

MEMORANDUM

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DATE: April 9, 2014

SUBJECT: Operational Position Statement for April 8-14, 2014

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

The SFWMD recommendation this week is to propose a transition from last week's S-79 target discharge of 1,000 cfs to 450 cfs. The SFWMD's Lake Okeechobee Adaptive Protocols (AP) release guidance currently calls for no lake releases because the Caloosahatchee Estuary does not "need" freshwater per the salinity criterion. Specifically, the 30-day average salinity is forecast to not rise above the 5 psu criteria at the Val-I75 site within the next two weeks. However, because abrupt reduction in flows may cause potential negative ecological impacts, the SFWMD recommends a more-gradual transition.

The Lake stage has receded into the Baseflow Subband and the 2008 LORS guidance for releases to the estuaries has changed as described below. Also, the SFWMD governing board directed staff to use the SFWMD's Lake Okeechobee Adaptive Protocols release guidance as the basis for S-77 release recommendations to the USACE when the lake stage is within or below the Baseflow Subband. For the period of April 8-14, 2014, the AP guidance suggests no lake releases to the Caloosahatchee Estuary via S-77 because current and forecast salinity are below the threshold defined by the AP guidance. Details are provided on page 3. The SFWMD recognizes the USACE's desire to transition regulatory discharge rates to baseflow levels. The 1-April SFWMD lake stage projections indicate the probability of the Lake stage falling below elevation 11.0 feet, NGVD, before 1-June is zero. Therefore, there is little to no risk of a Lake O MFL rule exceedance and/or water shortage through May of 2014.

2008 LORS Release Guidance (Part C): The April 7th outcome from Part C of the 2008 LORS is the same as last week and 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 Palmer Index remains in the normal class (2008 LORS classifications); and the Lake O Net Inflow moved from the normal class to the dry class this week.

The USACE continues to advise the SFWMD to discharge water south from Lake Okeechobee per Part C of the LORS release guidance so long as the STAs are not adversely affected. Lake O regulatory discharges toward WCA-2A via STA-2 and toward WCA-3A via STA-3/4 continue as flow-through capacity is available. Input from SFWMD everglades' scientists indicate regulatory releases to northwestern WCA-3A provide some benefit to northwestern WCA-3A, and the flows are not large enough to adversely impact central and southern WCA-3A stages. Scientists also recommend continuation of the good recession rates in WCA-2A and WCA-3A. Water supply releases from WCA-1 and WCA-2A to coastal Palm Beach and Broward Counties continue as needed.

2008 LORS Release Guidance (Part D): The outcome from Part D of the 2008 LORS release guidance changed from last week and is now: “S-79 up to 450 cfs; and S-80 up to 200 cfs”. The lake stage receded into the Baseflow Subband this past week and is forecast remain within the Baseflow Subband for at least the next 3 weeks.

For the St. Lucie Estuary, SFWMD estuary scientists reported that local sources (runoff and ground water) are currently keeping salinities within the preferred range. Releases of freshwater from Lake Okeechobee are not recommended.

For the Caloosahatchee Estuary, SFWMD estuary scientists reported salinity conditions are within the preferred ranges for tape grass in the upper estuary and for oysters in the lower estuary. Forecast salinity near the I-75 Bridge will increase without releases at S-79, however no freshwater inputs at S-79 are needed to keep the 30-day moving average salinity below 5 psu for the next two weeks. To reduce the potential negative ecological impacts of abrupt reduction inflows from last week’s 1000 cfs to no flow at S-79, releases averaging 450 cfs at S-79 are recommended to provide a more gradual transition. The release from S-79 should be conducted in a pulse pattern to mitigate potential stratification and phytoplankton accumulation in the water column. Suggested pulse schedules for various average regulatory discharge targets are provided below.

