



## STUDIES ON PHYSICO-CHEMICAL PROPERTIES OF RIVER KAMLA OF DARBHANGA DISTRICT (NORTH BIHAR)

**Shashi Kant Labh**

Research Scholar , L.N.M.U Darbhanga.

### ABSTRACT

*Production of fishes in rivers depends mostly on the physico-chemical properties of water. It also depends mostly on physico-chemical properties of water. It also depends upon soil and certain biological factors. Therefore its specific properties as a cultural medium are of great significance in the productivity potentials of river. The fishes were collected from Kamla river with the help of different standard fishing nets by the local fishermen. The systematic position of the collected fish was studied. The present study is an effort to prepare a list of fishes found in the water body. The scheme of classification followed was according to Leo.S. Barg (1947) up to families or subfamilies and the species and sub species under this respective genera are arranged in alphabetical order. Sixty nine species of fishes were collected from Kamla river Darbhanga with the help of fishermen, some species were collected from local market of fishes in Darbhanga also.*



**KEYWORDS:** *Production of fishes , physico-chemical properties.*

### INTRODUCTION :

The most conspicuous feature of this town is the existence of larger number of ponds numbering 213, Sidique et al (1980), and two big rivers. These rivers are rich repository of aquatic fauna and flora and grow fish in abundance. Rivers, the great source of fresh water are being lost or getting modified or have rapidly deteriorated. This condition has attracted several Govt. agencies and research team to focus their attention on this issue at a global level. The undesirable changes brought about in the composition of water results in alteration of their physical and chemical properties leading to objectionable conditions. In present day there is a talk on pollution everywhere as clean natural water are being converted to polluted waters. In all-natural water systems a complex web of climatic physical-chemical and biological factors is at work, to the analysis of which. Limnologists have also paid their attention in conjunction with all those disciplines of natural science which are relevant to the overall picture.

Since the water pollution affects the distribution and survival. Abundance and growth of fishes, it becomes, it becomes a subject of consideration several definitions of water pollution have been put forth time to time. In a layman concept the polluted water means Sharma (1987) the country is rich in precipitation and surface water resource. The average rain fall as computed in India from fifty years data is about 105cm.

India receives 3 trillion cubic meter of water which among the largest in the world. Besides several large and small river system, there are numerous and man made lake, Reservoirs and ponds. These fresh water bodies have attracted mankind since time immemorial for their habitation. Most of the Indian towns and villages are situated at the bank of rivers and approximately all villages and towns have at least one or more ponds. Gopal et al (1978) have collected information from various parts of India and found that all water bodies in India are polluted to smaller or larger degree. The use of pesticides, fertilizers and weedicides in crop management also a problem for water pollution. They do not get totally used up by the target species and they find their way to river and other sources of waters. Pesticides also effect aquatic systems directly when sprayed for controlling aquatic weeds or mosquitoes. This pollution from pesticides to the river and other sources of water is harmful and seriously effects the aquatic biota. Periodic flood in the network of River system of North Bihar and extreme draught due to failure of monsoon are common happening in this part of country. Peculiar geographical condition and other physical factors are causes (i) heavy siltation by alluvial soil (ii) loss of water level due to periodic exposure of draught and (iii) infestation of different hydrophytes to unmanageable quantity.

## **MATERIAL AND METHODS**

### **A. Collection of fishes :-**

The fishes were collected at intervals with the help of local fisherman by using different types of gears (net).

### **B. Preservation of fishes :-**

Fishes: - The specimens were fixed in 8% formaline. For the preservation, 8% formalines and 90% alcohol were tried. The former was found to give comparatively better results than the latter. Alcohol detormes the shape, washes away the natural colour quickly and makes the fishes brittle resulting in their damage. The effect of formaline is gradual and slow, thus it has advantage over alcohol. Smaller specimens were directly put in formaline while medium sized prior to the fixation were given a longitudinal position along the abdomen. Large forms were fixed by injecting 10% formaline into the muscle and abdomen. Fixed specimen were kept in containers with proper labeling and tail pointing upward to avoid damage to caudal fins.

### **C. Identification :-**

This identification was made by the relevant taxonomic keys, papers and books viz. Key to the fishes of Kangra and Hamirpur district by K.K. Tandon and V.K. Sharma (1976) Fauna British India fish (1889). Fishes of Uttar Pradesh (1968) fishes of U.P. and Bihar Gopalji Srivastava (1980). Most of the fishes were identified with the help of these papers and books. Rest of fishes were identified from Zoological survey of India (Z.S.I.) Kolkata.

### **D. Identification :-**

This identification was made by the relevant taxonomic keys, papers and books viz. Key to the fishes of Kangra and Hamirpur district by K.K. Tandon and V.K. Sharma (1976) fauna British India fish (1889). Fishes of Uttar Pradesh (1968) fishes of U.P. and Bihar Gopalji Srivastava (1980). Most of the fishes were identified with the help of these papers and books. Rest of fishes were identified from Zoological survey of India (Z.S.I.) Kolkata.

