

Enumeration of Fish from Dulakhojiya Beel (wetland) of Lakhimpur District, Assam, India

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Abstract:

The present study was carried out from Dulakhojiya beel (wetland) of Lakhimpur district, Assam, India during March, 2015 to February, 2016. During the reporting period, a total of 75 species belonging to 49 genera and 23 families were recorded. Cyprinidae was found to be dominant families with 27 species and followed by Bagridae (7 species); Cobitidae (6 species); Channidae (4 species); Siluridae, Schilbeidae and Osphronemidae with 3 species each. In terms of composition of genus, Cyprinidae have 15 genus followed by Cobitidae and Bagridae with 4 each while Schilbeidae with 3. As far as the species composition is concerned, the Cyprinidae was 30.0% followed by Bagridae (9.33%), Cobitidae (8.0%), Channidae (5.33%), Siluridae, Schilbeidae and Osphronemidae (4.0%) whereas rest of the families accounting with 2.66% and 1.33% each. According to IUCN-2015, a total of 55 species were found under least concerned (LC), 7 species were near threatened (NT), 2 species were vulnerable (VU), 4 species were data deficient (DD), 1 species as endangered (EN) and 6 species under not evaluated (NE). It is clear that Dulakhojiya *beel* exhibit a good number of fish species.

Keywords: Fish diversity; Dulakhojiya beel; Assam; India

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Introduction

The flood-plain lakes are biologically interesting ecotones that are considered to be the most important and productive ecosystem (Mitsch and Gosselink, 1986). These are a source of renewable resources, such as need for construction, fish for human consumption and pasture for grazing livestock. Assam is gifted with many extensive water bodies locally known as beels that are the only source of fish for the poor people in the surrounding village (Jhingran and Pathak, 1987). The fish diversity in the flood plain of Brahmaputra basin are found to be numerous but there has been rapidly dwindling due to the habitat destruction, over exploitation, siltation, pollution and use of destructive fishing methods. The Dulakhojiya beel harbours wide varieties of fish fauna and had been remain as the center for the livelihood of local fisherman.

The previous studies reported that a considerable variation in number of fish species available in different beels of Assam. There are some notable works on the hydrobiology and fisheries of wetlands (Jhingran, 1991; Goswami et al. 1999; Bhuyan et al. 2009; Kalita et al. 2011; Chakravatty et al. 2012;). Investigated on the limnology, fish diversity and including its bearing production of Maijan beel of upper Assam was reported by Singh et al. (2009) and Dakua et al. (2009). Again, Abujam et al. (2012a and 2012b) listed faunal diversity and ecological status of Maijan beel and Botalikhosa wetland in upper Assam. However, there is no information or documented on such aspects from this wetland.

Therefore, an endeavor had taken to prepare a checklist of available fish fauna of Dulakhojiya beel which will serve as baseline data for conservation and management of the fishery resources.

Materials and Methods

The Dulakhojiya beel (wetland) is located in and around the village Parghat of Lakhimpur district, Assam, India. The total area of the Dulakhojiya beel is about 142 Bigha (**Figure 1**). The geographical location of the beel lies between latitude 27°16' N and longitude 94°24' E. The beel is flooded by the tributaries of Brahmaputra River during summer. The wetland is surrounded by Korha river in east, by Markathoni Gaon in west; by Parghat and Deudubi Gaon in North and by Sakuli Gaon (Bolahi) in South.

Fish samples were collected randomly from different landing sites of the beel during March, 2015 to February, 2016. Fishes caught alive or in fresh condition had been preserved in 5% formalin solution for further study. They were identified with the help of standard keys of Talwar and Jhingran (1991) and Vishwanath et al. (2007). The status of the recorded fish species were also evaluated based on the IUCN (2015-4).

Results and Discussion

A total of 75 species belonging to 49 genera and 23 families were recorded from Dulakhojiya beel (**Table 1**). Cyprinidae was found to be most dominance among the families with 27 species and followed by Bagridae (7 species); Cobitidae (6 species);

