

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 Stevenson

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 13 - 19, 2016

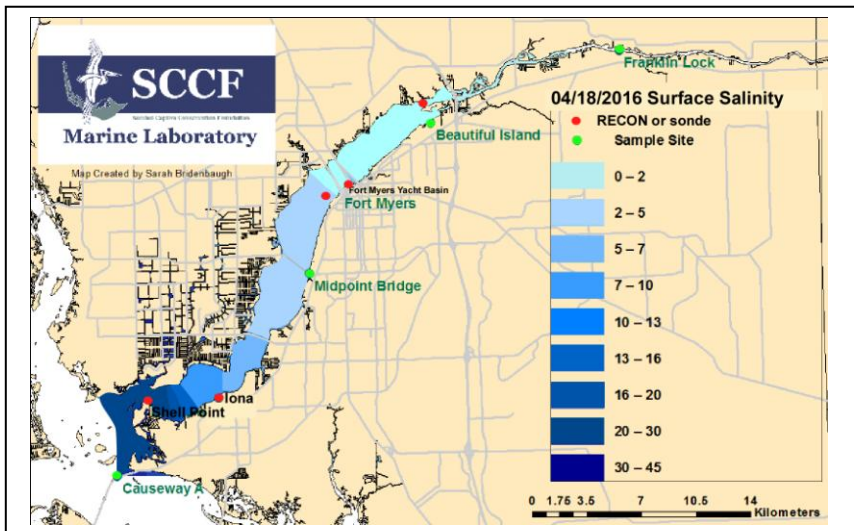
This report provides a scientific assessment of Caloosahatchee River and Estuary conditions and how these conditions affect the health, productivity and function of the system.

Caloosahatchee Condition Summary: During the past week Lake Okeechobee water levels continued to recede with flows to the Caloosahatchee still exceeding the high-flow harm threshold of 2,800 cfs. **Lake discharges into the estuary at S79 the past week decreased slightly to an average of 2,943 cfs and discharges to the river from Lake Okeechobee at S77 decreased to an average of 2,700 cfs.** Watershed inflows into the Franklin pool between S78 and S79 averaged **581 cfs**.

USACE Action: On April 15, 2016 the USACE continued pulse releases to the Caloosahatchee through **S-79** to a weekly average of 3,000 cfs and **1,170 cfs** to the St. Lucie measured at S-80.

Recommendation: High estuary discharges the past thirteen weeks and increased evapotranspiration off the lake have contributed to significant lake recession. To protect spawning in the Caloosahatchee estuary and to improve the salinity gradient throughout the estuary, **we recommend reducing average discharges to the Caloosahatchee to 2,000 cfs or less measured at S79** for the coming week. Reduced flows are critical to prevent the advection of eggs and larvae from critical habitat within the estuary. In addition, a shift in climate forecast to a La Niña condition poses a risk of water shortage if a typical pattern emerges that delays the onset of the wet season.

Lake Okeechobee Level:	14.65 ft. (Low Sub-Band)	Last week: 14.85 ft.
Lake Okeechobee Inflow:	2,769 cfs	Lake Okeechobee Outflow: 5,550 cfs
Weekly Rainfall:	WP Franklin 0.09"	Ortona 0.01" Moore Haven 0.85"
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:	11 – 30 psu (SCCF RECON)	Previous wk 10 – 31 psu

