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Freshwater fish diversity of West Bengal, India

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Abstract

In the present communication, an attempt has been made to provide a systematic classification of freshwater fishes of West Bengal along with their local names, environment and conservation status, as far as possible. We recognized 267 species of freshwater fishes (186 primary freshwater species, 81 secondary freshwater species), belonging to 12 orders, 40 families and 123 genera. Thirteen species of exotic fishes have been introduced to freshwater bodies of the state. The top order with diverse species composition was Cypriniformes (117 species, 46 genera and 4 families). The most diverse family was Cyprinidae with 84 species and 35 genera. Freshwater fishes of West Bengal revealed existence of 109 ornamental fishes, 92 food fishes and 66 were ornamental or food fishes. Out of the 267 freshwater fishes, 17.97% are under threatened or near threatened categories. Updated checklist will lead to a better understanding of the freshwater fish diversity of West Bengal for development and conservation planning processes.

Keywords: Freshwater fish fauna, conservation status, West Bengal

1. Introduction

West Bengal is the only state of India that extends from the Himalaya to the Bay of Bengal and located between Latitude 21°38' N to 27°10' N and Longitude 85°38' E to 89°50' E [1, 2]. A large portion of the state occupies the transitional zones between the Himalayas in the north and the Chhotanagpur plateau in the west to the plains of the Ganga-Brahmaputra delta in the southern and eastern sections [1]. West Bengal is enriched with 6.08 lakh hector of freshwater fisheries resources in the form of Ponds and Tanks (2.88 lakh hector), Beels and Boar (0.41 lakh hector), Reservoirs (0.27 lakh hector), 22 river drainage basins (1.72 lakh hector) and Canals (0.80 lakh hector) [2]. Basins of river Ganga (81% of area), river Brahmaputra (12%), river Subarnarekha (4%) and two small coastal rivers (3%) provide an important domain for freshwater fish biodiversity in West Bengal [1].

India is an exceptional hotspot of freshwater fish diversity with a high degree of endemism contributing to the World's biological resources [3-4]. Understanding of species and communities reveal crucial facts necessary to the management of ecosystem and habitat [5]. Main causes of the decline of native fish species are habitat loss and species introductions. The conservation of the freshwater fishes has never been adequately addressed in India which has been mainly due to lack of scientific data and perception about the criteria to be used for the characterization and designating conservation status of threatened fishes. Knowledge of the species composition and distribution patterns of fishes are fundamental for conservation and management of native fish fauna [5]. In this concern an attempt has been made to acquire information on fundamental variables like taxonom, distribution, environment, maximum size, pattern of human use and conservation status of freshwater fishes of West Bengal to standardize the clean taxonomic nomenclature to agreed-upon standards.

2. Methodology

In the present communication, an attempt has been made to compile a list of freshwater fishes of West Bengal based on published literature in the form of research articles, monographs and species checklists from 2003 to 2015 [5-31]. Number of freshwater fishes reported in West Bengal with note on list of collectors, list of collecting stations along with their habitat, locality and geographical co-ordinates are provided in Table 1. The publications describing the freshwater fish fauna of the West Bengal was collected, reviewed and presented in Table 1 [6-23], information on fishes discovered newly were collected [24-31] and list of freshwater fish

species was extracted in Table 2. Classification of all taxa follows Talwar and Jhingran [32] and fishbase [33] and the valid nomenclature of species was adopted as per the Catalogue of Fishes of the California Academy of Sciences [34]. The list of fishes is prepared based on coloration pattern, shape and maximum size. Information on the conservation status of all taxa in this paper was retrieved from the International Union for Conservation of Nature and Natural Resources (IUCN) Red List Categories and criteria [35].

3. Results and Discussion

A complete list of freshwater fishes of West Bengal along with their local name, environment, maximum size, human use pattern and current IUCN Red List conservation status is provided in Table 2. We recognized 267 species of freshwater fishes (including 186 primary freshwater species, 70 species were freshwater cum brackish water and 11 species were freshwater cum brackish water cum marine habitats), belonging to 12 orders, 40 families and 123 genera from the freshwater bodies of West Bengal (Table 2 and 3). The top three orders with diverse species composition were Cypriniformes (117 species, 46 genera and 4 families), Siluriformes (79 species, 36 genera and 12 families) and Perciformes (39 species, 17 genera and 10 families) (Table 3). The most diverse family was the Cyprinidae with 84 species and 35 genera, followed by Sisoridae with 32 species and 11 genera, Bagridae with 19 species and 7 genera, Cobitidae with 17 species and 5 genera (Table 2).

Freshwater fishes of West Bengal revealed existence of 109 ornamental fishes, 92 food fishes and 66 were ornamental and/or food fishes (Table 2). Conservation status of the

freshwater fishes of the West Bengal suggests that 10 species are under endangered category, 11 species are under vulnerable category, 27 species are under near threatened category, 168 species are least concern, 22 species are data deficient and 29 species have not been evaluated against IUCN red list criteria (Table 2). Out of the 267 freshwater fishes, 17.97% are under threatened or near threatened categories and 82.02% are under non threatened categories. Species under endangered category include *Gudusia chapra*, *Botia almorhae*, *Botia lohachata*, *Lepidocephalichthys arunachalensis*, *Tor putitora*, *Tor tor*, *Amblyceps arunachalensis*, *Clarias magur*, *Pangasianodon hypophthalmus* and *Pillaia indica*. Over the years 13 species of exotic fishes have been introduced to freshwater bodies of the West Bengal and these include species such as *Carassius auratus*, *Ctenopharyngodon idellus*, *Cyprinus carpio*, *Hypophthalmichthys molitrix*, *Hypophthalmichthys nobilis*, *Gambusia affinis*, *Poecilia reticulata*, *Oreochromis mossambicus*, *Oreochromis niloticus*, *Osphronemus goramy*, *Clarias gariepinus*, *Pterygoplichthys multiradiatus* and *Pangasianodon hypophthalmus* (Table 2).

