

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: **April 6 – 13, 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 **1,154 cfs at S-79** and a 7-day average of **1,059 cfs at S-77**. The **14-day moving average flow at S-79 is 1,427 cfs, within the optimum flow envelope (750 – 2,100 cfs; RECOVER 2020)**. Water clarity around Sanibel and Lee County remains good at this time. The harmful alga, *Karenia brevis*, persists in background to very low concentrations in Lee County.

Recommendation: We strongly encourage the Corps to utilize all options to reduce lake levels prior to the wet season to prevent damaging releases to the estuaries. Releases to the Northern Estuaries should utilize adaptive management to optimize ecosystem salinities while balancing the system as a whole. These decisions should be reevaluated regularly based on current and forecasted conditions in the lake and estuaries.

USACE Action: On Saturday, 4/10/21 the USACE reduced targeted flows to a 7-day average of 1,000 cfs (pulse) to the Caloosahatchee Estuary as measured at the WP Franklin Lock & Dam (S-79) and no flow to the St. Lucie Lock and Dam (S-80).

Lake Flows: In the past 7 days **40,814 AF** were discharged from Lake Okeechobee, with **14,703 AF (36%)** to the Caloosahatchee through **S-77**, **2,479 AF (6%)** to the St. Lucie River through **S-308**, **1,121 AF (3%)** through **S-310** in Clewiston, **4,169 AF (10%)** through **C-10A** to the L-8 canal, and **18,341 AF (45%)** to the EAA through **S-351, S-352, and S-354**. Water conservation areas received flows of **789 AF, 5,107 AF, and 93 AF** at **WCA1, WCA2, and WCA3**, respectively. Everglades National Park received **2,791 AF**.

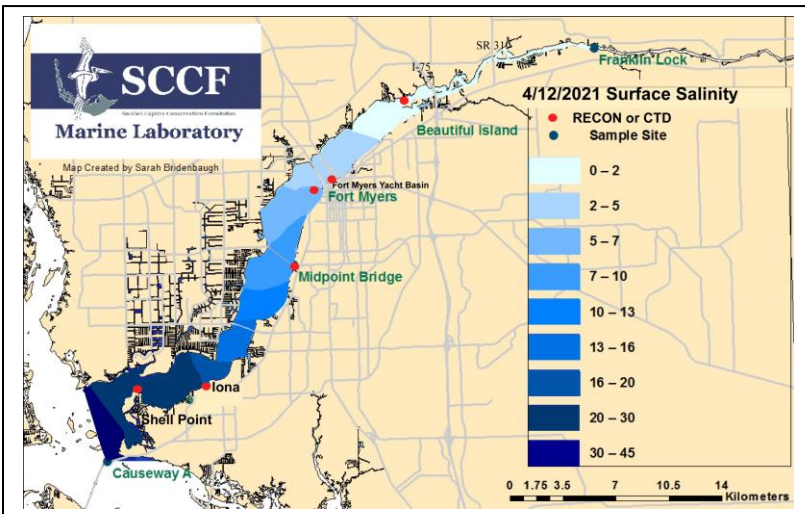
Lake Okeechobee Level: 14.24 ft (Low sub-band)

