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FISH BIODIVERSITY OFMANDAVI WATER RESERVOIR OFDISTRICT CHHINDWARA (M.P.)INDIA

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ABSTRACT: The Fish diversity of water reservoir essentially represents the fish faunal diversity and their abundance. Water reservoirs also play an important role to conserve a rich variety of fish species which supports the commercial fisheries. The country is rich in diversity of such important group of animals. Keeping in the view, the diversity of fish fauna of the Mandavi water reservoir, Chhindwara District, Madhya Pradesh, Central India has been studied from the period January 2018 to December 2018. The present study was conducted to explore the fish fauna of Mandavi water reservoir. In the study 29 fish species were recorded under 8 orders and 12 families, 19genus. 10 species of Cypriniformes, 8 species of Siluriformes, 1 species of Perciformes, 2 species of Mastacembeliformes, 1 species ofClupeiformes, 2 species of Osteoglossiformes, 4 species of Periformes, 1 speciesof Ciprinodontiformes have been recorded. The Cyprinidae family is dominant. The pollution is the major threat for fish diversity of the Mandavi water reservoir. According to the study 5 species are under lower risk near threatened its conservation steps of fish fauna in the Mandavi water reservoir have also been suggested.

Key words: Fish Diversity, Fresh Water Fishes, oligotrophic, water reservoir
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INTRODUCTION:

Fish diversity depends on geographical position, varied aquatic ecological condition, health of aquatic bodies, optimum exploitation of the commercial fish species, enforcement of laws, rules and regulations, and their implementation and fish habitat restoration programs. Rich biodiversity of any ecosystem is absolutely essential in order to maintain their stability for proper functioning of their food chains. Fish constitute almost half of the total number of vertebrates in the world 21,723 living species of fish out of 39,900 species of vertebrates are so for recorded. Day (1889) described 1418 species of fish under 342 genera from the British India. The Indian fish population represents 11.72% of species, 23.96% of genera, 57% of families and 80% of the global fishes. Out of the 2500 species so far listed, 73 (3.32%) belong to the cold freshwater regime, 544 (24.73%) to the warm fresh waters domain, 143 (6.50%) to the brackish waters and 1440 (65.45%) to the marine ecosystem. There are about 2,500 species of fishes, of which 930 freshwater and 1,570 marine, are estimated. Fishes have been found to exhibit enormous diversity in there morphology, habitat and their biology. India is one of them mega-biodiversity countries in the world and occupying ninth position in term of freshwater biodiversity. Fish diversity of undivided India and various Indian states has been described by many scientists. According to Zoological survey of India, fresh water fish resources are rivers, and ponds, lakes, streams, canals, reservoirs & paddy culture field of

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Madhya Pradesh, reported 172 different species of fishes. The north eastern region of India was identified as a biodiversity hotspot by the World Conservation Monitoring Centre (WCMC, 1998).

Mandavi dam is constructed in 2001, for irrigation purpose on the local river Jam by WRD, Govt. of M. P. in Pandhurna tehsil of ChhindwaraDistt., located at 21^0 39'53" N latitude and 78^0 24' 45" E longitude with the catchment area of 10.24 km^2. Maximum depth of the pond was found to be 16.5 m, whereas average depth was 16.50±1.08 m during the period of study. The Mandavi water reservoir is being slightly used for fisheries and irrigation through many canals.The peoples are catching, selling and feeding the fishes from the pond. The fish diversity of the reservoir is still unexplored and not documented. A total of 29 species were recorded belonging to 19 genera, 12 families and 8 orders.

Very rich agricultural activities have been situated in surround areas of water reservior and all agricultural wastes including Pesticidal residues, organic wastes and other pollutants were disposed by man and runoff water in rainy season and during irrigation in the reservoir.

MATARIAL AND METHOD:

The Mandavi water reservoir situated at Mandavi village, district Chhindwara (M.P.) has been selected for the study. The studies were conducted during January 2014 to December 2015.The Fish species were collected twice in every session using hand-net, hooks, hook net, automatic rod, dragon nets, cast net, gill net, and drag net taking the help of fishermen. Fishes after collection were euthanized kindly and preserved with 10% dilute formalin solution. The larger fishes were injected with formalin in their abdomen and other parts of the body to avoid bacterial contamination. The fish species were identified up to species level by using the provided by Day F. (1889), The fauna of a British India, Jayram K.C. (1999), The fresh water fishes of India, Talwar,P.K.&Jhingran, A.G. (1991), Inland fishes of India and Adjacent countries, Mishra,K.S. (1962), An aid to the identification of the common commercial fishesof India and Pakistan.

STUDY SITE:

The estimate terrain elevation above sea level is 481 m. Pandhurna town (Nagerpalika) District Chhindwara occupying almost half of Satpura plateau. The fishes were collected from Mandavi water reservoir. Total water body was divided into four sampling zones covering all representative habitats of the reservoir.

OBSERVATION:

In every session we find the fish species from every site in the water reservoir. The fish species we have collected are as followed in the table showing IUCN Red List categories of identified fishes.International Union for Conservation of Nature and Natural Resources (IUCN), established in 1963, set a standard for global species listing and conservation assessment efforts.

