

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: **March 20 - 26, 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: The Caloosahatchee estuary **needs additional freshwater**. For **28 consecutive days** the salinity has exceeded the MFL creating borderline conditions: **salinities too high for oysters in the lower estuary and too high for tpegrass in the upper estuary**. Red tide continues to cause fish kills, sicken birds and sea turtles and respiratory irritation along coastal beaches.

USACE Action: Since 1/12/18 the Army Corps has continued flows from Lake Okeechobee through pulse releases with an average target flow for the Caloosahatchee Estuary of **650 cfs** at S-79 and no releases to the St Lucie at S-80.

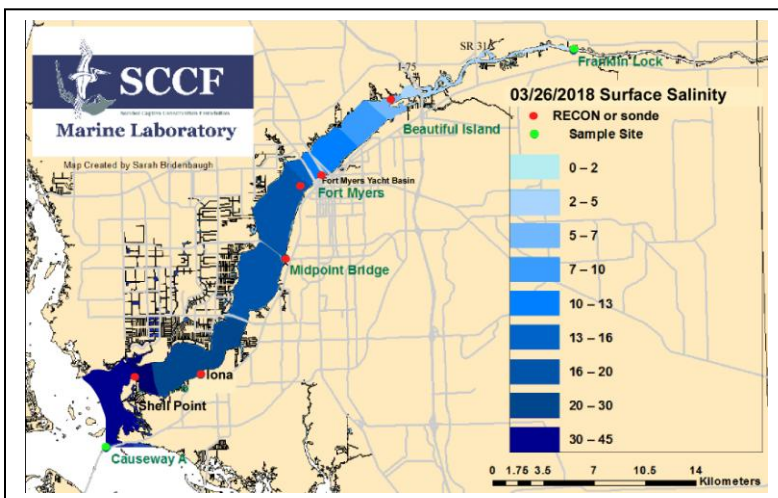
Recommendation: We request the Corps provide additional water through pulse releases to reduce harmful salinities throughout the Caloosahatchee estuary and maintain salinities below the ecological harm threshold of **10 psu at Ft Myers**. Past operations show that flows of **800 - 1,000 cfs measured at S-79** are needed to achieve this.

Lake Okeechobee Level: **14.02 ft. (Low Sub-Band)** Last week: **14.26 ft**
 Lake Okeechobee Inflow: **449 cfs** Lake Okeechobee Outflow: **4,603 cfs**
 Weekly Rainfall: WP Franklin **0.05"** Ortona **0"** Moore Haven **0.10"**

Salinity Beautiful Island: **2.7 - 7.0 psu** (SCCF RECON Marker 18) Previous week **4.0 - 6.7 psu**
 Salinity Fort Myers: **12 - 17 psu** (SCCF RECON) Previous week **13 - 20 psu**
 Yacht Basin 30 day moving average: **11.6 psu** Previous week: **11.7 psu**

MFL Status: Exceedance = 28 days

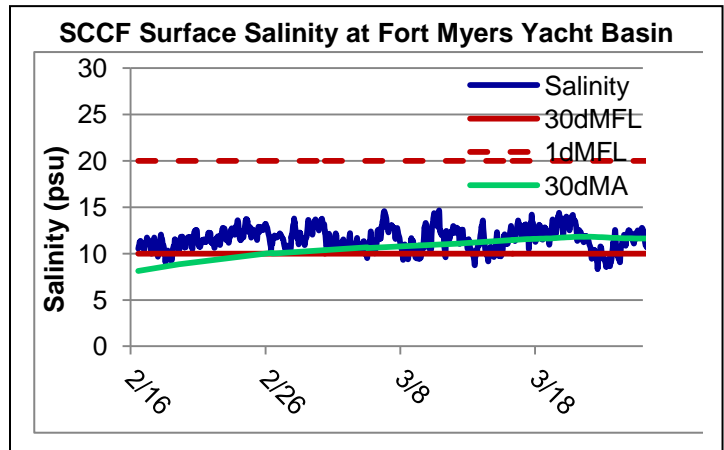
Salinity Shell Point: **24- 34 psu** (SCCF RECON) Previous week **24- 34 psu**



