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FISH SPECIES AND THEIR RELATIVE ABUNDANCE IN DIFFERENT WATER BODIES OF BUNDELKHAND REGION WITH SPECIAL REFERENCE TO DAMOH DISTRICT, M.P.

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ABSTRACT

The pollutants and drastic environmental variation have also adversely effected and changed water qualities i.e. colour, hardness, turbidity , alkalinity, pH. COD, BOD and TDS etc. Aquatic life, thus, also is affected. Changes in morphology of fish like- colour, pigmentation, length, weight mass, structure of scales, finrays etc. may occur. This can not be ignored that the afore-mention variation may be responsible to develop new varieties or sub species. Unfortunately, negligible work is done in relation to fish fauna of the area in recent-past. Though, appreciable limnological work is done, yet the fish fauna remained unexplored. The fauna study is of tremendous significance in determining population density and calculating sub specific diversity and conservation of ecosystem in Damoh District.

KEYWORDS: Fish Fauna, Biodiversity, Endangered Species.

INTRODUCTION

The Bundelkhand region of north India is encompassed by two states, i.e., M.P. and U.P. Its greater part falls in M.P. covering 5 district viz, Damoh, Sagar, Chhatarpur, Tikamgarh and Panna. Its terrain being rocky has reduced water level, and due to this, the area has much irrigation potentiality.

With a view to meet this demand of the region M.P. state irrigation department is giving greater importance to the development of irrigation projects in Bundelkhand region. Accordingly, many major, medium and minor irrigation reservoirs are constructed.

Rajnagar lake, Ponds and river's (Kopra, Sunar and Viyarma), are located in Damoh district of M.P. The entire surrounding of the water bodies is covered by deciduous forest. A sparsely bushy Jungle also exists at the basin of he reservoirs. Although, the district is rich in having natural water bodies, like lake, Ponds ,reservoir and rivers. Very scanty work is available on the fresh water, fish fauna.

These water bodies are main source of water supply, which is utilized for drinking, bathing, washing etc. But now a days, these water bodies are highly polluted due to the Industrial effluents, insecticides, herbicides, weedicides, fungicides and other human activities, Nitrate, Calcium chloride and non soluble Phosphate have increased to alarming level and decomposition of excessive bloom releases the methane and ammonia gases in water.

Study of biodiversity of fish fauna and their identification, is one of the interesting field of biological research, which gives us an idea abut the morphological variation and population diversity of fauna in polluted and non polluted site of any particular habitat.

Soni and Bais; (1986) Thakur and Sharma; (1986), did limnological work on Sagar-Damoh, water bodies and reported some physical and chemical components, Jhingran (1985), described the morphological variation and population density of fish in Bangladesh and Andhra Pradesh, and Thakur; (1986), reported distribution of fresh water fishes in Madhya Pradesh, but nobody has paid any attention to their correlation with the Fish faunal

MATERIALS AND METHODS

The water samples were collected during July 2011 to June 2012. The Method of water analysis would be adopted as per APHA standard method. Eleven Physico-chemical parameters were analyzed and Amphibian were grouped accordingly.

Fish collected seasonally, from all polluted and non polluted selected sites by hand picking or fishing nets and would be preserved in 5-10% formaldehyde in glass or plastic bottle. Authentic keys for identification and classification of fish, would be used. Days fauna. (1958), fish identification by H.R. Singh, Jhingaran (1985).

RESULTS AND DISCUSSION

The present investigation is planned to emphasize, the correlation of physic-chemical component with fresh water Fish fauna of Damoh. Efforts would be made to find out the factors relating with the decline or increase in the biodiversity, for morphological variations and populations density, Because of pollution, human invasion and production of selective many species of fish has fallen to alarming level, because of this also the biodiversity of this region has become unaffordable.

The study will provide information of water pollution and morphological variation with population density of fish fauna. The population density of fish, may help to know about the species which may be endangered, or at the verge of extinction in the locality.

Threatned Fish Fauna Biodiversity

Though the introduction of the African Cichlid, *Oreochromis mossambicus (Tilapia)* in this region has been claimed as a success story by fishery experts, the species seem to have caused unanticipated impact on the fresh water bodies of this region.

Though it is a species adapted for reverine life, it was introduced extensively in lentic and lotic water bodies (Purana pond, Ragnagar pond, Kopra river and Sonar river) in Damoh district. Being a prolific breeder and a hardy fish, Tilapia now dominates indigenous ichthyofauna in many water bodies of Damoh district. Studies on fish diversity of the study area in Damoh district, showed abundant population of Tilapia, replacing native fish fauna in many areas.

In Damoh district, the endemic species, *C. chagunia, G. gotyla, Oxygaster bacaila, L. guntea, O. bimaculatus, O. pabo, R. rita* and *R. pevimentata* etc, was found in patchy distribution in different localities of the water bodies, its occurrence was mostly rare and occasional is facing extinction due to the introduction of *O. moassmbicus. O. mossambicus,* because of similar ecological requirements may challenge their very survival.

