

**ALABAMA  
NONPOINT SOURCE  
MANAGEMENT  
PROGRAM**

**2010 Annual Report**



*Coon Creek*

Copies of this report are also available on the ADEM Website at: [adem.alabama.gov](http://adem.alabama.gov)

**Published and distributed by the:**

Alabama Dept. of Environmental Management  
Office of External Affairs  
Nonpoint Source Unit  
PO Box 301463  
Montgomery, AL 36130-1463  
Phone: 334-260-4501  
FAX: 334-279-3051

**Nonpoint Source Program Staff:**

**Scott Hughes**, Chief-Office of External Affairs

**Norman Blakey**, Chief-NPS Unit

**Patti Hurley**, Alabama-Tombigbee, Coastal, Black Warrior Basins

**Mike Jones**, Coosa Basin

**Missy Middlebrooks**, Tallapoosa, Chattahoochee-Chipola Basins

**Christy Bise**, Tennessee Basin

**Mark Sport**, Choctawhatchee-Pea-Yellow, Conecuh-Sepulga Basins

**Carmen Yelle**, Tennessee, Cahaba Basins

**Randy Shaneyfelt**, Coastal Nonpoint Source Pollution Control - Mobile Field Office

|   |    |
|---|----|
| <b>Table of Contents</b>  |    |
| NPS Program Overview.....   | 4  |
| NPS Data Collection, Assessments, & Watershed Plan Development..... | 5  |
| Pollutant Load Reductions.....                                      | 10 |
| Watershed Implementation Activities.....                            | 11 |
| NPS Education, Outreach & Technology Transfer.....                  | 24 |
| Alabama’s Coastal Nonpoint Source Pollution Control Program.....    | 32 |
| Agency Cooperators.....   | 33 |
| NPS Program Goals.....  | 34 |



*Lake Martin - Tallapoosa River Basin*

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

The Alabama Department of Environmental Management does not discriminate on the basis of race, color, national origin, sex, religion, age or disability.

# THE ALABAMA NONPOINT SOURCE MANAGEMENT PROGRAM

The purpose of the Alabama Nonpoint Source (NPS) Management Program Annual Report is to highlight the yearly progress made toward fulfilling the Alabama NPS Management Program goals. The Alabama Nonpoint Source Management Program seeks to assist with reducing or eliminating polluted runoff that degrades water quality by utilizing a combination of regulatory and non-regulatory efforts to achieve water quality standards, protect natural resources, and balance environmental protection with economic sustainability.

## 2010 Nonpoint Source Management Program Highlights

- ◆ The ADEM NPS Unit closed out the Fiscal Year 2004 Section 319 grant. All open grants and related tasks are on schedule.
- ◆ Watershed management plans that address EPA 9 key elements have been developed, or are being developed, in 41 watersheds across Alabama.
- ◆ ADEM awarded \$1,763,075 for watershed plan implementation projects and education/outreach projects in FY2010.
- ◆ The ADEM Water Quality Section finalized and received EPA approval on five TMDLs for various pollutant/waterbody combinations in 2010. Implementation of the NPS components of a TMDL continues to be a NPS Management Program priority. Section 319 grant funding was used to help successfully de-list portions of the Flint River (Brier Fork–Beaverdam Creek) in Madison County, and Caney Branch in Baldwin County, from the Section 303(d) List of Impaired Waters. A potential de-listing includes Dry Creek in Dallas County ([www.epa.gov/owow/nps/Success319](http://www.epa.gov/owow/nps/Success319)).
- ◆ The ADEM Field Operations Division completely assessed 54 sites in the Alabama, Coosa, Tallapoosa River Basin in 2010 and initiated 11 NPS Intensive Watershed Surveys.
- ◆ Low impact development (LID) education and implementation projects were a focus in 2010. Several NEMO and LID workshops were held across the state to bring more awareness to these practices. The practices were also highlighted at the annual Erosion and Sediment Control Workshop. Several watershed groups and projects have implemented bioretention basins, rain barrels, rain gardens, permeable pavement, and tree filters to demonstrate these practices.
- ◆ ADEM continues to successfully partner with the Alabama Soil and Water Conservation Districts and the Alabama Clean Water Partnership to develop and implement projects across the state.
- ◆ ADEM held its 22<sup>nd</sup> Annual Nonpoint Source Pollution Conference on January 20 at the Renaissance Hotel in downtown Montgomery. Attendees included over 320 environmental engineers, biologists, geologists, municipal leaders, elected officials, and water quality specialists.



*Lake Martin - Tallapoosa Basin*

# NPS DATA COLLECTION, ASSESSMENT, AND WATERSHED PLAN DEVELOPMENT

## IBI Monitoring Tool

This project provides information needed to develop a comprehensive bioassessment tool useful in helping state agencies assign designated use classifications for Alabama waters. This tool will help in managing water quality, aquatic habitat, and aquatic resources more efficiently, and will also assist in communicating to the public the benefits of strong water resource protection and management.

Data collected during 2010 in the Ridge and Valley/Piedmont (RVP) and Plateau (PLA) ichthyoregions yielded 109 assessments in the RVP region and 79 assessments in the PLA region. These data sets will be used to select IBI metrics and determine metric scoring criteria for the RVP and PLA regions. Metrics and scoring

criteria will be determined based on the observed fish community species diversity, presence of tolerant and intolerant species, proportions of species representing different trophic levels of the fish community, catch rates, and the presence of any fish anomalies, pathogens, and other indicators of compromised fish health.

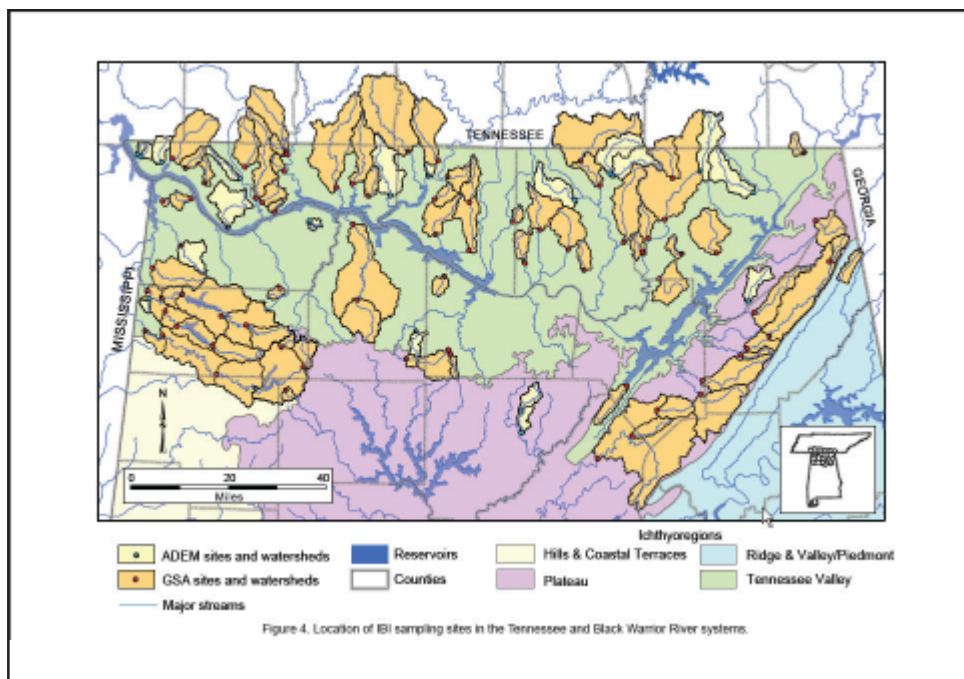
Additionally, aquatic ecological disturbance in each watershed will be quantified by determining both landscape level measures of disturbance and reach level measures of habitat quality. Landscape measures will include the level of population density, nutrient loading, various disturbed land cover classes, and the number of road-stream crossings. Habitat quality measures will include the degree of sediment embeddedness, available cover for fishes, proportion of riffles, presence of diverse microhabitats, channel structure, bank structure, and riparian cover.

Planned work for the next six months includes selecting IBI metrics and establishing the scoring criteria for the RVP ichthyoregion. Should the PLA data set turn out to be adequate from a sample size perspective a scoring criteria will be selected for this region as well. This will leave only one ichthyoregion to complete before the fully calibrated statewide IBI is completed.

## Alabama's Total Maximum Daily Load (TMDL) Program Update

Section 303(d) of the Clean Water Act (CWA) requires states to list waters for which technology-based limits alone do not ensure attainment of applicable water quality standards. The 303(d) List includes priority rankings set by the State for the listed waters. Once the impaired waters are identified, states are required to establish total maximum daily loads (TMDLs) that will ensure water quality standards are met for each listed waterbody, considering seasonal variations and a margin of safety that accounts for uncertainty.

During fiscal year 2010, ADEM finalized and received EPA approval on five TMDLs for the following waterbodies and pollutants: Indian Camp Creek for pathogens, Walnut Creek for metals (Pb), Bon Secour Bay for pathogens, Perdido Bay for pathogens, and Little Lagoon for pathogens. Including the 5 TMDLs completed in FY2010, the total number of waterbody-pollutant combinations with approved TMDLs in Alabama is 207. A more detailed description of all completed TMDLs is provided at [www.adem.state.al.us/WaterDivision/WQuality/TMDL/ApprovedTMDLs.htm](http://www.adem.state.al.us/WaterDivision/WQuality/TMDL/ApprovedTMDLs.htm).



# **FIELD OPERATIONS WATERSHED ASSESSMENTS**

The Department continued the 5-year rotational river basin assessment approach. Water quality assessment efforts targeted the Alabama, Coosa, and Tallapoosa (ACT) River Basins in FY2010. Please contact Lisa Huff at [esh@adem.state.al.us](mailto:esh@adem.state.al.us) or (334)260-2752 to obtain completed NPS water quality assessment reports or other data.

## **2010 Assessment of the Wadeable Streams in the Alabama, Coosa, and Tallapoosa River Basins**

The objectives of each Basin Assessment Monitoring Project are to assess the biological integrity of each monitoring location and to estimate overall water quality within the basin. Fifty-four locations were selected to represent the range in watershed conditions throughout the ACT River Basins. At each location in situ measurements, stream flow, intensive water samples, water-column Chlorophyll a, E. coli, and metals samples were collected semi-monthly, March through October. Pesticides, semi-volatiles, and atrazine were collected twice during this same timeframe.

Macroinvertebrate and habitat assessments were conducted once at each station in May-early July. Fish IBI and periphyton bioassessments were also completed at a subset of stations representing a gradient in watershed conditions.

Habitat and macroinvertebrate community assessments were completed at 51 of the 54 sampling locations. Assessments could not be completed at three locations due to low flow or unwadeable conditions. Fish community assessments were completed at 31 sampling locations. Nine additional fish community assessments could not be completed due to unwadeable or non-flowing conditions at the site. Periphyton bioassessments were completed at 17 sampling locations.

## **2010 Nonpoint Source Intensive Watershed Surveys**

Three NPS Intensive Watershed Surveys were initiated during 2010. Eleven stations were selected for monitoring in the three watersheds. At each location in situ measurements, stream flow, and intensive water samples were collected monthly, March through October. Collection of other parameters was dependent on the nature of the impairment and best management practices within the watershed. Monthly sampling was affected by the heavy rains in June and July and no flow conditions in the smaller watersheds, particularly towards the end of the sampling season.

Habitat and macroinvertebrate community assessments were completed at nine of the sampling locations. Fish community assessments were completed at five sampling locations. Diurnal dissolved oxygen studies were completed at seven sites affected by organic enrichment/dissolved oxygen or nutrient impairments.

## **2010 Surface Water Quality Assessment of Rivers, Reservoirs, and Tributary Embayments of the Alabama, Coosa, and Tallapoosa River Basins**

Twenty-one stations on Woodruff, Dannelly, and Claiborne of the Alabama River basin, forty-eight stations on Weiss, Neely Henry, Logan Martin, Lay, Mitchell, and Jordan Reservoirs of the Coosa River Basin, and twenty-one stations on Harris, Martin, Yates, and Thurlow of the Tallapoosa River Basin were intensively monitored. Intensive monitoring consisted of monthly sampling of all stations from April through October. All stations were sampled within a one-week period to reduce weather-related variability in water quality conditions.

Monitoring and analyses were conducted in accordance with appropriate standard operating procedures. 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. A composite water sample of twenty liters was collected from the photic zone. From this composite, water quality samples and water-column chlorophyll a samples were collected monthly, hardness was collected semi-monthly, and AGPT samples, once in August, at the upper station of each reservoir. Surface water fecal coliform samples were collected three times during the sampling season for each station.

# RIVER BASIN MANAGEMENT PLANS

The Department has provided technical resources and oversight to complete the development of river basin management plans for all of the major river basins across the state. Listed below are the river basins that have management plans, which encompass a total of 30,204,799 acres of Alabama waterways. The basin plans are available on the ADEM website at [www.adem.state.al.us/Education%20Div/Nonpoint%20Program/WSNPSProgram.htm#Basin\\_Management\\_Plans](http://www.adem.state.al.us/Education%20Div/Nonpoint%20Program/WSNPSProgram.htm#Basin_Management_Plans).

- **Lower Coosa River Basin** (03150107)  
1,963.29 sq. miles/1,256,511 acres
- **Middle Coosa River Basin** (03150109)  
1,654,373 acres
- **Upper Coosa River Basin/Weiss Lake** (03150105)  
852 sq. miles/545,259 acres
- **Tennessee River Basin**  
(06020001, 06030001, 06030002, 06030003, 06030005, 06030006)  
6,825.85 sq. miles/4,368,535 acres
- **Cahaba River Basin** (03150202 )  
1,818.08 sq. miles/1,163,571 acres
- **Black Warrior River Basin**  
(03160109, 03160110, 3160111, 03160112, 03160113)  
6,288.19 sq. miles/4,024,423 acres
- **Coastal Alabama Basins**  
(03160204, 03160205, 03170002, 03170003, 03170008, 03170009, 03140106, 03140107)  
3,695.51 sq. miles/2,365,315 acres
- **Tallapoosa River Basin**  
(03150108, 03150109, 03150110)  
4,023.86 sq. miles/2,575,265 acres
- **Alabama River Basin**  
(03150201, 03150203, 03150204)  
4,747.42 sq. miles/3,038,361 acres
- **Upper and Lower Tombigbee River Basins**  
(03160103, 03160105, 03160106, 03160201, 03160202, 03160203, 03160107, 03160108)  
7,570 sq. miles/4,844,648 acres
- **Choctawhatchee/Pea/Yellow River Basins**  
(03140201, 03140203, 03140204, 03140103)  
3,637.28 sq. miles/2,327,855 acres
- **Conecuh, Sepulga, & Blackwater River Basins**  
(3140104, 3140301, 3140304, 3140302, 3140305, 3140303)  
3,996.33 sq. miles/2,557,667 acres
- **Chattahoochee/Chipola River Basins**  
(3130002, 3130003, 3130004, 3130012)  
2,829.5 sq. miles/1,810,871 acres



# SUBWATERSHED MANAGEMENT PLANS

The Department is continuing to work with stakeholders to develop and implement subwatershed management plans. These subwatershed management plans are in various stages of completion, but each plan will incorporate EPA's nine key elements (a-i) and will encompass **2,446,635** acres of Alabama waterways.

