



Stormwater Success Story: Citizen Volunteers Serve as Water Samplers

Public involvement in conservation and environmental protection is older than Earth Day. In Kentucky, citizen volunteers have been monitoring water quality in the Commonwealth's lakes, rivers, streams, and wetlands for more than 30 years. Thousands of people have attended workshops on how to collect and analyze water samples for temperature, pH, dissolved oxygen, and other parameters.

Locally, the Friends of Wolf Run, Kentucky River Watershed Watch, and other groups sponsored by public, private, and university sector organizations have been active in monitoring the quality of Fayette County's waters for many years. That base of committed volunteers, the related institutional infrastructure, and the need for an expanded water quality database to meet regulatory and other needs started some wheels turning last year.

"We have members of our Stormwater Stakeholder Advisory Committee who have been involved with water sampling either professionally or as a volunteer," said Jennifer Carey, who coordinates stormwater permit compliance activities for the LFUCG Division of Water Quality. "We started talking among ourselves about the possibility of developing a citizen sampling group, and things took off from there."

The involvement of additional water sampling personnel was timely, given the city's additional watershed-focused monitoring requirements under its stormwater permit. Carey said that many people supported the effort, both within city government and externally, but a few individuals provided key organizational, promotional, and technical support.

"Steve Evans of Third Rock Consultants, Jean Watts of Bluegrass Technical and Community College, and Ken Cooke of Kentucky River Watershed Watch really helped get this project on its feet and moving forward," Carey said. "There are lots of other people who deserve credit," she said, "especially the volunteers, who have spent countless hours in training and out in the field, collecting and analyzing samples. Their work has vastly expanded our understanding of water quality in the first watershed we've studied, and helped us to zero in on where we have pollution sources to address."

Volunteers sample both streams and where stormwater pipes discharge to local creeks. Parameters analyzed include flow, temperature, pH, dissolved oxygen, conductivity (dissolved ions), chlorine, detergents, bacteria (E. coli), phosphorus, ammonia, nitrate, and suspended solids. Some parameters are assessed in the field using a multimeter testing probe. Other parameters are analyzed by the city's Town Branch Wastewater Treatment Plant Laboratory. A group from Bluegrass Community and Technical College assesses various parameters related to stream corridor health.



Some of the 30 citizen water samplers who were recognized recently by the LFUCG Division of Water Quality at a special Volunteer Appreciation and Monitoring Results Review Reception. Volunteers from Bluegrass Community and Technical College, Friends of Wolf Run, Kentucky River Watershed Watch, and UK's College of Agriculture, Food, and Environment have been instrumental in helping to expand stormwater and water quality databases in Lexington.



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“We were able to get a group of our community college students into the program last spring,” said Jean Watts, associate professor and coordinator of the Environmental Science Technology Program at BCTC. “They were trained to collect data on stream conditions, such as observed biota, aquatic habitat, stream bottom sediments, and so on. This kind of specialized training and real-world field work is great for our students. It gives them some exposure to the kinds of jobs they might have one day, and provides experience for their resumes. It’s a great partnership.”

In the screening phase of the first year, the volunteers sampled 53 outfalls and 12 stream sites in the Cane Run watershed for two (of four) dry weather events. That expanded to 280 stream and stormwater outfall samples collected during the second phase, with additional sampling planned in other county watersheds over the next six years. “We started in the Cane Run watershed,” said Carey, “and then moved to South Elkhorn. West Hickman is coming up next. We hope to do this sort of data collection in all seven of our urban watersheds, and use the results for watershed assessments and future planning activities.”

At a Fall 2017 appreciation reception, LFUCG Division of Water Quality director Charlie Martin thanked the volunteers for their service and stressed the importance of their data collection effort. Besides adding to the city’s database of water quality assessment information, field work conducted by the group found a number of water quality problems that were immediately addressed. For example, high chlorine readings at a location on Southridge Drive led to the discovery of a broken Kentucky American Water drinking water pipe. Elevated ammonia concentrations at a stormwater pipe in the Winburn neighborhood were linked to sewer line maintenance needs, which were quickly addressed. Even in the case of bacteria, which is present in many county streams, volunteer data has been helpful in teasing out where *E. coli* inputs to streams are linked to animals (e.g., dogs, cats, geese, groundhogs, raccoons, etc.) or leaking sewer lines.

“We start an active illicit discharge investigation when the data indicate unusually high pollutant levels,” Carey said. “The volunteers are providing boots on the ground in places we just can’t cover, due to the sheer number of streams and stormwater pipes in Lexington. They’re really helping us to improve our assessment, reconnaissance, and response capabilities.”



Citizen volunteers Mark Felice and Jerry Weisenfluh take readings on temperature, pH, conductivity, and dissolved oxygen from water in a roadway culvert using a multimeter probe. Information collected is logged and reported to the LFUCG Division of Water Quality, which uses the data to monitor and analyze stream and stormwater quality in selected Lexington locations.