



NONPOINT SOURCE PROGRAM ANNUAL REPORT FFY2021



GEORGIA
DEPARTMENT OF NATURAL RESOURCES

ENVIRONMENTAL PROTECTION DIVISION

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Cover Photo Credit: City of Brookhaven, FY17 319(h) Project - *Stream Restoration of North Fork Nancy Creek*

Dear Stakeholders:

On behalf of the Georgia Environmental Protection Division and state agency partners - the Georgia Forestry Commission, the Georgia Soil and Water Conservation Commission, and the Coastal Resources Division - we are proud to offer this annual report on the activities of Georgia's Nonpoint Source Program. Financial support from the U.S. Environmental Protection Agency (USEPA) through the Section 319(h) Nonpoint Source Implementation Grant helps our agencies work collaboratively to address the diverse nonpoint source pollution challenges in watersheds from the mountains to the coast.

Georgia's water resources continue to be impacted by changes in land use and ongoing economic development activities. *Georgia's Statewide Nonpoint Source Management Plan (Revised 2019)* is designed to help minimize these impacts and bring improvements through restoration activities. Our agencies remain committed to finding synergy within our programs to implement activities and reach our statewide goals outlined in the *Plan*. Working cooperatively is the best way to maximize financial and human resources to protect our rivers, lakes, shorelines, and streams.

Despite the global and local challenges brought by the COVID-19 pandemic, our state agency partners and grantees continued to advance clean water efforts throughout the state during Federal Fiscal Year 2021. We created new ways to deliver outreach programs, we worked collectively to install a wide variety of Best Management Practices (BMPs), and we saw improvements in water quality throughout the state. We look forward to working with both experienced and new partners as our work continues in the future.

Sincerely,

A handwritten signature in blue ink, appearing to read 'Veronica Craw', followed by a long, sweeping horizontal line.

Veronica Craw
Nonpoint Source Program Manager
Georgia Environmental Protection Division

Georgia's Nonpoint Source Program

Georgia's Nonpoint Source Program is guided by *Georgia's Statewide Nonpoint Source Management Plan (Revised 2019)*. Many partners work collaboratively to implement the *Plan*, and in FFY2021, the following organizations led efforts in their respective areas of expertise to reduce nonpoint source pollution and protect our rivers, lakes, and streams.

Silviculture

Georgia Forestry Commission

The Georgia Forestry Commission (GFC) encourages and monitors voluntary implementation of forestry Best Management Practices (BMPs) statewide and compiles a Silvicultural BMP Implementation and Compliance Survey every other year. The survey reports on progress towards Silviculture Long Term Goal 6 of the *Plan* to achieve a minimum of 90% compliance for all recommended silviculture BMPs through 2030. In FFY2021, the GFC recorded 226 forestry BMP Survey Inspections that will be included in the statewide 2021 BMP Survey to be completed at the end of calendar year 2021.

Preliminary numbers are similar to the 2019 BMP Survey, with a strong overall implementation score of approximately 92%. Further details will be provided in the final FY2021 BMP Survey analysis.



GFC conducted statewide BMP Assurance Monitoring of 53 separate active or recently active forestry operations in response to both complaints and requests. In addition, a total of 114 BMP Assurance Exams were completed, the results were documented, and the GFC advised and mediated any necessary corrections. The GFC also provided education, technical advice, training, and consultation on forestry BMPs. Due to the COVID-19 pandemic, the GFC conducted many workshops and trainings through web-based formats. Online presentations will continue to support the GFC's forestry water quality and BMP education programs as outreach activities transition back to more in-person events.

Training Highlights	Technical Assistance
37 in-person events where over 250 copies of BMP brochures distributed	31 unique complaints requiring a total of 79 complaint site visits/inspections
1 in-person Master Timber Harvester (MTH) workshop	22 unique/requests requiring a total of 35 request site visits/inspections
20 in-person Continuing Logger Education (CLE) and other BMP trainings	17 BMP Demonstrations for 65 participants
5,601 loggers, timber buyers, foresters, forestry contractors, and landowners attended online CLE and MTH trainings in partnership with the Sustainable Forestry Initiative Implementation Committee	145 primary specific forestry BMP Advice Visits
	253 Stewardship Plans on forest management, soil/water conservation, and forestry BMPs covering 72,711 acres
	26 GFC Firebreak BMP Inspections
	63 Logger Conferences

Agriculture

Georgia Soil & Water Conservation Commission

The mission of the Georgia Soil and Water Conservation Commission (GSWCC) is to reduce and prevent nonpoint source pollution from agricultural sources. During FFY2021, GAEPD initiated negotiations with GSWCC on a FFY2020 Section 319(h) grant to address the following goals and activities:



- Continue to develop and update Watershed Management Plans (WMPs) for streams impaired by nonpoint sources in areas with significant agriculture land use
- Initiate the revision and update of the Best Management Practices for Georgia Agriculture manual, including a sector-specific update to Cow/Calf operations and Poultry operations
- Work with appropriate stakeholders to assess BMP implementation
- Identify a priority HUC 10 watershed that contains at least one segment that is not attaining its designated use and develop a WMP to address the identified contaminants
- Utilize existing monitoring data and encourage longer-term monitoring of WMP and post-construction BMP sampling locations to target BMP placement and reduction of pollutant loads in agricultural areas

GSWCC continued implementing one FFY2019 and two FFY2018 Section 319(h) grant projects during the FFY2021 reporting period. The COVID-19 pandemic slowed progress on the FFY2019 project, while both FFY2018 grant projects advocated and installed agricultural BMPs and promoted and completed septic system pump-outs and repairs, and one of the FFY2018 grant projects discussed options for municipal stormwater infrastructure.

