

**MEMORANDUM**

To: USACE Colonel Andrew D. Kelly, 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: **September 18 - 24, 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, the Caloosahatchee and estuary. The weekly average flow at S79 decreased to 3,095 cfs, (19 weeks = 133 days) over the high flow harm threshold. Red tide persists along the coast. Sea turtles continue to be heavily impacted by red tide.**

**USACE Action:** On 9/13/18 the U.S. Army Corps of Engineers maintained discharges from Lake Okeechobee, **and the Caloosahatchee River and estuary. Weekly** to a constant **3,000 cfs** at WP Franklin Lock & Dam (**S-79**) and a 7 day pulse averaging **1,170 cfs** from the St. Lucie Lock & Dam (**S-80**) with no flows on Saturdays and Sundays.

**Recommendation:** We request the Corps keep flows at or below **3,000 cfs at S-79** to accommodate significant watershed inflows and significant damage already occurring in the estuary. We request the Corps and SFWMD use operational flexibility to maximize water levels in canals south of the lake and use all emergency storage measures to address ongoing harmful estuary releases and high lake stages. **We urge the Corps and District to continue to move as much water south even as we transition into the dry season to reduce the potential for high-volume discharges associated with strengthening el niño conditions this winter and spring.**

**Lake Okeechobee Level: 14.69 ft. (Low Flow Sub-Band)**

**Last week: 14.78 ft.**

**Lake Okeechobee Inflow: 3,121 cfs**

**Lake Okeechobee Outflow: 3,597 cfs**

**Weekly Rainfall:** WP Franklin **1.33"** Ortona **0.39"**

Moore Haven **0.06"**

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

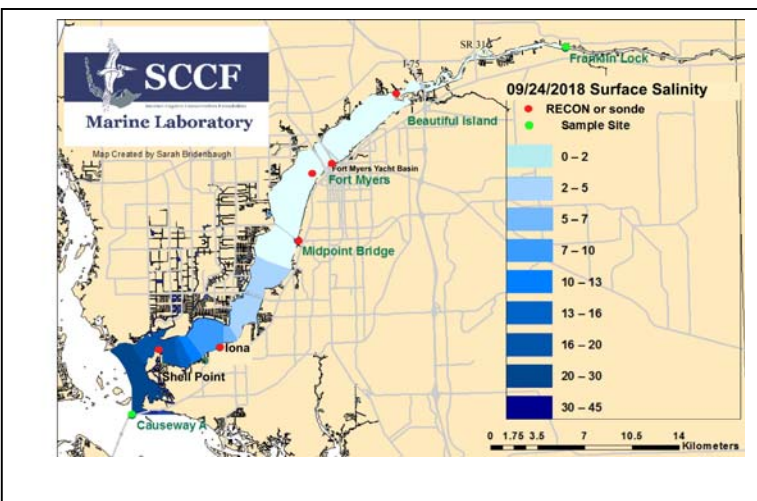
**Previous week 0.2 - 0.2 psu**

**Salinity Fort Myers: 0.2 - 0.6 psu (SCCF RECON)**

**Previous week 0.2 - 0.4 psu**

**Salinity Shell Point: 7.5 – 28 psu (SCCF RECON)**

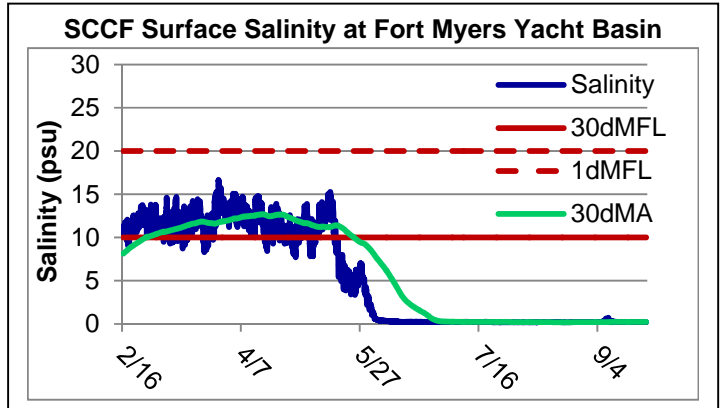
**Previous week 7.4 – 28 psu**



Salinity (psu)			
	Current Value	Sustainable Range	High/Low
Beautiful Is	0.2 - 0.2	< 5 psu	In Range
Fort Myers	0.2 - 0.6	<10 psu	In Range
Shell Point	7.5 – 28	25 - 32 psu	Low
Light (25% I <sub>z</sub> depth meters)			
Fort Myers	0.50	1 meter	Low
Shell Point	0.86	2.2 meters	Low
Causeway	1.10	2.2 meters	Low

**Flow & Water Quality:** Flows to the Caloosahatchee Estuary at S-79 during the **past seven days** averaged **3,095 cfs**. Over the past **7 days 48,207 AF** of water was discharged from Lake Okeechobee: **39% to the Caloosahatchee at S-77, 34% to the St Lucie at S-80, 26% was discharged south to the EAA, 1% was discharged to S-310. A net 1 AF was backflowed into the lake from the L8.**

ACOE Daily Reports			
Date	S79 Flow (cfs)	S78 Flow (cfs)	S77 Flow (cfs)
9/18/2018	2971	751	190
9/19/2018	2695	741	212
9/20/2018	2516	1337	1742
9/21/2018	3480	1585	2235
9/22/2018	3590	1604	2187
9/23/2018	3420	1622	2019
9/24/2018	2992	1609	1947
<b>7 day Avg</b>	<b>3,095</b>	<b>1,321</b>	<b>1,505</b>



**Cyanobacteria bloom:** On 9/24/18 the Lee County Environmental Lab documented sparse cyano blooms of *Microcystis* at Franklin locks upstream. *Microcystis* was not present at the Alva boat ramp, downstream of the Franklin locks, Davis boat ramp, Midpoint Bridge Park and North Shore Park.

