

Research Journal of Animal, Veterinary and Fishery Sciences _____ Vol. 1(4), 8-12, May (2013)

Studies on the Ichthyofauna of Kararia Lake of Motihari, East-Champaran, Bihar, India

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Available online at: www.isca.in Received 7th April 2013, revised 17th April 2013, accepted 10th May 2013

Abstract

The present study was undertaken to analyse the Ichthyofauna of Kararia lake of Motihari (District- East Champaran) of Bihar for duration of one year from January to December 2012. Among vertebrates, fishes are one of the most important groups of varied diversity. Fishes are very important as they are useful indicators of aquatic ecosystem. Fishes provide cheap sources of protein, fat, vitamin A and D, minerals as well as several fish by-products and recreation. During the ichthyofaunal studies, the fishes collected from Kararia lake were contributed by 33 species which belongs to 21 genera, 14 families under 9 orders. Out of these 33 species family Cyprinidae was dominant of all with 11 species.

Keywords: Kararia lake, Motijheel lake, Dhanauti river, Ichthyofauna, ox-bow lake, Motihari, Twin lakes.

Introduction

The ichthyofauna is an important aspect of fishery potential of water body¹. Among vertebrates fishes are one of the most important groups. Fishes provide cheap sources of protein of animal origin, fat, vitamin A and D, minerals. Fishes are also an important indicator of ecological health and the abundance and health of fish will show the health of water bodies². Among mega biodiversity countries in the world, India occupies ninth position in terms of freshwater biodiversity³. There are 2500 piscine species in India out of which 930 are freshwater⁴ while 1570 are marine⁵. Thus fishes occupy a remarkable position from socio-economic point of view.

Bihar is a land locked state of India with huge water resources. The East-Champaran district of Bihar (HQ-Motihari) is located between 26°15' to 27°01' N latitudes and 84°28' to 85°18' E longitudes. The total geographical area of the district is 4155 sq. km⁶ and is the second largest district of Bihar in terms of geographical area. The East-Champaran district is bestowed with large number of natural freshwater resources in the form of rivers, tributaries, ox-bow lakes (Mauns), wetlands (Chaurs), ponds, tanks etc⁷. The total wetland area of the district is 12477 ha⁸. These water bodies have enormous importance in the socio-economics of the people of East-Champaran and one of the major sources of livelihood for thousands of fishermen living in their vicinity.

The present study site, i.e., Kararia lake is an ox-bow lake located between $26^{\circ} 39' 49''$ N to $85^{\circ} 35' 3''$ E geo-coordinates. This lake is natural, perennial and is almost 'U'-shaped in extension (figure.1⁹). This lake is located about 2 km east of Motihari town (MSL 66.141m) and having a water spread area of around 120 ha. The depth of this lake ranges between 2.5 m to 5.5 m. Figure 1, 2 and 3 depicts the map and different sites of Kararia lake. This lake is connected with river Dhanauti on one

hand and with Motijheel on the other. There is a canal which connects the Kararia lake to the eastern side of Motijheel lake at Bariyarpur near NH-28 (figure 4). Kararia lake has an outlet which got connected during rainy season to the Dhanauti river for the discharge of excess flood water. Hence Kararia and Motijheel ox-bow lakes may be also called '*Twin Lakes*' (figure 1). Kararia Lake is an important and prime resource of fishes in East-Champaran and provides good fishing ground for local people. This lake provides a rich diversity of ichthyofauna but only small part of this lake is utilised for pisciculture. The Kararia ox-bow lake receives effluents from Motihari sugar factory. This lake is also called '*Maun Kararia*' by local people of Motihari.

Material and Methods

Fish samples were collected every month during January to December 2012 with the assistance of local skilled fishermen. Wooden boat, gill nets of different mesh sizes, drag nets, cage traps, hooks etc. were employed for capturing fish samples. Collected fish samples were placed in water contained bucket at the study site. Quickly fishes were sorted out on species basis and were identified to species level. Unidentified specimens were preserved in 10 % formalin solution. The preserved specimens were identified and classified in laboratory to genus and species level by using taxonomic keys, standard literatures and reference books¹⁰⁻¹⁶.

Results and Discussion

The result of the present study revealed that the Kararia lake was rich in ichthyofaunal biodiversity. During the present study, 33 fish species belonging to 9 orders, 14 families and 21 genera were collected and identified. Details of these fishes along with their local name and $IUCN^{17}$ status are listed in table-1 and figures 5-10.

