

Grain Size Characteristics and Sediments Distribution in the Eastern Part of Lekki Lagoon

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Abstract : A total of 20 bottom sediment samples were collected from the Lekki Lagoon during the wet and dry season. The study was carried out to determine the textural characteristics, sediment distribution pattern and energy of transportation within the lagoon system. The sediment grain sizes and depth profiling was analyzed using dry sieving method and MATLAB algorithm for processing. The granulometric reveals fine grained sand both for the wet and dry season with an average mean value of 2.03 ϕ and -2.88 ϕ , respectively. Sediments were moderately sorted with an average inclusive standard deviation of 0.77 ϕ and -0.82 ϕ . Skewness varied from strongly coarse and near symmetrical 0.34- ϕ and 0.09 ϕ . The kurtosis average value was 0.87 ϕ and -1.4 ϕ (platykurtic and leptokurtic). Entirely, the bathymetry shows an average depth of 4.0 m. The deepest and shallowest area has a depth of 11.2 m and 0.5 m, respectively. High concentration of fine sand was observed at deep areas compared to the shallow areas during wet and dry season. Statistical parameter results show that the overall sediments are sorted, and deposited under low energy condition over a long distance. However, sediment distribution and sediment transport pattern of Lekki Lagoon is controlled by a low energy current and the down slope configuration of the bathymetry enhances the sorting and the deposition rate in the Lekki Lagoon.

Keywords : Lekki Lagoon, Marine sediment, bathymetry, grain size distribution

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