

## Appendix D

### *U.S. FISH & WILDLIFE SERVICE WETLAND CLASSIFICATION SYSTEM*

In 1979 the U.S. Fish & Wildlife Service (USFWS) published a classification of wetlands and deepwater habitats (Cowardin et al., 1979). In this classification scheme, wetlands are defined by hydrology, soils, and vegetation. The USFWS classification scheme serves as the national standard for wetland classification, and has been used to classify wetlands appearing in National Wetlands Inventory (NWI) maps which are used to define marsh systems in the *Maine Citizens Tidal Marsh Guide*.

The wetland and deepwater habitats of the coastal zone are defined in the USFWS classification as follows:

**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 the purposes of the classification, wetlands must have one or more of these three attributes: (1) at least periodically, the land must support predominantly hydrophytes (wetland plants); (2) the substrate is predominantly undrained hydric soil; and (3) rocky, gravelly, or sandy areas that are saturated with or covered by shallow water at some time during the growing season.

**Deepwater Habitats:** Deepwater habitats include permanently flooded areas deeper than 6.6 Feet (2M). Shallower permanently flooded areas are often vegetated with emergent plants and are considered wetlands rather than deepwater habitats.

The structure of the classification scheme is hierarchical, with systems forming the highest level of the classification hierarchy. Of the five major systems, three are of interest with regard to tidal waters.

1. **Marine System** - Open ocean overlying the continental shelf including high energy shore line such as beaches and rocky headlands.
2. **Estuarine System** - Deepwater and wetland areas that are usually semi-enclosed with an opening to the ocean and in which there is some mixing of fresh and sea water.
3. **Riverine System** - Freshwater rivers and their tributaries along with most associated wetlands.

Marine and Estuarine systems are divided into two sub-systems:

1. **Sub-tidal** - Areas that are continuously submerged.
2. **Intertidal** - Areas that are alternately flooded and exposed.

Riverine systems are divided into four sub-systems, only one of which is relevant to tidal wetlands:

1. **Tidal** - the movement of the water is influenced by the tides but water salinity is less than 0.5 ppt.

The next step in the hierarchical system is class. These classification terms describe the general appearance of the habitat in terms of substrate or the dominant plant community type.

1. **Aquatic Bed** - Wetlands that are dominated by plants that grow principally on or below the surface of the water.
2. **Rocky Shore** - Wetlands that are characterized by bedrock, boulders or stones which cover more the 75% of the area (rock fragments over 10 inches).
3. **Unconsolidated Shore** - Wetland habitats having three characteristics. (1) less than 75% coverage by bedrock, boulders, or stones; (2) less than 30% coverage by persistent vegetation; and (3) alternately exposed and flooded.
4. **Unconsolidated Bottom** - Wetland habitats having at least 25% cover of particles smaller than stones, and a vegetation cover of less than 30%.
5. **Emergent Wetland** - Wetlands dominated by erect, rooted herbaceous hydrophytes.

These wetland classifications should cover any tidal wetland that will be evaluated in the Return the Tide program. Formerly tidal areas that will be included in the inventory may have changed to any one a variety of freshwater systems. A brief description of some of these systems may help in the identification of these formerly tidal wetlands.

1. **Palustrine System** - All non-tidal wetlands dominated by trees, shrubs, and persistent emergent vegetation.
2. **Lacustrine System** - Open water wetlands situated in topographic depressions with less than 30% vegetative cover and greater than 20 acres in size.

Some of the classes that may apply to these formerly tidal areas are:

1. **Scrub-shrub** - Wetlands dominated by shrubs and tree saplings less than twenty feet in height (e.g., buttonbush, alders and red maple saplings).
2. **Forested Wetland** - Wetlands dominated by trees greater than twenty feet in height (e.g., red maple, ash, spruce).
3. **Emergent Wetland** - Wetlands dominated by erect, rooted herbaceous hydrophytes.