Last Week: 14.28 ft

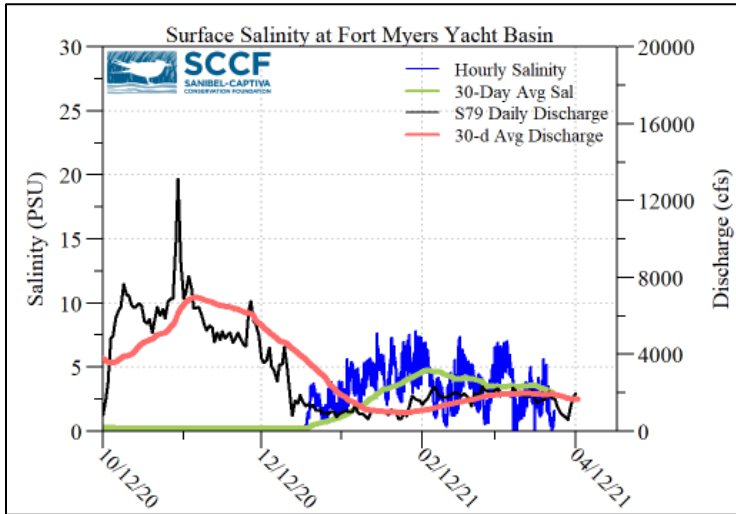
Lake Okeechobee Inflow: 759 cfs

Lake Okeechobee Outflow: 1,036

Weekly Rainfall Total: WP Franklin 1.95" Ortona 1.3" Moore Haven 0.04"



ACOE Daily Reports			
Date	S79 Flow (cfs)	S78 Flow (cfs)	S77 Flow (cfs)
4/6/21	1006	612	1146
4/7/21	833	629	929
4/8/21	786	770	937
4/9/21	592	759	989
4/10/21	1156	864	1080
4/11/21	1747	1226	1296
4/12/21	1958	979	1036
7-day avg	1154	834	1059



Light Penetration				
Site	25% I _z Target Values		Turbidity Target Values	
	meters		NTU	
Fort Myers	1.1 ^c	> 1	7.2	< 18
Shell Point	2.26 ^c	>2.2	1.9	< 18
Causeway	1.85 ^m	> 2.2	7.2	< 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.
^m measured, ^c calculated

Cyanobacteria Status: On 4/13/21, sampling by the Lee County Environmental Lab reported the presence of *Dolichospermum*, *Microcystis*, and *Cuspidothrix* at the Alva Boat Ramp as specks and streaks visible on the surface and in the water column and *Dolichospermum*, *Microcystis*, *Aphanocapsa* and *Limnothrix* at the Davis Boat Ramp as specks visible on the surface and water column. *Dolichospermum*, *Microcystis*, *Aphanizomenon*, *Cuspidothrix*, and *Limnothrix* were moderately abundant upstream of the Franklin Locks as visible streaks with some accumulation along the shore and locks.

Upstream of S-79/Franklin Conditions: On 4/13/21 the Olga Water Treatment plant reported chlorides of **62 mg/L**, apparent color **95 CU** and turbidity **3.1 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 **3.7 psu**, within the suitable range for tape grass.

