Maintenance of the National Wetland Classification Standard: *Classification of Wetlands and Deepwater Habitats of the United States* FGDC STD–4–1996

Bill O. Wilen, Chair, FGDC Wetlands Subcommittee
Phone: 703-358-2161
E-mail: Bill_Wilen@fws.gov

The maintenance authority resides with the USFWS. Pertinent enabling authority resides in the Emergency Wetlands Resources Act of 1986. The USFWS has designated its NWI Project to undertake the responsibilities to satisfy the requirements of Circular A-16. In carrying out Federal Government-wide leadership in spatial wetlands data coordination, the USFWS is directly responsible to the FGDC, and the NWI ensures compliance with the objectives and guidance provided by the FGDC.

The objective of this maintenance is to produce a newly edited and updated version of the FGDC approved wetlands classification standard, *Classification of Wetlands and Deepwater Habitats of the United States* (Cowardin et al.). The standard has been reformatted to be consistent with recently endorsed standards with the text edited, refined, clarified, and rewritten as necessary to reflect advances in our scientific understanding of wetlands classification.

The definition of wetlands that is included in the classification standard defines the biological limit of wetlands. Federal, state, and local regulatory agencies with jurisdiction over wetlands may define and describe wetlands in a different manner than the wetlands defined in the classification standard and described in the mapping standard. There is no attempt to define the limits of proprietary jurisdiction of any federal, state, or local government or to establish the geographical scope of the regulatory programs of government agencies. Persons intending to engage in activities involving modifications within or adjacent to wetland areas should seek the advice of appropriate federal, state, or local agencies concerning specified agency regulatory programs and proprietary jurisdictions that may affect such activities.

Change in the boundary limit between wetland and deepwater habitat

The boundary between wetland and deepwater habitat in the Riverine and Lacustrine Systems was defined by Cowardin et al. (1979) at a depth of 2 m (6.6 feet) below low water; however, if emergents, shrubs, or trees grow beyond this depth at any time, their deepwater edge is the boundary.

Soil Taxonomy 1975 stated, "*Areas are not considered to have soil if the surface is permanently covered by water deep enough that only floating plants are present...*" The 2 meter depth was selected because it represented the maximum depth to which emergent plants normally grow and at the time it was believed to be the maximum depth at which soils formation took place. This depth was superseded if emergents, shrubs, or trees grow beyond this depth at any time.

The change in depth reflects this advance in scientific understanding.

The Soil Taxonomy was updated in 1999. U.S. Natural Resources Conservation Service, Soil Survey Staff changed the maximum depth for the formation of soil to 2.5 meters (8.2feet).

In the current version of the classification standard the boundary between wetlands and deepwater habitat in the Riverine and Lacustrine Systems was set at a depth of 2.5 m (8.2 ft) below low water; however, if emergents, shrubs, or trees grow beyond this depth at any time, their deepwater edge is the boundary.

Defining growing season

In the 1996 version of the classification standard water regimes were defined in terms of the growing season, which we equate to the frost-free period (see the U.S. Department of Interior National Atlas 1970:110-111 for generalized regional delineation).

In the current version of the classification system water regimes are also defined in terms of the growing season which, for the purposes of this classification, begins with green-up and bud-break of native plants in the spring and ends with plant dieback and leaf-drop in the fall due to the onset of cold weather. During the rest of the year, which is defined as the dormant season, even extended periods of flooding may have little influence on the development or survival of plant communities.

The change in growing season better reflects the biological activity of native wetland plants and reflects changes in the frost free period that have occurred since 1970.

Geospatial seam between the National FGDC Wetlands Classification Standard (WCS) and the draft Coastal and Marine Ecological Classification Standard (CMECS).

The goal is to enable a logical seam between NWCS and CMECS to ensure a continuous database from the continental divide to beyond the continental shelf.

