

Arkansas Department of Agriculture



Nonpoint Source Pollution Management Program Annual Report Natural Resources Division

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1. Executive Summary

The Arkansas Department of Agriculture's Natural Resources Division (NRD) is the lead agency responsible for the Arkansas Nonpoint Source (NPS) Pollution Management Program. The NRD and its many partners and stakeholders collaboratively work together to develop the NPS Pollution Management Plan. The plan provides a broad framework with aspirational objectives and milestones for implementation of the NPS Pollution Management Program. Watersheds are prioritized for resource allocation using a risk matrix assessment tool that is contained within the plan. The plan is updated every five years based upon an adaptive approach. The current plan was updated and approved by the U.S. Environmental Protection Agency (EPA) Region VI and covers the 2018-2023 timeframe. Efforts are currently underway to update the draft 2024-2029 NPS Pollution Management Plan.

The Arkansas Department of Energy and Environment's Division of Environmental Quality (ADEQ) is the agency responsible for overseeing water quality in Arkansas. ADEQ is required to develop and provide an Integrated Water Quality Assessment Report and listing, commonly referred to as the 305(b) report and the 303(d) list, every two years for EPA approval. The assessment and report define if waterbodies (streams, lakes, and impoundments) are meeting and supporting their designated uses. The 305(b) report and subsequent 303(d) list provide the primary basis to direct efforts to restore water quality within the state. The Integrated Water Quality Assessment Report can be found at <u>adeq.state.ar.us/water/planning/integrated/</u>303d/list.aspx.

The NPS Pollution Management Program's success has been evaluated primarily on the 303(d) list. When impaired waterbodies are restored, they are removed from the list. The level of effort needed to remove a waterbody is enormous and cannot be accomplished by a single agency, program, project, or activity. It is essential that the NRD, partners, and stakeholders work together in a collaborative effort to improve water quality. Throughout this report you will see the many partners and projects that contribute to the success of the NPS Pollution Management Program.

This report focuses on the accomplishments that were made in meeting milestones of the NPS Pollution Management Program for federal fiscal year (FY) 2023, or October 1, 2022, through September 30, 2023. It details projects, efforts, and activities initiated, implemented, or completed by partners and stakeholders over the past year. This report also contains calculated load reductions of sediment, nitrogen, and phosphorus; installed best management practices (BMPs); and how federal dollars were allocated within the NPS Pollution Management Program.

Efforts continue to be made in improving water quality in select areas and watersheds. For this progress to continue, certain achievements will have to be accomplished, such as:

- State and federal agencies continue to provide technical and financial assistance.
- Stakeholders continue their involvement and activity in restoring waterbodies.

- Low impact development (LID) and green infrastructure (GI) techniques are demonstrated in urban areas and implemented for educational purposes for students, developers, municipalities, and citizens of the community.
- Water quality goals are identified and addressed by watershed stakeholders and groups.
- Watershed plans, conservation plans, and comprehensive nutrient plans are developed, utilized, and implemented.
- Water quality monitoring is installed in priority watersheds to evaluate the status of those watersheds.

2. Education and Outreach

Educating landowners and the citizens of Arkansas about nonpoint source (NPS) pollution and the methods of control, reduction, or abatement can be challenging. Assessing the water quality benefits of education is almost impossible. Continuing to demonstrate projects and provide educational materials is the most effective means we have found to promote the NPS Pollution Management Program. Education and outreach projects continue to be a focus of the Arkansas 319(h) program.

One project funded in FY 2022 but implemented through FY 2023 stood out as an example of targeting a region-specific need by reaching a diverse audience to discuss the potential of low impact development (LID) and ecological and community-minded development in the watershed. This project is highlighted below:

Smart Growth for Source Water Protection in the Beaver Lake Watershed



The goals and objectives of this project are to implement recommendations from the Beaver Lake Watershed Protection Strategy to reduce NPS sediment and nutrient loads going into Beaver Lake, through the implementation of three LID projects. Water quality improvements will be achieved through the voluntary installation of natural design elements within the project area. Education and outreach and regional adoption of LID

will be achieved through development of the Smart Growth for Source Water Protection public educational programming.

The Beaver Lake Watershed is located in the Ozark Highlands of Northwest Arkansas in Benton, Carroll, Madison, and Washington counties. The watershed is 1,192 square miles and includes

17 incorporated municipalities. Historically, the watershed has been characterized by forest and pastureland use with little development; however, over the last two decades nearly one quarter of the watershed land use has changed with significant increases in residential, commercial, and industrial development that have replaced forest, wetlands, prairies, and pastureland. According to the US Census Bureau, Benton County had a 28.5% population increase followed by Washington County with a 21.1% increase from 2010 to 2020. The Beaver Reservoir is a priority watershed in the Arkansas NPS Pollution Management Program. Several stream segments within the watershed are listed on the Arkansas Department of Energy and Environment's 2018 303 (d) list. The Beaver Lake watershed is a designated nutrient surplus area and is a priority watershed for source water protection in the state.

Beaver Watershed Alliance has now hosted the entire six-part Smart Growth Forum series, which saw participation of an average 33 attendees per session. Topics such as incentivizing smart growth, leadership techniques, and understanding the region's planning codes were discussed and brainstormed by a diverse group of stakeholders interested in improving and protecting Northwest Arkansas's water quality. Beaver Watershed Alliance will use information and feedback gathered through the Smart Growth Forum series and ultimately host a regional LID conference. In addition to forum meetings, three LID demonstration projects have been or are in the process of being installed. Beaver Watershed Alliance has and will continue to conduct LID demonstration tours and workshops for the duration of the project, which is expected to be completed by September of 2025.

3. Arkansas Unpaved Roads Program Fiscal Year 2023 Update

The Arkansas Unpaved Roads Program (AURP) was created by Act 898 of the 90th General Assembly. The purpose of the AURP is to create a better unpaved county road system with a reduced negative environmental impact on priority water resources in Arkansas. It focuses on best management practices (BMPs) that reduce the impact of sediment and road runoff to streams, rivers, and drinking water supplies while reducing long term unpaved road maintenance costs. The AURP is designed to fund work on public roads with unbound road surfaces. Public entities that own and maintain public roads in Arkansas that are open to public vehicle travel at least eight (8) consecutive weeks a year are eligible to apply for the grants. Counties are the primary applicants for funding, but other unincorporated areas with public, unpaved roads can also apply for funding if the entity has capacity to implement and manage a grant. Each year, the Legislature has appropriated \$300,000 for the program to date. NRD has also supplemented the AURP the last few years with federal 319(h) dollars from fiscal years 2019-2021.

In FY 2023, a record 15 counties submitted applications requesting funding in the amount of \$936,208. Thirteen of the applications were deemed eligible and selected for funding (\$904,510). This increased demand for AURP funds is a result of increased marketing of the program by NRD staff. Three of the projects were completed in FY 2023. During the year, 46 people participated in one of two environmentally sensitive maintenance (ESM) trainings that were held through the

AURP. One training was held in Forrest City, while the other was held near Russellville. Applicants must have someone on staff who has received ESM training to be eligible to apply for AURP funds.

2023

Calhoun County (\$75,000- AURP; \$14,476- 319(h))

This project on County Road 38 replaced failing culverts with a double 4X8 40-foot box culvert, elevated .25 mile of roadbed by two feet, and stabilized slopes by placing fabric and rip-rap.



Calhoun County Pre-Implementation



Calhoun County Post-Implementation

Johnson County (\$97,610 319(h))

This project on County Road 4220 replaced a low water crossing that routinely flooded and was eroding the road base on either side with a free span crossing.



Johnson County Pre-Implementation



Johnson County Post-Implementation

Pope County (\$25,623 319(h))

This project raised the road profile by at least 12 inches, installed 36-inch cross pipes to reduce failing pipes and armor them with large rock, re-established ditches, armored head, and tail walls of pipes.

2023



Pope County Pre-Implementation



Pope County Post-Implementation

Benton County (\$148,023 319(h))

This project will raise the roadbed by two feet over a length of 220 linear feet, re-establish ditches and add ditch checks to slow water velocity, and replace undersized 18-inch culverts with low water slab.

<u>Conway County (\$96,305 319(h))</u>

This project will alleviate road base erosion by installing a 25-foot bottomless culvert where water flows across the roadway during rain events.

Fulton County (\$16,729 AURP)

This project improved a low water crossing by adding additional water conveyance capacity and extending the crossing to tie into bedrock on either side to reduce erosion around the ends of the structure. The project added a new 24-inch round culvert, replaced an unserviceable 24-inch culvert to convey water under the road, repaired ditches, and added rock to add scour to the ditch bottom to slow flows.

