

## FISHING AND MARKETING SYSTEM IN SOME SELECTED AREAS OF KHULNA DISTRICT

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### ABSTRACT

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Present study was conducted to find out the existing fishing and marketing system in Khulna district. It was found that five types of gears and 3 types of traps namely cast net, seine net, drag net, push net, current net, bamboo traps, box trap, hooks and lines were used for fishing in the study area. The highest numbers of fishermen were involved in fishing by cast net followed by seine net, drag net, current net and push net. Only manual wooden boat is used as a craft for fishing. A total of 29 species were identified in the study areas. The highest fishermen were involved in August, September and October with a highest production in September. The fishermen involvement including total fish production was lowest in May. The highest 49% of the fishermen belonged to age category of 30 to 45 years and the lowest 7% belonged to 60 to 75 years. One third of the fishermen (33%) were illiterate. The fishermen sold fish to the Aratdars, Wholesalers, Retailers and consumers. Most the fishermen used nylon bags, bamboo basket and nylon net as storage materials and van for transportation. Above half of the fishermen sold fish to the Aratdars and a least number of fishermen sold to the consumers. The highest number of the fishermen had average month income ranging from 2000 to 3000 taka. The fishermen face several marketing problems like low price, poor communication, financial need, market tolls etc.

**Keywords:** *Fishing, marketing system, production*

### INTRODUCTION

Fish and fisheries have been playing a dominant role in the economy of Bangladesh in the context of nutrition, employment, income and foreign currency earning. Fish provide 63% of the total supply of animal protein consumed by 130 million populations; of which 49.15% comes from capture and 50.85% comes from culture fishery resources (Anonymous 2002). Fish also contribute 5.24 % to our national G.D.P., 4.76% to the foreign currency and 19.21% sectoral contribution to agriculture. Besides, 10% people of the country derive their livelihood from fish and fish products (Anonymous 2002).

Fisheries sector provides full time employment to an estimated 0.20 million people comprising of fishermen, small fish traders, fish transporters packers etc. and about 73% of households are involved in subsistence fishing in food lands (World bank, 1990). Bangladesh is a land of rivers, which yield about 90% of the country's total fish production, Mondal (1977). The total number of fishermen is about 12,90,000 among which inland fishermen is about 7,70,000 and marine fishermen is about 5,10,000 (Anonymous 2001). Fishermen are directly involved in fishing and marketing of our country. Fishermen are using a manual boat as a craft during fishing. Different types of gears such as cast net, barring net, push net, drag net, current net, hooks, lines and trap are being applied for fishing. An appropriate marketing channel is essential to retain the quality of fish after fishing. Every year a large amount of fish has been faced low quality due to improper marketing system. To cope up the international market with local market, a proper marketing channel is needed. It also supports to increase G.D.P. of our country.

Marketing is all around us and we all need to know some thing about it. Marketing is used not only manufacturing companies, whole sellers or retailers but by all kinds of individual organization, Kolter and Armstrong (1995). In earlier days the term fish marketing meant "Buying and Selling of fish" at the landing center (Biswas, 1990).

In many advanced and developed countries the improved methods of fish marketing are being adopted with the advancement of fisheries development. A progressive fish marketing system will also provide remunerative price to the primary producer and also the interest of the consumers is protected.

The fish marketing system faces serious problems including heavy losses and waste and poor fish quality in Bangladesh. Yet since fish demand generally exceeds supply, there is limited incentive for traders to improve the quality of marketing system (Anonymous 1990). The use of tradition craft and gear requires a considerable amount of time and physical effort. This tradition crafts and gears are being used indiscriminately in Bangladesh violating rules and regulation. It causes over fishing that damages sustainability of fish stock in the fishing ground. The fishing and marketing activities by fishermen are very important for successfully utilization of fisheries resources of our country. There is a scarcity of information on fishing and marketing system in Bangladesh. This information is essential for sustainable fisheries management and also helps to control over fishing by applying appropriate rules and regulation. It is possible to maintain sustainable fisheries management by increasing awareness and training activities among the fishermen. The present study will enrich the

information on fishing and marketing system and build a foundation for further research in fisheries sector. Finally, this study would be a model for planning and developing programs in the fishing and marketing system throughout the country. The objectives of this study were to know the existing fishing and marketing system in Khulna region of Bangladesh.

