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Distribution And Community Structure Of Fish In Relation With Water Physico-chemical Parameters Of Floodplain Rivers In The Alitash National Park, Ethiopia

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Abstract : Riverine ecosystems are highly exposed to different forms of human activities, and different water features can affect fish distribution in such habitats. Tributaries of the Abbay and Tekeze Basins are supporting all life-requesting activities in Ethiopia. Fisheries of these habitats are also the mainstay of livelihoods. However, brutal human activities are affecting these ecosystems and the fish therein. This study was thus undertaken to examine fish distribution and community structure in relation to water parameters in Ayima, Gelegu and Shinfa Rivers. 2719 fish specimens identified into 43 species were sampled using gillnets, cast nets and electro-fishing on a seasonal campaign. Based on frequency of occurrence (%FO), 5 species fell in the 'euconstant occurrence' category or their FO was ≥75%, while many species were in the 'constant occurrence' category. Among others, site depth, total phosphorus, dissolved oxygen, and river channel diameter were key environmental factors determining fish community structure. Similarity percentage produced an overall average Bray-Curtis dissimilarity of 60.8% between the fish communities of the three rivers. The final model accounted for 77.2% of the total variance in fish composition, and all canonical axes were significant (Monte Carlo test 499, p =0.002). Generally, this study was conducted in areas where no ecological studies are undertaken, and the results obtained from this study could be important for the sustainable utilization of Ethiopian fisheries.

Keywords : fish biology, fisheries socioeconomics, aquatic biodiversity, fisheries management
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