

2020

Nonpoint Source Pollution Annual Report



Contact:

Kentucky Division of Water
Watershed Management Branch
300 Sower Blvd.
Frankfort, KY 40601
(502) 564-3410
water@ky.gov

[eec.ky.gov/Environmental-Protection/
Water/Pages/default.aspx](http://eec.ky.gov/Environmental-Protection/Water/Pages/default.aspx)



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Introduction



Nonpoint Source Management in Kentucky

The Kentucky Nonpoint Source Management Program's mission is to protect surface and groundwater from nonpoint source pollution, abate pollution threats, and restore degraded waters in order to meet water quality standards and support beneficial uses. Given its diffuse nature, nonpoint source pollution (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 levels.

The Nonpoint Source 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 nonpoint source 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 Waters with identified threats.

In Federal Fiscal Year (FFY) 2020, the DOW received \$2.8 million from Clean Water Act Section 319(h) funding to execute the Nonpoint Source Management Program. This year, communities and organizations shared \$1.4 million in federal funding to implement projects that control nonpoint source pollution within watershed planning areas. The DOW awarded those funds to implement BMPs in seven watershed planning areas, help develop one new watershed plan, coordinate statewide Agriculture Water Quality Authority efforts, and provide technical assistance and training to agricultural producers on water quality issues (such as nutrient management).

This report features accomplishments aligned with the NPS program's goals that occurred during FFY 2020 (October 1, 2019 – September 30, 2020).



Chapter 1

The Watershed Approach

Watershed Planning and Implementation

Division of Water staff provide technical assistance to watershed groups and other partners as they develop watershed plans and implement nonpoint source pollution abatement strategies identified through the watershed planning process.

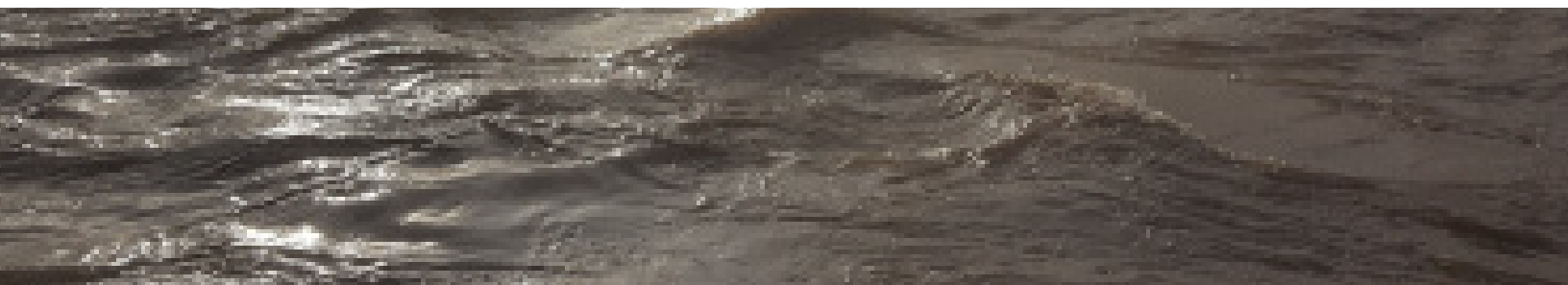
In-person technical assistance was significantly curtailed in 2020 due to the COVID-19 pandemic, requiring that we develop virtual methods of outreach and project management. During this Federal Fiscal Year (FFY) the Division dedicated time to streamlining and improving internal processes through internal review, seeking feedback from contractors, and researching other states' approaches to watershed planning, contractor guidance materials, and Quality Assurance Project Plans (QAPPs).

During FFY 2020, DOW staff conducted reviews of one QAPP and two draft watershed plans. The

North Fork: Whitesburg Tributaries watershed plan has been approved by both DOW and EPA Region 4 staff. Chapters of the Upper Paint Lick watershed plan are currently under review by DOW staff.

Watershed plan reviews are coordinated by the Kentucky Interbranch Watershed Implementation Workgroup, which provides the opportunity for all DOW branches to comment or offer constructive feedback on watershed plans prior to acceptance. Currently, twenty-eight watershed plans have been accepted for full or partial implementation with Clean Water Act Section 319(h) funding. At present, an additional two watershed plans are under development.

Fifteen watershed plans are currently being implemented through one or more Clean Water Act Section 319(h)-funded contracts during FFY 2020. Watershed coordinators are integral to the success of implementation projects, managing on-the-ground best management practices to reduce nonpoint sources ranging from urban stormwater to agricultural inputs. Watershed coordinators also work through many channels to conduct watershed-focused environmental education and outreach to the public, local officials, and school-aged children.



Kentucky Watershed Planning Areas

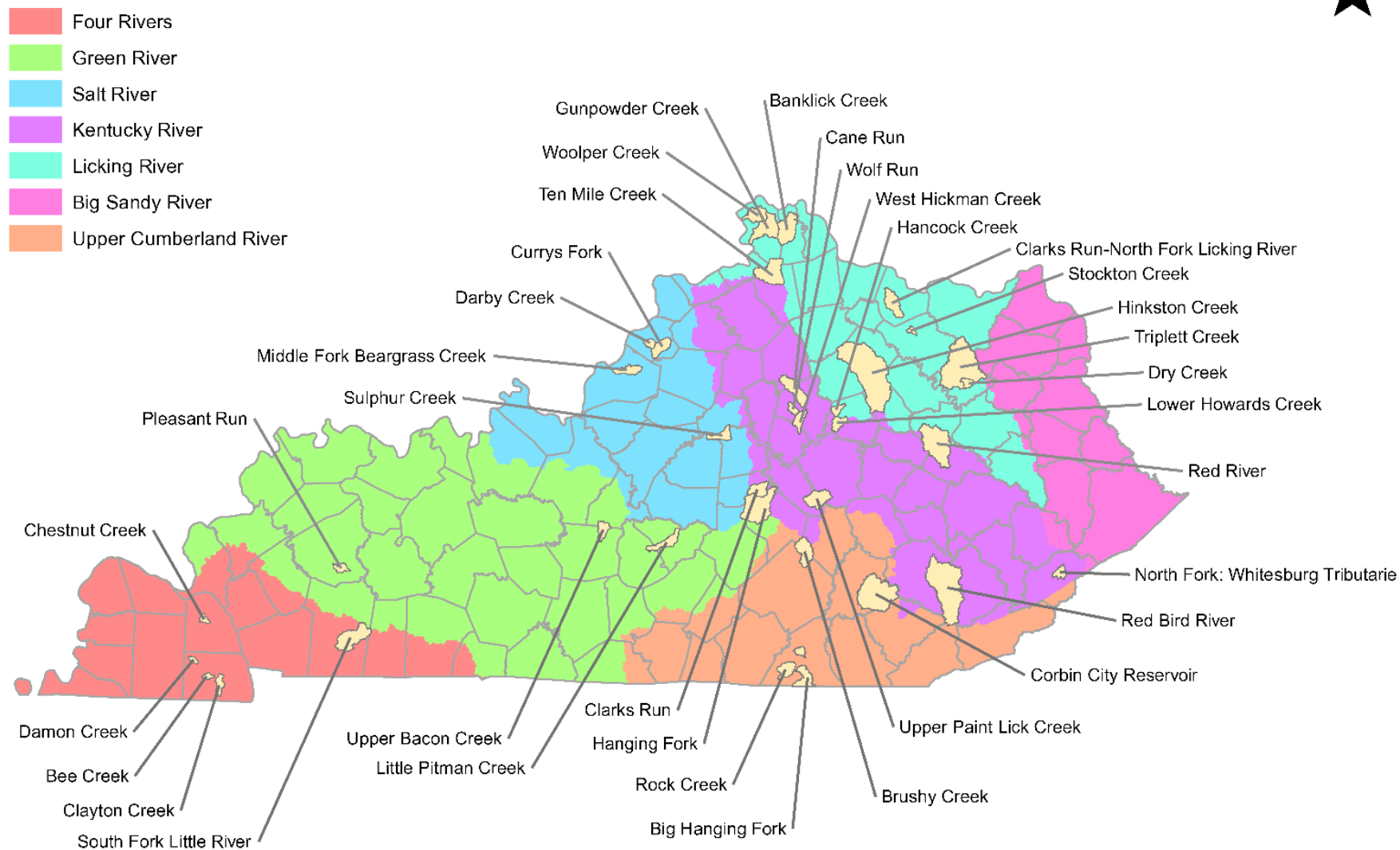


Figure 1. Watershed planning areas FFY 2020 indicated in yellow. Map includes EPA approved plans and plans in development.

NPS Success Story



Watershed Planning and Collaboration Efforts Reduced Sedimentation in Floyds Fork

The Kentucky Division of Water (DOW) added a 9.9-mile segment of Floyds Fork (mile 24.2–34.1) to the 2006 Clean Water Act (CWA) section 303(d) List/Integrated Report as impaired for warm water aquatic habitat (WAH) due to sedimentation and siltation. Suspected contributing nonpoint sources of siltation include agriculture and land development in the five HUC-12 watersheds draining to this segment of Floyds Fork. After years of watershed planning, stream restoration, and agriculture best management practice (BMP) installation in the Floyds Fork watershed, water quality monitoring revealed significant improvement by 2012. As a result, DOW delisted this segment of Floyds Fork for the WAH designated use in the 2016 Integrated Report to Congress.

Problem

The Floyds Fork watershed is a large and complex system in the Outer Bluegrass and Knobs regions of central Kentucky that drains into the Salt River. Floyds Fork is approximately 64 miles long and drains a 284-square-mile watershed including forested, agricultural and developed lands in Henry, Bullitt, Shelby, Jefferson, Oldham, and Spencer counties. The delisted segment of Floyds Fork (miles 24.2–34.1) drains six subwatersheds and is in the 38.7-square-mile Cane Run–Floyds Fork watershed.

The Floyds Fork watershed has been the subject of significant evaluation, including a 1991 DOW water quality study, a 2003 DOW mussel survey, a 2008 partial Floyds Fork watershed plan, a U.S. Environmental Protection Agency (EPA)-accepted watershed plan for the Currys Fork (2011) subwatershed, and EPA-approved total maximum daily loads (TMDLs) for dissolved oxygen (1997) and bacteria (2014). In 2012, DOW reclassified this stream segment from nonsupport to partial support for its WAH designated use. However, the stream remained impaired by sediment; suspected sources

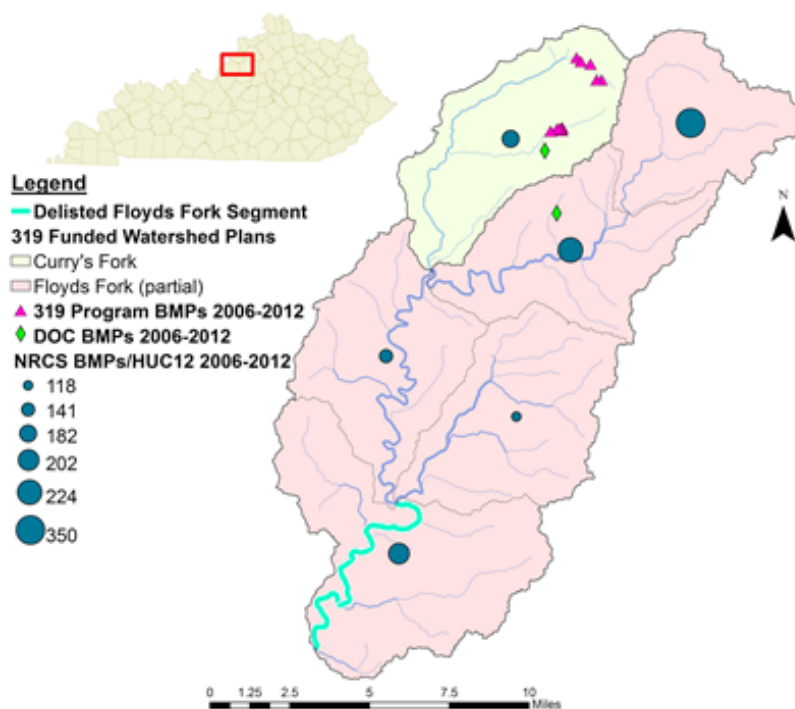


Figure 2. Floyds Fork in north-central Kentucky.

included agriculture and land development.

Story Highlights

The CWA section 319(h) program funded a partial watershed plan for the 284-square-mile Floyds Fork watershed that includes the now-delisted segment. Additionally, 319(h) program funding supported development of the EPA-approved Currys Fork watershed plan (HUC 051401020804), located upstream of the delisted segment. The Currys Fork watershed plan facilitated over 3,700 linear feet of stream channel restoration, 1,695

acres of riparian forest buffer and 1,020 feet of riparian vegetative buffer. These practices reduced sediment loss to Floyds Fork by 239.7 tons/year in 2012 alone (Figure 2).

The 38.7-square-mile Cane Run–Floyds Fork watershed containing the delisted segment received funding from the Natural Resources Conservation Service (NRCS) for 202 agricultural BMPs on 2.6 square miles of farmland between 2006 and 2012. Combined with the other five watersheds upstream of the delisted stream, NRCS funded 1,217 agriculture BMPs on nearly 28 square miles of farmland (see Figure 2).



Figure 3. A site upstream of delisted Floyds Fork segment, before and after restoration.

BMPs included cover crops, contour farming, critical area planting and grassed waterways. The Kentucky Division of Conservation (DOC) also funded heavy use feeding areas in the Lick Fork–Floyds Fork and Currys Fork watersheds upstream of the delisted stream. Heavy use feeding areas help manage livestock mud that contributes to stream sedimentation.

Results

Sedimentation in the Floyds Fork segment decreased due to the implementation of agriculture BMPs and upstream stream restoration projects. Aquatic biological sampling in 2012 by DOW revealed an excellent Macroinvertebrate Bioassessment Index (MBI) score (76.6 MBI) and a good Kentucky Index of Biotic Integrity (KIBI) fish score (49 KIBI) at river mile 33.1. These scores represent improvement over 1999 aquatic biological sampling, which had revealed fair scores at river miles 32.6 (53 MBI) and 27.3 (49 MBI). The 2012 data show that the 9-mile segment now fully supports its WAH designated use and is no longer impaired for sediment/siltation. As a result, DOW removed Floyds Fork (river miles 24.2–34.1) from the impaired waters list in the 2016 Integrated Report.

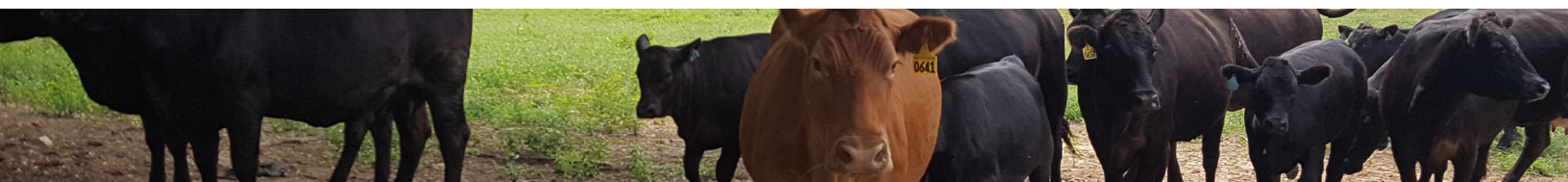
Partners and Funding

In addition to EPA and DOW, key partners in the watershed-related efforts include the NRCS, Kentucky DOC, the Oldham County Fiscal Court, the Kentucky Department of Fish and Wildlife Resources (KDFWR), local watershed groups and the University of Louisville Stream

Institute. The NRCS was the driving agency in the implementation of the agricultural BMPs, providing funding and technical resources. The Currys Fork Watershed Association, Kentucky Waterways Alliance, and Floyds Fork Environmental Association facilitated the collection of monitoring data and community involvement to identify watershed needs. The Oldham County Fiscal Court maintains a watershed coordinator to direct projects in the Currys Fork watershed. DOC funded agricultural BMP installation (\$15,427) through utilization of state cost-share dollars.

CWA section 319(h) grants supported numerous monitoring, implementation, and watershed planning activities, including a 2003 Floyds Fork mussel survey (\$135,750), the Floyds Fork watershed plan (\$216,953), monitoring of urban stormwater in the Floyds Fork watershed (\$244,000), and the Currys Fork watershed plan and implementation (\$970,500). Additional Section 319(h) grants supported the University of Louisville’s research on sediment loading (\$362,579) and development of a stream restoration manual (\$372,408) using data from the Floyds Fork watershed. KDFWR’s In-Lieu Fee Mitigation Program invested over \$878,000 into stream restoration activities in the watershed. The DOW’s Nonpoint Source and Basin Team Section provided technical assistance for these projects and facilitated NRCS, DOC, and KDFWR funding throughout the watershed.

For more information on this project contact:
 Josiah Frey
 Kentucky Division of Water
 502-782-0164 • josiah.frey@ky.gov



FFY 2020 Projects



Featured Project:

Brushy Creek Watershed

The Brushy Creek watershed (Figure 4) is located in the northern portion of the Upper Cumberland River Basin. It is a priority watershed for the Kentucky Division of Water (DOW) due to its unique water characteristics and the potential impact on nearby threatened and endangered species. Brushy Creek is notable for its special-use designations under Kentucky Administrative Regulations (KAR). The main stem of Brushy Creek, along with two tributaries (the lower reaches of Bee Lick Creek and Clifty Creek), are designated as Outstanding State Resource Waters under 401 KAR 10:026. In addition, all three are designated as Exceptional Waters (401 KAR 10:030) with Brushy Creek named as a Reference Reach stream, setting an example of least-disturbed conditions for the bioregion.

Brushy Creek is a tributary to Buck Creek, a stream with its own special-use designations. Buck Creek is a Reference Reach stream and an Outstanding State Water Resource.

Buck Creek provides refugia for several federally endangered freshwater mussels. Known for its diversity, Buck Creek is the home to over thirty species of freshwater mussels, seventy-seven species of fish, and one endangered bat species. Given the similarity and proximity of the two streams, Brushy Creek has the potential for range expansion of these species through natural recruitment or migration.

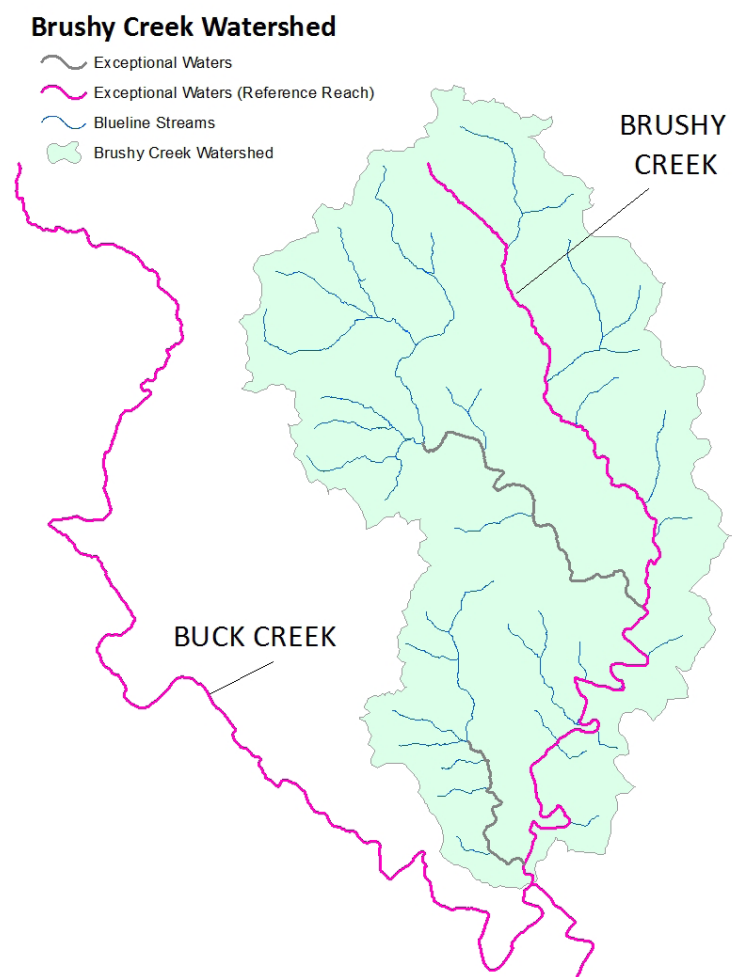


Figure 4. Brushy Creek Watershed.



Figure 5. Farm field day demonstrating drone capabilities regarding agricultural management.

The Pulaski County Conservation District (PCCD) has received three Clean Water Act (CWA) 319(h) grants (Project #s 10-14, 15-12, and 19-10) used to develop the Brushy Creek Watershed Based Plan and implement projects to reduce nonpoint source runoff through best management practices (BMPs). A dedicated watershed coordinator is executing additional components of education and outreach. Brushy Creek and two tributaries are listed on the 2016 303(d) Integrated Report as partially supporting primary contact recreation due to agricultural sources.

In 2019, the PCCD completed a project focused on agricultural BMP installations, including seven heavy use areas, eight watering facilities, acres of cover crops, nine pipelines, six spring developments, and nine fences. The PCCD also purchased a drone

with a normalized difference vegetation index (NDVI) sensor which can be used for showing the impacts of nonpoint source BMPs on plant health. A farm field day demonstrated the use of the drone and the benefits it serves to the community (Figure 5).

The PCCD received additional CWA 319(h) funding to continue restoration efforts in the Brushy Creek Watershed. The project kicked off with a virtual farm tour at the Somerset Drive-In (Figure 6). The event was a partnership with the Pulaski County Cattlemen's Association, Natural Resources Conservation Service, the Kentucky Beef Network, and the University of Kentucky's Cooperative Extension Service. The project will extend through FFY 2023 with more agricultural BMP installations and community outreach events.



Figure 6. Virtual farm tour at the Somerset Drive-in.