Garra gotyala is collected from Narsingarh area. According to the original description this species can be readily distinguished from the other species of the genus by its elongated body form, broad head, broadly rounded snout without tubercles, absence of proboscis and lateral lobes, and total absence of scales on ventral surface and mid dorsal streak. The specimens collected in the present study indicate that all the above mentioned characters are present, except one. The specimens collected during the present study had scales on the mid dorsal streak.

During the present study it is concluded that the species with narrow range of temperature tolerance are *Nemachelius botia, Bagarius bagarius* and *Cyprinus corpio, Osphronemus goramy,* collected Brown Trout from Nidan water bodies of **Veerangana Ranidurgawati Sanctuary,** where the temperature in very low, also indicates their narrow range.

T. Pitutiora and *T. Khudree* have brought me surprise after identification which abolished by the report of the presence in Narmada, Betwa and in Bundelkhand region by threatened Ichthyofauna of the river Narmada in western zone (Verma and Kanhere-2007). These two fishes were reported to be inhabitant of cold region, their presence in sanctuary region of Tejgarh, which is surrounded by deep forest and where water is deep.

Though their population is not very high, yet their presence is made in Damoh district. It seems that either these fishes have got shelter by having in Narmada Betwa, so this region or put in the water body by some people or Agency. State Fisheries Department of Damoh district did not say anything about it.

Nandus nandus the only representative of the family **nandidae** since to be biomarker. Large number of depth have been observed during the month of August-September of this specimen probably because of like *C. chagunio, R. daniconius, T. Putuitora, T. Khudree, R. rita, B. bagarius, A. testudineus* and *O. goramy* are found in Kataw region in Ranidurgabati sanctuary of Singourgarh is reported perhaps the first time. The population of these fishes are very thin and is to speculate that the fishes have been introduce first time in this region during study period.

Ecosystem functioning is dictated to a large extent by diversity and the community structure that results from factors such as richness and evenness of diversity. Thus, recent studies in biology focus more on the quantitative aspects of biodiversity that can be used to understand fluctuations in ecosystem functioning and help in prioritization of areas for conservation.

Table-1: Distribution Of Fish Species Belonging To Eighteen Families In Different Collection Sites In The Study Area During The Year From July 2007-08 To June, 2008-09

