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ICTHYOFAUNA OF MADHUMATI RIVER AT MOHAMMADPUR, MAGURA

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Abstract: The investigation was conducted on the present situation of fish biodiversity and abundance of fish fauna at two different points of Madhumati River at Mohammadpur upazilla under Magura district from October 2018 to September 2019. A total of 83 species of fresh water fish species were recorded belonging to 58 genera of 28 families under 11 orders. Cypriniformes was recorded as the dominant order comprising 26 species constituting 31% of the total. According to IUCN 59% of fish species were Least Concern, 12% were Vulnerable, 11% were Endangered, 9% were Near Threatened, 1% of each were Data Deficient and Critically Endangered locally, and 7% Exotic fish species were also enlisted. Annual value of Shannon diversity index (H) was 1.974 and Sipmson diversity index (λ) was 0.272 which indicate highest diversity of fish was in March. Annual Margalef's richness index (D) was 6.654 and Pielou's evenness index (E) was 0.447 denote highest richness was in November and evenness was in March. The river was found to have moderate type of diversity in terms fish species composition.

Key words: *Madhumati River, fish fauna, diversity status, diversity indices, diversity richness*

INTRODUCTION

Bangladesh is favoured with various inland water bodies endowed with rich diversity in fish species (Islam *et al.*, 2016). It has the third biggest aquatic fish biodiversity in Asia, after China and India, with about 800 species in fresh, brackish and marine waters (Hussain and Mazid, 2001). It enriched with fish fauna support at least 265 freshwater fin fish species under 154 genera and 55 families (Rahman, 2005). More detailed systematic account of the Inland Fisheries of the Indian Region and Adjacent countries including Bangladesh has been made by Talwar and Jhingran (1991). Bangladesh is one of the world's prominent fish producing country with a total production of 4.276 million MT in FY 2017-18 (DoF, 2018). Through this remarkable achievement Bangladesh for the first time in the history has become self-sufficient in fish production

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providing 62.58 g of fish per person in everyday dietary consumption. Last 10 years average growth performance of this sector is 5.26%, which seems quite consistent and encouraging (DoF, 2018).

Madhumati is a very important river in Bangladesh having very wide and extensive. It is also one of the longest rivers in Bangladesh and a distributary of the Ganges flows through Kushtia, Magura, Jessore, Faridpur, Pirojpur and Khulna districts in the country. The river has been named as the Gorai in the upper part and Madhumati in the lower. The Gorai River started its course at Talbaria, north of Kushtia town and 19 km downstream from Hardinge Bridge. South of Kushtia its first branch, the Kaliganga joined with the Kumar River near Shailkupa. The main river is divided and rejoined several times as it flows southeast to Mohammadpur upazila under Magura district. From this point it changes its name to Madhumati (Banglapedia, 2014).

Works on status of freshwater fish and diversity of fish in Bangladesh have been done by Shafi and Quddus (1982), Hossain *et al.* (2013), Galib *et al.* (2013), Joadder *et al.* (2015), Islam *et al.* (2016) and Easmin *et al.* (2018), whereby checklist of fish, showing conservation status of fish and diversity of fish was made. IUCN Red list of Bangladesh (2015) reported a total of 253 fish species were assessed of which 64 species have been found threatened consisting 25.3% of the total species. Among them 9 species were evaluated as Critically Endangered (CR), 30 species as Endangered (EN), 25 species as Vulnerable (VU), 27 species as Near Threatened (NT), 122 species as Least Concern (LC) and the rest 40 species were considered Data Deficient (DD). No fish was identified as extinct or regionally extinct.

The deterioration of natural water bodies resulting from human interference due to construction of roads, deforestation, embankments, invasion to agricultural lands, indiscriminate use of pesticides and natural causes had negative impact of fish diversity in the river. It was selected for its contribution in fisheries sectors. Fish status in the river may impact on the society of the river area. The rich diversity may elucidate further fish resources in the area which may ensure the protein supply of the local people. Instead, the indiscriminate harmful techniques of fishing, use of different fishing gears threatens the biodiversity of the seasonal floodplains. In case of less diversity awareness program may be initiated alongside the river for the development of the fish fauna of the river. Hence, there is necessity to update the species check-list of fish available in the Madhumati River and present status of the fish and

their diversity, richness and evenness in the river. This exploration was aimed to build up authentic information about the species available at the Madhumati River in south-west part of country.

