

**MEMORANDUM**

To: USACE Colonel Alan M. Dodd, Lt. Colonel Thomas Greco, John Kilpatrick, SFWMD Blake Guillory, Ernie Barnett, Dan Delisi, Tommy Strowd, Terrie Bates, Susan Gray, Peter Doering, DEP Herschel Vinyard

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 - Lee County Environmental Lab  
Keith Laakkonen - Town of Fort Myers Beach  
Rae Ann Wessel & Rick Bartleson, Ph.D.-Sanibel Captiva Conservation Foundation

Subject: Caloosahatchee & Estuary Condition Report

Reporting Period: December 3 - 9, 2013

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.

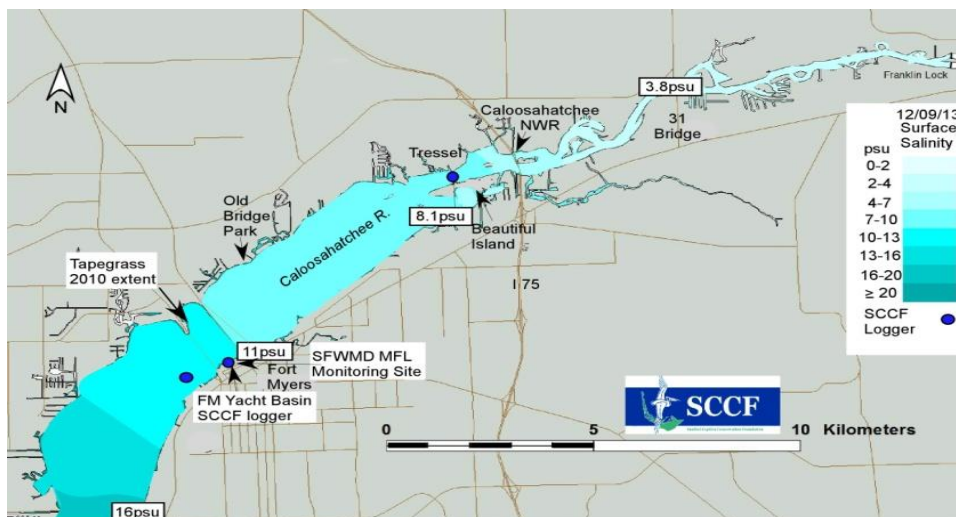
**Caloosahatchee Condition Summary**

Flows over the 10-day pulse release that began on 11/28/13 averaged 739 cfs at S-79. The 30-day moving average of surface salinity at Ft. Myers was 9.4 psu and continues trending upward.

**USACE Action:** On Thursday, 11/28/13 the USACE initiated a 10 day pulse release to the Caloosahatchee averaging 730 cfs measured at S-79 using make-up release water. The pulse included two days of zero flow at the end of the schedule. Beginning 12/8/13 a new 10 day pulse was initiated with reduced flows averaging 650 cfs and four days of no flow.

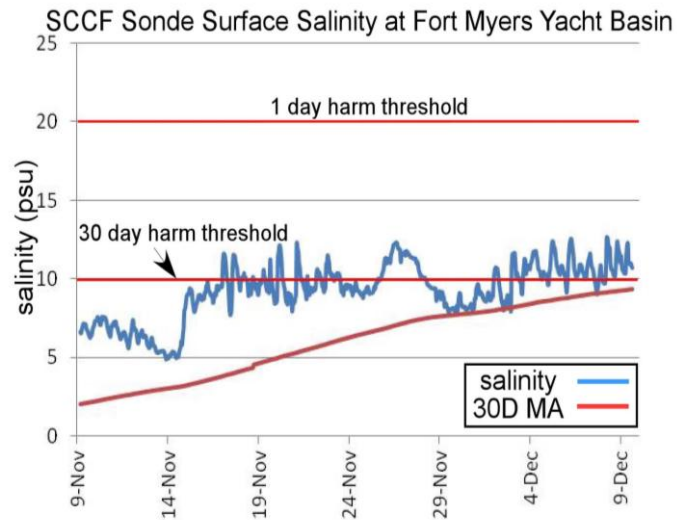
**Recommendation:** With salinities rising, reduced flows and four days of no flow are expected to trigger an MFL exceedence and violation within the next week. We request that make up releases be continued to provide flows to support the fledgling recovery of tape grass in the upper estuary. Pulse releases should be designed to minimize the number of zero flow days. Seven day pulse schedules should be considered if it minimizes the number of zero flow days between pulse schedules.

