

Analyses of Catch Composition and Fish Marketing of the Meghna River at Ramgati Upazilla under Lakshmipur District in Bangladesh

¹Manas Mondal, ²M.D. Asadujjaman and ¹M.D. Anwarul Amin

¹Department of Aquaculture, Bangladesh Agricultural University,
Mymensingh-2202, Bangladesh

²Department of Fisheries Management, Bangladesh Agricultural University,
Mymensingh-2202, Bangladesh

Abstract: An attempt was made to investigate the catch composition of different gears operated in the Meghna River and also to know the existing marketing system of the fish species. Data collection was carried out by survey method using pre-tested structured questionnaires, field visit and interviewing the fishermen, finally cross checking the primary data with different secondary data source. Results of the study revealed that a total of 82% of fishermen were professional and 18% were seasonal. A total of 8 types of fishing net were found to be operated by the fishermen. There were 16 species of fish were caught by the different types of gear of the fishermen in the study area. The highest fishing effort was recorded in Chandi jal 2.07 gears/day and highest fishing duration recorded as 16 hours/day in the peak season. Among the observed fishing unit the highest catch per unit effort (CPUE) were recorded 45 kg/unit/day and the lowest CPUE were 15 kg/unit/day. On the other hand the average CPUE was 25.5 kg/unit/day. In case of different gears the maximum number of species were recorded in the catches of behundi jal (11) followed by the cast net (10). The most delicious fish Hilsa (*Tenualosa ilisha*) mainly caught by the Cahndi jal. Two types of fish marketing channel exist in the study area. In first type (84%) involving fishermen to directly consumers and 2nd type (16%) involving three intermediaries (*aratdar*, *wholesaler* and *retailer*). During the peak season the monthly income of fishermen were sufficient and the range was 5000 to 30000 BDT. But during the lean period their income became low and even zero. Further studies will also need for improving of fishery and fishing community of Meghna River at Ramgati Upazilla.

Key words: Catch Composition • Fish Marketing • Meghna River • Bangladesh

INTRODUCTION

Bangladesh is known as the land of rivers, which is endowed with very considerable, marine, estuaries and inland water having great fisheries potential. Fisheries sector is contributing 2.46% to the total export earning, 4.39% to GDP and 22.76% to agricultural sector [1]. The Meghna River is one of the largest inland depressions of marshy character and also one of the richest wetland areas of Bangladesh [2]. It covers an area of about 900 hectare of Ramgati Upazilla and an approximately 25500 fishermen in this area are dependent on the riverine fish for their livelihood and protein supply. The total annual fish production of Meghna River is 66783 MT of which Meghna River under Ramgati Upazilla

contributes around 150 MT [3]. Ramgati is situated at the estuary of mighty river Meghna and Bay of Bengal. The place is blessed with very resourceful water bodies of Meghna, full of marine fish resources, major catches are hilsa, poa, lotia, loila icha, taposhi/rickshaw, bata, pangus etc [4].

The intensity of use of any form of gear (net) in a river is dependent on the intensity of target fish population to be available in the river, some of the gears are selective for a particular species, whereas other account for a number of species caught during operation giving multi-species nature of the fishing [5]. The choice of net depend-upon to the area of operation and vary from place to place even in same river [6]. Fish marketing system can be defined as the way through which fishes

reach to consumers from producers. Markets have become a major issue for aquaculture sector, where consumers demands, international competitiveness, health and quality product are important [7]. According to Shang [8], the return of farm depends on production level and market prices, the price usually fluctuating seasonally due to variations in the supply and demand. The fish marketing system in Bangladesh is traditional, complex and less competitive but plays a vital role in connecting the fish producers and consumers, thus contributing significantly in 'value add' process of the fish which otherwise would have been unused or underused and consequently in the earnings of the fisher folk [9]. Hence the study was conducted to understand the catch composition and existing marketing system of Ramgati Upazilla in Lakshmipur district of Bangladesh.

MATERIALS AND METHODS

The study was based on field survey where primary data was collected from the fishers of the Meghna River at Ramgati Upazilla in Lakshmipur district.

Study Area and Period: In the present study Ramgati Upazilla of Lakshmipur District was selected as the study area. Fisherman and fisher folk involved in fishing and fish marketing of the Meghna River were considered as the target group of the study. The study was conducted for a period of 6 months from December, 2011 to May, 2012 which covered both fishing and lean period.

Methodology: There are various methods of data collection for catch composition and marketing studies. In the present study data were collected personally through face to face interview. For the fulfillment of this study two attributes selected for the data collection were Catch Assessment Survey (CAS) and marketing of fish. Catch Assessment Survey: Data were collected about fishing gears operated in the Meghna River, fishing effort, fishing duration, CPUE and species composition of specific gear. Marketing of fish: existing marketing system, marketing chain, people involved in marketing.

