Analyzing the Mitigating Effects of Ipomoea aquatica on the Kapakahi Stream at the Pouhala Marsh of Oahu

Swartwood, Brea (School: Mililani High School)

The purpose of my experiment was to determine the effects of Ipomoea aquatica on pH levels and dissolved oxygen concentration on water quality, particularly the water quality of the Kapakahi Stream water at the Pouhala Marsh of Oahu. I hypothesized that if Ipomoea aquatica is present, then the pH level of the water would be more basic and the dissolved oxygen concentration would increase by 20 ppm because as Ipomoea aquatica photosynthesizes, it absorbs minerals from the soil in the water (thus making the water more basic), and absorbs carbon dioxide and releases oxygen (which would increase the oxygen concentration). My procedure consisted up taking the plants and water from the Kapakahi Stream home, setting up four experimental groups, waiting one week for them to settle, and collecting results with the use of the DR 900 Colorimeter and Traceable Dissolved Oxygen Pen. Through data analysis, I concluded that the presence of Ipomoea aquatica made the water quality more basic by increasing the pH level from 4.2 to 4.7 (Group 2), 5.2 (Group 3), and 6.0 (Group 4) respectively. The presence of Ipomoea aquatica made the dissolved oxygen percentage (in ppm) increase from 16.1 to 16.5 (Group 2), 18.5 (Group 3), and 20.0 (Group 4) respectively. The results confirmed that the presence of Ipomoea aquatica in the water of the Kapakahi Stream does indeed increase the pH levels and oxygen concentration (in ppm) of the water, mitigating the damage done from human runoff on the stream.

Awards Won: