Operational System and Catch Composition of Charberjal (Fixed Net) in Tetulia River and its Impact on Fisheries Biodiversity in the Coastal Region of Bangladesh

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Abstract: An investigation was carried out to acquire the knowledge regarding charberjal operation system in Tetulia River and its impact on fisheries biodiversity in the coastal region of Bangladesh over a period of 6 months between July and December 2016. Combination of questionnaire interview, focus group discussions and crosscheck interviews were accomplished with key informants during data collection. Charberjal is operated in the shoreline of rivers, submerged chars and inundated agriculture land including tiny canals all over the coastal region of Bangladesh. A total of 80 species including finfish, freshwater prawn, crabs and mollusk was recorded under 22 families including 38 SIS and 26 threatened species during the study period. The recorded species was 60 finfish, 14 prawn, 4 mollusk and 2 crabs. Among the finfish rui, bata, mullet, khorsula and poa were the dominant species while aire, boal, bacha, ramsosh and tengra were the foremost species among catfish. Moreover, *Macrobrachium rosenbargii* was the most prevailing species among fresh water prawn while bele, phasa, puti, shol, dimua chingri and SIS were the most leading species among others. All types and all size of fish, prawn, mollusk and crustaceans and their larvae are trapped by this net during operation due to use small mesh size net and the trapped fishes die just after drying up of the shore and mixed with soil. As a result, huge number of commercially important fish larvae, eggs and fish fry are accidentally destroyed by charberjal operation system in the coastal region of Bangladesh. Due to lack of knowledge and indiscernible competition among the fishermen for fishing, they use this type of illegal and destroying fishing net for fishing which decline the fisheries biodiversity in the coastal region of Bangladesh. Charberjal is very harmful and has severe impact to destroy fisheries biodiversity including threatened species in the coastal region as well as all over the country.

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Keywords: Charberjal operation system; coastal region; biodiversity; catch composition

1. Introduction

Bangladesh has the third biggest aquatic fish bio-diversity in Asia after China and India with about 800 species in fresh, brackish and marine waters (Hussain and Mazid, 2001). The country's tropical climate, alluvial soils, productive waters and vast flood plains are highly favorable to inland fisheries and aquaculture and Bangladesh ranks first (467 kg/km^2) in the world in open water fish production (Ahmed *et al.,* 1997). It is one of the most compactly populated countries in the world covering an area of 147500 square kilometer with a population of 164 million (Ahmed *et al*., 2012). It is called a land of rivers as it has about 700 rivers including tributaries with the total length is about 24,140 km (DOF, 2015). Fisheries sector signifies one of the most creative and dynamic sectors in Bangladesh and it contributes about 60% animal protein to the daily diets of the population, about 3.65% to the GDP and 23.81% to the agriculture while 18.2 million people directly and indirectly involved in this sector which is about 11% of total population of Bangladesh (DOF, 2016). The total fish production was calculated at 36.84 lack metric tons of which 83.72% came from inland water and 16.28% from marine water in 2014-2015 (DOF, 2016). This sector is influential for socio-economic development, nutrition supplementation, employment creation, poverty alleviation and foreign exchange earning of Bangladesh (Hasan *et al.,* 2011). Coastal region of Bangladesh is reputation as valuable natural aquatic ecosystem due to the presence of appropriate natural feeding, spawning and nursery grounds for many commercially important fish species (Mahmood *et al.,* 1978; Hanif *et al.,* 2015). Tetulia is one of the most important coastal river with huge fishery resources of the southern part of Bangladesh originated from the