Sample Size and Sampling Procedure: The sample of 50 fishermen and 30 fish retailers were selected proportionately from different areas adjacent to the Meghna River by using random sampling. To achieve the objective of the study a comprehensive interview schedule of structured questionnaire was used to collect data.

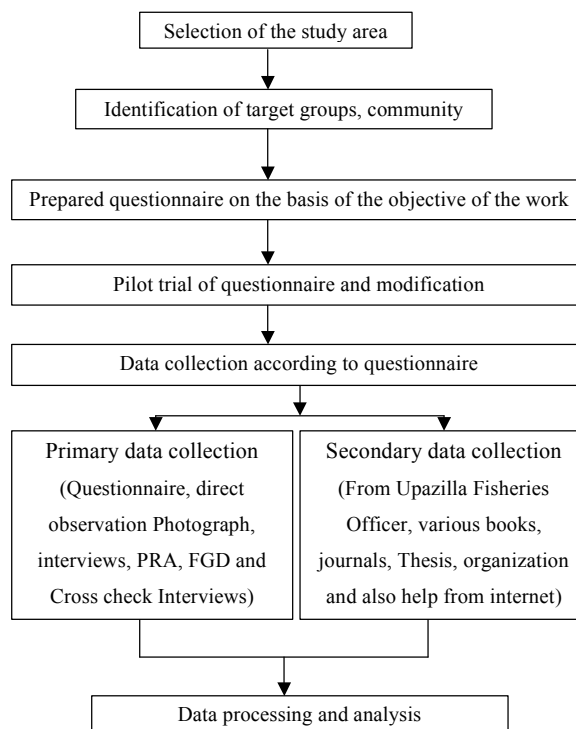


Fig. 1: Data collection methods and technique

Data Collection Methods and Technique: For primary data collection several visits were made to the study area to collect accurate information related to objectives of the study through interview schedule. The studied a combination of interview schedule, participatory rural appraisal (PRA) tool such as focus group discussion (FGD). The secondary information was collected from local leader and Upazilla Fisheries Offices and cross checked with the information provided by the fishermen. The data collection methods and technique designated of the survey for the present study some necessary steps as outlined (Fig. 1).

RESULTS

There are different types of fisher in Bangladesh, some are engaged in fishing mainly for consumption, some as alternative employment and some are solely dependent on fishing. The fishermen who catch fish in the Meghna River at Ramgati Upazilla are categorized into two groups on the basis of standard practice, they are: Professional fishermen (Depend on fishing almost year round for their livelihood) and Seasonal fishermen (Catch fish only a part of the year as a source of income and keep them engaged in other activities in other time of the year). Fishermen category in study is Professional

Table 1: Fishing nets used in the Meghna River at Ramgati Upazilla

Name	Common name	Number	Percentage (%)
Chandi/Ilish jal	Gill net	31	30.69
Badai jal	seine net	16	15.84
Behundi jal	Fixed purse net	11	10.89
Ber jal	seine net	3	2.97
Poa jal	Gill net	9	8.91
Jhaki jal	Cast net	8	7.92
Thela jal	Push net	5	4.95
Current jal	Gill net	18	17.82
Total		101	100

Table 2: Average fishing efforts observed per day in the Meghna River at Ramgati Upazilla

Name of gears	Average number of gears used per day
Chandi/Ilish jal	2.07
Badai jal	1.07
Behundi jal	0.73
Ber jal	0.2
Poa jal	0.6
Cast net	0.53
Current jal	1.2
Push net	0.33
Total	6.73

fishermen 82% and Seasonal fishermen 18% found out of 50 fishermen. Whereas, 80% fishermen fishing with boats (Consider as one unit) and 20% without boats. From the investigation it was found that 8 types of fishing nets were operated by the fishermen (Table 1).

Fishing Effort: Fishing effort is the total fishing gear is used for a specified period of time. The efforts of fishing mostly depend upon on season. In rainy season huge fishing effort were found and in lean period lowest fishing effort were found. Fishing effort of the commonly used gears according to this study is presented in the (Table 2). During the survey period in 15 days 101 fishing net were recorded. Among the operated nets the lowest and the highest fishing effort were recorded for Chandi jal and Ber jal that were 2.07 gears/day and 0.2 gears/day respectively. The total fishing effort in The Meghna River at Ramgati was 6.73gears/day (Table 2).

Fishing Duration: Fishing duration is essential to estimate the fish yields and to keep track of the catch per unit effort (CPUE). It is revealed that the fishers usually increase their operational hours to maintain a satisfactory catch, if the fish availability becomes less. Four fishermen with a boat formed a group, mainly fishing at night and a few in days. The highest and lowest fishing duration recorded were 15-18hrs/day and 5-6 hrs/day respectively.

The remarkable Fishing duration of those fishermen group who did not use boat were recorded cast net 6 hrs/day & 7hrs/day for push net.