Natural Resources Conservation Service (NRCS)



Natural Resources Conservation Service

The NRCS has leveraged an existing National Water Quality Initiative (NWQI) partnership with GAEPD to establish a procedure for implementing the Source Water Protection provisions of the 2018 Farm Bill. Actions mandated to complete further refinement of selected areas by September 30, 2021, included refining local priority areas in each State for drinking water protection; providing

increased incentives for practices that relate to drinking water quality and quantity, while also benefitting producers; and dedicating at least **10 percent** of available conservation funds to source water protection.

During the FFY2021 reporting period, the GAEPD Source Water Assessment Team (SWAT) staff assisted the NRCS in further refining the groundwater and surface water Source Water Protection Priority Areas (SWPPA) for Georgia. SWPPA may cover surface and/or groundwater sources (wellhead protection) of community drinking water systems. Agricultural activities may be characterized in these assessments as actual threats (remediation efforts) or potential threats (protective efforts). Georgia's proposed FFY2021 SWPPA will be the focus for NRCS agricultural conservation funding going forward.

Urban - Onsite Sewage Disposal Systems

Georgia Department of Public Health

The Georgia Department of Public Health (DPH), through County Boards of Health (CBH), oversees decentralized systems treating less than 10,000 gpd and discharging into an absorption field, and promotes maintenance among private septic system owners in accordance with the *Manual for On-Site Sewage Management Systems*. The DPH works to minimize health problems related to untreated human sewage; regulate and inspect new on-site sewage management systems (septic tanks/field lines); investigate and evaluate repairs made to improperly functioning on-site sewage management systems; and educate, train, and certify environmentalists, septic tank installers, pumpers, soil scientists, geologists, and engineers involved in installing, maintaining, and repairing on-site sewage management systems.



During FFY2021, CBH and Section 319(h) grantees partnered on septic system remediation projects in eleven watersheds. These projects aimed to reduce bacterial impacts on waterways through septic repair and replacement programs.

Section 319(h) Grant Projects Addressing Impacts from Onsite Sewage Disposal Systems

- FY2020 - Warwoman Creek WMP Implementation Project
- FY2020 - Lookout Creek Watershed Management Plan Implementation Project-Phase 2
- FY2019 - Septic System and Water Quality Improvements of Horsepen Creek Watershed
- FY2019 - Implementing the 2019 Salacoa Creek Watershed Plan (HUC #0315010207)
- FY2018 - Lynn Creek TMDL Implementation Project
- FY2017 - Coastal Green Infrastructure/Low Impact Development BMP Implementation Project
- FY2017 - Stekoa Creek WMP Implementation Project
- FY2017 - Reduction of Fecal Pollution in Little River - Phase 2
- FY2017 - Septic System Remediation and WQ Improvement for Horsepen Creek
- FY2016 - Implementing the New River Watershed Improvement Plan (HUC #031102030201)
- FY2016 - Implementing the Holly Creek Watershed Management Plan (HUC #0315010104)

Coast

Georgia Department of Natural Resources Coastal Resources Division



During FFY2021, GAEPD and Georgia Department of Natural Resources Coastal Resources Division (GADNR CRD) continued to implement the 25-foot buffer protection on coastal marshlands, address technical requirements and planning elements of the Coastal Stormwater Supplement to the 2016 Georgia Stormwater Management Manual which rely heavily on GI/LID practices, and identify areas for education, outreach, and improved coordination.

In the reporting period, GADNR CRD staff closed the Section 319(h) FFY2016 grant contract in support of the *Coastal Nonpoint Source Program*. Completed FFY2016 project goals included presentations of the final Coastal sections of *Georgia's Statewide Nonpoint Source Management Plan (Revised 2019)* to

the Coastal NPSP Advisory Committee and subject-specific experts and implementation of agricultural BMPs designed by NRCS engineers on the property of an identified producer in Wayne County.

GADNR CRD staff partnered with the UGA Marine Extension & Georgia Sea Grant in FFY2021 to promote and install GI/LID BMPs and provide inspection and maintenance training in priority coastal counties. Signage will be posted at each BMP location that, combined, receive over 10,000 visitors annually. Ongoing projects include water quality monitoring and modeling of BMP efficiency and establishing a record of hydrologic performance to improve design and maintenance of GI/LID practices in the future. In addition, a Coastal Georgia Rain Garden Program offers stormwater education, resources, and incentives to design, build, operate, and maintain site-specific rain gardens in residential and small business settings.

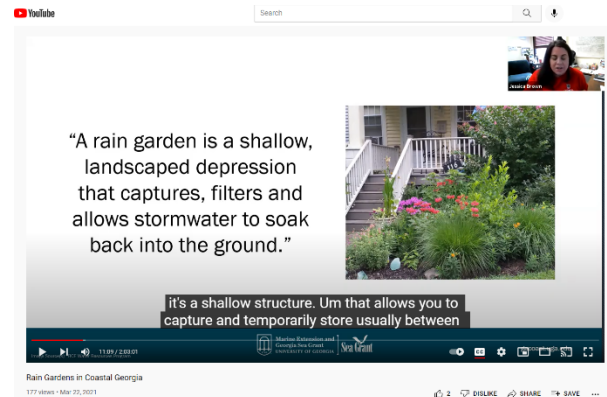


Figure 1: Many CRD education offerings, including this rain garden workshop, pivoted to online formats during the Covid-19 pandemic.

Land Acquisition and Green Space

Georgia Environmental Finance Authority

During FFY2021, GAEPD continued to assist the Georgia Land Conservation Program (GLCP) administered by the Georgia Environmental Finance Authority (GEFA) to identify high-value conservation lands - particularly those lands that, if put into conservation, would have the greatest impact on mitigating nonpoint source pollution and protecting source waters.



This fiscal year GAEPD reviewed three applications and found all three proposed projects would support the Land Acquisition and Green Space Long-Term Goals and Strategic Plan of *Georgia's Statewide Nonpoint Source Management Plan (Revised 2019)*.

