The Arkansas Annual Report

Prepared Pursuant to Section 319 (h) of the Federal Clean Water Act

Arkansas Natural Resources Commission

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1 SUMMARIES:

Notes from the Director:

The Arkansas Natural Resources Commission (ANRC) is proud to provide this 2011 Annual Report for the Arkansas Nonpoint Source Pollution Management Program. Over the past two years, environmental and economic factors have greatly influenced the ability to get practices "on the ground".

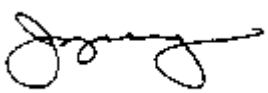
Weather in Arkansas for 2011 seemed to be one of too much or too little. A La Nina' weather pattern produced one of the driest winters in recent memory but then dumped huge amounts of precipitation in the spring to the point that several river level records were broken. The floods in the spring were followed by another extremely hot and dry summer. In addition to the hardships the weather brought, the NPS program faced obstacles in receiving funding and administering the program. The federal appropriation was not received or awarded until mid-year and the NPS Program appropriation was substantially reduced. Despite these issues, the Commission was able to push forward with implementing the state's 2011-2016 NPS Management Plan.

There are several items to keep in mind while reviewing this report:

- Record flooding destroyed or damaged infrastructure. This included state and federal sampling stations that had to be replaced with state dollars.
- The expected award for FY11 was substantially reduced at a very late stage in the application process. The NPS federal allocation and budget was not received until May 2011. Some State dollars were secured and utilized to continue NPS Program efforts.
- The Government Accounting Office (GAO) visited ANRC this past summer to gather information about our NPS program. GAO is doing an audit of the national NPS program and chose Arkansas as one of its field visits. Additionally, EPA conducted an internal audit on the NPS Program.
- Arkansas completed and submitted an update to its state NPS Management Plan to Region 6 for 2011-2016.

As you know, the NPS Management Program is a partnership between federal, state, and local entities. This program would not work without the cooperation and support of all three. We are all learning to better leverage our resources and do more with less, therefore these partnerships are more important than ever and the backbone of sustainability. Your dedication to and ongoing participation in the NPS program is deeply appreciated.

Sincerely,



Executive Summary:

The Arkansas Natural Resource Commission (ANRC) is the lead agency responsible for Arkansas' Nonpoint Source (NPS) Pollution Management Program (Program). ANRC, its State partners and stakeholders, collectively known as the "work group", collaboratively work together to develop the NPS Pollution Management Plan (Plan). The Plan provides a broad framework and aspirational objectives and milestones for implementation of the NPS Pollution Management Program. The Plan also utilizes a risk matrix assessment tool to prioritize watersheds for resource allocation. The Plan is comprehensively updated every five years based upon an adaptive approach. Annual update meetings are held to review and discuss new, additional, or updated information and if appropriate to be included into the Plan.

The Arkansas Department of Environmental Quality (ADEQ) is the primary agency for 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 acceptance and approval. At the writing of this report, the 2010 305(b) report has not been approved by EPA. The assessment and report defines if waterbodies (streams, lakes and impoundments) are meeting and supporting their designated uses. The 305(b) report and subsequent 303(d) list provide the initial and foremost basis to direct efforts to restore water quality within the State.

The 2011 Annual Report reflects projects, efforts and activities initiated and implemented by various partners and stakeholders within the past year that address nonpoint source pollution, concerns and to meet the milestones set forth in the Plan. The Annual Report highlights project efforts and accomplishments, calculated load reductions of sediment and nutrients, a depiction of federal dollars allocated categorically and the status of meeting the current milestones.

Many Federal and State agencies, non-governmental organizations (NGOs), and individuals have invested multiple resources to improve water quality in Arkansas. In some areas and watersheds, water quality data and trends are showing improvement. Water quality will only continue to be improved as:

- Watershed stakeholders become more actively involved in restoration efforts
- Education materials specific to individual watersheds are developed and delivered
- Outreach efforts and opportunities are enhanced
- New technologies and methodologies are developed and utilized
- Conservation plans are developed, utilized and implemented by landowners and
- Assessment and evaluation efforts continue

The primary and pinnacle evaluation of the NPS Program and Plan lies within the 303(d) list. As 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 ANRC, its partners and stakeholders work together in a collaborative effort to improve water quality.

2 PROGRAM PROJECT HIGHLIGHTS:

The Arkansas Nonpoint Source Pollution (NPS) Management Program continued to expand its partners and capacity to manage and reduce nonpoint source pollution during 2011. With EPA budget cuts a directive has been given to fund projects within watersheds, having been identified in the 2011-2016 NPS Management Plan as a priority, those watersheds that have a TMDL and those watersheds that have developed Watershed Based Plans. Statewide projects addressed nonpoint source pollution problems in the areas of agriculture, silviculture, urban streams, and recreation while continuing monitoring, restoration and implementation projects. New partners have been identified and are helping to develop projects that install best management practices. A few of the program highlights are described below.

07-2000: West Fork White River Streambank Restoration Repair Project:

Damage from the April 2011 flooding **Repairs after the 2011 April Flooding**

During the spring of 2011, Arkansas had an abnormally high amount of rainfall throughout the state with record flooding occurring in some areas. In the northwest part of the state, the flooding caused damage to a streambank restoration project site, 07-400, West Fork White River (WFWR) at Brentwood. This project was completed in December 2010, which restored 1,800 feet of Reach 24 of the WFWR, by the Watershed Conservation Resource Center (WCRC).

The WFWR project was designed to withstand average bankfull discharge during rainfall, which required little maintenance until heavy rainfall occurred in April of 2011. During the week of April 21st through April 25th, an estimated 12-14 inches of rain fell. The project site was inspected early afternoon on April 25th, before the last five inches of rain fell. At that time, there was minimal damage at the site. Excessive sediment had deposited on the upstream point bar, directing the highest flow event into the centerline of river. The greatest damage resulted from excessive bed load deposition within the project reach. The aggradation of the bedload within the upstream portion of the project reach, over the course of the flood event, resulted in a change in the angle of approach of the discharge. This change in angle increased shear stress and the integrity of a vane structure that had been installed to protect the lower one-third of the channel within the project area. When viewed on the morning of April 25th, 2011, prior to the final and most intense rainfall episode, the vane structure

remained functional and intact. However, during peak discharge, the vane structure failed. This structural failure resulted in significant scouring due to the direct intersection of the flood waters with the bank. The resulting damage dictated repairs needed to be made to maintain structural and project integrity. ANRC with assistance from EPA funded the repairs for $19,950 and match was provided by the WCRC.

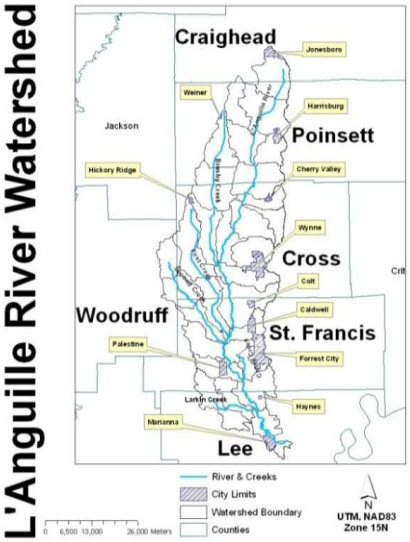
The repairs and maintenance activities that were conducted over a two-week period included:

- Reinforcing and extending the toe of the channel plug with large boulders and gravel.
- Creating multi-stage benches on the channel plug.
- Constructing a rock vane to protect the channel plug instead of log vane.
- Installing longitudinal stone toe and bankfull bench along the left bank below the channel plug.
- Installing sod mats on constructed benches to prevent loss of gravel and to provide a growing medium to re-establish bank-protecting vegetation.
- Using accumulated gravel to create a "high bar" to direct bedload transport during high flow events.
- Removing accumulated bedload from the entire length of the channel restoring bankfull channel dimensions.

Since completing the repairs the project has successfully reduced sediment and phosphorus from entering the WFWR and Beaver Lake, a major source of drinking water for northwest Arkansas. Calculated load reduction of sediment is on average 1,880 tons per year with phosphorus reduction loads on average 2,000 pounds per year.

Project 08-900: Geospatial Inventorying and Optimization Analysis for Best Management Practices (BMPs) in 12-digit HUC Subwatersheds in L'Anguille River Watershed:

The Arkansas Natural Resources Commission (ANRC) has identified L'Anguille River watershed (LRW) as one of the priority watersheds for the non-point source (NPS) program implementation and remains a priority in the 2011-2016 Non-point Source Management plan.



Row crop agriculture dominates the land use within the watershed. Historical agriculture methods and practices have increased sediment loadings and increased turbidity. Due to these increased levels of sedimentation and turbidity, EPA developed a TMDL in 2002. The numerical standard of 45 NTU was developed for this watershed. The L'Anguille River readily exceeds this numerical standard which places the entire 98 mile river on the Arkansas 303 (d) list for not supporting aquatic life due to siltation and turbidity.

Project 08-900 was completed in August of 2011. The ANRC 319 program provided $87,508 in funding for this project and the U of A Cooperative Extension provided match. This project conducted a watershed modeling comparison in conjunction with an optimization algorithm to compare and search for economically and ecologically effective best management practice (BMP) implementation solutions. A database of current and past pollutant-reducing BMPs was organized by contacting multiple local and state conservation agencies and consulting published literature. The watershed was modeled using the latest release of Soil and Water Assessment Tool (i.e. SWAT 2009). The model was calibrated and/or validated at three locations for hydrology, sedimentation, total phosphorus, and nitrate-nitrogen runoff. Then, 33 scenarios were defined, each representing a suite of BMPs in the watershed. BMPs considered in this study were cover crop, vegetative filter strips, nutrient management plans, and no-till cultivation. The simulations conducted, using the above mentioned scenarios, provided an estimate of watershed-scale pollutant reduction on an average annual scale. Corresponding cost of implementation was also estimated. Finally, a multi-objective generic algorithm was used to find a range of BMP solutions that would maximize pollutant reductions and minimize implementation costs. Though the scenario results were specific to LRW, the optimization approach used in the project can be used elsewhere by conservation agencies to target practices that will contribute the most to pollutant reduction at the least cost.

This project also presented a method for conducting riparian buffer inventory using an automated algorithm. This algorithm used a stream centerline layer, high resolution natural color and color infrared (CIR) aerial imagery, and land use/land cover data as inputs. This method was used to successfully delineate streambanks and riparian areas, to assess where improvement could be made and which BMP would be most effective and economical. BMPs were evaluated based upon its effectiveness by particular location and the available financial assistance programs and/or eligibility of landowners to participate in mitigation efforts by the federal and state agencies.

Project 09-400: Water Quality Trends across Select 319 Monitoring Sites in Northwest Arkansas:

The Arkansas Water Resources Center (AWRC) completed a comprehensive assessment of ANRC 319 funded water quality monitoring in northwest Arkansas. Data to assess the water quality trends were collected from 1997 to 2010. The assessment of trends utilized the data from sites where sufficient constituent concentration data was available. This project specifically focused on determining water quality trends at select sites within the Illinois River (IRW, HUC# 11110103) and Beaver Reservoir (UWRB, HUC# 11010001) priority watersheds.

