

**MEMORANDUM**

To: USACE Colonel Jason A. Kirk, LTC Jennifer A. Reynolds, Richard McMillen, Kim Taplin, SFWMD Executive Director Peter Antonacci, Terrie Bates, Jeff Kivett, Susan Gray, Peter Doering, DEP Secretary Jon Stevenson

From: Periodic Scientists Conference Call Participants  
 Paul Tritaik & Joyce Palmer - J.N. "Ding" Darling National Wildlife Refuge (NWR) Complex  
 James Evans & Holly Milbrandt - City of Sanibel  
 Keith Kibbey - Lee County Natural Resources  
 Connie Jarvis - City of Cape Coral  
 Rae Ann Wessel & Rick Bartleson, Ph.D.-Sanibel Captiva Conservation Foundation

Subject: Caloosahatchee & Estuary Condition Report

Reporting Period: October 20 - 26, 2015

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:** With no rain over the past week, Lake Okeechobee regulatory releases were crucial in providing freshwater flow to the estuary following last week's lowest flow of the year. Releases provided average flows of 690 cfs which helped slow the rapid rise in salinity at Fort Myers the past two weeks.

**USACE Action:** On 10/23/15 the USACE initiated a 7-day pulse release from Lake Okeechobee to provide average flows of **800 cfs** to the Caloosahatchee estuary at S79.

**Recommendation:** With dry conditions resulting from no rainfall and no freshwater from the watershed, we recommend a seven day pulse release to the Caloosahatchee to provide average flows of **800 - 1000 cfs** at S79.

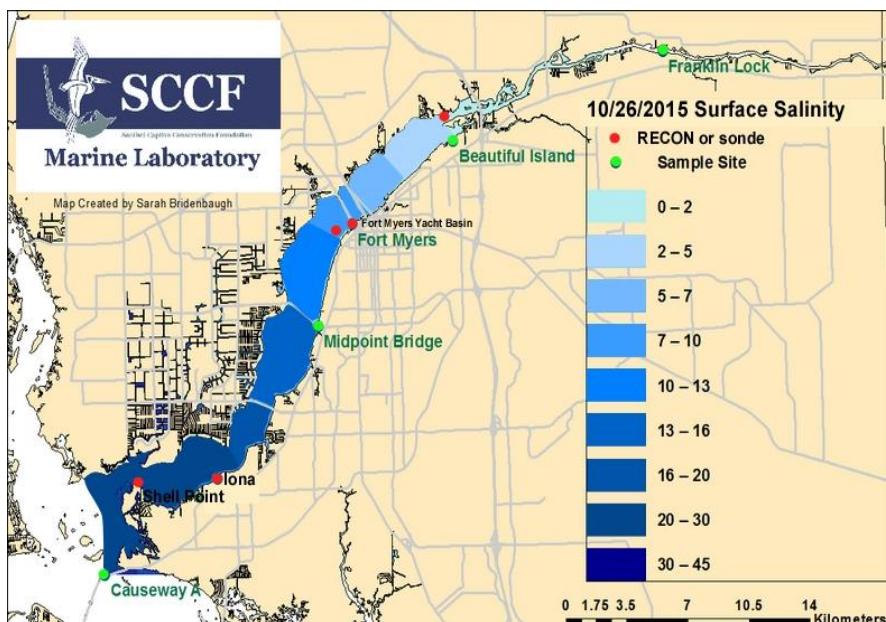
**Lake Okeechobee Level:** 14.59 ft. (Low Sub-Band) Last week: 14.69 ft.

**Lake Okeechobee Inflow:** 2,673 cfs **Lake Okeechobee Outflow:** 3,670 cfs

**Weekly Rainfall:** WP Franklin 0" Ortona 0.04" Moore Haven 0"

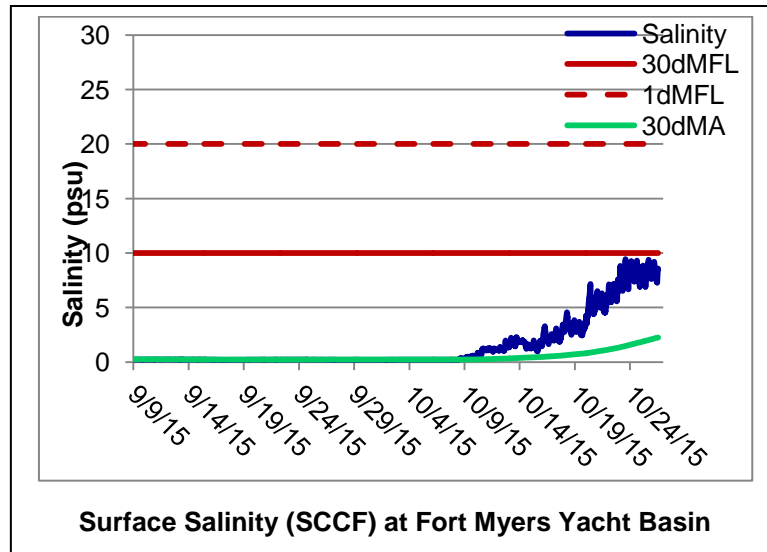
**Salinity Fort Myers:** 4.0 - 9.4 psu (SCCF Yacht Basin Surface) Previous week: 1.0- 4.5 psu