Watersheds protected through FFY2021 GLCP Land Acquisitions

- Altamaha River Basin – 6,278 acres protected
Beards Creek (HUC 030701060301), Lower Doctors Creek watershed (HUC 030701060404)
- Suwannee River Basin – 8,845 acres protected
Headwaters (HUC 031102010501), Okefenokee Swamp (HUC 031102010105)
- Coosa and Tallapoosa River Basins – 2,351 acres protected
Tallapoosa River (HUC 031501080111), Swinney Branch (HUC 031501080106), Thompson Creek (HUC 31501041405)

GADNR Outdoor Stewardship Program

The Georgia Department of Natural Resources (GADNR) oversees the Georgia Outdoor Stewardship Program (GOSP), and funds projects consistent with the state's conservation goals through the newly created Conserve Georgia Grant. Funds come from a dedicated 40% of an existing state sales tax on outdoor sporting goods and are distributed as grants or loans awarded to proposals approved by GADNR for the acquisition or stewardship of conservation lands.



The competitive 2020-2021 grant cycle resulted in 51 submitted applications requesting a total of \$81 million dollars in funding. In March 2021, nine grant applicants were invited to the final stage of the application process for funding of their conservation and outdoor recreation projects. Of the nine selected, five projects are by local governments or nonprofit organizations for the acquisition, development or stewardship of local parks or trail systems. Additionally, one proposal is for the acquisition of conservation land by GADNR, and three are for stewardship projects on state lands. State funding in the amount of \$20.58 million with \$40 million from applicants in match dollars were committed to support local parks and trails systems and state-owned lands.

Section 319(h) Nonpoint Source Implementation Grant

Since 1990, Congress has annually appropriated grant funds to states under Section 319 of the Clean Water Act to implement their approved Nonpoint Source Management Program. GAEPD uses these grant funds to administer its Nonpoint Source Program (NPSP), implement goals of *Georgia's Statewide Nonpoint Source Management Plan (Revised 2019)*, and make awards available to public agencies in Georgia. Since 2012, Georgia has received approximately \$3.6 million each year to address nonpoint source pollution. Local governments, project partners, and citizens have annually contributed a minimum of 40 percent of total project costs in matching funds or in-kind services to these efforts.

FFY2021 Program Funds

GAEPD applies fifty percent of its Section 319(h) grant funds to resources and programmatic efforts for staff to successfully carry out the milestones and goals of the state's *Plan*.

Grants Unit: Administering Section 319(h) Grants

During FFY2021, GAEPD administered 61 Section 319(h) grant-funded projects, totaling more than \$14.2 million in federal funds and \$9.3 million in matching funds or in-kind services. The Grants Unit is responsible for the management of Section 319 Grants, certain state-funded grants, and other administrative functions such as:

- Partnering with other state agencies that manage agricultural, forestry, coastal, and urban programs addressing nonpoint source pollution
- Developing work plans, contracts, and inter-agency agreements
- Providing assistance to applicants developing competitive grant application work plans
- Reviewing and ranking final application work plans for competitive grant funds
- Advising selected sub-grantees on incorporating staff comments into work plans
- Tracking and accounting for expenditures and match contributions of grant awards
- Assisting financial personnel with reconciliation of any cost discrepancies that may occur through the invoicing process
- Submitting reports (work plans, progress, annual, and final reports), project budgets, invoices, and watershed information through the USEPA GRTS database

Outreach Unit: Educating Georgians on Nonpoint Source Pollution

GAEPD uses Section 319(h) Grant program funds to implement education activities to all age levels on the causes and impacts of nonpoint source pollution. GAEPD reaches a statewide audience through a variety of programs and media: from classroom curricula, to waterway cleanup activities, to a robust online presence. Each program serves its targeted stakeholders, and all programs work collaboratively to meet the needs of Georgia residents.

Project WET is an interdisciplinary, hands-on, water science curriculum that can be integrated into existing academic programming. The platform provides water education through published curricula, training workshops, community water events, and a worldwide network of educators, water resource professionals, and scientists. The goals of Georgia Project WET are to facilitate and promote

awareness, appreciation, knowledge, and stewardship of water resources through classroom-ready teaching aids aligned to state education standards. In addition, Georgia Project WET offers educators the opportunity to participate in the International Rivers Network's *River of Words*, an international poetry and art contest for K-12 students focused on the theme of watersheds. Each year, all winning art and poetry pieces from Georgia are exhibited throughout the state library system and at various conferences, schools, museums and non-profit organizations.



Figure 2: Original artwork submitted to River of Words by Georgia Student

During FFY2021, Project WET conducted **63** certification training workshops resulting in **326** educators certified in water science education and facilitated **over 1,000** K-12 students in *River of Words* poetry and art projects resulting in **one** national grand prize winner, **14** national finalists, and **60** state winners.

Rivers Alive is an annual, volunteer, waterway-cleanup partnership between GAEPD, the 20-member Rivers Alive board, local cleanup organizers, and a fiscal partner to process corporate funding in support of program activities. During the reporting period, the partnership produced **116** Rivers Alive cleanups involving **12,238** volunteers who removed **351,241** pounds of trash.

Georgia Adopt-A-Stream (AAS) is a citizen-based, volunteer, monitoring and stream protection program targeting all waters in the state. Local governments, universities, and not-for-profit organizations are encouraged to establish AAS Programs and serve as coordinators and trainers, following the Quality Assurance Program Plan to train volunteers and collect water quality monitoring data. Achievements during the FFY2021 reporting period included:

- **316** Adopt-A-Stream Quality Assurance/Quality Control (QA/QC) workshops
- certifying **1,522** water quality monitoring volunteers
- **6,778** water quality testing events
- **206** groups at **708** active monitoring sites

These activities led to a greater awareness of water quality and nonpoint source pollution, active cooperation between the public and local governments in protecting water resources, and the collection of basic water quality data. The AAS Program also assists with paddling events that involve teams of volunteers spending one day to a week taking one-time samples from multiple sites and conducting in situ and lab analysis to make a holistic assessment of water conditions within a watershed or river reach. The goal of these large-scale monitoring events is to help set priorities and goals to assure the most effective monitoring strategies.