Water quality trends were analyzed using flow-adjusted constituent concentrations of phosphorus, nitrogen, sediment, sulfate and chloride, and parametric and non-parametric statistical techniques to determine if constituent concentrations were increasing, decreasing, or not significantly changing over time. Overall, the nonparametric (i.e., Seasonal Kendall Test and Sen Slope Estimator) method agreed well with the parametric (i.e., linear regression) method for identifying trends in water quality data except in the case of small datasets. All of the selected sites in both watersheds exhibited significant decreasing trends in Soluble Reactive Phosphorus (SRP) and Total Phosphorus (TP), and decreasing trends in total suspended solids (TSS). Overall, flow-adjusted concentrations of phosphorus and sediment have been decreasing across these watersheds utilizing both statistical approaches.

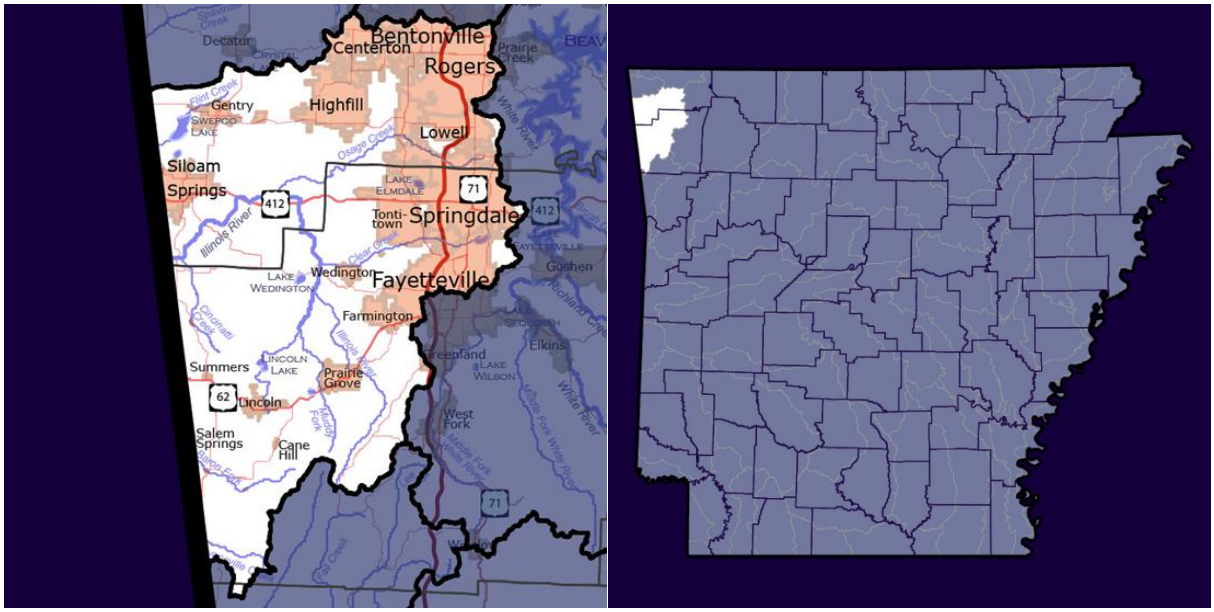
The decrease in phosphorus was likely the most important observation. Most water quality concerns in this region have focused on elevated phosphorus concentrations in these trans-boundary watersheds for the past two decades. These trends can be used along with other watershed information to improve the knowledge of how past, current and future management decisions have or will influence the watershed.

It was noted in some data sets that more precipitation during a given year, the greater the annual load. This was specifically noted in the 2009 data set when the annual precipitation was almost double that observed annually from 2005 to 2007. Therefore, evaluating change in water quality is not as simple as determining if loads have increased or decreased over time. Because of the correlation between loads and steam discharge, identifying changes and variability in constituent loading following implementation of BMPs and/or introduction of new point and nonpoint sources can be difficult, thus flow adjusted loads are necessary to assist in identifying real trends.

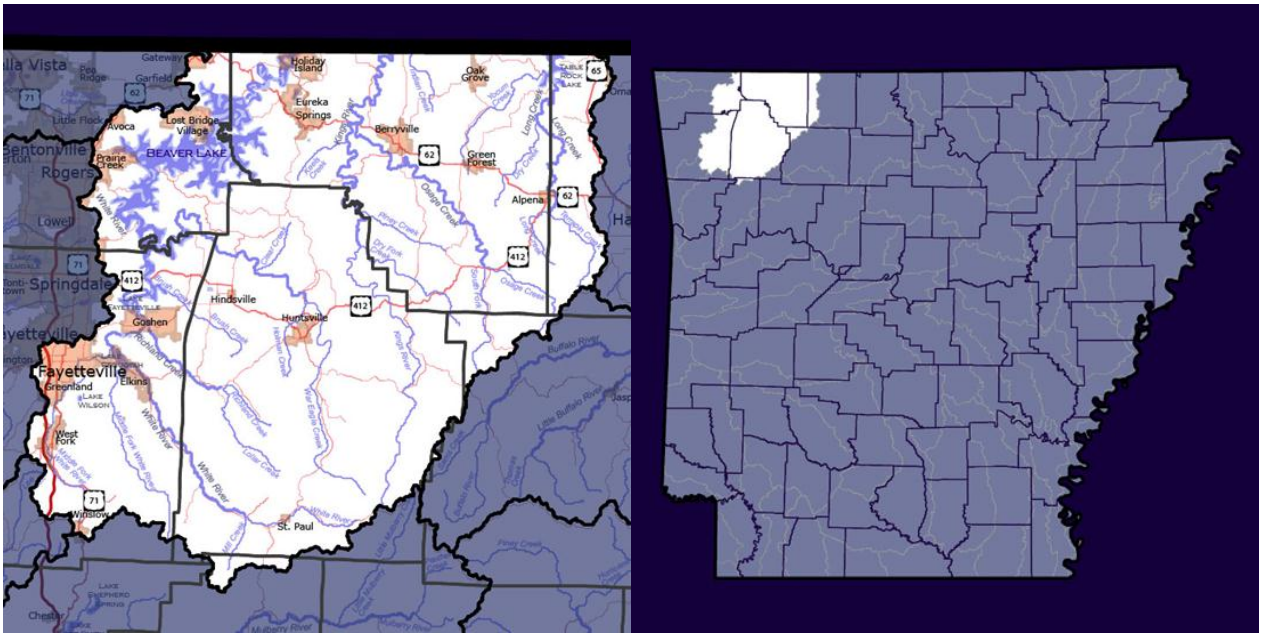
The decreasing trends in phosphorus and sediment suggest that there have been watershed management changes or restoration activities which have influenced water quality (especially flow adjusted concentrations of phosphorus and sediment). Regional WWTPs have worked hard and invested $180M into municipal facility upgrades and the State of Arkansas has enacted legislation (i.e., Titles 19,20,21 and 22) with the intention to improve environmental quality in nutrient surplus watersheds. In the past ten years, ANRC's 319 Program has invested over $4M federal dollars in demonstration and implementation projects including low impact development, poultry litter use and transport feasibility, stream restoration, erosion and nutrient management plan development, and streambank stabilization. All of these efforts combined and the investments of other programs and landowners have influenced water quality.

Obviously, monitoring is important, and consistent water quality monitoring is the best way to evaluate the effectiveness of implemented BMPs and to determine if water quality is changing over time. It is important to have programs that consistently collect annual water quality data and at the same location identify changing trends.

For at least the next four years (July 2011-June 2015), the ANRC 319 program will continue to fund comprehensive monitoring programs in the IRW and UWBR. Annual loads will continue to be estimated at the selected sites and will contribute to the historical water quality databases for these watersheds. This current project will complete a five year database at 19 sites in northwest Arkansas.



Illinois River Watershed



Upper White River Basin

3 FEDERAL RESOURCE ALLOCATION:

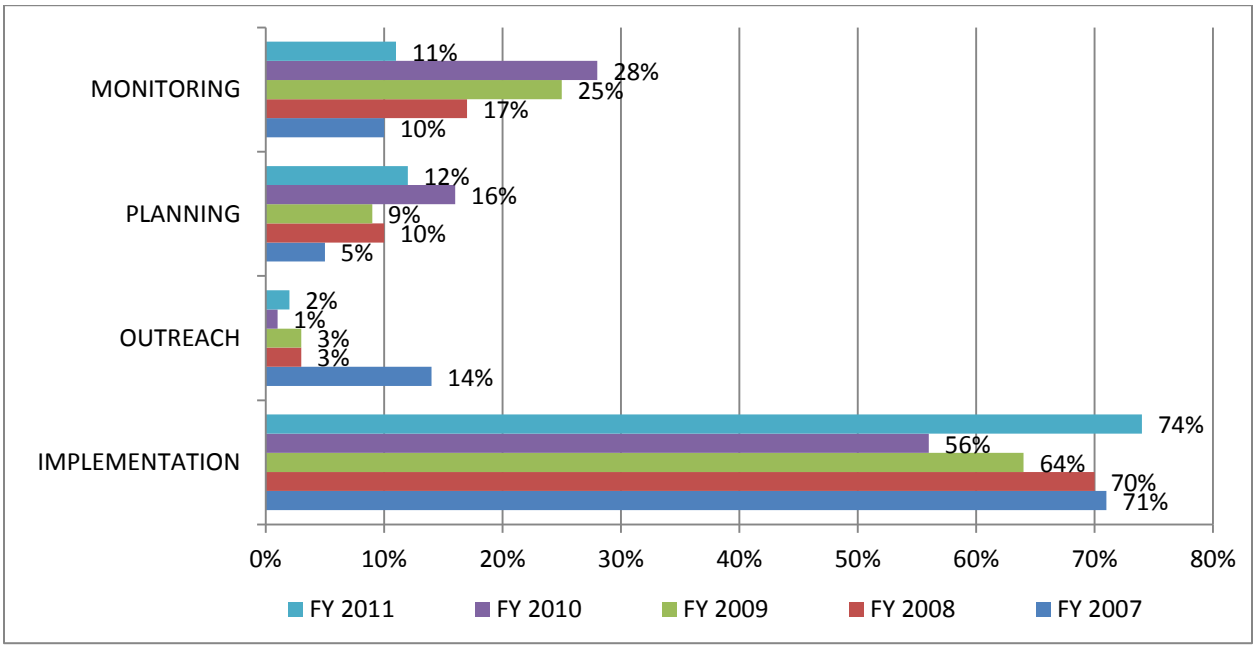
Program Expenditures:

The Arkansas Nonpoint Source Program generally allocates most of its Clean Water Act 319(h) funds to partners implementing projects in priority watersheds who are capable of carrying out projects that best meet the goals and milestones of the Nonpoint Source Program. Project partners are typically required to provide a minimum of 43% match in non-federal funds.

