



Status of ornamental fish diversity of Sonkosh River, Bodoland Territorial Council, Assam, India

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ABSTRACT

Extensive survey for ornamental fishes of Sonkosh River was conducted from April, 2012 to March, 2013. The River Sonkosh is located in the western part of Kokrajhar District of Bodoland Territorial Council (BTC) area, a tributary of the Brahmaputra River in north-west bank. During the survey period, a total of 49 ornamental fish species were identified belonging to 34 genera, 18 families and 6 orders. Cyprinidae family represented the maximum number of species (18) followed by the family Channidae (5), Cobitidae (4), Siluridae (3), Amblycipitidae (3), Balitoridae, Nandidae, Badidae and Belontiidae (2 species each) and Notopteridae, Schilbeidae, Olyridae, Chacidae, Mastacembelidae, Chandidae, Osphronemidae, Gobiidae and Tetraodontidae (1 species each). The study shows that 1 species belongs to endangered category, 3 species near threatened, 1 species vulnerable, 32 species least concern, 3 species data deficient and 6 species not evaluated according to IUCN status, 2013.

Key words: Sonkosh River; Kokrajhar; ornamental fish; conservation; IUCN.

INTRODUCTION

The fish resources utilization by human being can be distributed mainly for food followed by ornamental and game purposes. Fishes with attractive colours, body structure and other peculiar characteristics are used for ornamental purposes. These living jewels (ornamental fishes)

cultured in the aquarium are of high commercial value due to aesthetic pleasure. Indigenous ornamental fish export and import from India is from two biodiversity hot spots- the northeastern region and the Western Ghats. The northeastern region is rich in aquatic bio-resources and among them it is dominated by the fish species. A number of endemic fish species have been recorded from this region, therefore, recognized as the hot spot of freshwater fish biodiversity in the world.¹ So far, 288 fresh water fish species

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belonging to 115 genera under 37 families and 10 orders have been reported from northeastern region, and the family Cyprinidae is represented by maximum number of species, i.e. 111.²

32 ornamental fish species have been reported from Jorhat, Sibsagar, Dibrugarh and Tinsukia district of upper Assam.³ Records of 87 fish species as potential ornamental value have been reported in the state of Assam.⁴ Out of 168 fish species, 63 have been considered as food fish and remaining 53 as ornamental fish.⁵ Out of 217 fish species from Assam, 150 species have been listed under potential ornamental value.⁶ Out of 250 fish species recorded from northeastern India, highest number of ornamental fishes (187 species) has been recorded from the Assam.⁷ 61 fish species have been listed as ornamental value from central Brahmaputra valley zone.⁸ 62 ornamental fishes were reported from flood plain wetlands of upper Brahmaputra basin.⁹ 62 fish species have been reported as ornamental value from the river island Majuli, Assam¹⁰ and 24 fishes were recorded ornamental category from the Silsakho wetland in Kamrup district of Assam.¹¹

Although the investigation on ichthyofaunal diversity of this region has been carried out by a few workers, but in Kokrajhar district, yet, there is no record of proper scientific information regarding the fish diversity, riverine capture fishery potentiality, abundance of food as well as the ornamental fishes and their conservation measures from river Sonkosh. The fish and fishery survey from Kokrajhar district is reported only by Boro.¹² At present it is a challenge and become necessary to survey and analyse the fishery potential as well as the conservation of the biodiversity, particularly the ichthyofauna of river Sonkosh. In the present study an attempt has been made to record the ornamental fish diversity and their IUCN status from the Sonkosh river of Bodoland Territorial Council, Assam.

Study area

The River Sonkosh, from Jamduar to Feshi-

mari-Jaldhuaghat (Latitude 26°43'N-26°21'N, Longitude 89°47'E-89°51'E and altitude 35-101 m) flows from downstream of Himalayan mountain of Bhutan by touching the two states, the Assam in the east and the West Bengal in the western part and it never dry up in any season. The river is large with rapid water current, sandy, pebbly and rocky bottom. The braided river flow forms deep pools at some regions inhabiting different species of fishes. Potential ornamental fishes are captured mainly from the upper reaches of Sonkosh river and its tributaries namely Dainamari, Demdema and Harafuta river in the eastern bank and Jorai and Raidak river in the western bank. The survey area was conducted in the five selected catchment areas having approachable roads to river site. They are (i) Jamduar (26°43'59.8"N and 89°51'39.4"E), (ii) Chaudhuri ghat (26°39'04.9" N and 89°53'24.8" E), (iii) Bitribari (26°38'06" N and 89°52'02" E), (iv) Surendrapur (26°32'26.1" N and 89°53'28.7" E) and (v) Pakriguri (26°27'03.5" N and 89°51'38.1" E).

