ALGAE AS INDICATORS OF MINE DRAINAGE IMPACTS ON THE WEST COAST, SOUTH ISLAND, NEW ZEALAND.

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Acid mine drainage (AMD) is a major source of pollution in West Coast streams and rivers. It lowers the pH of waterways, increases the concentrations of dissolved metals and clogs stream beds with metal precipitates, making many affected streams lifeless aside from a few species of tolerant algae and bacteria. Benthic algal assemblages were assessed across a gradient of chemical stress relating specifically to acid mine drainage effluent. Algal biomass, taxonomic composition and the relative abundance of these taxa and many physicochemical variables were measured at >50 Westcoast streams. Initial findings indicate a well adapted algal community exists and thrives where conditions permit within mine drainage streams. Chlorophytes dominate in low pH (≥2.7) and high conductivity conditions (≥1220μS^{-1}), while *Euglena mutabilis* (Euglenophyta) and c.f. *Navicula cincta* (Diatom) are also abundant. Cyanophytes are absent below a pH of 4.3 and Chrysophytes below 6.9. Iron pyrite (FeO_3) sedimentation clogs stream beds, often preventing algal growth. Taxonomic richness shows weak relationships with pH and conductivity while biomass relates to pH ($R^2 = 0.23$, <0.001). Further work may include a longitudinal survey, a field experiment, and using this data to construct a periphyton index of biotic integrity. The possibility of using visually distinctive growth forms as a quick assessment of AMD impacts will also be explored.