

## Ornamental Fishes of Chandakhola Wetland, Dhubri, Assam, India



### Zoology

**KEYWORDS :** Chandakhola, species, endangered, vulnerable.

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### ABSTRACT

The study finds a total of 42 numbers of ornamental fish species recorded in Chandakhola wetland of Dhubri district of Assam, India. These ornamental fishes represent 17 'families' and 9 'orders'. Family Cyprinidae is represented by a maximum of 10 numbers of species followed by Bagridae (5 numbers). Family Cobitidae, Scheilbeidae, Mastacembelidae, Chandidae and Channidae are having 3 numbers of species each. At the same time family Notopteridae and Claridae are represented by 2 numbers of species each in the wetland, while the rest, out of the 17 families, are represented by single species each. From conservational point of view, the wetland is found to harbour 4 numbers of endangered species and 7 numbers of vulnerable species as per CAMP (1998) 'status' with 'report'.

### Introduction:

Fish constitutes almost half of the total number of vertebrates in the world (Jayaram, 1999). In India, there are 2,500 numbers of fish species, out of which 930 are in fresh waters and belong to 326 genera, 99 families and 20 orders (Talwar & Jhingran, 1991). India is one of the megabiodiversity countries in the world and occupies ninth position in terms of fresh water megabiodiversity (Mittermeier & Mittermeier, 1997). The north eastern region of India falls within the eastern Himalaya biodiversity hotspot zone. This region is represented by 267 species of fish belonging to 114 genera under 38 families and 10 orders (Sen, 2000). Assam has both lotic as well as lentic water ecosystems and it has diverse types of fishes in its water bodies. Ornamental fishes are those small sized, non competitive, non predacious fishes of different attractive attributes like colouration patterns in body and fins, peculiar feeding and moving behaviour etc. They are also termed as aquarium fishes as they can be well adjusted in small glass aquariums and may be kept for exhibition. Fish keeping in aquariums has emerged as a very popular practice and day by day people are getting attracted towards this hobby. India, having a large number of indigenous fishes of different ornamental attributes has great potential to earn a huge foreign exchange. The present study investigates the diversity of ornamental fishes in Chandakhola wetland, the present study area.

### Study area:

The study area, Chandakhola wetland, commonly known as Chandakhola beel is a tubular riverine wetland situated 26° 02' 06.01" North and 89° 55' 00.83" East in the western most part of the state of Assam near the Indo - Bangladesh international border. Though the wetland is perennial in nature but partial drying up during dead storage level is often observed. Apparently it has connectivity with the mighty river Brahmaputra at the Indo - Bangla international boundary but the connectivity seldom continues because of the existence of a sluice gate for flood control. However, there is scope of fish entry from river Brahmaputra to it during the flooding.

### Materials and method:

It is an analytical study based on the data collected by random sampling of fish from the fish catch in the wetland. For analysis of diversity indices, four landing sites viz. Pestirpar (near the inlet), Bridge (mid zone no. 1 of the wetland), Fesarhat (mid zone no. 2 of the wetland) and Gaspara (near the outlet) were selected for sampling. Fishing operations were done at the early morning on four random days during the period of four consecutive months (October 2011 to January 2012) in above mentioned four sampling sites. The prevailing fishermen of the respective landing site areas were employed for fishing using the normal fishing gears (seine net, gill net, cast net and pull net).

The data was taken to the Laboratory for identification and

confirmation following the taxonomic tools. For identification literatures like Talwar & Jhingran (1991), Jayaram (1999), Vishwanath, Lakra and Sarkar (2007) etc. are followed. For nomenclature Fishbase (<http://www.Fishbase.org>) and [www.calacademy.org/catalogue](http://www.calacademy.org/catalogue) were consulted. Their conservational status is ascertained with the help of IUCN Red data list ([www.iucnredlist.org](http://www.iucnredlist.org), The IUCN Red List of Threatened Species 2012.2) and C.A.M.P. report on freshwater fishes of India (1998).

### Results and discussion:

The study brings about a total of 42 numbers of fish species having ornamental values. They represent 17 families and 9 orders.