Greene County (\$28,806 AURP)

This project will replace a failing and undersized round culvert with a 40-foot arch culvert. The new culvert will convey water more efficiently, preventing the road from overtopping and eroding the roadbed. The project also establishes roadside ditches with check dams.

Hot Spring County (\$75,806 AURP; \$26,500 319(h))

This project will elevate over 1,000 feet of road by 18 inches, replace undersized and failing round culvert with a 5x3 foot concrete box culvert, and replace failing free span with a longer 60-foot concrete free span.

Poinsett County (\$72,190 AURP)

This project replaced a failing wooden bridge with a longer and wider (24X60 foot) concrete free span, widened the roadway, and armored ditches on either side of the bridge.

Polk County (\$5,083 AURP; \$69,917 319(h))

This project will replace a vented ford low water crossing with prefabricated 30-foot concrete arch crossing. Drainage ditches will also be re-shaped and check dams added to slow flow.

Searcy County (\$51,056 319(h))

This project will add seven cross pipes along 1.5 miles to help slow and convey water to natural drains along the Buffalo River. The length of the roadway will also be raised by an average of six inches.

Sharp County (\$27,192 AURP)

This project will install three new cross pipes for better drainage. Wing ditches will be installed, existing ditches will be cleaned and reshaped, and grade break installed. This project will raise 2,800 feet of road by 10 inches to improve roadbed.

Washington County (\$75,000 319(h))

This project will replace a vented ford low water crossing with a free span crossing. Drainage ditches will also be re-shaped and check dams added to slow flow.

4. Best Management Practice Demonstration Projects

Best management practice (BMP) demonstration projects are an integral part of getting conservation on the ground and having an immediate impact on the reduction of nonpoint source (NPS) pollution. For FY 2023, the Arkansas 319(h) program worked with several partners implementing various BMP-focused projects around the state.

BMPs are a way for physical implementation to reduce NPS pollution while garnishing a pathway for education and outreach. Many landowners have learned how they can impact and improve their watersheds through this program. Several counties have incorporated field days, county fairs, and small conferences to educate the public on the importance of healthy watersheds and NPS pollution caused by agriculture. The Arkansas NPS Pollution Management Program also helps landowners implement BMPs who would not have been able to otherwise. All participating counties are in underserved communities and meet the U.S. Environmental Protection Agency's environmental justice criteria. The most common BMPs include fencing, ponds, and brush management.

Project #	Project Title	County/Watershed	FY23 Total Federal Spent	
10,600	Boone County Crooked Creek	Boone / Crooked	\$1 270 01	
19-000	Project	Creek	Ş4,570.04	
20.200	Bull Shoals/ White River	Baxter / Bull Shoals	¢16 075 04	
20-300	Watershed Project	White River	\$10,275.34	
20-400	Buffalo Watershed Project	Marion / Buffalo River	\$7,827.95	
21 600	Southfork Spring River	Fulton / South Fork		
21-600	Watershed Project	Spring River	\$52,545.00	
21-700	Buffalo River Tributary Project	Searcy / Buffalo River	\$24,005.60	
22.200	L'Anguille River Watershed	St. Francis / L'Anguille	607 147 70	
22-200	Project	River	ŞZ7,147.70	

Below are some of the partners and projects that have or are currently implementing BMPs throughout various watersheds in the state:

Best Management Practices Implemented in FY 2023

The table below contains BMPs that have been implemented during FY 2023 and the quantity of each practice.

Demonstration Projects								
BMPs	NRCS #	19-600	20-300	20-400	21-600	21-700	22-200	Total
Brush Management (ac)	314		297	115	341			753
Cover Crop (ac)	340						268	268
Fencing (ft)	382	1830	2760	3594	11990			20174
Heavy Use Area (ind. units)	561				1			1
Herbaceous Weed Treatment (ac)	315				1253.5			1253.5
Irrigation Pipeline (ft)	430						2341	2341
Livestock Pipeline (ft)	516				30			30
Pasture Planting (ac)	512		12		44	8.2		64.2
Pond (cu. yds)	378					7137.5		7137.5
Structure for Water Control (ind. units)	587						1	1
Watering Facility (ind. units)	614		4		1			5

5. Arkansas Nutrient Reduction Strategy

Background

Arkansas, along with 11 other states within the Mississippi River Basin, voluntarily participates in the Mississippi River/Gulf of Mexico Hypoxia Task Force. The task force was established in 1997 by the U.S. Environmental Protection Agency (EPA) to understand the causes and effects of eutrophication in the Gulf of Mexico; coordinate activities to reduce the size, severity, and duration; and mitigate the effects of hypoxia. Arkansas, represented by the Natural Resources Division, has been involved in the task force since 1999.

The EPA, in conjunction with the task force, released an updated Gulf Hypoxia Action Plan in 2008 that set a goal to reduce nutrients to the Gulf of Mexico by 45% of baseline levels (1980-1996) by 2035 with an interim goal of 20% by 2025. As a result of the action plan, Arkansas developed an Arkansas Nutrient Reduction Strategy (ANRS) to help meet those goals.

The ANRS was released in 2014 and guides the state in reducing excess nutrients in waters so that in-state and downstream water quality goals are ultimately met. The ANRS specifically guides activities that support nitrogen and phosphorus reductions from point and nonpoint

sources of pollution. In 2018, a stakeholder process was initiated to update and revise the ANRS. The updated ANRS focuses on establishing a new method of measuring overall progress, targeting watersheds, and reporting nutrient reductions from nonpoint sources.

2023

In 2021, with assistance from a Mississippi River/Gulf of Mexico Hypoxia Task Force grant, the <u>Arkansas Water Resource Center</u> (AWRC) used nearly 30 years of available water quality monitoring data to analyze watershed and site-specific trends statewide and assign nutrient reduction priorities using a four-tiered framework:

- Tier 1 Maximum focus on nutrient reduction; based on sufficient data
- Tier 2 Focus on nutrient reduction activities; needs more monitoring
- Tier 3 Less focus for nutrient reduction activities; needs more monitoring
- Tier 4 Least focus for nutrient reduction activities; sufficient monitoring in place



Figure 1: 2022 ANRS Four Tiers of HUC-8 Watersheds

2022 ANRS Update

In early 2022, Arkansas was awarded an EPA Task Order that made the ANRS more visually appealing and developed a fact sheet. In 2022, a draft of the ANRS went out for stakeholder

and public comment. A few changes were made, and now the 2022 ANRS update is finalized and available at <u>agriculture.arkansas.gov/natural-resources/divisions/water-</u><u>management/arkansas-nutrient-reduction-strategy/</u>.

Septic Remediation Pilot Program

In many rural areas throughout Arkansas, residential wastewater is treated using septic systems. Inadequate or poorly maintained septic systems are often ineffective and can leak nutrients such as nitrogen and phosphorus. Arkansas has a Septic Remediation Pilot Program to help homeowners replace old, failing septic systems. The program started in 2021 with two watersheds: the Beaver Reservoir Watershed and the Illinois River Watershed. In 2022, the Buffalo River Watershed was added. These watersheds in northwest Arkansas are a priority for the state of Arkansas. The Illinois River and Beaver Reservoir are both in Arkansas's Nutrient Surplus Area, included as priority watersheds for the 2018-2023 Nonpoint Source Pollution Management Plan, and are Tier 1 and Tier 2 nutrient reduction watersheds, respectively.

The Septic Remediation Pilot Program offers financial assistance in the form of a grant and/or loan to qualifying homeowners in the targeted watersheds. Funding is only for repair or replacement of an existing septic system as determined by the Arkansas Department of Health. Grant assistance is based on a sliding income scale of the homeowner. Grants are paired with a no interest loan up to a 10-year term. For instance, an income level less than \$20,828 receives 90% grant funding and a 10% loan, and an income level between \$62,486 – \$83,314 receives 10% grant funding and a 90% loan. There is also a 0% interest loan for all income levels above \$83,315 that is available. Financial assistance to homeowners does not exceed \$30,000 with funding usually between \$5,000 and \$10,000 per failing septic tank. Local watershed management organizations oversee applicant eligibility, review applications, and ensure proper installation of septic systems.

Tracking Best Management Practice Implementation

The Arkansas Nutrient Reduction Tracking Framework tracks reductions in nutrient losses from the implementation of best management practices (BMPs) on agricultural lands. The framework consists of three elements:

- Collecting information on BMP implementation on agricultural lands in Arkansas
- Estimating nutrient loads from Arkansas hydrologic unit code (HUC)-8 watersheds
- Reporting BMP implementation and nutrient load changes for Arkansas HUC-8 watersheds

In 2023, the framework was completed and displayed as an interactive dashboard known as the Arkansas Nutrient Reduction Viewer for the public to use at <u>agriculture.arkansas.gov/natural-resources/divisions/water-management/arkansas-nutrient-reduction-strategy/</u>.