MATERIAL AND METHODS

The Madhumati River was selected for this study to assess the fish fauna and their current status. The fish samples were collected monthly from the river during October 2018 to September 2019. Two points were selected in Magura District at Mohammadpur Upazila, which were Elangkhali Ghat (23°24'29.7″N and 89°36'16.5″E) and Jhama Bazar Ghat (23°36'03.4″N and 89°57'94.3″E). Monthly fish samples were collected from the selected spots directly from the fishermen, retailers, 'Nikari', 'Bapari' and 'Aratdar' from the two preselected sites. Some fishes were directly identified in the sampling spots and rest of the fish specimens were carried in ice box or safeguarded in 4 to 6% buffered formalin solution to the Fisheries Laboratory, Department of Zoology, Jagannath University for identification and further taxonomic study. Large fishes were easily counted and recorded but small fishes were counted using the following formula (Iqbal *et al.* 2015):

$$N = Ns \times \frac{Wt}{Ws}$$

Where, N is the total number of a fish species, Ns is number of individual small fish in each subsample, Wt is the total weight of small fish found in the sample and Ws is weight of subsample. Fish species were identified based on their morphometric and meristic characters following Fish Base (2020), Rahman (2005), Talwar and Jhingran (1991) and Bhuiyan (1964). Identified fishes were systematically arranged according to Nelson (2006). Fish status were categorized according to IUCN Redlist (2015, Volume 5: Freshwater Fish). Diversity, richness and evenness were calculated using the following formulae:

Shannon–Weaver diversity index, $H = -\Sigma Pi \ ln \ Pi$ (Shannon–Weaver, 1949)

Simpson index, $\lambda = \Sigma Pi^2$ (Simpson, 1949)

Margalef's richness index, $D = \frac{(S-1)}{ln(N)}$ (Margalef, 1968)

Pielou's evenness index, $E = \frac{H}{ln(S)}$ (Pielou, 1966)

Where, H and λ is the diversity index, Pi is the relative abundance (n/N), , n is the number of individual for each species, N is the total number of individual, D

is the richness index, *E* is the similarity or evenness index, *S* is the total number of species and *ln* is the natural logarithm.

Statistical analysis was done with help of Microsoft Office Excel 2016.

RESULTS AND DISCUSSION

A total 83 species under 58 genera were identified belonging to 28 families under 11 orders (Table 1, Fig 7 – 89). The most dominant order was Cypriniformes comprising 31% of all the number of species recorded and the number of fish species was 26. Other dominating orders were Perciformes, Siluriformes, Clupeiformes and Channiformes which comprised 20, 19, 6 and 4 species of fish respectively. The lowest numbers of fish species representing orders were Anguiliformes, Pleuronectiformes, Synbranchiformes and Tetraodontiformes that consisted only 1 species of fish each (Fig. 1). Galib *et al.* (2013) reported on the fish fauna of Choto Jamuna River and a total of 63 species of fishes had been recorded under 41 genera, 23 families and 9 orders. The most dominant order was Cypriniformes comprising 34.92%, next to Cypriniformes, other dominant orders were Siluriformes, Perciformes and Synbranchiformes constituting 28.57%, 19.05% and 6.35% of species recorded respectively. Islam *et al.* (2016) found Perciformes as most dominant order constituting 42.62% of the total fish population followed by Siluriformes (11.48%), Clupeiformes (9.84%), Pleuronectiformes (3.29%), Synbranchiformes (3.29%), Osteoglossiformes (1.64%), Beloniformes (1.64%), Mugiliformes (4.92%), Cypriniformes (16.39%) and Tetraodontiformes (4.92%) in the Sibsa River in South-Western Bangladesh.

In family composition, the most dominant family was Cyprinidae comprising 22 species under 12 genera. The minimal number (1 species) belonged to 11 families of fish viz. Ophichthidae, Pangasiidae, Synbranchidae, Heteropneustidae, Nandidae, Mugilidae, Anabantidae, Cynoglossidae, Belonidae, Hemiramphidae, Tetraodontidae (Fig. 2). Azadi and Alam (2013) reported Cyprinidae as the most dominant family comprising 20 species and other dominant families were Gobiidae, Schilbeidae and Bagridae constituting 11, 5 and 4 species respectively in the Halda River.

According to IUCN (2015), 59% of fish species were Least Concern, 12% were Vulnerable, 11% were Endangered, 9% were Near Threatened and 1% was Data Deficiency and Critically Endangered and 7% Exotic species were also recorded (Fig. 3). Easmin *et al.* (2018) reported 77 species of fish in the Jamuna River where 59% was Least Concern (LC), 23% were Threatened including 1% Critically Endangered (CR), 12% Endangered (EN) and 10% Vulnerable (VU) species, and 5% Exotic fish was also recorded during the study period.

