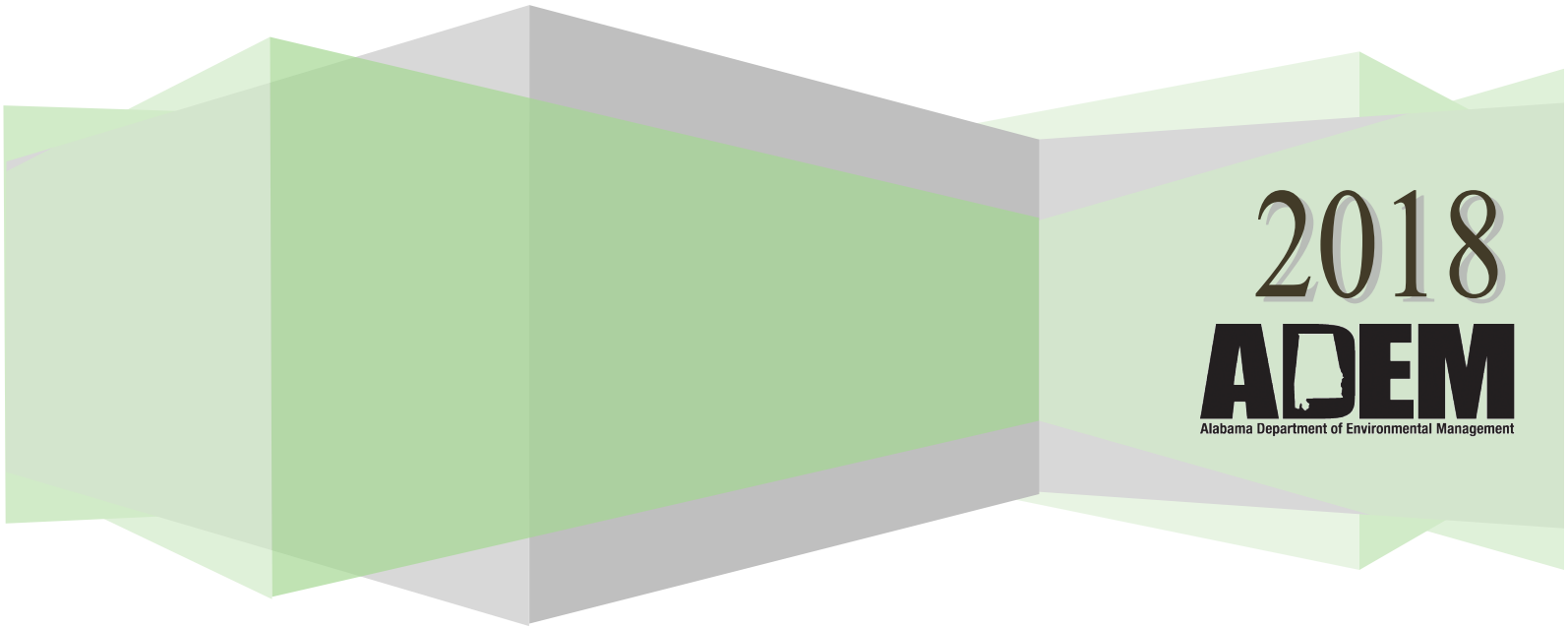
ALABAMA NONPOINT SOURCE MANAGEMENT PROGRAM

ANNUAL REPORT



2018

ADEM

Alabama Department of Environmental Management

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Executive Summary

Nonpoint source (NPS) pollution, also known as polluted runoff, is the largest cause of Alabama's water quality impairments, accounting for approximately two-thirds of the water quality pollution sources to our streams and lakes. The NPS pollution is caused by rainfall or snowmelt moving over and through the ground, picking up and carrying pollutants to our streams, rivers, lakes, wetlands, coastal waters, and ground waters. Unlike point source pollution that enters waters from definable locations such as discharge pipes from wastewater treatment plants, NPS pollution originates from many and varied sources. NPS pollution is usually associated with farming, logging, mining, urban development, construction activities, land disposal, and onsite septage and wastewater disposal activities. Atmospheric deposition can also contribute to NPS pollution.

Section 319(h) of the Clean Water Act (CWA) authorizes federal grant funding to implement U.S. Environmental Protection Agency (EPA) approved state NPS management programs. Since 1990, the Alabama Department of Environmental Management (ADEM) has used Section 319(h) grant funding to target a wide range of NPS problems and provide for their solutions. State and local agencies and governments, academia, nonprofit entities and others are eligible to apply for Section 319(h) grant funding through the ADEM. Grant funds may be used to address the implementation of watershed management plans to restore impaired waters. These watershed projects include on-the-ground implementation of best management practices (BMPs), along with the provision of technical assistance, education and outreach, and local stakeholder capacity.

TABLE 1: ALABAMA NPS PROGRAMMATIC GOALS AND OBJECTIVES FOR FISCAL YEARS 2014 - 2019

Goal 1: Continue to collect surface water and groundwater data annually using the ADEM Statewide Water Quality Monitoring Strategy to assess whether state waters meet state water quality standards and use classifications.

Goal 2: Target NPS pollution program resources to restore, protect, and maintain beneficial uses of waters.

Goal 3: Implement NPS BMPs to restore and protect watershed health and water quality.

Goal 4: Enhance institutional capacity to implement a sustainable statewide NPS pollution management program.

Goal 5: Facilitate statewide Education and Outreach (E&O) activities to increase the public's knowledge and awareness about NPS pollution, watershed health, water quality protection and restoration, and natural resource stewardship.

Alabama's Disbursement of 319(h) Funds

The EPA awards Section 319(h) grant funding to the States each year according to an allocation formula that has been developed. The States determine the best possible use of these allocated funds. The federal funding is typically used for assessment and monitoring of Alabama's waterways, education, training, technology transfer, implementation of NPS Total Maximum Daily Loads (TMDLs), and implementation of watershed projects and BMPs.

Current grant balances (effective October 2018)

Balances for active grants FY2014-FY2019 are listed in Table 2 and represented graphically in the Figure 1 below.

TABLE 2 – CURRENT 319 GRANT BALANCES

Grant Year	Award Amount	Amount Obligated	Program Funds	Project Funds	Total # Projects
FY14	$2,981,000	$2,981,000	$1,490,500	$1,490,500	12
FY15	$2,950,500	$2,950,500	$1,475,250	$1,475,250	11
FY16	$3,050,000	$3,050,000	$1,525,000	$1,525,000	12
FY17	$3,154,600	$3,154,600	$1,627,300	$1,527,300	12
FY18	$3,116,000	$3,116,000	$1,608,000	$1,508,000	11
FY19*	$3,154,600	$3,154,600	$1,627,300	$1,527,300	11
Total	**$18,406,700**	**$18,406,700**	**$9,353,350**	**$9,053,350**	**69**

**FY2019 Projects are pending the receipt of EPA funds.*

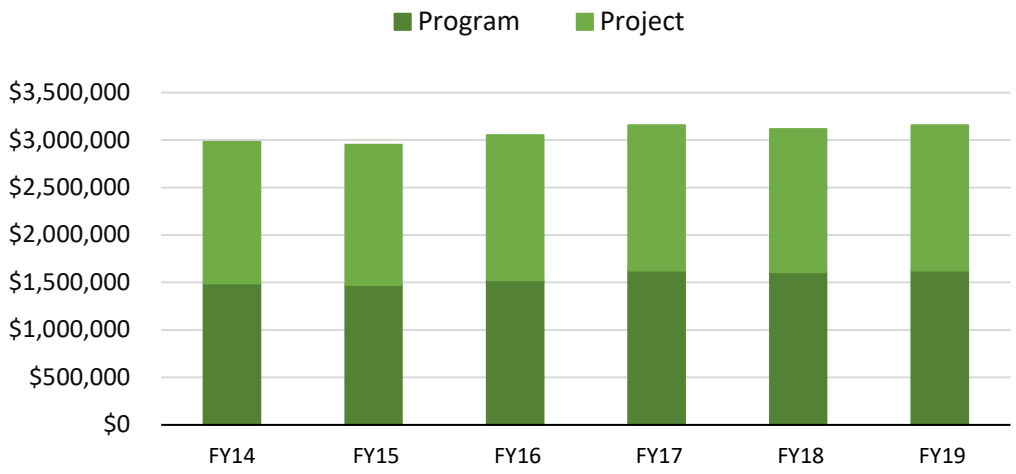


Figure 1: Current 319 Grant Balances

Pollutant Load Reduction Totals in FY2018

The projects and activities outlined in this report provide a brief overview of the Department's efforts to address NPS pollution in Alabama. However, in order to provide a numerical measure of the effectiveness of these efforts, EPA 319 guidance calls for a report of the "annual reduction in nitrogen, phosphorus, and sediment from NPS to waterbodies". In cooperation with its 319 partnerships, pollutant load reductions have been estimated using developed methodologies for past and ongoing projects. Table 3 and Figure 2 below contains data from EPA's Grant Reporting Tracking System (GRTS) database and gives an estimate of the positive impact these efforts have made on water quality in Alabama and overall grant program success. The pollutant load reductions for current individual projects are available on the GRTS interactive website at www.epa.gov/nps/grts.

TABLE 3 – POLLUTANT LOAD REDUCTIONS

Fiscal Year	Nitrogen (lbs/yr)	Phosphorus (lbs/yr)	Sedimentation-Siltation (tons/yr)
2014	107,287.8	17,015.6	8,065.2
2015	34,951.3	10,240.1	12,376.7
2016	161,847.8	41,641.2	27,881.9
2017*	140,452.2	38,724.3	30,341.9
2018^	48,302.8	9,728.1	4,638.2
Total	**492,841.9**	**117,349.3**	**83,303.9**

**FY2017 319 Projects were approved/funded by the EPA in September 18, 2017. ^FY2018 EPA funding not available until August 15, 2018.*

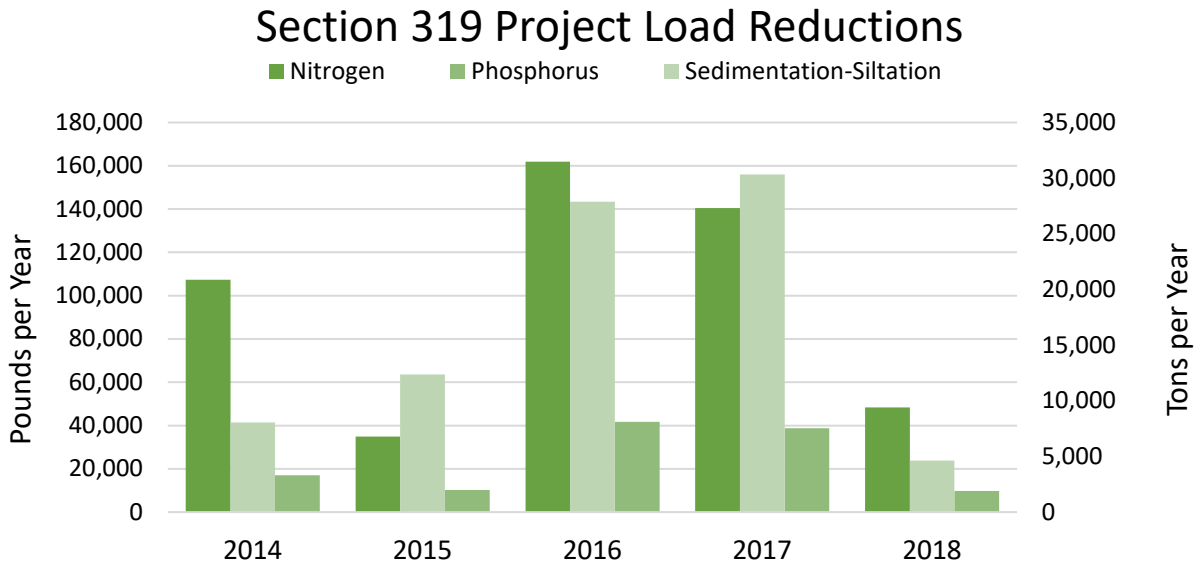


Figure 2: Nitrogen, Phosphorus, and Sediment Load Reductions by Fiscal Year

Section 319(h) Grant Program Success Story

Nutrient and Sediment Loadings are Reduced through Cooperative Efforts to Improve Hester Creek

WATERBODIES IMPROVED

Agricultural land use contributed to nutrient enrichment and habitat degradation on Hester Creek. Fish Index of Biotic Integrity (IBI) data collected by the Tennessee Valley Authority (TVA) in 1994–1995 were used to place the entire 7.27-mile reach of Hester Creek on the 1998 CWA section 303(d) list of impaired waters for nutrients. Implementing BMPs resulted in decreased siltation and nutrient runoff, increased dissolved oxygen (DO), and improved biological and in-stream aquatic habitat conditions. Based on the instream total phosphorus and total nitrogen values, chlorophyll-a values, DO concentrations, and biological assessments, the ADEM removed Hester Creek from the 2012 CWA section 303(d) list for nutrient over enrichment and turbidity.

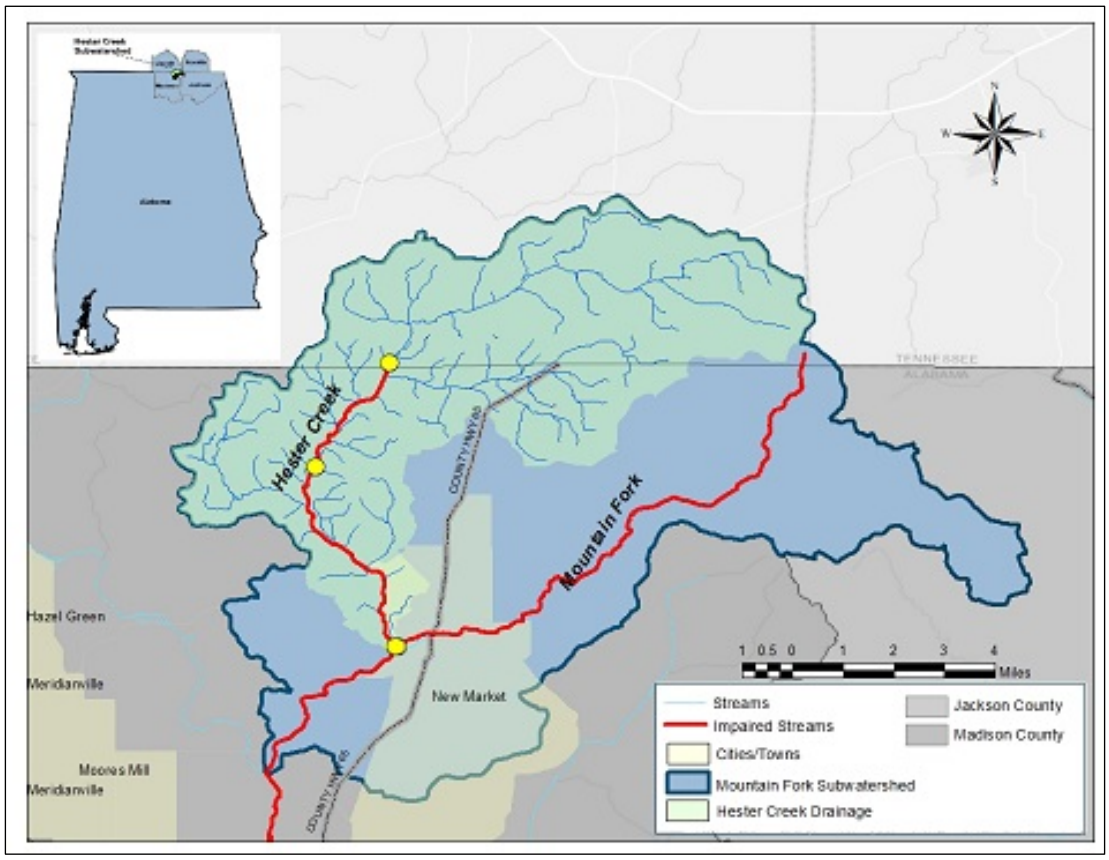


Figure 3. Hester Creek is within the Mountain Fork watershed in the Tennessee River Basin.

PROBLEM

Hester Creek (AL06030002-0303-500) drains an approximately 39-square mile area within the Mountain Fork subwatershed in Madison County, Alabama, northeast of the city of Huntsville within the larger Flint River watershed in the Tennessee River Basin (Figure 3). The Mountain Fork subwatershed contains approximately 41,639 acres of pasture, row crop, and forestland, with some residential areas. Cattle farms are located throughout the watershed on highly erodible soils and with two to six percent slopes. The southwest part of the watershed is under pressure from development related to urban sprawl. The stream segment begins in Elora, Tennessee, and flows southwest into Alabama.

In 1999 the U.S. Geological Survey (USGS) began a three-year study as part of the Lower Tennessee Basin Survey. Fish sampling was rated as "poor/fair" and habitat was characterized by a narrow riparian corridor and streambank instability. Moderate deposition of sediment in the stream and some channelization were noted. Nutrient enrichment and habitat degradation were also noted as negatively impacting the creek. In 2004 the Tennessee Valley Authority (TVA) sampled Hester Creek, which received a "poor" fish rating and a "fair" benthic rating. TVA noted that siltation was problematic. The 2006 CWA section 303(d) list added turbidity from land development/agriculture to the Hester Creek listing based on the 1999 USGS water monitoring results.

PROJECT HIGHLIGHTS

The entire Flint River watershed was first addressed with CWA section 319(h) funding from 2000 to 2005 in cooperation with the Madison County Soil and Water Conservation District (SWCD). Community stakeholder meetings, Alabama Water Watch (AWW) volunteer monitoring training, and other workshops helped to communicate the project goals. Agricultural practices installed included cover crops, conservation tillage, terracing and waterway systems, sediment basins, cropland conversion, and livestock stream crossings, fencing, alternative watering sources, and rotational grazing. A CWA section 319(h)-funded streamside zone management project was also implemented in the Hester Creek drainage area during this period in cooperation with Alabama A&M University. Approximately 12,500 feet of stream channel stabilization and 14 acres of riparian buffer were installed.

In 2005 Madison County adopted subdivision ordinances and stormwater oversight to help with the increased urban runoff to Hester Creek and other Flint River subwatersheds due to the growth of Huntsville. Subsequently, Hester Creek was added to the CWA section 303(d) list for turbidity from agriculture and land development in 2006. The Hester Creek/Mountain Fork Watershed Management Plan was completed in 2007 by the Flint River Watershed Coordinator with assistance from ADEM, the Madison SWCD, and the TVA resource stewardship staff.

Two phases of the Hester Creek/Mountain Fork Watershed Project (2009–2013) were funded through a CWA section 319(h) grant in cooperation with the Madison County SWCD and ADEM. Agricultural practices implemented to address cropland sources of nutrients and sediment included cover crops, conservation tillage, conservation cover, terracing, and cropland conversion to permanent vegetation (Figure 4). Education and outreach activities included U.S. Department of Agriculture Farm Service Agency and Flint River Conservation Association newsletter articles, local watershed advisory meetings, Flint River weekend canoe cleanups, annual earth day events, and various homeowner association presentations.

RESULTS

In 2009, ADEM collected chemical, physical and biological data on Hester Creek at stations HESM-1, HESM-2 and HESM-3 in an effort to more fully evaluate existing conditions. Based on the 2009 sampling, nutrient concentrations and chlorophyll-*a* concentrations were relatively the same as, or well below, the ecoreference level concentrations. In August 2010 diurnal DO data were also collected. DO concentrations at these stations remained within normal levels during the sampling events, ranging between 5.3 and 9.0 milligrams per liter (mg/L). Also, pH levels were normal, ranging between 7 and 8, further providing evidence that Hester Creek is not impaired for nutrients.

Figure 4. Erosion control blankets were used to stabilize eroded cropland, preventing sediment and nutrients from washing into the creek.

Bioassessment results indicated the macroinvertebrate and the fish community to be in "fair" condition. Based on the instream total phosphorus and total nitrogen values, chlorophyll-*a* values, DO concentrations, and biological assessments, ADEM removed Hester Creek from the 2012 CWA section 303(d) list for nutrient over-enrichment and turbidity.

PARTNERS AND FUNDING

The Flint River Coordinator was partially funded through a partnership with the Flint River Conservation Association, the city of Huntsville, Huntsville Utilities, TVA, Alabama A&M University, ADEM and the Madison County SWCD. Additional partners on the watershed advisory committee were the Tennessee River Basin Clean Water Partnership, the Natural Resource Conservation Service (NRCS), United States Geological Service, the Madison County Commission, the United States Fish and Wildlife Service, the Land Trust of Huntsville and North Alabama, and the Top of Alabama Regional Council of Governments. The Hester Creek implementation measures were primarily funded through four CWA section 319(h) grants from fiscal years 2000, 2001, 2006 and 2010, which provided $496,259 in federal funding. The Madison County SWCD, farmers, landowners, volunteers, and other partners provided approximately $488,627 in nonfederal match.

TMDLs and Assessments Update

TMDLs in Alabama

The TMDLs are developed by ADEM as specified in the State of Alabama Water Quality Monitoring Strategy. The TMDLs establish the amount of each pollutant causing water quality impairments that can be allowed in a waterbody without causing exceedances of water quality standards, along with reductions needed to meet these standards. Once the TMDLs are developed by ADEM's Water Quality Branch, the documents are submitted to EPA for approval and subject to public comment. The NPS Management Program uses TMDLs to help with establishing watershed priorities, leverage resources, and implement water quality protection and restoration activities.

In FY2018, the TMDL Program of ADEM continued to make great strides in protecting Alabama's water resources. Alabama's cumulative total of approved TMDLs in FY2018 was 253 and the associated pollutants are represented in Figure 5.

