



ENERGY AND
ENVIRONMENT CABINET

2024

KENTUCKY NONPOINT SOURCE PROGRAM

ANNUAL REPORT

— December 2024

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KENTUCKY DIVISION OF WATER WATERSHED MANAGEMENT BRANCH NONPOINT SOURCE AND BASIN TEAM

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NONPOINT SOURCE POLLUTION PROJECTS

Introduction

Nonpoint Source Pollution Management in Kentucky

The Kentucky Nonpoint Source Management Program's mission is to protect surface and groundwater from nonpoint source pollution (NPS), abate pollution threats, and restore degraded waters to meet water quality standards and support beneficial uses. Given its diffuse nature, NPS management requires partnering with a wide variety of organizations; alongside federal, state, local, and private partners, the NPS team promotes complementary regulatory and non-regulatory pollution control initiatives at both statewide and watershed scales.

The NPS Management Program administers and implements the Kentucky Division of Water's 319(h) federal grant program. The Environmental Protection Agency (EPA) awards the Kentucky Division of Water (DOW) with grant funds each year for the purpose of addressing problems associated with NPS pollution. A 40 percent non-federal match is required on all projects that receive funding. During the ranking period, priority is given to projects involving watershed-based plan development and implementation in impaired waters, as well as protection of Special Use Water with identified threats.

In the Federal Fiscal Year (FFY) 2024, DOW received \$4.8 Million from Clean Water Act (CWA) Section 319(h) funding to execute the program. This year, communities and organizations shared \$2.88 million in federal funding to implement projects that control NPS pollution within watershed planning areas. The DOW awarded those funds to implement best management practices in watershed planning areas, help develop watershed plans, coordinate statewide Agriculture Water Quality Authority Efforts, and provide technical assistance and training to agricultural producers on water quality issues.

This report features accomplishments aligned with the NPS program's goals that occurred during FFY2024 (October 1, 2023- September 30, 2024).

DOW staff provide technical assistance to watershed groups and other partners as they develop watershed plans and implement NPS pollution abatement strategies identified through the watershed planning process.

During FFY2024, DOW worked with contractors toward development of ten (10) additional watershed plans: Bee Creek, Clayton Creek, Glenns Creek, Hardy Creek, Jennings Creek, Lake Linville, Lower Pitman Creek, McDougal & Castleman, Mill Creek, and Upper Paint Lick Creek.

Watershed plan reviews are coordinated by the Nonpoint Source staff and ensures that all necessary DOW branches can comment or offer constructive feedback on watershed plans prior to acceptance. Currently, 31 watershed plans have been accepted for full implementation with CWA Section 319(h) funding and an additional nine watershed plans are under development.

Thirteen watershed plans were being implemented through one or more CWA Section 319(h) funded contracts during FFY2024.

Success Story: Triplett Creek Benefits from Decades of Watershed Planning and Stormwater Investment

The DOW added a segment of Triplett Creek (miles 5.9–12.4), measuring approximately 6 miles, to the 2004 Clean Water Act (CWA) section 303(d) list/Integrated Report as impaired (non-support) for siltation, nutrients, and organic enrichment in 2001. Following significant 319 Program investment in the watershed, water collected in 2019 and 2020 indicated the segment met water quality criteria for nutrients and organic enrichment and in 2022 the DOW delisted this stream segment for nutrients and organic enrichment.

Problem

Triplett Creek drains into the Licking River in northeast Kentucky (Figure 1). Triplett Creek is approximately 23 miles long and drains an 83.4 square mile watershed dominated by forestland and growing development around the City of Morehead in Rowan County. Biological sampling data in 1999 indicated the stream only partially supported its aquatic life designation. While not part of the listing methodology, water quality modeling, as part of the Triplett Creek Watershed Based Plan in 2013, also suggested a need for ammonia reduction, with five (5) samples on Triplett Creek exceeding the water quality criteria of 0.05 mg/L.

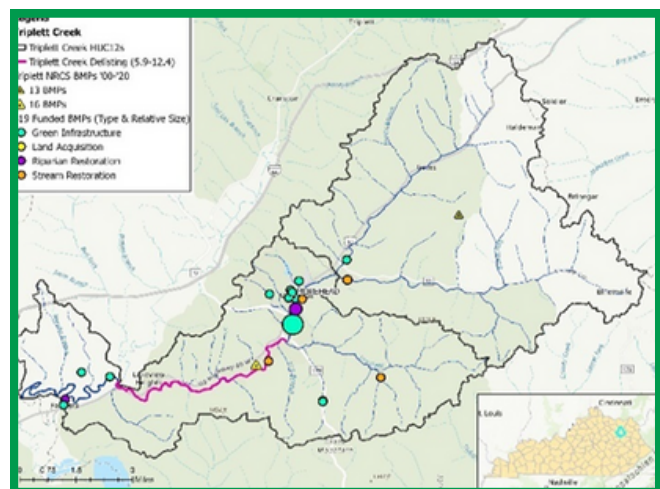


Figure 1. Triplett Creek Watershed

Story Highlights

In 2002, the City of Morehead and surrounding areas experienced severe flooding which led to collaboration between concerned citizens and the City of Morehead to identify proactive solutions. Subsequently, Morehead formed the Triplett Creek Committee which consists of Rowan County concerned citizens, the Rowan County Solid Waste and Floodplain Coordinator, the U.S. Forest Service, Kentucky Department of Fish and Wildlife Resources, the U.S. Department of Agriculture's Natural Resources Conservation Service, and the DOW. In 2008, Morehead State University (MSU) received a \$658,617 grant to develop the Triplett Creek Watershed Plan. This grant also funded 520 feet of streambank stabilization on Dry Creek, creation of eight (8) ephemeral wetlands and two (2) stormwater wetlands on the main stem of Triplett Creek, seven (7) rain gardens, and acquisition of eleven (11) acres to protect riparian habitat.

In October 2013, the Triplett Creek Watershed Based Plan was released, highlighting the need for additional investment in riparian stabilization, stormwater management, and livestock management. Also in 2013, MSU received a \$376,893 grant to install additional best management practices outlined in the watershed plan. These investments resulted in development of Boone Hollan wetland and Nature Park which boasts six (6) acres of wetlands, native plants, and walking paths (see Figure 2).



Figure 2. Green infrastructure Wetlands installed in the watershed.

Results

Following substantial watershed planning, riparian restoration, and stormwater installations, new data demonstrates that the Triplett Creek segment from miles 5.9 to 12.4 meets water quality criteria for nutrients and organic enrichment. In 2019 and 2020, DOW monitoring results were compared against water quality indicators for eutrophication and organic enrichment, which revealed no impairments for either. As a result, Triplett Creek (miles 5.9-12.4) now meets its warmwater aquatic designated use for eutrophication and organic enrichment and was delisted with the 2022 Integrated Report to Congress.

Partners and Funding

Civic engagement and robust partnerships lie at the heart of watershed planning in the Triplett Creek watershed. The City of Morehead and MSU played pivotal roles in leading watershed planning activities, while also managing over \$690,340 in matching funds. In addition to this work, the City of Morehead and Gateway Area Development District are planning a series of off-channel basins (aka “Green Sinks”) that will help mitigate recurring flooding in Morehead, capture significant amounts of storm-water runoff from the city, and create a new public greenspace/trail system along Triplett Creek. Stay tuned for even more improvements in the Triplett Creek watershed.

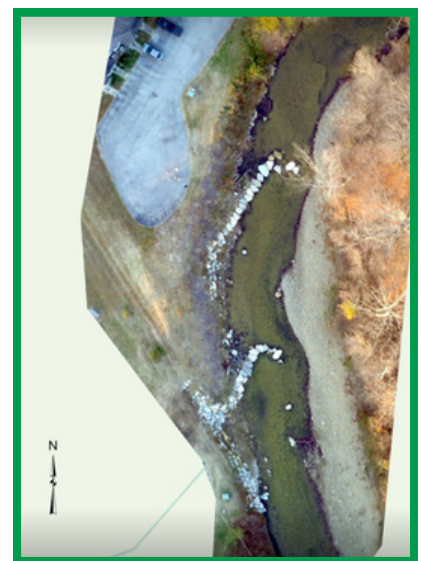


Figure 3. Triplett Creek riparian restoration.

Featured Project: Middle Fork Beargrass Creek: Plans and Partnerships

Previous Watershed Planning

The Middle Fork Beargrass Creek Watershed (HUC-14 code 05140101250010) in the City of Louisville covers 25.2 sq miles and is part of the Beargrass Creek Watershed. Most of this watershed is of urban land use, with some parks, golf courses, and a farm that break up the sprawl. This watershed has experienced water quality issues that are expected of urbanized areas, including erosion from channelized streams and impervious surfaces. Outside of designated park areas, riparian zones in this watershed are often underdeveloped or absent, which further contributes to these problems. Because of these issues, existing monitoring data, and an engaged community, Louisville Metro Sewer District (MSD) wrote, and EPA approved, a watershed plan in 2022 that recommends implementing various Education and Outreach programs and Green Infrastructure projects.

This plan demonstrates how a plan can be used to support other projects in the area and be utilized for additional funding for larger projects, beginning with the spirit of collaboration in writing the document itself:

“With the parallel efforts of the U.S. Army Corps of Engineers (USACE) Three Forks of Beargrass Creek study, this watershed plan benefited from additional stream walks to better characterize stream conditions both in-stream and along the stream corridor. While the USACE Three Forks study was larger in scope and assessed the Muddy, Middle and South Forks of Beargrass Creek, both projects evaluated existing in-stream and riparian habitat, as well as recreational opportunities, resulting in a more robust data set for characterization of nonpoint source pollution challenges.” (Middle Fork Beargrass Creek Watershed-Based Plan, pg. 10)

Current Efforts and Collaborations

319 Project: Middle Fork Beargrass Creek Watershed Coordinator 22-08

This project funds the first best management practices (BMP) recommended in the plan: employing a Watershed Coordinator through MSD to launch a Steering Committee and implement an outreach and engagement plan. In FFY2024, the steering committee was launched and those invited to the committee included partnerships that were formed during the planning phase.

The watershed coordinator worked with the Beargrass Creek Alliance, Kentucky Waterways Alliance, Louisville Metro Districts 8 and 9, Olmstead Park Conservancy, and others to co-host the Earth Day Beargrass Creek Clean Sweep, where 50 participants removed trash from approximately one mile of Beargrass. Other events included a community meeting with Louisville Metro District 8 to discuss recreational activities at Big Rock, a Salt River Watershed Watch training for macroinvertebrate and habitat assessments, and Ripple Effects outreach events to promote a photo contest to foster art with a water quality focus.

MSD Project: Citizen-based Water Quality Monitoring Program

The watershed coordinator also worked with MSD's quality assurance and training teams to develop training materials and hold a soft launch of a citizen-based water quality monitoring program (CBMP). Eight MSD staff volunteers were trained in water quality monitoring procedures according to the CBMP QAPP and have conducted monthly sampling at three locations in the Middle Fork Beargrass Creek watershed since May.

U of L: Student Research

This year University of Louisville (UofL) students conducted research in Beargrass Creek that resulted in two projects. The first, entitled “Anthropogenic litter in urban waterways: An analysis of litter, urbanization, and the emerging role of citizen science in Beargrass Creek, Louisville, KY”, was a master’s degree thesis for a student in the Sustainability program with an Interdisciplinary Studies concentration. This research involved recording the quantity and type of litter at 15 sites along Beargrass Creek and resulted in several stream clean ups. The student stated that, after reading about the plan, she “...instantly began seeking to learn more about the stream and its watershed, with the hopes of [her] research being able aid this progress in any way possible.”

The second project, entitled “Development and Testing of Sediment Monitoring Methods for a Watershed Watch Organization”, was developed by a team of three students and their mentors. The project involved collaborating with Kentucky Watershed Watch and testing different methods of measuring discharge, turbidity, and Total Suspended Solids (TSS). The goal was to compare potential citizen science methods of measurement to readings from a nearby USGS gauge, to test their precision and accuracy. To begin the project the students received training from a UofL professor on how to measure discharge, turbidity, and Total Suspended Solids at a site in Beargrass Creek, chosen based on the watershed plan. The watershed coordinator and students also met to discuss the connection between their research and the watershed plan.

Army Corps of Engineers: Gathering Support

As mentioned above, during the watershed planning process the Army Corps of Engineers was working on the “Three Forks of Beargrass Creek Restoration Feasibility Study”, which was recommended for congressional consideration in May 2022 upon completion. In FFY2024, the Kentucky Waters Alliance (KWA) hosted a pivotal meeting to facilitate an Army Corps presentation of the study to key Beargrass constituents that included MSD, Louisville Metro, DOW, and the Beargrass Creek Alliance. This plan would restore 12 sites in the larger Beargrass watershed and will require a significant match if approved by Congress, therefore KWA and the Beargrass Creek Alliance continue working together to get this plan funded.

Future Projects 319 Project: Beals Branch Green Infrastructure Design

In FFY2024, the NPS team selected this project, a collaboration between MSD and the Olmstead Park Conservancy, to design green infrastructure for a local park. The first goal of this project is designing a BMP to reduce the nutrient, bacteria, and sediment load reaching Middle Fork Beargrass Creek from the Beals Branch tributary and providing flood mitigation through the creation of natural capacity and treatment. The second goal is creating greater opportunity for community member involvement in watershed improvement efforts and solutions by including the community in the development of this design. Two community days at the project site are planned to gather feedback on preliminary design proposals through discussions and a survey to facilitate voting on favorite options.

Conclusions

From inspiring students to bolstering restoration projects, the Middle Fork Beargrass Creek Watershed Plan is being used by a variety of stakeholders to clean up, protect, and restore the creek. With such a wide variety of initiatives, the establishment of the Beargrass Creek Steering Committee is paramount to appropriately utilize these various partnerships and projects in the future. All of these efforts demonstrate how a watershed plan can be used for not only 319 projects, but other community and environmental planning and implementation throughout the watershed.

BASIN COORDINATION

Basin Coordination

The DOW's Basin Coordinators serve as catalysts in the watershed management process by acting as facilitators for agency activities and as points of contact for local organizations interested in addressing water quality and pursuing watershed planning. Basin Coordinators enhance communication with stakeholders by invigorating regional basin teams and stakeholder groups (local, state, and federal agencies, universities, non-governmental organizations, industry, and community groups) that work actively in the basin. These groups meet regularly to discuss current projects, needs, and strategies related to basin-wide ecosystem health. Basin Coordinators help facilitate discussions, gather feedback for DOW, and communicate with members via regular newsletter releases.

In addition to the basin teams, Basin Coordinators help involve the public in setting management priorities, developing watershed plans, providing grant assistance, supplying water-focused education and outreach, and exploring innovative ways to improve water quality at the community level. Currently, the DOW's directly employs five of the seven Basin Coordinators (Big Sandy, Little Sandy, and Tygarts Rivers Basin, Green and Tradewater Rivers Basin, Licking River Basin, Upper Cumberland River Basin, and the Salt River Basin) and one through an outside contractor (Four Rivers Basin). The Kentucky River Basin Coordinator is funded through the Kentucky River Authority and works cooperatively with DOW staff.

Big Sandy River Basin

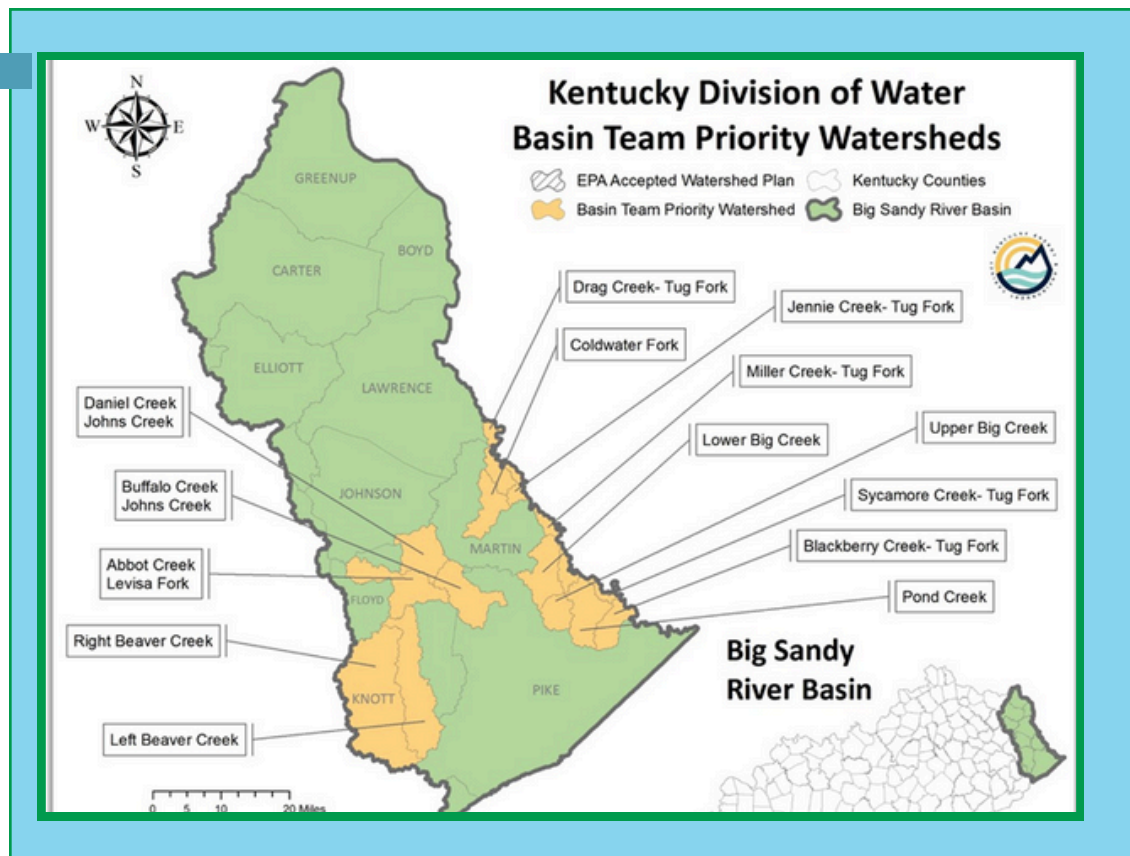


Figure 4. Priority Watersheds identified by the Big Sandy Rivers Basin.

Big Sandy River Basin

Tug Fork and Tributaries

The Tug Fork and Big Sandy Rivers form most of the border between Kentucky and West Virginia. Since 2016, the Friends of the Tug Fork River, a local 501(c)3 and the leading clean water organization in the area, have worked to restore the health and beauty of the Tug Fork River. The group celebrated many successes in 2024 including being recognized as the “Watershed Group of the Year” by the Kentucky Waterways Alliance for their service to “protect, restore, and celebrate waterways of Kentucky”, removing more than 16,000 (16,183 total) tires from the river, and opening Friends of the Tug Fork River official headquarters in South Williamson, WV. The group also partnered with Big Sandy Area Development District to apply for an EPA Community Change Grant in the amount of \$20 million that, if awarded, would fund ongoing tire removal efforts, the building of two disaster resilience hubs, the retrofit of a dangerous low-head dam, removal of debris from a collapsed bridge, development of multiple watershed plans, and a straight pipe removal program.

Island Creek-Levisa Fork

The City of Pikeville, with help from partners that included the University of Pikeville and Kentucky Division of Waste Management, hosted its 2nd annual Levisa Fork (Pikeville River Trail) Tire Round-Up in August 2024. The event brought together a wide array of community members, including city/county workers, concerned citizens and over 60 students from the University of Pikeville, who together pulled 512 tires from the Levisa Fork River. The event will continue annually, has launched a broader conversation about water quality, and has led the community to seek funding options for a water quality study.

Griffin Creek-Levisa Fork & Pond Run-Ohio River (Stormwater Management in the Big Sandy)

The communities of Louisa (Griffin Creek-Levisa Fork) and Flatwoods (Pond Run-Ohio River) have been in contact with the NPS section about using potential nature-based solutions to mitigate stormwater concerns. In both places, the natural ability of the landscape to absorb rainwater has been limited by development, and the once adequate municipal grey infrastructure struggles to manage increased runoff. Applications will be submitted for Sewer Overflow and Stormwater Reuse Municipal Grant Program (OSG) planning grants to develop green infrastructure projects that will take the pressure off existing infrastructure and protect vulnerable homeowners from potential flood damage.

Upper Elkhorn Creek and Newcombe Creek/Little Fork Little Sandy

In addition to the areas already discussed, the Big Sandy River Basin Coordinator is working with the City of Jenkins, Letcher County (Upper Elkhorn Creek), and Elliot County (Newcombe Creek & Little Fork Little Sandy), to prepare for watershed planning efforts. These communities recognize the importance of clean water to community and economic health and would like to advance the ecological health of waterways while improving recreational opportunities and current storm water infrastructure through watershed planning.

