

# Ichthyofaunal Diversity of Dhansiri River, Dimapur, Nagaland, India

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**ABSTRACT:** Northeastern India, one of the Ichthyofaunal hot spot areas of our country, is marked by the presence of varied freshwater fishes, a few adapted to torrential waterflow. River Dhansiri is an important river of Dimapur District of Nagaland, India, which flows through Nagaland – Assam border harbouring rich aquatic flora and fauna. Very little studies have been carried out to document the fish biodiversity of the Dhansiri river till date. In the present study an attempt has been made to access the piscine diversity of this river. The survey results in finding of species of 34 fishes belonging to five (5) orders, thirteen (13) families and twenty four (24) genera. Cypriniformes is the dominant order while Osteoglossiformes is the least common.

## INTRODUCTION

The Northeastern region of India is considered to be one of the hotspots of freshwater fish biodiversity in the world (Kottelat and Whitten, 1996; Ramanujam *et al.* 2010). A great number of species have been reported from most of the northeastern states. However, a very less number of fishes were reported from Nagaland. Nagaland, a small northeastern state in India, lies between the parallels of 98 degree and 96 degree East Longitude and 26.6 degree and 27.4 degree latitude north of the Equator. This state is marked by inaccessible forested hills and mountains crisscrossed with four major rivers namely- Dikhu, Doyang, Jhanji and Dhansiri.

Dimapur is located in the western most part of Nagaland and is surrounded by the district of Kohima in the south-eastern part, district of Karbi Anglong in the west, and Golaghat district of Assam in the northern part. The boundary on the eastern part of Dimapur is formed by Dhansiri River, while the western part of the district consists mostly of forests and hills.

Dhansiri is the main river of Golaghat District of Assam and the Dimapur District of Nagaland. It originates from *Laisang peak* of Nagaland. It flows through a distance of 352 km from south to north before joining the Brahmaputra on its south bank. While flowing as the boundary between Karbi Anglong and Nagaland, it flanks large wilderness very rich in wildlife. On one side is the Dhansiri Reserved Forest and on the other Intanki National Park (Choudhury 2009). The Dhansiri river is the largest tributary of river Brahmaputra. It is a perennial source of water for Dimapur district (25°54'45" N, 93°44'30" E and 25°91'25" N, 93°74'16" E).

Earlier studies report 230 fish species, belonging to 103 genera and 36 families from the northeastern India (Sinha 1994). The current updated record shows the diversity as 267 species belonging to 114 genera under 38 families and 10 orders (Ramanujam 2010). Nearly 149 different species of fishes belonging to 22 different families have been

reported from Nagaland (Ao *et al.* 1988). Recent literature review describes redescription and study of *Amblyceps apangi* from Mokokchung (Vishwanath and Linthoingambi, 2007) and Wokha District (Humtsoe and Bordoloi 2009) respectively.

Although Dhansiri river is the major river of Dimapur district but review of literature reveals very scarce study on piscine biodiversity. Earlier report presence of only nine species of fishes from this major tributary of the river Brahmaputra (Karmakar and Das 2006). Thus, the present survey is carried out to access the fish diversity in a particular stretch of the Dhansiri river of Dimapur district of Nagaland, India.

## MATERIALS AND METHODS

The fish -survey and collections in Dhansiri River was done in Rangapahar- Dimapur border ( 5 GPS points of the study sites are 25°52'35.68" N, 93°41'44.3" E; 25°52'39.65" N, 93°41'44.89" E; 25°52'38.79" N, 93°41'42.73" E; 25°52'37.07" N, 93°41'43.98" E; 25°52'60" N, 93°41'44.57" E. Dhansiri river, having total catchment area 1220 km (Choudhury 2009), has varied water level that depends on the season.

Fishes were collected with the help of cast nets from July 2011 to February 2012. Local people were involved in netting and collection. Five sample sites were chosen in the survey area based on habitat types, water quality and depth. The specimens were photographed with Cannon powershot 480. All the essential data like place of collection, number of fish, body colour, body markings etc. were recorded.

