

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: **February 21 – 27, 2023**

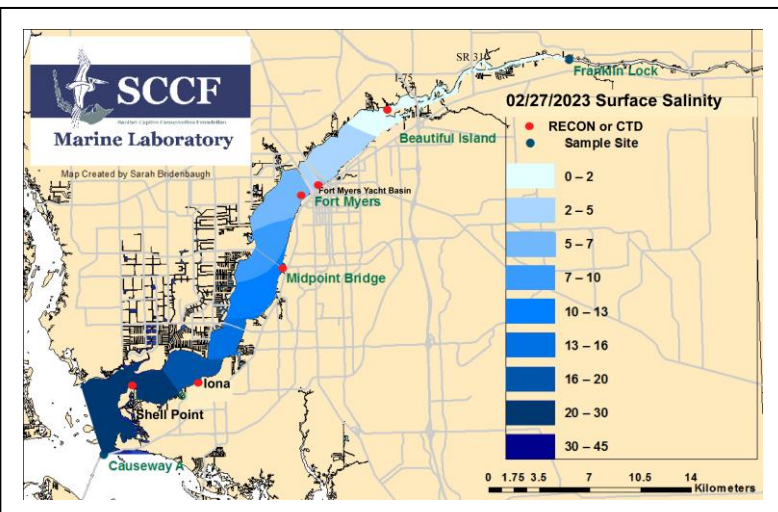
This report provides a scientific assessment of Caloosahatchee River and Estuary conditions and how these conditions affect the health, productivity, and function of the system.

Caloosahatchee Conditions Summary: Flow to the Caloosahatchee Estuary had a 7-day average of **1,990 cfs** at **S-79** with a 7-day average of **1,900 cfs (95%)** coming from the lake at **S-77**. **The 14-day moving average flow at S-79 is 1,820 cfs and has been in the optimum flow envelope (750 – 2,100 cfs; RECOVER 2020) for 13 days.** Fish kills and respiratory irritation from red tide are being reported along our coast from Sanibel Island to Bonita Beach.

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

USACE Action: With Lake Okeechobee in the Low sub band and dry tributary hydrologic conditions, LORS08 Part D suggests up to 450 cfs at S-79 and up to 200 cfs at S-80. On 1/21/23 the USACE increased releases from Lake Okeechobee to the St. Lucie Estuary (S-80) to a 7-day average steady release of 500 cfs and to the Lake Worth Lagoon to a 7-day average steady release of 100 cfs. Flows to the Caloosahatchee Estuary from the W.P. Franklin Lock and Dam (S-79) were sustained at seven-day average pulse release of 2,000 cubic feet per second. **Since entering the low sub band on 2/13/23 the USACE began utilizing banked releases** from a make-up release tool which allowed them to make releases at levels lower than suggested in LORS08 since 11/18/22 and bank the volume not released for beneficial releases throughout the dry season.

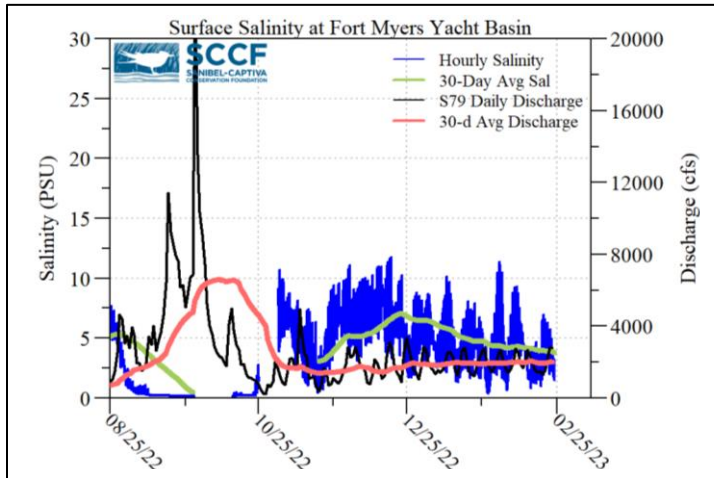
Lake Flows: In the past 7 days the total outflow from Lake Okeechobee was **24,605 AF** with **13,330 AF** to the Caloosahatchee through **S-77**, **9,350 AF** through **S-308** in Port Mayaca, **1 AF** through **S-310** in Clewiston, and **9,350 AF** to the EAA through **S-351**, **S-352**, and **S-354**. The total net inflow to the Lake was **17,635 AF** (17,609 AF from Fisheating Creek, S-71, S-72, S-84s, S-65EX, and S-65EX1) with a total backflow volume of **27 AF** from **S310**. Water conservation areas received flows of **0 AF**, **186 AF**, and **1,160 AF** at **WCA1**, **WCA2**, and **WCA3**, respectively. Everglades National Park received **4,210 AF**.



Lake Level: 15.58 ft (Low sub-band)
Last Week: 15.72 ft
Last Year: 14.68 ft
7-Day Lake Recession Rate: -0.14 ft/week

Lake Okeechobee Inflow: 1,195cfs
Lake Okeechobee Outflow: 3,097 cfs

Weekly Rainfall Total:
WP Franklin: ≥ 0.00 "
Ortona: ≥ 0.00 "
Moore Haven: 0.00"



Cyanobacteria Status: The Lee County Environmental Lab did not collect cyanobacteria samples in the Caloosahatchee Estuary during the week of 2/21/23.

Upper Estuary Conditions: The 30-day average surface salinity at the Fort Myers Yacht Basin was 5.1 psu, within the suitable range for tape grass.

Lower Estuary Conditions: The average salinity at Shell Point RECON was 27 psu, within the optimal range for oysters and seagrass. *Karenia* spp. counts on the east end of Sanibel ranged from medium to high from 2/20 to 2/24 but were low on 2/26 and 2/27/23.

