

**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  
 Connie Jarvis & Harry Phillips – City of Cape Coral  
 Rae Ann Wessel & Rick Bartleson, Ph.D.-Sanibel Captiva Conservation Foundation

Subject: Caloosahatchee & Estuary Condition Report

Reporting Period: **August 15 - 21, 2017**

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 past week freshwater flows at S-79 averaged 1,658 cfs. **High colored dissolved organic matter (CDOM) continues to attenuate light throughout the estuary. A parcel of turbid water with slightly elevated numbers of phytoplankton, mainly diatoms dominated by *Chaetoceros* sp. was identified in the Gulf off Sanibel.**

**USACE Action:** No discharges were made from Lake Okeechobee to the Caloosahatchee at S-77 or to the St Lucie estuary at S-80.

**Recommendation:** We thank the Corps for **continuing no releases** to the Caloosahatchee from Lake Okeechobee while the Lake is relatively low and the Caloosahatchee is receiving adequate freshwater flow from the watershed. We encourage the use of all available watershed storage capacity within distributed storage projects and other lands owned or under contract by the State to avoid harmful flows to the estuary.

**Lake Okeechobee Level:** 13.39 ft. (Base Flow Sub-Band) Last week: 13.31 ft

**Lake Okeechobee Inflow:** 4,415 cfs **Lake Okeechobee Outflow:** 0

**Weekly Rainfall:** WP Franklin 0.94" Ortona 0.98" Moore Haven 2.75"

**Salinity Beautiful Island:** ND (SCCF RECON Marker 18)

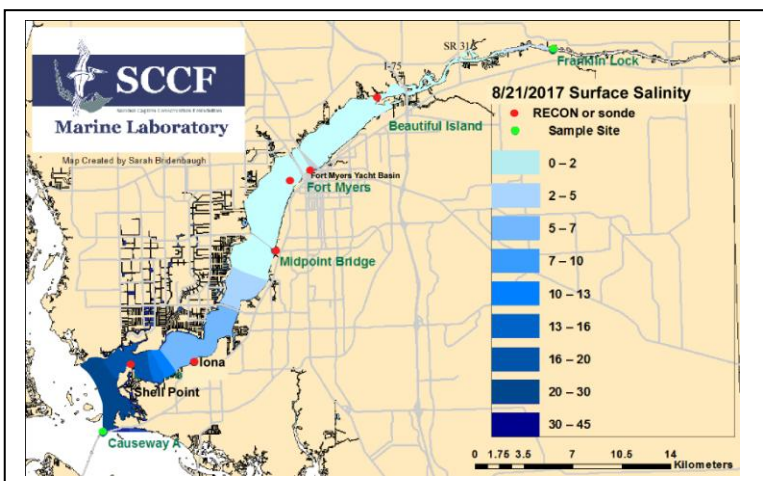
Previous wk ND

**Salinity Fort Myers:** 0.3 - 0.9 psu (SCCF RECON)

Previous wk 0.3 - 0.6 psu

**Salinity Shell Point:** 8 - 28 psu (SCCF RECON)

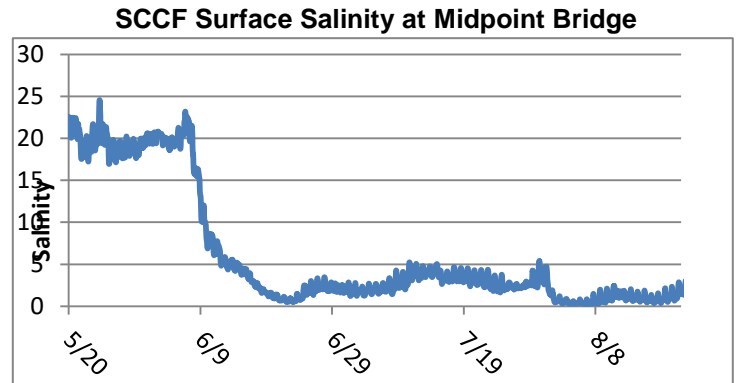
Previous wk 10 - 28 psu



Salinity (psu)			
	Current Value	Sustainable Range	High/Low
Beautiful Is	ND	< 5 psu	-
Fort Myers	0.3 - 0.9	<10 psu	In Range
Shell Point	8 - 28	25 - 32 psu	In Range
Light (25% I <sub>z</sub> depth meters)			
Fort Myers	0.46	1 meter	Low
Shell Point	1.19	2.2 meters	Low
Causeway	1.38	2.2 meters	Low

