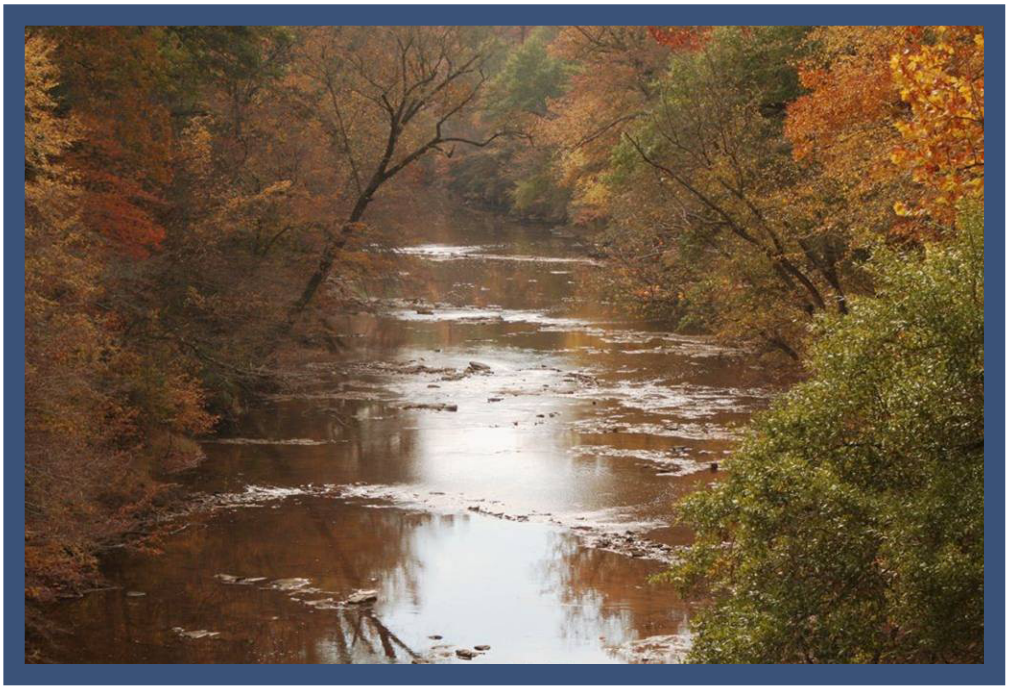
Alabama Nonpoint Source Program Annual Report



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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

The Alabama Department of Environmental Management (ADEM) continued its trend of working with local stakeholders, partner agencies, and individual landowners to implement its Nonpoint Source Management Program during 2013. While nonpoint source management programs across the nation are undergoing significant changes, based on budget reductions and grant guidance changes, the ability to work with established partners and leverage resources remained the focus of ADEM during the past year. The information contained in this annual report illustrates many of the accomplishments achieved by the collaborative efforts of ADEM and these stakeholder groups to include pollutant load reductions, on-the-ground best management practices, education/outreach efforts, and improvements in water quality.

ADEM continued its support, both financial and technical, of the development of small-scale watershed management plans in impaired watersheds. These efforts provide the foundation for the installation of on-the-ground best management practices that are designed to achieve nonpoint source pollutant load reductions and create improvements in water quality. In addition, ADEM supported the collection of pre-project and post-project water quality monitoring in conjunction with these watershed efforts to support a science-based decision making process.

Also, in 2013 Alabama was tasked with completing an update of the state's Nonpoint Source Management Plan and began efforts to meet the new "Nonpoint Source Program and Grant Guidelines for States and Territories", which was revised by EPA in April 2013. While the new grant guidance does not become effective until FY2014, enhanced efforts have already been initiated to track/document water quality improvements, increase internal coordination with other ADEM programs, and ensure project effectiveness.

While many accomplishments were achieved during the past year, budget reductions continue to threaten the effectiveness of Alabama's Nonpoint Source Management Program. Alabama, as well as other states, are faced with difficult decisions when trying to maintain services in the face of continued budget cuts. However, ADEM will continue to utilize its available resources, as outlined in this report, to deliver efforts that are designed to improve water quality across Alabama.

ADEM and a diverse group of stakeholders were presented the International Green Apple Award for the Joe's Branch Restoration Project.

2013 NPS Highlights

The 24th Annual Nonpoint Source Conference was held on January 17th at the Renaissance Hotel in downtown Montgomery. Attendees included more than 250 environmental engineers, biologists, geologists, municipal leaders, and water quality specialists. The conference also included several exhibitors with displays and informative hand-outs. This year's theme focused on "The Secret to Nonpoint Source Success - Partners". Topics for the sessions included watershed success stories, protecting healthy watersheds, tools for watershed management, and boots on the ground. Participants were also informed on the latest updates from the Alabama Water Policy group during lunch. A large number of organizations and agencies participated in the conference including the Geological Survey of Alabama, the Natural Resources Conservation Service, EPA, the Mobile Bay National Estuary Program, Auburn University, and the Alabama Clean Water Partnership.

ADEM presents on GIS tools at the 24th Annual Nonpoint Source Conference

The D'Olive Creek Watershed Project (Joe's Branch Restoration) received an International Green Apple Award for the implementation of a unique project to improve water quality, reduce pollutant loads, and support habitat enhancements in the Joe's Branch Watershed. A Regenerative Step Pool Storm Conveyance System was installed as an innovative approach to managing storm water runoff from highly developed urban areas. In addition to lowering storm water velocity, the system also creates resource value by utilizing natural, "green" infrastructure that is aesthetically pleasing and provides habitat for plants and animals. The installation of this system also serves as a demonstration project that can easily be adopted in other areas.

The second biennial Coosa River Watershed Conference was held in Pell City. The event was designed to help collaborate efforts, build effective partnerships, and identify worthwhile future activities to enhance long-term water resource management in the Coosa River Watershed. Highlights of the meeting included an update on Alabama's surface water monitoring plan, a review of Alabama Power's "Renew our Rivers" program, a presentation describing Honda Manufacturing's "Green" program, and the latest on activities in the Coosa Watershed involving threatened and endangered species.

The Mill Creek Watershed Project in Phenix City was awarded a Five Star Restoration grant to leverage with Section 319 funding to improve a 700-foot segment of creek in downtown Phenix City. This BMP involved invasive plant removal, placement of in-stream structures to redirect flow and reduce erosion, habitat enhancement, and community involvement and improvement. A planting field day and construction tour was held in March 2013. Project partners included Auburn University, ADEM, ACES, City of Phenix City, Goodwyn Mills, and Cawod, Inc., and the Mill Creek Watershed Project.

Partners in the Mill Creek Stream Improvement received the Five Star Award at the stream construction workshop in Phenix City.

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, supply technical guidance for developing Comprehensive Nutrient Waste Management Plans statewide, and provide technical and engineering assistance with Section 319 watershed projects involving implementation of agricultural best management practices.

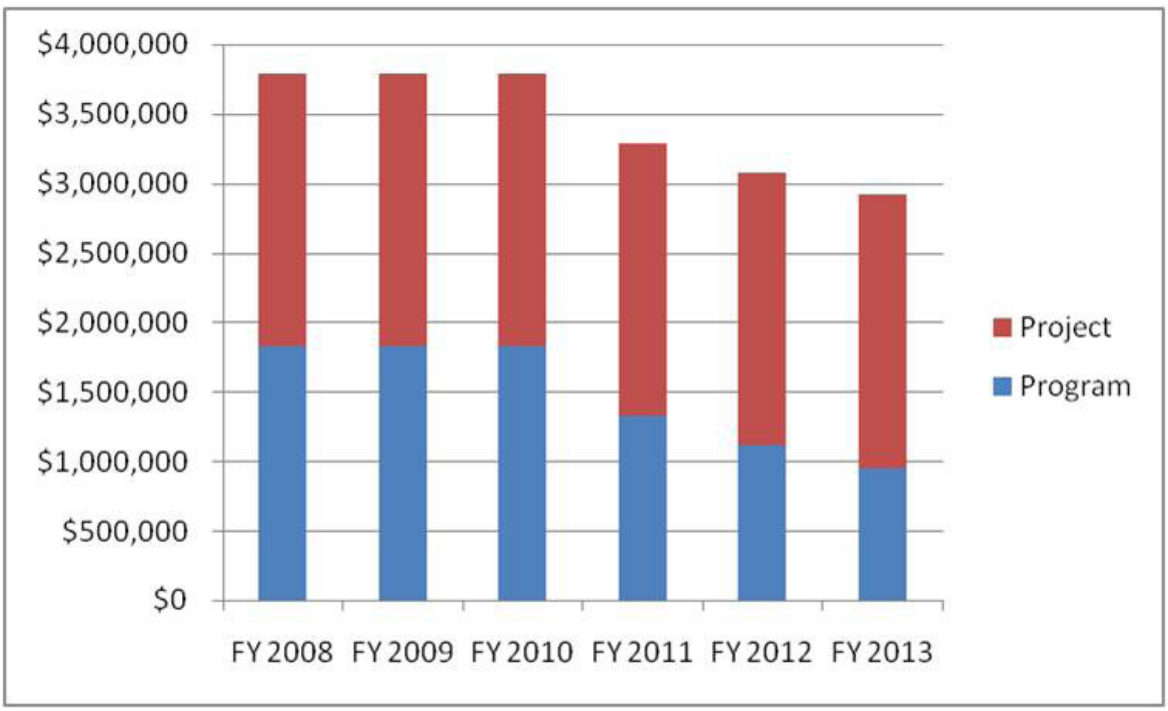
- Through its Clean Water Initiative, the Tennessee Valley Authority (TVA) builds partnerships with community residents, businesses, and government agencies to promote watershed protection. TVA's Regional Watershed Offices are responsible for carrying out the program. TVA focuses on improving water and 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.

