MEMORANDUM

To: USACE Colonel Andrew D. Kelly, LTC Todd F. Polk, Richard McMillen, Kim Taplin, SFWMD Governing Board, Executive Director Drew Bartlett, Jennifer Reynolds, Lawrence Glenn, DEP Secretary Noah Valenstein

From: Periodic Scientists Conference Call Participants
Kevin Godsea & Jeremy Conrad - J.N. "Ding" Darling National Wildlife Refuge (NWR) Complex
James Evans & Holly Milbrandt - City of Sanibel
Lesli Haynes & Lisa Kreiger - Lee County
Harry Phillips & Maya Robert - City of Cape Coral
Leah Reidenbach & Rick Bartleson, PhD - Sanibel Captiva Conservation Foundation

Subject: Caloosahatchee & Estuary Condition Report

Reporting Period: **June 23 – 30, 2020**

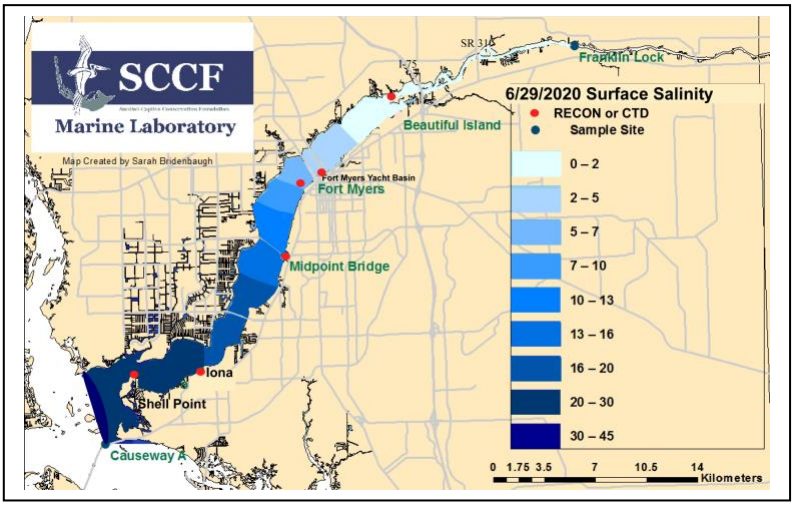
This report provides a scientific assessment of Caloosahatchee River and Estuary conditions and how these conditions affect the health, productivity, and function of the system.

Caloosahatchee Condition Summary: Flows to the Caloosahatchee estuary had a 7-day average of **824 cfs at S-79, mostly due to west basin runoff, with a 7-day average of 282 cfs coming from the lake at S-77. Matlacha Pass experienced a low DO event presumably from decomposing macroalgae resulting in a bloom of sulfur oxidizing bacteria. Substantial *Trichodesmium* blooms have been reported offshore.**

USACE Action: On 5/8/20 the Corps continued pulse releases to the Caloosahatchee from Lake Okeechobee at a 7-day average of **650 cfs at S-79**. Releases to the St. Lucie estuary at **S-80** remain at **zero cfs.**

Recommendation: **In order to maintain optimum salinities in the estuary and avoid damaging high flows as the wet season progresses, we request the District maintain flows between 750 – 2,100 cfs at S-79 over a 7-day average.** This is consistent with the draft 2020 RECOVER optimum flow envelopes for the Caloosahatchee estuary.

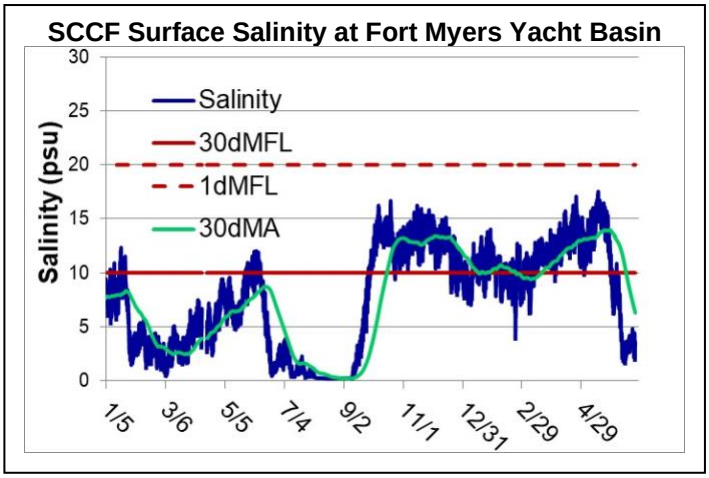
Lake Okeechobee Level:	**12.34 ft (Beneficial Use Sub Band)**	**Last week**: **12.35 ft**
Lake Okeechobee Inflow:	**1,904 cfs**	**Lake Okeechobee Outflow: 1,065 cfs**
Weekly Rainfall Total:	WP Franklin **0.17"** Ortona **1.10"**	Moore Haven **0.03"**
Salinity Beautiful Island:	**ND** (SCCF RECON)	**Previous week ND psu**
Salinity Fort Myers:	**2.2 – 5.9 psu** (SCCF **Surface** FM Yacht Basin)	**Previous week 2.0 – 4.8 psu**
	ND (SCCF RECON)	**Previous week 3.3 – 8.9 psu**
Salinity Shell Point:	**16 – 32 psu** (SCCF RECON)	**Previous week 14 – 32 psu**



