

RUNOFF REPORT



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Community-Engaged Research to Action: Key to Momentum in Letcher County

BY: STEVE EVANS, ASSOCIATE DIRECTOR, KENTUCKY WATER RESEARCH INSTITUTE

Momentum towards improving water quality has been slowly building in Whitesburg, KY and the surrounding Letcher County. Since the late 90s, volunteers have been collecting samples on the North Fork of the Kentucky River and its tributaries. Community concerns and interests led to formal water quality assessments by the Division of Water and the publication of a watershed plan in 2020 for three tributaries. Some initial small projects were undertaken to implement this plan but progress was slow. And then came the historic 1,000-year flood of 2022 and recurrent floods since then. Now the community is taking actions – both big and small – to improve water quality and flooding.

In 2022, Whitesburg and Cowan Community Center received an EPA [Sewer Overflow and Municipal Stormwater Reuse Grant \(OSG\)](#) to install green infrastructure and conduct community education. James Stapleton, a volunteer watershed coordinator with Cowan Community Center, says workshops and riparian planting projects were “wildly successful” at demonstrating to the community how to take action. “We can’t fix all the hollow fills but there is a lot we can do to address excessive sediment. We can do riparian restoration.”

The successes of these efforts have spawned interest in further projects including green infrastructure at the newly expanded farmer’s market and discussions about removing lowhead dams in the community. The Cowan Community Center will also be expanding the watershed planning area, with the Kentucky Division of Water beginning monitoring in March 2027.

The success of these projects is driven in part by unique community-engaged research efforts. “Eastern Kentucky has been studied to death,” Stapleton explains, “but people here are suspicious of people writing things down and disappearing. They are much more likely to respond and take ownership when they are involved in the data collection and allowed to make educated decisions.”

The community engaged watershed plan got the ball rolling, but multiple research grants have since focused their efforts in Letcher County including National Science Foundation grants for the [CLIMBS](#) Kentucky Climate Resilience grant, [FLASH](#) flooding in Appalachian streams grant, and [CAPTIVATE KY](#) climate data infrastructure grant.



Each of these grants involves universities throughout the state who are working with the community to improve response to flood-related hazards.

For instance, [Meredith Swallom and others](#) at the Kentucky Geological Survey found that the impacts of human land use changes on flooding are complexly interrelated. Mines, roads, and buildings were found to accelerate and increase peak discharge, while narrowing channels delayed and decreased peak discharge. However, models of channel narrowing without other land use changes resulted in increased average flood heights. [Matt Crawford and others](#) at Kentucky Geologic Survey were able to use field inspection and remote sensing to identify over 1,000 landslides and debris flows that occurred near Whitesburg in response to the 2022 flood, and they have installed sensors to provide real-time warnings about future landslide risks. Tyler Mahoney and others at the University of Louisville have developed a prototype [flood monitoring dashboard](#) to combine flood alert information from the National Weather Service and National Oceanic and Atmospheric Administration (NOAA) with sensors installed in Letcher County streams to improve real-time flood predictions and community response. Dr. Mary Brydon-Miller and others are using participatory action research as a part of the FLASH initiative to study issues like hazard alert fatigue and PTSD from reoccurring storms as well as understanding how hazard communication can be improved and gaps in environmental resilience filled. Finally, researchers are building out K-12 lesson plans and providing internship opportunities to convert findings into classroom exercises and career opportunities.



Photo Left: University of Louisville student researchers demonstrate simple flow measurements to Cowan Community center interns. (Source: Dr. Tyler Mahoney)

Story continued on page 4.



As Stapleton argues, it is the conversation between the community and the researchers that will make it a success. “It is a community effort. There has been an advisory board from day one.” Stapleton and other community members have been involved in the dashboard development, shaping of research efforts, and conducting monitoring. Because of the success in smaller efforts, the community is more prepared to discuss larger problems such as when or if dredging is appropriate or whether or not the drinking water supply would be impacted if lowhead dams are removed. “When we have quantitative data to present to county and city officials, it makes the options less scary. There’s more willingness to try new ideas.”

A FEMA Hazard Mitigation grant in Letcher County is currently funding conceptualization of nature-based solutions that can be implemented on buy-out properties to reduce flooding and improve water quality. Future watershed planning activities should further clarify a community action plan for improvement. But in Letcher County – efforts large and small – are producing change in the way residents are interacting with local streams.