Alabama's Section 319(h) Grant Program Funding

During the past three years ADEM 319 funding has declined by approximately 24% in overall funding with Program (Base)funding seeing dramatic losses beginning in FY11. The Department continues to adjust to the continual decline of these essential dollars that are needed to oversee and manage the Project Implementation portion (Incremental) of the 319 program.

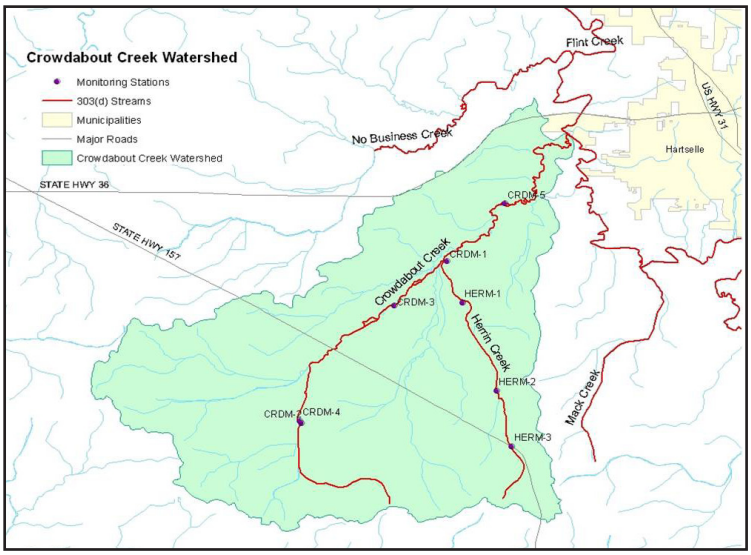
FISCAL YEAR	BASE (PROGRAM FUNDS)	INCREMENTAL (PROJECT FUNDS)	TOTAL 319 FUNDS
2008	$1,824,100	$1,964,300	$3,788,400
2009	$1,824,100	$1,964,300	$3,788,400
2010	$1,824,100	$1,964,300	$3,788,400
2011	$1,330,000	$1,960,000	$3,290,000
2012	$1,110,000	$1,964,000	$3,074,000
2013	$949,700	$1,964,000	$2,913,700



Measures of Success

Section 319 Success Story Highlight

Crowdabout Creek in the Tennessee River Basin



Waterbody Improved

The Crowdabout Creek subwatershed (HUC 06030002-1006) encompasses about 31,150 acres in the Upper Flint Creek Watershed near the town of Falkville in Morgan County, Alabama. The main stem of Crowdabout Creek has a length of 15 miles and is identified as impaired on Alabama's 1996 - 2002 Clean Water Act Section 303(d) Lists.

Herrin Creek (HUC 06030002-1002) is an impaired tributary that drains to Crowdabout Creek. The Herrin Creek subwatershed has a length of 6.3 miles and is listed as impaired on the 2002 - 2008 Section 303(d) Lists.

Problem

Nonpoint priority pollutants of concern were attributed to agricultural sources such as pasture grazing, nonirrigated crop production, and animal feeding operations. In addition to the "high" priority level assigned to sediment; nitrogen, phosphorus, and organic loading were identified as water quality improvement targets.

A Total Maximum Daily Load (TMDL) for siltation in was approved in 2002 and TMDLs for nutrients, organic enrichment/(low)dissolved oxygen, and pathogens were approved in 2003 for the overall Flint Creek watershed.

Project Highlights

Watershed management plans for the Flint Creek, Crowdabout Creek, and Herrin Creek subwatersheds were developed by the Flint Creek Watershed Conservancy District (FCWCD). The FCWCD leveraged Section 319 funding with the NRCS, Morgan County SWCD, and private resources, to implement components of the watershed management plans.

The initial FY2003 Section 319(h) grant provided $393,000 in federal funding with $350,000 dedicated to BMP implementation in the Crowdabout Creek subwatershed and $63,426 in federal funding with $47,769 dedicated to BMP implementation in the Herrin Creek subwatershed. Non-federal project match, totaling $334,302 for both projects, was provided by the Morgan County SWCD, volunteers, and landowners. The total amount of both projects in the watershed was $790,728.

Voluntary landowner education and sign-up activities for the project began in September 2004 which was the start date of the project. Between start date of the project and September 2005 approximately 95.7 acres of riparian forest buffers were planted along 2.95 miles of Crowdabout Creek. Between September 2005 and September 2006, approximately 315.6 acres of riparian forest buffers were planted along 7.08 miles of the stream ,and between September 2006 and July 2007, approximately 958.5 acres of riparian forest buffers were planted along 14.57 miles of the stream banks and its tributaries. The agricultural best management practices were installed within 300 feet of the stream banks and its tributaries. Additional Crowdabout Creek watershed management practices included the planting of 132.4 acres of grassed waterways and the planting of nearly 90 acres of hardwood vegetation on other land within the watershed.

Riparian forest buffers were also installed on a total of 332.6 acres along the length of Herrin Creek. From September 2005 to September 2006, approximately 91.6 acres of riparian forest buffers were planted along 3.0 miles of the stream. From September 2006 to June 2007 approximately 241.0 acres were planted along 2.65 miles of the stream. In addition, 28 acres of hardwood vegetation were planted.

The riparian forest buffers (1,702.4 acres) installed in the Crowdabout Creek and Herrin Creek subwatersheds were enrolled in the USDA - Farm Service Agency's Conservation Reserve Program (CRP). The CRP contracts help maintain this long-term resource conservation practice and continue to protect and enhance habitat, control soil erosion and improve water quality. The CRP contracts extend from 2005 until 2020 and are expected to provide about $1.4 M in incentive and annual payments.

Above: Before 225 acres of pasture was put into conservation easement
Below: After 225 acres of vegetation was established

Improving Trends in Water Quality

A delisting document is currently being written and is scheduled to be submitted to EPA in November 2013. The goal of this delisting document is to delist Crowdabout Creek for Organic Enrichment/Dissolved Oxygen.

Water quality data was collected from Crowdabout Creek by the Geological Survey of Alabama from 1995 through 1997 and by ADEM in 2005, 2007, and 2009. Water quality data was also collected by ADEM in Herrin Creek during 2005, 2007, 2009, and 2012. Dissolved oxygen concentrations measured in Crowdabout Creek and Herrin Creek show significant improvement and generally exceed the state's fish and wildlife water quality standard of a minimum of 5.0 mg/l of dissolved oxygen.

Physical characteristic and habitat assessment data collected by ADEM in 2009 to document the stream health condition of Crowdabout Creek was compared with data collected by GSA in 1996. The 2009 data was also compared with fully supporting ecoregion reference sampling site information to help validate the effectiveness of BMP implementation. Reductions in siltation and improvements in substrate organic matter and canopy cover were also achieved. Instream habitat quality, sinuosity, bank and vegetative stability, riparian buffer, and habitat assessment scores improved, resulting in an overall habitat assessment rating improvement from Poor to Fair. Additional physical characteristics data collected in 2013 show that the canopy cover has been maintained (mostly shaded), as compared to previous data indicating an open canopy cover.

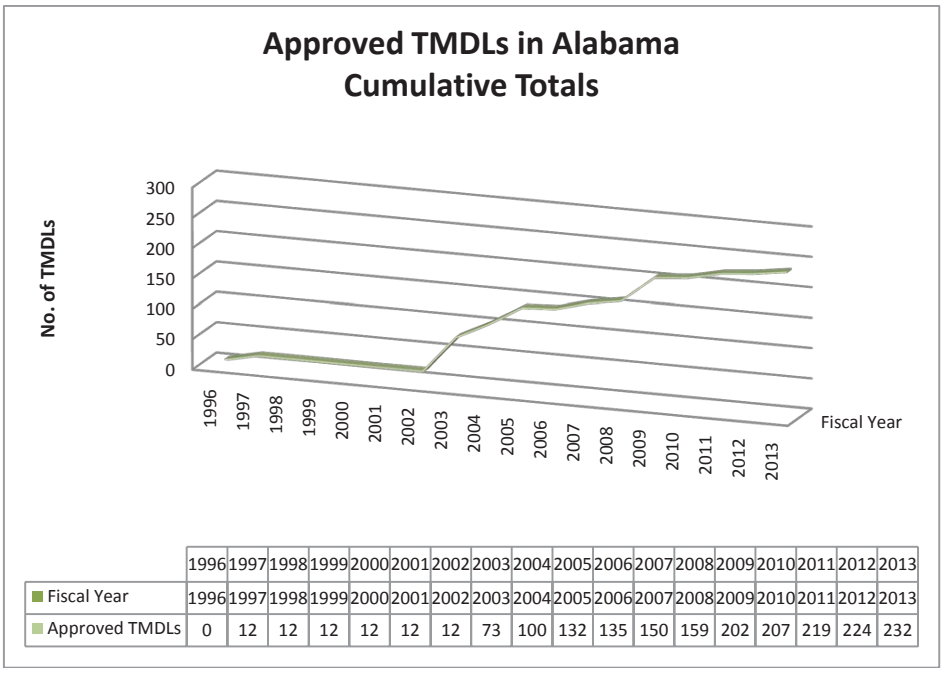
In addition, fecal coliform concentrations measured in Crowdabout Creek and Herrin Creek show significant improvement from the pre-project to post-project sampling. Comparing the pre-project GSA data collected to the post-project data collected shows a significant decrease in the number exceedances.

