International Journal on Emerging Technologies 16(1): 126-129(2025)

ISSN No. (Print): 0975-8364
ISSN No. (Online): 2249-3255

Fish Bio-diversity of Ichamati River of West Bengal

Suvamay Sarkar[1], M.K. Yadav[2*] and Arup Kar[3]
[1]Research Scholar, Department of Aquaculture School of Agriculture,
Sanjeev Agrawal Global Educational (SAGE) University Bhopal (Madhya Pradesh), India.
[2]Assistant Professor, Department of Aquaculture School of Agriculture,
Sanjeev Agrawal Global Educational (SAGE) University Bhopal (Madhya Pradesh), India.
[3]Professor, Ramnagar College, Vidyasagar University (West Bengal), India.

(Corresponding author: M.K. Yadav)*
(Received 27 December 2024, Revised 02 February 2025, Accepted 26 February 2025)
(Published by Research Trend, Website: www.researchtrend.net)

ABSTRACT: An attempt has been made to identification the fisheries of Ichamati river of West Bengal. The study was designed for three months (October, November and December) and selected three spot of sampling like Itinda Ferryghat, Sangrampur and Ferryghat Basirhat Burning Ghat. The sampling was done on fortnightly basis. During the sampling time selected water quality parameters and fish identification were analyzed. On conclusion basis the maximum fish diversity was found in November and December month. During the study there was 11 order fish, 26 family fish and 35 fish species found during the trial period. The major order of fish was found perciformes, clupeiformes, mugiliformes and carangiformes. The water quality parameters were found in optimum range.

Keywords: Endangered, Diversity, Surprisingly, Reliable, Molluscs.

INTRODUCTION

The Ichhamati river and its tributaries form a vast complex of floodplain lakes in the bongan region of North 24-Parganas, cryptically called “Baur”. Most of these boors are oblivious to an unexpected or victorious relationship with the Ichhamati River and directly oversee the entry of salt water from Bengal. These later Baurs show credits from both the lentic and lotic parts. Various extreme water types of fish migrate from the mouth of this stream to the burrows during the growing season and exploit the rich fresh resources of these water bodies to build up according to Zou *et al.* (2020). Fish mixes and records in lakes are strongly influenced by water quality limits. Over the past twenty years, floodplain lakes in India have become one of the most formidable winners of natural degradation. Masese and McClain (2012) concluded that the more notable parts of these water bodies are receiving a quick result of siltation by high riverine allochthonous charges from stream erosion, presence of customary wastes from human settlements around lakes, run-off from common areas, eutrophication and autochthonous accumulation of macrophytic biomass.

The simplicity of the water also went completely between the two bores for the crucial year of curiosity; from there, in the beginning, closeness was seen between the two Baurs. Water turbidity generally always varied significantly between stations over the time of the test, while straightness, free CO_2 and water surface temperature showed significant variation between stations for most tests according to Gelinas (2011). Ghosh and Satpathy (2010) described on the dispersal of the codlet, *Bregmaceros mcclellandi* in Ichhamati in relative to salinity environments. Saha *et al.* (2004) after their readings on certain physico-chemical limitations of seven Sundarbans estuaries with Ichhamati, harangued that those estuaries were not “badly polluted” and were amiable for aquatic productivity.

The main area of a deltaic river network is highly impact through tidal environments. After the river is in stumpy tidal level, the bank of river channel is more showing, (Mondal and Satpati 2012) then a great tide condition, after the river is full to its edge, abundant of its bank area is overwhelmed. The present study endeavored to study the biodiversity status of the river Ichamati, a putrefying river situated in the eastern part of Ganga delta section (Chakravarti, 1938; Mondal and Bandyopadhyay 2014a, b).

The strange species value brought in monetary benefits for each country. The game of the extraordinary species played a huge role in ensuring food security and increasing yields for the country's poor.

MATERIAL AND METHOD

Study area: The study was done during 10th July, 2022 to 15th January, 2023. The survey was conducted for one year to enlist the fish species. The study area (Itinda Ferry Ghat) lies between latitude - 22.67530" north and longitude - 88.91310" East, (Sangrampur

Ferry Ghat) lies between latitude - 22.66510" north and longitude - 88.86640" east, (Basirhat Shoshan Ghat) lies between latitude - 22.65740" north and longitude - 88.86710" east.

