

Waterworks

Kentucky Water Resources Research Institute at the University of Kentucky

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Second Annual Watershed Roundtable a Success

For the second consecutive year, individuals representing widely varied groups and interests came together for the Kentucky Watershed Roundtable. Coordinated by the Kentucky Waterways Alliance, Inc. and the Kentucky Environmental and Public Protection Cabinet, this year's event was held July 27th and 28th at Lexington's Holiday Inn North.

The Roundtable's focus, *Building Healthy Watersheds*, was designed to build bridges between governmental, conservancy, research, business, industry, and agricultural entities, "uniting a diverse group of stakeholders to address current water issues and develop effective, cooperative solutions."

The event featured both general and breakout sessions addressing such topics as alternative community wastewater



The Kentucky Geological Survey's Jim Dinger discusses watershed issues at the 2004 Roundtable.

systems, water quality impacts from coal mining releases, growth management in conjunction with water quality issues, GIS mapping projects in the Commonwealth, and community outreach success stories. This year's Roundtable closing session featured an address by EPPC Secretary LaJuana Wilcher.

A post-Roundtable workshop on floodplain management and community liability issues was an addition to last year's program.

A final report on the proceedings will be sent to conference participants and will be available online at the KWA website (www.kwalliance.org) thereafter.



The Kentucky Waterways Alliance display was just one of many meant to educate and inform attendees about basic watershed issues.

The second annual Kentucky Watershed Roundtable was sponsored by Bluegrass PRIDE, Eastern Kentucky PRIDE, Southeast Watershed Forum, Tennessee Valley Authority, US Geological Survey, and KWRRI, with contributing support from ORSANCO, River Fields Inc., and Tetra Tech.

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Meet the Researcher: Stephen Kenworthy, Ph.D.



Stephen Kenworthy, Ph.D.
Western Kentucky University

Education

Ph.D.

Johns Hopkins University

M.A.

*University of Illinois,
Urbana-Champaign*

B.S.

*University of Illinois,
Urbana-Champaign*

Current Research

Fine Sediment Source Areas and In-Channel Storage in the Upper Green River Basin, KY. (Project Number: 2004KY43B has received \$12,737 in Federal Funds through KWRRI - USGS Section 104B Competitive Grants Program.)

A primary factor affecting water quality, fine sediment pollution has drawn the attention of the US Department of Agriculture Conservation Reserve Enhancement Program (CREP), which has committed funding to reduce the amount of sediment entering the Upper Green River Basin between Green River Lake and Mammoth Cave

National Park. In his current work, Dr. Stephen Kenworthy of the Department of Geography and Geology at Western Kentucky University seeks to evaluate the potential effectiveness of the soil conservation practices implemented under this program.

“There is a critical need in the Commonwealth of Kentucky to understand both natural controls and the effects of human activities on water quality” Dr. Kenworthy asserts. “Pollution of Kentucky streams and rivers with agricultural and industrial chemicals, fine sediments, and organic wastes remains a problem despite continuing efforts to control effluent discharges and to implement best management practices for agriculture.”

In addition to identifying potential sources of fine sediment, Dr. Kenworthy’s team seeks “to understand the spatial distribution of fine sediment storage and the geomorphic controls on patterns of sediment deposition.” By tracking the sources and distribution of fine sediments, the team will produce information on the effectiveness of soil conservation efforts and provide aquatic habitat data for resource management agencies.

To document the spatial distribution of fine sediment stored in the Green River system’s channel and riparian zone, Dr. Kenworthy will conduct field surveys to determine locations and volumes of in-channel and overbank fine sediment storage. Survey sites are selected on

the basis of geomorphic factors such as valley slope and width, both of which can influence patterns of sediment storage.

Following the field survey, spatial analyses of geology, soils, topography, land use, and conservation practices will assist in ranking the potential of landscape units as sediment sources. The identification of specific land areas as potential sediment sources will focus additional field studies to identify active pathways of sediment delivery and evaluate the effectiveness of soil conservation practices.