In FFY 2011, ANRC and project partners spent approximately $2M to implement projects to address water quality resource concerns and reduce and prevent nonpoint source pollution in Arkansas.

The chart below shows how federal funds disbursed for projects were allocated among monitoring, planning, outreach, and implementation projects. Monitoring expenditures decreased from 28% of federal dollars in FFY 2010 to 11% in FFY 2011. Planning expenditures decreased from 16% in FFY 2010 to 12% in FFY 2011 while outreach expenditures increased from 1% to 2%. Implementation expenditures saw an increase in FFY 2011 with funds spent rising to 74%. Implementation projects still by far account for the greatest share of the total project budget.

Program Expenditures for 2011:



4 DATA COLLECTIONS AND RESTORATION EFFORTS:

Monitoring Projects:

Monitoring data is used to determine baseline thresholds for sediment and nutrient levels and evaluate the effectiveness of restoration projects and BMP implementation. The Arkansas Natural Resources Commission's monitoring supplements ongoing ADEQ monitoring efforts and data. The Arkansas NPS Program relies on ADEQ monitoring data and its assessment of the waters for the state to assist in identifying priority watersheds. Watersheds requiring a TMDL are automatically considered priority watersheds provided the constituent of concern is from a potential nonpoint source.

A variety of ANRCs 2011 monitoring projects collected data before, during and after stream restoration projects and installation of soil erosion practices. Several of the monitoring projects are continuations of previous projects to insure adequate data sets are developed to assess trends. ANRC also is assisting in the Mississippi River Basin Initiative (MRBI) funding water quality monitoring to assess the impact of NRCS funded and implemented projects. The U.S. Geological Survey, U.S. Army Corps of Engineers, some water districts, and other entities also maintain monitoring stations in selected waterbodies across the state.

2011 NPS Monitoring Projects:

Monitoring Projects	Project #
Strawberry River Sub Watersheds Monitoring	07-1000
Northwest Arkansas Water Quality Trends	09-400
Relations between Biological Communities and Nutrient Concentrations, Land Use, and other Environmental Factors for Streams in Illinois River Basin in Northwest Arkansas	09-1800
Water Quality Monitoring in the Upper Illinois River Watershed and Upper White River Basin	11-500
Water Quality Monitoring for the Lake Conway Point Remove Watershed	11-600
Water Quality Monitoring for Selected Priority Watersheds in Arkansas: Upper Saline, Poteau, and Strawberry	11-800
Cache River Monitoring Project	11-1600
Water Quality Monitoring for the L'Anguille Watershed	11-1700
Water Quality Monitoring for Larkin Creek Lateral 1-A, St. Francis County-Phase II	11-1800
Little River Ditches Watershed Monitoring	11-2000 S

Restoration Projects:

The Arkansas NPS Program funds streambank stabilization/restoration projects to help reduce the amount of pollutant loads (predominately sediment and phosphorus) that enter our waters. In Arkansas, accelerated streambank erosion is typically addressed through stabilization. The success of bank stabilization varies, and depending on the degree of instability, bank stabilization may only be a short term solution. In many cases where channel instability has been triggered, regardless of cause, the entire area (reach) of instability needs to be addressed. An unstable reach can have several eroding streambanks, be aggrading or degrading, and/or have a pattern or profile problem. Restoration utilizing natural channel design techniques is an innovative approach which can address all of these problems. Success of streambank restoration projects show a reduction in streambank erosion and channel enlargement. A reduction in sediment load produced by streambank erosion, determined by evaluation of erosion potential, prior to and following restoration is considered a success.

2011 Restoration/Stabilization Projects:

Project #	Restoration/Stabilization Projects
07-400	West Fork White River - Stream Restoration Project
07-410	West Fork Stream Restoration at Fayetteville Airport: Phase I Reach Restoration Plan Development
07-2000	West Fork White River - Stream Restoration Repair
08-800	Larkin Creek Demonstration
09-1600	West Fork Stream Restoration at Fayetteville Airport-Phase II Restoration Implementation
09-1900	White River Streambank Restoration Project
09-2000	Mullins Branch Stream Restoration Project
11-200	Planning for Streambank Restoration at the Botanical Garden of the Ozarks

5 PRACTICES IMPLEMENTED AND LOAD REDUCTIONS:

Best Management Practices:

Over the past year, ANRC has helped fund BMP projects to reduce NPS pollution. These projects report how many BMPs are installed. Table 1 below lists the total number of BMPs implemented in FFY 2011.

The BMP type and protected land area were entered in the Region 5, STEPL, or RUSLE load estimation models. Depending on the model used and the subsequent data needed to run the model, estimated load reductions may vary. The models typically estimate annual pounds per year of nitrogen and phosphorus reduced as well as the annual tons per year of sediment saved. Table 2 shows the annual loads for FFY 2011.

Table 1: Total Best Management Practices Implemented from October 1, 2010 – September 30, 2011

Best Management Practice	Total
Watering Facility (each)	25
Heavy Use Area (ft^2)	7,008
Pipeline (ft.)	6,899.6
Fencing (ft.)	77,820.6
Brush Management (acres)	643.5
Pasture Planting (acres)	423
Critical Area Planting (acres)	1.5
Pest Management (acres)	138
Pond (cubic yard)	2,000
Dirt Work (cubic yard)	300
Cover Crop (acres)	224
Irrigation-Water Conveyance (ft.)	7,486
Drop Pipe (12in. each)	8
Drop Pipe (15in. each)	3

Load Reductions:

Table 2: Load Reductions for FFY 2011

	Nitrogen Reduced Lbs./year		Phosphorous Reduced Lbs./year		Sediment Reduced Tons/year	
Project #	**FY 11**	**Project Life**	**FY 11**	**Project Life**	**FY 11**	**Project Life**
04-183	393	1,354	196	741	261	1,110
05-104	305	3,603	152	1,800	159	1,801
06-1600	0	0	0	0	0	5,800
06-1700	0	0	0	0	0	142,484
07-400	0	0	0	0	0	1,880
07-410	0	2,406	0	638	0	1,880
07-2000	0	0	0	680-1360	0	2,000-4,000
08-500	749	11,519	374	5,758	389	6,173
09-300	33,729	55,308	15,301	25,105	6,223	10,316
09-700	186	271	94	136	100	145
10-400	0	0	0	0	0	32,180
11-1200	299	299	149	149	161	161
11-1300	56	56	28	28	36	36
11-1400	168	168	84	84	111	111
Total	**35,885**	**74,984**	**16,378**	**35,799**	**7,440**	**208,077**

6 PARTNERSHIPS:

The Arkansas Natural Resources Commission (ANRC) has a variety of valued partners. These partnerships are the backbone of the NPS Program. State agency partners include but are not limited to: the Arkansas Department of Environmental Quality, Arkansas Forestry Commission, Arkansas Game and Fish, Arkansas Department of Health, U of A Division of Agriculture and the Municipal League. Federal partners include US EPA, US Fish and Wildlife, US Forestry Service, US Geological Survey and the Farm Services Agency. This year we are highlighting one of our federal partners, the USDA-Natural Resources Conservation Service (NRCS) and two NGO watershed organizations, the Illinois River Watershed Partnership (IRWP) and the Beaver Watershed Alliance (BWA).

ANRC and NRCS:

The ANRC and NRCS have had a working relationship for many years. Both agencies have similar goals in that each helps landowners conserve natural resources. ANRC's 319 program, in particular, works closely with NRCS to try to improve water quality in the state by implementing best management practices. In some cases, NRCS employees provide the technical assistance needed to implement and complete 319 NPS projects across the state. Without them, many projects would not be implemented, especially those through county conservation districts.

NRCS coordinates with partners through the State Technical Committee which is comprised of individuals who represent a myriad of natural resource occupations and backgrounds throughout the state. The 319 NPS section now has a representative on this committee. With representation on the committee, we are now better able to try to coordinate 319 resources with NRCS resources and programs. NRCS typically receives an average of $16M per year for the Environmental Quality Incentive Program (EQIP) in Arkansas. NRCS has also received monies for the Mississippi River Basin Initiative (MRBI) which is a program devoted to reducing nutrient loads to the Gulf of Mexico, and the Conservation Reserve Enhancement Program (CREP) which focuses on removing marginal or low producing agricultural lands from production. These monies dwarf the annual 319 dollars awarded to the state, therefore we partner with NRCS and work to focus some funds toward the NPS priority watersheds.

NRCS awards EQIP dollars by county and by resources. This method is not conducive with the watershed targeting within the NPS Program, thus making many of these funds fall outside of the 10 priority watersheds that have been identified in the 2011-2016 NPS Management Plan. NRCS utilizes the SPARROW model to identify MRBI priority watersheds. Seven watersheds in Arkansas were identified as MRBI priorities. Out of the seven watersheds identified, only three NPS priority watersheds will be able to utilize the MRBI funds. Currently there are four NPS funded monitoring projects in MRBI watersheds, three of which are being utilized to assess both NPS and MRBI project implementation impacts. ANRC and NRCS partnered to establish a CREP program that is watershed specific and targets a NPS priority watershed, the Illinois River Watershed. Though these funds have been set aside for this watershed, disbursement of funds to landowners has been relatively slow. Landowners do not fully understand the criteria and practices eligible within the CREP program. ANRC is continuing the work with NRCS and others in an outreach and educational effort related to the CREP Program.

Watershed Group Activities:

Illinois River Watershed Partnership (IRWP):

Volunteers Planting Seedlings at Flint Creek Power Plant

Volunteers from IRWP Planting a Rain Garden

The Illinois River has several segments listed on the 303(d) list for both Oklahoma and Arkansas; and Arkansas stakeholders wanted to take action to help and protect water quality in the Illinois River. In December 2005, 65 stakeholders developed the Illinois River Watershed Partnership (IRWP). Over the past six years, the IRWP has contributed several activities to help with the improvement of water quality in the Illinois River Watershed. The IRWP has numerous sponsors that help fund and provide resources to improve water quality in the watershed. A few of these sponsors include:

- Arkansas Natural Resources Commission
- Environmental Protection Agency
- Wal-Mart, Sam's Club and The Walton Family Foundation
- American Electric Power Foundation
- Cities of Fayetteville, Springdale, Bentonville, Rogers, and Siloam Springs
- Tyson Foods
- Simmons Foods
- Arkansas Poultry Federation
- Arkansas Farm Bureau