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

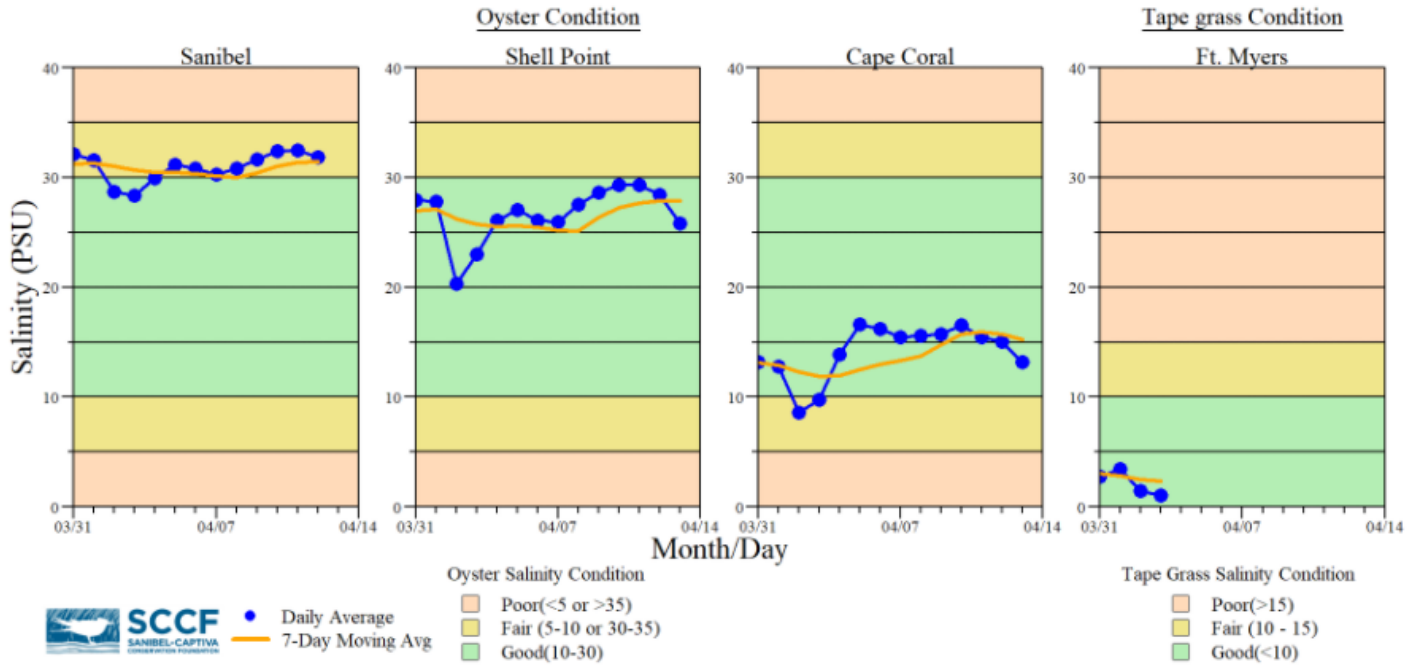
Water Quality Conditions

Monitor Site	Salinity (psu) ^a [previous week]	Diss O ₂ (mg/L) ^b	FDOM (qsde) ^c	Chlorophyll (µg/L) ^d
Beautiful Island	----- [0.2 – 0.3]	-----	-----	-----
Fort Myers Yacht Basin	2.0 – 7.3 [0.4 – 5.3]	4.0 – 8.0	185	8.7
Shell Point	19 – 33 [13 – 33]	6.4 – 4.9	41.2	2.4
McIntyre Creek	29.4 – 32.9	4.9 – 6.4	5.5 – 12.6	1.1 – 73.0
Tarpon Bay	29.4 – 34.2	4.7 – 16.4	3.6 – 9.6	1.0 – 73.0
Wildlife Drive	29.1 – 35.5	1.0 – 10.6	-----	0.9 – 10.3
Wulfert Flats	30.5 – 32.4	3.4 – 11.1	-----	-----

- 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
- ^s Single sonde lower and surface layer or surface grab lab measurement

Red Tide: On 4/9/2021, [FWC](#) reported that the red tide organism, *Karenia brevis*, persists in Southwest Florida. Over the past week, *K. brevis* was detected in 37 samples. Bloom concentrations (>100,000 cells/liter) were observed in one sample from Collier County. *K. brevis* was also observed at background concentrations in one sample from Northwest Florida. In Southwest Florida over the past week, *K. brevis* was observed at background to low concentrations in Sarasota County, low concentrations in Charlotte County, **background to very low concentrations in Lee County**, and very low to medium concentrations in Collier County.

Wildlife Impacts: In the past week, the CROW wildlife hospital on Sanibel **received 10 toxicosis patients:** 2 royal terns (died), 1 great blue heron (died), 2 double-crested cormorants (still at CROW), 3 ospreys (1 died, 2 still at CROW), 1 mottled duck (still at CROW), and 1 green sea turtle (still at CROW).



