



A STUDY ON THE FISH DIVERSITY OF KHARUA BEEL OF BAKSA DISTRICT, NORTH - WESTERN ASSAM, INDIA

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Abstract:

Baksa, a floodprone area district of BTR, Assam lies in the latitude $26^{\circ}32'12.1''$ N and longitude $91^{\circ}21'21.8''$ E covering geographical area of 2400 sq.km (Approximately) having population 9.53773 lakhs (as per 2011 census). The Kharua beel is one of the famous beel of Baksa district, Assam in terms of aquatic flora and fauna under Barama revenue circle. The present investigation was carried out in the Kharua beel during the 2021-22 to document the ichthyofaunal diversity and the result reveals the presence of 37 fish species belonging 26 genera, 17 families, 7 orders. Among these 30 species are under least concern, 3 fish species are data deficiency, 2 fish species are near threatened and endangered and not evaluated categories are represented by 1 fish species each. The beel serves as the most common livelihood option for the local fisherman. But the growing pressure of human interference has been degrading the beel environment constantly and it has posed a serious threat to the ichthyofaunal diversity of the beel.

Key Words: Baksa, Livelihood, Human Interference, Environment, Threat, Ichthyofaunal Diversity

1. Introduction:

The Northeast India is blessed with a wide range of physiography and ecoclimatic conditions with varied type of water resources in the form of rivers (19,150 Km), reservoirs (23,792 ha); beels, lakes and swamps (143,740 ha); ponds and mini barrage (40,808 ha) and low laying paddy cum fish culture systems (2,780 ha) (Mahanta *et al.* 2003)^[1]. Therefore, this region is glorified with excessive and varied type of fish species with 267 fresh water fish species belonging to 114 genera under 38 families and 10 orders (Mahanta *et al.* 2003 [1]), which is 33.13 % (approximately) of the total freshwater fishes of India (Sen, 2000^[2]). The fishes not only provide nutrition but also generate economy and livelihood for the poor people. The wetlands and lakes are major fishery resources of Assam contributing to about 25% of the fish production (Chakravarty *et al.*, 2012^[3]). The total geographical area of Kharua village is 550.63 hectares. Kharua has a total population of 2,335 peoples, out of which male population is 1,196 while female population is 1139. Literacy rate of Kharua village is 65.95% out of which 71.82% males and 59.79% females are literate. There are about 479 houses in Kharua village. The aim of the study is to document the ichthyofaunal diversity of the Kharua beel with its conservation status.

2. Material and Method:

2.1 Study Area:

The Kharua beel, latitude $26^{\circ}32'12.1''$ N and longitude $91^{\circ}21'21.8''$ E is a seasonally open beel located at Baksa District, Assam and has a total length of 2.73 km (fig:1). In the east of the beel there is a Kharua-Kharuajaan, in the west there is a Soibari, in the north, there is a Sarukharua and in the south, there is a Batabari. As per available data 2009), there are 203 scheduled castes persons of which 95 are females and 108 are males live in Kharua village. Females constitute 46.8% and males constitute 53.2% of the scheduled castes population. Scheduled castes constitute 8.69% of the total population. There are 1602 scheduled tribes persons of which 796 are females and 806 are males. Females constitute 49.69% and males constitute 50.31% of the scheduled tribes' population. Scheduled tribes constitute 68.61% of the total population. Population density of Kharua is 424.06 persons per square kilometer.

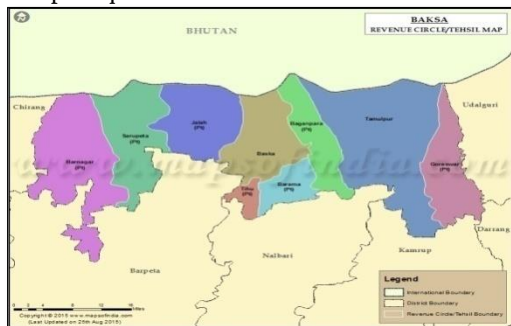


Figure 1: Locational map of the Kharua beel (Source: www.googlemap)

2.2 Collection, Identification and Preservation of Species:

The fish Specimens were collected twice in a month in the morning with the help of fisherman during the year 2021-22. Some fish were identified in the spot and some fishes were brought to the laboratory for further study. Before the preservation, photographs of fishes were taken by digital camera. The collected specimens were preserved in 10% formalin. The fish Specimen were identified following the literature of Talwar and Jhingran (1991) and Jayaram (2010).