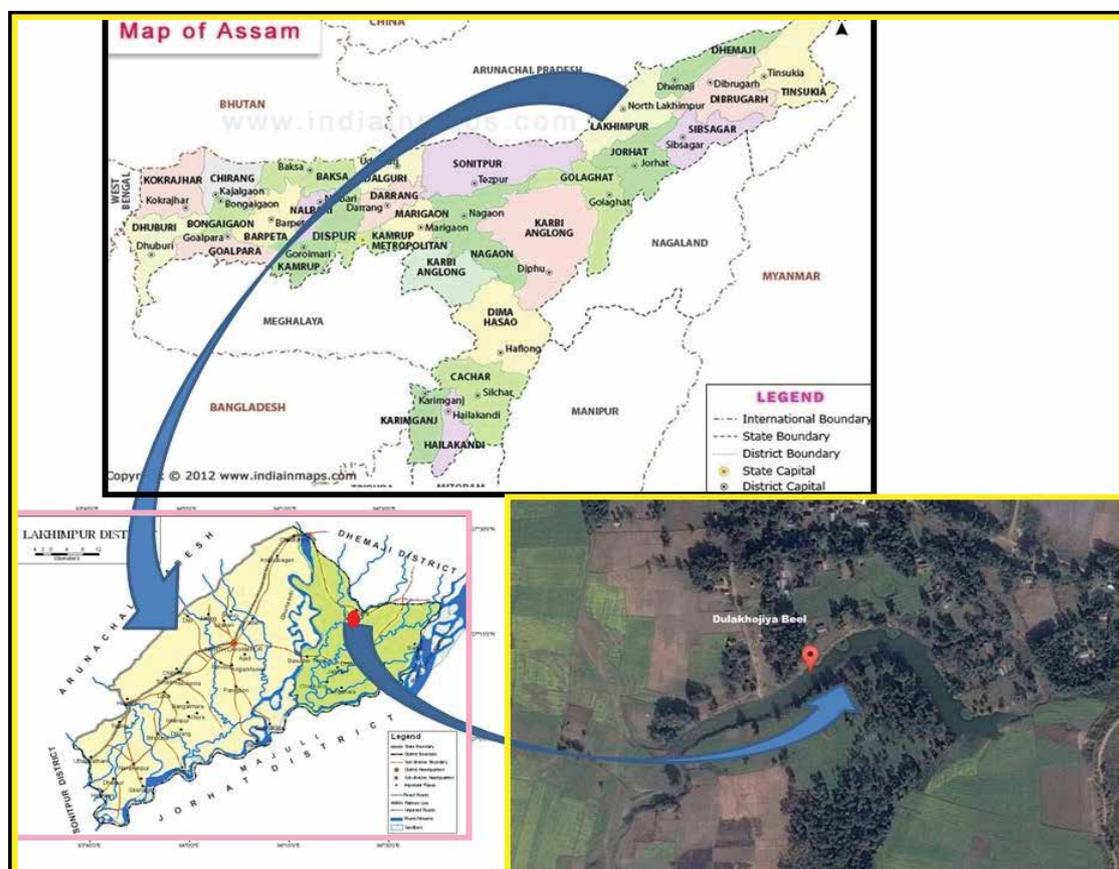


Figure 1: Location map of study area.

Table 1: Checklist of fish species documented in Dulakhojiya beel.

Sl no	Fish Composition	IUCN (2015)
1	<i>Rasbora rasbora</i>	LC
	<i>Rasbora daniconius</i>	LC
	<i>Puntius gelius</i>	NE
	<i>Puntius sarana</i>	LC
	<i>Puntius phutunio</i>	LC
	<i>Puntius sophore</i>	LC
	<i>Puntius terio</i>	LC
	<i>Pethia ticto</i>	LC
	<i>Labeo rohita</i>	LC
	<i>Labeo bata</i>	LC
	<i>Labeo gonius</i>	LC
	<i>Labeo calbasu</i>	LC
	<i>Labeo nandina</i>	NT
	<i>Osteobrama cotio</i>	LC
	<i>Salmophasia bacaila</i>	LC
	<i>Catla catla</i>	LC
	<i>Cirrhinus mrigala</i>	VU
	<i>Cirrhinus reba</i>	LC
	<i>Amblypharyngodon mola</i>	LC
	<i>Esomus danricus</i>	LC
	<i>Hypophthalmichthys molitrix</i>	NT
	<i>Barilius barna</i>	LC
	<i>Chela cachinus</i>	LC
	<i>Danio aequipinatus</i>	LC
	<i>Danio daverio</i>	NE
	<i>Danio rerio</i>	LC
<i>Devario devario</i>	LC	
2	<i>Mastacembalus armatus</i>	NE
	<i>Macrognathus pancalus</i>	LC
3	<i>Acanthocobitis botia</i>	LC
	<i>Aborichthys sp.</i>	DD
4	<i>Clarias batrachus</i>	NE
	<i>Clarias magur</i>	EN
5	<i>Lepidocephalichthys sp.</i>	DD
	<i>Lepidocephalichthys guntea</i>	LC
	<i>Botia rostrata</i>	VU
	<i>Canthophrys gongota</i>	LC
	<i>Somileptes gongota</i>	NE
	<i>Botia Dario</i>	LC
6	<i>Batasio batasio</i>	LC
	<i>Sperata aor</i>	LC
	<i>Hemibagrus menoda</i>	LC
	<i>Mystus bleekeri</i>	LC
	<i>Mystus tengara</i>	LC
	<i>Mystus cavasius</i>	LC
	<i>Mystus vittatus</i>	LC