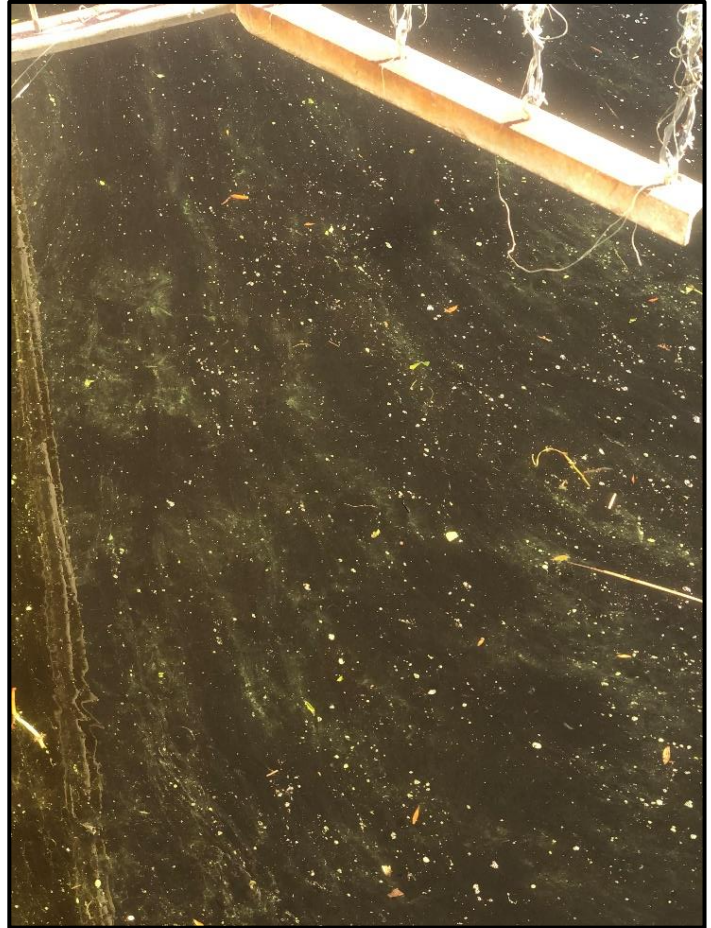
Daily average bottom salinity data for the last 14-days from sampling locations within the tidal Caloosahatchee River Estuary relative to oyster health (Sanibel, Shell Point, and Cape Coral) and tape grass (*Vallisneria americana*) health (Ft. Myers only) conditions.

Stage and recession rate this year and for the last three water years				
Date (Month-Day)	Water Year	Stage (ft, NGVD29)	7-Day Recession Rate (ft 7-d ⁻¹)	30-Day Recession Rate (ft 30-d ⁻¹)
04-12	2018	13.50	-0.19	-0.93
04-12	2019	11.70	-0.13	-0.66
04-11	2020	11.50	-0.21	-0.91
04-12	2021	14.23^A	-0.05	-0.81

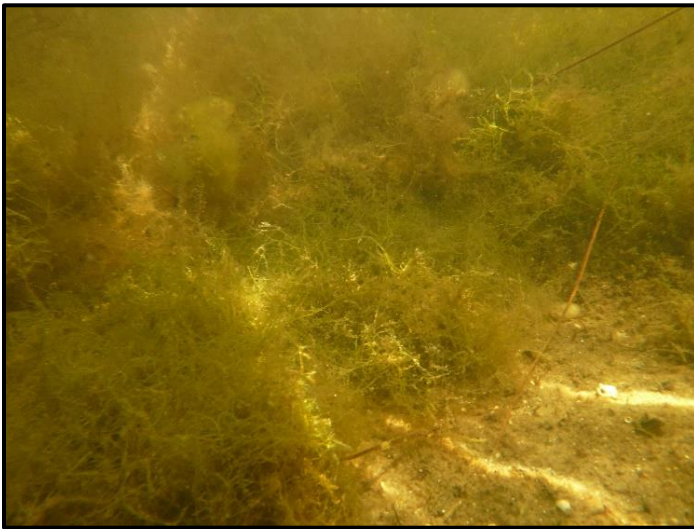
^A Value provided by SFWMD DBKEY:N3466



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On 4/13/21, sampling by the Lee County Environmental Lab reported moderately abundant *Dolichospermum*, *Microcystis*, *Aphanizomenon*, *Cuspidothrix*, and *Limnothrix* upstream of the Franklin Locks as visible specks and streaks with some accumulation along the shore and locks.



On 4/13/21 *Caulerpa fastigiata* and *Acanthophora* were observed in J.N. "Ding" Darling NWR. *Caulerpa* density is increasing, nearing 100% cover in parts of the refuge. Photo: SCCF staff.



On 4/13/21 a high percent coverage of macroalgae in J.N. "Ding" Darling NWR was observed. Photo: SCCF staff.