MEMORANDUM

To: USACE Colonel Andrew D. Kelly, LTC Jennifer A. Reynolds, Richard McMillen, Kim Taplin, SFWMD Governing Board, Executive Director Drew Bartlett, 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
Lesli Haynes & Lisa Kreiger - Lee County
Rae Burns – Town of Fort Myers Beach
Harry Phillips & Maya Robert – City of Cape Coral
Rae Ann Wessel & Rick Bartleson, Ph.D.-Sanibel Captiva Conservation Foundation

Subject: Caloosahatchee & Estuary Condition Report

Reporting Period: **March 26 - April 1, 2019**

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: Cyanobacteria is present in Lake Okeechobee and persists at Lee County sample sites along the Caloosahatchee and estuary. Caloosahatchee flows the past week averaged 1,145 cfs. Significant accumulations of drift algae are washing up on Gulf beaches and along the shorelines.

USACE Action: On 3/30/19 the U.S. Army Corps of Engineers initiated a 7-day pulse releases from Lake Okeechobee with average flow of **1,000 cfs** to the Caloosahatchee measured at **S-79** and **zero** to the St. Lucie measured at **S-80**.

Recommendation: High nutrient loading to estuary and coastal waters is contributing to dense accumulations of drift algae along Gulf beaches. **We recommend target flows to the Caloosahatchee estuary at S-79 range between 800-1,000 cfs**. While we support the need to lower lake levels prior to the rainy season, we are concerned that excess nutrients are contributing to macro algae blooms. We request the COE and SFWMD maximize storage in the Kissimmee Chain of Lakes (currently below schedule), maximize southward flows to the WCAs and utilize all dispersed water management projects to the full extent possible to help get the lake level down and minimize harmful flows to the estuaries.

Lake Okeechobee Level: **11.86 ft. (Beneficial Use Sub-Band)** **Last week: 12.11 ft.**

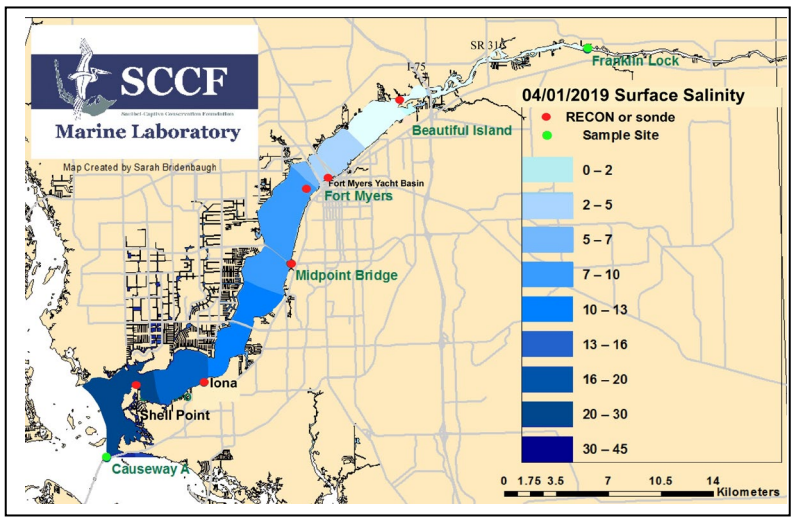
Lake Okeechobee Inflow: **344 cfs** **Lake Okeechobee Outflow: 4,245 cfs**

Weekly Rainfall: WP Franklin **0"** Ortona **0"** Moore Haven **0"**

Salinity Beautiful Island: **0.2 - 0.7 psu** (SCCF RECON Marker 18) **Previous week 0.3 - 0.6 psu**

Salinity Fort Myers: **2.7 - 11 psu** (SCCF RECON) **Previous week 2.4 - 11 psu**

