

## Status of Fish Biodiversity in some selected reservoirs of Bundelkhand region of India

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### ABSTRACT

In the present communication the authors describe the diversity of freshwater fishes in the Bundelkhand region of India. On the basis of available research there are 93 species of fishes reported in Bundelkhand. These fishes comprised of 6 orders and 18 families. Out of six orders Cypriniformes (55%) is the most abundant order in this region followed by Siluriformes (24%), Perciformes (15%), Synbranchiformes (3%), Osteoglossiformes (2%) and Beloniformes (1%). Out of eighteen families the Cyprinidae is the most prevalent among all families. The Result showed 66 fish species found in district Damoh followed by 50 species in Panna, 27 species in Lalitpur, 27 species in Chhatarpur, 21 species in Sagar and 19 species of fishes in Jhansi.

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KEY WORDS : Bundelkhand, Chhatarpur, Climate change, Damoh, Fish biodiversity, Jhansi, Lalitpur, Panna, Sagar.

### Introduction

Biodiversity is defined as the diversity of living species from all sources. This covers diversity of ecosystems, between species and within species. The ability of biological systems to adapt to environmental changes is influenced by biodiversity, which also supports ecosystem function and produces ecosystem products and services that promote human well-being<sup>2</sup>. Biodiversity is essential for human health and well-being, economic property, food safety and security<sup>1</sup>. In order to appreciate the intrinsic value of every species, biodiversity is crucial for maintaining ecosystem stability and safeguarding overall environmental quality. Biodiversity serves as an ecosystem indicator<sup>3</sup>. Biodiversity studies comprise the systematic examination of the full array of different kinds of organisms<sup>5</sup>. Fish diversity suggests that the area has become more effective and boosts the aquatic ecosystems for economic success<sup>6</sup>. In India research on the aquatic biodiversity was done in the river system by many workers<sup>6,7,8,13,16,17</sup>. India has a vast variety of water resources, including streams, rivers, reservoirs, underground aquatic ecosystems, irrigation canals, conventional lakes, and household ponds. India is fortunate to have access to a vast amount of inland open water resources, which are renowned for their high

production potential and diverse fish populations. Throughout the country, there are more than 6000 freshwater rivers<sup>6</sup>.

### About Bundelkhand

The Bundelkhand region of India is present between the states of Uttar Pradesh and Madhya Pradesh. This region comprises of six districts of Madhya Pradesh viz. Datia, Tikamgarh, Chhatarpur, Panna, Damoh, and Sagar and seven districts of Uttar Pradesh viz. Jhansi, Lalitpur, Jalaun, Hamirpur, Mahoba, Banda, and Chitrakoot. The Bundelkhand region has various small and large water bodies, reservoirs and many rivers that have boosted the opportunities for fisheries and aquaculture.<sup>13</sup>

### Result and Discussion

The systematics and diversity of fishes in Bundelkhand region of India has been studied by several ichthyologists<sup>4,9,10,11,13,14,18</sup>. On the basis of overall record there are 93 species of freshwater fish, including 18 families and 6 orders (Fig.1) have been identified in the various water bodies of Bundelkhand. Cypriniformes has the highest 51 ichthyofaunal diversity, followed by the order Siluriformes, Perciformes, Synbranchiformes, Osteoglossiformes and Beloniformes respectively. The Result showed 66 fish species found in district Damoh<sup>14</sup>

TABLE -1 : Fish species recorded in different places of Bundelkhand

Species Name	Local name	Study Area					
		Matatila Reservoir Lalitpur	Saprar dam; Mauranipur (Jhansi)	Ken River basin, Panna	Rangwan Dam Chhatarpur	Various Localities of Damoh	Sagar lake, Sagar
1) <i>Acanthocobitis botia</i>		-	-	+	-	-	-
2) <i>Amblypharyngodon mala</i>	Dhawai	-	+	-	-	-	-
3) <i>Anabas testudineus</i>	Kabai	-	-	-	+	+	-
4) <i>Bagarius bagarius</i>		-	-	-	-	+	-
5) <i>Bangana dero</i>		-	-	+	-	-	-
6) <i>Barilius bendelisis</i>		-	-	+	-	+	-
7) <i>Barilus bola (Ham.)</i>		-	-	-	-	+	-
8) <i>Catla catla</i>	Bhakur/ catia/ Katla	+	-	-	+	+	+
9) <i>Chaguius chagunio</i>		-	-	-	-	+	-
10) <i>Chanda nama</i>	Chanda	+	-	-	-	+	-
11) <i>Chanda ranga</i>		-	-	-	-	+	+
12) <i>Channa gachua</i>		-	-	+	+	+	-
13) <i>Channa marulius</i>	Saur	+	-	+	+	+	
14) <i>Channa punctatus</i>	Giari/ Girai/ Sauri	+	+	+	+	+	
15) <i>Channa striatus</i>	Kabra/ dhok/ Kuddha	+	+	+	+	+	
16) <i>Chela atpar</i>		-	-	-	-	+	-
17) <i>Chela laubuca</i>		-	-	-	-	+	+
18) <i>Cirrhinus cirrhosus</i>		-	-	-	-	+	-

