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: **December 20, 2016 - January 3, 2017**

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 two weeks decreased to a weekly average of **617 cfs. The MFL was exceeded at Fort Myers with salinity exceeding the 30 day moving average of 10 psu.** Lake Okeechobee discharges to the river, measured at S-77 averaged **845 cfs. Salinities have risen rapidly in the upper and middle estuary since November. Red tide persists in coastal waters.**

USACE Action: The USACE continued flows to the Caloosahatchee with a 7-day average target of **650 cfs** measured at S-79 with no discharge from Lake Okeechobee to the St Lucie estuary at S-80.

Recommendation: Rapidly rising salinities in the Caloosahatchee estuary have triggered an MFL exceedance. We recommend increasing pulse releases to provide adequate freshwater flows to prevent future MFL exceedances at Fort Myers.

Lake Okeechobee Level: **14.25 ft**. (**Low Sub-Band)** **Last week**: **NR**

Lake Okeechobee Inflow: **403 cfs** **Lake Okeechobee Outflow: 2,114 cfs**

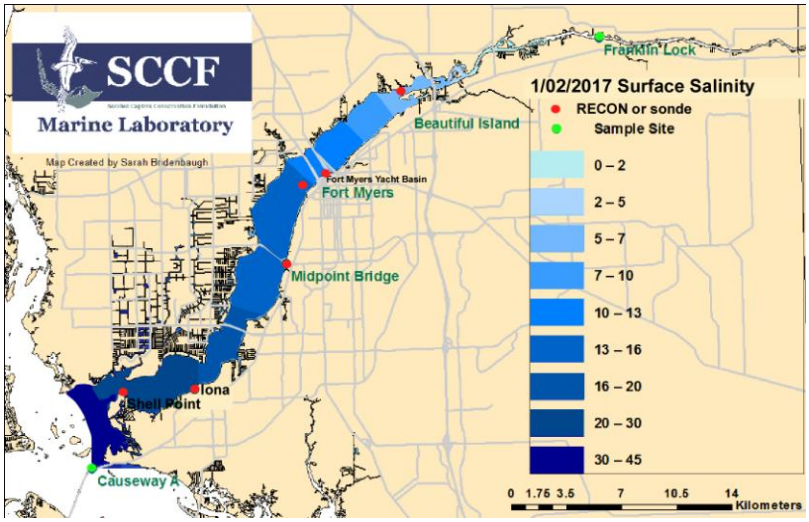
Weekly Rainfall: WP Franklin **0.29"** Ortona **0 "** Moore Haven **0.42"**

Salinity Beautiful Island: **5.2 - 8.3 psu** (SCCF RECON Marker 18) Previous wk **0.7 – 5.3 psu**

Salinity Fort Myers: **11 - 14 psu** (SCCF Yacht Basin) Previous wk **6.5 – 13 psu**

MFL Status: **MFL Exceedance 30-day moving average >10 psu at surface for 6 days**

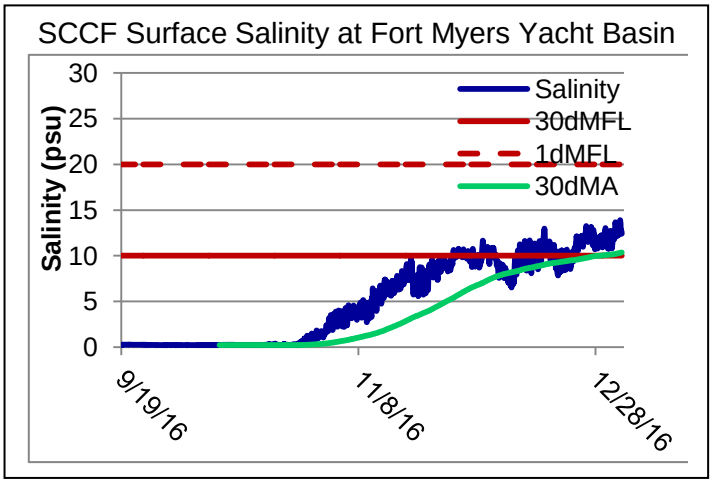
Salinity Shell Point: **22 - 33 psu (**SCCF RECON) Previous wk **14 – 33 psu**



