

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: **October 18 – 24, 2022**

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 **1,335 cfs** at **S-79** with a 7-day average of **0 cfs (0%)** coming from the lake at **S-77**. **The 14-day moving average flow at S-79 is 2,263 cfs and has been in the stress flow envelope (2100 - 2600 cfs; RECOVER 2020) for 4 days after 45 days in the damaging flow envelope.** *Karenia brevis* was found with bloom concentrations in 4 samples from Sarasota.

Recommendation: The Caloosahatchee Estuary experienced an extreme discharge event of >24,000 cfs and was inundated with debris after Hurricane Ian on September 28, 2022. Flows were in the damaging flow envelope preceding and following Hurricane Ian for a total of 45 days. *Karenia brevis* is starting to bloom in the Gulf of Mexico and excess nutrients from runoff and Lake releases could exacerbate these conditions. As there is no apparent urgent need to release water from the lake, and the estuary flows need to recover from high volume and long duration damaging flows, **we recommend that the Corps maintain no releases from Lake Okeechobee until the estuary enters the 14-day average optimal flow envelope (750 – 2100 cfs).**

USACE Action: On 9/10/22 the USACE reduced target flows at the W.P. Franklin Lock and Dam (S-79) to a 7-day average pulse release of 0 cfs from the previous target of 457 cfs. Local basin runoff has been exceeding the targets set for the past several months, so little water has left the lake from the Julian Keen Jr. Lock and Dam (S-77).

Lake Flows: In the past 7 days the total outflow from Lake Okeechobee was **3,355 AF** with **0 AF** to the Caloosahatchee through **S-77**, **2,884 AF** through **S-308** in Port Mayaca, **177 AF** through **S-310** in Clewiston, and **294 AF** to the EAA through **S-351**, **S-352**, and **S-354**. The total net inflow to the Lake was **204,191 AF** (203,357 AF from Fisheating Creek, S-71, S-72, S-84s, S-65EX, and S-65EX1) with a total backflow volume of **833 AF** from **S310 and C10A**. Water conservation areas received flows of **12,095 AF**, **19,535 AF**, and **25,892 AF** at **WCA1**, **WCA2**, and **WCA3**, respectively. Everglades National Park received **36,016 AF**.

Lake Level: 15.62 ft (Base flow sub-band)

Last Week: 15.24 ft

Last Year: 15.57 ft

Lake Okeechobee Inflow: 13094 cfs

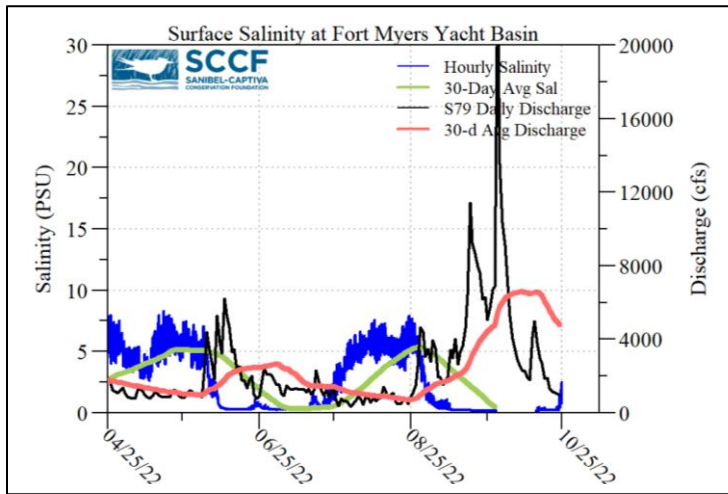
Lake Okeechobee Outflow: 932 cfs

Weekly Rainfall Total: WP Franklin \geq 0.00 Ortona \geq 0.39"

Moore Haven \geq 0.20"

7-Day Lake Recession Rate: +0.38 ft/week

| ACOE Daily Reports | | | |
|--------------------|----------------|----------------|----------------|
| Date | S79 Flow (cfs) | S78 Flow (cfs) | S77 Flow (cfs) |
| 10/18/22 | 1855 | 294 | 0 |
| 10/19/22 | 1899 | 324 | 0 |
| 10/20/22 | 1324 | 327 | 0 |
| 10/21/22 | 1150 | 274 | 0 |
| 10/22/22 | 1128 | 175 | 0 |
| 10/23/22 | 1038 | 176 | 0 |
| 10/24/22 | 948 | 176 | 0 |
| 7-day avg | 1335 | 249 | 0 |



| Light Penetration | | | | |
|-------------------|--------------------|---------------|-----------|---------------|
| Site | 25% I _z | Target Values | Turbidity | Target Values |
| | meters | | NTU | |
| Fort Myers | ND | > 1 | ND | < 18 |
| Shell Point | ND | >2.2 | ND | < 18 |
| Causeway | ND | > 2.2 | ND | < 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

Cyanobacteria Status: On 10/24/22 sampling for cyanobacteria by the Lee County Environmental Lab reported the presence of *Microcystis* upstream of the Franklin Locks as green scum along the shore and lock.

