Alabama Nonpoint Source Program Annual Report 2012

ADEM

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Alabama Department of Environmental Management

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Alabama's Nonpoint Source Program is funded in part by a Section 319 Clean Water Act Grant from the U.S. EPA.

The Alabama Nonpoint Source Management Program

Executive Summary

During the past year the Alabama Department of Environmental Management (ADEM) has continued to rely upon stakeholders, partnerships, and local landowner support to implement most components of its Nonpoint Source Management Program. The information contained in this annual report highlights many of the accomplishments that have been collectively achieved by these groups during 2012.

Documented improvements in water quality in the Crowdabout Watershed, the Moore's Mill Creek Watershed, and the Dry Creek Watershed in the wake of implementing best management practices are front-and-center in the accomplishments arena. The ability to focus both financial and technical resources in impaired waterways and document improvements in water quality has been, and will continue to be, the focus of the Nonpoint Source Management Program.

The recent trend of budget reductions continued in 2012 with the Nonpoint Source Management Program being required to absorb a 7% reduction in federal funds. This reduction in funding follows on the heels of a 27% reduction in 2011. These budget cuts have already required ADEM to eliminate funding for vital stakeholder programs and additional cuts will further erode efforts to improve water quality.

While the overarching goals and objectives of the Alabama Nonpoint Source Management Program have remained constant over the past year and many successes have been achieved, there are changes on the horizon. Mandated updates to the Alabama Nonpoint Source Management Plan as well as changes in the Section 319 grant guidance will be a focus during the coming year. However, these changes and challenges will be addressed by the ADEM Nonpoint Source Management Program and efforts will continue to be made to reduce, and prevent, the negative impacts of nonpoint source pollution to Alabama's water quality.

ADEM Award Ceremony at Auburn University for the Parkerson Mill Creek Project

Alabama Nonpoint Source Management Program Update

ADEM is currently revising the Alabama Nonpoint Source Management Program document, scheduled to be completed in 2013. This update will build upon the 2000 Alabama Nonpoint Source Management Program framework, utilizing flexible, targeted, iterative, and broad-based strategies to prevent and remediate nonpoint source impacted areas of the state. A primary purpose of this program is to bring together stakeholders, collect and share existing information on environmental quality, identify water and natural resource problems and concerns, and develop a statewide action plan to protect or restore the state's natural resources from current and anticipated impacts of NPS pollution. The end product will serve as a comprehensive reference guide and roadmap for a wide range of approaches identified to achieve preservation, protection, and/or restoration of the watershed, water quality, and natural resources in Alabama.

Section 319 Success Stories

In 2012, several success stories were submitted to EPA that documented improvements in water quality as the result of the nonpoint source program implementation. Highlights of these successes are below.

Crowdabout Creek (Tennessee River Basin)

Crowdabout Creek, a tributary to Flint Creek, was placed on the State's Section 303(d) List of Impaired Waters in 1996 because of biological community and habitat impairment from agricultural sources. A Crowdabout Creek Watershed Management Plan was developed by the Flint Creek Watershed Conservancy District. Section 319 funding was provided to facilitate implementation of watershed management workplans from 2003 to 2007. Project resources were leveraged in cooperation with the Natural Resources Conservation Service, the Morgan County Soil and Water Conservation District, agricultural producers, and private landowners. Riparian forest buffers were established on 1,594.5 acres and within 300 feet of the stream banks of Crowdabout Creek and its tributaries. The riparian buffers were enrolled in the Conservation Reserve Program to enhance long-term protection and maintenance of this practice. In addition, 132.4 acres of grassed waterways were planted. Water quality data was collected by the Geological Survey of Alabama in 1996 and by ADEM in 2009. A comparison of the data indicated that the implementation of BMPs resulted in decreased siltation and improvements in biological and habitat assessment conditions. Turbidity and specific conductance and median concentrations of total dissolved solids, total suspended solids, ammonia nitrogen, nitrate+nitrite nitrogen, and CBOD-5 parameters all decreased. In addition, the dissolved oxygen concentration was much improved in 2009, exceeding the State's Fish and Wildlife water quality standard of 5.0 mg/L.

Moore's Mill Creek (Tallapoosa River Basin)

In 2007, ADEM partnered with the Alabama Clean Water Partnership and Wildlands Environmental, LLC. to fund a watershed management plan and urban stream restoration and stabilization project on Moore's Mill Creek in Auburn. Weekly turbidity data was collected at five sites from 2007 to 2011 along Moore's Mill Creek by the City of Auburn. The data indicated, in general, a decreasing trend across various representative statistical analyses (Maximum, Median, and Average). Monthly data sampling conducted by ADEM in both 2005 and 2011 at sites upstream and downstream of the project site also showed a decrease in both turbidity and total suspended solids.

Dry Creek (Black Warrior River Basin)

Dry Creek is a tributary to the Middle Locust Fork River in Blount County, Alabama. In the past, runoff from pasture grazing contributed to elevated ammonia levels in the creek. Agricultural best management practices and stakeholder education/outreach implemented through a Section 319 project with the Blount County Soil and Water Conservation District helped to improve water quality in Dry Creek so that it now meets water quality standards. As a result, the 12-mile segment of Dry Creek will be removed from Alabama's 303(d) list for its ammonia impairment.

A stream crossing and exclusion fencing for cattle were installed as part of the Dry Creek Project.

Pollutant Load Reductions

The projects/activities outlined in this report provide a brief overview of the Department's efforts to address nonpoint source pollution in Alabama. However, in order to provide a numerical measure of the effectiveness of these efforts, EPA 319 guidance calls for a report of the "annual reduction in nitrogen, phosphorus, and sediment from nonpoint sources to waterbodies." In cooperation with its 319 partnerships, pollutant load reductions have been estimated using developed methodologies for past and ongoing projects. The chart below contains data from EPA's Grant Reporting Tracking System (GRTS) database and gives an estimate of the positive impact these efforts have made on water quality in Alabama and overall grant program success. Fiscal years 2011-2012 projects are in the beginning stages of implementation, therefore load reduction estimates are anticipated to be reported in 2013. The pollutant load reductions for current individual projects are available on the GRTS interactive website at www.epa.gov/nps/grts.

LOAD REDUCTIONS, FISCAL YEARS 2006 - CURRENT

FISCAL YEAR	NITROGEN	PHOSPHORUS	SEDIMENTATION-SILTATION
2006	158,779.7 LBS/YR	120,317.2 LBS/YR	12,489.99 TONS/YR
2007	134,175.7 LBS/YR	192,16.2 LBS/YR	2107.7 TONS/YR
2008	153,657.4 LBS/YR	24,125.6 LBS/YR	5768.3 TONS/YR
2009	12,329.4 LBS/YR	3419.9 LBS/YR	17,818.65 TONS/YR
2010	2232 LBS/YR	367 LBS/YR	201 TONS/YR

Water Quality Update

In fiscal year 2012, ADEM drafted Total Maximum Daily Loads (TMDLs) for 13 segments with five finalized and approved by EPA Region 4. This brings the cumulative total of TMDLs approved in Alabama to 224. Additional accomplishments include completing delisting decisions for several waterbodies throughout the state as part of Alabama's 2012 Integrated Report. After a comprehensive evaluation using Alabama's Water Quality Assessment and Listing Methodology, it was determined that 12 waterbody/pollutant combinations were no longer impaired and were moved from the 2012 303(d) List (Category 5) and placed into Category 1. The subject delistings are still pending approval from EPA Region 4 as part of their overall review and approval process of Alabama's Final 2012 303(d) List.

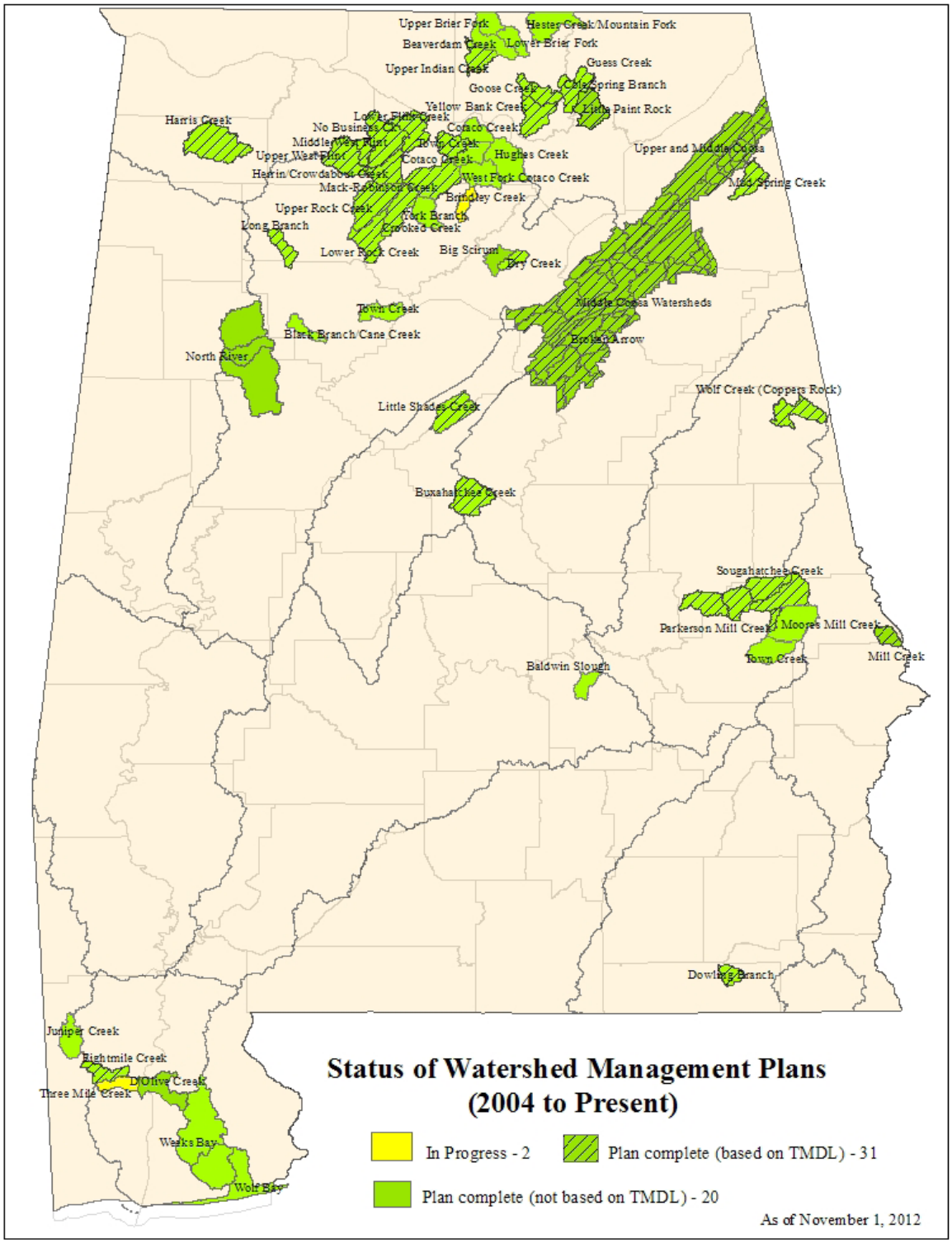
Other accomplishments for FY2012 include the following:

- Two Intensive Surveys were conducted on Mulberry Fork in the Black Warrior River Basin.
- 72-hr Diurnal Studies were conducted on 12 waterbodies at 22 stations.
- Dynamic modeling scenarios for Woodruff/Dannelly Reservoirs were conducted.
- Updates to the point and nonpoint sources for the Mobile Bay Model were completed.