Catch Per Unit Effort (CPUE): Catch per Unit Effort is the catch of fish by number or weight for a unit of fishing effort; here weight was taken into consideration for calculation and description. Catch per Unit of Effort (kg/unit/day) was calculated in respect of every unit, where every single boat was considered as one unit with four fishermen of the study area. Among the observed unit the highest CPUE were recorded 45 kg/unit/day and the lowest CPUE were 15 kg/unit/day. And the average CPUE was 25.5 kg/unit/day. Fishermen those did not use boat usually fishing by cast or push net and their CPUE (kg/gear/day) vary 2-3 kg/gear/day.

Catch Composition of Different Fishing Nets: Simply catch composition refers the total number of fish species response in specific gear. During the study about 8 types of net were recorded. The catch compositions of different nets have been described below:

Ber Jal: In the study period a total number of 8 species of fishes were recorded in the catch of Ber jal. Among the eight species Pangus (*Pangasius pangasius*) was found as dominant that contributed about 32.93% and Bata (*Cirrhinus reba*) was found as the lowest dominant group, which contributed only 4.88% of total. Besides this other species recorded as Lal Chewa (*Pseudapocryptes elongatus*) 13.4%, Air (*Sperata aor*) 12.2%, Poa (*Otolithoides pama*) 12.2%, Choto Chingri (*Macrobrachium malcomsonii*) 8.54%, Riksha (*Polynemus paradiseus*) 9.75% and Haoa (*Pseudeutropius atherinoides*) 6.1% (Fig. 2).

Badhai Jal: During the study period a total number of three species were caught by the Badhai jal. Among three species Tengra (*Mystus vittatus*) and Choto Chingri contributed as much as 48.57% each of the total and Cherkuti (*Engraulis* sp.) 2.86% was the lowest (Fig. 3).

Current Jal: During the study period a total number of eight species were caught by the current jal. Among various species Tengra contributed the highest catch (23.11%) and the lowest contribution was come from Koral (*Lates calcarifer*) (1.35%). Other groups noted as Bashpata (*Ailia coila*) 16.35%, Poa (*Otolithoides pama*) 16.35%, Air (11.84%), Pangus (11.84%), Bata (*Cirrhinus reba*) 8.45% and Gula (*Alopius vulpinus*) 10.71% (Fig. 4).

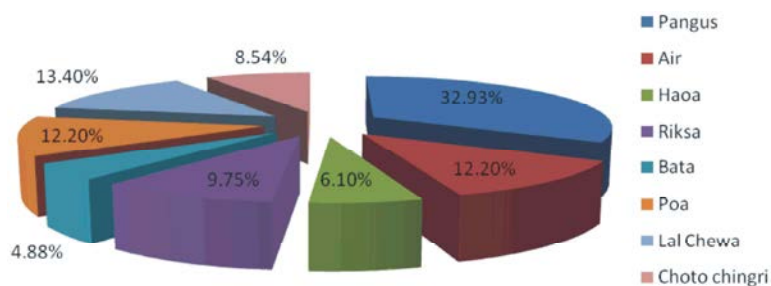


Fig. 2: Percent contribution of different species in the catch of Ber jal

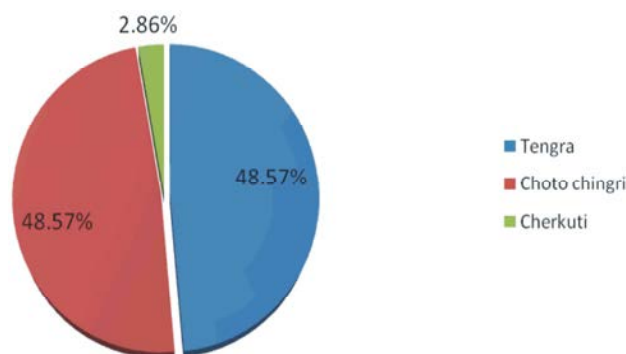


Fig. 3: Percent of different species in the catch of Badhai jal

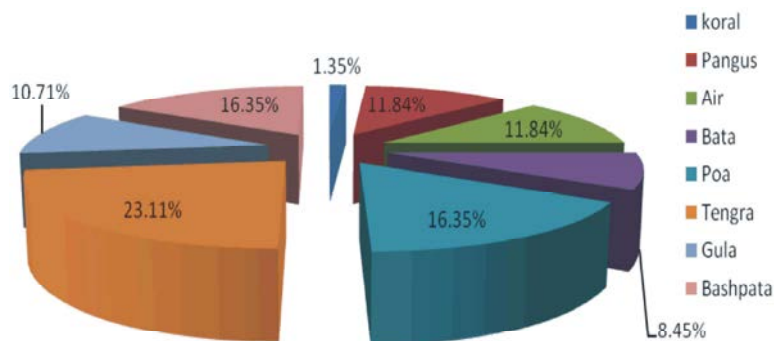


Fig. 4: Percent contribution of different species in the catch of current jal

Behundi Jal: In the study period a total number of 11 species of fishes were recorded in the catch of behundi jal. Among 11 species Poa (*Otolithoides pama*) was found to be the highest that contributed about 22.88% and Bata (*Labeo bata*) was found to be the lowest and contributed about 2.95% of the total. Other groups were recorded Riksa (15.13%), Lal Chewa (14.39%), Pangus (10.7%), Chapila (*Gudusia chapra*) 9.59%, Gula (8.12%), Choto chingri (4.8%), Bashpata (4.43%), Tengra (3.69%) and Cherkuti (3.32%).

