

Relationship between sediment grain sizes and macroinvertebrate distribution along the Isiukhu River, western Kenya

Abstract

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The current study investigated the relationship between sediment grain sizes and macroinvertebrate distribution along the Isiukhu River, a tropical stream in western Kenya. Ten sites in total were selected from the upstream, midstream and downstream areas. Sampling of sediments and macroinvertebrates was carried out twice a month from March 2018 to March 2019. Sediment was characterised as polymodal and extremely poorly sorted at the upstream; trimodal and extremely poorly sorted in the midstream; and polymodal and extremely poorly sorted towards the downstream of the river. Upstream sediments were fine gravelly mud and very coarse gravelly mud, while downstream sediments were very coarse gravelly muddy very fine sand and very fine gravelly, clayey very fine sand, indicating sediments became finer downstream. The study identified 993 individual macroinvertebrates from 21 families. Highest mean abundance (100 ± 9.2) was recorded at Kimangeti (upstream) while least was at Mutono (11 ± 0.7) (downstream). A regression model of the relationship between mean sediment grain size and mean macroinvertebrate abundance indicated that sediment grain size accounted for 28.7% of the spatial variability of macroinvertebrate abundance. The connection between sediment size and macroinvertebrate abundance and diversity in the Isiukhu River highlights that control of soil erosion in this catchment is important for the ecology of this river.

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