



## DIVERSITY OF ORNAMENTAL FISHES IN THE RIVER ISLAND MAJULI, ASSAM

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### ABSTRACT

Ornamental fish diversity of Majuli island, one of the largest river island in the world, was recorded during October 2009 to September 2011. During the survey period, a total number of 62 ornamental fish species were identified belonging to 42 genera, 22 families and 9 orders. Cyprinidae family represented maximum number of fish species (20) followed by the family Bagridae (5 species), Belontiidae and Channidae (4 species each). The study shows that about 26% of fish species is in threatened category being either vulnerable or endangered.

**KEYWORDS:** Ornamental fishes, Floodplain wetlands, Majuli, Assam.

### INTRODUCTION

The wetlands associated with floodplains of rivers (Floodplain wetland) are common feature of the Indian landscape, especially along the Ganga and Brahmaputra river systems covering an area of 0.2 million ha. (Vass, 2006). The floodplain wetlands (locally known as beels) constitute an important inland fishery resources in the state of Assam. These beels (both open and closed type) provides an ideal habitat for many ornamental fishes (Biswas et al. 1999). Majuli Island, one of the largest riverine islands in the world situated between latitude 26° 45'N – 27° 12'N and longitude 93° 39' E – 94° 35' at an altitude of 60 – 95m msl. The island is bounded by the river Brahmaputra on the South, the river Subansiri on the North-West and Kherkatia Suti in Northeast. Geomorphologically the island is alluvial. The Northeastern region of India is one of the hot spots of freshwater fish biodiversity in the world (Kottelat and Whitten, 1996). Pandey et al. (1998) reported 32 ornamental fish species from Jorhat, Sibsagar, Dibrugarh and Tinsukia districts of upper Assam. Bhattacharjya et al. (2000) recorded 87 potential ornamental fish species occurring in the state of Assam. Bhattacharjya et al. (2003) recorded 217 fish species from Assam of which 150 fish species have potential ornamental value. A total of 274 fish species so far recorded from the Northeastern states of which 250 fish species have ornamental value. Out of the total 250 ornamental fish species of the region, highest number of ornamental fishes (187 species) has been recorded from Assam (Mahapatra et al. 2004). Sarma et al (2004) recorded 61 ornamental fish species from central Brahmaputra valley zone. Das and Biswas (2009) recorded 62 ornamental fish species in the floodplain wetlands of upper Brahmaputra basin. In the present study an attempt has been made to record the ornamental fish diversity of the Majuli island.

### MATERIALS AND METHODS

The present study is based on monitoring capture fishery sites of the island. Different landing sites were visited and

ornamental fishes were collected and recorded. The collected fish specimens were identified following Talwar and Jhingran (1991), Jayaram (1999) and Vishwanath et al (2007) while nomenclature was based on Fishbase (<http://www.Fishbase.com>). For ascertaining conservation, status CAMP (1998) and IUCN (2011) was referred.

### RESULTS AND DISCUSSION

*The island Majuli is inundated by flood every year. During flood, most of the water bodies are converted into a single water body. Therefore both lotic and lentic fishes could be recorded from the wetlands. Certain ecological parameters of the beels water are as follows. pH (6.5 - 8.7), Dissolved oxygen (3.8 – 8.4 mg/L), free carbon dioxide (6.8 – 18.8 mg/L), water temperature (19°C – 32°C), total alkalinity (70 - 200 mg/L), total hardness (58 – 112 mg/L) and Nitrate (0.02 – 0.23 mg/L). The water bodies experience changing environmental conditions year after year. The present study has helped in assessing the present distributional status of these indigenous ornamental fishes.*

*During the present investigation, 62 (sixty-two) fish species belonging to 42 genera, 22 families and 9 orders was recorded. Of these, family Cyprinidae was highest represented with 20 species followed by the family Bagridae (5 species), Channidae and Belontiidae (4 species each). The families Siluridae, Mastacembelidae and Chandidae are represented with 3 species each, Clupeidae, Schilbeidae, Notopteridae, Cobitidae and Nandidae (2 species each), while other families were represented by single species. Maximum number of species belonged to the genus Puntius (6) followed by Mystus, Channa and Trichogaster genus (4 species each). Table 1 provides scientific names, and conservation status (CAMP, 1998 and IUCN, 2011) of the recorded fishes. The conservation status of the fishes is as follows. Out of 62 fish species, 4 species are enlisted as endangered (EN), 12 species as vulnerable (VU), 22 species enlisted as lower risk near threatened (LRnt), 5*

species as lower risk least concern (LRlc), one species in data deficient (DD) category and rest 18 species are in not evaluated(NE) category (CAMP ,1998). As per IUCN redlist of threatened species (2011),42 species are in

least concern(LC) category, one species in data deficient (DD) category,6 species in near threatened(NT) category and 13 species are in not evaluated(NE) category.

