

**ASSESSMENT OF CONSERVATION IMPORTANCE OF JAKHOR-TAAL WITH SPECIAL EMPHASIS ON FISH DIVERSITY AND FISHING COMMUNITIES IN DHANGADI, KAILALI, NEPAL**



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I hereby declare that the work presented in this thesis entitled “**Assessment of Conservation Importance of Jakhor-Taal with Special Emphasis on Fish Diversity and Fishing Communities in Dhangadhi, Kailali, Nepal**” has been done by myself, and has not been submitted elsewhere for the award of any degree. All sources of information have been specifically acknowledged by reference to the authors or institutions.

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This thesis work submitted by **K. Deepak Singh** entitled "**Assessment of Conservation Importance of Jakhor-Taal with Special Emphasis on Fish Diversity and Fishing Communities in Dhangadhi, Kailali, Nepal**" has been accepted as a partial fulfillment for the requirements of Master's Degree of Science in Zoology with special paper **Ecology and Environment**.

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## LIST OF ABBREVIATIONS AND ACRONYMS

APHA	=	American Public Health Association
C.P.H	=	Catch Per Hour
CITES	=	Convention on International Trade in Endangered Species
F.D.D	=	Fisheries Development Division
G.D.P	=	Gross Domestic Product
IUCN	=	International Union of Conservation of Nature
MDD	=	Marketing Development Division
NGO	=	Non-Governmental Organization
NARC	=	Nepal Agriculture Research Council
SCDP	=	Sustainable Community Development Division
VDC	=	Village Development Committee
WWF	=	World Wildlife Fund
°C	=	Degree Centigrade
mg/l	=	Milligram Per Liter
ml	=	Milliliter
mm	=	Millimeter
Sq.km	=	Square Kilometer
Sq.m	=	Square Meter
m	=	Meter
hectare	=	ha

## Abstract

Fish diversity is the term given to the different variety of fish on earth which plays a very important role in the ecosystem and all the inhabitant including human. The present study was conducted on Jakhor Taal, an ox-bow perennial Lake, situated in Dhangadhi Municipality in Kailali district. The present study deals with fish diversity, environmental variables, socio-economic status and conservation challenges of Jakhor Taal. Fish sampling was done by Gill net, Cast net and other local fishing gears followed by questionnaires survey. A total of 24 fish species (8 Exotic and 16 Indigenous) were recorded belonging to 7 orders, 14 families and 22 genera. The order Cypriniformes were recorded highest comprising 41.66% among the total fish species recorded and 65.38% of total fish caught during the study periods followed by Siluriformes and Perciformes constituting 20.33% and 16.67% respectively. Similarly, the family Cyprinidae shows the highest number of fish diversity obtaining 64.27% of total fish species. *Rasbora daniconius* was the most dominant fish obtaining 16.61% of total catch. In diversity index, in case of season, Shannon diversity index was found high (2.93) in the month of February and low (2.76) in the month of July. Similarly, Simpson and Evenness value was also found slightly high in the month of February in comparison to the month of July. In case of site, the Shannon diversity index was found high (2.73) at the site II in compare to the site I, site III and site IV which is 2.31, 2.09 and 2.04 respectively. Similarly, Simpson and Evenness value was also found slightly high at the site II in comparison to the site I, site III and site IV. The Redundancy analysis (RDA) revealed that the environmental variables such as water temperature, depth and dissolved oxygen were found high significant to most species with respect to different sites and month however, pH and free CO<sub>2</sub> has not shown any relation or significance. Altogether 22 clusters were formed by the fishes of Jakhor Taal in which exotic species shows highly significant cluster in comparison to indigenous species. The socio-economic status of the local fishing communities seems to be below poverty line and the lake and its resources play a very important role in their diet and income source. In context to conservation challenges and implications this lake is highly neglected from both governmental and local communities which negatively affect the natural habitats. Some of the major factors effecting the study area are lack of awareness, habitat destruction, illegal fishing, urbanization, and invasive species.