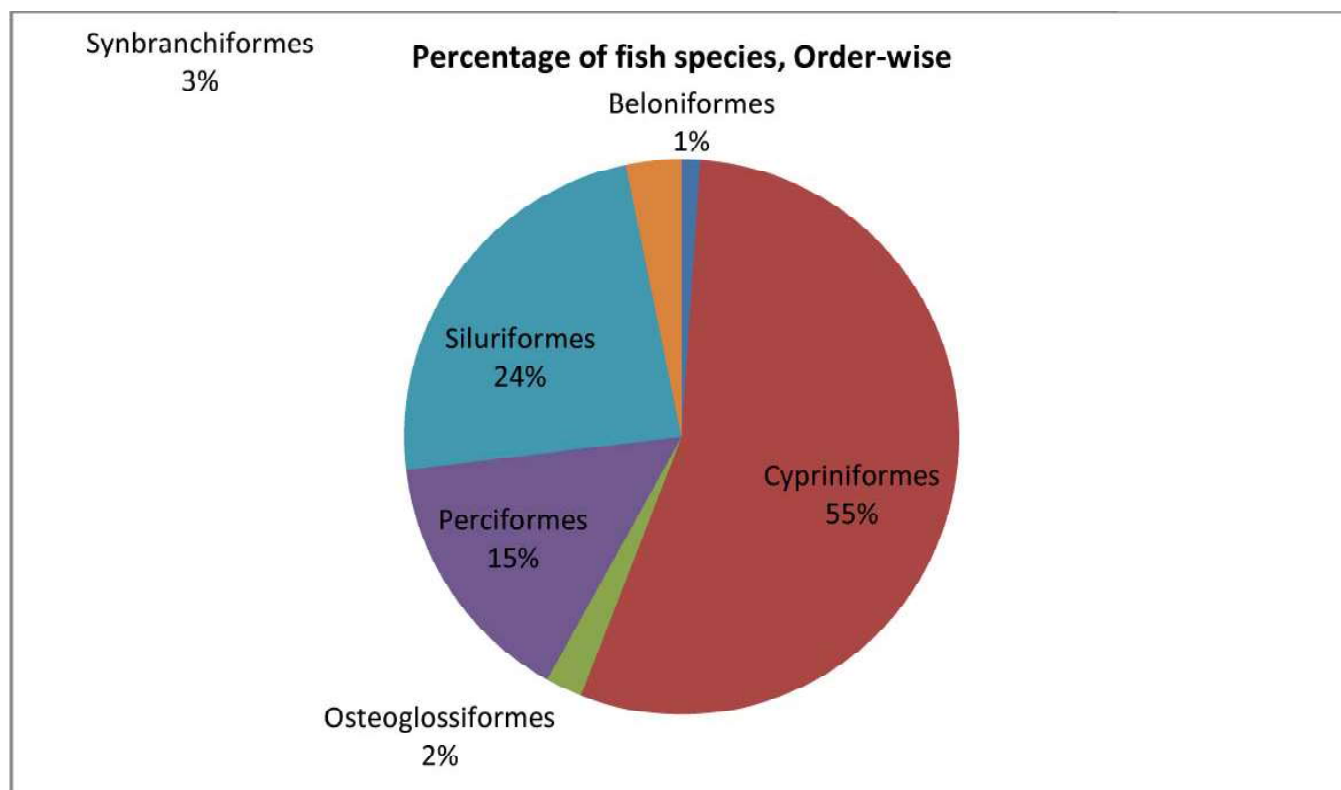
19) <i>Cirrihinus mrigla</i>	Nain/ Mrigal	+	-	-	+	+	+
20) <i>Cirrihinus reba</i>	Raia	+	+	+	-	+	-
21) <i>Clarias batrachus</i>		-	-	-	-	+	-
22) <i>Clarias magur</i>		-	-	+	-	-	-
23) <i>Clupisoma garua</i>	Bachua	-	-	+	+	-	-
24) <i>Clupisoma montana</i>		-	-	+	-	-	-
25) <i>Colisa fasciatus</i>		-	-	-	-	+	-
26) <i>Crossocheilus latius</i>		-	-	+	-	-	-
27) <i>Cyprinus carpio</i>	Common carp	+	-	-	-	+	-
28) <i>Danio devario</i>		-	-	-	-	+	-
29) <i>Danio rerio</i>		-	-	+	-	-	-
30) <i>Devario aequipinnatus</i>		-	-	+	-	-	-
31) <i>Devario devario</i>		-	-	+	-	-	-
32) <i>Esomus danricus</i>	Dendua	+	-	+	-	-	-
33) <i>Eutropiichthys vacha</i>	Banjhoo	+	-	-	-	+	-
34) <i>Garra gotyla</i>		-	-	+	-	+	-
35) <i>Garra mullya</i>		-	-	+	-	-	-
36) <i>Gibelion catla</i>		-	-	+	-	-	-
37) <i>Glossogobius giuris</i>	Bulla	-	+	+	+	+	+
38) <i>Glyptothorax telchitta</i>		-	-	+	-	-	-
39) <i>Heteropneustus fossilis</i>	Singhi	+	-	+	-	+	+
40) <i>Labeo angra</i>		+	-	+	-	-	-
41) <i>Labeo bata</i>	Bota/ Rohu	+	-	-	+	+	-
42) <i>Labeo boga</i>		-	-	-	-	+	-

