

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 5 – 11, 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 **931 cfs at S-79 with a 7-day average of 714 cfs coming from the lake at S-77. The 14-day moving average flow at S-79 is 1,075 cfs and has been in the optimum flow envelope (750 – 2,100 cfs; RECOVER 2020) for the past 11 days.** A red tide bloom persists in Lee and Collier Counties causing multiple 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. Small mats of floating macroalgae were reported in J.N. "Ding" Darling NWR.

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 1/2/21 the USACE reduced flow to the Caloosahatchee Estuary to a 7-day average targeted flow (constant) 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.

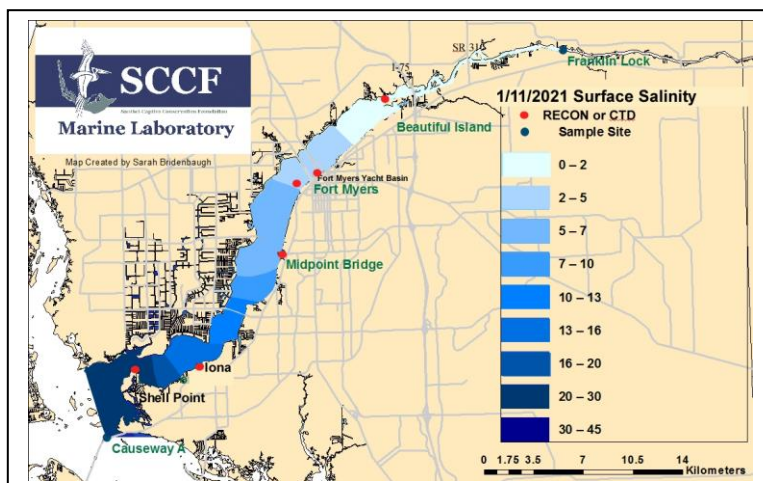
Lake Flows: In the past 7 days, **33,280 AF** were discharged from Lake Okeechobee, with **9,960 AF (30%)** to the Caloosahatchee through **S-77**, **7,349 AF (22%)** to the St. Lucie River through **S-308**, **2,238 AF (7 %)** through **S-310** in Clewiston, and **13,733 AF (41%)** to the **EAA through 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 **75 AF, 1,271 AF, and 4,776 AF** at **WCA1, WCA2, and WCA3,** respectively. Everglades National Park received **34,721 AF***.

*data missing on 1/5/21 – 1/6/21 for ENP

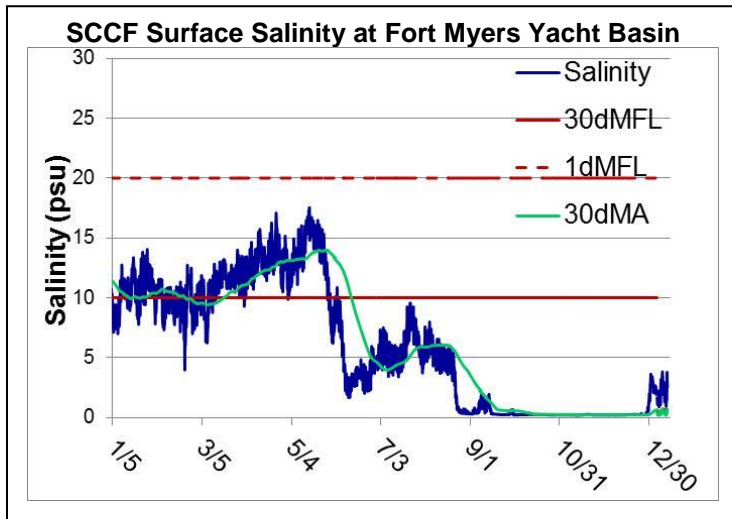
Lake Okeechobee Level: 15.66 ft (Low sub-band) **Last Week:** 15.79 ft

Lake Okeechobee Inflow: 812 cfs **Lake Okeechobee Outflow:** NR

Weekly Rainfall Total: WP Franklin **0.14"** Ortona **0.00"** Moore Haven **≥0.00"**