More information on impaired waterbodies and TMDLs in Alabama can be found on the ADEM website at www.adem.alabama.gov/programs/water/waterquality.cnt.

Watershed Management Plans

The Department is continuing to work with stakeholders to develop and implement subwatershed management plans. As depicted by the map below, these subwatershed management plans are in various stages of completion, but each plan will incorporate EPA's nine key elements.



Federal Partners

As the lead state agency of the Alabama Nonpoint Source Management Program, ADEM continues to work closely with many federal agencies across the state. While some efforts result in the direct leveraging of resources, many instances involve data/information sharing, technology transfer and collaborative dialogue. The following information highlights some of the unique federal partnerships the Department has established to implement projects and enhance water quality in Alabama.

Source: Google Images

- The National Oceanic and Atmospheric Administration (NOAA) is involved in specific nonpoint source projects through and with other state agencies. Weeks Bay Reserve and the Mobile Bay National Estuary Program (NEP) work in conjunction with the Alabama Department of Conservation and Natural Resources and ADEM in watersheds along the coast, implementing stream restorations, agricultural BMPs, and the restoration of wetlands. NOAA and ADEM work with the Gulf of Mexico Program on watersheds that directly affect the Gulf of Mexico waters. The Clean Marina Initiative is a voluntary, incentive-based program also promoted by NOAA.

- The U.S. Army Corps of Engineers (USACOE) provides technical assistance with several stream restoration and/or stabilization projects and workshops because of the oversight needed in conjunction with permitting requirements. In both the Saugahatchee and the Mill Creek subwatersheds, the USACOE provided advice on Section 404 permitting requirements, as needed, for a stream restoration project, and helped to identify solutions to siltation problems. In addition, the USACOE worked with the Chattahoochee Clean Water Partnership as it implemented Low Impact Development practices at their new office on the banks of Lake Eufaula. Signage that was placed at the site to educate the public was designed cooperatively through the USACOE, ADEM, the Alabama Clean Water Partnership, and other local stakeholders.

- The Natural Resources Conservation Service (NRCS) continues to assist with identifying areas of concern for nonpoint source pollutant sources and causes, supplies technical guidance for developing Comprehensive Nutrient Waste Management Plans statewide, and provides technical and engineering assistance with Section 319 watershed projects involving implementation of agricultural best management practices.

- Through its Clean Water Initiative, the Tennessee Valley Authority (TVA) builds partnerships with community residents, businesses, and government agencies to promote watershed protection. TVA's Regional Watershed Offices are responsible for carrying out the program. TVA focuses on improving water and shoreline conditions so that people and aquatic life can benefit from having clean water. TVA has continued to work with several watershed projects in the Tennessee River Basin and is vital in gathering and providing water quality data. ADEM and TVA are working cooperatively to identify NPS issues and priorities in the Elk and Bear Creek Watersheds.

- The U.S. Fish and Wildlife Service (USFWS), in conjunction with the Alabama Department of Conservation and Natural Resources and the Geological Survey of Alabama, have selected watersheds and river segments to focus conservation activities for managing, recovering, and restoring populations of rare fishes, mussels, crayfishes, and snails. The purpose of designating Strategic Habitat Units (SHUs) is to facilitate and coordinate watershed restoration and management efforts as well as to focus funding to address habitat and water quality issues. ADEM is working with the USFWS to coordinate these efforts through data monitoring, information exchange, and implementation of BMPs on agricultural lands as part of the current North River project, and also in monitoring SHUs where 319 implementation projects have occurred, such as in the Big Canoe Creek Watershed in the Coosa Basin. Furthermore, the Clean Water Partnerships (which are largely funded by ADEM's Section 319 Program) are providing promotion and assistance with coordination efforts across the state.

2012 Water Quality Assessments: Black Warrior and Cahaba River Basins

Rivers, Reservoirs, and Tributary Embayments

This project provides data for the assessment and reference condition characterization of the Black Warrior and Cahaba River Basins (BWC) and supports the State's rotational river basin assessment approach. As the third basin sampling of this type conducted in the BWC, this data will be used to evaluate trends in overall water quality of nonwadeable waterbodies, provide data to determine management measures needed to improve ecological conditions, and to document changes in water quality that have occurred in response to these measures. Water quality data collected is also used to update the Department's Integrated Monitoring and Assessment Report (CWA Sections 303(d), 305(b), 314), the ADEM Water Resources System – Alabama Water-Quality Assessment & Monitoring Data Repository (ALAWADR), and exported to EPA's WQX.

Forty-one stations on Smith, Bankhead, Holt, Oliver, Tuscaloosa, Inland, and Warrior Reservoirs in the Black Warrior River Basin and two stations in Purdy Reservoir of the Cahaba River Basin were intensively monitored. Intensive monitoring of reservoir stations consisted of monthly sampling of from April through October. All stations were sampled within a one-week period to reduce weather-related variability in water quality conditions. In tributary embayments, where water quality criteria is still in development, these assessments will determine which tributaries are most affected by nonpoint source pollution, aid in development of total maximum daily loads, and assist the department in developing water quality criteria to ensure each waterbody is meeting its current use classification.

Wadeable and Nonwadeable Streams and Rivers

Barton's Beach is the largest gravel bar along the Cahaba River and is part of a 125-acre Preserve in Perry County.

Biological, habitat, and water quality assessments were conducted at twelve sites within eleven priority watersheds to assess the effectiveness of BMPs implemented through Alabama's CWA §319 Program. Three sites were monitored to document water quality conditions prior to implementation. Twenty-one locations were monitored to develop TMDLs for fifteen waterbodies. Biological, chemical, and habitat data were monitored at seventeen established and candidate reference reaches located to characterize least-impaired conditions within seven Level 4 Ecoregions.

As the second basin sampling of this type conducted in the BWC, this data will be used to evaluate trends in overall water quality of wadeable streams, provide data to determine management measures needed to improve ecological conditions, and to document changes in water quality that have occurred in response to these measures. Data generated during the project will also allow ADEM to assess overall water quality of wadeable flowing streams within the BWC: provide data that can be used to develop nutrient and sediment criteria, biological condition gradients, and assessment criteria for wadeable and nonwadeable streams and rivers.

Alabama Coastal Nonpoint Pollution Control Program

Tributary to Silver Creek/Upper Fish River - part of the headwater stream survey

Eight Mile Creek - part of the Coastal NPS Projects for Urban Areas

During the past year, the ADEM Coastal Nonpoint Pollution Control Program (ACNPCP) has continued to coordinate with EPA-Region 4 and the ADEM Nonpoint Source Unit to develop and implement programmatic approaches. The ACNPCP focused on the continued development and implementation of these major projects in order to address important coastal NPS issues, including continued coordination with NOAA-OCRM and the Alabama Department of Conservation and Natural Resources-Coastal Section, as well as other pertinent partner agencies.

Activities have been expanded considerably to coordinate closely with ADEM-319, Coastal States Organization (CSO), and other program partners in order to specifically address approval criteria. In order to promote these goals for the ACNPCP, the ADEM staff have assisted management in the Coastal States Organization's National CZARA-§6217 Workgroup, serving as the Workgroup chairman since December of 2010. ADEM has helped lead this Coastal NPS Program forum with CSO, conducting over 21 teleconference meetings to date.

With the assistance of Section 319 funding, the ACNPCP and ADCNR-Coastal Programs have begun the construction of category submissions based upon the prior Draft ACNPCP Submission 2011, and as indicated by EPA and NOAA-OCRM. The forthcoming ACNPCP submissions will document a five-year programmatic review for each category in order to demonstrate the progress of the ACNPCP and to satisfy the last remaining approval issues for Alabama's Program.

The ACNPCP staff utilizes a NPS Projects Template in the development of projects that address designated Coastal NPS Program Land-Use Categories. This approach has allowed the ACNPCP to monitor progress for each category of interest (e.g., marinas, agriculture, or onsite disposal systems). These projects, along with the development of Technical Assistance Workshops, Surveys, and Category-related Resource Reports, comprise the core of Alabama's long-term efforts to address and/or track coastal NPS issues.

Coastal Alabama Headwater Stream Survey

The Headwater Stream Survey serves to locate potential stream sites and to identify and survey 'representative' low-order streams within the two coastal counties. Documentation will be made of specific water quality conditions, flow, and basic geomorphic survey data for local headwater streams, both urban and rural. Quantification of adjacent Land Use Categories (LUC) has been initiated, along with correlating LUC management measures and best management practices in close proximity to the targeted stream. In addition, baseline data will be gathered regarding conditional approval issues cited in the Alabama Coastal Findings and Conditions document, related to the Agriculture, Forestry, Urban Runoff, Hydromodification, and Wetlands, Riparian Areas, and Vegetated Treatment Systems category sections.