West Bengal has rich freshwater fish genetic resources constituting about 28.34% to the freshwater fish diversity of India [33]. Among documented fishes, maximum species have ornamental value which has been already been noticed in publications of Mishra *et al.* [6], Das [18], Dey *et al.* [19], Nath and Patra [23]. Invasive alien fish species has been emerging as a growing threat to biodiversity of small indigenous fishes. In this back drop, achieving sustainable utilisation of indigenous fishes, appropriate planning for conservation and management strategies are of utmost importance.

Table 1: Number of freshwater fishes reported in West Bengal with note on habitat and locality of work [Geographical co-ordinates].

Collectors of Freshwater Fishes	List of collecting stations of Freshwater Fishes [Habitat, Locality and Geographical co-ordinates]	No. of Species
Mishra <i>et al.</i> [6]	Tributaries of main rivers, rivers, irrigation canals, natural ponds, inundated lowland from Midnapore, Bankura and Hooghly Districts [22-23.3°N; 86-88.3°E]	103
Bhakta and Bandyopadhyay [7]	Churni River at Chakdaha in the district of Nadia [23°N and 88.5°E]	8
Bhakta and Bandyopadhyay [8]	Ten perennial pond of Ramnagar, East Midnapore district [21.8°N and 87.8°E]	45
Chakraborty and Bhattacharjee [9]	Major rivers, like Atrai, Punarbhaha, Tangan, Jamuna, in minor rivers, like Ichhamoti, and in kharis like, Kalkali, Kashiani and Brahmani. Beels visited were Danga and Gochina in south Dinajpur district	49
Patra and Datta [10]	Karala river, a tributary of Teesta river at Jalpaiguri district [26°47'13"N, 88°32'17"E Aquiduct; 26°31'51"N, 88°43'23"E Hakimpara; 26°28'42"N, 88°44'27"E Daspara]	31
Patra <i>et al.</i> [11]	Karala river, a tributary of Teesta river at Jalpaiguri district [26°47'13" N, 88°32'17" E, Aquiduct; 26°31'51" N, 88°43'23" E Hakim Para; 26°28'42" N, 88°44'27"E, Daspara]	55
Saha [12]	Ten perennial ponds and Mundaswari River in the Khanakul, Hooghly district	17
Saha and Patra [13]	Damodar River, Burdwan district [23°12'44.82" N, 87°51'2.75" E Krisak setu; 23°10'10.51" N, 87°58'0.046" E Barsul; 23°9'37.45" N, 87°59'0.082" E Palla]	46
Bandyopadhyay and Mondal [14]	Teesta, Torsa, Kaljani, Radak - I, Raidak - II, Sankosh rivers in Darjeeling and Jalpaiguri districts [88°6'- 89°54' E and 26°30'-27°13' N]	78
Bera <i>et al.</i> [15]	Kangsabati Reservoir in Bankura District [22°55'16.53"N-23°2'30.41"N and 86°37'55.30"E-86°47'23.35"E]	39
Kundu <i>et al.</i> [16]	Mahananda, Tangon and Punarbhaha are tributary of Terai rivers	50
Mahapatra and Lakra [17]	East Kolkata Wetlands in mature delta of Ganges River [22°25' to 22°40' N and 88°2' 0' to 88°35' E]	41
Das [18]	Tributaries of Torsa river: Ghargharia, Kaljani, Khutamara, Char Torsa and Siltorsa [Torsa river starting at Jaigaon (26°44'32"N and 89°19'27"E); Kaljani river at Mohona (26°16'52"N and 89°34'57"E)]	105
Dey <i>et al.</i> [19]	Ghargharia river, a tributary of the Torsa river in Coochbehar district [25°57'47" to 26°36'2" N and 89°54'35" to 88°47'44" E]	46
Dey <i>et al.</i> [20]	River Kaljani in Cooch Behar District [Amlaguri (26°34' N - 89°58' E), Chhatoa (26°32' N - 89°58' E), Jaigir Chilakhana (26°31' N - 89°58' E), Chhat Bhelakopa (26°29' N - 89°58' E)]	138
Dubey <i>et al.</i> [21]	Sundarban Biosphere Reserve, South 24 Parganas district [21°40'N - 22°40'N, and 88°03'E - 89°07'E]	62
Mondal and Patra [22]	Mukutmanipur, Panchet, Murguma, Kuki Dams and Kansai River in Purulia district	52
Nath and Patra [23]	Hooghly River stretch in Hooghly Dist [Serampore (N 22°45.803/ E 88°20.879) to Tribeni (N22°59.728/E 88°24.525)]	87

Table 2: Freshwater Fishes of West Bengal with note on local name, environment, maximum size, human use and conservation status – (compiled based on published literature [6-31]).

