

## **Using GIS to Study Pollutant Source Function in Passaic River System, New Jersey**

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The Passaic River is about 14 miles west to New York City, located in the New Jersey-New York metropolitan area. This river has been heavily polluted by dioxins, PAHs, PCBs and heavy metals due to agricultural and industrial activities. Identification of these contaminant sources, “hot spots” and the factors controlling the distribution and accumulation of these contaminants in the Passaic River system are not yet clearly addressed. In order to spatially characterize contamination from point and non point sources, we use Geographic Information Systems (GIS) to map the distributions of contaminants in the sediments. This study is designed to address these issues adequately by spatially mapping and modeling contaminant sources and fate in the Passaic River system using GIS methods. The results are expected to be vital in developing environmental management strategies. Using largely existing databases, we address current environmental issues in Passaic River. Results are further analyzed, to: 1) determine the nature and extent of pollution in the system, 2) characterize various pollutants and identifying their probable source, 3) determine highly concentrated “hot spots” of specific contaminants, and 4) assessing their potential environmental impact.

\*Research supported in part by New Jersey Sea Grant College Program under Project No. R/D-2003-2, the US Department of Energy under Contract No. DE-AC02-98CH10886 and through Interagency Agreement DW89941761-01 between the US Environmental Protection Agency, and Montclair State University FSIP Program..