3. Result and Discussion:

During the study period (2021-22), 37 fish species were recorded from the beel belonging to 26 genera, 17 families and 7 orders (table:1). The recorded 7 orders comprised of Osteoglossiformes, Clupeiformes, Cypriniformes, Siluriformes, Beloniformes, Symbranchiformes, and Perciformes. The order Perciformes contributed 6 families (35%), 7 genera (27%) and 12 Species (32%). The order Cypriniformes contributed 2 families (12%), 9 genera (34%) and 14 species (38%). With 4 families (23%), 4 genera (15%) and 5 species (14%), the order Siluriformes contributed to the total number and percentage composition of the beel followed by Symbranchiformes with 2 families (12%), 2 genera (8%), 2 species (5%) and the order Clupeiformes and Beloniformes were represented by 1 families (6%), 1 genera (4%) and 1 species (3%) each.

Table.1: Recorded fish fauna of Kharua Beel during 2021-2022

S.No	Order	Family	Species	Common Name	IUCN Conservation Status (2021)
1	Osteoglossiformes	Notopteridae	<i>Chitala chitala</i> (Hamilton, 1822)	Indian Featherback	LC
2			<i>Notopterus notopterus</i> (Pallas, 1769)	Brone Featherback	LC
3	Clupeiformes	Clupeidae	<i>Gudusia chapra</i> (Hamilton, 1822)	Indian River Shad	LC
4	Cypriniformes	Cyprinidae	<i>Amblypharyngodon mola</i> (Hamilton, 1822)	Mola Carplet	LC
5			<i>Catla catla</i> (Hamilton, 1822)	Catla	LC
6			<i>Cirrhinus mrigala</i> (Hamilton, 1822)	Mrigal Carp	LC
7			<i>Ctenopharyngodon idella</i> (valenciennes, 1844)	Grass Carp	DD
8			<i>Esomus danricus</i> (Hamilton, 1822)	Indian Flying Barb	LC
9			<i>Hypophthalmichthys molitrix</i> (Cuvier and Valenciennes, 1844)	Silver Carp	NT
10			<i>Labeo bata</i> (Hamilton, 1822)	Bata	LC
11			<i>Labeo calbasu</i> (Hamilton, 1822)	Orange-fin Labeo	LC
12			<i>Labeo gonius</i> (Hamilton, 1822)	Kuria Labeo	LC
13			<i>Labeo rohita</i> (Hamilton, 1822)	Rohu	LC
14			<i>Puntius sarana</i> (Hamilton, 1822)	Olive Barb	LC
15			<i>Puntius sophore</i> (Hamilton, 1822)	Pool Barb	LC
16			<i>Puntius javanicus</i> (Bleeker, 1855)	Java Barb	LC
17		Cobitidae	<i>Lepidocephalichthys guntea</i> (Hamilton, 1822)	Guntea Loach	LC
18	Siluriformes	Bagridae	<i>Mystus vittatus</i> (Bloch, 1794)	Striped Dwarf Catfish	LC
19			<i>Mystus tengara</i> (Hamilton, 1822)	Tengara Catfish	LC
20		Siluridae	<i>Wallago attu</i> (Bloch and Schneider, 1801)	Freshwater Shark	NT
21		Clariidae	<i>Clarias magur</i> (Linnaeus, 1758)	Walking Catfish	EN
22		Heteropneustidae	<i>Heteropneustes fossilis</i> (Bloch, 1794)	Stinging Catfish	LC
23			<i>Xenentodon cancila</i> (Hamilton, 1822)	Asian Needle Fish	LC
24	Synbranchiformes	Synbranchidae	<i>Monopterus albus</i> (Hamilton, 1822)	Cuchia	LC
25		Mastacembalidae	<i>Mastacembalus armatus</i> (Lacepede, 1800)	Zig Zag Eel	LC

