

## **WATER QUALITY IN THE ILLINOIS RIVER: CONFLICT AND COOPERATION BETWEEN OKLAHOMA AND ARKANSAS**

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### **ABSTRACT**

The Illinois River originates in Arkansas and flows into Oklahoma where it forms the Lake Tenkiller reservoir and then empties into the Arkansas River. It is designated by the State of Oklahoma as a scenic river. A dispute between the states over water quality in the Illinois River reached the U.S. Supreme Court, who ruled that downstream state's water quality laws must be met at the state line. This decision has far-reaching implications for interstate water quality disputes. The Illinois River watershed in Arkansas is a leader in poultry production and includes one of the fastest growing metropolitan areas in the United States. Although some wastewater treatment plants still discharge significant phosphorus loads, attention has focused on the spreading of poultry waste on fields as fertilizer. Oklahoma has adopted an in-stream limit of 0.037 mg/L for phosphorus in scenic rivers – about a tenth of the current level in the Illinois River. Because Arkansas must meet this standard, agricultural, business, and governmental interests in Arkansas feel threatened by the new rule. This paper reviews the history of the Illinois River issue in context with other interstate water quality disputes, and discusses technical, administrative, and political efforts to resolve the issue.

**KEYWORDS:** agricultural runoff, interstate water quality issues, phosphorus, transboundary pollution management, water quality monitoring,

### **INTRODUCTION**

The Illinois River originates in Arkansas and flows into Oklahoma where it forms the Lake Tenkiller reservoir and then empties into the Arkansas River. Figure 1 shows a map of the watershed.

The Illinois River in Oklahoma is designated by the State of Oklahoma as a scenic river. This gives the river special protection under state law due to its exceptional ecological and recreational characteristics. The river has significant recreational benefits to the region. Float trips on the river provide about \$9 million per year direct economic impact. Lake Tenkiller is a popular destination for fishing, boating, and scuba diving. In the 1980s, turbidity increases in Lake Tenkiller caused concern that the aesthetic quality of the lake and the Illinois River might be threatened. Nutrient enrichment was identified as the source of the problem, with phosphorus being identified as the limiting nutrient.

Major wastewater discharges in the Illinois River watershed include the Arkansas cities of Fayetteville, Springdale, Rogers, and Siloam Springs, and the Oklahoma city of Talequa. The Northwest Arkansas region is one of the fastest growing metropolitan areas in the United States. It is the headquarters for Wal-Mart, Tyson Foods, and J.B. Hunt trucking, which are rapidly growing businesses. The landuse distribution in the watershed is approximately 58% pasture, 36% forest, and 6% urban.

Arkansas as a state ranks a close 2<sup>nd</sup> in the USA in poultry production, and the vast majority of that production is in Northwest Arkansas. It is common practice to use poultry litter to fertilize the otherwise unproductive soil to grow hay for cattle. The litter has in the past been applied based on nitrogen, leading to an over-application of phosphorus. This leads to the deduction that this fertilizer causes phosphorus to runoff into the streams. In addition to the nonpoint source pollution attributed to poultry production, the poultry processing plants feed a high phosphorus load to the wastewater treatment plants.

### **HISTORY OF THE ARKANSAS/OKLAHOMA ILLINOIS RIVER WATER QUALITY ISSUE**

When the city of Fayetteville, Arkansas, diverted a portion of their wastewater discharge out of the White River (which forms Beaver Lake, the drinking water source for the Northwest Arkansas region) into the Illinois River watershed, Oklahoma became concerned about the resulting increase of phosphorus loading into the Illinois River. In 1986, Oklahoma sued to stop the City of Fayetteville's discharge into the Illinois River. The dispute reached the U.S. Supreme Court in 1992. The court ruled that downstream state's water quality laws must be met but that this did not exclude additional discharge from up stream sites.

