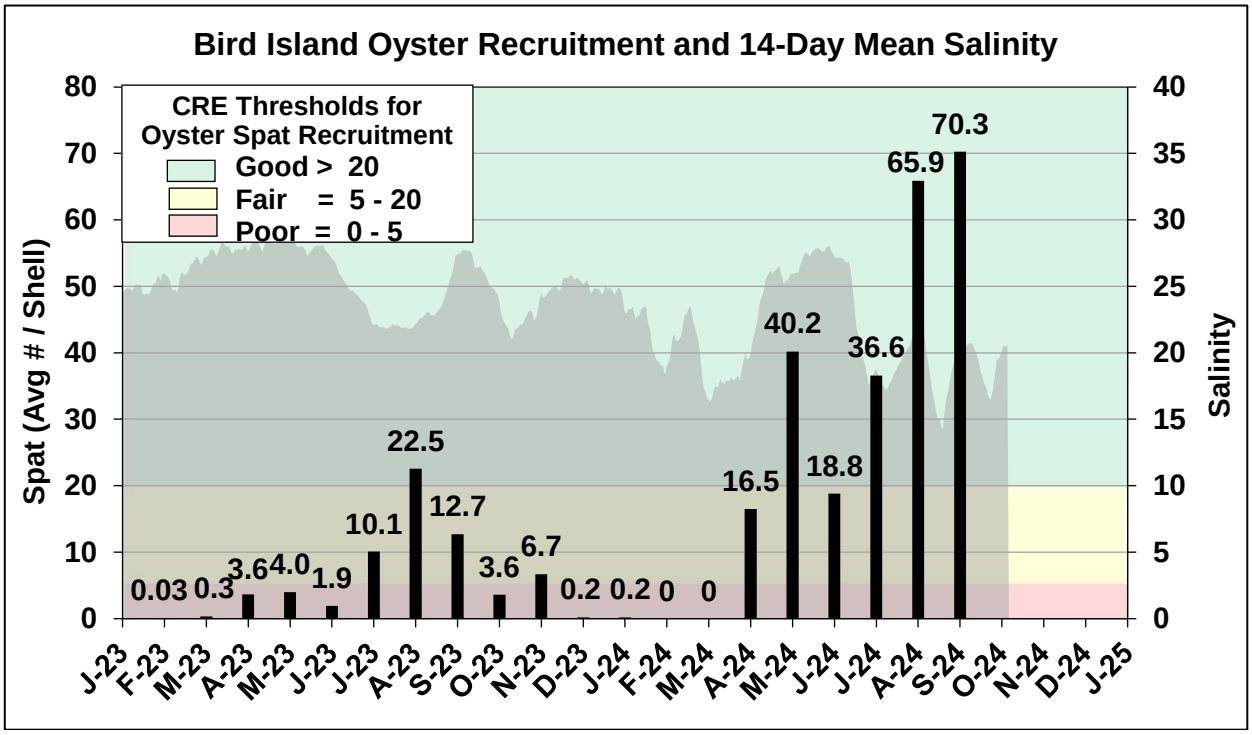


Figure ES-12. Mean oyster recruitment at the Bird Island oyster monitoring station and 14-day mean salinity at Shell Point.

Table ES-3. Predicted salinity at Val I-75 in the Caloosahatchee River Estuary at the end of the forecast period for various S-79 flow release scenarios.

Scenario	Simulated S-79 Flow (cfs)	Tidal Basin Runoff (cfs)	Daily Salinity	30-Day Mean Salinity
A	450	570	0.3	0.3
B	650	570	0.3	0.3
C	1,200	570	0.3	0.3
D	2,000	570	0.3	0.3

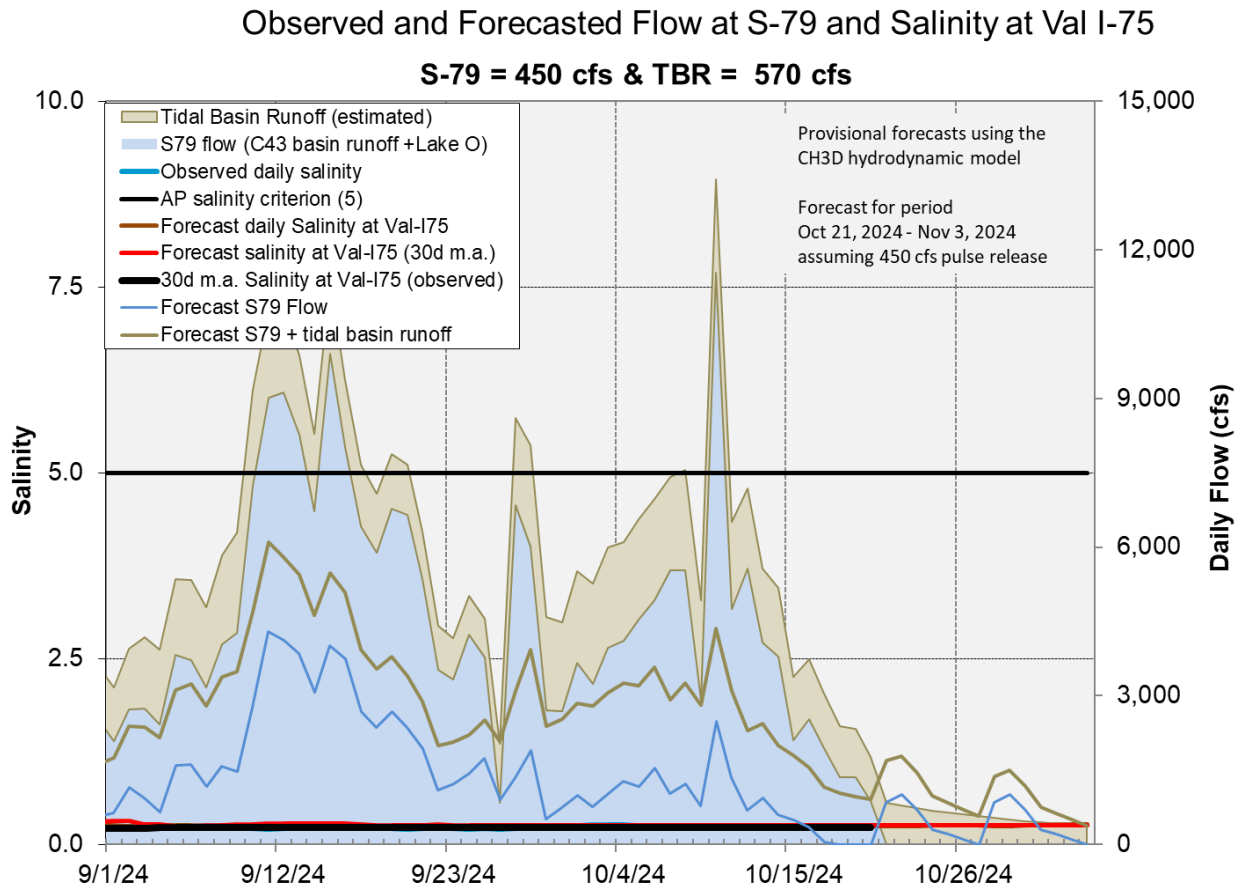


Figure ES-13. Surface salinity forecast at the Val I-75 site assuming a 450 cfs pulse release at S-79.

Stormwater Treatment Areas

STA-1E: STA-1E Central Flow-way is offline for construction activities. An operational restriction is in place in the Western Flow-way for post-construction vegetation grow-in, and in the Eastern Flow-way for vegetation establishment following erosion repair. Online treatment cells are above target stage. (**Figure S-1**).

