

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: **October 3 - 9, 2017**

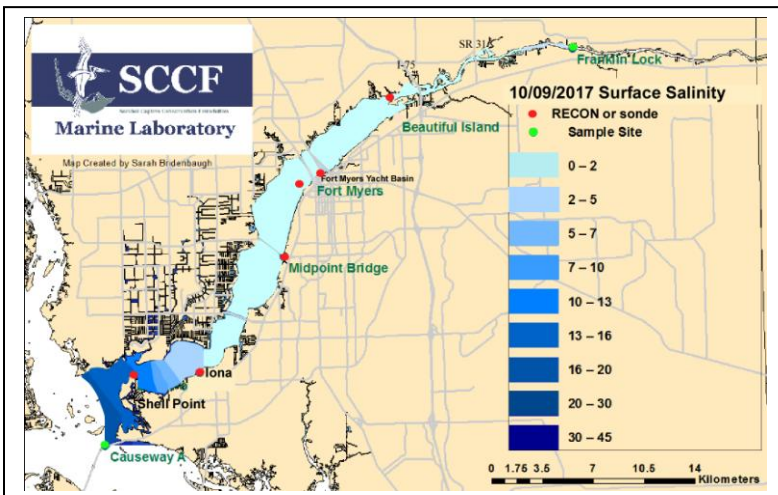
This report provides a scientific assessment of Caloosahatchee River and Estuary conditions and how these conditions affect the health, productivity and function of the system.

Caloosahatchee Condition Summary: The past week freshwater flows from Lake Okeechobee and the watershed increased to an average of **13,800 cfs** at S-79, **nearly 5 times the harm threshold**. **Light remains limited throughout the river and estuary from dark, freshwater discharge that extends several miles offshore into the Gulf of Mexico.**

USACE Action: The past week discharges from Lake Okeechobee continued at maximum practicable with average flows of **6,995 cfs** to the Caloosahatchee at S-77. Discharges to the St Lucie at S308 were reduced to accommodate high tides influencing estuary water levels. Discharges at S-80 the past week were averaged over **2,543 cfs**.

Recommendation: With Lake Okeechobee water levels in the high sub-band, we urge the Corps to continue maximum discharges in all directions, where practicable to return lake levels below 16 ft to **reduce harmful discharges to the estuaries later in the spring when spawning occurs.**

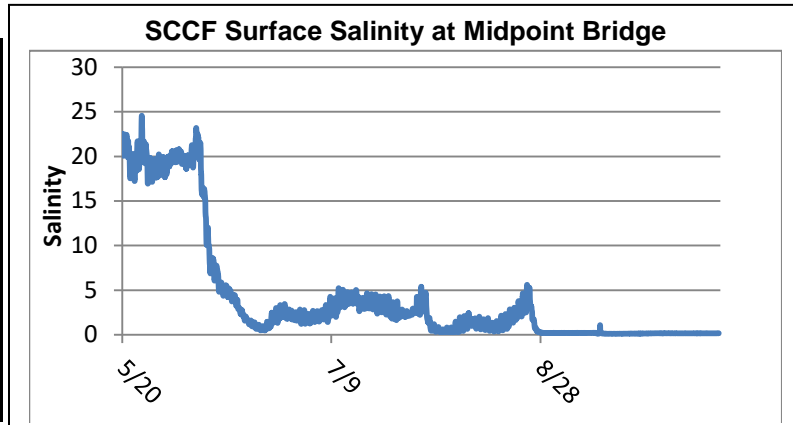
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|-----------------------------------|---|---|
| Lake Okeechobee Level: | 17.19 ft. (High Sub-Band) | Last week: 16.50 ft |
| Lake Okeechobee Inflow: | 17,455 cfs | Lake Okeechobee Outflow: 9,504 cfs |
| Weekly Rainfall: | WP Franklin 2.43" Ortona 2.40" Moore Haven 2.08" | |
| Salinity Beautiful Island: | ND (SCCF RECON Marker 18) | Previous wk ND |
| Salinity Fort Myers: | 0.2 psu (SCCF RECON) | Previous wk 0.2 – 0.2 psu |
| Salinity Shell Point: | 0.2 – 28 psu (SCCF RECON) | Previous wk 0.5 – 29 psu |



| Salinity (psu) | | | |
|---|---------------|-------------------|----------|
| | Current Value | Sustainable Range | High/Low |
| Beautiful Is | ND | < 5 psu | - |
| Fort Myers | 0.2 - 0.2 | <10 psu | In Range |
| Shell Point | 0.2 - 28 | 25 - 32 psu | Low |
| Light (25% I _z depth meters) | | | |
| Fort Myers | 0.47 | 1 meter | Low |
| Shell Point | 0.80 | 2.2 meters | Low |
| Causeway | 0.82 | 2.2 meters | Low |