Arkansas has been working with the <u>Great Lakes to Gulf Virtual Observatory</u> (GLTG) for an Arkansas Data Portal within GLTG. GLTG is an interactive application that provides user-friendly access to water quality information about the Mississippi River and its tributaries. GLTG helps people visualize and better understand nutrient pollution and its potential causes. The Arkansas Data Portal is based on water quality data compiled by the AWRC that was analyzed for the 2022 ANRS update.

The Arkansas Data Portal went live in late 2022 and has three layers available:

- Site-Level Trends Analysis
- Aggregated HUC-8 Trend Analysis
- Water Quality Stations & Data Availability

Workgroups

ANRS stakeholders were asked to participate in workgroups. The workgroups formed in late 2022 and concluded meetings in November of 2023 to work on specific needs of the ANRS. These workgroups and their main objectives were:

Communication (Outreach & Education) Objectives:

- 1. Enhance communication, specifically to engage partners and stakeholders in watersheds
- 2. Review outreach and education strategies
- 3. Make recommendations for communication strategies
- 4. Other objectives and strategies as developed by the workgroup that enhance or advance the ANRS

Innovation (Science & Research) Objectives:

- 1. Provide insight on effectiveness of nutrient reduction activities and programs
- 2. Develop monitoring priorities in Tier 2 watersheds
- 3. Make recommendations for new studies and/or practices
- 4. Other objectives and strategies as developed by the workgroup that enhance or advance the ANRS

Gulf Hypoxia Program

Arkansas's Gulf Hypoxia Program (GHP) workplan focuses on implementation of the goals of the ANRS. The three main goals of the ANRS are:

1. Increase or maintain downward trends for Tier 1 watersheds

- 2. Enhance water quality monitoring to inform nutrient trends for Tier 2 watersheds
- 3. Continue efforts in all watersheds

Arkansas's GHP projects focus on water quality monitoring and conservation practices of Tier 1 and Tier 2 watersheds. The Upper Cache River Watershed is a focus for nutrient reduction and increased monitoring. The watershed is highly channelized and is dominated by row crop agriculture. It has few remaining wetlands which creates a challenge to control sediment and nutrients. During a previous monitoring project, sites were identified as 'hot spots' with consistently high nutrient and sediment concentrations.

In 2023, GHP funding began supporting water quality monitoring efforts in the Upper Cache River Watershed by gathering preliminary data prior to two-stage ditch construction proposed for nutrient reduction. GHP funding will be used to support water quality monitoring and implementation of two-stage ditches in the Upper Cache River Watershed over the next three years.

Two-stage ditches are drainage ditches that have been modified by adding benches that serve as floodplains within the overall channel. The benches function as wetlands during certain times of the year which reduces ditch nutrient loads and have been documented to reduce nutrient and sediment loads upwards of 50%. The restoration of this beneficial natural process within the Upper Cache River Watershed will provide the drainage capacity necessary for agricultural production, as well as the water quality benefits in reducing nutrients and sediments.

In collaboration with the University of Arkansas System Division of Agriculture Cooperative Extension Service, Arkansas is using GHP funding for strategic outreach and education efforts. Aligned with the ANRS, education and outreach targets priority watersheds for reducing nitrogen and phosphorus in the state (Tier 1 watersheds). The Arkansas Watershed Stewardship Program and the Tap Your Potential for farmers will provide more education and outreach about nutrient reduction in Arkansas waters. Both programs aim to empower citizens and farmers as watershed leaders.

The ANRS will need to continually be improved and refined based on new information and input from stakeholders, scientists, and key partners. The ANRS will be evaluated and updated periodically using the process of adaptive management. The ANRS efforts will help us meet the overall task force goal of reducing nutrients to the Gulf of Mexico.

6. Update on the Buffalo River

Background

The Buffalo River, located in Northern Arkansas, was the first national river to be designated in the United States. The Buffalo River is 153 miles (246 kilometers) long. The lower 135 miles (217 kilometers) flow within the boundaries of an area managed by the National Park Service, where the stream is designated the Buffalo National River. The river flows through Newton, Searcy, Marion, and Baxter counties, from west to east. The Buffalo



River Conservation Committee (BRCC) is tasked with implementing the management plan. The committee members are responsible for creating subcommittees to lead the Buffalo River management plan process.

Update

The BRCC has been actively meeting, assessing, and discussing issues within the Buffalo River Watershed, including unpaved roads. The Natural Resources Division (NRD), Arkansas Unpaved Roads Program, and The Nature Conservancy staff held two meetings with BRCC representatives in early 2020 to assess and select unpaved road projects in the watershed. The Unpaved Roads subcommittee selected two sites for funding consideration. Those sites were in Searcy County (Cane Branch Road) and Newton County (Cave Mountain Road). The BRCC moved forward and approved the two sites. For the Newton County site, an environmental assessment (EA) was completed prior to construction as most of the road traverses through the National Park Service as well as concerns for the protection of the federally endangered gray bat. The completed EA resulted in a Finding of No Significant Impact (FONSI).

A summary and status report for each funded project is provided below:

• Cane Branch Road, Searcy County: \$231,935

The BRCC approved \$231,935 for the Cane Branch Road project, an unpaved road project in Searcy County that includes the installation of cross pipes, ditch reshaping, water diversion, and grade breaks over 7/10 of a mile to reduce road erosion and the resulting transport of sediment and stone. Ditch runoff from the project site directly impacts the Buffalo River. NRD pledged \$55,132 for the project from the federal Nonpoint Source Management Program.

In November 2020, \$124,806 was disbursed to Searcy County to begin work on the

Cane Branch Road project. A construction bid was awarded in April 2021 and the project was completed in October 2022. The final site inspection occurred on October 21 and all remaining funding was disbursed.

• Cave Mountain Road (Hawksbill Crag), Newton County: \$376,496

The BRCC approved \$376,496 for the Cave Mountain Road project, a two-mile unpaved road project on one of the most heavily trafficked roads in the Buffalo River Watershed due to the popularity of Hawksbill Crag as a tourist destination. The project includes the removal of trees, installation of cross pipes, enhancement of the road base, and installation of guard rails. NRD pledged \$55,131 for the project from the federal Nonpoint Source Management Program.

Tree removal and disposal began on the Cave Mountain Road project in the fall of 2020 but was temporarily paused until completion of an EA that was required by the National Environmental Policy Act because the road crosses National Park Service property. The National Park Service announced on August 19, 2022, a FONSI after completion of the EA. The FONSI still carries construction stipulations to avoid disturbance of endangered species. The first disbursement of funds totaling \$215,814 were distributed to Newton County on November 1, 2022.

Other Projects in Buffalo River Watershed

In addition to the projects funded by the BRCC, many other important projects and activities within the BRCC's four focus areas were conducted by subcommittee members, partners, and stakeholders within the Buffalo River Watershed in 2022. An update on a few of these projects and activities is provided below.

Unpaved Roads

Additional projects implemented in support of the implementation of the Buffalo River Watershed Management Plan include:

- Richland Road Unpaved Road Project in Searcy County
 In 2020, Searcy County was selected to receive funding of \$47,408 through the
 traditional Arkansas Unpaved Roads Program for improvements to a portion of Richland
 Road. Searcy County committed to providing \$53,380 in matching funds for the project.
 This project was completed in October 2022.
- Cave Creek in Newton County

Two projects on Cave Creek were funded and initiated with federal assistance from the NRD. The first project was a nonpoint source pollution grant awarded to The Nature Conservancy for unpaved road improvements throughout the state. A project was selected in conjunction with the Arkansas Game and Fish Commission (AGFC) to improve County Road 4269 in Gene Rush Wildlife Management Area. The Nature Conservancy sub-awarded \$100,000 to Newton County for construction of a 100-foot

span that will replace undersized culverts. Newton County will provide over \$150,000 of cash and in-kind costs. The AGFC is providing \$30,000 towards the project due to inflated material costs.

The second project is an agreement between NRD and Newton County to improve access and road conditions at County Road 5070. The project will entail replacing undersized culverts with a 28-foot-wide by 100-foot-long span and improving unpaved approaches. Newton County will provide \$176,847 to match the NRD's \$140,346 of federal funds. An initial disbursement of \$70,173 was sent to Newton County on November 1, 2022.

