2017 Nonpoint Source Pollution Annual Report

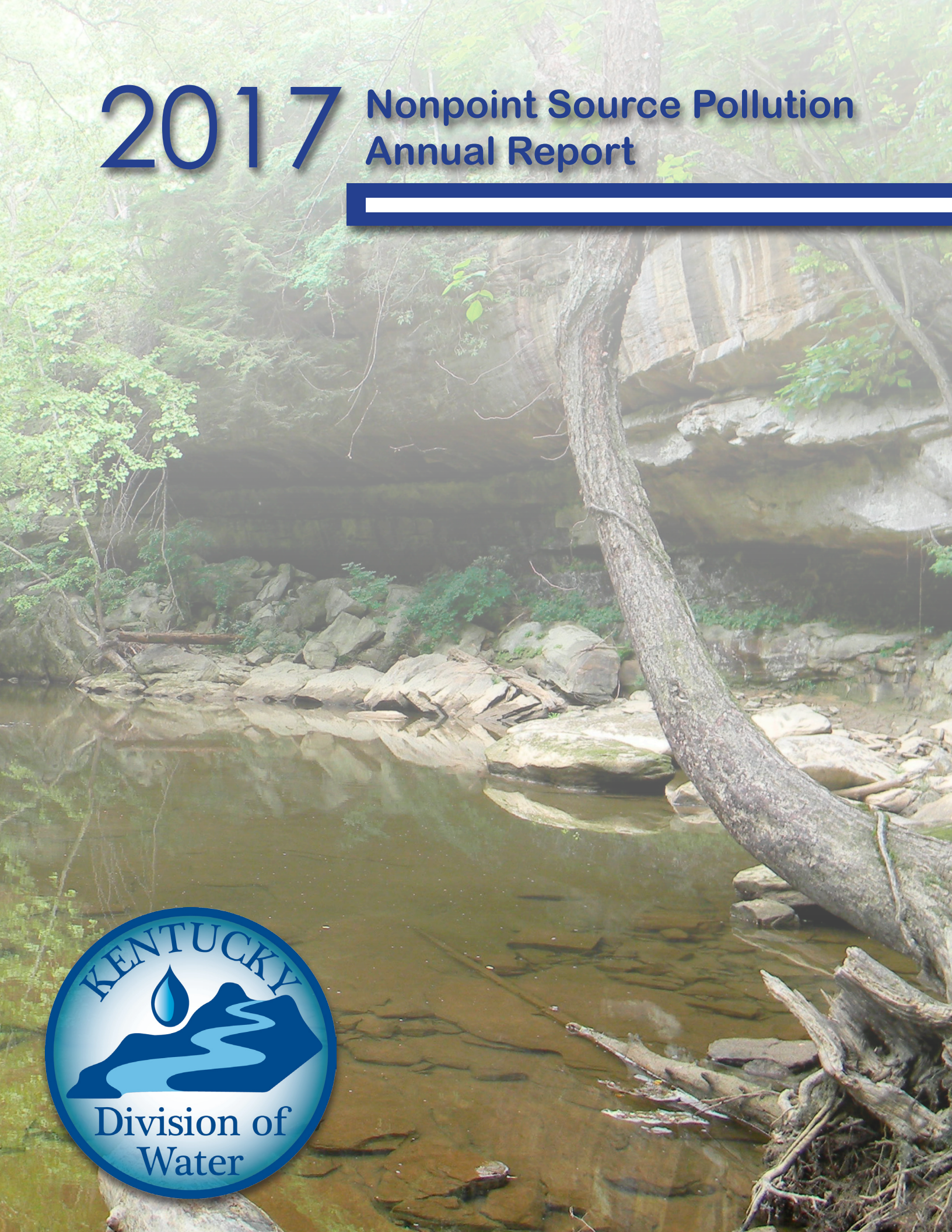

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Table of Contents

Tables and Figures

Introduction

Nonpoint Source Management in Kentucky

Kentucky's Nonpoint Source Program mission is to protect surface and groundwater from nonpoint source pollution, to abate pollution threats and to restore degraded waters so water quality standards are met and beneficial uses are supported. Management of nonpoint source pollution in KY requires partnering with a wide variety of organizations to develop, coordinate and implement the Kentucky NPS Management Plan.

The program works with federal, state, local and private partners to promote complementary, regulatory and non-regulatory pollution control initiatives at both statewide and watershed levels.

The Nonpoint Source Program administers and implements the DOW's 319(h) federal grant program. 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 FFY 2017, DOW received $2.75 million from Clean Water Act Section 319(h) funding to operate the Nonpoint Source Management Program. This year, communities and organizations shared $1.60 million in federal funding to implement projects that control nonpoint source pollution within watershed planning areas. DOW awarded those funds to implement eight (8) watershed plans, coordinate Agriculture Water Quality Authority efforts at a statewide level, provide technical assistance and training to agricultural producers on water quality issues including nutrient management, operate the Water Education for Teachers Program to educate school aged children about water quality issues , and provide mini-grant opportunities for the formation of local watershed groups to work on water issues.

This report features accomplishments aligned with the program's goals that occurred during the Federal Fiscal Year (FFY) 2017 (October 1, 2016 – September 30, 2017).

Chapter 1
The Watershed Approach

Watershed Planning and Implementation

DOW staff provided technical assistance to watershed groups for the development of watershed plans by conducting reviews of three (3) draft watershed plans during FFY 2017 (October 1, 2016 – September 30, 2017). One (1) of those watershed Plans, Brushy Creek in Pulaski, Lincoln, and Rockcastle Counties was accepted by KDOW and EPA Region 4 for implementation. The Bacon Creek (Hart/Larue Counties) and Damon Creek (Calloway County) watershed plans are currently being reviewed by KDOW and will be reviewed by EPA Region 4 staff for approval in the near future.

Watershed plan reviews continue to be coordinated through the Kentucky Interbranch Watershed Implementation Workgroup, which provides the opportunity for all DOW branches to comment on or offer constructive feedback on watershed plans prior to acceptance. Currently, twenty-six (26) watershed plans have been accepted for full or partial implementation with Clean Water Act Section 319(h) funding. An additional five (5) watershed plans are currently under development.

There are eighteen (18) watershed plans currently being implemented through one or more Clean Water Act Section 319(h) funded contracts. Implementation projects are anchored by the employment of watershed coordinators who manage the implementation of on-the-ground best management practices to reduce of nonpoint source pollution coming from urban stormwater, failing on-site wastewater systems, agriculture, and the loss of riparian zones around water bodies. Watershed Coordinators also work through many channels to conduct water focused environmental education and outreach to the public, local officials, and school-aged children.




Watershed Planning Areas FFY 2017

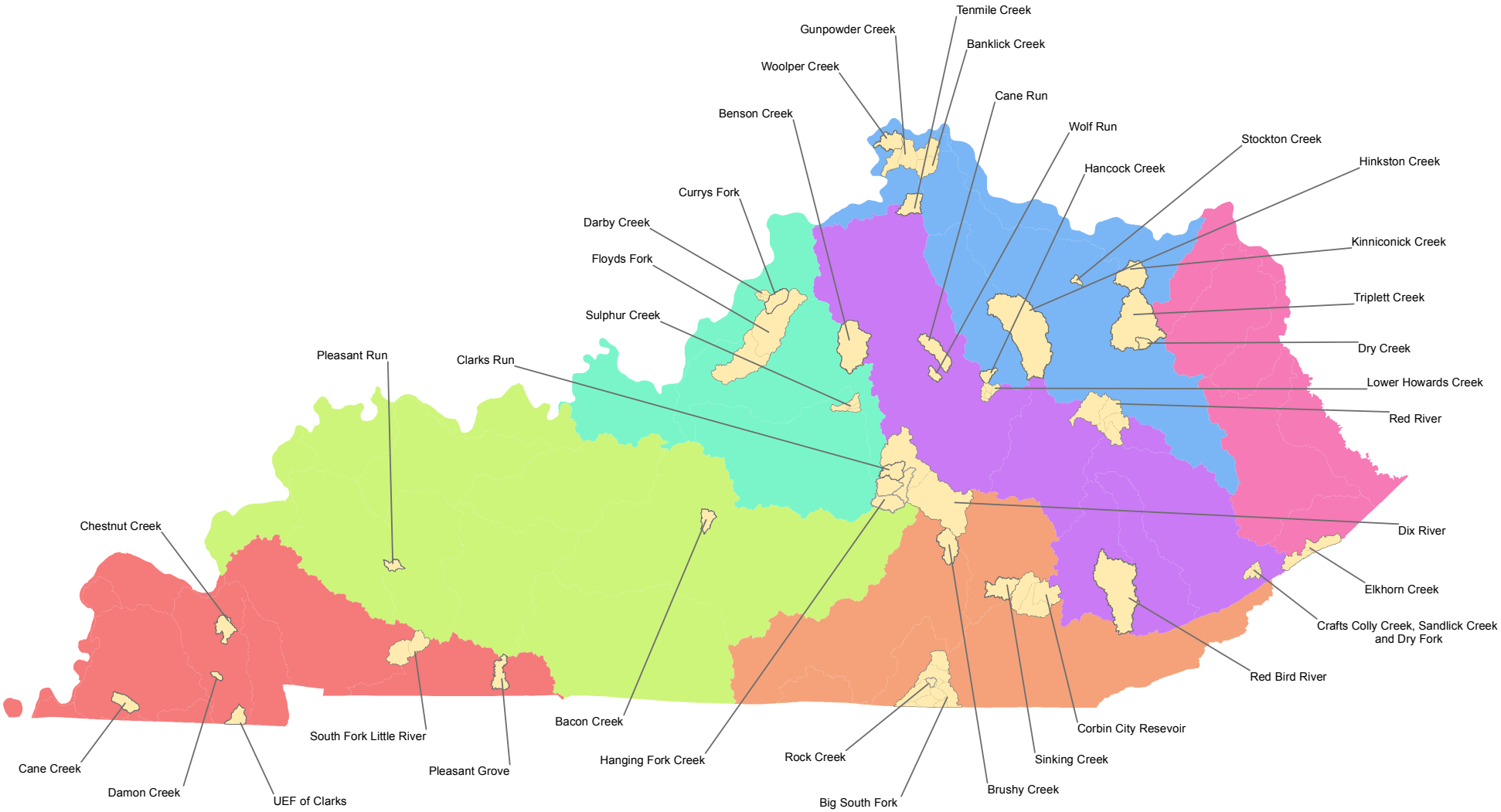

Figure 1. Watershed planning areas FFY 2017 indicated in yellow.

Success Story

Bayou de Chien: Agricultural Best Management Practices Reduce Bacteria into Stream

Bacteria concentrations exceeded water quality standards in a segment of the Bayou de Chien (river miles 8.8 to 14.3), and was listed in the 2006 Integrated Report 303(d) cycle as impaired for primary contact recreation due to fecal coliform bacteria. The source of the impairment was listed as agricultural practices. Over 3,400 agricultural Best management practices (BMPs) were installed in the immediate upstream watershed of Bayou de Chien (the Cane Creek watershed) beginning in 2006. Based on monitoring data from 2007-2010, the impaired segment of Bayou de Chien was de-listed from the 303(d) list in 2012 due to its meeting water quality standards for bacteria.

Problem

The Bayou de Chien is located in far western Kentucky and flows into Obion Creek 1.3 miles above its confluence with the Mississippi River. Deciduous forests make up the northeastern portion of the watershed on the steeper slopes and in scattered wetlands in the area. There

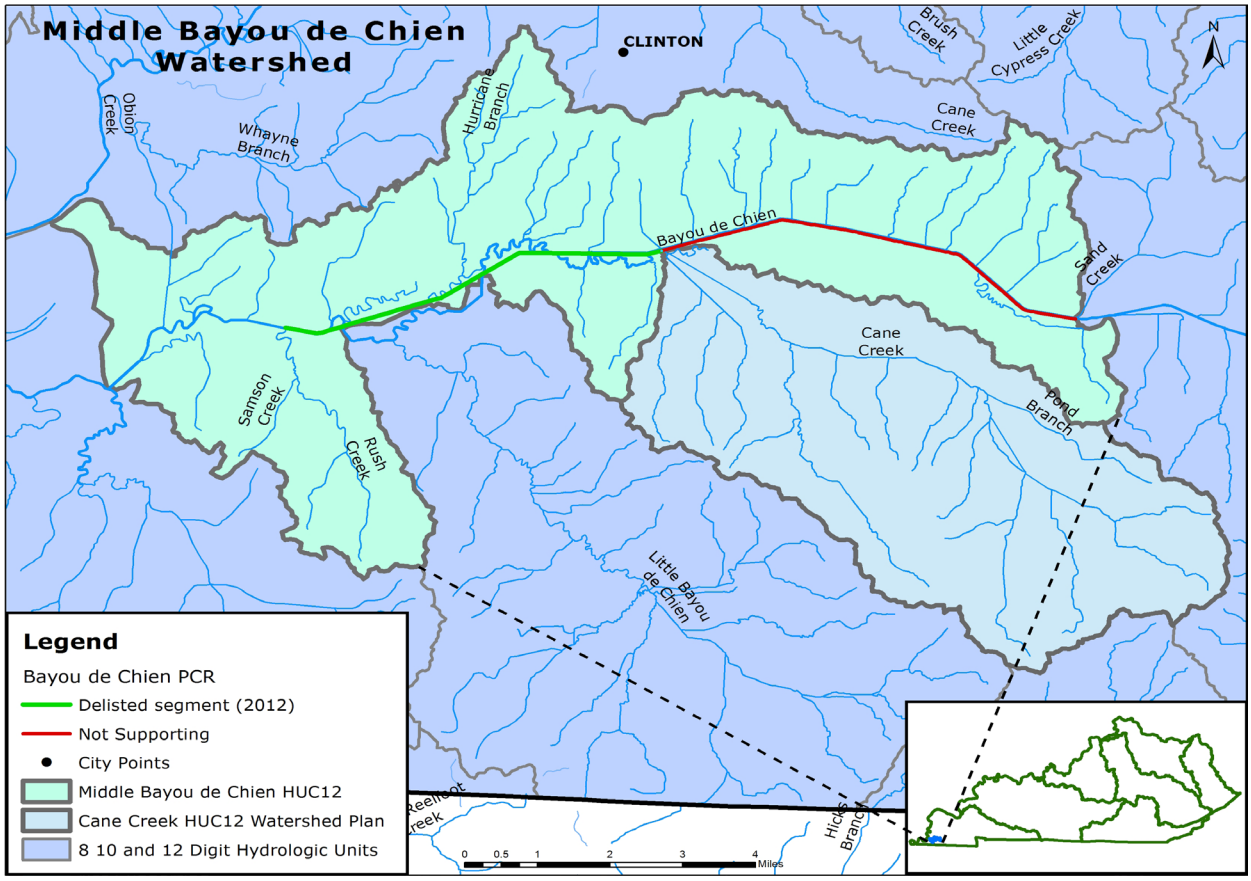

Figure 2. Bayou de Chien project watersheds.

Example of cover crops (photo courtesy of USDA NRCS)

are also approximately 1,200 acres of a wildlife management area in the lower portion of the watershed. The watershed of the Bayou de Chien covers nearly 210 square miles, and contains five 12-digit hydrologic units (HUC 12s). Two of these HUC 12s, the Middle Bayou de Chien watershed (HUC 080102010404) and the Cane Creek watershed (HUC 080102010402), contribute to the bacteria loading in Bayou de Chien. These two subwatersheds are dominated by cultivated crops and pasture/hay land cover types, with swine and poultry farming constituting a large portion of the agricultural practices.

Cane Creek is a major tributary to Bayou de Chien, and merges with it at river mile 14.3. The Cane Creek subwatershed was targeted for BMPs due to local watershed group capacity and available funding from the Natural Resource Conservation Service (NRCS).

Bayou de Chien was added to the 2006 303(d) list for not meeting water quality standards for primary contract recreation due to high levels of fecal coliform bacteria. The suspected source identified by the 303(d) list was agriculture. The 2008 watershed plan for Bayou de Chien and Cane Creek further identified pollutants of eutrophication, siltation and sedimentation, due to removal/absence of stream side vegetation and agricultural runoff.

Kentucky has an ambient surface water monitoring network consisting of 70 monitoring stations from which data have been collected for approximately 20 years. One such ambient station is located on Bayou de Chien. Data collected in 2006 showed an exceedance of the water quality standard for fecal coliform bacteria, and subsequently did not meet its designated use of primary contact recreation.

There is no TMDL for this segment of Bayou de Chien, although the upstream segment does have a TMDL for fecal coliform bacteria (segment from 14.3 to 28.2). A watershed plan was developed for Bayou de Chien and Cane Creek in 2007 that may address implementation measures for future impairments in the watershed, along with implementation for the approved TMDL segment.

Kentucky's water quality standard for meeting primary contact recreational use has two parts: the *E. coli* concentration as a geometric mean based on at least 5 samples collected during a 30-day period during PCR season must not exceed 130 colonies per 100 mL; additionally, *E. coli* concentrations cannot exceed 240 colonies per 100 mL in 20% or more of all samples taken during the 30-day period.

Project Highlights

The main focus of this project was in an upstream watershed to Bayou de Chien, the Cane Creek watershed. Local capacity and available funding in Cane Creek provided the resources to demonstrate the improved water quality downstream in Bayou de Chien.

A partner in identifying water quality problems and consequently restoring water quality in Bayou de Chien was the Jackson Purchase Resource Conservation and Development Foundation, a nonprofit organization directed by key local community leaders and focused on issues involving land conservation, water management, environmental enhancement and community development. In 2005 they received a 319(h) grant to develop the Cane Creek and Bayou de Chien watershed plan, and are the lead organization responsible for its implementation. The goal of the project was to identify significant sources of pollution, develop practical solutions, and prioritize projects for future implementation for both impaired stream reaches and also the unlisted sections of this watershed. The plan identified high levels of bacteria throughout the watershed and ranked *E. coli* as the top pollutant to address. It identified the primary source of bacteria to be from agricultural activities and recommended various best management practices (BMPs) for crops and livestock in the watershed to reduce polluted runoff to streams.

Over 3,400 agricultural practices were implemented in the Cane Creek watershed. Agricultural practices that focused on reducing the amount of bacteria in the water and improving aquatic habitat included: installation of waste storage facilities for livestock, installing grassed filter strips and waterways, managing grazing and access to streams for watering livestock, instigation of wetland restorations and planting cover crops and instigating no-till residue management on fields. These BMPs listed above were implemented through several

Examples of livestock BMPs

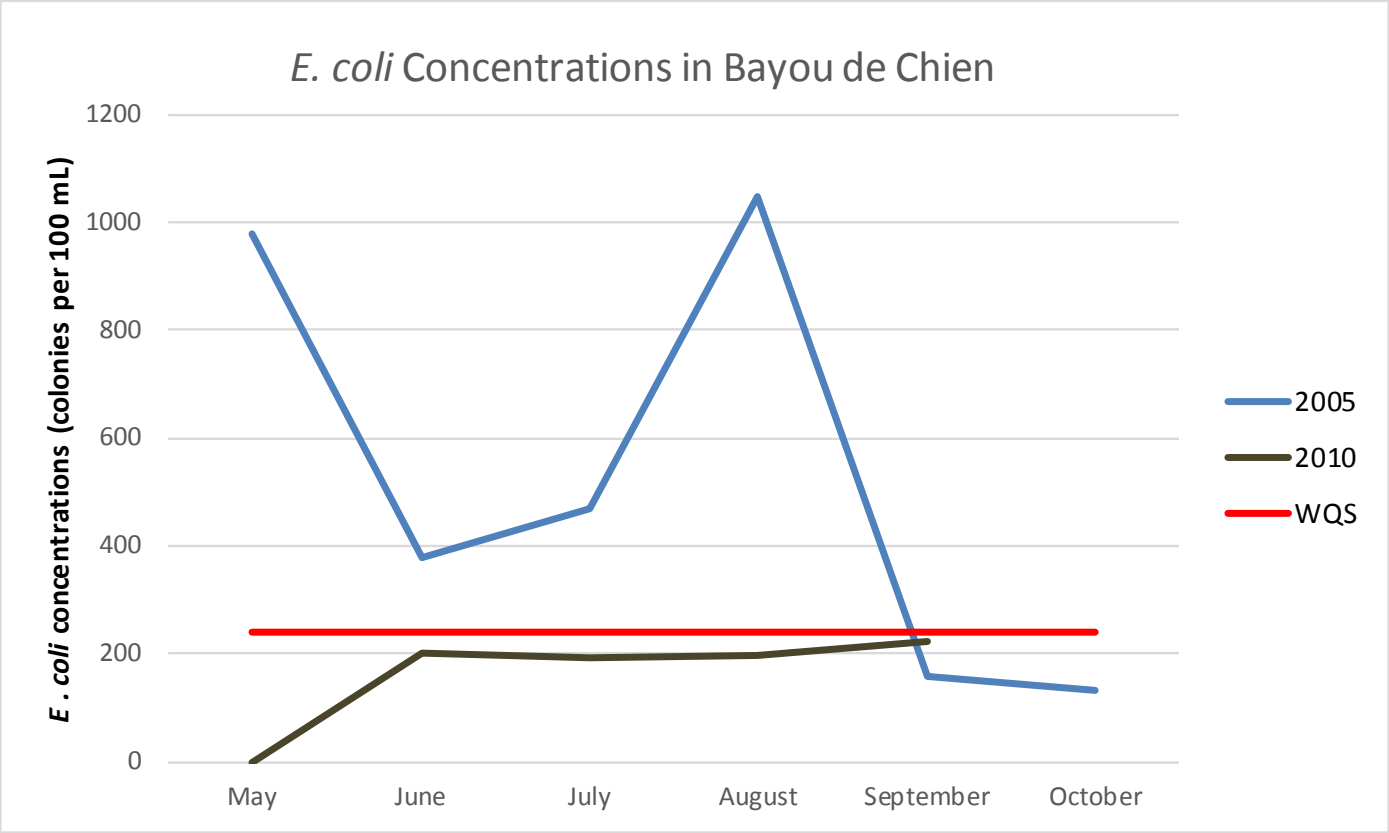

Figure 3. Bacteria concentrations in Bayou de Chien. The water quality standard (WQS) for meeting PCR is 240 colonies per 100 mL.

voluntary NRCS programs from 2007-2008, including the Environmental Quality Incentives, the Conservation Reserve, the Conservation Technical Assistance, the Wetlands Reserve program and the Conservation Stewardship program. NRCS provided local farmers with financial and technical assistance to put these conservation practices on the ground.

