

The importance of geothermal input and canopy cover on the diatom community composition in neotropical streams, Costa Rica

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The relative effects of geothermal solute inputs on diatom community composition and density were evaluated in the context of light limitation in highly shaded neotropical streams. Geothermally modified groundwater enters streams at La Selva Biological Station in lowland Costa Rica along an elevation gradient. Diatoms were collected from rocks at 19 sites distributed along nine high and low solute streams. Light levels were also measured as percent canopy cover. High solute streams were dominated by six genera (*Achnanthes*, *Bacillaria*, *Cocconeis*, *Cymbellopsis*, *Nitzschia*, and *Planothidium*) while four genera (*Eunotia*, *Frustulia*, *Hippodonta*, and *Navicula* <10 μ m in size) were most common in low solute streams. Canopy cover at both low and high solute sites was >60%. No significant diatom community differences were found with canopy cover change. Additionally, no differences were found in diatom density between high and low solute streams. However, community differences did exist, with higher richness ($p = 0.0002$) diversity ($p = 0.02$) and evenness ($p = 0.05$) in high solute streams. Solute levels, rather than canopy cover, were found to be the driving factors of these differences.