Featured Project:

Hinkston Creek

The Hinkston Creek watershed (260-square-miles) is found in the rural pasture-land of east-central Kentucky, just northeast of Lexington (Figure 7). Agricultural land-use dominates the watershed (72%), interspersed with forested (20%) and low-intensity development (8%) regions. In the 2010 Integrated Report (IR) to Congress (and iterations of the IR since), segments of Hinkston Creek were listed for pathogen-, sediment-, and nutrient-related impairments. A 2011 Hinkston Creek watershed-based plan identified nutrient- and pathogen-related nonpoint sources associated with urban, agricultural, and failing septic inputs (Tetra Tech, 2011). To address these water quality concerns, the Hinkston Creek Watershed Plan recommended:

- Replacing or repairing failing septic systems
- Restoring riparian buffers and restricting livestock from waterways
- Retrofitting urban and rural runoff

Since its initial 319(h) watershed plan development grant in 2008, the Hinkston Creek watershed has received eight 319(h) grants, including a Federal Fiscal Year (FFY) 2020 grant to continue watershed plan implementation activities.

Bluegrass GreenSource

Bluegrass GreenSource (BGGs) is an environmental nonprofit organization located in Lexington, Kentucky and services

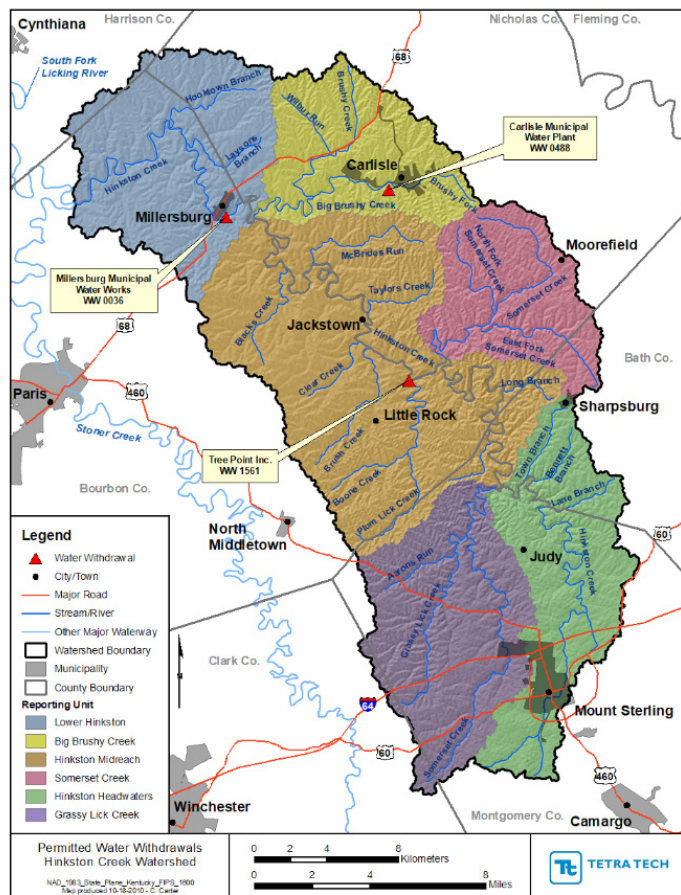


Figure 7. The Hinkston Creek Watershed contains six sub-watersheds: Lower Hinkston, Big Brushy Creek, Hinkston Midreach, Somerset Creek, Hinkston Headwaters, and Grassy Lick Creek. Credit: Tetra Tech

20 counties in the Bluegrass Region. The Hinkston Creek Watershed Coordinator (the Coordinator) is staffed by BGGs and in addition to overseeing watershed plan implementation, the Coordinator closely works with staff environmental educators conducting watershed-focused community education and outreach. To target the previously-mentioned watershed impairments (high pathogen levels, elevated nutrient concentrations, and inadequate riparian

buffer zones), BGGGS has developed specific educational workshops and associated cost-share programs. These workshops, which are discussed below, are promoted through local newspapers, cooperative extension office newsletters, social media, radio segments, presentations, and local meetings.

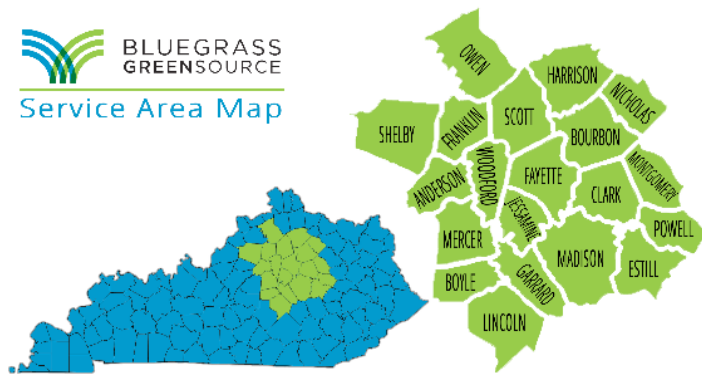


Figure 8. Bluegrass Greensource service area.

Septic Care Education Workshops

To address high pathogen loading from failing septic systems in Hinkston Creek and its tributaries, Bluegrass Greensource designed a program focused on providing communities with the tools to address water quality issues stemming from onsite wastewater.

Partnering with local organizations and county health departments, BGGGS developed septic care outreach and education material for homeowner workshops. The Coordinator and partners hosted five Septic Care workshops in Spring 2020. During each workshop, the Coordinator presented with the local health department on septic system function, water quality impacts of failing septic systems, and instruction on how to properly maintain residential systems.

Septic System Repair and Maintenance Program

Attendees of the Septic Care Education workshop qualified for a no-cost septic tank pumpout service and riser installation program (up to \$450), if the service was deemed essential. Along with the pumpout application, a Homeowner Checklist was provided enumerating septic system “do’s and don’ts” to promote continual septic system maintenance. Those experiencing chronically failing systems were eligible to apply for an 80/20 cost-share repair, replacement, or installation program (the latter for households with straight pipe conditions). Priority was based on proximity to waterways, current septic conditions, severity of failure, and annual household income. Bluegrass Greensource maintained administrative and educational capacities,

SEPTIC SYSTEM PROBLEMS?

TUESDAY, MARCH 5TH
6:00 TO 7:30 PM
MONTGOMERY CO HEALTH DEPARTMENT
COMMUNITY ROOM
108 E LOCUST ST., MT. STERLING, KY

THURSDAY, MARCH 7TH
6:00 TO 7:30 PM
MILLERSBURG CITY HALL CIVIC CENTER
1113 MAIN STREET, MILLERSBURG, KY

REGISTER AT: BGGREENSOURCE.ORG/SEPTIC-CARE-WORKSHOPS/QUESTIONS?
CONTACT LINDSIE NICHOLAS AT (859) 266-1572

WE CAN HELP!

Figure 9. Sample Outreach Flyer for Septic Care Education Workshop. Credit: Bluegrass Greensource

while local health departments conducted site evaluations, solicited bids, and administered final inspections for repair projects.

both for educating landowners on the importance of a well-maintained riparian zone and highlighting available local or federal cost-share for agricultural best management practices.

Riparian Buffer Mini Grant Program

Saving Your Streambank workshop participants are eligible to apply for an 80/20 cost-share grant compensating riparian buffer plantings for homeowners or small landowners ineligible for local or federal cost-share. The Coordinator and project partners (NRCS, local Conservation Districts, and the University of Kentucky Cooperative Extension) approve and prioritize funding. Within the bounds of the award agreement, homeowners commit to long-term buffer maintenance, guided by BGGs-provided material listing approved native trees, shrubs, grasses, and perennials and where to acquire vegetative material. The Coordinator additionally works with community groups, project partners, and municipalities to determine cost-share opportunities for future streambank community projects.

Hinkston Creek Watershed Group

Early in FFY 2020, BGGs hosted the inaugural Hinkston Creek Watershed Group, gathering over 20 local and regional partners and stakeholders shepherded by a vested interest in watershed-based collaboration, networking, and education. Looking ahead, the stakeholder group will continue convening on a semi-annual basis and plans to collaborate on future water quality improvement projects.

Save your streambanks
DO YOU HAVE A STREAM OR CREEK IN YOUR BACKYARD?
Join us for a FREE workshop to learn about streamside buffers and grant opportunities.

BOURBON COUNTY

**TUESDAY, OCT 16TH
6-7:30 PM**

**MILLERSBURG CITY HALL
CIVIC CENTER
1113 MAIN STREET
MILLERSBURG, KY 40348**

**MINI COST-SHARE GRANT
APPLICATIONS AVAILABLE.
UP TO \$2,000**

WORKSHOP ATTENDEES WILL LEARN ABOUT:

- The benefits of streamside plantings
- How to plant and maintain a riparian buffer
- How to identify invasive species and methods for removal
- Financial assistance options available (Federal, state, and local funding)

COST-SHARE GRANT APPLICATIONS will be available at the workshop for up to \$2,000 to plant native trees, shrubs, grasses and perennials along your backyard stream in the Hinkston Creek Watershed.

More information and workshop registration can be found at:
BGGREENSOURCE.ORG/RIPARIAN-BUFFERS

This work was funded in part by a grant from the U.S. Environmental Protection Agency under §191(b) of the Clean Water Act through the Kentucky Division of Water.

WORKSHOP SCHEDULE

HINKSTON CREEK WATERSHED:
Tuesday, Oct 9th, 6-7:30 pm
Nicholas County
108 W Main St, Carlisle, KY
Tuesday, Oct 16th, 6-7:30 pm
Bourbon County
1113 Main St, Millersburg, KY
Monday, Oct 22nd, 6-7:30 pm
Montgomery County
106 E Locust St, Mt Sterling, KY

CLARKS RUN AND HANGING FORK WATERSHEDS:
Tuesday, Oct 2nd, 6-7:30 pm
Boyle County
99 Corporate Dr, Danville, KY
Thursday, Oct 18th, 6-7:30 pm
Lincoln County
104 Metkar Trail, Stanford, KY

TO LEARN MORE, CONTACT:
Lindsie Nicholas
Bluegrass Greensource
859-266-1572

Figure 10. Sample outreach material for Saving Your Streambanks Educational Workshops.
Credit: Bluegrass Greensource

Saving Your Streambanks Education Workshops

While no Saving Your Streambanks Education workshops were held in FFY 2020, BGGs hopes to use a FFY 2019 319(h) grant to host upcoming workshops in FFY 2021.

In 2018, the Coordinator worked with local partners, county cooperative extension agents, conservation district offices, and regional Natural Resources Conservation Service (NRCS) agents to create a workshop

Nicholas County Conservation District

In FFY 2020, the Nicholas County Conservation District (the Conservation District) continued work on the Hinkston Creek Watershed Plan and BMP Implementation Project (17-15).

Heavy-use area protection was widely implemented across four of the five participating sub-watersheds. Practices like gateways and feed areas to stabilize intensively used livestock traffic areas with non-erodible surfaces were also employed. Watering facilities, including a livestock

pipeline delivering water to points of use, and a pond were constructed as alternative water sources to sensitive on-farm streams. To supplement the aforementioned practices, participants installed 8,333 linear feet of fence lines serving to eliminate or reduce stream access from by livestock. In addition to livestock management, four of the participating farms pursued pasture renovations by strategically planting native forage mixes in 334 acres throughout the watersheds. For the remainder of the project year, 17-15 project managers plan to pursue farmer-focused watershed education and outreach.



Figure 11. Millersburg Linville Park-Hinkston Creek Buffer Planting. Photo Credit: Lindsie Nicholas

Projects Started FFY 2020

Table 1. Projects started in Federal Fiscal Year 2020.

State Project Number	Project Title	Start Date
19-02	Reducing Nonpoint Source Pollution in Currys Fork Watershed	7/1/2020
19-05	Clarks Run, Hanging Fork, & Hinkston Creek WS Improvement	3/15/2020
19-06	Bacon Creek Homeowner Septic System Pump Out & System Repair	3/15/2020
19-07	Banklick Watershed Plan Continued Implementation	3/15/2020
19-09	Red Bird River Watershed Plan Implementation II	7/1/2020
19-10	Brushy Creek Watershed Project	3/1/2020
19-11	North Fork: Whitesburg Tributaries Watershed Plan	1/1/2020
20-03	Project WET in Kentucky	9/1/2020
20-04	Agriculture/Watershed Coordinator for Chestnut Creek	9/1/2020
20-05	Continued Improvements for Banklick Creek Regional Wetland	9/1/2020



Completed Projects FFY 2020

Table 2. List of projects closed in Federal Fiscal Year 2020. Data is currently being entered into GRTS.

State Project Number	Project Title	Date Completed
16-03	Kentucky Dairy Compliance Project	9/30/2020
16-04	Watershed Plan Development for Crafts Colly, Sand Lick, and Dry Fork	3/12/2020
16-05	Watershed Academy KWRRRI	9/30/2020
16-06	Currys Fork Watershed Onsite Wastewater Program/Stream Restoration Design Project	9/30/2020
16-07	Watershed Implementation Project: Clarks Run, Hanging Fork, & Hinkston Creek Watersheds	9/30/2020
16-10	KWRRRI - WBP Assistance for Crafts Colly, Sand Lick, and Dry Fork	9/25/2020



Figure 12. Stormwater project, Burlington, KY.

Load Reductions

Table 3 contains a compilation of load reduction estimates from Best Management Practices (BMPs) that were implemented during FFY 2020 (October 1, 2019 – September 30, 2020). Load reductions were derived by direct calculation or by utilizing STEP-L BMP Modelling, and then entered into the EPA's Grant Reporting and Tracking (GRTS) database prior to the February 15, 2020 deadline.

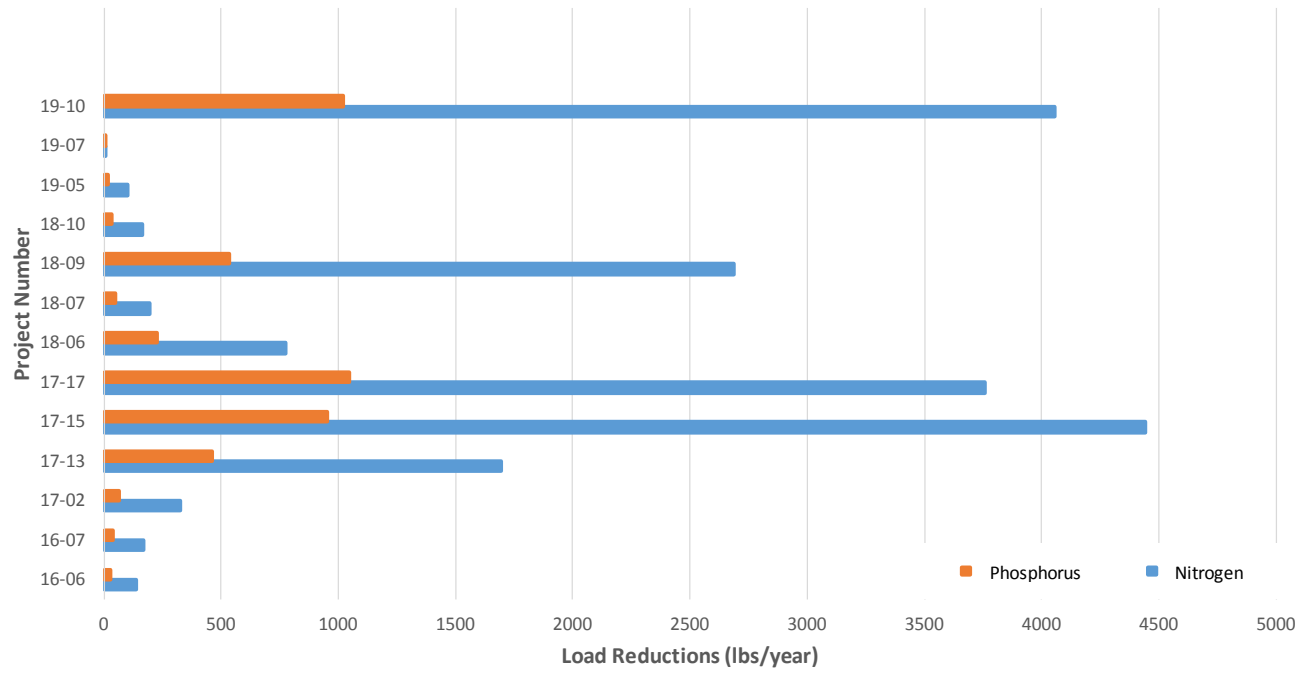
Table 3. Load reductions for projects from Federal Fiscal Year 2020.

Award Year	State Project Number	Project Title	Load Reductions		
			Nitrogen (lbs/year)	Phosphorus (lbs/year)	Sediment (tons/year)
2016	16-06	Curry's Fork Watershed Onsite Wastewater/ Stream Restoration Design Project	137.1	27.4	0
2016	16-07	Watershed Implementation Project: Clarks Run, Hanging Fork, & Hinkston Creek Watersheds	168.9	38.7	18
2017	17-02	Wolsing Woods Wetland Construction	326.1	62.5	13.7
2017	17-13	Bacon Creek Agriculture Best Management Implementation	1693.5	459.6	332.2
2017	17-15	Watershed Plan Implementation for Hinkston Creek in Nicholas County KY	4442.43	954.36	704.69
2017	17-17	Sulphur Creek Watershed Ag BMP Implementation Plan	3760	1046.9	762.9
2018	18-06	Sulphur Creek Phase II-Mercer Co.	777.7	228	167.1
2018	18-07	Red River Gorge Implementation Project	197.4	46.9	14.3
2018	18-09	Boone County Evergreen/Ridgeview Drive Sanitary Sewer Project	2686.6	537.3	0
2018	18-10	Marshall County Fiscal Court Chestnut Creek Implementation	164.5	32.9	0
2019	19-05	Clarks Run, Hanging Fork, & Hinkston Creek Watershed Improvement Program	100.5	20.1	0
2019	19-07	Banklick Watershed Plan Continued Implementation	8.6	3.1	2.4
2019	19-10	Brushy Creek Watershed Project	4057.5	1022.5	730.5

2020 NPS Project Load Reductions

A.)

Nutrients



B.)

Sediment

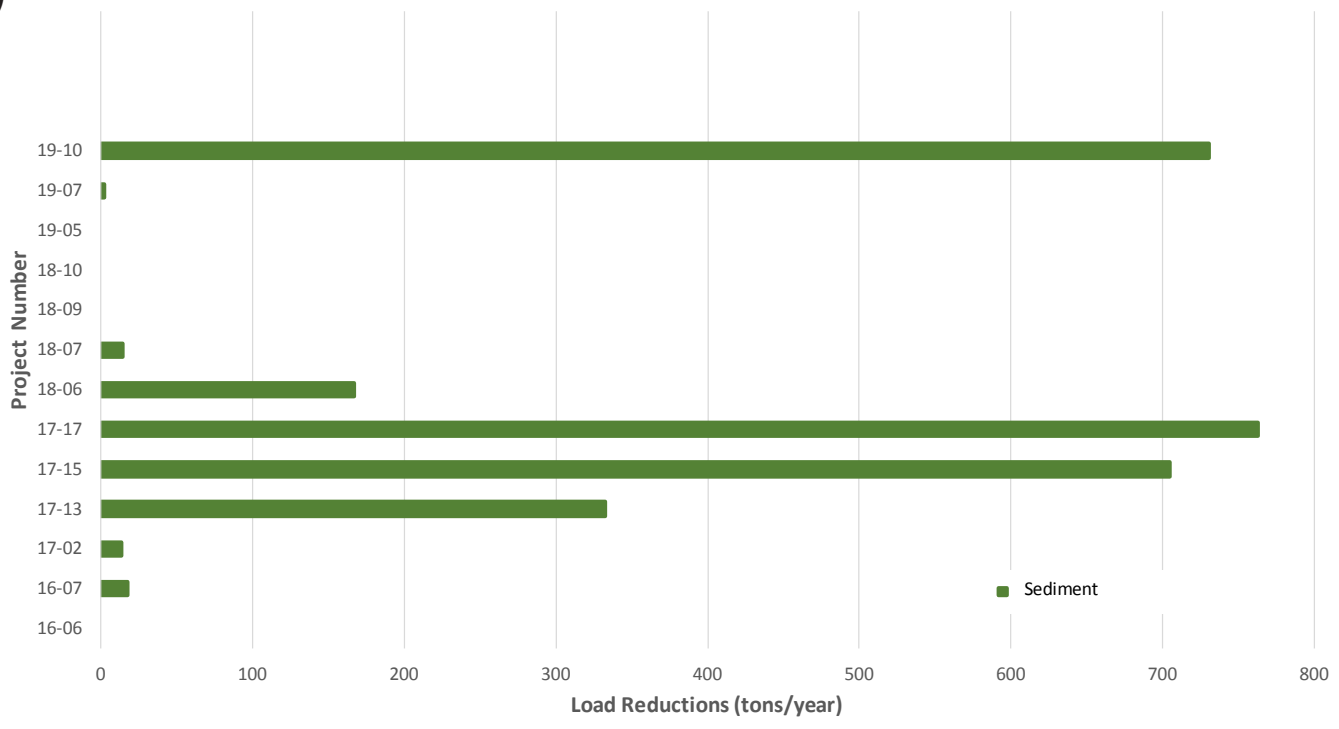


Figure 13. The figures above reflect the load reductions reported in Tables 3. Projects shown were reported from FFY 2020. A.) Nutrients; B.) Sediment.

Chapter 2

Basin Coordination

Kentucky Division of Water Basin Coordinators

Communication with and coordination of watershed stakeholders is critical when attempting to achieve long-term improvements in water quality. Many parties share common interests and goals surrounding watershed health, and the best results are always found when these parties work together to share resources and knowledge.

The Kentucky Division of Water 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 for innovative ways to improve water quality at the community level.

Currently, the Kentucky Division of Water directly employs five basin coordinators (Big Sandy/Little Tygarts, Green and Tradewater Rivers, Licking River, Upper Cumberland River, and Salt River Basins) and two through outside contractors (Four Rivers and Kentucky River Basins), covering all seven of the state's watershed management units (Figure 14).