Left: Students examine salamanders as part of an education event (Source: James Stapleton) **Top Right:** Dr. Tyler Mahoney demonstrates stormwater flooding solutions to Letcher County community members (Source: Dr. James Stapleton) **Bottom Right:** FLASH project researchers, students and Letcher County Community members meet at Lilly Cornett Woods in Letcher County (Source: Dr. Tyler Mahoney)



WHITESBURG MURAL SUPPORT: MOSAIC OF MEMORIES

BY: HALEIGH ARNOLD, 319
TECHNICALADIVSOR

In July 2022 record flooding of the North Fork of the Kentucky River tore through the city of Whitesburg, and now four years later they have unveiled a mural in the middle of the city dedicated to this historic event. The mosaic was carefully made by artists Lacy Hale and Julian Holt, using materials brought forth by the

community that carried countless memories. It depicts a river and native species of animals, insects, and plants, symbolizing the interwoven relationship between the natural environment and built environment. It represents resilience, hope, beauty, and respect for the power of water. The mosaic and some of the stories connected to its

pieces are also featured in the [Stream of Stories: A Mosaic of Memories](#) film as well as the [Pieces of Home: Stream of Stories](#) website.

The mosaic was commissioned and coordinated by Cowan Community Action Group, Inc. Half of the mural cost was supported through a Clean Water Act Section 319(h) grant administered by the Kentucky Division of Water and awarded to the organization in federal fiscal year 2024.



*Top: Photo of mural artists and completed mural. (Source: Malcom Wilson) **Middle:** Community Members working on the mural. Community Members working on the mural. (Source: James Stapleton) **Bottom:** Section of the mural during creation (Source: Haleigh Arnold)*



Meet the New Kentucky River Basin Coordinator!



PHOTO CREDIT: KENTUCKY WATER RESEARCH INSTITUTE

Nathan Weber has joined the Kentucky Water Research Institute as the Kentucky River Basin Coordinator. Nathan previously worked for UK's Environmental Quality Management Department where he helped campus maintain compliance with water quality regulations including MS4 stormwater management, groundwater protection, oil spill prevention control & countermeasures, and wastewater industrial user permits. Before that he served as a biologist managing salmon research and rehabilitation projects in Alaska for non-profit regional aquaculture associations in Kenai and Kodiak Island. He is looking forward to engaging with community partners to help promote clean water initiatives in the basin.

Please contact Nathan at nathan.weber@uky.edu for opportunities and updates in the Kentucky River Basin including outreach requests, grant funding, watershed planning updates, and other opportunities.





FFY 2027 Clean Water Act 319(h) Grant Applications

The federal Clean Water Act, Section 319(h) Grant program was established to provide funding for efforts to reduce nonpoint source pollution through innovative best management practices (BMPs), support education and outreach programs, develop Watershed Based Plans, and to implement Watershed Based Plans. Each year DOW applies to US EPA to receive 319(h) funding. After receiving the federal award, DOW distributes a majority of the monies received through a competitive grant award process.

See below for important steps and deadlines of the FFY2027 Grant Application and Funding Process.

- Read the [Grant Guidance Document and Application Instructions](#)
- Contact a NPS staff member (your [Basin Coordinator](#)) to discuss your potential project
- Submit a Letter of Intent (LOI) by **November 15, 2026**
- An NPS staff member will contact you to discuss your project and LOI
- Submit applications by **February 15, 2027**.

For more information or to view past funded projects visit the [Section 319\(h\) Grant Program Funding website](#). If you have questions about the grant application process, contact your [Basin Coordinator](#).





Leaf Litter: Nuisance or Nutrient?

BY: COLIN DUNCAN, GREEN RIVER BASIN COORDINATOR

As the seasons change and Kentucky transitions from summer to fall, deciduous trees will begin to change color and lose their leaves. Deciduous trees typically lose their leaves in the autumn and winter in response to lower temperatures and shorter days. They do this to conserve energy throughout the winter.

One of the most common responses to trees losing their leaves is to gather them up and dispose of them or mulch them up to maintain a clean property, but leaf disposal is actually preventing the soil from receiving essential nutrients that it needs to properly continue the nutrient cycle in its local ecosystem.

Leaf litter is the collection of organic material composed of fallen leaves, pines, twigs, seeds, and pieces of bark which rest on the forest floor. Leaving leaf litter on the ground allows the decomposition process to begin, which releases nutrients like nitrogen, phosphorus, and potassium into the soil. Fungi and insects are the primary forces behind decomposition, breaking down leaf litter and allowing nutrients to infiltrate into the soil. Other plants can then use these nutrients, maintaining other parts of the local ecosystem.

