



RANDOLPH-MACON

C O L L E G E

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From the Mountains to the Sea

Randolph-Macon, W&L, VCU & USGS Collaborate to Assess Water Quality

Randolph-Macon College President Robert R. Lindgren is pleased to announce the formation of a new partnership among Randolph-Macon College, Virginia Commonwealth University, Washington and Lee University and the United States Geological Survey (USGS) that will provide students with the opportunity to test the water quality of the James River.

Partnerships

This new partnership is a first-of-its kind, real-time water quality assessment network in a large coastal watershed and its estuary. It also represents a unique and innovative collaboration with higher education, government and corporate supporters. The four-year project, "From the Mountains to the Sea," includes research and education components and is funded by the Jessie Ball duPont Fund, MeadWestvaco Foundation and Dominion Virginia Power. In addition, the Virginia Department of Environmental Quality (VA DEQ) has donated laboratory analysis for the project.

"We are thrilled to be working so closely with the USGS and these outstanding institutions of higher education," says Randolph-Macon President Robert R. Lindgren. "Our students and our environment will benefit greatly from the generous support we've received from our corporate supporters. They are indeed our partners in every sense of the word."

"The health of the James River and the vibrancy of the Virginia academic community are important not only to MWV's business, but also to the communities where we live and work," said John A. Luke, Jr., chairman and chief executive officer, MWV. "The MeadWestvaco Foundation is proud to support the sustainability of both through this unique partnership with Randolph Macon, VCU, Washington & Lee and the USGS."

"This research and educational partnership will improve the student and faculty experience at VCU as we emerge as one of our nation's premier urban public research universities, and it will also lead to a more thorough understanding and effective management of the waterways upon which we depend each day," says

Michael Rao, Ph.D., VCU's president. "VCU looks forward to strengthening its connection with these partners and with America's founding river."

Unique Opportunities

Randolph-Macon Biology and Environmental Studies Professor Chas. Gowan, who spearheaded the grant proposal, says the partnership offers unique opportunities for everyone involved in the project.

"The USGS and the VA DEQ measure nutrients in the water about 20 times per year at a dozen sites in the James River watershed, and these are currently the best data available to detect water quality trends over time," says Gowan. "Through this project, students and researchers from R-MC, VCU, W&L and USGS will be able to measure the water quality every 15 minutes using new, sophisticated sensors not available until now. The colleges get fantastic learning opportunities for their students, USGS gets data never before possible to collect, and the entire Bay region benefits by having more reliable information about whether our efforts to clean up the Chesapeake are working."

"This project will give our university partners access to cutting-edge technologies for measuring, interpreting, and using water quality information in ways that will support the effective management of large coastal rivers and the living resources that depend on these ecosystems," says Greg Garman, Ph.D., research director at the VCU Rice Rivers Center.

The sophisticated sensors—one in Cartersville, Virginia and one along the lower James River near the VCU Rice Rivers Center—will be installed to measure pollution. An additional type of sensor will be used to measure the amount of tidal water moving up and down the river on a continual basis. The sensors will be installed by USGS with the assistance of students during their internships—one each from R-MC, VCU and W&L—who will be trained by USGS experts. Ultimately, the data collected may indicate the amount of pollution (much of it caused by fertilizer) that ends up in the Chesapeake Bay. The data collected will be available to the public in real-time on a web site maintained by the USGS.

"Nowhere on the East Coast is there a water-quality network of this type that links mountain landscapes to marine waters," says Gowan. "Our work will connect non-tidal and tidal monitoring networks in the James River so that continuous data are available."

"We are excited to enhance the water-quality network and add a new station in the tidal-freshwater reach of the James River," says Jennifer Krstolic, BioGeographer and GIS Specialist with the USGS. "This kind of partnership helps to expand and enhance the Chesapeake Bay monitoring network, and provides opportunities for multi-disciplinary investigations with our University partners who have extensive experience in both nutrient cycling and fisheries biology."

Student Interns

USGS will provide extensive training this summer for the three student interns. Once trained, the interns will share their knowledge with other students. At R-MC and W&L, the interns will return to campus in September and then lead other students in conducting USGS-style monthly sampling on a stream near each home institution. VCU will also expand opportunities for student engagement in water quality assessment in and around the Rice Rivers Center.

Aaron Bartlett '15, an environmental studies major, will represent Randolph-Macon.

“I am excited to work on this project because I have an interest in water quality and I want to help preserve our waterways for future generations,” says Bartlett. “I look forward to learning new water quality monitoring practices and working with environmental professionals.”

The USGS is committed to helping to shape the next generation of scientists to collect precise, consistent, and accurate data for the nation to facilitate understanding and management of the environment.

Partners in Education

USGS experts will visit Gowan’s class periodically, beginning in fall 2014, to talk to environmental studies students about this exciting project.

“This collaboration builds on the strengths of the various partners by providing students from VCU, RMC and W&L an opportunity to learn techniques for environmental monitoring from our colleagues at USGS and to use these skills in research projects conducted with faculty at their home institutions,” says VCU Professor Paul Bukaveckas. “For the faculty and scientists involved, it provides an opportunity to work on a shared dataset and improve our understanding of water quality in the James.”

“This is a really unique opportunity for our students,” says Gowan. “Our undergrads will be trained by and work with the premiere water-quality monitoring agency in the world on a groundbreaking study using advanced equipment. I don’t know of another situation like it in the country.”

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