

**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 1 - 7, 2016

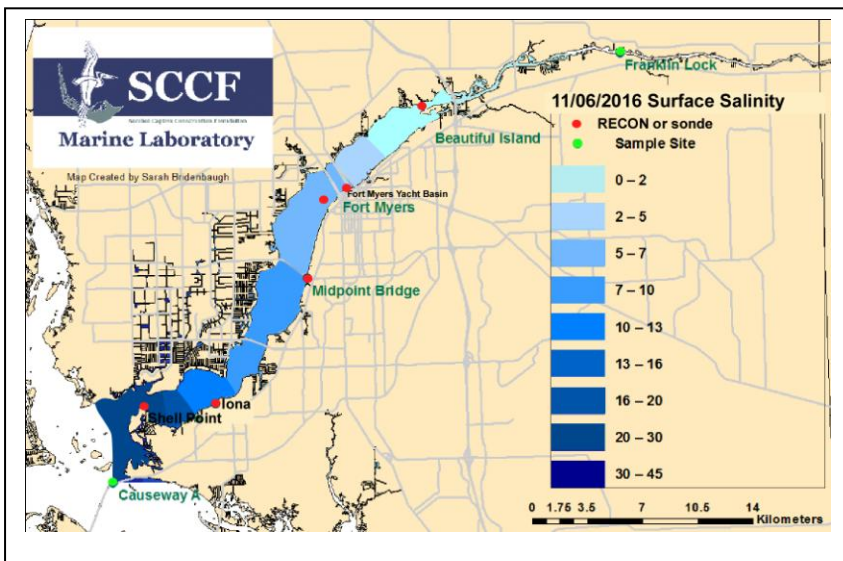
This report provides a scientific assessment of Caloosahatchee River and Estuary conditions and how these conditions affect the health, productivity and function of the system.

**Caloosahatchee Condition Summary:** Discharges into the estuary at S-79 during the past week averaged **2,163 cfs**, dropping below the harm threshold of 2,800 cfs established for the estuary the first time in 9.5 months. Lake Okeechobee discharges to the river, measured at S-77, decreased to an average of **2,081 cfs**. Watershed inflows to the Franklin pool between S-78 and S-79 during the past week averaged **406 cfs**.

**USACE Action:** On 11/4/16 the USACE announced a reduction in the pulse release schedule to a 7-day average of **1,425 cfs** from Lake Okeechobee at S-79 and no discharge to the St Lucie at S-80.

**Recommendation:** We recommend continuing the gradual reduction in flows to the Caloosahatchee to acclimate the estuary to more normal dry season conditions to a target no less than 650 cfs at S-79.

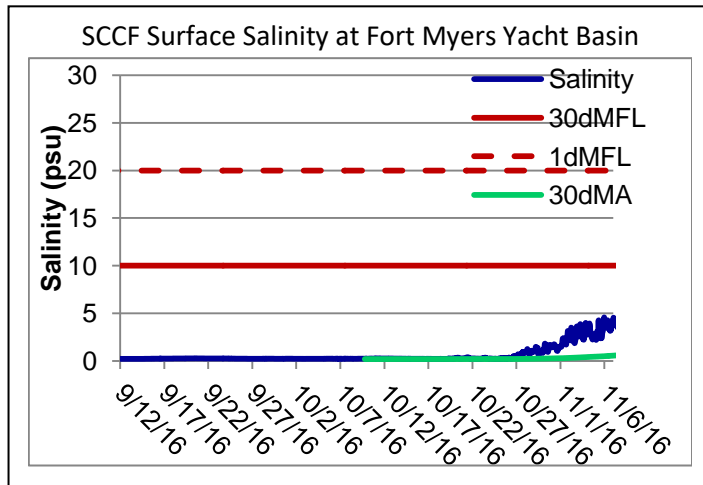
<b>Lake Okeechobee Level:</b>	<b>15.26 ft. (Low Sub-Band)</b>	<b>Last week: 15.46 ft.</b>
<b>Lake Okeechobee Inflow:</b>	<b>1,054 cfs</b>	<b>Lake Okeechobee Outflow: 3,284 cfs</b>
<b>Weekly Rainfall:</b>	WP Franklin <b>0"</b>	Ortona <b>0"</b> Moore Haven <b>0.01"</b>
<b>Salinity Beautiful Island:</b>	<b>0.2 – 0.7 psu (SCCF RECON Marker 18)</b>	Previous wk <b>0.2 – 0.2 psu</b>
<b>Salinity Fort Myers:</b>	<b>0.2 – 4.6 psu (SCCF Yacht Basin)</b>	Previous wk <b>0.2 – 1.2 psu</b>
<b>Salinity Shell Point:</b>	<b>13 - 32 psu (SCCF RECON)</b>	Previous wk <b>9.3 - 32 psu</b>