While stream monitoring and educational workshops will continue to be the backbone of the Outreach Unit, staff has engaged in other community-based, watershed stewardship activities. These efforts include stream stabilization, rain garden and rain barrel projects that provide another level to reducing nonpoint source pollution and improving water quality.

Total Maximum Daily Load (TMDL) Unit: Developing Prioritized Section 305(b)/303(d) Listed Watersheds for TMDLs and TMDL Implementation

The work of GAEPD's TMDL Unit provided 100% match to the FFY2021 Section 319(h) Grant. The Unit's primary objectives are to develop TMDLs that will be used by state and local entities to restore impaired waters and lead to their "Supporting" the state's designated use. The TMDLs developed help set funding priorities for use of Section 319(h) grant funds.

In calendar year 2020, GAEPD initiated updates to its prioritization models and used new data to ensure priority issues and watersheds are identified and addressed in the future. In FFY2021, in compliance with the USEPA *Long-Term Vision*, GAEPD continued to apply Georgia's List of Priority Waters, based on the Draft Priority Framework, to prioritize impaired waters for development of TMDLs or TMDL alternatives. Details on this process are published on the GAEPD website: <https://epd.georgia.gov/document/publication/draftpriorities303dvisionpdf/download>

GAEPD has developed TMDLs and/or issued NPDES permits for all the waters identified under USEPA's *Vision*. Two HUC 8 watersheds in the Ochlockonee River Basin were originally included on Georgia's List of Priority Waters. However, in FFY2021, those watersheds were removed by USEPA because the tracking system was set up to trace completion of plans or TMDLs for individual waters, and not watersheds. While the two HUC 8 watersheds in the Ochlockonee are no longer part of the official List of Priority Waters, GAEPD will still develop a Nutrient Management Plan for the Ochlockonee River Basin once USEPA approves the Florida Department of Environmental Protection's TMDL for Lake Talquin. Nutrient and chlorophyll criteria developed for Lakes Oconee and Sinclair per *Georgia's Plan for the Adoption of Water Quality Standards for Nutrients* are pending USEPA approval. While the waters on Georgia's List of Priority Waters are considered priorities under the *Vision*, GAEPD continues developing TMDLs using the rotating basin approach, and will develop more TMDLs by 2022 than what is accounted for in the "priority" list.

Proposed TMDLs Developed in FFY2021

- Draft Ocmulgee River Basin Sediment (Bio F) TMDL Report – October 2021
- Draft Oconee River Basin Sediment (Bio F) TMDL Report – October 2021
- Draft Satilla River Basin Selenium TMDL Report – July 2021
- Draft Revised Altamaha River Basin D.O. TMDL Report – July 2021

Water Quality Trading Guidance Document

Georgia is taking substantial steps to address nutrient pollution, a national priority, by adding nutrients to the statewide list of priority pollutants (fecal coliform, biota, and DO). Most recently, GAEPD worked with the Florida Department of Environmental Protection and USEPA to develop watershed, river, and lake models for the development of the Lake Talquin TMDL, which was posted for public notice at the end of FFY2021. GAEPD will use these models to develop a Nutrient Management Strategy for the Ochlockonee River Basin once the TMDL is approved by USEPA.

As discussed in previous annual reports, while assessing how new management tools could support statewide water quality control objectives, GAEPD identified water quality trading as one tool that could protect and restore Georgia's waterways. In FFY2021, GAEPD continued to make progress on water quality trading. GAEPD's Watershed Protection Branch published a draft Water Quality Trading

Guidance Document and summary of the previous stakeholder processes in June and held four virtual stakeholder meetings on the draft Guidance on July 22, August 19, September 16, and October 14, 2021. Materials are available on the GAEPD website: <https://epd.georgia.gov/water-quality-trading>. Each of the first three stakeholder meetings focused on a section of the draft Guidance to ensure that participants had sufficient time to review the information and ask questions. The final stakeholder meeting summarized the process, discussed comments received to date, and followed up on participant views of water quality trading as a tool. Following the meetings, GAEPD received additional written comments and held additional small group meetings with commentors. GAEPD is in the process of updating the draft Guidance to reflect input received.

Better Back Roads Manual Update

To address the 28,200 miles of unpaved roads in Georgia that have the potential of contributing heavy sediment loads to adjacent streams, GAEPD continued work with Golden Triangle Resource Conservation & Development Council to update the *Georgia Better Back Roads Field Manual* (Red Book) in FFY2021. Using program funds from the FFY2019 Section 319(h) Grant, the following deliverables were completed by the project Technical Committee:

- Re-establishment of the Committee/Partnership for Better Back Roads update
- Analysis and review of current BMP practices for updates, additions and/or deletions
- Nationwide literature review of states with same soil types as Georgia
- Review and alignment of unpaved road practices across Georgia soil types and regions
- Technical review and vetting of updated manual by technical subject matter experts
- PowerPoint training presentation
- Version 1.0 Better Back Roads Manual published on GTRC&D website (February-June 2021)
- Version 2.0 Better Back Roads Manual reviewed by Coastal and Mountain representatives and submitted to GAEPD

When the FFY2019 grant contract expired in June 2021, the video depicting unpaved road practices related to ditches, crowns, turnouts, and maintenance was still in post-production, the final two meetings to review the Manual prior to printing, and 13 training workshops were pending. GAEPD aims to begin Phase 2 to complete these and other deliverables under a new contract in FFY2022.