7	Siluridae	<i>Ompok bimaculatus</i>	NT
		<i>Ompok pabo</i>	NT
		<i>Wallagu attu</i>	NT
8	Tetraodontidae	<i>Tetraodon cutcutia</i>	NE
9	Symbranchidae	<i>Monopterus cuchia</i>	LC
10	Heteropneustidae	<i>Heteropneustes fossilis</i>	LC
11	Belonidae	<i>Xenentodon cancila</i>	LC
12	Nandidae	<i>Nandus nandus</i>	LC
13	Badidae	<i>Badis assamensis</i>	DD
		<i>Badis Badis</i>	LC
14	Channidae	<i>Channa striatus</i>	LC
		<i>Channa marulius</i>	LC
		<i>Channa gachua</i>	LC
		<i>Channa punctata</i>	LC
15	Notopteridae	<i>Notopterus chitala</i>	NT
		<i>Notopterus notopterus</i>	LC
16	Clupeidae	<i>Gudusia chapra</i>	LC
17	Schilbeidae	<i>Neotropius atherinoides</i>	LC
		<i>Ailia coilia</i>	NT
		<i>Clupisoma garua</i>	LC
18	Ambassidae	<i>Parambasis ranga</i>	LC
		<i>Chanda nama</i>	LC
19	Gobiidae	<i>Glossogobius giuris</i>	LC
20	Sisoridae	<i>Gagata cenia</i>	LC
21	Anabantidae	<i>Anabas testudineus</i>	DD
22	Osphronemidae	<i>Trichogaster fasciata</i>	LC
		<i>Trichogaster lalius</i>	LC
		<i>Trichogaster labiosus</i>	LC
23	Chacidae	<i>Chaca chaca</i>	LC

Channidae (4 species); Siluridae, Schilbeidae and Osphronemidae with 3 species each. The family Mastacembelidae, Nemacheilidae, Clariidae, Badidae, Notopteridae and Ambassidae were represented by 2 species each while the family Tetraodontidae, Synbranchidae, Heteropneustidae, Belonidae, Nandidae, Clupeidae, Gobiidae, Anabantidae, Sisoridae and Chacidae were represented by a single species. Genus composition revealed that the Cyprinidae have 15 genus followed by Cobitidae and Bagridae with 4 each while Schilbeidae with 3. As far as the species composition is concerned, the Cyprinidae was 30.0% followed by Bagridae (9.33%), Cobitidae (8.0%), Channidae (5.33%), Siluridae, Schilbeidae and Osphronemidae (4.0%) whereas rest of the families accounting with 2.66% and 1.33% each (**Figure 2**).

Generally, the Cyprinidae was most dominant family followed by Bagridae and Cobitidae of beel fisheries of Assam in terms of edible and ornamental fish species (Dey, 1981, Yadava, 1987, Singh et al. 2009, Abujam et al. 2012). In present study, *Labeo gonius*, *Labeo rohita* and *Cirrhinus mrigala* were abundant species among the Indian major carp (**Plate 1**). Among the catfish *Wallagu attu* were the relatively dominant species while, among the murrels, *Channa marulius* was rarely found and *C. punctata* is

