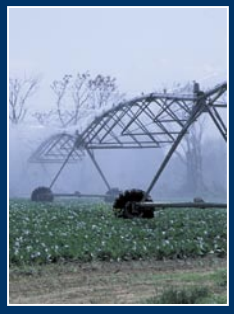
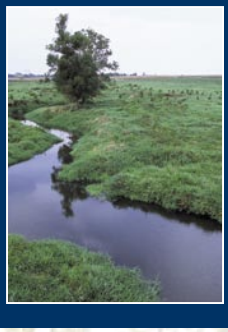
Kansas Water Resources Institute


KWRI Projects:

Phreatophyte Depletion of Groundwater

The relationship between stream flow and the stream aquifer is thought to be a major factor for quantity of stream flow. Uncontrolled phreatophyte (such as saltcedar, a long rooted plant that absorbs its water from the aquifer) growth drains the underlying aquifer, and therefore, disturbs stream flow. This research is directed at the development of a practical field method used to study the quantity of phreatophyte consumption of groundwater and assess the water savings gained by phreatophyte control. Principal Investigators: James Butler, and David Whittemore, University of Kansas; and Gerard Kluitenberg, Kansas State University.

Water Monitoring Sensor

Conserving and protecting water resources requires effective measurement tools to determine pollutants in surface and ground water. Concentrations of sediment, nutrients, and pesticides can change substantially over short periods of time. The biggest limitation in obtaining accurate real-time water quality information is current sensor technology. Therefore, scientists from Kansas State University and USGS are developing a new sensor that will continuously monitor these pollutants in streams and lakes. Principal Investigators: Naiqian Zhang, Gerard Kluitenberg and Philip Barnes, Kansas State University; and Andrew Ziegler, USGS.

Protecting the High Plains Aquifer

Protecting usable groundwater from potential sources of contamination is an important issue in areas of Kansas with increasingly limited groundwater resources. Ford County is the site for a long term irrigation project using treated municipal and meatpacking plant wastewater. Leaching rates of nitrogen are being estimated using modeling in combination with field and laboratory measurements. Results from this study will assist in determining the depth of contaminant leaching towards the High Plains aquifer in an effort to preserve the integrity and purity of the aquifer. Principal investigators: Marios Sophocleous and Margaret Townsend, University of Kansas; Fred Vocasek, Servi-Tech Agri/Environmental Consulting; John Holman, Kansas State University; and John Zupancic, Agronomy Solutions LCC.

Assessment of Seasonal, Pumping-Induced Water Quality Changes in the Ozark Plateaus Aquifer System, Southeast Kansas and Southwest Missouri

The US Geological Survey (USGS) is conducting a region-wide assessment of groundwater resources in the Ozark Plateaus aquifer system in the Tri-States region to provide each of the states with a basis for developing management options to avert overdevelopment. The goal of this two-year project is to assess the influence of pumping on the temporal variability in the quality of water produced in single and multi-aquifer wells in two small areas within the Ozark aquifer transition zone in Crawford and Cherokee counties in southeast Kansas. Toward this end, the project focuses on characterizing (1) the magnitude and timing of the changes in the geochemistry of water over the period of study relative to pumping stress and (2) the temporal aspects of water quality change within the Ozark aquifer transition in the 25 years since previous investigations were reported. The analyses of the water samples collected monthly from April through November 2006 in the first year of the project indicate that for some of the supplies sampled there are temporal changes in resulting water quality. In one case sulfate/chloride ratio decreased as the monthly amount of water pumped by the supply increased through the summer months. During the fall period, the sulfate/chloride ratio increased as monthly pumpage decreased. Water levels in the wells sampled were generally lower during the summer months than during spring and fall. Principal Investigators: P. Allen Macfarlane and Rudolf T. Ghijsen, Kansas Geological Survey.

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KWRI Mission

The Kansas Water Resource Institute develops and supports research on high priority water resource problems and objectives, as identified through the state water planning process. It is also designed to facilitate effective communication between water resources professionals and to foster the dissemination and application of research results. For more information, contact: William Hargrove, Director, 44 Waters Hall, KSU, Manhattan, KS 66506 (785)532-7108.