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Potentials, Threats and Challenges of Ornamental Fish Biodiversity of East Kolkata Wetland (EKW), West Bengal, India

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Abstract: The wetlands of East Kolkata also known as EKW is extremely well known not just for the food fishes but there are innumerable ornamental fishes. About 41 ornamental fish species have been found in the EKW. The varieties of ornamental fishes of EKW represent ten (10) orders which exhibits the diversity of 21 families. The Family Cyprinidae represents twelve (12) species followed by Channidae (4 species), Mastacembelidae (3 species), Ambassidae (2 species), Bagridae (2 species), Claridae (2 species), Osphronemidae (2 species), Anabantidae (1 species), Aplocheilidae (1 species), Badidae (1 species), Belonidae (1 species), Cobitidae (1 species), Gobiidae (1 species), Mugilidae (1 species), Nandidae (1 species), Notopteridae (1 species), Ophichthidae (1 species), Schilbeidae (1 species), Siluridae (1 species), Synbranchidae (1 species) and Tetraodontidae (1 species). From point of view of conservation, EKW is seen preserving the endangered as well as vulnerable species.

Keywords: East Kolkata Wetlands, Ornamental fish, Vulnerable, Endangered

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Introduction

The practice of fish keeping has emerged as a very popular practice and people are getting attracted towards it as their hobby. India is well known for its indigenous fishes having ornamental features and great capability to earn at foreign exchange (Mukherjee *et al.*, 2000; Ghosh *et al.*, 2003; Singh and Ahmed, 2005). West Bengal as a state is a pioneer state in ornamental fishing trade. Among the other wild catch fishes that are exported from the country, the North Eastern states and West Bengal are the most important contributors towards ornamental fishing (Mandal *et al.*, 2007). The Ramsar Convention declared the EKW as

wetland of international importance in August 2002. This wetland is very well known for not just good fishes but also for different ornamental fishes available (Ghosh *et al.*, 2002; Mahapatra and Lakra, 2012). Some workers have studied the diversity of West Bengal as far as ornamental fishing is concerned but there are no proper study on EKW. In this study we report the biodiversity of ornamental fish species of East Kolkata Wetlands, West Bengal, India.

Materials and Methods

EKW's research region is a combination of natural

as well as man-made marshland in the older Ganges River Delta, where its tributaries subsequently empty into the Bay of Bengal. Between 22° 25' and 22° 40' North and 88° 20' to 88° 35' East, the marsh is located east of Kolkata, abutting the Salt Lake Township of West Bengal. The EKW's are roughly evenly distributed on both banks of a Dry Weather Flow Channel that empties into the Kulti Gang. The total area of water land is approximately 5852.14 ha off from total 12741.30 ha land, and contains salt wetlands and salt grasslands, and also sewage fields and settling ponds, and is largely surrounded by 308 city-sewage-fed fish farms that are particularly diverse in aquatic species.

Random quick field inspections from several EKW basins were done in the current study between June 2012 and July 2014. At significant fish assembly centres such as Choubhaga (South), Bantala (South East), Jhagra Sisa (East), Mahisbathan (North), and Saheb Mara Bheri (West), diverse fish kinds were observed. Local fisherman and seafood dealers were consulted for knowledge on their distribution. Coloration, body forms, banding arrangements, finnages, suckers, translucent bodies, and predatory tendencies were used to characterize the aesthetic fishes. The fish caught was submitted to a research facility for detection and species verification. The identification of fish species was done by published reports by Talwar and Jhingran (1991), Jayaram (1999) and Vishwanath *et al.* (2007). Fish data base and other organisations_ were used for identification (ISI, 2001) The IUCN Red Data List and CAMP report 1998 are used to determine their cautious condition (IUCN, 2014).

Results and Discussion

The research uncovers a range of 41 fish species (Table 1) that are ornamentally significant. They are divided into 21 families and ten orders (Fig. 1). 24 of the 41 native aesthetic fish varieties are uncommon, 12 are occasional, and the remaining 05 are regular. According to the CAMP Report of 1998 and the IUCN Red List of 2014, the research

region has one endangered varieties *Ompok pabda*, and seven threatened species like *Anabas*

Fig. 1: Number of ornamental fish species of EKW belonging to various families.

testudineus, *Clarias batrachus*, *Heteropneustes fossilis*, *Mystus vittatus*, *Puntius conchoni*, *Puntius chola* and *Rhinomugil corsula* (Fig. 2). India has a wide variety of exotic fish. It also has a promising future in the aesthetic fish industry and might account for the majority of Indian fish exports. These indigenous aesthetic fishes can help strengthen the regional economy and provide opportunities for self employment. The significance of the overall sector, such as aesthetic fish germplasm resources, aesthetic vegetation and supporting activity in associated supplies, can enable backward and disadvantaged people retain their living. To secure fish wellbeing and environmental conservation, and also the sector's long-term viability, sufficient attention must be

paid. All important stakeholders must participate in this process, which must be coordinated properly. Native fisher folk can always be arranged and coached for environmental friendly

gathering methods with suitable teaching and technological mentorship, resulting only in the necessary ornamental types of fish being captured and by-catch being discharged back into the river

