Study on the Fish Species Diversity of Gorama Dam Hanumana at Rewa (M.P.), India

Jitendra Kumar Patel, Dr.Satanand Patel,
***Dr.Sandeep Kumar Shukla and *Dr.Umesh Prasad Patel**
Department of Zoology
GOVT .S. G. S. P. G. College Sidhi (M.P.)
***Govt. Maharaja P.G. College Chhatarpur (M.P.)**

***Abstract*— Fishes are not useful as source of food, medicine, and economic value but it also plays a crucial role in the second tropic level of the aquatic ecosystem. Fish diversity of Gorama Dam were studied during July2012 to June 2013. The fish diversity is correlated with biological and various physico-chemical parameters that regulate the productivity and distribution of different species of the fishes. The fish population is abundant and majority of fishes are exploited for human consumption. In present study, attempts have been made to collect, classify and identify fish of Gorama Dam. The survey indicated that species of fish were found in Dam. The major fish abundance was noticed viz. major carps, minor carps and cat fishes. The several species of fish belonging order Clupiformes, Cypriniformes, Beloniformes, Opiocephaliformes, Mastacambelliformes, Siluriformes and Perciformes. In which maximum 14 species belonging to the order Cypriniformes. Some species of fishes like Cirrihinus, Colisa fasciatus, Labeo bata, etc. showed a declining trend in this stretch. The fish species diversity was decreasing. Diversity Index was lowest 0.53 in March and was highest 0.98 in October in the year 2012- 2013. The main reasons behind the decline of species are habitat destruction, introduction of exotic species, pollution and over fishing. An urgent need exists for studying the life history traits and demography of the most important threatened fishes, as lack of information on these aspects have significantly affected conservation efforts.**

***Keywords*— Gorama Dam, Fish species diversity**

I. INTRODUCTION

Due to irrational fishing practices, environmental aberrations like reduction in water volume, increased sedimentation, water abstraction and pollution etc. are the major factors responsible for declining the aquatic diversity. Several researchers like Kottalt (1996), Molur (1998), Kataria et. al. (1996), Sakhare (2006), Bhakta and Bandhyopadhyay (2008), Chaudhuri (2010), Thirumala et al (2011); etc studied the fish diversity.

All human activities is underpinned by biological resources. We exploit plants and animals for food and raw materials at different levels of sophistication in different societies. Fishes are directly related with human and used as food. During the investigation perineal water resource Gorama Dam Hanumana tehsil of Rewa district were selected to study the threat assessment of ichthyofauna of this region. The maximum 30 species of fishes were Gorama dam respectively. Various types of fishing gears and other methods are used for fish hunting. During the fishing, only those fishes are collected which are beneficial. Rest of fishes was thrown away without knowing their ecological importance. In the present study an attempt was made to assess the name of fishes which are decreasing. The assessment is based on the information's gathered from local persons, fishermen and self-observations. The present study was carries out in Rewa city (M.P.). The area is situated between latitude $24^0 18'$ & $25^0 12'$ North and longitude $81^0 2'$ & $82^0 18'$ East. The district is situated of the Area varies 440 M to 811M above between sea level.

II. MATERIAL AND METHODS

For the study of Ichthyofauna of Gorama Dam Rewa District, five stations were selected on the basis of their geographical distribution, nature of water resource for regular sample collections. The fish samples were collected throughout the one year. Gorama dam is the largest dam of this area constructed at the confluence of two median sized rivers. The dam is located on the right hand side of NH-7 in Hanumana Tahsil of Rewa District at 24º43-13" longitude and 82°2-55"latitude. The area of dam is about 2067 acres and water storage capacity is about 392.66 cubic meter.These water resources are: Fish species were collected with the help of local fishermen and the tribal people at various locations. The specimens were preserved in 5% formalin, morphometry of fishes with the helped of tools and identification of the fish was done with the help of literature10-11. Species Diversity of fishes are measured by the following methods-

$$\text{Species Diversity} = \frac{\text{No. of Species} \times 100}{\sqrt{\text{Total Number of individuals}}}$$

III. RESULTS AND DISCUSSION:

During the course of study, five sampling sites of Gorama Dam was selected. Data collected during the study period, from at the sampling centres was utilized to estimate the fish diversity in the dam. 30 Species of fish belonging to 6 orders and included under 12 families were collected in Gorama Dam (table-1). Perciformes contributed by 4 species, while rest species were from Clupiformes, Siluriformes and Mastacembleformes (1, 7, and 2 species respectively). Species Diversity The monthly species diversity of the fishes were recorded as: September 0.91, October 0.98, November 0.81, December 0.57, January 0.87, February 0.90, March 0.53, April 0.67, May 0.67, June 0.68, July 0.53, August 0.54 (table- 2 and Graph-1). The detailed monitoring and thorough comparisons of old collection and observations data with more recent ones showed that many species of fish in the Gorama Dam are declining and some have been disappeared. The present study reveals that at least 30 species, in comparison to the study of 4 are at decline and can be considered as threatened species or endangered species

