

LANDSCAPE BASED INDICATORS FOR NONPOINT SOURCE WATER POLLUTION WATERSHED CATEGORIZATION

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Abstract

Environmental planning and management based on watershed boundaries rather than political boundaries is increasingly advocated to address nonpoint source water pollution. In support of this idea, effective watershed assessment processes are needed that classify watersheds according to ecological landscape scale characteristics. This presentation explores the opportunities and constraints of a descriptive pilot assessment approach for classifying watersheds in the Lexington-Fayette County, Kentucky region. Using a semi-automated process through Modelbuilder of ArcGIS and publicly available data, a dozen landscape indicators are comparatively assessed by Hydrologic Unit Code (HUC) 14 watersheds. Variables include proportion and spatial configuration measures of human population, imperviousness, and agriculture/forest cover characteristics. To understand relative condition better, watersheds are ranked by the values for each indicator, from highest to lowest, and then divided into five groups (quintile). Thus, watersheds can be visualized geographically with a color ramp indicating conditions for each indicator. A quantitative matrix allows for comparisons by indicator across the study area. The analysis provides a guide to relative watershed health both in relation to a specific indicator and amongst all twelve indicators. This enables indicator recombination as needed for particular issues under consideration by planners, policy makers and interested stakeholders for more informed watershed scale land use decision-making.

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