

## **An assessment of Environmental Conditions and the Benthic Fauna of the Odaw River Basin**

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### **Abstract**

The Odaw River is formed from several streams running from the Aburi Mountains in the Eastern Region of Ghana and ending up in the Korle Lagoon in Accra. Human activities have modified the course of this channel resulting in changes in water quality. This study was therefore conducted to investigate the extent of impact on macro-fauna communities by comparing the results with similar studies carried out in previous years. Faunal abundance and the similarity of macro-fauna among sampling stations for each season were respectively investigated by one-way analysis of similarity (ANOSIM) and cluster analysis all based on Bray-Curtis similarity index of species abundance. The Odaw River was found to be highly polluted, showing a pollution gradient from upstream to downstream, the upstream being the least polluted. Shannon-Wiener diversity index upstream was 0.53–2.00, midstream 0.64–1.41 and downstream had the least ranging from 0–0.04. Sensitive taxa of Dytiscidae, Hydropsychidae and Libellulidae were found only upstream from Obommirem to Buade. The mid portion of the Odaw catchment area were dominated by Oligochaeta, Naedidae and Lymnaea while the lower portion was dominated by the Chironomidae. There was no seasonal variation in the physico-chemical parameters analysed except for phosphate which showed significantly higher concentrations in the dry season than in the rainy season. The distribution of invertebrates did not also show seasonal variation in abundance between sampling stations suggesting good adaptation of prevailing species to small changes in water quality. Midstream and lower stream portions of the catchment area showed increased pollution over the years when previous studies were compared. This study shows that prevailing macro-fauna can be used to characterize sites of differing water qualities.