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Evaluation of fish diversity and distribution in Pumlen Lake, Tokpaching, Kakching District, Manipur for conservation.

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Abstract- The present paper deals with the Ichthyo faunal survey conducted in Pumlen Lake, Tokpaching to evaluate the diversity and distribution of freshwater fishes for future conservation plan. The fishes are one of the main exploitable resources of the aquatic ecosystems that provide cheapest source of animal protein. Fishes are one of the important elements in the economy of many nations as they have been a stable item in the diet of many people. Pumlen Lake locally known as Pumlen pat is an important lake and the second largest freshwater wetland located in the southern part of the Manipur valley in Kakching District. Maximum number of species belonged to the order cypriniformes followed by perciformes and siluriformes. During the study period we come across 35 species of fishes belonging to 25 genera, under 15 families and 5 orders. Of these, the most abundant is *Channa punctatus* (6.39%), followed by *Oreochromis mossambica* (6.12%) and *Glossogobius giuris* was least abundant (0.33%).

Key words: Pumlen Lake, Protein, Second largest, Manipur valley

INTRODUCTION

Fishes are one of the important elements in the health and economy of many countries as they have been a stable item of diet of many people. Human interference is increasing in the water bodies day by day so, basic information on the occurrence, abundance and distribution of fishes is important to protect and conserve the existing fish diversity. The fishes are one of the main exploitable resources of the aquatic ecosystems that provide a cheap source of animal protein.[1] Pumlen Lake locally known as Pumlen pat is the second largest freshwater wetland located in the southern part of the Manipur valley in Kakching District at an appropriate distance of about 50 km from Imphal city towards the southern lowlands of the valley, on the left side of the Imphal river. Fishing is a very important part of the economic activities in the surrounding villages as fish is a vital source of animal protein for the local diet. Pumlen lake is a shallow weed- infested lake with 2/3 of its water surface covered with heterogeneous vegetation locally known as Phoom or Phumdi. Fish being one the main item of food for most of the people in Manipur. Most of the people in the state are fish eaters. Fish constitutes major component of diet for the people of North East India especially in Assam and Manipur. Kar and Sen (2007)[3] studied the systematic list and distribution of fish biodiversity in Mizoram, Tripura and Barak drainage in North East India. Kar *et. al* (2008)[4] studied the panorama of fish biodiversity in certain rivers and wetlands protected

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areas in Assam. It is important to document and monitor the status, diversity and distribution of the all the fishes for conservation and management, but little has been reported on fish diversity from this lake. Hence, the present study was undertaken to investigate the status, diversity and distribution of the fishes found in Pumlen Lake.

MATERIALS & METHODS

Sampling was undertaken between February, 2019 and January, 2020 during pre-monsoon, monsoon and post-monsoon. General survey of fish diversity and distribution was done using standard procedure. Fish specimens were collected by using fishing gears like gill nets, cast nets, triangular scoop nets and variety of local indigenous traps. Camouflaging technique was also used to catch the fishes. Fish specimens were counted, photographed and identified to the lowest possible taxon. Fish species were identified and confirmed following standard literature.[5] Total number of species and total number of individuals were recorded from different locations. Fish have been preserved at first in the concentrated formaldehyde in the field itself and then preserved in 10% formalin for further study.

RESULTS & DISCUSSION

Fish being one of the most important items of food for most of the people in Manipur as well as in North-East India. The demand of fish for food is very high in the region. Fish culture is one of the most important sources of income in the north eastern India. Fish farmers took important role for enhancement of the economy of this country. Most of

Table 1- Fish species diversity and its abundance of Pumlen Lake during February, 2019 - January, 2020.