Implementation of BMPs in the Crowdabout Creek subwatershed resulted in nitrogen, phosphorus, and sediment pollutant load reductions of 3,035.1 lbs/year, 3,537.2 lbs/yr, and 344.2 tons/yr, respectively. Implementation of BMPs in the Herrin Creek subwatershed resulted in nitrogen, phosphorus, and sediment pollutant load reductions of 714.5 lbs/yr, 843.5 lbs/yr, and 76.1 tons/yr, respectively.

TMDLs in Alabama

In FY2013 the TMDL Program of ADEM continued to make great strides in protecting Alabama's water resources. With respect to TMDL development, ADEM drafted TMDLs for the following segments and pollutants:

Waterbody Name	Waterbody ID 12-Digit HUC	River Basin	County	Pollutant(s)
Cahaba River	AL031550202-0407-100	Cahaba	Bibb	Siltation (Habitat Alteration)
Cahaba River	AL031550202-0206-101	Cahaba	Shelby	Siltation (Habitat Alteration)
Cahaba River	AL031550202-0206-102	Cahaba	Shelby	Siltation (Habitat Alteration)
Cahaba River	AL031550202-0204-101	Cahaba	Shelby	Siltation (Habitat Alteration)
Cahaba River	AL031550202-0204-102	Cahaba	Jefferson	Siltation (Habitat Alteration)
Cahaba River	AL031550202-0104-102	Cahaba	Jefferson/St. Clair	Siltation (Habitat Alteration)
Cahaba River	AL031550202-0101-102	Cahaba	Jefferson	Siltation (Habitat Alteration)
Cahaba River	AL03150202-0206-101	Cahaba	Shelby	Pathogens
Cahaba River	AL03150202-0206-102	Cahaba	Shelby	Pathogens
Cahaba River	AL03150202-0204-101	Cahaba	Jefferson	Pathogens
Threemile Creek	AL03160204-0504-101	Mobile	Mobile	Pathogens
Threemile Creek	AL03160204-0504-102	Mobile	Mobile	Pathogens
Fish River	AL03160205-0204-112	Mobile Bay	Baldwin	Pathogens
East Branch Luxapallila Creek	AL03160105-0101-200	Upper Tombigbee	Fayette/Marion	Pathogens
Wahalak Creek	AL03160201-0904-101	Lower Tombigbee	Choctaw	Pathogens



	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
Fiscal Year	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
Approved TMDLs	0	12	12	12	12	12	12	73	100	132	135	150	159	202	207	219	224	232

Of the 16 TMDLs that were drafted and public noticed, eight were finalized and approved by EPA Region 4 during FY2013 (highlighted above). The eight TMDLs that were approved addressed siltation and habitat alteration impairments within the Cahaba River Basin. Finalization of these TMDLs marks a significant milestone for the Department in that these were very challenging TMDLs to complete from both a technical perspective and due to a very high public stakeholder interest. With the completion and approval of these eight TMDLs, it brings our cumulative total of TMDLs approved in Alabama to 232.

In FY2013, ADEM also received final approval from EPA Region 4 on the 2012 303(d) List, which includes approval on the following pollutant delistings for various waters throughout the State of Alabama:

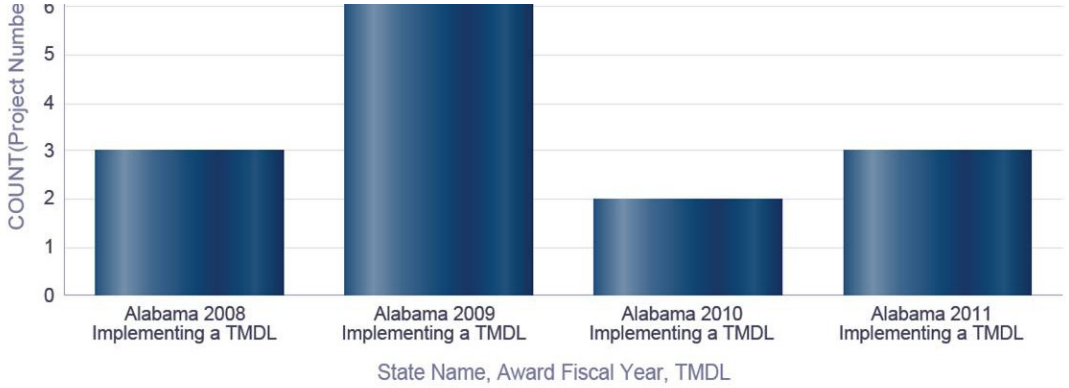
Waterbody Name	Waterbody ID (12-Digit HUC)	River Basin	County	Pollutant(s)
Autauga Creek	AL03150201-0203-102	Alabama	Autauga	pH
Mud Creek	AL03160109-0108-102	Black Warrior	Cullman	Organic Enrichment (CBOD, NBOD)
Dry Creek	AL03160111-0203-100	Black Warrior	Blount	Ammonia
Big Yellow Creek	AL03160112-0201-102	Black Warrior	Tuscaloosa	Metals (Chromium)
Spring Creek	AL03150105-0807-103	Coosa	Cherokee	Nutrients
Middle River	AL03160204-0202-200	Mobile	Baldwin/Mobile	Metals (Hg)
Bay Minette Creek	AL03160204-0503-102	Mobile	Baldwin	Metals (Hg)
Little Lagoon	AL03140107-0205-101	Perdido-Escambia	Baldwin	Pathogens
Hester Creek	AL06030002-0303-500	Tennessee	Madison	Turbidity
McKiernan Creek	AL06030005-0701-201	Tennessee	Colbert	Ammonia
Sipsey River (Gainesville Reservoir)	AL03160107-0306-101	Upper Tombigbee	Pickens/Greene	Metals(Fe)

Other accomplishments for FY2013 include the following:

- Two Intensive Surveys were conducted on Pond Creek in the Tennessee River Basin with 11 total stations and 230 total samples.
- 72-hr Diurnal Studies were conducted on 41 waterbodies at 53 stations.
- Dynamic modeling was initiated for Bankhead, Holt, and Oliver reservoirs within the Black Warrior River Basin.
- 42 Clean Water Partnership meetings were attended throughout the State by WQ Branch staff.

Current 319 Grant Projects Implementing a TMDL

State Name	Award Fiscal Year	COUNT(Project Number)
Alabama	2008	3
Alabama	2009	7
Alabama	2010	2
Alabama	2011	3