## **MATERIALS AND METHODS**

### ***Study area***

On the basis of high concentration of the fishermen, three most important villages namely Razapur, Dakhinmohal and Joykhali under Dumuria thana of Khulna district in Bangladesh were selected for interviewing of the fishermen as because they are directly involved in fishing and marketing in the above mentioned areas. In total 100 fishermen were selected on the basis of random sampling method from the three villages. Thirty-three fishermen were selected from two villages and thirty-four from the other village for interview.

### ***Data collection***

The required data were collected from both primary and secondary sources. Primary data were mainly collected through field survey. The data were collected for two months (July to August). To support primary data, secondary data were also collected from different sources including Thana fisheries office, department of Fisheries office and NGOs.

### ***Data analysis***

The collected data were transferred to tabular forms after careful examination and calculation. The analysis of data was mainly based on tabular, diagram and descriptive techniques. The graphs were prepared by using MS excel program.

## **RESULTS**

### ***Fishing place and catch composition***

Three villages namely Dakhinmohal, Joykhali and Rajibpur were selected for this study. Rivers, jalmohal, ghers and ponds were the fishing ground where the fishermen did their fishing. Different types of gears and traps were used for fishing in the selected area including cast net, seine net, drag net, push net, current net, bamboo traps, ghuni, hooks and lines which are shown in annexure 2 table 1 and table 2. A total of 29 species of fish were identified in the catches of different gears used by the fishermen in the study areas which are given in annexure 2 table 3.

### ***Fish production***

The monthly fish production and fishermen involvement are shown in annexure 1 figure 1.

### ***Fish marketing channel***

Annexure 1 Figure 2 shows marketing channel of fish at the study area. The selected fishermen sold their fish to the Aratdars, Wholesalers, Retailers and consumers.

### ***Selling of fish by fishermen***

The results of selling fish by fishermen are presented in annexure 1 figure 3.

### ***Storage materials and transportation mode***

Most the fishermen use nylon bags, bamboo basket and nylon net as storage materials. In the study area the main vehicle for transportation is van.

### ***Income of fishermen***

The selected 550 number of fishermen were grouped into six categories according to the level of their month income. The first category includes the fishermen having monthly income up to Tk.1000. The second, third, fourth, fifth and six categories includes Tk.1001-2000, Tk.2001-3000, Tk.3001-4000, Tk.4001-5000 and Tk.5001-6000 respectively which are shown in annexure 1 figure 4.

### ***Age of fishermen in fishing***

The total fishermen were grouped into four categories in accordance with their age. The first category was age of 15 to 30 years, second one was 31 to 45 years, third one was 46 to 60 years and fourth one was 61 to 75 years. The results are expressed in annexure 1 figure 5.

### ***Education level of fishermen***

Study on education level of fishermen was conducted in selected area. Results of the education level of fishermen in the study area are shown in annexure 1 figure 6.

### ***Problems in fishing and fish marketing***

Fishermen do not feel any problem with their existing craft and gear in fishing. If the fishermen are introduced with the modern fishing technology and developed craft and gears, they will understand their problems in fishing. The problems reported by the fishermen are presented in the annexure 2 table 4.

### ***Suggestions by the fishermen in the fish marketing***

Fishermen's suggestions in the connection with the problems are presented in the annexure 2 table 5.