<b>Salinity (psu)</b>			
	<b>Current Value</b>	<b>Sustainable Range</b>	<b>High/Low</b>
<b>Beautiful Is</b>	<b>0.2 – 0.7</b>	<b>&lt; 5 psu</b>	<b>-</b>
<b>Fort Myers</b>	<b>0.2 – 4.6</b>	<b>&lt;10 psu</b>	<b>-</b>
<b>Shell Point</b>	<b>13 - 32</b>	<b>25 - 32 psu</b>	<b>Low</b>
<b>Light (25% I<sub>z</sub> depth meters)</b>			
<b>Iona</b>	<b>0.91</b>	<b>1 meter</b>	<b>Low</b>
<b>Causeway</b>	<b>1.05</b>	<b>2.2 meters</b>	<b>Low</b>
<b>Sanibel East</b>	<b>1.42</b>	<b>2.2 meters</b>	<b>Low</b>

**Flow & Water Quality:** Flows to the Caloosahatchee Estuary at S-79 during the past seven days averaged **2,163 cfs**. **Cyanobacteria was detected by Lee County Environmental Lab the past week. Over the past 14 days 44%** of Lake Okeechobee outflow was directed to the Caloosahatchee at S-77, **23%** was delivered to the St Lucie at S-308, **28%** was delivered south to the EAA, **4%** was directed to the L8 and **1%** was delivered thru S-310.

ACOE October 28 Release at S-79					
Date	Day	Pulse Target	S79 Flow (cfs)	S78 Flow (cfs)	S77 Flow (cfs)
10/28/2016	1	2400	2708	2291	2568
10/29/2016	2	2800	2935	2229	2633
10/30/2016	3	3400	3133	2252	2671
10/31/2016	4	3200	3015	2278	2583
11/1/2016	5	2800	2835	2291	2535
11/2/2016	6	2600	2574	2036	2243
11/3/2016	7	2400	2352	1919	2243
<b>7 day avg</b>		<b>2800</b>	<b>2793</b>	<b>2185</b>	<b>2497</b>



**Upstream of S-79/Franklin Conditions:** On 11/3/16, Lee County Environmental Lab observed a very sparse bloom of *Dolichospermum* and *Microcystis* upstream of the Franklin Lock. On 11/8/16 the Olga Water Treatment plant chlorides measured **49 mg/L**, apparent color was **131 CU** and turbidity measured **2.69 NTU**. No visible algae was noted at the plant intake for the last week. The plant is online at 2000 GPM.

**Upper Estuary Conditions:** Salinities are in the suitable range for tape grass and rising.

**Lower Estuary Condition:** The salinity at Peppertree Pointe Marina in Iona on 11/5/16 (10 psu) was below optimal for oysters and seagrass. The average salinity at Shell Point (22 psu) was in the optimal range for oysters.

**McIntyre Creek & Tarpon Bay in J.N. "Ding" Darling NWR:** Salinities were below the preferred range for shoal and turtle grass (30 to 40 psu) in McIntyre Creek for 127 of the past 133 days and in Tarpon Bay, 112 of the past 138 days.

**Tarpon Bay** Salinity: **25.0 – 31.1 psu**; FDOM: **19.5 – 32.5 qsde**; Dissolved oxygen: **5.7 – 8.0 mg/L**; Chlorophyll: **3.0– 8.2 µg/L**. **McIntyre Creek:** Salinity: **25.9 – 27.8 psu**; FDOM: **12.0 – 22.0 qsde**; Dissolved oxygen: **3.2 – 10.0 mg/L**; Chlorophyll: **2.5 – 5.5 µg/L**.

**Coastal Conditions:** The dark plume of freshwater extends to the Sanibel causeway, through Pine Island Sound to Redfish Pass. Accumulations of macroalgae have been washing up on Sanibel beaches.



Accumulations of brown/green macroalgae along West Gulf Drive beaches and in the near shore waters west of Tarpon Bay Rd on 11/7/16. Photo City of Sanibel

**Red Tide:** On 11/4/16, FWC reported *Karenia brevis*, the Florida red tide organism, persists in Southwest Florida from Pinellas to northern Collier County. **The *Karenia* sp. concentration at Sanibel Boat Ramp was 598,000 cells/L on 11/5/16 (SCCF).**

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>Iona</b>	7.4	169	0.5	0.91
<b>Causeway</b>	5.6	124	1.8	1.05
<b>Sanibel E</b>	5.5	79.7	0.7	1.42

ACOE Daily Reports				
Date	Day	S79 Flow (cfs)	S78 Flow (cfs)	S77 Flow (cfs)
11/1/2016	Tues	2835	2291	2535
11/2/2016	Wed	2574	2036	2243
11/3/2016	Thur	2352	1919	2243
11/4/2016	Fri	2119	1918	2394
11/5/2016	Sat	2031	1455	1867
11/6/2016	Sun	1740	1348	1634
11/7/2016	Mon	1490	1334	1652
<b>7 day</b>	<b>Avg</b>	<b>2163</b>	<b>1757</b>	<b>2081</b>

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