

Waterworks

Special Edition

Kentucky Water Resources Research Institute at the University of Kentucky

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History and science merge at the Kentucky State Fair water exhibit

The Kentucky State Fair Education Program will mix history and science with this year's program theme, 2001: A Water Odyssey. Visitors to the exhibit will navigate a giant living stream, along which they will learn about Kentucky's water resources. This living stream will model a watershed, allowing visitors to learn about their own watershed and how they can protect the water there.

Interactive exhibits and Learning Lab programs will allow visitors to explore Kentucky history and geography while learning about aquatic biology, water quality, how Kentuckians use water, as well as the state's most fascinating aquatic

environments, such as wetlands and underground streams.

Student artworks, writings, and class/group projects will be featured throughout the exhibition. 2001: A Water Odyssey will complement the theme for the annual Conservation Writing & Art contest, sponsored by the Kentucky Farm Bureau Companies, the Courier-Journal, and the Kentucky Soil Conservation Districts. The Kentucky State Fair will be open from August 16 – 26, 2001 at the Fair and Exposition Center in Louisville.

To learn more, please visit www.kystatefair.org and click on the link for "Educational Exhibit" on the left of the screen.

Inside...

National Research Council publishes water research policy guide 2

Enthusiasm and experience make Mynhier a major asset to KWRRRI 2

Water – it's worth using wisely 3

KWRRRI intern Patrick Thompson contributed to this special edition of Waterworks by collecting and editing most of the articles in this issue.

Meet the Researcher

(Editor's note: "Meet the Researcher" is a new feature that will appear in Waterworks on a regular basis. It is an opportunity to let readers learn something about the people who are doing the research that the Institute helps support.)

Brian S. Shepherd, Ph.D.

Assistant Professor, Morgan School of Biological Sciences, University of Kentucky, since August, 2000.

Education

Ph.D. in Zoology, University of Hawaii - Manoa, 1997.

B.A. in Zoology, University of Hawaii - Manoa, 1990.

Current Research: Dr. Shepherd, with the assistance of Scott Lynn, a Ph.D. student, is researching the effects of estrogen/EDCs (endocrine disrupting chemicals) on the

endocrine physiology of the model species, yellow perch (*Perca flavescens*). This research is being funded by the KWRRRI and the U.S. Geological Survey. Other areas of research include the comparative aspects of pituitary function, how the environment affects pituitary physiology, and the attendant physiological responses (growth and adaptation) of the organism to environ-

(Continued on page 4)

National Research Council publishes water research policy guide

Recently, the National Research Council (NRC) published *Envisioning the Agenda for Water Resources Research in the Twentieth Century*, seeking to outline a guide for policymakers as the United States confronts the challenge of providing sufficient quantities of high-quality drinking water to its growing population.

The report states that several issues will illustrate the need for these strategies. These are the pressures of unpredictable economic growth in an increasingly global economy, as well as the introduction of new technologies with unknown potential side effects, increasing pressure on

aquatic ecosystems, and the uncertainty of potential climate variability and subsequent hydrologic predictions. All, it is felt, will contribute to the need to coordinate strategies for water resource research in the coming years.

The NRC discusses research questions related to critical water issues that face the nation and proposes an interdisciplinary research plan for the next 20 years. In particular, the report recommends agenda-setting processes that can maximize the nation's ability to prioritize and conduct water resources research. Coordination of the water research agenda should be

achieved by creating a national organization that involves state and federal governments, research institutions, users and purveyors, nonprofit organizations, and public interest groups.

The report goes on to propose the need for a substantial commitment of new funds to support expanded programs of research, on the order of several hundred million dollars, which will be essential for the protection of our increasingly scarce water resources. The NRC feels this investment should support efforts in the following areas: water availability (supply-enhancing technologies and monitoring

(Continued on page 4)

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Previous issues of *Waterworks* can be viewed at:

www.uky.edu/WaterResources

Enthusiasm and experience make Mynhier a major asset to KWRRI

When anyone calls the main number at KWRRI, most likely the voice heard on the other end belongs to Charlie Mynhier, who recently joined the Institute as a Administrative Staff Support Associate.

But theres a catch, because this Charlie is the mother of five and wife of Rodney.

Charles "Charlie" Etta Mynhier explains, apparently not for the first time, that her father, Charles, was determined that his first born child would carry his name.

"So my name is Charles," said Mynhier, with a degree of resignation. "I have two younger brothers and neither of them has Charles in their name."

Charlie is a native of Georgetown, Ky. but has spent most of her life in Lexington. She has 17 years experience at UK, most recently in the Survey Research Center and, before that, in Research and Graduate Studies Fiscal Affairs.