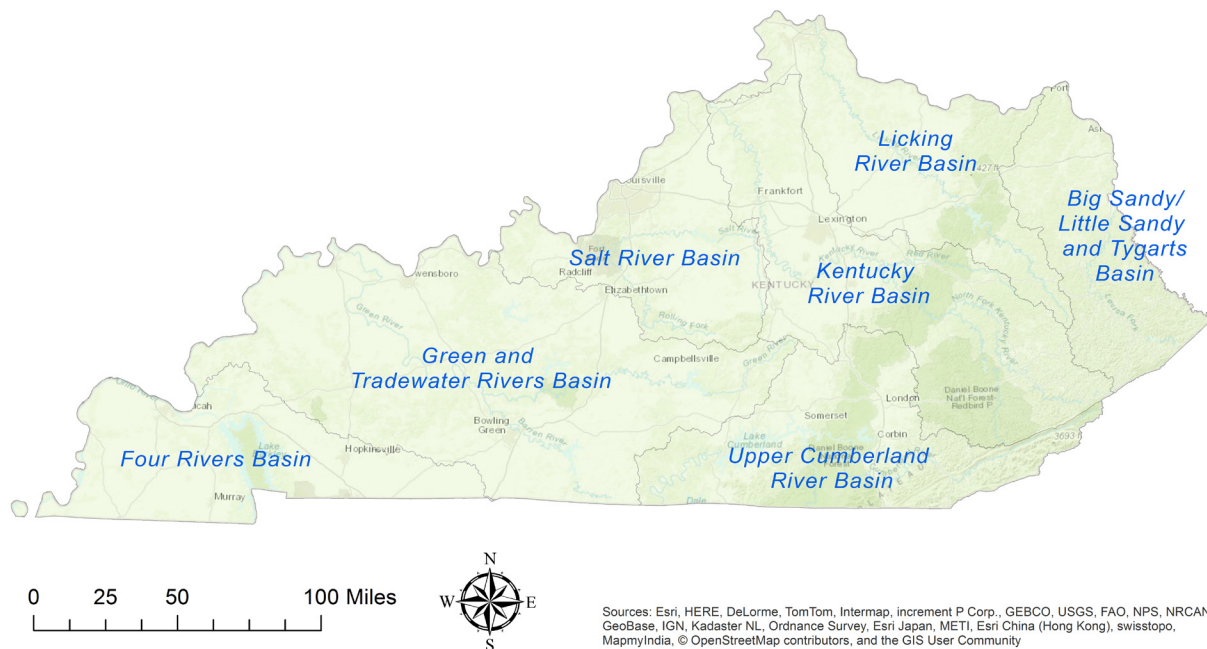


Figure 14. Kentucky’s Major River Basin Management Units.

Priority Watersheds: 2020

Nearly five years ago, during FFY 2016, Basin Team meetings were utilized to develop criteria for establishing priority watersheds. Priority watersheds (Figure 15) are selected based on factors such as the degree of water quality impairment and potential for recovery through implementation of best management practices. The purpose of selecting these areas is to focus limited resources on areas where positive change is reasonably attainable. A priority watershed should ideally have an EPA-approved watershed plan undergoing implementation or an ongoing watershed planning effort, accompanied by a strong potential for strong community support around implementation of recommended watershed projects.

The Basin Team’s knowledge and input is valuable to helping the Basin Coordinators and DOW make the watershed selections with the most current and localized knowledge. From all the identified watersheds, three priority watersheds were

selected for each major river basin in Kentucky. These watersheds will be considered for focused funding and technical support in state agency programs, including EPA 319 (Nonpoint Source) Grant Program funding, state revolving funds for water and wastewater infrastructure, and state agricultural cost-share programs (Figure 15).

Priority watersheds are intended to be re-evaluated on a regular basis to ensure that limited resources are being directed most optimally. While updates to the list were expected to begin in 2020, the COVID-19 pandemic significantly delayed our progress. With in-person meetings curtailed for the remainder of the year, we are exploring virtual means of soliciting feedback from the Basin Teams so that we can provide an update in 2021. New to the evaluation and selection of these watersheds includes an Environmental Justice index (comprised of demographic and public health metrics) and nutrient management priority watersheds.

Kentucky Priority Watersheds

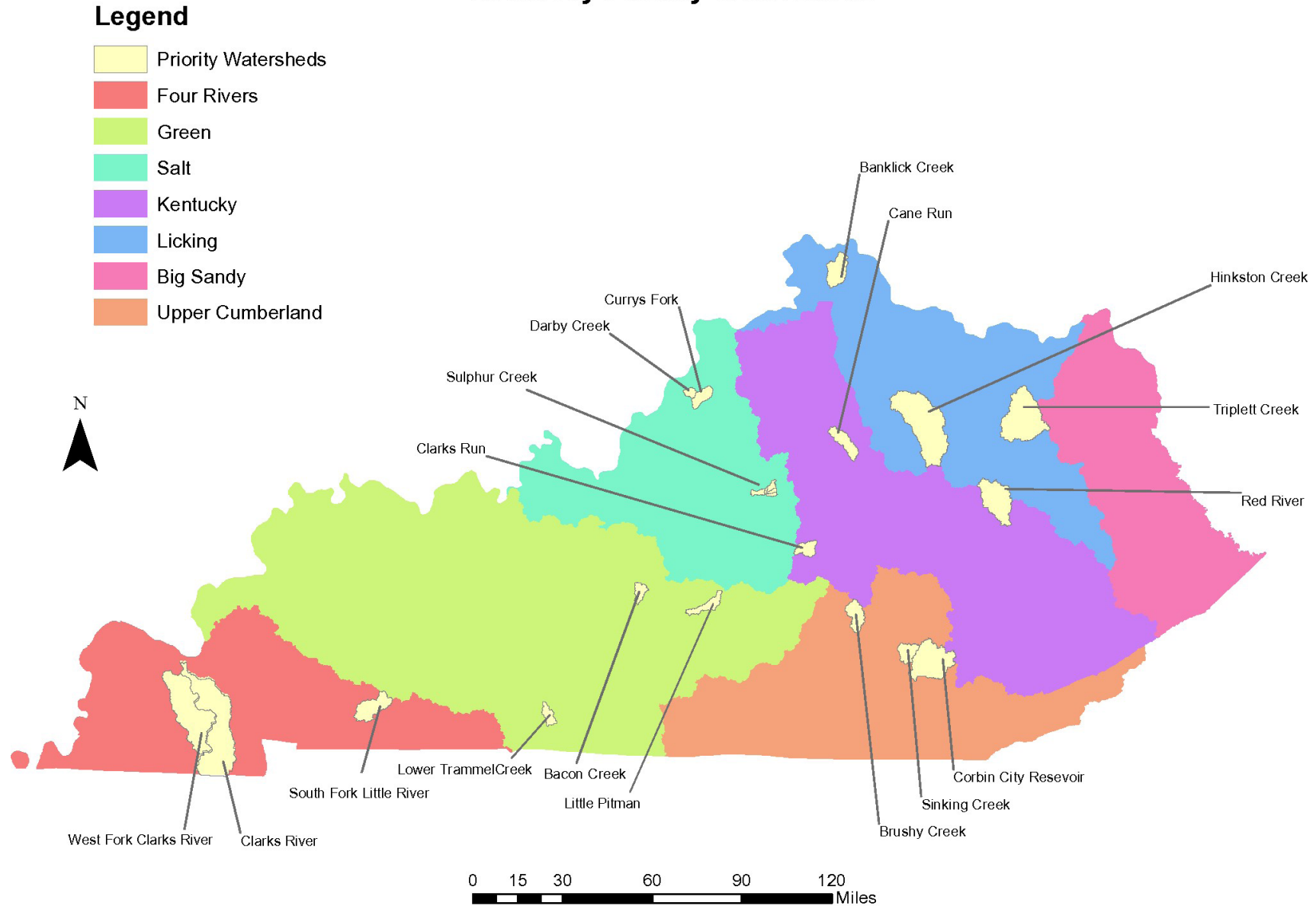


Figure 15. Priority watersheds in Kentucky.

Priority Watersheds: Updates

Green River Basin

Bacon Creek

The LaRue County Conservation District has been using 319(h) funds to increase agriculture education and best management practice (BMP) implementation within the Bacon Creek Watershed (Project # 17-13) through a cost share program facilitated by the Watershed Coordinator. Funded projects have included improvements to heavy-use areas, forage and biomass plantings, watering facility, livestock pipeline, roof runoff, subsurface drain, and exclusion fencing.

The Community Action Kentucky – Rural Community Assistance Partnership received 319(h) funds in the spring of 2020 to implement a homeowner septic system program within the Bacon Creek Watershed (Project # 19-06). Due to the COVID-19 pandemic, no physical work has been completed at this time. However, a website has been created in an effort to provide septic-related public awareness and education in a virtual format. This project plans to reactivate the Bacon Creek Watershed Council, continue to educate local community members on watershed health, and provide homeowners assistance with septic system pump outs and repairs. The project anticipates restarting in-person outreach

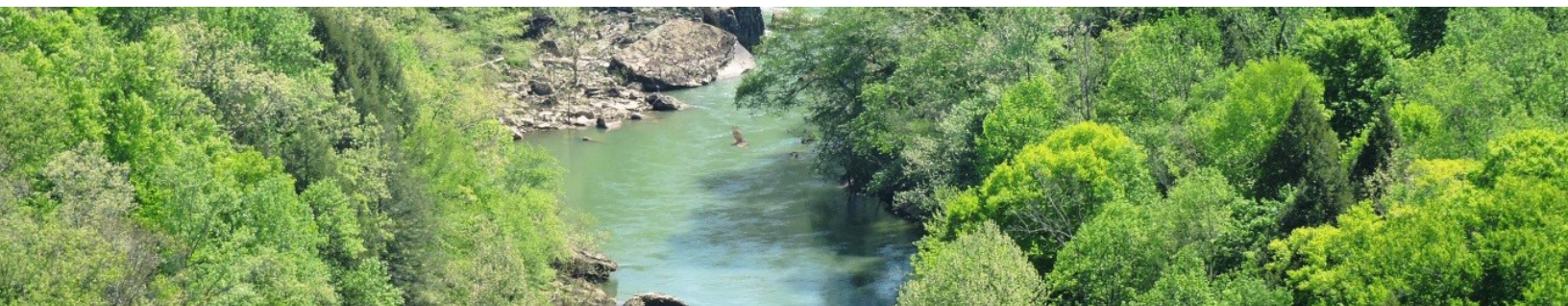
and septic assistance in 2021, as soon as circumstances allow.

Little Pitman

Preliminary watershed planning started in the Little Pitman watershed with a focus on watershed characterization. The City of Campbellsville was approved for Federal Fiscal Year (FFY) 2020 319(h) funds to create the Little Pitman Watershed Plan. However, due to local staff changes within the Taylor County Soil Conservation District and the City of Campbellsville, the applicants requested their project be withdrawn. Watershed-focused outreach still continues in an effort to maintain local interest in watershed plan development.

Update on Jennings Creek

Western Kentucky University is interested in incorporating the development of a watershed plan into a research and methods graduate course. Students have collected water quality data over several years, providing a foundation for future watershed planning efforts. The university will be working with Kentucky Division of Water and Kentucky Water Resources Research Institute during this process.



Salt River Basin

Darby Creek

The Darby Creek Watershed Coordinator position has been vacant since 2018 and DOW is looking for partners who might be willing to restart activities in the watershed in 2021-2022. We anticipate potential for collaborations between the Currys Fork Watershed stakeholders and Darby Creek residents, but at this time capacity appears to be limited.

Currys Fork

Implementation of the Currys Fork Watershed Plan continues in subwatersheds of the target area. Education and outreach efforts are widespread and have included tree planting events, live-staking workshops, mini-septic system workshops, rain garden planting demonstrations, stream crossing signs, rain barrel installations, stream erosion prevention projects, and organization of a watershed association called “Friends of Currys Fork.”

With the completion of an FFY 2016-funded project, substantial progress has been made to address *E. coli* contamination of Currys Fork. Figure 16 shows the location of high priority restoration areas in the watershed, and Figure 17 illustrates the way septic system improvements were concentrated in Ashers Run, the area designated as high priority for restoration.

During 2020, project partner Oldham County submitted a QAPP for success monitoring of Currys Fork tributaries in conjunction with their required MS4 monitoring. This QAPP has been approved by DOW. The Currys Fork watershed coordinator anticipates using Oldham County monitoring data to refine plans for future BMP installations, including those described in successful FFY 2019 and FFY 2020 project proposals.

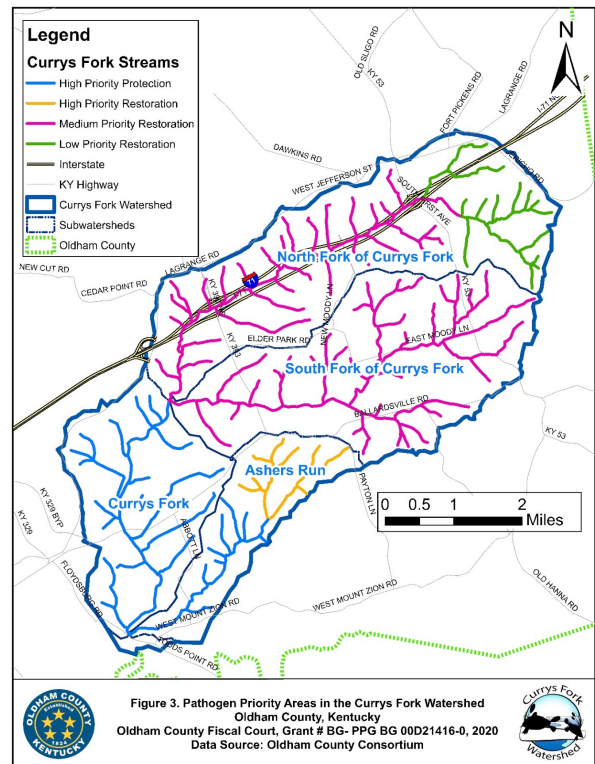


Figure 16. High priority restoration areas.

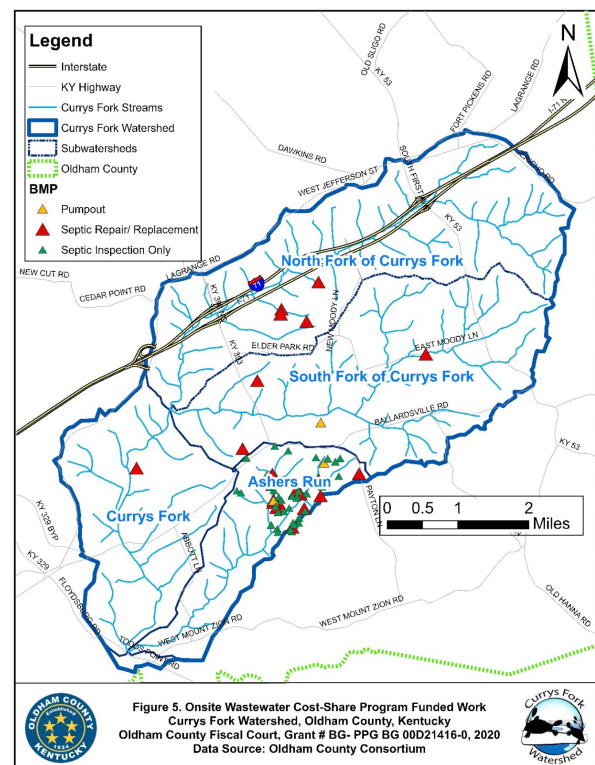


Figure 17. 319 (h) funded septic projects.

For additional information about past work in Currys Fork, see the “NPS Success Story” included above. Note that the Currys Fork watershed is a subwatershed of Floyds Fork watershed.

Sulphur Creek

Currently, there are two active projects in the Sulphur Creek Watershed, one with FFY 2017 funding and a second with FFY 2018 funding. Both these projects complement previous projects by focusing on agricultural BMPs to reduce *E. coli* contamination of Sulphur Creek. In FFY 2018, the Sulphur Creek Septic System Reclamation project (15-09, 17-11) installed 13 new septic systems and provided two pump-outs. The Sulphur Creek Watershed Agricultural Implementation project (15-10) presented two farm field days and one special watershed tour. In FFY 2019, seven agricultural BMPs were implemented (17-17) and a farm field day was hosted (18-06).

In FFY 2020, despite the pandemic, DOW’s Conservation District partners were able to



Figure 18. Logo of the Beargrass Creek Alliance, a local volunteer group that partnered with the Louisville Metropolitan Sewer District and Kentucky Waterways Alliance to coordinate safe stream cleanups during the pandemic.

support work in the Sulphur Creek watershed while following CDC Centers for Disease Control and Prevention and Kentucky guidelines for COVID-19 spread prevention. Conservation District staff supported implementation of 19 agricultural BMPs (with 17-17 and 18-06 funds) and organized one farm field day (with 18-06 funds).



Figure 19. During the Middle Fork Beargrass Creek Watershed stream cleanup event, a total of 62 bags of trash were collected by 58 socially-distanced volunteers across four parks in the watershed.

Middle Fork Beargrass Creek

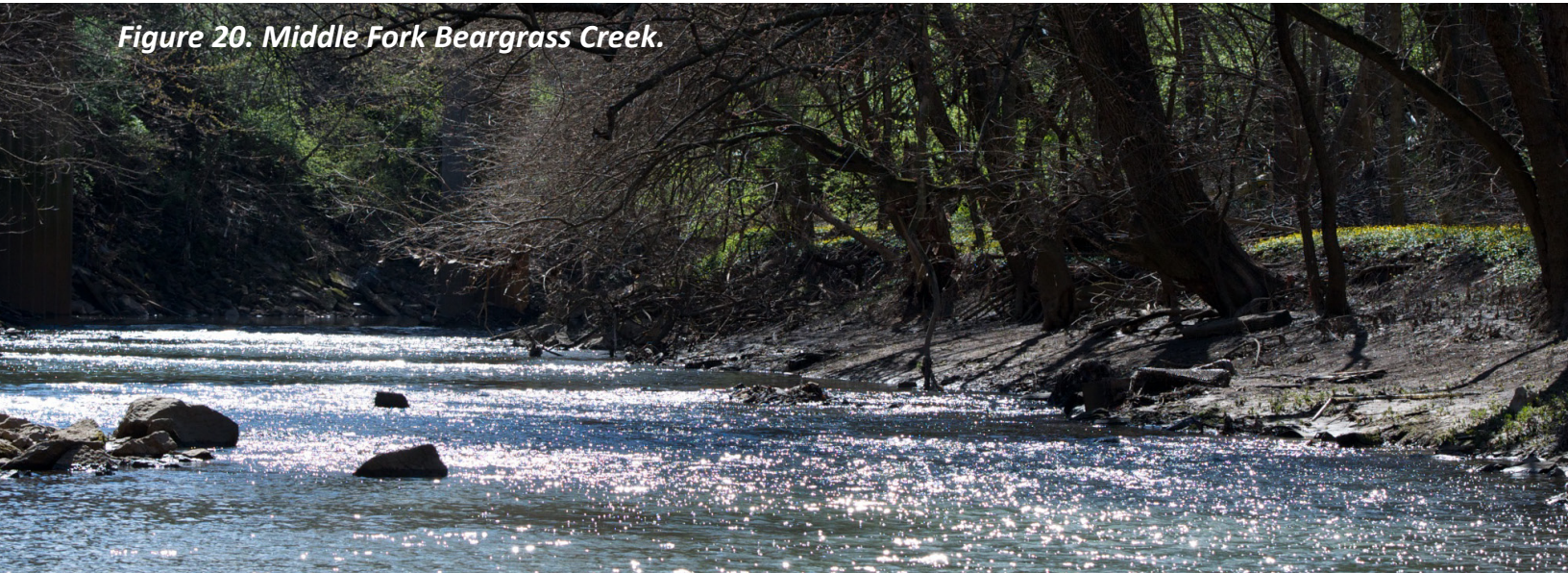
During 2020 the planning process began in earnest for the Middle Fork Beargrass Creek, with supported by FFY 2018 funding. The Louisville Metropolitan Sewer District continued water quality monitoring at nine sites, with a QAPP approved by DOW in 2020. In addition, MSD conducted visual stream site assessments for habitat and instream conditions, in partnership with U.S. Army Corps of Engineers.

A working group was formed to discuss and develop alternative plans for community outreach and engagement in light of COVID-19

restrictions. The working group successfully coordinated a trash pickup event at five area parks, in collaboration with the Beargrass Creek Alliance (Figures 18 and 19). They also developed and launched an online survey to gauge community needs and interests regarding water quality in the watershed. Middle Fork Beargrass

Watershed Planning Project stakeholder and technical advisory committee meetings were held virtually during 2020. Chapters 1 – 3 of the watershed plan have been drafted and are under review by MSD leadership before review by DOW.

Figure 20. Middle Fork Beargrass Creek.



Four Rivers Basin

West Fork Clarks River

Damon Creek is a small tributary to the West Fork of Clarks River that drains approximately 5.6-square-miles in Calloway County Kentucky. The 2014 Integrated Report to Congress on the Condition of Water Resources in Kentucky Volume II 303(d) List of Surface Waters (KDOW, 2014) identifies the 0.0 to 1.8 miles stream segment of Damon Creek as impaired for the primary contract recreation use (nonsupport) and lists *E. coli* as the primary pollutant.