The upper mile of Bayou de Chien on the impaired segment is now managed as an Outstanding State Resource Water (OSRW) in Kentucky. The entire Cane Creek watershed is also designated as an OSRW. An OSRW designation states that biological collections have identified a federally endangered species, the relict darter. OSRWs can have additional measures from water resource uses that include more protective water quality criteria. While the Cane Creek and Bayou de Chien watersheds are not currently targeted for additional watershed improvement work, the OSRW designation should offer more protection to both watersheds in future management planning.

Results

Because of implementation successes in reducing bacteria loading through agricultural on-the-ground practices in the Cane Creek watershed, KDOW was able to delist the impaired segment of Bayou de Chien immediately below Cane Creek. Based on a water quality data assessment of *E. coli* bacteria in 2010, the Bayou de Chien segment river miles 8.8 to 14.3 now fully supports its designated

use for Primary Contact Recreation and was delisted in Kentucky's 2012 Integrated Report to Congress

Partners and Funding

Key partners in these watershed activities were the NRCS, the Jackson Purchase Resource Conservation and Development Foundation (RC&D) and the Four Rivers Watershed Basin Team. The NRCS was the driving agency in the organization and implementation of the agricultural BMPs, utilizing resources from the Environmental Quality Incentives program, the Conservation Reserve program, and the Conservation Stewardship program. The Jackson Purchase RC&D is the facilitating group that employs the Four Rivers Watershed Basin Team Coordinator. The coordinator works on watershed-wide initiatives, including the 319(h) grant to develop the Cane Creek and Bayou de Chien watershed plan. The Four Rivers Basin Team performed assessments and tracking that identified Bayou de Chien as one of three river basin priorities watersheds in 2002. It was then added to the Kentucky Division of Water's (KDOW) list of priority watersheds. A priority watershed indicates a higher level of consideration for management and water use planning, including the distribution of State Revolving Funds (SRF), future 319(h) projects and local watershed basin work.

The 319(h) grant was awarded for the amount of $59,868.00, and the match in non-federal dollars was $39,912.00. This includes the total amount over the course of the project. The grant supported staff time working on the watershed plan, the Four Rivers Basin coordinator, and the development of the watershed plan by the Jackson Purchase RC&D organization. While NRCS money was not used directly to address watershed plan improvements, the agency does use KDOW's priority watersheds as a measure to rank their projects.

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Example of a grassed waterway (photo courtesy of USDA NRCS)

FFY 2017 Projects

Featured Projects

Project #'s 15-09 and 15-10 Sulphur Creek Watershed Plan Implementation

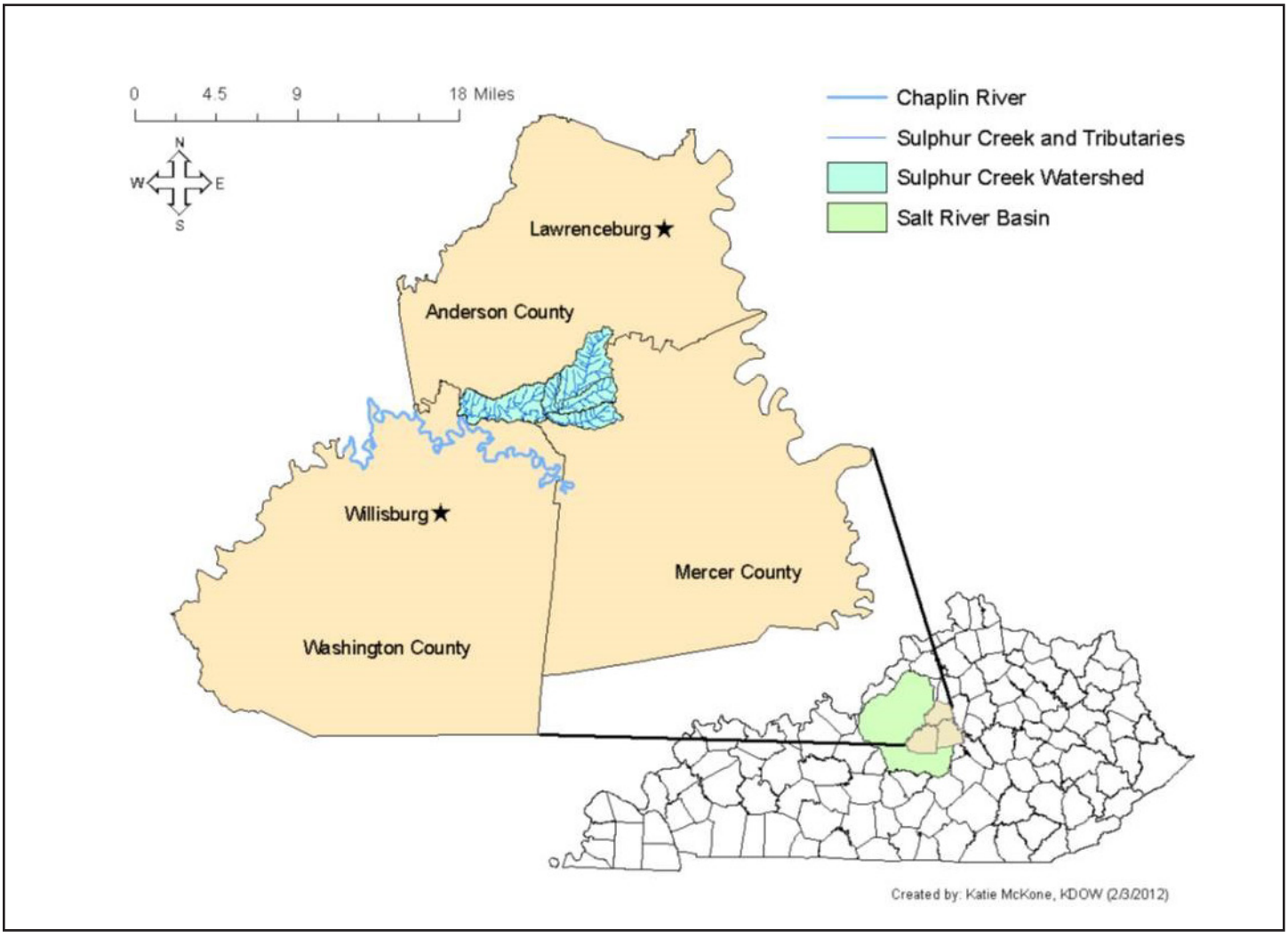


Figure 4. Sulphur Creek Watershed.

The Sulphur Creek Watershed (HUC 051401030105) is located in Central Kentucky's Bluegrass Region. The Sulphur Creek drains approximately 23.14 square miles of rural land. The terrain is hilly, with abundant creeks and no flat areas; 71% is forested, 14% is used for agriculture, 11% is natural grassland, and 4% is developed land.

Within the Sulphur Creek Watershed, there are 10 miles designated as an Exceptional Water (Reference Reach) and an Outstanding State Resource Water (OSRW). There are also 19.5 miles of stream that are Non-Supporting for Primary Contact Recreation (PCR) due to high levels of *E. coli* bacteria; and 2.8 miles of that are also Partially Supporting for Warm-water Aquatic Habitat due to high levels of sediment and nutrients (KDOW 2010, 2012, 2013).

Kentucky Division of Water followed up earlier sampling data (2010, 2012) with sampling in 2012-2013 as part of the process of writing a Watershed Plan. Through the Watershed Planning process, it was learned that the entire watershed is without sewer lines; every house is on a septic system or has no system. It is estimated that 50% of the 207 septic systems are failing. There are approximately 4,500 head of cattle in the watershed. Through the watershed planning process, the Brush Creek and Log Lick subwatersheds were selected as top priority based on the water quality data, number of landowners, head of cattle, and perceived capacity – willingness and financial ability - to implement BMPs. The Log Lick subwatershed is only 47% forested (compared with 72% of the overall watershed). The Brush Creek subwatershed is 45% forested. There are approximately 30 septic systems and 1255 head of cattle in these 2 subwatersheds.

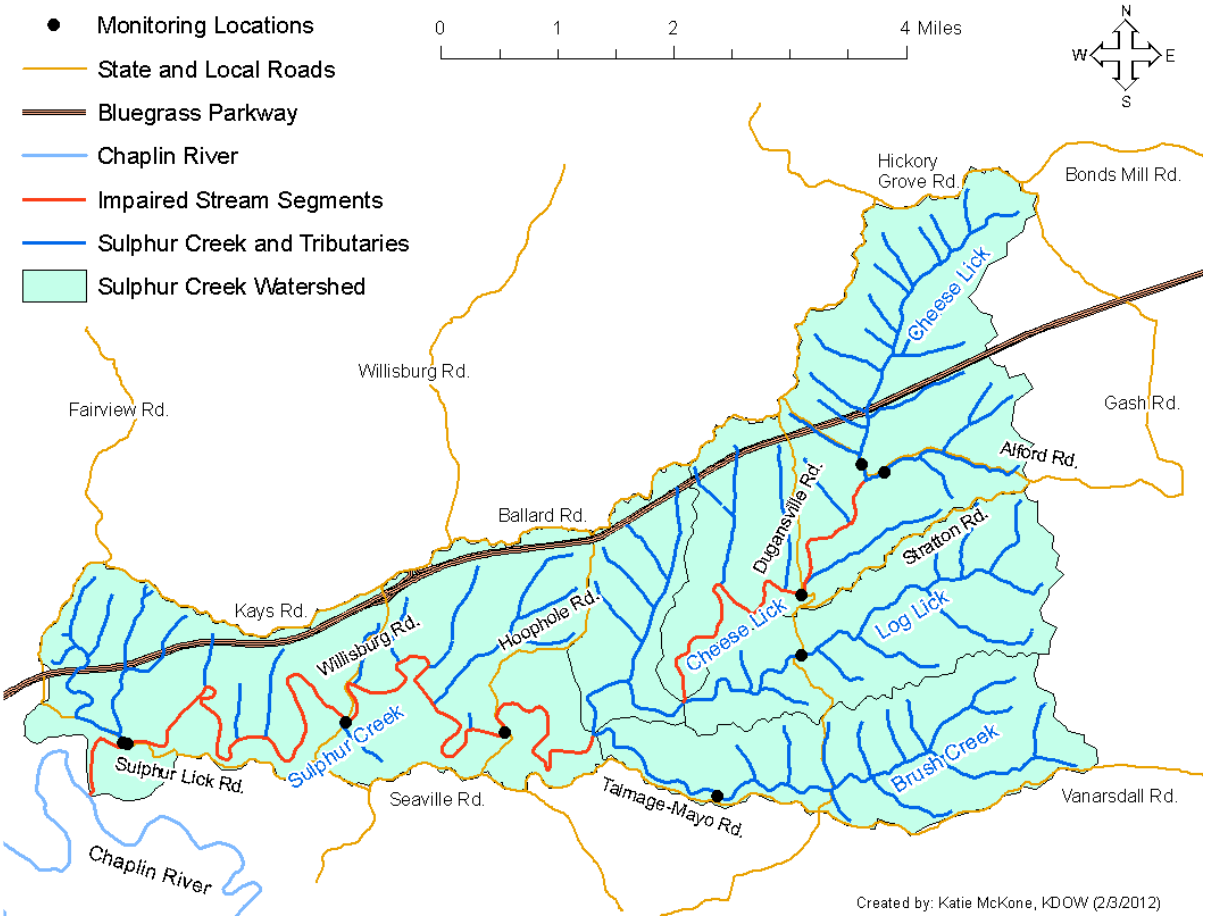


Figure 5. Sulphur Creek subwatersheds and 2012-2013 sampling locations.

The Sulphur Creek Watershed Implementation Plan was finalized and approved in 2015, and KDOW entered into 2 contracts to address the *E. coli* impairments to Sulphur Creek Watershed; one with the Mercer County Health Department and one with the Mercer County Conservation District.

Septic BMPs

The contract with the Mercer County Health Department (MCCD) is to provide septic system education and septic system inspections and pump outs to any homeowner within the 2 subwatersheds of Brush Creek and Log Lick. Depending on the condition of the inspected properties, homeowners were eligible for system maintenance or upgrade, system replacement, or system installation in the cases where no system was present (the homes were "straight piping" their waste onto the land or into the creek). Because of the terrain and soil types in the area, it is difficult to find a suitable location for an effective leach field (drain field). In this area, lagoon septic systems are more effective septic systems for most properties. A lagoon system is the same as the conventional system except a lagoon is used in place of the drain field (leach field).

To date, for this 319 project the MCCD has held 2 public septic education workshops, run

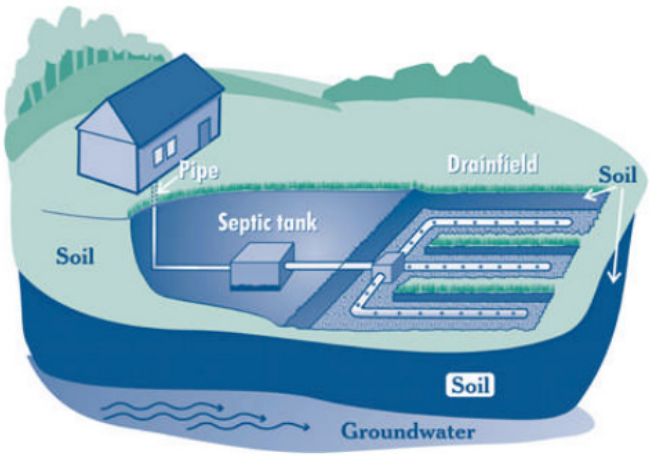


Figure 6. Conventional septic system.

A septic lagoon under construction. It replaces the leach field in the septic system. (Photo credit: KY Dept. for Public Health)

newspaper articles and radio ads, and provided inspections for 10 households. Of the 10 households, 2 systems required nothing more than a pump out. 8 households required the installation of a new lagoon septic system. This included the elimination of 2 failing systems and 8 straight pipes. The lagoon systems are more suitable for the topography and soils in the watershed area.

There are currently 4 more homeowners who have applied for the septic program and money for 3 new systems. These 3 new systems will be installed in the spring of 2018 and the project completed. If there are more applicants in the meantime, the MCCD will consider applying for a new grant to provide more septic systems to reduce more *E. coli* input into the streams of the Sulphur Creek Watershed.

Agriculture BMPs

The contract with the Mercer County Conservation District (MCCD) is to provide education about farm practices that reduce pollutant loads into the streams through Farm Field Days, which include agriculture BMP demonstrations, and to provide financial

Examples of Ag BMPs in place. From left to right: alternative waterer, cattle exclusion fencing, heavy-use area, cattle exclusion fencing

assistance to implement BMPs on eligible farms in the 2 subwatersheds of Brush Creek and Log Lick.

To date, the MCCD has held 2 Farm Field Days, and installed 21 agricultural BMPs on farms in the 2 prioritized subwatersheds. The Farm Field Days included education on BMPs and demonstrated various BMPs that have been done in the watershed for this 319 project. BMPs installed include renovation of 178 acres of pasture; providing 5 winter feeding areas; creating animal trails and walkways; providing alternate water; and installing 14,000 linear feet of fencing. These BMPs reduced the load of over 340 cattle and 10 hogs, including fencing 110 cattle from the streams.

There is money left for one or two small BMPs with this grant. Once those are completed in the spring of 2018, MCCD does not have current plans to continue work within these subwatersheds.

However, Anderson County Conservation District has been selected for 2017 grant money, and will begin offering assistance for farm BMPs in the Cheese Lick subwatershed, which is the next priority subwatershed in the Sulphur Creek Watershed. The Cheese Lick Subwatershed is only 30% forested (as compared with 72% for the overall watershed), and there are approximately 2,200 head of cattle.

Farm Field Day presentation in Mercer County

Project # 13-05 - Improving Water Quality: Implementing Curry's Fork Watershed Plan

This project was a continuation of an ongoing effort and partnership between Kentucky's NPS Program and the Oldham County Fiscal Court (OCFC) to improve water quality in Curry's Fork. Oldham County Fiscal Courts were previously awarded a grant (funded out of FFY 2008 funding) to write the watershed plan and a subsequent implementation grant (funded out of FFY 2010).

Specifically, the primary objectives of this project were to continue the funding of the Watershed Coordinator position, to implement two recommended streambank stabilization BMPs as identified in the watershed plan, to implement a riparian education program, and to implement a general water quality education and awareness program, all of which were successfully accomplished within this project.

Curry's Fork Watershed is located in Oldham County, KY, and is a tributary of Floyds Fork. The total drainage area of the Curry's Fork watershed is approximately 29 square miles (HUC 051401021801) and is comprised of four subwatersheds: North Fork Curry's Fork, South Fork Curry's Fork, Asher's Run, and mainstem Curry's Fork. The Integrated Report to Congress on the Condition of Water Resources in Kentucky 2014 (KDOW, 2014), produced by Kentucky Division of Water's (KDOW) lists the streams in the Curry's Fork Watershed (Watershed) as not fully meeting their designated uses under the Clean Water Act. These include 4.8 miles of Curry's Fork, 4.8 miles of Asher's Run, 6.0 miles of North Fork Curry's Fork and 6.1 miles of South Fork Curry's Fork are listed as not meeting water quality standards for Primary Contact Recreation (PCR) in large part due to onsite wastewater systems and package plants. The mainstem of Curry's Fork was previously listed as Partial Support for Warm Water Aquatic Habitat (WAH) (KDOW, 2008; KDOW 2010), but was revised to Full Support beginning with the 2012 303(d) List (KDOW 2012). While the most current assessment data from 2011 shows the downstream main stem segment of Curry's Fork supporting WAH, tributaries within the Curry's Fork watershed continue to be degraded and impacted from habitat modification, hydrologic modification, and sedimentation issues.

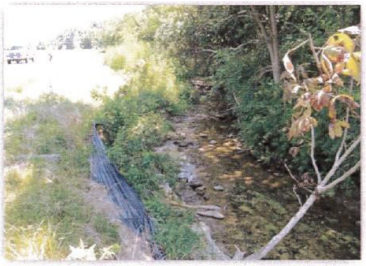
Firstly, this project implemented two watershed plan recommended riparian restoration and streambank stabilization BMPs for two South Fork Curry's Fork subwatershed stream reaches South Fork Curry's Fork adjacent to Moody Lane near Highway 53 (Figures 7 and 8) and a tributary of South Fork Curry's Fork between Ballard Court and Wiano Drive (Figures 9 and 10).

Stream bank erosion is large contributor of sediment to Curry's Fork

Figure 7. Riparian restoration and streambank stabilization site adjacent to Moody Lane.

To implement this objective, the Internal Project Team, comprised of the Watershed Coordinator, County Engineer, and Watershed Technical Advisor, developed a BMP Implementation Plan and submitted it to the Kentucky Division of Water for review and approval. OCFC contracted with a design engineering firm to develop the construction drawings and models needed for permits. The design engineer applied for and obtained federal, state, and local permits, with assistance from the watershed coordinator. Once permits were in hand, OCFC posted a Request for Qualifications for the construction work through a competitive process that took qualifications and prior work experience into account. The County Engineering Department, primarily the Watershed Coordinator, performed the bulk of the daily oversight of construction and replanting work, while the Design Engineer provided remote oversight with strategic site visits. The Watershed Coordinator utilized extensive one-on-one communications, public announcements, social media, as well as temporary signage to inform the public of the purpose of the project.

Bank erosion adjacent to the Homeowners' Association Property. The undercut trees are virtually all that remains of the riparian vegetation here.



Cleared riparian zone adjacent to Moody Lane. Notice the relatively thick algae mass in the bottom right of the photo.

Invasive teasel grove (~10' tall)

Headcut propagating through sediment plug (~1' high)

Eroded bank adjacent to (<3' from) Moody Lane. ~3' high, 60°. Notice algae mass on water surface unprotected from sun.

Figure 8. Moody Lane project area.

Furthermore, two education and outreach programs were developed and implemented by the Watershed Coordinator. The first of which was a multi-pronged riparian education program to expand the use of riparian buffers in the watershed in order to reduce the pollution levels of runoff reaching waterways, as well as to reduce in-stream erosion, and decrease water temperature was initiated. Outreach activities were diverse, including efforts to expand county conservation ordinances to hosting an educational workshop on riparian zones. As with many nonpoint source pollution control actions,

Figure 9. Ballard Court project area.

collaboration with project partners was a key component of implementing the Curry's Fork riparian education program. Specific methods utilized to accomplish this objective included: forming or maintaining partnerships with stakeholders, collaborating with project partners on initiatives, one-on-one contacts, printed media (newsletter article), workshops (public event), and televised media spots.

Additionally, the Watershed Coordinator developed and implemented a watershed education and awareness program in order to continue to engage citizens and raise awareness of water quality issues in the watershed. For this objective, the Watershed Coordinator successfully collaborated with partner agencies to host a riparian educational workshop entitled "Living Along a Kentucky Stream," conduct formal environmental education for middle school students, participated in an Earth Day event, and hosted Technical Advisory Committee meetings which consisted of local stakeholders. In addtion, the Watershed Coordinator continued efforts to reach and inform local residents of educational events and general water quality information via the use of televised public service announcements, community meeting attendance, signage, booth displays, newsletter articles, social media, and one-on-one contacts.