Meghna River from south-east part of Barisal district and then flows down over three important coastal districts like Barisal, Bhola and Patualkahli through ten upazilas namely Mehendijong, Muladi, Bauphal, Dashmina, Galachipa, Rangabali, Bhola Sadar, Borhanuddin, Lalmohan and Charfasion and then falls to the Bay of Bengal while it connected to numerous local rivers, canals and inundated agriculture lands. Most of the agriculture lands of Barisal and Pirojpur districts and some parts of Jhalokati, Patuakhali, Shariatpur and Madaripur districts are inundated for 6-8 months (Rasid, 1981; BARCIR, 2004) from April to November, contain 5-7 feet water and make huge area of water resources when growth rate fish especially puti, shing, magur, koi, taki, shol, tengra, prawn, baim, bele, bata, poa, koral, chewa, pangus, ramsosh, aire, boal etc including other SIS (Small Indigenous Species) are very high and available in the open water bodies (Hossain *et al.,* 2016). Numerous types of fishing gears are operated in the Tetulia River for commercial fishing namely fishing nets, fishing traps, hooks and lines, wounding gears and fish aggregation device (Chakraborty *et al.,* 1995). Charberjal is one kind of fishing net that widely used in the Tetulia River as well as in the coastal region of Bangladesh. A large number of fishermen involved in fishing by using charberjal in the Tetuila River including their surrounding small canals, submerged chars and inundated agriculture land and caught fish by making trap. Approximately 120 submerged chars is formed in the Tetulia River due to siltation which inundated daily in high tide and dry up in low tide due to tidal action which is the main location for charberjal operation. In the coastal region, there is a tendency to harvest fish from natural sources by using various types of fishing device by the fishermen and even by the local people which is one kind of common feature due to existence of plentiful rivers, canals, inundated floodplains and high availability of fish species (Hossain *et al.,* 2017). On the other hand, there is no information or diminutive information on the riverine fish diversity, abundance of fish species, harvesting system, types of fishing gears used for fishing, threatened fish species in the open water as well as economics of fishermen in the coastal region of Bangladesh. Several studies have already been done to explore the biodiversity and fish species availability in different parts of Bangladesh by using various kinds of fishing devices (Hussain, 1999; Shahjahan *et al.,* 2001; Haroon *et al.,* 2002; Chakrabarti, 2007; Sayeed, 2010; Galib *et al.,* 2013; Khan *et al.,* 2013; Hanif *et al.,* 2015; Ullah *et al.,* 2016; Hossain *et al.,* 2017) but have no information about the charberjal operation system for fishing in the coastal region of Bangladesh and its impact on fisheries biodiversity. The aim of this study is to explore the charberjal operation system, catch composition and its impact on fisheries biodiversity and make some recommendations for the sustainable fisheries management in the coastal region of Bangladesh.

2. Materials and Methods

2.1 Study area

The study was undertaken in *Tetulia River* at Dashmina upazila under Patuakhali district located between latitude 22°14´ to 22°20´ north and longitude 90°32´ to 90°40´ east in the coastal region of Bangladesh (Figure 1).

The selected river is represented the common picture of the charberjal operation and fishing system in the coastal region. The study was carried out for a period of 6 months from July to December, 2016.

2.2 Methodology

For this study, a combination of questionnaire interview, Focus Group Discussions (FGD) and crosscheck interviews were accompanied with key informants such as Upazila Fisheries Officer, local leaders, NGOs workers and teachers according to Ahmed *et al.* (2010 and 2012). A total of 10 charberjal operation systems was observed and direct contacted with 25 charberjal operated fishermen to collect the data. Samples of catches and their assessment were carried out during the time of fishing for the study of catch composition. Samples were identified up to the species level based on morphometric and meristic characteristics.

2.3 Charberjal operational system

Charberjal is operated in the shoreline of rivers, submerged chars and inundated agriculture land including tiny canals all over the coastal region of Bangladesh. Tidal water actions (high tide and low tide) are used to operate this net. Fishermen get chance 10-12 days in each month to operate this net during full moon and full dark. The mesh size of charberjal is varied from 0.3 to 0.5cm and locally this net is called mosquito net. The length of the net may be 100-300 meter and height may be 1.5-2.0 meter depending on the operational place and fishermen ability.