Figure 3: Miller County Department of Public Works participated in filming of a training video to demonstrate BMPs from the revised Better Back Roads Manual

FFY2021 Project Funds

Each year Georgia competitively awards fifty percent of Section 319(h) grant funds to local projects implementing watershed-based plans. Guidelines for these competitive awards are updated annually and are designed to ensure funding is directed to watersheds that are impaired due to nonpoint source pollution, have the greatest possibility of being restored to “Supporting” status on the Section 305(b)/303(d) list, and meet Georgia’s overall goals of reducing nonpoint source pollution in priority watersheds.

Section 319(h) Grant Priorities for Competitive Projects:

- Small watersheds (HUC 10 and smaller)
- Restoration of impaired waters
- Protection of quality waters
- Implementation of TMDLs, Watershed Improvement Plans, Watershed Based Plans, and WMPs
- Leveraging other community resources to address nonpoint source pollution

FFY2021 Projects

GAEPD awarded and contracted projects in FY2021 to a diverse group of grantees located in watersheds in all ecoregions of the state. GAEPD was pleased to offer awards to six partner organizations, including three first-time grantees (indicated by an *) this fiscal year.

Georgia Forestry Commission - Silvicultural Nonpoint Source Management Program

This is a continuation of an ongoing statewide program to address silvicultural procedures that contribute to nonpoint source pollution, specifically timber harvesting, reforestation, residue management, forest management, road construction and maintenance, and various other silvicultural activities. Of Georgia’s 37 million acres of land area, 24.8 million acres is forest land.

Limestone Valley RC&D - South Chickamauga Creek Phase 3

Phase 3 of this project continues to implement the South Chickamauga Headwaters Watershed Management Plan (WMP) by addressing the pollutants (pathogens and sediment) within the impaired segments and other areas of the South Chickamauga Headwaters watershed contributing to elevated bacteria counts, elevated sediment loads, and excessive stormwater runoff.

***City of Forest Park - Water Quality Improvements in West Jesters Creek Watershed**

The overall goal of this project is to implement green infrastructure (GI) best management practices (BMPs) within the West Jesters Creek watershed to address urban water quality stressors identified in the West Jesters Creek Watershed Management Plan (WMP). In addition to providing improved water quality, the project will realize additional benefits including runoff reduction to existing infrastructure and community education.

***Upper Westside Community Improvement District - Elaine & Ellsworth Green Infrastructure**

The Elaine and Ellsworth (E&E) Green Infrastructure project seeks to improve the water quality of Woodall Creek, a tributary to Peachtree Creek and an impaired watershed, by capturing and filtering stormwater runoff in the public right of way from both Elaine Avenue and Ellsworth Industrial Boulevard.

City of Atlanta - Pittman Park Green Infrastructure

The project proposed in this grant application aims to address fecal coliform and biological fish and macroinvertebrate impairments through implementation of green infrastructure (GI) practices to manage urban stormwater runoff in Pittman Park, a city-owned park in southwest Atlanta.

*City of Avondale Estates - Cobbs Creek Green Infrastructure and Citizen Stormwater Education

This project aims to install green infrastructure structural Best Management Practices (BMPs) to mitigate the impact of sediment on water quality in a Cobbs Creek headwater stream and Lake Avondale, in the South River Watershed.

Advancing Green Infrastructure

States, federal agencies, and local jurisdictions throughout the country are shifting to a new paradigm for managing urban stormwater runoff by using Green Infrastructure (GI) and Low Impact Development (LID) to protect or mimic natural hydrology. *Georgia's Statewide Nonpoint Source Management Plan (Revised 2019)* encourages implementation of GI/LID practices through the following goals:

- Track research on the performance, effectiveness, costs, and maintenance of GI/LID practices and collect performance data from Georgia projects in a range of locations and applications to ensure the highest levels of effectiveness
- Ensure that potential implementers of GI/LID practices, including the construction industry and municipalities, are aware of and have access to the necessary information to successfully install, maintain and monitor their projects. Continue to support the implementation of GI and LID projects in priority and impaired watersheds, with an emphasis on operations and maintenance and post-construction monitoring
- Document and disseminate the costs and benefits of GI and LID practices and promote resources, including financial resources, that are available for their implementation

The majority of Georgia's competitively awarded Section 319(h) grant projects now include elements of green infrastructure or low impact development. Implementing GI/LID BMPs is the primary activity of some projects, while others focus on education and building understanding of how GI/LID can benefit communities and waterways.

Green Infrastructure Projects Active in FFY2021

- FY2020 - Implementing Green Infrastructure BMPs in the Nancy Creek Watershed
- FY2020 - Lookout Creek Watershed Management Plan Implementation Project-Phase 2
- FY2019 - Tiered Bioretention Area and Stream Restoration of Arrow Creek
- FY2019 - Peacock Creek Restoration: Green Infrastructure Demonstration in Downtown Hinesville, Georgia
- FY2019 - Phase II - Coastal Green Infrastructure/Low Impact Development Stormwater Best Management Practices Implementation
- FY2018 - Green Infrastructure/Low Impact Development BMPs Implementation in the Vernon River Watershed
- FY2018 - Lynn Creek TMDL Implementation Project
- FY2018 - Phase 2 of Coastal Urban Stormwater BMP Retrofits using GI/LID (Osborne Street)

- FY2018 - Phase II - Monitoring Infiltration Rates of Coastal Low Impact Development (LID) Practices and Implementing the Coastal Georgia Rain Garden Program
- FY2017 - Coastal Green Infrastructure/Low Impact Development BMP Implementation Project
- FY2017 - Phase 1 of Coastal Urban Stormwater BMP Retrofits using GI/LID
- FY2017 - Stekoa Creek WMP Implementation Project
- FY2017 - Georgia Department of Transportation Pilot Green Infrastructure Project
- FY2016 - Implementing the New River Watershed Improvement Plan (HUC #031102030201)
- FY2016 - Implementing the Holly Creek Watershed Management Plan (HUC #0315010104)
- FY2016 - Green Infrastructure Implementation and Capacity Building in Folkston, Georgia
- FY2016 - Clayton County Green Infrastructure Project
- FY2016 - Monitoring of Georgia Dept of Transportation Pilot Green Infrastructure Project



Figure 4: GAEPD and University of Georgia staff monitoring progress of the bioretention cell installed as part of the FY17 Georgia Department of Transportation Pilot Green Infrastructure Project.

