

Status of Predatory Ichthyofauna Diversity of Malda and Murshidabad District of West Bengal: An Approach towards Biodiversity Management

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Date of Submission: 16th March, 2015

Date of Acceptance: 21st March, 2015

Abstract

Fish diversity depends upon many physical parameters of aquatic environment. West Bengal is a State that has all types of representative edaphic diversity of India. The river Ganga and its tributaries flow through Murshidabad and Malda districts. These are the transitional districts because the soil type of the North Bengal is vastly different from that of South Bengal. North Bengal has lateritic and South Bengal has clayey soil type. Predatory Ichthyofauna is very important in ecosystem because they maintain balance. As they are less abundant because they are top most carnivores, they are the most effected part due to anthropogenic activities like organized fisheries. The present study is an attempt to assess the abundance of Predatory Ichthyofaunal diversity in these two adjacent districts. Database on fish biodiversity is essential as a decision making tool for conservation and management of fish germplasm, protection and preservation of endangered species and mitigation of anthropogenic activities so as to fulfill India's obligations under Convention on Biological Diversity. The present work will serve as a documentation of the predatory ichthyofauna of Malda and Murshidabad district which may be utilized for future fish biodiversity management of the two districts.

Keywords: Ichthyofauna biodiversity, Malda, Murshidabad, documentation, conservation.

1. Introduction

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Wetlands are hotspots of biological diversity and invaluable for sustainable living. The changes within the Ramsar Convention, the shift from 'save the waterfowl' approach to a more holistic nature-human interface has significantly reflected this approach. Yet, it must be underscored that till date, international dialogue on biodiversity hotspots is restricted to terrestrial systems. It must be noted in this context that although wetlands cover only six per cent of the earth's surface, they provide habitats for about 20 percent of the earth's total biological diversity¹. Thus it is very much important to assess the faunal diversity of the wetlands, specially the fishes.

Ichthyofauna is also a natural resource of India. It is rich and diversified, characterized by many rare and endemic fish species. About 21,730 species of fishes have been recorded in the world; of which, about 11.7% are found in Indian waters. Out of the 2546 species so far listed, 73 (3.32%) belong to the cold freshwater regime, 544 (24.73%) to the warm freshwater domain, 143 (6.50%) to the brackish water and 1440 (65.45%) to the marine ecosystem. India has vast freshwater reserves consisting 45,000 Km. of rivers, 26,334 Km. of canals, ponds and tanks 2.36 million hectares and 2.05 million hectares of reservoirs, which inhabited by many rare and endemic fish species².

District Maldah and Murshidabad comprise diversified ichthyofauna in various habitats but freshwater fishes are a poorly studied group. There is little documentation on the indigenous fish of West Bengal³. More information on the population dynamics and recent threats of this fish diversity is required to get a comprehensive picture of the ichthyofauna diversity of the country. Recently Barman (2007)⁴ recorded 239 species of fresh water fish from West Bengal and Mandal (2012)⁵ recorded 66 fishes from Murshidabad, but the distribution within the district is not available.

Predatory fish abundance represent the health of a natural ecosystem. Being top most carnivore, they maintain balance of natural ecosystem. Organized fisheries never allow the predatory fish to survive. Thus they are the most endangered part among fishes. In the present work is an attempt was made to prepare a consolidated list of freshwater predatory fish species of district Maldah and Murshidabad that comprises 20 species altogether, of which some are rare. The list also includes the place of occurrence of the natural water body from where they were collected.

2. Materials and Methods

1. The survey of the fish fauna were done in different parts of the district Malda and Murshidabad for 2011 to 2014.
2. Only predatory fishes were recorded.
3. The fishermen and the traders were interviewed for the abundance and availability data.
4. The collected samples were preserved in 4-10% formalin as per the age of the fish and brought to the laboratory for identification. Fish were identified following Day (1958)⁶, Jayaram (1981)⁷, Talwar and Jhingran (1991)⁸. Specimens with doubtful identifying characters were sent to Zoological Survey of India (ZSI), Kolkata for identification.

3. Results

NAME OF THE FISH SPECIES	DISTRIBUTION IN MALDAH	DISTRIBUTION IN MURSHIDAB	LOCAL NAME	SAMPLING STATUS IN MALDAH	SAMPLING STATUS IN MURSHIDAB
1. <i>Anabas testudineus</i>	MAHANANDA, MADHAIPUR LAKE (NARANPUR), SAGARDIGHI (SODALPUR), BHATIA LAKE (NISCHINTIPUR)	AHIRAN, TELKATI, PATAN, MOTIJHEEL, BHANDARDA HA, BOROBILA, SAGARDIGHI, JALANGI, RAMNAGAR	KOI	R	R
2. <i>Channa gachua</i>	MAHANANDA, MADHAIPUR LAKE (NARANPUR), SAGARDIGHI (SODALPUR), BHATIA LAKE (NISCHINTIPUR), ROAD SIDE DICH, LOWLAND, LOCAL PONDS.	AHIRAN, TELKATI, LOWLAND BESIDES RAIL TRACKS	CHANG	R	VR
3. <i>Channa marulius</i>	MADHAIPUR LAKE (NARANPUR), SAGARDIGHI (SODALPUR), BHATIA LAKE (NISCHINTIPUR), LOCAL PONDS.	AHIRAN, TELKATI, PATAN, SAGARDIGHI, BHANDARDA HA, JALANGI, BHAIRAB, KATIGANGA, SATUI, GOKARNA, BAJARSAU.	SHAL	VR	VR
4. <i>Channa punctatus</i>	MAHANANDA, MADHAIPUR LAKE (NARANPUR), SAGARDIGHI (SODALPUR), BHATIA LAKE (NISCHINTIPUR), LOCAL PONDS.	AHIRAN, TELKATI, PATAN, SAGARDIGHI, BHANDARDA HA, JALANGI, BHAIRAB, KATIGANGA, SATUI, GOKARNA, BAJARSAU.	SATI, LATA	R	A
5. <i>Channa striata</i>	MAHANANDA, MADHAIPUR LAKE	AHIRAN, TELKATI,	SHOL	R	R

