

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: October 4 -10, 2016

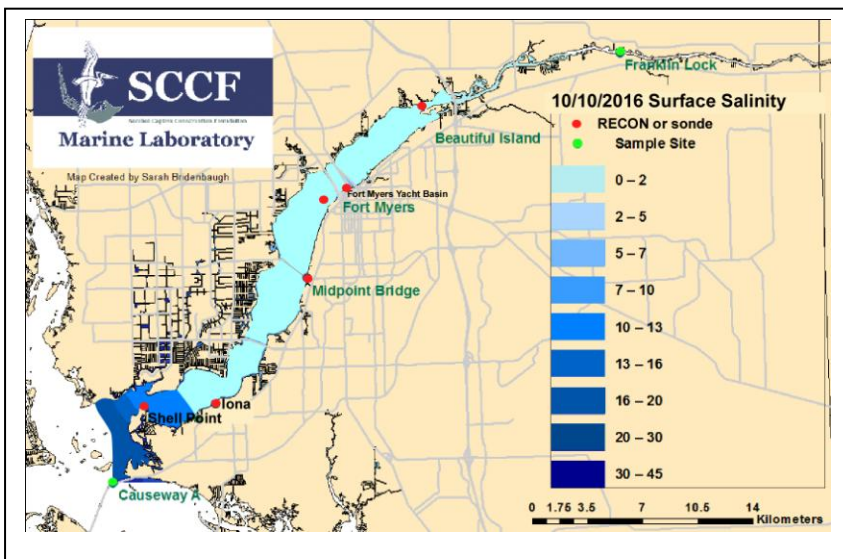
This report provides a scientific assessment of Caloosahatchee River and Estuary conditions and how these conditions affect the health, productivity and function of the system.

Caloosahatchee Condition Summary: Discharges into the estuary at S-79 over the past week averaged **7,325 cfs**, 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, increased to an average of **4,598 cfs**. Watershed inflows to the Franklin pool between S-78 and S-79 during the past week averaged **1,650 cfs**.

USACE Action: In advance of and during Hurricane Matthew the USACE **increased releases from Lake Okeechobee to maximum practicable** to the Caloosahatchee measured at **S-77** and the St. Lucie measured at **S-80**. Following the storm on 10/10/16, flows were reduced to **6,500 cfs at S-77** and **2,800 cfs at S-80**.

Recommendation: The Caloosahatchee estuary continues to suffer low salinities and algal blooms from harmful high discharges for the past **8 consecutive months**. Dispersed water management projects storage capacity has been taken up by rainfall and very little water has been directed south. With drier conditions emerging and forecasts of below average rainfall the next 3 months we request relief by reducing flows to the Caloosahatchee Estuary to 2800 cfs or below at S79 to begin reducing the harm to the estuary.

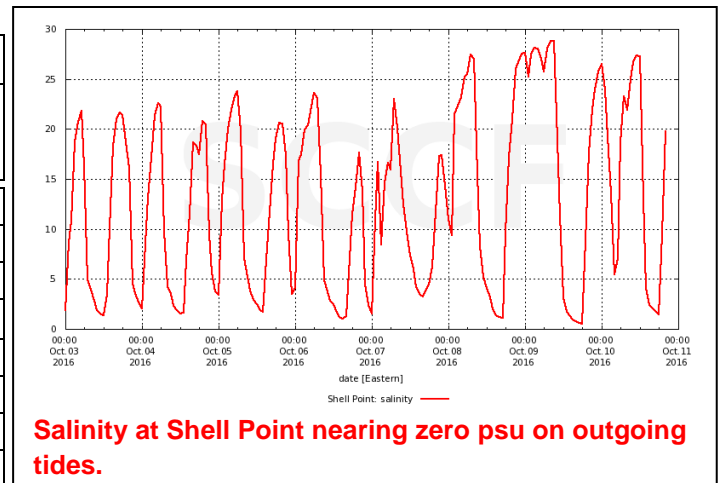
Lake Okeechobee Level:	16.01 ft. (Intermediate/Low Sub-Band)	Last week: 15.78 ft.
Lake Okeechobee Inflow:	7,068 cfs	Lake Okeechobee Outflow: 9,151 cfs
Weekly Rainfall:	WP Franklin NR	Ortona 0.35" Moore Haven 0.42"
Salinity Beautiful Island:	0.2 – 0.2 psu (SCCF RECON Marker 18)	Previous wk 0.2 – 0.2 psu
Salinity Fort Myers:	0.2 – 0.2 psu (SCCF Yacht Basin)	Previous wk 0.2 – 0.2 psu
Salinity Shell Point:	0.5 – 28 psu (SCCF RECON)	Previous wk 1.4 – 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	0.5 - 28	25 - 32 psu	Low
Light (25% Iz depth meters)			
Iona	0.64	1 meter	Low
Causeway	0.81	2.2 meters	Low
Sanibel East	1.06	2.2 meters	Low