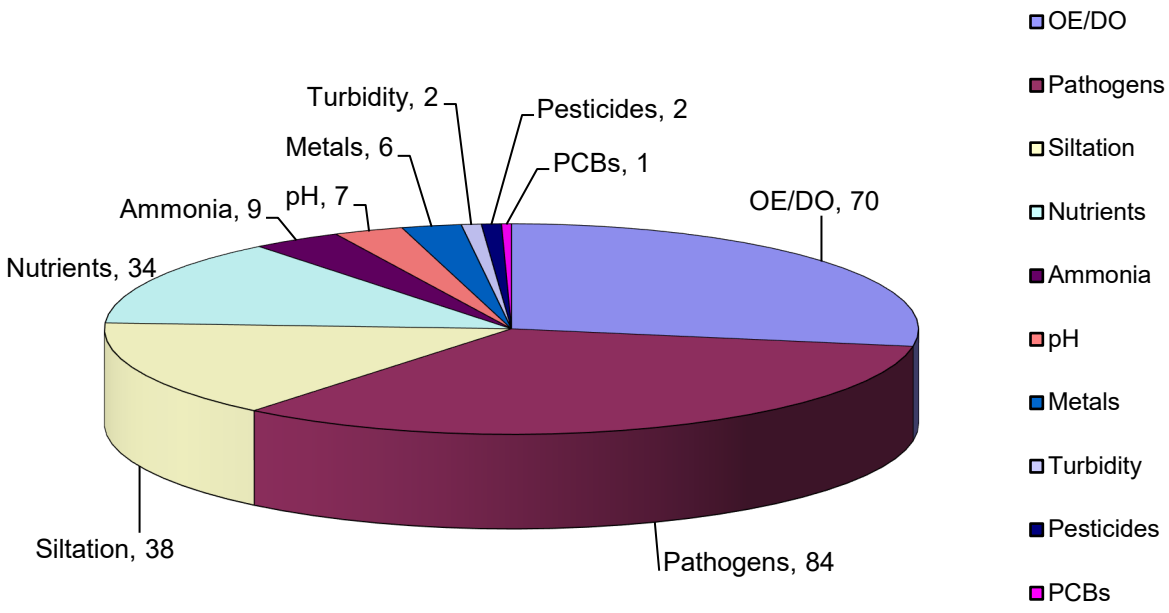


Figure 5: Alabama TMDLs by Pollutant

Current Watersheds Implementing a TMDL in NPS Projects

TABLE 4 – IMPLEMENTATION PROJECTS FY 2014 - FY 2018

Fiscal Year	Project Title	Total
2014	#8 Upper Scarham Creek Watershed Project #9 Graves Creek Watershed Project #10 Shoal Creek Watershed Project #11 Pursley Creek Watershed Project #12 Catoma-Waller Creek	5
2015	#7 Second Creek Watershed Project #8 Brindley Creek Watershed Project #10 Neely Henry Nutrient Reduction Project	3
2016	#8 Upper and Lower Flint River #9 Shoal Creek / Swann Creek #9 Alt - Swann Creek /French Mill (Limestone Co.) #10 West Flint Creek Watershed Project - Phase 3 #11 Three Mile Creek Watershed Project	5
2017	# 9 Graves Creek – Phase 2 #10 Crowdabout - Phase 3 #12 Parkerson Mill Creek	3
2018	#10 Town Creek	1
Total Projects		**19**

ADEM Surface Water Monitoring and Assessments Strategy

Between 1996 and 2014, ADEM's overall strategy was implemented on a five-year rotation by basin and incorporated a combination of targeted, probabilistic, and long-term monitoring stations to meet state monitoring goals and objectives. Concentrating monitoring in one basin group enabled ADEM to identify opportunities to meet multiple monitoring objectives at a single site, increasing overall efficiency. It also created a comprehensive dataset to develop the criteria and indicators needed to meet other objectives. Progress made during the last ten years, as well as changes to EPA's program priorities, now allow ADEM to conduct monitoring within each basin each year, while continuing to meet monitoring goals over a five-year period. This change supports more frequent, intensive monitoring within each basin group to more accurately measure trends in water quality before and after implementation of restoration efforts, respond to data needs more quickly, and to minimize the impact of weather-related events on data collected within any one basin. The strategy also provides level loading for ADEM's labs and field offices, making better use of ADEM's available resources.

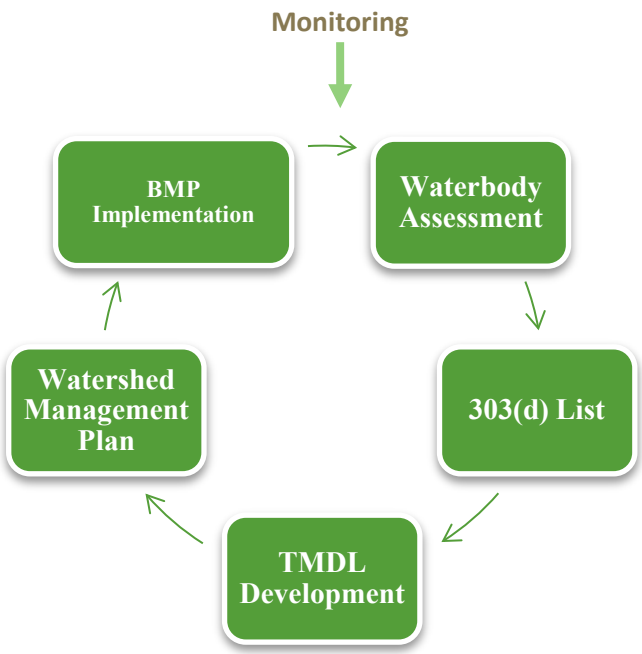


Figure 6: Assessment Strategy

A prioritization framework was also developed to prioritize monitoring to meet program priorities within each basin group. Priorities identified included monitoring impaired, unimpaired, and unassessed waters; evaluating the effectiveness of restoration efforts; and collaborating with partner agencies and stakeholders when possible. Monitoring conducted within each basin group is planned and coordinated annually by ADEM's basin teams.

The Basin Teams were developed to improve communication among project managers, field staff, and ADEM management within Field Operations, the Water Quality Branch, and the NPS Unit. Participation provides opportunities for Team members to become familiar with data needs and issues within their basin. Responsibilities of each Basin Team includes development of the annual basin plan, tracking and documenting State Water Quality Monitoring Plan decisions and revisions, basin team status summaries, data requests and reviews, and review of final reports.

Rivers, Reservoirs, and Tributary Embayments Assessments

Thirty-two main stem river and reservoir stations on the Alabama, Cahaba, Tallapoosa, and Tennessee River basins were intensively monitored in FY2017. Stations from each station were sampled monthly, from April through October within a one-week period to reduce weather-related variability in water quality conditions. Water quality data collected through this project provides an estimate of the current water quality and trophic state of the basin. It also allows for determinations of compliance with established water quality compliance criteria. This information is also used to update the Department's

Integrated Water Quality Assessment and Monitoring Report (CWA sections 303(d), 305(b), 314), the ADEM Water Resources System – Alabama Water-Quality Assessment & Monitoring Data Repository, which is then exported to EPA's Water Quality Exchange.

Since the Department is still developing water quality criteria for tributary embayments, these assessments will also determine which tributaries are most affected by NPS pollution, aid in development of TMDLs for these tributaries as required by Section 303(d) of the CWA, and assist the Department in developing water quality criteria to ensure each waterbody is meeting its use classification.

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

Wadeable and Non-wadeable Streams and Rivers Assessments

Thirty-eight locations on wadeable flowing streams and rivers were sampled in FY2018. Biological, chemical, and habitat data were monitored at seventeen established and candidate reference reaches located throughout the state to characterize least-impaired conditions within seven Level 4 and four Level 3 Ecoregions. Five locations were monitored to develop TMDLs for four waterbodies located throughout Alabama. Five locations were monitored to document water quality conditions prior to the implementation of CWA Section 319 watershed plans. An additional fifteen wadeable flowing streams were monitored through other projects to fully assess use support attainment, to identify waterbodies impaired by NPS pollution, and to develop TMDLs. Monitoring locations were selected to provide data from priority Section 319 grant-funded projects, priority watersheds identified by Alabama's SWCDs and the Clean Water Partnerships, Strategic Habitat Units identified by the U.S. Fish and Wildlife Service, and an EPA/USDA-National Water Quality Initiative (NWQI) priority watershed.

Data generated during this project will be used in developing and prioritizing watershed management plan goals and documenting successes. It will also be used to categorize wadeable stream and river assessment units in the Alabama Integrated Water Quality Assessment and Monitoring Report. New and legacy least-impaired reaches monitoring data will support ADEM's Ecoregional Reference Reach Program and be used to develop nutrient and sediment criteria, biological condition gradients, and assessment criteria for wadeable and non-wadeable streams and rivers. As applicable, data will also be used to assign CWA section 303(d) listings (Category 5) for impaired waters and to develop TMDLs.

Macroinvertebrate or fish assessments were conducted once at each station in early April through late August. Habitat assessments were conducted at all sites during the biological assessment. In situ measurements (stream flow, dissolved oxygen, pH, conductivity, and turbidity) and water quality samples were collected monthly (including nutrients, water-column chlorophyll *a*, total dissolved solids, total suspended solids, and *E. coli*), semi-monthly (total and dissolved metals), or quarterly (pesticides, semi-volatiles, atrazine, and glyphosate), March through October, to help identify any stressors to biological communities.

NPS Partnerships

ADEM NPS Conference

The ADEM hosted its NPS Conference on March 15 at the Renaissance Hotel & Spa Convention Center in downtown Montgomery. The event was attended by more than 200 environmental engineers, biologists, environmental consultants, municipal leaders, watershed stakeholders, and water quality specialists.

ADEM Director Lance LeFleur made opening remarks and presented a Departmental update at the conference and ADEM staff provided a report on the current assessment of Alabama's water quality and the basics of starting a 319 funded project. The event included more than a dozen exhibits with displays and handouts. The event offered attendees updates on efforts to improve water quality in local watersheds, presentations on the importance of cooperative partnerships, green infrastructure, and the importance of stakeholder involvement in watershed planning to reduce NPS pollution.

A number of organizations and agencies participated in the conference including Region 4 of the U.S. EPA, the Water Reuse and Recovery Program at the University of Alabama-Birmingham, the U.S. Department of Agriculture, Alabama Soil and Water Conservation Committee, and the Alabama Cooperative Extension System (ACES).

Participants at the 2018 NPS Conference

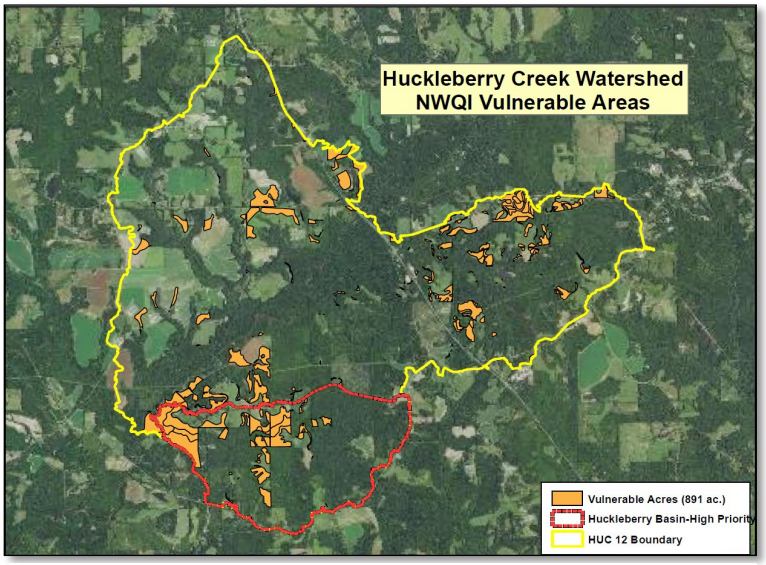
National Water Quality Initiative in Alabama

In FY2018, ADEM continued to partner with the NRCS as part of the NWQI to target Cox Mill Creek-Hurricane Creek (HUC 03140201-1004) within the Upper Choctawhatchee River Basin and the Guntersville Lake – Scarham Creek (HUC 06030001080) within the Tennessee River Basin. The NRCS is continuing to provide funding for implementation practices in addition to technical assistance and planning tools. ADEM is providing monitoring of water quality to assess results and document improvements, as well as providing Section 319 funding targeting the Upper Scarham Creek Watershed. The EPA Region 4, ADEM, and NRCS have continued coordination through conference calls and meetings in 2018. In preparation of the NWQI nomination for the next fiscal year, ADEM, EPA, NRCS, and Alabama Rural Water Association met on August 24, 2018.

The Cox Mill Creek-Hurricane Creek Watershed includes over 15,700 acres within the watershed, with about 12,500 acres being agricultural land use. Approximately 75 percent of the agricultural land within the watershed is categorized as "high to potentially highly erodible land." Since 2014, NRCS has worked with farmers and landowners to apply BMPs that will improve the land and thus improve water quality.

The Upper Scarham Creek Watershed, within the Guntersville Lake Sub-basin, was selected as a priority by ADEM for the development of a watershed management plan in 2014. The Top of Alabama Regional Council of Governments completed the Upper Scarham Creek Watershed Management Plan in June 2015. In August 2015, the DeKalb County SWCD contracted with ADEM to implement the Upper Scarham Creek Watershed Project using FY14 Section 319 funding.

In 2017, NRCS, in cooperation with ADEM, identified the Huckleberry Creek Watershed for a pilot project to study the watershed prior to receiving NWQI funding. This watershed was newly listed on the CWA section 303(d) list for pathogens (E. coli). A watershed management plan was developed by the Clean Water Partnership in 2016. NRCS worked with Auburn University on a project to identify the sources of the pathogen impairment. A source assessment was being conducted where quantitative polymerase chain reaction (qPCR) was used to target genetic markers for general and host-associated fecal pollution. The study results from the analysis was presented at a multi-agency meeting on March 14, 2018.



Huckleberry Creek is within the Choctawhatchee Basin in Coffee and Dale counties

TABLE 5. USDA NWQI PRACTICES SUMMARY FOR THE COX MILL CREEK-HURRICANE CREEK WATERSHED

Practice Name	Practice Unit	Applied Amount	Applied Count
Access Control	Acre	763	30
Animal Mortality Facility	Number	1	1
Brush Management	Acre	22	3
Comprehensive Nutrient Management Plan - Written	Number	4	4
Conservation Cover	Acre	859	35
Conservation Crop Rotation	Acre	2,279	76
Contour Farming	Acre	715	26
Cover Crop	Acre	3,455	113
Critical Area Planting	Acre	16	13
Deep Tillage	Acre	146	2
Fence	Feet	22,840	5
Feral Swine Management Conservation Activity	Acre	206	1
Firebreak	Feet	35,390	9
Forage and Biomass Planting	Acre	511	24
Forage Harvest Management	Acre	28	2
Forest Stand Improvement	Acre	92	3
Grade Stabilization Structure	Number	5	5
Grassed Waterway	Number	5	5
Heavy Use Area Protection	Acre	0.4	7
Herbaceous Weed Treatment	Acre	16	4
Integrated Pest Management (IPM)	Acre	2,094	58
Irrigation Pipeline	Feet	5,280	1
Irrigation System, Micro irrigation	Acre	1	1
Irrigation Water Management	Acre	186	4
Land Smoothing	Acre	55	10
Livestock Pipeline	Feet	7,800	6
Nitrification inhibitors or urease inhibitors	Acre	1,150	47
Nutrient Management	Acre	3,172	84
Pond	Number	1	1
Prescribed Burning	Acre	427	23
Prescribed Grazing	Acre	275	4
Pumping Plant	Number	4	4
Residue and Tillage Management, No-Till	Acre	943	34
Residue and Tillage Management, Reduced Till	Acre	2,750	84
Sprinkler System	Acre	274	7
Terrace	Feet	67,081	22
Tree/Shrub Establishment	Acre	387	16
Underground Outlet	Feet	13,610	21
Use deep rooted crops to breakup soil compaction	Acre	957	39
Use drift reducing nozzles, low pressures, lower boom height and adjuvants to reduce pesticide drift	Acre	1,836	76
Water and Sediment Control Basin	Number	3	3
Water Well	Number	5	5
Watering Facility	Number	9	9

TABLE 6. USDA NWQI PRACTICES SUMMARY FOR THE UPPER SCARHAM CREEK WATERSHED

Practice Name	Practice Unit	Applied Amount	Applied Count
Access Control	Acre	4,457	3
Animal Mortality Facility	Number	25	25
Composting Facility	Number	5	5
Comprehensive Nutrient Management Plan - Written	Number	37	37
Conservation Crop Rotation	Acre	1,009	53
Cover Crop	Acre	144	10
Critical Area Planting	Acre	10	11
Fence	Feet	60,726	64
Firebreak	Feet	3,479	1
Forage and Biomass Planting	Acre	307	19
Forage Harvest Management	Acre	148	14
Forest Stand Improvement	Acre	69	4
Grade Stabilization Structure	Number	4	4
Heavy Use Area Protection	Acre	22	119
Herbaceous Weed Treatment	Acre	2,329	160
Irrigation System, Micro-irrigation	Acre	1	1
Land Smoothing	Acre	16	11
Livestock Pipeline	Feet	25,858	47
Nutrient Management	Acre	4,137	264
Prescribed Burning	Acre	37	1
Prescribed Grazing	Acre	2,881	172
Pumping Plant	Number	2	2
Residue and Tillage Management, No-Till	Acre	1,192	60
Stream Crossing	Number	2	2
Terrace	Feet	300	1
Tree/Shrub Establishment	Acre	37	1
Tree/Shrub Site Preparation	Acre	38	1
Underground Outlet	Feet	64	2
Waste Storage Facility	Number	45	45
Water Well	Number	4	4
Watering Facility	Number	67	67

Additional Federal Partners

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

- The **National Oceanic and Atmospheric Administration (NOAA)** is involved in specific NPS projects through and with other state agencies. The NOAA and ADEM work with the Gulf of Mexico Program on watersheds that directly affect the Gulf of Mexico waters. The Clean Marina Initiative is a voluntary, incentive-based program also promoted by NOAA.

- **Weeks Bay Reserve** and the **Mobile Bay National Estuary Program** work in conjunction with the **Alabama Department of Conservation and Natural Resources** and ADEM in watersheds along the coast, implementing stream restorations, agricultural BMPs, and the restoration of wetlands.

- The **U.S. Army Corps of Engineers** provides technical assistance with several stream restoration and/or stabilization projects and workshops because of the oversight needed in conjunction with permitting requirements. The U.S. Army Corps of Engineers provides advice on Section 404 permitting requirements, as needed, for a stream restoration projects and has helped to identify solutions to siltation problems.

- The **Natural Resources Conservation Service** continues to assist with identifying areas of concern for NPS pollutant sources and causes, supply technical guidance for developing Comprehensive Nutrient Waste Management Plans statewide, and provide technical and engineering assistance with Section 319 watershed projects involving implementation of agricultural BMPs.

- Through its Clean Water Initiative, the **Tennessee Valley Authority** builds partnerships with community residents, businesses, and government agencies to promote watershed protection. The TVA's Regional Watershed Offices are responsible for carrying out the program. The TVA focuses on improving water and shoreline conditions so that people and aquatic life can benefit from having clean water. The TVA continues to work with several watershed projects in the Tennessee River Basin and is vital in gathering and providing water quality data.

- The **U.S. Fish and Wildlife Service**, in conjunction with the Alabama Department of Conservation and Natural Resources and the Geological Survey of Alabama, has selected watersheds and river segments to focus conservation activities for managing, recovering, and restoring populations of rare fishes, mussels, crayfishes, and snails. The purpose of designating strategic habitat units is to facilitate and coordinate watershed restoration and management efforts as well as to focus funding to address habitat and water quality issues. The ADEM is working with the U.S. Fish and Wildlife Service to coordinate these efforts through prioritization of data monitoring, information exchange, and in monitoring strategic habitat units where 319 implementation projects have occurred.

- The **U.S. EPA Region 4** provides administrative oversight and support for the Section 319 Program in Alabama. The EPA also assists with the collaborative effort to evaluate the environmental conditions and solutions needed in the Village Creek Watershed in Jefferson County.

Education and Outreach Highlights

Groundwater and Water Festivals in Alabama

A key to providing protection for our surface and groundwater resources is education. The goal of a water festival is to educate fourth grade students, and indirectly their guardians and the community, on surface and groundwater issues including water sources and its protection, uses of water, and how to protect water from pollution. The Groundwater and Water Festivals are a culmination of classroom study and hands-on activities, allowing students the opportunity to experience first-hand, through experimentation and problem-solving, the complexity of surface and groundwater and its relationship to nature in general. This is the 20th year of Groundwater and Water Festivals in Alabama. In fiscal year 2018, twenty-two counties have participated. ADEM NPS Staff assisted at seven different counties' water festivals with planning and technical support.

Students at the DeKalb County Water Festival learn about groundwater

Earth Day Activities

Students participated in several hands-on demonstrations as part of Earth Day at ADEM

The ADEM hosted a special Earth Day event on April 19 with 123 middle and high school students visiting the Central Offices on Coliseum Boulevard in Montgomery. The celebration enabled the students to visit ADEM and learn about the environmental programs implemented on a daily basis to protect and preserve Alabama's natural resources.

The students watched up-close demonstrations and learned about a wide-range of environmental programs including fish tissue monitoring, water quality sampling, air monitoring, recycling, hazardous waste disposal, and efforts to ensure that Alabamians are provided with clean, safe drinking water.

The following schools were represented this year: CAMO Kids from Bullock County, Capitol Heights Middle School, Carver High School, Goshen High School, Lee High School, and Pike County High School.The first organized "Earth Day" was held in 1970, with more than 20 million Americans demonstrating in various

cities. Now, it is an annual event on which activities are held worldwide to demonstrate support for environmental protection. While many people celebrate Earth Day one day each year, every day is Earth Day at ADEM as the staff works to protect and preserve Alabama's air, land, and water resources. The Alabama NPS Management Program provided an enviroscape demonstration to teach students about watershed and nonpoint source pollution.

Alabama Envirothon

State Envirothon Competition

The ADEM's NPS staff, in a joint effort with other agencies, continues to play a vital supporting role in the Alabama Envirothon competition by helping in event planning, developing test materials, and leading many of the training events, judging, and overall program implementation. In addition, the NPS staff coordinated a training event for Future Farmers of America advisors in west Alabama who were interested in participating in future competitions.

This year's state competition was held April 5-7, 2018, at the 4-H Camp in Columbiana. The current issue of this year's Envirothon was "*Western Rangeland Management: Balancing Diverse Views*". ADEM NPS staff, along with NRCS personnel, taught about agricultural BMPs, tools, and federal programs related to soil and water conservation. Bob Jones High School from Madison County was the overall state winner.

Clear Water Alabama Erosion and Sediment Control Workshop

ADEM continued to provide support in the planning, organization, and implementation of the annual "Clear Water Alabama Seminar and Field Day" as part of the Alabama Erosion and Sediment Control Partnership.

The goal of the Partnership is to help planners, designers, contractors, inspectors, and others learn about the latest erosion and sediment control practices. Members include the Alabama Soil and Water Conservation Committee, the NRCS, ADEM, and the Alabama Association of Conservation Districts, the Alabama Department of Transportation, the Home Builders Association of Alabama, the Associated General Contractors of Alabama and Auburn University –Cooperative Extension System.

This year's seminar and field day were held on August 22-23, 2018, in Oxford, Alabama. The first day's workshop included a seminar with some of the following topics:

- Protecting Our Headwaters, It All Starts Here

Clear Water AL – Field Day

- ADEM Regulation Update
- ESC Handbook Update
- Preserving Water Quality During Construction
- Auburn University ESC Test Facility Update
- Archeological Sites in the Region
- Rules for Protecting Cultural Resources
- Low impact development (LID) case studies and green infrastructure

The workshop also hosted several exhibits that highlighted erosion and sediment control technology from representatives from across the southeast. The second day of the workshop included a field tour of several erosion and sediment control demonstration sites that highlighted residential, industrial, and road construction BMPs.

Stream Field Day and Teachers Workshops at Camp Meadowbrook

As part of the Brindley Creek Watershed Project, NPS staff have assisted in presenting on the Brindley Creek Watershed, NPS pollution, and stream restoration at Camp Meadowbrook, a BMP implementation site adjacent to the creek. The education activities culminate with a stream walk, the collection of macroinvertebrates and fish, and water quality monitoring at the creek. The workshops have been held several times for several different audiences, including:

- A Teaching Field Day for homeschoolers and parents (teachers), November 17, 2017.
- The Blount County Field Day for 11th and 12th grade Vo-Ag students on March 3, 2018.
- Brindley Creek Workshop for Cullman County 4-H students/trainers on June 13, 2018.
- Cullman County Teacher Workshop, June 26-27, 2018.

Early Education on Nonpoint Source Pollution

Central Montgomery Optimist Club's Fourth Annual Career Fair

ADEM NPS staff participated in the Dare to Dream Career Fair at Walter T. McKee Middle School in Montgomery, Alabama, on January 25, 2018. Career opportunities in science were discussed with 238 eighth graders. The NPS staff answered the students' questions about science related fields, education requirements, and typical job duties. Students were provided with an education pamphlet, Careers in Science. Several science items were on display, which sparked the students' interest, including an Alabama Water Watch - Water Quality Monitoring Kit, fish and macroinvertebrate specimens collected by ADEM Field Operations, and items made from recycled goods. In addition, NPS staff emphasized everyday activities that the students could undertake to help protect and conserve natural resources.

