

MEMORANDUM

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DATE: November 21, 2013

SUBJECT: Operational Position Statement for the Week of November 19-25, 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 0.12 feet during the past week to a stage of 14.84 feet, NGVD, and is within 0.35 feet of the Baseflow Subband.

2008 LORS Release Guidance (Part C): The 19-November 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 remains in the dry classification. 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 stated a desire to further manage Lake O stages by initiating regulatory discharges to the WCAs per the current LORS release guidance. Water levels in WCA-1, WCA-2A and WCA-3A are declining. WCA-1 stage is about 0.4 feet below the top of the A2 Zone. WCA-2A stage is receding about 0.5 feet above and parallel to its regulation schedule. WCA-3A stage is receding and is less than 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. However, Lake Okeechobee recession rates were also reported to be faster than ecologically-desirable rates.

As communicated during the 14-Nov WCA-3A Periodic Scientists Teleconference, the FFWCC and SFWMD indicated that Lake Okeechobee regulatory releases to northwestern WCA-3A would have some benefit at this time and would not cause adverse impacts. At the 14-Nov Multispecies Management Strategy meeting, SFWMD, FFWCC, USFWS, ENP, and Miccosukee Tribe indicated reported undesirably fast recession rates in WCA-3A and WCA-2A and requested that water be retained to assure favorable starting conditions for wildlife and ecosystems on Jan. 1.

And, at the 13-Nov USFWS quarterly water coordination meeting, Loxahatchee National Wildlife Refuge (LNWR) staff noted relatively low and receding stages in the LNWR and are contemplating a recommendation for Lake O regulatory releases to the LNWR (WCA-1) after treatment by STA-1W and/or STA-1E.

The SFWMD has assessed the capability of the system to convey and treat Lake regulatory discharges and, has received USACE direction to initiate Lake O regulatory releases to WCA-2A and to northwest WCA-3A. These Lake O regulatory releases are scheduled to start Thursday, 21-Nov.

The WCA-3A Rainfall-based management plan flow targets are decreasing with the dry weather and the receding WCA-3A stages. The SFWMD suggests consideration be given to decreasing the WCA-3A regulatory component of the target flow and transitioning the flow target more gradually over the upcoming 2-3 weeks.

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.

The USACE determined that a make-up water volume of about 33,000 acre-feet (roughly 0.9 inches of Lake water) was accrued during October. The Water Control Plan (Section 7-15 is pasted at the end of this document) contains language pertaining to the make-up water concept, but it does not include specific implementation details. For 4-5 days in October the USACE targeted a release rate of 650 cfs, but could have released up to 4,170 cfs had it been necessary to manage Lake stages. The make-up volume was calculated by the USACE as the difference between the 2008 LORS up-to amount and the actual release amount. The USACE started releasing some of the accrued make-up volume on 18-Nov. The current 10-day average S-79 release target is 730 cfs, 80 cfs more than the typical 650 cfs average baseflow release target. No releases are being made at S-80.

The SFWMD recognizes the USACE is taking a long-range view of risks to the Herbert Hoover Dike, however the SFWMD thinks the make-up releases are not required to be made. 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 this week. 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. The SFWMD has requested the USACE document the make-up water protocols to clarify the intent and the implementation details and the agencies are coordinating this issue.

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 improving and salinity is beginning to increase in the vicinity of Ft. Myers. The 30-day moving average salinity at Station Val I75 (I-75 bridge) is below 5 psu and is forecast to remain below 5 psu without Lake O releases. 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			

Weather and Climate

Rainfall during the past week totaled 0.12 inches district wide (through 7 a.m. November 12th). Little rain (0.07") fell directly over Lake Okeechobee during the past 7-days. District-wide rainfall during the past 30 days totaled 0.66 inches (77% below-average). The Upper and Lower Kissimmee Basins averaged about 0.2 inches during the past week. For the past 30 days the Upper Basin received about 16% of average rainfall, while the lower basin has received about 12% of average rainfall.

