

## MEMORANDUM

**TO:** Tommy Strowd, Director, Operations, Maintenance & Construction Division  
Terrie Bates, Director, Water Resources Division

**FROM:** Susan Sylvester, Chief, Water Control Operations Bureau  
Linda Lindstrom, Chief, Applied Science Bureau  
Dean Powell, Chief, Water Supply Bureau

**DATE:** December 5, 2013

**SUBJECT:** Operational Position Statement for the Week of December 3-9, 2013

The U.S. Army Corps of Engineers (USACE) is responsible for managing Lake Okeechobee water levels and makes operational decisions about whether to retain water or release water based on their regulation schedule release guidance (2008 LORS). The USACE makes this decision taking into account the best available science and data provided by its staff and a variety of partners, which includes the South Florida Water Management District (SFWMD).

The SFWMD team has discussed the system wide environmental conditions, the water supply conditions, and has evaluated the overall status of the water management system. Detailed reports are available at the SFWMD's [Operational Planning](#) internet page.

### **Recommendation to the USACE**

This week the SFWMD recommends the USACE continue to follow the 2008 LORS release guidance to manage the Lake stage. The Lake stage receded about 0.06 feet during the past week to a stage of 14.65 feet, NGVD, and is about 0.15 feet above the Baseflow Subband.

2008 LORS Release Guidance (Part C): The 3-December outcome from Part C of the 2008 LORS suggests "Up to Maximum Practicable to WCAs IF desirable or with minimum Everglades Impacts". The Tributary Hydrologic Condition (THC) remains in the normal classification this week. The THC is determined by the wetter of the Palmer Index and the Lake O Net Inflow. The Lake O Net Inflow is within the normal classification this week. The Palmer Index remains within the normal classification (2008 LORS classifications) and is likely to remain above the -1.5 dry class threshold for the next several weeks.

The USACE has indicated the desire that the District continue to move water south from Lake Okeechobee per Part C so long as the STAs are not adversely affected. Accordingly, SFWMD has continued regulatory discharges to the WCAs per the current LORS release guidance. WCA-1 stage is about 0.3 feet below the top of the A2 Zone. The LNWR has requested that treated water be sent to the Refuge to help prevent over dry conditions in the northern area of the Refuge. Releases started today. The WCA-2A stage recession slowed due to last week's rainfall. The USACE is planning to increase releases from the S-11's this week. The current stage is about 0.7 feet above the regulation schedule. WCA-3A stage rebounded some from the recent rainfall and continues to recede about 0.2 feet above the bottom of its regulation schedule.

Northwestern WCA-3A stages were reported to be receding at faster than ecologically-recommended rates. This week Lake Okeechobee recession rates were reported to be receding at ecologically-desirable rates.

2008 LORS Release Guidance (Part D): The outcome from Part D of the 2008 LORS release guidance is the same as last week: "S-79 up to 450 cfs, and S-80 up to 200 cfs". The Water Control Plan allows the USACE to release the total of 650 cfs (450 + 200) at S-79 with no releases at S-80.

For the St. Lucie Estuary, SFWMD estuary scientists reported that salinity is improving in the estuary and local sources (runoff and ground water) are sufficient to meet requirements for freshwater. Therefore releases of freshwater from Lake Okeechobee are not recommended.

For the Caloosahatchee Estuary, SFWMD estuary scientists reported salinity conditions in the lower estuary are good and salinity is beginning to increase near the I-75 bridge. The 30-day moving average salinity at Station Val I75 (I-75 bridge) is below 5 psu and is forecast to rise above 5 psu within 14 days if no releases are made at S-79. They suggest that continued baseflow releases should allow good salinity conditions the lower estuary while maintaining conditions conducive for submerged aquatic vegetation (SAV) in the estuary upstream of Ft. Myers. To mitigate potential stratification and phytoplankton accumulation in the water column, the release from S-79 should be released in a pulse pattern per the table below:

<u>10-day pulse pattern (cfs)</u>			<u>7-day pulse pattern (cfs)</u>		
Day	450	650	Day	450	650
1	1100	1300	1	1000	1450
2	1600	1900	2	1200	1700
3	850	1300	3	600	900
4	500	900	4	350	500
5	350	700	5	0	0
6	100	400	6	0	0
7	0	0	7	0	0
8	0	0			
9	0	0			
10	0	0			

The USACE has indicated that they will continue to add make-up release amounts to the baseflow releases. The target average S-79 discharge to the Caloosahatchee Estuary is 730 cfs, 80 cfs higher than the baseflow target of 650 cfs. The third of three 10-day release patterns is scheduled for December 8-17.

It remains the position of the SFWMD that the make-up releases are not required to be made under current circumstances. The lake stage is about 0.5 feet lower than it was at this time last year and within the USACE's stated preferred management range of 12.5 ft, NGVD to 15.5 ft, NGVD. The tributary conditions are drier than normal, ET and irrigation releases are both high, and the Lake stage recession rate was faster in October than in the past 30 years. The CPC climate outlook shows a higher likelihood of below average rainfall for the early part of the dry season, which has 6 months remaining. Furthermore, Lake regulatory discharges to the WCAs began two weeks ago and continue. For these reasons the SFWMD believes that typical Lake operations are sufficient to manage the Lake stage to achieve the designed balance of multiple project purposes; therefore the make-up releases do not need to be made under the current circumstances. This recommendation is consistent with the SFWMD Position Statements for the weeks of Nov 19 – 25, 2013 and Nov 26 – Dec 2, 2013. Additional information pertaining to the SFWMD's Lake Okeechobee Adaptive Protocol's is provided below.

