

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

Subject: Caloosahatchee & Estuary Condition Report

Reporting Period: **April 24 - 30, 2018**

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: Average flows of **839 cfs** the past week reduced salinity at Fort Myers for the first time **demonstrating the level of freshwater flow needed to manage salinities below the harm threshold of 10 psu**. Dry conditions and lack of rainfall makes the Caloosahatchee estuary **dependant on freshwater flows from Lake Okeechobee**. **The past 62 consecutive days the 30 day moving average salinity has exceeded the MFL resulting in harmful high salinities for oysters in the lower estuary and tape grass in the upper estuary**. Red tide continues to impact birds, sea turtles and cause fish kills and respiratory irritation along coastal beaches.

USACE Action: Since 1/12/18 the Army Corps has continued flows from Lake Okeechobee through pulse releases with an average target flow for the Caloosahatchee Estuary of **650 cfs** at S-79 and no releases to the St Lucie at S-80.

Recommendation: Continue to provide increased water discharges from the Lake to benefit recovery of both the Lake Okeechobee marsh and assist habitat recovery and reduce harmful salinities throughout the Caloosahatchee estuary. There is sufficient water in the lake to achieve this and meet consumptive uses.

Lake Okeechobee Level: **13.16 ft. (Base Flow Sub-Band)**

Last week: **13.24 ft**

Lake Okeechobee Inflow: **303 cfs**

Lake Okeechobee Outflow: **1817 cfs**

Weekly Rainfall: WP Franklin **0.35"** Ortona **0"**

Moore Haven **0.32"**

Salinity Beautiful Island: **2.6 - 4.8 psu (SCCF RECON Marker 18)**

Previous week **4.8 - 8.5 psu**

Salinity Fort Myers: **11 - 17 psu (SCCF RECON)**

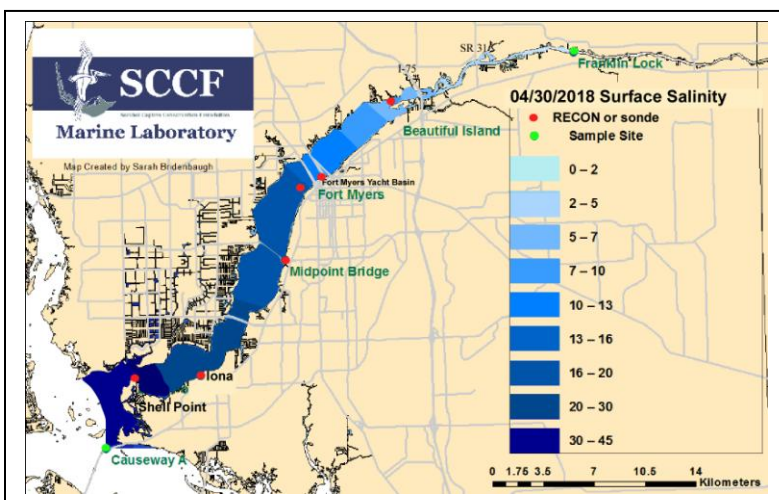
Previous week **11 - 19 psu**

MFL Status: Exceedance = 62 days 30 day moving average: 11.9 psu

Previous week: **12.7 psu**

Salinity Shell Point: **24 - 35 psu (SCCF RECON)**

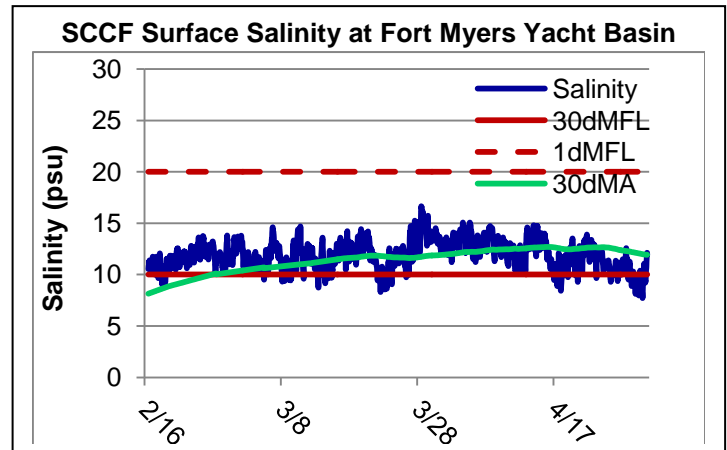
Previous week **25 - 35 psu**



Salinity (psu)			
	Current Value	Sustainable Range	High/Low
Beautiful Is	2.6 - 4.8	< 5 psu	In Range
Fort Myers	11 - 17	<10 psu	High
Shell Point	24 - 35	25 - 32 psu	High
Light (25% I _z depth meters)			
Fort Myers	0.91	1 meter	Low
Shell Point	1.65	2.2 meters	Low
Causeway	2.05	2.2 meters	Low

Flow & Water Quality: Flows to the Caloosahatchee Estuary at S-79 during the past seven days averaged **839 cfs**. Over the past 14 days **61,095 AF** of water was discharged from Lake O, **47% to S-77, 10% to S-308, 40% of water from Lake O was discharged south to the EAA**. A net outflow of **2.3%** was discharged to the **L8** and a net less than **1%** was discharged through S-310.