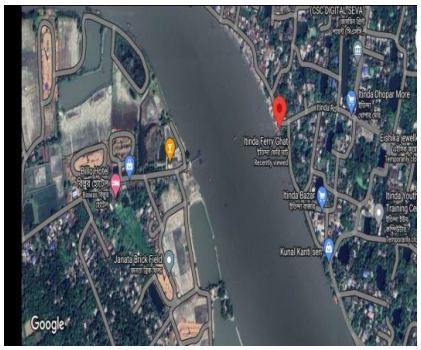

Fig. 1. Itinda Ferryghat.

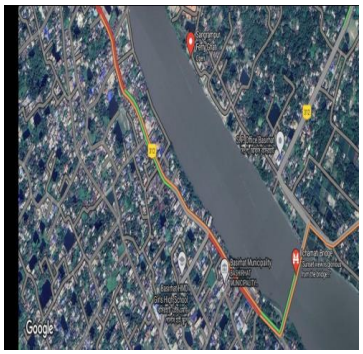

Fig. 2. Sangrampur Ferryghat.

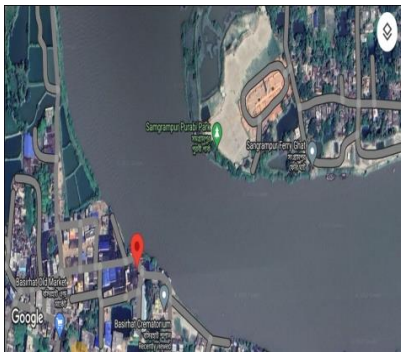

Fig. 3. Basirhat Burning Ghat.

Sampling and data collection. The sampling was done by the help of the local fisherman on the fortnightly basis. In every fifteen days all 3 sampling side collect the fish specimen and identify it using different text books.

RESULT AND DISCUSSION

In every system of aquaculture water quality are important parameters for successful of every system. During this trail all water quality parameters were found in optimum range in fish culture. The all water quality parameters was maximum found in November month and minimum found in October month. The water quality parameters are presented in Table 1 and Fig. 1**.** The water quality parameters were found in suitable range, it is similar as per Alam and Bashar (2015); Hossain (2017); Islam (2020).

The study was done different locations like, Itinda Ferry Ghat, Sangrampur Ferry Ghat and Basirhat Shoshan Ghat during the month of October, November and December month. During the study there was 11 order fish, 26 family fish and 35 fish species found during the trial period. The major order of fish was found perciformes, clupeiformes, mugiliformes and carangiformes. The maximum fish spices was found in November month after that found in December month and minimum fish species was found in October month. The all fish data are presented in Table 2. The findings are supported by Islam (2020); Rahman (2016); Razzak *et al.* (2019). Several immunological studies have been conceded out in significant wetland and maximum of the wetlands are contaminated due to various anthropogenic factors according to Tamot and Awasthi (2012). Fish biodiversity means the variability of species (fish) that are present in the particular Habitat or ecosystem. They are essential by providing important ecological, economic and cultural services according to Snaitang *et al.* (2023).

Table 1: Water quality parameters during the research period.

Sr. No.	Parameters	October	November	December
1.	**Temperature (°C)**	27-29 (28)	28-30 (29)	24-26 (25)
2.	**Ph**	7.6-7.8 (7.7)	8.0-8.2 (8.2)	7.6-8.4 (8.0)
3.	**Alkalinity (Mg/l.)**	120-122 (121)	135-140 (137.5)	146-150 (148)
4.	**DO (Mg/l.)**	4-5 (4.5)	5-5.8 (5.4)	6-6.4 (6.2)
5.	**Salinity(ppt)**	16-16.6 (16.3)	17-17.4 (17.2)	17-18 (17.5)

