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Status of fish population from Chandrakeshar dam Dewas (M.P.)

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Abstract
Biodiversity is a broad term that refers to the morphological, physiological and genetic variation found among organisms. In this context, species diversity is also found in the individuals of fishes. Many of whose species live in fresh water, but at present time due to illegal hunting, water pollution, and use of huge amount of pesticide in crop production, global warming and urbanization. There has been a decrease in these fish species from previous years, which has resulted in a clean aquatic ecosystem. The sources are becoming unhealthy as a result of which the entire food chain will be affected. Study of fresh water fish diversity is important because species of fishes play crucial role in the economy of a country as well as health of aquatic ecosystem. Present study deals to fresh water fish species from Chandrakeshar dam in which my findings only 35 fish species were encountered which belongs to 20 genera, 05 Orders, and 13 families. The Cyprinidae family was dominant group by 17 fish species.

Keywords: Cyprinidae, biodiversity, pesticide, economy

Introduction
Water is the most important product and natural resource of nature which provide habitat for fishes and other aquatic animal in which they thrives. Fishes are the largest group among the vertebrates. They are an important proteinous and dainty food for human beings and other creatures. Fishes also used in fish meal, Fish ordure, folk medicines and several other products of commercially important value. For the thriving of fishes, normal range of Physico-chemical parameters of fresh water, variants of Food, well breeding sites is required.

Fishes manifest huge diversity in their morphology, in the habitats they occupy and in their biology. Unlike the other commonly recognized vertebrates, fishes are a heterogeneous grouping [11]. Fishes build up half of the total number of vertebrates in the world with about 32,000 species out of 64000 vertebrates, Of these relevant to 41% are freshwater species, 58 % are marine and only1 % are stayed in brackish water [12]. As expected marine fishes are the most diverse because salt water covers 70 % part of the earth. India is one of the mega biodiversity countries in the world and occupies the ninth position in terms of freshwater mega biodiversity [19]. In India there are 2,500 species of fishes of which 930 live in freshwater [14] and 1,570 are marine [17]. Adverse effect of environment, climatic changes, increment in water temperature, declining water level, dreadful use of pesticide and xenobiotic compound, routines dumping of city sweepings and embellish in the aquatic bodies affected the fisheries productivity hence decreasing the number of aquatic organism specially fish species in the aquatic ecosystem [24].

Many species of fishes are found in different water bodies like rivers, lakes, dams and reservoirs. Many workers have been worked on the fish fauna of different water bodies of Madhya Pradesh and various other parts of India [13, 20, 21], and at the same time [1, 25] have been studied fish diversity in Maharashtra, and [36] also carried out studies on fish diversity of Narmada in submergence area of Indira Sagar dam, apart these [29] worked on fish diversity of Nimar and Malwa region of central India.

Present study focused on the elucidation of fish diversity of Chandrakeshar dam of Malwa region of Madhya Pradesh.

Study Area

Chandrakeshar Dam is situated at about 20 Km from Satwas town of Dewas District of Madhya Pradesh. The dam is located on Chandrakeshar River which is a tributary of river Narmada. Purpose of the construction of this dam was mainly for irrigation in nearby villages. Moreover irrigation, the water is also used for drinking purpose and fish culture by local fishermen.

Materials and Methods

Fish samples were collected by using various fish nets viz; cast nets and gill nets with the help of local fishermen from a selected site. Collected fish fauna was instantly fixed in 10% formaldehyde. Ichthyofauna was identified by the help of [15, 34, 30, 31].

Results and Discussion

Present study have been done for two years on Ichthyofaunal diversity in which a total of 35 fish species were recorded which belonging to 13 families, 7 orders and 18 genera, taxonomic account, status of threat and relative abundance is given in (Table1). Maximum number of families was found in order siluriformes by 5, cypriniformes contribute 2 families and same contribution shown by perciformes. Moreover contribution of Osteoglossiformes, Clupeiformes, Mastacembeliformes and Ophiocephaliformes by 1 family from each order (Fig 1).