Four Rivers Basin

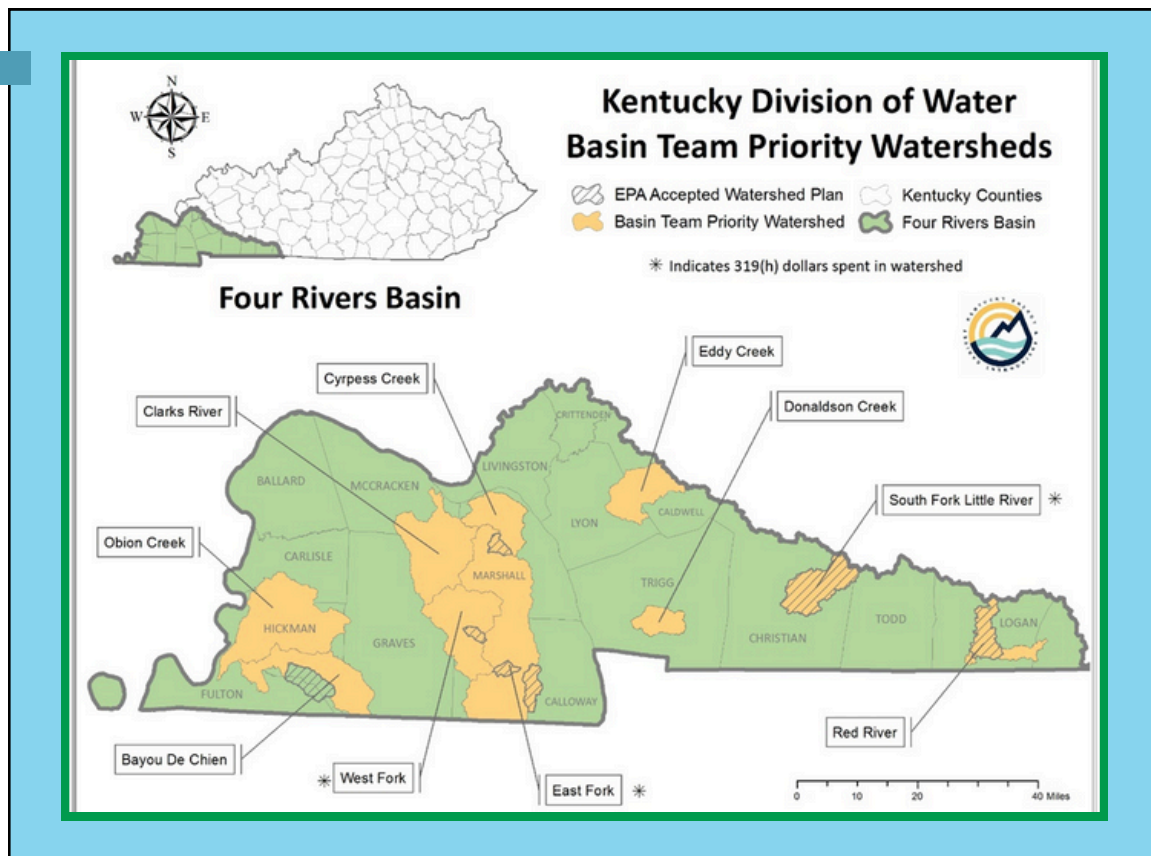


Figure 5. Priority Watersheds identified by the Four Rivers Basin.

Four Rivers Basin

Bee Creek and Clayton Creek

The Friends of Clarks Rivers National Wildlife Refuge received a 319(h) grant (Project 23-05) to write a watershed management plan for Bee Creek and Clayton Creek in Calloway County in 2023. Since receiving the grant, the Watershed Coordinator has been compiling information about the area and reviewing and analyzing the data. The focus for the watershed plan will be identifying BMPs for E. coli reduction.

South Fork Little River

The Little River Water Quality Consortium received a 2018 319(h) grant (Project # 18-08) to hire a South Fork Little River Watershed Coordinator who is working with local landowners to install BMPs that improve water quality. In 2022, approximately 60 home septic systems were pumped out and seven homes had new septic systems installed. In 2023, four home septic systems were pumped out. In 2024, 14 home septic systems were pumped out and three failing home septic systems were replaced. Agricultural BMPs are being discussed and designed with landowners to improve water quality in farming areas of South Fork Little River.



Figure 6. South Fork Activities

Chestnut Creek

Through several 319(h) grant-funded projects, the Friends group of Clarks Rivers National Wildlife Refuge continues to employ a Watershed Coordinator who works with DOW, NRCS, U.S. Fish and Wildlife Service Partners Program, and local partners to recruit landowners in Marshall County and the Chestnut Creek Watershed to implement pathogen, nutrient, and sediment-related BMPs, all of which are reinforced by continuous public education.

Additionally, the Watershed Coordinator helped Marshall County Fiscal Court facilitate residential connections to a newly installed sanitary sewer line as part of an FFY2018 319(h) project, in which four homes were connected to Sanitation District 2 and included decommissioning of each septic tank. This project also involved 11 home septic systems being pumped out (two with new riser installation), replacement of two failing home septic systems, and installation of two stream bank crossings.



Figure 7. Watershed model.

Green River Basin

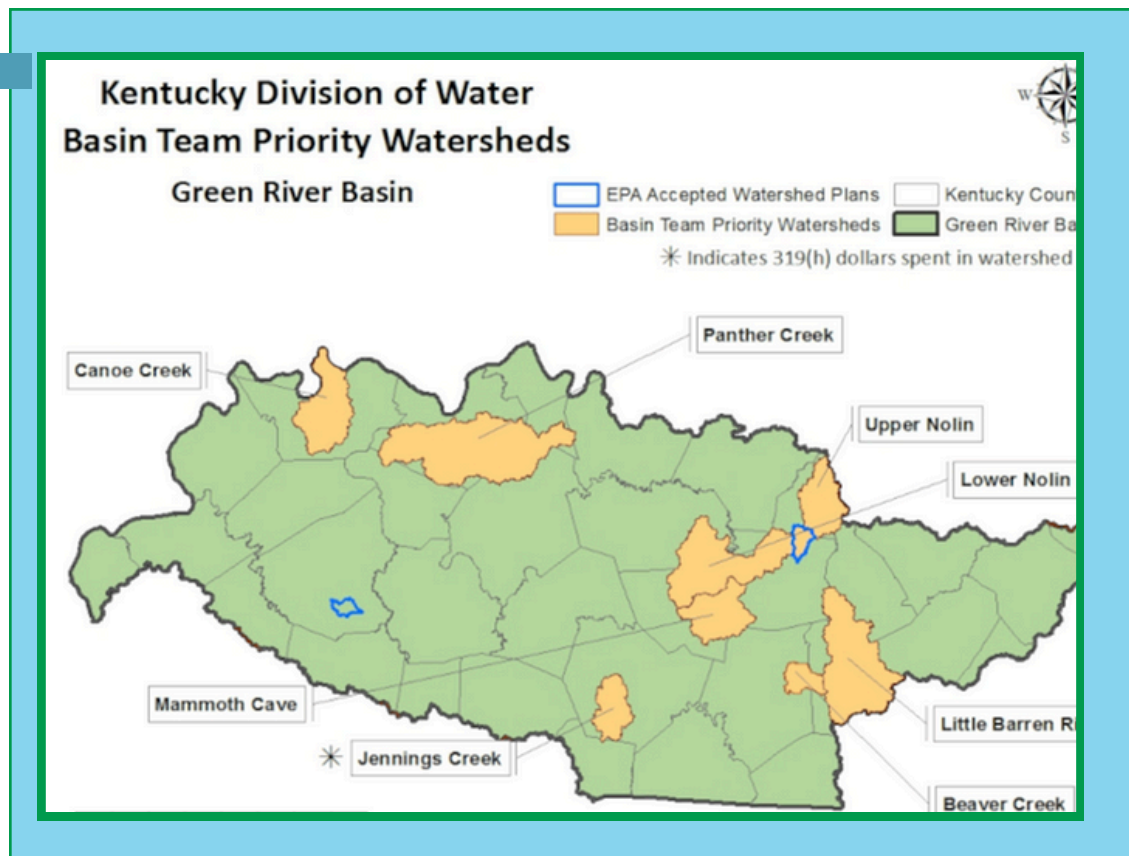


Figure 8. Priority Watersheds identified by the Green Rivers Basin.

Green River Basin

Warren County

The city of Bowling Green has undergone rapid urbanization with a 10% increase in population over the last 9 years, leading to an increase in water contamination from industrial sources and concerns regarding water quality due to the karst topography of Warren County and the presence of Lost River Cave. Investigations conducted in 2022 and 2023 found that substances from local production facilities were leaking into the water system. Due to these concerns, the Warren County Fiscal Court and the Division of Stormwater Management applied for, and were awarded funding from, the Sewer Overflow and Stormwater Reuse Municipal Grant (OSG) in 2024. The project focuses on Basil Griffin Park and aims to mitigate water quality and quantity issues related to nutrient management, streambank erosion and sedimentation, and management of excess stormwater. Basil Griffin Park has been a key recreation area for the Bowling Green community since the beginning of its construction in 1980 and contains Jesse Thornton Lake, another key water recreation area. The project is expected to begin in 2025.

LaRue County

The LaRue County Fiscal Court (LCFC), in partnership with Palmer Engineering, completed and submitted the North Fork Nolin River McDougal and Castleman Creek Watershed Management Plan, which the EPA accepted in February 2024. The plan focuses on two Hydrologic Unit Code (HUC) 12 watersheds which each contain DOW Source Water Area Protection Program zones. The primary water quality concerns are E. coli and nutrient loading, intended to be mitigated using BMPs that include sanitary lateral line repair, replacement of septic systems, elimination of straight pipes, and establishment of alternative livestock water sources. The LCFC will work with the LaRue County Health Department to apply for 319(h) implementation funding for 2025.

The LaRue County Conservation District has expressed interest in 319(h) implementation funding for 2025 in the Bacon Creek watershed. The Bacon Creek Watershed Plan focuses on the HUC 12 Upper Bacon Creek watershed where the primary water quality concerns are E. coli and nutrient loading. The BMPs focused on mitigating these concerns include livestock exclusion fencing, alternative livestock water sources, and heavy-use area management.

Henderson County

Beaver Creek Hydrology has continued working with the Green River Basin Coordinator to begin the watershed planning process for Canoe Creek in the City of Henderson. Beaver Creek Hydrology and Kentucky Waterways Alliance have partnered to focus on Canoe Creek at the Ohio River due to recent data showing impairment for Primary Contact Recreation, Secondary Contact Recreation, and Aquatic Life because of E. coli pollution, and will work with the Green River Basin Coordinator to form additional alliances. Beaver Creek Hydrology intends to apply for 319(h) programmatic funding for 2025.

Mammoth Cave

The Mammoth Cave Biosphere Region is an alliance of local and county governments, community organizations, higher education, and state and federal agencies including the USDA, Kentucky Division of Conservation, DOW, and NRCS. The Region endeavors to conserve water resources and biodiversity, encourage sustainable development, and educate the community it serves. It formed an Agriculture Committee earlier this year and began the early stages of watershed planning with the Green River Basin Coordinator. The Agriculture Committee intends to apply for 319(h) programmatic funding for 2026 or 2027.

Hidden River Cave

Hidden River Cave is a significant historical landmark located in Horse Cave and continues to be a hub for area recreation and education. Due to karst topography, the two subterranean cave rivers are prone to water contamination. The Education Director of Hidden River Cave has recently started working on the watershed planning process with the Green River Basin Coordinator, with the hope of mitigating water quality concerns, and intends to apply for 319(h) funding for 2025.



Figure 9 & 10 Hidden River Cave

Kentucky River Basin

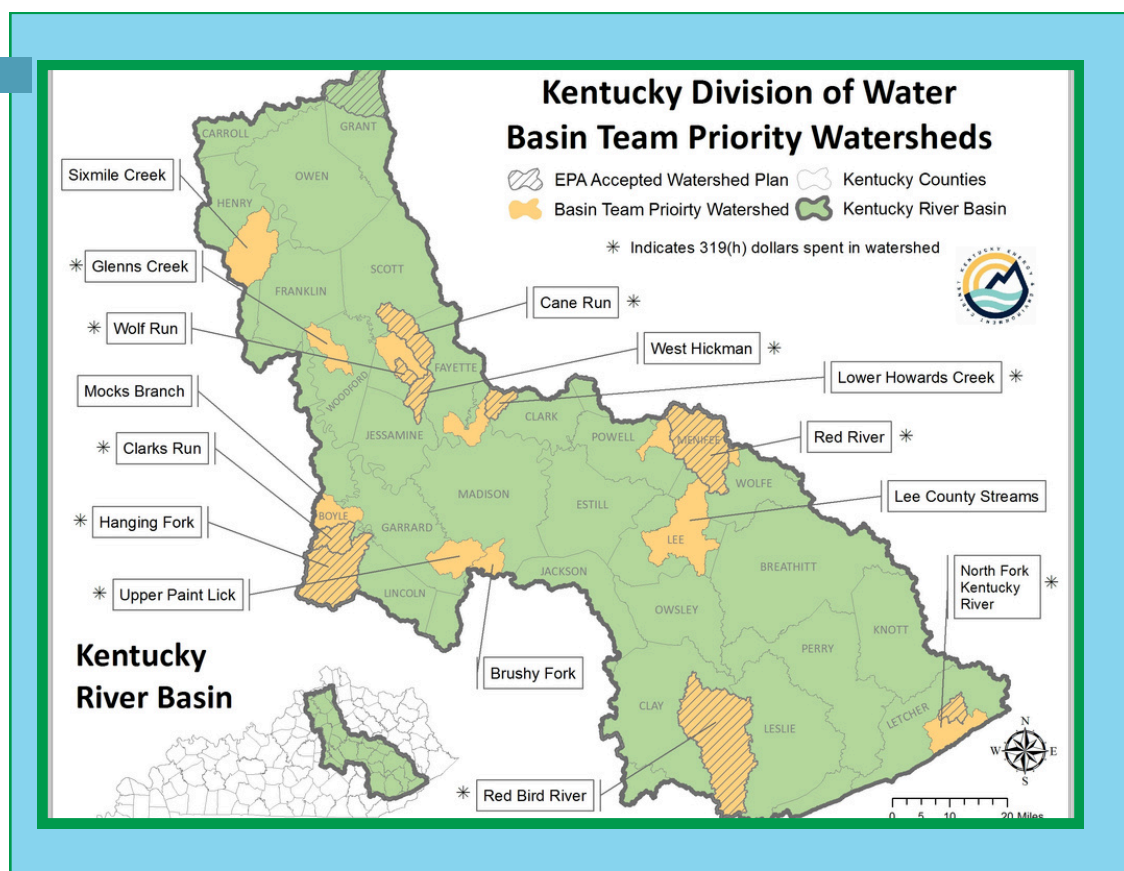


Figure 11. Priority Watersheds identified by the Kentucky River Basin.

Kentucky River Basin

Cane Run of North Elkhorn

For years, sewage from two large mobile home communities in Scott County has discharged to failing wastewater treatment package plants, which resulted in high biological oxygen demand (BOD) values and excessive levels of E. coli, ammonia/nitrogen, and phosphorus in nearby Cane Run.

Due to an expansion of the Georgetown Municipal Water and Sewer Service (GMWSS) area, a project connecting the two mobile home communities to a new sanitary sewer line began in 2021. Clean Water Act (CWA) Section 319(h) funds were awarded to the city of Georgetown to run a Homeowner Assistance Program which provided financial assistance to mobile home park residents for the costs associated with tapping into the new municipal sewer extension.

One of the mobile home communities with 500 lots became fully connected to the GMWSS line (Figure 10) in 2023. This is a significant step towards eliminating pollution from the failing wastewater treatment package plants and will considerably reduce the BOD values and excessive levels of E. coli and nutrients found within Cane Run. Kentucky Watershed Watch is currently monitoring the post-project water quality at multiple stream sites around the location to document anticipated improvements.



Figure 12. A map of the 500-lot mobile home park that was fully connected to the Georgetown Municipal Water and Sewer Service in 2023.

Wolf Run

Implementation activities in the Wolf Run Watershed of Fayette County continue moving forward. This past year updates to the 2013 data from Wolf Run Watershed Management Plan and the Best Management Practices (BMP) table were initiated. Additionally, 319(h) funds are enabling the Regency Road detention basin retrofit (BMP #48 of the watershed plan), which involves removing concrete channels, installing wetland micropools, and planting trees at the basin on Regency Road between Derby Drive and Lowry Lane. Plans are underway for a new detention basin (BMP #49 of the watershed plan) in the Southland area of Wolf Run.

Additionally, The Friends of Wolf Run received successive Stormwater Incentive Grants from the Lexington-Fayette Urban County Government (LFUCG) which enabled implementation of multiple riparian buffer education and enhancement activities. These include the return of grazing goats this year to remove invasive species, such as bush honeysuckle and wintercreeper, which also reduced the need for herbicide treatments in the watershed.

Red Bird River

Since 2016, 19 septic systems have been installed and 29 septic systems have been pumped out in the Redbird River watershed using CWA Section 319(h) funding and Kentucky River Authority grants, which led to the delisting for *E. coli* impairment from the mouth of Red Bird River to Big Creek. In addition, the US Forest Service organized riparian plantings and trash cleanups in the Red Bird River.

To continue bolstering these successes, Kentucky Waterways Alliance received a Septic and Education Project CWA Section 319(h) grant for FFY2023. These funds continue to support a watershed coordinator who is currently soliciting applications and working through contracts to install 13 additional septic systems in the watershed and host septic education opportunities in the community.

Lower Howard's Creek

In FFY2023, the City of Winchester installed a stormwater bioretention basin along an upstream tributary of Lower Howards Creek, funded by a FFY2021 CWA Section 319(h) grant. The project is designed to reduce the 100-year, 24-hour storm event maximum water elevation by approximately six inches and promote pollutant removal from stormwater through infiltration and pollutant uptake with native vegetation. Additionally, the basin will provide educational opportunities on the impact of high velocity stream flows on siltation, hydromodification, and in-stream habitat for schools and visitors to its sports complex. Planting native vegetation inside the bioretention basin occurred in FFY2024.

Dix River Watershed (Hanging Fork and Clarks Run)

The Clarks Run Environmental and Educational Corporation (CREEC) held three public education events, one with the Kentucky Governor Scholars Program, one with the Danville Rotary Club, and an Earth Day Festival. Additionally, educational signage regarding watersheds, stormwater runoff, eutrophication of lakes, and stream buffers for Logan-Hubble Park in Lincoln County was installed in April 2024 (Figure 11).



Figure 13. Educational signs installed at Logan-Hubble Park in Lincoln County, KY.

Glenns Creek

In FFY2021, the Kentucky Water Research Institute (KWRI) received a CWA Section 319(h) grant to complete a watershed plan using 2021-2022 monitoring data. ArcGIS Online software is being utilized to develop an interactive, electronic Glenns Creek Watershed plan which will facilitate real-time community engagement with the data, the ability to easily update the plan with new information and serve as a potential template for other watershed planning efforts across Kentucky. KWRI also formed a Glenns Creek Watershed leadership committee that conducted stakeholder meetings in FFY2024 to better understand local water quality goals.

West Hickman Creek

The Hickman Creek Conservancy (HCC) celebrated the EPA approval of the West Hickman Creek Watershed Management Plan in FFY2023, and since then has focused on community outreach activities including stream walks with students at Veterans Park, and invasive removals at Bella Woods. HCC also partnered with Tates Creek Community Center for a native planting workshop and , in partnership with the Bluegrass Chapter of Trout Unlimited, constructed an outdoor classroom along West Hickman Creek in Veterans Park. During development of the watershed plan, Palmer Engineering created an interactive [Map of West Hickman Creek's Areas of Concern and Proposed Projects](#) of potential BMPs for the watershed which will help guide future community water quality improvement efforts within the West Hickman Creek watershed. HCC is currently seeking funding for the removal of a non-functioning low-head dam in the lower portion of the watershed that was outlined in the watershed plan.

South Elkhorn Creek

Friends of Dogwood Park has been busy removing invasive species from the banks of Brannon Run and recently received a LFUCG Stormwater Quality Projects Incentive Grant to direct stormwater away from Clemmons West Spring. The grant will pay for natural spring enhancement by removing invasive plant species, cutting the eroded banks back, and putting in large, stacked rock at the head of the spring to prevent further erosion. In addition to the LFUCG grant, Friends of Dogwood Park received a Kentucky River Authority Grant to coordinate professional invasive tree, shrubs, and winter creeper removal along Brannon Run and the tributary of Clemmons West Spring, which was completed in spring of 2024 (Figure 12 & 13).

Upper Paint Lick Creek

The Upper Paint Lick Creek Watershed Management Plan is currently in progress, with several green infrastructure projects planned to begin its implementation.

North Fork KY River

Since the devastating floods of July 2022, the City of Whitesburg and the Letcher County community have renewed their focus on the Whitesburg Tributaries Watershed Management Plan. On November 13-14, 2023, Cowan Community Action Group, Inc. hosted a community workgroup meeting attended by 20+ local community members and stakeholders, with “Imagining Community-Led Sustainable Stream Restoration” as the theme. During this event the community decided to apply for FFY2024 CWA Section 319(h) funding to support a local watershed coordinator who can lead implementation of the Whitesburg Tributaries Watershed Management Plan.



Figure 14 &15. Volunteers planted Black Willow live stakes for streambank stabilization along Brannon Run in Dogwood Park, Lexington, KY.

Licking River Basin

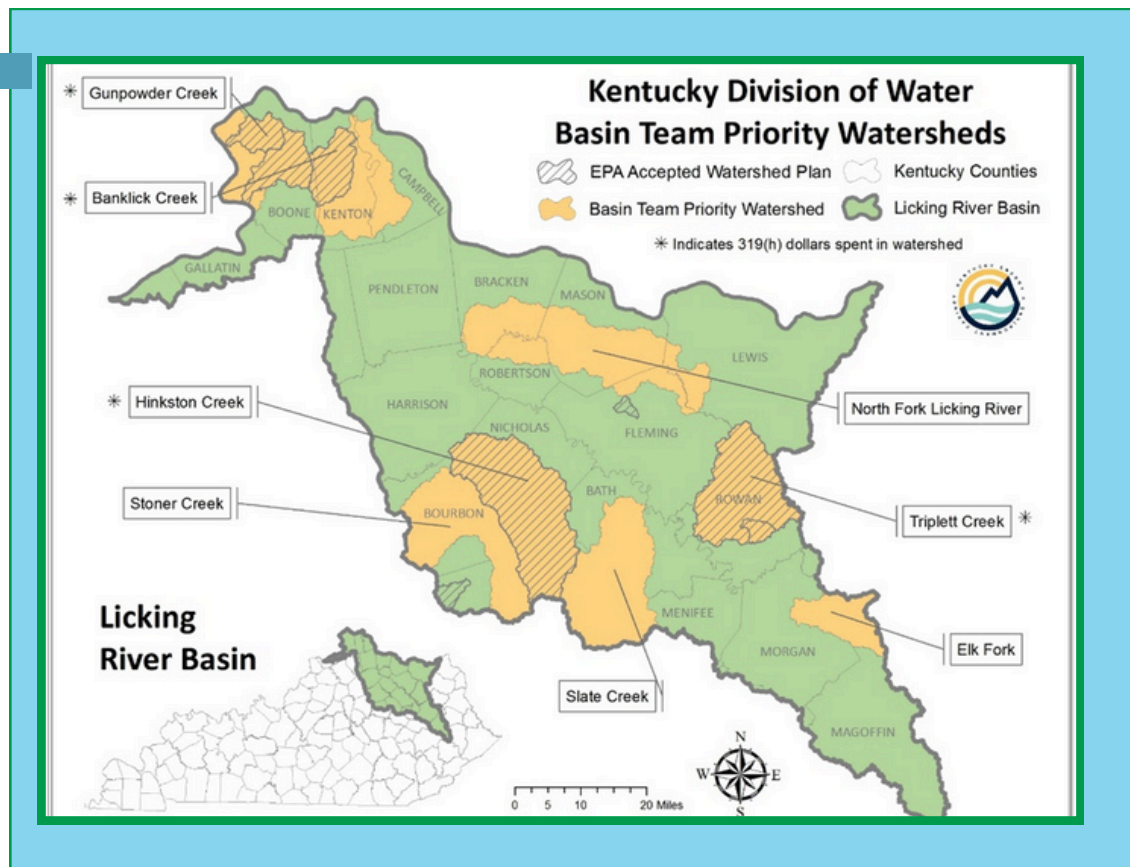


Figure 16. Priority Watersheds identified by the Licking River Basin.

