



Public Notice

U.S. Army Corps of Engineers, Norfolk District

April 08, 2015

Wetland Hydrology and Growing Season Determinations for the 2015 Monitoring Season

The Norfolk District believes it beneficial to the public to provide seasonal Public Notices (PNs) regarding preceding precipitation conditions for shallow groundwater well monitoring associated with wetland determinations. The purpose of this PN is to inform the public of relevant parts of our process, and our interpretation and findings regarding current precipitation conditions in portions of southeastern Virginia for the 2015 monitoring season. This is accomplished by our analysis of several rainfall recording stations and our use of hydrology monitoring wells distributed across the Hampton Roads region. For the upcoming monitoring season, precipitation for Suffolk (Lake Kilby data) and Williamsburg have been within normal ranges as of the end of March 2015. Given the current and antecedent conditions at this time, the public has the option to submit well data to the Corps for consideration in its wetland determinations for the Suffolk (in proximity to Lake Kilby) and Williamsburg, provided they comply with the guidance and standards noted herein. However, for the Norfolk area (Norfolk International Airport data) and Peninsula (Hampton [Joint Base Langley-Eustis]) data) precipitation has been below or near the 30th percentile (below normal range) for the timeframe of January through March, 2015. Given the current and antecedent conditions at this time, we conclude that groundwater well data alone may be unreliable for wetland determinations in these areas this year.

Background

Wetlands are defined as "those areas that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support, and that **under normal circumstances** do support, a prevalence of vegetation typically adapted for life in **saturated soil conditions**" (33 CFR 328.3(b)(emphasis added). Wetland determinations typically entail observation of field indicators of wetland vegetation, hydric (wetland) soils, and wetland hydrology.

Occasionally, property owners or their agents may elect to install and monitor shallow groundwater wells for the late winter and spring seasons to gather data about the levels and duration of groundwater (i.e. saturated soil conditions) for particular areas to attempt to clarify the limits of wetlands. There is no requirement that well data be submitted to obtain confirmations of wetland delineations. However, the Corps does consider groundwater well data in its determinations if such data are collected in accordance with proper well installation and monitoring standards and during periods consistent with "normal circumstances" prior to and during the monitoring period.

Any monitoring wells used to facilitate wetland hydrology determinations should be installed and monitored in accordance with the guidelines in [Technical Standard for Water-Table Monitoring of Potential Wetland Sites, ERDC-TN-WRAP-05-2](#).

Before we will consider well data for a specified site, we require submittal and approval of a well monitoring plan, which includes a review of the location and installation of the monitoring wells. In addition, during the monitoring season (typically February through April), the Corps' staff must be allowed periodic access to the particular sites and wells without any prior notice to provide proper quality assurance.

When reviewing shallow groundwater well data in order to determine whether normal circumstances for wetland hydrology are present, we consider the amount and distribution of precipitation prior to the start of the growing season (after leaf drop in the fall) and during the early growing season. The U.S. Department of Agriculture's Natural Resource Conservation Service (NRCS) National Water and Climate Center calculates normal precipitation ranges for each month (defined as between the 30th and 70th percentiles of monthly precipitation totals) for NOAA's National Weather Service (NWS) stations throughout the United States. The information for Virginia is published in [WETS tables available from the NRCS](#).

2015 Precipitation

Methods to evaluate precipitation trends for wetland delineation purposes are described in [Accessing and Using Meteorological Data to Evaluate Wetland Hydrology, ERDC TR-WRAP-00-1](#). Short-term water-table monitoring data (i.e., <10 years) must be evaluated with consideration of the amount and distribution of precipitation that fell prior to the beginning of the growing season (but after leaf drop in the fall), which is the groundwater recharge period. Although we analyze all months after leaf drop, this timeframe is generally at least 3 months prior to the beginning of the growing season each year. Precipitation monthly totals for the 3 months preceding this PN for Lake Kilby and Williamsburg have been within normal ranges. However, precipitation monthly totals for Norfolk and Langley have been below the 30th percentile (below normal range) (summary data attached). As with PNs on this topic issued for previous years, this assessment only analyzes whether precipitation amounts for the prior three months fall within the 30th to 70th percentiles for the start of the growing season. As the growing season progresses rainfall conditions will be similarly analyzed until full leaf-out, generally around mid- to late April. Dry wells in a drier-than-typical rainfall period and wet wells in a wetter-than-typical rainfall period are of limited value in making definitive determinations regarding wetland hydrology.

This analysis is based on evaluation of precipitation data for four WETS stations in southeastern Virginia (Norfolk, Lake Kilby, Langley & Williamsburg). Rainfall trends (e.g., percent of normal for different time periods) for the entire Commonwealth are available from NWS's [Advanced Hydrologic Prediction Service](#), and they correspond well with our more detailed analysis for Tidewater, Virginia. Lastly, water levels at shallow groundwater reference well sites in southeastern Virginia that have been

monitored for several years are consistent with our interpretation of precipitation trends detailed above. While groundwater levels have risen to within 12 inches of the soil surface for most of the reference wells as of early March, we cannot predict how long this condition will continue. Precipitation trends control this.

Regardless of precipitation conditions, we will continue to make wetland determinations based on the field indicators of vegetation, soils, and wetland hydrology described in the [Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Atlantic and Gulf Coastal Plain Region \(version 2.0\)](#), the [Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Eastern Mountains and Piedmont Region \(version 2.0\)](#), including use of Chapter 5 when appropriate, and portions of the [Corps of Engineers Wetlands Delineation Manual \(1987\)](#) that were not replaced by the regional supplements.

Growing Season

Beginning and ending dates of the growing season are needed in the event water-table monitoring data must be analyzed for wetland hydrology determinations. The Regional Supplements state that the growing season has begun and is ongoing in a given year when two or more different non-evergreen vascular plant species growing on the site or surrounding areas exhibit certain indicators of biological activity, or when soil temperature measured at the 12-in. (30-cm) depth is 41 °F (5 °C) or higher. Soil temperature and plant activity are both surrogates for estimating soil microbial activity which produces anaerobic conditions in the soil that are characteristic of wetlands.

Several of the indicators of plant biological activity signaling the start of the growing season as described in the Regional Supplements were observed broadly across southeastern Virginia by late February 2015.

A graph of soil temperature data collected at reference sites in southeastern Virginia (Virginia Beach, Chesapeake, Hampton, York County and Isle of Wight County) from mid-December 2014 to mid-March 2015 is attached. The data collected to date indicates soil temperatures remained above 41 °F for the monitoring period except for a 23-day period between 13 Feb and 08 March 2015 when 5 reference sites dropped below 41 °F for different amounts of time (Virginia Beach [Back Bay] for 23 days, Isle of Wight [Wellington Park] for 16 days, Virginia Beach [Stumpy Lake] for 15 days and Chesapeake [Oak Grove & Su] for 10 days).

This PN does not relieve those that have constructed wetland mitigation projects from monitoring hydrologic conditions. Monitoring should be conducted in accordance with the associated permit, approved plan, or mitigation banking instrument. Credits will be released from mitigation banks for those areas meeting all applicable performance standards, including hydrologic criteria.



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