World Academy of Science, Engineering and Technology
International Journal of Mathematical and Computational Sciences
Vol:14, No:12, 2020

Conservation Challenges of Fish and Fisheries in Lake Tana, Ethiopia

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Abstract : We have reviewed major findings of scientific studies on Lake Tana fish resources and their threats. The aim was to provide summarized information for all concerned bodies and international readers to get full and comprehensive picture about the lake's fish resource and conservation problems. The Lake Tana watershed comprise 28 fish species, of which 21 are endemic. Moreover, Lake Tana is the one among the top 250 lake regions of global importance for biodiversity and it is world recognized migratory birds wintering site. Lake Tana together with its adjacent wetlands provide directly and indirectly a livelihood for more than 500,000 people. However, owing to anthropogenic activities, the lake ecosystem as well as fish and attributes of the fisheries sector are severely degraded. Fish species in Lake Tana are suffering due to illegal fishing, damming, habitat/breeding ground degradation, wastewater disposal, introduction of exotic species, and lack of implementing fisheries regulations. Currently, more than 98% of fishers in Lake Tana are using the most destructive monofilament. Indeed, dams, irrigation schemes and hydropower are constructed in response to the emerging development need only. Mitigation techniques such as construction of fish ladders for the migratory fishes are the most forgotten. In addition, water resource developers are likely unaware of both the importance of the fisheries and the impact of dam construction on fish. As a result, the biodiversity issue is often missed. Besides, Lake Tana wetlands, which play vital role to sustain biodiversity, are not wisely utilised in the sense of the Ramsar Convention's definition. Wetlands are considered as unhealthy and hence wetland conversion for the purpose of recession agriculture is still seen as advanced mode of development. As a result, many wetlands in the lake watershed are shrinking drastically over time and Cyprus papyrus, one of the characteristic features of Lake Tana, has dramatically declined in its distribution with some local extinction. Furthermore, the recently introduced water hyacinth (Eichhornia crassipes) is creating immense problems on the lake ecosystem. Moreover, currently, 1.56 million tons of sediment have deposited into the lake each year and wastes from the industries and residents are directly discharged into the lake without treatment. Recently, sign of eutrophication is revealed in Lake Tana and most coarsely, the incidence of cyanobacteria genus Microcystis was reported from the Bahir Dar Gulf of Lake Tana. Thus, the direct dependency of the communities on the lake water for drinking as well as to wash their body and clothes and its fisheries make the problem worst. Indeed, since it is home to many endemic migratory fish, such kind of unregulated developmental activities could be detrimental to their stocks. This can be best illustrated by the drastic stock reduction (>75% in biomass) of the world unique Labeobarbus species. So, unless proper management is put in place, the anthropogenic impacts can jeopardize the aquatic ecosystems. Therefore, in order to sustainably use the aquatic resources and fulfil the needs of the local people, every developmental activity and resource utilization should be carried out adhering to the available policies.

Keywords : anthropogenic impacts, dams, endemic fish, wetland degradation
Conference Title : ICSRD 2020 : International Conference on Scientific Research and Development
Conference Location : Chicago, United States
Conference Dates : December 12-13, 2020