Due to the occurrence of the BP Deepwater Horizon SONS declaration in late April of 2010 and the subsequent emergency re-allocation of staff tasks, an extension for this project was granted. Though delayed, the Level I-Reconnaissance was conducted in 2012 for over 145 actual sites was throughout southwest Alabama. Approximately 15 stream reaches were identified as suitable for the further intensive survey and assessment. Subsequent plans to contract this intensive headwater survey project have been approved and implemented, with final project activities and products to be completed before December 2013.

ACNPCP Activities Update: Deepwater Horizon Oil Spill

One of ADEM's prior completed ACNPCP project products, the *Atlas of Coastal Alabama Marinas and Watersheds,*) was repeatedly utilized to assist the USCG-Mobile Sector with the Response and Recovery/Clean-up Operations. The document was very useful in the field, especially to plan operations and strategies that have continued through the Response and Recovery operations in critical Alabama coastal areas. This document is now available online at www.adem.state.al.us/programs/coastal/default.cnt

ACNPCP staff also represented Alabama's interests as a State representative on the Presidential Gulf Coast Ecosystem Restoration Task Force-Science Coordination Team and continued duties with developing products and approaches for the Gulf Coast Region restoration efforts until September 20, 2012, when the new Gulf Coast Ecosystem Restoration Council was stood up by Executive Order. The finalized version of the submitted GCERTF Restoration Strategy documents and continuing efforts for Restore the Gulf may be viewed at www.restorethegulf.gov.

Coastal Alabama NPS Technical Advisory Projects for Urban Areas

A pilot effort is underway that involves the ACNPCP Technical Advisory Projects for Urban Areas Management Measures:

1. The ADEM ACNPCP staff provided coordination with the MS-AL SeaGrant program in the development of the current Eight Mile Creek Watershed Management and Restoration Plan. The Plan has engaged the interest and involvement of three local coastal cities: Chickasaw, Prichard, and Semmes. Eight Mile Creek is currently listed on the 303(d) List.
2. ADEM's Coastal NPS Program staff have been working directly through the ACNPCP Technical Advisory Project to continue providing program coordination and specific technical advice with the new City of Semmes (established May 2, 2011) as they promulgate and revise their municipal ordinances and codes. This new city has two large drainage areas that contribute to two 303(d)-Listed waterbodies, both Three Mile Creek and Upper Big Creek.
3. The ADEM ACNPCP staff has participated in and currently provide technical assistance to support the MS-AL SeaGrant and Mobile Bay NEP in the development of a Watershed Management and Restoration Plan for Three Mile Creek, an impacted system which flows through the City of Mobile and is an important component of their stormwater program.

The Mill/Holland Creek Watershed Project

The Mill Creek Watershed drains an area of approximately 25 square miles and is a major tributary in the Middle Chattahoochee River Basin. Mill Creek is impaired by organic enrichment caused by urban development. A watershed management plan was completed for Mill Creek in 2010 and a TMDL is currently scheduled for completion in 2018. The goal of this project is to reduce nutrient and sediment pollutant loadings.

The Mill Creek BMP Selection Committee has continued to meet, correspond, and tour sites in order to plan and complete the implementation of practices outlined in the watershed management plan. In addition, an Alabama Cooperative Extension System's partnership with the North Carolina Cooperative Extension System led to additional regional expertise and evaluation of Low Impact Design (LID) implementation sites. Following the visit, bioretention basins and a swale with bioretention media were designed for installation.

The Mill Creek Project is working with Alabama Water Watch to assist the Central High School Envirothon team in monitoring for bacteria and water chemistry on a tributary of Mill Creek. Several additional stakeholders have also been trained and are actively monitoring as a result of the project. Partners involved in volunteer monitoring include the Chattahoochee River Warden Organization, Auburn University, Lee County, Central High School, and Consolidated Resources, LLC. To date, there are ten sites being sampled on a monthly basis. The additional monitoring has helped to target problem areas in the basin.

There have also been several education and outreach events and activities held in 2012:

- Students of the schools targeted for BMP installation have learned about nonpoint source pollution through a presentation using the Enviroscape and through walking their campuses to identify pollution sources and problems. A video series has been created to introduce students to the Mill Creek Project, basic water quality concepts, and projects ongoing on their campus.
- An introductory Nonpoint Source Education for Municipal Officials (NEMO) and LID workshop was held for the City of Smiths Station Planning Commission and Zoning Board.
- A septic tank pumpout workshop was held in Smiths Station on November 16, 2012.
- A rain barrel workshop was held in coordination with the Chattahoochee-Chipola Clean Water Partnership. Thirty rain barrels were made and distributed to attendees.
- The Mill Creek Project partnered with the Help the Hooch Festival, sponsored by the Columbus Water Works, to clean up litter on portions of Mill Creek as it empties into the river. A booth was set up for education at the culmination of this event.
- The Mill Creek Project coordinated with the City of Phenix City and Consolidated Resources, LLC to hold a trash clean up that targeted an illegal dump site along the banks of Mill Creek. The City provided Public Works employees as well as equipment including dump trucks, a backhoe, and a truck with a grab arm. It was estimated that the clean up removed 50 tons of trash from the site.
- Smiths Water and Sewer Authority (SWSA) began advertising for the Mill Creek Project on their monthly water bills in June.

Approximately 50 tons of trash was removed from an illegal dump site on the stream bank of Mill Creek in Phenix City.

Approximately 2000 feet of silt fence, 200 hay bales, and a culvert have been installed to control sediment runoff from the Union Hill Ballfield in the Hughes Creek Watershed.

Hughes Creek

Cotaco Creek Watershed includes five stream segments that are identified on the 303(d) list. Hughes Creek, 3.02 miles in length and covering approximately 18,262 acres, is one of the five streams listed in 2008 with siltation being listed as the main problem. Implementing this small watershed project will improve the water flowing from Hughes Creek into Cotaco Creek, bringing the possibility of both stream segments being removed from the 303(d) list. The small size of this subwatershed will make improvements in water quality immediately verifiable by stream sampling of the water flowing in Hughes Creek after implementation of best management practices.

During this reporting period, three EnviroScape programs were performed reaching 155 students at Sparkman Elementary School, pasture planting was completed on 30.1 acres, a heavy use area was constructed for feeding and watering, and 1,050 feet of cross-fencing has been installed for rotational grazing on 56.5 acres. In addition work began in June 2012 to contain sediment from the Union Hill Ballfield, where approximately 2000 feet of silt fencing and a culvert were installed to divert water off of the fields. Additional BMPs will be implemented on this site this winter.

No Business Creek Watershed Project

No Business Creek is located in the west-central section of Morgan County within the Wheeler Lake Watershed in the Tennessee River Basin. The watershed is predominantly agriculture (70%) and forestland (28%), but does have a small percentage of urban area (2%) that impacts the 22,724-acre watershed. The goal of the No Business Creek project is to address the causes of organic enrichment/ low dissolved oxygen and pathogens through the implementation of best management practices that will result in the delisting of the stream as being impaired.

To date, four landowners have participated in the installation of agricultural practices, including 714 acres of the improved pasture, 7,370 feet of cattle exclusion fencing, 490 feet of pipeline for alternative watering sources, two heavy-use gated areas covering a total of 1,200 square feet, and the installation of two livestock stream crossings.

The educational component of the project has included presentations at the "Wetland Wonderers" event held at the Flint Creek Wetland Mitigation Bank on May 8, 2012. During the event, 150 Danville Elementary students learned about trees, wetlands, nonpoint source pollution, wildlife, and macroinvertebrates. A workshop demonstrating water quality testing and macroinvertebrate sampling was also held for the Danville Middle School students.

The Parkerson Mill Creek Watershed Project

The Parkerson Mill Creek (PMC) Watershed Project, designed to improve water quality and enhance local stakeholder capacity, is a cooperative effort between ADEM, Auburn University (AU), the City of Auburn, the Alabama Cooperative Extension System, the AU Water Resources Center, and other local stakeholders. Parkerson Mill Creek, which flows through a large portion of the Auburn University campus, is impaired for pathogens from urban stormwater runoff and storm sewer sources. This project will support the implementation of practices to improve water quality and habitat and will also provide local citizens with opportunities to learn about the importance of protecting water quality.

To date, BMPs installed on the AU campus include a rain garden at the Plant Science Research Center and a rain garden, swale, and cistern at the Raptor Center. A rain garden at Dudley Hall is in final design phase and is awaiting construction.

The PMC Project also partnered with ACES, the City of Auburn, and the Saugahatchee Watershed Project for three workshops in 2012, including a streamside repair workshop, a Smart Yards Workshop, and a rain garden workshop. Two additional workshops were held with the PMC project as the lead, including a Low Impact Development Workshop for engineers, designers, and contractors, and a rain garden workshop at the Plant Science Research Center on October 30. In addition, AU students have toured PMC and witnessed the severe bank erosion, discussed the elevated pathogen levels, removed non-native invasive vegetation, and discussed possible causes and solutions. The results were presented to classmates in several class programs. Concerned students with the Auburn Sustainability Awareness Program also held a two-day "River Runway" to educate students, faculty, staff, and visitors about PMC.

A pet waste campaign was implemented in the Fall of 2012, especially targeting football game attendees. Students passed out flyers along with pet waste bags and doggie bones and are creating a pet waste video to further raise awareness. In addition, an RV Pump-Out Campaign was held to educate RV owners on properly disposing of sewage from holding tanks. Flyers and vouchers for one free pump-out are being provided to RV owners at football games. Local RV campgrounds are partnering to assist with this program. AU facilities are now planning to build pumpout stations on campus to help address the issues.

Saugahatchee Watershed Implementation Project (SWaMP) & LID Handbook

The Saugahatchee Watershed Management Plan Project is in the second phase of implementation of a nine-year, stakeholder-driven effort. The Saugahatchee Creek Watershed is located in Lee County in the Lower Tallapoosa Basin. The project is coordinated through the Auburn University Department of Fisheries and Allied Aquacultures. SWaMP Phase 2 funding started in December 2010.