26	Perciformes	Ambassidae	<i>Chanda nama</i> (Hamilton, 1822)	Elongate Glassy Fish	LC
27			<i>Parambassis ranga</i> (Hamilton, 1822)	Indian Glassy Fish	LC
28		Nandidae	<i>Nandus nandus</i> (Hamilton, 1822)	Gangetic Leaf Fish	LC
29			<i>Glossogobius giuris</i> (Hamilton, 1822)	Tank Goby	LC
30		Channidae	<i>Channa gachua</i> (Hamilton, 1822)	Dwarf Snakehead	LC
31			<i>Channa marulius</i> (Hamilton, 1822)	Bullseye Snakehead	Lc
32			<i>Channa punctatus</i> (Bloch, 1793)	Spotted Snakehead	LC
33			<i>Channa striatus</i> (Bloch, 1793)	Snake Head Murrel	LC
34			<i>Channa stewartii</i> (Playfair, 1867)	Assamese Snakehead	LC
35		Anabantidae	<i>Anabas testudineus</i> (Bloch, 1793)	Climbing Perch	DD
36			<i>Trichogaster lalius</i> (Bloch and Schneider, 1801)	Dwarf Gourami	DD
37		Osphronemidae	<i>Trichogaster fasciata</i> (Bloch and Schneider, 1801)	Banded Gourami	NE

Note: Conservation status: LC: Least Concern, DD: Data Deficiency, NT: Near Threatened, EN: Endangered, NE: Not Evaluated.

Among 17 families recorded from the beel, the Cyprinidae family was found to be dominant with 13 species (36%) followed by Channidae with 5 species (14%), Notopteridae with 2 species (6%), Bagridae with 2 species (6%), Ambassidae and Osphronemidae with 2 species (6%) each and Clupeidae, Cobitidae, Siluridae, Clariidae, Heteropneustidae, Belontiidae, Symbranchidae, Mastacembelidae Nandidae, Gobiidae, Anabantidae with 1 species (3%) from each group.

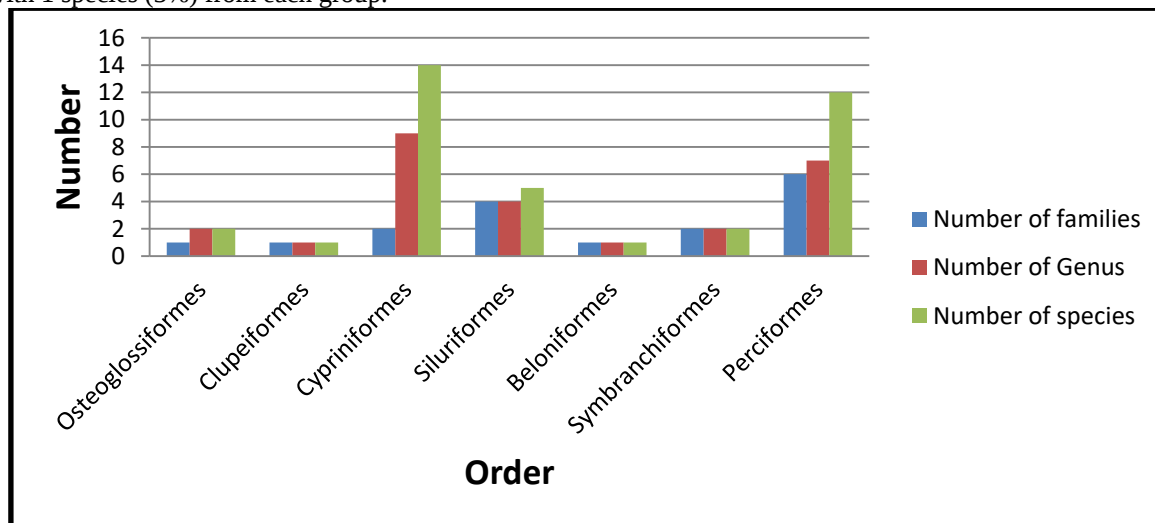


Figure 2: Numbers of fish families, genera and species under different orders.

