

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 2012 Annual Report for the Arkansas Nonpoint Source (NPS) Pollution Management Program. In 2012 economic uncertainty and severe drought greatly influenced traditional implementation methods and the ability to get practices “on the ground”.



Starting in July through October of 2012 Arkansas was listed as D4 – “Exceptional Drought” on the U.S. Drought Monitor (produced in partnership between the National Drought Mitigation Center at the UN-Lincoln, USDA and NOAA). This hot and dry weather pattern produced one of the driest summers since 1963 and caused an eleven mile stretch of the Mississippi River to be closed to commercial traffic. The drought caused significant hardships for row crop farmers and animal agricultural producers. Those farmers and ranchers having access to available and adequate surface or ground waters were able to maintain their activities and production. Others not having adequate water supplies subsequently reduced production acres, herds, and in some cases went out of business.

The hardships created due to the weather transcended to the NPS program. Participation in implementation demonstrations slowed due to economics, and in some areas monitoring sites simply did not have flow to sample. Despite these issues, the Commission was able to initiate the implementation of the state’s 2011-2016 NPS Management Plan.

(While reviewing this report, keep in mind that:)

- Severe drought destroyed or damaged cropland and grassland vegetation. This will eventually contribute to a significant increase in surface erosion and runoff.
- More focus and dollars of the NPS Management Program have been directed to augmenting USDA-NRCSs Mississippi River Basin Initiative and the National Water Quality Initiative in the form of funding in-stream water quality monitoring for these two efforts.
- Arkansas previously submitted an update to its state NPS Management Plan to Region 6 for 2011-2016. Audits from the GAO, OMB and EPAs own internal audits recommended changes in the NPS Program nationally. Due to the forthcoming changes additional work and specificity will be needed to the NPS Management Plan and most specifically related to quantitative milestones.

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

Sincerely,

A handwritten signature in black ink, appearing to be the name of the Director. The signature is stylized and cursive, written over a white background.

Executive Summary:

The Arkansas Natural Resources Commission (ANRC) is the lead agency responsible for Arkansas's 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 primacy agency 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 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 2012 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 assist the Program in meeting 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
- 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 THE DROUGHT OF 2012:

The summer of 2012 was exceptionally hot and dry for Arkansas. The lack of rainfall along with extended periods of high temperatures contributed to major impacts on Arkansas landowners, particularly row crop farmers and animal agricultural producers. Beginning in July through October of 2012, Arkansas was listed as experiencing an exceptional (D4) drought according to the U.S. Drought Monitor. As of October 31st, 2012 a severe (D2) to extreme (D3) drought affected most areas of the state.

According to a study by the University of Arkansas Division Of Agriculture, ranchers in Arkansas lost greater than \$128 million due to drought conditions from August, 2011 through July, 2012. The losses were mostly the result of a short supply and rising costs of hay. It became too expensive to feed cattle, and these producers were forced to sell their livestock. At one point, 85% of pastures were rated by NRCS as being in poor or very poor condition. While shipping hay from surrounding areas was an option, red fire ants complicated the process. Many hay producers in the southeast United States operate in fire ant quarantined counties.

The severe drought damaged or destroyed a significant amount of grassland vegetation, particularly in northwest Arkansas. This, in turn, has left large areas of lands without adequate groundcover to withstand erosion during the historically wetter months of the year. The regions of Arkansas hit hardest by the drought typically exhibit higher slopes than other portions of the state. This type of topography, along with the lack of adequate groundcover, will leave these grasslands more susceptible to erosion, runoff and nutrient transport into their respective watersheds.

In an attempt to assist the animal agriculture producers, a limited number of individuals implemented utilizing row crop residue (stubble) for livestock feeding supplementation. Crop residue from agricultural production such as corn, milo and rice were harvested and marketed to the animal agricultural producers in the form of silage hay. There was limited success with this method, the main limiting factor being residual chemical constituents still being present within the hay from primary production. Many of these producers harvested and marketed this form of hay only to learn later that it was deemed unfit for feeding. Subsequently this left many agricultural fields with significantly reduced amounts of stubble, i.e. organic matter. Without the groundcover that this stubble would have provided during the winter, these fields will be more susceptible to increased erosion, runoff and nutrient transport.

3 PROGRAM PROJECT HIGHLIGHTS:

The Arkansas Nonpoint Source Pollution (NPS) Management Program continued to expand its partners and capacity to manage nonpoint source pollution during 2012. EPA's funding directives were focused on best management practice (BMP) implementation in NPS priority watersheds, as defined by Arkansas's 2011-2016 NPS Management Program. Additionally, those watersheds having a TMDL and having Watershed Based Plans developed were high priorities. Project activities continued to address nonpoint source pollution in the areas of BMP implementation, stream bank stabilization, modeling and the development of new tools. New partners have been identified and are helping to develop projects (see Section 7). A few of the program highlights are described below.

FY 08-1100-ENHANCEMENT OF RIPARIAN BUFFER INVENTORYING ALGORITHM FOR FIELD USE (StreBanD)

In Arkansas we have more than 12,000 miles of major streams and rivers. Knowing the conditions of these waterways (streambanks, riparian areas and flood plains) is very important to conservation planners, ecologists, engineers, and landowners around the state. The aim of this project was to create a new tool that would make the process of delineating streambanks fast, easy and repeatable.

