

# Center for the Management, Utilization and Protection of Water Resources fiscal year 2002-2003.....at a glance

## Center mission

The faculty, staff and students of the Center work to enhance research by addressing diverse water-related problems in Tennessee, the nation and the world; enhance educational opportunities through research, university instruction and educational outreach; and enhance citizens' quality of life by providing technical assistance and technology transfer to peers, citizens and industry.

## student support

This fiscal year the Center supported 49 graduate students in 7 different academic majors. Eight of the graduate students were doctoral candidates in the Environmental Sciences program. The Center also supported 54 students from 13 majors on an hourly basis to work on service and research projects in the field, in laboratories and in offices.

## research partners

Alabama Department of Conservation and Natural Resources • Arkansas Game and Fish Commission • Arnold Air Force Base Environmental Management • Civil and Environmental Consultants • Kentucky Department of Fish and Wildlife Resources • National Park Service • National Park Service--Southeastern Region • National Science Foundation • New Mexico Institute of Mining and Technology • Ozark-St. Francis National Forest • Sandia National Laboratories • Tennessee Department of Agriculture--Nonpoint Source Program • Tennessee Department of Environment and Conservation • Tennessee Department of Transportation • Tennessee Valley Authority • Tennessee Wildlife Resources Agency • The Nature Conservancy • University of Nevada, Reno • University of Tennessee, Chattanooga • U.S. Department of Agriculture • U.S. Environmental Protection Agency • U.S. Geological Survey • West Virginia Division of Natural Resources

## accomplishments & awards

Secured more than \$1.5 million from state and federal agencies, research foundations, and advocacy groups to seek solutions to environmental problems.

Recognized nationally for research in *Legionella*; fisheries assessment; remote biosensing; natural and constructed wetlands; the fate and transport of pesticides in the environment; and urban nonpoint source pollution best management practices.

Cosponsored presentations by Association of Environmental Engineering and Science Professors distinguished lecturer Philip Singer and Kappe lecturer James Crook.

Michael Harvey, emeritus biology professor, received the Lifetime Achievement Award from the Southeastern Bat Diversity Network.

Two biology graduate students supported by the Center were recognized for their achievements this fiscal year. Kevin Hoffman won the Robert M. Jenkins Memorial Scholarship Award given by the Southern Division of the American Fisheries Society, and George Scholten won the 2002-2003 Pennebaker Scholarship Award for outstanding incoming graduate student in the Tennessee Technological University Department of Biology.

Donald P. Visco, chemical engineer, placed second for the American Society for Engineering Education Southeastern Section New Faculty Research Award.

Martha J.M. Wells, environmental chemist, was awarded the American Chemical Society Division of Environmental Chemistry Distinguished Service Award as well as its Award for Outstanding Service as the 2000-2001 chair.

Sharon G. Berk, biologist, made two invited seminars and two invited talks. She was also recognized with a certificate for outstanding service on the American Society for Microbiology Council.

Cosponsored a workshop titled "Wetland Identification and Delineation" held in September 2002, in Cookeville, Tenn.

Helped coordinate the sixth annual Stonecipher Symposium on Technology, Communication and Culture with the theme "Homeland Security in a High-Tech Age."

Published 15 refereed publications and 2 book chapters and made 35 presentations at professional organizations' conferences.

Hayden Mattingly, biologist, was invited in October 2002 to present "Ecology and Conservation of a Threatened Ozark Stream Fish" to the Department of Biological Sciences at Old Dominion University in Norfolk, Virginia.

Chemical engineering student John Richardson received a Graduate Research Fellowship through the National Science Foundation.



Retired four-star Gen. Carl Stiner was a keynote speaker at this year's Stonecipher Symposium.

