MEMORANDUM

To: USACE Colonel James L. Booth, LTC Todd F. Polk, Richard McMillen, Kim Taplin, SFWMD Governing Board, Executive Director Drew Bartlett, Jennifer Reynolds, Lawrence Glenn, DEP Secretary Shawn Hamilton

From: Periodic Scientists Conference Call Participants
Kevin Godsea & Avery Renshaw - J.N. "Ding" Darling National Wildlife Refuge (NWR) Complex
Holly Milbrandt & Dana Dettmar - City of Sanibel
Lesli Haynes & Lisa Kreiger - Lee County
Harry Phillips & Maya Robert - City of Cape Coral
Leah Reidenbach, Rick Bartleson PhD, & Matt Depaolis - SCCF (Sanibel-Captiva Conservation Foundation)

Subject: Caloosahatchee & Estuary Conditions Report

Reporting Period: **July 18 – 24, 2023**

This report provides a scientific assessment of Caloosahatchee River and Estuary conditions and how these conditions affect the health, productivity, and function of the system.

Caloosahatchee Conditions Summary: Flow to the Caloosahatchee Estuary had a 7-day average of **2,917 cfs** at **S-79** with a 7-day average of **162 cfs (6%)** coming from the lake at **S-77**. **The 14-day moving average flow at S-79 is 2,782 cfs and has been in the damaging** flow envelope (> 2,600 cfs; RECOVER 2020) for 26 days.

Recommendation: Lake Okeechobee is concerningly high and has developed large cyanobacterial blooms on the lake and at S-77. There is potential risk that the Caloosahatchee could experience damaging high Lake discharge events in addition to watershed runoff, resulting not only in increased nutrient loading and decreased salinity, but the transportation of harmful algae via S-77 to the estuary. We recommend that the Corps seek to utilize all outlets around the Lake to reduce rising Lake levels in an effort to prevent damaging high releases to the Caloosahatchee estuary and to confirm the absence of cyanobacteria at all lock structures before releases resume to avoid risk to environmental and human health.

USACE Action: With Lake Okeechobee stage within the Low Sub-band, the Tributary Hydrologic conditions in the Wet category, and the Multi-Seasonal Lake Okeechobee Net Inflow outlook in the Wet category, Part D of the 2008 LORS suggests "S-79 up to 3,000 cfs and S-80 up to 1,170 cfs" On 6/10/23 the USACE increased releases from Lake Okeechobee to the Caloosahatchee Estuary from the W.P. Franklin Lock and Dam (S-79) to 2,000 cfs. Releases to the St. Lucie Estuary (S-80) remain at 0 cfs.

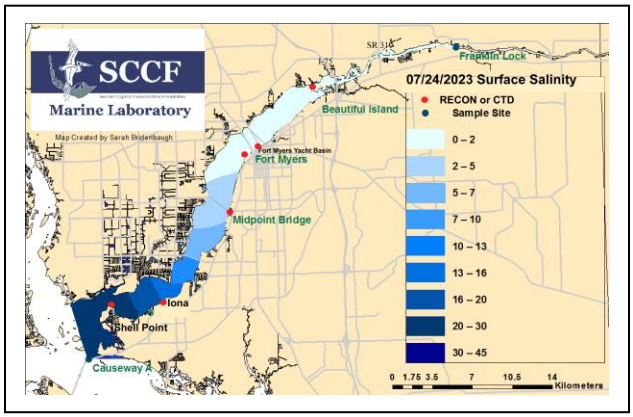
Lake Flows: In the past 7 days the total outflow from Lake Okeechobee was **2,365 AF** with **2,243 AF** to the Caloosahatchee through **S-77**, **122 AF** through **S-310** in Clewiston, and **0 AF** to the EAA through **S-351**, **S-352**, and **S-354**. The total net inflow to the Lake was **55,284 AF** (54,258 AF from Fisheating Creek, S-71, S-72, S-84s, S-65EX, and S-65EX1) with a total backflow volume of **1,026 AF** from **S310 and C10A**. Water conservation areas received flows of **11,324 AF**, **17,615 AF**, and **20,154 AF** at **WCA1, WCA2, and WCA3**, respectively. Everglades National Park received **26,196 AF**.

