

Wetland Hydrology Performance Criteria for Wetland Mitigation Sites in Washington

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WSDOT proposes realistic wetland hydrology performance measures and performance standards for wetland mitigation sites in Washington.

Fundamental to the design of any wetland mitigation project is the need to develop realistic goals for hydrological conditions (National Research Council 2001). Performance measures and performance standards for wetland hydrology should include easily measurable or observable attributes that indicate a mitigation site meets project goals and objectives (Streever 1999). From a regulatory compliance perspective, a reasonable gauge of mitigation site success is the establishment of a sustainable hydrological regime and replacement of the intended wetland area. To evaluate success in meeting these objectives, performance measures and standards that satisfy the three-factor regulatory approach should be derived from the 1987 Army Corps of Engineers Delineation Manual and appropriate Regional Supplement (USACE 2002).

Using this information as a guideline, the Washington State Department of Transportation (WSDOT) proposes the following performance criteria for most typical wetland mitigation projects.

Performance Measure (all years)

In the intended wetland area, the soils will be saturated to the surface, or standing water will be present within 12 inches of the surface for at least ___ consecutive weeks (___ percent) of the growing season in years when rainfall meets or exceeds the 30-year average.

Performance Standard (final year of monitoring)

The wetland area will be delineated using current methods to assure that the mitigation site contains ___ acres of wetland.

There are two critical components of the performance measure. First, a threshold for the number of days of continuous soil saturation or inundation during the growing season must be specified. In 1987, the Army Corps of Engineers established the five percent threshold as the minimum standard for wetland hydrology using the three-factor approach (Environmental Laboratory 1987). A National Research Council study completed in the mid-1990s reaffirmed this jurisdictional threshold (National Research Council 1995). The five percent threshold is also consistent with guidance in the new Regional Supplements to the Army Corps of Engineers Delineation Manual (USACE 2006

and 2007). In Washington, this translates to 14 or more days of continuous saturation or inundation for most areas of the state. Local thresholds may vary with elevation and other factors that affect growing season length. At the state level, regulatory agencies typically require inundation or saturation for a minimum of 30 consecutive days during the growing season (Ecology *et al.* 2006). Second, short-term (typical monitoring cycle) wetland hydrology studies provide sufficient information only if normality of precipitation during the monitoring period is considered (Warne and Wakely 2000, USACE 2005). It is important that the performance measure address conditions of drought or precipitation excess. Therefore, the performance criterion only applies in years when rainfall meets or exceeds the 30-year average.

Hydrology indicators described in the Army Corps of Engineers Delineation Manual reflect natural wetland processes, and in the absence of significant hydrologic modification, are generally considered the best evidence that wetland hydrology is present (Tiner 1999, USACE 2005). WSDOT uses primary and secondary indicators of wetland hydrology observed during the entire monitoring period to document achievement of hydrology performance measures and assist final-year delineation efforts (Ecology 1997, Environmental Laboratory 1987, USACE 2006 and 2007). Soil pits are typically used by WSDOT to document soil saturation and hydric soil development, and a Global Positioning System (Trimble TSCI data logger) is used to delineate wetland boundaries.

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