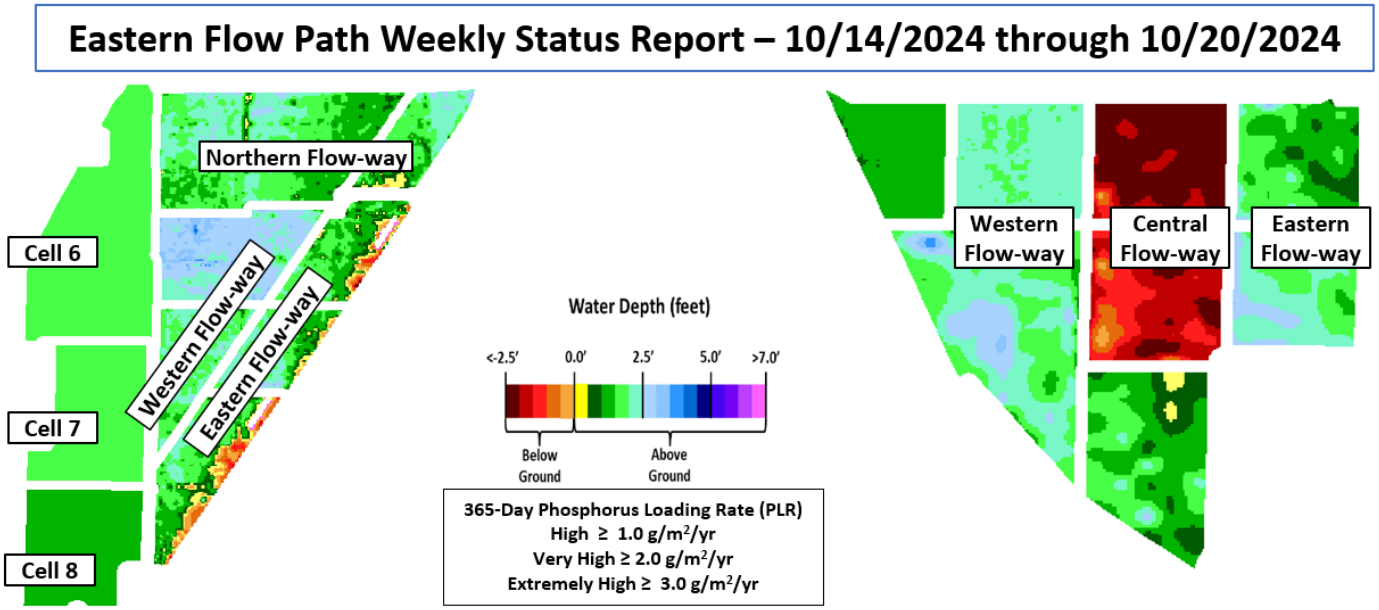
STA-1W: An operational restriction is in place in the Northern Flow-way for vegetation management activities. Treatment cells are above target stage. Vegetation in the flow-ways is highly stressed. The 365-day PLRs for the Eastern and Western Flow-ways are high, and the 365-day PLR for the Northern Flow-ways is below 1.0 g/m^2/year (**Figure S-1**).

STA-2: Operational restrictions are in place in Flow-ways 2 and 4 for vegetation management activities. Online treatment cells are above target stage. Vegetation in Flow-ways 2, 3, and 4 is stressed, and in 5 is highly stressed. The 365-day PLRs for Flow-ways 1, 4, and 5 are below 1.0 g/m^2/year. The 365-day PLRs for Flow-ways 2 and 3 are high (**Figure S-2).**

STA-3/4: An operational restriction is in place in the Eastern Flow-way for post-drawdown vegetation grow-in. Treatment cells are above target stage. Vegetation in the Central Flow-way is highly stressed and in the Eastern Flow-way is stressed. The 365-day PLRs for the Central and Western Flow-ways are high (**Figure S-2**).

STA-5/6: Treatment cells are above target stage. All treatment cells have highly stressed or stressed vegetation conditions. The 365-day PLRs for Flow-ways 1, 6, 7, and 8 are below 1.0 g/m^2/year, and the 365-day PLRs for Flow-ways 2, 3, 4, and 5 are high. (**Figure S-3**).

For definitions on STA operational language see glossary following figures.

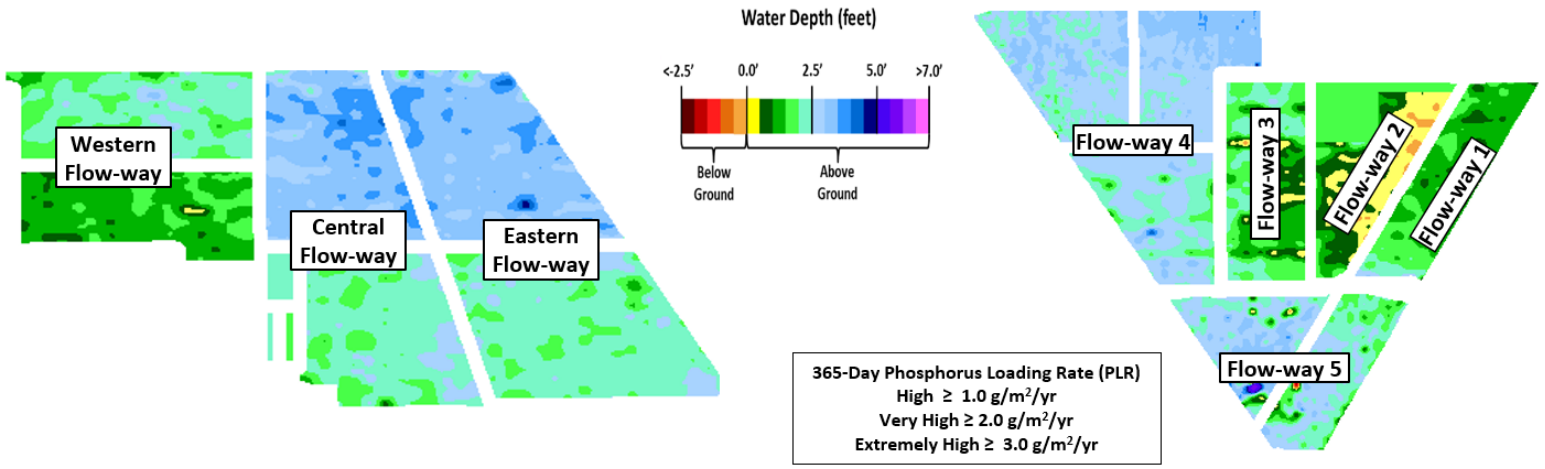


STA-1W	Flow-way Status
Western	• High 365-day PLR • Highly stressed vegetation conditions
Eastern	• High 365-day PLR • Highly stressed vegetation conditions
Northern	• Stressed vegetation conditions • Planting emergent vegetation
Cell 6	
Cell 7+8	

STA-1E	Flow-way Status
Western	• Post-construction vegetation grow-in
Central	• Offline for construction activities
Eastern	• Online with restrictions for vegetation grow-in following erosion repair

Figure S-1. Eastern Flow Path Weekly Status Report

Central Flow Path Weekly Status Report – 10/14/2024 through 10/20/2024

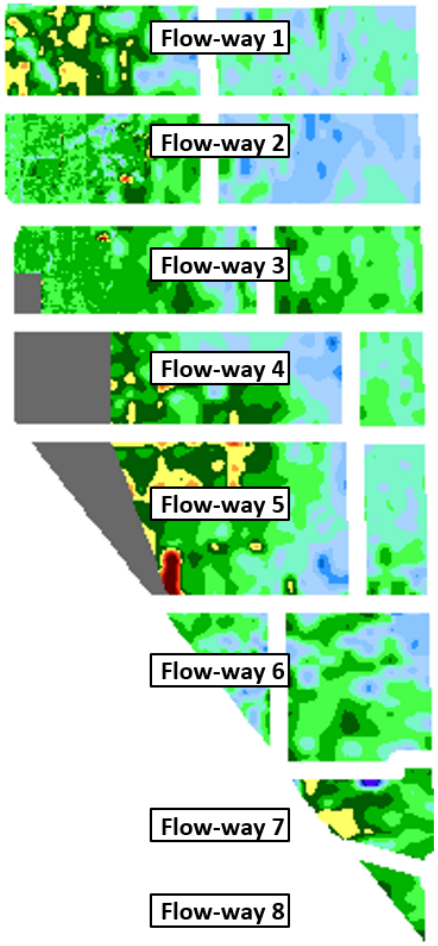


STA-3/4	Flow-way Status
Western	• High 365-day PLR
Central	• Highly stressed vegetation conditions • High 365-day PLR
Eastern	• Post-drawdown vegetation grow-in

