

MEMORANDUM

To: USACE Colonel Andrew D. Kelly, LTC Todd F. Polk, Richard McMillen, Kim Taplin, SFWMD Governing Board, Executive Director Drew Bartlett, Jennifer Reynolds, Lawrence Glenn, DEP Secretary Noah Valenstein

From: Periodic Scientists Conference Call Participants
 Kevin Godsea & Jeremy Conrad - 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
 James Evans, Leah Reidenbach, & Rick Bartleson PhD - SCCF (Sanibel-Captiva Conservation Foundation)

Subject: Caloosahatchee & Estuary Conditions Report

Reporting Period: **January 19 – 25, 2021**

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.

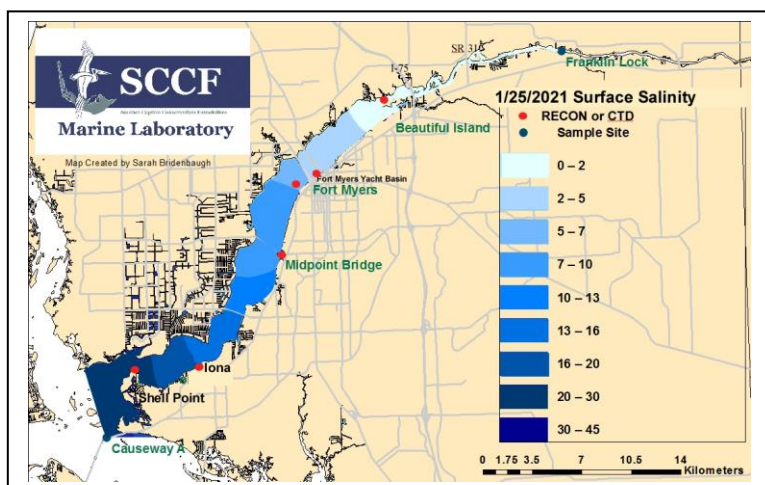
Caloosahatchee Condition Summary: Flows to the Caloosahatchee estuary had a 7-day average of **918 cfs at S-79 with a 7-day average of 651 cfs coming from the lake at S-77. The 14-day moving average flow at S-79 is 988 cfs and has been in the optimum flow envelope (750 – 2,100 cfs; RECOVER 2020) for the past 25 days.** A patchy red tide bloom persists in Lee and Collier counties causing fish kill events, dead and injured wildlife, and respiratory irritation in humans. Water clarity and salinity are improving around Sanibel and Cape Coral, which is beneficial for seagrass and estuarine animals.

Recommendation: We request flows to the Caloosahatchee be maintained at a 7-day average of **1,000 cfs** as measured at **S-79** which is within the range recommended by the RECOVER 2020 performance measure for salinity (750 cfs – 2,100 cfs) **for optimal ecological conditions.** Additionally, we request that flows be delivered in a 7-day pulse, as opposed to a steady release, to help maintain the desirable salinity wedge in the Caloosahatchee.

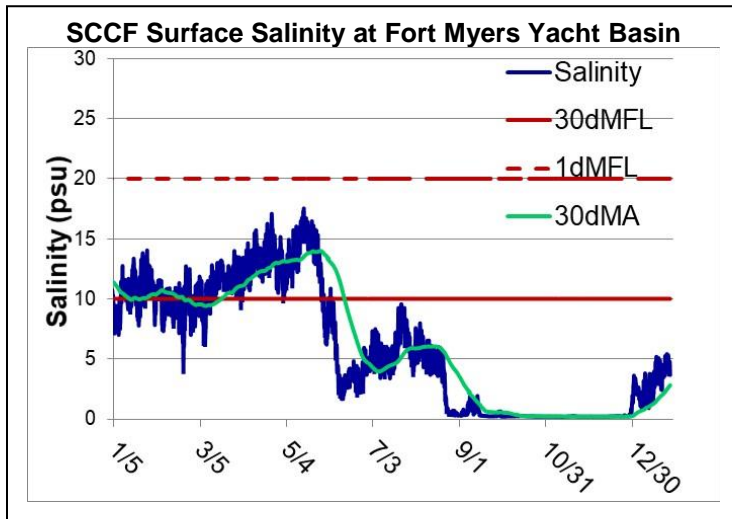
USACE Action: On Saturday 1/23/21 the USACE continued flow to the Caloosahatchee Estuary at a 7-day average targeted flow (pulse) of 1000 cfs as measured at the WP Franklin Lock & Dam (S-79). For the St. Lucie Estuary, the Corps will release no water from Lake Okeechobee to S-80.

