**Teacher Needs Assessment**

**Dominique Richardson—PolarTREC Teacher 2014 to 2015**

Although I do not have a classroom and specified curriculum I am required to teach, there are specific needs I have for myself, the lab I am a part of, my research students and for public visitors to the lab.

**Student/Lab/Public Needs:**

* My research students need increased exposure to physical sciences including chemistry and geology.
* To better educate the public, our lab needs to provide additional information regarding climate science, how it is studied globally and its local effects.
* While our lab has a lot of information about science techniques, we could use more examples of current professional research projects that may help to inspire student researchers.
* We need more hands on science activities to engage the public.

**Changes to teaching methods:**

* I would like focus more on experimental design with research students, making this a larger part of their research projects.
* I would like to be able to teach a better understanding of data interpretation and statistics to my research students and public visitors.
* I would like to incorporate more inquiry based learning and a deeper understanding of concepts rather than focusing on fact based learning in public visitor education.
* I would like to align our student tours and research student workshops better with the NGSS.

**What I expect to learn during this experience:**

* I hope to gain a better understanding physical science data collection techniques that I can use to mentor my research students that are interested in projects beyond the life sciences.
* I hope to develop my skills in project design and management through developing and managing the outreach programs I develop for PolarTREC.
* I hope to learn better networking skills through working with my researcher, research team, other researchers on board R/V NBP, as well as other PolarTREC teachers.
* I hope to become a better liaison between scientists and students, teachers and the public.

**What I would like to do/teach better:**

* I would like to be able to better teach climate science and science techniques through the use of stationary media (exhibits) and text.
* I hope to be able to better teach complex scientific concepts, particularly those related to physical scenes and statistics, to the public as a result of this experience.
* I would like to improve my teaching of inquiry based lessons to the public, rather than relying on fact based information.
* I hope to be able to better manage budget proposals, multi-step projects and inter-departmental projects as a result of this experience.

**Equality and expectations related to ethnicity, gender, socioeconomics and differently-abled students.**

I am very lucky to work with a very diverse background of students as well as to reach a very diverse background of public visitors. As the only “donation based” AZA accredited institution, Cabrillo Marine Aquarium reaches a wide range of people from differing ethnicities, socioeconomic groups and backgrounds. It would be wonderful to be able to show our students and guests a representation of this diversity in polar research as well. I will be presenting to several inner city schools, as well as providing free resources to teachers in underprivileged areas. I hope that my participation in the expedition will make a career in science feel more attainable to young girls and kids of different ethnicities. I also hope to be able to make science accessible to everyone in the wide cultural and socio-economic groups we see at the Aquarium.

**Challenges**

As an informal educator, I anticipate several challenges and have possible ways to overcome them.

* As a city employee, I will not be compensated by any time or funds put into PolarTREC work. I plan to volunteer my time and personal money to this endeavor.
* I have limited resources in terms of finances to be able to fun planned projects. I was able to secure minimal funding from the non-profit organization that aids our facility. I will need to prioritize and manage the available funds, distributing it appropriately through the planned projects.
* All work I do with the secured non-profit funds must relate back to the Aquarium and Southern California marine ecosystems per grant requirements. I will divide program projects into two categories: solely PolarTREC/Polar Science related, funded by myself and CMA/PolarTREC collaboration projects showing effects of polar activities locally funded by FCMA.
* Although excited by this collaboration, staff other than myself have minimal investment in the CMA/PloarTREC collaboration. It is a low priority for supervisors and management due to small impact and budget. However, all of my collaboration products must still be approved by management before release and implementation. I will need to provide supervisors with ample time to review products, activities and exhibits. I will also need to personally track project deadlines and encourage supervisor participate.
* I do not have a specific class that teach. I do reach a far broader number of public and a wide range of teachers for different grades. I will use my teacher networks to reach several individual classes and also focus more on public outreach.
* As I do not have a specific class, participation in activities is strictly voluntary. To encourage participation I will attempt to reach as many people as possible, increasing the number of those that will participate