

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: **December 20, 2022 – January 2, 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 **1,899 cfs** at **S-79** with a 7-day average of **1,057 cfs (56%)** coming from the lake at **S-77**. **The 14-day moving average flow at S-79 is 1,810 cfs and has been in the optimal flow envelope (750 – 2,100 cfs; RECOVER 2020) for 4 days after 4 days in the stress flow envelope (2,100 – 2,600 cfs).**

Recommendation: To keep the Caloosahatchee River and Estuary in the optimal salinity envelope and to avoid unnecessary stress, we encourage the Corps to maintain flows within the RECOVER 2020 optimal flow envelope of 750 – 2,100 cfs at S-79 for the Caloosahatchee Estuary.

USACE Action: With Lake Okeechobee in the Intermediate sub band and normal to wet tributary hydrologic conditions and weather forecast, LORS08 Part D currently suggests up to 4,000 cfs at S-77. On 12/3/22 the USACE increased releases from Lake Okeechobee to the Caloosahatchee Estuary from the W.P. Franklin Lock and Dam (S-79) to a seven-day average pulse release of 2,000 cubic feet per second. No lake releases are planned for the St. Lucie Estuary. The USACE is utilizing a make-up release tool which allows them to make releases at levels lower than suggested in LORS08 and bank the volume not released for beneficial use throughout the dry season.

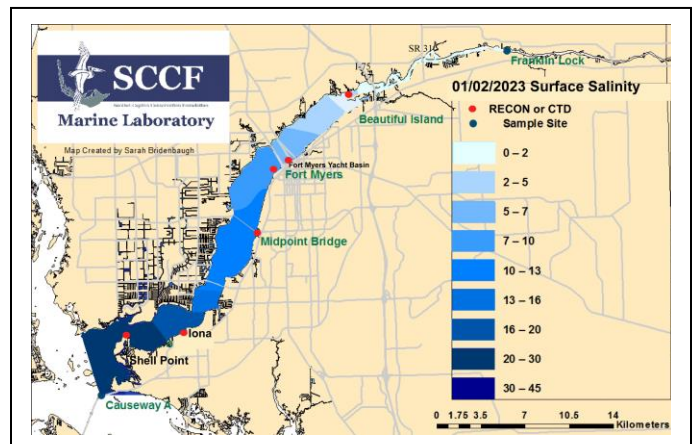
Lake Flows: In the past 7 days the total outflow from Lake Okeechobee was **19,865 AF** with **14,670 AF** to the Caloosahatchee through **S-77**, **54 AF** through **S-310** in Clewiston, and **5,133 AF** to the EAA through **S-351**, **S-352**, and **S-354**. The total net inflow to the Lake was **26,914 AF** (26,886 AF from Fisheating Creek, S-71, S-72, S-84s, S-65EX, and S-65EX1) with a total backflow volume of **28 AF** from **S310** and **C10A**. Water conservation areas received flows of **577 AF**, **0 AF**, and **3,144 AF** at **WCA1**, **WCA2**, and **WCA3**, respectively. Everglades National Park received **14,975 AF**.

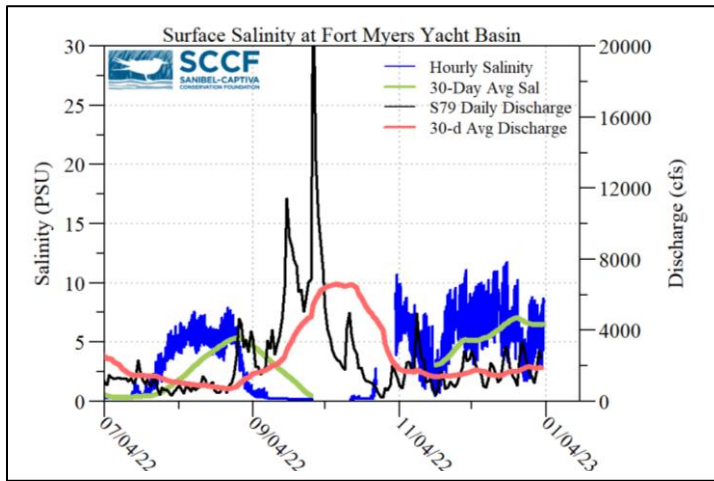
Lake Level: 16.35 ft (Intermediate sub-band)
Last Week: 16.35 ft Last Year: 15.48 ft

