

◆ Research paper

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Seasonal Variation in Surface and Groundwater Quality in an Oil-Polluted Environment of the Niger Delta

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Abstract: This study was set to examine seasonal variation in surface and groundwater quality in an oil-polluted environment in the Niger Delta Region, Nigeria. To obtain samples for this investigation, three (3) stations were established along Orashi River and three stations also along Sombreiro River; this however enabled the collection of water samples for surface water analysis. Samples for the groundwater quality analysis were collected from boreholes in communities that are very close to the sample location while for the surface water, samples were collected along the two rivers. Parameters of interest in this study include physic-chemical parameters such as pH, conductivity, turbidity, Total Dissolved Solids (TDS), Total hardness, and Total Suspended Solids were sampled using standard methods for water and wastewater analysis (APHA, 2005). Microbiological parameters such as Total Heterotrophic Bacterial (THB), Total Heterotrophic Fungal (THF), Total Coliform (TC), Hydrogen-utilizing Bacteria, Hydrogen-utilizing Fungi and Faecal Coliform (FC). Analysis was done using inferential and descriptive statistics. The study findings revealed that the quality of surface and groundwater in the Orashi and Sombreiro River basins is generally poorer in the wet season than in the dry season. The physiochemical and microbiological analysis showed water quality to be better in the wet season compared to the quality in the dry season. The value for most parameters is higher in the dry season than in the wet season. This applies

to both surface and groundwater quality; hence the study recommends that legislation prohibiting the pollution of any environmental resources, particularly water resources should be reviewed and defaulters should be made to face severe penalties.

Keywords: Surface, Ground, Water, Variation, Oil polluted, Environment, Niger Delta



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