

## Short Communication

## Occurrence of fishes and non-fin fishes of the river Padma near Rajshahi, Bangladesh

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Bangladesh is fortunate enough in having an extensive and huge freshwater resources scattered all over the country in the form of rivers, ponds, ditches, beels, lakes, haors, baors, floodplains and canals covering an area of 5,433,900 ha. The total freshwater fish production in the year 2003-04 was 2,102,026 mt. (DoF, 2005). Total inland open freshwater area is 40,47,316 ha which is contributing 34.83% of total fish capture. Total fish production from inland closed water area in the year 2003-04 was 914,752 mt., as against 78.34% of the total production and fisheries sector accounts for 4.92% of GDP, 23% of the gross value added to agricultural products, more than 11% of export earnings, and employs over 2 million people (DoF, 2005). There are 257 species of fishes in the inland waters of Bangladesh (Rahman, 1989). Munro (1955), Talwar & Jhingran (1991) and other researchers made many taxonomic researches on the freshwater fishes of India. Talwar & Jhingran (1991) reported that the Indian fish fauna is an assemblage of about 2500 species depicting diverse characteristics, of which 930 belonging to 326 genera inhabit the inland waters. Qureshi (1965) in his monograph included 133 species, most of which occurred in Bangladesh. Doha (1973) published a list of 106 species from Mymensing and Tangail district of Bangladesh. Agostinho (2003) conducted his research on the Parana river in South America which is the tenth longest river in the world. Kasyanov (2003) reported the ichthyofauna of the Ob river basin which includes two species of cyclostomes and 51 species of fishes belonging to 10 orders, 18 families, and 37 genera. Hasan (2007) recorded 33 specimens of fish and fisheries items in Chitra and Fatki rivers. Zafar *et al.* (2007) recorded a total of 75 species of fishes and other organisms including crabs, prawns, mollusks and leeches in the investigated area of the Pagla river.

The present research has been carried out in order to explore the existing fish fauna of the river Padma near Rajshahi (Bulanpur to Shahapur). During the study period, a total of 73 species of fishes under 44 genera, 22 families, 10 orders and 2 classes and 11 non-fin fishes under the 4 classes were recorded. The present research work also includes the description of breeding season and availability.

The study area of the river Padma covers from Bulanpur to Shahapur of Rajshahi City. The fish specimens were collected and identified directly from the spots. Monthly visits were made in the fish markets of Binodpur, Shaheb Bazar and Laxmipur during the study period. Visits

to the fish-landing centers of Bulanpur, Allupattighat and Shahapur were also made almost once in a week throughout the study period which started from December 2006 to November 2007. The specimens were identified with the help of books and systematically categorized. Identification was made following the key of Bhuiyan (1964), Rahman (1989), Talwar & Jhingran (1991) and Bhuiyan *et al.* (1992). A structured questionnaire was prepared to collect the data on the fishes and non-fin fishes of the river Padma near Rajshahi. The analysis of the collected data was done in the laboratory using different keys, figures and tables. During the study period, 1 species of Chondrichthyes, 72 species of Osteichthyes, 11 species other than fishes under the classes Crustacea (Arthropoda), Gastropoda (Mollusca), Amphibia and Reptilia (Chordata) were recorded from the study area (Table-1). During the study period the dominant order found was Cypriniformes. A total of 24 species of fishes were recorded from the order Cypriniformes of which 21 species from the family Cyprinidae and 3 from the family Cobitidae.

**Table 1.** Fishes and non-fin fishes of the northern bank of the river Padma near Rajshahi.

Class	Order	Family	Genera	Species
Chondrichthyes	Rajiformes	1	1	1
	Clupeiformes	3	6	9
	Cypriniformes	2	13	24
	Siluriformes	7	13	21
	Perciformes	4	5	8
Osteichthyes	Channiformes	1	1	4
	Mastacembeliformes	1	2	3
	Tetraodontiformes	1	1	1
	Beloniformes	1	1	1
	Mugiliformes	1	1	1
Crustacea	Decapoda	2	2	4
Gastropoda	Megagastropoda	1	1	1
	Eulamellibranchiata	1	1	1
Amphibia	Anura	1	2	2
Reptilia	Chelonia	2	3	3

The least dominant orders were Tetraodontiformes, Beloniformes and Mugiliformes. 1 species of fish was recorded from each order of Tetraodontiformes, Beloniformes, Mugiliformes of the family Tetraodontidae, Belonidae and Mugilidae respectively. For most of the fishes, breeding season is found in monsoon period (May-September). Among non-fin fishes the phylum Chordata is represented by 2 species of amphibians, *Rana tigrina* and *Rana hexadactyla* which are available throughout the year and breed during June-July. 3 species of Reptilians are found which include *Trionyx gangeticus*, *Kachuga tectoni*

and *Chitra indica* which are available throughout the year and they breed during April-September. Phylum Arthropoda is represented by 4 species of Crustaceans which include *Macrobrachium rosenbergii*, *M. malcolmsonei*, *Cancer sp.* which are available throughout the year and breed during December-February and *M. lamarrei* is also available throughout the year and its breeding season is April-June. Phylum Mollusca is represented by 2 species which includes *Pila globosa*, *Unio sp.* which are available throughout the year and breed during April-June.

In Bangladesh taxonomic study on freshwater fishes is generally partial and fragmentary compared to India. Islam & Hossain (1983) provided an account of 110 species of fishes of the river Padma near Rajshahi. Bhuiyan *et al.* (1992) listed 133 species freshwater fishes belonging to 73 genera, 32 families, 12 orders and 2 classes from different parts of Rajshahi district in which class Chondrichthyes contained only one species belonging to the order Rajiformes and rest of the species belonged to the class Osteichthyes. They recorded 83 species of fishes under the order Cypriniformes with 10 families and 38 genera. This was followed by 17 species under Perciformes with 8 families and 13 genera, 11 species under Clupeiformes with 3 families and 7 genera and one species under the order Symbranchiformes. IUCN (1998) reported that roughly 56 freshwater fish species out of 260 species are critically endangered and 50 species of fishes have become rare which were found abundantly in last decades in their research covered areas in Bangladesh. The present study revealed the declination of the fisheries resources from the river Padma due to various reasons.

**Species composition:** Among the fin fishes 33.33% of the total species comprised of order Cypriniformes, 29.17% Siluriformes, 12.50% Clupeiformes, followed by 11.11% Perciformes, 5.56% Channiformes, 1.39% each included orders of Beloniformes, Mugiliformes, Tetraodontiformes and 4.17% Mastacembeliformes respectively and among non-fin fishes 36.36% belonged to Arthropoda and 18.18% Mollusca and 45.46% phylum Chordata respectively.

The present study is an attempt to identify the fishes and non fin fishes available in the river Padma near Rajshahi. The fish species that could be found years back has become rare in the study area. Few causes are identified for this declination of the fisheries resources from the river Padma near Rajshahi. Natural causes includes siltation, reduction of the depth of river, sand blocking, retention of water and climate change. As a consequence of climate change the water temperature has increased and siltation at the upstream of the river is a serious threat that caused reduction of water flow and as a result spawning and nursing grounds of fishes have been drastically affected in recent years. Manmade causes like water pollution, rough use of insecticides, industrial, agricultural and municipal wastes destroyed the spawning, nursing and grazing grounds of fish species of the river Padma near Rajshahi. Besides, construction of the Farakka Barrage at the upstream caused major detrimental catastrophe for the

ecosystem of the river Padma. For conservation and propagation of the endangered fish species from further degradation it is now necessary to provide suitable habitat, food, shelter and breeding grounds for the endangered and threatened fish species of the river Padma.

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