

Karst Management in Urban Areas

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Abstract

In the eastern United States there are many urban areas located upon karst terrain. Karst management in these urban areas is considerably different from in the western states where much of the karst is located on federal lands. In the eastern states, most local karst related statutes are designed to protect people and property from the hazards of living upon a karst landscape. This paper discusses the karst hazards of sinkhole flooding, sinkhole collapses, and groundwater contamination and the methods used in some urban areas to mitigate these problems. Local statutes in most areas deal primarily with prevention of sinkhole flooding, often by directing storm water runoff into cave streams at sinkholes, sinking streams, and storm water injection wells. Cave streams in these areas naturally drain storm water runoff and thus serve the same function as surface streams in that they receive and transport storm water runoff from the surrounding landscape. The water quality of these cave streams will reflect the land use in the area just as surface streams do. Unfortunately, there are contaminants associated with urban storm water runoff, just as there are contaminants associated with agricultural land use. It is unrealistic to believe that water flowing through cave streams or resurging from cave springs in these karst areas can ever be sufficiently pure for home consumption without treatment. However, there are ways to greatly improve the water quality of urban storm water runoff before it sinks into cave streams and this paper concludes with a discussion of several techniques.