Flow & Water Quality: Flows to the Caloosahatchee Estuary at S-79 during the past seven days averaged **7,325 cfs**. **Cyanobacteria was detected by Lee County Environmental Lab the past week. Over the past 14 days 67% of Lake Okeechobee outflow was directed to the Caloosahatchee at S-77, 31% was delivered to the St Lucie at S-308, 0.5% was delivered south to the EAA, 1% was directed to the L8. S-310 back flowed a net 146 acre feet into Lake O.**

ACOE September 30 Release at S-77					
Date	Day	Pulse Target	S79 Flow (cfs)	S78 Flow (cfs)	S77 Flow (cfs)
9/30/2016	1	4000	8582	6917	3342
10/1/2016	2	4000	8499	6450	3885
10/2/2016	3	4000	7922	6318	3848
10/3/2016	4	4000	8063	6216	3946
10/4/2016	5	4000	6498	3218	6498
10/5/2016	6	4000	6925	4056	6925
10/6/2016	7	4000	7781	5253	7781
7 day avg		4000	7753	5490	5175



Upstream of S-79/Franklin Conditions: On 10/6/16 Lee County Environmental Lab observed a sparse bloom of *Microcystis* and *Dolichospermum* upstream of the Franklin Lock. On 10/11/16 the Olga Water Treatment plant chlorides measured 48 mg/L, apparent color was 192CU and turbidity measured 3.64 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 10/6/16 Lee County Environmental Lab observed a sparse bloom of *Microcystis*, *Dolichospermum*, and *Aphanocapsa* downstream of the Franklin Lock and *Microcystis* and *Dolichospermum* at the Davis Boat Ramp. Salinities are in the suitable range for tape grass.

Lower Estuary Condition: **The average salinity at Shell Point (14 psu) was below optimal for oysters and seagrass.**

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 99 of the past 105 days and in Tarpon Bay, 97 of the past 110 days.

Tarpon Bay Salinity: 15.8 – 30.6 psu; FDOM: 14.0 – 47.0 qsde; Dissolved oxygen: 4.4 – 7.8 mg/L; Chlorophyll: 3.0– 16.0 µg/L. **McIntyre Creek:** Salinity: 17.8 – 31.0 psu; FDOM: 11.5 – 34.0 qsde; Dissolved oxygen: 1.3 – 9.5 mg/L; Chlorophyll: 3.5 – 14.5 µg/L. FDOM exceeded 25 qsde (less than 25% light penetration at 2.2 meters) in each of 7 days in Tarpon Bay and 4 days in McIntyre Creek. **Dissolved oxygen dropped below 3 mg/L in 5 days in McIntyre Creek.**

Coastal Conditions: A very dark colored, murky, plume of freshwater is flowing 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 of Sanibel.

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

Wildlife Impacts: **Dead fish on Sanibel beaches included sharks, tunny, pompano, redfish, mullet, sea robins and sardines. On 10/9/16, 65 dead fish m-1 were washed up at Clam Bayou opening on Sanibel. On Fort Myers Beach dead juvenile bonnethead and hammerhead sharks washed up. The dead** The past week the CROW wildlife rehabilitation clinic on Sanibel received **5 new cases of wildlife suffering from red tide poisoning: 2 Laughing Gulls, 1 Pied Billed Grebe and 2 Double Crested Cormorants. Three of the patients died.**

Shellfish Harvesting Harmful Algal Bloom Closure: On 10/5/16 The Florida Department of Agriculture and Consumer Services reopened shellfish harvesting area #6212 Pine Island Sound West for **Aquaculture Use Zones and Leases ONLY - Public Shellfish Harvesting Area remains closed-** for the harvest of oysters, clams, and mussels. The closure, due to red tide, does not include scallops, shrimp or crabs.

Caloosahatchee Stations	Chlorophyll (µg/L)	fDOM (qse)	Turbidity (NTU)	25% lo depth (meters)
Target Values	< 11	CE <70 SCB <11	CE < 18 SCB < 5	CE = 1 m SCB = 2.2m
Iona	13.3	245	2.5	0.64
Causeway	6.5	182	2.6	0.81
Sanibel E	5.9	131	1.1	1.06

ACOE Daily Reports				
Date	Day	S79 Flow (cfs)	S78 Flow (cfs)	S77 Flow (cfs)
10/4/2016	Tues	6498	3218	1399
10/5/2016	Wed	6925	4056	1350
10/6/2016	Thur	7781	5253	3416
10/7/2016	Fri	6188	5786	4712
10/8/2016	Sat	8250	7554	7224
10/9/2016	Sun	7845	7017	7300
10/10/2016	Mon	7791	6844	6786
7 Day	Avg	7325	5675	4598

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