## **DISCUSSION**

### ***Fishing place and catch composition***

Fishing activities are the important phase of fishery system. Most of the gear were non selective and were illegally used through out the year. Some of the fishermen used current net violating the rule imposed by Government in the study area. They were illegally collected a huge number of small fish by using gear due to the lack of awareness. A limited types fishing gears was used in the study area. Only manual wooden boat was used as a craft for fishing. The highest number of fishermen were involved in fishing by cast net and followed by seine net, drag net, current net and push net respectively. Because in the present study area, most of the fishermen were used cast net for fishing throughout the year. In the present study recorded catches for seine net, drag net, cast net, current net and push net were 20, 17, 14, 13 and 7 species, respectively and bamboo traps, hooks and lines and ghuni were 6, 5 and 4 species, respectively. BCAS (1991) recorded 19 species of fish including chingri in the catches of seine net and the cast net were caught 18 species in Chanda beel. Hossain (1998) recorded 14 species, 6 species and 7 species of fishes in the old Brahmaputra river in the catches of current net, push net and hook and line respectively. The name of the different species listed in the catches is shown in the annexure 2 table 1 and 2 which were similar to the study of BCAS (1991) and Hossain (1998). So in the study area, most of the gears had negative impact on the fisheries resources due to the lack of strict rules and regulation as well as awareness. Most of native species were declining day by day for indiscriminate fishing.

### ***Fish Production***

The figure reveals that the total fish production was highest in the month of September. Where as the highest number of fishermen were involved in the month of January and August-December. The fishermen involvement including with their fish production were lowest in the month of May. In the present study area, the highest fish production was observed in September because this month in rainy season and the availability of fish in higher than any other seasons. Fishermen have nothing to do except fishing. The lowest fish production was found in May because of fish scarcity and involvement of fishermen in other activities.

### ***Fish marketing Channel***

Marketing channel (Annexure 1 Figure 2) indicates that fishermen were the sole primary producer of fish in the fish market. The Aratdars were the commission agents who had fixed establishment in the marketing and did the function of negotiating transactions between buyers and sellers of fishes. Wholesaling is a major step in the dispersion activities of marketing. Retailers, who are primarily interested in the problems that arise from servicing their customers, could not possibly search out and deal with the producer and sources of their entire product. The retailers buy fish in the wholesale market for resale directly to ultimate consumers. The consumer is the last step of fish marketing. The marketing channels are the alternative routes of the product flows from producers to consumers. The fish marketing channel in the present study area were similar to those reported by Kohls and Uhl (1980).

### ***Selling of fish by fishermen***

Annexure 1 Figure 3 shows that 57% of the selected fishermen were sold their fish to the Aratdars, followed by 24% of the fishermen to the wholesalers, 13% of the fishermen to the retailers, 6% of the fishermen to the consumers. It was found that above half of the fishermen sold their fish to the Aratdars and few fishermen sold to the consumers. Most of the fishermen received fund from Aratdar for their establishment in fishing with particular terms and condition. There by, fishermen become liable to deliver their products to their money master. Few fishermen were free from that type of accord. For this reason, they had various choices to sell their product. The fishermen were not interested selling fish directly to the consumer due to the low price of fishes. Thus the fishermen were losing their actual prices. If the Government and non Government extend their monetary support to the poor fishermen, fishermen will get free from terms and conditions imposed by Aratdar and will get proper price of their products.

### ***Storage materials and transportation mode***

The storage materials used by the fishermen were quite unsatisfactory due to the lack of proper knowledge about it. Most of the fishermen do not use ice or any other preservative materials. So the fresh quality of the fish is decreased rapidly and the fish products are not reached as a proper quality to the ultimate consumers due to the lack of awareness among the fishermen. They do not use truck, bus for transportation because the distance

between fishing place and marketing place is very close (2 to 3 km). So the transportation expense was cheap with van for the all fishermen. Transport is not only important for the operation of the marketing system but also for marketing costs. This result is in full agreement with the result reported by Abbott (1958).

#### ***Income of fishermen***

Annexure 1 Figure 4 reveals that the highest majority of the fishermen had average month income ranging from Tk 2001-3000 and the second majority of the fishermen had ranging from Tk 3001-4000. So, income of fishermen is not sufficient for leading the life in a bit improve condition for the fishermen in the present day. Alam (1995) reported the average per capita income of riverine fishermen families to be Tk. 2442 which is about 70% lower than the per capita income of the country as a whole. The income of fishermen in the present study area was similar to that report by Alam (1995).

