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## A Study on Small Indigenous Freshwater Fish Availability in Two Daily Markets of Midnapur Town, West Bengal, India

**Madhurima Mandal, Angsuman Chanda**

### Abstract

During the present study a comprehensive market survey has been conducted from September, 2016 to December, 2016 for study on available small indigenous fish fauna in two fish markets of Midnapur town, one is School bazaar, so called sophisticated, high priced fish market and another is Mia bazaar, a market of low priced fish market of the same town. Results reveals that a total of 14 small indigenous fish species has been identified from the study sites. Among these 14 species nine has been collected from School bazaar and eleven from Mia bazaar and six species has been observed as common to both the markets. The result would certainly enrich our knowledge about the availability of fish species in the fish market of Midnapore town.

**Keywords:** Small, Fish, Availability, Midnapore, Market, Schoolbazaar, Miabazaar

### Introduction

Small indigenous freshwater fish are often an important ingredient in the diet of village people who live in the proximity of freshwater bodies. Word 'Indigenous' means the originating in and characteristic of a particular region or country & native area. Small indigenous freshwater fish species (SIF) are defined as fishes which grow to the size of 25-30 cm in mature or adult stage of their life cycle [1]. They inhabit in rivers and tributaries, floodplains, ponds, tanks, lakes, beels, streams, lowland areas, wetlands and paddy fields. These fish can live in a harsh environmental condition and are able to reproduce and grow rapidly in favourable condition. These species are not only a source of valuable protein to the rural poor but also an important source of micro-nutrients such as calcium, zinc, iron & essential fatty acids [2,3]. Research has proved that the bioavailability of calcium from these small indigenous freshwater fish species is at par with that derived from milk [2]. These species also can provide a source of supplementary income to rural households. Due to local demand for small indigenous fish species of freshwater origin and its gradual decrease in population size, the FAO [4] has indicated the possibility of integrating such indigenous species into freshwater aquaculture systems with major carps. Small scale aquaculture along with Indian major carps of *Amblypharyngodon mola*, *Puntius sophore*, *Osteobrama cotio*, *Cirrihinus reba*, *Labeo bata*, *Gudusia chapra* has been reported [5,2,6]. In the Indian region out of 2500 species, 930 are freshwater inhabitants and 1570 are marine [7]. Zoological Survey of India has recorded a total of 2641 Pisces in 2012 from Indian region. A lot of works has been done in Northern region followed by southern region of India. Goswami et al., [8] reported 422 fish species from north-east India, belonging to 133 genera and 38 families. Rema and Indra [9] have reported 667 species under 149 Genera of 35 families in southern region of India. As per record of Fishbase [10], Indian freshwater represents 950 species of fish. In West Bengal 171 freshwater fish species was reported by Sen [11]. After few years there were a wide change in number of fish species has been reported. Barman. R.P. [12] recorded 239 freshwater species belonging to 147 genera, 49 families and 15 orders from West Bengal. Basu et al. [13] reported 70 indigenous ornamental fish species belonging to 45 genera, 30 families and 9 orders from West Bengal. Paul and Chanda [14] reported 48 species

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belonging to 32 genera under 18 families of 7 orders from Paschim Medinipur District. Above works are mostly based on indigenous ornamental freshwater fishes of the study area. But works on small indigenous freshwater fishes, other than ornamentals are scanty. Therefore, present work is an attempt towards the recording of small indigenous freshwater fish fauna of Paschim Medinipur. The results presented here provide an insight to the macro-faunal diversity of freshwater ecosystem of Midnapur town and its surroundings, and have established a baseline for future studies. Present paper is restricted only on the diversity of small indigenous freshwater fish faunal availability of fish market of Midnapur town, of West Bengal.

### Materials & Methods

Paschim Medinipur is situated in the south western side of West Bengal & bounded by Bankura district & Purulia

district in the north, Mayurbhanj district & Balasore district of Odisha in the south, Hoogly district & Purba Medinipur district in the east & Singhbhum district of Jharkhand & Purulia district of West Bengal.

