

# Orcas Issues: News & Views



## San Juan Island Teacher Embarks on Under-Ice Antarctic Research Experience

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— from Timothy Dwyer —

Local educator joins polar research team to enliven science education by connecting researchers, teachers, students, and the public around the globe.

Timothy Dwyer, a math and science teacher at Spring Street International School in Friday Harbor, has always been fascinated by the diversity of life that exists locally in the Salish Sea and global ocean that connects the world's ecosystems. This month, he will be living his lifelong dream of travelling to

Antarctica when he joins Dr. Art Woods, Dr. Amy Moran and Dr. Bret Tobalske at McMurdo Station for nine weeks while the research team studies a phenomena called polar gigantism where sea-creatures exhibit unusually large body size.

“Antarctica is the only place in the world where almost all life exists under the water and almost none exists on the land above. I can’t wait to witness this world where absolutely everything is so closely connected to the ocean,” Dwyer said.

On September 30, Dwyer will deploy to the frozen-continent by way of Seattle, Los Angeles, Sydney, Australia, and Christchurch, New Zealand. There, the entire team will board a C-17 military transport to fly the final five hours, landing on a frozen ice runway on the coldest, driest, and highest elevation continent in the world- Antarctica. During his months embedded with the research team, Dwyer will scuba dive under the frozen ocean to collect pycnogonid sea spiders – a volleyball-sized study species for polar gigantism- and to document the researchers at work. Dwyer will assist the science team in laboratory experiments studying metabolism and biomechanics questions addressing how these sea spiders reach their giant sizes. A leading hypothesis states gigantism may be due to animals’ extremely slow metabolism and the high oxygen concentration of cold polar waters. The research team combines talents from the University of Hawaii and University of Montana to examine how the polar gigantism phenomenon will be altered as the Antarctic environment warms due to climate change.

Formerly a research staff member at University of Washington’s Friday Harbor Laboratories, Dwyer has been a scientific diver for 14 years. This will be Dwyer’s first ice diving experience. “The water will be well-below freezing temperature. But even at 28°F the ocean is going to be warmer than the air above the ice. This will be a once-in-a-lifetime experience to bring back to my students.”

Dwyer is one of 15 teachers selected through a nationwide search to participate in PolarTREC, an educational research experience in which K-12 teachers participate in polar research, working closely with scientists as a pathway to improving science education. Through PolarTREC, selected teachers have the rare opportunity to work with a research team in the Arctic or Antarctic. While on field expeditions, teachers and researchers share their experiences with scientists, educators, communities, and students of all ages through online journals, message boards, photo albums, podcasts, *PolarConnect* real-time presentations from the field, and online learning resources. After the field experience, teachers and researchers share their experiences with the public and create instructional activities to transfer scientific data, methodologies, and technology to classrooms.

Dwyer has taught at Spring Street International School for five years. He says, “The students in my classes are the first generation who will live their entire lives affected by climate change. Climate change is happening all around us, but the impacts are much easier to see at the poles. My experience on the ice will help me become a better instructor, bringing first-person experience to the community to illustrate the dramatic and rapid changes happening on our planet.” You can follow Dwyer’s experience online at [www.polartrec.com/expeditions/polar-gigantism-in-antarctica](http://www.polartrec.com/expeditions/polar-gigantism-in-antarctica) or via Facebook at [www.facebook.com/PolarGiants](http://www.facebook.com/PolarGiants). He will be connecting via teleconference with schools throughout the San Juan Islands and speaking to audiences about polar science throughout Western Washington after his return.

*PolarTREC is managed by the Arctic Research Consortium of the U.S. (ARCUS) and funded by the National Science Foundation and additional partnerships. For more information see the PolarTREC website at [www.polartrec.com](http://www.polartrec.com) or contact the ARCUS Project Managers, Janet Warburton and Judy Fahnstock at [info@polartrec.com](mailto:info@polartrec.com) or call 907-474-1600.*



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