Identifying nonpoint sources of fecal bacteria in the Arkansas River of Southwest Kansas. (S11-willson180218-Poster)

Authors:

- T.C.Willson - *Kansas State University*
- G.L.Marchin - *Kansas State*
- R.L.Frisbee - *Kansas State University*

Abstract:

This study investigates sources of fecal bacteria entering the Arkansas River between Deerfield and Ford, KS. A total of 24 sample locations have been established along the River, and on two tributaries, to separate different types of upstream land use. Each site is sampled bimonthly, immediately following runoff events, and at 24h intervals thereafter, to document the survival and transport of bacteria in the River. Samples taken during periods of light precipitation tend to have higher counts in urban than rural areas, and rarely exceeded the primary contact recreation standard of 900 cfu/100 ml. By contrast, those taken during a high rainfall period in May and June had higher counts overall and higher counts from rural than urban areas. Disinfection of wastewater at Garden City, KS has reduced the total amount of bacteria entering the River, but the City's storm drain remains an important source of bacteria during runoff events. At least some of these bacteria may be entering the drain in a rural area upstream of the city. We are currently using antibiotic resistance analsis and substrate utilization pattern (Biolog) to indicate the host species of fecal streptococcus isolates from each location.

Corresponding Author Information:

Thomas Willson
Kansas State University
4500 E.Mary St.
Garden City, KS 67846

phone: 620-276-8286
fax: 620-276-6028
e-mail: twillson@oznet.ksu.edu

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