

MEMORANDUM

To: USACE Colonel Jason A. Kirk, LTC Jennifer A. Reynolds, Richard McMillen, Kim Taplin, SFWMD Governing Board, Executive Director Peter Antonacci, Terrie Bates, Susan Gray, Peter Doering, DEP Secretary Jon Steverson

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 Blake – 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: **January 31 - February 6, 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: Discharges into the estuary at S-79 during the past week averaged **725 cfs**. **An MFL exceedance continues for 37 days. Salinities are in the harmful range for tape grass at Fort Myers.** Algae blooms are present at Fort Myers and Beautiful Island upstream and red tide persists downstream.

USACE Action: The USACE continued flows to the Caloosahatchee with a 7-day average target of **650 cfs** measured at S-79 with no discharge from Lake Okeechobee to the St Lucie estuary at S-80.

Recommendation: **Insufficient freshwater flows to the Caloosahatchee estuary through S-79 has caused high salinities in the estuary resulting in an MFL exceedance for the past five weeks.** We request increasing freshwater pulses to provide adequate flows to prevent estuary harm. We request a Periodic Scientist call at least every two weeks while we are exceeding the MFL.

Lake Okeechobee Level: 13.78 ft. (Low Sub-Band) Last week: 13.87 ft

Lake Okeechobee Inflow: 561 cfs Lake Okeechobee Outflow: 1,929 cfs

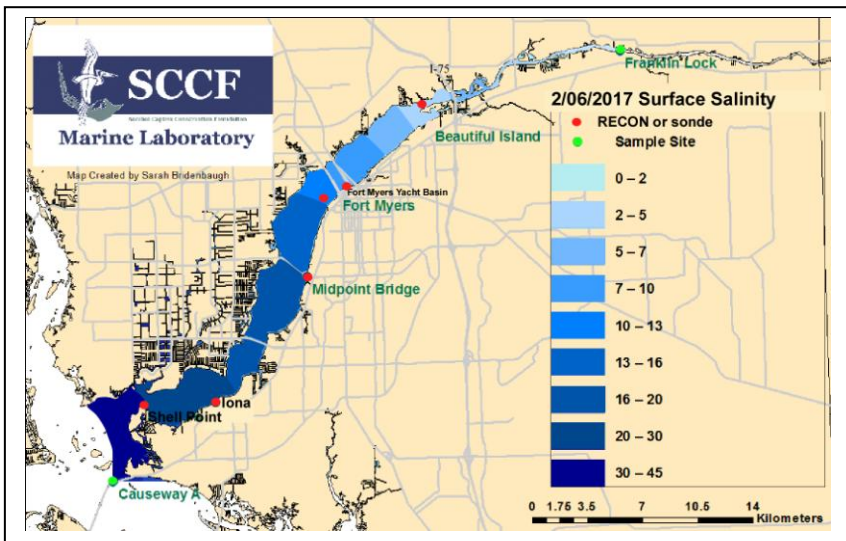
Weekly Rainfall: WP Franklin 0" Ortona 0" Moore Haven 0"

Salinity Beautiful Island: 3.1 – 4.7 psu (SCCF RECON Marker 18) Previous wk 3.5 – 12 psu

Salinity Fort Myers: 8.6 – 12 psu (SCCF Yacht Basin) Previous wk 9.8 – 14 psu

MFL Status: **MFL Exceeded 30-day moving average >10 psu at surface for 37 days**

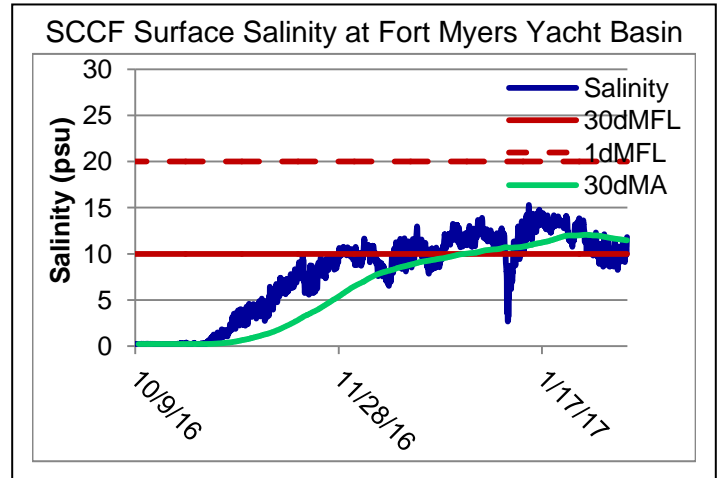
Salinity Shell Point: 22 – 32 psu (SCCF RECON) Previous wk 24 – 34 psu