When she is not working at the Institute, Charlie enjoys cooking, sewing, singing, and attending church.

Water – it's worth using wisely

Kentucky-American Water Company encourages smart water use year-round. By incorporating these useful tips in your daily routine, you can practice wise water use, help conserve a precious natural resource, and reduce water and sewer bills.

1. Is it possible your toilet has a secret leak? You can test it by putting 10 drops of food coloring in the tank. Don't flush for 15 minutes. If the colored water shows up in the bowl, the tank is leaking.
2. Use a wastebasket instead of flushing away tissues and other bits of trash in the toilet. This will save gallons of water.
3. Make your older model toilet, more efficient. Fill a plastic bag or container with water, seal it, and place it in your toilet tank to help decrease the amount of water used each time you flush.
4. Try showering "The Navy Way." Sailors were taught to just get wet, and then turn off the shower while soaping and scrubbing, and turn it on again briefly to rinse off. It's a great water conservation technique.
5. Remember the "Rule of Five": Take five-minute showers and use no more than five inches of water in the tub.
6. You can use one less gallon of water by lowering the shower pressure or by making your showers a few seconds shorter.
7. Don't let the water run when you brush your teeth, when washing your face, or when shaving. Most of it will be wasted. Just take what you need and save the rest.
8. Water heaters often are set at 140 degrees. You can save energy by turning the temperature on your water heater down to 130 degrees. Don't go any lower because some harmful bacteria could survive.
9. Fill your dishwasher full because it will use the same amount of water for a normal cycle, whether it contains a full load of dishes or just a few items.
10. There's really no need to fully wash dishes before loading in the dishwasher. Just scrape off food scraps and rinse.
11. Stopper the sink when you wash dishes by hand; and when you're finished, turn on the garbage disposal as you pull the plug.
12. If your soap does not have phosphates, you may be able to recycle rinse water to give your plants a drink.
13. If you like to rinse off vegetables and fruits, stopper the sink instead of using running water, and you can recycle that water.
14. Determine which is more water efficient, washing dishes in an automatic dishwasher or in the sink by comparing how many gallons a full sink basin holds compared with the 9.5 to 12 gallons dishwashing machines use during a regular cycle.
15. Instead of letting the water run in the sink when you want a cool drink, keep a jug or pitcher cooling in the refrigerator.
16. Check every faucet in the house for leaks. A single dripping faucet can waste far more water in a single day than one person needs for drinking in an entire week.
17. Check the water taps in your home to see if they all have aerators or spray taps. An aerator mixes air with the water, which not only cuts the flow but reduces splashing. The spray tap is similar, but also can swing from side to side like a tiny showerhead.
18. Select the appropriate water level for the size of your load of laundry. Most washers now offer preset water levels for small, medium, and large loads. Use full loads whenever possible.
19. Here's a two-for-one idea if you have a fish tank in the house. When you clean the tank, use the dirty water on your houseplants. It's rich in nitrogen and phosphorous, which gives you a nice fertilizer while you use the same water twice.
20. Know where your shut-off valve is. If emergency leak repairs are needed, quickly locating and shutting off your valve will prevent flooding and water waste.



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Meet, from page 1

mental challenges.

A project that is funded by the U.S. Environmental Protection Agency, in collaboration with four other Biology faculty, will model the effects of multiple stressors (chemical/anthropogenic, predation, and habitat ephemerality) on amphibian development, using the Streamside Salamander (*Ambystoma barbouri*) as the model species.

Another project that was recently funded by the U.S. Department of Agriculture will study and apply novel ways of enhancing fish growth and production. The project will examine the ability of the synthetic growth-hormone-releasing peptide, GHRP-2(KP-

102) to stimulate gene expression of the two rainbow trout GH genes (GH1 and GH2) and pulsatile GH secretion. There may be a tangible benefit to the agriculture and aquaculture industries if it is found that endogenous GH secretions can be safely enhanced by GHRP-2 and will provide the basis for deciding whether a more general use of this approach is advantageous to vertebrate growth enhancement.

Advising: Participating on the committees of two Ph.D. students.

Teaching: Currently teaches Biology 350, a comparative animal biology course geared toward pre-medical students. In the future, Dr. Shepherd will offer a course in comparative endocrinology.

National, from page 2

instrumentation); water use (understanding the determinants of consumptive water use and water conservation and recycling); and water institutions (improved water management institutions, particularly legal and economic ones and should be interdisciplinary).

The report can be read online for free at the following address:
<http://books.nap.edu/books/0309075661/html/index.html>.