MEMORANDUM

To: USACE Colonel Jason A. Kirk, LTC Jennifer A. Reynolds, Richard McMillen, Kim Taplin, SFWMD Executive Director Peter Antonacci, Terrie Bates, Susan Gray, Peter Doering, DEP Secretary Jon Steverson

From: Periodic Scientists Conference Call Participants
Paul Tritaik & Joyce Palmer - 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: April 27 – May 3, 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: During the past week Lake Okeechobee water levels continued to recede. Discharges into the estuary at S79 the past week increased to an average of **2,739 cfs** while discharges to the river from Lake Okeechobee at S77 decreased to an average of **2,645 cfs.** Watershed inflows to the Franklin pool between S78 and S79 averaged **555 cfs**.

USACE Action: On April 29, 2016 the USACE reduced pulse releases to the Caloosahatchee through S-79 **t**o a weekly average of **2,000 cfs** and **650 cfs** to the St. Lucie measured at S-80.

Recommendation: We recommend reducing average discharges to the Caloosahatchee to 1,500 cfs measured at S79 to moderate lake recession and protect spawning in the Caloosahatchee estuary by improving the salinity gradient throughout the estuary. Reduced flows are critical to prevent the advection of eggs and larvae from critical habitat within the estuary.

Lake Okeechobee Level: **14.12 ft**. (**Low Sub-Band**) **Last week**: **14.42 ft**.

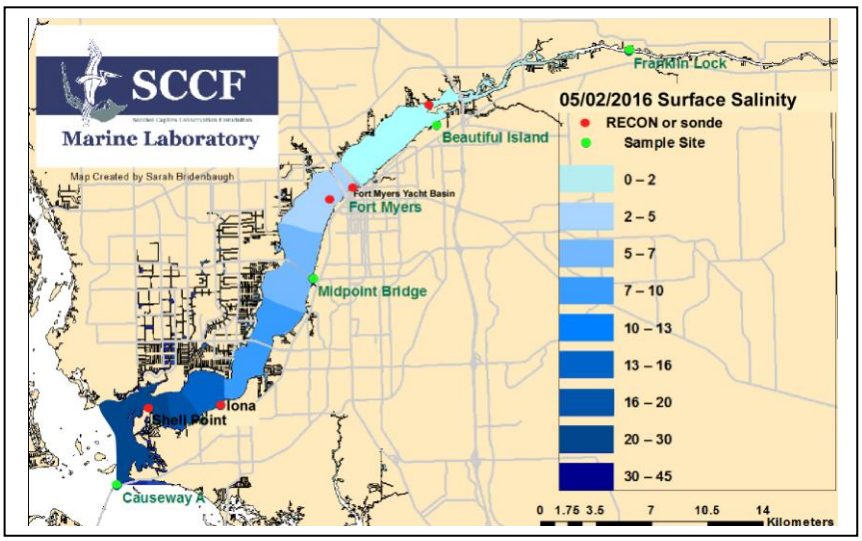
Lake Okeechobee Inflow: **1,160 cfs** **Lake Okeechobee Outflow: 6,540 cfs**

Weekly Rainfall: WP Franklin **1.56"** Ortona **1.16** Moore Haven **1.35"**

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

Salinity Fort Myers: **0.5 – 2.4 psu** (SCCF Yacht Basin) Previous wk **0.3 – 1.8 psu**