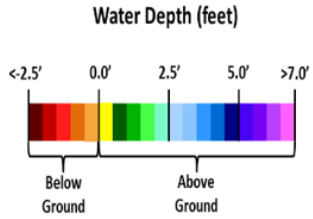
STA-2	Flow-way Status
Flow-way 1	• Upstream FAV control
Flow-way 2	• High 365-day PLR • Post-construction vegetation grow-in • Stressed vegetation conditions • Upstream FAV control
Flow-way 3	• High 365-day PLR • Stressed vegetation conditions • Upstream FAV control
Flow-way 4	• Planting emergent vegetation • Upstream FAV control
Flow-way 5	• Highly stressed vegetation conditions

Figure S-2. Central Flow Path Weekly Status Report

Western Flow Path Weekly Status Report – 10/14/2024 through 10/20/2024



STA-5/6	Flow-way Status
Flow-way 1	• Highly stressed vegetation conditions
Flow-way 2	• Highly stressed vegetation conditions • High 365-day PLR
Flow-way 3	• Highly stressed vegetation conditions • High 365-day PLR
Flow-way 4	• Stressed vegetation conditions • High 365-day PLR
Flow-way 5	• Highly stressed vegetation conditions • High 365-day PLR
Flow-way 6	• Highly stressed vegetation conditions
Flow-way 7	• Stressed vegetation conditions
Flow-way 8	• Stressed vegetation conditions



365-Day Phosphorus Loading Rate (PLR)
High ≥ 1.0 g/m^2/yr
Very High ≥ 2.0 g/m^2/yr
Extremely High ≥ 3.0 g/m^2/yr

Figure S-3. Western Flow Path Weekly Status Report

Basic Concepts and Definitions for STA Weekly Status Report

- **Inflow**: Sum of flow volume at all inflow structures to an STA.
- **Lake Inflow**: Portion of the STA total inflow volume that originates from Lake Okeechobee.
- **Outflow**: Sum of flow volume at outflow structures from an STA.
- **Total Phosphorus** (TP): Total mass of phosphorus in all its forms; including particulate, dissolved, etc.
- **Inflow Concentration**: TP concentration is the mass of TP in micrograms per liter of water, µg/L or ppb. Inflow concentration refers to the flow-weighted mean TP from all inflow structures over a period of time.
- **Outflow Concentration**: The flow-weighted mean TP from all outflow structures over a period of time. The outflow concentration represents the reduction of inflow TP achieved by STA treatment of the inflow water.
- **WQBEL**: The STA outflow concentration that is required upon completion of the Restoration Strategies projects by December 2025. The outflow concentration shall not exceed 13 ppb as an annual flow weighted mean in more than 3 out of 5 water years on a rolling basis and shall not exceed 19 ppb as an annual flow weighted in any water year.
- **Flow-Way** (FW): One or more treatment cells connected in series. Cells typically have emergent aquatic vegetation (EAV) in the front portion of the flow-way followed by a mix of EAV and submerged aquatic vegetation (SAV)
- **Vegetation Status**: Healthy means the vegetation condition is good and will allow the STA to perform as designed. Stressed means the vegetation is showing signs of poor health, such as browning or areas of vegetation die-off, or the cell contains undesirable vegetation such as floating exotic vegetation requiring treatment. The TP reduction capability of the STA is affected when the vegetation condition is poor.
- **Phosphorus Loading Rate** (PLR): Mass of inflow TP in grams, divided by total treatment area of STA in square meters, per year. In general, a 365-day value of less than 1.0 is needed for an STA to perform optimally. A PLR of 2.0 is considered very high and a PLR of 3.0 is considered extremely high. The TP reduction capability of the STA is affected when the PLR is high, very high and extremely high.
- **Online**: Online status means the FW can receive and treat inflow.
- **Online with Restriction**: The FW can receive and treat inflow, but the amount of flow or water level may be limited temporarily. For example, a vegetation rehabilitation effort may require reduced flows through an area while the new plants are establishing, or nesting by protected species may require a certain water level not to be exceeded.
- **Offline**: The FW is unable to receive and treat inflow due to repairs, construction, or other prohibitive reasons.
- **Depth**: Difference between the average surface water level in a cell and the average ground elevation in that cell. Target depths, or depths between flow events, are between 1.25 ft to 1.5 ft. As depth approaches or drops below zero, an increasing percentage of the cell is considered dry and STA conditions deteriorate. An increase in depth above target depth is expected with increasing flow. However, as depth increases much above the target depth and is sustained over a period of time, it can be detrimental to vegetation health and overall STA treatment performance.
- **Note**: The data provided in this summary report were developed using a combination of provisional and quality-assured flow and water quality data. In some cases, best professional judgment was used to estimate missing data and revise questionable data. Values provided are not considered final but are appropriate for use in STA operational decision-making.

Everglades

Water Conservation Area Regulation Schedules

Minimal rainfall occurred throughout the region over the past week, with the highest occurring in Everglades National Park (ENP). WCA-1: Stages steeply dropped last week in the Refuge. On Sunday, October 20, 2024, the 3-Gauge average was 0.48 feet below the A1 Zone regulation line. WCA-2A: Stage remained relatively unchanged last week at Gauge 2A-17 and remains above the Zone A regulation line by 1.16 feet as of Sunday. WCA-3A: The 3-Gauge average stage slightly increased over last week, remaining above the Zone A regulation line on Sunday by 0.98 feet. WCA-3A North: Stage change at Gauge 62 (NW corner) declined slightly last week but continues trending above the upper schedule line by 0.07 feet as of Sunday. See figures **EV-1** through **EV-4**.

Water Depths

The SFWDAT model results for October 20, 2024, indicate overall wetter conditions compared to a month ago, especially in WCA-3A. Ponded conditions continue to deepen in Northern WCA-3A and expand in southern WCA-3A. Water levels have reduced slightly in northeast Shark River Slough and deepened slightly in southern Big Cypress toward near ground surface over the past month. Hydrologic connectivity remains within the major sloughs of ENP. Current WDAT water depth estimates when compared to one month ago, indicate mixed conditions throughout the Everglades Protection Area (EPA). Most of WCA-3A south into the northern region of ENP had slightly deeper conditions while the rest of the system is slightly shallower. The comparison to modeled conditions a year ago shows a more uniform trend, with slightly deeper conditions throughout most of the system except in WCA-1, western WCA-2B and WCA-3B. Comparing current conditions to the 20-year percentiles for October 20th; WCA-1, Northern WCA-2A, and WCA-2B are below the 70th percentile for this time of year. Large portions of northern and southern ENP remain well above average. See figures **EV-5** through **EV-7**.

Taylor Slough and Florida Bay

All stages decreased across Taylor Slough over the past week, with an average decrease of 0.16 feet. Changes ranged from −0.28 feet at Craighead Pond (CP) to −0.07 feet E112 in the northern slough (Figure **EV-8** and Figure **EV-9**). Taylor Slough water levels remain above the recent average for this time of year by 7.8 inches compared to before the Florida Bay initiative (starting in 2017), a decrease of 2.0 inches relative to last week's comparison. The CP and Taylor Slough Bridge (TSB) stages are now below estimated historical levels (circa 1900) by 0.20 and 0.71 feet, respectively.

Average Florida Bay salinity was 18.5, a decrease of 2.8 from last week. Salinity decreased at most sites, with changes ranging from −8.1 at Garfield Bight (GB) in the western nearshore region to +3.0 at Long Sound (LS) in the eastern nearshore region (Figure **EV-8**). Salinity is above estimated historical levels (circa 1900) and now below the WY2001-2016 Interquartile Range (IQR) for all three regions (Figure **EV-10**). Average Florida Bay salinity remains below its recent average for this time of year by 5.1, a decrease of 3.0 from last week.

Salinity at the Taylor River (TR) station in the mangrove zone (tracked for the Florida Bay MFL) was 0.2. The 30-day moving average was 2.7, a decrease of 0.9 from last week (Figure **EV-11**). The 365-day moving sum of flow from the five major creeks (McCormick Creek, Taylor River, Mud Creek, Trout Creek, West Highway Creek) was 429,704 acre-feet, an increase of 17,615 acre-feet from last week (Figure **EV-11**).

