

Tracking a Seven-Year Student of a Teacher Researcher Experience (SoTRE)

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Mrs. Eubanks, a middle and high school science teacher, has been involved in NOAA (National Oceanic and Atmospheric Administration) Teacher at Sea Program, PolarTREC (Teachers and Researchers Exploring & Collaborating), and EARTH (Education and Research: Testing Hypotheses). Through these TREs (Teacher Researcher Experiences) she has been able to share scientific research, data and researcher connections with her students. Students that study under a TRE have been given the name "SoTREs" (Students of Teacher Researcher Experiences).

Emily Guinan, a SoTRE since 2007, has exemplified benefits of these experiences by further pursuing her interest in marine biology. In middle school, Emily did a project on the Northern Lights, worked with researchers in our Mangrove Park and co-presented a poster at the State of Arctic Conference. In high school, she has worked with NOAA at the Reef Resiliency Conference and has sought out other scientific encounters. With a SoTRE background, field research with Naturebridge in Yosemite National Park, and a semester at the Coastal Studies for Girls school, Emily has acquired love for science and the confidence to pursue a science-based college education.

PolarTREC Student Survey

As a person living in today's world, how important is it to you, to have an understanding of issues involved with changes in the Arctic and Antarctic?

	Not at all important	Somewhat important	Very important
Pre-Program	8.9%	41%	50%
Post-Program	3.4%	32.8%	63.8%
Change	-5.50%	-8.20%	13.80%

Data provided by A. Larson of Goldstream Group for PolarTREC Evaluation



- Being a SoTRE has greatly shaped the person that I am today and the person that I want to become
- Before meeting Mrs. Eubanks, I had a casual relationship with science and had always been taught directly from a textbook
 - As a SoTRE, I learned the joy of curiosity and the power of knowledge
- I found out where all of that information in science textbooks came from (here's a hint: it's scientists!)
- I discovered that these scientists would answer my questions in webinars and through their online journal logs
- Being a SoTRE has given me a passion for science and new knowledge, which will continue to benefit me throughout my life



NOAA Teacher at Sea

- Places teachers aboard research vessels to work and learn
- She worked on a ship studying sharks
- Her students followed the expedition with her daily journal logs
- Students studied data from the expedition and followed tagged sharks
- Celebrated Shark Month, fun events such as painting maritime flags, decorating classroom doors, and dressing up for Shark-o-Ween.



PolarTREC

- Places K-12 teachers with polar researchers
- She studied carbon fluxes with Dr. Oberbauer and Dr. Olivas in Barrow, Alaska
- Celebrated the International Polar Year (IPY) with monthly themes, polar games and a Polar Earth Day (middle school teaching younger children about polar topics)
- Dr. Oberbauer and Dr. Olivas have worked with several students on a research project in the mangroves behind the school



Attending the State of the Arctic conference was an opportunity allowed to me as a SoTRE. Developing and presenting a poster was a new experience, but a valuable one. I met many new people and gained confidence in talking to scientists and in understanding scientific posters.



Coastal Studies for Girls (CSG)

- Learned about the program through Mrs. Eubanks
- CSG is an all-girls semester school for marine science and leadership school
 - I gained first-hand experience in data collection, scientific inquiry, and outdoor adventure
 - I learned about coastal Maine's natural ecology by living in it and studying the habitats there
 - I learned independence, coexistence with others, curiosity and wonder, leadership skills, confidence, and the scientific process, and a deep love for the natural world

Becoming a SoTRE has given me a passion for science and a love of the natural world. Learning about scientific research directly from my teacher made me think that it was possible for me to do something similar! Throughout high school, I have sought out these education experiences in my constant search for new knowledge and adventure.



Naturebridge

- Naturebridge connects youth with nature in many of the country's national parks.
- Field Research Course (FRC)
 - Groups of high school students backpacking in Yosemite National Park
 - Conducting original research in different sites along the way
 - Organized and analyzed this data
 - Presented it to friends, family, program leaders, and NPS scientists.

Attending Other Scientific Conferences

- Learning more about research being done
- Increasing my scientific literacy
- Networking: Coral Reef Task Force Meeting and Reef Resilience Conference

 • Volunteered at the NOAA booth and was able to meet Paulo Maurin – the National Education Coordinator with NOAA's Coral Reef Conservation Program (CRCP)



THE SEEDS



This is a SoTRE (SO-tree) SoTREs can be identified by their passion for new knowledge, understanding of the scientific process, researching skills, and their willingness to get messy in the process!

Center for Dark Energy Biosphere Investigations (C-DEBI)

- I participated in an online course about deep-sea microbes
- Took a core sample of sand on a local beach to demonstrate the samples that C-DEBI takes
- Mrs. Eubanks and I plan to share what we learned in the course with her eighth grade and marine science classes



Being a SoTRE has provided the stepping stones for a career in marine science. As a senior in high school, I plan to major in marine biology and hope to one day work as a researcher, inspiring kids in the same way that I was inspired as a SoTRE. As a marine biologist, I want to promote public literacy of science and cultivate connections with teachers.



A special thanks to Elizabeth Eubanks, without whom none of this would be possible. Thank you so much for allowing me these opportunities, and for continuing to mentor me and inspire me as I move into a new chapter of my life.