Table 1: List of ornamental fish from East Kolkata Wetland

S. No.	Order Name	Family Name	Sp.
1	Order 1: Anguilliformes	Family 1: Ophichthidae	<i>Pisodonophis boro</i> (Hamilton): Kucho
2	Order 2: Beloniformes	Family 2: Belonidae	<i>Xenentodon cancila</i> (Hamilton): Bok Fish
3	Order 3: Cypriniformes	Family 3: Cobitidae	<i>Lepidocephalichthys guntea</i> (Hamilton): Ghunte
		Family 4: Cyprinidae	<i>Amblypharyngodon mola</i> (Hamilton): Mourala <i>Danio rerio</i> (Hamilton): Zebra <i>Esomus danricus</i> (Hamilton): Dwarke <i>Labeo bata</i> (Hamilton): Bata <i>Labeo calbasu</i> (Hamilton): Kalbos <i>Laubuca laubuca</i> (Hamilton): Baro Dwarke <i>Puntius chola</i> (Hamilton): Punti <i>Puntius guganio</i> (Hamilton): Punti <i>Puntius sophore</i> (Hamilton): Jat Punti <i>Puntius ticto</i> (Hamilton): Tant Punti <i>Puntius conchoni</i> (Hamilton): Kankon Punti <i>Salmostoma bacaila</i> (Hamilton): Chela
4	Order 4: Cyprinodontiformes	Family 5: Aplocheilidae	<i>Aplocheilus panchax</i> (Hamilton): Techoka
5	Order 5: Mugiliformes	Family 6: Mugilidae	<i>Rhinomugil corsula</i> (Hamilton): Khosla
6	Order 6: Perciformes	Family 7: Anabantidae	<i>Anabas testudineus</i> (Bloch): Koi
		Family 8: Ambassidae	<i>Chanda nama</i> (Hamilton): Chanda <i>Parambassis ranga</i> (Hamilton): Ranga Chanda
		Family 9: Badidae	<i>Badis badis</i> (Hamilton): Bhada
		Family 10: Channidae	<i>Channa punctatus</i> (Bloch): Lata <i>Channa gachua</i> (Hamilton): Cheng <i>Channa striatus</i> (Bloch): Sol <i>Channa marulius</i> (Hamilton): Sal
		Family 11: Gobiidae	<i>Glossogobius giuris</i> (Hamilton): Bele
		Family 12: Nandidae	<i>Nandus nandus</i> (Hamilton): Nados
		Family 13: Osphronemidae	<i>Trichogaster fasciata</i> (Bloch & Schneider): Kholse <i>Trichogaster lalia</i> (Hamilton): LalKholse
7	Order 7: Osteoglossiformes	Family 14: Notopteridae	<i>Notopterus notopterus</i> (Pallas): Folui
8	Order 8: Siluriformes	Family 15: Bagridae	<i>Mystus vittatus</i> (Bloch): Tangra <i>Mystus gulio</i> (Hamilton): Nona Tangra
		Family 16: Claridae	<i>Clarias batrachus</i> (Linnaeus): Magur <i>Heteropneustes fossilis</i> (Bloch): Singhi

		Family 17: Siluridae	<i>Ompok pabda</i> (Hamilton): Pabda
		Family 18: Schilbeidae	<i>Pseudeutropius atherinoides</i> (Bloch) : Batasi Tangra
9	Order 9: Synbranchiformes	Family 19: Mastacembelidae	<i>Mastacembelus armatus</i> (Lacepede): Ban <i>Macrogathus pancalus</i> (Hamilton): Pankal <i>Macrogathus aculeatus</i> (Bloch): Peacock Eel
		Family 20: Synbranchidae	<i>Ophisternon bengalense</i> (McClelland): Bero
10	Order 10: Tetraodontiformes	Family 21: Tetraodontidae	<i>Tetraodon cutcutia</i> (Hamilton): Puffer
	Total No of Order : 10	Total No of Family : 21	Total No of Ornamental Fishes : 41

Fig. 2: Conservational status of various ornamental fish species of EKW.

body, and indeed the eco system concerned is not disrupted.

Conclusion

According to the findings of this research the EKW are home to 41 aesthetic types of fish which are solely utilized for their nutritional benefit. Their decorative worth, on the other hand, is still to be recognized, and these can be utilized for ornamental trading indefinitely. The wetland's residents will benefit more economically from an organized export of such types of fishes for aquarium purposes.

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