

Studies on the Piscifaunal bio-diversity of an Indo-Nepal river “Sirsiya” at Raxaul East- Champaran, Bihar, India

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Abstract : The present study was performed to assess the piscifaunal diversity of a lotic water body, the Sirsiya river of Indo-Nepal region at Raxaul, Bihar for one year from January, 2014 to December 2014. Fishes are the most abundant vertebrates of lotic habitats and exhibit a rich biodiversity. They also serve as bio-indicators of aquatic ecosystem. Fishes are the major sources of protein, lipid, vitamins & minerals for man kind. In course of piscifaunal studies, the fishes collected from Sirsiya river were identified and listed as 26 species belonging to 17 Genera, 13 families, and 8 orders. Out of these species family Cyprinidae was dominant with 7 species.

Key words :- Piscifaunal, Raxaul, Sirsiya river, lotic, ecosystem.

I. INTRODUCTION

Among mega biodiversity countries of the world, India occupies ninth position in terms of limnological biodiversity. Out of about 2500 known piscine species only 930 are fresh water and 1570 are marine species. The piscifauna is a major aspect of fishery potential of any water body. From the human nutrition point of view the fishes contribute an easy source of protein, fat, vitamin A & D, minerals. Fishes are also an indicator of ecological health.

Bihar is one of the few states with large inland fisheries and adequate resources. The state lies between 24°11' 32" and 27°33' 56" N latitudes and 83°14' 43" and 88° 17' 45" E longitudes. The state shares a common border with the country Nepal and Raxaul is the gateway. Sirsiya runs 15 km. in Nepal and about 20 km. in India. It is a tributary of river “Burhi Gandak”, originates from pathlahia hill of Ramban forests in Bara District, Nepal. Due to illegal and indelcent habit of dumping of the untreated industrial wastes and domestic sewage the river water has become highly polluted. In India it inters Raxaul near custom office bridge (fig.-1-4). In Raxaul it travels in a serpentine route to reach koiria tola. From here it travels about 14 km. south wards crossing many villages and finally joins with Sikarhana river near Sagauli. The East Champaran district is bestowed with huge number of natural water bodies in the form of rivers, tributaries, ox-bow lakes, wetlands, ponds, tanks etc.

The present observation site is a perennial in nature, formerly it's water was full of plants of medicinal value but today it's water is of no use. The dirty discharge of Nepal industries have caused bad impact on it's water. The main industries are Pharmaceuticals, Leather factory, Cement factory, Rice mills, Stone crushers, Chemical factories, Hospitals, Textile industries etc. These industries discharge a huge amount of organic, inorganic and other toxic wastes in this river without any check. Nepal Government is not taking a positive step to overcome such panic situation.

II. MATERIAL AND METHODS

In every month from January to December 2014 the fish samples were collected with the help of local skilled fishermen. The main fishing gears they used were gill nets of different mesh sizes, drag nets, cage traps, lines, hooks etc. Collected fish samples were placed in water contained bucket at the study site. The collected fishes were sorted out on species level. Unidentified specimens were preserved in 10% formalin solution. The preserved specimens were identified in laboratory to genus and species level by using taxonomic keys and reference books.

III. RESULTS AND DISCUSSION

In the present study it was revealed that the Sirsiya river exhibit a medium grade of piscifaunal biodiversity. During the study, 27 species belonging to 8 orders, 13 families, and 17 genera were collected and identified. Details of the fishes with local names and their IUCN status are listed in Table-1.

TABLE-1
LIST OF COLLECTED FISHES OF SIRSIYA RIVER(JANUARY TO DECEMBER , 2014)

