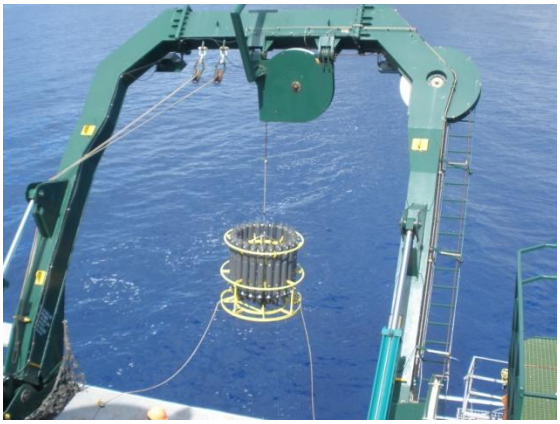
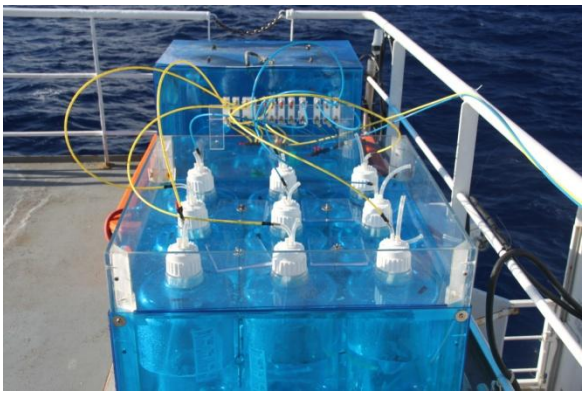
What a fantastic experience! I recently had the opportunity to participate in the Science Teachers Aboard Research Ships (STARS) program aboard the University of Hawaii's R/V Kilo Moana. I have been a high school science teacher for many, many years, but I have never had a more exciting, inspiring, and energizing professional development experience than this research cruise.

On our cruise there were three teachers. In addition to myself, we had Davilla Riddle, a middle school science teacher from Maui, as well as Dana Spink, a sixth grade teacher from Oregon. Our leader in all our experiences aboard the Kilo Moana was Jim Foley from the Center for Microbial Oceanography: Research and Education. We were aboard ship with more than a score of scientists and graduate students who were doing a variety of types of experimental data collection during the cruise.

During our five day cruise, the ship transited out to Station Aloha, a point in the deep ocean far north of Oahu where a variety of measurements have been made at many different depths for over two decades, such as salinity, conductivity, temperature, dissolved oxygen, nutrients, chlorophyll, etc. We were able to observe and participate in the collection of samples from the CTD. This array of sampling bottles is the workhorse of the data collection process. Each bottle is only opened to take in seawater at a specific depth, so samples can be drawn at 24 different depths.



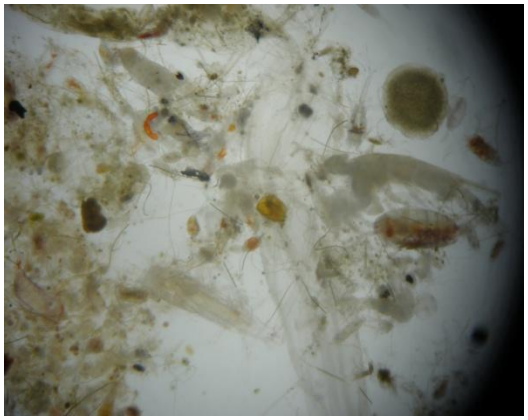
Some of our time was spent learning about the Hawaii Ocean Time-series (HOT) cruises. Since 1988 these cruises have made measurements of ocean physics, chemistry, and biology: nutrients (organic and inorganic), particulates (carbon/ nitrogen/ phosphorus), primary production, and biomass (plankton abundances, pigments). These measurements are needed in order to "understand how ocean biology responds to changes in temperature, CO_2, pH, nutrient fluxes, etc. to predict future of global ocean-ecosystems."



We also spent time in our own lab analyzing some of the water samples collected by the CTD. In one such analysis we used a fluorometer to measure the amount of chlorophyll a in our samples and an automatic titration device to determine dissolve oxygen in the samples in order graph and determine trends in the data.

Our teacher team also had the opportunity to interview many of the scientists and graduate students regarding their specific research on the cruise as well as how they were drawn in their field of endeavor. We also had the chance to interview the captain, first mate, ship's engineer, and the marine engineer for the cruise. Understanding the research being done as well as the background stories of the scientist, graduate students, and crew members gave us wonderful information to share with our students.

One of the activities we did in the lab that I found personally extremely interesting was to examine and classify the different types of plankton obtained from the plankton tows that were done. The variety sizes, colors, and shapes of the zooplankton we were able to observe living and moving was truly awe inspiring. We were also able to observe and identify a variety of phytoplankton.



I strongly encourage all educators with a science focus to apply to participate in a HOT cruise. The in depth interaction and participation in the 'doing' of science in the field is an irreplaceable experience. Dana, Davilla, and I were all blown away at how well designed and organized our experience onboard was. Jim Foley and the team at the Center for Microbial Oceanography: Research and Education at the University of Hawaii at Manoa have developed a truly outstanding professional development experience for teachers of all grade levels. Grants to cover substitute teachers and travel expenses are available as well through the Grants for Education in Microbial Science (GEMS) program (thanks Dr. Michelle Hsia). From the teachers onboard the 225th HOT cruise, check it out, and ALOHA!