

Chapter Title

Great Lakes Aquatic Habitat Classification Based on Wetland Classification Systems

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Abstract

A review of wetland classification systems was carried out to identify attributes of the systems that may be appropriate in classifying wetlands and other aquatic habitats in the Great Lakes, and to suggest means of developing an aquatic habitat classification system for the Great Lakes with a focus on fisheries. The Ontario Ministry of Natural Resources/Canadian Wildlife Service system classifies wetlands based on a variety of biological, social, hydrological, and special features components. This system is neither readily disaggregated nor modified, and the specific habitat evaluation system incorporated within this classification is judged to be inappropriate for the diverse habitat management needs that may exist in the various jurisdictions of the Great Lakes basin. A classification system for Great Lakes aquatic habitats should have sufficient structural flexibility in order to permit the addition of a separate habitat evaluation system. Geomorphic classifications applied to Great Lakes coastal wetlands are based on erosional and depositional features of shorelines and river mouths that are characteristic of the Great Lakes, but are generally not taken into consideration in other wetlands classifications. The U.S. Fish and Wildlife (FWS) classification for wetlands and deepwater habitats is organized within an hierarchical framework that may be readily disaggregated and modified for revised application. Although lacking sufficient regional resolution to provide an optimal classification system for Great Lakes aquatic habitats, the FWS system does incorporate a benthic habitat classification that is not included in other wetland classifications. The FWS classification was judged to provide a useful starting point for the development of a Great Lakes aquatic habitat classification system because its hierarchical organization permits the addition of new classification components and because both benthic and wetland classifications are already in place. Development of a Great Lakes aquatic habitat classification, based on the FWS framework, would entail the elimination of strictly marine habitat components, the addition of pelagic habitats, and the incorporation of new habitat classification categories at lower hierarchical levels. These new additions might include categories for Great Lakes ecoregions, water depth. Geomorphic features, human modification, temperature-oxygen regimes, nutrient regimes, measures of fish community structure, stream order, and stream gradient.

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