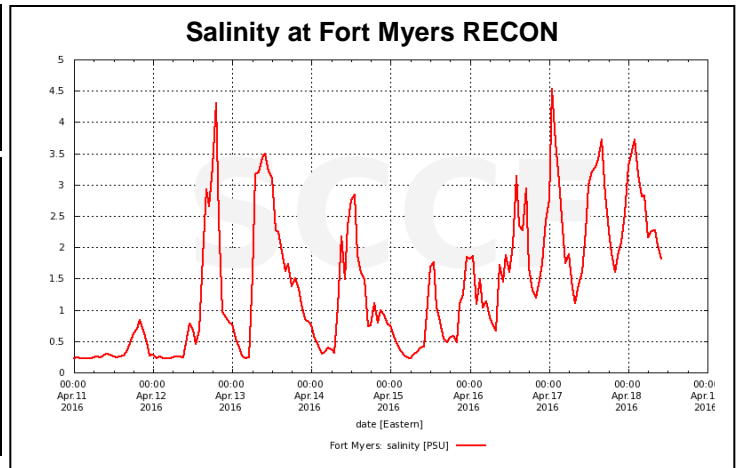


Salinity (psu)			
	Current Value	Sustainable Range	High/ Low
Beautiful Island	0.2 - 0.2	< 5 psu	In Range
Fort Myers	0.2 - 0.2	<10 psu	Low*
Shell Point	11 - 30	25 -31 psu	Low
Light (25% I _z depth meters)			
Colonial Br	0.83	1 meter	Low
Causeway	1.11	2.2 meters	Low
Sanibel Boat Ramp	1.50	2.2 meters	Low

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

Flow & Water Quality: Flows to the Caloosahatchee Estuary at S79 during the past seven days averaged **2,943 cfs**. Over the past 14 days **51%** of Lake Okeechobee outflows were directed to the Caloosahatchee, **18%** were delivered to the St Lucie at S308, **27%** of flows were discharged south to the EAA for irrigation demand, **3%** to the L8 and **1%** to S310.

ACOE April 8 Pulse Release at S79					
Date	Day	Pulse Target	S79 Flow (cfs)	S78 Flow (cfs)	S77 Flow (cfs)
4/8/2016	1	1400	2159	1753	2268
4/9/2016	2	2400	2225	1746	2068
4/10/2016	3	2700	2911	2527	3104
4/11/2016	4	2900	2897	2808	3350
4/12/2016	5	3800	3286	2722	3438
4/13/2016	6	4300	4008	3389	4107
4/14/2016	7	3500	3534	2803	3138
7 day avg		3000	3003	2535	3068



Upstream of S79/Franklin Conditions: On 4/19/16 the Olga Water Treatment plant chlorides measured **53 mg/L**, apparent color was **126 CU** and turbidity measured **4.47 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. Submarine light levels were too low for SAV below depths of less than one meter.

Lower Estuary Condition: The average salinity at the Cape Coral Bridge (**5 psu**) was below optimal for oysters, while the average salinity at Shell Point (**21 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 below the preferred range for seagrass. Tarpon Bay Salinity: **25.6 – 31.2 psu**; CDOM: **0.5 – 3.0 qsde**; Dissolved oxygen: **5.0 – 8.3 mg/L**, Chlorophyll: **2.7 – 7.9 µg/L** McIntyre Creek Salinity: **26.4 – 29.6 psu**; CDOM: **14.3 – 18.1 qsde**; Dissolved oxygen: **2.3 – 11.0 mg/L**, Chlorophyll: **2.6 – 6.2 µg/L**. Dissolved oxygen dropped below 4 mg/L four times over the last week at McIntyre Creek.

Red tide: On April 15, 2016 FWC reported *Karenia brevis*, the Florida red tide organism, persists in samples along Pinellas and Manatee Counties in southwest Florida.

Oysters: April oyster sampling in the Caloosahatchee by FGCU reported disease prevalence of *Perkinsus marinus* for all oysters sampled ranged from 86.66% to 100%. *P. marinus* disease intensity ranged from 0.87 to 1.07. Scale 0 = no infection, 1 = low, 3 = medium, 5 = high. Larval recruitment ranged from 1.89 to 28.58 spat per shell.

Caloosahatchee Stations	Chlorophyll (µg/L)	CDOM (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
Colonial Br	6.6	182	1.9	0.83
Causeway	4.3	99.8	3.5	1.11
Sanibel Boat Ramp	3.1	62.5	2.0	1.50

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

ACOE Daily Reports				
Date	Day	S79 Flow (cfs)	S78 Flow (cfs)	S77 Flow (cfs)
4/12/2016	Tues	3286	2722	3438
4/13/2016	Wed	4008	3389	4107
4/14/2016	Thur	3534	2803	3138
4/15/2016	Fri	1887	1443	1911
4/16/2016	Sat	2427	1719	1624
4/17/2016	Sun	2805	2248	2244
4/18/2016	Mon	2652	2210	2439
7 Day	Avg	2943	2362	2700