Salinity Shell Point: **13– 32 psu (**SCCF RECON) Previous wk **11– 32 psu**



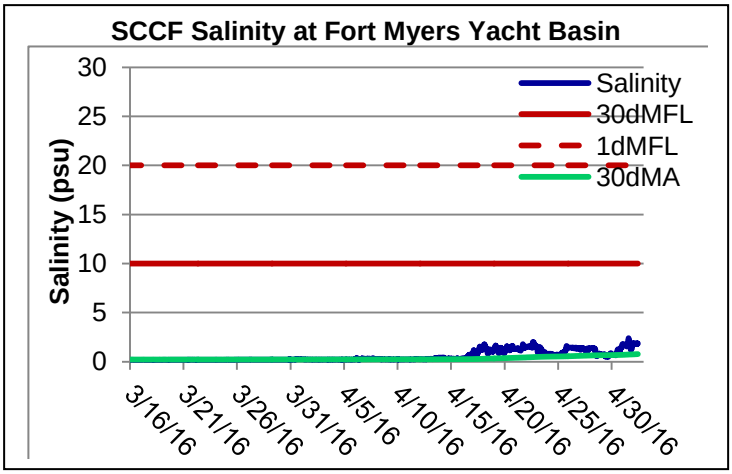
Salinity (psu)			
	Current Value	**Sustainable Range**	**High/ Low**
Beautiful Island	**ND**	**< 5 psu**	**-**
Fort Myers	**0.5 – 2.4**	**<10 psu**	**Low***
Shell Point	**13 – 32**	**25 -31 psu**	**Low**
Light (25% Iz depth meters)			
Causeway	**1.52**	**1 meter**	**Low**
Sanibel Boat Ramp	**2.19**	**2.2 meters**	**In Range**
Tarpon Bay Dock	**1.57**	**2.2 meters**	**Low**

*Higher than normal dry-season flows have limited salinity variation in the upper estuary.

Flow & Water Quality: Flows to the Caloosahatchee Estuary at S79 during the past seven days averaged **2,739 cfs.** Over the past 14 days **42%** of Lake Okeechobee outflows were directed to the Caloosahatchee, **14%** were delivered to the St Lucie at S308, **40%** of flows were discharged south to the EAA for irrigation demand, **3%** to the L8 and **1%** to S310.

ACOE April 22 Pulse Release at S79

Date	Day	Pulse Target	S79 Flow (cfs)	S78 Flow (cfs)	S77 Flow (cfs)
4/22/2016	1	1200	1645	1510	2290
4/23/2016	2	1800	1587	1929	1298
4/24/2016	3	2200	2244	1894	2169
4/25/2016	4	2600	2585	2243	2678
4/26/2016	5	3200	2946	2351	2679
4/27/2016	6	3600	3017	2510	3026
4/28/2016	7	2900	3258	2753	3256
7 day avg		**2500**	**2469**	**2170**	**2485**



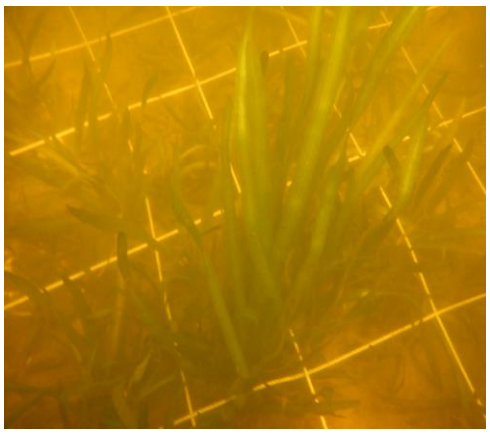
Upstream of S79/Franklin Conditions: On 5/3/16 the Olga Water Treatment plant chlorides measured **53 mg/L**, apparent color was **105 CU** and turbidity measured **3.89 NTU.** No visible algae for the past week. The plant is online and operating at 2000 GPM.

Upper Estuary Conditions: Salinities in the upper estuary are increasing and are in the suitable range for tape grass. **Dissolved oxygen concentrations dropped towards the hypoxia range during April.**

Lower Estuary Condition: The average salinity at Shell Point **(22 psu**) was in the optimal range for oysters.

McIntyre Creek & Tarpon Bay in J.N. *"Ding"* Darling NWR: Refuge waters are still brown and floating mats of green, filamentous algae (*Cladophora* sp.) persist in the west impoundment. Salinities are in the low end of the preferred range for seagrass.

Tape grass transplanted by SCCF spreading in the upper Caloosahatchee on 5/3/16.



Tarpon Bay Salinity **28.5 – 34.0 psu;** CDOM**: 8 – 24.0 qsde;** Dissolved oxygen: **4.75 – 8.0 mg/L,** Chlorophyll: **1.75 – 5.25 µg/L**

McIntyre Creek Salinity: Salinity: **29.8 – 31.7 psu;** CDOM**: 7.9 – 15.1 qsde;** Dissolved oxygen: **2.6 – 10.5 mg/L,** Chlorophyll: **1.9 – 3.6 µg/L.** Dissolved oxygen dropped below 4 mg/L **seven times** over the last week at McIntyre Creek.