The net is lay down during the last moment of low tide in first-night. During setting the net, lower portion is fixed (buried) in soft bottom mud and upper porting is obscured inside the soil (lower level of water in low tide) while 3-4m long bamboo pools or other sticks are vertically penetrated to the soil belonging to the net and then wait for full high tide. At the end of high tide, upper portion of the net is pulled up at mid-night and tied with bamboo pools by rope very circumspectly so that fish do not understand they are going to be trapped within the net and do not get any chance to escape from the net. Thereafter water is decreased gradually due to low tide and fishes are accumulated to the net and finally 4 to 5 hours later,

fishermen collect the fish by hand easily. A boat is required to carry the net and supporting materials like bamboo pools, ropes and basket or pot to seize fish.

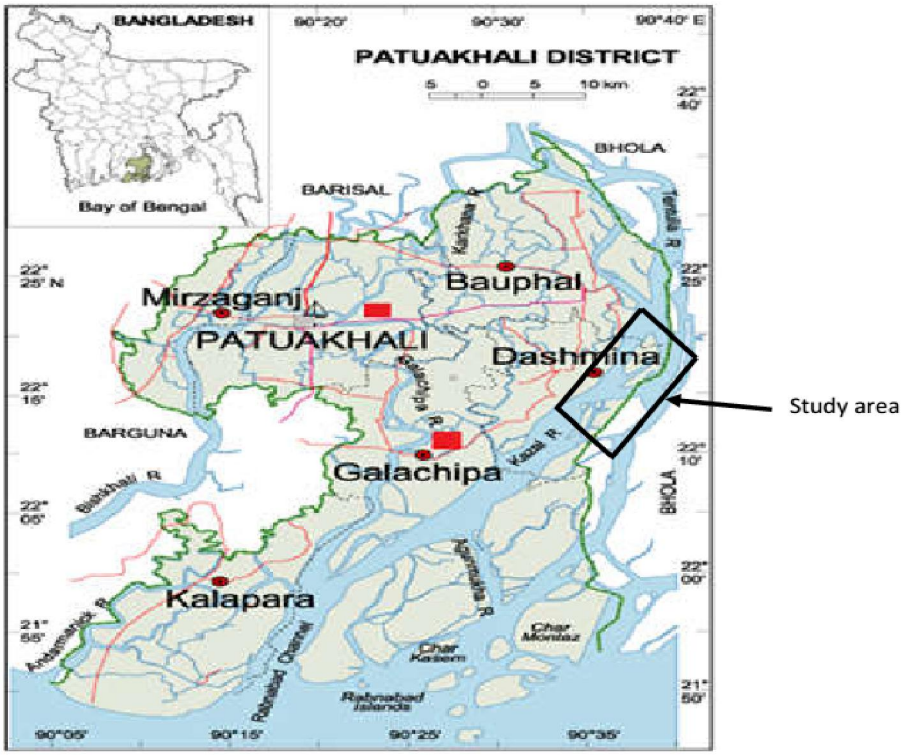

Figure 1. Map of Bangladesh and Patuakhali district showing the study area

A B C

Figure 2. A. Charberjal operation in submerged agriculture land B. Charberjal operation in the shore of Tetulia River C. Destroyed fish fry and small fish after fishing by charberjal

A B C

Figure 3. A. Collection of trapped fish in charberjal B. Catch composition of a charberjal C. Collection of catch fish from charberjal in the arat.

All types and all size of fish, prawn, mollusk and crustaceans and their larvae are trapped by this net due to use small mesh size net. Trapped small fishes are not caught due to time consuming and low market price. All of the small fish and fish larvae die just after drying up of the shore and mixed with soil. In most cases, fishermen have no knowledge about the fry of important commercial fish species that they trapped, destroyed and thrown as small fish. As a result, huge number of commercially important fish larvae, eggs and fish fry are accidentally destroyed by charberjal operation system in the coastal region of Bangladesh.

2.4 Data analysis

Data from questionnaires and species identification sheets were coded and entered into a database system using tabular technique like sum, average and percentage by MS word and Microsoft Excel to summarize and process for analysis from which tables and figures were prepared for revealing the objectives of the study.

