

**IMPACT OF DAM ON FISH DISTRIBUTION IN KALIGANDAKI  
RIVER BETWEEN MIRMEE TO BELTARI [DEWATER ZONE]**

**A Dissertation**

**Submitted for Partial fulfillment of the requirement**

**For the master's Degree of science**

**In Zoology**

**With special paper Fish and Fisheries**

**By**

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**To**

**Central Department of Zoology**

**Institute of Science and Technology**

**Tribhuvan University, Kirtipur**

**Kathmandu, Nepal**

**April, 2011**

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Institute of Science and Technology  
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Kathmandu, Nepal**

**April, 2011**

## **RECOMMENDATION**

It is my pleasure to mention here that Mr. Shyam Bahadur Somai completed his dissertation work entitled “STUDY ON THE IMPACT OF DAM ON FISH DISTRIBUTION IN KALIGANDAKI RIVER BETWEEN MIRMEE TO BELTARI [DEWATER ZONE]” under my guidance and supervision. This is the candidate’s original work aiming to document relevant information on Impact of Dam on Fish distribution on Kaligandaki River with the relation to fish and fisheries. To the best of my knowledge, this dissertation work has not been submitted for any other degree.

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## **LETTER OF APPROVAL**

On the recommendation of supervisor Associate Prof. Dr. Usha Lohani, this dissertation work of Mr. Shyam Bahadur Somai has been accepted as partial fulfillment of master's Degree of Zoology of IOST, T.U.

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## **CERTIFICATE OF APPROVAL**

This Dissertation submitted by Mr. Shyam Bahadur Somai entitled STUDY ON THE IMPACT OF DAM ON FISH DISTRIBUTION IN KALIGANDAKI RIVER BETWEEN MIRMEE TO BELTARI [DEWATER ZONE]” has been approved as partial fulfillment for the master’s Degree in zoology of IOST , T.U.

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## DECLARATION

I hereby declare that the work presented in this dissertation 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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## ABSTRACT

The present study entitled “Impact of dam on fish distribution in Kaligandaki River between Mirmee to Beltari [Dewater zone]” was conducted from September 2009 to August 2010 in five sampling sites of Kaligandaki River namely Aandhimuhan, Aruwa Ghat, Chherlung Ghat, Dailatung Ghat and Beltari as site I, II, III, IV and V respectively with the aim to study the fish distribution and impact of dam on fish fauna along with the socio-economic condition of fisher communities of dewatered zone. The physic-chemical parameters were also analyzed with the mitigation measures of Kaligandaki-A Hydropower Project. Cast net, Ghorlang, Gill nets, “Duwalo Thunne”, hook and line were used for collection of fishes. Altogether 14 species of fishes under 3 orders, 6 families and 9 genera were caught during the study period. Among them, *Barilius vagra* and *Barilius barila* (Fageta) were found common in all sites while *Labeo boga* was found to be confined in sampling site I. *Glyptothorax pectinopterus* and *Labeo bata* were confined to sampling site II and III. *Pseudoechinus sulcatus* and *Glyptothorax telchitta* were only collected from site IV and V. Regarding the site wise fish composition 6 species under 4 genera were collected from the site I, 4 fish species under 3 genera from site II, 9 species under 6 genera from site III, 13 species under 9 genera from site IV and 9 species under 6 genera were captured from site V. After the construction of dam the water quality parameters are found to be changed. The impoundment resulted in the increase of water temperatures and also the increase in CO<sub>2</sub> which ultimately resulted in the decrease in DO. These all results show the adverse effect in the normal growth of the fishes. Studying the impact of dam on fish resources, it was found that the construction, operation and maintenance of Project have given negative impact on several fish species. The migratory behavior of migratory fish were badly affected to up and downstream of the river. Mitigation measures like trapping and hauling, fish hatchery, cage culture, regular downstream release should be strictly implemented. Regarding the socio-economic condition, the fisher communities of the study area were found very poor and only 31.21% were literate. Their main occupation is fishing and boating but it is becoming in shadow. So some of the populations mostly young are compelled to take other secondary occupations like navigation, agriculture, labor and daily wage.



## TABLE OF CONTENTS

	Page No.
Acknowledgement	
Abstract	
Contents	
List of Tables	i
List of Maps	ii
<b>CHAPTER -ONE</b>	
<b>1. INTRODUCTION</b>	<b>1-11</b>
1.1 General Background	1
1.2 Freshwater Resources of Nepal	2
1.3 River System of Nepal	3
1.3.1 The Sapta Koshi River System	3
1.3.2 The Sapta Gandaki River System	4
1.3.3 The Sapta Karnali River System	4
1.4 The Kaligandaki River	4
1.4.1 Physiography of Kaligandaki River	5
1.5 Fish Diversity of Nepal	5
1.5.1 Protected Status	6
1.5.2 Endemic Species	7
1.5.3 Migratory Behavior	7
1.6.1 Fish Diversity in Kaligandaki River	7

