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Pinellas Teachers Conduct Aquatic Research in Pilot Program

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Story by James Kneblik

Pinellas County teachers became summer scientists during an education program at USF St. Petersburg where in-depth environmental research was carefully analyzed and then creatively applied to the elementary school classroom. The Understanding the Profile of Tampa Bay’s Aquatic Quality program trained seven 4th and 5th grade school teachers during its pilot term, July 7 - Aug 1.

Kathy Carvalho-Knighton, PhD, assistant professor of chemistry and principal investigator for the UPTAQ program, said this program allows the university to distill scientific information for young minds.

"We not only have a responsibility to teach students at the university level, but to encourage young minds in science," Carvalho-Knighton said.

A collaborative program between the College of Marine Science, College of Education and Environmental Science, Policy & Geography Program, UPTAQ was led by three professors and six graduate students.

"This is a project that has shown the potential of what our graduate students can do," Carvalho-Knighton said.

Curriculum for these UPTAQ students included studying toxins found within water and sediment, using global positioning system technology, developing geographic information systems and creating hands-on activities suited for their classrooms.

Kathy Frishe, 5th grade teacher from Campbell Park Elementary Marine Science Center, said education in marine science equips students with a broader world view.

"I think it gets them looking outside of their own neighborhood, they begin to see the impact that their actions can have on the environment."

Kerry Hogan, UPTAQ participant and teacher from Westgate Elementary School, studied how core samples represented surprising levels of toxins found within bay area water and soil.

"It’s scary to know what kind of stuff is out there,” Hogan said. "But at the same time it’s really encouraging to see what these guys are doing as graduate students at USF."

The focus of this program was to involve elementary school teachers into university-level research. During the first three days, participants collected sediment core samples and water quality measurements from Palm River and Emerson Point, and then analyzed the data in campus labs. Frishe collected data at Palm River in Hillsborough County. Taking a core sample requires the researchers to get into the water and force a long tube "into the muck,” Frishe said. The core provided researchers a slice of sediment representing changes in water and soil over thousands of years.

"Yeah, with science you got to get down and dirty,” Frishe said. “Sometimes it is exciting and fun and adventurous, other times it’s hot; it’s smelly; it’s dirty.”

UPTAQ allowed teachers to partner with an ongoing research study through USF St. Petersburg to find new ways to remediate polluted sediment.

"One of the things we realized was science takes a long time,” Hogan said.

Marietta Mayo, UPTAQ instructor and graduate student, led hands-on activities and demonstrated ways to adapt the research done in the lab to the elementary school classroom. By the end, these educators should be able to “put those
things together and create the big picture,” Mayo said. With a core sample, one could see an accurate story of the altering sediment over time whether through storms, events or human-induced change. To illustrate core sampling for elementary-aged students, Mayo created a core out of brownies and layered it with sunflower seeds, peanuts and pecans. The teachers sliced and extracted the particles and recorded the percentage of each, illustrating the same steps done with sediment research.

The USF St. Petersburg partnership with teachers will go beyond the summer course. The UPTAQ team plans to visit elementary classrooms and help educate elementary students this fall. Several UPTAQ participants said they intend to participate with Earth Day this spring on campus. UPTAQ was primarily funded by the Center for Science & Policy Applications for the Coastal Environment.

"We've been inspired,” said Hogan, who plans to enroll with three of his fellow teachers in a master’s math and science education program at USF St. Petersburg this fall.

“It’s like we’ve been scientists for a couple weeks,” Hogan said.