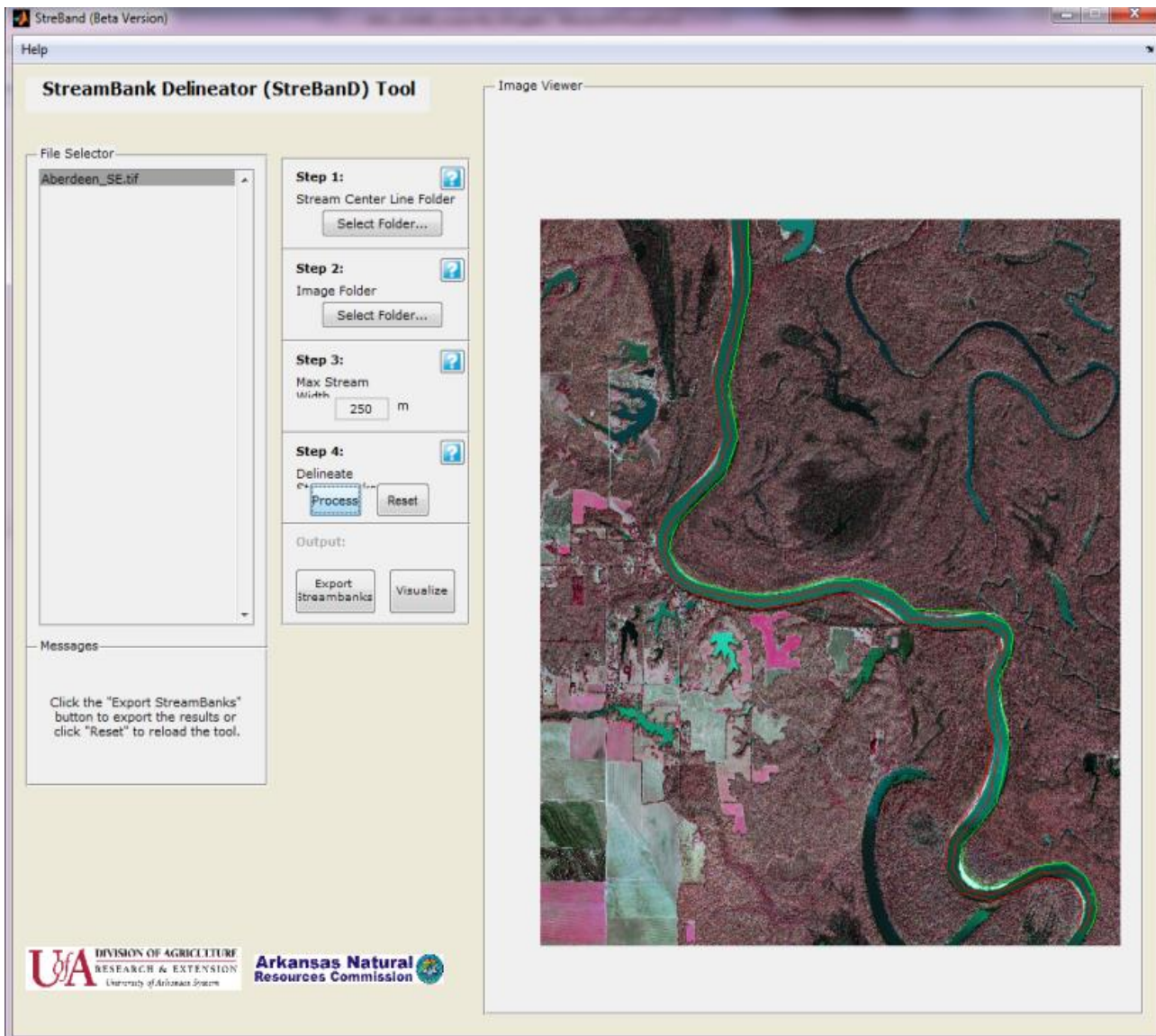
Riparian zones are the transitional areas between land and water. This simple definition does not address the complexity of the terrestrial and aquatic ecosystems for which these areas serve as a bridge. Because the riparian zone serves so many vital functions, policy makers at the federal, state, and local levels have long established guidelines to protect these areas. However, all too often these guidelines have ignored the individual functionality of the riparian zone. For optimum function the zone width is crucial and should be founded on scientific data not policies (Castelle et al. 1994).

The purpose of this project was the creation of cartographic/spatial inventory of riparian cover in Beaver Reservoir watershed (HUC 11010001). This was accomplished in part by accounting for the topography and land use of the test site and the development and evaluation of the desktop based tool. The tool was assessed by a Scientific Advisory Committee made up of stakeholders and potential users.

There have been several project accomplishments that have been made over the past year. Sixteen literature sources have been consulted in an effort to determine optimal riparian zone size and width. From these sources, a review report of GIS methodology for delineating riparian zones was submitted and concluded that GIS methodology can reduce the complexity of functional riparian zone delineation. Overall, the ideal framework would produce a functional zone width that is complex enough to capture the variability of the riparian area, but flexible to encourage use by policy makers. During the past year an advisory committee was formed and composed of representatives from the Natural Resource Conservation Service (NRCS), Arkansas Natural Resources Commission (ANRC), Arkansas Department of Environmental Quality (ADEQ), Arkansas Forestry Commission (AFC), USDA Rural Development, and the School of Forest Resources at the University of Arkansas at Monticello. The advisory committee met twice in 2012 and assisted in the development of a method to assign slope categories to each segment of water body.

The StreBanD tool was developed and was initially designed to delineate streambanks using high-resolution multi-band aerial imagery. However, during and after the first advisory committee meeting it was realized that streambanks delineated using the land-use layer (instead of aerial imagery) would provide more accurate inventory of the riparian buffer.

Overall, the StreBanD tool has proven to be a valuable tool in delineating streambanks for those interested in protecting waterways. It can be used to identify critical areas that need attention. Government and local landowners can use this tool to work together and address problematic areas and protect their rivers and streams. One of the greatest features of the tool is that it is free, downloadable and will be available to the public April 2013. Streambanks are ever-changing either by human intervention or natural processes and having this tool will aid in decision making and the focusing of dollars for conservation efforts on the ground.



FY08-800-Larkin Creek Sediment Prevention Demonstration Project

This project was developed out of concern from a group of landowners in the Larkin Creek watershed. They approached the St. Francis County Conservation District (District) seeking assistance to address the problems of sedimentation and riparian corridor loss along Lateral 1-A of Larkin Creek.

Lateral 1-A is the main outlet that carries drainage from approximately 8,000 acres to Larkin Creek and subsequently to the L'Anguille River which is listed as impaired by the ADEQ for turbidity. The biggest problem along the lateral was sediment leaving cropland fields because much of the riparian area had been cleared in the past. Over time, beavers had also exacerbated the problem by building dams and killing what was left of the riparian timber. The result was excessive sedimentation that filled the channel and rendered the lateral non-functional. This also led to flooding which caused loss of crops and damage to county roads. To expedite the drainage of cropped areas, land operators continued to dig temporary drains around and through the area. These types of activities were done every year and resulted in additional erosion and sedimentation.

The District developed, submitted a project proposal and received funding through the 319 program to help solve these problems. The first problem the District tackled was the beaver issue. A professional trapper was hired for six months to destroy beaver dams and bring the population under control. The next step was to obtain an engineering design for the project. The District selected engineers from Ducks Unlimited to deliver the design. Once the design was finished, the District sought out a firm to do the implementation. Through the RFP process Marshland Equipment Rentals LLC from Cameron, Louisiana was selected to carry out the reshaping of the channel, sediment removal and some facets of riparian restoration. The project and restoration was completed in November of 2011. The project has alleviated the sedimentation problem by restoring six miles of the original channel with natural sinuosity. In addition perpetual land easements were established along the channel to restore the riparian corridor. Landowners along the channel enrolled 90 to 180 feet of land on each side of the channel voluntarily into easements with the District. The easements are being used as grass filters and forested riparian establishment. With these measures in place, the District estimates that 11,000 tons of sediment will be kept out of the lateral per year.

The same group of landowners formed a drainage district that is working to maintain the watershed and project area. The group voluntarily and successfully formed the district and imposed a tax on all landowners in the watershed. These funds will insure future maintenance and activities will be ongoing in the watershed. The newly formed drainage district also applied for and received State Revolving Fund (SRF) dollars. The SRF funds will be used to complete a second phase of the project that includes spreading some of the spoil piles and continuing riparian enhancement by planting native trees in the riparian corridor.