In FFY 2019, the Jackson Purchase Foundation was approved for Section 319(h) funding to implement the Damon Creek Watershed Plan. Activities on this grant have been delayed due

to COVID-19 restrictions. Planned actions to improve water quality include: agriculture practices targeting livestock operations to reduce fecal pollution; practices that address failing septic systems to prevent fecal pollution (repair/replacement of failing systems and connecting landowners to the community wastewater lagoon system); practices to reduce stream bank erosion; and repairs to the Flood Retarding Structure #7 to maintain proper usage of the structure and improve flow through Damon Creek watershed. In addition, the Watershed Coordinator funded by this grant will engage in increasing community knowledge and understanding of water quality issues and nonpoint source pollution. Despite

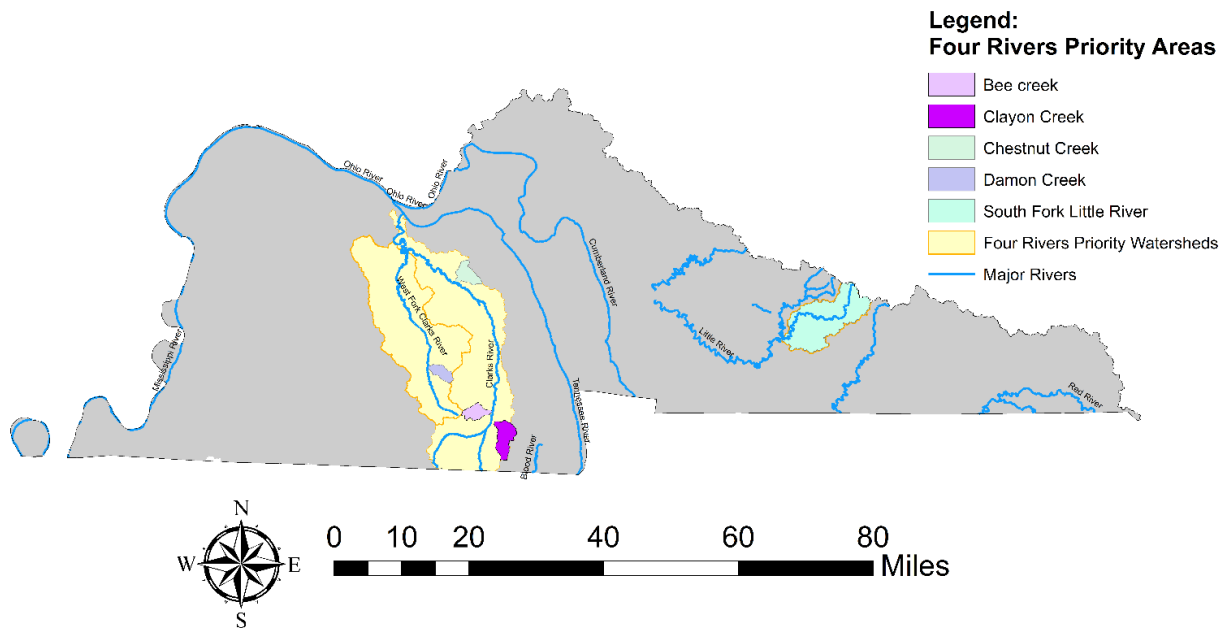


Figure 21. Priority watersheds of the Four Rivers Basin.

restrictions on public interactions during the pandemic, the Damon Creek Watershed Coordinator has continued to work with landowners to identify needed practices and raise community awareness of NPS issues.

Clarks River

In 2015, The Friends of Clarks River National Wildlife Refuge partnered with Murray State University and Third Rock Consultants to complete a watershed plan for Chestnut Creek. The watershed plan identifies several causes of water quality impairments: *E. coli* and excess nitrogen sourced from a local wastewater treatment plant; failing septic systems additionally loading *E. coli* into waterways; and agriculturally borne nutrient and sediment exceedances. The Marshall County Fiscal Court and Marshall County Sanitation District Number 2 have worked diligently over the past three years to address the failing local wastewater treatment plant, including mending equipment and instituting a fats, oils, and greases ordinance to prevent accumulation in sewer collection systems. To support wastewater centralization, a

recent tap-on ordinance requires residences and businesses within 500 feet of a sewer line to tap on.

Through 319(h) Project # 17-14, the Friends group continues to employ a Watershed Coordinator to work with NRCS, U.S. Fish and Wildlife Service Partners Program, and other local partners recruiting landowners in Marshall County and the Chestnut Creek Watershed in implementing pathogen-, nutrient-, and sediment-related best management practices, all of which are reinforced by continuous public education. Additionally, working with Marshall County Fiscal Court on Project # 18-10, the Watershed Coordinator helped facilitate residential connections to a newly installed sanitary sewer line.

Like many projects active in calendar year 2020, implementation in Chestnut Creek and Marshall County have been delayed by concerns about COVID-19. However, the Chestnut Creek Watershed Coordinator has continued efforts in improve community understanding of watershed issues through virtual education and outreach initiatives.



Figure 22. Remediation of inadequate or failing onsite wastewater (above) and erosion control measures (bottom) are a major focus of efforts in the Four Rivers Basin.

Also within the Clarks River watershed there are efforts underway to develop watershed-based plans for two HUC-12 watersheds utilizing volunteer monitoring data: Bee Creek and Clayton Creek. In 2018, Four Rivers Watershed Watch conducted a study in the Clayton Creek watershed in Calloway County with a pathogen (*E. coli*) focus. Similar monitoring of Bee Creek was initiated in 2019, jointly supported by the City of Murray and Four Rivers Watershed Watch. The resulting plan will focus on identifying pathogen-reducing best management practices. Development of the Clayton Creek plan chapters began in 2020 and will continue into 2021.

South Fork Little River

The Little River Water Quality Consortium has completed a watershed planning project utilizing data collected by the U.S. Geologic Survey from a three-year study on the South Fork Little River. The watershed plan has been approved by the Kentucky Division of Water and EPA, with a concomitant best management practice implementation plan. The Little River Water Quality Consortium received a 2018 319(h) grant (Project # 18-08) to hire a South Fork Little River Watershed Coordinator to oversee BMP implementation. The coordinator was hired in 2019 and in 2020 has worked to connect with local landowners to develop specific best management practices aimed at improving local water quality.



Kentucky River Basin

Clarks Run and Hanging Fork

Bluegrass Greensource, County Health Departments, Clarks Run Environmental and Educational Corp. (CREEC), and others continue to partner toward implementing watershed plans in both the Clarks Run and Hanging Fork watersheds. The Watershed Coordinator has been working to continue the septic system education and repair/replacement program, stormwater education, and riparian buffer education and assistance programs in this region. The coordinator has also developed an expansive new website with water-focused outreach materials for youth and adults and ways of better engaging communities in water quality improvements. The Connecting Community and Water website includes information about septic systems and riparian buffer and the related cost-share programs, maps of the focus areas, Junior Water Explorer materials, and a self-reporting form for highlighting community projects on watershed maps.



Figure 23. A Clarks Run Clean-Up event was held in September 2020 to enable families and small groups to help with litter removal in and along the creek, plant tree saplings in the riparian buffer zone, and learn about water quality through a scavenger hunt activity.

Also in the Hanging Fork watershed, the Lincoln County Sanitation District is working toward Phase II of the sewer extension project from Hustonville to Danville. This second phase will add approximately 365 connections to the 577 that are already available through the Phase I project. These projects help fulfill one the Hanging Fork watershed plan’s primary recommendations: to add municipal sewer service to an area previously served by primarily failing onsite septic systems. A parallel effort is taking place in the upper headwater subwatersheds to address livestock-related bacteria in the creeks. The Natural Resources Conservation Service is conducting a focus project to apply supplemental Environmental Quality Incentives Program (EQIP) funding toward agricultural practices to reduce bacteria and nutrient runoff.

Cane Run of North Elkhorn

In 2020, the expanded watershed plan to include all of the Cane Run watershed was completed by Third Rock Consultants.

Commitments have been made by the City of Georgetown, Scott County, and Lexington-Fayette Urban County Government (LFUCG) for a “South Sewer Extension” project. Leveraging funding from multiple sources, the project will install 16,000 linear feet of collector sewers and service laterals, along with a pump station and force mains, such that residents of two mobile home parks will be served by the Georgetown Municipal Water and Sewer Service. The mobile home parks are currently served by failing/inadequate private package wastewater treatment plants that contribute pathogens to the nearby Cane Run Creek. The ongoing water quality problem associated with lack of adequate sewer service gained publicity and the sewer extension project gained traction after being highlighted by the

Section 319(h) funding will be utilized in this program to create a Homeowner Assistance Program (HAP) that will provide funding to assist residents of the mobile home park with the costs associated with tapping on to the new sewer extension. Construction is scheduled to begin in early to mid-2021.



Figure 24. Educational Booth at Red River Festival, September 2019.

Red River

The Red River Watershed Plan continues to be implemented by the Kentucky Waterways Alliance, U.S. Forest Service, Eastern Kentucky PRIDE, and the Friends of the Red River. These partners are solidifying relationships with local residents, community leaders and other groups through meetings and events. A Red River Festival was held in September 2019, during which a paddling and river cleanup took place, followed by an event with educational booths, live music and food and refreshments. Another event was planned for Spring 2020, but this event was cancelled due to COVID-19-related concerns. Currently, plans are being made for May 2021 with the collaboration of multiple partners.

The watershed Watershed coordinator Coordinator is also actively pursuing additional river access points for use by kayaker and canoeists. A new ramp is expected to be installed in late 2020 (or early 2021) as a result of a partnership among the Kentucky Waterways Alliance, the City of Stanton, and Powell County.

North Fork Kentucky River Headwaters Sand Lick Creek, Letcher County

The Headwaters organization and the Kentucky Water Resources Research Institute jointly completed the North Fork Whitesburg Tributaries Watershed Plan in 2020. This plan includes assessments and recommendations for three headwater subwatersheds. A new watershed coordinator was hired to continue education and outreach activities and pursue additional partnerships for implementation of plan recommendations related to riparian buffer enhancement, sewage contributions, and historic mining impacts.

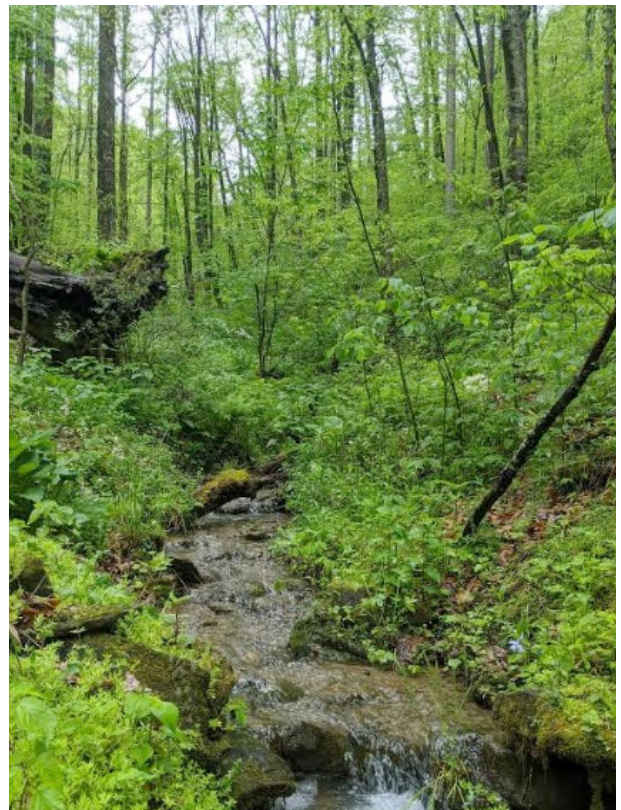


Figure 25. Red Bird River.



Figure 26. Septic System Information Workshop, Red Bird Community.

Red Bird River

The watershed Watershed coordinator Coordinator continues to work with the U.S. Forest Service, the Red Bird Mission and others to help implement the Red Bird River Watershed Plan. The coordinator is mainly focusing on addressing solid waste and onsite wastewater pollution. A septic system education program has been combined with funding assistance to pump out holding tanks and provide system repairs and upgrades. Funding from a 319(h) grant and the Kentucky River Authority helps support the septic outreach program.

Additionally, the Lexington-Fayette Urban County Government contracted with Palmer Engineering to develop a watershed-based plan that will incorporate sampling data collected through a joint partnership between the city-county government and Kentucky River Watershed Watch. Watershed Watch volunteers helped to collect samples from streams and stormwater outfalls throughout the West Hickman Creek watershed in 2019 and will continue to collect samples into 2020.

Licking River Basin

Hinkston Creek

In FFY 2020, the Nicholas County Conservation District (the Conservation District) continued executing the Hinkston Creek Watershed Plan and Best Management Practice (BMP) Implementation Project (17-15). Through a 319(h)-funded cost-share program, participating farmers completed several agricultural BMPs targeting soil and water quality protection. Livestock and associated pasture lands are the primary agricultural commodities in the Hinkston Creek watershed and were reflected by the priority given to livestock exclusion and alternate

water source development. Details concerning watershed management activities through the Conservation District can be found under its corresponding section of the Hinkston Creek Featured Project portion.

As structural BMPs were implemented, 17-15 project managers continued to engage in community-focused education and outreach efforts to grow producer participation across the watershed. However, with the coronavirus, the Conservation District has had to shift gears towards the virtual space. With BMP

implementation completed for this contract, 17-15 anticipates spending the rest of its term (closing in September 2021) pursuing watershed-based education and outreach.

Bluegrass Greensource, an environmental nonprofit located in the Central Bluegrass, also executes watershed management activities in the Hinkston Creek watershed, primarily through their Hinkston Creek Watershed Coordinator. In FFY 2019, Bluegrass Greensource was awarded 319(h) funds to pursue Watershed Plan implementation, including their septic repair and riparian buffer cost-share programs in FFY 2020. To see specific programmatic highlights borne from the Watershed Coordinator's efforts, please see the Bluegrass Greensource segment of the Hinkston Creek section under Featured Project.



Figure 27. 'Save Your Streambanks' workshop participants scope out riparian plantings. Photo Credit: Lindsie Nicholas

Banklick Creek

The Banklick Creek carves out its 19 mile-long journey through the forests, agricultural lands, and cityscapes of Northern Kentucky. A historically agricultural watershed, urban

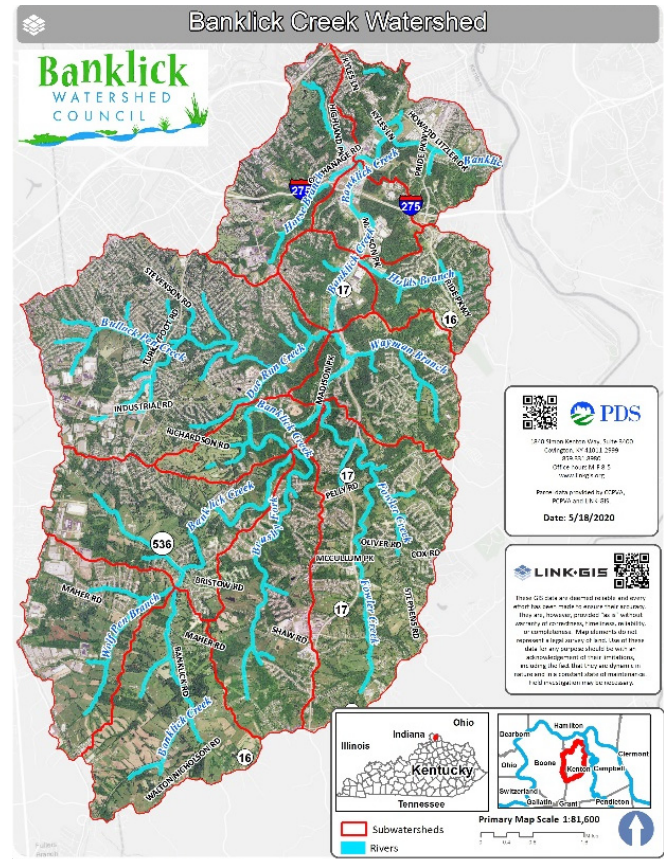


Figure 28. Sub-watersheds of Banklick Creek. Credit: Planning and Development Services of Northern Kentucky

landscapes now characterize roughly half (45%) of the region. Within the greater watershed, there are 13 sub-watersheds (Figure 28).

In FFY 2020, the Banklick Watershed Council (BWC) continued utilizing 319(h) funds to implement the Banklick Creek Watershed Plan (Project # 17-02 through mid-March 2020; Project # 19-07 from March 15, 2020 onward). In FFY 2019, the BWC pursued its first land purchase: the Brushy Fork Nature Preserve, an ecologically sensitive area with 1.8 acres of wetland and 9.6 acres of floodplain. Since the successful acquisition, 319(h) dollars have funded property planning and design, including a public access area, an informational kiosk, and a trailhead to the bottom of the wetland. Maintenance and

stewardship of the property are ongoing, which include regular mowing and invasive species surveillance. To preemptively reduce erosive stormwater runoff, an onsite level spreader, which diverts concentrated runoff and uniformly releases it to stabilized vegetative surfaces, will be constructed in FFY 2021.

The upper segments of Banklick Creek primarily run through pastoral landscapes, dotted with livestock operations. As such, the BWC continued building interest with agricultural partners and stakeholders throughout FFY 2020, including working with the University of Kentucky Cooperative Extension in Kenton County and the Kentucky Cattleman’s Association to develop a cost-share grant program aimed at mitigating livestock-related nutrient, bacteria, and sediment inputs.

The Banklick Watershed Council continued to provide onsite waste management outreach and education to residents of the watershed; though, upon realizing its average of one septic project per year, the Council is currently considering switching the septic system replacement program to a septic system pump-out program as a means to provide homeowner education and technical assistance and elicit more community interest.

The Banklick Watershed Council continues to make great strides towards enhancing water quality and abating water quantity issues within the Banklick Creek watershed and the greater Licking River Basin. The Council’s Watershed Coordinator looks towards budding stakeholder relationships, including Groundwork USA, a network organization that targets environmental restoration efforts in low-resource communities, and the Friends of Doe Run Lake, a newly minted group of citizen scientists dedicated to nutrient and lake monitoring in Northern Kentucky, to galvanize vital watershed restoration and protection practices, both now and in the future.



Figure 29. Educational signage accompanies the Brushy Fork Woods and Wetland trails. Photo credit: Mahtaab Bagherzadeh

Figure 30. Volunteer monitoring training at Doe Run Lake. Photo credit: Mahtaab Bagherzadeh



Upper Cumberland River Basin

Brushy Creek

In 2019, the Pulaski County Conservation District (PCCD) was selected to receive additional Clean Water Act (CWA) 319(h) funding to continue reducing agricultural runoff in the Brushy Creek Watershed (Project # 19-10). An exciting new part of the project is the inclusion of new technology. The PCCD purchased a drone with a normalized difference vegetation index (NDVI) sensor to analyse plant health. This technology enables farmers to gain a bird’s eye view of crops and use the visual display to indicate areas of poor plant health. The drone is then able to zoom in to identify if areas of declining health are due to insect infestations, lack of nutrition, or other types of crop damage. Once a determination is made, the farmer is then able to take a targeted approach to chemical applications, thus reducing the potential for nonpoint source pollution on the property. A farm tour demonstrated this process to the community. The 2019 project kicked off

with another farm tour, this time hosted virtually at the Somerset Drive-In. The event was a partnership with the Pulaski County Cattlemen’s Association, Natural Resources Conservation Service, the Kentucky Beef Network, and the University of Kentucky’s Cooperative Extension Service. The project will continue through 2023 with a focus on highlighting and installing agricultural best management practices.

Corbin City Reservoir

Corbin City Reservoir has an approved Watershed Based Plan, but no active 319(h) projects during FFY 2018 occurred. Work is anticipated to continue as opportunities arise.

Sinking Creek

Sinking Creek has a partially completed Watershed Based Plan. Upon completion of the plan, likely in-house, the plan can be implemented.



Photo credit: Josiah Frey

Education and Outreach

The Division of Water provides nonpoint source pollution education and outreach activities across the Commonwealth in addition to what is offered by 319(h) sub-grantees. The Basin Coordinators in the Nonpoint Source and Basin Team Section strive to reach a diverse audience, providing outreach and educational resources to create a more informed population and improve Kentucky's water quality.

Tables 4 and 5 detail educational programming accomplished in FFY 2020. Basin Coordinators and Technical Advisors of the Nonpoint Source and Basin Team section typically reach thousands of stakeholders throughout outreach activities each year. Due to the COVID-19 pandemic this year, outreach to students in K-12 educational programs was limited. Education and outreach to our local partners and stakeholders relied heavily on the virtual format. Consequently, one main highlight from this year was the increase of I Love KY Facebook page followers: from 846 to 3,709.



Figure 31. Education and outreach activities reach a wide variety of stakeholders throughout the state. DOW focuses heavily on K-12 educational activities, such as the Bowling Green Stream side Field Day, featured above.

Table 4. Education and outreach activities by Action Item. DOW reached more than 4000 people through these events.

Action Items	Accomplishments
<p>Action Item 1.1: Continue effective messaging for the Division of Water.</p>	<p>I Love KY Facebook Page was created in 2016 and has been maintained by the Basin Coordinator Staff. The page has increased followers from 846 (2019) to 3,709 followers (2020)</p> <p>The Basin Coordinators used MailChimp for monthly to quarterly newsletters. The mailing list contains 1,246 recipients</p>
<p>Action Item 1.2: Partner with organizations on environmental education and outreach opportunities</p>	<p>Partnered with the following organizations:</p> <ul style="list-style-type: none"> Kentucky Conservation Districts Kentucky Water Resources Research Institute Jackson Purchase Foundation Kentucky Association for Environmental Education Kentucky Department of Conservation University of Kentucky Cooperative Extension Cumberland County Watershed Watch in Kentucky Louisville High School Kentucky Waterways Alliance Mason County McCracken County High School Paducah Tilghman High School Perennial Garden Club

Table 4 Cont'd. Education and outreach activities by Action Item. DOW reached more than 4000 people through these events.

Action Items	Accomplishments
<p>Action Item 1.3: Develop content for social media, basin newsletters, and other print and non-print outlets</p>	<p>Social Media:</p> <ul style="list-style-type: none"> Each Basin has sent out quarterly or monthly (Licking River) newsletters Each Basin Coordinator provides content for the Facebook Page Participated in the following Social Media Campaigns to promote various aspects of water, including Water Week in Kentucky, EPA's Septic Smart Week, and Earth Day Interview with News Organizations about Homeowner Assistance Program Authored <i>Land, Air, and Water</i> webzine articles
<p>Action Item 1.4: Coordinate and conduct public events and/or exhibits</p>	<p>Due to the COVID-19 pandemic, DOW was unable to attend any tabling events this year</p>



Table 5. Education and outreach activities by type.

Type	Description	Community Reached
Presentation	<p>Conducted presentations at various conferences and meetings throughout the State to educate the public about:</p> <ul style="list-style-type: none"> Watershed Watch in Kentucky: 4-H Stream Team Nature-Based Solutions Lake and Stream Monitoring Big Sandy Basin Team Meeting Licking River Basin Team Meeting Equity and the Environment 	<p>Conducted 6 formal presentations reaching over 300 community members of all ages</p>
K-12 Environmental Education	<p>Conducted various water related activities using Project WET at partners events:</p> <ul style="list-style-type: none"> Cumberland County 5th Grade Field Day McCracken County High School EcoTHink Paducah Tilghman High School EcoTHink WHO Festival Field Day <p>*School events were limited this year due to the COVID-19 pandemic.</p>	<p>Conducted 4 Environmental Education programs reaching ~ 380 students</p>
Workshops (Hosted)	<p>Conducted the following Workshops:</p> <ul style="list-style-type: none"> 4-H Stream Team Leader Training Watershed Academy Watershed Watch Nutrient Testing Kit Trainings 	<p>At the 18 workshops held throughout the State, ~ 400 educators and partners were taught by the Division of Water</p>

Table 5 Cont'd. Education and outreach activities by type.

