

Heavy Metal Concentration in Continental Shelf Sediments of Southeast Coast of India

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Abstract

Heavy metals affect the ecosystems through bioaccumulation and bio-magnification processes. Studies done elsewhere showed contamination of coastal sediments with heavy metals. However, information available on this aspect in India is sparse. As such studies are useful in assessing the pollution status of coastal areas, the present study was undertaken. Sediment samples were collected onboard Sagar Sampada using Smith- McIntyre grab along seven transects at the depths of 30 m, 50 m, 75 m, 100 m, 150 m and 200 m. The pollution status was assessed using heavy metals such as cobalt, copper, iron, manganese, nickel, lead, mercury and zinc employing the method of Walting. The mean concentration of mercury recorded only in Cuddalore SIPCOT was 0.01 ± 0.01 ppm (30 m depth). The contamination factor and the geo-accumulation index revealed the uncontaminated nature of shelf except mercury which showed moderate contamination at Cuddalore – SIPCOT at 30 m depth (0.0365). This is attributed to industrial activities here. The study concluded that the continental shelf of southeast coast of India except Cuddalore-SIPCOT is generally free from heavy metal pollution. However the nearby coastal areas (< 30 m depth) needs constant monitoring to avoid ecological disasters. A detailed study is needed over the entire coast covering riverine and non-riverine areas to determine the role of rivers in determining the heavy metal levels in the continental shelf area.

Keywords - Heavy metals, Sediment, Concentration Factor