According to Dr. Kenworthy, “the relationship between patterns of sediment storage and the distribution of potential sediment sources will be analyzed in terms of landscape attributes that affect the delivery of eroded soil to channels and fluvial transport mechanisms that control patterns of in-channel and overbank deposition.”

The team is enthusiastic regarding the ultimate outcome of the work. “The results of this project will elucidate patterns of sediment delivery, transport, and storage in the Green River and tributaries and explain these patterns in terms of the dominant natural controls and land use management practices,” Dr. Kenworthy states. “The preservation of clean surface water is essential for communities that obtain drinking water from these sources, and for the conservation and enhancement of the exceptional aquatic biodiversity supported by Kentucky’s waterways.”

KWRRRI Partners for Watershed Workshops

KWRRRI personnel teamed with UK's Tracy Farmer Center for the Environment and the UK Cooperative Extension Service, along with the University of Louisville and Bernheim Arboretum and Research Forest, to stage the Salt River Watershed Workshop from July 26th to 30th.

Geared toward Kentucky educators, this weeklong event provided stipends for public school teachers, with non-formal educators also in attendance. Issues addressed included watersheds and the water cycle, habitat quality, ecology and hydrology comparisons, individual impacts on watershed quality, and the overall importance of water quality to the ecosystem. Many of these topics were addressed in the field, as participants learned sampling methods and examined the watershed on land and by boat.

The photos below were taken by watershed workshop participants and illustrate the Salt River's ecosystem, along with some of the challenges it faces.



*Educators Participate in the
Salt River Watershed Workshop*



28th Governor's Conference on the Environment

Hyatt Regency - Lexington, KY

October 26-27, 2004

The Governor's Conference on the Environment brings together interested individuals from state, local, and federal government, business and industry, consulting firms, and the public to participate in a program that examines the environmental concerns facing the Commonwealth. Speakers and panels bring their perspectives on a range of topics and issues. The result is a forum that emphasizes a knowledgeable exchange of ideas and approaches to environmental issues.

The theme of this year's conference is, "Protecting the Environment, Prospering the Economy." A range of speakers will express their views on how environmental protection efforts contribute to ensuring a healthy economy. Morning sessions will look at air and water issues the Commonwealth is currently facing. The afternoon sessions will present new and emerging environmental technologies that may benefit both our environment and our economy. Invited speakers will address additional topics, including the relationship between a vibrant economy and protecting the resources that make that economy possible.

The Environmental and Public Protection Cabinet is pleased to announce the Commerce Cabinet as a co-sponsor of the 2004 Governor's Conference on the Environment. Each of these agencies recognizes the important relationship between a strong economy and a healthy environment.

The registration fee for the conference will be \$75 at the door. The conference registration fee includes Secretary's Reception, luncheon, breaks, meeting room costs and other conference expenses. To preregister for the conference.

For More Information Contact:

KY Environmental and Public Protection Cabinet

500 Mero Street 5th Floor, CPT

Frankfort, KY 40601

Phone: (502) 564-3350

Fax: (502) 564-3354

E-mail: environment@ky.gov

**Upcoming:
49th Annual Midwest
Groundwater Conference**

The 49th Annual Midwest Ground Water Conference and the Indiana Water Resources Association Fall Meeting will be held from October 27th-29th in Bloomington, Indiana. All professionals with interests in the groundwater industry (including hydrogeologists, hydrologists, geologists, planners, researchers, environmental consultants, water resource professionals), as well as students, are invited to attend.

The conference itself will feature eleven technical sessions (one poster, ten oral), while a pre-conference day-long field trip on the 26th will explore the karst areas of south-central Indiana.

The University of Arizona's Robert J. Glennon, author of *Water Follies: Groundwater Pumping and the Fate of America's Fresh Waters*, will present the keynote address on the 27th.

For more information about the Midwest Ground Water Conference, visit <http://igs.indiana.edu/mwgc/>; contact Dr. Sally Letsinger, Conference Chair, at sletsing@indiana.edu; or telephone 812-855-1356.

