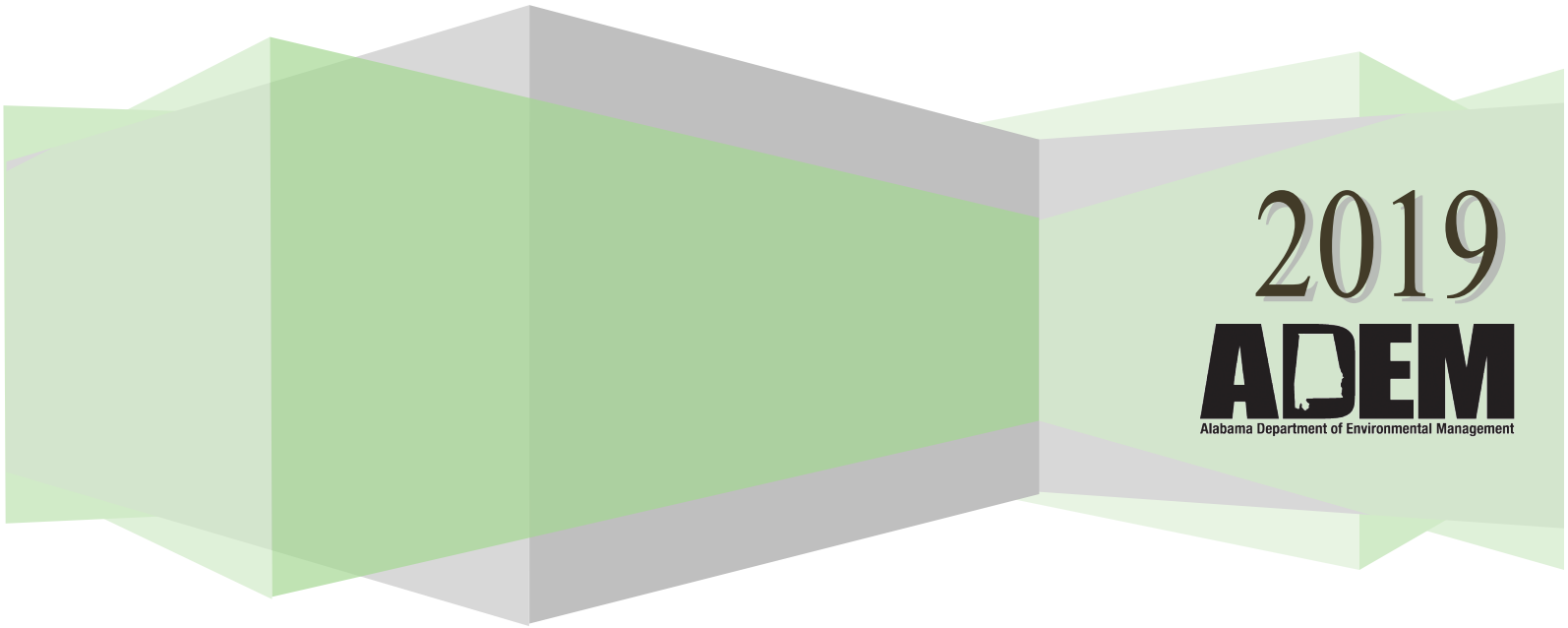
ALABAMA NONPOINT SOURCE MANAGEMENT PROGRAM

ANNUAL REPORT



2019

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, and nonprofit entities are eligible to apply for Section 319(h) grant subawards 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.

ALABAMA NPS PROGRAMMATIC GOALS AND OBJECTIVES

Goal 1: Continue to collect surface water and groundwater monitoring data using an iterative statewide targeted monitoring approach to assess whether state waters meet state water quality standards and use classifications.

Goal 2: Target AL NPS management program resources to restore, protect, and maintain beneficial uses of waters of the state.

Goal 3: Implement NPS management measures and practices 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 the delivery statewide Education and Outreach (E&O) activities to increase the public knowledge and awareness relative to 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 2019)

Balances for active grants FY2015-FY2020 are listed in Table 1 and represented graphically in the Figure 1 below.

TABLE 1 – CURRENT 319 GRANT BALANCES

Grant Year	Award Amount	Amount Obligated	Program Funds	Project Funds	Total # Projects
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	15
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	10
FY19	$3,086,000	$3,086,000	$1,593,000	$1,593,000	9
FY20*	$3,155,000	$3,155,000	$1,627,500	$1,527,500	9
Total	**$18,512,100**	**$18,512,100**	**$9,456,050**	**$9,156,050**	**66**

**FY2020 Projects are pending the receipt of EPA funds.*

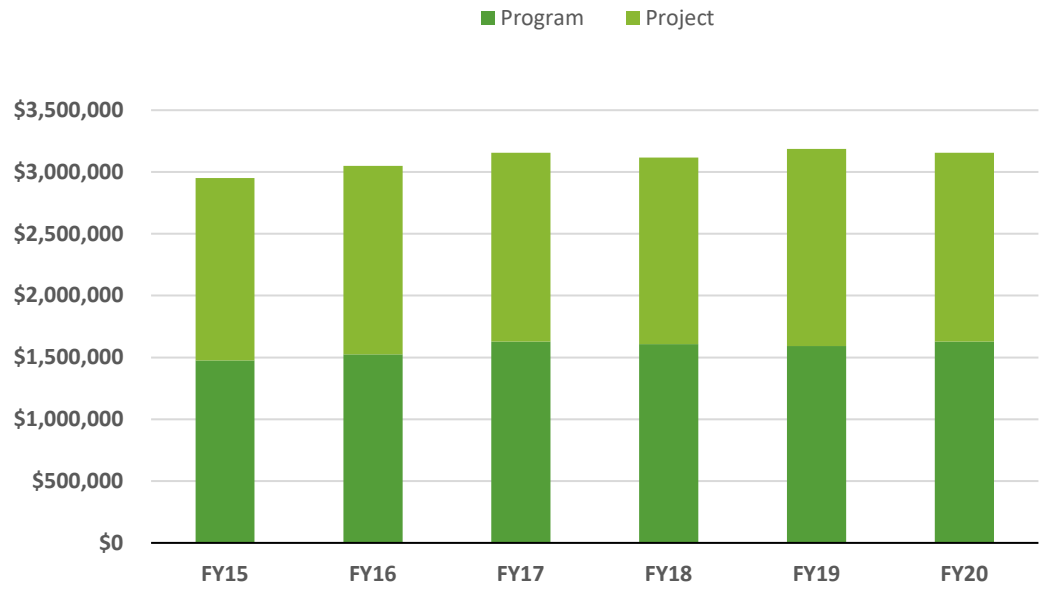


Figure 1: Current 319 Grant Balances

Pollutant Load Reduction Totals in FY2019

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 2 – POLLUTANT LOAD REDUCTIONS

Fiscal Year	Nitrogen (lbs/yr)	Phosphorus (lbs/yr)	Sedimentation-Siltation (tons/yr)
2015	34,951	10,210	12,377
2016	161,848	41,641	27,882
2017	144,609	39,012	30,043
2018	51,784	10,517	4,985
2019	34,595	10,515	7,641
Total	**427,787**	**111,895**	**82,928**

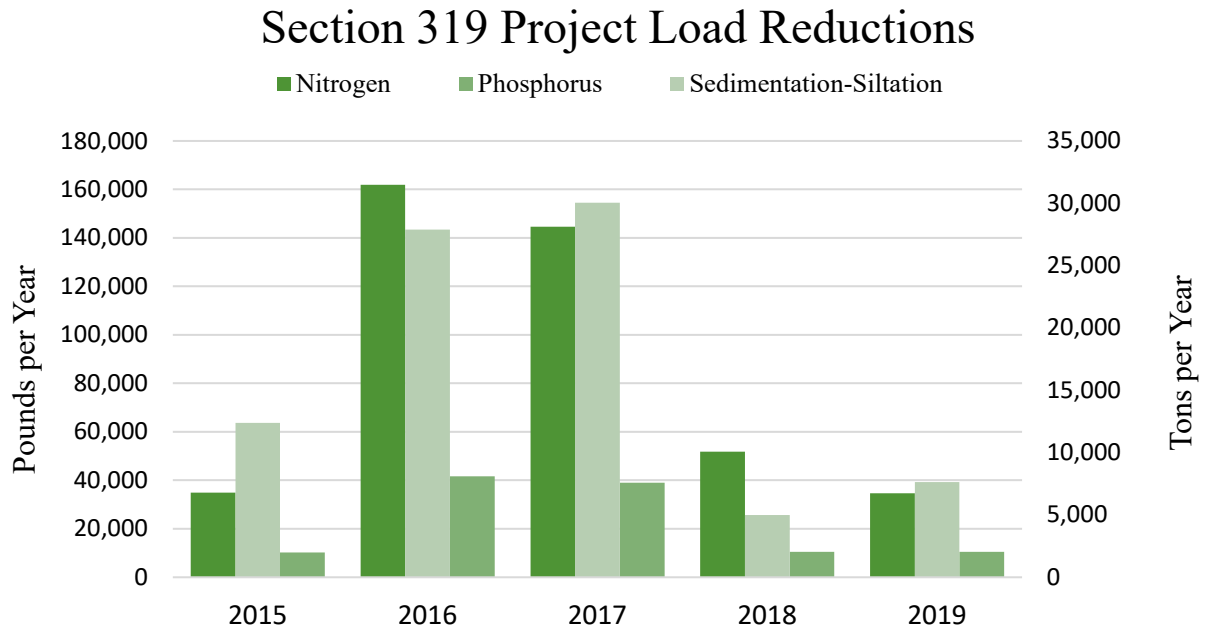


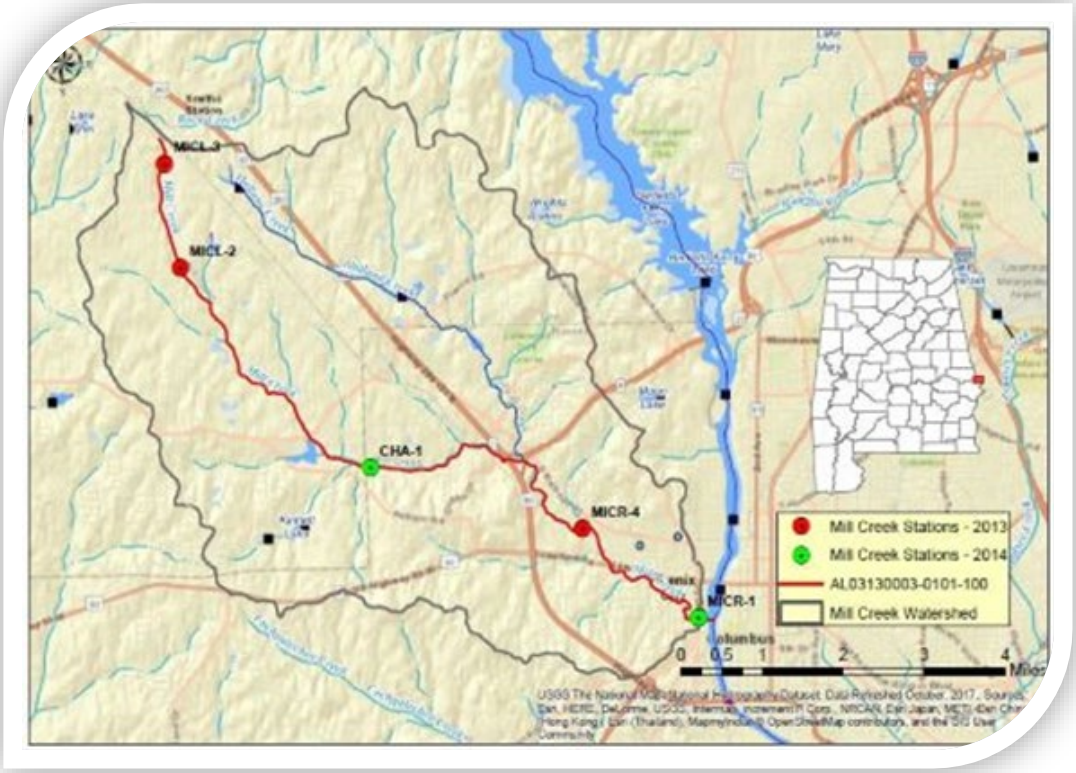
Figure 2: Nitrogen, Phosphorus, and Sediment Load Reductions by Fiscal Year

Section 319(h) Grant Program Success Story

Community Partnerships Restore the Water Quality of Mill Creek Watershed

WATERBODIES IMPROVED

In 2006, the Alabama Department of Environmental Management (ADEM) added Mill Creek to the Clean Water Act (CWA) section 303(d) list due to a poor macroinvertebrate assessment rating. In 2010, the listing was updated based on additional data that indicated Mill Creek did not fully support its use classification of fish and wildlife with respect to organic enrichment, low dissolved oxygen, and compromised macroinvertebrate community as a result of urban development and runoff. Partners implemented targeted best management practices (BMPs) to reduce nonpoint source (NPS) pollution using a watershed management plan (WMP) developed with stakeholder contributions. Water quality improved thanks to a series of CWA section 319(h) implementation grants and community support in the watershed, and ADEM removed the segment from the CWA section 303(d) list in 2018.



