



# Section 319

# NONPOINT SOURCE PROGRAM SUCCESS STORY

# Arkansas

## Watershed Restoration Efforts Reduce Turbidity in the Upper Illinois River

### Waterbody Improved

Surface erosion and agricultural activities led to high turbidity levels in the upper Illinois River in Arkansas. As a result, the Arkansas Department of Environmental Quality (ADEQ) added a 2.5-mile segment of the Illinois River to the state's 2006 Clean Water Act (CWA) section 303(d) list of impaired waters for turbidity. The state applied a holistic mitigation strategy to abate sediment runoff in the watershed. Turbidity levels on the listed reach declined, prompting the state to remove it from the 2014 CWA section 303(d) list for turbidity impairment.

### Problem

The Illinois River watershed is in northwest Arkansas and northeast Oklahoma. It is a perennial river with flow rates varying considerably from year to year, depending on rainfall. The Illinois River begins in the Ozark region of northwest Arkansas, near Fayetteville, Springdale, Rogers and Bentonville. The headwaters of the river meander west through the Ozarks (Benton and Washington counties) and cross into Oklahoma 5 miles south of Siloam Springs, near the town of Watts, Oklahoma (Figure 1).

ADEQ has listed the Illinois River as an Ecologically Sensitive Waterbody (Figure 2). The Illinois River is in the Arkansas River Basin, which is divided into 10 discreet ADEQ planning segments based on hydrological characteristics, human activities, geographic characteristics, and other factors. The upper Illinois River is in ADEQ planning segment 3J.

Erosion from agricultural areas led to high sediment loading in the upper Illinois River. ADEQ considers a stream reach in ADEQ planning segment 3J to be impaired by turbidity if more than 25 percent of all samples exceed 17 nephelometric turbidity units (NTU), based on 5 years of data before the assessment year. An assessment of data from the 5 years leading up to 2006 (i.e., data from 2001–2005) showed that 28 percent of water samples along a 2.5-mile segment of the Illinois River exceeded 17 NTU. Therefore, ADEQ added this segment (AR-3J-11110103-024) to the state's 2006 CWA section 303(d) list of impaired waters for turbidity.

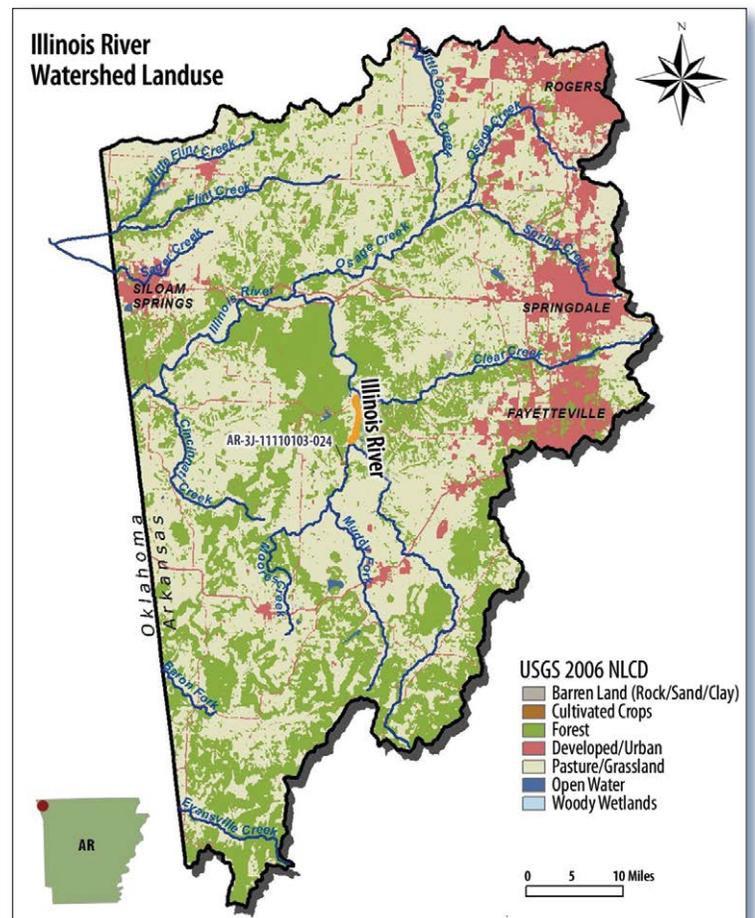


Figure 1. Land use within the Arkansas portion of the Illinois River watershed. Agricultural areas surround the restored segment, which is noted in orange. Urban area dominate the watershed's eastern headwaters.



Figure 2. The Illinois River is classified as an Ecologically Sensitive Waterbody in Arkansas.

## Project Highlights

Beginning in 1998, the Arkansas Natural Resources Commission (ANRC) used U.S. Environmental Protection Agency CWA section 319 funds to provide Illinois River watershed landowners with financial and technical assistance to implement best management practices (BMPs). These BMPs helped reduce turbidity by preventing sediment from entering the water. Many landowners participated.

ANRC's watershed-wide approach included participating in the startup of a watershed group, contributing to development of an EPA-approved nine-element watershed plan, implementing BMP cost-share projects and demonstration projects, conducting special watershed-targeted public education projects (e.g., Urban Hispanic Outreach and E-Education), and implementing low impact development projects in urban areas.

BMPs implemented in the watershed include riparian plantings (Figure 3) and rain gardens. Other partners within the watershed have used private funds and donations to continue some of the projects started by ANRC and develop their own water quality projects to help improve and restore waters in the Illinois River watershed.

## Results

ANRC and its partners successfully addressed surface erosion from agricultural activities through cost-effective targeting of CWA section 319 funds. As a result of the implemented practices in the watershed, turbidity levels have been decreasing. The 2014 ADEQ water quality assessment showed that exceedances of the 17 NTU turbidity standard for all flows had declined to 18 percent in the 5-year period leading up to 2014. This level falls below the 25 percent threshold, and meets water quality standards. Therefore, ADEQ removed the turbidity impairment for the 2.5-mile segment of the Illinois River from its 2014 impaired waters list.

## Partners and Funding

The water quality improvement in the Illinois River is the result of partnerships between local landowners in the watershed, the Benton County Conservation District, the Washington County Conservation District, ANRC, ADEQ, Arkansas Game and Fish Commission, University of Arkansas Water Resource Center, University of Arkansas Cooperative Extension Service, Illinois River Watershed Partnership, U.S. Department of Agriculture's Natural Resources Conservation Service and the U.S. Environmental Protection Agency. Funding for BMP implementation was provided by CWA section 319 funds in the amount of \$8,999,142; partners contributed \$7,545,101.



Figure 3. Watershed stakeholders participate in a riparian restoration project along the upper Illinois River.



U.S. Environmental Protection Agency  
Office of Water  
Washington, DC

EPA 841-F-15-001X  
May 2015

## For additional information contact:

**Allen Brown**  
Arkansas Natural Resources Commission  
Nonpoint Source Management Section  
501-682-1611 • [allen.brown@arkansas.gov](mailto:allen.brown@arkansas.gov)