Type	Description
Workshops (Attended)	<p>The Basin Coordinators Attended the following Training for Professional Development:</p> <ul style="list-style-type: none"> 4-H Stream Team Leader Training Nutrient Testing Kit Training Equitable Green Infrastructure Summit Kentucky Association of Mitigation Managers Training Kentucky Watershed Academy Professionals in Environmental Education Course Watershed Watch in Kentucky Phase 1 Training
Community Meetings Attended	<ul style="list-style-type: none"> Banklick Watershed Council Meetings Bee Creek Meeting Area Development District Meetings Dix River Watershed Meeting Friends of Clarks River National Wildlife Refuge Meeting Green River National Wildlife Refuge Meeting Kentucky Silver Jackets Mammoth Cave Biosphere Reserve Rockcastle Conservation Initiative Sulphur Creek Oversight Committee Headwaters Advisory Team Meetings KY Stormwater Association Meetings Watershed Watch Board Meetings NRCS Focus Conservation Project Meetings Kentucky Woodland Owners Association

Table 5 Cont'd. Education and outreach activities by type.

Type	Description
<p>The Basin Coordinators are also responsible for watershed planning and implementation. In FFY 2020 the Basin Coordinators and Technical Advisors worked in the following areas related to current watershed or future watershed development</p>	<ul style="list-style-type: none"> Banklick Red River Brushy Creek Red Bird River Hinkston Creek Bacon Creek Sulphur Creek Upper Paint Lick South Fork Little River Cane Run Chestnut Creek Damon Creek North Fork: Whitesburg Currys Fork



Number of Events Per County in FFY 2020

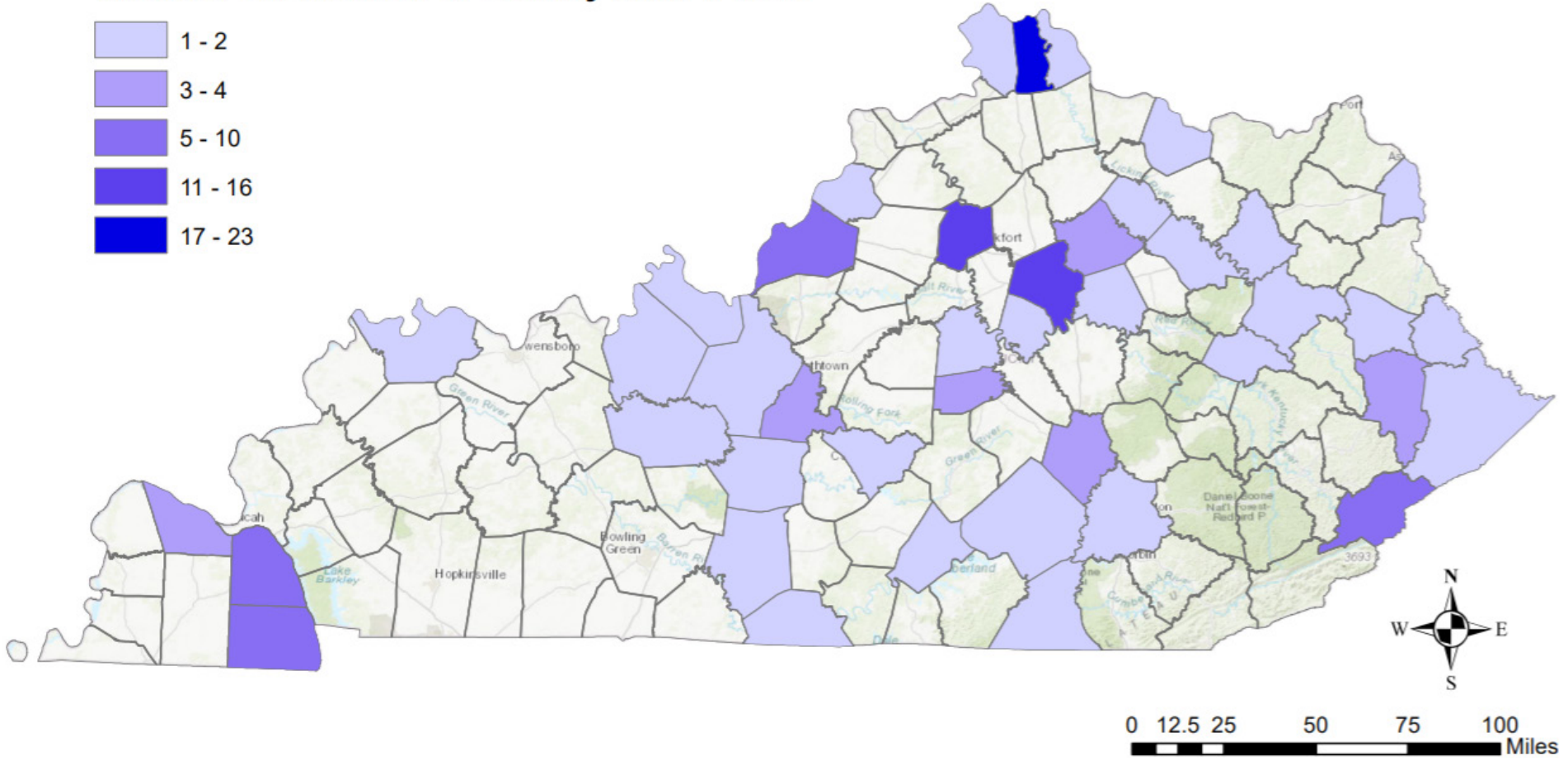
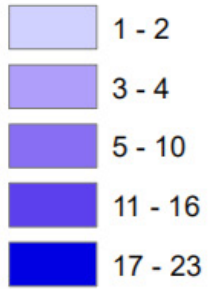


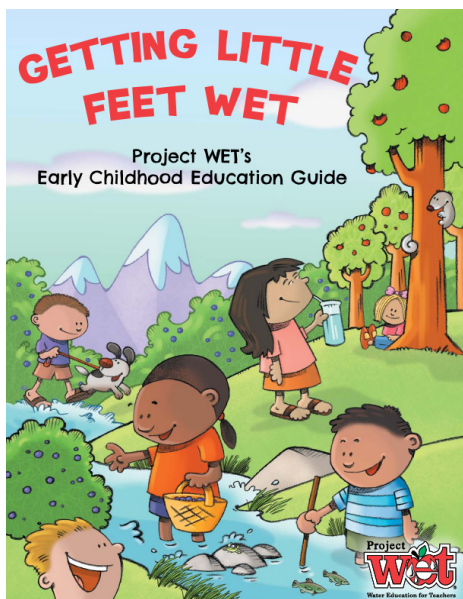
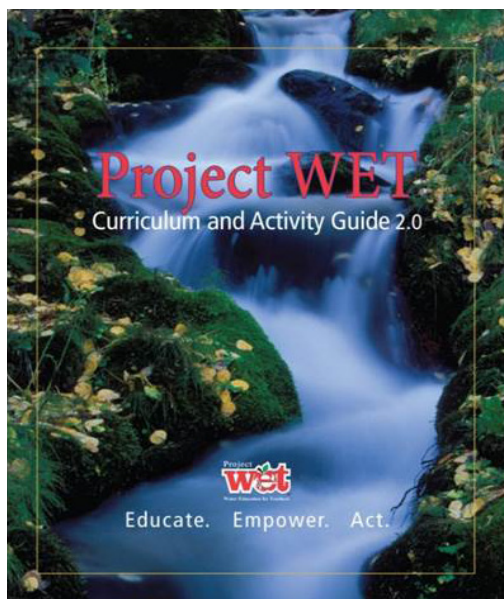
Figure 32. Counties in which E&O events were provided in 2020.

Project WET

DOW is the host institution for Project WET Kentucky Division of Water is the host institution for Project WET (Water Education Today) in Kentucky. The Project WET Foundation (PWF) is an international not-for-profit water resources education program. Project WET's goal is to provide scientifically accurate and educationally sound water resources education materials, training courses, and networking services to citizens, organizations, governments, and corporations. The Kentucky Project WET Coordinator has multiple roles: training facilitators and educators across the Commonwealth; ensuring certified facilitators have all required forms to support their workshops; managing activity guide orders; developing and maintaining a database of certified facilitators and educators in Kentucky; and providing an annual report to PWF detailing Project WET workshops. Kentucky Division of Water has formed a partnership with the [Kentucky Association for Environmental Education \(KAEE\)](#) to coordinate project trainings and further promote statewide water education.

In FFY 2020, KAEE continued work using Project WET in collaboration with the Next Generation Science Standards (NGSS), a model that is now used by Project WET coordinators nationwide. This work incorporating the Next Generation Science Standards is crucial to ensuring that environmental education is integrated into academic curricula; formal educators, guided by state-required and -assessed standards, can easily justify how Project WET activities correlate with NGSS. This carries further weight for non-formal educators engaging with formal educators and addressing their NGSS-driven scholastic needs.

During FFY 2020, KAEE's Project WET program conducted seven educator workshops and reached 111 educators, including in-service (K-12) educators, university educators, pre-service educators, and non-formal educators. Due to the ongoing COVID-19 pandemic, the 2020 facilitator trainings were cancelled. Kentucky Association for Environmental Education is working with educators and facilitators around the state to improve the number of trainings held in the coming year.



Equipment and Resource Development

Educational Equipment

Division of Water has a large supply of environmental educational equipment that is available for checkout, allowing teachers and other professionals to use various pieces of equipment for educational events in their regions. The equipment available includes items such as stormwater models, Enviroscares, display boards, and a stream table. In addition, an Ollie the Otter, DOW's Mascot (Figure 33), costume is available for events.

In a normal year, these items are in high demand, by both formal and non-formal educators. Due to the COVID-19 pandemic, equipment check outs were suspended due to issues related to social distancing, sterilizing equipment, and cancelled in-person events.



Figure 33. Ollie the Otter and volunteers at a trash pick-up event.

Outreach Material

As part of the DOW's mandate to improve understanding of NPS issues within the Commonwealth of Kentucky, the NPS Section has worked with stakeholders, educators, journalists, and regulators to develop online outreach and print publications about water quality, DOW initiatives, and Best Management Practices (BMPs).

COVID-19 Recommendations

The NPS section created a document describing water sampling recommendations during the COVID-19 pandemic. Guidance was distributed across the state to Watershed Watch in Kentucky volunteers, as a portion of volunteers continued sampling during the May-September sampling season. The document includes instructions on how to stay safe with personal protective equipment, behaviour to maintain while sampling, and necessary precautions to take when dropping samples off at the lab.



Figure 34. Example of educational materials developed by DOW (Stream Health Pocket Guide).

Splash Into Spring Story Map

In March 2020, NPS staff partnered with University of Kentucky and Lexington-Fayette Urban County Government to create an interactive Story Map to advertise educational, water-related events throughout Kentucky. Organizations and community members were able to submit an event with a description and location to the Story Map. Nonpoint source staff would approve the event, then making it visible on the interactive map for public viewing. Unfortunately, due to the COVID-19 pandemic, all of the events were cancelled. Once in-person events are again safe, DOW anticipates using the map to publicize events such as Septic Smart Week, World Water Week, and Earth Day.

WWKY Nutrient Training Materials

In 2019-2020 Watershed Watch in Kentucky received a grant from the Virginia Educational Endowment to pilot nutrient sampling methods, specifically assessing the viability of in-field phosphate, nitrate, and ammonia test kits. To ensure the accuracy of in-field sample collection by citizen scientists, NPS staff created flip cards detailing step-by-step instructions with pictures on how to properly perform testing procedures. Each sampling kit includes a set of waterproof flip cards for samplers to reference as needed in the field. The cards are also accompanied by an online training video, created by partners at the University of Kentucky, demonstrating the use of the nutrient kits.



Figure 35. Methods for nutrient test kits (top) demonstrated in an online training video by Steve Evans of the Kentucky Water Resource Research Institute at the University of Kentucky.

Nature Based Solutions

During FFY 2020, members of the NPS team developed and disseminated nature-based solutions (NBS) introductory material specifically designed for Kentucky's water quality managers and hazard mitigation planners. Outreach material included a 101-type presentation titled, Watershed Management and Hazard Mitigation Planning: Collaborative Benefits in a Changing Climate, which was accompanied by a similarly-titled one-page handout.

Outreach efforts will continue throughout FFY 2021 and will be directed by the NPS team's Nature-based Solutions Communications Strategy (which outlines strategies to supply, adapt, and transfer current scientific knowledge surrounding nature-based solutions). Chief among these include: webpage development to house aggregated resources and information, educational videos, and guidance material on funding opportunities and technical assistance. In the month of September alone, NBS outreach material reached over 1,000 individuals through three state- and nationwide conference presentations, two social media posts, and one YouTube video.

Naturally Connected Blog and Land, Air, & Water Articles

The Energy and Environment Cabinet maintains several publications including the blog, Naturally Connected, and the Cabinet’s webzine, Land, Air, & Water. During water-related events, the NPS team worked with these publications to publicize the 319(h) Grant Program and a variety of other programs. In FFY 2020, the NPS team published two Land, Air, & Water articles: [When Bourbon Leaves the Barrel: What Happens to Wildlife When Spills Affect Kentucky’s Water Bodies](#), [Kentucky Scientists Join Forces to Save North America’s Largest Salamander.](#), and [Honeysuckle: An Unlikely Culprit in the Case of Water Quality.](#)

Webpages and Social Media

In FFY 2020, the Division’s Nonpoint Source team finalized a social media plan aimed at increasing the reach of the team’s outreach and education efforts, and focusing on ways to expand the program’s impact. The goals of the plan include:

- Unified, clear messaging to inform the public about NPS issues
- Increase recognition of NPS team activities among the wider public
- Build and maintain relationships with individual citizens, community groups, watershed groups, state and federal agencies, universities, and nonprofit.

Currently, the DOW Nonpoint Source and Basin Team main social media avenue is Facebook. The I Love KY Water Facebook page is updated regularly by each of the Basin Coordinators with information that seeks to provide engaging content relating to water quality, as a method to build interest and capacity in the Commonwealth. Content initiatives include:

- Science – inform the public of new and existing water quantity- and quality-related science.
- Management - inform the public of new and existing water quantity- and quality-related management.
- Events – share information regarding NPS team and partner events.
- Funding – inform the public of new

grant and funding opportunities or updates for existing grants for water-related projects.

- Emergencies – communicate to the public of water-related emergencies that may impact human health, including spills, drinking water source or drinking water treatment plant issues, and harmful algal blooms.
- Technical Assistance – promote water-related best management practices resulting in a well-informed public regarding water quality.

With the onset of COVID-19 making in-person events difficult – - if not impossible – - the Division is increasingly looking for virtual methods to reach stakeholders. In addition to Facebook, the DOW Nonpoint Source and Basin Team maintains Nonpoint Source Pollution, Basin Coordination, and Watershed Planning webpages on the Energy and Environment Cabinet’s website. From these pages users have access to the Kentucky Water Health Guide, Watershed Planning Guidebook for Kentucky Communities, EPA’s Watershed Planning Module, their local basin coordinator contact information, and all deadlines and forms for 319(h) project proposals and applications. Users can also access the Water Maps Portal, which contains user- friendly interactive maps that display water data ranging

from water quality impairments to harmful algal blooms, as well as drought potential tools. The DOW Story Map Gallery also provides useful tools

for users to explore specific projects, watershed planning initiatives, and programs.

Basin Coordinator Quarterly Newsletters

The Basin Coordinators create and send out monthly to quarterly newsletters to their basins. The information in these newsletters includes everything from Basin Team updates and highlighted basin successes to information on best management practices and watershed management-related funding. Each newsletter is catered to its basin’s needs and interests, and is aimed at maintaining basin awareness of NPS issues, initiatives, funding availability, and partnering opportunities.



Figure 36. Basin newsletters.

Chapter 3

Partnerships for Clean Water

Spotlight: Watershed Watch in Kentucky

Watershed Watch in Kentucky (WWKY) continues to build upon a strong foundation of statewide volunteer stream monitoring to strengthen recent initiatives and newly formed partnerships. WWKY’s Core Monitoring Program, established in 1999, supports a dedicated group of volunteers in monitoring the Commonwealth’s streams and rivers.

During 2020, with COVID-19 spread-precautions limiting our ability to train new volunteers, WWKY focused energies on supporting the existing volunteer network and increasing awareness across the Commonwealth of new programs introduced in 2019:

1. **Youth Stream Team Program** – this fledgling program was established in partnership with Kentucky 4-H Youth Development to engage youth across Kentucky, training them to be citizen scientists that have a broader understanding and appreciation of our water resources. Through this program,

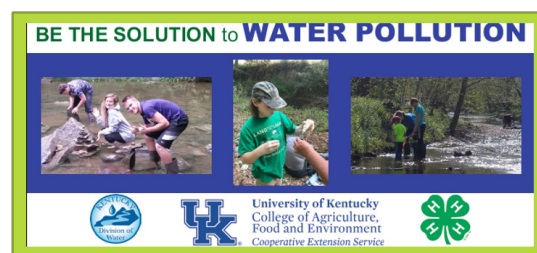


Figure 37. Watershed Watch in Kentucky Stream Team logo and promotional material.

4-H leaders and volunteers learn about WWKY and are trained to make scientific field observations and collect *E. coli* data. Additionally, leaders and volunteers are given a variety of hands on lessons related to water quality to perform with their stream teams. Stream teams collect samples throughout the year, analyze their data, and complete a community service project. In 2019, pilot Stream Teams were supported in the Four Rivers and Kentucky River Basins. During 2020, Basin Coordinators promoted development of Stream Teams across the Commonwealth. In 2021, assuming relaxation of COVID-19 spread-prevention requirements, new Stream Teams are anticipated in the Licking, Big Sandy, and Salt River Basins.

2. Volunteer Lakes Monitoring Program (VLMP) – starting in 2017, this program was piloted on lakes in the Kentucky River and Four Rivers Basins. In 2019, WWKY began to promote VLMP across Kentucky, with an initial focus on monitoring lakes that serve as drinking water sources. Through this program, volunteers collect basic data about the general condition of lakes in Kentucky that is then used in tandem with remote sensing models to identify waterbodies that may be impacted by various problems, including harmful algal blooms. This program now includes 28 volunteers and 52 sites in four river basins. Early in 2020 WWKY worked to raise awareness of the VLMP, in partnership with the Kentucky Rural Water Association (KRWA). When scheduled in-person trainings were cancelled by KRWA, WWKY organized and conducted a few socially-distanced trainings in collaboration with lake associations (one in the Licking River Basin and two in the Salt River Basin).

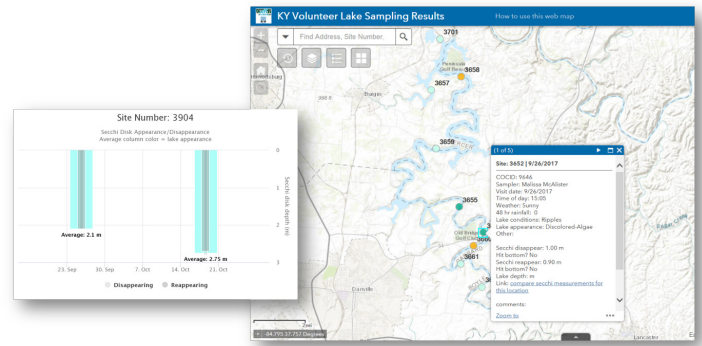


Figure 39. VLMP Data Portal.

3. Distillery Teams – with support from the Kentucky Distilleries’ Association, during 2019 WWKY recruited monitoring teams from eight distilleries in the Kentucky and Salt River Basins. In 2021, these teams will be paired for training with active volunteers monitoring nearby sites. Going forward, the teams will select new sites to monitor or choose from a number of inactive sites near distilleries.
4. Cyanobacteria Monitoring – in 2019, the Kentucky Division of Water introduced “bloomWatch,” an app for citizens to use in monitoring cyanobacteria (blue-green) algae blooms. During 2020, two DOW staff members joined representatives from EPA Region 1 states to beta-test updates to the bloomWatch App. As the number, intensity, and duration of cyanobacteria blooms increases across the Commonwealth, WWKY anticipates providing bloomWatch trainings in conjunction with both Core Monitoring and VLMP trainings in 2021. In addition, WWKY will partner with Northern Kentucky University, County Conservation Districts, and County Health Departments to provide information and monitoring

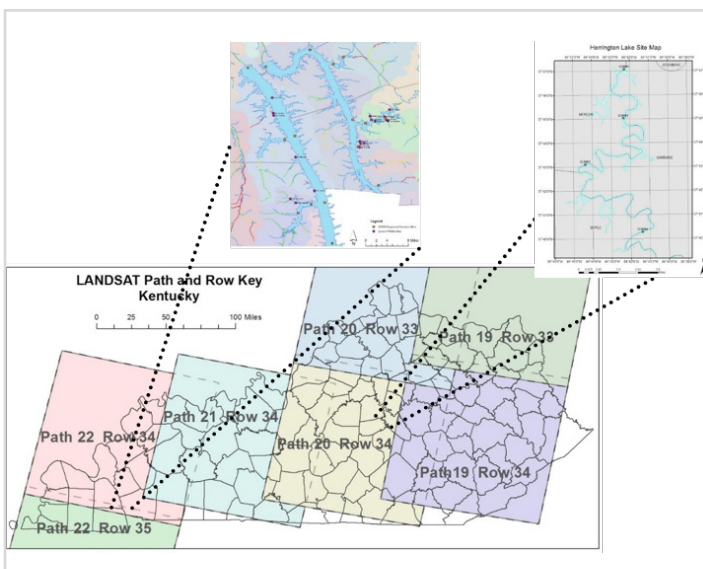


Figure 38. VLMP satellite flyover data is correlated with volunteer monitoring data.

tools to citizens concerned about blooms on agricultural and residential ponds.

