

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 Ryan Matthews

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: **March 28 - April 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: Freshwater flow into the estuary at S-79 during the past week averaged **650 cfs**. **The past week the Caloosahatchee salinity exceeded its Minimum Flow & Level (MFL) at Fort Myers. Rising salinity exceeded the suitable salinity level for tapegrass in the upper estuary and oysters in the lower estuary.**

USACE Action: On March 31, 2017 the USACE lowered targeted releases to the Caloosahatchee with a 7-day average target of **450 cfs** measured at S-79 and continued no discharge from Lake Okeechobee to the St Lucie estuary at S-80.

Recommendation: We request increasing freshwater pulses to provide adequate flows to prevent estuary harm. There is less than 10% chance of water shortage by June 1. So there is no reason to selectively cut back flows to the Caloosahatchee that cause harm. **Any flow reductions should be made to all users. We request weekly calls to provide input on current conditions.**

Lake Okeechobee Level: 12.47 ft. (Beneficial Use Sub-Band) Last week: 12.65 ft

Lake Okeechobee Inflow: 308 cfs **Lake Okeechobee Outflow:** 3,200 cfs

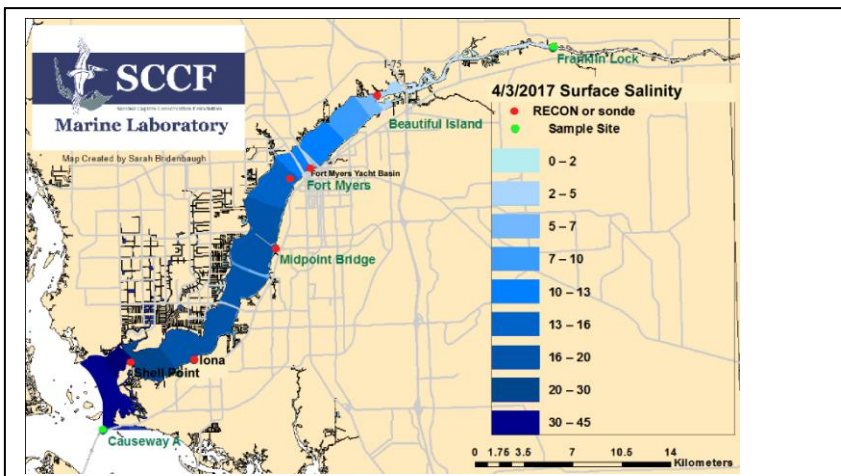
Weekly Rainfall: WP Franklin 0.37" Ortona 1.00" Moore Haven 1.55"

Salinity Beautiful Island: 3.2 - 7.4 psu (SCCF RECON Marker 18) Previous wk 2.1 – 5.6 psu

Salinity Fort Myers: 10 – 15 psu (SCCF Yacht Basin) Previous wk 7.6 – 14 psu

MFL Status: **MFL Exceedance; 30-day moving average ≥ 10 psu at surface**

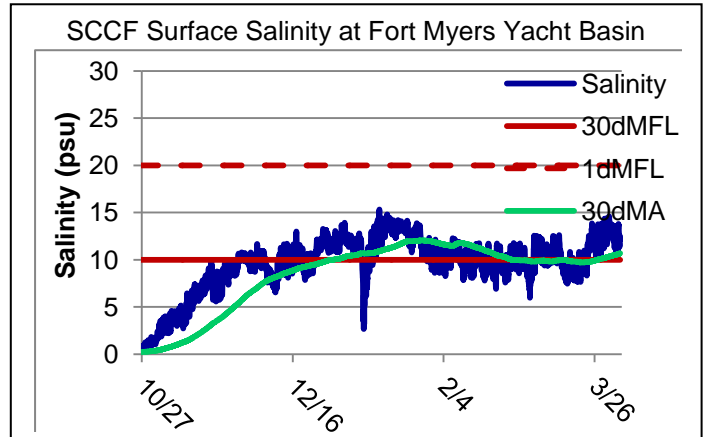
Salinity Shell Point: 26 – 35 psu (SCCF RECON) Previous wk 23 – 34 psu



Salinity (psu)			
	Current Value	Sustainable Range	High/Low
Beautiful Is	3.2 - 7.4	< 5 psu	High
Fort Myers	10 – 15	<10 psu	MFL Exceed
Shell Point	26 – 35	25 - 32 psu	High
Light (25% I _z depth meters)			
31 Bridge	0.96	1 meter	Low
Fort Myers	1.03	1 meter	In Range
E Sanibel	1.91	2.2 meters	Low

Flow & Water Quality: Flows to the Caloosahatchee Estuary at S-79 during the past seven days averaged **650 cfs**. Over the past 14 days **24%** of Lake Okeechobee outflow was directed to the Caloosahatchee at S-77, **11%** was delivered to the St Lucie at S-308, **62%** was delivered south to the EAA, **2.6%** was directed to the L8 and **<1%** through S310.