Blue Planet Defenders

On April 19, 2018, NPS staff assisted the Blue Planet Defenders in a watershed activity for elementary school students at Flowers Elementary School in Montgomery, Alabama. The goal of the Blue Planet Defenders environmental club is to inform students about water, the water cycle, and the harmful effects of water pollution.

Covington County SWCD Watershed Poster Competition

On April 26, 2018, the NPS staff provided a watershed education presentation at the Soil and Water Conservation District banquet for third graders and Envirothon team recognition. The event took place in Andalusia, Alabama.

University Place Middle School Ecology Demonstration

Representatives of the ADEM NPS staff gave an interactive, hands-on ecology presentation to 7th grade students at University Place Middle School in Tuscaloosa, Alabama, on May 16, 2018. Students were introduced to the concepts of NPS pollution and watersheds through an Enviroscape demonstration, which also highlighted ways students could prevent NPS pollution in their everyday lives. In addition, ADEM staff demonstrated water quality testing using a water chemistry kit from Alabama Water Watch. Water samples from the nearby stream, Cribbs Mill Creek, and tap water from the school were tested for pH so students could compare the results from two different water sources. Finally, the students were introduced to the concept of biological indicator species as a way to estimate water quality. Students were able to get an up-close look at macroinvertebrate and fish specimens collected by ADEM Field Operations.

Camp Hooper Early Learning Center "Go Green Week" Presentation

On June 27, 2018, ADEM NPS staff gave an introductory environmental demonstration at Camp Hooper Early Learning Center in Hope Hull, Alabama. This presentation was geared towards younger elementary-aged students from kindergarten to fourth grade and complemented the Center's "Go Green" themed week. The Enviroscape was used to introduce the concept of NPS pollution to 28 students. The students were asked to imagine the effects of NPS pollution on aquatic life by coloring a picture of "Finny the Fish." ADEM staff then gave a hands-on lesson about recycling, where students were able to feel recycled plastic pellets and some of the consumer-ready products made from recycled plastic.

Farm to Table Event

The second annual Farm to Table event was held on Saturday, August 25, 2018, in Killen, Alabama with over 600 people attending. During the event, the NPS staff participated as an exhibitor and distributed educational environmental materials to children and adults on polluted runoff in the form of coloring books, brochures, and pamphlets. Additionally, maps of the impaired Anderson Creek watershed, which is located in Lauderdale County were handed out to the event participants to encourage awareness of the upcoming CWA section 319(h) watershed implementation project.

Council on Substance Abuse

The Council on Substance Abuse third annual Career Fair was held on Thursday, August 30, 2018, at the Alabama Wildlife Federation Lanark Pavilion in Millbrook, Alabama. During the event the NPS staff participated as an exhibitor and distributed information on NPS pollution to junior high/high school teachers and students from the surrounding counties.

NPS Presentations

Clean Water Partnership Meetings

With the update to the Alabama CWA section 303(d) list of impaired waterways this year, NPS staff provided presentations at the Tallapoosa River Basin Meeting on March 1, 2018, the Middle Tallapoosa River Basin Meeting on March 27, 2018, and the Upper Tallapoosa River Basin Meeting on June 12, 2018,

to update stakeholder of the revised 303(d) list. These meetings helped to highlight the changes in the overall basin and those specific to the smaller watersheds. Stakeholders were able to discuss the new impairments and help prioritize areas that could be potential 319 projects based on the knowledge of the group.

The Alabama Clean Water Partnership Board of Directors met on July 16, 2018, and voted to dissolve the Alabama Clean Water Partnership. The Alabama NPS Program participated in the closing meetings to share with stakeholders other means to stay involved in watershed restoration and NPS pollution prevention. The final meetings were held for the remaining active river basins for the Alabama River Basin on July 25, 2018, the Tallapoosa River Basin on July 31, 2018, and the Coosa River Basin meeting on August 9, 2018.

Brownsfield 101 Conference

The ADEM in cooperation with the EPA held the conference at Stillman College in Tuscaloosa, Alabama. During the May 15, 2018, event, the NPS staff provided information about NPS Program and Grant Funding. NPS staff also gave a brief presentation about Section 319 grants and some Alabama projects that completed in urban areas collaborating with our local governments and stakeholders. This event allowed participants to interact with several funding programs to enable them evaluate multiple ways to leverage different sources of funding.

2018 Southeast Brownfield Conference

The Alabama Brownfields Association, the ADEM, and the EPA organized the conference. During the September 28, 2018 event, the NPS staff provided information about NPS Program and grant funding. NPS staff was able to connect with several stakeholders from North Alabama who were interested in learning more about the program and potentially having some streams assessed in their areas for future Section 319 projects.

Alabama Stormwater Forum

The Alabama Stormwater Forum is a statewide meeting for practical and informative discussions on stormwater management including low impact design, green infrastructure, stormwater control measure technologies, innovative education strategies, and erosion and sediment control. During the May 5, 2018, the Forum was held in Auburn. The NPS Program staff served as an Urban Conservation Committee Meeting presenter.

Alabama Water Resources Conference

The Alabama Water Resources Conference is the premiere water conference in the state. It was established in 1986, and has provided a forum for showcasing emerging research, education and outreach in all aspects of water resources. During the September 5-7, 2018, conference, the NPS staff presented on the history of the Alabama Nonpoint Source Management Program, CWA section 319(h), and educated/networked with multiple stakeholders and program partners.

Local partners presented on several projects and programs that the Alabama Nonpoint Source Management Program had been involved in and partially or fully funded. Ashley Campbell of the City of Daphne discussed the ACES Master Environmental Educator Program's New and Improved Lesson's on Stormwater and AWW that were developed by the UT to Tiawasee Watershed Restoration Project as part of their grant's education outreach. The EPA's Gulf of Mexico Program, City of Daphne, ACES, and other

volunteers have spent many hours using these and the other lessons in this tool box to educate the local students about bettering the environment and their communities.

Alex James with ACES presented on the completed Moores Creek Phase One project and the future of phase two in Chambers County, AL. She highlighted the project's components, BMPs, strengths, challenges, successes, and future.

Paul Lammers with the Mobile Bay National Estuary Program discussed projects in the D'Olive Creek Watershed that Mobile Bay National Estuary Program, National Fish and Wildlife Foundation, Coastal Impact Assistance Program, City of Daphne, Baldwin County, Section 319, Alabama Department of Transportation, and other partners had been involved in restoring the streams in the watershed. He discussed the price of restoration and how partners had come together to begin to solve a complex issue of water quality improvement.

Watershed Management Plans

Large-scale management plans have been completed for each major river basin across the state. These plans continue to be used as a vital basis for background information for the smaller targeted 12-digit HUC plans and by stakeholder groups as they move to prioritize and target water quality problems and solutions in each river basin. A list of the targeted 12-digit HUC plans is shown below.

As outlined in the Section 319 workplans, the watershed management plans are in various stages of development and implementation. These plans will incorporate, as applicable, EPA's "a-i" elements for watershed management plans as outlined in the FY13 Section 319 grant guidance.

Alabama River Basin

• Baldwin Slough (031502010307)	17,280 acres	Complete
• Upper Pintlala Creek (031502010401, 031502010404)	55,437 acres	Complete
• Pursley Creek (031502030802)	48,429 acres	Complete
• Mulberry Creek (031502011001, 031502011002, 031502011003, 031502011004, 031502011005, 031502011006)	176,990 acres	Updating

Black Warrior River Basin

• Brindley Creek (031601090105)	15,638 acres	Complete
• Long Branch (031601090303)	19,752 acres	Complete
• Black Branch-Cane Creek (031601090602)	40,670 acres	Complete
• Graves Creek (031601110202)	37,766 acres	Complete
• Dry Creek (031601110203)	12,648 acres	Complete
• Big Scirum Creek-Upper Locust Fork (031601110208)	16,953 acres	Complete
• Village Creek (031601110408, 031601110409)	60,917 acres	Complete
• Rock Creek-Crooked Creek (031601100401, 031601100402)	132,695 acres	Complete
• North River (031601120401, 031601120402, 031601120404)	121,967 acres	Complete
• Cottonwood Creek (031601130704)	28,428 acres	Complete

- Dollar Hyde Creek (031601130801, 031601130803, 031601130804) — 55,040 acres — Complete
- Ryan Creek (031601100501, 031601100502) — 42,874 acres — Complete

Cahaba River Basin

- Little Shades Creek (031502020201) — 39,908 acres — Complete
- Dry Creek (031502020902) — 5,312 acres — Complete

Chattahoochee-Chipola River Basins

- Moores Creek (031300020907) — 11,558 acres — Complete
- Mill Creek (031300030101) — 15,729 acres — Complete
- Cowarts Creek (031300120201, 031300120202, 031300120203) — 77,066 acres — Updating

Choctawhatchee-Pea-Yellow River Basins

- Hurricane Creek-Dowling Branch (031402010704) — 15,647 acres — Complete

Coosa Basin

- Spring and Mud Creek (031501050807) — 10,880 acres — Complete
- Broken Arrow Creek (031501060602) — 38,903 acres — Complete
- Buxahatchee Creek (031501070502) — 45,663 acres — Complete
- Middle Coosa — 915,016 acres — Complete

  Targeting the following subwatersheds:
  - Little Land Valley Creek (031501060103)
  - Fisher Creek (031501060104)
  - Whippoorwill Creek (031501060105)
  - Little Wills Creek (031501060106)
  - Black Creek (031501060107)
  - Horton Creek (031501060108)
  - Ball Play Creek (031501060201)
  - Dry Creek (031501060202)
  - Big Cove (031501060203)
  - Turkey Town Creek (031501060204)
  - Little Canoe Creek (031501060301)
  - Headwaters Big Canoe Creek (031501060302)
  - Upper Big Canoe Creek (031501060303)
  - Lake Sumatanga-Little Canoe Creek (031501060304)
  - Middle Big Canoe Creek (031501060305)
  - Lower Big Canoe Creek (031501060306)
  - Laymous Pond-Beaver Creek (031501060307)
  - Shoal Creek-Coosa River (031501060308)
  - Neely Henry Lake-Coosa River (031501060309)
  - Upper Ohatchee Creek (031501060404)
  - Lower Ohatchee Creek (031501060405)
  - Woods Island-Coosa River (031501060409)

- Trout Creek (031501060601)
- Broken Arrow Creek (031501060602)
- Embry Bend-Coosa River (031501060603)
- Broken Arrow Shoals (031501060605)
- Rabbit Branch (031501060803)
- Jess Branch-Shoal Creek (031501060804)
- Upper Kelly Creek (031501060805)
- Hearthstone Creek-Wolf Creek (031501060806)
- Buckhorn Branch-Bear Creek (031501060807)
- Lower Kelly Creek (031501060808)
- Spring Creek-Coosa River (031501060810)

- Upper and Middle Coosa Watersheds (DeKalb Co.) 340,026 acres Complete
  Targeting the following subwatersheds:
  - Lower West Fork Little River (031501050701)
  - Middle Fork Little River (031501050702)
  - Upper Little River East and West Forks (031501050703)
  - Upper East Fork Little River (031501050704)
  - Lower East Fork Little River (031501050705)
  - Yellow Creek (031501050801)
  - Upper Little River (031501050802)
  - Bear Creek (031501050803)
  - Johnnies Creek (031501050804)
  - Wolf Creek (031501050805)
  - Lower Little River (031501050806)
  - Yellow Creek (031501051001)
  - Headwaters Big Wills Creek (031501060101)
  - Upper Big Wills Creek (031501060102)
  - Little Sand Valley Creek (031501060103)

- Middle Coosa Priority Subwatersheds Acreage above Complete
  Targeting the following subwatersheds:
  - Dry Creek (031501060202)
  - Big Cove Creek (031501060203)
  - Turkey Town Creek (031501060204)
  - Little Canoe Creek (031501060301)
  - Headwaters Big Canoe Creek (031501060302)
  - Upper Big Canoe Creek (031501060303)
  - Middle Big Canoe Creek (031501060305)
  - Neely Henry Lake-Coosa River (031501060309)
  - Trout Creek (031501060601)
  - Broken Arrow Creek (031501060602)
  - Broken Arrow Shoals (031501060605)
  - Rabbit Branch (031501060803)
  - Jess Branch-Shoal Creek (031501060804)
  - Hearthstone Creek-Wolf Creek (031501060806)
  - Buckhorn Branch-Bear Creek (031501060807)
  - Easonville Creek (031501060290)

Mobile Basin

• Wolf Bay (031401070201, 031401070202,031401070203)	36,296 acres	In Progress
• Eight Mile Creek (031602040304)	22,287 acres	Complete
• Three Mile Creek (031602040504)	19,002 acres	Complete
• D'Olive Creek (031602040505)	20,480 acres	Complete
• Dog River (031602050101, 031602050102, 031602050103, 031602050105)	61,735 acres	Complete
• Fowl River (031602050104)	39,739 acres	Complete
• Weeks Bay (031602050201, 031602050202, 031602050203, 031602050204)	129,610 acres	Complete
• Bon Secour (031602050206, 031602050207, 031602050208)	43,673 acres	Complete
• Juniper Creek-Big Creek (031700080401)	5,936 acres	Being updated
• Bayou la Batre (031700090102)	19,562 acres	In Progress
• West Fowl River (031700090103)	20,489 acres	In Progress
• Dauphin Island (031700090202)	3,851 acres	In Progress

Tallapoosa Basin

• Town Creek (031500010301)	150 acres	Complete
• Wolf Creek-Copper's Rock (031501081004)	23,488 acres	Complete
• Moore's Mill Creek (031501100201, 031501100204, 031501100203)	7,360 acres	Complete
• Saugahatchee Creek (031501100201, 031501100202, 031501100203, 031501100204)	108,482 acres	Complete
• Parkerson Mill Creek (031500010301)	5,981 acres	Complete
• Emuckfaw Creek (031501090308)	31,877 acres	In Progress

Tennessee Basin

• Guess Creek (060300020105)	21,818 acres	Complete
• Cole Spring Branch (060300020201)	3,110 acres	Complete
• Brier Fork and Beaverdam Creek (060300020305, 060300020307)	67,290 acres	Complete
• Upper and Middle Flint River (060300020307, 060300020403)	54,648 acres	Complete
• Hester Creek-Mountain Fork (060300020304)	53,838 acres	Complete
• Upper Hurricane Creek and Lower Hurricane Creek (060300020401, 060300020402)	46,873 acres	Complete
• Goose Creek (060300020404)	7,552 acres	Complete
• Yellow Bank Creek (060300020405)	6,208 acres	Complete
• Indian Creek (060300020505)	24,847 acres	Complete
• Hughes Creek (060300020601)	18,276 acres	Complete
• West Fork Cotaco Creek (060300020602)	34,573 acres	Complete
• Town Creek (060300020604)	23,442 acres	Complete
• French Mill Creek (060300020802)	26,908 acres	Complete
• Upper Scarham Creek (060300020803)	31,238 acres	Complete
• Shoal Creek-Sleighton Branch (060300021005)	10,140 acres	Complete

• Crowdabout Creek (060300021007)	31,180 acres	Complete
• Elam Creek (060300021009)	19,651 acres	Complete
• Upper and Middle West Flint Creek (060300021010, 060300021012)	56,260 acres	Complete
• Big Shoal Creek (060300021011)	12,967 acres	Complete
• Flat Creek (060300021013)	38,246 acres	Complete
• Village Branch (060300021014)	33,457 acres	Complete
• Swan Creek (060300021101)	35,928 acres	Complete
• Second Creek (060300021203, 060300021204)	37,714 acres	Complete
• Shoal Creek (060300040401)	39,088 acres	Complete
• Harris Creek (060300060201)	35,224 acres	Complete
• Browns Creek (060300010904)	37,248 acres	Complete
• Anderson Creek (060300040404)	37,913 acres	Complete
• Big Nance Creek (060300050104, 060300050105)	52,152 acres	Complete

Program Development of Watershed Management Partnerships and Plans

Alabama Watershed Stewards (FY15)

The purpose of this project is to develop an Alabama Watershed Stewards Program curriculum and piloting watershed-based trainings in the selected watershed. Watershed Stewards training programs have been very successful in other states for many years including the Texas Watershed Steward Program managed by the Texas A&M AgriLife Extension Service and funded through a CWA Section 319(h) NPS grant provided by the Texas State Soil and Water Conservation Board and the U.S. EPA for over ten years. Other Extension agencies that have watershed steward curriculum include: Arizona, Oregon, California, Pennsylvania, Maryland, Georgia (Cobb County), New York, and others. Nikki Dictson was a member of the team that evaluated several programs and helped design the Texas Watershed Steward Program to target communities that are working on watershed planning and TMDLs. Existing types of information and the lessons learned in Texas will be utilized to create a successful Alabama Watershed Stewards Program, to increase understanding, stewardship, and adoption of management practices that will protect and restore watersheds in Alabama.

Development of Curriculum and Digital Information. This curriculum will be developed for a wide diversity of people with various backgrounds and knowledge. The curriculum will give the attendees tools to implement change in their communities, turning knowledge into action. It looks to connect local citizens to their water and help them understand watersheds and function, as well as, their role in water quality and environmental health. The curriculum will also discuss watershed impairments in Alabama and in the localized area. It will show a wide array of ways for local individuals to implement measures to better water quality and work within their communities to continue toward a clean water future. During the first part of this grant, the project coordinators will work with partners to develop the specific Alabama based curriculum. At this time, the Watershed Modules are anticipated to include: Program Introduction, Overview of Watershed Systems, Overview of Watershed Impairments, managing to Improve Watershed Function, and Community Driven Watershed Protection and Management. Following the development of

the modules, partners will work together to pilot two workshops to test out the program and work to build partnerships that can leverage resources to implement action within their community.

As today's consumer utilizes mobile devices and other content delivery platforms, the information will also be available digitally to reach an even greater audience. The "mobile first" approach ensures that all have access to science-based information that improves their quality of life and economic well-being in a way that connects and inspires communities. A digital toolbox for this program will be created that will include websites, social media, video, digital publications, and potentially mobile apps and e-newsletters will assure that the education program is accessible and coordinated across media platforms. By supporting and combining appropriate uses of all platforms, the ACES is able to target the delivery of educational messages to critical audiences.

Watershed-Based Trainings. The watershed-based trainings will be delivered as one-day training events and will focus on enhancing understanding of watershed systems, watershed impairments, methods for improving watershed function, and community-driven watershed protection and management. Curriculum content will cover the entire state of Alabama and include five modules. Presentations will be tailored as much as possible to each specific watershed so that participants better understand and relate to their particular watershed processes, causes of impairment(s), and the tools that can be employed to prevent and/or resolve them. At the conclusion of the training, participants will receive a certificate of completion recognizing them as Alabama Watershed Stewards.

Watershed Modules will include: Program Introduction, Overview of Watershed Systems, Overview of Watershed Impairments, managing to Improve Watershed Function, and Community Driven Watershed Protection and Management. As a part of the training, participants will be educated on the importance of watershed protection activities and will be given the opportunity to participate as stakeholders in a watershed management plan development process. A major goal of the program will be to increase the participation in BMPs to reduce NPS pollution. It will also increase participation in local groups that take an active role in leading and expanding watershed education efforts and promoting watershed protection activities in their community.

The ACES will work in conjunction with state and local organizations to schedule locations for the watershed-based Alabama Watershed Stewards Program training events. We are proposing to pilot the program with two trainings in Opelika, Lee County in the Pepperell Branch Watershed.

Evaluation and Assessment. The watershed-based training programs will include an evaluation component to assess program effectiveness and to modify and enhance curriculum content to achieve project goals. A two-phase evaluation approach will be used to measure both knowledge and behavior changes of individuals participating in the program.

Phase 1: A course evaluation survey will be implemented at each educational program. The evaluation will ask basic demographic questions; knowledge-based questions that provide information on the increase of knowledge of attendees; satisfaction questions; and intentions to change or adopt management measures. The 'intentions to change' questions will focus on behaviors that participants should adopt based on what they have learned.

Phase 2: A follow-up survey instrument will also be administered to participants via online survey technology. Following Dillman's email survey technique, emails will be sent to program participants to ascertain what practices were truly adopted after the program. Descriptive, correlational, and analysis of variance statistical procedures will be utilized in this evaluation study. The data will be analyzed and results will be summarized in the annual report for the individual course and as well as combined results.

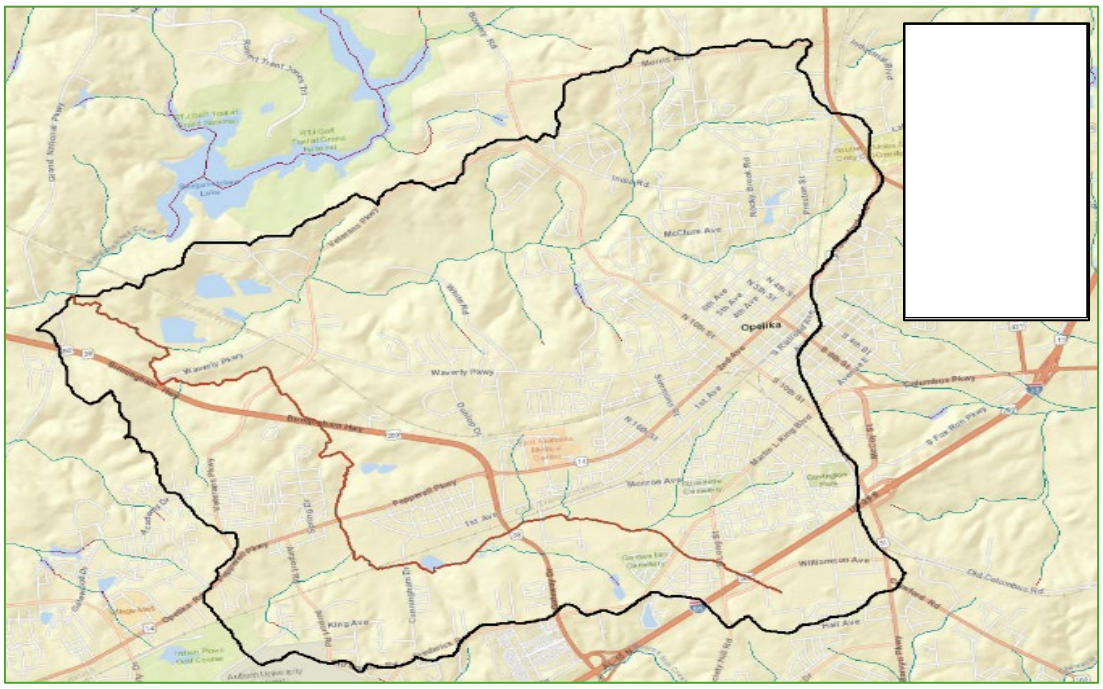
Pepperell Branch Watershed Management Plan (FY15)

Pepperell Branch is a small waterbody that feeds into Saugahatchee Creek in central Lee County, which is a part of the Tallapoosa River Basin. Pepperell Branch has a length of 6.67-miles and a drainage area of 14.58-square miles. Pepperell Branch had a use classification of Agricultural and Industrial Water Supply (A&I); however, in April 2002, ADEM upgraded its use classification to Fish and Wildlife. Pepperell Branch has multiple TMDLs that have been developed for the stream. These include organic enrichment, dissolved oxygen, nutrients, and pathogens.