Lake Flows: In the past 7 days, **24,656 AF** were discharged from Lake Okeechobee, with **9,041 AF (37%)** to the Caloosahatchee through **S-77**, **21 AF (<0.1%)** to the St. Lucie River through **S-308**, **2,049 AF (8%)** through **S-310** in Clewiston, and **13,545 AF (55%)** to the EAA through **S-351, S-352, and S-354**. There was a net backflow of **6 AF** at the **L-8 canal**. Water conservation areas received flows of **262 AF, 428 AF, and 3,013 AF** at **WCA1, WCA2, and WCA3**, respectively. Everglades National Park received **38,303 AF**.

Lake Okeechobee Level: 15.58 ft (Low sub-band) **Last Week:** 15.63 ft
Lake Okeechobee Inflow: 1,129 cfs **Lake Okeechobee Outflow:** 1,292 cfs
Weekly Rainfall Total: WP Franklin **0.00"** Ortona **0.00"** Moore Haven **NR**



ACOE Daily Reports			
Date	S79 Flow (cfs)	S78 Flow (cfs)	S77 Flow (cfs)
1/19/2021	906	510	651
1/20/2021	888	513	642
1/21/2021	819	509	645
1/22/2021	618	502	652
1/23/2021	901	496	658
1/24/2021	1184	496	657
1/25/2021	1112	498	653
7-day avg	918	503	651



Light Penetration

Site	25% I _z	Target Values	Turbidity	Target Values
	meters		NTU	
Fort Myers	1.08	> 1	2.2	< 18
Shell Point	1.45	>2.2	1.5	< 18
Causeway	1.83	> 2.2	3.8	< 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.

Cyanobacteria Status: On 1/26/21, sampling by the Lee County Environmental Lab reported no cyanobacteria in the Caloosahatchee estuary.

Upstream of S-79/Franklin Conditions: On 1/26/21 the Olga Water Treatment plant reported chlorides of **60 mg/L**, apparent color **43 CU** and turbidity **2.15 NTU**. No visible algae were reported at the plant intake the past week. The plant is online at **1800 GPM**.

Upper Estuary Conditions: The 30-day average surface salinity at the Fort Myers Yacht Basin was 2.8 psu, within the suitable range for tape grass. No hypoxia was recorded during the week at the RECON sites. Chlorophyll and oxygen readings were spiking at the Fort Myers RECON and levels of diatoms (*Coscinodiscus*) were elevated near Fort Myers on 1/22/21.

Lower Estuary Conditions: The average salinity at Shell Point RECON was 23, within the suitable range for oysters. The presence of the benthic microalgae, *Synedra* sp. was reported at North Shore and Midpoint by the Lee County Environmental Lab on 1/26/21.

Water Quality Conditions

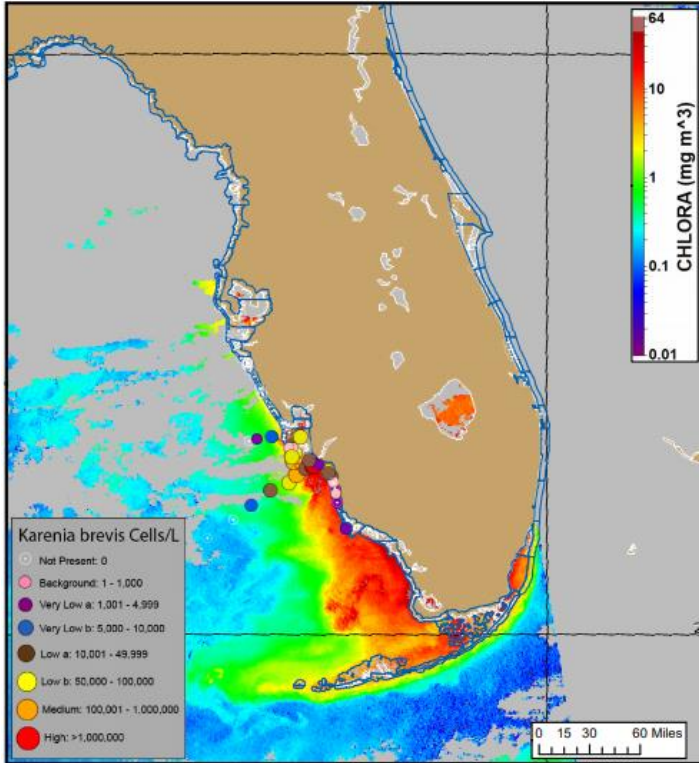
Monitor Site	Salinity (psu) ^a [previous week]	Diss O ₂ (mg/L) ^b	FDOM (qsde) ^c	Chlorophyll (µg/L) ^d
Beautiful Island	0.3 – 1.4 [0.2 – 1.2]	6.5 – 8.6	291	4.6
Fort Myers Yacht Basin	2.4 – 5.4 [1.4 – 5.2]	7.7 – 9.5	245	6.5
Shell Point	15 – 29 [15 – 30]	6.9 – 8.6	153	5.1
McIntyre Creek	-----	-----	-----	-----
Tarpon Bay	27.3 – 32.4	6.7 – 8.8	5.5 – 13.0	1.1 – 3.3
Wildlife Drive	29.8 – 31.8	0.7 – 13.8	-----	1.3 – 20.8
Wulfert Flats	30.0 – 32.4	5.2 – 10.1	-----	3.4 – 83.2