Lake Level: 14.98 ft (Low Sub-Band) **Last Week**: **14.92 ft** **Last Year: 13.04 ft**

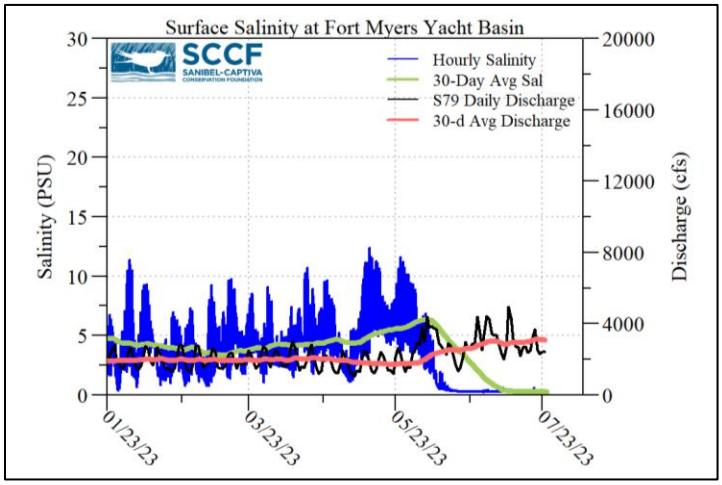
7-Day Lake Recession Rate: +0.06 ft/week

Lake Okeechobee Inflow: 3,549 cfs **Lake Okeechobee Outflow: 382 cfs**

Weekly Rainfall Total: **WP Franklin: 2.97"** **Ortona: ≥ 1.21"** **Moore Haven: 1.86"**



ACOE Daily Reports			
Date	**S79 Flow (cfs)**	**S78 Flow (cfs)**	**S77 Flow (cfs)**
7/18/23	**2472**	**1425**	**0**
7/19/23	**3284**	**2078**	**0**
7/20/23	**4100**	**2505**	**0**
7/21/23	**2835**	**1709**	**0**
7/22/23	**2475**	**1408**	**0**
7/23/23	**2635**	**1513**	**382**
7/24/23	**2619**	**1631**	**749**
7-day avg	**2917**	**1753**	**162**



Light Penetration

Site	25% Iz	Target Values	Turbidity	Target Values
	meters		NTU	
Fort Myers	ND	> 1	ND	< 18
Shell Point	ND	>2.2	ND	< 18
Causeway	1.7	> 2.2	2.4	< 5

25% Iz *is the depth (z) where irradiance (I) is 25% of surface irradiance. Target values indicate the depth of light penetration needed for healthy seagrass.*
[m] measured, [c] calculated

Cyanobacteria Status: On 7/24/23 sampling for cyanobacteria by the Lee County Environmental Lab reported the **presence** of *Microcystis* at the **Alva Boat Ramp** as a brownish-greenish surface scum (with a dinoflagellate bloom also present) and at the **Davis Boat Ramp** and **Midpoint Bridge Park** as specks. *Microcystis* was **moderately abundant** at **North Shore Park** as streaks with some accumulation along the shore and seawall.

Upper Estuary Conditions: The 30-day average surface salinity at the Fort Myers Yacht Basin was 0.3 psu, within the suitable range for tape grass.

Lower Estuary Conditions: The average salinity at Shell Point RECON was 23 psu, in the optimal range for oysters, but below optimal for seagrass. On 7/24/23, over 1 million *Chaetoceros* chains/L were found at the Causeway where the chlorophyll *a* concentration was 20 µg/L.