## Alabama River Basin

|                                  |                     |
|----------------------------------|---------------------|
| • Baldwin Slough (03150201-0307) | 17,280              |
| acres                            |                     |
| <b>Total acres addressed</b>     | <b>17,280 acres</b> |

## Black Warrior Basin

|   |                |
|---|----------------|
| • Long Branch (03160109-0303)                 | 19,752 acres   |
| • Dry Creek (03160111-0203)                   | 12,648 acres   |
| • Black Branch/Cane Creek (03160109-0602)     | 40,670         |
| acres   |                |
| • Rock Creek/Crooked Creek                    | 132,695 acres  |
| (03160110-080, 03160110-090, 03160110-100)    |                |
| • Dollarhide Creek (03160113-0140)            | 55,040 acres   |
| • Big Scirum Creek (03160111-0208)            | 16,953         |
| acres   |                |
| • North River                                 | 121,967 acres  |
| (03160112-0401, 03160112-0402, 03160112-0404) |                |
| <b>Total acres addressed</b>                  | <b>399,725</b> |
| acres   |                |

## Cahaba River Basin

|                                       |               |
|---------------------------------------|---------------|
| • Little Shades Creek (03150202-0201) | 39,908 acres  |
| <b>Total acres addressed</b>          | <b>39,908</b> |
| acres                                 |               |

## Chattahoochee River Basin

|                              |               |
|------------------------------|---------------|
| • Mill Creek (03130003-0101) | 15,729 acres  |
| <b>Total acres addressed</b> | <b>15,729</b> |
| acres                        |               |

## Choctawhatchee-Pea-Yellow River Basin:

|                                  |                     |
|----------------------------------|---------------------|
| • Dowling Branch (03140201-0704) | 15,647 acres        |
| <b>Total acres addressed</b>     | <b>15,647 acres</b> |

## Coosa Basin

|  |              |
|--|--------------|
| • Buxahatchee Creek (03150107-0502)    | 45,663 acres |
| • Spring and Mud Creek (03150105-0807) | 10,880       |
| acres                                  |              |
| • Middle Coosa                         |              |

The Middle Coosa Plan targets the following subwatersheds:

|  |              |
|--|--------------|
| Little Land Valley Creek (03150106-0103) | 27,722       |
| acres                                    |              |
| Fisher Creek (03150106-0104)             | 9,180 acres  |
| Whippoorwill Creek (03150106-0105)       | 26,510 acres |
| Little Wills Creek (03150106-0106)       | 18,161 acres |
| Black Creek (03150106-0107)              | 40,900 acres |
| Horton Creek (03150106-0108)             | 16,930 acres |
| Ball Play Creek (03150106-0201)          | 42,151 acres |
| Dry Creek (03150106-0202)                | 9,777 acres  |
| Big Cove (03150106-0203)                 | 18,082 acres |
| Turkey Town Creek (03150106-0204)        | 57,416 acres |
| Little Canoe Creek (03150106-0301)       | 27,570 acres |
| HW Big Canoe Creek (03150106-0302)       | 31,005 acres |
| Upper Big Canoe Creek (03150106-0303)    | 30,402 acres |
| Lake Sumatanga - Little Canoe Creek      | 20,243 acres |

(03150106-0304)

|   |              |
|---|--------------|
| Middle Big Canoe Creek (03150106-0305)        | 34,989       |
| acres   |              |
| Lower Big Canoe Creek (03150106-0306)         | 33,306       |
| acres   |              |
| Beaver Creek (03150106-0307)                  | 25,038       |
| acres   |              |
| Shoal Creek - Big Canoe Creek (03150106-0308) | 20,843       |
| acres   |              |
| Neely Henry Lake (031501060309)               | 46,447       |
| acres   |              |
| Upper Ohatchee Creek (03150106-0404)          | 31,560       |
| acres   |              |
| Lower Ohatchee Creek (03150106-0405)          | 19,960 acres |
| Woods Island - Coosa River (03150106-0409)    | 8,709        |
| acres   |              |
| Trout Creek (03150106-0601)                   | 14,730 acres |
| Broken Arrow Creek (03150106-0602)            | 38,903 acres |
| Embry Bend - Coosa River (03150106-0603)      | 25,551 acres |
| Broken Arrow Shoals (03150106-0605)           | 27,785 acres |
| Rabbit Branch (03150106-0803)                 | 36,518 acres |
| Jess Branch - Shoal Creek (03150106-0804)     | 20,735 acres |
| Upper Kelly Creek (03150106-0805)             | 34,050 acres |
| Hearthstone Creek - Wolf Creek                | 28,473       |
| acres   |              |
| (031501060806)                                |              |
| Buckhorn Branch - Bear Creek                  | 28,917 acres |
| (03150106-0807)                               |              |
| Lower Kelly Creek (03150106-0808)             | 21,045 acres |
| Spring Creek - Coosa River (03150106-0810)    | 31,408       |
| acres   |              |

**Total acres addressed 971,559 acres**

## Mobile Basin

|                                 |                     |
|---------------------------------|---------------------|
| • D'Olive Creek (03160204-0505) | 20,480              |
| acres                           |                     |
| • Juniper Creek (03170008-0401) | 5,936 acres         |
| <b>Total acres addressed</b>    | <b>26,416 acres</b> |

## Tallapoosa Basin

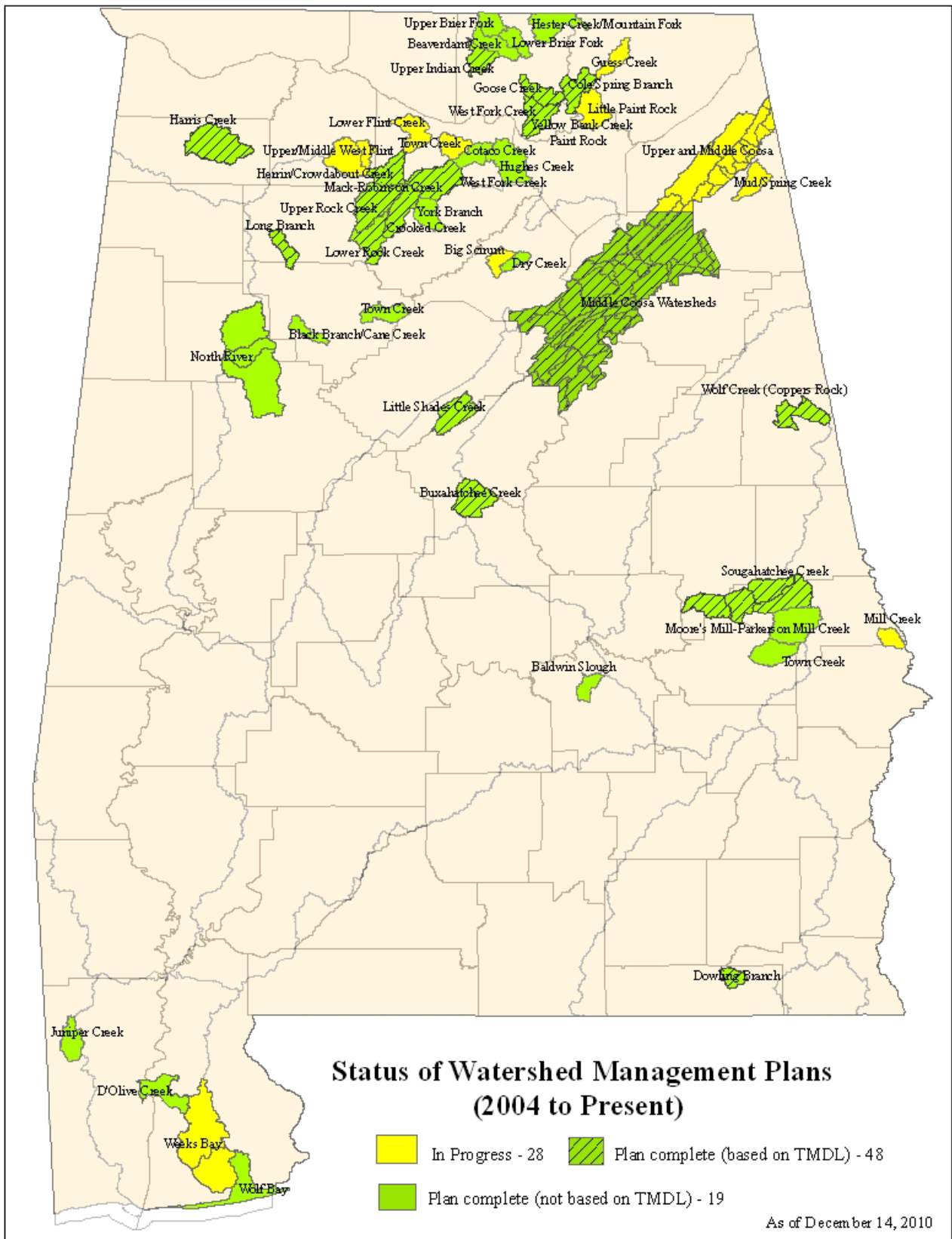
|  |                      |
|--|----------------------|
| • Copper's Rock (Wolf Creek) (03150108-1004) | 23,488               |
| acres  |                      |
| • Town Creek (031501100-0301)                | 150 acres            |
| • Sougahatchee Creek                         | 108,482              |
| acres  |                      |
| (031501100201, 031501100204, 03150110-0203)  |                      |
| • Parkerson Mill Creek (031501100-0301)      | 5,981 acres          |
| • Moore's Mill Creek (031501100-0301)        | 7,360                |
| acres  |                      |
| <b>Total acres addressed</b>                 | <b>132,120 acres</b> |

## Tennessee Basin:

|  |               |
|--|---------------|
| • Cotaco Creek (060300020601, 06030002-0603) | 176,376 acres |
| • Mack Creek-Robinson Creek (06030002-1001)  | 35,446        |
| acres  |               |
| • Paint Rock (06030002-100)                  | 93,154 acres  |
| • Guess Creek (06030002-0105)                | 21,818 acres  |

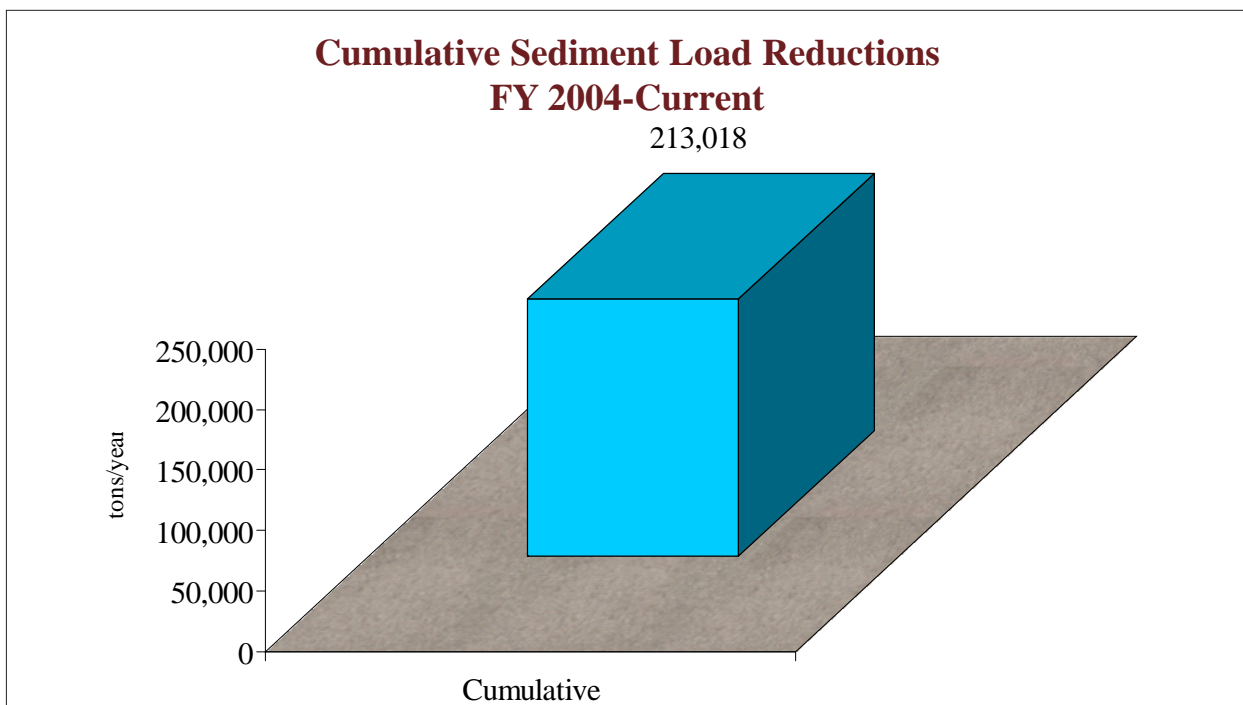
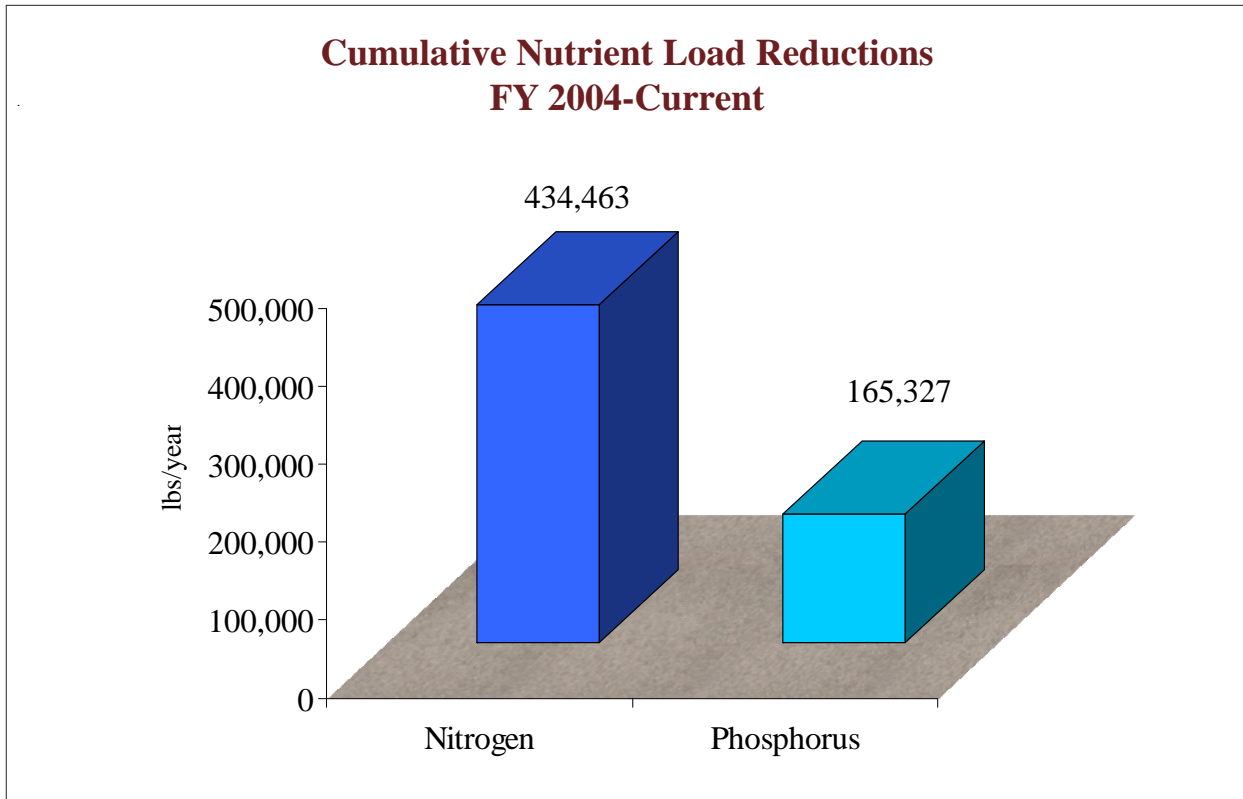