Flow & Water Quality: Flows to the Caloosahatchee Estuary at S-79 during the past seven days averaged **13,800 cfs**. Over the past 14 days **256,493 AF of water was discharged from Lake O, 70% to S-77 and 30% to S-308***. **No water was discharged south to the EAA. A net -5750 AF of water back flowed from the L8 into Lake Okeechobee at the same time harmful, maximum releases to reduce lake levels are harming the estuaries.** (*Flow data missing)

| Date | S79 Flow (cfs) | S78 Flow (cfs) | S77 Flow (cfs) |
|------------------|----------------|----------------|----------------|
| 10/3/2017 | 12499 | 8072 | 7255 |
| 10/4/2017 | 14025 | 8363 | 7869 |
| 10/5/2017 | 14053 | 8338 | 6593 |
| 10/6/2017 | 14732 | 8204 | 6555 |
| 10/7/2017 | 14224 | 8185 | 6496 |
| 10/8/2017 | 14552 | 8164 | 6805 |
| 10/9/2017 | 12512 | 8367 | 7389 |
| 7 day Avg | 13800 | 8242 | 6995 |



Upstream of S-79/Franklin Conditions: On 10/10/17 the Olga Water Treatment plant chlorides measured **45 mg/L**, apparent color was **264 CU** and turbidity measured **2.96 NTU**. No visible algae in the plant intake the past week. The plant is online running at 2000 GPM.

Upper Estuary Conditions: On 10/5/17 Lee County Environmental Lab detected *Microcystis* and *Dolichospermum* cyanobacteria at the Davis Boat Ramp in east Fort Myers. Salinities in the upper estuary were in the suitable range for tape grass. **Elevated turbidity and colored dissolved organic matter contributed to low light availability for tape grass and widgeon grass.**

Lower Estuary Conditions: The average salinity was in the optimal range for oysters at Shell Point (**14 psu**). **Light levels and salinities are below optimal for seagrasses in much of the lower estuary. Hypoxia was recorded in the lower layer of the water column at the Gulf RECON site on 10/02/17.** Twenty knot winds increased mixing for several days.

J.N. "Ding" Darling NWR: Dark opaque water throughout the refuge. **Visibility is zero and neither seagrass or bottom is visible in 2 ft of water.**

| Monitor Site | Salinity (psu) | Diss O ₂ (mg/L) | FDOM (qsde) | Chlorophyll (µg/L) |
|----------------|----------------|----------------------------|-------------|--------------------|
| McIntyre Creek | 13.3 – 28.5 | 1.3 – 6.9 | 16.1 – 37.6 | 3.7 – 27.4 |
| Tarpon Bay | 11.1 – 31.4 | 4.4 – 8.7 | 10.5 – 50.4 | 3.9 – 31.1 |

Beach Conditions: Dark freshwater from high discharges surrounds the beaches of Sanibel and Fort Myers Beach. Large amounts of seagrass continue to wash up on Sanibel's bayside beaches. The Donax Street Beach Access on Sanibel had 20 ug Chl a/L and 625,000 dinoflagellates/L with some *Noctiluca* sp. which may be the source of observed bioluminescence.

Red Tide: On 10/6/17 the Florida Fish and Wildlife Conservation Commission reported the Florida red tide organism, *Karenia brevis*, was present in background concentrations in samples from Manatee, Sarasota, Charlotte and Lee Counties.

