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: **April 2 - 8, 2019**

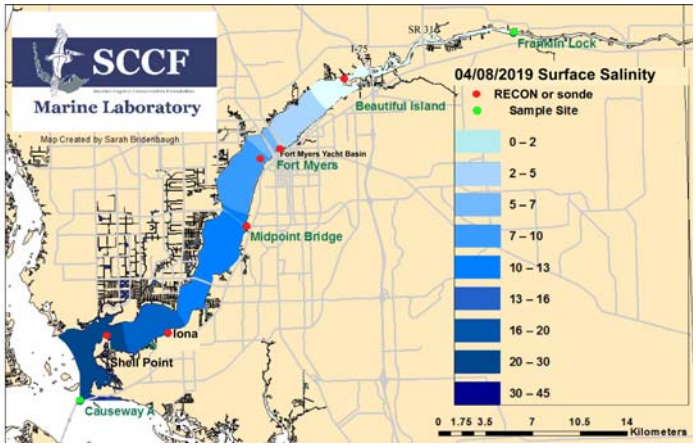
This report provides a scientific assessment of Caloosahatchee River and Estuary conditions and how these conditions affect the health, productivity and function of the system.

Caloosahatchee Condition Summary: Cyanobacteria is present in Lake Okeechobee and persists at Lee County sample sites along the Caloosahatchee and estuary. Caloosahatchee flows during the past week averaged 1,043 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: Nutrient loading to estuary and coastal waters may be 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 may be 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.

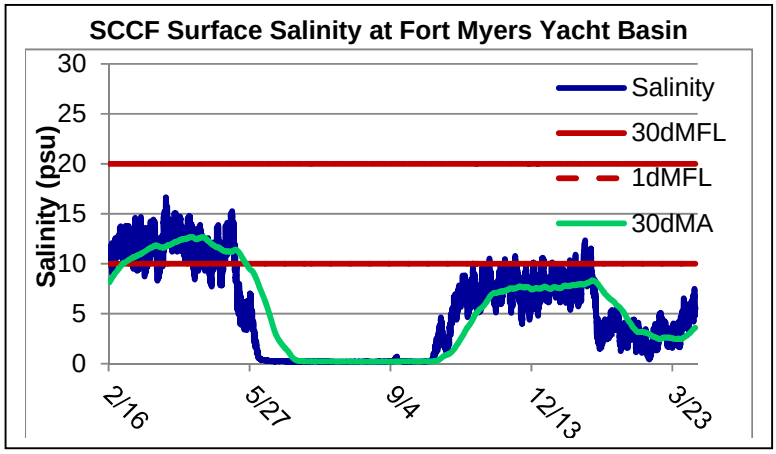
Lake Okeechobee Level:	**11.78 ft. (Beneficial Use Sub-Band)**	**Last week: 11.86 ft.**
Lake Okeechobee Inflow:	**859 cfs**	**Lake Okeechobee Outflow: 2,148 cfs**
Weekly Rainfall:	WP Franklin **0"** Ortona **0.68"**	Moore Haven **2.30"**
Salinity Beautiful Island:	**0.3 – 1.4 psu** (SCCF RECON Marker 18)	**Previous week 0.2 - 0.7 psu**
Salinity Fort Myers:	**4.8 – 11 psu** (SCCF RECON)	**Previous week 2.7 - 11 psu**
Salinity Shell Point:	**17 – 32 psu** (SCCF RECON)	**Previous week 12 - 31 psu**



Salinity (psu)			
	Current Value	**Sustainable Range**	**High/ Low**
Beautiful Is	**0.3 – 1.4**	**< 5 psu**	**In Range**
Fort Myers	**4.8 – 11**	**<10 psu**	**In Range**
Shell Point	**17 – 32**	**25 - 32 psu**	**In Range**
Light (25% Iz depth meters)			
Fort Myers	**0.70**	**1 meter**	**Low**
Shell Point	**1.39**	**2.2 meters**	**Low**
Causeway	**2.01**	**2.2 meters**	**Low**

Lake Flows: Over the past 7 days **81,226 AF** of water was discharged from Lake Okeechobee**; 35%** to the Caloosahatchee **at S-77, 2% to St Lucie** at **S-80, 59%** was discharged south to the **EAA, a net -896 backflowed into the lake** at **L8** and **4% to S-310.**

ACOE Daily Reports			
Date	**S79 Flow (cfs)**	**S78 Flow (cfs)**	**S77 Flow (cfs)**
4/2/2019	**1116**	**1883**	**1311**
4/3/2019	**919**	**449**	**933**
4/4/2019	**687**	**451**	**872**
4/5/2019	**493**	**446**	**846**
4/6/2019	**1028**	**730**	**840**
4/7/2019	**1548**	**1026**	**1019**
4/8/2019	**1512**	**1023**	**1060**
7 day Avg	**1043**	**858**	**983**



Cyanobacteria bloom: On 4/9/19 the Lee County Environmental Lab reported sparse Dolichospermum and Microcystis at the Alva Boat Ramp, Franklin Locks Upstream and Davis Boat Ramp. No Cyanobacteria were reported at Franklin Locks Downstream, Northshore Park or Midpoint Bridge Park. SCCF found elevated chlorophyll and phycoerythrin on 4/7/19 upstream of Franklin Lock but no toxic cyanobacteria species were visible.

Upstream of S-79/Franklin Conditions: On 4/9/19 the Olga Water Treatment plant reported chlorides of **60 mg/l,** apparent color **71 CU** and turbidity **1.38 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 **5.2 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 **27 psu**, in the suitable range for oysters and seagrass.

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

Monitor Site	Salinity	Diss O2 (mg/L)	FDOM (qsde)	Chlorophyll (µg/L
McIntyre Creek	**30.8 – 34.0**	**3.6 – 8.9**	**7.3 – 15.7**	**1.7 – 34.2**
Tarpon Bay	**29.1 – 33.9**	**5.5 – 9.1**	**4.8 – 21.0**	**1.8 – 73.6**
Wildlife Drive	**24.4 – 33.4**	**0.9 – 14.2**	**-----**	**0.6 – 2.6**
Wulfert Flats	**7.7 – 9.6**	**4.4 – 10.2**	**-----**	**4.4 – 50.4**

Beach conditions: **Drift algae continues to wash up in moderate densities on the beaches of Sanibel and Fort Myers Beach.** It is hypothesized that high freshwater flows in 2018, widespread red tide blooms, and anoxia may have impacted grazer densities resulting in increased macroalgae growth.

Red Tide: On 4/5/19 the Florida Fish and Wildlife Conservation Commission reported background concentrations of Florida red tide, *Karenia brevis*, offshore Hillsborough and Sarasota Counties in southwest FL and Bay County in northwest FL.

Wildlife Impacts: Over the past week, CROW had one blue heron (dead) and one herring gull (still at CROW) come in with red tide symptoms. SCCF had one loggerhead stranding last week on Sanibel from a boat strike.

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	**4.5**	**247**	**1.7**	**0.70**
Shell Point	**3.8**	**82.3**	**2.3**	**1.39**
Causeway	**2.1**	**39.0**	**1.2**	**2.01**

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