



Present status of fish biodiversity and socio-economic conditions of fishermen of the Kannayadaha baor, Jashore, Bangladesh

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Abstract

The present study was conducted to investigate fish species, fishing gear diversity as well as socio-economic conditions of fishermen of kannayadaha baor, Sarsha, Jashore. Total 50 fishermen were selected randomly for questionnaire interview and FGD from January 2020 to December 2020. Total 22 species of fishes under 6 orders and 10 families were recorded throughout the year. Various types of fishing net were used which are cast net, lift net, seine net and gill net. The fishermen age varies from 15-75 where maximum age ranges from 31-45. Both male and female people were involved in fishing of which male 94% and female 6%. The fishermen (54%) mainly lived in the small family. Married and unmarried were 84% and 16%. Fishermen (66%) used semi-pacca latrine followed by 24% used kacca latrine and remaining 10% used pacca latrine. Most of the fishermen can sign (42%) whereas small proportion (30%) completed the primary level. Religion status were Muslim (86%) and Hindu (14%). The majority (54%) were lived in house made by tin wall with tin shed. Among the fisherman, 56% depend on village doctors for medical support. About 78% fishermen acquired training. Fishermen completely depended on fishing (80%) and only 20% were engaged with alternative income activities. Yearly income was varied from (40000-100000) Tk. of them (64%) yearly income ranges from 60000 to 79000 Tk. Lack of awareness, proper knowledge, inadequate financial supports, illiteracy are major constraints to improve their social status. GOs and NGOs should come forward to improve their socio-economic condition.

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Introduction Bangladesh is blessed with enormous and exuberant fisheries resources. Among the fisheries resources, baors (also called ox-bow lake) are the most common and vital inland water bodies. It is mainly the old meandering bends of the river. The total estimated area of baor is about 5671 ha and the total fish productivity at baor 1824 kg/ha (DoF, 2019).

There are about 600 baors in the southwest part of Bangladesh. In jashore district total area of baor is 1127 ha and here the total fish production 2146 MT (DoF 2018). A huge number of baor are situated in jashore district and kannayadaha baor is one of them. Kannayadaha baor is a prominent baor that is located at Sarsha upazila under Jashore district.

Fishermen are one of the most valuable communities in Bangladesh but their socio-economic condition is not so good. For developing their socio-economic condition, it is important to collect their baseline information. At kannayadaha baor, there is no adequate information about fish biodiversity and the livelihood condition of fishermen. So, the present study was commenced to inquire about the fish biodiversity and to know the socio-economic condition of fishermen at kannayadaha baor.

Materials and methods

Study area and duration

The study was carried out in the konnyadaha Boar at Sarsha Upazila of Jashore district, Bangladesh from January 2020 to December 2020.

Primary data collection

The primary data were collected from randomly selected 50 fishermen through Questionnaire interviews and Focus group Discussion (FDG). From this discussion, we have collected information about the availability of fish species and the socio-economic condition of fisherman of the Kannayadaha boar, Jashore, Bangladesh.

Secondary data collection

Cross-check interviews were also conducted to clarify

the information. For cross-checking, the secondary data were collected from the Upazila Fisheries Officer (UFO) and the relevant NGO worker.

Direct observation

Direct observation was followed to collect accurate data from the selected study area. Data for fish species availability, fishing net, household conditions, etc. were realized through direct observation.

Data analysis

All the collected data are summarized and analyzed by MS-Excel and then presented in textual, tabular and graphical forms to understand the available fish species, fishing activities and socio-economic condition of the fisherman in the study area.

Results and discussion

Available fish species

Various fish species were observed in kannayadaha baor. During the study period, 22 species of fishes under 6 orders and 10 families were recorded. A total of 63 species of fishes have been recorded in Choto Jamuna River Galib *et al.* (2013). Rubel *et al.* (2016) studied the river Lohalia found that 30 species of fishes were available. The fish species available in konnyadaha boar with their order, family, common name, local name, scientific name and their price were given in Table 1.

Fishing gear used in the Kannayadaha boar

Different types of fishing gear are used for fishing in this study area. Among them, Khepla jal, Bhasal jal, Ber jal and Fash jal are highly used (Table 2). Rubel *et al.* (2014) was reported using different gears like-jhaki jal, Behundi jal, Thella jal, Moia jal in Lohalia River. Different types of fishing gear are used in different period. In Kannayadaha baor, fishing was found starting from June and end in December (Table 2). Islam and Hussain (2017) observed that the pre-monsoon, monsoon, post-monsoon are the main fishing seasons in kumri beel, Assam, India. Rahman *et al.* (1999) also observed June to January month are the main fishing season in BKSB (Barnal, Salimpur, Kola, Bashukhali) Beel.

