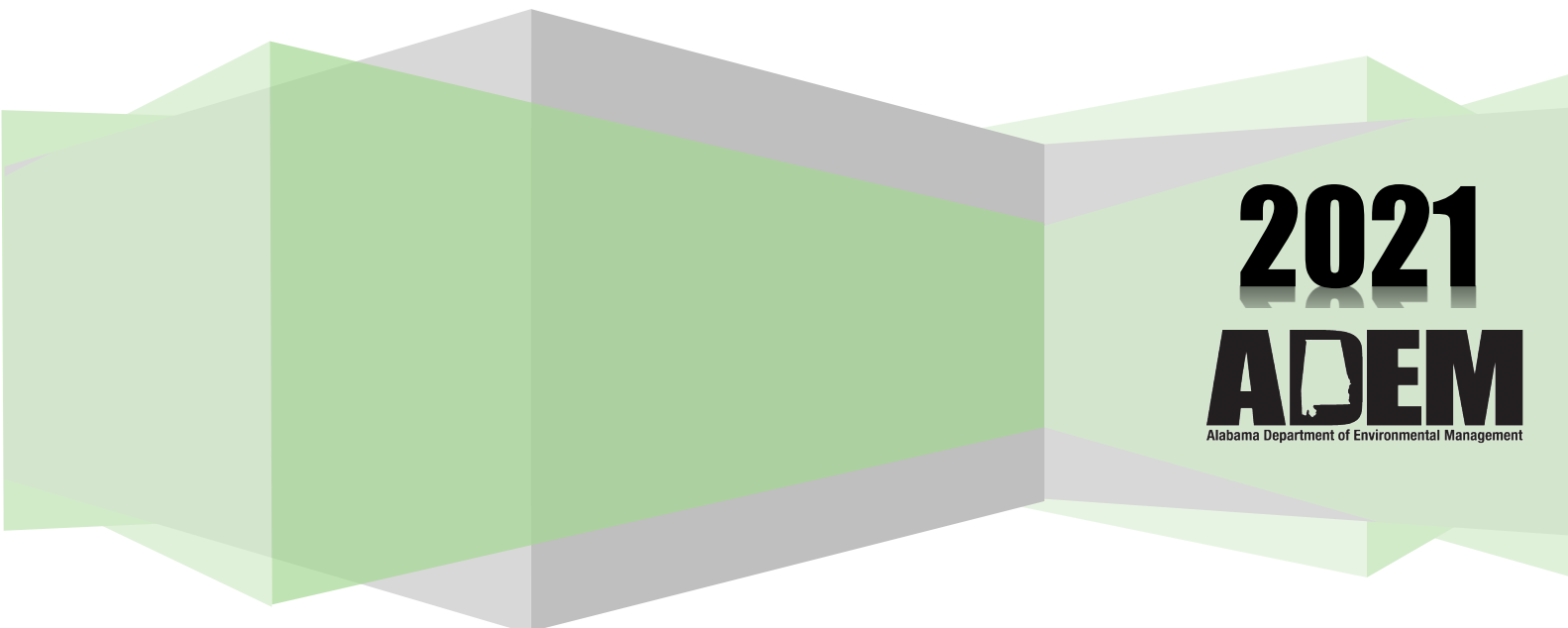


ALABAMA NONPOINT SOURCE MANAGEMENT PROGRAM ANNUAL REPORT



2021
ADEM
Alabama Department of Environmental Management

Copies of this report are available on the Alabama Department of Environmental Management Website at: adem.alabama.gov

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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 CWA 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 CWA 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 Alabama 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 of 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 CWA 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 December 2021)

Balances for active grants FY2016-FY2021 are listed in Table 1 and represented graphically in Figure 1 below.

TABLE 1 – CURRENT 319 GRANT BALANCES

Grant Year	Award Amount	Amount Obligated	Program Funds	Project Funds	Total # Projects
FY16	\$3,050,000	\$3,050,000	\$1,525,000	\$1,525,000	14
FY17	\$3,154,600	\$3,154,600	\$1,627,300	\$1,527,300	16
FY18	\$3,116,000	\$3,116,000	\$1,608,000	\$1,508,000	11
FY19	\$3,086,000	\$3,086,000	\$1,593,000	\$1,493,000	10
FY20	\$3,216,000	\$3,216,000	\$1,658,000	\$1,558,000	9
FY21	\$3,303,000	\$3,303,000	\$1,701,500	\$1,601,500	9
Total	\$18,925,600	\$18,925,600	\$9,712,800	\$9,212,800	69

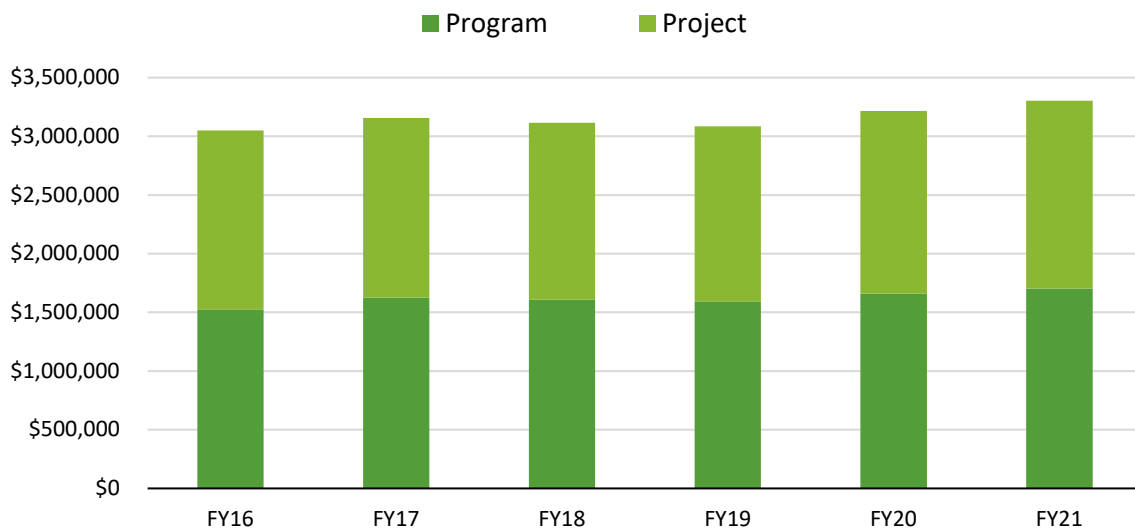


Figure 1: Current 319 Grant Balances

Pollutant Load Reduction Totals in FY2021

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 2 and Figure 2 below contain 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)
2016	161,848	41,641	27,882
2017	144,528	38,931	30,037
2018	52,802	10,877	5,074
2019	41,568	11,685	8,086
2020	64,714	24,967	3,664
2021	1,979	190	57
Total	467,439	128,291	74,800

Section 319 Project Load Reductions

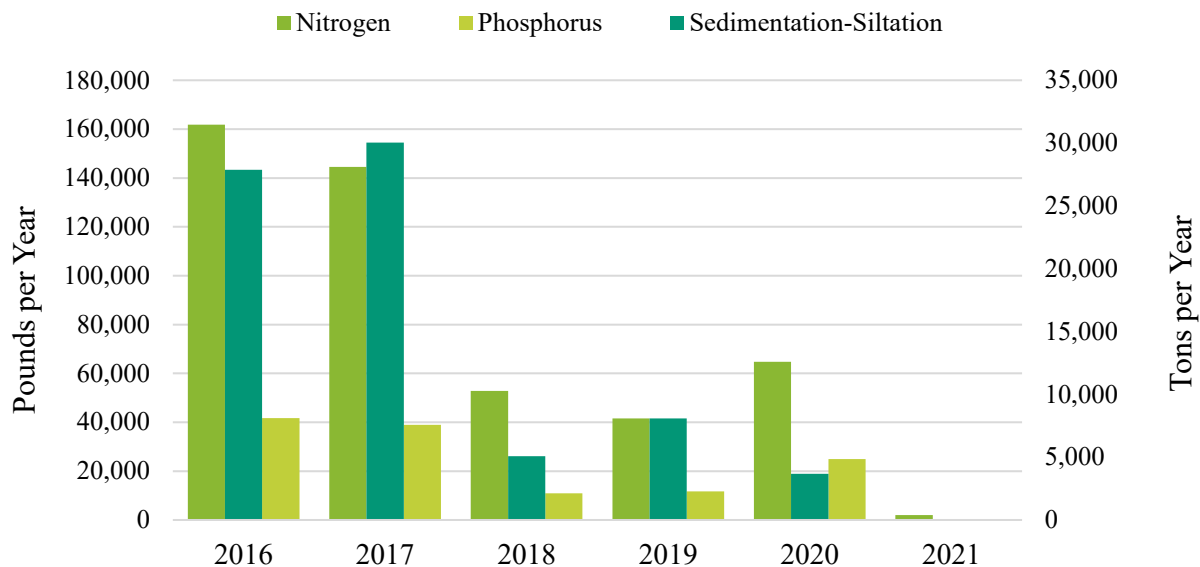


Figure 2. Nitrogen, Phosphorus, and Sediment Load Reductions by Fiscal Year

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 FY2021, the TMDL Program of ADEM continued to make great strides in protecting Alabama's water resources. Alabama's cumulative total of approved TMDLs in FY2021 was 268 and the associated pollutants are represented in Figure 3.

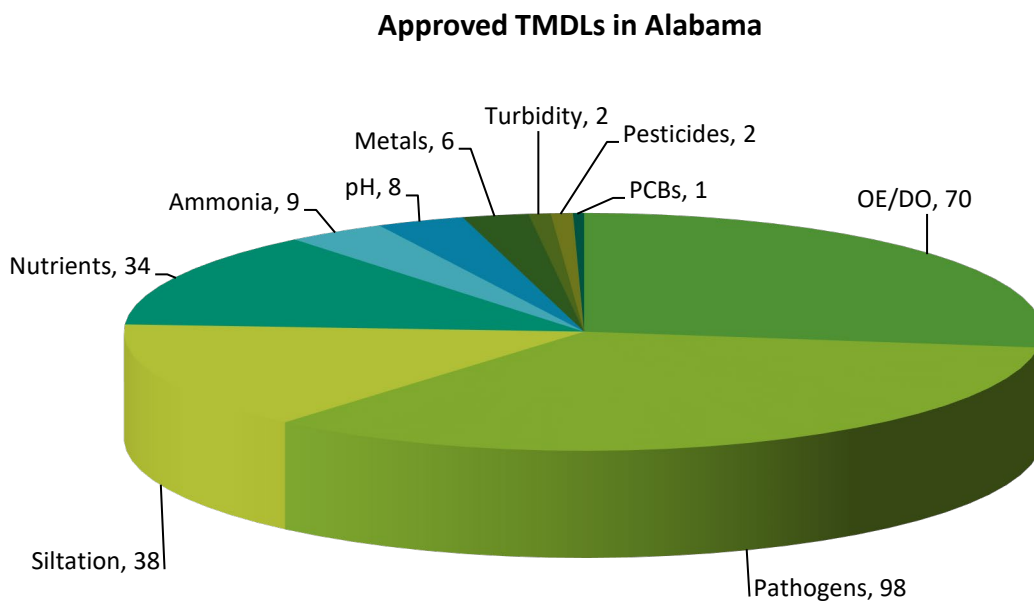


Figure 3. Alabama TMDLs by Pollutant

Current Watersheds Implementing a TMDL in NPS Projects

TABLE 3 – IMPLEMENTATION PROJECTS FY 2016 - FY 2021

Fiscal Year	Project Title	Total
2016	<ul style="list-style-type: none"> • 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 	5
2017	<ul style="list-style-type: none"> • Parking Lot Bioswale Implementations on USA Campus in the Upper Three Mile Creek Watershed • Graves Creek Watershed Management Plan Implementation - Phase II • Crowabout Creek Phase III Implementation Project • Parkerson Mill Creek Watershed Management Plan Implementation Low Impact Development BMPs 	4
2018	<ul style="list-style-type: none"> • Ryan Creek Watershed Implementation Project 	1
2019	<ul style="list-style-type: none"> • Pathogen Reduction of Turkey Branch: A Weeks Bay Watershed Project • Roebuck Municipal Golf Course Stream Restoration and Demonstration Project 	2
2020	<ul style="list-style-type: none"> • 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 III 	4
2021	<ul style="list-style-type: none"> • Upper Three Mile Creek: Ephemeral Gully Restoration Project • Roebuck Municipal Golf Course Stream Restoration and Demonstration Project - Phase II 	2
Total Projects		18

ADEM Surface Water Monitoring and Assessments Strategy

The 2020 Monitoring Strategy implements a coordinated, three-year basin rotation for the Rivers and Streams Monitoring Program (RSMP), Rivers and Reservoirs Monitoring Program, and Coastal Monitoring Program. This links monitoring data for reservoirs, embayments, nonwadeable and wadeable rivers, and streams.

A prioritization framework was also developed to prioritize monitoring to meet program priorities within each basin group. Identified priorities 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.

Basin Teams were developed to improve communication among project managers, field staff, and ADEM management within Field Operations, the Water Quality Branch, and the Nonpoint Source Unit. Participation in the Basin Teams provides opportunities for team members to become familiar with the data needs and issues within their basin. Responsibilities of the Basin Team include development of the annual basin plan for their respective basin group. Tracking and documenting 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.

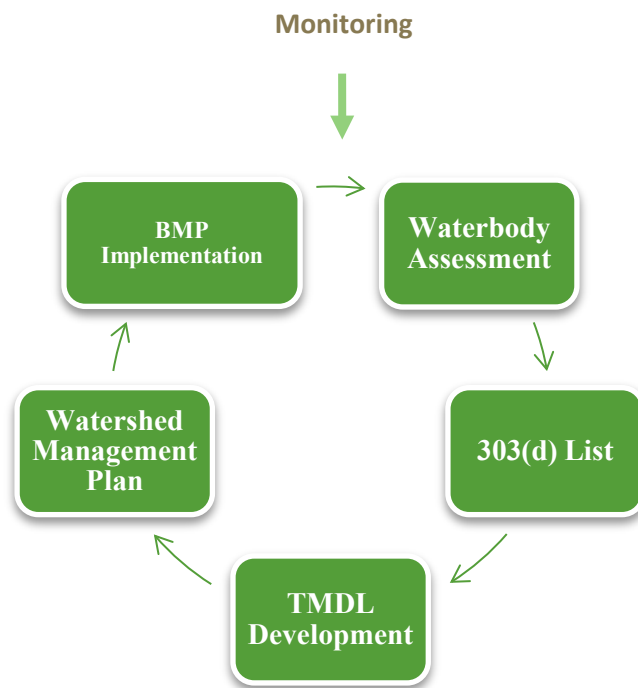


Figure 4. Assessment Strategy

Rivers, Reservoirs, and Tributary Embayment Assessments

Thirty-seven main stem river and reservoir stations in the Black Warrior, Southeast Alabama, and the Elk/Wheeler portions of the Tennessee basins were scheduled to be intensively monitored in FY2021. Stations from each basin were scheduled to be sampled monthly, from April through October, within a one-week period to reduce weather-related variability in water quality conditions. Seven samples were to be collected at each station during the sampling season. 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) and 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 will be measured *in situ* at multiple depths in the water column with a multi-parameter instrument. Using a pump and hose apparatus, water will be collected from the entire photic zone and composited. From each composite, water quality and water-column chlorophyll *a* samples will be collected, hardness will be collected on any samples between May thru September, and algal growth potential testing samples from select stations will be collected once in August. Surface water *Escherichia coli* (*E. coli*) samples will be collected four times during the sampling season for each station. Select stations will be sampled for low-level mercury analysis in November.

Wadeable and Non-wadeable Streams and Rivers Assessments

Fifty-five locations on flowing streams and rivers were sampled as part of the FY2021 RSMP. These included collecting biological, chemical, and habitat data at thirteen established and candidate reference reaches located throughout the state to characterize least-impaired conditions within ten Level 4 and five Level 3 Ecoregions. Six sites were monitored to provide data for TMDL development. Four locations were monitored to assess the effectiveness of implemented TMDLs. Thirty-five locations were monitored as ecoregional reference reaches to provide data for specific studies or to establish background conditions within these ecoregions. Seventeen of these locations were also monitored to help establish baseline conditions in the National Water Quality Initiative (NWQI) priority sub-watersheds.

Data generated during this project will be used in developing and prioritizing WMP 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 surveys are conducted to assess biological community conditions and aquatic life use support. Habitat surveys and *in situ* and water quality samples are collected to help identify any

stressors to biological communities, document high-quality waters, and to meet the minimum data requirements for wadeable rivers and streams specified in Alabama's Assessment and Listing Methodology. *In situ* measurements and water quality samples include stream flow, dissolved oxygen, pH, conductivity, turbidity, nutrients, water-column chlorophyll *a*, total dissolved solids, total suspended solids, *E. coli*, and total and dissolved metals. Pesticides, semi-volatiles, atrazine, and glyphosate are collected at the sub-set of stations most at risk to impairments from these compounds from agricultural and urban runoff.

Wadeable rivers and streams monitoring is conducted during different sampling periods, based on drainage area and ecoregion, to provide data for the most accurate assessment of biological, physical, and chemical conditions. Macroinvertebrates, fish, habitat surveys, *in situ* measurements and water samples are collected January through April in waterbodies less than five square miles or located within the Blackbelt region of Alabama (ecoregions 65a and 65b), when these streams are flowing. *In situ* and water quality samples are collected March through October at all other stream sites. Habitat, macroinvertebrate, and fish surveys are conducted May through late August at wadeable, flowing stream stations and August through October at nonwadeable, flowing streams and rivers.

NPS Partnerships

Alabama NPS Program Coastal River Basin Meeting

The ADEM NPS Unit has targeted specific river basins to hold a locally focused conference in the years that a statewide conference is not held. These river basin conferences provide a more intimate setting that allows a deeper connection to local stakeholders. Agendas and presentations are geared to the area and their needs, concerns, and successes. Typically, these are in person conferences. However, due to COVID-19, this year's conference targeting the Coastal River Basin had a virtual stage. Presentations focused on updates from ADEM's NPS Unit, Water Quality Branch, and Field Operations Division. Stakeholder presentations focused on Mobile Bay National Estuary Program's (MBNEP) Watershed Approach and Leadership in the local basin; Perdido and Pensacola Bay Estuary Program's leadership, education/outreach, and building of a cross state estuary program; discussions by EPA on community resilience, sustainability, and collaborative partnerships; and a presentation by Kentucky Division of Water on how to partner flood mitigation plans with NPS watershed management plans and goals. There were 46 attendees.