# WATERSHED MANAGEMENT PLANS MAP 2004 - Present



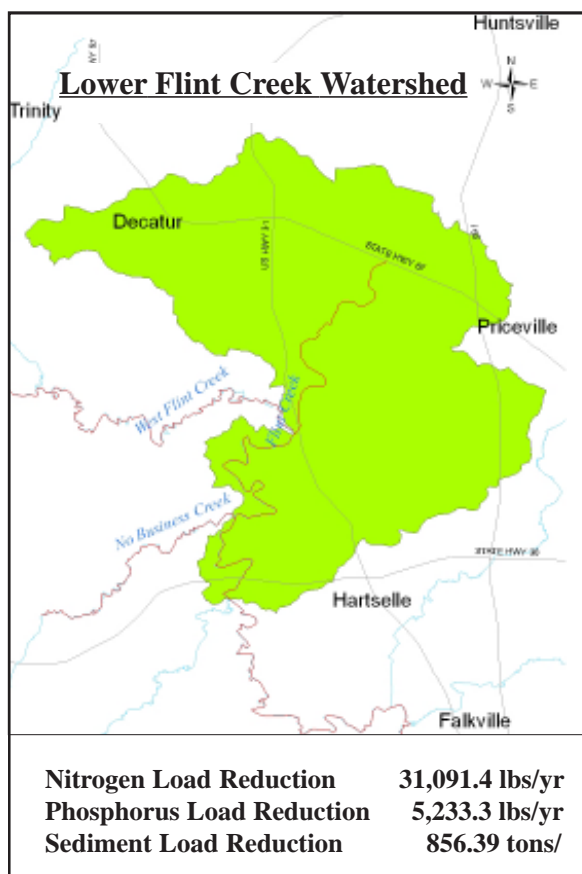
# POLLUTANT LOAD REDUCTIONS

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 lbs/tons of 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 charts 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 each individual project are given with each implementation project report, beginning on page 11.



# WATERSHED IMPLEMENTATION ACTIVITIES

The Nonpoint Source Management Program continues to focus on the development and implementation of watershed management plans. The implementation of these watershed management plans is the cornerstone of the Department's effort to enhance water quality and facilitate the improvement or restoration of impaired waterbodies in the state. The projects identified in this section are the culmination of numerous meetings between ADEM staff and a wide-range of stakeholders and landowners to identify problem areas and initiate restoration activities to enhance water quality. The pollutant load reduction achieved is given for each individual implementation project.



## Lower Flint Creek Watershed Project

The Lower Flint Creek Watershed is a 33,365-acre watershed located within the Tennessee River Basin near Hartselle. The project area comprises about 11% of the Flint Creek Watershed. The Lower Flint Creek is identified on the Section 303(d) List for organic enrichment/low dissolved oxygen. A TMDL was completed for Flint Creek in 1996, targeting nutrient loadings from beef cattle and failing septic systems, and sediment from cropland/pastureland and urban construction.



*Constructed wetlands are being used to treat nutrient enrichment in Lower Flint Creek at a decommissioned water treatment plant.*

This recently completed project demonstrated the use of wetland cells to treat the impaired waters of Flint Creek. The Alabama Mountain Rivers Valley-RC&D acquired the City of Hartselle's abandoned water treatment facility on the banks of Flint Creek. Water is pumped from the creek through the facility where multiple wetland cells treat the water naturally and then discharge the clean water back into the creek. An onsite sewage wetlands and mound system and a vermi-composting bin for onsite waste disposal is also part of the project. A green roof and water collection system at the facility was also installed and is actively growing and irrigating plants. A porous parking/stormwater basin retention

demonstration has been installed to treat stormwater.

The WaterWorks project is continually being used to educate municipal officials, septic tank installers, and the public on the value of natural and constructed wetlands as related to water quality improvements, flood prevention, water storage, groundwater recharge, wildlife habitat, riparian protection, and aesthetic values. Four tours have been conducted during the last six months. Over 200 individuals from the Alabama Clean Water Partnership, Auburn Extension Service, Morgan County Board of Education, the Alabama Resource Conservation Development Council, and others have toured the facility and given input and suggestions to help develop the education program.

In addition to the urban BMPs, this project also contains an agricultural component. At project close, 200 acres of pasture planting, 4,600 feet of exclusion fencing, two heavy use areas, 87.5 acres of conservation tillage, 10 acres of cropland conversion, eight acres of pastureland conversion, and 12 acres of critical area planting had been completed.



*The official opening of the Waterworks Environmental Education Center was held in October 2010 with a tour for project partners and stakeholders.*

## Town Creek Watershed Project

Located in Morgan County, Town Creek is a tributary to Cotaco Creek which empties into the Tennessee River. A TMDL for Town Creek was completed in 2007 for organic enrichment/low dissolved oxygen. During storm events, Town Creek and its tributaries carry a heavy silt load from critically eroding stream banks, unpaved roads, and farmland. Mostly agricultural activities are conducted in the watershed, including beef cattle production, poultry operations, and forestry practices. Besides farmland, additional nonpoint sources of nutrient loading include failing septic systems and dirt road runoff.

Best management practices are being implemented through the Morgan County SWCD. To date, five landowners have begun installing BMPs which include pasture conversion back to hardwood and pine forests, heavy use areas, alternative watering sources, hydroseeding, erosion control blankets, stream crossings, and critical area plantings.

Education and outreach is being conducted as part of this project through the Calhoun Community College. Students have performed water sampling for E. coli bacteria and macroinvertebrate sampling of Cotaco Creek using AWW techniques. The students were also lectured about the history and background of the watershed and on what is currently being done to improve water quality, including the roles of ADEM, EPA, and the TVA.



*Erosion control blankets and hydroseeding prevent sedimentation.*



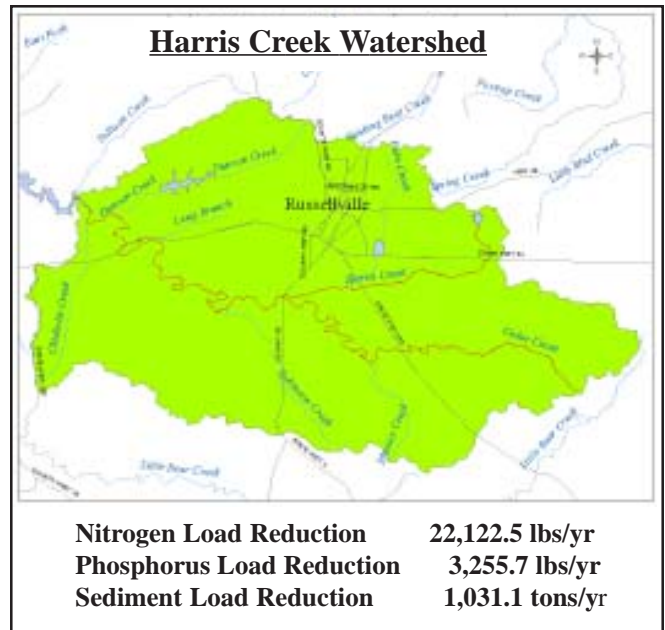
## Harris Creek Watershed Project

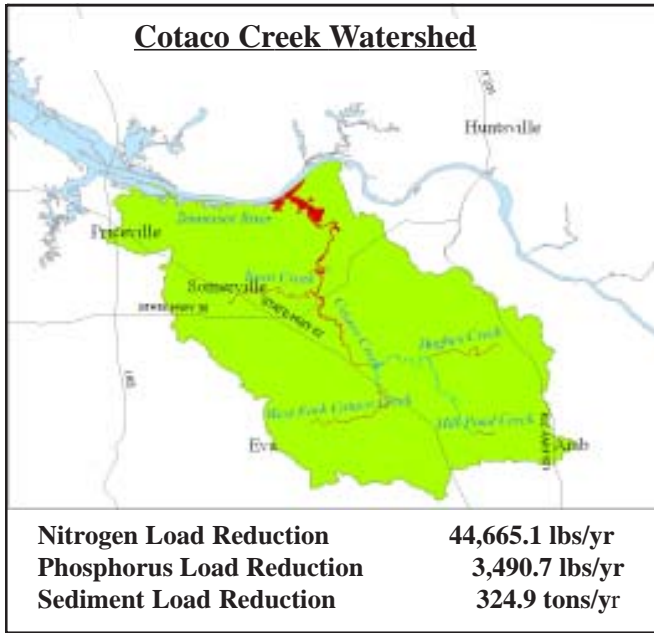
The Harris Creek Watershed, located in Franklin County near the City of Russellville, is within the Tennessee River Basin. It is approximately 6,400 acres with a linear distance of roughly 5.8 miles and a total drainage area of nearly 10 square miles. Harris Creek has a completed TMDL for sedimentation and low dissolved oxygen. Agricultural lands are the primary source of impairment in the watershed, but urban sources are also being addressed. The goal of this project with the Franklin County SWCD is to reduce the overall sedimentation and nutrient loading into the creek.

Best management practices that were implemented on farms in 2010 include exclusion fencing, critical area planting, cross-fencing, pest management, residue management, nutrient management, alternative watering facilities, and a stream crossing. Urban BMPs that have been constructed include a pervious concrete demonstration at the Northwest Alabama Livestock Auction and a rain garden at Belgreen High School.



*A rain garden was installed at Belgreen High School*





## Cotaco Creek Watershed Project

The Cotaco Creek Watershed comprises an area of 172,859 acres within Morgan and Marshall Counties. Five creek segments within this watershed are on the 303(d) List, including Town Creek, West Fork Cotaco Creek, Mill Pond Creek, Hughes Creek, and Cotaco Creek. During storm events, Cotaco Creek and its tributaries carry a heavy silt load from eroding stream banks, road banks, and farmland. The main sources of pollutants are from agricultural activities conducted in the watershed, including beef cattle, dairy operations, poultry operations, and forestry practices.

The Diamond S Demonstration Farm is being used to promote improved management techniques through the demonstration of *Irrigated Managed Grazing Systems*.



*A heavy use area and alternative water source is available on both sides of the fence for rotational grazing.*

The system shows how more cattle can graze on less land while decreasing nutrient and sediment loadings to Cotaco Creek. To date, alternative watering sources, critical area planting, access road stabilization, intensive rotational grazing fencing, stream crossings, and irrigation systems have been installed. The project manager is also currently working on an interactive CD for distribution, highlighting strip grazing management techniques and other BMPs on the Diamond S Demonstration Farm.

## West Fork Cotaco Creek Watershed Project

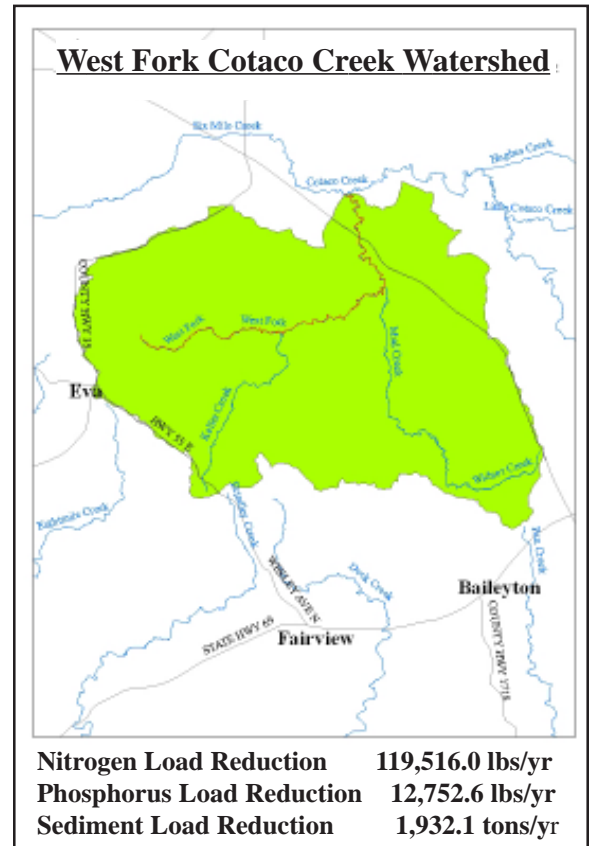
The West Fork Cotaco Creek Watershed is comprised of 34,528 acres in Morgan and Cullman Counties. The watershed is rural, with mostly forest and pasture lands and a few small scattered developments. The West Fork Cotaco Creek is on the 303(d) List due to organic enrichment/low dissolved oxygen and pathogens from agriculture.



*Eva Park tour participants learn about erosion and sediment control.*

To date, exclusion fencing, alternative watering sources, rotational grazing fencing, streambank restoration, and riparian buffers have been installed on farms. In addition, the Town of Eva, which partially lies within the West Fork Cotaco Creek Watershed, has implemented a project at a municipal

park to reduce the high sediment loads going into the creek. The urban best management practices that were installed in the park include hydroseeding of disturbed areas, vegetated filter strips, erosion control blankets, culverts of increased size, and installation of concrete curb and drop inlets. On May 6, 2010, a demonstration tour of the park was held to show the effectiveness of the BMPs and was attended by ADEM, EPA, elected officials, and local landowners.



## Little Shades Creek Stream Restoration

Little Shades Creek is a subwatershed of the Shades Creek Watershed within the Cahaba River Basin. The watershed has an area of almost eight square miles and is over 35% developed. Increased development and impervious surfaces has intensified the volume and velocity of stormwater entering this stream and has created severe erosion near an adjacent subdivision. The increased erosion makes a significant stormwater contribution to the Cahaba River which is identified on the 303(d) List as being impaired due to sediment.