Licking River Basin

Gunpowder Creek, Dry Creek, and Banklick Creek

There is significant momentum in the northern parts of the Licking River Basin. Gunpowder Creek, Dry Creek, and Banklick Creek all have active, EPA-approved, watershed plans. Banklick Creek has a contracted watershed coordinator, and all three have active, ongoing projects in 2023, some 319-funded and others with alternative funding. All watershed groups are highly interested in implementing nature-based solutions to reduce erosive stormwater flows and protect water quality.

Gunpowder Creek

Gunpowder Creek contains the only TMDL Alternative Plan in Kentucky and was removed from the state's list of impaired waterways for sedimentation/siltation in the 2018/2020 IR cycle (segment 0.0 to 15.). The Boone County Conservation District is using funds from Kentucky Department of Fish and Wildlife Fee, In Leu Of (FILO) program, and mitigation credits, for stream and wetland projects in Middle Creek, Gunpowder Creek, Woolper Creek, and Big Bone Creek. Additionally, the Boone County Conservation District is using 97 acres of purchased land, adjacent to Gunpowder Creek Nature Park, to establish a center for conservation and education.

Dry Creek

Sanitation District One (SD1) has a basin monitoring program that included data collection within the Dry Creek watershed and other locations throughout its service area, and rotates through each of the established basin areas (East, Central, North and West). Monitoring in the West Basin in 2024 included water quality, biological and habitat assessments, and channel stability surveys. The other basins (Central, East, and North) only had limited water quality monitoring but will include more in-depth monitoring for each applicable basin year (East – 2025, Central – 2026, North – 2027).

Banklick Creek

Banklick Watershed Council (BWC) is an active, local nonprofit that implements the Banklick Watershed Management Plan, led by their watershed coordinator. The BWC had a busy FFY2024, including completion of the first draft of a TMDL-alternative for Banklick Creek (in conjunction with Northern Kentucky's Sanitation District, SD1), distribution of 155 letters and flyers to septic homeowners in hot spots (which also included six yard signs) or along waterways, 2 septic repairs completed, 1 tree planting, 1 native wildflower seeding, and 1 EPA research study using microbial source tracking to identify bacteria sources (McMinn et al 2024).

Additional BWC projects currently underway include:

1. Stormwater Management - 3 basin retrofit designs, 2 additional basins selected for retrofit design, canvassing the watershed for future culvert and retention locations, and an update to Horse Branch Creek (City of Crestview Hills) model to identify retrofit opportunities.
2. Pollution Reduction - 3 septic repairs approved and awaiting construction, assisting with installation of public sewer lines, decommissioning 124 septic systems and 1 package plant, an EPA follow-up study for pre- and post-sewer extensions, updating/streamlining septic assistance process, and residential non-point source pollution outreach.
3. Land Conservation - 6 acres of upland areas to be donated and placed into conservation, conservation outreach to lower Banklick property owners, and wetland assessment for Brushy Fork property.
4. Watershed Planning - updates to Banklick Creek Watershed Plan.

As part of the FEMA-Banklick buyouts from the Meldahl Hydroelectric Project, the Kenton County Conservation District has been monitoring the post-installation of the bottom-land hardwood forest and is working on a plan for invasive plant removal and restoration on donated property near Elsmere Elementary School. Sanitation District 1 has started septic elimination in areas known for failing systems along Banklick Creek, which is slated for completion in 2026. In addition, SD1 regularly conducts water quality assessments in 16 waterways across 3 different counties (Boone, Kenton, and Campbell).

Hinkston Creek

Stakeholder interest varies within the central-west region of the basin, but many watersheds had some level of activity during FFY2024. Of the three priority watersheds in this region, Hinkston Creek is the only one with an EPA-approved watershed plan.

In Hinkston Creek watershed, the UK Cooperative Extension Service used the “Tap Your Potential” curriculum for farmer watershed leadership training events in January and February 2023. This training led to the use of NRCS EQIP and EPA Farmer To Farmer funds to help a farmer in the Hinkston Creek watershed add fencing to restrict livestock access to sensitive areas, install a heavy-use area winter feed pad, establish plantings in critical areas, and place gateway installations to prevent and control erosion.

The City of Mt. Sterling is working with Gateway Area Development District to build 2-4 large “Green Sinks”, or off-channel retention basins, to mitigate flooding and NPS pollution from stormwater runoff before it reaches Hinkston Creek, and to build public greenspace. They received 319(h) funding in 2024 and are currently procuring an engineer to design two Green Sinks (Phase 1).

The Bourbon County Conservation District has also been involved in the Hinkston watershed with its Fall Farm Field Day that promotes conservation through a local pasture seeding cost-share program that encourages better forages, a Soil Stewardship Week in local schools, Agriculture Water Quality Plan development assistance to landowners, technical assistance to address conservation-related issues, and a tree seedling giveaway with the goal of increasing hardwood tree density in Bourbon County.

The Kentucky River Watershed Watch has been conducting regular sampling of Hinkston Creek for water chemistry and E coli, and Bluegrass Greensource has sponsored the repairs of 6 septic systems with 319(h) funding.

Stoner Creek

Friends of Stoner Creek has taken the lead in Stoner Creek by performing water quality testing with Kentucky Watershed Watch and holding a stream clean-up event.

Slate Creek

The DOW, NRCS, City of Mt Sterling, and Mt Sterling Water and Sewer utility are all working together to reduce NPS pollution runoff into the Greenbrier Reservoir, the drinking water source for the city and surrounding area. Additionally, the local health department is concerned about failing septic systems in the watershed and subsequently, there is interest in a state revolving fund project to address those issues. Local partners voiced interest in educational awareness regarding the Outstanding State Water Resource in the Slate Creek area. NRCS began planning in FFY2022 for Slate Creek which was identified as a Mississippi River Basin Initiative watershed.

Salt Creek and Beaver Creek

The DOW Nonpoint Source and Basin Team is working with the Salt Lick (Salt Creek) and Frenchburg (Beaver Creek) communities, and the Gateway Area Development District, to construct Green Sinks for flood and NPS pollution abatement. Salt Lick recently received a FEMA Planning and Sewer Overflow and Stormwater Reuse Municipal Grant for the planning and design of two Green Sinks, and Frenchburg is working with USACE-Louisville on the planning phase for Green Sinks.

Licking River

Stakeholder interest varies within the central-east region of the basin. Most priority watersheds had some level of activity during FFY2024. Of the two priority watersheds in this region, Triplett Creek has an EPA-approved watershed plan.

In the main stem of the Licking River, a private citizen group conducted regular trash and tire cleanups, removing about 350 tires in FFY2024. In addition, USACE-Louisville initiated a Licking River Sustainable Rivers Program, which intends to consider other environmental needs, such as those of aquatic organisms, in addition to its water quantity control mission, in the release schedule for the USACE Cave Run dam into the main stem of the Licking River.

Limestone Creek

Momentum in Limestone Creek has resulted in the City of Maysville partnering with the Buffalo Trace Area Development District, the Mason County Public Library, DOW, and USACE-Huntington to make monetary and temporal investments in the creek for flood mitigation, NPS reduction, and public greenspace and outdoor recreation. The Mason County Public Library is funding, and collaborating with the University of Louisville, for a sediment tracing study in Limestone Creek. USACE-Huntington has agreed to a complete restoration of Limestone Creek and develop associated public greenspace via its 1135 Waiver Authority once funding is allocated. Kentucky Watershed Watch has also started sampling Limestone Creek for water chemistry and E coli.

The City of Maysville received OSG funding in 2024 for the engineering and design of two Green Sinks and is currently procuring an engineer. The city plans to pursue 319(h) funding for a Limestone Creek Watershed Management Plan in FFY2025.

Lees Creek, Lawrence Creek, North Fork of the Licking

In the North Fork of the Licking and Lawrence Creek, the Kentucky Watershed Watch has been keeping up with regular water sampling, including water chemistry and E. coli levels. In addition, Mason County Conservation District along with USDA programs have 34 producers under contract to implement conservation practices over a five-year period. These contracts cover approximately 6,486 acres that have been approved to apply best management practices. Additional funding of \$12,000 was provided to Mason County Fiscal Court through grants awarded to Mason County Conservation District for deceased animal removal.

Triplett Creek

Two high-level resource documents have been produced by U.S. Army Corps of Engineers for Triplett Creek, including an Initial Watershed Assessment (2019) and a Planning Assistance to States Study Flood Risk Reduction on Triplett Creek (2018). There is significant local interest from the City of Morehead's Floodplain Coordinator and Morehead Plant Utility Board regarding stormwater management and flash flooding impacting water treatment plants, wells, and the community. The Licking River Basin Coordinator has been in conversation with program staff to strategize 319(h)/MS4 synergies. Morehead State University has conducted regular sampling and in-house analysis for Triplett Creek, as part of a MSU research grant and partnership with the DOW.

The City of Morehead is working with Gateway Area Development District to build 2-4 large Green Sinks (off-channel retention basins) to mitigate flooding and non-point source pollution from stormwater runoff before it hits Triplett Creek. The City of Morehead was recently awarded FEMA Planning grant to begin the process of planning for the installation of these Green Sinks and they are planning to apply for a 319(h) grant in FFY2025 for engineering and design of said Green Sinks. Triplett Creek is DOW's FFY2024 Success Story, as it was recently delisted from our list of impaired state waters.

Salt River Basin

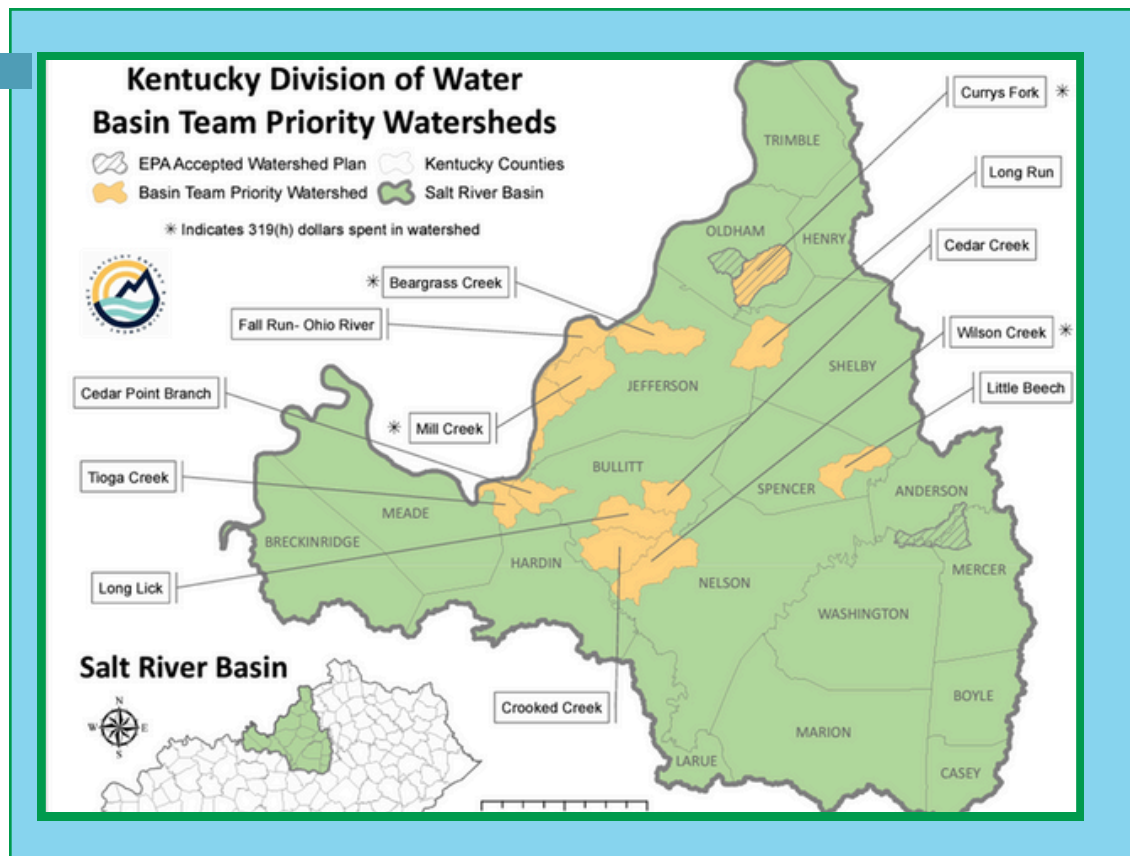


Figure 17. Priority Watersheds identified by the Salt River Basin.

Salt River Basin

Curry's Fork

The Curry's Fork Watershed in Oldham County is a tributary of Floyds Fork, covers approximately 29 square miles, and is composed of four smaller sub-watersheds. The EPA approved the Curry's Fork watershed plan in 2012.

In FFY2024, the Oldham County Conservation District (OCCD) employed a part-time Watershed Coordinator to implement BMPs as part of its FFY2020 319(h) grant funding. Previously, the Oldham County Fiscal Court held this position.

Additionally, as part of its 2020 and 2022 319(h) grants, the OCCD organized a pond and lakes management workshop with approximately 25 participants, focused on BMPs and citizen science in the Volunteer Lake Monitoring Program. The workshop ended with a riparian tree planting and a family field day for the community. In the spring, the OCCD facilitated a giveaway during which over 800 live stakes were distributed.



Figure 18. Pond & Lake Management Day

Curry's Fork received an FFY2024 319(h) grant to promote changes within the watershed using an education, demonstration, and incentive approach. The goal is to increase stakeholder engagement with watershed improvement efforts, including an educational wetland complex design, the completion of the 2022 319(h) basin retrofit project, and the oversight, collaboration, and coordination of watershed plan implementation through the part-time Curry's Fork Watershed Coordinator. The OCCD also facilitated a pollinator cost-share program for Oldham County residents and conducted a composting and water filtration workshop at Yew Dell Botanical Gardens.

Middle Fork Beargrass Creek

The approximately 61 miles of stream of Middle Fork Beargrass Creek is located in central Jefferson County. In 2022, the EPA approved the watershed management plan for this creek and since then, the Louisville-Jefferson County Metropolitan Sewer District (MSD) has hired a full-time Watershed Coordinator who assists with community engagement, education, and outreach. In FFY2024, MSD staff facilitated an Earth Day Clean Sweep of Beargrass Creek in partnership with Kentucky Waterways Alliance, during which approximately 42 volunteers participated. To celebrate, MSD had a “weirdest found object” contest, the winner of which found a 1980’s era Sony Walkman.

MSD also collaborated with Ripple Effects, a K-12 photo contest that explores the confluence of art, culture, and environment along Kentuckiana’s waterways, for education and outreach. MSD conducted and participated in several outreach campaigns including promoting the photo contest on the Belle of Louisville, joining the photo contest award ceremony at the Louisville Water Tower, and took part in the Enviroscape at Native Wisdom Water Day at the Waterfront Botanical Gardens.



Figure 19. Weirdest objects found from Beargrass clean-up.



Figure 20. Trash pile from Beargrass Stream Clean-up

Mill Creek

The Mill Creek watershed is a 34-square-mile basin located in southwest Louisville, Jefferson County, and is divided into the Upper Mill Creek and Lower Mill Creek sections. MSD launched a watershed planning project in 2022 and recruited partners for monthly meetings and input.

In FFY2024, MSD launched a community-centered survey to address BMPs that not only suit the watershed but would best serve local interests. To get the community involved, MSD staffed an information table at the Southwest Community Festival, South End Community Market, Shively Artisans and Farmers Market, and Riverside Farmers Market. The survey was shared on its social media, in council newsletters, and information cards left at libraries, community centers, and local coffee shops. Additionally, MSD used 319(h) funding to initiate a three-site trash clean up in the watershed, which resulted in approximately 68 volunteers removing six dump truckloads of trash that included over 20 tires, mattresses, a futon, a shopping cart, carpet remnants, and a bus seat.

Hardy Creek/Little Kentucky

Hardy Creek is approximately 5.6 river miles long and flows southeast to drain into the Little Kentucky River. The watershed also includes Dry Fork Creek and Daugherty Creek. Most of the land in the watershed is used for agriculture, with a residential area extending from the City of Bedford to south of Hardy Creek. The watershed is prone to severe bank erosion and flooding during heavy rain events.



Figure 21 & 22. Mills Creek Stream clean-up at Sun Valley Park

The Trimble County Fiscal Court received FFY2024-319(h) funding to develop a watershed plan for the Hardy Creek-Little Kentucky River watershed. The plan will include water sampling data to identify water pollutants and potential sources, and a list of BMPs to minimize pollutants from entering the waterbody. Ultimately, the plan will help reduce NPS pollutants, restore impaired streams, and help attain water quality standards for that area. Additionally, the plan will raise public awareness about water quality and how communities can reduce NPS pollution.



*Figure 23. Hardy Creek, severe bank erosion.
Figure 24. Hardy Creek- eroded to bedrock.*



Sulphur Creek

The Sulphur Creek watershed is located in parts of Anderson, Mercer, and Washington counties. The basin is approximately 23 square miles and is a tributary to Chaplin River that drains directly into the Salt River. The EPA approved the Sulphur Creek Watershed plan in 2015. In FFY2024, the Mercer County Conservation District held a Farm Field Day open to the community, which included touring three farms at which implemented BMPs were demonstrated. The 75 people in attendance included landowners and farmers from the surrounding counties.

Upper Cumberland River Basin

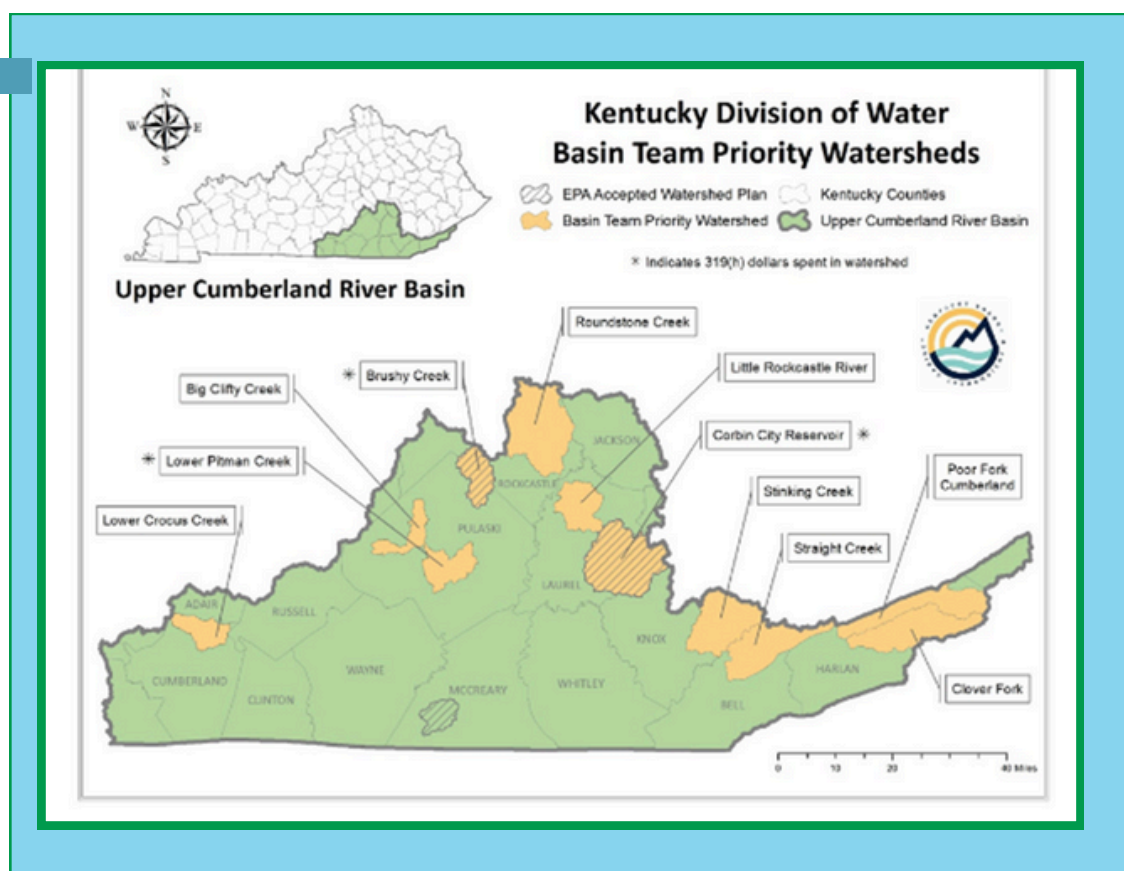


Figure 25. Map of Upper Cumberland River Basin Team Priority Watersheds.

Upper Cumberland River Basin

Rockcastle River Watershed

The Upper Cumberland Basin Team widened the priority area around Roundstone Creek and the Little Rockcastle River to include the entire Rockcastle River Hydrologic Unit Code 8. The Rockcastle Conservation Initiative was formed in 2018 to provide stakeholders an opportunity to work together toward a common goal of protecting and enhancing natural resources in this priority area.

The watershed is a globally important biodiversity hotspot in Kentucky. Historically, its streams contained 65 fish species, 38 mussel species, and 10 crayfish species. The rich flora and fauna here harbor rare and endangered species that depend on high quality ecosystems, including critical bat populations, rare amphibians and reptiles, and black bears. The plant flora is among the most diverse in temperate latitudes and includes many medicinally valuable or rare species, as well as several plant species that are unique to the gravel and cobble bars along the lower Rockcastle River, one of only three in Kentucky that have these high-quality riparian areas and ecological communities.

Through this Initiative, the Natural Resources Conservation Service (NRCS) is funding a focused conservation project in the watershed to address key resource concerns including water quality, soil health, plant and animal health, and climate change. Previously, NRCS approved two sub-watersheds of the Rockcastle River Watershed for focused conservation projects. A new aspect of the project this year is the treatment of hemlock woolly adelgid.