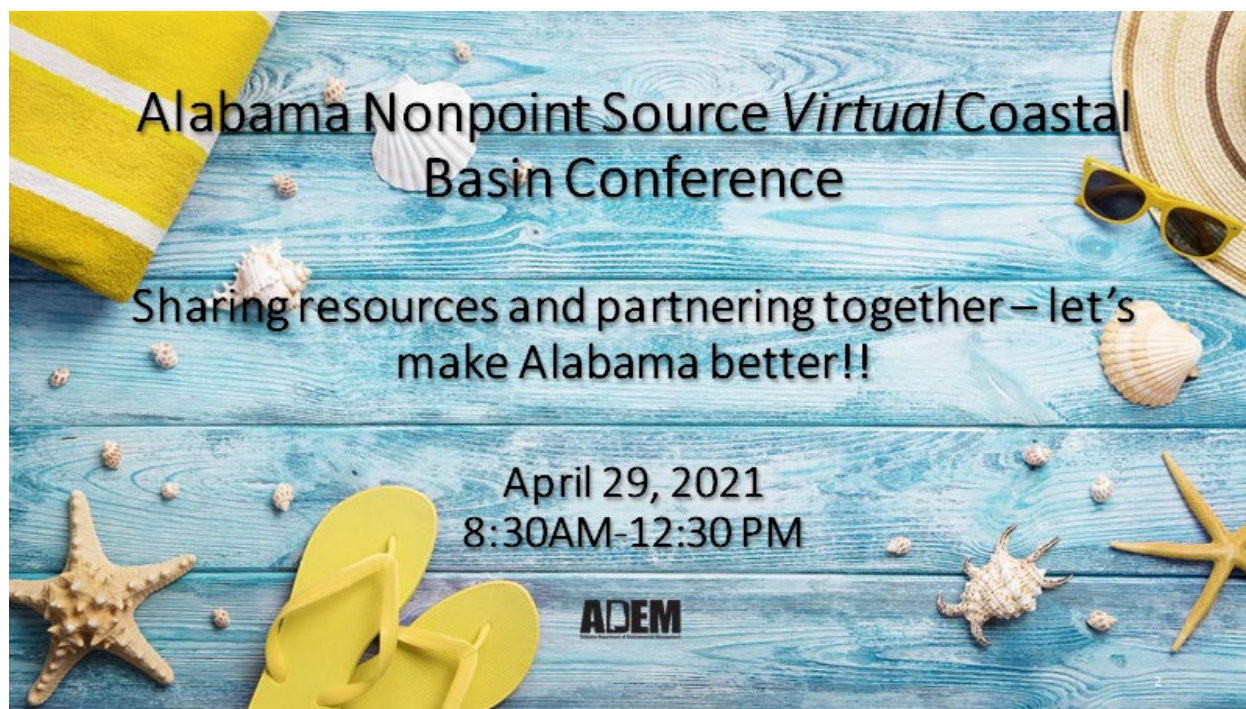


Figure 5. The Alabama NPS Virtual Coastal Basin Meeting Invitation

Alabama NPS Cooperators Training Meeting

The 2021 NPS Cooperator's Training Meeting occurred on June 16, 2021, using a virtual platform to accommodate safety concerns and allow participation by cooperators across the state who might be cautious of in person meetings or may be working remotely. New, potential, and existing NPS cooperators were invited to attend the workshop. Informal discussion on a multitude of topics occurred, which

encouraged the sharing of ideas, challenges, and lessons learned. This meeting also allowed the NPS Unit to provide consistent guidance to cooperator questions and offer creative solutions for concerns voiced by the cooperators. Topics covered included nonpoint source pollution and CWA Section 319(h) program review, highlighting success in projects, documentation requirements, capturing match, encouraging interagency partnerships, and NPS education resources.



2021 Virtual NPS Cooperator's Meeting

June 16, 2021

9:00 AM – 12:00 PM



Figure 6. Virtual NPS Cooperator's Meeting Invitation

NRCS State Technical Committee

The Natural Resource Conservation Service (NRCS) State Technical Committee had several meetings in 2021. The first meeting was held on March 24, 2021, with multiple agencies attending the virtual event. The meeting provided information about current NRCS programs and highlighted conservation efforts in Alabama. Topics included discussion on the Alabama Beginning Farmer Program, BMP implementation across Alabama, and NWQI priority watersheds. NRCS, in collaboration with Source Water Collaborative, hosted a June 10, 2021, webinar on options for engagement with NRCS on current opportunities to identify source water watersheds for FY2022 NWQI watershed selection. An additional NWQI conversation was held on June 25, 2021. The NRCS, ADEM, and Alabama Soil and Water Conservation Committee staff reviewed current NWQI watershed areas of interest. Information on watershed assessments in four counties, as well as additional watershed assessment needs, was shared. Group discussion centered on 2022 NWQI and Alabama's response to the national call for data. A September 21, 2021, meeting included discussions on NRCS 2022 priorities, a program review for 2021 BMP implementation, and Conservation Reserve Program water quality and wildlife priority areas. The ADEM's NPS Unit continues to be an agency partner by participating in these meetings.

National Water Quality Initiative

The ADEM continued to collaborate with the NRCS in 2021 as part of the NWQI to target the Gunterville Lake – Scarham Creek (Hydrologic Unit Code (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. The ADEM is providing monitoring of water quality to assess results and document improvements, as well as providing CWA Section 319(h) funding targeting the Upper Scarham Creek watershed. The EPA Region 4, ADEM, and NRCS have maintained coordination efforts for NWQI in 2021 (see NRCS State Technical Committee section above) as the program and targeted watersheds evolve with input from agency partners.

The Upper Scarham Creek watershed, within the Gunterville 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 watershed management plan (WMP) was implemented from August 2015-February 2018 by leveraging funding provided by the NRCS, ADEM Section 319 Program, and other partners. Best management practices continue to be implemented in this watershed; however, COVID-19 has negatively affected landowner participation.

Table 4. USDA NWQI practices summary for the Gunterville Lake – Scarham Creek 10-digit HUC in 2021

Practice Name	Practice Unit	Applied Amount	Applied Count
Animal Mortality Facility	Number	2	2
Heavy Use Area Protection	Square Feet	3,200	2
Waste Storage Facility	Number	2	2
Waste Storage Facility Cover	Number	5	5

Section 319 (h) Grant Program 2021 Success Story



NONPOINT SOURCE SUCCESS STORY Update Alabama

Multi-Phased Implementation and Partner Efforts Result in Improved Water Quality in Dry Creek

Update Overview

The U.S. Environmental Protection Agency added Dry Creek to the Clean Water Act (CWA) section 303(d) list of impaired waters in 1998 for not meeting fish and wildlife use classification for ammonia, organic enrichment (OE)/dissolved oxygen (DO), nutrients and pathogens. Partners completed a two-phase project to implement best management practices (BMPs) and stakeholder education, and the creek now meets ammonia (2012), nutrient (2016), and OE/DO (2016) water quality criteria for its use classification. Dry Creek was removed from the 2016 list of impaired waters for nutrients and OE/DO.

Problem

Dry Creek (HUC 03160111-0203) in Blount County, Alabama, was listed as partially meeting its use support status for ammonia, OE/DO, nutrients and pathogens. The suspected cause was pasture grazing runoff. In 2012, Dry Creek was delisted for ammonia impairment. However, it remained impaired for nutrients, OE/DO and pathogens.

Story Highlights

Phase one (2007–2010) included implementation of agricultural BMPs along with multiple education/outreach efforts. Phase two (2011–2014) continued BMP implementation and education efforts (Table 1). Two no-till seed drill purchases helped landowners with conservation tillage practices to reduce sediment and nutrient transport into local waterways; these continue to be used.

Results

Alabama Department of Environmental Management (ADEM) collected water quality data in 2014 at three sampling stations: DRYB-10, DRYB-80, and DRYB-75A. While established ADEM numeric nutrient criteria for Wadeable streams do not currently exist, ADEM used available data, best professional judgment, and a comparison of characteristically similar ecoregions to determine impairment. Although total phosphorus (TP) and total nitrogen (TN) concentrations drive nutrient impairment assessment, elevated chlorophyll *a* is also an important indicator for nutrient and DO related impairments. All 2014 samples at the three Dry Creek stations were below Level IV Ecoregion 68d reference conditions for mean TP, TN and chlorophyll *a*. Four samples did not meet DO standards due to natural conditions (creek was dry); however, all other samples met standards. Data collected on carbonaceous biochemical oxygen demand (BOD) and nitrogenous BOD, which influence DO levels and are used to determine OE impairment, were well below mean eco-reference conditions. Only the pathogen impairment remains.

Partners and Funding

Key partners included Blount County Soil and Water Conservation District; U.S. Department of Agriculture, Natural Resources Conservation Service; ADEM; Alabama Department of Public Health; Cawaco Resource Conservation and Development; Alabama Water Watch; local landowners; and other state, local, private and public entities. Dry Creek phased implementation was funded in part through \$466,834 in CWA section 319(h) grant funds (with \$339,826 in nonfederal match from partners).

Table 1. BMPs installed during project phases one and two.

Practice	Amount
Alternative water sources	5
Alum treatment of poultry litter	7,000 lbs
Controlled stream access for livestock watering	2
Fence	47,766 ft
Forage and biomass planting	32 ac
Heavy use area protection	37,845 ft ²
Livestock stream crossing	4,116.5 ft ²
On-site wastewater treatment system (pumpout)	145
Pond	2
Prescribed burning	97.58 ac
Stream channel stabilization	210 ft

Notes: ac = acres; ft = feet; ft² = square feet; lbs = pound

Update: October 2021

EPA 841-F-21-001R
U.S. Environmental Protection Agency
Office of Water
Washington, DC

For additional information contact:

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205-274-2363 ext. 3 • blount@alconservationdistricts.org
Alabama Department of Environmental Management
334-260-4501 • ADEM.NPS.Program@adem.alabama.gov

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 ADEM has established to implement projects and enhance water quality in Alabama:

- The **National Fish and Wildlife Foundation (NFWF)** continues to partner with **MBNEP** and ADEM in watersheds along the coast, implementing stream restorations and the restoration of wetlands.
- 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.
- 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 CWA Section 319(h) 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 **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 stream restoration projects and has helped to identify solutions to siltation problems.
- The **United States Fish and Wildlife Service (USFWS)**, in conjunction with the **Alabama Department of Conservation and Natural Resources (ADCNR)** and the **U.S. Geological Survey of Alabama (GSA)**, 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 CWA Section 319(h) implementation projects have occurred.
- **EPA Region 4** provides administrative oversight and support for the CWA Section 319(h) Program in Alabama.
- **Weeks Bay National Estuarine Research Reserve (WBNERR)** and the **MBNEP** work in conjunction with the **ADCNR** and ADEM in watersheds along the coast, implementing stream restorations, agricultural BMPs, and the restoration of wetlands.

Education and Outreach Highlights

Perdido and Pensacola Bay Estuary Program Technical Committee



Figure 7. PPBEP encompasses watersheds in Alabama and Florida

In September 2018, the Bay Area Resource Council was awarded funding from a cooperative agreement between the EPA Gulf of Mexico Program and the Gulf Coast Ecosystem Restoration Council to coordinate an estuary program for the Pensacola and Perdido Bay watersheds. The mission of the Pensacola and Perdido Bays Estuary Program (PPBEP) is “to restore and protect the water quality and natural resources of the Pensacola & Perdido Bays and watersheds through partnerships, using a community-based, scientifically-sound approach to enhance resilience.”

This year, the PPBEP has been hard at work developing their Comprehensive Conservation Management Plan. The NPS Unit provides technical support on the Technical Committee and the Education and Outreach Committee meetings. Keep up with the latest news at their website: www.ppbeep.org.

Choctawhatchee Bay Estuary Program Technical Advisory Committee

In June 2017, the Choctawhatchee Bay Estuary Program (CBEP) was formed by execution of an intergovernmental agreement. This body was established to develop and direct a community-based, non-regulatory estuary program for the comprehensive and collaborative protection, management, and restoration of the Choctawhatchee Bay and its watershed. The CBEP promotes a thriving ecology and environment for the Choctawhatchee Bay, River, and watershed. The CBEP also implements programs and initiatives for the protection and stewardship of natural resources and water quality, which strengthens community resiliency and environmental education to maintain a vibrant economy and high quality of life around the Choctawhatchee Bay watershed.

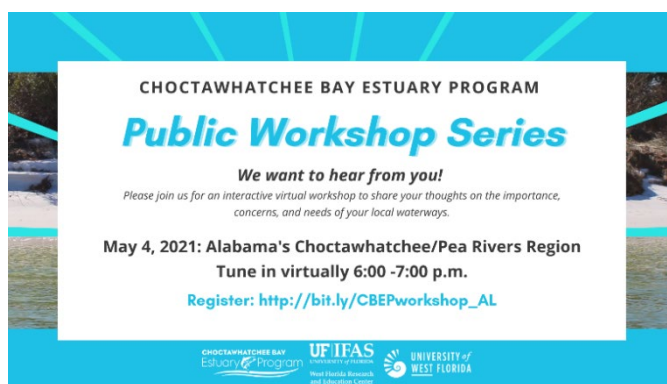


Figure 8. CBEP workshop flier

The ADEM serves as one of the many partners of the CBEP promoting NPS pollution education and outreach within the northern portion of the Choctawhatchee River watershed in Alabama. The NPS Unit staff currently serve on the Technical Advisory Committee and Education and Outreach Committee.

During monthly meetings for each committee, NPS Unit staff work on prioritizing environmental stressors and indicators for the watershed as well as opportunities to engage the local community.

Staff members also contribute their professional knowledge and experience to the Land Use Planning and Management Focus Area, Floodplains and Wetlands Focus Area, and the Water Quality Focus Area in efforts to engage in the development of the CBEP's Comprehensive Conservation and Management Plan.

Erosion and Sediment Committee Meetings

The ADEM continues to be a part of the Soil and Erosion 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, NRCS, ADEM, Alabama Association of Conservation Districts, Alabama Department of Transportation (ALDOT), Home Builders Association of Alabama, Associated General Contractors of Alabama, and Auburn University –Alabama Cooperative Extension System (ACES).

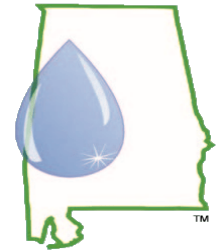


Figure 9. NPS staff support the Soil and Erosion Control Partnership

Partnership meetings are held at least quarterly throughout the year. Meetings were held on December 4, 2020; February 19, 2021; May 3, 2021; and August 27, 2021. The partnership has had several objectives, which included conducting trainings with local municipalities and stormwater groups throughout the State and updating the *Alabama Handbook for Erosion Control, Sediment Control, and Stormwater Management on Construction Sites and Urban Areas* and the associated field guide. This group is also responsible for organizing and conducting the annual Clear Water Alabama Seminar and Field Day. The seminar strives to educate Alabamians on stormwater BMPs and sediment and erosion control. The Alabama Stormwater Association also has posted a calendar of events related to stormwater and education/outreach located at www.alabamastormwater.org.

Flomaton Lions Club Meeting



Figure 10. Presentation given to the Lion's Club

It was the NPS Unit's pleasure to spend time talking and presenting to the City of Flomaton Lion's Club on March 23, 2021. The Lions Club focuses on the five strategic pillars of Lionism: Diabetes, Environment, Hunger, Vision, and Childhood Cancer. The NPS Unit staff presented to the Lion's Club on several ways that they could make a difference in their community by protecting their environment and improving water quality as part of their strategic pillar focusing on the environment.

ADEM personnel discussed potential projects such as giving away native trees to plant or planting trees as riparian habitat in honor of Arbor Day. Litter clean ups were also suggested as they can easily target problem areas. Litter clean ups are relatively inexpensive to implement, especially with community participation, but are highly effective as the United States spends over 11.5 billion dollars trying to address litter each year. The benefits of pollinator gardens, raingardens, and outdoor classrooms were discussed. Potential partners, funding sources, and first steps were identified. Additional materials including the presentation, Alabama Watershed Stewards Handbook, and a five-day Litter Clean Up Challenge, etc. were provided to help the Club focus on the environmental pillar.



Figure 11. Rain gardens promoted to the Lion’s Club

Alabama Watershed Stewards Program



Figure 12. AWS activities across the state

The Alabama Watershed Stewards Program (AWS) is a statewide program “to promote healthy watersheds, increase understanding of the potential causes of water resource degradation, and provide the knowledge and tools needed to prevent and resolve water quality problems.” (Alabama Watershed Stewards Handbook, 12) This program was developed by ACES in coordination with ADEM, EPA, Alabama Water Watch, Auburn University Water Resource Center, and many other partners.

In January of 2020, ACES began its second phase of Alabama Watershed Stewards. The ACES and ADEM envisioned that this phase would initiate the process of expanding the program statewide. Currently, instructional workshops teach about watersheds, planning, best management practices, water quality impairments, how to connect with the right people within their communities, and how to contribute to environmental stewardship, but also with additional supplication workshops to show stakeholders how to take the next steps. Additional topics would include backyard stream repair, rain gardens, litter clean-ups, etc. This would help build a network of watershed stewards in the area and build confidence within the community on how to take the next steps for individuals to improve the world around them. The original workplan called for four in-person workshops. Birmingham, Hartselle, Mobile, and Enterprise were targeted because of potential Section 319 projects in each area. The general Watershed Stewards workshops were to be followed by supplication workshops that would show stewards how to organize and implement on the ground BMPs.

The ACES was able to host the Birmingham Watershed Stewards workshop in person on March 5, 2020, at the Birmingham Business Alliance Office. Shortly after, however, in person meetings were not allowed due to COVID-19 protocols. Therefore, ACES began to develop online modules and a virtual course. Two

of the workshops were moved to this platform. In July of 2021, AWS was able to hold a second in person workshop in Enterprise, Alabama, following social distancing guidelines.

ACES has continually worked on adding components to a toolbox to help AWS participants continue to expand their knowledge and active participation. A five-day Litter Pickup Challenge Handbook and workshop was created to help stewards who wanted to organize litter clean ups in their areas. It give ideas on planning events, finding volunteers, and the steps needed to help host a successful cleanup. The five-day workshop and challenge was held February 15-19, 2021. This also entailed a litter clean up on April 23, 2021, in the Moore’s Mill Creek watershed. There were also professional trainings for the installation and maintenance of porous pavers, rain gardens, bioretention, and constructed stormwater wetlands that took place March-August of 2021. The porous paver workshop was an in person event.

In March of 2021, ACES held a rain garden workshop covering rain garden form, function, and installation. It also coincided with the creation of the manual “How to Install a Rain Garden” and “A Homeowners Guide to Rainwater Harvesting in Alabama.” In May of 2021, work began on a rain garden and rock drainage channel installation at the Wood Duck Nature Preserve in the Pepperell Branch watershed in Opelika, Alabama. This site was identified as a potential project area when developing the watershed management plan due to stormwater runoff issues caused by the outdoor picnic area roof and overland flow of the parking lot. The rain garden and channel will accommodate runoff from the parking lot, a portion of the roof, and the road.

The ACES wrote several small articles that were placed on their website about watershed planning, rain gardens, rainwater harvesting, permeable pavers, etc. An Alabama Watershed Stewards YouTube Channel was created with several of the videos about live staking, watersheds, etc. added to the channel.

Overall, this phase of AWS was extremely successful even due to the challenges resulting from the COVID-19 pandemic. Ample technology transfer, growth in stewardship, and connecting communities and stakeholders to their waterways occurred during this phase. In the next phase of AWS, ACES, and ADEM look forward to continuing efforts for stakeholders to engage in and create stewardship activities in Alabama, to participate in watershed planning activities to better plan implementation activities that will restore waterways in Alabama, to increase resources and materials to increase the AWS toolbox, and to continue to provide training to both stakeholder and professional communities.

Envirothon



Figure 13. Beginning of virtual Envirothon's Aquatics Section presentation

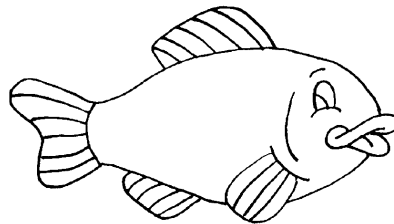
Envirothon is an environmental competition focusing on natural resource conservation, problem solving, teambuilding, and leadership experience for high school students. The Envirothon fosters student learning in the areas of aquatics, forestry, soils, wildlife, and a current environmental issues.

