

**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 Stevenson

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: November 8 - 14, 2016

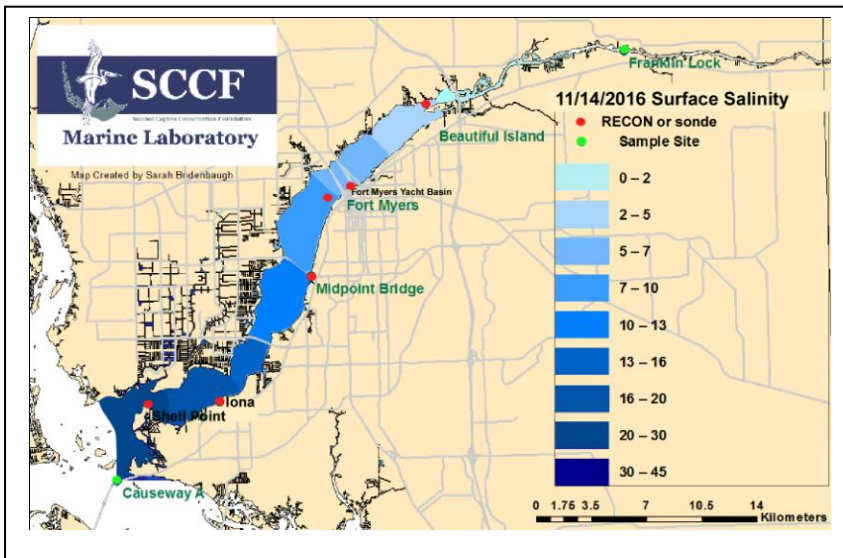
This report provides a scientific assessment of Caloosahatchee River and Estuary conditions and how these conditions affect the health, productivity and function of the system.

**Caloosahatchee Condition Summary:** Discharges into the estuary at S-79 during the past week dropped to one third of the previous week averaging **782 cfs**. Lake Okeechobee discharges to the river, measured at S-77, decreased to an average of **1,014 cfs**.

**USACE Action:** On 11/11/16 the USACE reduced flows to the Caloosahatchee to a 7-day average pulse of **650 cfs** at S-79 and continued no discharge from Lake Okeechobee to the St Lucie.

**Recommendation:** We recommend continuing to provide the Caloosahatchee with weekly average pulse releases of 650 cfs measured at S-79. With below average rainfall forecast, drier conditions and rapidly rising salinities we request water supply decisions manage salinities below the MFL harm threshold.

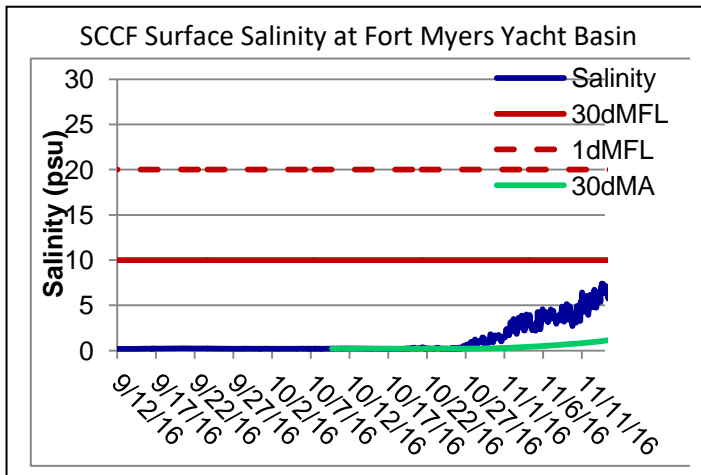
<b>Lake Okeechobee Level:</b>	<b>15.13 ft. (Low Sub-Band)</b>	<b>Last week: 15.26 ft.</b>
<b>Lake Okeechobee Inflow:</b>	<b>756 cfs</b>	<b>Lake Okeechobee Outflow: 2,919 cfs</b>
<b>Weekly Rainfall:</b>	WP Franklin <b>0"</b>	Ortona <b>0.08 "</b> Moore Haven <b>0"</b>
<b>Salinity Beautiful Island:</b>	<b>0.4 – 3.1 psu (SCCF RECON Marker 18)</b>	Previous wk <b>0.2 – 0.7 psu</b>
<b>Salinity Fort Myers:</b>	<b>1.9 – 7.4 psu (SCCF Yacht Basin)</b>	Previous wk <b>0.2 – 4.6 psu</b>
<b>Salinity Shell Point:</b>	<b>15 – 32 psu (SCCF RECON)</b>	Previous wk <b>13 - 32 psu</b>



Salinity (psu)			
	Current Value	Sustainable Range	High/Low
Beautiful Is	0.4 – 3.1	< 5 psu	-
Fort Myers	1.9 – 7.4	<10 psu	-
Shell Point	15 - 32	25 - 32 psu	Low
Light (25% I <sub>z</sub> depth meters)			
			In Range
Iona	1.08	1 meter	
Causeway	1.28	2.2 meters	Low
Sanibel East	1.40	2.2 meters	Low

**Flow & Water Quality:** Flows to the Caloosahatchee Estuary at S-79 during the past seven days averaged **782 cfs**. **Cyanobacteria was detected by Lee County Environmental Lab the past week. Over the past 14 days 40%** of Lake Okeechobee outflow was directed to the Caloosahatchee at S-77, **14%** was delivered to the St Lucie at S-308, **39%** was delivered south to the EAA, **6%** was directed to the L8 and **1%** was delivered thru S-310.

