

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
 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: **November 21 - 27, 2017**

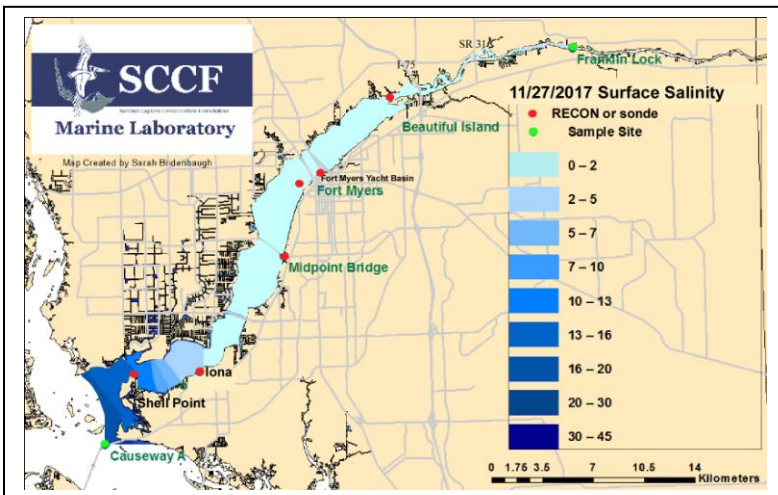
This report provides a scientific assessment of Caloosahatchee River and Estuary conditions and how these conditions affect the health, productivity and function of the system.

Caloosahatchee Condition Summary: The past week freshwater flows from Lake Okeechobee and the watershed decreased to an average of **7,497 cfs** at S-79. **Light remains limited throughout the river and estuary from dark, freshwater discharge that extends offshore into the Gulf of Mexico and along the east end beaches of Sanibel. Red tide moved onshore along Sanibel Island causing fish kills.**

USACE Action: On 11/17/17 the Army Corps reduced discharges from Lake Okeechobee to **6,500 cfs** to the west measured at **S-77** and **2,800 cfs** to the St Lucie at S-80.

Recommendation: As Lake Okeechobee water levels recede we urge the Corps to continue stepping down discharges to the Caloosahatchee estuary with a target of **4,500 cfs measured at S-79** over the next week.

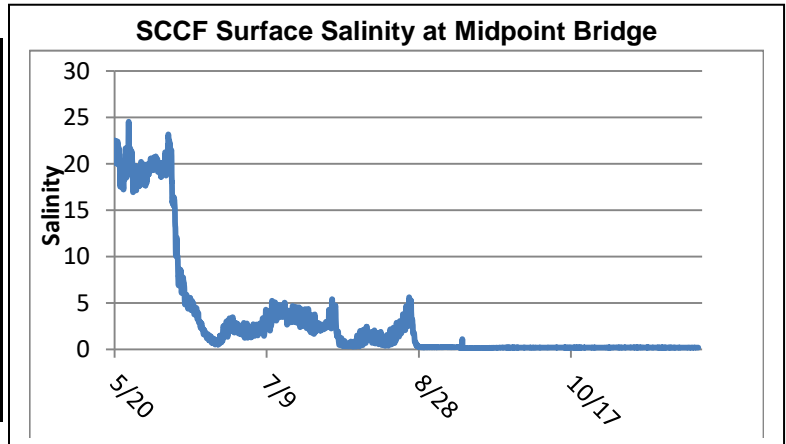
Lake Okeechobee Level:	16.21 ft. (Low Sub-Band)	Last week: 16.42 ft
Lake Okeechobee Inflow:	2,101 cfs	Lake Okeechobee Outflow: 7,692 cfs
Weekly Rainfall:	WP Franklin 0.37" Ortona 0.45" Moore Haven 0.30"	
Salinity Beautiful Island:	ND (SCCF RECON Marker 18)	Previous wk ND
Salinity Fort Myers:	0.1 – 0.2 psu (SCCF RECON)	Previous wk 0.1 – 0.2 psu
Salinity Shell Point:	1.6 - 29 psu (SCCF RECON)	Previous wk 2.0 - 28 psu