MATERIALS AND METHODS

Sampling design, collection of data and analysis

To collect the data on wild caught ornamental fishes, investigation was conducted twice in a month from April 2012 to March 2013 and the annual cycle was divided into three seasons as (a) pre-monsoon (March-June), (b) monsoon (July-October) and (c) post monsoon (November-February). Investigation of fishes was conducted in five selected catchment areas (Jamduar, Chaudhurighat, Bitribari, Surendrapur and Pakriguri) with the help of fishermen and suppliers during the time of fishing. Fishes were collected alive and kept in the O₂ filled polythene bags and brought to the cement cistern tank of farmer's house till the demand of supply. During this period the fishes were treated with tetracycline antibiotics and the natural physicochemical conditions were maintained accordingly. Fishing gears applied were mostly lift net, cast net, scooping gears, encir-



Figure 1. Some potential ornamental fish species of river Sonkosh. a. *Notopterus notopterus*, b. *Tor Progeneius*, c. *Danio dangila*, d. *Aborichthys elongatus*, e. *Ctenops nobilis*, f. *Cyprinion semplotum*, g. *Botia daro*, h. *Chaca chaca*, i. *Channa bleheri*, j. *Tetraodon cutcutia*, k. *Oreichthys crenuoides* and l. *Glyptothorax cavia*.

Table 1. List of ornamental fish species recorded (April, 2012 to March, 2013) from Sonkosh River, BTC, Assam and their IUCN conservation status, 2013.

Order	Family	Name of the species	IUCN category		
Clupeiformes	Notopteridae	<i>Notopterus notopterus</i> (Pallas, 1769)	LC		
		<i>Amblypharygodon mola</i> (Hamilton-Buchanan, 1822)	LC		
		<i>Cyprinion semiplotum</i> (McClelland, 1839)	VU		
		<i>Oreochthys crenuchoides</i> (Schafer, 2009)	DD		
		<i>Neolissochilus hexagonolepis</i> (McClelland, 1839)	NT		
		<i>Tor putitora</i> (Hamilton, 1822)	EN		
		<i>Tor Progeneius</i> (McClelland, 1839)	NE		
		<i>Danio dangila</i> (Hamilton-Buchanan, 1822)	LC		
		<i>Pethia ticto</i> (Hamilton, 1822)	LC		
		<i>Puntius sophore</i> (Hamilton, 1822)	LC		
		Cyprinidae	<i>Puntius chola</i> (Hamilton, 1822)	LC	
			<i>Aspidoparia jaya</i> (Hamilton-Buchanan, 1822)	LC	
			<i>Cabdio morar</i> (Hamilton-Buchanan, 1822)	LC	
			<i>Barilius bendelisis</i> (Hamilton-Buchanan, 1822)	NE	
			<i>Barilius barila</i> (Hamilton-Buchanan, 1822)	LC	
			Cypriniformes	<i>Barilius vagra</i> (Hamilton, 1822)	LC
				<i>Chela laubuca</i> (Hamilton-Buchanan, 1822)	LC
				<i>Danio devario</i> (Hamilton-Buchanan, 1822)	LC
				<i>Danio rerio</i> (Hamilton-Buchanan, 1822)	LC
Balitoridae	<i>Aborichthys elongatus</i> (Hora, 1921)			NE	
	<i>Acanthocobitis botia</i> (Hamilton, 1822)	LC			
	<i>Lepidocephalichthys guntea</i> (Hamilton-Buchanan, 1822)	NE			
Cobitidae	<i>Botia daro</i> (Hamilton, 1822)	LC			
	<i>Botia rostrata</i> (Gunthur, 1868)	VU			
	<i>Somileptis gongota</i> (Hamilton-Buchanan, 1822)	LC			
	Amblycipitidae	<i>Amblyiceps cerenium</i> (Ng-Wright, 2010)	NE		
<i>Amblyiceps mangois</i> (Hamilton, 1822)		LC			
<i>Amplyiceps arunachalensis</i> (Nath & Dey, 1989)		EN			
Schilbeidae		<i>Ailia coila</i> (Hamilton, 1822)	NT		
Siluriformes	Sisoridae	<i>Gagata cenia</i> (Hamilton-Buchanan, 1822)	LC		
		<i>Glyptothorax cavia</i> (Hamilton, 1822)	LC		
		<i>Glyptothorax telchita</i> (Hamilton, 1822)	LC		
	Olyridae	<i>Olyra kempfi</i> (Chaudhuri, 1912)	LC		
	Chacidae	<i>Chaca chaca</i> (Hamilton, 1822)	LC		
Mastacembelidae	<i>Macrogathus aral</i> (Bloch-Schneider, 1801)	LC			
	Nandidae	<i>Badis badis</i> (Hamilton-Buchanan, 1822)	LC		
		<i>Nandus nandus</i> (Hamilton, 1822)	LC		
Synbranchiformes	Badidae	<i>Badis assamensis</i> (Ahl, 1937)	DD		
		<i>Dario dario</i> (Hamilton, 1822)	DD		
Chandidae	<i>Chanda nama</i> (Hamilton-Buchanan, 1822)	LC			
	Osphronemidae	<i>Ctenops nobilis</i> (McClelland, 1845)	NT		
	Belontiidae	<i>Trichogaster fasciatus</i> (Bloch-Schneider, 1801)	LC		