Table 1. Fish species of Madhumati River of Magura

Order	Family	Scientific Name	Local Name	English Name	Local Status	Global Status
Osteoglossiformes	Notopteridae	1. *Chitala chitala*	Chital	Clown knife fish	EN	NT
		2. *Notopterus notopterus*	Foli	Bronze feather back	VU	LC
Anguiliformes	Ophichthidae	3. *Pisodonophis boro*	Kharu, Hijra	Rice paddy eel	LC	LC
Synbranchiformes	Synbranchidae	4. *Monopterus cuchia*	Kuchia, Kuicha	Cuchia	VU	VU
Clupeiformes	Clupeidae	5. *Corica soborna*	Kachki	Ganges river spral	LC	LC
		6. *Pellona ditchela*	Choukka	Indian pellona	LC	NE
		7. *Tenualosa ilisha*	Ilish	Hilsha shad	LC	LC
	Engraulidae	8. *Gudusia chapra*	Chapila	Indian river shad	VU	LC
		9. *Setipinna phasa*	Phasa	Gangatic hairfin anchovy	LC	LC
		10. *Setipinna taty*	Teli phasa	Scaly hairfin anchovy	LC	NE
Channiformes	Channidae	11. *Channa marulius*	Gajar	Great snakehead	EN	LC
		12. *Channa orientalis*	Cheng	Walking snakehead	LC	LC
		13. *Channa puncta*	Taki	Spotted snakehead	LC	LC
		14. *Channa striata*	Shol	Snakehead murrel	LC	LC
Cypriniformes	Cyprinidae	15. *Amblypharyngodon mola*	Mola	Mola carplet	LC	LC
		16. *Aspidoparia morar*	Morar, Morari	Aspidopara	VU	NE
		17. *Barbonymus gonionotus*	Thai sarpunti	Java barb	Exotic	Exotic
		18. *Catla catla*	Katla	Catla	LC	NE
		19. *Cirrhinus cirrhosus*	Mrigal	Mrigal crap	NT	VU
		20. *Cirrhinus reba*	Tatkini	Reba	NT	LC
		21. *Cyprinus carpio* var. *carpio*	Common carp	Common carp	Exotic	Exotic
		22. *Cyprinus carpio* var. *nudus*	Carpu	Common carp	Exotic	Exotic
		23. *Esomus danricus*	Darkina	Flying barb	LC	LC
		24. *Hypophthalmichthys molitrix*	Silver carp	Silver carp	Exotic	Exotic
		25. *Hypophthalmichthys nobilis*	Big-head carp	Big-head carp	Exotic	Exotic
		26. *Labeo bata*	Bata	Bata labeo	LC	LC
		27. *Labeo calbasu*	Kalibaus	Orange fin labeo	LC	LC
		28. *Labeo rohita*	Rui	Rohu	LC	LC
		29. *Osteobrama cotio*	Lohasur, Keti	Cotia	NT	LC
		30. *Pethia conchonius*	Kanchan punti	Rosy barb	LC	LC
		31. *Pethia guganio*	Mola punti	Glass barb	LC	LC
		32. *Pethia ticto*	Tit punti	Ticto barb	VU	LC

Order	Family	Scientific Name	Local Name	English Name	Local Status	Global Status
		33. *Puntius chola*	Chala punti	Swamp barb	LC	LC
		34. *Puntius sophore*	Jat punti	Pool barb	LC	LC
		35. *Salmostoma bacaila*	Narkali chela	Large razorbelly minnow	LC	LC
		36. *Salmostoma phulo*	Fulchela	Finescale razorbelly minnow	NT	LC
	Cobitidae	37. *Botia dario*	Rani	Bengal loach	EN	LC
		38 .*Botia lohachata*	Putul	Reticulate loach	EN	NE
		39. *Lepidocephalichthys annandalei*	Gutum	Annandale loach	VU	LC
		40. *Lepidocephalichthys guntea*	Gutum	Guntea loach	LC	LC
Siluriformes	Bagridae	41. *Mystus bleekeri*	Gulsha tengra	Day's mystus	LC	LC
		42. *Mystus cavasius*	Kabashi tengra	Gangetic mystus	NT	LC
		43. *Mystus tengara*	Bajari tengra	Stripped dwarf catfish	LC	LC
		44. *Mystus vittatus*	Tengra	Asian striped catfish	LC	LC
		45. *Rita rita*	Rita	Rita	EN	LC
		46. *Sperata aor*	Ayre	Long-whiskered catfish	VU	LC
		47. *Sperata seenghala*	Guijja, Ayre	Giant river catfish	VU	LC
	Siluridae	48. *Ompok pabda*	Madhu pabda	Pabdah catfish	EN	NT
		49. *Wallago attu*	Boal	Freshwater shark	VU	NT
	Schilbeidae	50. *Ailia coila*	Kajuli, Baspata	Gangetic ailia	LC	NT
		51. *Clupisoma garua*	Ghaura	Garua bacha	EN	NE
		52. *Eutropiichthys murius*	Muri bacha	Murius vacha	LC	LC
		53. *Eutropiichthys vacha*	Bacha	Batchwa vacha	LC	LC
	Pangasiidae	54. *Pangasius pangasius*	Pangas	Pungas catfish	EN	LC
	Sisoridae	55. *Bagarius bagarius*	Baghair	Devil catfish	CR	NT
		56. *Gagata cenia*	Cenia	Indian gagata	LC	LC
	Clariidae	57. *Clarias batrachus*	Magur	Walking catfish	LC	LC
		58. *Clarias gariepinus*	African magur	North african catfish	Exotic	Exotic
	Heteropneustidae	59. *Heteropneustes fossilis*	Shing	Stinging catfish	LC	LC
Perciformes	Ambassidae	60. *Chanda nama*	Nama Chanda	Elongated glass-perchlet	LC	LC
		61. *Parambassis lala*	Lal chanda	Highfin glassy perchlet	LC	NE
		62. *Parambassis ranga*	Ranga chanda	Indian glassy fish	LC	LC
	Sciaenidae	63. *Johnius coitor*	Koitor poa	Coitor croaker	LC	LC
		64. *Otolithoides pama*	Poa	Pama croaker	LC	NE
	Nandidae	65. *Nandus nandus*	Bheda,	Mottled	NT	LC

