

Floating Classroom

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Becky Kirkland photo

Dr. Robert Reed and Dr. JoAnn Burkholder (back row, right) join their young students on the dock before boarding the RV Humphries.

It's time for a cool change as a CAAE outreach program takes youngsters out on the water for lessons in aquatic ecology.

Six eighth-grade boys in canary yellow life vests huddle together on the bow of the *RV Humphries*, squinting in the sun at Dr. Robert Reed, who is demonstrating different types of equipment that test everything from water quality to wind speed.

Choruses of "cool" and "awesome" ripple through the little crowd as Reed continues his talk, as well as wild guesses like "poison blaster," when the boys are asked what each device may be.

Six of their classmates – the all-girl group, as the students have decided to divide themselves – are inside the boat learning from Dr. JoAnn Burkholder how to sample river water to assess the water quality.

Thus goes a typical day aboard the "floating classroom," anchored on this warm spring morning in the Neuse River near New Bern.

Burkholder, College of Agriculture and Life Sciences professor of aquatic ecology and director of the Center for Applied Aquatic Ecology (CAAE), and Reed, oceanography researcher with CAAE, have taken hundreds of students out on the water for hands-on learning over the last three years, thanks to grant funding from the Burroughs Wellcome Fund. Now in their first year of a three-year renewal – the only renewal available through the fund – Burkholder and her team are eager to find backers to continue the North Carolina Floating Classroom Program long-term.



Becky Kirkland photo

"We're very grateful for the support from the Burroughs Wellcome Fund," Burkholder says. "They really care about educating people of all ages on environmental issues. And, as you can see, the floating classroom is a really great opportunity for these students, some of whom previously had never even been on the water. This experience pulls them in and gets them into contact with estuaries and aquatic life, so they can see what nature is really like and why it matters to their lives."

Of course, the floating classroom experience wouldn't be possible without a boat.

Reed explains one of many types of equipment used to test wind speed and water quality.

Enter the *RV Humphries*. The former Coast Guard auxiliary patrol boat was donated to N.C. State in 2003 by the family of its builder,

the late marine engineer and naval architect Howard L. Humphries. Now a fully outfitted research vessel, the 50-foot *RV Humphries* boasts a spacious cabin and large decks for both indoor and outdoor learning.

CAAE operates the *RV Humphries* year-round for research and educational outreach programs.

“The goal of the Floating Classroom Program is to motivate students to become more responsible stewards of our state’s water resources, not only by experiencing estuarine water-quality research firsthand, but also by learning about the policy issues that affect estuarine health and by understanding how each person can contribute to improving protection of our state’s public trust water resources,” Burkholder says. “We also want students to understand that clean water is a fundamental right and a fundamental need that everybody has.”

On this particular day, the students participate in two sessions on the boat. They learn about all sorts of equipment that Reed and other scientists developed to collect data on the river’s health, and they also get to pull up water from the river for sampling and operate an instrument that measures water depth and oxygen levels.



Becky Kirkland photo.

Burkholder lectures in the floating classroom.

The students’ teacher, Susan Randolph, has partnered with Burkholder from the Floating Classroom Program’s inception. A middle- and high-school teacher at the Wayne School of Engineering in Goldsboro, Randolph serves as a liaison between CAAE and Wayne County Public Schools, and she also helps develop curricula for the program.

“For a lot of the kids we bring out here, this is a world they have never seen,” Randolph says. “Some of them have never seen a body of water or been on a boat. They can read about it in books or on the computer, but I’m a ‘do’ person, and I’m a firm believer that just

looking at it on a screen or having a virtual experience is not the same.”

In addition to the half-day cruise, CAAE also offers week-long summer ventures as part of its “X-Stream Aquatics Program,” led by Terri Mann, CAAE research assistant. The program is designed to kindle students’ interest in science, technology, engineering and math through hands-on science experiments aboard the *RV Humphries*, as well as dockside learning experiences that cover everything from boat safety to the effects of pollution on water quality.

“The summer program is so neat,” Burkholder says. “It really gets students and their families interested in estuarine water quality and our state’s water resources, and it gets them to care. It’s wonderful seeing these young people discover how fascinating and how important natural resources are to them. Some of them have gone on to college to pursue aquatic science careers, too.”

During follow-up programs that take place on four Saturdays throughout the year, Burkholder and her team open the doors to the CAAE for the students to check out the center and learn how to conduct science experiments. The youths also can participate in a career day to learn about related professions. And there are side trips to other North Carolina coastal communities for more hands-on learning and discovery about salt marshes and marine life.



Becky Kirkland photo.

Students learn from the boat captain how to take a water sample.

“This program is driving STEM education and connecting students to that reality,” Randolph says. “As an environmental educator, if I can’t provide real-world opportunities for my students to experience science firsthand, then I’m just another YouTube video.”

Burkholder fields countless requests throughout the year from all sorts of groups interested in giving their students the Floating Classroom Program experience. And, she says, Riverkeeper organizations from different parts of the state have approached her for help developing new floating classroom programs in their areas.

For now, though, a focus of CAAE is on finding the means to keep building the North Carolina Floating Classroom Program.

“Education is changing; the things it takes to engage children are changing, and getting them away from computers and TVs and out in the environment is critical,” Randolph says. “The Floating Classroom Program is a way of having them ‘do.’ I think that’s the power of this program.”

– Suzanne Stanard

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