FY11-300 & FY11-400-Illinois River Watershed Partnership and the Beaver Water District Rain Garden Demonstration Projects

The Illinois River Watershed (IRW) and the Beaver Lake Watershed (BLW) are contiguous and share municipal and other county jurisdictions. Both watersheds are considered impaired by the ADEQ and both have similar sources of pollution. These two projects have similar goals and objectives and there will be extensive cooperation between them over the next three years. However, projects will be implemented separately within each priority watershed. Demonstration rain gardens are to be implemented within the Illinois River watershed and the Beaver Lake Watershed.

Rain gardens are designed to treat small volumes of runoff through a physical and biological transformation processes (Kraus and Spafford, 2009). A rain garden provides functionality as the permeable soil treats the often polluted runoff by physically holding it onsite and allowing infiltration (USGS, 2010). Rain gardens remove pollutants through biological transformation involving the water, soil, plants, and biota within the garden. Pollutants carried by the runoff are assimilated by the soil or plant roots as the water infiltrates the soil. Plants can use many of the pollutants (i.e. phosphorus and nitrogen) for growth. Pollutants that are attached to soil and not needed for plant growth can be ingested and neutralized by soil biota (Kraus and Spafford, 2009). Rain gardens are efficient at removing not only nutrients and sediment but also inorganic metals provided runoff events that do not exceed the capacity of rain garden. Variations in removal efficiency are correlated to precipitation patterns and garden design. Rain gardens cannot be designed to capture and treat all water from runoff events. Typically, rain gardens are sized to capture the one to two year storm runoff. Pollutants are assimilated in the rain garden when storms do not exceed the designed capacity and there are no overflows.



To date, a total of 10 rain gardens have been completed in the IRW. The 10 gardens encompass over 5,900 sq. ft. of garden area and the utilization of approximately 1,000 native plants. Collectively these gardens are treating over 52,000 sq. ft. of impervious area. In the BLW, eight rain gardens have been completed. These eight gardens encompass over 3,200 sq. ft. of garden area and the utilization of approximately 900 native plants. Collectively, these gardens are treating over 8,100 sq. ft. of impervious area.

RAIN GARDEN INSTALLATION

The primary project objective is to implement 30 demonstration rain gardens in highly visible public and quasi-public (i.e. municipal, school, church) locations within the watersheds respectively. Using public to quasi-public locations for the implementation will help institutionalize the idea of rain gardens as a BMP that citizens and

organizations can adopt. The secondary objective is the training of 150 persons on how to design, implement, and maintain a rain garden (this is a total of 300 persons trained across the IRW and BLW). This training continues to take place in a number of "Rain Garden Academies". As an incentive for attending a rain garden academy, participants may receive up to two native plants for actively participating.



STAKEHOLDER INVOLVMENT

Eighteen of the 30 demonstration sites have been implemented in the watersheds. Several classes of implementation have occurred such as municipal or county facilities (city offices, libraries, parks, athletic facilities, etc.). These types of locations are the first class of site and represent areas where people congregate and visibility of the garden if optimal. These project areas have available staff dedicated to maintaining the rain garden, thus providing a high probability of success. School facilities will be the second project class targeted.

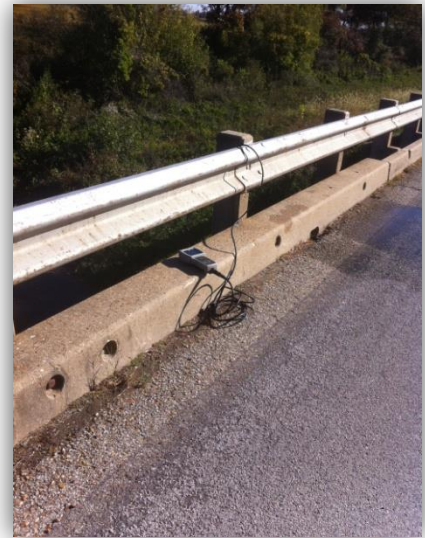
Schools, parking lots, and often smaller sized buildings have made them prime sites for implementation and demonstration of multiple sized rain gardens. School activities attract people to the facility creating a teachable moment. Schools also can use rain gardens as teaching facilities for their students. There are multiple schools within each watershed.

Churches or other quasi-public institutions are the third project class. Many of these institutions are interested in providing highly attractive landscapes to enhance their grounds. Volunteers are often used to provide ground maintenance. There are 286+ churches within the watershed areas making them a prime opportunity for implementation of rain gardens. Interest has been so great in this project that Illinois River Watershed Partnership (IRWP), Beaver Water District (BWD) staff and the rain garden resource specialist evaluate each site to assess its benefit. Potential cooperators with the best evaluation are offered the opportunity to participate. During the previous project year, 78 field days were held with 379 people attending, also 13 training sessions were held with 241 participants. The project also conducted 24 outreach meetings where 148 people were introduced to the rain garden concepts, along with one presentation at a conference with 140 people in attendance.

4 NPS PROJECT CATEGORIES:

Monitoring and Assessment Projects

Monitoring data funded through the 319(h) program is collected and utilized to assess water quality, determine base line thresholds and to develop trends for sediment and nutrient levels in streams around Arkansas. During the past year a variety of monitoring projects collected data to determine the effectiveness of BMP implementation and restoration projects. The ANRC monitoring is a supplement to ongoing ADEQ monitoring. ADEQ's 303(d) list assists the Arkansas NPS Program in identifying priority watersheds around the state. The USGS, USCOE and other entities also maintain monitoring stations in selected water bodies across the state.



Below is a list of monitoring and assessment projects in the nonpoint source program for 2012:

2012 NPS Monitoring Projects

Monitoring Projects	Project #
Strawberry River Sub Watersheds Monitoring	07-1000
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
Water Quality Monitoring for the L'Anguille Watershed	12-800

Streambank Restoration Projects:



The 319(h) section funds streambank stabilization/restoration projects to help reduce the amount of pollutant loads (predominately sediment and phosphorus) that enter our waters. In Arkansas, streambank erosion is typically addressed through stabilization. The success of streambank stabilization is variable, and depending on the degree of instability, if not properly designed and implemented may only

be a short term solution. In many cases where channel instability has been produced, regardless of cause, the entire area (reach) of instability requires addressing. An unstable reach can have several sections of eroding streambanks, be aggrading or degrading, and/or have a problem with the pattern or profile of the reach.

Restoration using natural channel design techniques is a pioneering approach which can address all of these complications. Success of streambank restoration projects demonstrate a reduction in streambank erosion and channel expansion. A reduction in sediment load produced by streambank erosion, determined by assessment of erosion potential, prior to and after restoration is considered a success.