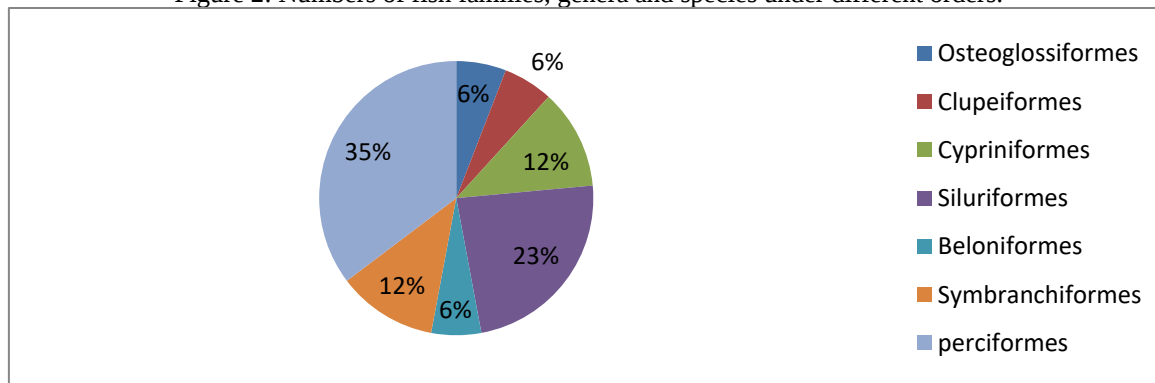


Figure 3: Percentage composition of fish families under different orders.

