

**Baseline Studies of Phytoplankton and Productivity in Near Shore Environments of Maui**  
**Maggie Prevenas**  
**Kalama Intermediate School, Maui**

Sponsored by UH oceanographer Marcie Grabowski, seventh grade science teacher Maggie Prevenas earned a GEMS award for her project: Baseline Studies of Phytoplankton and Productivity in Near Shore Environments of Maui. The primary goal was to provide an authentic experience for students to learn Hawaii State Performance Standards in Science. Maggie also sought to give her students the opportunity to do place-based science and to promote collaboration and communication between indigenous Pacific islanders (and others) and scientists.

This year-long project created a baseline of phytoplankton genera and other microbes in the near shore environments of Maui. Three lessons were developed, each aligned to Hawaii Seventh Grade Science Standards in the Hawaii Science Curriculum Map. The first lesson focused on Art in Science. Using Ernst Haeckle's classic line illustrations as models, students used a microscope, made observations and measurements, and drew phytoplankton collected from Maui's coastal environment. The second lesson involved Remote Sensing and Ocean Color Mapping. In the late 1990's, a coccolithophore bloom in the Bering Sea changed the color of the ocean. Students learned how to use satellite images to examine what happened.

The third unit was entitled: Tools of a Scientist – Phytoplankton Protocol, Nets, and Sampling. Students learned that scientists establish collection protocols in order to standardize their data. Working together with scientists from University of Hawaii and others, students made collection nets with various mesh sizes to collect plankton. Collectively students developed a protocol so that their sampling technique was replicable. Students from Kalama shared their knowledge with students from other Pacific Island Schools through internet blogging. After nets were made, students collected coastal plankton samples (to include phyto- and zooplankton) and brought them to class to draw and possibly identify.

After students learned the protocol, they were encouraged to sample areas of the near shore around the island of Maui for the remainder of the school year. All genera that are identified will be put into a database that will include a photograph of the organism. Students from other Pacific Islands will be encouraged to similarly contribute to the database. A shared blog space ([oneoceanonearth.blogspot.com](http://oneoceanonearth.blogspot.com)) monitored by the class instructors will provide a venue for discussion.