Chandi jal /Ilish Jal: Chandi jal is very common in this region and it could be near 35,000 (personal communication with Fisheries assistant of Ramgati Upazilla). The net is just like rectangular shaped. It is drift with water current and the gill of fish is trapped in the

mesh of the net. Species caught were mainly hilsa (*Tenualosa ilisha*) (88.86%) and Pangus (*Pangasius pangasius*) (11.14%).

Poa Jal: During the study period five species were caught by the poa jal. Among various species Poa (*Otolithoides pama*) contributed the highest in the catch (38.21%) and the lowest contribution was come from Choto Chingri (5.84%). Other species were recorded Riksa (31.82%), Tengra (14.29%) and Bata 9.74% (Fig. 5).

Cast Net (Jhaki jal / Khapla Jal): There were 10 species of fishes were noted in the catch of cast net, where Tengra was the dominant fish group which contributed 20.64% of the total and the lowest contribution (1.59%) was by the Bashpata (*Brachypleura novaezeelandiae*).

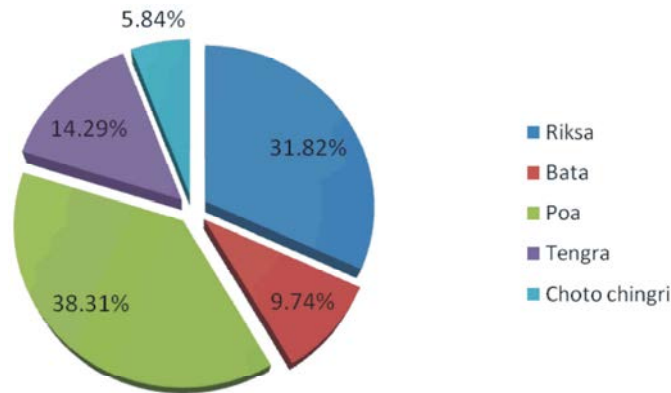


Fig. 5: Percent contribution of different species in the catch of Poa jal

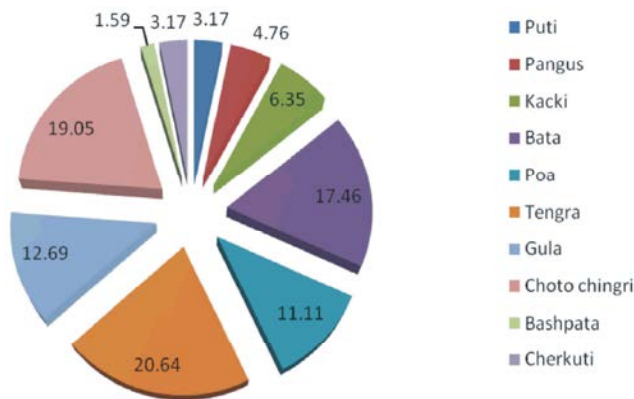


Fig. 6: Percent contribution of different species in the catch of Cast net

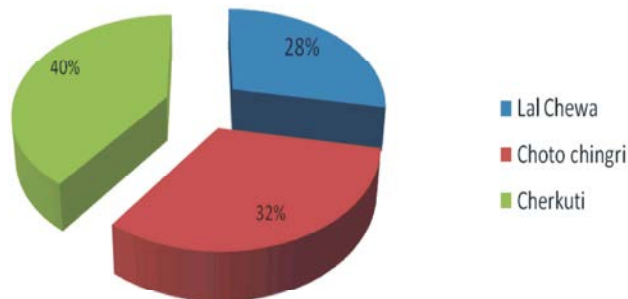


Fig. 7: Percent contribution of different species in the catch of Thela jal

Other dominant species were recorded were Choto chingri (19.05%), Bata (*Cirrhinus reba*) 17.46%, Gula (*Alopias vulpinus*) 12.69%, Poa (*Otolithoides pama*) 11.11%, Kacki (6.35%), Pangus (4.76%), Cherkuti (3.17%) and Puti (*Puntius sophore*) 3.17% (Fig. 6).

Thela Jal/Push Net: During the experimental period a total number of three species of fishes were noted in the catch of push net where Cherkuti (*Engraulis* sp.) found as the highest in number that contributed 40% and the lowest was Lal Chewa (28%). Other species recorded as Choto chingri 32% (Fig. 7).

