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 3 - 9, 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 weekly average flow at S79 was 4,683 cfs, over one and a half times the high flow harm threshold. Extensive cyanobacteria was documented from Moore Haven to Pine Island Sound and the beaches of Sanibel. Beach is closed at the Franklin Lock park and Cape Coral Yacht Club. Red tide persists along the coast. Governor issued an Emergency Order due to algae.

USACE Action: On 6/29/18 the U.S. Army Corps of Engineers initiated a 14 day pulse release of **3,000 cfs** to the Caloosahatchee **measured at S-79.** The St Lucie will receive **no releases for 9 days and an average of 585 cfs** over the 14 day pulse measured at **S-80**.

Recommendation: Lake discharges containing cyanobacteria have resulted in a bloom that covers the entire length of the 75 mile river and estuary, causing beach closures and public health warnings. Additional flow will further contaminate the river with toxic algae and exacerbate the stratification/hypoxic conditions. **We request the Corps and SFWMD use operational flexibility under the Governors Emergency Order to consider the use of forward pumps to move water onto the 488,000 acres of crop lands south of the lake. This acreage will allow water to be spread out and expedite ET. We request NO flows thru S-77 until flows at S-79 fall below 3,000 cfs.**

Lake Okeechobee Level: 14.46 ft. (Low Flow Sub-Band) **Last week: 14.28 ft.**

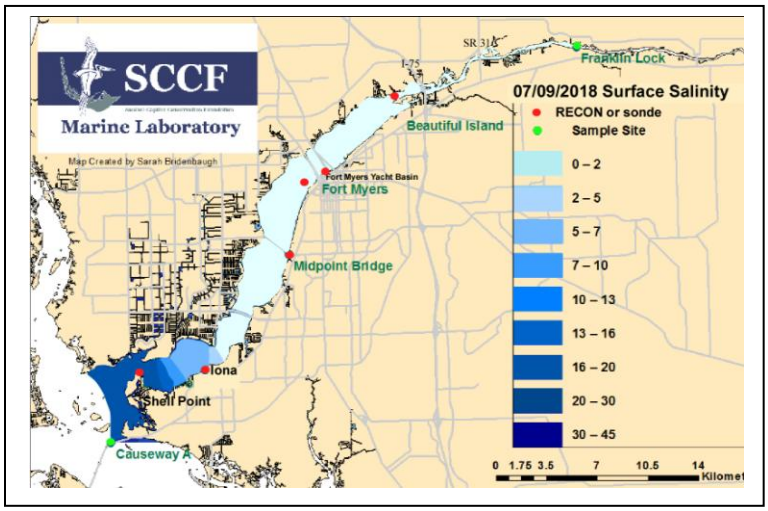
Lake Okeechobee Inflow: 4,594 cfs **Lake Okeechobee Outflow: 143 cfs**

Weekly Rainfall: WP Franklin **2.14"** Ortona **2.12"** Moore Haven **1.35"**

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**

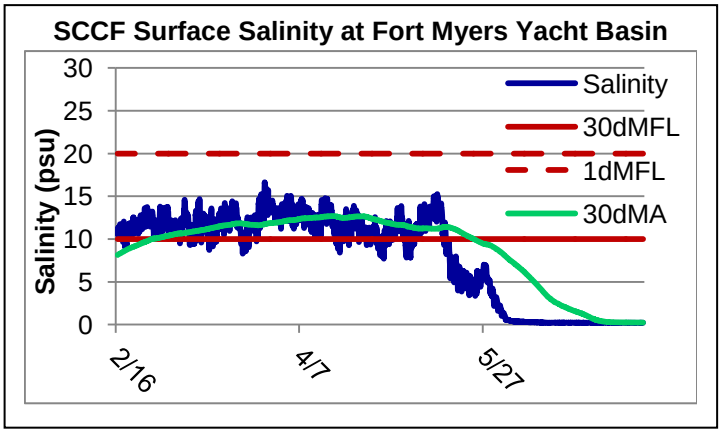
Salinity Shell Point: **4.4 – 28 psu (**SCCF RECON) **Previous week 7.5 – 30 psu**