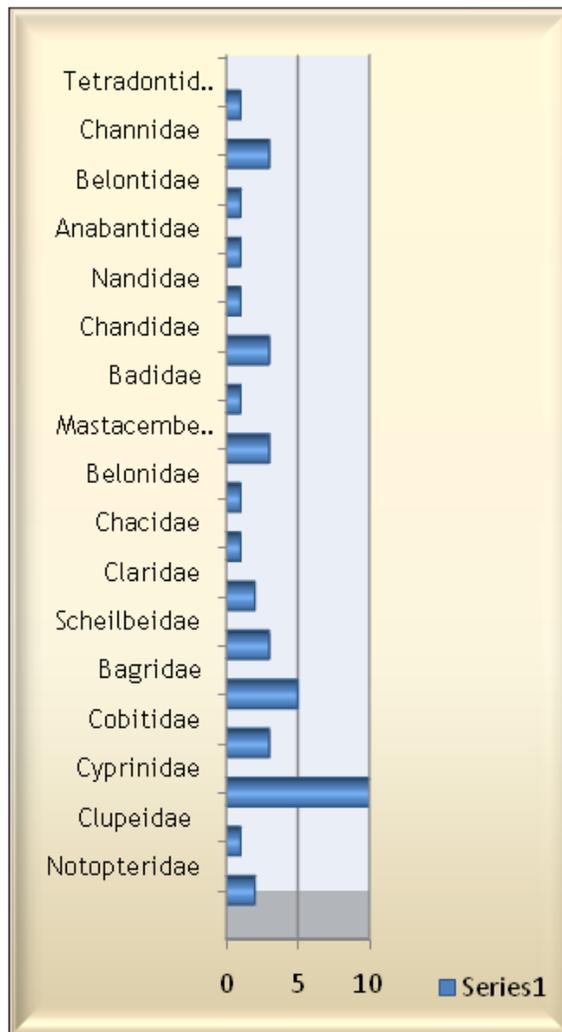
Table:1 Ornamental Fish Species in Chandakhola Beel
Order 1: Osteoglossiformes
Family 1: Notopteridae
1. <i>Notopterus notopterus</i> Pallas, 1769
2. <i>Chitala chitala</i> Hamilton, 1822
Order 2: Clupeiformes
Family 2: Clupeidae
3. <i>Gudusia chapra</i> Hamilton, 1822
Order 3: Cypriniformes
Family 3: Cyprinidae
4. <i>Systomus sarana</i> Hamilton, 1822
5. <i>Puntius sophore</i> Hamilton, 1822
6. <i>Puntius guganio</i> Hamilton, 1822
7. <i>Pethia conchoni</i> Hamilton, 1822
8. <i>Pethia gelius</i> Hamilton, 1822
9. <i>Rasbora daniconius</i> Hamilton, 1822
10. <i>Chela laubuca</i> Hamilton, 1822
11. <i>Esomus danricus</i> Hamilton, 1822
12. <i>Amblypharyngodon mola</i> Hamilton, 1822
13. <i>Salmophasia phulo</i> Hamilton, 1822
Family 4: Cobitidae
14. <i>Lepidocephalichthys guntea</i> Hamilton, 1822
15. <i>Botia dario</i> Hamilton, 1822
16. <i>Somileptes gongota</i> Hamilton, 1822
Order 4: Siluriformes