ACOE Daily Reports			
Date	S79 Flow (cfs)	S78 Flow (cfs)	S77 Flow (cfs)
4/24/2018	788	NR	23
4/25/2018	707	300	0
4/26/2018	148	301	0
4/27/2018	950	820	1504
4/28/2018	1410	1162	1786
4/29/2018	1122	1157	1368
4/30/2018	748	1189	874
7 day Avg	839	822	794



Upstream of S-79/Franklin Conditions: Sampling by Lee County Environmental Lab on 4/30/18 reported accumulation of 4 cyanobacteria species on the upstream side of S-79: *Microcystis*, *Dolichospermum*, *Aphanizomenon* and *Planktothrix*. On 5/1/18 the Olga Water Treatment plant reported chlorides of **59 mg/l**, apparent color **86 CU** and turbidity **3.85 NTU**. No visible algae reported at the plant intake the past week. The plant remains off line for maintenance.

Upper Estuary Conditions: The 30 day moving average salinity at the Fort Myers Yacht Basin was **12.6 psu** and the weekly average salinity was **10.3 psu**. These salinities are above the suitable range for tape grass, which is growing between the Caloosahatchee Bridge and Beautiful Island. Water column chlorophyll was elevated at Fort Myers and Beautiful Island RECON sites.

Lower Estuary Conditions: The average salinity at Shell Point, **31 psu**, was above the optimal range for oysters.

J.N. "Ding" Darling NWR:

Monitor Site	Salinity (psu)	Diss O ₂ (mg/L)	FDOM (qsde)	Chlorophyll (µg/L)
McIntyre Creek	33.7 – 36.2	Probe failed	8.2 – 16.2	1.28 - 3.86
Wulfert Flats	33.7 – 36.7	2.2 – 10.0	-----	4.2 – 39.2
Wildlife Drive	36.5 – 38.7	0.5 – 12.3	-----	1.3 – 14.4

Beach Conditions: The past week eleven species of macroalgae were reported in the wrack line and in the swash zone for a large area of Sanibel beaches, from Lighthouse to Knapps Point.

Red Tide: On 4/27/18 the Florida Fish and Wildlife Conservation Commission reports that the Florida red tide organism, *Karenia brevis* persists in Charlotte, Lee, Collier and Monroe Counties with **background to high concentrations along or offshore Lee County**. Numerous fish kills and respiratory irritation were reported the past week. **SCCF samples collected at the Causeway and Tarpon Bay on 4/27/18 contained high and medium concentrations of *Karenia* respectively. A sample from where a fish kill was occurring in Estero Bay on 4/29/18 contained high concentrations of *Karenia*.**

Wildlife Impacts: The past week, CROW, the wildlife hospital on Sanibel, treated **6 new patients with red tide symptoms; 4 Double Crested Cormorants, 1 Loggerhead sea turtle and 1 Sanderling.**

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	12	136	4.9	0.91
Shell Point	4.1	57.6	1.8	1.65
Causeway	2.3	28.3	2.8	2.05

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



Macroalgae on Sanibel beaches and in the swash zone on 4/26/18 and 4/29/18. Photos City of Sanibel.