<b>Lake Okeechobee Level:</b>	<b>14.57 ft. (Low Sub-Band)</b>	<b>Last wk: 14.65 ft</b>
<b>Lake Okeechobee Inflow:</b>	<b>230 cfs</b>	<b>Lake Okeechobee Outflow: 4,655 cfs</b>
<b>Weekly Rainfall:</b>	WP Franklin 0.01"      Ortona 0.0"	Moore Haven 0.0"
<b>Salinity Fort Myers:</b>	<b>8.0- 12.6 psu</b> SCCF Ft. Myers Yacht Basin	Previous wk: <b>8.8 - 12.3 psu</b>
<b>MFL Status:</b>	<b>9.4 psu</b> 30 day moving average at Fort Myers	MFL target $\leq$ <b>10 psu</b>
	<b>12- 17 psu</b> (SCCF RECON Marker 52)	Previous wk <b>9.5 - 16 psu</b>
<b>Salinity Beautiful Island:</b>	<b>3.2 - 5.9 psu</b> (SCCF RECON Marker 18)	Previous wk: <b>3.2 - 7.3 psu</b>
<b>Salinity Shell Point:</b>	<b>22 - 32 psu</b> (SCCF RECON)	Previous wk: <b>18 - 34 psu</b>



**Flow:** Flows at S79 over the last 10 day pulse release averaged **739 cfs**. The past 7 days flows at S79 averaged **624 cfs**.

ACOE November 28, 2013 Pulse Release					
Date	Day	Pulse	S79 Flow (cfs)	S78 Flow (cfs)	S77 Flow (cfs)
11/28/13	1	1300	888	448	444
11/29/13	2	1900	1824	977	1122
11/30/13	3	1300	1478	783	1054
12/1/13	4	900	973	431	598
12/2/13	5	700	684	323	435
12/3/13	6	400	491	322	443
12/4/13	7	400	465	320	445
12/5/13	8	400	473	322	449
12/6/13	9	0	117	254	451
12/7/13	10	0	0	165	445
<b>10 day Av</b>		<b>730</b>	<b>739</b>	<b>434</b>	<b>588</b>



**Upstream of S79/Franklin Conditions:** On 12/10/13, chlorides measured 58 mg/L and apparent color was 75 CU.

**Upper Estuary Conditions:** The 30 day moving average surface salinity continued to rise at Fort Myers Yacht Basin (SCCF sonde) to 9.4 psu. Though CDOM levels have dropped enough to allow enough light for diatoms (*Skeletonema*) and other phytoplankton, there is still insufficient light for submersed plants at depth in the upper Estuary.

**Lower Estuary Condition:** Epiphytic algae were covering shoal grass shoots around Sanibel 12/6-12/9/13. Dominant epiphytes included *Polysiphonia* at the Toll booth flats and *Hincksia* at the boat ramp. The water column light attenuation coefficient remains high for seagrasses at depth in the lower Estuary. Red and brown macroalgae continue to strand along Fort Myers Beach creating light to moderate wrack lines.

**McIntyre Creek and Tarpon Bay in J.N. "Ding" Darling NWR:**

Over the past week, bottom salinities at McIntyre Creek have steadily increased from 29 to 32. The reduction in flows at S-79 has resulted in clearer water within the refuge. However, filamentous green algae (including *Ulva* and *Rhizoclonium*) was evident on exposed mudflats in the impoundments along Wildlife Drive. Large amounts of drift algae are present within the seagrass beds and on sand flats within Pine Island Sound.

Note: The USGS gages at McIntyre Creek were removed from operation December 10, 2013. The SCCF Marine Laboratory will place a RECON station at the same location that will be operational next week.

**Red Tide:** No *Karenia brevis* cells were found in SCCF samples from the Sanibel shoreline or in Pine Island Sound from 12/2-12/9/13.

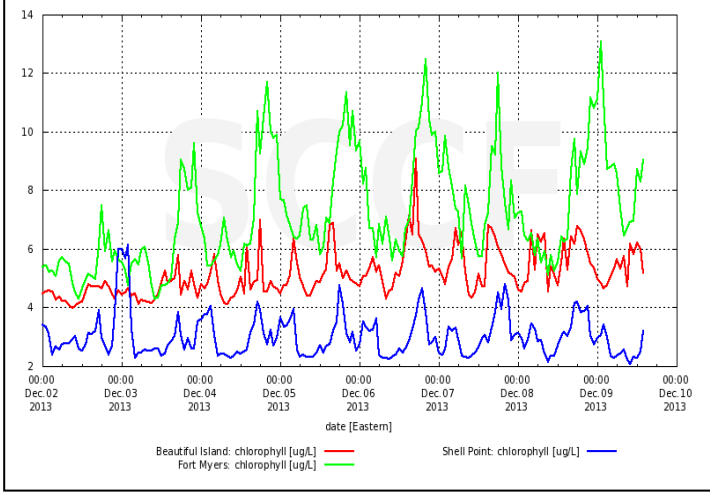
**Oysters:** December sampling showed the *Perkinsus* disease prevalence ranged from 64.2-86.6% with an estuary average of 75.4%. Disease intensity ranged from 0.64-0.93 with an average of 0.79. Spat recruitment ranged from 0.11-3.53 spat/shell from upstream to downstream with an average of 0.79 spat/shell. (Data from FGCU)

**Wildlife Impacts:** Over the past week, CROW, the wildlife rehabilitation hospital on Sanibel, reported 26 new brevetoxicosis cases, including 24 double crested cormorants and 2 brown pelicans.

