

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 7 - 13, 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 3,014 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 understand the need to increase flows out of the lake and request the Corps keep flows below **4,000 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 as an emergency measure to address ongoing harmful estuary releases and high lake stages.

Lake Okeechobee Level: 14.55 ft. (Low Flow Sub-Band)

Last week: 14.39 ft.

Lake Okeechobee Inflow: 6,527 cfs

Lake Okeechobee Outflow: 3,381 cfs

Weekly Rainfall: WP Franklin **2.50"** Ortona **3.44"**

Moore Haven **1.55"**

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

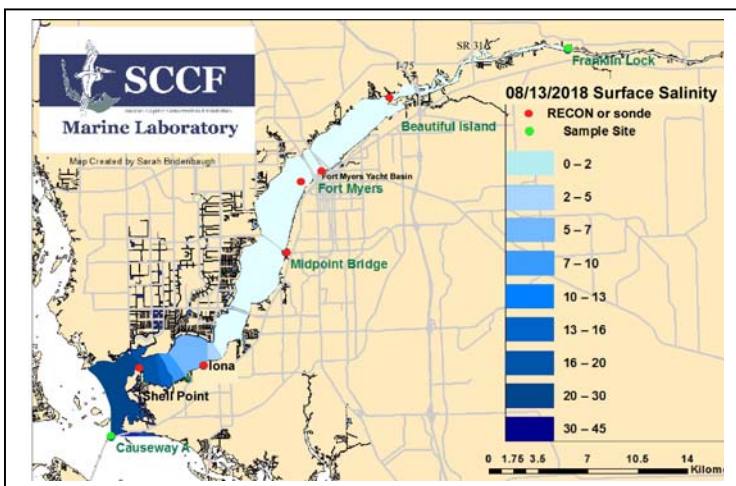
Previous week 0.2 - 0.2 psu

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

Previous week 0.2 - 0.2 psu

Salinity Shell Point: 6.9 – 31 psu (SCCF RECON)

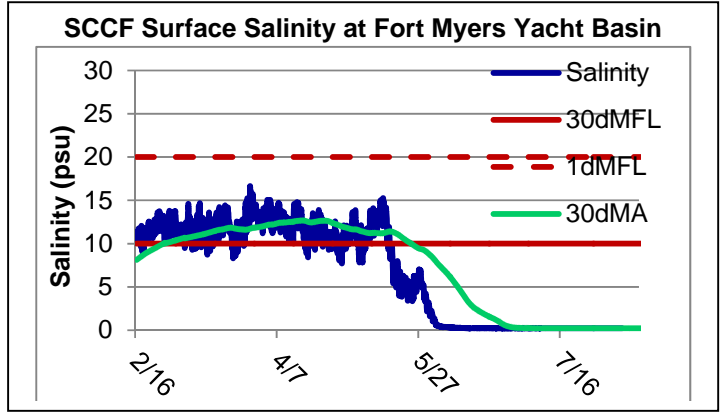
Previous week 6.2 - 29 psu



| Salinity (psu) | | | |
|-----------------------------|---------------|-------------------|----------|
| | Current Value | Sustainable Range | High/Low |
| Beautiful Is | 0.2 - 0.2 | < 5 psu | In Range |
| Fort Myers | 0.2 - 0.2 | <10 psu | In Range |
| Shell Point | 6.9 – 31 | 25 - 32 psu | Low |
| Light (25% lz depth meters) | | | |
| Fort Myers | 0.52 | 1 meter | Low |
| Shell Point | 1.20 | 2.2 meters | Low |
| Causeway | 1.32 | 2.2 meters | Low |

Flow & Water Quality: Flows to the Caloosahatchee Estuary at S-79 during the **past seven days** averaged **3,014 cfs**; **53% of flow originated from Lake Okeechobee**. Over the past 7 days **62,440 AF** of water was discharged from Lake Okeechobee: **36% to the Caloosahatchee at S-77**, **23% to the St Lucie at S-80**, **41% was discharged south to the EAA**. **A net 272 AF was discharged through Clewiston's Industrial Canal S-310**. **A net -93 AF of storm water back flowed into Lake Okeechobee from the L8**.

| ACOE Daily Reports | | | |
|--------------------|----------------|----------------|----------------|
| Date | S79 Flow (cfs) | S78 Flow (cfs) | S77 Flow (cfs) |
| 8/7/2018 | 2444 | 1028 | 1718 |
| 8/8/2018 | 2519 | 1555 | 1902 |
| 8/9/2018 | 3282 | 1778 | 1978 |
| 8/10/2018 | 3056 | 1775 | 1567 |
| 8/11/2018 | 3143 | 1747 | 1398 |
| 8/12/2018 | 3221 | 1620 | 1422 |
| 8/13/2018 | 3436 | 1591 | 1292 |
| 7 day Avg | 3014 | 1585 | 1611 |



Cyanobacteria bloom: On 8/14/18 the Lee County Environmental Lab documented significant blooms of **Microcystis** at the **Alva Boat Ramp, upstream and downstream of the Franklin Locks, Davis Boat Ramp, North Shore Park and Midpoint Bridge Park**. SCCF recorded **Microcystis** clumps persisting along the **northern side of Sanibel** the past week.