Order, Family, Species	Local Name	Environment	Maximum size (TL)	Human Use	IUCN Status
Order: Anguilliformes					
Family: Anguillidae					
<i>Anguilla bengalensis</i> (Gray, 1831)	Ban	F, B, M	200 cm	Food	NT
Family: Ophichthidae					
<i>Monopterusuchia</i> (Hamilton, 1822)	Kuchia	F, B	70 cm	Food	LC
<i>Pisodonophis boro</i> (Hamilton, 1822)	Kucho	F, B, M	100 cm	Food	LC
Order: Beloniformes					
Family: Belonidae					
<i>Xenentodon cancila</i> (Hamilton, 1822)	Kakia	F, B, M	40 cm	Ornamental, Food	LC
Order: Clupeiformes					
Family: Clupeidae					
<i>Corica soborna</i> Hamilton, 1822	Kachki	F, B, M	4.1 cm	Food	LC
<i>Gonialosa manmina</i> (Hamilton, 1822)	Khoira	F, B	14.1 cm	Food	LC
<i>Gudusia chapra</i> (Hamilton, 1822)	Khaira	F, B	20 cm	Food	EN
<i>Gudusia variegata</i> (Day, 1870)	Khoira	F	16 cm	Food	LC
<i>Tenualosa ilisha</i> (Hamilton, 1822)	Ilishmach	F, B, M	60 cm	Food	LC
<i>Tenualosa toil</i> (Valenciennes, 1847)	Chandan Ilish	F, B, M	60 cm	Food	NE
Family: Engraulidae					
<i>Setipinna phasa</i> (Hamilton, 1822)	Phesa	F, B, M	40.0 cm	Food	LC
<i>Setipinna taty</i> (Valenciennes, 1848)	Phansa	F, B, M	15.3 cm	Food	NE
Order: Cypriniformes					
Family: Balitoridae					
<i>Aborichthys elongatus</i> Hora, 1921	Gutum	F	7.4 cm	Ornamental	LC
<i>Aborichthys kempfi</i> Chaudhuri, 1913		F	8.1 cm	Ornamental	NT
<i>Acanthocobitis botia</i> (Hamilton, 1822)	Natwa	F	11.0 cm	Ornamental	LC
<i>Balitora brucei</i> Gray, 1830	Balitora	F	10.5 cm	Ornamental	NT
<i>Neonemacheilus assamensis</i> (Menon, 1987)		F	4.3 cm	Ornamental	NT
<i>Nemacheilus corica</i> (Hamilton, 1822)	Koirka	F	4.2 cm	Ornamental	LC
<i>Schistura beavani</i> (Günther, 1868)	Creek loach	F	8.0 cm	Ornamental	LC
<i>Schistura fasciata</i> Lokeshwor and Vishwanath, 2011	Poia	F	6.8 cm	Ornamental	NE
<i>Schistura multifasciata</i> (Day, 1878)		F	9.8 cm	Ornamental	LC
<i>Schistura savona</i> (Hamilton, 1822)	Khoraka	F	2.4 cm	Ornamental	LC
<i>Schistura scaturigina</i> McClelland, 1839		F	10.0 cm	Ornamental	LC
<i>Schistura tirapensis</i> Kottelat, 1990	Poia	F	5.6 cm	Ornamental	LC
Family: Cobitidae					
<i>Botia almorhae</i> Gray, 1831	Lohachata	F	15.5 cm	Ornamental	EN
<i>Botia birdi</i> Chaudhuri, 1909	Loach	F	18.6 cm	Ornamental	NE
<i>Botia dario</i> (Hamilton, 1822)	Betrongi	F	15.1 cm	Ornamental, Food	LC
<i>Botia lohachata</i> Chaudhuri, 1912	Lohachata	F	11.0 cm	Ornamental	EN
<i>Botia histrionic</i> Blyth, 1860	Lohachata	F	11.7 cm	Ornamental	LC
<i>Botia rostrata</i> Günther, 1868	Ladder loach	F	25.0 cm	Ornamental	VU
<i>Canthophrys gongota</i> (Hamilton, 1822)	Ghor poia	F	13.0 cm	Ornamental	LC
<i>Lepidocephalichthys annandalei</i> Chaudhuri, 1912		F	4.3 cm	Ornamental	LC
<i>Lepidocephalichthys arunachalensis</i> (Datta and Barman, 1984)	Gutum	F		Ornamental	EN
<i>Lepidocephalichthys berdmorei</i> (Blyth, 1860)	Gutum	F	8.0 cm	Ornamental	LC
<i>Lepidocephalichthys goalparensis</i> Pillai and Yazdani, 1976		F	4.4 cm	Ornamental	LC
<i>Lepidocephalichthys guntea</i> Hamilton 1822	Guntey	F, B	15.0 cm	Ornamental, Food	LC
<i>Lepidocephalichthys irrorata</i> Hora, 1921		F	34.0 cm	Ornamental	LC
<i>Lepidocephalichthys manipurensis</i> Arunkumar, 2000	Gutum	F	56.0 cm	Ornamental	LC
<i>Pangio pangio</i> (Hamilton, 1822)	Daria	F	6.5 cm	Ornamental	LC
<i>Somileptes gongota</i> (Hamilton, 1822)	Ghor Poia	F	13.0 cm	Ornamental	LC
Family: Cyprinidae					
<i>Amblypharyngodon microlepis</i> (Bleeker, 1853)	Mourala	F	10.0 cm	Ornamental	LC
<i>Amblypharyngodon mola</i> (Hamilton, 1822)	Mourola	F	20.0 cm	Ornamental, Food	LC
<i>Aspidoparia jaya</i> (Hamilton, 1822)		F	15.0 cm	Food	LC
<i>Bangana dero</i> (Hamilton, 1822)		F	75.0 cm	Food	LC
<i>Barilius barila</i> (Hamilton, 1822)	Boroli	F	10.0 cm	Food	LC
<i>Barilius barna</i> (Hamilton, 1822)	Ghol	F	15.0 cm	Food	LC
<i>Barilius bendelisis</i> (Hamilton, 1807)	Joia	F	22.7 cm	Food	LC

