



## 660 FW 2, Wetlands Classification System

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**2.1 Purpose.** The purpose of this chapter is to provide guidance on using definitions and classifications of wetlands within the U.S. Fish and Wildlife Service (Service).

**2.2 Scope.** The Service's definition and classification system provides standardization of concepts and terms used to describe the biological limit of wetland types found in the United States, and is used nationwide by many Federal, State, and local agencies as part of the management of their wetland resources. In addition, other countries use this system as the basis for their own wetland definition and classification. However, there is not universal acceptance. Some Federal, State, and local regulatory agencies with jurisdiction over wetlands may define and describe wetlands in a different manner and extent than covered by this wetland definition and classification for their agency's regulatory purposes.

**2.3 Policy.** Service personnel will use the Service's wetlands definition and classification system to describe wetland resources.

### 2.4 Wetlands Definition and Classification System.

**A. Reference.** The Service's wetlands definition and classification system is found in "Classification of Wetlands and Deepwater Habitats of the United States" by L.M. Cowardin, V. Carter, F.C. Golet, and E.T. LaRoe, which was published by the Service in 1979 (FWS/OBS-79/31, 131pp.)

**B. Adoption.** The system was officially adopted by the Service on September 15, 1980. The document is authorized as a handbook to the FWM and may be changed only by the Director.

**C. Supersession.** The current system superseded "Wetlands of the United States" by S.P. Shaw and C.G. Fredine which was published by the Service in 1956 (FWS Circular 39.)

**D. Availability.** Due sustained high demand, the publication was reprinted in 1992. Copies for official use are available from the Service Publications Unit (OTE) located in Arlington, Virginia. Regional and Field Offices also have copies. Copies are available for sale from: Superintendent of Documents, U.S. Government Printing Office, Mail Stop SSOP, Washington, D.C. 20402-9328. Telephone number (202) 783-3238; GPO Stock Number: 024-010-00665-0.

### 2.5 Definitions.

**A. Wetlands.** Wetlands are lands transitional between terrestrial and aquatic systems where the water table is usually at or near the surface or the land is covered by shallow water. For purposes of this classification, wetlands must have one or more of the following three attributes: (1) at least periodically, the land supports predominantly hydrophytes (plants specifically adapted to live in wetlands); (2) the substrate is predominantly undrained hydric (wetland) soil; and (3) the substrate is nonsoil and is saturated with water or covered by shallow water at some time during the growing season of each year.

**B. Classification System.** The classification system is structured as a hierarchy in which descriptive categories proceed from the general to the specific. These categories are: System, Subsystem, Class, Subclass, Dominance Type, and Modifiers.

**(1) System.** A System is a complex of wetlands and deepwater habitats that share the influence of similar hydrologic, geomorphic, chemical, or biological factors. There are five Systems: Marine, Estuarine, Riverine, Lacustrine, and Palustrine.

**(2) Subsystem.** A Subsystem is a subdivision of the System category that further describes the System in terms of the degree of submergence, water level, water gradient, water velocity, type of substrate, or extent of floodplain development. The Palustrine System, which contains most of the freshwater wetlands found in the United States, does not have a Subsystem.

**(3) Class.** The Class describes the general appearance of the habitat in terms of either the dominant life form of the vegetation or the physiography and composition of the substrate. For example, Classes under the Palustrine System are: Rock Bottom, Unconsolidated Bottom, Aquatic Bed, Unconsolidated Shore, Moss-Lichen Wetland, Emergent Wetland, Scrub-Shrub Wetland, and Forested Wetland.

**(4) Subclass.** The Subclass describes finer differences in life forms or non-vegetated substrates and is named on the basis of the predominant life form or substrate type present. For example, Subclasses under the Forested Wetland Class are: Broad-Leaved Deciduous, Needle-leaved Deciduous, Broad-Leaved Evergreen, Needle-Leaved Evergreen, and Dead.

**(5) Dominance Type.** The Dominance Type is based upon the dominant plant or animal species. In the Palustrine Forested Wetland classification, examples of Dominance Types under the Broad-Leaved Deciduous Subclass are: red maple (*Acer rubrum*) and swamp white oak (*Quercus bicolor*).

**(6) Modifiers.** Modifiers are applied at the Class level and below to more accurately describe a wetland. These Modifiers are: Water Regime, Water Chemistry, Soil, and Special Modifiers.

**(a) Water Regime.** The Water Regime Modifiers are grouped under two major headings: tidal or nontidal. Each is further divided to describe the periodicity of surface inundation. Examples of Water Regime Modifiers under the nontidal heading are: Permanently Flooded, Intermittently Exposed, Semipermanently Flooded, Seasonally Flooded, Saturated, Temporarily Flooded, Intermittently Flooded, and Artificially Flooded.

**(b) Water Chemistry.** The Water Chemistry Modifiers are divided into salinity or hydrogen ion concentration (pH) categories. Salinity Modifiers are grouped into coastal and inland categories. The Salinity Modifiers for inland areas are: Hypersaline, Eusaline, Mixosaline, and Fresh. Hydrogen ion concentration modifiers are: Acid, Circumneutral, and Alkaline.

**(c) Soil.** The Soil Modifiers are either mineral or organic soil.

**(d) Special Modifiers.** Special Modifiers are used to describe wetlands that are man-made or have been altered by the activities of man or beavers. Examples of Special Modifiers are: Excavated, Impounded,

Diked, Partly Drained, Farmed, or Artificial.

**C. Geomorphic.** The term geomorphic means of or relating to the form of the earth or its solid surface features.

**D. Lacustrine.** The Lacustrine System includes wetlands and deepwater habitats with all of the following characteristics:

(1) situated in a topographic depression or a dammed river channel; (2) lacking trees, shrubs, persistent emergents, emergent mosses or lichens with greater than 30% areal coverage; and (3) total area exceeds 8 ha (20 acres). Similar wetland and deepwater habitats totalling less than 8 ha are also included in the Lacustrine System if an active wave-formed or bedrock shoreline feature makes up all or part of the boundary, or if the water depth in the deepest part of the basin exceeds 2 m (6.6 feet) at low water. Lacustrine waters may be tidal or nontidal, but ocean-derived salinity is always less than 0.5 parts per thousand.

**E. Palustrine.** The Palustrine System includes all nontidal wetlands dominated by trees, shrubs, persistent emergents, emergent mosses or lichens, and all such wetlands that occur in tidal areas where salinity due to ocean derived salts is below 0.5 parts per thousand. It also includes wetlands lacking such vegetation, but with all of the following four characteristics: (1) area less than 8 ha (20 acres); (2) active wave-formed or bedrock shoreline features lacking; (3) water depth in the deepest part of basin less than 2 m (6.6 feet) at low water; and (4) salinity due to ocean-derived salts is less than 0.5 parts per thousand.

**F. Eusaline.** Eusaline is the term used to characterize waters with salinity of 30 to 40 parts per thousand due to land-derived salts.

**G. Mixosaline.** Mixosaline is the term used to characterize waters with salinity of 0.5 to 30 parts per thousand due to land-derived salts.

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