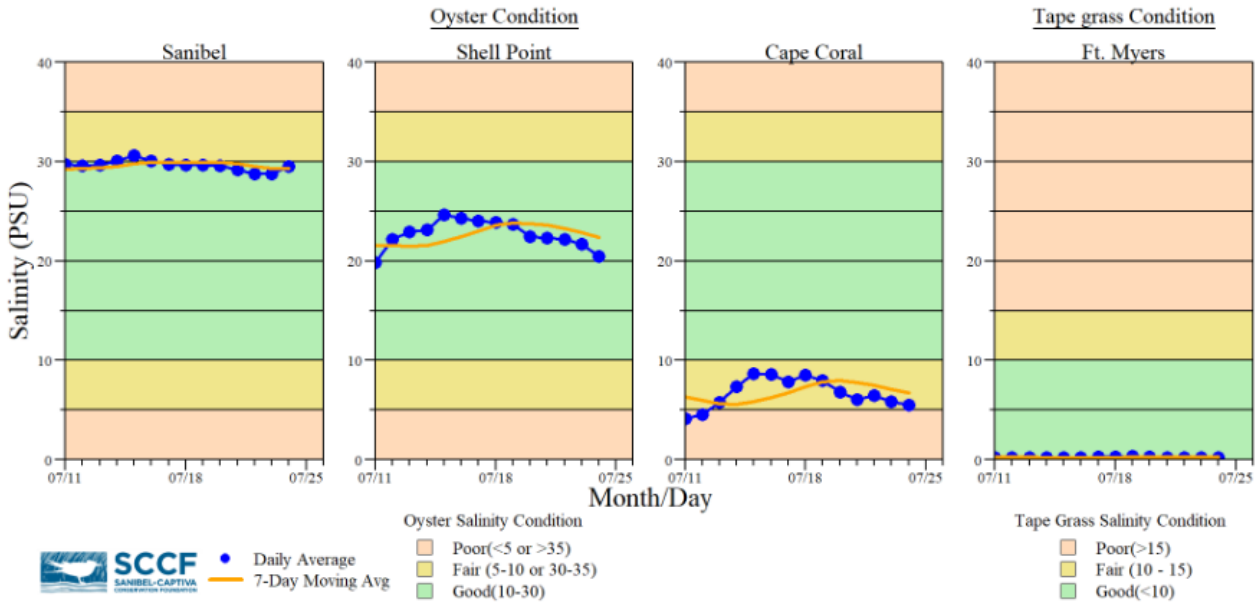
Water Quality Conditions:

Monitor Site	Salinity (psu)[a] [previous week]	Diss O_2 (mg/L)[b]	FDOM (qsde)[c]	Chlorophyll (µg/L)[d]
Beautiful Island	0.2 – 0.3 [0.2 – 0.2]	-------	-------	------
Fort Myers Yacht Basin	0.2 – 0.7 [0.2 – 0.2]	-------	-------	-------
Shell Point	12 – 32 [9.6 – 33]	2.8 – 7.1	140	-------
McIntyre Creek	28.3 – 29.9 [28.1 – 30.3]	0.4 – 8.2	-------	-------
Tarpon Bay	28.0 – 32.7 [26.8 – 32.1]	1.6 – 8.1	3.0 – 6.5	1.9 – 5.8
Wulfert Flats	29.4 – 30.4 [29.2 – 31.3]	2.0 – 8.6	-------	4.9 – 53.3

Red values are outside of the preferred range.
[a] Salinity target values: BI < 5, FM < 10, SP = 10 – 30
[b] Dissolved O_2 target values: all sites > 4
[c] FDOM target values: BI < 70, FM < 70, SP < 11
[d] Chlorophyll target values: BI < 11, FM < 11, SP < 11
[s] Single sonde lower and surface layer or surface grab lab measurement
------- no data

Red Tide: On 7/21/23, the FWC reported that over the past week the red tide organism, *Karenia brevis*, was detected at background concentrations in and offshore of Northwest Florida. In Southwest Florida over the past week, *K. brevis* was not observed.

Wildlife Impacts: In the past week, the CROW wildlife hospital on Sanibel received 5 patients with toxicosis symptoms: 1 adult sandwich tern (died), 1 adult least sandpiper (died), 1 fledgling least tern (died),1 adult double crested cormorant (died), and 1 juvenile osprey (still at CROW).



Daily average bottom salinity data for the last 14-days from sampling locations within the tidal Caloosahatchee River Estuary relative to oyster health (Sanibel, Shell Point and Cape Coral) and tape grass (*Vallisneria americana*) health (Ft. Myers only) conditions.
*Ft. Myers sensor is in the lower strata
Data are provisional and subject to change.

Water clarity at Lighthouse Beach Park on 7/24/23 at 1:19 PM on a low tide (1.2 ft).
Lighthouse Beach Park Virtual Tour.