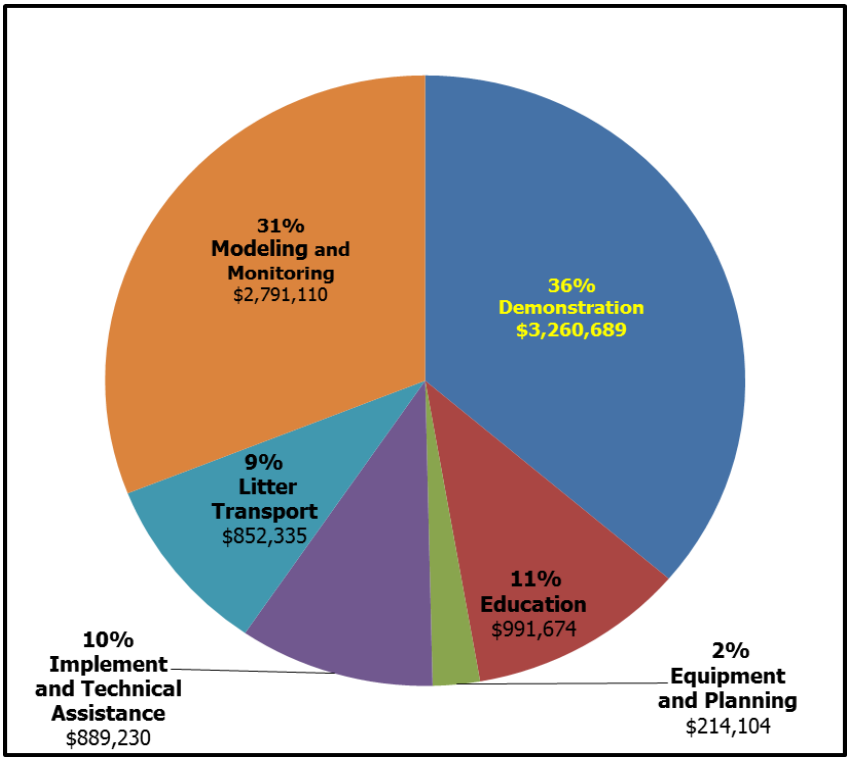
These partnerships sponsor many educational and interactive activities for watershed stakeholders related to protecting, restoring or enhancing water quality. IRWP has encouraged landowners and stakeholders to take ownership, get involved, and "make a difference" within their watershed and help improve the overall water quality.

The IRWP has accomplished and initiated various activities over the past year. The majority of these activities have involved numerous volunteers and partnerships. Examples of these activities include:

- Establishing a Tree Farm at the Flint Creek Power Plant with seedlings being donated by the Arkansas Forestry Commission

- Planting over 5,000 seedlings along six different creeks and trails within the IRW through the 2011 Riparian Project Volunteers
- 25 Clean Water Raingers Concerts performed by Captain Marshal Mitchell and Jennifer Michaels with over 5,000 Clean Water Rainger activity books, cds, songbooks, and trail hankies distributed to children
- Monitoring and water quality sample collection of 14 biological water quality stations through a partnership with the Arkansas USGS
- Hosting a 4-State Watershed Academy brought over 200 attendees including local, state, and federal legislators, state agencies, and watershed organizations
- Installing 8 rain gardens in Bentonville, Rogers, Springdale, Fayetteville, and Siloam Springs
- Sponsoring 9 river and creek cleanups along Illinois River and Niokaska, Spring, Osage, Sager, Mud and Scull Creeks
- Assisting and providing outreach and promotion of USDA-NRCS CREP & EQIP Programs
- Providing information to an estimated 1,300 stakeholders on how to protect and preserve land areas around waterways in the Illinois River through BMPs

Overall, the IRWP has had over 22,019 volunteer and outreach hours, with over 11,000 children and adults participating in the majority of these activities. Since the formation of the IRWP, ANRC has assisted in funding several different projects in the IRW. Some examples of these projects include outreach and education, equipment and planning, monitoring and modeling, implementation and technical assistance, demonstration, and litter transportation. Over the past ten years in the IRW, ANRC has helped fund and leverage over $16M of projects directly related to water quality. The chart below shows a breakdown of how federal dollars were utilized in the Illinois River Watershed over the past ten years.



Since segments of the IRW have been listed on the 303(d) list for both Oklahoma and Arkansas, in 2009 EPA initiated a project to develop a scientific watershed model to help determine load reductions for phosphorous in order to help meet water quality standards in both states. This model, when completed, will serve as a tool to identify nutrient reduction and education needs. EPA Region 6 has also initiated the process of developing one or more total maximum daily loads (TMDLs) for the Illinois River Watershed. EPA Region 6 has stated the modeling effort should be completed by the fall of 2012, but no definitive date has been given at what point a decision will be made on the final TMDL, if the model indicates one should be initiated.

In 2010, the IRWP submitted a draft report of a Watershed Based Plan (WBP) to ANRC. ANRC staff reviewed the draft plan and provided comments back to IRWP. The IRWP continues its effort to address the comments and update the draft WBP. The current goal is to have the comments and updates completed in 2012 for ANRC's second review. Upon a successful review by ANRC, the plan will be submitted to EPA Region 6 for review.

Beaver Watershed Alliance (BWA):

In the Upper White/Beaver Reservoir Watershed, the BWA started initially as the Beaver Lake Watershed Advisory Group in 2008 with assistance from the Northwest Arkansas Planning Council. Northwest Arkansas is continuing to grow and develop at an accelerated rate. Based upon this growth and subsequent development, the BWA focus is on strategies to decrease nutrients and sediments in tributaries of Beaver Lake. These strategies are intended to help develop citizen-led voluntary programs, minimize regulations affecting landowners and support the economic development of communities. Some practices that have been developed through these strategies include: Core voluntary BMPs, developer and contractor lake protection certification program, education and stewardship programs, a monitoring program and adaptive steps for lake and stream protection, and a Beaver Lake Watershed Council. The BWA's main goal is to help maintain a long-term and high quality drinking water supply.

The alliance has three primary objectives:

- Restore water quality of impaired streams and lake areas
- Work on voluntary and educational programs and projects
- Foster communication among diverse stakeholders

In January 2011, BWA submitted a WBP to ANRC. ANRC felt that the watershed based plan adequately addressed the nine key elements for WBPs as required by EPA. ANRC submitted the watershed based plan to EPA in February of 2011. At the time this annual report was written, ANRC has not yet received any finalized comments or an acceptance letter from EPA's Region 6.

7 UPDATED PROJECTS:

Active 319 Projects within Priority, TMDLs, and Non-Priority Watersheds:

In the state of Arkansas, a tool has been developed to help prioritize watersheds that are in need of attention to help reduce NPS pollution. Through the SWAT modeling tool the 2011-2016 NPS Management Update has prioritized ten main watersheds using a risk assessment matrix. These ten watersheds include Bayou Bartholomew, Beaver Reservoir/Upper White, Cache River, Illinois River, Lake Conway Point Remove, L'Anguille River, Lower Ouachita-Smackover, Poteau, Strawberry River, and Upper Saline River. Along with the priority watersheds that have been identified in the 2011-2016 management plan, waterbodies having TMDLs from nonpoint source automatically become a priority within Arkansas' NPS Management Program also. Summarized below is a list of active projects found within priority, TMDLs, and non-priority watersheds. Some of these projects are found in multiple watersheds. Statewide projects are listed at the end of this section.

Priority & TMDL Watershed Projects:

Bayou Bartholomew (NPS Priority & TMDL):

Project	Project Timeline	Budgeted Dollars	Project Description	Project Accomplishments
07-1600: Desha County Erosion Control	October 1, 2010- December 31, 2011	Federal:$282,500 Match: $282,500	To purchase and install pipes and supplies to help reduce erosion.	Bid was solicited in early October 2010. Bid sheets were faxed to various vendors. Installation started in October 2010. As of October 2011 80% of the implementation is complete.
08-300: A Comprehensive Watershed Response Modeling for a 12-digit HUC in Selected Priority Watershed in Arkansas	July 1, 2008- June 30, 2011 This project's final report was received in December of 2011 and submitted to EPA January 2011.	Federal: $169,106 Match: $127,571	Calibrate the SWAT model at the 12-digit HUC scale rank based on their contribution to NPS pollution	The model set up, calibration and validation using latest version of SWAT 2009 for four 8-digit HUC watersheds (Illinois River, Beaver Reservoir, Lake Conway Point Remove, and Bayou Bartholomew) was completed. A poster presentation was made at the Cyber Infrastructure Day in May of 2010 and received a first place award.

Bayou Macon (TMDL):

Project	Project Timeline	Budgeted Dollars	Project Description	Project Accomplishments
07-1600: Desha County Erosion Control	Please see Bayou Bartholomew	Please see Bayou Bartholomew	Please see Bayou Bartholomew	Please see Bayou Bartholomew

Beaver Reservoir/Upper White (NPS Priority):

Project	Project Timeline	Budgeted Dollars	Project Description	Project Accomplishments
07-400: West Fork White River (WFWR) Streambank Restoration Project	October 1, 2007- December 31, 2010 The final report was received to ANRC in October of 2011 which closed the project.	Federal: $231,524 Match: $174,659	To restore an unstable section of the West Fork White River (WFWR), to reduce sediment loads from banks, improve water quality, and enhance aquatic and terrestrial habitat.	Implementation of the stream restoration design at the project site where 2 storms events occurred, producing discharge rates greater than the designed flows and the restoration performed well. The acquisition of a conservation easement located along a portion of the restoration site.
07-410:WFWR Streambank Restoration Project Phase II at the Fayetteville Airport	December 1, 2009- May 31, 2011 This final report was received to ANRC in June of 2011 which closed the project.	Federal: $115,076 Match: $92,812	To develop a streambank restoration plan to restore an unstable section of the WFWR that runs through the city of Fayetteville Municipal Airport property.	Completion of the data collection for the site. Project was originally to develop a design for a 3,000 foot section of the river. The project scope was expanded to include an additional 2,000 feet to create the best opportunity for a successful restoration.
07-2000: WFWR Streambank Restoration Repair	June 1, 2011- August 31, 2011	Federal: $19,950 Match: $15,055	To repair a streambank restoration project (07-400) that was implemented in 2009, following a flood event in April of 2011.	This repair restored the full functionality to the original restoration site. This will continue to reduce sediment loads from banks, and improve water quality.
08-300: A Comprehensive Watershed Response Modeling for a 12-digit HUC in Selected Priority Watershed in Arkansas	Please see Bayou Bartholomew	Please see Bayou Bartholomew	Please see Bayou Bartholomew	Please see Bayou Bartholomew
08-1100: Enhancement of Riparian Buffer Inventorying Algorithm for Field Use	July 1, 2011- March 31, 2013	Federal: $98,059 Match: $42,025	To create a cartographic/spatial inventory of riparian cover in Beaver Reservoir watershed by accounting for topography and land use, to develop a desktop based tool and its evaluation by the involvement of stakeholders through a Scientific Advisory Committee.	In the process of review of GIS studies on determining riparian buffer zones and organizing a Scientific Advisory Committee.