1.6.2 Fish Species recorded from Kaligandaki River	7
1.7 Hydropower Development in Nepal	8
1.8 Kaligandaki-A Hydroelectric Project	8
1.8.1 Diversion of dam	9
1.9 Justification of the Study	10
1.10 Limitation of the Study	11
<b>CHAPTER-TWO</b>	
LITERATURE REVIEW	12-16
2.1 Fish Diversity	12
2.2 Limnological Study in Nepal	14
2.3 Literature on Socio-economic condition of fishermen of Nepal	15
2.4 Literature of Kaligandaki-A Hydroelectric Project	15
<b>CHAPTER-THREE</b>	
3. OBJECTIVES	17
<b>CHAPTER FOUR</b>	
MATERIALS AND METHODS	18-27
4.1 Physical Materials	18
4.2 Study Area	19
4.2.1 Physical environment	20
4.2.2 Streams and Drainages	20
4.2.3 Biological Environment	20
4.3 Ecological Zonation of Kaligandaki River	21
4.4 Selection and Description of Sampling Sites	22

4.5 Criteria for Selection	22
4.5.1 Site I- Aandhimuhan	22
4.5.2 Site II Aruwa Ghat	23
4.5.3 Site III Chherlung	23
4.5.4 Site IV Dailatung Ghat	23
4.5.5 Site V Beltari (Darpuk)	23
4.6 Source and Tools of data collection	24
4.7 Fish Collection	24
4.8 Data Collection on socio-economic condition of fishermen	24
4.9 Impact analysis of Dam on fishery resources	24
4.9.1 Water Quality Analysis	25
4.9.1.1 Temperature	25
4.9.1.2 pH	25
4.9.1.3 Dissolved Oxygen	25
4.9.1.4 Free Carbon dioxide	26
4.9.1.5 Total Alkalinity	26
4.9.1.6 Total Hardness	27
<b>CHAPTER –FIVE</b>	
<b>OBSERVATION AND RESULT</b>	28-63
5.1.1 Temperature	28
5.1.2 pH	28
5.1.3 Dissolved Oxygen	28
5.1.4 Free Carbon dioxide	28

5.1.5 Alkalinity	28
5.1.6 Hardness	29
5.2 Migratory Fishes	30
5.3 Fish Distribution	31
5.3.1 Fish Distribution in site I	32
5.3.2 Fish Distribution in site II	32
5.3.3 Fish Distribution in site III	33
5.3.4 Fish Distribution in site IV	35
5.3.5 Fish Distribution in site V	36
5.4 Breeding Seasons of fishes	37
5.5 Conservation Status of the Collected Fishes	38
5.6 Impact of Dam on fish resources of Kaligandaki River	39
5.6.1 Positive Impacts	39
5.6.2 Negative Impacts	40
5.7 Comparison of fish diversity before and after construction of dam	43
5.8 Socio-economic status of fishermen	51
5.9 Mitigation Measures	55
<b>CHAPTER-SIX</b>	
DISCUSSION	64-70
CONCLUSION AND RECOMMENDATIONS	71
CONCLUSION	71
RECOMMENDATIONS	72
REFERENCES	73-81
ANNEX	PLATE 1
PLATE 2	PLATE 3
PLATE 4	
QUESTIONNAIR	

## **LIST OF TABLES**

	<b>Page No.</b>
Table 1. Estimated water resources of Nepal	2
Table 2. Migratory Fishes	7
Table 3. Physico-chemical Parameters of Study Area	29
Table 4. Sampling Stations of Kaligandaki River.	31
Table 5. List of Fish species collected in site I.	32
Table 6. List of Fish species collected in site II.	33
Table 7. List of Fish species collected in site III.	34
Table 8. List of Fish species collected in site IV.	35
Table 9. List of Fish species collected in site V.	36
Table 10. Breeding season of some common fishes.	37
Table 11. Conservation status of collected fishes.	38
Table 12. Negative impacts of projects and their prediction.	42
Table 13. Comparative Assessment of fish diversity before and after construction of the project in site I.	45
Table 14. Comparative Assessment of fish diversity before and after construction of the project in site II.	48
Table 15. Fish diversity in site III.	49
Table 16. Fish diversity in site IV.	50
Table 17. Fish diversity in site V.	51
Table 18. Fishermen involvement in fishing activity.	51
Table 19. Annual fish capture, consumption and sell.	52
Table 20. Population distribution of sampled households.	53
Table 21. Educational status of fishermen.	54
Table 22. Price rate of different fishes at study area.	55
Table 23. Fish species preserved in Kali Gandaki Fish hatchery.	56

Table 24. Stocking of fish in different ponds.	58
Table 25. Status of mitigation measures recommended by EIA.	63

## **LIST OF MAPS**

**Page No.**

**Map 1.**

**3**

**Map 2.**

**19**

## ABBREVIATIONS

AGDP	- Agriculture Gross Domestic Product
APHA	- American Public Health Association
CITES	- Convention on International Trade in Endangered Species
DO	- Dissolved Oxygen
EIA	- Environmental Impact Assessment
ha	-Hector
HMG/N	-His Majesty's Government of Nepal
HPP	-Hydro Power Plant
IUCN	-International Union for Conservation of Nature and Natural Resources
KGA	-Kaligandaki-A Project
KGA-HEP	-Kaligandaki-A Hydroelectric Project
Km	-Kilometer
Km <sup>2</sup>	-Square Kilometer
kW	-Kilo Watt
MKI	-Morrison Knudsen International
MW	-Mega Watt
NEA	-Nepal Electricity Authority
UNDP	-United Nations Development Programme
USA	-United State of America
VDC	-Village Development Committee