



## **USDA-CSREES 2007 National Water Quality Conference**

### [30-year Trends in Sediment Concentrations in Ohio Rivers](#)

Suspended sediment concentrations and loads from six Ohio rivers and streams show a variety of trends over the last 30 years. Two large rivers, the Sandusky and Maumee, with predominantly agricultural land use, show continuous downward trends in concentrations, particularly when adjusted for flow effects. Decreases in concentration are in the range of 30 to 40% over the period of record. Trends in two tributaries of the Sandusky, Rock and Honey Creeks, are similar to those of the Sandusky itself, though not as pronounced. Decreases in summer concentrations are greater than decreases in winter concentrations. ANCOVA analysis of log-concentration as a function of log-flow and year, with year treated as a categorical variable, reveals a sustained change in the relationship between concentration and flow; this change is also greater in the summer months than in the winter months. Analysis of the trends in different parts of the flow regime shows that the greatest decreases in concentration are associated with larger storms. Two other rivers, the Cuyahoga and Grand, which are more urban and forested in land use, show increasing sediment concentrations since about 1995. While variations in weather can produce large fluctuations in annual loads, weather appears to have only a minor impact on these trends. This set of results strongly suggests that the decreasing sediment trends are a result of changes in agricultural practices designed to reduce erosion, such as conservation tillage and in-field and riparian filter strips. This research was partly supported by a CEAP grant from CSREES.

Author: R. Peter Richards  
University Affiliation: Heidelberg College  
Co-Author(s): David B. Baker