

HIGHLIGHTS

PROPOSED WETLAND DEFINITION AND DELINEATION METHOD FOR USE BY THE STATE WATER BOARD

I. Need

The State Water Board has directed that a Wetland and Riparian Area Protection Policy (policy) be developed that will include a “wetland definition for California” (Resolution No. 2008-0026, Attachment 5). The definition is to be based on the Corps delineation methods to the extent feasible.

Delineation methods are used to establish the boundary of a wetland, and therefore its size and location, for the purposes of federal, State and local regulations. Delineation methods are developed to identify three common wetland indicators: (1) the presence of water at or near the land surface permanently or periodically or for some portion of the growing season; (2) hydric soils that develop under saturated soil conditions; and (3) predominance of hydrophytic plants adapted for living in saturated conditions. Essentially, a line is established in the field that separates the wetland area from the adjacent upland or deep water area. In the process, a determination is made as to whether the area meets the definition of a wetland.

The definition and associated delineation methods are to be used by the State Water Board to identify those areas that are protected as wetlands under the California Water Code. Staff are currently developing this policy and it includes a proposed State Water Board wetland definition and supporting delineation methods which are the subject of this review.

The State Water Board directed that this policy be developed in response to the shrinking role of federal wetland protection in California and other states due to recent U.S. Supreme Court rulings (Solid Waste Agency of Northern Cook County v. U.S. Army Corps of Engineers, 2001; and Rapanos v. United States and Carabell v. United States, 2006). The decision by the State Water Board to proceed with a policy and definition has proven to be contentious. Over 3,000 comment letters were received by the State Water Board after two public scoping meetings held in 2008. One of the principle issues is the definition since it will be used to determine what is regulated under the policy.

As mentioned in the cover letter to Dr. Gerald Bowes, State Water Board staff, using U.S. EPA grant funds, formed a Technical Advisory Team composed of staff and experts in the field of wetland science. The Team was to develop a wetland definition and associated delineation methods for California in accordance with the direction received from the State Water Board in Resolution No. 2008-0026. The Technical Advisory Team reviewed and evaluated

definitions currently being used by governmental agencies and scientific organizations throughout the United States and worldwide.

In the end, the Technical Advisory Team found that there were no existing definitions that would reliably define the diverse array of California wetlands. Therefore, the Technical Advisory Team proceeded to develop a definition that specifically fit the range of wetlands found in California and that could be used with the Corps field delineation methods. A number of modifications to the Corps standard field delineation procedures are suggested by the Technical Advisory Team in order to fit these methods to the new definition.

The proposed State Water Board wetland definition and related delineation methods are among the subjects for review in Attachment 2.

II. The Nuts and Bolts of It.

The rationale for the proposed definition and supporting delineation methods is presented in the State Water Board Staff Report and four Technical Memoranda as follows (these appear as citations 1 through 5 in Attachment 4):

- State Water Board Staff Report. October, 2010. .
- No. 1: Technical Advisory Team (Membership and Purpose). July 15, 2009, revised October 12, 2009. 31p Technical Advisory Team.
- No. 2: Wetland Definition. June 25, 2010, revised February 22, 2010. 22p. Technical Advisory Team
- No. 3: Landscape Framework for Wetlands and Other Aquatic Areas. October 20, 2009, revised February 22, 2010. 31p. Technical Advisory Team
- No. 4: Wetland Identification and Delineation. April 5, 2010. 30p. Technical Advisory Team

The staff report and the four memoranda provide a full description of the scientific basis for the proposed State Water Board wetland definition and associated delineation methods. As recommended in Technical Memorandum No. 4, the State Water Board would adopt the Corps delineation methods, but with certain changes to accommodate the application of the State Water Board definition to the variety of ecological conditions found in California. Full bibliographic information for the staff report and the four memoranda are found in Attachment 4.

The staff report and the four memoranda provide the technical basis for this peer review request. This technical foundation is translated into scientific findings, assumptions and conclusions in Attachment 2 to provide focus for the reviewers.

III. Purpose of the Proposed State Water Board Definition and Delineation Method

As with any wetland definition, its usefulness is dependent on the purpose for which it is intended. In this case, the proposed State Water Board definition and the supporting delineation methods are intended to serve as a basis for the State Water Board's regulatory program of wetland protection under the policy.

IV. Wetland Related Terms

A number of scientific terms relate to the discussion of the State Water Board definition and delineation methods. A full glossary for wetland related terms is provided in Technical Memorandum No. 2, but for convenience, the following are the meanings of selected key terms:

Anaerobic means growing in the absence of molecular oxygen, as with anaerobic bacteria, or occurring in the absence of molecular oxygen, as with certain biochemical processes.

Hydric means having or characterized by excessive moisture (wordnetweb.princeton.edu/perl/webwn).

Hydric Conditions are conditions of upper substrate that form if water saturation in the upper substrate (including flooding, or ponding) lasts long enough to create anaerobic conditions. For the purposes of this definition, the minimum duration of saturation required to form anaerobic conditions in the upper substrate is identified as 14 consecutive days during the growing season. However, the minimum duration required to develop anaerobic conditions in the upper substrate is known to vary with soil temperature, soil pH, and other environmental factors, and scientific evidence indicates that in some California environments the chemical transformation to anaerobic conditions in the upper substrate may occur in fewer than 14 days.

Hydrophytic vegetation or hydric plant species, are plants adapted to inundated or saturated substrates.

Substrate is the solid organic or inorganic material that forms the physical surface of a landscape area, including wetlands. Substrate may include rock, boulder, cobble, gravel, sand, silt, clay, and other inorganic materials; peat, muck, and other organic materials; and various mixtures of inorganic and organic

materials. Substrate generally also includes water, other liquids, and gaseous materials.

Upper Substrate is the portion of substrate that includes the major portion of the root zone for vegetation, and the zone within which relevant anaerobic chemical conditions develop in wetlands. The “major portion of root zone” is interpreted by the Corps to be the zone containing >50 percent of the living root mass of the dominant hydric plant species. The depth of the upper substrate that influences wetland indicators will vary, depending on vegetation, substrate texture, depths to impermeable layers, and substrate chemistry. The Corps 1987 manual identifies the “major portion of the root zone” as typically 30 centimeters (12 inches) deep; for the purposes of this definition, the upper substrate is typically the zone extending downward from the substrate surface to a depth of 50 centimeters (20 inches), as indicated in the Corps regional supplements for California. However, the Corps method requires that hydrology observations consider that saturation must occur within the majority of the dominant hydric plant species root zone, and in porous soils the upper substrate may extend to depths greater than 50 cm.

Wetland Hydrology is the study of the movement of water in and out of the wetland ecosystem. Wetland hydrology is typically evaluated using information on three related elements: the duration of saturation, the depth of saturation, and the frequency of saturation. In wetlands the presence of water is the critical characteristic of the ecosystem. Without water, a wetland will not remain a wetland, and so is considered to be the “master variable” (ref. #6. Wetlands: Characteristics and Boundaries, National Research Council, 1995, Ch. 3, p. 62).