**Earth Science Week,
October 10-16**

October 10th-16th marked Earth Science Week nationwide, as we addressed the theme "Living on a Restless Earth."

The mission of the annual Earth Science Week is:

- To engage students in discovering the Earth sciences.
- To remind people that Earth science is all around us.
- To encourage Earth stewardship through understanding.
- To motivate geoscientists to share their knowledge and enthusiasm about the Earth.

With this year's focus on "the ways that Earth Scientists study hazards in order to understand their causes and minimize their impact on society," Earth Science Week featured events around the country and offered materials to encourage enthusiasm about the Earth Sciences in educators and students alike.

The University of Kentucky marked the week with an open house at the Mining and Mineral Resources Building on Wednesday evening, October 13th. KWRRI participated by presenting the EnviroScope. Watch this space in future newsletters for information on next year's Earth Science Week.

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Lindell E. Ormsbee
Director

James A. Kipp
Associate Director

Ramesh Teegavarapu
Assistant Director

Steve Hampson
Assistant Director of KRCEE

Malissa McAlister
Kentucky River Basin Coordinator

Edwin Ebrahimi
Administrative Staff Officer

Charles Etta Mynhier
Staff Support Associate

Anna Goodman Hoover
Communications Specialist

Waterworks features water-related topics, including KWRRI activities. Subscriptions are free. Please address requests to:

Waterworks Editor
233 Mining & Minerals Resources Building
University of Kentucky
Lexington, KY 40506-0107
aghoov2@uky.edu
(859) 257-1299, fax (859) 323-1049

Previous issues of Waterworks can be viewed on the KWRRI web site at <http://www.uky.edu/WaterResources>



From Director Lindell Ormsbee

Greetings from UK. On July 1st, 2004 I had the privilege to assume the position as the permanent director of the Kentucky Water Research Institute following ten years as both associate and acting director of the KWRRI as well as a two-year stint as the initial interim director of the Tracy Farmer Center for the Environment. This is a very exciting time in the life of the Institute and a time of continuing technical and non-technical challenges with regard to management of the state's water and environmental resources. Whether the issues are adequate water supply, watershed management, TMDLs, non-point source pollution, or the dwindling supply of water and environmental professionals, the KWRRI stands ready to lend a helping hand. Fortunately, the KWRRI has two strong partners in the Kentucky Geological Survey and the Tracy Farmer Center for the Environment, which are also involved in this effort. We also have an incredible staff of professionals

and affiliated faculty who are dedicated to helping solve the water resource problems of the state through a coordinated program of research, education, outreach, and tech transfer. At the top of the list is certainly Jim Kipp who served admirably as "interim director" of the Institute since 2001. It has been a real pleasure to work with Jim over the last 10 years, and I look forward to a continuing productive relationship in his new capacity as associate director.

I am also pleased to announce the appointment of two additional staff. The first is Dr. Ramesh Teegavarapu, who will be helping to coordinate many of our state-funded water projects. Dr. Tegavarapu will also be serving as an adjunct faculty member in the department of Civil Engineering. The second is Mr. Steve Hampson who will be coordinating the day-to-day activities of the recently created Kentucky Research Consortium for Energy and Environment. As discussed in our last

newsletter, the KRCEE will address environmental remediation issues associated the Paducah Gaseous Diffusion Plant. Both individuals bring outstanding credentials to the KWRRI and increase our capacity to better serve the Commonwealth.

Although I already have had the privilege and honor of getting to know many of you in the past, I look forward to the opportunity to better serve all of you in the future in my new capacity as director. Feel free to stop by our offices on campus or drop me an email any time. We look forward to meeting many of you for the first time if not renewing old acquaintances at our annual meeting in the Spring. This year we will be celebrating the 40th anniversary of the Institute's service to Kentucky.

Contact Lindell Ormsbee at:
lormsbee@engr.uky.edu