

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: **May 11 – 17, 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 **1,568 cfs at S-79** and a 7-day average of **1,199 cfs at S-77**. The **14-day moving average flow at S-79 is 1,908 cfs and is within the optimal 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 high concentrations in and offshore of Lee County.

Recommendation: We are concerned about the level of the lake prior to the beginning of the rainy season with the long-range forecasts indicating increased chances of above normal rainfall. **We strongly encourage the Corps to utilize all options to reduce lake levels to prevent damaging releases to the estuaries while maintaining flows within the RECOVER 2020 optimal flow envelope of 750 – 2,100 cfs.** 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, 5/15/21 the USACE decreased targeted flows to a 7-day average of 1,500 cfs (pulse) to the Caloosahatchee Estuary as measured at the WP Franklin Lock & Dam (S-79) and continued no releases to the St. Lucie Lock and Dam (S-80).

Lake Flows: In the past 7 days a net flow of **52,146 AF** were discharged from Lake Okeechobee, with **16,647 AF (32%)** to the Caloosahatchee through **S-77**, **1,363 AF (3%)** to the St. Lucie River through **S-308**, **2,186 AF (4%)** through **S-310** in Clewiston, **26 AF (0%)** through **C-10A** to the L-8 canal, and **31,924 AF (61%)** to the EAA through **S-351, S-352, and S-354**. Water conservation areas received flows of **133 AF, 3,076 AF, and 1,684 AF** at **WCA1, WCA2, and WCA3**, respectively. Everglades National Park received **637 AF**.

Lake Okeechobee Level: 13.44 ft (Low sub-band)

Last Week: 13.71 ft

Lake Okeechobee Inflow: 465 cfs

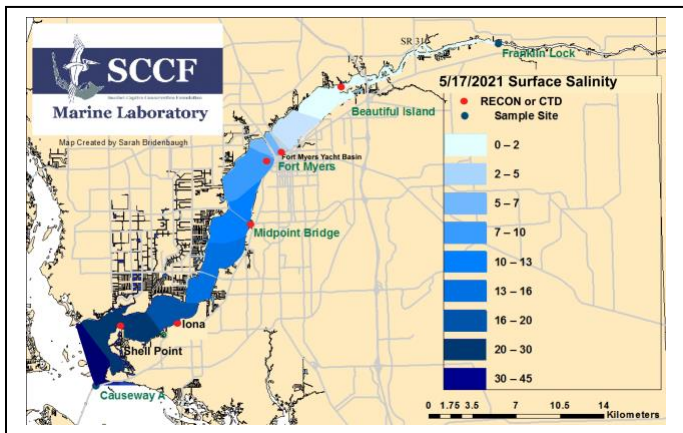
Lake Okeechobee Outflow: 3,492 cfs

Weekly Rainfall Total:

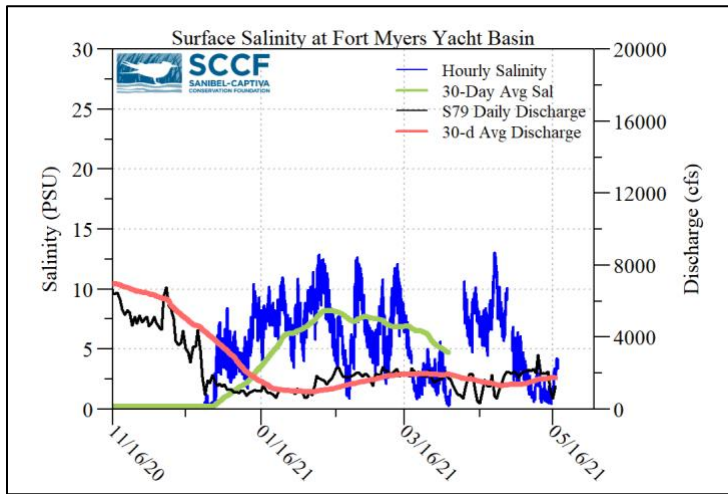
WP Franklin 0.70"

Ortona 0.61"

Moore Haven 0.04"



ACOE Daily Reports			
Date	S79 Flow (cfs)	S78 Flow (cfs)	S77 Flow (cfs)
5/11/21	1986	1551	1830
5/12/21	1997	1242	1334
5/13/21	1967	1206	1858
5/14/21	2072	1306	806
5/15/21	1101	770	769
5/16/21	583	501	771
5/17/21	1269	828	1025
7-day avg	1568	1058	1199



