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Website: www.mutagens.co.in
E-mail: submit@mutagens.co.in
researchsubmission@hotmail.com

Research Paper

ICHTHYOFAUNAL DIVERSITY OF PURULIA DISTRICT, W.B., INDIA

Kausik Mondal and Anirban Patra

Department of Zoology,
Sidho-Kanho-Birsha University, Purulia.

Abstract

Purulia district situated at the west part of West Bengal. It is a part of Chotonagpur plateau. Ichthyofaunal diversity of Purulia district of was investigated during May 2014 to April 2015. Moderate diversity found in all the field stations. Fifty two species belonging to twenty two families were found in that time. Cypriniformes showed highest diversity of 23 species, followed by Siluriformes of 15 species and Perciformes of 9 species.Order Beloniformes, Clupiformes, Osteoglossiformes, Angulliformes and Synbrachiformes represented with single species. Among five field station, Manbajar station adjoining Mukutmanipur Dam showed higher species richness. It was concluded that habitat degradation, sand mining, water scarcity and excessive fishing putting heavy pressure on the fish diversity of Purulia district.

Key words: *Icthyofauna, Fish Diversity, Purulia, Abundance, Habitat Destruction*.

INTRODUCTION

Fish constitutes half of the total number of vertebrates in the world. They live in almost all conceivable aquatic habitats; 21,723 living species of fish have been recorded out of 39,900 species of vertebrates out of these 8,411 are freshwater species and 11,650 are marine India is one of the mega biodiversity countries in the world and occupies the ninth position in terms of freshwater mega biodiversity [1]. India there are 2,500 species of fishes of which 930 live in freshwater and 1,570 are marine [2]. In West Bengal there are 610 species of which 207 live in freshwater and 403 are marine [3]. Ichthyofaunal diversity refers to variety of fish species; depending on context and scale, it could refer to alleles or genotypes within fish population to species of life forms within a fish community and to species or life forms across aqua regimes [4]. Biodiversity is essential for stabilization of ecosystem protection of overall environmental quality for understanding intrinsic worth of all species on the earth [5]. The lack of information on the present Ichthyo-fauna is a big handicap for popularizing little known fish variety in a particular ecosystem. Thus, there is need to survey fish fauna associated with habitats, which will help in planning methods for their production and effective exploitation [6].

The district of Manbhum (presently Purulia district of West Bengal, India) is the first step of the gradual descent from the elevated plateau of Chotanagpur proper to the plains of lower Bengal and also a part of the Ranchi peneplain. The hills and valleys made up most part of the district bordered in the north by Hazaribagh and Santhal Parganas, to the east by Burdwan, Bankura and Midnapore, to the south by Singhbhum and in the west by Ranchi and Hazaribagh [7]. However, there is no recent scientific record of ichthyofaunal diversity Purulia district. The objective of the study was to collect recent data regarding fish diversity and observe its abundance, aiming to contribute a better knowledge of the fish diversity of Purulia district.

MATERIALS AND METHODS

Fish samples were collected from five field stations, Manbazar, Panchakot, Jhalda, Bundwan and Purulia town. Manbazar situated beside Mukutmanipur Dam and Panchokot beside Panchet Dam. Jhalda field station covers Murguma Dam, Kuki Dam and other hill streams of Ajodhya hills. In Purulia town fishes from Saheb bandh and Kansai river were sampled. Specimens were collected with help of local fisherman. Fish markets of Purulia town and Chas road were monitored regularly for commercial fish collection.

Fishes were photographed at first for documentation of the fresh color and then preserved in 4-10% formalin on the basis of size. Fishes were identified up to species level following standard taxonomic procedure [8-9].

