



## Riverine Fish of Murshidabad: A Study on River Ganga

Suchismita Medda<sup>1</sup>, Santi Ranjan Dey<sup>2\*</sup>

<sup>1</sup> Mohiary R.B.K.C Balika Vidyalaya, Andul-Mouri, Howrah, West Bengal, India.

<sup>2</sup> Department of Zoology, Rammohan College, Kolkata, West Bengal, India.

\*Correspondence E-mail : [srdey1@rediffmail.com](mailto:srdey1@rediffmail.com)

### Abstract

Murshidabad is a district of West Bengal, India and situated on the eastern bank of river Hooghly, a distributary of river Ganga. Although, many studies on fish ecology and fish systematics have been conducted largely to improve fisheries but fish diversity and their distribution pattern from conservation point of view have never been adequately addressed in the Ganga River. In this present study priority was given to prepare a consolidated list of fish fauna that have been found in the part of river Ganga which flows through the District Murshidabad. 74 species belonging to 9 orders and 24 families are found in the river Ganga of Murshidabad district. Family *Cyprinidae* representing highest number of species viz. 21. The order *Cypriniformes* is represented by 26 species followed by order *Siluriformes* containing 20 species.

**Keywords:** Murshidabad; Ichthyofauna; IUCN; Ganga.

### Introduction

Aquatic ecosystem harbours a large number and variety of living organisms, thus enriched in biodiversity context. 11.7% of globally recorded fishes are found in aquatic bodies of India of which about 28% have been enlisted from freshwater regime (Das. J *et al*, 2015). Riverine ecosystem is a main source of freshwater as well as freshwater flora and fauna. River provides food and support livelihood for mankind, economy to state and country. Ganga (Ganges) is one of the 4 perennial rivers of India which is the residence of around 265 fish species (Das, M.K *et al* 2007). The river shows richest ichthyofaunal diversity in India (Tripathi, S.*et al*, 2017). After originating from Garhwal Himalaya, this river flows long stretches through Haridwar, Uttarakhand, Uttar Pradesh, Bihar and West Bengal to merge with the Bay of Bengal.

Extensive works on Ganga has been done mainly on its upstream and midstream areas but district wise data of fish fauna based on lower Ganga region has not been very well documented (Kumar, M, 2019). Although, many studies on fish ecology and systematic have been conducted largely to improve fisheries but fish diversity and their distribution pattern from conservation point of view have never been adequately addressed in the Ganges River (Sarkar *et al*, 2012).

Murshidabad is a district of West Bengal, India and situated on the eastern bank of river Hooghly, a distributary of river Ganga (Fig. 1 & 2). In this present study priority was given to prepare a consolidated list of fish fauna that have been found in the part of river Ganga which flows through the District Murshidabad (Fig. 3).

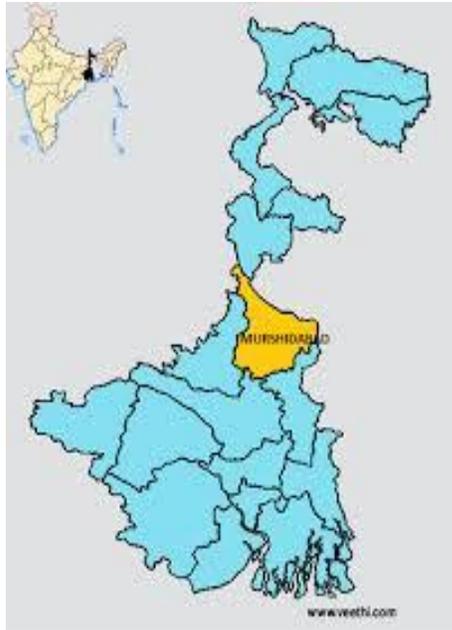


Fig. 1. Map of West Bengal

(Highlighting Murshidabad District)