In addition to nutrient cycling, leaf litter also serves other important ecosystem functions:

- Leaf litter helps reduce erosion by absorbing rainfall and reducing excess runoff. This also helps maintain water quality.
- Leaf litter provides a habitat for insects like moths, butterflies, bees, and other pollinators, providing safety and insulation during cooler months. Depending on the density of the leaf litter, small mammals like chipmunks or squirrels could also utilize it as habitat.
- Leaf litter helps maintain soil health and moisture by acting as an additional barrier against evaporation.
- Leaf litter is the primary energy source and structural backbone for headwater ecosystems by offering vital nutrients and microhabitats.



Photo Credit: National Park Service

Story continued on page 9.



When all the leaves fall off the trees this fall, don't rake them up and throw them away! Instead, consider one of the following options to help wildlife and maintain a healthy ecosystem:

- “Leaf” them alone! If you can't leave them, rake them up and put them somewhere else instead of mulching them with a lawnmower.
- Wait to remove the leaves until spring. This gives time for the nutrient cycle to occur in the soil and allows pollinators and other insects to have a safe habitat during the winter.

While leaf litter can be beneficial to the ecosystem if left undisturbed on the ground, excess leaf litter in lakes and streams can have negative impacts on local water quality. Some leaf litter can serve as habitat or food for aquatic species and even trap sediment in layers after sinking to the stream bed.

However, too much could lead to nutrient loading; the process of nitrogen, phosphorus, and other nutrients accumulating in a water body. As the leaves decompose, they release nitrogen and phosphorus into the water, which fuels algal bloom growth. The decomposition process also consumes available dissolved oxygen in the water, leaving none available for fish and other aquatic species. Maintaining healthy riparian buffers along streams and lakes can reduce the amount of leaf litter entering the waterways, benefitting local ecosystems in and out of the water.



PHOTO OF INFORMATIONAL CARD FROM NATIONAL PARK SERVICE DEMONSTRATING BENEFITS OF LEAVING THE LEAVES.



Imagine A Day Without Water - October 15th

BY: EILEEN MILLER, BIG SANDY RIVER BASIN COORDINATOR

Imagine a Day Without Water is a national movement highlighting the value of water. Water is one of the most essential sources of human life, and we are all a part of keeping this resource accessible and available to all of Kentucky. From resource management to conservation and protection efforts, the way we use water can have long lasting effects.

Each year, Imagine a Day Without Water invites everyone to see how crucial the need for water is by visualizing a life without it for just one day. The Nonpoint Source and Basin Team encourages everyone to use this day to spotlight the amazing work you are doing and educate your communities about the importance and value of clean water for all.

The Value of Water Campaign has a [premade toolkit](#) with customizable tools, templates, and inspiration for sharing and taking action. Consider using this day to demonstrate the importance of source water protection, or highlight a best management practice (BMP) that is being utilized in your area to protect water.



Images above are example social media posts and posters provided by the value of water campaign to promote the value of water in numerous areas of our lives



Volunteers Turn Up for Lynn Camp Creek Cleanup in Corbin

BY: ALICE MANDT, UPPER CUMBERLAND RIVER BASIN COORDINATOR

The Kentucky Waterways Alliance recently hosted a Commonwealth Clean Sweep in Corbin, Kentucky. On Saturday, August 29, volunteers gathered at the Engineer Street Bridge to pick up trash along Lynn Camp Creek. Armed with trash grabbers, gloves, and garbage bags, volunteers fanned out along the creek and surrounding areas, hauling out everything from household waste to old tires and even a discarded stroller. One team member recovered an old Igloo cooler—nicknamed “Iggy” — and put it right back to work as a rolling cart to help haul heavier trash back to the collection point. By the end of the morning, volunteers had filled multiple bags and cleared a meaningful stretch of the waterway, visibly improving the appearance of Lynn Camp Creek.

Much of the volunteer turnout came from Eastern Kentucky University’s local Corbin campus, whose students and staff showed up alongside community members and organizational partners. Events like this one reflect the ongoing collaboration between local government, academic institutions, and conservation organizations working to protect Kentucky’s waterways.

