

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 18 - 24, 2016

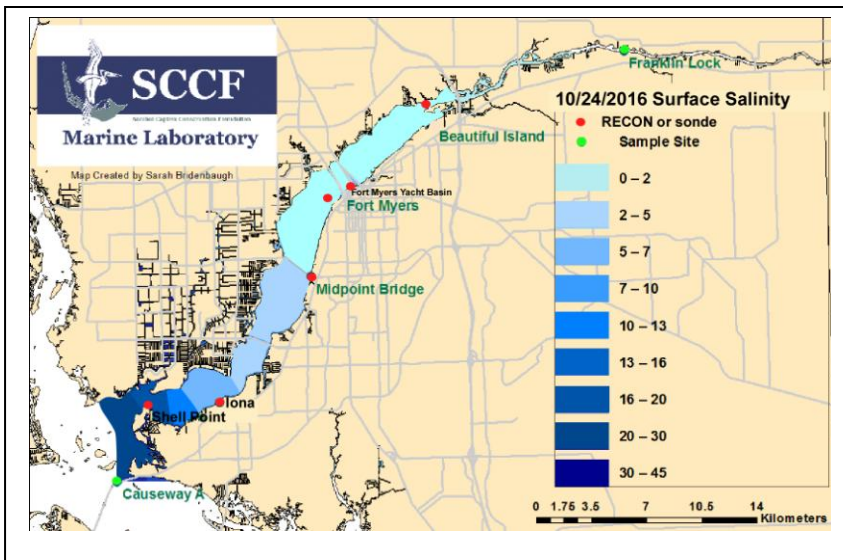
This report provides a scientific assessment of Caloosahatchee River and Estuary conditions and how these conditions affect the health, productivity and function of the system.

Caloosahatchee Condition Summary: Discharges into the estuary at S-79 during the past week averaged **3,638 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 **3,133 cfs**. Watershed inflows to the Franklin pool between S-78 and S-79 during the past week averaged 604 cfs.

USACE Action: On 10/21/16 the USACE decreased releases from Lake Okeechobee to **3,000 cfs** to the Caloosahatchee measured at S-79 and **1,170 cfs** to the St. Lucie measured at S-80.

Recommendation: With drier than normal conditions forecast for the coming months, we recommend reducing flows to the Caloosahatchee estuary to 2,800 cfs or less at S-79 and gradually reducing flows to acclimate the system for drier conditions. We do NOT recommend abruptly dropping flows from 3,000 cfs to 650 cfs. With reduced watershed inflow we request the flows be delivered in pulse releases.

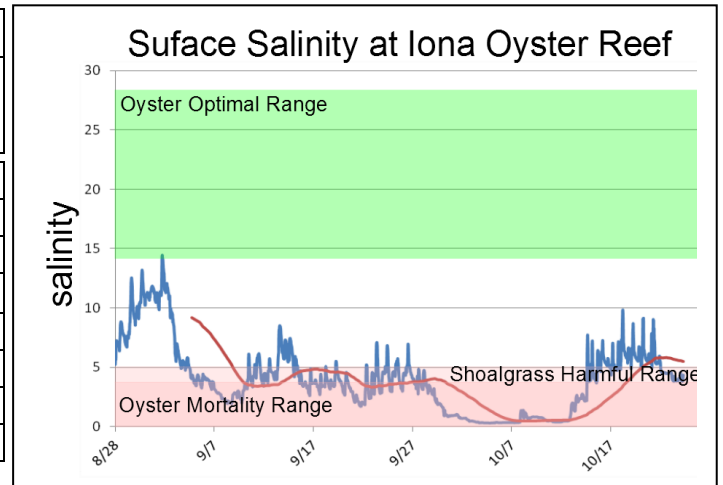
Lake Okeechobee Level:	15.70 ft. (Low Sub-Band)	Last week: 15.90 ft.
Lake Okeechobee Inflow:	2,036 cfs	Lake Okeechobee Outflow: 5,034 cfs
Weekly Rainfall:	WP Franklin 0" Ortona 0"	Moore Haven 0.05"
Salinity Beautiful Island:	0.2 – 0.2 psu (SCCF RECON Marker 18)	Previous wk 0.2 – 0.2 psu
Salinity Fort Myers:	0.2 – 0.3 psu (SCCF Yacht Basin)	Previous wk 0.2 – 0.2 psu
Salinity Shell Point:	6.5 – 31 psu (SCCF RECON)	Previous wk 1.4 – 30 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	6.5 – 31	25 - 32 psu	Low
Light (25% I_z depth meters)			
Iona	0.75	1 meter	Low
Causeway	1.24	2.2 meters	Low
Sanibel East	1.46	2.2 meters	Low