Fig. 2 . Map of Murshidabad district

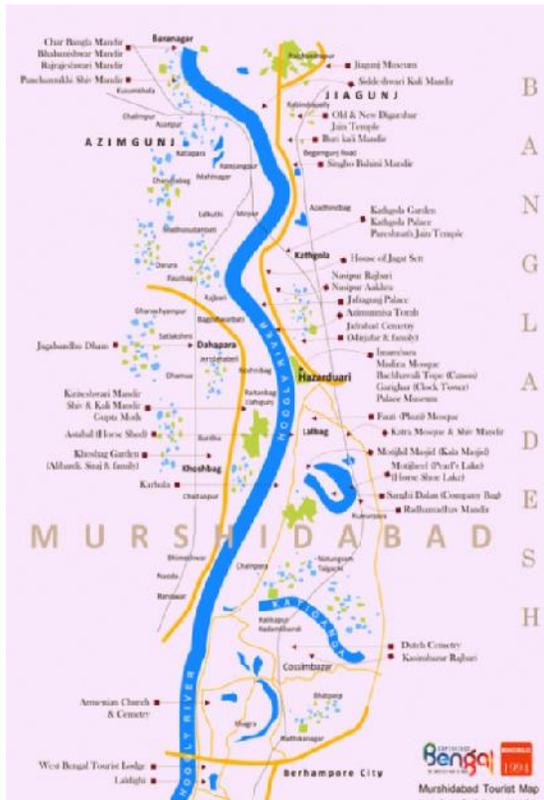


Fig.3. Rivers of Murshidabad

**Materials and Methods**

The river Ganga was surveyed in the Pre-monsoon, Monsoon and Post Monsoon periods for 5 years (2014-2019) in 6 six different areas. The local markets were also surveyed for the information about fish. The fishermen associated with the river were contacted, interviewed with specific questions and their catch were analysed for collection of fishes. The collected fish were identified, photographed and preserved. Taxonomic Identification was done primarily from the books of Day, F (1876), Jayaram, K.C. (1981), Talwar and Jhingran (1991) and Barman, R. (2007). The fish fauna has been arranged taxonomically according to the classification of Jayaram, K.C. (1981). Status of the species was also studied from the data of global (IUCN) abundance status from the conservation point of view.

**Sampling site:**

- Ramnagar Ghat (23°47'21" N 88°13'57" E),
- Berhampore (24°6'3" N 88°14'46" E),
- Farasdanga (24°6'53" N 88°15'21" E),
- Radharghat (24°7'15" N 88°13'22" E),
- Dhulian (24°41'19" N 88°55'22" E),
- Farkka [Rasulpur] (24°48'21" N 87°15'12" E),