Cost-Share Programs for Agriculture

Additional projects implemented in support of the implementation of the Buffalo River Watershed Management Plan include:

• Arkansas Nonpoint Source Pollution Grant Sub-Award 19-500 Buffalo River Water Quality Monitoring:

The primary objective of this project is to measure the following water quality parameters (total suspended solids, turbidity, dissolved oxygen, pH, nitrate, nitrite, orthophosphate, total nitrogen, total phosphorus) in the Calf Creek (110100050401), Brush Creek (110100050405), Tomahawk Creek (110100050407), and Bears Outlet Creek (110100050404) sub-watersheds as these are part of the Buffalo National River and are recognized as an Extraordinary Resource Waterway and were identified in the Buffalo River Watershed Management Plan. Arkansas State University was awarded \$386,322 of federal funding and provided \$301,898 in match for a project total of \$688,220.

• Arkansas Nonpoint Source Pollution Grant Sub-Award 20-400 Crooked Creek Conservation District: Buffalo River Watershed Project:

The primary objective of this project is to maintain or restore all designated uses of the Buffalo River Watershed by:

- 1. Implementing a program that will bring voluntary participation of landowners and land users in the application of the necessary best management practices (BMPs).
- 2. Implementing 200 conservation plans on 61,000 acres of pastureland and 7.25 miles of stream bank protection in the Buffalo River Watershed. Conservation planning and cost sharing of applied BMPs will result in the establishment of vegetative cover on the pastureland and the maintenance and protection of riparian areas by fencing cattle from streams in the watershed.
- 3. Installing rain gardens to demonstrate how runoff can be reduced by using different methods and materials such as grasses, native plants, perennial flowers, etc. Total

project cost is \$459,500, of which \$256,000 are federal funds and is being matched by \$203,500 of district and landowner contributions.

• Arkansas Nonpoint Source Pollution Grant Sub-Award 21-700 Buffalo Conservation District: Buffalo River Tributary Project:

The primary objective of this project is to implement a program that will encourage voluntary participation of landowners and operators in applying BMPs within sub-watersheds (11010005) that contain or feed the Buffalo River. The goal is to see the implementation of BMPs on 70,731 acres of pastureland within these waterways resulting in a reduction of nutrients, sediment, and bacteria entering waterways by establishing alternative water sources and filter strips; nutrient management and intensive grazing systems in pastures; and protection of riparian areas through livestock exclusion fencing.

The NRD awarded \$62,857 of federal funds to the district's \$2,876. Additionally, \$75,000 of federal funds were awarded to match \$112,500 of landowner contributions for conservation practice cost share. The total project cost is \$253,233.

7. Watershed Management Plans

Nine-element watershed management plans (WMP) were developed in a cooperative effort between the Natural Resources Division and local watershed stakeholders. The goal of developing WMPs is to preserve, protect, and enhance resources and surface waters throughout the state. A watershed approach considers the entire geographic area in which a watercourse drains on an 8-digit hydrologic unit scale (HUC) to address a broad range of issues.

Poteau River Watershed Management Plan

The goal of this project was to develop a nine-element WMP on the Poteau River and its major tributaries in Arkansas. The WMP includes identification of critical sub-watersheds at a small scale (12-digit HUC and smaller) and ranked implementation measures to reduce nonpoint source pollution loading from key areas. The Poteau River is a priority watershed in Arkansas and is listed on the Arkansas 303(d) list for nutrients and metals. The project also includes a community involvement task that will be used to educate the community and acquire watershed information and gain support for WMP implementation, and a task designed to address funding for WMP implementation. The WMP will ultimately be used by the City of Waldron and its partners to direct watershed protection activities and watershed restoration activities with the goal being reduction of pollutant loading and protection of the watershed into the future. The Poteau River WMP was accepted by the U.S. Environmental Protection Agency (EPA) in February 2023.

Little Red River Watershed Management Plan

This project consisted of two main phases. Phase 1 included development and application of a Soil and Water Assessment Tool (SWAT) model for the Little Red River Watershed for subwatersheds on a 12-digit HUC scale to be prioritized to assist in developing nonpoint source (NPS) investment strategies that will have the greatest impact on water quality objectives. The objective of Phase 2 of this project was to prepare a nine-element watershed-based plan for the Little Red River Watershed, while cultivating local support for the plan and its implementation. The objectives are planned steps toward the goals of prioritizing potential projects and reducing pollutants to levels that will maintain the designated uses of the waterbodies within the Little Red River watershed. The Little Red River WMP was accepted by EPA in May 2023.

Lake Conway Point Remove Watershed Management Plan

With this project, a nine-element WMP for the Lake Conway Point Remove Watershed in central Arkansas is to be developed. The plan will include ranked management measures and identification of critical sub-watersheds for best management practice (BMP) implementation. The Lake Conway Point Remove Watershed Alliance will coordinate and complete the activities of the project. There will be educational and outreach components to this project for watershed stakeholders.

White Oak Bayou Watershed Assessment and Management Planning

Monitoring, assessment, and management planning on the White Oak Bayou system in central Arkansas will be completed and used to develop a SWAT model and a nine-element WMP. The White Oak Bayou is listed on the Arkansas 303(d) list for dissolved oxygen, pH, copper, and lead. Data collected during this project will be used by the City of Maumelle, the White Oak Bayou Wetlands Conservancy, and its partners to identify the main nonpoint sources, develop an approach to address them, and prepare a nine-element WMP.

Lower Ouachita – Smackover Watershed Management Plan

The objective of the project is the development of a nine-element WMP for the Lower Ouachita – Smackover watershed. A key component of the assessment in this project will be the development and use of a SWAT model. NPS assessment efforts will focus on identification of critical HUC-12 NPS's, and the load contribution and their impact in the watershed. The watershed will be evaluated to determine where effective BMPs and storm water treatment could be implemented to reduce pollutants from stormwater and erosion to the system. Data collected during this project will be used in development of a SWAT model and a nine-element WMP for the overall HUC-8 and priority HUC-12s. The estimated completion date is June 2024.

Lower Arkansas-Maumelle Watershed Management Plan

The goal of the project is to collect sufficient data over a three-year period that can be used to develop a SWAT model for the development of a nine-element WMP for the Lower Arkansas-

Maumelle HUC-8 watershed. Collection of physio-chemical data from the major HUC-12 drainages in the watershed will be competed bi-monthly for three years in an effort to quantify loading of key pollutants (those affecting oxygen such as nutrients and turbidity (sediment) and metals) in the HUC-8 watershed and delineate possible sources of the pollutants. This data will be used along with historical data collected by various entities and agencies from various locations in the HUC-8 watershed. The WMP will ultimately be used to direct watershed protection activities and watershed restoration activities with the goal being reduction of pollutant loading and protection of the watershed. This project is expected to be completed in April 2025.

Upper Illinois River Watershed Management Plan

This project is developing an updated SWAT model and an updated nine-element WMP in the Upper Illinois River Watershed. This watershed is in Northwest Arkansas which is currently undergoing rapid urbanization and growth within the last decade. Based on a study involving multi-year monitoring of streambank degradation at 15 sites in the Illinois River Watershed in Arkansas, the Illinois River Watershed Partnership (IRWP) estimates that streambank erosion contributes over 100,000 tons of sediment per year and approximately 54% of the annual phosphorus load of the Illinois River Watershed within Arkansas (Illinois River Watershed Partnership 2022). The Upper Illinois River Watershed is a priority watershed in Arkansas and according to the 2018 Arkansas 303(d) listing, has over 30 miles of streams that are not meeting water quality standards. The SWAT model was calibrated in 2022 and will be finalized in 2023. The first stakeholder meeting to develop a WMP for the Illinois River Watershed was held jointly with the Oklahoma Conservation Commission in Siloam Springs in October 2022. The second stakeholder meeting was planned for January 2023, but had to be rescheduled for May 2023 due to a snowstorm. A third stakeholder meeting occurred in August 2023. A fourth stakeholder meeting will likely be held early in 2024. Since the stakeholder meetings are a joint venture between Oklahoma and Arkansas, it has been a slower process to arrange meetings. The project is on track to be finished by the end of September 2024.

Upper White River Watershed Management Plan

The objective of this project is to prepare an EPA-accepted nine-element WMP for the Upper White River Watershed, while developing local support for the plan and its implementation. This project is intended to follow the SWAT model development for this watershed. These are planned steps toward the goals of prioritizing potential projects and reducing pollutants to levels that will maintain the designated uses of the waterbodies within the Upper White River Watershed. The WMP will ultimately be used to direct watershed protection activities and watershed restoration activities with the goal being reduction of pollutant loading and protection of the watershed. This project is expected to be completed in March 2024.