ACOE Daily Reports			
Date	S79 Flow (cfs)	S78 Flow (cfs)	S77 Flow (cfs)
1/5/2021	941	768	845
1/6/2021	978	559	878
1/7/2021	881	448	657
1/8/2021	1056	363	644
1/9/2021	993	327	655
1/10/2021	756	328	658
1/11/2021	912	465	664
7-day avg	931	465	714



Light Penetration

Site	25% I _z	Target Values	Turbidity	Target Values
	meters		NTU	
Fort Myers	0.78	> 1	2.0	< 18
Shell Point	1.27	>2.2	1.6	< 18
Causeway	1.75	> 2.2	2.2	< 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 1/12/21, sampling by the Lee County Environmental Lab reported no cyanobacteria in the Caloosahatchee estuary.

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]	6.5 – 8.1	-----	3.3
Fort Myers Yacht Basin	0.9 – 3.8 [0.2 – 3.6]	7.2 – 8.9	404	8.3
Shell Point	14 – 31 [11 – 30]	6.5 – 7.9	192	6.6
McIntyre Creek	-----	-----	-----	-----
Tarpon Bay	-----	-----	-----	-----
Wildlife Drive	28.5 – 30.3	1.4 – 13.7	-----	2.4 – 10.9
Wulfert Flats	29.4 – 32.0	6.4 – 10.1	-----	8.2 – 28.3

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

Upstream of S-79/Franklin Conditions: On 1/12/21 the Olga Water Treatment plant reported chlorides of **60 mg/L**, apparent color **51 CU** and turbidity **237 NTU**. No visible algae were reported at the plant intake the past week. The plant is online at **1800 GPM**.

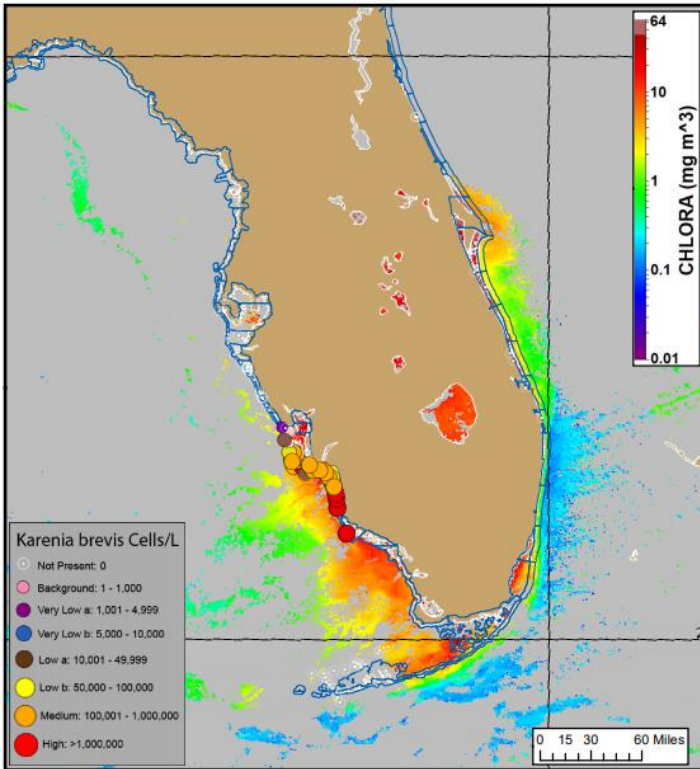
Upper Estuary Conditions: The 30-day average surface salinity at the Fort Myers Yacht Basin was **1.1 psu**, within the suitable range for tape grass. No hypoxia was recorded during the week at the RECON sites.

Lower Estuary Conditions: The average salinity at Shell Point RECON was 22, within the suitable range for oysters.