Salinity Shell Point: **12 - 31 psu** (SCCF RECON) **Previous week 13 - 29 psu**

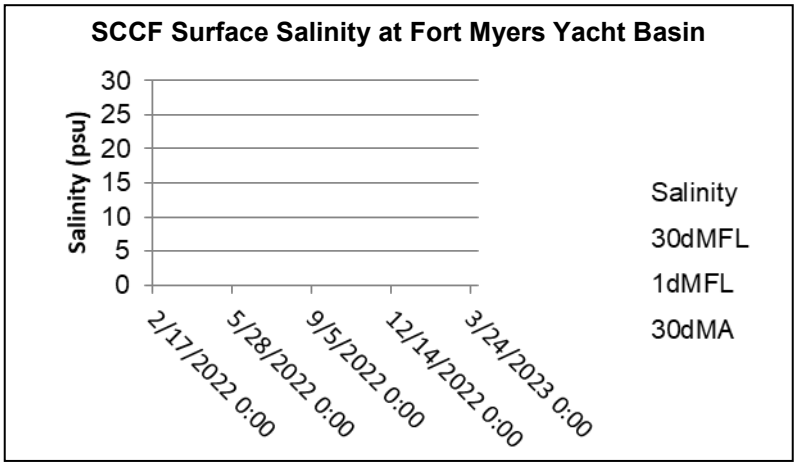


Salinity (psu)			
	Current Value	Sustainable Range	High/ Low
Beautiful Is	0.2 - 0.7	< 5 psu	In Range
Fort Myers	2.7 - 11	<10 psu	In Range
Shell Point	12 - 31	25 - 32 psu	In Range

Light (25% Iz depth meters)			
Fort Myers	0.65	1 meter	Low
Shell Point	1.15	2.2 meters	Low
Causeway	1.64	2.2 meters	Low

Lake Flows: Over the past 7 days **57,237 AF** of water was discharged from Lake Okeechobee**; 31%** to the Caloosahatchee **at S-77, a net 11% to St Lucie** at **S-308, 55%** was discharged south to the **EAA, a net -150 backflowed into the lake** at **L8** and **3.7% to S-310. L8 and S-308 sent water back into the lake the past week.**

ACOE Daily Reports			
Date	**S79 Flow (cfs)**	**S78 Flow (cfs)**	**S77 Flow (cfs)**
3/26/2019	**1596**	**1134**	**1432**
3/27/2019	**1228**	**660**	**1293**
3/28/2019	**801**	**626**	**967**
3/29/2019	**368**	**540**	**868**
3/30/2019	**860**	**734**	**1043**
3/31/2019	**1564**	**1185**	**1474**
4/1/2019	**1596**	**1283**	**1773**
7 day Avg	**1145**	**880**	**1264**



Cyanobacteria bloom: On 4/2/19 the Lee County Environmental Lab reported **a bloom of cyanobacteria including *Dolichospermum* and *Microcystis* at the Alva boat ramp, presence *of Dolichospermum*** and ***Aphanizomenon*** **upstream of the WP Franklin Lock, *Dolichospermum and Microcystis* downstream of the Lock and at the Davis Boat Ramp in the estuary. Samples from the Alva boat ramp and upstream of the lock were sent to DEP.**

Upstream of S-79/Franklin Conditions: On 4/2/19 the Olga Water Treatment plant reported chlorides of **60 mg/l,** apparent color **60 CU** and turbidity **1.39 NTU.** Trace of algae visible at the plant intake. Plant is online at 2,000 GPM.

Upper Estuary Conditions: The weekly average salinity at the Fort Myers Yacht Basin was **3.4 psu**, in the suitable range for tape grass growing between the Caloosahatchee US 41 Bridges and Beautiful Island**.**

Lower Estuary Conditions: The weekly average salinity at Shell Point was **23 psu**, in the suitable range for oysters and seagrass.

J.N. *"Ding"* Darling NWR: NR

Beach conditions: Previous high freshwater flows, dense red tide and resulting anoxia likely reduced grazer densities resulting in increased macroalgae growth.

Red Tide: On 3/29/19 the Florida Fish and Wildlife Conservation Commission reported background concentrations of Florida red tide, *Karenia brevis*, offshore Manatee, Charlotte and Lee Counties in southwest and Gulf County in northwest Florida.

Drift algae on Tarpon Beach Sanibel on 4/1/19. Photo Rick Baron

Caloosahatchee Stations	Chlorophyll (µg/L)	fDOM (qse)	Turbidity (NTU)	25% Io depth (meters)
Target Values	**< 11**	**CE <70 SCB <11**	**CE < 18 SCB < 5**	**CE = 1 m SCB = 2.2m**
Fort Myers	**5.0**	**257**	**4.4**	**0.65**
Shell Point	**2.6**	**123**	**1.4**	**1.15**
Causeway	**1.5**	**68.3**	**0.7**	**1.64**

Target light penetration: CE- Caloosahatchee Estuary =1 m

SCB-San Carlos Bay = 2.2 meters

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

***I** = irradiance, **z** = depth*