Pollutant Load Reductions

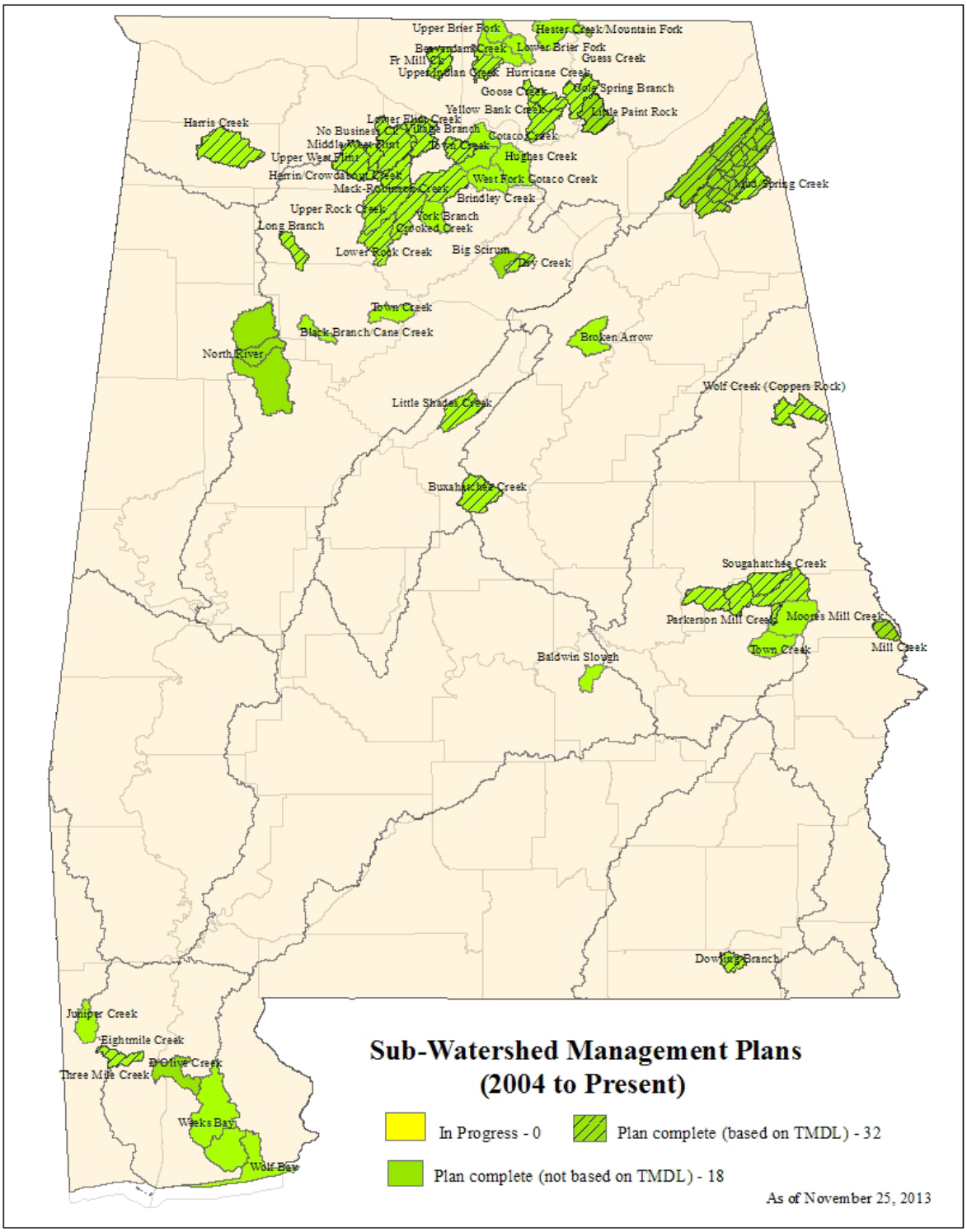
The projects/activities outlined in this report provide a brief overview of the Department's efforts to address nonpoint source pollution in Alabama. However, in order to provide a numerical measure of the effectiveness of these efforts, EPA 319 guidance calls for a report of the "annual reduction in 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. 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 2008 - 2012 (Current Implementation)

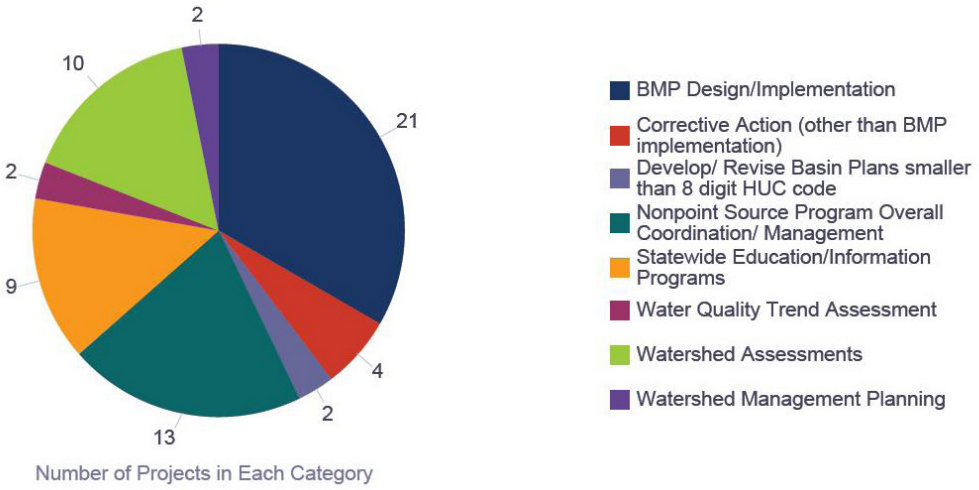
FISCAL YEAR	NITROGEN	PHOSPHORUS	SEDIMENTATION-SILTATION
2008	196,596.8 LBS/YR	45,356.0 LBS/YR	34,189.6 TONS/YR
2009	34,553.5 LBS/YR	15,276.8 LBS/YR	8,483.95 TONS/YR
2010	82,370.2 LBS/YR	29,518.6 LBS/YR	19,430.0 TONS/YR
2011	44,836.0 LBS/YR	6,758.8 LBS/YR	2,156.3 TONS/YR
2012	5,534.2 LBS/YR	592.6 LBS/YR	239.44 TONS/YR

Watershed Management Plans

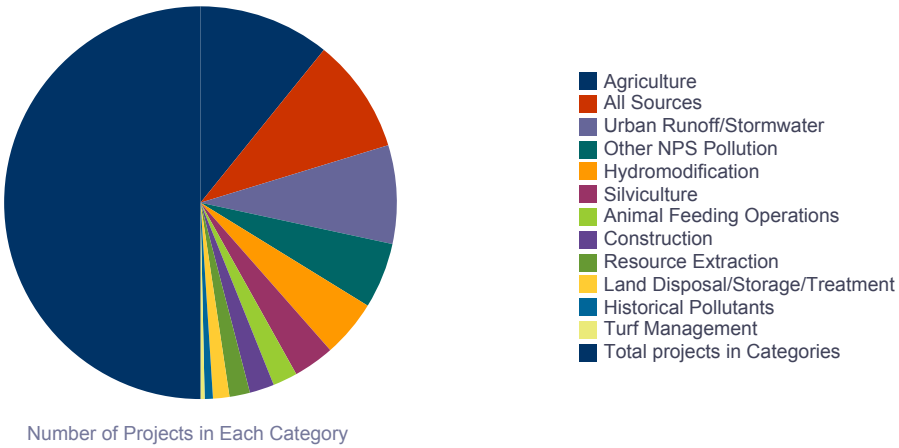
The Department is continuing to work with stakeholders to develop and implement watershed management plans. As depicted by the map below, these watershed management plans are in various stages of completion, but each plan will incorporate EPA's nine key elements.



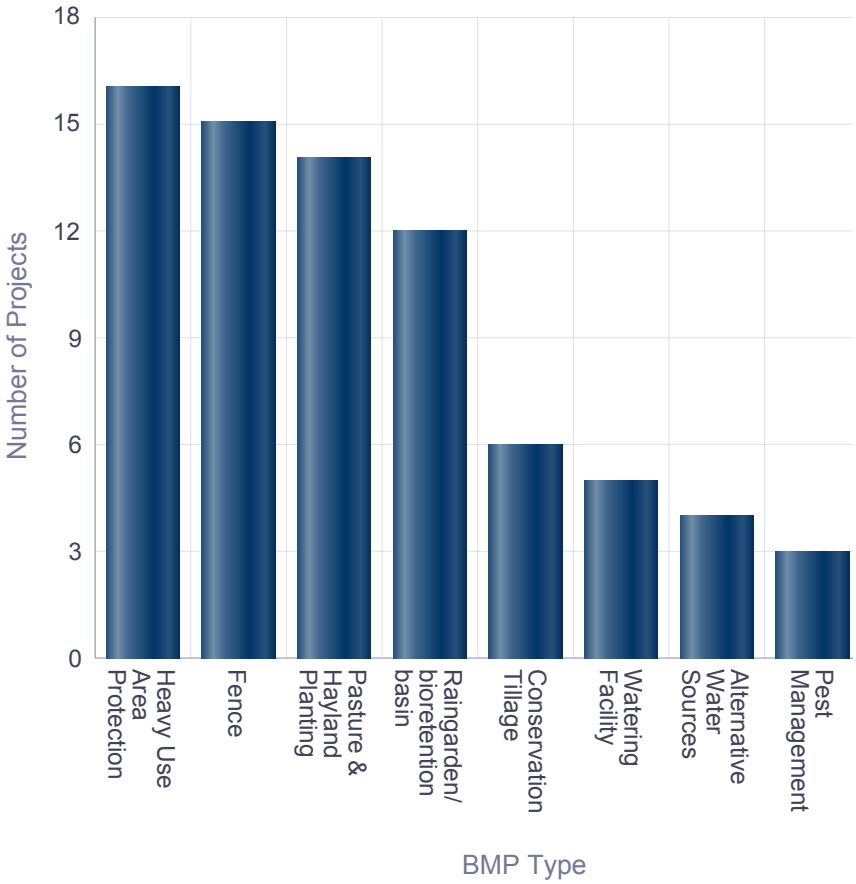
Projects Funded in AL by NPS Functional Categories 2008-2013 (Open Projects)



