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Environmental Drivers of Ichthyofauna Species Diversity and Richness in the Lower Reaches of Warri River, a Typical Mangrove Ecosystem in the Niger Delta, Nigeria

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Abstract : The environmental determinants structuring species richness has been generating interest recently but we still lack an understanding of these patterns in various regions (e.g. Afrotropical), and how seasons help to structure these patterns. Our aim was to assessed the environmental drivers importance in regulating species richness and community structure of fish species. The lchthyofauna assemblage of Warri River, Niger Delta area of Nigeria was studied between August 2013 and July 2014. A total of 1152 individuals representing 43 species in 23 families and 30 genera were caught. Of the 43 species recorded, 67.4%, 53.5% and 67.4% of the species occurred in Stations 1, 2 and 3 respectively. Eight taxa representing 18.6% of the total abundance were ubiquitous. The claroteid, Chrysichthys walkeri and the cichlid, Chromidotilapia guentheri were the most dominant species accounting for 19.2% and 6.0% respectively of the total catch. The species richness and general diversity were relatively higher in station 1 although Jaccard similarity index revealed that stations 1 and 3 were significantly similar while station 2 showed complete dissimilarity with stations 1 and 3. Canonical correspondence analysis indicated that dissolved oxygen, electrical conductivity, total nitrogen, Biochemical Oxygen demand and temperature were important variables structuring the overall fish assemblages. The presence of appreciable number of juveniles in this water body suggests that the Warri River is a breeding and nursery ground for fish species particularly those of brackish origin. These findings indicate that the water body is still useful as a good fishing ground for the rural communities and every effort should be put in place to ensure its protection and conservation for the production of healthy fish.

Keywords : Chrysichthys walkeri, fish communities, mangrove ecosystem, physicochemical parameters, Warri River
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