3. Result

3.1 Catch composition

During the study period, a total of 80 species including finfish, freshwater prawn, crabs and mollusk was recorded during the observation of charberjal operation system in the Tetulai River is shown in Table 1. It was found that the highest number of species was contributed by finfish (60 species) followed by freshwater prawns (14 species), mollusk (4 species) and crabs (2 species).

Table 1: List of finfish, prawn, crab and mollusk species caught by charberjal operated in the Tetulia River

SL No.	Family name	Local name	English name	Scientific name
Finfish				
1	Cyprinidae	Rui	Indian major carp	*Labeo rohita*
2	’’	Mrigal	Mrigal carp	*Cirrhinus cirrhosus*
3	’’	Bata	Bata	*Labeo bata*
4	’’	Sarputi	Olive barb	*Puntious sarana*
5	’’	Jatputi	Pool barb	*Puntius sophore*
6	’’	Teri puti	Onespot barb	*Puntius terio*
7	’’	Tit puti	Ticto barb	*Puntius ticto*
8	’’	Dhela	-	*Osteobrama cotio*
9	’’	Dorgi	Gobi	*Apocryptes bato*
10	’’	Mola	Mola carplet	*Amblypharyngodon mola*
11	’’	Chela	Large razorbelly minnow	*Salmophasia bacaila*
12	’’	Chela	Fine scale razorbelly minnow	*Salmophasia phulo*
13	’’	Ghora chela	-	*Securicula gora*
14	’’	Cheb chela	Indian glass barb	*Laubuca laubuca*
15	’’	Chewa (red color)	Bearded eel goby	*Teanioides anguillaris*
16	’’	Chewa (white color)	Slender eel goby	*Teanioides gracilis*
17	’’	Gonia	Kuria labeo	*Labeo gonius*
18	’’	Koksa	-	*Barilius shacra*
19	’’	Chebli	Giant danio	*Devario aequipinnatus*
20	’’	Darkina	Flying barb	*Esomus danricus*
21	Bagridae	Tengra	Striped dwarf catfish	*Mystus vittatus*
22	’’	Kalobuzuri	Striped dwarf catfish	*Mystus tengara*
23	’’	Gulsa tengra	Gangetic tengra	*Mystus cavasius*
24	’’	Aire	Giant river catfish	*Sperata seenghala*
25	’’	Rita	Whale catfish	*Rita rita*
26	Siluridae	Madhu pabda	Pabdah catfish	*Ompok pabda*
27	’’	Pabda	Pabo catfish	*Ompok pabo*
28	’’	Kanipabda	Butter catfish	*Ompok bimaculatus*
29	’’	Boal	Fresh water shark	*Wallago attu*
30	Schilbeidae	Silong	Silong catfish	*Silonia silondia*
31	’’	Batasi	Indian potasi	*Neotropius atherinoides*
32	’’	Bacha	Schilbid catfish	*Eutropiichthys vacha*
33	’’	Kajuli/Baspata	Gangetic ailia	*Ailia coila*
34	Ambassidae	Lomba chanda	Elongate glass-perchlet	*Chanda nama*