General Information of Fishermen: The aim of this study was to get idea of the livelihood conditions of fishermen. Especial emphasize was given on such variable namely age, religion, education, family size, annual income, income from fishing, family type, fish marketing and other socio-economic issues. It was observed that Muslims were featuring as the absolute majority (84%) of the fishermen in the study area and only 16% of fishermen were Hindu. In the study area it was found that 30% of fishermen were in young group (25-30yrs) where as 4% was represented old age group. The most dominant group was represented by the age group 31-35years.

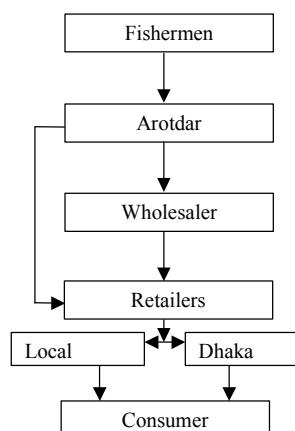


Fig. 8: The second type of Fish Marketing Channel

Family Type & Size: There were two types of family in the study area such as joint family and nuclear family. From the study it was known that 66% of fishermen lived in joint family whereas 34% was in nuclear family. In the study area about 70% of the fishermen had medium family size, 14% had small family and 16% had large family among fishing communities. They were little concerned about the family planning.

Educational Status & Income: Most of the fishermen (76%) at the Meghna River at Ramgati Upazilla area were illiterate. Around 18% of the fishermen were primarily educated and remaining 6% of total fishermen got education at secondary level only. Monthly incomes of the fishermen were calculated by multiplying the amount of fish by the market price of per kg fish. It was observed that 28% of fishermen had monthly income ranged from 5000-10000 BDT and 72% of the respondents at the income ranged from 15000-30000 BDT.

Marketing Channel: The market chain from fishermen to consumer passes through a number of intermediaries: aratdars, wholesaler and retailers. Only negligible portion of fishermen can trade fish directly to consumer without those intermediaries. *Dadon* is a system of tied credit through which the aratdars advance money to fishermen in exchange for the assured sale of fish. It was observed that two types of fish marketing channel exist in the study area. One type is involving directly fishermen to consumers and another type involving three intermediaries (*aratdar*, *wholesaler* and *retailer*). *Aratdars* arrange selling of fish through an auctioning system and receive a commission. Of the total (50) interviewed 16% stated that they sold their fish by using 1st type of marketing channel and 84% used 2nd type of marketing channel (Fig. 8).

They sell the fish through auction system and get a commission of 3% to 4% depending on fish species. Most of the time *aratdars* recruit *koyal* (person who organizes auction by uttering and offering different prices for buyers for sale). *Koyals* have a significant role on pricing the fish. The fishermen of hilsha are bound to sell their fish to *aratdar/mahajon* mainly due to receiving *dadon* from them and sell their fish to *aratdar* directly. In hilsha marketing system they purchased fish from fishermen through *aratdar* and sell (export) their entire product to city market, especially in the Dhaka markets. Retailers, the last intermediaries of fish marketing channel, do not have any permanent establishment. Most of the fishermen do not use ice or any other preservative materials to fishes except hilsa. So the fresh quality of the fish is decreased rapidly.

Marketing Margin: Gross marketing margin of each type of intermediaries was calculated by deducting the purchase price of fish from their sale prices while net margin or profit component was calculated by deducting the marketing cost from gross marketing margins. *Aratdar* Gross margin was calculated by calculating average received *Aratdar's* commission. In the case of poa, pangas, rikswa and bata marketing system and show that *aratdars'* net marketing margin is the highest for Pangus (3.93 Taka/kg) followed by poa, rikswa and bata. The average net marketing margin is taka 2.43 for *aratdars*. *Wholesaler's* net marketing margin is the highest for Pangus (Taka / kg). The average net marketing margin is taka 14.69 per kg for *wholesaler* (Table 3). The means profit increases with the increase of price of fishes.

The retailers purchase fish from *wholesaler* and sell directly to ultimate consumers. The highest profit or net margin per kg is obtained by retailers from Pangas (Taka 26.29) as well as Poa (Taka 26.29). While the lowest profit or net margin is obtained Taka 11.29 per kg (Table 4). The average net marketing margin is Taka 18.79 for *retailers*.

Average net marketing margins of all intermediaries for poa, pangas, rikswa and bata are presented in Table 4. Amongst all intermediaries, profit of retailers is the highest of taka 18.79 per kg of fish (Table 5).