A 'Smart Yard Incentive' program was initiated with the City of Auburn for the installation of on-the-ground projects including rain gardens, bioretention areas, runoff management and riparian zone restorations. Four projects have been completed and eleven others are in various stages of planning. Pollutant load reductions into Saugahatchee Creek during this reporting period resulted from four BMP project installations. To date, nonpoint source load reduction estimates were: 58 lbs/yr of nitrogen (N), 12 lbs/yr of phosphorus (P) and 1.4 tons/yr of sediment.

In fiscal year 2012, SWaMP conducted three workshops in partnership with ACES, ADEM, the City of Auburn and the Parkerson Mill Watershed Project including the partial support of a rain barrel workshop, a streamside repair workshop (February), a Smart Yards Lawn Care and Landscape Management Workshop (March), a rain garden workshop (July), and collaborated with the Auburn Greenspace Advisory Board on a landscaping and lawn care workshop (September).

The Alabama Low Impact Development Handbook Committee has held multiple meetings to create an inventory of best management practices and to discuss the manual's function, layout and distribution, and develop manual content. A photo database of stormwater BMPs in Alabama has been created. Eight chapters have been completed and sent out to a select panel of reviewers throughout the state. The LID Team is working on the four remaining chapters.

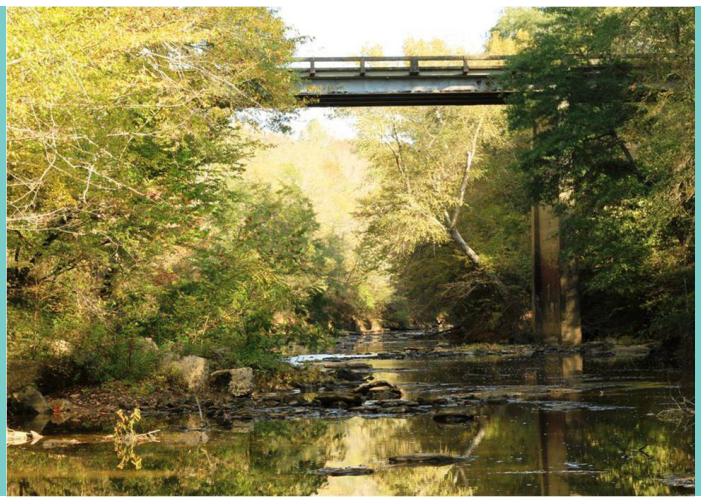
North River Watershed Project

The North River Watershed (NRW) drains an area of about 1,110 square kilometers in Fayette and Tuscaloosa Counties and is a major tributary of the Black Warrior River. A 43.48-mile segment of the North River has been identified as impaired from nutrient, siltation, and habitat alteration from abandoned surface mining. A watershed assessment conducted by the Tuscaloosa Soil and Water Conservation District Advisory Committee also ranked North River as their number one priority impaired subwatershed, estimating that 93,600 tons of sediment is coming from erosion each year. Erosion from dirt roads, forest harvesting and streambank degradation was identified as primary contributors to in-stream sedimentation. The goal of this project is to initiate a phased watershed management approach to help restore North River.

- In February, the Geological Survey of AL (GSA) hosted the Alabama Strategic Habitat Units (SHU) Committee Meeting. Attendees included the US Fish and Wildlife, ACWP, USGS, USDA/NRCS, and the AL Forestry Commission. The NRW Project was discussed with a goal of establishing a template for use in other SHU projects.

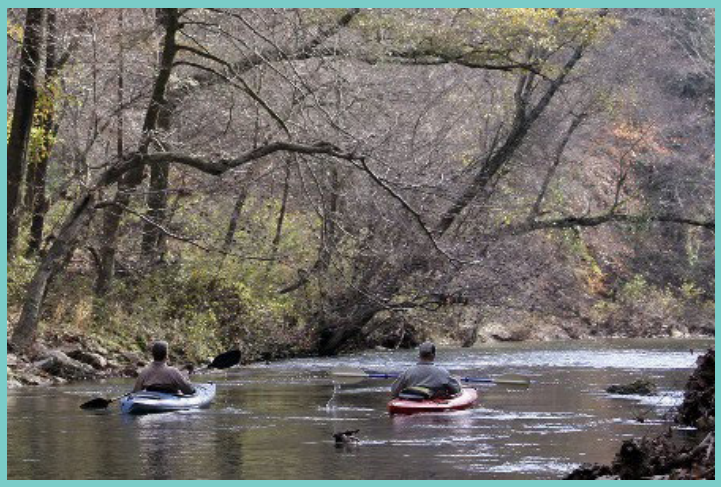
Measuring sediment pollutant loading into an installed detention basin.

- In the January and February of 2012, GSA and NRW Coordinator Mary Wallace Pitts traveled throughout Clear and Deadwater Creek watersheds, notifying landowners of GSA's fieldwork in the area. Verbal agreements were obtained for GSA personnel to traverse properties to access stream sections for Habitat Evaluations. A review of the Habitat Evaluations will assist in the identification of high sediment sources within the stream sections.
- Three field Habitat Evaluation Training Workshops were held in 2012. Habitat evaluations were carried out in the Clear and Deadwater Creeks during the spring and early summer and training was carried out to ensure that all personnel completing the field evaluations were consistent in their reporting. All stream sections will be evaluated for habitat conditions and sites for BMP installation identified.
- An agreement was reached with the City of Berry to allow Patton Geologics to install test PAM plots at the Berry Water Treatment Plant, adjacent to Bays Lake.
- A "Selling Your Timber Workshop" was held at the Fayette County Extension office in March. Approximately 25 attendees were present, including local landowners, foresters, loggers, AFC, NRCS, and ACES staff.
- Members of Club Geography at the University of AL participated with the City of Tuscaloosa and the NRWMP Coordinator in a Mini-Lake Clean-up.
- The 2012 Watershed Festival was held May 4, 2012, in conjunction with a Public Forum and the Lake Tuscaloosa Clean-Up Day.
- Six dirt road BMPs installed in the Clear and Deadwater Creek watersheds in November 2011 have been monitored for sediment loads retained. A total of 12 tons was collected in six locations between November 2011 and March 2012.



The North River Watershed, located in Fayette and Tuscaloosa Counties, is impaired for nutrients, siltation, and habitat alteration.

BMPS installed in the Rock Creek Watershed include exclusion fencing, waste storage structures, pasture improvements, tree planting, and heavy use areas.



Rock Creek Canoe Float *Source: AWW*

Rock Creek Watershed Project

The Rock Creek Watershed is located in the Sipsey Fork Watershed of the Black Warrior River Basin. It lies west of the City of Cullman and drains parts of Winston, Cullman, and Lawrence Counties before discharging to Lewis Smith Lake. It is composed of five sub-watersheds: Blevens Creek, Long Branch-Upper Rock Creek, Clifty Creek-Rock, Upper Crooked Creek, and Lower Crooked Creek. Rock Creek and Crooked Creek have been identified as impaired for organic enrichment/low dissolved oxygen, pathogens, and siltation. Crooked Creek is also impaired for ammonia. The sources of impairments include pasture grazing and intensive animal feeding operations. The goal of this project is to improve and protect the water quality of the Rock Creek and Crooked Creek Watersheds by implementing NPS strategies to mitigate the causes of water quality problems identified in the TMDLs; by initiating NPS management efforts to improve and protect the overall ecological health of the watersheds; by implementing water quality protection components of the Rock Creek Watershed Management Plan; and by providing NPS education and outreach, technical assistance, and technology transfer.

During this reporting period:

- Two local county extension agents are assisting NRCS personnel to promote and facilitate BMP placement, and to help with coordination of outreach/education activities. Fifteen applications with landowners for BMP installation have been approved by NRCS that include approximately 52 individual BMPs. During this project period, twelve practices have been installed.
- The RCWMP poster and brochures were utilized during at least 15 outreach and education events. The RCWMP website was developed and can be visited at www.alabamawaterwatch.org/rockcreek.html.
- AWW volunteer monitors in the Rock Creek Stakeholder Group participated in three *Bacteria Blitzes* during this project period and conducted monthly AWW water chemistry monitoring in the watershed.
- Water-themed Earth Day Events were facilitated by project personnel, stakeholder volunteers, and ACES personnel in four elementary schools in the watershed. Approximately 400 fourth and fifth graders were reached.
- Two Smart Yards workshops were held during the project period, reaching approximately 50 individuals. Three more Smart Yards events will take place before 2013. In addition, Smart Yards flyers will be distributed throughout the watershed.
- A project totaling nearly $144,000 will be implemented to address the septic-related pathogen issues identified by stakeholders and volunteer water monitors. The City of Addison will pay 20% of the project and a grant from the Appalachian Regional Commission will fund the remaining 80% .

Genetta Stream Restoration Project

The Genetta Stream is located in the City of Montgomery and is a major tributary of the impaired Catoma Creek. The Catoma Creek Watershed is approximately 320 square miles in area and comprises about two-thirds of Montgomery County. The project site flows alongside and under Interstate 65 within a high priority redevelopment area and is immediately adjacent to the historic Selma to Montgomery Civil Rights Trail. A 500-foot segment of the Genetta Stream is being "daylighted" near the northeastern corner of the city-owned project site. In addition, about 1-acre of constructed wetlands is being installed to help treat NPS pollutants contained in the stormwater runoff.

Construction started in June 2012, beginning with contaminated soil and debris removal and site demolition. Excavation of the constructed wetland site started in July. The first concrete retaining wall was poured on July 30th and is in continuation. Sleeves have been placed in the walls to allow for irrigation and other future conduit. The inlet and outlet structures have also been poured.

Pre-construction water quality samples are being collected from three of the five locations within the Genetta Stream stormwater conveyance system. Sites 1 and 2 will not be sampled until wetland construction is complete. Montgomery Water Works and Sanitary Sewer Board's Water Testing Lab ran the pre-sampling analysis. Results show high levels of E. coli in the lower segment of the stream.

In order to increase awareness on the importance of preserving and restoring urban waters in the Montgomery community, the City has partnered with several groups. The Montgomery Clean City Commission coordinator performed the "Talking Tree" program with water quality emphasis at local elementary schools. The Alabama River Clean Water Partnership and the West Fairview Farmers Market partnered with the City to organize and host a Spring Gardening Expo on April 28 at the Farmers Market located a few blocks from the Genetta Stream Project. Flyers and posters created by the City were distributed in the community and via email. The All Collaborating To Serve Community Development Corporation also assisted the City of Montgomery and 2D Studio in the public involvement portion of several grant requests.