<i>Barilius shacra</i> (Hamilton, 1822)	Koksa	F	14.0 cm	Food	LC
<i>Barilius tileo</i> (Hamilton, 1822)	Boroli	F	30.5 cm	Food	LC
<i>Barilius vagra</i> (Hamilton, 1822)	Boroli	F	12.8 cm	Food	LC
<i>Cabdio morar</i> (Hamilton, 1822)	Baspati	F	20.0 cm	Ornamental, Food	LC
<i>Carassius auratus</i> (Linnaeus, 1758) ^{Exotic}		F	48.0 cm	Ornamental, Food	LC
<i>Chela cachus</i> (Hamilton, 1822)		F, B	6.0 cm	Ornamental, Food	LC
<i>Chela laubuca</i> (Hamilton, 1822)	Dankena	F, B	7.0 cm	Ornamental, Food	LC
<i>Chagunius chagunio</i> (Hamilton, 1822)	Pithkati	F	50.0 cm	Ornamental, Food	DD
<i>Cirrhinus mrigala</i> (Hamilton, 1822)	Mrigel	F	99.0 cm	Food	LC
<i>Cirrhinus reba</i> (Hamilton, 1822)	Bhangonbata	F	30.0 cm	Food	LC
<i>Crossocheilus latius</i> (Hamilton, 1822)	Kala Bata	F, B	15.2 cm	Food	LC
<i>Ctenopharyngodon idellus</i> (Valenciennes, 1844) ^{Exotic}	Grass carp	F	150 cm	Food	NE
<i>Cyprinion semiplotum</i> (McClelland, 1839)	Chepti puthi	F	60.0 cm	Food	VU
<i>Cyprinus carpio</i> Linnaeus, 1758 ^{Exotic}	Common carp	F, B	120 cm	Food	VU
<i>Danio dangila</i> (Hamilton, 1822)	Darikana	F	15.0 cm	Ornamental	LC
<i>Danio rerio</i> (Hamilton, 1822)	Techokha	F	3.8 cm	Ornamental	NT
<i>Danionella priapus</i> Britz, 2009		F	1.6 cm	Ornamental	DD
<i>Devario aequipinnatus</i> (McClelland, 1839)	Chebli	F	15.0 cm	Ornamental	LC
<i>Devario assamensis</i> (Barman, 1984)		F	9.0 cm	Ornamental	VU
<i>Devario devario</i> (Hamilton, 1822)	Techokha	F	10.0 cm	Ornamental	LC
<i>Devario regina</i> (Fowler, 1934)	Gharbanka chela	F	7.8 cm	Ornamental	LC
<i>Esomus danricus</i> (Hamilton, 1822)	Dankya	F, B	13.0 cm	Ornamental, Food	LC
<i>Garra annandalei</i> Hora, 1921		F	23.0 cm	Ornamental, Food	LC
<i>Garra arupi Nebeshwar</i> , Vishwanath and Das, 2009		F	7.2 cm	Food,	NE
<i>Garra gotyla gotyla</i> (Gray, 1830)	Klagachhi	F	18.0 cm	Food	VU
<i>Garra kempfi</i> Hora, 1921	Klagachhi	F	11.3 cm	Food	LC
<i>Garra lamta</i> (Hamilton, 1822)	Klagachhi	F	20.4 cm	Food	LC
<i>Garra lissorhynchus</i> (McClelland, 1842)		F	9.1 cm	Ornamental	LC
<i>Garra nasuta</i> (McClelland, 1838)		F	20.0 cm	Ornamental	LC
<i>Garra mullya</i> (Sykes, 1839)	Mottu	F	17.0 cm	Ornamental, Food	LC
<i>Catla catla</i> (Hamilton, 1822)	Catla	F, B	182 cm	Food	NE
<i>Hypophthalmichthys molitrix</i> (Valenciennes, 1844) ^{Exotic}	Silver carp	F	105 cm	Food	NT
<i>Hypophthalmichthys nobilis</i> (Richardson, 1845) ^{Exotic}	Bighead carp	F	146 cm	Food	DD
<i>Labeo angra</i> (Hamilton, 1822)	Kharsa	F	22.0 cm	Food	LC
<i>Labeo bata</i> (Hamilton, 1822)	Bata	F	61.0 cm	Food	LC
<i>Labeo boga</i> (Hamilton, 1822)	Bata	F	30.0 cm	Ornamental, Food	LC
<i>Labeo calbasu</i> (Hamilton, 1822)	Kalbose	F, B	90.0 cm	Ornamental, Food	LC
<i>Labeo dero</i> (Hamilton, 1822)	Kursha	F	75.0 cm	Ornamental	LC
<i>Labeo dyocheilus</i> (McClelland, 1839)	Silghorea	F	90.0 cm	Food	VU
<i>Labeo fimbriatus</i> (Bloch, 1795)		F	91.0 cm	Food	LC
<i>Labeo gonius</i> (Hamilton, 1822)	Kurechi	F	150.0 cm	Food	LC
<i>Labeo nandina</i> (Hamilton, 1822)		F	81.2 cm	Food	NT
<i>Labeo pangusia</i> (Hamilton, 1822)	Utti	F	90.0 cm	Food	NT
<i>Labeo rohita</i> (Hamilton, 1822)	Rui	F	200.0 cm	Food	LC
<i>Laubuka laubuca</i> (Hamilton, 1822)	Laubuca	F, B	7.0 cm	Ornamental	LC
<i>Megarasbora elanga</i> (Hamilton, 1822)		F	21.0 cm	Ornamental, Food	LC
<i>Neolissochilus hexagonolepis</i> (McClelland, 1839)	Katli	F	120.0 cm	Food	NT
<i>Neolissochilus hexastichus</i> (McClelland, 1839)		F		Ornamental	NT
<i>Oreochthys cosuatis</i> (Hamilton, 1822)	Punti	F	8.0 cm	Ornamental, Food	LC
<i>Oreochthys crenuchoides</i> Schäfer, 2009	Punti	F	3.1 cm	Ornamental, Food	DD
<i>Osteobrama belangeri</i> (Valenciennes, 1844)	Gilachaki	F	38.0 cm	Ornamental, Food	NT
<i>Osteobrama cotio</i> (Hamilton, 1822)	Gilachaki	F	15.0 cm	Ornamental, Food	LC
<i>Pethia aurea</i> Knight, 2013		F	2.4 cm	Ornamental	NE