09-400:Northwest Arkansas Water Quality Trends	July 1, 2009- June 30, 2011	Federal: $54,537 Match: $41,016	To organize water quality data from projects funded by the ANRC 319 Program, and determine if selected flow-weighted constituent concentrations are changing with time.	This project showed a decrease in constituent concentrations at all of the selected sites in both priority watersheds. It exhibited significant decreasing trends in SRP and TP, and decreasing trends in TSS.
09-1200: Clear Creek Riparian	July 1, 2009-August 15, 2011 This final report was received in August of 2011 which closed out the project.	Federal: $250,000 Match: $188,598	This riparian area management education and demonstration project targeted streamside landowners and engaged them in streamside management and management policy.	Participation rates and adoption of new BMPs by participants exceeded expectations. Participants engaged in shaping the newly created "streamside protection ordinance". Various residents, municipalities, and watershed organizations are taking what they have learned from this project and incorporating such management, policy creation, stakeholder engagement, and watershed approaches.
09-1600:WFWR Streambank Restoration at Fayetteville Airport: Phase II	December 1, 2010- December 31, 2012	Federal: $458,146 Match: $345,619	To implement a river restoration design that is developed f or the project 07-410: WFWR Stream Restoration at Fayetteville Airport: Phase I.	2011 was laying the groundwork for implementing this river restoration project. Accomplishments include outreach efforts that were used to educate the general public about stream and river restoration and the selection of a vendor to conduct geologic testing.
09-1700: NPS Pollution BMP E-Education	December 1, 2010- February 15, 2013	Federal: $240,980 Match: $181,792	This project is to develop and use electronic teaching tools to reduce nutrient nonpoint source pollution in Arkansas' Nutrient Surplus Areas (NSA).	Partnerships with County Agents and State Faculty who are partnering on the planning, implementation and evaluation of the BMP E-Education materials have been established. Video storyboards, scripts and podcasts have also been developed that are applicable through the NPS management program.
09-1900: White River Streambank Restoration Project	September 1, 2010- January 31, 2012	Federal: $198,001 Match: $154,075	This project is to restore 1000 feet of streambank on the White River near the Fayetteville waste water treatment plant and to reduce sediment and phosphorus loads, improve water quality, and enhance aquatic and terrestrial habitat.	2011 has been spent collecting monitoring data, site specific data for developing a restoration plan, and developing a robust bid document for selection of a contractor to construct the project.

09-2000: Mullins Branch Streambank Restoration Project	October 1, 2010- March 31, 2012	Federal: $ 240,000 Match: $225,000	To develop and implement a stream restoration plan for a section of Mullins Branch. The stream section to be repaired will help to reduce sediment and nutrient loads that are received by the WFWR and Beaver Lake.	2011 has been spent collecting monitoring data, site specific data for developing a restoration plan, and working to develop a coordinated plan for implementing the restoration plan. A draft restoration plan has been developed and a final plan is being completed. Draft construction specifications have been developed.
10-500: Green Development Workshop	December 1, 2010- March 31, 2011	Federal: $8,595 Match: $7,625	This workshop helped to educate developers, engineers, landscape architects and city planners on the concept of protecting existing forests for their water quality benefits and enhancing these forests to improve ecosystem services.	The workshop was completed and successful and evident by the representation of various professionals and individuals, who impact water quality issues. Materials that were included in the workshop packets contained the LID book from the U of A Community Design Center and descriptions of various projects implemented in Northwest Arkansas that addresses water quality, and educational materials from the AFC and the US Forest Service.
11-300: Rain Gardens for Beaver Lake: A Blooming Good Idea	July 1, 2011-June 30, 2014	Federal: $139,702 Match: $105,835	The project is to reduce nutrient and sediment load into the WFWR and Beaver Lake/White River to improve water quality, and enhance aquatic and terrestrial habitat.	This project has developed a list of potential rain garden demonstration cooperators. As of October 14, 2011, the list includes in the Beaver Watershed: West Fork Public Schools, West Fork; Montessori School, Fayetteville; Fayetteville High School, Fayetteville; Beaver Water District, Lowell; Hickory Creek Park, Rogers.
11-500: Water Quality Monitoring in the Upper Illinois River and Upper White Watersheds	July 1, 2011-September 30, 2015	Federal: $728,000 Match: $621,197	This project will collect and analyze 46 water samples at 19 sites annually in the Upper Illinois Watershed and Upper White River Basin to estimate annual constituent loads and trends. This project will also collect water samples and measure physico-chemical properties in stream reaches on the 303(d) list to address impairment by pathogens and dissolved oxygen.	QAPP has been developed and revised; stage monitoring equipment has been installed at Sager Creek; and around 40 samples have been collected at the 19 sites in the UWRB and UIRW.

11-1500: Upper White River Watershed/Streambank Protection and Stabilization	July 1, 2011- December 31, 2012	Federal: $115,880 Match: $136,724	The project is to restore unstable sections of streams and rivers in the upper White River watershed to reduce sediment loads from banks, improve water quality, and enhance aquatic and terrestrial habitat.	This project has just started; no major accomplishments have been made to date.

Boeuf (TMDL):

Project	Project Timeline	Budgeted Dollars	Project Description	Project Accomplishments
07-1600: Desha County Erosion Control	Please see Bayou Bartholomew	Please see Bayou Bartholomew	Please see Bayou Bartholomew	Please see Bayou Bartholomew

Bull Shoals (TMDL):

Project	Project Timeline	Budgeted Dollars	Project Description	Project Accomplishments
11-1400: Crooked Creek Watershed Project	July 1, 2011- June 30, 2014	Federal: $ 233,575 Match: $177,500	To maintain or restore all designated uses of the Crooked Creek Watershed by implementing a program of voluntary participation of landowners and land users in the application of BMPs. Development of 150 conservation plans on 42,150 acres of pastureland and 6.5 miles of stream bank protection in the Crooked Creek Watersheds.	27 BMPs have been developed, the Conservation District has assisted those 27 farmers with layout and design of the BMPs, and around 17 applications have received payment.

Cache River (NPS Priority):

Project	Project Timeline	Budgeted Dollars	Project Description	Project Accomplishments
07-1500: Poinsett County Erosion Control Project: Phase II	September 1, 2010- June 30, 2012	Federal: $87,500 Match: $87,500	To purchase pipe and pipe supplies that will reduce erosion, thus reducing sediment and nutrients from entering impaired waterbodies	Bids of materials have been solicited. Materials and supplies have been purchased with 40% of structures installed.

11-1600: Cache River Monitoring Project	July 1, 2011- June 30, 2014	Federal: $254,420 Match: $211,232	To measure the effectiveness of the BMPs implemented with the Mississippi River Basin Initiatives (MRBI). Constituents monitored include measures Total Suspended Solids, Turbidity, Dissolved Oxygen, pH, Nitrate, Nitrite, Orthophosphate, Total Nitrogen, and Total Phosphorus.	A total of 6 sites have been identified for monitoring. A total of 49 samples were each analyzed.

Illinois River (NPS Priority):

Project	Project Timeline	Budgeted Dollars	Project Description	Project Accomplishments
08-300: A Comprehensive Watershed Response Modeling for a 12-digit HUC in Selected Priority Watershed in Arkansas	Please see Bayou Bartholomew	Please see Bayou Bartholomew	Please see Bayou Bartholomew	Please see Bayou Bartholomew
08-600: Demonstrating Runoff Capture from Poultry Houses to Improve Water Quality in 12-Digit HUCs of the Illinois River Watershed	October 1, 2008- September 30, 2011	Federal: $199,351 Match: $150,403	To demonstrate the effectiveness of BMPs that impounds runoff from poultry houses to reduce phosphorus (P), nitrogen (N), sediment, and bacteria loss in runoff.	Runoff from poultry houses continue. Data that is directly relevant to EPAs concern of nutrient emissions from poultry house facilities has been collected.
09-400: Water Quality Trends across Select Monitoring Sites in Northwest Arkansas	Please see Beaver Reservoir/Upper White	Please see Beaver Reservoir/Upper White	Please see Beaver Reservoir/Upper White	Please see Beaver Reservoir/Upper White
09-1300: Sager Creek Urban Streambank Restoration: Phase II	February 1, 2010- September 30, 2011	Federal: $300,411 Match: $240,351	To restore the natural hydrology, stream channel geomorphology and habitat enhancement in a reach of Sager Creek in downtown Siloam Springs, and reduce sediment and nutrient transport in the system during storm flows.	Completion of channel restoration. Removal of a low water dam thus restoring natural hydrologic condition.
09-1700: NPS Pollution Prevention BMP E-Education	Please see Beaver Reservoir/Upper White	Please see Beaver Reservoir/Upper White	Please see Beaver Reservoir/Upper White	Please see Beaver Reservoir/Upper White
09-1800: Relations between biological communities and nutrient concentrations, land use, and other environmental factors for streams in the Illinois River Basin in northwestern Arkansas	October 1, 2010- December 31, 2012	Federal: $250,000 Match: $188,596	To describe biological communities (periphyton, macroinvertebrates, and fish) and relate the communities to nutrient concentrations, land use, nutrients and other environmental factors in the Illinois River Basin.	14 sites have already had samples collected. Out of those 14 sites that have been sampled preliminary data analysis of fish and habitat data has been initiated.
10-500: Green Development Workshop	Please see Beaver Reservoir/Upper White	Please see Beaver Reservoir/Upper White	Please see Beaver Reservoir/Upper White	Please see Beaver Reservoir/Upper White

11-200: Planning for Streambank Restoration at the Botanical Garden of the Ozarks	July 1, 2011- October 31, 2012	Federal: $38,680 Match: $33,403	To develop a detailed plan that will reduce sedimentation and establish a healthy riparian zone along Hilton Creek and two other smaller watercourses that pass through the Botanical Garden of the Ozarks. The discharges eventually flow into the Illinois River.	A RFQ has been developed and bid solicited to develop the plan.
11-400: Evaluation and Design of Rain Gardens for Enhancement of Water Quality in the Illinois River watershed	July 1, 2011- June 30, 20114	Federal: $210,288 Match: $160,627	To reduce nutrient and sediment load into the Illinois River watershed and to improve water quality. Implementation of 30 Demonstration Rain Gardens in Public/Quasi-public locations in the Illinois River Watershed and to institutionalize rain gardens as a nonpoint source best management practice in Northwest Arkansas.	A list of potential rain garden demonstration cooperators has been developed. This list includes elementary and middle schools, the Springdale Airport, Siloam Springs Library, and the Walton Arts Center, Fayetteville.
11-500: Water Quality Monitoring in the Upper Illinois River Watershed and Upper White River Basin	Please see Beaver Reservoir/Upper White	Please see Beaver Reservoir/Upper White	Please see Beaver Reservoir/Upper White	Please see Beaver Reservoir/Upper White

Lake Conway-Point Remove (NPS Priority):

Project	Project Timeline	Budgeted Dollars	Project Description	Project Accomplishment
08-300: A Comprehensive Watershed Response Modeling for a 12-digit HUC in Selected Priority Watershed in Arkansas	Please see Bayou Bartholomew	Please see Bayou Bartholomew	Please see Bayou Bartholomew	Please see Bayou Bartholomew
11-600: Water Quality Monitoring for the Lake Conway Point Remove Watershed (HUC #11110203)	July 1, 2011- October 31, 2014	Federal: $373,384 Match: $260,832	Monitoring water quality in the Lake Conway Point Remove watershed. The project is collecting, analyzing and reporting water quality and discharge data to provide parameter loadings and unit area loadings in assorted 12 digit HUCs.	A QAPP has been developed and approved, ten monitoring stations have been installed, and 12 grab samples have been collected and analyzed.
11-700: Conway County Point Remove Water Quality Project	July 1, 2011- June 30, 2014	Federal: $69,000 Match: $56,000	To implement various BMPs including waste transfer, cover crop, pasture and hayland planting, nutrient management and waste utilization that will increase the demand for a litter spreader.	9 nutrient management plans have been developed. Bids for the spreader were approved and was expected to be delivered to the Conservation District by October 2011.