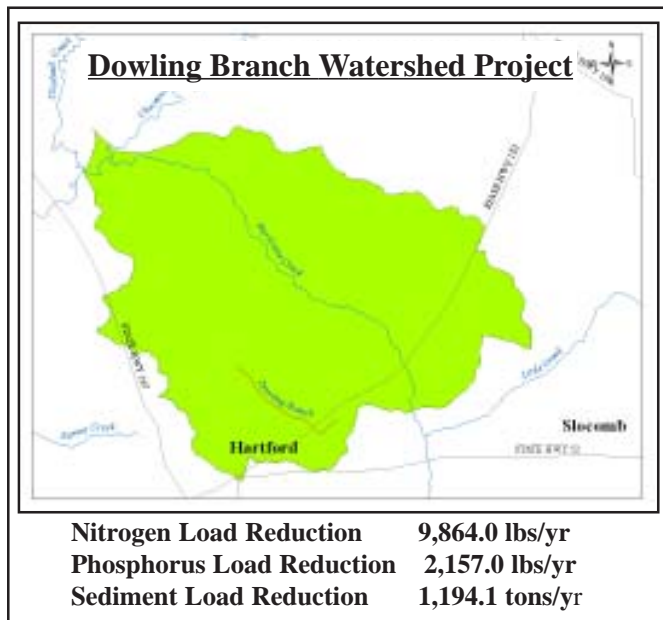
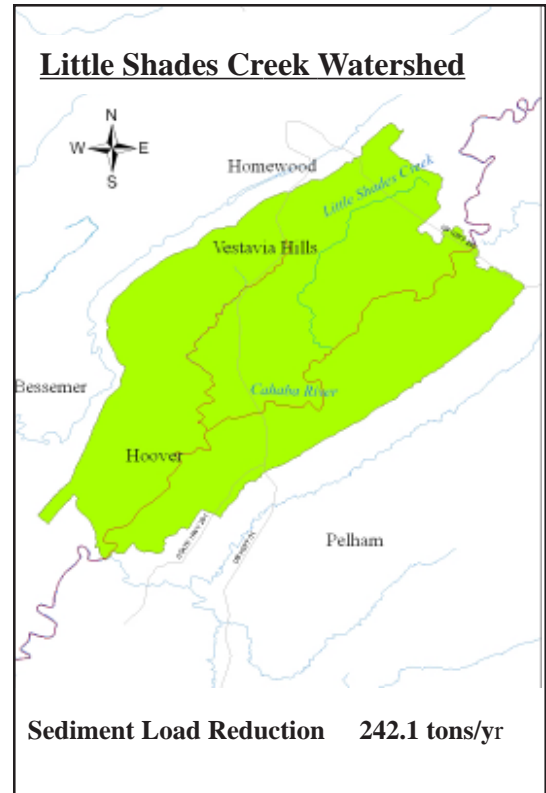
As a result of the erosion and stream degradation, an enhancement project was initiated on Little Shades Creek in January 2010 and included channel realignment and reshaping to create a stable bankfull channel; installation of 11 instream boulder and log vane structures; streambank stabilization with native grass seeding, straw, temporary matting, and a brush mattress; regrading and stabilization of 10 stormwater outfall channels; and planting of native vegetation. Construction and planting was completed in March 2010.

Three workshops were held in conjunction with the project, including “Stream Restoration Construction”, “Vegetation for Stream and Floodplain



*Cross vanes were installed to redirect flow away from streambanks.*

Restoration”, and “Nonnative Plant Identification”. The workshops offered natural resource professionals and local stakeholders an opportunity to learn more about stream enhancement and restoration on an urban stream. The partners of this project include ADEM, CAWACO Resource Conservation & Development Council, the City of Vestavia Hills, the Cahaba Clean Water Partnership, Goodwyn, Mills, & Cawood, Inc., North State Environmental, the Alabama Cooperative Extension System, the Ashley Woods Homeowners Association, and the North Carolina Cooperative Extension System.



## Dowling Branch Watershed Project

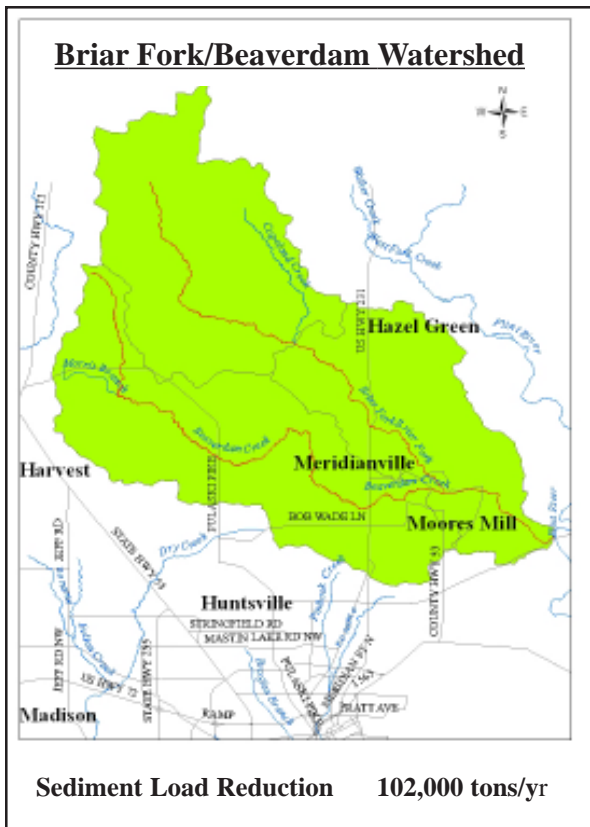
Dowling Branch is a 2.1-mile stream segment that originates within the city of Hartford in Geneva County. It is located in the Hurricane Creek Watershed within the Upper Choctawhatchee Watershed. The stream is on the 303(d) List for organic enrichment/low dissolved oxygen and pathogens. The sources of impairment are listed as municipal, urban runoff/storm sewers, and agriculture.

A tour was held at the project completion in June. Multiple best management practices were demonstrated, including exclusion fencing, shade structures, solar wells, and winter cover crops. The public, along with the agencies and groups involved, were invited. The tour began with an educational program at a local stakeholder’s farm where speakers discussed the benefits of the BMPs. After the program, project-related brochures were distributed to stakeholders.



*A shade structure for cattle was demonstrated at the farm tour.*

The Geneva County NRCS and SWCD were the project lead agencies. Further, the Geneva County Road and Bridge Department, the US F&W Service, the Geological Survey of Alabama, the Choctawhatchee, Pea, and Yellow Rivers Clean Water Partnership, and many local stakeholders were instrumental in the project’s success.



## Briar Fork and Beaverdam Creek Watershed Project

Located in Madison County, the Briar Fork/Beaverdam Creek Watershed is just north of Huntsville in the Wheeler Lake Watershed. Both Briar Fork and Beaverdam Creek are tributaries to the Flint River. Briar Fork is listed as impaired from the Flint River to the Alabama-Tennessee State Line, while Beaverdam Creek is listed as impaired from Briar Fork to its source. The main cause of impairment for both streams is sediment due to non-irrigated crop production and land development. The main goal of the Briar Fork and Beaverdam Creek Project is to develop a watershed management plan and implement agricultural BMPs for addressing nonpoint sources of impairment.

To date, the Madison County SWCD has accepted 23 applications and is in the process of implementing various practices. Three terrace systems have been completed throughout the target area to address gully erosion on cropland which covers 19,861 linear feet. In addition, 32.5 acres of pasture improvements, 9,457 feet of livestock fencing (exclusion and cross fencing), 284 acres of permanent vegetation, four heavy use areas and alternative watering sources, and 2,000 acres of winter cover crops have been completed.



*A heavy use area was installed in a cattle feeding area.*

Education and outreach efforts are being conducted by the project coordinator and all of the local watershed partners. These efforts include environmental education in classrooms and drinking water festivals, the NASA Earthday Festival, the City of Huntsville Earthday Festival, Flint River clean-ups, and local environmental presentations.

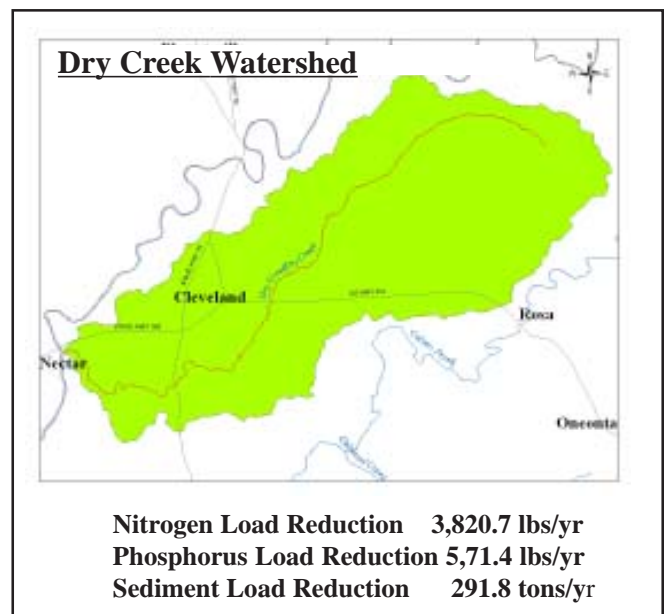
## Dry Creek Watershed Project

The Dry Creek Watershed is located in the Middle Locust Fork Watershed in the Black Warrior River Basin. The watershed is entirely within Blount County and covers 12,648 acres, including the Town of Cleveland and a portion of the Town of Rosa. The purpose of this project is to develop and implement agricultural BMPs that address nutrients, ammonia, and pathogens in order for the stream to be removed from the 303(d) List.

This project has been completed, with a total of 7,740 square feet of heavy use area, 12,422 feet of exclusion fencing, a gravity-fed water trough, and 20.5 acres of grass planting installed. The Blount County SWCD also hosted a septic tank workshop. Approximately 137,650 gallons of septic tank waste has been pumped out and properly disposed of, containing 111.63 lbs. of nitrogen and 241.53 lbs. of phosphorus.



*The Blount County SWCD presented the EnviroScape at Cleveland High School.*



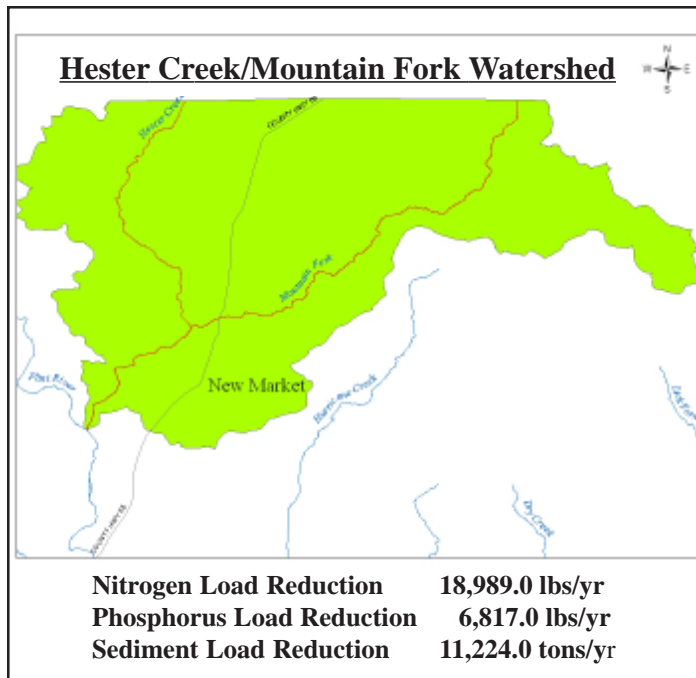
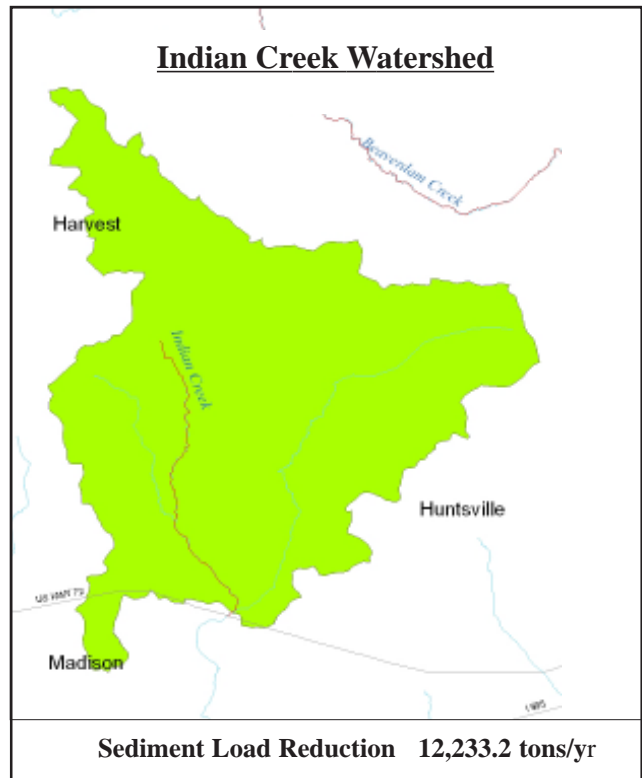
Several education events were held to promote this project. The Blount County SWCD and the NRCS presented the EnviroScape and AWW training in local schools and at a teacher's workshop. The District also presented the "Soil Tunnel" at "Kid's Day on the Farm", at the "Day on the River", and at the 2010 County Fair. In addition, a water cycle bracelet activity was presented at Locust Fork High School. A final presentation was also given at the CAWACO RC&D meeting.

## Indian Creek Watershed Project

Indian Creek is located on the west side of Huntsville within the Wheeler Lake Watershed and is impaired due to low dissolved oxygen/organic enrichment and sedimentation. A draft TMDL has been developed that identifies pollutants from failing septic systems, agricultural practices, and wildlife as possible sources of impairments to Indian Creek, 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.

Sixteen applications have been received and farm visits and conservation plans are being developed for these landowners. A winter cover crop, which normally would have been planted conventionally, has been planned and contracted on 1,495.2 acres. To date, one acre of riparian stream buffer, 6,464 feet of cross fencing, six acres of cropland conversion to trees, four alternative watering sources with heavy use areas, and 1,025 acres of conservation tillage have been implemented in the watershed.

The project manager is currently working with Monrovia Middle School and Madison County to implement urban BMPs in the watershed. Surveys and designs were developed and furnished to the NRCS. Construction began in June on Phase I of the project at the south end of the school property. Grading, shaping, rip rap, vegetation and erosion blankets were installed to complete this part of the project. The second phase of this project began in October and is still undergoing construction.



## Hester Creek and Mountain Fork Watershed Project

The Hester Creek and Mountain Fork Watershed comprises approximately 41,639 acres northeast of Huntsville in Madison County. The area is primarily pasture, row crop, and forestland with some residential areas. Cattle farms are located throughout the watershed on soils that are highly erodible. The southwest part of the watershed is under pressure from development related to urban sprawl from the City of Huntsville. Hester Creek is on the 303(d) List for nutrients and turbidity.

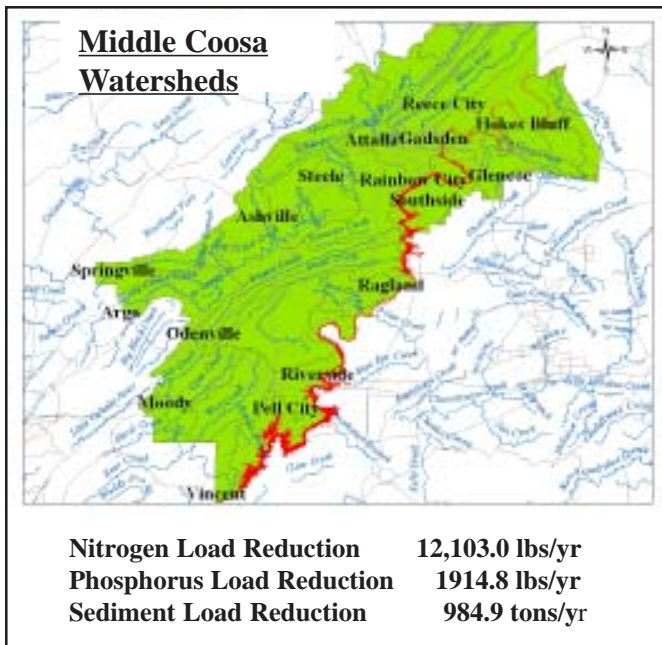
To date, the Madison County SWCD implemented 14 projects with private landowners. Best management practices that have been installed include 18 acres of conventional row crop land conversion, 181 acres of pasture improvement, 4,750 feet of row crop terraces,

1,000 acres of winter cover crops, 616 acres of conservation tillage, two alternative watering sources and heavy use areas and 1,800 feet of exclusion fencing. Education and outreach efforts include environmental education in classrooms and drinking water festivals, the NASA Earthday Festival, the City of Huntsville Earthday Festival on the Flint River, Flint River clean-ups and local environmental presentations.