43) <i>Labeo calbasu</i>	Karaunch/ Kalbasu/ Kalabense	+	+	+	+	+	-
44) <i>Labeo fimbriatus</i>		-	-	-	-	+	-
45) <i>Labeo gonius</i>	Kursi	+	-	-	-	+	-
46) <i>Labeo pangusia</i>		-	-	+	-	+	-
47) <i>Labeo rohita</i>	Rohu	+	+	+	+	+	+
48) <i>Lepidocephalichthys guntea</i>		-	-	+	-	+	+
49) <i>Macrognathus pancalus</i>	Bam	-	+	-	-	-	-
50) <i>Mastacembelus armatus</i>	Baam/ Pataya/ Bam	+	+	+	+	+	+
51) <i>Mastacembelus pancalus</i>		-	-	-	+	+	-
52) <i>Mystus aor</i>	Tengan/ Daryai	+	-	-	+	+	-
53) <i>Mystus bleekeri</i>	Tengra	-	+	-	-	+	-
54) <i>Mystus cavasius</i>	Sutahawa tengara/ Singti	-	+	+	+	+	-
55) <i>Mystus menoda</i>		-	-	-	-	+	-
56) <i>Mystus seenghala</i>	Dariai tangan/ Tengara	+	-	-	+	+	-
57) <i>Mystus vitatus</i>	Katuwa	-	-	-	+	+	+
58) <i>Nandus nandus</i>	Dhebari	-	+	+	+	+	-
59) <i>Nemacheilus botia</i>		-	-	-	-	+	-
60) <i>Nemacheilus denisoni</i>		-	-	+	-	-	-
61) <i>Notopterus chitala</i>	Moya	+	-	-	+	+	-
62) <i>Notopterus notopterus</i>	Patra	+	+	-	+	+	+

63) <i>Ompok bimaculatus</i>	Jalkapoor/ Pabda	+	-	+	+	+	+
64) <i>Ompok pabda</i>		-	-	+	-	+	-
65) <i>Oreochromus mossambica</i>		-	-	-	-	+	+
66) <i>Osphronemus goramy</i>		-	-	-	-	+	-
67) <i>Osteobrama cotio</i>	Gurda	-	+	+	-	+	-
68) <i>Oxygaster bacaila</i>	Chal/ Chela	+	-	-	+	+	-
69) <i>Pseudambassis baculis</i>		-	-	+	-	-	-
70) <i>Pseudambassis ranga</i>		-	-	+	-	-	-
71) <i>Puntius amphibius</i>		-	-	+	-	-	-
72) <i>Puntius chola</i>		-	-	-	-	+	-
73) <i>Puntius chrysopterus</i>		-	-	-	-	+	-
74) <i>Puntius conchonioides</i>		-	-	+	-	+	+
75) <i>Puntius filamentosus</i>		-	-	-	-	+	-
76) <i>Puntius sarana</i>	Darahea/ Punt	+	-	+	+	+	+
77) <i>Puntius sophore</i>	Sidhari	+	+	+	+	+	+
78) <i>Puntius ticto</i>	Pothia	-	-	+	+	+	+
79) <i>Rasbora daniconius</i>	Dendua	-	+	+	-	+	+
80) <i>Rasbora rasbora</i>		-	-	-	-	-	+
81) <i>Rita gogra</i>		-	-	+			
82) <i>Rita pevimantata</i>		-	-	-	-	+	-
83) <i>Rita rita</i>	Gigra	+	-	-	-	+	-
84) <i>Salmophasia bacaila</i>		-	-	+	-	-	-