SL No.	Family name	Local name	English name	Scientific name
Finfish				
35	’’	Ranga chanda	Indian glassy fish	*Parambassis ranga*
36	’’	Phopa chanda	Himalayan glassy perchlet	*Parambassis baculis*
37	Belonidae	Kakila	Asian needle fish	*Xenentodon cancila*
38	’’	Poa	Pama croaker	*Otolithoides pama*
39	’’	Lamba poa	Long jewfish	*Sciaenoides brunneus*
40	Mugilidae	Mullet	Flathead grey mullet	*Mugil cephalus*
41	’’	Khorsula	Corsula	*Rhinomugil corsula*
42	Mastacembelidae	Baim/salbaim	Zig-zag eel	*Mastacembelus armatus*
43	’’	Tara baim	One-stripe spiny eel	*Macrognathus aral*
44	Osphronemidae	Khalisha	Banded gourami	*Trichogaster fasciata*
45	’’	Neftani	Frail gourami	*Ctenops nobilis*
46	Cynoglossidae	Kukur jib	Bengal tongue sole	*Cynoglossus cynoglossus*
47	’’	Tongue fish	long tongue sole	*Cynoglossus lingua*
48	Soleidae	Kathal pata	Pan sole	*Brachirus pan*
49	’’	Kukurjib	Sole fish	*Brachirus nigra*
50	Channidae	Shol	Snakehead murrel	*Channa striata*
51	Gobiidae	Bele	Scribbled goby	*Awaous grammepomus*
52	Engraulidae	Phasa	Gangetichairfin anchovy	*Setipinna phasa*
53	Pangasiidae	Pangas	Pangas catfish	*Pangasius pangasius*
54	Clupeidae	Chapila	Indian river shad	*Gudusia chapra*
55	Nandidae	Bheda/mini	Gangetic leaf fish	*Nandus nandus*
56	Cobitidae	Gutum	Guntea loach	*Lepidocephalichthys guntea*
57	Latidae	Bhetki/coral	Barramundi	*Lates calcarifer*
58	Tetraodontidae	Patka	Green puffer fish	*Tetraodon fluviatilis*
59	Eleotridae	Kaldi/Nundi	Bhutbele	*Eleotris fusca*
60	Polynemidae	Tapasi	Paradise threadfin	*Polynemus paradiseus*
Prawn				
1	Palaemonidae	Golda chingri	Giant fresh water prawn	*Macrobrachium rosenbargii*
2	’’	Goda chingri	Goda river prawn	*Macrobrachium scabriculum*
3	’’	Dimua chingri	Dimua river prawn	*Macrobrachium villosimanus*
4	’’	Kunchu chingri	Kuncho river prawn	*Macrobrachium lamaerrei*
5	’’	Goda chingri	Orana river prawn	*Macrobrachium idea*
6	’’	Chikon chingri	Slender river prawn	*Macrobrachium idella*
7	’’	Chatka chingri	Monsoon river prawn	*Macrobrachium palaemonoides*
8	’’	Lothia ischa	Short leg river prawn	*Macrobrachium mirabile*
9	’’	Dhanua chingri	Rice land prawn	*Macrobrachium lanchesteri*
10	’’	Chatka chingri	Birma river prawn	*Macrobrachium malcolmsonii*
11	’’	Choprai chingri	Ganges river prawn	*Macrobrachium choprai*
12	’’	Paitta icha	Hairy river prawn	*Macrobrachium rude*
13	Atyidae	Gusha chingri	Common caridina	*Caridina gracilirostris*
14	’’	Chain icha	Bengal caridina	*Caridina propinqua*
Mollusk				
1	Melanoidae	Apple Samuk	Round snail	*Pila globosa*
2	,,	Lomba samuk	Small long snail	*Melanoides tuberculata*
3	,,	Shoto samuk	Round small snail	*Viviparous bengalensis*
4	Lamellidae	zinuk	bivalve	*Lamelliden smarginalis*
Crabs				
1	Portunidae	Sataru kakra	Swimmer crab	*Portunus sanguinolentus*
2	Gecarcinucidae	Field crab	Brown crab	*Parathelphusa convexa*

There were 22 families recorded from 60 fish species while the highest 20 species was found in Cyprinidae followed by 5 speices of Bagridae, 4 species of Siluridae and Schilbeidae, 3 species each of

Ambassidae and Belonidae, 2 species each of Cynoglossidae, Mastacembelidae, Mugilidae, Osphronemidae and Soleidae and single species represent each of Channidae, Clupeidae, Cobitidae, Eleotridae, Engraulidae, Gobiidae, Latidae, Nandidae, Polynemidae, Pangasiidae and Tetraodontidae family (Table 1). A total of 14 species of freshwater prawn was identified from 2 families which represented Palaemonidae 12 speces and Atyidae 2 speices (Table 1). There was 4 species of mollusk recorded from 2 families like Melanoidae 3 species and Lamellidae 1 species while 2 species of crabs from 2 families namely Portunidae and Gecarcinucidae were found during the observation period. The recorded catches were mainly catfish, fresh water prawn and SIS (Small Indigenous Species). The availability of fish and catch composition depend on mainly the season, area covered by net during fishing, location and place of operation. On an average 10-15kg finfish, 5-7kg prawn and 6-8kg SIS were found to catch from single net operation during the observation period. Among the finfish rui, bata, mullet, khorsula and poa were the dominant species while aire, boal, bacha, ramsosh and tengra were the foremost species among catfish. Moreover, *Macrobrachium rosenbargii* was the most prevailing species among fresh water prawn while bele, phasa, puti, shol, dimua chingri and SIS were the most leading species among others. The average catch composition and percent of species composition in each charberjal operation is shown in the figure 4A and 4B.