8. Federal Resource Allocation and Best Management Practices (BMPs)

Program Expenditures for Fiscal Year 2023

The Arkansas Nonpoint Source (NPS) Pollution Management Program allocates most of its Clean Water Act 319(h) funds to its partners who plan to implement projects in priority watersheds that best meet the goals and milestones of the program. These partners must be capable of carrying out projects and are typically required to provide a minimum of 43% match in non-federal funds. In fiscal year (FY) 2023, the Natural Resources Division (NRD) sub-awarded partner funding of \$3.3 million in federal 319(h) funds to address water quality resource concerns and to reduce or prevent NPS pollution.

The chart below shows how federal funds disbursed for projects were allocated among monitoring, planning, outreach, and implementation projects. Best management practice implementation for FY 2022 projects awarded during FY 2023 was at a five year high.



Agricultural Water Quality Loan Program

Supported through Arkansas's State Revolving Loan Program, the Agricultural Water Quality Loan Program was established with a maximum cap of \$25 million in loans to implement NPSrelated practices. In conjunction with local conservation districts and participating lending institutions, agricultural producers and landowners may apply for a low-interest loan for installation of conservation practices. Individual loans are capped at \$250,000 with eligible practices including, but not limited to: construction of tailwater recovery systems, irrigation reservoirs, purchase of no-till drills, construction of stacking sheds, construction of livestock watering ponds or fencing, bank stabilization, and land-leveling. For FY 2023, a total of 12 loans were originated totaling \$1,380,660 and covering over 29,530 acres. Primary NPS practices included the purchase of no-till drills implementing Natural Resources Conservation Service Standard Practice 329 (no-till) and 345 (minimal till). Utilizing the U.S. Environmental Protection Agency Region 5 Spreadsheet Tool for Estimating Pollutant Loads (STEPL), it is estimated that FY 2023 loans implementing no-till or minimal till reduced sediment, phosphorus, and nitrogen loads by an average of 3,724 tons/year, 5,697 lbs./year, and 10,726 lbs./year, respectively. Over the course of FY 2023, 146 active loans remain totaling \$8,678,316 with \$1,444,706 being repaid.

9. Program Success Stories in Fiscal Year 2023

The Natural Resources Division (NRD) submitted a Type 2 success story to the U.S. Environmental Protection Agency (EPA) for review and approval for an FY 2019 project with the City of Conway to install green infrastructure at Markham Square Martin Luther King, Jr. Park. EPA staff have notified NRD that the draft success story is still under EPA review and will be considered for FY 2024.

Problem

The Stone Dam Creek Tributary (SDCT) originates in the City of Conway in Faulkner County. Conway is the seventh largest city in Arkansas and is part of the fast-growing central Arkansas metropolitan area. The SDCT is within the Lake Conway-Point Remove Watershed and is currently a priority watershed in the NRD 2018-2023 Nonpoint Source (NPS) Pollution Management Plan. A FY 2017 319(h) sub-award (17-500) between NRD and the Lake Conway-Point Remove Watershed Alliance collected and analyzed water quality data that identified possible NPS causes in the watershed. Land use and land cover data analyzed in the 17-500 project indicates 83% of SDCT is developed and is one of the most developed tributaries in the Lake Conway Point-Remove Watershed. Industrial pollutants and runoff from residential fertilizers and pesticides are causing SDCT to show signs of eutrophication. Some of the greatest pollutants of concern were found to be sediment, pathogens, and nutrients, which are exacerbated by increased stormwater flood events. The SDCT had highest total phosphorus (mg/L) in sediment samples than any other tributary, finding that there was a 105% increase from SDCT sample to the next highest tributary. The biggest impacts on SDCT were stormwater outfalls, low water bridge crossings, and bank erosion. Once problems were identified in the stream, three goals were established for this project:

- 1. Use green infrastructure and low impact development to reduce nutrients and sedimentation
- 2. Implement nature-based landscape via wetland creation in an environmentally deficient area to reduce the flow of stormwater
- 3. Incorporate environmental justice through a unique public education and recreation space for the community

Project Highlights

Before this project began, Conway recognized that this was a historic brownfield site, which was acquired by the city in 2014 and remediated in June 2021 under the Arkansas Division of Environmental Quality Brownfield Program. There were several site remediation activities that were performed, such as site assessment, soil removal (up to four feet in certain areas), identification of chemicals of potential concern, and disposal of excavated materials. The site was then backfilled with clean soils to stabilize the site and prepared for future projects, such as this one. There were several activities that led to the success of this 319-grant project (19-700). Green infrastructure and low impact development are practices that use soft engineering to create an ecologically based stormwater management approach that also works to reduce urban NPS pollution. One of these activities was permeable paving that was installed to allow water to pass through hardscapes and infiltrate the ground while removing sediment and trapping pollutants. Another activity was vegetated walls that utilize vertical water harvesting to treat water and reduce stormwater runoff loads. Lastly, infiltration basins were installed to create shallow areas with permeable soils that temporarily detain and infiltrate stormwater. The wetland-based landscape activities included multiple rain gardens and bioswales that are vegetated depressions that slow stormwater and trap pollutants through root infiltration. Educational signage was placed at each type of green infrastructure or low impact development to provide information on how they work and the importance of the project design. Conway also created several graphics, social media posts, and educational videos to help promote the park and provide more intricate details of stormwater, NPS pollution, and how the park is remediating these problems. Construction for implementation began in June 2021 and was completed in July 2022.

Partners and Funding

Conway helped bring this project to life and made it a success. Other partners that made this project successful were the Lake Conway-Point Remove Watershed Alliance, the University of Arkansas Community Design Center and Office for Sustainability, and community stakeholders. Conway, with help from the partners listed above, put in \$880,553 of in-kind match for this project to be completed. Prior to beginning 19-700, Conway completed a superfund site that remediated this brownfield site and were awarded a grant for \$200,000. The 17-500 project that indirectly helped identify problems for this project to create goals around was completed by the Lake Conway-Point Remove Watershed Alliance with assistance from the University of Central Arkansas and GBMc & Associates. There were \$599,995 federal 319(h) dollars spent on this project (19-700) to construct most of the green infrastructure.

Results

This project was successful in demonstrating how green infrastructure could be used in an urban setting to reduce NPS pollution and mitigate stormwater. Estimated active load reductions were calculated using the Pollutant Load Estimation Tool (PLET) or the SDCT and found there was a reduction in nitrogen by 41%, phosphorus by 44%, and sediment by 48%. With the constructed infrastructure and native vegetation, the project provided increased water storage and infiltration, erosion control, nutrient cycling, and recreation as well as

ecosystem services. Conway has seen a decrease in flooding in this area due to the successful implementation of the stormwater management practices. Education and outreach components were also very successful in promoting green infrastructure, as demonstrated by results of a survey completed by citizens who have visited the park. An estimated 73% of those surveyed wanted to see more green infrastructure implemented in Conway. Another 63% said they were now more likely to plant native plants after visiting and learning the importance of native vegetation. Finally, this project was a success as it remediated a brownfield site into a unique public education and recreation area within a historically underserved community.

2023



Martin Luther King, Jr. Park in Conway before implementation of green infrastructure.



Martin Luther King, Jr. Park in Conway after implementation of green infrastructure.

10. Other Entities That Augment Section 319(h) Programs and Initiatives

The Arkansas Nonpoint Source (NPS) Pollution Management Program has several partners that work to reduce NPS pollution. Partners consist of, but are not limited to, the United States Department of Agriculture Natural Resources Conservation Service (NRCS), Arkansas Natural Heritage Commission (ANHC), Arkansas Division of Environmental Quality (ADEQ), University of Arkansas System Division of Agriculture Cooperative Extension Service, The Nature Conservancy (TNC), Beaver Watershed Alliance (BWA), Illinois River Watershed Partnership (IRWP), and various other entities. Listed below are a few partners and the implemented projects and programs that have enhanced the mission of the Arkansas NPS Pollution Management Program in FY 2023.

The Nature Conservancy (TNC)

The Nature Conservancy in Arkansas has been working cooperatively with private landowners, businesses, public agencies, and other organizations to conserve and restore the lands and waters of the Natural State for people to enjoy since 1982. Their mission is to conserve the lands and waters on which all life depends. The Nature Conservancy has many areas around

the State where they are improving water quality. In the Mississippi Delta Region, innovative techniques like the use of two-stage ditches are helping to reduce erosion and are improving drainage for farmers. The irrigation well-timer program is now on about 40,000 acres and is annually saving 10 billion gallons of water. In Ozark and Ouachita Interior Highlands, conservation work is focused on restoring streams, reforesting floodplains, and improving unpaved roads to reduce sediment. This year, six unpaved roads and stream crossings projects were completed in Ouachita, Saline, and Newton Counties, including 750 feet of new road built using unpaved roads best management practices and construction of new 100-foot span bridge over Cave Creek to restore aquatic organism passage and reconnect nearly six miles of stream back to the Buffalo River.

