

Hydrologic factors determining linkages of Great Lakes coastal wetlands to watershed and lake.

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Water can enter Great Lakes coastal wetlands (CWs) from both watershed and offshore sources. Identifying the relative contribution of these potential sources, and the spatial scale at which sources are influenced by human activities, are critical steps in wetland protection. We developed a hydrology-based classification scheme for CWs for the purpose of identifying dominant hydrologic influences and water sources. Classes were determined through analysis of data quantifying hydrologic linkages to lake (seiche) and watershed (watershed area, tributary discharge) in 57 CWs distributed along the U.S. shoreline of the Great Lakes. CWs were partitioned into 4 classes of hydrology that were predicted to differ in sources of water. Source water predictions were tested by comparing Chloride (Cl) concentrations in wetland, lake, and tributary waters of the CWs in each class. Results confirmed that classification based on quantitative hydrology data was successful in identifying groups of wetlands with similar water sources. Correlations between wetland Cl, an indicator of anthropogenic disturbance, and agricultural land cover suggest that differences among classes in water sources resulted in differences in the scale at which CWs were connected to and influenced by landscapes. *This abstract does not necessarily reflect USEPA policy.*