Sl. No.	Name of the fish	Local name	Order	Family	Abundance %
1	*Amblypharyngodon mola* (Hamilton-Buchanan)	Mukanga	Cypriniformes	Cyprinidae	5.84%
2	*Barilius dograsinghi* Hora	Ngawa	Cypriniformes	Cyprinidae	4.14%
3	*Catla catla* (Hamilton-Buchanan)	Catla, Bao	Cypriniformes	Cyprinidae	2.33%
4	*Cirrhnius mrigala* (Hamilton-Buchanan)	Mirgal	Cypriniformes	Cyprinidae	1.96%
5	*Ctenopharyngodon idella* (Valenciennes)	Grass carp (Napichabi)	Cypriniformes	Cyprinidae	2.33%
6	*Cyprinus carpio* (Linnaeus)	Puklaobi	Cypriniformes	Cyprinidae	2.67%
7	*Esomus dandricus* (Hamilton-Buchanan)	Ngasang	Cypriniformes	Cyprinidae	3.76%
8	*Labeo bata* (Hamilton-Buchanan)	Ngaton	Cypriniformes	Cyprinidae	4.82%
9	*Labeo calbasu* (Hamilton-Buchanan)	Ngathi	Cypriniformes	Cyprinidae	2.37%
10	*Labeo gonius* (Hamilton-Buchanan)	Kuri	Cypriniformes	Cyprinidae	3.16%
11	*Labeo rohita* (Hamilton-Buchanan)	Rou	Cypriniformes	Cyprinidae	3.27%
12	*Puntius chola* (Hamilton-Buchanan)	Phabounga	Cypriniformes	Cyprinidae	2.78%
13	*Systomus sarana* (Hamilton-Buchanan)	Ngahou	Cypriniformes	Cyprinidae	2.45%
14	*Petia ticto* (Hamilton-Buchanan)	Ngakha	Cypriniformes	Cyprinidae	1.88%
15	*Puntius sophore* (Hamilton-Buchanan)	Phabou nga	Cypriniformes	Cyprinidae	3.61%
16	*Syncrossus berdmorei* (Blyth)	Sareng khoibi	Cypriniformes	Cobitidae	1.24%
17	*Lepidocephalus guntea* (Hamilton-Buchanan)	Ngakijou	Cypriniformes	Cobitidae	1.09%
18	*Lepidocephalus irrorata* (Hamilton-Buchanan)	Nganapnakuppi	Cypriniformes	Cobitidae	0.86%
19	*Anabas testudineus* (Bloch)	Ukabi	Perciformes	Anabantidae	0.41%
20	*Chanda nama* (Hamilton-Buchanan)	Ngamhai	Perciformes	Chandidae	1.28%
21	*Oreochromis mossambica* (Peters)	Tunghanbi	Perciformes	Cichlidae	6.12%
22	*Channa orientalis* (Bloch & Schneider)	Meitei ngamu	Perciformes	Channidae	3.73%
23	*Channa striata* (Bloch)	Ngamu porom	Perciformes	Channidae	1.09%
24	*Channa punctata* (Bloch)	Ngamu bogra (Gojar)	Perciformes	Channidae	6.39%
25	*Glossogobius giuris* (Hamilton)	Nylonngamu	Perciformes	Gobiidae	0.33%
26	*Trichogaster fasciata (*Schneider)	Ngapemma	Perciformes	Belontidae	2.71%
27	*Trichogaster labiosus* (Schneider)	Phetin	Perciformes	Belontidae	2.94%
28	*Clarias batrachus* (Linnaeus)	Ngakra	Siluriformes	Claridae	1.77%
29	*Heteropneustes fossilis* (Bloch)	Ngachik	Siluriformes	Heteropneustidae	2.60%
30	*Ompok bimaculatus* (Bloch)	Ngaten	Siluriformes	Siluridae	1.84%
31	*Mystus bleekeri* (Day)	Ngasep	Siluriformes	Bagridae	2.37%
32	*Wallago attu* (Bloch & Schneider)	Sareng	Siluriformes	Siluridae	1.22%
33	*Mastacembelus armatus* (Lacepede)	Ngaril	Synbranchiformes	Mastacembelidae	2.18
34	*Monopterus albus* (Zuiew)	Ngaproom	Synbranchiformes	Synbranchidae	0.86%
35	*Notopterus notopterus* (Pallas)	Ngapai	Osteoglossiformes	Notopteridae	2.29%

the people in the state are fish eaters. Pumlen Lake has got rich diversity and distribution of 35 species of fishes belonging to 25 genera, under 15 families and 5 orders. Of these, the most abundant is *Channa punctatus* (6.39%), followed by *Oreochromis mossambica* (6.12%) and *Glossogobius giuris* was least abundant (0.33%).

A drastic change occurred in the ecosystem of Pumlen Lake from its earlier state due to commissioning of Loktak Hydel Project which uses the Pumlen Lake as a secondary water reservoir.1 The list of fish species of Pumlen Lake has been listed in Table no.1. A total of 670 fishes, belonging to twenty five genera (25), five (5) different orders and fifteen (15) families were studied. Maximum number of fish species belonged to the order cypriniformes followed by perciformes and siluriformes. Cypriniformes represented by 18 species of fishes and found to be the most dominant order followed by perciformes with 9 species of fishes and siluriformes with 5 species of fishes. Cyprinidae was the richest family having 18 species of fishes.

CONCLUSION

During the study period, a smaller number of indigenous fishes are found due to the introduction of fish culture of exotic fishes.

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REFERENCES

1. **Joychandra Singh M., 1998.** Limnological studies of Pumlen Lake- A major freshwater wetland of Manipur. Ph.D. thesis, Manipur University, 177.

2. **Kar D. 2003.** An account of the fish biodiversity in South Assam, Mizoram and Tripura along a brief account of epizootic ulcerative fish disease syndrome in freshwater fishes. Invited Lecture, Dept. of Environment. Engg., Guru Jambeshwar Univ., Hissar, India.

3. **Kar D. and N. Sen. 2007.** Systematic list and distribution of fish biodiversity in Mizoram,Tripura and Barak drainage in North-East India. *Zoos Print J.* **21:** 2599-2607.

4. **Kar D., A. H. Barbhuiya, A. R. Baruah, C. Choudhury, P. Banerjee, K. Paul, A. Bhatacharjee, R. Saikai, B. Das, R. Barman and B. Saha. 2008.** Panorama of fish diversity in certain rivers, wetlands and protected areas in Assam. *Geobios.* **36:** 57-64.

5. **Vishwanath W. 2002.** Fishes of North East India, a field guide to species identification. Department of Life Sciences, Manipur University, NATP, Lead Centre: NBFGR, Lucknow.

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