The Mill Creek watershed begins in Smiths Station, AL and flows through portions of Lee and Russell Counties until it discharges into the Chattahoochee River in Phenix City, AL.

PROBLEM

The headwaters for Mill Creek are in the city of Smiths Station in Lee County, Alabama. The stream flows for 9.93 miles through Lee County into Russell County and eventually discharges into the Chattahoochee River in Phenix City, Alabama (Figure 1). The basin is in the Southeastern Plains, Fall Line Hills Ecoregion (Ecoregion 65i), which is characterized by loamy and sandy sediments. In 2011 the watershed was comprised of approximately 60% urban development and 31% forested land. The Recovery Potential Screening Tool estimated that a 7.7% increase in urban development occurred between 2001 and 2011. This land use change contributed additional stress that threatened Mill Creek's water quality.

An NPS screening assessment of the Chattahoochee and Chipola river basins revealed the macroinvertebrate community was impaired. In 2006, ADEM listed Mill Creek on the CWA section 303(d) list with the cause and source of impairment both as unknown. In 2010, after further sampling, the CWA section 303(d) list was updated to signify the stream did not fully support its use classification of fish and wildlife. This impairment was attributed to a dissolved oxygen level of less than 5.0 milligrams per liter (mg/L) and organic enrichment that was elevated over the least-impaired reference reach data collected elsewhere in Ecoregion 65i. (When assessing impairment, ADEM's reference condition approach considers ambient water quality data from reference streams in the same ecoregion and having characteristically similar watersheds.) Riparian buffer loss combined with increased impervious surfaces and urban development/runoff in the watershed have been identified as a source of the excessive nutrients and sedimentation that resulted in decreased water quality and increased stormwater volume entering Mill Creek.

PROJECT HIGHLIGHTS

In 2010, Alabama Cooperative Extension System (ACES), ADEM, and other local, private and public entities collaborated to assemble information for the Mill Creek WMP. The goal of the plan was to identify scientifically supported and economically effective restoration activities to improve the health and habitat of Mill Creek. The objective of this plan was to address impairments to the creek with on-the-ground BMPs and education for the communities in the watershed.

This boulder cross vane redirects the flow of water to the middle of the stream channel, reducing stream bank erosion and adding oxygen to the stream.

Beginning in 2011, the first phase of the project involved installing bioretention cells, rain gardens, vegetated swales, constructed stormwater wetlands, stream restoration, sediment and erosion control practices, and a septic tank pump-out program. In addition, education/outreach activities included presentations at local schools and public meetings for landowners.

A second phase (2013–2016) focused on accelerating the removal of the waterbody from the CWA section 303(d) list and reducing excessive NPS pollutant loadings to the waterbody. The project targeted high-yielding pollution sites, partnering with local landowners to install BMPs to control NPS runoff, and providing education and outreach to the surrounding community. BMPs implemented included three stream restorations, a constructed stormwater wetland, a rain garden with cisterns, and streambank stabilization. The low impact development practices such as bioretention cells, rain gardens, swales, and wetlands created during these projects allow for detention and infiltration of stormwater to reduce the volume of urban runoff. Nutrient uptake has been enhanced with the installation of additional vegetation with these practices, which reduces the abundance of organic enrichment entering the stream. The stream restoration regenerated habitat complexity with riffles, pools, runs, and woody/natural materials, which increased the abundance and diversity of macroinvertebrates in the stream. The structures placed in stream redirect the flow of water to the middle of the stream channel, which reduces stream bank erosion. Improved aeration occurs when air is drawn into the water as it flows over structures in the stream.

RESULTS

In 2014, ADEM sampled station MICR-1 for indicators of excessive organic enrichment and dissolved oxygen. Water quality in parameters for organic enrichment were within the ecoreference level concentrations. Dissolved oxygen concentrations remained within normal levels during the sampling events and ranged between 5 and 10.5 mg/L. In 2014, eight EPT (Ephemeroptera, Plecoptera, and Trichoptera) taxa were also collected, an increase from samples collected in 1999 (one EPT) and 2008 (four EPT); the improved macroinvertebrate assessment rating is designated as fair. The ADEM assessment of water quality data collected following the implementation of numerous restoration activities in the watershed from 2011-2016, determined that Mill Creek fully supports its use classification and removed the segment from the 2018 CWA section 303(d) list.

PARTNERS AND FUNDING

ACES and Auburn University coordinated the Mill Creek watershed projects. Partnerships that developed and strengthened through the years contributed to the project success. Three CWA section 319(h) watershed implementation grants from fiscal years 2009, 2011, and 2012, which totaled $534,963 in federal funding, was the principal funding source for restoration activities. Watershed partners provided $433,092 in nonfederal match. The National Fish and Wildlife Foundation's Five Star Grant leveraged $49,964 for the stream project and an outdoor classroom. Other partners include Smiths Station; Lee and Russell counties; Phenix City; Lee County Board of Education; University of Georgia Extension Services; Columbus Water Works; North State Environmental, LLC; Jennings Environmental, LLC; Zink Environmental, LLC; Alabama Water Watch; Chattahoochee River Warden; Phenix City Beautiful; Consolidated Resources; Phenix City Public Schools; Motz Enterprises, Inc; Erosion Pros; Alabama Power; Alabama Clean Water Partnership; and others.

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 Alabama NPS Management Program uses TMDLs to help with establishing watershed priorities, leverage resources, and implement water quality protection and restoration activities.

In FY2019, the TMDL Program of ADEM continued to make great strides in protecting Alabama's water resources. Alabama's cumulative total of approved TMDLs in FY2019 was 256 and the associated pollutants are represented in Figure 5.

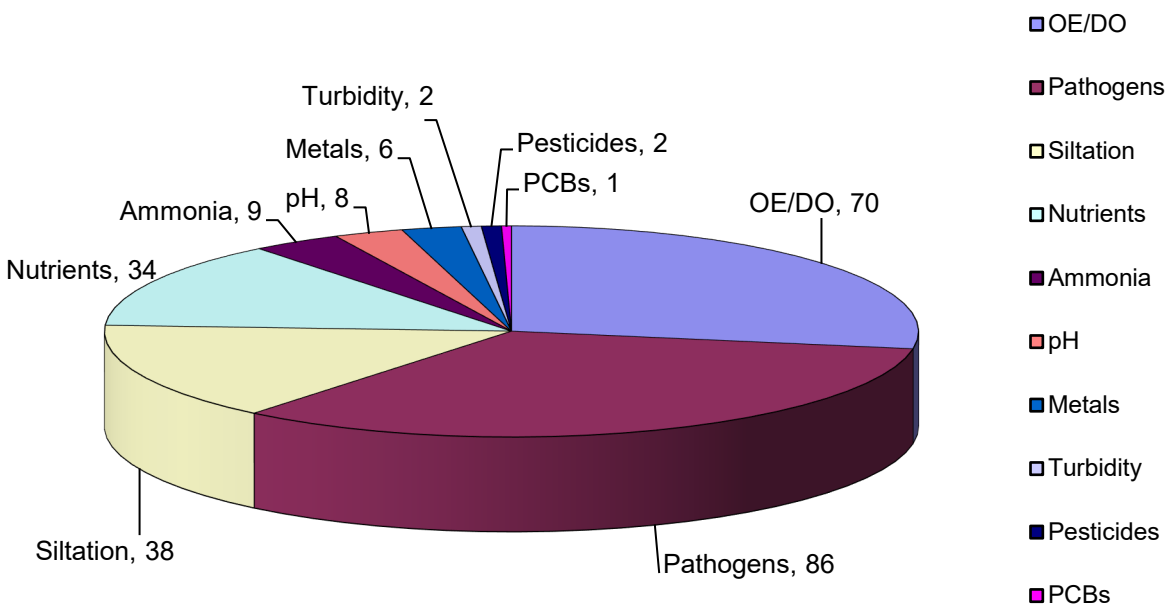


Figure 3: Alabama TMDLs by Pollutant

Current Watersheds Implementing a TMDL in NPS Projects

TABLE 3 – IMPLEMENTATION PROJECTS FY 2015 - FY 2019

Fiscal Year	Project Title	Total
2015	• Second Creek Watershed Restoration Project • Brindley Creek Watershed Management Plan Implementation • Tiawasee Creek Sub–Watershed Management Project • Lake Neely Henry Nutrient Reduction Project	4
2016	• D'Olive Creek Sub-Watershed Management Project at Stream Segments DAF-1 and DAF-1A • Moores Creek Watershed Management Project - Phase Two • Upper and Lower Flint River Watershed Implementation Project • Shoal and Swan Creek Watershed Restoration Project • Swan-French Mill Creek Watershed Restoration Project • West Flint Creek Watershed Project - Phase III • Bioinfiltration Swale Implementation on USA Campus Meisler Commons in the Upper Three Mile Creek Watershed • Implementation of the Watershed Management Plan for D'Olive Creek, Tiawasee Creek, and Joe's Branch Watershed Management Plan Implementation Modification to the Transition between Step Pool Stormwater Conveyance and the Restored Tributary JB2 Project	8
2017	• Tiawasee Creek Sub-Watershed Management and Restoration Project • Parking Lot Bioswale Implementations on USA Campus in the Upper Three Mile Creek Watershed • Graves Creek Watershed Management Plan Implementation - Phase 2	7

	• Crowdabout Creek Phase III Implementation Project • D'Olive Creek Sub-Watershed Management Project at Stream Segments DAF-1 and DAF-1A • Parkerson Mill Creek Watershed Management Plan Implementation Low Impact Development BMPs • Moores Creek Watershed Project - Phase Two	
2018	• Browns Creek Watershed Implementation Project • Tiawasee Creek Watershed Implementation Project • Ryan Creek Watershed Implementation Project • Cross Creek Watershed Implementation Project • Pathogen Reductions to Emuckfaw Creek: A Watershed Restoration Project • Roebuck Municipal Golf Course Stream Restoration and Demonstration Project	6
2019	• Pathogen Reduction of Turkey Branch: A Weeks Bay Watershed Project • Anderson Creek Watershed Restoration Project • Big Nance Creek Watershed Restoration Project • Cowarts Creek Watershed Implementation Project	4
2020	• Shoal Creek Watershed Implementation Project Phase II • Black Creek Stream Restoration Project • Pepperell Branch Watershed Implementation Project • Upper Three Mile Creek Watershed Implementation Project – Phase 3	4
Total Projects		**33**

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.

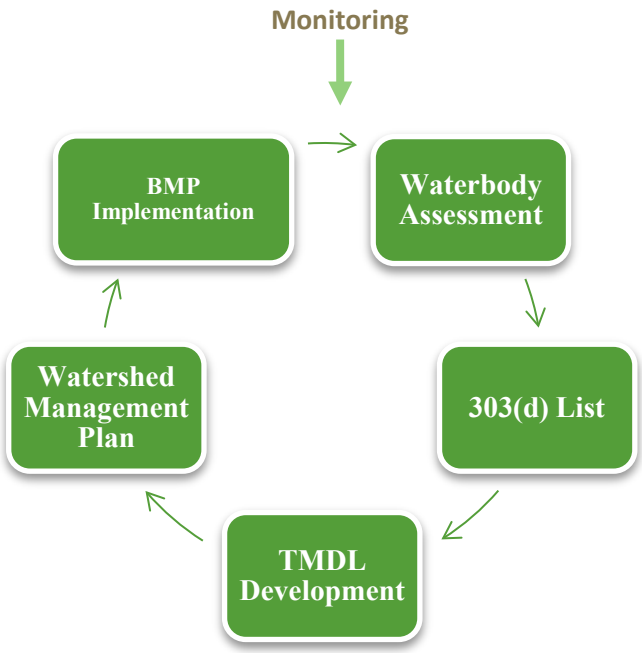


Figure 4: Assessment Strategy

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 Embayment Assessments

Thirty-three main stem river and reservoir stations on the Coosa and Tombigbee River basins were intensively monitored in FY2019. 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 November.

Wadeable and Non-wadeable Streams and Rivers Assessments

Thirty-eight locations on wadeable flowing streams and rivers were sampled in FY2019. Biological, chemical, and habitat data were monitored at twenty-four established and candidate reference reaches located throughout the state to characterize least-impaired conditions within thirteen Level 4 and five Level 3 Ecoregions. One location was monitored to develop a siltation TMDL. Four locations were monitored to document water quality conditions prior to the implementation of CWA Section 319 watershed plans. An additional twenty-five 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 (USFWS), 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 Nonpoint Source Coosa Basin Conference and Stakeholder Meeting

NPS staff presented to Coosa River Basin stakeholders.