Figure 10. Ballard Court project area. Left to right: Migrating cut bank, tire wall, unprotected concrete swale outfall, debris in the stream bank (photos courtesy of OCFC).

Completed Projects FFY 2017

Table 1. Completed projects.

State Project Number	Project Title	Date Completed
10-14	Brushy Creek	1/29/2016
13-02	Lower Howards Creek Watershed Improvement Initiative	9/15/2016
13-03	Banklick Creek Watershed Based Plan Continued Implementation	8/1/2017
13-04	Darby Creek Watershed Plan and Implementation	6/30/2017
13-05	Implementing Curry's Fork Watershed Plan	9/30/2017
13-06	Triplett Creek Watershed Based Plan Implementation	9/30/2017
13-07	Watershed Plan Implementation for Hinkston Creek	9/30/2017
13-08	Bacon Creek BMP Implementation II	9/30/2017

Projects Started FFY 2017

Table 2. Projects started in FFY 2017.

State Project Number	Project Title
14-09	Banklick Creek
14-12 thru 14-18	Mini Grants: FORE, Jeffers Bend, S. Marshall Middle, Preston Miller Park, Liberty Nature Center, Beargrass Creek, Clarks Run
15-05	Red Bird River Watershed Plan Implementation
15-11	Banklick Creek Watershed Based Plan Continued Implementation
15-12	Brushy Creek Watershed Project
16-03	KY Dairy Compliance
16-04	Crafts Colly, Sand Lick, Dry Fork
16-05	Watershed Center of Excellence
16-06	Curry's Fork
16-07	Clarks Run, Hanging Fork, Hinkston Creek
16-08	Lincoln County Homeowner
16-09	Lincoln County Homeowner Assistance
16-10	Watershed Planning Assistance
17-02	Wolsing Woods went into effect on 8/1/17 but no work completed to date

Load Reductions

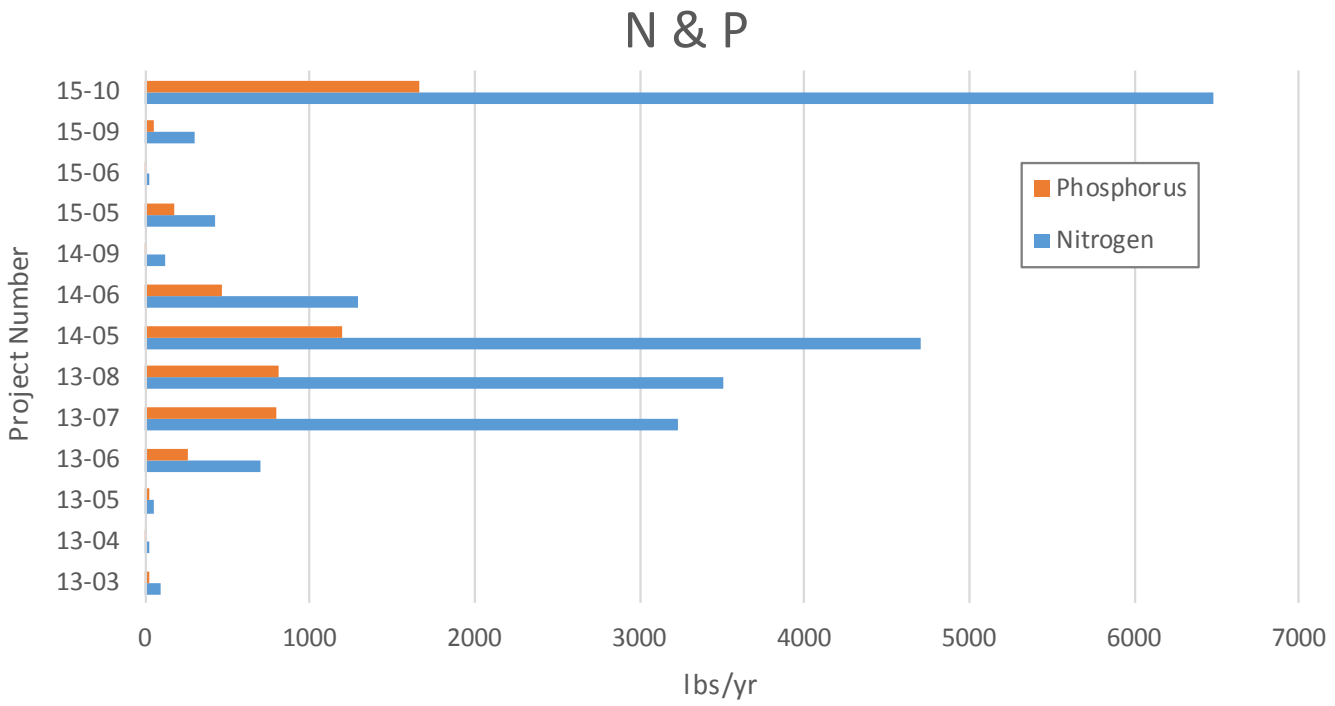
Table 3 contains a compilation of load reduction estimates from Best Management Practices (BMPs) that were implemented during FFY 2017 (October 1, 2016 – September 30, 2017). Load reductions were derived by direct calculation or by utilizing STEP-L BMP Modelling, and then entered into the EPA's Grant Reporting and Tracking (GRTS) database prior to the February 15, 2017 deadline.

Table 3. Load reductions for projects from FFY 2017.

Award Year	State Project Number	Project Title	Load Reductions		
			Nitrogen (lbs/year)	Phosphorus (lbs/year)	Sediment (tons/year)
2013	13-03	Banklick Creek	98	22	3
2013	13-04	Darby Creek	32	6	0
2013	13-05	Curry's Fork	59	23	43
2013	13-06	Triplett Creek	704	264	357
2013	13-07	Hinkston Creek in Nicholas County	3234	793	555
2013	13-08	Bacon Creek	3501	809	538
2014	14-05	Gunpowder	4700	1200	600
2014	14-06	Chestnut Creek	1298	470	365
2014	14-09	UK Winter Feeding	120	15	6
2015	15-05	Red Bird	420	177	91
2015	15-06	Red River	21	9	3
2015	15-09	Sulphur Septic	302	60	0
2015	15-10	Sulphur Ag.	6484	1658	1170

Kentucky Division of Water 2017 NPS Project Load Reductions

A.)



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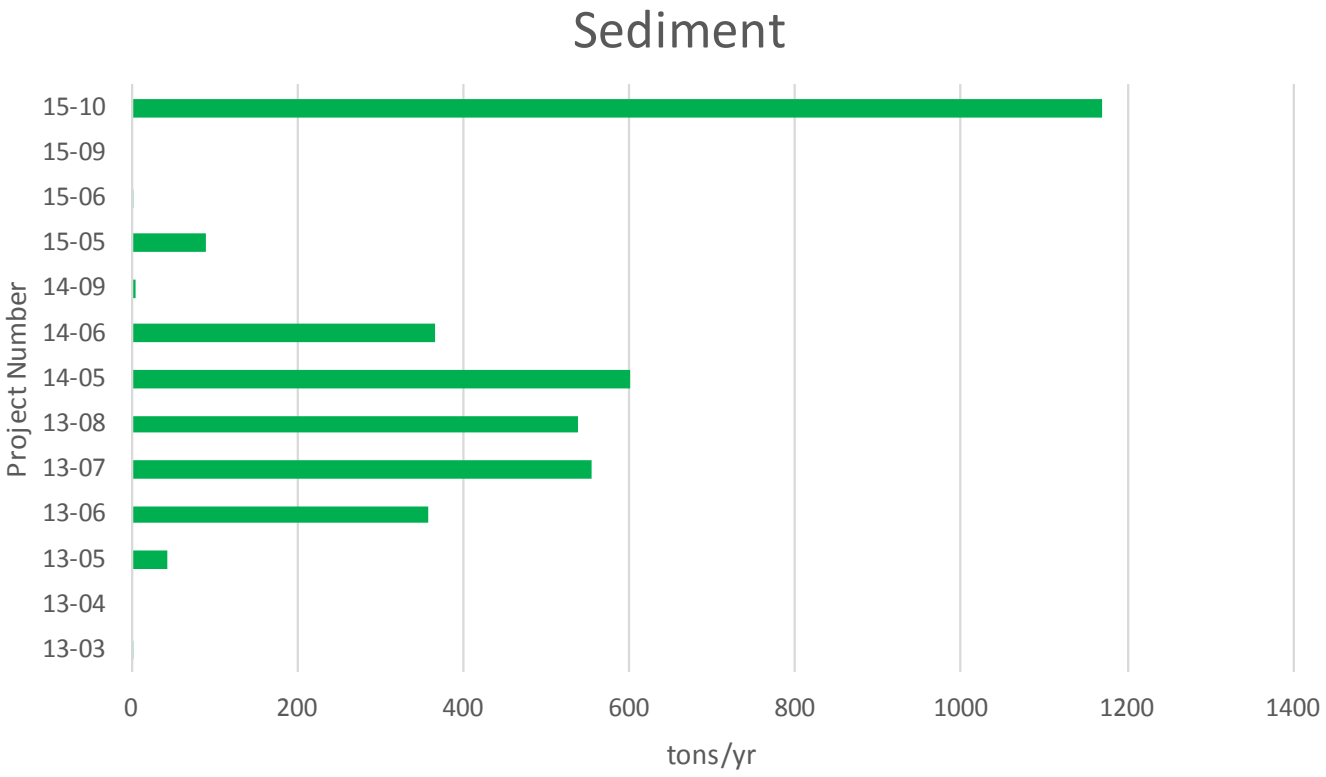


Figure 11. Load reductions for projects from FFY 2017. A.) Nutrients; B.) Sediment.

Chapter 2

Basin Coordination

Kentucky Division of Water Basin Coordinators

The Kentucky Division of Water and partners maintain Basin Coordinators in six of the state's seven Major River Basin Management Units; Green, Four Rivers, Kentucky, Licking, Salt, and Upper Cumberland. Basin Coordinators serve an essential function in the watershed management process by acting as facilitators for agency activities and as points of contact for local organizations interested in addressing water issues.

Basin Coordinators enhance communication with stakeholders via regular newsletter releases and Basin Team Meetings in addition to additional program facilitation and multiple forms of Education and Outreach. They help involve the pubic in setting management priorities, develop watershed plans, provide grant assistance, and search for innovative ways to improve water health at the community level.

Figure 12. Kentucky's Major River Basin Management Units and their associated Basin Coordinators.

Priority Watersheds: 2016-2017 Selection

Basin Team Meetings were utilized in FFY 2016 to assist in establishing priority watersheds. Priority watersheds 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 a completed watershed plan in process of implementation or an ongoing watershed planning effort and a potential for strong community support for 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, taking into consideration Basin Team input. These watersheds will be considered for focused funding and technical support in state agency programs, including US EPA 319 (Nonpoint Source) Grant Program funding, state revolving funds for water and wastewater infrastructure, and state agricultural cost-share programs.

Priority watersheds will be reevaluated on a regular basis to ensure that limited resources are being directed most optimally.

Drakes Creek, Warren County, KY

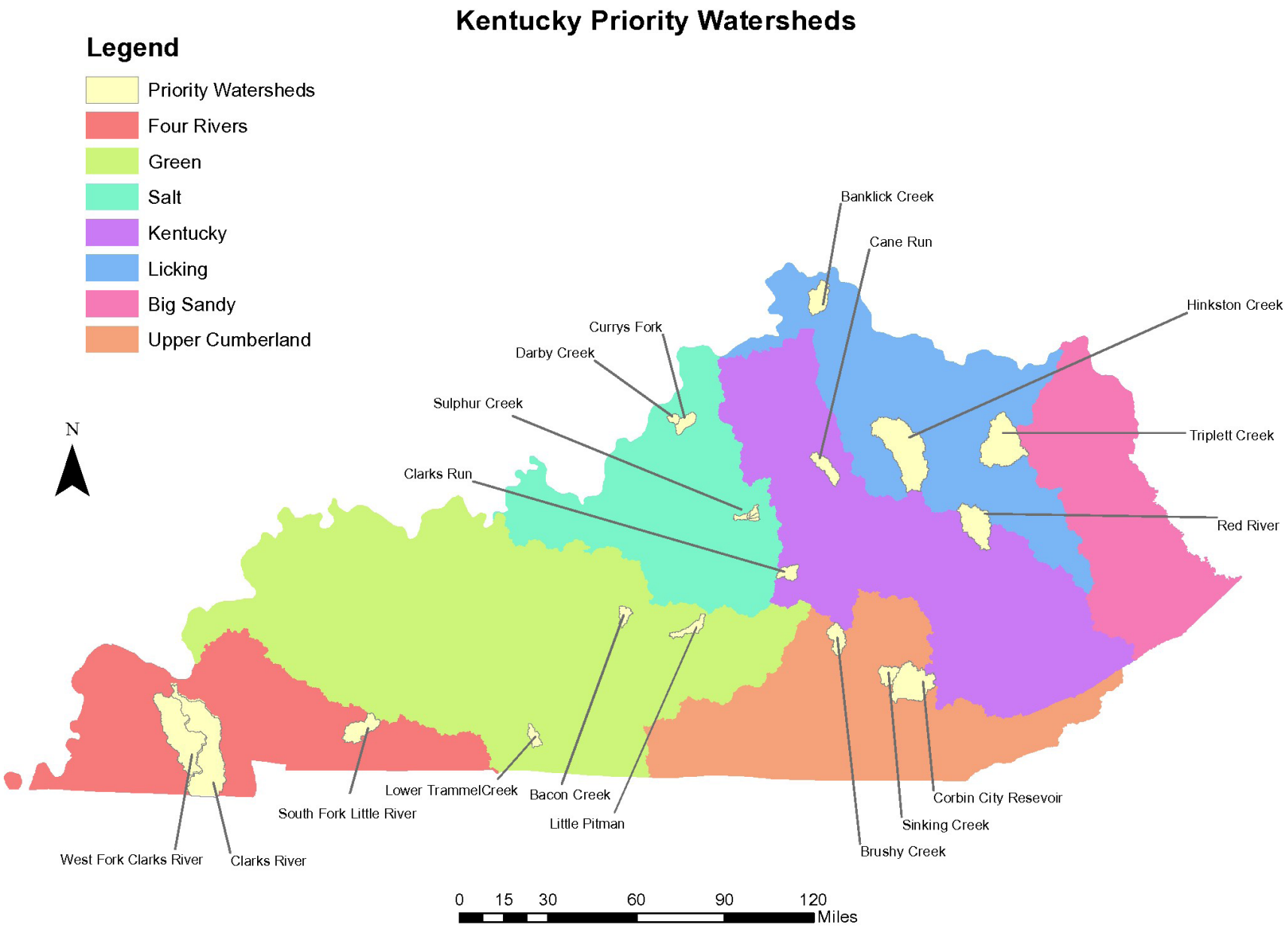


Figure 13. Priority watersheds in Kentucky.

Priority Watersheds: Updates

Green River Basin

Bacon Creek Priority Watershed
In FFY 2017 implementation work continued in the Bacon Creek watershed. With the 2013 NPS contract ending, Kentucky Waterways Alliance and LaRue County Conservation District continued to implement agriculture BMPs and septic pump-outs and repairs. Under contract 13-08, three new septic systems and three septic pump outs were completed along with 17 agriculture BMPs including stream crossings, fencing, forage & biomass plantings, watering facilities, heavy use areas and critical area plantings. Work continues in the watershed with revisions to the watershed plan and contract development for 2018.

Little Pitman Priority Watershed
With *E. coli* samples collected in 2016, basic watershed planning has begun. Education and outreach remains the priority in the watershed to cultivate interest and activity. A water focused field day is planned for spring 2018 for every 6th grader in Taylor County.

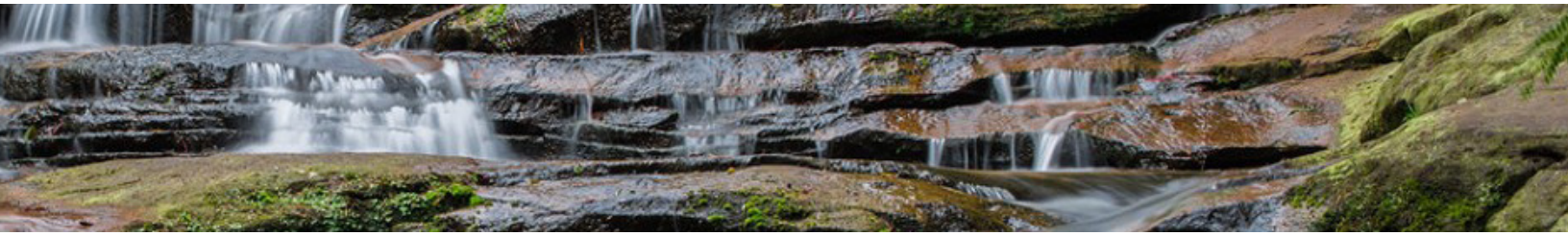
Trammel Creek Priority Watershed
Basic watershed planning has begun for Trammel Creek Watershed. Trammel Creek Watershed has been added to the monitoring list for 2018. Education and outreach remains the priority in the watershed to cultivate interest and activity.

Salt River Basin

Darby Creek Priority Watershed
With the acceptance of the Darby Creek Watershed Plan in October 2016, project partners began outreach to implement a septic education, pump out and repair program in the area. Seven septic pump outs were provided to residents of the target area.

Curry's Fork Priority Watershed
Implementation of the Curry's Fork Watershed Plan continues in the subwatersheds of the target area. Education and outreach efforts were widespread. Restoration of the riparian habitat along South Fork Curry's Fork repaired 425 linear feet of stream and eliminating sources of in-stream and riparian sediment.

Sulphur Creek Priority Watershed
In FFY 2017 the Sulphur Creek Septic System Reclamation project installed 6 new lagoon septic systems, eliminating 4 straight pipes and 2 failing septic systems. The Sulphur Creek Watershed Ag Implementation project (15-10) implemented 19 agricultural BMPs, including fencing, pasture reseeding, alternative waterers, and winter feeding areas, impacting roughly 1000 acres. Work is ongoing on both of these projects.



Four Rivers Basin

West Fork Clarks River
In FFY 2017, a watershed plan was developed for the Damon Creek subwatershed in Calloway County by the Jackson Purchase Foundation. This plan identifies best management practices that could be implemented to improve water quality in Damon Creek by reducing runoff and fecal pollution, preventing erosion, and building a more educated community. This plan is currently under review by the Kentucky Division of Water. Implementation activities are expected to begin in FFY 2018. In addition to plan development, many education and outreach activities occurred in FFY 2017 as part of this project: a Backyard Conservation Workshop in conjunction with Earth Day, a stream cleanup event, and several educational field days with local schools.

In FFY 2017, seven sites were monitored in the West Fork Clarks River watershed by Four Rivers Watershed Watch volunteers. Data collected included dissolved oxygen, pH, conductivity, temperature, and *E. coli* in May, July and September.

Clarks River
In FFY 2017, implementation activities continued in the Chestnut Creek watershed as part of the Clarks River WBP-BMP Implementation project. Two BMPs were implemented by the watershed coordinator and team partners. In addition to BMP implementation, several education and outreach activities occurred as part of the project, including educational field trips for seven local schools, participation in four outreach events, and one litter pickup event.

In FFY 2017, a watershed festival, the Four Rivers Watershed Sustainability Summit, was held at Murray State University, located in the Clarks River Watershed. This festival was designed to celebrate the abundant water resources that are important to the Four Rivers region of Kentucky, and allowed participants to learn about local projects occurring to improve and protect our water resources, and things individuals can do to help protect our waters. Educational seminars, booths and demonstrations occurred throughout the day.

In FFY 2017, 27 sites were monitored in the West Fork Clarks River watershed by Four Rivers Watershed Watch volunteers. Data collected included dissolved oxygen, pH, conductivity, temperature, and *E. coli* in May, July and September.

South Fork Little River
In FFY 2017, the Little River Water Quality Consortium began a watershed planning project. This group will utilize data collected over a three year period by USGS to develop a plan identifying water quality threats to the South Fork Little River and best management practices that could be implemented to address these threats. This plan is expected to be completed in FFY 2018, with implementation activities beginning thereafter.

A Project WET training (Water Education for Teachers) was held in the South Fork Little River watershed in FFY 2017. The goal of this program is to reach children, parents, teachers and community members of the world with water education that promotes awareness of water and empowers community action to solve complex water issues.

In FFY 2017, one site was monitored in the West Fork Clarks River watershed by Four Rivers Watershed Watch volunteers. Data collected included dissolved oxygen, pH, conductivity, temperature, and *E. coli* in May, July and September.

Kentucky River Basin

Cane Run of North Elkhorn Creek
Lexington-Fayette Urban County Government, Third Rock Consultants, UK College of Agriculture, Food and Environment, and Bluegrass Greensource have been working to implement the Cane Run Watershed plan. Education and outreach events have included the Cane Run Watershed Festival in Aug. 2017, and data presentations to stakeholders at the Bluegrass Stockyards Farm Field Day. Selection of BMPs for the implementation portion of the project is scheduled for early 2018.

Red River
The Red River Watershed Plan is being implemented by the U.S. Forest Service, Kentucky Waterways Alliance, Kentucky PRIDE, and the Red River Gorge Trail Crew. The project hired a Red River Watershed Coordinator in FFY 2017, who is currently working with partners to provide stakeholders with a septic system assistance program. The Coordinator has also been organizing community educational events and stream cleanups in the watershed. In addition, the USFS and Trail Crew are addressing eroded recreational trails in the watershed, while KWA is planning for a 2018 Red River Watershed Festival.