## Results

Fish	Local name at Murshidabad	IUCN status (Global)
<b>Order: Clupeiformes</b> <b>Family: Clupeidae</b>		
<i>Corica soborna</i> (Hamilton, 1822)	Sonakhori	Least Concern (LC) ; assessed: 06 October 2009
<i>Tenualosa ilisha</i> (Hamilton, 1822)	Ilis	Least Concern (LC) ; assessed:23 January 2013
<i>Gudusiachapra</i> (Hamilton, 1822)	Khoira	Least Concern (LC) (Decreasing) assessed: 06 October 2009
<i>Gonialosa manmina</i> (Hamilton, 1822)	Chapila	Least Concern (LC) assessed: 06 October 2009
<u><i>Ilisha megaloptera</i> (Swainson, 1839)</u>	Khokailis	Least Concern (LC) assessed: 28 February 2017
<b>Family: Engraulidae</b>		
<i>Setipinna phasa</i> (Hamilton, 1822)	Fasa	Least Concern (LC) assessed: 04 December 2019
<b>Order: Osteoglossiformes</b> <b>Family: Notopteridae</b>		
<i>Notopterus notopterus</i> (Pallas, 1769)	Foli	Least Concern (LC) (Stable) assessed: 30 August 2019
<i>Chitala chitala</i> (Hamilton, 1822)	Chital	Near Threatened (NT) ; assessed: 28 May 2010
<b>Order: Cypriniformes</b> <b>Family: Cyprinidae</b>		
<i>Chela cachius</i> (Hamilton, 1822)	Chip Chela	Least Concern (LC) ; assessed: 21 March 2010
<u><i>Securicula gora</i> (Hamilton, 1822)</u>	Piuli	Least Concern (LC) ; assessed: 10 October 2009
<i>Hypophthalmichthys nobilis</i> (Richardson, 1845)	Briged Carp	Data deficient (DD) ; assessed: 02 September 2010
<i>Rasbora daniconius</i> (Hamilton, 1822)	Darka	Least Concern (LC) ; assessed: 17 March 2011
<i>Megarasbora elanga</i> (Hamilton, 1822)	Bangos	Least Concern (LC) ; assessed:23 January 2010
<i>Cabdio morar</i> (Hamilton, 1822)	Morari/Piuli	Least Concern (LC) ; assessed: 09 October 2009
<i>Amblypharyngodon mola</i> (Hamilton, 1822)	Mourala	Least Concern (LC) ; assessed: 09 October 2009
<i>Puntius chola</i> (Hamilton, 1822)	Punti	Least Concern (LC) ; assessed: 20 March 2010
<i>Puntius conchoni</i> (Hamilton, 1822)	Punti	Least Concern (LC) ; assessed: 22 March 2010
<i>Puntius puntio</i> (Hamilton, 1822)	Punti	Not Evaluated
<i>Puntius sophore</i> (Hamilton, 1822)	Puti	Least Concern (LC) ; assessed: 20 March 2010
<i>Puntius terio</i> (Hamilton 1822)	Puti	Least Concern (LC) ; assessed: 18 March 2010
<u><i>Pethia ticto</i> (Hamilton, 1822)</u>	Titputi	Least Concern (LC) ; assessed: 22 March 2010
<i>Osteobrama cotio cotio</i> (Hamilton, 1822)	Bojonmuri	Least Concern (LC) ; assessed: 09 October 2009
<i>Labeo bata</i> (Hamilton, 1822)	Bata	Least Concern (LC) ; assessed: 17 March 2011
<i>Labeo calbasu</i> (Hamilton, 1822)	Kalbaus	Least Concern (LC) ; assessed: 21 March 2010

