

A Preliminary Study on the Distribution of Heavy Metals in Sediments of the Caroni River

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Abstract

This study describes the distribution of some heavy metals in the bed-load sediments of the Caroni River and its tributaries in Trinidad. Grab samples obtained from the river bed at 13 locations along the Caroni River and its tributaries were tested for physiochemical parameters (pH, carbonate content and organic content) and certain important heavy metals (Cr, Co, Ni, Cu, Zn, As, Cd, Pb, and Ba). Inductively Coupled Plasma Mass Spectrometry (ICPMS) was used to measure activity level of these heavy metals. Basic statistical analysis, principal component analysis and correlation analysis were used to interpret the distribution of these analyzed factors. Heavy metal concentrations were plotted on contour maps to determine the spatial spread of the heavy metals. This study suggests the possibility of enrichment of copper, zinc, arsenic and lead. Though it is too early to predict before more detail study, Arouca, San Juan and St. Joseph Rivers were found to be most polluted by these heavy metals.