<i>Pethia conchoni</i> (Hamilton, 1822)	Kanchan Punt	F	14.0 cm	Ornamental, Food	VU
<i>Pethia gelius</i> (Hamilton, 1822)	Gilipunt	F	5.1 cm	Ornamental, Food	LC
<i>Pethia guganio</i> (Hamilton, 1822)	Punt	F	80 cm	Ornamental	LC
<i>Pethia phutunio</i> (Hamilton, 1822)	Punt	F	3.5 cm	Ornamental, Food	LC
<i>Pethia shalynius</i> (Yazdani and Talukdar, 1975)	Bhusandi Punt	F	6.0 cm	Food	VU
<i>Pethia ticto</i> (Hamilton, 1822)	Titpunt	F, B	10.0 cm	Ornamental, Food	LC
<i>Puntius chola</i> (Hamilton, 1822)	Chela Punt	F	15.0 cm	Ornamental, Food	LC
<i>Puntius puntio</i> (Hamilton, 1822)	Puntio Barb	F	7.5 cm	Ornamental, Food	NE
<i>Puntius sophore</i> (Hamilton, 1822)	Punt	F, B	20.0 cm	Ornamental, Food	LC
<i>Puntius terio</i> (Hamilton, 1822)	Teripunt	F	10.0 cm	Ornamental, Food	LC
<i>Puntius vittatus</i> Day, 1865	Tor Mahasol	F, B	5.0 cm	Ornamental, Food	LC
<i>Raiamas bola</i> (Hamilton, 1822)	Bhola	F	35.0 cm	Ornamental, Food	LC
<i>Rasbora daniconius</i> (Hamilton, 1822)	Darikana	F, B	15.0 cm	Ornamental	LC
<i>Rasbora rasbora</i> (Hamilton, 1822)	Darikana	F, B	13.0 cm	Ornamental	LC
<i>Salmophasia bacaila</i> (Hamilton, 1822)	Chela	F, B	18.0 cm	Food	LC
<i>Salmophasia horai</i> (Silas, 1951)	Chela	F	10.0 cm	Food	VU
<i>Salmophasia phulo</i> (Hamilton, 1822)	Phulo Chela	F	12.0 cm	Ornamental	LC
<i>Salmophasia sardinella</i> (Valenciennes, 1844)	Jhola	F	15.0 cm	Ornamental	LC
<i>Schizothorax richardsonii</i> (Gray, 1832)		F	60.0 cm	Food	VU
<i>Securicula gora</i> (Hamilton, 1822)	Ghorchelwa	F	24.5 cm	Ornamental, Food	LC
<i>Systemus clavatus</i> (McClelland, 1845)		F	24.0 cm	Food	NT
<i>Systemus sarana</i> (Hamilton, 1822)	Swarna Punt	F, B	42.0 cm	Ornamental, Food	LC
<i>Tor putitora</i> (Hamilton, 1822)	Putitor	F	275.0 cm	Food	EN
<i>Tor tor</i> (Hamilton, 1822)	Mahasol	F	200.0 cm	Food	EN
Family: Psilorhynchidae					
<i>Psilorhynchus arunachalensis</i> (Nebeshwar, Bagra and Das, 2007)		F		Ornamental	DD
<i>Psilorhynchus balitora</i> (Hamilton, 1822)	Balitora	F	7.0 cm	Ornamental	LC
<i>Psilorhynchus nudithoracicus</i> Tilak and Husain, 1980		F	5.8 cm	Ornamental	LC
<i>Psilorhynchus homaloptera</i> Hora and Mukerji, 1935	Balitora	F	9.4 cm	Food	LC
<i>Psilorhynchus sucatio</i> (Hamilton, 1822)	Balitora	F	8.2 cm	Ornamental	LC
Order: Cyprinodontiformes					
Family: Aplocheilidae					
<i>Aplocheilus panchax</i> (Hamilton, 1822)	Kanpona	F, B	9.0 cm	Food	LC
Family: Poeciliidae					
<i>Gambusia affinis</i> (Baird and Girard, 1853) ^{Exotic}		F, B	4.0 cm	Ornamental	LC
<i>Poecilia reticulata</i> Peters, 1859 ^{Exotic}		F, B	5.0 cm	Ornamental	NE
Order: Mugiliformes					
Family: Mugilidae					
<i>Rhinomugil corsula</i> (Hamilton, 1822)	Khsola	F, B	45.0 cm	Ornamental, Food	LC
<i>Sicamugil cascasia</i> (Hamilton, 1822)		F	10.0 cm	Ornamental	LC
Order: Osteoglossiformes					
Family: Notopteridae					
<i>Chitala chitala</i> (Hamilton, 1822)	Chital	F	122.0 cm	Ornamental, Food	NT
<i>Notopterus notopterus</i> (Pallas, 1769)	Pholui	F, B	60.0 cm	Ornamental, Food	NE
Order: Perciformes					
Family: Ambassidae					
<i>Chanda nama</i> Hamilton, 1822	Chanda	F, B	11.0 cm	Ornamental, Food	LC
<i>Parambassis baculis</i> (Hamilton, 1822)		F	5.0 cm	Ornamental	LC
<i>Parambassis lala</i> (Hamilton, 1822)		F, B	3.9 cm	Ornamental	NT
<i>Parambassis ranga</i> (Hamilton, 1822)	Chanda	F, B	8.0 cm	Ornamental, Food	LC
Family: Anabantidae					
<i>Anabas cobojius</i> (Hamilton, 1822)		F	30.0 cm	Food	DD

