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Ichthyofaunal diversity of Ahiran Lake in Murshidabad District, West Bengal, India

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Abstract

Ahiran Wetland Lake is an important Bird Area situated in Murshidabad district, West Bengal, India has recorded 47 species of fish belonging to 18 families. Out of 47 species, 20 species of Cyprinidae families are dominated in the study area and represented by 42.55%. 6.38% found under the families of Channidae and Mastacembelidae in each, 4.25% found under the families of Cichlidae, Ambassidae, Anabantidae, Osphronemidae, Notopteridae, Clupeidae and 2.12% was found under the family Nandidae, Aplocheilidae, Clariidae, Heteropneustidae, Belonidae, Synbranchidae, Anguillidae, Gobiidae, Tetraodontidae each.

Keywords: Ahiran wetland, Bird Area, families, species.

1. Introduction

The fishes are the most diverse vertebrate in world and about 40% of them live in freshwater [1]. India is one of the mega biodiversity countries in the world and occupies the ninth position in terms of freshwater mega biodiversity [2] and contributed 11.72% of the globe fish biodiversity [3]. Jayaram have listed 742 freshwater species of fishes under 233 genera, 64 families and 16 orders from Indian region [4]. Talwar and Jhingran have estimated 2546 species of fish belonging to 969 genera, 254 families and 40 orders [5]. Devi and Indra have reported the checklist of 667 fresh water fish species in India [6]. Globally, Indian fish represents 11% of total species, 24% of total genera and 57% of the total families [7]. Fishes are one of the prime important elements in the aquatic habitat and play a key role in economy of many nations [8] as they have been a stable item in the diet of many people [9]. Fish fleshes is constituted by approximately 60-80% water, 13-20% protein, small amount of fat, minerals like calcium, phosphorus and iron and vitamins like A, D and B-complex. Fish provide almost 75% of required proteins for human beings. For these reasons the fishes are designated to us as an economically important fauna of water. The rural populations, especially the rural people are dependent to varying degrees on these fishery resources for their livelihoods, income and food. It is well known that small indigenous fish species is significantly contributed global food security through its high quality vitamin and mineral sources [10, 11]. India has various resources possessing reservoir ecological heritage and rich biodiversity. Freshwater fishery sites are varied like 45,000 km. of rivers, 1, 26,334 km. of canals, ponds and tanks 2.36 million hectares and 2.05 million hectares of reservoirs [12, 13]. Different authors recorded different numbers of species from different water bodies in West Bengal. Patra and Saha have listed 46 species belonging to 7 orders, 18 families and 26 genera at Damodar River, Burdwan district [14]. Bhakta and Bandyopadhyay have studied different freshwater perennial water bodies in East Midnapore District of West Bengal and documented 45 species under 29 genera, 18 families and 8 orders [15]. Basu *et al.* have recorded 70 indigenous ornamental fish species belonging to 45 genera, 30 families and 9 orders [16]. 39 local endangered fishes are recorded from West Bengal [17]. Sen have recorded 171 fresh water fish species in West Bengal [18]. Tidal freshwater zone of the Hooghly estuary has recorded 155 fish species belonging to 49 families and 15 orders [19]. 218 species of fish are listed from whole Himalayan region [20]. A total of 176 indigenous ornamental fishes are reported belonging to 98 genera under 41 families and 10 orders [21]. Gopal and Chauhan have listed of 250 fishes from Sundarban [22]. The biodiversity within wetland ecosystem has a great importance in terms of the livelihood and the economic importance of the people living around it. Biodiversity is essential for

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stabilization of ecosystem, protection of overall environmental quality for understanding Intrinsic worth of all species on the Earth [23]. The lack of information on the Ichthyo-fauna is a big handicap for Ahiran wetland ecosystem. Thus there is need to survey fish fauna associated with habitats, which will help in planning methods for their production and effective exploitation [24]. The objective of the study was to give recent data regarding fish diversity, aiming to contribute a better knowledge of the fish diversity of the Ahiran wetland and a tool for conservation planning of the aquatic environments as well as water birds in the Murshidabad district.

2. Materials and Methods

2.1. Study Site

Ahiron is a perennial freshwater wetland lake and is located between 24 °52'31.03"N 88° 03'42.38"E and 24 °52'90.97"N 88° 02'98.18"E about 60kms north north-west of Berhampore town in the Murshidabad district of West Bengal, India (Figure 1.). The lake is elliptical in shape and side of National Highway 34 close to Feeder Canal of Farraka Barrage and Aligarh Muslim University, Murshidabad campus. In monsoons seasons Ahiran Lake covers near about 600000 m² but in dry season it shrinks in 54700 m².