The effort was made possible through the support of a broad coalition of partners, including the City of Corbin, Eastern Kentucky University’s Corbin campus, Team Kentucky’s Energy and Environment Cabinet, Republic Bank, Stantec, The Kentucky Wildlands, The Center for Rural Development, PRIDE, Seaguar, and the Ohio River Valley Water Sanitation Commission, among others. Many thanks to everyone who came out to lend a hand, and we look forward to continuing this partnership at future Commonwealth Clean Sweep events across the Upper Cumberland Basin. If you are interested in hosting a stream cleanup, please contact your [river basin coordinator](#) for more information.



Photo of the participants at the Lynn Camp Creek cleanup.

ANNOUNCEMENTS AND EVENTS

CLICK AN IMAGE TO ACCESS A LINK FOR MORE INFORMATION ABOUT AN EVENT OR ANNOUNCEMENT



REGISTER NOW!

4TH ANNUAL
KENTUCKY WATERSHED NETWORK SUMMIT
What's in Your Water?
OCTOBER 14-15, 2026
BEREA COLLEGE

KENTUCKY WATERWAYS ALLIANCE
KWA
Protecting & Restoring KY Waterways

THIS WORK IS FUNDED IN PART BY A GRANT FROM THE U.S. ENVIRONMENTAL PROTECTION AGENCY UNDER §319(H) OF THE CLEAN WATER ACT.



50th
ANNIVERSARY
**GOVERNOR'S CONFERENCE
ON ENERGY & THE ENVIRONMENT**
OCTOBER 19, 2026 | LEXINGTON, KY | EMBASSY SUITES COLDSTREAM



Save the Date!

TEAM KENTUCKY
ENERGY AND ENVIRONMENT CABINET

**Kentucky
Nutrient Summit**

Monday October 26, 2026
300 Sower Blvd
Frankfort, Kentucky
Virtual Option Available
8:00 am - 4:00 pm ET

Draft agenda available
early October

For more information
email laura.talbert@ky.gov



COLORFEST at **Bernheim**
ARBORETUM AND RESEARCH FOREST

ANNOUNCEMENTS AND EVENTS

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KWA Kentucky Watershed Network Virtual Public Conversation Series

KWA 2027-2029 WATERSHED SEED GRANT INFO SESSION WITH LAURA GREGORY

**October 27 on Zoom
6:30-7:30 pm**

**Learn about KWA's
2027-2029 Watershed Seed
Grant opportunity and ask
all your questions!**



REGISTER HERE

This work was funded in part by a grant from the U.S. Environmental Protection Agency under §319(h) of the Clean Water Act.

**WOLF CREEK NFH
MOVIE NIGHT**

**6-8 p.m.
CST**

OCTOBER 8, 2026

Join staff and volunteers at Wolf Creek National Fish Hatchery for an outdoor showing of *The Lorax*, goodie bags, snacks, and drinks!

Bring a lawn chair and a blanket to settle in for an evening of learning to speak for the trees!

For more information, contact the hatchery at 270-343-3797 or email makenzie_foster@fws.gov or marsha_hart@fws.gov

KEEP OUR RIVER CLEAN

ORSANCO's Ohio River Sweep

End-of-Season Litter Cleanup

**Saturday, October 24
9 am-noon ET**

HELP US RALLY THE RIVER!

Mark your calendars for ORSANCO's end-of-season cleanup event. This large-scale Ohio River Sweep will span multiple sites across the basin, bringing volunteers together for one final push to close out the season strong.

50th ANNUAL CONFERENCE

kaee

*Rooted in the Past, Planting for the Future
Celebrating 50 Years of Environmental Education*

November 11 - 13, 2026

Embassy Suites by Hilton Lexington/UK Coldstream

Lexington, KY

BLUEGRASS GREENSOURCE

BUCKLEY WILDLIFE SANCTUARY

**ASTRONOMY
BETWEEN
THE TREES**

October 9, 2026 | 6:30-9:00PM

Buckley Wildlife Sanctuary

1305 Germany Rd. Frankfort KY. 40601

Experience Buckley Wildlife Sanctuary after dark with the Bluegrass Amateur Astronomy Club.

Registration is required.

Reserve your spot today at bggreensource.org/buckley

**HAVE AN EVENT YOU WANT TO SHARE?
EMAIL EILEEN.MILLER@KY.GOV TO SEE IF
YOUR EVENT CAN BE ADDED TO OUR
UPCOMING NEWSLETTER.**