

**MEMORANDUM**

To: USACE Colonel Jason A. Kirk, LTC Jennifer A. Reynolds, Richard McMillen, Kim Taplin, SFWMD Governing Board, Executive Director Ernie Marks, Terrie Bates, Susan Gray, DEP Secretary Noah Valenstein

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 Burns – Town of Fort Myers Beach  
 Harry Phillips – City of Cape Coral  
 Rae Ann Wessel & Rick Bartleson, Ph.D.-Sanibel Captiva Conservation Foundation

Subject: Caloosahatchee & Estuary Condition Report

Reporting Period: **August 14 - 20, 2018**

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:** **Cyanobacteria blooms persist within Lake Okeechobee, Caloosahatchee and estuary.** The weekly average flow at S79 was **3,460 cfs**, above the high flow harm threshold. **Red tide persists along the coast causing mortality of a wide variety of marine life and endangered sea turtles.** Due to the unprecedented volume of dead sea life the City of Sanibel and Lee County are paying contractors to clean beaches of dead marine organisms. Significant economic impacts are reported by area businesses.

**USACE Action:** On 7/27/18 the U.S. Army Corps of Engineers initiated a 7 day pulse release of **3,000 cfs** to the Caloosahatchee measured at **S-79**. The St Lucie will receive an average of **1,170 cfs** with two days of no releases measured at **S-80**.

**Recommendation:** We request the Corps keep flows at or below **3,000 cfs** and maintain the measurement point at **S-79** to accommodate significant watershed inflows. We request the Corps and SFWMD use operational flexibility to increase water levels in canals south of the lake and use all emergency storage measures to address ongoing harmful estuary releases.

**Lake Okeechobee Level: 14.59 ft. (Low Flow Sub-Band)**

**Last week: 14.55 ft.**

**Lake Okeechobee Inflow: 5,196 cfs**

**Lake Okeechobee Outflow: 3,422 cfs**

**Weekly Rainfall:** WP Franklin **1.41"** Ortona **0.96"**

Moore Haven **1.05"**

**Salinity Beautiful Island: 0.2 - 0.2 psu (SCCF RECON Marker 18)**

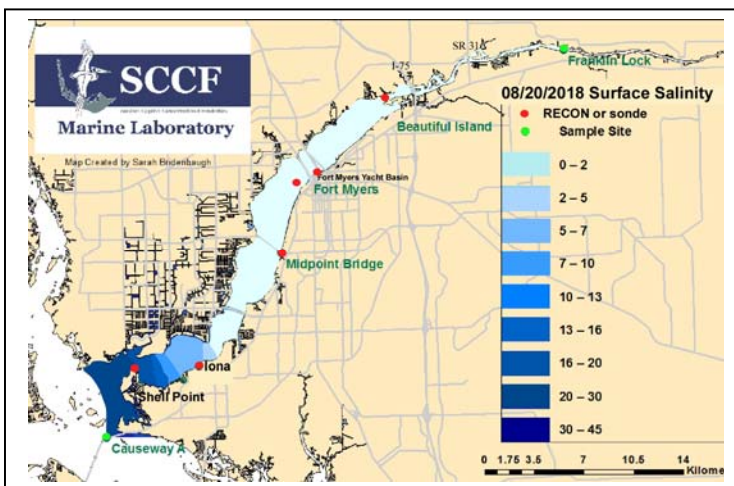
**Previous week 0.2 - 0.2 psu**

**Salinity Fort Myers: 0.2 - 0.2 psu (SCCF RECON)**

**Previous week 0.2 - 0.2 psu**

**Salinity Shell Point: 7.8 – 29 psu (SCCF RECON)**

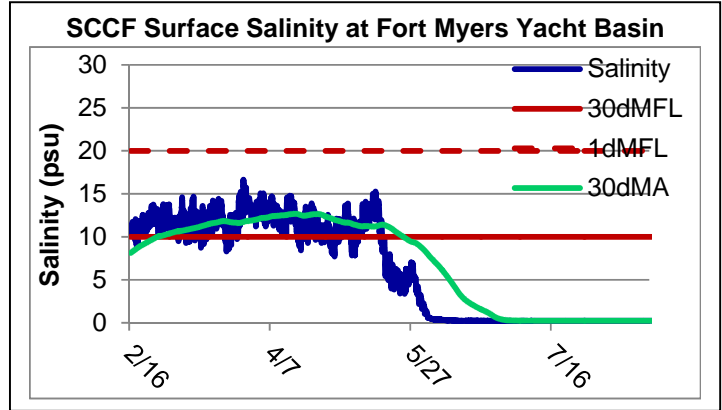
**Previous week 6.9 - 31 psu**



<b>Salinity (psu)</b>			
	<b>Current Value</b>	<b>Sustainable Range</b>	<b>High/Low</b>
<b>Beautiful Is</b>	<b>0.2 - 0.2</b>	<b>&lt; 5 psu</b>	<b>In Range</b>
<b>Fort Myers</b>	<b>0.2 - 0.2</b>	<b>&lt;10 psu</b>	<b>In Range</b>
<b>Shell Point</b>	<b>7.8 – 29</b>	<b>25 - 32 psu</b>	<b>Low</b>
<b>Light (25% lz depth meters)</b>			
<b>Fort Myers</b>	<b>0.52</b>	<b>1 meter</b>	<b>Low</b>
<b>Shell Point</b>	<b>1.33</b>	<b>2.2 meters</b>	<b>Low</b>
<b>Causeway</b>	<b>1.29</b>	<b>2.2 meters</b>	<b>Low</b>