Clarks Run and Hanging Fork of Dix River
Bluegrass Greensource, Dix River Watershed Council, County Health Departments, Clarks Run Environmental and Educational Corp. (CREEC), and the City of Danville are partnering to implement a watershed plan in Clarks Run/Hanging Fork. In FFY 2017 a watershed coordinator was hired for the 319 project. The Watershed Coordinator will be responsible for continuing the septic system education and repair/replacement program, stormwater education, and riparian buffer education and assistance programs in this region. In addition, CREEC is working on 319 mini-grant project to plant trees along Clark's Run, install educational signage along creek trail, and provide community education. One-hundred native trees were planted along the trail on September 20, 2017.

Licking River Basin

Triplett Creek Priority Watershed

In FFY 2017 implementation from the 2013 NPS contract was completed including stream stabilization activities like sloping the banks and tree planting on the main stem of Triplett Creek in Morehead City limits, agricultural best management practices on Big Brushy, and installation of pervious walkway and native plantings in an outdoor classroom. Future work will focus on issues utilizing 2014 funding, and will include more stream stabilization activities on Triplett Creek, along with additional agriculture BMPs installed on Morehead State University's (MSU) farm. The installed BMPs are highly visible and will serve to educate the public about practices that benefit water quality.

Banklick Creek Priority Watershed

In FFY 2017, the Banklick Watershed Council used 319(h) funding to focus on the upper half of the watershed and the implementation of the following control measures: riparian buffer establishment through land conservation and plantings, fencing livestock to prevent stream access, improving failing septic systems, and increasing stormwater infiltration with BMPs. The funding was used to construct five detention basin retrofit projects, repair one failing septic system, a riparian corridor planting along Pioneer Park and completion of the Wolsing Wetland design.

The Wolsing Wetland is a stream stabilization and bench full wetland project in Wolsing Woods. Construction of the wetland will be completed through 2017 grant funding and is expected to begin Spring of 2018. The wetland project will increase public awareness of water quality issues.

Triplett Creek stream stabilization site with J-hooks and sloped banks

The council is working to improve water quality through education and outreach efforts in the watershed. The watershed coordinator participated in an Ag Water Quality BMP Workshop with the County Extension Agency that is bridging the gap between the agricultural community and watershed restoration.

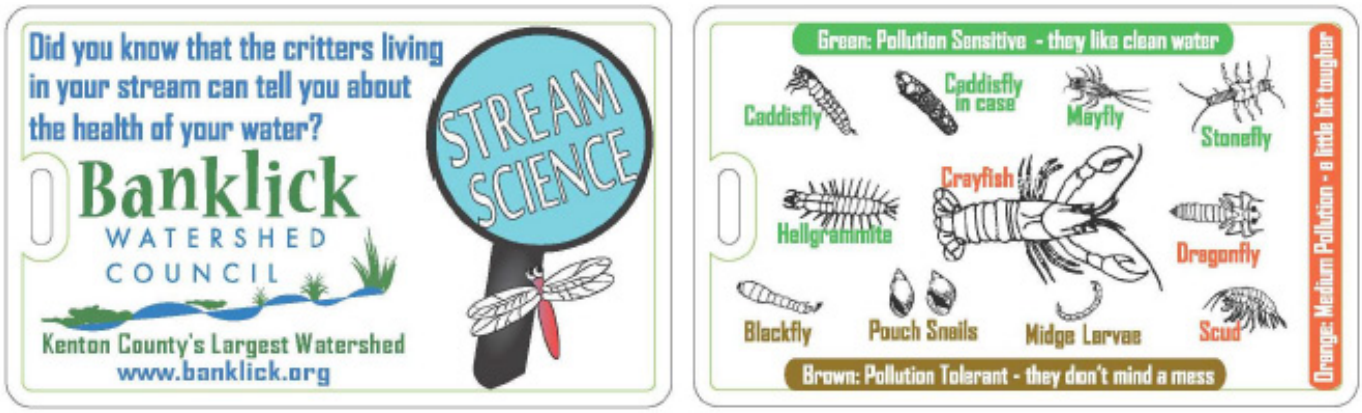
Hinkston Creek Priority Watershed

In FFY 2017 the Nicholas County Conservation Office continued work implementing the Hinkston Creek Watershed Plan and BMP Implementation Project. The project funded

agricultural BMPs through cost-share contracts with 14 landowners and resulted in a direct impact upon 7.02 stream miles of Hinkston Creek. Unrestricted cattle access to streams was one of the major problems contributors to impairments in the watershed. Therefore the BMPs and technologies selected by the watershed coordinator were orientated around reducing pathogens, nutrients and sediment. The efforts were centered primarily on developing the riparian areas, adoption of rotational grazing systems, the development of alternative water supplies or providing limited stream access to cattle, and the construction of well-designed and sited animal feeding/waste storage areas.

Gunpowder Creek

Though Gunpowder Creek is not a listed priority watershed, it is an area of interest to KDOW and to the Licking River Basin as a whole. The watershed is the first in the state to receive a TMDL Alternative. The watershed plan along with a PCR supplement created by Boone County Conservation District (BCCD) and Northern Kentucky Sanitation District 1 (SD1) was developed in FFY 2017 and submitted in for EPA review November 2017.



Educational materials developed by the DOW and the Banklick Creek Watershed Council

Upper Cumberland River Basin

Brushy Creek Priority Watershed

Brushy Creek submitted a final report for the 10-14 contract in 2017. Brushy Creek is a tributary to the Buck Creek Watershed which is currently being considered for success monitoring. Work continues in the Brushy Creek Watershed with state cost-share and NRCS EQIP funds. The Pulaski County Conservation District intends to pursue additional 319 funding to enhance efforts.

Corbin City Reservoir Priority Watershed

Corbin City Reservoir has a complete Watershed Based Plan although it has not been submitted to the EPA for approval. Work is anticipated to continue as opportunities arise.

Sinking Creek Priority Watershed

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

Education and Outreach

The DOW 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 the citizens of the Commonwealth in order to create a more informed population and improve Kentucky's Water Health.

Tables 4 and 5 detail the educational programming accomplished in FFY 2017. Basin Coordinators and technical advisors of the Nonpoint Source and Basin Team section reach thousands of stakeholders through outreach activities each year. In FFY 2017 they reached an estimated 4900 students in k-12 educational programs.

Education and outreach activities reach a wide variety of stakeholders throughout the state

Table 4. Education and outreach activities by Action Item.

Action Items	Accomplishments
Action Item 1.1: Continue effective messaging for the Division of Water.	• I Love KY Water Facebook Page was created in 2016 and has been maintained by the Basin Coordinator Staff. To date the page has 442 followers. • The Basin Coordinators continue to use MailChimp for quarterly newsletters. To date the newsletters reach 619 people.
Action Item 1.2: Partner with organizations on environmental education and outreach opportunities	Partnered with the following organizations: • University of Kentucky Cooperative Extension • Kentucky State University • Louisville Water Company • Kentucky Environmental Education Council • MS4 Stormwater programs • Kentucky Conservation Districts • Division of Conservation • US Fish and Wildlife Service • Kentucky Association for Environmental Education • Kentucky Department for Public Health
Action Item 1.3: Develop content for social media, basin newsletters, and other print and non-print outlets	Social Media: • Each Basin (Salt, Licking, Cumberland & Green) has sent out quarterly newsletters. Each newsletter was posted to the FB Page and on the Basin webpages • Each Basin Coordinator provides content for the Facebook Page on a certain day of the week. • Participated in the following Social Media Campaigns to promote various aspects of water: ○ #WaterWednesday ○ #ValueWater ○ #ILoveKYWater ○ #WaterWeek2017 ○ #MacroinvertebrateMonday ○ #EarthDay

Action 1.4: Coordinate and conduct public events and/or exhibits	DOW has participated in 2 different tabling events throughout the state, including: • Energy & Environmental Cabinet Earth Day Celebration • Children's Environmental Health Summit • Kentucky State University's Earth Day Celebration • Kentucky Stormwater Association Annual Conference • Kentucky Associations for Environmental Education Annual Conference • Kentucky Association of Conservation Districts Annual Conference • BBQ on the River Festival • Drakes Creek Watershed Festival • Calloway County Farmers Day • ReForest Frankfort • Shelbyville Earth Day Celebration • Calloway County Earth Day Event • Wolf Creek Fish Hatchery Earth Day Event • Kentucky Green & Health Schools Awards • Louisville Zoo Earth Day • Campbell County Garden Open House • Ballard County Ag Field Day • Family Nature Day at Boone Woods Park • Kentucky State Fair, Cloverland • Green Stock Festival • Cane Run Watershed Festival DOW reached over 5,000 people at these events.

Table 5. Education and outreach activities by type.

Type	Description	Community Reached
Presentation	Conducted presentations at various conferences and meetings throughout the State to educate the public about: • Basin Coordinators and how we can help with projects • Watershed Watch • Nonpoint Source Pollution and the 319 program • Clean Water Act 101 & TMDLs • Stormwater Management • Rain Barrels • Land Use Management	Conducted 26 formal presentations reaching over 700 people
k-12 Environmental Education	Conducted various water related activities using Project WET at partners events: • Louisville Water Company • U.S. Fish and Wildlife • Warren County/Bowling Green Stormwater • University of Kentucky Cooperative Extension Services • Kentucky State University • Calloway County Schools • McCracken County Schools • Marshall County Schools	Conducted 48 Environmental Education programs reaching 4,918 students

Workshops (Hosted)	Conducted the following Workshops: • Project Wet Workshop (5) • Project Underground Workshop (2) • Two (2) Watershed Coordinator Meetings • Rain Barrel Workshop (4) • Kentucky Wetland Rapid Assessment Method Training (2) • Project Learning Tree & Project Wild Workshop	At the 16 workshops held throughout the State, 268 Educators and partners were taught by the Division of Water
Workshops attended	The Basin Coordinators Attended the following Trainings for Professional Development: • Professional Environmental Education Certification • Pond Scum Workshop • Kentucky Association for Environmental Education Facilitator Workshop	

Community Meetings Attended	As Basin Coordinators, we are responsible for engaging with the general public about water quality issues. General public community meetings included: • Watershed Council Meetings • Stormwater Association Meetings • Agriculture and Water Quality Meetings • Cumberland River Compact Meetings • Area Development District Meetings • Friends Groups Meetings	The Basin Coordinators Attended 23 general public community meetings reaching over 386 community members
	The Basin Coordinators are also responsible for watershed planning and implementation. In 2017 the Basin Coordinators and Technical Advisors have worked in the following areas related to current watersheds or future watershed developments: • Little River Watershed • Clarks River Watershed • Curry's Fork Watershed • Beargrass Creek • Hanging Fork Watershed • Cane Run Watershed • West Hickman Watershed • Chestnut Creek • Gunpowder Creek Watershed • Little Pitman Watershed • Obion Creek Watershed • Trammel Creek Watershed • Banklick Watershed • Darby Creek Watershed • Bacon Creek Watershed	The NPS Staff attended 39 meetings reaching 528 interested partners in the watersheds.

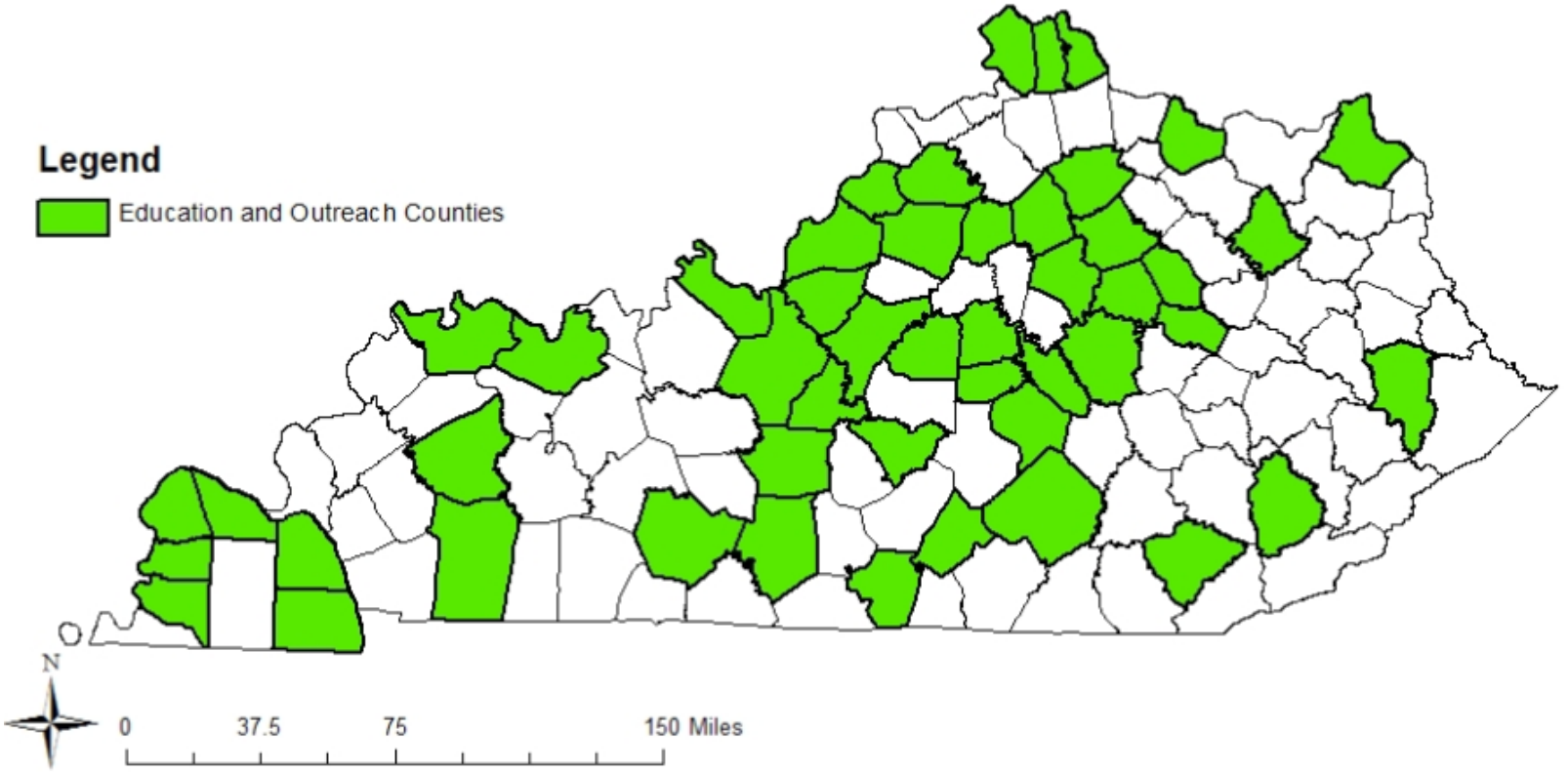
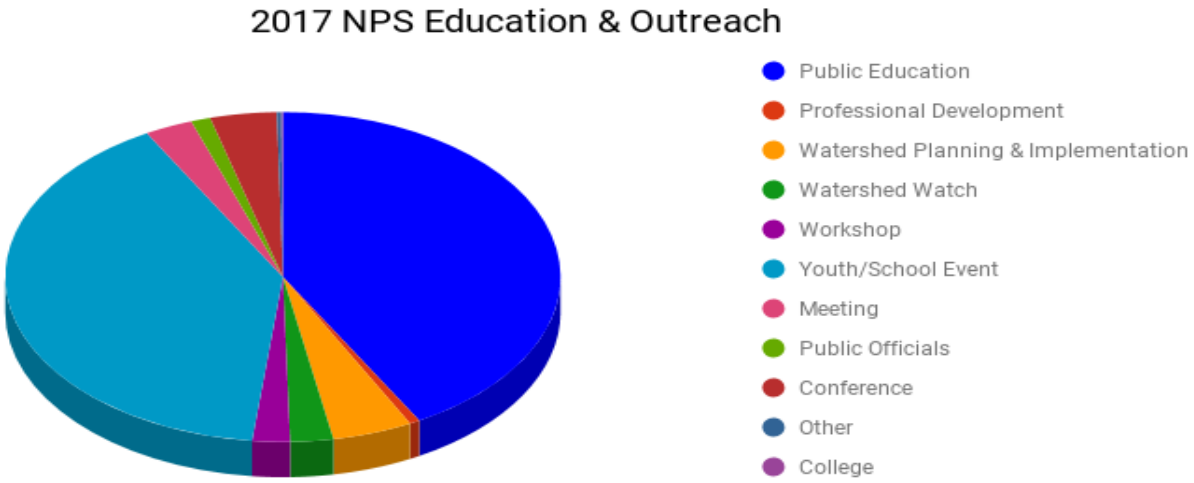


Figure 14. (Above) Counties in which E&O events were provided.

Figure 15. (Right) A break down of the types of events at which Basin Coordinators provided NPS E&O in FFY 2017.



2017 Mini-Grants

In FFY 2017 the DOW awarded 7 small $5,000 grants to watershed groups throughout KY. The purpose of the mini-grants is to engage groups interested in improving their water, with the hope that relatively small grants can help build capacity in communities with limited public involvement in watershed issues.

The seven grants awarded included:

Four Rivers Basin Watershed:

Awarded to South Marshall Middle School, grant funding is being used to implement Best Management Practices, such as rain gardens and bioswales, which reduce runoff and limit erosion at the newly constructed middle school. Funds also are being used for a greenhouse that allow students to cultivate native plants for gardens on the school property and implement additional storm water practices at the school.

Green River Basin Watershed:

Awarded both to the city of Bowling Green and to the Pennyrile RC&D.

This grant has enabled Bowling Green to work with school groups throughout the city educate them about storm water issues and ways to improve water quality. The grant also assists its growing Watershed Stream Side Field Day Events program and works to improve the conditions of Jennings Creek by restoring the habitat for native species.

The Pennyrile RC&D grant has enabled the district to improve the public knowledge about the impact of nonpoint source pollution on the watershed. Its goal was to host two workshops to discuss maintenance of septic systems and the importance of livestock exclusion from streams. It also is to be used to host field days for local schools at the Jeffers Bend Environmental Center in Hopkinsville, to educate students firsthand about watersheds and nonpoint source pollution.

Kentucky River Watershed:

Awarded to Clark's Run Environmental and

Stream side field day in the Green River Basin

Educational Corporation (CREEC), the grant has enabled CREEC to continue to restore, protect and celebrate the historic waterway of Clark's Run in Boyle County. The organization has worked to clear invasive vegetation along the creek and replant this riparian area with native trees and shrubs, as well as inform the local community about ways that they can improve and appreciate the stream. The grant has provided funding for CREEC to install educational signage along the trail and to provide service opportunities for continuing bank revegetation as well as strengthen the effectiveness of CREEC's activities and enhance its web presence.

Licking River Watershed:

Awarded to the Foundation for Ohio River Education (FORE), this grant has enabled the organization to continue to provide students from several Northern Kentucky elementary, middle and high schools with knowledge to better understand how pollutants travel from street to stream through storm and combined sewers. Education and Adventure Charters (River REACH) program and FORE's River Research, is a floating classroom program that addresses a wide range of nonpoint source pollutions issues including storm water runoff, habitat degradation, erosion, nutrient pollution and bacterial contamination.

Salt River Watershed:

Awarded to the Salt River Watershed Watch (SRWW), the grant has assisted the Watershed Watch in the training of volunteers to collect water quality samples in the streams and rivers of the Salt and Ohio River Basins and to raise awareness of water issues across the state. As part of the grant award, SRWW will educate teachers and students about nonpoint source pollution issues in Beargrass Creek, provide training on how to collect and analyze water data, conduct educational field trips on and around Beargrass Creek and mentor student science fair projects with a watershed focus.

Field trip on Beargrass Creek

Upper Cumberland Watershed:

Awarded to the Liberty Nature Center, whose mission is to enhance the lives of citizens by promoting wildlife conservation through environmental education, the grant has enabled the center to put gutters on buildings, install rain barrels, a rain garden and incorporate educational signage. By doing so, the center anticipated to conserve water, protect the nearby stream and educate and inspire its visitors.

Homeowner Assistance Program (HAP)

In June of 2017, the construction of the new sewer lines in west Lincoln County were completed as part of an effort by the Lincoln County Sanitation District (LCSD) to implement the Hanging Fork watershed plan. The project's priority was to reduce human fecal inputs into the watershed to address failing and improperly maintained septic systems. *E. coli* concentrations in area streams often range from ten to 1,000 times greater than the statewide limit for safe wading/swimming. A microbial source tracking effort showed that human inputs were the dominant source of the *E. coli* problem.

The LCSD pursued and received multiple grants and loans to install a sanitary sewer line from Hustonville to Junction City, from which the waste would then be transported to Danville for treatment. This new sewer line will capture about 600 un-sewered homes and significantly reduce threats to area streams, as well as increase the value of these homes and enable economic development along the US127 corridor.

When area residents expressed concern about the sewer connection costs, the LCSD worked with the Kentucky Division of Water (KDOW) and Rural Community Assistance Partnership (RCAP) to develop the Homeowner Assistance Program (HAP). Funded by a 319 (h) grant, this program provides cost-share funding to homeowners at an income-based percentage rate, and helps educate residents on the need for the sewer connection.

To date, over 300 homes have applied for assistance through the Homeowner Assistance Program with more than 150 homes already connected to the new sewer line. Meetings have already been set for the new year to discuss moving the program forward to ensure all homes connect to the new line.

Examples of a failing septic system with surfacing effluent (left, Kellie Hart, UK extension) and a straight pipe (right, US EPA)

Project WET

KDOW is the host institution for Project WET 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 KY 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 in Kentucky. KDOW has formed a partnership with the Kentucky Association for Environmental Education (KAEE) to coordinate project trainings and further promote water education in Kentucky.

During FFY 2017 KAEE's Project WET program conducted 1 Facilitator workshop and 13 Educator workshops. Educator training reached 202 educators including in-service (K-12) educators, university educators, pre-service educators and non-formal educators. This was a 35% increase over FFY 2016.