Salinity (psu)			
	Current Value	**Sustainable Range**	**High/ Low**
Beautiful Is	**ND**	**< 5 psu**	**ND**
Fort Myers	**ND**	**<10 psu**	**ND**
Shell Point	**16 – 32**	**25 - 32 psu**	**Low**
Light (25% Iz depth meters)			
Fort Myers	**0.63**	**1 meter**	**Low**
Shell Point	**1.36**	**2.2 meters**	**Low**
Causeway	**2.78**	**2.2 meters**	**In Range**

Lake Flows: In the past 7 days, a net 9,760 AF was discharged from Lake Okeechobee, with 3,965 AF to the Caloosahatchee thru S-77 and 4,888 AF to the EAA. There was a backflow of 2,581* AF to the St. Lucie estuary through S-308. There was a net flow of **207 AF at the L-8 canal** and a net flow of **700 AF thru S-310**. Water conservation areas received flows of **3,162 AF**, **21,378 AF**, and **11,772 AF** at **WCA1, WCA2, and WCA3**, respectively. **Everglades National Park** received **13,412 AF**. *missing data from S-308 on 6/24/20 not included in calculation

ACOE Daily Reports			
Date	**S79 Flow (cfs)**	**S78 Flow (cfs)**	**S77 Flow (cfs)**
6/23/2020	**935**	**336**	**251**
6/24/2020	**943**	**213**	**104**
6/25/2020	**717**	**174**	**0**
6/26/2020	**786**	**172**	**215**
6/27/2020	**783**	**284**	**484**
6/28/2020	**877**	**324**	**461**
6/29/2020	**727**	**324**	**460**
7 day avg	**824**	**261**	**282**



Cyanobacteria Status: Sampling by Lee County Environmental Lab on 6/30/20 reported the presence of the **cyanobacteria species *Microcystis* at the Alva Bridge and upstream of the WP Franklin Locks. *Microcystis* was moderately abundant at the Davis Boat Ramp. SCCF noted surface accumulations of *Microcystis* at Beautiful Island.**

Upstream of S-79/Franklin Conditions: The Lee County Olga Water Treatment plant will be offline until further notice.

Upper Estuary Conditions: The 30-day average surface salinity at the Fort Myers Yacht Basin was **4.7 psu**, within the **suitable range for tape grass.**

Lower Estuary Conditions: The weekly average salinity at the Shell Point RECON was **25 psu**, **within the optimal range for oysters.** An anoxic event occurred at Matlacha Pass during the week. DO readings below 1 mg/L were recorded along transects south of the bridge on 6/26 by Lee County and 6/27 by SCCF. DO at the surface was at or below 1 mg/L for a half km of one transect mid-day on 6/27.

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

Monitor Site	Salinity	Dissolved O_2 (mg/L)	FDOM (qsde)	Chlorophyll (µg/L)
McIntyre Creek	**28.7 – 30.5**	**1.3 – 8.3**	----------	**1.1 – 2.5**
Tarpon Bay	**28.4 - 32.2**	**3.7 – 8.6**	**7.8 – 13.5**	**0.9 – 10.9**
Wildlife Drive	**30.2 – 32.1**	**0.5 – 8.4**	----------	**2.2 – 18.2**
Wulfert Flats	**24.3 – 29.8**	**3.6 – 9.6**	----------	**2.4 – 92.2**

Red Tide: On 6/26/20 FWC reported red tide, *Karenia brevis*, was present at background concentrations in one Manatee County sample. A *Trichodesmium* bloom was reported offshore of Southwest Florida in the past few weeks (*Trichodesmium* is one of the many nutrient sources for *Karenia brevis*, but it doesn't initiate red tides, nor does dust from Africa): Click here for the FWC status of red tide

Wildlife Impacts: The past week CROW, the wildlife hospital on Sanibel**, had 1 patient with toxicosis symptoms: a mottled duck (still at CROW). SCCF staff reported one deceased loggerhead sea turtle stranding (probable boat strike).**

Caloosahatchee Stations	Chlorophyll (µg/L)	fDOM (qse)	Turbidity (NTU)	25% Iz depth (meters)
Target Values	**< 11**	**CE <70 SCB <11**	**CE < 18 SCB < 5**	**CE = 1 m SCB = 2.2m**
Fort Myers	**9.0**	**263**	**4.1**	**0.63**
Shell Point	**2.1**	**91.7**	**1.5**	**1.36**
Causeway	**3.5**	**34.5**	**2.1**	**2.78**

Target light penetration:
Caloosahatchee Estuary (CE) = 1 meter
San Carlos Bay (SCB) = 2.2 meters
***25% Iz** is the depth (z) where irradiance (I) is 25% of surface irradiance.*

(A) looking north and (B) south of Matlacha Bridge on 6/27/20. The milky water is due to sulfur bacteria corresponding with low dissolved oxygen. Photos: SCCF (C) floating mats of the macroalga *Cladophora* sp. in Matlacha Pass during the low dissolved oxygen event on 6/25/20. Photo: Sue Davis/Lee County Environmental Laboratory (D) a substantial *Trichodesmium* bloom 16 miles due west of Captiva in 60 feet of water on 6/25/20. Photo: Lee County Division of Natural Resources