L'Anguille River (NPS and TMDL Priority):

Project	Project Timeline	Budgeted Dollars	Project Description	Project Accomplishments
06-1700: Cross County Erosion Control Project	June 1, 2009- September 30, 2011 The final report was submitted to ANRC in June of 2011.	Federal: $450,000 Match: $450,000	To prevent erosion, improve water quality, decrease damage to the land and reduce water conveyance losses through proper management of irrigation water.	440 water control structures have been installed. 131,200 feet of water transfer structures were also installed.
06-1800: Water Quality Monitoring on Larkin Creek Lateral 1-A, St. Francis County, AR	May 1, 2010- September 30, 2010 The final report was submitted to ANRC in November 2011 which closed out the project	Federal: $ 10,000 Match: $0	To obtain base line water quality data via water quality parameter measures prior to BMP implementation.	Completed selection of 3 sites for sample collection. A total of 48 samples were collected and TSS (run in triplicate), pH, DO, nitrate, nitrite, and orthophosphate were determined on all samples.
07-1500: Poinsett County Erosion Control Project Phase II	Please see Cache River	Please see Cache River	Please see Cache River	Please see Cache River
08-800: St. Francis & Lee County Larkin Creek Sediment Prevention Demonstration Project Phase II	October 1, 2010- June 30, 2013	Federal: $800,000 Match: $488,825	To reduce sediment loading of the Lateral 1-A drain of Larkin Creek and its tributaries as it flows to the L'Anguille River and establish protective grass buffer strips.	Channel restoration has been finished. Excavation began in June of 2011 and finished in November of 2011. The landowners living in the watershed levied a self-assessment property tax to help maintain the project site once complete.
08-900: Geospatial Inventorying and Optimization Analysis for Best Management Practices (BMPs) in 12-digit HUC subwatersheds in L'Anguille River Watershed	July 1, 2009- June 30, 2011 The final report was received by ANRC in August of 2011 and submitted to EPA in August 2011.	Federal: $87,508 Match: $58,339	To develop an algorithm and creation of an inventory of riparian cover at the watershed scale, an optimization framework that identifies BMPs for maximizing NPS pollutant reduction potential, and a geo-database of existing and proposed BMPs for educational purposes.	This project has presented a method for conducting riparian buffer inventory using an automated algorithm. Testing of this algorithm was conducted on a test case watershed. A suite of BMPs was also identified for the selected watershed at the 12 digit scale.
09-300: : Lower L'Anguille River Watershed Cost-Share Project – Phase III	July 1, 2009- June 30, 2012	Federal: $98,720 Match: $122,860	Encourage the use of BMPs to continue addressing the problem of sedimentation from agricultural lands and to educate producers on the importance of improving water quality.	All funds have been allocated with 90% of practices completed and installed.
11-1700: Water Quality Monitoring for the L'Anguille Watershed (HUC #08020205)	July 1, 2011- September 30, 2012	Federal: $106,047 Match: $80,132	Monitoring water quality and loadings in assorted 12 digit HUCs in the greater L'Anguille HUC.	A QAPP has been developed and approved by EPA, finished the establishment of five monitoring stations, and the collection of 39 samples.

11-1900: Demonstration of runoff, sediment and nutrient loss reduction with conservation tillage of soybean/rice rotations in the L'Anguille Watershed (HUC# Code08020205)	July 1, 2011- December 31, 2014	Federal: $163,000 Match: $123,565	To demonstrate the effectiveness of conservation tillage of soybean-rice rotations to enhance soil water storage and reduce phosphorus (P), nitrogen (N) and sediment loss in runoff.	This project has just started. There have not been any major accomplishments to date.

Lower Ouachita-Smackover (NPS Priority):

There are no current NPS 319 projects within the Lower Ouachita-Smackover Watershed to date.

North Fork White (TMDL):

Project	Project Timeline	Budgeted Dollars	Project Description	Project Accomplishments
10-600: Fulton County No-Till Drill	May 15, 2011-June 30, 2011 Project complete.	Federal: $0 Match: $15,000	To provide a means for Fulton County landowners to have available a no-till drill to inter-seed cool season grasses and legumes that will uptake nutrients during dormancy of warm season grasses and prevent sedimentation.	The drill was purchased in July 2011 and usage records will be reported for a period of five years.
11-1300: Lower Norfork Dam Watershed Project	July 1, 2011- June 30, 2014	Federal: $255,325 Match: $192,500	Encourage the use of BMPs to continue addressing the problem of sedimentation from agricultural lands and to educate producers on the importance of improving water quality.	18 conservations plans have been written. Fifteen applications have been approved and 7 have been paid. Solicited a bid for a no-till drill. Purchase of the no-till drill has been approved.

Poteau (NPS Priority):

Project	Project Timeline	Budgeted Dollars	Project Description	Project Accomplishments
09-1700: NPS Pollution Prevention BMP E-Education	Please see Beaver Reservoir/Upper White	Please see Beaver Reservoir/Upper White	Please see Beaver Reservoir/Upper White	Please see Beaver Reservoir/Upper White
11-800: Water Quality Monitoring for Selected Priority Watersheds in Arkansas: Upper Saline, Poteau and Strawberry Rivers	July 1, 2011- June 30, 2013	Federal: $175,200 Match: $138,334	To collect additional water samples across the selected 8 digit HUCs of Upper Saline, Poteau, and Strawberry Rivers to better understand how water quality changes across the headwaters. Estimate nitrogen (N), phosphorus (P), and sediment loads at select sites.	Sampling sites have been identified. Anticipated start date for sample collection is November 2011.

11-900: Development of Comprehensive Watershed Modeling for 12-digit Hydrologic Unit Code "HUC" in Selected Priority Watersheds in Arkansas- Phase II (Upper Saline, Poteau, and Strawberry)	July 1, 2011- June 30, 2013	Federal: $170,393 Match: $128,542	To calibrate and validate the SWAT model in subwatersheds within the 8-digit HUCs of Upper Saline, Poteau, and Strawberry River watershed are assessed and ranked based on their contribution to non-point source (NPS) pollution. A qualitative comparison of a yearlong monitoring data with the model output at the 12-digit HUC level will be performed.	This project has just started. No significant accomplishments to date.

Strawberry (NPS Priority):

Project	Project Timeline	Budgeted Dollars	Project Description	Project Accomplishments
07-1000: Strawberry River Sub Watersheds Monitoring	March 1, 2008- May 31, 2012	Federal: $80,945 Match: $61,063	To measure the effectiveness of the BMPs via water quality parameter measures (Total Suspended Solids, Nitrate, Nitrite, and Orthophosphate) prior to, during, and following BMP implementation.	Funding for additional water quality parameters has been secured through a USGS 104B grant. Post Implementation monitoring began in July 2011.
08-500: Strawberry River Sub Watersheds Project	July 1, 2008- June 30, 2011 The final report was submitted to ANRC in August of 2011 which closed out the project.	Federal: $595,769 Match: $509,519	Encourage the use of BMPs to continue addressing the problem of sedimentation from agricultural lands and to educate producers on the importance of improving water quality.	193 BMPs were implemented during this project.
10-600: Fulton County No-Till Drill	Please see North Fork White	Please see North Fork White	Please see North Fork White	Please see North Fork White
11-800: Water Quality Monitoring for Selected Priority Watersheds in Arkansas: Upper Saline, Poteau, and Strawberry	Please see Poteau	Please see Poteau	Please see Poteau	Please see Poteau
11-900: Development of Comprehensive Watershed Monitoring for 12-digit Hydrologic Unit Code "HUC" in Selected Priority Watersheds in Arkansas Phase II (Upper Saline, Poteau, and Strawberry)	Please see Poteau	Please see Poteau	Please see Poteau	Please see Poteau
11-1000: Strawberry River Improvement Project	July 1, 2011- June 30, 2014	Federal: $178,662 Match: $147,146	To implement conservation plans on 40,500 acres of pasture and hay land, ultimately to remove the Strawberry River from the list of impaired waterbodies.	13 conservation plans have been developed. With those plans, 25 applications have been approved and 7 applications have received payment.

11-1100: Strawberry River Sub Watershed Improvement Project	July 1, 2011- June 30, 2014	Federal: $182,388 Match: $149,960	To implement conservation plans on 42,572 acres of pasture and hay land, ultimately to remove the Strawberry River from the list of impaired waterbodies.	12 conservation plans have been developed. 15 applications approved with no BMPs installed.

Upper Saline (NPS Priority):

Project	Project Timeline	Budgeted Dollars	Project Description	Project Accomplishments
11-800: Water Quality Monitoring for Selected Priority Watersheds in Arkansas: Upper Saline, Poteau, and Strawberry	Please see Poteau	Please see Poteau	Please see Poteau	Please see Poteau
11-900: Development of Comprehensive Watershed Monitoring for 12-digit Hydrologic Unit Code "HUC" in Selected Priority Watersheds in Arkansas Phase II (Upper Saline, Poteau, and Strawberry)	Please see Poteau	Please see Poteau	Please see Poteau	Please see Poteau

Other Watershed Projects: Non-Priority/Non-TMDL:

Bayou Meto:

Project	Project Timeline	Budgeted Dollars	Project Description	Project Accomplishments
10-400: Arkansas County Erosion Control Project – Phase III	October 1, 2010- May 31, 2011 The final report was submitted to ANRC in July of 2011 which closed out the project.	Federal: $0 State: $40,000 Match: $40,000	To prevent erosion through the implementation of water control structures.	This project affected 6,435 acres of land. 40 water control structures were installed with 4,237 feet of pipe installed.

Dardanelle Reservoir:

Project	Project Timeline	Budgeted Dollars	Project Description	Project Accomplishments
07-1900: Logan County Litter Spreader	June 1, 2011- September 30, 2011 Project Complete	Federal: $9,125 Match: $9,125	To purchase a hydraulic litter spreader for poultry, dairy and beef producers to use in applying chicken litter.	The spreader was purchased in August 2011 and usage records will be reported for a period of five years.

Eleven Point:

Project	Project Timeline	Budgeted Dollars	Project Description	Project Accomplishments
09-700: Eleven Point River Watershed Improvement Project	October 1, 2009- September 30, 2012	Federal: $169,500 Match: $158,960	To implement conservation plans on 39,600 acres of pasture and hay land, ultimately to remove the Eleven Point River from the list of impaired waters.	132 conservation plans have been completed. 49 BMPs have been installed.

