

Virginia Forest Landowner Update

V. 21, no. 3 Summer 2007

The Water Center's Educational and Research Projects Ripple Across the State and Beyond

by Ana Constantinescu, *Virginia Water Resources Research Center*



ANSF fellow is participating in a drinking water odor experiment. Photo by: Ana Constantinescu, Virginia Water Center

The students are sniffing quietly several flasks with drinking water samples. Then they take notes about their observations in order to identify which water sample has the strongest odor. Who are the students and what is the occasion? The students are eight National Science Foundation (NSF) undergraduate fellows from across the country who have been accepted to spend the summer at Virginia Tech to work side by side with Tech professors and graduate students. The occasion is a drinking water experiment that takes place during the weekly seminar which brings the NSF fellows together throughout their stay in Blacksburg.

The selected students are funded through the prestigious NSF Research Experiences for Undergraduates to participate in research projects related to sustainable management of water resources. The program is coordinated at VT by the Virginia Water Resources Research Center ("the Water Center") and will continue to bring undergraduates to Blacksburg over the next two summers.

"The essence of this program is to allow undergraduate students work for 10 weeks in a stimulating interdisciplinary environment, while nourishing their analytical skills and creativity as future scientists and engineers," explains Tamim Younos, associate director at the Water Center and research professor of water resources in the geography department. Younos is the director of the summer-long interdisciplinary watershed sciences and engineering program, and is assisted by Vinod Lohani, associate professor of engineering education at VT.

Such educational programs have been part of Water Center's projects portfolio for decades. The center was established 1965 at VT by the U.S. Congress as one of the nation's 54 water institutes. Presently, the Center is affiliated with VT's College of Natural Resources.

"We are constantly striving to offer stimulating research and educational opportunities to water scientists and students, and provide citizens and government leaders with water science information," says Stephen Schoenholtz, the Water Center's director and professor of forest hydrology and soils in the forestry department at VT.

Also part of the Center's educational mission is a three-year water quality management training program aimed at Montgomery County public schools. High and middle school teachers receive training in water quality monitoring for their classroom instruction using the latest field measurement tools and techniques.

"What this project contributes is an unprecedented partnership between VT and the Montgomery County public schools. We are able to introduce science teachers to advanced technologies in order to create a focused and systematic approach to educating high school students in environmental issues," says Younos, who is one of the project's coordinators.

VT's recent emphasis on enriching the research activities at the university has been echoed in the Water Center's long-standing research program. In addition to providing research funding to faculty and students from Virginia universities, the Water Center leads multi-disciplinary teams of faculty who study current water-related issues.

The most recent collaborative research will create an unprecedented approach to managing storm water runoff in urban areas. Younos, who leads the project along with two civil engineer professors, David Kibler and Randy Dymond, says that storm water runoff is a main pollution source for streams, lakes, and ground water. The conventional way to control urban stormwater runoff, which contains pollutants such as pesticides, motor oil, or even trash, has been to store the stormwater in detention ponds.

"The current methods are not efficient at protecting our waters," admits Younos. "With the ongoing project, we envision a new set of more efficient guidelines – or Best Management Practices - that account for realistic site conditions and environmentally sustainable outcome." The new methods may be applicable in any state in the eastern half of the country, as they share common stream, lake, and groundwater characteristics.



Stephen Schoenholtz, the Water Center's director. Photo by: John McCormick, Virginia Tech.

So, how do all these educational and research projects fit under one umbrella at the Water Center? “We are proud to serve Virginia’s water education and research needs,” says Schoenholtz, the Center’s director. “We thrive on collaboration and serving citizens – it’s how we have done things for more than four decades.”

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