Salinity (psu)			
	Current Value	Sustainable Range	High/Low
Beautiful Is	3.1 - 4.7	< 5 psu	In Range
Fort Myers	8.6 – 12	<10 psu	MFL Ex
Shell Point	22 - 32	25 - 32 psu	In Range
Light (25% I _z depth meters)			
Beautiful Is	0.72	1 meter	Low
Fort Myers	0.83	1 meter	Low
Tarpon Bay	1.94	2.2 meters	Low

Flow & Water Quality: Flows to the Caloosahatchee Estuary at S-79 during the past seven days averaged **725 cfs**. Over the past 14 days **56%** of Lake Okeechobee outflow was directed to the Caloosahatchee at S-77, **0%** was delivered to the St Lucie at S-308, **35%** was delivered south to the EAA, **9%** was directed to the L8 and **398 cfs** was backflowed into the Lake at S310.

ACOE Daily Reports				
Date	Day	S79 Flow (cfs)	S78 Flow (cfs)	S77 Flow (cfs)
1/31/2017	Tues	535	523	504
2/1/2017	Wed	400	452	509
2/2/2017	Thur	412	101	303
2/3/2017	Fri	859	713	834
2/4/2017	Sat	1079	996	1520
2/5/2017	Sun	961	665	1146
2/6/2017	Mon	827	522	730
7 day Avg		725	567	792



Upstream of S-79/Franklin Conditions: On 2/7/17 the Olga Water Treatment plant chlorides measured **58 mg/L**, apparent color was **69 CU** and turbidity measured **2.5 NTU**. No visible algae was noted at the plant intake the past week. The plant is online at 2,000 GPM.

Upper Estuary Conditions: **MFL exceeded at Fort Myers for 37 days. Salinities are in the harmful range for tape grass around the Caloosahatchee Bridge in Fort Myers.** Blooms of phytoplankton including cyanobacteria and dinoflagellates and benthic algae are present at Fort Myers and Beautiful Island.

Lower Estuary Condition: The average salinity at Shell Point (27 psu) was in the optimal range for oysters. Red, green and brown branching drift algae is accumulating along the shoreline in San Carlos Bay.

J.N. "Ding" Darling NWR:

Monitor Site	Salinity (psu)	Diss O ₂ (mg/L)	FDOM (qsde)	Chlorophyll (µg/L)
McIntyre Creek	31.1 - 33.3	4.7 - 10.8	12.9 - 19.6	2.1 - 5.1
Tarpon Bay	31.4 - 32.8	5.9 - 7.5	12.6 - 16.9	1.9 - 4.5

Beach Conditions: Drift algae was observed accumulating at mid-island on Fort Myers Beach.

Red Tide: On 2/3/17, FWC reported *Karenia brevis*, the Florida red tide organism, persists in Southwest Florida from southern Pinellas to northern Collier counties with background to high concentrations in 27 samples collected from Lee County.

Manatees: Lee county park staff reported up to **131 manatees including many mothers and calves** gathering in the warm water refuge of the Orange River and FPL discharge canal the past week. River temperatures were 71 - 80° F.



Red drift macroalgae washing up mid-island on Fort Myers Beach, 2/4/17. Photo Town of Fort Myers Bch

Caloosahatchee Stations	Chlorophyll (µg/L)	fDOM (qse)	Turbidity (NTU)	25% I ₀ depth (meters)
Target Values	< 11	CE <70 SCB <11	CE < 18 SCB < 5	CE = 1 m SCB = 2.2m
Beautiful Is	49	162	2.0	0.72
Fort Myers	36	139	2.6	0.83
Tarpon Bav	4.5	26.8	3.6	1.94

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