Order	Family	Scientific Name	Local Name	English Name	Local Status	Global Status
			Meni	nandus		
	Mugilidae	66. *Rhinomugil corsula*	Khorsula	Corsula mullet	LC	LC
	Gobiidae	67. *Eugnathogobius oligactis*	Bele	Goby	VU	LC
		68. *Glossogobius giuris*	Bele	Tank goby	LC	LC
		69. *Oxyurichthyes microlepis*	Nuna baila	Small scaled goby	LC	NE
		70. *Pseudapocryptes elongatus*	Chewa	Lanceolate goby	LC	LC
	Gobioididae	71. *Eleotris lutea*	Kuli, Goby	Lutea sleeper	DD	NE
		72. *Odontamblyopus rubicundus*	Lal chewa	Rubicundus Eelgoby	LC	NE
	Anabantidae	73. *Anabas testudineus*	Koi	Climbing perch	LC	DD
	Osphronemidae	74. *Trichogaster chuna*	Chuna khailsha	Dwarf gourami	LC	LC
		75. *Trichogaster fasciatus*	Khailsha	Banded gourami	LC	LC
		76. *Trichogaster lalia*	Lal Khailsha	Dwarf gourami	LC	LC
	Mastacembelidae	77. *Macrognathus aculeatus*	Tara baim	Lesser spiny eel	NT	NE
		78. *Macrognathus pancalus*	Guchi baim	Barred spiny eel	LC	LC
		79. *Mastacembelus armatus*	Sal baim	Zig-zag eel	EN	NE
Pleuronectiformes	Cynoglossidae	80. *Paraplagusia bilineata*	Kukur jeeb	Fingerlip tonguesole	LC	NE
Beloniformes	Belonidae	81. *Xenentodon cancila*	Kakila	Freshwater garfish	LC	NE
	Hemirhamphidae	82. *Hyporhamphus limbatus*	Ek thuitta	Congaturi halfbeak	LC	NE
Tetraodontiformes	Tetraodontidae	83. *Leiodon cutcutia*	Tepa	Ocellated puffer fish	LC	LC

CR= Critically Endangered, EN= Endangered, VU= Vulnerable, NT= Near Threatened, LC= Least Concern, DD= Data Deficient, NE= Not Evaluated.

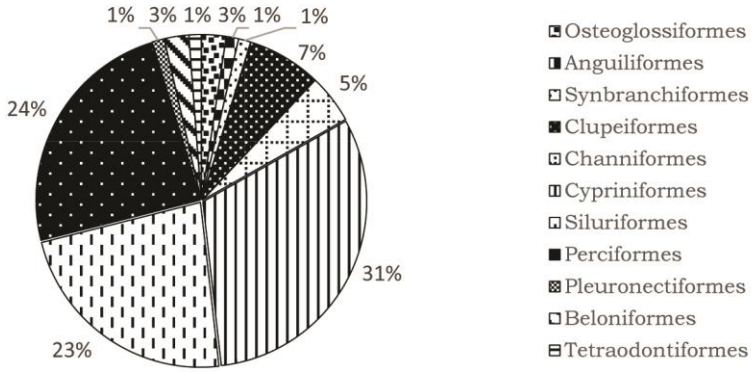


Fig. 1. Species composition in different orders of fish.

