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The Arkansas portion of the Bayou Bartholomew Watershed is located in southeast Arkansas and encompasses parts of Ashley, Chicot, Cleveland, Desha, Drew, Jefferson and Lincoln counties. The watershed contains a variety of landscape from rolling hills in the western portion to relatively flat farmland among most of the eastern section before crossing into Louisiana.

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.

The Bayou Bartholomew Watershed includes 1,481 square miles. Half of the land is forested, and 21 percent is used for row crop farming.<sup>1</sup> In recent years, the watershed has lost population. As of 2011, an estimated 48,000 people lived in the watershed, which includes the city of Pine Bluff.<sup>2</sup>

### 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.<sup>3</sup> Given the number of potential sources and variation in their potential contributions, these pollutants are not easily traced back to their source.

<sup>1</sup>CAST, 2006. Land Use/Land Cover Data. Biological and Agricultural Engineering Department. University of Arkansas: Fayetteville, Arkansas, available in the 2011-2016 Nonpoint Source Pollution Management Plan at <http://www.uaex.edu/environment-nature/water/quality/NPSPollutionMgmt-Revised2015.pdf>.

<sup>2</sup>BAEG, 2011. County-Wise Population Data. Biological and Agricultural Engineering Department. University of Arkansas: Fayetteville, Arkansas. See the Nonpoint Source Pollution Management Plan.

<sup>3</sup>Learn more about these categories in the Arkansas Watershed Steward Handbook at <http://www.uaex.uada.edu/environment-nature/water/docs/ag1290.pdf>.

<sup>4</sup>To learn more about the Arkansas Department of Environmental Quality 305(b) report, see the 2011-2016 Nonpoint Source Pollution Management Plan.

<sup>5</sup>Learn more about water quality at <http://www.uaex.uada.edu/publications/pdf/FSA-9528.pdf>.

# Nonpoint Source Pollution in the Bayou Bartholomew Watershed



### Bayou Bartholomew Watershed

Data source: GeoStor. Map created March 2011.

**Major streams:** Bayou Bartholomew, Deep Bayou, Ables Creek, Cutoff Creek, Bearhouse Creek, Overflow Creek and Chemin-A-Haut Creek.

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

### Bayou Bartholomew Watershed Water Quality Issues

Through water quality monitoring, environmental officials in Arkansas have determined the water quality here has been affected by row crop agriculture and runoff from urban areas.<sup>4</sup> The most prevalent concerns are turbidity, silt and phosphorus.<sup>5</sup>

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. In 2002, environmental officials determined the maximum amount of turbidity the Bayou Bartholomew River can receive and still meet water quality standards. This determination is a calculation called Total Maximum Daily Load, or TMDL. There are also TMDLs established for mercury in fish tissue, pathogens, chloride, sulfate and total dissolved solids.<sup>6,7</sup>

There is also evidence of some fecal coliform bacteria contamination, which has caused some streams to be deemed unsuitable for swimming. Nutrient

### 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<sup>8</sup> identifies the following priority watersheds for 2011-2016: Bayou Bartholomew, Beaver Reservoir, Cache River, Illinois River, L'Angeuille River, Lake Conway-Point Remove, Lower Ouachita-Smackover, Poteau River, Strawberry River, and Upper Saline.

enrichment of the water bodies in this watershed has been a concern too, but detecting the source has been a challenge. These concerns and its border state status led to the Bayou Bartholomew Watershed being designated as a priority by the Arkansas Natural Resource Commission in the state's 2011-2016 Nonpoint Source Pollution Management Plan.<sup>9</sup>

### 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 Bayou Bartholomew watershed in March 2015. Participants identified sediment related to agriculture, water flow and nutrient runoff as local priorities that need addressing.

The Bayou Bartholomew Alliance has long worked in this watershed to address nonpoint source pollution issues and completed a watershed plan in 2002 that reflected community priorities. In recent years, however, the watershed group has not been as active.

People who live, work or recreate in this watershed are encouraged to consider community priorities and the watershed plan 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 Bayou Bartholomew 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.<sup>10</sup>

<sup>6</sup> More information about these water quality issues can be found in the Arkansas Watershed Steward Handbook that is available at <http://www.uaex.edu/environment-nature/water/docs/ag1290.pdf>.

<sup>7</sup> Learn more about the Total Maximum Daily Loads at <http://www2.adeq.state.ar.us/water/tmdls/>.

<sup>8</sup> Learn more about the qualitative risk assessment tool at <http://www.uaex.edu/publications/pdf/FSPPC116.pdf>.

<sup>9</sup> The Nonpoint Source Pollution Management Plan is available at <http://www.uaex.edu/environment-nature/water/quality/NPSPollutionMgmt-Revised2015.pdf>.

<sup>10</sup> See the Arkansas Watershed Steward Handbook.

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

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