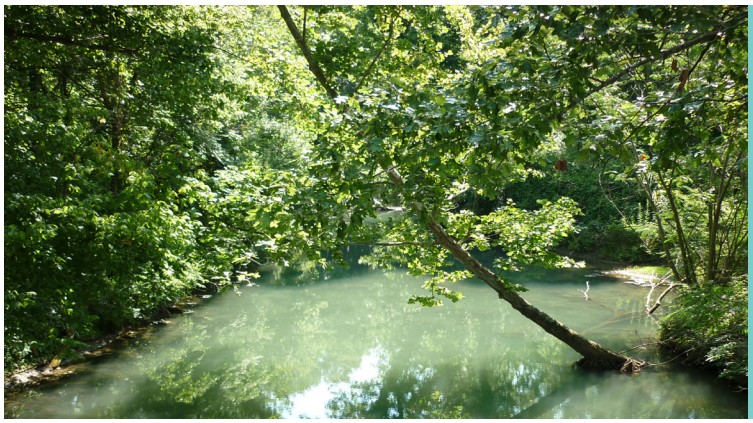
D'Olive Creek Watershed Project – Joe's Branch

Joe's Branch is located primarily in the City of Spanish Fort and is a tributary of D'Olive Creek near the point where it empties into D'Olive Bay. The Joe's Branch Watershed is approximately 661 acres in area. Since 2008, a 1.57-mile segment of Joe's Branch, from its source to D'Olive Creek, has been listed as impaired due to siltation (habitat alteration) as a result of land development. A TMDL for Joe's Branch is scheduled to be completed by 2013.

In August 2010, a Watershed Management Plan for the D'Olive Creek, Tiawasee Creek, and Joe's Branch Watersheds was written to address water quality issues. Partners include the Mobile Bay National Estuary Program, Thompson Engineering, ADEM, EPA, Baldwin County, Cities of Spanish Fort and Daphne, Mississippi-Alabama Sea Grant Consortium, Alabama Power, and the Lake Forest Property Owners Association.

This project is designed to help restore the natural hydrologic function of this severely degraded drainage, prevent further damage, and reduce the transport of NPS pollutants (primarily sediment) via the impaired Joe's Branch stream to D'Olive Creek, and ultimately to help improve the quality of the water that is discharged into D'Olive Bay and Mobile Bay. The project began on March 1, 2012. The Mobile Bay National Estuary Program (MBNEP) entered into a professional services contract with Thompson Engineering in order to conduct a detailed engineering design of a regenerative step pool storm conveyance. A meeting with the Geological Survey of Alabama to discuss pre-construction monitoring was held on June 29. Bids were distributed in August 2012. A Notice of Intent to Award was sent to Southern Excavating, LLC on September 26. Excavation of the site began in October.

Excavation of the severely eroded stream bed began in October.



Spring Creek is a tributary to Weiss Lake, known as the "Crappie Capital of the World".

Mud/Spring Creek Watershed Restoration Project

The watershed containing Mud and Spring Creeks lies within the Weiss Lake Watershed of the Coosa River Basin and encompasses approximately 17 square miles. Spring Creek is impaired for both pathogens and nutrients. Mud Creek is also impaired due to pathogens. Potential sources of the impairments include failing septic systems and agricultural sources. This project will address the entire subwatershed containing the two impaired segments.

A septic tank pumpers meeting and four educational "Get Pumped Workshops" were conducted during this reporting period. Participants at the workshop each received a voucher for $150 toward the cost of having their septic tank pumped and inspected. Printed material was furnished to each attendee to provide information and maintenance records on septic systems. A total of 212 vouchers were distributed with approximately 350 people in attendance. Publicity for the event included a radio interview and articles in the local newspapers.

A Mud Creek Watershed Tour was held in February with representatives from ACES, North Carolina State University Extension System, and the Cherokee County Soil and Water Conservation District. As a result of this gathering of water quality professionals, a series of landowner workshops are being developed for implemention in 2013.

An Alabama Water Watch Citizen Monitoring Class was held in January. Three new water testers were certified, with one individual living on the lower part of Spring Creek as it enters Weiss Lake. A Water Quality Monitoring Program was developed for the Mud and Spring Creek sites tested by ADEM using the Alabama Water Watch Monitoring protocol. These same sites will be tested for E. coli using the IDEXX Colilert and Weiss Lake Improvement Association Testing Protocols as approved by ADEM. These tests will be conducted once a month at each site for the duration of the project.

An advisory committee meeting was held to discuss the Mud Creek Watershed Management Plan and to identify impaired sites and needed best management practices. Representatives of livestock producers and agriculture in the watershed attended, along with representatives from ACES, Northeast Alabama Water and Sewer, and NRCS. At present, six landowners have signed to participate in the implementation of conservation practices. The approval process for these applications will occur by the end of 2012.

Left: The Alabama Department of Public Health teaches homeowners in the Mud and Spring Creek Watershed about the importance of septic system maintenance.

Middle Coosa Watershed Project

The Middle Coosa Project in Etowah and St. Clair Counties ended in August 2012. The project provided resources to implement needed best management practices to address a nutrient TMDL and protect or improve water quality within the Middle Coosa Watershed, namely affecting the impairments in the Neely Henry and Logan Martin Lakes, as well as Lay and Mitchell Lakes downstream.

At the close of the project, 131 agriculture BMPs were completed, including practices such as pasture planting and improvement, livestock exclusion, alternative watering sources, heavy-use areas, and alum applications at poultry operations. Two rain gardens and a pervious parking installation were also demonstrated.

In addition to the on-the-ground practices, several education and outreach activities were conducted:

- A rain garden workshop and installation was held at Noccalula Falls in June 2012 with assistance from the Alabama Cooperative Extension System.
- Stormdrain markers were installed in downtown Gadsden through a partnership with the City of Gadsden and the Episcopal Day School. The Project Coordinator and science students attached stormdrain markers and passed out flyers to businesses and neighbors.
- The Project Coordinator worked as one of the planning members to help host the 1st Annual Alabama Clean Water Partnership's Coosa Basin Watershed Conference, held on October 13, 2011 at the Pell City Civic Center. Over 100 stakeholders attended.
- A Precision Agriculture Training Course was held for farmers at the Farmer's Federation Building. Information was provided by the Alabama Cooperative Extension System.
- Two septic system maintenance workshops were held in 2010 in partnership with the Alabama Department of Public Health. Over 100 citizens attended each meeting and 160 vouchers for septic tank pumpouts were given out and redeemed.

Right and below: A grassed waterway installation, before and after.

Left and below: A heavy use area installation, before and after.

Upper and Middle Coosa River Project (DeKalb County)

Over 65 acres of pasture planting has been completed in the watersheds of the Upper and Middle Coosa River Basins.

The Coosa River Basin encompasses an area of about 10,059 square miles, with 46% of the basin in Georgia, 53% in Alabama, and 1% in Tennessee. It is divided into three major sub-basins: the Upper, Middle, and Lower Coosa Basins. In 1996, ADEM identified five of the six reservoirs in the Coosa River Basin within Alabama as impaired. This project will address the seventeen 12-digit watersheds in the Upper Coosa River Basin and in the Middle Coosa River Basin in DeKalb County.

To date, fifteen agriculture applications have been approved and five practices have been completed, including over 65 acres of pasture planting, 1,650 feet of fencing, and 160 acres of pasture improvement.

The Project Coordinator also worked with the Jacksonville State University Canyon Center to promote water quality as a part of Canyon Fest. The two-day program targeted fourth grade students from Fort Payne city schools, and was open to the general public on the second day. Many aspects of farming as well as the importance of conserving natural resources were highlighted.

West Flint Creek

West Flint Creek is located in Lawrence County and has a drainage area of 140 square miles, covering approximately 89,056 acres. The West Flint Creek Watershed project addresses three subwatersheds, namely Upper West Flint Creek, Middle West Flint Creek, and Elam Creek. These three subwatersheds combined contain approximately 45 miles of perennial streams and over 185 miles of intermittent streams.

The project is being implemented through the Lawrence County Soil and Water Conservation District.

Implementation is underway for agricultural best management practices that target the organic enrichment/low dissolved oxygen and pathogen TMDLs. Best management practices that have been installed to date include alternative watering sources, cross fencing, pasture planting, residue management, no-till farming on croplands, and a dry stack waste storage facility on a poultry farm.

Environmental education programs have also been presented at local elementary schools on the importance of protecting water quality and on recycling.

Hester Creek /Mountain Fork Watershed Project

The Hester Creek and Mountain Fork Watershed comprises approximately 41,639 acres northeast of Huntsville in Madison County. The watershed is primarily pasture, row crops, and forestland, with some residential areas. The goal of the Hester Creek and Mountain Fork Project is to address the causes of stream impairments, including nutrients, sediment, and pathogens, through the implementation of the watershed management plan.

The second phase of the project has produced 20 landowner partnerships and practices installed on 26 different farms, including:

- 875 acres of winter and spring crops planted using conservation tillage,
- thirteen terraces totaling 14,050 feet on seven farms, in addition to 800 feet of an underground outlet pipe,
- 2.6 acres of cropland converted to permanent vegetation,
- ten acres of pasture planting and one grassed waterway.

In 2012, the watershed coordinator has held six Madison County Watershed Advisory Meetings, participated in two Flint River Clean-ups, presented an exhibit booth at the City of Huntsville and NASA Earthday events, and gave two presentations to homeowner associations. A Rain Barrel Workshop was also held in conjunction with the Indian Creek Watershed Restoration Project.

Hester Creek Watershed Coordinator, Sam Sandlin, surveys a gully for pasture improvement, which will include the installation of terraces and sediment basins.

Indian Creek

Indian Creek is located on the west side of Huntsville within the Wheeler Lake Watershed and is impaired due to organic enrichment/low dissolved oxygen and sedimentation. Total Maximum Daily Loads identifies potential sources of pathogens from failing septic systems, agricultural practices, and wildlife, as well as sediment from agricultural practices and construction activities. The goal of this project is to develop a watershed management plan and implement BMPs in order to restore Indian Creek.