Lake Okeechobee Inflow: 2119 cfs
Lake Okeechobee Outflow: 2581 cfs

Weekly Rainfall Total:
WP Franklin: 0.00"
Ortona: 0.00"
Moore Haven: ≥ 0.00"
7-Day Lake Recession Rate: +0.00 ft/week

ACOE Daily Reports			
Date	S79 Flow (cfs)	S78 Flow (cfs)	S77 Flow (cfs)
12/20/22	1912	1342	1372
12/21/22	1438	814	589
12/22/22	1181	581	530
12/23/22	883	390	346
12/24/22	2561	1626	1455
12/25/22	3349	2404	2397
12/26/22	2783	1833	2409
12/27/22	2150	1070	878
12/28/22	1584	823	178
12/29/22	1405	1275	1138
12/30/22	1023	721	479
12/31/22	1602	980	311
1/1/23	2820	1994	2021
1/2/23	2709	1906	2391
14-day avg	1957	1269	1178





Light Penetration				
Site	25% Iz	Target Values	Turbidity	Target Values
	meters		NTU	
Fort Myers	ND	> 1	ND	< 18
Shell Point	1.68	>2.2	2.0	< 18
Causeway	2.16	> 2.2	2.2	< 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 12/27/22 sampling for cyanobacteria by the Lee County Environmental Lab reported the presence of *Microcystis* and *Dolichospermum* upstream of the Franklin Locks as a wind driven tan-green scum along the lock. *Microcystis* and *Dolichospermum* were moderately abundant the Davis Boat Ramp as a wind driven tan-green scum along the seawall. On 1/3/23 they reported the presence of *Microcystis* upstream of the Franklin Locks as a wind driven tan-green scum along the lock. *Microcystis* and *Dolichospermum* were moderately abundant the Davis Boat Ramp as a wind driven tan-green scum along the seawall and as streaks.

Upper Estuary Conditions: The 30-day average surface salinity at the Fort Myers Yacht Basin was 6.3 psu, within the suitable range for tape grass.

Lower Estuary Conditions: The average salinity at Shell Point RECON was 25 psu, within the optimal range for oysters and seagrass. Chlorophyll at Shell Point was elevated during recent high tides with diatoms (*Thalassionema*, *Pseudo-nitzschia*, *Skeletonema*) dominant. Water temperatures dropped to almost 10.0°C, where fish and sea turtles can be stunned, on 12/26/22.

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	0.3 - 1.4 [0.5 – 2.9]	6.8 – 8.3	-----	6.8
Fort Myers Yacht Basin	2.0 - 7.5 [3.9 – 10]	-----	-----	-----
Shell Point	15 – 31 [16 – 33]	5.3 – 6.8	110	2.3
McIntyre Creek	-----	-----	-----	-----
Tarpon Bay	-----	-----	-----	-----
Wulfert Flats	-----	-----	-----	-----