2012 Restoration/Stabilization Projects:

Restoration/Stabilization Projects	Project #
Larkin Creek Demonstration	08-800
West Fork Stream Restoration at Fayetteville Airport-Phase II Restoration Implementation	09-1600
White River Streambank Restoration Project	09-1900
Mullins Branch Stream Restoration Project	09-2000
Upper White River Watershed/Streambank Protection and Stabilization	11-1500

Statistical Modeling Projects:

ANRC has focused modeling efforts on priority watersheds where there are known impairments (303(d) list) or significant threats to water quality from present or planned activities. Recent strides in the ability to use spatial data provided by federal and state agencies make it possible to do more in-depth GIS assessments at the 12-digit HUC level. This use of methodology is more efficient and economical and provides information to better identify those areas that needing further site specific assessment.

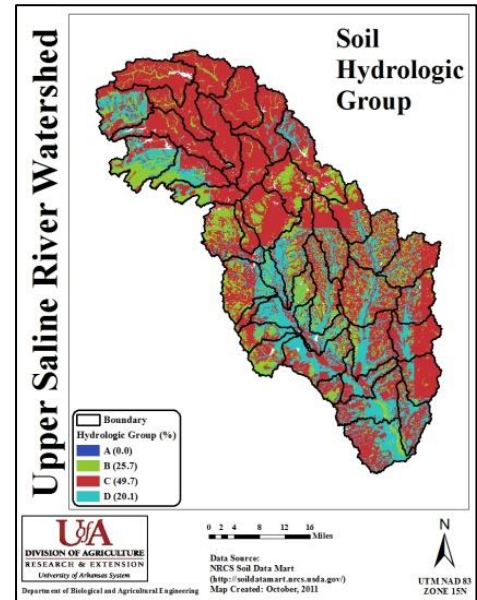
There are also tools being developed that help in the delineation of streambanks and can also be used to identify critical areas along a waterway.

Streams and rivers are ever-changing either by natural processes or by human intervention. Having these models and tools can aid in decision making and the directing of dollars for conservation efforts.

Below is a list of modeling projects in the Nonpoint Source Program for 2012:

2012 NPS Modeling Projects

Modeling Projects	Project #
Enhancement of Riparian Buffer Inventorying Algorithm for Field Use	08-1100
Development of Comprehensive Watershed Modeling for 12-digit Hydrologic Unit Code "HUC" in Selected Priority Watersheds (Upper Saline, Poteau, and Strawberry Watersheds) in Arkansas- Phase II	11-900



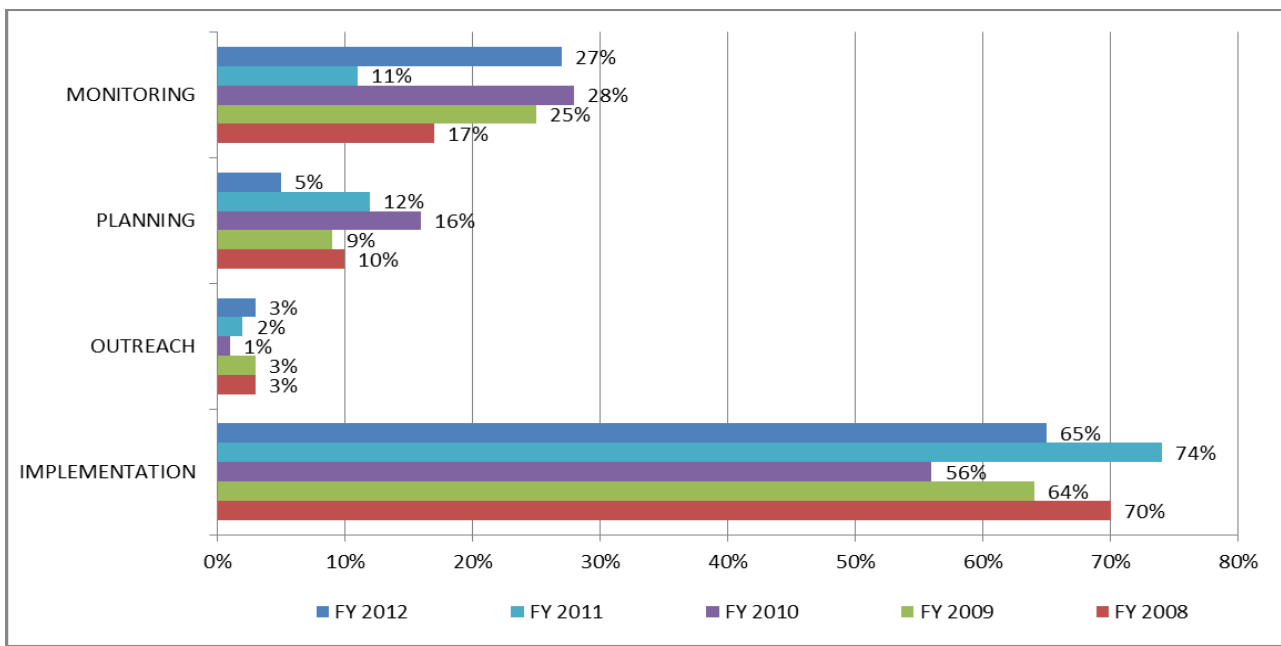
5 FEDERAL RESOURCE ALLOCATION:

Program Expenditures:

The Arkansas Nonpoint Source 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 FFY 2012, ANRC and its project partners spent approximately \$1.8M in federal funds to address water quality resource concerns and to reduce or prevent nonpoint source pollution.

The chart below shows how federal funds disbursed for projects were allocated among monitoring, planning, outreach, and implementation projects. Monitoring expenditures increased 16% of federal expenditures from FFY2011 to 2012. Planning expenditures decreased from 7% while outreach expenditures increased from 1% respectively. Implementation expenditures decreased 9% in FFY 2012. This decrease directly correlates with the drought and subsequent economic conditions.

Program Expenditures for 2012:



6 PRACTICES IMPLEMENTED AND LOAD REDUCTION

Best Management Practices:

Over the past year, ANRC has helped fund BMP projects to reduce NPS pollution. These projects report how many BMPs were installed. 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 could 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.