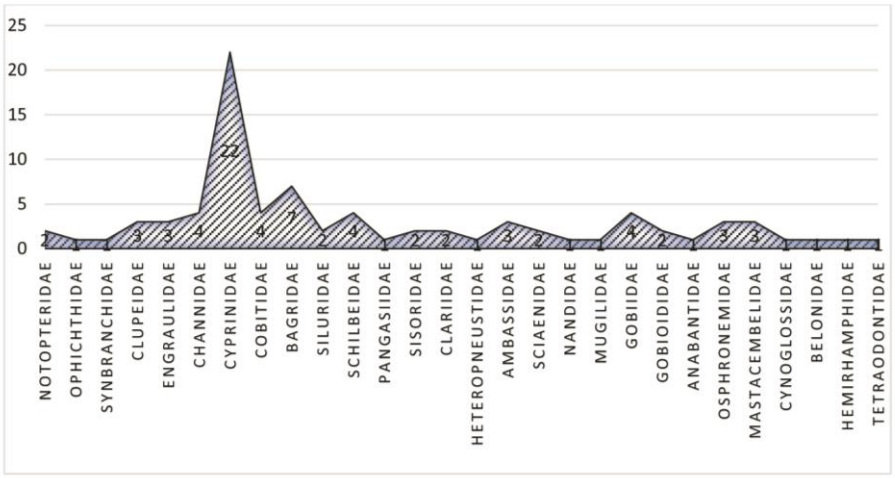


Fig. 2. Species composition of different families of fish in Madhumati River.

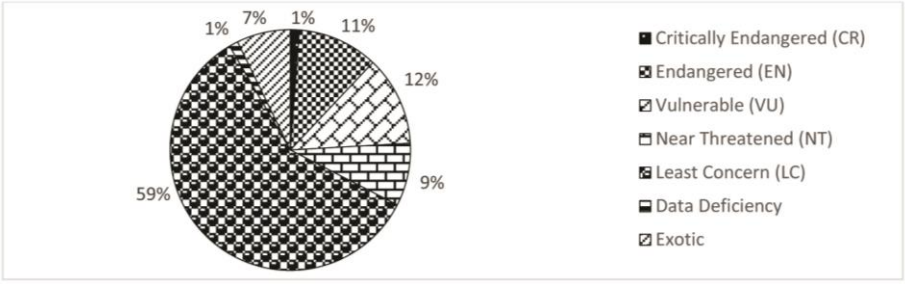


Fig. 3. Local status of fish fauna in the Madhumati River

A total 25 species of fish were found as Threatened locally where the highest number 6 representing the Siluriformes following 5 representing the Cypriniformes (Fig. 4). The lowest number of Threatened species was 1 in each order of Anguiliformes, Synbracchiformes, Beloniformes, Pleuronectiformes and Tetraodontiformes (Fig. 4). In Halda River among 83 species 3 were Critically Endangered and 8 were Vulnerable (Azadi and Alam, 2013).

On global context, 53 (64%) species of fish were Least Concern, 16 (19%) were Not Evaluated, 5 (6%) were Near Threatened, 2 (3%) were Vulnerable and 1 (1%) was Data Deficiency. Six (7%) Exotic species were also recorded in this study (Fig. 5). Joadder *et al.* (2015) working on Padma River found 72% of the total fish species to be Least Concern and global conservation status was not assessed by IUCN of 13% species.

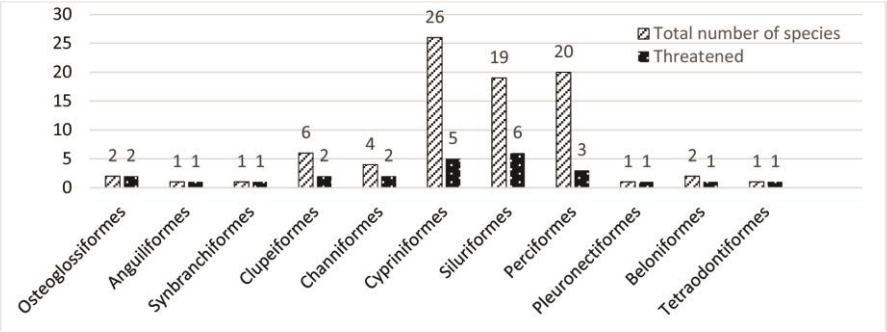


Fig. 4. Order-wise locally threatened fish species of Madhumati River.

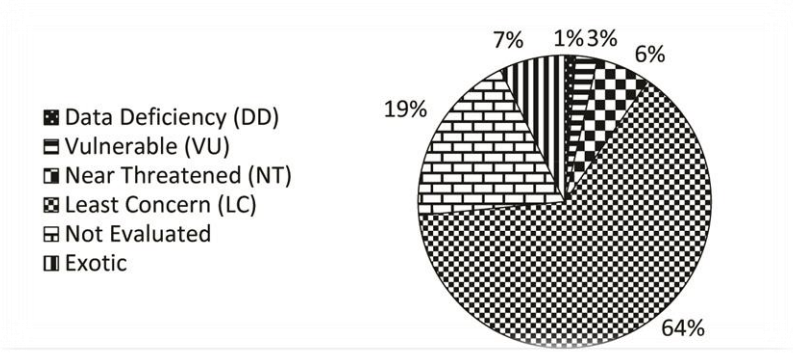


Fig. 5. Global status of fish fauna of Madhumati River.