Project WET

Equipment and Resource Development

Educational Equipment

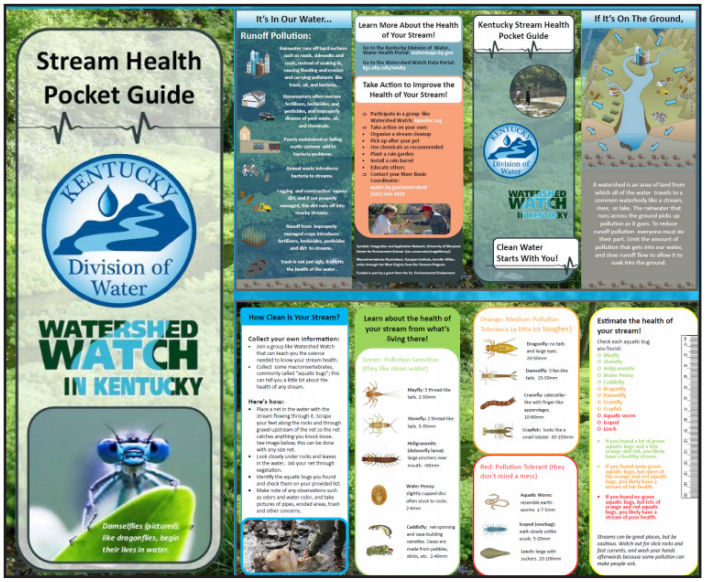
KDOW has a large supply of environmental educational equipment that is available for checkout, allowing teachers and other professionals to use various pieces of equipment for educational events in their regions. The equipment can be viewed and checked out on their *website*. Formal teachers love the website because it allows them to check out the equipment to accompany their lessons. Many non-formal environmental educators use the equipment as well.

Educational resources available for check out: enviroscapes and Ollie the Otter mascot costume

In FFY 2017 the program had 22 Enviroscape checkouts, 19 display board checkouts, and one stream table checkout. Ollie Otter, KDOW's Mascot has also been in high demand. Requested 14 times, he attended events across the state, including the 2017 Earth Day Celebrations in Frankfort, Stakeholder meetings, and school programs. He is always a popular addition to any environmental gathering.

Outreach Material

As part of the DOW's mandate to improve understanding of NPS issues within the state of KY, the NPS Section has worked with stakeholders, educators, journalists, and regulators to develop online and print publications to teach the public about water health.



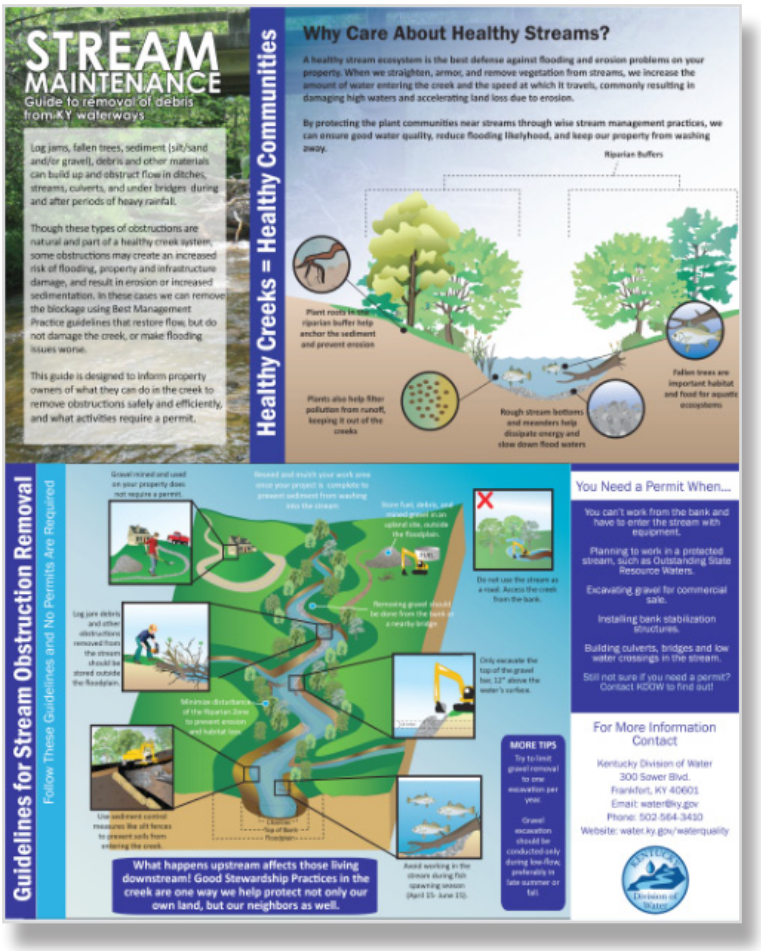
Stream Health Pocket Guide

Stream Health Pocket Guide

In FFY 2017 the NPS section developed the *Stream Health Pocket Guide* to teach the public how to use aquatic macroinvertebrates to assess water health. This printable resource has been distributed to school groups, Watershed Watch volunteers, and been made available online to the broader public. The resource helps users connect stream biology to overall water health, as well as encouraging them to learn about their streams using first hand investigative techniques.

Guidelines for Stream Obstruction Removal

In order to better communicate with stakeholders about the proper ways to remove obstructions from waterways, the NPS section, the 401 section, and the Floodplains section of DOW collaborated to develop an update to the "One Step Removal Guidelines" used previously. This entailed creating a new printable brochure that details the situations where permits are not required to work in streams, an updated FAQ sheet, a web map to help stakeholders identify protected streams, and a website to house all the new resources. The resulting "Guidelines for Stream Obstruction Removal" provides simplified language and more visual explanations of requirements for working in streams without a permit. The brochures have been distributed to all DOW field offices, conservation district offices, and Ag Extension offices in the state, in addition to being available *online*.



Guidelines for stream obstruction removal are available in poster format (above) and as a printable brochure at the DOW Water Quality website, along with FAQs and permitting information

Naturally Connected Blog and Land, Air, & Water Articles

The Department of the Environment also maintains several publications including the blog, *Naturally Connected*, and the department's webzine, *Land, Air, & Water*. During water related events the NPS branch worked with these publications to publicize the 2017 Mini-grant Program, Water Week in KY, rain barrel workshops, and general water education topics.

Water Week in Kentucky

Efforts by the NPS section resulted in Governor Matt Bevin making an official proclamation, designating March 19-25, 2017 to be *Water Week in KY*. The goal of the initiative was to plan a week of educational water events centered around World Water Day on March 22. The Basin Coordinators collaborated with UK Extension, the Kentucky Water Resources Research Institute, Kentucky State University, McConnell Springs Park, and the Explore Kentucky Initiative to put on a variety of educational workshops and events. These included Project WET workshops, rain barrel workshops, and a river clean up.

In addition, a website was created for Water Week, that provided links to educational resources developed specifically for the event. This included a series of educational GIS Story Maps that provided information about watersheds, nonpoint source pollution, and the *What's Your Water Story* crowdsource map, where participants shared their photos of iconic Kentucky waters from around the state.

Proclamation

by

Matthew G. Bevin

Governor

of the

Commonwealth of Kentucky

To All To Whom These Presents Shall Come:

WHEREAS, Water is one of our most valuable natural resources; and

WHEREAS, Kentucky is home to some of the most beautiful and most biologically
rivers in the country, and residents in our communities have an importa
celebrated connection to rivers, lakes, streams and waterways; and

WHEREAS, We are all stewards of the water quality upon which future gene
depend; and

WHEREAS, Kentuckians are encouraged to take care of and protect our wate
pollution, to practice water conservation and get involved in local water
and

WHEREAS, March 22nd, 2017 is internationally recognized as World Water Day;

NOW, THEREFORE, I, MATTHEW G. BEVIN, Governor of the Commonwealth of Kentuc
hereby proclaim March 19th-25th, 2017, as

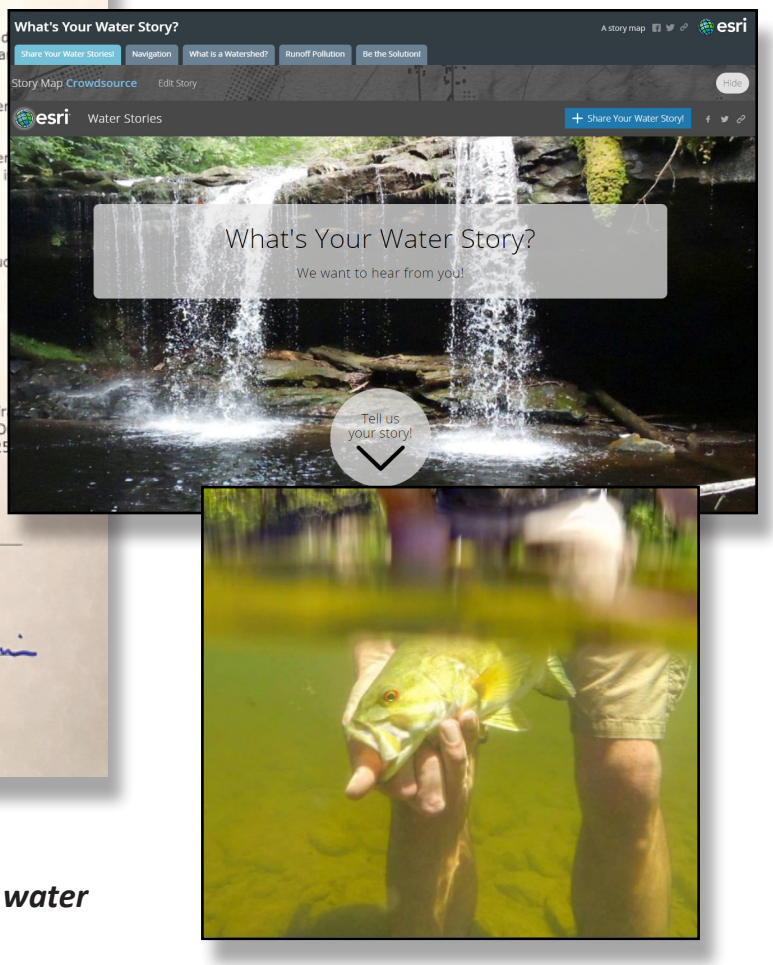
WATER WEEK

in Kentucky.

DONE AT THE CAPITOL, in the City of Fr
this 22nd day of February, in the year of O
Two Thousand Seventeen and in the 225
of the Commonwealth.

MATTHEW G. BEVIN
GOVERNOR

ALISON LUNDERGAN GRIMES
SECRETARY OF STATE



Water Week In KY resulted in an official proclamation, and multiple online resources developed to help educate the public about water resources and NPS pollution

Chapter 3

Spotlight: Citizen Science in Kentucky

Watershed Watch

Watershed Watch in Kentucky (WWKY) is a statewide citizens monitoring effort to improve and protect water quality by raising community awareness and supporting implementation of the goals of the Clean Water Act and other water quality initiatives. The Kentucky Division of Water (KDOW) has been an integral partner to the WWKY since its inception 20 years ago, serving as one of the founding members and committing staff support to the organization annually. Watershed Watch organizations across the state host training sessions for volunteers to educate them on water quality issues and proper sample collection methods, coordinate three volunteer sampling events per year, and present data to volunteers at annual conferences. Science advisors assist volunteers with interpretation of their data, and coordinate additional sampling efforts or citizen action as needed. Since the inception of the program in 1997, over 4,000

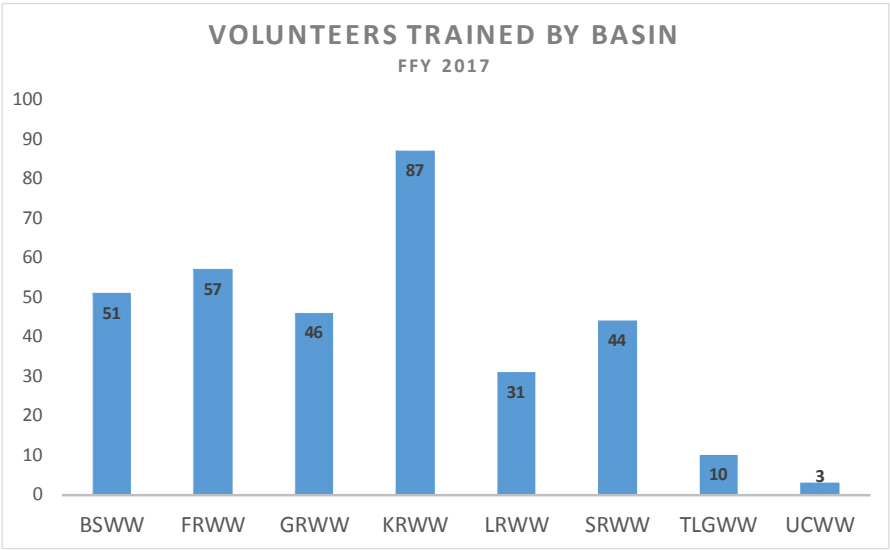


Figure 16. (Top) Volunteers for Four Rivers Watershed Watch sampling aquatic macroinvertebrates. (Bottom) The number of volunteers trained in each basin in FFY 2017.

Watershed Watch volunteers learning to measure water chemistry parameters

volunteers across the state have been trained about water quality through the Watershed Watch program.

WWKY Mini-Grants

In FFY 2017, WWKY decided to focus on action based projects that made use of volunteer collected data, outreach projects that raised awareness about water quality issues across Kentucky, and organizational growth, in addition to the core activities described above. To promote action based projects across the state, WWKY created a mini-grant program that funded citizen action plans that were developed by basin organizations based on volunteer collected data. The goal of this program was to improve waterways across Kentucky by enabling volunteers to act on sampling results. Eight projects were funded across the state through this program.

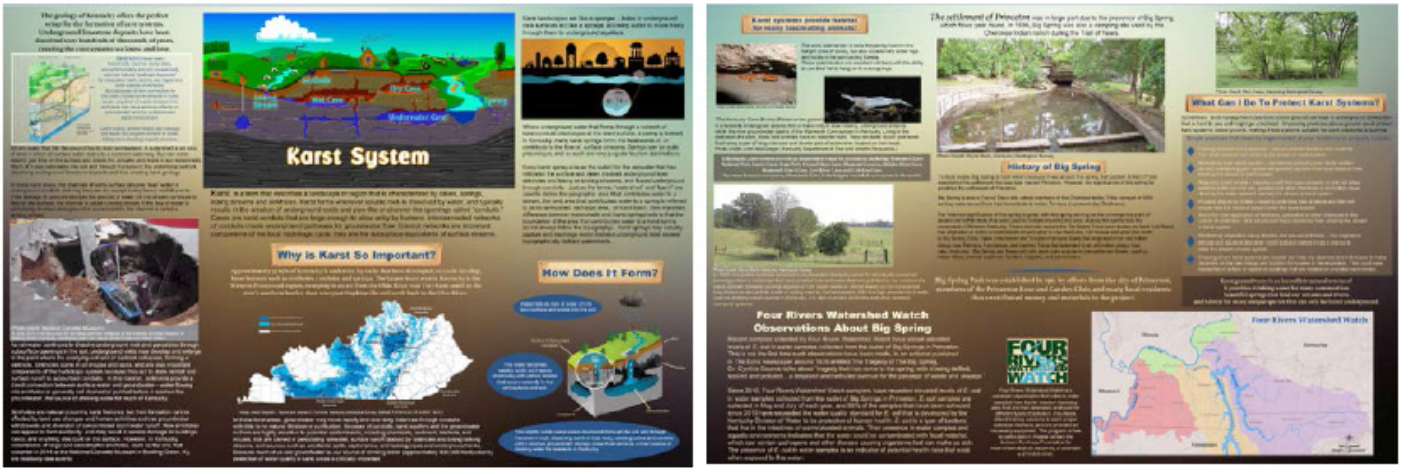
Big Sandy Watershed Watch (BSWW)

Big Sandy Watershed Watch (BSWW) used mini-grant funding to create an Adult Educational Outreach Program. The program was designed to educate the citizens of Greenup County on water quality issues in five tributaries in the Big Sandy watershed. The major concerns in the five tributaries were the presence of pollutants and the lack of volunteers to monitor the tributaries in the future. The educational program included the introductory phase of watershed watch training with hands on collection of field chemistry data including dissolved oxygen, pH, temperature and conductivity and a discussion about nonpoint source pollution, how land use affects water quality and how to interpret chemical and bacteriological data.

Watershed Watch volunteer trainings take place across the Commonwealth

Four Rivers Watershed Watch (FRWW)

Four Rivers Watershed Watch (FRWW) used mini-grant funds to partner with the City of Princeton, the Caldwell County Fiscal Court, the Kentucky Division of Groundwater and the Kentucky Geological Survey to create and install two large four by six foot signs mounted on a kiosk at the Big Spring Park in Princeton, Kentucky. The signs



Informational signage about karst developed as part of the WWKY mini-grant program

included general information about karst systems, information about how runoff pollution affects karst systems, historical information on the karst system at Big Spring, information on FRWW observations at Big Spring, and information on what individuals can do to better protect karst systems. The main goal of this project was to educate the local community about the high bacteria concentrations in Big Spring in order to build a group of interested citizen stakeholders that will act to address the sources of bacteria in the watershed. The educational signs are the first step in a series of outreach efforts needed to accomplish this goal.

Kentucky River Watershed Watch (KRWW)

Kentucky River Watershed Watch (KRWW) used their mini-grant funding to partner with representatives from Hill-N-Dale Neighborhood Association, Southland Association, Friends of Wolf Run Inc., Skybax Ecological Restoration LLC, and the University of Kentucky Horticulture Club to remove invasive plants and install native perennial ground cover, shrubs and trees in an urban wetland seep. The wetland will provide water quantity storage, pollutant filtering and aquatic and bird habitat to help address pathogen and nutrient exceedances as well as habitat loss in the Wolf Run Watershed. The site will also serve as a demonstration area showing plant choices and management strategies for urban native plant restoration areas. An educational sign provided by the City was installed marking the area as a water quality buffer zone.

KRWW installed educational signage about riparian buffer zones

Licking River Watershed Watch (LRWW)

The Licking River Watershed Watch (LRWW) used mini-grant funding to focus on public education by designing and developing a Stream Health Pocket Guide, placing watershed signs in the Hinkston Creek watershed and purchasing a camera and GPS for volunteer use. The Stream Health Pocket Guide fills an identified gap in existing materials, is waterproof and provides

basic stream health information as well as how to collect information if none is available. The signage provides awareness to motorists entering the watershed and states, "help keep it clean." The waterproof camera and GPS will be available to LRWW volunteers for a multitude of projects including a future Millersburg area stream survey and cleanup.

Salt River Watershed Watch (SRWW)
Salt River Watershed Watch (SRWW) used the mini-grant funding to partner with University of Kentucky Cooperative Extension Service, Kentucky Woodland Owners Association, Louisville & Jefferson County Metropolitan Sewer District, Future Fund Land Trust and Maplegate Farm on a riparian corridor enhancement project. The project included planting native vegetation in riparian corridors in the Salt River watershed in order to reduce nutrient pollution. Participates planted 1,500 trees and 500 shrubs on four sites in the basin. Two SRWW volunteers agreed to planting on their properties and are currently maintaining the planted areas. Trees were also planted on a property owned by Louisville MSD and two properties owned by Future Fund. Partnerships were developed with local high schools to assist with planting and to grow trees for future plantings.

Salt River Watershed Watch riparian tree planting

Upper Cumberland Watershed Watch (UCWW)
Upper Cumberland Watershed Watch (UCWW) used mini-grant funding to improve a creek crossing on Bee Lick Creek. UCWW volunteers have over 12 years of data showing the low water crossing as a source of impairment. UCWW collaborated with biologists with the Pulaski County Conservation District to apply best management practices to improve the crossing. The completed project activities consisted of the installation of 45 concrete planks anchored together with a 4-inch gap to allow darters and other aquatic species to pass through during low flow. Vehicular traffic is now limited to the concrete planks minimizing the disturbance to the streambed substrate. The planks will provide more solidity for vehicles while at the same time reducing the long-term maintenance costs associated with the upkeep on the traditional crossing formerly at this location.

Green River Watershed Watch (GRWW)
Green River Watershed Watch (GRWW) used mini-grant funding to host a Watershed Festival and paddling trip for people in the Drakes Creek watershed. The grant focused on educating and engaging people about their impact on water quality. GRWW partnered with twelve different organizations to present water quality information in an education tent. The event drew 200 people and each participant received a free pet waste bag container and a coupon for 10% off an oil change at Valvoline. Through the education, participants were able to make connections between their actions and water quality. In addition, 26 people signed up as interested in becoming Watershed Watch volunteers.

Tommy the Turtle made an appearance at the Drakes Creek Watershed Festival

Tradewater/Lower Green Watershed Watch (TLGWW)

The Tradewater/Lower Green Watershed Watch (TLGWW) used mini-grant funding to host rain barrel workshops for individuals in Hopkins, Muhlenberg, Daviess and Henderson Counties. The goals of the workshops were to educate the public about nonpoint source pollution and ways to improve water quality through everyday practices. Participates constructed rain barrels for personal use at their homes and were encouraged to share their new knowledge with neighbors and friends.

Rain barrel workshop in Daviess county facilitated by DOW and KSU Extension

Harmful Algal Bloom Monitoring and Outreach Campaign

Another focus of WWKY in FFY 2017 included outreach projects that raised awareness about water quality issues across Kentucky, including a Harmful Algal Bloom Monitoring and Outreach Campaign and modifications to the Watershed Watch Data Portal. The goal of the Harmful Algal Bloom Monitoring and Outreach Campaign was to focus resources and bring awareness to the ever-increasing issues associated with harmful algal blooms. A new volunteer monitoring program was developed, the Lakes Monitoring Program, that allows citizen scientists to collect data used by the Kentucky Division of Water to address data gaps and improve upon characterization of water quality in lakes. This program was piloted in two basins in FFY 2017. It was a great success and will be expanded statewide in FFY 2018. In addition to the Lakes Monitoring Program, WWKY partnered with the KDOW and the HAB Work Group to develop an educational brochure with basic information

about harmful algal blooms.