Average rainfall across Taylor Slough and Florida Bay was 0.74 inches over the past week, based on the 18 gauges used for this report. Rainfall ranged from 0.10 inches at Terrapin Bay (TB) in the central nearshore region to 2.74 inches at Duck Key (DK) in the eastern region (Figure **EV-12**). Wind directions and speeds in Florida Bay ranged from 1.3 mph SW on October 16th to 30.2 mph NE on October 18th (Figure **EV-12**).

Average daily flow from the five major creeks totaled 4,597 acre-feet last week, with net positive flows for the week. Total daily creek flow ranged from 2,549 acre-feet on October 15th to 6,465 acre-feet on October 18th (Figure **EV-13**). Average daily flow for the week was 405 acre-feet below estimated historical levels (circa 1900).

Implications for water management

The ecology of the Everglades benefits from ascension rates of less than 0.25 feet per week this time of year. Maintaining a hydroperiod supportive of upcoming wading bird nesting at the Alley North colony in WCA-3A becomes more important now as the peak stage has reached a level that should protect the colony from a dry out during the upcoming wading bird nesting season. Wading birds in the EPA have had below average nesting success for three consecutive years. Continued freshwater inputs to Everglades National Park and into Florida Bay is helping to maintain ecologically desirable salinities, and maintaining inputs of water southward will help to prevent ecologically undesirable salinity swings in Florida Bay nearshore areas. Individual regional recommendations can be found in **Table EV-2**.

Table EV-2. Previous week's rainfall and water depth changes in Everglades basins.

Everglades Region	Rainfall (inches)	Stage change (feet)
WCA-1	0.30	−0.14
WCA-2A	0.16	−0.16
WCA-2B	0.17	−0.13
WCA-3A	0.24	−0.09
WCA-3B	0.16	−0.10
ENP	0.84	−0.06

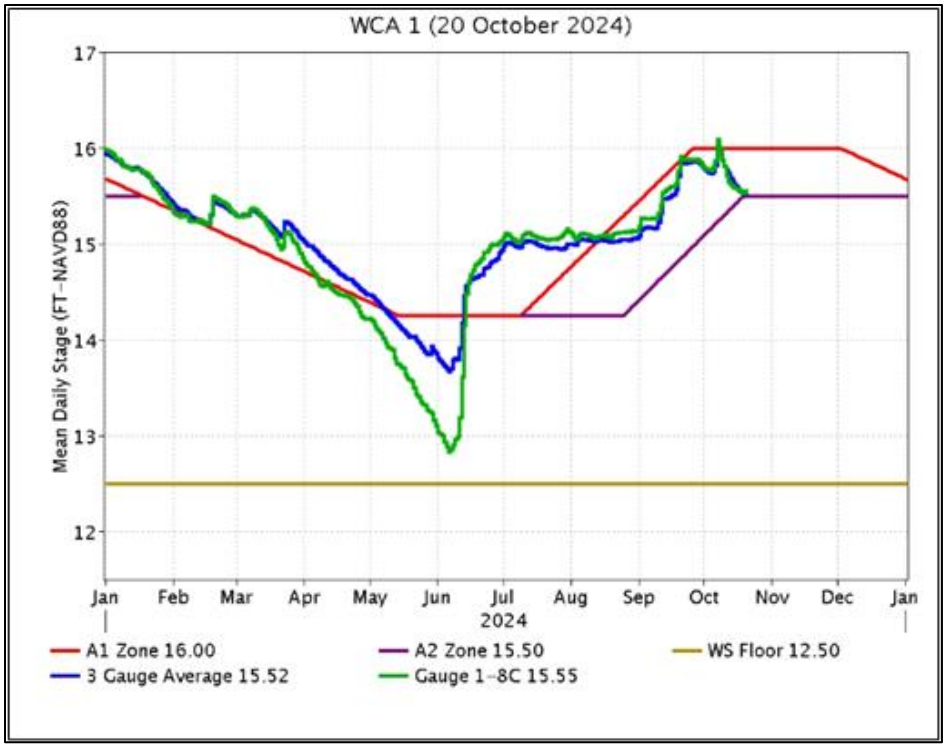


Figure EV-1. WCA-1 stage hydrographs and regulation schedule.

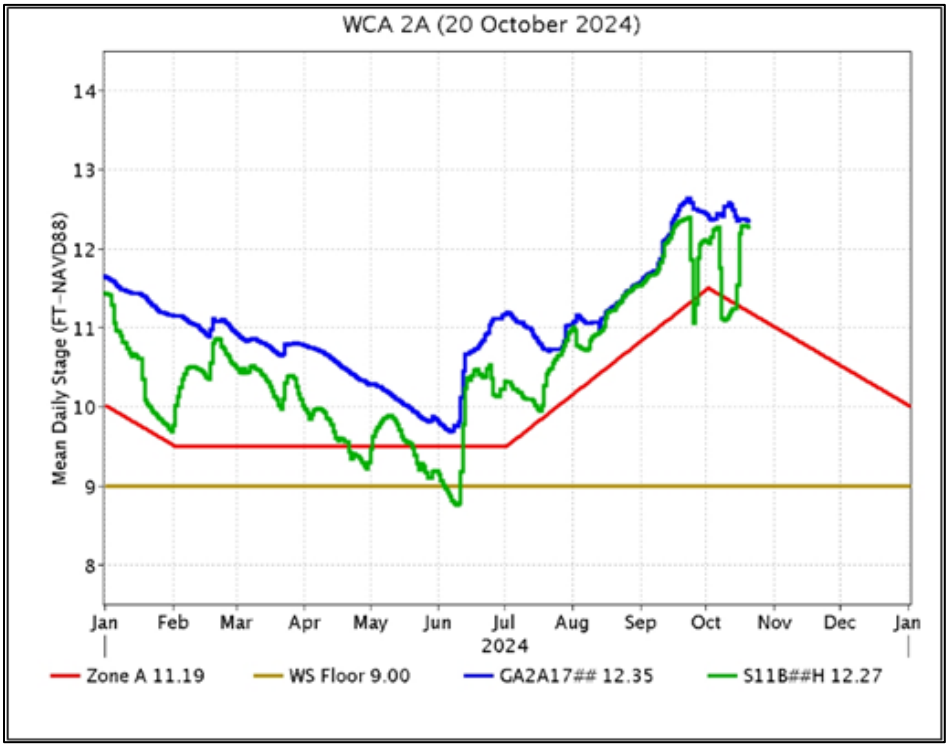


Figure EV-2. WCA-2A stage hydrographs and regulation schedule.

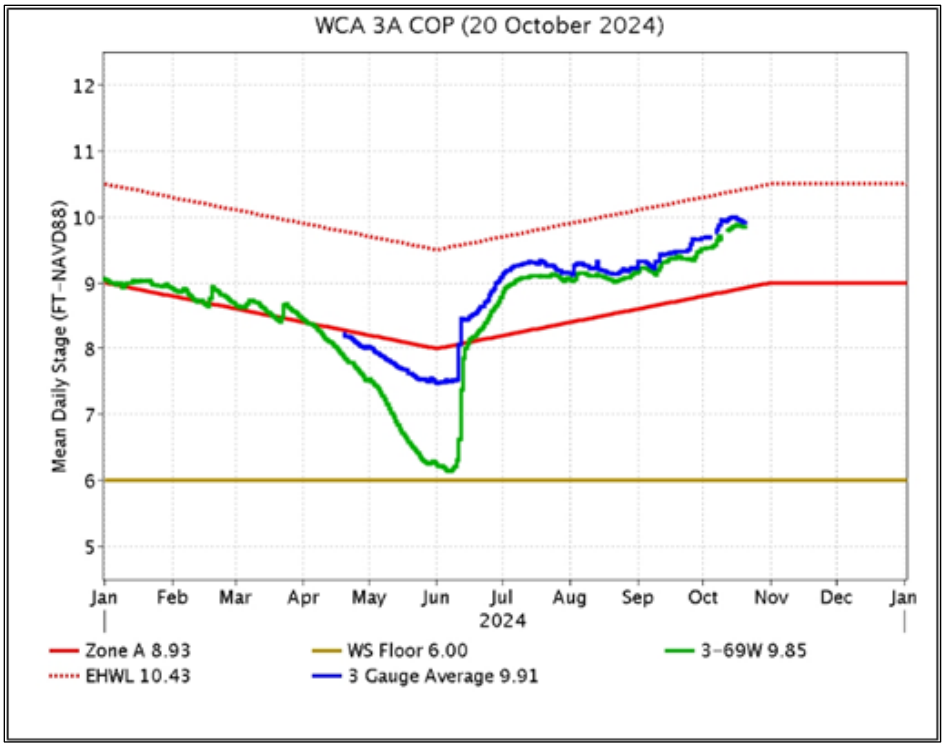


Figure EV-3. WCA-3A stage hydrographs (three-gauge average, 3-69W) and regulation schedule.