The Beaver Watershed Alliance

The Beaver Watershed Alliance (BWA) works to proactively protect, enhance, and sustain the high-water quality of Beaver Lake and its tributaries through voluntary best

management practice implementation, outreach and education, and planning and analysis activities. The BWA focuses on efforts for source water protection to protect Beaver Lake, the regional drinking water supply for over 500,000 people in Northwest Arkansas, or one in five Arkansans. Beaver Lake and its tributaries also serve local industries, farms, and support recreational activities such as boating, fishing, birding, and swimming.

Over the past year, the BWA worked with partners, volunteers, and landowners to further advance the Beaver Lake Watershed Protection Strategy. The following report includes specific





activities that have led to nonpoint source reduction and increased programming within the watershed.

Best Management Practices:

- Installed 960ft² pervious pavers, 1,500ft² of bioswale and improved drainage at the West Fork Library through the Natural Resources Division (NRD) 319(h) grant, "Smart Growth for Source Water Protection."
- Completed designs for four barrier removals along War Eagle Creek, including a span bridge to replace a low water crossing, a farm crossing improvement, and streambank restoration along 11,000 linear feet.
- Worked with US Fish and Wildlife and Arkansas Game and Fish Commission (AGFC) to remove a 12' x 160' dam in War Eagle Creek, reconnecting 5.3 miles of streams. (Four barriers together will reconnect 434 miles).
- Worked with AGFC to collect over 1,000 mussels, including 12 species, from War Eagle Creek to protect, propagate, and reintroduce in the War Eagle after barrier removal.
- Restored 600 linear feet of Clifty Creek a tributary to War Eagle Creek.
- Facilitated implementation of 123 best management practices (BMPs) over 908 acres of land that optimize reduction of sediment and nutrient loading to the watershed, in coordination with landowner BMP workshops and BWA site visits. BMPs include streambank/riparian, ponds, forestry, low-tech erosion control, pasture practices, and urban practices, with urban practices directly related to NRD 319(h) grant, "Smart Growth for Source Water Protection."
- 15,419 pounds of trash was removed.
- BWA staff developed 44 plans for landowners, including wildlife management plans and site assessment plans, covering 2,695 acres.
- Provided technical support to 270 landowners in the Beaver Lake Watershed, 50 of which were urban landowners and a direct result of the NRD 319(h) grant, "Smart Growth for Source Water Protection."
- Removed 62 acres of invasive species through various urban programming and stewardship events with City of Fayetteville and City of Rogers, as part of the NRD 319(h) grant, "Smart Growth for Source Water Protection."
- Installed an innovative floodplain BMP with Watershed Conservation Resource Center, using mounds and depressions to capture stormwater from adjacent urban neighborhood to a floodplain/riparian of the West Fork White River. Total suspended solids reductions are 88%, estimated total nitrogen reductions are 41%, and estimated total phosphorous reductions are 76%. This is a matching project towards the NRD 319 grant, "Smart Growth for Source Water Protection."
- Completed year one of the War Eagle Creek Regional Conservation Partnership Program, obligating \$481,976 for 29 contracts.
- Completed year three of the Natural Resources Conservation Service National Water Quality Initiative Program (NWQI) for Brush Creek/Roberts Creek obligating \$69,434 for five contracts.

Education and Outreach:

- Hosted six forums and six tours on Smart Growth for Source Water Protection with 84 unique attendees and developed a final report on recommendations for the region.
- Created a dashboard on the BWA website to deliver metrics to the public, as well as added interactive maps to the website to explore watershed data.
- Assisted cities with Smart Growth for Source Water Protection objectives and best practice adoption, specifically in the cities of Goshen, West Fork, Elkins, St. Paul, Huntsville, and Pea Ridge.
- Published six podcast episodes about soil and water health made available on "We Are Water" a BWA podcast.
- Surveys were conducted at seven events, with 46 stakeholder responses. Over 75% of stakeholders surveyed reported an increase in awareness of watershed BMPs.
- Developed fact sheets on Smart Growth for Source Water Protection, Urban Riparian Buffers, and internal resources, including a template riparian management plan and stormwater accumulation map capabilities to communicate with landowners.
- Distributed monthly newsletters through E-news reaching 4,000+ stakeholders and distributed triannual mailers to 20,000+ landowners with watershed education and conservation practice information.
- Worked with NRD and partners to develop and distribute success story for West Fork delisting, ex) "EPA Cites Collaborative Effort to Restore West Fork White River in Arkansas."
- Hosted 33 workshops and/or presentations, reaching 1,569 people.

Planning and Analysis:

- In partnership with Arkansas Water Resources Center, conducted water quality monitoring at four locations within the Brush Creek Watershed, in conjunction with the NWQI program for Brush Creek/Roberts Creek.
- Conducted water quality monitoring at two locations through the StreamSmart program, including a Brush Creek site and War Eagle site.
- Developed draft updated Beaver Lake Watershed Protection Strategy and presented it to at least 30 stakeholders and/or decision makers from conservation, education, water utilities, technical and science, business, agriculture, recreation, and local government groups.
- BWA Board sub-committees workshopped through the Watershed Success Metrics framework and have developed 29 key metrics to evaluate for the BWA.
- Adopted the use of the EPA Pollutant Load Estimation Tool.

Additional Partnerships:







WATERSHED CONSERVATION

RESOURCE CENTER





FORESTRY DIVISION



Beaver Water District





DELTA









11. Nonpoint Source Pollution Management Program Milestones

The 2018-2023 Nonpoint Source (NPS) Pollution Management Plan lists short-term programmatic milestones in Appendix D. The milestones listed are applicable to the timeframe of the plan. The goal was to have those applicable milestones achieved or completed by September 30, 2023. In 2023, the Natural Resources Division (NRD) made progress towards all eleven milestones. The Arkansas NPS Pollution Management Program is currently working to develop the draft 2024-2029 NPS Pollution Management Plan with revised milestones.

Best management practice (BMP) implementation projects continue to be vital in meeting several milestones dealing with load reductions and the Grants Reporting and Tracking System (GRTS) database. These implementation projects produce tangible loads that can be measured and entered into the GRTS database. Implementation projects are a priority to the Arkansas NPS Pollution Management Program because they have the opportunity of getting the quickest results and load reductions.

Water quality monitoring projects in priority watersheds are still conducted to inform the status of priority watersheds and the impact that BMP implementation is making around the state. Many of these projects are continuations of previous projects that have several years of data that can inform trend analysis. Data from these baseline monitoring projects are submitted to the Arkansas Division of Environmental Quality (ADEQ) and are used for Clean Water Act (CWA) assessments and development of the integrated water quality report and impaired waterbodies list.

The adaptive management process will continue to be used to adjust objectives and to measure progress toward identified short-term milestones. Project partners meet, as applicable, and review progress toward project objectives and established program milestones. The NRD will continue to review milestones, track progress toward meeting milestones, and discuss possible additions, deletions and/or revisions, as appropriate.

The NRD and the U.S. Environmental Protection Agency (EPA) recognize the achievement of goals and milestones are subject to potential changes in national funding levels, environmental and weather-related factors, the national economic climate, and other variables beyond the control of the state. EPA and the state must also recognize that changes to the goals and milestones can be influenced by revisions to national EPA guidance. Because of these possible changing factors, Arkansas will re-evaluate and update applicable goals and milestones of the plan. This adaptive management approach enables the state to make appropriate modifications to the management program for the continuation of attaining satisfactory progress.

1. Update the qualitative risk assessment matrix after ADEQ releases the impaired waters list and it is accepted by EPA. Priority watersheds will be evaluated and updated after the qualitative risk assessment matrix is updated. FTN & Associates, Ltd. completed the update of the Arkansas NPS Pollution Watershed Risk Matrix on July 18, 2022, using information from the final 2018 303(d) List of Impaired Waterbodies (303(d) List). While completed outside the federal FY 2023 window, the results of the updated risk matrix will be incorporated in the 2024-2029 Arkansas NPS Pollution Management Plan and meet milestones for 2018-2023.