This year’s Alabama Envirothon was managed by the Alabama Association of Conservation Districts. It took place virtually from April 12-17, 2021. The ADEM’s NPS

Unit was able to contribute by coordinating videos for the aquatics section of the competition. Portions of the AWS Program were previewed to these select high school groups. The ADEM's NPS Unit also created the aquatics test for the competition and judged the student presentations on the current environmental issue, which was water resource management and focused on the NRCS nine-step conservation approach.

Coosada Elementary School Career Week

Coosada Elementary School in Elmore County, Alabama, hosted its College and Career Week with the theme "I Can Be Virtually Anywhere" from March 15-19, 2021. The school provided opportunities for parents, guardians, and grandparents to speak on their careers and how work/life had changed during the COVID-19 pandemic. On March 18, 2021, NPS Unit staff presented on being an environmental scientist and the importance of partnerships in improving water quality within Alabama and within their watershed. A virtual presentation was also provided with a story of "Finny the Fish" which allowed the students to actively participate in identifying ways NPS pollutants can affect their streams and rivers. Staff discussed with the children how NPS pollutants can make the stream harmful for Finny and why it is important to keep our waters clean for Finny and his friends. The presentation concluded with a discussion on ways students and their parents could prevent and reduce NPS pollution from entering waterways.



How does Finny the Fish feel?

Figure 14. Finny the Fish's story helps teach about stream pollution

Groundwater and Water Festivals in Alabama



Figure 15. ADEM Nonpoint Staff discussing watersheds with Lafayette Lanier Elementary School Students.

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. 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 22nd year of groundwater and water festivals in Alabama. The ADEM NPS Staff have assisted with providing guidance during festivals, training

presenters, and presenting classroom demonstrations. Water Festivals this year have been a challenge due to COVID-19 restrictions within the school systems. ADEM was thankful to be able to participate in the Lafayette Lanier Elementary Schools water festival day and the Stephens Elementary water festival day.

The Lafayette Lanier Elementary School water festival day took place on May 5, 2021, in Valley, Alabama. Partners included Chambers County Extension, NRCS, ADEM, and Champion Wells Water Systems, Inc. Children learned about watersheds, NPS pollution, BMPs, the water cycle, how soils react to rainfall, erosion and surface runoff, and groundwater wells. This event was also identified as a disadvantaged community using EJSSCREEN as part of ADEM’s Trash Free Waters Grant.



Figure 16. Children enjoying the Alex City Water Festival (photo by Cliff Williams)

The Stephens Elementary School water festival day took place on May 11, 2021, in Alexander City, Alabama. Partners were wide ranging, and it was organized by Tallapoosa County Extension. Children had the opportunity to learn about groundwater and aquifers, water safety, watersheds, NPS pollution, the water cycle, water on Earth, clean water and conservation, and aquatic ecology and wildlife.

Municipal Wet Weather (MS4) Stormwater Conference



Figure 17. MS4 workshop for industry and professionals

Hosted by EPA Region 4, the International Erosion Control Association (IECA) Region 1, and the Southeast Chapter of IECA, the sixth annual MS4 Stormwater Conference is a key conference for stormwater industry and professionals. Attendees ranged

from stormwater managers, city and county professionals, designers, engineers, and scientists. Held in Huntsville, Alabama, on June 7-9, 2021, the conference covered a wide range of stormwater topics relating to flood mitigation, erosion and sediment control, soil stability, and MS4 program management.

Cullman County Soil and Water Conservation District Nature Day Camp

The ADEM NPS staff were invited to present to 25 students at Nature Day Camp at Camp Meadowbrook in Cullman, Alabama. The Cullman County Soil and Water Conservation District collaborated with ADEM, NRCS, Quail Forever, Alabama Wildlife and Freshwater Fisheries, and the North Alabama Agriplex to host the camp and promote the outdoor activity, environmental conservation, and proper land use. Camp activities included learning about skulls, skins, habitat, predator/prey relationships, and woodland plants. NPS staff taught attendees about the importance of land use and impacts of pollution through the Enviroscope display. Fish, crayfish, and macroinvertebrates (“bugs”) were on display to help drive home the connection between people, their actions, and the resulting environmental impacts. Campers also

learned how water flows, green infrastructure, and the purpose of the soil and the erosion control BMPs on display at Camp Meadowbrook. To put what the students learned to the test, two teams competed to see which team could move a set of marbles, which represented stormwater, the fastest and the slowest by constructing different tracks, which represented a waterway.



Figure 18. Nature Day Camp activities

Tennessee River Basin Network Meeting

Since 2014, the Tennessee River Basin Network (TRBN) has strived to bring partners representing all eight states within the Tennessee River Basin together through its annual meeting. This year's [event](#) was held on August 10-11, 2021, and focused on diversity, equity, and inclusion in conservation. Topics for the two-day seminar included discussions on emerging issues detailing Asian Carp, Climate Change, and the America the Beautiful Initiative. The second day of the seminar touched on the future of the TRBN and stakeholder involvement in making the TRBN's future stronger.

The conference also offered opportunities to view the Southern Exposure film [From the Mountains to the Ocean: Turtles of Alabama](#) and an informal virtual opportunity to get to know other partners in the TRBN.

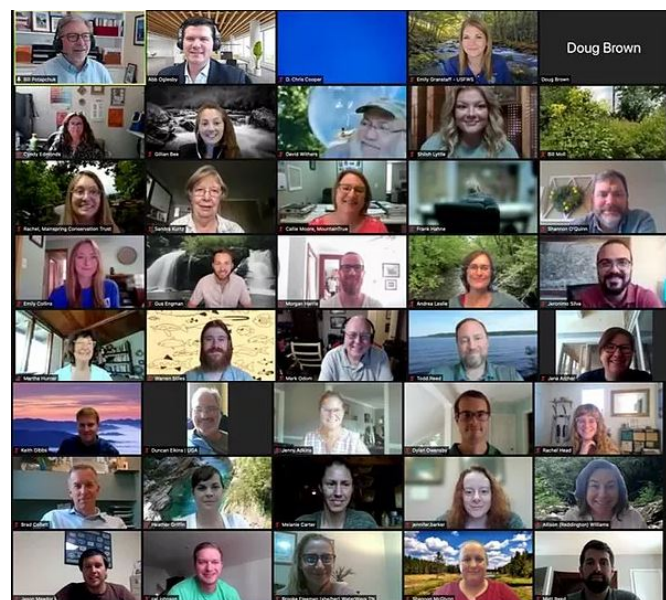


Figure 19. TRBN Annual Meeting attendees

Alabama Water Resource Conference

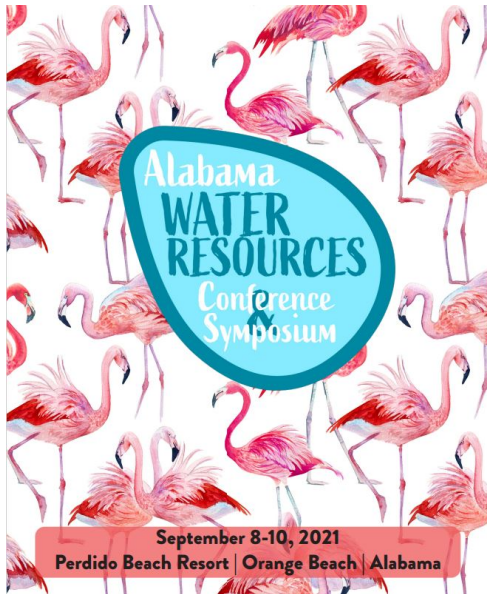


Figure 20. AWR at Orange Beach, Alabama

The Alabama Water Resources Conference, established in 1986 has provided a forum for showcasing emerging research, education and outreach in all aspects of water resources. The conference provides opportunities for multidisciplinary conversations on all aspects of water resources and facilitates connections to work with partners and stakeholders to improve water quality within Alabama. During the September 8-10, 2021, conference, a variety of [topics](#) related to coastal recovery, restoration, and resiliency were presented.

Local partners presented on several projects and programs that have been partially or fully funded through the NPS Unit's CWA Section 319(h) program and watershed implementation project funding. Roberta Swann, Director of the MBNEP, discussed Transforming Watershed Management: Building Resilience along the Alabama Coast. James Mooney and Matt Revel of ADEM's Water Quality Branch presented on Addressing Waterbodies Impaired for Siltation – Identifying Relationships between Instream Turbidity and Total

Suspended Solids. Thorsten Knappenberger with Auburn University presented on Stormwater Best Management Practices to improve the Parkerson Mill Creek watershed in Lee County. Wade Burcham with Geosyntec Engineering presented on A Look to the Past and an Eye on the Future – An Overview of the D'Olive Watershed Management Plan and Watershed Management Planning along the Alabama Gulf Coast. Eve Brantley with Auburn University Water Resources Center presented on Fostering Watershed Stewardship in Alabama.

Clear Water Alabama Erosion and Sediment Control Workshop

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

The goal of the Partnership is to help planners, designers, contractors, inspectors, and others learn about the latest erosion and sediment control practices. Members include the Alabama Soil and Water Conservation Committee, the NRCS, ADEM, and the Alabama Association of Conservation Districts, ALDOT, the Home Builders Association of Alabama, the Associated General Contractors of Alabama, and ACES.



Figure 21. Clear Water sediment trailer demonstration



Figure 22. BMP installation demonstration

This year's seminar and field day were held on September 15-16, 2021, in Cullman, Alabama. The first day's workshop included a seminar with some of the following topics:

- Healthy Streams for Healthy Lakes
- ADEM: Construction Stormwater Regulatory Update
- Hydroseeding 101
- How Aquatic Species and Water Quality Benefit from a Multidisciplinary Approach to Conservation
- The Duck River Project – More Than Just a Water Supply
- A B.A.D. Presentation – Another Way to Look at Erosion Control on a Construction Site

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

Aquatic Plant Identification Workshop

On October 8, 2021, NPS staff members attended an aquatic plant identification workshop in Livingston, Alabama. The workshop was led by Dr. Brian Keener, professor of biology and herbarium curator at the University of West Alabama and hosted by GSA. Dr. Keener presented on the many aquatic plants found in Alabama. He then took the workshop attendees to various field sites, including Lake LU and the Sumter Recreation Area. At the field sites, he showed a variety of Alabama's common aquatic plants to attendees. The NPS staff used this opportunity to strengthen existing agency partnerships and lay the groundwork for budding future projects.



Figure 23. Dr. Keener discusses plant identification characteristics

Urban Darter Program

The Urban Darter Program held at the Turkey Creek Nature Preserve in Pinson, Alabama, on October 15, 2021, provided participants with hands-on experience related to bank erosion hazard index (BEHI), sediment risk index (SRI), index of biological integrity (IBI), and rapid habitat assessment (RHA).

The NPS staff members attended the Urban Darter Program workshop at the Turkey Creek Nature Preserve in Pinson, Alabama, on October 15, 2021. The workshop was hosted by the USFWS-Partners for Fish and Wildlife. The morning session included presentations on BEHI, SRI, IBI, and RHA. The morning concluded with a demonstration of the IBI in Turkey Creek. In the afternoon, attendees were broken into groups for field demonstrations to get experience with the other assessment tools to help evaluate and measure the condition of streams.



Figure 24. Fish ID during IBI demonstration

STEAMfest



Figure 25. Parents and students learn about water quality at STEAMfest

ADEM Nonpoint Source Unit staff were excited to present at the sixth annual STEAMfest hosted by Montgomery Academy on November 6, 2021. There was an impressive attendance from the River Region community in celebrating science, technology, engineering, the arts, and math. Hundreds of pre-k through sixth grade students and parents participated in hands-on activities like building an arcade, programming robots, shooting rockets, and playing instruments. Visitors to the ADEM exhibit learned about nonpoint source pollution, macroinvertebrates (bugs), and community responsibility for keeping trash out of our waters for healthy watersheds. Students were able to build and experiment with mock waterways (made from a marble track) to explore how water speed affects pollution transport. Because Alabama spends approximately 7 million dollars a year on litter clean up, Finny the Fish was used to educate on the importance of not littering by having the students imagine how they would feel in Finny's two different environments, one tank with trash and pollution and one tank without, with every student choosing the trash free tank to live in; students and parents were reminded to properly dispose of litter so it does not end up in our water. Take home activity books were distributed to provide additional education and information on trash free waters, recycling, and nonpoint source pollution.



Watershed Management Plans

Large-scale management plans have been completed for each major river basin across the state. These WMPs 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 CWA Section 319(h) 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 WMPs as outlined in the current EPA CWA Section 319(h) grant guidance.

Alabama River Basin

• Catoma Creek (031502010301, 031502010302, 031502010303, 031502010304, 031502010305, 031502010306, 031502010307, 031502010308, 031502010309, 031502010310, 031502010311)	230,729 acres	Complete
• Baldwin Slough (031502010307)	17,280 acres	Being Updated
• 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	Being Updated

Black Warrior River Basin

• Brindley Creek (031601090105)	15,638 acres	Complete
• Long Branch (031601090303)	19,752 acres	Complete
• Black Branch-Cane Creek (031601090404)	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 (031502020303)	39,908 acres	Complete
• Dry Creek (031502020902)	5,312 acres	Complete
• Shades Creek (031502020301, 031502020302, 031502020303)	88,755 acres	In Progress
• Cahaba Valley Creek (031502020202)	18,304 acres	Complete

Chattahoochee River Basin

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

Chipola River Basin

- Cowarts Creek (031300120201, 031300120202, 031300120203) 77,066 acres Being Updated

Choctawhatchee-Pea-Yellow River Basins

- Hurricane Creek-Dowling Branch (031402010704) 15,647 acres Complete
- Upper Wrights Creek (031402030201) 24,097 acres Complete

Coosa Basin

- Spring and Mud Creek (031501050807) 10,880 acres Complete
- Eastaboga Creek (031501060513) 18,286 acres Complete
- Broken Arrow Creek (031501060602) 38,903 acres Complete
- Upper Yellowleaf Creek (031501070204) 10,627 acres Pending
- Lower Yellowleaf Creek (031501070205) 29,121 acres Pending
- Buxahatchee Creek (031501070406) 45,663 acres Complete
- Middle Coosa 915,016 acres Complete

Targeting the following subwatersheds:

- Little Land Valley Creek (031501060103)
- Fisher Creek (031501060104)
- Line Creek-Clear Creek (031501060105)
- Little Wills Creek (031501060106)
- Black Creek (031501060107)
- Horton Creek (031501060108)
- Ball Play Creek (031501060201)
- 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)
- 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)

Escambia Basin

- Gannett Millpond-Feagin Creek (031403010403) 12,064 acres Complete

Escatawpa Basin

- Juniper Creek-Big Creek (031700080501) 5,936 acres Complete
- Bayou la Batre (031700090102) 19,562 acres Complete
- West Fowl River (031700090103) 20,489 acres Complete
- 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 Being Updated
- Dog River 61,735 acres Complete
 - Targeting the following subwatersheds:
 - Upper Dog River (031602050101)
 - Halls Mill Creek (031602050102)
 - Lower Dog River (031602050103)
- Western Shore 16,534 acres In Progress

Targeting the following subwatersheds:		
○ Deer River (031602050105)		
○ Garrows Bend (031602050105)		
○ Delchamps Bayou (031602050105)		
• Fowl River (031602050104)	39,739 acres	Complete
West Fowl River (031700090103)	20,489 acres	Complete
• Weeks Bay	129,610 acres	Complete
Targeting the following subwatersheds:		
○ Upper Fish Rivery(031602050201)		
○ Middle Fish River (031602050202)		
○ Magnolia River (031602050203)		
○ Upper Fish River (031602050204)		
• Bon Secour	43,673 acres	Complete
Targeting the following subwatersheds:		
○ Bon Secour River (031602050206)		
○ Skunk Bayou (031602050207)		
○ Oyster Bay (031602050208)		
• Fly Creek	21,900 acres	In Progress
• Mobile Tensaw Delta	128,412 acres	In Progress
Targeting the following subwatersheds:		
○ Tensaw-Appalachee River (031602040505)		
○ Grand Bay (031602040403)		
○ The Basin (031602040203)		
• Western Delta	78,153 acres	In Progress
Targeting the following subwatersheds:		
○ Lower Chasaw Creek (031602040305)		
○ Bayou Sara (031602040402)		
○ Gunnison Creek (031602040401)		
○ Cold Creek (031602040105)		

Perdido Basin

• Wolf Bay (031401070201, 031401070202, 031401070203)	36,296 acres	In Progress
• Gulf Frontal	50,513 acres	In Progress
Targeting the following subwatersheds:		
○ Little Lagoon (031401070205)		
○ Perdido Pass-Frontal Gulf of Mexico (031401070204)		
• Palmetto Creek (031401070103)	36,180 acres	In Progress
• Bridge Creek (031401070104)	18,312 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 (031501100202)	7,360 acres	Complete
• Sougahatchee Creek	108,482 acres	Complete
Targeting the following subwatersheds:		

○ Upper Soughatchee Creek (031501100102)		
○ Middle Soughatchee Creek (031501100103)		
○ Lower Soughatchee Creek (031501100104)		
● Parkerson Mill Creek (031501100202)	5,981 acres	Complete
● Emuckfaw Creek (031501090308)	31,877 acres	Complete

Tennessee Basin

● Guess Creek (060300020105)	21,818 acres	Complete
● Cole Spring Branch (060300020201)	3,110 acres	Complete
● Brier Fork and Beaverdam Creek (060300020305, 060300020307)	67,290 acres	Complete
● Upper and Middle Flint River (060300020307, 060300020403)	54,648 acres	Complete
● Hester Creek-Mountain Fork (060300020304)	53,838 acres	Complete
● Upper Hurricane Creek and Lower Hurricane Creek (060300020401, 060300020402)	46,873 acres	Complete
● Goose Creek (060300020404)	7,552 acres	Complete
● Yellow Bank Creek (060300020405)	6,208 acres	Complete
● Indian Creek (060300020505)	24,847 acres	Complete
● Hughes Creek (060300020601)	18,276 acres	Complete
● West Fork Cotaco Creek (060300020602)	34,573 acres	Complete
● Town Creek (060300020604)	23,442 acres	Complete
● French Mill Creek (060300020802)	26,908 acres	Complete
● Upper Scarham Creek (060300020803)	31,238 acres	Complete
● Shoal Creek-Sleighton Branch (060300021005)	10,140 acres	Being Updated
● Crowabout 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	Being Updated
● Anderson Creek (060300040404)	37,913 acres	Complete
● Big Nance Creek (060300050104, 060300050105)	52,152 acres	Complete
● Cross Creek (060300010801)	21,259 acres	Complete

Holistic Management Approach to Protecting and Restoring Watershed Health and Improving Water Quality with the Development of Watershed Management Plans

D'Olive Creek Watershed Management Plan Update

The update to the D'Olive Creek, Tiawasee Creek, and Joes Branch WMP is in draft format and is being reviewed by partners and the project sponsor. It should go on public notice shortly and be completed by the end of the year. The MBNEP, Geosyntec, and partners have been busy prioritizing and planning for the next ten years. The plan update will include the nine-key elements from EPA and MBNEP's six coastal values.



Figure 26. Restoration in D'Olive Creek constructed by Volkert, Inc.

The nine-key element WMP update will be facilitated by MBNEP and written through a partnership between Geosyntec and Thompson Engineering. Stakeholder input and sound scientific data will be essential to provide direction for watershed restoration within the D'Olive Creek watershed by effectively and efficiently identifying a path to mitigate NPS pollution and to improve water quality using a dynamic and iterative watershed-based approach.