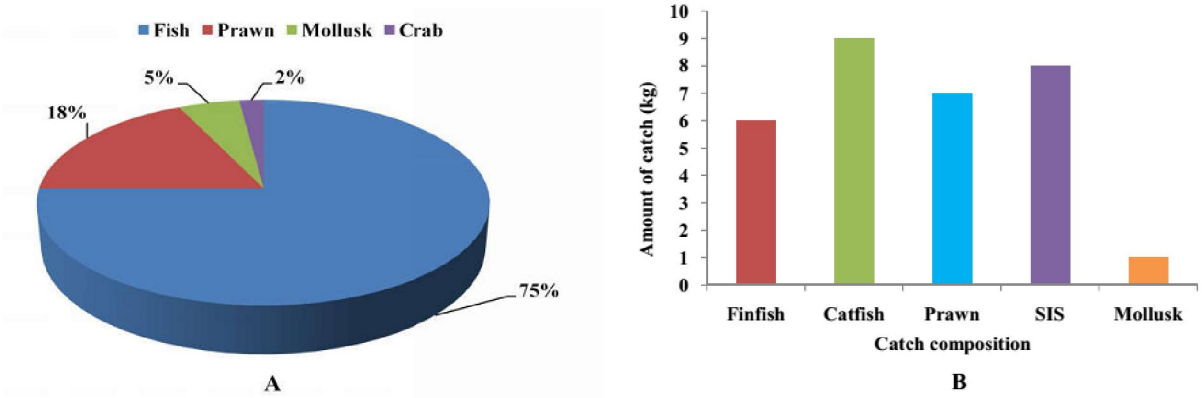

Figure 4. A. Percent of recorded species and B. Average catch composition of charberjal operation system in the Tetulia River

3.2 Threatened species

During the observation period, a total of 26 threatened species was recorded from the catch composition of charberjal operation system in the Tetulia River (Table 2). Among the threatened species, the highest 14 endangered species was found followed by 8 vulnerable species and 4 critically endangered species.

Table 2: List of threatened species recorded from the catch composition of charberjal in the Tetulia River

Family	Recorded species	Critically endangered species	Endangered species	Vulnerable species
Cyprinidae	20	1(Sarputi)	6 (Dhela, Darkina, Ghonia, koksa, Cheb chela, Bata)	1 (Teri puti)
Bagridae	5	1 (Rita)	1 (Tengra)	2 (Aire, Gulsa tengra)
Siluridae	4	-	3 (Pabda, Madhu pabda, Kanipabda)	-
Schilbeidae	4	1 (Bacha)	1(Silong)	1 (Kajuli)
Ambassidae	3	-	-	2 (Chanda, Ranga chanda)
Belonidae	3	-	1 (Neftani)	-
Cynoglossidae	2	-	-	-
Mastacembelidae	2	-	1 (Baim)	1 (Tara baim)
Mugilidae	2	-	-	-
Osphronemi	2	-	-	-

Family	Recorded species	Critically endangered species	Endangered species	Vulnerable species
dae				
Soleidae	2	-	-	-
Channidae	1	-	-	-
Clupeidae	1	-	-	-
Cobitidae	1	-	1 (Rani)	-
Eleotridae	1	-	-	-
Engraulidae	1	-	-	-
Gobiidae	1	-	-	-
Heteropneustidae	1	-	-	-
Latidae	1	-	-	-
Nandidae	1	-	-	1(Bheda)
Pangasidae	1	1 (Pangas)	-	-
Tetraodontidae	1	-	-	-
Total	60	4	14	8

According to the family, the critically endangered, endangered and vulnerable species are shown in Table 2. A comparative study of the recorded critically endangered, endangered and vulnerable species to the IUCN 2000 list in Bangladesh is shown in figure 5.

