

Biodiversity of fish fauna of Kishanpura lake, Indore (M.P.)

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Abstract

The water quality of Kishanpura lake is assessed in order to estimate its potency for fish culture. The present study deals with fish species diversity. During the study period 23 species of fishes were recorded, which belong to five orders, nine families and 17 genera. The present study was carried out at Kishanpura lake during Apr 2005- Jan 2006.

Introduction

Indian fishes constitutes an important sectors of national economy for various reasons. India vast potential for development of inland fisheries. The fish population of our aquatic eco system plays a significant role in the human economy. Approximately 21, 723 fishes are known to science of which 40% live in fresh water, that too majority of them in tropics. Potentiality of inland resources of India are the richest in the world. Fishes of Inland water of the Indian subcontinent have been studied since a century (Hamilton-Buchanan (1822), Day (1878), Hora (1920-59), Dutta (1970), Jayaram (1991), Jhingran (1982), Nanda and Tiwari (2001). State of Madhya Pradesh is neglected in this record even through gross work of this aspect were made by Dubey and Mehra (1959), Gupta and Rao (1978), Rao *et al.*, (1988, 1991, 1993) and Sharma and Mudgal (2003).

No attempts has been made on Kishanpura lake in this regard, so far the first limnological studies in this lake has been conducted and details of fish biodiversity were recorded which will be helpful in the development, management and conservation of fish species diversity in the lake. In our present study an attempt is made to document the fish fauna in the Kishanpura lake during May 2005-Jan 2006. There is no earlier study on fish species diversity of this lake.

Material and methods

Sampling of fish has been made for every month through out the study period, collection of fish was made directly from the fisher men during the time of fishing. Two types of fish nets were used like Gillnet, Cast net. The fish were brought to the laboratory and preserved in 5% formaldehyde solution, after noting the colours and general pigmentation of fishes. The identification of the fishes was done with the help of standard keys and books (Jayaram 1994, Shrivastava 1998, Jhingran 1991 and Day 1958).

Description of Study Area

The Kishanpura lake is situated at near Chhota Betma on Indore -Dhar road at 22 KM. from Indore. The lake is located at Latitude 22°-40'-30" and Longitude 75°-39'-00". The neighboring areas of the lake are agricultural fields the main source of water of this lake is rainy water. Suitability of water body for fish culture depends upon its Physico-Chemical characteristics, hence the important physico-chemical characters of water from the lake were analyzed (Table no.01).

Results and Discussion

The result of our study confirms the occurrence of 23 species belonging to the five orders, out of the five orders Cypriniformes was dominate with 13 species followed by Siluriformeis with four species, Order Perciformes with three species and order osteoglossiformes, Mastacembelidae and Beloniformes represented by one species. The change in the composition of fish assemblage often indicated a variation in the water quality parameters such as pH, temperature, dissolve oxygen, hardness etc.

Table: 1:Physico-chemical Parameters of Kishanpura Lake Indore.

Parameters	Results
Temperature	27°C
pH	6.89
Transparency	68 cm.
Dissolved Oxygen	7.06 mg/l
Total Alkalinity	2.56 mg/l
Hardness	120 mg/l
Chloride 0.0031 mg/ltr.	Calcium 4.49 mg/l
Phosphate	0.49 mg/l

Table:2 -Fish Species diversity of Kishanpura lake Indore.

Order - Cypriniformes

Family - Cyprinidae

Genus and species -

- 1 *Puntus ticto*
- 2 *Punctus sarana*
- 3 *Catla catla*
- 4 *C rrrhinus mrigala*
- 5 *Labeo rohita*
- 6 *Labeo calbasu*
- 7 *Labeo gonia*
- 8 *Cyprius carpio*
- 9 *Danio malavaricus*
- 10 *Rasboradanicolius*

Family - Cobitinae

Genus and species -

- 1 *Noemachilius aureus*
- 2 *Leptidocephalus guntea*

Family - Siluridae

Genus and species -

- 1 *Wallago attu*

Order - Osteoglossiformes

Family - Notopteridae

Genus and species - *1 Notopterus notopterus*

Order - Siluriformes

Family - Bagridae

Genus and species - *1 Mystus seenghala*

2 Mystus bleekeri

Family - Claridae

Genus and species - *1 Clarias botrachus*

Family - Heteropneustidae

Genus and species - *1 Heteropneustes fossilis*

Order - Perciformes

Family - Channidae

Genus and species - *1 Channa punctatus*

2 Channa striatus

3 Channa gachua

Family - Mastacembelidae

Genus and species - *1 Mastacembalus armatus.*

Table No.3 : Fish Species diversity of Kishanpura lake Indore.