Volunteer Lakes Monitoring Program

The Volunteer Lakes Monitoring Program is a partnership between Watershed Watch of Kentucky and KDOW that aims to initiate a pilot program for citizen volunteers to assist with water quality sampling of lakes.

The primary purpose of this program is to create a network of volunteers who can assist with the detection of harmful algal blooms, prompting the Division of Water to follow up with further testing to determine if swimming advisories are necessary. This pilot effort was introduced at three lakes in FFY 2017: Herrington Lake, Kentucky Lake, and Lake Barkley. The following activities were completed during the pilot year of this program:

- An SOP document was developed that outlined the rationale and procedures for conducting the lake sampling effort.
- A new ArcGIS Survey123 data entry app was developed for samplers to submit their observations in real-time.
- Training workshops were conducted at Herrington Lake, Kentucky Lake and Lake Barkley samplers in June and July of 2017.
- Sampling was conducted every two weeks from July through October 2017 in coordination with LANDSAT flyover dates,

Volunteers learning to measure secchi depth at a Watershed Watch Lakes Monitoring Program training, June 2017

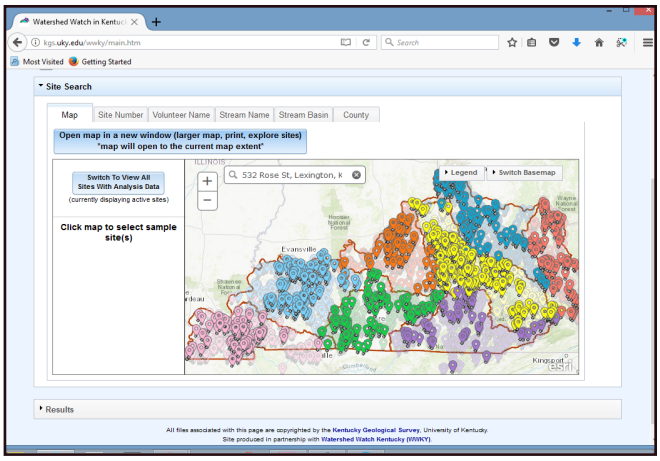
producing 74 total lake observation records.

- Lake observations were submitted on paper reporting forms and entered into the ArcGIS Survey123 database.
- A new ArcGIS data portal website was developed by the Kentucky Geological Survey to enable volunteers to view all sampling results.
- An electronic survey was sent to samplers to assess their experience and solicit suggestions for improving the program. Survey responses will be compiled and discussed during a planned meeting with samplers in January 2018. An analysis of lake water quality observations will also be presented during this meeting with the volunteer samplers.

Harmful algae bloom

KGS Data Portal

Another outreach project that WWKY participated in during FFY 2017 centered around the Watershed Watch Data Portal (*http://kgs.uky.edu/wwky/main.htm*), the central database for all volunteer collected data. Narrative explanations of water quality parameters were added in an effort to better communicate and explain monitoring results. A training was held with Science Advisors, data managers, and basin organizations from across the state to ensure everyone understood the different tools available through the Data Portal.

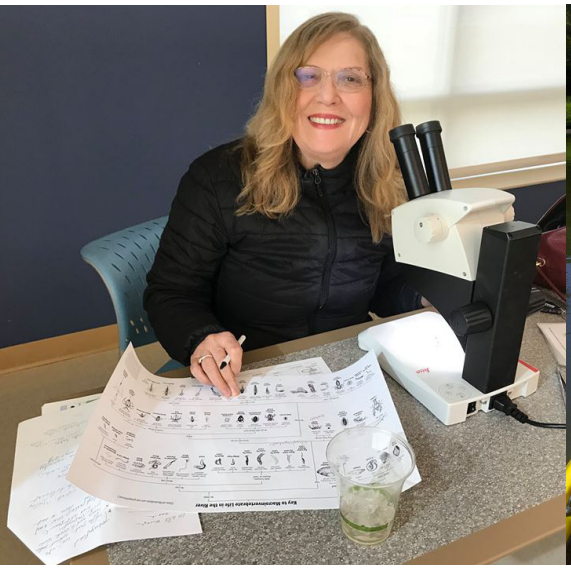


The KGS Data Portal connects volunteers directly to their data

In addition to work on the Watershed Watch Data Portal, WWKY also worked with a private contractor to develop a new, more user-friendly website for the organization, located at www.kywater.org. Through this website, WWKY hopes to have more of an online presence in order to better communicate their goals, mission and successes.

WWKY Strategic Plan

In FFY 2017, WWKY developed their first three-year strategic plan in an effort to guide future activities and growth of the organization. The WWKY Board of Directors developed an annual work plan to define activities that are needed to accomplish the goals established in the newly developed strategic plan. Through this process, WWKY has identified six different committees needed to effectively run the



WWKY volunteers across the state collect data on macroinvertebrates to assess stream health in addition to water chemistry parameters like DO, pH, turbidity, conductivity, and temperature

organization including the finance committee, the organisational operations committee, basin support committee, science advisory committee, outreach committee and citizen action committee. Throughout FFY 2017, these committees have been meeting to accomplish the tasks identified in the annual work plan. Through the strategic planning process, WWKY has been able to grow into a stronger organization that will make a positive impact on waterways in Kentucky long into the future.

Through the strategic planning process, the WWKY board has learned a great deal about their strengths and weaknesses as an organization. One of the most apparent lessons is that we have not adequately told our story and our successes over the past 20 years. Due to WWKY volunteers and their efforts, 56 watershed groups have formed across the state that actively work to address water quality issues by securing funding from various sources for on the ground practices to improve water quality, raising awareness about water quality issues through outreach events and meeting with local officials to improve policies related to water quality. WWKY volunteers have been actively involved as stakeholders in 32 of the 39 watershed based plans currently developed or under development, have contributed to the development of 26 of those plans, and have had volunteer collected data used in 29 of those plans. The effect of WWKY volunteers in spurring direct improvements in water quality through their monitoring activities and subsequent on the ground implementation projects cannot be overlooked. Without WWKY volunteers, many of these watershed plans would never have been developed and no on the ground implementation activities would have occurred.

Virginia Environmental Endowment Grant

Because of the momentum gained through the strategic planning process, WWKY was able to receive a grant from the Virginia Environmental Endowment to continue support of the program in 2018. Funds from this grant will support core volunteer monitoring needs across the state and

provide support, technical and organisational guidance to the basin organizations. The main avenue to offer this support and guidance will be through reinvigoration in the statewide Science Advisory Committee (SCIAD). The SCIAD, facilitated by the KDOW, will work with local basin science advisory committees to identify data that will be valuable to volunteers and partnering organizations across the state, develop sampling schemes to address these data needs, and standardize reporting methods to volunteers and local communities. The goal with this approach is to strengthen local basin science advisory committees so that they are better able to offer technical guidance and support to volunteers across the state, enabling volunteers to make a greater impact on water quality on a local level.

Chapter 4

Workplan Reporting

FFY 2017 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 2014 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 2017 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 2017 Program annual workplan commitments and the work accomplished toward their completion are also included in the following tables.

Construction of the bench full wetlands at the YMCA camp near Gunpowder Creek

Long Term Goal #1: Restore Nonpoint Source Impaired Waters		Targeted Completion					Annual Reporting
Objective 1:	**Prioritize waters based on an assessment of restoration potential**	2014	2015	2016	2017	2018	
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	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 KDOW in February, allowing watershed prioritization across multiple programs. A list of recoverable watersheds was not developed this year.
	Tracking Measure: Number and list of recoverable watersheds receiving targeted implementation.		X	X	X	X	
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 targeting 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 KDOW in February, allowing watershed prioritization across multiple programs. A list of watersheds ID'd as recoverable for pathogens was not developed this year.
	Tracking Measure: Number of recoverable watersheds receiving targeted implementation.				X	X	
Action 3:	Work to develop local capacity and implement actions necessary to address the pollution in prioritized watersheds.						
	Tracking Measure: Number of new watershed groups formed.	X	X	X	X	X	During FFY 2017 KDOW documented fifty four (54) 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.

Long Term Goal #1: Restore Nonpoint Source Impaired Waters		Targeted Completion					Annual Reporting
Objective 1:	**Prioritize waters based on an assessment of restoration potential**	2014	2015	2016	2017	2018	
Action 3 Cont'd:	Work to develop local capacity and implement actions necessary to address the pollution in prioritized watersheds.						
	Tracking Measure: Number of watershed plans implemented.	X	X	X	X	X	KDOW has provided funding and technical assistance for the implementation of twenty-five (25) watershed plans statewide.
	Tracking Measure: Number of straight to implementation plans developed.			X	X	X	As of the end of FFY 2017, KDOW funded the development and implementation of four (4) Straight to Implementation Watershed Plans. • Sulphur Creek • Tenmile Creek of Eagle Creek • Pleasant Run • Rock Creek Abandoned Mine Lands
	Tracking Measure: Number of straight to implementation plans implemented.				X	X	KDOW is currently implementing two (2) phases of one (1) STI watershed Plan in Sulphur Creek. The other three (3) STI watershed plans were completed several years ago.
Objective 2:	**Monitor and assess Kentucky's waters**	2014	2015	2016	2017	2018	
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, 12,613.8 stream miles have been monitored and assessed by KDOW programs.

Long Term Goal #1: Restore Nonpoint Source Impaired Waters		Targeted Completion					Annual Reporting
Objective 2 Cont'd:	**Monitor and assess Kentucky's waters**	2014	2015	2016	2017	2018	
Action 1 Cont'd:	Conduct monitoring and perform assessments of Kentucky's waters in conjunction with the watershed framework.						
	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 KDOW 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 2017 KDOW staff or contractors were conducting water quality monitoring on approximately eight (8) watersheds in preparation for Watershed Plan development. • Crafts Colly • Cypress Creek • Cane Run Creek • North Fork KY River • Sandlick Creek • Dry Fork

Long Term Goal #1: Restore Nonpoint Source Impaired Waters		Targeted Completion					Annual Reporting
Objective 2 Cont'd:	**Monitor and assess Kentucky's waters**	2014	2015	2016	2017	2018	
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	Obion Creek - Prior Assessments on this stream (pre-2016) exist. Will be submitted for assessments in 2020. Gunpowder Creek has been assessed previously to 2017. Current assessments will be done for the 2018 IR.
	Tracking measure: Number and list of streams that have a documented change in use support awaiting EPA approval.	X	X	X	X	X	There are currently no streams awaiting EPA approval a change in use support. The 2017 data from Obion Creek was not submitted for assessments in 2017. Data collection efforts in the North Fork KY River tributaries was for baseline monitoring and will be used for future development of a watershed plan.
	Tracking measure: Number and list of streams that have a documented change in use support approved by EPA.	X	X	X	X	X	There are currently no streams awaiting EPA approval for a change in use support. The 2017 data from Obion Creek was not submitted for assessments in 2017. Data collection efforts in North Fork KY River was for baseline monitoring and will be used for future development of a watershed plan. Data collection in the Gunpowder Creek watershed has segments submitted for the 2018 IR.

Long Term Goal #1: Restore Nonpoint Source Impaired Waters		Targeted Completion					Annual Reporting
Objective 2 Cont'd:	**Monitor and assess Kentucky's waters**	2014	2015	2016	2017	2018	
Action 4:	Develop and implement a Division level watershed success monitoring program.						
	Tracking measure: Develop a tracking tool for areas in need of future success monitoring.	X					Spreadsheets of on the ground BMP implementation data is being compiled from internal and external state and federal agencies. GIS coverages are in development. Existing watershed plans are being evaluated for current and future success monitoring, and the data are being evaluated for changes in status.
	Tracking measure: Number of watersheds identified as needing success monitoring.	X	X	X	X	X	Success Monitoring selection for FFY 2017 was based upon preliminary BMP implementation information in addition to staff technical knowledge. Three watersheds were monitored for baseline and assessments for success in 2017.; 1) Obion Creek 2) North Fork Kentucky River 3) Gunpowder Creek

Long Term Goal #1: Restore Nonpoint Source Impaired Waters		Targeted Completion					Annual Reporting
Objective 2 Cont'd:	**Monitor and assess Kentucky's waters**	2014	2015	2016	2017	2018	
Action 4 Cont'd:	Develop and implement a Division level watershed success monitoring program.						
	Tracking measure: Conduct annual meeting to coordinate locations appropriate for success monitoring within the watershed framework.		X	X	X	X	KDOW 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 KDOW 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: Design NWQI success monitoring plan and develop QAPP.	X	X				To date the Headwaters of Hinkston Creek NWQI watershed was extensively monitored by KDOW Biologists to establish baseline water quality conditions. Due to a lack of interest in farm bill conservation programs, NRCS elected to drop the Headwaters Hinkston Creek as an NWQI watershed after FFY 2015. KDOW did not collect additional NWQI water quality monitoring data during FFY 2017. However, planning has begun to collect baseline water quality data for Lee's Creek, a potential new NWQI watershed in the Licking River Basin.

Long Term Goal #1: Restore Nonpoint Source Impaired Waters		Targeted Completion					Annual Reporting
Objective 2 Cont'd:	**Monitor and assess Kentucky's waters**	2014	2015	2016	2017	2018	
Action 5 Cont'd:	Conduct post-BMP implementation Water Quality Monitoring for National Water Quality Initiative (NWQI) watersheds.						
	Tracking measure: Implement NWQI success monitoring plan.	X	X	X	X	X	The Headwaters of Hinkston Creek NWQI watershed was extensively sampled for one calendar year during 2014-2015 to establish baseline water quality conditions. On the ground implementation efforts are being assessed to determine if and when watershed scale "Success Monitoring" should be conducted. No additional monitoring was conducted during FFY 2017.
	Tracking measure: Compile water quality data for trend analysis in NWQI watersheds.			X		X	The Hinkston Creek monitoring report was attached to the FFY 2016 NPS Program Annual Report as Appendix A, and is available upon request in the future.

Long Term Goal #1: Restore Nonpoint Source Impaired Waters		Targeted Completion					Annual Reporting
Objective 3:	Implement the Nonpoint Source component of Approved TMDLs of restoration strategies in prioritized impaired watersheds	2014	2015	2016	2017	2018	
Action 1:	Coordinate with the Division's TMDL Program in order to prioritize development of Nine-Key Element Watershed or "Alternative" plans for watersheds with approved or under development TMDL documents.						
	Tracking measure: Number and list of TMDL watersheds prioritized.		X	X	X	X	KDOW's Nonpoint Source and TMDL Programs have been coordinating efforts since 2005. Twenty-four (24) of KDOW's watershed planning areas also have TMDL documents either existing or being developed. • Bacon Creek • Banklick Creek • Brushy Creek • Cane Run • Clarks Run • Corbin City Res. • Currys Fork • Dry Creek • Gunpowder Creek • Hancock Creek • Hanging Fork Creek • Hinkston Creek • Kinniconick Creek • Pleasant Run AML • Red Bird River • Rock Creek AML • Sinking Creek • Sulphur Creek • Ten Mile Creek • Triplett Creek • Wolf Run • Woolper Creek • UEF of Clarks

Long Term Goal #1: Restore Nonpoint Source Impaired Waters		Targeted Completion					Annual Reporting
Objective 3 Cont'd:	Implement the Nonpoint Source component of Approved TMDLs of restoration strategies in prioritized impaired watersheds	2014	2015	2016	2017	2018	
Action 2:	Develop Nine-Key Element Watershed or "Alternative" Plans for prioritized TMDL watersheds.						
	Tracking measure: Number and list of TMDL watersheds with a watershed or alternative plan under development.		X	X	X	X	Currently seven (7) watershed plans are being developed in TMDL watersheds. One (1) of those plans is actively being developed into a TMDL alternative, and two (2) additional watersheds are being considered for TMDL alternative. *Strodes Creek *Damon Creek *Cypress Creek *Bacon Creek *South Fork Little River *Cane Run
	Tracking measure: Number and list of TMDL watersheds with an approved/ completed watershed or alternative plan.	X	X	X	X	X	Currently seventeen (17) TMDL watersheds are being implemented by approved watershed plans. To date no TMDL Alternative watershed plans have been completed. • Bacon Creek • Banklick Creek • Cane Run • Chestnut Creek • Clark's Run • Curry's Fork • Dry Creek • Hanging Fork Creek • Hinkston Creek • Lower Howards Creek • Sulphur Creek • Stockton Creek • Tenmile Creek • Triplett Creek • Wolf Run

Long Term Goal #1: Restore Nonpoint Source Impaired Waters		Targeted Completion					Annual Reporting
Objective 4:	Implement restoration strategies for prioritized impaired watersheds that will result in measurable water quality improvements	2014	2015	2016	2017	2018	
Action 1:	Continue development and implementation of accepted watershed plans developed under the existing prioritization strategy.						
	Tracking measure: Number and list of watershed plans currently accepted for implementation.	X	X	X	X	X	At the end of FFY 2017 KDOW had accepted twenty five (25) Watershed plans for implementation. All twenty-five (25) plans have been approved by EPA R4 for implementation with current 319(h) funding. *Chestnut Creek *Pleasant Run *Clarks Run *Sulphur Creek *Darby Creek *Currys Fork *Gunpowder Creek *Woolper Creek *Tenmile Creek *Banklick Creek *Cane Run *Wolf Run *Hancock Creek *Stockton Creek *Hinkston Creek *Triplett Creek *Dry Creek *Red River *Red Bird River *Rock Creek AML *Bacon Creek *Brushy Creek *Hanging Fork Creek *Lower Howards Creek *Corbin City Reservoir All KDOW accepted watershed plans can be found in the GRTS Watershed Plan Tracker

Long Term Goal #1: Restore Nonpoint Source Impaired Waters		Targeted Completion					Annual Reporting
Objective 4 Cont'd:	Implement restoration strategies for prioritized impaired watersheds that will result in measurable water quality improvements	2014	2015	2016	2017	2018	
Action 1 Cont'd:	Continue development and implementation of accepted watershed plans developed under the existing prioritization strategy.						
	Tracking measure: Number and list of watershed plans currently implementing an accepted watershed plan.	X	X	X	X	X	During FFY 2017 KDOW had twenty seven (27) 319(h) funded watershed plan implementation projects implementing seventeen (17) watershed plans from the 2010 - 2016 grant years. • Chestnut Creek • Gunpowder Creek • Dry Creek • Sulphur Creek • Banklick Creek • Lower Howards • Darby Creek • Corbin City Reservoir • Red River • Currys Fork • Hinkston Creek • Wolf Run • Woolper Creek • Triplett Creek • Bacon Creek • Hanging Fork Creek • Clark's Run

Long Term Goal #1: Restore Nonpoint Source Impaired Waters		Targeted Completion					Annual Reporting
Objective 4 Cont'd:	Implement restoration strategies for prioritized impaired watersheds that will result in measurable water quality improvements.	2014	2015	2016	2017	2018	
Action 1 Cont'd:	Continue development and implementation of accepted watershed plans developed under the existing prioritization strategy.						
	Tracking measure: Number and list of watershed plans under development.	X	X	X	X	X	During FFY 2017 KDOW worked with contractors toward development of ten (10) additional watershed plans. • Woolper Creek • Strodes Creek • Cane Run • North Fork KY River • Kinniconick Creek • Brushy Creek • Red Bird River • Bacon Creek • Sinking Creek • Damon Creek Woolper Creek, Kinniconick Creek, Red Bird River and Brushy Creek plans were completed and accepted for implementation.

Long Term Goal #1: Restore Nonpoint Source Impaired Waters		Targeted Completion					Annual Reporting
Objective 4 Cont'd:	Implement restoration strategies for prioritized impaired watersheds that will result in measurable water quality improvements.	2014	2015	2016	2017	2018	
Action 2:	Actively plan, engage project partners, and manage multiple implementation strategies and functional areas for each prioritized impaired watershed.						
	Tracking measure: Number and list of priority impaired watersheds where active management planning has been completed.	X	X	X	X	X	At the end of FFY 2016 ten (10) Basin Team selected Priority Watersheds had completed watershed plans that were being implemented. • Clarks Run • Cane Run Sulphur Creek • Hinkston Creek Darby Creek • Triplett Creek Curry's Fork • Red River Banklick Creek • Corbin City Reservoir
	Tracking measure: Number and list of priority impaired watersheds where active management planning is being developed.	X	X	X	X	X	At the end of FFY 2016 eight (8) Basin Team selected Priority Watersheds had watershed plans that were under development. • Clark's River • West Fork Clark's River • Bacon Creek • South Fork Little River • Brushy Creek • Lower Trammel Creek • Sinking Creek • Little Pitman Creek

Long Term Goal #1: Restore Nonpoint Source Impaired Waters		Targeted Completion					Annual Reporting
Objective 5:	Decrease input of pollutants from agricultural sources	2014	2015	2016	2017	2018	
Action 1:	Support projects that educate the agricultural community.						
	Tracking measure: Number of projects with an agricultural BMP demonstration event.	X	X	X	X	X	Agricultural BMP demonstration events were held in two (2) watershed planning or project areas during FFY 2017. *15-04 Cane Run *15-10 Sulphur Creek
	Tracking measure: Provide financial and technical support to educate producers about the Agriculture Water Quality Act. Participate in at least one event per year.	X	X	X	X	X	KDOW staff updated the AWQA Minimum BMP descriptions for the "Streams and Other Waters" BMPs to bring them into compliance with current CWA 401/404 Program regulations, and presented the revisions to the KY Ag Water Quality Authority. KDOW staff attended all four (4) Ag Water Quality Authority meetings held during FFY 2017. KDOW's NPS Program continued to fund the Water Quality Liaison position with the University of Kentucky Cooperative Extension Service as well as provided funding for an additional position to coordinate and conduct training on Nutrient Management Planning.