Total Best Management Practices Implemented from 10/01/2011 through 09/30/2012

Access Control	172 acres
Brush Management	4,210 acres
Critical Area Planting	1.5acres
Drop Pipe	643 feet
Fencing	142,706.5 feet
Forage and Biomass Planting	1,535.7 acres
Heavy Use Area	3,372.87 cubic yards
Integrated Pest Management	3,009.4 acres
Irrigation Water Conveyance	4,744 feet
Nutrient Management	3,467.8 acres
Pasture Planting	432 acres
Pipeline	12,149.2 feet
Pond	3,904 cubic yards
Prescribed Grazing	4,281.6 acres
Pumping Plant	1 total
Watering Facility	36 total
Water Well	1 total

Best Management Practices (BMP Implementation by Project):

PROJECT#	
09-300	
Drop Pipe	643 feet
09-700	
Brush Management	117.3 acres
Critical Area Planting	1.5 acres
Fence	26845 feet
Heavy Use Area	2520 square feet
Pasture Planting	13.5 acres
Pond	3 each
Watering Facility	9 each
11-1000	
Nutrient Management	1878.8 acres
Fence	33157.0 feet
Brush management	1130.1 acres
Heavy Use Area	9.0 acres
Pest Management	974.5 acres
Pipeline	2745.0 feet
Prescribed Grazing	2814.3 acres
Watering Facility	9.0 each
11-1100	
Access Control	114 acres
Brush Management	496.2 acres
Fence	19,978 feet
Heavy Use Area	1.2 acres
Integrated Pest Management	751.2 acres
Nutrient Management	444 acres
Pest Management	189 acres
Pipeline	3,454 feet
Prescribed Grazing	898.6 acres
Pumping Plant	1 each
Water Well	555 feet
Watering Facility	10 each
11-1200	
Access Control	58 acres
Brush Management	826.4 acres
Fence	37,895.5 feet
Heavy use area	841.67 cubic yards
Nutrient Management	1145 acres

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Pasture Planting	418.5 acres
Pest Management	1,094.7 acres
Pipeline	1,670.2 feet
Pond	1,501 cubic yards
Prescribed Grazing	568.7 acres
Watering Facility	6 each
11-1300	
Brush Management	1,130 acres
Fencing	11,131 feet
Forage and Biomass Est.	1,184.3 acres
HUA	1 each
Pipeline	40 feet
Water Facility	1 each
11-1400	
Brush Management	510 acres
Fencing	13,700 feet
Forage and Biomass Planting	246 acres
Pipeline	4,240 feet
Pond	2,400 cubic yards
Watering Facility	10 each
12-200	
Forage and Biomass Planting	105.4 acres
12-400	
Irrigation Water Conveyance	4,744 feet

Best Management Practice contracts developed through NRCS programs

The table below is data provided by NRCS on active projects during FFY 2012. This information is not available on a watershed basis but the values shown reflect aggregate, statewide numbers of total BMP's contracts by resource concern. For the purpose of this report; total contracts, dollar amounts, and acreages affected are reported for pathogens, sediment, and nutrients.

Pathogens		
Total Contracts	Total Dollar Amount	Acreages Affected
420	\$13,019,511	42,745
Sediment		
Total Contracts	Total Dollar Amount	Acreages Affected
342	\$15,599,701	76,713
Nutrients		
Total Contracts	Total Dollar Amount	Acreages Affected
1077	\$35,309,898	175,825

Load Reductions:

Load Reductions for FFY 2012

Project #	Nitrogen Reduced (lbs./year)		Phosphorus Reduced (lbs./year)		Sediment Reduced (tons/year)	
	FY 12	Project Life	FY 12	Project Life	FY 12	Project Life
04-183	485	1839	242	983	320	1430
07-1500	-	-	-	-	-	446.2
07-1600	-	-	-	-	-	40,165
08-800	-	-	-	-	-	11,000
09-300	-	-	-	-	-	12,000
09-700	39	310	20	156	22	167
09-1300	-	137.7	-	36.5	-	18.2
09-1900	19,500	19,500	10,500	10,500	11,250	11,250
09-2000	-	-	32.1	32.1	69	69
11-1000	1996	1996	998	998	973	973
11-1100	2469	2469	1238	1238	1557	1557
11-1200	2112	2435	1054	1216	1166	1344
11-1300	1739	1795	868	896	1058	1094
11-1400	723	891	361	445	463	574
12-200	130	130	65	65	89	89
Total	29,193	31,502.7	15,378.1	16,565.6	16,967	89,176.4

*Load reductions based on active 319 funded projects.

7 PARTNERSHIPS

ANRC has a diversity of valued partners. These partnerships are the mainstay of the NPS Program. State agency partners include but are not limited to: ADEQ, Arkansas Game and Fish Commission, Arkansas Forestry Commission, U of A Division of Agriculture, Arkansas Department of Health, County Conservation Districts, and the Municipal League. Federal partners include US EPA, US Fish and Wildlife, United States Geological Survey, US Forest Service, NRCS and the Farm Services Agency. This year we are highlighting our partnership with two County Conservation Districts (Baxter County and Crooked Creek) and two NGO watershed organizations, the IRWP and the Beaver Watershed Alliance (BWA).

As ANRC works to increase partnerships and capacity the Baxter and Crooked Creek Conservation Districts' represent two new partners. Both Districts were first time participants in the NPS Program.

County Conservation Districts:

Baxter County Conservation District

Baxter County, Arkansas is located in North Central Arkansas. It encompasses approximately 600 mi² with predominate land cover as forest (71%). Four major watersheds are located within the county: Bull Shoals Lake, Buffalo, Middle White, and North Fork White. Besides supplying water for the incorporated city of Mountain Home, these watersheds offer year-round recreational activities including hunting, fishing, hiking and camping. Designated uses of these watersheds include primary and secondary contact recreation, domestic, industrial and agricultural water supply.

The greatest resource concern is dissolved oxygen (DO) concentrations in the stream reach from Norfork Dam to its convergence with the White River. It is included in the ADEQ's 2008 303d list and classified as Category 5, Water Quality Limited Waterbodies, with hydropower being the source. The Baxter County Conservation District (BCCD) is working to increase riparian zone vegetation, establishment and protection. These efforts will increase shading and help decrease temperature thereby increasing oxygen holding capacity.

Norfork Lake within the Lower Norfork Dam watershed is the water supply for city of Mountain Home. Additional concerns are excessive turbidity from silt and suspended solids loading. Agriculture activities, which are dominated by cattle and poultry operations, are thought to be the major source of the silt. During periods of high water, streambank erosion adds to the sediment load. The soil structure is such, that when the water levels rapidly decline, the saturated banks collapse. Landowner activities in the past have reduced the amount of bank vegetation thus accelerating the erosion process. In addition, silt and total suspended solids inputs from the unpaved roads, construction sites and silviculture activities are thought to be adding significant loading and increasing in-stream turbidity concentrations during storm events. The BCCD recognizes the best method for controlling runoff of sediment and nutrients into the Lower Norfork Dam Watershed is a proactive approach focusing on the voluntary implementation of BMPs.

The BCCD is made up of a five member District Board, a secretary and a Grassland Specialist. The District, with limited staff, has adequately demonstrated with desire and dedication work can be accomplished and landowners can be engaged for the purpose of improving water quality. Within this first year, District staff has developed 70 farm plans, conducted a field day and planned implementation of multiple BMPs.

Currently, the District is renting two no-till drills and two sprayers to local landowners to expedite implementation. Additionally, this equipment enhances efficiency and is economical for landowners to use. The landowners in the project area are readily accepting the technical assistance and implementing practices in a timely manner. The District and landowners are taking a proactive approach to ensure that the watersheds will continue to improve for generations to come.