Table 1. Fish biodiversity in the Kannyadaha Baor, Sarsha, Jashore.

Order	Family	Local Name	Common Name	Scientific Name	Availability
Cypriniformes	Cyprinidae	Rui	Rohu	<i>Labeo rohita</i>	Available
		Catla	Catla	<i>Catla catla</i>	Available
		Mrigal	Mrigal	<i>Cirrhinus mrigala</i>	Available
		Kalibause	Orange-fin labeo	<i>Labeo calbasu</i>	Available
		Common carp	Common carp	<i>Cyprinus carpio</i>	Available
		Silver carp	Silver carp	<i>Hypophthalmichthys molitrix</i>	Available
		Grass carp	Grass carp	<i>Ctenopharyngodon idella</i>	Available
		Bata	Bata	<i>Labeo bata</i>	Rare
		Sarpunti	Olive barb	<i>Puntius sarana</i>	Available
		Punti	Puntio barb	<i>Puntius puntio</i>	Available
Cichliformes	Cichlidae	Mola	Molacarpel	<i>Amblypharyngodon mola</i>	Available
		Tilapia	Mozambique tilapia	<i>Oreochromis mossambicus</i>	Available
Channiformes	Channidae	Shol	Striped snakehead	<i>Channa striata</i>	Available
		Taki	Spotted snakehead	<i>Channa punctata</i>	Available
Osteoglossiformes	Notopteridae	Chital	Bronze featherack	<i>Notopterus notopterus</i>	Rare
Perciformes	Ambassidae	Chanda	Elongate glass perchlet	<i>Chanda nama</i>	Rare
	Gobiidae	Bele	Tank goby	<i>Glossogobius giuris</i>	Rare
	Nandidae	Veda	Gangetic leaffish	<i>Nandus nandus</i>	Rare
	Anabantidae	Koi	Climbing perch	<i>Anabas testudineus</i>	Rare
	Siluridae	Pabda	Pabda catfish	<i>Ompak pabda</i>	Available
Siluriformes	Bagridae	Tengra	Striped river catfish	<i>Mystus vittatus</i>	Available
		Ayre	Sperata aor	<i>Long Whiskered catfish</i>	Rare

Socio-economic condition of fishermen

Age group: The survey revealed that maximum fishermen (50%) were in (31-45) age group, while the minimum number (4%) of fishermen were ranging from (61-75) age group. However, 16% and 30% of

fishermen belonged to age group (15-30) and (46-60) years respectively (Fig. 1). Islam *et al.* (2016) has reported the highest 36% in (21-30) age group in the Padma River under Chapai Nawabganj district.

Table 2. Different types of the fishing net are used for fishing in Kannyadaha baor.

Type of Net	Local name of the net	Fishing period
Cast net	Khepla jal	July-september
Life net	Bhasal jal	June-Aug & Oct-Dec
Siene net	Ber jal	September-December
Gill net	Fash jal	August-December

Gender: Maximum fishermen were male (94%) while females were quite little (6%). Women cannot involve freely in fishing activities because of social problems (Fig. 2). Hossain (2014) in Chittagong observed similar results. Family type, marital status, sanitation: The majority of the fishermen lived in the small family (54%), medium family fishermen lived (42%) and the lowest percentage (4%) of the family had (8-12) members (Table 3). Mahmud *et al.* (2015) observed most of the fishermen (60%) belong to the

medium family in the paira river. In this present study, 84% of fishermen were married and 16% were unmarried. The majority of the fishermen (66%) used semi-pacca latrine, (24%) households used kacca latrine and only 10% used pacca latrine (Table.3). Rahman *et al.* (2015) found the opposite result where 80% of fishermen used kacca latrine in Talma River. Kabir *et al.* (2012) reported that only 5% used semi-pacca latrine and 30% used no latrine in Old Brahmaputra River.

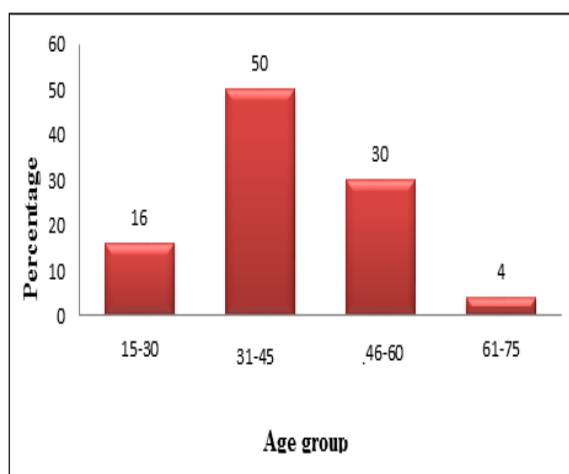
Table 3. Socio-economic characteristics of fishermen in the study area.