*The watershed coordinator, Sam Sandlin, hosts Earth Day on Flint Creek 2010*





## The Middle Coosa Watershed Project

This project addresses the impaired subwatersheds of the Middle Coosa River Basin. In October 2008, the final Coosa River Basin TMDL was approved to address the impairments in the Neely Henry and Logan Martin Lakes, as well as Lay Lake and Mitchell Lake. The goals of this project are to develop and implement a watershed-based protection plan that targets the sources and causes of impairments within Etowah and St. Clair Counties and the lakes in the Middle Coosa River Watershed. Etowah and St. Clair County Soil and Water Conservation Districts are the lead cooperators for this project.

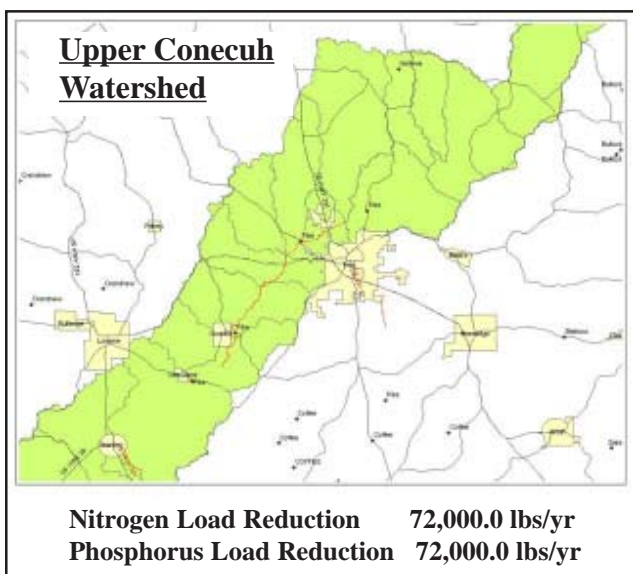
The coordinator has participated in several educational events for students, including the Etowah and St. Clair County Water Festivals, Etowah County Farm City, and the “Message in a Bottle” Symposium in Gadsden. In addition, three septic tank workshops have been conducted in St. Clair County, with over 200 vouchers being awarded to local citizens for free



Homeowners are educated about septic tanks at a workshop in St. Clair County.

pumpouts or to be used towards repairs. Local media coverage complemented outreach efforts along with periodic articles submitted to the local newspapers. The project is also partnering with the Neely Henry Lake Association to place monofilament recycling units in at least seven locations on the Coosa River/ Neely Henry Lake in Etowah County.

Since September 2009, 78 agriculture applications have been approved and 15 completed. The agricultural BMPs installed include heavy use areas, alternative watering sources, a tile outlet terrace, pest management, and pasture planting. One urban BMP application has also been approved.



## Pike County Poultry Litter Project

In 2002, an uppermost segment of the Conecuh River with a length of 24.7 river miles was placed on the 303(d) List for siltation and OE/DO. According to the TMDL, “the data analysis and source assessment identified low dissolved oxygen levels in the upper Conecuh River associated with low flow conditions and nonpoint source runoff of ammonia.”

This project demonstrates an alternative means of utilizing and disposing of phosphorus-rich poultry litter through the use of an in-house poultry turner. The widespread adoption of this practice will result in the volume reduction of litter being land applied and in fewer nutrients that are



A poultry litter turner is demonstrated at a local poultry house in Pike County.

potentially available for water quality impairments. The first demonstration was held at a local poultry house on June 29, 2010 with approximately 40 people in attendance. A representative from the equipment manufacturer was on-hand to help with the demonstration and answer questions regarding the process/equipment. A second demonstration was held on August 16, 2010. To date, the equipment has been utilized at 12 poultry houses on four different farms.

## Buxahatchee Creek Watershed Project

Buxahatchee Creek is a subwatershed in the Coosa River Basin. The watershed is approximately 70 square miles and flows through Shelby and Chilton Counties. Buxahatchee Creek is impaired for nutrients and organic enrichment/dissolved oxygen. The goal of the Buxahatchee Creek Watershed Restoration Project is to provide BMP coordination, education, and technical assistance to stakeholders in order to assist in Buxahatchee Creek meeting or exceeding state water quality standards.



Management measures have been developed for nutrient management including constructed wetlands and riparian buffers at Timberline Golf Course, which lies adjacent to Buxahatchee Creek. A turf management specialist from Auburn University has been contracted to work with the golf course. He has located numerous areas along fairways where grass mowing heights could be raised, recommended “no-mow” zones around streams and lakes be increased, and identified plants for areas where erosion is becoming significant. In addition, a stream restoration site has been identified on the golf course and planning has been completed for a project to stabilize the streambanks, install wetlands, and reconnect the stream to its floodplain.

As part of this project, Minooka Park, a recreational vehicle park in Chilton County, will be receiving an innovative onsite septic treatment system. Due to the soil types, the park has poor conditions for treating waste from restrooms and their new campsites. The park will be installing an onsite treatment system which uses high grade peat moss as a secondary treatment process. After the treatment process, water entering the leach fields is considered 90-95% pure.

Another implementation and demonstration site will be at the City of Calera Sports Complex at the new

Calera High School. Through the Buxahatchee 319 grant, a minimum of \$25,000 has been dedicated toward urban water quality BMPs. After an initial meeting with the county engineer, the site plan has been redeveloped to incorporate bioswales to handle most of the stormwater and eliminate much of the necessary underground utilities. Pervious paving will also be incorporated in some areas of the parking lot as well as filtering tree boxes to aid in the removal of nutrients from the runoff. The total project area covers 60 acres and will be showcased by signage that promotes the water quality improvements incorporated into its design.

In 2010, three septic tank workshops were held in the Buxahatchee Watershed. A total of 287 residents were awarded with septic tank pumpout vouchers for attending these informational workshops. To date, 215 septic systems have been pumped or repaired and a total of over 218,250 gallons of sludge has been processed through the Calera Wastewater Treatment Plant.

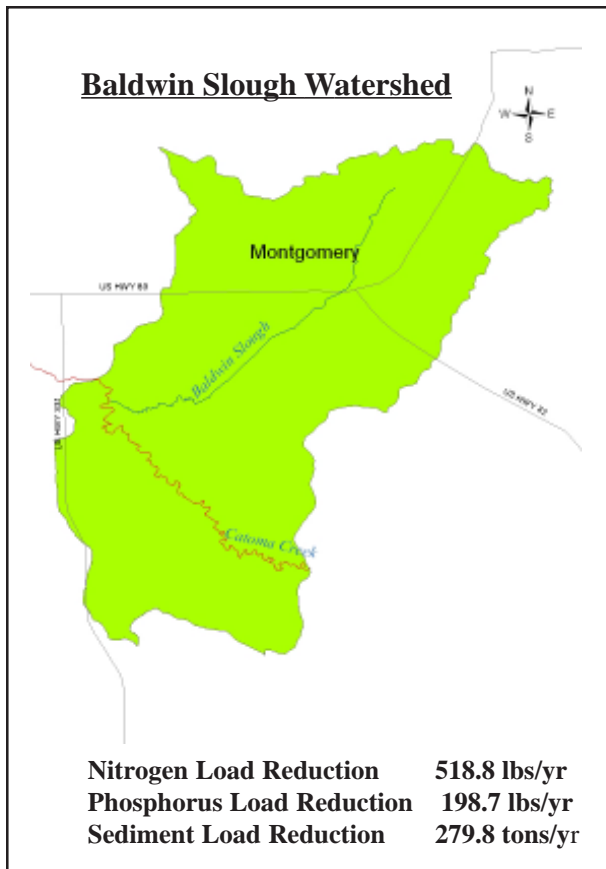


*William McLemore (Goodwyn, Mills, and Cawood, LLC.) with turf specialist, David Han, assessing potential stream BMPs adjacent to the Timberline Golf Course.*

## Whites Slough Stream Restoration Project

Whites Slough is an urban tributary to Catoma Creek within the Baldwin Slough Watershed. The Baldwin Slough Watershed is a subwatershed of the 360-square mile impaired Catoma Creek Watershed. This project addresses Whites Slough within a local City of Montgomery park (Young Park). This project is designed to improve watershed functions through a holistic watershed restoration project that includes stream and floodplain restoration and stormwater management. This project was also designed to build watershed restoration capacity and expertise in Alabama by educating a broad community on the importance of stream and floodplain protection, and by demonstrating innovative stormwater management practices.

Four workshops have been conducted on Stream Morphology Assessment, Stream Restoration Design, Stream Restoration Construction, and Vegetation for Stream Restoration. A workshop for local high school students and teachers was also held in April 2010 to introduce basic concepts of streams and wetlands, invasive, nonnative vegetation, and Global Positioning Systems (GPS). Additionally, the Upper Alabama River Clean Water Partnership in cooperation with Coca-Cola and the World Wildlife Fund has held residential rainwater harvesting workshops. The Auburn University Water Resources Center and the Upper Alabama Clean Water Partnership have also conducted community educational programs for neighborhood groups and others.



A Priority 2 stream and floodplain restoration project has been fully designed and completed on Whites Slough as it flows through Young Park. To date, 2,100 linear feet of stream and two acres of floodplain have been constructed. Hydroseeding was used to promote the establishment of temporary and permanent grasses and herbaceous plants. Permanent vegetation installed along the stream and floodplain includes native grasses, herbaceous plants, shrubs, and trees. These were planted during the winter months and as a component of the December 2009 Vegetation Workshop with help from the Gunter Air Force Base Officer Candidate School.

A wetland enhancement project was implemented in partnership with local high schools and community groups. Additionally, bioswales have been designed and constructed to offset runoff associated with the newly finished tennis courts for Young Park. The City of Montgomery; Montgomery Catholic School; Goodwyn, Mills, and Cawood, LLC.; and ADEM have partnered to install walking trails, bridges, and signage for stream access and park use. Prior to the restoration, the stream crossings were concrete paths with small pipes installed directly in the stream, which flooded with each rain event.



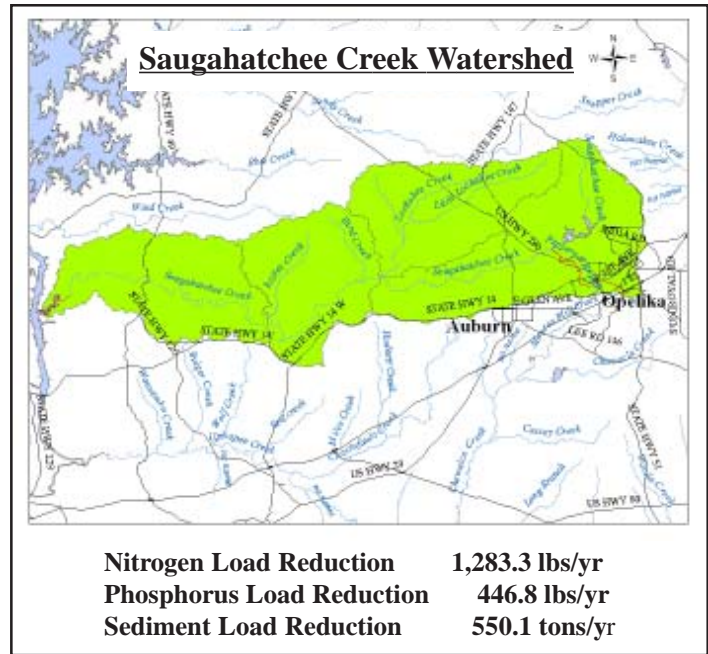
*The stream restoration on Whites Slough after vegetation has been established.*

This project will be complete in December 2010. Pictures of the project are available online at: [picasaweb.google.com/eve.brantley/IdaBelleYoungParkStreamRestorationWorkshopSeries#](http://picasaweb.google.com/eve.brantley/IdaBelleYoungParkStreamRestorationWorkshopSeries#).

# Saugahatchee Watershed Management Plan (SWaMP) Project

The Saugahatchee Creek Watershed encompasses a 220-square mile area located within the Lower Tallapoosa River Basin. Saugahatchee Creek Watershed has two segments: the Pepperell Branch and the Saugahatchee Creek Embayment (Yates Lake), currently on the 303(d) List for receiving excess nutrients, primarily phosphorus. The embayment is also listed for receiving excessive organic matter and problems with low dissolved oxygen.

This project was completed in January 2010, with 18 on-the-ground projects. Projects involved installing low-impact-development BMPs (rain gardens, swales, and constructed wetlands), stormwater management practices, stream riparian zone restoration, stream channel and floodplain restoration, rainwater harvesting, and public outreach.



Education and Outreach workshops implemented during this project included a Low-Impact Site Design Workshop, a Landscape and Lawn Professional Workshop, eight Community Rain Barrel Workshops, two Forest Land Best Management Practices Workshops, an Exploring Alabama’s Living Streams Teacher Workshop, and an Unpaved Roads Workshop. SWaMP coordinators also identified 34 stream crossings in the watershed and installed stream signs. Eleven stakeholder meetings were held in addition to updates with stakeholders via email and via the SWaMP website, [www.swamp.auburn.edu](http://www.swamp.auburn.edu). The website blog was updated regularly with articles and photo galleries of SWaMP activities. Several articles about SWaMP initiatives have also been featured in the Opelika-Auburn News.

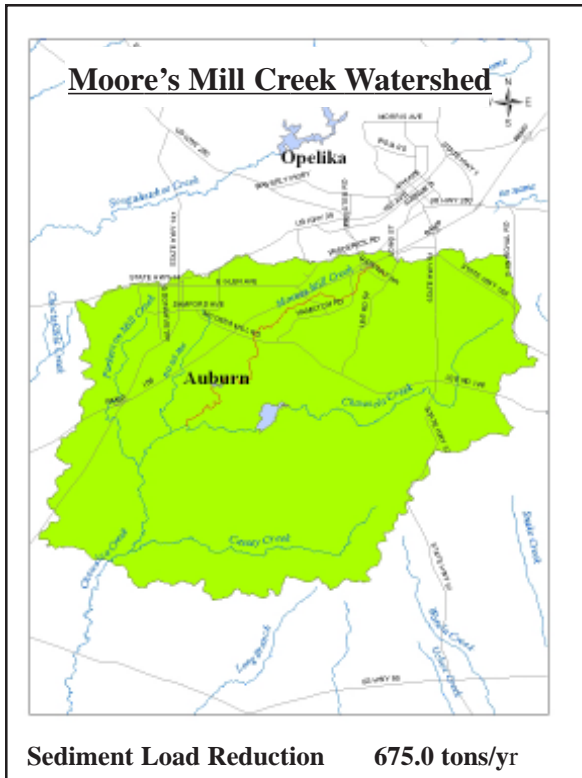


*Rain Garden and curbcut to alleviate flooding and catch paking lot runoff at the Boykin Community Center in Auburn.*

SWaMP personnel gave a total of 48 presentations, including 11 presentations at Clean Water Partnership meetings, 18 presentations at community and local government meetings, eight presentations at special meetings (with EPA, Alabama legislators, at area schools, and as a part of ACES trainings), and 11 presentations at various conferences. SWaMP brochures and a Saugahatchee publication were distributed at community festivals and at community-based watershed management efforts (watershed *E. coli* sampling and stream cleanups).