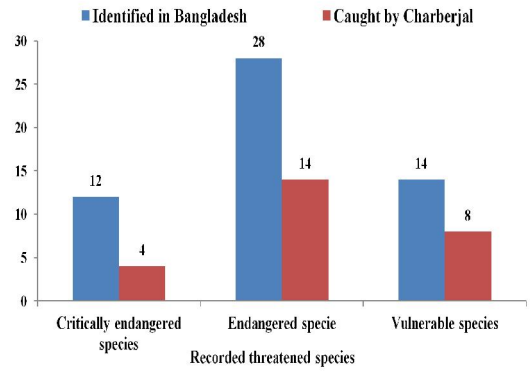

Figure 5. Identified threatened species caught by charberjal in Tetulia River comparison with the IUCN list 2000 in Bangladesh

4. Discussion

The present study was conducted to acquire the knowledge regarding charberjal operation system in Tetulia River including tiny canals and submerged chars and agriculture land to catch fish and its impact on fisheries biodiversity in the coastal region of Bangladesh. During the study period, a total of 60 species including finfish, freshwater prawn, crabs and mollusk was recorded under 22 families including 38 SIS (Small Indigenous Species) and 26 threatened fish species. Several investigations were carried out in the rivers of Bangladesh by different authors in different time and identified different numbers of species such as Kibria *et al.* (1989) recorded 50 species of fish and 7 species of prawn from the Meghna River and estuarine zone of the upper Bay of Bengal; Chakraborty and Mirza (2006) identified 57 species of fish, 3 species of prawn, 1 species of crab and 4 species of reptiles during studied on the aquatic biodiversity of Nethai River in Bangladesh; Chakrabarti (2007) listed 72 aquatic species including 64 fish species, 3 prawn species and 5 crab species during the investigation on the biodiversity of Someshar River; Azadi (2007) recorded 64 species of finfish, 5 species of shellfish, 1 species of turtle and 1 species of river dolphin (susuk) during carried out a survey on the importance of indigenous fish species in Halda River; Khan *et al.* (2013) found 42 fish species belonging to 7 common groups during their investigation on fish biodiversity of Tista River; Mohsin *et al.* (2014) observed 53 fish species under 10 orders, 28 families and 47 genera by conducting a comprehensive study on the fish fauna of the Andharmanik River in Patuakhali; Hanif *et al.* (2015) identified 76 species including 20 threatened species and 30 SIS during studied on fish biodiversity in the Sandha River in Pirojpur, Islam *et al.* (2015) recorded 52 species belonging to 23 families from set bagnet in the Payra river, Ullah *et al*. (2016) recorded 47 freshwater fish species by conducting a survey on fish diversity in three selected areas of mid-coastal region of Bangladesh and Hossain *et al.* (2017) identified 63 finfish, 17 fresh water prawn, 4 mollusk and 2 crabs during the study on sanctuary in the Belua River of coastal region which indicate that the recorded species including SIS and threatened species from the present study is defensible and reasonably high as single net operation. One of the most important reasons for recording higher species by charberjal operation is very small mesh size net used here for making this net