Species	Purena pond				Rajnagar pond				Kopra river			Sonar river		
	Stations				Stations				Stations			Stations		
	A	B	C	D	A_1	B_1	C_1	D_1	A_2	B_2	C_2	A_3	B_3	C_3
Order : Clupeiformes Family : Notopteridae														
1. Notopterus chitala (Ham.)	+	-	-	-	+	-	+	+	+	+	+	+	+	+
2. Notopterus notopterus	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Order : Cypriniformes Family : Cyprinidae														
3. Barilus bendelisis (Ham.)	+	-	-	-	-	-	-	-	-	-	-	-	-	+
4. Barilus bola (Ham.)	+	-	-	-	-	-	-	-	-	-	-	-	-	+
5. Catla catla (Ham.)	+	+	+	+	+	+	+	+	+	+	+	+	+	+
6. Chaguius chagunio (Ham.)	-	-	-	-	-	-	-	-	-	+	+	+	+	+
7. Chela atpar (Ham.)	-	-	+	+	+	+	+	+	+	+	+	+	+	+
8. Chela laubuca (Ham.)	-	-	-	-	-	+	-	+	+	+	+	+	+	+
9. Cirrhinus mrigala (Ham.)	+	+	+	+	+	+	+	+	+	+	+	+	+	+
10. Cirrhinus cirrhosus (Ham.)	-	-	-	+	-	+	-	-	+	+	+	+	+	+
11. Cirrhinus reba (Ham.)	+	-	+	+	+	+	+	+	+	+	+	+	+	+
12. Danio devario (Ham.)	-	-	-	-	-	-	-	-	-	-	-	+	+	+
13. Garra gotyla (Gray)	-	-	-	-	-	-	-	-	-	-	+	+	+	+
14. Labeo bata (Ham.)	+	+	+	+	+	+	+	+	+	+	+	+	+	+
15. Labeo boga (Bloch.)	+	+	+	+	+	+	+	+	+	+	+	+	+	+
16. Labeo calbasu (Ham.)	-	-	-	-	+	+	-	-	+	+	+	+	+	+
17. Labeo gonius (Ham.)	+	-	-	+	+	+	+	+	+	+	+	+	+	+
18. Labeo pangusia (Ham.)	+	-	-	+	+	-	-	-	+	+	+	+	+	+
19. Labeo rohita (Ham.)	+	+	+	+	+	+	+	+	+	+	+	+	+	+
20. Labeo fimbriatus (Ham.)	-	+	+	+	-	+	-	-	+	+	+	+	+	+
21. Osteobrama cotio (Ham.)	-	-	-	-	-	-	-	-	-	+	+	+	+	+
22. Oxygaster bacaila (Ham.)	-	-	-	-	-	-	-	-	-	+	+	+	+	+
23. Puntius chola (Ham.)	+	+	+	+	+	+	+	+	+	+	+	+	+	+
24. Puntius chrysopterus	-	+	+	+	-	-	-	+	+	+	+	+	+	+
25. Puntius conchonius (Ham.)	-	+	+	+	+	+	+	+	+	+	+	+	+	+
26. Puntius sarana (Ham.)	+	-	+	+	+	+	+	+	+	+	+	+	+	+
27. Puntius sophore (Ham.)	+	-	+	+	+	+	+	+	+	+	+	+	+	+
28. Puntius ticto (Ham.)	+	-	-	-	-	-	-	-	+	+	+	+	+	+
29. Puntius filamentosus	-	-	-	-	-	-	+	-	+	+	+	+	+	+
30. Rasbora daniconius (Ham.)	-	-	-	-	-	-	-	-	-	-	-	-	+	+
31. Rasbora elonga (Ham.)	-	-	-	-	-	-	-	-	-	-	-	-	+	+
32. Tor pituitora (Ham.)	-	-	-	-	-	-	-	-	-	-	-	-	+	+
33. Tor khudree (Ham.)	-	-	-	-	-	-	-	-	-	-	-	-	+	+
34. Cyprinus carpio (Ham.)	+	+	+	+	+	+	-	+	+	+	+	+	+	+
Family : Cobitidae														
35.Lepidocephalichthys guntea	-	-	-	-	-	-	-	-	-	-	-	-	+	+
36. Nemacheilus botia (Ham.)	-	-	-	-	-	-	-	-	-	-	-	-	+	+
Family : Siluridae														
37. Ompok bimaculatus	+	+	+	+	+	+	+	+	+	+	+	+	+	+
38. Ompok pabo (Ham.)	-	-	-	-	+	+	+	+	+	+	+	+	+	+
39. Wallago attu (Bl. & Schn.)	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Family : Bagridae														
40. Mystus bleekeri (Day)	+	+	+	+	+	+	+	+	+	+	+	+	+	+
41. Mystus cavasius (Ham.)	+	+	+	+	-	+	+	+	+	+	+	+	+	+
42. Mystus menoda (Ham.)	-	-	-	-	-	+	-	-	+	+	+	+	+	+
43. Mystus vittatus (Bloch.)	+	-	-	+	+	+	+	+	+	+	+	+	+	+
44. Mystus aor (Ham.)	+	-	-	-	+	+	-	-	+	+	+	+	+	+
45. Mystus seenghala (Sykes.)	+	+	+	+	+	+	+	+	+	+	+	+	+	+
46. Rita rita (Ham.)	-	-	-	-	-	-	-	-	+	+	-	-	+	+

47. Rita pevimentata (Ham.)	-	-	-	-	-	-	-	-	+	+	-	-	+	+
Family : Sisoridae														
48. Bagarius bagarius (Ham.)	-	-	-	-	-	-	-	-	-	-	-	+	-	+
Family: Schilbeidae														
49. Eutropiichthys vacha	-	-	-	-	-	-	-	-	-	-	+	+	+	+
Family : Saccobranchidae														
50. Heteropneustes fossilis	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Family: Clariidae														
51. Clarias batrachus (Linn.)	-	+	+	+	+	+	+	+	+	+	+	+	+	+
Order : Beloniformes Family: Belonidae														
52. Xenentodon cancila (Ham.)	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Order: Ophiocephaliformes Family : Ophiocephalidae														
53. Channa gachua (Ham.)	+	+	+	+	+	+	+	+	+	+	+	+	+	+
54. Channa marulius (Ham.)	-	-	+	+	-	+	-	-	+	+	+	+	+	+
55. Channa puntatus (Bl.)	+	-	+	+	+	+	+	+	+	+	+	+	+	+
56. Channa striatus (Bl.)	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Order : Perciformes Family: Centropomidae														
57. Chanda nama (Ham.)	+	+	+	+	+	+	+	+	+	+	+	+	+	+
58. Chanda ranga (Ham.)	-	-	-	-	-	+	-	-	+	+	+	+	+	+
Family: Nandidae														
59. Nandus nandus (Ham.)	-	-	-	-	-	-	-	-	-	-	+	-	+	+
Family : Anabantidae														
60. Anabas testudineus	-	-	-	-	-	-	-	-	+	+	+	+	+	+
61. Colisa fasiatus (Bl. & Schn.)	-	-	-	-	-	-	-	-	+	+	+	+	+	+
Family : Gobioidae														
62. Glossigobius giuris (Ham.)	-	-	-	-	-	-	-	-	-	+	+	-	+	+
Family: Cichlidae														
63. Oreochromus mossambica	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Family : Osphronemidae														
64. Osphronemus goramy	-	-	-	-	-	-	-	-	-	-	-	+	+	+
Order :Mastacembeleformes Family: Mastacembelidae														
65. Mastacembelus armatus	+	+	+	+	+	+	+	+	+	+	+	+	+	+
66. Mastacembelus pancalus	-	-	-	-	+	+	-	-	+	+	+	+	+	+