The Alabama NPS Management Program hosted an educational conference for stakeholders in the Coosa River Basin on May 16, 2019, in Pell City, Alabama. The purpose of the workshop was for stakeholders to learn about impaired streams in the Coosa River Basin and how citizens could become an integral part of the Alabama NPS Management Program to improve water quality by reducing pollutant loads in surface runoff. The meeting provided a forum to share lessons learned, to help identify the issues stakeholders are facing in watershed restoration efforts, and to identify areas to leverage resources in watershed restoration planning and project implementation. Constructive partnerships were built to improve the health of Alabama's rivers and streams.

Alabama Water Resources Conference

The Alabama Water Resources Conference is the premiere water conference in the state. The conference was established in 1986, and has provided a forum for showcasing emerging research, education and outreach in all aspects of water resources. This year's event was held September 4 - 6, 2019.

Local partners presented on several projects and programs that the Alabama NPS Management Program has been involved in and has partially or fully funded. Nikki Dictson with the ACES Water Program presented on the new Alabama Watershed Stewards (AWS) Program. The AWS is a science-based educational program that promotes healthy watersheds, increases understanding of water pollution, and provides the knowledge and tools needed to prevent and resolve local water quality problems. Workshops are held throughout the state to increase awareness and knowledge about water issues, inspire participation in conservation programs, and inspire activities to improve and protect water and natural resources.

Laura Bell with ACES Water Program discussed the importance of green infrastructure/low impact development and its long term maintenance. The presentation navigated various options open for green infrastructure in urban areas as well as the local partnerships that are vital in achieving aesthetic needs.

Moores Creek Phase II was highlighted during the presentation for its implementation practices, partnerships, challenges, and overall successes.

Clear Water Alabama Erosion and Sediment Control Workshop

ADEM continues 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 Natural Resources Conservation Service (NRCS), ADEM, and the Alabama Association of Conservation Districts, the Alabama Department of Transportation (ALDOT), the Home Builders Association of Alabama, the Associated General Contractors of Alabama and Auburn University – Cooperative Extension System.

Workshop attendees tour a low impact development (LID) demonstration at Pine Creek Clean Water Facility.

This year's seminar and field day were held on October 23-24, 2019, in Prattville, Alabama. The first day's workshop included a seminar with some of the following topics:

- From Springs to Action, What Follows Our Bicentennial
- ADEM Regulation Update
- ESC Projects in Georgia
- Multifunctional Stormwater Management and Long-Term Maintenance: Lessons Learned in the Gulf Coast
- Tree Preservation
- Protecting Alabama's Waters – Communities Partnering with the US EPA Non-Point Source Management Program
- Research Results at Auburn University Erosion and Sediment Control Test Facility
- Stream Restoration and Watershed Health
- Alabama: The State of Stormwater

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 LID/green infrastructure (GI) construction BMPs.

Alabama Watershed Stewards (FY15)

AU's Crop Soil and Environmental Science Department worked with the ACES, ADEM, and other partners to develop an AWS Program curriculum and pilot watershed-based trainings. The goals of the AWS program include the following components:

Enhance stakeholder involvement in local planning and implementation of WMP and TMDL processes.

Promote healthy watersheds by increasing citizen awareness, understanding, and knowledge about the nature and function of watersheds, potential impairments, and watershed protection strategies to minimize nonpoint source pollution.

Empower and inspire individuals to take leadership roles involving community and watershed-level water resource issues.

Help facilitate local efforts and activities to implement practices to improve water quality.

Create tools (both in print and online) that can be used to further progress the program and its use across the state.

The curriculum for this program was 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. The program connects local citizens to their water and helps them understand watersheds and function, as well as, relate their role in water quality and environmental health. The curriculum discusses watershed impairments in Alabama and in the localized area. It will show an array of methods for local individuals to implement measures to improve water quality and work within their communities to continue toward a clean water future.

During the first phase of this project, many stakeholders and partners agreed to assist by developing and reviewing the information for the AWS Handbook and its Alabama specific criteria. The handbook, presentations, brochures, flyers, and videos were all part of the toolbox that was developed for the program.

Phase two of this project, included pilot workshops in the Auburn and Opelika areas. The watershed-based trainings were held on July 16, 2019, at AU and August 8, 2019, at the City of Opelika's Sportsplex. These workshops were one-day training events and focused on enhancing understanding of watershed systems, watershed impairments, methods for improving watershed function, and actions for community-driven watershed protection and management. Curriculum content covered the entire state of Alabama and included five modules. Presentations were tailored more towards local waterways in this region so that participants would 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 received a certificate of completion recognizing them as AWS.

The pre- and post- test showed an increase in 30% of knowledge from the workshop material. It included that 75% of respondents would participate in community clean-up activities, about 69% said they would be involved in local planning, and about 69% said they would help develop a plan for their watershed. The

survey also learned that most participants supported the adoption of the use of LID and 44% intend to adopt the use of stormwater management.

Participants at the July 2019 workshop learning about using the Enviroscape as a tool to teach about watersheds and nonpoint source pollution.

Participants at the August 2019 Workshop learning about a mini rainfall simulator.

This program continues to be very well received by entities throughout the state. Several groups are willing to partner as we move into the next phase of expanding resources with this project and hosting workshops statewide to help people understand their watersheds and partner to protect and improve the health of the streams in their community.

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 previously had a use classification of Agricultural and Industrial Water Supply; however, in April 2002, ADEM upgraded its use classification to Fish and Wildlife. Pepperell Branch has multiple TMDLs that clearly identify the links between the waterbody use impairment, the

causes of impairment, and the pollutant load reductions needed to meet the applicable water quality standards developed for the stream. These pollutants include organic enrichment, dissolved oxygen, nutrients, and pathogens.

The development of a WMP for Pepperell Branch Project was completed within a 12-month timeline, which ended in August 2019. This project included a robust agenda of stakeholder facilitation, watershed characterization, development of an implementation strategy, and outreach and educational efforts on water quality issues. This project developed a plan following the nine elements of EPA's 2008 publication, *Handbook for Developing Watershed Plans to Restore and Protect Our Waters*.

Existing data such as water quality, flow, wildlife estimates, urban runoff, habitat assessment, land use, soils, number of septic systems, etc. was 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 have been identified during this process. Spatial analysis has been used to estimate *E. coli* loads and other pollutants loads within the watershed and to target implementation. The project resulted in the production of a WMP with buy-in from local stakeholders and governmental entities. The WMP has identified implementable BMPs that are based on the goals of water quality improvement and watershed protection. A comprehensive watershed approach was used with concentrations on the most significant sources of pollution contributing to the impairments.

At the June 2019 Steering Committee Meeting, stakeholders discussed next steps and began envisioning the implementation of BMPs in the watershed to improve water quality.

Stakeholders and partners have been highly engaged in the planning process and success of this project. There have been seven executive board and partnership meetings during this reporting period. Topics have included review of the watershed characterization, pollution sources/causes, identification of critical areas, and potential solutions for implementation; recognition of needed education and outreach opportunities; discussion of monitoring strategy, sign design, and education event planning, etc.

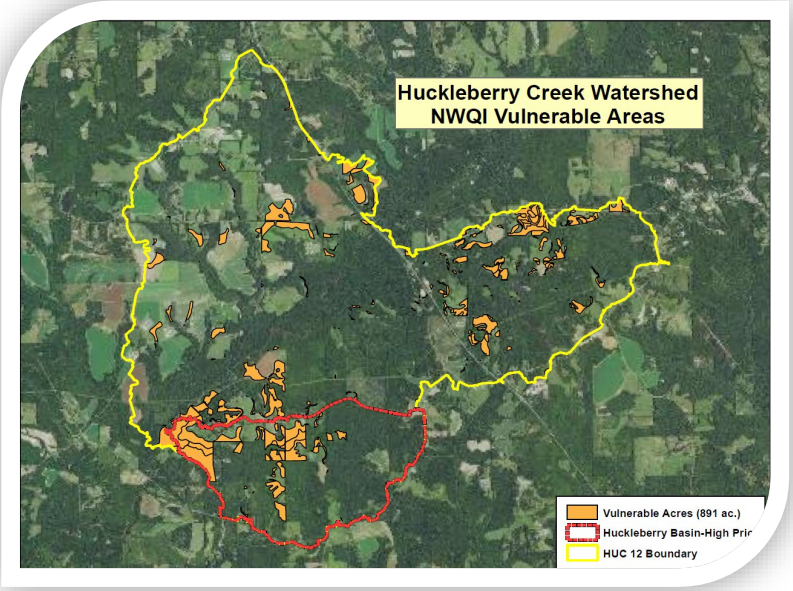
The last five months of this project focused on compiling information and writing the watershed management plan, as well as, close communication with stakeholders and the City of Opelika about how to pursue the next steps in watershed BMP implementation. Laura Bell with ACES Water Program has initiated the steps for securing further funding for installing low impact development in various parts of the watershed to reduce excess nutrients and reduce pathogens from entering the stream. The stakeholders in the watershed are in support of this project, have, and will continue to lend time and resources to work toward the common goal of improving water quality.

National Water Quality Initiative in Alabama (NWQI)

In FY2019, 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 2019. On June 17, 2019, a conference call was held concerning updates from USDA NRCS about the upcoming FY20 NWQI bulletin for watershed selection, important NWQI program changes, and details of the NRCS NWQI watershed assessment guidance. In preparation for the next fiscal year, ADEM and NRCS met on July 10, 2019.

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 Soil and Water Conservation District (SWCD) received a subaward from ADEM to implement the Upper Scarham Creek Watershed Project using FY14 Section 319 funding. The WMP was implemented by leveraging funding provided by the NRCS, ADEM Section 319 Program, and other partners, August 2015-February 2018.



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

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 AU 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.

TABLE 4. 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 5. 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	26	26
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	64,801	67
Firebreak	Feet	3,479	1
Forage and Biomass Planting	Acre	325	20
Forage Harvest Management	Acre	148	14
Forest Stand Improvement	Acre	69	4
Grade Stabilization Structure	Number	4	4
Heavy Use Area Protection	Acre	22.2	124
Herbaceous Weed Treatment	Acre	2,378	163
Irrigation System, Micro-irrigation	Acre	1	1
Land Smoothing	Acre	16	11
Livestock Pipeline	Feet	26,720	48
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	47	47
Water Well	Number	4	4
Watering Facility	Number	70	70

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 (MBNEP)** work in conjunction with the **Alabama Department of Conservation and Natural Resources (ADCNR)** and ADEM in watersheds along the coast, implementing stream restorations, agricultural BMPs, and the restoration of wetlands.

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

- The **NRCS** 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 (TVA)** 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 **USFWS**, 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 USFWS 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 groundwater festival is to educate 4th grade students, and indirectly their guardians and the community, on groundwater issues. The festival activities cover the definition of groundwater, the use of groundwater, and its susceptibility to contamination. The Groundwater and Water Festivals are a culmination of classroom study and hands-on activities. Students have the opportunity to experience firsthand, through experimentation and problem solving, the complexity of groundwater and its relationship to nature in general. This is the 20th year of Groundwater and Water Festivals in Alabama. Since January 2019, 22 counties have participated. ADEM NPS Staff have assisted with providing guidance during festivals, training presenters, and presenting classroom demonstrations.

Montgomery County students learn about fresh water.

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

Earth Day Activities

The ADEM hosted a special Earth Day event on April 11, 2019, with approximately 200 middle and high school students visiting the Central Office 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 careers and 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.

NPS staff presented two demonstration events. One presented the Enviroscape model to show the adverse effects stormwater runoff can have on water quality as well as showing practical solutions. The other activity taught about the available careers at ADEM and what skills or knowledge are advantageous in science and technology based careers.

Alabama Envirothon

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.

This year's state competition was held April 4-6, 2019, at the 4-H Camp in Columbiana. The current issue of this year's Envirothon was "Agriculture and the Environment: Knowledge and technology to feed the world". ADEM NPS staff taught about technology, food systems, ecological services, agricultural BMPs, tools, and federal programs related to the current topic. Bob Jones High School from Madison County was the overall state winner.

Bob Jones High School participants celebrated 1st

NPS Staff presenting the Enviroscape

Bell Road Library Enviroscape Demonstration

On April 11, 2019, NPS staff presented the Enviroscape model to local community citizens at the Bell Road Library. The Enviroscape is a portable watershed model that demonstrates point source and nonpoint source pollution and its effects on water quality. The participants gained hands-on experience during the interactive presentation. Participants gained knowledge and understanding of the community responsibility in protecting and improving water quality within their watershed.

