



Abstract

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Salinity, Dissolved Oxygen, pH and Surface Water Temperature Conditions in Nkoro River, Niger Delta, Nigeria

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Abstract:

Salinity, dissolved oxygen, pH and surface water temperature conditions in Nkoro River, in the Niger Delta area of Nigeria was studied for a period of one year (January – December 2008). The response of estuarine fishes to changes in salinity, dissolved oxygen, pH and surface water temperature conditions does not only enhance our biological understanding of estuarine fish, but contributes to the understanding of the potential effects of anthropogenic impacts on estuarine fish species. Dissolved oxygen meter of the model: OxyGuard Handy MK II was used in measuring dissolved oxygen and temperature. pH was measured using pH meter (model: Hanna Instrument model No. HI 8915 ATC) while salinity was measured using salinometer, model: New S-100 for each of the parameters. The probe end of the meter was dipped into the river while the value at the pointer of the scale was read off and recorded. The measurements were taken while inside the canoe along Nkontoru – Job Ama, which is part of the Nkoro river system. Dissolved oxygen (DO) was measured in milligrams per litre (mg/l); temperature in °C (degrees centigrade); and salinity was in parts per thousand (ppt or ‰). Salinity values ranged from 5‰ (September) to 17‰ (February and March). Dissolved Oxygen values ranged from 6mg/l (January, April, July and October) to 10mg/l (September). PH values ranged from 6.1 (August) to 8.5 (November) and Temperature values ranged from 24 °C (July) to 32 °C (March). Salinity values ranged from 12.8±0.30 (‰) (station 4) to 13.3±0.10 (‰) (station 3). Dissolved Oxygen values ranged from 3.2±0.1 (mg/l) (station 3) to 7.3±0.16 mg/l (station 1). pH values ranged from 7.3±0.17 (station 1) to 7.7±0.14 (station 3) and Temperature values ranged from 27.3±0.24 (station 1) to 33.7±0.21 (station 3). There was no significant difference in salinity and pH between stations, but dissolved oxygen, and temperature showed significant differences between stations (P#0.05). The results of the correlation matrix analysis showed significant correlation between the variables at different stations. The association between the environmental variables in the Nkoro river was generally similar because the water at the stations was seemingly from the same source, Atlantic Ocean through Bonny River. Positive association was observed indicating functional similarity. The varying magnitude of the relationship between the water variables in lower Bonny River of Niger Delta was attributed to micro habit differences.

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