

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: **July 25 - 31, 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: Rainfall associated with Tropical Storm Emily resulted in undesirable flows of 3,531 cfs at S79 on 7/31/17. During the past week freshwater flows at S-79 averaged 1,480 cfs. **High colored dissolved organic matter (CDOM) continues to attenuate light throughout the estuary.**

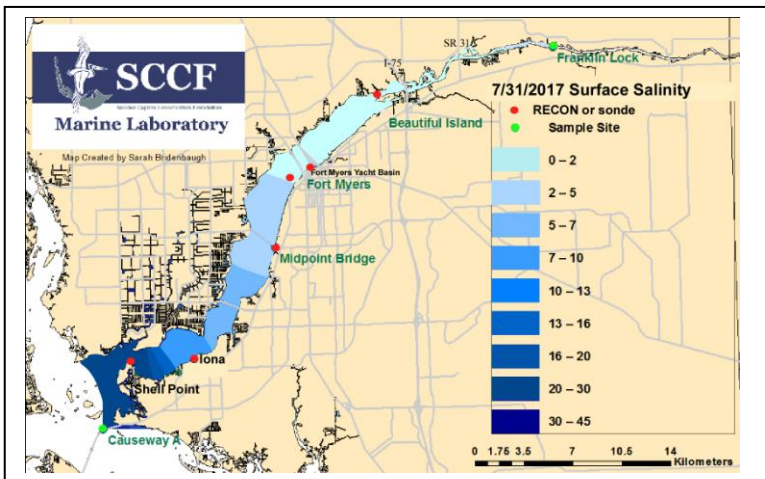
USACE Action: The USACE delivered minimal flows of **50 cfs** to the Caloosahatchee the past week. No discharge from Lake Okeechobee to the St Lucie estuary at S-80.

DEP Emergency Order: On 6/23/17 DEP issued an emergency order to allow temporary operational changes to minimize flooding south of Lake Okeechobee. The SFWMD stopped back pumping to Lake O from the EAA on 7/5/17.

Recommendation: We recommend 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: 12.81 ft. (Base Flow Sub-Band) **Last week:** 12.71 ft
Lake Okeechobee Inflow: 3,089 cfs **Lake Okeechobee Outflow:** 0 cfs
Weekly Rainfall: WP Franklin 1.72" Ortona 2.38" Moore Haven 1.80"

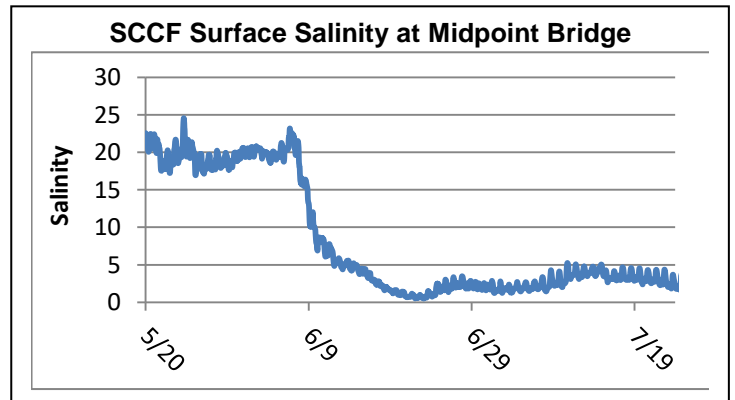
Salinity Beautiful Island: ND (SCCF RECON Marker 18) Previous wk ND
Salinity Fort Myers: 0.3 - 2.0 psu (SCCF RECON) Previous wk 0.3 - 5.1 psu
Salinity Shell Point: 10 - 30 psu (SCCF RECON) Previous wk 12 - 30 psu



Salinity (psu)			
	Current Value	Sustainable Range	High/Low
Beautiful Is	ND	< 5 psu	-
Fort Myers	0.3 - 2.0	<10 psu	In Range
Shell Point	10 - 30	25 - 32 psu	In Range
Light (25% I _z depth meters)			
Fort Myers	0.53	1 meter	Low
Shell Pointe	1.29	2.2 meters	Low
Causeway	1.60	2.2 meters	Low

Flow & Water Quality: Flows to the Caloosahatchee Estuary at S-79 during the past seven days averaged 1,480 cfs. Over the past 14 days more than 12,688 acre feet of water backflowed into Lake Okeechobee; 53%* from S-308 some records NA, a net outflow of 30% from L8 and a net outflow of 18% from S-310. Only 1,048 AF of water was discharged from the Lake; 28% to the EAA and 72% to S-77. (* Flow records not available).

Date	S79 Flow (cfs)	S78 Flow (cfs)	S77 Flow (cfs)
7/25/2017	1992	499	0
7/26/2017	1500	317	0
7/27/2017	1137	307	0
7/28/2017	798	193	202
7/29/2017	639	146	126
7/30/2017	765	264	19
7/31/2017	3531	974	0
7 day Avg	1480	386	50



Upstream of S-79/Franklin Conditions: On 7/27/17 Lee County Environmental Lab detected the presence of *Microcystis cyanobacteria* upstream of the Franklin Locks. On 8/1/17 the Olga Water Treatment plant chlorides measured 55 mg/L, apparent color was 141 CU and turbidity measured 1.14 NTU. No visible algae in the plant intake the past week. The plant is online running at 2000 GPM.

Upper Estuary Conditions: On 7/27/17 Lee County Environmental Lab detected the presence of *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. Dissolved oxygen at the Fort Myers RECON sensor dropped into the hypoxic range daily during the week.

Lower Estuary Condition: The average salinity at Shell Point, 21 psu, was in the optimal range for oysters.

J.N. "Ding" Darling NWR: Dissolved oxygen fell below 3mg/L three days during the past week in McIntyre Creek.

Monitor Site	Salinity (psu)	Diss O ₂ (mg/L)	FDOM (qsde)	Chlorophyll (µg/L)
McIntyre Creek	26.1 – 28.1	2.6 – 9.1	15.9 – 20.3	3.7 – 8.5
Tarpon Bay	26.9 – 30.3	3.4 – 7.7	15.7 – 26.0	2.5 – 7.2

Beach Conditions: Red drift and green *Ulva* sp were present and accumulating along Fort Myers Beach from mid island to the southern end the past week.

Red Tide: On 7/28/17 the Florida Fish and Wildlife Conservation Commission reported the Florida red tide organism, *Karenia brevis*, in background concentrations in Gulf and Pinellas Counties the past week.

Wildlife Impacts: On 7/22/17 SCCF found one severely decomposed loggerhead sea turtle on Captiva Island with no flippers or obvious cause of death.

Shellfish Advisory: Wild oyster harvest season is closed until October.

Caloosahatchee Stations	Chlorophyll (µg/L)	fDOM (qse)	Turbidity (NTU)	25% lo depth (meters)
Target Values	< 11	CE <70 SCB <11	CE < 18 SCB < 5	CE = 1 m SCB = 2.2m
Fort Myers	14	335	2.7	0.53
Shell Point	6.2	92.6	2.0	1.29
Causeway	4.2	43.5	5.5	1.60

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





Red drift algae accumulating at the Lighthouse at the end of Sanibel on 8/1/17. Photo City of Sanibel



Lake Okeechobee cyanobacteria bloom accumulating at the Pahokee Marina on 7/28/17. Bloom first reported in Lake Okeechobee on 7/12/17. Photo Paul Gray