Introduction to Watershed Modeling Thru a 319 Funded Grant Training

On February 4, 2019, the Introduction to Watershed Modeling course was offered as part of the 319-funded Pepperell Branch Watershed Management Plan project in cooperation with AU and other project partners. The training was led by Dr. Srinivasans, Director of the Spatial Sciences Laboratory at Texas A&M

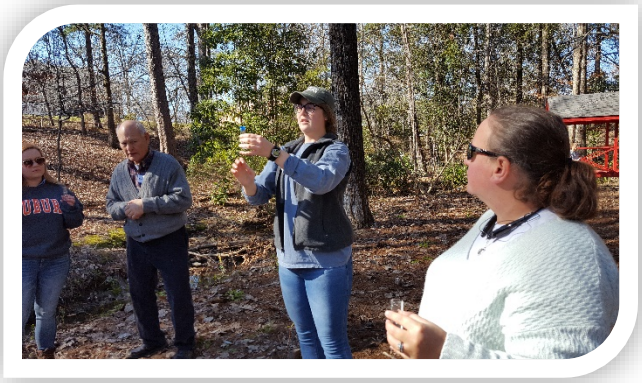
University; Nikki Dictson, ACES and AU; and Kimberly Minton, Chief of the Modeling and Analysis Section, ADEM Water Quality Branch. Course instruction provided water and natural resource professionals with an introduction to watershed modeling and covered widely used models. Participants gained an understanding of which models to use in watershed protection planning, how modeling fits into EPA's "a-i" elements for writing WMPs, and the resources needed to take the next steps. The course topics included the purposes and limitations of different models, time considerations for running various models, data needs (watershed characterization, water quality information), modeling cost estimates, the differences in literature values versus monitoring, Alabama's Water Quality Assessment and Listing Methodology, and how to communicate models to the public. Stakeholders who attended the meeting were empowered with the knowledge and tools to better understand modeling data, to provide meaningful contributions in watershed planning, and to share what they have learned with others.

Auburn University Environmental Club Career Talk

Per a stakeholder request, the NPS staff spoke to the Auburn University Environmental Club on March 21, 2019. Twenty college students, ranging from freshman to senior, attended. The students were informed about the career opportunities at ADEM and across the state. They were educated on the types of skills employers look for, such as time management, critical thinking, and listening. Interview tips and networking were also suggested to help students get started on their chosen career path. Two types of pamphlets that provided additional career resources and information were distributed to the students.

Alabama Water Watch Training and Recertification Class

As part of education and outreach for the Pepperell Branch Watershed Management Plan Project, two Alabama Water Watch (AWW) training and recertification classes were held in Auburn, Alabama. The Bacteria Monitoring Class was held on January 25, 2019, and the Water Chemistry Monitoring Class was held on January 26, 2019. Attendees to these classes represented an array of local stakeholders and backgrounds, from professor to student and professional to recreational environmentalist. Volunteers were taught how to collect water samples using scientific equipment and standardized techniques. They then learned how to record, analyze, and understand general water quality data. Participants were empowered to make a positive environmental impact by using their knowledge to educate others and promote watershed stewardship.



An AWW trainer describes a water sampling technique.

Career and Technology Tour

ADEM staff presenting at the bug station.

The NPS staff in collaboration with other ADEM staff and in partnership with Tuskegee University's Verizon innovative learning program hosted approximately one hundred underserved male middle school students from across the state. The tour, held on July 9, 2019, allowed students to tour ADEM's main campus in Montgomery and engage in presentations with various environmental professionals. Presentations included computer-based mapping systems, Brownfield projects, emergency response, fish tissue sampling, and bug sampling.

Elmore County Homeschool Enviroscape Demonstration

On October 9, 2019, NPS staff presented the Enviroscape model to a local homeschool group comprised of elementary aged students. The Enviroscape is a portable watershed model that demonstrates point source and nonpoint source pollution and its effects on water quality. Students were able to engage in and have hands on experience of what a watershed looks like and the effects that point and non-point source pollution can have in their community. Students also made water cycle braclets while learning about the water cycle.

Green Ribbon Schools Award Luncheon

The Alabama Department of Education hosted a luncheon for the Green Ribbon Schools' sponsors and winners. The aim of U.S. Department of Education Green Ribbon Schools is to inspire schools, districts, and institutions of higher education (IHE) to strive for excellence by highlighting promising school sustainability practices and resources. To that end, the award recognizes schools, districts, and IHEs that reduce environmental impact and costs; improve the health and wellness of schools, students, and staff; and provide effective environmental and sustainability education.

NPS Chief, along with other partners, attended the luncheon.

Encouraging resource-efficient schools, districts, and IHEs allows administrators to dedicate more resources to instruction rather than operational costs. Healthy schools and wellness practices ensure that all students learn in an environment conducive to achieving their full potential. Outdoor, environmental, and sustainability education helps all students engage in hands-on authentic learning; hone critical thinking and collaboration skills; stay active and fit; and develop a solid foundation in many disciplines.

Troy University was named the Green Ribbon Schools Award Winner for 2019 for Alabama. The ADEM NPS Chief assisted in award presentations to university representatives on behalf of the Green Ribbon Schools program. The luncheon took place at Alabama Wildlife Federation's Lanark Pavilion in Millbrook, Alabama, on May 9, 2019.

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 workplans will incorporate, as applicable, EPA's "a-i" elements for watershed management plans as outlined in the current EPA Section 319 grant guidance.

Alabama River Basin

• Catoma Creek (0315020103	230,728.99	Complete
• Baldwin Slough (031502010307)	17,280 acres	Complete
• Headwaters/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
• Ryan Creek (031601100501, 031601100502)	42,874 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

Cahaba River Basin

• Little Shades Creek (031502020201)	39,908 acres	Complete

- Dry Creek (031502020902) — 5,312 acres — Complete

Chattahoochee River Basins

- Moores Creek (031300020907) — 11,558 acres — Complete
- Mill Creek (031300030101) — 15,729 acres — Complete

Chipola River Basins

- Cowarts Creek (031300120201, 031300120202, 031300120203) — 77,066 acres — Complete

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)

Escatawpa Basin

• Juniper Creek-Big Creek (031700080401)	5,936 acres	Being updated
• Bayou la Batre (031700090102)	19,562 acres	Complete
• West Fowl River (031700090103)	20,489 acres	In Progress
• Dauphin Island (031700090202)	3,851 acres	In Progress

Mobile Basin

• 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)	61,735 acres	Complete
• Western Shore Deer River (031602050105), Garrows Bend (031602050101)	16,534 acres	In Progress
• Fowl River (031602050104)	39,739 acres	Complete
• West Fowl River (031700090103)	20,489 acres	Complete
• Weeks Bay (031602050201, 031602050202, 031602050203, 031602050204)	129,610 acres	Complete
• Bon Secour (031602050206, 031602050207, 031602050208)	43,673 acres	Complete
• Dauphin Island (031700090202)	3,851 acres	In Progress

Perdido Basin

• Wolf Bay (031401070201, 031401070202, 031401070203)	36,296 acres	In Progress
• Little Lagoon/Perdido Pass (031401070205, 031401070204)	50,513 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	54,648 acres	Complete

(060300020307, 060300020403)		
• 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	Updating
• Anderson Creek (060300040404)	37,913 acres	Complete
• Big Nance Creek (060300050104, 060300050105)	52,152 acres	Complete
• Cross Creek (060300010801)	21,259 acres	Complete

Implementation of Watershed Plans

Black Warrior River Basin

Brindley Creek Watershed Management Plan Implementation (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 and 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 land use and urban runoff and storm sewers. A TMDL for Brindley Creek was completed for pathogens (2005) and requires a pollutant 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 was implemented in partnership with Cullman County

SWCD. It began on January 12, 2016 and was completed on August 20, 2019. The Brindley Creek Watershed Management Plan (2015) guided restoration efforts.

Camp Meadowbrook hillside before implementation of erosion and sediment implementation plan.

Four contracts with landowners were completed during the project. Agricultural practices installed included a drystack (1,200 square feet), a freezer (2 each), roofs and covers (200 square feet), a grassed waterway (3.1 acre), and a heavy use area (3,255 square feet). Four additional agricultural applications were received but were cancelled before being contracted.

Due to the lack of stakeholder interest in applying for agricultural management measures, the Conservation District identified the need for an extensive erosion control and stabilization plan at the district-owned Camp Meadowbrook facility, which is on Brindley Creek, directly upstream of an ADEM monitoring site and serves as a resource for agencies, schools, and diverse stakeholders to use for education and training programs. Implementation of erosion control and stabilization BMPs included land smoothing, stabilization of hill areas by sowing grass and putting down mulch, the installation of bioswales (2 each), rock drop structures (19 each), and erosion control blankets (1 acre), riprap lined swale (261 cubic feet), ditch stabilization (1,417.5 square feet), parking lot erosion and sediment control (2,444 square feet), vegetation and tree planting (1 acre), and additional slope stabilization (0.5 acre) to control erosion and keep sediment (and nutrients/pathogens attached to the soil particles) out of Brindley Creek. Failing field lines at the Camp Meadowbrook bunkhouse were identified as a potential source of bacteria into the creek, since the field lines are at the bottom of the hill and adjacent to the creek. After inspection of the existing field lines, a percolation test was done, and field lines were replaced. This practice improved septic function and helped limit nonpoint source pathogen loading to Brindley Creek.

Education and partner participation was an important aspect of this project that contributed to the project's success. Multiple workshops were conducted included the poultry producers workshop, Healthy Soils and All About Trees teacher training workshops, Educational Filed Day on the Water, National Ag Day Tour, and Cullman County Water Festivals (2016, 2017, 2018, and 2019). The Agventure trailer, a learning lab on wheels, was shown to over 9,000 stakeholders, about half of which were school age children.

Camp Meadowbrook hillside (above) and bioswales (right) after plan implementation.

The project was completed on August 20, 2019. Multiple extensions were requested due to the difficulties associated with low landowner participation, a change in personnel for the watershed coordinator position and district staffing, delays in the bidding process, and timing of planting and warranty work. Not all of the originally allocated funding could be expended during the cooperative agreement period due to the situations listed above.

However, successful progress was made during the project due to the implementation of agricultural BMPS and extensive sediment and erosion control practices, the multitude of stakeholders who were educated and/or participated in water quality improvement efforts, and the quality partnerships that blossomed because of project efforts.

Total Load Reductions:

- 5,086.5 lbs/yr of nitrogen
- 1,451.3 lbs/yr of phosphorus
- 1,774.4 tons/yr of sediment

Graves Creek Watershed Management Plan Implementation-Phase 2 (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 CWA section 303(d) list of impaired waters in 1992 for organic enrichment/low dissolved oxygen for not meeting its use classification of Fish & Wildlife.

The Graves Creek Watershed Management Plan Implementation Project-Phase 2 is designed to implement BMPs for addressing the sources and causes of impairment in Graves Creek as identified in the updated 2016 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 project is being implemented with the help of Blount County SWCD and other partners.

"Maggie the Milk Cow" is always popular with the Ag in Action Trailer at the Blount County Fair.

The Graves Creek Watershed Management Plan Implementation Project-Phase 2, which began on April 26, 2018, is a continuation of the Phase 1 Project. The Phase 2 Project continues 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. The project has been advertised to stakeholders through mailed flyers and promoted through word of mouth. To date, four applications have been approved, and the farmers are currently working on BMP implementation.

Additional agricultural applications have been received, and the landowners are waiting on District approval or completion of to begin implementation. However, no applications have been completed to date; therefore, there are no load reductions to report. Education and outreach activities have included the display of the Ag in Action trailer at the Blount County Fair and the Graves Creek Project Kick-off meeting in February 2019. The Blount County Water Festival was held in March 2019. This event teachers 4th grade students the water cycle and the importance of conserving our water resources.

One success of the Graves Creek Phase 2 Project is that the first application was received within the first month of the project contract date. This applicant was aware of funding through the first phase of the Graves Creek Watershed Management Plan Implementation Project. Although the project was off to a great start, maintaining landowner interest from the first phase of Graves Creek Watershed Management Plan Implementation Project and obtaining new interest from additional landowners has been difficult. Low landowner participation and staffing constraints have caused a delay in the project schedule. The project coordinator will continue to promote the project to local landowners and try to regain project momentum.

Chattahoochee River Basin

Moores Creek Watershed Management Project – Phase Two (FY16/17)

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) list of impaired waters 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) list of impaired waters for pathogens based off data that was obtained in 2014 and 2016.

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. The project is located 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.

Stakeholders have also identified a stormwater retrofit to be addressed during Phase Two at the Chambers County 911/EMA. The project will retrofit a detention area into a stormwater rain garden. The raingarden with its addition of native vegetation; will help stabilize the area, reduce sedimentation, and provide habitat. On August 24, 2019, ACES lead a raingarden workshop at the Chambers County EMA to help highlight raingardens and their benefits. The workshop also highlighted the watershed project and the future work that would be conducted at that site. On May 9, 2019, there was a one-day workshop on Rain Garden Design.

During the past six months, there have been numerous coordination measures, education activities, and stakeholder involvement in the project. The Design Team has met three times to help design efforts,

coordinate challenges, and draft the bid document to secure the contractor for the stream restoration. There have been two Executive Steering Committee Meetings.

During these meetings, members discussed upcoming stakeholder education and outreach opportunities, adding additional volunteer water monitoring sites on the stream to establish better trend data sampling on the stream, in-kind match requirements, and the upcoming bid of the stream work. The Vegetation Group met three times during this period to help develop a consistent plan that would meet the needs of the City of Valley and the stream restoration.

