Title: **Fish Species Community Structure of Rivers Awach Seme and Kisian in Lake Victoria Basin,Kenya Before and After Weir Installation**

Author: Ombogo, Mornica Akinyi

Abstract: Populations of riverine fishes have been on a continuing decline since the early 1970s. This has been attributed to channeling, destruction of riparian vegetation, agricultural and industrial pollution, hydrologic alterations, introduction and invasion of exotic fish species, illegal methods of fishing such as the use of herbs and nets with small mesh sizes and other anthropogenic factors. Estimates from throughout the globe suggest that 75 to 95 percent of riverine habitats are degraded. There is therefore need for continuous monitoring of riverine fish communities in order to assess the needs for appropriate intervention strategies. The present study aimed at carrying out a situational analysis of fish community structure of Rivers Awach Seme and Kisian and to assess their responses to the construction of boulder weirs. At each river, three sites were sampled at the upper, mid and lower reaches. Fish were caught using an electrofisher, identified in the field, totallengths measured and weighed to the nearest 0.1 g. They were then gutted and their stomachs preserved in vials for later examination of dietary components. Three weirs, two at R. Awach and one at R. Kisian, were constructed using boulders. The sites with weirs were re-sampled. The results showed that the two rivers had a diverse fish community consisting of 11 species: Barbus altianalis Boulenger, Labeo victorianus Boulenger, Barbus cercops Whitehead. Ciarias gariepinus Burchell, Barbus nyanzae Whitehead Barbus kerstenii Peters, Barbus jacksonii Gunther, Barbus appleurograma, Oreochromis leucostictus Trewavas, Gambusia affinis Baird & Girard, andBagrus docmak Forsskal, River Kisian had a higher species richness and diversity although th~'fish abundance was almost 9 times lower than that of River Awach Seme. Similarly species evenness was higher at River Awach Seme, suggesting that this river provides better fisheries than River Kisian, All measures of community structure were generally higher in the middle and lower reaches for both rivers. Fish species abundance, richness and diversity increased in River Awach upper site after boulder weir installation though not significantly. Similar increases were also observed at Awach Mid site and Kisian mid site, where weirs were also installed suggesting that weirs may have a positive impact on fisheries production. River Kisian had higher species- diversity while River Awach Seme had higher species abundance. Shannon Weiner's diveTs~iyindex showed an increase in fish species diversity of 0.312 and 0.02 in R Awach and Kisian respectively following the construction of weirs, Barbus altianalis dominated the ichthyofauna community at Kisian River while Clarias gariepinumominated River Awach before and after weir construction. Stomach content analysis showed an increase in the animal matter, consisting of crabs, insect larvae and adults, after weir construction. Niche breath was determined using Levin's index. In R. Awach Seme, C. gariepinus had the greatest niche breath of 3.73 before weir construction but this reduced to 3.24 after the weirs. In River Kisian niche breadth for C gariepinus also reduced from 4.01 to 2.92 following the weirs. Dietary overlap was calculated using Morisita's and Pianka's indices. In R. Awach, dietary overlaps were high between Barbus sp before and after the weirs but inK Kisian they reduced. The monthly mean

condition factor was<l for Clarius gariepinus throughout the sampling period at both River Awach and Kisian. Generally, these results suggest that the fish stocks are in a depressed state and any management interventions on the rivers aimed at improving the fisheries productivity must be long term to produce tangible results. Further longterm surveys and detailed identification is however recommended to ascertain seasonal and annual dynamics of these riverine species, which have a close linkage with the Lake Victoria fisheries.