



Short Communication

Study on the Fish Species Diversity of the River Narmada in Western Zone

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Abstract

Fish diversity of river Narmada were studied during September 2006 to August 2007. After construction of Sardar Sarovar Dam on river Narmada a major part of the running water is being converted in to stagnant water. The fish fauna were studied during construction of dam on the river Narmada. 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 river Narmada in its Western Zone. The study operated on a stretch of the river approximately 15 km from Piplud to Jangerwa from September 2006 to August 2007. The survey indicated that 51 species of fish were found in this zone of the river. The major fish abundance was noticed viz. major carps, minor carps and cat fishes. The several species of fish belonging order Clupiformes, Cypriniformes, Beloniformes, Ophiocephaliformes, Mastacembelliformes, Siluriformes and Perciformes. In which maximum 37 species belonging to the order Cypriniformes. Some species of fishes like *Cirrihinus cirrhosa*, *Aspidoparia jaya*, *Colisa fasciatus*, *Labeo bata*, *Oreochromis mossambicus*, *Osteobrama cotio* 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 1 in October in the year 2006- 2007. 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.

Keyword: Fish fauna, diversity, river Narmada, western zone.

Introduction

The Narmada River is the fifth longest in India. It's already been dammed in several places but the main dam, the Sardar Sarovar is closet to the Sea. In the river Narmada carps should be in major quantity but in spite of that data's are reflecting that the No. of cat fish are increasing rather than the carps. Therefore fish species and Ecological condition of our area is being changing. No. of species are decreasing it mean's species diversity in the descending order. The first information regarding the ichthyofaunal assemblage of river Narmada is credited to ¹, who recorded 40 species of fish. *Hilsa* migration in Narmada which generally commenced in July when the first flood occurred². 77 species have recorded³. 84 species belonging to 45 genera⁴. Many workers have also studied the fish fauna of river Narmada⁵⁻⁸. 150 species belonging to 26 families⁹. In spite of this rich diversity, literature concerning numerical studies of fish diversity is scarce.

Material and Methods

For the present study 14th stations were selected at the bank of river Narmada, Satmatra, Eklera, Kasrawad, Bagud, Piplud, Bhilkheda, Pendra, Nangaon, Pichhodi, Kathoda, Sondul,

Jangarwa, Chikhaldia and Koteswar in the stretch of 15 k.s. the period of investigation were one year from September 2006 to August 2007.

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-

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

Results and Discussion

Data collected during the study period, from at the sampling centers was utilized to estimate the fish diversity in the river Narmada. 51 Species of fish belonging to 7 orders and included under 15 families were collected in Narmada (table-1). Perciformes contributed by 4 species, while ophiocephaliformes came thire in contribution and counted 3 species and rest species were from Clupiformes, Beloniformes, Siluriformes and Mastacembelliformes (3,1,1, and 2 species respectively).

The monthly species diversity of the fishes were recorded as: September 0.91, October 1, November 0.81, December 0.57, January 0.81, February 0.89, March 0.53, April 0.67, May 0.78, June 0.67, July 0.53, August 0.54 (table- 2). The detailed monitoring and thorough comparisons of old collection and observations data with more recent ones showed that many species of fish in the river Narmada are declining and some have been disappeared . The present study reveals that at least 39 species, in comparison to the study of ⁴ are at decline and can be considered as threatened species or endangered species. The threatened Ichthyofauna of river Narmada in Western Zone were studied⁸.

Table-1
List of fishes recorded in River Narmada during Sep. 2006 to Aug.2007.

ORDER	FAMILY	GENERA
Cypriniformes	Cyprinidae	<i>Catla catla</i>
		<i>Cirrihinus mrigala</i>
		<i>Labeo rohita</i>
		<i>Aspidoparia jaya</i>
		<i>Cirrihinus cirrhosa</i>
		<i>Cirrihinus reba</i>
		<i>Crossochelius latius</i>
		<i>Discognathus lamta</i>
		<i>Labeo calbasu</i>
		<i>Labeo fimbriatus</i>
		<i>Labeo bata</i>
		<i>Labeo gonius</i>
		<i>Nemacheilus botia</i>
		<i>Oreichthys cosuatis</i>
		<i>Osteobrama cotio</i>
		<i>Puntius chola</i>
		<i>Puntius sarana</i>
		<i>Puntius sophorae</i>
		<i>Tor putitora</i>
		<i>Tor tor</i>
		<i>Clarius batrachus</i>
		<i>Mystus aor</i>
		<i>Mystus seenghala</i>
		<i>Oxygaster bacaila</i>
		<i>Puntius ticto</i>
		<i>Ctenopharygdon idella</i>
		<i>Cyprinus carpio</i>
		<i>Hypothalmicthys moltrix</i>
	Siluridae	<i>Ompok bimaculatus</i>
		<i>Ompok pabo</i>
		<i>Wallago attu</i>
	Bagridae	<i>Mystus bleekeri</i>
		<i>Mystus cavasius</i>
		<i>Rita rita</i>
		<i>Rita pavimentata</i>
	Schielbeidae	<i>Clupisoma garua</i>

	Heteropneustidae	<i>Heteropneustes fossilis</i>
Clupiformes	Clupeidae	<i>Gudusia chopra</i>
	Notopteridae	<i>Notopterus notopterus</i>
		<i>Notopterus chitala</i>
Beloniformes	Belonidae	<i>Xenthodon cancila</i>
Ophiocephaliformes	Ophiocephalidae	<i>Channa marulius</i>
		<i>Channa punctatus</i>
		<i>Channa striatus</i>
Perciformes	Centropomidae	<i>Chanda nama</i>
	Nandidae	<i>Nandus nandus</i>
	Gobioidae	<i>Glossogobius giuris</i>
	Anabantidae	<i>Colisa faciatus</i>
Mastacembaleformes	Mastacembelidae	<i>Mastacembelus armatus</i>
		<i>Mastacembelus pancalus</i>
Siluriformes	Pangasiidae	<i>Pungasius pangasius</i>

Table-2
Specie Diversity of Fishes in River Narmada (2006- 07)

Month	Species Diversity
September	0.91
October	1 (high diversity)
November	0.81
December	0.57
January	0.81
February	0.89
March	0.53 (low diversity)
April	0.67
May	0.78
June	0.67
July	0.53 (low diversity)
August	0.54

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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