Long Term Goal #1: Restore Nonpoint Source Impaired Waters		Targeted Completion					Annual Reporting
Objective 5 Cont'd:	Decrease input of pollutants from agricultural sources	2014	2015	2016	2017	2018	
Action 2:	Support projects that install Best Management Practices to control NPS pollution from agricultural sources.						
	Tracking measure: Number of agricultural BMPs installed through implementation of a watershed plan.	X	X	X	X	X	During FFY 2017 KDOW's Nonpoint Source Program funded the implementation of seventy-one (71) on the ground agricultural conservation practices installed through a total of six (6) projects in ten (10) different watershed planning areas. • Bacon Creek (13 BMPs, 13-06 • Hinkston (14 BMPs, 13-07) • Triplett Creek (1 BMP, 13-08) • Chestnut Creek (2 BMPs, 14-06) • UK Winter Feeding (22 BMPs, 14-09) • Sulphur Creek (19 BMPs, 15-10)

Long Term Goal #1: Restore Nonpoint Source Impaired Waters		Targeted Completion					Annual Reporting
Objective 5 Cont'd:	Decrease input of pollutants from agricultural sources	2014	2015	2016	2017	2018	
Action 2 Cont'd:	Support projects that install Best Management Practices to control NPS pollution from agricultural sources.						
	Tracking measure: Amount of funding for state cost share practices spent in priority watersheds.	X	X	X	X	X	KDOW maintains a cooperative working relationship with the KY Division of Conservation regarding the State Cost Share and other programs. As a result of this working relationship, priority points are given to Agricultural Water Quality Best Management Practices being installed within KDOW Priority and impaired watersheds.
	Tracking measure: Coordinate with NRCS to fund BMPs in priority watersheds.	X	X	X	X	X	KDOW maintains a cooperative working relationship with NRCS through State Technical Committee and EQIP sub-committee. As a result of this working relationship, NRCS gives priority points through the EQIP ranking process to KDOW priority and impaired watersheds.

Long Term Goal #1: Restore Nonpoint Source Impaired Waters		Targeted Completion					Annual Reporting
Objective 5 Cont'd:	Decrease input of pollutants from agricultural sources	2014	2015	2016	2017	2018	
Action 3:	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	KDOW participated in one (1) NRCS State Technical Committee meeting, one (1) Gunpowder Creek NWQI meeting, and assisted with an additional NWQI application for Lee's Creek during FFY 2017. This was in addition to several local conservation district/NRCS meetings and facilitating the EPA Region 4 annual site visit meeting with NRCS regarding NWQI.
	Tracking measure: Participate in the four (4) quarterly Kentucky Agriculture Water Quality Authority Meetings per year.	X	X	X	X	X	KDOW participated in all four (4) Agriculture Water Quality meetings during FFY 2017. Additional the four Streams and Other Waters BMPs were updated and presented to the Authority for review and approval. KDOW also participated with the AWQA Pesticides and Fertilizers sub-committee where the minimum BMP standards were updated. The Pesticides were adopted by the AWQA, and Streams & Other Waters BMPs were approved, but need some additional updates.

Long Term Goal #1: Restore Nonpoint Source Impaired Waters		Targeted Completion					Annual Reporting
Objective 5 Cont'd:	Decrease input of pollutants from agricultural sources	2014	2015	2016	2017	2018	
Action 3 Cont'd:	Participate in state wide meetings and conferences that have a focus on Agriculture and Water Quality						
	Tracking measure: Participate in the Kentucky Agriculture Science and Monitoring Committee meetings	X	X	X	X	X	KDOW participated in two (2) of the three KASMC meetings held during FFY 2017.
	Tracking measure: Number of staff attending agriculture related technical training	X	X	X	X	X	All KDOW NPS Program staff received training on agricultural sources of NPS pollution during FFY 2017 through attendance at numerous educational events and farm field days.
	Tracking measure: Present information or a booth at one agriculture related event each year	X	X	X	X	X	KDOW staff set up a water quality display and conducted outreach at the KY Association of Conservation Districts Annual Conference. KDOW staff conducts numerous water quality educational events with agricultural producers on an annual basis.

Long Term Goal #1: Restore Nonpoint Source Impaired Waters		Targeted Completion					Annual Reporting
Objective 6:	Decrease input of pollutants from developed lands	2014	2015	2016	2017	2018	
Action 1:	Support projects that demonstrate green infrastructure (GI) and good stormwater management.						
	Tracking measure: Number of GI BMPs installed.	X	X	X	X	X	Five (5) subgrantee projects actively implemented GI BMPs in FFY 2017. • 13-03 Banklick Creek • 13-06 Triplett Creek • 14-05 Gunpowder Creek • 15-05 Red Bird • 15-06 Red River
	Tracking measure: Have a staff member complete one training course each year on stormwater management or GI to increase technical capacity.	X	X	X	X	X	Three (3) NPS staff attended the Kentucky Stormwater Association Annual Conference in FFY 2017. This conference serves as a forum for information and technology transfer with regards to GI practices, general stormwater management strategies, and MS4 program implementation.

Long Term Goal #1: Restore Nonpoint Source Impaired Waters		Targeted Completion					Annual Reporting
Objective 6 Cont'd:	Decrease input of pollutants from developed lands	2014	2015	2016	2017	2018	
Action 2:	Provide technical assistance for Urban/LID/Stormwater/Smart Growth efforts throughout the Commonwealth.						
	Tracking measure: Participate in at least one training event per year for local officials, contractors or the public about the benefits of GI and stormwater management.	X	X	X	X	X	NPS staff participated in the FFY 2017 Kentucky Stormwater Association Annual Conference through general attendance and by giving a presentation detailing ways in which the NPS Program can assist MS4 communities with education and outreach efforts, and general education and outreach strategies with regards to stormwater management. Furthermore, NPS staff hosted or presented information specifically detailing stormwater management strategies, including GI, at six (6) events directed towards the general public or to local government officials.

Long Term Goal #1: Restore Nonpoint Source Impaired Waters		Targeted Completion					Annual Reporting
Objective 6 Cont'd	Decrease input of pollutants from developed lands	2014	2015	2016	2017	2018	
Action 3:	Continue partnership with Stormwater/Urban lands groups locally, regionally and statewide.						
	Tracking measure: Attend one (1) Kentucky Stormwater Association meeting per year.	X	X	X	X	X	Two (2) Kentucky Stormwater Association quarterly meetings held in FFY 2017 were attended by at least one (1) NPS staff member. Additionally, three (3) NPS staff attended the Kentucky Stormwater Association Annual Conference in FFY 2017.
	Tracking measure: Provide financial and technical support to educate MS4 and other communities about developing stormwater monitoring programs.	X	X	X	X	X	KDOW's NPS Program staff is working with 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.
Action 4:	Participate in Division of Water development of the revised Construction General and Phase II MS4 permits.						
	Tracking measure: Provide technical support for the development of the SWQMP guidance.		X				This action was completed in FFY 2016, and as such, not implemented during FFY 2017.

Long Term Goal #1: Restore Nonpoint Source Impaired Waters		Targeted Completion					Annual Reporting
Objective 7:	Decrease NPS Pollution impacts from forestry activities	2014	2015	2016	2017	2018	
Action 1:	Support statewide and regional projects that focus on sustainable forestry management with water quality being the primary concern.						
	Tracking measure: Number of forestry BMPs installed through watershed plans	X	X	X	X	X	No forestry BMPs were directly installed using Section 319(h) funding as a component of watershed plan development during FFY 2017. However, NPS Program staff are actively working with the KY Division of Forestry, the KY Forest Conservation Act BMP Board, and UK Cooperative Extension Forestry to support the adoption and improvement of forestry BMPs for all timber harvesting operations in the state.
Action 2:	Partner with the KY Division of Forestry (KDF) and USFS to reduce NPS pollution.						
	Tracking measure: Attend and participate in at least one (1) Forest Conservation Act BMP Board meeting per year	X	X	X	X	X	KDOW staff attended the one (1) KFCA BMP Board meeting held during FFY 2017. KDOW continues to maintain and improve the Forestry smart phone application that provides crucial stream designation information to timber industry professionals and KY Division of Forestry Rangers through their smart phone in the field. This information allows the users to select and implement the proper timber harvesting Best Management Practices with the common goal of minimize negative impacts of timber harvesting operations on sensitive stream ecosystems. Additionally, NPS Program staff members attended Master Logger to learn about timber harvesting BMPs.

Long Term Goal #1: Restore Nonpoint Source Impaired Waters		Targeted Completion					Annual Reporting
Objective 7 Cont'd:	Decrease NPS Pollution impacts from forestry activities	2014	2015	2016	2017	2018	
Action 2 Cont'd:	Partner with the KY Division of Forestry (KDF) and USFS to reduce NPS pollution.						
	Tracking measure: Provide sub-grantee funding to the KDF for the purpose of regularly conducting an assessment of Forest Conservation Act BMP Compliance.	X				X	The KY Division of Forestry completed the last BMP Compliance study during FFY 2015. KDF's efforts during 2016 and 2017 were centered around improved training for their Ranger staff, and improvements to the Master Logger training.
	Tracking measure: Provide sub-grantee funding and technical assistance for the development and distribution of the Forest Conservation Act Education and Outreach materials.			X	X	X	FFY 2014 Programmatic funding was provided to the University of Kentucky Forestry Extension for the printing distribution, and training on the updated KY Forestry BMP Field Guide.

Long Term Goal #1: Restore Nonpoint Source Impaired Waters		Targeted Completion					Annual Reporting
Objective 8:	Protect and Assess Kentucky's Groundwater	2014	2015	2016	2017	2018	
Action 1:	Provide administrative, financial, and technical support for the assessment of groundwater impacts from Nonpoint Source Pollution.						
	Tracking measure: Number of springs assessed.	X	X	X	X	X	In FFY 2017, there were 32 springs assessed, 30 of these were sampled.
	Tracking measure: Number of groundwater samples with positive pathogen readings.	X	X	X	X	X	Seven groundwater samples included testing for pathogens; these were collected from water wells. Four were positive for total coliform, and two were positive for *E. coli.*
	Tracking measure: Number of groundwater samples with positive pesticide readings.	X	X	X	X	X	Of the 163 groundwater samples collected in FFY 2017, 67 of these had at least one pesticide detection. (*NOTE: pesticide data were only available through the end of May at this time, so I requested the data for 6/1/16 - 5/31/17 to catch a whole year. In the FFY 2017, 153 groundwater samples were collected.)
Action 2:	Provide technical assistance regarding groundwater protection.						
	Tracking measure: Number of BMPs installed for protection of groundwater sources.	X	X	X	X	X	For FFY 2017, the Groundwater Protection Program conducted 45 field reviews of groundwater protection measures at facilities, and approved of 58 new Groundwater Protection Plans. The Source Water Protection / Wellhead Protection Program staff provided technical assistance directly to PWSs relative to SWP/WHP plan development and implementation of management strategies.

Long Term Goal #1: Restore Nonpoint Source Impaired Waters		Targeted Completion					Annual Reporting
Objective 8 Cont'd:	Protect and Assess Kentucky's Groundwater	2014	2015	2016	2017	2018	
Action 3:	Support the use of Best Management Practices that protect groundwater and promote groundwater recharge.						
	Tracking measure: Number of BMPs installed promoting infiltration in karst prone areas.	X	X	X	X	X	In FFY 2017, the Source Water Protection/ Wellhead Protection Program providing funding for PWSs to implement projects including installation of a rain garden, plugging unused water supply wells, and monitoring a spring to characterize water quality and discharge within in designated source water protection areas. In addition, educational outreach was provided to local schools in three of the project communities.
Objective 9:	Decrease human sewage in Kentucky's water bodies	2014	2015	2016	2017	2018	
Action 1:	Provide financial and technical support to projects that decrease the negative impacts on water quality from sewage.						
	Tracking measure: Number of sub-grantee projects that implement the on-site wastewater components of an accepted watershed plan.	X	X	X	X	X	In FFY 2017 five (5) projects actively implemented on-site wastewater BMPs. • Banklick (13-03) • Darby Creek (13-04) • Bacon Creek (13-06) • Sulphur Septic (15-09) • Lincoln County Homeowners Assistance Program - RCAP (16-08)

Objective 9 Cont'd:	Decrease human sewage in Kentucky's water bodies	2014	2015	2016	2017	2018	
Action 1 Cont'd:	Provide financial and technical support to projects that decrease the negative impacts on water quality from sewage.						
	Tracking measure: Coordinate efforts with the Division's Clean Water SRF to abate failing on-site wastewater systems.			X	X	X	This action was not implemented during FFY 2016.
Action 2:	Develop working partnerships with the Kentucky Department for Public Health, local health departments, KY Onsite Wastewater Association, Eastern KY PRIDE, and Bluegrass Greensource.						
	Tracking measure: Number of partner meetings attended.	X	X	X	X	X	In FFY 2017, seven (7) projects actively implemented, or assisted with the implementation of, on-site wastewater BMPs, including the Lincoln County Sanitation District and Bluegrass Greensource. Additionally, the NPS Program has developed partnerships with the local health departments in projects where said entity was not the subgrantee to ensure that on-site wastewater implementation efforts were successful. • Banklick (13-03) • Darby Creek (13-04) • Bacon Creek (13-06) • Sulphur Septic (15-09) • Clarks Run, Hanging Fork, and Hinkston Creek (16-07) • Lincoln County Homeowners Assistance Program - RCAP (16-08) • Lincoln County Homeowners Assistance Program - Lincoln County Sanitation District (16-09)

Long Term Goal #1: Restore Nonpoint Source Impaired Waters		Targeted Completion					Annual Reporting
Objective 9 Cont'd:	Decrease human sewage in Kentucky's water bodies	2014	2015	2016	2017	2018	
Action 2 Cont'd:	Develop working partnerships with the Kentucky Department for Public Health, local health departments, KY Onsite Wastewater Association, Eastern KY PRIDE, and Bluegrass Greensource.						
	Tracking measure: Number of targeted watersheds with pathogen education performed.	X	X	X	X	X	In FFY 2017, six (6) projects, actively implemented on-site wastewater BMPs. All six projects included an on-site wastewater system maintenance and nonpoint source pollution education and outreach campaign. • Banklick (13-03) • Darby Creek (13-04) • Bacon Creek (13-06) • Sulphur Septic (15-09) • Lincoln Co. (16-08)
Objective 10:	Protect and restore waters at risk from recreational impacts	2014	2015	2016	2017	2018	
Action 1:	Support projects that protect Outstanding State Resource Waters and other Special Use Waters with known recreational impacts.						
	Tracking measure: Number of BMPs installed in areas of Special Use Waters.	X	X	X	X	X	In FFY 2017 four (4) subgrantee projects actively implemented BMPs in areas of Special Use Waters. • Red Bird (15-05) • Red River (15-06) • Sulphur Septic (15-09) • Sulphur Ag (15-10)

Long Term Goal #1: Restore Nonpoint Source Impaired Waters		Targeted Completion					Annual Reporting
Objective 10 Cont'd:	Protect and restore waters at risk from recreational impacts	2014	2015	2016	2017	2018	
Action 2:	Promote green infrastructure with dual use as recreation areas.						
	Tracking measure: Number of green infrastructure areas also utilized for recreation.	X	X	X	X	X	During FFY 2017, one (1) project implemented GI BMPs at a location utilized for public recreation. Specifically, a bankfull wetland was installed on the property of a local YMCA campground, in which an educational trail and signage is planned to be installed. • Gunpowder 14-05
Action 3:	Provide technical assistance for CWSRF funded projects addressing Nonpoint Source impacts from marinas.						
	Tracking measure: Number of marina applications.					X	This action was not implemented during FFY 2017.

Long Term Goal #1: Restore Nonpoint Source Impaired Waters		Targeted Completion					Annual Reporting
Objective 11:	Decrease Nonpoint Source Pollution from resource extraction	2014	2015	2016	2017	2018	
Action 1:	Support and provide technical assistance for projects in areas of brownfields, acid mine drainage, abandoned mine lands and other resource extraction activities.						
	Tracking measure: Number of projects implementing BMPs in previously mined areas.	X	X	X	X	X	Additional on the ground implementation of AMD projects in the Pleasant Run watershed was garnered through the KDOW Success Monitoring Program's efforts to coordinate water quality monitoring at Abandoned Mine Lands project sites. KDOW Staff is 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.
Objective 12:	Decrease the negative impacts of excessive sedimentation in Kentucky's Streams	2014	2015	2016	2017	2018	
Action 1:	Provide financial and technical support for education on the subject of stream restoration and stream bank stabilization techniques.						
	Tracking measure: Provide funding to maintain the Natural Channel Design Working Group and participate in meetings. 1 per year.	X	X	X	X	X	For FFY 2017, no meetings or activities occurred without the funding being provided to a project that was to facilitate the Natural Channel Design Working Group (NCDWG). NPS Staff discussed with previous workgroup partners whether it was practical and beneficial to continue this group, and it was not determined to be an effective use of time because of logistics of coordinating the effort without the previous lead group's involvement. This measure is completed.

Long Term Goal #1: Restore Nonpoint Source Impaired Waters		Targeted Completion					Annual Reporting
Objective 12 Cont'd:	Decrease the negative impacts of excessive sedimentation in Kentucky's Streams	2014	2015	2016	2017	2018	
Action 1 Cont'd:	Provide financial and technical support for education on the subject of stream restoration and stream bank stabilization techniques						
	Tracking measure: Develop and distribute guidance to landowners on how to properly maintain stream banks and riparian areas.			X	X	X	Work toward a general statewide education & outreach guidance document targeted to landowners began in FFY 2017 as planned. KDOW NPS Program staff created a brochure "Guidelines for Stream Obstruction Removal" that provides guidance for removal of debris, gravel, and other obstructions in a stream. Three (3) project groups provided guidance to landowners regarding stream banks and riparian areas: • Triplett Creek (14-08) • Red Bird River (15-05) • Red River (15-06)
	Tracking measure: Number of plans implementing riparian buffer BMPs or tree plantings. Target one per year.	X	X	X	X	X	Riparian Buffer projects and initiatives were implemented in three (3) watershed planning areas during FFY 2017. • Gunpowder (14-05) 100 trees • Triplett Creek (14-08) 375 trees at 4 sites; 325 seedlings, 50 trees with root-balls • Red River Gorge (15-06) tree planting at Indian Creek stream restoration site, tree planting with every camp site and trail closure

Long Term Goal #1: Restore Nonpoint Source Impaired Waters		Targeted Completion					Annual Reporting
Objective 12 Cont'd:	Decrease the negative impacts of excessive sedimentation in Kentucky's Streams	2014	2015	2016	2017	2018	
Action 2:	Provide financial support for projects that assess in-stream sediment impairments, and generate implementation strategies through watershed plan development.						
	Tracking measure: Number of projects monitoring for sediment impairments.	X	X	X	X	X	One (1) project conducted water quality monitoring for sediment impairments. • Triplett Creek (14-08)
Action 3:	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	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 KDOW and NRCS by requesting that priority and impaired watersheds receive priority funding through NRCS programs. This work was completed during FFY 2016 through attendance and coordination at the State Technical Committee and EQIP sub-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.

Long Term Goal #1: Restore Nonpoint Source Impaired Waters		Targeted Completion					Annual Reporting
Objective 12 Cont'd:	Decrease the negative impacts of excessive sedimentation in Kentucky's Streams	2014	2015	2016	2017	2018	
Action 3 Cont'd:	Target additional sources of funding for stream restoration projects that will positively address sediment impaired streams.						
	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	KDOW has directed one (1) project to seek FILO funding for stream restoration work, without success. • Triplett Creek (14-08)
Objective 13:	Support education and outreach	2014	2015	2016	2017	2018	
Action 1:	Support education and outreach programs across Kentucky.						
	Tracking measure: Number of student contacts per year. Goal of 500.	X	X	X	X	X	In total, the Basin Coordinators and technical advisors of the Nonpoint and Basin Team section reached an estimated 12,271 stakeholders through outreach activities in FFY 2017. Roughly 4,918 of those were school age students reached through educators, festivals and other forms of outreach.
	Tracking measure: Conduct at least one Project WET educator training each year.	X	X	X	X	X	13 Project WET Educator workshops conducted in 2017.
	Tracking measure: Number of teachers trained in Project WET.	X	X	X	X	X	202 educators were trained in Project WET in 2017.

Long Term Goal #1: Restore Nonpoint Source Impaired Waters		Targeted Completion					Annual Reporting
Objective 13 Cont'd:	Support education and outreach	2014	2015	2016	2017	2018	
Action 2:	Revise nonpoint source website and continue social media development.						
	Tracking measure: Number of Likes on the I Love KY Water Facebook page.	X	X	X	X	X	The I Love KY Water Facebook is up to 442 followers during this reporting period.
	Tracking measure: Annually update information on DOW NPS website.	X	X	X	X	X	The KDOW Nonpoint Source Program web pages are updated quarterly at a minimum. The NPS grant web pages are updated once per year.
Action 3:	Develop a watershed planning education and outreach fact sheet.						
	Tracking measure: Development of fact sheet.			X	X	X	Educational Fact Sheets for Lawn Fertilizer, Managing Pet Waste, Nonpoint Source Pollution, Rain Gardens, and Stormwater Pollution were updated and posted to the KDOW website. A general watershed planning education and outreach fact sheet was not developed during FFY 2017.
	Tracking measure: Number of fact sheets distributed. Target 50 each year.				X	X	All NPS fact sheets are available online.