**Salinity Shell Point:** 14 - 32 psu (SCCF RECON) Previous week: 12 - 31 psu



| Salinity (psu)                          |               |                   |          |
|-----------------------------------------|---------------|-------------------|----------|
|                                         | Current Value | Sustainable Range | High/Low |
| Beautiful Island                        | ND            | < 5psu            | In Range |
| Fort Myers                              | 4.0 - 9.4     | < 10 psu          | In Range |
| Shell Point                             | 14 - 32       | 25 - 31 psu       | Low      |
| Light (25% I <sub>z</sub> depth meters) |               |                   |          |
| Iona                                    | 1.05          | 1 meter           | In Range |
| Causeway                                | 1.41          | 2.2 meters        | Low      |
| Sanibel                                 | 1.72          | 2.2 meters        | Low      |

**Flow & Water Quality:** Flows to the Caloosahatchee Estuary at S79 during the past seven days averaged **690 cfs**. Over the past 14 days **72%** of total Lake Okeechobee outflows were sent south to the EAA for water supply, **9%** was delivered to the L8 basin, **16.5%** was directed to the Caloosahatchee and **2.5%** to the St Lucie.



**Upstream of S79/Franklin Conditions:** On 10/27/15 at the Olga Water Treatment plant, chlorides measured **60 mg/L**, apparent color was **174 CU** and turbidity measured **1.16 NTU**. No algae was visible at the plant intake over the past week. The plant is online operating at 2400 GPM.

**Upper Estuary Conditions:** Salinities in the upper estuary are in the suitable range for tape grass.

**Lower Estuary Condition:** Salinity was in the optimal range for oysters at Iona (**20 psu** on 10/26/15) and at Shell Point (**26 psu** weekly average).

**McIntyre Creek & Tarpon Bay in J.N. "Ding" Darling NWR:** Over the past week, salinity at McIntyre Creek ranged between **26 – 32.5 psu**. CDOM readings ranged from **11 – 24 qse**. Dissolved oxygen in McIntyre Creek **did not go below 3 mg/L for the first time in months, although values** ranged from **3 – 9 mg/L**. Chlorophyll readings ranged from **2.5 – 7 ug/L**. Salinity at Tarpon Bay ranged from **26 – 34.5 psu**. CDOM readings ranged from **11 to 41 qse**. Dissolved oxygen ranged from **4.75 – 8.75 mg/L**, and chlorophyll readings ranged from **2.75 - 8 ug/L**. **Salinity at both locations remains below or in the lower end of the preferred range for shoal grass and turtle grass (30 to 40 psu).**

**Oysters:** Caloosahatchee oyster sampling in October by FGCU reported disease prevalence of *Perkinsus marinus* ranged from **73.33% to 100%**. Disease intensity of *P. marinus* ranged from **0.73 to 1.20**. Scale 0 = no infection, 1 = low, 3 = medium, 5 = high. Larval recruitment ranged from **0.1 - 31.92 spat per shell**.

**Red Tide:** *Karenia brevis* has been detected in background to low concentrations in samples collected along and offshore of Lee County.

| Caloosahatchee Stations | Chlorophyll (µg/L) | CDOM (qse)                      | Turbidity (NTU)                  | 25% lz depth (meters)          |
|-------------------------|--------------------|---------------------------------|----------------------------------|--------------------------------|
| <b>Target Values</b>    | <b>&lt; 11</b>     | <b>CE &lt;70<br/>SCB &lt;11</b> | <b>CE &lt; 18<br/>SCB &lt; 5</b> | <b>CE = 1 m<br/>SCB = 2.2m</b> |
| <b>Iona</b>             | <b>2.7</b>         | <b>144</b>                      | <b>0.9</b>                       | <b>1.05</b>                    |
| <b>Causeway A</b>       | <b>1.4</b>         | <b>81.2</b>                     | <b>1.6</b>                       | <b>1.41</b>                    |
| <b>San Carlos Bay</b>   | <b>1.4</b>         | <b>39.3</b>                     | <b>2.8</b>                       | <b>1.72</b>                    |

Target light penetration: CE – Caloosahatchee estuary = **1 meter**  
SCB – San Carlos Bay = **2.2 meters**

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

| ACOE Daily Reports |            |                |                |                |
|--------------------|------------|----------------|----------------|----------------|
| Date               | Day        | S79 Flow (cfs) | S78 Flow (cfs) | S77 Flow (cfs) |
| 10/20/2015         | Tues       | <b>82</b>      | <b>0</b>       | <b>443</b>     |
| 10/21/2015         | Wed        | <b>0</b>       | <b>0</b>       | <b>600</b>     |
| 10/22/2015         | Thur       | <b>0</b>       | <b>49</b>      | <b>395</b>     |
| 10/23/2015         | Fri        | <b>1038</b>    | <b>811</b>     | <b>1162</b>    |
| 10/24/2015         | Sat        | <b>1768</b>    | <b>909</b>     | <b>1486</b>    |
| 10/25/2015         | Sun        | <b>1133</b>    | <b>779</b>     | <b>1241</b>    |
| 10/26/2015         | Mon        | <b>810</b>     | <b>597</b>     | <b>868</b>     |
| <b>7 Day</b>       | <b>Avg</b> | <b>690</b>     | <b>449</b>     | <b>885</b>     |