The Development of a Watershed Management Plan (WMP) for Pepperell Branch Project has a 12-month timeline that includes a robust agenda of stakeholder facilitation, watershed characterization, development of an implementation strategy, and conduct outreach and educational efforts on water quality issues. This project will develop the plan following the nine elements of EPA's *Handbook for Developing Watershed Plans to Restore and Protect Our Waters* (USEPA, 2008). Existing data such as water quality, flow, wildlife estimates, urban runoff, habitat assessment, land use, soils, number of septic systems, etc. will be collected and evaluated to assist in identifying causes and sources of parameters impairing water quality. This data will be used to address pollutant sources and act as a base of information for planning purposes. Additional data gaps will be identified during this process. Spatial analysis will be used to estimate *E. coli* loads and other pollutants loads within the watershed and to target implementation. The project will result in the production of a watershed management plan that has been developed with buy-in from local stakeholders and governmental entities. The WMP will identify implementable BMPs that are based on the goals of water quality improvement and watershed protection. A comprehensive watershed approach will be used with concentrations on the most significant sources of pollution contributing to the impairments.

Auburn University, Crop Soil and Environmental Sciences (CSES) Team will coordinate and conduct project meetings. Project meetings will be scheduled as necessary but will likely include multiple planning meetings and at least monthly stakeholder meetings to assess, analyze, develop strategies, and write the plan in the short 12-month time period. All of these meetings will be public and will be advertised. Stakeholder facilitation will be led by CSES, meeting planning and advertising will be conducted with assistance of the City, ACES, AWW, and other partners. The stakeholder group will be made up of landowners, City staff, agency representatives, industry groups, and others as appropriate. CSES will work with the City and other project partners to advertise and conduct public education training and activities to both engage stakeholders and build partnerships early in the process. Outreach and Education activities and trainings will be ongoing to create better public understanding and support for water quality implementation (i.e. LID/NEMO workshop, stream cleanup & environmental fair/school presentations, volunteer storm drain marking event and materials, AWW citizen monitoring and certification training, watershed educational signage that will create a creek walk through downtown parks, outreach & installation of pet waste stations). All of the efforts will increase the focus of local partners on water quality issues and lead to more support of the plan and implementation. All products developed including educational materials and advertising will be provided to ADEM as well as sign in sheets of participants and volunteers and photos of the events.

Through the watershed characterization, existing data will be collected and evaluated to assist in identifying causes and sources impairing water quality. The previous TMDLs will be integrated into the characterization and analysis. CSES will partner with Dr. Srini to conduct the characterization through the use of GIS analysis, flow analysis, and using data from a variety of official sources. CSES and project partners will help Dr. Srini to gather and aggregate the necessary data.

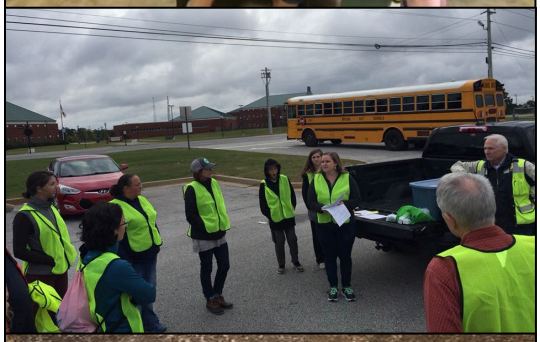


Water quality and flow data is crucial in estimating loading reductions, which will accomplish Element B of EPA's guidance. Pollutant load reductions needed to meet water quality standards and goals will be calculated through the use of Load Duration Curves and other scientific models, as practical. Spatial analysis of potential *E. coli* contributions aids in prioritizing subwatersheds for recommended management strategy implementation. This approach represents the total potential for *E. coli* loads by estimating the maximum *E. coli* load deposited into the watershed. Spatial analysis distributes potential *E. coli* loads across the watershed based on subwatershed land use characteristics and animal estimates verified by stakeholders. *E. coli* loading rates were developed from published literature values regarding daily feces production and its *E. coli* content. This allows for subwatershed specific potential *E. coli* loads to be estimated for each source evaluated. These are then combined to produce an overall potential *E. coli* source load. Both Load Durations Curves and spatial analysis have been acceptable methods for the development of watershed-based plans such as the Plum Creek Watershed Protection Plan, the Buck Creek Watershed Protection Plan, and many others in Texas. The CSES team will take the data summaries, draft load estimates, and load reductions through the process of being explained and approved by the Steering Committee to be included in the plan.

The CSES team will facilitate the steering committee through gathering the data, watershed characterization, discussion of identifying and prioritizing critical areas and management practices and draft these sections of the plan. As these sections are developed they will be shared with ADEM for review and comment along the way. CSES will facilitate the Steering committee through developing a water quality monitoring plan, an outreach and education plan, and an implementation schedule. As needed

and appropriate, CSES will present the Pepperell Branch WMP project at other public meetings and conferences in order to communicate the goals and objectives of the project, activities, accomplishments and potentially lessons learned. To build further capacity and technology transfer, CSES and Dr. Srini will conduct an Introduction to Watershed Modeling course that he and Nikki Dictson have been instructing in Texas. This training will cover the following topics: Overview of How Modeling fits into Watershed Planning; Models Overview: Purposes and Limitations; Using Simple Tools; Factors to consider when modeling: Time and Money; new HAWQs model; Stakeholder Communications and Modeling; and others as necessary for this one-day course.

Lee County ACES and 4-H, as partners on this project will participate on the steering committee, assist with advertising all educational events, initiate a new 4-H AWW program, help conduct the stream cleanup and environmental fair as well as assist with getting volunteers. The City of Opelika and Keep Opelika Beautiful, as partners on this project will participate on the steering committee, assist with planning and advertising of all events, help with coordinating and conducting the stream cleanup and environmental fair and will assist with presenting the issues in local schools and at their events. The City will also assist with OSDS characterization and data collection. The City will also provide support of watershed activities such as cleanup, storm drain marking, educational signage installation, pet waste station installation and other workshops and events. The City may provide in-kind services such as manpower, equipment, supplies, and stakeholder meeting facilities. The City realizes that Section 319 Activities cannot be used to meet their MS4 NPDES permit. However, it will try to coordinate with on-going MS4 compliance activities to prevent duplication of efforts and to maximize the use of limited funding.



AWW will assist in certification of water quality training with education of citizen and student volunteers. AWW will continue to provide support to the existing volunteer monitors in the watershed and will share their data with the project for the watershed characterization. AWW will coordinate with and support Lee County ACES 4H to initiate a new 4-H AWW program in Opelika. AWW will also offer support of volunteer watershed activities such as helping facilitate the monitoring component for the WMP, clean ups/environmental fair, workshops, etc. as appropriate and assist with advertising events as appropriate.

CSES as the watershed coordinator, will work to with all of the partners to coordinate and schedule all of these activities and events to spread them out over the project,

build partnerships and continue to engage stakeholders throughout the watershed. The final draft Pepperell Branch WMP will be reviewed by the steering committee and then ADEM. Any comments and questions will be incorporated into the final document submitted to ADEM.

The Pepperell Branch Watershed Partnership has completed the following so far in Quarter 1 of the project:

1. On August 24, 2018, September 11, 2018, October 10, 2018, and November 7, 2018, there was an Executive Planning Committee Meeting which discussed the goals, tasks, timelines, and planning for the upcoming events.
2. On September 18, 2018, the Pepperell Branch Watershed Management Planning Partners had their Kickoff Meeting in the Opelika City Council Chamber. There were approximately forty (40) people in attendance. There were three presentations given to attendees. One was about the Pepperell Branch Watershed, Section 319, and Watershed Management Planning. The Second was about the project, partners, and timelines. The third was a NPS Education for Municipal Officials/LID Presentation for the City Council. During this meeting, stakeholders had great discussions about the project and identified potential sources of NPS pollution.
3. On October 18, 2018, there was a Stakeholder Committee Meeting where the information presented in the first meeting was again presented. The opportunities for stakeholders to participate in events setup for the watershed such as storm drain marking, stakeholder meetings, and the watershed tour. Stakeholders continued to discuss areas where potential sources and education needed to take place in the watershed. The list of Steering Committee Members and their affiliations has been developed and continues to grow.
4. Keep Opelika Beautiful's Tipi Miller and the City of Opelika's Case O'Dell have been involved in presentations on NPS and the Enviroscape to several schools and Girls Scouts. They also held a booth at the Lee County Fair that occurred in October of 2018.
5. On October 27, 2018, fifteen people gathered to help start the storm drain marking in the Pepperell Branch Watershed. Over 300 markers were placed in the watershed in areas that were prioritized by the City of Opelika. The rest will be placed with either schools or other stakeholders throughout the watershed.
6. Three Pet Waste Stations were purchased for areas prioritized by stakeholders in the project. These will be made to match other areas that the City of Opelika has also purchased stations for.
7. On November 8, 2018, Southern Union Community College contributed a Charter Bus for stakeholders to Tour the Watershed. Fifteen stakeholders traveled the boundary of the watershed discussing history, land use, activities that occur in the watershed, education that could occur, and potential concerns or areas where pollution may occur. Potential concerns included urban stormwater issues that are historic problems, lack of knowledge of how individual actions can affect the watershed as whole, discussion of issues that have been found and corrected, etc.
8. Watershed Characterization has occurred by gathering data from available sources, such as ADEM, AWW, and the City of Opelika. Dr. Srini has compiled data and begun work on his models for the watershed. Maps for the watershed have also continued to be created and used for stakeholders to place pins on areas of concern.
9. The partnership has been extremely active in garnering media attention for this project. Media outlets such as WSFA, WLTZ, OA News, WTVM, ACES Website, Keep Opelika Beautiful Website, and the City of Opelika Website have all been helpful in covering stories or uploading press releases about the Pepperell Watershed Management Plan Project Activities.

Implementation of Watershed Plans

Alabama River Basin

Catoma Creek – Waller Creek Watershed Project (FY14)

The State of Alabama first identified Catoma Creek as being impaired for organic enrichment/low dissolved oxygen for a length of 21.3-miles on the 1996 CWA section 303(d) list. A TMDL was completed in 2005. Catoma Creek was added as impaired for pathogens from the confluence of Ramer Creek to the Alabama River in 2002 and a TMDL was completed in 2009. Ramer Creek, from it confluence with the Catoma to its source, was added as impaired for pathogens from pasture grazing. Since Ramer Creek is part of the headwaters of Catoma Creek, it was addressed by the existing Catoma Creek TMDL and was prioritized for implementation within the larger Catoma Creek Watershed (10-digit HUC 0315010103).

From January 2004 to January 2007, a Catoma Creek Watershed Project (10-digit HUC 0315010103) was implemented with assistance provided through CWA section 319 funding. The Catoma Creek Watershed was also addressed in the recent Pintlala Creek/Catoma Creek watersheds project completed in July 2017 through a CWA section 319(h) grant with the Montgomery County SWCD. Recent monitoring conducted by the ADEM in 2017 indicates a problem still exists with pollutant runoff loadings of bacteria to Ramer Creek, an impaired tributary to Catoma Creek. The Waller Creek subwatershed (HUC 03150201-0306) is the smaller subwatershed draining to Ramer Creek that was targeted by this project. Waller Creek enters Ramer Creek directly upstream of the 2017 monitoring location.

This project, completed on February 22, 2018, funded additional agricultural BMPs identified by the FY13 Pintlala Creek/Catoma Creek watersheds project, on one 906.6-acre farm in the Waller Creek Subwatershed. It continued to address pathogens and nutrient sources from farming land uses by excluding cattle from wetlands and tributaries to Ramer Creek (Waller Creek), and by providing heavy use area protection and alternative watering sources on a cattle farm. The farmer also installed cross fencing to implement improved grazing practices. The Catoma Creek-Waller Creek Watershed Project was a very successful project in providing a cooperative effort to address nonpoint sources of pathogens and nutrients within Ramer and Catoma Creek watershed. The SWCD continues to seek ways to leverage funding and efforts to target these impaired waters, with a goal of restoring the water quality in Ramer and Catoma Creeks.

Cumulative Load Reductions:

- 6,117.7 lbs/yr of nitrogen
- 359.5 lbs/yr of phosphorus
- 94.9 tons/yr of sediment

Pursley Creek Watershed Management Plan Implementation (FY14)

Pursley Creek, which encompasses Town Branch (HUC 03150203-0802), forms in Wilcox County southeast of the city of Camden, in the Alabama River Basin. The total length of Pursley Creek, 26.11-miles, is on the CWA section 303(d) list for pathogens due to pasture grazing. Town Branch flows through the city of Camden and empties into Pursley Creek. The total length of Town Branch (4.35-miles) is listed on the CWA

section 303(d) list for pathogens due to municipal and urban runoff/storm sewers, from its source to Pursley Creek. Additional site reconnaissance and stakeholder meetings have identified both segments to be impaired from other possible sources of pathogens, including wildlife, illegal dumping and improperly functioning septic systems. Other NPS pollutants from erosion and siltation issues were also identified. The goal of the Pursley Creek Project is to establish and implement BMPs to address agricultural and forestry NPSs of pollution as identified in the Pursley Creek Watershed Management Plan.

A two-year Cooperative Agreement with the Wilcox County SWCD was signed on August 07, 2015. The Wilcox County SWCD hosted a meeting on September 10, 2015, at the Wilcox County Natural Resources Center (Experiment Station). This meeting was held to inform landowners, located within the Pursley Creek Watershed, of cost share funds available to assist them in protecting and improving their farm and Pursley Creek. This was a very informative meeting with NRCS, Farm Service Agency, SWCD, and ADEM representatives there to answer any question or concerns from landowners. Sixteen landowners attended the meeting and received a list of approved cost-share practices available through this program and an application to sign up. A follow-up article about the meeting was printed in the newspaper, and after the successful project kickoff meeting, nine BMP applications were received. The Wilcox County SWCD continued to meet with landowners in the watershed at their farms and at the SWCD office throughout the project duration.

On April 26, 2017, the Wilcox County SWCD submitted a letter requesting a six-month extension to be able to complete existing applications. This extension included a plan for the completion of practices for three existing applicants. ADEM and the SWCD met on May 23, 2017, to discuss the request and plan. After the meeting, ADEM asked the SWCD to submit a revised extension request with detailed implementation plans for each applicant, requiring documentation of all steps, completion dates, reporting dates, and a federal funding amount not to exceed $17,100 for all remaining applicant extensions, with the required 40 percent match ($11,400). All the steps and an inspection were required before an invoice could be submitted for reimbursement of federal funds. All landowners acknowledged these requirements in writing, and the contract was extended from August 7, 2017, to February 7, 2018, in order to complete the practices. In addition, the Wilcox County SWCD was not able to utilize $50,005 of the remaining unobligated federal funds. Therefore, the contract was also amended to reduce the federal amount from $191,131 to $141,126, and the non-federal match from $127,421 to $94,909. Lack of interest and periods of drought and flooding a led to the inability to complete the initial workplan measures in a timely manner.

This project was completed on February 7, 2018. Volunteer landowners completed several BMPs to include:

- 8,200-feet of firebreaks
- 249-acres of site prep for tree planting
- 260-acres of tree plantings
- 6-acres of critical area planting
- 21,152-feet of cross-fencing/exclusion fencing
- 363-acres of rotational grazing

Stakeholder meeting at the Experiment Station

- 7,063-feet of livestock pipeline to five watering troughs with heavy use areas

The Wilcox County SWCD will continue to work in the Pursley Creek Watershed to identify and to promote future management priorities to address pathogen runoff to Pursley and Town Creeks.

Cumulative Load Reductions:

- 2,878.7 lbs/yr of nitrogen
- 201.4 lbs/yr of phosphorus
- 66.3 tons/yr of sediment

Black Warrior River Basin

Graves Creek Watershed Restoration Project – Phase One (FY14) and Phase Two (FY17)

Graves Creek Watershed (HUC 03160111-0202) is located in Blount County. Graves Creek is a tributary to Locust Fork River, which is part of the Black Warrior River basin. It has a linear distance of 9.62-miles and a drainage area of 14.4-square miles. Graves Creek was originally placed on 1992 CWA section 303(d) list of impaired waters for organic enrichment/low dissolved oxygen. Its use classification is Fish & Wildlife.

The Graves Creek Watershed Management Plan Implementation Project Phase One was designed to implement BMPs for addressing the sources and causes of impairment in Graves Creek as identified in the 2014 Graves Creek watershed management plan and to attain the pollutant load reductions outlined by the 2002 Graves Creek TMDL for low dissolved oxygen/organic loading.

The phase one project started on March 27, 2015, and was implemented with the help of Blount County SWCD and other partners. Producers completed the following 319-funded BMPs during the phase one project: 6 units of four-ball watering facilities; 5 units of two-ball watering facilities; 1,905 square feet of controlled stream access (water ramps); 20,689 feet of cross fence; 960 square feet of stream crossing; 160 tons of grade stabilization structure; 2,482 feet of livestock pipeline; and 26,416 square feet of heavy use area protection.

Education and outreach efforts were targeted at both children and adults within the watershed. Children's outreach included "Kids Day on the Farm" (2015, 2016, and 2017); display of the "Ag in Action Trailer to elementary schools (2015, 2016, and 2017) and at the 2015 and 2016 Blount County Fair; and the 2016 and 2017 Blount County Groundwater Festivals. Adult education efforts included the "Outreach Workshop for New and Beginning Farmers" (2016), a Future Farmers of America Land Judging Teacher's Workshop, and a 2017 Grazing Clinic. The phase one project was completed on February 28, 2018; however, additional areas of pollutant loading exist. Also, stakeholder support and landowner's willingness to participate continues within the Graves Creek Watershed.

Second grade students participate in the 2018 Kids Day on the Farm

The Graves Creek Watershed Restoration phase two project, which began on April 26, 2018, is a continuation of the phase one project. The phase two project will continue to target critical areas within the watershed and further the goal of helping Graves Creek achieve water quality standards for fish and wildlife use classification.

Hillside after BMP implementation

The project has been advertised to stakeholders through mailed flyers and promoted through word of mouth. One application has been accepted, and the landowner is currently working on BMP implementation. Education and outreach activities have included the 2018 Kids Day on the Farm on May 18, 2018, and phase two project promotion at the Natural Resources Planning Committee's Pond Management Workshop on September 13, 2018. Phase two project will continue to target critical areas within the watershed and further the goal of helping Graves Creek achieve water quality standards for Fish and Wildlife use classification.

Cumulative Load Reductions:

- 11,087.2 lbs/yr of nitrogen
- 2,089.6 lbs/yr of phosphorus
- 823.7 tons/yr of sediment

Brindley Creek Watershed Project (FY15)

Brindley Creek is a part of the upper Black Warrior River Basin. It combines with Eightmile Creek east of the town of Cullman to form the Broglen River before it drains into Mulberry Fork. The Brindley Creek Watershed (HUC 03160109-0105) has an area of 24.83-square miles. Two segments of Brindley Creek have been identified as impaired for nutrients and pathogens associated with agricultural and urban runoff and storm sewers. A TMDL for Brindley Creek was completed for pathogens (2005) and requires a load reduction of 75 percent for the waterbody to meet its use classification. The TMDL for nutrients (2012) requires a total phosphorus load reduction of 66 percent. The Brindley Creek project is guided by the Brindley Creek Watershed Management Plan (2015).

In the course of the project implementation, the Cullman County SWCD identified the need for an extensive erosion control and stabilization plan and implementation at the district-owned Camp Meadowbrook environmental education facility, which is on Brindley Creek, directly upstream of an ADEM monitoring site. Through partnerships with other agencies such as Resource Conservation and Development, which leveraged funding for gravel, topsoil, labor, and other materials to improve drainage at the site through a separate grant, certain areas were addressed but due to funding limitations, not everything could be addressed. After meeting with ADEM and revising the work plan to include Camp Meadowbrook as a BMP implementation site, the Conservation District hired Goodwyn, Mills, and Cawood to develop a stabilization plan to address these issues. Permits, paid for by the District, from ADEM and the Corps (for work adjacent to stream and wetland) were received so that work could begin.

Implementation of the Camp BMPs occurred from March 31, 2018, until May 9, 2018. Installed BMPs included land smoothing, stabilization of hill areas by sowing grass and putting down mulch, the installation of two bioswales, 19 rock drop structures, and approximately one acre of erosion control blankets to control erosion and keep sediment (and nutrients/pathogens attached to the soil particles) out of Brindley Creek. The final compliance inspection occurred in August 2018. Additional work at Camp Meadowbrook will occur in fall 2018 with the planting of native trees to further stabilize riparian areas of Brindley Creek.

The camp serves as a resource for agencies, schools, and diverse stakeholders to use for education and training programs. Past and future workshops are/will be held at the facility where examples of effective erosion control BMPs can be seen within only a short walking distance. In fact, multiple educational workshops for students have already been held that highlighted Brindley Creek and the Camp Meadowbrook project.

Cumulative Load Reductions:

- 2,749.4 lbs/yr of nitrogen
- 548.3 lbs/yr of phosphorus
- 47.6 tons/yr of sediment

Chattahoochee-Chipola River Basin

Moores Creek Watershed Project – Phase One (FY14) and Phase Two (FY16/17)

View of Moores Creek Restoration on April 20, 2018

Moores Creek Watershed (HUC 03130002-0907) drains approximately 18.06-square miles (11,558-acres) and is within the Middle Chattahoochee-Lake Harding River Basin (HUC 03130002). The ADEM identified Moores Creek as being impaired by siltation due to habitat alteration for a length of 11.4-miles, from the Chattahoochee River to its source. Moores Creek was first added to Alabama's 2012 CWA section 303(d) use impairment list based upon 2007 habitat and macroinvertebrate data. In 2018, the ADEM Water Quality Branch added a second impairment to Alabama's CWA section 303 (d) use impairment list for pathogens based off water chemistry data that was obtained in 2014 and 2016.

Phase one of the Moores Creek Watershed Project is complete. This watershed project implemented a stream restoration of approximately 800-linear feet on the segment of Moores Creek that is located in the City of Lanett between South 8th Avenue and Veterans Memorial Parkway. In this area, there was debris removal, stream bank stabilization, riparian buffer planting and remediation, habitat rehabilitation, and instream structures to help turn water back to the center of the channel. This project also encompassed stabilizing about 300-linear feet in Jennings Creek, which is a small tributary to Moores Creek and is located to the south of 15th Street. It connects to the stream restoration on the main stem.

Although the project is completed, it has received much publicity over the last year with presentations at the Alabama NPS Conference, Alabama Water Resources Conference, Tallapoosa Clean Water

A segment of the restored stream

A segment of the stabilized tributary

Partnership, Alabama Association of Conservation District's Urban Conservation Committee Meetings, etc. This project has been highly successful in bringing about discussions and educating stakeholders in the state about partnering together to bring about change, stream restoration, low impact development (LID), and sustainable stormwater management in our urban landscapes.

ADEM finalized the cooperative agreement for Moores Creek Watershed Project - Phase Two with the ACES-Auburn University on February 22, 2018. Since this time, Alex James, the watershed coordinator for Moores Creek, has been very active in planning for this next phase of implementation. Mrs. James and Mr. Justin Barrett, the project engineer, have been working to develop the best course of action to stabilize the identified stream areas in Valley, AL.

