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New WHOI Class Helps Students Communicate with Public

Graduate students learn how to talk the talk when they're not talking with other scientists

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There's a lot of giggling outside room 304 at Mullen-Hall Elementary School in Falmouth. Mass., as 24 fourth-graders wait for their classroom to be transformed into the deep ocean. They have been warned not to peek inside, where two graduate students at Woods Hole Oceanographic Institution (WHOI) are pulling down shades, turning off lights, and taping red fish to the walls.

"No talking," teacher Karen Dawson reminds a whispering pair as they enter the room. "Remember, you deep-sea divers are supposed to have snorkels in your mouths."

Dawson is supervising, but the class is temporarily in the hands of Regina Campbell-Malone and Benjamin Walther, who teamed up to teach a lesson on how brightly colored fish exploit colors and lack of light to hide from predators in the depths. Twice a month this spring, students in the MIT/WHOI graduate program in oceanography have taught fourth-graders as part of a new course called "Communicating Ocean Sciences."

A yearning for learning—and teaching

WHOI biologist Lauren Mullineaux decided to offer the course for the first time this winter, recognizing graduate students' interest in becoming more effective at conveying their oceanographic world. She learned about a curriculum developed by the California Center for Ocean Sciences Education Excellence (COSEE) and participated in a three-day workshop on it at the University of California, Berkeley.

Young scientists seem more interested than scientists from her generation in making their research understandable to

Enlarge Image

Tinted glasses and a darkened classroom helped fourth-graders experience how bright red fish exploit colors and lack of light to avoid predators in the ocean depths. The students are in Karen Dawson's class at Mullen-Hall Elementary School in Falmouth, Mass. (Photo by Tom Kleindinst, Woods Hole Oceanographic Institution)

Enlarge Image

Regina Campbell-Malone (left) and Benjamin Walther lead a lesson on the color spectrum. Both are graduate students in the MIT/WHOI Joint Program taking a course this spring called "Communicating Ocean Sciences." (Photo by Tom Kleindinst, Woods Hole Oceanographic Institution)

Enlarge Image

non-scientific audiences, Mullineaux said, and research grant proposals today often require scientists to explain how the research may benefit society. She was also impressed to learn that many of the students taking her class, independently and without pay, have sought out opportunities to teach science to young people.

The course also included classroom discussion at WHOI with instructor and biologist Lauren Mullineaux (left). She said that young scientists seem more interested than scientists of her generation in making their research understandable to non-scientific audiences. (Photo by Tom Kleindinst, Woods Hole Oceanographic Institution)

Related Links

» Communicating Ocean Sciences course overview
» Lauren Mullineaux's Lab

» Mullen-Hall Elementary School
» A Laser Light in the Ocean Depths
An article from *Oceanus* magazine on MIT/WHOI graduate student Anna Michel

For example, biology student Ari Shapiro and chemistry student Desirée Plata found grant money to volunteer-teach in a third-grade classroom in Cambridge, Mass. Kate Buckman, a biology student, started a reef ecology course in Belize before beginning her graduate program. Anna Michel, a student in the WHOI Applied Ocean Physics and Engineering Department, teaches seminars nationwide that encourage young women to consider science and engineering careers.

As Abby Fusaro, one biology student taking the course, put it: Scientists should be able "to convey a clear picture of what we are doing and why it is important."

Lighting up their eyes
Beyond readings, written assignments, and classroom discussions, the MIT/WHOI graduate students learned how to prepare lesson plans, including many they designed themselves. Buckman and Kristen Whalen crafted a homemade, kid-sized fish costume for an anatomy lesson, complete with white teeth, sparkly silver fins, and an inflated pink balloon for an air bladder. Fusaro and Stacy DeRuiter had their fourth-graders examine dead, frozen fish, then discussed habitat and natural history. Campbell-Malone and Walther brought live zebra fish and had the students observe fish behavior.

"The kids couldn't wait for them to come in," Dawson said.

"They used games to get us to know about adaptations," said 10-year-old Sam Lumbert, a student in Dawson's class.

"They helped me understand that camouflage isn't the only way a fish can protect itself," said Sam's classmate, Katie Solien, 10.

Campbell-Malone said the benefits go both ways. "I think the most rewarding moment was just seeing their eyes light up when we walk into the room and hearing a parent comment on how excited their child thought our lessons were," she said.

Mullineaux hopes to offer the class again in 2008 and involve other faculty at WHOI in the instruction.

—Amy E. Nevala

What's neat about the oceans?

A few answers from students in Karen Dawson's fourth-grade class in Mullen-Hall School

What have you learned from Regina and Benjamin that made you say "Wow, that's

neat!"

They talked about fish turning different colors.
—Brennan Connolly, 10

I thought it was cool when we went and saw the fish. I was shocked when we could actually touch the fish.
—Cody Garcia, 10

When we got to look inside the fishes mouths.
—Ben Crago, 10

What things about the ocean do you find most interesting, and why?

Zebra fish. Because they look like zebras.
—Mary Kinsella, 9

That some fish eat other fish, because that would be cannibalism.
—Robbie Fogarty, 10

How fish move in the water and what they eat.
—Jonathan Ignao, 9

Sharks. Because they sleep while swimming.
—Henry Jones, 10

I think it is interesting that people know so little about the ocean.
—Demarest Drummery, 10

Posted: June 23, 2006

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