**Flow & Water Quality:** Flows to the Caloosahatchee Estuary at S-79 during the **past seven days** averaged **3,460 cfs**; **24% of flow originated from Lake Okeechobee**. Over the past 7 days **41,537 AF** of water was discharged from Lake Okeechobee: **28% to the Caloosahatchee at S-77, 32% to the St Lucie at S-80, 41% was discharged south to the EAA**. A net 237 AF was discharged through Clewiston's Industrial Canal S-310. **A net -188AF of storm water back flowed into Lake Okeechobee from the L8.**

ACOE Daily Reports			
Date	S79 Flow (cfs)	S78 Flow (cfs)	S77 Flow (cfs)
8/14/2018	4040	1621	336
8/15/2018	3230	1592	752
8/16/2018	3350	1602	994
8/17/2018	3610	1598	901
8/18/2018	3357	1621	901
8/19/2018	3292	1609	901
8/20/2018	3338	1602	1090
7 day Avg	3460	1606	839



**Cyanobacteria bloom:** On 8/21/18 the Lee County Environmental Lab documented **Microcystis** and **Dolichospermum** to be **abundant upstream of the Franklin Lock, Davis Boat Ramp, North Shore Park and Midpoint Bridge Park** also were reported as having abundant **Microcystis**. **Microcystis** was reported to be present with only some algae visible at the Alva Boat Ramp and downstream of S-79.

**Upstream of S-79/Franklin Conditions:** On 8/14/18 the Olga Water Treatment plant reported chlorides of **45 mg/l**, apparent color **198 CU** and turbidity **2.38 NTU**. Slight algae visible at the plant intake. The plant remains off line for maintenance.

**Upper Estuary Conditions:** The weekly average salinity at the Fort Myers Yacht Basin was **0.2 psu**, in the suitable range for tape grass growing between the Caloosahatchee US 41 Bridges and Beautiful Island.

**Lower Estuary Conditions:** The average salinity at Shell Point was **20 psu**, in the suitable range for oysters. **Light levels are too low for submersed plants growing at depth in the Caloosahatchee and around the Causeway.** Microcystis clumps were present along the north side of Sanibel during the week.

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

Monitor Site	Salinity (psu)	Diss O <sub>2</sub> (mg/L)	FDOM (qsde)	Chlorophyll (µg/L)
McIntyre Creek	23.7 – 27.0	2.0 – 10.7	22.8 – 29.2	3.4 – 57.2
Tarpon Bay	22.2 – 29.7	2.8 – 7.7	18.1 – 29.5	3.2 – 23.0
Wildlife Drive	25.5 – 27.3	0.31 – 12.6	-----	1.6 – 8.6
Wulfert Flats	22.9 – 26.6	1.6 – 7.5	-----	11.4 – 78.6

**Red Tide:** On 8/17/18 the Florida Fish and Wildlife Conservation Commission reports that a bloom of the Florida red tide organism, **Karenia brevis** persists along **130 miles of coastline with High counts, > 1 million cells/liter, from Manatee to Collier Counties**. **Widespread variety of dead marine life continues to wash up on Lee County beaches, see Page 3. Samples from SCCF's Gulf, Tarpon Bay and McIntyre Creek RECON stations on 8/19/18 had high or medium concentrations of Karenia.** Three Lee County samples from offshore also had medium to high *Karenia* concentrations (2.7 million cells/L 10 miles out).

**Wildlife Impacts:** The past week SCCF recovered **12 dead sea turtles from Sanibel beaches, 4 Kemp's ridley juveniles and 10 loggerhead adults**. CROW, the wildlife hospital on Sanibel treated 11 new patients with red tide symptoms; 2 loggerhead and 2 green sea turtles, 1 ruddy turnstone, 1 royal tern, 1 little blue heron, 1 sanderling, 1 anhinga and 2 double crested cormorant.

Caloosahatchee Stations	Chlorophyll (µg/L)	fDOM (gse)	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
Fort Myers	8.6	350	3.3	0.52
Shell Point	6.0	91.2	1.1	1.33
Causeway	4.4	82	1.3	1.29

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

Dead wildlife: Caloosahatchee, estuary, canals, back bays, Sanibel, Fort Myers beaches & Islands		
Sanibel ONLY has removed 309 tons of dead marine life		
<i>Ongoing list not comprehensive    <b>Endangered/Threatened Species</b></i>		
American eels	<b>Loggerhead sea turtle</b>	Stone crab
Angel fish	Lookdown fish	Striped burr fish
Atlantic needlefish	Mackerel	Threadfin herring
Atlantic Spadefish	<b>Manatees</b>	Tarpon
Batfish	Mallard ducks	Toadfish
Black drum	Mangrove snapper	Tripletail
Black tip shark	Menhaden	<b>Whale shark</b>
Blenny	Minnows	Whiting
Blue crabs	Moray Eel	Yellow snake eel
Bottlenose Dolphin	Muscovy duck	
Brown pelican	Mullet sp.	
Bull shark	Ornate Diamondback Terrapin	
Catfish sp.	Pale spotted eels	
Cobia	Parchment worms	
Common tern	Permit	
Coquina	Pig fish	
Cowfish	Pinfish	
Crevalle jack	Florida Pompano	
Double crested cormorant	Red drum/ Redfish	
Flounder	Red Snapper	
Gafftopsail catfish	Remora	
Goby	Reticulate moray	
Goliath grouper	Sand Trout	
<b>Green sea turtle</b>	Scaled sardine	
Grey triggerfish	Seahorses	
Grouper sp.	Sheepshead	
Grunt sp.	<b>Smalltooth Sawfish</b>	
Hardhead catfish	Snook	
Horseshoe crabs	Southern Puffer	
Jack fish sp.	Southern Stargazer	
<b>Kemps ridley sea turtle</b>	Spanish mackerel	
Kingfish	Spotted eels	
Lane snapper	Spotted seatrout	
Laughing gull	Sting rays sp	