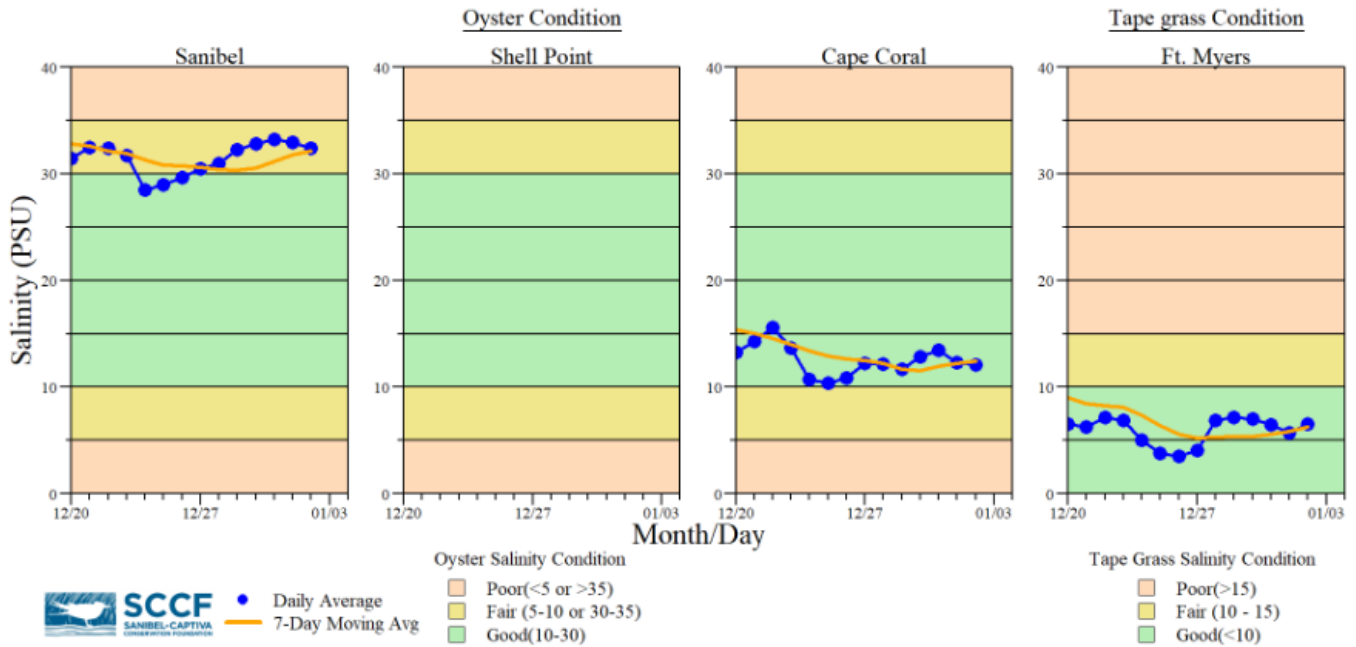
- Red values are outside of the preferred range.
- ^a Salinity target values: BI < 5, FM < 10, SP = 10 – 30
- ^b Dissolved O₂ target values: all sites > 4
- ^c FDOM target values: BI < 70, FM < 70, SP < 11
- ^d Chlorophyll target values: BI < 11, FM < 11, SP < 11
- ^e Single sonde lower and surface layer or surface grab lab measurement
- no data

Red Tide: On 12/29/22, the FWC reported that over the past week the red tide organism, *Karenia brevis*, was observed in 39 samples collected from and offshore of Southwest Florida over the past week. Bloom concentrations (>100,000 cells/liter) were present in 11 samples: four in Pinellas County, four in Manatee County, and three in Sarasota County.

In Southwest Florida over the past week, *K. brevis* was observed at low to medium concentrations in Pinellas County, background to medium concentrations in Manatee and Sarasota counties, **background concentrations in Charlotte and Lee counties**, and background to low concentrations in and offshore of Collier County.

Wildlife Impacts: In the past two weeks, the CROW wildlife hospital on Sanibel received 3patients with toxicosis symptoms: 1 adult brown pelican (still at CROW), 1 adult royal tern (still at CROW), and 1 adult white ibis (still at CROW).

Fish Kills: The FWC Fish Kill Hotline reported multiple fish kills in Lee County with cold weather as the suspected cause. Species affected include spotted sea trout, catfish, tilapia, peacock bass, and largemouth bass.



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.

Data are provisional and subject to change.



Water clarity at Lighthouse Beach Park on 1/3/22 at 12:02 PM on a rising tide (1.4 ft). [Lighthouse Beach Park Virtual Tour.](#)