10-day pulse					7-day pulse				
Day	450 cfs	650 cfs	1000 cfs	1200 cfs	Day	450 cfs	650 cfs	1000 cfs	1200 cfs
1	1100	1300	1600	1800	1	1000	1450	1500	1700
2	1600	1900	2200	2400	2	1200	1700	1900	2100
3	850	1300	1800	2000	3	600	900	1600	1800
4	500	900	1400	1600	4	350	500	900	1100
5	350	700	1100	1300	5	0	0	700	900
6	100	400	800	1000	6	0	0	400	600
7	0	0	600	800	7	0	0	0	200
8	0	0	300	500					
9	0	0	200	400					
10	0	0	0	200					

Weather and Climate

Rainfall during the past week totaled only 0.04 inches district wide (through 7 a.m. April 7th). Approximately 0.05 inches fell directly over Lake Okeechobee during the past 7-days. District-wide rainfall during past 30 days totaled 1.94 inches (66% of average). The Upper and Lower Kissimmee Basins averaged about 0.02 inches of rainfall during the past week. For the past 30 days the Upper Basin received about 100% of average rainfall, while the lower basin received about 68% of average rainfall.

The SFWMD weather forecast for the upcoming week is for below-average rainfall. For week two, the forecast is also for below-average rainfall. The available (20-Mar) Climate Prediction Center (CPC) outlook for April indicates equal chances of below-normal, normal and above-normal rainfall for central and southern Florida. The available (20-Mar) CPC outlook for all the three-month windows through the dry season and the upcoming wet season also indicate equal chances of below-normal, normal and above-normal rainfall for central and southern Florida.

Current Conditions and Operations

The April 7, 2014 Lake Okeechobee stage (reported by the USACE on April 8th) was 13.45 feet NGVD, 0.24 feet lower than last week. The Lake stage is 0.42 feet lower than a month ago and is about 0.28 feet lower than one year ago. The April 7th stage was about 0.71 feet below the historical average for this date. The stage is within the Baseflow Subband of the 2008 Lake Okeechobee Regulation Schedule (2008 LORS). The latest projections indicate the stage could remain within the Baseflow Sub-band for at least the next three weeks.

Daily release rates at the Lake structures, averaged for the week ending April 7th, were about 1,211 cfs at S-77 and 61 cfs at S-308 (for C-44 Basin water supply). At the tidal structures, average daily discharges were about 1,085 cfs at S-79 and 0 cfs at S-80. Lake releases at S-77 supplement C-43 basin runoff as needed to achieve the 2008 LORS target discharge rate at S-79. Some of the S-77 release this time of year is for water supply purposes. Note that LORS baseflow releases are regulatory discharges and not an environmental water supply release. 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-1 stage is currently at its regulation schedule and receding at the same rate as the schedule. WCA-2A marsh stage is receding and is about 0.7 feet above its regulation schedule. The S-11B headwater stage is near 10.5 feet, NGVD. The USACE closed the S-11C structure April 8th. The WCA-3A regulation stage (3 gage average) is 0.16 feet below the bottom of Zone E1 and receding slightly faster than the regulation schedule. SFWMD everglades' scientists recommend continued good recessions and to minimize reversals in WCA stages to avoid detrimental impacts to wading birds. They also recommend that continuation of flows to NW WCA-3A would be beneficial to reduce the risk of peat fires. All WCA primary discharge structures (S10s, S11s, and S12s are closed, as is S-333). S-334 remains closed. Siphoning via S-331 continues to pass seepage from L-31N to the lower reaches of the South Dade Conveyance System (SDCS). Water levels are receding in the SDCS and water supply releases may be likely within the next week or so.

SFWMD Lake Okeechobee Adaptive Protocol (AP) Release Guidance

This week the SFWMD's Lake Okeechobee Adaptive Protocol (AP) release guidance flowchart is applicable since the Lake Okeechobee stage is within the Baseflow Subband of the 2008 LORS. Projections indicate the lake stage will remain in the Baseflow Subband for at least the next three weeks.

This week the Lake O AP release guidance suggests no releases from Lake Okeechobee at S-77. This week's outcome is based on the current and forecast salinity at the Val-I75 site being below the 5 psu threshold. The specific salinity criterion in the AP release guidance states "Estuary 'needs' water when the 30-day moving average salinity at I-75 bridge is projected to exceed 5 practical salinity units (psu) within 2 weeks." As the dry season continues and the 14-day salinity forecast shows the 30-day moving average rising above 5 psu, then the AP guidance will suggest releases up to 450 cfs at S-79, to be supplemented by Lake O releases at S-77 as needed.

Lake O AP Background Information

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, other water supply purposes of the water control system, and the Lake O MFL Rule. 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.