Both continuing and new volunteers have access to the WWKY Data Portal, a tool that supports citizens in reviewing and analysing the monitoring data they collect with an eye toward informing their communities and inspiring action. This resource was developed with funding from the Virginia Environmental Endowment, an organization that supported WWKY’s Core Monitoring Program through 2020.

WWKY has always had a focus on collective impact and collaboration, partnering with multiple different organizations to accomplish their mission of supporting a citizen science effort to improve and protect water quality. Continuing partners include the Kentucky Division of Water, who uses volunteer monitoring data to identify areas in need of further monitoring; Kentucky Waterways Alliance, who has helped to form several watershed groups and projects based on data collected through the WWKY Core Monitoring Program; and the Sierra Club, who uses data from the WWKY Core Monitoring Program to advocate for clean water in Kentucky.

Spotlight: Natural Resources Conservation Service

The National Water Quality Assessment shows that agricultural nonpoint source (NPS) pollution is the leading source of water quality impacts on surveyed rivers and streams, the third largest source for lakes, the second largest source of impairments to wetlands, and a major contributor to contamination of surveyed estuaries and ground water. As such, the Kentucky Division of Water (DOW) has worked to foster partnerships with NGOs, local, state and federal agencies, whose mission is to provide assistance to farmers and landowners to improve adoption of conservation practices for water health.

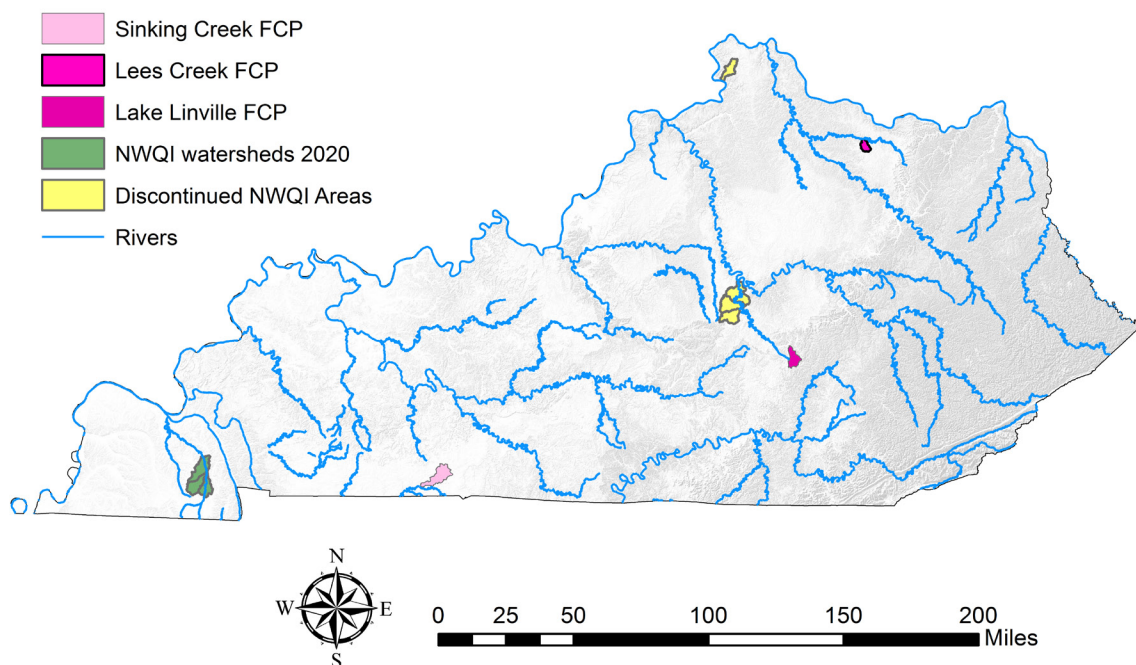


Figure 40. Focused Conservation Projects (FCPs) with active DOW involvement and National Water Quality Initiative (NWQI) Watersheds.

The Natural Resources Conservation Service (NRCS) seeks to assist producers through education and outreach, technical assistance, and direct funding of best management practices. The NRCS' Environmental Quality Incentives Program (EQIP) provides funding for farmers to install structural and management conservation practices on their operations, many of which have direct and indirect benefits to water quality. While federal EQIP dollars may not be used as match in 319(h) watershed planning projects, EQIP projects may still contribute significantly towards meeting watershed plan load reduction goals.

The Division maintains close communication with the NRCS, providing feedback on NRCS initiatives through the NRCS State Technical Committee, sharing water quality data collected for assessment purposes, and providing monitoring in order to effectively track success. Basin Coordinators often assist with basic education and outreach at field days and through development of BMP guidance materials (brochures, BMP manuals, etc.). In 2019-2020, the Division invested significant time in assisting NRCS with several programs, including the National Water Quality Initiative and NRCS Focused Conservation Projects (Figure 40).

National Water Quality Initiative

In 2012, the United States Department of Agriculture (USDA) Natural Resources Conservation Service (NRCS) launched the National Water Quality Initiative (NWQI), in collaboration with the Environmental Protection Agency (EPA) and state water quality agencies, to reduce nonpoint sources of nutrients, sediment, and pathogens related to agriculture in small high-priority watersheds in each state. These priority watersheds are selected by NRCS State Conservationists in consultation with state water quality agencies and NRCS State Technical Committees where targeted on-farm conservation

investments will deliver the greatest water quality benefits.

NWQI provides a means to accelerate voluntary, private lands conservation investments to improve water quality with dedicated financial assistance through NRCS's Environmental Quality Incentives Program (EQIP) and Clean Water Act Section 319 or other funds to focus state water quality monitoring and assessment efforts where they are most needed to track change. DOW and Kentucky NRCS priorities are aligned in NWQI watersheds and combination of efforts within these areas has the greatest potential for positive improvements to water quality. Section 319(h) funding encourages implementation of NRCS conservation practices that avoid, trap, and control runoff in these high-priority watersheds and may be an alternate source of support for such projects. In addition, the Division provides valuable technical assistance in the process of selecting watersheds and quantifying improvements within the selected areas. For example, DOW data were used to recommend Hinkston Creek and Gunpowder Creek (NWQI watersheds from 2012-2019) for NWQI status. As watersheds with current watershed plans and active implementation, these watersheds already had significant capacity identified and networks in place to help spur engagement with stakeholders. In addition, baseline data from assessments and watershed planning could be used for analysis of water quality trends. In the 2020 round of NWQI watershed selection, DOW provided information on active watershed planning areas, priority watersheds, source water protection areas, and nutrient reduction priority areas to help inform the process.

NRCS Focused Conservation Projects

Beginning in FFY 2020, Kentucky NRCS initiated Focused Conservation Projects (FCPs), utilizing EQIP dollars to target specific project areas with known water quality issues. The 12

districts developed water-focused conservation projects to be funded for up to five years of implementation. Though similar to NWQI, the FCP program involves more up front planning to address specific, identified problems within the watershed. The emphasis of the project is to achieve quantifiable water quality improvements through intensive implementation.

The projects selected for funding were developed through workgroup meetings that involved multiple stakeholder organizations, including NRCS, DOW, Division of Conservation, Kentucky Department of Fish and Wildlife Resources, local agricultural producers, and other interested entities. Division of Water Basin Coordinators attended nearly every meeting, providing information to the selection committees about existing watershed planning areas, known impairments, technical resources, and potential partners (such as volunteer monitoring groups).

While NRCS has the funding for the implementation, their funding does not cover water quality sampling that is necessary to quantify success. In order to quantify gains as a result of BMP implementation, water quality monitoring is key. As the state water quality entity in Kentucky, DOW is supporting the Focused Conservation Projects by providing monitoring data to three project areas: Lees Creek, Sinking Creek, and Lake Linville.

Lees Creek

Lees Creek (Figure 41) was recommended to the NRCS Focused Conservation workgroup by DOW, as it is a watershed where an existing assessment showed the waterbody does not support aquatic life use due to nitrate, nitrite, sedimentation/siltation and Total Kjeldahl Nitrogen (2005). Subsequent DOW in-stream monitoring occurred in 2017 and Watershed Watch in Kentucky, a statewide volunteer monitoring organization, is active in the area. It is also a watershed that has high potential for watershed plan development. A direct tributary of the North Fork of the Licking

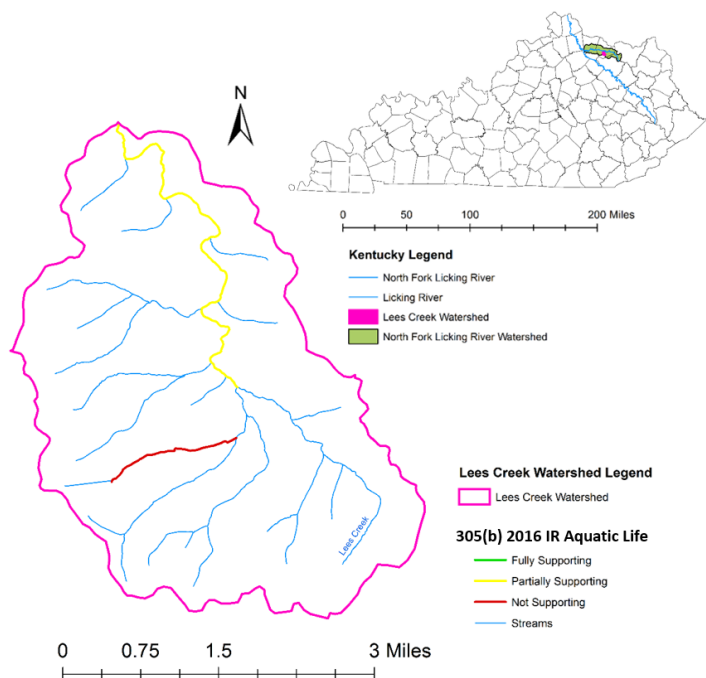


Figure 41. Lees Creek Watershed Focused Conservation Project (FCP).

River, the land use in the Lees Creek watershed is dominated by pasture or hay. The remainder is row crop, forest and non-agricultural. This project seeks improvement in water quality and erosion issues. As the water source and cooling spot for most of the pastured acres, Lees Creek has been impacted by livestock accessing the stream. Bank degradation, riparian zone buffer loss and animal manure all are contributing to the impairment of the designated use. The project will emphasize the implementation of best management practices that limit grazing in riparian or shoreline zones, improve livestock operations to reduce manure entering into creeks, and limiting cattle access to the waterways.

Kentucky NRCS authorized \$250,000 for this project to be completed over a three-year period. Project partners will offer in-kind and \$9,500 of support annually. For more information, contact the local USDA-NRCS office located in Maysville, KY, (606) 759-5570, or email Supervisory District Conservationist joe.ulrich@usda.gov.

Lake Linville

In June of 2019, NRCS reached out to DOW for technical assistance to start a Focused Conservation Project for Lake Linville. The lake is a 356-acre reservoir with a length of 1100 feet, owned and operated by the state. This reservoir is the municipal drinking water source for Rockcastle County and the surrounding watershed is dominated by agricultural land use. While the waterbody does meet current drinking water standards, it has significant nutrient and sediment issues that result in excessive blue-green algae growth, which contribute to taste and odor issues with the water. Infilling of the reservoir from and infilling from sedimentation is also a concern.

Division of Water worked with NRCS to develop their Focused Conservation Project proposal and began sampling the watershed to identify causes and sources of pollution in 2020, laying the groundwork not only for quantifying BMP

impacts, but also for a potential watershed planning process. As part of this effort, the Upper Cumberland River Basin Coordinator attended public meetings and worked to encourage involvement by local Watershed Watch volunteers to monitor the lake.

Kentucky NRCS authorized \$572,000 for this project to be completed over a three-year period. For more information, contact the local USDA-NRCS office located in London, KY, (606) 864-2172, or email Supervisory District Conservationist brian.jones@usda.gov

Sinking Creek

Sinking Creek is a 42-square-mile stream that lies within the Western Pennyroyal physiographic region. Karst topography with extensive subterranean drainage through sinkhole plains is typical of this area.

Intensive row crop agriculture is prevalent as 82% of the land use is characterized as cropland. The combination of karst topography and agricultural practices throughout the basin provides the opportunity for ground water contamination through sinkholes.

The Bowling Green Natural Resources Conservation Service (NRCS) chose this watershed for a Focused Conservation Project due to impairments related to elevated bacteria and sediment levels in the stream.

The Division provided assessment data from sampling in 2009-10 that showed the concentration of *Escherichia coli* (*E. coli*) in the stream was exceeding water quality standards. As a result, a segment of Sinking Creek, river miles 0.0 to 3.3, was listed as nonsupport of its Primary Contact Recreation (PCR) designated use on the 2014 303(d) list.

The NRCS requested that DOW perform targeted

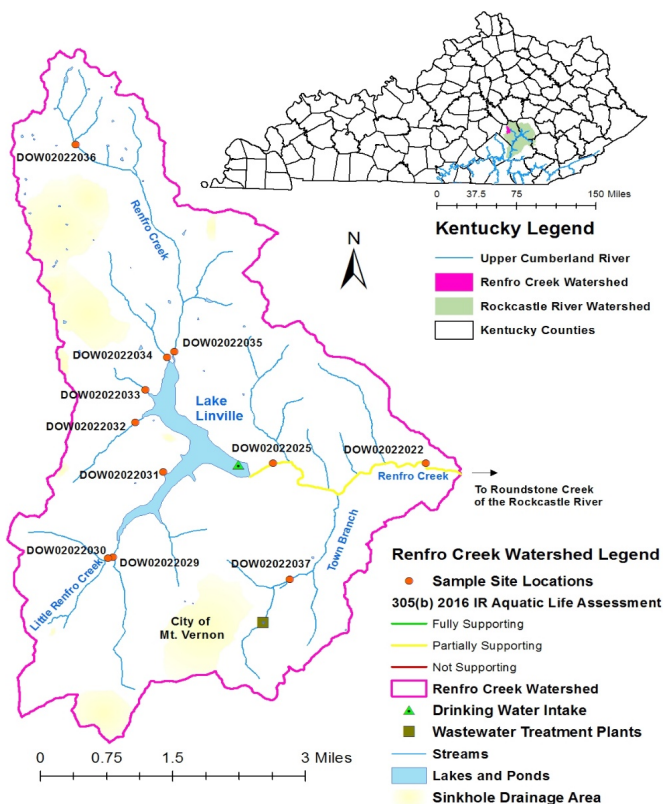


Figure 42. Lake Linville Watershed Focused Conservation Project (FCP).

water quality sampling within the watershed so that implementation could be directed towards known causes and sources. These data will also provide baseline water quality data that can be used to measure the success of such actions in improving water quality.

Kentucky NRCS authorized \$364,000 for this project to be completed over a three-year period. Project partners will offer in-kind and add \$193,250 of support annually. For more information, contact the local USDA-NRCS office located in Bowling Green, KY, (270-843-1111), or email Supervisory District Conservationist justin.t.smith@usda.gov.

More information about KY NRCS’s Focused Conservation Projects may be found by visiting the [Focused Conservation Projects Story Map](#).

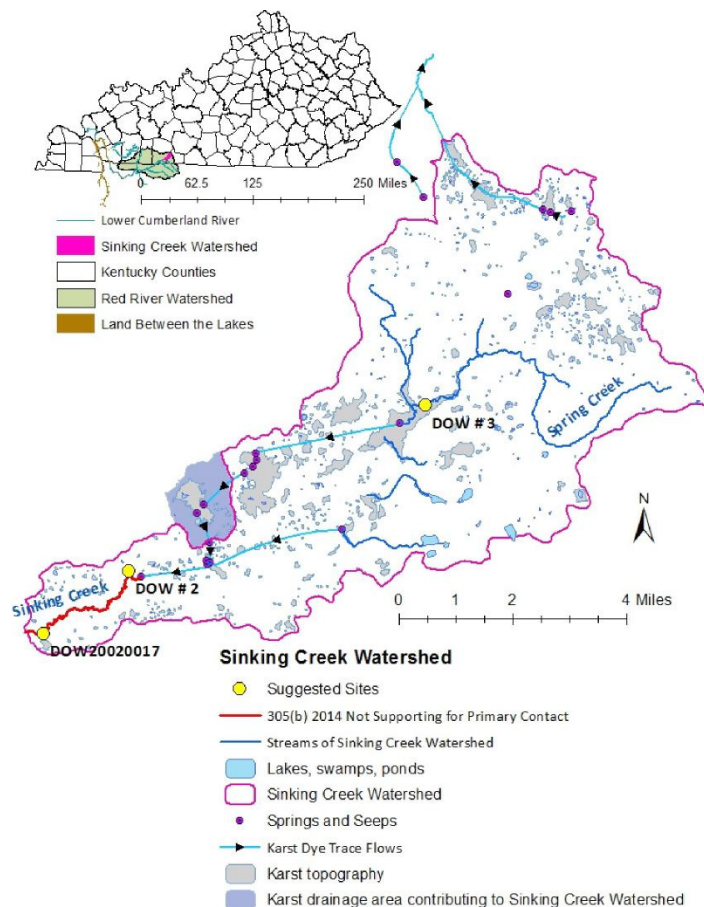


Figure 43. Sinking Creek Watershed Focused Conservation Project (FCP).



Figure 44. Livestock best management practices will be a major focus of many Focused Conservation Projects in 2020.

Chapter 4



Workplan Reporting

FFY 2020 Goals and Objectives

The Kentucky Division of Water’s Nonpoint Source Program committed to meeting specific goals, objectives, and action items within each year of the 2019 Nonpoint Source Management Plan. The table below includes both the five-year Management Plan commitments as well as summary descriptions of the work accomplished during FFY 2020 toward the completion of those commitments. In addition to the NPS Management Plan, Kentucky’s NPS Program makes operational work commitments within the Annual Workplan submitted to EPA Region 4. Summary descriptions of the FFY 2020 Program annual workplan commitments and the work accomplished toward their completion are also included in the following tables.



Long Term Goal 1: Restore Nonpoint Source Impaired Waters			Targeted Completion					Annual Reporting
Objective 1:	Prioritize watersheds for restoration potential.		2019	2020	2021	2022	2023	
	Action 1:	Utilize EPA Recovery Potential Screening Tool to select watersheds for implementation, within existing watershed planning areas.						
		Tracking measure: Number and list of watersheds identified as recoverable within areas of watershed plans.		X		X		In early 2017, state specific metrics at the 24K level matching KY's NHD data set were completed. The updated RPT was rolled out to DOW in February 2017, allowing watershed prioritization across multiple programs. In 2020 DOW began the process of adding an Environmental Health index and Demographic index to further refine priority watershed selection. A new list of recoverable watersheds was not developed in 2020, but we anticipate instituting the new protocol in early 2021.
		Tracking measure: Number and list of recoverable watersheds receiving targeted implementation.			X	X	X	In FFY 2020, despite the pandemic, DOW's Conservation District partners were able to support work in the Sulphur Creek watershed while following Centers for Disease Control and Prevention and Kentucky guidelines for COVID-19 spread prevention. Conservation District staff supported implementation of 19 agricultural BMPs (with 17-17 and 18-06 funds) and organized one farm field day (with 18-06 funds).

	Action 2:	Utilize EPA Recovery Potential Screening Tool to identify 303(d) listed impaired watersheds that have a high potential of showing measurable water quality improvement after targeted implementation							
		Tracking measure:	Number of watersheds identified as recoverable for pathogens.		X	X	X	X	In early 2017, state specific metrics at the 24K level matching KY's NHD data set were completed. The updated RPT was rolled out to DOW in February 2017, allowing watershed prioritization across multiple programs. Sulphur Creek was identified as being highly recoverable for pathogens, and the NPS program has actively been implementing Ag and wastewater BMPs in the watershed for several years. A list of watersheds Id'd as recoverable for pathogens was not developed in FFY 2020, due to efforts to update the Recovery Potential Tool, but will be completed in early 2021.
		Tracking measure:	Number of recoverable watersheds receiving targeted implementation.					X	
Objective 2:	Monitor and assess Kentucky's waters			2019	2020	2021	2022	2023	
	Action 1:	Conduct monitoring and perform assessments of Kentucky's waters in conjunction with the watershed framework.							
		Tracking measure:	Number of stream miles assessed.	X	X	X	X	X	As of the 2016 Integrated Report (IR), 12,613.8 stream miles have been monitored and assessed by DOW programs. The next IR is scheduled to be released in 2020.
		Tracking measure:	Number of stream miles impaired by NPS pollution.	X	X	X	X	X	As of the 2016 Integrated Report, 2,631.11 miles are known to be impaired by NPS causes and sources as of 2016 IR (categories 5, 4A, 4B, 4C).
		Tracking measure:	Number of pollutant/ waterbody combinations impaired by NPS pollution.	X	X	X	X	X	As of the 2016 Integrated Report, 983 pollutant/waterbody combinations known to be impaired by NPS causes.

	Action 2:	Conduct monitoring and perform assessments of targeted watersheds for the development of new watershed plans or to revise existing plans.							
		Tracking measure:	Number of stream miles with assessments completed in preparation for watershed plan development or improvement.	X	X	X	X	X	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.	X	X	X	X	X	During FFY 2020 DOW staff or contractors conducted water quality monitoring in five watersheds in preparation for watershed plan development. <ul style="list-style-type: none"> • Middle Fork Beargrass Creek • Upper Paint Lick Creek • West Hickman Creek • Renfro Creek/Lake Linville
	Action 3:	Conduct monitoring and perform assessments of watersheds targeted through the Division of Water's Success Monitoring Program.							
		Tracking measure:	Number and list of streams prioritized through the Division's Success Monitoring program with completed assessments.	X	X	X	X	X	The Success Monitoring Program targeted five watersheds for monitoring in preparation for watershed planning and documentation of implementation impact: <ul style="list-style-type: none"> • Middle Fork Beargrass Creek • Upper Paint Lick Creek • West Hickman Creek • Renfro Creek/Lake Linville Assessments of these streams is not complete but will be included in the 2022 IR.

