

Nonpoint Source Pollution in the Cache River Watershed

August 2015

The Arkansas portion of the Cache River Watershed is located in northeast Arkansas and includes communities in Clay, Craighead, Cross, Greene, Jackson, Lawrence, Monroe, Poinsett, Prairie, Randolph, St. Francis and Woodruff counties.

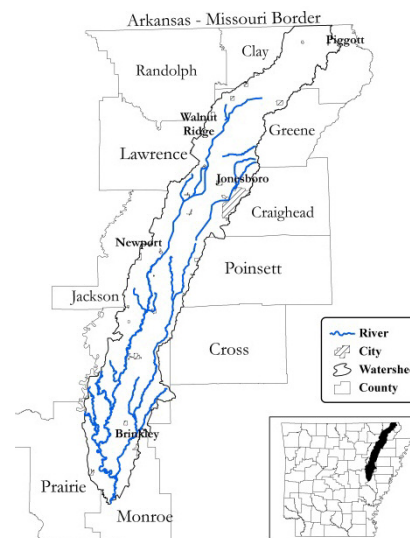
A “watershed” is an area of land where all of the water that drains from it goes to the same place, so rainwater or snowmelt in this watershed eventually drain to a common location.

This watershed is long and narrow and is named for the major waterway in the area, the Cache River. The watershed spans 1,956 square miles and is predominantly used as cropland. About 20 percent of the watershed is forested.¹

This fact sheet is intended to provide a better understanding of the Cache River Watershed and its place on the state’s priority list of 10 watersheds impacted by nonpoint source pollution.

Nonpoint Source Pollution

Water pollution that comes from multiple sources spread over an area, such as runoff from parking lots, agricultural fields, residential lawns, home gardens, construction, mining and logging, is known as nonpoint source pollution. As runoff moves across the landscape, it carries natural and manmade substances that can accumulate in waterways and make them uninhabitable for aquatic species or unusable by people. Potential pollutants include bacteria, nutrients, sediment, hazardous substances and trash.² Given the number of potential sources and variation in their potential contributions, these pollutants are not easily traced back to their source.



Cache River Watershed

Data source: GeoStor. Map created March 2011.

Major streams: Bayou De View, Beaver Dam Ditch, Big Creek, Big Gum Lateral, Black Creek, Buffalo Creek, Cache River, Cow Left Ditch, Cypress Creek, Gum Slough, Hill Bayou, Housman Creek, Locust Creek, Poplar Creek, Swan Pond Ditch, Willow Ditch.

Cache River Watershed Water Quality Issues

Through water quality monitoring, environmental officials in Arkansas have determined that different portions of the watershed have distinct pollution concerns. The upper section of Bayou DeView and Lost Creek Ditch did not support some aquatic species because of elevated levels of metals including aluminum, beryllium, copper, lead and zinc. In addition, these sections have historical challenges with excessive levels of

¹Land use in the Cache River Watershed, 2006. Center for Advanced Technologies (CAST). See http://arkansaswater.org/index.php?option=com_content&task=view&id=127.

²Learn more about these categories in the Arkansas Watershed Steward Handbook, which can be found at www.uaex.uada.edu/environment-nature/water/docs/ag1290.pdf.

chlorides and total dissolved solids. (Total dissolved solids include inorganics such as minerals and salts, and organic matter such as decomposing remnants of plants and animals.)

Past water quality testing by the Arkansas Department of Environmental Quality found elevated levels of lead in several segments of the Cache River and Bayou DeView, and current agriculture practice is a suspected source of the lead. Upon further investigation by the Ecotoxicology Research Facility researchers at Arkansas State University, other potential sources of this lead contamination may be attributable to historical agricultural and industrial practices that influenced lead levels distributed in stream sediments. In recent years, the Arkansas Natural Resources Commission (ANRC) has funded local projects to help landowners better manage discharge from agricultural fields and reduce sediment from entering waterways. ANRC associates these efforts with reduced lead levels found in recent years in Bayou DeView.³