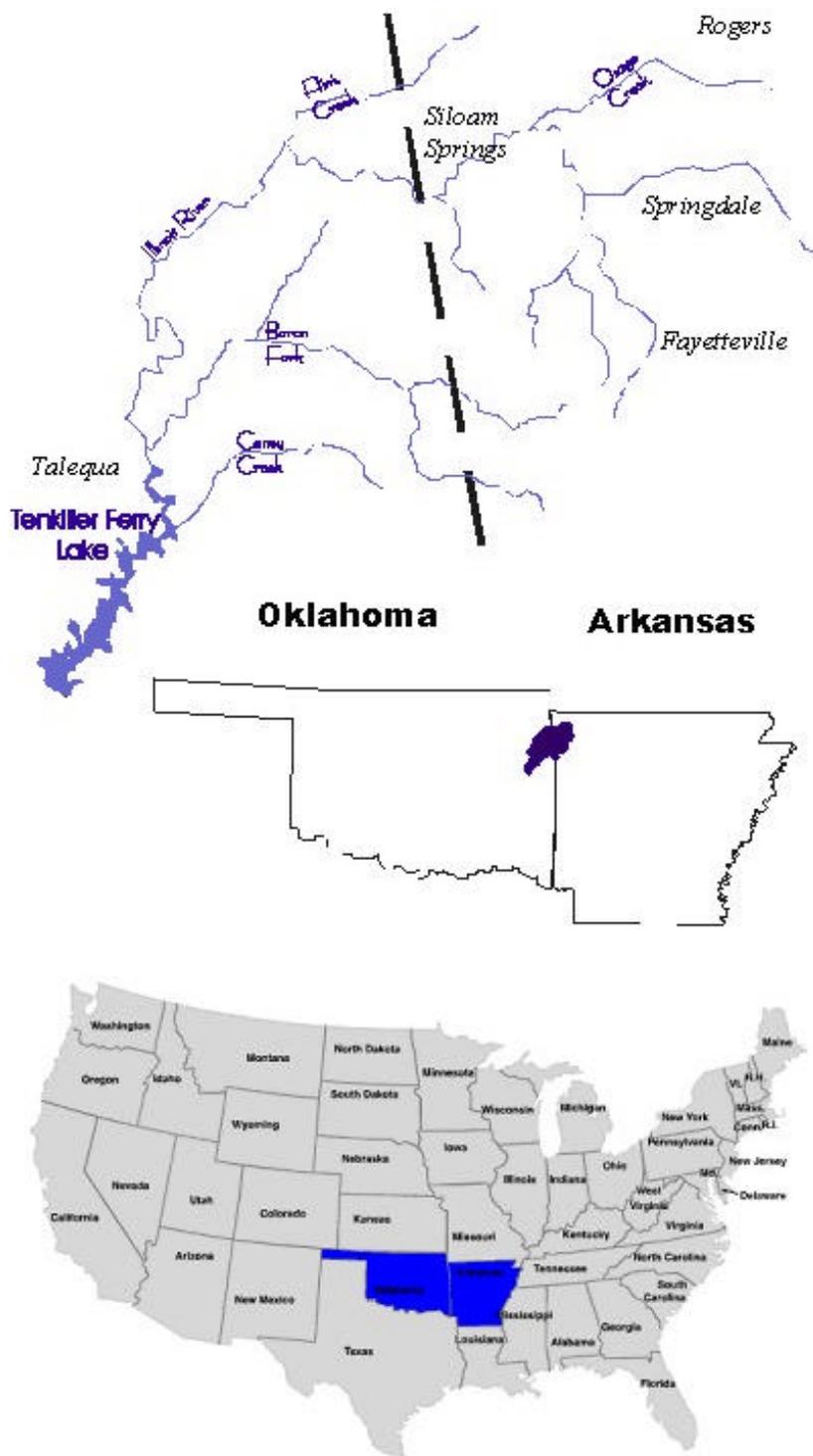


Figure 1 – Map of Illinois River Watershed in Arkansas and Oklahoma

Following the court ruling, nutrient removal was established in the Fayetteville, Springdale, and Rogers wastewater treatment plants. The City of Fayetteville has a 1 mg/L phosphorus limit in its NPDES permit; the plant discharges about 0.5 mg/L. The City of Rogers has decreased its phosphorus output by 83% since the mid-80s. Nutrient removal at the Springdale plant remains relatively ineffective, in part due to the high nutrient loads from poultry processors. The phosphorus load from the Springdale plant remains a significant source of phosphorus in the Illinois River (Nelson et al., 2002). However, Springdale has committed to installing nutrient removal systems to reduce its discharge to 1 mg/L. The mayors of Fayetteville, Springdale, Rogers, Bentonville, and Siloam Springs Arkansas signed a letter agreeing to keep effluent phosphorus to 1 mg/L (OSRC, 2003).