There were multiple education and outreach activities that stakeholders could take part in from young to old. The Watershed Program Assistant partnered with Coosa Valley RC&D Council, Chambers County Forestry Planning Committee, and Chambers County 4-H to provide education on water quality and the Moores Creek Project at the Annual 4-H Field Day. The ACES Team delivered a presentation to the Rotary Club about information of the project on Moores Creek and how their members could get involved. On April 6, 2019, and April 23, 2019, trash clean-ups occurred within the watershed. These clean-ups were sponsored by Partners Against Litter and the Chamber County Sheriff's Office with stakeholders and Lafayette-Lanier Elementary students. On March 9, 2019, Moores Creek Stakeholders and the Chattahoochee Riverkeeper partnered together for the River Rendezvous to collect water from local streams and learn about its water quality.

Coosa River Basin

Lake Neely Henry Nutrient Reduction Project (FY15)

The Lake Neely Henry Nutrient Reduction Project focused on addressing nutrients draining into Neely Henry Lake within the Coosa Basin. According to the Coosa Lakes Nutrient TMDL, 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 has continued to degrade water quality and influence organic enrichment of the river and lakes. This project focused primarily on four watersheds or portions of watersheds located in DeKalb County that flow into Big Wills: Head Waters 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).

Waste storage facility implemented to target nutrient runoff.

The Lake Neely Henry project was implemented in partnership with the DeKalb County SWCD and was guided by the Upper and Middle Coosa River Basins Watershed Management Plan – DeKalb County (2011). This project helped fund priority BMPs and encouraged stakeholder education and project participation in order to limit pollutant loading to the watershed. During the project, applicants completed the following BMPs: 52 acres of cover crop; 5,616 feet of cross fencing; 1,925 feet of exclusion fencing; 31,400 square feet of heavy use area protection; 144.7 acres of pasture and payland planting; 10,703 feet of pipeline; 1,720 square feet of roofs and covers; 1,600 square feet of waste storage facility; and 17 water troughs across 12 farms. Education and outreach during the project included highlight articles on BMP installation in the local newspaper, DeKalb Times-Journal; 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; Water Monitoring Training to empower citizen scientists and promote pollution prevention; and AG in Action Trailer presentations to numerous stakeholder groups to help educate future farmers and landowners about the importance of protecting natural resources.

The DeKalb County SWCD was not able to utilize all of the originally allocated federal funds due to a late cancellation of two BMP applications in the targeted watersheds. The District was also unable to commit to an additional project extension because of staffing/time constraints. However, this project captured more than the required 40 percent project match. This local overmatch by the District, landowners, and project partners is evidence of broad stakeholder support in the targeted watersheds. Through the work of the District, landowners, and the other project partners, the Lake Neely Henry Reduction project was able to capture 46 percent project match.

Total Load Reductions:

- 4,541.6 lbs/yr of nitrogen
- 758.1 lbs/yr of phosphorus
- 410.1 tons/yr of sediment

Mobile River Basin

Tiawasee Creek Sub-Watershed Management Project (FY15)

Stream Restoration on UT to Tiawasee Creek

Constructed Stormwater Wetland in ROW on Well Road.

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 the CWA 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.

This project is completed. Project collaboration includes leveraging with the National Fish and Wildlife Foundation's Gulf Benefit Fund, MBNEP, City of Daphne, the Coastal Impact Assistance Program, Baldwin County, and others 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 (Daphne, AL). A porous paver project was installed along the northern walkway into the baseball fields of the Trione Sports Complex. A constructed stormwater wetland and educational boardwalk with sections of porous pavers and porous concrete was completed in the right of way (ROW) on Well Road. In addition, there has been two stormwater basin acquisitions, stakeholder participation with Daphne's Environmental Advisory Committee, project tours, and many hours working toward a successful education and outreach component.

Educational Boardwalk in ROW on Well Road.

Constructed Stormwater Wetland upstream of project at Park Drive

The City has continued its momentum with the education outreach efforts by teaching classes from the Master Environmental Educators Program on Invasive Species, Stormwater & AWW, Water Cycle, Energy, and Aquatic Nuisance Species in the local schools. During the life of the project, the City of Daphne and its partners have reached over 3,900 students through this program and taught 106 classes.

A short video about stormwater pollution and ways to be involved in finding solutions, which targets the general public and students, has been completed and used in teaching the Master Environmental Educators Program in local schools. Another short 9-minute video was completed about Partnering with Section 319 in Alabama highlighting the Joes Branch Project in the D'Olive Watershed. These educational tools will be stored and shared on the Clean Water Future Website.

Five educational signs were placed at Trione Park or on the educational boardwalk and constructed stormwater wetland on Well Road. These signs educate stakeholders about permeable pavers, the watershed, stormwater constructed wetlands, and partnering to store the D'Olive Creek Watershed.

Total Load Reductions:

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

Tiawasee Creek Watershed Implementation Project (FY16/17/18)

The Tiawasee Creek project (HUC 03160204-0505) continues to build on the successes of the watershed restoration that is occurring with the efforts of multiple partners throughout the D'Olive Watershed. This project 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 stormwater enhancements are currently under design, and several options to provide the most benefit to water quality and quantity are being reviewed. The MBNEP and the City of Daphne are currently working to obtain land access from fifteen landowners. The stream restoration is expected to begin this fall.

Pre-Implementation Photo of Tiawasee Creek

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 sills 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.

Pre-Implementation Photo of Tiawasee Creek

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, in order to further efforts leading to the eventual removal of Tiawasee Creek from the CWA Section 303(d) list of impaired waters. The existing annual erosion of the 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 implementing LID practices.

MBNEP Program has collaborated with ADEM's NPS Unit to use grant funding to complete these two projects. The NFWF has also agreed to partner by providing additional funding into the project. The City of Daphne has and will provide technical assistance but has also provided funding 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.

During the last six months, the stream restoration project has received all the necessary landowner agreements, has been bid, and is moving to construction. The stormwater retrofits are being reviewed by the project engineer, as he works toward providing options for the best water quality improvement and economic benefits.

D'Olive Creek Sub-Watershed Management Project at Stream Segments DAF-1 and DAF-1A (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 on the CWA Section 303(d) list of impaired waters, with an impairment identified as siltation (habitat alteration) because of land development. In the 2018 CWA Section 303(d) list of impaired waters, D'Olive Creek was also added to the list for pathogens from Lake Forest Dam to its source.

Melanie Loop Stream Restoration Project (DAF-1A)

The ADEM, in coordination with the EPA, MBNEP, the NFWF, and the City of Daphne, is 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 and 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.

The first stream restoration project DAF-1A is located near Melanie Loop in Daphne, AL. This project bid was won by North State Environmental, LLC. 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.

Stream segment DAF-1 is commonly known as the Golf Course Tributary.

Stream segment DAF- 1 is known as the Golf Course Tributary and reached 100% completion on design April of 2018. Construction, which was originally slated for May 2018, was delayed until December 2018 due to weather concerns and being past the optimal time for seasonal planting after construction. Stream restoration was completed in February 2019.

This project is working on the final report and invoice.

Total Load Reductions:

- 5200 lbs/yr of nitrogen
- 1200 lbs/yr of phosphorus
- 360 tons/yr of sediment

Parking Lot Bioswale Implementations on USA Campus in the Upper Three Mile Creek Watershed (FY17)

Phase II 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 Three Mile Creek Watershed Management Plan. The major challenges to Three Mile Creek Watershed's health identified in the WMP 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 WMP 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 significant 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.

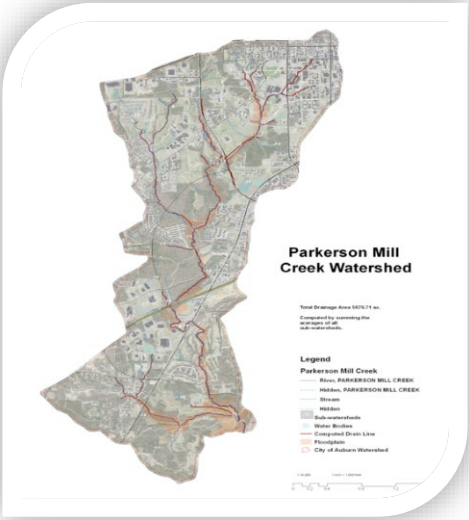
This project will address structural BMP implementation with LID and GI on the campus. Specifically, bioswales are proposed to be implemented within two large asphalt parking facilities on the campus, the Humanities Lot and the Gamma Lot (as seen below). The WMP mentions adding LID/GI to drainage areas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

These are the locations for BMP practices for the placements of the bio-infiltration swales in the Humanities Parking lot (above), and a picture of the completed swales (on the right and below).

Construction of bioswales in the Gamma and Humanities parking lot were completed in August of 2019 because there are fewer students on campus during that semester. The islands are roughly 200 feet long and 10 feet wide. The bioinfiltration areas inside each island will be about eight feet across and two feet deep. The bottom layer of these infiltration areas will consist of large stone, which is underneath a foot of coarse sand and compost, and topped with more stone and plants. Easy on the eyes and the environment, but tough on storm water runoff and sediment. Load reductions will be conveyed in the next reporting period. The Thermo Scientific Nalgene Storm Water Samplers are monitoring for total suspended solids, total nitrogen, total phosphorus, and oil and grease.

Tallapoosa River Basin

Parkerson Mill Creek Watershed Management Implementation Low Impact Development BMPs (FY17)



The Parkerson Mill Creek Watershed is located in Lee County, in east-central Alabama. It is part of the Upper Chewacla Watershed (HUC 12: 031501100202) 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 ft. of perennial streams and 282,152 ft. of tributary streams.

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

This watershed project will help address the components in the Parkerson Mill Creek Watershed Management Plan by installing LID BMPs to mitigate urban runoff quality and quantity on the AU 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. Implementing LID BMPs is of particular significance for pathogen load reductions to Parkerson Mill Creek in three ways with runoff quality, runoff quantity, and cost effectiveness as identified in the Parkerson Mill Creek Watershed Management Plan.

During the last six-month period, after completing infiltration testing, the first section of bioswale (pictured below) was constructed by AU along the southwest portion of the intersection of Samford Road and Wire Road. This swale included check dams that were made with river rocks, and the swale was vegetated with muhly grass and cone flower. Below are the pictures as the project progressed through construction. Load reductions have not been calculated as of the date of this report, but will be garnered at a later date.

Tennessee River Basin

Second Creek Watershed Restoration Project (FY15)

The Second Creek Watershed Restoration Project focused on reducing agricultural sources of pathogens draining into Second Creek. According to the TMDL for Second Creek, the majority of the watershed is undeveloped and consists of agriculture and forestland use. The TMDL (2006) requires a 41 percent reduction in pathogens. 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. Pastureland runoff, animal operations, improper land application of animal waste, and animals with access to streams can be sources of pathogens to waterbodies. This project focused on the Upper Second Creek (HUC 06030002-1203) Watershed and the Lower Second Creek (HUC 06030002-1204) Watershed.

The Second Creek Watershed Restoration Project was implemented in partnership with the Lauderdale County SWCD. The project was guided by the Second Creek Watershed Management Plan (2015). This project helped to fund BMPs, promote education and outreach events within the two watersheds, and encourage stakeholder education and involvement. During the project, qualified applicants implemented the following BMPs: 8 alternative water sources; 375.2 acres of forage and biomass planting including conservation cover and permanent vegetative cover; 8,913 feet of cross fencing; 35,487.07 square feet of heavy use area protection; and 6,056 feet of livestock pipeline.

October 2017 Farm to Table Event

Education and outreach efforts were an integral part of this project and furthered the goal of increasing public awareness of the water quality concerns within these two watersheds. Education and Outreach during the project included Water Festivals were students and adults were educated about water quality within their watershed, Rainfall Simulator demonstrations showing the importance of BMP implementation, and Land Judging contests for FFA students to promote natural resources stewardship. Events such as From the Soil Up and Farm to Table were utilized to present on the Second Creek Watershed Restoration Project and promote knowledge and understanding of water quality within the Second Creek Watersheds.

The project spent $205,829 of the $205,829 federally allocated funds. Due to weather and the need to allow for completion of best management practices, the contract end date was amended from June 5, 2018, until June 5, 2019, to allow for additional time. The project garnered $159,093.09 in non-federal match, which was $21,407.09 above the required amount of $137,686. This local overmatch was generated by the districts, landowners, and community volunteers which lends to the overall support of the project and the numerous stakeholder and education/outreach events that occurred. Through this project involvement, the District was able to capture more than the required 40 percent project match. Federal grant funds for the project were matched at 46 percent.