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	4.4 – 28	25 - 32 psu	Low
Light (25% Iz depth meters)			
Fort Myers	0.53	1 meter	Low
Shell Point	1.17	2.2 meters	Low
Causeway	1.19	2.2 meters	Low

Flow & Water Quality: Flows to the Caloosahatchee Estuary at S-79 during the **past seven days** averaged **4,683 cfs; 4% of flow originated from Lake Okeechobee.** Over the past **7 days 5,864 AF** of water was discharged from Lake Okeechobee to the Caloosahatchee; **46% at S-77 and 0% to the St Lucie at S-80. 54% was discharged south only thru S-354. A net -1,798 AF of stormwater back flowed into Lake Okeechobee = 31% of Lake discharge volume; 12%/-213 AF from the L8 and 88% -1,585 AF from Clewiston's Industrial Canal.**

ACOE Daily Reports			
Date	**S79 Flow (cfs)**	**S78 Flow (cfs)**	**S77 Flow (cfs)**
7/3/2018	**3360**	**1546**	**565**
7/4/2018	**3250**	**1530**	**596**
7/5/2018	**4988**	**1279**	**187**
7/6/2018	**5593**	**1194**	**0**
7/7/2018	**5159**	**1386**	**0**
7/8/2018	**6080**	**1555**	**0**
7/9/2018	**4348**	**1440**	**0**
7 day Avg	**4683**	**1419**	**193**



Upstream of S-79/Franklin Conditions:
An extensive cyanobacteria bloom extends from Moore Haven to the Franklin Lock. On 7/10/18 the Lee County Environmental Lab documented significant blooms of *Microcystis* at the Alva Boat Ramp and upstream of the Franklin Locks. Samples were sent to FDEP for identification and toxin analysis.
On 7/10/18 the Olga Water Treatment plant reported chlorides of **51 mg/l**, apparent color **295 CU** and turbidity **3.47 NTU**. **Significant algae visible at the plant intake.** The plant remains off line for maintenance.

Upper Estuary Conditions: On 7/10/18 the Lee County Environmental Lab documented significant blooms of *Microcystis* at Franklin Locks downstream, the Davis Boat ramp, North Shore Park and the Midpoint Bridge. 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. **Dissolved oxygen levels dropped into the hypoxic range daily at Beautiful Island.**

Lower Estuary Conditions: Dissolved oxygen at Shell Point was in the hypoxic range for 2 days. *Microcystis* was present in the water along the causeway, along the north shore of Sanibel and at the south end of Tarpon Bay. The average salinity at Shell Point was **18 psu,** in the suitable range for oysters. **Light levels are too low for submersed plants growing at depth in the Caloosahatchee and around the Causeway**.

Cape Coral: Over the last week the City of Cape Coral has received numerous citizen calls and emails related to the cyanobacteria algae blooms along the river and in the City's canals. On 7/9/18 City staff reported that patches of cyano-bacteria blooms had intruded at least 1 mile into the canals system, reaching Bimini Basin. See map, page 3.

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

Monitor Site	Salinity (psu)	Diss O_2 (mg/L)	FDOM (qsde)	Chlorophyll (µg/L)
McIntyre Creek	**21.4 – 26.1**	**1.0 – 16.3**	**20.9 – 34.4**	**2.9 – 5.9**
Tarpon Bay	**19.3 – 27.4**	**4.2 – 8.6**	**23.6 – 37.6**	**2.0 – 7.1**

Red Tide: On 7/6/18 the Florida Fish and Wildlife Conservation Commission reports 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 northern Lee County beaches.**

Wildlife Impacts: The past week, CROW the wildlife hospital on Sanibel r**eported 3 new patients with** red tide symptoms; **2 Brown Pelicans and 1 Kemps Ridley. SCCF recovered one dead female loggerhead on Captiva. Numerous manatees have been reported severely impacted.**

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	**9.0**	**338**	**3.2**	**0.53**
Shell Point	**5.3**	**110**	**2.5**	**1.17**
Causeway	**4.5**	**98**	**1.5**	**1.19**

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*

Cyanobacteria Sighting in the City of Cape Coral Canal