In 1997, the states of Arkansas and Oklahoma agreed to a goal of a forty percent reduction of the 1980-93 total phosphorus loads to Lake Tenkiller. Enforcement of this agreement is administered by an interstate compact commission. With the

point sources in the watershed identified, attention was focused on the nonpoint sources, specifically agriculture. Over the past decade or more, both states have enacted voluntary and regulatory measures to utilize best management practices for pasture and animal waste management. Demonstration projects have shown that such measures can be effective. By law, poultry growers must now have a comprehensive nutrient management plan. Growers must be registered and must have training and certification to spread litter. Ongoing research at the University of Arkansas and elsewhere is trying to find ways to limit how much phosphorus reaches the streams. A new water quality based phosphorus index will require that litter be spread based on phosphorus and its capacity to runoff into a stream. A variety of plans and technologies are being evaluated to reduce or eliminate the spreading of poultry litter and wastewater biosolids. In the first few years after the agreement, the phosphorus load results were encouraging and it looked like progress was being made toward the 40% reduction. In the past few years, however, some sampling results indicate that loads have apparently increased.

### **THE OK/AR ILLINOIS RIVER DISPUTE IN HISTORICAL AND NATIONAL CONTEXT**

The Oklahoma/Arkansas lawsuit over the Illinois River was obviously not the first to deal with transboundary pollution issues. Near the beginning of last century, *Missouri v. Illinois* (1901) & (1906) established a federal common law of nuisance to govern interstate water pollution. The opinion was that the court should use extreme caution in transboundary pollution matters since these matters speak toward a legislative solution as opposed to a judicial solution.

Shortly thereafter, *Georgia v. Tennessee Copper Co.* (1907) followed the principles of *Missouri v. Illinois*. The ultimate remedy was granting an injunction against pollution in one state causing pollution in another. *New York v. New Jersey* (1921) and *New Jersey v. New York* (1931) were cases that involved transboundary pollution and applied *Missouri v. Illinois* principles.

The passage of the Clean Water Act (CWA) in 1972 established a regulatory backdrop for future activities. The case of *Illinois v. City of Milwaukee* (1972) found that federal common law of nuisance is applicable to interstate water pollution cases. *Milwaukee v. Illinois* (1981) recognized that the CWA was intended to comprehensively address water pollution and that the CWA preempted federal common law. In *International Paper Company v. Ouellette* (1987), the court decided that CWA principles would be frustrated if the law of the receiving state could apply to discharges from the source state, and that common law of the downstream state is preempted by the CWA.

In *Arkansas v. Oklahoma* (1992), the Supreme court upheld the “federal character” of Oklahoma’s EPA-approved water quality standards, and decided that the water quality standards of the downstream state must be implemented by the upstream state. Following the principles of *Arkansas v. Oklahoma*, *City of Albuquerque v. Browner* (1996) determined that water quality standards of the downstream Tribe must be implemented by the upstream state.

Because of the precedent of *Arkansas v. Oklahoma*, downstream citizens may bring common law claims against upstream citizens, utilizing the laws of the source state. Theories of trespass, negligence, and nuisance are the tools of choice. Remaining questions on these issues include: Can a downstream state force its instream standards on activities in the upstream state? And can a downstream state enforce its rules concerning nonpoint source pollution on an upstream state?

Recent cases include a suit by the City of Tulsa, Oklahoma against six poultry companies and the city of Decatur, a small town in Arkansas that receives most of its wastewater from a poultry-processing plant. The suit claimed that excess phosphorus from poultry litter and wastewater harms its water supply, which comes from the Eucha and Spavinaw reservoirs. The result of this case could have major impacts on activities in the water supply’s watershed, which includes areas in Northeast Oklahoma and Northwest Arkansas. The lawsuit has been reportedly settled out of court this Spring (2003), but as of this writing the details have not been disclosed.

### **DEVELOPMENT OF A PHOSPHORUS STANDARD FOR OKLAHOMA SCENIC RIVERS**

Displeased with the progress in reducing phosphorus loads in the Illinois River, Oklahoma felt that more should be done to protect the Illinois River and its other scenic rivers. In 2002, Oklahoma adopted the first-ever numerical water quality standard for phosphorus. The standard applies to its scenic rivers. It states:

*“The thirty (30) day geometric mean total phosphorus concentration in waters designated “Scenic River” in Appendix A of this Chapter shall not exceed 0.037 mg/L.” (OWRB, 2002).*

The rule became effective as an emergency standard on July 1, 2002, and will become a permanent standard on July 1, 2003. The rule is to be achieved by June 30, 2012. The U.S. Environmental Protection Agency (EPA) expects to approve the standard by June 1, 2003.