Fig1: Study area Ahiran Wetland Lake

2.2. Methods

The fishes were collected from Ahiran wetland on February 2014 to October 2015 using various types of fishing methods such as cast net (jakhi jal), gill nets (current jal), drag net (bed jal), push net (thela jal) and other local contrivances. Collected fish samples were preserved in 10% formalin [25] for detailed examination and identification with the help of literature [4, 5]. In case of doubtful identification consulted with resource person.

3. Results

A total of forty seven established species belonging to eighteen families were recorded. Among the 47 species 20 species were

found under the family Cyprinidae, three species were found under the families of Channidae and Mastacembelidae, two species were found under the families of Cichlidae, Ambassidae, Anabantidae, Osphronemidae, Notopteridae, Clupeidae and a single species was found under the family Nandidae, Aplocheilidae, Clariidae, Heteropneustidae, Belonidae, Synbranchidae, Anguillidae, Gobidae, Tetraodontidae each. This observation indicates that family Cyprinidae of Cypriniformes order is the most dominated family in comparison with others (Table 1.). Maximum number of species were sampled during monsoon and continued up to mid-post monsoon.

Table 1: Preliminary Checklist of Fishes of Ahiran Lake

Family	Local Name	Species
Cyprinidae	Bata	<i>Labeo bata</i>
	Kalbose	<i>Labeo kalbasu</i>
	Utti	<i>Labeo pangusia</i>
	Rohu	<i>Labeo rohita</i>
	Silver carp	<i>Hypophthalmichthys molitrix</i>
	American rui	<i>Cyprinus caprio</i>
	Gheso rui	<i>Ctenopharyngodon idella</i>
	Danrica	<i>Esomus danricus</i>
	Kuncho punti	<i>Puntius conchonius</i>
	Sar Punti	<i>Puntius sarana</i>
	Jat Punti	<i>Puntius sophore</i>
	Tit Punti	<i>Puntius ticto</i>
	Chola punti	<i>Puntius chola</i>
Katal	<i>Catla catla</i>	

	Mrigala	<i>Cinhinus mrigala mrigala</i>
	Mourala	<i>Amblypharyngodon mola</i>
	Reba bata	<i>Cirrhinus reba</i>
	Kalo tengra	<i>Mystus tengara</i>
	Tengra	<i>Mystus vittatus</i>
	Boal	<i>Wallago attu</i>
Cichlidae	Tilapia	<i>Oreochromis mossambicus</i>
	Nilotica	<i>Oreochromis niloticus</i>
Nandidae	Veda	<i>Nandus nandus</i>
Aplocheilidae	Trichokha	<i>Aplocheilus panchax</i>
Clariidae	Magur	<i>Clarias batrachus</i>
Heteropneustidae	Singhi	<i>Heteropneustes fossilis</i>
Belonidae	Kankle	<i>Xenentodon cancila</i>
Synbranchidae	Cuchia/ Swamp ell	<i>Monopterus(amphipnous) cuchia</i>
Anguillidae	Benehara/ Fresh water ell	<i>Anguilla bengalensis</i>
Ambassidae	Kath Chanda	<i>Chanda nama</i>
	Ranga Chanda	<i>Parambassis ranga</i>
Gobidae	Bele	<i>Glossogobius giuris</i>
Anabantidae	Botkoi	<i>Badis badis</i>
	Koi	<i>Anabas testudineus</i>
Osphronemidae	Kholisha	<i>Colisa fasciatus</i>
	Lal kholisha	<i>Colisa lalia</i>
Channidae	Lata	<i>Channa punctatus</i>
	Chang	<i>Channa orientalis</i>
	Sol	<i>Channa striatus</i>
Mastacembelidae	Pankal	<i>Macrognathus pancalus</i>
	Goichi	<i>Macrognathus aral</i>
	Baan	<i>Mastacembelus armatus</i>
Tetraodontidae	Potka	<i>Tetraodon cutcutia</i>
Notopteridae	Chital	<i>Notopterus chitala</i>
	Pholui	<i>Notopterus notopterus</i>
Clupeidae	Khoira	<i>Gudusia chapra</i>
	Khorika	<i>Corica saborna</i>