Abbreviations

+ = Present; **-** = Absent, A= Mandirghat; B= Policelineghat; C= Maszidghat; D= Dhobighat; A_1= Filter plant area; B_1= Narsingarh area; C_1= Ramnagar village area; D_1= Lakhanpur village area; A_2 = Kopra Dam; B_2= Imlai village area; C_2= Madkoleshwar area; A_3= Narsingarh village area; B_3= Bhadbhada Dam; C_3= Tejgarh village area.

Table-2 : number of fish species belonging to eighteen families in different collection site in the study area during the year from july 2014 to june 2014.

No. of Species of the given family	Purena pond				Raj Nagar Pond				Kopra river			Sonar river		
	Stations				Stations				Stations			Stations		
	A	B	C	D	A_1	B_1	C_1	D_1	A_2	B_2	C_2	A_3	B_3	C_3
1. Notopteridae	2	1	1	1	2	1	2	2	2	2	2	2	2	2
2. Cyprinidae	22	11	15	18	15	17	13	15	22	24	25	28	30	32
3. Cobitidae	00	00	00	00	00	00	00	00	2	00	00	2	2	2
4. Siluridae	2	2	2	2	3	3	3	3	3	3	3	3	3	3
5. Bagridae	6	3	3	4	4	6	4	4	8	8	6	6	8	8
6. Sisoridae	00	00	00	00	00	00	00	00	00	00	00	1	00	1
7. Schilbeidae	00	00	00	00	00	00	00	00	00	00	1	1	1	1
8. Saccobranchidae	1	1	1	1	1	1	1	1	1	1	1	1	1	1
9. Claridae	00	1	1	1	1	1	1	1	1	1	1	1	1	1
10. Belonidae	1	1	1	1	1	1	1	1	1	1	1	1	1	1

11. Ophiocephalidae	3	2	4	4	3	4	3	3	4	4	4	4	4	4
12. Centropomidae	1	1	1	1	1	2	1	1	2	2	2	2	2	2
13. Nandidae	00	00	00	00	00	00	00	00	1	1	1	1	1	1
14. Anabantidae	00	00	00	00	00	1	00	00	2	2	2	2	2	2
15. Gobioidae	00	00	00	00	00	00	00	00	1	1	1	00	1	1
16. Cichlidae	00	1	1	1	1	1	1	1	1	1	1	1	1	1
17. Osphronemidae	1	1	1	1	1	1	1	1	1	1	1	1	1	1
18. Mastacembelidae	1	1	1	1	2	2	1	1	2	2	2	2	2	2

Abbreviations

A= Mandirghat; B= Policelineghat; C= Maszidghat; D= Dhobighat; A_1= Filter plant area; B_1= Narsingarh area; C_1= Ramnagar village area; D_1= Lakhanpur village area; A_2 = Kopra Dam; B_2= Imlai village area; C_2= Madkoleshwar area; A_3= Narsingarh village area; B_3= Bhadbhada Dam; C_3= Tjgarh illage area

TABLE-3: Fish species and their relative abundance in different collection sites in the study area, during the year from July 2007-08 to June 2008-09.

