



## USDA-CSREES 2005 National Water Quality Conference

### A Spatially-Explicit Water Quality Prediction Model

*Abstract: Watershed Assessment and Restoration*

*Abstract\_Text: We have developed spatially-explicit set of tools for watershed characterization and management to aid in analysis, modeling, and decision making for water quality problems. The tools have been developed in a customized interface with ESRI's ArcGIS 9 software as an GIS extension to provide many hydrological modeling functions and decision support capabilities for the non-technical user. The major developed components include: an overland flow model that provides insight into optimum water quality sampling locations, a flow estimation technique for all streams, an instream water quality and loading model for pollutant levels, and a watershed ranking model to prioritize where to focus remediation programs. The main advantage of the developed tools and system is in providing information to make better decisions for addressing watershed and water quality problems. This poster will outline the background methodology and steps behind the capabilities we have created as well as highlight the unique contributions of cell-based or spatially explicit landscape modeling for water quality.*

*The main partnerships have been with the West Virginia Division of Mining and Reclamation, Water Resources, and the Office of Surface Mining.*

*This developed GIS extension has become the main water quality and modeling system adopted by the state of WV to examine water quality issues. Over 75 employees have been trained in its use and using it daily to answer questions related to water resources throughout the state.*

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