85) <i>Salmophasia balookee</i>		-	-	+	-	-	-
86) <i>Salmophasia boopis</i>		-	-	+	-	-	-
87) <i>Silonia silondia</i>	Silund	+	-	-	-	-	-
88) <i>Sperata seengala</i>	Singara	-	+	-	-	-	-
89) <i>Tor khudree</i>		-	-	-	-	+	-
90) <i>Tor pituitora</i>		-	-	-	-	+	-
91) <i>Tor tor</i>		-	-	+	-	-	-
92) <i>Wallago attu</i>	Padhani/ Padhin	+	-	+	+	+	+
93) <i>Xenentodon cancilla</i>	Thona	-	+	+		+	+

(+) = Reported, (-) = Not Reported



**Fig. 1 : Order wise percentage of Fishes in Bundelkhand region of India**

followed by 50 species in Panna<sup>10</sup>, 27 species in Lalitpur<sup>15</sup>, 27 species in Chhatarpur, 21 species in Chitrakoot<sup>9</sup> and 19 fish species in Jhansi<sup>11</sup>.

Fish species like *Catla catla*, *Labeo rohita*,

*Cirrhinus mrigala*, and *Cyprinus carpio* were typically cultured in fishing ponds out of them *L. rohita* was the most common species of fish in the area. There are a total of 27 fish species reported from the Matatila

TABLE - 2: Systematic position of Fishes, recorded in Bundelkhand region of India

Order	Family	Species
1. Beloniformes	1. Belontiidae	1. <i>Xenotodon cancilla</i>
2. Cypriniformes	1. Cyprinidae	2. <i>Amblypharyngodon mola</i> 3. <i>Bangana dero</i> 4. <i>Barilius bendelisis</i> 5. <i>Barilus bola</i> 6. <i>Catla catla</i> 7. <i>Chaguius chagunio</i> 8. <i>Chela atpar</i> 9. <i>Chela laubuca</i> 10. <i>Cirrhinus cirrhosus</i> 11. <i>Cirrhinus mrigla</i> 12. <i>Cirrhinus reba</i> 13. <i>Crossocheilus latius</i> 14. <i>Cyprinus carpio</i> 15. <i>Danio devario</i> 16. <i>Danio rerio</i> 17. <i>Devario aequipinnatus s</i> 18. <i>Devario devario</i> 19. <i>Esomus danricus</i> 20. <i>Garra gotyla</i> 21. <i>Garra mullya</i> 22. <i>Gibelion catla</i> 23. <i>Labeo angra</i> 24. <i>Labeo bata</i> 25. <i>Labeo boga</i> 26. <i>Labeo calbasu</i> 27. <i>Labeo fimbriatus</i> 28. <i>Labeo gonius</i> 29. <i>Labeo pangusia</i> 30. <i>Labeo rohita</i> 31. <i>Lepidocephalichthys guntea</i> 32. <i>Nemacheilus botia</i> 33. <i>Nemacheilus denisoni</i> 34. <i>Osteobrama cotio</i> 35. <i>Oxygaster bacaila</i> 36. <i>Puntius amphibius</i> 37. <i>Puntius chola</i> 38. <i>Puntius chrysopterus</i> 39. <i>Puntius conchonius</i>

