

Collection and Analysis of Urban Stormwater Flow and Quality Data in Karst Watersheds

Abstract

The quantity and quality of urban stormwater is an increasing water resources problem, particularly in the Chesapeake Bay watershed. The increase of impervious surfaces associated with urban development impacts the magnitude and quality characteristics of stormwater runoff. This research project will attempt to further the science of urban hydrology by investigating the water quality and quantity responses of five small urban watersheds with different levels and types of urbanization in a karst region (i.e. an area that is underlain by limestone and fractured bedrock). Continuous flow data are being collected at nine locations within the watersheds including each watershed outlet, and water quality data will be collected at the same locations for eight events each year. The flow and water quality data from different types of precipitation events from all seasons will be analyzed. The magnitude and character of the stormwater runoff will be compared to the amount of impervious surfaces, the connectedness of the impervious surfaces, and the preservation of natural drainageways and recharge areas. Evidence collected will be used to draw conclusions about the best approaches to management and protection of water resources in urbanizing karst watersheds. Data will also be used for a separate modeling activity underway in these watersheds.