Elk (Little Sugar):

Project	Project Timeline	Budgeted Dollars	Project Description	Project Accomplishments
09-1700: NPS Pollution Prevention E-Education	Please see Beaver Reservoir/Upper White	Please see Beaver Reservoir/Upper White	Please see Beaver Reservoir/Upper White	Please see Beaver Reservoir/Upper White
10-500: Green Development Workshop	Please see Beaver Reservoir/Upper White	Please see Beaver Reservoir/Upper White	Please see Beaver Reservoir/Upper White	Please see Beaver Reservoir/Upper White

Greenville:

Project	Project Timeline	Budgeted Dollars	Project Description	Project Accomplishments
07-1600: Desha County Erosion Control	Please see Bayou Bartholomew	Please see Bayou Bartholomew	Please see Bayou Bartholomew	Please see Bayou Bartholomew

Lake O' the Cherokees:

Project	Project Timeline	Budgeted Dollars	Project Description	Project Accomplishments
09-1700: NPS Pollution Prevention E-Education	Please see Beaver Reservoir/Upper White	Please see Beaver Reservoir/Upper White	Please see Beaver Reservoir/Upper White	Please see Beaver Reservoir/Upper White
10-500: Green Development Workshop	Please see Beaver Reservoir/Upper White	Please see Beaver Reservoir/Upper White	Please see Beaver Reservoir/Upper White	Please see Beaver Reservoir/Upper White

Little River Ditches:

Project	Project Timeline	Budgeted Dollars	Project Description	Project Accomplishments
09-1500: Poinsett County Erosion Control Project	April 1, 2010- December 31, 2012	Federal: $105,000 Match: $105,000	Reduce erosion through the implementation of water control structures.	All materials have been purchased. 60% of structures have been installed.
11-2000 S: Little River Ditches Watershed Monitoring	September 1, 2011- December 31, 2012	Federal: $126,219 Match: $95,965	To measure the effectiveness of the BMPs associated with a Mississippi River Basin Initiatives (MRBI) prior to, during, and following BMP implementation.	This project has not had any major accomplishments due to the start date being September 2011.

Lower Arkansas:

Project	Project Timeline	Budgeted Dollars	Project Description	Project Accomplishments
07-1600: Desha County Erosion Control Project-Phase II	Please see Bayou Bartholomew	Please see Bayou Bartholomew	Please see Bayou Bartholomew	Please see Bayou Bartholomew
10-400: Arkansas County Erosion Control Project-Phase III	Please see Bayou Meto	Please see Bayou Meto	Please see Bayou Meto	Please see Bayou Meto

Lower Arkansas-Maumelle:

Project	Project Timeline	Budgeted Dollars	Project Description	Project Accomplishments
07-1700: A Rain Garden for Demonstration and Outreach	April 1, 2011- March 31, 2012	Federal: $15,000 Match: $11,520	To establish a demonstration rain garden at the U of A Cooperative Extension Complex in Little Rock to be used for education and demonstration.	A contact has been signed and construction work is underway.

Lower Mississippi-Helena:

Project	Project Timeline	Budgeted Dollars	Project Description	Project Accomplishments
07-1600: Desha County Erosion Control Project-Phase II	Please see Bayou Bartholomew	Please see Bayou Bartholomew	Please see Bayou Bartholomew	Please see Bayou Bartholomew

Lower Neosto (Spanivaw):

Project	Project Timeline	Budgeted Dollars	Project Description	Project Accomplishments
09-1700: NPS Pollution Prevention E-Education	Please see Beaver Reservoir/Upper White	Please see Beaver Reservoir/Upper White	Please see Beaver Reservoir/Upper White	Please see Beaver Reservoir/Upper White
10-500: Green Development Workshop	Please see Beaver Reservoir/Upper White	Please see Beaver Reservoir/Upper White	Please see Beaver Reservoir/Upper White	Please see Beaver Reservoir/Upper White

Lower St. Francis:

Project	Project Timeline	Budgeted Dollars	Project Description	Project Accomplishments
06-1600: Crittenden County Erosion Control Project	July 1, 2009- December 31, 2010 The final report was submitted to ANRC in February of 2011 which closed out the project.	Federal: $93,816 Match: $93,816	Reduce erosion through installing water control structures.	Installation of 73 pipes and 107 flash board risers were installed on 37 farms.

06-1700: Cross County Erosion Control Project	Please see L'Anguille	Please see L'Anguille	Please see L'Anguille	Please see L'Anguille
09-1500: Poinsett County Erosion Control Project	Please see Little River Ditches	Please see Little River Ditches	Please see Little River Ditches	Please see Little River Ditches

Lower White:

Project	Project Timeline	Budgeted Dollars	Project Description	Project Accomplishments
10-400: Arkansas County Erosion Control Project-Phase III	Please see Bayou Meto	Please see Bayou Meto	Please see Bayou Meto	Please see Bayou Meto

Middle White:

Project	Project Timeline	Budgeted Dollars	Project Description	Project Accomplishments
10-600: Fulton County No-Till Drill	Please see North Fork White	Please see North Fork White	Please see North Fork White	Please see North Fork White

Mountain Fork:

Project	Project Timeline	Budgeted Dollars	Project Description	Project Accomplishments
09-1700: NPS Pollution Prevention E-Education	Please see Beaver Reservoir/Upper White	Please see Beaver Reservoir/Upper White	Please see Beaver Reservoir/Upper White	Please see Beaver Reservoir/Upper White

Petit Jean:

Project	Project Timeline	Budgeted Dollars	Project Description	Project Accomplishments
07-1900: Logan County Litter Spreader	Please see Dardanelle Reservoir	Please see Dardanelle Reservoir	Please see Dardanelle Reservoir	Please see Dardanelle Reservoir

Spring:

Project	Project Timeline	Budgeted Dollars	Project Description	Project Accomplishments
10-600: Fulton County No-Till Drill	Please see North Fork White	Please see North Fork White	Please see North Fork White	Please see North Fork White
11-1200: Southfork of the Spring River Sub Watersheds Project	July 1, 2011- June 30, 2014	Federal: $282,725 Match: $385,867	To maintain or restore all designated uses of the Southfork of the Spring River Sub Watersheds through voluntary participation of landowners and land users. Implementation of 150 conservation plans and 6.5 miles of stream bank protection	Development of 29 farm plans has been finished. 29 applications have been approved with 15 receiving payment for installed BMPs. A total of 11 return visits to farms that have installed BMPs.

Upper Arkansas:

Project	Project Timeline	Budgeted Dollars	Project Description	Project Accomplishments
09-1700: NPS Pollution Prevention E-Education	Please see Beaver Reservoir/Upper White	Please see Beaver Reservoir/Upper White	Please see Beaver Reservoir/Upper White	Please see Beaver Reservoir/Upper White

State Wide Projects:

Project	Project Timeline	Budgeted Dollars	Project Description	Project Accomplishments
08-700: Arkansas Forestry Commission Statewide Silvicultural Assessment	October 1, 2008- September 1, 2011 The final report has not been submitted to ANRC. Once the final report is submitted this project will be completed.	Federal: $232,200 Match: $197,800	A state wide assessment to evaluate the use of BMPs in silvicultural activities.	All nine AFC Districts have been assessed. A report has been completed and placed on the AFC web-page for viewing. AFC has put on 24 workshop trainings for professionals, published 9,500 copies of the AFC BMP book and distributed 6,000 copies of the BMP handout brochures.
08-1000: NPS Management Plan Update for 2011-2016	July 1, 2009- June 30, 2012	Federal: $486,775 Match: $362,619	To provide continuing update support for the preparation, publication and distribution of the Arkansas NPS Management Plan.	The update of the management plan has been submitted to EPA. Continuing efforts to meet with other state entities, stakeholders and non-profit organizations to provide input. Also continuing efforts to provide updates to the milestones.
10-200: Water Quality Tech Program to Develop Nutrient Management Plans in Nutrient Surplus Areas (not necessary state wide)	July 1, 2010- June 30, 2012.	Federal: $0 Match: $1,440,000	This project enlists the Conservation Districts in the preparation and development of Nutrient Management Plans (NMPs) in Arkansas.	A total of 1,650 plans have been completed.
10-300: Conserving Natural Resources through Forest Stewardship Management Plans	July 1, 2010- September 30, 2012	Federal: $0 State: $55,000 Other Non-Federal: $55,156	To coordinate FSMP Development. Consultant Foresters will work with and assist private landowners in completing a minimum of 50 FSMPs and up to but not restricted to 30,000 acres within the project areas.	76 Stewardship plans have been developed, 4 trainings and 6 news articles have been published.

8 MILESTONE REPORTING:

The 2011 Accomplishments toward the 2011-2016 NPS Management Program: Appendix A from the 2011-2016 NPS Management Plan:

The Arkansas 2011 Annual Report is the documentation of the progress made toward achieving the NPS Management Program Plan. While the main focus of work done is in the field of agriculture, this program has made contributions toward silviculture, resource extraction, surface erosion, and urban runoff activities. Objectives listed below are milestones that ANRC and other stakeholders from the state developed and are trying to achieve utilizing the 2011-2016 NPS Management Plan as a guide. The status of the milestone is dependent on progress made in this past year, even though these are still in a developmental stage. The progress of meeting the stated milestone is noted in the "status" column and is defined in the following manner:

- **Ongoing**: related projects funded by the NPS Program or others
- **Perpetual**: reoccurring or a continuation of planning or activities funded by the NPS Program or others
- **Partially complete**: significant accomplishment made but additional work is needed or is planned
- **Completed**: the milestone is met
- **No Progress**: no substantial progress made, or when one of the following conditions apply:

    1. Currently no program, mechanism or infrastructure is in place to facilitate meeting the milestone
    2. The milestone is outside the parameters and/or conflicts with the Arkansas NPS Program

Objective	Milestone Description	Status
Agriculture		
4.1	Continue to encourage and provide technical assistance for the development of conservation plans, nutrient management plans and comprehensive nutrient management plans as well as implementation of BMPs through wide-ranging education and outreach programs. Due to the demand for technical assistance in developing conservation plans, nutrient management plans and comprehensive nutrient management plans, there is a need to recruit and train more technical assistance providers. To insure there is not a backlog of requests for developing plans for farmers, additional technical assistance providers are essential.	Perpetual
4.2	Improve measures of behavior change and analyze factors that influence behavior change in order to more effectively target education and outreach programs as well as other incentives.	Perpetual

