



The Effect of Grain Size Fractions on the Distribution of Heavy metals in Sediments of Abu Qir Bay Southeast Mediterranean Sea, Egypt

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Abstract: Estuarine -deposited sediments is an important environmental medium that is widely used for characterizing anthropogenic contaminant levels in urban systems. It has significant implications for human health, and can directly impact aquatic biota. Assessment of Cr, Fe and Cd contamination and their distribution in different grain size fractions of the surface sediments of Abu Qir Bay, one of the Mediterranean coastal bays, as an industrial development area has been investigated. Since the metals pose serious health risks, this research concentrated on investigating the concentrations and spatial distribution of Cr, Fe and Cd in Abu Qir Bay sediments. Surface sediment samples were sieved and six grain size fractions (1.0, 0.5, 0.25, 0.125, 0.063 and <0.063 mm) from each sample were selected for the analysis of studied metals. The data indicates a considerable contamination in all samples by Cr, Fe and Cd. The finest sediment fractions (0.063 and <0.063 mm) contained the highest concentrations of Cr and Fe. The concentration of these metals was four times greater than in coarse grained-fractions. Silt plus clay (<0.063 mm) was the single most important mass component consisting more than 40% of the total sediment stored in this fraction. Otherwise, the distribution of Cd in the sediment samples reveals high concentrations associated with the large fractions (1.0 and 0.5 mm) at all sediment samples.

Keywords: *Pollution, Sediments movement, Heavy metals, Grain Size, Mediterranean Sea, Abu-Qir Bay.*

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