2006 Regional Water Quality, Sediment, and Benthic Invertebrate Assessment for the South MacMillan River Watershed, MacMillan Pass, Yukon.

Executive Summary

A recent surge in metal prices has sparked renewed interest in mineral exploration and development at MacMillan Pass, Yukon; an area known for its naturally elevated metal concentrations in both the soil and water. Consequently, a broader understanding of the regional stream geochemistry is particularly important to help establish environmentally meaningful water quality objectives for the region. The objective of this project was to carry out a regional water quality, stream sediment quality, and benthic invertebrate 'snapshot' assessment of the upper South Macmillan watershed. Results confirmed that the South MacMillan watershed is characterized by naturally acidic stream conditions containing high concentrations of metals (zinc, copper, arsenic and cadmium exceeding CCME guidelines) in both the water and within the stream sediment. In addition, it was found that these unique stream conditions are a direct result of the regional geology; in particular the Tom Sequence geologic formation prevalent throughout the South MacMillan watershed. Results also showed low diversity and abundance of benthic invertebrates for the majority of stream sites within the South MacMillan watershed. It is recommended that a routine water quality program be established with further focus on quantifying mineral loadings for each tributary along the South MacMillan River.

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