Red tide*:* On April 29, 2016 FWC reported a bloom of *Karenia brevis*, the Florida red tide organism, persists in samples along Pinellas, Manatee, Sarasota, and Charlotte and northern Lee Counties in southwest Florida.

Caloosahatchee Stations	Chlorophyll (µg/L)	CDOM (qse)	Turbidity (NTU)	25% Io depth (meters)
Target Values	**< 11**	**CE <70 SCB <11**	**CE < 18 SCB < 5**	**CE = 1 m SCB = 2.2m**
Causeway	**2.8**	**48.2**	**3.2**	**1.52**
Sanibel Boat Ramp	**0.8**	**11.7**	**2.6**	**2.19**
Tarpon Bay Dock	**10.6**	**37.6**	**2.5**	**1.57**

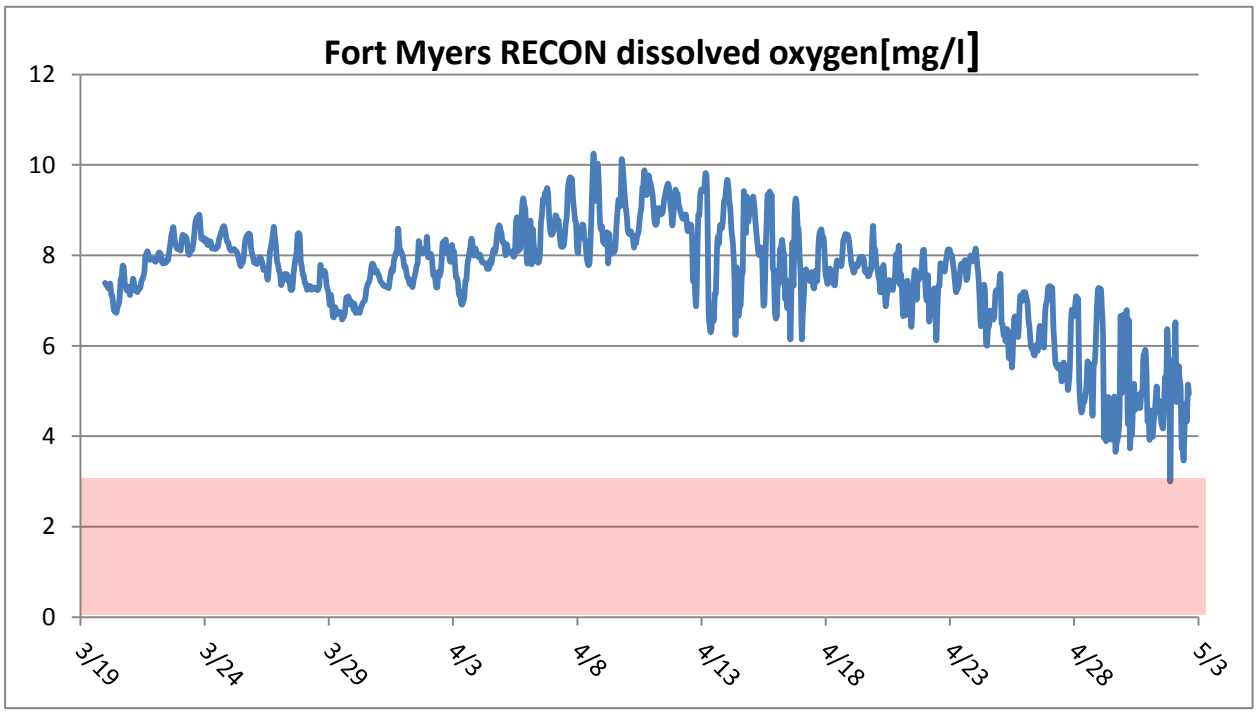
Target light penetration: ***CE****- Caloosahatchee Estuary =1 m*

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)
4/26/2016	Tues	2946	2351	2679
4/27/2016	Wed	3017	2510	3026
4/28/2016	Thur	3258	2753	3256
4/29/2016	Fri	2622	1743	2292
4/30/2016	Sat	2353	1854	2023
5/1/2016	Sun	2815	2200	2777
5/2/2016	Mon	2163	1874	2460
7 Day	**Avg**	2739	2184	2645



Dissolved oxygen in the lower layer of the water column dropped towards hypoxia during April.