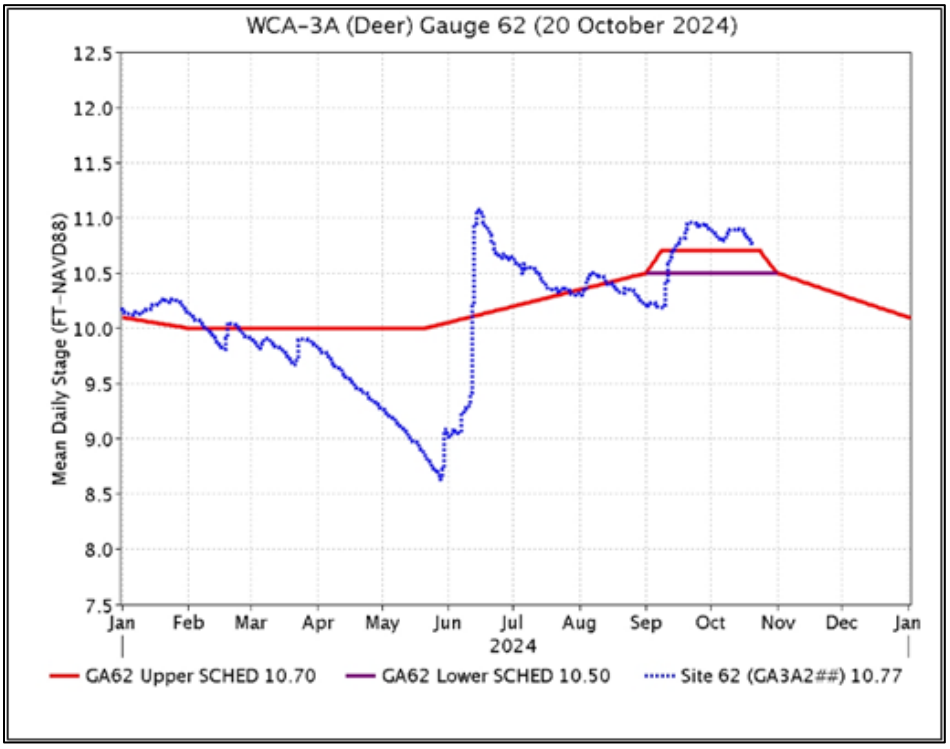


Figure EV-4. WCA-3A stage hydrograph (Deer gauge; Site 62) and GA62 regulation schedule.

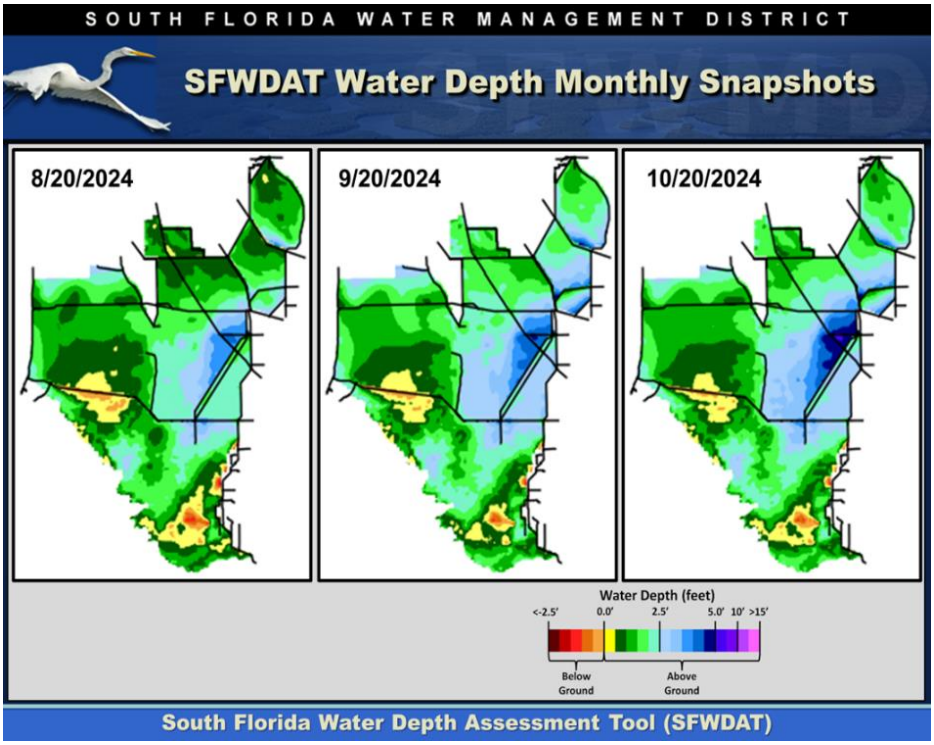


Figure EV-5. Everglades water depths from two months ago (left), one month ago (center) and present (right), based on SFWDAT.

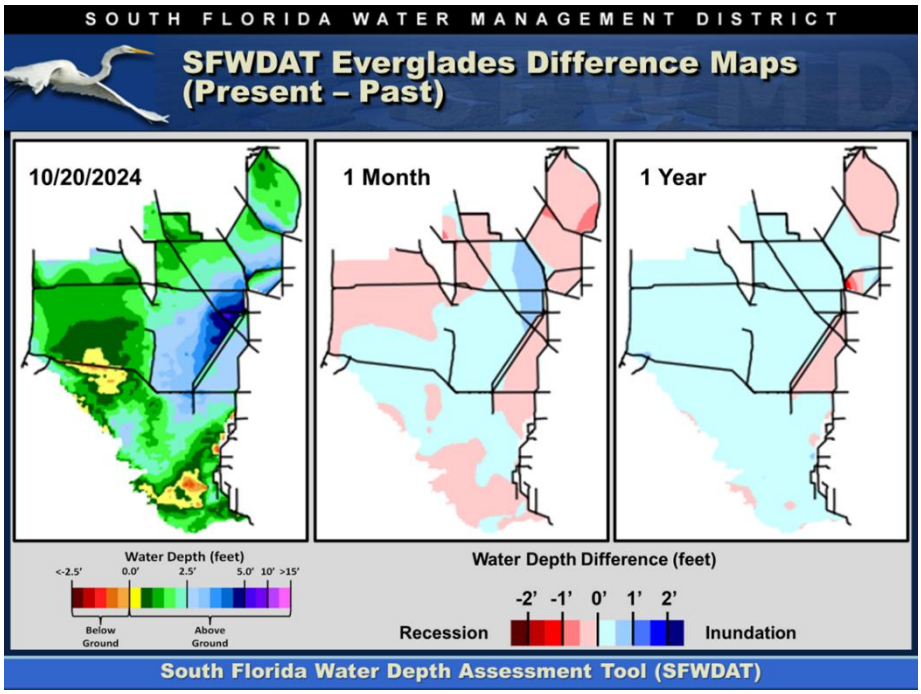


Figure EV-6. Present Everglades water depths (left) and water depth changes from one month (center) and one year (right) ago, based on SFWDAT.