Two erosion and sediment control projects were completed at Sparkman High School and they are currently developing an outdoor classroom with funding from the the Alabama Wildlife Federation. In addition, six farms totaling 800 acres have implemented conservation tillage, and tree planting has been planned for this winter. Five additional applications were also received for conservation tillage.

The watershed coordinator assisted in the Clear Water Alabama Field Days workshop and also held a Rain Barrel Workshop in conjunction with the Flint River Watershed Project.

Approximately 140 linear feet of streambank was stabilized as part of the Guess Creek Project.

Guess Creek Watershed Project

Guess Creek is a small headwater stream with a drainage area of 34.5 square miles, located in Jackson County. It is a tributary to the Paint Rock River within the Tennessee River Basin. Guess Creek is impaired for organic enrichment/low dissolved oxygen, pathogens, and unknown toxicity for a length of 11.08 miles. Pasture grazing has been identified as a major source of these pollutants in this watershed.

To date, the following on-the-ground projects have been completed with five landowners participating:

- two wells and watering troughs,
- two improved stream crossings,
- one livestock crossing with swinging gates,
- ten heavy use feeding areas,
- approximately 5,295 feet of exclusionary fencing,
- disturbed area improvements,
- two livestock shade structures,
- 140 linear feet of stream bank stabilization.

Two in-stream swinging gates were installed at stream crossings, inorder to exclude livestock access but still allow stream flow.

Big Scirum/Dry Creek Watersheds Project

Both the Big Scirum and Dry Creek Subwatersheds are located in Blount County, within the Black Warrior RIver Basin. Big Scirum Creek is located within the Upper Locust Fork Watershed and covers 16,993 acres. The Dry Creek Watershed is located in the Middle Locust Fork Subwatershed and covers 12,648 acres. The purpose of this project is to develop and implement agricultural best management practices that address nutrients, ammonia, and pathogens.

To date, the following practices have been installed on farmland in the subwatersheds:

- one alternative watering source for livestock,
- three pipe crossings for cattle and equipment,
- 600 square feet of heavy-use area protection,
- 10,043 feet of exclusion fencing,
- and eight acres pasture of improvement.

The NRCS and the Blount County Soil and Water Conservation District taught the Cleveland High School students about dissolved oxygen testing and how it relates to water quality and a healthy aquatic ecosystem.

Goose Creek Watershed - Hays Nature Preserve Project

Goose Creek is an approximately 9-mile long tributary to the Flint River in Madison County, within the Tennessee River Basin. Goose Creek is impaired for organic enrichment/low dissolved oxygen, as well as unknown toxicity. Sources of the impairments include the escalating urban sprawl from the City of Huntsville. This project supported the continued implementation of a watershed-based protection approach in the Goose Creek Watershed and the middle to upper Flint River.

The Goose Creek Watershed is home to the Hays Nature Preserve, an education resource preserve that is owned, maintained, and operated by the City of Huntsville. The main thrust of this cooperative effort was to advance the public knowledge of urban low impact development through demonstrations, workshops, and the on-the-ground practices at the Preserve. This project incorporated raingardens, bioswales, pervious parking and a distinctively visible "green" roof to mimic a more natural pre-development hydrologic and land cover site condition. The project is now complete and was recently showcased at the Clear Water Alabama Field Day in Huntsville in September 2012.

The Hays Nature Preserve in Huntsville serves as an LID demonstration site, incorporating a green roof, rain gardens, bioswales, and pervious parking into its design to prevent and treat runoff.

The Alabama Clean Water Partnerships

Multiple workshops have been held across the state in 2012 as part of the AL Rain Barrel Project, educating 587 Alabama citizens on water conservation and nonpoint source pollution.

Lisa Harris received the Alabama Association of RC&D Councils Outstanding Supporting Organization award for her work as the Choctawhatchee-Pea-Yellow Rivers Clean Water Partnership Facilitator.

The Alabama Clean Water Partnership (ACWP), a statewide organization, is a diverse and inclusive coalition of public-private interest groups and individuals working together to improve, protect, and preserve water resources and aquatic ecosystems in Alabama. This project provides funds for a Statewide Faciitator as well as a Basin Facilitator in each of the ten major river basins. The River Basin Facilitators coordinate stakeholders, implement on-the-ground projects, and provide educational workshops. The following are highlights from the statewide level:

"Eco-Logical Successes", a publication by the Federal Highway Administration, highlighted the ACWP in ts January 2012 issue. The Partnership was also mentioned in the "Neighbors" magazine published by the Alabama Farmers Federation in March 2012. In addition, the statewide facilitator participated in an AgNet Radio interview promoting the ACWP (southeastagnet.com).

Steering committee meetings are held in each ACWP-designated river basin on a quarterly basis, with a total of 22 steering committee meetings and 21 sub-basin meetings occurring across the state between October 2011 and September 2012.

The U.S. Fish & Wildlife Service has contracted with the ACWP to assist the Mobile River Basin Coalition, the Geological Survey of Alabama, the Alabama Department of Conservation, and the Alabama Aquatic Biodiversity Center in outreach efforts on habitat protection efforts as part of the Strategic Habitat and River Reach Units Initiative (SHU).

As part of the National Water Quality Initiative, the ACWP is assisting the NRCS in the prioritization of agriculturally-impaired subwatersheds. Targeted subwatersheds will be eligible for funding to help farmers, ranchers, and forest landowners install management measures adjacent and on impaired streams. The statewide facilitator has been meeting with Partnership groups to prioritize and gather information on where there is already ongoing interest, implementation, and funding.

2012 ACWP Basin Efforts

ALABAMA-TOMBIGBEE BASIN

- A Rain Barrel Workshop was held at the Genetta Creek Restoration site with over 50 people in attendance.
- The facilitator is assisting with efforts to help restore the Cypress Nature Park. The City of Montgomery and the Alabama Department of Transportation recently signed a Memo of Agreement to study the potential for generating wetland mitigation credits.
- The ACWP received a grant from the World Wildlife Fund to construct a bioretention basin at the Riverwalk in downtown Montgomery (middle photo above).

BLACK WARRIOR BASIN

- The Facilitator developed and a 319 proposal for the Brindley Creek Watershed Management Plan in Cullman.
- The Black Warrior CWP assisted with the North River Watershed Festival, held in May. Approximately 200 children from Berry Middle School, Berry Elementary, and Northside Middle School participated in the program. A cleanup of Lake Tuscaloosa was held in conjunction with the Festival. The cleanup, coordinated by the City of Tuscaloosa, had over 140 participants that collected over 12,000 pounds of trash, pushing the four year total to around 62,000 pounds being removed from the City's water supply reservoir.
- The first State of the Watershed Conference for the Black Warrior River Basin was coordinated and held in August. The conference included information about the Black Warrior River, recently completed or on-going studies, on-the-ground projects, special places, and water policy in Alabama.

CAHABA BASIN

- The Cahaba and Coosa CWP are working together to organize the first Chilton County Water Festival to be held March 15, 2013.
- In February, the Cahaba CWP hosted an Urban Stream Maintenance Workshop on the banks of Shades and Little Shades Creek in Jefferson County. Over 40 people attended the workshop.
- The Cahaba CWP has been meeting with the Tannehill Historic State Park to assist the park with issues related to the wastewater discharges into Mill Branch and ultimately into the Cahaba River. Progress has been made in procuring funding and equipment to upgrade the park's wastewater treatment facility. The goal is to reduce pathogen and phosphorus into Mud Creek/ Mill Branch.

CHATTAHOOCHEE-CHIPOLA BASIN

- In cooperation with the Mill Creek Watershed Project, the Facilitator provides updates and project information to stakeholders. She also helped with a cleanup held in June in Smiths Station where volunteers collected approximately six truckloads of trash.
- The ACWP provided assistance and educational signage for a Low Impact Development Project at the new USCOE-Eufaula Office. The installation includes bioswales, pervious pavement, a rain barrel, and a constructed wetland.
- Monofilament recycling Units are being assembled by the U.S. Coast Guard as a part of the Fishing Line Recycling Project, to be installed and maintained by stakeholders within the Chattahoochee River Basin.

CHOCTAHATCHEE-PEA-YELLOW RIVERS BASIN

- A media day was held for the Brantley Baseball and Softball Landscaping and Erosion Control Project. Senator Bryan Taylor and local officials were on hand for the check presentation.
- The Tri-State Farmers Outreach Workshop was held in February at Landmark Park in Dothan. Speakers from the Tri-state area (Georgia, Florida, and Alabama), including universities, state, federal, and local agencies, presented information about programs and services offered by their respective organizations. Over 200 people attended the function.

COASTAL ESCATAWPA BASIN

- The Coastal Alabama CWP completed the Eight Mile Creek Watershed Management Plan in 2011 and the technical committee has continued to meet on a regular basis to discuss implementation objectives. The Committee is working to find funding opportunities to address failing septic systems and sanitary sewer issues within the watershed.
- The Jackson-Reading Park Stream Restoration in Prichard is part of the implementation of management measures recommended in the Eight Mile Creek Watershed Management Plan. Streambank reconstruction is scheduled to commence in October 2012.
- Preliminary discussions have begun towards the development of a watershed management plan for the Three Mile Creek Watershed. To date $200,000 has been committed from partners including the Mobile Bay NEP and the Mobile Area Water and Sewer System.

CONECUH SEPULGA BASIN

- The Facilitator continued to coordinate volunteers, supplies, and publicity for the 25th Annual Alabama Coastal Cleanup. Over 200 volunteers participated in September.
- Four Rain Barrel Workshops were held jointly with the Choc-Pea-Yellow CWP: February 9 in Andalusia with ACES, April 12 in Dale County with ACES, April 14 in Covington County with Master Gardeners, and July 25 with the Poarch Band of Creek Indians in Atmore.

COOSA BASIN

- A Low Impact Development Conference was held in Mentone on April 20, 2012. Partners included the DeKalb Soil and Water Conservation District, One World Adventures, Alabama Power, ADEM, the Cahaba River Society, and the ACWP.
- The Facilitator coordinated two Rain Barrel Workshops in 2012. A workshop was held in Springville in February with 32 participants and in Mentone in April with six participants.