#### ***Age of fishermen in fishing***

Annexure 1 Figure 5 shows that among the selected fishermen, 49% of the fishermen was belonged to age category of 31 to 45 years and only 7% of the fishermen belong to the age category of 61 to 75 years. Age group of 31 to 45 year is supposed to be physically stronger and hard worker than any other groups. Most of the people in this group fall responsibility to do something in the society. Age group of 61 to 75 years is physically less strengthen and is neglected from family due to their poverty. Other two age categories are mainly engaged as helper. Age wise fishermen involvement was satisfactory in the study area.

#### ***Education level of fishermen***

Education is a vital factor to gear up the development of any society and nation. Study on education level of fishermen was conducted in selected area. Annexure 1 Figure 1.3 shows that 33% were illiterate, 46% were educated up to primary level and 21% were educated up to secondary level. No fishermen were found educated above secondary level. It is observed that one third of the fishermen (33%) were illiterate due to low income and involvement in fishing from the childhood. According to the census report (2001), the rate of literate is 62% in our country. In the present study similar information about the rate of literate was recorded. The illiterate fishermen can not easily adopt the new techniques as the literate ones.

#### ***Problems in fishing and fish marketing***

The use of tradition craft and gear is a tedious job in term of time and physical labor whereas modern gears and crafts helps extensively to reduce the tediousness. In the study area the fishermen encountered a variety of marketing problems such as low price of fish, poor communication, financial need, market tolls and lack of marketing facilities such as water supply, drainage facilities and the law order situation. It can be seen from the Annexure 2 Table 4, low price of fish is the major problem of fishermen. More than 85% fishermen mentioned this problem. Low price of fish and financial need problems was reported as the second major one by 75% of the fishermen. Poor communication problem was reported by 66% of the fishermen.

#### ***Suggestions by the fishermen in the fish marketing***

Annexure 2 Table 5 shows the highest number (88%) of the fishermen suggested that credit should be supplied timely on easy terms. About 76% of the fishermen suggested that communication system should be developed and the rules and regulations should be strictly maintained. About 68% of the fishermen were in favor of immediate selling. From the reported problems and suggestions by fishermen, it is clearly understood that the Government should established a strict rules and regulations in the fish market, develop communication and supply loan or credit in the better way among the fishermen.

### **CONCLUSION**

In Bangladesh there are about 1.28 million of the total population is fishermen. They play an important role in our fisheries resources. The fishermen are directly involved in fishing and marketing system. But their existing fishing and marketing system are not enough structured to carry out the sustainable fisheries development. It has been seen in the above result that most of the gears are being illegally used by fishermen and most of the species are caught illegally throughout the year. Catching under size fish should be stopped through increasing awareness among the fishermen. The Government should supply healthy fish fry to the open water prior to the rainy season. The marketing channel should be developed by Government interferences, so that the fishermen obtain their actual price of their products. There are no strict rules and regulations as well as awareness among the people in the study area. The Government should provide loan to the fishermen and established strict rules and regulations for developing the existing fishing and marketing channel practiced by fishermen.