This WMP discusses the success and restoration that has occurred prior to this update. It will define out the pathway of restoration in the watershed for the next ten years. The plan will assist the public and private sector in cooperatively

updating a strategy of economically sound, environmentally protective BMPs throughout the watershed to improve and protect water quality. Outreach and education will be utilized both to engage stakeholders to be involved in the planning process, as well as, to improve the public's knowledge of local water quality issues and the benefits of implementation of management practices to reduce pollution.

Moore's Mill Creek Watershed Management Plan Update

The original Moore's Mill Creek WMP was created in 2008. Based on the data collected during the development of this plan, the reaches of Moore's Mill Creek and its tributaries within the Moore's Mill Golf Club were identified as major contributors of sediment to the system. Ongoing construction activities within the watershed were also identified as a major source of sediment to the system. Management recommendations such as stream restoration have been identified to address the sedimentation problems recognized during assessments of the Moore's Mill Creek watershed. The plan was followed with implementation along the Golf Course. Since the plan was completed, there has been extensive development within the stream headwaters and within the watershed. Urban development, which increases impervious surface area, has led to a flashy (rapid water level increase followed by a rapid drop in water level) and high velocity stormwater flow through the stream during rain events.

Several stakeholders have voiced concerns within the watershed, which supports interest in further watershed restoration. Because over ten years have passed since the original creation of the WMP, the first objective is to update the watershed management plan, the road map to continued watershed

restoration. ACES and ADEM have been in collaboration on this endeavor. Stakeholder involvement in identifying concerns, sources, critical areas, and the pathway to restoration is an integral part of the WMP update process. This will include building on partnerships made during the first phase and forging new partnerships with entities within the watershed.

The planning process and the updated plan will keep with the integrity of an EPA nine-key element WMP. There is potential for innovative modeling to help determine BMP placement for efficient, scientifically supported placement of BMPs, the “best bang for the buck” approach. Modeling will also help with load reduction estimation.



Figure 27. Golf Course BMPs implemented in 2008 (top) and headwaters in Hamilton Gables show evidence of flashy nature and streambank erosion (below)

Upper Wrights Creek Watershed Management Plan

The Upper Wrights Creek watershed (HUC 03140203-0201) is in the Choctawhatchee River Basin within Geneva County, Alabama. The Upper Wrights Creek watershed is a subwatershed of the larger 10-digit HUC, Wrights Creek (HUC 03140203-02). Wrights Creek flows for 8.96-miles from its source to the Alabama/Florida state line. The Upper Wrights Creek watershed has a drainage area of 24,097 acres and flows through forested and agricultural lands, which influence water quality within the watershed. Wrights Creek has a use classification of fish and wildlife (F&W).

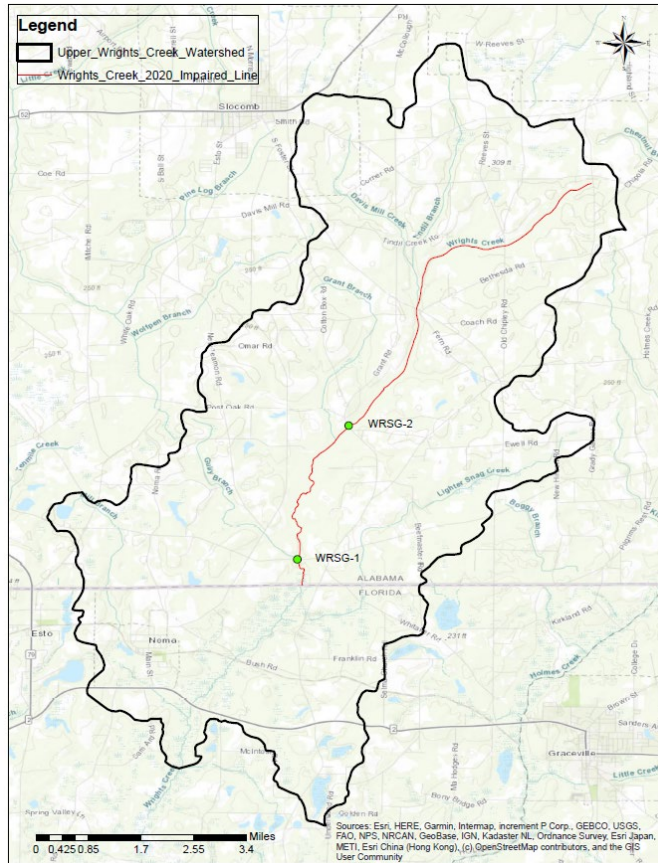


Figure 28. Upper Wrights Creek Watershed in Geneva County, Alabama and Holmes County, Florida

Wrights Creek was first listed on Alabama’s Section 303(d) list of impaired waters in 2016. It is impaired from its source to the Alabama/Florida state line for pathogens (*E. coli*) due to animal feeding operations and pasture grazing. Water quality data collected by ADEM in 2014, showed *E. coli* criterion for Wrights Creek’s use classification of F&W was exceeded in two out of eight samples at ADEM sampling station WRS-2. This identifies a pathogen impairment in Wrights Creek.

The development of this WMP will be accomplished by concentrating on EPA’s nine-key elements and will be a guide in developing a systematic, partnership-based approach to further restoration efforts in the watershed. This WMP will help to identify critical areas contributing to NPS pollution as well as to develop a plan(s) of action in addressing these sources through BMP implementation and education and outreach events. By identifying critical areas and potential BMPs, strategies can be prioritized to reduce NPS pollutant loadings to the impaired Wrights Creek.

scientific data will be essential in providing direction for watershed restoration by effectively identifying pathways forward to reducing NPS pollution and improving water quality using a watershed-based approach. The plan will assist stakeholders in cooperatively updating the WMP as necessary, as well as, implementing BMPs throughout the watershed to improve and protect water quality. Outreach and education will be utilized both to engage stakeholders to be involved in the planning process and to improve the public’s knowledge of local water quality issues and the benefits of implementation of voluntary management practices to reduce pollution within the watershed.

Stakeholder involvement, watershed characterization, measurable milestones, and

Implementation of Watershed Plans

Alabama River Basin

Whites Slough Watershed Restoration and Management Project – Phase II

The Baldwin Slough watershed (HUC 03150201-0309) drains 27-square miles (17,280 acres) and is a subwatershed of the 360-square mile Catoma Creek (HUC 03150201-03) watershed. Catoma Creek flows west to east through the southern portion of the Baldwin Slough watershed. Catoma Creek was initially

listed on the Alabama’s Section 303(d) list of impaired waters in 1996 for organic enrichment and low dissolved oxygen (OE/DO) due to streambank destabilization and poor nutrient management practices. An additional impairment for pathogens in Catoma Creek was added to the Alabama’s Section 303(d) list of impaired waters in 2002 due to municipal storm sewers and pasture grazing. Catoma Creek is impaired for 21.3-miles, from Ramer Creek to its source. In July 2005, a TMDL was finalized for OE/DO impairments to Catoma Creek. In September 2009, a TMDL was finalized for pathogen impairments to Catoma Creek.

In October 1998, a WMP was developed for the larger Catoma Creek watershed. To target pollutants and possible contributing sources more effectively, a WMP was developed for the Baldwin Slough watershed in 2005. This WMP was the foundation for implementing the FY2006 Whites Slough Watershed Restoration and Management Project. As a tributary to Catoma Creek within the Baldwin Slough watershed, Whites Slough provided the opportunity to directly address the OE/DO impairment and streambank destabilization. The FY2006 project focused on Ida Bell Young Park within the City of Montgomery in the Baldwin Slough watershed.

The project included a stream and floodplain restoration and stormwater management in a degraded stream system. The project restored 2,100-linear feet of stream and two acres of floodplain. The project also provided education to the surrounding public and professional community by educating on the importance of stream and floodplain protection and innovative stormwater management practices while maintaining natural stream channel design.

In ongoing attempts to reduce NPS pollution from the Baldwin Slough watershed and thus Catoma Creek, NPS Unit staff have been in discussions with the original stakeholders for the Whites Slough Watershed Restoration and Management Project as well as conducted an onsite meeting. The current focus is to continue the original FY2006 project into a Phase II for CWA Section 319(h) funding to be utilized on the Ida Bell Young Park project for stream realignment and restoration of riparian buffers using native plant species.

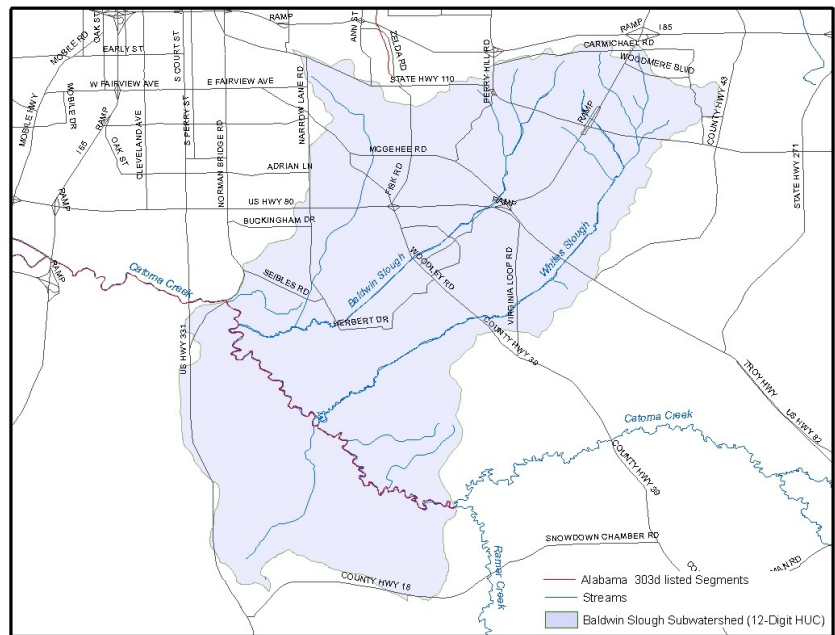


Figure 29. Baldwin Slough watershed map

Black Warrior River Basin

Black Creek Stream Restoration Project

Black Creek in the Hooper City neighborhood of Birmingham, Alabama is a major tributary to Village Creek. The Village Creek watershed (HUC 03160111-0408, -0409) is in the Black Warrior River Basin in Jefferson County, Alabama. The upper portion of Village Creek, which passes through the City of Birmingham, is dominated by urban development. Major sources of impairment in the Village Creek watershed have been identified as nonpoint sources from urban runoff. The large percentage of impervious surface area, combined with limited stream buffers, has direct impacts to water quality within the watershed. Village Creek is impaired for metals, pH, siltation, pathogens, pesticides, and nutrients. A TMDL for metals (zinc), pH, and siltation was approved for Village Creek in 2005; a TMDL for pathogens was approved in 2015; and a TMDL for nutrients was approved in 2017.



Figure 30. Black Creek at Cherry Ave, downstream of project area (photo by Google Maps)

The Village Creek Watershed Improvement Strategy was completed in 2017. This nine-key element WMP will be used to guide restoration efforts. The plan, sponsored by the City of Birmingham, was drafted with the support of numerous agencies and local stakeholders. Black Creek was identified in the 2017 Village Creek Watershed Improvement Strategy through Storm Water Management Model as a contributor of total suspended solids and total nitrogen. Using the recommendations outlined in the 2017 Village Creek watershed management plan, the overall goal of this project is to incrementally improve water quality within the Village Creek watershed through the implementation of BMPs and education/outreach efforts so that Village Creek may attain state water quality standards for its use classification.

Black Creek headwaters start near the northern boundary of the Village Creek watershed in Hooper City and flow southwest until joining Village Creek southwest of Sandusky. This project will work to reduce sediment loss and nutrient input to Black Creek, which will in turn reduce the amount of pollutants entering Village Creek. The City of Birmingham plans to accomplish this by removing about 800-feet of culvert from Black Creek between 37th Avenue West and Coalburg Road. The City plans to restore and stabilize Black Creek through natural stream design elements, which will increase sinuosity and improve habitat. This section is located next to an approximately 12-acre grassed field where a constructed stormwater wetland will potentially be installed to improve water quality through increased filtration. Project plans also include implementation of a bioswale and rain gardens on City owned residential lots within the neighborhood to promote improved water quality through storm water filtration. The rain gardens will also serve to demonstrate BMPs that can be employed by homeowners. Additionally, stream trash clean ups are planned through collaborative efforts with project partners, including local environmental stakeholder groups.

The project will be implemented through the City of Birmingham in conjunction with other agencies and project partners. The project objective is to complete streambank restoration/protection practices, clean

the creek of debris, and achieve pollutant load reductions that clearly demonstrate the success of these practices for reducing sediment and nutrient pollution. The project was slated to start earlier, but a City mandate temporarily halting new grant projects and complications due to the COVID-19 pandemic delayed project contracting. However, cooperative agreement negotiations are in progress.

Graves Creek Watershed Management Plan Implementation-Phase II (FY17)

Graves Creek watershed (HUC 03160111-0202) is 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 Alabama’s Section 303(d) list of impaired waters in 1992 for OE/DO. Its use classification is F&W.

The Graves Creek Watershed Management Plan Implementation Project Phase II was designed to implement BMPs for addressing the sources and causes of impairment in Graves Creek as identified in the updated 2016 Graves Creek WMP and to attain the pollutant load reductions outlined by the 2002 Graves Creek TMDL for low dissolved oxygen/organic loading. The project was being implemented with the help of Blount County SWCD and several other partners, including but not limited to Alabama Forestry Commission, Alabama Natural Resources Council, Blount County Cattlemen’s Association, Blount County Cooperative Extension Office, local water authorities and utilities, Farm services Agency, and NRCS.



Figure 31. An alternative water source installed as part of the Graves Creek Phase II project

The Graves Creek Watershed Management Plan Implementation Phase II Project began on April 26, 2018, and ended April 26, 2021. It was a continuation of the Phase I Project. The Phase II Project also focused on targeting critical areas within the watershed and furthering the goal of helping Graves Creek achieve water quality standards for F&W use classification. The project was advertised to stakeholders through mailed flyers, promoted through word of mouth, and distributed fliers at the 2018 Blount County Fair. Phase II implemented 2,638 feet of cross fence, 3 alternative water sources, 1,165.5 square feet of heavy use area protection, and 590 feet of pipeline. Education and outreach activities included the display of the Ag in Action trailer at the 2018 Blount County Fair, presentations at a pond management workshop and other meetings, a project kick-off meeting, and the 2019 Blount County Water Festival.

Cumulative Load Reductions:

Nitrogen: 129.5 lbs/year
Phosphorus: 8.5 lbs/year
Sediment: 2.2 tons/year

Roebuck Municipal Golf Course Stream Restoration and Demonstration Project

Village Creek (HUC 03160111-0408, -0409) is in the Black Warrior River Basin in Jefferson County, Alabama. The upper portion of Village Creek passes through the City of Birmingham and contains large areas of impervious surfaces and limited stream buffers. Impervious surfaces along with limited buffers has direct impacts to water quality within the watershed. Village Creek is impaired for metals, pH, siltation, pathogens, pesticides, and nutrients. A TMDL for metals (zinc), pH, and siltation was approved for Village Creek in 2005; a TMDL for pathogens was approved in 2015; a TMDL for nutrients was approved in 2017.

Roebuck Municipal Golf Course is an 18-hole public golf course located in the headwaters of Village Creek. Constructed in 1911, this golf course has great cultural significance. It is believed to be Alabama's oldest municipal golf course and is perhaps best known as the location where famous golfer Bobby Jones won his first tournament in 1915. Public golf courses were some of the first facilities the City of Birmingham integrated, allowing Roebuck to play an important role in desegregation of the South. The stakeholders in this area are interested in having a high quality and unpolluted area for general recreation.



Figure 32. Village Creek at Roebuck Municipal Golf Course, identified as a critical area for bank stabilization

Roebuck Municipal Golf Course also has ecological significance. Village Creek flows through the golf course before continuing to run through the City of Birmingham. Roebuck Spring is a tributary to Village Creek and is one of only four known habitat locations for the endangered watercress darter. BMPs that improve water quality in Village Creek would potentially improve conditions in Roebuck Springs as well, thereby improving habitat conditions for the watercress darter. This project will engage stakeholders to actively participate in the project to improve water quality, to build a connection to the watershed by realizing the history of the springs and Village Creek, and to become better stewards of their water resources.



Figure 33. Endangered watercress darter found in Roebuck Springs

The Village Creek Watershed Improvement Strategy (2017) will guide restoration work to reduce sediment loss, phosphorus, and nitrogen from the streams that run through Roebuck Municipal Golf Course. This will be done through a series of BMP demonstrations, including installed examples of buffer zones, riparian areas, and adapted species selection, which will result in reduced fertilizer and pesticide applications. Restoration and stabilization of the highly eroded streambanks that run through the course will be a key objective of this project, as this will reduce sediment movement and nutrient loss from the course. Additionally, trash clean up in the creeks will be achieved through collaborative efforts with local environmental stakeholder groups. Project partners will host tours and short courses.

The project continues to evolve through continued planning and cooperative agreement negotiations. The City of Birmingham will implement the project with assistance from Auburn University and other project partners. Staffing changes, endangered species considerations, COVID-19 restrictions, and agency concerns have caused delays in contracting the project, but cooperative agreement negotiations are ongoing.

Ryan Creek Watershed Implementation Project (FY18)

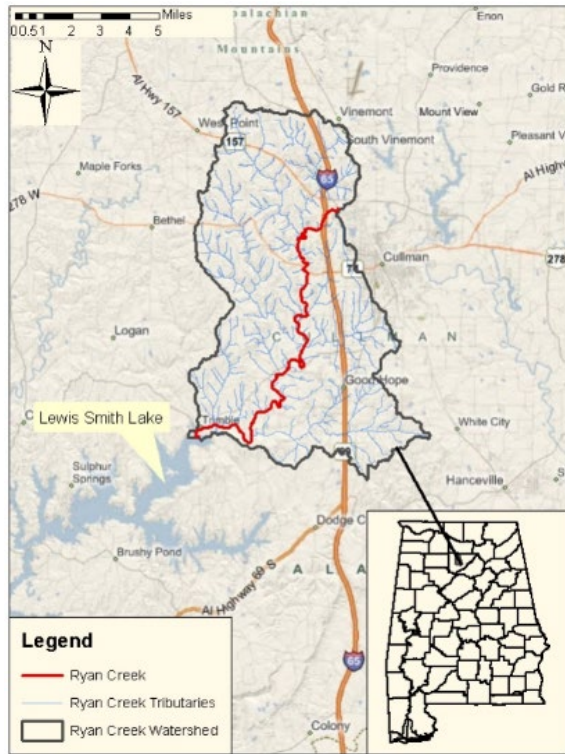


Figure 34. Ryan Creek watershed in Cullman County, Alabama

Ryan Creek watershed is comprised of two subwatersheds within Cullman County in the Upper Black Warrior sub-basin, the Headwaters Ryan Creek – Alvis Branch (HUC 03160110-0501) and the Bavar Creek – Ryan Creek (HUC 03160110-0502). Ryan Creek was first listed on Alabama’s Section 303(d) list of impaired waters in 2006, and a TMDL for pathogens (*E. coli*) for Ryan Creek was approved in 2010. The impaired reach length is 16.2-miles and encompasses a drainage area of 66.9-square miles. The aim of this project is to reduce pathogen sources to Ryan Creek to help meet state water quality standards through the implementation of the Ryan Creek Watershed Management Plan.