Shellfish Advisory: On 9/6/17 the Florida Dept of Agriculture Consumer Services **Re-opened #6212 Pine Island Sound Section 1 AUZ and Leases** for the harvest of oysters, clams, and mussels.

| 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 | 9.6 | 375 | 7.2 | 0.47 |
| Shell Point | 8.4 | 188 | 4.0 | 0.80 |
| Causeway | 6.7 | 179 | 5.1 | 0.82 |

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

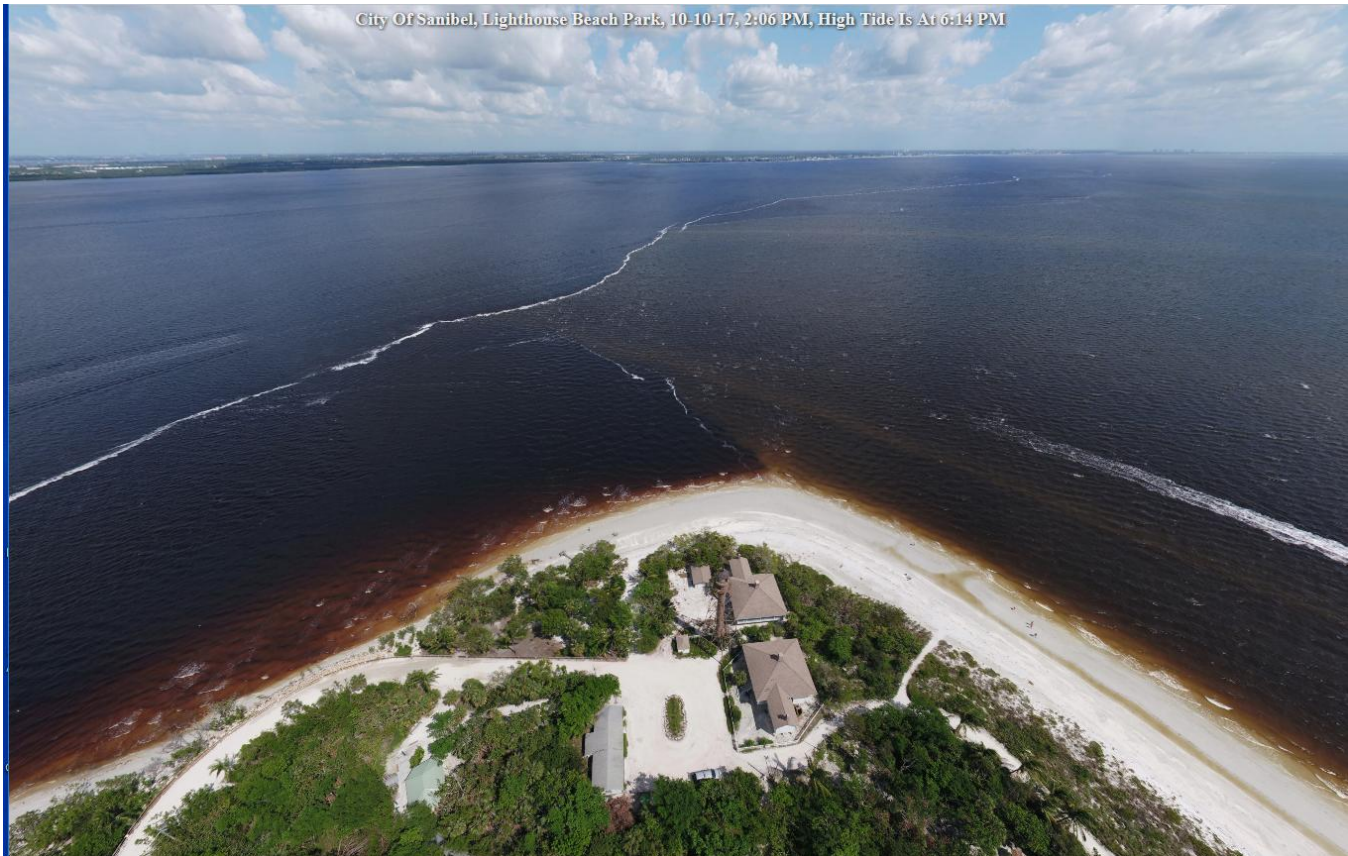
SCB-San Carlos Bay = 2.2 meters

Definition of 25% I_z: z where I is 25% of surface I.

I = irradiance, z= depth



Coastal flooding at Blind Pass on Sanibel from high tides and wind driven water from Hurricane Nate on 10/7/17. Photos City of Sanibel



Dark freshwater discharge at Lighthouse Beach Park on Sanibel extending miles offshore into the Gulf of Mexico at mid tide on 10/10/17. Photo City of Sanibel