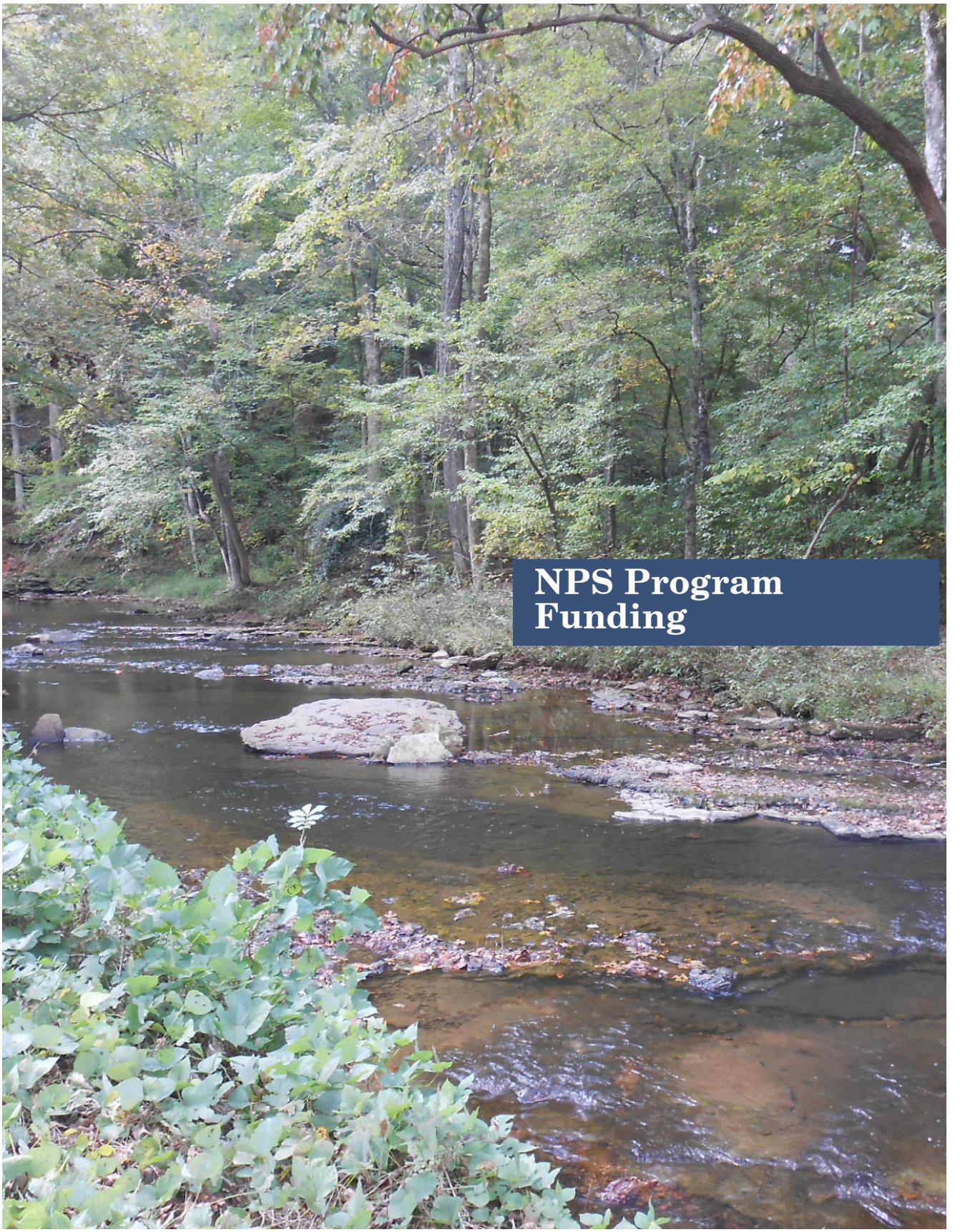
Number of Projects Targeting Each NPS Category of Pollution 2008-2013



Top BMPs Implemented by Projects 2008-2013



On-the-ground implementation of best management practices to improve water quality is the leading focus of the Alabama Section 319 Program. While there are many opportunities to improve water quality across Alabama, in both rural and urban watersheds, the graph above documents that the implementation of agricultural best management practices has been a program focus. The ability to work with local landowners and provide them with a vested interest in protecting water quality is one of the keys to the long term sustainability of Alabama's water resources.



NPS Program Funding

2013 Surface Water Quality Assessments: Tennessee River Basin

Rivers, Reservoirs, and Tributary Embayments

Thirty-eight stations on Guntersville, Wheeler, Wilson and Pickwick Reservoirs were intensively monitored in the TN basin. Each station was sampled monthly, from April through October within a one-week period to reduce weather-related variability in water quality conditions. Water quality data collected through this project provides an estimate of the current water quality and trophic state of the tributary embayments of the basin. Water quality assessments of these nonwadeable waterbodies will also serve as a complement to the project: Rotational River Basin Approach: Surface Water Quality Monitoring of the Wadeable and Nonwadeable Streams and Rivers of the Tennessee River Basin, and allows for determinations of compliance with established water quality compliance criteria. This nformation 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. Since the Department is still developing water quality criteria for tributary embayments, these assessments will also determine which tributaries are most affected by nonpoint source pollution, aid in development of TMDLs for these tibutaries, and assist the Department in developing water quality criteria to ensure each waterbody is meeting its use classification.

At each sampling site, temperature, dissolved oxygen, specific conductance, and pH were measured in situ at multiple depths in the water column with a multi-parameter instrument. Using a pump and hose apparatus, water was collected from the entire photic zone and composited. From this composite, water quality and water-column chlorophyll A samples were collected monthly, hardness was collected semi-monthly, and AGPT samples were collected once in August. Surface water E. coli samples were collected three times during the sampling season for each station. Select stations were sampled for low-level mercury analysis in September.

Wadeable and Nonwadeable Streams and Rivers

Sixty-two locations on wadeable flowing streams and rivers were sampled as part of this project. Biological, habitat, and water quality assessments were conducted at 27 sites within 15 priority watersheds to assess the effectiveness of BMPs implemented through Alabama's CWA §319 Program. Four sites were monitored to document water quality conditions prior to the implementation of CWA §319 BMPs in two additional watersheds. Seven locations were monitored to develop TMDLs for four waterbodies located in the Tennessee River basin. Biological, chemical, and habitat data were monitored at six established and candidate reference reaches located within the TN to characterize least-impaired conditions within three Level 4 ecoregions. Data generated during the project will allow ADEM to assess overall water quality of wadeable flowing streams within the TN; 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.

At each location, macroinvertebrate and habitat assessments were conducted once at each station in May-early July. In situ measurements (stream flow, dissolved oxygen, pH, conductivity, and turbidity) and water quality samples were collected monthly (including nutrients, water-column chlorophyll a, total dissolved solids, total suspended solids, and E. coli), semi-monthly (total and dissolved metals), or quarterly (pesticides, semi-volatiles, and atrazine), March through October, to help identify any stressors to biological communities.

Erosion and Sediment Control on Construction Sites and Urban Areas

This project establishes a framework for an Erosion and Sediment Control Program for construction sites and urban areas. Participants of the project include the Alabama Soil and Water Conservation Committee, the Natural Resources Conservation Service, ADEM, and the Alabama Association of Conservation Districts. Partners include the Alabama Department of Transportation, the Home Builders Association of Alabama and the Associated General Contractors of Alabama. Auburn University – Alabama Cooperative Extension System became a partner in 2012.

The "Field Guide for Erosion & Sediment Control on Construction Sites in Alabama" was developed in 2004 and is available in English and Spanish. Both have been available free to the public since publication through Soil and Water Conservation Districts and is currently being updated. The brochure, "Let's Look at Sediment", is also being distributed by the Soil and Water Conservation Districts and at Erosion and Sediment Control workshops.

Thirty seminars have been presented since late 2004 with support of 319 funds with most of them presented through the continuing education program of Auburn University's Engineering Department. Two seminars were presented as part of the 2012 Clear Water Alabama events with approximately 65 persons attending the seminar and 60 persons participating in the field day (Huntsville); 116 persons attending the seminar and 94 persons participating in the field day (Spanish Fort). The Program Coordinator also assisted the IECA Southeast Chapter to obtain private sector grant funds to develop RUSLE2 training that will be important to the erosion and sediment control industry in Alabama. A "Geology, Soils and Erosion and Sediment Control" workshop was presented on August 20, 2013 and attended by 73 participants.

Clear Water Alabama 2012 Field Day in Spanish Fort

Alabama Envirothon

Oak Mountain High School was the 2013 winner of the Alabama Envirothon.

The Alabama Department of Environmental Management NPS Unit, in a joint effort with other agencies, continues to play a supporting role in the Alabama Envirothon competition by helping in event planning, developing test materials, and leading many of the training events, judging, and overall program implementation. This year's state competition was held April 11-12, 2013 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 team attended the National Canon Envirothon to compete for recognition and scholarships in July 2013.