AU Fisheries and AU Forestry personnel completed installation of stream gages in six catchments and conducted maintenance and data retrieval as needed. The AU School of Forestry and Wildlife Sciences conducted water quality studies of select catchments experiencing varying degrees

of development on 51 dates to document effects of land use conversion. A cost-benefit analytical approach for evaluating rural-to-urban land conversion was investigated. Forestry personnel conducted 16 meetings and presentations on the benefits of the water quality services approach to maintaining clean water.



## Moore's Mill Creek Stream Restoration Project

Moore's Mill Creek, within the Lower Tallapoosa Watershed, is on the 303(d) List for sediment pollution from its confluence with Chewacla Creek to its source. The Moore's Mill Creek Stream Restoration Project addressed stream stability problems on Moore's Mill Creek and several of its unnamed tributaries. The primary goal of this project is to reduce sediment loss from 12,400 feet of Moore's Mill Creek and its tributaries by 90% from current conditions, which represents a reduction of 675 tons of sediment loss annually.

This project has been completed. As work has progressed, FEMA flood maps were redrawn, which then required revisions to the stream construction plans. The FEMA-related changes, in addition to multiple heavy rainfall events, led to several delays on the construction of the remaining portion of the restoration and to stabilization of the existing structures. Redesign of some structures was required to accommodate hydrologic changes in the upper part of the watershed due to new development and associated increased stormwater flow. Reconstruction and completion of the remainder of the restoration was completed in September 2010.



*Rock vanes and switch grass were installed as part of the stabilization techniques on Moore's Mill Creek.*

Three workshops targeting golf course managers, commercial and residential developers, landscaping companies, and homeowners were held to kick off the Lee County Business Partners for Clean Water. In addition, tours of the stream restoration were held to display construction and design techniques and discuss field changes. The stream site was also a stop on the tour of demonstrations for the Erosion and Sediment Control Field Days in October 2010.

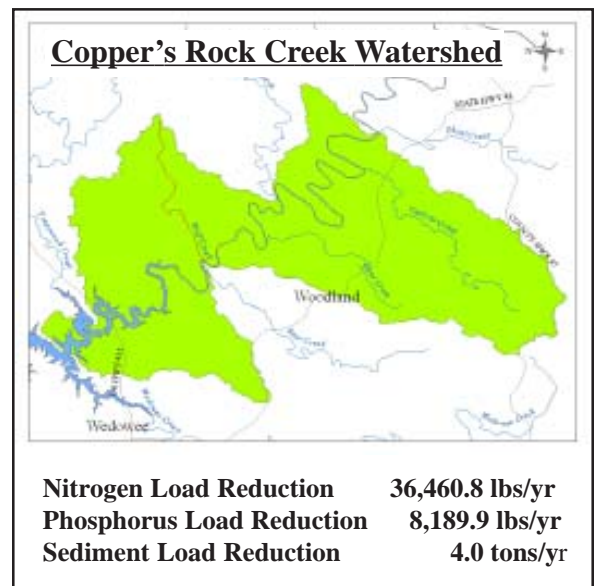
## Wolf Creek Watershed Project

Wolf Creek, within the Copper's Rock Creek Watershed in the Upper Tallapoosa Basin, is on the 303(d) List for pathogens from agricultural sources. The purpose of this project is to reduce the cumulative effects of the polluted runoff from agricultural lands. This will be accomplished through development and implementation of farm conservation plans through a contract with the Randolph County Soil and Water Conservation District.



*A stream crossing was installed on Wolf Creek for equipment and cattle.*

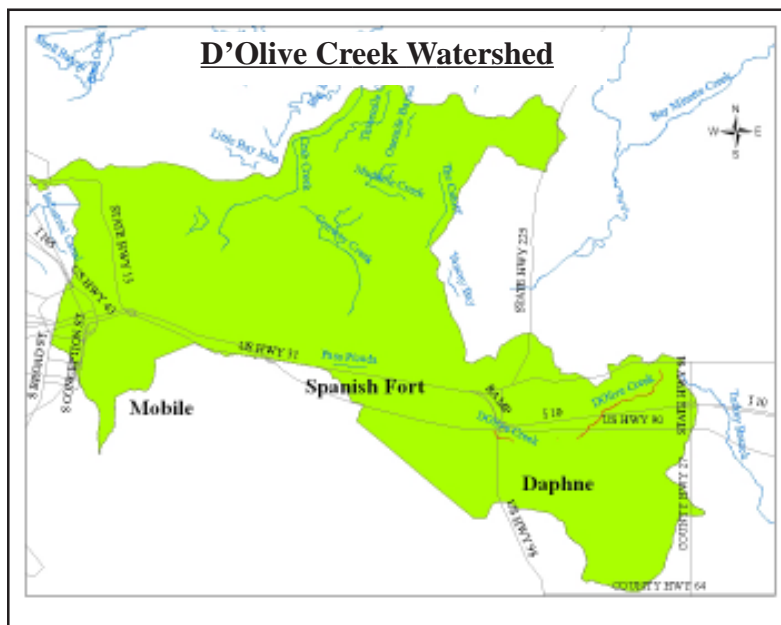
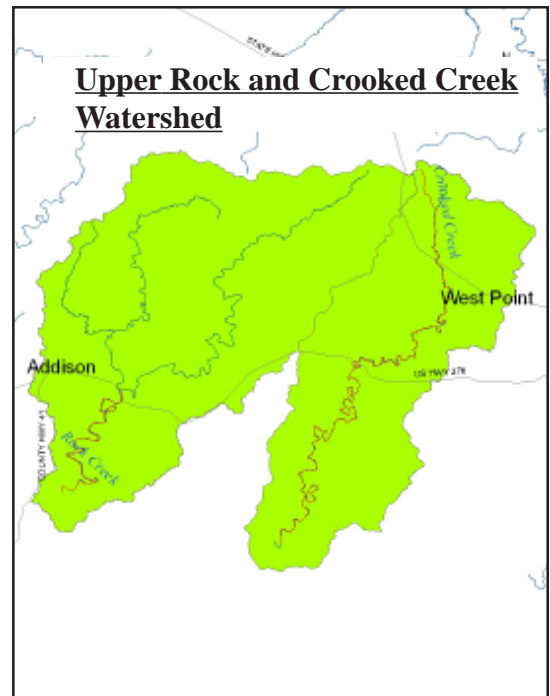
To date, there have been 12 signups and several farm visits for drystacks and freezers for poultry, fencing out cattle, improved grazing practices, and alternative watering sources. Practices that have been completed including the installation of two poultry freezers and a dry stack/composter for poultry litter, a stream crossing, and exclusion fencing.



## Rock Creek Watershed Management Plan

The purpose of this project is to develop a Rock Creek Watershed Management Plan (RCWMP). The Rock Creek Watershed contains two segments, Upper Rock Creek and Crooked Creek, which have been 303(d) listed due to excessive organic enrichment/low dissolved oxygen, pathogens, and in the case of Crooked Creek, excessive ammonia. ADEM has completed TMDLs for both segments. The RCWMP will focus primarily on agricultural nonpoint source pollution problems, specifically organic matter and pathogens, because the sources of impairments were identified as pasture grazing and intensive animal feeding operations.

The RCWMP began after a review of scientific studies was conducted to gather historic water quality information for the watershed. Land cover data was acquired from the MRLC Consortium ([www.mrlc.gov](http://www.mrlc.gov)) for multiple dates to evaluate land use/land cover changes in the watershed. A stakeholder group made up of representatives of watershed residents, civic organizations, local government, businesses, agriculture, forestry, and land management agencies met with AU personnel at various locations in the watershed from June 2009 through April 2010. During the process of developing the plan, Rock Creek Watershed stakeholders signed up for committees (Technical and Education/Outreach) to develop parts of the plan. Stakeholders identified the following pollution concerns including: land application of animal waste, erosion from cleared urban/suburban and forest lands, runoff from residential lawns and landscaped areas, sewage overflow/leakage, malfunctioning septic systems, factory and landfill effluent, and runoff from rapid shoreline development. Stakeholders also identified significant land use and land management changes and provided recommendations on specific BMPs needed. The RCWMP has been completed and submitted to ADEM.



## D'Olive Creek Watershed Management Plan

This project resulted in the development of a watershed management plan for the D'Olive, Tiawasee, and Joe's Branch Watershed. Thomas Engineering was awarded the contract and is working with a coalition of local stakeholders and the D'Olive Watershed Working Group to complete the plan. Initial work concentrated on data gathering and field visits to characterize existing known problem areas and identify possible new areas of concern from land use changes.

Stakeholder meetings were conducted with the D'Olive Watershed Working Group to gather input and catalog watershed problems, and to estimate costs required to implement the corrective measures as well as an evaluation of funding strategies to pay for these measures. The goals that guided the conceptual management measures addressed in the WMP included

reducing upstream sediment inputs into the Lake Forest Lake/D'Olive/Tiawasee system; reduce outgoing sediment loads into D'Olive Bay and Mobile Bay Estuary; remediate and restore past effects of these sediment loads, including lake restoration; and mitigate future impacts of development in the watersheds, where feasible. This plan outlines implementation strategies, financial alternatives, public education and outreach, and monitoring. The final plan was completed in July 2010.

## Mill Creek Watershed Management Plan

This project will result in the completion of a watershed management plan for the Mill Creek Watershed in the Chattahoochee Basin. To date, several meetings have occurred with stakeholders in the watershed, including the Phenix City City Council, the Russell County Planning Commission, the Smiths Station City Council, and the Smiths Station Planning Commission. Historical watershed data has been gathered and assessed and information related to the description of the Mill Creek Watershed has been reviewed. Water quality data and biological assessment data from ADEM has also been gathered and assessed. Special needs areas within the watershed have been prioritized with help from the Technical Committee.

Both the Technical Committee and the Steering Committee have identified BMPs for implementation in the Mill Creek Watershed. These BMPs include bioretention cells (two sites with one in Smiths Station and one in Phenix City), as well as demonstration rain gardens (Central High School, Phenix City Intermediate, and the new Smiths Station High School). Signage at stream crossings on major roads have also been suggested. Watershed partnerships have been expanded thus far to include local schools in Lee and Russell Counties. In addition, a partnership has been formed with Columbus State University with the opportunity for them to provide macroinvertebrate sampling of Mill Creek as part of an aquatic entomology curriculum. Smiths Water and Sewer will partner to help with implementation and advertising of septic tank workshops. The draft plan has been completed and is currently being reviewed by stakeholders.



## Parkerson Mill Creek Watershed Management Plan

The goal of this project is to develop a comprehensive management plan for the Parkerson Mill Creek Watershed, integrating current scientific data and existing plans in cooperation with a multi-sectoral group of stakeholders. Parkerson Mill Creek Watershed is a priority because of its impairment due to pathogens. The community within the watershed is particularly concerned because the creek begins on the campus of Auburn University and flows toward one of two of the City of Auburn's water treatment facilities. The watershed covers approximately 10 square miles and includes 68,000 feet of mainstem perennial stream. Parkerson Mill is in the Upper Chewacla Watershed and is in the Lower Tallapoosa Subbasin.

Historical watershed data and additional general watershed description information has been reviewed. Land use data from ADEM, Auburn Water Program GIS, and the City of Auburn Water Resource Management has been acquired and assessed. The Technical Committee has determined needed BMPs and projected pollution reductions are being determined from the list of BMPs. Both the Resource and the Education & Outreach Committees have assisted in designing an awareness/outreach program and have identified additional funding sources. The draft plan has been completed and is currently being reviewed by stakeholders.

# NPS EDUCATION, OUTREACH, AND TECHNOLOGY TRANSFER

## Erosion and Sediment Control on Construction Sites

The project provides resources to establish 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. Other partners include the Alabama Department of Transportation, the Home Builders Association of Alabama and the Associated General Contractors of Alabama. Earl L. Norton, CPESC, serves as program coordinator and the committee meets quarterly to review an action plan for technology transfer in erosion and sediment control on construction sites.

Updated Handbooks continue to be available for distribution when requested and an electronic version is available to the public through the Alabama Soil and Water Conservation Committee website. An updated “Field Guide for Erosion and Sediment Control on Construction Sites” is distributed at training events. A new seminar that will focus on “Establishing Vegetation for Erosion Control on Construction Sites” is being prepared and will be conducted during December 2010 at four locations.

The Clear Water Alabama 2009 Seminar and Field Day programs were presented in Bessemer on October 28 -29, 2009. The two-day event was attended by approximately 175 persons. The 2010 Seminar and Field Day was held on October 6 and 7, 2010 in Auburn.

A new brochure entitled “Let’s Look at Sediment” was completed during the spring of 2010, with copies of the brochure being distributed by Soil and Water Conservation Districts, ADEM, and partnering agencies. Additional copies will be printed with grant funds to fill incoming requests.



*Attendees of the Clear Water Alabama Field Day learn about a swale used for bioretention.*



*Students learn to use various forestry tools during the forestry session training at the State Envirothon Competition.*

## Envirothon

The ADEM NPS Unit, in a joint effort with other agencies, continued to play a supporting role in the Alabama Envirothon competition by helping in event planning, developing test materials, leading many of the training events, judging, and overall program implementation. This year’s state competition was held April 8-10 at the 4-H Camp in Columbiana. This year’s current issue was “Protection of Groundwater through Agricultural, Urban, and Environmental Planning”.

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 in Fresno, California.



## **Demonstration of Low Impact Development (LID) Practices to Reduce NPS Runoff from a Residential Development in the Saugahatchee Creek Watershed**

The goal of this project is to demonstrate sensible examples of Low Impact Development (LID) techniques and practices in a “real-world” suburban residential setting. This project will accomplish its goal by providing the City of Auburn, Alabama Clean Water Partnership, Alabama Cooperative Extension System, developers, planners, and other watershed stakeholders in the Saugahatchee Watershed with “showcase” demonstration examples of new or “retrofit” LID best management practices in an Auburn subdivision.

Auburn University students of Landscape Architecture and the professional design firm of Macknally-Ross created designs for the subdivision based on a natural resource inventory, landowner preferences, and site characteristics (topography). Practices that were designed include rain gardens, grass swales, minimized road widths, pervious asphalt, and incorporation of green space. Residential construction costs and pollutant removal estimates will be assessed once the BMPs have been designed and installed. Engineers will provide cost comparison data on conventional versus LID practices. The original site developer raised concerns over the loss of lots in the conceptual site plan and withdrew from the project. In the summer of 2010, a new site developer expressed interest in working on this project. The new developer is currently involved in a conservation subdivision with the City of Auburn.

ACES also partnered with the City of Auburn to hold a series of technical workshops on LID practice design, installation, and vegetation in the summer of 2010. A draft web site has been created on LID ([www.aces.edu/waterquality/nemo/lid.htm](http://www.aces.edu/waterquality/nemo/lid.htm)). This web site will be updated to include project contacts and progress, project costs, and stormwater management practices.

## **Development of LID Guidebook for Alabama**

In June of 2010, the ACES Water Program at Auburn University was contracted to develop and draft an LID guidebook for use in Alabama. The guidebook includes a synthesis of LID practices that are suitable for use in different regions of Alabama, focusing on the coastal plain. Auburn University completed the draft electronic guidebook and assisted in the design and installation of two LID practices in Baldwin County. LID practice design, vegetation suggestions, and project installation for the two practices were completed by September 2010. LID practices installed in Baldwin County include a cistern, shade beds, and rain gardens.

