

**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: September 27 - October 3, 2016

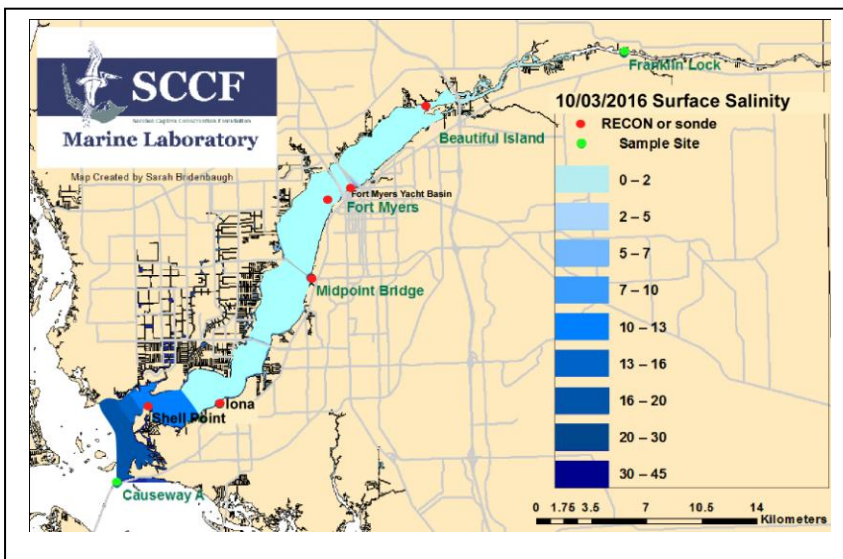
This report provides a scientific assessment of Caloosahatchee River and Estuary conditions and how these conditions affect the health, productivity and function of the system.

**Caloosahatchee Condition Summary:** Discharges into the estuary at S-79 increased **one and a half times** over the past week to an average of **8,100 cfs**, and has been **exceeding the harm threshold of 2,800 cfs established for the estuary since the end of January**. Lake Okeechobee discharges to the river, measured at S-77, averaged **3,648 cfs**. Watershed inflows to the Franklin pool between S-78 and S-79 during the past week increased to an average of **2,213 cfs**.

**USACE Action:** On September 30, 2016 the USACE **continued releases from Lake Okeechobee to a constant release of 4,000 cfs to the Caloosahatchee measured at S-77** and pulse release of **1,800 cfs** to the St. Lucie measured at S-80.

**Recommendation:** The Caloosahatchee estuary is experiencing low salinities and algal blooms from harmful high discharges for the past **8 consecutive months**. The dispersed water management projects capacity have been taken up by rainfall and very little water has been directed south. We recognize the concern with the current high lake O level and potential impacts from Hurricane Matthew, and request emergency action to increase flows to the south to help share some of the adversity that the estuaries have been experiencing for more than 8 months. We request that flows to the Caloosahatchee Estuary at **S-79** be maintained at or below the **2,800 cfs** high flow harm threshold.

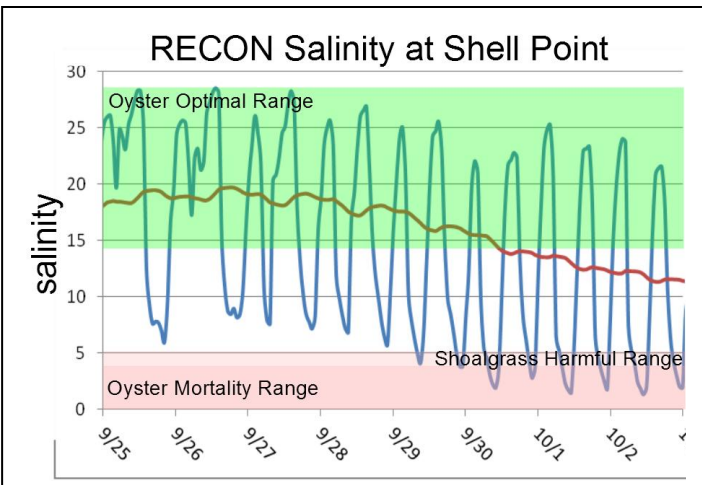
<b>Lake Okeechobee Level:</b>	<b>15.78 ft. (Low Sub-Band)</b>	<b>Last week: 15.69 ft.</b>
<b>Lake Okeechobee Inflow:</b>	<b>8,522 cfs</b>	<b>Lake Okeechobee Outflow: 6,343 cfs</b>
<b>Weekly Rainfall:</b>	WP Franklin <b>NR</b>	Ortona <b>4.05"</b> Moore Haven <b>3.92"</b>
<b>Salinity Beautiful Island:</b>	<b>0.2 – 0.2 psu (SCCF RECON Marker 18)</b>	Previous wk <b>0.2 – 0.2 psu</b>
<b>Salinity Fort Myers:</b>	<b>0.2 – 0.2 psu (SCCF Yacht Basin)</b>	Previous wk <b>0.2 – 0.2 psu</b>
<b>Salinity Shell Point:</b>	<b>1.4 – 28 psu (SCCF RECON)</b>	Previous wk <b>4.1 – 28 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 – 0.2</b>	<b>&lt; 5 psu</b>	<b>-</b>
<b>Fort Myers</b>	<b>0.2 – 0.2</b>	<b>&lt;10 psu</b>	<b>-</b>
<b>Shell Point</b>	<b>1.4 – 28</b>	<b>25 - 32 psu</b>	<b>Low</b>
<b>Light (25% I<sub>z</sub> depth meters)</b>			
<b>Iona</b>	<b>0.66</b>	<b>1 meter</b>	<b>Low</b>
<b>Causeway</b>	<b>0.86</b>	<b>2.2 meters</b>	<b>Low</b>
<b>Sanibel East</b>	<b>0.97</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 **8,100 cfs**. **Cyanobacteria was detected by Lee County Environmental Lab the past week. Over the past 14 days 61% of Lake Okeechobee outflow was directed to the Caloosahatchee at S-77, 36% was delivered to the St Lucie at S-308, <1% was delivered south to the EAA, 2% was directed to the L8. S-310 back flowed a net 189 acre feet into Lake O.**