<p>Family 5: Bagridae</p> <p>17. <i>Hemibagrus menoda</i> Hamilton,1822</p> <p>18. <i>Mystus cavasius</i> Hamilton,1822</p> <p>19. <i>Mystus bleekeri</i> Day, 1877</p> <p>20. <i>Mystus vittatus</i> Bloch, 1794</p> <p>21. <i>Mystus tengera</i> Hamilton,1822</p>
<p>Family 6: Scheilbeidae</p> <p>22. <i>Ompok bimaculatus</i> Bloch,1794</p> <p>23. <i>Ompok pabda</i> Hamilton, 1822</p> <p>24. <i>Pseudeutropius atherinoides</i> Bloch, 1794</p>
<p>Family 7: Claridae</p> <p>25. <i>Clarias magur</i> Linnaeus, 1758</p> <p>26. <i>Heteropneustes fossilis</i> Bloch,1794</p>
<p>Family 8: Chacidae</p> <p>27. <i>Chaca chaca</i> Hamilton, 1822</p>
<p>Order 5: Beloniformes</p>
<p>Family 9: Belonidae</p> <p>28. <i>Xenontodon cancila</i> Hamilton, 1822</p>
<p>Order 6: Mastacembeliformes</p>
<p>Family 10: Mastacembelidae</p> <p>29. <i>Mastacembelus armatus</i> Lacepede, 1800</p> <p>30. <i>Macrogathus aral</i> Bloch and Schneider,1801</p> <p>31. <i>Macrogathus pancalus</i> Hamilton, 1822</p>
<p>Family 11: Badidae</p> <p>32. <i>Badis badis</i> Hamilton, 1822</p>
<p>Order 7: Perciformes</p>
<p>Family 12: Chandidae</p> <p>33. <i>Parambassis ranga</i> Hamilton, 1822</p> <p>34. <i>Chanda nama</i> Hamilton, 1822</p> <p>35. <i>Pseudambassis baculis</i> Hamilton, 1822</p>
<p>Family 13: Nandidae</p> <p>36. <i>Nandus nandus</i> Hamilton, 1822</p>
<p>Family 14: Anabantidae</p> <p>37. <i>Anabas testudineus</i> Bloch, 1792</p>
<p>Family 15: Belontiidae</p> <p>38. <i>Colisa fasciatus</i> Bloch and Schneider, 1801</p>
<p>Family 16: Channidae</p> <p>40. <i>Channa punctatus</i> Bloch, 1793</p> <p>41. <i>Channa gachua</i> Hamilton,1822</p>
<p>Order 8: Tetraodontiformes</p>
<p>Family 17: Tetraodontidae</p> <p>42. <i>Tetraodon cutcutia</i> Hamilton, 1822</p>

The consultations with CAMP Report 1998 reveals that 4 numbers of Endangered species (*Chitala chitala*, *Ompok bimaculatus*, *Ompok pabda* and *Pseudeutropius atherinoides*) and 7 numbers of Vulnerable species (*Systomus sarana*, *Pethia conchonius*, *Mystus bleekeri*, *Mystus vittatus*, *Clarias magur*, *Heteropneustes fossilis* and *Anabas testudineus*) are in the record of ornamental fish species in the present study area. Again IUCN 2012 confers Near Threatened status to *Chitala chitala*. The family wise distribution of the record of ornamental fish species is shown in

the form of bar diagram.

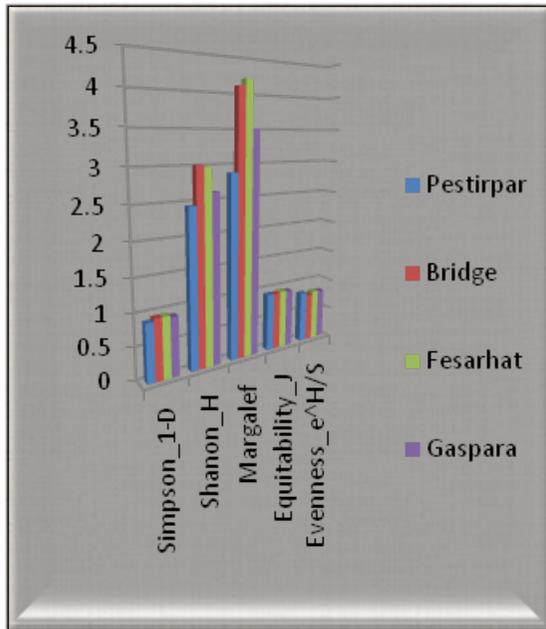
**Figure 1: Family wise distribution of fish species number in Chandakhola wetland**



The present record of ornamental fish is more than the result obtained by Pandey, Baruah & Biswas (1998) who reported 32 ornamental fish species from the districts of Jorhat, Sibsagar, Dibrugarh and Tinsukia of Assam, India. Bhattacharjya, Sugunan & Choudhury (2000) recorded 87 numbers of potential ornamental fish species occurring in the state of Assam. Bhattacharjya, Choudhury & Sugunan (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 north eastern 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, Vinod & Mandal 2004). There are 61 species of ornamental fish being recorded by Sarma, Bhattacharjya, Zaidi, Landge & Goswami (2004) from central Brahmaputra valley zone. The work of Das & Biswas (2009) gives a record of 62 ornamental fish species in the floodplain wetlands of upper Brahmaputra basin.

