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: September 13 - 19, 2016

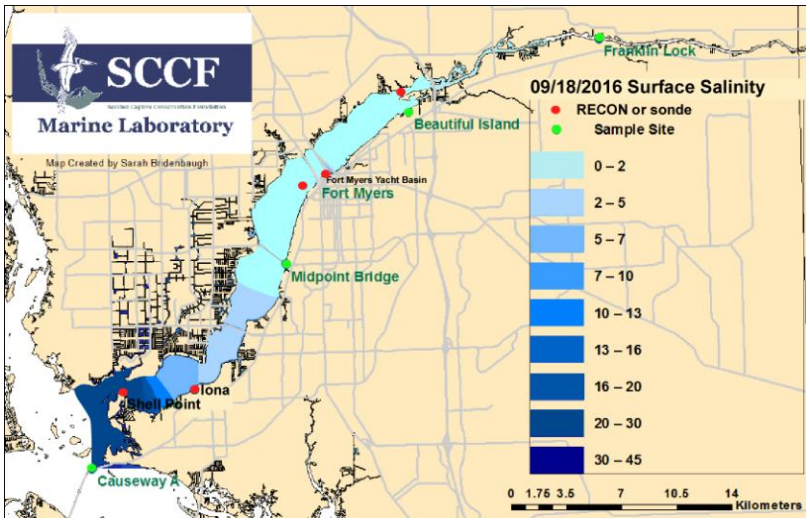
This report provides a scientific assessment of Caloosahatchee River and Estuary conditions and how these conditions affect the health, productivity and function of the system.

Caloosahatchee Condition Summary: Discharges into the estuary at S-79 during the past week averaged **4,491 cfs, still exceeding the harm threshold of 2,800 cfs established for the estuary.** Lake Okeechobee discharges to the river, **measured at S-77**, **increased over three times to an average of 1,742 cfs.** Watershed inflows to the Franklin pool between S-78 and S-79 the past week averaged **2,108 cfs.**

USACE Action: On September 16, 2016 the USACE **increased releases from Lake Okeechobee with a constant release of 2,800 cfs to the Caloosahatchee measured at S-77 a**nd pulse release of **1170 cfs** to the St. Lucie measured at S-80.

Recommendation: We request flows to the Caloosahatchee Estuary at S-79 be maintained at or below the 2,800 cfs high flow harm threshold.

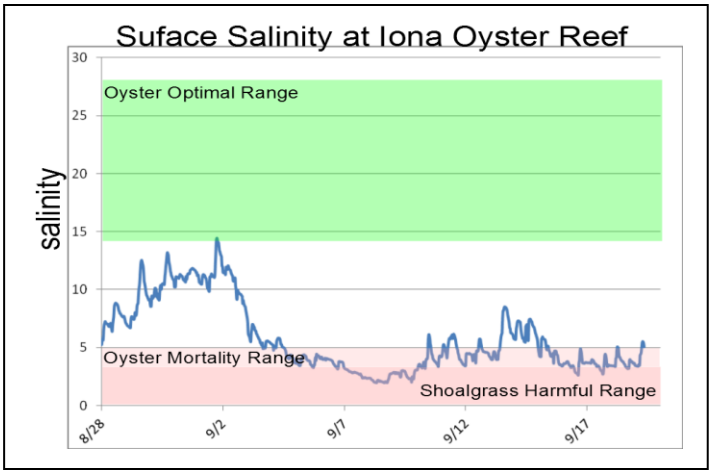
Lake Okeechobee Level:	**15.50 ft**. (**Low Sub-Band)**	**Last week**: **15.25 ft**.
Lake Okeechobee Inflow:	**9,357 cfs**	**Lake Okeechobee Outflow: 4,568 cfs**
Weekly Rainfall:	WP Franklin **0.60"**	Ortona **2.22"** Moore Haven **2.68"**
Salinity Beautiful Island:	**0.2 – 0.2 psu** (SCCF RECON Marker 18)	Previous wk **0.2 – 0.2 psu**
Salinity Fort Myers:	**0.2 – 0.2 psu** (SCCF Yacht Basin)	Previous wk **0.2 – 2.5 psu**
Salinity Shell Point:	**7.0 – 28 psu (**SCCF RECON)	Previous wk **3.7 – 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	**7.5 – 33**	**25 - 32 psu**	**Low**
Light (25% Iz depth meters)			
Iona	**0.72**	**1 meter**	**Low**
Causeway	**1.08**	**2.2 meters**	**Low**
Sanibel East	**1.24**	**2.2 meters**	**Low**