The collected specimens were transported to biology laboratory cum museum of the Kendriya Vidyalaya Dimapur and assigned Specimen key numbers. The specimens were identified following Sen (1985), Talwar and Jingran (1991), Jayaram (1999), Barman (2002), Vishwanath (2002) before preserving them in 5% formaldehyde (Ramanujam 2010).

## RESULTS AND DISCUSSION

The details of fish species recorded from the present study site are given in Table 1. The fish nomenclature is based on Fishbase.org and fish status was checked in IUCN red list (IUCN 2011). The status of the fishes are based on the IUCN (2011) data base as it was prevalent and followed during the samples collection time but the status of some of the species mentioned may have got changed in recent times.

The present survey of river Dhansiri in the Dimapur town reveals the presence of thirty four (34) species of fishes belonging to five (5) orders, thirteen (13) families and twenty four (24) genera. Cypriniformes dominates the catch list with seventeen species followed by eight species of Siluriformes. Perciformes and Synbranchiformes were represented by four species each whereas one species was represented by Osteoglossiformes. Dhansiri river has freshwater, semi torrent, hill stream and ornamental fish species as it camouflaged with freshwater river like Brahmaputra and Mora Dhansiri while coming through hilly terrain.

Present surveys record the presence of one endangered and near threatened species (*Tor* sp.) which is one of the important findings. Presence of *Tor* species is significant

as these are placed in endangered and near threatened category in IUCN (2011) check list. Although IUCN check list shows *Amblyceps apangi* and *Ompok pabda* as least concerned species but review of literature reveals that these are threatened species (Sarkar and Ponniah 2006; Tesia and Bordoloi 2012). *Puntius chola*, *Puntius conchoni*, *Ailia coilia*, *Catla catla*, *Mystus vittatus* and *Clarias batrachus* are prominent vulnerable species (Molur and Walker 1998). *Botia dario* and *colisa fasciatus* are the prominent ornamental fishes in the finding.

Some economically important Indian major carp fingerlings of *Labeo rohita*, *Catla catla* and *Cirrhinus mrigala* were found in much abundance whereas few species of hill adapted fishes were found during net trapping.

Setting of small scale factories near the river bank and flow of effluents into the stream is one of the major factors that may affect the present fish diversity. Survey reveals that pesticides (especially organophosphates) are randomly used in the bank side paddy fields which can also affect the fish population. Reports suggest a drastic reduction in abundance of the freshwater fishes in the northeastern region due to destruction of the habitat, overexploitation and other anthropogenic effects (Kottelat and Whitten 2006).