Salinity (psu)			
	Current Value	**Sustainable Range**	**High/ Low**
Beautiful Is	**5.2 - 8.3**	**< 5 psu**	**High**
Fort Myers	**11 - 14**	**<10 psu**	**MFL Ex**
Shell Point	**22 – 33**	**25 - 32 psu**	**In Range**
Light (25% Iz depth meters)			
Tarpon Bay	**1.82**	**2.2 meters**	**Low**
Causeway	**1.98**	**2.2 meters**	**Low**
Sanibel E	**2.21**	**2.2 meters**	**In Range**

Flow & Water Quality: Flows to the Caloosahatchee Estuary at S-79 during the past seven days averaged **617 cfs.** Over the past 14 days **35%** of Lake Okeechobee outflow was directed to the Caloosahatchee at S-77, **1%** was delivered to the St Lucie at S-308, **50.5%** was delivered south to the EAA, **12.5%** was directed to the L8 and **1%** was delivered thru S-310.

ACOE Daily Reports				
Date	**Day**	**S79 Flow (cfs)**	**S78 Flow (cfs)**	**S77 Flow (cfs)**
12/20/2016	Tues	**576**	**240**	**593**
12/21/2016	Wed	**241**	**147**	**583**
12/22/2016	Thur	**256**	**146**	**577**
12/23/2016	Fri	**847**	**587**	**716**
12/24/2016	Sat	**1012**	**788**	**1006**
12/25/2016	Sun	**902**	**656**	**1079**
12/26/2016	Mon	**755**	**468**	**942**
12/27/2016	Tues	**465**	**460**	**967**
12/28/2016	Wed	**304**	**383**	**995**
12/29/2016	Thur	**264**	**286**	**765**
12/30/2016	Fri	**671**	**291**	**609**
12/31/2016	Sat	**811**	**533**	**905**
1/1/2017	Sun	**806**	**643**	**1120**
1/2/2017	Mon	**722**	**644**	**976**
14 day Avg		**617**	**448**	**845**



Upstream of S-79/Franklin Conditions: On 1/3/17 the Olga Water Treatment plant chlorides measured **57 mg/L**, apparent color was **89 CU** and turbidity measured **1.86 NTU.** No visible algae was noted at the plant intake for the past two weeks. The plant is online at 2400 GPM.

Upper Estuary Conditions: MFL exceedance. Salinities are above the suitable range for tape grass at Fort Myers Yacht Basin (30 dma over 10 psu for six days, SCCF sensor).

Lower Estuary Condition: The average salinity at Shell Point (**29 psu**) was **above optimal for oysters**.

J.N. *"Ding"* Darling NWR:

Monitor Site	**Salinity (psu)**	**Diss O_2 (mg/L)**	**FDOM (qsde)**	**Chlorophyll (µg/L)**
McIntyre Creek	**30.5 – 32.1**	**3.2 – 9.3**	**12.4 – 22.8**	**1.6 – 5.8**
Tarpon Bay	**30.4 – 33.3**	**5.5 – 9.0**	**10.0 – 21.0**	**5.3 – 15.6**

Beach Conditions: Water clarity continues to improve. Sparse strandings of red drift algae continue on Sanibel and Fort Myers beaches, with accumulations on portions of the beach and surf zone.

Red Tide: On 12/30/16, FWC reported *Karenia brevis*, the Florida red tide organism, persists in Southwest Florida from **southern Pinellas to Lee County.**

Wildlife status: The past two weeks, CROW, the wildlife rehabilitation clinic on Sanibel received **39 animals suffering from red tide poisoning**; **34 Double Crested Cormorants, 3 Brown Pelicans, 1 Common Loon and 1 Sandwich Tern**. **10 Cormorants, 1 Pelicans and both the Loon and Tern died.** 9 Cormorants have recovered and been released.

Manatees: Lee County Park staff reported **30** manatees congregating in the Orange River and FPL discharge canal over the past two weeks while water temperatures in the river ranged from 73 - 88° F.

Caloosahatchee Stations	**Chlorophyll (µg/L)**	**fDOM (qse)**	**Turbidity (NTU)**	**25% Io depth (meters)**
Target Values	**< 11**	**CE <70 SCB <11**	**CE < 18 SCB < 5**	**CE = 1 m SCB = 2.2m**
Tarpon Bay	**4.4**	**39.9**	**1.3**	**1.82**
Causeway	**3.0**	**29.0**	**1.6**	**1.98**
Sanibel E	**2.5**	**14.7**	**1.9**	**2.21**

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*