	(NARANPUR), SAGARDIGHI (SODALPUR), BHATIA LAKE (NISCHINTIPUR), LOCAL PONDS.	PATAN, SAGARDIGHI, BHANDARDA HA, JALANGI, BHAIRAB, KATIGANGA, SATUI, GOKARNA, RAMNAGAR.			
6. <i>Clarias magur</i>	MAHANANDA, MADHAIPUR LAKE (NARANPUR), SAGARDIGHI (SODALPUR), BHATIA LAKE (NISCHINTIPUR), LOCAL PONDS.	AHIRAN, TELKATI, PATAN, SAGARDIGHI, BHANDARDA HA, JALANGI, BHAIRAB, KATIGANGA, SATUI, GOKARNA, BAJARSAU.	MAGUR	R	R
7. <i>Gagata gagata</i>	GANGA, MAHANANDA	GANGA, JALANGI	PALOA TANGRA	A	R
8. <i>Mystus cavasius</i>	GANGA	x	PALOA TANGRA, NADI TANGRA	R	X
9. <i>Mystus vittatus</i>	GANGA, MADHAIPUR LAKE (NARANPUR), SAGARDIGHI (SODALPUR), BHATIA LAKE (NISCHINTIPUR), LOCAL PONDS.	GANGA, AHIRAN, MOTIJHEEL.	KELE TALOA TANGRA	A	A
10. <i>Notopterus chitala</i>	GANGA, MAHANANDA, SAGARDIGHI (SODALPUR), BHATIA LAKE (NISCHINTIPUR), LOCAL PONDS.	GANGA, AHIRAN, TELKATI, PATAN, SAGARDIGHI, BHANDARDA HA, JALANGI, BHAIRAB, KATIGANGA, SATUI, GOKARNA, BAJARSAU.	CHITAL	R	R
11. <i>Notopterus notopterus</i>	GANGA, SAGARDIGHI (SODALPUR).	GANGA, AHIRAN, TELKATI, PATAN, SAGARDIGHI,	FOLI	A	A

		BHANDARDA HA, JALANGI, BHAIRAB, KATIGANGA, SATUI, GOKARNA, BAJARSAU.			
12. <i>Ompok pabda</i>	GANGA, MADHAIPUR LAKE (NARANPUR), SAGARDIGHI (SODALPUR), BHATIA LAKE (NISCHINTIPUR), LOCAL PONDS.	GANGA	DESHI PABTA	R	R
13. <i>Rita rita</i>	GANGA	GANGA	RITHA	R	R
14. <i>Sparata aor</i>	GANGA	GANGA	AAR	R	R
15. <i>Wallago attu</i>	GANGA, MADHAIPUR LAKE (NARANPUR), SAGARDIGHI (SODALPUR), BHATIA LAKE (NISCHINTIPUR)	GANGA, MOTIJHEELA HIRAN, TELKATI, PATAN, SAGARDIGHI, BHANDARDA HA, JALANGI, BHAIRAB, KATIGANGA, SATUI, GOKARNA, BAJARSAU.	BOAL	R	R
16. <i>Heteropneustes fossilis</i>	ALL OVER MALDA	ALL OVER MURSHIDABAD	SHINGI	A	A
17. <i>Bagarius bagarius</i>	GANGA	GANGA	BAGHAR	VR	VVR
18. <i>Glossogobius giuris</i>	GANGA	GANGA, JALANGI	BELE	R	R
19. <i>Nandus nandus</i>	GANGA	GANGA, RAMNAGAR, AHIRAN	MENI, VYADA	VVR	VVR
20. <i>Silonia silodia</i>	GANGA	GANGA, RAMNAGAR	SILONE	R	R

A = Abundant, R = Rare, VR = Very Rare, VVR= Very Very Rare, x = Absent

4. Conclusion

20 PREDATORY fishes are available in the district Malda whereas 19 species are available in Murshidabad. Channa gachua is very rare in Murshidabad. Bagarius bagarius is very rare in both the district. Another species Nandus nandus is becoming extinct each and every day.

Degradation of the habitat, introduction of exotic species and overfishing is supposed to be the main reason of the fishes becoming rare. The conditions of wetlands of Malda district are better than the wetlands of Murshidabad as evident from the abundance of fishes. If the present condition persists many predatory fish will become extinct very soon.

Acknowledgment: The author is deeply indebted to the local people of the study sites for their cordial help during field work. This study was supported by a grant from the West Bengal Biodiversity Board (WBBB) to the author.



Anabus testudineus



Channa gachua



Channa marulius



Wallago attu



Channa punctatus



Channa striata



Clarias magur



Bagarius bagarius



Gagata gagata



Glossogobius giuris giuris



Heteropneustes fossilis



Mystus cavasius



Mystus vittatus



Nandus nandus



Notopterus chitala



Notopterus notopterus





Silonia silodia



Sparata aor

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