The second phase of the Moores Creek Watershed Project is primarily focused on streambank stabilization of a highly visible reach of Moores Creek located in the City of Valley directly upstream of 55th Street West (Fob James Dr.) and directly downstream of 20th Avenue (AL-29). The proposed starting location of this project is adjacent to Valley City Hall and ends in front of Lafayette Lanier Elementary School. Currently, the stream suffers from lack of floodplain connection, eroding streambanks, poor vegetation community (no shade or habitat), and trash and debris in the channel. There has been a high level of coordination

An aerial view of the stream segment that will be restored in Phase Two of the project.

between the City of Valley; East Alabama Water, Sewer, & Fire Protection District; Goodwyn, Mills, & Cawood; Hydro-Engineering Solutions, LLC; ACES; Justin Barrett, the Project Engineer; Alabama Department of Transportation; Alabama Power; and stakeholders. There is a need for timing of projects with the stream restoration and sewer line upgrades to correlate. In order to get the best stream restoration, there is also a need to be able to relocate three to four power poles on this stretch of stream.

This project also intends to address partner concerns of stormwater runoff and erosion and sediment control concerns in two locations off Veterans Memorial Parkway (AL Hwy. 50) in Lanett, Alabama. Project efforts will promote infiltration in the area; thus, reducing stormwater energies and sediment from entering Moores Creek. This project is being coordinated in partnership with the Alabama Department of Transportation. Stakeholders have also identified a stormwater retrofit to be addressed during Phase Two. Chambers County 911/EMA personnel identified a stormwater pond on their campus that is a potential NPS load to Moores Creek. Retrofitting this pond to a stormwater rain garden as well as the addition of native vegetation will help stabilize the area, reduce sedimentation, and provide habitat.

Cumulative Load Reductions:

- 24,639.0 lbs/yr of nitrogen
- 1,291.8 lbs/yr of phosphorus
- 269.0 tons/yr of sediment

Coastal Basin

Upper Three Mile Creek Watershed Project (FY16)

Bioswale in Meisler Commons on USA's Campus

The Three Mile Creek Watershed (HUC 03160204-0504) drains a total area of 30.1-square miles with in the cities of Mobile and Prichard. The State of Alabama first identified Three Mile Creek's inability to meet its water use classification of an Agriculture and Industry stream (the lowest use classification) on the 1996 CWA section 303(d) list of impaired waters. At that time it was identified for impairments in nutrients, pH, organic enrichment/dissolved oxygen, and pathogens with potential sources including municipal issues, storm sewers, highway/road/bridges, and land development. In December of 2006, a TMDL was developed for all three segments of Three Mile Creek for Organic Enrichment/Dissolved Oxygen.

Today the Upper Three Mile Creek portion of the watershed, only has a TMDL for Organic Enrichment/Dissolved Oxygen. The Three Mile Creek Watershed Management Plan called for LID Structures or Green Infrastructure to be placed up gradient of storm drains in order to help with the impairments to the stream.

This project is a small venture located on the University of South Alabama's campus in cooperation with ADEM, EPA, and the University. It is located in what is known as the Meisler Commons Basin, behind the Administrative Building and just east of Meisler Hall. Construction, completed in October 2017, included the implementation of five bioswales in the Meisler Commons Basin area. These swales will help intercept,

store, and infiltrate stormwater. These swales will also help lower the sediment oxygen demand to the stream. Thus hopefully increasing the dissolved oxygen within the stream.

University of South Alabama students have and continue to spend time monitoring the effects of the swales on the campus and determining their ability to provide load reductions to the stream. There are a total of seven in-ground stormwater collection devices throughout the Meisler Commons sub-watershed. They estimate that between the upstream samplers and the furthest downstream sampler, there is a 78% reduction in sediment loads. Graduate students ran both the Region V and the STEPL Models to determine load reductions for the project as well. They estimate a 75% reduction in sediment load transport.

Bioswales were used to reduce sediment transport to Three Mile Creek.

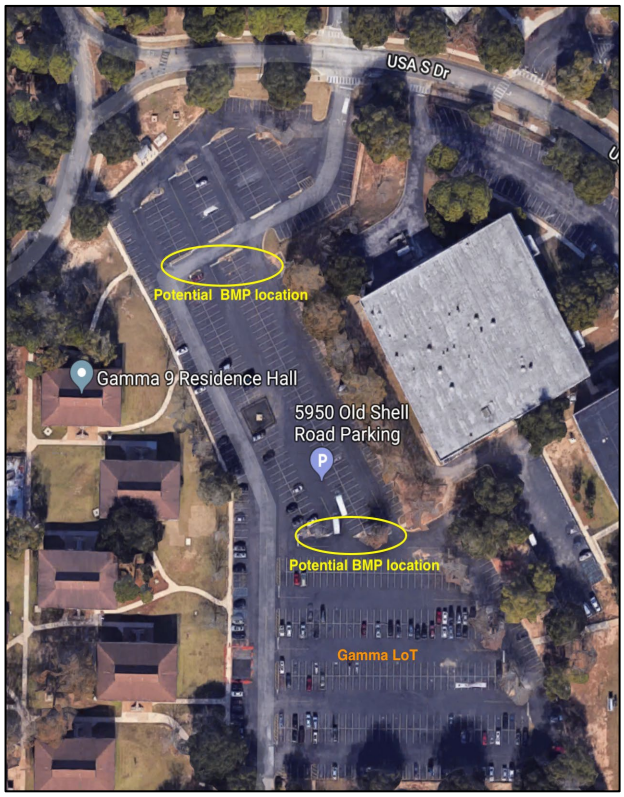
During this past year, education and outreach continued to be an important project activity. Dr. White provided a presentation on the project to the University of South Alabama Student Sustainability Council on March 20, 2018. A project summary article was posted on the Student Sustainability Council's website. A project update was given at the Three Mile Creek Joint Agency Committee on March 5, 2018. A LID presentation was given to 35 junior civil engineering majors and five environmental toxicology majors on February 23, 2018. The University of South Alabama Office of Facilities personnel are learning about LID techniques and green infrastructure by supporting and participating in the project. The MS4 program has helped highlight some of the Section 319 work by having a Lunch and Learn on Stormwater Management and Erosion Control Measures. The program has also placed campus storm drain markers. The project coordinator has also been working with a local high school's Pre-Civil Engineering/Architecture program to discuss LID and the potential for students to design and construct a rain garden on their campus.

Upper Three Mile Creek Watershed Project – Phase Two (FY17)

Phase two of the Upper Three Mile Creek Watershed Project (HUC 03160204-0504) continues to build on the momentum of the stakeholders and partners working within the watershed. It also continues to implement components of the nine key element Three Mile Creek Watershed Management Plan.

The major challenges to Three Mile Creek's health identified in the watershed management plan include urban stormwater runoff (quantity and quality of this runoff) and altered geomorphology (streambank erosion, sedimentation, etc.). The University of South Alabama, with an enrollment of over 16,000 students, resides on approximately 1,200-acres in the upper reaches of the Three Mile Creek Watershed and was identified in the watershed management plan as contributing sediment to Three Mile Creek. The University has several areas on campus with significant slope (>5%) and large impervious surfaces (parking lots) that contribute large volumes of water to local earthen drainages (causing both bed and bank erosion) and oils and greases (from automobiles) to Three Mile Creek. Campus stormwater management from parking lots typically consist of curb and gutter inlets that lead to traditional underground storm sewers and earthen drainage ways that outlet directly to Three Mile Creek. Sediment build-up at these storm sewer outlets to the stream are evident and the impacts of oil and grease pollutants certainly impact dissolved oxygen issues.

This proposed project addresses structural BMP implementation with LID and green infrastructure (GI) on the campus. Specifically, bioswales are proposed to be implemented within two large asphalt parking facilities on the campus, called the Humanities lot and the Gamma lot (as seen below). The watershed management plan mentions adding LID/GI to drainage areas up gradient of the stormwater outfalls. Implementation of LID techniques will be used to minimize the quantity of stormwater runoff and reduce soil erosion, sediment load (and possibly associated organic nitrogen load) in the upper Three Mile Creek Watershed.



These are examples of BMP locations for the placements of the bio-infiltration swales located in the Humanities Parking lot (above) and the Gamma Lot (left).

The cooperative agreement for this project was executed between ADEM and the University of South Alabama on March 14, 2018. The University is currently trying to determine a timeline for construction with Facilities. Construction will have to occur in the summer when there are less students needing to park on campus. During this grant, Dr. Kevin White has been instrumental in implementing outreach to University's Student Sustainability Council and to Mary G. Montgomery High School's Pre-Civil Engineering/Architecture program on LID and stormwater management and sustainability. He also is part of the Three Mile Creek Partnership that has formed with all the partners that are collectively working to restore the creek. He has presented the Section 319/University of South Alabama project at each of those meetings, and continues to champion LID and more sustainable, natural ways to manage stormwater.

UTs to D'Olive Creek Subwatershed Project (FY16/17)

The D'Olive Creek Watershed is part of the Tensaw River – Apalachee River Basin (HUC 03160204-0505) and is located in Baldwin County, Alabama. Since 2008, the ADEM has included D'Olive Creek and one of its tributaries on the CWA section 303(d) List of Impaired Waters, with a cause identified as siltation (habitat alteration) as a result of land development. In the 2018 Draft CWA section 303(d) list, D'Olive Creek was also added to the list for pathogens from D'Olive Bay to its source.

ADEM in coordination with EPA, the Mobile Bay National Estuary Program, the National Fish and Wildlife Foundation, and the City of Daphne are working to complete two stream restorations in unnamed tributaries to D'Olive Creek that are sediment contributors to the impaired main branch of the stream.

This project utilizes CWA Section 319(h) funding to implement natural stream stabilization/restoration on the unnamed tributaries to D'Olive Creek. This will include BMPs such as log grade controls, log drop structures, log sills, rock sills, j hooks, floodplain sills, riffles, and native vegetation. These structures will help provide grade control, improve stream reach connectivity with the existing floodplain, and improve aquatic habitat by creating pools and adding oxygen to the water.

DAF-1a before construction

DAF-1a after construction

ADEM and the Mobile Bay National Estuary Program executed a cooperative agreement and the project began on March 30, 2018. The first stream restoration project DAF-1a is located near Melanie Loop in Daphne, AL. North State Environmental, LLC, won this project bid and construction was completed in June of 2018. This project restored 490-linear feet of stream in the D'Olive Watershed using the structures mentioned above. The picture on the left shows what it looked like before construction, and the picture

on the right shows the results of construction where the stream was reconnected with its floodplain. DAF-1, known as the golf course tributary, construction has been postponed until December of 2018/January of 2019 due to the contractor's schedule.

Cumulative Load Reductions:

- 713.0 lbs/yr of nitrogen
- 44.0 lbs/yr of phosphorus
- 40.0 tons/yr of sediment

UT to Tiawasee Creek Subwatershed Project (FY15)

Tiawasee Creek (HUC 03160204-0505) is a tributary of the D'Olive Creek Watershed. Tiawasee Creek and the UT to Tiawasee, which is addressed by this project, were placed on ADEM's Section 303(d) list for impaired waterways in 2008. The impairment was identified as siltation (habitat alteration) as a result of land development. The increased volume and velocity of post-construction urban stormwater flows has resulted in severe channel degradation in Tiawasee Creek and its tributaries.

In September of 2018, the city of Daphne was in the process of completing the porous paver project located at the Trione Sports Complex.

To date, the project has partnered with the National Fish and Wildlife Foundation's Gulf Benefit Fund, Mobile Bay National Estuary, City of Daphne, the Coastal Impact Assistance Program, Baldwin County, etc. to implement a 1400-linear foot stream restoration on the UT to Tiawasee Creek. The project has also implemented a constructed stormwater wetland upstream of the project at Park Drive. There has also been two basin acquisitions, citizen oversight with Daphne's Environmental Advisory Committee, project tours, and many hours working toward a successful education and outreach component.

The City's grant was extended until March 2019. The City of Daphne completed the porous paver project at Trione Sports Complex in October 2018. The constructed wetlands that were started in March 2018 had to be redesigned due to a water main issue. Therefore, the wetland construction will be restarted in October 2018, and construction well be completed by February 2019. The educational boardwalk with porous asphalt and concrete will be completed after the wetlands have been constructed.

The City has continued its momentum with the education outreach efforts by teaching classes from the Master Environmental Educators Program on Backyard Wildlife Habitat, Groundwater Pollution, Recycling, the Water Cycle, and NPS Pollution in the local schools. During the last six months alone they have reached over 893 students through this program. The Baldwin County Board of Education is working to finalize the Stormwater Pollution and AWW Master Environmental Educators Classes for the 2019 school year. The City continues to use the purchased Enviroscape as part of these lessons.

Plans have moved forward on a contract to create a short video for a NPS education outreach video to reach out to the general public and students. A partnership video highlighting the D'Olive Watershed will also be a product of this grant that will be completed before the grant end date at the end of March 2019.

Educational Signage for the BMPs located around the park area have begun to be designed and will be installed after construction of all elements. The Environmental Advisory Committee has continued to be very involved in the project and continue to be a guiding hand.

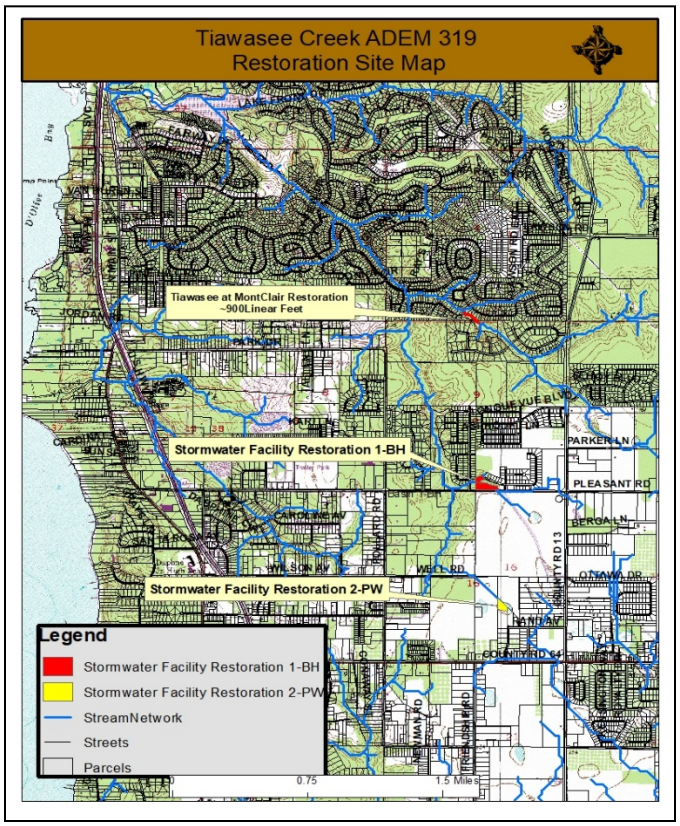
As mentioned above, in 2018 D'Olive Creek was added to the 303(d) list of impaired waters for pathogens. The Environmental Advisory Committee has held a brainstorming session and talked with the utilities to discuss the impairment and how to move forward to address the issue.

Cumulative Load Reductions:

- 2,937 lbs/yr of nitrogen
- 8,96 lbs/yr of phosphorus
- 1,446.2 tons/yr of sediment

Road might look like as it will use the same type rock and be consistent in look. This is a picture of Gator Alley in the D'Olive Creek Watershed.

Tiawasee Creek Watershed Project – Phase (FY17/18)



This project (HUC 03160204-0505) continues to build on the successes of the watershed restoration that is occurring throughout the D'Olive Watershed by its many partners. It includes approximately 900-linear feet of stream restoration along the main channel of Tiawasee Creek and two enhancements of stormwater facilities along the impaired UT to Tiawasee Creek that will help improve water quality, stormwater quantity and velocity entering into the waterway.

The recommended restoration plans include instream structures to provide grade control, bank stability, and enhanced habitat. Toe wood revetments, root wads, log j-hook vanes, and log sill riffles will be used to support stream stability while deep-rooted vegetation becomes established.

Vegetation in the riparian corridor benefits water quality and habitat by regulating temperature, adding organic matter (leaves and twigs), assisting in pollution reduction, stabilizing streambanks, and providing wildlife habitat. The most stable and effective riparian buffers include a combination of native trees, shrubs, grasses and herbs that form functional plant communities. The restoration project will include a native vegetation plan.

The overall goal of the stream restoration component of the proposed project is to reduce sediment loads on Tiawasee Creek, as well as the main stem. This will in turn will contribute to efforts that will eventually lead to the removal of Tiawasee Creek from Alabama's Section 303(d) impaired streams list. The existing annual erosion of Tiawasee stream channel is calculated at approximately 400-tons per year due to channel headcutting, incision, and widening resulting in sediment load downstream.

The goal of the stormwater facility restoration component of the project is to enhance the reduction of NPS pollution in Tiawasee Creek by implemented low impact development practices.

Mobile Bay National Estuary Program has partnered with ADEM Section 319 to use grant funding to complete these two projects. The National Fish and Wildlife Foundation has also agreed to partner by providing additional funding into the project. The City of Daphne has and will

View of the conditions of Tiawasee Creek at Mont Clair before the project begins

provide technical assistance but has also provided money for design. With the help of NRCS, the City of Daphne secured an Emergency Watershed Protection Grant to help implement an adjoining project to stabilize additional stream length and drainage area.

Coosa River Basin

Lake Neely Henry Nutrient Reduction Project (FY15)

The Lake Neely Henry Nutrient Reduction Project focuses on addressing nutrients draining into Neely Henry Lake within the Coosa Basin. According to the Coosa Lakes Nutrient TMDL Load, the Big Wills Creek embayment is one of the highest in terms of nutrients in the lake. Big Wills Creek is the major tributary draining into the Neely Henry Reservoir. Polluted runoff from pastures, animal operations, and improper land application of animal wastes; and animals with unrestricted access to streams continues to degrade water quality and influence organic enrichment of the river and lakes. This project focuses primarily on four watersheds or portions of watersheds located in DeKalb County that flow into Big Wills: HW Big Wills Creek (HUC 03150106-0101), Upper Big Wills Creek (HUC 03150106-0102), Little Sand Valley Creek (HUC 03150106-0103), and a small section of Little Wills Creek (HUC 03150106-0106). The project goal is to reduce nutrients from agricultural sources draining into Big Wills Creek and ultimately into Lake Neely Henry.

FFA students participating in the land judging workshop

Project sign-up with the DeKalb County SWCD began in April 2016. To date, 20 agriculture applications have been received with 14 being approved. Ten agriculture BMPs were implemented by six landowners during the past year, including pasture planting (96.7-ac.), livestock exclusion fencing (2,925-ft.), water troughs (3-ea.), pipeline (1,400-ft.), heavy use area protection (7,400-sq. ft.), and a waste storage facility (1,600-sq. ft.). Education and outreach within the last year has included highlight articles in the local newspaper, DeKalb Times-Journal, on farmers who install conservation practices; the Wonders of Water Festival, which teaches 4th graders the importance of water quality and resource conservation; Land Judging contests for FFA students to promote natural resources stewardship; and AG in Action Trailer presentations to numerous stakeholder groups to help educate future farmers and landowners about the importance of protecting natural resources.

Cumulative Load Reductions:

- 3,077.4 lbs/yr of nitrogen
- 4,68.5 lbs/yr of phosphorus
- 237.2 tons/yr of sediment

Tallapoosa River Basin

Parkerson Mill Creek Watershed Project (FY17)

The Parkerson Mill Creek Watershed is located in Lee County, in east-central Alabama. It is part of the Upper Chewacla Watershed (HUC 03150110-0202) of the Lower Tallapoosa River Basin. Land use includes a mix of urban (City of Auburn; Auburn University), suburban, industrial, agricultural, and rural areas. The 9.3-square mile watershed has approximately 68,500-feet of perennial streams and 282,152-feet of tributary streams.

In 2008, the ADEM listed Parkerson Mill Creek on the CWA Section 303(d) List as impaired for 6.67-miles from Chewacla Creek to its source based on a series of Auburn/Opelika Intensive Fecal Coliform Studies conducted in 2007. The cause of impairment was identified as pathogens from urban stormwater runoff and storm sewer sources. A pathogen TMDL was developed by the ADEM and approved by the EPA in 2011.

This proposal will help with addressing the components in the Parkerson Mill Creek Watershed Management Plan by installing LID BMPs to mitigate urban runoff quality and quantity on the Auburn University campus. Research by others shows that LID BMPs, such as roadside vegetated filter strips and bioswales, play an important role in urban watersheds in decreasing urban stormwater runoff quantity and improving runoff quality. Furthermore, LID BMPs such as these are more cost effective as compared to conventional, hard-engineered stormwater infrastructure.

This project will not begin until December 2018 or January 2019 due to football season and facilities commitments that have already planned.

Wire Road near West Samford Ave (potential location 1)
Existing conditions in February 2018.

Wire Road near West Samford Ave (potential location 1)
Predicted winter appearance after installation of roadside vegetation demonstration garden and concrete v-notch weirs.

Tennessee River Basin

Shoal Creek (Morgan County) Watershed Project (FY14)

Shoal Creek (HUC 06030002-1005), located in Morgan County, is a tributary to Flint Creek. The headwaters begin in Morgan County and the stream flows in a southwest direction to Flint Creek. The stream has a linear distance of 10.9-miles. It was originally placed on the 1996 CWA section 303(d) impairment list for organic enrichment/low dissolved oxygen and pathogens. The major sources of non-point organic enrichment for the Flint Creek watershed are nutrients and organic material from agricultural and urban lands and the direct impact of cattle. Agricultural animals are a potential source of fecal coliform loading to streams in the Flint Creek watershed. Other non-point source contributions could be failing septic

systems and urban runoff. The main goal of the project was to implement agricultural and urban BMPs to address organic enrichment/low dissolved oxygen and pathogens.

The Shoal Creek Project provided for the implementation of an effective watershed project designed to achieve and maintain water quality standards. The project provided for a LID workshop to educate the public about the importance of urban BMPs and the effects of NPS pollution. In addition, the Shoal Creek Project was used to install urban and agricultural BMPs in the watershed to reduce pathogens and organic enrichment/low dissolved oxygen sources.

Watering trough with cross fence

The Cooperative Agreement between Flint Creek Watershed Conservancy District and ADEM was signed on March 20, 2015. The project was amended on March 20, 2017, to extend the contract for nine months to December 20, 2017, in order to complete the BMPs. The project was completed on time and the cumulative BMPs included three cisterns, 120-acres of cover crops, 1900-feet of fencing, 3.24-acres of filter strip, 3,360-feet of micro irrigation, 5,758-square feet of heavy use area, 59.4-acres of pasture and hay land management, 100-tons of rock barrier, and 2,800-feet of stream channel stabilization. The 319 project had 13 applications and conservation planning was completed for six farms within the watershed. Seven applications were cancelled because of insufficient need or the landowner was unwilling to apply recommended practices. Six contracts were approved by the Morgan County SWCD.

Education and outreach efforts are also an integral part of this project and further the goal of increasing public awareness on the water quality concerns of this watershed. In August 2015, Dr. Eve Brantley led an LID workshop and used the Alabama LID Handbook as the guide. Attendees included teachers, engineers, watershed coordinators, and Hartselle City School employees. To begin the program, a pre-test was given by Dr. Brantley, which included various definitions and LID practice identification. Following the test, an introduction to LID was presented and followed by descriptions of various LID practices that can be applied to various sites. Attendees formed groups and were given a site map, asked to evaluate sites, and to use LID practices to solve any problems that might occur. Presentations were given by all groups and discussed by the entire class. A final test was given and all attendees had a better understanding of the importance of LID. The State of Alabama LID Handbook was given to each attendee.