**Upstream of S-79/Franklin Conditions:** On 9/25/18 the Olga Water Treatment plant reported chlorides of **50 mg/l**, apparent color **157 CU** and turbidity **2.03 NTU**. No visible algae 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 **18 psu**, in the suitable range for oysters. **Hypoxia was recorded at Shell Point on six days with readings as low as 1.6 mg L<sup>-1</sup>. Light levels are too low for submersed plants growing at depth in the river and around the Causeway.** Hypoxia was recorded in the surface layer at 2:00 PM on an outgoing tide at Blind Pass on 9/20/18. Large amounts of seagrass continue to wash up on Sanibel's bayside beaches (see photos included).

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

Monitor Site	Salinity (psu)	Diss O <sub>2</sub> (mg/L)	FDOM (qsde)	Chlorophyll (µg/L)
McIntyre Creek	25.2 – 59.3	1.4 – 7.8	16.6 – 21.4	2.3 – 6.3
Tarpon Bay	21.5 – 26.9	1.5 – 6.3	15.3 – 23.1	2.2 – 13.6
Wildlife Drive	20.7 - 26.2	0.3 – 9.4	-----	1.4 – 14.9
Wulfert Flats	17.4 – 27.2	1.9 – 7.3	-----	6.2 – 66.5

**Red Tide:** On 9/21/18 the Florida Fish and Wildlife Conservation Commission reported a bloom of the Florida red tide organism, *Karenia brevis*, persists in Southwest Florida along ~135 miles of coastline, from northern Pinellas to northern Collier counties, and extends offshore (10 miles or more). Background to high concentrations was measured in or offshore of Lee County. SCCF's samples from the Sanibel beaches ranged to over 20 million *Karenia* cells/L on 9/19/18, but were lower (medium to >1 million/L) on 9/23 and 9/24/18.

**Wildlife Impacts:** The past week SCCF recovered 14 **Dead Sea turtles from Sanibel beaches; 5 loggerheads, 7 kemps ridley, 1 Green and 1 unknown due to decomposition.** CROW, the wildlife hospital on Sanibel treated **23 new patients** with red tide symptoms; 1 American Avocet, 2 DCCOs, 1 Great Egret, 1 Green Sea Turtle, 2 Kemp's Ridley Sea Turtles, 1 Muscovy, 1 Northern Gannet, 1 Osprey, 2 Red Knots, 2 Ruddy Turnstones, 6 Sanderlings, 1 Semipalmated Plover and 2 Snowy Egrets.

Caloosahatchee Stations	Chlorophyll (µg/L)	fDOM (qse)	Turbidity (NTU)	25% lo depth (meters)
Target Values	< 11	CE <70 SCB <11	CE < 18 SCB < 5	CE = 1 m SCB = 2.2m
Fort Myers	8.6	362	3.1	0.50
Shell Point	5.3	185	1.6	0.86
Causeway	1.6	128	2.6	1.10

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

Dead wildlife: Caloosahatchee, estuary, canals, back bays, Sanibel, Fort Myers beaches & Islands

Lee County has removed 2,100 tons of dead marine life. Sanibel = 425 tons

*Ongoing list not comprehensive **Endangered/Threatened Species***

American eels	<b>Kemps ridley sea turtle</b>	Seahorses
Angel fish	Kingfish	Shame- faced crab
Atlantic needlefish	Lane snapper	Snook
Atlantic spadefish	Laughing gull	<b>Snowy plover</b>
Batfish	<b>Loggerhead sea turtle</b>	Starfish
Black drum	Lookdown fish	Southern puffer
Black tip shark	Mackerel	Southern stargazer
Blenny	<b>Manatees</b>	Spanish mackerel
Blue crabs	Mallard ducks	Spotted eels
Bottlenose dolphin	Mangrove snapper	Spotted seatrout
Brown pelican	Mantis shrimp	Sting rays sp
Bull shark	Menhaden	Stone crab
Calico crab	Minnows	Striped burr fish
Catfish sp.	Moray Eel	Threadfin herring
Cobia	Muscovy duck	Tarpon
Common tern	Mullet sp.	Toadfish
Coquina	Ornate diamondback terrapin	Tripletail
Cowfish	Pale spotted eels	<b>Whale shark</b>
Crevalle jack	Parchment worms	Whiting
Double crested cormorant	Permit	Yellow snake eel
Flounder	Pig fish	
Gafftopsail catfish	Pinfish	
Goby	Florida Pompano	
Goliath grouper	Red drum/ Redfish	
<b>Green sea turtle</b>	Red snapper	
Grey triggerfish	Remora	
Grouper sp.	Reticulate moray	
Grunt sp.	Sand dollar	
Hardhead catfish	Sand Trout	
Horseshoe crabs	Scaled sardine	
Jack fish sp.	Sheepshead	