Flow & Water Quality: Flows to the Caloosahatchee Estuary at S-79 during the past seven days averaged **4,491 cfs. Cyanobacteria was not detected in samples by Lee County Environmental Lab the past week. Over the past 14 days 64%** of Lake Okeechobee outflow was directed to the Caloosahatchee at S-77, **24%** was delivered to the St Lucie at S-308, **4%** was delivered south to the EAA, **8%** was directed to the L8**. S-310 back flowed 1,384 acre feet into Lake O.**

ACOE September 9 Release at S-79					
Date	**Day**	**Pulse Target**	**S79 Flow (cfs)**	**S78 Flow (cfs)**	**S77 Flow (cfs)**
9/9/2016	1	3300	**4028**	**1506**	**825**
9/10/2016	2	4100	**3828**	**1256**	**604**
9/11/2016	3	3600	**3844**	**1224**	**557**
9/12/2016	4	2700	**3094**	**997**	**541**
9/13/2016	5	2500	**2345**	**1524**	**291**
9/14/2016	6	2200	**4289**	**1334**	**98**
9/15/2016	7	1200	**3802**	**1495**	**700**
7 day avg		**2800**	**3604**	**1334**	**517**



Upstream of S-79/Franklin Conditions: On 9/20/16 the Olga Water Treatment plant chlorides measured **46 mg/L**, apparent color was **181 CU** and turbidity measured **2.25 NTU.** No visible algae was noted at the plant intake for the last week. The plant is online at 2000 GPM.

Upper Estuary Conditions: Salinities are in the suitable range for tape grass.

Lower Estuary Condition: Average salinity **(3.7 psu**) was sub-optimal for oysters, pink shrimp and seagrass. Chlorophyll and phycoerythrin were elevated at Peppertree Pointe Marina in Iona. The average salinity at Shell Point (**17 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 grass and turtle grass (30 to 40 psu) in McIntyre Creek for 79 of the past 84 days (sensor down 8/6-8/11) and in Tarpon Bay, 77 of the past 89 days. Tarpon Bay Salinity: **23.0 – 30.3 psu;** FDOM**: 12.0 – 36.0 qsde;** Dissolved oxygen: **4.1 – 8.2 mg/L;** Chlorophyll: **2.5– 22.9 µg/L**. **McIntyre Creek:** Salinity: **22.4 – 26.1 psu;** FDOM**: 20.4 – 27.5 qsde;** Dissolved oxygen: **1.4 – 6.9 mg/L;** Chlorophyll: **2.7 – 7.2 µg/L.** Dissolved oxygen dropped below 3 mg/L last week **seven times** at McIntyre Creek. Working with SCCF, the refuge installed a new water quality monitoring station at Wulfert Flats on September 20th, which is now operational.

Coastal Conditions: A plume of dark water from the Caloosahatchee extends to the Sanibel lighthouse and throughout Pine Island Sound, Matlacha Pass and the bay side of Sanibel.

***Red Tide:* On 9/16/16 FWC reported *Karenia brevis*, the Florida red tide organism, in background concentrations in samples collected offshore of Lee County over the past week.** Samples from Pinellas, Manatee and Sarasota County also contained *K. brevis*.

Oysters: September sampling in the Caloosahatchee by FGCU reported disease prevalence of *Perkinsus marinus* of all oysters sampled ranged from **53.33% to 80.0%.** Disease intensity of *P. marinus* ranged from **0.53 to 0.80.**
Scale 0 = no infection, 1 = low, 3 = medium, 5 = high. Larval recruitment ranged from **2.31 to 45.14** spat per shell.

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**
Iona	**14.9**	**218**	**1.1**	**0.72**
Causeway	**5.6**	**101**	**3.7**	**1.08**
Sanibel E	**7.9**	**64.8**	**4.2**	**1.24**

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)**
9/13/2016	Tues	**2345**	**1524**	**291**
9/14/2016	Wed	**4289**	**1334**	**98**
9/15/2016	Thur	**3802**	**1495**	**700**
9/16/2016	Fri	**4507**	**2824**	**2290**
9/17/2016	Sat	**5515**	**3264**	**3099**
9/18/2016	Sun	**5072**	**3179**	**2858**
9/19/2016	Mon	**5910**	**3064**	**2857**
7 Day	**Avg**	**4491**	**2383**	**1742**