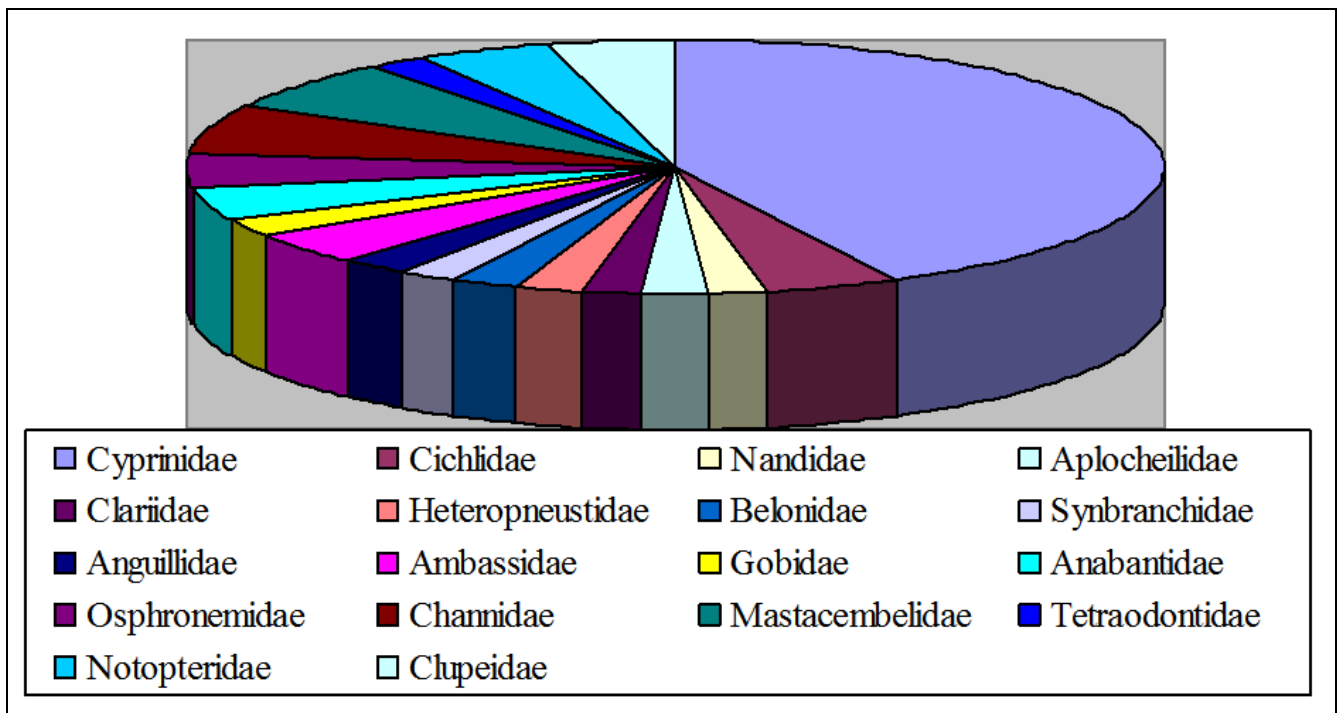


Fig 2: Distribution of various fish families in Ahiran Wetland Lake

4. Discussion

Aquatic biota is broadly classified into five major categories viz; plankton, nekton, periphyton, benthos and neuston. Fish are the representative of nekton. They take critical role in wetland ecosystem dynamics and nutrient balances and also acts as bioindicator, give early warning signals etc. Ahiran

wetland is a well-known water birds habitat in Murshidabad district in West Bengal. From these viewpoints ichthyofauna are most important bioindicator for regulating of birds diversity and conservation. Since there is no known data regarding the fish diversity of Ahiran wetland was available, I have planned to build up the check list of fish species. During

the present survey, a total of 47 species of fish belonging to 19 families are collected from Ahiran Lake on February 2014 to October 2015. Out of 47 species 20 species of Cyprinidae families are dominated in the study area and represented by 42.55% (Figure 2.) that is significant with earlier study in different perennial water bodies of East Midnapore District ^[15], Kaljani River of Cooch Behar district ^[26] and with Damodar River in Burdwan district ^[14]. 6.38% found under the families of Channidae and order Mastacembelidae in each, 4.25% found under the families of Cichlidae, Ambassidae, Anabantidae, Osphronemidae, Notopteridae, Clupeidae and 2.12% was found under the family Nandidae, Aplocheilidae, Clariidae, Heteropneustidae, Belonidae, Synbranchidae, Anguillidae, Gobidae, Tetraodontidae each.

5. Conclusion

Ahiran wetland is an important bird area at Murshidabad district in West Bengal. Diversity of local and migratory birds are partially depends on ichthyofaunal richness. Habitat loss, pesticides, insecticides and uncontrolled fishing has seriously affected the fish fauna. Therefore the ecological balance is decreases. My investigation regarding fish diversity of Ahiran Lake contributed a better knowledge of the fish diversity, and a tool for conservation planning of aquatic environments in this region.

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