Total Load Reductions:

- 11,619 lbs/yr of nitrogen
- 3,795 lbs/yr of phosphorus
- 495 tons/yr of sediment

Swan-French Mill Creek Watershed Restoration Project (FY16)

Located in Limestone County, the Swan Creek Watershed (HUC 06030002-1101) is within the Upper 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 CWA Section 303(d) list of impaired waters for siltation, organic enrichment, and low dissolved oxygen in 1996 based on a study by the TVA. An 8.2-mile segment of Swan Creek was listed for the above pollutants from agricultural sources. The TMDL for Swan Creek was approved in 2002 for siltation, low dissolved oxygen, and organic loading.

Implementation of Cross Fencing for rotational grazing in the Swan Creek watershed.

Located in Limestone County, French Mill Creek is a tributary to Piney Creek and is a part of the Piney Creek Watershed (HUC 06030002-0802) within the Tennessee River Basin. In 1998, French Mill Creek was placed on the CWA Section 303(d) list of impaired waters for pathogens (fecal coliform). A 5.21-mile segment with a drainage area of 7.96 square miles was listed due to unknown sources. In 2000, the source was adjusted to pasture grazing. A TMDL for French Mill Creek was completed in 2006 and requires a 36% load reduction for the waterbody to meet its use classification of Fish and Wildlife.

The Limestone County SWCD is working with project partners in implementing the 319 project. To date, 6 applications have been completed which includes: 3,757 feet of cross fencing; 1 alternate watering system; 1,000 feet of livestock pipeline; 2,034 square feet of heavy use area protection; and 80 acres of cover crop. Applicants are continuing to install BMPs that are protective of water quality in the targeted watersheds.

Total Load Reductions:

- 2,698 lbs/yr of nitrogen
- 1,301 lbs/yr of phosphorus
- 200 tons/yr of sediment

West Flint Creek Watershed Project – Phase III (FY16)

The West Flint Creek Watershed (HUC 06030002-10) 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-digit HUC watersheds. These six sub-watersheds combined contain approximately 62 miles of impaired streams. The majority of the West Flint Creek 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-digit HUC watersheds are tributaries to West Flint Creek. The tributaries to West Flint Creek were placed on the 1998 CWA Section 303(d) list of impaired waters as not supporting Fish and Wildlife water quality standards.

Implementation of an alternative watering system in the Big Shoal Creek Watershed.

The West Flint Creek Watershed Management Plan (2014), which incorporates EPA's "a-i" 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 III project is being implemented in partnership with Lawrence County SWCD. To date, 25 applications have been completed and 6 additional applications have been approved. During the past six months, the following BMPs were implemented in the West Flint Creek Watershed as part of this Phase III Project: 17,753 square feet of heavy use are protection; 3 alternative watering systems; 8,640 feet of fencing; and 101 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 six months have included personal communications between the watershed coordinator and stakeholders.

Total Load Reductions:

- 6,143 lbs/yr of nitrogen
- 913.8 lbs/yr of phosphorus
- 434.1 tons/yr of sediment

Crowdabout Creek Phase III Implementation Project (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 Cullman 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) list of impaired waters for organic enrichment/low dissolved oxygen, siltation, and pathogens. The stream's use classification is Fish and Wildlife.

Cross Fencing was implemented to establish rotational grazing.

Crowdabout Creek was listed as attaining water quality standards for nitrogen, phosphorus, sedimentation/siltation and carbonaceous biochemical oxygen demand for all uses in 2014, likely due to implementation efforts during the Phase I and Phase II portions of this restoration project. In light of this, the Phase III project will focus on the remaining impairment of pathogens. The BMP implementation for this project phase will be focused in the headwaters area.

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

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 met with 13 applicants for potential projects and has completed conservation planning for 7 farms within the watershed. During the past six months, these efforts have resulted in the implementation of 189 acres of cover crops; 5,284 feet of fencing; and 4,798 square feet of heavy use area.

Education and outreach efforts are also an important part of this project. On May 2, 2019 2018, the District held a Wetland Wonderers event at the Flint Creek Wetland Mitigation Bank in the Crowdabout Creek Watershed. Topics presented at the event were macroinvertebrates, wetland plants, and water quality discussion.

Total Load Reductions:

- 43,304.1 lbs/yr of nitrogen
- 6,570.6 lbs/yr of phosphorus
- 2,628.8 tons/yr of sediment

Alabama Coastal NPS Pollution Control Program (ACNPCP)

The State of Alabama continues to develop its Coastal Zone Management Program under the Coastal Zone Management Act (CZMA) of 1972. The CZMA 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-6217). 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. This CNPCP is being developed and implemented regionally with the federally defined ACNPCP area, which encompasses 8-digit HUCs that occur within the geo-political boundaries of Baldwin and Mobile Counties, located in southwestern Alabama.

Section 319 program funds are obligated in the coastal area to address priorities of the ACNPCP. The ACNPCP and ADEM NPS Program staff work to assist stakeholders in identifying specific coastal NPS problem areas, and to provide resources to plan and implement corrective NPS management measures and practices in order to address those designated categories or issues. Focused targeting of Section 319 program funds advances the goal towards full approval of the ACNPCP under CZARA-§6217 by:

- Identifying specific categorical NPS stressor locations including GIS mapping and data layers (with consideration for maintaining citizen privacy issues).
- Strategically focusing on and clearly articulating BMP remedies 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 ACNPCP has continued to serve as the national Chair of the Coastal States Organization's (CSO) *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, CSO Director, Counsel and Staff, Sub-Committees, as well as other State representatives to provide 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 (CNPS-MATRIX) and implemented 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 (TAC) to address NPS pollution management program needs and provide guidance for

regulatory agency coordination issues. These various forums are utilized to enhance coordination and cooperation regarding coastal water quality resources management. NOAA-OCM, USEPA, NRCS, USFWS, USACE, ADEM-Section 319, ADCNR-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, ADCNR, MBNEP, WBNERR, NRCS, USFWS, USACE-Mobile District, MS-AL Sea Grant, Dauphin Island Sea Lab, Alabama Coastal Foundation, Nature Conservancy, and others.

In the recent NOAA §312 Review, Alabama received a Necessary Action to submit a 5-Year Strategy Work Plan for the Alabama Coastal Nonpoint Pollution Control Program, which was submitted November 30, 2017. This Alabama CNPCP Final Approval Work Plan was accepted by NOAA-OCM and USEPA. Alabama has formed an interagency ACNPCP Work Group that has conducted several meetings to coordinate and plan our approaches for the ACNPCP. Federal Coordination Meetings with NOAA and EPA were initiated in January of 2018 and have continued. The State and federal representatives participated in Alabama's CNPCP Update teleconferences this year that were held on November 27, 2018, March 21, 2019, June 6^{th,} 2019 and September 19th, 2019 in order to monitor the state's progress and coordinate approval issues with the State CNPCP.

ANCPCP activities coordinate closely through the state with Coastal States Organization (CSO), the Gulf of Mexico Alliance (GOMA)-Water Resources & Education Enhancement Teams, MBNEP, and other program partners and projects in order to specifically address approval criteria for the Program. Through these activities, the ACNPCP staff have participated in over 164 specific events during this past fiscal year and reporting period. These activities continue to provide support, technical advice and technical coordination with ADCNR, ADEM, the MBNEP, NRCS, USFWS, USACE-Mobile District, MS-AL Sea Grant, Nature Conservancy, and others, including cooperation with local county and municipal entities to develop ACNPCP applicable projects and programs.

Coastal Alabama Onsite Sewage Distribution Systems Inspection & Maintenance Program - Sector 4:

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 nonpoint source 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 FY16 program funds were used by the Baldwin County and Mobile County Conservation Districts, and Mobile County Health Department (MCHD) to implement the *Coastal Alabama OSDS Inspection & Maintenance Program* as follows:

a. ACNPCP secured concurrent Contracts with multiple agencies to implement the *Coastal Alabama OSDS Inspection & Maintenance Program (OSDS I&M).* All prior SECTOR 4 Contracts items were

completed and concluded in a timely manner. Sector 4 Reports were developed for each: Baldwin County Soil & Water Conservation District (BCSWCD), MCHD, and the Mobile County Soil & Water Conservation District (MCSWCD). MCHD has implemented its resources to support our Program through its regulatory auspices under the Alabama Department of Public Health that assisted our Sector 4 efforts.

b. Based upon the updated estimated number of 69,350 OSDS residential sites within the ACNPCP Management Area, four (4) Geographic Sewer Units referenced as "Sectors" were selected for each County, based upon NRCS and SWCDs hydric mapping and expertise provided by the local health departments. Sector 4 implementation for this project was completed for 53 of the 12-digit HUC sub-watersheds present in Alabama's CNPCP Management Area (Baldwin and Mobile Counties). This project was implemented in the most rural sectors of our management area.
c. Pumper/Installer Memorandum of Understanding (MOU) were facilitated by the SWCDs through the Alabama Onsite Wastewater Board (AOWB) and the local health departments by recruiting involvement with participating AOWB state-certified Pumpers. This MOU set and reduced our inspection/maintenance cost at $250.00 per each unit in Mobile County, and $225.00 per each unit in Baldwin County for Sector 4.
d. BCSWCD, MCSWCD, ACES, the Gulf Coast Resources Conservation & Development Council (GCRC&D), the MCHD, the MOWA Band of the Choctaw Indians Tribal Office, and the Poarch Creek Band of Indians, including several municipalities and Non-Governmental Organizations (NGOs) supported efforts to publicize the *Coastal Alabama OSDS Inspection & Maintenance Program* Workshops and efforts through local contacts and social media on behalf of the ACNPCP. Other ACNPCP partners advertised these project workshops in their social media outlets and newsletters.
e. ADPH and MCHD printed OSDS I&M Workshop Resident Folders that were designed cooperatively with the Contractors and provided to each residential participant. This provides each participant with a personal OSDS tracking and Pump-Out reminder format.
f. Strategic workshop locations for Sector 4 were successfully facilitated by the contractors for each county sector with the gracious participation of our OSDS I&M Workshop Hosts.
g. These contractors and program partners have successfully completed the challenge to oversee the Sector 4 Workshops and Inspections, which were implemented and completed. Contracts have been completed and the OSDS I&M Voucher MOUs were successfully negotiated with the state certified AOWB Pumpers. A total of 13 new OSDS I&M Workshops were completed during this fiscal year. Over 529 members of the public attended these evening workshops. An additional total of 397 OSDS Inspections and Maintenance Pump-outs were completed for SECTOR 4 of this project in 2018-2019.

The twelve-digit HUC sub-watersheds targeted in Sector 4 for this last cycle of *Coastal Alabama OSDS Inspection & Maintenance Program* implementation were prioritized and identified in Table 3 below.