The Ryan Creek Watershed Implementation Project, which began September 6, 2019, is being implemented in partnership with Cullman County SWCD. The district has received ten applications. One application for a waste storage facility (2,200-square feet), roof and covers (2,365-square feet), and heavy use area protection (820-square feet) has been completed. Due to financial uncertainty of COVID-19, cost increases for supplies, and personal challenges, six applications were cancelled by the applicants. One applicant is currently working on BMP implementation and the other two applicants are awaiting initial site visits from project partners before starting implementation. Additional landowners have shown interest in the project; therefore, the Cullman County SWCD has requested a project extension to allocate the remaining project funds.

The Cullman County SWCD has been actively seeking to collaborate with diverse agencies, business, and stakeholder groups to promote the project. Active involvement by the SWCD and project partners have continued to benefit education/outreach efforts and BMP implementation. Recent education/outreach activities have included Nature Day Camp, the Environmental Conservation Education Teacher Workshop, and project promotion at monthly Forestry Planning Committee meetings.

Cumulative Load Reductions:

- Nitrogen: 426.5 lbs/year
- Phosphorus: 29.5 lbs/year
- Sediment: 0 tons/year

Chattahoochee River Basin

Moore's Creek Watershed Management Project – Phase II (FY16/17)



Figure 35. Renderings of Moore's Creek after 3-5 growing seasons

Moore's 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). ADEM identified Moore's Creek as being impaired by siltation due to habitat alteration for a length of 11.4-miles, from the Chattahoochee River to its source. Moore's Creek was first added to Alabama's 2012 Section 303(d) list of impaired waters based upon 2007 habitat and macroinvertebrate data. In 2018, ADEM Water Quality Branch added an impairment for pathogens based off water chemistry data that was obtained in 2014 and 2016.

Phase II of the Moore's Creek Watershed Implementation Project ran from February 2018 to May 2020. This project builds on the success of Moore's Creek Phase I. Local stakeholders worked collaboratively to

identify new watershed priorities. Project Partners outlined projects for Phase II that made good environmental, economic, social, and project management sense. Phase II incorporated EPA's nine-key WMP elements (per CWA Section 319(h) grant guidelines); targeted a Section 303(d) listed waterbody; and addressed Section 319 priority pollutants (e.g., nitrogen, phosphorus, sediment, and pathogens). Partners outlined plans to leverage financial resources and provide the public and private sector with critical resources to restore Moore's Creek to state water quality standards.

The original Moore's Creek Phase II project proposal targeted streambank stabilization of a highly visible reach of Moore's Creek in the City of Valley directly upstream of 55th Street West (Fob James Dr.) and directly downstream of 20th Avenue (AL-29). The primary goals of the implementation work were to provide streambank stabilization to reduce sediment loads originating from the site and to increase the efficiency of water and sediment transport. Secondary goals included improved habitat (in-stream and riparian) and aesthetic value. Construction began on November 5, 2019, with the final walkthrough in January 2020, by the project coordinator and project engineers. Grading and streambank stabilization began upstream, moving progressively downstream in approximate 100-linear foot sections. Stabilization work included relocating sections of one stream reach away from the steep slopes on the left bank, reconnecting the stream to the floodplain, and installation of in-stream structures to provide bank stability and flow control. Slopes had a final grading of 3:1. Volunteers helped plant the stream project with over 300 plants in two days. The project held up very well despite the significant rainstorms that occurred following implementation of final measures. Some maintenance was required, but overall, the resilience of the stream BMPs were very impressive.

During the project, another site was identified that needed immediate correction. The slopes along a tributary that discharged into the restored section of Moore's Creek were failing. The project had additional money left over since work on the Highway 50 project area in Lanett was not viable at the time due to unexpected circumstances and a lack of resources. Therefore, additional funding was used to buy materials to help in the stabilization of the slope area along Fob James Drive. Flex-a-mat was used to

stabilize the stream bank slope of a tributary upstream of the Moores Creek restoration site. This work was completed by the City of Valley.

A third project involved the Chambers County Emergency Management Agency (EMA)/911 Center located within the Moores Creek watershed in Huguley, Alabama. The existing stormwater basin often overflowed over the emergency spillway. It is possible that surrounding development and additional impervious surfaces were contributing more stormwater than the BMP was originally designed to receive. The Moores Creek Project developed plans to improve water quality and promote infiltration by adding aesthetically pleasing native vegetation and improving habitat. The ACES Water Team coordinated with the Chambers County Career and Technical School agriculture classes to help design a rain garden. There was community interest in an additional Design Your Own Rain Garden workshop, and community members and partners met on August 23, 2019, for the event. Many attendees expressed plans to implement the knowledge gained in and around their own homes.

In coordination with the Chattahoochee Riverkeeper, Point University students, and other volunteers, rain garden site preparations took place on October 18, 2019. Students and volunteers excavated approximately 6 inches of topsoil in the drainage area. Soil was mixed with hardwood mulch and replaced to a depth of approximately three inches to allow for ponding. On October 28, 2019, partners and volunteers were joined by Chambers County Career Tech students to install native vegetation in the prepared rain garden bed. Native plants provided at a discounted rate by Ponders Nursery included soft rush, blue flag iris, swamp milkweed, black-eyed susans, and purple coneflower. These plants at maturity promote water quality by filtering out excess nutrients, improving infiltration, and restoring habitat. Part of the design plans called for upland plants that added to the habitat value of the area as well as the aesthetics. Furthermore, an educational sign was developed for the site. Installation of the upland plants and the educational sign were provided by partners.

The project partners were heavily involved in education and outreach activities. There were at least 50 education and outreach events recorded through the project life. Project partners spanned the cities of Lanett and Valley, the Chattahoochee Riverkeeper, Chambers County EMA, Zink Environmental, Jennings Environmental, Hydro LLC, Chambers County School, Lanett City Schools, Chambers County Sheriff, North State Environmental, Coosa Valley Resource Conservation and Development, Point University, NRCS, Chambers County SWCD, Chambers County Extension, Chambers County Commission, 5 Smooth Stones Restoration, PLLC, East Alabama Water, Sewer, & Fire Protection District, ALDOT, Alabama Power, and many more.

Cumulative Load Reductions:

Nitrogen:	24,818.54 lbs/year
Phosphorus:	12,650.3 lbs/year
Sediment:	253.6 tons/year

Coosa River Basin

Eastaboga Creek Watershed Implementation Project



Figure 36. Eastaboga Creek in the Coosa River Basin

Eastaboga Creek watershed (HUC 03150106-0513), in the Coosa River Basin within Calhoun and Talladega Counties in Alabama, flows southwest for 6.85-miles from its source to its confluence with Choccolocco Creek. It has a drainage area of 18,286-acres and runs through both urban and agricultural lands. The Eastaboga Creek watershed is a subwatershed of the larger 10-digit HUC, Choccolocco Creek watershed. Eastaboga Creek was first listed on Alabama's Section 303(d) list of impaired waters in 2020 for pathogens (*E. coli*) due to collection systems failure, pasture grazing, and

urban runoff/storm sewers from its source to Choccolocco Creek. Water quality data collected by the ADEM in 2017-2018 showed the *E. coli* criterion for F&W use classification was exceeded in four out of eight samples in 2017 at ADEM sample site ESBT-1 and in three out of eight samples in 2018 at ESBT-3, which suggests a pathogen impairment exists for Eastaboga Creek.

The 2020 Eastaboga Creek WMP will be used as a guide in developing a systematic, partnership-based approach to advance conservation efforts in the watershed. The Choccolocco Creek Watershed Conservancy District will execute a site-specific comprehensive conservation plan for each landowner where BMP implementation will take place. The conservation plan will address the resource concerns identified by individual site visits. After development of the plan, BMPs targeting pathogens will be implemented according to NRCS specifications. Conservation organizations, such as NRCS and the ACES (among others), will be asked to provide technical information on their programs that can be shared with willing landowners. Those landowners that express interest in furthering those types of resource enhancements will be introduced to those organizations that fit their interests and needs. Other funding sources will be examined for increased conservation efforts. Strategic BMP design, implementation, and maintenance approaches may include watershed restoration approaches aimed at meeting water quality standards directly; iterative, technology-based measures applied on either a categorical or site-specific basis; or an appropriate mix of these approaches.

The goal of the Eastaboga Creek Watershed Implementation Project is to reduce the cumulative effects of NPS polluted runoff in order to improve water quality in Eastaboga Creek. This effort, combined with other efforts, will assist the watershed in meeting state water quality standards and criteria for the F&W use classification. In order for this goal to be realized, pathogen sources will be addressed through BMP identification and implementation. Cooperative agreement negotiations are almost complete and the project is expected to begin relatively quickly.

Mobile River Basin

D'Olive Creek Sub-Watershed Management Project at Stream Segments D9 and DACA1

D'Olive Creek (HUC 03160204-0505) is one of the main tributaries of the D'Olive Creek watershed in Baldwin County, Alabama. D'Olive Creek discharges into D'Olive Bay and then into Mobile Bay. The D'Olive Creek subwatershed is approximately 3.5-square miles in area and includes portions of the cities of Daphne and Spanish Fort, as well as unincorporated areas of Baldwin County. Since 2008, ADEM has included the entire length of D'Olive Creek and one of the unnamed tributaries (UTs) to D'Olive Creek on Alabama's Section 303(d) list of impaired waters. The cause of water quality impairment was identified as siltation (habitat alteration) as a result of land development.



Figure 37. Headcut on Tributary DA to D'Olive Creek located downstream of Canterbury Road

In August 2010, a WMP for the D'Olive Creek, Tiawasee Creek, and Joe's Branch watersheds in Daphne, Spanish Fort, and Baldwin County, Alabama, was written to address EPA's nine-key elements and associated water quality issues in this critical area. This plan is being updated so that the watershed can plan the next ten years of restoration. The WMP update is identifying new areas of concern in the D'Olive Creek subwatershed that will be addressed by this project.

Watershed health in the D'Olive Creek subwatershed continues to decline from the harmful effects of urbanization. Impairments from subdivisions, individual lot-level

construction, municipal facilities, commercial development, and other land uses have significantly affected natural watershed morphology, function, and hydrology. Development in upland areas of the D'Olive Creek subwatershed has resulted in increased volumes of stormwater runoff from impermeable surfaces; flashy hydrology; loss of natural wetlands and riparian areas; inadequate natural flood plains; and threats to aquatic and wildlife species survival and habitat. The increased volume and velocity of post-construction urban stormwater flows has resulted in severe channel degradation in D'Olive Creek and its tributaries. Starting in approximately 2005, severe erosion and mass wasting have occurred with significant rainfall events, as the flowing water seeks to create a stable floodplain at a lower elevation. The sediment generated during this process has been deposited in wetlands located downstream of the site in the floodplains of a D'Olive Creek, resulting in alterations to stream morphology and hydrologic function; destruction of native vegetation and wildlife habitat in the area; and the proliferation of invasive plant species.

This project is currently working with landowners and stakeholders to gain access agreements and discuss the construction project needs. The design engineer is also working to secure the necessary permits from ADEM and the USACE. This project addresses two new target areas that are identified in the WMP update. The first target area is the Canterbury Road Project (DACA1), which is located upstream of the previous DA3 restoration. It has a headcut of approximately 200-linear feet resulting in increased sediment loads into the surrounding wetlands and stream channels. This restoration area is a high priority due to its proximity to the successful stream restoration project and the high quality wetlands adjacent to the

headcut. The headcut has not currently progressed to the upland habitat, but if erosion continues to progress, it will result in much higher sediment loads and potential de-watering of adjacent wetlands.

The second target area is located at Pine Run (D9) upstream of the previous D4-D6 restoration. This project area has a headcut within the main channel of D'Olive Creek. The headcut is encroaching on adjacent wetlands, reducing wetland connectivity and dewatering the wetlands. Because of intense rain events over the past few years, the headcut has deepened and progressed significantly. The progression of the headcut will result in loss of wetland acreage within the watershed. D'Olive Creek drains the largest commercial development in the watershed, as well as draining large home lots directly on the creek. Sediment from the headcut is currently flowing downstream to Lake Forest Lake and previously restored areas. The current approximate length of the headcut is between 800 and 1,200 feet, but it is growing daily.



Figure 38. Pine Run project area (photo by MBNEP)

Parking Lot Bioswale Implementation of 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 WMP. 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 (USA), with an enrollment of over 16,000 students, resides on approximately 1,200-acres in the upper reaches of the Three Mile Creek watershed. The USA was identified in the WMP as contributing sediment to Three Mile Creek. There are several areas on campus with significant slope (less than five percent) and large impervious surfaces (parking lots) that contribute significant volumes of water to local earthen drainages, causing both bed and bank erosion, and oil and grease contributions from automobiles to Three Mile Creek. Campus stormwater management from parking lots typically consists of curb and gutter inlets that lead to traditional underground storm sewers and earthen drainage ways that outlet directly to Three Mile Creek. Sediment



Figure 39. Stormwater path across the humanities parking lot into Three Mile Creek



Figure 40. Bioinfiltration swale in the USA Humanities parking lot

build-up in the stream at these storm sewer outlets are evident, and the impacts of oil and grease pollutants influence DO levels.

This project addressed structural BMP implementation with low impact development (LID) and green infrastructure (GI) on the campus. Specifically, bioswales are proposed for two large, asphalt parking facilities on the campus, the Humanities Lot and the Gamma Lot. 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 potentially associated organic nitrogen load) in the Upper Three Mile Creek watershed. Due to a change in USA priorities, the Gamma Lot construction will be delayed at this time as they evaluate a new priority in NPS pollution reduction on campus.

Construction of bioswales in the Humanities parking lot were completed in August 2019 because there were fewer students on campus during that semester. The islands were roughly 200 feet long and 10 feet wide. The bio-infiltration areas inside each island measured about eight feet across and two feet deep. The bottom layer of these infiltration areas consisted of large stone located underneath a foot of coarse sand and compost and topped with more stone and plants. This allowed the feature to be aesthetically pleasing and efficient on storm water runoff management and sediment filtration. Thermo Scientific Nalgene Storm Water Samplers are monitoring for total suspended solids, total nitrogen, total phosphorus, and oil and grease.

Cumulative Load Reductions:

Nitrogen:	22.32 lbs/year
Phosphorus:	4.03 lbs/year
Sediment:	0.52 tons/year

Pathogen Reduction of Turkey Branch: A Weeks Bay Watershed Project (FY19)



Figure 41. Weeks Bay Watershed Management Plan guides watershed restoration

The Weeks Bay watershed consists of four subwatersheds, which include Upper, Middle, and Lower Fish River, as well as Magnolia River. This watershed contains approximately 130,000 acres of land and 362 miles of streams. It includes all or portions of nine municipalities (Fairhope, Daphne, Spanish Fort, Loxley, Robertsdale, Silverhill, Summerdale, Foley, and Magnolia Springs) and associated unincorporated areas of Baldwin County.

Fish River begins near the town of Stapleton and flows in a southerly direction. The eastern boundary of the Fish River basin is near U.S. Highway 59, and the western boundary is near U.S. Highway 31 (Stapleton to Spanish Fort), thence southward near Alabama Highway 181 (Spanish Fort to Fairhope), thence southward near U.S. Highway 98 to Mobile Bay. The Magnolia River has its headwaters near Summerdale and flows in a southwestward direction to Weeks Bay.

Fish River has been listed as impaired for pathogens as far back as 1998. Fish River's TDML developed by ADEM's Water Quality Branch in August 2013 calls for a 68 percent reduction in total pathogen loading from NPS sources for the stream to meet its water quality standards. The Lower Fish River subwatershed covers approximately 34,500 acres, with the dominant land cover being agriculture including row crops and pasture. Forested cover, wetlands, and urban development make up the rest of the land use.

This project will use CWA Section 319(h) NPS watershed project implementation funding to target pollutant sources that are contributing to the impairment of the Weeks Bay subwatershed of Lower Fish River (HUC 031602050204). Employing a partnered approach, NFWF, MBNEP, NRCS, National Dam Recovery Act, Baldwin County, and many others will be involved in restoring the watershed. The WMP identified, not only the ADEM listed pathogen impairment, but also highlighted concerns about nutrients and sediment in certain streams in the watershed.

The Baldwin County SWCD will focus on promoting implementation of BMPs that will include exclusion fencing, stream crossings, alternative watering sources, septic tank pumpouts, and educational workshops to address the pathogen impairment concerns. They will also look at precision agricultural practices, gully restoration, and other BMPs that will reduce NPS pollution to the stream and Weeks Bay, which is classified as an Outstanding National Resource Water.

This project brings together local landowners, Baldwin County SWCD, NRCS, and other key stakeholders interested in the betterment of water quality in the watershed. Post implementation water quality sampling will be leveraged from current projects that utilize monitoring equipment already collecting data in the specified rivers and tributaries. BMPs will be voluntarily implemented. Technical assistance, financial assistance, and educational material for knowledge transfer of best practices will be provided. Project activities aim to not only reduce pollutants in the watershed but also increase awareness of issues and activities that affect the watershed from its wellhead to the Gulf of Mexico.

Tiawasee Creek Sub-Watershed Management and Restoration Project (FY16/17)

The D'Olive Creek watershed, of which Tiawasee Creek is one of three main tributaries, is a subwatershed of the Tensaw River – Apalachee River Basin (HUC 03160204-0505) in Baldwin County, Alabama. Since 2008, ADEM has included Tiawasee Creek and one of its tributaries on Alabama's Section 303(d) list of impaired waters, with an impairment identified as siltation (habitat alteration) because of land development. This Tiawasee Creek project 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 750-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 aimed to improve water quality, stormwater quantity, and stormwater velocity entering into the waterway.



Figure 42. Tiawasee Creek stream restoration at Montclair Loop

Areas that will be addressed for the stream restoration efforts are: 1) channel incision, affecting riffle pool habitat availability and affecting channel geomorphology; 2) interrupted hydrologic connectivity with floodplain, resulting in adjacent wetland isolation; and 3) tributary head cutting caused by downstream impacts and over widening. The restoration plans include instream structures to provide grade control, bank stability, and enhanced habitat. Toe wood revetments, root wads, log j-hook vanes, and log sill riffles will be used to support stream stability while deep-rooted vegetation becomes established.

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

The overall goal of the stream restoration component of the project is to reduce sediment loads to Tiawasee Creek, as well as the main stem. This will contribute to combined efforts in the watershed that are expected to lead to the removal of Tiawasee Creek from Alabama's Section 303(d) list of impaired waters. The stream restoration is a complementary project to an emergency watershed protection project by NRCS, which addressed stormwater management and a portion of stream restoration. Together with this project, 1,037-linear feet of stream has been restored. The restoration design is being led by Volkert, Inc. The construction by Streamline Environmental on the CWA Section 319(h)/NFWF portion of the project was started in November 2019 and was completed in February 2020.



Figure 43. Stormwater detention retrofit at the City of Daphne Public Works Facility

The goal of the stormwater facility restoration component of the project is to enhance the reduction of NPS pollutants in Tiawasee Creek by implementing LID/GI practices. Nitrogen, phosphorus, and sediment reductions will be achieved by the restoration and enhancement of the detention basins. These totals will be calculated and submitted to ADEM upon completion of the grant. While the stream restoration portion of this grant has been completed, the stormwater retrofits had a few challenges to overcome which included USACE approval and the struggles that have occurred due to COVID-19 and the bidding process. Clarkco Oil Field Services, Inc. went under contract in January 2021. The design has been completed for both stormwater ponds. Once construction has been completed, major reductions of NPS pollutants will be realized. At this time, work is completed on the Public Works pond, and work is continuing at the Brookhaven site. The project is expected to be completed by the end of December 2021.

