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Ichthyofaunal diversity of District Bhopal (M.P)

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Abstract

The ichthyofaunal documentation is regarded as one of the major issues of enabling sustainable use of natural resources and play a vital role in analyzing status of fish species (threatened endangered, dominant, abundance *etc*). The Bhopal district has an area of 2,772 km², and a population 1,836,784 (2001 census). Bhopal District is bounded by the districts of Guna to the north, Vidisha to the northeast, Raisen to the east and southeast, Sehore to the southwest and west, and Rajgarh to the northwest. It consists of two tehsil – Huzur and Bersia and block is Phanda and Bersia. The present study revealed that a total of 45 fish species belonging to 18 families, 7 orders and 32 genera were recorded from the District Bhopal. Order cypriniformes was dominant (19 species) followed by Perciformes (10 species), Siluriformes (8 species), Synbranchiformes (2 species), Osteoglossiformes, Beloniformes and Clupeiformes (1 species) each.

Key-Words: District Bhopal, Fish diversity, Human use, Madhya Pradesh

Introduction

The Biodiversity is essential for stabilization of ecosystem, protection of overall environmental quality for understanding intrinsic worth of all species on the earth (Ehrlich 1991). Fisheries play an instrumental 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. It also generates gainful employment, alternate income and stimulates growth of new subsidiary industries. The earth has the distinction of supporting huge ichthyofaunal diversity; represent more than half of the total number of vertebrate in the world. Out of 39,900 species of vertebrates ichthyofaunal diversity display 8,411 are freshwater species and 11,650 are marine, which is falls under 4044 genera, 445 families and 50 orders throughout the world, over 40% live in freshwater and majority of them live in tropics (Nelson 1976). The Indian fish fauna is an assemblage of about 2500 species depicting diverse characteristics, of which 930 belonging to 326 genera, inhabiting the inland waters (Jayaram 1999) and 1570 marine (Kar 2003). Out of these 400 species are commercial important, which include cultured, cultivable and wild. On the global scale, Indian fish represents 11% of species, 24% of genera, and 57% of families (NBSAP 2000).

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Material and Methods

Bhopal, the capital of Madhya Pradesh, is a fascinating amalgam of scenic beauty, old historic city and modern urban planning. It is the 11th century city Bhojpal, founded by Raja Bhoj, but the present city was established by an Afghan soldier, Dost Mohammed (1707-1740). His descendants build Bhopal into a beautiful city. It lies between 23° 15' 0" N latitude and 77° 25' 0" E longitude (Fig. 1). Fishes were collected from the different water bodies of district Bhopal with the help of local fishermen by using different types of nets including gill net, cast net etc. Small fish were preserved in 5% formalin solution, while large fishes were gutted for visceral preservation also. Systematic identification of the fishes was done with the help of standard keys prepared.

Results and Discussion

The present study revealed that 45 fish species belonging to 32 genera, 18 families and 07 orders have so far been identified (Table-1). Order wise distribution shows cypriniformes represent 3 families, 15 genera and 22 species out of them family cyprinidae represents 13 genera and 20 species. Family Balitoridae and Cobitidae represents 1 genus and 1 species each. Order Perciformes represents 7 families, 7 genera and 10 species. Out of them family Amabssidae represents 1 genera and 2 species, Family Channidae represents 1 genera and 3 species, Family Nandidae represents 1 genera and 1 species, Gobiidae

