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Kentucky Water Resources Research Institute, University of Kentucky

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CANE RUN WATERSHED ASSESSMENT AND RESTORATION PROJECT

Steve Higgins, Steve Workman, and Amanda Gumbert
N-122C Ag Science North Lexington, KY 40546-0091
859-257-6094
shiggins@bae.uky.edu, amanda.gumbert@uky.edu

The Cane Run Watershed is an important water resource because it supplies the major source of drinking water for the city of Georgetown, KY. Segments of the watershed have been identified as having high levels of sedimentation/siltation, pathogens, and nutrient/organic enrichment resulting in the stream being placed on KY's 303(d) list. Nonpoint sources of pollution for Cane Run Creek and the Royal Spring aquifer include both agricultural and non-agricultural sources. Efforts have been focused on the upper Cane Run watershed (15,000 acres), which is the recharge zone for the Royal Spring Aquifer and the city of Georgetown, KY. The watershed includes a portion of the city of Lexington and the Kentucky Horse Park, which is preparing to host the 2010 World Equestrian Games. A phased project was designed to take advantage of the enthusiasm for the watershed and expedite its cleanup. This phased project will take advantage of EPA 319(h) funds to complete a watershed based plan (WBP) and initial implementation. Phase I of the Cane Run Project is the development and approval of a watershed based plan with some initial implementation. Phase II of the Cane Run Project is the continued implementation of the watershed based plan. An educational and outreach strategy has been designed to increase awareness and educate residents, visitors, and businesses regarding their impact on the watershed and how they can participate in the restoration efforts.

Enthusiasm for the project is shown by the scale of cooperators that have been assembled from federal, state, and local governments and private landowners. These cooperators have a vested interest in the watershed and considering their influence on the stream, create a high probability of success.

KENTUCKY INSTITUTE FOR WATERSHED MANAGEMENT SUPPORT

Andrew Ernest, Ph.D., P.E., DEE
Director, Center for Water Resource Studies
Western Kentucky University
1906 College Heights Blvd. #11075
Bowling Green, KY 42101-1075
270-745-8895
andrew.ernest@wku.edu

The Center for Water Resource Studies (CWRS) at Western Kentucky University (WKU) has established the Kentucky Institute for Watershed Management Support (KIWMS) for the purpose of providing regional planning support to communities throughout the Commonwealth in order to maintain the natural and economic resources of their watersheds. The CWRS operates the WKU Technical Assistance Center for Water Quality, currently one of eight university-housed technical assistance centers for small drinking water systems, part of the US EPA's capacity development initiative, as well as the Kentucky Center for Wastewater Research, a similar capacity development initiative aimed at wastewater system support. The CWRS is also a founding partner of the Kentucky Collaborative for Combined Sewer Overflow Management, a public-private sector partnership aimed at providing technical assistance to small communities trying to address Combined Sewer Overflow problems in the Commonwealth of Kentucky.

The CWRS expanded its scope of services, leveraging on existing expertise as a water, wastewater, utility and municipal technical assistance provider, to assist communities with realizing the fundamental goal of holistic watershed management. The vision is for KIWMS to leverage synergy between local, state and other resource agencies at a watershed level by providing infrastructure and support for accountability and the technical basis to ensure measurable results.

Regulatory instruments exist for improving water quality on a watershed basis for redress and rehabilitation in the case of pathogen impaired streams. For streams impacted by runoff from agricultural operations, Kentucky's Agricultural Water Quality Act provides operational standards and a means for enforcement to ensure the protection of the Commonwealth's waters. Water quality impacts from failed septic systems can be mitigated by enforcement of performance standards by local public health departments. Kentucky's Watershed Management Framework favors local engagement and implementation over regulatory enforcement for meeting water quality goals. Success of this approach is dependent on access and engagement of technical, financial and managerial capacity development programs in a similar fashion as those existing for drinking water and wastewater infrastructure. KIWMS will engage stakeholders at the local and regional level in a collaborative problem solving process to develop sustainable and technically sound solutions for pervasive failures in onsite wastewater systems that

potentially contribute to the pathogen impairment of local streams and limit economic growth.

KIWMS will connect local communities with regional planning entities to achieve local change that positively impacts watershed health. A key strategy in the community-specific implementation of the KIWMS is a public education campaign. KIWMS will promote strategies for wastewater minimization for both residential and commercial establishments. KIWMS will also provide ***Technical, Financial and Managerial*** assistance to develop and implement functional and extensible wastewater management alternatives for communities throughout Kentucky to improve watershed health and promote economic development. This assistance will be provided through detailed situation assessments, technology demonstrations, public education, and technical, managerial and financial alternatives. The techniques developed and resources accessed to further wastewater minimization strategies will be transferable to other project areas.

As an impartial entity, KIWMS will act at the interface between federal, state and local government, private sector organizations, funding agencies and local stakeholder groups with the ability to expend effort and resources on critical activities that do not fit neatly within the other organizations' missions. The proposed KIWMS will provide scientific expertise to local Area Development Districts and local stakeholder groups using CWRS resources and through coordination with universities and community/technical colleges serving the region.