Species	Purena pond				Rajnagar pond				Kopra river			Sonar river		
	Stations				Stations				Stations			Stations		
	A	B	C	D	A_1	B_1	C_1	D_1	A_2	B_2	C_2	A_3	B_3	C_3
Order : Clupeiformes Family : Notopteridae														
1. Notopterus chitala (Ham.)	O	N	N	N	O	N	O	R	O	O	R	R	O	R
2. Notopterus notopterus (Pallas)	O	O	O	O	O	O	R	O	R	R	O	R	R	O
Order : Cypriniformes Family : Cyprinidae														
3. Barilus bendelisis (Ham.)	R	N	N	N	N	N	N	N	N	N	N	N	N	R
4. Barilus bola (Ham.)	O	N	N	N	N	N	N	N	N	N	N	N	N	R
5. Catla catla (Ham.)	C	C	C	C	Vc	C	C	C	Vc	C	C	Vc	C	Vc
6. Chaguius chagunio (Ham.)	N	N	N	N	N	N	N	N	N	R	R	R	R	R
7. Chela atpar (Ham.)	N	N	O	R	R	O	O	R	R	R	R	O	O	O
8. Chela laubuca (Ham.)	N	N	N	N	N	C	N	C	Vc	C	C	C	Vc	Vc
9. Cirrhinus mrigala (Ham.)	C	C	C	C	C	Vc	C	C	C	C	Vc	Vc	Vc	Vc
10. Cirrhinus cirrhosus (Ham.)	N	N	N	O	N	O	N	N	O	R	O	C	O	C
11. Cirrhinus reba (Ham.)	C	N	C	O	O	O	O	C	C	C	O	C	C	C
12. Danio devario (Ham.)	N	N	N	N	N	N	N	N	N	N	N	O	R	O
13. Garra gotyla (Gray)	N	N	N	N	N	N	N	N	N	N	C	C	C	Vc
14. Labeo bata (Ham.)	O	O	R	O	O	O	O	O	C	O	C	C	Vc	Vc
15. Labeo boga (Bloch.)	C	O	O	O	C	O	O	R	C	C	Vc	C	C	Vc
16. Labeo calbasu (Ham.)	N	N	N	N	O	R	N	N	O	C	C	Vc	Vc	Vc
17. Labeo gonius (Ham.)	C	O	O	C	O	C	C	C	C	C	C	Vc	C	Vc
18. Labeo pangusia (Ham.)	O	N	N	O	O	N	N	N	O	R	O	C	C	Vc
19. Labeo rohita (Ham.)	C	C	C	C	C	C	Vc	C	C	Vc	C	C	Vc	Vc
20. Labeo fimbriatus (Ham.)	N	C	O	O	N	C	N	N	C	O	C	Vc	C	Vc
21. Osteobrama cotio (Ham.)	N	N	N	N	N	N	N	N	N	O	O	R	C	C
22. Oxygaster bacaila (Ham.)	N	N	N	N	N	N	N	N	N	O	O	R	C	C
23. Puntius chola (Ham.)	C	C	C	C	O	C	O	C	C	C	C	Vc	C	Vc
24. Puntius chrysopterus	N	O	C	C	N	N	N	C	O	O	C	Vc	C	Vc
25. Puntius conchonius (Ham.)	N	O	O	C	O	C	O	O	C	O	C	C	C	Vc
26. Puntius sarana (Ham.)	C	N	C	C	C	O	O	O	C	O	C	C	O	C
27. Puntius sophore (Ham.)	O	N	O	O	C	O	O	O	C	C	O	C	C	C
28. Puntius ticto (Ham.)	O	N	N	N	N	N	N	N	O	C	O	C	C	Vc
29. Puntius filamentosus (Ham.)	N	N	N	N	N	N	O	N	C	C	C	O	C	Vc
30. Rasbora daniconius (Ham.)	N	N	N	N	N	N	N	N	N	N	N	N	C	C
31. Rasbora elonga (Ham.)	N	N	N	N	N	N	N	N	N	N	N	N	C	C
32. Tor pituitora (Ham.)	N	N	N	N	N	N	N	N	N	N	N	N	R	R
33. Tor khudree (Ham.)	N	N	N	N	N	N	N	N	N	N	N	R	R	R
34. Cyprinus carpio (Ham.)	C	C	O	C	O	O	N	O	C	O	O	C	C	C
Family : Cobitidae														