Metals can come from natural or manmade sources, including geologic formations, atmospheric depositions, runoff/leaching from mining operations and discharges from industrial or city water treatment

Arkansas' Priority Watershed List for Nonpoint Source Pollution

Arkansas has used a watershed-based approach to nonpoint source pollution management, allowing the public to guide planning to address water quality concerns. The Arkansas Natural Resources Commission, or ANRC, administers the Nonpoint Source Pollution Management Program. The program exists to reduce water pollution through the funding of watershed planning and restoration activities, adoption of voluntary best management practices and the development of technologies that assist in water pollution reduction in Arkansas. Based on public input and the use of a qualitative risk assessment matrix, ANRC has designated 10 priority watersheds as needing the greatest attention. The current risk matrix⁴ identifies the following priority watersheds: Bayou Bartholomew, Beaver Reservoir, Cache River, Illinois River, L'Anguille River, Lake Conway-Point Remove, Lower Ouachita-Smackover, Poteau River, Strawberry River and Upper Saline.

plants. High concentrations of metals can be hazardous to the environment because of how they accumulate in aquatic species and build up in soils. These concentrations can negatively affect people and animals that eat contaminated fish. Copper and zinc are naturally occurring metals that in excess can be poisonous.

Total dissolved solids and chlorides, which are a mixture of chlorine and other compounds, can originate from natural geological sources such as dissolving rocks. Other sources of chlorides include salts used for de-icing, runoff from urban and agricultural land and soaps and water softeners found in sewage. High chloride concentrations can interfere with species' biological processes and affect their salt and fluid levels.

These concerns and its border state status led to the Cache River Watershed being designated as a priority by ANRC in the state's 2011-2016 Nonpoint Source Pollution Management Plan.⁵

Stakeholder Priorities

To encourage continued public input, the University of Arkansas Division of Agriculture's Public Policy Center facilitated a water quality stakeholder forum for the Cache River Watershed in Newport in October 2014. Participants identified sedimentation as their watershed's priority concern that needed addressing. Participants also expressed concern over how water quality issues can impact their economy and about the effects of flooding.

People who live, work or recreate in this watershed are encouraged to consider these community priorities when addressing water pollution. The public is also welcome to attend an annual stakeholder meeting where priority watersheds and nonpoint source pollution are discussed. For more information about nonpoint source pollution and its impact on the Cache River Watershed, contact the Cooperative Extension Service, Arkansas Natural Resources Commission or the Arkansas Department of Environmental Quality. The Arkansas Watershed Steward Handbook is also a good source of information about basic water quality concerns and how the public can get engaged in addressing water pollution.⁶

³Reducing Agricultural Runoff Reduces Lead in Bayou, Nonpoint Source Success Stories, Arkansas, Bayou DeView available at http://water.epa.gov/polwaste/nps/success319/ar_bayou.cfm.

⁴Learn more about the qualitative risk assessment tool at www.uaex.uada.edu/publications/pdf/FSPPC116.pdf.

⁵The NPS Management Plan can be found at www.uaex.uada.edu/environment-nature/water/quality/NPSPollutionMgmt-Revised2015.pdf.

⁶The Arkansas Watershed Steward Handbook can be found at www.uaex.uada.edu/environment-nature/water/docs/ag1290.pdf.

This fact sheet is one in a series of 10 fact sheets on nonpoint source pollution in priority watersheds.

Authors: **AMANDA PHILYAW PEREZ, MPH**, program associate, and **KRISTIN HIGGINS**, program associate, Public Policy Center, University of Arkansas Division of Agriculture, Little Rock.

The University of Arkansas Division of Agriculture's Public Policy Center provides timely, credible, unbiased research, analyses and education on current and emerging public issues.

Printed by University of Arkansas Cooperative Extension Service Printing Services.

The Arkansas Cooperative Extension Service offers its programs to all eligible persons regardless of race, color, sex, gender identity, sexual orientation, national origin, religion, age, disability, marital or veteran status, genetic information, or any other legally protected status, and is an Affirmative Action/Equal Opportunity Employer.