ACOE September 23 Release at S-77					
Date	Day	Pulse Target	S79 Flow (cfs)	S78 Flow (cfs)	S77 Flow (cfs)
9/23/2016	1	4000	4930	3926	4574
9/24/2016	2	4000	5308	4513	4481
9/25/2016	3	4000	5622	3768	2989
9/26/2016	4	4000	5312	3735	4654
9/27/2016	5	4000	7081	4478	5438
9/28/2016	6	4000	7914	4853	5415
9/29/2016	7	4000	8639	5976	6107
<b>7 day avg</b>		<b>4000</b>	<b>6401</b>	<b>4464</b>	<b>4808</b>



**Upstream of S-79/Franklin Conditions:** On 9/29/16 Lee County Environmental Lab observed a sparse bloom of *Dolichospermum*, *Microcystis* and *Aphanizomenon* at the Alva Boat Ramp. On 10/4/16 the Olga Water Treatment plant chlorides measured 42mg/L, apparent color was 214 CU and turbidity measured 3.19 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 9/29/16 Lee County Environmental Lab observed a sparse bloom of *Microcystis* at the Davis Boat Ramp. Salinities are in the suitable range for tape grass. Light levels are less than half of the requirement for submersed angiosperms at depth.

**Lower Estuary Condition:** On 10/03/16, salinity (0.5 psu) was in the lethal range for oysters at Peppertree Point Marina in Iona. The average salinity at Shell Point (13 psu) was below optimal for oysters. Light levels are less than half of the requirement for seagrass at depth.

**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 93 of the past 98 days and in Tarpon Bay, 91 of the past 103 days.

**Tarpon Bay Salinity:** 17.4 – 28.1 psu; FDOM: 22.5 – 47.1 qsde; Dissolved oxygen: 4.5 – 8.7 mg/L; Chlorophyll: 4.2– 11.3 µg/L. **McIntyre Creek:** Salinity: 18.2 – 25.3 psu; FDOM: 22.1 – 32.5 qsde; Dissolved oxygen: 1.3 – 7.4 mg/L; Chlorophyll: 3.6 – 11.7 µg/L. FDOM exceeded 25 qsde (less than 25% light penetration at 2.2 meters) in each of 7 days in Tarpon Bay and 5 days in McIntyre Creek. Dissolved oxygen dropped below 4 mg/L (FL water quality standard) in each of 7 days in McIntyre Creek.

**Coastal Conditions:** A dark colored, freshwater plume from the Caloosahatchee extends to beyond the midpoint of Sanibel Island and to the southern end of Fort Myers Beach on the Gulf side and throughout Pine Island Sound, Matlacha Pass and the bay side of Sanibel.

**Red Tide:** On 9/30/16 FWC reported *Karenia brevis*, the Florida red tide organism, in background to medium concentrations in Lee County, background to high concentrations off Charlotte County. Pinellas, Manatee and Sarasota Counties had high concentrations over the past week.

**Shellfish Harvesting Harmful Algal Bloom Closure:** On 9/30/16 The Florida Department of Agriculture and Consumer Services closed Area #6212 Pine Island Sound West for the harvest of oysters, clams, and mussels. The closure, due to red tide, does not include scallops, shrimp or crabs.



**Wildlife Impacts:** The past week CROW, the wildlife rehabilitation clinic on Sanibel received **1 laughing gull** suffering from red tide poisoning.

Caloosahatchee Stations	Chlorophyll (µg/L)	fDOM (qse)	Turbidity (NTU)	25% lo depth (meters)
<b>Target Values</b>	< 11	CE <70 SCB <11	CE < 18 SCB < 5	CE = 1 m SCB = 2.2m
<b>Iona</b>	12.5	235	2.6	0.66
<b>Causeway</b>	5.1	160	3.5	0.86
<b>Sanibel E</b>	6.8	124	3.7	0.97

ACOE Daily Reports				
Date	Day	S79 Flow (cfs)	S78 Flow (cfs)	S77 Flow (cfs)
9/27/2016	Tues	7081	4478	3833
9/28/2016	Wed	7914	4853	3576
9/29/2016	Thur	8639	5976	3109
9/30/2016	Fri	8582	6917	3342
10/1/2016	Sat	8499	6450	3885
10/2/2016	Sun	7922	6318	3848
10/3/2016	Mon	8063	6216	3946
<b>7 Day</b>	<b>Avg</b>	<b>8100</b>	<b>5887</b>	<b>3648</b>

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