TABLE-I

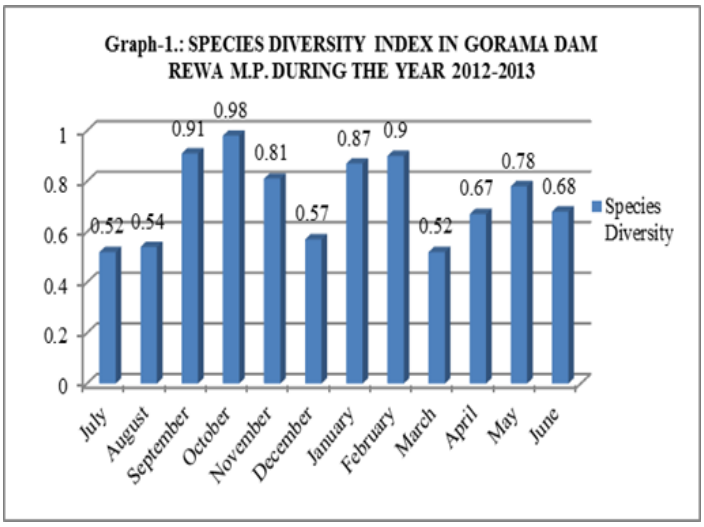
List of fishes recorded in Gorama Dam during July 2012 to June 2013

Taxonomic position					
S.No.	**Order**	**Family**	**Genus**	**Species**	**Local Name**
1.	Cyperiniformes	Cyprinidae	*Labeo*	*rohita*	*Rohu*
2.			*Labeo*	*calbasu*	Karauchhar
3.			*Labeo*	*bonga*	Bhagan
4.			*Labeo*	*gonius*	Kurshi
5.			*Labeo*	*Bata*	Patherchatti, Bata
6.			*Cirrhinus*	*mrigala*	Mrigal
7.			*Cirrhinus*	*Reba*	Gotariya
8.			*Cyprinus*	*carpio*	Common carp
9.			*Catla*	*Catla*	Catla
10.			*Puntius*	*sarana*	Pardi
11.			*Puntius*	*Ticto*	Barber
12.			*Ctenopharyngdon*	*Idela*	Grass carp
13.		Sisoridae	*Bagrius*	*bagarius*	Labhar
14.		Bagridae	*Rita*	*Rita*	Raiya
15.	Siluriformes	Siluridae	*Wallago*	*Attu*	Padin
16.			*Ompok*	*bimaculatus*	Jal Kapoor
17.		*Bimaculatus*	*Mystus*	*seennghala*	Tengara
18.			*Mystus*	*vittatus*	Tengara
19.			*Mystus*	*Aor*	Tengara
20.			*Mystus*	*cavasius*	Tengara
21.		Clariidae	*Clarias*	*batrachus*	Magur
22.	Preciformis	Chanidae	*Channa*	*marulius*	Saur
23.			*Channa*	*punctatus*	Saur
24.		Heteropneustidae	*Heteropneustus*	*fossillis*	Shinghi
25.		Anabantidae	*Anabas*	*testudineus*	Kaoi
26.	Clupeiformes	Notopteridae	*Notopterus*	*notopterus*	Patola

27.	Perciformes	Nandidae	*Notopterus*	*chitala*	Mop
28.			*Nandus*	*nandus*	Chakdi
29.	Mastcabeliformes	Mastacembelidae	*Mastacembalus*	*armatus*	Balm
30.			*Mastacembelus*	*pancalus*	Bam, Nidoh

TABLE-II
Species Diversity of Fishes in Gorama Dam (2012- 13)

Months	Species Diversity
July	0.53 (Low Diversity)
August	0.54
September	0.91
October	0.98 (high Diversity)
November	0.81
December	0.57
January	0.87
February	0.90
March	0.53 (Low Diversity)
April	0.67
May	0.78
June	0.68



IV. CONCLUSION:

The results indicate that reduction in the overall abundance of fish fauna in recovery compared to reference is a clear indication of the effect of habit destruction. Simultaneously, it was also revealed that the river has not recovered in the studied stretch. There is definitely some kind of disturbances in the river which is causing reduction in the abundance of fish fauna. The disturbances visibly seen were local fish harvest by traditional means of fish catch or unseen means like illegal use of electrical appliances or poisoning of the fish fauna using plants herb extraction by the local people. An urgent need exists for studying the life history traits and demography of the most important threatened fishes, as lack of information on these aspects have significantly affected conservation efforts.

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