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Survey and Conservation of Fish Diversity of Satpura Dam of Sarni of Betul District (M.P.)

M.S. Solanki
Assistant Professor,
Deptt. of Zoology,
Govt. Girls College,
Khargone, (M.P.)

Mahesh Tharani
Assistant Professor,
Deptt. of Zoology,
S.S.L. Jain, P.G. College,
Vidisha.

Vaishali Tharani
Assistant Professor,
Deptt. of Zoology,
Degree College,
Bhopal

Abstract

Betul district is one of the richest faunal areas with a wide range of aquatic habitat in the form of hill steam, rivers ponds and reservoirs having good number of species diversity. The present investigation was under taken to study the fish diversity of Satpura dam of Betul district. About 41 fish species were identified in this dam, which was represented by 16 families and 32 genera. The family cyprinidae dominated the other groups of fish in the river. In addition to the above, trophic structure indicated dominance of herbivore with 16 fish species followed by carnivore 15 species and omnivore with 7 species. The fish species were also divided into different groups like major carps, catfishes, eels, feather back etc. Rapid deforestation, sewage discharge, mining activities, thermal activities, anthropogenic activities and irrational fishing practices over the year, this aquatic diversity is on the way of decline. It is necessary to protect biodiversity in their natural habitat.

Keywords: Fish Diversity, Conservation Status, Species, Satpura Dam.

Introduction

Water is a quite essential natural element for all kinds of life. Rivers play a significant role because they serve the purpose of various human activities, such as bathing, disposal of sewage, irrigation, electricity generation, industrial production and disposal of industrial waste, etc. During the process of cultural evolution, natural resources have been brutally exploited by man. The losses in agriculture, the gain in industrialization and population explosion have stressed the natural resources. Rivers are major habitats for large number of aquatic animals. These animals use the river banks for various purposes like basking, resting and breeding. Simultaneously, these river banks are also used for agriculture purposes. The extensive use of agriculture on the habitat of aquatic animals has an adverse impact on the populations.

Freshwater ecosystem and their resources are an important part of human life and activity, and health of those freshwater ecosystems is visible in the wellbeing of the fish assemblage the support. Minns (1989) reported that in lotic environment, the diversity, community structure and species assemblages are influenced by various biotic and abiotic variables. In present times, biological diversity has assumed great significance, especially after the earth summit. The ichthyofanunal diversity refers to verity of fish species. Besides this, fisheries are emerging as an important economic activity globally. Fisheries play an important role in the socio-economic development of the country, as it is a valuable source of livelihood for a huge section of economically backward population. The study and conservation of ichthyofaunal diversity is not merely a topic of scientific quest as it has great economic and moral significance thereby having relevance on the survival of humanity on this earth.

The present study, conducted in satpura reservoirs in Sarni. It is constricted on river Tawa in Sarni of Betul district. The fish diversity is facing serious threats as reported by many workers. Some disturbing trends are already discernible in fish diversity and fisheries of Satpura reservoir. As a results, a number of fish species either have become extinct or have reached at the of extinction.

Material and Method

The present study, conducted in satpura reservoirs in Sarni. It is constricted on river Tawa in Sarni of Betul district. During the course of study different sampling stations it involved collection of fishes either with the help of fishermen using indigenous fishing methods or were purchased from the fishermen on the spot and the related local fish markets. The specimens were preserved in 5% formalin and brought to the laboratory for

further studies. The study has been carried out over a period of Februry 2011to Jan. 2013. Fishes were identified by using standard taxonomic keys viz. Fishes of India (Day 1958) and Fishes of eastern U.P. and Bihar (Gopal ji Shrivastva). The species status of the collected fish was identified.

Results and Discussion

The present study observed that 41 fish species belonging to 32 genera, 16 families and 6 orders so for been identified (Table 1). Order wise distribution shows Cypriniformes represents 07 families 22 genera and 28 species out of them family Cyprinidae represent 13 genera and 17 species, family Bagridae represents 1 genus and 4 species, family Cobitidae and siluridae represents 2 genera and 2 species each while family Schilbeidae, Heteropneustidae and Claridae represents 1 genus and 1 species. . Order Perciformes represents 4 families, 4 genera and 5 species. Out of them family Centropomidae represents 1 genera and 2 species family Nandidae, Cichlidae and Gobiidae represent 1 genus and 1 species each. Order Ophiocephaliformes represents only one family Ophiocephalidae with 1 genus and 3 species. Order Clupeiformes represents two family Clupeidae and Notopteridae both represent one genus and one species Order Mastacembeleformes represent one family Mastacembelidae respectively with one genus and one species.