The USACE has provided a first draft document of the make-up water protocols to clarify the intent and the implementation details. The SFWMD has provided written comments on the first draft and the agencies continue to coordinate this issue.

### Weather and Climate

Rainfall during the past week totaled 0.86 inches district wide (through 7 a.m. December 3<sup>rd</sup>). Approximately 0.31 inches fell directly over Lake Okeechobee during the past 7-days. District-wide rainfall during the past 30 days totaled 2.43 inches (5% above-average). The Upper and Lower Kissimmee Basins averaged about 0.34 inches during the past week. For the past 30 days the Upper Basin received about 93% of average rainfall, while the lower basin has received about 68% of average rainfall.

The SFWMD short-term weather forecast for the upcoming week is for well below-average rainfall. Week two is expected to receive below-average rainfall. Average weekly rainfall this time of year is about 0.5 inches. The available (30-Nov) Climate Prediction Center (CPC) outlook for December shows increased chances of below-normal rainfall for central Florida, and equal chances of below-normal, normal and above-normal rainfall for southern Florida. The available (21-Nov) three-month windows through Feb-Mar-Apr all indicate increased chances of below-normal rainfall for central and southern Florida.

## Current Conditions and Operations

The December 2, 2013 Lake Okeechobee stage (reported by the USACE on December 3) was 14.65 feet NGVD, 0.07 feet lower than last week. The Lake stage is 0.5 feet lower than it was a month ago and is about 0.5 feet lower than one year ago. The December 2<sup>nd</sup> stage was about 0.2 feet below the historical average for this date. The stage continues to recede and is within 0.15 feet of the Baseflow Sub-band of the 2008 Lake Okeechobee Regulation Schedule (2008 LORS).

Daily release rates, averaged for the past week (ending 4-Dec), at the Lake structures were about 650 cfs at S-77 and S-308 was closed. At the tidal structures, average daily discharges were about 970 cfs at S-79 and about 100 cfs at S-80. S-79 remains open to release target rates of 730 cfs (650 cfs baseflow + 80 cfs makeup). Lake releases at S-77 supplement C-43 basin runoff to achieve the target flow rate. Average rates during the past 7-days may differ from the 10-day target mainly because the target pulse has a variable pattern over the 10-day period.

The WCA-3A Rainfall-based management plan flow targets had been decreasing with the dry weather and receding WCA-3A stages, however the most recent rainfall did flatten that recession out somewhat. The SFWMD suggests consideration be given to transitioning the WCA-3A regulatory component over the upcoming 2-3 weeks.

Irrigation demands are being supplied by Lake Okeechobee via S-351, S-352 and S-354. The releases have been relatively high to maintain canal stages, but have decreased in the past few days due to rainfall. C-10A releases have been made to assist with dewatering the L-8 Flow Equalization Basin as well as supplying water needs of the City of WPB and the LWDD. Water supply releases to maintain coastal canal stages are also being made from WCA-2A via S-38.

## SFWMD Lake Okeechobee Adaptive Protocol (AP) Release Guidance

This week the SFWMD's Lake Okeechobee Adaptive Protocol (AP) release guidance flowchart is not applicable since the Lake Okeechobee stage is above the Baseflow Subband. Recent projections indicate the lake stage could recede into the Baseflow Subband within the next 2 weeks if dry conditions persist and the current recession rate continues.

However, note that the AP document included recommendations to conserve water in the beginning of the dry season when the Lake stage is in the Low Subband to ensure availability for later in the dry season when all water demands tend to be at their highest. Specific language on page 12 is shown here for convenience: "One of the fundamental tenets of adaptive protocols for Lake Okeechobee operations is to limit the 2008 LORS Low subband maximum release rate during the early part of the dry season to help conserve water and increase its potential availability for later in the dry season when the demand is largest. To implement this precept, when the lake stage is within the Low subband in the early part of the dry season, the weekly operations guidance may recommend to the USACE to limit the release volumes to no more than 50 percent of the maximum allowable. Factors that may influence this recommendation include lake stage trend, and weather and water condition forecasts."

The AP release guidance flowchart was designed primarily to guide release recommendations for circumstances when the Lake stage is within the Baseflow Subband or lower. The USACE's Water Control Plan (WCP) for Lake Okeechobee and the EAA recognizes that the SFWMD may allocate water to the environment through its "Adaptive Protocols" or other SFWMD authorities. The WCP provides guidance as to releases, including Adaptive Protocol recommendations, in the various Lake schedule subbands.

There are two primary branches of the AP release guidance flowchart. The upper branch pertains to the 2008 LORS baseflow (aka, regulatory) releases while the lower branch pertains to environmental water supply releases. It is important to recognize that the AP was developed primarily to guide the water supply balance between Caloosahatchee Estuary, permitted water users, and other water supply purposes of the water control system. The water supply balance achieved by following the AP release guidance was evaluated by the Water Resources Advisory Commission and the SFWMD Governing Board, leading to board acceptance in September, 2010. Final Adaptive Protocols for Lake Okeechobee Operations (September 16, 2010).

For additional information pertaining to operations history and past recommendations, refer to the archives of LORS-2008 Release Guidance outcomes and operational position statements at [www.sfwmd.gov](http://www.sfwmd.gov) under the Operational Planning topic.