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 Steverson

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 22 - 28, 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 decreased to a weekly average of **665 cfs**. Lake Okeechobee discharges to the river, measured at S-77, increased to an average of **875 cfs. Salinities have risen rapidly in the upper and middle estuary. Red tide blooms have caused fish kills from north of Bokeelia off Pine Island throughout the Refuge. Visitors to Wildlife Drive are complaining of the smell of dead fish and reporting respiratory issues.**

USACE Action: The USACE continued 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 estuary at S-80.

Recommendation: Due to rapidly rising salinities at Fort Myers we recommend increasing pulse releases to provide healthy salinities below 10 psu at Fort Myers and below 5 psu at Beautiful Island and to maintain a low salinity zone in the upper estuary. We request the weekly call resume next week to discuss rapidly changing conditions.

Lake Okeechobee Level: **14.79 ft**. (**Low Sub-Band)** **Last week**: **14.95 ft**.

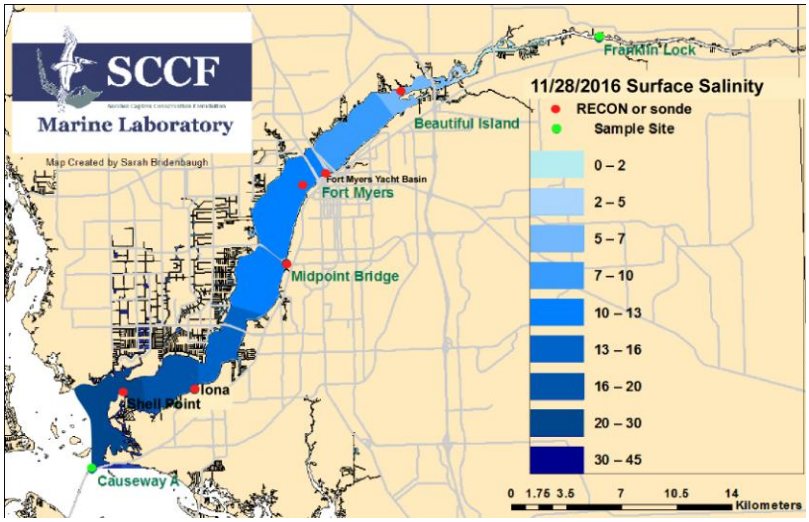
Lake Okeechobee Inflow: **660 cfs** **Lake Okeechobee Outflow: 3,089 cfs**

Weekly Rainfall: WP Franklin **0.01"** Ortona **0 "** Moore Haven **0"**

Salinity Beautiful Island: **2.2 - 7.0 psu** (SCCF RECON Marker 18) Previous wk **1.2 - 4 psu**

Salinity Fort Myers: **5.6 - 11 psu** (SCCF Yacht Basin) Previous wk **2.7 - 9.9 psu**

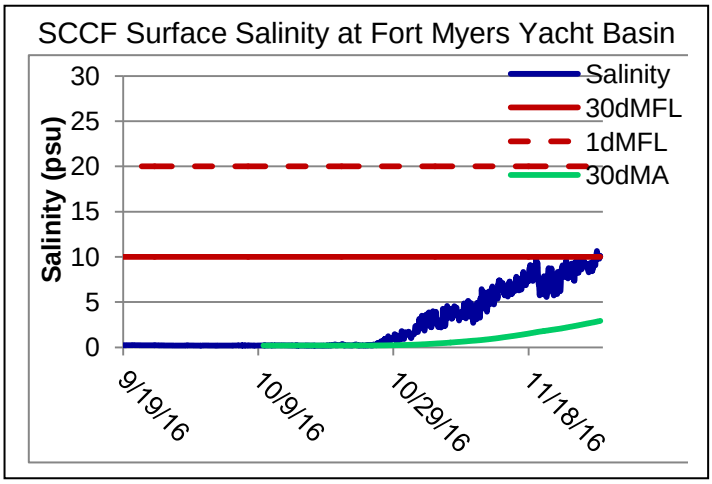
Salinity Shell Point: **18 - 31 psu (**SCCF RECON) Previous wk **17 - 33 psu**



