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My time aboard the R/V Kilo Moana was a melding of many passions: personal, professional and educational. I personally enjoy science, the ocean, meeting new people, traveling to new places and participating in new experiences. I am a professional science educator and as such am compelled to investigate and explore the world of scientific research so that I may share what I learn with my students. As a biologist, I am eager for opportunities to learn about the biological world and explore the delicate relationships linking all living organisms.

This opportunity was unique because it was so open-ended. Our host was very flexible and accommodating. There was a wonderful itinerary but she encouraged us to explore the ship and did her best to set-up impromptu meetings and observations of different people and operations aboard the ship. While the main focus was oceanography, we had a chance to explore the engine room of the ship, visit the bridge, tour the galley, work with fellow educators, discuss data trends with oceanographers, and to participate in the development and execution of our very own “scientific experiment”.

Before I left for the cruise, I shared my trip with my students. They were especially excited to find out what was going to happen to the Styrofoam cups they had decorated. While I was aboard the ship we sent the cups down with the CTD and we were delighted when they came back up miniaturized. The two other teachers and I discussed with the scientists aboard the reason the cups came back compacted. Through our discussions, we began thinking about other items we could send down attached to the CTD. We (the two other teachers and I) decided we wanted to attach raw eggs to the CTD for a deep cast (2800m) and see whether they would survive or crack. We consulted the scientists aboard the ship, the safety technicians and the head cook. After intense discussions and several drafts, we developed two different packaging methods to hold the eggs so that if they did break, they would not contaminate the water collected by the CTD. The first method involved placing a single egg in a vacuum-sealed plastic bag, zip-tying this bag into a mesh bag and attaching the mesh bag to the CTD. The second packaging method was to place an egg into a Ziploc bag filled with salt water. We squeezed the excess air out of the bag, sealed it and zip-tied this plastic bag into a separate mesh bag and attached the mesh bag to the CTD.

Before the cast, we took a poll of all the scientists and crew aboard the ship as to whether or not they thought the eggs would survive. There was no consensus, some thought the vacuum-sealed egg would survive and the water-surrounded egg would break, others thought that the vacuum-sealed egg didn't have a chance but the water-surrounded egg may survive and some people thought neither of the eggs would survive. The conversation that was generated by the experiment was very interesting. There were discussions about the porosity of the eggs, the internal structure of the eggs, the physics of implosion, the presence of an “air bubble” in an egg, whether or not the age of the eggs would affect results, etc.

The deep cast took about two hours to complete. The recovery of the eggs was much anticipated. Once the scientists had collected their water samples from the rosette, we were able to retrieve our eggs. We discovered that the two eggs we sent down in Ziploc bags, filled with salt water had survived but the single vacuum-sealed egg had not! The results sparked further discussion and more questions about why the one package worked and the other did not work. While this experiment did not have any direct connection to oceanography, I think it is representative of the creative and exploratory nature of scientific inquiry and research. It is an exciting story to share with my students and offers an excellent opportunity to introduce them to the CTD. I gained a wealth of knowledge from my experience aboard the RV Kilo Moana and recommend the opportunity to any educator!



Figure 1: Teachers in the STARS Program.

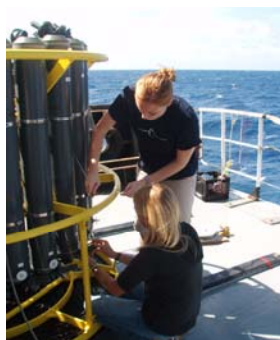


Figure 2: Prepping the CTD for deployment.



Figure 3: Filtering water samples for analysis.