

Other Biocomplexity Topic

12. Influence of Coastal Geology on Wetland Abundance in the Great Lakes

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ABSTRACT: Wetland abundance, as altered by human activities such as draining and filling, is a potential indicator of coastal condition. This post settlement abundance of wetlands must however, be considered against the background of natural variability. The objective of this study was to determine the influence of coastal geology on this natural variability of wetland abundance. An existing shoreline classification system, NOAA's Medium Resolution Vector Shoreline, provided classification of coastal geomorphology, nearshore geology, and artificial shoreline protection. Wetland abundance, as derived from the National Wetland Inventory and equivalent state wetland inventories, was associated with these shoreline classes. Shoreline geomorphology and nearshore characteristics were found to significantly affect wetland abundance. Wetland abundance was greatest in areas with shoreline geomorphology mapped as "semi-protected wetlands" (mean abundance = 54%) and least in areas mapped as "artificial," "bluffs," "sandy/silty banks," or "bedrock." (mean abundance < 11%) Wetland abundance was also greater in areas with nearshore classification "clay" or "sand" than it was in areas classified as nearshore "bedrock" or "sand/gravel lag over clay." The presence of anthropogenic shoreline protection was not found to significantly affect wetland abundance.