35. Lepidocephalichthys guntea	N	N	N	N	N	N	N	N	N	N	O	R	C	C
36. Nemacheilus botia (Ham.)	N	N	N	N	N	N	N	N	N	N	N	R	C	C
Family : Siluridae														
37. Ompok bimaculatus (Bloch.)	O	O	O	O	O	C	O	C	O	C	C	C	C	Vc
38. Ompok pabo (Ham.)	N	N	N	N	O	R	R	O	R	R	R	O	O	O
39. Wallago attu (Bl. & Schn.)	O	O	C	O	O	C	C	C	C	C	C	C	C	Vc
Family : Bagridae														
40. Mystus bleekeri (Day)	O	O	O	O	O	C	O	C	O	O	C	C	C	C
41. Mystus cavasius (Ham.)	O	O	O	O	N	C	O	O	O	C	O	C	C	Vc
42. Mystus menoda (Ham.)	N	N	N	N	N	O	N	N	O	C	O	C	C	C
43. Mystus vittatus (Bloch.)	O	N	N	O	O	C	C	O	O	O	C	C	C	C
44. Mystus aor (Ham.)	O	N	N	N	O	O	N	N	O	O	C	C	C	C
45. Mystus seenghala (Sykes.)	O	C	O	C	C	C	O	C	C	C	C	C	C	C
46. Rita rita (Ham.)	N	N	N	N	N	N	N	N	R	R	N	N	R	R
47. Rita pevimentata (Ham.)	N	N	N	N	N	N	N	N	R	R	N	N	R	R
Family : Sisoridae														
48. Bagarius bagarius (Ham.)	N	N	N	N	N	N	N	N	N	N	N	R	N	R
Family: Schilbeidae														
49. Eutropiichthys vacha (Ham.)	N	N	N	N	N	N	N	N	N	N	R	O	R	O
Family : Saccobranchidae														
50. Heteropneustes fossilis (Bloch.)	C	C	C	C	C	C	C	C	C	C	C	Vc	C	Vc
Family: Clariidae														
51. Clarias batrachus (Linn.)	N	O	O	O	O	C	O	O	O	R	R	C	O	C
Order : Beloniformes **Family: Belonidae**														
52. Xenentodon cancila (Ham.)	C	C	O	O	C	O	O	C	C	C	C	Vc	C	Vc
Order: Ophiocephaliformes **Family : Ophiocephalidae**														
53. Channa gachua (Ham.)	C	C	O	O	C	O	C	C	O	O	C	C	C	C
54. Channa marulius (Ham.)	N	N	O	O	N	O	N	N	O	R	O	O	C	C
55. Channa puntatus (Bl.)	O	N	O	O	O	O	C	O	C	O	O	C	C	C
56. Channa striatus (Bl.)	O	O	O	O	O	C	O	O	O	C	C	C	C	C
Order : Perciformes **Family: Centropomidae**														
57. Chanda nama (Ham.)	O	O	O	O	O	C	O	C	C	O	C	C	C	C
58. Chanda ranga (Ham.)	N	N	N	N	N	O	N	N	O	O	C	C	C	V
Family: Nandidae														
59. Nandus nandus (Ham.)	N	N	N	N	N	N	N	N	N	N	R	N	T	R
Family : Anabantidae														
60. Anabas testudineus (Bloch.)	N	N	N	N	N	N	N	N	R	R	R	R	R	R
61. Colisa fasiatus (Bl. & Schn.)	N	N	N	N	N	N	N	N	O	R	O	R	O	O
Family : Gobioidae														
62. Glossigobius giuris (Ham.)	N	N	N	N	N	N	N	N	N	O	R	N	O	O
Family: Cichlidae														
63. Oreochromus mossambica	Vc	Vc	Vc	Vc	Vc	Vc	Vc	C	Vc	Vc	Vc	C	Vc	Vc
Family : Osphronemidae														
64. Osphronemus goramy (Ham.)	N	N	N	N	N	N	N	N	N	N	N	R	R	R
Order :Mastacembeleformes **Family: Mastacembelidae**														
65. Mastacembelus armatus	O	O	O	O	C	O	O	C	O	R	C	O	O	C
66. Mastacembelus pancalus	N	N	N	N	O	R	N	N	O	O	R	O	O	C

Abbreviations

C= Common; Vc= Very common; O= Occasional; R= Rare; N= Not recorded.

A= Mandirghat; B= Policelineghat; C= Maszidghat; D= Dhobighat; A_1= Filter plant area; B_1= Narsingarh area; C_1= Ramnagar village area; D_1= Lakhanpur village area; A_2 = Kopra Dam; B_2= Imlai village area; C_2= Madkoleshwar area; A_3= Narsingarh village area; B_3= Bhadbhada Dam; C_3= Tejgarh village area