Specimens were collected from 2 markets (School Bazar & Mia Bazar) of Midnapore Town during September to December. Collection of fish fauna was done at early morning and specimens were immediately preserved in formaldehyde and were brought to laboratory for identification. Specimens were purchased from Fishermans who harvest fishes from natural water bodies. Fishes were collected from two markets on the same date and on random basis. During every effort 100 grams of fish has been purchased and counted the exact number of different fish (Table 1). Sorensen's Quotient of similarity (1948) has been studied for comparison of fish availability between two markets.

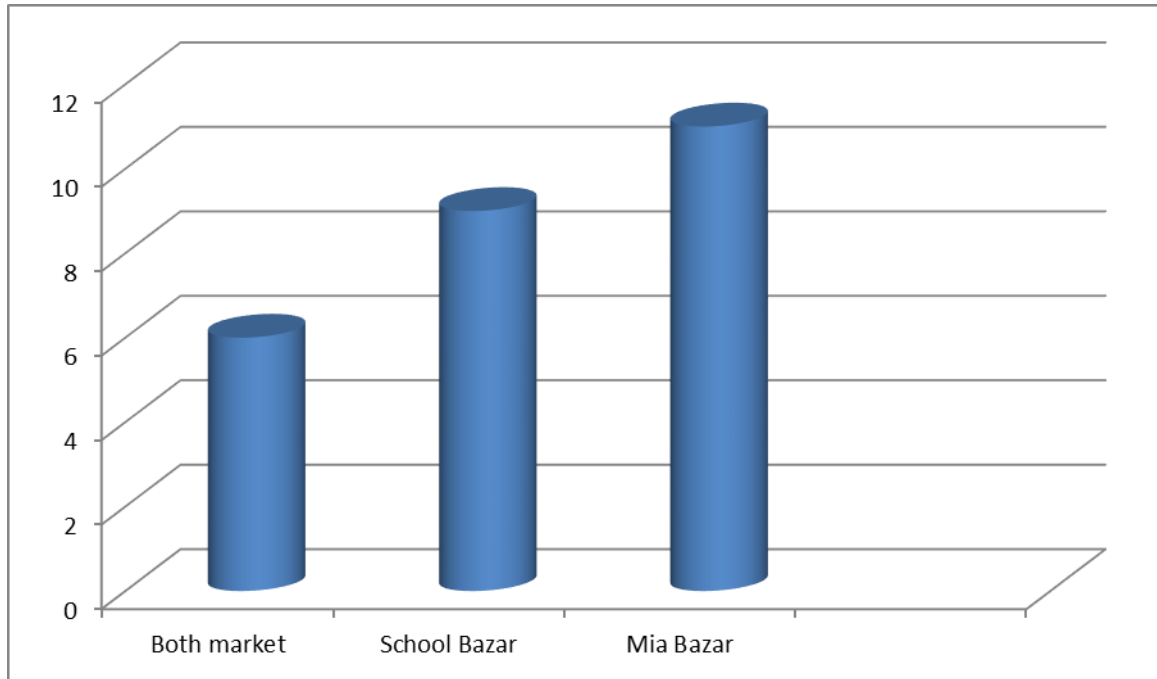
**Table 1:** Date wise specimen collection data from two markets.

Sl no.	Date	Place	Quantity taken (gm)	No. of examples
1	25/9/2016	School Bazar	100	70
		Mia Bazar	100	65
2	2/10/2016	School Bazar	100	60
		Mia Bazar	100	50
3	9/10/2016	School Bazar	100	49
		Mia Bazar	100	50
4	16/10/2016	School Bazar	100	40
		Mia Bazar	100	45
5	23/10/2016	School Bazar	100	61
		Mia Bazar	100	55
6	30/10/2016	School Bazar	100	58
		Mia Bazar	100	63
7	6/11/2016	School Bazar	100	67
		Mia Bazar	100	64
8	13/11/2016	School Bazar	100	54
		Mia Bazar	100	59
9	20/11/2016	School Bazar	100	60
		Mia Bazar	100	52
10	27/11/2016	School Bazar	100	56
		Mia Bazar	100	54
11	4/12/2016	School Bazar	100	53
		Mia Bazar	100	49
12	11/12/2016	School Bazar	100	55
		Mia Bazar	100	51