Alabama Water Watch

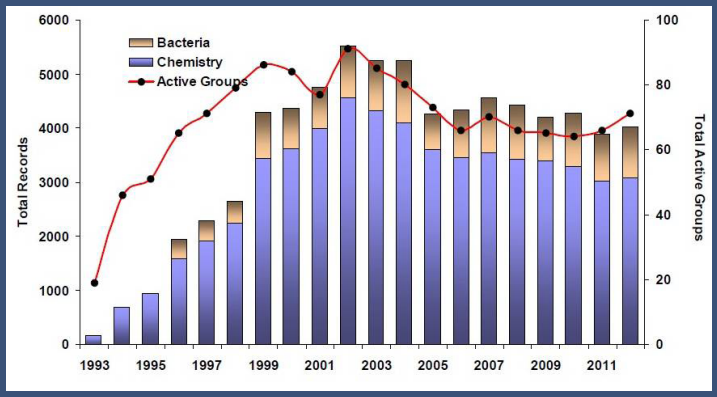
Alabama Water Watch (AWW) is a statewide program dedicated to promote Community-Based Watershed Stewardship through developing citizen volunteer monitoring of Alabama's lakes, streams, and coasts. The AWW program has been funded, in part, by the Alabama Department of Environmental Management 319 Program for almost 20 years. It is coordinated through the Department of Fisheries and Allied
Aquacultures of Auburn University.

AWW conducted 34 training sessions with a total of 213 certifications; 69% were conducted by or with a Citizen Trainer. Eleven Water Chemistry Workshops (84 people), ten Bacteriological Workshops (86 people) and 13 Recertification Sessions (40 people) were conducted during the report period. Two Trainer Internships were completed for two people.

Sixty-two groups collected and submitted water quality data from nine of the 10 major watersheds within the report period. A combined total of 1,864 data records (1,458 chemistry and 406 bacteriological) from 361 monitoring sites was received at the AWW office during the report period. Since 1993, Alabama Water Watch has received more than 58,000 water chemistry and more than 13,000 bacteriological data forms from citizen monitors in all of the major watersheds in Alabama. Almost 2,200 cumulative sites on about 800 waterbodies have been monitored statewide and all data have been entered into the AWW statewide database.

Two Data Interpretation Sessions were held during the report period - one for the Saugahatchee Creek watershed and one other to interpret Water Chemistry and Bacteriological data for the Smith Lake Watershed. AWW responded to several official requests for data from other organizations such as ADEM, Notre Dame University, the City of Auburn, AWW groups and individual monitors.

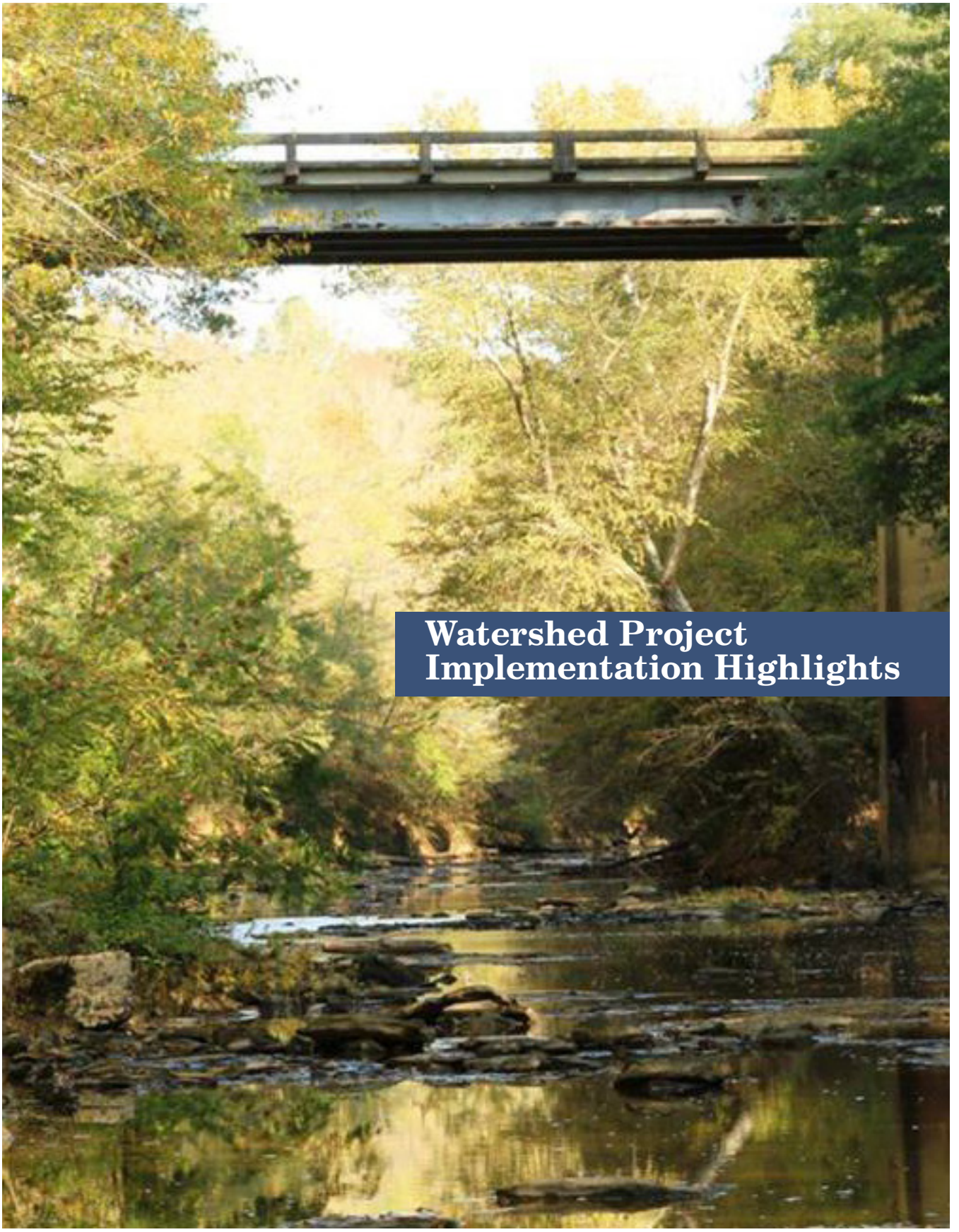
AWW's website and the Water Data Section have been visited over 130,000 times and 30,000 times respectively. About 93% of AWW data received during the report period was entered online, and over 900 people were subscribed to the AWW Listserve.



Total number of Chemistry and Bacteria Records received per year at the AWW office and number of Active Groups per year from 1993 through 2012 (calendar year).

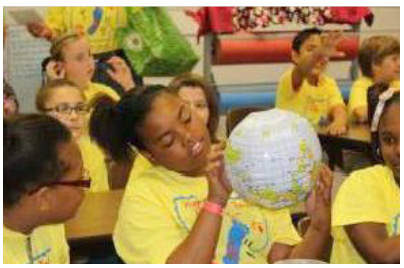
The AWW vision is to have a citizen monitor on every stream, river, lake, and coast in Alabama.

Alabama Water Watch



Watershed Project Implementation Highlights

The Alabama Clean Water Partnerships



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 Coordinator 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 FY 2013 highlights:

- The ACWP's Annual Watershed Conference was held Wednesday, December 5th in Clanton with 170 in attendance. A special logger education course (WaterLogged) was also provided to 32 loggers, with instruction provided by the Alabama Forestry Commission, The Nature Conservancy, and the US Fish & Wildlife Service. Conference attendees also nominated streams for the NRCS Stream Prioritization Project. The publication "The ACWP – 2012 in Review" was released at the conference for use as a public relations tool.
- A total of 26 river basin steering committee meetings and 12 subbasin meetings were convened in FY2013.
- Eight rain barrel workshops were held by basin groups across the state, educating approximately 200 citizens.
- The ACWP recently signed a second contract with the USDA-NRCS in Alabama in order to continue to prioritize 12-digit HUCS in each of the ACWP designated river basin as part of the National Water Quality Initiative (5% of EQIP funds annually). Final basin and statewide lists along with fact sheets will be posted on the ACWP website soon. The ACWP will continue accepting nominated streams, will develop watershed plans ,and will assist with Strike Force and other stakeholder meetings in watersheds chosen for NWQI implementation.
- The Alabama and Tallapoosa Basins held their second annual Business Breakfast on May 1, 2013.
- The Cahaba and Coosa facilitators worked together to organize the first water festival for all fourth grade students in Chilton County on March 15, 2013 at the Jefferson State College Campus/Clanton Performing Arts Complex. The Choctawhatchee-Pea-Yellow Rivers Facilitator also helped organize the Crenshaw Groundwater Festival held at LBWCC – Luverne Campus on April 20. The first Tallapoosa Water Festival was held in April 2013 at Lake Martin.
- A National Fish and Wildlife Foundation grant is providing funds to restore a section of an unnamed tributary to Eight Mile Creek that runs adjacent to a park in the City of Prichard. During this reporting period, the Coastal Facilitator coordinated a volunteer planting of approximately 3600 native riparian and aquatic plants on the project site by over 40 volunteers.
- The Conecuh-Sepulga Facilitator is working to enhance the recycling program in the City of Andalusia and Covington County by assisting with the development of a strategic plan to encourage curbside recycling and in establishing both a county-wide recycling deposit station and a permanent electronics recycling location.
- The Coosa Basin CWP held its 2nd State of Our Watershed Conference on August 14, 2013 in Pell City.
- The Tallapoosa Facilitator assisted the Middle Tallapoosa CWP with a Septic Tank workshop targeting Lake Martin residents on May 9, 2013. This project was funded by the Middle Tallapoosa Clean Water Partnership and the City of Alex City in partnership with ADEM and the Alabama Department of Public Health.
- Four Teacher Workshops hosted by the Tennessee Basin CWP were held at the WaterWorks Center for Environmental Education during this reporting period, with 103 teachers in attendance.