Socio-economic characteristics	Category	Percentage
Family type	Small (2-4)	54
	Medium (5-7)	42
	Large (8-12)	4
Marital status	Married	84
	Unmarried	16
Sanitation	Kacca	24
	Semi-pacca	66
	pacca	10

Table 4. The annual income of fishermen in the study area.

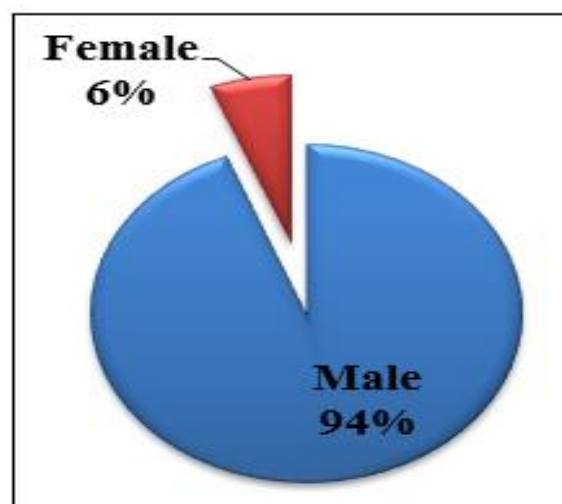
Income level	No. of respondents	% of total fishermen
40000-59000	11	22
60000-79000	32	64
80000-above 100000	7	14

Educational status: Educational status of the fishermen has been grouped into four categories- 1. Illiterate, 2. Only can sign, 3. Primary education, 4.

**Fig. 1.** The age structure of fishermen.

Secondary education. In the present study it was found that most of them can sign only (42%), fishermen up to primary level (30%), about (20%) fishermen were illiterate and (8%) had only secondary level education (Fig.3). Hossain *et al.* (2014) reported that 70% of fishermen were illiterate in jelepara under Pahartoli. Uddin *et al.* (2020) was stated that 48% of people were illiterate, 32% can sign only, 13% were primary level and 7% were secondary level at Muradnagar Upazila in Cumilla. Religion: The majority of the fishermen were Muslim (86%) and

Hindu was 14% (Fig.4). Das *et al.* (2015) reports that 62% of fishermen were Hindu and 38% were Muslim in Batiaghata Upazila of Khulna district. Housing condition: Four categories of the house were found among the fishermen.

**Fig. 2.** The proportion of sex of studied fishermen.

The study revealed that the majority of the fishermen were used a tin wall with tin shed (54%), concrete wall with tin shed was only 26%, mud wall with tin shed was (14%) and 6% of households were containing mud wall with straw (Fig.5). Reza *et al.* (2015) was reported that 84% of fishermen's housing structure were kacha and 16% were semi-paka in Dinajpur. Azad *et al.* (2020) observed 84% of

fishermen had kacha house while 12% had semi-paka in Bergobindopur Baor. Treatment:

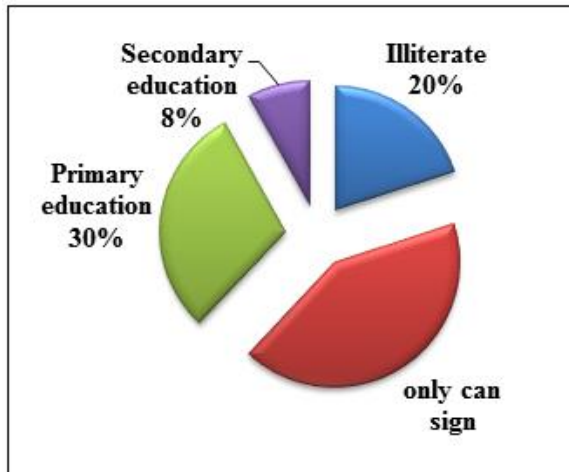


Fig. 3. Education status of fishermen.