RESULT AND DISCUSSION

In the present study 52 species belonging to 8 orders and 20 families were recorded. Order Cypriniformes shows highest diversity of 23 species, followed by Siluriformes of 15 species and Perciformes of 9 species. Order Beloniformes, Clupiformes, Osteoglossiformes, Angulliformes and Synbrachiformes represented with single species. Diversity of Siluriformes was relatively high (Figure 1). Species with their local name and abundance listed in Table 1. Exotic species which had been found in rivers and Dams, were also enlisted. Among Cypriniformes, *Labeo rohita* was found as the most common species followed by *Cirrhinus mrigala* and *Catla catla*. Among Perciformes, abundance of *Channa* genus was highest. Two species of hill trouts, *Barilius bendelisis* and *Barilius barna* was found less abundant than all. Highest number of species (35) collected from Manbajar site and lowest (11) from Bundwan. Fishes are used mainly for commercial and aquaculture purpose. Occurrence of ornamental fishes in Purulia district recorded but they are hardly used for that purposes. Dhibar's and Koibarta's are the main fisherman communities in Purulia. Information collected from fisherman communities displayed high decline of fish diversity. Deforestation, water scarcity, sand mining and excessive fishing are the biggest threats to fish population. In recent years Purulia declared as drought prone district. All rivers are nearly out of water in summer months. During our study we noticed high amount of sand mining in Kansai River which is destroying the natural habitat of riverine fishes and also their breeding ground. Fishery plays an instrumental role in the socio- economic development of the country, as it is a valuable resource of livelihood for a huge section of economically backward population. It also generates gainful employment, alternate income and stimulates growth of new subsidiary industries [10]. Most species of Siluriformes are vanishing in a rapid rate. The non-commercial fishes are also in great pressure. Urgent steps need to be undertaken to save the Ichthyofaunal species of Purulia District.

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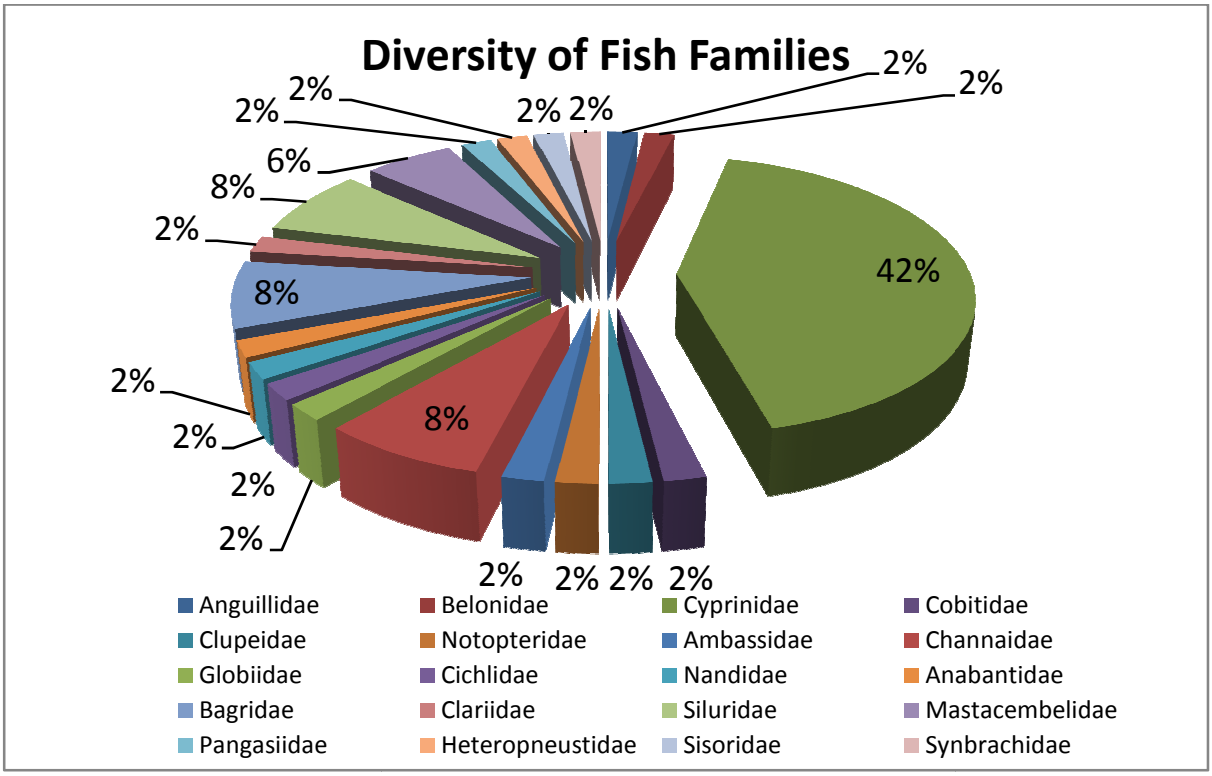