4.3	Develop tools that enable measurement of the combined effect of implementing multiple BMPs in order to better evaluate the effectiveness of farming systems on the water quality of a watershed or sub-watershed.	Partially Complete
4.4	Develop an economic and risk assessment tool for agricultural producers to assist with decisions on management systems related to water quality protection, as resources allow. USDA has developed an assessment tool for use by agricultural producers for decision making on management systems related to water quality protection.	Partially Complete
4.5	Identify additional sources of funding for projects that demonstrate systematic approaches that enable farmers to achieve multiple goals (e.g., conserve water supply and protect water quality while achieving profitability goals).	Completed
4.6.	Improve the availability and access to information on agricultural and other land uses at the watershed and sub-watershed levels in order to better target implementation projects. While maintaining mandated confidentiality, make available information on the types, extent and distribution of land uses, BMPs in use, riparian buffers and total acres enrolled in conservation programs.	Partially Complete
4.7	Seek additional sources of funding to increase and improve the effectiveness of technical assistance to agricultural producers in planning resource management and with the implementation of BMPs, with special emphasis on nutrient surplus areas.	Partially Complete
4.8	Coordinate conservation planning to take full advantage of cost-share programs for riparian habitat improvement, Wetland Reserve Program (WRP), Conservation Reserve Program (CRP), the Wetland and Riparian Zone Tax Credit Program (through ANRC), and other programs.	Partially Complete
4.9	Encourage plans for alternative irrigation water supply, management and supplemental stream augmentation, including off-stream storage of surplus flows.	Partially Complete
4.10	Continue to focus on BMP implementation to improve conservation practices for erosion control, sediment retention, irrigation management and nutrient management on row crop and animal agriculture lands and farm forests. As appropriate, direct technical assistance to landowners in targeted watersheds giving emphasis to developing new conservation plans and riparian areas, especially those that connect established riparian corridors.	Partially Complete

4.11	Continue to provide and improve extensive education and training to promote BMP implementation (e.g., risk management, demonstrations to acquaint landowners with the conservation practices most effective in reducing runoff, sediment detachment and transport, including but not limited to no-till, conservation-till, ridge-till, pipe drop outlets, riparian zone management, and wetland restoration).	Partially Complete
4.12	Continue to encourage landowners to establish riparian buffers, vegetated filter strips, grass drainage ways, stabilize streambanks, and restore riparian areas.	Perpetual
4.13	Continue to provide technical assistance and make available financial assistance to agricultural operations where cost-share is a component of approved 319(h) implementation projects.	Perpetual
4.14	Develop strategies to more effectively assess the contribution of agriculture as a source of impairment in relationship to other sources of impairment in order to more effectively target resources at the watershed and sub-watershed levels (e.g., in the Illinois River 53 percent of phosphorus load is nonpoint source – how much of the nonpoint phosphorous load comes from agriculture?).	Partially Complete
4.15	Identify nutrient deficit areas more precisely to facilitate export of surplus poultry litter and develop a system for tracking where surplus litter is utilized. Continue to research and develop programs to remove surplus poultry litter from nutrient surplus areas.	No Progress
4.16	Work with major integrators and farm workers as well as landowners to encourage input from and cooperation with nutrient management planning and implementation.	Perpetual
4.17	Promote nutrient planning for farms that are below the threshold for classification as a Confined Animal Feeding Operation with dry manure.	Completed
4.18	Expand education for poultry producers with a special focus on the role that the producer plays in the "Big Picture" of nonpoint source pollution management (e.g., the relationship between biological processes and agricultural production processes as they relate to water quality).	Perpetual
4.19	Provide educational and technical assistance to support full implementation of nutrient application rules promulgated by ANRC.	Complete
4.20	Continue to promote positive relationships between state and federal agencies and agricultural producers in order to cultivate open communication in an environment of trust.	Perpetual

Objective	Milestone Description	Status
Silviculture		
5.1	Continue to strengthen outreach and training programs in BMP implementation for landowners and loggers by: • Developing additional mechanisms for delivering BMP implementation training targeted at private non-industrial landowners (e.g., educational workshops, expanded local partnerships in areas where there are high concentrations of private non-industrial landowners and increasing emphasis on woodland management in farm planning). • Placing BMP outreach and training programs aimed at private non-industrial forestland owners in the broader economic context on the assumption that landowners will better manage a resource they value.	Partially Complete
5.2	Continue to partner with the Arkansas Forestry Association and its Forest Practices Committee as well as the Arkansas Timber Producers Association to deliver and evaluate the effectiveness of BMP training to effect behavioral change as measured by BMP implementation, training and technology use.	Completed
5.3	Continue to promote incentives for landowners and/or loggers to increase voluntary BMP implementation. Review options to increase landowner incentives to adopt BMPs.	Perpetual
5.4	Continue to improve the quality of BMP implementation monitoring (e.g., increasing the sample size to improve the validity of subgroup results, identifying sites in riparian areas, and investigating alternatives to better identify the universe of harvest sites).	Perpetual
5.5	Continue assessing the effectiveness of silviculture BMPs to protect Arkansas water quality (e.g., reduce sedimentation) building on ongoing evaluation and recognizing that such assessment is a long-term, ongoing process. Consider conducting special assessments of high-quality headwater streams using synoptic surveys or other methods as resources allow.	Perpetual
5.6	Continue to review new research as it becomes available to re-evaluate AFC silviculture BMP guidelines, involving both scientists and stakeholders in the dialogue.	Perpetual

5.7	The state will participate in/support state, regional, and national forest conferences, workshops, or outreach trainings when appropriate.	Partially Complete
5.8	Provide specialized technical assistance, outreach, supplies and/or equipment as appropriate to enhance project implementation and assessment.	Ongoing
5.9	Respond to catastrophic events with timely and appropriate assessment of potential water quality effects. React and respond as dictated by situational analysis.	Perpetual

Objective	Milestone Description	Status
Resource Extraction		
6.1	Develop and implement education program for those receiving permits on BMPs to reduce nonpoint source pollution. Encourage participation in education workshops, stream teams and other educational programs through outreach and watershed groups.	No Progress
6.2	Continue to educate county and city government officials on resource extraction issues related to NPS pollution so they may identify and appropriately report non-permitted resource extraction activities.	Ongoing
6.3	Explore ways to identify and monitor resource extraction activities (e.g., explore with University of Arkansas Center for Advanced Spatial Technologies with the use of existing spatial data sets to identify resource extraction operations. Explore the possibility of cooperating with the Arkansas Forestry Commission (AFC) on its routine monitoring flights. Determine the cost of satellite imagery to identify "hot spots").	Ongoing
6.4	Continue to strengthen BMPs to fill gaps and remain consistent with changing research and practices. Update Surface Mining BMP Manual as needed. Develop BMPs for oil and gas extraction.	Ongoing
6.5	Create and maintain Geographical Information Systems (GIS) database of all resource extraction operations. Explore methods to use GIS to improve monitoring of BMP implementation and estimate the benefits of BMP implementation.	Partially Complete

Objective	Milestone Description	Status
Surface Erosion		
7.1	Partner with various local and watershed entities to compile and analyze current road conditions and usage, providing information on the number of miles of unpaved roads, surface materials, stream crossings and road density, using analysis of existing data, survey of county officials, and other methods.	No Progress
7.2	Review available construction and maintenance BMP manuals for low-volume and unpaved roads. Update and modify manuals as necessary and make available to county road crews and others upon request.	No Progress
7.3	Use construction and maintenance BMP manual for low-volume and unpaved roads for targeted education programs for county judges, quorum courts, maintenance workers and other interested county/city personnel on pollution prevention for rural roads including construction techniques, preferred surface materials, drainage practices, ditch maintenance, and erosion and sediment control.	No Progress
7.4	Continue to partner in the development of a BMP manual(s) to address prevention, management and maintenance of runoff from surface erosion, including construction.	No Progress
7.5	Develop an ongoing program to disseminate surface erosion BMPs and information through a variety of means (e.g., distribution of the surface erosion manual, training workshops, website content and demonstration projects).	No Progress
7.6	Seek new sources of funding, leverage existing funding and promote increased cooperation aimed at shifting focus from bank stabilization to reach restoration.	No Progress
7.7	Continue to implement a watershed based assessment protocol and BMPs for stream bank erosion, as funds allow.	Partially Complete
7.8	Prioritize stream reaches and sites for restoration within priority watersheds, as funds allow.	Partially Complete
7.9	Develop and promote education programs for landowners concerning streamside and lake side property management to reduce sources of nonpoint source pollution.	Perpetual

7.10	Develop and promote education programs for landowners and developers concerning proper stream corridor management and for professionals concerning stream corridor restoration practices.	Perpetual
7.11	Promote tax credits, cost share and other incentive programs that are available for riparian zone and stream corridor restoration projects and conservation easements.	Ongoing
7.12	Improve coordination of existing data among cooperating entities. Current data that are available to help with understanding and addressing this problem include 1) gauging stations/flow data for many streams; 2) ADEQ West Fork White River Watershed Assessment Report, which provides local erosion prediction curves for streambanks; 3) area rainfall data; 4) Geographical Information Systems (GIS) data; 5) U.S. Forest Service hydrological data; 6) The Nature Conservancy (TNC) flow model ; 7) regional discharge curves for the Ozark and Ouachita mountain areas; and 8) ADEQ and TNC eco-regional assessments.	Ongoing
7.13	As funds allow, develop data and conduct analysis to fill information gaps. Examples include: 1) geological survey of ground water; 2) fish and macroinvertebrate data and changes over time; 3) regional erosion prediction curves and streambank erosion potential data; 4) regional discharge curves for the Delta, Arkansas River Valley and Coastal Plains areas; 5) evaluation of riparian areas within critical watersheds; 6) change in stream length over time; and 7) sediment transport data throughout the state.	Perpetual

Objective	Milestone Description	Status
	Urban Runoff	
8.1	Assist ADH in evaluating and demonstrating promising alternatives to the standard septic tank/leach field systems as resources allow.	No Progress - #2
8.2	Use Geographical Information Systems (GIS) analysis and special assessments to identify critical areas. Utilize the information to target additional education opportunities for onsite wastewater treatment system outreach and awareness programs in cooperation with the ADH.	No Progress
8.3	Assist ADH in the development and implementation of outreach and awareness programs for home owners and business on BMPs for the proper operation and maintenance of on-site wastewater disposal systems.	No Progress
8.4	Work with ADH to increase awareness of sources of funds available for repairing malfunctioning or improperly installed septic systems.	No Progress #2

8.5	Assess the impact of household and business use of fertilizers, pesticides and other common products that do not require permits but can affect water quality in order to more effectively target outreach and awareness programs aimed at increasing use of BMPs, as resources allow.	No Progress
8.6	Encourage cooperating entities to work together to maintain a shared library of BMPs for the use, handling, storage and disposal of chemicals, oils and grease, cleaning agents, adhesives, lawn products, etc. that is readily accessible to households, municipalities, employers, and others.	Ongoing
8.7	Continue to develop and implement targeted education programs for specific products and high-impact audiences as resources allow (e.g., fertilizer and pesticide use, storage, handling and disposal for street and road crews, public utilities, golf course managers, and independent lawn maintenance crews).	Ongoing
8.8	Continue to maintain and implement broad-based education programs aimed at increasing awareness and disseminating best management practices to urban and rural households and businesses (e.g., HOME*A*SYST, URBAN*A*SYST).	Ongoing
8.9	Hazardous waste and pesticide container collection programs aimed at agricultural producers will be encouraged to promote to and accept containers from households and businesses as well.	Partially Complete

Lee Creek, Arkansas