Cumulative Load Reductions:

- 24,191.41 lbs/yr of nitrogen
- 2,981.8 lbs/yr of phosphorus
- 849.82 tons/yr of sediment

Upper Scarham Creek Watershed Project (FY14)

The Upper Scarham Creek project area is located in the northeast portion of Alabama and drains to the Guntersville Lake Reservoir. The Scarham Creek watershed is approximately 90-square miles with the headwaters in DeKalb County and the downstream area in Marshall County. The two major populated areas in the watershed include Geraldine and Crossville. This project focuses primarily on the Upper Scarham Creek Watershed in DeKalb County (HUC 06030001-0803), which includes 9.12-miles of the total 24-mile stream length. The NPS pollutants in the Upper Scarham Creek Basin are primarily attributable to runoff of nutrients and organic material from agricultural lands.

Heavy use area installed in the project

The Upper Scarham Creek Watershed is listed as a National Water Quality Initiative watershed. Through the NWQI, NRCS and partners work with producers and landowners to implement voluntary conservation practices that improve water quality in high-priority watersheds while maintaining agricultural productivity.

The project, which ended on February 5, 2018, successfully implemented management measures to address the impairments within the Upper Scarham Creek Watershed. As BMPs were completed, feature stories were published in the local newspapers. The Project Coordinator also assisted with local water festivals and with conservation education programs to students and the public, including working with schools in the watershed area to schedule the "Ag in Action" Trailer for students to learn about agriculture and natural resources protection.

A contract extension was granted in March 2017 to extend the project for six months until February 5, 2018. This extension was needed because periods of drought and heavy rains caused implementation delays. The budget was also revised to move the remaining Education and Technical Training funding to fund on-the-ground BMPs. All contracts were finalized by December 15, 2017. The remaining $8,669 for BMPs was returned to ADEM due to a landowner not completing practices by the project deadline.

This project has been completed. Volunteer landowners completed several BMPs to include:

- 9,531-ft of cross fencing/exclusion fencing
- 155.4-acres of pastureland improvement
- 22 heavy use protection areas
- 7 alternative watering sources
- 1 well and pumping plant
- 3,488-ft of livestock pipeline
- 2 waste storage facilities for poultry litter

Cumulative Load Reductions:

- 68,886.6 lbs/yr of nitrogen
- 12,446.4 lbs/yr of phosphorus
- 650.7 tons/yr of sediment

Second Creek Watershed Project (FY15)

The Wheeler Lake basin (HUC 06030002) contains two sub-watersheds, Upper Second Creek (-1203) and Lower Second Creek (-1204) which are located in eastern Lauderdale County. The headwaters of Second Creek begin in the state of Tennessee and flow into Alabama near the town of Lexington. The stream continues in a southerly direction to Wheeler Lake on the Tennessee River. Second Creek has a linear distance of 13.0-miles and a drainage area of 59.0-square miles, which includes a portion of the upper watershed located in Tennessee. Second Creek was originally placed on the 1998 CWA section 303(d) impairment list as not meeting its use classification of fish and wildlife for pathogens. In December 2006, a TMDL was finalized.

Based on the 2006 TMDL, the majority of the watershed is undeveloped and consists of agriculture and forestland use. The most likely source of impairment to the stream comes from agricultural land use. The watershed has an uncommonly high concentration of agricultural uses accounting for slightly over half (54.6 percent) of the land use. Agricultural land is commonly a large source of fecal coliform bacteria. Pastureland runoff, animal operations, improper land application of animal waste, and animals with access to streams are all contributing factors of fecal coliform bacteria to waterbodies.

This project uses CWA section 319 watershed project funding to implement strategic NPS BMPs in the Second Creek watersheds in order to achieve and maintain state water quality standards and beneficial uses. The practices include voluntary activities such as providing technical assistance, financial assistance, education, training, technology transfer, tours and other activities.

Clover planting in the upper watershed

The Lauderdale County SWCD has provided local watershed restoration and CWA section 319 grant-funded project implementation oversight. To date, the watershed coordinator has contacted at least 25 individuals to locate/inspect BMP's. These efforts have resulted in the implementation of seven alternative water sources, 67.2-acres of conservation cover, 3654-feet of fence, 162.2-acres of grazing planned systems, 2745-square feet of heavy use area protection, two units of heavy use area protection, 4752-feet of livestock pipeline, 214.5-acres of nutrient management systems, and 17.0-acres of permanent vegetation cover on cropland.

Education and outreach efforts are also an integral part of this project and further the goal of increasing public awareness on the water quality concerns of this watershed. In January 2018, in coordination with ACES, the watershed coordinator promoted the Annual Lauderdale County Poster and Essay contests. This year's theme is watershed protection. All schools within the county received the information. In addition, in order to increase interest in the Second Creek Watershed Project flyers, posters, phone calls, two public service announcements in two newspapers, and Facebook posts were completed. Additionally, in March 2018, the watershed coordinator gave the lead presentation at the Envirothon where over 50 students were reached.

Cumulative Load Reductions:

- 4,426 lbs/yr of nitrogen
- 1,697 lbs/yr of phosphorus
- 381.65 tons/yr of sediment

West Flint Creek Watershed Project – Phase Three (FY16)

Members of Youth Leadership in Lawrence County

This project addresses the West Flint Creek Watershed (HUC 06030002-10), which is part of the Tennessee River Basin and has a total drainage area of 204-square miles, covering approximately 130,344-acres. The West Flint Creek Watershed is comprised of No Business Creek, Elam Creek, Upper West Flint Creek, Big Shoal Creek, Middle West Flint Creek, and Lower West Flint Creek 12 HUC Watersheds. These six sub-watersheds combined contain approximately 62-miles of impaired streams. The majority of the West Flint Watershed is in Lawrence County with a portion in Morgan County. The impaired West Flint Creek originates in Lawrence County and flows in a northerly direction through the eastern section of Lawrence County until it reaches Morgan County where it enters the Wheeler Reservoir. The impaired streams within the above mentioned 12 HUC watersheds are tributaries to West Flint Creek. The tributaries to West Flint Creek were placed on the 1998 CWA Section 303(d) Lists of Impaired Waters as not supporting Fish and Wildlife water quality standards.

The West Flint Creek Watershed Plan, which incorporates EPA's nine-key elements, is being used as a guide in developing a systematic approach to forward conservation efforts in the watershed. The Plan targets load reductions detailed in the 2003 Flint Creek Watershed TMDL so that the impaired segments of West Flint and its tributaries can meet state water quality standards and criteria for the fish and wildlife use classification. Project funds are primarily focused on resolving agricultural NPS pollution problems using cooperative efforts to maintain, improve, and protect the physical, chemical, and biological conditions throughout the watershed.

The Phase Three project is being implemented in partnership with Lawrence County SWCD. To date, 13 applications have been completed and five additional applications have been approved. The following BMPs were implemented in the West Flint Creek Watershed as part of this Phase Three Project: 118.68-acres of pasture planting; 20,144-square feet of heavy use area; 10 units of 4-ball waterers; 2,651-feet of pipeline; 2,186-feet of fencing; 37-acres of pasture spraying; and 45-acres of cover crop. Applicants are continuing to install BMPs that are protective of water quality in the targeted watersheds. Education and outreach activities in the past year have included personal/communications between the watershed coordinator and stakeholders; high school classroom presentations for the Youth Leadership Lawrence County members (June 27, 2018) and Mrs. Speegle's 12th grade science class at Lawrence County High School (February 26, 2018) on water quality issues, BMPs, and resource conservation; and a Farmers' Meeting (September 28, 2018), which educated stakeholders on the West Flint Creek project and EQIP cost-share funding programs and funding availability.

Cumulative Load Reductions:

- 1,373.7 lbs/yr of nitrogen
- 147.1 lbs/yr of phosphorus
- 63.7 tons/yr of sediment

Upper and Lower Flint River Watershed Project (FY16)

Flint River is located in the Tennessee River Basin in the central part of North Alabama and South Tennessee. Flint River forms in southeastern Lincoln County, Tennessee and flows south through Madison County, Alabama into Wheeler Reservoir southeast of Huntsville. In 2000, a 15.32-mile segment of Flint River, from US Highway 72 to Mountain Fork, was placed on Alabama's Section 303(d) List for pathogens from pasture grazing. A pathogen TMDL load was completed in April 2008. In 2006, the segment was added to the 303(d) List for turbidity from agriculture and land development. The turbidity TMDL has not been completed.

Completed livestock exclusion fencing in the Flint River Watershed

The major sources of impairments for Flint River are sediment, nutrients, and organic material from agricultural and urban lands and the direct impact of cattle. Agricultural animals are a potential source of pathogen (*Escherichia coli*) loading in the Flint River basin. Cattle with direct access to streams, improper grazing operations, poor pasture vegetation (filtration and uptake), improper litter storage, poor manure management practices, and animal feeding operations all can add to the pathogen runoff potential to the river. The goal of the Upper and Middle Flint River 319 project is to address the causes of stream impairment through development and implementation of conservation plans that will result in the removal of these stream segments from Alabama's Section 303(d) list. This project focuses on two sub-watersheds of the Flint River, Pigrum Branch-Flint River (HUC 06030002-0307) and Acuff Spring-Flint River (HUC 06030002-0403).

This project, led by the Madison County SWCD, started November 10, 2016. The District meets monthly to discuss and approve applications. A Flint River Watershed Advisory meeting was held on March 16, 2018, with seven planners present, representing the three local water departments, the Madison County Commission, and the Madison County SWCD.

Heavy Use Area, cross fencing, and watering source implemented on the project

Several education and outreach events were held during this reporting period to provide publicity and increase stakeholder involvement in the project. The Madison County Drinking Water Festival was held May 9-10, 2018. Fourth grade students from the entire county learned about their drinking water, watersheds, NPS pollution, and stewardship and conservation. Two Flint River cleanup events were held on June 9, 2018 and September 29, 2018, sponsored by the Flint River Conservation Association and the Madison County Commission. Two "Kids in the Creek" events were held on September 8 and September 15, 2018. These were family events where participants learned about water quality, watersheds, NPS pollution, and aquatic organisms by wading in shallow areas of the Flint River within the target sub-watershed at Winchester Road.

The project to date has produced eleven applications and conservation measure implementation is underway. Several applicants in the Upper Flint River sub-watershed have completed conservation practices during this reporting period, to include 2,377-feet of livestock exclusion fencing, 4,503-feet of cross fencing for rotational grazing, 7.5-acres of grass establishment, three watering facilities, two heavy use areas, 2,202-feet of livestock pipeline, and 5,248-feet of broad base terrace with an underground outlet. No practices were completed in the Middle Flint River sub-watershed during this reporting period.

Cumulative Load Reductions:

- 4,170 lbs/yr of nitrogen
- 1,494.3 lbs/yr of phosphorus
- 736.1 tons/yr of sediment

Shoal and Swann Creek (Limestone County) Watershed Project (FY16)

Located in Limestone County, the Shoal Creek watershed (HUC 06030004-0401) is within the Wheeler Lake watershed of the Tennessee River Basin. The total land area of Shoal Creek watershed in Alabama alone is 39,040-acres. A 7.47-mile segment of Shoal Creek was first placed on the 1998 CWA section 303 (d) list of impaired waters for pathogens from pasture grazing based on a study by the Tennessee Valley Authority (TVA) in 1997. The pathogens TMDL for Shoal Creek was drafted by ADEM in December 2006.

Located in Limestone County, the Swan Creek watershed (HUC 06030002-1101) is within the Wheeler Lake watershed of the Tennessee River Basin. The total land area of Swan Creek watershed is 35,328-acres. Swan Creek was first placed on the State of Alabama's 303 (d) list for siltation, organic enrichment and low dissolved oxygen in 1996 based on a study by the Tennessee Valley Authority (TVA). An 8.2-mile segment of Swan Creek was listed for the above pollutants from agricultural sources. The TMDL for Swan Creek was drafted by ADEM in February 2002 for siltation, low dissolved oxygen, and organic loading.

The Limestone County SWCD is solely responsible for facilitating the 319 project, but has active partners with assigned roles within the watershed. For example, Top of Alabama Regional Council of Government prepared the watershed management plan, the Groundwater Festival is organized by a variety of organizations with Limestone County Water Department taking the lead, and outreach meetings for the project are hosted by various organizations including the Limestone Cattlemen's Association.

The Cooperative Agreement between the Limestone County SWCD and the ADEM started November 10, 2016 and runs through November 10, 2019. To date, the CWA section 319 project has produced 17 applications with 150-acres of cover crop, 5998-feet of fencing, 24.9-acres of forage and biomass planting, five-acres of grassed swale, and 21-acres of land grading implemented.

Livestock exclusion fence in the Shoal Creek Watershed

Education and outreach efforts are also an integral part of this project and further the goal of increasing public awareness on the water quality concerns of the watershed. The Limestone County Annual Farmer's Co-Op picnic was held

on August 2, 2018. During the event, Section 319 project information and NRCS program information were displayed on separate exhibits to raise awareness of local water quality issues and conservation opportunities in Limestone County. Additionally, the 2018 Limestone County SWCD Annual Report was circulated in September 2018. It highlighted conservation practices promoted by the 319 program and adopted by local participants.

Cumulative Load Reductions:

- 5,881.0 lbs/yr of nitrogen
- 2,790.0 lbs/yr of phosphorus
- 2,421.0 tons/yr of sediment

Crowdabout Creek Watershed Project – Phase Three (FY17)

Crowdabout Creek (HUC 06030002-1006), located in Morgan County, is a tributary to Flint Creek in the Tennessee River basin in North Alabama. The headwaters of Crowdabout Creek begin in Lawrence County and the stream flows in a northeast direction to Flint Creek. Crowdabout Creek has a linear distance of 15-miles and a drainage area of 49.2-square miles. It was originally placed on the 1996 CWA section 303(d) impairment list for organic enrichment/low dissolved oxygen, siltation, and pathogens. The stream's use classification is fish & wildlife.

As a result of Phase One and Two restoration projects, Crowdabout Creek was listed as attaining water quality standards for nitrogen, phosphorus, sedimentation/siltation and carbonaceous biochemical oxygen demand for all uses in 2014. In light of this, the phase three project will focus on the remaining impairment of pathogens. BMP implementation for this project phase is focused in the headwaters area.

The overall goal of the Crowdabout Creek Watershed Project is to focus federal, state, local, and special interest group resources on solving predominantly rural NPS pollution problems in the watershed. The project provides funding for landowners/land users to implement incentive-based mechanisms that reduce NPS pollutants in the impaired Crowdabout Creek Watershed. Educational and community outreach activities will be used to increase watershed land owners/land user's awareness of water quality issues and to generate public support for watershed protection.

Cover crop in the watershed

The Flint Creek Watershed Conservancy District has provided local watershed restoration and CWA section 319 grant-funded project implementation oversight. To date, the watershed coordinator has received three applications for projects and has completed conservation planning for one farm within the watershed. These efforts have resulted in the implementation of 214.3-acres of cover crops, one alternative water source, 2785-feet of fencing, 1568-square feet of heavy use area protection, and 49.1-acre of riparian forest buffer.

Education and outreach efforts are also an important part of this project. In light of this, on February 22, 2018 a letter was sent to landowners in the watershed informing them of the voluntary CWA section 319

project. Additionally, educational events were conducted in May and August for fourth and fifth grade students that attend Danville Elementary School, which is located in the watershed. In total, 178 students attended the events.

Cumulative Load Reductions:

- 2,2600 lbs/yr of nitrogen
- 3,103.15 lbs/yr of phosphorus
- 1,203 tons/yr of sediment

Alabama Coastal NPS Pollution Control Program

The State of Alabama continues to develop its Coastal Zone Management Program under the Coastal Zone Management Act of 1972. The Act requires the State to develop and implement its Alabama Coastal Nonpoint Pollution Control Program (ACNPCP) under Section 6217 of the Coastal Zone Act Reauthorization Amendment of 1990 (CZARA). Section 319 funds are being used to assist in the implementation of management measures contained in these programs. The ADEM NPS program staff works closely with coastal nonpoint program staff to integrate and coordinate both the ACNPCP and the AL NPS Management Programs. Section 319 program funds are obligated in the coastal area to address specific priorities of Alabama's Coastal NPS Management Program. The ACNPCP and ADEM-319 work to assist stakeholders in identifying specific coastal NPS problem areas and issues, and to provide resources to plan and implement corrective NPS management measures and practices. Focused targeting of Section 319 program funds to address and implement category measures advances the goal towards full approval of the ACNPCP under CZARA-§6217 by:

Identifying specific NPS stressors, targeting locations or intensity, including GIS mapping and data layers where available (with consideration for maintaining citizen privacy issues).

Strategically focusing on and clearly articulating BMP remedies and measures to meet state water quality standards.

Leveraging, integrating, and aligning planning and priority-setting funding to make the best use of available human and financial capital to control NPS pollution.

Facilitating key stakeholder "ownership" of NPS problems and concerns by balancing NPS staffing and actions to deliver measurable environmental results.

Facilitating delivery of targeted-audience education and outreach and providing technical assistance.

Partnering to improve project accountability, tracking and reporting results (including success stories) to demonstrate project progress and success.

During this past year the Alabama's CNPCP has continued to serve as the national Chair of the Coastal States Organization's *Coastal NPS (6217) Work Group*. Serving in this position since 2010, the national Coastal NPS Work Group coordinates directly with the federal NOAA and EPA representatives, Coastal States Organization Director, Counsel and Staff, Sub-Committees, as well as other State representatives to provide bi-monthly national Teleconferences that are directed toward the promotion, approval and implementation of State CNPCPs. ADEM-319 actively participates in this ongoing forum for all coastal

states' Nonpoint Programs, with over 95 Work Group members engaged nationally to address coastal NPS issues. This unique Teleconference forum provides interstate networking to address mutual NPS issues focusing on state coastal areas and waters.

The ACNPCP utilizes partnerships with Federal, State and Local agencies, businesses, organizations and decision makers to influence the implementation of items necessary to achieve program approval and operation. For the past 18 years, the ACNPCP coordinated to support the former Coastal Alabama Clean Water Partnership, which has now been redeveloped as the Alabama's Coastal NPS Resources Matrix as a modular 40 member forum to tackle challenging coastal NPS issues. The ACNPCP has also redeveloped the smaller regulatory-based ACNPCP Technical Advisory Committee to address NPS pollution management program needs and provide guidance for regulatory agency coordination issues. The ACNPCP also works closely with the ADEM-§319 program to assist and support these coastal NPS efforts and issues. These various forums are utilized to enhance coordination and cooperation regarding coastal water quality resources management. The NOAA-OCM, USEPA, USDA-NRCS, U.S. Fish and Wildlife Service, U.S. Army Corps of Engineers, ADEM-Section 319, Alabama Department of Conservation and Natural Resources-State Lands, and many other agency environmental partners have helped to advance administrative coordination and interagency cooperation as we further develop and implement the ACNPCP as a more effective coastal program.

On the local and regional level this program has continued to coordinate and facilitate the implementation of NPS measures by providing technical assistance as various RESTORE projects are being developed and implemented by the ACNPCP's partnerships with various entities here on the Alabama coast. These include coordination and cooperation with County and Municipal entities, Alabama Department of Conservation and Natural Resources, Mobile Bay National Estuary Program, WBNERR, NRCS, U.S. Fish and Wildlife Service, Corps of Engineers-Mobile District, MS-AL Sea Grant, Dauphin Island Sea Lab, Alabama Coastal Foundation, Nature Conservancy, and others.

In April of 2017, Alabama received the results from NOAA's 312-Review assessment of Alabama's Coastal Zone Management Program, which was conducted in August of 2016. Their findings included a Necessary Action for completion of Alabama's CNPCP approval process, which requires submission of a 5-year Workplan to be submitted by November 30, 2017. It is also required that the federal approval process for the ACNPCP be completed for Alabama by May, 2022, to avoid federal funding sanctions. Alabama's CNPCP Approval Work Plan was developed as a state interagency document and was submitted as requested. NOAA-OCM and EPA-HQ approved the submitted document for implementation while we continue to address and implement those targeted category measures for Alabama. Alabama has engaged with NOAA-OCM and EPA-HQ to participate in quarterly consultations to guide Alabama's progress.

Category Update: Alabama Coastal Nonpoint Pollution Control Program –Agriculture
***Coastal Alabama Regional No-Till Grain Drill (NTGD) Program*:**
The continued implementation and monitoring of Agriculture-related measures are realized through this innovative ACNPCP project being implemented through the local SWCDs using ADEM Section 319 funds. Both Mobile and Baldwin Counties contracted to purchase this erosion stabilization equipment and through a series of collaborative Workshops, they have provided field demonstrations that raise awareness and educate the local public concerning their use and importance. This Coastal Program Section 319 funding was used to help purchase two no-till drills to reduce erosion and sedimentation from cropland in impaired watersheds. The no-till equipment was placed on bid, ordered and was delivered to the SWCDs in order to begin implementation for this project. This Program provides access and long-term maintenance funding for the equipment, enabling maximum application for these machines for farmers participating within each coastal county. During this project's initial 18-month period of contracted

implementation, the machines' use was reported in 21 of our coastal 12-digit HUCs on at least 4,325 acres, and local NRCS-RUSLE 2 estimates of the soil erosion reduction were reported for this project at 21,580 tons per year. These participating SWCDs will continue to identify the HUCS and tally projected soil loss reduction as a result of these and other associated practices. The SWCDs will continue implementation of this project with monitoring and tracking of its use projected for the next several years. A partial write-up for this implementation project was recently publicized in *ADEM Insider*'s March 7th, 2018 edition (Volume XII, Number 2).

Category Update: Alabama Coastal Nonpoint Pollution Control Program-Urban Areas-OSDS

Coastal Alabama Onsite Sewage Distribution Systems Inspection & Maintenance Program -Sector 3:

This Program has moved forward with excellent reception from the public and enhanced awareness of individual responsibilities for protecting the environment. Section 319 program funds continue to provide a means to fund Alabama's implementation of important coastal Onsite Sewage Distribution Systems (OSDS) measures by engaging NPS programmatic priorities, partnerships, opportunities, and challenges. Coastal sewer entities have helped the implementation of category-related measures that address onsite sewer systems NPS impacts and pollutants. Implementing this Program will seek to reduce and negate potential NPS impacts and may enhance load reductions to protect water quality and restore impaired waters to state water quality standards. Specifically, Section 319 set-aside program funds are being used by the Baldwin County and Mobile County Conservation Districts to implement the *Coastal Alabama OSDS Inspection & Maintenance Program* as follows:

1. Implement an intensive "on-the-ground" county-wide septic tank inspection and maintenance program in designated priority eight-digit HUC sub-watersheds.
2. Provide mapping to identify hydric soils region profiles in the prioritized twelve-digit HUC watersheds, which are divided into four Geographic Sewer Areas targeted for implementation by Sector (referenced as Sectors 1-4).
3. They were active in the development of the MOU's with pumpers that included seventeen (17) cooperative partners in preparation for the Sector 3 Workshop inspections and maintenance activities that were implemented starting July 2017 through June 2018.
4. Our contractors updated project planning, promotion materials and advertising, and completed implementation for Sector 3, including the presentation of 13 educational maintenance/pump out workshops for the over 232 members of the public.
5. Successful issuance of 192 Inspection/Pump-out Vouchers to qualifying home owners, administered and dispersed reimbursements to the AOWB pumpers that completed voucher pump-outs for participating residential OSDS. Our regional Gulf Coast Resource Conservation and Development Council graciously provided additional funds to assist the further implementation of this effort.