### Results and Discussions

The present study reveals that the existence of 14 species of small indigenous freshwater fishes has been identified from two fish markets of Midnapur town. The identification has been made on the basis of literature like Jhingran and Talwar (1991), Jayaram K. C. (2010) and on the basis of Fishbas. It has been observed that 11 fish species (*Trichogaster fasciata*, *Parambassis ranga*, *Esomus danricus*, *Puntius sophore*, *Chanda nama*, *Amblypharyngodon mola*, *Neotropius mitchelli*, *Mystus cavasius*, *Osteobrama cotio cotio*, *Parambassis lala*, *Salmophasia bacaila*) were found in Mia Bazar and 9 fish species (*Trichogaster fasciata*, *Esomus danricus*, *Xenentodon cancila*, *Puntius sophore*, *Chanda nama*,


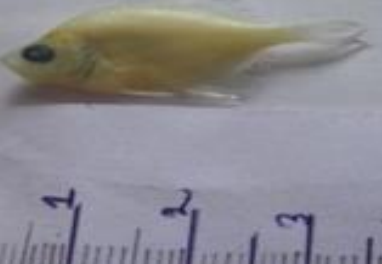


*Amblypharyngodon mola*, *Neotropius atherinoides*, *Mystus bleekeri*, *Salmophasia bacaila*) were found in School Bazar (Fig. 1). Six fish species (*Amblypharyngodon mola*, *Puntius sophore*, *Esomus danricus*, *Chanda nama*, *Trichogaster fasciata*, *Salmophasia bacaila*) were identified common to both the markets (School Bazar & Mia Bazar). So, remaining eight fish species (*Parambassis ranga*, *Xenentodon cancila*, *Neotropius mitchelli*, *Neotropius atherinoides*, *Mystus bleekeri*, *Mystus cavasius*, *Osteobrama cotio cotio*, *Parambassis lala*) were either available in School Bazar or in Mia Bazar (Table-2). Therefore, these eight species were less available in nearby habitat of Midnapore town and could be at risk of its extinction.











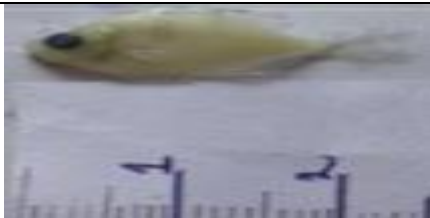

**Fig. 1:** Graphical representation of available fishes in two markets

Sorensen's quotient of similarity depicts that the two markets are moderately similar in respect to its fish species availability.

**Table -2:** Name of Small Indigenous Fish Fauna Those Were Found In Two Fish Markets (School Bazar & Mia Bazar)

Sl no.	Name of species	Photograph of species	Market	
			School bazar	Mia bazar
1	<i>Trichogaster fasciata</i> (Bloch and J.G.Schneider, 1808)		+	+
2	<i>Parambassis ranga</i> (F.Hamilton,1822)		-	+
3	<i>Esomus danricus</i> (F.Hamilton,1822)		+	+
4	<i>Xenentodon cancila</i> (Hamilton -Buchanan,1822)		+	-

5	<i>Puntius sophore</i> (F.Hamilton,1822)		+	+
6	<i>Chanda nama</i> (Hamilton-Buchanan,1822)		+	+
7	<i>Amblypharyngodon mola</i> (F.Hamilton,1822)		+	+
8	<i>Neotropius mitchelli</i> (Gunther,1864)		-	+
9	<i>Neotropius atherinoides</i> (Bloch,1794)		+	-
10	<i>Mystus bleekeri</i> (Day,1877)		+	-
11	<i>Mystus cavasius</i> (Hamilton – Bachanan,1822)		-	+
12	<i>Osteobrama cotio cotio</i> (Hamilton,1822)		-	+

13	<i>Parambassis lala</i> (Hamilton,1822)		-	+
14	<i>Salmophasia bacaila</i> (F.Hamilton,1822)		+	+

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