It was observed that 56% of fishermen depend on the village doctor for their treatment, 34% on Upazil Health Complex and only 10% got treatment from MBBS doctor (Fig.6). Mahmud *et al.* (2015) reported that 40% of fishermen went to Dumki Upazila Hospital and 24% went to quack for health service in Paira River. Training about fishing:

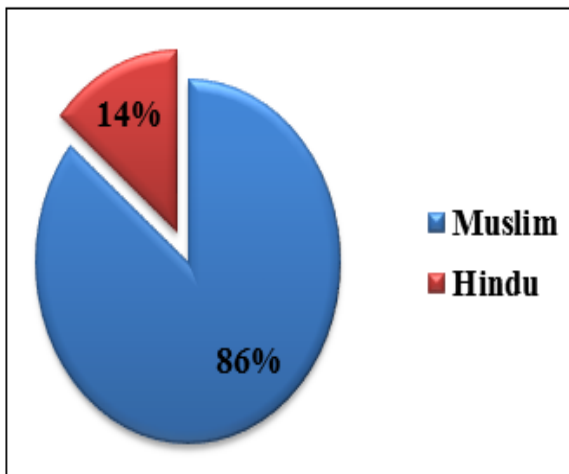


Fig. 4. The religious status of fishermen.

It was observed that 78% of fishermen have the training and 22% of fishermen have no training facilities. Fishermen acquire knowledge from DoF and different NGOs like BRAC, ASA, etc. This finding was opposite to the study of Hossain (2015) in Punorvaba River where 80% of fishermen did not get training facilities. Annual income: The selected fishermen were grouped into 3 categories based on their annual income in this study area and observed

that 22% of fishermen annual income between (40000-59000) income level.

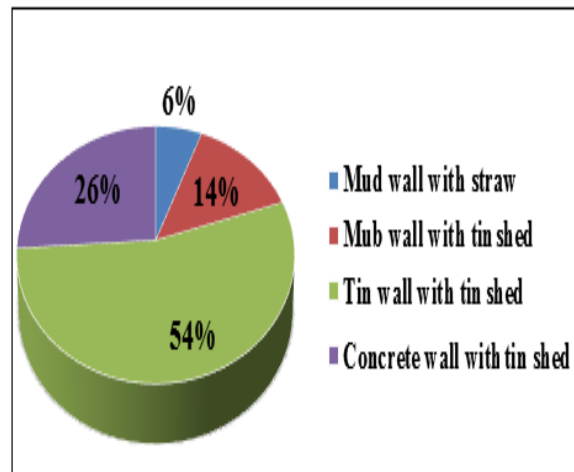


Fig. 5. The housing structure of fishermen.

A large number of fishermen (64%) had a yearly income in the range (60000-79000) and only 14% of fishermen's annual income of (80000-above 100000) (Table 4). Ali (2010) reported that maximum fishermen income was found in the (48001-72000) range at Tarakanda Upazila.

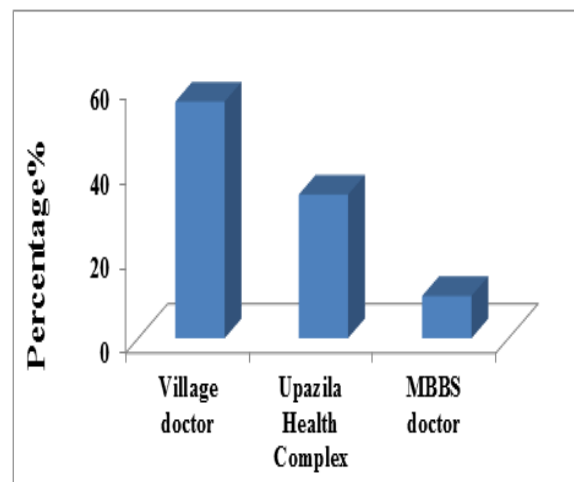


Fig. 6. Health service received by a fisherman in the study area.

Income sources: Total income is the most important factor to understand the socio-economic status of fishermen. Fishermen completely depended on fishing (80%) and only 20% of fishermen were engaged with alternative income activities (secondary occupation) like agriculture activities and livestock rearing (Fig. 7). Mahmud *et al.* (2015) found that 84% of fishermen were involved in fishing and 14% were secondary occupation in Paira River.

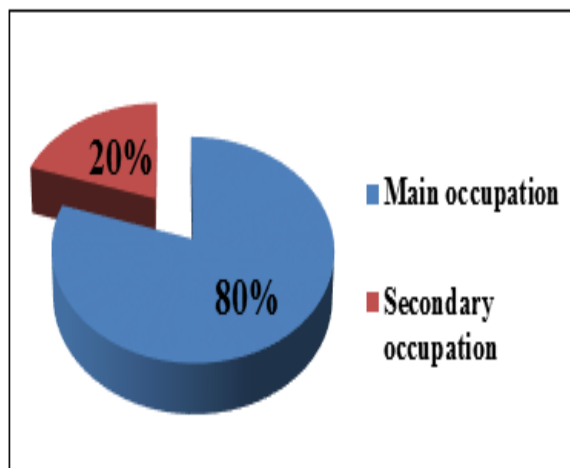


Fig. 7. Income sources of fishermen.