2023

The following table compares the watersheds in the top quintile for the 2010 and current risk matrices:

Percentile	2010 risk matrix	2022 risk matrix		
ranking	HUC-8 name and ID	Score	HUC-8 name and ID	Score
100.0	Beaver Reservoir (11010001)	839.0	Beaver Reservoir (11010001)	876.5
98.3	Poteau (1110105)	725.0	Lower Little AR, OK (11140109)	811.2
96.6	Bayou Bartholomew (08040205)	707.2	Little Red (11010014)	810.1
94.8	Illinois (11110103)	650.3	Lake Conway-Point Remove (11110203)	798.6
93.1	Ouachita Headwaters (08040101)	640.7	Illinois (11110103)	777.3
91.4	Lake Conway-Point Remove (11110203)	620.7	Ouachita Headwaters (08040101)	770.4
89.7	Upper Ouachita (08040102)	616.6	Bayou Bartholomew (08040205)	752.7
87.9	Upper Saline (08040203)	566.1	Middle White (11010004)	750.8
86.2	Cache (08020302)	564.3	Poteau (1110105)	749.5
84.5	L'Anguille (08020205)	564.3	Cadron (11110205)	741.3
82.8	Strawberry (11010012)	555.3	Lower White-Bayou Des Arc (08020301)	724.5
81.0	Lower Ouachita-Smackover (08040201)	546.9	Lower Saline (08040204)	724.2

*Note: Watersheds listed in orange text dropped out of the top quintile from 2010 to 2022, while watersheds listed in green text moved into the top quintile.

2. Continue to conduct strategic baseline monitoring in selected high priority 12-digit hydrologic unit code (HUC) watersheds to assist in the development of watershed-based plans. The NRD anticipates three to four priority watersheds will have baseline monitoring over the life of the plan.

The following water quality monitoring projects took place in FY2023:

19-300: Buffalo River Watershed Monitoring- Named the first national river in the United States and designated as an Extraordinary Resource Waterway by ADEQ in 2008, the Buffalo River offers year-round recreation opportunity, supports local economies through tourism, and provides quality habitat for wildlife. However, parts of the watershed have been impaired due to total dissolved solids, dissolved oxygen, and temperature. The Arkansas State University (ASU) Ecotoxicology Research Facility is monitoring multiple physical and chemical water quality parameters in eight sites across four sub-watersheds (12-digit HUCs). The four monitored sub-watersheds are Calf Creek, Brush Creek, Tomahawk Creek, and Bears Outlet Creek.

19-400: Middle White River Monitoring- The Middle White River spans multiple ecoregions, transitioning from the Ozark Highlands down to the Delta. The watershed sees transitional land uses, moving from majority pastureland to row crop agriculture. The ASU Ecotoxicology Research Facility is monitoring four sub-watersheds (12-digit HUCs) in this transitional zone of the Middle White Watershed, including Greenbriar Creek, Spring/Sprint Creek, Lower Salado Creek, and Miller Creek.

19-900: Water Quality Monitoring for the Lake Conway Point-Remove Watershed- Spanning seven counties including Conway, Faulkner, Perry, Pope, Pulaski, Van Buren, and Yell, the Lake Conway Point-Remove Watershed includes several streams listed as impaired on ADEQ's 2016 303(d) List. Categories of impairments vary, ranging from pH and dissolved oxygen to ammonia-nitrogen and turbidity. Equilibrium Inc. collects, analyzes, and reports water quality and discharge data within seven streams at 10 sites across the watershed.

20-1000: Water Quality Monitoring for Upper Saline Watershed- Comprised of the South Fork, North Fork, Middle Fork, and Alum Fork, the Upper Saline River Watershed has seen significant urban growth in the last several years. Three streams and two lakes have been listed as impaired on the 2016 303(d) List. Additionally, the watershed provides habitat for 33 federally endangered and/or species of greatest conservation concern (SGCNs). Several sites are being monitored by Equilibrium Inc.

21-400: Lower Arkansas-Maumelle HUC-8 Monitoring and Assessment- In cooperation with multiple partners, Audubon Arkansas is collecting monitoring data on the Lower Arkansas-Maumelle HUC-8 Watershed. This project will represent Phase I of II of a larger effort to develop a SWAT model and EPA 9-Element Watershed Management Plan for the watershed. The watershed drains into the Arkansas River and encompasses most of Pulaski County and portions of Saline, Perry, and Jefferson Counties. The two HUC-12 sub-watersheds of interest are Fourche Creek and the Maumelle River, which feeds into Lake Maumelle. Fourche Creek, dominated by urban land use, is listed on the ADEQ 2018 303(d) List for metals, fecal coliform, sediment, and dissolved oxygen. Other significant land uses within the watershed are agriculture (row crops) and forest.

21-1000: Water Quality Monitoring for the Lower Ouachita-Smackover Watershed- Primarily rural and forested, the Lower Ouachita-Smackover Watershed has 21 segments listed in the ADEQ 2018 303(d) List. Contaminants include chloride, copper, lead, mercury, nitrates, sulfates, and total dissolved solids, with inadequate levels of pH, dissolved oxygen, and turbidity. The sources of pollution are unknown. Equilibrium Inc. is monitoring water quality in 10 sub-watersheds (12-digit HUCs), including, but not limited to, Mill Creek-Smackover Creek, Sloan Creek, Gum Creek, Black Lake, and Dry Branch-Champagnolle Creek. A total of 2,241 samples will be generated over the grant cycle.

21-1200: North Fork White River Watershed Monitoring- According to ADEQ's 303(d) List, several major tributaries of the North Fork White River Watershed are not adequate for supporting aquatic life or primary contact. Impairments in the watershed include total dissolved solids, nitrate levels, and low dissolved oxygen. The ASU Ecotoxicology Research Facility is monitoring for multiple water quality parameters in six sub-watersheds (12-digit HUCs) including Outlet Big Creek, Outlet Big Creek tributary, South Brushy Creek-Norfolk Lake, Outlet Bennetts River, Little Creek, and Bennetts Bayou.

21-1300: Eleven Point River Watershed Monitoring- Thirty-three miles of the Eleven Point River are classified as impaired due to low dissolved oxygen and therefore not supportive of aquatic life, according to ADEQ's 303(d) List. Agricultural activities in the area have been identified as the source of pollution. Like the monitoring project described above, ASU is monitoring for multiple water quality parameters in four sub-watersheds (12-digit HUCs), including Dry Creek, Eassis Creek, Thompson Creek, and Hubble Creek.

22-800: Water Quality Monitoring in the Upper Illinois River Watershed and Upper White River Basin- Land use in both the Illinois River and Upper White River Basin (also known as Beaver Reservoir) watersheds have drastically changed in the past couple of decades. Much of what once was pasture and forest is being converted into an urban landscape. Both watersheds also flow into neighboring states of Oklahoma and Missouri, respectively, and are therefore the subject of trans-boundary water quality issues. Therefore, monitoring in these two watersheds is critical to understanding how land use changes are affecting water quality and identifying issues early on. The Arkansas Water Resource Center is conducting water quality monitoring and data analysis across a total of 15 sites across both watersheds.

3. Continue to employ a review process of select (a minimum of three) NPS projects funded with Clean Water Act 319(h) grants aimed at improving project effectiveness. The review results will be reported annually in the NPS annual report.

The NRD has employed a review process with several projects in 2023. Demonstration projects continue to be a focus of inspections, but there are other projects that are still validated and reviewed. The inspections that were conducted aimed at verifying specific BMPs that were installed through several projects. A minimum of 10% of practices are inspected each year for every demonstration project. There are field visits conducted and in-

office reviews as well. The in-office reviews consist of verification of farm plans, review of proper documentation, and discussion with project management regarding the status and success of the project. Inspection visits were made on July 27 and July 28, 2023 to Fulton County (projects 19-1000 and 21-600, respectively), October 4 to Baxter County (project 20-300), and October 27 to Marion County (project 20-400). Results from the visits were all positive. All projects were able to validate the inspected BMPs and display the needed in-office paperwork. These inspections have been a great benefit in improving project effectiveness.

4. As resources allow, continue cooperation with the Arkansas Department of Agriculture's Plant Industries Division and the Abandoned Pesticide Program in the collection of data associated with the environmental risk reductions related to farmer participation in abandoned pesticide collection. Any developments in this area will be reported annually in the NPS annual report.