> ***The National FGDC Wetlands Classification Standard (WCS) will be used to map all non-tidal deepwater habitats except for the Great Lakes and all coastal and inland wetlands except for permanently flooded tidal freshwater wetlands. Once the draft Coastal and Marine Ecological Classification Standard (CMECS) is adopted, it will be used to map deepwater habitats in the Great Lakes and in the Marine and Estuarine Systems, as well as all permanently flooded-tidal freshwater habitats (deepwater and wetland). The WCS will use 0.5 parts per thousand (ppt) ocean-derived salinity as the upstream boundary for the Estuarine System and CMECS will use head of tide.***

Refinements to water regimes

Discussion: The **Seasonally Flooded Water Regime** developed by Cowardin et al. (1979) covers a broad range of hydrologic conditions. In all cases, surface water is present for extended periods, especially during the growing season. In some cases, surface water may exist for only a month or two; in other cases, it may persist nearly until the end of the growing season. Once surface flooding has ended, the water table may drop to varying depths below the surface, depending on the site or year. In some cases, the unsaturated zone may be 1 m (3.3 ft) or more

thick by fall; in other cases, the substrate may remain saturated at or near the surface. Early on National Wetlands Inventory staff considered splitting the Seasonally Flooded Water Regime. After trying different splits. Subdivisions appeared in mapping conventions. Because NWI has successfully identified wetlands in the latter category for many years, the **Seasonally Flooded-Saturated Water Regime** has been added to the classification specifically to identify that subset of conditions.

> ***Seasonally Flooded-Saturated.*** *Surface water is present for extended periods (generally for more than a month) during the growing season, but is absent by the end of the season in most years. When surface water is absent, the substrate typically remains saturated at or near the surface.*

Discussion: The **Saturated Water Regime** developed by Cowardin et al. (1979) covers a range of hydrologic conditions, specifically the depth to, and duration of, substrate saturation. In most saturated wetlands, flooding of the ground surface is uncommon, if present at all. However, in some cases, the groundwater table may drop significantly over the course of the growing season and the thickness of the unsaturated zone may approach, or even exceed, 1 m (3.3 ft) by fall. Such conditions occur most often in certain wetlands commonly referred to as forested swamps, shrub swamps, and wet meadows. In other cases, the water table may remain at or very close to the surface throughout the year. This latter condition is especially common in bogs and fens. Because the depth and duration of substrate saturation heavily influence the composition of the plant community and certain wetland functions, the Saturated Water Regime has been split into two regimes: Seasonally Saturated and Continuously Saturated.

> ***Seasonally saturated****. The substrate is saturated at or near the surface for extended periods during the growing season, but unsaturated conditions prevail by the end of the season in most years. Surface water is typically absent, but may occur for a few days after heavy rain and upland runoff.*

> ***Continuously Saturated****. The substrate is saturated at or near the surface throughout the year in all, or most, years. Widespread surface inundation is rare, but water may be present in shallow depressions that intersect the groundwater table, particularly on a floating peat mat.*

Additional Tidal Fresh Water regime

Discussion: The Tidal Subsystem of the Riverine System and tidally influenced parts of the Palustrine and Lacustrine Systems require special Water Regime Modifiers that reflect both tidal and nontidal hydrology. In these habitats, ocean-derived salts measure less than 0.5 ppt. If the substrate in these habitats is flooded and exposed daily by tides, we apply a *Regularly Flooded-Tidal Fresh* Water Regime Modifier because the tidal effect predominates. If the substrate in these habitats is either permanently covered with fresh water that fluctuates in depth with the tides, or is only irregularly flooded by the tides, we apply the appropriate Nontidal Water Regime

Modifier with the suffix "-Tidal Fresh" added, as in *Seasonally Flooded-Tidal*. This convention indicates that the habitat is influenced by tides, but that the Water Regime is driven primarily by nontidal inputs and outputs.

There has need discussion over the years about adding a Regularly Flooded-Tidal Fresh water regime. The National FGDC Wetlands Classification Standard (WCS) uses 0.5 parts per thousand (ppt) ocean-derived salinity as the upstream boundary for the Estuarine System and the proposed Coastal and Marine Ecological Classification Standard (CMECS) will use head of tide. To prevent any unnecessary confusion it will be added now.

> ***Regularly Flooded-Tidal Fresh.*** *Tides alternately flood the substrate with fresh water and expose it at least once daily.*

References

Soil Survey Staff 1975. Soil taxonomy: a basic system of soil classification for making and interpreting soil surveys. U.S. Natural Resources Conservation Service. Agricultural Handbook 436.

Soil Survey Staff 1999. Soil taxonomy: a basic system of soil classification for making and interpreting soil surveys. 2nd edition. U.S. Natural Resources Conservation Service. Agricultural Handbook 436.