

***Chitala chitala* (Hamilton, 1822) from Muhuri river of Tripura, India- Distribution, Meristic and Morphometric characters****S Banik<sup>1\*</sup> and Rita Roy<sup>2</sup>**<sup>1</sup>Professor, Aquaculture Research Centre, Department of Zoology Tripura University (a Central University)<sup>2</sup>Research Scholar, Aquaculture Research Centre, Department of Zoology Tripura University (a Central University)**Original Research Article****\*Corresponding author**

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**Abstract:** *Chitala chitala* (Hamilton, 1822) is an indigenous fish of freshwater lotic ecosystem belonging to the family Notopteridae of the Order Osteoglossiformes. This fish species has relatively larger market demand presumably because of having rich lipo-proteinaceous tissue at the ventral side of the body. Wild variety of *Chitala chitala* (Hamilton, 1822) was identified at the lower reach of Muhuri river of Tripura, India. As per IUCN criteria this fauna may be considered near threatened fish species in North-east India in general and Tripura in particular. In various corners of India this species was considered as preferred fish species. Morphometric character of the fish specimen showed hump-like structure just behind the head area, bar, transverse, silver at dorsal body area. Greatly compressed body, laterally, oblong and tapering towards caudal area. Dorsal fin, significantly smaller. Anal fin, very long; originated with the fusion of pelvic fin and also ended by fusion with caudal fin. Scales, tiny, sharp at ventral area of head. A specific fin formula was noticed in *Chitala chitala* (Hamilton, 1822).

**Key words:** *Chitala chitala*, Muhuri river, Tripura, threatened fish, meristic, morphometric.

**INTRODUCTION**

Based on IUCN criteria *Chitala chitala* (Hamilton, 1822) was enlisted as near threatened (NT) fish [4]. This fish species is popularly known as knifefish and also as Indian featherback. Once upon a time larger population of this species was noticed in the river ecosystem of West Bengal, Orissa and Assam as well. *Chitala chitala* was abundant in Brahmaputra river once upon a time during 1980 [4, 5]. This fish species was also noticed from some river ecosystem of Asian countries like Nepal, Bangladesh and Pakistan as well. At some time this species was greatly confused with *Chitala ornata* [13].

Several related species of *Chitala* were considered as *Chitala chitala* in the past due to incorrect identifications. During recent period those different fish species were enlisted under different species name [12]. Because of certain common meristic and morphometric characters of *Chitala* the Southeast Asian species *Chitala ornata* was once considered as *Chitala chitala* [13]. For that reason the fish farmers could not differentiate *Chitala chitala* from those of other nearly related fish species such as *Chitala blanci* and *Chitala lopus* [1,2,3, 4,5,6,7,9, 11, 14, 15,16].

**Classification:**

Phylum - Chordata  
Class - Actinopterygii  
Order- Osteoglossiformes  
Family - Notopteridae  
Genus - *Chitala*  
Species - *chitala*

**Synonym:**

*Mystus chitala* Hamilton, 1822  
*Notopterus chitala* Hamilton, 1822  
*Notopterus maculatus* Valenciennes, 1832  
*Notopterus buchmanani* Valenciennes, 1848  
*Mystus chitala buchmanani* Valenciennes, 1848

**Table 1: GPS locations of major sampling sites of lower reach of Muhuri river:**

Specific location	Latitude	Longitude
Kalinagar-1	23 <sup>0</sup> 25'10"N	91 <sup>0</sup> 44'90" E
Kalinagar-2	23 <sup>0</sup> 25'28" N	91 <sup>0</sup> 45'08" E
Kalinagar-3	23 <sup>0</sup> 25'46" N	91 <sup>0</sup> 45'40" E
Kalinagar-4	23 <sup>0</sup> 25'75" N	91 <sup>0</sup> 45'61" E
Nijkalikapur-1	23 <sup>0</sup> 25'74" N	91 <sup>0</sup> 45'92" E
Nijkalikapur-2	23 <sup>0</sup> 25'80" N	91 <sup>0</sup> 46'20" E
Nijkalikapur-3	23 <sup>0</sup> 25'85" N	91 <sup>0</sup> 46'39" E
Nijkalikapur-4	23 <sup>0</sup> 25'92" N	91 <sup>0</sup> 46'72" E
Mazumoar-1	23 <sup>0</sup> 26'02" N	91 <sup>0</sup> 46'85" E
Mazumoar-2	23 <sup>0</sup> 26'10" N	91 <sup>0</sup> 47'31" E
Mazumoar-3	23 <sup>0</sup> 26'17" N	91 <sup>0</sup> 47'68" E
Mazumoar-4	23 <sup>0</sup> 26'25" N	91 <sup>0</sup> 48'72" E