Our local County Health Departments (Baldwin and Mobile) were also recruited by the ACNPCP to continue implementation of this *Coastal Alabama OSDS Inspection & Maintenance Program* by:

1. Providing technical assistance and regulatory authority for the development and implementation of this multi-year OSDS Inspection and Maintenance Program.
2. Providing invaluable coordination with the Alabama Onsite Wastewater Board and expertise in securing the services of the state-certified pumpers through the association and the AOWB Training Center that are vital to the success of this program.
3. Development of the new 2017 MOU's with the participating Pumpers established the discounted pumper fees and included them as vital partners in the preparation for the Sector 3 Workshops that began in November of 2017.

The twelve-digit HUC sub-watersheds targeted in Sector 3 for this cycle of *Coastal Alabama OSDS Inspection & Maintenance Program* implementation were prioritized and identified in Table 7 below.

TABLE 7. COASTAL ALABAMA OSDS I&M PROGRAM-SECTOR 3 WATERSHEDS

12-digit HUCs for Coastal Alabama OSDS I&M Program-Sector 3	
BALDWIN COUNTY	
Watersheds	*12-digit HUCs*
Lower Bay Minette Creek	031602040503
Tensaw River-Apalachee River	031602040505
Upper Fish River	031602050201
Fly Creek	031602050205
Middle Fish River	031602050202
Lower Fish River	031602050204
Upper Blackwater River	031401060601
MOBILE COUNTY	
Watersheds	*12-digit HUCs*
Lower Dog River	031602050103
Upper Dog River	031602050101
Garrow's Bend-Deer River	031602050105
Hall's Mill Creek	031602050102
Three Mile Creek	031602040504
Eight Mile Creek	031602040304
Seabury Creek	031602040303
Meekers Creek	031602040302
Bayou Sara	031602040402
Lower Chasaw Creek	031602040305
Gunnison Creek	031602040401

** As this Project has matured the Sector HUCs targeted have changed to facilitate other Program needs.*

Based upon the provided Sector 3 data reported by the Program Contractors and partners:

1. Approximately 3,746 certified OSDS Inspections were conducted during this project cycle in both Counties.
2. Combined, the Health Departments certified almost 1,720 OSDS inspections in the targeted Sector 3 watersheds.
3. Each coastal county gained an additional increase of inspections due to implementation of this Program in Sector 3 Project:
   - Baldwin County estimated an extra 6.5% increase countywide for OSDS inspections, reflecting a 15.2% increase in Sector 3.
   - Mobile County yielded an increase of 4.5% county-wide and a 10.5% increase for their Sector 3 OSDS inspections due to this project.

4. During this project period total numbers from both counties show an increase of 5.4% for OSDS inspections for the *ACNPCP Management Area* and an overall increase of 12.5% for the targeted Sector 3 watersheds, listed in Table 1 above.

The Coastal Alabama OSDS Inspection & Maintenance Program is planning for continued development to carry forward future implementation with Sector 4 in 2018-2019.

Coastal Alabama Onsite Sewage Distribution Systems Inspection & Maintenance Program (FY14) – Sector 2

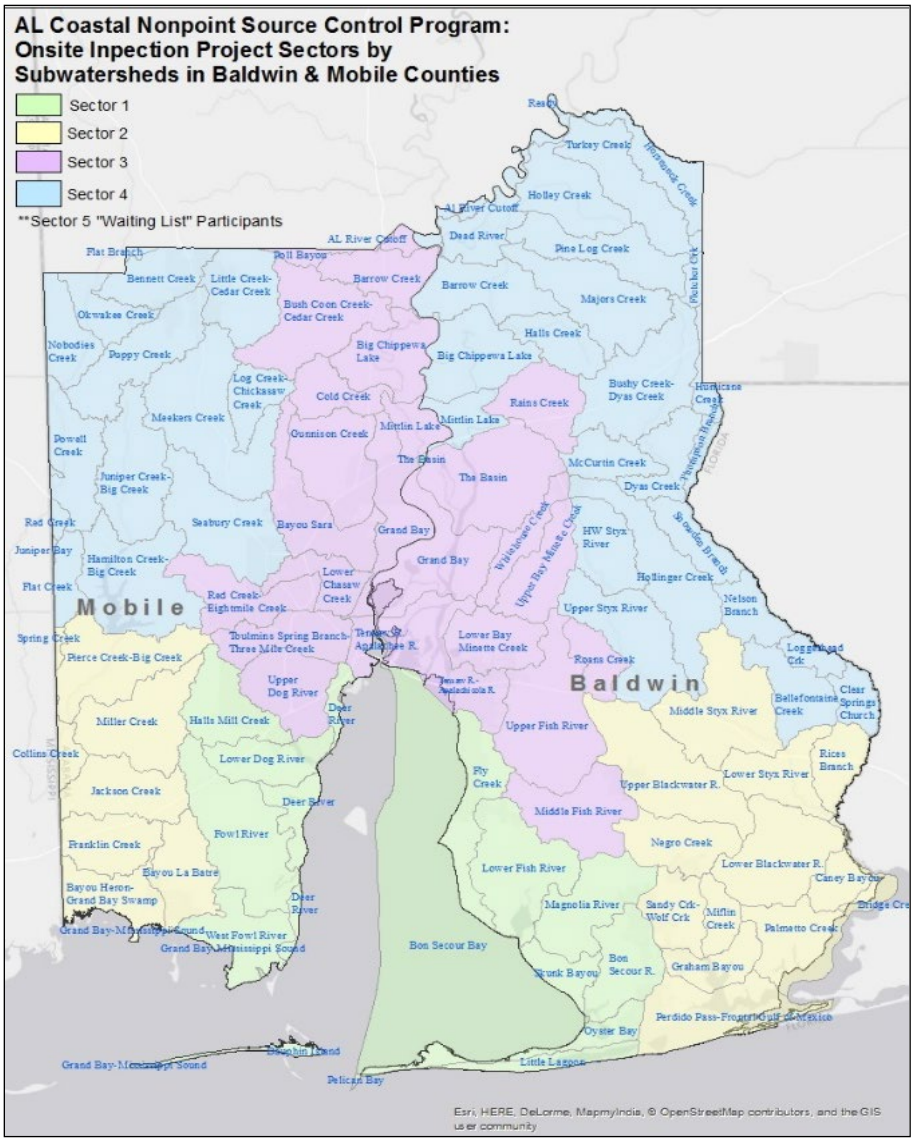


Figure 7: Proposed* Coastal Alabama Onsite Inspection Project Sectors for Mobile and Baldwin Counties

Efforts in 2018 to Achieve 2014-2019 Alabama NPS Management Program Goals and Objectives

Goal 1: Continue To Collect Surface Water and Groundwater Data Using a Five-Year Rotational Major River Basin Monitoring Approach To Assess Whether State Waters Meet State Water Quality Standards and Use Classifications.			
Objectives	**Status**	**Implementation Strategies to Ensure Continued Statewide Program Progress**	**NPS Success Measures and Indicators Targeted** (Derived from Table 8.8 of the 2014 AL NPS Management Program)
Long-term Objective 1: Continue to collect WQ monitoring data to characterize the chemical, physical, and biological conditions of subwatersheds in a priority major river basin and to help evaluate whether waters fully or partially meet state water quality standards and water use classifications. **Timeline**: Annual	Thirty-two main stem reservoir stations on the Alabama, Cahaba, Tallapoosa, and Tennessee River Basins were intensively monitored in FY2018. Thirty-eight locations on wadeable flowing streams and rivers were sampled in FY2018.	FY17 Section 319 Workplan Project 2 (Statewide Surface Water Quality Monitoring of Priority Wadeable Streams and Rivers) FY17 Section 319 Workplan Project 3 (Surface Water Quality Assessment of Rivers, Reservoirs and Tributary Embayments on a Statewide Rotation)	**I.** Water Quality Improvements from NPS Controls: a: …WQ standards attainment b: …impairments and threats c: …N, P, and sediment loadings d: …303(d) delisting e: …leveraged funds/ resources f: …USDA-NWQI priorities h: …CZARA 6217/Coastal NPS i:..lakes/reservoirs/ shorelines j: …marine, coastal, wetlands l: ....drinking water sources m: ...fish/shellfish advisories
Short-term Objective 1.1: Continue to collect WQ data to identify, list and categorize NPS threats and impacts to surface waters and groundwaters of the state in the latest CWA Section 305(b)/Integrated Water Quality Monitoring and Assessment Report (IR). **Timeline**: Biennial CWA Section 305(b) Report; 303(d) List	Continuing. Current IR 4/1/2018. The 2018 Section 303(d) List of Impaired was approved by EPA and final on 9/18/2018.	FY17 Section 319 Workplan Projects 2 and 3	
Short-term Objective 1.2: Continue to collect or assess WQ data from a priority CWA Section 303(d) listed HUC-12 subwatershed to support the development or implementation of a watershed-based management plan that incorporates Section 319 grant guideline nine-key watershed-based plan elements. **Timeline**: Annual	WQ data continued to support the development or updating of requisite watershed-based plans to apply for Section 319 funding. Twenty-two locations were monitored	FY17 Section 319 Implementation Projects 6, 7, 9, 10, 11, 12, 13. Contracts were executed to initiate FY17 Section 319 funded Watershed-based Projects: 6 – Tiawasee Creek 7 – Three Mile Creek 9 – Graves Creek Phase 2 10 – Crowdabout Creek Phase 3 11 – UT to D'Olive Creek	**II.** Interim Water Quality Protection and Restoration a: …results of installed BMPs b: …success story documentation c. … watershed plan progress

	to develop TMDLs for 13 waterbodies. Twelve locations were monitored to document water quality conditions prior to the implementation of 319 watershed plans. An additional 41 streams were monitored to assess use support attainment and to identify waterbodies impaired by NPS pollution.	12 – Parkerson Mill Creek 13- Moores Creek Phase 2	d:…priority NPS/TMDL pollutant f: …WQ trend data and tracking g: …trophic data h: …Coastal plan/ implementation **III.** Protection of High Quality Waters a: …ensure continued high quality b: …threat prevention c: …valid data collection process d: …high quality water listing **VI.** NPS Education and Outreach c: …enhance partnerships d: …specific audiences targeted f: …enhance data collection g:…TMDL/water-shed plan based
Short-term Objective 1.3: Continue to collect or assess Section 319 grant-funded watershed project WQ data to track restoration progress and successes (e.g., achieve priority TMDL and Section 319 pollutant load reductions; meeting state water quality standards, etc.). **Timeline:** Annual	Continuing	FY17 Section 319 Workplan Projects 1 (Admin.), 2 and 3 Beginning in FY2014, the ADEM Water Quality Monitoring Strategy was revised from a Five-Year Basin Rotation Strategy to an Annual Statewide Monitoring Strategy. This coordinated strategy allows intensive WQ monitoring for prioritization in watershed management plans, and, of completed watershed-based projects as requested and prioritized. It also allows targeted monitoring of stakeholder identified NPS issues, concerns, and improvements.	
Short-term Objective 1.4: Collect data to target and leverage Section 319 and other public and private funds and resources to gain NOAA/EPA final program approval of the Alabama Coastal Nonpoint Pollution Control Program (including meeting and sustaining implementation of Interim Decision Document recommendations) relative to Section 6217 of the Coastal Zone Act Reauthorization Amendments of 1990. **Timeline**: Annual	Continuing.	FY17 Section 319 Project 4 (Coastal NPS Program Approval (Septage Category V). ADEM staff serves as the national Coastal States Organization - Coastal NPS Work Group Chair for all conditionally-approved states seeking final EPA/NOAA program approval. The ADEM coastal NPS coordinator has continued collect information towards gaining program approval and also provides technical assistance for various RESTORE projects being developed and implemented through partnerships with various entities including	

		Alabama Department of Conservation and Natural Resources, Mobile Bay NEP, WBNERR, NRCS, U.S. Fish and Wildlife Service, COE-Mobile District, MS-AL Sea Grant, DISL, AL Coastal Foundation, Nature Conservancy, and local municipalities.	
Short-term Objective 1.5: Continue to partner with USDA-NRCS to monitor priority National Water Quality Initiative watersheds to help document pre- and post- conservation practice implementation effectiveness. **Timeline**: Annual	Continuing.	FY17 Section 319 Project 1 (Admin), 2 (Statewide Surface Water Quality Monitoring of Priority Wadeable Streams and Rivers). ADEM has partnered with NRCS and the DeKalb Co. SWCD to address the NWQI priority Upper Scarham Creek Watershed through a FY2014 Section 319 project. The Upper Scarham Creek Watershed is to be monitored in 2019. ADEM targeted WQ monitoring resources to assess NWQI priority Cox Mill/Hurricane Creek Watershed. ADEM has monitored this watershed as needed, as an NWQI priority. NRCS targeted and implemented BMPs in the Cross Creek Watershed and the Huckleberry Creek Watershed as part of the National Water Quality Initiative. ADEM participated in an on-site sampling meeting for Huckleberry Creek. ADEM participated in a multiagency meeting with EPA Region 4 and NRCS on 8/24/2018 to coordinate on next year's NWQI watershed selection directives for 2019.	

Goal 2:Target and Leverage NPS Management Resources to Restore, Protect, and Maintain Beneficial Uses of Waters			
Objectives	**Status**	**Strategies to Make Continued Progress**	**NPS Success Measures and Indicators Targeted** (Derived from Table 8.8 of the 2014 AL NPS Management Program)
Long-term Objective 2: Continue to leverage NPS management measure and practice resources to help ensure the public of clean and safe waters in accordance with the following authorities such as: • CWA Section 319 • Alabama Water Pollution Control Act • Other relevant NPS pollution federal and state laws, rules, regulations, ordinances, or policies and guidelines. **Timeline**: (Sustain, Replicate Annually)	Continuing.	FY17 Section 319 Workplan Project 1 (Admin) FY17 Section 319 Implementation Projects 6, 7, 9, 10, 11, 12, 13. Basin Teams continued to improve communication among project managers, field staff, and ADEM management within Field Operations, the Water Quality Branch, and the NPS Unit. Meetings were held in FY18 to plan and coordinate FY19 monitoring needs in order to assess NPS issues and to track watershed project progress and successes. ADEM, ADPH, Alabama Department of Conservation and Natural Resources, and TVA continued to cooperatively assess waterbodies to determine the support of healthy fish populations and their consumption through the Fish Tissue Monitoring Program. NPS staff have assisted in this effort by presenting the fish consumption advisory information to stakeholder groups. A Fish Tissue Coordination meeting between ADPH and ADEM was held on April 11, 2018.	**I.** Water Quality Improvements from NPS Controls: g: ... riparian areas/filter buffers h: …CZARA 6217 implementation i:…lakes/reservoirs/shorelines j: …marine, estuaries, wetlands k: …beaches/ human contact l: …groundwater, drinking water m: ... fish/shellfish advisories n: …threats to shellfish beds o: …LID/green infrastructure **II.** Interim Water Quality and Protection and Restoration b:…incremental restoration progress c: …incremental plan implementation d:…incremental load reductions e: …phased implementation h: …coastal program approval **III:** Protection of High Quality Waters
Short-term Objective 2.1: Continue to develop the NPS components of nine-key element watershed plans that will not/do not require or request a commitment of implementation resources. **Timeline**: Annual	Nine-Key Element Plans have been and are being developed by the Mobile Bay National Estuary Program, which do not primarily rely on Section 319 funds.	ADEM partnered with the Mobile Bay National Estuary Program to develop watershed management plans. Components of watershed plans are continually being implemented through local municipalities, NRCS, public and private fund leveraging.	
Short-term Objective 2.2: Continue to leverage public and private sector resources to implement NPS BMPs to restore impaired Section 303(d) listed waters per a TMDL or to	No Section 319 funds primarily target watershed "protection" of high quality waters (Tier 3), but	FY17 Section 319 Project 1 (Admin.) FY17 Section 319 Implementation Projects 6, 7, 9, 10, 11, 12, 13.	

protect high quality waters identified in Section 305(b) Integrated Reports. **Timeline**: Annual	continues to focus on "restoration" of NPS-impaired waters (Section 303(d) listed or TMDLs).	ADEM partnered with multiple agencies to provide WQ monitoring data for the EPA/NEP Mobile Bay science advisory and project implementation committees to help prevent future threats to WQ. The Weeks Bay Reserve and the Weeks Bay Foundation continually work to implement the Weeks Bay (OAW) Management Plan. The plan is currently in the process of being updated. ADEM partners with local organizations and other state agencies to assist with programs to protect Outstanding Alabama Waters, such as the Little River, Cahaba River, Paint Rock River, and the Tensaw River.	a:… protection against treats b:…regulations/ criteria/ programs c:…science-based data d: …verification and listings **IV.** NPS Pollutant Load Reductions a: …Section 303(d)/ TMDLs b: …N, P, and sediment c: …BMPs target critical areas d: …meet water quality standards e: …lakes and reservoirs f: …pollution prevention g: …major river basins
Short-term Objective 2.3: Continue to leverage Section 319 grant resources to achieve priority NPS (i.e., nitrogen, phosphorus, and sediment) and TMDL pollutant of concern load reductions. **Timeline:** Annual	Continuing.	FY17 Section 319 Project 1 (Admin); FY17 Section 319 Projects 6, 7, 9, 10, 11, 12, 13. All Section 319 funded watershed-based projects target priority NPS components of TMDLs (when completed). N, P, and Sediment pollutant load reductions are reported in GRTS prior to Feb and Oct, annually.	
Short-term Objective 2.4: Continue to place strong emphases on restoring NPS impaired HUC-12 delineated watersheds by facilitating and leveraging funding, BMP implementation, education and outreach, technology transfer, and technical assistance resources. **Timeline**: Annual	Continuing.	FY17 Section 319 Project 1 (Admin.) *Examples of technology transfer/education and outreach activities conducted with partners to target impaired waterbodies include: - Stormwater presentations (MS4 Communities) - 2018 NPS Conference -AL Erosion and Sediment Control Workshops – Clear Water Alabama 2018 (AL Soil & Water Conservation Committee) -BMP Manuals distribution (as requested) -STEPL training (as part of project cooperator training) -LID/Stormwater Workshops (Auburn University Cooperative Extension System)	

		-Septic Tank Workshops (Coastal Program Projects) -AWW (assistance with training workshops) - Several meetings and presentations for watershed stakeholders targeting specific impaired streams FY17 Section 319 Projects 6, 7, 9, 10, 11, 12, 13. All Section 319 funded watershed-based projects targeted "manageable" HUC-12 scale watersheds to best ensure improved WQ and project implementation success.	

Goal 3: Implement NPS Management Measures and Practices to Restore and Protect Watershed Health and Water Quality			
Objectives	**Status**	**Strategies to Make Continued Progress**	**NPS Success Measures and Indicators Targeted** (Derived from Table 8.8 of the 2014 AL NPS Management Program)
Long-term Objective 3: Continue to facilitate a partnership approach to implement NPS measures and practices to restore watersheds and water quality and protect human health from NPS of pollution. **Timeline**: (Replicate Successes per five-year Programmatic Update Iterations)	Continuing.	FY17 Section 319 Project 1 (Admin); FY17 Section 319 Implementation Projects 6, 7, 9, 10, 11, 12, 13. Conducted 2018 NPS Cooperators Conference. Worked closely with Clean Water Partnership groups and basin partners to assist in meeting program and project goals. Staff attended and/or presented at several basin and watershed meetings.	**I.** Water Quality Improvements from NPS Controls g: ... riparian areas/filter buffers h: …CZARA 6217 implementation i: …lakes/ reservoirs/shorelines j: …marine, estuaries, wetlands k:…beaches/human contact l: …groundwater, drinking water m: ... fish/shellfish advisories n: …threats to shellfish beds o: …LID/green infrastructure
Short-term Objective 3.1: Implement BMPs in at least one HUC-12 subwatershed, exclusive of Section 319 grant funding, to restore water quality and watershed productivity and resilience. **Timeline**: Annual	Continuing.	NRCS targeted and implemented BMPs in the Cross Creek Watershed and the Huckleberry Creek Watershed as part of the National Water Quality Initiative. NRCS targets Gulf of Mexico Initiative (GOMI) funds in the NPS impaired Weeks Bay (Upper/Middle/Lower Fish River Watersheds).	
Short-term Objective 3.2:	Continuing.	FY17 Section 319 Implementation Projects 6, 7, 9, 10, 11, 12, 13.	

Employ a suite of measures (including retrofits) to protect, maintain and restore the ecological integrity of aquatic systems in the state's rivers, lakes, wetlands, streams, and estuarine waters. **Timeline**: Annual	No specific wetland or estuarine restoration projects were not funded by Section 319 in FY2018.	The Deepwater Horizon (BP) Oil Spill Liability Trust Fund continues to target restoration of natural resources along the coast. Section 319 funded watershed-based projects employ a suite of BMPs to mitigate NPS runoff to impaired streams, river, and lakes. ADEM works with Gulf of Mexico Alliance (GOMA) to address coastal water issues on a multistate/regional basis.	**II:** Interim Water Quality and Protection and Restoration g: …Riparian areas/filter buffers **IV.** NPS Pollutant Load Reductions a: …Section 303(d)/ TMDLs b: …N, P, and sediment c: …BMPs target critical areas d: …meet water quality standards e: …lakes and reservoirs f: …pollution prevention g: …major river basins **V.** Implementation of NPS Controls a: …project planning b:…inclusive partnerships c: …statewide and coastal d: …local funds/capacity e: …priority impaired areas f: …USDA Farm Bill/ NWQI g:…Coastal Program approval h:…National Estuary Program i: …Clean Water Revolving Fund j: ....pervious surfaces k: ...T&E species and habitat l: …invasive species m: ....LID

			n: ...resources integrated/ leveraged o: …BMP maintenance p: …locally-led and implemented q: …fiscal accountability

Goal 4:Enhance Institutional Capacity to Implement a Sustainable Statewide NPS Pollution Management Program			
Objectives	**Status**	**Strategies to Make Continued Progress**	**NPS Success Measures and Indicators Targeted** (Derived from Table 8.8 of the 2014 AL NPS Management Program**)**
Long-term Objective 4: Continue to enhance programmatic efficiency and effectiveness by updating programmatic Goals and Objectives by September 30, 2014. **Timeline**: (Replicate every five years.)	The AL NPS Management Program was approved by EPA in August 2014.	Completed. Staff continues to discuss and document revisions needed to the AL NPS Management Program.	**I.** Water Quality Improvements from NPS Controls: e: …leverage Section 106 and other WQ resources f: …leverage NWQI resources h:…coordinate CZARA 6217 **V.** Implementation of NPS Controls e: …voluntary citizen approach f:…align with USDA-Farm Bill g: …coordinate with CZARA h:…coordinate with NEP i: …Clean Water Revolving Fund n: …resource integration and leveraging p: …local solutions to local problems using local resources
Short-term Objective 4.1: Continue to enhance Section 319 grant transparency, program accountability, and fiscal management by implementing iterative technology-based approaches. **Timeline**: Annual	Continuing.	FY17 Section 319 Project 1 All required Section 319 grant and project data is entered into GRTS in October and February, annually. ADEM NPS staff develop and update dedicated Section 319 grant and project specific tracking systems to help ensure accountability and provide timely information.	
Short-term Objective 4.2: Continue to track the diversity of watershed planning and implementation partnerships. (e.g., agency, university, advisory, others). **Timeline**: Annual	Continuing.	ADEM (Project 1) partners with the basin partnership groups to identify, sustain, and support many and varied NPS partners, interest, and input. ADEM continued to work with Auburn University as a Center for Watershed Excellence. EPA coordination is ongoing for the redevelopment of the MOUs with Alabama A&M and the University of AL for the Centers for Watershed Excellence. ADEM submitted FY2017 Section 319 workplans to EPA-Region 4 that incorporate a myriad of NPS	

		partners and mitigation resources (*submitted on 9/30/2016*). The NPS Annual report documents and highlights the project partners across the state that are involved in NPS program implementation. The report is placed on the ADEM website and advertised at basin meetings and at conferences.	q:. .fiscally responsible **VI.** NPS Education and Outreach a: …targets watershed and WQ b: …increase awareness and knowledge c:…partnerships d:…specific and target audiences e: …pollution prevention f: …enhance data monitoring g: …TMDLs, watershed based plan, public health and safety
Short-term Objective 4.3: Continue to track successful completion of planned NPS water quality restoration outcomes (e.g., materials developed, reports generated, practices implemented, conferences/meetings facilitated or attended, etc.). **Timeline:** Annual	Continuing.	FY17 Section 319 Project 1 Specific Section 319 project outputs are presented in interim and closeout reports. Final reports are submitted to EPA R-4 at grant closeout.	
Short-term Objective 4.4: Continue to convey institutional capacity by developing or submitting final TMDL and Section 319 NPS watershed planning and pollutant load reduction success stories to EPA. **Timeline**: Annual	Continuing.	FY17 Section 319 Project 1 Submitted a Hester Creek (WQ-10) success story to EPA-Region 4 on 7/5/18 for review and comments. Finalized by EPA Region 4 and posted to the NPS Success Story website on 9/18/18.	

