A Vennila et al., Hydrol Current Res 2014, 5:4
http://dx.doi.org/10.4172/2157-7587.S1.012

OMICS Group Conferences
Accelerating Scientific Discovery

3rd International Conference on
Hydrology & Meteorology
September 15-16, 2014 Hyderabad International Convention Centre, India

Assessment of metal status and mapping of ecological risk using GIS in Thane coastal marine environment, Maharashtra, India

A Vennila, C S Purushothaman, S P Shukla, Ram Singh, V S Bharti and P K Pandey
Central Institute of Fisheries Education, India

The study was carried out in the coastal marine environment of Chikale to Kelwa stretch in Thane district of Maharashtra, India. Twenty-two water and sediment samples were collected from eight sampling stations in 0-2, 2-4 and 4-6 km distance from the shore during October 2012 using fishing vessel. The concentration of Cd, Cr, Cu, Fe, Ni, Pb and Zn in water and sediment was analyzed using flame atomic absorption spectrophotometer after wet oxidation in a microwave-based digestion system. The concentration of dissolved Zn, Cu, Cr and Fe in water is within the Indian Standards for Drinking Water except Cd, Ni and Pb concentration. The concentration factor showed very high enrichment for Cd and Pb, and moderate enrichment for Cu and Zn for the Thane coastal sediment. Geo-accumulation index of metals showed that the sediment is moderately polluted (Class 2) with Cd; unpolluted to moderately polluted (Class 1) with Zn, Cu and Pb; and unpolluted (Class 0) with Cr, Ni and Fe. Pollution load index varied from 0.82 to 1.20 and potential ecological risk index (RI) ranged from 15.56 to 76.78. The distribution pattern of RI for the sediments along the Thane coast was mapped using ArcGIS software. Sediment of coastal area studied showed low risk index with respect to six metals. Although the low risk index was observed, the sediments of Shirgaon-Mahim and Kelwa stations showed higher RI than other stations. The high concentration factor of Cd obtained in the study needs further investigation to verify the possibility of higher geological content in the rocks of the area. However, efforts should be made to reduce the anthropogenic input of toxic metals particularly Cd, Ni and Pb.

Biography

A Vennila has completed her MSc and PhD in Soil Science and Agricultural Chemistry from Indian Agricultural Research Institute, New Delhi. Currently, she is working as a Senior Scientist at the Central Institute of Fisheries Education, Mumbai. She is teaching Master's and Doctoral courses in Aquatic Environmental Management discipline. She has guided ten students for their master degree research work as a major advisor. She has published 14 papers in reputed journals. Her research specialization is monitoringof aquatic ecosystem for pollutants and nutrients.

avennila@gmail.com