The 0.037 mg/L criterion was adapted from published data by Clark et al. (2000) and represents the limit of the best 25% of all waters and the worst 25% of all high quality waters. By comparison, the EPA recommended a 0.010 mg/L ecoregion nutrient criterion (by 2004) and the Oklahoma Scenic Rivers Commission (OSRC) passed a resolution recommending a scenic rivers criterion of 0.020 mg/L (OSRC 2002). It should also be noted that the 1998 Federal Clean Water Action Plan requires EPA and/or states to establish numerical nutrient criteria for all waters by December 2004.

Because four of Oklahoma's six scenic rivers begin in Arkansas, the numerical standard has caused considerable concern in Arkansas. Industries, officials, and citizens in Arkansas fear that the standard may limit growth and put an excessive burden on farmers. They point to the lack of precedent for the standard and question the justification for the specific number. Arkansas Governor Mike Huckabee said that the people of Northwest Arkansas are being "treated like lab rats in an experiment" to find pollution standards for the rest of the country (Morning News, 4/20/02). Several Arkansas officials have backed the caution warning that the number set for the Illinois River will become an important precedent nationwide. Some Arkansas stakeholders fear that they could spend money to make improvements but still face litigation.

Over the past year, talks between the states have been facilitated by EPA. In 2002, Arkansas walked out of the talks when they learned that Oklahoma had forwarded the standard for EPA approval before an agreement was made between the states. In 2003, talks have been making progress, in part because Arkansas has passed legislation regulating poultry growers. One sticking point between the states is that Arkansas cities want assurances that if they achieve wastewater discharge of 1 mg/L phosphorus, they will be considered to be complying with the standard even if flows increase. They are afraid that if they get locked into the load (concentration multiplied by flow) of their good-faith effort, it will lead to limits on development. EPA has apparently agreed to make that assurance. Marcus Devine, director of Arkansas Department of Environmental Quality, says about this assurance "This is a welcome development, and a very significant step in our efforts at phosphorus reduction in the region. Municipalities and industries that are making a good-faith effort to do their part in reducing the phosphorus loading to their receiving streams deserve recognition and support from the government regulatory agencies responsible for protecting water quality in the area." (Morning News, 5/9/03). The compliance schedule for each plant will be written into their NPDES permit.

## SUMMARY AND CONCLUSIONS

Arkansas and Oklahoma have wrestled over the issue of water quality in the Illinois River for decades. A lawsuit by Oklahoma over phosphorus in the river reached the U.S. Supreme Court in 1992. The court ruled that downstream state's water quality laws must be met but that this did not exclude additional discharge from up stream sites. This law set an important precedent that has been and will be used in other transboundary water quality disputes. In addition to point sources, agricultural nonpoint sources have been identified as major sources of nutrients in the river. After the lawsuit, there have been a number of efforts to reduce phosphorus loading into the river. In 1997, the states agreed to a target of a 40% reduction of total phosphorus loading in the river.

In 2002, Oklahoma adopted a numerical water quality criterion for its scenic rivers, including the Illinois River, that is nearly order of magnitude lower than current levels. This has caused concern in Arkansas, but has also driven new agreements between the states. Stakeholders in this process include poultry and cattle growers, poultry companies, municipalities, and citizens' groups. Dialog between the states and among stakeholders has been cooperative at times and at times contrary. Too often, groups have blamed others for the problem, e.g., those managing point sources blame nonpoint sources and vice-versa.

Ongoing efforts are seeking to find technical, regulatory, and political solutions to improving water quality in the Illinois River. The intense scrutiny of the impacts of nutrients in the river has spawned much excellent research in agricultural practices and in water quality monitoring. As of this writing, the future looks promising for cooperation between the states and for practical solutions to protect and enhance the water quality in the Illinois River.

## ACKNOWLEDGEMENTS

Much of the information in this paper that is not specifically referenced can be found in the archives of The Morning News of Northwest Arkansas (website listed in references).

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