represents 1 genus, 1 species, Anabantidae represents 1 genus and 1 species, Belontiidae represent 1 genus and 1 species and family Cichidae represent 1 genus and 1 species each. Order Siluriformes constitutes 4 families, 6 genera and 8 species. Out of them family Bagaridae represents 2 genera and 4 species, which family siluridae represents 2 genera and 2 species, while family clariidae represents 1 genus and 1 species and Heteropneustidae represents 1 genus and 2 species. Order Synbranchiformes represent only one family, 1 genera and 2 species. Order Beloniformes and Osteoglossiformes both represent one family each Belonidae and Notopteridae respectively with one genus and one species. Order Clupeiformes represents only one family Clupeidae with 1 genera and 1 species.(Fig.2) Shinde *et al.*,(2009) reported a total of 15 species belonging to 3 orders,4 families and 12 genera in Harsool Savangi Dam Aurangabad(M.S) India.The order Cypriniformes was found dominant with 11 species,followed by perciformes 3 species and Siluriformes with 1 species.Rankhamb (2011) reported the occurrence of 26 fish species belonging t 5 orders,7 families and 15 genera in Godavari River at Mudgal.The members of the order Cypriniformes were dominated by 15 species ,Channiformes with 4 species and Mastacembeliformes and Perciformes 1 species each.

represents (2.23%) each, followed by order Perciformes represents (22.23%) including Family Channidae (6.67%), Ambassidae (4.45%). Nandidae, Gobiidae, Anabantidae, Belontiidae and Cichidae represents (2.23%). Order Siluriformes constitute (17.78%). Including Family Bagaridae (8.89%), Siluridae (4.45%), Family Heteropneustidae and Clariidae (2.23%). Order Synbranchiformes constitute one family Mastacembelidae with (4.45%), While order Beloniformes, Clupeiformes and Osteoglossiformes both was constitute one family each Belonidae, Clupeidae and Notopteridae respectively contributes (2.23%) each.(Fig.3). The present result s get support from other work like Wakid and Biswas (2005) and Venkatshwarlu *et al*(2007).

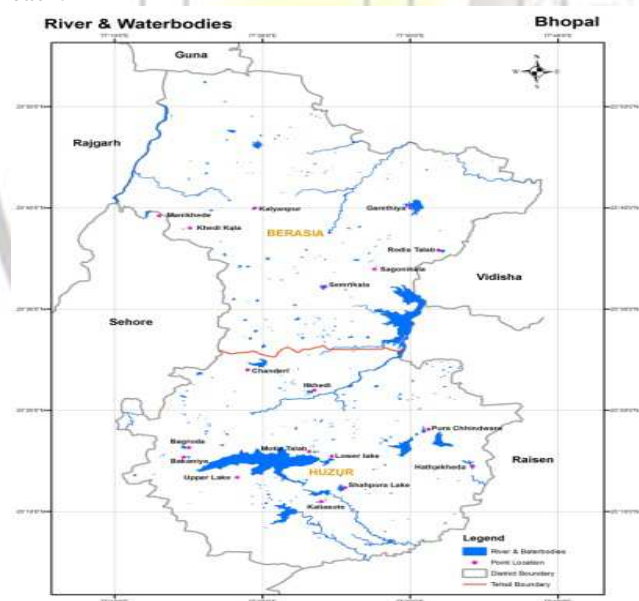


Fig 1: Showing the location of different water body district Bhopal

Percentage wise species composition show Cypriniformes was the dominant order constitutes (48.89%), out of them family Cyprinidae represents (44.45%), Family Balitoridae and Cobitidae both

