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 11 -17, 2016

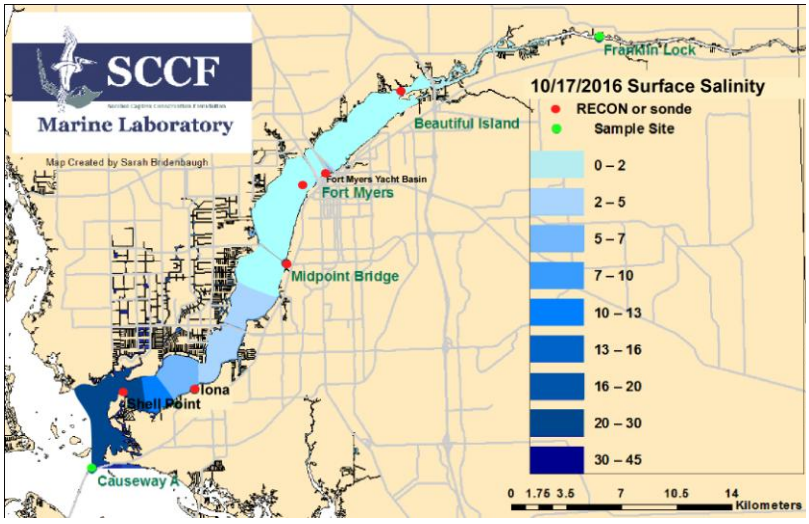
This report provides a scientific assessment of Caloosahatchee River and Estuary conditions and how these conditions affect the health, productivity and function of the system.

Caloosahatchee Condition Summary: Discharges into the estuary at S-79 over the past week averaged **5,795 cfs, over twice the harm threshold of 2,800 cfs established for the estuary.** Lake Okeechobee discharges to the river, **measured at S-77**, **increased to an average of 5,331 cfs. Watershed inflows to the Franklin pool between S-78 and S-79 during the past week averaged 616 cfs.**

USACE Action: On 10/14/16 the USACE **decreased releases from Lake Okeechobee to 4,000 cfs to the Caloosahatchee measured at S-77** and **1,800 cfs** to the St. Lucie measured at S-80.

Recommendation: The Caloosahatchee estuary has experienced low salinities and algal blooms from harmful high discharges for the past 8 consecutive months. Storage capacity of dispersed water management projects has been taken up by rainfall and very little water has been directed south. With drier conditions emerging and forecasts of below average rainfall for the next 3 months, we request that flows to the Caloosahatchee estuary be reduced to 2800 cfs or less at S-79 to begin reducing harm and provide much needed relief to the estuary.

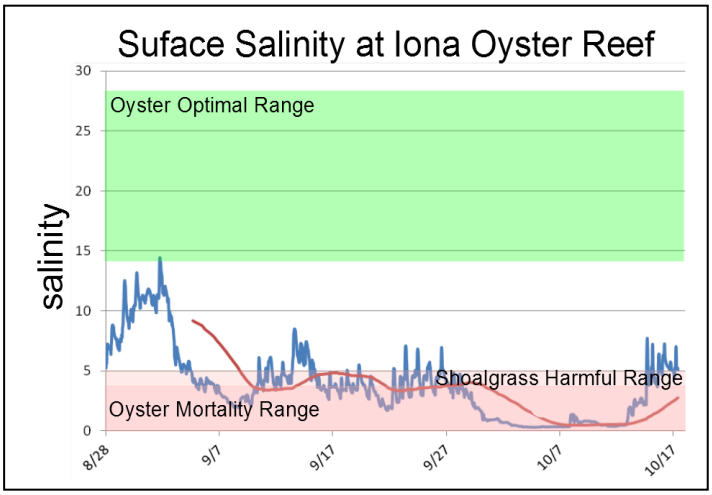
Lake Okeechobee Level:	**15.90 ft**. (**Low Sub-Band)**	**Last week**: **16.01 ft**.
Lake Okeechobee Inflow:	**3,792 cfs**	**Lake Okeechobee Outflow: 5,583 cfs**
Weekly Rainfall:	WP Franklin **0.02"** Ortona **0 "**	Moore Haven **0.07"**
Salinity Beautiful Island:	**0.2 – 0.2 psu** (SCCF RECON Marker 18)	Previous wk **0.2 – 0.2 psu**
Salinity Fort Myers:	**0.2 – 0.2 psu** (SCCF Yacht Basin)	Previous wk **0.2 – 0.2 psu**
Salinity Shell Point:	**1.4 – 30 psu (**SCCF RECON)	Previous wk **0.5 – 28 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	**1.4 – 30**	**25 - 32 psu**	**Low**
Light (25% Iz depth meters)			
Iona	**0.71**	**1 meter**	**Low**
Causeway	**1.01**	**2.2 meters**	**Low**
Sanibel East	**1.36**	**2.2 meters**	**Low**