**enhancing environmental education through research**

Tennessee Technological University

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# Center for the Management, Utilization and Protection of Water Resources fiscal year 2002-2003.....at a glance

## project highlights

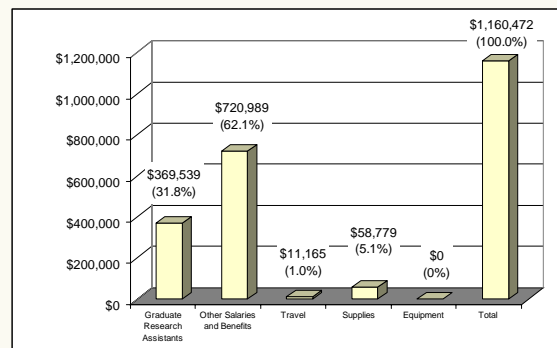
The projects below feature some of the work in which Center researchers focused their efforts this fiscal year. For a complete listing of project activations for the 2002-2003 fiscal year, visit our Web site at [www.tntech.edu/wrc/2002-2003.htm](http://www.tntech.edu/wrc/2002-2003.htm).

- **“Pesticide Fate and Removal in Constructed Wetlands”**: deals with the processes involved in removing pesticides from a container nursery.
- **“Ohio River Mainstem System Study Fatty Acid Investigation”**: involves the study of fish fatty acids and lipids to determine if their diet was changed due to the construction of dams and locks.
- **“Assessing the Biological, Sociological and Economic Characteristics of Tailwater Trout Fisheries in Tennessee”**: includes the surveying of trout anglers to determine their attitudes and motivations and the economic value they placed on sport fishery resources.
- **“Survival of Artificially Propagated and Cultured Juvenile Mussels”**: involves the evaluation of the sequential culturing of juvenile mussels in an indoor recirculating system followed by an outdoor culture system.
- **“Sauger and Largemouth Bass Population Dynamics and Stocking Efficacy”**: involves the sampling of largemouth bass fingerlings to determine factors producing stronger than average year-classes and optimal stocking conditions.
- **“Precipitation Data Analysis and Preprocessing for Improved Hydrologic Prediction”**: involves the use of modeling tools to evaluate errors and uncertainties of Stage III radar rainfall products to determine how the data might be improved.
- **“Development of a Regional Guidebook for Evaluating the Functions of Wetlands in the Depression HGM Class in Central and Eastern Tennessee”**: involves the development of a guide for assessing the functions performed by depression wetlands.

- **“Lignin, Cellulose and Biochemical Methane Potential Analysis of Solid Waste Samples from Williamson County’s Aerobic Bioreactor Landfill”**: involves the study of solid waste degradation through the creation of aerobic conditions in a landfill.
- **“U.S.-Brazil Higher Education Consortium”**: allows students the opportunity to study projects related to environmental stewardship in a different culture.

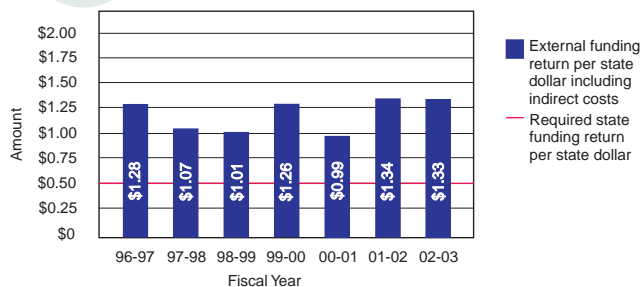
## plans and challenges for fiscal year 2003-2004

To achieve its research milestones, the Center must overcome financial obstacles to increase its competitiveness in achieving grant awards. Approximately 93.9% of this year’s state allocations was used to fund faculty and staff salaries and associated benefits and graduate assistants’ stipends, including tuition and fees. The Center will continue to redistribute its resources to address the needs of its researchers and provide greater flexibility of state-appropriated funds. The Center will also continue to grow and work toward the most efficient use of its resources.



Allocations of Appropriations  
Fiscal Year 2002-2003

## funding sources



This year, Center researchers partnered with state and federal governmental agencies, municipalities, and industry to secure \$1,561,065 through externally funded projects including indirect costs. Direct costs from these projects totaled \$1,446,597. These amounts reflect a \$1.33 return per dollar of state appropriations including indirect costs and a \$1.23 return per dollar of state appropriations without indirect costs.



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