Bayou Bartholomew

Arkansas Department of Energy and Environment Division of Environmental Quality Planning Segment 2B

Hydrologic Unit Code 08040205

U.S. Environmental Protection Agency-Accepted Watershed Management Plan

Introduction

Bayou Bartholomew begins in Pine Bluff, Arkansas, and flows generally southward towards its confluence with the Ouachita River west of Bastrop, Louisiana. It is considered the longest bayou in the world. The watershed encompasses nearly one million acres in a seven-county area of southeast Arkansas, including parts of Jefferson, Cleveland, Drew, Chicot, Lincoln, Desha, and Ashley counties. The

main tributaries of Bayou Bartholomew in Arkansas are Deep Bayou, Ables Creek, Cutoff Creek, Bearhouse Creek, Overflow Creek, and Chemin-A-Haut Creek. The watershed has been an Arkansas Nonpoint Source Pollution Management Program (Arkansas NPS Program) priority watershed since 1998. Bayou Bartholomew is distinctive for its high biodiversity and lack of channel alteration. The Arkansas Game and Fish Commission (AGFC) maintains water trails on the bayou, and much of Bayou Bartholomew in Louisiana is designated a Natural and Scenic Waterway (Arkansas Game and Fish Commission 2019). Figure 1 shows a map of 2019 land cover in the watershed. Thirtyfour percent of the watershed is forested, 27 percent is row crops, and 22 percent is wetland. In 2020, this watershed was home to 60,309 Arkansans (U.S. Census Bureau 2021).

Nonpoint Source Pollutants in Bayou Bartholomew Watershed

Several waterbodies in the Bayou Bartholomew Watershed are included in the Arkansas 2018 303(d) List (Figure 1). A total



of 502.4 stream miles are listed as impaired, representing 98.8 percent of the total assessed stream miles within the watershed (513.8 miles). Impaired waterbody uses include drinking water supply,

primary contact recreation, and aquatic life support. In addition, 172.5 miles of Bayou Bartholomew in Arkansas are under a fish



consumption advisory due to mercury. Bayou Bartholomew in Louisiana is also under a fish consumption advisory and listed as not meeting the Fish and Wildlife Propagation designated use in Louisiana (Louisiana Department of Environmental Quality 2023). NPS pollutants of concern in this watershed are oxygen-demanding materials, sediment (turbidity), pathogens (*E. coli*), total dissolved solids, chloride, sulfate, lead, mercury, and nutrients. Nonpoint sources of these pollutants that are of concern in the

watershed are cropland runoff, urban runoff, riparian disturbance, stream bank erosion, construction, silviculture, septic systems, wildlife, and unpaved roads. Climate change is causing an increase in storm intensity in Arkansas, which can result in more runoff, flooding, and erosion, leading to increased pollutant loads to surface waters. Log jams are common in Bayou Bartholomew and can contribute to streambank erosion. Water withdrawals from the bayou and its tributaries for irrigation can contribute to conditions that result in low dissolved oxygen. Clearing of riparian areas can increase water temperatures, reducing the potential for water to hold dissolved oxygen.

Nonpoint Source Pollution Goals

The long-term goal of the Arkansas NPS Program for Bayou Bartholomew Watershed is that all waterbodies support their designated uses. Table 1 lists Arkansas NPS Program short-term (2024-2029) objectives for the Bayou Bartholomew 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. These TMDLs established NPS load reduction goals for chloride, mercury, sulfate, total dissolved solids, turbidity/total suspended solids, and target NPS loads for pathogens (E.coli). 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 <u>agriculture.arkansas.gov/naturalresources/divisions/ water-management/nonpoint-source-management/</u>.

2024-2029 Objective	Tracking Strategy	2018-2023 Progress
Review the need for updating	Document review findings and	Not a listed objective
watershed management plan	update WMP if needed	for 2018-2023
Measurably reduce	Routine water quality	Water quality data
concentrations or loads of	monitoring with load	collected at routine
pollutants causing water	calculations	monitoring locations
quality impairments		
Social equity in water quality	Number or percent of	Unknown - not a listed
protection and improvement	activities in low income or	objective for 2018-
	minority dominated areas	2023
	Water quality in low income or	
	minority dominated areas	
Increased resilience of natural	Routine water quality	Routine water quality
systems and communities	monitoring and Clean Water	sampling and water
	Act biennial water quality	quality assessments
	assessment	2018, 2020, and 2022
No new impaired stream	Routine water quality	Two new pollutants
reaches, or water quality	monitoring and Clean Water	added for Bayou
criteria not being met	Act biennial water quality	Bartholomew reach
	assessment	001 on 2018 303(d) List
		 low dissolved oxygen
		and high lead
2018 impaired stream	Routine water quality	No impaired stream
reaches attain water quality	monitoring and Clean Water	reaches delisted 2016-
standards (achieve TMDL load	Act biennial water quality	2018