Conclusion

Fish biodiversity is deliberated as immense aquatic resources for food and income source. As fishermen mainly depended on fish harvesting so for the conservation of the fish biodiversity immediate action must be taken and proper management strategies must be applied. The socio-economic condition of fishermen of the study area is not satisfactory. Govt. and NGOs should take necessary steps like adequate training facilities, generate alternative income sources, increase awareness and arrange sufficient gear to improve their socio-economic and livelihood conditions.

References

- Ali H, Azad MAK, Anisuzzaman M, Chowdhury MMR, Hoque M, Shariful MI.** 2010. Livelihood status of the fish farmers in some selected areas of Tarakanda upazila of Mymensingh district. *Journal of Agroforestry and Environment* **3(2)**, 85-89.
- Azad KN, Akter S, Azad KN.** 2020. Fish species availability and socio-economic conditions of fishermen of the Bergobindopur baor, Jashore, Bangladesh. *Bangladesh Journal of Fisheries* **32(1)**, 199-205.
- Das MR, Ray S, Kumar U, Begum S, Tarafdar SR.** 2015. Livelihood Assessment of the Fishermen Community in the South West Region of Bangladesh. *Journal of Experimental Biology and Agricultural Sciences* **3(4)**, 353-361. [http://dx.doi.org/10.18006/2015.3\(4\).353.361](http://dx.doi.org/10.18006/2015.3(4).353.361)
- Do F.** 2018. Yearbook of Fisheries Statistics of Bangladesh. Department of Fisheries, Dhaka, Bangladesh.
- Do F,** 2019. Matshya saptah sonkolon. Department of Fisheries, Dhaka, Bangladesh.
- Galib SM, Naser SMA, Mohsin ABM, Chaki N, Fahad FH.** 2013. Fish diversity of the River Choto Jamuna, Bangladesh: Present Status and Conservation Needs. *International Journal of Biodiversity and Conservation* **5(6)**, 389-395. <http://dx.doi.org/10.5897/IJBC2013.0552>
- Hossain S, Hasan MT, Alam MT, Mazumder SK.** 2014. Socio-economic condition of the fishermen in jelepara under Pahartoli of Chittagong district. *Journal of Sylhet Agricultural University* **1(1)**, 65-72.
- Hossain FI, Miah MI, Hosen MHA, Pervin R, Haque MRZ.** 2015. Study on the Socio-Economic Condition of Fishermen of the Punorvaba River under Sadar Upazila, Dinajpur. *Journal of Fisheries* **3(1)**, 239-244. <http://dx.doi.org/10.17017/jfish.v3i1.2015.50>
- Islam DM, Hussain M.** 2018. Different types of fishing gears used by the fishermen in Kumri Beel of Gopalpara district, Assam. *International Journal of Fisheries and Aquatic Studies* **6(1)**, 128-133.
- Islam S, Reza MS, Roknuzzaman, Joadder MAR, Alam MS, Khatun MA, Tasnin MM, Mahmud S.** 2016. Socio-economic status of fishermen of the Padma River in Chapai Nawabganj district, Bangladesh. *International Journal of Fisheries and Aquatic studies* **5(1)**, 101-104.
- Mahmud S, Ali MK, Ali MM.** 2015. Present scenario on livelihood status of the fishermen in the Paira River, Southern Bangladesh: Constraints and recommendation. *International Journal of Fisheries*

and Aquatic Studies **2(4)**, 23-30.

Rahman S, Mazid MA, Kamal M, Hossain MA, Hossain MS. 1999. Study on fishing gears species selectivity towards gears and catch composition of BKSB beel, Khulna, Bangladesh. Bangladesh Journal of Fisheries Research **3(1)**, 25-32.

Reza S, Hossain MS, Hossain U, Zafar MA. 2015. Socio-economic and livelihood status of fishermen around the Atrai and Kankra Rivers of Chirirbandar Upazila under Dinajpur District. International Journal of Fisheries and Aquatic Studies **2(6)**, 402-408.

Rubel MRI, Hashem S, Jaman N, Rana KMS, Ferdousi K, Hossain MS. 2016. A study on fish biodiversity of Lohalia River of Bangladesh. International Journal of Environmental Biology **6(1)**, 11-15.

Uddin MK, Hasan MR, Paul SK, Sultana T. 2020. Socio-Economic Condition and Livelihood Status of the Fishermen Community at Muradnagar Upazila in Cumilla. Fisheries and Aquaculture Journal **11(3)**, 279.

<http://dx.doi.org/10.35248/2150-3508.20.11.279>