Red values are outside of the preferred range.
^a Salinity target values: BI < 5, FM < 10, SP = 25 – 32
^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

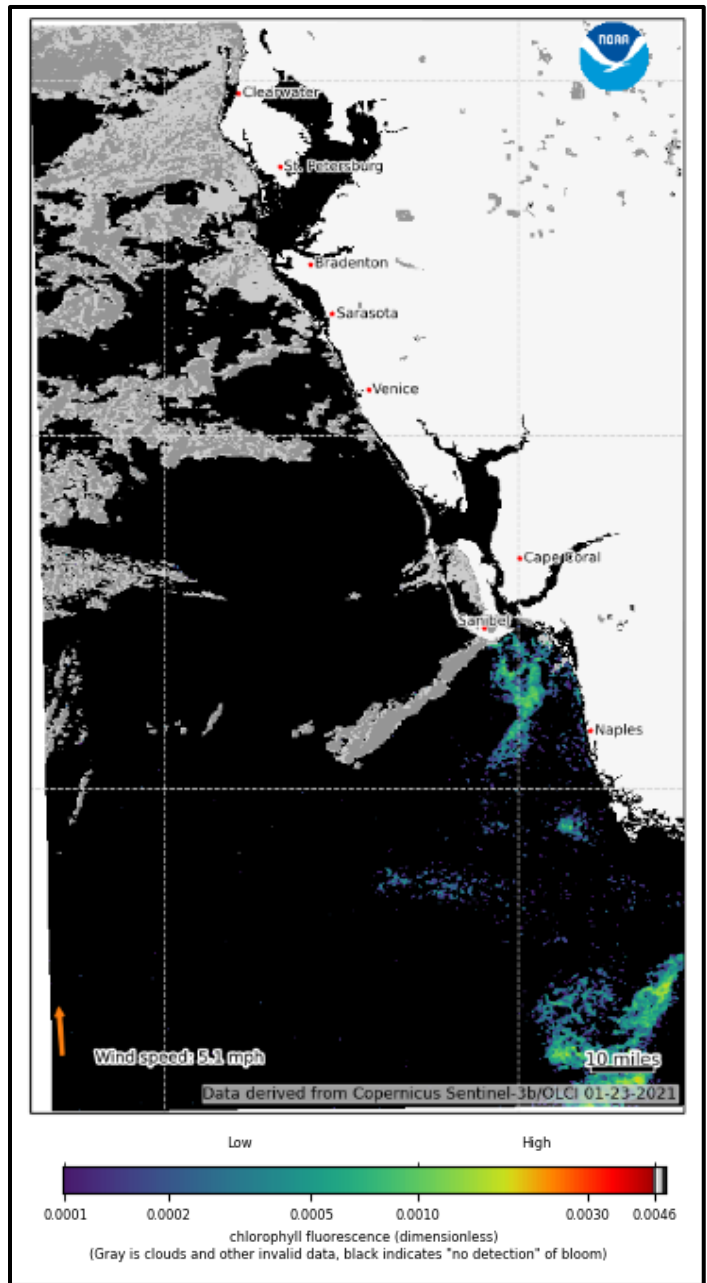
Red Tide: On 1/22/21 [FWC](#) reported that a patchy bloom of the red tide organism, *Karenia brevis*, persists in Southwest Florida. Over the past week, *K. brevis* was detected in **33** samples. Bloom concentrations (>100,000 cells/liter) were observed in five Lee County samples and one Collier County sample. Satellite imagery (1/21; NOAA, USF) indicates the presence of patches of chlorophyll >5 miles offshore of Lee and Collier counties and >20 miles offshore of Monroe County. In Southwest Florida over the past week, *K. brevis* was observed at background to high concentrations in and offshore of Lee County, and background to medium concentrations in and offshore of Collier County. Samples from Pinellas, Manatee, and Sarasota counties did not contain red tide.