Success Story

On November 08, 2021, USEPA Headquarters accepted Success Story from the State of Georgia entitled *Multiple Partnerships Contribute to Ecological Restoration of Degraded Landscapes in the Chestatee-Yahoola Watersheds*.

Cane Creek, a tributary of the Chestatee River near the city of Dahlonega in Lumpkin County, Georgia, was classified in 2008 on Georgia's Integrated 305(b)/303(d) List of Waters as Not Supporting the designated use of Fishing due to Bio F (fish) impacted by sediment. The Chestatee Watershed Partnership convened under a FY2015 Section 319(h) Nonpoint Source Implementation Grant to recondition high priority degraded landscapes within the watershed. Locally generated organic amendments were spread over bare, compacted soil to increase natural filtration of storm runoff, control erosion, and improve soil nutrient cycling and plant productivity. In 2020 GAPED restored an 8-mile segment of Cane Creek (Cane Creek Falls to Chestatee River near Dahlonega) to Supporting status for Bio F sediment based on 2018 data from Georgia's Wildlife Resources Division (WRD).

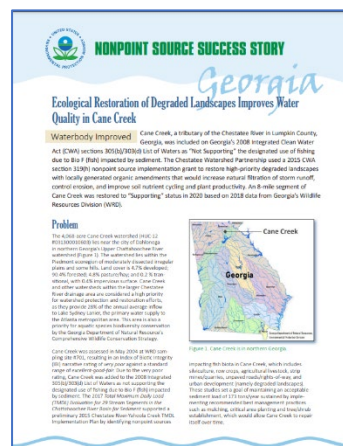


Figure 5 *FFY21 Success Story is available on the USEPA website*

Cane Creek and other HUC12 watersheds within the larger Chestatee River drainage area are considered a high priority for watershed protection and restoration as they provide 28 percent of the annual average inflow to Lake Sydney Lanier, the primary water supply to the Atlanta Metropolitan Area. This area is also a priority for aquatic species biodiversity conservation by the Georgia DNR's Comprehensive Wildlife Conservation Strategy. A WRD assessment of Cane Creek in May 2004 resulted in an Index of Biotic Integrity (IBI) rating of Very Poor against a standard range of Excellent-Good-Fair. The 2017 Total Maximum Daily Load (TMDL) Evaluation for 29 Stream Segments in the Chattahoochee River Basin for Sediment and a preliminary 2015 Chestatee River-Yahoola Creek TMDL Implementation Plan identified urban development, namely degraded landscapes, as one of the nonpoint sources impacting fish biota in Cane Creek. These studies set an acceptable sediment load of 173 tons/year to be sustained by recommended BMPs such as mulching, critical area planting, and tree/shrub establishment so that Cane Creek could repair itself over time.

Project work funded by the grant took place between 2016-2018 during which leaf mold and wood chips were spread on sites throughout the University of North Georgia Dahlonega (UNG) campus. The mulching was followed by planting winter rye and perennial fescue, then covering the seed with wheat straw, and finally, allowing the grasses to grow taller for much of the late summer to encourage deeper root penetration and carbon sequestration of compacted soils. In addition, hands-on field days and onsite signage supported communication among watershed stakeholders. UNG also developed a "Reserve Your Topsoil" program and surveyed developers by telephone about stockpiling and respreading topsoil to promote adoption of best practices.

At completion, 65 percent of bare soils (9,001 square feet or 0.21 acres) on the UNG Dahlonega campus were covered with mulch at a depth of 1-2 inches. These soil amendments along with established grass were estimated in a Region 5 model to reduce acceptable sediment loadings into Cane Creek by 8 tons/year. In addition, a second WRD assessment of Cane Creek in August 2018 resulted in an IBI rating of Fair that met the minimum standard.

Nonpoint Source Program Management Goals

Tracking Milestones, Benchmarks and Timeline

GAEPD uses three primary mechanisms for tracking the progress of *Georgia's Statewide Nonpoint Source Management Plan (Revised 2019)*:

1. USEPA Grant Reporting and Tracking System (GRTS) to document Section 319(h) grant project outcomes (water quality improvements, reductions in NPS pollutant loadings).
2. GAEPD NPSP Annual Reports to USEPA to summarize progress in meeting milestones and goals associated with TMDLs, watershed planning, outreach and education, wetlands certification, grant administration, success stories, partners, and other strategies.
3. GAEPD Water Quality Integrated Report to evaluate the water quality of surface water and groundwater and the nature, extent, and causes of documented water quality problems in Georgia. This Report complies with requirements of the Clean Water Act Sections 303(d), 314, and 319, and summarizes ongoing water planning efforts; wetland, estuary, and coastal public health/aquatic life issues; and water protection, groundwater, and drinking water programs.

Additional methods of measuring progress include Water Quality Tracking Tables and Programmatic Indicator Tracking Tables that will be combined into one *Georgia's Statewide Nonpoint Source Management Plan (Revised 2019)* Implementation Table and updated annually. The 2019 *Plan* revision also includes a new "Assessment of Plan Implementation" chapter describing how GAEPD will assess BMP efficacy and restoration efforts by explicitly connecting implementation to water quality. In the past, GAEPD has not directed the full potential of a substantial amount of collected data toward consistently and comprehensively assessing the impact of implementing *Georgia's Statewide Nonpoint Source Management Plan (Revised 2019)* on water quality. To this end, GAEPD will develop a model for connecting all relevant components of NPSP activities, as identified in *Georgia's Statewide Nonpoint Source Management Plan (Revised 2019)*, to water quality outcomes. The "Assessment of Plan Implementation" chapter provides a framework for identifying new opportunities and data gaps over the next five years and sets the groundwork for an iterative assessment process.