Perciformes	Channidae	<i>Channa gachua</i> (Hamilton, 1822)	NE
		<i>Channa marulius</i> (Hamilton, 1822)	LC
		<i>Channa striatus</i> (Bloch, 1793)	LC
		<i>Channa stewartii</i> (Playfair, 1867)	LC
		<i>Channa bleheri</i> (Vierke, 1991)	NT
	Gobiidae	<i>Glossogobius giuris</i> (Hamilton-Buchanan, 1822)	LC
Tetraodontiformes	Tetraodontidae	<i>Tetraodon cutcutia</i> (Hamilton, 1822)	LC

LC – Least Concern, VU – Vulnerable, DD – Data Deficient, NE – Not Evaluated, EN – Endangered, NT – Near Threatened

cling net, bamboo traps, etc. The market survey was conducted in the morning during 7-10 am and evening during 3-6 pm at the nearest markets of the river site. Secondary data were also collected through observation and interaction with local people and fishermen communities of embankment areas. The specimens were photographed (Fig. 1) and recorded their morphological characters, then fixed individually in 6% formalin solution. For identification and classification, Talwar and Jhingran,¹³ Jayaram,¹⁴ Vishwanath,¹⁵ and Nath and Dey,¹⁶ were followed. Nomenclature is based on fishbase (www.fishbase.org.in).¹⁷ The conservation status of recorded species was based on IUCN (www.iucnredlist.org.in).¹⁸

RESULTS AND DISCUSSION

Altogether, 49 potential ornamental fish species belonging to 34 genera, 18 families and 6 orders have been recorded from the four sampling stations of Sonkosh River during the study period. The ornamental fish species of the tributary belongs to following orders - Clupeiformes, Cypriniformes, Siluriformes, Synbranchiformes, Perciformes and Tetraodontiformes. Out of these 49 species, 1 belong to family Notopteridae followed by Cyprinidae (18), Balitoridae (2), Cobitidae (4), Amblycipitidae (3), Schilbeidae (1), Sisoridae (3), Olyridae (1), Chacidae (1), Mastacembelidae (1), Nandidae (2), Badidae (2), Chandidae (1), Osphronemidae (1), Belontiidae (2), Channidae (5), Gobiidae (1) and Tetraodontidae (1). The collected fish species from the five different stations are depicted in

the Table 1.

Out of these recorded potential ornamental fish species from Sonkosh River during survey, 4 species were assessed for near threatened (NT) criteria, 2 considered as endangered (EN), 2 vulnerable (VU), 32 least concern (LC), 3 data deficient (DD) and 6 not evaluated (NE) as per IUCN. Presentation of different IUCN categories of ornamental fish species is shown in percentage (Fig. 2).

CONCLUSION

The present study is the first ever documentation of potential ornamental fish faunal species in the Sonkosh River from the Kokrajhar District, Bodoland Territorial Council, Assam, which exhibits a good number of ornamental fishes. The illegal fish capturing methods for

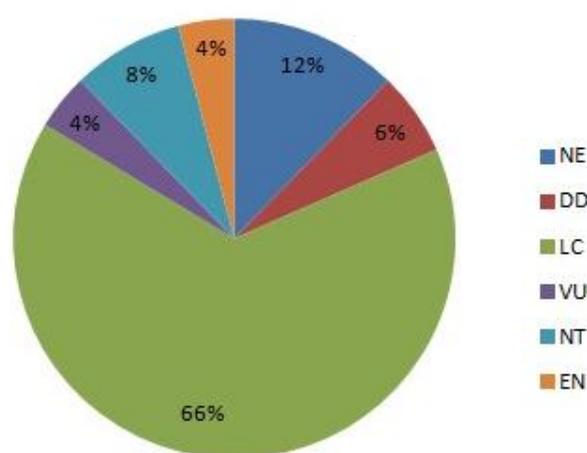


Figure 2. Percentage of IUCN categories of ornamental fish species.

food fishes like blasting, random fishing and electric fishing and habitat destruction like stone lifting are the major cause of depletion of ornamental fishes. Even after being in an unenviable position, the practice of unscientific wildy captured and export trading poses a sustainability threat to this region. So, for conservation of these living jewels of the lotic water system, a long term and effective management plan should be adopted to control the illegal fishing and export trade.

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