**TABLE 1.** List of fish species in Dhansiri river, Dimapur, Nagaland.

SL NO.	LIST OF FISHES	ORDER	FAMILY	CONSERVATION STATUS (IUCN 2011)	SPECIMEN KEY NUMBER
1	<i>Labeo rohita</i> (Hamilton, 1822)	Cypriniformes	Cyprinidae	Least concern	KVF 134
2	<i>Labeo bata</i> (Hamilton, 1822)	Cypriniformes	Cyprinidae	Least concern	KVF 137
3	<i>Labeo gonius</i> (Hamilton, 1822)	Cypriniformes	Cyprinidae	Least concern	KVF 139
4	<i>Cyprinus carpio</i> (Linnaeus, 1758)	Cypriniformes	Cyprinidae	Not accessed	KVF 334
5	<i>Catla catla</i> (Hamilton, 1822)	Cypriniformes	Cyprinidae	Not accessed	KVF 339
6	<i>Ctenopharyngodon idella</i> (Valenciennes, 1844)	Cypriniformes	Cyprinidae	Not accessed	KVF 357
7	<i>Cirrhinus mrigala</i> (Hamilton, 1822)	Cypriniformes	Cyprinidae	Least concern	KVF 358
8	<i>Puntius chola</i> (Hamilton, 1822)	Cypriniformes	Cyprinidae	Least concern	KVF 401(A)
9	<i>Puntius sophore</i> (Hamilton, 1822)	Cypriniformes	Cyprinidae	Not accessed	KVF 401(B)
10	<i>Puntius conchoni</i> (Hamilton, 1822)	Cypriniformes	Cyprinidae	Least concern	KVF 401(C)
11	<i>Puntius ticto</i> (Hamilton, 1822)	Cypriniformes	Cyprinidae	Least concern	KVF 401(D)
12	<i>Tor putitora</i> (Hamilton, 1822)	Cypriniformes	Cyprinidae	Endangered	KVF 402
13	<i>Tor tor</i> (Hamilton, 1822)	Cypriniformes	Cyprinidae	Near threatened	KVF 402 (1)
14	<i>Garra gotyla gotyla</i> (Gray,1830)	Cypriniformes	Cyprinidae	Least concern	KVF 403
15	<i>Barilius barna</i> (Hamilton, 1822)	Cypriniformes	Cyprinidae	Least concern	KVF 404
16	<i>Botia dario</i> (Hamilton, 1822)	Cypriniformes	Cobitidae	Least concern	KVF 405
17	<i>Amblypharyngodon mola</i> (Hamilton, 1822)	Cypriniformes	Cyprinidae	Least concern	KVF 406
18	<i>Mystus tengra</i> (Hamilton, 1822)	Siluriformes	Bagridae	Not accessed	KVF 407 (A)
19	<i>Mystus cavasius</i> (Hamilton, 1822)	Siluriformes	Bagridae	Least concern	KVF 407 (B)
20	<i>Mystus vittatus</i> (Bloch,1794)	Siluriformes	Bagridae	Least concern	KVF 407 (C)
21	<i>Wallago atu</i> (Bloch and Schneider,1794),	Siluriformes	Siluridae	Not accessed	KVF 416
22	<i>Amblyceps apangi</i> Nath and Dey 1989	Siluriformes	Amblycipitidae	Least concern	KVF 417
23	<i>Clarias batrachus</i> (Linnaeus,1754)	Siluriformes	Claridae	Least concern	KVF 428
24	<i>Ailia coilia</i> (Hamilton,1822)	Siluriformes	Schilbeidae	Not accessed	KVF 429
25	<i>Ompok pabda</i> (Hamilton,1822)	Siluriformes	Siluridae	Least concern	KVF 470
26	<i>Glossogobius giuris</i> (Hamilton,1822)	Synbranchiformes	Gobiidae	Not accessed	KVF 471
27	<i>Mastacembulus aramatus</i> (Lacepede,1800)	Synbranchiformes	Mastacembelidae	Not accessed	KVF 472
28	<i>Colisa fasciatus</i> (Bloch and Schneider, 1801)	Synbranchiformes	Belontiidae	Not accessed	KVF 483
29	<i>Monopterusuchia</i> (Hamilton,1822)	Synbranchiformes	Synbranchidae	Least concern	KVF 484
30	<i>Notopterus notopterus</i> (Pallas,1769)	Osteoglossiformes	Notopteridae	Least concern	KVF 485
31	<i>Chanda nama</i> Hamilton- Buchanan 1822	Perciformes	Ambassidae	Least concern	KVF 493
32	<i>Channa punctatus</i> (Bloch,1793)	Perciformes	Channidae	Not accessed	KVF 495(A)
33	<i>Channa striatus</i> (Bloch,1793)	Perciformes	Channidae	Not accessed	KVF 495(B)
34	<i>Channa barca</i> (Hamilton,1822)	Perciformes	Channidae	Data deficient	KVF 495(C)

The present survey is done within two kilometer stretch of the River Dhansiri at five selected point and the findings are encouraging. This survey was probably first of its kind in the study site and therefore further studies have to be carried out to know the exact fish diversity in this heartline river of Dimapur.

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