

Abstract:

In this study, the distribution and sources of inputs of trace metals including Cd, Cu, Zn and Pb from various sources as well as Fe which is widely used in the construction industry, into Winam Gulf of Lake Victoria were investigated. The sampling sites were located up streams and down streams of four rivers (Sio, Nyamasaria, Nyando and Sondu-Miriu), in four beaches along the lake (Port Victoria, Kisumu Car Wash, Dunga and Hippo point beaches) and in three estates (Nyamasaria, Migosi and Nyawita) in Kisumu city, covering potential agrochemical and industrial sources and drinking water points, respectively. The concentrations (in microg/L) of trace metals analysed in the lake and river waters ranged from <1.79 (Cd), <3.83 (Pb), <1.53-3.86 (Cu), 4.37-11.6 (Zn), 11.8-2,440 (Fe). The sediment concentrations (in microg/kg x 10³) ranged from 0.19 to 1.91 (Cd), 6.86-138 (Pb), 18-100 (Cu), 36.2-443 (Zn) and 960-73,200 (Fe), with highest concentrations of all metals being recorded at Kisumu Car Wash area. The study confirmed that the concentrations of the metals accumulate downstream in the rivers both in water and sediment and these rivers are major sources of the heavy metal load into Winam Gulf of Lake Victoria.