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Title: Using R to Analyze Data from Probabilistic Monitoring in Oklahoma

Abstract:
The Oklahoma Conservation Commission (OCC) manages an extensive monitoring program to determine the extent, nature, and probable sources of nonpoint source pollution. Through its statewide Rotating Basin Program, initiated in 2001, OCC monitors a total of 245 fixed sites at the outlets of most 11 digit watersheds on a staggered, rotational schedule by basin every five years. In 2008, the OCC added a probabilistic component to its monitoring strategy to more fully characterize basin water quality condition and attainment of water quality standards. In this monitoring design, fifty randomly chosen sites each year within a basin are visited once to collect water quality, habitat, and biological data.

Preliminary analyses of the initial rounds of probabilistic monitoring showed very similar overall results to the more intensive fixed site monitoring. The statistical program “R” has been used to more fully examine the probabilistic data. Relative and attributable risk analyses have been completed for three of the five basins, allowing statistically robust determination of the health of streams for more than half of the state. The results of this data exploration will be discussed in this talk.

Biography: Jean Lemmon is a technical writer for the Water Quality Division of the Oklahoma Conservation Commission. Until 2011 she was the Quality Assurance Officer for Blue Thumb, the volunteer monitoring and water quality education program of the OCC where she was responsible for volunteer field work, data collection, data quality and interpretation. Jean graduated with a degree in geology from Colorado College and worked as a petroleum geologist. She started as a volunteer with Blue Thumb in 1993 and began working for the Oklahoma Conservation Commission in 1996.

Keywords: probabilistic monitoring rotating basin R