Since 2005, the Abandoned Pesticide Program has conducted collection events in all 75 counties in the state, successfully recovering over 4.8 million pounds of left-over agricultural pesticides. Due to the increasing popularity of the program and the increased cost to dispose of waste, the program's operating costs have increased. The Abandoned Pesticide Advisory Board approved the addition of satellite collection events to service counties in high agricultural-use areas. 319 funding provided support to allow additional collection events in high agricultural-use areas and assist with increasing operational costs through project *21-800*. Between October 2021 and December 2023, the Arkansas Department of Agriculture's Plant Industries Division hosted pesticide collection events in 27 counties across the state, accumulating 405,205 pounds of hazardous, unwanted pesticides which were then responsibly disposed of according to state and federal regulations.

5. Continue to produce and submit the NPS annual report by the end of January each year.

The FY 2022 Arkansas Annual Report was submitted January of 2023 to EPA Region VI and the FY 2023 report submission is on time. NRD staff work diligently to compile the necessary components to capture programmatic efforts over the past year. The NRD NPS program greatly appreciates EPA Region VI's review and guidance on development of future annual reports.

6. Continue to report load reductions (sediment and nutrients) and BMPs in the Grants Reporting and Tracking System (GRTS) database each year.

The table below reflects load reductions that have been accomplished during FY 2023. Every quarter these load reductions, and other information such as BMP amounts, are entered into the GRTS database. Projects that have information entered in for load reductions consist of demonstration, BMP implementation, and streambank restoration projects. Most of these projects submit information quarterly or at the conclusion of the project. There are various models that are used in calculating load reductions and they can vary between projects.

Project #	Nitrogen Reduced (lbs./year)	Phosphorus Reduced (lbs./year)	Sediment Reduced (tons/year)
19-600	76	38	62
19-1000	473	239	295
20-300	2,305	1,235	1,218
20-400	11,555	6,196	6,294
21-500	-	-	-
21-600	-	-	-
21-700	39	21	23
21-900	-	-	-
22-200	-	-	-

The table below depicts active projects that have or will have quantifiable reported load reduction:

7. Continue to partner with and assist the United States Department of Agriculture Natural Resources Conservation Service (USDA-NRCS) in the review, selection, or development of the National Water Quality Initiative (NWQI), Mississippi River Basin Initiative (MRBI), Regional Conservation Partnership Program (RCPP), Environmental Quality Incentive Program (EQIP), or other conservation programs that will improve or enhance water quality in watersheds on an annual basis. The NRD will also participate in the State Technical Committee and its Water Quality sub-committee annually or as it convenes. The NRD will monitor (in-stream water quality monitoring) a minimum of two to four USDA-NRCS program initiatives (MRBI, RCPP, or NWQI) in 12-digit watersheds yearly through the life of this plan. Monitoring results will be assessed and reported in the NPS annual report as they become available.

19-300: See Milestone 2.

19-400: See Milestone 2.

19-500: To measure effectiveness of BMPs associated with the Mississippi River Basin Initiative (MRBI) and other water quality programs, the ASU Ecotoxicology Research Facility is monitoring several physical and chemical water quality parameters in Bayou DeView. The MRBI project has identified the nutrients and suspended solids in the Cache River Watershed as contributing factors to the Gulf of Mexico Hypoxia Zone. Bayou DeView, a tributary to the Cache River, has been noted to contribute contaminants.

8. Continue to evaluate and support in-stream water quality monitoring to assess the effectiveness of implemented 319(h) grant-funded projects or other projects (MRBI, NWQI etc.), and report monitoring data to ADEQ annually or as appropriate.

Partners submitted data to the water quality exchange (WQX) and/or storage and retrieval (STORET) database. See Milestone 7 for more information.

9. Review ADEQ's 305(b) report and subsequent 303(d) List approved by EPA for delisted streams or stream segments and determine if 319(h) funded projects assisted in the delisting or improvement of water quality. Review of the 303(d) List will occur every two years, and draft success stories will be developed for delisted segments as appropriate. The goal is to develop and submit two to three success stories within the time frame of the 2018-2023 NPS Pollution Management Plan.

The NRD used the 2018 303(d) List for determining waterbodies that were eligible for success stories. The NRD submitted one EPA draft Type 2 success story in 2023 highlighting the impacts of low impact development on an unnamed tributary to Stone Dam Creek (refer to *Section 10.0: Program Success Stories in FY22*). The NRD has submitted two EPA-approved success stories in the timeframe of the 2018-2023 NPS Pollution Management Plan.

10. Work with partners or other stakeholders to initiate or to have two to three watershed management plans accepted as meeting EPA's nine key elements within the time frame of this NPS Pollution Management Plan. Progress on working with watershed groups and/or submittal or acceptance of watershed plans could also be reported on an annual basis in the NPS annual report.

See Section 7 Watershed Management Plans.

12. Fiscal Year 2023 Nonpoint Source Pollution Management Program Accomplishments

- Watershed Management Plans- The NRD had two accepted watershed management plans (WMP) for FY 2023 and there were five active WMP projects that focused on revisions or development during FY 2023.
- Arkansas Nutrient Reduction Strategy- The 2022 Arkansas Nutrient Reduction Strategy (ANRS) update was finalized in 2022. During 2023, stakeholder engagement continued through a series of two workgroups that developed recommendations for the ANRS in areas of communication (education and outreach) and innovation (science and research). Additionally, utilizing FY 2023 Gulf Hypoxia Program funding, the University of Arkansas System Division of Agriculture received a sub-award to continue education and outreach with the Arkansas Watershed Stewardship Handbook and Tap Your Potential.
- Arkansas Unpaved Roads Program- The Arkansas Unpaved Roads Program (AURP) has been very active during FY 2023. In FY 2023, a record 15 counties submitted applications requesting funding in the amount of \$936,208. Thirteen of the applications were deemed eligible and were selected for funding (\$904,510). This increased demand for AURP funds is a result of increased marketing of the program by NRD staff. Three of the

projects were completed in FY 2023. During the year, 46 people also participated in one of two environmentally sensitive management (ESM) trainings that were held through the AURP. One training was held in East Arkansas at Forrest City, while the other was held near Russellville. Applicants must have someone on staff who has received ESM training to be eligible to apply for AURP funds.

- Education and Outreach- Providing water quality and nonpoint source (NPS) educational information to Arkansans has long been a priority for the NPS Pollution Management Program. During FY 2023, extensive efforts were made through project 22-500 Smart Growth for Source Water Protection in the Beaver Lake Watershed.
- Enhancing Partnerships- Without partnerships, many of the successes that have been made this past fiscal year would not have been possible. In FY 2023, through the help of partners including the United States Department of Agriculture Natural Resources Conservation Service, The Nature Conservancy, Illinois River Watershed Partnership, University of Arkansas System Division of Agriculture Cooperative Extension Service, Beaver Watershed Alliance, FTN Associates, conservation districts, and various others, several initiatives and programs reducing NPS pollution have been initiated and/or completed.
- Grants Reporting and Tracking System (GRTS) Database Reporting- For FY 2023, there were load reductions that directly related to 319(h) funded projects. Load reductions were found in many of the priority watersheds around the state. Total load reductions for FY 2023 were 7,892 tons per year for sediment, 7,729 pounds per year for phosphorus, and 14,448 pounds per year for nitrogen. All load reductions were entered into the Grants Reporting and Tracking System (GRTS) database.

13. Quality Assurance/Wetland and Riparian Tax Credit

Quality Assurance Project Plans FY 2023 Summary

In FY 2023, the quality assurance manager with the Natural Resources Division completed a laboratory audit for the Arkansas Water Resources Center (AWRC). Additionally, a field audit was completed for AWRC. There are a total of 23 projects that require quality assurance project plans (QAPP). Seven projects were approved, one project received an extension, and seven projects were finalized during FY 2023.

Wetland and Riparian Zone Tax Credit Program FY 2023 Summary

Wetlands and riparian zones provide significant benefits to Arkansans, including flood control, water quality enhancement, fish and wildlife habitat, recreational opportunities, and groundwater recharge. <u>Arkansas Code Annotated §26-51-1501</u> et seq, the "Arkansas Wetland and Riparian Zone Creation, Restoration, and Conservation Tax Credits Act," allows a state

income tax credit to be taken by taxpayers who engage in the development, restoration, or conservation of wetland and riparian zones through projects approved by the Private Lands Restoration Committee. The program promotes an increase in biological and ecological integrity through voluntary restoration or conservation of Arkansas's important environmental landscapes.

During FY 2023, a total of seven applications were received and approved. During FY 2023, 11 projects were completed. Applications were distributed across the state, but highest densities occurred in the Little Red River Basin. Approved applications culminated in a total of \$1,128,155 in tax credits.

Efficiently and responsibly managing and protecting our water and land resources for the sustainability, health, safety, and economic benefit of the State of Arkansas.



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