**MATERIALS AND METHODS:**

To study the specimen the fish sample was collected during very early morning period at around 4.30-5.00 a.m. The fish sampling was made with specific pater of drag net sampler. To study the IUCN category of *Chitala chitala* (Hamilton, 1822) an attempt to fish sampling was made into various river ecosystem of Tripura. However, the specimen was noticed only from the lower reach of Muhuri river of Tripura. To identify the sampled fish species the literature of Jayaram [12] and Jhingran [13] were consulted. Origin of Muhuri river was actually initiated from some areas of Lushai hill under Devatamura range, from where westward flow of water was moving through Belonia area of South Tripura. The river ends into neighbouring area of Bangladesh. Geographically, the river was located at Latitude 23<sup>0</sup>11'10.39" N and longitude 91<sup>0</sup>43'51.11" E. The basin area of the river was about 839 sq.km. Annual flow of the river was about 76247 thousand m<sup>3</sup>.

**RESULTS AND DISCUSSION:**

On basis of the nature of occurrence of the studied fish sample and also on the basis of IUCN criteria [11,2] this fish may be considered near threatened species in North-east India in general and Tripura in particular (figs.1-3. Tables 1-4).

**MORPHOMETRIC CHARACTER OF THE SPECIMEN:**

Development of hump-like structure just behind the head area. Bar, transverse, silver at dorsal body area. Body formations greatly compressed laterally. Body oblong and tapering towards caudal area. Dorsal fin, significantly smaller. Anal fin, very long; originated with the fusion of pelvic fin and also ended by fusion with caudal fin. Body scales, tiny (tables 2-3), and sharp at the ventral area of head.

Cranio-dorsal surface, largely concave. Abdomen edge keeled, with pre-pelvic scutes. Mouth, wide; jaw-length increases with age. Maxilla toothed. Pelvic fin fused (table 4) with anal fin. Spot, black, round, present at caudal area.

**Table 2: Meristic characters of *Chitala chitala***

Fin formula:			
D. 9;	P <sub>1</sub> . 15-16;	P <sub>2</sub> . 6;	A. 116-120

**Table 3: Morphometric characters of *Chitala chitala***

Fish Specimen observed: 47			
Sl No.	Characters with description	Abbreviation	Result
1.	Total Length	TL	55 cm
2.	Standard Length	SL	41 cm
3.	Head Length	HL	12 cm
4.	Eye Length	ED	1.2 cm
5.	Pre-orbital Length	PrOL	1.4 cm
6.	Post-orbital Length	POL	10.5 cm
7.	Depth of dorsal fin base	DFB	5.1 cm
8.	Depth of pectoral fin base	PFB	6 cm
9.	Depth of anal fin base	AFB	40.2 cm
10.	Pre-dorsal fin	PDL	31.5 cm
11.	Highest Body Depth	HBD	20.5 cm
12.	Least Body Depth	LBD	2.1 / 1.8 cm
13.	Upper Jaw Length	UJL	5 cm
14.	Lower Jaw Length	LJL	4 cm

**Table 4: Meristic characters of *Chitala chitala***

Fish individuals observed: 47	
Parameters	Results
Pre-opercular scale row	16
Dorsal fin (Unbranched finray)	9
Pectoral fin (Unbranched finray)	16
Anal fin (Unbranched finray)	126
Silver stripes at dorsal body area	17-20
Scales at lateral line system	216-220
Scales from Dorsal to Ventral area at widest part of body	52-56
Scales from Dorsal to Ventral at constricted part of tail	9-11
Dark spot at caudal area	23

**Fig. 1: A view of *Chitala chitala*****Fig. 2: A view of *Chitala chitala*****Fig. 3: A view of *Chitala chitala***

To identify a fish species properly knowledge of meristic and morphometric character is indeed important [11] which were presented in the results (figs. 3-9A & 9B, tables 2-4) [1, 2, 3, 14].

In the present observations as many as 47 fish samples of *Chitala chitala* was sampled from Muhuri river of Tripura. A survey into the existing literature explicitly reveals that the occurrence and abundance of the studied fish sample was greatly declined during last four decades probably because of different anthropogenic reasons which is not clearly understood [1,2,3,4,5,6,7,8,9,11,13,14,15,16]. Although as may as 10 river ecosystem of Tripura was surveyed so far

*Chitala chitala* was noticed only in Muhuri river, Tripura. However, the fish samples were recorded only from the lower reach of this river ecosystem.

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