The most abundant and diverse family of the fishes, was Cyprinidae represented by 16 species contributing about 45.41% of the fish diversity in the Dam. The percent and number contribution of other families is shown in (Figure 2). According to IUCN 2014 report only 2 species are vulnerable, 2 species are near threatened and 31 evaluated as least concern.

During the study period *Catla catla, Wallago attu* and *Mastacembalus pancalus* found in great abundance. Moreover, *Cirrhinus mrigala, Labeo rohita, L.bata, Heteropneustes fossilis, Channa striatus* was found in less abundance. Some species like *Puntius sarana, P.ticto, Rasbora daniconius, Garra gotyala, Notopterus notopterus, Labeo calbasu, L.gonius, Chanda nama, Hilsa hilsa, Ompok bimaculatus, Channa marulius, noemacheilus botia* and *Mastacembelus armatus* are very rare and are about at the near of extinction from the dam. *Nandus nandus, mystus cavasius, Mystus cavasius, Chanda ranga, Cirrhinus cirrhosus and labeo fimbriatus* was seen only few months of during study period.

Similar type of study have been done by various researchers during the last few decades [34, 18, 28, 26, 38].

Reported 29 species of fishes belonging to six orders from Kishanpura Lake, Indore and stated that Cypriniformes was dominant with 15 Species. [33] Obtained a total of 15 species belonging to 3 orders, 4 families and 12 genera from Harsool Savangi Dam Aurangabad (M. S) India. [37] Encountered 21 fresh water fish species which belonging to 06 orders and 11 families from Sagar Lake of (M.P.) India. *Pethia ticto* and *guganio* other fish species estimated least concern in IUCN status by [4-7]. *cyprinus carpio* and some other fishes with *heteropneustus fossilis* as least concern and near threatened status [2, 3, 8-10]. Similar type of status reported by [16] for Rsabora daniconius. *Wallago attu* estimated under vulnerable and *Clarias batrachus* as least concern [22, 23]. Garra gotyla and Parambassis ranga also reported as least concern by [27, 35] sequently.

[39] Carried out their study on fish diversity of Halali reservoir in which they reported 29 fish species belonging to 7 orders, 10 families and 15 genera. [32] have been studies on the fish fauna of Benisagar dam Satna (M.P.) which consists of 31 species belonging to 11 families by their conservation status 16 species retain Least Concern, 3 species found Near Threatened and 2 species shown Not Evaluated status of IUCN.

Table 1: Fish Diversity with Their Relative Abundance and IUCN Status

S. No	Scientific Name of Fish	Order/ Family	Abundance/Status	IUCN Status
1.	*Notopterus notopterus*	Osteoglossiformes/notopteridae	+	LC
2.	*Rasbora daniconius*	Cypriniformes/cyprinidae	+	LC
3.	*Garra gotyala*	Cypriniformes/ cyprinidae	+	LC
4.	*Puntius sarana*	Cypriniformes/cyprinidae	+	LC
5.	*Puntius ticto*	Cypriniformes/cyprinidae	+	LC
6	*Puntius guganio*	Cypriniformes/cyprinidae	+	LC
7.	*Catla catla*	Cypriniformes/cyprinidae	+++	LC
8.	*Cirrhinus mrigala*	Cypriniformes/cyprinidae	++	LC
9.	*Labeo rohita*	Cypriniformes/cyprinidae	++	LC
10.	*Labeo calbasu*	Cypriniformes/cyprinidae	+	LC
11.	*Labeo gonius*	Cypriniformes/cyprinidae	+	LC
12.	*Labeo bata*	Cypriniformes/ Cyprinidae	++	LC
13.	*Labeo fimbriatus*	Cypriniformes/ Cyprinidae	+	LC
14.	*Cyprinus carpio*	Cypriniformes/cyprinidae	+	LC
15.	*Noemacheilus botia*	Cypriniformes/Cobitidae	+	LC
16.	*Cirrhinus cirrhosus*	Cypriniformes/Cyprinidae	+	VU
17.	*Cirrhimus fulungee*	Cypriniformes/Cyprinidae	++	LC
18.	*Cirrhinus reba*	Cypriniformes/Cyprinidae	+	LC
19.	*Mystus bleekari*	Siluriformes/Bagridae	++	LC
20.	*Mystus cavasius*	Siluriformes/Bagridae	+	LC
21.	*Mystus seenghala*	Siluriformes/Bagridae	+	LC
22.	*Heteropneustes fossillis*	Siluriformes/heteropnuestidae	++	LC
23.	*Clarias batrachus*	Siluriformes/clariidae	+	LC
24.	*Clupisoma garua*	Siluriformes/ Schilbeidae	++	LC
25.	*Chanda nama*	Perciformes/ambassidae	+	LC
26.	*Chanda ranga*	Perciformes/ambassidae	+	LC