<i>Labeo rohita</i> (Hamilton, 1822)	Rui	Least Concern (LC) ; assessed: 20 March 2010
<i>Cirrhinus mrigala</i> (Hamilton, 1822)	Mrigel	Least Concern (LC) ; assessed: 21 March 2010
<i>Cirrhinus reba</i> (Hamilton, 1822)	Rai khor	Least Concern (LC); assessed: 29 September 2010
<u><i>Gibelion catla</i> (Hamilton, 1822)</u>	Katla	Least Concern (LC) ; assessed: 08 October 2009
<i>Garra annandalei</i> (Hora, 1921)	Bhola	Least Concern (LC) ; assessed: 09 October 2009
<b>Family: Cobitidae</b>		
<i>Acanthocobitis botia</i> (Hamilton, 1822)	Balichata	Least Concern (LC) ; assessed: 01 March 2007
<u><i>Schistura beavani</i> (Günther, 1868)</u>	Poya	Least Concern (LC) ; assessed:21 January 2010
<i>Botia Dario</i> (Hamilton, 1822)	Boumach	Least Concern (LC) ; assessed: 27 May 2010
<i>Botia lohachata</i> (Chaudhuri, 1912)	Boumach	Least Concern (LC) ; assessed: 31 May 2010
<u><i>Lepidocephalichthys guntea</i> (Hamilton, 1822)</u>	Gunte	Least Concern (LC) ; assessed: 06 March 2012
<b>Order: Siluriformes</b>		
<b>Family: Bagridae</b>		
<i>Rita rita</i> (Hamilton, 1822)	Ritha	Least Concern (LC) ; assessed: 26 March 2010
<i>Mystus gulio</i> (Hamilton, 1822)	Gulsatengra	Least Concern (LC) ; assessed: 11 August 2019
<i>Mystus vittatus</i> (Bloch, 1794)	Sona tengra	Least Concern (LC) ; assessed: 05 October 2009
<i>Mystus tengara</i> (Hamilton, 1822)	Bojretengra	Least Concern (LC) ; assessed: 05 October 2009
<i>Sperata aor</i> (Hamilton, 1822)	Aar	Least Concern (LC) ; assessed: 19 March 2011
<b>Family: Siluridae</b>		
<i>Ompak pabda</i> (Hamilton, 1822)	Pabda	Near Threatened (NT) ; assessed: 13 October 2009
<i>Wallago attu</i> (Bloch and Schneider, 1801)	Boal	Vulnerable (VU); assessed: 12 August 2019
<b>Family: Schilbeidae</b>		
<i>Ailia coila</i> (Hamilton, 1822)	Banspata/kajli	Near Threatened (NT) ; assessed: 21 September 2010
<i>Pachypterus atherinoides</i> (Bloch, 1794)	Paloatengra/ Pat tengra	Least Concern (LC) ; assessed: 13 October 2009
<i>Clupisoma garua</i> (Hamilton, 1822)	Ghero	Least Concern (LC) ; assessed: 13 October 2009
<i>Eutropiichthys vacha</i> (Hamilton, 1822)	Bacha	Least Concern (LC) ; assessed: 13 October 2009
<i>Silonia silondia</i> (Hamilton, 1822)	Silone	Least Concern (LC) ; assessed: 01 March 2007
<b>Family: Pangasiidae</b>		
<u><i>Pangasianodon hypophthalmus</i> (Sauvag, 1878)</u>	Pangas	Endangered (EN) ; assessed: 19 January 2011
<b>Family: Sisoridae</b>		
<i>Bagarius bagarius</i> (Hamilton, 1822)	Bagh aar	Near Threatened (NT) ; assessed: 13 October 2009
<i>Gogangra viridescens</i> (Hamilton, 1822)	Kukri	Least Concern (LC) ; assessed: 12 October 2009
<i>Conta conta</i> (Hamilton, 1822)	Contaar	Data deficient (DD) ;

		assessed: 12 October 2009
<i>Pseudolaquvia shawi</i> (Hora, 1921)	Tel gador	Least Concern (LC) ; assessed:12 October 2009
<i>Glyptothorax telchitta</i> (Hamilton, 1822)	Telchita	Least Concern (LC) ; assessed: 13 October 2009
<b>Family: Heteropneustidae</b>		
<i>Heteropneustes fossilis</i> (Bloch, 1794)	Shingi	Least Concern (LC) ; assessed: 11 August 2019
<b>Family: Loricariidae</b>		
<i>Pterygoplichthys multiradiatus</i> (Hancock, 1828)	Crocodile fish	Not Evaluated (NE) <b>(Exotic)</b>
<b>Order: Atheriniformes</b>		
<b>Family: Belontiidae</b>		
<i>Xenentodon cancila</i> (Hamilton, 1822)	Kankla	Least Concern (LC) ; assessed: 12 August 2019
<b>Order: Atheriniformes</b>		
<b>Family: Cyprinodontidae</b>		
<i>Aplocheilus panchax</i> (Hamilton, 1822)	Tinchokh	Least Concern (LC) ; assessed: 21 June 2018
<b>Order: Channiformes</b>		
<b>Family: Channidae</b>		
<i>Channa marulius</i> (Hamilton ,1822)	Shal	Least Concern (LC) ; assessed: 06 October 2009
<i>Channa punctata</i> (Bloch, 1793)	Sati	Least Concern (LC) ; assessed:11 August 2019
<i>Channa striata</i> (Bloch, 1793)	Shol	Least Concern (LC) ; assessed:11 August 2019
<b>Order: Synbranchiformes</b>		
<b>Family: Synbranchidae</b>		
<i>Monopterusuchia</i> (Hamilton, 1822)	Cuche	Least Concern (LC) ; assessed: 20 March 2010
<b>Order: Perciformes</b>		
<b>Family: Chandidae</b>		
<i>Chanda nama</i> (Hamilton, 1822)	Chada	Least Concern (LC) ; assessed: 16 March 2010
<i>Parabassia ranga</i> (Hamilton, 1822)	Chada	Least Concern (LC) ; assessed: 16 March 2011
<i>Parabassia baculis</i> (Hamilton, 1822)	Chada	Least Concern (LC) ; assessed: 20 March 2010
<b>Family: Nandidae</b>		
<i>Badis badis</i> (Hamilton, 1822)	Bot koi	Least Concern (LC) ; assessed: 26 March 2010
<i>Nandus nandus</i> (Hamilton, 1822)	Nandos	Least Concern (LC) ; assessed: 12 October 2009
<b>Family: Cichlidae</b>		
<i>Oreochromis niloticus</i> (Linnaeus, 1758)	Nilontica	Least Concern (LC) ; assessed: 02 March 2018
<b>Family: Mugilidae</b>		
<i>Rhinomugil corsula</i> (Hamilton, 1822)	Khorsol	Least Concern (LC) ; assessed: 20 March 2010
<b>Family: Gobiidae</b>		
<i>Glossogobius giurus</i> (Hamilton, 1822)	Bele	Least Concern (LC) ; assessed: 11 August 2019
<b>Family: Anabantidae</b>		
<i>Anabas testudineus</i> (Bloch, 1792)	Koi	Least Concern (LC) ; assessed: 10 August 2019
<b>Family: Belontiidae</b>		
<i>Trichogaster fasciata</i> (Bloch and Schneider,	Kholsa	Least Concern (LC) ;