According to Global status, 4 species of fish were recorded as Threatened among them 2 belonged to the order Perciformes and 1 of each species was found under orders Cypriniformes and Siluriformes (Fig. 6). According to Global status, two species of each were Threatened belonging to Cypriniformes and Synbranchiformes, as reported by Easmin *et al.* (2018) in the Jamuna River.

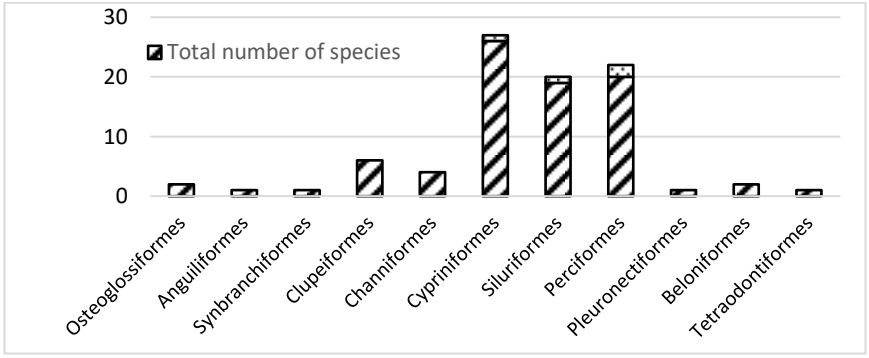


Fig. 6. Globally threatened fish species in different orders of Madhumati River.

Diversity, Richness and Evenness indices of fishes in Madhumati River: Higher Shannon diversity index was found in March 2.651 and lower 1.369 in January (Table 2). The higher Shannon diversity index value indicates the higher species diversity of the area. Thus in the river highest diversity

Table 2. Different indices of fish fauna of Madhumati River

Months	Number of species	Number of Individuals	Shannon diversity index (*H*)	Simpson diversity index (*λ*)	Margalef's richness index (*D*)	Pielou's evenness index (*E*)
October'18	38	2489	2.177	0.180	4.732	0.594
November'18	48	19913	2.099	0.110	4.747	0.549
December'18	34	29526	1.480	0.336	3.206	0.419
January'19	34	16058	1.369	0.429	3.407	0.388
February'19	36	7476	1.920	0.245	3.924	0.531
March'19	41	26184	2.651	0.099	3.932	0.629
April'19	33	18553	1.700	0.277	3.256	0.486
May'19	32	18394	1.568	0.282	3.157	0.452
June'19	32	46463	1.393	0.313	2.884	0.402
July'19	36	11781	1.890	0.238	3.734	0.525
August'19	36	10120	1.738	0.298	3.795	0.483
September'19	40	17841	1.631	0.351	3.984	0.441
Annual	83	224798	1.974	0.272	6.654	0.447

was seen in March and lowest diversity of fish was in January in the river. Highest Simpson index was 0.429 in January and lowest 0.099 in March (Table 2). Simpson index value ranges between 0 to 1 and low value represents higher diversity. So, according to Simpson's index highest diversity was observed in March and lowest in January.

Highest Margalef's Richness value was 4.747 in November and lowest in 2.884 June (Table 2). Margalef's richness index value depends on species number. Higher the species number, it expresses higher richness in that ecosystem. Highest species number was found in November and lowest species number was found in June. So, November was the highest richness and June was the lowest richness month in term of species richness.

Highest Pielou's Evenness was 0.629 in March and lowest was 0.388 in January. Pielou's evenness index value range from 0 to 1, if the value is towards 1, shows species number to be more evenly distributed. Therefore, in March the species were more evenly distributed and less evenly distributed in January.

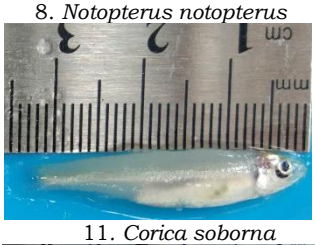
Annual Shannon diversity index, Simpson diversity index, Richness index, Evenness Index values were 1.974, 0.272, 6.654 and 0.447 respectively (Table 2). Annual values of indices shown moderately diversified, Richest and evenly