Light Penetration				
Site	25% I _z	Target Values	Turbidity	Target Values
	meters		NTU	
Fort Myers	1.02 ^c	> 1	6.9	< 18
Shell Point	2.14 ^c	>2.2	2.2	< 18
Causeway	2.12 ^m	> 2.2	3.5	< 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 5/18/21, sampling by the Lee County Environmental Lab reported the presence of *Microcystis*, *Cuspidothrix*, and *Limnothrix* at **Royal Palm Park** as sparse specks visible in the water column. *Microcystis*, *Dolichospermum*, and *Planktothrix* were **moderately abundant** at the **Alva Boat Ramp** as visible streaks and small clumps on the surface and in the water column with slight accumulation. *Microcystis*, *Dolichospermum*, and *Planktothrix* were **abundant** upstream of the **Franklin Locks** with streaks and clumps, accumulation along the shore and lock, and looked like blue green paint spilled into the water. *Microcystis*, *Dolichospermum*, and nostocalean filaments were **abundant** at the **Davis Boat Ramp** visible as streaks and clumps with accumulation and fairly dense in the water column.

Upstream of S-79/Franklin Conditions: On 5/18/21 the Olga Water Treatment plant reported chlorides of **63 mg/L**, apparent color **122 CU** and turbidity **8.92 NTU**. **Algae** at the plant intake are becoming more prevalent. The plant is offline at **0 GPM**.

Upper Estuary Conditions: The 30-day average surface salinity at the Fort Myers Yacht Basin was **3.8 psu**, within the suitable range for tape grass.

Lower Estuary Conditions: The average salinity at Shell Point RECON was **27 psu**, in the suitable range for oysters and seagrass.