Hilsa Marketing Margin: Hilsa is a commercially important species due to its extra ordinary flavor and taste it compasses high market value. During the entire study period undersized fish of this species (Jhatka) were found to be sold. Although fluctuate the price of this fish ranged from 500-550 Tk/kg. Amongst all intermediaries, profit of retailers is the highest (37.71Taka/kg) followed by

Table 3: Marketing margin of *Wholesaler* for following species (Tk /Kg)

Species	Purchase price	Sales price	Gross margin	Marketing cost	Net margin
Poa	300	320	20.00	5.31	14.69
Pangus	320	350	30.00	5.31	24.69
Rikswa	250	265	15.00	5.31	9.69
Bata	250	265	15.00	5.31	9.69
Average	280	300	20.00	5.31	14.69

Table 4: Marketing margin of *Retailer* for following specie (Taka /Kg)

Species	Purchase price	Sales price	Gross margin	Marketing cost	Net margin
Poa	320	350	30.00	3.71	26.29
Pangus	350	380	30.00	3.71	26.29
Rikswa	265	280	15.00	3.71	11.29
Bata	265	280	15.00	3.71	11.29
Average	300	322.5	22.50	3.71	18.79

Table 5: Average net marketing margin of different intermediaries for poa, rikswa, pangas and gula fish marketing (Tk/kg)

Intermediaries	Purchase price	Sale price	Gross marketing margin	Marketing cost	Net marketing margin
Aratdar	-	-	3.5	1.07	2.43
Wholesaler	280	300	20.00	5.31	14.69
Retailer	300	322.5	22.50	3.71	18.79

Table 6: Average net marketing margin of different intermediaries for Hilsha fish marketing (Tk/kg)

Intermediaries	Purchase price	Sale price	Gross marketing margin	Marketing cost	Net marketing margin
Aratdar	-	-	15.00	5.50	9.5
Wholesaler	450	480	30.00	15.73	14.27
Retailer	480	530	50.00	12.29	37.71

wholesaler (Taka 14.27) and *Aratdar* (Taka 9.5). Profit of intermediaries varies due to variation in their costs, purchase price and sales price (Table 6).

A number of constraints for fish marketing were reported by fishermen during survey. It includes lack of capital, poor road and transportation facilities, poor supply of ice and exploitation by middlemen. The highest proportion of respondents i.e. 30% identified lack of storage facility and 28% of respondents identified lack of capital as the single most constraints of fish marketing. About 20% respondents identified getting lower price as a result of poor transportation, 14% mentioned dominance of intermediaries and 8% respondents identified lack of marketing facility. The main problems were identified that lack of capital for buying fishing gears and craft. Most of them were illiterate and live from hand to mouth. Being very poor their children often went for fishing prior to school. As a result, generation after generation they remained illiterate and not being able to contribute for the betterment of their community.

DISCUSSION

In the present study generally total of 82% of fishermen were professional and 18% were seasonal. In this area fisher also were divided into two groups:

Fishing with boat (80%) and Fishing without boat (20%). While in the Jamuna River at Dewangonj Upazilla, Akram [10] found that 60% fishermen were professional, 30% were seasonal and the rest 10% were subsistence. During the present investigation a total of 16 species of fishes were recorded in the catches of different nets by the fishermen. The result of the present study agrees well with findings of Mia [11] who recorded 20 species of fish in the Meghna River at Ashuganj Upazilla. Mortuza [12] recorded 13 species of fishes from the Barnai River (FCD) project area. From the study it was found that 8 types of fishing net were operated which is almost same with the findings of Mia [11] who recorded 6 types of net in the Meghna River at Ashuganj.

During the study period among the operated nets the lowest and the highest fishing effort were recorded for Chandi jal and Ber jal that were 2.07 gears/day and 0.2gears/day, respectively. The total fishing effort was 6.73gears/day. Where Akram [10] recorded the lowest and the highest fishing effort for ber and khara jal that were 19 and 0.75 gears/day, respectively in the Jamuna River at Dewangonj Upazilla. Among the observed unit the highest CPUE were recorded 45 kg/unit/day and the lowest CPUE were 15 kg/unit/day. And the average CPUE was 25.5 kg/unit/day. Fishermen those did not use boat usually fishing by cast or push net and their CPUE