Table 6. Coastal Alabama OSDS I&M Program - Sector 4 Watersheds

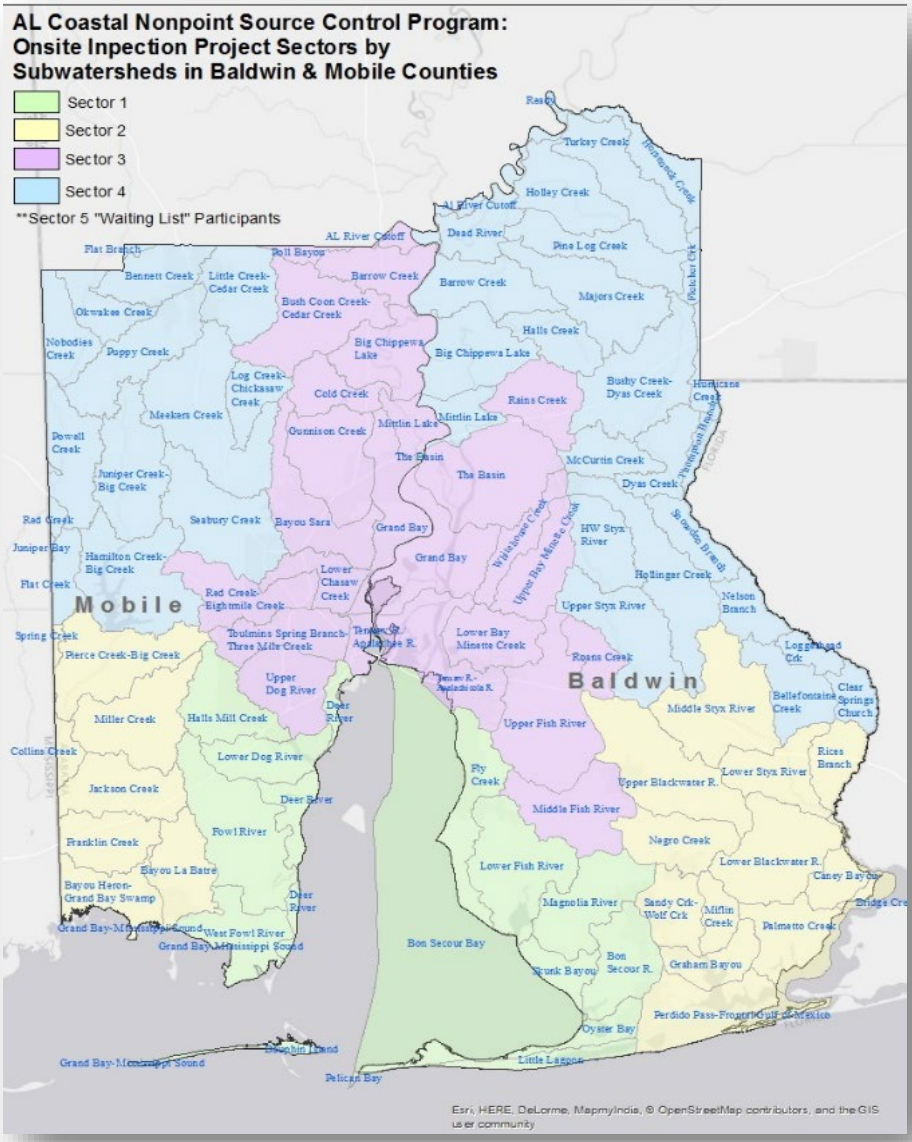
Watersheds	12-digit HUCs
BALDWIN COUNTY: SECTOR 4 Watersheds	
031401060102	Fletcher Creek
031401060103	Hurricane Creek-Perdido River
031401060104	Thompson Branch-Perdido River
031401060201	Bushy Creek-Dyas Creek
031401060202	McCurtin Creek
031401060203	Dyas Creek
031401060401	Snowden Branch-Perdido River
031401060402	Nelson Branch-Perdido River
031401060403	Loggerhead Creek-Perdido River
031401060501	Headwaters Styx River
031401060502	Roans Creek
031401060503	Hollinger Creek
031401060504	Upper Styx River
031401060505	Bellefontaine Creek
031401060506	Middle Styx River
031401060507	Lower Styx
031401060701	Clear Springs-Perdido River
031401060702	Rice's Branch-Perdido River
031502040501	Long Hollow Creek
031502040503	Horseneck Creek-Little River
031502040701	Brickyard Creek-Turkey Creek
031502040702	Holley Creek
031502040703	Pine Log Creek
031502040704	Majors Creek
031502040705	Dead River
031602040103	Farris Creek-Barrow Creek BC/MC
031602040104	Little Halls Creek-Halls Creek
031602040106	Big Chippewa Lake
031602040201	Rains Creek
031602040202	Mittlin Lake
031602040203	The Basin
031602040403	Grand Bay
031602040501	Upper Bay Minette Creek
031602040502	Whitehouse Creek
MOBILE COUNTY: SECTOR 4 Watersheds	
031700080405	Spring Creek – Escatawpa River
031700080601	Pierce Creek – Big Creek
031700080404	Flat Creek
031700080502	Hamilton Creek – Big Creek
031602040303	Seabury Creek

031602040302	Meeker's Creek
031700080501	Juniper Creek – Big Creek
031700080303	Powell Creek – Escatawpa River
031602040301	Log Creek – Chickasaw Creek
031602040105	Cold Creek
031700080206	Nobodies Creek – Escatawpa River
031700080205	Puppy Creek
031602040102	Bush Coon Creek – Cedar Creek
031602040106	Big Chippewa Lake
031700080204	Owakee Creek – Escatawpa River
031700080203	Bennet Creek
031602040101	Little Creek – Cedar Creek
031602031102	Poll Bayou
031602040103	Farris Creek – Barrow Creek

Based upon the OSDS I&M Sector 4 project data reported by the program contractors and partners:

1. Approximately **4,693 certified OSDS Inspections** were conducted during this project cycle in both counties.
2. Each coastal county gained an additional increase of inspections due to implementation of this program in Sector 4 Project:
    - Baldwin County estimated its OSDS inspections as having a **13.5% increase** in Sector 4.
    - Mobile County yielded an **increase of 6.9%** for their Sector 4 OSDS inspections due to this project.
    - During this project period, total numbers from both counties show an **increase of 8.5% for OSDS inspections** for the *ACNPCP Management Area.*

This initial four-year rotation (OCT 2015-MAR 2019) of OSDS projects to develop the processes and create support for the Coastal Alabama OSDS Inspection & Maintenance Program has been completed. ACNPCP is working to provide technical assistance for our local county partners to help initiate upcoming OSDS projects being developed for future implementation in 2020 and beyond.



Coastal Alabama Onsite Inspection Project Sectors for Mobile and Baldwin Counties

Efforts in 2019 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-three main stem reservoir stations on the Coosa and Tombigbee River Basins were intensively monitored in FY2019. Thirty-eight locations on wadeable flowing streams and rivers were sampled in FY2019.	FY18 Section 319 Program Workplan Project 2 (Statewide Surface Water Quality Monitoring of Priority Wadeable Streams and Rivers) FY18 Section 319 Program 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 **II.** Interim Water Quality Protection and Restoration a: …results of installed BMPs b: …success story documentation
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.	FY18 Section 319 Program 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. One waterbody was monitored to	FY18 Section 319 Watershed Implementation Projects 9, 13, 14, 15. Contracts were executed to initiate FY18 Section 319 funded Watershed-based Projects: 9 – Browns Creek 13 – UT Tiawasee Creek 14 – Ryan Creek 15 – Cross Creek	

	develop a siltation TMDL. Four locations were monitored to document water quality conditions prior to the implementation of 319 watershed plans. An additional twenty-five streams were monitored to assess use support attainment and to identify waterbodies impaired by NPS pollution.		c. … watershed plan progress 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	FY18 Section 319 Program 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.	FY18 Section 319 Program Workplan Project 4 (Coastal NPS Program Approval). 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.	FY18 Section 319 Program Workplan 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 meeting with NRCS on 7/10/2019 to coordinate on next year's NWQI watershed selection directives for 2020.	

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.	FY18 Section 319 Program Workplan Project 1 (Admin) FY18 Section 319 Watershed Implementation Projects 9, 13, 14, 15. 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 FY19 to plan and coordinate FY20 and FY21 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 16, 2019.	**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	No Section 319 funds primarily target watershed "protection" of high quality waters	FY18 Section 319 Program Workplan Project 1 (Admin.)	

303(d) listed waters per a TMDL or to protect high quality waters identified in Section 305(b) Integrated Reports. **Timeline**: Annual	(Tier 3), but continues to focus on "restoration" of NPS-impaired waters (Section 303(d) listed or TMDLs).	FY18 Section 319 Watershed Implementation Projects 9, 13, 14, 15. 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.	FY18 Section 319 Program Workplan Project 1 (Admin); FY18 Section 319 Projects 9, 13, 14, 15. 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.	FY18 Section 319 Program Workplan Project 1 (Admin.) *Examples of technology transfer/education and outreach activities conducted with partners to target impaired waterbodies include: • Career Fair February 2019 (Prattville Jr. High School) • COSA (Career & Technology) Event • Groundwater Festivals (Blount County, Montgomery County, Cullman County, Coffee County, Tallapoosa County, Pike County, Lee County)	

		• Auburn University Environmental Club Career Talk • Envirothon • ADEM Earth Day • Enviroscape presentation at Bell Road Library • 2019 Coosa River Basin Conference and Stakeholder Meeting • Alabama Water Resources Conference • Clear Water AL Erosion and Sediment Control Workshops 2019 (AL Soil & Water Conservation Committee) • BMP Manuals distribution (as requested) • Alabama Watershed Stewards • Alabama Water Watch Training and Recertification Class • Tuskegee University's Verizon Innovative Learning Program Career and Technology Tour • Elmore County Homeschool Enviroscape Demonstrations • Urban Stream Assessment & Restoration Workshop (ACES) • Septic Tank Workshops (Coastal Program Projects) • Several meetings and presentations for watershed stakeholders targeting specific impaired streams • FY18 Section 319 Projects 9, 13, 14, 15 • 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.	FY18 Section 319 Program Workplan Project 1 (Admin); FY18 Section 319 Implementation Projects 9, 13, 14, 15. Conducted 2019 Coosa Basin Conference and Stakeholder Meeting. Worked closely with 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 **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
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: 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	Continuing. No specific wetland or estuarine restoration projects were not funded by Section 319 in FY2018.	FY18 Section 319 Watershed Implementation Projects 9, 13,14, 15. 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.	

			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 q:. .fiscally responsible **VI.** NPS Education and Outreach a: …targets watershed and WQ b: …increase awareness and knowledge c:…partnerships
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.	FY18 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 FY2018 Section 319 workplans to EPA-Region 4 that incorporate a myriad of NPS partners and mitigation resources (*submitted on 9/28/2017*). 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.	
Short-term Objective 4.3: Continue to track successful completion of planned NPS water	Continuing.	FY18 Section 319 Program Workplan Project 1	

quality restoration outcomes (e.g., materials developed, reports generated, practices implemented, conferences/meetings facilitated or attended, etc.). **Timeline:** Annual		Specific Section 319 project outputs are presented in interim and closeout reports. Final reports are submitted to EPA R-4 at grant closeout.	d:…specific and target audiences e: …pollution prevention f: …enhance data monitoring g: …TMDLs, watershed based plan, public health and safety
Short-term Objective 4.4: 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.	FY18 Section 319 Project 1 Submitted a Mill Creek (WQ-10) success story to EPA-Region 4 on 8/8/19 for review and comments. EPA-Region 4 forwarded the success story on 8/14/19.	

Goal 5: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**)**
Long-term Objective 5: 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 move forward with the Coastal AL OSDS I&M Program Sector 4.The program identifies problem areas, effectively raises awareness and promotes 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 b:… increase awareness and knowledge c:…Partnerships d:…Specific and target audiences e: …pollution prevention f: …enhance data monitoring g: …TMDLs, watershed based
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.	FY18 Section 319 Program Workplan Project 1	
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.	FY18 Section 319 Program Workplan 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.	FY18 Section 319 Program Workplan Project 1 FY17 Section 319 Watershed Implementation Projects 9, 13, 14, 15.	plan, public health and safety
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.	FY18 Section 319 Program Workplan 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 2019**		
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	Mill Creek / 03130003-0101	Water quality standards were attained for Mill Creek organic enrichment, low dissolved oxygen, sediment/siltation in 2018.
Number of WQ-10 Waterbodies Fully/Partially Restored or Meets State Water Quality Standards or Designated Uses:	1	Mill Creek / 03130003-0101	In 2011, the Mill Creek Watershed was addressed with CWA Section 319 funding in cooperation with the ACES. Community stakeholder meetings, AWW volunteer monitoring training, and other workshops helped to communicate the project goals. Mill Creek Watershed Project, from 2011 to 2013, was funded through a CWA section 319 grant in cooperation with the ACES and ADEM.
Number of WQ-10 NPS/Section 319 Success Stories Developed as a Result of Full/Partial Restoration:	1	Mill Creek / 03130003-0101	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	Mill Creek / 03130003-0101	A Mill Creek WQ-10(a) Success Story has been prepared and submittal to EPA R-4 for partial restoration.
Number of WQ-10 NPS/Section 319 Success Stories Submitted to EPA Region 4 as a Result of Full/Partial Restoration:	1	Mill Creek / 03130003-0101	Submitted to EPA R-4 on August 8, 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	Mill Creek / 03130003-0101	Submitted a Mill Creek (WQ-10) success story to EPA-Region 4 on 8/8/19 for review and comments. EPA-Region 4 forwarded the success story on 8/14/19.
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., Category 5/ Section 303(d) listed Impaired Waters):	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 2019**	
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):	34,595.26 lbs/year	Cumulative "N" for all ongoing Section 319 grants (2015- 2019). 2015- 2019 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"):	8	
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):	10,515.40 lbs/year	Cumulative "P" Total for all "open" Section 319 grants (FY2015- 2019) reported in GRTS. 2015- 2019 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"):	8	
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):	7,640.72 tons/year	Cumulative "S" Total for all "open" Section 319 grants (FY2015- 2019) reported in GRTS. 2015- 2019 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"):	8	
Load Reductions Entered in GRTS by Feb 15	Yes	
d) Number of Impaired Waterbodies/Segments Where "Other" NPS Pollutant Load Reductions are Achieved (#):	0	All watershed-based projects leverage the resources 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 2019**	
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 drafted or final plans developed during FY2019 include: • Bayou La Batre • West Fowl River • Dauphin Island • Wolf Bay • Western Shore • Mobile Tensaw Delta • Gulf Frontal • Browns Creek • Ryan Creek • Cross Creek • Village Creek • AL Watershed Stewards Program • Pepperell Branch Watershed Management Plan
At least two (2) EPA nine-key Element Watershed-based Plans are Drafted or Final Plans Developed Annually:	13	
At least two (2) EPA nine-key Element Watershed-based Plans Begin Implementation Annually:	4	
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	Nine-key element Watershed-based Plans beginning implementation during FY2019 include: • Browns Creek • UT Tiawasee Creek • Ryan Creek • Cross 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 February 28, 2019.