ACOE March 31 Release at S79					
Date	Day	Pulse Target	S79 Flow (cfs)	S78 Flow (cfs)	S77 Flow (cfs)
3/28/2017		-	516	455	542
3/29/2017		-	503	458	1263
3/30/2017		-	384	344	1034
3/31/2017	1	850	652	556	1000
4/1/2017	2	1000	998	677	1350
4/2/2017	3	700	717	695	387
4/3/2017	4	300	778	521	0
7 day Avg		450	650	529	797

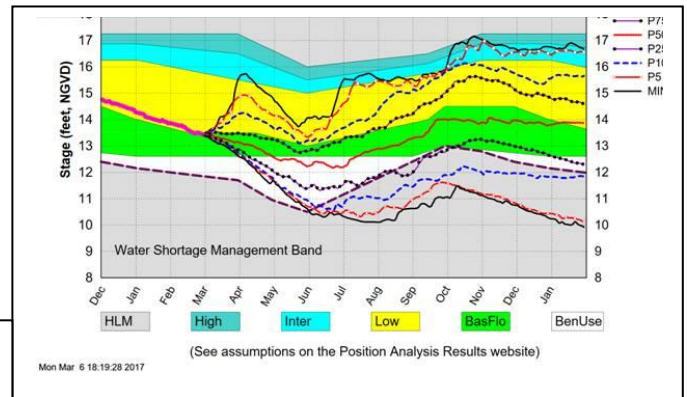


Upstream of S-79/Franklin Conditions: On 4/4/17 the Olga Water Treatment plant chlorides measured **57 mg/L**, apparent color was **61 CU** and turbidity measured **1.29 NTU**. No visible algae was noted at the plant intake the past week. The plant is online at 2,000 GPM.

Upper Estuary Conditions: **The weekly average salinity at Fort Myers, 12.7 psu, exceeds the MFL and is above the suitable range for tape grass.** Freshwater deliveries were singularly cut back to the Caloosahatchee despite a forecast of less than a 10% chance of water shortage by June 1.

Lower Estuary Condition: The average salinity at Shell Point, **31 psu**, was in the optimal range for seagrass but **above the optimal range for oysters.**

SWFMD Position Analysis showing <10% chance of water shortage by 6/1/17.



J.N. "Ding" Darling NWR:

Monitor Site	Salinity (psu)	Diss O ₂ (mg/L)	FDOM (qsde)	Chlorophyll (µg/L)
McIntyre Creek	33.7 – 35.2	2.4 – 10.6	7.3 – 17.4	1.8 - 5.1
Tarpon Bay	34.3 – 35.3	5.0 – 7.8	5.1 – 15.8	2.1 – 6.1

Beach Conditions: Significant accumulations of drift algae were reported along the entire shoreline of Bunche Beach with drifts up to 50 ft wide along the beach at low tide on Sunday 4/2/17.

Red Tide: On 3/31/17, FWC reported a patchy bloom of *Karenia brevis*, the Florida red tide organism, persists in **Southwest Florida from southern Pinellas to Lee Counties with background to medium concentrations in samples collected from Lee County.**

Wildlife Impacts: The past week CROW, the wildlife rehabilitation clinic on Sanibel treated **4 Double-Crested Cormorants for red tide poisoning.**



Drift algae along Bunche Beach on 4/3/17. Photo SCCF

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
31 Bridge	10.1	144	2.7	0.96
Fort Myers	6.1	140	1.6	1.03
E Sanibel	2.7	26.5	4.8	1.91

Target light penetration: **CE**- Caloosahatchee Estuary = 1 m

SCB-San Carlos Bay = 2.2 meters

Definition of 25% I_z: **z** where **I** is 25% of surface **I**.
I = irradiance, **z**= depth