		<p>40. <i>Puntius filamentosus</i>  41. <i>Puntius sarana</i>  42. <i>Puntius sophore</i>  43. <i>Puntius ticto</i>  44. <i>Rasbora daniconius</i>  45. <i>Rasbora rasbora</i>  46. <i>Salmophasia bacaila</i>  47. <i>Salmophasia balookee</i>  48. <i>Salmophasia boopis</i>  49. <i>Tor khudree</i>  50. <i>Tor pituitora</i>  51. <i>Tor tor</i></p>
	2.Nemacheilidae	52. <i>Acanthocobitis botia</i>
3.Osteoglossiformes	1.Notopteridae	<p>53. <i>Notopterus chitala</i>  54. <i>Notopterus notopterus</i></p>
4.Perciformes	1.Ambassidae	<p>55. <i>Chanda nama</i>  56. <i>Chanda ranga</i>  57. <i>Parambassis ranga</i>  58. <i>Pseudambassis baculis</i></p>
	2.Anabantidae	59. <i>Anabas testudineus</i>
	3. Channidae	<p>60. <i>Channa gachua</i>  61. <i>Channa marulius</i>  62. <i>Channa punctatus</i>  63. <i>Channa striatus</i></p>
	4.Cichlidae	64. <i>Oreochromus mossambica</i>
	5.Gobiidae	65. <i>Glossogobius giuris</i>
	6.Nandidae	66. <i>Nandus nandus</i>
	7.Osphronemidae	<p>67. <i>Colisa fasciatus</i>  68. <i>Osphronemus goramy</i></p>
5. Siluriformes.	1. Claridae.	<p>69. <i>Clarias batrachus</i>  70. <i>Clarias magur</i></p>
	2. Heteroneupstidae	71. <i>Heteropneustes fossilis</i>



	3. Schilbeidae	72. <i>Clupisoma garua</i> 73. <i>Clupisoma Montana</i> 74. <i>Eutropiichthys vacha</i> 75. <i>Silonia silondia</i>
	4. Siluridae	76. <i>Ompok bimaculatus</i> 77. <i>Ompok pabda</i> 78. <i>Wallago attu</i>
	5. Sisoridae	79. <i>Bagarius bagarius</i> 80. <i>Glyptothorax telchitta</i>
	6. Bagridae	81. <i>Mystus aor</i> 82. <i>Mystus bleekeri</i> 83. <i>Mystus cavasius</i> 84. <i>Mystus menoda</i> 85. <i>Mystus seenghala</i> 86. <i>Mystus vitatus</i> 87. <i>Rita gogra</i> 88. <i>Rita pevimentata</i> 89. <i>Rita rita</i> 90. <i>Sperata seengala</i>
6. Synbranchiformes	1. Mastacembelidae	91. <i>Macrognathus pancalus</i> 92. <i>Mastacembelus armatus</i> 93. <i>Mastacembelus pancalus</i>

reservoir, including main and minor carps, catfish, and weedfish<sup>15</sup>. There were also endangered species present, including *Notopterus chitala*, *Notopterus notopterus*, *Ompok bimaculatus*, and *Eutropiichthys vacha*. 19 fish species from 17 genera, 8 families, and 6 orders were found in Saprar Dam, Jhansi<sup>11</sup>. Cyprinidae family has 8 species and predominates among the 19 species of fishes. 50 species of fish from 32 genera, 15 families, and 4 orders were found in the Ken River Panna<sup>10</sup>. All of the research streams had cyprinidae as the most abundant family (abundance range: 56.6–94.5%). The snakehead *Channa gachua* and the cyprinid *Devario aequipinnatus* showed the highest levels of local domination (each at 80%) in the Panna landscape<sup>10</sup>. Initial identification of the 27 species present in the Ranguwan Dam in Chhatarpur<sup>4</sup> was divided into 9 families and 6 orders. The most prevalent family of species in the Dam is Cyprinidae. A total of 66 fish species from 18 families and 6 orders were found in the various locations of Damoh<sup>14</sup>. In total, 21 species of

**TABLE-3: Systematic distribution of fishes in Bundelkhand region in India**

No.	Orders	Families	Species
1.	Beloniformes	1	01
2.	Cypriniformes	2	51
3.	Osteoglossiformes	1	02
4.	Perciformes	7	14
5.	Siluriformes	6	22
6.	Synbranchiformes	1	03
<b>Total</b>	<b>6</b>	<b>18</b>	<b>93</b>

freshwater fishes from 6 orders, 11 families, and 17 genera were identified during the study from Sagar<sup>18</sup>. Family Cyprinidae was discovered to be the most prevalent family of fishes, accounting for over 48% of the fish variety in the study locations.

### Conclusion

Numerous studies have found that the

Bundelkhand region has a wide variety of fish species. The majority of the fish species in the Bundelkhand region belong to the family Cyprinidae of the order Cypriniformes. The distribution of fish fauna is helpful for planning and implementing conservation measures to encourage fishermen to be aware about fishing by offering scientific training to avoid irresponsible fishing.

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