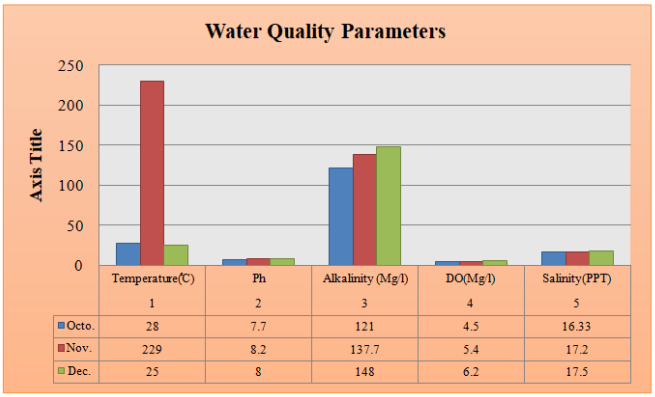

Fig. 1. Mean Water Quality Parameters.

Table 2: Monthly variation of different types of fish species available at Ichamati River, West Bengal.

Order	Family	Fish Species	Sampling Time		
			October	November	December
Clupeiformes	Engraulidae	*Coillia dussumieri*	+	++	++
	Dorosomatidae	*Sardinella longiceps*	+	++	++
	Engraulidae	*Stolephorus commersonnii*	+	+	+
	Clupeidae	*Tenualosa ilisha*	-	++	+
	Latidae	*Lates calcarifer*	+	-	++
	Engraulidae	*Setipinna phasa*	+	++	++
Soleidae	Soleidae	*Solea solea*	+	+	-
Perciformes	Serranidae	*Epinephelus malabaricus*	-	+	++
	Sciaenidae	*Cynoscion nebulosus*	+	++	-
	Nemipteridae	*Nemipterus japonicus*	+	++	+
	Leiognathidae	*Nuchequula nuchalis*	+	+	-
	Nemipteridae	*Nemipterus virgatus*	+	++	+
	Sparidae	*Rhabdosargus sarba*	-	++	+
	Scatophagidae	*Scatophagus argus*	-	++	+
	Sparidae	*Acanthopagrus latus*	+	++	+
	Sciaenidae	*Nibea maculate*	++	+	+
	Polynemidae	*Eleutheronema tetradactylum*	-	+	++
	Nemipteridae	*Nemipterus japonicas*	+	+	++
	Polynemidae	*Polynemus paradiseus*	++	+	+
Scombriformes	Trichiuridae	*Trichiurus lepturus*	+	++	++
	Stromateidae	*Pampus chinensis*	+	++	++
	Trichiuridae	*Lepturacanthus savala*	+	++	++
Tetraodontiformes	Tetraodontidae	*Lagocaphalus spadiceus*	++	+	+
Istiophoriformes	Sphyraenidae	*Sphyraena jella*	+	++	++
Aulopiformes	Synodontidae	*Harpadon nehereus*	-	+	++
Scorpaeniformes	Platycephalidae	*Platycephalus indicus*	++	-	+
Carangiformes	Carangidae	*Alepes djedaba*	+	+	-
	Carangidae	*Megalaspis cordyla*	-	++	+
	Carangidae	*Alectis indica*	+	-	++
Anguilliformes	*Muraenesocidae*	*Muraenesox cinereus*	+	++	+
	Congridae	*Conger myriaster*	+	+	++
Mugiliformes	Mugilidae	*Mugil cephalus*	-	+	++
	Mugilidae	*Mugil Persia*	-	+	++
	Mugilidae	*Crenimugil seheli*	-	+	++

'-' = Negligible; **'+'** = Available; **'++'** = Peak period of catch

CONCLUSIONS

The fish biodiversity of Ichamati river in different months have significant variation in month November but the fish diversity slightly decreasing in December month. There are around 11 order fish, 26 family fish and 35 fish species found during the trial period. The major order of fish was found perciformes, clupeiformes, mugiliformes and carangiformes. On the basis of this study authors concluded that improved water quality and less pollution would have a significantly positive impact on fish biodiversity, leading to increased species richness and abundance.