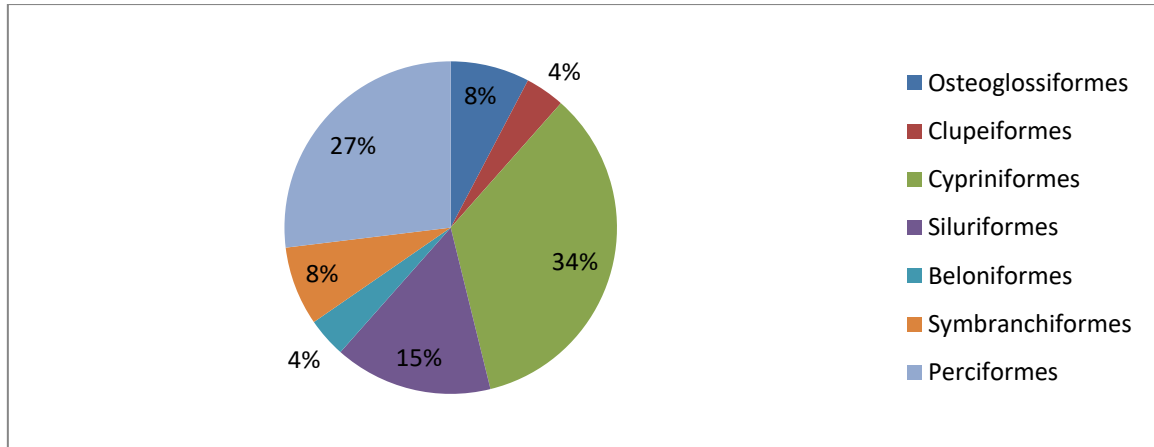


Figure 4: Percentage composition of genus under different orders

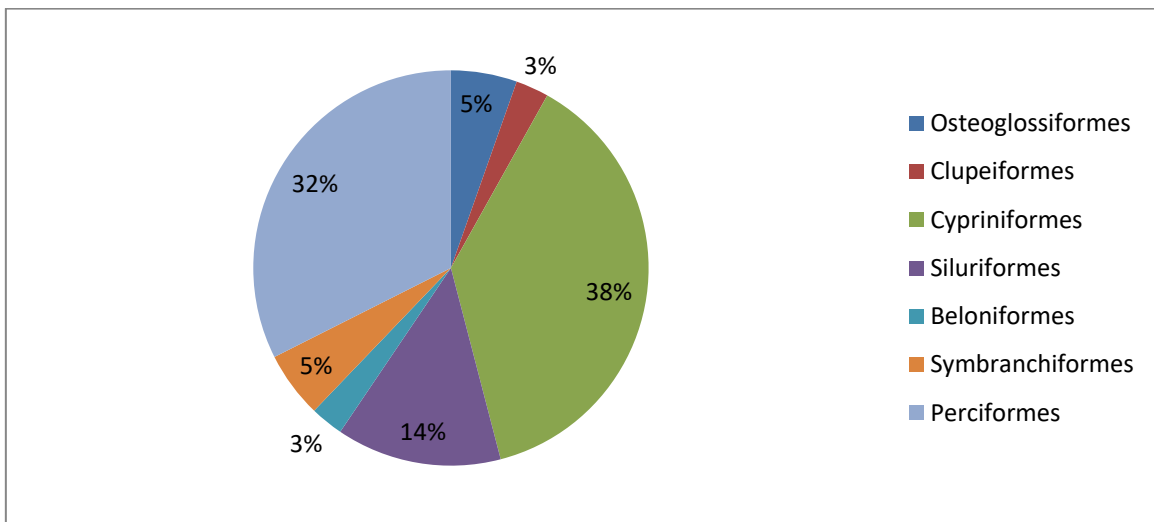


Figure 5: Percentage composition of fish species under different orders

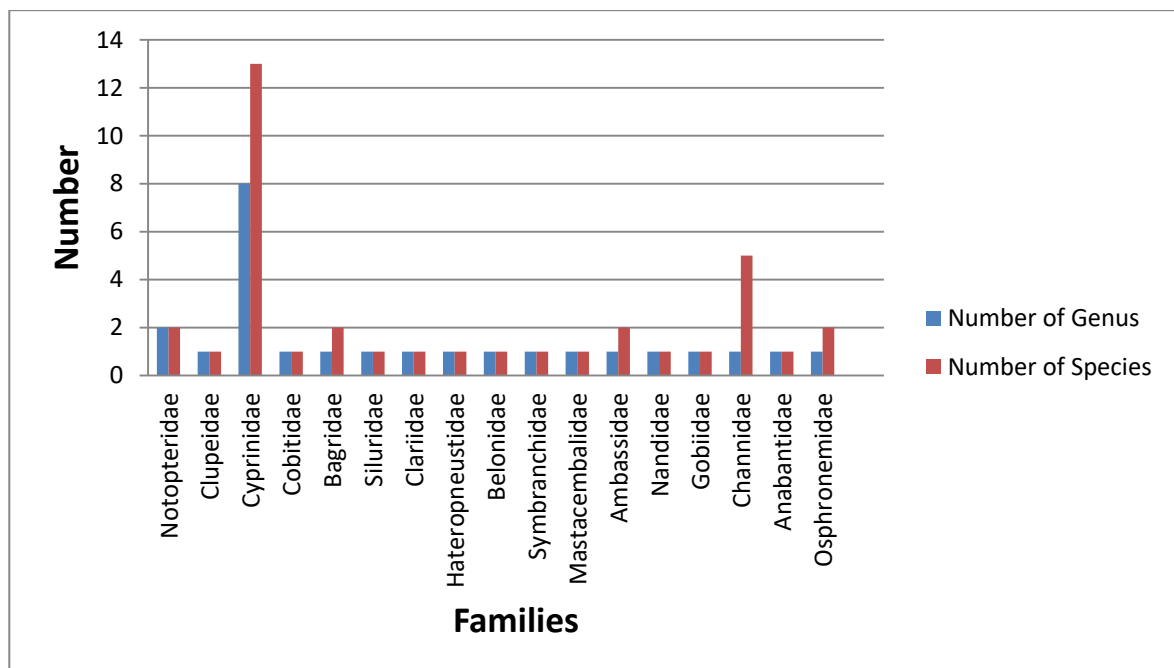


Figure 6: Number of fish genera and species of fish under different families

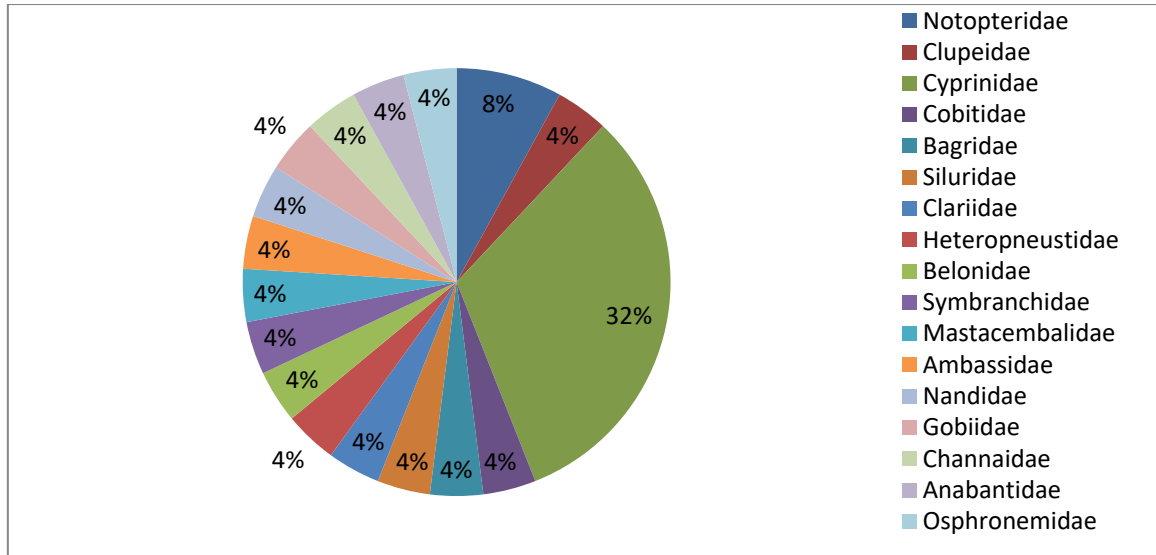


Figure 7: Percentage composition of fish genera under different families

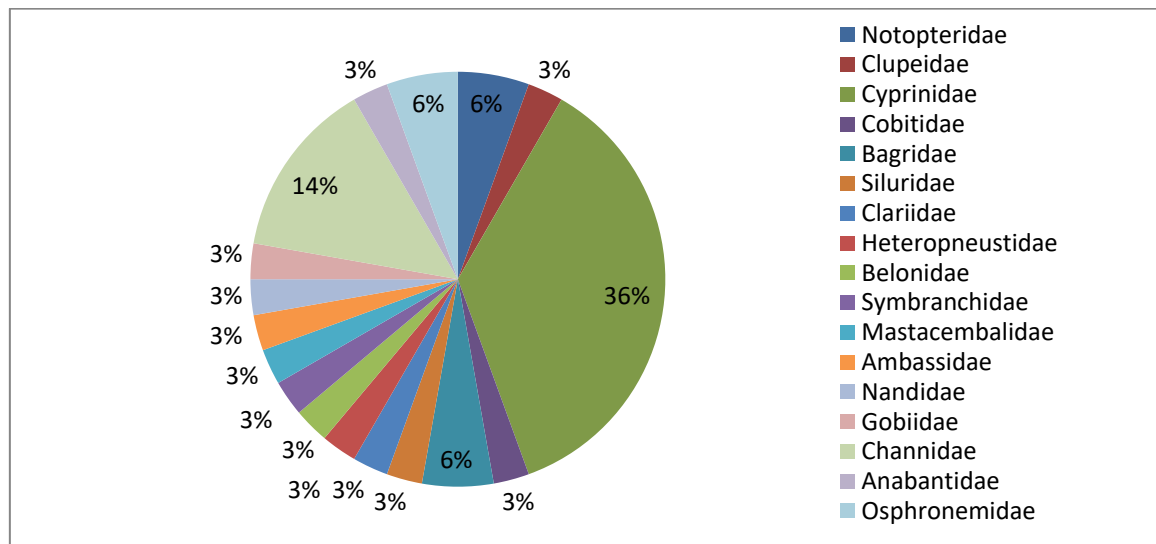


Figure 8: Percentage composition of fish species under different families

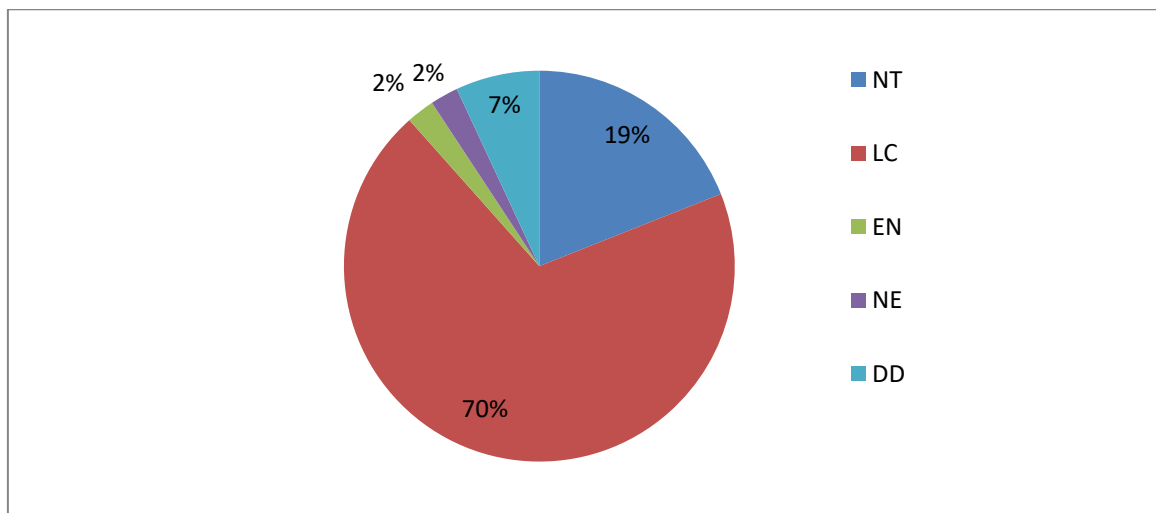


Figure 9: IUCN conservation status of fish fauna expressed in percentage.