The Mill/Holland Creek Watershed Project

Top: Stream improvement project in downtown Phenix City
Middle: Planting day at a bioretention cell installed at East Smith Station Elementary
Bottom: A cut slope was stabilized at East Smith Station Elementary

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 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.

Project Update:

- An infiltration swale was installed in November 2012 at the Lee County Solid Waste site on Lee Road 240. The swale was constructed by Lee County personnel based on a design provided by a Regional Extension Agent from NC State.
- A 2,100 square foot bioretention cell with internal waste storage was installed in January 2013 at East Smiths Station Elementary. The cell was mulched and planted in April 2013. Students at the school participated in developing landscape designs for the bioretention cell. A planting day was held in April 2013 for students, teachers, parents, and city and county personnel. Erosion and sediment control repairs were also made at East Smiths Station Elementary for two cut slopes and a gully. Both cut slopes were re-graded, seeded, and matted. The gully head cut was reshaped, seeded, matted, and Class I rip rap was placed to stabilize it. The Lee County Board of Education donated approximately $2,800 toward erosion control materials and labor.
- Two areas on the Central High School campus in Phenix City were stabilized to minimize sediment entry into a Mill Creek tributary. These areas utilized erosion control blankets, seeding, and turf reinforcement matting.
- In coordination with a National Fish and Wildlife Foundation grant (5-Star Restoration), a total of 700 linear feet of stream was restored and enhanced in downtown Phenix City. This implemetation project involved invasive plant removal, placement of in-stream structures to redirect flow, reduce erosion, increase dissolved oxygen, enhance habitat, and improve community involvement. A Field Day and Construction Tour was held on March 22, 2013.
- The Mill Creek Project partnered with ACES and the University of Georgia in Athens Extension to hold a landscape maintenance and nonpoint source pollution workshop for Phenix City Public Works employees in November 2012.
- Septic tank pumpout workshops were held in Smiths Station on November 2012 and on April 13, 2013. To date, there has been a total of 61,500 gallons of waste pumped.
- A trash clean up was held in Phenix City on March 2, 2013. The City of Phenix City provided labor and trucks to haul trash from the cleanup site on Holland Creek.
- In April 2013, the 7th grade class at Phenix City Intermediate School was taught about the Mill Creek project, bioretention areas, and water stewardship to prepare students for the bioretention area to be installed in October 2013. Pre- and post-knowledge surveys were given to students and showed an average of a 32% increase in knowledge gained.

Approximately 141 acres of cover crop and no till practices replaced traditional crop management practices in the No Business Creek Watershed.

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.

During this reporting period, seven landowners participated in the installation of agricultural practices, including 160 acres of improved pasture, 3,560 feet of cattle exclusion fencing, four heavy-use areas and two watering troughs, .5 acres of critical area planting, 141 acres of cover crop/no-till, and the installation of a livestock stream crossing. Estimated load reductions for this period are 44,869 lbs/yr of nitrogen, 6,680 lbs/yr of phosphorus, and 1960 tons/yr of sediment.

On April 2nd, presentations on nonpoint source pollution, wildlife, bird migration, soil and gardening and forestry were given to Danville 4th grade classes (124 students and adults) at the Wetland Wonderers program. The event was held at the Flint Creek Wetland Mitigation Bank site in Hartselle.

Above right: Exclusion fencing for cattle
Bottom right: Improved pasture management

Saugahatchee Watershed Implementation Project & LID Handbook

The Saugahatchee Watershed Management Plan (SWaMP) 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.

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. Fifteen projects have been completed. Pollutant load reductions using STEPL estimates are: 179 lb/yr of nitrogen (N), 40 lb/yr of phosphorus (P) and 4.4 tons/yr of sediment.

A stream restoration project using natural channel design was recently installed in partnership with the Alabama Department of Transportation, the City of Auburn, the Alabama Cooperative Extension System, and Northstate Environmental, Inc. The project was part of the City of Auburn's Northeast sewer line expansion adjacent to Shug Jordan Parkway. The severely eroded portion of the stream was causing a road and sewer line failure. ACES led an Urban Stream Restoration Implementation Workshop in conjunction with this project.

SWaMP personnel gave presentations at the Alabama Water Resources Conference, during an EPA Watershed Center of Excellence telephone conference, for an AU Biosystems Engineering class, and at three ALOAS meetings at the City of Auburn's Bailey-Alexander Water Resources Center. Outreach efforts also included participation at various meetings, distribution of SWaMP brochures, and assisting in community-based watershed management efforts (including watershed-level E. coli sampling in 11/2012, 3/2013 and 6/2013 with increased focus on the Pepperell Branch, recently listed for pathogens).

Above: Eric Reutebuch with AU leads the installation of a rain garden as part of the Smart Yards Incentive Program.

Left: The City of Auburn installed a stormwater planter next to the Moton Housing Complex.

Development Handbook is also being developed as part of this urban project through the Alabama Cooperative Extension System at Auburn University. The manual will be completed and out for final review in December 2013.

A stream restoration project was completed in conjunction with the City of Auburn's Northeast Sanitary Sewer Project.

Genetta Stream Restoration Project

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 Genetta Stream is being "daylighted" near the northeastern corner of the city-owned project site. In addition, approximately one-acre of constructed wetlands is being installed to help treat NPS pollutants contained in the stormwater runoff.

Above: Genetta site before construction.
Below: A constructed wetland system has been installed to treat stormwater.

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

The Joe's Branch Watershed is approximately 661 acres in area and includes portions of the cities of Spanish Fort and Daphne. The Joe's Branch stream is a tributary of D'Olive Creek near the point where the latter empties into D'Olive Bay. Since 2008, a 1.57-mile segment of Joe's Branch from its source to D'Olive Creek has been on the 303(d) List for siltation (habitat alteration) as a result of land development. A Draft TMDL for Joe's Branch is scheduled to be completed in 2013.

In August 2010, a Watershed Management Plan for the D'Olive Creek, Tiawasee Creek, and Joe's Branch Watersheds in Daphne, Spanish Fort, and Baldwin County was completed. Partners involved in the development of this plan include the Mobile Bay National Estuary Program, Thompson Engineering, ADEM, U.S. EPA, Baldwin County, City of Spanish Fort, City of 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 from the impaired D'Olive Creek into D'Olive Bay and Mobile Bay. Recognizing that the technology being employed is new in Alabama and could be effectively employed in other areas of the watershed, it is a "demonstration" to public officials, engineers, and other professionals of how water quality protection and economic benefits of natural "green infrastructure" practices provide a multi-purpose alternative to traditional, hard-engineered stormwater containment and conveyance systems. The project is expected to reclaim many of the ecological features and services that have been lost to urbanization.

Construction of a regenerative step pool storm conveyance (SPSC) has been completed. Wetland restoration down slope of the SPSC was incorporated into the construction contract and is currently in progress. Thompson Engineering is currently generating a maintenance plan for the step pool conveyance, after which a memorandum of understanding related to long-term maintenance will be executed. Conservation easement is also in process with Pelican Conservancy. Pre-construction water quality sediment load monitoring complete and post construction monitoring samplers have been installed.

A Stream Restoration Workshop was held in November, 2012. Engineering students from the University of South Alabama faculty also visited the site in March 2013. An International Green Apple Award was received for the project and the Mobile Basin NEP presented an overview of the project to the Alabama Environmental Management Commission on April 19, 2013.

Spanish Fort Middle School is also participating in the Estuary Corps program. Children are learning about stormwater and the Joe's Branch project as part of the curriculum.

Above: Joe's Branch was a severely degraded drainage system.

Below: Joe's Branch after the step pool conveyance system was installed

A "Grass Management for Healthy Water" clinic was held April 16, 2013, instructed by Dr. Jennifer Johnson, Extension Specialist with Auburn University. Following the presentation, participants went into the pastures to evaluate the forage, measure grass height, conduct a soil pH test, and see the results of proper height and rest pasture rotation.

Mud/Spring Creek Watershed

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.

Partnering with the Alabama Cooperative Extension System and the Weiss Lake Improvement Association, six clinics have been conducted on issues that affect water quality. Clinic topics include:

- "Introduction to Water Resources"
- "Soil Management for Healthy Water"
- "Managing Stream Side Forests for Wildlife, Livestock and Water Health"
- "Grass Management for Healthy Water"
- "Farm Pond Management for Healthy Water"
- "Smart Yards for Healthy Water"

Environmental Stewardship Graduates received signage for their farms.

The Environmental Stewardship Clinics were free for attendees and included a resource notebook, certificate of completion (three clinics required), Yard/Gate Sign (three clinics required), and an environmental stewardship t-shirt (presented at sixth clinic).

Left: Twenty-three acres of pasture was planted in trees.

