

Implementing a Geographic Information System to Identify Suitable Monitoring Station Locations on Protected Small Streams in Wisconsin

Abstract

The Wisconsin Department of Natural Resources (WDNR) has been charged with locating monitoring stations along protected streams in Wisconsin. One of the purposes of these stations is to monitor the effect of high capacity irrigation wells on protected streams. As a first step in the ultimate goal of locating gauging stations on specific streams, this project used Geographic Information Systems along with a method of ranking (Multi-Criteria Decision Making Method) to prioritize each of the 334 watersheds in Wisconsin, and supply the WDNR with a statistically significant list of the most to the least prioritized watersheds. Four variables were chosen to summarize the landscape which are: stream miles per watershed, percent land use as agriculture per watershed, number of high capacity wells per watershed, and whether or not a watershed is within a glacial outwash area. These variables were statistically ranked and reclassified to produce a list of watersheds ordered from the lowest to the highest in priority. This list can be used to focus resources in areas of the state that are deemed the highest priority while putting less emphasis in those areas designated as low priority.