**TABLE-1:** Ornamental fishes recorded in the wetlands of Majuli Island, Assam and their conservation status.

Name of the species	CAMP Status	IUCN Status
<b>Order 1: OSTEGLLOSSIFORMES</b>		
Family 1:Notopteridae		
1. <i>Notopterus notopterus</i> ((Pallas,1769)	LRnt	LC
2. <i>Chitala chitala</i> (Hamilton,1822)	EN	NT
<b>Order 2:CLUPEIFORMES</b>		
Family 2:Clupeidae		
03. <i>Gudusia chapra</i> (Hamilton, 1822)	LRlc	LC
04. <i>Gonialosa manmina</i> (Hamilton,1822)	NE	LC
<b>Order 3: CYPRINIFORMES</b>		
Family 3: Cyprinidae		
05. <i>Amblypharyngodon mola</i> (Hamilton,1822)	LRlc	LC
06. <i>Aspidoparia jaya</i> ((Hamilton,1822)	VU	LC
07. <i>Aspidoparia morar</i> (Hamilton,1822)	LRnt	LC
08. <i>Salmophasia bacaila</i> (Hamilton,1822)	LRlc	LC
09. <i>Esomus danricus</i> (Hamilton,1822)	LRlc	LC
10. <i>Rosbora daniconius</i> (Hamilton,1822)	NE	NE
11. <i>Puntius chola</i> (Hamilton,1822)	VU	NE
12. <i>Puntius ticto</i> (Hamilton,1822)	LRnt	LC
13. <i>Puntius sophore</i> (Hamilton,1822)	LRnt	LC
14. <i>Puntius gelius</i> (Hamilton,1822)	NE	LC
15. <i>Puntius conchoni</i> (Hamilton,1822)	VU	LC
16. <i>Puntius terio</i> (Hamilton,1822)	LRnt	LC
17. <i>Cirrhinus reba</i> (Hamilton,1822)	VU	LC
18. <i>Labeo calbasu</i> (Hamilton,1822)	LRnt	LC
19. <i>Osteobrama cotio cotio</i> (Hamilton,1822)	LRnt	NE
20. <i>Barilius barila</i> (Hamilton,1822)	VU	LC
21. <i>Barilius tileo</i> (Hamilton,1822)	LRnt	NE
22. <i>Laubuca laubuca</i> (Hamilton,1822)	LRlc	LC
23. <i>Chela cachius</i> (Hamilton1822)	NE	LC
24. <i>Devario devario</i> (Hamilton,1822)	LRnt	LC
Family 4: Balitoridae		
25. <i>Acanthocobitis botia</i> (Hamilton,1822)	LRnt	LC
Family 5. Cobitidae		
26. <i>Lepidocephalichthys guntea</i> (Hamilton, 1822)	NE	LC
27. <i>Botia dario</i> (Hamilton, 1822)	NE	LC
<b>Order 4. SILURIFORMES</b>		
Family 6. Bagridae		
28. <i>Mystus bleekeri</i> (Day, 1877)	VU	LC
29. <i>Mystus cavasius</i> (Hamilton,1822)	LRnt	LC
30. <i>Mystus tengara</i> (Hamilton,1822)	NE	LC
31. <i>Mystus vittatus</i> (Bloch,1794)	VU	LC
32. <i>Rita rita</i> (Hamilton,1822)	LRnt	LC
Family 7. Siluridae		
33. <i>Ompok bimaculatus</i> (Bloach,1794)	EN	NT
34. <i>Ompok pabda</i> (Hamilton,1822)	EN	NT
35. <i>Ompok pabo</i> (Hamilton,1822)	EN	NT
Family 8. Schilbeidae		
36. <i>Neotropius atherinoides</i> (Bloch,1794)	EN	LC
37. <i>Ailia coila</i> (Hamilton, 1822)	VU	NT
Family 9. Sisoridae		
38. <i>Gagata cenia</i> (Hamilton, 1822)	NE	LC
Family 10. Clariidae		
39. <i>Clarius betrachus</i> (Linnaeus,1758)	VU	NE

