Lower White River - Bayou Des Arc
Arkansas Department of Energy and Environment Division of Environmental Quality Planning Segment 4D
Hydrologic Unit Code 08020301

**Introduction**

The Lower White River - Bayou Des Arc Watershed (HUC 08020301) is located in eastern central Arkansas and includes portions of White, Prairie, Faulkner, Pulaski, Lonoke, and Monroe counties. The Lower White River - Bayou Des Arc Watershed includes a 67-mile stretch of the White River and its tributaries, including Wattensaw Bayou and Des Arc Bayou. Both Bayou Des Arc and Wattensaw Bayou are recreational waterbodies, with Wattensaw Bayou designated as a state water trail. The White River National Wildlife Refuge is also located in this watershed. The Lower White River - Bayou Des Arc Watershed was identified as an Arkansas Nonpoint Source Pollution Management Program (Arkansas NPS Program) priority watershed in 2022. Figure 1 shows a map of 2019 land cover in the watershed. Thirty percent of the watershed is row crops. Forest and pasture each cover 20 percent of the watershed. Wetlands and water together cover another 20 percent. In 2020, this watershed was home to 79,390 Arkansans (U.S. Census Bureau 2021).

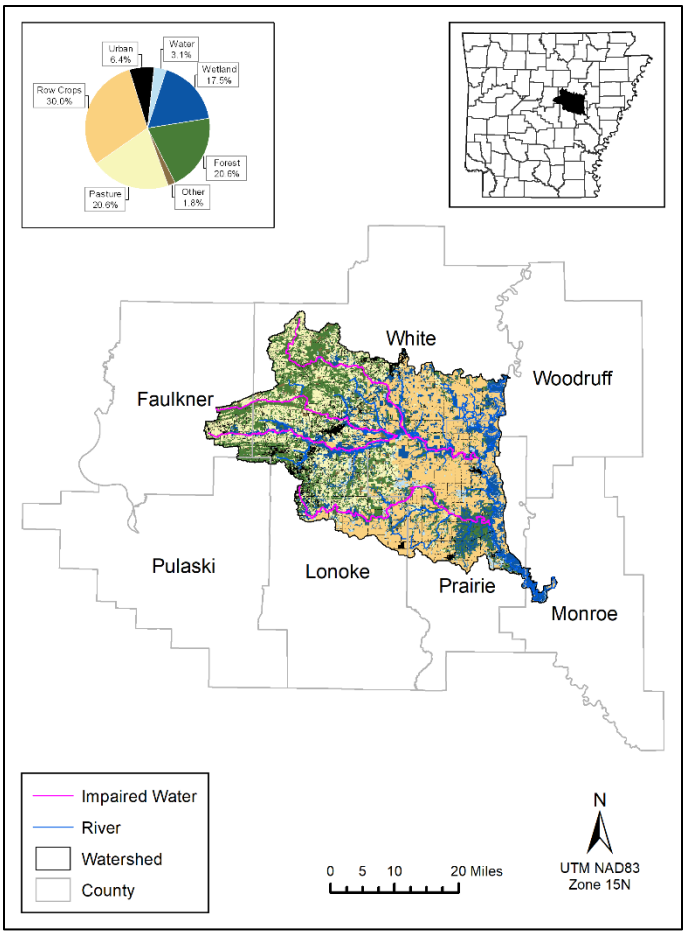


**Figure 1. Lower White River - Bayou Des Arc Watershed Map**

**Nonpoint Source Pollutants in Lower White River – Bayou Des Arc Watershed**

Several waterbodies of the Lower White River - Bayou Des Arc Watershed are listed as water quality impaired in the Arkansas 2018 303(d) List (Figure 1). A total of 236.4 stream miles are listed as impaired, representing 74 percent of the total assessed stream miles within the watershed (319.5 miles). The aquatic life designated use is not supported in 196.9 stream miles. The drinking water designated use is not supported in 96.9 stream miles. The primary contact designated use is not supported in 47.3 stream miles. NPS pollutants of concern in this watershed are oxygen-demanding materials, nutrients, zinc, lead, temperature, turbidity, and pathogens (*E. coli*). Nonpoint sources of these pollutants in this watershed include runoff from development, runoff from pastures and croplands, livestock, fertilizer, and failing septic systems. Climate change is causing an increase in storm intensity in Arkansas, which can result in more runoff and erosion, leading to increased pollutant loads to surface waters. In addition, warmer summer temperatures occurring as a result of climate change will reduce flows and raise water temperatures, both of which could result in lower summer dissolved oxygen concentrations in surface waters.