1801)		assessed: 21 January 2010
<i>Trichogaster lalius</i> (Hamilton,1822)	Kholsa	Least Concern (LC) ; assessed: 21 January 2010
<i>Trichogaster chuna</i> (Hamilton,1822)	Kholsa	Least Concern (LC) ; assessed: 12 October 2009
<i>Trichogaster labiosa</i> (Day, 1877)	Kholsa	Least Concern (LC) ; assessed: 21 January 2010
<b>Order: Tetraodontiformes</b>		
<b>Family: Tetraodontidae</b>		
<i>Leiodon cutcutia</i> (Hamilton, 1822)	Tyapa	Least Concern (LC) ; assessed: 11 October 2009

**Table 2: Representing Fish Families with Number of Species Belonging to Them:**

Sl.no	Name of the Family	Species in each family
1	Clupeidae	5
2	Engraulidae	1
3	Notopteridae	2
4	Cyprinidae	21
5	Cobitidae	5
6	Bagridae	5
7	Siluridae	2
8	Schilbeidae	5
9	Pangasiidae	1
10	Sisoridae	5
11	Heteropneustidae	1
12	Loricariidae	1
13	Belonidae	1
14	Cyprinodontidae	1
15	Channidae	3
16	Synbranchidae	1
17	Chandidae	3
18	Nandidae	2
19	Cichlidae	1
20	Mugilidae	1
21	Gobiidae	1
22	Anabantidae	1
23	Belontiidae	4
24	Tetraodontidae	1

