

## **Abstract:**

Doctoral research work embodied in the thesis relates to studies on finfish diversity with physico-chemical parameters of Doyang reservoir (coordinates 26°13'10" N and 94°17'90" E), Nagaland, India. It endeavours different aspects of fish faunal diversity caused by alteration of such hydrological parameters to make an authentic organic checklist for future management. Along with all inland open-waters, especially reservoirs, that came into being, due to damming of different rivers, exhibit unique ecosystems in one continuum of water bodies. Thus, such distinctive characteristic of a reservoir makes the aquatic system special in terms of production and biodiversity functions. Therefore, evaluation of limnological parameters and piscine diversity of Doyang reservoir were executed during February 2015-January 2018 to formulate suitable management practices within the reservoir. A base data, which hitherto remain unexplored, is likely to generate in relation to the impact of physico-chemical variations on aquatic biodiversity and production functions especially in fisheries. In this present research work, total of 64 numbers of finfish species were recorded where they belong to 06 orders and 16 families. Subsequently, Cypriniformes showed dominance followed by Perciformes, Siluriformes, Synbranchiformes, Beloniformes and Anguilliformes. Among the families, Cyprinidae shares 39 fish species followed by Siluridae, Sisoridae, Mastacembelidae, Heteropneustidae, Channidae, Belonidae, Nemacheilidae etc. As per the IUCN conservation status (Ver. 2019-1) 70% belongs to Least Concern (LC), Vulnerable (VU) is 8%, 5% under Data Deficient (DD), 3% under Not Evaluated (NE), 2% under Endangered (EN) and 12% in Near Threatened (NT). Based on the research output, 27 fish species were found to be of ornamental value, while 24 numbers of fish species seems to be of commercial value and the remaining 21 species are showing minor commercial value. Based on the study of such significant hydrological parameters and biodiversity estimation, suitable methods for protection, management and conservation have been suggested to improve the fish production from the water body. The sustainable improvement of reservoirs, both in the matter of fish production and in matter of conservation of freshwater biodiversity, immediately need to have a clear approach of appropriate living resource management. Anthropogenic activities, manmade pollution, fishing pressure on the reservoir must be avoided, as it becomes a threat to fishery activities. Enforcement of strict regulation on the disposal of unwanted and harmful effluents (solid and liquid wastage) has to be enforced to protect the valuable resource which is detrimental to ichthyofaunal diversity.

**Keywords:** Doyang Reservoir, hydro-biological parameters, ichthyofaunal diversity, Conservation.