Salinity (psu)			
	Current Value	Sustainable Range	High/ Low
Beautiful Is	2.2 - 7	< 5 psu	In Range
Fort Myers	5.6 - 11	<10 psu	In Range
Shell Point	18 - 31	25 - 32 psu	In Range
Light (25% Iz depth meters)			
Tarpon Bay	1.58	2.2 meters	Low
Causeway	1.42	2.2 meters	Low
Sanibel E	1.59	2.2 meters	Low

Flow & Water Quality: Flows to the Caloosahatchee Estuary at S-79 during the past seven days averaged **665 cfs.** Over the past 14 days **27%** of Lake Okeechobee outflow was directed to the Caloosahatchee at S-77, **3%** was delivered to the St Lucie at S-308, **62%** was delivered south to the EAA,**6%** was directed to the L8 and **1%** was delivered thru S-310.

ACOE November 18 Release at S-79					
Date	**Day**	**Pulse Target**	**S79 Flow (cfs)**	**S78 Flow (cfs)**	**S77 Flow (cfs)**
11/18/2016	1	900	**763**	**NR**	**709**
11/19/2016	2	1000	**1068**	**684**	**904**
11/20/2016	3	900	**1109**	**679**	**929**
11/21/2016	4	750	**844**	**690**	**895**
11/22/2016	5	400	**574**	**501**	**778**
11/23/2016	6	300	**330**	**338**	**752**
11/24/2016	7	300	**503**	**220**	**881**
7 day avg		**650**	**742**	**-**	**835**



Upstream of S-79/Franklin Conditions: On 11/29/16 the Olga Water Treatment plant chlorides measured **54 mg/L**, apparent color was **102 CU** and turbidity measured **2.53 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 down to Fort Myers. **The Fort Myers and Beautiful Island RECONs have been recording phytoplankton blooms of up to 20 µg chlorophyll/L.**

Lower Estuary Condition: The average salinity at Shell Point was (**25 psu**); in 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	**29.4 – 32.6**	**3.5 – 11.5**	**13.4 – 22.5**	**2.8 – 9.9**
Tarpon Bay	**29.3 – 32.2**	**5.7 – 8.2**	**15.5 – 28.3**	**2.2 – 13.8**

Beach Conditions: Water clarity has improved. Red drift algae strandings have occurred on Sanibel and Fort Myers beaches, with accumulations on the beach and in the surf zone. Abundance and frequency appears to be increasing as water clarity improves following 9.5 months of excess flows and associated nutrient loading.

Red Tide: On 11/23/16, FWC reported *Karenia brevis*, the Florida red tide organism, persists in Southwest Florida from Pinellas to Monroe County. **SCCF sampling on 11/28/16 found nearshore *Karenia* sp. concentrations of 897,000 cells/L in Tarpon Bay, 194,000 cells/L at Sanibel Boat Ramp and 111,000 cells /L at Tarpon Beach.**

Wildlife status: The past week CROW, the wildlife rehabilitation clinic on Sanibel received **5 Double Crested Cormorants suffering from red tide poisoning. 1 died, 2 were euthanized and 2 are still being treated.**

Manatees: Lee County Park staff reported up to **42** manatees congregating in the Orange River and FPL discharge canal the past week. Manatee season began on November 15th.

Caloosahatchee Stations	Chlorophyll (µg/L)	fDOM (qse)	Turbidity (NTU)	25% Io depth (meters)
Target Values	**< 11**	**CE <70 SCB <11**	**CE < 18 SCB < 5**	**CE = 1 m SCB = 2.2m**
Tarpon Bay	**6.3**	**57.1**	**1.2**	**1.58**
Causeway	**2.0**	**81.1**	**1.2**	**1.42**
Sanibel E	**4.1**	**46.6**	**2.5**	**1.59**

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*

ACOE Daily Reports				
Date	**Day**	**S79 Flow (cfs)**	**S78 Flow (cfs)**	**S77 Flow (cfs)**
11/22/2016	Tues	**574**	**501**	**778**
11/23/2016	Wed	**330**	**338**	**752**
11/24/2016	Thur	**503**	**220**	**881**
11/25/2016	Fri	**741**	**405**	**842**
11/26/2016	Sat	**947**	**501**	**852**
11/27/2016	Sun	**854**	**609**	**1078**
11/28/2016	Mon	**709**	**560**	**939**
7 day	**Avg**	**665**	**448**	**875**