Lower Estuary Conditions: The average salinity at Shell Point RECON was 20.3 psu, within the optimal range for oysters but below optimal for seagrass.

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 – 0.2 [-----] | 3.8 – 4.9 | ----- | 4.8 |
| Fort Myers Yacht Basin | ----- [-----] | ----- | ----- | ----- |
| Shell Point | 11.1 – 27.3 [7.0 - 27.8] | 4.1 – 5.3 | ----- | 1.9 |
| McIntyre Creek | 22.1 – 29.6 [18.8 – 24.8] | 0.1 – 9.7 | ----- | ----- |
| Tarpon Bay | ----- | ----- | ----- | ----- |
| Wulfert Flats | 24.1 – 30.5 [21.6 – 25.1] | 1.5 – 8.5 | ----- | ----- |

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

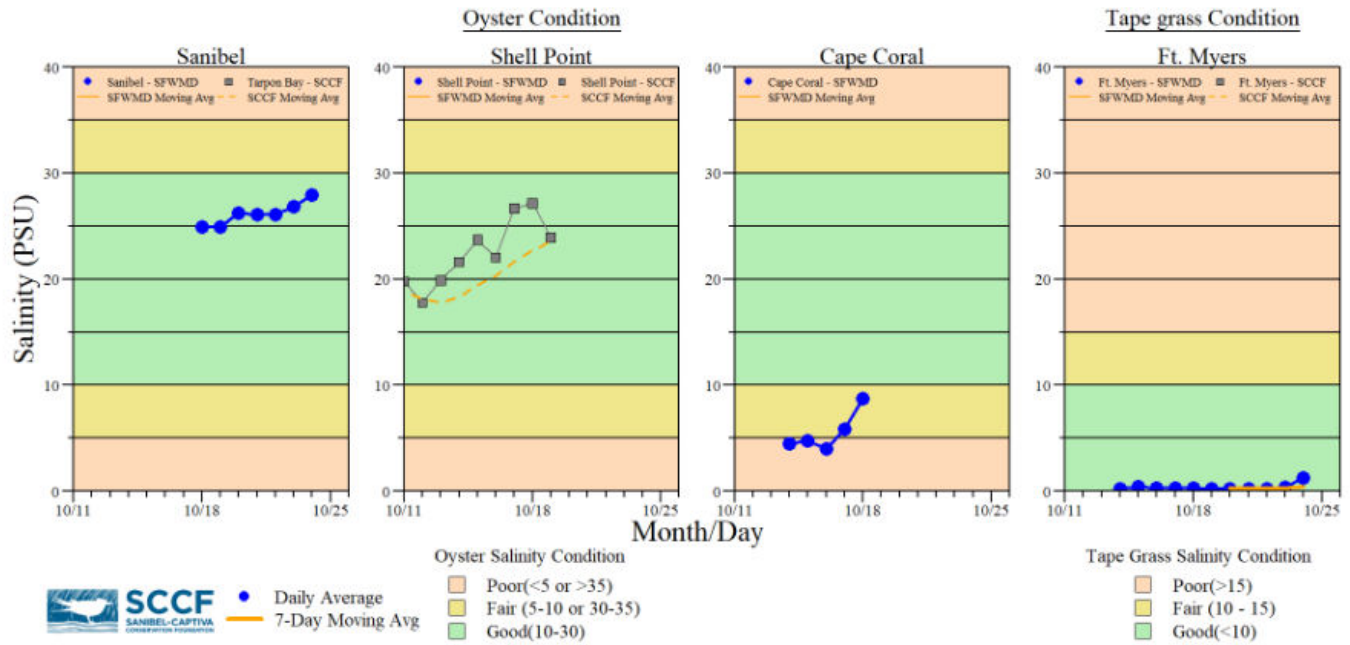
^d Chlorophyll target values: BI < 11, FM < 11, SP < 11