Flow & Water Quality: Flows to the Caloosahatchee Estuary at S-79 during the past seven days averaged **5,795 cfs. Cyanobacteria was detected by Lee County Environmental Lab the past week. Over the past 14 days 79%** of Lake Okeechobee outflow was directed to the Caloosahatchee at S-77, **20%** was delivered to the St Lucie at S-308, **no flow** was delivered south to the EAA and **0.4%** was directed to the L8**. A net outflow of 94 cfs was delivered thru S-310 where water is still being back flowed into Lake Okeechobee.**

ACOE October 7 Release at S-77					
Date	**Day**	**Pulse Target**	**S79 Flow (cfs)**	**S78 Flow (cfs)**	**S77 Flow (cfs)**
10/7/2016	1	**Max**	**6188**	**5786**	**4712**
10/8/2016	2	**Max**	**8250**	**7554**	**7224**
10/9/2016	3	**Max**	**7845**	**7017**	**7300**
10/10/2016	4	**Max**	**7791**	**6844**	**6786**
10/11/2016	5	**6500**	**6808**	**6441**	**6562**
10/12/2016	6	**6500**	**6162**	**6049**	**6576**
10/13/2016	7	**6500**	**6226**	**5814**	**6466**
7 day avg			**7039**	**6501**	**6518**



Upstream of S-79/Franklin Conditions: On 10/13/16, Lee County Environmental Lab observed a sparse bloom of *Microcystis and Dolichospermum* upstream of the Franklin Lock. On 10/18/16, the Olga Water Treatment plant chlorides measured **42 mg/L**, apparent color was **190 CU** and turbidity measured **2.99 NTU.** No visible algae was noted at the plant intake for the last week. The plant is off line for maintenance.

Upper Estuary Conditions: On 10/13/16, Lee County Environmental Lab observed a sparse bloom of *Microcystis and Dolichospermum* downstream of the Franklin Lock and at the Davis Boat Ramp. Salinities are in the suitable range for tape grass.

Lower Estuary Condition: The average salinity at Peppertree Pointe Marina in Iona (2.5 psu) is in the harmful range for oysters. The average salinity at Shell Point **(20 psu)** was optimal 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, 106 of the past 112 days and in Tarpon Bay, 102 of the past 117 days.

Tarpon Bay Salinity: **20.0 – 30.8 psu;** FDOM**: 18.0 – 43.0 qsde;** Dissolved oxygen: **5.3 – 8.0 mg/L;** Chlorophyll: **3.2– 6.2 µg/L**. **McIntyre Creek:** Salinity: **21.8 – 25.4 psu;** FDOM**: 18.0 – 25.0 qsde;** Dissolved oxygen: **2.3 – 7.1 mg/L;** Chlorophyll: **3.0 – 15.0 µg/L.** FDOM exceeded 25 qsde (less than 25% light penetration at 2.2 meters) in each of 7 days in Tarpon Bay. **Dissolved oxygen dropped below 3 mg/L on 3 days in McIntyre Creek.**

Coastal Conditions: **Dark colored, freshwater extends down the Caloosahatchee to the coastal waters extending to Redfish Pass on Captiva and Lovers Key south of Fort Myers Beach on the Gulf side and throughout Pine Island Sound, Matlacha Pass and the bay side ofSanibel on the outgoing tide**.

***Red Tide:* On 10/14/16, FWC reported *Karenia brevis*, the Florida red tide organism, in background to medium concentrations in Lee County; background to high concentrations in Collier, Manatee and Pinellas Counties and background to low concentrations in Charlotte County.**

Wildlife Impacts: The past week CROW, the wildlife rehabilitation clinic on Sanibel received **10 new cases of wildlife suffering from red tide poisoning: 9 Double Crested Cormorants and 1 Laughing Gull.**

Red drift algae along West Gulf Drive, Sanibel on 10/18/16. Photo City of Sanibel

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	**7.0**	**242**	**0.3**	**0.71**
Causeway	**3.9**	**136**	**1.9**	**1.01**
Sanibel E	**3.4**	**93**	**0.5**	**1.36**

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)**
10/11/2016	Tues	**6808**	**6441**	**6562**
10/12/2016	Wed	**6162**	**6049**	**6576**
10/13/2016	Thur	**6226**	**5814**	**6466**
10/14/2016	Fri	**5180**	**4690**	**5088**
10/15/2016	Sat	**5536**	**4626**	**4212**
10/16/2016	Sun	**5502**	**4392**	**4182**
10/17/2016	Mon	**5150**	**4240**	**4230**
7 Day	**Avg**	**5795**	**5179**	**5331**

Freshwater plume off Sanibel close to high (King) tide on 10/17/16. Photos Jim Szabo