



USDA-CSREES 2007 National Water Quality Conference

[Stream Water Quality Modeling Using AQUATOX](#)

Several water quality modeling tools are available that can simulate water quality. The United States Environmental Protection Agency (USEPA) recently released the AQUATOX model; a freshwater ecosystem simulation model that links pollutants to aquatic life. The AQUATOX model is a relatively new model and limited work has been done to test the application of this model at the watershed scale. AQUATOX simulates multiple environmental stressors (including nutrients, organic loadings and chemicals, and temperature) and their effects on the algal, macrophyte, invertebrate, and fish communities. The model has the capability to evaluate the spatial and temporal relationship of various pollutants, such as nutrients and organic chemicals, and their effect on the organisms that reside within the water bodies. The model is widely applicable and a valuable tool for water quality modelers, aquatic ecologists, biologists and water resource managers. However, the AQUATOX model is a relatively new model and limited work has been done to test the application of this model for the South Eastern US. Results indicated that it is critical to have quality and consistent field data on discharge and other water quality parameters at multiple points in the watershed for model calibrations. The NH₃-N and Total Soluble P predictions by AQUATOX are satisfactory, but need improvement to predict NO₃-N simulation capability. The AQUATOX model has great potential to estimate recovery time for fish or invertebrates after reducing pollutant loads within a water body.

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