

MEMORANDUM

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

From: Periodic Scientists Conference Call Participants
 Paul Tritaik & Joyce Palmer - J.N. "Ding" Darling National Wildlife Refuge (NWR) Complex
 James Evans & Holly Milbrandt - City of Sanibel
 Keith Kibbey - Lee County Natural Resources
 Connie Jarvis - City of Cape Coral
 Rae Ann Wessel & Rick Bartleson, Ph.D.-Sanibel Captiva Conservation Foundation

Subject: Caloosahatchee & Estuary Condition Report

Reporting Period: October 27 – November 2, 2015

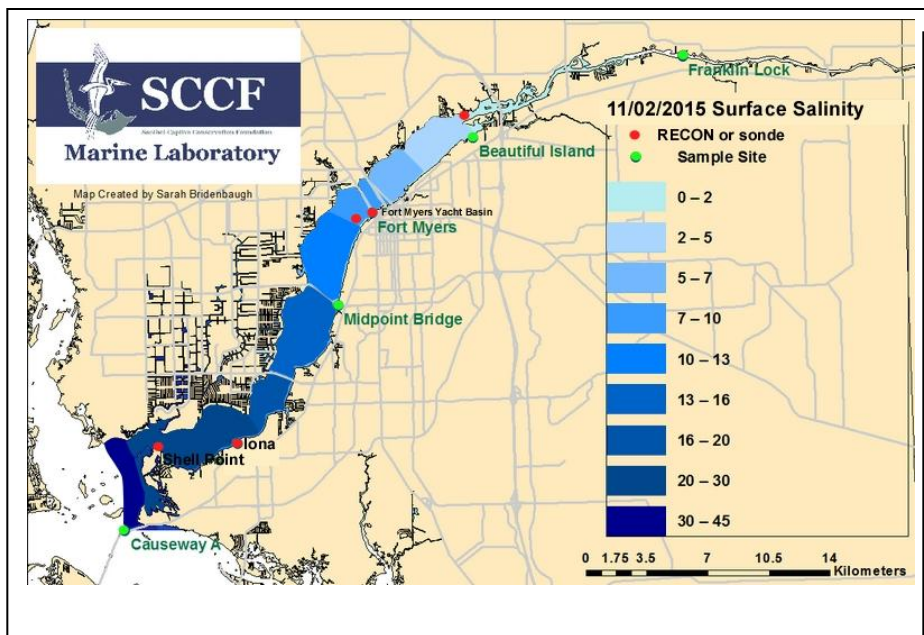
This report provides a scientific assessment of Caloosahatchee River and Estuary conditions and how these conditions affect the health, productivity and function of the system.

Caloosahatchee Condition Summary: Dry conditions continued the past week raising salinities throughout the estuary making Lake Okeechobee regulatory releases crucial in providing freshwater flow to the estuary for salinity management. Releases provided average flows of **852 cfs** which helped stabilize salinities at Fort Myers below 10 psu.

USACE Action: On 10/30/15 the USACE initiated a 7-day pulse release from Lake Okeechobee to provide average flows of **800 cfs** to the Caloosahatchee estuary at S79.

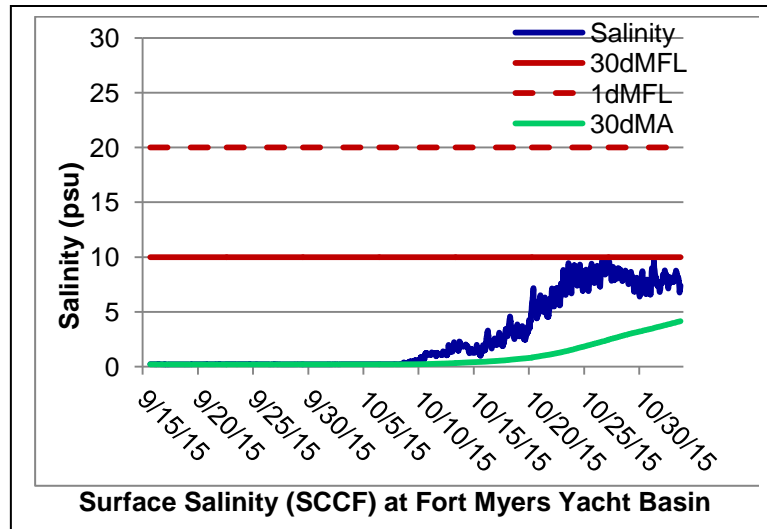
Recommendation: With continuing dry conditions providing no freshwater from the watershed, we recommend a seven day pulse release to the Caloosahatchee to provide average flows of **800 - 1000 cfs** at S79.