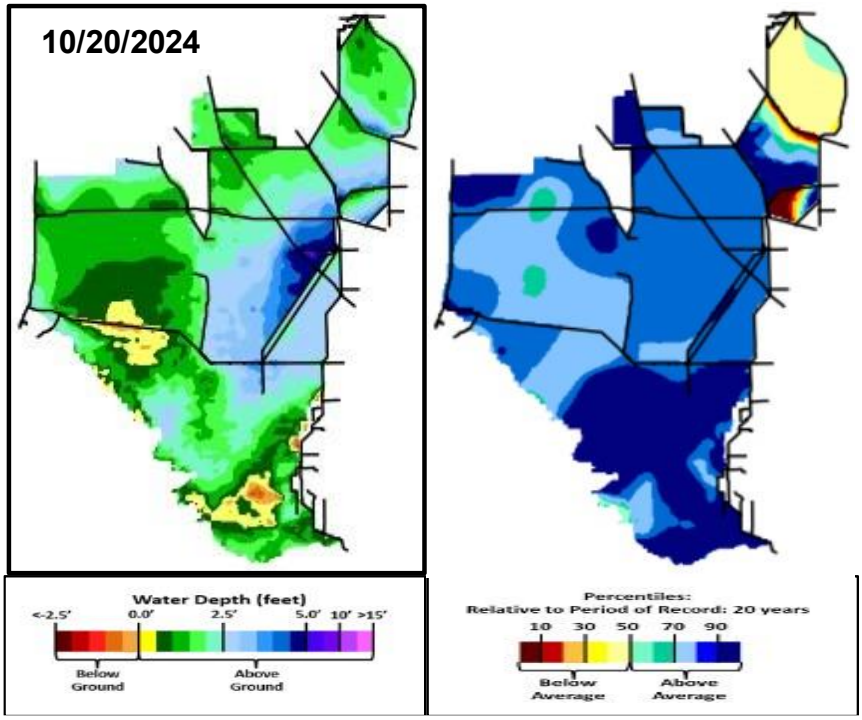


Figure EV-7. Present water depths (September 29th, 2024) compared to the day of year average over the previous 20 years.

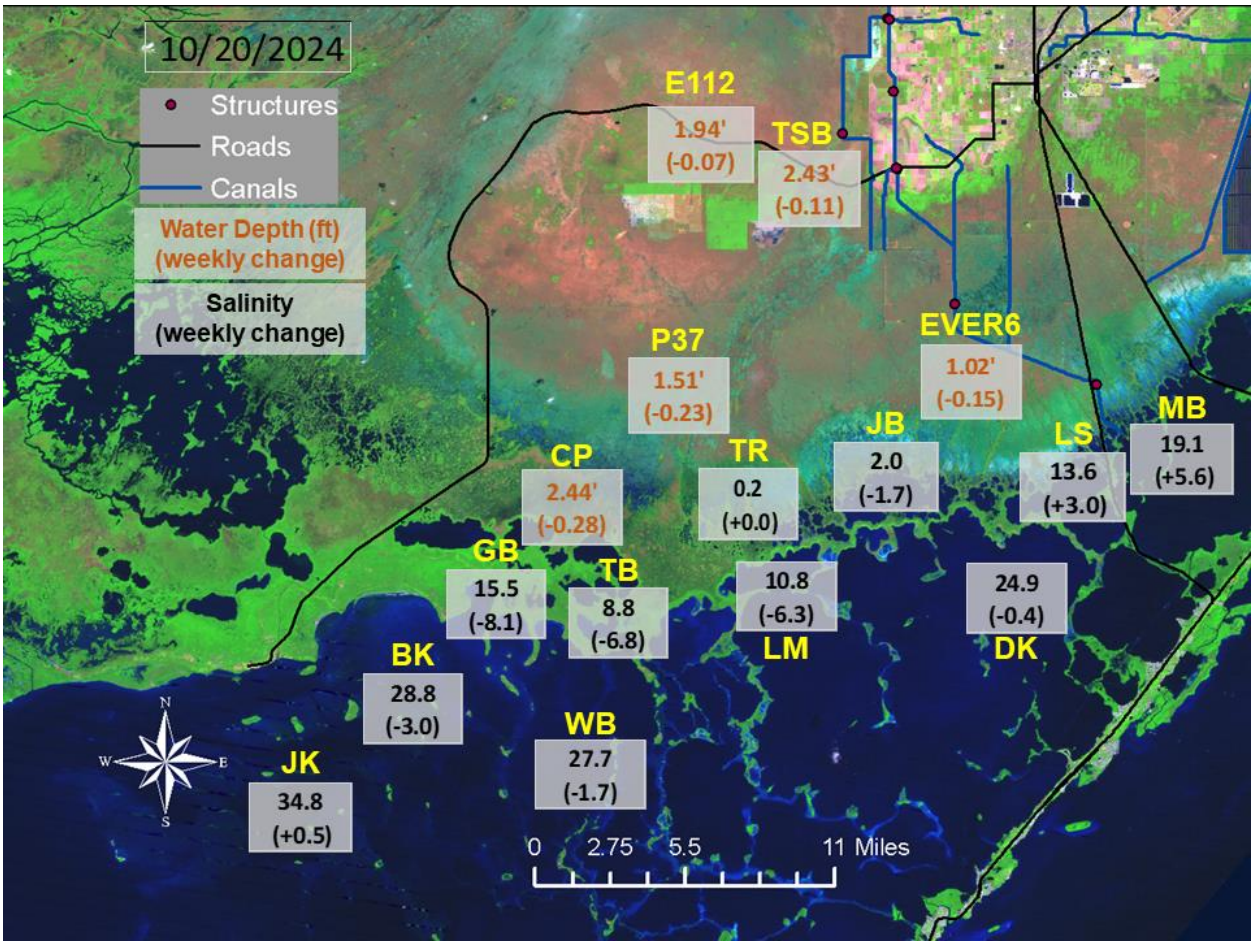


Figure EV-8. Taylor Slough water depths and Florida Bay salinities with changes from a week ago.

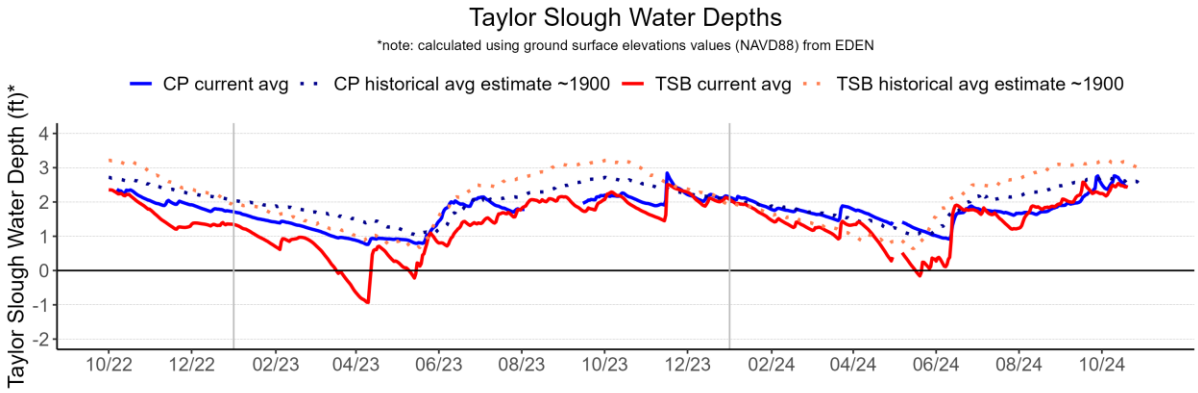


Figure EV-9. Taylor Slough water depth time series for Taylor Slough Bridge (TSB; northern slough) and Craighead Pond (CP; southern slough).