<i>Anabas testudineus</i> (Bloch, 1792)	Koi	F, B	25.0 cm	Food	DD
Family: Badidae					
<i>Badis andrewwraoi</i> Valdesalici and van der Voort, 2015		F	3.9 cm	Ornamental	NE
<i>Badis assamensis</i> Ahl, 1937	Napit	F	6.8 cm	Ornamental, Food	DD
<i>Badis autumnum</i> Valdesalici and van der Voort, 2015		F	3.6 cm	Ornamental	NE
<i>Badis badis</i> (Hamilton, 1822)	Botkoi	F	5.0 cm	Ornamental, Food	LC
<i>Badis kyanos</i> Valdesalici and van der Voort, 2015		F	3.5 cm	Ornamental	NE
<i>Badis laspiophilus</i> Valdesalici and van der Voort, 2015		F	2.1 cm	Ornamental	NE
<i>Badis soraya</i> Valdesalici and van der Voort, 2015		F	3.2 cm	Ornamental	NE
<i>Badis singenensis</i> Geetakumari and Kadu, 2011		F	3.7 cm	Ornamental	NE
Family: Channidae					
<i>Channa andrao</i> Britz, 2013		F		Ornamental	NE
<i>Channa aurantimaculata</i> Musikasinthorn, 2000		F	19.1 cm	Ornamental, Food	DD
<i>Channa bleheri</i> Vierke, 1991	Cheng	F	13.5 cm	Ornamental, Food	NT
<i>Channa gachua</i> (Hamilton, 1822)	Cheng	F	20.0 cm	Ornamental, Food	LC
<i>Channa marulius</i> (Hamilton, 1822)	Sal	F	183.0 cm	Ornamental, Food	LC
<i>Channa orientalis</i> Bloch and Schneider, 1801	Cheng	F, B	33.0 cm	Ornamental, Food	NE
<i>Channa punctata</i> (Bloch, 1793)	Lata	F, B	31.0 cm	Ornamental, Food	LC
<i>Channa stewartii</i> (Playfair, 1867)	Tel Chang	F	25.0 cm	Food	LC
<i>Channa striata</i> (Bloch, 1793)	Sol	F, B	100.0 cm	Ornamental, Food	LC
Family: Chichlidae					
<i>Oreochromis mossambicus</i> (Peters, 1852) ^{Exotic}	Tilapia	F, B	39.0 cm	Food	NT
<i>Oreochromis niloticus</i> (Linnaeus, 1758) ^{Exotic}	Nilotica	F, B	60.0 cm	Food	NE
Family: Datnioididae					
<i>Datnioides polota</i> (Hamilton, 1822)		F, B	30.0 cm	Food	LC
Family: Eleotridae					
<i>Eleotris fusca</i> (Forster, 1801)		F, B	26.0 cm	Food	LC
Family: Gobiidae					
<i>Apocryptes bato</i> (Hamilton, 1822)		F, B	26.0 cm	Food	NE
<i>Brachyamblyopus brachysoma</i> (Bleeker, 1854)		F, B	10.5 cm	Food	NE
<i>Glossogobius giuris</i> (Hamilton, 1822)	Bele	F, B	50.0 cm	Ornamental, Food	LC
<i>Odontamblyopus rubicundus</i> (Hamilton, 1822)		F, B	25.0 cm	Food	NE
<i>Pseudapocryptes elongatus</i> (Cuvier, 1816)		F, B	20.0 cm	Food	LC
Family: Nandidae					
<i>Nandus nandus</i> (Hamilton, 1822)	Bheda	F, B	20.0 cm	Ornamental, Food	LC
Family: Osphronemidae					
<i>Ctenops nobilis</i> McClelland, 1845	Koleehona	F, B	10.5 cm	Ornamental, Food	NT
<i>Osphronemus goramy</i> Lacepède, 1801 ^{Exotic}		F, B	70.0 cm	Ornamental, Food	LC
<i>Trichogaster fasciata</i> Bloch and Schneider, 1801	Kholse	F	12.5 cm	Food	LC
<i>Trichogaster chuna</i> (Hamilton, 1822)		F	7.0 cm	Ornamental	LC
<i>Trichogaster lalius</i> (Hamilton, 1822)	Khoira	F	8.8 cm	Ornamental	LC
<i>Trichogaster labiosa</i> Day, 1877		F	9.0 cm	Ornamental	LC
Order: Siluriformes					
Family: Amblycipitidae					
<i>Amblyceps apangi</i> Nath and Dey, 1989		F	7.3 cm	Food	LC
<i>Amblyceps arunchalensis</i> Nath and Dey, 1989		F	8.1 cm	Food	EN
<i>Amblyceps cerinum</i> Ng and Wright, 2010		F	9.7 cm	Food	NE
<i>Amblyceps mangois</i> (Hamilton, 1822)	Gang magur	F	12.5 cm	Ornamental	LC
<i>Amblyceps tuberculatum</i> Linthoingambi and Vishwanath, 2008	Gang magur	F	9.7 cm	Ornamental	DD
Family: Arridae					
<i>Arius gogora</i> (Hamilton, 1822)		F, B, M	91.4 cm	Food	NT
Family: Bagridae					
<i>Batasio batasio</i> (Hamilton, 1822)	Batasio	F	10.0 cm	Ornamental, Food	LC