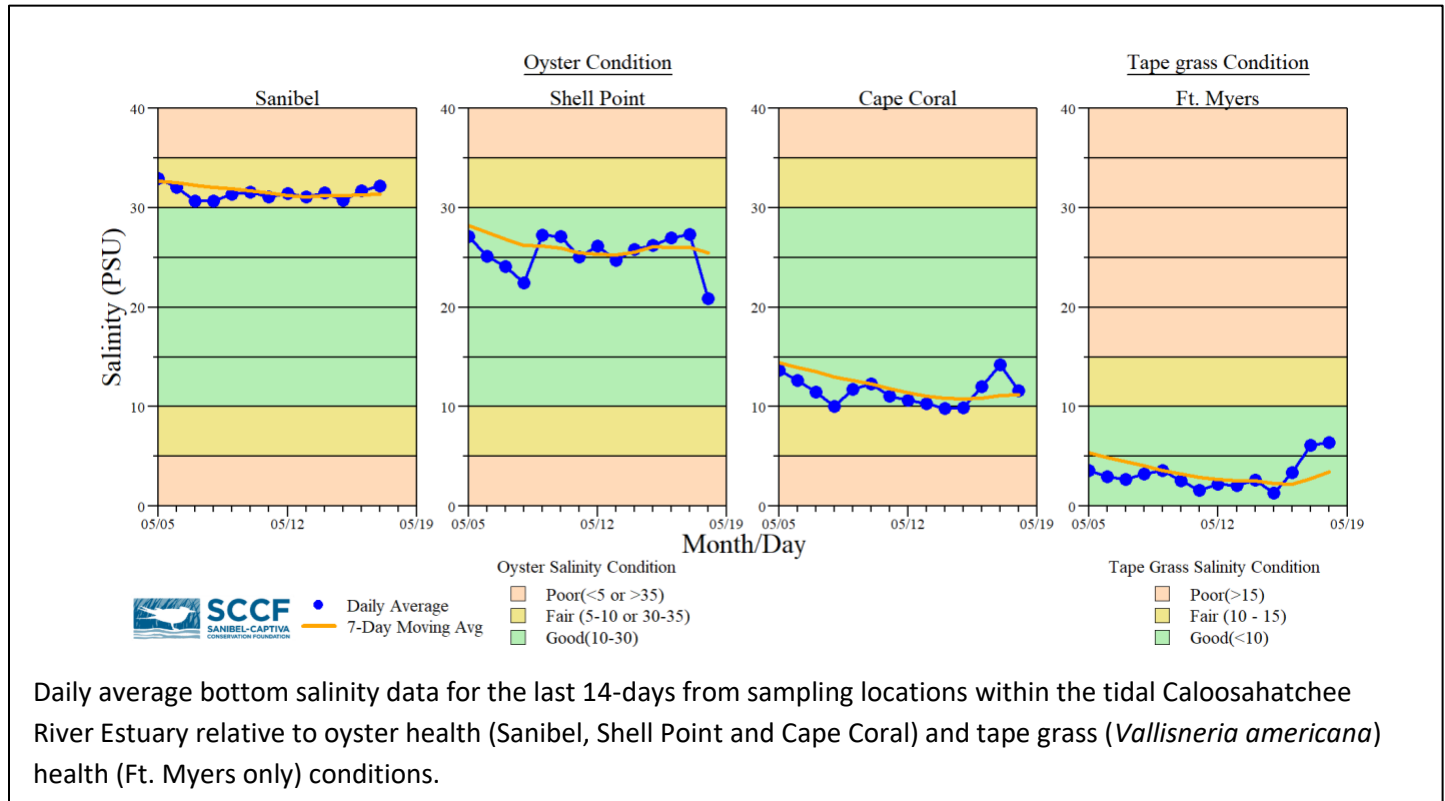
Water Quality Conditions

Monitor Site	Salinity (psu) ^a [previous week]	Diss O ₂ (mg/L) ^b	FDOM (qsde) ^c	Chlorophyll (µg/L) ^d
Beautiful Island	----- [-----]	-----	-----	-----
Fort Myers Yacht Basin	0.6 – 4.9 [1.0 – 6.1]	4.6 – 7.9	215	10
Shell Point	15 – 33 [17 – 33]	4.4 – 7.6	48.8	6.3
McIntyre Creek	22.3 – 34.6	4.1 – 13.1	4.6 – 8.8	2.0 – 7.0
Tarpon Bay	29.3 – 33.5	4.2 – 8.2	1.8 – 5.0	1.7 – 52.8