Figure 1: Representation of species with percentages at family level in Purulia District

Table 1: Fish species with their common name, abundance and IUCN status of Purulia District

Order	Family	Sl. No.	Scientific Name	Local Name	IUCN	Total Abundance
Anguilliformes	Anguillidae	1	*Anguilla bengalensis*	Ban	NT	4
Beloniformes	Belonidae	2	*Xenentodon cancila*	Kakle	LC	8
Cypriniformes	Cyprinidae	3	*Amblypharyngodon mola*	Morola	LC	56
		4	*Salmophasia bacaila*	Chela	LC	48
		5	*Salmophasia phulo*	Phul Chela	LC	12
		6	*Cirrhinus mrigala*	Mrigel	LC	71
		7	*Cyprinus carpio*	Japani Rui	LC	46
		8	*Ctenopharyngodon idella*	Grass Carp	LC	30
		9	*Crossocheilus latius*	Kala Bata	LC	23
		10	*Rasbora daniconius*	Darkina	LC	24
		11	*Esomus danricus*	Dankya	LC	42
		12	*Catla catla*	Catla	LC	65
		13	*Labeo bata*	Bata	LC	36
		14	*Labeo calbasu*	Calbos	LC	29
		15	*Labeo rohita*	Rui	LC	89
		16	*Labeo boga*	Bata	LC	12
		17	*Puntinus chola*	Chela Punti	LC	4
		18	*Puntinus conchonius*	Kanchan Punti	LC	4
		19	*Puntinus sophore*	Punti	LC	14
		20	*Puntinus ticto*	Chit Punti	LC	52
		21	*Danio rerio*	Baspata	LC	6
		22	*Danio aequipnnatus*	Chebli	LC	7
		23	*Barilius bendelisis*	Joia	LC	1
		24	*Barilius barna*	Ghol	LC	1
	Cobitidae	25	*Lepidocephalichthys guntea*	Puia	LC	21
Clupeiformes	Clupeidae	26	*Gudusia chapra*	Khoyra	LC	28
Osteoglossiformes	Notopteridae	27	*Notopterus notopterus*	Pholat	LC	46
Perciformes	Ambassidae	28	*Chanda nama*	Chanda	LC	57
	Channaidae	29	*Channa striata*	Shol	LC	38
		30	*Channa gachua*	Cheng	LC	69
		31	*Channa punctatus*	Ghoroi	LC	58
		32	*Channa stewartii*	Tel Chang	LC	18
	Globiidae	33	*Glossogobius giuris*	Bele	LC	26
	Cichlidae	34	*Oreochromis mossambica*	Tilapia	LC	82
	Nandidae	35	*Badis badis*	Kalo koi	LC	15
	Anabantidae	36	*Anabas testudineus*	Koi	LC	17
Siluriformes	Bagridae	37	*Mystus vittatus*	Tengra	LC	76
		38	*Mystus bleekari*	Tengra	LC	12
		39	*Mystus tengara*	Choto Tengra	LC	5
		40	*Sperata aor*	Aar	LC	6
	Clariidae	41	*Clarias magur*	Magur	EN	55
	Siluridae	42	*Ompok bimaculatus*	Pabda	NT	26
		43	*Ompok pabda*	Pabda	NT	19
		44	*Wallago attu*	Boal	NT	13
		45	*Eutropiichthys vacha*	Bacha	LC	16
	Mastacembelidae	46	*Macrognathus pancalus*	Pankal	LC	12
		47	*Macrognathus aral*	Pankal	LC	9
		48	*Mastacembelus armatus*	Pankal	DD	7
	Pangasiidae	49	*Pangasius pangasius*	Pungas	LC	2
	Heteropneustidae	50	*Heteropneustes fossilis*	Singi	LC	64
	Sisoridae	51	*Gagata cenia*	Jungla	LC	8
Synbranchiformes	Synbrachidae	52	*Monopterus cuchia*	Kuche	LC	42

IUCN Red list: DD: Data Deficient LC: Least Concern, VU: Vulnerable, NE: Not Evaluated, EN: Endangered, NT: Near Threatened