Order	Family	Scientific Name	IUCN Status	Local Name
Cypriniformes	Cyprinidae	1. Labeo rohita (Hamilton)	LRnt	Rohu
		2. Labeo calbasu (Hamilton)	LRnt	Basrahi
		3. Labeo gonius (Hamilton)	LRnt	Kursa
		4. Puntius ticto (Hamilton)	LRnt	Sidhari/Pothia
		5. Puntius sophore (Hamilton)	LRnt	Pothia
		6. Puntius Sarana (Hamilton)	VU	Darahi
		7. Cirrihina mrigala (Hamilton)	LRnt	Naini
		8. Cirrihina reba (Hamilton)	VU	Rewa/Reba
		9. Catla catla (Hamilton)	VU	Bhakura/Catla
		10. Amblypharyngodon mola (Hamilton)	LRlc	Dhawahi
		11. Aspidoparia morar (Hamilton)	LRnt	Chilwa
Siluriformes	Siluridae	12. Wallago attu (Bloch & Schneider)	LRnt	Boyari
		13. Ompak bimaculatus (Bloch)	EN	Jalkapoor
	Bagridae	14. Mystus aor (Hamilton)	VU	Tengra
		15. Mystus vittatus (Bloch)	VU	Tengra
	Heteropneustidae	16. Heteropneusteus fossilis (Bloch)	VU	Singhi
	Claridae	17. Clarias batrachus (Linnaeus)	VU	Mangur
Perciformes	Anabantidae	18. Anabas testudineus (Bloch)	VU	Kawai
		19. Colisa fasciatus (Bloch & Schneider)	LRnt	Kotra
	Ambassidae	20. Ambassis nama (Hamilton)	NE	Chamwa
		21. Ambassis ranga (Hamilton)	NE	Chanari
	Gobiidae	22. Glossogobius giuris (Hamilton)	LRnt	Bulla
Channiformes	Channidae	23. Channa gachua (Hamilton)	NE	Chanaga
		24. Channa marulius (Hamilton)	LRnt	Saur
		25. Channa punctatus (Bloch)	LRnt	Garai
		26. Channa striatus (Bloch)	LRlc	Sauri
Mastacembeliformes	Mastacembelidae	27. Macrognathus aria (Bloch & Schneider)	LRnt	Pateya
		28. Macrognathus aculeatus (Bloch)	NE	Gainchi
Clupeiformes	Notopteridae	29. Notopterus notopterus (Pallas)	LRnt	Bhuna/Patra
		30. Notopterus chitala (Hamilton)	EN	Moya
Beloniformes	Belonidae	31. Xenentodon cancila (Hamilton)	LRnt	Kauwa
Symbranchiformes	Amphinidae	32. Amphipnous cuchia (Hamilton)	NE	Bami
Tetraodontiformes	Tetraodontidae	33.Tetradon Cutcutia (Hamilton)	LRnt	Galphulani

Table-1	
(chthyofauna of Kararia Lake (January-December 2012)	

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

The order cypriniformes was most abundant with 11 species, 6 genera and 1 family followed by order siluriformes (6 species, 5 genera and 4 families), perciformes (5 species, 4 genera and 3 families), channiformes (4 species, 1 genus and 1 family), clupeiformes (2 species, 1 genus and 1 family) and mastacembeliformes (2 species, 1 genus and 1 family). Three orders such as symbranchiformes, tetraodontiformes and beloniformes were represented only by single species, genus and family.

Among family cyprinidae Labeo rohita, Labeo calbasu, Labeo gonius, Cirrihina mrigala, Cirrihina reba, Catla catla, Puntius ticto, Puntius sophore, Puntius sarana, Amblypharyngodon mola and Aspidoparia morar were recorded. Family siluridae (siluriformes) was represented by two species Wallago attu and Ompak bimaculatus while bagridae was represented by M. aor and M. vittatus. Family heteropneustidae and claridae were represented by a single species Heteropneusteus fossilis and

Clarias batrachus respectively. These fish species were the major composition of ichthyofaunal biodiversity of this lake.

In order perciformes, family anabantidae was represented by two species (Anabas testudineus and Colisa fasciatus), centropomidae was also composed of two species (Ambassis nama and Ambassis ranga) while family gobiidae was represented by a single species, Glossogobius giuris. Family channidae (order channiformes) was represented by 4 species Channa punctatus, Channa striatus, Channa gachua and Channa marulius. Other species such as Notopterus notopterus, N. chitala, Tetradon cutcutia, Xenentodon cancila, Amphipnous cuchia, Macrognathus aria and M. aculeatus were also found.

L. rohita, L. calbasu, L. gonius, C. catla, C. mrigala (Carps), Heteropneusteus fossilis, Mystus vittatus M. aor (cat fishes) and Macrognathus aria are economically important ichthyofauna of this lake. Freshwater ichthyofaunal biodiversity of different water bodies have also been reported by several workers throughout the country¹⁸⁻²⁴. Research Journal of Animal, Veterinary and Fishery Sciences ______ Vol. 1(4), 8-12, May (2013)



Figure-1 Map of Motihari Town showing Kararia Lake



Figure-3 Kararia Lake Near Chhatauni Bus Stand



Figure-2 Kararia lake at Bariyarpur Chhath Ghat



Figure-4 Canal Near NH-28 Through Which Kararia Lake is Connected to Motijheel

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Figure-5 Amphipnous cuchia



Figure-6 Channa punctatus



Figure-7 Channa gachua



Figure-8 Heteropneusteus fossilis



Figure-9 Kenentodon canci



Figure-10 Tetradon cutcutia

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Conclusion

The result of this study concluded that Kararia lake is an important lake of East-Champaran district which provides a wide diversity of ichthyofauna with good economic potential. Major carps are the abundant group followed by cat fishes. This lake is highly significant from fisheries point of view and is one of the major sources of livelihood for the fishermen living in its vicinity. The proper utilization and care of this lake for the propagation of fish culture will be highly beneficial for the people of this area who are still socially and economically poor. Thus the fish productivity of Kararia lake is very high, therefore it should be conserved and protected.

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