Cumulative Load Reductions:

Nitrogen: 4,880 lbs/year
 Phosphorus: 823 lbs/year
 Sediment: 602 tons/year

Tallapoosa River Basin

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

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

In 2008, ADEM added Parkerson Mill Creek to Alabama’s Section 303(d) list of impaired waters as impaired for 6.67-miles from Chewacla Creek to its source based on a series of Auburn/Opelika intensive fecal coliform studies conducted in 2007. The cause of impairment was identified as pathogens from urban stormwater runoff and storm sewer sources. A pathogen TMDL was developed by ADEM and approved by EPA in 2011.

In March 2020, construction started on a second 600-foot section of a bioswale; the first section was completed in an earlier CWA Section 319(h) watershed implementation project. A two-inch layer of compost was added to the soil to improve physical and chemical soil properties. Additionally, 16-rock filter dams were constructed at one-foot elevation increments according to specifications in the *Alabama Handbook for Erosion Control, Sediment Control, and Stormwater Management on Construction Sites and Urban Areas*. The west end of the second section was vegetated with muhly grass (*Muhlenbergia capillaris*), coneflower (*Echinacea purpurea*), and swamp milkweed (*Asclepias incarnata*) in April 2020. The east end of the second section has also been completed and vegetated. A sign was placed at the project to explain the purpose of the project and describe the LID BMPs. During the last year, maintenance has occurred when needed and included new plantings of native wild flowers.

Since Auburn University saved money by completing the bioswale construction in-house instead of through a contractor, additional money was available for further implementation of BMPs that will reduce nonpoint source pollutants focusing on the pathogen impairment. Project partners located several areas of concern that could be addressed at the Equestrian Center on campus. It encompassed a wide group of partners and stakeholders to include Auburn University Crop Soil and Environmental Sciences Department, Facilities, Equestrian Center, Athletics, the Vet School, School of Architecture and College of Agriculture.

The first project identified was a retrofit to a stormwater detention area that was not operating properly. The project team converted it into a bioretention with a riprap forebay and closed up the bottom hole in the riser with concrete to help facilitate a better holding time for stormwater retention and pollutant removal. The figure below shows the progression of the construction to this stormwater detention pond. It has been completed and load reductions will be identified in the next report.



Figure 44. Implementation progression at the Equestrian Center at Auburn University

The other BMPs that are in development phase include a bioswale with matting installed near the show arena. Exclusion fencing, riparian plantings, and a stream crossing are envisioned along the stream access at the entrance of the center. These pathogen-reducing BMPs will result in further NPS load reductions in the stream.

The project coordinator gave a presentation at the Alabama Water Resources Conference detailing the work that had occurred on this CWA Section 319(h) Grant. However, more education and outreach events are envisioned through the remainder of the cooperative agreement as COVID-19 restrictions are lifted.

Cumulative Load Reductions:

Nitrogen: 109.3 lbs/year
Phosphorus: 23.7 lbs/year
Sediment: 3.7 tons/year.

Pathogen Reductions to Emuckfaw Creek: A Watershed Restoration Project (FY18)

The Emuckfaw Creek watershed is located in rural portions of Clay and Tallapoosa Counties in Alabama. Emuckfaw Creek is 23.51-miles long and drains about 49.81-acres of land. The watershed is highly forested. There are small portions of pasturelands that are interspaced in the watershed and several chicken operations as well.

In 2016, ADEM monitored Emuckfaw Creek monthly from March to October at station EMKT-14. This station is located where the creek crosses Bill Price Road. The *E. coli* criterion was exceeded two out of eight times during the monitoring of the stream. This caused ADEM’s Water Quality Branch to assess the creek as impaired for pathogens on Alabama’s 2018 Section 303(d) list of impaired waters.

The Tallapoosa County SWCD agreed to manage project implementation of targeted conservation practices that would reduce pathogen impairments in the Emuckfaw Creek watershed. The Emuckfaw Creek Watershed Restoration Project began in January of 2020 right before everything closed due to the start of the COVID-19 pandemic. This project identified four producers that were willing to place conservation practices on their farms. It identified education and outreach ventures based on the District Administrative Coordinator’s typical events. It also identified a septic tank pump-out.

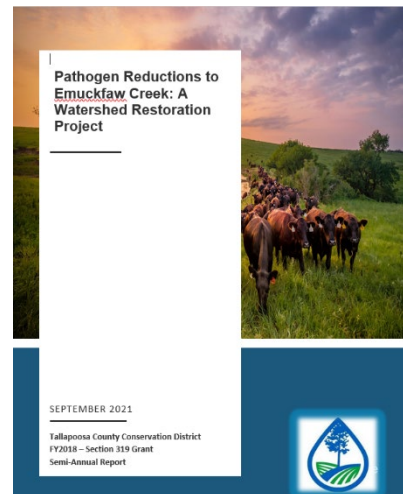


Figure 45. WMP guides project implementation for Emuckfaw Creek

During the first year of this project, the District and NRCS have had a challenge with employee turnover in this office. It has also had the added challenge of the COVID-19 pandemic, supply chain demand and price increases, as well as limited interaction with its stakeholders and limited education and outreach opportunities. During the last six months, one land producer has been busy installing practices on his/her property. This would include pipeline installation, alternative watering systems, and three heavy use area protection BMPs. At this time, the landowner is currently in the process of installing fencing to facilitate rotational grazing and provide cattle with limited access or exclude them from waterways on the property. Once the project has been completed, load reductions will be modeled and reported.

Partners with the Tallapoosa County Commission have conducted multiple dumpster days and organized a litter clean up throughout the county for resident groups that wanted to participate. The “Throw Away Days” place dumpsters around the county so that residents can dispose of household garbage that has built up. These dumpsters are paid for by the Commissioners. This helps residents get rid of unwanted waste and reduces the potential for illegal dumping in the area. Two of these “Throw Away Days” were contributed to match for the project. In the spring, the Tallapoosa County encouraged citizens to form small groups and clean up litter in their communities. Several groups organized days for citizens to pick-

up trash. The residents would clean up an area, leave their bags on the side of the road, and Tallapoosa County would pick up and dispose of the bags of trash that the groups picked up from March to May of 2021.

Tennessee River Basin

Browns Creek Watershed Implementation Project (FY18)

The Browns Creek watershed (HUC 06030001-0904) drains approximately 32,278-acres within the Tennessee River Basin. Browns Creek originates in Blount County and flows into Marshall County where it empties into Lake Guntersville. Browns Creek consists of two distinctly different waterbody types: a wadeable, free flowing stream and the tributary embayment segment of Lake Guntersville. In 2012, the 11.86-mile stretch of Browns Creek from Lake Guntersville to its source was identified as being impaired for nutrients and total dissolved solids (TDS) from agricultural and mining sources. In 2016, the creek was removed from Alabama's Section 303(d) list of impaired waters for the TDS listing due to more recent data. In 2018, Browns Creek was identified as being impaired for pathogens (*E. coli*) from agricultural sources. The 5,915.66-acre Browns Creek (Lake Guntersville) embayment from the Tennessee River to end of embayment was also listed in 2012 for nutrients from agriculture. The use classification of the tributary embayment segment of Browns Creek is public water supply/swimming/F&W and the stream segment classification is F&W.

The 2017 Browns Creek WMP guided the Marshall County SWCD in project implementation. The project focused on the Marshall County portion of the Browns Creek watershed, where the Marshall County SWCD worked with landowners in the watershed to install BMPs to address nutrient and/or pathogen sources to Browns Creek. The Browns Creek project advertised through direct communication with landowners, with fliers, on social media, phone calls, and by word of mouth, both in the community and by project partners. Ten applications were accepted and approved by the Marshall County SWCD Board. Nine applicants completed practices within the project period. The Browns Creek project implemented 5,909 feet of fence; 15,632 square feet of heavy use area protection; 3,976 feet of pipeline; and 7 watering facilities.

Federal funds totaling \$64,043 were utilized during the project and \$37,822 in non-federal match was contributed by the District and project partners. The project contract period lasted from August 23, 2019, until August 23, 2021. Although this project had great involvement from the community early on, the prolonged effects from COVID-19 including limited group meetings for education and outreach, labor shortages, scarce materials, increased cost of materials, and staffing time constraints will likely continue to suppress landowner and stakeholder participation within the Browns Creek watershed. Therefore, a Phase II will not be pursued at this time. However, a Phase II may be appropriate in the future as these challenging situations improve.

Cumulative Load Reductions:

Nitrogen:	7,375.45 lbs/year
Phosphorus:	548.69 lbs/year
Sediment:	130.2 tons/year



Figure 46. Alternative water source and heavy use area before (right) and after (left) installation

Cross Creek Watershed Implementation Project (FY18)

The Cross Creek watershed (HUC 060300010801) is in the Tennessee River Basin within DeKalb County, Alabama. Cross Creek flows west for 7.53-miles from its source to its confluence with Short Creek. It has a drainage area of 21,251 acres and runs through predominantly agricultural lands, which influence water quality in the watershed. Cross Creek was first listed on Alabama’s Section 303(d) list of impaired waters in 2018 from its source to Short Creek for pathogens (*E. coli*) due to pasture grazing.

The 2019 Cross Creek WMP was used as a guide in the development of a systematic, partnership-based approach to advance conservation efforts in the watershed by the DeKalb County SWCD. The goal of the Cross Creek Watershed Implementation Project was to reduce the cumulative effects of NPS polluted runoff in order to improve water quality in Cross Creek. Federal funds reimbursed during the project totaled \$10,536.18, and non-federal match of \$18,694.56 was contributed by the District and project partners. The project contract period lasted from August 23, 2019, until August 23, 2021. The project was promoted through bulletin board fliers and direct communication with landowners.

The District has been successful in implementing one animal mortality facility (incinerator). Additional applicants cancelled due to the rising cost of building materials. The area designated for the project implemented similar practices in years past, so it has been difficult to find landowners to implement the practices designated for this project even though there was originally a large interest expressed from the landowners. In addition, COVID-19 restrictions and building material costs negatively affected project progression. A Cross Creek Phase II project is not being considered at this time.

Cumulative Load Reductions:

Nitrogen:	6,646.7 lbs/year
Phosphorus:	6,646.7 lbs/year
Sediment:	0 tons/year

Shoal Creek Watershed Implementation Project - Phase II (FY20)



Figure 47. UT to Shoal Creek at the Hartselle Aquatic Center

The Sleighton Branch-Shoal Creek (06030002-1005) subwatershed is in the Flint Creek watershed, which flows into Wheeler Lake and is part of the Tennessee River Basin. Shoal Creek is in west-central Morgan County and includes portions of Hartselle, Brooksville, Georgia, and Tanner Heights. Shoal Creek drains approximately 15.8-square miles and is a tributary to Flint Creek. Major sources of impairment in the Shoal Creek watershed have been identified as NPS from urban runoff/storm sewers. The significant percentage of impervious surface area, combined with limited stream buffers, has had direct impacts to the water quality within the watershed.

In 1998, ADEM placed a 10.9-mile segment of Shoal Creek on Alabama's Section 303(d) list of impaired waters due to OE/DO and pathogens due to agriculture and urban runoff/storm sewers. The impaired segment extends from its headwaters to the confluence with Flint Creek. In September 2003, a final TMDL was approved for each pollutant under the larger Flint Creek watershed TMDL.

The Shoal Creek Watershed Management Plan (Revised 2021) will be used as a guide in the restoration efforts in the Shoal Creek Phase II Project, and it will be used to implement a systematic, partnership-based approach to advance conservation efforts in the watershed. The plan identified several critical areas for bank stabilization and stream enhancement.

Therefore, Phase II of the Shoal Creek Watershed Implementation Project will concentrate restoration efforts in the highly urbanized areas of Shoal Creek in the City of Hartselle as acknowledged in the watershed plan. This project will work to restore and enhance natural stream buffers, create floodplain connections, produce a robust vegetative community, and promote education on nutrient management.

With the success of the Shoal Creek Watershed Management Plan Implementation Project (FY2014), the City of Hartselle Parks and Recreation in partnership with ADEM continues to take steps towards Phase II with special emphasis on Sparkman Park and the UT to Shoal Creek that bisects the park. NPS Unit staff continue to coordinate onsite meetings and project reconnaissance to move forward with BMP assessment and feasibility for the project corridor. Adjustments have also been made for transferring the contract from the previous Morgan County SWCD to the City of Hartselle Parks and Recreation Department.



Figure 48. UT to Shoal at Sparkman Park adjacent to the baseball fields

Alabama Coastal Nonpoint Pollution Control Program

The State of Alabama continues to develop its Coastal Zone Management Program under the Coastal Zone Management Act (CZMA) of 1972. 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- Section 6217). The CWA Section 319(h) funds 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 the ACNPCP with the Alabama NPS Management Program. This CNPCP is being developed and implemented regionally within the federally defined ACNPCP Management Area, which encompasses eight 8-digit HUCs that occur within the geo-political boundaries of both Baldwin and Mobile Counties located in southwestern Alabama.

The CWA Section 319(h) program funds are obligated in the coastal area to address priorities of the ACNPCP, assist stakeholders in identifying specific coastal 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 CWA Section 319(h) program funds advances the goal towards full approval of the ACNPCP under CZARA- Section 6217 by:

- Identifying specific categorical NPS stressor locations including Geographic Information System (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 technical assistance.
- Partnering to improve project accountability, tracking and reporting results (including success stories) to demonstrate project progress and success.

During this past year, Alabama’s CNPCP has continued to serve as one of the national Co-Chairs 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, and 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. During this reporting period, three national Work Group Meetings were conducted on April 27, 2021, June 22, 2021, and August 24, 2021. The ACNPCP participated in several related coastal NPS calls and coordination activities. The ADEM actively participates in this ongoing forum for all coastal states’ Nonpoint Source 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. The ACNPCP supported the former Coastal Alabama Clean Water Partnership, which has now been partially redeveloped as the Alabama’s Coastal Nonpoint Source Resources Matrix. The ACNPCP continues its support through the Alabama Coastal Nonpoint Source Resources Matrix. The matrix is a modular 40-member forum tasked with tackling challenging coastal NPS issues. The ACNPCP has also redeveloped the smaller regulatory-based ACNPCP Technical Advisory Committee to address nonpoint

source pollution management program needs and provide guidance for regulatory agency coordination issues. The ACNPCP also works closely with the ADEM NPS program to assist and support these coastal NPS efforts and issues. These various forums are utilized to enhance coordination and cooperation regarding coastal water quality resources management. The NOAA Office for Coastal Management (OCM), EPA, NRCS, USFWS, USACE, ADEM, 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 Resources and Ecosystems Sustainability, Tourist Opportunities, and Revived Economies of the Gulf Coast States (RESTORE) Act 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 local county and municipal entities, ADCNR, MBNEP, WBNERR, NRCS, USFWS, USACE-Mobile District, Mississippi-Alabama Sea Grant Consortium, Dolphin Island Sea Lab, Alabama Coastal Foundation, TNC, 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 EPA. 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. State and Federal representatives participated in Alabama's CNPCP teleconferences this year that were held on April 8, 2021, July 8, 2021, October 14, 2021, November 5, 2021, December 1, 2021, and December 3, 2021, in order to monitor the state's progress and coordinate approval issues with the State CNPCP.

The ANPCP activities coordinate closely throughout the State with CSO, the Gulf of Mexico Alliance 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 42 specific events during this past fiscal year and reporting period. These activities continue to provide support, technical advice, and technical coordination with ADCNR, ADEM, MBNEP, NRCS, USFWS, USACE-Mobile District, Mississippi-Alabama Sea Grant Consortium, TNC, and others, including cooperation with county and municipal entities to develop ACNPCP applicable projects and programs.

ACNPCP Technical Advisory Projects for Urban Area Management Measures

Category efforts during this period that focused on addressing urban area impacts and related issues have included ACNPCP's intensive involvement with MBNEP through participation with the Watershed Management Plan Steering Committee and Science Advisory and Project Implementation Committees.

The ACNPCP has continued providing technical assistance with developing NFWF funded watershed restoration and management planning efforts led by the MBNEP. This has involved steering committee participation for watershed management planning for Bayou La Batre River, Bon Secour River-Oyster Bay, Dauphin Island, D'Olive Creek, Dog River, Eight Mile Creek, Eastern Shore Complex (Yancey Branch, Rock Creek, Fly Creek, Point Clear, and Bailey Creek), Fowl River, Gulf Frontal-Perdido, Palmetto/Bridge Creek-Perdido, Western Shore Complex (Arlington/Dog River Peninsula, Delchamps Bayou), Mobile-Tensaw Complex, Mon Louis Island, Three Mile Creek, West Fowl River, Wolf Bay, and Week's Bay watersheds as needed. The ACNPCP has also been involved with other NFWF funded activities. Development of future

coastal sub-watershed management plans are being advanced through the MBNEP to address the new Western Mobile Bay Complex, the Tensaw-Appalachian River, and Coastal Mississippi watersheds in the near future.

The ACNPCP continues to provide technical assistance to guide on-the-ground implementation and restoration projects being developed for the *D'Olive Comprehensive Watershed Management Plan, Eight Mile Creek Watershed Management Plan, Three Mile Creek Watershed Management Plan, Dog River Watershed Management Plan*, including the newer *Fowl River Watershed Management Plan and Bayou La Batre Watershed Management Plan*. These efforts have advanced through intensive coordination with MBNEP, ADEM NPS Unit, ADEM Water Division, NRCS, and TNC. For additional information, see http://www.mobilebaynep.com/the_watersheds.

Development from the Weeks Bay-Fish River WMP spurred interest at the county level to fund a Baldwin County Watershed Coordinator to facilitate WMP project implementation. The position was approved for 2019 and housed in the Baldwin County SWCD office in Bay Minette, Alabama. ACNPCP has held several meetings with the Baldwin County SWCD Watershed Coordinator to provide technical assistance to support the further development and implementation of WMP projects that support ACNPCP and enhance coastal waters.

These and many other related events provide important education and outreach to promote use of best technologies and state-approved BMP practices that support these ACNPCP measures. Other ACNPCP projects included technical assistance as needed by providing presentations of coastal NPS concepts to the public and partner agencies.

Development of ACNPCP Category Submissions

To further coastal watershed protection, ACNPCP has continued providing technical assistance with developing NFWF funded watershed restoration and WMP efforts led by the Mobile Bay NEP. Other projects under development during this year include continued coordination with ACNPCP for the implementation of the NRCS Gulf of Mexico Initiative (GOMI) restoration implementation projects for Baldwin County, Alabama, which have been developed and augmented to address targeted key sub-watersheds (e.g. Fish River HUCs) in coastal Alabama. The ACNPCP provides technical assistance and project review for the Gulf Coast Conservation Reserve Program, which prioritizes the focus on conservation practices being implemented this year in Baldwin and Mobile Counties. In addition, ACNPCP has participated in the development and presentation of the new set of NFWF-funded, NRCS conservation workshops that supports various coastal environmental and conservation programs, including ACNPCP.

Marinas category implementation and coordination has continued to support the joint Alabama-Mississippi (MS-AL) Clean Marina Program that is being updated through MS-AL Sea Grant programs into the Alabama Clean and Resilient Marinas Program. The ACNPCP staff have continued to participate in the formation of the new Alabama Clean & Resilient Marina Advisory Committee. Recent communications and activities have supported Sea Grant's activities to implement this updated program. This program seeks to encourage new applicant marinas, anticipating new certifications into Alabama's Clean and Resilient Marina program in the near future (<http://masgc.org/clean-marina-program/about>).