**Nonpoint Source Pollution Goals**

The long-term goal of the Arkansas NPS Program is for all waterbodies within the Lower White River – Bayou Des Arc Watershed to meet their designated uses. Table 1 lists Arkansas NPS Program short-term (2024-2029) objectives for the Lower White River - Bayou Des Arc Watershed. The program also supports the load reduction goals identified in Total Maximum Daily Load (TMDL) studies that have been prepared for waterbodies in this watershed. TMDLs in the Lower White River - Bayou Des Arc Watershed have established target loads for pathogens. Progress toward achieving the objectives is summarized in Table 1 and will be reported in Arkansas NPS Program annual reports which can be found at agriculture.arkansas.gov/natural-resources/divisions/water-management/nonpoint-source-management/.

Table 1. Arkansas NPS Program short-term objectives for Lower White River - Bayou Des Arc Watershed

| 2024-2029 Objective | Tracking Strategy |
|---|---|
| Measurably reduce concentrations or loads of pollutants causing water quality impairments | Routine water quality monitoring with load calculations |
| Social equity in water quality protection and improvement | Number or percent of activities in low income or minority dominated areas<br><br>Number or percent impairments in low income or minority dominated areas |
| Increased resilience of natural systems and society | Routine water quality monitoring and Clean Water Act biennial water quality assessment |
| No new impaired stream reaches, or water quality criteria not being met | Routine water quality monitoring and Clean Water Act biennial water quality assessment |
| 2018 impaired stream reaches attain water quality standards | Routine water quality monitoring and Clean Water Act biennial water quality assessment |
| Soil and Water Assessment Tool watershed model | Proposal for modeling project<br><br>Initiation of modeling project<br><br>Completion of modeling project |
| Nine-element watershed management plan | Proposal for watershed management plan<br><br>Initiation of watershed management plan<br><br>EPA acceptance of watershed management plan |

**Nonpoint Source Pollution Strategy**

The state NPS pollution management strategy for this watershed is to work toward development of a watershed management plan (WMP) and then support implementation of the WMP to address NPS pollution and load reduction goals of the TMDLs. The WMP will identify focus areas for water quality improvement, protection, and sampling, as well as best management practices (BMPs) for reducing NPS pollutants of concern.

**Administration of Nonpoint Source Pollution Management**

The Arkansas NPS Program works with cooperating entities in the watershed to promote voluntary coordination and BMP implementation. Cooperating entities in this watershed include the Arkansas Game and Fish Commission (AGFC) and the U.S. Fish and Wildlife Service (USFWS). AGFC manages river access points in the watershed, as well as Wildlife Management Areas. The USFWS manages the White River National Wildlife Refuge, which encompasses the White River in this watershed. Additional potential partners include the U.S. Department of Agriculture (USDA) Natural Resources Conservation Service (NRCS), University of Arkansas System Division of Agriculture (UADA) Cooperative Extension Service, Arkansas Department of Agriculture's Natural Resources Division (NRD), Arkansas Department of Energy and Environment Division of Environmental Quality (DEQ), and county conservation districts.

**Nonpoint Source Pollution Management Tracking and Monitoring**

NPS pollution management is tracked and evaluated at three levels: education and outreach activities, behavioral and/or opinion changes, and water quality. Organizations active in this watershed track and report their education and outreach activities, including those related to NPS pollution. In some cases, these activities are listed in annual reports (e.g., Arkansas NPS Program), newsletters, and on websites and social media.

Behavioral changes can be tracked through implementation of BMPs and using opinion polls. Organizations active in this watershed track implementation of BMPs through their programs, including NRD and NRCS. This information is listed in their annual reports and on their websites.

Water quality monitoring data will be used to evaluate the effectiveness of NPS pollution management activities in the Lower White River - Bayou Des Arc Watershed. DEQ maintains water quality monitoring stations within the watershed and uses this data in their biennial evaluation of state water quality.

**Nonpoint Source Pollution Management Support and Funding**

Technical information and assistance with implementing BMPs to reduce NPS pollution is available from a number of sources, including local county conservation districts, NRD, NRCS, UADA Cooperative Extension Service, AGFC, and interest groups active in this watershed. There are multiple programs available in the Lower White River - Bayou Des Arc Watershed that can provide funding assistance for BMPs that reduce NPS pollution. Listings of sources of technical and financial assistance with NPS pollution BMPs will be available in the WMP. Technical and financial assistance can also be obtained by contacting AGFC, county conservation districts, or county extension offices.

**References**

Arkansas NPS Program: https://www.agriculture.arkansas.gov/natural-resources/divisions/water-management/nonpoint-source-management/.

DEQ. 2020. "Final 2018 303(d) List." *Arkansas Department of Energy and Environment Division of Environmental Quality.* Accessed September 2020. https://www.adeq.state.ar.us/water/planning/integrated/303d/pdfs/2018/2018 303(d) list.pdf.

Pathogen TMDLS for Planning Segment 4D Reaches: https://www.adeq.state.ar.us/downloads/WebDatabases/Water/TMDL/pdfs/Seg 4D Pathogens.pdf

US Census Bureau. 2021. "Block Groups - 2020 Census." *Arkanasas GIS Office.* August 21. Accessed June 2023. https://gis.arkansas.gov/product/block-groups-2020-census/.