

## Mendham High School teacher on the front lines of climate change research

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**MENDHAM** — Many teachers have summer jobs in their off months. But few involve climate research in Alaska.

[Bruce Taterka](#), an environmental science teacher at West Morris Mendham High School, spent three weeks this past summer on an Alaskan expedition, studying how climate change is shrinking the frozen tundra surrounding the Arctic Circle.

This wasn't Taterka's first summer science excursion. In recent years, he's studied the effects of the BP oil spill in the Gulf of Mexico and how decreasing insect populations impact the ecosystem of the Andes Mountains in Ecuador.

"I have the time and the means to do this, and I love science and traveling," said Taterka, 51. "I like to know how people know stuff, see and understand for myself what's happening. Because I've been out there covered in mud or fish slime, now when I see a video or report I know what's behind it. From that firsthand experience. It enriches my life as a scientist, teacher and person."

Taterka was one of 16 teachers selected nationwide for the [PolarTrec](#) expedition, funded by the National Science Foundation. PolarTrec stands for Teachers and Researchers Exploring and Collaborating.

[Read: Taterka's online research journal](#)

Taterka applied for the trip in late 2012. He was accepted and departed for Alaska in March 2013 for orientation with other PolarTrec teachers, and he left for work when the school year ended.

"It's an amazing program," Taterka said. "Scientists request assistance from teachers, and teachers sign up."

Since his return, Taterka has shared stories from the trek with faculty, students and audiences at Morris County libraries.

"I enjoy sharing my stories," Taterka said. He also documented his journey [online](#) on PolarTrec's website.

### Impact of permafrost

Taterka worked with students and professors from the University of Michigan, based out of the Toolik Field Station in Alaska's North Slope, an area between the Arctic Ocean and the Brooks mountains. He said temperatures at Toolik ranged from 30 to a high of 80 degrees during his three-week stay.

Taterka woke up early, worked long hours and battled a surprising amount of mosquitoes, he said.

"The mosquitoes were horrendous," Taterka said. "We had to wear bug shirts whenever we were in the field."

Most of Taterka's work involved testing the chemistry of the water. "As the new guy I was always the one to go in the freezing water," Taterka said.

The research was to determine the impact permafrost from the frozen tundra will have as it thaws and carbon dioxide is released into the atmosphere. Carbon dioxide is a heat-trapping gas which raises the temperature, which in turn speeds up the melting of the tundra.

"It's a vicious circle," Taterka said. "The challenge is to get the word out so we can slow this process down."

### **Watch a video of Taterka explaining the research:**

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This research has gone on for decades. PolarTrec teams were also stationed in Greenland and Finland among other northern locations to study the greater Arctic impacts.

Taterka alternated between days in the field gathering samples and days in the lab recording findings.

One thing that took adjusting to was the midnight sun. "The sun never set when I was there," Taterka said, which gave him more time to take in the sights. "I biked at 10:30 p.m. and had bonfires at 2:30 a.m. in broad daylight. The landscape of the tundra is striking, especially coming from New Jersey. No trees, just mountains, grass and hills. Remote and light all the time."

In addition to working with expert climatologists and networking with top researchers, Taterka said his trip provided him material to make class back in Mendham more interesting through, labs, stories and pictures.

### **Down time with grizzlies**

"Here's me in the Arctic Ocean, here's a grizzly bear I saw," he said, providing examples of pictures he'd share with his students.

Taterka's wife met him in Alaska after his job was complete, and between kayaking and whale watching, Taterka said they saw grizzly bears playing with each other on the side of a hill just 50 yards away.

"Nothing between us but grass and flowers," he said. "That's the kind of thing you see in Alaska, spectacular wildlife."

Taterka recalled seeing few people while hiking across the open tundra with no towns for 100 miles and mountains and flowing streams surrounding him.

"Sometimes I just had to stop, look around and realize where I was," he said. "I was blown away."

### **A passion for science**

Taterka worked as an environmental consultant before transitioning to law. In 2004, he decided to make another career change, and a pay cut, to become a teacher. He hasn't looked back since.

“I’ve been able to do a lot and gotten a lot of support from the district for my trips,” Taterka said.

“First I started simple with citizen science, counting birds locally for the N.J. Audubon Society. Then I applied for Earth Watch which took me to Ecuador, and then to NOAA’s Teachers at Sea program in the Gulf Coast.”

Taterka even spent a recent summer working with the Department of Education in Washington D.C. as a Teaching Ambassador Fellow, providing a voice to what’s happening in classrooms while also learning about education policy.

“I decided to stick with science after that,” Taterka said. “Policy isn’t my favorite.”

Taterka said the PolarTrec program also accepts students and two of his Mendham pupils applied for the trip.

“It would be an amazing highlight if they were picked,” Taterka said.

Taterka is proud to say he’s “essentially covered the earth” at this point, working in the tropical equator, Gulf of Mexico, across the United States, and now in Alaska.

This summer, Taterka said he plans to take it easy.

“I’ve used up all my free teacher travel opportunities,” Taterka said.