

The application of a Fish Assemblage Integrity Index (FAII) in a Southern African river system

Wilbert T Kadye*

Department of Biological Sciences, TREP Trust, University of Zimbabwe, PO Box MP 167, Mt Pleasant, Harare, Zimbabwe

Abstract

The Fish Assemblage Integrity Index (FAII) was used to determine the status of the fish assemblage in relation to human-induced factors in 3 segments of the Nyagui River, Zimbabwe. The 1st and upstream segment, with a relative score of 56.5%, was classified as largely modified. The presence of exotic predators, *Micropterus salmoides*, that constituted >10% of the fish population sample, was linked to this low score in this segment that had low habitat diversity. The 2nd and middle segment had a relative score of 91.6% and was classified as unmodified. Species that are intolerant to habitat modification, which included *Opsaridium zambezense*, *Chiloglanis neumanni* and *Zaireichthys rotundiceps*, were collected. Habitat diversity increased while the proportional abundance of *M. salmoides* decreased in this segment. The 3rd and downstream segment, with a score of 81.5%, was classified as largely natural. This score was mainly obscured by rare and migratory species that were expected at low altitude but were not collected. Nevertheless, intolerant species were collected from this segment. Habitat diversity was highest while the proportional abundance of largemouth bass, *Micropterus salmoides*, was lowest. It is recommended that more studies be carried out to test the consistency of the FAII in determining the impact of introduced species on native species, and to test the impact of other human activities on fish communities in Zimbabwean rivers.

Keywords: biomonitoring, fish assemblage integrity index, river segments, habitat diversity, exotic species