Lake Okeechobee Level: 14.54 ft. (Low Sub-Band) Last week: 14.59 ft.
Lake Okeechobee Inflow: 2,696 cfs **Lake Okeechobee Outflow:** 3,591 cfs
Weekly Rainfall: WP Franklin 1.19" Ortona 0.16" Moore Haven 0.05"
Salinity Fort Myers: 6.4 – 9.7 psu (SCCF Yacht Basin Surface) Previous week: 4.0 - 9.4 psu
Salinity Shell Point: 20 – 33 psu (SCCF RECON) Previous week: 14 – 32 psu



Salinity (psu)			
	Current Value	Sustainable Range	High/Low
Beautiful Island	ND	< 5 psu	-
Fort Myers	6.4 – 9.7	< 10 psu	In Range
Shell Point	20 – 33	25 – 31 psu	In Range
Light (25% lz depth meters)			
Iona	1.11	1 meter	In Range
Causeway	1.70	2.2 meters	Low
San Carlos Bay	1.96	2.2 meters	Low

Flow & Water Quality: Flows to the Caloosahatchee Estuary at S79 during the past seven days averaged **852 cfs**. Over the past 14 days **64%** of total Lake Okeechobee outflows were sent south to the EAA for water supply, **6%** was delivered to the L8 basin, **27%** was directed to the Caloosahatchee and **3%** to the St Lucie.



Upstream of S79/Franklin Conditions: On 10/27/15 at the Olga Water Treatment plant, chlorides measured **57 mg/L**, apparent color was **179 CU** and turbidity measured **0.63 NTU**. No algae was visible at the plant intake over the past week. The plant is online operating at 2400 GPM.

Upper Estuary Conditions: Salinities in the upper estuary are in the suitable range for tape grass.

Lower Estuary Condition: Salinity was in the optimal range for oysters at Iona (**21 psu** on 11/2/15) and at Shell Point (**27 psu** weekly average).

McIntyre Creek & Tarpon Bay in J.N. "Ding" Darling NWR: Over the past week, salinity at McIntyre Creek ranged between **28 – 33.3 psu**. CDOM readings ranged from **8 – 21 qse**. Dissolved oxygen in McIntyre Creek **dropped below 3 mg/L one time**, values ranged from **2 – 7.8 mg/L**. Chlorophyll readings ranged from **1.8 – 7 ug/L**. Salinity at Tarpon Bay ranged from **29 – 34.5 psu**. CDOM readings ranged from **12 to 35 qse**. Dissolved oxygen ranged from **3.75 – 7 mg/L**, and chlorophyll readings ranged from **2.5 – 9.5 ug/L**. **Salinity at both locations remains below or in the lower end of the preferred range for shoal grass and turtle grass (30 to 40 psu).**

Red Tide: The past week FWC reported blooms of *Karenia brevis*, in, along and offshore Santa Rosa, Okaloosa, Walton, Bay, and Gulf counties in Northwest Florida and in, along and offshore Pinellas, Manatee, Sarasota, Charlotte, and Lee counties in Southwest Florida. *K. brevis* was detected in background to low concentrations in and alongshore Manatee, Charlotte, and Lee counties and background concentrations were detected in one sample alongshore Collier County. SCCF found medium levels (230k cells/L) of *Karenia spp.* at Donax Beach on Sanibel on 11/3/15 and low levels, ranging from 16,000 to 45,000 cells/L, at three Sanibel Beach sites and on the inside of the Causeway on 11/2/15.

Caloosahatchee Stations	Chlorophyll (µg/L)	CDOM (qse)	Turbidity (NTU)	25% I _z depth (meters)
Target Values	< 11	CE <70 SCB <11	CE < 18 SCB < 5	CE = 1 m SCB = 2.2m
Iona	2.4	129	0.8	1.11
Causeway A	4.5	27.0	3.5	1.70
San Carlos Bay	2.5	8.10	3.9	1.96

Target light penetration: CE – Caloosahatchee estuary = **1 meter**
SCB – San Carlos Bay = **2.2 meters**

25% I_z: where z is 25% of surface I. I = irradiance, z = depth

ACOE Daily Reports				
Date	Day	S79 Flow (cfs)	S78 Flow (cfs)	S77 Flow (cfs)
10/27/2015	Tues	550	267	584
10/28/2015	Wed	415	49	340
10/29/2015	Thur	90	0	243
10/30/2015	Fri	994	588	790
10/31/2015	Sat	1560	993	1624
11/1/2015	Sun	1424	946	1604
11/2/2015	Mon	933	390	992
7 Day	Avg	852	462	882