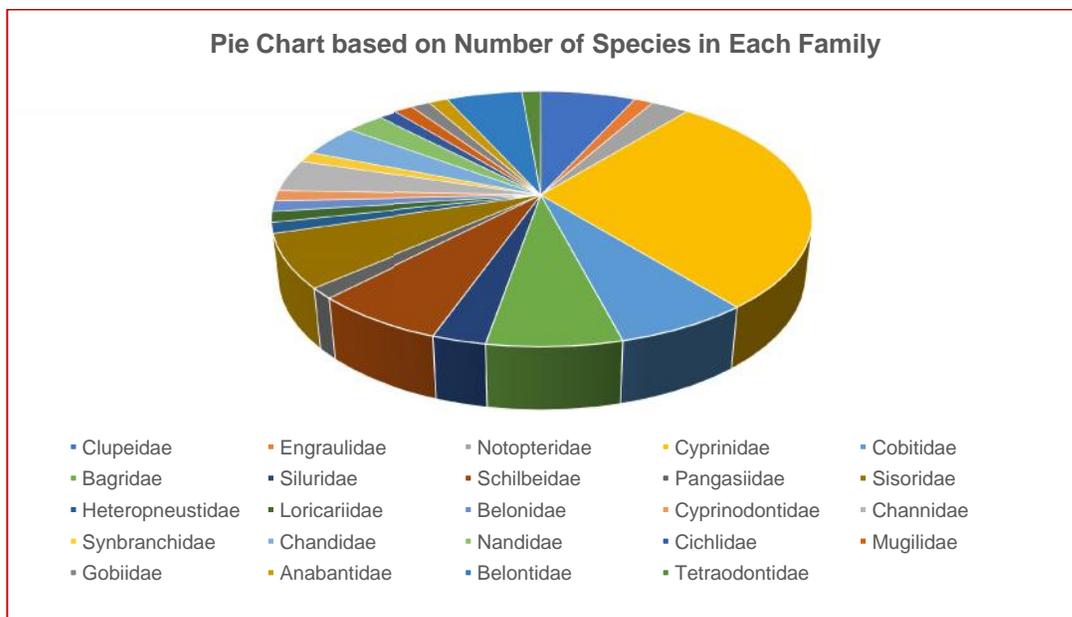


Fig. 4. Pie chart of the Family wise distribution of fish species

**Table 3 Representing Name of the Orders with Number of Families and Species found under each Order:**

SI No	Name of the Orders	Number of Families in each Order	Species in each Order
1	Clupeiformes	2	6
2	Osteoglossiformes	1	2
3	Cypriniformes	2	26
4	Siluriformes	7	20
5	Atheriniformes	2	2
6	Channiformes	1	3
7	Synbranchiformes	1	1
8	Perciformes	7	13
9	Tetraodontiformes	1	1

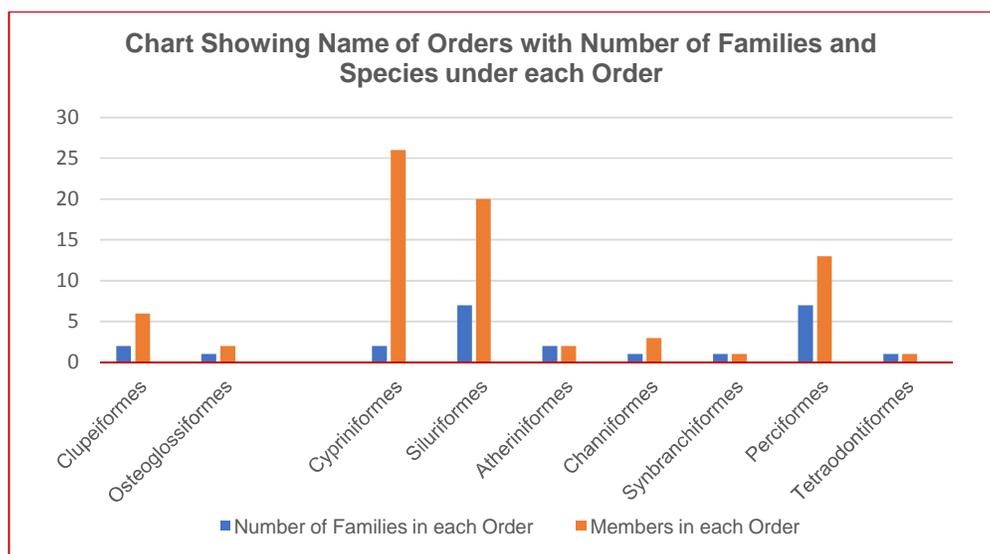


Fig. 5. Chart showing the name of Orders to which the fish species belong with number of families.