Salinity (psu)			
	Current Value	Sustainable Range	High/Low
Beautiful Is	2.7 - 7.0	< 5 psu	High
Fort Myers	12 - 17	<10 psu	High
Shell Point	24- 34	25 - 32 psu	High
Light (25% Iz depth meters)			
Fort Myers	0.92	1 meter	In Range
Shell Point	1.62	2.2 meters	Low
Causeway	2.24	2.2 meters	In Range

Flow & Water Quality: Flows to the Caloosahatchee Estuary at S-79 during the past seven days averaged **662 cfs**. Over the past 14 days **112,763 AF** of water was discharged from Lake O, **24.4% to S-77**, **<1% to S-308**, **66% of water from Lake O was discharged south to the EAA**. **Approximately 7.1% was discharged to the L8** and **1.4% was discharged through S-310**.

ACOE Daily Reports			
Date	S79 Flow (cfs)	S78 Flow (cfs)	S77 Flow (cfs)
3/20/2018	355	2	247
3/21/2018	180	57	179
3/22/2018	43	321	273
3/23/2018	864	1051	654
3/24/2018	1156	1180	805
3/25/2018	1302	857	586
3/26/2018	733	436	477
7 day Avg	662	558	460



Upstream of S-79/Franklin Conditions: Sampling by Lee County Environmental Lab on 3/26/18 reported the presence of *Aphanizomenon* and *Microcystis cyanobacteria*. On 3/27/18 the Olga Water Treatment plant reported chlorides of **60 mg/l**, apparent color **104 CU** and turbidity **3.26 NTU**. No visible algae was reported at the plant intake the past week. The plant remains off line for maintenance.

Upper Estuary Conditions: The 30 day moving average salinity at the Fort Myers Yacht Basin was **11.5 psu** and the weekly average salinity was **12 psu**. These salinities are above the suitable range for tape grass, which is growing between the Caloosahatchee Bridge and Beautiful Island. Water column chlorophyll is elevated at Beautiful Island.

Lower Estuary Conditions: The average salinity at Shell Point, **30 psu**, was above the optimal range for oysters.

J.N. "Ding" Darling NWR: Dissolved oxygen fell below **3 mg/L** every day during the past week.

Monitor Site	Salinity (psu)	Diss O ₂ (mg/L)	FDOM (qsde)	Chlorophyll (µg/L)
McIntyre Creek	-----	0.3 – 10.0	6.0 – 44.5	1.9 – 4.5

Beach Conditions: Accumulations of red drift algae washing up on Gulf beaches along Sanibel. **Phytoplankton at Sanibel Beach Access #7 was dominated by *Skeletonema costatum* and *Thalassionema nitzschiodes*. *Skeletonema costatum* was also abundant at Rue Belle Mer beach, where *Prorocentrum* was present.**

Red Tide: On 3/23/18 the Florida Fish and Wildlife Conservation Commission reports that the Florida red tide organism, *Karenia brevis* was present in Charlotte, Lee, Collier and Monroe Counties with **very low to high concentrations in samples collected from or offshore of Lee County**.

Numerous fish kills and respiratory irritation were reported the past week. SCCF found no *Karenia* in samples from south and southwest Sanibel beaches or Tarpon Bay on 3/22/18.

Wildlife Impacts: The past week, CROW the wildlife hospital on Sanibel treated **20 new patients with red tide symptoms**; **16 Double Crested Cormorants**, **1 Laughing Gull**, **1 Sanderling**, **1 Tern** and **1 Brown Pelican**.

A dead manatee was brought to the Punta Rassa dock.

Manatees: Lee County park staff reported up to **25 manatees** in the warm water discharge of the Orange River and FPL canal the past week as a cool front moved through the area dropping temperatures to **71 - 86° F**.

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	7.5	138	2.4	0.92
Shell Point	4.1	60.0	1.8	1.62
Causeway	1.6	23.9	2.0	2.24

Target light penetration: **CE**- Caloosahatchee Estuary =1 m

SCB-San Carlos Bay = 2.2 meters

Definition of 25% lz: **z** where **I** is 25% of surface **I**.

I = irradiance, **z**= depth



Red drift algae along Sanibel's Gulf beaches, 3/27/18. Photos City of Sanibel



Roll of drift algae along the eastern shore of McCardle Island in Matlacha Pass 3/24/18. Photo Lee County