

## **ABSTRACT**

Heavy metals impair water and sediment quality and thus, can cause adverse impacts on aquatic organisms especially when they exceed the recommended threshold levels. Heavy metal concentrations in water and sediments are a reflection of the anthropogenic activities on the watershed as well as the geology of the area. Metal concentrations and subsequently their bioavailability are influenced by the sediment characteristics including particle size and total organic carbon among others. This study determined the concentration of heavy metals - cadmium (Cd), copper (Cu) mercury (Hg) and lead (Pb) in the sediments in relation to grain size and total organic carbon in Lake Baringo. Samples were collected from five sites using a grab sampler and analyzed for total heavy metals using AAS. Particle size classification was done using the sieve method, while organic carbon (OC) was estimated using the Loss on Ignition (L.O.I) method. One way ANOVA revealed significant difference in mean Cu concentrations amongst the sampling sites at  $P < 0.05$  ( $F(4, 14) = 6.945$   $p = 0.01$ ). However, there was no significant differences in the levels of Cd and Hg, that is,  $F(4, 14) = 0.03$ ,  $p = 1.0$  and  $F(4, 14) = 0.36$   $p = 0.83$  respectively. However, there was no significant difference in the levels of Cd and Hg. Sites with higher percentages of silt and clay recorded a higher concentration of Cd and Cu as well as percentage of TOC. The results indicated the pollution of the lake by heavy metals presented an ecological and a human health concern requiring monitoring. Key words: Sediment quality, heavy metals, particle size, total organic carbon.

### **Keywords**

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