

# OKLAHOMA DEPARTMENT OF AGRICULTURE, FOOD AND FORESTRY

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## **Phosphorous declining in the Illinois River**

TAHLEQUAH – Sure blood flows through the veins of Ed Fite, but so does the Illinois River. Fite, a 58-year-old native of eastern Oklahoma, has had a friendship with the Illinois since childhood. He’s seen it in some of its best days. Fite, who in July will become a water quality coordinator for the Grand River Dam Authority after serving 33 years as Administrator for the Oklahoma Scenic Rivers Commission (OSRC), also has walked along side it in some of its toughest days.

“I think the river has made the turn for the better,” he said on a June afternoon where the cotton ball clouds of the blue sky reflected off the face of the Illinois.

The Illinois River originates in Arkansas and flows into Oklahoma where it forms the Lake Tenkiller reservoir and then empties into the Arkansas River.

The Illinois in Oklahoma is designated by the state of Oklahoma as a scenic river and that gives it special protection under state law because of its exceptional ecological and recreational characteristics.

There have been significant upgrades to treatment equipment by Arkansas wastewater treatment plants to decrease phosphorus in wastewater.

Plus, Arkansas and Oklahoma have enacted voluntary and regulatory measures to utilize best management practices and conservation practices for pasture and animal waste management.

In 2002, Oklahoma adopted the first-ever numerical water quality standard for phosphorous. The standard applies to its scenic rivers. It states: “The thirty day geometric mean total phosphorous concentration in waters designated Scenic River shall not exceed 0.037 mg/L.”

Phosphorus is a common constituent of lawn and agricultural fertilizers, manure, and organic wastes in municipal sewage and industrial effluent.

It is an essential element for plant life, but when there is too much of it in water, it can speed up eutrophication (a reduction in dissolved oxygen in water bodies caused by an increase of nutrients and algae growth) of rivers and lakes. Soil erosion is also a contributor of phosphorus to streams.

Bank erosion occurring during floods can transport a lot of phosphorous from the river banks and adjacent land into a stream.

Like Fite, other friends of the river would quickly agree that phosphorus is declining in the Illinois River.

Jeremy Seiger is the Director of the Agricultural Environmental Management Services division of the Oklahoma Department of Agriculture, Food and Forestry (ODAFF) and oversees the program that regulates concentrated animal feeding operations, poultry feeding operations and poultry litter applications in Oklahoma.

“ODAFF data shows that in 2009 in Oklahoma approximately 31,660 tons of poultry litter were applied to cropland and pastures in the Illinois River Watershed (IRW),” Seiger said. “Over time that number has decreased substantially and in 2014 approximately 8,000 tons of poultry litter were applied in the IRW. Improving water quality in the watershed is a team effort by all, and on both sides of the state line. Decreasing the amount of poultry litter that is applied is only one of the many changes that have occurred to help improve our water resources.”

Shanon Phillips is the Water Quality Director for the Oklahoma Conservation Commission (OCC).

“Although Oklahoma and Arkansas haven’t always agreed on the sources of the problem or what the ultimate goal should be to protect the river, that didn’t stop them from working on the river,” Phillips said.

She added that cities improved wastewater treatment, the poultry industry sponsored poultry litter transport out of the watershed, partners provided bathrooms and trash bags to reduce impacts of recreation, commercial nurseries collected and recycled irrigation water, and ag producers and other landowners partnered with conservation districts, the Natural Resources Conservation Service (NRCS), tribal and state programs, and the EPA to improve land management.

“If it was possible that some type of activity was affecting the river, then someone, somewhere in the watershed has worked to reduce the impact,” Phillips said. “Both states and their local and federal partners have concentrated on monitoring the watershed so we could better understand if, where and what was causing water quality problems, but also whether our efforts were resulting in positive changes for the river. As a result, many partners on both sides of the state line agree that we’re seeing significant decreases in phosphorus in the river. Although we still have more phosphorus in the river than a scenic river should have, according to Arkansas-Oklahoma Arkansas River Compact Commission reports, we’ve cut concentrations at the state line by at least half since the 1980s.”

### **The tough days**

The issue of water quality in the Illinois River led to many years of struggles between Arkansas and Oklahoma.

In 1992, a lawsuit by Oklahoma over phosphorous in the river reached the U.S. Supreme Court. The nation’s highest court ruled that the downstream state’s water quality laws must be met but that this did not exclude additional discharge from upstream sites. That law set an important precedent that has been and will be used in other transboundary water quality disputes. In addition to point sources, agricultural non-point sources have been identified as sources of nutrients in the river. After the lawsuit, there have been a number of efforts to reduce phosphorous loading into the river. In 1997, the states agreed to an interim target of a 40 percent 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. This 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. Dialogue between the states and among the stakeholders has been cooperative at times and at times contrary. Too often, groups have blamed others for the problem such as those managing point sources blaming 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 spawned much excellent research in agricultural practices and in water quality monitoring. Seiger said, "Ecosystems are a living and dynamic system, so it will be an ongoing effort."

### **The progress**

The Illinois River has always been a primary focus of the Oklahoma Conservation Commission's Water Quality Program, Phillips said.

