

MEMORANDUM

To: USACE Colonel Jason A. Kirk, LTC Jennifer A. Reynolds, Richard McMillen, Kim Taplin, SFWMD Governing Board, Executive Director Ernie Marks, Terrie Bates, Susan Gray, DEP Secretary Noah Valenstein

From: Periodic Scientists Conference Call Participants
 Paul Tritaik - J.N. "Ding" Darling National Wildlife Refuge (NWR) Complex
 James Evans & Holly Milbrandt - City of Sanibel
 Keith Kibbey & Lesli Haynes - Lee County
 Rae Burns – Town of Fort Myers Beach
 Harry Phillips – City of Cape Coral
 Rae Ann Wessel & Rick Bartleson, Ph.D.-Sanibel Captiva Conservation Foundation

Subject: Caloosahatchee & Estuary Condition Report

Reporting Period: **July 17 - 23, 2018**

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: **An extensive cyanobacteria bloom persists within Lake Okeechobee and throughout the Caloosahatchee.** The weekly average flow at S79 was 4,455 cfs, one and a half times the high flow harm threshold. **Red tide persists along the coast causing a mass mortality of endangered sea turtles.**

USACE Action: On 7/13/18, the U.S. Army Corps of Engineers initiated a 14 day pulse release of **3,000 cfs** to the Caloosahatchee **measured at S-77**. The St Lucie will receive **an average of 1,800 cfs** over the 14 day pulse with 3 days of no releases **measured at S-80**.

Recommendation: We support the Corps intent to follow the LORS 2008 guidance and reduce flows to the Caloosahatchee to 3,000 cfs at S-79. We request the Corps and SFWMD use operational flexibility to increase water levels to saturate soils on agricultural lands within the EAA via dispersed water management storage as an emergency measure to address ongoing harmful estuary releases and high lake stages. This acreage will expedite evaporation and evapotranspiration.

Lake Okeechobee Level: 14.35 ft. (Low Flow Sub-Band)

Last week: 14.44 ft.

Lake Okeechobee Inflow: 4,255 cfs

Lake Okeechobee Outflow: 6,266 cfs

Weekly Rainfall: WP Franklin **0.20"** Ortona **0.64"**

Moore Haven **0.44"**

Salinity Beautiful Island: 0.2 - 0.2 psu (SCCF RECON Marker 18)

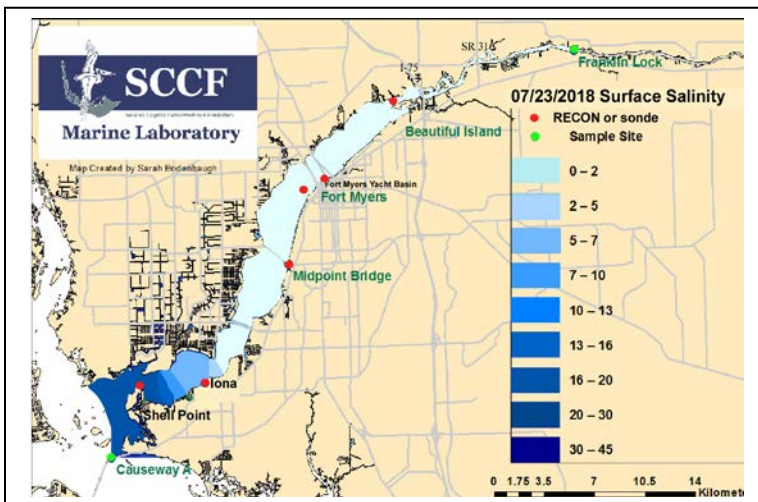
Previous week 0.2 - 0.2 psu

Salinity Fort Myers: 0.2 - 0.2 psu (SCCF RECON)

Previous week 0.2 - 0.2 psu

Salinity Shell Point: 2.8 - 27 psu (SCCF RECON)

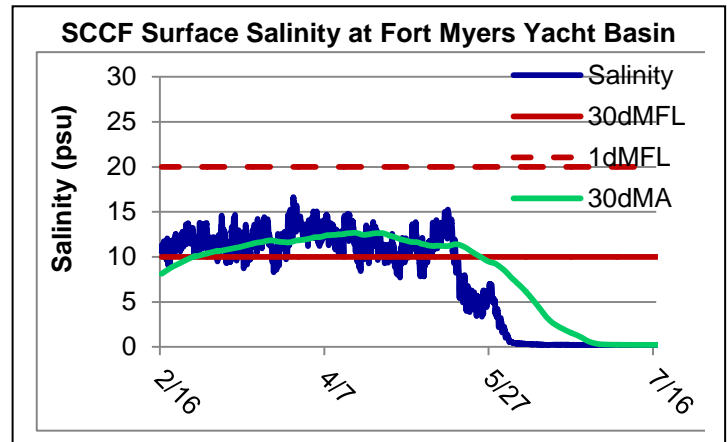
Previous week 4.8 – 29 psu



Salinity (psu)			
	Current Value	Sustainable Range	High/Low
Beautiful Is	0.2 - 0.2	< 5 psu	In Range
Fort Myers	0.2 - 0.2	<10 psu	In Range
Shell Point	2.8 - 27	25 - 32 psu	Low
Light (25% I _z depth meters)			
Fort Myers	0.46	1 meter	Low
Shell Point	1.03	2.2 meters	Low
Causeway	1.16	2.2 meters	Low

