

Service Learning 7.5: Plankton Monitoring at Mokauea
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Funding from this GEMS grant allowed for the continuation and expansion of environmental monitoring projects at Mokauea Island with our partner Mokauea Fishermen's Association (MFA). Current on-going projects on Mokauea Island that Mililani Middle School students are involved in include marine debris removal and data collection, native plant propagation and monitoring, invasive plant removal and, water quality testing. This grant allowed us to collect, observe, and monitor plankton abundance and diversity data in the waters near Mokauea Island. We utilized the video dissecting microscope received from C-MORE's *Microscopes for Middle Schools Program* as well as microscopes purchased through the grant.

With the support of Jim Foley of C-MORE Education and HIMB, a small group of students attended a field trip to Coconut Island over their fall break to learn plankton basics, how to conduct a plankton tow, and microscope techniques. Those students helped to lead the rest of the students on subsequent field trips to Mokauea Island. All students participated in service projects and data collection on the island.

After the field trip to Coconut Island four students developed science fair projects, on topics related to plankton and microplastic. Jim Foley was integral in securing a mentor for the microplastic project. The mentor has been incredibly helpful. The



student working on the microplastic project has gained lots of confidence in her ability to



do science and has been reading, understanding and discussing numerous scientific journal articles related to plastics in the ocean with her mentor and teacher. She is regularly in class during her lunch period and after school analyzing samples. She sees herself

going into a science field in the future.

The field trips to Mokauea Island have helped other students gain place-attachment and a deeper appreciation of the Hawaiian culture. For example, an 8th grade student who has been coming on these field trips for two years expressed interest in coming back and assisting in high school years, even asking if he could bring his own paddle when he is in high school. He was very engaged in the plankton tows and observations, frequently asking when the next field trip would be and if we could look at plankton again/more frequently. He shows much leadership while on the field trips, leading the entrance and closing protocol and helping with the canoes.

A 7th grade student who attended the HIMB field trip has been asking very thoughtful questions about plankton diversity when doing observations. He may choose plankton as his topic for the 8th grade science fair. Students from 7th and 8th grade have been able to view and identify plankton under the microscopes purchased with this grant. Student interest and excitement in the local environment and the Mokauea Island field trips has increased due to participation in this project. Most of the students rarely or had never use microscopes in their science class prior to participating in the project through their exploratory wheel and social studies classes. Seventh grade students went back to their social

studies teacher expressing their excitement about the plankton observations and microscope use. Hopefully this sort of experience will continue to inspire more students to explore microbial science as we continue to observe and monitor the plankton samples under the microscopes and incorporate field work into the curriculum.