### **LIST OF FISHES :-** May 2007 to June 2008.

Classification after Leo S. Beg (1947) up to the families and sub families.

Phylum – Vertebrata

Sub-Phylum – Craniata

Super Class- Gnathostomata

		Local Name
Series- Pisces		
Class- Teleostomi		
Sub Class- Actinopterygii		
Order-Clupeoidoi		
Sub-order-Clupeoidei		
Super family- Clueioidae		
Family – Clupeidae		
Sub-Family-Clupeini		
Genus-Gudusia Fowler		
1.	Gudusia Chapra (Ham)	Suhia
2.	Gudusia godanahai Srivastava	Suhia
Genus-Hilsa Regan		
3.	Hislasi ilisha (Ham)	Hilsa
Sub-order-Notopteroidei		
Family-Notopteridei		
Genus-Notopterus Lecepede		
4.	Notopterus chitala (Ham)	Bhunna
5.	Notopterus notopterus (Pallas)	Muae
Order- Cypriniformes		
Division-Cyprini		
Sub-order- Cyprinoidei		
Family- Cyprinidae		
Sub-family-Cyprinini		
Genus-Ambypharyngodon Blecker.		
6.	A microlepis (Blecker)	Dhawa
Genus- Aspidoparia		
7.	A. Jaya (Ham)	Harda
8.	A Morar (Ham)	Harda
Genus-Barilus humitton		
9.	B. bendelisis (Ham)	Bhola baba
10.	Catla Catla	Katri
Genus Chela Hamilton		
11.	Chela atpar (Ham)	Chela
Genus cirrhirus oken		
12.	C. mrigala (Ham)	Naini
13.	C. Ref (Ham)	Naini
Genus-Garra Hamilton		
14.	Danio devario (Ham)	Putkari
15.	Garra gotyla	Siltokia
Genus-Labeo-cuvier		
16.	Labeo bala (Ham)	Rohu
17.	Labeo Calbasu (Ham)	Rohu
18.	Labeo dero (Ham)	Rohu
19.	Labeo rohita (Ham)	Rohu
Genus-Oxygaster van Hasselt		
20.	Labeo gonious (Ham)	Rohu
21.	Oxygaster Bacaila (Ham)	Chelwa
22.	Oxygaster gora (Ham)	Chelwa

	Genus-Punitius Hamilton	
23.	Puntius Chola (Ham)	Pothia
24.	Puntius Conchonus (Ham)	Pothia
25.	Punitus Cosuatis (Ham)	Pothia
26.	Puntius phuntunio (Ham)	Pothia
27.	Puntius saran (Ham)	Pothia
28.	Puntius sophore (Ham)	Pothia
29.	Puatius ticto (Ham)	Pothia
	Genus-Tor Gray	
30.	Tor Tor (Ham)	Mahasher
	Family-cobitidae	
	Sub-fimily-Botieni	
	Genus-Botia Gray	
31.	Botia derio (Ham)	Bagni
32.	Botia lohachata chouduri	Baghi
	Sub-family-Cobitini	
	Genus-lepido cephalichthys Bleker	
33.	L. Gunitia(Ham)	Nakatti of Latwa
	Division-Siluri	
	Sub-order-Siluroidae	
	Family-siluroidae	
	Genus-Ompak Lacepede	
34.	Ompak Bimaculatus (Bloch)	Jal Kapoor
	Genus-Wallago Blekar	
35.	Wallago attu	Boari
	Family-Bagridae	
	Genus-Mystus Grownov	
36.	M. (M.) blekeri (Day)	Tengra
37.	M. (M.) cavasius (Ham)	Tengra
38.	M. (M.) menoda (Ham)	Tengra
39.	M. (M.) Vittatus (Bloch)	Tengra
40.	M. (M.) tentgra (Ham)	Tengra
41.	M. (O.) Seenghala (Sykes)	Tengra
	Family-Schibeidae	
	Genus-Ailia Gray	
42.	Ailia Coila (Ham)	Patasi
	Family-Saccobranchidae	
	Genus-Heteropneustes Muller	
43.	Heleropneustes fossilis (Bloch)	Singhi
	Family-Clariidae	
	Genus-Clarias Gronov (emened Scopoli)	
44.	Clarias batrachus (Linn)	Kauwa
	Order-Belori forms	
	Sub-order Scomberesocoidei	
	Family-Belonidae	
	Genus-Xonetodon Regan	
45.	Xenetodon Cancilla	Kauwa
	Order-Cyprinodontiformes	
	Family-cyprinodontidae	

