

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: **February 9 – 15, 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 **1,644 cfs at S-79 with a 7-day average of 1,025 cfs coming from the lake at S-77. The 14-day moving average flow at S-79 is 1,336 cfs within the optimum flow envelope (750 – 2,100 cfs; RECOVER 2020).** Concentrations of the harmful alga, *Karenia brevis*, have decreased in the past couple of weeks around Sanibel; however, CROW, the wildlife hospital on Sanibel, is still receiving a high number of patients (**54**) exhibiting toxicosis symptoms.

Recommendation: We appreciate the Corps' communication, flexibility, and adaptive management regarding releases to the Caloosahatchee Estuary during this red tide event. At the current lake stage, rates of recession, and outflows from the lake, the risk of damaging high flows to the Caloosahatchee will increase later in the dry season. As such, we respectfully request that the Corps continue sending 2,000 cfs to Caloosahatchee this week and strongly encourage the Corps to consider all alternative options in order to reduce Lake levels and decrease the risk of harmful discharges to the Caloosahatchee in the future.

USACE Action: On Saturday, 2/13/21 the USACE increased flow to the Caloosahatchee Estuary at a 7-day average targeted flow (constant) of 2,000 cfs as measured at the WP Franklin Lock & Dam (S-79). Additionally, releases south from the lake began this week at around 200 cfs and while they fluctuate based on conditions, are expected to increase as capacity opens in the stormwater treatment areas over the coming months. No scheduled lake releases are currently planned from the St. Lucie Lock and Dam (S-80).

Lake Flows: In the past 7 days **18,157 AF** were discharged from Lake Okeechobee, with **14,282 AF (79%)** to the Caloosahatchee through **S-77, 602 AF (3%)** to the St. Lucie River through **S-308, a net flow of 124 AF (<1%)** through **S-310** in Clewiston, and **3,149 AF (17%)** to the EAA through **S-351, and S-354**. There was a net flow of **NR*** at the **L-8 canal**. Water conservation areas received flows of **57 AF, 0 AF, and 538 AF** at **WCA1, WCA2, and WCA3**, respectively. Everglades National Park received **21,696 AF**.

*Missing data on 2/9/21 – 2/16/21 for L-8.

Lake Okeechobee Level: 15.44 ft (Low sub-band)

Last Week: 15.41 ft

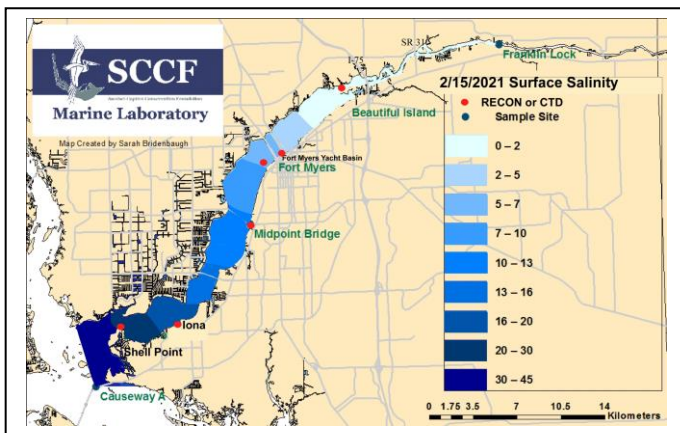
Lake Okeechobee Inflow: 2,584 cfs

Lake Okeechobee Outflow: 1382 cfs

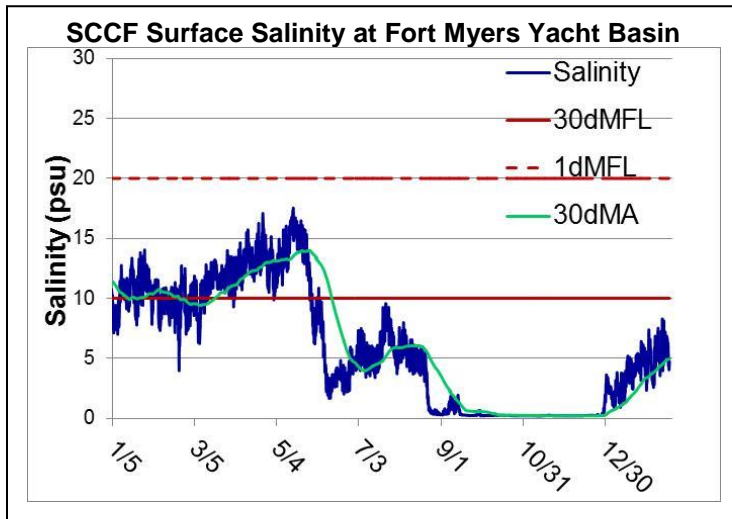
Weekly Rainfall Total: WP Franklin 2.23"

Ortona 0.04"

Moore Haven 0.00"



ACOE Daily Reports			
Date	S79 Flow (cfs)	S78 Flow (cfs)	S77 Flow (cfs)
2/9/2021	1717	1291	275
2/10/2021	1623	1263	1667
2/11/2021	1578	1150	1328
2/12/2021	1373	984	1034
2/13/2021	1588	1000	1110
2/14/2021	1655	1157	631
2/15/2021	1974	1283	1129
7-day avg	1644	1161	1025



Light Penetration

Site	25% I _z	Target Values	Turbidity	Target Values
	meters		NTU	
Fort Myers	0.90	> 1	5.0	< 18
Shell Point	1.71	>2.2	3.5	< 18
Causeway	1.88	> 2.2	13	< 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 2/16/21, sampling by the Lee County Environmental Lab reported no cyanobacteria in the Caloosahatchee estuary.

