

Comparative Ecological Analysis of Fish Parasitofauna in a Hub- Plot Aquaculture System: Implications for Aquaculture in Kenya

Otachi E.¹, Wathuta E.¹, Magana A.¹, Fioravanti M. L.², Florio D.²,
Konecny R. ³

¹Department of Biological Sciences, Egerton University, Box 536, Egerton, Kenya

²Department of Veterinary Public Health and Animal Pathology, University of
Bologna, Italy

³Environment Agency, Spittelau Lande, Vienna, Austria

Abstract

Aquaculture is an important source of food globally. The Kenya Government through the economic stimulus package (ESP) in a supplementary budget of 2009/2010, allocated Kshs.1.12 Billion for the establishment of 200 fish ponds in each of the 140 potential constituencies in an effort aimed at enhancing food security by increasing fish production in the country. Fish diseases and parasitic infections have been and still remain peripherally recognized as one of the detrimental and limiting factors in the development of the aquaculture sector. This research was set to study the diffusion and dispersion of parasites in *Oreochromis niloticus* fish cultured in a typical hub and plot system in an integrated cage fish culture in Kenya. The system was based on a hub (source of seed) from Sagana Aquaculture Centre and a plot (farm) in Machakos, Kwa- Ngeki reservoir. Specific objectives were to detect and identify parasites, determine their prevalence, mean intensity and abundance; and compare the distribution of major parasites in the hub and plot. Using routine necropsy and parasitological examination procedures a total of 370 *Oreochromis niloticus* fish (57 caged and 313 from open ponds) were examined for the presence of parasites. Ecological community diversities and similarity indices were used to compare the parasitofaunal assemblages between the hub and the plot. Data on prevalence, mean intensities, abundance, diversities and similarity indices on distribution of parasites as well as their implications in this rapidly growing sector of the economy are presented in this paper.

Keywords: Aquaculture, parasites, hub-plot system, ecological indices, *Oreochromis niloticus*, Kenya