



2008 USDA-CSREES National Water Conference
Sparks, NV

Fecal Bacteria Numbers and Transport in the Illinois River Basin, Arkansas and Oklahoma

Morgan M. David and Brian E. Haggard

Abstract Text:

The Illinois River Basin is a multi-facet watershed with ecological and economical importance to Northwest Arkansas and Northeast Oklahoma and catchment land use has changed over the last several decades with increased agricultural and urban growth. The concentrations, transport and sources of fecal bacteria in streams was recently identified as a research priority of the USDA NRI Water and Watersheds Program, and the objective of this study was to evaluate inter-parameter relations between fecal bacteria and other measured physico-parameters in water samples collected from selected sites throughout the Illinois River Basin. An existing database from the USGS (i.e., National Water Information System; NWIS) was used in this project. The data obtained includes discharge, pH, temperature, dissolved oxygen, *Escherichia coli*, fecal streptococci, and fecal coliform among several other physico-chemical parameters. The analysis of these sites will provide the necessary insight into the Illinois River Basin required for the evaluation of the transport of fecal coliform in this environment. Evaluation by hydrograph separation of the transport of fecal bacteria under different flow conditions, such as base flow state and surface runoff events, will help define what parameters correlate to fecal bacteria and its occurrence at the selected sites. A synthetic model, developed as part of this project, will identify the relationships between fecal bacteria and the other measured physico-chemical parameters across selected sites and between flow regimes.

Impact Statement:

A synthetic model, developed as part of this project, will identify the relationships between fecal bacteria and the other measured physico-chemical parameters across selected sites and between flow regimes.