Flow & Water Quality: Flows to the Caloosahatchee Estuary at S-79 during the **past seven days** averaged **4,455 cfs**; **67% of flow originated from Lake Okeechobee**. Over the past 7 days, **94,070 AF** of water was discharged from Lake Okeechobee: **49% to the Caloosahatchee at S-77**, **32% to the St Lucie at S-80**, **18% discharged south to the EAA** and less than 1% through S-310. **-39 AF of stormwater back flowed into Lake Okeechobee from the L8.**

ACOE Daily Reports			
Date	S79 Flow (cfs)	S78 Flow (cfs)	S77 Flow (cfs)
7/17/2018	5310	3507	3407
7/18/2018	5171	3422	3374
7/19/2018	4562	2994	3428
7/20/2018	4169	2919	3295
7/21/2018	3850	2922	3240
7/22/2018	4006	2740	3215
7/23/2018	4115	2749	964
7 day Avg	4455	3036	2997



Upstream of S-79/Franklin Conditions: On 7/24/18, the Lee County Environmental Lab documented significant blooms of *Microcystis* and *Dolichospermum* at the Alva Boat Ramp and *Microcystis*, *Dolichospermum* and *Planktothrix* upstream of the Franklin Locks. Samples were sent to FDEP for identification and toxin analysis. On 7/24/18, the Olga Water Treatment plant reported chlorides of 40 mg/l, apparent color 156 CU and turbidity 6.75 NTU. Light algae is visible at the plant intake. The plant remains off line for maintenance.

Upper Estuary Conditions: On 7/24/18, the Lee County Environmental Lab documented significant blooms of *Microcystis* at Franklin Locks downstream, North Shore Park and the Midpoint Bridge. *Microcystis* was also observed at the Davis Boat ramp.

The weekly average salinity at the Fort Myers Yacht Basin was **0.2 psu**, in the suitable range for tape grass growing between the Caloosahatchee US 41 Bridges and Beautiful Island. **The daily average dissolved oxygen level at Beautiful Island was in the hypoxic range for 3 days.**

Lower Estuary Conditions: The average salinity at Shell Point was **16 psu**, in the suitable range for oysters, but **below optimal for seagrasses**. **Light levels are too low for submersed plants growing at depth in the Caloosahatchee and around the Causeway.**

J.N. "Ding" Darling NWR:

Monitor Site	Salinity (psu)	Diss O ₂ (mg/L)	FDOM (qsde)	Chlorophyll (µg/L)
McIntyre Creek	23.3 – 28.4	3.3 – 14.0	19.7 – 32.3	2.9 – 8.7
Tarpon Bay	23.1 – 30.6	3.6 – 8.2	18.7 – 34.1	2.6 – 7.7
Wildlife Drive	22.1 – 26.9	0.48 – 12.0	-----	2.6 – 12.5
Wulfert Flats	23.8 – 30.0	3.66 – 9.8	-----	4.8 – 29.9

Red Tide: On 7/20/18, the Florida Fish and Wildlife Conservation Commission reported that the Florida red tide organism, *Karenia brevis* persists in Sarasota, Charlotte, Lee and Collier Counties with background to high concentrations in Lee County samples. Fish kills and respiratory irritation were also reported at Lee County beaches. SCCF samples from Blind Pass and South Seas on 7/19/18 and Tarpon Bay Beach on 7/23/18 had medium concentrations of *Karenia*.

Wildlife Impacts: The past week, SCCF recovered **19 dead sea turtles, 10 loggerheads, 9 critically endangered Kemps Ridley's, and 2 live loggerheads** were taken to CROW for treatment. A deceased 26-foot adult, male endangered whale shark washed up on a Sanibel Beach. FWC performed a necropsy and will report results when available.

Caloosahatchee Stations	Chlorophyll (µg/L)	fDOM (qse)	Turbidity (NTU)	25% lo depth (meters)
Target Values	< 11	CE <70 SCB <11	CE < 18 SCB < 5	CE = 1 m SCB = 2.2m
Fort Myers	8.1	388	5.4	0.46
Shell Point	6.0	127	6.2	1.03
Causeway	3.6	116	4.0	1.16

Target light penetration: CE- Caloosahatchee Estuary = 1 m
 SCB-San Carlos Bay = 2.2 meters
 Definition of 25% I_z: z where I is 25% of surface I.
 I = irradiance, z= depth

Wrack line dominated by parchment worm tubes at Sanibel's Lighthouse Beach Park on 7/24/18. Photo: City of Sanibel

