

**WATER QUALITY, WATERFOWL DIVERSITY AND THREATS
IDENTIFICATION: A CASE FROM
*JAGADISHPUR RESERVOIR***

A Dissertation Submitted to the Central Department of Environmental Science,
Tribhuvan University, Kirtipur for the Partial Fulfillment of the Master's
Degree



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LETTER OF RECOMMENDATION

This is to certify that works incorporated in this dissertation “**Water Quality, Waterfowl Diversity and Threats Identification: A Case from Jagadispur Reservoir**” presented by **Mr. Jham Bahadur Thapa** was under my supervision and guidance. He worked with sincere interest during the fieldwork, laboratory work and table work. This dissertation bears the candidate’s own work. To the best of my knowledge this dissertation has not been submitted for any other degree.

Therefore, I recommend this dissertation for the partial fulfillment of M.Sc. Degree in Environmental Science.

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LETTER OF APPROVAL

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Finally, I would like to assure that this research paper is my original work. Therefore, the errors here are of my own.

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ABSTRACT

Nepal's wetland birds are declining due to wetland habitat degradation. Wetland habitats are under tremendous pressure due to habitat quality and human induced disturbances which causes temporal and spatial displacement of migratory and wintering waterfowl.

Water quality analysis was carried out in Jagadispur Reservoir in three seasons involving three field visits. Water quality analysis revealed that the reservoir can support diverse aquatic flora and fauna. Avifaunal survey was conducted in two seasons i.e. winter and summer. A total of 35 bird species belonging to 7 orders, 10 families and 22 genera were recorded during the investigation period from the reservoir which are listed with their updated nomenclature and systematic position according to the classification after Howard and Moore (1994). A total of 4264 birds were enumerated with high species richness in open water habitat. Anseriformes was the most representative order and Anatidae, the most representative family in terms of species composition. Species diversity was found to be greater in winter (i.e. Shannon- Weiner diversity index: 2.790) in comparison to that of summer (i.e. Shannon- Weiner diversity index: 2.438). Siltation, dependency of local population on wetland resources, invasion by aquatic weeds, poaching and draining of wetland are identified as the major threats to the bird species.

Key words: Water Quality, Waterfowl Diversity, Reservoir, Threats etc.

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ACRONYMS

AgNO ₃	:	Silver Nitrate
APHA	:	American Public Health Association
AWWA	:	American Water Works Association
BCN	:	Bird Conservation Nepal
BOD	:	Bio-Chemical Oxygen Demand
BPP	:	Biodiversity Profiles Project
CaCO ₃	:	Calcium carbonate
CBD	:	Convention on Biological Diversity
CBO	:	Community Based Organization
CITES	:	Convention on International Trade in Endangered species of Fauna and Flora
CO ₂	:	Carbondioxide
CuSO ₄	:	Copper sulphate
DNPWC	:	Department of National Park and Wildlife Conservation
DO	:	Dissolved Oxygen
DoFD	:	Directorate of Fisheries Development
EL	:	Elevation
FSL	:	Full Storage Level
H ₂ SO ₄	:	Sulphuric acid
ha	:	Hectare
HCl	:	Hydrochloric acid
HMG	:	Then His Majesty's Government of Nepal
IBA	:	Important Bird Area
IUCN	:	The World Conservation Union
KI	:	Potassium iodide
km	:	kilometer
MEA	:	Multilateral Environment Agreement
mg/l	:	milligram per liter
ml	:	milliliter
MFSC	:	Ministry of Forest and Soil Conservation
MnSO ₄	:	Manganese sulphate
Na ₂ S ₂ O ₃	:	Sodium Thiosulphate
NaCl	:	Sodium chloride

NaOH	:	Sodium Hydroxide
NBS	:	Nepal Biodiversity Strategy
NGO	:	Non Governmental Organization
NO ₂	:	Nitrite
NOCl	:	Nitrosyl chloride
RSBP	:	The Royal Society for the Protection of Birds
spp.	:	Species
VDC	:	Village Development Committee
WMI	:	Woodlands Mountain Institute
WPCF	:	Water Pollution Control Federation
WWF	:	World Wildlife Fund
%	:	Percent
⁰ C	:	Degree Centigrade
m ³	:	Cubic Meter