27.	*Nandus nandus*	Perciformes/ Nandidae	+	LC
28.	*Channa punctatus*	Ophiocephaliformes/channidae	+	LC
29.	*Channa striatus*	Ophiocephaliformes/channidae	++	LC
30.	*Channa marulius*	Ophiocephaliformes/Channidae	+	LC
31.	*Mastacembalus armatus*	Mastacembeliformes/Mastacembelidae	+	LC
32.	*Mastacembelus pancalus*	Mastacembeliformes/Mastacembelidae	+++	LC
33.	*Hilsa hilsa*	Clupeiformes/Clupeidae	+	NT
34.	*Ompok bimaculatus*	Siluriformes/Siluridae	+	NT
35.	*Wallago attu*	Siluriformes/ Siluridae	+++	VU

VN= Vulnerable, NT= Near Threatened, LC= Least Concern, +++ = Abundant, ++ = Less Abundant and + = Rare or sometime visible

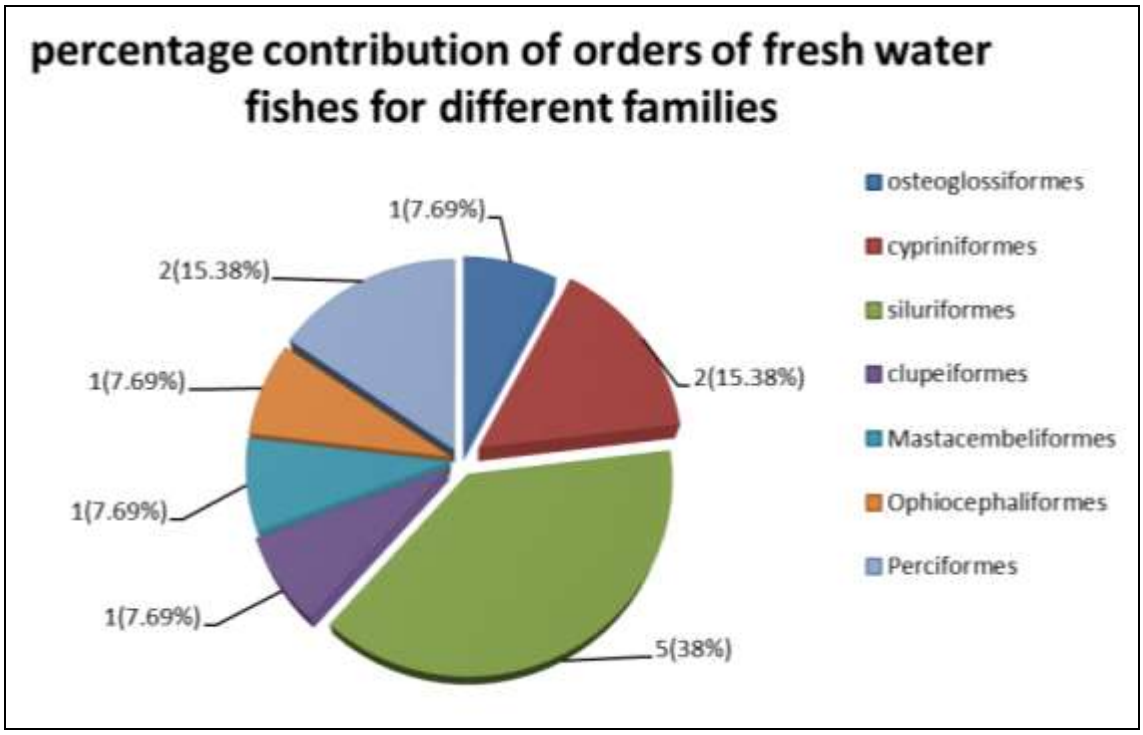

Fig 1: Families Contribution from Varies Orders

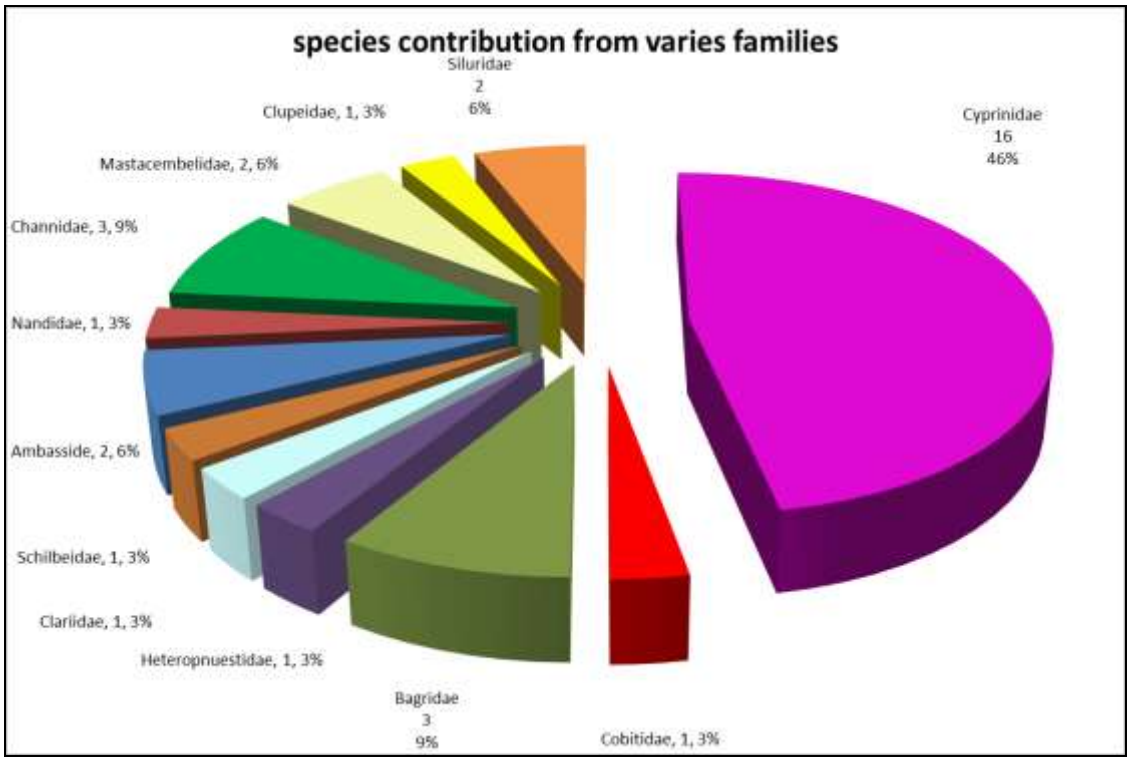

Fig 2: Percent/ Number Contribution of Species from Each Family

Conclusion

In the present investigation, it was concluded that the Chandrakeshar dam is a healthy water body providing a habitat for fresh water fishes of diverse group. However, there is constant threat to fish population due to illegal fishing activities. The illegal fishing activities should be banned to prevent depletion of fresh water fish resources and further studies should be conducted to generate more details regarding seasonal production and ecology of fishes. In the light of present study of Chandrakeshar dam, it is time to make proper policies and take necessary steps to implement so that the future generation can get the fishes lively on earth rather than photographs in literature.

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