Family 11. Heteropneustidae		
40. <i>Heteropneustes fossilis</i> (Bloch,1794)	VU	LC
<b>Order 5. BELONIFORMES</b>		
Family 12. Belonidae		
41. <i>Xenentodon cancila</i> (Hamilton,1822)	LRnt	LC
<b>Order 6. CYPRINODONTIFORMES</b>		
Family 13. Aplocheilidae		
42. <i>Aplocheilus panchax</i> (Hamilton,1822)	DD	LC
Order 7. SYMBRANCHIFORMES		
Family 14. Symbranchidae		
43. <i>Monopterus cuchia</i> (Hamilton,1822)	LRnt	LC
Family 15. Mastacembelidae		
44. <i>Mastacembelus armatus</i> (Lacepede,1800)	NE	NE
45. <i>Macrogathus pancalus</i> (Hamilton,1822)	LRnt	LC
46. <i>Macrogathus aral</i> (Bloch &Schneider, 1801)	LRnt	LC
<b>Order 8. PERCIFORMES</b>		
Family 16. Chandidae		
47. <i>Chanda nama</i> (Hamilton, 1822)	NE	LC
48. <i>Parambassis ranga</i> (Hamilton, 1822)	NE	NE
49. <i>Parambassis lala</i> (Hamilton, 1822)	NE	NT
Family 17. Nandidae		
50. <i>Badis badis</i> (Hamilton, 1822)	NE	LC
51. <i>Nandus nandus</i> (Hamilton, 1822)	LRnt	LC
Family 18. Gobiidae		
52. <i>Glossogobius giuris</i> (Hamilton,1822)	LRnt	NE
Family 19. Anabantidae		
53. <i>Anabas testudineus</i> (Bloch,1792)	VU	DD
Family 20. Belontidae		
54. <i>Trichogaster fasciata</i> (Bloch & Schneider,1801)	LRnt	LC
55. <i>Trichogaster chuna</i> (Hamilton,1822)	NE	LC
56. <i>Trichogaster lalius</i> (Hamilton,1822)	NE	NE
57. <i>Trichogaster labiosa</i> (Day,1877)	NE	NE
Family 21. Channidae		
58. <i>Channa punctatus</i> (Bloch,1793)	LRnt	NE
59. <i>Channa marulius</i> (Hamilton,1822)	LRnt	NE
60. <i>Channa gachua</i> (Hamilton,1822)	VU	LC
61. <i>Channa stewartii</i> (Playfair,1867)	NE	LC
<b>Order 9. TETRADONTIFORMES</b>		
Family 22. Tetradontidae		
62. <i>Tetraodon cutcutia</i> (Hamilton,1822)	LRnt	NE

**EN-** Endangered; **VU-**Vulnerable; **LRnt-**Lower risk near threatened; **LRlc-** Lower risk least concern, **DD-**Data deficient, **LC-**Least Concern, **NT-**Near threatened ; **NE-** Not evaluated.

Das and Biswas (2009) reported 62 ornamental fishes from Assam and Arunachal Pradesh. This study included report from 6 districts of Assam. The present study is from the Majuli Island, which is a part of Jorhat district, Assam. In the present study adds 9 more species (*Gonialosa manmina*, *Barilius tileo*, *Puntius terio*, *Chela cachius*, *Puntius chola*, *Labeo calbasu*, *Aplocheilus panchax*, *Monopterus cuchia*, *Parambassis ranga*) to the earlier list.

The lotic water fishes recorded in the survey period are- *Gudusia chapra*, *Aspidoparia spp*, *Barilius spp*, *Devario devario*, *Osteobrama cotio*, *Rita rita*, *Ompok spp*, *Gagata cenia*, *Chitala chitala*, *Ailia coila* etc enters into the open beels during the monsoon season . Out of the 62 fish species, about 78% are commercially important ornamental species. Among these, *Chitala chitala*, *Clarius betrachus*, *Ompok pabda*, *Ompok pabo*, *Ompok*

*bimacualatus*, *Monopterus cuchia* and *Heteropneustes fossilis* are highly priced fishes. All the recorded ornamental fish species have food value except a few species like *Badis badis*, *Aplocheilus panchax* and *Tetraodon cutcutia*.

#### CONCLUSION

The present study indicates that the floodplain wetlands of Majuli Island exhibits rich ornamental fish diversity. As land area is shrinking drastically due to erosion conservation of lentic fishes are necessary in the beels of Majuli island, Assam.

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