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Heavy Metals Concentration in Lagos Lagoon, Nigeria: A Spatial Analysis

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Concentration of Heavy Metals in the bottom sediments of Lagos Lagoon was carried out using Geographical Information System (GIS) tools. The kriging and Inverse Distance Weighed (IDW) technique was used to perform the interpretation of the results with a view to quantify the spatial variability and generate the Metals Risk Maps for each of the metal and all the metals as a whole over the region. The results compare with WHO and USEPA sediments quality standard; review that Fe had the highest metal concentration of about 3093.39mg/l and 1610.73mg/l respectively in the dry and wet season around Oworoshoki and Egbin; Mn, 336.55mg/l and 183.99mg/l around Egbin; Zn at Commodore Channel is 29.79mg/l and 35.21mg/l for dry and wet seasons respectively. Cd has a concentration of 28.74mg/l and 19.55mg/l with Tincan creek for both dry dry and wet seasons; Cr has a concentration of 19.71mg/l and 14.74mg/l around Apapa port and Tincan Creek. Cu recorded 37.18mg/l and 18.43mg/l at Oworoshoki, As has a concentration of 90.25mg/l and 63.90mg/l at Tincan Creek and Apapa for wet and dry seasons respectively. Relative to acceptable standards used, CD, As, Fe, Mn, Pb and Cr are above the standard limit while Cu and Zn are within tolerable limits. The interpolation shows that locations around Tincan Creek, Commodore Channel, Apapa, Five Cowries, Ijora, Iddo towards the south-eastern extreme have higher risks than the Mid-Lagoon and Egbin axis in the north The factors responsible for the contaminants were identified as sand mining and dredging, urban domestic wastes and sewerages, industrial waste within the study area. Based on the results obtained, the study identified the need for improved waste disposal methods and habits around lagoon