Upstream of S-79/Franklin Conditions: On 2/16/21 the Olga Water Treatment plant reported chlorides of **53 mg/L**, apparent color **37 CU** and turbidity **1.95 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 5.6 psu, within the suitable range for tape grass. No hypoxia was recorded during the week at the RECON sites. Chlorophyll was spiking at the Fort Myers site on 2/15/21 where *Skeletonema* was the dominant phytoplankton taxa (300,000 chains/L).

Lower Estuary Conditions: The average salinity at Shell Point RECON was 28, within the suitable range for oysters and seagrass.

Water Quality Conditions

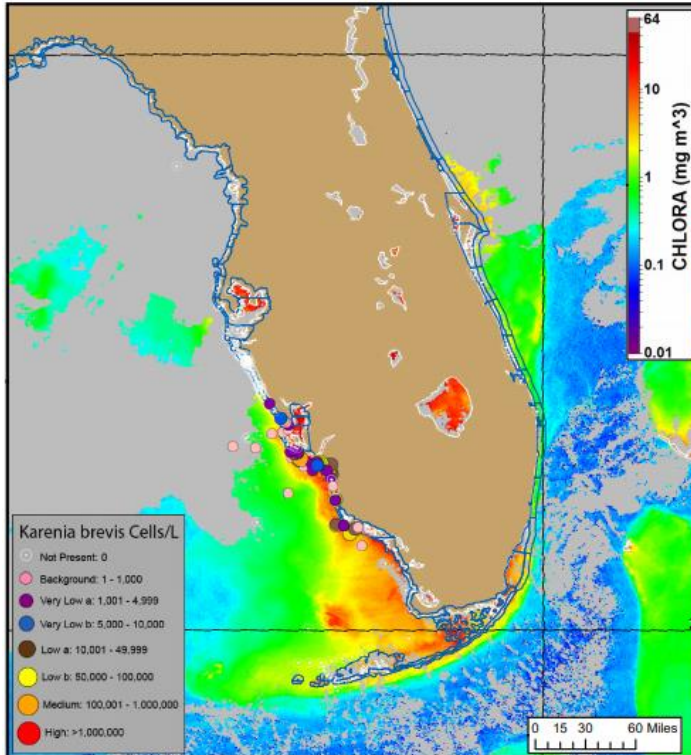
Monitor Site	Salinity (psu) ^a [previous week]	Diss O ₂ (mg/L) ^b	FDOM (qsde) ^c	Chlorophyll (µg/L) ^d
Beautiful Island	0.4 – 1.3 [0.5 – 1.2]	5.9 – 7.8	-----	3.6
Fort Myers Yacht Basin	3.5 – 8.3 [2.6 – 7.5]	6.3 – 7.9	300	9.4
Shell Point	20 – 32 [19 – 32]	5.5 – 7.0	85	5.1
McIntyre Creek	-----	-----	-----	-----
Tarpon Bay	30.8 – 32.9	5.5 – 7.9	4.5 – 17.5	0.9 – 3.0
Wildlife Drive	31.8 – 33.2	1.0 – 12.7	-----	0.8 – 17.6
Wulfert Flats	31.6 – 33.1	4.2 – 7.1	-----	2.7 – 128.5

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 2/12/21 [FWC](#) reported that the red tide organism, *Karenia brevis*, persists in Southwest Florida. Over the past week, *K. brevis* was detected in 32 samples. **Bloom concentrations (>100,000 cells/liter) were observed in one Lee County sample.** Recent satellite imagery (2/11; NOAA, USF) indicates the presence of chlorophyll patches along and offshore of Lee, Collier, and Monroe counties. In Southwest Florida over the past week, *K. brevis* was observed at very low concentrations in Sarasota County, background to very low concentrations in Charlotte County, **background to medium concentrations in or offshore of Lee County**, background to low concentrations in or offshore of Collier County, and background concentrations offshore of Monroe County. Samples from Pinellas, Hillsborough, and Manatee counties did not contain *K. brevis*.

Wildlife Impacts: In the past week, the CROW wildlife hospital on Sanibel **received 54 toxicosis patients:** 33 royal terns (21 died, 12 still at CROW), 12 double-crested cormorants (2 died, 10 still at CROW), 1 cattle egret (died), 2 anhingas (died), 1 Kemp’s ridley (died) 1 great blue heron (died), 1 herring gull (died), 2 ring-billed gulls (died), 1 loggerhead sea turtle (still at CROW). SCCF reported 3 sea turtle strandings on Sanibel in the last week: a dead

loggerhead, Kemp's ridley and green sea turtle. SCCF also reported 2 pelicans, 20+ royal terns, and a few laughing gulls dead on the Causeway in excessive amounts due to high winds. 15 specimens were tested for brevetoxin by CROW and all came back positive. CROW is going to send out more samples for other tests (i.e., bacteria, full necropsies) to determine if a combination of stressors is sickening and killing the birds.



[Satellite imagery](#) (VIIRS, 2/9), shows patches of elevated chlorophyll (2 – 13 $\mu\text{g/L}$) present alongshore southwest Florida from Lee to Collier counties. Offshore Monroe County, a large patch of elevated to high chlorophyll (2 – 12 $\mu\text{g/L}$), containing some of the optical characteristics of *K. brevis*. FWC sampling data from: 02/01/21 – 2/9/21.