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: October 25 - 31, 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 **2,965 cfs**, over the harm threshold of 2,800 cfs established for the estuary. Lake Okeechobee discharges to the river, measured at S-77, decreased to an average of **2,674 cfs.** Watershed inflows to the Franklin pool between S-78 and S-79 during the past week averaged **703 cfs**.

USACE Action: On 10/28/16 the USACE announced a three week, pulse release schedule to step down releases from Lake Okeechobee.

Recommendation: We recommend continuing with the planned 21 day gradual reduction in flows to the Caloosahatchee to acclimate the estuary to more normal dry season conditions.

Lake Okeechobee Level: **15.46 ft**. (**Low Sub-Band)** **Last week**: **15.70 ft**.

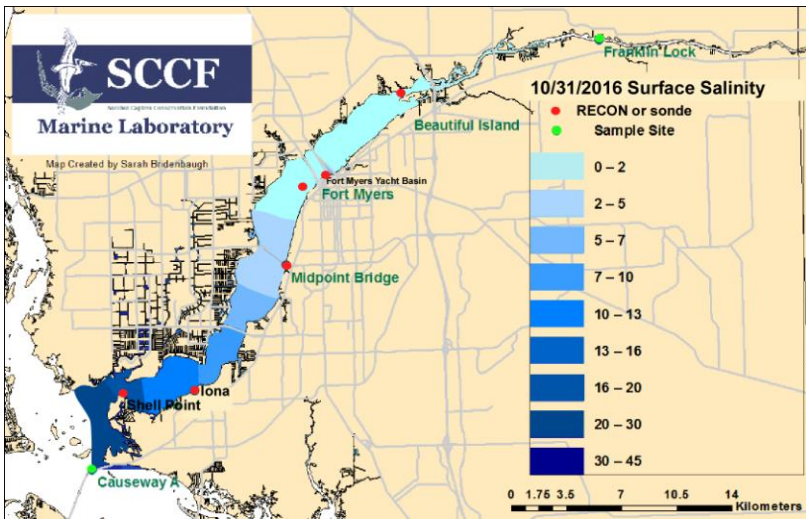
Lake Okeechobee Inflow: **1,622 cfs** **Lake Okeechobee Outflow: 5,933 cfs**

Weekly Rainfall: WP Franklin **0"** Ortona **0 "** Moore Haven **0.02"**

Salinity Beautiful Island: **0.2 – 0.2 psu** (SCCF RECON Marker 18) Previous wk **0.2 – 0.2 psu**

Salinity Fort Myers: **0.2 – 1.2 psu** (SCCF Yacht Basin) Previous wk **0.2 – 0.3 psu**

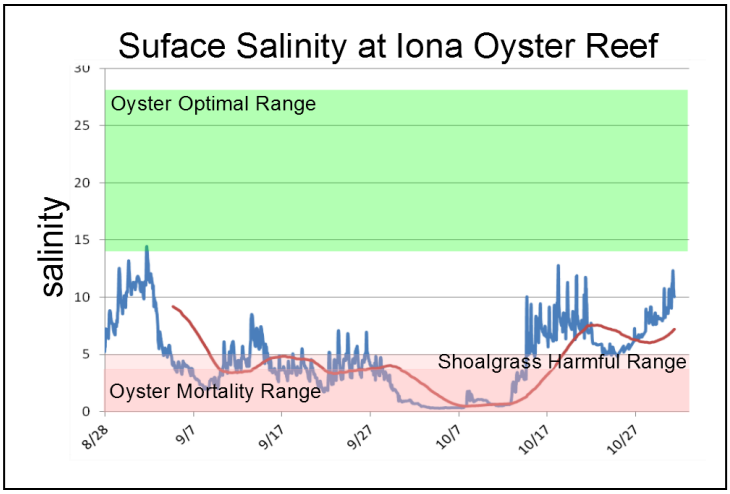
Salinity Shell Point: **9.3 - 32 psu (**SCCF RECON) Previous wk **6.5 – 31 psu**



Salinity (psu)			
	Current Value	Sustainable Range	High/ Low
Beautiful Is	0.2 – 0.2	< 5 psu	-
Fort Myers	0.2 – 0.2	<10 psu	-
Shell Point	9.3 - 32	25 - 32 psu	Low
Light (25% Iz depth meters)			
Iona	0.88	1 meter	Low
Causeway	1.19	2.2 meters	Low
Sanibel East	1.43	2.2 meters	Low