Wildlife Drive	34.2 – 37.7	0.5 – 14.7	-----	1.0 – 11.9
Wulfert Flats	31.2 – 34.7	3.6 – 8.5	-----	-----

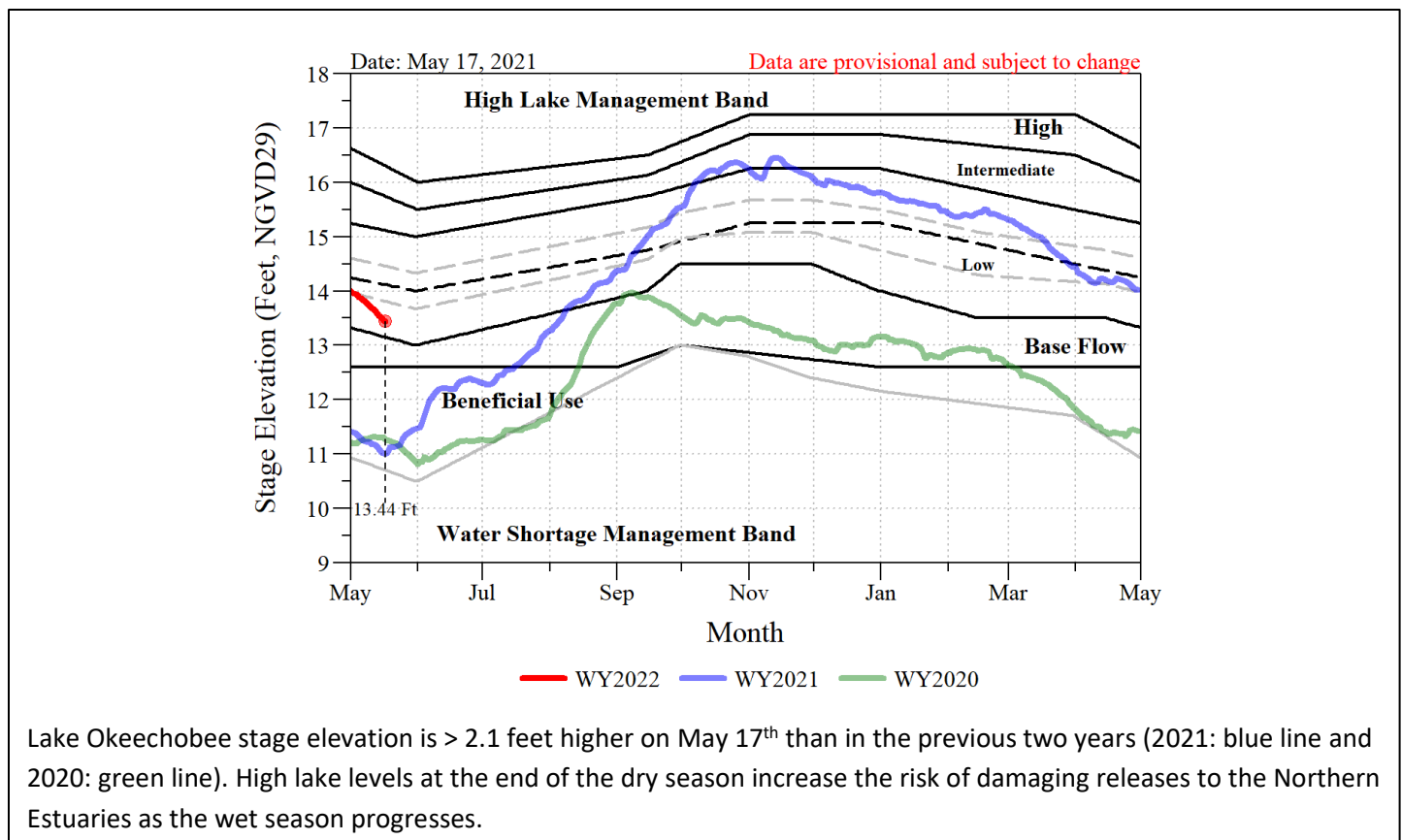
- Red** values are outside of the preferred range.
- ^a Salinity target values: BI < 5, FM < 10, SP = 25 – 32
- ^b Dissolved O₂ target values: all sites > 4
- ^c FDOM target values: BI < 70, FM < 70, SP < 11
- ^d Chlorophyll target values: BI < 11, FM < 11, SP < 11
- ^s Single sonde lower and surface layer or surface grab lab measurement