The ACNPCP also provides important technical assistance to contractors and program managers for ongoing Deep Water Horizon/RESTORE-related project proposals and environmental projects that apply to various categories.

Efforts in 2021 to Achieve 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 <u>State Water Quality Standards</u> 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)
<p>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 <u>state water quality standards and water use classifications</u>.</p> <p>Timeline: Annual</p>	<p>Thirty-seven main stem river and reservoir stations in the Black Warrior, Southeast Alabama, and Elk/Wheeler portions of the Tennessee basins were intensively monitored in FY2021. Fifty-five locations on flowing streams and rivers were sampled as part of the FY2021 RMSP.</p>	<p>FY21 Section 319 Program Workplan Project 2 (Statewide Surface Water Quality Monitoring of Priority Wadeable Streams and Rivers).</p> <p>FY21 Section 319 Program Workplan Project 3 (Surface Water Quality Assessment of Rivers, Reservoirs and Tributary Embayments on a Statewide Rotation).</p>	<p>I. Water Quality Improvements from NPS Controls:</p> <p>a: ...WQ standards attainment</p> <p>b: ...impairments and threats</p> <p>c: ...N, P, and sediment loadings</p> <p>d: ...303(d) delisting</p> <p>e: ...leveraged funds/resources</p> <p>f: ...USDA-NWQI priorities</p> <p>h: ...CZARA 6217/Coastal NPS</p> <p>i: ...lakes/reservoirs/shorelines</p> <p>j: ...marine, coastal, wetlands</p>
<p>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)/<u>Integrated Water Quality Monitoring and Assessment Report (IR)</u>.</p> <p>Timeline: Biennial CWA Section 305(b) Report; 303(d) List</p>	<p>Continuing. Current IR 4/1/2020.</p> <p>The 2020 Section 303(d) list of impaired waterways was approved by EPA as part of the Department's 305(b) report submitted on April 1, 2020.</p>	<p>FY21 Section 319 Program Workplan Projects 2 and 3.</p>	<p>l:drinking water sources</p> <p>m: ...fish/shellfish advisories</p> <p>II. Interim Water Quality Protection and Restoration</p> <p>a: ...results of installed BMPs</p> <p>b: ...success story documentation</p>
<p>Short-term Objective 1.2: Continue to collect or assess WQ data from a priority <u>CWA Section 303(d)</u> listed <u>HUC-</u></p>	<p>WQ data continued to support the</p>	<p>FY18 Section 319 Watershed Implementation Projects 9, 14, 15, 16;</p>	<p>c. ... watershed plan progress</p>

<p><u>12 subwatershed</u> to support the development or implementation of a watershed-based management plan that incorporates Section 319 grant guideline <u>nine-key watershed-based plan elements</u>.</p> <p>Timeline: Annual</p>	<p>development or updating of requisite watershed-based plans to apply for Section 319 funding. Four locations were monitored to develop a pathogen TMDL. Three locations were sampled in support of drafting a sediment TMDL. One location was monitored to document water quality conditions prior to the implementation of 319 watershed plans. An additional fifty-one locations were monitored to assess use support attainment and to identify waterbodies impaired by NPS pollution.</p>	<p>FY17 Section 319 Watershed Implementation Projects 6, 12, 14.</p> <p>Contracts were executed in FY21 to initiate Section 319 funded projects.</p> <p>FY17 Program-based Projects: 5a – The D’Olive Creek WMP Update 5c – Upper Wrights Creek WMP</p> <p>FY18 Watershed-based Projects: 9 – Browns Creek 14 – Ryan Creek 15 – Cross Creek 16 – Emuckfaw Creek 18 – D’Olive Creek Sub-Watershed Management Project at Stream Segments D9 and DACA1 Additional project contracts are pending.</p>	<p>d:...priority NPS/TMDL pollutant</p> <p>f: ...WQ trend data and tracking</p> <p>g: ...trophic data</p> <p>h: ...Coastal plan/implementation</p> <p>III. Protection of High Quality Waters</p> <p>a: ...ensure continued high quality</p> <p>b: ...threat prevention</p> <p>c: ...valid data collection process</p> <p>d: ...high quality water listing</p> <p>VI. NPS Education and Outreach</p> <p>c: ...enhance partnerships</p> <p>d: ...specific audiences targeted</p> <p>f: ...enhance data collection</p>
<p>Short-term Objective 1.3:</p> <p>Continue to collect or assess <u>Section 319 grant-funded watershed project</u> 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.).</p> <p>Timeline: Annual</p>	<p>Continuing</p>	<p>FY21 Section 319 Program Workplan Projects 1 (Admin.), 2, and 3.</p> <p>The 2020 Monitoring Strategy implements a coordinated, 3-year basin rotation for the Rivers and Streams Monitoring Program, Rivers and Reservoirs Monitoring Program, and Coastal Monitoring Program.</p>	<p>g:...TMDL/water-shed plan based</p>
<p>Short-term Objective 1.4:</p> <p>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 <u>Alabama Coastal Nonpoint Pollution Control Program</u> (including meeting and sustaining implementation of Interim Decision Document recommendations) relative to <u>Section 6217</u> of the Coastal Zone Act Reauthorization Amendments of 1990.</p>	<p>Continuing.</p>	<p>FY19 Section 319 Program Workplan Project 4 (Coastal NPS Program Approval).</p> <p>ADEM staff serves as the national Coastal States Organization - Coastal NPS Work Group Co-Chair for all conditionally-approved states seeking final EPA/NOAA program approval.</p> <p>The ADEM coastal NPS coordinator has continued to collect information towards gaining</p>	

<p>Timeline: Annual</p>		<p>program approval and also provides technical assistance for various RESTORE projects being developed and implemented through partnerships with various entities including ADCNR, MBNEP, WBNERR, NRCS, USFWS, USCOE-Mobile District, MS-AL Sea Grant, DISL, ACF, TNC, GSA, and local municipalities.</p>	
<p>Short-term Objective 1.5: Continue to partner with USDA-NRCS to monitor priority <u>National Water Quality Initiative</u> watersheds to help document pre- and post- conservation practice implementation effectiveness. Timeline: Annual</p>	<p>Continuing.</p>	<p>FY21 Section 319 Program Workplan Project 1 (Admin), 2 (Statewide Surface Water Quality Monitoring of Priority Wadeable Streams and Rivers). Monitoring will continue for the Scarham/Guntersville watershed. The NWQI designation was discussed during the State Technical Meeting on March 24, 2021, June 25, 2021, and September 21, 2021</p>	

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)
<p>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:</p> <ul style="list-style-type: none"> • CWA Section 319 • Alabama Water Pollution Control Act • Other relevant NPS pollution federal and state laws, rules, regulations, ordinances, or policies and guidelines. <p>Timeline: (Sustain, Replicate Annually)</p>	<p>Continuing.</p>	<p>FY21 Section 319 Program Workplan Project 1 (Admin); FY18 Section 319 Watershed Implementation Projects 9, 14, 15, 16. FY17 Section 319 Program Projects Wrights Creek WMP and D'Olive Creek WMP Update 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 FY21 to plan and coordinate FY22 and FY23 monitoring needs in order to assess NPS issues and to track watershed project progress and successes. ADEM, Alabama Department of Public Health, ADCNR, 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.</p>	<p>I. Water Quality Improvements from NPS Controls: g: ... riparian areas/filter buffers h: ...CZARA 6217 implementation i: ...lakes/reservoirs/s horelines 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</p> <p>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</p>
<p>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</p>	<p>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.</p>	<p>ADEM partnered with the MBNEP to develop watershed management plans that are being funded through RESTORE and NFWF grant dollars. Several of the waterbodies are not in impaired areas and will not require a CWA Section 319(h) implementation commitment. However, ADEM has sat on committees and provided technical assistance where possible and asked for any watershed management plan. Components of watershed plans are continually being implemented</p>	<p>III: Protection of High Quality Waters</p>

		through local municipalities, NRCS, public and private fund leveraging.	a:... protection against treats b:...regulations/criteria/ programs c:...science-based data d: ...verification and listings
<p>Short-term Objective 2.2:</p> <p>Continue to leverage public and private sector resources to implement NPS BMPs to restore impaired Section 303(d) listed waters per a TMDL or to protect high quality waters identified in Section 305(b) Integrated Reports.</p> <p>Timeline: Annual</p>	<p>No Section 319 funds primarily target watershed “protection” of high quality waters (Tier 3), but continues to focus on “restoration” of NPS-impaired waters (Section 303(d) listed or TMDLs).</p>	<p>FY21 Section 319 Program Workplan Project 1 (Admin.);</p> <p>FY18 Section 319 Watershed Implementation Projects 9, 14, 15, 16;</p> <p>FY17 Section 319 Watershed Implementation Projects 6, 12, 14.</p> <p>ADEM collaborated with multiple agencies to provide WQ monitoring data for the EPA/MBNEP science advisory, government networks, and project implementation committees to help prevent future threats to WQ.</p> <p>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.</p>	<p>IV. NPS Pollutant Load Reductions</p> <p>a: ...Section 303(d)/TMDLs</p> <p>b: ...N, P, and sediment</p> <p>c: ...BMPs target critical areas</p> <p>d: ...meet water quality standards</p> <p>e: ...lakes and reservoirs</p> <p>f: ...pollution prevention</p> <p>g: ...major river basins</p>
<p>Short-term Objective 2.3:</p> <p>Continue to leverage Section 319 grant resources to achieve priority NPS (i.e., nitrogen, phosphorus, and sediment) and TMDL pollutant of concern load reductions.</p> <p>Timeline: Annual</p>	<p>Continuing.</p>	<p>FY21 Section 319 Program Workplan Project 1 (Admin);</p> <p>FY18 Section 319 Projects 9, 14, 15, 16;</p> <p>FY17 Section 319 Watershed Implementation Projects 6, 12, 14.</p> <p>All CWA Section 319(h) funded watershed-based projects target priority NPS components of TMDLs (when completed).</p> <p>N, P, and Sediment pollutant load reductions are reported in GRTS prior to Feb and Oct, annually.</p>	
<p>Short-term Objective 2.4:</p> <p>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.</p> <p>Timeline: Annual</p>	<p>Continuing.</p>	<p>FY21 Section 319 Program Workplan Project 1 (Admin.).</p> <p>*Examples of technology transfer/education and outreach activities conducted with partners to target impaired waterbodies include:</p> <ul style="list-style-type: none"> • Groundwater Festivals in Valley and Alex City, AL • AL Soil & Water Conservation Committee • Alabama Watershed Stewards 	

		<ul style="list-style-type: none"> • Alabama Watershed Stewards Workshops about Watersheds, Five-Day Litter Challenge, Bioretention, and Rain Gardens. • Pensacola and Perdido Bays Estuary Program Technical Advisory Committee Meetings and Workshops on Water Quality, Sediment, Habitat, and Fish/Wildlife • Choctawhatchee Bay Estuary Program Technical Advisory Committee and Co-Chair • MBNEP’s Project Implementation Committee and Government Networks Committee • Lion’s Club Presentation about Projects for Stewardship • Beta Testing for STEPL Web-based Application • Watershed Management Planning in Moores Mill Creek, Still Creek, and Wrights Creek Watersheds with Local Entities • 2021 Coastal River Basins NPS Conference • 2021 NPS Cooperators Conference • 2021 Envirothon Aquatics Section and Competition Judging • CES Career Day Presentation • NRCS State Technical Committee meetings • Tennessee River Basin Annual Meeting • Alabama Water Resources Conference • Clear Water Alabama • Nature Day Camp 	
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		<ul style="list-style-type: none"> • BMP Manuals distribution (as requested) • Several meetings and presentations for watershed stakeholders targeting specific impaired streams • FY18 Section 319 Projects 9, 14, 15, 16 • FY 17 Section 319 Watershed Implementation Projects 6, 12, 14 • All Section 319 funded watershed-based projects targeted “manageable” HUC-12 scale watersheds to best ensure improved WQ and project implementation success. 	
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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)
<p>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.</p> <p>Timeline: (Replicate Successes per five-year Programmatic Update Iterations)</p>	Continuing.	<p>FY21 Section 319 Program Workplan Project 1 (Admin.; FY18 Section 319 Projects 9, 14, 15, 16; FY17 Section 319 Watershed Implementation Projects 6, 12, 14.</p> <p>Conducted 2021 Alabama NPS Cooperators Training Meeting and Alabama NPS Program Coastal River Basin Meeting.</p> <p>Worked closely with basin partners to assist in meeting program and project goals.</p> <p>Staff attended and/or presented at several basin and watershed meetings.</p>	<p>I. Water Quality Improvements from NPS Controls</p> <p>g: ... riparian areas/filter buffers</p> <p>h: ...CZARA 6217 implementation</p> <p>i: ...lakes/reservoirs/shorelines</p> <p>j: ...marine, estuaries, wetlands</p> <p>k:...beaches/human contact</p>
<p>Short-term Objective 3.1: Implement BMPs in at least one HUC-12 subwatershed, exclusive of Section 319 grant funding, to restore water</p>	Continuing.	NRCS targeted BMPs in the Guntersville Lake – Scarham Creek (HUC 06030001080) Watersheds as part of the NWQI	<p>l: ...groundwater, drinking water</p>

<p>quality and watershed productivity and resilience.</p> <p>Timeline: Annual</p>		<p>NRCS targets GOMI funds in the NPS impaired Weeks Bay (Upper/Middle/Lower Fish River Watersheds).</p>	<p>m: ... fish/shellfish advisories</p> <p>n: ...threats to shellfish beds</p>
<p>Short-term Objective 3.2:</p> <p>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.</p> <p>Timeline: Annual</p>	<p>Continuing.</p> <p>No specific wetland or estuarine restoration projects were funded by Section 319 in FY2018.</p>	<p>FY18 Section 319 Watershed Implementation Projects 9, 14, 15, 16; FY17 Section 319 Watershed Implementation Projects 6, 12, 14.</p> <p>The Deepwater Horizon (BP) Oil Spill Liability Trust Fund continues to target restoration of natural resources along the coast.</p> <p>Section 319 funded watershed-based projects employ a suite of BMPs to mitigate NPS runoff to impaired streams, river, and lakes.</p> <p>ADEM works with GOMA to address coastal water issues on a multistate/regional basis.</p>	<p>o: ...LID/green infrastructure</p> <p>II: Interim Water Quality and Protection and Restoration</p> <p>g: ...Riparian areas/filter buffers</p> <p>IV. NPS Pollutant Load Reductions</p> <p>a: ...Section 303(d)/TMDLs</p> <p>b: ...N, P, and sediment</p> <p>c: ...BMPs target critical areas</p> <p>d: ...meet water quality standards</p> <p>e: ...lakes and reservoirs</p> <p>f: ...pollution prevention</p> <p>g: ...major river basins</p> <p>V. Implementation of NPS Controls</p> <p>a: ...project planning</p> <p>b: inclusive partnerships</p> <p>c: ...statewide and coastal</p> <p>d: ...local funds/capacity</p> <p>e: ...priority impaired areas</p> <p>f: ...USDA Farm Bill/NWQI</p> <p>g: ...Coastal Program approval</p> <p>h: ...National Estuary Program</p>

			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
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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 <small>(Derived from Table 8.8 of the 2014 AL NPS Management Program)</small>
<p>Long-term Objective 4: Continue to enhance programmatic efficiency and effectiveness by updating programmatic Goals and Objectives by September 30, 2019. Timeline: (Replicate every five years.)</p>	<p>The updated AL NPS Management Program was received by EPA and acknowledged in the June 12, 2020, satisfactory progress determination.</p>	<p>Completed. Staff continues to discuss and document revisions needed to the AL NPS Management Program.</p>	<p>I. Water Quality Improvements from NPS Controls: e: ...leverage Section 106 and other WQ resources f: ...leverage NWQI resources h: ...coordinate CZARA 6217</p>
<p>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</p>	<p>Continuing.</p>	<p>FY21 Section 319 Project 1. All required Section 319 grant and project data is entered into GRTS in October and February, annually. ADEM NPS staff provided technical assistance and program transparency to existing and potential project cooperators and partners during the cooperators meeting and targeted basin meeting. ADEM NPS staff develop and update dedicated Section 319 grant and project specific tracking systems to help ensure</p>	<p>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</p>

		accountability and provide timely information.	n: ...resource integration and leveraging
<p>Short-term Objective 4.2:</p> <p>Continue to track the diversity of watershed planning and implementation partnerships. (e.g., agency, university, advisory, others).</p> <p>Timeline: Annual</p>	Continuing.	<p>ADEM (Project 1) partners with the basin partnership groups to identify, sustain, and support many and varied NPS partners, interest, and input.</p> <p>ADEM submitted FY2022 Section 319(h) workplans to EPA Region 4 that incorporate a myriad of NPS partners and mitigation resources (<i>submitted on 9/28/2021</i>).</p> <p>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.</p> <p>ADEM NPS watershed planning and implementation efforts in Alabama were strengthened through the partnership with Auburn University with the further development and implementation of the Alabama Watershed Stewards program in watersheds throughout the State.</p>	<p>p: ...local solutions to local problems using local resources</p> <p>q:.. .fiscally responsible</p> <p>VI. NPS Education and Outreach</p> <p>a: ...targets watershed and WQ</p> <p>b: ...increase awareness and knowledge</p> <p>c:...partnerships</p> <p>d:...specific and target audiences</p> <p>e: ...pollution prevention</p> <p>f: ...enhance data monitoring</p> <p>g: ...TMDLs, watershed based plan, public health and safety</p>
<p>Short-term Objective 4.3:</p> <p>Continue to track successful completion of planned NPS water quality restoration outcomes (e.g., materials developed, reports generated, practices implemented, conferences/meetings facilitated or attended, etc.).</p> <p>Timeline: Annual</p>	Continuing.	<p>FY21 Section 319 Program Workplan Project 1.</p> <p>Specific Section 319 project outputs are presented in interim and closeout reports. Final reports are submitted to EPA Region 4 at grant closeout.</p>	
<p>Short-term Objective 4.4:</p> <p>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.</p> <p>Timeline: Annual</p>	Continuing.	FY21 Section 319 Project 1.	