<i>Batasio fasciolatus</i> Ng, 2006	Batasio	F	7.1 cm	Ornamental	LC
<i>Batasio merianiensis</i> (Chaudhuri, 1913)	Batasio	F	6.6 cm	Ornamental	DD
<i>Batasio spilurus</i> Ng, 2006		F	4.2 cm	Ornamental	DD
<i>Batasio tengana</i> (Hamilton, 1822)	Batashi	F	9.0 cm	Ornamental, Food	LC
<i>Chandramara chandramara</i> (Hamilton, 1822)		F	5.0 cm	Ornamental	LC
<i>Hemibagrus menoda</i> (Hamilton, 1822)		F	45.0 cm	Ornamental, Food	LC
<i>Mystus bleekeri</i> (Day, 1877)	Tengra	F	15.5 cm	Ornamental, Food	LC
<i>Mystus carcio</i> (Hamilton, 1822)		F	5.0 cm	Ornamental	LC
<i>Mystus cavasius</i> (Hamilton, 1822)	Tengra	F, B, M	40.0 cm	Food	LC
<i>Mystus dibrugarensis</i> (Chaudhuri, 1913)		F		Ornamental	LC
<i>Mystus gulio</i> (Hamilton, 1822)	Golsha tengra	F, B	46.0 cm	Food	LC
<i>Mystus tengara</i> (Hamilton, 1822)	Tangra	F	18.0 cm	Ornamental, Food	LC
<i>Mystus vittatus</i> (Bloch, 1794)	Tangra	F, B	21.0 cm	Ornamental, Food	LC
<i>Olyra longicaudata</i> McClelland, 1842	Bot-singhi	F	11.0 cm	Ornamental	LC
<i>Rita gogra</i> (Sykes, 1839)		F	26.0 cm	Ornamental, Food	LC
<i>Rita rita</i> (Hamilton, 1822)	Rita	F, B	150.0 cm	Ornamental	LC
<i>Sperata aor</i> (Hamilton, 1822)	Aar	F	180 cm	Food	LC
<i>Sperata seenghala</i> (Sykes, 1839)	Tangra	F, B	150 cm	Food	LC
Family: Chacidae					
<i>Chaca chaca</i> (Hamilton, 1822)	Checa	F	20.0 cm	Ornamental	LC
Family: Clariidae					
<i>Clarias batrachus</i> (Linnaeus, 1758)	Magur	F, B	47.0 cm	Ornamental, Food	LC
<i>Clarias gariepinus</i> (Burchell, 1822) ^{Exotic}	Thai magur	F	170.0 cm	Food	LC
<i>Clarias magur</i> (Hamilton, 1822)		F	21.3 cm	Food	EN
Family: Heteropneustidae					
<i>Heteropneustes fossilis</i> (Bloch, 1794)	Singi	F, B	30.0 cm	Ornamental, Food	LC
Family: Loricariidae					
<i>Pterygoplichthys multiradiatus</i> (Hancock, 1828) ^{Exotic}		F	50.0 cm	Ornamental, Food	NE
Family: Pangasidae					
<i>Pangasius pangasius</i> (Hamilton, 1822)	Pangus	F, B	9.0 cm	Ornamental, Food	LC
<i>Pangasianodon hypophthalmus</i> (Sauvage, 1878) ^{Exotic}	African pangus	F	130.0 cm	Food	EN
Family: Plotosidae					
<i>Plotosus canius</i> Hamilton, 1822	Kan magur	F, B, M	150.0 cm	Food	NE
Family: Schilbedidae					
<i>Ailia coila</i> (Hamilton, 1822)	Kajoli	F, B	30.0 cm	Food	NT
<i>Ailiichthys punctata</i> Day, 1872		F	10.0 cm	Ornamental	DD
<i>Chupisoma garua</i> (Hamilton, 1822)	Gharya	F, B	60.9 cm	Food	LC
<i>Chupisoma montana</i> Hora, 1937	Kocha	F	29.0 cm	Food	LC
<i>Eutropiichthys murius</i> (Hamilton, 1822)	Muri bacha	F	28.0 cm	Food	LC
<i>Eutropiichthys vacha</i> (Hamilton, 1822)	Bacha	F, B	34.0 cm	Food	LC
<i>Neotropius atherinoides</i> (Bloch, 1794)	Batasi tangra	F, B	15.0 cm	Food	LC
<i>Silonia silondia</i> (Hamilton, 1822)	Sillan	F, B	183.0 cm	Food	LC
Family: Siluridae					
<i>Ompok bimaculatus</i> (Bloch, 1794)	Pabda	F, B	45.0 cm	Ornamental, Food	NT
<i>Ompok pabda</i> (Hamilton, 1822)	Pabda	F	30.0 cm	Ornamental, Food	NT
<i>Ompok pabo</i> (Hamilton, 1822)	Pabda	F	25.0 cm	Ornamental, Food	NT
<i>Pterocryptis berdmorei</i> (Blyth, 1860)		F	21.4 cm	Ornamental	LC
<i>Wallago attu</i> (Bloch and Schneider, 1801)	Boal	F, B	240.0 cm	Food	NT
Family: Sisoridae					
<i>Bagarius bagarius</i> (Hamilton, 1822)	Garua	F, B	200.0 cm	Food	NT
<i>Bagarius yarrelli</i> (Sykes, 1839)		F	200.0 cm	Food	NT
<i>Conta pectinata</i> Ng, 2005	Tinkata	F	4.9 cm	Ornamental	DD
<i>Erethistes pusillus</i> Müller and Troschel, 1849	Tinkantia	F	4.2 cm	Ornamental	LC
<i>Erethistoides infuscatus</i> Ng, 2006		F	4.5 cm	Ornamental	DD
<i>Erethistoides montana</i> Hora, 1950	Tinkantia	F	4.8 cm	Ornamental	DD
<i>Gagata cenia</i> (Hamilton, 1822)	Jungle	F, B	15.0 cm	Food	LC
<i>Gagata gagata</i> (Hamilton, 1822)		F, B	31.0 cm	Food	LC