## **Silvicultural Best Management Practices for Forestry in Alabama**

This project continues to provide funding to support interagency partnering and cooperation between the Alabama Forestry Commission and ADEM in order to assure that NPS silviculture management efforts in Alabama are focused and sustainable. A holistic watershed-based management approach provides the technical underpinning for defining the problems and designing the solutions to Alabama’s most pressing silvicultural management issues, concerns, and needs. This includes both on-the-ground projects and broader educational programs designed to promote broad awareness and implementation of activities that can help protect waters from degradation by new and changing land use activities which cause nonpoint source pollution. This project will provide an appropriate and effective programmatic framework for Alabama to continue to develop and implement NPS watershed plans, and strengthens the link between the Section 319 Grant Program and other state and federal forestry resource programs. The trainings and the projects focus on the impact of the rural and urban interface and the need to combine goals to conserve the trees in urban areas but still be safe regarding the spread of fires.



*Stakeholders of the Saugahatchee Basin attend a Forestry Workshop and Tour.*

## Groundwater Festivals

A key to providing protection for our groundwater resources is education. The goal of a Groundwater Festival is to educate 4th grade students, and indirectly their parents and community, on groundwater issues including what it is, how it is used, and its susceptibility to contamination. The Groundwater and Water Festivals are a culmination of classroom study and hands-on activities. Children have the opportunity to experience first hand through experimentation and problem solving, the complexity of groundwater and its relationship to nature in general.

This is the 12th year of Groundwater and Water Festivals in Alabama. In 2010, the relationship between NPS pollution and groundwater protection continued to be demonstrated with over 131,000 4th grade students educated to date. Twenty-eight counties in Alabama conduct Groundwater Festivals on an annual basis. More information about Alabama Groundwater Festivals can be found at [www.alabamawaterfestival.com](http://www.alabamawaterfestival.com).



*Students learn about water filtration at the Water Festival.*

## 22nd Annual NPS Conference

ADEM held its 22nd Annual Nonpoint Source Pollution Conference on January 20 at the Renaissance Hotel in downtown Montgomery. Attendees included over 320 environmental engineers, biologists, geologists, municipal leaders, elected officials, and water quality specialists. This year's event was entitled "Improving Water Quality in Alabama: An Active Process" and included a summary of the different steps in project implementation from planning to showing success. The conference also included more than 20 exhibitors with displays and informative hand-outs.

The various sessions and discussions offered attendees a variety of updates on the Department's efforts to achieve water quality improvements through targeting and planning NPS efforts, implementing NPS projects, documenting successes, enhancing water quality at athletic complexes, and the stakeholder efforts that enhance our project implementation.

A large number of organizations and agencies gave presented information at the conference including the Natural Resource Conservation Service, Geological Survey of Alabama, Madison County Soil and Water Conservation District, Geneva County Soil and Water Conservation District, Shelby County Environmental Services, City of Calera, and the Alabama Clean Water Partnership.

## Water Quality Coordinator and Education/Outreach Specialist

This project provides funding for a Water Quality Coordinator (WQC) and an Educational Outreach Specialist (EOS) that administers several 319 grants provided to the Alabama Soil and Water Conservation Committee (SWCC).

A major part of the WQC and EOS's time has been spent as facilitators for the registration of Confined Animal Feeding Operations (CAFOs). The SWCDs assist producers who initially register and those who must register annually. During the period, April 2010 through October 2010, the SWCDs have assisted local producers with 204 CAFO registrations. The EOS has been in regular contact through telephone and e-mail communications with local Districts and ADEM field personnel to identify and resolve problems associated with the online (AFOIS and FTP) filing process. The EOS held training sessions to ensure a smooth transition from manual to internet based processing of information. A CAFO Registration guide was completed, explained and distributed to District Administrative Coordinators attending the SWCC Employee Workshop. The guide has been uploaded to the SWCC website (See Figure 1) as well as the FTP site for future reference and availability to new employees. All SWCDs are now processing CAFO registrations online at the AFOIS website and scanning, uploading maps and reports to the FTP website. The EOS also continues to promote the Teach-the-Teacher Program in many Districts across the state. Further, the EOS is also working with statewide District Coordinators to promote the Alabama Envirothon Program.

## Alabama Water Watch

Alabama Water Watch (AWW) is a statewide program dedicated to developing volunteer monitoring of Alabama's lakes, streams, and coasts. It's coordinated through the Auburn University Department of Fisheries and Allied Aquacultures. During this report period, AWW conducted 26 training sessions attended by 115 people with a total of 154 certifications; 73% were conducted by or with a Citizen Trainer. Nine Water Chemistry Workshops (65 people), nine Recertification Sessions (38 people) and seven Bacteriological Workshops (50 people) were conducted in fiscal year 2010. One Water Chemistry Monitoring Trainer Internship was also conducted.



*Numerous people attended the 13th State of the Lake Address Annual Smith Lake Environmental Preservation Committee to hear an AWW Data Interpretation Session and discuss future activities.*

In addition, Fifty-four citizen groups collected and submitted water chemistry data from nine major watersheds in the state, excluding the Tombigbee. Data received during the report period originated mostly from AWW groups located in the Warrior, Tallapoosa, Tennessee and Coosa watersheds (12, 12, 12 and 10 groups, respectively). Twenty groups submitted bacteriological monitoring data from seven watersheds. A combined total of 2,006 (1,610 chemistry and 396 bacteriological) data records were received. Overall, most monitoring activity was located in the Coastal Plain, Warrior, Tennessee and Tallapoosa watersheds (23%, 21%, 18% and 18% of total of data received, respectively). Since 1993, AWW has received more than 49,000 water chemistry and over 11,000 bacteriological data records. Over 2,040 sites have been monitored on more than 770 waterbodies



*Volunteer monitors are recertified at a AWW Workshop at Auburn University.*

*An Introduction to Alabama Water Watch* in DVD format, b) assisting The Town of Magnolia Springs (TOMS) group in their efforts to achieve Outstanding Alabama Water status and c) the approval of lab space for AWW in the new NIST Building on the AU campus. AWW's website and the Water Data Section have been visited over 122,000 times and 28,000 times respectively. About 95% of AWW data received during the report period were entered online, and over 600 people were subscribed to the AWW Listserve.

Three Data Interpretation Sessions for Smith Lake, Lake Martin and Lake Logan Martin, comparing AWW citizen data with other sources data, were conducted and numerous outreach activities were held for citizen groups. AWW responded to several official requests for data from other organizations such as ADEM, City of Auburn, Auburn University, AWW groups and individual monitors. AWW staff attended eight AWW monitoring group meetings such as those of the Environmental Awareness Organization and Lake Watch of Lake Martin. AWW personnel attended nine Conferences and Seminars including the 21st Annual Nonpoint Source Conference, the Alabama Rivers Alliance Watershed Leadership Conference, the Tri-State Conservation Coalition Conference, the Green and Blue Conference and the Clean Water Partnership Annual Meeting.

Program accomplishments and initiatives for this report period a) the production of an updated version of *Living Downstream*,

# The Alabama Clean Water Partnership



Stakeholders attend the 5th Annual ACWP Watershed Conference.

The Alabama Clean Water Partnership is a coordinated effort of public and private stakeholders to restore and protect the state's water quality in accordance with the goals of the Clean Water Act. An outgrowth of the Federal Clean Water Action Plan, announced in February 1998 and coordinated by the Alabama Department of Environmental Management, the Alabama Clean Water Partnership encourages the involvement of local stakeholders in addressing the protection and restoration of Alabama's water resources. Working for the Board of Directors, a Statewide Coordinator, facilitates daily Board business, administers projects/grants, and assists ACWP Basin Facilitators across the state.

On-the-ground projects in the river basins across the state are vital to the success of the Alabama Clean Water Partnership. These projects, improve water quality, increase the visibility of the ACWP, and provide stakeholders with ownership of the process. The following are project highlights from both the statewide level (in support of all basins) and from the ten Clean Water Partnership basins across the state:

## Statewide Efforts

### ◆ Basin Newspaper Inserts

Previously published by the Alabama Clean Water Partnership and assorted basin partners and inserted into over 90,000 newspapers across the state, these 16-page inserts continue to be a cost effective way to educate the public and recruit new stakeholders.

### ◆ Waters to the Sea: Discovering Alabama

*Waters to the Sea: Discovering Alabama* will be the newest addition to the award winning Waters to the Sea CD ROM Series—the definitive watershed education tool for inspiring informed river stewardship in the next generation. The DEMO version is now complete and available on the Discovering Alabama web site. A major fundraising campaign is underway to complete the program, which will be offered online in late 2011 on the Discovering Alabama web site.

### ◆ ACWP Website

Development of the new ACWP web site, which also hosts sites for each individual CWP river basin, is complete, with the addition of content for each basin currently in process. The site is editable by facilitators, providing stakeholders with access to all pertinent basin information and will be a great tool with multiple uses for the ACWP. Facilitators and coordinator are currently undergoing training but due to time limitations by all, assistance with the site to keep it up to date is needed, with various ways to achieve this under discussion.



### ◆ Monofilament Recycling Units (MRUs)

The ACWP is working with Berkley International, the Alabama Department of Conservation, State Lands Division, and the MS-AL Sea Grant Clean Marina Program to place MRUs at “fishing holes” on waterbodies across the state. These PVC structures allow for the collection and recycling of used fishing line and spools and are receiving rave reviews. The project is inexpensive to implement, encourages basin partnerships, and is receiving much positive press coverage. Central Supply, Birmingham is donating free PVC pipe and attachments, making the project almost free to implement.

### ◆ Strategic Habitat Unit Project

The ACWP has signed a three-year contract with the USF&W Service to assist the Mobile River Basin Coalition, Geological Survey of Alabama, and the Alabama Department of Conservation - Alabama Aquatic Biodiversity Center in outreach efforts designed to educate the public in designated watersheds where habitat protection efforts, including species delisting and/or reintroduction of species, are anticipated.

## **Basin Efforts**

### **Alabama-Tombigbee Basin**

#### ◆ **Sedimentation and Property Loss in the Lower Tombigbee River Basin**

Project funding identification continues in order to put a riverbank stabilization project on the ground per recommendations by the MS Sediment Lab report. A “Watch Your Wake” educational/safety campaign is currently under discussion, to include Alabama Marine Police, ALDOT and the USACOE.

#### ◆ **Coca Cola Partnership**

World Wildlife Fund has provided a connection with Coca-Cola of Montgomery, who is participating as a business partner with the basin. Additional facilitation funds are being provided to assist in the design of stormwater control strategies on Coca-Cola property, as well as the development of an environmental tour of the company grounds. In return, Coca-Cola has become involved in community environmental events in the Alabama River Basin, including providing barrels for rain catchment devices.

#### ◆ **Alabama Rain Barrel Project**

This popular project, which began in Auburn and Montgomery, incorporates stormwater and water conservation into “make and take” workshops, allowing the ACWP to reach nontraditional audiences with their important message across the state. Project partners include: Alabama Cooperative Extension System, Alabama Department of Environmental Management, Coca-Cola Enterprises, Inc., Rain Catchers, Legacy, World Wildlife Fund, and Soil & Water Conservation Society.

#### ◆ **Autauga Creek Project**

The Ala-Tom CWP has been working on a project to collect additional data for the impaired Autauga Creek in Prattville. Benthic assessments were completed in 2009 and water quality data were made available in early 2010. Raw data was presented to the steering committee in February and has been forwarded to the ADEM for review and potential removal of Autauga Creek from the 303(d) List.



*Al-Tombigbee Facilitator, Ashley Henderson, teaches a workshop on constructing rain barrels.*

### **Black Warrior**

#### ◆ **North River Watershed Plan**

The plan will be used as a focusing tool to methodically bring the North River into compliance with water quality standards and to help remove it from the 303(d) List. The ACWP is also assisting the Mobile River Basin Coalition, US Fish & Wildlife Service, Geological Survey of Alabama, Alabama Department of Conservation, Alabama Aquatic Biodiversity Center and US Geological Survey in outreach efforts educating the public in designated watersheds where habitat protection efforts, including species delisting and/or reintroduction of species, are anticipated.

#### ◆ **Town Creek (City of Jasper, Walker County) Restoration**

The facilitator, on behalf of the City of Jasper, assisted in the implementation of a project to improve water and habitat quality in approximately 1000+/- linear feet of Town Creek. Construction is complete and a watershed management plan was written. Additional public workshops are planned at the site. CAWACO RC&D has also contracted with the Walker County SWCD to purchase augers and stream kits for water conservation education.



*Students utilizing AWW monitoring kits at Town Creek.*

### **Cahaba Basin**

#### ◆ **Little Shades Creek Stream Restoration**

The Cahaba CWP and CAWACO RC&D is working with the City of Vestavia and the Ashelywoods Homeowners Association to address a severe erosion condition on Little Shades Creek in Vestavia. A 319(h) grant is on-going to implement stream restoration using natural channel design, provide education and outreach, and develop a watershed management plan.

#### ◆ **Health Action Partnership - Jefferson County Department of Health**

The Cahaba CWP is serving on a committee to identify solutions to environmental health issues with the Jefferson County Health Department. The primary issue to be addressed is litter.

#### ◆ **Watershed Plan Development/Implementation**

The development of watershed plans and TMDL implementation strategies for Buck Creek and Cahaba Valley Creek are currently being looked at as the future plan of work.

## Chattahoochee-Chipola Basin

### ◆ Waters to the Sea: The Chattahoochee River

Stakeholders are busily distributing copies of the Georgia developed “Waters to the Sea – The Chattahoochee River” CD to stakeholders across the basin (both in Alabama and Georgia). Private donations from sponsors within the basin have been received for this specific project. Phenix City Beautiful distributed 100 copies to Phenix City Schools in March 2010.

### ◆ NEMO

The facilitator continues to work with the ADEM and the Choc-Pea-Yellow facilitator to organize NEMO workshops in high growth areas of the basin, including Phenix City and Dothan.

### ◆ Mill Creek Watershed Management Plan Development

The facilitator continues to assist with the Mill Creek Watershed Plan development in Phenix City.

## Choctawhatchee-Pea-Yellow Basin

### ◆ Groundwater Festivals

All 10 counties in the basin implemented Groundwater Festivals in 2010 with assistance from the facilitator, who served on the festival committees and was instrumental in their organization.

### ◆ Monofilament Recycling Units

The basin steering committee received a grant to install Monofilament Recycling Units (MRUs) throughout the watershed.

### ◆ Dowling Branch

The facilitator helped to coordinate the farm tour as part of the completion of the Dowling Branch Project.



*Participants register for the Dowling Branch Farm Tour.*

## Coastal - Escatawpa Basin

### ◆ Mobile County Grasses in Classes

The *Grasses in Classes* program in Baldwin County was established to satisfy a need for sea grasses in restoration initiatives along the Baldwin County coast. The program was a success on the eastern shore and as a result, the Mobile Bay National Estuary Program has established a similar program in Mobile County.

### ◆ Juniper Creek (Septic Tank Pumpout) Project

The Coastal Alabama CWP partnered with NRCS, ADEM, Mobile Area Water and Sewer System, and the Mobile County Department of Health to hold a septic tank seminar in the Juniper Creek Watershed. The septic tank seminar provided homeowners with informational materials explaining how to properly care for a septic system.