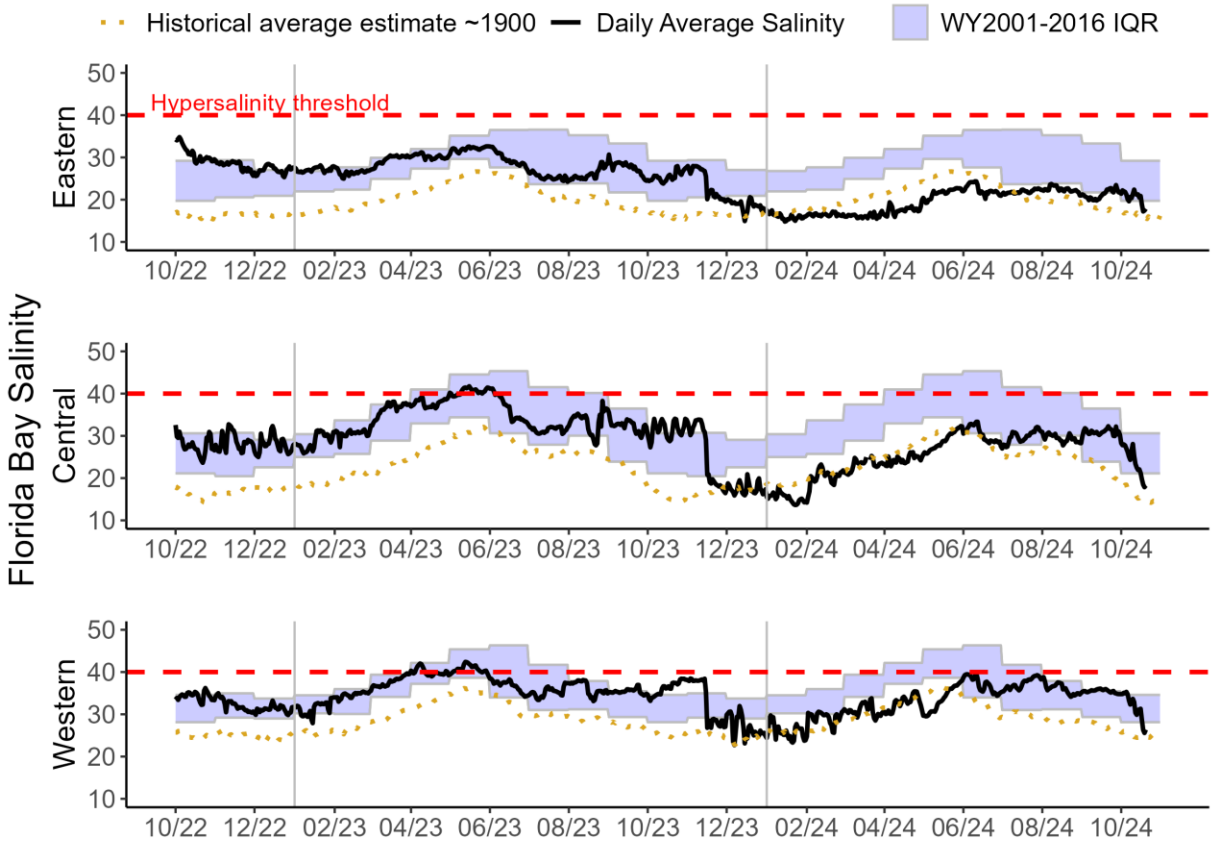


Figure EV-10. Eastern (top panel), Central (middle panel) and Western (bottom panel) Florida Bay daily average salinities with WY2001-2016 interquartile (25-75 percentile) ranges (IQR) and estimated historical daily average salinities. The hypersalinity threshold indicates the level at which salinities start to become harmful to seagrass.

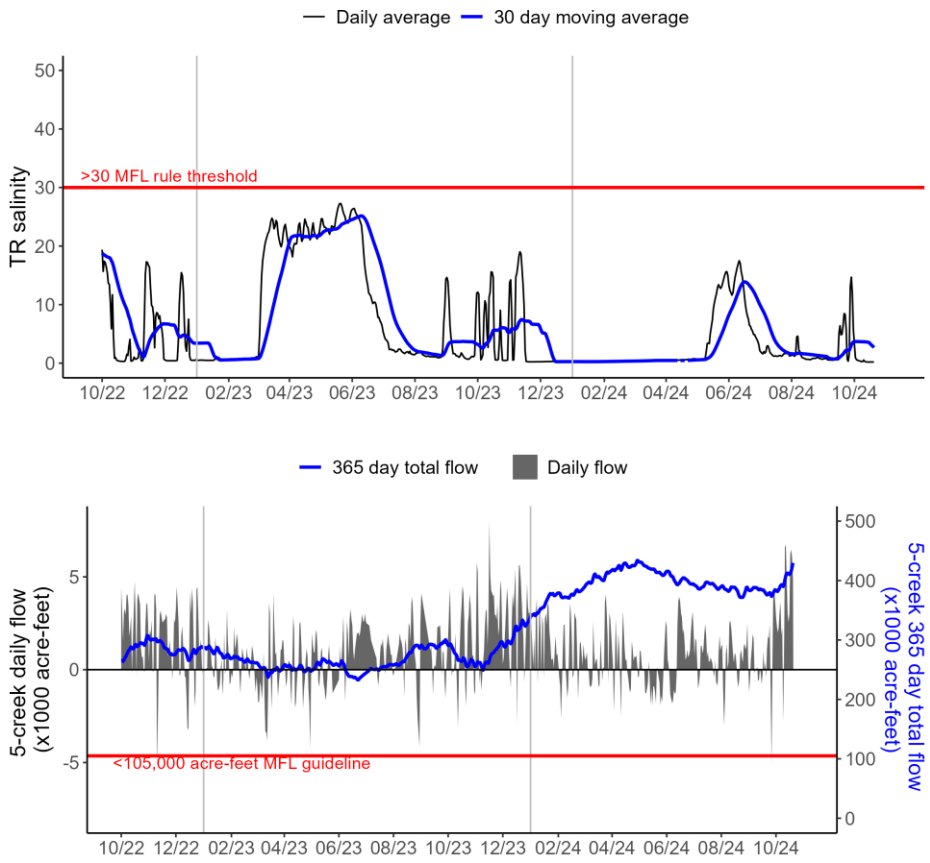


Figure EV-11. Salinity at Taylor River (TR; top) and creek inflow to Florida Bay (bottom) from the five major creeks (McCormick Creek, Taylor River, Mud Creek, Trout Creek, and West Highway Creek). The 30-day moving average salinity and 365-day total creek flow are tracked for the Florida Bay MFL criteria.

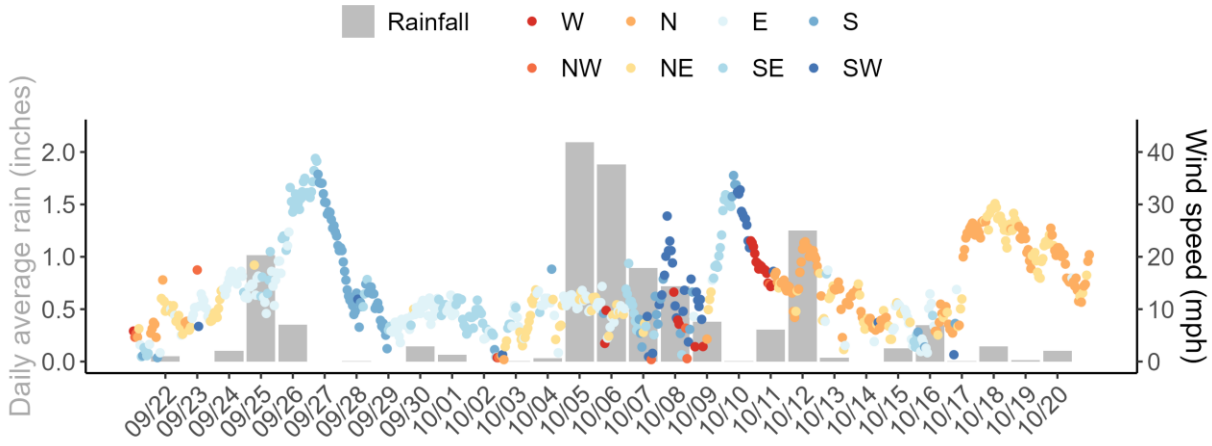


Figure EV-12. Daily average rain across Taylor Slough and Florida Bay, along with hourly average wind speed and direction (measured at Long Key) in Florida Bay over the past four weeks.