7. *Chitala chitala*

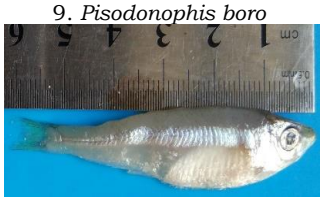
8. *Notopterus notopterus*

9. *Pisodonophis boro*

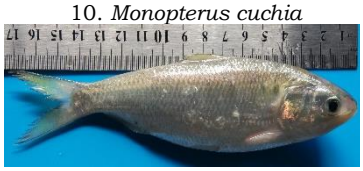
10. *Monopterus cuchia*



11. *Corica soborna*



12. *Pellona ditchela*



13. *Tenualosa ilisha*

14. *Gudusia chapra*

15. *Setipinna phasa*

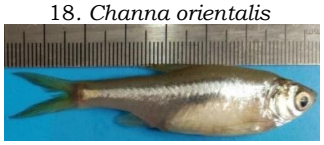
16. *Setipinna taty*

17. *Channa marulius*

18. *Channa orientalis*

19. *Channa punctata*

20. *Channa striata*



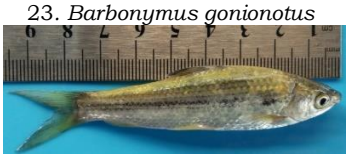
21. *Amblypharyngodon mola*

22. *Aspidoparia morar*

23. *Barbonymus gonionotus*

24. *Catla catla*

25. *Cirrhinus cirrhosus*



26. *Cirrhinus reba*

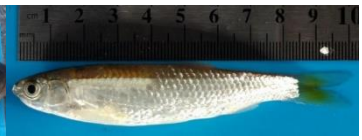
27. *Cyprinus carpio* var. *carpio*

28. *Cyprinus carpio* var. *nudus*

29. *Esomus danricus*

30. *Hypophthalmichthys molitrix*

31. *Hypophthalmichthys nobilis*



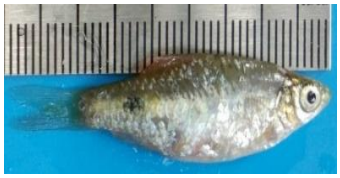
32. *Labeo bata*

33. *Labeo calbasu*

34. *Labeo rohita*

35. *Osteobrama cotio*

36. *Pethia conchonius*



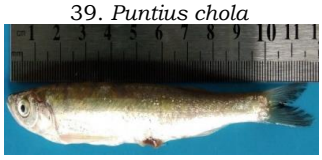
37. *Pethia guganio*

38. *Pethia ticto*

39. *Puntius chola*

40. *Puntius sophore*

41. *Salmostoma bacaila*



42. *Salmostoma phulo*

43. *Botia dario*

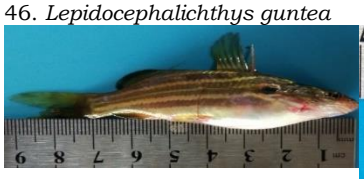
44. *Botia lohachata*

45. *Lepidocephalichthys annandalei*

46. *Lepidocephalichthys guntea*

47. *Mystu sbleekeri*

48. *Mystus cavasius*



49. *Mystus tengara*

50. *Mystus vittatus*

51. *Rita rita*

52. *Sperata aor*

53. *Sperata seenghala*

54. *Ompok pabda*

55. *Wallago attu*

56. *Ailia coila*

57. *Clupisoma garua*

58. *Eutropiichthys murius*

59. *Eutropiichthys vacha*

60. *Pangasius pangasius*

61. *Bagarius bagarius*

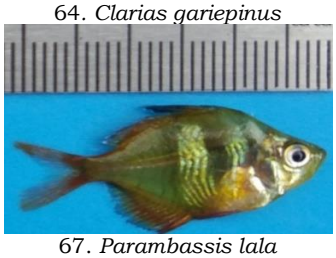
62. *Gagata cenia*

63. *Clarias batrachus*

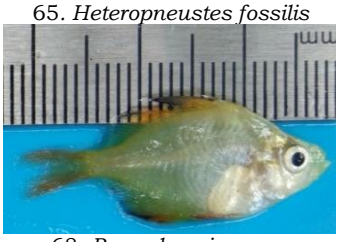
64. *Clarias gariepinus*

65. *Heteropneustes fossilis*

66. *Chanda nama*



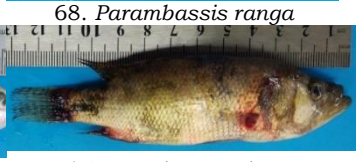
67. *Parambassis lala*



68. *Parambassis ranga*

69. *Johnius coitor*

70. *Otolithoides pama*



71. *Nandus nandus*

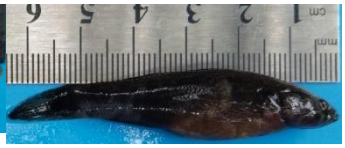