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 – 0.4 [0.2 – 0.4]	2.7 – 6.5	-----	2.6
Fort Myers Yacht Basin	----- [-----]	-----	-----	-----
Shell Point	16 33 [14 – 33]	4.6 – 6.5	78.0	2.1
McIntyre Creek	30.0 – 32.3 [29.8 – 32.0]	0.1 – 4.8	-----	-----
Tarpon Bay	30.8 – 34.0 [29.1 – 34.0]	4.1 – 7.7	2.0 – 4.8	1.0 – 3.6
Wulfert Flats	31.3 – 32.6 [31.2 – 33.5]	4.4 – 9.0	-----	1.9 – 39.2

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

Light Penetration

Site	25% I _z	Target Values	Turbidity	Target Values
	meters		NTU	
Fort Myers	ND	> 1	ND	< 18
Shell Point	1.82	>2.2	1.9	< 18
Causeway	2.86	> 2.2	2.0	< 5

25% I_z 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

ACOE Daily Reports

Date	S79 Flow (cfs)	S78 Flow (cfs)	S77 Flow (cfs)
2/21/22	1988	1587	1854
2/22/22	2780	2028	2631
2/23/22	2770	2238	2564
2/24/22	2165	1913	2330
2/25/22	1500	1111	2085
2/26/23	1350	860	772
2/27/23	1380	1093	1064
7-day avg	1990	1623	1900

Red Tide: On 2/24/23, the FWC reported that over the past week the red tide organism, *Karenia brevis*, was detected in 123 samples from and offshore of Southwest Florida. Bloom concentrations (>100,000 cells/liter) were present in 75 samples: two in Pinellas County, seven in and offshore of Manatee County, 27 in and offshore of Sarasota County, seven in and offshore of Charlotte County, **22 in and offshore of Lee County**, nine in and offshore of Collier County, and one offshore of Monroe County.

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

Wildlife Impacts: In the past week, the CROW wildlife hospital on Sanibel received 5 patients with toxicosis symptoms: 2 juvenile double crested cormorants (still at CROW), 1 adult red breasted merganser (died), 1 adult ring billed gull (still at CROW), and 1 adult great blue heron (still at CROW).

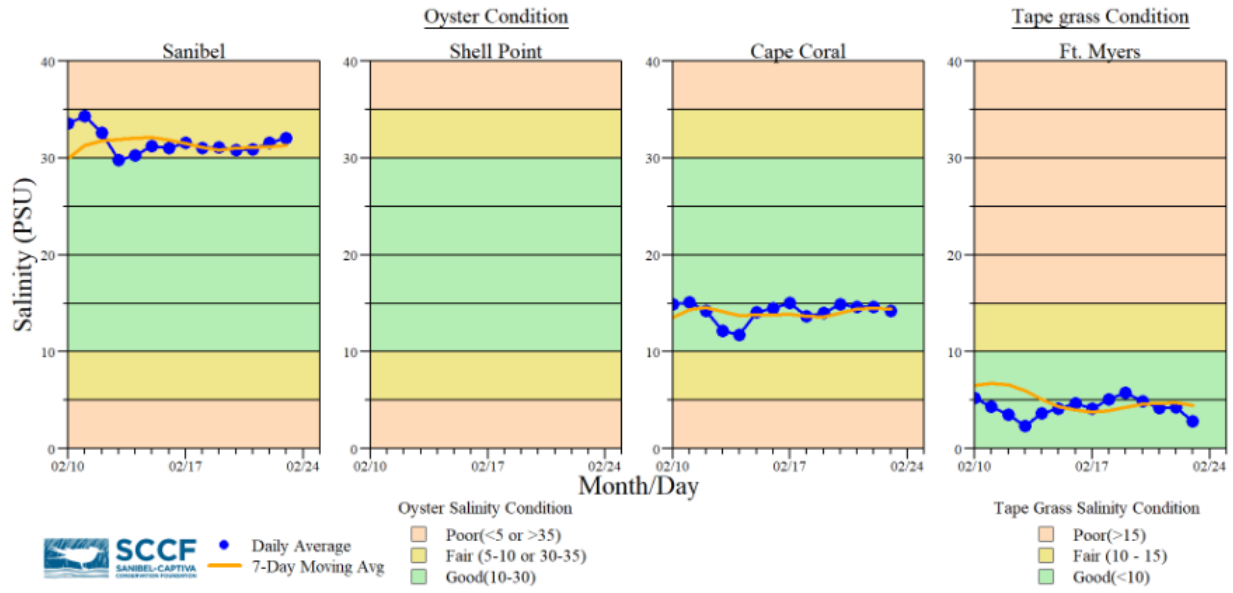
Beach Conditions: The City of Sanibel reported dead and decayed tarpons and mullet washed up along east end beaches along with respiratory irritation on east end and west end beaches.

SCCF reported a dead goliath grouper and respiratory irritation at Lighthouse Beach Park and a Sanibel resident reported an abundance of dead mullet at Blind Pass and respiratory irritation.

In the past week, the [FWC](#) has received reports of fish kills from Pinellas County (24 reports), Manatee County (19 reports), Sarasota County (12 reports), Charlotte County (3 reports), **Lee County (19 reports)**, and Collier County (37 reports).



Water clarity at Lighthouse Beach Park on 2/27/23 at 12:06 PM on a rising tide (1.5 ft). [Lighthouse Beach Park Virtual Tour](#).



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.



Discolored water from red tide near Nerita St. beach on 2/24/23 with 10,000,000 cells/L *K. brevis* (top). Dead goliath grouper on Lighthouse Beach Park on 2/27/23