Beach Conditions: Since 1/19/21 the [FWC Fish Kill Hotline](#) has received **2 reports** in Lee County related to the red tide event and its associated effects. Affected areas include St. James City and Fort Myers Beach. Light accumulations of red drift algae were reported on Tarpon Bay Beach and Gulfside City Park Beach (Algiers).

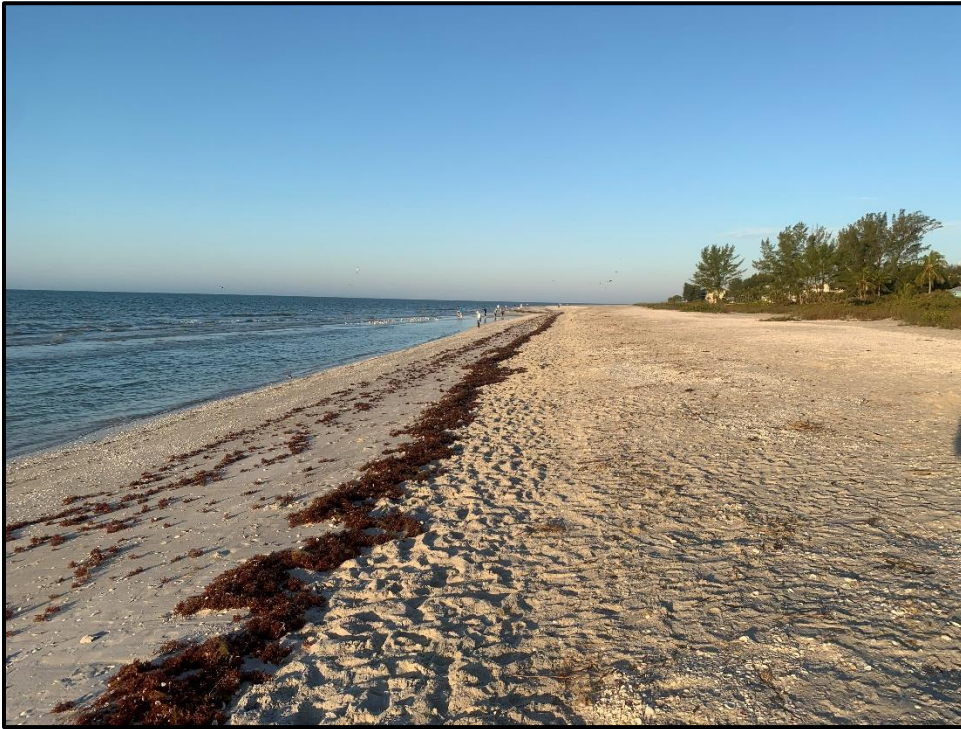
Wildlife Impacts: In the past week, the CROW wildlife hospital on Sanibel **received 17 toxicosis patients:** 10 royal terns (4 died, 6 still at CROW), 5 double-crested cormorants (2 died, 3 still at CROW), 1 anhinga (died), and 1 brown pelican (died).



Satellite imagery (VIIRS, 1/23), shows elevated to very high chlorophyll (2 to >20 $\mu\text{g/L}$) present alongshore southwest Florida. A dense patch of chlorophyll with the optical characteristics of *K. brevis* is visible alongshore central Lee, extending up to 16 miles south of Sanibel Islands and up to 13 miles offshore of Southern Lee and northern Collier counties. FWC sampling data from: 1/15/21 – 1/21/21.



NOAA National Center for Coastal Ocean Science satellite imagery from 1/23. Red Band Difference (RBD) showing relative chlorophyll fluorescence from high (red) to low (violet).



A light accumulation of red drift algae at Tarpon Bay Beach (top) and Gulfside City Park Beach (Algiers) (bottom) on 1/26/2021. Photo: City of Sanibel, SCCF