Long Term Goal #1: Restore Nonpoint Source Impaired Waters		Targeted Completion					Annual Reporting
Objective 13 Cont'd:	Support education and outreach	2014	2015	2016	2017	2018	
Action 4:	Support the Watershed Watch program in Kentucky.						
	Tracking measure: Number of active volunteers.	X	X	X	X	X	There are currently 983 Active Watershed Watch Volunteers statewide who collected water quality samples during the three (3) annually scheduled sampling events.
	Tracking measure: Number of volunteers receiving trainings.	X	X	X	X	X	During FFY 2017 Watershed Watch in Kentucky trained 253 new volunteers and recertified 76 existing volunteer samplers.
	Tracking measure: Number of sites sampled.	X	X	X	X	X	Watershed Watch volunteers collected 1,649 individual water quality samples during the Spring, Summer, and Fall sampling events in addition to collecting field parameters and for each sampling site. Habitat and Biological assessments were also conducted at 37 of those sites.

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	2014	2015	2016	2017	2018	
Action 1:	Provide technical and financial support for the KY Wild Rivers Program.						
	Tracking measure: Develop a comprehensive Land Management Plan for each new Wild Rivers Program land acquisition.		X	X	X	X	The Wild Rivers Program was moved from the KY Division of Water to the KY Nature Preserves Commission in late calendar year 2016. KY's Nonpoint Source Program no longer provides CWA Section 319(h) funding to support the program.
	Tracking measure: Utilize a combination of 319(h) Programmatic and HLCF funding for implementation of land management plans for Wild Rivers.			X	X	X	No 319(h) funding was utilized to implement Wild Rivers land management plans during FFY 2017.
	Tracking measure: Coordinate the use of Heritage Land Conservation Funding as non-federal match for Nonpoint Source Program sub-grantee projects.		X	X	X	X	Heritage Land Conservation Funds were utilized as the primary source of non-federal match for the Sinking Creek Watershed Assessment project that closed out December 2016. No other NPS projects are currently utilizing those funds as non-federal match at this time.

Long Term Goal #2: Protect waters currently meeting designated uses		Targeted Completion					Annual Reporting
Objective 1 Cont'd:	Promote the identification and protection of healthy watersheds throughout Kentucky	2014	2015	2016	2017	2018	
Action 2:	Provide technical and financial support for Nonpoint Source Program projects that protect Special Use Waters.						
	Tracking measure: Number of watershed protection plans currently accepted for implementation.	X	X	X	X	X	There have been four (4) watershed plans developed with protection of a Special Use Water as their primary focus. However all thirty-five (35) watershed plans that have been developed contain a protection component for either Special Use Waters or drinking water resources. • Red River Gorge • Brushy Creek • Sinking Creek • Kinniconick Creek
	Tracking measure: Number of watershed plans currently implementing an accepted watershed protection plan.	X	X	X	X	X	There are approximately sixteen (16) watershed plans currently being implemented that contain a protection component either for Special Use Waters or Drinking Water sources.
	Tracking measure: Number of watershed protection plans under development.	X	X	X	X	X	There are currently three (3) watershed plans under development with the primary focus of protecting Special Use Waters.

Long Term Goal #2: Protect waters currently meeting designated uses		Targeted Completion					Annual Reporting
Objective 1 Cont'd:	Promote the identification and protection of healthy watersheds throughout Kentucky	2014	2015	2016	2017	2018	
Action 3:	Utilize the EPA Recovery Potential Tool to identify priority watersheds for protection and/or restoration						
	Tracking measure: Number and list of current priority Healthy Watersheds.	X	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 KDOW in February, allowing watershed prioritization across multiple programs.
	Tracking measure: Number and list of new priority Healthy Watersheds			X	X	X	
Objective 2:	Prioritize Source Water and Wellhead Protection areas for protection from nonpoint sources of pollution	2014	2015	2016	2017	2018	
Action 1:	Coordinate with EPA's Nonpoint Source Program in order to ascertain the minimum requirements for the development of Nine-Key Element "Alternative" watershed plan to protect and/or restore Source Water and Wellhead Protection areas.						
	Tracking measure: Finalized NPS Program strategy for the development of acceptable alternative plans to protect Source Water and Wellheads.		X	X	X	X	KDOW has not completed developing a finalized NPS Program strategy for the development of Source Water and Wellhead Protection Plans that contain the nine-key elements of a watershed plan.

Long Term Goal #2: Protect waters currently meeting designated uses		Targeted Completion					Annual Reporting
Objective 2 Cont'd:	Prioritize Source Water and Wellhead Protection areas for protection from nonpoint sources of pollution	2014	2015	2016	2017	2018	
Action 1 Cont'd:	Coordinate with EPA's Nonpoint Source Program in order to ascertain the minimum requirements for the development of Nine-Key Element "Alternative" watershed plan to protect and/or restore Source Water and Wellhead Protection areas.						
	Tracking measure: Number and list of Source Water and Wellhead Protection Areas prioritized			X	X	X	KDOW's NPS and Source Water Protection programs have worked cooperatively during FFY 2017. There are thirty-six (36) Source Water Protection Areas that fall within the NPS Program's Watershed Planning Areas and Priority Watersheds. **Source Water Protection Areas:** • Corbin Utilities Commission • Mountain Water District • Campbellsville Mun. Water System • Beech Fork Water Commission • Millersburg Mun. Water Works • Wilmore Water Works. • Louisville Water Company • Greensburg Water Works • Northern KY Water District • Adairville Water Works • Mt Sterling Water Works • Paris Water Works • Hopkinsville Water Env. Auth. • Bowling Green Mun. Utilities • Morehead State University • Cynthiana Mun. Water Works • Laurel County Water Dist. #2 • Harrodsburg Mun. Water Dept. • Carlisle Water Department

Long Term Goal #2: Protect waters currently meeting designated uses		Targeted Completion					Annual Reporting
Objective 2 Cont'd:	Prioritize Source Water and Wellhead Protection areas for protection from nonpoint sources of pollution	2014	2015	2016	2017	2018	
	Tracking measure: Number and list of Source Water and Wellhead Protection Areas prioritized.			X	X	X	**Source Water Protection Areas Continued:** • Georgetown Mun. Water Service • Natural Bridge State Park • Beattyville Water Works • Morehead Utility Plant Board • Pikeville Water Department • Campton Water Plant • Western Fleming Water District • Woord Creek Water District • Owingsville Water Works • Paducah Water Works • Grand Rivers Water System • US Enrichment Corp • Flemingsburg Utility System • North Point Training Center • Olive Hill Mun. Water Works • Danville City Water Works • Green River Valley Water • Manchester Water Works • West Liberty Water Company • Oak Grove Water Department • Rattlesnake Ridge Water Dist **Wellhead Protection Areas:** • Benton • Stella Trailer Park • Symsonia • Bendefield • Hardeman • Green River Valley • Murray • Georgetown Municipal

Long Term Goal #2: Protect waters currently meeting designated uses		Targeted Completion					Annual Reporting
Objective 2 Cont'd:	Prioritize Source Water and Wellhead Protection areas for protection from nonpoint sources of pollution	2014	2015	2016	2017	2018	
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	KDOW staff regularly attend Area Development District Water Management Council meeting as well as meetings with the Source Water and Wellhead Protection Programs.
Action 3:	**Develop Nine-Key Element "Alternative" Watershed Plans for prioritized Source Water and Wellhead Protection Areas.**						
	Tracking measure: Number and list of Source Water Protection Areas with an alternative watershed plan under development.		X	X	X	X	The existing thirty six (36) drinking water source watersheds have watershed improvement and protection activities through existing NPS Program watershed plans or through watershed prioritization.
	Tracking measure: Number and list of Source Water Protection Areas with an accepted alternative watershed plan.			X	X	X	During 2017, there were no finalized and accepted alternative nine-key element watershed plans developed specifically for Source Water Protection.
	Tracking measure: Number and list of Wellhead Protection Areas with an alternative watershed plan under development.			X	X	X	During 2017, there was no work actively being done toward the development of a Wellhead Protection alternative nine-key element watershed plan.
	Tracking measure: Number and list of Wellhead Protection Areas with an accepted alternative watershed plan.				X	X	During 2017, there were no finalized and accepted alternative nine-key element watershed plans developed specifically for Wellhead Protection.

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.	2014	2015	2016	2017	2018	
Action 1:	Develop tools for increased efficiency.						
	Tracking measure: Complete development of a tracking spreadsheet for Watershed Based Plans.	X	X				The Watershed Plan tracking spreadsheet was developed during FFY 2014. No updates were made during FFY 2017. 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: Develop electronic storage system for 319(h) program.	X	X				Revisions to the electronic file storage system were made during FFY 2015, but there is additional organisational work necessary to make the system highly functional.
	Tracking measure: Develop electronic project management for 319(h) projects.			X	X		During FFY 2016 all existing NPS sub-grantee project files were scanned into the Department's TEMPO database. Work is ongoing to develop the NPS Program operational components of TEMPO so that project files and workflow can be managed electronically.

Long Term Goal #3: Efficient and effective implementation of Kentucky's Nonpoint Source Program		Targeted Completion					Annual Reporting
Objective 1 Cont'd:	Develop NPS program components to increase program effectiveness and maintain current program staff	2014	2015	2016	2017	2018	
Action 2:	Maintain staffing for effective NPS program coordination and on the ground implementation.						
	Tracking measure: Number of DOW NPS Program technical staff.	X	X	X	X	X	KDOW maintains eighteen (18) full time staff members working on Nonpoint Source Pollution Control issues on a statewide and targeted watershed basis. Of those staff members, approximately fifteen (15) function as technical staff in their respective program capacities.
	Tracking measure: Number of River Basin Coordinators.	X	X	X	X	X	KDOW maintains six (6) full-time River Basin Coordinators to cover seven (7) major River Basin Management Units.
	Tracking measure: Number of watershed coordinators in grants.	X	X	X	X	X	KDOW maintains fourteen (14) watershed coordinators who implement twenty (20) accepted watershed plans.

Long Term Goal #3: Efficient and effective implementation of Kentucky's Nonpoint Source Program		Targeted Completion					Annual Reporting
Objective 2:	Meet Federal Requirements	2014	2015	2016	2017	2018	
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	KY's NPS Program achieved a ULO of 9.68% for all open grant years and 23.25% for active grant years as of September 30, 2017. This represents the lowest ULO percentage KY's Program has ever achieved. These numbers will rise significantly in the upcoming year. KY's NPS Program will be making additional adjustments in a effort to keep the ULO percentage as low as possible. However, due to EPA's shift from 7 year to 5 year grant frames, the 20% ULO goal set by EPA is no longer achievable.
	Tracking measure: Continue to manage KY's NPS sub-grantee projects with the goal of completing work in a 3 year contract time frame.	X	X	X	X	X	KDOW's NPS Program has maintained a three year maximum project term, contracted projects in a timely manner, and provided pro-active technical assistance to sub-grantee project contractors in an effort maintain an Unliquidated Obligation below 20%. However, starting with the FFY 2017 grant year, sub-grantee project contracts will be shifted to a two-year time frame in most cases.

Long Term Goal #3: Efficient and effective implementation of Kentucky's Nonpoint Source Program		Targeted Completion					Annual Reporting
Objective 2 Cont'd:	Meet Federal Requirements	2014	2015	2016	2017	2018	
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 2017 funding have been 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 2017.
	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 15th of each year.	X	X	X	X	X	All load reductions generated during the FFY 2017 time period were calculated and entered into GRTS by the deadline.

Long Term Goal #3: Efficient and effective implementation of Kentucky's Nonpoint Source Program		Targeted Completion					Annual Reporting
Objective 2 Cont'd:	Meet Federal Requirements	2014	2015	2016	2017	2018	
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 2017 NPS Program Annual Report will be submitted to EPA Region 4 in December 2017 by deadline.
Action 4:	Submit at least one (1) Nonpoint Source Success Story to fulfil 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	One (1) waterbody delisted in KY's 2014 Integrated Report was attributable to NPS Program efforts. Efforts are being made by staff to conduct targeted water quality success monitoring in an attempt to increase the number of impaired waterbodies being delisted through NPS Program implementation efforts.
	Tracking measure: Number of success stories submitted to EPA Region 4 this year.	X	X	X	X	X	One (1) Nonpoint Source Success Story was submitted to EPA meeting this requirement. The Bayou de Chien WQ-10 report was submitted in July and finalized prior to the September 30, 2017 deadline.
	Tracking measure: Number of Kentucky Success stories on EPA web page.	X	X	X	X	X	EPA has posted seven (7) Nonpoint Source Success Stories on their web page.

Long Term Goal #3: Efficient and effective implementation of Kentucky's Nonpoint Source Program		Targeted Completion					Annual Reporting
Objective 2 Cont'd:	Meet Federal Requirements	2014	2015	2016	2017	2018	
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, 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 2017, there were 2 QAPPs developed for Gunpowder Creek, the North Fork of the Kentucky River tributaries and Obion Creek.
	Tracking measure: Number of data packages reviewed.	X	X	X	X	X	DOW Quality Assurance Staff and Water Quality biologists analysed and approved one data package from water quality monitoring projects - (Cane Run).

Long Term Goal #3: Efficient and effective implementation of Kentucky's Nonpoint Source Program		Targeted Completion					Annual Reporting
Objective 3:	Provide technical assistance and support to the division regarding watershed impacts and the watershed perspective	2014	2015	2016	2017	2018	
Action 1:	Participate in DOW projects requiring technical experience from NPS staff						
	Tracking measure: Provide information for the Kentucky Nutrient Reduction Strategy draft	X					Information from the current Nonpoint Source Management Plan was used in the construction of KY's Nutrient Reduction Strategy draft. KDOW's Nonpoint Source Program will be directly involved in the implementation and reporting components of the Nutrient Reduction Strategy.
	Tracking measure: Provide information for Integrated Report and TMDL implementation narratives	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 KDOW Water Quality Branch to be used in the assessment of watersheds for the Integrated Report and TMDL development if applicable.
	Tracking measure: Number of SPEARs reviewed	X	X	X	X	X	The Nonpoint Source Program is not a primary reviewer of SPEAR documents for KDOW. During FFY 2017 the NPS Program conducted no SPEAR reviews.

Long Term Goal #3: Efficient and effective implementation of Kentucky's Nonpoint Source Program		Targeted Completion					Annual Reporting
Objective 3 Cont'd:	**Provide technical assistance and support to the division regarding watershed impacts and the watershed perspective**	**2014**	**2015**	**2016**	**2017**	**2018**	
Action 2:	**Update the Watershed Framework**						
	Tracking measure: **Update of Basin Status Report template**	**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 addition Basin status updates are regularly provided via quarterly newsletters.
	Tracking measure: **Update priority areas in the Basins with Basin Coordinators**		**X**	**X**	**X**	**X**	During FFY 2016 KDOW 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 (3) Priority Watersheds being selected in each of the seven (7) 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. Progress in the priority watersheds was ongoing in FFY 2017.

FFY 2017 KY Nonpoint Source Program Commitments to EPA Region 4 (From the annual work plan):

General Program Management and Oversight:	
Provide Administrative, Financial, and Technical Oversight for FFY 2016 NPS Program sub-grantee projects.	The KY Division of Water's Nonpoint Source Program provides Administrative, Financial, and Technical support for approximately 50 sub-grantee projects at any given point in time. This work is in addition to providing the same type assistance to watershed groups, Health Departments, and Conservation Districts for the development of future projects. Coordination with local, state, and federal government agencies is also done on a regular basis to create synergistic on-the-ground watershed plan implementation efforts.
Obligate all grant funding within one year of grant award date.	Obligation of FFY 2017 Grant funds is ongoing with an expected completion of June 2018.
Submit 2009, 2011, and 2012 Grant closeout package to EPA Region 4.	The FFY 2012 Grant closeout package was submitted to EPA Region 4 for review and approval November 2016, the FFY 2009 in February 2017, and the FFY 2011 in March 2017.
Maintain NPS Program Watershed Project GIS Coverage	Kentucky's Nonpoint Source Program GIS Coverage is updated annually in December. The GIS Coverage is currently undergoing update.
Maintain NPS Program web pages – Update Watershed Plans, and Watershed Plan Maps	Kentucky's Nonpoint Source Program web pages are updated annually in December. The web links to accepted Watershed Plans, and the Watershed Plan Maps are currently undergoing update.
Attend EPA National Biennial Nonpoint Source Program Conference	The KY Division of Water, Watershed Management Branch Manager and Nonpoint Source Program Technical Advisor for Urban Stormwater attended the National Nonpoint Source Conference in Boston October 31 through November 3, 2016.

National Water Quality Initiative:	
Compile existing water quality data from current NWQI watersheds in order to determine the need for additional baseline water quality data collection	Nonpoint Source Program staff are in the process of reviewing existing water quality data from each of the four (4) KY NWQI watersheds (Gunpowder Creek, Cane Creek, Clarks Run, and Spears Creek/Mocks Branch) to determine if additional baseline water quality data collection is needed. Sanitation District #1 collected additional baseline *E. coli* data on Gunpowder Creek to use for the TMDL Alternative.
Contract a Hinkston Creek Watershed Coordinator that will work toward increased implementation of the Hinkston Creek Watershed Plan.	A Hinkston Creek Watershed Coordinator position is being funded through the FFY 2016 sub-grantee project with Bluegrass Greensource. See project workplan for more information.
Work with KY NRCS on NWQI Pilot project in Gunpowder Creek if selected for funding by NRCS Headquarters.	Gunpowder Creek was selected by NRCS Headquarters as an NWQI "Readiness" project. KDOW and KY NRCS staff worked cooperatively to establish an NRCS NWQI Implementation Plan based upon the existing Gunpowder Creek Nine-Key Element Watershed Plan. KY NRCS with support from KDOW applied for additional NWQI funding through NRCS Headquarters to implement the Gunpowder Creek Readiness Plan during FFY 2018. If funded, KY NRCS will target its effort in the Lower Gunpowder Creek watershed to control pollution from small farming operations. KDOW has allocated approximately $600K 319(h) federal funding to the Boone County Conservation District with the goal of improving existing stormwater flow controls in the upper portion of Gunpowder Creek.

Watershed Success Monitoring Program:	
Continue development of Success Monitoring Program by compiling watershed scale implementation data.	Nonpoint Source Program continue 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, KDOW Nonpoint Source Program, State Revolving Fund, and the Division of Conservations Agriculture Water Quality State Cost Share Program. Efforts are ongoing to build a GIS Layer including all on-the-ground implementation practices funded by 319(h) over the past ten years.
Conduct baseline water quality monitoring prior to watershed plan development.	Kentucky's watershed planning efforts are built on the foundation of good quality in-stream water quality data. Water quality date 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.

Watershed Success Monitoring Program Cont'd:	
Conduct baseline water quality monitoring prior to watershed plan development.	Baseline water quality monitoring was conducted on the following streams during FFY 2017: •Crafts Colly, Sandlick, and, Dry Fork Creeks of the North Fork Kentucky River – Letcher County •Obion Creek of the Mississippi River – Graves and Carlisle Counties •Cypress Creek of Tennessee River – Marshall County
Conduct watershed success monitoring for watershed plan implementation projects.	Kentucky Division of Water Biologists monitored water quality parameters and biology in Obion Creek of the Mississippi River during FFY 2017. Nonpoint Source Program funds were utilized in conjunction with KY Department of Fish and Wildlife Resources Fees in Lieu of Mitigation to complete a multi-segment stream restoration project in Obion Creek. Data quality assurance and analysis will be completed during FFY 2018. Subsequent changes in impairment status will be reflected in future Integrated Reports.
Grant Reporting and Tracking System:	
Enter FFY 2016 Load Reductions into GRTS.	FFY 2016 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, 2017 deadline along with specific BMP description information.
Attend National GRTS Conference.	The National GRTS Conference was not held during FFY 2017. EPA Region 4 in conducted a Regional GRTS Training event in September 2017. KDOW was not able to send staff to the training event.

Grant Reporting and Tracking System Cont'd:	
Complete GRTS project status updates.	All NPS sub-grantee project status updates and mandated elements updates were completed by March 30. Most but not all sub-grantee project status updates and mandated elements updates were completed by September 30. The remaining project updates are in progress, but not complete as of the issue date of this report.
Enter FFY 2017 Sub-grantee projects into GRTS.	Final FFY 2017 Nonpoint Source Program sub-grantee projects were not selected by the end of the fiscal year due to a delay in receiving the final CWA Section 319(h) funding allocation until the end of the fiscal year. Sub-grantee projects have not been entered into GRTS as of the issue date of this report, but will were entered into GRTS during early FFY 2018.
EPA Required Reporting:	
Submit Annual Nonpoint Source Program Workplan to EPA Region 4.	Kentucky's FFY 2017 Nonpoint Source Program Workplan was submitted to EPA Region 4 prior to the September 30, 2016 deadline. The workplan is currently being updated to include the list of sub-grantee projects being funded through the 2017 319(h) funding allocation, and will be submitted to EPA R4 when finalized.
Submit Annual Report to EPA Region 4.	Kentucky's Nonpoint Source Program Annual Report was completed and submitted to EPA Region 4 in December 2017.

EPA Required Reporting Cont'd:	
Submit WQ-10 Nonpoint Source Success Story to EPA Region 4	Kentucky's WQ-10 Nonpoint Source Success Story for Cane Creek in Hickman and Fulton Counties was submitted to EPA R4 prior to the July 30, 2017 deadline. 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, 2017 deadline.
Submit Watershed Plans to EPQ R4 for review and approval.	The Brushy Creek Watershed Plan was developed by the Pulaski County Conservation District, the University of Louisville, and KDOW under NPS Project 2010-14. It was submitted for EPA review and approval in FFY 2017. KDOW's Nonpoint Source Program now has twenty six (26) watershed plans accepted for implementation using Clean Water Act 319(h) funding.

Copies of this publication are available for use through the KDOW NPS website:
water.ky.gov/nsp/Pages/PollutionControl.aspx

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