(kg/gear/day) vary 5-10 kg/gear/day. Hossain [13] found the highest CPUE of 2.75 kg/gear/day for nets in the Old Brahmaputra River. There are 8 species of fishes were recorded in the catch of ber jal where Pangus was found as dominant that contributed about 32.93% and Bata was found as the lowest dominant group, which contributed only 4.88% of total. Rabbani [14] recorded a total of 22 species fishes including choto chingri in the Karatoa River. Shahjan *et al.* [15] recorded 25 species of fish including shrimp in the Jamuna River whereas Hossain [13] recorded 19 species fishes in the old Brahmaputra River in the catches of the gear which less similar with present study. In behundi jal 11 species of fishes were recorded among them Poa (*Otolithoides pama*) was found to be the highest which contributed about 22.88% and Bata (*Labeo bata*) was found to be the lowest and contributed about 2.95% of the total. Three species of fishes were noted in the catch of push net where Cherkuti (*Engraulis* sp.) found as the highest in number that contributed 40% and the lowest was Lal Chewa (28%). Hossain [13] recorded 6 species in the old Brahmaputra River by the catches of this net and the dominant species were *Macrobrachium lamerri* (49.23%) and lowest species *Esomus danricus* (4.62%). Ten species of fishes were noted for cast net where Shahjahan *et al.* [15] recorded 18 species in the Jamuna River which is slightly higher than the findings of the present experiment. There are eight species were caught by the current jal which is slightly lower than the findings of Shahjahan *et al.* [15] reported that in case of River Jamuna 16 species were caught with current jal. Five species were caught by the poa jal. *Chandi jal* is very common in this region, species caught were mainly hilsa (*Tenualosa ilisha*) 88.86% and Pangus (*Pangasius pangasius*) 11.14%. According to Das and Bondopadhyay [16] *Chandi jal* also used in Rajshahi, Khulna, Chadpur, Chittagong and Noakhali. Three species were caught by the Badhai jal. Among three species Tengra and Choto Chingri contributed as much as 48.57% each of the total. Rahman *et al.* [17] recorded 18 species of fishes in Halti beel in the catches of badhai jal.

In the study area 84% of fishermen were Muslim and 16% of fishermen were Hindu. Salam *et al.* [18] reported that fishermen in Mymensingh region of Bangladesh 87% are Muslim and 13% are Hindus which is more similar with present study. It was found that 30% of fishermen were in young group (25-30yrs) and 50 % (30-40 yrs) was in middle age grouping where as 20% was represented old age group. Shahjahan *et al.* [19] stated the age groups of the riverine fishermen varied between 13-62 years which is less similar to present study. Most of the fishermen (76%) were illiterate. Around 18% of the fishermen were

primarily educated and remaining 6% of total fishermen were from secondary level. Ahmed [20], in coastal area obtained the literacy rates at 25%. Monthly incomes of the fishermen were varied from 5000 to 30000 BDT. But these ranges of monthly income stands for 4-6 month and rest of the time their income range from 3000-5000 BDT and during the lean period their income became low and even zero. During the study period it was observed that 28% of fishermen had monthly income range from 5000-10000BDT and 72% of the respondents at moderate income. Mia [10] found 52.5% of the fishermen had high annual income (100000-200000 BDT) and 42.5% had medium annual income (51000-100000 BDT). It was observed that two types of fish marketing channel exist in the study area. There are total (50) interviewed 16% stated that they sold their fish by using 1st type of marketing channel and 84% used 2nd type of marketing channel that is almost same as the finding of Mia [10] recorded 75% used 2nd type of marketing channel. Average net marketing margins of all intermediaries for poa, pangas, rikswa and bata were 2.43 Tk/kg for Aratdar, 14.69 Tk/kg for Wholesaler and amongst all intermediaries; profit of retailers was the highest of Taka 18.79 per kg of fish. Profit of intermediaries varies due to variation in their costs, purchase price and sales price. Alam *et al.* [21] found the average net marketing margins of all intermediaries for major carp, pangas and tilapia were 53.67 Tk/maund for Aratdar, 337.41 Tk/maund for Wholesaler and amongst all intermediaries; profit of retailers was the highest of Taka 633.42 per maund of fish. A large amount of hilsa caught from the Meghna river are supplied to different parts of the country specially Dhaka. Amongst all intermediaries of hilsa marketing channel, profit of retailers is the highest (37.71 Taka/ kg) followed by wholesaler (Taka 14.27) and Aratdar (Taka 9.5). While Alam *et al.* [20] found profit of retailers was the highest (Taka 1222.65 per maund) where others profit were LC Paiker (Taka 902.27 per maund), Paiker (Taka 520.23), Aratdar (Taka 296.65) and inter district Bepari (Taka 228.27) of fish. A number of constraints for fish marketing were reported by fishermen during survey. It includes lack of capital, poor road and transportation facilities, poor supply of ice and exploitation by middlemen.

CONCLUSION

The study was conducted to assess the catch composition of different gear operated in the Meghna River and also to know the existing marketing system of the fish species of the Meghna River at Ramgati Upazilla in Lakshmipur district. It was conducted for a period of

6 months from December, 2011 to May; 2012. Data collection was carried out by survey method using pre-tested structural questionnaires, field visit and interviewing with fishermen, finally cross check the primary data with different secondary data sources. The fishing effort and fishing duration was found to vary with the fishermen. Fishermen also faced lack of capital for buying fishing gears and craft, inadequate credit, robbery, poor road and transportation facilities, poor supply of ice and exploitation. According to Upazilla Fisheries Officer (UFO) of Ramgati Upazilla, Govt. took many steps to create alternative livelihood for the fishermen during the banning period such as supply of VGF card, cow fattening, small business, poultry farming, net making, goat farming etc. But from the field survey according to fishermen of the Meghna River at Ramgati Upazilla found that all those steps were insufficient and in many of the case real fishermen did not get those facilities. Educational institution should be set up in fishermen's village to improve their educational status. Government should provide the necessary infrastructural, financial and technical assistance for sustainable livelihood of this fishing community.