Table 1. Arkansas NPS Program short-term objectives for Bayou Bartholomew Watershed

2024-2029 Objective	Tracking Strategy	2018-2023 Progress
reductions)	assessment	

Nonpoint Source Pollution Strategy

The Bayou Bartholomew Watershed Plan is in place to protect and improve water quality in this watershed and can be found at <u>agriculture.arkansas.gov/wp-content/uploads/2022/01/Bayou-bart-WMP-2009-update.pdf</u>. The plan identifies focus areas for water quality improvement and protection, as well as best management practices (BMPs) for reducing NPS pollutants of concern. The state NPS pollution management strategy for this watershed is to support cooperating entities in activities that work toward the goals of the watershed management plan and the TMDLs.

Administration of Nonpoint Source Pollution Management

There is currently no single entity in the Bayou Bartholomew Watershed responsible for implementing the nine-element watershed management plan. The Arkansas NPS Program works with cooperating entities in the watershed to promote voluntary coordination and BMP implementation. Cooperating entities include the United States Department of Agriculture (USDA) Natural Resources Conservation Service (NRCS), University of Arkansas System Division of Agriculture (UADA) Cooperative Extension Service, AGFC, Pine Bluff city officials, Equilibrium, and county judges. Some voluntary coordination already exists in the agriculture program through the Arkansas Conservation Partnership.

Nonpoint Source Pollution Management Program 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. NRCS and UADA track education and outreach activities. Activities related to NPS pollution reduction may be reported in their annual reports.

Behavioral changes can be tracked by implementation of BMPs and opinion polls. Organizations active in this watershed that track implementation of BMPs through their programs are the Arkansas Department of Agriculture's Natural Resources Division (NRD), NRCS, and USDA Farm Service Agency. This information is listed in their annual reports.

Water quality monitoring data will be used to evaluate the effectiveness of NPS pollution management activities in the Bayou Bartholomew Watershed. The Arkansas Department of Energy and Environment Division of Environmental Quality (DEQ) maintains water quality monitoring stations within the watershed. DEQ uses these data in their biennial evaluation of water quality.

Nonpoint Source Pollution Management Support and Funding

Local county conservation districts, NRCS, NRD, and UADA are available to provide technical information and assistance on reducing NPS pollution. Potential funding sources for implementation of NPS pollution reduction BMPs include programs of NRD and NRCS. Technical and financial assistance can be obtained by contacting AGFC, county conservation districts, or county extension offices.

References

- Arkansas Game and Fish Commission. 2019. *Bayou Bartholomew Water Trail*. Accessed August 21, 2023. https://www.agfc.com/en/explore-outdoors/wildlife-viewing/water-trails/bayou-bartholomewwater-trail/.
- Arkansas NPS Program: https://www.agriculture.arkansas.gov/natural-resources/divisions/watermanagement/nonpoint-source-management/.
- Bayou Bartholomew Watershed Plan (2009 Update): https://www.agriculture.arkansas.gov/wpcontent/uploads/2022/01/Bayou-bart-WMP-2009-update.pdf.

- 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.
- Louisiana Department of Environmental Quality. 2023. 2022 Louisiana Water Quality Inventory: Integrated Report (Appendix A-Assessments). Baton Rouge. Accessed August 18, 2023. <u>https://ldeq.maps.arcgis.com/apps/instant/portfolio/index.html?appid=a689bc37c40848f598a1</u> <u>937d092f63ae%20</u>.
- TDML for Chloride, Sulfate, and Total Dissolved Solids: <u>adeq.state.ar.us/downloads/WebDatabases/Water/TMDL/pdfs/bayou_bartholomew_2008_03_</u> <u>31.pdf.</u>
- TDML for Mercury, Turbidity/Total Suspended Solids, Target NPS Loads for Pathogens (E.coli): <u>adeq.state.ar.us/downloads/WebDatabases/Water/TMDL/pdfs/Ouachita_and_Bayou_Bartholo</u> <u>mew_Hg_2002_12_18_Final.pdf.</u>
- 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/.