ORDER	FAMILY	SCIENTIFICNAME STATUS	IUCN Status	LOCAL NAME
Cypriniformes	Cyprinidae	1. <i>Labeo calbasu</i>	LRnt	Basrahi
		2. <i>Labeo gonius</i>	LRnt	Kursa
		3. <i>Puntius ticto</i>	LRnt	Sidhari/Pothia
		4. <i>Puntius sophore</i>	LRnt	Pothia
		5. <i>Puntius sarana</i>	VU	Darahi
		6. <i>Amblypharyngodon mola</i>	LRIc	Dhawahi
		7. <i>Aspidoparia morar</i>	LRnt	Chilwa
Siluriformes	Siluridae	8. <i>Ompak bimaculatus</i>	EN	Jalkapoor
	Bagridae	9. <i>Mystus aor</i>	VU	Tengra
	Heteropneustidae	10. <i>Mystus vittatus</i>	VU	Tengra
		11. <i>Heteropneustes fossilis</i>	VU	Singhi
	Claridae	12. <i>Clarias batrachus</i>	VU	Mangur
Channiformes	Channidae	13. <i>Channa punctatus</i>	LRnt	Garai
		14. <i>Channa striatus</i>	LRIc	Sauri
		15. <i>Channa gachua</i>	NE	Chenaga
		16. <i>Channa marulius</i>	LRnt	Saur
Mastacembeliformes	Mastacembelide	17. <i>Macragnathus aria</i>	LRnt	Pateya
		18. <i>Macragnathus aculeatus</i>	NE	
Perciformes	Anabantidae	19. <i>Anabas testudineus</i>	VU	Kawai
	Ambassidae	20. <i>Colisa Fasciatus</i>	LRnt	Kotra
		21. <i>Ambassis nama</i>	NE	Chamwa
	Gobiidae	22. <i>Ambassis ranga</i>	NE	Chanari
		23. <i>Glossogobius giurus</i>	LRnt	Bulla
Tetraodontiformes	Tetraodontidae	24. <i>Tetradon cutcutia</i>	LRnt	Galphulani
Beloniformes	Belonidae	25. <i>Xenentodon cancila</i>	LRnt	Kauwa
Symbranchiformes	Amphinidae	26. <i>Amphipnous cuchia</i>	NE	Bami

LRnt=Lower Risk near threatened, LRIc=Lower Risk least concern, VU=Vulnerable, EN=Endangered, NE=Not Evaluated

It was noticed that the order Cypriniformes was most abundant with 7 species, 4 genera and 1 family followed by order Siluriformes having 6 species, 4 genera and 4 families. At 3rd position was the order perciformes with 3 families ,4 genera and 5 species followed by order channiformes(4 species, 1 Genus and 1 family), order Mastacembeliformes (2 species, 1 Genus and 1 family), order beloniformes (with only

1 species, 1 genus and 1 family). The orders Symbranchiformes and Tetradontiformes were also represented by only 1 species, 1 Genus and 1 family each.

Among family cyprinidae *Labeo calbasu*, *L.gonius*, *Puntius ticto*, *P. sophore*, *P. sarana*, *Amblypharyngodon mola* and *Aspidoparia morar* were recorded. Family siluridae was represented by only one species *Ompak bimaculatus* while Bagridae was represented by *Mystus vittatus* and *M. aor*. Family Heteropneustes and Claridae were represented by single species *Heteropneustes fossilis* and *clarias batrachus* respectively. These species were the major composition of piscifaunal biodiversity of this river.

In the order perciformes, family Anabantidae was represented by 2 species (*Anabus testudineus* and *Colisa fasciatus*). The family Ambassidae was found to have 2 species (*Ambassis nama* and *A. ranga*) while the family Gobidae represented by 1 species *Glossogobius giuris*. The family Channidae was having 4 species as *Channa gachua*, *C. marulius*, *C. punctatus*, and *C. striatus*. Some other species as *Macrognathus aria*, *M. aculeatus*, *Xenentodon cancila*, *Amphipnous cuchia* and *Tetradon cutcutia* were also found regularly. The fresh water piscifaunal biodiversity of many other water bodies have also been reported by several workers⁽⁹⁻¹³⁾.

IV. CONCLUSION

It is a fact that the water of this river Sirsiya was previously of high medicinal value and was very rich in piscine biodiversity. However, in the age of industrialization in the recent past there is illegal dumping of industrial and domestic wastes by a number of industries of the Nepal, it's water turned highly toxic and day by day the population of fishes started decreasing. As the river, it travels through many villages it's water was of multiple used by human kind. Unfortunately this is not possible in recent days due to heavy accumulation of contaminants and pollutants, that may cause several diseases directly/indirectly as also may be fatal for human consumption. Even the water living plants and animals including fishes, molluscs and insects have quite infavourable habitat for their survival and, therefore,, it requires proper care and monitoring by the Government agencies, specially Nepal Government, so that any discharge from factory/industry outlet is processed before being dumped in this river.

This way also be done on the basis of bilateral talk between the Government of India & Nepal so that the natural resource in the form of Sirsiya river may be preserved and used for Pisciculture, Prawn culture, Mollusca culture, Integrated fish poultry farming, integrated fish pig farming, makhana farming, snail farming, as also place for tourist interested in boating and natural sightseeing.



Figure-1 : Raxaul Junction



Figure-2 : Custom Office Bridge



Figure-3 : Lalka Bridge



Figure-4 : Railway Bridge at Islampur, Raxaul

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