During FFY2021, GAEPD continued to compile data on progress to meet *Georgia's Statewide Nonpoint Source Management Plan (Revised 2019)* milestones shown in the chart below. The symbol "-" means "not required in current Report"; but, will be reported in the FFY2022 Report.

Statewide Milestones & Load Reductions

Statewide Milestones for Water Quality Improvement	2021	Milestone Progress	2022
WATER QUALITY IMPROVEMENTS FROM NONPOINT SOURCE CONTROLS			
<u>Number of stream segments supporting designated use on Georgia's 305(b)/303(d) list of waters:</u> Identify the number of stream segments supporting designated use by meeting all water quality standards (List of waters published every two years).	-	NA	1.030
<u>Cumulative number of stream segments on Georgia's 305(b)/ 303(d) list of waters where one or more impairments have been restored to meet water quality standards:</u> Identify the number of stream segments where one or more impairments have been restored to meet water quality standards (List of waters published every two years).	-	NA	21
Statewide Milestones for Water Quality Improvement	2021	Milestone Progress	2022
INTERIM PROGRESS TOWARD RESTORED WATER QUALITY AND HYDROLOGY			
<u>Report on water bodies identified on Georgia's 305(b)/303(d) list of impaired waters as being primarily NPS impaired that are partially or fully restored or show water quality improvement:</u> Submit NPS success story to USEPA.	1	One Type 2 Title: <i>Ecological Restoration of Degraded Landscapes Improves Water Quality in Cane Creek</i> (Georgia Mountains Regional Commission)	1
<u>Tracking ambient water quality vs. stream water quality standards for Nitrogen, Phosphorus, Fecal Coliform, Dissolved Oxygen, and Biota:</u> Number of streams where water quality data was collected by Adopt-a-Stream or GAEPD for use in addressing water quality issues.	50	Monthly sampling during FFY2021 of 208 rivers/streams, 28 lakes & 8 estuaries for routine parameters (nutrients, BODS, TSS, DO, pH, temperature, conductivity) at 289 sites; for ortho-phosphate at 120 sites; for bacteria at 140 sites; for metals at 53 sites; for chlorophyll a at 77 sites; for diatoms at 1 site; and for macroinvertebrates at 1 site.	50
<u>Tracking target trophic status in lakes and estuaries:</u> Produce waterbody reports documenting trophic status in Georgia lakes and estuaries.	On-Going	monthly ambient water quality sampling during the growing season: 28 lakes and embayments at 68 sites and 8 estuaries at 13 sites	On-Going

Statewide Milestones for Water Quality Improvement	2021	Milestone Progress	2022
<p><u>Green infrastructure within watersheds:</u> Target number of 319 funded projects that are implementing green infrastructure BMPs.</p>	2	<p>FFY20-07 <i>GI/LID Retrofits in Brunswick - From Planning to Implementation</i> City of Brunswick \$489,023 (\$293,289 federal/\$195,734 match)</p> <p>FFY19-13 <i>Peacock Creek Restoration: Green Infrastructure Demonstration in Downtown Hinesville, Georgia</i> University of Georgia \$197,322 (\$118,322 federal/\$79,000 match)</p>	3
Statewide Milestones for Water Quality Improvement	2021	Milestone Progress	2022
PROTECTION OF HIGH QUALITY WATERS			
<p><u>Attain specific load reduction or maintenance goals in protection oriented plans covering healthy watersheds:</u> Attaining specific load reduction goals (Nitrogen, Phosphorus, Sediment, Fecal Coliform) for grant projects implementing Healthy Watershed Initiative WMPs that meet USEPA's nine elements.</p>	1	<p>FFY18-10 <i>Implementation of the Mountain Oak Creek Healthy Watershed Initiative Nine-Step Watershed Management Plan</i> Maintenance Goal = health of "Supporting" reach monitored at two sampling sites: DNA Source Tracking results = deer, canine, cattle & horse plus 210 mpn/100ml fecal coliform combined average; Baseline WQ monitoring results = 1 cfu/100 ml E. coli combined average.</p>	-
<p><u>Number of BMPs implemented in HWI projects:</u> Track the number of BMPs grant projects implemented in concurrence with Healthy Watershed Initiative WMPs.</p>	1	<p>FFY18-10 Closed BMPs Completed: 24 months Baseline chemical & bacterial water quality monitoring; 8 rounds DNA/Microbial Source Tracking for fecal coliform bacteria; two Watershed Advisory Committee meetings; two Adopt-A-Stream educational workshops; and two educational presentations.</p>	-

Statewide Milestones for Water Quality Improvement	2021	Milestone Progress	2022
NONPOINT SOURCE POLLUTANT LOAD REDUCTION			
<u>Estimated annual reductions in pounds of nitrogen to water bodies (from Section 319 funded projects):</u> Annually review information from NPS staff and project stakeholders for NPS load reductions of nitrogen; and include information in NPS annual report and GRTS.	60,000 lbs.	1607.9 lbs.	60,000 lbs.
<u>Estimated annual reductions in pounds of phosphorus from NPS to water bodies (from Section 319 funded projects):</u> Annually review information from NPS staff and project partners for NPS load reductions of phosphorus; and include information in NPS annual report and GRTS.	25,000 lbs.	4793.8 lbs.	25,000 lbs.
<u>Estimated annual reductions in tons of sediment to water bodies (from Section 319 funded projects):</u> Annually review information from NPS staff and project partners for NPS load reductions of sediment; and include information in NPS annual report and GRTS.	15,000 tons	139.4 tons	10,000 tons
IMPLEMENTATION OF NONPOINT SOURCE CONTROLS			
<u>Number of TMDLs or alternatives developed for impaired watersheds:</u> Develop TMDLs or alternatives for impaired waters.	5	three new TMDLs (Ogeechee-Sediment, Savannah-Sediment, Satilla-Selenium), one revised TMDL (Revised Altamaha-DO) that will replace 2002 & 2007 approved TMDLs (Altamaha-DO), and one TMDL addendum (2021 Ogeechee-DO) to a 2007 approved TMDL (Ogeechee-DO) were developed for impaired waters on the 2020 Georgia 305(b)/303(d) Integrated List of Waters	5
<u>Statistically based survey of implementation rates:</u> Conduct the Biennial Silviculture implementation survey.	-	NA	1