Lower Pitman Creek

The City of Somerset was approved for a 319(h) grant to address water quality concerns in the Lower Pitman Creek watershed, which is a heavily karst area, so the DOW conducted a study to identify the locations and flow patterns of sinkholes, springs, and groundwater under the city. The DOW also conducted a surface water intensive study to assess watershed conditions. The watershed plan is in progress and expected to be complete in 2025.

Buck Creek

The Upper Cumberland Basin Team widened the priority area around Brushy Creek to include the entire Buck Creek Hydrologic Unit Code 8. Based on the Buck Creek watershed acting as the pilot project for the DOW Healthy Watershed Program, the Pulaski County Conservation District received approval for a 319(h) grant to address sediment and water quality in the Upper Buck Creek watershed. The project focuses on restoring and protecting habitat for 77 fish species and 30 species of mussels, 9 of which are considered rare, and the project team is examining the inclusion of a mussel survey in 2025.

Stinking Creek

The Lend-A-Hand Center, in partnership with the University of Kentucky Appalachian Center and the University of Kentucky Center for Appalachian Research in Environmental Sciences, hosts two stream cleanups each year. Participants are given the opportunity to start the day with optional educational programs to deepen their understanding of their natural surroundings. This years-long program attracts a large number of local community members interested in clearing the trash from Stinking Creek.

ENVIRONMENTAL JUSTICE

Environmental Justice in the Nonpoint Source Program

In July of 2021 the Biden Administration announced the “Justice 40 Initiative”, which requires 40% of all federal benefits from certain programs to be directed to disadvantaged communities, i.e., those that are marginalized, underserved, and overburdened by pollution. The DOW has been working to reach communities most affected by NPS pollution, and that a minimum 40% of its funds go to those that are disadvantaged. The program has identified several barriers to groups new to watershed planning that can be improved including lack of water/environmental literacy, lack of access to technical information and resources, and limited time and financial resources, and has taken the actions described in this section to address these barriers.

Recovery Potential Screening Tool

To identify and prioritize disadvantaged communities for NPS work within the state, Kentucky participated in the EPA Phase II Analysis for Incorporating Equity and Environmental Justice into NPS Management, which included providing analytical assistance to states using data layers that characterize disadvantaged communities that help decision-making in watershed projects, capacity building, outreach and education, and other activities. The Kentucky pilot utilized the Recovery Potential Screening Tool Framework to create a method that allows users to prioritize watersheds, and address both disadvantaged communities and NPS concerns.

Watershed Planning

The DOW is working to limit the technical expertise, resources, and time required, and financial barriers, to pursue watershed planning and access to 319(h) funding. This has primarily been accomplished through publications such as the 319 Grant Reporter, that remove the need for technical expertise and separate mapping software, and decrease the time required to compile a grant application. The DOW has several other mapping and data resources publicly available, including the Water Health Portal and the Watershed Explorer, that increase access to technical information.

The DOW is simplifying and streamlining its watershed planning process by providing additional technical guidance and resources which reduces barriers to watershed planning and examining the expansion of education and outreach efforts to improve water literacy across the state. For more information about mapping tools, see page 79.

EDUCATION AND OUTREACH

Education and Outreach Highlights

Discover the Wonders Below: Freshwater Snorkeling in Kentucky

Kentucky waterways offer more outdoor recreational opportunities than just fishing, boating, and swimming and underneath the surface, they are teeming with life. While many people associate snorkeling with tropical reefs, freshwater snorkeling is gaining attention as an exciting way to explore the vibrant ecosystems right in our own backyard.

DOW is partnering with the Kentucky Environmental Education Council, the Daniel Boone National Forest, and the Kentucky Department of Fish and Wildlife Resources to develop a freshwater snorkeling program. Participants can observe fish, crayfish, macroinvertebrates, and other animal and plant life in their natural habitats, gain a deeper appreciation for the rich biodiversity in the Commonwealth, and better understand freshwater systems and the efforts to conserve and protect these delicate ecosystems. Guided events will be available to the public in the upcoming years.

Envirothon

Since 1999, the Kentucky Envirothon Program has offered students in grades 9-12 the opportunity to participate in an environmental and natural resources conservation problem-solving competition. Envirothon fosters hands-on learning and outdoor field experience in areas such as aquatic ecology, forestry, soils & land use, wildlife, and current environmental issues. It incorporates STEM (Science, Technology, Engineering, and Math) principles and challenges the development of critical thinking skills to develop creative solutions to real-life environmental and natural resource issues.

Each team of five students are tested on their knowledge of Kentucky natural resources at five “in the field” test stations, each covering a separate topic, and at which the teams answer a set of questions specific to that area. Similar to athletic competition, regional winners advance to the state competition, and the state winners move on to the international North American Envirothon. This program encourages the most current curricula and helps build ties between schools, organizations, and communities in preparing students for competition.

In early spring, the Kentucky Division of Conservation holds full day training events to prepare the students for regional competition. Each test station consists of the five fields and has “field experts” who use a combination of visual aids, Q & A, and hands-on techniques to educate the students. During training days this year, DOW discussed various water-related topics, such as the Clean Water Act, watersheds, water quality, and current “hot” water issues. Students determined stream orders and completed a biological stream assessment to decide whether the stream is healthy. DOW also provided students the opportunity to see real macroinvertebrate specimens and freshwater mussel shells.

Additionally, the DOW used ClassMarker to develop a more streamlined, online test for future competitions. Questions are categorized into human impacts, watersheds, water quality, wildlife, and current issues, can easily be changed to meet program needs, and ensures that each exam is unique from year to year.

Spring Into Reading

This spring the DOW participated in the Kentucky Department for Libraries and Archives annual Spring into Reading event, during which local elementary school students enjoyed a fun-filled day of hands-on activities. DOW used the [Stormwater Model](#) to explain the difference between pervious and impervious surfaces, demonstrate the flow of water when organic barriers or infiltration are absent, and show how wetlands can be a natural pollutant filter and provide water storage. The students were also able to look at and learn how macroinvertebrates are essential to healthy, diverse streams, and were provided with freshwater mussel shells from nearby rivers.



Figure 26 & 27. Stream Snorkeling with the Mason County Public Library

E&O Accomplishments and Activities

Action Items	2024 Accomplishments
Action Item 1.1: Continue effective messaging for the Division of Water	In 2022, the 'I Love KY Water' Facebook page was renamed to 'KY Wild Waters'. The page currently has 21, 044 followers. A quarterly newsletter called 'KY Wild Waters'- News from the Basin Team' is distributed via MailChimp to 1,722 recipients.
Action Item 1.2: Partner w/organizations on environmental education and outreach opportunities	Partnered with the following organizations: Kentucky Conservation Districts, Kentucky Water Resources Research Institute, Kentucky Association for Environmental Education, Kentucky Department of Conservation, Kentucky Waterways Alliance, Kentucky Association of Mitigation Managers, Friends of Tug Fork, Jackson Purchase RC&D Foundation, UK Extension Office, Black Soil KY, University of Pikeville, University of Louisville, University of Kentucky, Kentucky Watershed Watch, The Nature Conservancy, Ohio River Basin Alliance, Louisville MSD, River City Paddle Sports, Murray State University, Banklick Watershed Council, Lewis County Highschool ROTC, KY Dept for Libraries and Archives, Kentucky State University, KY State Parks, Kentucky Department of Fish and Wildlife
Action Item 1.3: Develop content for social media, basin newsletters, and other print and non-print outlets	Social Media: The Basin Coordination team distributes a quarterly newsletter, Each Basin Coordinator provides content for the Facebook page, Participated in the following Social Media Campaigns to promote various aspects of water, including Septic Smart Week, Environmental Education, Lake Safety, Feature Friday that highlights work being done in various watersheds. Water Conservation, Wild Waters Wednesday to get people to post photos of their favorite water spot, and Safe Drinking Water week. Produced Land, Air, and Water webzine article.
Action Item 1.4: Coordinate and conduct public events and/or exhibits	Conservation Career Fair, Discovery Day, Springfield Green Festival, Raisin' Hellbenders on the River, Marsh Madness at Dogwood Park, Kids Renaissance Health Fair, Mountain Heritage Festival, Unlocking your Land's Potential: Navigating Government Resources, Somerset College Earth Day Celebration, J. Graham Brown School Earth Day, Streamside Field Day, West 6th Reforest Frankfort, Kelley's Landing Open House, Carter County Farm and Field Day, KAEE Outdoor Learning Symposium, Herrington Lake Conservation League, Red River Fest, Kentucky Heartwood Festival, K-12 Educators Resource Fair

Education & Outreach Activities by Type

Type	Activity	Community Reached
Presentations	Cost Effective Flood Mitigation with Green Sinks, Achieving Flow State, What's Shakin' in the Basin: Licking River Watershed Watch Annual Conference, Watershed Planning in Hardy Creek/Little Kentucky River & 319(h) funding, Building Partnerships for Clean Waterways, Grant Funding Tool, there is nothing Retro about the Latest Stormwater Basin Retrofits, From Forgotten to Critical Resources: Planning for the Future with wetlands, Watershed Watch, Basin Updates and 319(h) grant, Volunteer Lake Monitoring Program, Rough River Watershed and Planning, Project WET, Importance of Riparian Buffers, Clean Water Act, Water Quality Standards, and You, Watershed Planning, Flood Mitigation and Green Sinks, Kentucky Communities are Embracing Their Local Waterways, Basin Coordinators Have a Seat at the Table	Conducted ~18 formal presentations reaching ~420 community members of all ages
K-12 Environmental Education	Warren County Streamside Field Day, Mountain Heritage Festival, Calloway County Middle School, J. Graham Brown School Earth Day, Mason County High School Activity Day, Discovery Day @ Big Bone Lick State Park, New Castle Elementary, Spencer County Ag Day, Jim Claypool Art and Essay Contest, Summer Spark Youth Education, Frankfort Independent Field Day, Spring into Reading, Oldham County Field Day, High School Stormwater Science Expo, Boone County Family Nature Day, Kentucky Geological Survey Open House, Maxwell Elementary STEAM Science Night, Boyle County 4H Environmental Club, Water Week Stream Walk, Water Quality, Red River Fest, Cornerstone Christian Academy Community Helpers Day, Envirothon West Regional Competition, Envirothon East Regional Competition, Envirothon Training Days, Envirothon State Competition, Murry Sustainability Festival	Conducted Environmental educ. Programs reaching ~4,300 students

Workshops (attended)	Kentucky Tree Farmer of the Year Field Day, Statewide Stream Restoration Planning Workshop, Hidden River Cave & Karst Topography, Invasive Plant Education Training, Danville High School Stream Buffer Planting, Brownfield Bootcamp, Stream Safety Training, MS4 101, KAEE Core Curriculum/Facilitator Training, WSW Plant Operators Training, Area 3 SVAP 2 Training, Level 1 & 2 Watercraft Inspection and Decontamination, KWA Inaugural Kentucky Watershed Network Collaborative Summit, Kentucky Association of Mitigation Managers Conference, Salt River Watershed Watch Annual Conference, Ohio River Way Summit, Indiana Lakes, Management Conference, Water Rocks! Summit, Licking River Watershed Watch Conference, EEC Governor's Conference, Site Scan Training	
Community Meetings Attended	Tennessee Nutrient Taskforce, MSD 319(h) Grant Meeting, Martin County Water District, Jackson KY Flood Mitigation, Banklick Watershed Meeting, A Cleaner KY Movement Meeting, Stormwater Management w/Mt. Washington, Tug Fork Watershed Planning Meeting, Warren County Watershed Meeting, Mills Creek Partners Meeting, Statewide Stream Restoration Planning, Low-Head Dams to Whitewater Parks, Curry's Fork Watershed Meeting, Hardy Creek Watershed Planning Meeting, KAEE Conference Planning Meeting, Monitoring South Fork Harrods, Litter Gitter Trash Collection Systems, Red River Gorge LOI meeting, South Elkhorn 319 and LOI Meeting, Cardinal Landing Conservancy Meeting, LFUCG 319 Grant Budget Meeting, Cowan Community Group Meeting, ORW Conservation Committee Meeting, GI/NBS Discussion w/SD1, Ohio River Wayn Meeting, Hellbender Conservation Meeting, Local Clean Water Priorities for Ohio River Restoration Friends of Floyds Fork,	Attended ~93 in-person and ~102 virtually community meetings throughout Kentucky

Community Meetings Attended Continued	FLASH Initiative Kickoff Meeting, Red River Watershed RCPP Meeting, Castleman/McDougal 319(h) Application Meeting, Adair County Community Outreach, Canoe Creek Update, Henderson County and ORW Meeting, GRADD/DOW Introductions, Western KY, KWA and 319 Program, Upper Buck Erosion Study Results, KDFWR RCPP Easement Partner Planning Meeting, MRBI/NWQI, Implementation Planning Meeting, Bacon Creek Success Monitoring, KWN Summit Basin Breakout Group, Kentucky River Basin Team Meeting, Coal River Coalition Discussion, Letcher County Grant planning, Ohio River Conservation Corridor Launch, Kentucky Emergency Management Grant Admin, South Elkhorn Watershed Meeting, Clarks Run Watershed Meeting, Paint Lick Watershed Meeting, Garrard County Sanitation District, Bowling Green/E-town Stormwater Meeting, Henderson County Watershed Planning, Shelbyville MS4, Maker's Mark Watershed Planning Meeting, Tire Shredding Impacts for Waste Tire Removal, Mt. Sterling Flood Mitigation, Trimble County Rotary Club, Morehead Green Sink Community Trail, Northern KY Sierra Club Meeting, Mammoth Valley Farm Water Quality Discussion, Whitesburg Coalition Building Meeting, Glenss Creek Stakeholder Meeting, Daviess County Runoff Mitigation Visit, Block Grant funding, KY Riverkeepers Meeting, BGADD Meeting, Flood Recovery Meeting, Herrington Lake Nutrient Education	Attended ~93 in-person and ~102 virtually community meetings throughout Kentucky
WSP development areas.	Lower Pitman, Jennings Creek, Laurel Lake, Upper Paint Lick, Mill Creek, Beaver Creek, Dry Branch (Upper Salt River), Wilson Creek, Canoe Creek, Bee Creek, Clayton Creek, Hardy Creek, Wells Run, Whittaker Run, South Fork (Harrods Creek), Drennon Creek, Limestone Creek, South Fork (Licking), Kinniconick Creek, Duff Branch, Long Branch, Beech Creek, Blackberry Creek, Sycamore Creek, Miller Creek, Jennie Creek, Drag Creek, Lost Creek, Pond Creek, Upper Wolf Creek, Pigeonroost Fork, Lower Wolf Creek, Lower Rockcastle Creek, Griffin Creek, Coldwater Fork, Upper Elkhorn	

Healthy Watershed Program

Protecting healthy watersheds in Kentucky offers a multitude of environmental and economic benefits. Watersheds feed into streams, rivers, and lakes, and play a crucial role in maintaining biodiversity by providing habitats for various aquatic and terrestrial species. A healthy watershed acts as a natural filter by capturing pollutants, sediments, and excess nutrients, and help waterways remain clean and safe for both human consumption and aquatic life. The natural vegetation along streambanks helps stabilize soil which reduces the risk of erosion and prevents sedimentation in waterways.

Protecting land to maintain the health of a watershed, as opposed to stream restoration, offers added benefits. Prevention is more effective and less costly than remediation because once a watershed is degraded, the restoration process can be time-consuming, expensive, and may never fully replicate original conditions or the previous complex ecological processes. Intact ecosystems have evolved over millennia, and their intricate web of relationships, from soil microbes to apex predators, can be challenging to recreate artificially.

The DOW initiated the development of a Healthy Watershed Program to enhance and protect state aquatic resources. This year efforts centered on a 319(h)-funded pilot project in the Buck Creek watershed with the goal of drafting a comprehensive watershed plan for this area, which the U.S. Fish and Wildlife Service designated as critical habitat for mussels.

Past efforts in the watershed include extensive mussel, macroinvertebrate, and fish surveys. Building on this foundation, the Section 319 program will support additional biological assessments to evaluate ecological changes over the past 30 years. These data will complement traditional water quality monitoring and help inform restoration strategies. Once the watershed plan is finalized, implementation funds will focus on restoring and protecting the watershed, with particular emphasis on rare species habitats.

The Kentucky Healthy Watershed Program will also adopt a landscape-scale conservation approach, similar to Maryland's GreenPrint program, which prioritizes larger conservation areas for protection. The DOW is currently finalizing the tools and criteria to guide this process effectively.

Volunteer Lakes Monitoring Program



The Volunteer Lakes Monitoring Program (VLMP) is a community science program that trains local volunteers to monitor lakes and reservoirs for lake clarity, conditions, and harmful algal blooms. The program has three main goals: to educate the public on water quality issues and environmental protection, to generate data that can be used by citizens to learn about their local waterbodies, and to augment work conducted by the DOW. Volunteers are encouraged to report potential harmful algal blooms (HABs) on the Bloomwatch App. The VLMP also provides drinking water plant operators the opportunity for continuing education credits through regular monitoring.

This year, two VLMP trainings were conducted. The first occurred at Woodcreek Lake in East Bernstadt on September 3rd, 2024, with five volunteers in attendance. The second occurred at Herrington Lake in Harrodsburg on September 4th, 2024, with eight volunteers in attendance and four other people who indicated interest in the training but were unable to attend. The training covered the proper performance and recording of Secchi disk measurements, completion of data sheets, analyzing the lake and its surrounding environment, and identifying the differences between algae or aquatic plants and HABs.

The DOW is actively working on expanding the VLMP and monitoring criteria to allow more diverse sampling opportunities with additional training and provide opportunities for more advanced water quality monitoring. Ideas being considered include the potential use of sampling tiers, in which tier 1 samplers would monitor Secchi disk and lake condition information, while tiers 2 and 3 would be responsible for more complex data collection methods. criteria.

Nutrient Reduction Strategy Update

Since the 2022 update of the Nutrient Reduction Strategy, the DOW has continued its outreach to stakeholders. Nutrient Reduction Strategy Workgroup meetings were held in March, May, and June with a total of 74 people participating. Outreach continued through presentations at conferences and webinars including events hosted by the Kentucky Waterways Alliance, Kentucky Stormwater Association, Ohio River Basin Alliance, Kentucky Rural Water, Kentucky Association of Mitigation Managers, Black Soil, and the Soil and Water Conservation Society. Additionally, Kentucky hosted the Hypoxia Task Force Coordinating Committee for a two-day conference in May with 50 attendees.

Kentucky and Tennessee have partnered to work on nutrient reduction in the Red River Watershed which was a priority for both states in their nutrient reduction strategies. A workgroup met seven times over the past year and worked with Cumberland River Compact to apply for a Regional Conservation Partnership Program grant for agriculture practice implementation in the watershed.

Gulf Hypoxia Program (GHP) staff continue to implement the Nutrient Reduction Strategy and work with contractors to complete tasks as outlined in the GHP grants. New tools and outreach information continue to be developed throughout the year.

For the most complete information, visit eec.ky.gov/nutrientreduction.

Nature Based Solutions: Stormwater Management

Stormwater management is a critical aspect of urban planning and environmental conservation. Traditional methods often involve extensive infrastructure like pipes and retention basins, which can be costly and may fail to address the underlying ecological issues. In contrast, nature-based solutions (NBS) offer sustainable alternatives that harness the power of natural processes to manage stormwater, enhance biodiversity, and improve community resilience.

Examples of nature-based solutions include green roofs, rain gardens, permeable pavements, wetlands restoration, and urban forestry. By mimicking natural hydrological processes, NBS can effectively manage stormwater runoff, reduce flooding, and improve water quality. They are designed to capture and filter rainwater, allowing it to infiltrate into the ground rather than overwhelming drainage systems; absorb nutrients, filter sediments, and break down harmful substances, leading to cleaner water and healthier ecosystems; and not only enhance the aesthetic value of a community, but also support local wildlife and increase urban biodiversity.

By restoring wetlands or creating green roofs, cities can mitigate heat island effects and manage stormwater more effectively, ultimately reducing the risk of property damage and loss of life during extreme weather events. Additionally, by reducing the need for costly infrastructure repairs and maintenance, NBS can provide a more economically sustainable approach to stormwater management. They can also increase property values and improve quality of life in urban areas.

Kentucky NPS and Basin Team Listening Sessions for NBS Stormwater Management

During FFY2024, the DOW NPS and Basin Team continued hosting listening sessions to understand which NBS stormwater management solutions have been most effective and efficient for large, Phase I MS4 communities. Participants in these sessions raised awareness around permeable pavement, permeable pavers, and urban wetlands issues, and the many compromises regarding the use of the NBS.

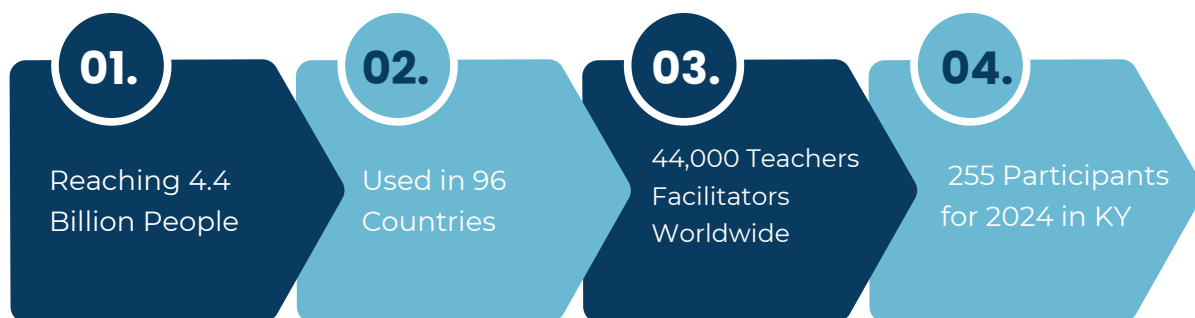
One suggestion was to use permeable pavers only on sidewalks so that they will not be dislodged by road and parking lot snowplows. Another concern was that, while wetlands work well for flood and stormwater management outside of urban areas, they are often too difficult to maintain for urban public works, especially with the high employee turnover.