<i>Gagata sexualis</i> Tilak, 1970		F	6.0 cm	Ornamental	LC
<i>Gagata dolichonema</i> He, 1996	Kaoya tengra	F	13.0 cm	Ornamental	LC
<i>Glyptothorax cavia</i> (Hamilton, 1822)	Kani tengra	F	28.0 cm	Ornamental	LC
<i>Glyptothorax dikrongensis</i> Tamang and Chaudhry, 2011		F	9.4 cm	Ornamental	NE
<i>Glyptothorax gracilis</i> (Günther, 1864)		F	12.7 cm	Ornamental	DD
<i>Glyptothorax indicus</i> Talwar, 1991	Kani tengra	F	11.0 cm	Ornamental	LC
<i>Glyptothorax radiolus</i> Ng and Lalramliana, 2013		F	11.9 cm	Food	NE
<i>Glyptothorax striatus</i> (McClelland, 1842)		F	21.5 cm	Food	NT
<i>Glyptothorax telchitta</i> (Hamilton, 1822)	Kani tengra	F	10.0 cm	Ornamental	LC
<i>Gogangra viridescens</i> (Hamilton, 1822)		F	8.5 cm	Ornamental	LC
<i>Hara hara</i> (Hamilton, 1822)	Tinkata	F	13.0 cm	Ornamental	LC
<i>Hara horai</i> Misra, 1976		F	8.0 cm	Ornamental	LC
<i>Hara jerdoni</i> Day, 1870	Tinkata	F	4.0 cm	Ornamental	LC
<i>Hara koladynensis</i> Anganthoibi and Vishwanath, 2009	Tinkata	F	6.6 cm	Ornamental	DD
<i>Nangra assamensis</i> Sen and Biswas, 1994		F	9.2 cm	Ornamental	LC
<i>Nangra nangra</i> (Hamilton, 1822)		F	5.5 cm	Ornamental	LC
<i>Pseudolaguvia ferula</i> Ng, 2006	Tinkata	F	2.5 cm	Ornamental	DD
<i>Pseudolaguvia ferruginea</i> Ng, 2009		F	2.9 cm	Ornamental	DD
<i>Pseudolaguvia flavida</i> Ng, 2009		F	2.5 cm	Ornamental	DD
<i>Pseudolaguvia foveolata</i> Ng, 2005		F	3.0 cm	Ornamental	DD
<i>Pseudolaguvia ribeiroi</i> (Hora, 1921)		F	10.0 cm	Ornamental	LC
<i>Pseudolaguvia shawi</i> (Hora, 1921)	Tinkata	F	3.0 cm	Ornamental	LC
<i>Sisor barakensis</i> Vishwanath and Darshan, 2005	Sisor	F		Ornamental	VU
<i>Sisor rabdophorus</i> Hamilton, 1822	Sisor	F	18.0 cm	Ornamental	LC
Order: Synbranchiformes					
Family: Chaudhuriidae					
<i>Pillaia indica</i> Yazdani, 1972		F	7.7 cm	Ornamental	EN
Family: Mastacembelidae					
<i>Macrognaathus aculeatus</i> (Bloch, 1786)	Ban	F, B	38.0 cm	Ornamental, Food	LC
<i>Macrognaathus aral</i> (Bloch and Schneider, 1801)	Pankal	F, B	63.5 cm	Food	LC
<i>Macrognaathus morehensis</i> Arunkumar and Tombi Singh, 2000	Bhaim	F		Ornamental, Food	LC
<i>Macrognaathus pancalus</i> Hamilton, 1822	Pankal	F, B	18.0 cm	Ornamental, Food	LC
<i>Mastacembelus armatus</i> (Lacepède, 1800)	Ban	F, B	90.0 cm	Food	LC
Family: Synbranchidae					
<i>Monopterus albus</i> (Zuiew, 1793)		F, B	100.0 cm	Food	LC
<i>Monopterusuchia</i> (Hamilton, 1822)	Kuche	F, B	70.0 cm	Ornamental	LC
<i>Ophisternon bengalense</i> McClelland, 1844	Bero	F, B	100.0 cm	Food	LC
Order: Syngnathiformes					
Family: Syngnathidae					
<i>Microphis cunocalus</i> (Hamilton, 1822)	Dot	F, B	17.5 cm	Ornamental	LC
<i>Microphis deocata</i> (Hamilton, 1822)		F	15.0 cm	Ornamental	NT
Order: Tetradontiformes					
Family: Tetradontidae					
<i>Leiodon cutcutia</i> (Hamilton, 1822)	Tepa	F, B	15.0 cm	Ornamental	LC
<i>Tetraodon fluviatilis</i> Hamilton, 1822	Potoka	F, B	17.0 cm	Ornamental	NE

IUCN = International Union for Conservation of Nature and Natural Resources; F = Freshwater; B = Brackish-water; M = Marine-water; TL = Total Length; EN = Endangered; VU = Vulnerable; NT = Near Threatened; LC = Least Concern; DD = Data Deficient; NE = Not Evaluated

Table 3: Diversity of freshwater fishes of the West Bengal.

Order	Family (No.)	Genera (No.)	Species (No.)
Anguilliformes	2	3	3
Beloniformes	1	1	1
Clupeiformes	2	5	8
Cypriniformes	4	46	117
Cyprinodontiformes	2	3	3
Mugiliformes	1	2	2
Osteoglossiformes	1	2	2
Perciformes	10	17	39
Siluriformes	12	36	79
Synbranchiformes	3	5	9
Syngnathiformes	1	1	2
Tetradontiformes	1	2	2
Total = 12	Total = 40	Total = 123	Total = 267

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