

**SPATIOTEMPORAL VARIATION OF FISH ASSEMBLAGE
STRUCTURE IN PATHARIYA RIVER OF KAILALI DISTRICT,
FARWESTERN NEPAL**

I hereby declare that the work presented in this thesis has been done by myself, and has not been submitted elsewhere for a degree. All sources of information have been specifically acknowledged.



Entry 02

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DECLARATION

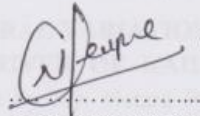
CENTRAL DEPARTMENT OF ZOOLOGY

I hereby declare that the work presented in this thesis 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 author(s) or institution(s).

RECOMMENDATION

It is recommended that the thesis entitled "SPATIAL AND TEMPORAL VARIATION IN THE ASSEMBLY STRUCTURE OF BUTTERFLY COMMUNITIES IN WESTERN NEPAL" be accepted for the award of Master's Degree of Science in Zoology.

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On the recommendation of supervisor, Prof. Dr. Kumar Sapkota, Central Department of Zoology, Tribhuvan University" this thesis submitted by Mr. Netara Prasad Neupane entitled "SPATIOTEMPORAL VARIATION OF FISH ASSAMBLAGE

This is to recommend that the thesis entitled "SPATIOTEMPORAL VARIATION OF FISH ASSAMBLAGE STRUCTURE IN PATHARIYA RIVER OF KAILALI DISTRICT, FARWESTERN NEPAL" has been carried out by Mr. Netara Prasad Neupane for the partial fulfillment of Master's Degree of Science in Zoology with special paper Fish and fisheries. This is his original work and has been carried out under my supervision. To the best of my knowledge, this thesis work has not been submitted for any other degree in any institutions.

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LETTER OF APPROVAL

This thesis work submitted by Mr. Netara Prasad Neupane entitled

On the recommendation of supervisor Prof. Dr. Kumar Sapkota, Central Department of Zoology, Tribhuvan University" this thesis submitted by Mr. Netara Prasad Neupane entitled "SPATIOTEMPORAL VARIATION OF FISH ASSAMBLAGE STRUCTURE IN PATHARIYA RIVER OF KAILALI DISTRICT, FARWESTERN NEPAL" is approved for the examination and submitted to the Tribhuvan University in partial fulfillment of the requirements for Master's Degree of Science in Zoology with special paper Fish and fisheries.

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CERTIFICATE OF ACCEPTANCE

This thesis work submitted by Mr. Netara Prasad Neupane entitled
**“SPATIOTEMPORAL VARIATION OF FISH ASSAMBLAGE STRUCTURE IN
PATHARIYA RIVER OF KAILALI DISTRICT, FARWESTERN NEPAL”** has
been accepted as a partial fulfillment for the requirements of Master’s Degree of Science
in Zoology with special paper Fish and Fishery.

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ABSTRACT

The spatial and temporal variations of the fish assemblages in Pathariya River, Western Nepal is poorly understood. To examine the fish assemblage structure, fish samples were collected in seasonal basis from four sites of the river by using cast net and gill net. A total of 407 individuals belonging to 4 orders, 8 families, 16 genera and 25 species were collected from Malbhanga, Thakurwdara, Sonalipur and Dhunganatol of Pathariya River. Majority of the fishes belonged to the family Cyprinidae (53.56%) followed by Bagridae (17.44%), Mastacembelidae (11.31%) Channidae (8.11%), Cobitidae (5.65%), Claridae (1.72%), Nandidae (1.47%) and Siluridae (0.74%). The most abundant species were *Puntius ticto*, *Puntius sophore*, and *Mystus tengra*. The highest diversity index (2.96) and species richness (22) of fish were recorded from station D (Dhunganatol) in autumn season (September). Lowest diversity index (1.67) and species richness (6) were found in station A (Malbhanga) during the spring season (March). The redundancy analysis (RDA) revealed significant correlations between fish assemblage and environmental variables. The environmental variables such as transparency, dissolved oxygen, pH, hardness, velocity, and temperature were most strongly correlated with the fish community composition. The difference in fish assemblage structure and diversity in Pathariya River are probably related to habitat type, altitude, season, several environmental factors and anthropogenic activities.

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LIST OF ABBREVIATIONS

Abbreviated form	Details of Abbreviations
BS	Bikram sambat
BOD	Biological oxygen demand
CO ₂	Free carbondioxide
CaCO ₃	Calcium Carbonate
Cm	Centimetre
Conc.	Concentrate
DO	Dissolved Oxygen
Ha	Hector
KI	potassium iodide
Km	Kilometre
M	metre
Mg/l	Milligram per litre
ml	Millilitre
MnSO ₄	Manganese Sulphate
M/s	metre per second
N	Normality
NaOH	Sodium hydroxide
No.	Number
pH	Percentage of Hydrogen ion
S.N.	Serial number
Spss.	Species
°C	Degree Celsius
%	Percentage