## Discussion

Table 1 shows that 74 species belonging to 9 orders and 24 families are found in the river Ganges of Murshidabad district. Family *Cyprinidae* representing highest number of species, 21 (Table 2 & Fig.4). The order Cypriniformes is represented by 26 species followed by order Siluriformes contain 20 species (Table 3 & Fig 5). 2 exotic species viz. *Pterygoplichthys multiradiatus* (Hancock,1828) and *Hypophthalmichthys nobilis* (Richardson, 1845) were found in Ganga in only one sampling. The Brazilian Catfish or Armoured Cat-fish *Pterygoplichthys multiradiatus* (Hancock, 1828) is aquarium in origin and probably accidentally released in Ganga. *Bagarius bagarius* (Hamilton,1822) is the largest fish in Ganga (Murshidabad stretch) and *Conta conta* (Hamilton, 1822) is the most rare predator. *Securicula gora* (Hamilton,1822) is so far reported only from river Ganges of Murshidabad, it is not found in Nadia District or Malda district. *Corica soborna* (Hamilton, 1822) is the smallest fish in river Ganga. The Ichthyofauna of river Ganga (Murshidabad) is relatively high in alpha diversity in comparison to other rivers.



*Corica soborna*



*Tenulosa ilisha*



*Notopterus notopterus*



*Securicula gora*



*Sperata aor*



*Pachypterus atherinoides*



*Pseudolaguvia shawi*

## Conclusion

River Ganga or Bhagirathi is fed by a 26 km feeder canal in the downstream of Farakka Barrage. Farakka barrage came into function in the year 1975. The Ichthyofaunal diversity of river Ganga or Bhagirathi downstream of barrage in Murshidabad district is evaluated extensively for the first time after 45 years of construction of the Farakka barrage. The alpha fish diversity in this riverine stretch of Ganga is high.

## Acknowledgments:

The authors are thankful to Principal, Rammohan College for her support. This project was funded by West Bengal Biodiversity Board.

## Conflicts of Interest:

The authors declare no conflict of interest.

## References

- Barman, R.P. (2007). A review of the fresh water fish fauna of West Bengal, India with suggestions for conservation of the threatened and endemic species, *Records of the Zoological Survey of India, Occasional Paper* 263: 1–48.
- Das, M.K., Samanta, S. & Saha, P.K. (2007). Riverine Health and Impact on Fisheries in India. *Policy paper No. 01*, Central Inland Fisheries Research Institute, Barrackpore, Kolkata. 120.
- Das, J., Saha, M. And Dey, S.R. (2015). Status of Predatory Ichthyofauna Diversity of Malda and Murshidabad District of West Bengal: An Approach towards Biodiversity Management. *Beats of Natural Science. Article No. 3.*: 1-8.
- Day, F. (1876). The Fishes of India: Being a Natural History of the Fishes known to inhabit the Seas and Fresh water of India, Burma and Ceylon. *William Dawson & Sons Ltd., London.* 778p.
- Jayaram, K. C. (1981). The Freshwater Fishes of India: A Hand book. *Zoological Survey of India, Calcutta.* 475p.
- Kumar, M (2019). Fish Fauna Distribution Pattern, Threats and Their Conservation Issues in Protected Areas: A Case Study from Vikramshila Gangetic Dolphin Sanctuary in Lower Ganga, Bihar, India. *International Journal of Scientific & Technology Research*, 8(9): 1210-1217.
- Sarkar U. K. Pathak A. K. Sinha R. K. , Sivakumar K., Pandian A. K. , Pandey A., Dubey V. K ,Lakra, W. S. (2012). Freshwater fish biodiversity in the River Ganga (India): Changing pattern, threats and conservation perspectives. *Rev Fish Biol Fisheries* . 22:251–272
- Talwar, P. K. and Jhingran, A. G. (1991). Inland Fishes of India and Adjacent Countries (Vol. 1 & 2). *Oxford and IBH Publishing Co. Pvt. Ltd., Calcutta.* 1158p.
- Tripathi, S et al, (2017). Fish and fisheries in the Ganga river: Current assessment of the fish community, threats and restoration. *Exp.Zool.India Vol. 20, No. 2, pp. 907-912.*
- WHO (2004) Guidelines for drinking-water quality: recommendations, 1. World Health Organization, Geneva.