TALLAPOOSA BASIN

- The Montgomery and Lee County Water Festivals were held in May of 2012, educating approximately 5,000 fourth grade students and requiring almost 450 volunteers. The Facilitator assisted with volunteers, fundraising, and seeking in-kind donations for both festivals.
- The Facilitator assisted the Tallassee Chamber of Commerce and the Tallassee Beautification Committee with their Earth Week Activities, including coordinating an Electronics Recycling Day in April.
- An "Alabama and Tallapoosa Basin Fundraising Breakfast" was held in June in order to develop additional stakeholder relationships and raise funds for the two basins. The Vice President of Operations from Coca-Cola spoke at the breakfast regarding their company's sustainability efforts. The breakfast was held at the Montgomery Renaissance Hotel and was sponsored by the Montgomery Water Works Board.

TENNESSEE BASIN

- The Wheeler Explorers Canoe-Based Aquatic Education Program partnership with the Tennessee Basin CWP, Alabama's Mountains, Rivers and Valleys RC&D, Wheeler National Wildlife Refuge, and the U.S. F&W is ongoing. Over 150 students participated in the canoe program during this reporting period.
- The WaterWorks Center for Environmental Education programs hosted approximately 18 school groups and several teacher workshops.
- Priority stream reaches are currently being established and sites are being evaluated as part of the Fish Barrier Removal Project for the Slack Water Darter. Madison County sites have been identified and are under review and a survey for potential Lauderdale County sites is currently underway.

ACWP GOALS

Improved Communication to promote information sharing and nonpoint source education, broad awareness of resource availability, and networking with others facing the same challenges.

Data and Information Sharing through the creation of a communications and technical assistance network so that a more complete account of each river's water quality is available when making watershed decisions.

Improved Coordination between community-based groups, municipalities, and industries to prevent the duplication of effort and to acquire, streamline and maximize resources.

Opportunity for Collaboration in decision-making and the development of watershed management plans, as well as in the implementation of watershed projects and TMDLs.

Water Quality Coordinator and Education/Outreach Specialist

This project provides funding for a Water Quality Coordinator (WQC) and an Educational Outreach Specialist (EOS) to assist with the administration of several Section 319 grants provided to the State Soil and Water Conservation Committee.

The WQC has worked with several Conservation Districts in assisting with the implementation of 319 projects. In addition, the EOS maintains a database of current Confined Animal Feeding Operation (CAFO) registrations and assists those Soil and Water Conservation Districts (SWCDs) through technical assistance with uploading information to the Animal Feeding Operations Information System.

During the period of November 2011 through September 2012, the SWCDs assisted local producers with completing 535 CAFO registrations. The EOS works as a liaison between the Districts and ADEM to identify and resolve problems associated with the on-line filing process. Training sessions were also held to ensure a smooth transition from manual to internet-based processing of information.

The EOS continues to promote the Teach-the-Teacher Program in many Districts across the state. Further, the EOS is involved with educational projects such as dune planting, building hoop houses, and water festivals.

Alabama Envirothon

The ADEM NPS Unit, in a joint effort with other agencies including the Alabama Forestry Commission, the Natural Resources Conservation Service, the Alabama Soil and Water Conservation Association, and the Alabama Cooperative Extension System, continued to play a supporting role in the Alabama Envirothon competition. ADEM staff served to help in event planning, developing test materials, leading many of the training events, judging, and overall program implementation. The 2012 current issue was "Nonpoint Source Pollution and Low Impact Development".

The state competition was held in April at the 4-H Camp in Columbiana. Envirothon teams from across the state took part in the competition with Oak Mountain High School of Shelby County being the overall event winner. The winning team attended the National Envirothon in Pennsylvania.

Dr. Eve Brantley, Water Resources Program Coordinator with the Alabama Cooperative Extension System, teaches about Low Impact Development.

Alabama Water Watch

Alabama Water Watch (AWW) is a statewide program dedicated to developing citizen volunteer water monitoring of Alabama's lakes, streams, and coasts. The AWW program is coordinated through the Department of Fisheries and Allied Aquacultures of Auburn University.

From September 1, 2011 through August 31, 2012, AWW conducted 83 training sessions attended by 365 people with a total of 468 certifications; 65% were conducted by or with a Citizen Trainer. Twenty-two water chemistry monitoring workshops (225 people), fourteen bacteriological monitoring workshops (103 people), 34 recertification sessions (88 people), and two stream biomonitoring workshops (22 people) were conducted. Ten Water Monitoring Training-of-Trainer sessions were also conducted during this report period. One Exploring Alabama's Living Streams session, attended by 15 educators, was also conducted.

Sixty-seven citizen groups participated in AWW and submitted water quality data from nine of ten major river basins in the state, excluding the Tombigbee Basin. Overall 4,175 combined water chemistry and bacteriological records collected by 331 monitors from 497 monitoring sites were submitted. Data received during the report period originated mostly from groups located in the Warrior, Tennessee, Coosa, and Tallapoosa River Basins (17, 13, 11 and 11 groups, respectively). However, when counting the total data submitted, the most active groups were in the Tallapoosa, Coastal Plain, Warrior, and Tennessee Basins. Five Citizen Data Interpretation Sessions were presented during the reporting period for citizens at Lake Logan Martin, Smith Lake, Lake Mitchell, and the Saugahatchee and Chewacla Creek Watersheds. Since 1993, AWW has received a combined total of more than 71,000 water quality data forms (57,000 water chemistry and 13,000 bacteriological) from more than 2,100 cumulative sites on more than 800 waterbodies statewide.

AWW staff attended several additional AWW group meetings and participated in events sponsored by AWW groups, including *Bacteria Blitzes* and local outreach meetings. AWW also responded to official requests for data from several organizations and agencies, including ADEM, the University of South Alabama, AWW groups, and individual monitors.

The AWW vision is to have a citizen monitor on every stream, river, lake, and coast in Alabama.

Alabama Water Watch

Meeting NPS Program Goals

Goal 1: *Collect reliable water quality data and information in order to ascertain the extent, degree, and potential for NPS pollution to surface and groundwaters* (Endpoint: 2015)

— ADEM used the five-year rotational river basin approach to assess water quality in the Black Warrior and Cahaba River Basins in 2012. Laboratory and field data analyses and report development is continuing.

— ADEM continued laboratory analyses and reporting of water quality monitoring data collected during 2010 from the Tombigbee, Escatawpa, and Mobile River Basins.

— ADEM NPS Unit, Water Division, and Field Operations Division staff coordinated water quality monitoring for the Tennessee River Basins to be conducted during 2013.

— ADEM continued Section 319 funding for the Section 314 Clean Lakes Program by supporting reservoir and lake embayment monitoring, TMDL development/implementation, and nutrient criteria development.

— ADEM continued to coordinate fish collection activities with state agencies such as the Alabama Department of Conservation and Natural Resources and the Alabama Department of Public Health to establish the need to issue fish consumption warnings or advisories to protect public health.

— ADEM continued to populate STORET and various in-house water quality databases with NPS water quality data.

— ADEM continued to improve upon benthic macroinvertebrate methodologies as indicators of water quality using Section 319 funding to increase timely identification; refine the macroinvertebrate bioassessment index to improve accuracy, precision, and sensitivity in detecting changes in water quality before and after BMP implementation; and providing stakeholders with greater and timely access to taxonomic data.

— ADEM continued to improve the ORACLE web-based Alabama Water Quality Assessment and Monitoring Data Repository (ALA-WADR) database with a Section 319 funded Alabama Ecological Data Analyses Reporting System (AEDARS) module developed by the Geological Survey of Alabama to better manage and report NPS and other water quality data.

— ADEM updated the NPS Management Program water quality data in the *Integrated Water Quality Monitoring and Assessment Report*.

— ADEM continued to collect NPS water quality data according to an EPA-approved *ADEM Quality Assurance Management Plan*.

Goal 2: *Integrate the Alabama NPS Source Management Program and CWA Section 319 grant funding with development and implementation of Total Maximum Daily Loads (TMDLs)*. (Endpoint: 2015)

— Section 319 incremental grant funding continued to target Section 303(d)-listed waterbodies and the development of a watershed-based management plan for Brindley Creek (Tennessee Basin) and the Three Mile Creek (Mobile Basin). These subwatershed management plans will be designed to address the FY03 Section 319 grant guideline "a-i" watershed plan elements.

— The ADEM NPS Unit, Water Division, and Field Operations Division continued to coordinate Department-wide monitoring priorities and needs and to identify watersheds with good potential to be Section 303(d) de-listed, as a result of implementation of Section 319 and other resource agency's best management practices or activities.

— ADEM submitted the Section 319-funded Dry Creek (Black Warrior Basin) project to EPA-HQ for consideration as a WQ-10 success story and SP-12 relevant to implementation of BMPs on an impaired Section 303(d)-listed waterbody. Approval was received from EPA Region 4.

Goal 3: *Coordinate and leverage federal, state, and local funding and other resources to design, install, or maintain appropriate NPS management practices needed to attain water quality standards.* (*Endpoint: 2015)*

— ADEM continued to coordinate watershed management plan development with the Center for Watershed Excellence – a consortium of watershed/water quality protection entities founded upon a MOU and comprised of EPA, ADEM, Auburn University and Alabama A&M University. ADEM also continued its Memorandum of Agreement partnership with the Alabama Forestry Commission to assure silvicultural BMPs are adequate and citizen complaints are appropriately resolved. In addition, improved avenues of communication continued to be realized.

— ADEM continued to participate in a Cooperative Agreement with the Alabama Department of Transportation to assure implementation of effective BMPs associated with road building and maintenance activities.

— ADEM continued to participate on the State Technical Committee in relation to the USDA/NRCS Farm Bill Cost-Share Program and in development and approval of BMP technical standards and guidelines.

— ADEM continued to partner with the SWCC in maintaining a statewide CAFO Notice Of Registration (NOR) tracking database. ADEM also continued to partner with the Alabama Cooperative Extension System to disseminate information needed to meet or exceed AFO/CAFO rules through the ACES website. ADEM maintained a partnership with the NRCS concerning land application of poultry litter and in technical standards and guidelines related to animal waste and nutrient standards. In addition, ADEM partnered with the Alabama Department of Agriculture and Industries in helping to implement a statewide Certified Animal Waste Vendor Program.