The analysis of Simpson\_1-D, Shanon\_H, Margalef, Equitability\_J, Evenness\_eH/S shows wide range of variance in four different sampling sites. The result shows maximum value for Simpson\_1-D (0.95) and Shanon\_H (3.00) at Chandakhola Bridge, maximum value for Margalef (4.19) and Equitability\_J (0.94) at Fesarhat and maximum value for Evenness\_eH/S (0.82) at Pestirpar sampling site of Chandakhola beel.

**Figure 2: Bar diagram showing diversity indices in four different sampling sites of Chandakhola beel in whole.**



### Conclusion:

The present study result suggests that the Chandakhola beel is harbouring as many as 42 ornamental fish species. At present, these fish species are exploited for their food value alone. However, their ornamental value is yet to be realized and they can be sustainably used for ornamental trade. An organized trade of these fish species for aquarium purpose will fetch more economic profit for the dependents of the beel.

## REFERENCE

- Bhattacharjya, B.K., Sugunan, V.V. & Choudhury, M. (2000) Potential of Ornamental fishes of Assam. In: First Indian Science Congress, September 21-23, 2000, Indian Society of Fisheries Professionals, Chandigarh (Abstract), p.65. | 2. Bhattacharjya, B.K., Choudhury, M. & Sugunan, V.V. (2003) Ichthyofaunistic resources of Assam with a note on their sustainable utilization, In: Participatory approach for fish biodiversity conservation in Northeast India. NBFGR, Lucknow, India, p. 87 -105. | 3. CAMP report (1998). Conservation Assessment and Management Plan (C.A.M.P) workshop, Freshwater fishes of India, NBFGR, Lucknow, 22-26 September, pp.156. | 4. Das, J.N. & Biswas, S.P. (2009) Current status and diversity of ornamental fishes in the floodplain wetlands of upper Brahmaputra basin. In: Kosygin, L. (Ed.), Wetlands of North East India: Ecology, Aquatic Bioresources and Conservation. Akansha Publishing House, New Delhi, p. 114-123. | 5. Jayaram, K. C. (1999). The freshwater fishes of the Indian Region. Narendra Publishing House, Delhi. pp. 551 | 6. Mahapatra, B. K., Vinod, K. & Mandal, B. K. (2004) Ornamental fish of North Eastern India-its distribution and Conservatio status. Environ.Ecol., 22 (3):674-683. | 7. Mittermeier, R.A. & Mittermeier, C.G. (1997). Megadiversity: Eart's Biologically Wealthiest Nation. In: McAllister, D E, A L Hamilton & B Havery (Eds). Global Freshwater Biodiversity, Sea, wind, Cemex, Mexico city, 11: 1-140 | 8. Pandey, A.K., Baruah, A. & Biswas, S.P.(1998) On the ornamental fish fauna in the Brahmaputra drainage system. Inland J. Fish., 45(1):95-97. | 9. Sarma, S., Bhattacharjya, B. K., Zaidi, S. G. S., Landge, A. T. & Goswami, M. (2004) Indegenous ornamental fish biodiversity of central Brahmaputra valley zone, Assam. J.Inland Fish. Soc. India., 36(1):29-35. | 10. Sen, N. (2000). Occurrence, Distribution and Status of Fish Fauna of north eastern India, pp. 31-48. In: Ponniah, A.G. & U.K. Sarkar (Eds.). Fish Biodiversity in North East India. NATP Publication No. 2, NBFGR, Lucknow, 228 pp. | 11. Talwar, P. K. & Jhingran A.G. (1991). Inland fishes of India and adjacent countries. Volumes I & II, Oxford & IBH Publishing Co. Pvt. Ltd, New Delhi. pp. 1158. | 12. Vishwanath,W, Lakra,W.S. & Sarkar, U.K. (2007). Fishes of Northeast India. Published by the Director, NBFGR, Lucknow, U.P, India,pp. 264 |