and operated it at mid night on submerged chars and inundated agriculture land including tiny canals in Tetulia River. All types of fish larvae including SIS and prawn are highly available in submerged chars and inundated agriculture land at mid night because they use these submerged chars and inundated agriculture lands as their feeding, breeding and nursing grounds due to stay in quiet from disturbing of human activities at mid night that make a congenial environment for them. Hossain *et al.* (2017) reported that indigenous species especially shing, magur, baim, snakehead, prawn, SIS and other native species are highly available in the coastal region due to presence and connection of immense rivers, small canals and inundated agricultural lands to the rivers. Charberjal may be considered as very harmful and destroying net which widely used all over the coastal region of Bangladesh to catch fish that trapped and destroyed all types of small fish, fish larvae and eggs due to very small mesh size net and trapped fishes die just after dried up the covered area and mixed with soft soil. In most cases the small fishes are too small to not possible to identify. Some fishes migrate in the coastal region for breeding and feeding purpose equally from marine water and fresh water environment due to congenial salinity, availability of natural foods and other environmental condition and as result fish larvae and small fishes of different species are highly available in the submerged chars and inundated agriculture land including tiny canals where charberjals are operated and trapped these valuable and commercial important species and destroy them indiscriminately. Due to lack of knowledge, awareness and indiscernible competition upon the fishermen for fishing, they use this type of illegal and destroying fishing net for fishing which decline the fisheries biodiversity and reduce the natural fish production in the coastal region. Moreover, due to the rapid growth of population, overfishing, indiscriminate killing of fish larvae by different types of illegal fishing gears, damage eggs during PL collection, habitat loss and degradation, sedimentation, unplanned establishment of flood control drainage (FCD) and irrigation (FCDI) dams are some key factors for declining of inland riverine fisheries of Bangladesh (Svobodová, 1993; Chakraborty *et al.,* 1995; Hoggarth and Kirkwood, 1996; Alam *et al.,* 1997; Carpenter *et al.,* 1998; Alam *et al.,* 2001; Islam and Tanaka 2004; Rahman *et al.,* 2016). Among the 265 freshwater fish species in Bangladesh (Rahman, 2005), 54 indigenous fish become threatened within a very short period of time (IUCN 2000). During the observation period, 26 threatened species (14 endangered species, 8 vulnerable species and 4 critically endangered species) and 38 SIS were recorded out of 60 finfish species from charberjal operation system in the Tetulia River. Many authors scrutinized threatened species during their studied such as Rahman *et al*. (2016) identified 15 threatened species (8 endangered, 3 critically endangered and 4 species as near threatened) out of 57 fish species during their gears specific Catch Per Unit Effort (CPUE) studied in the Kajal River of southern Bangladesh; Rahman *et al*. (2015) recorded 16 threatened species (7 endangered, 2 critically endangered and 7 vulnerable species) from the Rabnabad Channel of Patuakhali District during studied on selectivity of fishing gears and their effects on fisheries diversity; Islam *et al.* (2015) identified 16 threatened species (6 vulnerable, 6 endangered and 4 critically endangered species) out of 52 recorded species during their observation on coastal set bagnet fishery in the Payra river and its impact on fisheries and biodiversity and Hanif *et al.* (2015) scrutinized 20 threatened species and 30 SIS out of 76 recorded species during their studied on fish biodiversity in the Sandha River in Pirojpur which indicate that charberjal is very harmful and has severe impact to destroy fisheries biodiversity including threatened species in the coastal region of Bangladesh.

5. Conclusion

The present study was carried out to obtain the information of charberjal operation system, catch composition and its impact on fisheries biodiversity in the coastal region of Bangladesh. Charberjal is operated in the shoreline of rivers, submerged chars and inundated agriculture land including tiny canals all over the coastal region of Bangladesh. From the present study, it was observed that the operation of charberjal destroy fisheries biodiversity including threatened species in the coastal region of Bangladesh. We strongly suggest preventing charberjal operation in submerged chars, inundated agriculture land and tiny canals all over the coastal region of Bangladesh. At the same time, Government should protect these valuable areas as sanctuary and to apply proper management system which helps to conserve the fish including threatened species and other aquatic organisms that ultimately increased natural fish production of Bangladesh. Public awareness should also be developed by the initiative of GoB and NGOs organization to protect and conserve these valuable resources and if we can do these, it will not only make possible to sustain the indigenous species but also provide proper ecosystem for all aquatic organisms to live and to breed with an eventual contribution to the total fisheries production in the coastal region as well as of the country.

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