(4) Program Management and Accountability	**Year 2019**	
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 2019 Section 319 RFP notice as well as the Inter-governmental Clearinghouse Review was executed. Watershed Implementation Projects were selected for FY19 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 NPS staff participated/attended the following training and education workshops/conferences: • EPA Integrating & Implementing Nature-Based Solutions into State & Local Hazard Mitigation Plans-Part 2, November 28, 2018. • AWW Water Chemistry Training Course, January 26, 2019. • SWAT Modeling Training, February 4-6, 2019. • USDA Farm Bill Training, February 26, 2019.
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	
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	

		• EPA Green Infrastructure/LID Workshop, March 4, 2019. • EPA Conestoga River Watershed HSPF and Swat Modeling, March 12, 2019. • Lessons Learned on Integrating Water Quality and Nature-based Approaches into Hazard Mitigation Plans, March 14, 2019. • EPA CWSRF Funding Land Conservation Projects with the Clean Water State Revolving Fund, March 25, 2019. • ACES Urban Stream Assessment & Restoration, May 1-2, 2019. • EPA Success Story Database Refresher and Training, July 9, 2019. • EPA Planning & Implementing Climate Smart Parks in Massachusetts, July 30, 2019. 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.

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 2015					
Planning Administration/Management	100%	$ 663,340	$ 441,846	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	95%	$ 152,387	$ 101,591	09/30/2019	
Coastal NPS Program Approval (Septage Category II/III)	78%	$ 100,000	$ 66,667	09/30/2019	
Pepperell Branch Watershed Management Plan	100%	$ 144,744	$ 96,496	08/14/2019	
Watershed Steward Pilot Program	99%	$ 81,170	$ 54,113	09/09/2019	
Second Creek Watershed Restoration Project	100%	$ 205,829	$ 159,093	06/05/2019	Overmatch of $21,407
Brindley Creek Watershed Management Plan Implementation	100%	$ 227,743	$ 191,387	08/20/2019	Overmatch of $5,336. CCSWCD returned $31,260.90 in federal funds, which were shifted into Project 6: Incremental Admin/Management.
Tiawassee Creek Sub-Watershed Management Project	100%	$ 596,671	$ 451,238	06/20/2019	Overmatch of $53,457
Lake Neely Henry Nutrient Reduction Project	100%	$ 218,234	$ 146,667	12/06/2018	Overmatch of $23,005. DCSWCD returned $1,765.94 in federal funds which were shifted into Project 6: Incremental Admin/Management.
Alabama Clean Water Partnership	Cancelled	$ -	$ -	04/01/2018	Notified ACWP to dissolve. Funds reallocated to WMP development and Watershed Stewards Program.

Fiscal Year 2016					
Planning Administration/Management	100%	$ 786,251	$ 524,168	09/30/2016	ADEM match to be provided per PPG
Statewide Surface Water Quality Monitoring of Priority Wadeable Streams and Rivers	87%	$ 357,579	$ 150,137	12/31/2018	ADEM match to be provided per PPG
Surface Water Quality Assessment of Rivers, Reservoirs and Tributary Embayments on a Statewide Rotation	80%	$ 180,834	$ 60,529	12/31/2018	ADEM match to be provided per PPG
Coastal NPS Program Approval (Septage Category IV)	0%	$ 100,000	$ 52,001	09/30/2020	
Update to the D'Olive Creek Watershed Management Plan	0%	$ 25,000	$ 16,667	09/30/2020	
Watershed Steward Pilot Program	0%	$75,336	$50,224	09/30/2020	
D'Olive Creek Sub-Watershed Management Project at Stream Segments DAF-1 and DAF-1A	100%	$ 197,956	$131,971	03/30/2020	
Moores Creek Watershed Management Project-Phase Two	17%	$ 295,953	$ 175,223	02/22/2020	
Upper and Lower Flint River Watersheds Implementation Project	100%	$ 143,543	$ 95,695	11/09/2018	MCSWCD returned $104,457 in federal funds. The funds will be reallocated to a different project.
Shoal and Swan Creek Watershed Restoration Project	100%	$ 125,940	$ 84,405	11/10/2019	Overmatch of $445. LCSWCD returned $234,600 in federal funds. The funds were reallocated for funding in the Alt-9 Project: Swan-French Mill Creek.
West Flint Creek Watershed Project-Phase III	61%	$ 300,000	$ 200,000	01/21/2020	Contracted extended from July 21, 2019 until January 21, 2020 to allow additional time to spend federal funds and for BMP Implementation.
Bioinfiltration Swale Implementation on USA Campus Meisler Commons in the Upper Three Mile Creek Watershed	100%	$ 33,774	$ 22,973	12/01/2018	This project is 100% complete. It did not spend $12,267 in federal funding which will be reallocated to another watershed restoration project.
Implementation of the Watershed Management Plan for D'Olive Creek, Tiawassee Creek, and Joe's Branch Watershed	100%	$ 77,050	$ 53,670	09/28/2017	Overmatch of $2,304.

Management Plan Implementation Modification to the Transition between Step Pool Stormwater Conveyance and the Restored Tributary JB2 Project					
Swan-French Mill Creek Watershed Restoration Project	14%	$113,000	$75,333.33	08/01/2020	On November 12, 2019, this project notified the Department that it would not be invoicing for $76,543.03. The remaining funding will be reallocated to a different project.
Tiawasee Creek Sub-Watershed Management and Restoration Project	0%	$237,784	$158,522.42	09/30/2020	Contracted Note this is a multiple fiscal year workplan.
Headwaters Ryan Creek Watershed Management Plan Implementation	Cancelled	$ -	$ -	09/30/2020	Submitted to EPA but not contracted. Resubmitted to EPA in FY19, but contracted under FY18 funding.
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	87%	$ 338,380	$ 225,587	09/30/2021	
Surface Water Quality Assessment of Rivers, Reservoirs and Tributary Embayments on a Statewide Rotation	76%	$ 176,776	$117,851	09/30/2021	
Coastal NPS Program Approval (Septage Category V)	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 Sub-Watershed Management and Restoration Project	0%	$305,144	$ 203,429	09/14/2020	Contracted Note this is a multiple fiscal year workplan.
Parking Lot Bioswale Implementations on USA Campus in the Upper Three Mile Creek Watershed	1%	$ 152,339	$ 101,559	03/14/2020	
Graves Creek Watershed Management Plan Implementation-Phase 2	0%	$ 250,250	$ 166,833	04/26/2021	

Crowdabout Creek Phase III Implementation Project	85%	$ 160,300	$ 179,491	11/06/2019	Waiting on final project invoice and report.
D'Olive Creek Sub-Watershed Management Project at Stream Segments DAF-1 and DAF-1A	89%	$ 195,858	$ 130,572	03/30/2020	Note this is a multiple fiscal year workplan.
Parkerson Mill Creek Watershed Management Plan Implementation Low Impact Development BMPs	11%	$ 158,629	$ 105,753	12/30/2020	
Moores Creek Watershed Management Project-Phase Two	0%	$ 66,996	44,664	02/20/2020	Note this is a multiple fiscal year workplan.
Mill Creek Watershed Management Project - Phase III	Cancelled	$ -	$ -	09/30/2021	This stream was delisted. Phase 3 will not occur.
Scarham Creek Watershed Project	Cancelled	$-	$-	09/30/2021	Delayed project to another fiscal year due DCSWCD request.
Headwaters Ryan Creek Watershed Management Plan Implementation	Cancelled	$ -	$ -	09/30/2020	Submitted to EPA but not contracted. Submitted to EPA in FY19, but contracted under FY18 funding due to available funding.
Fiscal Year 2018					
Planning Administration/Management	0%	$ 837,566	$ 558,337	09/30/2022	
Statewide Surface Water Quality Monitoring of Priority Wadeable Streams and Rivers	0%	$ 339,392	$ 230,000	09/30/2022	
Surface Water Quality Assessment of Rivers, Reservoirs and Tributary Embayments on a Statewide Rotation	0%	$ 173,932	$ 115,171	09/30/2022	
Coastal NPS Program Approval	100%	$ 100,000	$ 66,667	09/30/2022	
Watershed Management Plans, Public Stakeholder Involvement, Education & Outreach	0%	$ 157,110	$ 117,740	09/30/2022	
Browns Creek Watershed Implementation Project	0%	$ 200,700	$ 133,800	08/23/2021	Contracted
Tiawasee Creek Sub-Watershed Management and Restoration Project	0%	$ 312,805	$ 208,536.67	10/15/2020	Contracted. Note this is a multiple fiscal year workplan.
Pathogen Reductions to Emuckfaw Creek: A Watershed Restoration Project	0%	$ 166,951	$ 150,498	09/30/2022	Pending Not submitted with original EPA Package, Fill in Project.

Ryan Creek Watershed Implementation Project	0%	$222,321	$111,300.67	09/06/2021	Contracted Originally submitted as a FY19 project.
Cross Creek Watershed Implementation Project	0%	$225,747	$148,214.00	08/23/2021	Contracted Not submitted with original EPA Package, Project modification from Scarham Creek.
Roebuck Municipal Golf Course Stream Restoration and Demonstration Project	0%	$379,476	$252,984	09/30/2022	Pending Originally submitted as a FY19 project.
Dry Creek-Cahaba River Watershed Restoration Project	0%	$ -	$ -	09/30/2022	Submitted to EPA but not contracted. DCSWCD cancelled project.
Cowarts Creek Watershed Implementation Project	0%	$ -	$ -	09/30/2022	Submitted to EPA but not contracted. Moved to FY19.
Mulberry Creek Watershed Project	0%	$ -	$ -	09/30/2022	Submitted to EPA but not contracted. Project moved to FY19.
Scarham Creek Watershed Project	0%	$ -	$ -	09/30/2022	Submitted to EPA but not contracted. Project changed to Cross Creek watershed due for stakeholder interest.
Pintlala Creek Watershed Project	0%	$ -	$ -	09/30/2022	Submitted to EPA but not contracted. Project cancelled per SWCD.
French Mill Creek Watershed Restoration Project Phase II	0%	$ -	$ -	09/30/2022	Submitted to EPA for FY18 but contracted in FY16 using unspent funds from Shoal Creek/Swan Creek Project. Renamed French Mill Creek/Swan Creek.
Fiscal Year 2019					
Planning Administration/Management	0%	$ 862,394	$ 574,929	09/30/2023	
Statewide Surface Water Quality Monitoring of Priority Wadeable Streams and Rivers	0%	$ 333,187	$ 222,125	09/30/2023	
Surface Water Quality Assessment of Rivers, Reservoirs and Tributary Embayments on a Statewide Rotation	0%	$ 177,419	$ 118,279	09/30/2023	
Coastal NPS Program Approval	0%	$ 100,000	$ 66,667	09/30/2023	
Watershed Management Plans, Public Stakeholder Involvement, Education & Outreach	0%	$ 120,000	$ 80,000	09/30/2023	
Pathogen Reduction of Turkey Branch: A Weeks Bay Watershed Project	0%	$ 215,779	$ 143,853	09/30/2023	**Pending
Anderson Creek Watershed Restoration Project	0%	$ 255,089	$ 170,390	09/30/2023	**Pending

Big Nance Watershed Restoration Project	0%	$ 227,500	$ 168,041	09/30/2023	**Pending
Cowarts Creek Watershed Implementation Project	0%	$ 296,525	$ 197,683	09/30/2023	**Pending
Mulberry Creek Watershed Project	0%	$202,079	$134,719	09/30/2023	**Pending Submitted to EPA as FY18. Project moved to FY19.
Roebuck Municipal Golf Course Stream Restoration and Demonstration Project	0%	$ -	$ -	09/30/2023	Project moved to FY18
Ryan Creek Watershed Implementation Project	0%	$ -	$ -	09/30/2023	Project moved to FY18
Fiscal Year 2020					
Planning Administration/Management	0%	$852.790	$568,527	09/30/2024	*
Statewide Surface Water Quality Monitoring of Priority Wadeable Streams and Rivers	0%	$330,441	$220,294	09/30/2024	*
Surface Water Quality Assessment of Rivers, Reservoirs and Tributary Embayments on a Statewide Rotation	0%	$185,676	$123,784	09/30/2024	*
Coastal NPS Program Approval	0%	$100,00	$66,667	09/30/2024	*
Watershed Management Plans, Public Stakeholder Involvement, Education & Outreach	0%	$158.593	$105,729	09/30/2024	*
Shoal Creek Watershed Implementation Project Phase II	0%	$524,187	$349,458	09/30/2024	*
Black Creek Stream Restoration Project	0%	$665,204	$443,469	09/30/2024	*
Pepperell Branch Watershed Implementation Project	0%	$290,703	$193,802	09/30/2024	*
Upper Three Mile Creek Watershed Implementation Project-Phase 3	0%	$47,442	$31,628	09/30/2024	*

**FY20 319 Application submitted to the EPA on 9/28/2019. Pending approval.*

***FY19 319 Application submitted to the EPA on 9/28/2018. Funding released 5/30/2019. Workplans are being updated based on available funds.*

The Alabama Nonpoint Source Management Program

Administered by the:
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