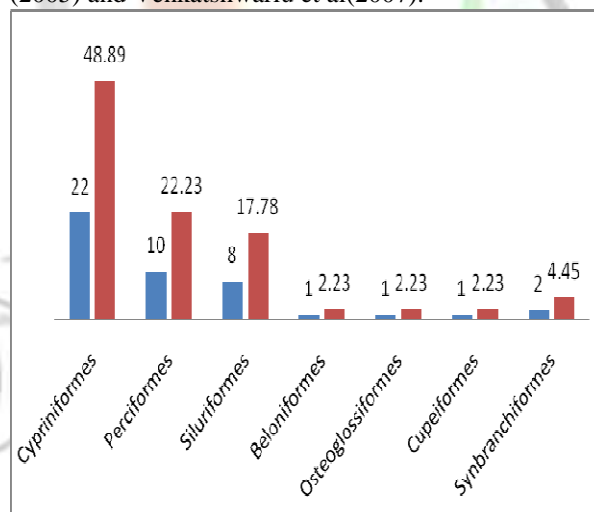


Fig.2: Showing Number and Percent contribution of fishes in different Orders

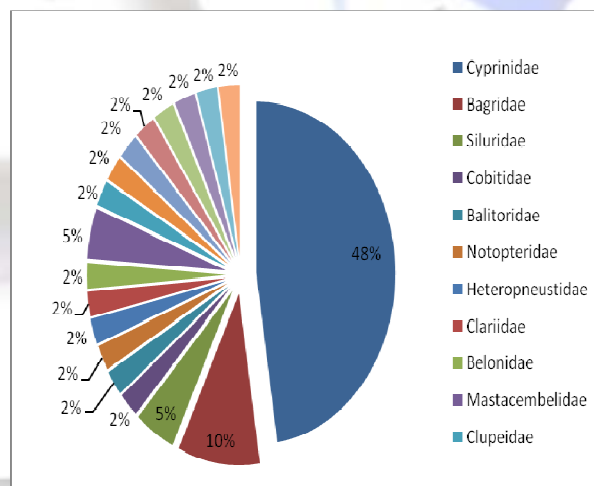


Fig.3: Showing Number and Percent contribution of fishes in different Families

Table 1: Systematic Position of Fish Fauna of District Bhopal

Class	-	Actinopterygii	<i>sophore</i> (Hamilton-Buchanan)	12. <i>Puntius sarana</i>
Sub class	-	Neopterygii		13. <i>Puntius</i>
Divisio	-	Teleostei	(Hamilton-Buchanan)	14. <i>Puntius chola</i>
Order	-	Osteoglossiformes		15. <i>Puntius ticto</i>
Sub order	-	Notopteroidei	(Hamilton-Buchanan)	
Family	-	Nototeridae	Genus -	<i>Ctenopharyngodon</i>
Genus	-	<i>Notopterus</i>	steindachner	16.
Lecepede		1. <i>Notopterus</i>	<i>Ctenopharyngodon idella</i> (Valenciennes)	
<i>notopterus</i> (Pallas)				
Subdivision	-	Clupeomorpha	Sub family-	
Order	-	Clupeiformes	Hypophthalmichthyinae	
Family	-	Clupeidae	Genus -	<i>Hypophthalmichthys</i>
			Bleeker	17.
Sub family	-	Alosinae		
Genus	-	<i>Gudusia</i> Fowler	<i>Hypophthalmichthys militrix</i> (Valenciennes)	
(Hamilton-Buchanan)		2. <i>Gudusia chapra</i>	Sub family -	Rasborinae
Subdivision	-	Euteleostei	Genus -	<i>Amblypharyngodon</i>
Superorder	-	Ostariophysi	Bleeker	18.
Order	-	Cypriniformes	<i>Amblypharyngodon</i>	<i>mola</i> (Hamilton-
Family	-	Cyprinidae	Buchanan)	
Sub family	-	Cyprininae	Genus -	<i>Rasbora</i> Bleeker
Genus	-	<i>Catla valenciennes</i>		19. <i>Rasbora</i>
(Hamilton-Buchanan)		3. <i>Catla catla</i>	<i>daniconius</i> (Hamilton-Buchanan)	
Genus	-	<i>Cirrhinus oken</i>	Genus -	<i>Salmostoma</i>
<i>mrigala</i> (Hamilton-Buchanan)		4. <i>Cirrhinus</i>	swainson	20. <i>Salmostoma</i>
(Hamilton-Buchanan)		5. <i>Cirrhinus reba</i>	<i>bacaila</i> (Hamilton-Buchanan)	
Genus	-	Cyprinus	Genus -	<i>Escomus</i> Swainson
(Linnaeus)		6. <i>Cyprinus carpio</i>	<i>danricus</i> (Hamilton-Buchanan)	21. <i>Escomus</i>
<i>Linnaeus</i>			Genus -	<i>Barilius</i> (Hamilton-
Genus	-	<i>Labeo cuvier</i>	Buchanan)	22. <i>Barilius barila</i>
(Hamilton-Buchanan)		7. <i>Labeo rohita</i>	(Hamilton-Buchanan)	
(Hamilton-Buchanan)		8. <i>Labeo calbasu</i>	Family -	Cobitidae
(Hamilton-Buchanan)		9. <i>Labeo gonius</i>	Sub family -	Cobitinae
(Hamilton-Buchanan)		10. <i>Labeo bata</i>	Genus -	<i>Lepidodecephalus</i>
(Hamilton-Buchanan)			Bleeker	23.
Genus	-	<i>Osteobrama heckel</i>	<i>Lepidocephalichthys</i>	<i>guntea</i> (Hamilton-
<i>cotio cotio</i> (Hamilton-Buchanan)		11. <i>Osteobrama</i>	Buchanan)	
Buchanan			Family -	Balitoridae
			Sub family -	Nemacheilinae
			Genus -	<i>Nemacheilus peters</i>
				24. <i>Nemachelius</i>
			<i>botia</i> (Hamilton-Buchanan)	
			Order -	Siluriformes
			Family -	Bagridae