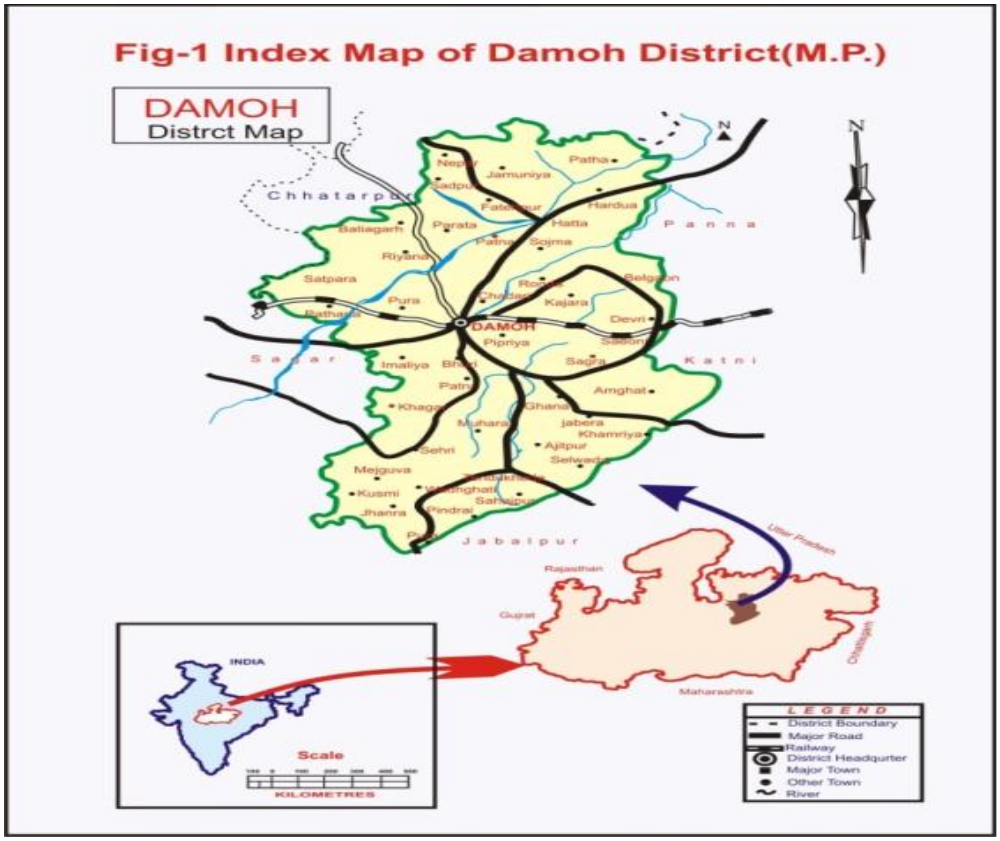


Fig-1 Index Map of Damoh District(M.P.)
DAMOH
Distrct Map
Chhatarpur
Panna
Satpara
Batiagarh
Riyasal
Patha
Jamuniya
Hardua
Hatta
Sojna
Patharia
Pura
Rehli
Kajara
Devri
Pipriya
Sagar
Katni
Imaliya
Amghat
Khaga
Jabera
Khamriya
Sehri
Ajitpur
Mejgawa
Kusmi
Jhanjra
Pindrai
Jabalpur
Uttar Pradesh
Rajasthan
Gujrat
Chhattisgarh
Maharashtra
INDIA
Scale
KILOMETRES
LEGEND
District Boundary
Major Road
Railway
District Headquarter
Major Town
Other Town
River

