

Change in Water Quality Index between Two Points in a Highly Impaired River in Eastern Mau, Kenya

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Abstract

Benthic macroinvertebrate samples were collected between two points (Bora Milk and Njoro Bridge) in River Njoro, Kenya and used to evaluate the influence of riparian vegetation on water quality, by using BioMAT water quality index (BWQI). The BWQI was developed from the relationship between the taxa, number of benthic macroinvertebrates and their responses to habitat modification by awarding them sensitivity values. The extent of riparian vegetation within 100m strip of riparian land was analysed using GIS tools. The Bora Milk site had a mean of 33.05 BWQI and was 37.63 in Njoro Bridge which had significantly different (two-tailed paired sample t-test = -4.011, $p < 0.05$). The extent of riparian vegetation in the studied section was 64.24% at Njoro Bridge and in the upstream of Bora Milk was 30.66% coverage and were significantly different (two-tailed paired sample, t-test = -33.585, $p < 0.05$). This study indicates that, there is a significant natural cleansing by the riparian vegetation between the two points. With the increasing urbanization, demand for agricultural land and clearing of vegetation, the riparian land will be reduced and or disturbed leading to further water quality deteriorate. Reductions of pollutants load into the river, effective treatment of sewage and maintenance of intact riparian vegetation are needed to control further degradation of water in the river.

Key words: Benthic macroinvertebrates, Land use/Land cover, BioMAT, Riparian vegetation, Human activities, Water quality, Water quality index, GIS