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URI researchers head to Antarctica on six-week trip

By HANNAH SOUTHWICK 5 hrs ago

SOUTH KINGSTOWN – While Antarctica is often seen as a mystical, distant land of extremes, its dazzling beauty and natural phenomena have prompted centuries of scientific curiosity. In September, a team from the University of Rhode Island (URI) will partner with researchers from Old Dominion University and the University of South Florida to conduct research in Antarctica's Southern Ocean. The six-week expedition is part of Polar TREC (Teachers and Researchers Exploring and Collaborating), an

initiative in which educators from across the country work alongside scientists.

Cara Pekarcik, a biology teacher from North Quincy High School, Mass., is thrilled to be participating in the upcoming Antarctic expedition.

"Whereas most people see Antarctica as just a bunch of ice, it's so dynamic and such a different world," said Pekarcik. "I have always wanted to go there, and I found this wonderful program that's going to give me that opportunity."

Along with graduate students from URI, Pekarcik recently took part in "Women in Science Day," an event at Mystic Aquarium aimed at promoting interest in science and showcasing the varied work of women in scientific professions.

For Pekarcik, participating in the event was an important part of her goal to engage the community in her upcoming research experience. Pekarcik's daily online journal entries will also allow for public interaction and can be accessed at www.polartrec.com/expeditions/southern-ocean-diatoms.

"I'm going to try to get an all-around overview of our research that will hit on a lot of different people's interests," said Pekarcik. "I encourage everyone to ask questions in the comments and

let us know how you want to be connected.”

Pekarcik also plans to create and modify PolarTREC lesson plans so students and educators can benefit from her experience.

“Educators can be role models for their students,” said Pekarcik. “I’m going into the field and I’m going to learn as I go. I’m excited about that and I hope that it’s contagious for students.”

The expedition focuses on diatoms, a type of phytoplankton plentiful in Antarctica’s Southern Ocean, and their pivotal role in the ecosystem. While there are over 200,000 species of diatoms, not much is currently known about their features. Experiments will be conducted to determine the biological relationship between diatoms and bacteria and to investigate the link between diatoms and limited iron levels in the surrounding waters.

Dr. Bethany Jenkins, a URI professor studying microbial organisms in aquatic environments, is the chief scientist on the expedition and will be accompanied by graduate students conducting research.

Laura Fillinger, a PhD student in Dr. Jenkins’ URI lab, believes that studying diatoms is immensely relevant to human life.

“Diatoms provide every fifth breath you take,” said Fillinger. “While they are an ecologically important species, they are also anthropologically important because humans breathe the oxygen they produce.”

Alexa Sterling is also a URI graduate student participating in the expedition. She will be studying the mutually beneficial relationship between bacteria and diatoms and believes her findings could transcend the Antarctic ecosystem.

“As humans, we need to be good stewards of the earth,” said Sterling. “Studying these microbial interactions is inherently important.”

When the icebreaker Nathaniel B. Palmer leaves from Punta Arenas, Chile in September, Sterling and Fillinger will prepare the ship’s lab to analyze biological samples collected in Antarctica’s Southern Ocean. The samples’ DNA and RNA will later be used to classify the organisms and study the genes the diatom uses to respond to its environment.

Like Pekarcik, Sterling and Fillinger are both grateful for the opportunity to conduct research in such a significant location.

“The region that we’re going to is the poster child for climate change, so just to be a part of it is

amazing," said Fillinger. "We are studying species that are important now and are going to be important for millions of years to come."

Since the mission of the PolarTREC expedition includes promoting awareness of scientific research and improving science education, the researchers are passionate about sparking interest in marine science.

"Living in the Ocean State and having university students like ourselves and a school teacher from a neighboring area make our science so accessible to the public is inspiring for the next generation," Sterling said.