Acknowledgements. The authors gratefully acknowledge the Vice Chancellor Sanjeev Agrawal Global Educational (SAGE) University Bhopal, MP, for providing the necessary facilities for conducting this research work.

Conflict of Interest. None.

REFERENCES

Alam, M. F. & Bashar, M. A. (2015). Structure of cost and profitability of small scale riverine fishing. *Mymensingh. Research Progress, 9,* 235-241.

Chakravarti, K. (1938). Land-use in relation to the fluvial ecology in the Bhagirathi-Jalangi riparian tract-Calcutta University, M.A. thesis.

Gelinas, M. E. (2011). Industrial Ships' Wake Propagation and Associated Sediment Resuspension in the Venice Lagoon (Doctoral dissertation, The Graduate School, Stony Brook University: Stony Brook, NY.).

Ghosh, A. & Satpathy, B. B. (2010). A comparative study on the fish faunal diversity in two east coast estuaries, Hooghly and Godavari in relation to salinity conditions, pp 79-94.

Hossain, M. M. (2017). Utilization pattern of Mokeshbeel for livelihood of the local fishermen of Kaliakoir Upazilla under Gazipur district. M.S. thesis, Department of Aquacultural University, Mymensingh. p80.

Islam, M. A. (2020). Recent trends in fisheries sector of Bangladesh. In Manual on Changing Rural Economy. Mondal, M.A.S. (ed.). Economic Association, Dhaka. p78.

Masese, F. O. & McClain, M. E. (2012). Trophic resources and emergent food web attributes in rivers of the Lake Victoria Basin: a review with reference to anthropogenic influences. *Ecohydrology*, *5*(6), 685-707.

Mondal, I. & Bandyopadhyay J. (2014a). Coastal zone mapping through geospatial technology for resource management of Indian Sundarban, West Bengal, India. *International Journal of Remote Sensing Applications*, *4*(2), 103–112.

Mondal, I. & Bandyopadhyay, J. (2014b). Environmental change of trans international boundary Indo-Bangladesh border of Sundarban Ichamati River catchment area using geoinformatics techniques, West Bengal, India. Univers. *Universal Journal of Environmental Research & Technology*, *4*(3), 143–154.

Mondal, M. & Satpati, L. N. (2012). Morphodynamic setting and nature of bank erosion of the Ichamati River in Swarupnagar and Baduria Blocks, 24 Parganas (N), West Bengal. *Indian Jour. Spatial Sci*., *3*(2), 35-43.

Rahman, S. (2016). Studies on the selectivity and effects of fishing gears on the fishes of BSKB beel.M.S. thesis, Department of Fisheries Technology, Agricultural University, Mymensingh, p113.

Razzak, A., Paul S. K. & Chu-faTeasi (2019). The fishing gear selectivity study. Preliminary Progress Report, Fisheries Research Institute, Third Fisheries Project, Santahar, Bogra, pp 1-27.

Saha, K., Biswas, D. K., Mandal, S., Mishra, R. N. & Nath, D. (2004). Physico-chemical status of water in Sundarbans estuaries. *Journal of the Inland Fisheries Society of India*, *36*(1), 54-57.

Snaitang, B. Saxena, S., Papang, H. and Yadav, M. K. (2023). A Study on Fish Diversity of Meghalaya. *Biological Forum – An International Journal*, *15*(10), 212-216.

Tamot, T., & Awasthi, A. (2012). An Approach to Evaluate Fish Diversity and Limnological Status of Sewage Fed Urban Lake (Shahpura), Bhopal, India. *International Journal of Theoretical and Applied Science*, *4*(1), 20-22.

Zou, K., Chen, J., Ruan, H., Li, Z., Guo, W., Li, M. & Liu, L. (2020). eDNA metabarcoding as a promising conservation tool for monitoring fish diversity in a coastal wetland of the Pearl River Estuary compared to bottom trawling. *Science of the Total Environment*, *702*, 134704.

How to cite this article: Suvamay Sarkar, M.K. Yadav and Arup Kar (2025). Fish Bio-diversity of Ichamati River of West Bengal. *International Journal on Emerging Technologies*, *16*(1): 126–129.