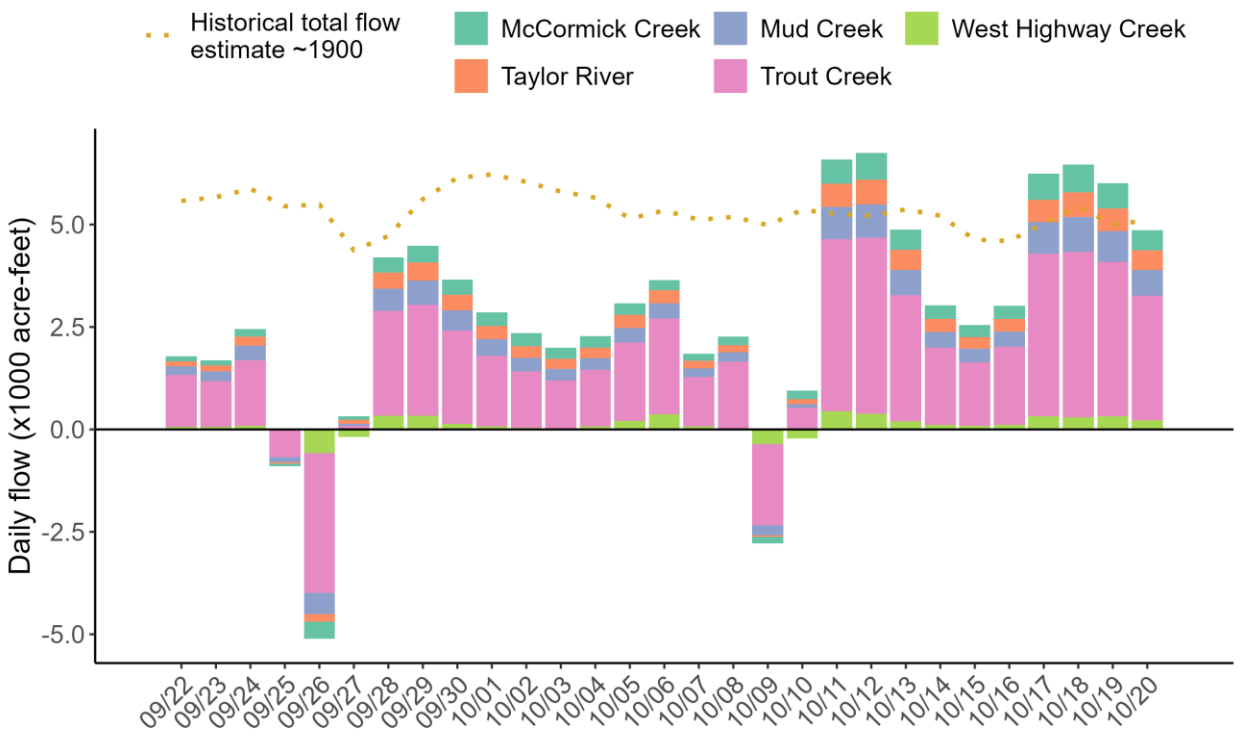


Figure EV-13. Daily average creek flow summed between five creeks with estimated historical daily flow over the past four weeks.

Table EV-2. Weekly water depth changes and water management recommendations

SFWMD Everglades Ecological Recommendations, October 22, 2024 (red is new)			
	Weekly change	Recommendation	Reasons
WCA-1	Stage decreased by 0.14 feet	Ascension rate of less than 0.25 feet per week.	Protect within basin and downstream habitat and wildlife.
WCA-2A	Stage decreased by 0.16 feet	Ascension rate of less than 0.25 feet per week.	Protect within basin and downstream habitat and wildlife.
WCA-2B	Stage decreased by 0.13 feet	Ascension rate of less than 0.25 feet per week or 0.5 feet per two weeks.	Protect within basin and downstream habitat and wildlife.
WCA-3A NE	Stage decreased by 0.31 feet	Ascension rate of less than 0.25 feet per week.	Protect within basin and downstream habitat and wildlife.
WCA-3A NW	Stage decreased by 0.14 feet	Ascension rate of less than 0.25 feet per week.	
Central WCA-3A S	Stage increased by 0.02 feet	Ascension rate of less than 0.18 feet per week.	Protect within basin wildlife.
Southern WCA-3A S	Stage increased by 0.07 feet		
WCA-3B	Stage decreased by 0.10 feet	Ascension rate of less than 0.18 feet per week.	Protect within basin and downstream habitat and wildlife.
ENP-SRS	Stage decreased by 0.06 feet	Make discharges to ENP according to COP and TTFF protocol while adaptively considering upstream and downstream ecological conditions.	Protect within basin and upstream habitat and wildlife.
Taylor Slough	Stage changes ranged from −0.28 feet to -0.07 feet	Move water southward as possible.	When available, provide freshwater to promote water movement.
FB- Salinity	Salinity changes ranged from -8.1 to +5.6	Move water southward as possible.	When available, provide freshwater to promote water movement.

Biscayne Bay

As shown in **Figure BB-1**, mean total inflow to Biscayne Bay was 1,405 cfs, and the previous 30-day mean inflow was 1,731 cfs. The seven-day mean salinity was 20.5 at BBCW8 and 13.6 at BBCW10, both within the ideal salinity range for estuarine organisms in this region (salinity less than 35). Data were provided by Biscayne National Park.

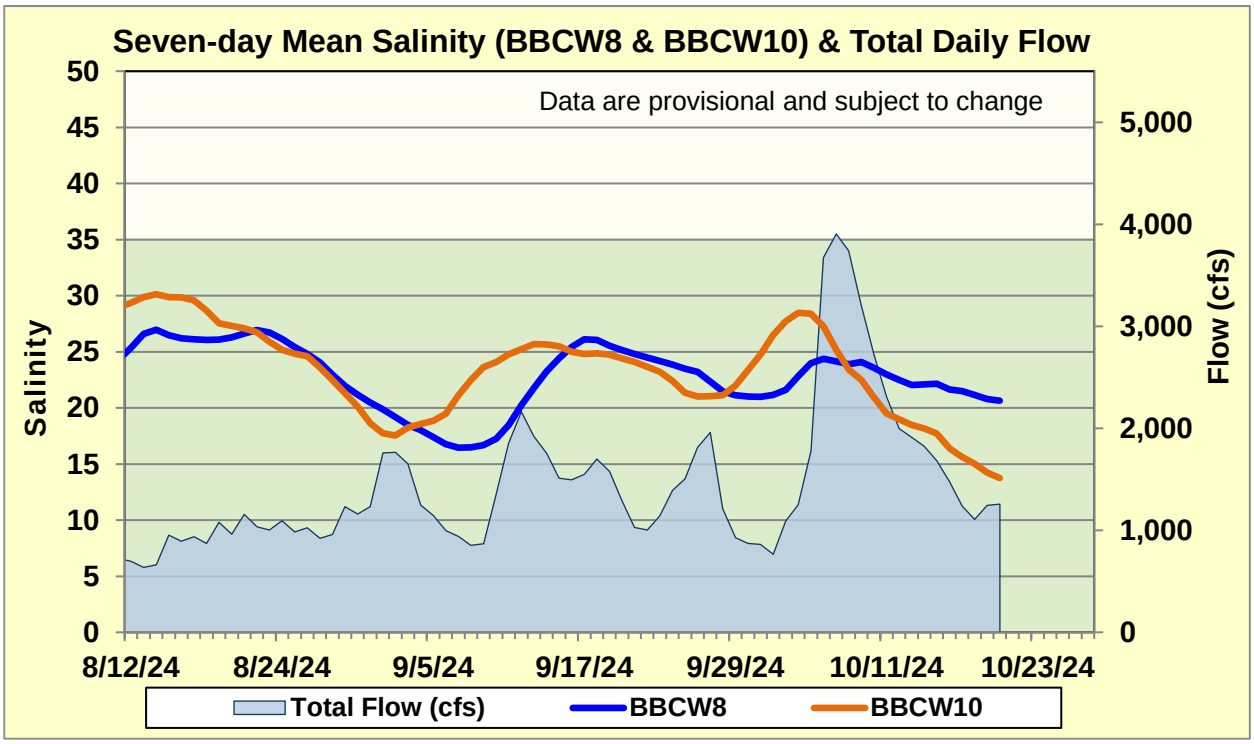


Figure BB-1. Seven-day mean salinity at BBCW8 and BBCW10 and total daily flow in Biscayne Bay. Total daily flow was calculated using flow from structures S20G, S20F, S21, S21A, S123, and S700P.