Trophic structure indicated dominance of herbivore with 16 fish species followed by carnivore 15 species and omnivore with 7 species while one species was not evaluated.. As per (IUCN 2010) red data book out of 39 species 4 belonging to near threatened (NT) category, 31 belonging to least concern (LC), 1belonging to vulnerable (VU) and 3 species was not evaluated.

Choudhary (1977) observed 39 species of Gandhi Sagar reservoir. Singh (1993) observed 84 species from Sardar sarovar dam of Narmada River. Saxena (1997) reported 42 species from upstream region and 35 species from down stream region in river satluj. Solanki et.al, (2010) reported 29 species from Tapti river of Betul. district Rapid deforestation, sewage discharge, mining activities, thermal Activities, anthropogenic activities and irrational fishing practices over the year, this aquatic diversity is on the way of decline. Water of Sarni reservoir is utilized for satpura thermal power plant & cooling its various systems, as a result it receives fly ash and bottom ash (Bose, et al.) The present study observed that 04 fish species are under threatened category and also indicates that the water of the reservoir is not favorable for fish health. Therefore, adequate conservation is essential to protect fish species.

Table:-1 Fish species their feeding guild and conservation status of Satpura Reservoir in Sarni of Betul District

Order	Family	Genera	Feeding guiled	IUCN cons. status
Cypriniformes	Cyprinidae	*Barilus bendelisis (Ham)*	C	LC
		Catla catla (Ham)	H	LC
		Cirrhinus mrigala(Ham)	O	LC
		Cirrinus carpio (Linnaeus)	H	VU
		Cetnopharyngodon idella	H	NE
		Hypophthalmichthys molitrix	H	NT
		Danio devario (Ham.)	H	LC
		Garra gotyla (Gray)	H	NE
		Lebeo calbause (Ham)	O	LC
		Labeo dero (Ham)	H	LC
		Labeo gonius (Ham)	H	LC
		Labeo rohita (Ham)	H	LC
		Oxygaster bacaila (Ham)	O	LC
		Puntius ticto (Ham)	H	LC
		Puntius sarana (Ham)	H	LC
		Rasbora daniconius(Ham)	H	LC
		Tor tor (Ham)	H	NT
	Cobitidae	*Lepidocephalichthys guntea (Ham)*	H	LC
		Nemacheilus denisunii(Day)	H	LC

	Siluridae	*Ompok bimaaculatus (Bloch)*	C	NT
		Wallago attu (Bl. & Schn.)	C	NT
	Bagridae	*Mystus(m) bleekeri (Day)*	C	LC
		Mystus(m) cacasius (Ham)	C	LC
		Mystus aor (Ham)	C	LC
		Mystus(O) seenghala (sykes)	C	LC
		Rita rita(Ham.)	C	NE
	Schilbeidae	*Clupisoma garua (Ham)*	C	LC
	Heteropneustidae	*Heteropnusts fossils (Bloch)*	C	LC
	Clariidae	*Clarias batrachus (Linn)*	C	LC
Ophiocephaliformes	Ophiocephalidae	*Channa gachua (Ham)*	C	LC
		Channa marulius (Ham)	C	LC
		Channa punctatus (Bl)	C	LC
Clupeiformes	Clupeidae	*Gadusiachapra(Ham.)*	-	NE
	Notopteridae	*Notopterus notopterus (pallas)*	O	LC
Perciformes	Centropomidae	*Chanda nama (Ham)*	O	LC
		Chanda ranga (Ham)	O	LC
	Nandidae	*Badis badis (Ham)*	O	LC
	Cichlidae	*Tilapia mossabica (Peters)*	H	LC
	Gobiidae	*Glossogobius giuris (Ham)*	O	NE
Mastacembeleformes	Mastacembelida	*Mastacembelus armatus (Lacepede)*	C	LC

Feeding guiled (H-Herbivore, O-Omnivore and C-Carnivore) Odyuo and Nagesh 2011.
IUCN conservation categories (LC-Least Concern, VU-Vulnerable, NE-Not evaluated and NT- Near Threatened)

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