Science Teachers Aboard Research Ships (STARS)

Gail Clarke
Hui Malama na Mea a Kane, Hawaii Academy of Arts & Sciences, Puna, Hawaii

0730, 24 May 2010, 14 scientists, college students, and teachers, boarded a 222' vessel, for five days of open-ocean, no land in sight, data collection. Our C-MORE (Center for Microbial Oceanography: Research & Education) sponsored cruise visited three stations, Waikiki, Kahe (off Barbers Point) & Aloha. 'Station Aloha', a 6 nautical mile radius circle, centered at 22º45'N, 158ºW, is a site where HOT-WOCE (Hawaii Ocean Timeseries – World Ocean Circulation Experiment) has sampled the water, monthly, since 1988, creating an accessible database to support research and learning.

A crew of 14 served for the voyage, a Captain, mates, engineers, cooks, able-bodied seamen and two young marine techs, Josh & Jenny. The crew, and Chief Scientists, stood 12-hour watches to keep the sampling and communication between the bridge and aft deck operations all running smoothly. Sampling included deployment and recovery of plankton nets, and the CTD (conductivity/ temperature/ depth), a rosette of 24 large Niskin water collection bottles. Each Niskin bottle is cocked by opening the top & bottom valves before it is lowered to depth, often 1000m, then a surface generated computer signal closes the bottles at pre-determined depths on the return trip.

One graduate student at UHM, deployed a 30' long plankton net to sample the mesopelagic micro-organisms – supporting the C-MORE motto: *Linking Genomes to Biomes* - pretty amazing overall! The teachers ran chemical tests, viewed micro-organisms, observed Secchi disks, tied knots & collected data alongside the scientists everyday, and during the night as interested. A floating, probing, measuring, 24x7 workstation, with the ocean waves to lull one to sleep in a cozy berth, after a nourishing meal and a full work-day.

The week, full of learning, observing and practicing marine science, was inspiring by itself, and as a strong metaphor for all living systems. A graph from one of the lectures stands out as it depicted marine events or perturbations such as gyres, storms, blooms, spawns, spills, dumps, etc., on a temporal and spatial axis grid. Some events are small and fast, some medium and lingering, others large and long- OR short-lasting, and all are connected, as are the seas… so complex, and even with new information and knowledge being gained and shared, at ever increasing rates, some say man only knows about 4% of what there is to know about the marine biosphere and the ecology of the seas, where up to 85-90% is possibly known about terrestrial systems… all furthering my sense of how much we do not even know we don't know, while inspiring me to continue to facilitate learning, others and my own!

Mahalo to C-MORE and all that supported the opportunity, especially our well-chosen and equipped, caretaking instructors and the very competent and friendly crew!