

ANALYZING GROUNDWATER AND ALGAL DISTRIBUTION IN MAUNALUA BAY
USING GIS SOFTWARE

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Abstract

Algal distribution and population growth can be controlled by the nutrient loading within the ecosystem. One source of these nutrients can be groundwater. The distribution of algae was mapped for Maunalua Bay, O‘ahu, Hawai‘i for comparison to the distribution of nutrient delivery to the system. In this study, data collected on algal distribution at two sites within the bay, Black Point and Wailupe, were mapped using QGIS. These maps were used to visually compare the distribution of algae to the distribution of groundwater. Distribution of groundwater was estimated from the distribution of passive tracers from groundwater, salinity, silicate and radon distribution obtained from Nelson et al (submitted). The majority of the algal population occurs in areas of low groundwater influence except for the *Bryopsis pennta* and *Acanthopohora spicifera* species. More invasive species were observed at the Wailupe site, the site of less nutrient loading as opposed to Black Point.