		Tracking measure:	Number and list of streams that have a documented change in use support awaiting EPA approval.	X	X	X	X	X	DOW's last submission to EPA was for the 2016 Integrated report and included sixty-eight stream segments that reported a change in use/delisting. The Division is currently in process of completing a combined 2018/2020 Integrated report, but a list of stream segments for EPA approval of change in use status is not available at this time.
		Tracking measure:	Number and list of streams that have a documented delisting approved by EPA.	X	X	X	X	X	Seventeen stream segments will be submitted with the combined 2018/2020 Integrated Report to Congress for EPA approval for delisting. These segments include: <ul style="list-style-type: none"> • Bat East Creek 3.4 to 7.5 • Caney Creek 3.6 to 7.65 • Cheese Lick 1.45 to 5.2 • Cypress Creek 0.0 to 6.0 • Dix River 33.3 to 36.15 • Floyds Fork 24.2 to 34.1 • Knox Creek 0.0 to 7.95 • North Elkhorn Creek 44.75 to 65.95 • North Fork Kentucky River 110.85 to 125.0 • Open Fork Paint Creek 6.25 to 11.4 • Pond Creek 10.9 to 13.5 • Pond Creek 17.3 to 17.9 • Red River 54.5 to 56.95 • Rock Creek 0.0 to 4.0 • Sand Lick Fork 0.0 to 5.3 • White Oak Creek 0.0 to 4.15 • Woolper Creek 1.4 to 7.45

	Action 4:	Continue to implement a Division level watershed Success Monitoring Program.							
		Tracking measure:	Maintain and continue to update GIS layers for BMP implementation tracking tool.	X	X	X	X	X	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 with continuing implementation and used to evaluate potential for changes in watershed status.
		Tracking measure:	Number of watersheds identified as needing success monitoring.	X	X	X	X	X	In FFY 2020 monitoring was conducted in three watersheds identified as needing baseline data for success monitoring and watershed planning: Middle Fork Beargrass Creek, Upper Paint Lick Creek, and Lake Linville/Renfro Creek.
		Tracking measure:	Conduct annual meeting to coordinate locations appropriate for success monitoring within the watershed framework.	X	X	X	X	X	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 for National Water Quality Initiative (NWQI) watersheds.							
		Tracking measure:	Evaluate NWQI watersheds annually to determine needs, and design success monitoring plan as appropriate.	X	X	X	X	X	Due to a lack of interest in farm bill conservation programs, NRCS elected to withdraw from the NWQI for 2020. As an alternative, NRCS instituted Focused Conservation Projects, that implement water focused agricultural best management practices in each of their 12 districts. DOW assisted NRCS with selection of project areas and has been providing technical support in the form of monitoring and data in three watersheds: Sinking Creek, Lake Linville, and Lee's Creek.
		Tracking measure:	Implement NWQI success monitoring as needed.	X	X	X	X	X	Success monitoring on the previous NWQI watersheds was not requested by NRCS in 2020, as they had withdrawn from the program. Instead DOW worked to support NRCS's new Focused Conservation Projects with collection of baseline data in three of the selected watersheds. DOW will plan to return to collect data to evaluate success on the request of NRCS.
		Tracking measure:	Compile water quality data for trend analysis in NWQI watersheds as needed.	X	X	X	X	X	In support of NRCS's selection of 2021 NWQI watersheds, DOW provided recommendations and known data on several watersheds across the commonwealth, that could be used for baseline data in a trend analysis. The three selected watersheds fell outside of our top recommendations, but did contain listed stream segments that will be used to evaluate progress.

		Tracking measure:	Number of NWQI BMPs per selected HUC 12.	X	X	X	X	X	NRCS was no longer participating in NWQI in the selected watersheds in 2020, so no implementation is included here. For work completed prior to withdrawal from the program please review the FFY 2016 Program Annual Report, Appendix A.
Objective 3:	Implement the Nonpoint Source component of Approved TMDLs of restoration strategies in prioritized impaired watersheds.			2019	2020	2021	2022	2023	
	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.							
		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.	X	X	X	X	X	NPS personnel are part of a TMDL Workgroup that met eight times in FFY 2020. Workgroup priorities include but are not limited to improved communication of program timelines and priorities, identification of potential TMDL Alt watersheds, and implementation strategies in TMDL watersheds. The group is also used to set coordinated monitoring priorities between NPS Success Monitoring and the TMDL section.
		Tracking measure:	Number of sub-grantee projects implementing BMPs in watersheds with approved TMDLs.	X	X	X	X	X	In FFY 2020 six sub-grantees implemented BMPs in watersheds with TMDLs: <ul style="list-style-type: none"> • Bacon Creek • Chestnut Creek • Clarks Run • Currys Fork • Damon Creek • Gunpowder Creek

	Action 2:	Coordinate with the Division's TMDL program to prioritize, develop, and/or implement TMDL Alternative Plans.							
		Tracking measure:	Number and list of watersheds prioritized for TMDL Alternative Plan development.	X	X	X	X	X	Two watersheds are currently prioritized for TMDL-alt development. Sanitation District 1 in Northern Kentucky approached DOW in 2020 with regards to the potential for a TMDL-alt plan for the Banklick watershed, an area with an EPA accepted watershed plan. The Cypress Creek watershed still shows interest in a TMDL-alt for their area, but the evaluation was pushed back due to delays in data availability due to COVID-19.
		Tracking measure:	Number and list of watersheds with approved TMDL Alternative Plans.	X	X	X	X	X	Currently the state of Kentucky has completed two TMDL Alternative Plans: Sulphur Creek and Gunpowder Creek.
Objective 4:	Implement restoration strategies for prioritized impaired watersheds that will result in measurable water quality improvements.			2019	2020	2021	2022	2023	
	Action 1:	Continue development and implementation of accepted watershed plans.							
		Tracking measure:	Number and list of watershed plans currently under development.	X	X	X	X	X	During FFY 2020 DOW worked with contractors toward development of four additional watershed plans: Lee's Creek and Clarks Run, Middle Fork Beargrass Creek, Upper Paint Lick Creek, and North Fork Kentucky River.

		Tracking measure:	Number and list of watershed plans approved by EPA Region 4 for implementation.	X	X	X	X	X	<p>During FFY 2020, the DOW had twenty-eight watershed plans accepted by the EPA.</p> <ul style="list-style-type: none"> • Bacon Creek • Banklick Creek • Brushy Creek • Cane Run • Chestnut Creek • Clark’s Run- Dix River • Corbin City Reservoir • Curry’s Fork • Damon Creek • Darby • Dry Creek • Gunpowder Creek • Hancock • Hanging Fork- Dix River • Hinkston Creek • Lower Howards Creek • North Fork Kentucky River • Pleasant Run • Red Bird • Red River Gorge • Rock Creek • South Fork Little River • Stockton Creek • Sulphur Creek • Ten Mile (Eagle Creek) • Triplett Creek • Wolf Run • Woolper Creek
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		Tracking measure:	Number and list of watershed plans approved by EPA Region 4 for implementation actively being implemented.	X	X	X	X	X	<p>During FFY 2020, the DOW had fourteen watershed plans approved by EPA Region 4 for implementation actively being implemented.</p> <ul style="list-style-type: none"> • Bacon Creek • Banklick Creek • Brushy Creek • Chestnut Creek • Clark's Run- Dix River • Curry's Fork • Damon Creek • Gunpowder Creek • Hanging Fork- Dix River • Hinkston Creek • Red Bird • Red River • South Fork Little River • Sulphur Creek
	Action 2:	Work to develop local capacity and implement actions necessary to address the pollution in prioritized watersheds.							
		Tracking measure:	Number of active watershed groups.	X	X	X	X	X	<p>During FFY 2020 DOW documented fifty-six active watershed groups in the state each with multiple supporting organizations. The River Basin Coordination Program is actively working to support and coordinate with these existing watershed groups as well as increase the number of watershed groups working on water quality issues.</p>
		Tracking measure:	Number of partner and/or stakeholder meetings attended.	X	X	X	X	X	<p>NPS personnel attended 160 partner meetings in FFY 2020.</p>

Objective 5: Decrease input of pollutants from agricultural sources.		2019	2020	2021	2022	2023	
	Action 1: Support projects that educate the agricultural community.						
	Tracking measure: Number of sub-grantee projects with an agricultural BMP demonstration event or educational component.	X	X	X	X	X	Agricultural BMP demonstration events were held in three watershed project areas during FFY 2020: Bacon Creek (17-13), Sulphur Creek (17-17), Brushy Creek (19-10)
	Tracking measure: Provide financial and technical support to educate producers about the Agriculture Water Quality Act and nutrient management strategies.	X	X	X	X	X	Attended four quarterly AWQA meetings during FFY20. Also participated in multiple meetings related to the development of a new Ag Water Quality Act e-workbook for producers.
	Action 2: Provide financial and/or technical support for the implementation of BMPs that reduce nonpoint source pollution from agricultural sources.						
	Tracking measure: Number of sub-grantee projects implementing BMPs to address agricultural sources of nonpoint source pollution.	X	X	X	X	X	<p>During FFY 2020, the Nonpoint Source Program funded the implementation of ninety-five on the ground agricultural conservation practices installed through a total of four projects in three different watershed planning areas.</p> <ul style="list-style-type: none"> • Hinkston Creek, NCCD (65 BMPs, 17-15) • Sulphur Creek ACCD (16 BMPs, 17-17) • Sulphur Creek MCCD (2 BMP, 18-06) • Bacon Creek (12 BMPs, 17-13)

	Action 3:	Coordinate with NRCS and KY Division of Conservation to implement BMPs.							
		Tracking measure:	Coordinate with KY DOC to fund BMPs in priority watersheds.	X	X	X	X	X	The Brushy Creek (19-10) project coordinates with KY DOC to fund BMPs in the Upper Cumberland River Basin.
		Tracking measure:	Coordinate with NRCS to fund BMPs in priority watersheds.	X	X	X	X	X	The Brushy Creek (19-10) project coordinates with NRCS to fund BMPs in the Upper Cumberland River Basin.
	Action 4:	Coordinate with NRCS to identify and prioritize NWQI watersheds.							
		Tracking measure:	Number of NWQI watersheds identified.	X	X	X	X	X	In 2020, Kentucky NRCS withdrew from the NWQI program for one year in favor of completing NRCS Focused Conservation Projects. DOW provided technical assistance and recommendations for potential project areas. When NRCS decided to select three new watersheds for the NWQI program for 2021, DOW also provided data and recommendations for these areas. NRCS ultimately selected three watersheds that are within a current Priority Watershed Planning Area, and are adjacent to a High Nutrient Yield area, targeted by DOW for nutrient reduction.
	Action 5:	Participate in state wide meetings and conferences that have a focus on Agriculture and Water Quality							
		Tracking measure:	Attend two (2) USDA NRCS State Technical meetings per year. Track number attended.	X	X	X	X	X	DOW participated in all scheduled NRCS State Technical Committee meetings in 2020.
		Tracking measure:	Participate in the four (4) quarterly Kentucky Agriculture Water Quality Authority Meetings per year.	X	X	X	X	X	DOW participated in all scheduled Agriculture Water Quality meetings in 2020.

		Tracking measure:	Participate in the Kentucky Agriculture Science and Monitoring Committee meetings.	X	X	X	X	X	DOW participated in one (1) KASMC meetings held during FFY 2020.
		Tracking measure:	Number of staff attending agriculture related technical training.	X	X	X	X	X	NPS personnel attended seventy agriculture related trainings/webinars including such events as: Soil Health Institute's annual conference, KWRRI's Watershed Academy, the Kentucky Women in Agriculture Conference, farm tours, NRCS and Cooperative Extension seminars.
		Tracking measure:	Present information or a booth at one (1) agriculture related event each year.	X	X	X	X	X	NPS personnel presented information at four agriculture related events in FFY 2020.
Objective 6:	Decrease input of pollutants from developed lands.			2019	2020	2021	2022	2023	
	Action 1:	Provide financial and technical support for the implementation of green infrastructure (GI), low-impact-development (LID), and stormwater management BMPs.							
		Tracking measure:	Number of sub-grantee projects implement GI, LID, and/or stormwater management BMPs.	X	X	X	X	X	In FFY 2020, two projects implemented GI, LID and/or stormwater management BMPs: <ul style="list-style-type: none"> • Wolsing Woods (17-02) • Red River (18-07)

		Tracking measure:	Attend a minimum of one (1) stormwater management training event per year.	X	X	X	X	X	The Kentucky Stormwater Association Annual Conference was cancelled due to COVID-19. NPS personnel attended quarterly meetings as they occurred, and also attended a virtual mini conference on October 16, 2020. NPS personnel will attend the next annual conference scheduled for July of 2021, conditions permitting.
	Action 2:	Coordinate with Kentucky Emergency Management to incorporate GI, LID, and/or stormwater management BMPs that address nonpoint source pollution into the State Hazard Mitigation Plan.							
		Tracking measure:	Participate in “Incorporating Green Infrastructure and Low Impact Development into State Hazard Mitigation Plan” grant project.	X	X				In FFY 2020 NPS Staff has been participating in the development of guidelines for the integration of GI/LID in State Hazard Mitigation Planning, focusing in on providing insights on how these methods may dovetail with watershed planning efforts. NPS personnel has been collaborating with Area Development Districts to determine how to integrate GI/LID into local hazard mitigation planning. We have also been working closely with the Kentucky Association of Mitigation Managers (KAMM) to educate managers on GI/LID strategies and planning.
		Tracking measure:	Number of NPS BMPs included in the State Hazard Mitigation Plan.					X	Efforts to generate NPS BMP recommendations for the State Hazard Mitigation Plan are ongoing. No recommendations were integrated into the State Hazard Mitigation Plan in FFY 2020. However, NPS personnel gave several presentations to the Kentucky Association of Mitigation Managers (KAMM) and Area Development Districts to educate managers on how they might integrate recommendations into planning.

		Tracking measure:	Provide updated GIS resources to KAMM program annually.	X	X	X	X	X	GIS layers are updated annually. NPS personnel also attended the KAMM annual conference virtually in FFY 2020.
	Action 3:	Support Kentucky's MS4 program.							
		Tracking measure:	Number of Kentucky Stormwater Association meetings attended.	X	X	X	X	X	NPS staff participated in the Kentucky Stormwater Association Virtual Mini Conference and attended one Kentucky Stormwater Association Quarterly Meetings in FFY 2020. Only one Quarterly Meeting was scheduled by KSA due to the COVID-19 pandemic.
		Tracking measure:	Provide technical and/or educational support to MS4 communities.	X	X	X	X	X	Planning efforts between DOW's NPS Program and the KSA Board to develop a strategic plan for using 319(h) funding to increase the effectiveness of local stormwater programs on a statewide basis was put on hold in FFY 2020 due to COVID-19 restrictions, but we anticipate returning to the project as soon as conditions are favorable. 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. Again due to COVID 19 we were unable to provide in person events, however NPS personnel have been exploring virtual educational tools in an effort to support our MS4 partners.
		Tracking measure:	Provide technical and/or educational support for the DOW MS4 program.	X	X	X	X	X	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.	X	X	X	X	X	GIS layers are updated annually and available on request from DOW.

Objective 7: Preserve the critical ecosystem functions which forestlands provide and reduce NPS pollution resulting from forestry related activities.		2019	2020	2021	2022	2023	
Action 1:	Support watershed projects that focus on sustainable forestry management with water quality being the primary concern.						
Tracking measure:	Number of sub-grantee projects that incorporate forest management BMPs to protect water quality.	X	X	X	X	X	In FFY 2020, two projects actively implemented forestry BMPs to protect water quality: Red River (18-07), and Banklick Wolsing Woods (18-02).
Action 2:	Work with partners to protect and enhance forestlands for the purposes of protecting or restoring water quality, water supply, and aquatic habitat.						
Tracking measure:	Attend at least one (1) Forest Conservation Act BMP Board meeting per year.	X	X	X	X	X	The KFCBA BMP Board did not hold a meeting in FFY 2020
Tracking measure:	Provide technical and/or educational support for Forest Conservation Act BMP implementation.	X	X	X	X	X	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.	X	X	X	X	X	The NPS section is funding three programs working on forestry related projects. The NPS section is also actively working with partners on forestry related issues including the Rockcastle Conservation Initiative, 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, and the Kentucky Woodland Owners Association.
Objective 8:	Protect and monitor Kentucky’s groundwater.			2019	2020	2021	2022	2023	
	Action 1:	Provide technical and/or financial support for the assessment of groundwater impacts from nonpoint source pollution.							
		Tracking measure:	Number of springs sampled.	X	X	X	X	X	Forty-one springs were assessed and sampled
		Tracking measure:	Number of groundwater samples collected for <i>E. coli</i> .	X	X	X	X	X	Three groundwater samples included testing for pathogens, including <i>E. coli</i> .
		Tracking measure:	Number of groundwater samples collected for pesticides.	X	X	X	X	X	One hundred fifty-nine groundwater samples collected for pesticides.
	Action 2:	Provide technical and/or financial support for groundwater protection plans (GPP).							
		Tracking measure:	Number of GPP field reviews conducted.	X	X	X	X	X	In FFY 2020 DOW conducted eleven GPP field reviews.
		Tracking measure:	Number of GPPs approved.	X	X	X	X	X	In FFY 2020 DOW approved forty-seven GPP.

Objective 9: Decrease nonpoint source pollution from onsite wastewater sources in Kentucky's water bodies.		2019	2020	2021	2022	2023	
	Action 1: Provide financial, technical, and/or educational support to projects that decrease the negative impacts on water quality from sewage.						
	<p>Tracking measure: Number of sub-grantee projects that implement the onsite wastewater components of an accepted watershed plan.</p>	X	X	X	X	X	<p>In FFY 2020, six projects actively implemented on-site wastewater BMPs:</p> <ul style="list-style-type: none"> • Curry's Fork (16-06) • Clarks Run Hanging Creek Hinkston (16-07) • Chestnut Creek (17-14) • Boone County HAP (18-09) • Marshall County Fiscal Court HAP (18-10) • Clarks Run, Hanging Fork and Hinkston Creek (19-05)
	<p>Tracking measure: Number of sub-grantee projects with an educational component for onsite wastewater treatment.</p>	X	X	X	X	X	<p>In FFY 2020, eight projects included an educational component to their on-site wastewater programs.</p> <ul style="list-style-type: none"> • Red River (18-07) • Bacon Creek Homeowner Septic (19-06) • Chestnut Creek (17-14) • Boone County HAP (18-09) • Clarks Run Hanging Fork Hinkston Creek (16-07) • Clarks Run, Hanging Fork and Hinkston Creek (19-05) • Marshall County Fiscal Court HAP (18-10) • Currys Fork (16-06)

	Action 2:	Coordinate with partners to decrease impacts from onsite wastewater.							
		Tracking measure:	Number of partner meetings attended.	X	X	X	X	X	NPS personnel attended ten partner meetings to decrease impacts from onsite wastewater.
Objective 10:	Protect and restore waters at risk from recreational impacts.			2019	2020	2021	2022	2023	
	Action 1:	Provide technical and/or financial support for Kentucky's Volunteer Lakes Monitoring Program (for the identification of harmful algal blooms (HABs).							
		Tracking measure:	Number of active volunteers.	X	X	X	X	X	Fifty-nine active volunteers
		Tracking measure:	Number of volunteers receiving trainings.	X	X	X	X	X	Fifteen volunteers received training in FFY 2020
		Tracking measure:	Number of sites sampled.	X	X	X	X	X	Sixty-eight sites were sampled in FFY 2020
	Action 2:	Provide technical and/or financial support for projects that implement BMPs in watersheds with recreation use impairments.							
		Tracking measure:	Number of sub-grantee projects implementing BMPs in watersheds with recreation use impairments.	X	X	X	X	X	In FFY 2020 there were six projects implementing BMPs in watersheds with recreational use impairments. <ul style="list-style-type: none"> • Bacon Creek (17-13) • Chestnut Creek (17-14) • Hinkston Creek (17-15) • Damon Creek (17-18) • Boone County HAP (18-09) • Clarks Run, Hanging Fork, Hinkston (19-05)

	Action 3:	Provide technical and/or educational support for Harmful Algal Bloom issues.							
		Tracking measure:	Number of meetings and/or technical support provided .	X	X	X	X	X	NPS personnel are actively engaged in internal and external efforts to address Harmful Algal Blooms. Within the Division we coordinate with the Water Quality Branch to provide coordination with local volunteer monitors to address identification, reporting and safety issues with HABs. We also have had meetings with the Foundation for Ohio River Education to discuss development of tools for HAB monitoring. In addition, NPS personnel have also been collaborating with the creators of the BloomWatch App to help test and roll out the app to volunteer monitors in the Commonwealth through Watershed Watch in Kentucky's Lakes Monitoring Program.
Objective 11:	Decrease nonpoint source pollution from resource extraction.			2019	2020	2021	2022	2023	
	Action 1:	Provide technical and/or financial support for reducing nonpoint source pollution due to resource extraction activities.							
		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.	X	X	X	X	X	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.	X	X	X	X	X	In FFY 2020 there were no active projects implementing BMPs in resource extraction areas. However, the newly hired Big Sandy Basin Coordinator was able to restart the Big Sandy Basin Team and make contact with several potential partners in the Big Sandy/Little Sandy/Tygarts River Basins, which are heavily impacted by resource extraction. In 2021 we will continue to make in-roads in the hopes of spurring watershed plan development and implementation in this region.
Objective 12:	Decrease the negative impacts of excessive sedimentation in Kentucky's Streams.			2019	2020	2021	2022	2023	
	Action 1:	Provide financial, technical, and/or educational support for projects that implement sediment control BMPs.							
		Tracking measure:	Develop and/or distribute guidance and/or educational materials for stream and riparian buffer maintenance.	X	X	X	X	X	The 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.	X	X	X	X	X	In FFY 2020 there were three projects implementing riparian buffer BMPs: <ul style="list-style-type: none"> • Wolsing Woods (17-02) • Clarks Run, Hanging Fork, Hinkston Creek (16-07) • Banklick Continued Implementation (19-07)
		Tracking measure:	Number of projects monitoring for sediment impairments.	X	X	X	X	X	The Upper Paint Lick watershed planning project (18-05) included monitoring activities for sediment impairments.