S.No.	Scientific name of fish	Local name or Vernacular name	Status
1.	<i>Rasbora daniconius</i>	Ajara	++
2.	<i>Puntius ticto</i>	Puthf	+++
3.	<i>Puntius sarana</i>	Sherni	++
4.	<i>Catla catla</i>	Catla	+++
5.	<i>Cirrhinus mrigala</i>	Mrigal	+++
6.	<i>Labeo rohita</i>	Rohu	+++
7.	<i>Labeo calbasu</i>	Kalot	+++
8.	<i>Labeo gonius</i>	Sarsi	++
9.	<i>Cyprinus carpio</i>	Kangi	+
10.	<i>Danio malabaricus</i>	-	+
11.	<i>Notopterus notopterus</i>	Patola	++
12.	<i>Mystus seenghala</i>	Singhara	+++
13.	<i>Mystus bleekeri</i>	-	++
14.	<i>Heteropneustes fossilis</i>	Singhi	+++
15.	<i>Clarias botrachus</i>	Mangur	++
16.	<i>Channa punctatus</i>	Kabra	++
17.	<i>Channa striatus</i>	Girai	++
18.	<i>Channa gachua</i>	Giral	+
19.	<i>Mastacembalus armatus</i>	Bam	+
20.	<i>Noemachilus aureus</i>	-	+
21.	<i>Leidocephalus guntea</i>	-	+
22.	<i>Wallago attu</i>	Padhni	++
23.	<i>Xenentodon cancila</i>	Sooja	+

V Order - Beloniformes

Family - Belontiidae

Genus and species -

I Xenentodon cancila

The Change in the composition of a fish assemblage often indicate a variation in the water quality parameters. Such as pH, Temp., DO and Nutrient (Jhingran, 1982; Vijay, K. and R. Paul, 1990). Due to more fecundity of major crop and suitable environmental condition these exists a relatively higher No. of cypriniformes. Such type of observation was reported by Talwar and Jhingran (1991) and Das and Chand (2003) Patnak and Mudgal (2005) Indian fishes.

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References

- A.P.H.A., 1998, Standard method for the examination of water and waste water, American Public Health Association, 20th Ed. New York.
- Dubey, G.P. and Mehra, R.K., 1993 Fish and Fisheries of Chambal river. *Proc. All India Zool. Congr.* 1(2) 647-665.
- Das, S.K. and Chand B.K., 2003. Limnology and biodiversity of ichthyofauna in a pond of southern orissa India. *J. Ecotox, ENV. Monit.* 13(2): 97-102.
- Day F., 1958. The fishes of India, William Dawson and sons, Ltd, London, *Vol. I.P. 777 and II P198.*
- Gupta, D.R. and Rao, K.S., 1978. Experimental studies on tagging as an effective technique in ageing and fish growth on Gandhisagar reservoir, *Bioresearch.* 2(182); 51-18.
- Hamilton - Bachanan, 1822. An account of the fishes found in the river Ganges and its branches. Edinburg & London. Viii #405 PP 39 P.Datta, A. K. 1970 fauna of Rajasthan. India part-7 fishes *Rec. Zoo. Survey India* 62.
- Jhingran, V.G., 1982. Fish and Fisheries of India Hindustan Pub. Corporation India
- Jayaran, K.C., 1994. the fresh water fishes of India Pakistan, Bangladesh, Burma and Srilanka, *Zoological Survey of India*, Calcutta P. 475.
- Lagler, K.F., 1956. Freshwater fishery biology, 2nd & W.M.C. Brown Co. Durbungue, 10 wa.
- Natrajan, A.V., 1985, Potential and prospects of inland fisheries in India. In harvest and post harvest technology of fish. Society of fisheries technologists (India) Cochin. P.16-18.
- Nanda, S.N. and Tiwari, J.N., 2001. A survey of fish fauna in the Sambalpur- Hirakund-Burta region, Orissa. *Environmental and pollution*, 8 (I), P-43-44.
- Pathak, S. K. and Mudgal L.K., 2005, Limnology and Biodiversity of fish fauna in Virla Reservior M.P. (India), *Environment conservation Journal* 6(1) 41-45.

- Rema Devi, K. Indra, 1999. On collection of fish fauna from Chennai, Chenglepur and Thiruvallur districts of Tamil Nadu Rec. Zool. Survey of India 97 part-4:151-166.
- Srivastava, G.J., 1980 Fishes of Eastern Utter Pradesh. Vishwavidyalya Prakashan, Varansi. P. 207.
- Sharma, A. and Mudgal L.K. 2004. Fish Diversity of Yeshwant Sagar Reservoir Indore (M.P.) *Him J. Env. Zool.*, Vol. 18 (2) P. 117-119.
- Singh, D.F., 1993 Fish diversity of the western Ghats. *Draft report, SACON.*
- Talwar, P.K. and Jinghran A.G., 1991 Inland fishes of India and adjacent countries. Oxford & 1 BH publishing Co. Pvt. Ltd. New Delhi. 1158.
- Vijay Kumar, K. and Paul, R., 1990. Physico chemical studies on the Bhosga reservoir in Gulberga (Karnataka) *ECO. Biol.* 2:332-335.