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Nonpoint Source Pollution in the Lower Ouachita-Smackover Watershed

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The Arkansas portion of the Lower Ouachita-Smackover Watershed is located in south central Arkansas and includes communities in Bradley, Calhoun, Cleveland, Columbia, Dallas, Nevada, Ouachita and Union 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 drains to a common location.

The Lower Ouachita-Smackover Watershed covers 1,797 square miles of land that is made up of predominantly forestland (76%).[1] The population has been declining in this watershed, to about 38,000 people in 2011.[2]

This fact sheet is intended to provide a better understanding of the Lower Ouachita-Smackover 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.[3] Given the number of potential sources and variation in their potential contributions, these pollutants are not easily traced back to their source.

Lower Ouachita-Smackover Watershed
Data source: GeoStor. Map created March 2011.

Major streams: Camp Creek, Champagnolle Creek, Moro Creek, Ouachita River, Smackover Creek

Lower Ouachita-Smackover Watershed Water Quality Issues

Through water quality monitoring, environmental officials in Arkansas have determined that the main areas of concern for the Lower Ouachita-Smackover Watershed include mercury, ammonia, nitrates, minerals, turbidity, total dissolved solids and waste water discharge.[4] The Lower Ouachita River, Champagnolle and Moro creeks have fish consumption advisories due to mercury contamination. Mercury is found in area rock formations and was previously mined in the region.

In addition, high levels of ammonia, nitrates, minerals and metals have been found in waterways near El Dorado where numerous oil and brine processing and storage facilities exist. Metals can come from natural or manmade sources, including a single or dominant rock type, air pollution, runoff/leaching from mining operations and discharges from industrial or city water treatment

[1]Land use in the Lower Ouachita-Smackover Watershed, 2006. Center for Advanced Technologies (CAST). See http://arkansaswater.org//index.php?option=com_content&task=view&id=153&Item.

[2]BAEG, 2011. County-Wise Population Data. Biologi.uada.cal and Agricultural Engineering Department. University of Arkansas Division of Agriculture: Little Rock, Arkansas. See http://www.uaex.uada.edu/environment-nature/water/quality/NPSPollutionMgmt-Revised2015.pdf

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

[4]Learn more about water quality at http://www.uaex.edu/publications/pdf/FSA-9528.pdf

plants. High concentrations of metals can be hazardous to the environment because of how they accumulate in aquatic species and build up in soils. Turbidity is a measure of the clarity of water and is often the result of excess silt or sediment entering a stream. High turbidity levels mean the water is murky from a variety of materials, such as soil particles, algae, microbes and other substances. Turbidity can affect aquatic life in waterways. Total dissolved solids can originate from natural geological sources such as dissolving rocks. These concerns led to the Lower Ouachita-Smackover Watershed being designated as a priority by the Arkansas Natural Resources Commission in the state's 2011-2016 Nonpoint Source Pollution Management Plan.[6]

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 matrix[5] identified the following priority watersheds for 2011-2016: 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.

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 Lower Ouachita-Smackover Watershed in June 2015. People who attended the forum identified lack of education about water quality, erosion from forestry practices and concerns about drinking water as local priorities.

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 Lower Ouachita-Smackover 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.

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[5]Learn more about the qualitative risk assessment tool at http://www.uaex.edu/publications/pdf/FSPPC116.pdf.

[6]The NPS Management Plan can be found at http://www.uaex.edu/environment-nature/water/quality/NPSPollutionMgmt-Revised2015.pdf.

[7]Arkansas Watershed Steward Handbook can be found at http://www.uaex.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.

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