Flow & Water Quality: Flows to the Caloosahatchee Estuary at S-79 during the past seven days averaged **2,965 cfs. Very sparse cyanobacteria was detected by Lee County Environmental Lab the past week. Over the past 14 days 28.5%** of Lake Okeechobee outflow was directed to the Caloosahatchee at S-77, **33.5%** was delivered to the St Lucie at S-308, **33%** was delivered south to the EAA and **4%** was directed to the L8**. A net outflow of 1% was delivered thru S-310.**

ACOE October 14 Release at S-77					
Date	**Day**	**Pulse Target**	**S79 Flow (cfs)**	**S78 Flow (cfs)**	**S77 Flow (cfs)**
10/21/2016	1	**3000**	**3257**	**2567**	**2773**
10/22/2016	2	**3000**	**3074**	**2252**	**2236**
10/23/2016	3	**3000**	**3066**	**2240**	**2518**
10/24/2016	4	**3000**	**2767**	**NR**	**2556**
10/25/2016	5	**3000**	**2704**	**2222**	**2724**
10/26/2016	6	**3000**	**3186**	**2254**	**2793**
10/27/2016	7	**3000**	**3076**	**2309**	**2745**
7 day avg		**3000**	**3019**	**2307**	**2621**



Upstream of S-79/Franklin Conditions: On 10/27/16, Lee County Environmental Lab observed a very sparse bloom of *Dolichospermum* and *Microcystis* upstream of the Franklin Lock. On 11/1/16 the Olga Water Treatment plant chlorides measured **45 mg/L**, apparent color was **188 CU** and turbidity measured **3.41 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.

Lower Estuary Condition: The average salinity at Peppertree Pointe Marina in Iona (7.2 psu) is below optimal for oysters and seagrass. The average salinity at Shell Point **(23 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 120 of the past 126 days and in Tarpon Bay, 108 of the past 131days. Tarpon Bay Salinity: **25.2 – 29.4 psu;** FDOM**: 23.0 – 36.0 qsde;** Dissolved oxygen: **5.6 – 7.7 mg/L;** Chlorophyll: **2.7– 60.5 µg/L**. **McIntyre Creek:** Salinity: **25.8 – 28.2 psu;** FDOM**: 9.0 – 19.0 qsde;** Dissolved oxygen: **3.4 – 8.9 mg/L;** Chlorophyll: **2.6 – 5.5 µg/L.** FDOM exceeded 25 qsde (less than 25% light penetration at 2.2 meters) in **5** of 7 days in Tarpon Bay.

Coastal Conditions: The freshwater plume extends to the south of the Sanibel causeway. Water clarity has improved along Sanibel's beaches during the past week with the reduction in freshwater flow to the estuary. Small amounts of green macroalgae have been washing up sporadically on Sanibel and Fort Myers Beach.

***Red Tide:* On 10/28/16, FWC reported *Karenia brevis*, the Florida red tide organism, A bloom of the Florida red tide organism, *Karenia brevis*, persists in Southwest Florida from northern Manatee County to central Lee County, with very low concentrations detected in southern Pinellas County and southern Collier County.**

Wildlife Impacts: The past week CROW, the wildlife rehabilitation clinic on Sanibel received **1 green sea turtle suffering from red tide poisoning,**

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**
Iona	**4.8**	**186**	**0.3**	**0.88**
Causeway	**3.7**	**101**	**2.0**	**1.19**
Sanibel E	**3.5**	**79.6**	**0.9**	**1.43**

*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)**
10/25/2016	Tues	**2704**	**2222**	**2724**
10/26/2016	Wed	**3186**	**2254**	**2793**
10/27/2016	Thur	**3076**	**2309**	**2745**
10/28/2016	Fri	**2708**	**2291**	**2568**
10/29/2016	Sat	**2935**	**2229**	**2633**
10/30/2016	Sun	**3133**	**2252**	**2671**
10/31/2016	Mon	**3015**	**2278**	**2583**
7 Day	**Avg**	**2965**	**2262**	**2674**

Green macroalgae washing up along beaches at Sanibel (above) and Fort Myers beaches (left).

Water color improving but continues to be murky along the northern end of Fort Myers Beach.

Photos 11/1/16 courtesy of the City of Sanibel and Town of Fort Myers Beach.

Water Color returning to normal at Sanibel Lighthouse beach on 11/1/16. Photo City of Sanibel.
Link to panorama at the Sanibel Lighthouse https://s3.amazonaws.com/cityofsanibel/index.html