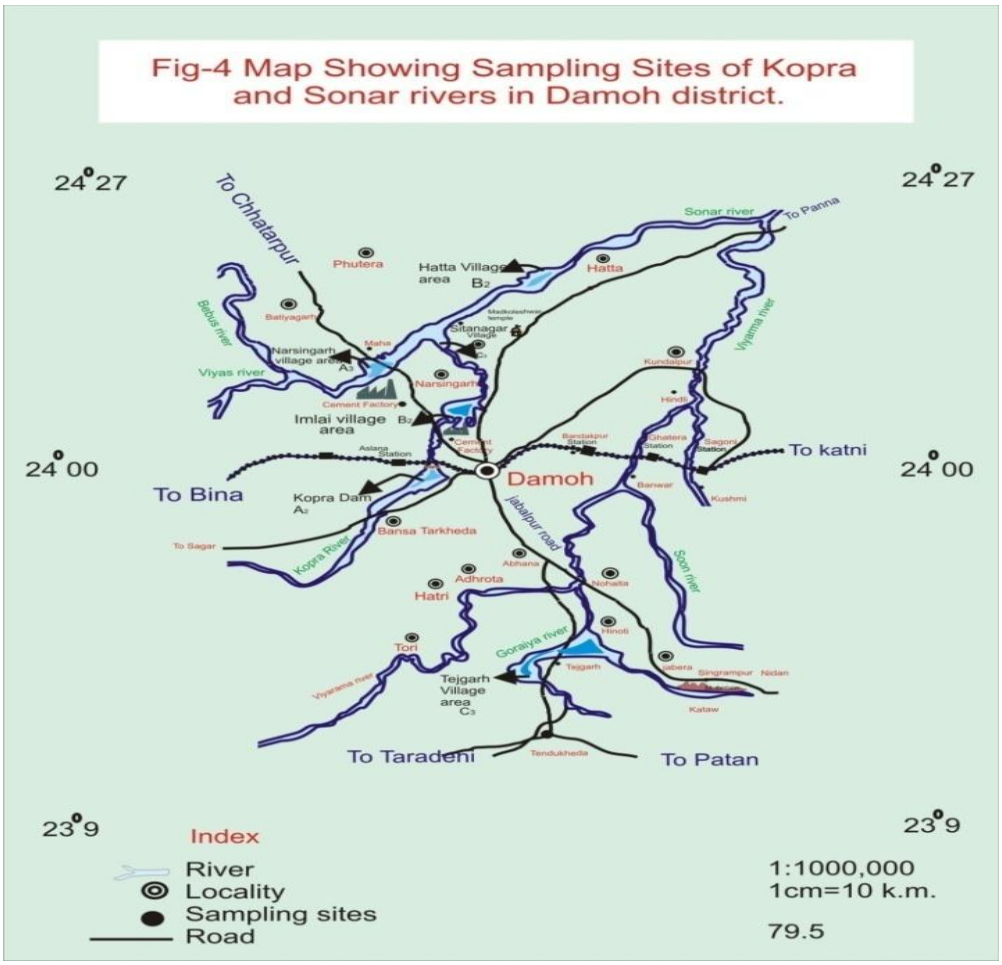
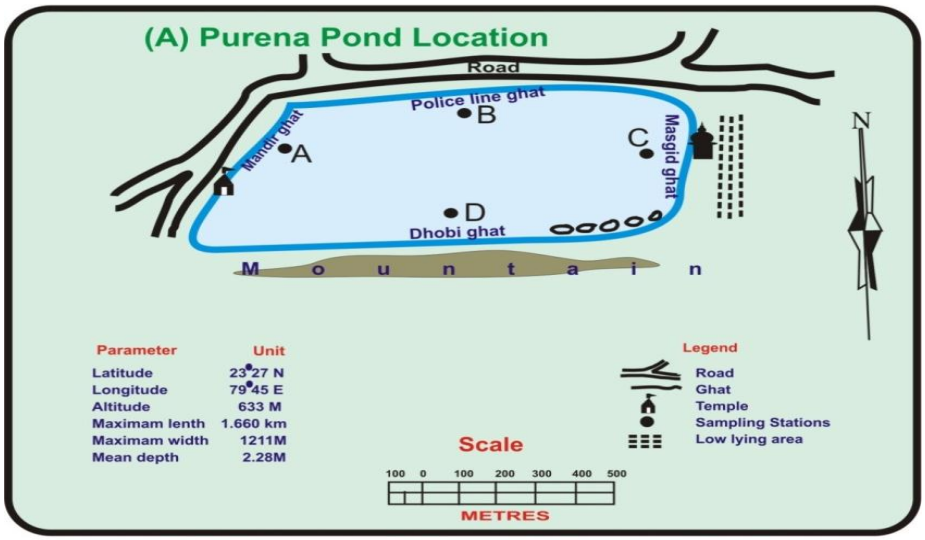
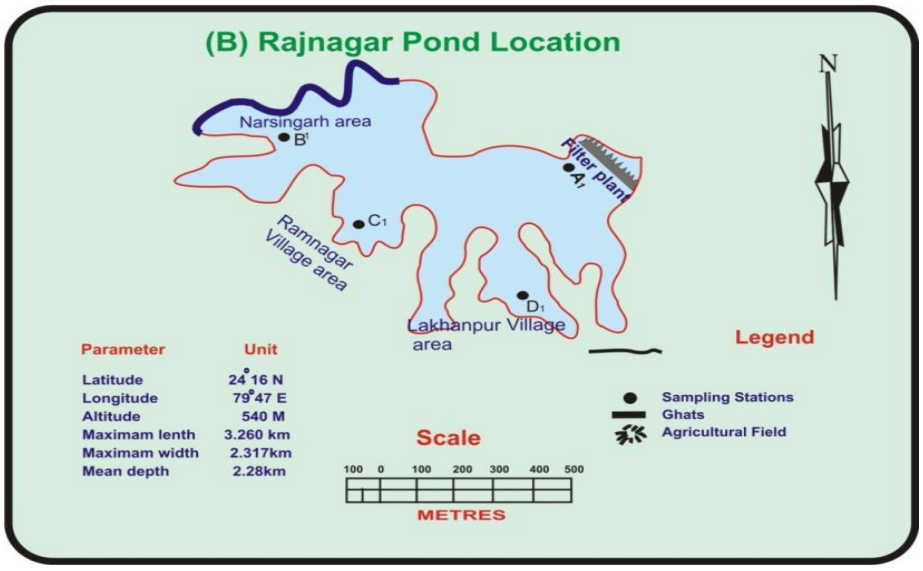


Fig-4 Map Showing Sampling Sites of Kopra and Sonar rivers in Damoh district.
24°27
24°00
23°9
To Chhatarpur
Phutera
Hatta Village area B2
Hatta
Sonar river
To Panna
Batiyagarh
Babus river
Sitanagar Village
Narsingarh village area A3
Viyas river
Narsingarh
Cement Factory
Imlai village area B2
Vyasma river
Kundalpur
Hinoti
To katni
Damoh
To Bina
Kopra Dam A2
Banwar
Kushmi
Jabalpur road
To Sagar
Kopra River
Bansa Tarkheda
Abhana
Soan river
Adhrota
Hatri
Tori
Goraiya river
Hinoti
Tejgarh Village area C3
Tejgarh
Jabera
Singrampur
Nidan
Kataw
Vyarama river
To Taradehi
Tendukheda
To Patan
Index
River
Locality
Sampling sites
Road
1:1000,000
1cm=10 k.m.
79.5





CONCLUSION

Though I have done hard efforts to collect and identify the fish of this locality. Still I feel like there is a big gap in study of biodiversity of this region. Feeding and reproduction behavioral study of many such animals are still to be done. Many morphological changes occur in males and female which will help other biologists. The depleting population of many species of the groups studied is very alarming and to prevent further loss of species it is the need of the time to awoken the villagers, tribal and citizens.

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