Talukdar and Rajbongshi (2018) have carried out work on ichthyofaunal diversity of Puthimari beel of neighbouring district, Barpeta and recorded 46 indigenous fish species belonging to 37 Genera, 8 Orders and 19 Families. Among these 5 species are nearly threatened (NT), 01 species vulnerable (VU), 39 species least

concern (LC) and 2 data deficient (DD). According to Imtiaz Ahmed *et al* (2022), Ichthyofaunal diversity of Jaluguti beel was found a total of 46 fish species belonging to 33 genera, 19 families and 7 orders were recorded during the study period. The Perciformes was the most dominant order, with 6 families (31.58%), 7 genera (20%) and 9 species (19.57%) contributing to the total and among the family was the Cyprinidae with 12 genera (36.36%) and 17 species (36.96%). The conservation status of the ichthyofauna from the present study revealed that 30 species (70%) were under Least Concern, 3 fish species (19%) were Data Deficiency, 2 fish species (7%) were Near Threatened and Endangered and Not Evaluated categories were represented by 1 fish species (2%) each as per IUCN list of threaten species(2021)

4. Conclusion:

The result of the study indicates that the Kharua beel has rich faunal diversity in terms of ichthyofaunal species. The beel is now facing the extreme stress due to over growth of macrophytes, over exploitation by frigate villager, eutrophication. The study reveals that Kharua beel needs a better management approach and for its long term effectiveness, participation and involvement of NGO and local community is need of hour.

5. Acknowledgement:

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