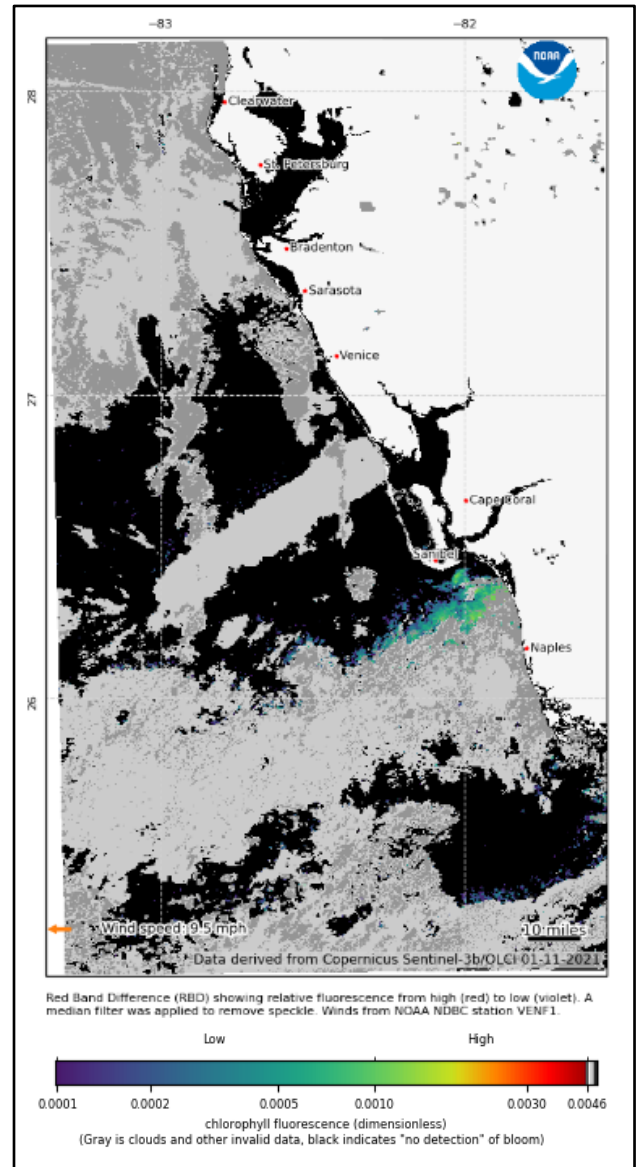
Red Tide: On 1/8/21 [FWC](#) reported that a bloom of the red tide organism, *Karenia brevis*, persists in Southwest Florida based on sampling conducted over the past week. **Bloom concentrations (>100,000 cells/liter) were observed in 25 samples collected in and along Lee and Collier counties, from Captiva to South Marco Beach.** The most recent satellite imagery (USF, NOAA) indicates that patches of elevated chlorophyll extend 35 – 40 miles offshore of Lee, Collier, and Monroe counties. In Southwest Florida over the past week, *K. brevis* was observed at background to very low concentrations in Charlotte County, background to high concentrations in Lee County, and medium to high concentrations in Collier County. *K. brevis* was not detected in samples from Pinellas, Manatee, and Sarasota counties.

Beach conditions: Since 1/5/21 the [FWC Fish Kill Hotline](#) has received **4 reports** in Lee County related to the red tide event and its associated effects. Affected areas reported over the past week include Sanibel and Fort Myers Beach. Numerous species of fish and invertebrates have been found dead. SCCF staff reported a variety of dead and nearly dead marine animals including cockles, urchins, scallops, spider crabs, shame face/box crabs, blue crabs, swimming crabs, sponges, soft corals, mussels, and eels in the wrack line on Sanibel east end beaches.

Wildlife Impacts: In the past week, the CROW wildlife hospital on Sanibel **received 6 brevetoxicosis patients:** 1 laughing gull (still at CROW), 2 brown pelicans (2 died), 1 white ibis (still at CROW), 1 double-crested cormorant (still at CROW), and 1 anhinga (still at CROW). J.N. "Ding" Darling NWR reported a significant fish kill and one dead American white pelican.



[Satellite imagery](#) (VIIRS, 1/9) continues to show very high chlorophyll (2 to >20 µg/L) is present alongshore southern Lee and Collier counties. Due to cloud cover, the region of chlorophyll containing the optical characteristics of *K. brevis* is not clearly defined; though recent beach reports indicate the bloom extent is unchanged from last week.



[NOAA National Center for Coastal Ocean Science](#) satellite imagery from 1/11. Red Band Difference (RBD) showing relative chlorophyll fluorescence from high (red) to low (violet).