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**ANNEXURE-1**

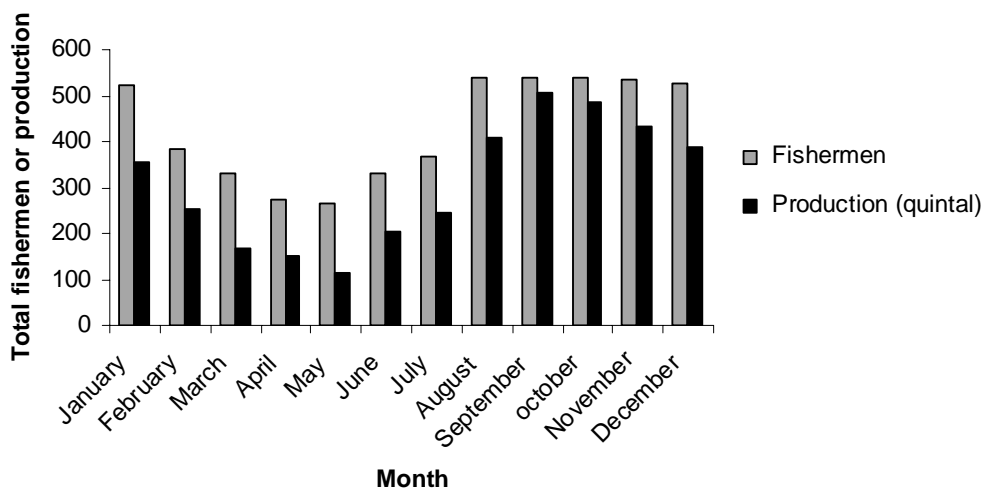


Figure 1. Monthly fish production and fishermen involvement in a year

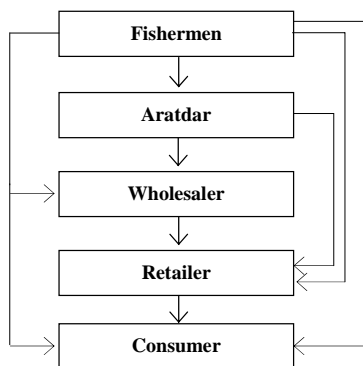


Figure 2. Marketing channel of fish at the selected area

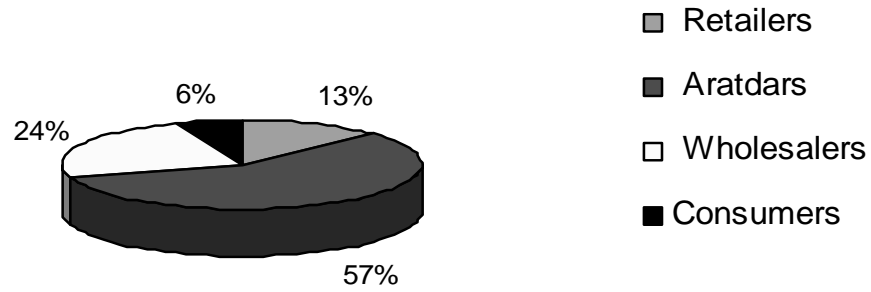


Figure 3. Selling of fish by fishermen

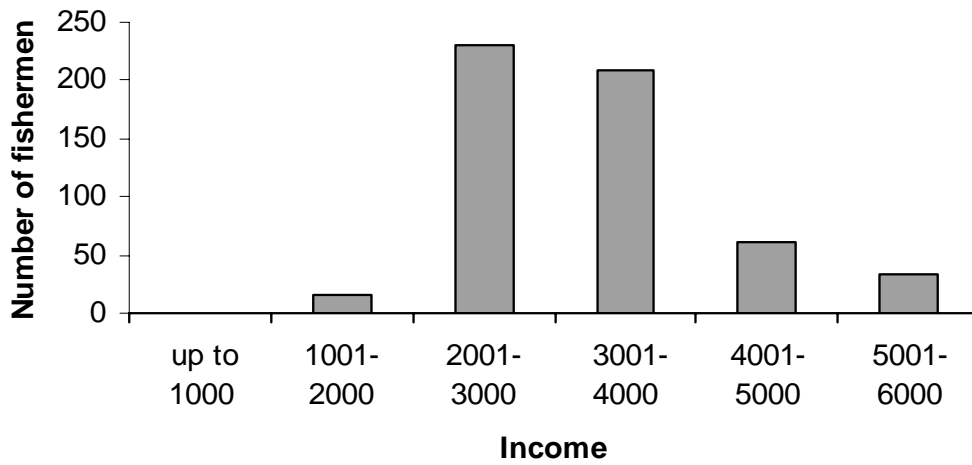


Figure 4. Average month income of fishermen

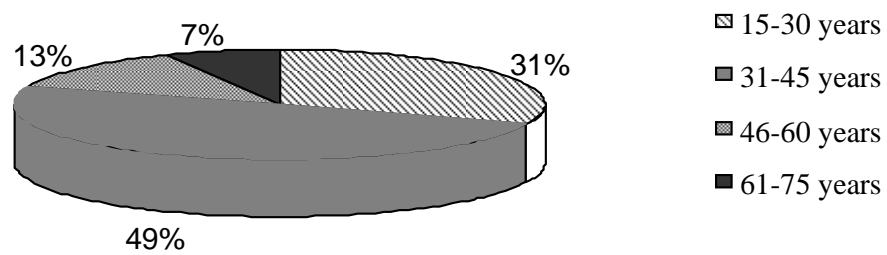


Figure 5. Distribution of age group in fishing

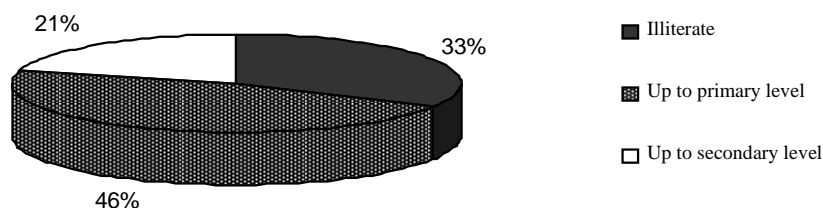


Figure 6. The level of education of the fishermen

**ANNEXURE-2**

Table 1. Types of net, selectivity of net, fishing period, number of fishermen involvement and catch composition in the study areas

Types of net	Selectivity of net	Fishing period	Number of fishermen involvement	Catch composition
Seine net	Non selective	Oct-Dec Feb-March May-July	313	Rui, mrigal, catla, common carps, calbasu, grass carps, chela, chapila, chanda, puti, tangra, koi, small chingri, bele, maya, taki, shol, shing, magur etc.
Drag net	Non selective	Do	236	Rui, grass carps, mrigal, catla, common carps, silver carp, chanda, puti, tangra, koi, small chingri, bele, maya, taki, shol, shing, magur etc.
Current net	Non selective	July-Nov	60	chanda, puti, bela, tengra, small size of rui, catla, mrigal, common carps, calbasu, silver carps etc.
