Brewer Lake Watershed Management Plan

Brewer Lake is a critical drinking water source serving more than 90,000 residents in Conway and the surrounding areas of Central Arkansas. Constructed in 1983 through a partnership between the U.S. Army Corps of Engineers (USACE), Conway Corporation, and Conway County Regional Water Distribution District (CCRWDD), the lake also supports recreation, fisheries, and regional ecological health. Recent increases in nutrient and sediment concerns, including a cyanobacterial bloom observed in 2020, highlighted the need for a proactive watershed management approach.

The Brewer Lake Watershed Management Plan was developed collaboratively by USACE, Conway Corporation, and CCRWDD, with technical support from Black & Veatch and Woolpert. Its purpose is to assess current watershed conditions, identify priority areas contributing to water quality degradation, and recommend feasible, voluntary management actions to protect Brewer Lake as a long-term community asset. The plan follows EPA guidance for watershed-based plans and is intended to support implementation funding, including EPA Section 319 grants. EPA Section 319 grants provide funding to support projects that manage and reduce nonpoint source pollution, helping communities implement effective watershed management practices.

The 36-square-mile watershed is primarily forested and agricultural, with limited development and widespread reliance on septic systems. A watershed model was developed to characterize watershed conditions and identify sediment and nutrient sources. Sediment originates largely from gravel roads, eroding streambanks, pasturelands, and disturbed areas. Nitrogen and phosphorus are primarily associated with manure application on pasture and hay fields, along with contributions from aging or failing septic systems.

The plan establishes clear, measurable objectives, similar to approaches in other regional watersheds: a 15 percent reduction in nitrogen, phosphorus, and sediment loading to Brewer Lake relative to recent baseline conditions. Secondary objectives include improving drought resilience, protecting aquatic habitat, supporting recreation, and promoting long-term watershed stewardship.

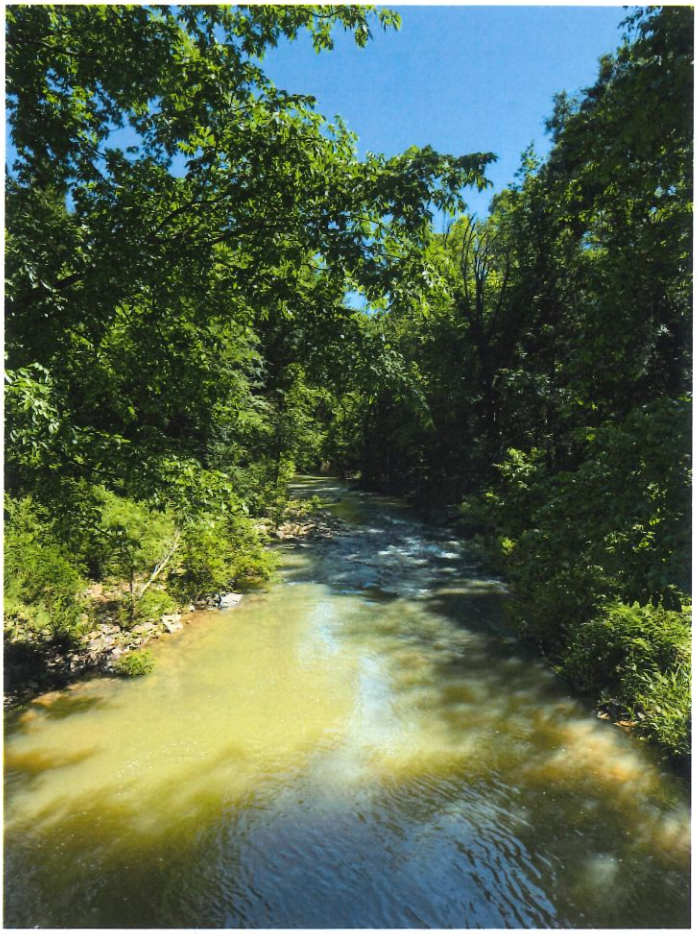
A suite of Best Management Practices (BMPs) was evaluated, including pasture management, riparian buffers, streambank stabilization, septic system improvements, and road erosion controls. Modeling indicates that combining pasture and stream corridor practices is the most effective and efficient strategy. Eight priority sub-catchments were identified where targeted actions can achieve watershed-wide water quality goals while minimizing impacts on private landowners.

Implementation is planned as a phased, multi-year effort beginning in 2026 (funding dependent). Conway Corporation will coordinate implementation with land owners and support from CCRWDD, the University of Central Arkansas, USACE, Natural Resources Conservation Service, conservation districts, and state agencies. Expanded monitoring of tributaries and lake conditions will track progress, support adaptive management, and document improvements over time.

This plan provides a science-based, community-focused framework to protect Brewer Lake's drinking water supply, preserve ecological integrity, and ensure the watershed remains a sustainable resource for future generations.

Why This Plan Matters

Brewer Lake supplies drinking water to our community and supports recreation and wildlife. This plan provides background information to apply for 319 funding to aid projects. Protecting water quality today helps prevent higher treatment costs, algal blooms, and loss of lake storage in the future.



Key Water Quality Concerns

- Sediment from eroding roads, streambanks, and disturbed lands
- Nutrients (nitrogen and phosphorus) from pasture runoff and septic systems
- Increased risk of harmful algal blooms

What the Plan Does

- Identifies the main sources of pollution in the watershed
- Sets a realistic goal to reduce sediment and nutrients by 15%
- Focuses actions in identified high-priority areas to maximum benefit
- Uses voluntary, incentive-based practices that respect private property
- Sets a framework to cooperatively implement BMPs and manage the watershed
- Identifies steps to track water quality improvements following BMP implementation

Recommended Actions

- Improve pasture and grazing management
- Install riparian buffers and stabilize streambanks
- Repair or replace failing septic systems
- Reduce erosion from gravel roads
- Expand watershed education and stewardship

Looking Ahead

The plan will be implemented over several years with ongoing monitoring to track progress. Community involvement and partnerships are key to protecting Brewer Lake for future generations.