

Environmental factors influencing infestation of redswamp crayfish and its socio-economic impacts in Lake Ol'bolossat Basin, Kenya

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Abstract:

This study investigated environmental factors influencing infestation of Red Swamp Crayfish and its socio-economic impacts in Lake Ol'bolossat basin, Kenya. There has been an increase in wildlife- human conflict due to the presence of crayfish infestation and hippopotami invasion on farms, The overall objective of the study was to examine the impacts of crayfish on the environment and socio economic status of communities living near Lake Ol'bolossat. The specific objectives were to determine the extent of crayfish infestation in Lake Ol'bolossat, to determine the impacts of crayfish infestation on community livelihood around the lake, to determine whether the changes in water parameters have an influence on the population of crayfish and to document of the impacts of crayfish on the environment. The study being quantitative and qualitative used experimental and descriptive survey design. The study targeted the riparian community, where 300 respondents out of an approximated population of 3000 were sampled using simple random sampling. Purposive sampling was used to select three sites where streams from the escarpment meet the lake and three control sites with no direct water flow from the escarpment i.e. those that have underground seepage. Water quality, macrophytes and crayfish density were studied. Participatory Rural Appraisal (PRA) and Questionnaires were used to collect information from sampled riparian community. Data analysis was done at basic level and at a more complex level. Analysis in the field was done using methods of Listing of Problems, Problem Analysis, Problem Ranking, Problem Trend Line and Opportunity Assessment followed by analysis of variance. From results, all the nine parameters (Dissolved oxygen,Electrical conductivity, pH,Atmospheric temperature, Water temperature, Secchi depth,Turbidity, Dissolved solids),against population of crayfish measured are highly positively correlated (0.973) , the two sites in this case, Site A (average mean of the sampling site A,B and C, and Site B average mean sampling site D,E,F. The results show that the two sites are significantly different ($P < 0.005$, $df=8$), thus, concluding that the nine parameters above influence the crayfish population in the two sites. Further, the crayfish population comparison was significantly different ($P < 0.005$, $df=2$).A significant differences in Secchi depth, electrical conductivity, turbidity and total alkalinity was noted. Local community has been affected negatively through wildlife conflicts and food insecurity. Local community reported that the crayfish were consumed by HIV/AIDs infected people who believed that they cure the disease. Dry crayfish are also fed to livestock, hence can be used for livestock feed. There is need to establish the detailed status of various rivers feeding the lake in term of water quality and biodiversity, complete and detailed analysis of water is necessary so as to know how much allochthnous waste of various types comes from each land use. As for the management there is need to introduce private public partnership in management of the lake, there is also need to introduce water users association and a forum which will mandated with the conservation of the catchment area.