The DOW NPS and Basin Team will use the knowledge gained during these sessions when offering suggestions to communities that want to develop green infrastructure and NBS for stormwater management. The DOW plans to continue listening sessions in 2025 and 2026 with Phase II MS4 communities to gain better understanding of how NBS works in smaller communities. In addition, the NPS and Basin Team are starting to investigate how to align NPS Watershed Plans with Hazard Mitigation Plans and will continue to promote these practices in a knowledgeable manner.

KY Project WET

The DOW is the host institution for Project WET (Water Education Today) in Kentucky. The Project WET Foundation (PWF) is an international non-profit water literacy resources education program that provides scientifically accurate and pedagogically sound water resource education materials, training courses, engagement, and networking services to citizens, organizations, governments, and corporations. Project WET is used in 96 countries by more than 44,000 teachers and has helped educate approximately 4.4 billion people worldwide. Project WET has created online training, educator guides and lesson plans, children's activity booklets, downloadable materials, maps, and posters, to help educators correlate Project WET to Kentucky academic standards.

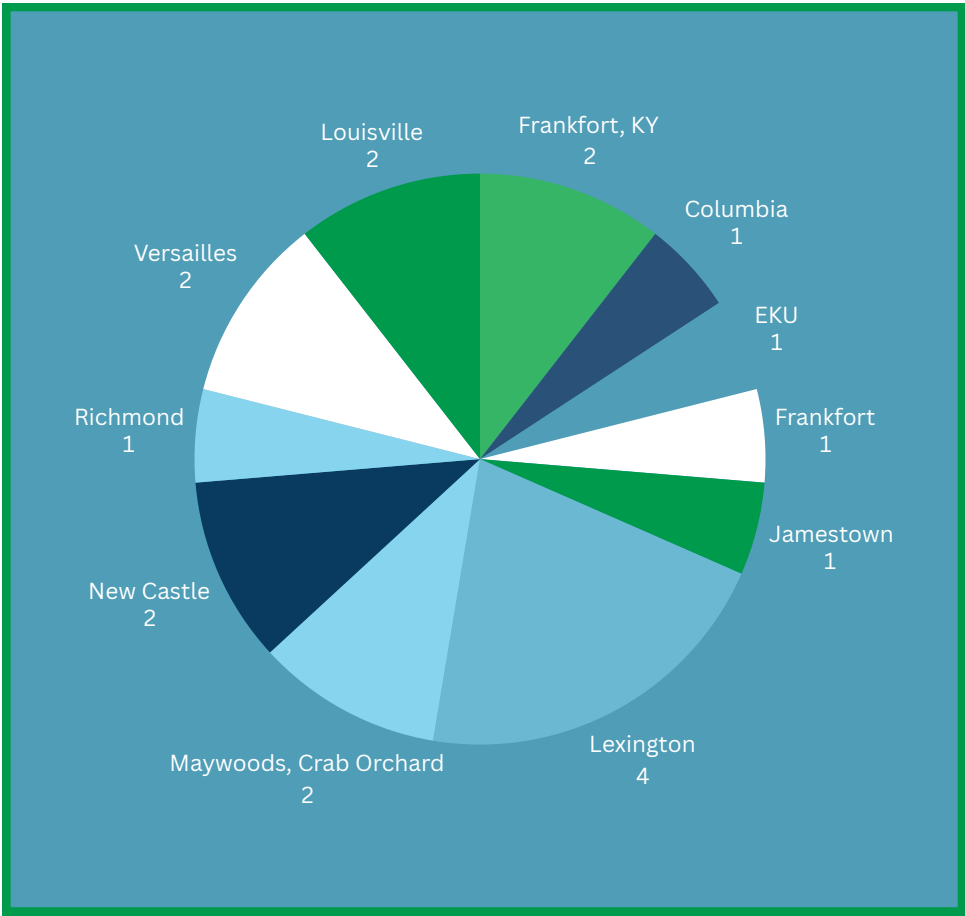
The Kentucky Project WET Coordinator is contracted to the Kentucky Association of Environmental Education (KAEE) contracts with the state Project WET Coordinator, who trains facilitators and educators, ensures that certified facilitators have all required forms to support their workshops, manages activity guide orders, develops, and maintains a database of certified facilitators and educators in Kentucky, and provides an annual report to PWF detailing Project WET workshops.



In FFY2024, KAEE continued using Project WET with Next Generation Science Standards (NGSS), a model that is now utilized by Project WET coordinators nationwide. Incorporating NGSS into environmental education helps formal educators justify how Project WET activities correlate to academic standards, and assists informal educators engage with formal educators by addressing NGSS scholastic needs.

During FFY2024, KAEE’s Project WET program conducted 19 educator workshops and reached 255 educators, including (K-12), university, pre-service, and non-formal educators.

Figure 26. Project Workshops in KY



References for numbers:
[2024 Project WET Report](#)

Kentucky Watershed Watch

Watershed Watch in Kentucky was established in 1997 to train, equip, and support a dedicated group of volunteers across seven river basin units to actively monitor streams, rivers, and lakes. Several changes in FFY2024 included revision of its name to Kentucky Watershed Watch (KYWW). The DOW continues to support this volunteer water monitoring program and its efforts to become a truly volunteer-led program.

KYWW used this transition year to train volunteers in a new method, called “R-card”, to obtain bacteria results, rather than using previous, costly lab E.coli samples. The R-card method allows volunteers to collect samples, then incubate and read the sampling cards for a bacteria count that can be entered directly into a new data portal. This new method gives the volunteer control over their data and reduces sample costs. During the FFY2024 transition year, the program allowed volunteers without R-card method training to continue collecting water samples for lab analysis.

KYWW also elected to establish support hubs, or locations within each major stream basin, to house incubators and equipment and provide support to volunteers. There are currently 23 hubs with plans to increase this number in FFY2025, so more counties will be able to assist volunteers. Changes to the program and data collection required substantial training opportunities for volunteers to become proficient in the new methods. In FFY2024, 241 volunteers received training at 17 workshops, and an additional 65 volunteers received training at two basin conferences.

There are currently 715 active volunteers with 970 sampling sites across the state. The May, July, and September sampling events involved 157 sites due to volunteers still being trained in the new R-card method. All sites were analyzed for E.coli and field chemistry.

In FFY2025, KYWW intends to train the remaining volunteers in the R-card method in time for the start of sampling season in May 2025, which will coincide with revised habitat and biological training workshops beginning in Spring 2025. A new data portal and viewer should be completed and available to KYWW volunteers early in FFY2025, which will enable easier sampling data entry and online registration for upcoming trainings and annual conferences.

Source Water Protection Week

Impact Summary

The DOW continues to provide education and resources to the public and utility providers. The Source Water Protection Week (SWPW) promotion was formed to improve awareness and implementation of source water activities. Planned actions included completing posts for the EEC Naturally Connected blog, sending email blasts to supporting partners, a weekly SWPW post on the EEC Facebook page, and a Governor's proclamation of an official Source Water Protection Week in October. Blog posts included short information pieces and videos on water sources for public water systems, nutrient pollution, groundwater, and source water success stories.

Results for Website Traffic and Social Media

DOW sent two emails about SWPW the week of Sept 16-20, during which 60 visits to the SWP Week Website occurred, and during SWPW (Sept 29-Oct 5) there were 22 visits to the website. In the past 12 months, 187 visits to the website occurred.

Social Media

The social media campaign consisted of daily posts to the EEC Facebook page, including four short videos and two articles. Videos were rarely viewed in their entirety, suggesting that future posts should be short and relay information with a direct message and that videos may be more appropriate for website viewing rather than Facebook. Several partner organizations interacted with, shared, or reacted to the post included SDI, Kentucky Geological Survey, Ohio River Valley Sanitation Commission, Friends for Environmental Justice, Kentuckiana Air Education, and Eastern Kentucky University Online. A post for the EEC Naturally Connected Blog was published on September 30 and received 41 views as of October 7, 2024.

SWP Success Story

An article entitled Protecting the Source, which described the Source Water Protection and Assistance Program pilot project, was released on Facebook and posted to the EEC Website.

Email Blasts:

Email blasts were sent to Drinking Water Wednesday, ADD Water Management Council, and KWUAC SWP subcommittee.

Governor's Proclamation

Governor Beshear proclaimed an official Source Water Protection Week, and the signed document was displayed in the EEC Sower Building lobby for the week. No press release was issued.

Future Considerations

Based on website and social media interaction data, DOW will examine other outlets on which to post videos such as the website or partner websites. The DOW will look for other equivalent email list serves for cities, extension offices, conservation districts, Judge Executives, and waste management districts to reach more members of the public and generate more interest from entities of special interest, such as environmental groups and organizations. To increase effectiveness of outreach to new audiences in the future, information will be sent across multiple media formats in addition to the currently used outlets.

Equipment Rental

The DOW makes its large supply of environmental educational equipment available for checkout, which allows teachers and other professionals to use various pieces for educational events in their regions. as Available items include stormwater models, Enviroscares, display boards, a stream table, and a costume for DOW mascot “Ollie the Otter”. Recently added items include a display box for viewing 30 different macroinvertebrates, and a flip card booklet that describes each organism and its sensitivity to pollution.

During 2024, the DOW loaned Enviroscares for two outside events, and the Ollie costume and macroinvertebrate display box for one event each. The river basin coordinators often check out equipment for outreach and educational projects, meetings, and tabling events.

TOOLS FOR CLEAN WATER

Homeowner Assistance Program in Kentucky

The Homeowner Assistance Program (HAP) is a reimbursement program designed to help homeowners connect to sewer lines and covers activities such as decommissioning septic tanks and tap-on fees, but not lateral lines or road repairs. The program strives to improve water quality by eliminating failing onsite wastewater systems, easing the financial burden on homeowners, and promoting sustainable practices. It requires partnerships with local sanitation districts, health departments, state plumbing inspectors, licensed plumbers, and licensed septic installers. Homeowners are responsible for certain costs, but reimbursement varies depending on income status. Potential sources of matching funds for a HAP project include tap-on fee donations, homeowner contributions, and financial contributions from local government agencies.

22-06 Lincoln Co. HAP Phase II

The Lincoln County HAP phase two program was created to educate the public about failing septic and water quality issues for the Hanging Fork watershed, and to implement the new county sewer ordinance which mandated that homes within 200 feet of the new sanitary sewer line connect to the system. To assist with the cost of attachment to the new sewer system and address septic decommissions, a HAP formed. The public was educated on the program, its eligibility requirements, the application process, responsibilities of the homeowner and contractor, and the reimbursement process. The HAP allowed for a 20/80 or 90/10 cost share allowance for reimbursement per met requirements. In total, 115 connections were completed, and 1 septic system was decommissioned.

22-07 Chestnut Creek Implementation

This project was to implement BMP specified in the Chestnut Creek Watershed Plan, approved in 2015. Several homes were identified as needing sewer services. A HAP grant previously managed by the Marshall County Fiscal Court continued under the Friends of Clarks River, and the Chestnut Creek Watershed Coordinator became responsible for the application and reimbursement processes. The coordinator helped homeowners with paperwork, worked with the Sanitation District to ensure homeowners filed HAP applications, and kept all supporting receipts and documents to ensure timely reimbursement. Approximately 60 homes in the Chestnut Creek Watershed were connected to the new sanitary sewer lines.

23-09 Chestnut Creek Homeowners Assistance Program III

The Chestnut Creek HAP III is the third implementation of actions to address the lack of sanitation resources in the watershed that releases into Clarks River. The watershed plan was created in 2015, 319(h) funding was granted for project 22-07 Chestnut Creek Implementation, and Friends of Clark River National Wildlife Refuge continued applying for funding to extend the outreach and education resources to complete the plan. Residences in this area have limited access to sewer and waste disposal. The goal of this project is to attach approximately 17 remaining residential sewer lines to Sanitation District 2 and provide 90% reimbursement of sewer connection costs through the HAP resources to eligible residences.

Severe Erosion Drone Surveys

This year the DOW Drone team began using drones to conduct Severe Erosion Surveys (SES) in Upper Buck Creek Watershed as a pilot area. The main objective of SES is to identify environmental problems within the stream corridor that cannot easily be seen at ground level. Using drones rather than walking along a stream allows the capture of high-quality imagery with geographic coordinates that are used to create orthomosaics of these areas. An orthomosaic is a series of images which have been orthorectified, or spatially corrected, using embedded locational and sensor data. This highly efficient process allows the team to survey more sites than before, and includes communication with partners, desktop reconnaissance, selected site assessment, conducting drone flights, and developing a final report.

The goal of this program is to provide essential data for addressing erosion through a Watershed Management Plan. It is not the purpose of the SES to map every site where natural stream erosion is occurring, instead the team determines if the observed bank erosion indicates an unstable stream channel and environmental problem. The resulting report provides a list of the areas where various problems exist within the watershed, as well as the severity and estimated ease of correcting the problem. This will provide a framework for future sampling and erosion control as well as an opportunity to educate the community about BMPs for sediment control.

Reconnaissance and Assessment

Before going out to the field, desktop reconnaissance staff evaluate the area in ArcMap™ using 2019 DGI imagery to move along each stream and visually identify sites that appear to have erosion. These sites were identified, assigned unique site identifiers, and plotted on a map illustrating the study area and the individual HUC14s in which they are found (Fig X). Each site was assessed using a form on the Survey123 app, which consists of determining a site's "problem category", and rating them on a scale of 1-5 for various criteria, including:

- **Severity:** The severity rating reflects how bad a specific problem is relative to others in the same category, generally based on the overall impression of the survey team regarding where the worst erosion problems were believed to exist, or the location of the largest section of stream with an inadequate buffer.
- **Correctability:** Correctability ratings provide a relative measure on how easily a specific problem could be corrected and can be helpful in determining which problems to initially examine when developing a restoration plan for a drainage basin. One restoration strategy would be to first target the severest problems that are the easiest to fix. The correctability rating can also help identify simple projects that volunteers can do compared to more complicated projects that require significant expertise.
- **Accessibility-** Accessibility rating is a relative measure of how difficult it is to reach a specific problem site. The rating is made by the field survey team standing at a site, using their field map and field observations. While factors such as land ownership and surrounding land use can influence the field judgement of accessibility, the rating assumes that some access to the site could be obtained if requested.

Field Follow Up

Federal Aviation Administration-certified drone pilots travel to sites deemed “Severe” (i.e., a 4-5 severity rating) to determine if they are accessible by drone (via public property or private landowner consent), set the drone flight path and perform the flight. Drones are flown at an altitude of 250 feet where a resolution of .67 inches per pixel can be obtained, conditions permitted. Drone flight paths are designed using software with a 70% overlap of images front and 70% side to side and are overlapped to provide multiple points of comparison for data processing. Each photograph has embedded metadata, including location, time, and date, as well as imagery-related data.

Study Report

The data collected by the drones allow images to be “stitched” together with software that compares individual pixels in two adjacent photographs, matches the imagery data in each pixel, and then overlays them into a single image. This stitching allows an orthomosaic to be constructed and compared to the 2019 DGI imagery data originally evaluated. These findings, along with the reconnaissance materials, are combined into a study report in which each site is ranked based on the severity of the erosion/site conditions and the ease of correction, which also considers accessibility and project size, and can be used to choose projects based on budget and resources. Each study report is available upon request and incorporated into a watershed plan to help prioritize areas and inform BMP recommendations.

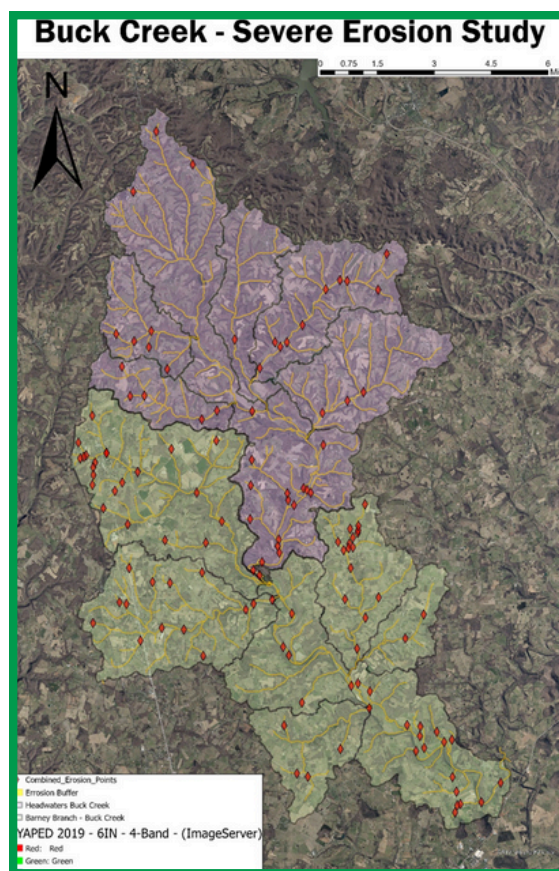


Figure 28. Severe Erosion Study map of 126 identified sites, 27 sites were determined to have a severity rating of 4-5, 13 of those sites were followed up with drone flights. Orthomosaics were created for each of the 13 sites.

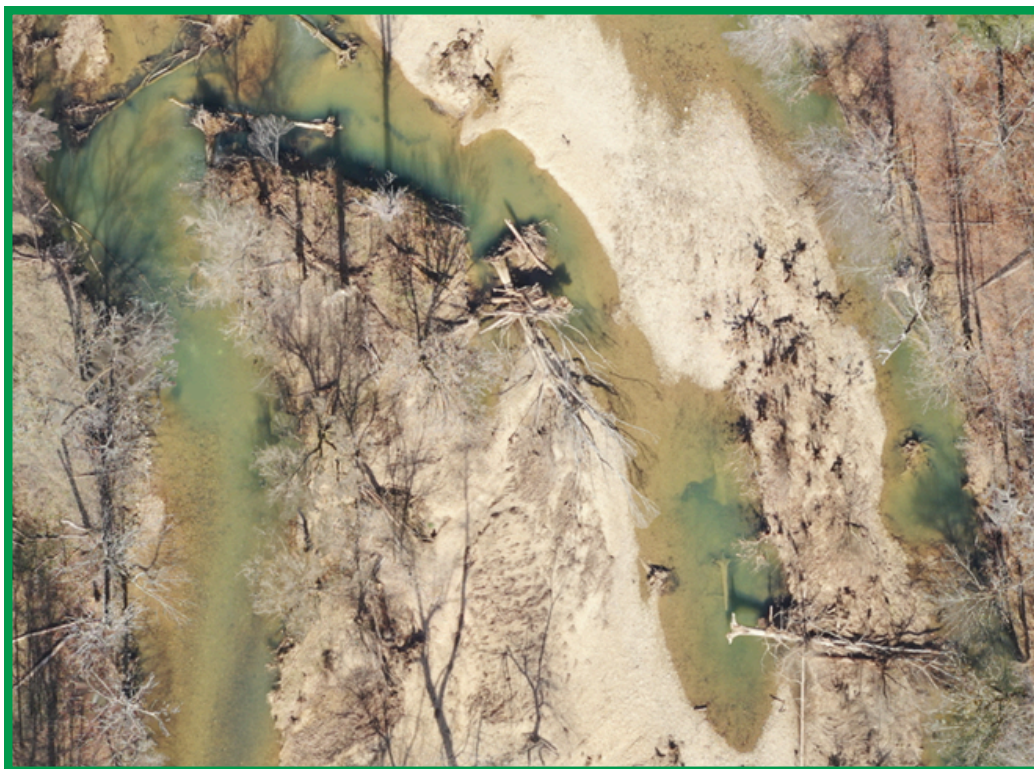
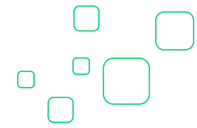


Figure 29. Severe Erosion Site assessed along Barney Branch.



Figure 30. Severe Erosion Site assessed along Barney Branch.

Mapping Resources



The DOW has a tremendous amount of data for streams, rivers, lakes, springs, and groundwater across the state, but it can be cumbersome and difficult for interested parties to use and analyze. The DOW has continued to update the data resource tools to better communicate data and assist with the 319(h) Grant Program.

Equity Analysis Tool

The Equity Analysis Tool was created as part of the EPA Phase II Equity Analysis Pilot with the states. The EPA Pilot objectives were to 1) develop accessible methods of assessing where NPS pollution issues and program priorities exist in relation to communities with Environmental Justice (EJ) concerns, and 2) provide an NPS-focused method for state programs to assess, track, and/or prioritize NPS program investments.

The DOW, EPA, and the Cadmus Group, collaborated to develop the Kentucky Pilot, and utilized the Equity Analysis Tool to develop a state-specific method of identifying NPS priorities. The Equity Analysis Tool mirrors the framework of the Recovery Potential Screening Tool (RPST) by incorporating Kentucky-based EJ concerns. The RPST typically consists of a variety of metrics within each ecological, stressor, and social category, that are each assigned weights and then combined, resulting in a prioritized list of HUC 12 watersheds. The Equity Analysis Tool includes two ecological, two stressor, and one social category with metrics customized for different analyses around the state.

Equity Analysis Tool Parameters

The RPST categories include the following parameters:



Ecological - emphasis on protected areas
PHWA Watershed Index (standalone)



Stressor – NPS
Nitrogen Yield, Phosphorus Yield, Suspended Solid Yield, Impaired Waters %, Impairment Count, Impairment Cause Count, Nutrient Impaired Waters %, Sediment Impaired Waters %, Pathogen Impaired Waters %



Social
% Low Income Population, % Less Than High School Educated Population, % Linguistically Isolated Population, % Vulnerable Age Group Population, Inverse NPS Pollution
Control Project Count, Unassessed Waters %, Historically Redlined Communities



Ecological – emphasis on headwaters
Custom: % N-Index, % WElands, % Woody Vegetation in Riparian Zone, Aquatic Condition Score, Presence of Critical Habitat for Aquatic Species, Headwater HUC12 Flag, % Draining to 1st, 2nd, or 3rd order streams, Unimpaired Waters



Stressor – Pollutant Exposure
Risk Management Plan Site Count, Hazardous Waste Management Site Count, Toxic Release
Inventory Site Count, Superfund Site Count, Impervious Surface Cover, Permitted Mines (state-specific indicator)

The Equity Analysis Tool allows the DOW to better incorporate the needs of disadvantaged communities while prioritizing watersheds for work and includes companion mapping with real-time updates when criteria are adjusted for different analyses (Figure 30), rather than the Excel version of the RPST that requires re-setting for other analyses.

