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STA teacher uses summer break to research in the Arctic

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DOVER — A Swiss Army knife of sorts in science education, St. Thomas Aquinas High School teacher Piper Bartlett-Browne is fresh off a Coast Guard polar icebreaker in the Arctic, where she spent three weeks this summer conducting climate change research.

But there was hardly any ice-breaking to be done. Bartlett-Browne didn't see any sea ice, "which is pretty unprecedented," she said, and sea temperatures were 10 degrees Celsius higher than last year in some measurement locations.

Perhaps Bartlett-Browne's biggest takeaway from her Arctic endeavor — climate change is real.

"It's definitely happening," she said. "Whether students believe it's human-related or not, to me, it doesn't really matter, but it is happening. That's something they need to think about as a generation, really."

Bartlett-Browne was one of just 12 educators from across the country selected for this year's National Science Foundation-funded PolarTREC program, pairing K-12 teachers with polar researchers. Educators spend three-to-six weeks participating in research in either the Arctic or Antarctica to further their understanding of the scientific concepts they teach, and to link up researchers with their classrooms.

At St. Thomas Aquinas, Bartlett-Browne, 32, teaches biology, forensics, anatomy and marine biology. She's found her passion in connecting students with researchers. In addition to running a science internship program for her students with the University of New Hampshire, she serves on the Teacher Advisory Council at the New England Aquarium.

"I'm interested in getting kids into research and real data," Bartlett-Browne said. "And that's really what the PolarTREC program is about, connecting teachers with researchers and creating long-lasting curriculum in the classroom."

Bartlett-Browne, who studied biology at UNH, was aboard the U.S. Coast Guard Cutter Healy for three-and-a-half weeks in August, accompanied by 40 researchers. She participated in the Northern Chukchi Integrated Study, an observational research

program evaluating changes in the Pacific Arctic ecosystem in response to sea ice declines and other climate related processes. She took part in plankton tows, harmful algal blooms, and examined the biodiversity and biomass on the ocean's floor. The researchers, she said, were pursuing bird, mammal, fish, and atmospheric research.

"The whole point of the cruise is that we stop at specific places along the way, and everybody collects data at the same place to create a larger picture of the ecosystem," Bartlett-Browne said.

For example, clams are moving because of warming temperatures, she said, so by charting where the clams are going helps researchers determine where the walruses and spectacled eider who eat them will go.

Bartlett-Browne said the Arctic region is seeing climate change much faster than anywhere else in the world. To begin her trip, she spent one week in Nome, Alaska, where the natives rely on seals and fishing for food.

"When they don't have sea ice that comes up, they can't go out and hunt for these animals in the wintertime, and it's a problem for them," she said.

Now, Bartlett-Browne has returned to her classroom in Dover with new curricula on the Arctic ecosystem and climate change. She also has some cool dead things to show off, too — a basket star, clams and amphipods.

"I learned so much about myself as a teacher and how cool classroom curriculum can really be," she said. "It was just incredible. The connections I made with researchers, Coast Guard folks. Long lasting connections and lifelong resources."

Bartlett-Browne wants her students to know that science is always changing; it's a dynamic process and "it's really about making the world a better place."

Her internship program with UNH pairs students with particular researchers they'd like to work with. For an entire year, the student and researcher collaborate on either a specific project, or work together in a laboratory. Last year, one of Bartlett-Browne's students conducted research on clown fish, and presented at the UNH Undergraduate Research Conference, as a high school student.

Bartlett-Browne is scheduled to give upcoming talks on her polar experience at the Dover Public Library, Portsmouth Public Library and Seacoast Science Center.

For more information about Bartlett-Browne's PolarTREC trip, visit her blog at www.polartrec.com/expeditions/northern-chukchi-integrated-study.