**Flow & Water Quality:** Flows to the Caloosahatchee Estuary at S-79 during the past seven days averaged 1,658 cfs. Over the past 14 days more than 13,993 acre feet of water back flowed into Lake Okeechobee; approximately 82%\* from S-308, a net backflow of 8.5% from S-310. Only 5,701 AF of water was discharged from the Lake; 63% to the EAA and 12.5% to S-77 and 24% to the L8. (\*Flow records not available).

Date	S79 Flow (cfs)	S78 Flow (cfs)	S77 Flow (cfs)
8/15/2017	2772	935	0
8/16/2017	1732	797	0
8/17/2017	2012	763	0
8/18/2017	1484	221	0
8/19/2017	945	0	0
8/20/2017	1156	218	0
8/21/2017	1507	313	0
<b>7 day Avg</b>	<b>1658</b>	<b>464</b>	<b>0</b>



**Upstream of S-79/Franklin Conditions:** On 8/17/17 Lee County Environmental Lab detected *Microcystis cyanobacteria* upstream of the Franklin Locks. On 8/22/17 the Olga Water Treatment plant chlorides measured 62 mg/L, apparent color was 139 CU and turbidity measured 1.1 NTU. Slight visible algae in the plant intake on Sunday. The plant is online running at 2000 GPM.

**Upper Estuary Conditions:** On 8/17/17 Lee County Environmental Lab detected *Microcystis cyanobacteria* downstream of the Franklin Locks and at the Davis Boat Ramp. Salinity at Fort Myers was in the acceptable range for tape grass.

**Lower Estuary Condition:** The average salinity at Shell Point, 21 psu, was in the optimal range for oysters, but below optimal for seagrasses. Patches of water with elevated levels of diatoms (*Chaetoceros* spp. dominant, 2.3 million chain fragments/L) were present near the beach on Sanibel, and the diatom *Thalassiosira* sp. was present at the Causeway.

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

Monitor Site	Salinity (psu)	Diss O <sub>2</sub> (mg/L)	FDOM (qsde)	Chlorophyll (µg/L)
McIntyre Creek	24.0 – 26.6	2.6 – 7.7	20.9 – 26.4	3.2– 7.6
Tarpon Bay	23.1 – 29.1	4.3 – 8.0	17.8 – 32.8	2.5 – 8.1

**Beach Conditions:** *Trichodesmium* was reported on Sanibel's West Gulf Drive beach on 8/17/17. A dark freshwater plume from the Caloosahatchee discharge is reaching Sanibel Lighthouse Beach on outgoing tides. Green algae continues to accumulate on Fort Myers Beach.

**Red Tide:** On 8/18/17 the Florida Fish and Wildlife Conservation Commission reported the Florida red tide organism, *Karenia brevis*, was **not detected** throughout Florida the past week.

Caloosahatchee Stations	Chlorophyll (µg/L)	fDOM (qse)	Turbidity (NTU)	25% I <sub>0</sub> depth (meters)
<b>Target Values</b>	< 11	CE <70 SCB <11	CE < 18 SCB < 5	CE = 1 m SCB = 2.2m
<b>Fort Myers</b>	11	414	1.7	0.46
<b>Shell Point</b>	7.2	100	3.1	1.19
<b>Causeway</b>	3.5	82.4	2.6	1.38

Target light penetration: CE- Caloosahatchee Estuary =1 m  
 SCB-San Carlos Bay = 2.2 meters  
 Definition of 25% I<sub>z</sub>: z where I is 25% of surface I.  
 I = irradiance, z= depth





A parcel of turbid water with slightly elevated numbers of phytoplankton, mainly diatoms dominated by *Chaetoceros* sp. photographed on 8/20/17 in the Gulf off Sanibel. Photo J. Cassani



Diatoms (*Chaetoceros* sp. and others) in Sanibel beach sample 8/21/17, 400x. Photo SCCF



Dark water plume from the Caloosahatchee reaching Sanibel Lighthouse Beach on outgoing tide, 8/20/17. Photo J. Cassani