The SFWMD short-term weather forecast for the next week is for above-average rainfall. Week two is forecast to have at least two rain events but average rainfall is expected. Average weekly rainfall this time of year is about 0.5 inches. The available (31-Oct) Climate Prediction Center (CPC) outlook for November shows equal chances of below-normal, normal and above-normal rainfall for central and southern Florida. The available (17-Oct) three-month windows through Jan-Feb-Mar all indicate increased chances of below-normal rainfall for central and southern Florida.

Current Conditions and Operations

The November 18, 2013 Lake Okeechobee stage (reported by the USACE on November 19th) was 14.84 feet NGVD, 0.12 feet lower than last week. The Lake stage is 0.7 feet lower than it was a month ago and is about 0.5 feet lower than one year ago. The November 18th stage was 0.09 feet below the historical average for this date. The stage continues to recede and is within 0.35 feet of the Baseflow Sub-band of the 2008 Lake Okeechobee Regulation Schedule (2008 LORS).

Daily release rates, averaged for the past week, at the Lake structures were about 500 cfs at S-77 and 230 cfs at S-308. S-308 releases were to maintain C-44 stages and were not discharged at S-80. S-80 remains closed. At the tidal structures, average daily discharges were about 510 cfs at S-79 and 0 cfs at S-80. S-80 was closed the morning of 21-Oct and S-79 remains open to release target rates of 730 cfs (650 cfs baseflow + 80 cfs makeup). Average rates during the past 7-days differ from the 10-day target mainly because the target pulse has a variable pattern over the 10-day period.

The ERTM Multi-species Management Strategy guidelines recommend a January 1 three-gauge average stage of 10.5 feet for WCA-3A and 13.0 feet at gauge 17 in WCA-2A. Currently, stages are below those targets. The U.S. Fish and Wildlife Service, FFWCC, NPS, the Miccosukee Tribe of Indians, and the SFWMD recommend reducing discharges as the dry conditions persist to help WCAs attain the January 1, 2014 target stages for wildlife and ecosystem needs. The northern portions of WCA-3A (Site 62) are already declining at relatively fast rates for this time of year. The Southern area (along Tamiami Trail) is currently declining at a rate nearly 0.2 feet per week but this area is meaningfully deeper. As required for protection of the Cape Sable Seaside Sparrow S12A, S343A, S343B, and S343 were closed November 1, 2013, which reduced the discharge from southern WCA-3A.

The WCA-3A Rainfall-based management plan flow targets are decreasing with the dry weather and receding WCA-3A stages. The SFWMD suggests consideration be given to decreasing the WCA-3A regulatory component of the target flow and transitioning the flow target more gradually 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 O 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 under the Operational Planning topic.

CENTRAL AND SOUTHERN FLORIDA PROJECT WATER CONTROL PLAN FOR LAKE OKEECHOBEE AND EVERGLADES AGRICULTURAL AREA; JACKSONVILLE DISTRICT U.S. ARMY CORPS OF ENGINEERS; MARCH 2008

7-15. Make-up Releases. Historically, the planned Lake Okeechobee releases to tide (estuaries) have been subject to reduction or prevention by downstream conditions such as downstream local basin runoff, the tidal cycle, tidal storm surge and spawning in the estuaries. Similarly, planned Lake Okeechobee releases to the WCAs have also been limited by high water levels in the WCAs, STA treatment capacity limits, and limited or no conveyance capacity in the primary canals within the EAA. When these conditions have occurred in the past, the releases have been delayed or discontinued to prevent adverse effects downstream from Lake Okeechobee. To address this issue, proposed operational guidance includes conducting releases from Lake Okeechobee to tide and/or to the WCAs (via STAs) to make up for releases that were previously reduced or prevented. When the lake level is below the Intermediate Sub-Band, these make-up releases from Lake Okeechobee to tide (estuaries) and WCAs will occur as soon as possible and may occur when Parts C and D (Figures 7-3 and 7-4) do not allow for releases or prescribe a lower volume release. The lake make-up releases to tide (estuaries) would be limited to a pulse release from Lake Okeechobee not to exceed 2,800 cfs measured at S-79, and 2,000 cfs measured at the St. Lucie Estuary. This 2,000 cfs at the St. Lucie Estuary includes releases from all C&SF Project structures that discharge into the St. Lucie Estuary.