— ADEM continued to partner with ACES, NRCS, and the National Weather Service in providing to farmers a weather FORECAST and FARMERS Map website, useful for land application of animal waste litter. The website helps farmers meet NRCS technical standards and guidelines and to comply with ADEM AFO/CAFO requirements

— ADEM continued to use Section 319 funding to leverage interagency funding support for a statewide agricultural NPS water quality coordinator to reside at the Alabama Soil and Water Conservation Commission.

— The ADEM NPS Unit continued to partner with the Alabama Clean Water Partnership in leveraging Section 319 grant funding to fund a Statewide Coordinator, River Basin Facilitators, and the planning and implementation of watershed protection activities.

— The ADEM NPS Unit continued to take a lead in the demonstration of hydrologic/habitat modification projects needed to restore, maintain, and protect water quality [e.g., Stream restoration and enhancement projectsincluding: Genetta Creek (Montgomery) and D'Olive Creek - Joe's Branch (Mobile)).

— The ADEM NPS Unit continued to promote the National NEMO Program with staff coordinating/offering several statewide presentations.

— ADEM continued to partner with Soil and Water Conservation Districts and public/private stakeholders to present hands-on *Clear Water Alabama Field Days* erosion and sediment control training events.

— ADEM partnered with the Alabama Cooperative Extension System, the Alabama Clean Water Partnership, and the City of Auburn to plan implementation of potential low impact development (LID) practices.

— ADEM Nonpoint Source Unit Staff serves as a representative on the Choctawhatchee-Pea-Yellow Rivers Watershed Management Authority.

— ADEM worked collaboratively with TVA to select NPS implementation sites for the Elk and the Bear Creek Watersheds.

— ADEM works collaboratively with and through the support of the Alabama Clean Water Partnerships to assist the U.S. Fish and Wildlife and the Geological Survey of Alabama in the selection of sites and partners for their Strategic Habitat Unit and River Reach Unit (SHU) Initiative.

— ADEM assisted and continues to assist the NRCS with the selection of watersheds for prioritization as part of USDA's National Water Quality Initiative. The current North River Project that is being implemented through Section 319 funding is a result of the prioritized sites from FY2012.

— ADEM is working with Columbus Water Works in Georgia to assist with coordination of the Chattahoochee-Chipola Clean Water Partnership, specifically providing technical assistance with the current Mill Creek Watershed Project in Phenix City and Smith's Station.

Goal 4: *Develop 10 river basin management plans (8-digit Hydrologic Unit Code Cataloging Unit) that present practical "big-picture" goals, objectives, and milestones to protect impaired or threatened waters. (*Endpoint: 2015) (Complete)

The following major River Basin Management Plans have been developed:

1) Tennessee
2) Cahaba
3) Mobile River (Coastal)
4) Black Warrior River (including Locust Fork, Mulberry Fork, and Five Mile Creek)
5) Alabama
6) Tombigbee
7) Tallapoosa
8) Coosa (including Upper, Middle, and Lower)
9) Choctawhatchee, Pea, and Yellow
10) Conecuh-Sepulga
11) Chattahoochee-Chipola

Goal 5. *Develop or implement 10 subwatershed protection plans (11-14 digit Hydrologic Unit Code subwatershed number) to provide reasonable assurance that load allocations for targeted sources and causes of NPS pollution are being addressed and water use classifications and standards can be restored as expeditiously as possible.* (Endpoint: 2015)

— ADEM continued to partner with local stakeholders to develop or implement approximately 53 subwatershed management plans (11-12 digit HUCs) that target Section 303(d)-listed waters (refer to *Watershed Management Plans* in this document). The plans (in various stages of development or implementation) focus upon NPS pollutant sources and causes of impairments as identified in a draft or final TMDL; or upon Section 319/NPS Management Program pollution load reduction priorities such as nitrogen, phosphorus, and/or sediment.

— Section 319 incremental grant funding was used to provide reasonable assurance that nonpoint pollutant load reduction sources and causes are being targeted and water use classifications and standards are being restored as expeditiously as possible through the development of subwatershed management plans for Section 303(d)-listed Brindley Creek (Black Warrior), Broken Arrow (Coosa), and Hurricane Creek (Tennessee). The subwatershed management plans will address FY03 Section 319 grant guideline "a-i" watershed plan elements.

— ADEM continued to enter Section 319 NPS Management Program pollutant load reduction data into the EPA National Grant Reporting and Tracking System (GRTS) database in order to provide reasonable assurance that nonpoint pollutant load reduction sources and causes are being targeted and water use classifications and standards are being restored as expeditiously as possible.

Goal 6. *Support the efforts of the Alabama Clean Water Partnership (ACWP) Program* (Endpoint: 2015, or until the ACWP program is institutionalized and self-supporting).

— ADEM continued to partner with the Alabama Clean Water Partnership by providing Section 319 financial assistance for a Statewide Coordinator and ten River Basin Facilitators. ADEM also serves as a sustaining member of the ACWP Board of Directors.

— ADEM NPS Unit continued to be closely involved with ACWP advisory, technical, and education/outreach committees to help insure that basin-wide and local subwatershed stakeholders "work off the same page." Meetings are generally conducted quarterly.

Goal 7. *Plan, sustain, or expand statewide NPS education and outreach to target agriculture, silviculture, urban, construction, resource extraction, and hydrologic/habitat modification.* (Endpoint: 2015)

— ADEM continued to provide Section 319 financial and Department staff support for several education and outreach activities in which the Alabama Clean Water Partnership was involved (e.g., constructing rain barrels; NEMO, monofilament line recycling, groundwater festivals, teacher workshops, the ACWP website, etc.)

— ADEM presented the 24th Annual NPS Conference in January 2012 with approximately 300 people in attendance in order to sustain and expand stakeholder interest in protecting water quality from real and potential NPS threats.

— The NPS Unit provided specific and cross-cutting NPS category displays and presentations to various schools, civic organizations, agencies, and other public forums.

— The *Clear Water Alabama Field Days* (erosion and sediment control) workshops targeting stormwater runoff have been extremely well received by the construction industry and continued to be conducted through a Section 319 project in cooperation with the SWCD and Soil and Water Conservation Society. The Department also provides staff support for coordination.

— The *Nonpoint Source Education for Municipal Officials* (NEMO) workshops continued with increasing impetus on presenting Low Impact Development and growth readiness information in stormwater Phase II areas.

— The Alabama Water Watch program continued to develop certified citizen volunteer water quality monitoring capabilities for Alabama's lakes, rivers, streams, and coasts.

— ADEM and other entities continued to support the Alabama Envirothon competition by helping with planning, development of test materials, teaching, and judging of the various events. This past year's event focused on Low Impact Development and NPS pollution.

— The relationship between NPS pollution and groundwater protection continued to be demonstrated with over 219,478 fourth grade students educated to date. Twenty-seven counties in Alabama conduct Groundwater Festivals on an annual basis.

Goal 8. *Report as applicable, monitored or modeled estimates of nitrogen (lbs.), phosphorus (lbs.) or sediment (tons) load reductions to help quantify the effectiveness of Section 319 projects in protecting water quality and attaining applicable water quality standards.* (Endpoint: 2015)

— A summary of the pollutant load reductions for Section 319-funded watershed projects are presented under "Pollutant Load Reductions" (page 6).

— The ADEM NPS Unit continued to provide pollutant load reduction data (nitrogen, phosphorus, and sediment) in EPA's Grants Reporting and Tracking System (GRTS) to help quantify the effectiveness of Section 319 projects in protecting water quality and in attaining water quality standards.

— The ADEM NPS Unit staff assisted watershed stakeholders with pre and/or post BMP implementation modeled estimates of nitrogen (lbs.), phosphorus (lbs.), or sediment (tons) load reductions.

Goal 9. *Obtain NOAA and EPA Final Approval of the Alabama Coastal Zone NPS Management Program (CZARA) (*Endpoint: 2015).

— See information on pages 10 -11 (Alabama's Coastal Nonpoint Source Pollution Control Program).

Goal 10. *Report annual Section 319 grants Program Administrative Efficiency Measures* (Endpoint: 2015)

— Per EPA HQ and R-4 request, ADEM continued to expedite the drawdown of Section 319 grant funds. The Department has elected to include Section 319 grant funding in the Performance Partnership Grant (PPG).

— ADEM continued to provide required project update data and information to the EPA – GRTS database. No reporting exceptions were noted by EPA as of December 2012.

— ADEM continues to support the five-year rotational river basin assessment approach.

— ADEM continues to partner with ADPH by collecting and analyzing fish to protect human health (consumption advisories).

— ADEM continued to maintain an in-house Section 319 project/budget-tracking database and a cooperative agreement database to efficiently track project status.

— ADEM submitted the FY12 Section 319 workplans to EPA prior to due dates. On-going grants continue to be administered and managed according to EPA grant guidelines.

— ADEM submitted the Mid-Year Report and this Annual Report as required per grant guidelines.

— ADEM continued to facilitate development of watershed-based management plans that meet FY03 EPA's grant guideline "a-i" watershed plan elements, in order to meet commitments for incremental grant funding and to implement the NPS components of TMDLs.

Goal 11. *Utilize a flexible, targeted, iterative, and broad-based approach to support EPAs long-term National Vision that, "All States Are Implementing Dynamic and Effective Nonpoint Source Programs Designed to Achieve and Maintain Beneficial Uses of Water."* (Endpoint: 2015)

— ADEM continued to provide financial and technical support to the Alabama Clean Water Partnership. Financial support was provided for a ACWP Statewide Coordinator and several Basin Facilitators to assist stakeholders in watershed restoration and protection activities.

— ADEM partners with many public and private entities to address nonpoint source pollution.

— ADEM provided financial assistance and advisory support for statewide citizen-volunteer water quality monitoring and associated database maintenance/reporting.

— ADEM continued to provide an annual statewide *Nonpoint Source Conference* for cooperators, in order to enhance stakeholder education and partnering opportunities.

— ADEM promotes a voluntary NPS compliance approach, but coordinates the regulatory aspect of citizen complaints with other ADEM programs to assure abatement of water quality threats or impairments.