<u>Goal 5</u>:Facilitate statewide E&O activities to increase the public's knowledge and awareness about NPS pollution, watershed health, water quality protection and restoration, and natural resource stewardship.			
Objectives	**Status**	**Strategies to Make Continued Progress**	**NPS Success Measures and Indicators Targeted** (Derived from Table 8.8 of the 2014 AL NPS Management Program**)**
<u>Long-term Objective 5</u>: Continue to facilitate the delivery of statewide and coastal zone NPS program communication materials and actions to enhance citizen education (e.g. awareness and knowledge; decision-making, problem solving, etc.) and outreach (e.g., dissemination of information; seeking input and active participation. **Timeline**: (Replicate Processes Every five years)	Continuing.	Alabama's Coastal Nonpoint Pollution Control Program has used 319 funding to help purchase two no-till grain drill machines to reduce erosion and sedimentation from cropland in impaired coastal watersheds. In addition, funding is being used in Mobile and Baldwin Counties to implement a Coastal Alabama Septic Tank Inspection and Maintenance Program to identify problem areas, effectively raise awareness and to promote maintenance and inspection needs, while providing a septic tank pump-out program for coastal residential homeowners.	**V.** Implementation of NPS Controls a: …project planning b:…inclusive partnerships c: …statewide and coastal d: …local funds/capacity **VI.** NPS Education and Outreach a: …targets watershed and WQ

Short-term Objective 5.1: Continue to leverage Section 319 grant resources to plan, produce, or disseminate water quality based E&O products that target specific audiences (e.g., NPS pollution category or place-based issues). **Timeline**: Annual	Continuing.	FY17 Section 319 Project 1	b:… increase awareness and knowledge c:…Partnerships d:…Specific and target audiences e: …pollution prevention f: …enhance data monitoring g: …TMDLs, watershed based plan, public health and safety
Short-term Objective 5.2: Continue to leverage public and private sector resources to develop and deliver E&O presentations, models, documents, and technologies. **Timeline**: Annual	Continuing.	FY17 Section 319 Project 1	
Short-term Objective 5.3: Continue to deliver E&O activities that target specific Section 319 and TMDL priority pollutants in at least one NPS impaired HUC-12 subwatershed. **Timeline:** Annual	Continuing.	FY17 Section 319 Project 1 FY17 Section 319 Implementation Projects 6, 7, 9, 10, 11, and 12, 13.	
Short-term Objective 5.4: Continue to facilitate E&O activities to strengthen working relationships and linkages to appropriate interstate, state, regional, and local entities (i.e., everyone "works-off-the-same-page"). **Timeline**: Annual	Continuing.	FY17 Section 319 Project 1	

Progress in Achieving Annual Milestones of the Alabama NPS Management Program and Section 319 Grant Program

(1) Statewide NPS Programmatic Water Quality Annual Milestones	Year 2018		
Measure: Water Quality Monitoring Data Indicates a Primarily NPS Impaired Waterbody or Segment Is Now Fully or Partially Meeting State Water Quality Standards			
(Baseline is 2013)	**Indicator**	**Waterbody / HUC**	**Comments**
a) Number of Waterbodies identified in AL's 2000 or later year Integrated Reports (IR) as being primarily NPS impaired that now meets state water quality standards and designated uses (WQ-10): (Goal is minimum 1/year): (i.e., Category 5/ Section 303(d) listed Impaired Waters):	1	Hester Creek / 06030002-0303	More recent data indicated water quality standards were attained for Hester Creek nutrients and sedimentation/siltation in 2014.
Number of WQ-10 Waterbodies Fully/Partially Restored or Meets State Water Quality Standards or Designated Uses:	1	Hester Creek / 06030002-0303	Initially, the entire Flint River Watershed was first addressed with CWA Section 319 funding from 2000 to 2005 in cooperation with the Madison County SWCD. Community stakeholder meetings, AWW volunteer monitoring training, and other workshops helped to communicate the project goals. Two phases of the Hester Creek/Mountain Fork Watershed Project, from 2009 to 2013, were funded through a CWA section 319 grant in cooperation with the Madison County SWCD and ADEM.
Number of WQ-10 NPS/Section 319 Success Stories Developed as a Result of Full/Partial Restoration:	1	Hester Creek / 06030002-0303	WQ Standards were attained due to NPS and other partnerships in restoration activities.
Number of WQ-10 NPS/Section 319 Success Stories That Are Being Developed as a Result of Full/Partial Restoration:	1	Hester Creek / 06030002-0303	A Hester Creek WQ-10(a) Success Story is being prepared for submittal to EPA R-4 for partial restoration due to attainment of nutrients and sedimentation.
Number of WQ-10 NPS/Section 319 Success Stories Submitted to EPA Region 4 as a Result of Full/Partial Restoration:	1	Hester Creek / 06030002-0303	Submitted to EPA R-4 on July 5, 2018, for review and comments.
Number of WQ-10 NPS/Section 319 Success Stories Listed by EPA-HQ as Result of Full/Partial Restoration:	1	Hester Creek / 06030002-0303	Accepted by EPA Region 4 on September 18, 2018 and to be posted to the HQ website in September 2018.

b) Number of Waterbodies identified in AL's 2002 IR as not attaining water quality (WQ) standards where state water quality standards are now partially attained using a watershed-based approach (SP-12): (Goal is minimum 1/year): (i.e., <u>Category 5/ Section 303(d) listed Impaired Waters</u>):	0		
Number of Waterbodies Where the Watershed Approach Was Used to Target or Restore Impairments to Water Quality:	0		
Number of SP-12 NPS/Section 319 Success Stories Developed to Proclaim WQ Standards are Partially Restored:	0		
Number of SP-12 NPS/Section 319 Success Stories That Are Being Developed to Proclaim WQ Standards are Partially Restored:	0		
Number of SP-12 NPS/Section 319 Success Stories Submitted to EPA Region 4 as a Result of WQ Standards Now Being Partially Restored:	0		
Number of SP-12 NPS/Section 319 Success Stories Listed by EPA-HQ as Result of WQ Standards Being Partially Restored:	0		

(2) NPS **Pollutant Load Reductions**	**Year 2018**	
Measure: Cumulative Estimated Statewide NPS Load Reductions		
(Baseline is FY 2013)	**Indicator**	**Comments**
a) Pounds of Nitrogen (N) Pollutant Load Reductions Annually from NPS Using Section 319 Grant Watershed Project Funds (WQ-9a):	492,841.9 lbs/year	Cumulative "N" for all ongoing Section 319 grants (2014- 2018). 2014- 2018 project load reductions are pending additional implementation.
Number of Section 319 Funded Projects Reporting "N" Pollutant Load Reductions (Total Watershed Projects/Total Projects Targeting "N"):	24	
Load Reductions Entered in GRTS by Feb 15	Yes	
b) Pounds of Phosphorus (P) Pollutant Load Reductions Annually from NPS Using Section 319 Grant Watershed Project Funds (WQ-9b):	117,349.3 lbs/year	Cumulative "P" Total for all "open" Section 319 grants (FY2014- 2018) reported in GRTS. 2014- 2018 project load reductions are pending additional implementation.
Number of Section 319 Funded Projects Reporting "P" Pollutant Load Reductions (Total Watershed Projects/Total Projects Targeting "P"):	24	
Load Reductions Entered in GRTS by Feb 15	Yes	
c) Tons of Sediment (S) Pollutant Load Reductions Annually from NPS Using Section 319 Grant Watershed Project Funds (WQ-9c):	83,303.9 tons/year	Cumulative "S" Total for all "open" Section 319 grants (FY2014- 2018) reported in GRTS. 2014- 2018 project load reductions are pending additional implementation.
Number of Section 319 Funded Projects Reporting (S) Pollutant Load Reductions (Total Watershed Projects/Total Projects Targeting "S"):	24	
Load Reductions Entered in GRTS by Feb 15	Yes	

d) Number of Impaired Waterbodies/Segments Where "Other" NPS Pollutant Load Reductions are Achieved (#):	4*	Biological Oxygen Demand (BOD) was sometimes reported by projects since it is included in STEPL results. All watershed-based projects leverage the recourses of two or more resource agencies. *"Other" narratives/data reporting address pathogens, OE/DO, and aquatic habitat.
Priority TMDL Pollutants of Concern (Pollutants Other than N, P and Sediment) Were Mitigated Using Leveraged Section 319 Watershed Project Funds:	Yes	
Section 319 Watershed Project Funds Compliments and Leverages Technical and Financial Assistance from 2 or more Federal and State Resource Agencies:	Yes	
"Other" Pollutant Project Narrative/Data included in the NPS/Section 319 Annual Report:	Yes	

(3) Project-Level Water Quality Planning and Restoration and Activities	**Year 2018**	
Measure: Watershed Project Funds Target NPS Impaired or Mixed Source Impaired Section 303(d) Listed Waters		
Baseline is FY2013 and 2002 Impaired Waters List	**Indicator**	**Comments**
a) Watershed-based Plans or Acceptable Alternative Plans are Completed Prior to Beginning to Implement On-The-Ground Projects with Section 319 Watershed Project Funds:	Yes	Nine-key element Watershed-based Plans submitted to ADEM to mitigate NPS impacts and improve water quality with 2016 or 2017 grant funds include: • Dry Creek* • Cowarts Creek* • Mulberry Creek* • Browns Creek* • Upper Scarham Creek • Catoma Creek • French Mill Creek • UT to Tiawasee Creek Collaboration and coordination continues to ensure early and sustained buy-in from many and varied resource agencies, landowners, and other entities. All mandated data elements entered into GRTS prior to Feb 15, 2018.
At least two (2) EPA nine-key Element Watershed-based Plans are Drafted or Final Plans Developed Annually:	4*	
At least two (2) EPA nine-key Element Watershed-based Plans Begin Implementation Annually:	8	
Appropriate Stakeholders Were Involved in Watershed Planning and Implementation Processes:	Yes	
All current mandated project data elements are entered into GRTS with no exceptions associated with the previous year Section 319 grant award noted by Region 4 or EPA HQ remaining unresolved:	Yes	
Progress schedules reasonably ensure completion within the grant funding periods:	Yes	

(4) Program Management and Accountability	**Year 2018**	
Measure: The NPS Management Program Increases Implementation Efficiencies		
Baseline is FY2013	**Indicator**	**Comments**
a) Program Performance Issues/Concerns and Associated Corrective Actions Continue to Be Addressed to Meet Foundational Aspects of Section 319 Grant Guidelines and Funding/Management Requirements:	Yes	The 2018 Section 319 RFP notice as well as the Inter-governmental Clearinghouse Review was executed.

A statewide NPS project workplan RFP is submitted to the public within 6 months of the fiscal year begin data (prior to Sept 30):	Yes	Watershed projects were selected for FY18 funding. Final EPA budget was received and projects are in process of being modified prior to contract implementation. The ADEM NPS Unit uses/refines dedicated Section 319 grant/project tracking databases as well as coordinates invoice payments with the Fiscal Office. All mandated data elements are entered into GRTS as grant and project-specific information is acquired by ADEM staff. ADEM NPS Staff facilitates or participates in multiple E&O activities monthly. The ADEM participated in the EPA GRTS Training Meeting on September 20 – 21, 2017; NPS staff participated in the GRTS Success Story on June 26, 2018, or July 11, 2018; and NPS Staff attended the National NPS Training Meeting in November 2018. Data continues to be QA'd and entered into ADEM-specific and national /EPA reporting databases. The Upper Scarham Creek Watershed (06030001-0803) was approved in 2014 as an additional NWQI priority. The Upper Scarham Creek Watershed is an ongoing FY2014 Section 319 implementation project with the DeKalb County SWCD. The Cox Mill Creek/Hurricane Creek Watershed has been monitored by ADEM, as needed, an NWQI priority since 2014.
Previous Year Section 319 funds were obligated by ADEM within one (1) year of the date of receipt from EPA Region 4:	Yes	
Programmatic and financial systems are developed, evaluated, revised or updated to enhance project tracking and reporting:	Yes	
Mandated project elements entered into GRTS at least biannually:	Yes	
NPS staff facilitate or participate in at least one (1) NPS related education and outreach or training program activity at least one (1) time per month to enhance public awareness and knowledge:	Yes	
Annual Regional and National GRTS and NPS Program/Section 319 Managers Meetings are Attended as scheduled:	Yes	
Environmental data collected to assess NPS water quality impacts continues to be input into ADEM-specific, STORET or other publicly available databases or reporting formats:	Yes	
ADEM partners with USDA-NRCS to select and/or monitor water quality for at least one (1) NWQI priority watershed:	Yes	

The Alabama NPS Management Program Projects, Percent Completion, and Federal/Non-Federal Funds

Project	Percentage of Project Completed	Obligated Federal Funds	Required Matching Funds	Project Completion Date	Notes
Fiscal Year 2014					
Planning Administration/Management	100%	$ 662,769	$ 441,846	09/30/2014	
Statewide Surface Water Quality Monitoring of Priority Wadeable Streams and Rivers	100%	$ 304,140	$ 202,760	11/30/2016	
Surface Water Quality Assessment of Rivers, Reservoirs and Tributary Embayments on a Statewide Rotation	100%	$ 150,592	$ 100,395	03/31/2017	
Coastal NPS Program Approval (Septage Category I)	100%	$ 100,000	$ 72,252	09/30/2018	
Mobile Co. SWCD		*$ 35,000*	*$ 23,523*		
Mobile Co. Health Dept.		*$ 15,000*	*$ 11,305*		
ADPH - Baldwin County		*$ 15,000*	*$ 13,853*		
Baldwin Co. SWCD		*$ 35,000*	*$ 23,570*		
Alabama Clean Water Partnership	100%	$ 272,999	$ 203,411	01/01/2017	
Project Grant Implementation Management	100%	$ 168,844	$ 112,563	09/30/2014	
Moores Creek	100%	$ 520,093	$ 346,729	09/30/2017	
Upper Scarham Creek	100%	$ 261,151	$ 174,101	02/05/2018	
Graves Creek	100%	$ 179,583	$ 138,136	02/28/2018	
Shoal Creek	100%	$ 158,800	$ 105,867	12/20/2017	
Pursley Creek	100%	$ 139,496	$ 94,909	02/07/2018	
Catoma – Waller Creek	100%	$ 62,533	$ 41,689	02/22/2018	
Fiscal Year 2015					
Planning Administration/Management	100%	$ 662,809	$ 441,873	09/30/2015	
Statewide Surface Water Quality Monitoring of Priority Wadeable Streams and Rivers	100%	$ 334,140	$ 222,760	11/30/2017	
Surface Water Quality Assessment of Rivers, Reservoirs and Tributary Embayments on a Statewide Rotation	90%	$ 152,387	$ 101,591	09/30/2019	

Coastal NPS Program Approval (Septage Category II)	26%	$ 100,000	$ 66,667	09/30/2019	
Alabama Clean Water Partnership	Cancelled	$ 225,954	$ 150,636	04/01/2018	Notified ACWP to dissolve. Funds reallocated to WMP development and Watershed Stewards Program.
Pepperell Branch Watershed Management Plan	0%	$ 144,744	$ 96,496	08/14/2019	
Watershed Steward Pilot Program	0%	$ 81,170	$ 54,113	08/09/2019	
Project Grant Implementation Management	100%	$ 193,746	$ 129,164	09/30/2015	
Second Creek	93%	$ 205,829	$ 137,686	02/05/2019	
Brindley Creek	83%	$ 259,004	$ 186,051	01/12/2018	
UT to Tiawassee Creek	58%	$ 596,671	$ 397,781	03/01/2019	This project was given an extension until March 1, 2019 due to a redesign of the wetlands, building of the educational boardwalks, and the need to have longer to complete some education and outreach components.
Lake Neely Henry	99%	$ 220,000	$ 146,667	04/06/2018	Expect to return $1,766 of unliquidated funds.
Fiscal Year 2016					
Planning Administration/Management	100%	$ 786,251	$ 524,167	09/30/2016	
Statewide Surface Water Quality Monitoring of Priority Wadeable Streams and Rivers	88%	$ 357,579	$ 238,386	12/31/2018	
Surface Water Quality Assessment of Rivers, Reservoirs and Tributary Embayments on a Statewide Rotation	65%	$ 180,834	$ 120,556	09/30/2020	
Coastal NPS Program Approval (Septage Category III)	0%	$ 100,000	$ 66,667	09/30/2020	
Watershed Management Plans, Public Stakeholder Involvement, Education & Outreach	0%	$ 100,336	$ 66,891	09/30/2020	Pending Redevelopment of Workplan for Watershed Stewards
UT to D'Olive Creek	100%	$ 197,956	$ 131,485	03/30/2020	
Moores Phase Two	4%	$ 295,953	$ 197,788	02/22/2020	
Upper and Lower Flint River	46%	$ 248,000	$ 165,333	11/09/2018	On November 2, 2018, this project notified

					the Department that it would not be invoicing for $104,457. This funding will require the funds to be reallocated to a different project.
Shoal/Swann Creek (Limestone Co.)	35%	$ 360,000	$ 240,000	11/10/2019	This project notified the Department that $234,600 is unused and will work to use the funding in the Swann/French Mill Creek watersheds pending submittal and approval.
West Flint – Phase Three	41%	$ 300,000	$ 200,000	07/21/2019	
Three Mile Creek	73%	$ 46,041	$ 30,694	12/01/2018	Waiting on the final invoice, final report, and site maintenance.
Joe's Branch	100%	$ 77,050	$ 51,367	09/28/2017	
Fiscal Year 2017					
Planning Administration/Management	100%	$ 766,742	$ 511,161	09/30/2017	
Statewide Surface Water Quality Monitoring of Priority Wadeable Streams and Rivers	88%	$ 338,380	$ 225,587	09/30/2021	
Surface Water Quality Assessment of Rivers, Reservoirs and Tributary Embayments on a Statewide Rotation	65%	$ 176,776	$116,253	09/30/2021	
Coastal NPS Program Approval (Septage Category IV)	0%	$ 100,000	$ 66,667	09/30/2021	
Watershed Management Plans, Public Stakeholder Involvement, Education & Outreach	0%	$ 245,402	$ 163,601	09/30/2021	Pending Redevelopment of Workplan
Tiawasee Creek	0%	$ 542,928	$ 361,952	09/14/2020	Note this project is linked to FY18 project.
Three Mile Creek	0%	$ 152,339	$ 101,559	03/14/2020	
Mill Creek Phase 3	Cancelled				This stream was delisted. Phase 3 will not occur.
Graves Creek Phase 2	0%	$ 250,250	$ 166,833	04/26/2021	
Crowdabout Creek Phase 3	57%	$ 160,300	$ 106,867	11/06/2019	
UT to D'Olive Creek	3%	$ 195,858	$ 130,572	03/30/2020	Note this project is linked to FY16 project.
Parkerson Mill Creek	0%	$ 158,629	$ 105,753	12/30/2020	
Moores Creek Phase 2	0%	$ 66,996	44,664	02/22/2020	Note this project is linked to FY16 project.

Fiscal Year 2018					
Planning Administration/Management	100%	$ 837,566	$ 558,337	09/30/2018	
Statewide Surface Water Quality Monitoring of Priority Wadeable Streams and Rivers	66%	$ 339,392	$ 226,261	09/30/2022	
Surface Water Quality Assessment of Rivers, Reservoirs and Tributary Embayments on a Statewide Rotation	40%	$ 173,932	$ 115,955	09/30/2022	
Coastal NPS Program Approval	0%	$ 100,000	$ 66,667	09/30/2022	
Watershed Management Plans, Public Stakeholder Involvement, Education & Outreach	**	$ 157,110	$ 104,740	09/30/2022	Pending
Dry Creek	**	$ 113,485	$ 75,657	09/30/2022	Pending
Mulberry Creek	**	$ 196,079	$ 130,719	09/30/2022	Pending
Browns Creek	**	$ 190,913	$ 127,275	09/30/2022	Pending
Town Creek	**	$ 237,246	$ 158,164	09/30/2022	Pending
UT to Tiawasee Creek	0%	$ 312,805	$ 208,537	09/30/2022	Note this project is linked to FY17 project.
Emuckfaw Creek	**	$ 175,000	$ 116,667	**	Pending
Fiscal Year 2019					
Planning Administration/Management	*	$ 861,115	$ 574,077	09/30/2023	
Statewide Surface Water Quality Monitoring of Priority Wadeable Streams and Rivers	*	$ 368,766	$ 245,844	09/30/2023	
Surface Water Quality Assessment of Rivers, Reservoirs and Tributary Embayments on a Statewide Rotation	*	$ 177,419	$ 118,279	09/30/2023	
Coastal NPS Program Approval	*	$ 100,000	$ 66,668	09/30/2023	
Watershed Management Plans, Public Stakeholder Involvement, Education & Outreach	*	$ 120,000	$ 80,000	09/30/2023	
Turkey Branch	*	$ 215,779	$ 143,853	09/30/2023	
Village Creek	*	$ 430,668	$ 287,112	09/30/2023	
Ryan Creek	*	$ 162,161	$ 108,107	09/30/2023	
Anderson Creek	*	$ 255,089	$ 170,059	09/30/2023	
Big Nance Creek	*	$ 227,500	$ 151,667	09/30/2023	
Cowarts Creek	*	$ 296,525	$ 197,683	09/30/2023	

**FY19 319 Application submitted to the EPA on 9/28/2018. Pending approval.*

***FY18 319 Application submitted to the EPA on 9/28/2017. Funding released 8/15/2018. Workplans are being updated based on available funds.*

The Alabama Nonpoint Source Management Program

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Alabama Department of Environmental Management

United States Environmental Protection Agency