

Impact of Meteorological Events and Sand Excavation on Turbidity and Total Suspended Solids Levels of Imo River

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Abstract : This study was aimed at determining the impact of meteorological events (seasonal variations) and sand excavation activities on turbidity and Total Suspended Solids (TSS) of Imo River, Southeastern Nigeria. In-situ measurements of the parameters were carried out at the peaks of two consecutive seasons-dry and rainy season at seven major points of sand excavation along the river, under standard analytical methods. There were significant variations in seasons ($P < 0.05$) for turbidity and TSS at all locations. The average turbidity concentration of locations were 36.71 NTU, during the rainy season, and 17 NTU in a dry season, while the average TSS concentration were 27.14 mg/L, during the rainy season, and 8.86mg/L in a dry season. Turbidity correlated positively (strongly) with TSS ($r = 0.956$) at $R\text{-Square} = 0.91$. Turbidity and TSS values were higher during the rainy season than the dry season. Turbidity increased when Total Suspended Solids increased. Sand excavation increased turbidity and TSS values of Imo River. The river had moderate water quality during the rainy season and unimpaired water quality during a dry season. The river was not very clear in both seasons, but clearer in a dry season than in rainy season. The increase in turbidity and TSS can lead to the destruction of aquatic biodiversity and stagnation of ecosystem processes. Exposure of aquatic animals to the recorded turbidity level in a rainy season can lead to stress.

Keywords : biodiversity destruction, meteorological events, pollution, sand excavation

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