^e Single sonde lower and surface layer or surface grab lab measurement

----- no data

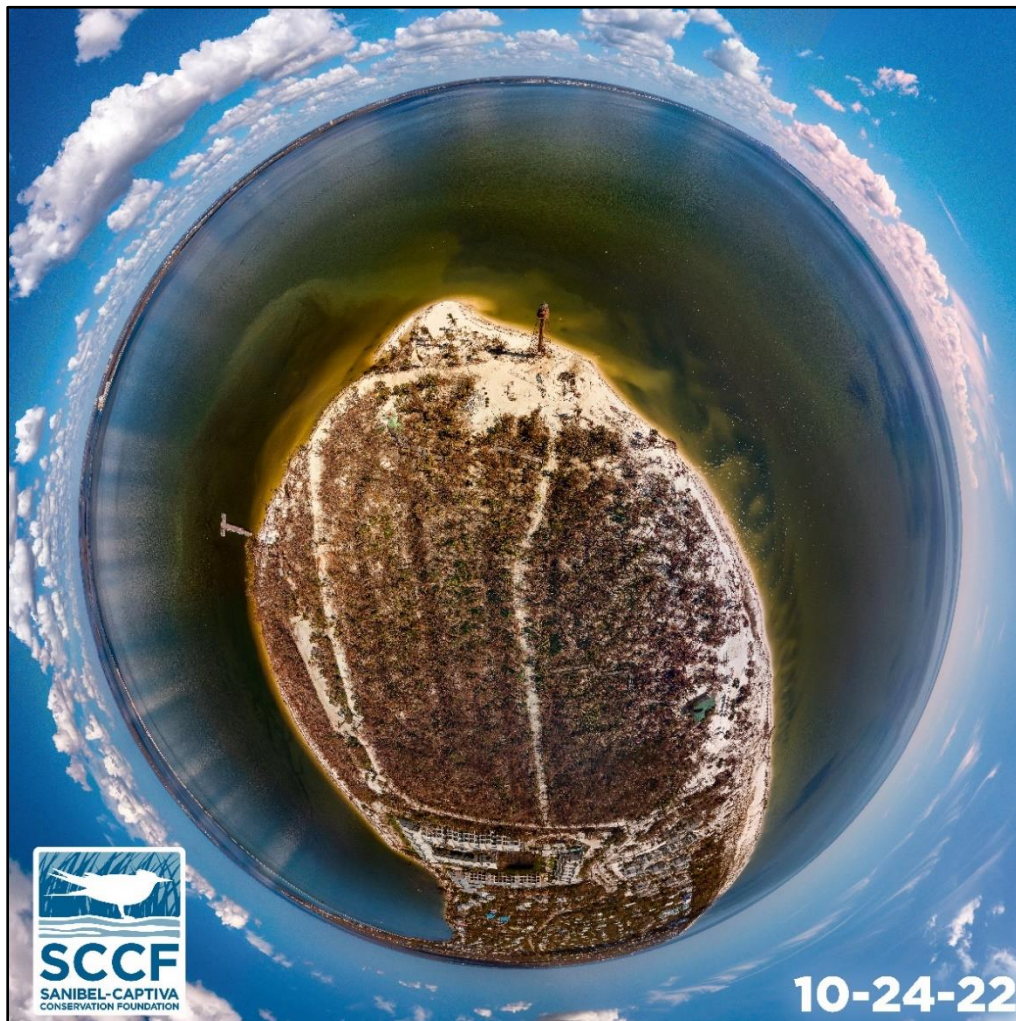
Red Tide: On 10/21/22, the FWC reported that over the past week the red tide organism, *Karenia brevis*, was observed in 25 samples, with bloom concentrations (>100,000 cells/liter) present in four samples from Sarasota County. In Southwest Florida over the past week, *K. brevis* was observed at background concentrations offshore of Manatee County, background to high concentrations in and offshore of Sarasota County, very low concentrations in Charlotte County, and background concentrations offshore of Lee County. Sampling in Southwest Florida is still impacted by the passage of Hurricane Ian.

Wildlife Impacts: In the past week (10/18 – 10/24) the CROW wildlife hospital on Sanibel received 0 patients with toxicosis symptoms.



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 10/24/22 at 1:08 PM on a high tide (high tide: 2.6 ft @ 12:43 PM). [Lighthouse Beach Park Virtual Tour.](#)