The "Managing Stream Side Forests for Wildlife, Livestock , and Water Health" clinic was held on the banks of Spring Creek and included installation of live stakes.

Upper and Middle Coosa River Project (DeKalb County)

Streambank stabilization on a farm in DeKalb County, before (above) & after (below).

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, coordinated by the DeKalb County Soil and Water Conservation District is focused on the seventeen 12-digit watersheds in the Upper Coosa River Basin and in the Middle Coosa River Basin in DeKalb County.

To date, 16 agricultural best management practices have been completed, including over 65 acres of pasture planting, several heavy use areas and alternative watering sources, 1,650 feet of fencing, and 160 acres of pasture improvement.

A stream stabilization project was also implemented (left) to address bank failures in a pasture. Almost 600 tons of large rip-rap rock, covering an area of 430 feet, was placed on the stream banks to stabilize them, thus helping to slow down and prevent further erosion. In addition, a permanent sod of fungus-free fescue was established as a cover to the area adjacent to the creek banks, and trees were planted alongside the creek as a long-range stabilizing measure. Then, a perimeter fence was installed to keep cattle away from the stream.

In this project period, the project coordinator 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.

Agricultural BMPs such as alternative watering sources, heavy use areas, exclusion fencing, and pasture planting have been implemented in the Coosa Basin watersheds in DeKalb County.

Guess Creek Watershed Project

Guess Creek is a small, headwater stream with a drainage area of 22,049 acres or 34.5 square miles located in Jackson County, Alabama. It is a tributary to the Paint Rock River, located within the Paint Rock Watershed and within the Tennessee River Basin. Guess Creek begins just south of Highway 146 in the Skyline Wildlife Management Area, south of Hytop. Guess Creek is on the 2008 §303(d) list as impaired from organic loading, low dissolved oxygen, pathogens, and unknown toxicity for a length of 11.08 miles. The major sources of organic enrichment are from the pasture/hay fields and row crops land uses.

The following on-the-ground projects have been completed with five landowners participating:

- Three wells and watering troughs
- Two improved stream crossings
- One livestock stream crossing with swinging gates
- One rock stream crossing (75 ft x 25 ft)
- Ten heavy use feeding areas
- Approximately 5,295 feet of exclusionary fencing
- Disturbed area improvements: smoothed, seeded and mulched
- Two livestock shade structures
- 415 linear feet of stream bank stabilization (275 on one farm and 140 on another.

Three BMP tours have been held in conjunction with the project. Stream bank stabilization, riparian buffer protection, installation of BMPs, and instream habitat restoration all seem to be viable approaches to improving water quality and habitat integrity in the five downstream miles of Guess Creek.

Fish assessments were conducted in 2011 and 2012 at five different sites along Guess Creek. No federally-listed aquatic animals were detected in these surveys. The diversity of fish was surprisingly high given the degraded appearance of habitat conditions, though the overall fish community was skewed towards fish species that thrive in marginally degraded conditions.

A total of 415 linear feet of streambank was stabilized on two farms.

An improved cattle stream crossing was installed.

This stream has been submitted to EPA for de-listing for the OE/DO impairment.

Right: Two livestock shade structures, a heavy use area, and watering trough were installed.

Alabama's Coastal Nonpoint Pollution Control Program

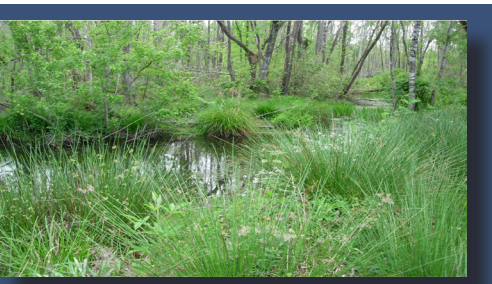
Baldwin County Coastal Stream

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 on-going 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 of the Coastal States Organization's National §6217 Workgroup, serving as a Workgroup co-chairman since December of 2010. ADEM has helped lead this Coastal NPS Program forum with CSO, assisting with over 41 teleconference meetings to date. With the assistance of Section 319 funding, the ACNPCP and ADCNR-Coastal Programs have continued 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 and 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 2012 - 2013

The Headwater Stream Survey serves to locate potential stream sites and to identify and survey 'representative' low-order reference streams within the two coastal counties. Documentation is 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 identified 'headwater' streams. In addition, baseline data is gathered that relates to 'conditional approval' issues cited in the Alabama Coastal Findings and Conditions document that relate to the Agriculture, Forestry, Urban Runoff, Hydromodification, and Wetlands, Riparian Areas, and Vegetated Treatment Systems (VTS) 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 Headwater Survey project was granted. In 2012, the Level I-Reconnaissance was contracted and conducted to assess over 200 identified survey sites as suitable for further study. Intensive field recon for over 145 stream sites was conducted throughout southwest Alabama within the Coastal NPS Management Area. Approximately 15 stream reaches were selected, being visited sporadically and determined as suitable for the final survey and assessment



Coastal stream with adjacent wetlands

Coastal Alabama pitcher plant bog & pine flatwoods/Baldwin Co.

for Year II of this project in 2013. This intensive headwater survey project was contracted and implemented, with final project activities and products being completed before December 2013. Following internal review, the final Headwater Stream Survey Report will be issued in early 2014.

The continued effort to address the Urban Areas categories and issues involves the ACNPCP Technical Advisory Projects for Urban Areas Management Measures:

A.) The ACNPCP has continued engagement with the D'Olive Creek Restoration Plan and with the completion of the Joe's Branch Stream Improvement Project, along with assistance in developing the Eight Mile Creek (8MC) Watershed Management Plan (WMP). The Program has also continued to provide technical assistance for development of the 3 Mile Creek (3MC) WMP that has been led by the Mobile Bay NEP. The 3MC WMP has engaged the interest and involvement of the City of Mobile. A 3MC Watershed Management Workgroup has been assembled and the plan is schedule for completion in 2014.

B.) The ACNPCP Municipal Advisory Project is on-going in order to provide program coordination with the new City of Semmes, Alabama (established May 2, 2011), as the City continues to amend/refine their municipal Subdivision Ordinances and new Design Standards Codes (See http://cityofsemmes.powweb.com). The program proactively addresses Wetland, Hydromodification, and Urban Areas category issues and measures for Alabama's CNPCP.

C.) ADEM's ACNPCP further addressed Urban Area issues by becoming engaged with the development and review of the Alabama Low Impact Development (LID) Handbook. This handbook is being developed through Auburn University and AL Soil & Water Conservation Committee (ASWCC) as a project for ADEM-319 and in support of ACNPCP. It is scheduled for release in December 2013.

D.) ADEM's Coastal NPS Program developed a complete listing of "Priority Watersheds for Coastal Alabama" for current watershed assessment/prioritization efforts. This listing involved interagency coordination with ADEM-Water Division, ADEM-Field Operations, and ADEM-319, as well as continued coordination with Mobile Bay NEP.

E.) In FY2013, the new Coastal Alabama Marinas & Watersheds Mapping Project / Online GIS Viewer Format was improved (see http://gis.adem.alabama.gov/ADEM_Dash/marina_viewer/index.html).

F.) ACNPCP coordination with ADEM's Information Services Branch continues to update the online Marinas and Watersheds tool. It allows the public to view the previous Atlas of Coastal Alabama Marinas and Watersheds (2008) online. The newest 12-digit HUCs and labels have been overlaid with navigation data.

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 Tennessee River Basins in 2013. Laboratory and field data analyses and report development is continuing.

- ADEM NPS Unit, Water Division, and Field Operations Division staff coordinated water quality monitoring for the Tennessee River Basins.

- 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 watershed management plans will be designed to address the 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 Crowdabout Creek (Tennessee 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 is partnering with ACES to provide Environmental Stewardship Workshops for stakeholders in targeted watersheds.

- 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 projects including: Genetta Creek (Montgomery) and D'Olive Creek - Joe's Branch (Mobile), Mill Creek (Phenix City)].

- The ADEM NPS Unit continued to promote the National NEMO Program with staff coordinating/offering statewide and targeted presentations.

- ADEM continued to partner with Soil and Water Conservation Committee/Association 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 is as a represented on the Choctawhatchee-Pea-Yellow Rivers Watershed Management Authority Technical Advisory Committee.

- ADEM partnered with the Alabama Department of Public Health to present several Septic Tank Workshops in targeted 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 continuing efforts of the 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.

- The Nature Conservancy has leveraged resources in 319 targeted watersheds such as Guess Creek through land aquisition and assistance in project managment measures.

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 (e.g., NEMO, groundwater festivals, teacher workshops, the AWW workshops, septic tank workshops, etc.)

- ADEM presented the 24th Annual NPS Conference in January 2013 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. This is the 15th year of Groundwater and Water Festivals in Alabama. Since October 2010, 27 counties have participated, with Coosa, Chilton, and Tallapoosa Counties holding their first festivals this year.

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 8).

- 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 28 -29 (Alabama's Coastal Nonpoint Source Pollution Control Program).

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

- 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 November 2013.
- 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).
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- 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 FY14 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 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.

The Alabama NPS Program

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