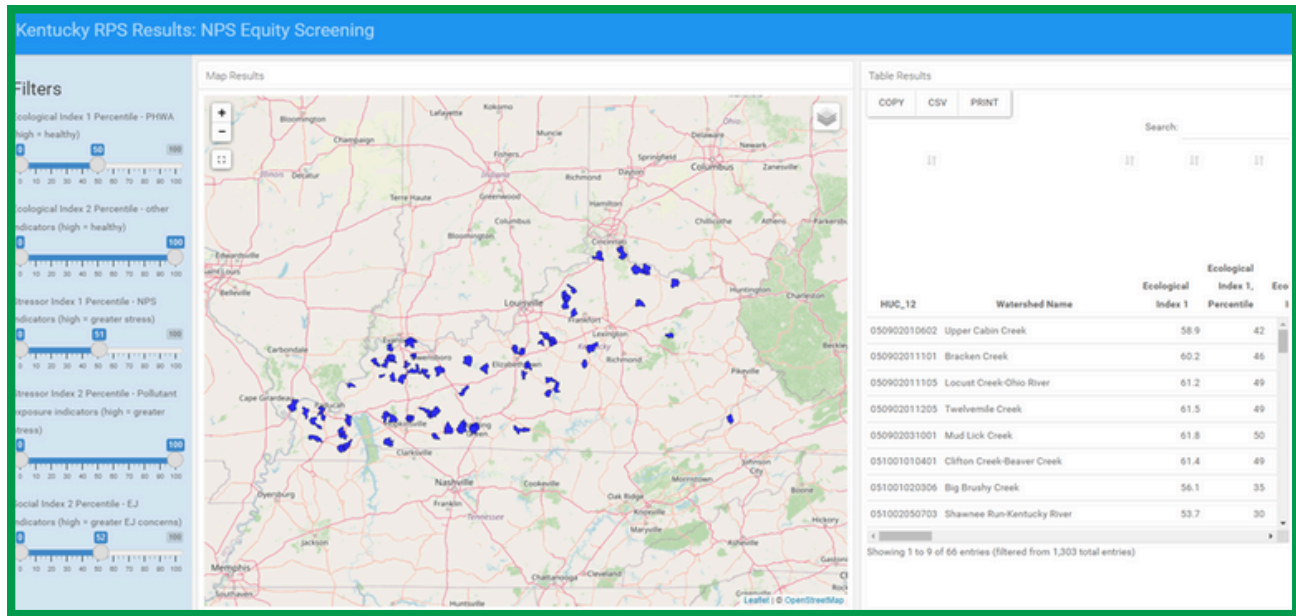


Figure 31. Equity Analysis Tool Companion Mapping Tool.

Water Health Portal 2.0

The Water Health Portal (WHP) is a one stop shop for all state's water health information. This viewer provides the status of surface water uses for all assessed streams, springs, and lakes. From swimming, to fishing, to drinking water use, this viewer provides detailed information in an easily accessible format (Figure 31).

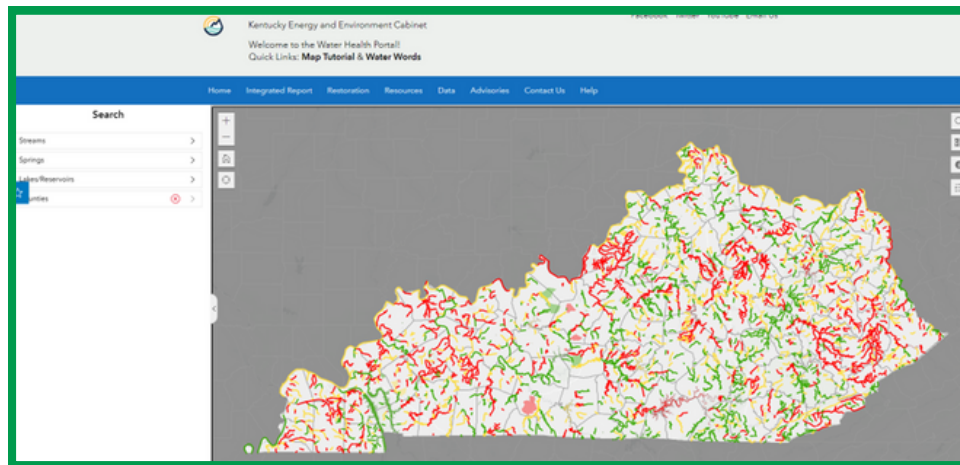


Figure 32. Water Health Portal landing page.

Each assessed segment includes an Assessment Unit Summary which provides additional details on the assessed designated use, county, assessment date, and description (Figure 32).

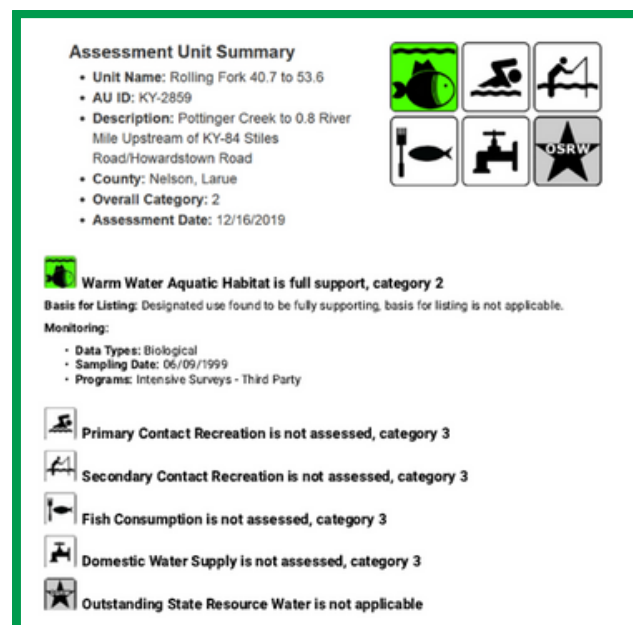


Figure 33. Assessment Unit Summary from the Water Health Portal.

319 Grant Reporter

The online 319 Grant Reporter is a mapping and report-generating program that allows users to search for their watershed of interest and identify information necessary for CWA Section 319(h) NPS Funding applications. Users will be able to search for their watershed using stream name, county, Hydrologic Unit (HUC), or by scrolling to its location (Figure 33).

Once the correct watershed is selected, users will know in which major river basin it is located, whether it has been assessed to meet its designated uses, has a Total Maximum Daily Load Allocation (TMDL), is located in a Source Water Protection Zone (SWPP), or has any assigned special designations such as OSRW or a Priority Watershed. Users can download and print a copy of the report and attach it to the CWA Section 319(h) application or use it for any other purpose. The 319 Grant Reporter is continually updated with data and metrics as projects progress and new projects are started.

For more information about the 319 Grant Program please check out the [Kentucky Division of Water's 319\(h\) Grant Program Funding](#) page.

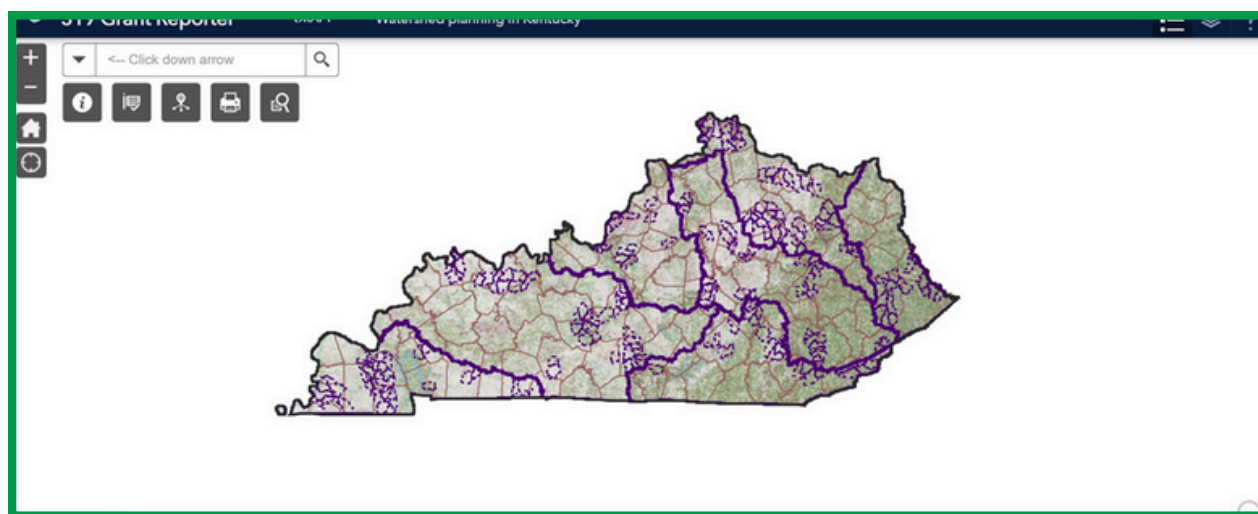


Figure 34. 319 Grant Reporter landing page.

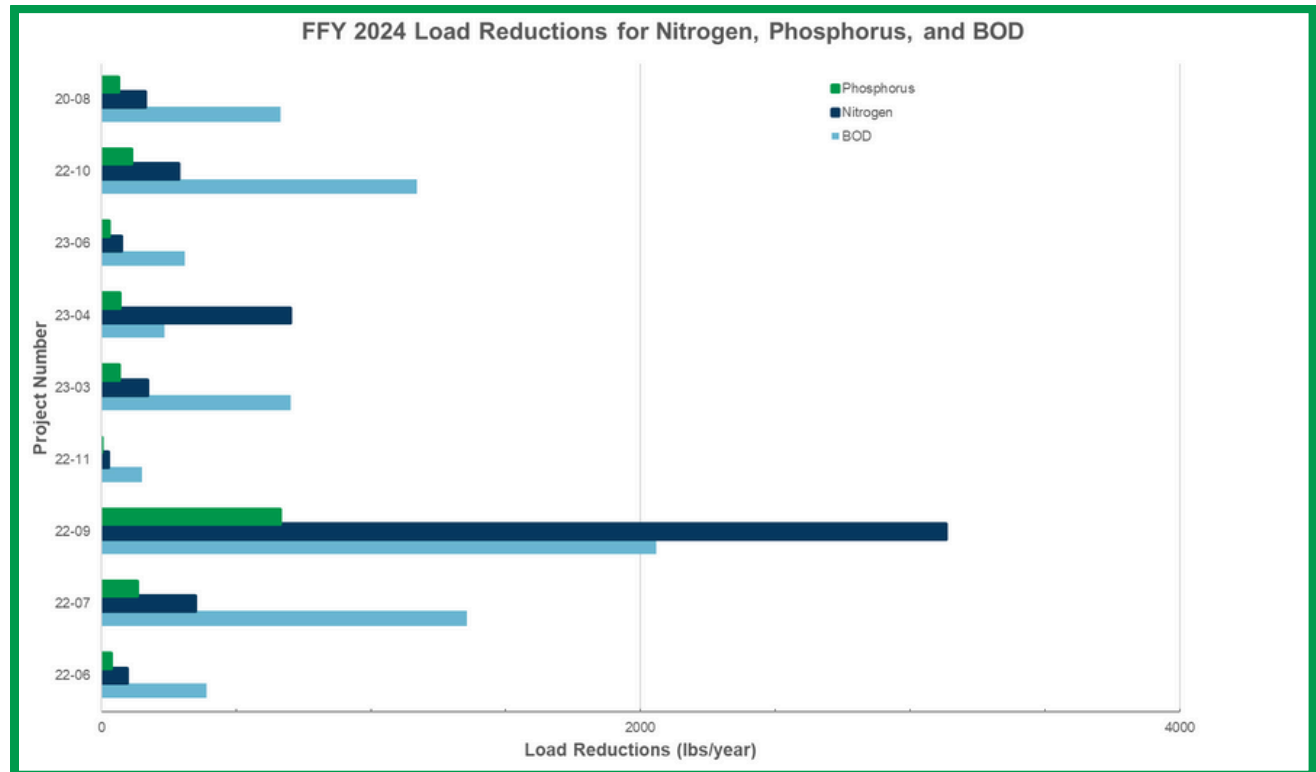
NPS PROJECT LOAD REDUCTION REPORT

2024 NUTRIENT LOAD REDUCTIONS

Table 1. NPS 2024 Load Reduction by Project

Award Year	State Project Number	Project Title	Load Reductions				
			Nitrogen (lbs/year)	Phosphorus (lbs/year)	BOD Reduction (lbs/year)	Sediment (tons/year)	E.coli (CFU/year)
2022	22-06	Lincoln Co HAP II	95.7	37.5	390.8	0.0	3.14E+10
2022	22-07	Chestnut Creek AGHAP	349.1	133.7	1357.5	2.4	5.69E+10
2022	22-09	Sulphur Creek Implementation III	3132.3	664.7	2058.1	321.6	2.45E+12
2022	22-11	Currys Fork Basin Retrofit Demo	25.6	2.9	151.7	0.9	1.42E+10
2023	23-03	KWA Mini Grant Program	172.4	67.5	703.9	0.0	2.15E+10
2023	23-04	Upper Buck Creek WSP	701.6	69.2	236.0	36.9	1.49E+14
2023	23-06	Banklick WSP Implementation & HAP	75.8	29.5	310.9	0.0	6.87E+09
2022	22-10	South Fork Little River	287.0	112.4	1172.0	0.0	3.35E+10
2020	20-08	Dix River and Hinkston Creek Watershed Improvement Program	163.0	63.8	665.6	0.0	1.44E+10

Table 2. NPS 2024 Load Reduction by Nutrient



2024 NUTRIENT LOAD REDUCTIONS

Table 3. NPS 2024 Sediment Reduction by Project

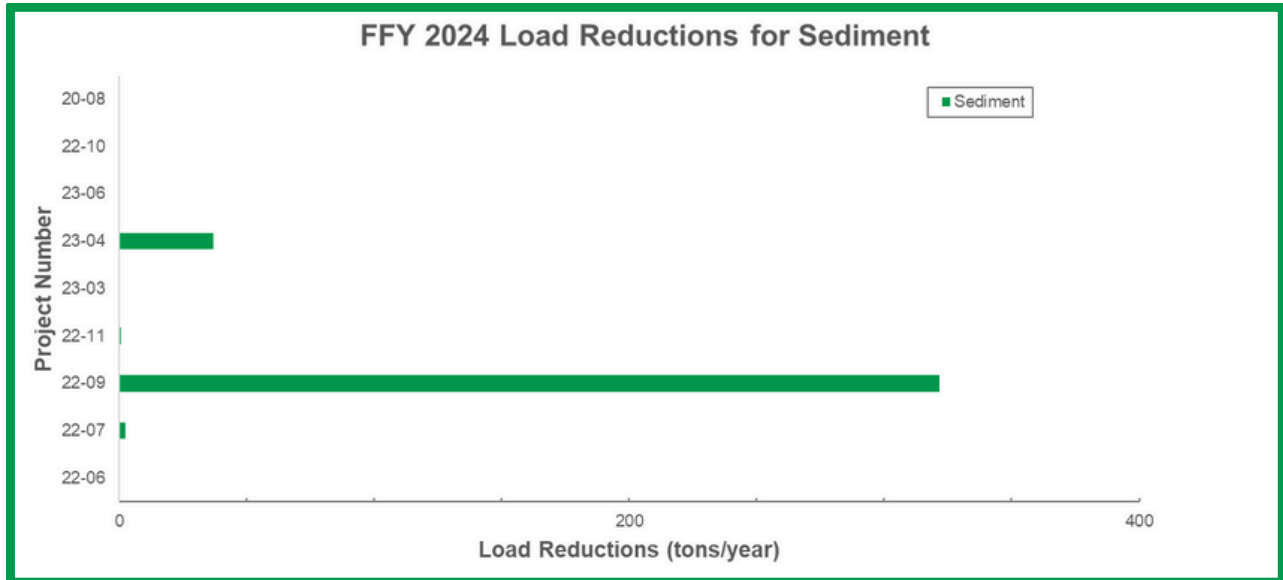
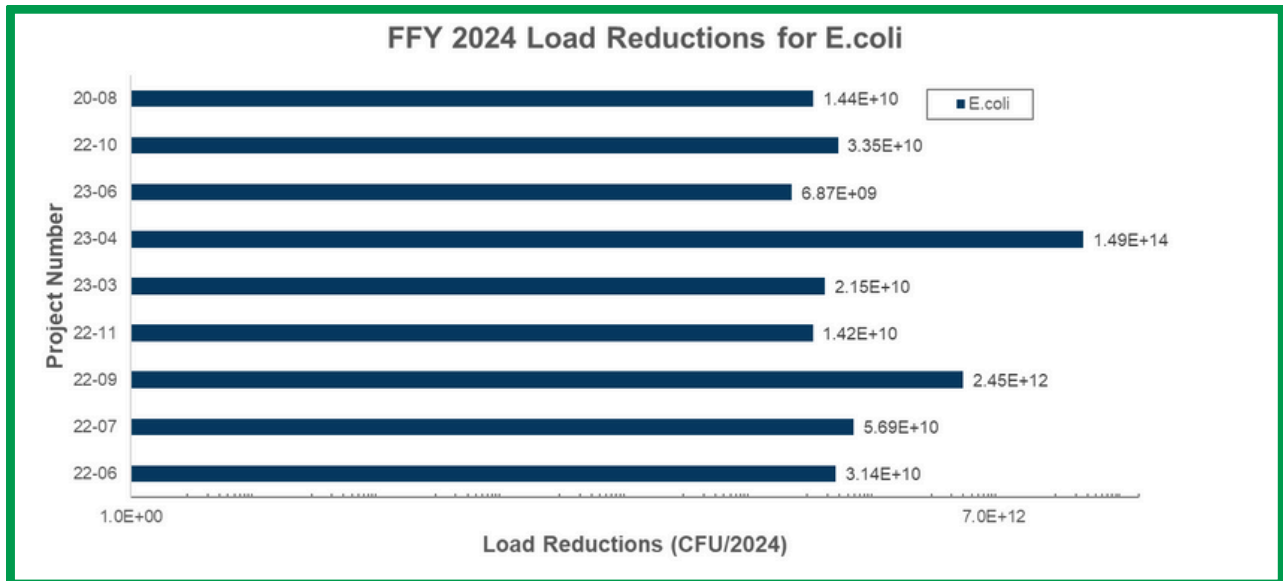


Table 4. NPS 2024 Reduction of E.coli by Project



NPS GOALS AND COMMITMENTS

NPS Goals and Management Tables

Kentucky Division of Water is under a continuation for the 5 year management plan due to the update of the 319(h) Guidance material. The previous 5 years of implementation can be found in the [FFY2023 Annual Report](#).

Long Term Goal 1 Restore Nonpoint Source Impaired Waters			2024
Objective 1 Prioritize watersheds for restoration potential.			
Action 1	Utilize EPA Recovery Potential Screening Tool to se		2024 Responses
	Tracking measure	Number and list of watersheds identified as recoverable within areas of watershed plans.	In FFY2024 DOW continued to work on refining the RPST tool by comparing EPA and KY metrics to determine which KY metrics need to be maintained and used for the tool. Six watersheds were identified as recoverable for pathogens: Swift Camp Creek, Middle North Fork Triplett Creek, East Fork Skegg Creek, Beaver Creek, Cane Creek, and War Fork. Swift Camp Creek is a part of the Red River Gorge Watershed Plan in FFY2024 the Daniel Boone National Forest was selected to do septic work in that watershed.
	Tracking measure	Number and list of recoverable watersheds receiving targeted implementation.	The NPS team had awarded funds for the Sulphur Creek Ag BMP Implementation Plan: Phase IV (22-09), which closed in FFY2024. In FFY 2023 6 new areas were identified: Swift Camp Creek, Middle North Fork Triplett Creek, East Fork Skegg Creek, Beaver Creek, Cane Creek, and War Fork. In FFY2024 the NPS awarded funds to Red River Gorge Septic and Education Project (24-10), which will implement septic bmps in the Swift Camp Creek Watershed starting in FFY2025.
Action 2	Utilize EPA Recovery Potential Screening Tool to id		2024 Responses
	Tracking measure	Number of watersheds identified as recoverable for pathogens.	Sulphur Creek was identified as being highly recoverable for pathogens, and the NPS team had awarded funds for the Sulphur Creek Ag BMP Implementation Plan: Phase IV (22-09), which closed in FFY2024. In FFY 2023 6 new areas were identified: Swift Camp Creek, Middle North Fork Triplett Creek, East Fork Skegg Creek, Beaver Creek, Cane Creek, and War Fork. In FFY2024 the NPS awarded funds to Red River Gorge Septic and Education Project (24-10), which will implement septic bmps in the Swift Camp Creek Watershed starting in FFY2025.
	Tracking measure	Number of recoverable watersheds receiving targeted implementation.	DOW is working to incorporate the 2022 IR data into the KY RPS to update and prioritize new recoverable watersheds.
Objective 2 Monitor and assess Kentucky's waters.			
Action 1	Conduct monitoring and perform assessments of Ke		2024 Responses
	Tracking measure	Number of stream miles assessed.	Kentucky's 2024 305(b) list has 3,168 assessment units, representing 13,691.8 river miles, 213,075 lake/reservoir acres, and 192,514 springshed acres.
	Tracking measure	Number of stream miles impaired by NPS pollution.	Of the 3,168 assessment units on the 2024 305(b), 2,154 assessment units are impaired for at least one designated use. Broken down by waterbody type, 2,071 rivers/streams are impaired totaling 9,552.8 river miles.
Action 2	Conduct monitoring and perform assessments of tar		2024 Responses
	Tracking measure	Number of stream miles with assessments completed in preparation for watershed plan development or improvement.	Assessment documents were completed for all watershed plan development baseline water quality data collection. Additional assessments and data is being sent to the DOW 303(d) and TMDL programs as it is completed.
	Tracking measure	Number of streams with monitoring being conducted in preparation for watershed plan development or improvement.	During FFY2024, DOW staff or contractors conducted water quality monitoring in five (5) watersheds in preparation for developing or amending watershed plans: Upper Buck Creek, Upper Salt, Lower Howards, Mills Creek, and Wolf Run
	Conduct monitoring and perform assessments of wa		2024 Responses
	Tracking measure	Number and list of streams prioritized through the Division's Success Monitoring program with completed assessments.	In 2024, Four (4) previously assessed streams (in six (6) assessment units) were prioritized for Success Monitoring based upon the abundance of BMP implementation in the Lower Howard Creek watershed. The data collected in 2024 are intended for assessment in the 2026 IR cycle. The individual streams, including assessment unit river miles are listed: Lower Howard Creek (0.0-2.7, 2.7-6.55, and 6.55-10.55), West Fork Lower Howard Creek (0.0-3.85), Lower Howard Creek UT 0.6 (0.0-1.55), Lower Howard Creek UT 9.35 (0.0-1.4)
	Tracking measure	Number and list of streams that have a documented change in use support awaiting EPA approval.	Currently there are no streams awaiting EPA approval for a documented change in use support.