Crooked Creek Conservation District (Marion County)

Marion County is located in North Central Arkansas. It encompasses approximately 640 mi² with 598 mi² in land and the remaining in water. Forest (68%) is the dominate land cover. There are three major watersheds in the county: Bull Shoals, Buffalo, and Middle White. These watersheds offer year-round recreational activities including hunting, fishing, hiking and camping. Dairy or purebred beef cattle farms are the dominate agriculture operations within the watershed, as evident by grasslands and pastures making up (15.2%) of the land cover. Designated uses include primary and secondary contact recreation, domestic, industrial and agricultural water supply.

Valley Branch of the Crooked Creek (which is a section of the stream within Marion County) is included on the ADEQ's 2008 303d list and classified as Category 5, Water Quality Limited Water bodies and is listed for Total Dissolved Solids (TDS) and temperature. The Crooked Creek watershed is also in the designated Nutrient Surplus Area by ANRC. The Crooked Creek Conservation District (CCCD) recognized that the best method for controlling sediment and nutrients is to advocate the implementation of BMPs.

The District has equipment available for landowners to utilize and implement some prescribed BMPs. This equipment includes three no-till drills and three sprayers. No-till drills are used to plant improved grasses and over-seed small grains and clovers in pastures with poor conditions. These practices increase ground cover and forage thus reducing erosion and sediment transport. Increased forage availability will also increase nutrient uptake capabilities, therefore reducing nutrient concentration in runoff.

A highlight of the project is the landowners' voluntary restriction of livestock access to streams and installation of alternative water sources. This has been accomplished through the District demonstrating alternative methods of watering, providing education and outreach. This success has brought a fundamental change in the attitudes of livestock producers as related to holistic operation management as it related to water quality.

The landowners within the watershed have been very receptive to the ideas of the District staff and have been implementing BMPs in an effective and economical fashion. The District is proving, with dedication and hard work, landowners will respond and are willing to implement practices to improve water quality. This dedication is not going unnoticed by ANRC and EPA.

Although watersheds in Marion County are not in one of the NPS priority areas, they are taking a proactive approach to ensure that the watersheds remain healthy for generations to come.

Watershed Group Activities:

Illinois River Watershed Partnership (IRWP):



IRWP Volunteers Planting a Rain Garden



IRWP Outreach Program geared towards children

The Illinois River has several segments listed on the 303(d) list for both Oklahoma and Arkansas. Arkansas stakeholders wanted to take action to protect water quality in the Illinois River. In December 2005, 65 stakeholders developed the 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 watersheds and those resources are targeted to improve water quality. 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
- Cargill Inc.
- McKee Foods (Little Debbie Snacks)
- Tyson Foods
- Simmons Foods
- Arkansas Farm Bureau
- John Brown University
- University of Arkansas Division of Agriculture Extension Service

These partnerships sponsor many educational and interactive activities for watershed stakeholders. 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 purchased from the Arkansas Forestry Commission
- 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 that brought over 200 attendees including local, state, and federal legislators, state agencies, and watershed organizations
- Hosting a Rivers Restoration conference that brought over 100 participants to the Crystal Bridges Museum and Gardens to discuss Low Impact Development as related to municipal areas
- Installing 10 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, ANRC has helped to fund and leverage over \$16M of projects directly related to water quality in the IRW.

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 IRW. It is anticipated the modeling effort will be completed by mid-year of 2013, but no definitive date has been given at what point a decision will be made on the final TMDL.

In November 2012, EPA Region VI accepted the Upper Illinois Watershed Management plan. The IRWP is now in the process of implementing their watershed management plan (WMP) within the Upper Illinois River Watershed.

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 above the national average. Based upon this growth and subsequent development, the BWA's 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 lake monitoring program and adaptive steps for lake and stream protection. 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 WMP to ANRC. ANRC felt that the watershed based plan adequately addressed the nine key elements for WMPs as required by EPA. ANRC submitted the watershed based plan to EPA in February of 2011 and the plan was approved by EPA in 2012



BWA Stream bank Stabilization

8 INITIATIVES

Mississippi River Healthy Watershed Basin Initiative (MRBI)

In an effort to improve the health of the Mississippi River Basin, which includes water quality and wildlife habitat, NRCS initiated the Mississippi River Basin Healthy Watersheds Initiative (MRBI). This Initiative's primary focus is to address nutrient loading in the Mississippi River Basin. Watersheds targeted were based on a USGS Spatially Referenced Regression on Watershed (SPARROW) model. This model attempts to explain in-stream measures of water quality in relation to upstream sources. The model identified watersheds in 13 States that are thought to be significantly contributing to the Gulf of Mexico hypoxic zone. These states include: Arkansas, Kentucky, Illinois, Indiana, Iowa, Louisiana, Minnesota, Mississippi, Missouri, Ohio, South Dakota, Tennessee, and Wisconsin.

In Arkansas the Initiative builds on the past efforts of agricultural producers, NRCS, and other state and federal agencies. Through this Initiative, NRCS and its partners have assisted producers in selected watersheds with technical assistance and financial incentives (cost share) to voluntarily implement conservation practices and systems. Practices and systems that may be eligible for cost share include those that trap, control, and avoid nutrient runoff; improve habitat for wildlife; and maintain agricultural productivity.

ANRC and the NRCS have a working relationship that has existed for several years. Both agencies have similar goals in that each helps landowners conserve natural resources while working to improve water quality. The NPS Program is augmenting the MRBI by funding projects in some of MRBI approved watersheds utilizing 319(h) dollars. This additional funding enables more practices to be put on the ground thus increasing the potential to improve water quality. The NPS Program is also funding monitoring components within the MRBI that are common to the MRBI as well as being priority watersheds in the Arkansas NPS State Management Plan.