Salinity (psu)			
	Current Value	Sustainable Range	High/Low
Beautiful Is	ND	< 5 psu	-
Fort Myers	0.1 - 0.2	<10 psu	In Range
Shell Point	1.6 - 29	25 - 32 psu	Low
Light (25% I _z depth meters)			
Fort Myers	0.57	1 meter	Low
Shell Point	0.75	2.2 meters	Low
Causeway	1.02	2.2 meters	Low

Flow & Water Quality: Flows to the Caloosahatchee Estuary at S-79 during the past seven days averaged **7,497 cfs** with **80% of flows to the estuary originating from Lake Okeechobee**. Over the past 14 days **252,681 AF** of water was discharged from Lake O, **67% to S-77** and **32% to S-308**. For the first time since **Sept 1st**, **365 AF** of water was discharged south thru **S-354 to the EAA**. A net **175 AF** was discharged through L8 and a net **652 AF** through S310.

Date	S79 Flow (cfs)	S78 Flow (cfs)	S77 Flow (cfs)
11/21/2017	7454	6162	6107
11/22/2017	7877	6238	6080
11/23/2017	7324	6314	5936
11/24/2017	8114	6296	5873
11/25/2017	7170	6256	5987
11/26/2017	7386	6038	5988
11/27/2017	7156	5971	6062
7 day Avg	7497	6182	6005



Upstream of S-79/Franklin Conditions: On 11/28/17 the Olga Water Treatment plant chlorides measured **52 mg/L**, and turbidity measured **3.86 NTU**. No visible algae in the plant intake the past week. The plant is online running at 2200 GPM.

Upper Estuary Conditions: Salinities in the upper estuary were in the suitable range for tape grass. Colored dissolved organic matter contributed to low light availability for tape grass and widgeon grass.

Lower Estuary Conditions: The average weekly salinity was within the optimal range for oysters at Shell Point (**15 psu**), but **within the lethal range for oysters at Peppertree Point Marina in Iona**. Light levels and salinities were below optimal for seagrasses in much of the lower estuary.

J.N. "Ding" Darling NWR:

Monitor Site	Salinity (psu)	Diss O ₂ (mg/L)	FDOM (qsde)	Chlorophyll (µg/L)
McIntyre Creek	19.2 – 24.8	2.9 – 8.4	17.0 – 26.9	3.5 – 16.0
Tarpon Bay	18.7 – 29.9	4.7 – 7.4	15.1 – 37.6	3.3 – 16.1

Coastal Conditions: Red tide causing fish kills along Sanibel beaches. Dark, freshwater from high discharges extends beyond the Sanibel lighthouse surrounding Sanibel beaches at the east end on outgoing tides.

Red Tide: On 11/22/17 the Florida Fish and Wildlife Conservation Commission reported the Florida red tide organism, **Karenia brevis**, was present from very low to high concentrations in samples collected in Lee County. **K. brevis** was detected in high concentrations on the west side of Captiva and medium concentrations in Pine Island Sound, Blind Pass, Redfish Pass, Captiva Pass, and Boca Grande Pass. **SCCF sampling detected medium concentrations of Karenia sp. along the west and south side of Sanibel on 11/22/17 and high concentrations of Karenia sp. along the southeast side of Sanibel from 11/25/17 to 11/27/17**. Dead mullet observed 11/27/17 on the Gulfside of Sanibel.

Wildlife Impacts: The past week, CROW, the wildlife hospital on Sanibel, treated **12 new patients with suspected brevetoxicosis; 11 double crested cormorants and 1 brown pelican**. SCCF reported **two sea turtle strandings** one immature green with fibropapillomas was found on Sanibel, a second adult, tagged female loggerhead with a severe boat strike wound was found on Captiva.

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	6.4	302	4.6	0.57
Shell Point	5.9	215	3.7	0.75
Causeway	3.4	143	2.2	1.02

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



Dark brown color in swash zone on the south side of Sanibel is from high concentrations ~25 million cells/L of *Karenia* on 11/27/17. Photo courtesy of Curt Brown.



Swash zone at Gulfside City Beach on Sanibel colored by 125 million *Karenia* cells/L on 11/26/17. Photo SCCF