Action 3	Tracking measure	Number and list of streams that have a documented delisting approved by EPA.	During the 2024 cycle, EPA approved the removal of 32 pollutant-waterbody combinations from the 303(d) list that have been attributed to the applicable water quality standard being attained based on new data (an additional 103 delistings are due to a clarification of listing cause or address prior listings where the original basis for listing was incorrect): Bark Camp Creek 0.1 to 3.95, Bark Camp Creek 0.1 to 3.95, Beaver Creek 16.6 to 34.6, Brush Creek 1.1 to 7.6, Caney Creek 0.0 to 6.8, Clear Creek 0.0 to 7.5, Crooked Creek 0.2 to 6.6, Crooked Creek 6.6 to 12.4, Dennis O'Nan Ditch 0.2 to 5.2, Dennis O'Nan Ditch 0.2 to 5.2, Drakes Creek 0.0 to 23.4, East Fork Beech Fork 0.0 to 1.9, Fleming Creek 0.0 to 12.8, Green River 71.0 to 85.1, Guist Creek Lake, Halls Creek 4.8 to 9.65, Levisa Fork 97.7 to 100.75, Little Barren River 0.0 to 9.8, Little Barren River 0.0 to 9.8, Little Beaver Creek 0.0 to 3.3, Metropolis Lake, Pennsylvania Run 0.0 to 3.3, Renfro Creek 0.0 to 1.8, Renfro Creek 1.8 to 3.15, Renfro Creek 1.8 to 3.15, Silver Creek 11.15 to 26.05, South Fork Panther Creek 0.0 to 2.4, South Fork Panther Creek 0.0 to 2.4, South Fork Panther Creek 0.0 to 2.4, Three Forks Creek 0.0 to 7.8, Tradewater River 98.5 to 111.15, Upper Jacks Creek 0.0 to 2.2
Action 4	Continue to implement a Division level watershed Success Monitoring Program 2024 Responses		
	Tracking measure	Maintain and continue to update GIS layers for BMP implementation tracking tool.	Spreadsheets of on the ground BMP implementation data is compiled from internal and external state and federal agencies at least annually. GIS coverages were completed in 2019 and are updated annually with continuing implementation and used to evaluate potential for changes in watershed status.
	Tracking measure	Number of watersheds identified as needing success monitoring.	For FFY2024, DOW monitoring was conducted in three (3) watersheds identified as needing baseline data for watershed planning or success monitoring: Upper Buck Creek, Lower Howards Creek, and Red River (West Fork Red, Whippoorwill Creek, Pleasant Grove Creek). Monitoring continued into 2024 for FFY2023 projects Bacon Creek, Brushy Creek, and Sulphur Creek.
	Tracking measure	Conduct annual meeting to coordinate locations appropriate for success monitoring within the watershed framework.	DOW staff is actively conducting meetings with NRCS, KY Division of Conservation, and the Division of Abandoned Mine Lands to gather information about on the ground BMP implementation as well as coordinating locations for program effectiveness or success monitoring. Additionally, internal DOW meetings are regularly being held to develop success monitoring program annual monitoring targeted watersheds.
Action 5	Conduct post-BMP implementation Water Quality Monitoring 2024 Responses		
	Tracking measure	Evaluate NWQI watersheds annually to determine needs, and design success monitoring plan as appropriate.	NRCS did not designate any new NWQI watersheds for FFY2024, and anticipates work to continue for success monitoring of Clarks river and Canoe Creek.
	Tracking measure	Implement NWQI success monitoring as needed.	DOW is working with NRCS and anticipates work to continue for success monitoring in the watersheds Clarks Creek and Canoe Creek.
	Tracking measure	Compile water quality data for trend analysis in NWQI watersheds as needed.	DOW provided extensive water quality data and supporting documentation to NRCS for the selection of 2024 NWQI planning year watersheds. DOW provided information on water quality conditions, watershed characteristics, environmental justice considerations, and partner resources.
	Tracking measure	Number of NWQI BMPs per selected HUC 12.	DOW has not received information about new BMPs implemented in NWQI watersheds.
Objective 3 Implement the Nonpoint Source component of Approved TMDLs of restoration strategies in prioritized impaired watersheds.			
Action 1	Coordinate with the Division's TMDL Program to implement the nonpoint source pollution component of approved TMDLs in areas with approved watershed plans. 2024 Responses		
	Tracking measure	Coordinate with the Division's TMDL Program to implement the nonpoint source pollution component of approved TMDLs in areas with approved watershed plans.	The Watershed Management Branch, including Nonpoint Source met consistently with the Water Quality Branch, including the TMDL section. These meetings set goals for the year and created smaller working groups to accomplish those established goals. The NPS program continues to work closely with the TMDL program to identify TMDL Alt areas.
	Tracking measure	Number of sub-grantee projects implementing BMPs in watersheds with approved TMDLs.	In FFY2024, five (5) sub-grantees implemented BMPs in watersheds with TMDLs: Cane Run, Chestnut Creek, Clarks Run and Hanging Fork, South Fork Little River, Wolf Run

Action 2	Coordinate with the Division's TMDL program to prioritize watersheds for TMDL Alternative Plan development.		2024 Responses
	Tracking measure	Number and list of watersheds prioritized for TMDL Alternative Plan development.	Two (2) watersheds are currently prioritized for Alternative Restoration Plan development. Sanitation District 1 in Northern Kentucky are still working with DOW to complete Alternative Restoration Plans for the Banklick Creek and Woolper Creek watersheds. Banklick and Woolper Creek watersheds both have an EPA accepted watershed plan. Two (2) additional watersheds are being considered for potential TMDL Alternative Plan development: McDougal & Castleman Creek, and North Fork Kentucky River (Whitesburg tributaries). McDougal & Castleman Creek and North Fork Kentucky River has an accepted watershed plan.
	Tracking measure	Number and list of watersheds with approved TMDL Alternative Plans.	Currently the state of Kentucky has completed three (3) TMDL Alternative Plans: Sulphur Creek, Gunpowder Creek, and Threemile Creek.
Objective 4 Implement restoration strategies for prioritized impaired watersheds that will result in measurable water quality improvements.			
Action 1	Continue development and implementation of accepted watershed plans.		2024 Responses
	Tracking measure	Number and list of watershed plans currently under development.	During FFY 2023, DOW worked with contractors toward development of ten (10) additional watershed plans: Bee Creek, Clayton Creek, Glenss Creek, Hardy Creek, Jennings Creek, Lake Linville, Lower Pitman Creek, McDougal & Castleman, Mill Creek, and Upper Paint Lick Creek.
	Tracking measure	Number and list of watershed plans approved by EPA Region 4 for implementation.	During FFY2024, the DOW had thirty-one (31) watershed plans accepted by the EPA: Bacon Creek, Banklick Creek, Brushy Creek, Cane Run, Chestnut Creek, Clark's Run- Dix River, Corbin City Reservoir, Curry's Fork, Damon Creek, Darby Creek, Dry Creek, Gunpowder Creek, Hancock Creek, Hanging Fork- Dix River, Hinkston Creek, Lower Howards Creek, McDougal & Castleman Creeks, Middle Fork Beargrass Creek, North Fork Kentucky River, Pleasant Run, Red Bird River, Red River Gorge, Rock Creek, South Fork Little River, Stockton Creek, Sulphur Creek, Ten Mile (Eagle Creek), Triplett Creek, West Hickman, Wolf Creek, Woolper Creek
Action 2	Tracking measure	Number and list of watershed plans approved by EPA Region 4 for implementation actively being implemented.	During FFY2024, the DOW had fourteen (14) watershed plans approved by EPA Region 4 for implementation actively being implemented: Bacon Creek, Beargrass Creek, Banklick Creek, Cane Run, Chestnut Creek, Clark's Run- Dix River, Curry's Fork, Hanging Fork- Dix River, Hinkston Creek, Lower Howards, Red Bird River, South Fork Little River, Sulphur Creek, Wolf Run
	Work to develop local capacity and implement action plans.		2024 Responses
	Tracking measure	Number of active watershed groups.	During FFY2024, there have been approximately 104 organizations involved in developing, implementing, or supporting watershed programs and activities. The river basin coordinators are actively working to support and coordinate with these groups and continue to increase new group interest in water quality.
Action 1	Tracking measure	Number of partner and/or stakeholder meetings attended.	NPS personnel attended approximately 190 partners meetings in FFY2024
	Support projects that educate the agricultural community about water quality issues.		2024 Responses
	Tracking measure	Number of sub-grantee projects with an agricultural BMP demonstration event or educational component.	Agricultural BMP demonstration events were held in two (2) watershed project areas: Sulphur Creek Implementation III (22-09) and Upper Buck Creek (23-04). Two (2) projects include an agricultural education component: UK CES Ag Water Quality (22-02).
Action 2	Tracking measure	Provide financial and technical support to educate producers about the Agriculture Water Quality Act and nutrient management strategies.	Staff attended 3 quarterly AWQA meetings during FFY2024. DOW also had two (2) projects focused on nutrient management and support for agricultural producers and landowners; UK CES Ag Water Quality (22-02) and DOC Nutrient Management Planning (22-05).
	Provide financial and/or technical support for the implementation of agricultural BMPs.		2024 Responses
	Tracking measure	Number of agricultural BMPs implemented.	

Action 2	Tracking measure	Number of sub-grantee projects implementing BMPs to address agricultural sources of nonpoint source pollution.	During FFY2024, the DOW had two (2) projects implement BMPs to address agricultural sources of NPS pollution. Sulphur Creek Implementation III (22-09), Upper Buck (23-04)
Action 3	Coordinate with NRCS and KY Division of Conservation		
	Tracking measure	Coordinate with KY DOC to fund BMPs in priority watersheds.	2024 Responses The Upper Buck Creek (23-04) and Sulphur Creek Implementation III (22-09) projects coordinated with KY DOC to fund BMPs in their respective river basins. DOW has connected with the DOC field representatives for their basins.
	Tracking measure	Coordinate with NRCS to fund BMPs in priority watersheds.	The Upper Buck Creek (23-04) and Sulphur Creek Implementation III (22-09) projects coordinate with NRCS to fund BMPs in their respective river basins. DOW also coordinates with NRCS in the Lake Linville, Renfro Creek, and Roundstone Creek priority watersheds to fund BMPs.
Action 4	Coordinate with NRCS to identify and prioritize NWQI		
	Tracking measure	Number of NWQI watersheds identified.	2024 Responses NRCS didn't designate any new NWQI watersheds in Kentucky for the FFY2024 year. Work continues in the existing watersheds of Little River, Nolin River, Clarks River and Canoe Creek.
Action 5	Participate in state wide meetings and conferences		
	Tracking measure	Attend two (2) USDA NRCS State Technical meetings per year. Track number attended.	2024 Responses Two USDA NRCS State Technical Committee meeting was scheduled during this year. Division of Water attended.
	Tracking measure	Participate in the four (4) quarterly Kentucky Agriculture Water Quality Authority Meetings per year.	The Kentucky Agriculture Water Quality Authority has met 3 times this year. The April meeting was canceled. Division of Water staff attended each meeting.
	Tracking measure	Participate in the Kentucky Agriculture Science and Monitoring Committee meetings.	DOW participated in all scheduled KASMC meetings in FFY2024.
	Tracking measure	Number of staff attending agriculture related technical training.	NPS Staff attended the following agricultural programs and activities in FFY2024: Organic Association of Kentucky Farmer Field Day, NRCS Stream Visual Assessment Protocol (v2) training, Godford County Farm Tour, NRCS Spring Development Field Day, AFT Outcomes Estimation Tools Training Webinar
	Tracking measure	Present information or a booth at one (1) agriculture related event each year.	NPS personnel presented information at the following agriculture related events in FFY2024: Spencer County Ag Day, Area 3 Kentucky Association of Conservation Districts Annual Meeting, Area 6 KACD Annual Meeting, Area 9 KACD Annual Meeting, Carter County Farm & Family Field Day, Area 4 KACD Annual Meeting, Area 5 KACD Annual Meeting, State Fair, KACD Annual Meeting Area 7 Black Soil, Area 8 KACD Annual Meeting, Area 9 KACD Annual Meeting
Objective 6 Decrease input of pollutants from developed lands.			
Action 1	Provide financial and technical support for the implementation of		
	Tracking measure	Number of sub-grantee projects implement GI, LID, and/or stormwater management BMPs.	2024 Responses During FFY2024, the DOW had no projects implementing GI, LID, and/or stormwater management BMPs. Two Projects were designing BMPS: Curry's Fork (22-11), and Wolf Run (23-07). Four projects were selected that will begin in FFY2025 that either implement or are creating designs for these BMPS: Whitesburg Tributaries (24-06), Mt. Sterling-Hinkston Creek (24-07), Curry's Fork (24-08), and Middle Fork Beagrass Creek (24-09)
	Tracking measure	Attend a minimum of one (1) stormwater management training event per year.	NPS staff attended and presented at the Kentucky Stormwater Association (KSA) Annual Conference in FFY2024. This conference serves as a forum for information and technology transfer with regards to GI practices, general stormwater management strategies, and MS4 program implementation. NPS personnel also attended KSA quarterly meetings as they occurred and participated in various stormwater focused trainings and webinars.
Coordinate with Kentucky Emergency Management			
2024 Responses			

Action 2	Tracking measure	Participate in "Incorporating Green Infrastructure and Low Impact Development into State Hazard Mitigation Plan" grant project.	NPS staff attended and presented at the Kentucky Stormwater Association (KSA) Annual Conference in FFY2024. This conference serves as a forum for information and technology transfer with regards to GI practices, general stormwater management strategies, and MS4 program implementation. NPS personnel also attended KSA quarterly meetings as they occurred and participated in various stormwater focused trainings and webinars.
	Tracking measure	Number of NPS BMPs included in the State Hazard Mitigation Plan.	NBS recommendations were integrated into the 2023 update of the State Hazard Mitigation Plan.
	Tracking measure	Provide updated GIS resources to KAMM program annually.	GIS layers are updated annually. NPS staff presented at the 2024 KAMM Annual Conference on using Nature-based Solutions for Flood Mitigation and Building partnership toward multi-state planning.
Action 3	Support Kentucky's MS4 program.		2024 Responses
	Tracking measure	Number of Kentucky Stormwater Association meetings attended.	In FFY2024 NPS staff attended one Kentucky Stormwater Association quarterly meeting, and presented at the 2024 KSA Annual Conference.
	Tracking measure	Provide technical and/or educational support to MS4 communities.	In FFY2024, NPS and Basin Team continued their partnership with the MS4 program to develop NPS-related support materials. Partnership examples include: general education on MS4 practices, attending MS4 inspections, and planning for MS4 education and outreach materials. In addition, Planning efforts between DOW's NPS Program and the KSA Board are underway to develop a strategic plan for using 319(h) funding to increase the effectiveness of local stormwater programs on a statewide basis. NPS personnel normally seek ways to support MS4 communities in meeting their MCM 1 and 2 goals by providing environmental education material and support for field days and events.
	Tracking measure	Provide technical and/or educational support for the DOW MS4 program.	NPS personnel and the DOW MS4 program are in regular communication to establish methods of supporting Kentucky's MS4 communities.
	Tracking measure	Provide updated GIS resources to MS4 program annually.	GIS layers are updated annually and are available by request from DOW.
Objective 7 Preserve the critical ecosystem functions which forestlands provide and reduce NPS pollution resulting from forestry related activities.			
Action 1	Support watershed projects that focus on sustainable forest management.		2024 Responses
	Tracking measure	Number of sub-grantee projects that incorporate forest management BMPs to protect water quality.	During FFY2024, the DOW had one (1) projects implementing forest management BMPs: Banklick. One project was selected that will begin in FFY2025: Red River Gorge (24-10)
Action 2	Work with partners to protect and enhance forestland.		2024 Responses
	Tracking measure	Attend at least one (1) Forest Conservation Act BMP Board meeting per year.	The KFCA Board did not hold a meeting in FFY2024.
	Tracking measure	Provide technical and/or educational support for Forest Conservation Act BMP implementation.	The University of Kentucky Forestry Extension is distributing and training on the updated KY Forestry BMP Field Guide that was completed in FFY 2018. The DOW also provides support through maintenance of the Special Use Waters interactive map, which shows waters of special concern for logging operations.
	Tracking measure	Number of active partnerships working on forestry related projects to reduce NPS pollution in Kentucky.	The NPS section is actively working with partners on forestry related issues including the University of Kentucky Department of Forestry and Natural Resources, the Office of State Nature Preserves, the US Office of Surface Mining Reclamation and Enforcement's Appalachian Regional Reforestation Initiative, Daniel Boone National Forest, and the Kentucky Woodland Owners Association.
Objective 8 Protect and monitor Kentucky's groundwater.			
Action 1	Provide technical and/or financial support for the assessment of groundwater resources.		2024 Responses
	Tracking measure	Number of springs sampled.	Fifty-eight (58) springs were sampled in FFY2024.
	Tracking measure	Number of groundwater samples collected for E. coli.	Zero (0) groundwater samples were collected for E. coli in FFY2024.
	Tracking measure	Number of groundwater samples collected for pesticides.	Ninety-one (91) groundwater samples for pesticides were collected in FFY2024.
Action 2	Provide technical and/or financial support for groundwater protection.		2024 Responses
	Tracking measure	Number of GPP field reviews conducted.	Three (3) GPP field reviews were conducted in FFY2024.

	Tracking measure	Number of GPPs approved.	Forty-five (45) GPPs were approved in FFY2024.
Objective 9 Decrease nonpoint source pollution from onsite wastewater sources in Kentucky's water bodies.			
Action 1	Provide financial, technical, and/or educational support2024 Responses		
	Tracking measure	Number of sub-grantee projects that implement the onsite wastewater components of an accepted watershed plan.	During FFY2024, DOW had six (6) projects implement onsite wastewater BMPs: Dix River & Hinston Creek (20-08) Lincoln County HAP II (22-06); Chestnut Creek HAP (22-07), South Fork Little River (22-10), Kentucky Watershed Network Mini-Grants (23-03), Banklick (23-06),
	Tracking measure	Number of sub-grantee projects with an educational component for onsite wastewater treatment.	During FFY2024, DOW had projects projects with an educational component for onsite wastewater treatment: Dix River & Hinston Creek (20-08) Lincoln County HAP II (22-06); Chestnut Creek HAP (22-07), South Fork Little River (22-10), Banklick (23-06) Red Bird River (23-08),
Action 2	Coordinate with partners to decrease impacts from onsite wastewater2024 Responses		
	Tracking measure	Number of partner meetings attended.	NPS personnel attended six (6) partner meetings to decrease impacts from onsite wastewater
Objective 10 Protect and restore waters at risk from recreational impacts.			
Action 1	Provide technical and/or financial support for Kentucky2024 Responses		
	Tracking measure	Number of active volunteers.	There are currently 30 active volunteers monitoring lakes across the state.
	Tracking measure	Number of volunteers receiving trainings.	Two lake workshops were held in 2024 with 12 new volunteers trained.
	Tracking measure	Number of sites sampled.	there were 159 lake sites that were monitored in 2024.
Action 2	Provide technical and/or financial support for projects2024 Responses		
	Tracking measure	Number of sub-grantee projects implementing BMPs in watersheds with recreation use impairments.	During FFY2024, DOW had twelve projects implementing BMPs in recreation-impaired watersheds Currys Fork (22-11), Dix River & Hinkston Creek (20-08), Banklick (23-06), Chestnut (22-07), Lincoln County HAP II (22-06), South Fork Little River (22-10), Sulphur (22-09)
Action 3	Provide technical and/or educational support for Harmful Algal Blooms2024 Responses		
	Tracking measure	Number of meetings and/or technical support provided .	NPS personnel are actively engaged in internal and external efforts to address Harmful Algal Blooms. Within the Division, staff coordinate with the Water Quality Branch to provide coordination with local volunteer monitors to address identification, reporting, and safety issues with HABs. NPS personnel continue to collaborate with the creators of the BloomWatch App to roll out the app to volunteer monitors in the Commonwealth through Watershed Watch in Kentucky's Lakes Monitoring Program. The NPS Section also hired a summer intern who designed and ran HAB focused outreach that was distributed via social media and newsletter for the Volunteer Lake Monitoring Program.
Objective 11 Decrease nonpoint source pollution from resource extraction.			
Action 1	Provide technical and/or financial support for reducing AMD2024 Responses		
	Tracking measure	Coordinate with the KY Division of Abandoned Mine Lands to prioritize restoration of acid mine drainage sites on a statewide basis and within watershed planning areas.	DOW Staff are actively coordinating with the KY Division of Abandoned Mine Lands to target implementation of AMD sites on a statewide basis and within watershed planning areas.
	Tracking measure	Number of sub-grantee projects implementing BMPs in areas with resource extraction activities.	In FFY2024, there were no active projects implementing BMPs in resource extraction areas. DOW staff are working to build capacity for implementation in areas affected by resource extraction.
Objective 12 Decrease the negative impacts of excessive sedimentation in Kentucky's Streams.			
Action 1	Provide financial, technical, and/or educational support2024 Responses		
	Tracking measure	Develop and/or distribute guidance and/or educational materials for stream and riparian buffer maintenance.	DOW routinely distributes the Central Kentucky Backyard Stream Guide and has developed several fact sheets about the importance of riparian buffer zones. These resources are available upon request or online.
	Tracking measure	Number of sub-grantee projects implementing riparian buffer BMPs or tree plantings.	During FFY2024, DOW had two (2) projects implementing riparian buffer BMPs or tree plantings: Currys Fork (22-11); Banklick (23-06)
	Tracking measure	Number of projects monitoring for sediment impairments.	For FFY2024, DOW had three (3) projects for sediment impairments: Lower Pitman (20-07), Upper Buck Creek (23-04), Limestone Creek (Private Funding)
	Target additional sources of funding for stream restoration2024 Responses		