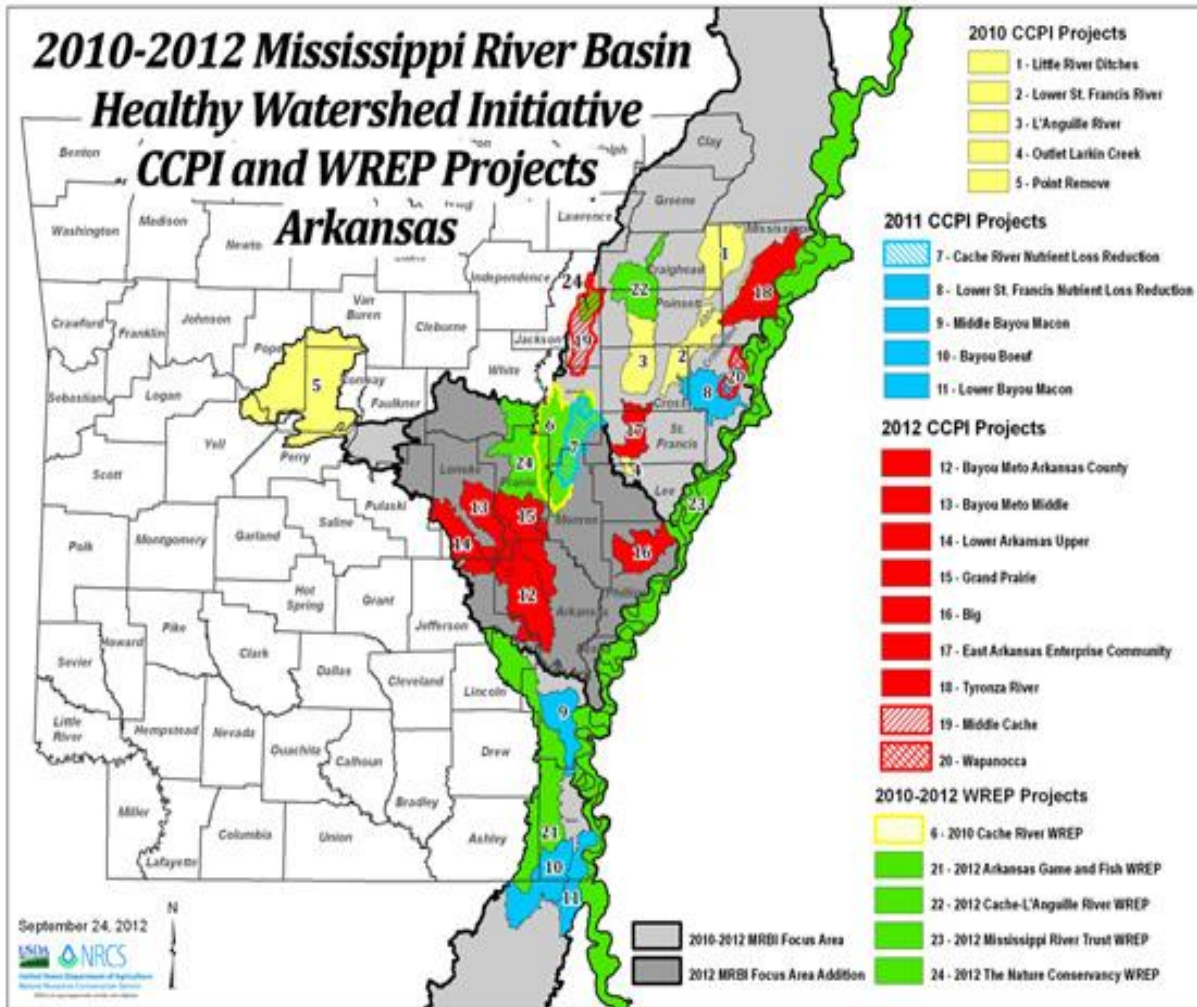
Utilizing section 319(h) funds in MRBI watersheds

Projects initiated through NRCS MRBI funding did not initially have a mechanism to fund monitoring components, therefore the Arkansas NPS Program has utilized 319(h) funding for monitoring projects located within select MRBI watersheds. The Arkansas NPS Program had five active projects associated with MRBI in 2012. All five projects were approved as monitoring projects designed to measure the effectiveness of BMP implementation via water quality parameter measures prior to, during, and following BMP implementation within the watersheds.

The NPS Program has allocated \$1,116,933 federal dollars to these monitoring projects to date. These monitoring projects are located in four different eight digit HUC's including:

- Lake Conway Point Remove
- Cache River
- Little River Ditches
- L'Anguille River

Within each of the four 8 digit HUCs multiple 12 digit HUC "outlets" are being monitored.



MRBI in Arkansas is being implemented by NRCS through the Cooperative Conservation Partnership Initiative (CCPI), the Wetlands Reserve Enhancement Program (WREP), Conservation Innovation Grants (CIG), and other programs.

National Water Quality Initiative (NWQI)

The National Water Quality Initiative (NWQI) is designed to assist farmers, animal agricultural producers and forest landowners improve water quality and aquatic habitats in impaired streams. Through NWQI, technical assistance is made available from various conservation entities (Conservation Districts, ADEQ, AGFC, U of A and ANRC) and NRCS (collectively know as “the partners”) to farmers and forest landowners to improve water quality and aquatic habitats. Additionally, NRCS is providing financial incentives to qualified producers to install conservation practices such as cover crops, riparian filter strips, terraces, and tailwater recovery systems.

NRCS identified priority watersheds through the help of local stakeholders and the partners. ANRC staff met with the partners on several occasions to discuss watershed selection. In the initial meetings, the discussion centered upon available data and known information for each watershed within the State. In subsequent meetings, the discussions revolved around which watersheds or sub watersheds would be most responsive (practice implementation versus water quality improvement) and benefit most through this initiative. These benefits were based on the best professional judgment of the partners. By utilizing data from projects funded by the NPS Program, ADEQ monitoring data and monitoring locations, the 303(d) list, and SWAT models for 8 and 12 digit HUCs; ANRC identified three contiguous 12 digit watersheds that lie within the 8 digit Bayou Bartholomew watershed as the priority for this initiative.

The opinion of the partners and a synopsis of the data were presented to the State Technical Committee (STC). The STC agreed with the partners’ decision. The State Conservationist directed NRCS to go forward with a proposal and submitted the three watersheds for consideration for NWQI funding. The three 12 digit watersheds identified by ANRC were Cousart Bayou – Little Cypress Bayou, Upper Deep Bayou, and Lower Deep Bayou. These sub watersheds are located in parts of Jefferson and Lincoln Counties in southeast Arkansas, and their tributaries flow into Bayou Bartholomew. Details concerning each sub watershed are listed below.

Cousart Bayou – Little Cypress Bayou

- 23,763 acres
- 78 miles of streams, canals and ditches
- Land use – 75% crops, 12% forest, 10% grassland and pasture, 2% urban and 1% mix of other uses
- Constituent of concern based upon ANRC SWAT model – Sediment

Upper Deep Bayou

- 16,593 acres
- 36 miles of streams, canals and ditches
- Land use – 46% crops, 31% forest, 18% grassland and pasture, 3% urban and 2% mix of other uses

- Constituent of concern based upon ANRC SWAT model – Phosphorous

Lower Deep Bayou

- 17,177 acres
- 65 miles of streams, canals and ditches
- Land use – 69% crops, 16% forest, 13% grassland and pasture and 2% urban
- Constituent of concern based upon ANRC SWAT model – Phosphorous

NRCS will continue to coordinate with the partners, other local and state agencies, NGOs and others to implement this initiative. This strategic approach will assist to leverage funds and provide holistic assistance to agricultural producers to plan and implement actions that will reduce the flow of sediment, nutrients and other runoff into waterways.