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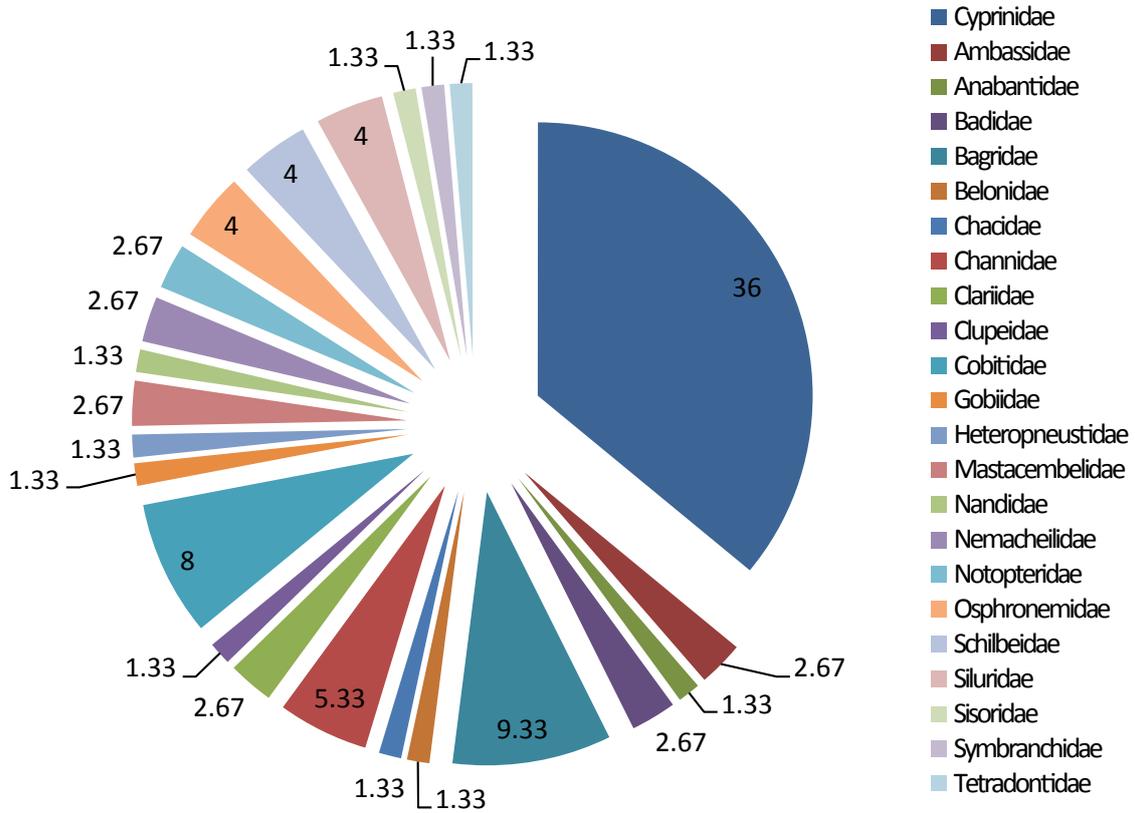


Figure 2: Percentage of species composition of different families.



Puntius sophore



Labeo rohita



Mystus bleekeri



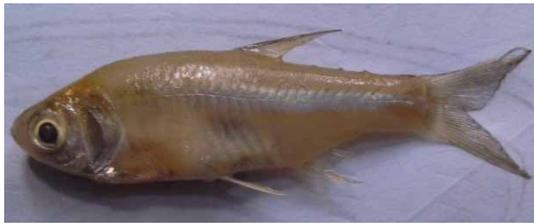
Mystus tengara



Aborichthys sp.



Botia dario

*Chanda nama**Mastacembelus armatus**Amblypharyngodon mola**Labeo gonius**Puntius sarana sarana**Puntius ticto**Acanthocobitis botia**Glossogobius giuris**Pseudeutropius atherinoides**Cirrhinus reba***Plate 1:** Some edible and ornamental fish species from Dulakhojya beel.

one of the most abundant fishes. If the extraction persist, it is quite possible that the *C. marulius* would be extinct in coming years. Out of the two feather backs, *N. notopterus* was moderately found while *N. chitala* was rare. The perches such as *A. testudineus*, *T. fasciata*, *T. lalius* were found to be dominant species while, among the eels, the most important large species *M. armatus*, *M.*

cuchia were rare. The fish species such as *M. bleekeri*, *M. tengara*, *N. nandus*, *L. bata*, *X. cancila* were abundant species. The weed fish species such as *C. nama*, *P. gelius*, *P. sarana*, *P. sophore*, *P. ticto*, *N. atherinoides* and *A. mola* were dominantly found species. In terms of ichthyo-faunal diversity and species composition, the similar observation was found in different *beels* of Assam (Singh

et al. 2009; Kalita et al. 2011; Abujam et al. 2012; Chakravartty et al. 2012).