### ◆ Eight Mile Creek Watershed Plan

The Mobile Bay National Estuary Program, in partnership with the Coastal Alabama CWP, has begun to outline a process for coordinated watershed planning in the Eight Mile Creek Watershed. The technical advisory committee has met monthly since September. The group has been tasked with bringing available resources to the table to help with the watershed management planning process.



*A Grasses in Classes Program is held in Mobile County.*

## Conecuh-Sepulga Basin

### ◆ Groundwater Festivals

The Conecuh-Sepulga CWP has taken a lead role in the development, organization, and promotion of Groundwater Festivals across the basin. Concentration has been on those counties lacking festivals. The Covington County GWF was held February 26, 2010 with over 500 4th graders/teachers participating along with approximately 75 volunteers.

### ◆ Pike County Poultry Litter Project

The facilitator assisted with the promotion of this project. Two demonstrations were implemented in the local watershed. See page 17 for additional project information.



*Students learn about aquifers at the Covington County Groundwater Festival*

## Coosa Basin

### ◆ Alabama Rain Barrel Project

The Coosa Basin received a grant through Coosa Valley RC&D to hold four Rain Barrel Workshops and two NEMO Workshops. Rain Barrel Workshops were held on November 17, 2009, in conjunction with TARCOG at Desoto State Park; on March 27, 2010, in DeKalb County in conjunction with TARCOG and the DeKalb County Master Gardeners; and on August 31st at the Mt. Laurel Subdivision.

### ◆ Nonpoint Education for Municipal Officials (NEMO) Workshop

A NEMO Workshop was held in Oxford on March 4, 2010, in partnership with ADEM, Coosa Valley RC&D, East Alabama Regional Planning Commission, and the Alabama Department of Public Health. An additional workshop was held in Wetumpka on November 4<sup>th</sup>. Multiple counties and cities were represented, identifying many new stakeholders for future Middle Coosa River Basin CWP activities.

### ◆ Monofilament Recycling Units (MRUs)

Basin stakeholders continue to install monofilament recycling units (MRUs) on docks and at boat launches and marinas across the Coosa Basin, with current activity being centered on Lake Weiss where the Weiss Lake Improvement Association constructed 30 MRUs.

### ◆ Buxahatchee Creek 319 Project Support (Shelby & Chilton Counties)

The facilitator is working with local stakeholders and the ADEM to implement educational components of this 319 project, including local workshops for educators (ACWP's "What's in YOUR Water?"), SE Watershed Forum Growth Readiness Workshop, and possibly a Business Partners for Clean Water Program.



*Participants discuss an activity at the NEMO Workshop in Oxford.*

## Tallapoosa Basin

### ◆ Renew Our Rivers/Electronic Recycling

The facilitator continues to assist with the Renew Our Rivers Committees for the Lower and the Upper Tallapoosa River Basins. Electronic Recycling events were also coordinated and held in both the Middle and the Upper River Basins.

### ◆ Montgomery County Water Festival

The facilitator serves as one of main coordinators of this popular festival, assisting with planning and fundraising for the festival, which was held on May 17<sup>th</sup> and 18<sup>th</sup> with over 2,800 students and 100 volunteers each day.

### ◆ Rain Barrel Workshops

The facilitator is working on expanding this program throughout the basin. Workshops have been held for the Master Gardeners in Dadeville, and at Camp ASCCA on Lake Martin, and at Old Alabama Town in Montgomery.

## Tennessee Basin

### ◆ Poultry House Rain Roof Project

The facilitator is coordinating this 319(h) project which involves adding gutters to poultry houses to capture rain water and storing it so that it can be cleaned and recycled for use within the poultry houses.

### ◆ Window Watershed Assessment of First Creek

The facilitator has toured the watershed to assess NPS impacts and is working with the CWP on the feasibility of starting a watershed project.

### ◆ Water Works Program Headquarters

The AMRV RC&D and TN Basin CWP Offices are now housed in the old (decommissioned) Flint Creek Wastewater Treatment Plant, now the WaterWorks Center for Environmental Education. The facilitator will assist with tours showcasing innovative stormwater remediation strategies. More information regarding this project can be found on page 11.



*A gutter system installed on a poultry house in the Tennessee Basin.*

# ALABAMA'S COASTAL NPS PROGRAM

During the past year, the ADEM Coastal Nonpoint Pollution Control Program (ACNPCP) has continued to coordinate with the EPA-Region 4 and the ADEM Nonpoint Source Unit to develop and implement programmatic approaches for the ACNPCP. In 2010, the ACNPCP focused on the continued development, implementation, and final completion of these two major projects in order to address important NPS issues. Also ADEM assisted EPA-Region 4 in conducting a 5-year review to assess the progress of the ACNPCP, in order to coordinate and help facilitate the last remaining approval issues for the Alabama Program. Alabama is engaged to obtain final approval for this Program.

The ADEM ACNPCP staff utilizes a NPS Projects Template that outlines development of future ACNPCP projects in order to address the designated Coastal NPS Program Land-Use Categories (LUC). This approach has allowed the ACNPCP to monitor progress for each category of interest (e.g., marinas, agriculture or OSDS). This Program utilizes category-related projects that will allow the State to depict synoptic baseline conditions with the goal to discern long-term measurable results for coastal waters. These projects, along with the development of Technical Assistance Workshops and Reports, comprise the core of Alabama's long-term efforts to address and/or track coastal NPS issues that will provide full implementation and continuity of Alabama's Coastal NPS Program.

## Coastal Alabama Pilot OSDS Inventory Project: Mobile County

This innovative OSDS Inventory Project was designed to create GIS layers of onsite septic tanks with reference Onsite Sewage Disposal Systems (OSDS) maps for Mobile County. This project identified the local Soil and Water Conservation Districts as neutral partners that could help negotiate and secure crucial GIS layers and database information for designing project base maps. This successful project created a valuable planning product that defines the OSDS resources for approximately 406,000 people within an area of 1,233 square miles. This two-year project was completed in December 2009 and upon approval from all key partners, being distributed to all participating partners and released for general distribution in March of 2010. The results of this inventory project counted and mapped 51,378 OSDS sites and 115,782 sites with public sewer throughout Mobile County.

This project was contracted with the Mobile County Soil and Water Conservation District, and partnered through the Alabama Power Company. Other data partners included the Mobile County Department of Public Health, Mobile Area Water and Sewer Systems, City of Bayou La Batre, City of Chickasaw, City of Citronelle, City of Creola, Town of Dauphin Island, Grand Bay, City of Mobile, Town of Mount Vernon, City of Prichard, City of Saraland, and the City of Satsuma, Theodore, and Tillman's Corner, including the other unincorporated areas within Mobile County. Their assistance was invaluable, in order to complete this model OSDS Inventory Project.

## Coastal Alabama HeadWater Stream Surve / Year 2 of 3

This local Headwater Stream Survey is an ADEM project that has located potential stream sites, and is seeking to identify, and survey 'representative' first-order streams that exist within the two coastal counties. This project will seek to document specific existing water quality conditions, flow and basic geomorphic survey data for local headwater streams, both urban and rural. This project will attempt to quantify adjacent Land Use Categories (LUC), and correlate LUC management measures, along with noted best management practices (BMPs) in close proximity to headwater streams within the coastal Alabama area. In addition, this initial project will also gather baseline data 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.

In 2010, the Spring and Summer drought conditions reinitiated field reconnaissance and suitability confirmation of approximately 73 stream sites, in twenty of the southern-most coastal 12-digit subwatersheds of Alabama. This yielded 3 suitable headwater stream study sites, which had been surveyed, measured and recorded, prior to the occurrence of the BP Deepwater Horizon SONS declaration in late April of 2010. Due to the re-allocation of staff tasks associated with this oil spill incident, EPA-Region 4 and ADEM have granted a no-fault extension for this project. These reported activities are part of this three-year project that is in process and will now be continued through December of 2011.



# AGENCY COOPERATORS

As the lead state agency of the Alabama Nonpoint Source Management Program, the Alabama Department of Environmental Management works with many cooperators across the state along with adjoining state and local agencies. The Department has established a unique partnership with each of the following agencies/organizations to implement projects and enhance water quality in Alabama.

## Federal Agencies

- U.S. Environmental Protection Agency
- USDA - Natural Resources Conservation Service
- U.S. Fish and Wildlife Service
- Weeks Bay National Estuarine Research Reserve
- USDA-Farm Service Agency
- Tennessee Valley Authority
- U.S. Space and Rocket Center
- U.S. Geological Survey

## State Agencies/Universities

- Mobile Bay National Estuary Program
- National Oceanic & Atmospheric Administration
- Alabama Soil and Water Conservation Committee
- Auburn University
- Alabama Cooperative Extension System
- AU Marine Education and Research Center
- Alabama Agricultural Experiment Station
- Choctawhatchee, Pea and Yellow Rivers Watershed Management Authority
- Geological Survey of Alabama
- University of West Alabama
- University of Alabama
- Shelton State Community College
- Auburn University Montgomery
- Alabama Department of Agriculture and Industries
- University of North Alabama
- Alabama A&M University
- Alabama Forestry Commission
- Alabama Department of Public Health
- Alabama Department of Conservation & Natural Resources
- North Carolina State University Cooperative Extension System
- Troy University
- Alabama Surface Mining Commission
- Alabama Department of Transportation

## Local Agencies/Organizations

- Alabama Water Watch Association
- Alabama Clean Water Partnership
- Alabama Pulp and Paper Council
- Montgomery Water Works and Sanitary Board
- Shelby County Commission
- CAWACO RC&D
- Alabama Power Foundation

- Tombigbee RC&D
- Save Our Saugahatchee
- Shelby County Commission
- Morgan County Commission
- Alabama Chapter Soil and Water Conservation Society
- Soil and Water Conservation Districts (counties of Baldwin, Barbour, Blount, Bullock, Chambers, Cherokee, Chilton, Clay, Cleburne, Coffee, Coosa, Crenshaw, Cullman, Dale, DeKalb, Elmore, Etowah, Franklin, Geneva, Henry, Houston, Jackson, Lauderdale, Lawrence, Lee, Macon, Madison, Marshall, Mobile, Montgomery, Morgan, Pike, Randolph, Shelby, St. Clair, Tallapoosa, Talladega, Winston)
- Alabama Association of Conservation Districts
- Tri Rivers Waterway Development Association
- Flint River Conservation Association
- Alabama Mountains, Rivers, and Valleys RC&D
- Madison County Watershed Advisory Committee
- Coosa Valley RC&D
- Lake Wedowee Property Owners Association
- Cullman County Poultry and Egg Association
- Cullman County Cattlemen's Association
- Cullman County Commission
- Marshall County Commission
- Sand Mountain Research and Extension Center
- Sand Mountain Lake Guntersville Watershed Conservancy District
- Pickens County School System
- Department of Public Health (counties of Blount, Cherokee, Chilton, Etowah, Madison, Shelby, St. Clair)
- Madison County Cooperative Extension System
- Goodwyn, Mills and Caywood, Inc.
- City of Montgomery
- City of Auburn
- Wildlands Environmental, Inc.
- The Nature Conservancy
- Top of Alabama Regional Council of Governments (TARCOG)
- Central Alabama Regional Planning and Development Commission (CARPDC)
- Thompson Engineering
- The Nature Conservancy
- Associated General Contractors of Alabama
- Homebuilders Association of Alabama

# 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 5-year rotational river basin approach to assess water quality in the Alabama, Coosa, and Tallapoosa River Basins in 2010. Laboratory and field data analyses and report development is continuing.
- ADEM continued laboratory analyses and reporting of water quality monitoring data collected during 2009 from the Tennessee River Basin.
- ADEM NPS Unit, Water Division, and Field Operations Division staff coordinated water quality monitoring for the Escatawba, Mobile, and Tombigbee River Basins to be conducted during 2011.
- 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 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 watershed-based management plans in Parkinson’s Mill Creek, Spring and Mud Creeks; Rock and Crooked Creek, D’Olive, Mill Creek, Dry Creek, Big Scirum Creek, Upper and Middle Coosa (DeKalb Co) and the North River watersheds. These subwatershed management plans are designed to address FY03 Section 319 grant guideline “a-i” watershed plan elements.
- The ADEM NPS Unit, Water Division, and Field Operations Division, during the annual December planning meeting, 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 (Dallas County) project to EPA-HQ as a potential WQ-10 success story relevant to implementation of BMPs on an impaired Section 303(d) listed waterbody.

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 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. For example, AFC's Wildland Urban Interface (WUI) initiative and management of urban forests to address nonpoint source polluted stormwater runoff provide two mutually beneficial opportunities for interagency collaboration.

- 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 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 continued to partner 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.
- ADEM continued to use Section 319 funding to leverage interagency funding support for a statewide NPS erosion and sediment control 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 including: Moore's Mill Creek (Auburn), Catoma Creek/Ida Bell Young Park (Montgomery), and Little Shades Creek (Vestavia Hills).
- 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, Alabama Clean Water Partnership, the City of Auburn, and Habitat for Humanity to plan implementation of potential low impact development (LID) practices.

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 41 subwatershed management plans (11-12 digit HUC) that target Section 303(d) listed waters (refer to Subwatershed 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 development of subwatershed management plans for Section 303(d) listed Parkinson's Mill Creek, Spring and Mud Creeks; Rock and Crooked Creek, D'Olive, Mill Creek, Dry Creek, Big Scirum Creek, Upper and Middle Coosa (DeKalb Co) and the North River watersheds. The subwatershed management plans 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. In addition, no mandatory GRTS data entry and reporting exceptions for ADEMs NPS Unit were cited by EPA as of December 2010.

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 9 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; distributing river-basin specific newspaper inserts; NEMO, monofilament line recycling, groundwater festivals, the ACWP website, etc.)
- ADEM presented the 22nd Annual NPS Conference in January 2010 with approximately 320 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 crosscutting 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) program 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 Nonpoint Source Education for Municipal Officials (NEMO) program continued with increasing impetus on presenting Low Impact Development and growth readiness information in stormwater Phase II areas.
- Urban stream restoration workshops were presented in Auburn, Montgomery and Vestavia Hills. The workshops featured classroom and field work that introduced the basic concepts of fluvial geomorphology and stream classifications based upon the Rosgen Stream Classification System.

- 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.
- The relationship between NPS pollution and groundwater protection continued to be demonstrated with over 195,391 4<sup>th</sup> grade students educated to date. Twenty-two 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)

- Pollutant load reductions for various Section 319 funded watershed projects are presented under “Pollutant Load Reductions” and under each watershed project in this Annual Report.
- 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 (also see “Measures of Success” in this Annual Report). Examples of NPS Unit staff modeled load reduction assistance includes West Flint (Elam Creek and McDaniel Creek); Spring Creek and Mud Creek; Buxahatchee Creek; and Catoma Creek/Ida Bell Young).

Goal 9. *Obtain NOAA and EPA Final Approval of the Alabama Coastal Zone NPS Management Program (CZARA)* (Endpoint: 2003).

- See information on Page 32 (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 continues to try to reduce cooperative agreement duration (e.g., watershed management projects) from five-years to three-years.
- 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 2010.
- ADEM continues to support the 5-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 FY11 Application for Federal Assistance and Section 319 workplans to EPA prior to due dates. Ongoing 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 EPA grant guideline “a-i” watershed plan elements as a in order to commitment 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 EPA's 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 continues to provide financial assistance and advisory support for statewide citizen-volunteer water quality monitoring and associated database maintenance/reporting.
- ADEM continued to provide an annual statewide NPS Cooperators Conference 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.