Using funding from EPA, USDA, State of Oklahoma, local landowners, and in partnership with the Secretary of Energy and Environment, conservation districts, OSRC, the City of Tulsa, Nature Conservancy, Sierra Club and many others, the OCC has been part of countless projects and programs in the watershed since the early 1980s.

Through these efforts partners worked to build and maintain bathrooms for recreational users, repair eroding streambanks, ship excess poultry litter out of the watershed, reduce potential runoff from plant nurseries, protect natural vegetative buffers along streams, improve pasture quality and animal waste management, and replace poorly designed septic systems.

In one recent project, OCC worked with more than 200 Oklahoma landowners to install conservation practices that protect water quality such as reducing livestock access to streams with long-term buffers providing alternative water supplies, reducing erosion of pollutants from pasturelands, and replacing septic systems.

Using State and EPA funding, partners invested more than \$2.5 million in conservation practices with approximately \$900,000 contributed by cooperating landowners.

"All these efforts have been accomplished through voluntary cooperation by landowners and other partners without additional regulation," Phillips said, "and we almost always find that people are willing to make more changes than we have resources to support through funding."

Throughout these efforts, OCC worked with citizens, conservation districts, tribes, local stakeholder groups, and other partners to provide education about water quality and what can be done to protect it. In addition, the OCC monitored watershed streams to determine whether these efforts were effectively improving water quality. Although these recent water quality results are not yet available, similar previous efforts reduced phosphorus and other pollutants by more than 50 percent in some Illinois River tributaries.

Seiger refers to it as "cumulative effect, cumulative solution."

In a similar effort begun in 2011, the USDA NRCS in Arkansas and Oklahoma developed a five-year special initiative that is targeting up to \$38 million in the Illinois River and neighboring Eucha/Spavinaw watersheds for conservation practices that protect water quality. Although water quality progress is evident, efforts are ongoing and must continue into the future to protect this treasured resource.

"Oklahoma is a national leader in improving water quality due to voluntary programs and we've demonstrated that success," Phillips said. "I think that one of the great things that has happened through this effort is that we have seen that Oklahoma and Arkansas can be innovative and work together to solve problems. We're not done yet, but we're on the right track."

### **A lifelong relationship**

On a fall afternoon in the early 1960s, Ed Fite, just a child at the time, was walking beneath the sycamore trees and above the crystal clear surface of the Illinois with his grandfather Dr. Edward Halsell Fite, father, Dr. Edward Halsell Fite Jr., and uncle Coleman Fite.

Although the movie was still a few years away, Fite was having “True Grit” daydreams, battling lawlessness of decades past with his white-handled metal cap gun. Then suddenly the gun slipped and gravity whisked it to the rocky bottom of the river. Ed’s father, far less than pleased, along with the uncle, made their way from the rock bluff outcrop to the water.

“I’m looking off this rock embankment into the river from probably about 10 to 12 feet above the surface of the water and I can see every rock on the bottom of the stream,” Fite said. “I can still recall it and I remember that gun laying there. They waded into the river to retrieve my gun. To me it seemed like it was just inches, but they had to dive down into the water to get it because the water was over their heads, that’s how clear you could see into the river.”

Ed Fite knows there are those who would contend that he unrealistically is trying to preserve that image.

“I have a passion for the river,” he said. “Some people feel that if it were left up to me, I would build a fence around it and they could only look at it. I believe that protection of our state scenic rivers doesn’t mean mutually exclusive of a robust economy or agriculture production. It’s a balance and it can be achieved. She’s in a lot better shape than she was when I showed up in ’83 (as Administrator for the Scenic Rivers Commission).”

On a recent day Fite took a knee beside the river, dipped his hand into it and let the water run between his fingers. Not far away, youth and adult alike were adding to the countless number of people who have and continue to float the scenic Illinois River.

When asked why he thinks “the river has made the turn for the better,” he stands up and reaches into the pocket of his jeans.

Fite pulls out his business card and on the back is contact information for The Oklahoma Department of Environmental Quality, the Oklahoma Department of Transportation, the Oklahoma Department of Agriculture, the Oklahoma Department of Wildlife, the U.S. Army Corps of Engineers, the Oklahoma Conservation Commission and the Oklahoma Water Resources Board.

This is significant because Fite is not hesitant to call those numbers himself if he has a question or needs assistance because “They are not sister agencies anymore, they are teammates now.”

The roster is big.

There’s also OSU, OU and the University of Arkansas as well as cities, poultry companies and many others.

It is a collection of many coming together to help a common friend.

“Something I don’t do now is I don’t just say, ‘No,’” Fite said. “When I say something to somebody that I don’t agree with I at least try to give them two or three alternatives to think about that are options.”

Whether it’s a Sunday or a Saturday or in between, seldom is there a day that Fite does not walk across the pebbles or stroll out on the rock outcrop to visit the Illinois.

Sure it’s been his job for a few decades, but that just means he’s working with a close friend.

“Water to me is the lifeblood of the human soul,” he said. “When I go to the Illinois River, I look at the river as a gift from God.”

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Photo caption: Ed Fite, who in July will become a water quality coordinator for the Grand River Dam Authority after serving 33 years as Administrator for the Oklahoma Scenic Rivers Commission has been a lifelong friend of the Illinois River.