46.	Genus-Aplochielus Mcllelland Aplochielus panchax (Ham) Order-Mugiliformes Family-Mugilidae Genus-Rhinomugil gil	Dendula
47.	Rhinomugil corsula Order-ophiociephaliformes FamilyOophiocephalidae Genus-Chamna Gronov	Ankhgurwa
48.	Chamna gachus (Ham)	Chaenga
49.	Chamna marulius (Ham)	Saur
50.	Chamna punctatus (Block)	Garai
51.	Chamna stewartii (Playfair)	Garai
52.	Chamna striatus (B1) Order-Symbranchiformes Genus Amphipnous Muller	Garai
53.	Amphipnous cuchia (Ham) Order-Perciformes Sub-order-Percioidei Super family-Percoidae Family-Centropomidae Genus-CHamda hamilton	Anhai
54.	Chamda baculis (Ham)	Chamda
55.	Chamda nama (Ham)	Chamda
56.	Chamda range (Ham) Family-Sciaenidae Genus-Sciaenalinn	Chamda
57.	Sciaena Coitor (Ham) Sciaaea coitor (Ham) Family-Nandidae Genus-Basdis Bleeker	Patharchatti Patharchatti
58.	Badis badis (Ham) Genus Nandus Cuv & Val.	Sumhaiya
59.	Naddus natus Sub-order-Anabantoidari Family-Anabantidae Genus-Anatus Cuv. & Cloquest	Dhalwa
60.	Anabus testudineus (Bloch) Genus-Colia cuv. And Val.	Kabai
61.	Colia chuna (Ham)	Khesra
62.	Colisa fasciatus (Blich & Schn)	Khesra
63.	Colisa lalius (Ham) Sub-order-Gobioidae Family-Gobodae Sub-family-Gobiini Genus-Glossogobius gill	Khesra
64.	Glossogobius giuris Order-Masta cembeletormus Family-Masta cembelidae	

	Genus-Macrogathus Lecepede	
65.	Macrogathus aculeatus (Bloch)	Gainchi
	Genus-Mastacembelus Gronovius	
66.	M. armatus (Lecepede)	Gainchi
67.	M. Pancalus (Ham)	Gainchi

### RESULT AND DISCUSSION:

Darbhanga the divisional head quarter of landlocked state of Bihar is are situated among the bank of river Kamla. The river Kamla is rich repository of aquatic fauna and therefore they constitute the economic backbone of the area. The livelihood of a good percentage of poor population is intimately linked up with the fish productivity and there marketing.

A good deal of limological work has been carried out in India for the sack of fishes and aquatic fauna. Water bodies were made from time to time to study the distribution abundance and locality preference of fishes to establish more accurate aqua culture. In recent years also survey and catalogue preparation of fishes remained continued. Bhatnagar (1973) collected 36 species of fishes (21 genera and 9 families) from Bhakra reservoir of Sutlej river. Motwani and Sehgel (1974) recorded the fishes of 16 species of fishes from Balmikinagar. Abraham (1980) reported 20 species of fish from Vellayani lake (Kerala). Sushil Kumar et al 2000 reported 23 genera and 24 species of fishes. S.N. Sharma reported 23 genera and 24 species of fishes. S.N. Sharma reported 23 genera and 13 species. Present catalogus shows 69 specico of fishes of nine orders of 19 families. The present investigation is, there and attempt to make a catalogue of fishes of Kamla river.

### REFERENCE:-

1. Sharma, C.B. and Ghose NC 1987 :-Pollution of river Ganga by municipal waste a case study from Patna J. Geo.Soc. India 30(5): 369-385.
2. Gopal B; Sharma, K.P and Trivedy, R.K. (1978) :-Studies on ecology and production in Indian and Freshwater ecosystem at primary producers level with Emphasis on Macrophysics. In: Glimpses of ecology. (Prof. Mishra, R. Commenporation Volume). (Ed. Singh J. Saw Gopal B) International scientific publication Jaipur 30 2004, India 349-376 pp.
3. Siddiqui, E.n. Singh, N.K. Bilgrami, K.S. and Dutta Munshi, J.S. (1980) :Algae of the river Ganga India chlorococcales, Nova Headwigia 32 789-796.
4. Bhatnagar, G.K. 1973 :On collection of fish from Bhakra reservoir, Sutlaj river and associated wates. India J.Fish Soc. India 5:134-136.
5. Motwani, M.P. and Sahagal B.N. (1974) :Fish fauna of Sharda Sagar reservoir in Pilibhit, U.P. and some recommendations for development of reservoir in fisheries Ind. J. Fish 21 (1): 109-119.
6. Abraham, Dr. (Mrs.) Shshila, K (1980):Ecology of vellayani lake fish fauna and physico-chemical conditions. Indian J. 2001. Vol. 7. No.-1, 119-127.