Red Tide: On 5/14/2021, the FWC reported that the red tide organism, *Karenia brevis*, persists in Southwest Florida, where it was detected in **61 samples over the past week**. **Bloom concentrations (>100,000 cells/liter) were observed in** one sample from Hillsborough County, two samples from Charlotte County, **six samples from Lee County**, and 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 very low concentrations in Pinellas County, very low and medium concentrations offshore of Hillsborough County, background to low concentrations in both Manatee and Sarasota counties, very low to medium concentrations in Charlotte County, **background to high concentrations in or offshore of Lee County**, very low to high concentrations in Collier County, and background to low concentrations offshore of Monroe County.

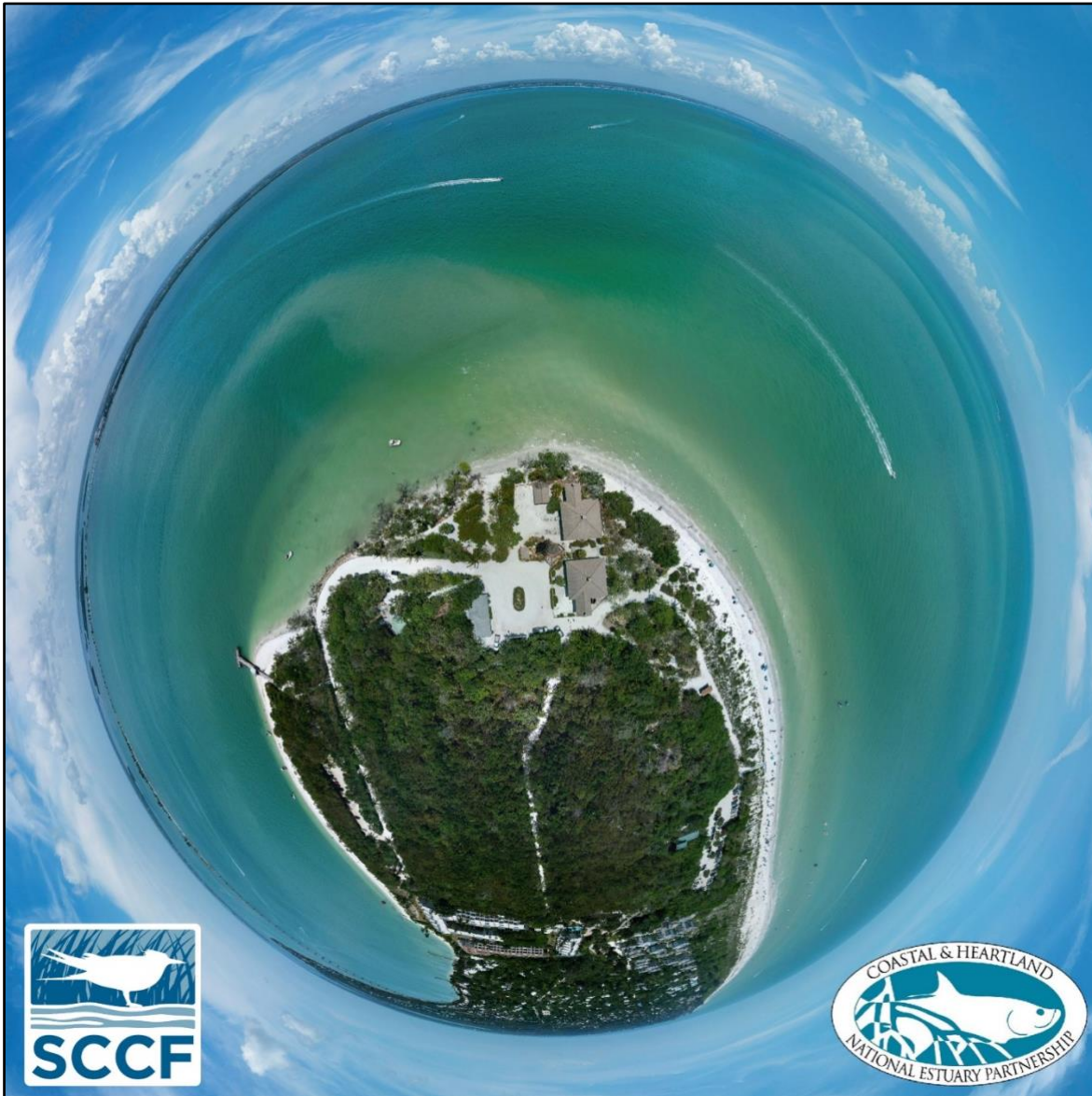
Wildlife Impacts: In the past week, the CROW wildlife hospital on Sanibel **received 9 toxicosis patients:** 4 laughing gulls (2 died, 2 still at CROW), 1 sanderling (died). 1 ruddy turnstone (released), 1 double-crested cormorant (still at CROW), 1 Kemp's ridley (died) and 1 Anhinga (died).



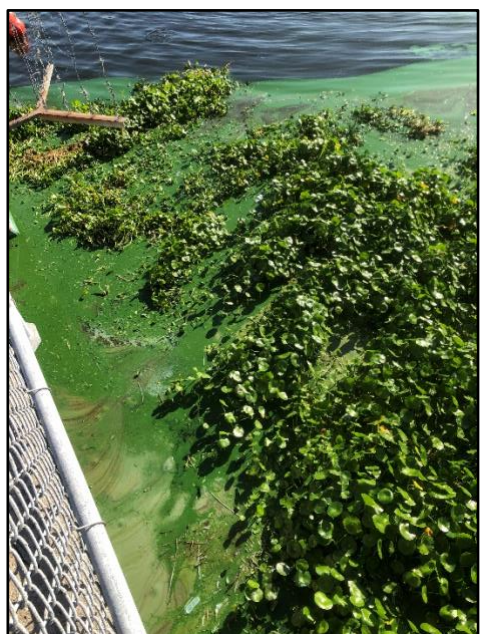
Daily average bottom salinity data for the last 14-days from sampling locations within the tidal Caloosahatchee River Estuary relative to oyster health (Sanibel, Shell Point and Cape Coral) and tape grass (*Vallisneria americana*) health (Ft. Myers only) conditions.



Lake Okeechobee stage elevation is > 2.1 feet higher on May 17th than in the previous two years (2021: blue line and 2020: green line). High lake levels at the end of the dry season increase the risk of damaging releases to the Northern Estuaries as the wet season progresses.



Left: Water clarity at Lighthouse Beach Park on 5/12/21 at 13:34 on a high tide. (High tide: 13:32 @ 2.45 ft in Tarpon Bay.)



Photos of cyanobacteria (blue-green algae) blooms the Caloosahatchee River on 5/18/21. Left: Alva Boat Ramp. Center: Davis Boat Ramp. Right: Franklin Locks (S-79). Photos: Lee County Environmental Laboratory.