As per IUCN-2015 (Table 1), a number of 55 species were found under least concerned (LC), 7 species were near threatened (NT), 2 species were vulnerable (VU), 4 species were data deficient (DD), 1 species as endangered (EN) and 6 species under not evaluated (NE). The species like *Aborichthys sp.*, *Lepidocephalichthys sp.*, *Badis assamensis* and *Anabas testudineus* were found under data deficient category. The species under vulnerable were *Cirrhinus mrigala* and *Botia rostrata* while, *Labeo nandina*, *Hypophthalmichthys molitrix*, *Ompok bimaculatus*, *Ompok pabo*, *Wallago attu*, *Notopterus chitala* and *Ailia coila* were listed in near threatened. Some of the species namely *Puntius gelius*, *Danio devario*, *Mastacembelus armatus*, *Clarius batrachus*, *Somileptes gongota* and *Tetraodon cutcutia* were listed under not evaluated category. *Clarias magur* is the only species which falls in the endangered category. Among these species, *Notopterus chitala*, *Clarius batrachus*, *Ompok pabda*, *Ompok pabo*, *Ompok bimaculatus*, *Monopterusuchia* and *Heteropneustes fossilis* are highly priced fishes.

Conclusion

From the above investigation, it is clear that Dulakhajia beel (wetland) having a good number of fish species. The occurrence of the endemic, endangered, and near threatened species assumes the importance of beel in terms of conservation. The conservation of the important ornamental and edible species through various strategies is the need of the hour for future for generating income to the nearby dweller. Excessive growth of macrophytes should be controlled in order to prevent from the silting of the beel. Sustainable exploitation and breeding of native ornamental fish species in the beel should be taken up.

References

- Abujam, S.K.S., Paswan, G., Dakua, S., Saikia, A. K. (2012a) Faunal diversity and ecological status of Maijan beel (Wetland). *Fishing Chimes* **32**, 43-48.
- Abujam, S.K.S., Paswan, G., Dey, M., Biswas, S. P. (2012b) Water quality and fish diversity of Botalikhosa wetland with reference to socio-economic status. *J Fish Eco and Develop* **13**, 29-39.
- Bhuyan, K. C., Dutta, A., Kalita, B. (2009) Hydrobiology and Fishery status of Sondoba beel, Morigaon, Assam. *J Inland Fish Soc India* **41**, 48-53.
- Chakravartty, P., Chakravartty, M., Sharma, S. (2012) A Survey on the Fish Diversity with Special Reference to the Classified Ornamental Fishes and their Prospects in the Kapla Beel of Barpeta District. *The Science Probe* **1 and 2**, 12-21.
- Dakua, S., Singh, A.S.K., Choudhury, P., Biswas, S. P. (2009) A preliminary investigation on the fish & fisheries of Maijan beel in upper Assam. *Indian J. Environ and Ecopl* **16**, 263-270.
- Dey, S.C. (1981) Studies on the hydrobiological conditions of some commercially important lake (beels) of Kamrup district of Assam and their bearing on fish production, Final Tech. Report. North Eastern Council, Guwahati, India.
- Goswami, M.M., Deka, M., Singh, T.K., Sarma, P.K., Kakati, M. (1999) Studies on some wetlands of Assam with reference to the eutrophication stress. *J Inland Fish Soc India* **31**, 39-43.
- IUCN. (2015-4) IUCN Red List of Threatened Species.
- Jhingram, A.G., Pathak, V. (1987) Ecology and Management of beels in Assam-A case study of Dhir beel. Workshop. Dev. Beel Fisheries, Assam, Assam Agricultural University, Khanapara, Assam pp: 16-28.
- Jhingran, V.G. (1991) Fish and Fisheries of India. Biological investigation in Assam beels. 3rd Ed, Hindustan Publishing Corporation (India) pp: 214-220.
- Kalita, J.C., Deka, U.S., Haque, A., Kalita, T.C. and Deka, S. (2011) Assessment of fish-biodiversity of Koya Kujiya beel, Abhayapuri, Assam in relation to certain physicochemical and anthropogenic factors. *The Bioscan* **6**, 425-431.
- Mitsch, W.J., Gosselink, J.G. (1986) Wetlands. Van Nostrand Reinhold. New York p: 539.
- Singh, A.S.K., Dakua, S., Biswas, S.P. (2009) Physico-chemical parameters and fish enumeration of Maijan beel (wetland) of upper Assam. *Geobios* **36**, 184-188.
- Talwar, P.K., Jhingran, A.G. (1991) Inland Fishes of India and Adjacent Countries. A.A. Balkema, Rotterdam **1**, 541.
- Vishwanath, W., Lakra, W.S., Sarkar, U.K. (2007) Fishes of Northeast India. NBFGR, Lucknow, U.P, India pp: 264.
- Yadava, Y.S. (1987) Studies on the ecology of an ox-bow lake in context to the development of beels in Assam. In Compendium of Work-shop on Development of Beel Fishery in Assam. Assam Agricultural University, Khanapara, Guwahati pp: 70-88.