



POLARTREC RESEARCHERS will be headed to the Southern Ocean for a six-week trip, where they will study diatoms living in the water off the Antarctic coast. Members of the team include (from left): Cara Pekarckik, a teacher at North Quincy High; and University of Rhode Island researchers Alexa Sterling, Laura Filliger, Kris Gomes and Dr. Bethany Jenkins.

Photo courtesy Joselynn Wallace (URI)



CARA PEKARCICK, a teacher at North Quincy High, will be headed to the Southern Ocean in September as part of a PolarTREC research team. Here, she practices the filtration process used to separate plankton from seawater samples that will be collected during the research mission. The filtration system is used to prepare plankton for chlorophyll extraction procedures and other experiments.

Photo courtesy Alexa Sterling (URI)

NQHS Teacher Cara Pekarckik Bound For Antarctica

By **SCOTT JACKSON**

When the new school year starts in September, Cara Pekarckik, a biology teacher at North Quincy High School, will be thousands of miles away in a research vessel in the Southern Ocean off the coast of Antarctica.

Pekarckik, who has taught at North since 2006, will be taking part in a six-week PolarTREC (Teachers and Researchers Exploring and Collaborating) expedition starting in early September and continuing into October. PolarTREC, a program managed by the Arctic Research Consortium of the U.S., will send about a dozen educators from across the country on research expeditions to Alaska, Greenland, Siberia and the South Pole this year.

Pekarckik's six-week research trip will leave from Punta Arenas, Chile, and head to the Southern Ocean and the coastline of the Western Antarctic Peninsula via the Drake Passage aboard the research vessel Nathaniel B. Palmer, a 308-foot-long icebreaker. She will be joined by university researchers, who she will work with to study diatoms, a type of sea algae.

"I'm going to be working with researchers from URI, Old Dominion University and the University of South Florida. We're going to be doing water sampling in various locations in the Southern Ocean to study diatoms," Pekarckik explained in a recent interview.

"Diatoms are like a photosynthetic algae, so they're part of the basis of the food web in Antarctica. They photosynthesize and it just keeps building up from there. One of the things the researchers are interested in finding out more about is how these diatoms are able to sustain life there with

such a low amount of iron.

"We're going to be doing a lot of different experiments, a lot of water filtering and water sampling to be able to collect as much as we can while we're there to bring back to the lab and grow samples and work with them again in the future."

Pekarckik said she began applying for the PolarTREC program six years ago, because she was looking for a chance to conduct research and bring that experience back into the classroom. While PolarTREC has expeditions in the Arctic and Antarctic, Pekarckik was intent on traveling to the latter.

"Antarctica is one of those places – it's so far away, it's so different and unique in terms of the animals that live there, the climate, and that level of unknown and maybe a little danger and excitement," she said. "I decided the Arctic might be easier for me to get to on my own versus the Antarctica. It's not really easy to get to Antarctica, so if you can find a way and someone is willing to take you there, then I'll go with it."

Last fall, Pekarckik learned she had been selected for the research mission in the Southern Ocean, and in February traveled to Fairbanks, Alaska, for a week of training at PolarTREC's headquarters.

"I got the official word in November and traveled to Alaska in February for training with PolarTREC and learned about what my role as a PolarTREC teacher will be, what my responsibilities are, the expectations for me in terms of lesson plans and how I'm going to bring this back to the community," she said.

As she prepares for her trip to Antarctic, Pekarckik is also making arrangements



R/V NATHANIEL B. PALMER sits at dock in Punta Arenas, Chile. North Quincy High teacher Cara Pekarckik and a team of university researchers will live on the ship for six weeks later this year during an expedition in the Southern Ocean off the Antarctic coast. The team will collect water samples on the ship to study diatoms.

Photo Courtesy ARCUS

for the students in her classes next year, because she won't be returning to NQHS until late October.

As part of those arrangements, Pekarckik and the URI researchers who will be joining her on the research trip gave a recent presentation to her current and future students about the expedition – including samples of the diatoms the group will be studying.

"I think it's a good way to get them excited about it and sort of start to get them involved," Pekarckik said.

Those students – and others in the community – can follow the research expedition through a journal page on the PolarTREC website at polartrec.com/expeditions/southern-ocean-diatoms. She also has a Facebook page for the trip, "Ms. Pekarckik in Antarctica," and a Twitter page @MsPekarckik.

At one point during her trip, Pekarckik will be able to give an online presentation on the research mission via satellite phone, which she said her students

would be able to view. Unlike other teachers on PolarTREC trips who can video chat with their students on a regular basis, Pekarckik said she wouldn't be able to do so from the Palmer.

At North, Pekarckik teaches tenth grade biology as well as marine science and zoology, both of which are electives for upperclassmen. Pekarckik plans on incorporating facets of her trip into her lesson plans.

"We've already started talking about incorporating things like some of the online tools the researchers use for things like graphing for visualizing their data, ways in which we incorporate cell growth into the curriculum... For the biology students, some basic biology about cell growth," Pekarckik said.

"The marine science kids, they're going to focus a lot while I'm away on plankton and diatoms, so they're going to kind of mimic what I'm going to do in Antarctica, but here in Quincy – kind of getting a sense of how it's

similar but how it's different. Hopefully that will help them learn a little bit more about the food web here off the coast."

Pekarckik intends to reach out to students in the school system, and the community at-large, before and after her trip to share her experience.

"I hope to have before I leave this summer at least one presentation just to get everyone back to remembering 'Ms. P is leaving and she is going to the Antarctic.' I'm hoping I can get everyone together – at least have it open to the community as a prequel," Pekarckik said.

"When I come back there will definitely be outreach programs for students at all levels – I hope to be able to reach out within the community and also to outside communities for all levels – but also for the public as well.

"I want to be able to bring a lot of this information back, whether it's about Antarctica in general, it's about what I do in the classroom, or even about

changes that are happening in the Arctic and Antarctic – climate change issues – because that's part of the basis of why we're going."

Pekarckik has no immediate plans for future research trips, but is exploring other opportunities that may be available to her.

"There are many opportunities for teachers that are out there, including a Teacher at Sea program with NOAA. Now that I have started to become in the PolarTREC world and meeting other teachers, I'm learning about lots of other experiences that are out there," Pekarckik said.

"A lot of them take place in the summer – It's very rare you get an opportunity to leave in the middle of the school year and I'm very fortunate that my administration, everybody, has been so supportive of this. Most of the others would probably be during the summer; I definitely look for them and always look for opportunities to keep myself involved in the science community."