Genus - <i>Mystus scopoli</i>	Genus - Chanda Hamilton-Buchanan
25. <i>Mystus bleekeri</i> (Day)	37. <i>Chanda nama</i>
26. <i>Mystus cavasius</i> (Bloch)	38. <i>Parambassis</i>
Genus - <i>Aorichthys wu</i>	<i>ranga</i> (Hamilton-Buchanan)
(Hamilton-Buchanan)	Family - Gobiidae
27. <i>Aorichthys aor</i>	Sub family - Gobinae
28. <i>Aorichthys seenghala</i> (Sykes)	Genus - <i>Glossogobius</i> Gill
Family - Siluridae	39. <i>Glossogobius giuris</i> (Hamilton-Buchanan)
Genus - <i>Ompok lecepede</i>	Family - Anabantidae
29. <i>Ompak bimaculatus</i> (Bloch)	Genus - <i>Anabas</i> Cuvier
Genus - <i>Wallago bleeker</i>	40. <i>Anabas testudineus</i> (Bloch)
30. <i>Wallago attu</i>	Family - Belontiidae
(Bloch & Schneider)	Sub family - Trichogasterinae
Family - Clariidae	Genus - <i>Trichogaster</i>
Genus - <i>Clarias scopoli</i>	Cuvier
31. <i>Clarias batrachus</i> (Linnaeus)	41. <i>Trichogaster fasciata</i> (Schnider & Bloch)
Family - Heteropneustidae	Sub order - Chanoidei
<i>Heteropneustes</i>	Family - Channidae
Muller	Genus - <i>Channa</i>
32. <i>Heteropneustes fossils</i> (Bloch)	(Ophiocephalus) Scopoli
Series - Atherinomorpha	42. <i>Channa marulius</i> (Hamilton-Buchanan)
Order - Beloniformes	43. <i>Channa punctatus</i> (Bloch)
Sub order - Belanoidei	44. <i>Channa striatus</i> (Blach)
Family - Beloniidae	Family - Cichidae
Genus - <i>Xenentodon</i> Regan	Genus - <i>Oreocharomis</i>
33. <i>Xenentodon cancila</i> (Hamilton-Buchanan)	45. <i>Oreocharomis mossambica</i> (Peters)
Order - Synbraheniformes	
Sub order - Mastacembeloidai	References
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Sub order - Percoidei	
Family - Nandidae	
Sub family - Nandinae	
Genus - <i>Vallenciennes</i>	
36. <i>Nandus nandus</i> (Hamilton-Buchanan)	
Family - Ambassidae	

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