

Illegal, Unreported and Unregulated Fishing in Lake Naivasha: Are We Winning or Losing?

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Abstract

Lake Naivasha is a Ramsar site of international importance (1997). The Lake's fishery is based on exotic species. The main threats to the lake Naivasha fishery include illegal, unreported and unregulated fishery and unsustainable resource exploitation both within the lake and its catchments. The fisheries management should train, support and collaborate with the local beach management units and fishing communities to sustainably manage the resource and stem the increasing illegal, unreported and unregulated fishing.

Keywords: Fishery; Fresh water body; *Oreochromis leucostictus*; *Oreochromis niloticus*

Introduction

Lake Naivasha is a shallow freshwater body, situated in the eastern rift valley of Kenya (0° 46'S, and 36° 20'E) at an altitude of about 1890 m above sea level. It covers a surface area varying between 120 Km² and 160 Km² depending on the dry and wet seasons respectively [1]. The Lake's fishery is based on exotic species, supported by six main species, namely; *Oreochromis leucostictus* (Blue spotted tilapia), *Oreochromis niloticus* (Nile tilapia), *Tilapia zilli* (Gervais), *Micropterus salmoides* (Black bass), *Cyprinus carpio* (Common carp) and *Clarias gariepinus* (African cat fish), with the latter being the most recent invader. The riverine *Barbus amphigramma* and *Procambarus clarkii* (Crayfish) have also supported this fishery significantly since the 1980s [2]. In the context of the Code of Conduct for Responsible Fisheries and its overall objective of sustainable fisheries, the issue of illegal, unreported, and unregulated (IUU) fishing in world fisheries is of serious and increasing concern [3]. IUU fishing undermines efforts to conserve and manage fish stocks in all capture fisheries. This situation leads to the loss of both short and long-term social and economic opportunities and to negative effects on food security and environmental protection. IUU fishing can lead to the collapse of a fishery or seriously impair efforts to rebuild stocks that have already been depleted [3].

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The nature of illegal fishing practices in lake Naivasha

IUU fishing is an enormous problem that costs the global economy up to \$23 billion a year [4]. In the Western Indian Ocean, 18% of the catch qualifies as IUU [4]. Most small-scale fisheries in the region are open access in nature which is a major factor contributing to IUU fishing. However, in the inland waters fisheries of Lake Naivasha IUU fishing constitute about 40% of the catch and cost about 3 times the value of the legal fishery production [5]. Small scale fishers in Lake Naivasha work tirelessly to earn a living by putting fish on our tables. Most illegal fishers use simple gears and vessels and usually operate within shallow waters, 100m from the shoreline, which is characterized by papyrus fringes and other wetland vegetation (FIG. 1).



FIG. 1. An illegal fisher using passive gillnets as active gears on the shores of lake Naivasha.

Currently, both legal and illegal fishers have been observed to use the normal passive gillnets as active gears in seining, seine nets and monofilament nets. There is also use of gillnets of less than the recommended minimum of 4.0 inches used to specifically target the smaller sized *O. niloticus*, *O. leucostictus* and *T. zillii*. Common carp which has been the main stay of the fishery since 2002 has been rendered a by-catch in the tilapia fishery. Experimental gill netting studies shows that a gear below 4 inches captures fish below the size at first maturity. The fishers usually use nets of prohibited mesh sizes to fish in shallow, protected areas which act as breeding and nursery grounds for most fishes. It has also been observed that fishers targeting brooders of *C. carpio* use gillnets of 8 to 10 inches (FIG. 2).

Targeting juvenile and brooder fishes using prohibited nets increases the overall fishing effort beyond the permitted levels. Beach seining by illegal fishers has the potential to affect the performance and sustainability of the fishery of any lake [6]. Further, IUU fishing pose a serious problem rendering futile the efforts by the State Department of Fisheries Department of controlling the fishing effort.

Drivers of Illegal, Unreported and Unrecorded Fishing

The use of illegal fishing methods continues to escalate in Lake Naivasha. It is unfortunate that these illegal fishing practices are having a significant impact on the lake's ecosystem due to destruction of the fringe macrophytes, critical refugia for fish. IUU fishing in Lake Naivasha is driven by a number of co-related social and economic factors.



FIG. 2. Illegal fishers using gillnets in demarcated breeding areas in lake Naivasha. (Commonly known as Korosho).

The open access nature of the lake leads to high competition for resources among fishers resulting in resource use conflicts. The issue is further compounded by the high poverty levels that exist among the residents living around the lake. The increase in human population mainly driven by the need to exploit increased employment opportunities in the labour-intensive horticultural, floriculture and geothermal industry has also contributed immensely to the IUU fishing activities in Lake Naivasha. The order by the County Government of Nakuru to lift the three-closed season and incorporating all the illegal fishers (poachers) in a bid to reduce to illegal fishing, seems to have backfired with new poachers replacing the former thus further raising the number of fishers in the lake. This scenario has led to diminishing economic returns by the fishermen who depend on the lake, threatening their livelihoods, bringing the sustainability of the fishery into question. Catch of high proportion of juveniles, immature fish, and non-target species by fishermen, should be a priority for fisheries managers and other stakeholders in Lake Naivasha.

Recommendation and Conclusion

Success in stamping out illegal, unreported, and unregulated fishing in Lake Naivasha may be moderate to non-existent in some areas. However, to make strides, the support and collaboration of local beach management units and fishing communities is crucial. The county and all those engaged in fisheries management should adopt measures for the long-term conservation and sustainable use of fisheries resources and to secure the ecological foundation for food production. The county government of Nakuru which is responsible for Lake Naivasha fishery management should facilitate, train and support small-scale fishing communities to participate and take responsibility for, the management of the resource. Fisheries management should also ensure effective monitoring and enforcement mechanisms to deter and eliminate all forms of illegal and/or destructive fishing practices Lake Naivasha ecosystem.

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