

Pollution Assessment and Potential Ecological Risk of Some Traces Metals in the Surface Sediments of the Gulf of Tunis, North Tunisia

Authors : Haïfa Ben Mna, Ayed Added

Abstract : To evaluate the trace metals contamination status in the Gulf of Tunis, forty one sediment samples were analyzed using different approaches. According to certain contamination and ecological risk indices (Contamination Factor, Geoaccumulation index and Ecological risk index), Hg has the highest contamination level while pollution by Ni, Pb, Cd and Cr was absent. The highest concentrations of trace metals were found in sediments collected from the offshore and coastal areas located opposite the main exchange points with the gulf particularly, the Mejerda and Meliane Rivers, the Khalij Channel, Ghar El Melh and El Malah lagoons, Tunis Lake and Sebkhath Ariana. However, further ecological indices (Potential ecological risk index, Toxic unit and Mean effect-range median quotient) and comparison with sediment quality guidelines suggest that in addition to Mercury, Cr, Pb and Ni concentrations are detrimental to biota in both the offshore and areas near to the exchange points with the gulf. Moreover, in these areas the results from sequential extraction and individual contamination factor calculation pointed to the mobility and bioavailability of Cr, Pb and Ni.

Keywords : sediment, trace metals, contamination assessment, ecological risk, Tunis gulf

Conference Title : ICEERE 2023 : International Conference on Environmental and Earth Resources Engineering

Conference Location : Tunis, Tunisia

Conference Dates : October 23-24, 2023