	Action 2:	Target additional sources of funding for stream restoration projects that will positively address sediment impaired streams.							
		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.	X	X	X	X	X	<p>There are two primary methods that the NPS Program targets NRCS Farm Bill funding toward the implementation of watershed plans. The first is direct programmatic coordination between DOW and NRCS by requesting that priority and impaired watersheds receive priority funding through NRCS programs. In FFY 2020 this involved DOW providing recommendations for watershed priorities for the selection of NRCS focused conservation projects and 2021 NWQI watersheds. We also regularly attend the State Technical Committee Meetings. The second method is to coordinate on-the-ground implementation efforts with County Conservation Districts and local NRCS staff. The goal of both methods is that CWA Section 319(h) funding be used to augment the Farm Bill funding being provided 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 getting out of the office and meeting with local NRCS, Conservation District, and Division of Conservation staff.</p>
		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.	X	X	X	X	X	<p>DOW consistently seeks opportunities for watershed projects to pursue Fees in Lieu of Mitigation funding. No projects used FILO funding in FFY 2020.</p>

Objective 13: Support education and outreach.		2019	2020	2021	2022	2023	
	Action 1: Support education and outreach efforts across Kentucky.						
	Tracking measure: Number of student and/or stakeholder contacts per year.	X	X	X	X	X	NPS personnel interacted with approximately 4,400 stakeholders at educational events, meetings, and outreach events across the Commonwealth.
	Tracking measure: Number of educational events participated in.	X	X	X	X	X	NPS personnel attended approximately fifteen educational events in FFY 2020.
	Action 2: Update nonpoint source website pages, and continue social media presence.						
	Tracking measure: Number of followers for the I Love KY Water Facebook page.	X	X	X	X	X	The I Love KY Water Facebook page is up to 3,645 followers during this reporting period, a 436% increase over the last year.
	Tracking measure: Annually update information on DOW NPS website.	X	X	X	X	X	The DOW Nonpoint Source Program web pages are updated quarterly at a minimum. The NPS grant web pages are updated once per year.

Action 3:		Develop and maintain nonpoint source pollution educational materials.						
	Tracking measure:	Number of educational materials developed or updated.	X	X	X	X	X	<p>NPS created a variety of education and outreach material for a variety of different audiences in FFY 2020 including:</p> <ul style="list-style-type: none"> • Nutrient Flip Cards • Green Infrastructure Video • Sampling recommendations for COVID 19 • Basin Newsletters • Introductory nature-based solutions training material (presentation and handout) • Water Week in KY Story Map • COVID-19 Basin Resources doc (https://docs.google.com/document/d/1vhTs4YitRux9tOFBi6dHyZ9yCf4M1UeJ57KlrRowsIM/edit?usp=sharing) • Updated DOW Fact Sheets • Updated Guidance for OFWMP • DOW social media plan • Land, Air, and Water Articles
Action 4:		Support the Watershed Watch program in Kentucky.						
	Tracking measure:	Number of active volunteers.	X	X	X	X	X	<p>There are currently 943 active WWKY volunteers statewide. Water quality sampling was cancelled in May of 2020 due to COVID-19. Several basins also opted not to sample in the Summer and Fall events due to safety concerns. Some individuals were able to participate in socially distanced or independent sampling for nutrients and field observations, where lab analysis was not needed.</p>
	Tracking measure:	Number of volunteers receiving trainings.	X	X	X	X	X	<p>WWKY trained thirty-two new volunteers for stream monitoring and sixteen new lake monitors.</p>

		Tracking measure:	Number of sites sampled.	X	X	X	X	X	WWKY volunteers collected 450 stream samples in FFY 2020.
	Action 5:	Provide financial and technical support for Project WET implementation in Kentucky.							
		Tracking measure:	Number of Project WET educator/facilitator trainings.	X	X	X	X	X	DOW has formed a partnership with the Kentucky Association for Environmental Education (KAEE) to coordinate project trainings and further promote water education in Kentucky. In FFY 2020 there were a total of nine educator trainings. Workshops were limited in early 2020 due to COVID 19 spread precautions.
		Tracking measure:	Number of teachers trained.	X	X	X	X	X	Due to the ongoing COVID 19 pandemic, the 2020 KAEE facilitator trainings were cancelled. KAEE is working with facilitators to improve the number of trainings next year.

Long Term Goal 2: Protect waters currently meeting designated uses			Targeted Completion					Annual Reporting
Objective 1:	Promote the identification and protection of healthy watersheds throughout Kentucky.		2019	2020	2021	2022	2023	
	Action 1:	Provide technical and/or financial support for land conservation programs.						2020 responses
		Tracking measure: Coordinate annually between NPS and Wild Rivers program to prioritize land for conservation.	X	X	X	X	X	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.	X	X	X	X	X	No new watersheds were identified as priorities for conservation with the Heritage Land Conservation Trust in FFY 2020. Lower Howards Creek remains our current recommendation.
	Action 2:	Provide technical and/or financial support for sub-grantee projects that implement the protection components of an approved watershed plan.						
		Tracking measure: Number of sub-grantee projects implementing the protection component of an approved watershed plan.	X	X	X	X	X	Brushy Creek (19-10) is implementing agricultural BMPs to address impairments to restore a watershed that could potentially expand the range of several federally endangered mussels.

		Tracking measure:	Number of watershed planning areas with Special Use Waters.	X	X	X	X	X	To date, there have been four 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: Woolper Creek and Lower Howards Creek.
	Action 3:	Develop and implement a NPS Program strategy for better coordination with the Healthy Watersheds program.							
		Tracking measure:	Number and list of current priority Healthy Watersheds.			X	X	X	One hundred and eighty-six HUC-12s have been identified as Healthy Watersheds in Kentucky. Of that total, one hundred thirty eight are considered “healthy” and forty-eight are “healthy but at risk.” Three of the current DOW priority watersheds have EPA identified Healthy Watersheds within their boundaries: Triplett Creek, Red River, and Lower Trammel Creek.
		Tracking measure:	Number and list of new priority Healthy Watersheds.			X	X	X	DOW plans to update the priority healthy watersheds list in FFY 2021.

Objective 2:	Prioritize Source Water and Wellhead Protection areas for protection from nonpoint sources of pollution.		2019	2020	2021	2022	2023		
	Action 1:	Coordinate with the Division’s Source Water Protection Program to identify and reduce nonpoint source pollution in source water protection areas.							
		Tracking measure:	Number and list of Source Water Protection Areas with an approved watershed plan.	X	X	X	X	X	<p>There are currently twenty- eight approved watershed planning areas that include a designated Source Water Protection area.</p> <ul style="list-style-type: none"> • Bacon Creek • Banklick Creek • Benson Creek • Big South Fork • Cane Run • Chestnut Creek • Clarks Run • Corbin City Reservoir • Crafts Colly Creek, Sandlick Creek and Dry Fork • Curry’s Fork • Darby Creek • Dix River • Dry Creek • Elkhorn Creek • Gunpowder • Hancock Creek • Hanging Fork Creek • Hinkston Creek • Lower Howards Creek • Pleasant Grove • Red Bird River • Red River • Rock Creek AML • Sinking Creek • South Fork Little River • Stockton Creek • Ten Mile Creek • Triplett Creek • Woolper Creek

		Tracking measure:	<p>Number and list of Source Water Protection Areas with an approved watershed plan that is being actively implemented.</p>	X	X	X	X	X	<p>There are currently thirteen active watershed plans that are actively implementing best management practices and education & outreach in Source Water Protection Areas.</p> <p>Source Water Protection Areas (20):</p> <ul style="list-style-type: none"> • Corbin City Utilities Commission • Mountain Water District • Beech Fork Water Commission • Wilmore Water Works • Louisville Water Company • Northern KY Water District • Morehead State University • Cynthiana Municipal Water Works • Laurel County Water District #2 • Harrodsburg Municipal Water Department • Pikeville Water Department • Flemingsburg Utility System • Danville City Water Works • McCreary County Water District • Stanford Water Works • Kentucky-American Water Company River Station II/Hardins Landing Plant • Bullock Pen Water District • Winchester Municipal Utilities • Nicholasville Water System • Jenkins Water System <p>Wellhead Protection Areas (4):</p> <ul style="list-style-type: none"> • Green River Valley Water District • Georgetown Municipal Water & Sewer Service • Nortonville Water Works • Camp Turnabout
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		Tracking measure:	Number of Source Water Protection Plans developed and/or updated.	X	X	X	X	X	One Source Water Protection Plan was developed in FFY 2020.
	Action 2:		Provide technical assistance for projects protecting source water and promoting groundwater recharge						
		Tracking measure:	Staff attend at least one technical event per year on protection of drinking water sources.	X	X	X	X	X	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 Program to identify and reduce nonpoint source pollution in wellhead protection areas.						
		Tracking measure:	Number and list of Wellhead Protection Areas with an approved watershed plan.	X	X	X	X	X	There are currently four accepted watershed plans that contain DOW Wellhead Protection Areas. <ul style="list-style-type: none"> • 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.	X	X	X	X	X	There is one watershed plan under development that contains a DOW Wellhead Protection Area: Cane Run.
		Tracking measure:	Number of Wellhead Protection Plans developed and/or updated.	X	X	X	X	X	There were thirteen Wellhead Protection Plans developed in FFY 2020, 8 of which have been approved.

Long Term Goal 3: Efficient and effective implementation of Kentucky's Nonpoint Source Program			Targeted Completion					Annual Reporting	
Objective 1:	Develop NPS program components to increase program effectiveness and maintain current program staff.		2019	2020	2021	2022	2023		
	Action 1:	Develop tools for increased efficiency.							
		Tracking measure:	Complete development of a tracking spreadsheet for Watershed Based Plans.	X					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. WBP summary documents are the next step to organize and share information regarding WBP's 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.	X	X	X			During FFY 2016 all existing (active and historical) NPS sub-grantee project files were scanned into the Department's TEMPO (now called ARM) database for permanent electronic storage purposes. Revisions and updates to the existing electronic file storage system were made as needed during FFY 2020.
	Action 2:	Maintain staffing for effective NPS program coordination and on the ground implementation.							
		Tracking measure:	Number of DOW NPS technical staff.	X	X	X	X	X	DOW currently employs one technical advisor. Due to budget cut-backs, the Division was unable to fill the two open technical advisor positions usually maintained by the NPS section.
		Tracking measure:	Number of Basin Coordinators.	X	X	X	X	X	DOW partners with and/or employees seven Basin Coordinators to cover Kentucky's major River Basin Management Units.
		Tracking measure:	Number of Watershed Coordinators implementing watershed plans.	X	X	X	X	X	DOW maintains twelve watershed coordinators who implement accepted watershed plans.

	Action 3:	Provide professional development for watershed management to increase program effectiveness.							
	Tracking measure:	Number of training events hosted and/or attended.	X	X	X	X	X		In FFY 2020, the NPS team attended or hosted sixty-three training events.
Objective 2:	Meet federal requirements.		2019	2020	2021	2022	2023		
	Action 1:	Reduce KY's NPS Program Unliquidated Funding Obligation to less than 20%, and maintain that level throughout the Federal Fiscal Year.							
	Tracking measure:	Drawdown percentage in comparison to ULO goal of 20%.	X	X	X	X	X		DOW's NPS Program is reported by EPA as having a ULO of 15.8% for all open grant years. As was discussed in the Annual Site Visit with EPA Region 4 Staff in August of 2018, the ULOs calculated by EPA do not reflect the Kentucky record keeping. In addition, the EPA's shift from 7 year to 5 year grant frames, the 20% ULO goal set by EPA is no longer achievable. DOW records indicate a 31% ULO as of November 2020. 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.	X	X	X	X	X		Starting with the FFY 2017 grant year, sub-grantee project contracts have been shifted to a two-year time frame.

	Action 2:	Complete EPA required Grants Reporting and Tracking (GRTS) information updates.							
		Tracking measure:	Enter new projects into GRTS within ninety (90) days after grant award.	X	X	X	X	X	All of the new projects selected for FFY 2020 funding are currently being entered into GRTS.
		Tracking measure:	Complete biannual project status updates in March 30 and September 30 of each year.	X	X	X	X	X	Biannual project status updates were completed in FFY 2020 (March and September).
		Tracking measure:	Conduct biannual maintenance on EPA Mandated Elements.	X	X	X	X	X	Maintenance of the EPA Mandated Elements information was performed in GRTS to any/all applicable projects.
		Tracking measure:	Enter calculated project load reductions by February 28th of each year.	X	X	X	X	X	All load reductions generated during the FFY 2020 time period were calculated and entered into GRTS by the deadline.
	Action 3:	Submit Kentucky's Nonpoint Source Annual Report to EPA Region 4 by December 31st of each year.							
		Tracking measure:	Submission of Annual Report.	X	X	X	X	X	The FFY 2020 NPS Program Annual Report will be submitted to EPA Region 4.
	Action 4:	Submit at least one (1) Nonpoint Source Success Story to fulfill the requirements of WQ-10 by August 1st of each year.							
		Tracking measure:	Number of watersheds delisted and possible for WQ-10 development.	X	X	X	X	X	Seventeen stream segments will be submitted with the combined 2018/2020 Integrated Report for approval of delisting. Of those segments, four may be attributable to NPS implementation in those watersheds, and will be investigated for potential WQ-10 development. Those watersheds include Sulphur Creek (Cheese Lick), Dix River, Red River, and Woolper Creek.

		Tracking measure:	Number of success stories submitted to EPA Region 4 this year.	X	X	X	X	X	One Nonpoint Source Success Story was submitted to EPA meeting this requirement. The Floyds Fork WQ-10 report was submitted in August and finalized prior to the September 30, 2020 deadline.
		Tracking measure:	Number of Kentucky Success stories on EPA webpage.	X	X	X	X	X	EPA has posted nine Nonpoint Source Success Stories on their web page. The 2020 NPS Success Story was accepted by EPA and will be posted to the EPA page.
	Action 5:	Review and approve all Nonpoint Source Sub-grantee Quality Assurance Project Plans (QAPP) prior to monitoring activities.							
		Tracking measure:	Number of approved sub-grantee QAPPs.	X	X	X	X	X	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 2020, one QAPP was approved by DOW (Middle Fork Beargrass Creek) and one QAPP was under development (Glenn's Creek).
		Tracking measure:	Number of data packages reviewed.	X	X	X	X	X	DOW Quality Assurance Staff did not receive any data packages in FFY 2020 from sub-contractors.

Objective 3:	Provide technical assistance and support to the division regarding watershed impacts and the watershed perspective.		2019	2020	2021	2022	2023		
	Action 1:	Participate in DOW projects requiring technical experience from NPS staff.							
		Tracking measure:	Assist with finalizing and/or implementing the Kentucky Nutrient Reduction Strategy.	X	X	X	X	X	Information from the current Nonpoint Source Management Plan was used in the construction of KY's Nutrient Reduction Strategy draft. DOW's Nonpoint Source Program will be directly involved in the implementation and reporting components of the Nutrient Reduction Strategy. It will also be taking the Nutrient Priorities detailed in the plan to guide selection of NPS Priority Watersheds in 2021.
		Tracking measure:	Provide water quality monitoring data for inclusion in the Integrated Report.	X	X	X	X	X	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.							
		Tracking measure:	Number of Basin Status Updates and/or Report Cards issued.	X	X	X	X	X	The Basin Status Report template was replaced with a combination of education and outreach materials. The Kentucky Water Health Portal and Kentucky Water Health Guide serve as the primary resources to communicate the information previously contained within the Basin Status Reports. In FFY 2020 NPS personnel also collaborated with Watershed Watch in Kentucky to develop and produce Basin Report Cards based on volunteer data for all of the major Basin Units in the Commonwealth. Basin status updates are also regularly provided via quarterly newsletters.

		Tracking measure:	Annually update the Kentucky Water Health Portal.	X	X	X	X	X	<p>The Kentucky Water Health Portal is updated with each new Integrated Report to Congress (IR) release. The next Kentucky IR will be a combination report for 2018/2020, slated for submission to EPA in 2021. In addition, NPS personnel have participated in a workgroup to provide suggestions for updating and improving the functionality of the Kentucky Water Health Portal. Updates should begin in 2021.</p>
		Tracking measure:	Update priority watersheds as determined by the River Basin Coordinators and Basin Team members.	X	X	X	X	X	<p>During FFY 2016 DOW established an updated prioritization strategy centered around programmatic capacity to complete on the ground water quality projects. Factors such as existence of a local watershed group, having an accepted nine-key element watershed plan, and extensive opportunities to implement those plans were all decision factors. The River Basin Coordinators completed a reprioritization effort with each of their respective River Basin Teams which resulted in three Priority Watersheds being selected in each of the seven basin management units. Many of the new priority watersheds were already being worked on, but additional focused effort is being established to more completely implement those existing watershed plans.</p> <p>Progress in the priority watersheds was ongoing in FFY 2020. Current efforts include defining broad DOW priority areas, and a narrower set of NPS priorities for each major river basin that incorporate the factors listed above, as well as indexes for recoverability and environmental justice.</p>

FFY 2020 KY Nonpoint Source Program Commitments to EPA Region 4 (From the annual work plan):

General Program Management & Oversight	
Provide Administrative, Financial, and Technical oversight for FFY 2020 NPS Program sub-grantee projects.	The KY Division of Water’s Nonpoint Source Program provides Administrative, Financial, and Technical support for approximately fifty 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 award date.	Obligation of grant funding for FFY 2020 is complete.
Submit 2016 Grant closeout package to EPA R4.	The 2016 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 December.
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.

<p>Attend EPA Region 4 Biennial NPS Conference.</p>	<p>Representatives of the KY Division of Water, Watershed Management Branch Manager, Nonpoint Source Program attended the EPA Region 4 Biennial NPS Conference in Atlanta in 2018.</p>
<p>Attend EPA National Biennial NPS Conference.</p>	<p>Multiple representatives were able to attend the EPA National Biennial NPS Conference in 2020, due to the shift to a virtual format. Attendees included NPS Section Supervisor, NPS Basin Coordinators, NPS Technical Assistants, and the Watershed Management Branch Manager.</p>

<p>National Water Quality Initiative</p>	
<p>Continue to support the Hinkston Creek Watershed Coordinator that will work toward increased implementation of the Hinkston Creek Watershed Plan.</p>	<p>A Hinkston Creek Watershed Coordinator position is being funded through a FFY 2019 sub-grantee project with Bluegrass Greensource (BGGs). While this watershed has been withdrawn from the NRCS' NWQI watershed list, DOW anticipates following watershed progress in this region due to continuing 319 implementation efforts. See project workplan for more information. Kentucky NRCS is currently in a planning year for three new NWQI watersheds, and DOW will be working to find ways to support these efforts with technical assistance as needed/requested.</p>

<p>Work with KY NRCS on NWQI Pilot Project in “TBD” watershed.</p>	<p>Kentucky NRCS momentum on NWQI slowed in FFY 2019 with limited response to efforts to implement agricultural BMPs in the Hinkston Creek Watershed, and an internal shift in KY NRCS towards a new model of implementation in watersheds. Division of Water provided support and recommendations on the new process. In FFY 2020, NRCS rolled out the new Focused Conservation Project model, which selects twelve project areas across the state to focus EQIP dollars with the intent of improving water quality. DOW is assisting the NRCS with baseline monitoring data in three watersheds for this program.</p> <p>In addition to the Focused Conservation Projects, NRCS selected three new NWQI watersheds for a planning year and intend to start implementation in FFY 2021. DOW provided recommendations, and will be assisting with monitoring success as needed in these watersheds.</p>
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Watershed Success Monitoring Program

<p>Continue development of Success Monitoring Program by compiling watershed scale implementation data.</p>	<p>The Nonpoint Source Program continues to gather implementation data from several other state and federal programs. Compilation of this data into a format that is usable and comparative like GIS continues to be a significant hurdle in making 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 Conservations Agriculture Water Quality State Cost Share Program. In FFY 2020 all known data was incorporated into a BMP tracking spreadsheet and GIS layer which is being used to evaluate implementation on a watershed scale.</p>
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<p>Conduct baseline water quality monitoring prior to watershed plan development</p>	<p>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 2019 Kentucky Division of Water Biologists monitored water quality parameters in West Hickman Creek, Paintlick Creek, and Middle Fork Beargrass Creek as part of a collaborative effort to develop watershed plans. Division personnel also collaborated with volunteer monitoring groups to gather screening data on several streams in the Clarks Run watershed in preparation for potential watershed planning activities.</p>
<p>Conduct watershed success monitoring for watershed plan implementation projects.</p>	<p>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.</p>

Grant Reporting and Tracking System

<p>Enter FFY 2019 Load Reductions into GRTS.</p>	<p>FFY 2019 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 February 15, 2020 deadline along with specific BMP description information.</p>
<p>Attend National GRTS Conference.</p>	<p>DOW was not able to send staff to this training event in 2020.</p>

Complete GRTS project status updates.	All NPS sub-grantee project biennial status updates and mandated elements updates were completed by March 30 and September 30 respectively.
Enter FFY 2020 Sub-grantee projects into GRTS.	Final FFY 2020 Nonpoint Source Program sub-grantee projects have been preliminarily entered into GRTS.

EPA Required Reporting

Submit Initial Annual Nonpoint Source Program Workplan to EPA R4.	An updated version of Kentucky’s FFY 2020 Nonpoint Source Program Workplan was submitted to EPA Region 4 prior to the September 30, 2019 deadline.
Submit Annual Report to EPA R4.	Kentucky’s Nonpoint Source Program Annual Report was submitted to EPA Region 4 by the December 31, 2020 deadline.
Submit WQ-10 Nonpoint Source Success Story to EPA R4.	Kentucky’s WQ-10 Nonpoint Source Success Story for Floyds Fork in the Salt River Basin was submitted to EPA R4 in August 2020. The report was submitted through the GRTS database Nonpoint Source Success Story builder tool, revised based upon EPA Headquarters and Region 4 comments, and finalized by the September 30, 2020 deadline.
Submit Watershed Plans to EPA R4 for review and comment.	Two watershed plans were submitted to EPA Region 4 for review or comment during FFY 2020 (Cane Run and North Fork Kentucky River).

2019 KY NPS Management Plan Goals, Objectives, Strategies

The KY Division of Water will work to update the KY NPS Program 5-Year Management Plan.	In FFY 2019, the KY Division of Water revised and submitted the KY NPS Program 5-Year Management Plan. The plan was posted for public comment in May of 2019 and submitted to EPA region 4 on June 27, 2019. Over the course of this management plan cycle, DOW will continue to evaluate plan goals, objectives, and strategies to make improvements for the 2024 plan update.
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