ACOE November 4 Release at S-79					
Date	Day	Pulse Target	S79 Flow (cfs)	S78 Flow (cfs)	S77 Flow (cfs)
11/4/2016	1		2119	1918	2394
11/5/2016	2		2031	1455	1867
11/6/2016	3		1740	1348	1634
11/7/2016	4		1490	1334	1652
11/8/2016	5		1576	2686	1423
11/9/2016	6		991	534	981
11/10/2016	7		574	351	965
<b>7 day avg</b>		<b>1425</b>	<b>1503</b>	<b>1375</b>	<b>1559</b>



**Upstream of S-79/Franklin Conditions:** On 11/10/16, Lee County Environmental Lab observed a very sparse bloom of *Dolichospermum* and *Microcystis* upstream of the Franklin Lock. On 11/15/16 the Olga Water Treatment plant chlorides measured **51 mg/L**, apparent color was **119 CU** and turbidity measured **2.46 NTU**. No visible algae was noted at the plant intake for the last week. The plant is online at 2000 GPM.

**Upper Estuary Conditions:** On 11/10/16, Lee County Environmental Lab observed a very sparse bloom of *Microcystis* at the Davis Boat Ramp. Salinities are in the suitable range for tape grass and rising.

**Lower Estuary Condition:** The salinity at Peppertree Pointe Marina in Iona on 11/14/16 (17 psu) and the average salinity at Shell Point (26 psu) was in the optimal range for oysters. The freshwater plume line has receded to the north side of the Sanibel Causeway and water clarity on the south side of the causeway and along Sanibel's eastern beaches has improved significantly during the past week.

**J.N. "Ding" Darling NWR:** Salinities were below the preferred range for shoal and turtle grass (30 to 40 psu) in McIntyre Creek for 134 of the past 140 days and in Tarpon Bay, 115 of the past 145 days. Tarpon Bay Salinity: **25.6 – 33.0 psu**; FDOM: 10.8 – 26.8 qsde; Dissolved oxygen: 5.7 – 8.4 mg/L; Chlorophyll: 2.6– 5.5 µg/L. McIntyre Creek: Salinity: **25.9 – 29.1 psu**; FDOM: 12.7 – 26.7 qsde; Dissolved oxygen: 3.2 – 10.9 mg/L; Chlorophyll: 2.3 – 4.5 µg/L.

**Oysters:** November sampling in the Caloosahatchee by FGCU reported disease prevalence of *Perkinsus marinus* of all oysters sampled ranged from **33.30% to 40.00%**. Disease intensity of *P. marinus* ranged from **0.33 to 0.60**. Scale 0 = no infection, 1 = low, 3 = medium, 5 = high.. Larval recruitment ranged from **0.06 to 27.92 spat per shell**.

**Red Tide:** On 11/10/16, FWC reported *Karenia brevis*, red tide, persists in Southwest Florida from Pinellas to Collier County. SCCF samples 11/14/16 found near shore *Karenia sp.* concentrations of **56,000/L** in Tarpon Bay, **324,000/L** at Sanibel Boat Ramp and **167,000/L** at Tarpon Beach. Dead mullet were seen in Commodore Creek in Tarpon Bay.

**Wildlife status:** The past week CROW, the wildlife rehabilitation clinic on Sanibel received **22 animals suffering from red tide poisoning; 21 Double Crested Cormorants and 1 Brown Pelican.**

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
Iona	5.3	133	0.5	1.08
Causeway	5.1	97	0.9	1.28
Sanibel E	3.2	74.3	1.4	1.40

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

ACOE Daily Reports				
Date	Day	S79 Flow (cfs)	S78 Flow (cfs)	S77 Flow (cfs)
11/8/2016	Tues	1576	2686	1423
11/9/2016	Wed	991	534	981
11/10/2016	Thur	574	351	965
11/11/2016	Fri	523	422	950
11/12/2016	Sat	578	529	935
11/13/2016	Sun	594	641	921
11/14/2016	Mon	638	689	924
<b>7 day</b>	<b>Avg</b>	<b>782</b>	<b>836</b>	<b>1014</b>