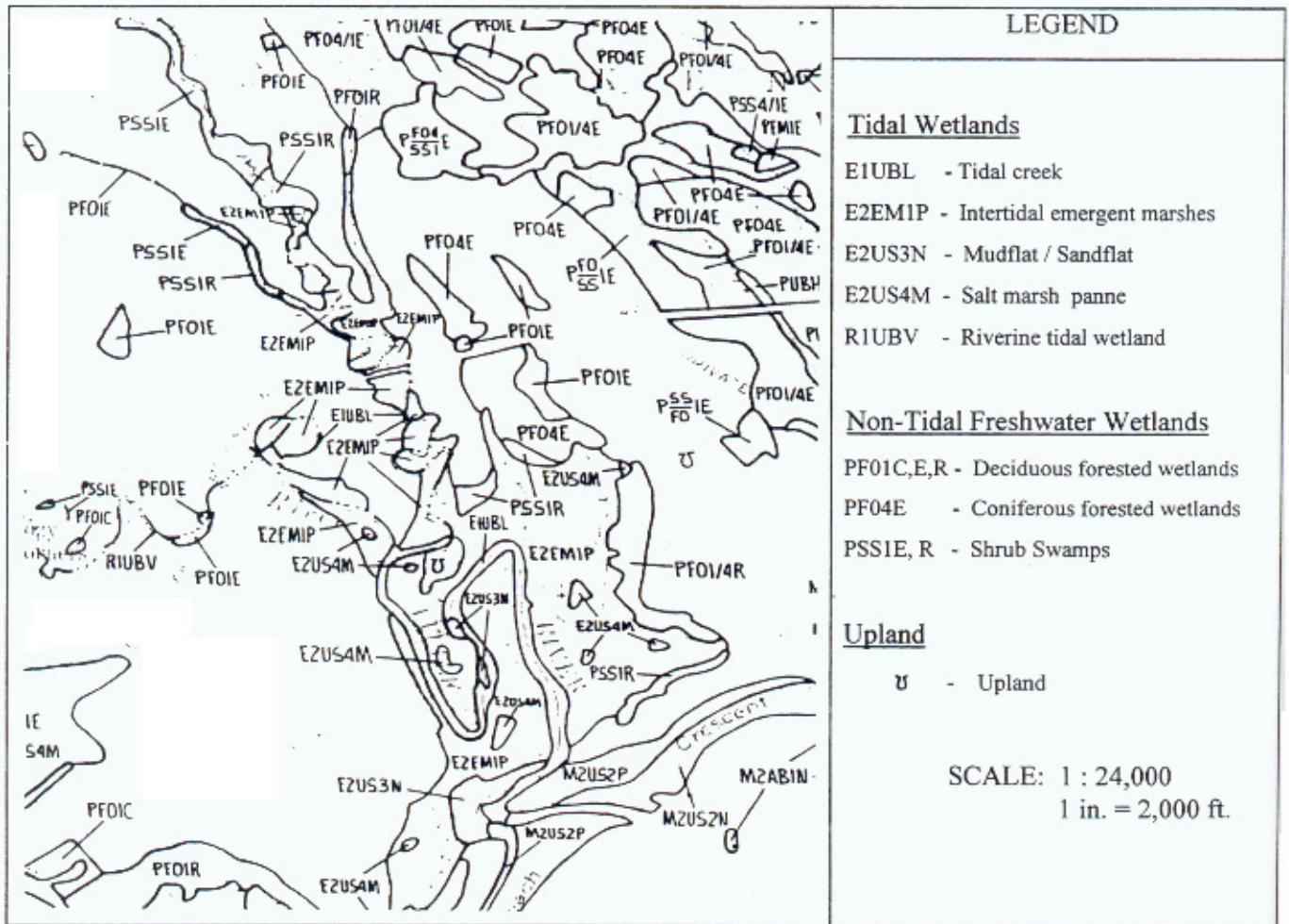
Also included in the classification scheme are a number of modifiers that are added to the end of the classification abbreviation. One of these is important in the recognition of formerly tidal areas. A small “h” signifies that a wetland has been impounded by the purposeful obstruction of flow.

The USFWS wetlands classification system is used as the basis for the wetland identification codes used on the National Wetland Inventory maps. On the bottom of each NWI map is a key to the complete codes. The examples below provide examples of some of the wetland classes that will be encountered when using the NWI maps in coastal areas.

E2EM1P	E = Estuarine 2 = Intertidal EM = Emergent 1 = Persistent P = Irregularly Flooded	E2US4M	E = Estuarine 2 = Intertidal US = Unconsolidated Shore 4 = Organic M = Irregularly Exposed
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E2US3N	E = Estuarine 2 = Intertidal US = Unconsolidated Shore 3 = Mud N = Regularly Flooded	PUBHh	P = Palustrine UB = Unconsolidated Bottom H = Permanently Flooded h = Diked/Impounded
E1UB4	E = Estuarine 1 = Subtidal UB = Unconsolidated Bottom 4 = Organic	RIUBH	R = Riverine 1 = Tidal UB = Unconsolidated Bottom H = Permanently Flooded

For a more complete explanation of the classification scheme, the reader may obtain copies of the *Classification of Wetlands and Deepwater Habitats of the United States* from the US Fish & Wildlife Service. Reprints of the publication may be purchased from the National Technical Information Service, 5285 Port Royal Road, Springfield, Virginia.



Sample National Wetlands Inventory (NWI) Map