Flow & Water Quality: Flows to the Caloosahatchee Estuary at S-79 during the past seven days averaged **3,638 cfs**. **Cyanobacteria was detected by Lee County Environmental Lab the past week. Over the past 14 days 75% of Lake Okeechobee outflow was directed to the Caloosahatchee at S-77, 18% was delivered to the St Lucie at S-308, 5% was delivered south to the EAA and 1% was directed to the L8. A net outflow of 593 cfs was delivered thru S-310 where water is still being back flowed into Lake O.**

ACOE October 14 Release at S-77					
Date	Day	Pulse Target	S79 Flow (cfs)	S78 Flow (cfs)	S77 Flow (cfs)
10/14/2016	1	4000	5180	4690	5088
10/15/2016	2	4000	5536	4626	4212
10/16/2016	3	4000	5502	4392	4182
10/17/2016	4	4000	5150	4240	4230
10/18/2016	5	4000	5126	3965	4122
10/19/2016	6	4000	3646	3921	3816
10/20/2016	7	4000	4527	3259	3908
7 day avg		4000	4952	4156	4223



Upstream of S-79/Franklin Conditions: On 10/20/16, Lee County Environmental Lab observed a sparse bloom of *Microcystis* and *Dolichospermum* upstream of the Franklin Lock. On 10/25/16 the Olga Water Treatment plant chlorides measured 45 mg/L, apparent color was 138 CU and turbidity measured 2.21 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 10/20/16, Lee County Environmental Lab observed a very sparse bloom of *Microcystis* and *Dolichospermum* downstream of the Franklin Lock and a sparse bloom 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 is (5.5 psu) below optimal for oysters and seagrass. The average salinity at Shell Point (18 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 113 of the past 119 days and in Tarpon Bay, 108 of the past 124 days.

Tarpon Bay Salinity: 23.2 – 30.5 psu; FDOM: 20.0 – 41.0 qsde; Dissolved oxygen: 5.2 – 8.2 mg/L; Chlorophyll: 3.0– 7.2 µg/L. **McIntyre Creek:** Salinity: 25.0 – 29.7 psu; FDOM: 15.0 – 25.0 qsde; Dissolved oxygen: 2.6 – 9.3 mg/L; Chlorophyll: 2.7 – 6.0 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 in 3 days in McIntyre Creek.

Coastal Conditions: Dark colored, freshwater extends down the Caloosahatchee to the Sanibel Lighthouse and throughout Pine Island Sound. Green algae is present along Sanibel's east end beaches.

Red Tide: On 10/21/16, FWC reported *Karenia brevis*, the Florida red tide organism, persists in Southwest Florida from Pinellas to Collier counties.

Wildlife Impacts: The past week CROW, the wildlife rehabilitation clinic on Sanibel received **15 new cases of wildlife suffering from red tide poisoning: 13 Double Crested Cormorants, 1 Sandwich Tern and 1 Anhinga. Four of the Cormorants, both the Anhinga and Sandwich Tern did not survive.**

Oysters: October sampling in the Caloosahatchee by FGCU reported disease prevalence of *Perkinsus marinus* of all oysters sampled ranged from **21.43% to 40.00%**. Disease intensity of *P. marinus* ranged from **0.21 to 0.47**. Scale 0 = no infection, 1 = low, 3 = medium, 5 = high.. Larval recruitment ranged from **0.39 to 24.03** spat per shell.

Caloosahatchee Stations	Chlorophyll (µg/L)	fDOM (qse)	Turbidity (NTU)	25% I ₀ depth (meters)
Target Values	< 11	CE <70 SCB <11	CE < 18 SCB < 5	CE = 1 m SCB = 2.2m
Iona	5.9	225	0.7	0.75
Causeway	4.3	101	1.2	1.24
Sanibel E	2.2	83.4	0.4	1.46

ACOE Daily Reports				
Date	Day	S79 Flow (cfs)	S78 Flow (cfs)	S77 Flow (cfs)
10/18/2016	Tues	5126	3965	4122
10/19/2016	Wed	3646	3921	3816
10/20/2016	Thur	4527	3259	3908
10/21/2016	Fri	3257	2567	2773
10/22/2016	Sat	3074	2252	2236
10/23/2016	Sun	3066	2240	2518
10/24/2016	Mon	2767	NR	2556
7 Day	Avg	3638	3034	3133

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



Green algae along Sanibel's eastern beaches 10/26/16. Photo provided by the City of Sanibel