

**Searching for Microbes in Kalihi Stream.**  
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In the fall semester of 2007 I carried out the grant with my students. However, I made slight changes to the proposal which I describe below. I changed what was in the grant proposal for a couple reasons. One, I have little knowledge and training dealing with microbes. Until I went to the Teacher-at-Sea program in September I was very nervous about carrying the project out. Going out really helped me to gain confidence in the collecting and filtering techniques. Initially, the write-up in the grant was something I wasn't prepared for so I chose to do something even if it wasn't what I was supposed to do with the assurance that I would try to improve and expand on the microbe aspect of my class in the future.

So, the modification made to the project was that I did a small scale microbe search in Kalihi Stream. As part of a larger environmental monitoring project of Kalihi (The Kalihi Ahupua'a Project) one group of 3-4 students from each of three class periods developed a method for studying microbes in the Kalihi Stream. The groups were guided by Kate Achilles of CMORE.

Depending on the research question, students collected and filtered various amounts of water from different areas in the stream (ex. Running or still) on two different dates. The classes collected water from two different sites, one in the forested area of Kalihi Valley and one in an urban area of Kalihi near the H-1 freeway. Once collected, students filtered the stream water. One of the groups used size fractioning while the other two groups used only one size filter paper. Then, students used the microscope purchased with this grant to look for and photograph their findings under the microscope. The digital images were sent to Kate for identification of microbes. Unfortunately, out of all the water samples only one microbe (pennate diatom) was found. There were likely many bacteria in the water but with the microscope we used they were unable to be identified.

Students in semesters to come will continue with the projects, adding microbes to the list. Additionally, I'd like them to collect water to measure chlorophyll. This can be compared to ocean water collected on Saturday fieldtrips to Mokauea Island. I'd like to get more of the class involved in looking for microbes under the scopes and with the chlorophyll data analysis, not only to assist the group in data collection but to make the incorporation of microbes into the curriculum more meaningful to the whole class.