S.N.	Order	Family	Genus	Species	IUCN Cat.
I	Clupeiformes	Clupeidae	Gudusia Flower	1. Gudusiachapra (Hum.)	LC
II	Osteoglossiformes	Notopteridae	Notopterus	1. *Notopterusnotopterus*(Pallas)	LC
				2. *Nitopteruschitala*	NT
III	Cypriniformes	Cyprinidae	Cyprinus	1. *Cyprinuscarpio (Linnaeus)*	VU
			Ctenopharyngodon	1. *Ctenopharyngodonidellas*	NE
			CatlaValenciens	1. *Catlacatla(*Ham)	LC
			CirrhinusOken	1. *Cirrhinusmrigala(Ham)*	LC
			Labeocuvier(Ham)	1. *Labeorohita (Ham)*	LC
				2. *Labeocalbasu(Ham)*	LC
				3. *Labeobata*	LC
				4. *Labeogonius*	LC
			PunctiusHemilton Buchanan	1. *Punctiusticto(Ham)*	LC
			Chelanemintin	1. *Chela*	LC
IV	Siluriformes	Siluridae	Hypopthelmicthys	1. *Hypopthelmichthys molitrix*	NT
			OmpakLecepede	1. *Ompakbimaculatus(Bloch)*	NT
				2. *Ompakpabda*	NT
		Bagridae	MystusScopoli	1. *Mystusaor*	LC
				2. *Mystusseenghala*	LC
				3. *Mystustengara*	LC
		Claridae	CalriasGronovius	1. *Clariasbatrachus(Linnaeus)*	LC
		Sisoridae	BagariusBleeker	1. *Bagariusbagarius*	NT
V	Cyprinodontiformes	Belonidae	Xenentodonregan	1. *Xenentodoncancila*	LC
VI	Periformes	Ophiocephalidae	ChannaGronovius	1. *Channa punctatus*(Bloch)	LC
				2. *Channastriatus*	LC
				3. *Channamorulius*	LC
		Ambassidae	Chanda (Hemilton)	1. *Chandaranga*	LC
VII	Perciformes	Cichlidae	Tilapia	1. *Tilapia mojendica*	CR/VU
VIII	Mastacembeliformes	Mastacembeliformes	MastacembeluseGronovius	1. *Mastacembeluspancalus* (Ham)	LC
				2. *Mastacembelusarmatus*	LC

The following five criteria were considered in categorizing the status of population of a species by The Conservation Assessment Criteria followed at NBFGR, Lucknow. These are in conformity with Wildlife Institute of India categorization (2007) and IUCN (version 3.1).

A. Declining population (past, present and/or projected)
B. Geographic range size, and fragmentation, decline or fluctuations
C. Small population size and fragmentation, decline, or fluctuations
D. Very small population or very restricted distribution
E. Quantitative analysis of extinction risk (e.g., Population Viability Analysis).

A taxon is Endangered(EN) when the best available evidence indicates that it meets any of the criteria A to E for Endangered, and it is therefore considered to be facing a very high risk of extinction in the wild.A taxon is Vulnerable (VU) when the best available evidence indicates that it meets any of the criteria A to E for Vulnerable, and it is therefore considered to be facing a high risk of extinction in the wild.A taxon is Near Threatened (NT) when it has been evaluated against the criteria but does not qualify for Critically Endangered, Endangered or Vulnerable now, but is close to qualifying for or is likely to qualify for a threatened category in the near future.A taxon is Least Concern (LC) when it has been evaluated against the criteria and does not qualify for Critically Endangered, Endangered, Vulnerable or Near Threatened. Abundant taxa are included in this category.A taxon is Data Deficient (DD) when there is inadequate information to make a direct, or indirect, assessment of its risk of extinction based on its distribution and/or population status. When A is has not yet been evaluated against the criteria it is Not Evaluated (NE).

RESULTS AND DISCUSSION:

During the study a total 29 species of primary Fresh water fishes belonging to 8 orders, 12 families and 17 genera were recorded from the study sites. Number of species, their distribution in different study sites, and in the assemblage structure, cyprinid constituted the dominant group and the cyprinids represented in all study sites.The family Cyprinidae dominated with 10 species besides other families as Clupeidae with 1 species, Notopteridae with 2 species, Siluridae with 3 species, Bagridae with 3 species, Clariidae with 1 species, Sisoridae with 1 species, ., Belonidae with 1 species, Ophiocephalidae with 3 species, Ambassidae with 1 species, Cichlidae with 1 species Mastacembelidae with 2 species. Mastacembelusarmatus is an endangered and highly prized and much preferabel food fish. Tilapia mojendica, Labeobata and Mystusaor is abundant in all the study sites.Out of the 29 species, 2 species is vulnerable, 21 species are least concern, 5speceis are near threatened, one is not evalueated categories (Molur and Walker)**.**Theoligotrophic quality of reservoir is much favourable for increasing variety of fish populations.

The Mandavi water reservoir is situated at Mandavi village increasing much posibities of polution in the water of the pond and causes severe threats to fish diversity. The study revealed that many species in the study area are being threatened by various human activities, invasive alien species and destructive fishing. Here an accesive type of polution is noicepolution could affect the behaviour of aquatic life. Special attention is to be given for conservation of these fish diversity. The observations recorded in the present study may prove valuable as a reference for assessing the changes due to the environmental conditions in the locality, in future. The findings of the present study underline the importance of Mandavi water reservoir in providing preferred

abode for fishes.Many factors contribute to the loss of fish species and the degradation of their habitat.

CONCLUTION:

The information provided in this publication will serve as base line information on current status of freshwater fishes of India.The respective conservation authorities may initiate developing species and region specific strategies for conservation and sustainable utilization of fish genetic resources.

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