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)
<p>Long-term Objective 5:</p> <p>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).</p> <p>Timeline: (Replicate Processes Every five years)</p>	Continuing.	The Alabama Coastal Nonpoint Pollution Control Program continues to utilize partnerships with federal, state, and local organizations to educate individuals about NPS education and coastal watershed health. ACNPCCP has been coordinating with its partners to address the remaining OSDS recommendations as well as develop submissions for the remaining urban categories.	<p>V. Implementation of NPS Controls</p> <p>a: ...project planning</p> <p>b:...inclusive partnerships</p> <p>c: ...statewide and coastal</p> <p>d: ...local funds/capacity</p> <p>VI. NPS Education and Outreach</p>
<p>Short-term Objective 5.1:</p> <p>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).</p> <p>Timeline: Annual</p>	Continuing.	FY21 Section 319 Program Workplan Project 1.	<p>a: ...targets watershed and WQ</p> <p>b:... increase awareness and knowledge</p> <p>c:...Partnerships</p> <p>d:...Specific and target audiences</p>
<p>Short-term Objective 5.2:</p> <p>Continue to leverage public and private sector resources to develop and deliver E&O presentations, models, documents, and technologies.</p> <p>Timeline: Annual</p>	Continuing.	FY21 Section 319 Program Workplan Project 1.	<p>e: ...pollution prevention</p> <p>f: ...enhance data monitoring</p> <p>g: ...TMDLs, watershed based plan, public health and safety</p>
<p>Short-term Objective 5.3:</p> <p>Continue to deliver E&O activities that target specific Section 319 and TMDL priority pollutants in at least one NPS impaired HUC-12 subwatershed.</p> <p>Timeline: Annual</p>	Continuing.	<p>FY21 Section 319 Program Workplan Project 1.</p> <p>FY18 Section 319 Watershed Implementation Projects 9, 14, 15, 16.</p> <p>FY17 Section 319 Watershed Implementation Projects 6, 12, 14.</p>	
<p>Short-term Objective 5.4:</p> <p>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”).</p> <p>Timeline: Annual</p>	Continuing.	FY21 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 2021	
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., <u>Category 5/ Section 303(d) listed Impaired Waters</u>):	1	Dry Creek / 03160111-0203	Multiple water quality standards were attained for Dry Creek. ADEM removed the segment from the CWA section 303(d) list in 2016.
Number of WQ-10 Waterbodies Fully/Partially Restored or Meets State Water Quality Standards or Designated Uses:	1	Dry Creek / 03160111-0203	Dry Creek Watershed was addressed with CWA Section 319 funding in cooperation with other leveraged funding opportunities. After multiple restoration projects the waterbody no longer is impaired for nutrients and OE/DO.
Number of WQ-10 NPS/Section 319 Success Stories Developed as a Result of Full/Partial Restoration:	1	Dry Creek / 03160111-0203	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	Dry Creek / 03160111-0203	A Dry Creek WQ-10(a) Success Story Update was inserted in GRTS on June 25, 2020, and submitted to EPA R-4 on June 28, 2021.
Number of WQ-10 NPS/Section 319 Success Stories Submitted to EPA Region 4 as a Result of Full/Partial Restoration:	1	Dry Creek / 03160111-0203	The Department submitted a draft for EPA R-4 to review on June 28, 2021.
Number of WQ-10 NPS/Section 319 Success Stories Listed by EPA-HQ as Result of Full/Partial Restoration:	1	Dry Creek / 03160111-0203	EPA finalized the Dry Creek success story update on October 25, 2021.
b) Number of Waterbodies identified in AL's 2002 IR as not attaining water quality (WQ) standards where state water quality standards are now partially attained using a watershed-based approach (SP-12): (Goal is minimum 1/year): (i.e., <u>Category 5/ Section 303(d) listed Impaired Waters</u>):	0		
Number of Waterbodies Where the Watershed Approach Was Used to Target or Restore Impairments to Water Quality:	0		
Number of SP-12 NPS/Section 319 Success Stories Developed to Proclaim WQ Standards are Partially Restored:	0		

Number of SP-12 NPS/Section 319 Success Stories That Are Being Developed to Proclaim WQ Standards are Partially Restored:	0		
Number of SP-12 NPS/Section 319 Success Stories Submitted to EPA Region 4 as a Result of WQ Standards Now Being Partially Restored:	0		
Number of SP-12 NPS/Section 319 Success Stories Listed by EPA-HQ as Result of WQ Standards Being Partially Restored:	0		

(2) NPS Pollutant Load Reductions		Year 2021	
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):		467,439 lbs/year	Cumulative "N" for all ongoing Section 319 grants (2016- 2021). 2016-2021 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"):		36	
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):		128,291 lbs/year	Cumulative "P" Total for all "open" Section 319 grants (FY2016- 2021) reported in GRTS. 2016- 2021 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"):		36	
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):		74,800 tons/year	Cumulative "S" Total for all "open" Section 319 grants (FY2016- 2021) reported in GRTS. 2016- 2021 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"):		35	
Load Reductions Entered in GRTS by Feb 15		Yes	
d) Number of Impaired Waterbodies/Segments Where "Other" NPS Pollutant Load Reductions are Achieved (#):		5	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 2021
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	<p>Nine-key element watershed-based plans drafted or final plans developed during FY2021 include:</p> <ul style="list-style-type: none"> • Shoal Creek Phase II • Feagin Creek • Update to D'Olive Creek • Western Shore • Gulf Frontal • Fly Creek • Eastaboga Creek • Baldwin Slough • Cahaba Valley Creek • Upper Wrights Creek <p>Nine-key element Watershed-based Plans beginning implementation during FY2021 include:</p> <ul style="list-style-type: none"> • D'Olive Creek Sub-Watershed Management Project at Stream Segments D9 and DACA1 <p>Collaboration and coordination continues to ensure early and sustained buy-in from many and varied resource agencies, landowners, and other entities.</p> <p>All mandated data elements entered into GRTS prior to February 28, 2021, and October 1, 2021.</p>
At least two (2) EPA nine-key Element Watershed-based Plans are Drafted or Final Plans Developed Annually:	7	
At least two (2) EPA nine-key Element Watershed-based Plans Begin Implementation Annually:	3	
Appropriate Stakeholders Were Involved in Watershed Planning and Implementation Processes:	Yes	
All current mandated project data elements are entered into GRTS with no exceptions associated with the previous year Section 319 grant award noted by Region 4 or EPA HQ remaining unresolved:	Yes	
Progress schedules reasonably ensure completion within the grant funding periods:	Yes	

(4) Program Management and Accountability		Year 2021
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	<p>The 2021 Section 319 Request for Proposals notice as well as the Inter-governmental Clearinghouse Review was executed.</p> <p>Watershed Implementation Projects were selected for FY21 funding.</p> <p>The ADEM NPS Unit uses/refines dedicated Section 319 grant/project tracking databases as well as coordinates invoice payments with the Fiscal Office.</p>
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	All mandated data elements are entered into GRTS as grant and project-specific information is acquired by ADEM staff.
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	<p>The ADEM NPS staff participated/attended the following training and education workshops/conferences:</p> <ul style="list-style-type: none"> • AL Environmental Youth Council Webinar October 28, 2020 • Rewilding Stream and Floodplains to Enhance Ecosystem Services January 21, 2021 • Litter Clean Up Challenge February 15-19, 2021 • CES Career Week Presentation March 18, 2021 • How to Design and Install Your Own Rain Garden Workshop March 12-13, 2021 • Bioretention Design Workshop March 15-17, 2021 • NRCS State Technical Committee Meeting March 24, 2021, June 25, 2021, and September 21, 2021 • Alabama Watershed Stewards Community Zoom April 9, 2021 • Costal River Basins Conference April 29, 2021 • Alex City Water Festival May 11, 2021 • IECA MS4 Conference June 7-9, 2021 • ADEM NPS Cooperator’s Conference June 16, 2021 • Tennessee River Basin Annual Meeting August 10-11, 2021 • Alabama Water Resources Conference September 8-10, 2021 • Clear Water Alabama September 15-16, 2021 • Aquatic Plant Identification Workshop October 8, 2021 • Urban Darter Program October 15, 2021 <p>Data continues to be QA’d and entered into ADEM-specific and national /EPA reporting databases.</p> <p>NRCS targeted BMPs in the Guntersville Lake – Scarham Creek (HUC 06030001080) Watersheds as part of the National Water Quality Initiative.</p> <p>This Watershed has been monitored by ADEM, as needed, as an NWQI priority.</p>

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 2016 – PPG BG96464616					
Planning Administration/Management	100%	\$ 786,252	\$ 524,168	09/30/2016	ADEM match to be provided per PPG
Statewide Surface Water Quality Monitoring of Priority Wadeable Streams and Rivers	100%	\$ 357,579	\$ 238,386	09/30/2021	ADEM match to be provided per PPG
Surface Water Quality Assessment of Rivers, Reservoirs and Tributary Embayments on a Statewide Rotation	100%	\$ 181,419	\$ 120,946	09/30/2021	ADEM match to be provided per PPG
Coastal NPS Program Approval (Septage Category IV)	100%	\$ 100,000	\$ 97,440	09/30/2021	
Statewide Implementation of Watershed Stewards Program	100%	\$99,750	\$68,433	08/30/2021	Project overmatched by \$1,933.
D'Olive Creek Sub-Watershed Management Project at Stream Segments DAF-1 and DAF-1A	100%	\$ 197,956	\$131,971	03/30/2020	Project overmatched by \$171,096.
Moore's Creek Watershed Management Project- Phase II	100%	\$ 295,953	\$ 177,780	05/07/2020	Project overmatched by \$2,558.
Upper and Lower Flint River Watersheds Implementation Project	100%	\$ 143,543	\$ 97,050	11/09/2018	Madison County SWCD returned \$104,457 in federal funds. The funds were reallocated to Tiawasee Creek Sub-watershed Management and Restoration Project.
Shoal and Swan Creek Watershed Restoration Project	100%	\$ 125,940	\$ 84,405	11/10/2019	Project overmatched by \$445. Limestone County SWCD returned \$234,060 in federal funds. The funds were reallocated for funding in the Swan-French Mill Creek Project.
West Flint Creek Watershed Project-Phase III	100%	\$ 269,693	\$ 223,242	01/21/2020	Project overmatched by \$23,242. Lawrence County SWCD returned \$30,307 in federal funds. The funds were reallocated for funding in the Tiawasee Creek Sub-watershed Management and Restoration Project.

Bioinfiltration Swale Implementation on USA Campus Meisler Commons in the Upper Three Mile Creek Watershed	100%	\$ 33,774	\$ 22,973	12/01/2018	Federal funds in the amount of \$12,267 were returned by University of South Alabama and were reallocated to Tiawasee Creek Sub-watershed Management and Restoration Project
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	100%	\$ 77,050	\$ 53,670	09/28/2017	Project overmatched by \$2,304.
Swan-French Mill Creek Watershed Restoration Project	100%	\$36,457	\$30,975	02/12/2020	LCSWCD returned \$76,543.03 in federal funds. The funds were reallocated for funding in the Tiawasee Creek Sub-watershed Management and Restoration Project.
Tiawasee Creek Sub-Watershed Management and Restoration Project	100%	\$344,634	\$229,756	09/30/2020	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 – PPG BG96464617					
Planning Administration/Management	100%	\$ 766,742	\$ 511,161	09/30/2017	ADEM match to be provided per PPG
Statewide Surface Water Quality Monitoring of Priority Wadeable Streams and Rivers	100%	\$ 338,380	\$ 225,587	09/30/2021	ADEM match to be provided per PPG
Surface Water Quality Assessment of Rivers, Reservoirs and Tributary Embayments on a Statewide Rotation	100%	\$ 176,776	\$117,851	09/30/2021	ADEM match to be provided per PPG
Coastal NPS Program Approval (Septage Category V)	0%	\$ 100,000	\$ 66,667	09/30/2022	Contact the Coastal NPS Pollution Control program for details.
Watershed Management Plans, Public Stakeholder Involvement, Education & Outreach	0%	\$ 169,265	\$ 112,843	09/30/2022	Pending Redevelopment of Workplan.
Update to the D'Olive Creek Watershed Management Plan	100%	\$ 41,137	\$ 27,425	07/31/2021	Project is overmatched by \$2,619.
Moore's Mill Watershed Management Plan Update	0%	\$35,000	\$23,333	09/30/2022	

Upper Wrights Creek Watershed Management Plan	0%	\$10,393	\$6,929	06/03/2022	
Tiawasee Creek Sub-Watershed Management and Restoration Project	100%	\$198,295	\$ 132,197	07/31/2021	This is a multiple fiscal year workplan.
Parking Lot Bioswale Implementations on USA Campus in the Upper Three Mile Creek Watershed	100%	\$ 74,853	\$ 91,853	03/14/2020	Federal funds in the amount of \$77,486 were returned by University of South Alabama and are being reallocated to a different project.
Graves Creek Watershed Management Plan Implementation-Phase II	100%	\$ 250,250	\$ 166,833	04/26/2021	Federal funds in the amount of \$238,373 were returned by Blount Count SWCD and are being reallocated to a different project. Project overmatched \$5,842.
Crowdabout Creek Phase III Implementation Project	100%	\$ 160,300	\$ 206,594	11/06/2019	Project overmatched \$27,103.
D'Olive Creek Sub-Watershed Management Project at Stream Segments DAF-1 and DAF-1A	100%	\$ 195,858	\$ 301,668	03/30/2020	This was a multiple fiscal year workplan. Project overmatched \$171,096.
Parkerson Mill Creek Watershed Management Plan Implementation Low Impact Development BMPs	63%	\$ 158,629	\$ 105,753	7/31/2022	
Moore's Creek Watershed Management Project-Phase II	100%	\$ 66,996	\$96,515	5/07/2020	This is a multiple fiscal year workplan. Project overmatched \$51,851.
Tiawasee Creek Watershed Implementation Project	44%	\$312,805	\$208,537	1/31/2022	Contracted. This is a multiple fiscal year workplan.
Mill Creek Watershed Management Project - Phase III	Cancelled	\$ -	\$ -	09/30/2022	This stream was delisted. Phase III will not occur.
Scarham Creek Watershed Project	Cancelled	\$-	\$-	09/30/2022	Delayed project to another fiscal year due to local SWCD request.
Headwaters Ryan Creek Watershed Management Plan Implementation	Cancelled	\$ -	\$ -	09/30/2022	Submitted to EPA but not contracted. Submitted to EPA in FY19, but contracted under FY18 funding due to available funding.
Fiscal Year 2018 - BG96464618					
Planning Administration/Management	100%	\$ 837,566	\$ 558,337	09/30/2022	ADEM match to be provided per PPG
Statewide Surface Water Quality Monitoring of Priority Wadeable Streams and Rivers	99%	\$ 339,392	\$ 230,000	09/30/2022	ADEM match to be provided per PPG
Surface Water Quality Assessment of Rivers, Reservoirs and Tributary	85%	\$ 173,932	\$ 115,171	09/30/2022	ADEM match to be provided per PPG

Embayments on a Statewide Rotation					
Coastal NPS Program Approval	0%	\$ 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	100%	\$ 200,700	\$ 133,800	08/23/2021	Federal funds in the amount of \$136,657 were returned by Marshall Co. SWCD and are being reallocated to a different project.
Ryan Creek Watershed Implementation Project	12%	\$222,231	\$111,351	3/06/2022	Contracted Originally submitted as a FY19 project.
Cross Creek Watershed Implementation Project	100%	\$225,747	\$148,154	08/23/2021	Contracted Not submitted with original EPA Package. Project modification from Scarham Creek. Federal funds in the amount of \$215,211 were returned by DeKalb County SWCD and are being reallocated to a different project. Project overmatched \$7,024.
Pathogen Reductions to Emuckfaw Creek: A Watershed Restoration Project	5%	\$ 166,972	\$ 150,498	1/15/2022	Contracted. Not submitted with original EPA Package. Fill in project.
Roebuck Municipal Golf Course Stream Restoration and Demonstration Project	0%	\$379,545	\$252,030	09/30/2022	Workplan being finalized. Originally submitted as a FY19 project.
Dry Creek-Cahaba River Watershed Restoration Project	0%	\$ -	\$ -	09/30/2022	Submitted to EPA but not contracted. Local SWCD 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 – PPG BG96464619					
Planning Administration/Management	100%	\$ 862,394	\$ 574,929	09/30/2023	ADEM match to be provided per PPG

Statewide Surface Water Quality Monitoring of Priority Wadeable Streams and Rivers	98%	\$ 333,187	\$ 222,125	09/30/2023	ADEM match to be provided per PPG
Surface Water Quality Assessment of Rivers, Reservoirs and Tributary Embayments on a Statewide Rotation	80%	\$ 177,419	\$ 118,279	09/30/2023	ADEM match to be provided per PPG
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	-	\$ -	\$ -	09/30/2023	Project moved to FY18
Ryan Creek Watershed Implementation Project	-	\$ -	\$ -	09/30/2023	Project moved to FY18
Fiscal Year 2020 – PPG BG96464620					
Planning Administration/Management	100%	\$883,290	\$568,527	09/30/2024	ADEM match to be provided per PPG
Statewide Surface Water Quality Monitoring of Priority Wadeable Streams and Rivers	90%	\$330,441	\$220,294	09/30/2024	ADEM match to be provided per PPG
Surface Water Quality Assessment of Rivers, Reservoirs and Tributary Embayments on a Statewide Rotation	55%	\$185,676	\$123,784	09/30/2024	ADEM match to be provided per PPG
Coastal NPS Program Approval	0%	\$100,000	\$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	**

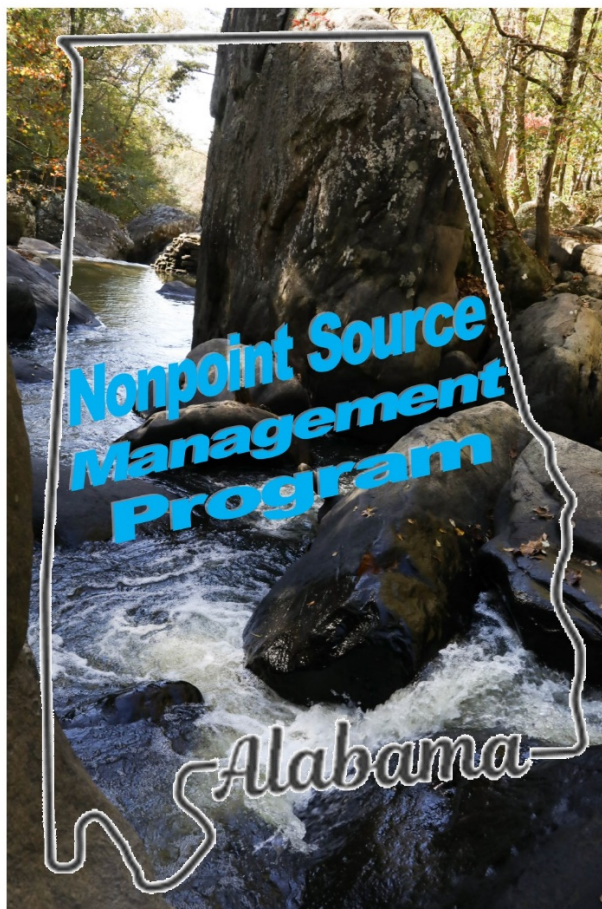
Upper Three Mile Creek Watershed Implementation Project-Phase III	0%	\$77,906	\$51,937	09/30/2024	**
Fiscal Year 2021 – PPG BG96464621					
Planning Administration/Management	100%	\$880,472	\$586,981	09/30/2025	ADEM match to be provided per PPG
Statewide Surface Water Quality Monitoring of Priority Wadeable Streams and Rivers	64%	\$317,386	\$211,591	09/30/2025	ADEM match to be provided per PPG
Surface Water Quality Assessment of Rivers, Reservoirs and Tributary Embayments on a Statewide Rotation	44%	\$186,698	\$124,465	09/30/2025	ADEM match to be provided per PPG
Coastal NPS Program Approval	0%	\$100,000	\$66,667	09/30/2025	***
Watershed Management Plans, Public Stakeholder Involvement, Education & Outreach	0%	\$216,944	\$144,629	09/30/2025	***
Upper Three Mile Creek: Ephemeral Gully Restoration Project	0%	\$269,330	\$179,553	09/30/2025	***
Eastaboga Creek Watershed Implementation Project	0%	\$165,505	\$110,337	09/30/2025	***
Roebuck Municipal Golf Course Stream Restoration and Demonstration Project Phase II	0%	\$627,876	\$418,584	09/30/2025	***
Feagin Creek Watershed Implementation Project	0%	\$158,914	\$105,943	09/30/2025	***

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

**FY20 319 Application submitted to the EPA on 9/28/2019. Funding released 4/24/2020. Workplans are being updated based on available funds.

***FY21 319 Application submitted to the EPA on 9/28/2020. Funding release 5/27/2021. Workplans are being updated based on available funds.

The Alabama Nonpoint Source Management Program



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