WATERSHED PLANNING GUIDEBOOK FOR KENTUCKY COMMUNITIES

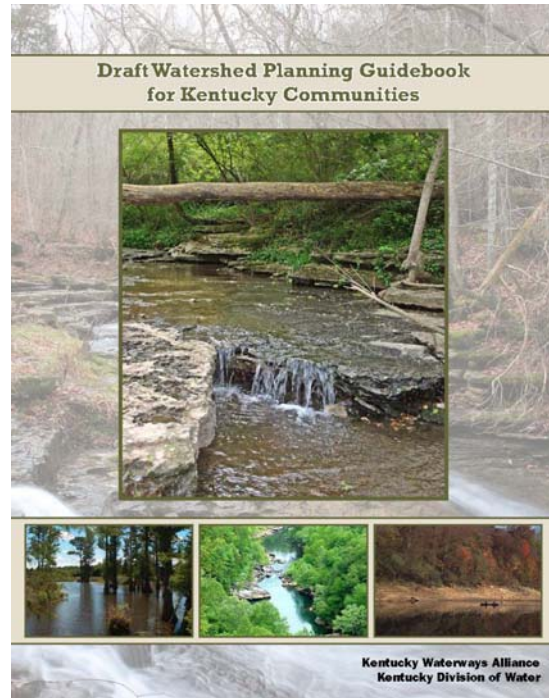
Katie Holmes, Judy Petersen, Bruce Scott, Hilary Lambert, Barry Tinning
Kentucky Waterways Alliance
107 East Court St.
Greensburg, KY 42743
director@kwalliance.org

In 2003, US EPA issued its *Nonpoint Source Program and Grants Guidelines for States and Territories*, which contained new requirements for projects funded under Section 319 of the Clean Water Act. Specifically, the agency directed that projects be based on watershed management plans that contained nine key elements, including several related to quantifying watershed problems and the management measures proposed for dealing with them.

The federal guidelines and the 2006 handbook for developing watershed plans issued by US EPA contained broad-based information for national audiences. The Kentucky Waterways Alliance, with support from the Kentucky Division of Water, University of Kentucky, and other partners, summarized and focused these materials for Kentucky watershed groups via the 2008 *Watershed Planning Guidebook for Kentucky Communities*. The Guidebook, which is now available in draft form, walks users through a step-by-step process for assessing and characterizing the watershed, identifying relevant water quality standards and other goals, defining stressors impacting water quality and their sources, developing management practices to deal with identified problems, and forging an implementation plan. As the planning process proceeds, completed parts are documented in the Kentucky Watershed Plan Outline in Appendix A.

The rationale for developing watershed plans goes back several decades. Historically, efforts to improve water quality have been implemented on a piecemeal basis and did not examine watersheds as a whole, often creating situations where funds were used without planning. Restoration of water quality was a priority while protection was neglected; certain pollutants were addressed without considering the overall health of the watershed. Since the late 1980s, community organizations, tribes, and federal and state agencies have moved toward managing water quality by using a watershed approach. A *watershed approach* is a flexible framework for managing water resource quality and quantity within specified drainage areas or *watersheds*. This approach involves stakeholders and emphasizes the use of management practices supported by science and technology. The watershed approach to planning uses a series of cooperative, iterative steps to characterize existing conditions, identify and prioritize problems, define objectives, develop protection or remediation strategies, and implement and adapt selected actions as necessary. The outcomes of this process are documented in a watershed plan. A *watershed plan* is a strategy that provides assessment and management information for a geographically defined watershed, including the analyses, actions, participants, and resources for developing and implementing the plan.

While watershed plans should use traditional Best Management Practices (BMPs) to address water quality issues, equally as important will be plans' efforts to use creative planning to build on available programs and resources. These strategies could include ensuring that Agriculture Water Quality Plans have been developed and implemented, revising local ordinances, developing local programs and local capacity to address water pollution issues, understanding stream dynamics and the affects of stream sediments on



The Guidebook is organized into five chapters that represent phases in the watershed planning process. As a watershed group completes a chapter, the coordinator should document the results in the Kentucky Watershed Plan Outline.

The planning steps outlined in the document are: Chapter 1—*Get organized*—helps users identify who should be involved in the planning process and get them involved. As the group organizes itself, it will identify the community's concerns about the waterway and choose some preliminary goals for addressing them. Chapter 2—*Look around*—helps the group define the boundaries of the watershed as part of a larger system and to understand the information that is available about it. There will likely be gaps in knowledge about the existing water quality in the watershed, which is the basis for the watershed management plan and measuring its progress. This step may cause users to include strategies to get more information for the plan. Chapter 3—*Analyze this*—helps the group analyze and compare data about the waterway and watershed to help identify the waterway's problems through objective and scientific methods. Chapter 4—*Get your act together*—helps the group choose how best to achieve the watershed plan's goals. Users identify effective best management practices and integrate them into the watershed plan. This chapter also discusses funding and outreach. Chapter 5—*Check it out*—helps the group track the plan as it unfolds through water quality monitoring, progress reports, and program evaluation.

The processes of watershed assessment, planning, and management are iterative; they develop over time based on the experience of implementation. Targeted actions might not result in complete success during the first or second cycle. It is expected, however, that through adjustments made during the management cycles, water quality improvements can be documented and continuous progress toward attaining water quality standards can be achieved.