

Back to the Ice

BY CAROLYN BAHM
Special to The Times

Local resident Alice "Alex" Eilers plans to get a warm reception in an ice-cold place this fall and winter. She's returning to Antarctica in November as part of a National Science Foundation grant, and she will be sharing her experiences with teachers, students and families who come along as virtual explorers.

As manager of education for the Pink Palace, Eilers is going on her second expedition to help researchers with their research into the world's southernmost mammals – Weddell seals. She will be based at McMurdo Station, the largest community in Antarctica.

Eilers is taking part through PolarTREC (Teachers and Researchers Exploring and Collaborating). The teachers' job is education and outreach while helping researchers gather data.

Previously, she participated in other professional development programs, including NASA's program about the Messenger space probe (now in orbit around Mercury) and in-the-water experiences with leatherback sea turtles along the California coast via the Teacher at Sea Program from the National Oceanic and Atmospheric Administration.

For her first PolarTREC trip in 2012, she applied and was accepted to the professional development program for teachers. That winter, they examined seals while they were molting and attached satellite tags to the top of their heads.

"It's an \$8,000 piece of equipment that we put on them with \$3 Home Depot epoxy," she said.

During that trip, Dr. Jennifer Burns, an animal physiologist from the University of Alaska at Anchorage, wondered aloud why some of the females were molting later in the season and if they had pupped (had babies) early that season. That question spawned the 2014 research project.

Eilers explained that pupping and molting both take a lot of energy, and mother seals can't do both at the same

time. Over a period of six weeks, a new pup will gain about 150 pounds, while the mother loses an exorbitant amount of weight. The adult females can't immediately go into the energy-expensive stage of molting without first regaining some of that lost weight. So this year the expedition team will be



studying the relationship between molting and pupping, along with environmental factors.

The 2014 researchers and teachers are starting a four-year project of weighing and measuring seals, giving them physicals, taking samples (blood, fur and whiskers) that reveal what the seals have been eating, and trying to determine if the females are pregnant. Exams of the lightly sedated seals take a couple of hours, and teams handle one or two per day. Eilers will be helping for two years of the project.

The seals have no land-based predators and have no real fear of people, so the team could walk right up to the docile creatures on the ice, Eilers said. "They hardly flinched."

She continued, "This is an apex predator – they are near the top of the food chain. ... You see the skull with these obviously carnivorous teeth and you think, 'I'm going to lay one of these guys in my lap?'"

She described a typical day from 2012 and said she expects this year's trip to be similar: They rose at the virtual crack of dawn, grabbed a quick breakfast, lugged equipment to the bay, coordinated with whoever was trans-

porting the team, and then set out on snow machines or a helicopter. Once they spotted a seal, they unloaded all the equipment and got ready. One person would attract the seal while the other gave it a shot with a calming sedative. About 10 minutes later, the team got to work. Someone monitored the seal's

health continuously during the process.

Eiler's role in 2012 was to write down data and notify the team every 10 minutes when it was time to take another sample. They weighed each seal just as it was coming around out of sedation to ensure it was awake enough to be released. The seals weigh around 800 to 1,000 pounds, so even rolling them onto a canvas hammock for weighing is a daunting task.

She was advised to be in good shape for her first trip, so she lost a little weight and thought that would be enough. But losing weight and being in shape are two different things, she learned. The team always lugged about 60 pounds of safety gear in case they got caught out on the ice, and then each person lugged about 20 pounds of gear and wore heavy protective clothing. The boots themselves were three pounds.

The team almost got socked in by weather twice, she said, including one stint where they crowded into the helicopter for five hours, waiting for the weather to clear. The katabatic wind can kick up out of nowhere and cause a whiteout.

"Imagine yourself in a ping pong ball," Eilers said. "White everywhere.

You cannot see anything."

The team had 18-hour workdays, and the bright 24/7 sunlight was deceptively energizing until the team members returned to dark dorm rooms and crashed for the night.

"They were long and arduous days," she said. "Don't get me wrong – they were the most fun I've ever had, I think. But you have to haul all this equipment out, and you have to work with these 800-pound seals."

She believes she is better prepared this year. She's been taking a boot camp fitness class in Bartlett to get in shape. She's also packing fewer clothes, shipping her educational materials about two months in advance and carrying higher-quality gloves. On the last day of her 2012 expedition she tried on a friend's super-warm possum-fur gloves from New Zealand. The trick is to wear those gloves, covered by a fleece mitten and a third outer layer. The hot outer covering gets shucked as soon as they start working with the seals, and they peel back an opening on the fleece mitten when they need dexterity for a task.

Aside from working with the seals, Eilers and other educators will be busy with the education and outreach portions of their duties. That includes blogging, answering questions online, and encouraging interest with four interactive programs. She reached 15,000 people and mailed 2,400 postcards back to virtual participants in 2012. Her goal for 2014 is to double both those numbers.

All of this will be preceded by local outreach to spread the word and encourage people to get involved, Eilers said. She is willing to talk to senior groups, school classes or any gatherings. Two girls still communicate with her two years after the first trip, and knowing that the work intrigues future scientists and educators makes it even more worthwhile for Eilers. She's also inspired to know that seven of the 2014 team members are female, and all of the ones going in November are females.

She also loves the experience.

"It's just cool," Eilers said. "I mean, not many people get to go to Antarctica."