Upstream of S-79/Franklin Conditions: On 8/14/18 the Olga Water Treatment plant reported chlorides of **51 mg/l**, apparent color **220 CU** and turbidity **3.16 NTU**. Light 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 ₂ (mg/L) | FDOM (qsde) | Chlorophyll (µg/L) |
|----------------|----------------|----------------------------|-------------|--------------------|
| McIntyre Creek | 24.4 – 31.4 | 2.0 – 10.8 | 25.0 – 31.1 | 3.9 – 27.8 |
| Tarpon Bay | 22.5 – 29.9 | 3.2 – 8.1 | 18.5 – 32.6 | 5.7 – 58.0 |
| Wildlife Drive | ----- | ----- | ----- | ----- |
| Wulfert Flats | ----- | ----- | ----- | ----- |

Red Tide: On 8/10/18 the Florida Fish and Wildlife Conservation Commission reports that the Florida red tide organism, **Karenia brevis** persists in Pinellas, Manatee, Sarasota, Charlotte, Lee and Collier Counties **with background to high concentrations in Lee County samples**. **Widespread variety of dead marine life continues to wash up on Lee County beaches, see Page 3**. **Samples from SCCF's Gulf, Shell Point, Tarpon Bay and MacIntyre Creek RECON stations on 8/8/18, had high and medium concentrations of Karenia with levels as high as 5.9 million cells/L at the MacIntyre Creek station**.

Wildlife Impacts: The past week, **20 dead sea turtles were removed from Sanibel and Captiva beaches**. SCCF recovered **4 Kemp's ridley and 16 loggerheads**. CROW, the wildlife hospital on Sanibel treated **4 new patients with red tide symptoms**; **1 ruddy turnstone, 1 semipalmated plover, 1 sanderling and 1 double crested cormorant**.

| Caloosahatchee Stations | Chlorophyll (µg/L) | fDOM (qse) | Turbidity (NTU) | 25% I ₀ depth (meters) |
|-------------------------|--------------------|-------------------|--------------------|-----------------------------------|
| Target Values | < 11 | CE <70 SCB <11 | CE < 18 SCB < 5 | CE = 1 m SCB = 2.2m |
| Fort Myers | 8.4 | 345 | 3.8 | 0.52 |
| Shell Point | 6.0 | 108 | 1.6 | 1.20 |
| Causeway | 4.4 | 96 | 1.1 | 1.32 |

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

| Dead wildlife: Caloosahatchee, estuary, canals, back bays, Sanibel, Fort Myers beaches & Islands | | |
|--|------------------------------|-----------------------------|
| <i>Ongoing list not comprehensive</i> Endangered/Threatened Species | | |
| American eels | Laughing gull | Sting rays sp |
| Angel fish | Loggerhead sea turtle | Stone crab |
| Atlantic needlefish | Lookdown fish | Striped burr fish |
| Atlantic Spadefish | Mackerel | Threadfin herring |
| Batfish | Manatees | Tarpon |
| Black drum | Mallard ducks | Toadfish |
| Black tip shark | Mangrove snapper | Tripletail |
| Blenny | Menhaden | Whale shark |
| Blue crabs | Minnows | Whiting |
| Bottlenose Dolphin | Moray Eel | Yellow snake eel |
| Brown pelican | Muscovy duck | Ornate Diamondback Terrapin |
| Bull shark | Mullet sp. | |
| 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 | |
| Green sea turtle | Scaled sardine | |
| Grey triggerfish | Seahorses | |
| Grouper sp. | Sheepshead | |
| Grunt sp. | Smalltooth Sawfish | |
| Hardhead catfish | Snook | |
| Horseshoe crabs | Southern Puffer | |
| Jack fish sp. | Southern Stargazer | |
| Kemps ridley sea turtle | Spanish mackerel | |
| Kingfish | Spotted eels | |
| Lane snapper | Spotted seatrout | |



Cyanobacteria in Harbor view Canal, North Fort Myers 8/14/18

Photo Lee County



North Shore Park 8/13/18

Photo Lee County