9 UPDATED PROJECTS:

Active 319 Projects:

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.	Project completed October 2011 with soil savings of 40,165 per year. 5,475 acres were affected due to this project

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
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.	There have been 16 literature sources consulted on determining riparian buffer zones. A Scientific Research Advisory Committee (SRAC) was formed and two meetings have been held. The StreBanD tool was developed and designed to delineate streambanks.
09-1600:WFWR Streambank Restoration at Fayetteville Airport: Phase II	December 1, 2010- December 31, 2012 No cost extension to 12/2013	Federal: \$458,146 Match: \$345,619	To implement a river restoration design that is developed for 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. Project is currently in the design phase.
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 on the planning, implementation and evaluation of the BMP E-Education materials have been established. Video storyboards, scripts and podcasts also developed.
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. During the past project year, eight rain gardens were installed and along with project 11-400, 78 field days and 14 training sessions were conducted.
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.	A constituent load, dissolved oxygen, and pathogen monitoring QAPP was submitted and approved by EPA. Discharge measurement equipment was installed and 41 discharge samples taken. 60 samples have been collected from 19 sites in the Upper Illinois and Beaver Watersheds, along with 8 bacteria samples from the Upper Illinois

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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.	One site has been completed and construction on the second site has been initiated. Should be complete by December 2012.
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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.	62 BMPs have been developed, the Conservation District has assisted those 62 farmers with layout and design of the BMPs, and around 27 applications have received payment.
12-200: Boone County Bull Shoals Watershed Project	July 1, 2012- June 30, 2015	Federal: \$ 127,749 Match: \$98,420	Implement BMP's	No-till drill purchased and 8 farm plans written. Ten applications have been approved with seven of those receiving 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	Project completed in June 2012. 11,605 acres were affected with an estimated soil loss of 84,000 tons per year.
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
08-600: 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 No cost extension to 05/2013	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. Project delayed due to extreme drought conditions.
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 No cost extension to 06/2013	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. Project delayed due to extreme drought conditions.

11-400: Evaluation and Design of Rain Gardens for Enhancement of Water Quality in the Illinois River watershed	July 1, 2011- June 30, 2014	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.	This project has developed a list of potential rain garden demonstration cooperators. During the past project year, ten rain gardens were installed and along with project 11-300, 78 field days and 14 training sessions were conducted..
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
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 624 grab samples have been collected. 471 have been 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.	Litter Spreader purchased and being rented and 27 Nutrient Management Plans have been written
12-700 Initiation of Watershed Management Plan (WMP) for Little Creek-Palarm Creek Sub-Watershed and a Low Impact Development Plan for Lake Conway Urban Watershed	August 1, 2012 to July 31, 2015	Federal: \$498,000 Match: \$ 464,000	Initiate the development of a Nine Element EPA Watershed Management Plan (WMP) and develop and implement components of a Low Impact Development Urban Watershed Plan	QAPP has been developed and awaiting approval. Initial planning has begun, but implementation has yet to begin.

L'Anguille River (NPS and TMDL Priority):

Project	Project Timeline	Budgeted Dollars	Project Description	Project Accomplishments
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 Project complete 10/2012	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.
09-300: : Lower L'Anguille River Watershed Cost-Share Project – Phase III	July 1, 2009- June 30, 2012 Project complete 06/2012	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 100% 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 was approved by EPA. Finished the establishment of five monitoring stations. The collection and analysis of 575 samples has been completed. Final report submitted on 11/1/2012.
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.
12-300 Cross County- L'Anguille River Watershed Water Quality Project	July 1, 2012 – June 30, 2015	Federal: \$ 148,000 Match: \$187,500	Promote and encourage implementation of the Best Management Practices (BMPs) to target the ongoing problem of sedimentation from agricultural lands.	This project has just begun. There are no major accomplishments to date.
12-400 Lower L'Anguille River Watershed Cost-Share Project – Phase IV	July 1, 2012 – June 30, 2015	Federal: \$ 150,000 Match: \$ 200,260	Encourage the use of specific Best Management Practices (BMPs) to continue addressing the problem of sedimentation from agricultural lands.	This project has just begun. There are no major accomplishments to date. Fourteen applications have been approved with six of those receiving payment.
12-800: Water Quality Monitoring for the L'Anguille River Watershed	July1, 2012- September 30, 2015	Federal:\$253,668 Match:\$189,395	The primary goal of this project is collecting, analyzing, and reporting discharge data to provide parameter and unit area loadings in various 12 digit HUC's in L'Anguille HUC.	A QAPP has been written and approved by EPA. Monitoring equipment has been installed and there have been 20 samples collected and analyzed.

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
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.	70 conservation plans have been written. 37 applications have been approved and paid. A no-till drill and sprayer has been purchased. They are being rented.

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 Project complete 06/2012	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.
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.	30 applications have been approved, 24 applications have been completed, and 80% of funds have been spent.
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.	20 applications have been approved, 12 applications have received payment, and 40% of the funds have been spent.

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:

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 Project complete 09/2012	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.	38 applications were approved and completed and 99% of funds were spent.

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

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

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. 90% 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.	78 samples have been analyzed.

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

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.	Project completed
12-600 Water Quality Demonstration and Education Program for Main Street Little Rock	July 1, 2012- June 30, 2015	Federal: \$900,000 Match: \$678,950	To demonstrate the benefits of LID within the downtown Little Rock area and to promote and educate the public on the benefits of such practices.	The city of Little Rock is currently in the design phase and site assessment to locate LID practices. Anticipate delays due to potential relocation of existing underground infrastructure.

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 Neosho (Spavinaw):

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

Lower St. Francis:

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
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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

Spring:

Project	Project Timeline	Budgeted Dollars	Project Description	Project Accomplishments
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 81 farm plans has been finished. 58 applications have been approved with 2 complete cancellations. 40 applications have received payment and over 60% of the funds have been spent.

State Wide Projects:

Project	Project Timeline	Budgeted Dollars	Project Description	Project Accomplishments
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. Project Completed
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.
12-500:Arkansas Watershed Stewards Captains and Corporals Program	July 1,2012- June 30,2014	Federal: \$189,808 Match: \$143,188	To develop a program that builds the capacity, and encourages the formation of watershed groups to plan, initiate, and complete watershed activities that promote or enhance water quality	An advisory committee has been formed. A draft "Arkansas Captains and Corporals Steward Program" guide has been drafted and under current review.

10 MILESTONE REPORTING

The 2012 Accomplishments toward the 2011-2016 NPS Management Program: Appendix A from the 2011-2016 NPS Management Plan:

The Arkansas 2012 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 resource extraction, surface erosion, silviculture 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.	Ongoing
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.	Ongoing
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.	Ongoing
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.	Perpetual
4.9	Encourage plans for alternative irrigation water supply, management and supplemental stream augmentation, including off-stream storage of surplus flows.	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.	Ongoing

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).	Perpetual
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.	Partially Complete
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	<p>Continue to strengthen outreach and training programs in BMP implementation for landowners and loggers by:</p> <ul style="list-style-type: none"> • 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.	Perpetual
5.8	Provide specialized technical assistance, outreach, supplies and/or equipment as appropriate to enhance project implementation and assessment.	Perpetual
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.	Partially Complete
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.	Ongoing
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.	Ongoing
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.	Ongoing
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



Buffalo River, Arkansas