

**HEAVY METAL CONCENTRATIONS IN SEDIMENTS
FROM BATAN BAY AND ITS TRIBUTARIES**

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Abstract

The concentration of three heavy metals (Cd, Pb, Cu) in sediments from Batan Bay and its tributaries were determined in order to assess the degree of contamination of sediments in the said area. The samples were digested following the Method 3050B of US Environmental Protection Program (EPA, 1996). The heavy metal concentrations were determined using Flame Atomic Absorption Spectrometer (FAAS). Results show that the heavy metal concentrations ranged from n.d. – 2.57 mg/kg dry weight (dw) for Cd; 16.44-143.02 mg/kg dw for Cu; and 3.18-28.53 mg/kg dw for Pb. Sediment sample collected from BTN #10 has the highest Cd concentration while sediment sample collected from BTN 052 which is a rice field in Batan, Aklan registered the highest Pb and Cu concentrations. Three sediment quality guidelines (National Oceanic and Atmospheric Administration, Canadian Sediment Quality Guideline and Hong Kong Sediment Quality Guideline) were employed to assess the metal contamination in sediments. The concentrations of Cd and Pb in all sites did not exceed the maximum permissible limits set by the three guidelines. As for Cu, BTN 052 exceeded the Upper Chemical Exceedance Level set by Hong Kong SQG. Correlation analysis showed that there is a significant correlation ($p < 0.01$) between Pb and Cu indicating possible similar source input. Special attention must be given to BTN 052 since the levels of the studied heavy metals are high in this area. The results can be used as basis for the pollution level of sediments from Batan Bay and its tributaries. Special consideration should be given to BTN 052 since all of the test metals are significantly high in this area. It is also suggested to identify the primary sources of metal contamination in this area.