Caloosahatchee Stations	Chlorophyll (µg/L)	CDOM (qse)	Turbidity (NTU)	25% I <sub>0</sub> depth (meters)
Target Values	< 11	CE <70 SCB <11	CE < 18 SCB < 5	CE = 1 m SCB = 2.2m
31 Bridge	4.6	187	1.1	0.85
Beautiful Is.	6.0	167	1.2	0.92
Fort Myers	9.0	141	1.3	0.98
Colonial Br.	12.1	121	1.6	1.03

Target light penetration: **CE**- Caloosahatchee Estuary =1 m  
**SCB**-San Carlos Bay = 2.2 meters  
 Definition of 25% I<sub>z</sub>: z where I is 25% of surface I.  
 I = irradiance, z= depth

**Phytoplankton chlorophyll rising at Ft. Myers RECON**



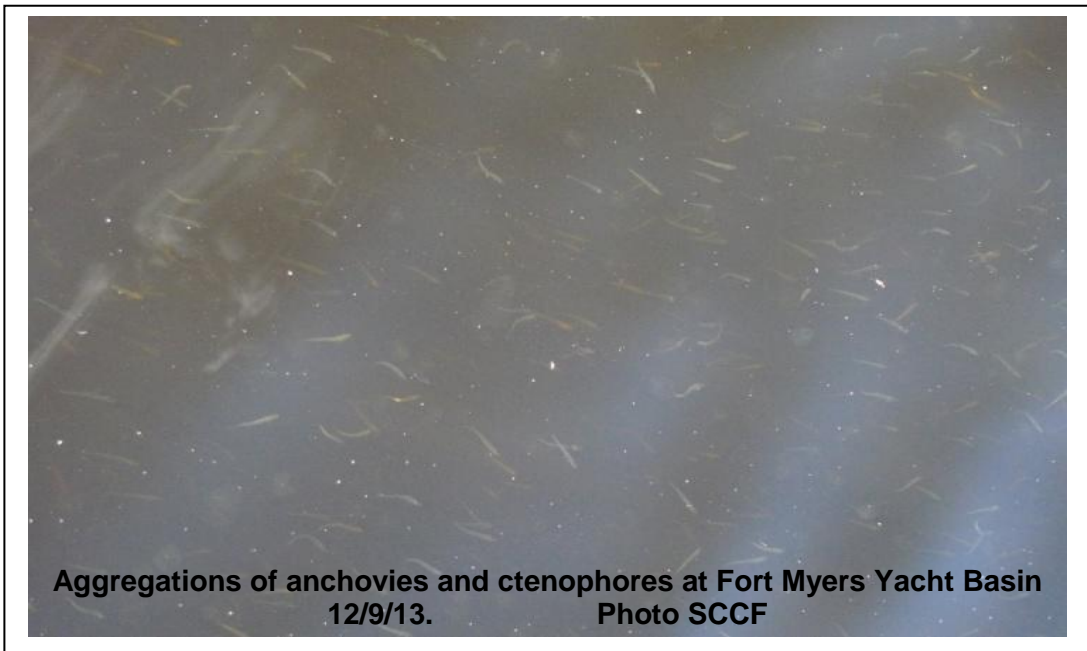
ACOE Daily Reports				
Date	Day	S79 Flow (cfs)	S78 Flow (cfs)	S77 Flow (cfs)
12/3/13	Tues	491	322	443
12/4/13	Wed	465	320	445
12/5/13	Thurs	473	322	449
12/6/13	Fri	117	254	451
12/7/13	Sat	0	165	445
12/8/13	Sun	978	249	433
12/9/13	Mon	1846	1081	1143
<b>7 Day</b>	<b>Avg</b>	<b>624</b>	<b>387</b>	<b>544</b>



**Shoal grass covered with filamentous epiphytic algae at the Sanibel toll booth flats in San Carlos Bay 12/8/13. Photo SCCF**



**Caloosahatchee tape grass 12/10/13. Photo SCCF**



**Aggregations of anchovies and ctenophores at Fort Myers Yacht Basin 12/9/13. Photo SCCF**