REFERENCES

1. Department of fisheries (DoF), 2013. Annual Report, Department of Fisheries, Government of People's Republic of Bangladesh, Dhaka, Bangladesh.
2. Asadujjaman, M., M. Belal Hossain, M. Shamsuddin, M.A. Amin and A.K.M. Azam, 2012. Occurrence and Abundance of Macrobenthos of Hatiya and Nijhum Dweep Islands, Bangladesh. *Middle-East Journal of Scientific Research*, 11(2): 184-188.
3. Department of fisheries (DoF), 2007. Annual Report, Department of Fisheries, Government of People's Republic of Bangladesh, Dhaka, Bangladesh.
4. Sazzad, A., 1993. An economic study on Hilsa fishing in the River Meghna in Chandpur district. M.S. Thesis, submitted to the Department of Agriculture Economics, BAU, Mymensingh, pp: 83.
5. Moula, G., Y. Mahmud, M.G.M. Alam and M.A. Hossain, 1993. Fishing crafts and gears of the Meghna River. *Progress. Agriculture*, 4(1&2): 59-65.
6. Ahmed, N., 1954. Fishing gears of East Pakistan. *Pak. J. Sci.*, 6: 162-178.
7. Muir, J.F., J.A. Young and A. Smith, 1996. Aquaculture, economics and development: a European perspective, In: *Cemare Miscellaneous Publication*, 33: 195-210.
8. Shang, Y.C., 1981. *Aquaculture economics: basic concepts and methods of analysis*, Croom Helm Ltd., London, UK, pp: 120.
9. Chowdhury, M.H., 2004. Fish market and marketing issues in Bangladesh, *International Institute of Fisheries Economics & Trade*, USA, pp: 76.
10. Akram, M., 2008. Study on socio-economic condition of fishermen of the Jamuna River in Dewanganj upazilla, M. S. Thesis, Department of Fisheries Management, Bangladesh Agricultural University, Mymensingh, pp: 29-41.
11. Mia, S.M., 2009. Present status of fisheries and socioeconomic condition of the fisher's community of Meghna River of Ashuganj Upazila. MS Thesis, Department of Fisheries Management, Bangladesh Agricultural University, Mymensingh, pp: 25-60.
12. Mortuza, M.G., 1997. Fish and fisheries of the River Barnai: Flood plain fisheries (FCD) project. M. Sc. Thesis. Dept. of Zoology, Rajshahi University, pp: 199.
13. Hossain, M., 1998. A preliminary survey on the fisheries and socio- economic conditions of fishermen of the old Brahmaputra River. An M. Sc. Thesis submitted to the Department of fisheries Management, BAU, Mymensingh, pp: 95.
14. Rabbani, M.G., 2007. Study on the fisheries and socio-economic condition of fishermen of Kareatoa River. An MS Thesis Submitted to Department of Fisheries Management, BAU, Mymensingh, pp: 85.
15. Shahjahan, M., M.I. Miah and M.M. Haque, 2001. Present status of fisheries in the Jamuna River. *Pakistan J. Bio. Sci.*, 4(9): 1173-1176.
16. Das, B. and A. Bondopadhyay, 2000. *Matshya Songhoro Projukti*, 2nd part, Bangla Academy, Dhaka, pp: 118-124.
17. Rahman, S. K., B. Chakroborty, A. Razzak, S.K. Paul and T. Chu-fam, 1993. The fishing gear selectivity study. Report preliminary progress. In: *fisheries Research Institute, TFP, Santahar, Bogra, Bangladesh*, pp: 1-27.
18. Salam, M.A., S. Sultana, M. Belal Hossain and M. Asadujjaman, 2013. Factors Affecting Seasonal Performance of Angling in Mymensingh Region of Bangladesh. *Trends in Fisheries Research*, 1(2): 09-13.
19. Shahjahan, M., M.S. Islam, M.A.J. Bapary and M.I. Miah, 2003. Study on the fisheries on socio-economic condition of fishermen of the Jamuna River. MS thesis, Department of Fisheries Management, BAU, Mymensingh, pp: 72.

20. Ahmed, M.N.U., 1999. A study on socio-economic aspect fo coastal fishermen in Bangladesh. Department of Fisheries Management. BAU, Mymensingh, Bangladesh, pp: 78.
21. Alam, M.F., M.S. Palash, M.I.A. Mian and M.M. Dey, 2010. Marketing of Major Fish Species in Bangladesh: A Value-chain Analysis, A report submitted to FAO for the project entitled A Value-chain Analysis of International Fish Trade and Food Security with an Impact Assessment of the Small Scale Sector, pp: 21-40.