Statewide Milestones for Water Quality Improvement	2021	Milestone Progress	2022
PUBLIC EDUCATION, AWARENESS, AND ACTION			
<u>Participation rates in citizen monitoring activities:</u> Maintain a database of number of active Georgia Adopt-A-Stream monitoring sites annually.	300	6,778 water quality testing events were conducted at 708 active monitoring sites	300
<u>Participation rates in public awareness and education efforts:</u> Maintain a database of Rivers Alive volunteers to determine number of active participants annually.	20,000	116 Rivers Alive cleanups involving 12,238 volunteers removed 351,241 pounds of trash	20,000
<u>Participation rates and activity of local watershed groups:</u> Maintain a database of Georgia Adopt-A-Stream participating volunteers to track productivity and diversity of local watershed groups. Track the number of active watershed groups annually.	150	316 Adopt-A-Stream QA/QC workshops certified 1,522 water quality monitoring volunteers; 206 active watershed groups participated in water quality testing	150
PROGRAM MEASURES OF SUCCESS			
<u>Track number of partners in watershed project implementation:</u> Use Grants Reporting and Tracking System to annually track the number of partners participating in watershed project implementation.	15	During FFY2021 for grant years FFY2016 – FFY2021: 27 different partners 11 City Governments 2 Community Improvement District 1 Consolidated Government 2 County Governments 4 RC&Ds 3 Regional Commissions 1 Soil & Water Conservation District 2 State Government Agencies 1 State University	15
<u>Number of nine element watershed based plans created or updated:</u> Nine element watershed-based plans developed by NPS plan.	1	FY18-20 <i>Chattanooga Creek Watershed Management Plan</i>	-
<u>Progress in reducing unliquidated obligations (ULO):</u> Percentage of ULO funds anticipated yearly GAEPD (total remaining funds/total awarded = percentage ULO).	USEPA R4 Target	FY16 – 23% FY17 – 29% FY18 – 78% FY19 – 83% FY20 – 100% FY21 – 100% (GRTS: December 28, 2021)	USEPA R4 Target

Moving Forward in FFY2022

GAEPD looks forward to advancing our water quality goals in the coming years. With continued support from USEPA, partner agencies, and local grantees, we are eager to begin multiple new initiatives in FY2022.

New Grant Management System

Beginning in FY2022, all applications for Section 319(h) grant competitive funds will be submitted to GAEPD using a web-based grants management system. The Zengine application from WizeHive is used by Georgia DNR, the Coastal Resources Division, and other State of Georgia agencies and will create consistency and familiarity for our grantees. The system will also reduce paperwork burden on GAEPD and improve reporting capabilities to USEPA.

Water Quality Projects

As part of our work plan for our FFY2021 Grant, GAEPD will be evaluating all past water quality data generated with Section 319(h) grant funds. This evaluation will allow us to streamline reporting to the state water quality database and flow to USEPA databases.

Environmental Justice

GAEPD is committed to participating in USEPA's new initiative "Near-Term Actions to Support Environmental Justice in the Nonpoint Source Program." GAEPD will engage in the planned regional conversations and strategy implementation scheduled for FFY2022. We are exploring methods to incorporate USEPA's EJ SCREEN tool in future grant application scoring and Scopes of Work with grantees.

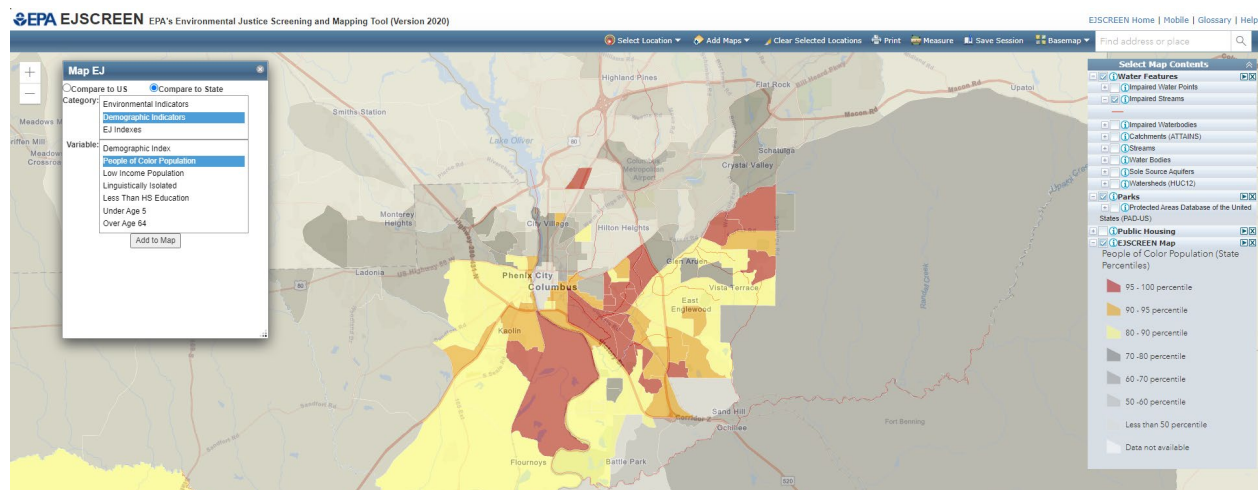


Figure 6: Screen capture from USEPA's EJSCREEN showing an overlay of People of Color Population and Impaired Streams near Columbus, GA