

LESSONS FROM NATURE

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Sue Cooke shares her curiosity about the natural world
with a broad range of students.



Assistant Professor of Biology Dr. Sue Cooke gets excited when she talks about *Homarus americanus*, a.k.a. the American lobster.

She will tell you, for example, that while lobsters thrive in salt water, each spring many migrate into New Hampshire's Great Bay estuary—a low-salt body of water—before moving out in the fall.

The mural featured in this photograph was painted in 1996 by studio art majors **Marguerite (Fournier) Lemmerman '98** and **Michelle Kunkel '96**.
(PHOTO BY JODIE ANDRUSKEVICH)

“We really don’t fully understand what triggers that migration,” she says. Add to that another lobster phenomenon not yet fully explained—more than 90 percent of “legal size” lobsters in New Hampshire waters are harvested each year, yet they manage to maintain a fairly stable population—and you begin to understand some of what drives Cooke’s passion for lobster research.

She first began studying crustaceans as a doctoral student in marine biology at the University of New Hampshire, where she worked as part of a team researching the effects of various environmental variables on their migration patterns.

But her interest in science began long before that. “My father was a research associate in chemistry at Clarkson University. I was always around science...it felt natural to me,” she explains. She recalls sharing a fascination for dolphins and whales with her best childhood friend, Becky. “As seventh graders, we imagined that our work would involve ‘talking with dolphins,’” she laughs.

Today, while they live on opposite coasts, both she and Becky are teaching college science—a development that in Cooke’s case, was a “happy accident.” She discovered she had an aptitude for teaching while she was at UNH. “Some of the other doctoral candidates struggled with conducting classes, but it just came naturally to me. I knew then that teaching would be an important part of my life.”

Cooke’s evolution as a biologist was another “happy accident.” She credits a high school teacher, Mr. Pelkey, with sparking her interest in the field. “He was so inspirational, half of the students in our AP biology class went on to study science or medicine,” she says.

Later, when she was a master’s degree student at Boston University, in residence at the Marine Biological Laboratory in Woods Hole (MA), she met many others who inspired and shaped her scientific interests. Among them was Dr. Jenny Basil, who quickly became a mentor. Intrigued by Dr. Basil’s work on the behavior of nautilus, Cooke decided to focus her own research on animal behavior. “I became fascinated with sea robins, a type of fish that seemed better at capturing their prey in the dark. I would come in to the lab in the morning to find most of the little fish had been eaten. Were the sea robins using chemo-sense to locate them or something else?” she wondered.

Cooke brings her passion for science to the classroom, where her goal is to create an atmosphere appropriate for learning, while keeping it, “fun, open, and relaxed.” She teaches courses in human anatomy and physiology, animal behavior, and animal physiology to many different ages, ranging from high school students enrolled in Rivier’s Challenge program to adults studying nursing in the evening program—as well as traditional 18 to 22 year-olds, many of them also nursing students.

As part of a service learning class, she also works with college students to teach animal care and safety to elementary students in Nashua’s 21st Century After School Program. “I teach very diverse age populations and enjoy each of them for different reasons.”

Perhaps her biggest challenge is teaching non-science majors. “I discovered that many of them came in hating science and most of them were leaving still hating science. That’s unacceptable to me,” she says.

One way Cooke tries to spark an interest in science is to first show its application in every day life. When teaching cell metabolism to non-science majors, for example, she begins by asking students to keep a food diary for one week. They have to track what they eat and break it down into carbohydrates, proteins, and fats. “Then we look at the food pyramid and start talking about how their cells metabolize what they’ve taken in. Suddenly, it begins to make sense.”

Her innate curiosity about the natural world also leads Cooke to study many phenomena that don’t make sense. Explaining the termite colony on her desk, Cooke says she and her students have been investigating the termites’ attraction to blue ink from Papermate pens. They have experimented with different brands of pens and different colors of ink, but the termites, in small plastic petri dishes, seem to

have a clear preference. “We think they’re attracted to the scent of the ink, but we aren’t sure,” she says, comfortable with the fact that she doesn’t know the answer.



PHOTO BY JODIE ANDRUSKEVICH

“...We look at the food pyramid and start talking about how their cells metabolize what they’ve taken in. Suddenly, it begins to make sense,” says Cooke, explaining her approach to teaching cell metabolism for non-science majors.

Looking ahead, Cooke would like to pursue Sea Grant funding to establish a wet lab in Mendel Hall. The facilities in Mendel were recently enhanced by a new research lab, thanks to the generous support of BAE Systems. “It’s an excellent addition to our facilities,” says Cooke, “but a little too clean for my kind of work!” The wet lab she envisions would consist mainly of large holding and experimental tanks for marine and freshwater animals. “The two labs would complement each other nicely, since students would be able to examine behaviors of living animals in the wet lab, while analyzing biological samples from these same animals in the research lab.”

She would also like to engage her students in her work with lobsters. Since joining Rivier’s faculty in 2002, she has maintained close ties with the UNH Coastal Marine Lab in Portsmouth and says, “Lobstermen are passionate about their profession and are very willing to work with scientists to improve the industry.”

Her love for lobsters notwithstanding, Cooke is eager to expand her research to new areas. “I’m a science geek and I love to teach. I’m always willing to work with students to explore their individual interests,” she says. “My personal mission is to help people understand and appreciate the natural world around them.” ■

* **LUCIE BRYAR** earned a B.A. in English Communications from Rivier College in 1976. She has more than 20 years experience in news-writing, marketing, and public relations, including 14 years as a staff writer for Rivier College. In her current position as a writer for Southern New Hampshire Medical Center, Bryar produces the employee newsletter. She also writes for the hospital magazine, as well as contributes to the production of collateral marketing material.