Action 2	Tracking measure	Coordinate efforts with the USDA Natural Resources Conservation Service to help target conservation program funding toward priority watersheds and the implementation of accepted Watershed Plans.	DOW engages in direct programmatic coordination with NRCS by requesting that priority and impaired watersheds receive priority funding through NRCS programs. Division of Water and Division of Conservation staff participate in Local Workgroup meetings. DOW also coordinates on-the-ground implementation efforts with County Conservation Districts and local NRCS staff. The goal is that CWA Section 319(h) funding be used to augment the Farm Bill funding to agricultural producers by paying for companion practices or paying for nonstandard BMPs to address water quality problems on farming operations. This coordination is done by meeting with local NRCS, Conservation District, and Division of Conservation staff. In FFY2024, Kentucky Division of Water, KY NRCS, TN NRCS, Tennessee Department of Environmental Compliance, Tennessee Department of Agriculture, University of Kentucky and University of Tennessee formed a workgroup to discuss nutrient priority watersheds across state borders and discuss ways to encourage implementation of ag practices in those watersheds. Cumberland River Compact has applied for an RCPP grant to install BMPs in the Red River shared watershed.
	Tracking measure	Coordinate stream restoration efforts with the KY Department of Fish and Wildlife Resources and Northern KY University to help target Fees in Lieu of Mitigation (FILO) funding toward priority watersheds and the implementation of accepted Watershed Plans.	DOW consistently seeks opportunities for watershed projects to pursue Fees in Lieu of Mitigation funding. The NPS team and KDFWR had a meeting to establish more collaboration in the future and members of KDFWR were invited and participated in the 319 rank and review process.
Objective 13 Support education and outreach.			
Action 1	Support education and outreach efforts across Kentucky		2024 Responses
	Tracking measure	Number of student and/or stakeholder contacts per year.	NPS personnel interacted with over 6,600 at outreach events throughout Kentucky.
Action 2	Tracking measure	Number of educational events participated in.	NPS personnel attended approximately forty-five (45) educational events in FFY2024.
	Update nonpoint source website pages, and continue to update the I Love KY Water Facebook page.		2024 Responses
Action 3	Tracking measure	Number of followers for the I Love KY Water Facebook page.	The KY Wild Waters Facebook page (renamed in 2022 to reach a broader audience) is at 21,049 followers during this reporting period.
	Tracking measure	Annually update information on DOW NPS website.	The DOW Nonpoint Source Program web pages are updated quarterly. The NPS grant web pages are updated once per year.
Action 4	Develop and maintain nonpoint source pollution education materials		2024 Responses
	Tracking measure	Number of educational materials developed or updated.	NPS created and updated education and outreach materials for audiences of all ages. For the younger audiences NPS developed the "Be a Water Hero" initiative, promoting our adorable Ollie the Otter as a superhero. This included promotional material such as temporary tattoos, stickers, and a comic strip coloring page. The NPS is developing a mussel shell collection from the Licking and Green Rivers. A "paint your own fish" Riparian seed paper fish is available, so that children can connect with a local stream and plant their fish. The activity included detailed instructions for teachers to make the seed paper, so that they can introduce other elements such as art and recycling into their lesson plan. For adults, there are picture friendly flyers to explain septic failures and how to identify them. New materials for our Volunteer Lake Monitoring Program are available, to get audiences interested in getting connected with the health of their local reservoir. NPS staff also updated flyers, handouts, and brochures with current standards.
Action 4	Support the Watershed Watch program in Kentucky.		2024 Responses
	Tracking measure	Number of active volunteers.	There are currently 715 active volunteers in the program. Not all volunteers participate in sampling some serve on the board and fill roles such as treasurer, Chair, trainers, etc.
Action 4	Tracking measure	Number of volunteers receiving trainings.	There were 17 training workshops held in FFY2024 with 241 volunteers being trained across the state.
	Tracking measure	Number of sites sampled.	The watershed watch program has modified the program in FFY2024. Some volunteers still delivered their bacteria samples to a lab and others have performed bacteria testing thru the new R card method. There are results for 157 sites that participated in May, July, and September. Two basins have not shared their sampling results for the year: Four Rivers and Upper Cumberland basins.
Provide financial and technical support for Project Watershed Watch			
2024 Responses			

Action 5	Tracking measure	Number of Project WET educator/facilitator trainings.	DOW has formed a partnership with the Kentucky Association for Environmental Education (KAEE) to coordinate project trainings and further promote water education in Kentucky. For FFY2024, there were nineteen (19) Project Wet workshops for educators.
	Tracking measure	Number of teachers trained.	For FFY2024, Project Wet reached 255 facilitators and educators.

Long Term Goal 2 Protect waters currently meeting designa 2024			
Objective 1 Promote the identification and protection of healthy watersheds throughout Kentucky.			
Action 1	Provide technical and/or financial support for land		2024 Responses
	Tracking measure	Coordinate annually between NPS and Wild Rivers program to prioritize land for conservation.	The Wild Rivers program has identified the Rockcastle River as a priority for conservation. Both the Wild Rivers program and the NPS section representatives are board members for the Rockcastle Conservation Initiative.
	Tracking measure	Coordinate annually between NPS and Heritage Land Conservation program to prioritize land for conservation.	The Rockcastle River Watershed has been made a priority area for conservation and protection.
Action 2	Provide technical and/or financial support for sub-		2024 Responses
	Tracking measure	Number of sub-grantee projects implementing the protection component of an approved watershed plan.	In FFY 2024, no projects implemented the protection component of a watershed plan.
	Tracking measure	Number of watershed planning areas with Special Use Waters.	To date, there have been four (4) watershed plans accepted for implementation with protection of a Special Use Water as their primary focus: Sulphur Creek, Red River, Red Bird River, and Brushy Creek. Other approved watershed plans that have Special Use Waters within their boundaries include: Rock Creek, Woolper Creek, Chestnut Creek, and Lower Howards Creek.
Action 3	Develop and implement a NPS Program strategy for		2024 Responses
	Tracking measure	Number and list of current priority Healthy Watersheds.	One hundred and eighty-eight (188) HUC12s in Kentucky scored in the top 25% of watershed health both within the state and their ecoregion. Among those Top 25% "healthiest" watersheds, forty-nine (49) have an elevated (>75th percentile) statewide vulnerability score.
	Tracking measure	Number and list of new priority Healthy Watersheds.	Buck Creek has been funded by the 319 program as the first pilot healthy watershed partnership project.
Objective 2 Prioritize Source Water and Wellhead Protection areas for protection from nonpoint sources of			
Action 1	Coordinate with the Division's Source Water		2024 Responses
	Tracking measure	Number and list of Source Water Protection Areas with an approved watershed plan.	There are currently twenty-four (25) approved watershed planning areas that include a designated Source Water Protection area: Bacon Creek, Banklick Creek, Cane Run, Chestnut Creek, Clarks Run, Corbin City Reservoir, Currys Fork, Darby Creek, Dry Creek, Gunpowder Creek, Hancock Creek, Hanging Fork, Hinkston Creek, Lower Howards Creek, McDougal & Castleman Creeks, North Fork: Whitesburg Tributaries, Red Bird River, Red River, Rock Creek AML, South Fork Little River, Stockton Creek, Ten Mile Creek, Triplett Creek, West HickmanCreek , Woolper Creek
	Tracking measure	Number and list of Source Water Protection Areas with an approved watershed plan that is being actively implemented.	There are currently thirteen (13) active watershed plans that are actively implementing best management practices and education & outreach in Source Water Protection Areas: Bacon Creek, Banklick Creek, Cane Run, Chestnut Creek, Clarks Run, Currys Fork, Gunpowder Creek, Hanging Fork, Hinkston Creek, Lower Howards Creek Red Bird River, South Fork Little River, Whitesburg Tributaries
	Tracking measure	Number of Source Water Protection Plans developed and/or updated.	Zero (0) Source Water Protection Plans were updated or developed for surface water sources in FFY 2024. Twenty-three (23) Wellhead Protection Plans for groundwater sources were updated in FFY 2024.
Provide technical assistance for projects protecting			2024 Responses

Action 2	Tracking measure	Staff attend at least one technical event per year on protection of drinking water sources.	DOW staff regularly attend Area Development District Water Management Council meetings, provide technical assistance for drafting and completing Source Water Protection Plan updates, in addition to attending and presenting at Source Water/Wellhead Protection planning public meetings.
Action 3	Coordinate with the Division's Wellhead Protection		2024 Responses
	Tracking measure	Number and list of Wellhead Protection Areas with an approved watershed plan.	There are currently five (5) accepted watershed plans that contain DOW Wellhead Protection Areas: Bacon Creek, Cane Run, Gunpowder Creek, Pleasant Run, Red River
	Tracking measure	Number and list of Wellhead Protection Areas with an approved watershed plan that is being actively implemented.	There are four (4) active watershed plans that are currently being implemented that contain a DOW Wellhead Protection Area: Campton (Red River), Green River Valley (Bacon Creek), Georgetown Municipal (Cane Run), and Camp Turnabout (Gunpowder Creek).
	Tracking measure	Number of Wellhead Protection Plans developed and/or updated.	There were (15) fifteen Trocadero Plaza, Bardwell City Utilities, Barlow Water System, Western Lewis Rectorville Water District, Recovery Works, Cunningham Water District, Cumberland Gap Nhp/Hensley, Cumberland Gap Nhp/Pinnacle, Jonathan Creek Water District, Lakeview Cottages & Marina, Cypress Springs Resort, New Concord Dollar General Store, Trinity Holiness School, Locust, Valley Mobile Est, Msu Hancock Bio Station

Long Term Goal 3 Efficient and effective implementation of 2024			
Objective 1 Develop NPS program components to increase program effectiveness and maintain current program			
Action 1	Develop tools for increased efficiency.		2024 Responses
	Tracking measure	Complete development of a tracking spreadsheet for Watershed Based Plans.	The Watershed Plan tracking spreadsheet was developed during FFY 2014 and is updated annually. Watershed Plan summary documents are under development for all "Accepted" watershed plans. WSP summary documents are the next step to organize and share information regarding WSPs with stakeholders and work toward future implementation projects.
	Tracking measure	Transfer electronic project management and storage for 319(h) projects to the Department's new ARM database.	During FFY 2016 all existing (active and historical) NPS sub-grantee project files were scanned into the Department's TEMPO (previously called ARM) database for permanent electronic storage purposes. During FFY 2023, significant revisions and updates were made to the NPS program workflow, and to TEMPO itself, to incorporate TEMPO into 319(h) project management. It is anticipated that the NPS program will use TEMPO for most 319(h) project management tasks starting in FFY 2024.
Action 2	Maintain staffing for effective NPS program		2024 Responses
	Tracking measure	Number of DOW NPS technical staff.	During FFY 2024, DOW was able to fill a vacant position by hiring one (1) Technical Advisor. All positions are currently filled.
	Tracking measure	Number of Basin Coordinators.	DOW partners with and/or employees (7) seven Basin Coordinators to cover Kentucky's major River Basin Management Units.
	Tracking measure	Number of Watershed Coordinators implementing watershed plans.	DOW helped maintain ten (10) Watershed Coordinators who implement accepted watershed plans. This includes Bacon Creek, Banklick Creek, Middle Fork Beargrass Creek, Chestnut Creek, Curry's Fork, Hinkston Creek, Red Bird River, Upper Buck, South Fork Little River, and Sulphur Creek
Action 3	Provide professional development for watershed		2024 Responses
	Tracking measure	Number of training events hosted and/or attended.	In FFY 2024, the NPS team attended or hosted approximately thirty (30) training events
Objective 2 Meet federal requirements.			
Action 1	Reduce KY's NPS Program Un-liquidated Funding		2024 Responses
	Tracking measure	Drawdown percentage in comparison to ULO goal of 20%.	EPA no longer tracks ULO percentages. DOW records indicate a 24% ULO as of November 2023. The open project years are on track to be fully spent by the grant deadlines. That being said, KY's NPS Program will continue to make additional adjustments in an effort to keep the ULO percentage as low as possible.
	Tracking measure	Continue to manage KY's NPS sub-grantee projects with the goal of completing work in a 2.0 to 3.0 year contract timeframe.	Sub-grantee project contracts continue to operate on a two-year time frame as of FFY 2017.
Action 2	Complete EPA required Grants Reporting and		2024 Responses
	Tracking measure	Enter new projects into GRTS within ninety (90) days after grant award.	All of the new projects selected for FFY 2024 funding are currently entered into GRTS.
	Tracking measure	Complete bi-annual project status updates in March 30 and September 30 of each year.	Biannual project status updates were completed in FFY 2024 (March and September).
	Tracking measure	Conduct bi-annual maintenance on EPA Mandated Elements.	Maintenance of the EPA Mandated Elements information was performed in GRTS to any/all applicable projects.
Action 3	Enter calculated project load reductions by February 28th of each year.		All load reductions generated during the FFY 2024 time period were calculated and entered into GRTS by the deadline.
	Submit Kentucky's Nonpoint Source Annual Report		2024 Responses
	Tracking measure	Submission of Annual Report.	The FFY 2024, NPS Program Annual Report will be submitted to EPA Region 4.
Submit at least one (1) Nonpoint Source Success			2024 Responses

Action 4	Tracking measure	Number of watersheds delisted and possible for WQ-10 development.	Ninety (90) stream segments were submitted for delisting at least one impairment parameter with the 2024 Integrated Report. Approval did not occur in the FFY24.
	Tracking measure	Number of success stories submitted to EPA Region 4 this year.	One (1) Nonpoint Source Success Story was submitted to EPA meeting this requirement. The Triplett Creek WQ-10 report was submitted in June prior to the September 30, 2024 deadline.
	Tracking measure	Number of Kentucky Success stories on EPA webpage.	EPA has posted thirteen (13) of Kentucky's Nonpoint Success Stories on their webpage. The 2024 NPS Success Story highlighting stormwater work in the Triplett Creek watershed was submitted in June but not yet posted EPAs webpage as of September 2024.
Action 5	Review and approve all Nonpoint Source Sub-		2024 Responses
	Tracking measure	Number of approved sub-grantee QAPPs.	Quality Assurance Project Plans are developed and approved for all Nonpoint Source Program water quality data collection efforts conducted by sub-grantees. QAPPs are approved by Quality Assurance staff prior to data collection. In FFY 2024 no projects required QAPP development or approval.
	Tracking measure	Number of data packages reviewed.	DOW Quality Assurance Staff reviewed two (2) data packages for McDougal & Castleman Creek and Mill Creek from sub-contractors in FFY2024.
Objective 3 Provide technical assistance and support to the division regarding watershed impacts and the			
Action 1	Participate in DOW projects requiring technical		2024 Responses
	Tracking measure	Assist with finalizing and/or implementing the Kentucky Nutrient Reduction Strategy.	During FFY 2024, staff from the Gulf Hypoxia Program and Nonpoint Source Staff meeting weekly to discuss integration and implementation of the Kentucky Nutrient Reduction Strategy. Nonpoint Source Basin Coordinators are critical in the implementation of nutrient reduction goals in priority areas.
	Tracking measure	Provide water quality monitoring data for inclusion in the Integrated Report.	For FFY2024, all water quality data collected through the NPS Program, whether collected as pre-watershed plan development baseline or post-watershed plan implementation success monitoring is submitted to the DOW Water Quality Branch to be used in the assessment of watersheds for the Integrated Report and TMDL development if applicable.
Action 2	Update the Watershed Framework.		2024 Responses
	Tracking measure	Number of Basin Status Updates and/or Report Cards issued.	The Basin Status Report template was replaced with a combination of education and outreach materials. The Kentucky Water Health Portal and Kentucky Integrated Report Hub Site serve as the primary resources to communicate information previously contained within Basin Status Reports. During FFY 2024, NPS personnel also collaborated with Watershed Watch in Kentucky to develop and produce Basin Report Cards based on volunteer data collected during the 2023 field season.
	Tracking measure	Annually update the Kentucky Water Health Portal.	The Kentucky Water Health Portal is updated with each new Integrated Report to Congress (IR) release. The Water Health Portal was most recently updated with the 2022 IR in the fall of 2022.
	Tracking measure	Update priority watersheds as determined by the River Basin Coordinators and Basin Team members.	During FFY 2022, Basin Team Priority Areas were finalized, published, and integrated into the 319 and State Revolving Fund programs. No updates were made in FFY 2024.

2024 NPS Program Commitments

General Program Management & Oversight	2024 Update
Provide Administrative, Financial, and Technical oversight for FFY 2023 NPS Program sub-grantee projects.	The KY Division of Water's Nonpoint Source Program provides Administrative, Financial, and Technical support for approximately 50 sub-grantee projects at any given point in time. This work is in addition to providing the same type assistance to watershed groups, Health Departments, and Conservation Districts for the development of future projects. Coordination with local, state, and federal government agencies is also done on a regular basis to create synergistic on-the-ground watershed plan implementation efforts.
Obligate all grant funding within one year of grant	Obligation of grant funding for FFY 2024 is complete.
Submit 2020 Grant closeout package to EPA R4.	The 2020 Grant closeout package was submitted to EPA R4 by the deadline.
Maintain NPS Program Watershed Project GIS Coverage.	Kentucky's Nonpoint Source Program GIS Coverage was updated annually in spring 2024.
Maintain NPS Program webpages - Update Watershed Plans and Watershed Plan Maps.	Kentucky's Nonpoint Source Program web pages were updated annually in December (at minimum). The web links to accepted Watershed Plans, and the Watershed Plan Maps have been updated.
Attend EPA Region 4 Biennial NPS Conference.	Nonpoint Source Program supervisor worked with EPA R4 and other R4 state staff to coordinate the EPA R4 Biennial NPS Conference. We anticipate attending the next Region 4 Biennial Conference when it is announced for FFY 2025.
Attend EPA National Biennial NPS Conference.	Two representatives of the KY Division of Water, Watershed Management and Nonpoint Source Program attended the National Nonpoint Source Program Conference in Minneapolis in November, 2023.
National Water Quality Initiative	2024 Update
Continue to support the Hinkston Creek Watershed Coordinator that will work toward increased implementation of the Hinkston Creek Watershed Plan.	Hinkston Creek watershed was selected as a 2023 planning year watershed for the MRBI initiative, with two subsequent implementation years planned. DOW will provide monitoring support as needed starting in FFY 2025 for NWQI watersheds.
Work with KY NRCS on NWQI Pilot Project in "TBD" watershed.	DOW met with NRCS multiple times in FFY 2024 to coordinate NWQI and MRBI project initiatives. Due to changing staff and workloads, Kentucky NRCS did not submit new NWQI or MRBI watersheds for consideration this year. Work continues in Slate Creek, Hinkston Creek, Clarks River, Canoe Creek, Lower Green and Upper Nolin watersheds.
NRCS Focused Conservation Projects	2024 Update
Work with KY NRCS as needed to implement water focused best management practices throughout the Commonwealth through the new NRCS Focused Watershed Projects	Kentucky NRCS has moved on from Focused Watershed Projects to NWQI and MRBI project planning and implementation.
Watershed Success Monitoring	2024 Update
Continue development of Success Monitoring Program by compiling watershed scale implementation data.	The Nonpoint Source Program continues to gather implementation data from several other state and federal programs. This data is now compiled in a GIS format to assist management decisions for the Division's Success Monitoring Program. To date, implementation information has been acquired from the NRCS, KY Division of Abandoned Mine Lands, DOW Nonpoint Source Program, State Revolving Fund, and the Division of Conservation Agriculture Water Quality State Cost Share Program. In FFY 2024, 319(h) Program implementation data from 2007-2023 was integrated into DOW's water quality database (KATTS) to facilitate watershed planning efforts and improve public data engagement.

Conduct baseline water quality monitoring prior to watershed plan development	Kentucky's watershed planning efforts are built on the foundation of good quality in-stream water quality data. Water quality data is analyzed and interpreted to identify the cause and source of pollution issues in every watershed plan. Additionally, pre-implementation water quality data sets a baseline for which post-implementation data can be compared to assess implementation effectiveness. During FFY 2024 Kentucky Division of Water Biologists monitored water quality parameters in Upper Salt River and developed a monitoring plan for Hardy Creek as part of a collection effort to develop watershed plans.
Conduct watershed success monitoring for watershed plan implementation projects.	The Kentucky Division of Water continues to develop its Success Program through enhanced communication between the Nonpoint Source Section and the Water Quality Branch in an effort to set joint priorities and determine standard operating procedures to trigger monitoring activities in areas with BMP implementation. In FFY 2024 a success monitoring summary meeting was held for the Bacon Creek, Brushy Creek & Sulphur Creek watersheds to share results and determine next steps. Additional success monitoring is ongoing for the Lower Howards Creek and Red River watersheds.
Grant Reporting and Tracking System	2024 Update
Enter FFY 2023 Load Reductions into GRTS.	FFY 2024 Load Reductions for Nitrogen, Phosphorous, and Sediment were calculated for all projects that implemented on-the-ground Best Management Practices (BMP). Those load reductions were entered into the GRTS database by the March, 31 2024 deadline along with specific BMP description information.
Attend National GRTS Conference.	We anticipate attending the National GRTS Conference when it is announced.
Complete GRTS project status updates.	All NPS sub-grantee project biennial status updates and mandated elements updates were completed.
Enter FFY 2024 Sub-grantee projects into GRTS.	All NPS sub-grantee project biennial status updates and mandated elements updates were completed.
EPA Required Reporting	2024 Update
Submit Initial Annual Nonpoint Source Program Workplan to EPA R4.	An updated version of Kentucky's FFY 2024 Nonpoint Source Program Workplan was submitted to EPA Region 4 prior to the September 30, 2024 deadline.
Submit Annual Report to EPA R4.	Kentucky's Nonpoint Source Program Annual Report was submitted to EPA region 4 by the December 31, 2024 deadline.
Submit WQ-10 Nonpoint Source Success Story to EPA R4.	Kentucky's WQ-10 Nonpoint Source Success Story for Triplett Creek was submitted to EPA R4 in June 2024. The report was submitted through the GRTS database ahead of the September 30, 2024 deadline.
Submit Watershed Plans to EPA R4 for review and comment.	In February of 2024 the Castleman and McDougal Watershed Plan was submitted to EPA for review and comment.
2019 KY NPS Management Plan Goals, Objectives, Strategies	2024 Update
The KY Division of Water will work to update the KY NPS Program 5-Year Management Plan.	KY Division of Water was granted an extension in FFY 2024 to update it's NPS Program 5-Year Management Plan after finalization of national NPS Guidelines. A draft NPS Program 5-Year Management Plan is in progress for FFY 2025 submittal.