72. *Rhinomugil corsula*

73. *Eugnathogobius oligactis*

74. *Glossogobius giuris*

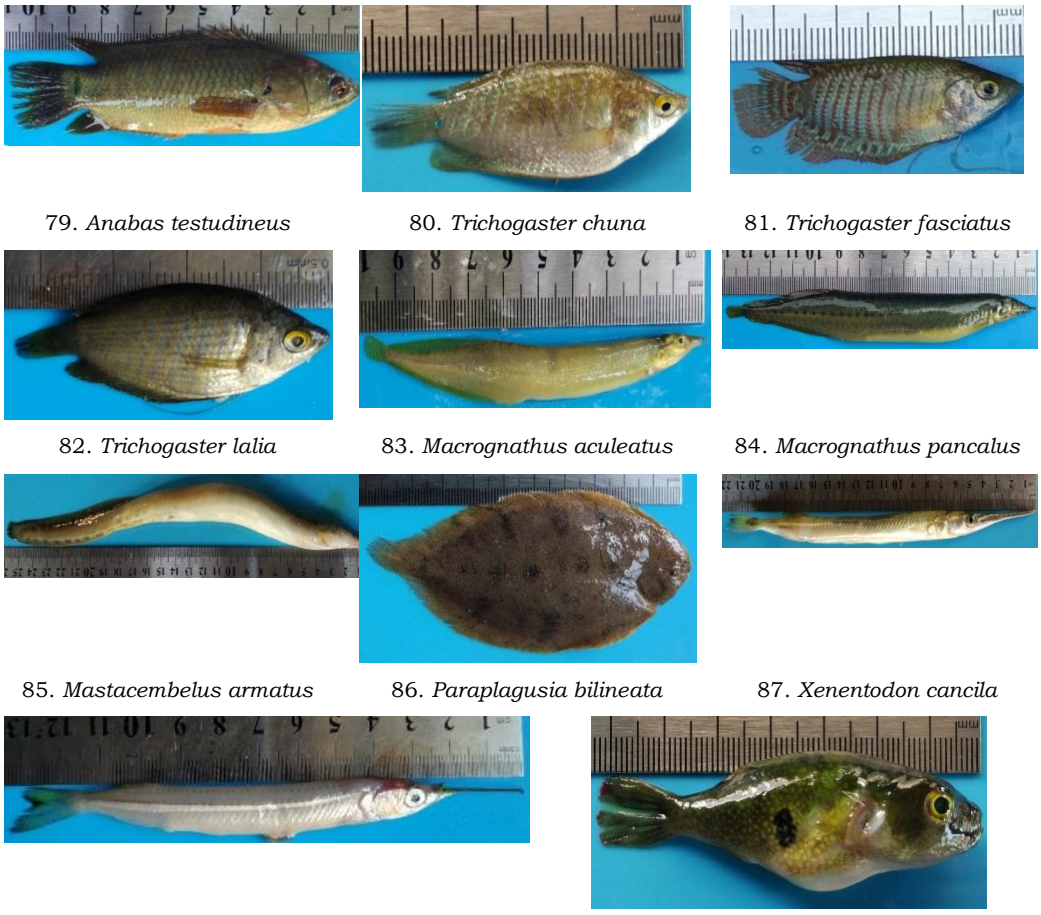
75. *Oxyurichthye smicrolepis*

76. *Pseudapocryptes elongatus*



77. *Eleotris lutea*

78. *Odontamblyopus rubicundus*



79. *Anabas testudineus* 80. *Trichogaster chuna* 81. *Trichogaster fasciatus*

82. *Trichogaster lalia* 83. *Macrognathus aculeatus* 84. *Macrognathus pancalus*

85. *Mastacembelus armatus* 86. *Paraplagusia bilineata* 87. *Xenentodon cancila*

88. *Hyporhamphus limbatus* 89. *Leiodon cutcutia*

Fig. 7-89. Photographs of the fishes recorded from Madhumati River, Magura.

distributed in number respectively in the Madhumati River. Easmin *et al.* (2018) found in the Jamuna River the annual values of Shannon diversity index (*H*), Simpson index (*λ*), Margalef's richness index (*D*) and Pielou's evenness index (*E*) as 3.350, 0.053, 6.931 and 0.772 respectively. Overall values of diversity, richness and evenness indices were found as 3.717, 6.954 and 0.897, respectively by Galib *et al.* (2013) in Choto Jamuna River. Over all values of diversity, richness and evenness indices were found to be 1.42, 6.64 and 0.86, respectively by Rahman *et al.* (2015) in the Talma River. From this study and according to the experiences shared by some fishermen engaged fishing in this river, the fish biodiversity of the Madhumati River has declined with time due to over exploitation, natural causes such as flooding, siltation, drought and natural

calamities, construction of obstacle for fish migration and breeding and lack of social awareness.

CONCLUSION

This is a preliminary and baseline study and have some limitations. A small part of the river was considered in this study which may not reflect the exact condition of the river. This study suggests the decline trend of the existing fish fauna and degrading the biodiversity. Extensive and complete study on this river along with social impact of local people may reveal the exact condition of the river.

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