Push net	Non selective	July-Nov	16	Puti, chanda, small chingri, tepa, bele, veda etc.
Cast net	Non selective	All over the year	528	Rui, catla, common carps, mrigal, silver carp, grass carps, chanda, puti, tangra, koi, small chingri, bele, maya, taki etc.

Table 2. Types of trap, fishing period, number of fishermen involvement and catch composition in the study area

Types of trap	Fishing period	Number of fishermen involvement	Catch composition
Bamboo traps	June-Aug	71	Puti, taki, bele, chanda, chela, kholisha etc.
Ghuni	June-Aug	93	Puti, chanda, kholisha, chela etc.
Hook and line	June-January	104	Titputi, bele, tengra, shol, gajar etc.

Table 3. Species found in the study area with their scientific name

Local name	Scientific name
Rui	<i>Labeo rohita</i>
Catla	<i>Catla catla</i>
Mrigel	<i>Cirrhina mrigala</i>
Calbaush	<i>Labeo calbasu</i>
Silver carp	<i>Hypophthalmichthys molitrix</i>
Grass carp	<i>Ctenopharyngodon idella</i>
Common carp	<i>Cyprinus carpio</i>
Chanda	<i>Chanda sp</i>
Chapila	<i>Gadusia chapra</i>
Chela	<i>Salmostoma bacaila</i>
Bele	<i>Glossogobius giuris</i>
Koi	<i>Anabus testudineous</i>
Taki	<i>Channa punctatus</i>
Shoal	<i>Channa striatus</i>
Gozal	<i>Channa marulius</i>
Kholisha	<i>Colisa fasciatus</i>
Maya	<i>Amblypharyngodon mola</i>
Tengra	<i>Mystus tengra</i>
shing	<i>Heteropneustes fossilis</i>
Magur	<i>Clarias batrachus</i>
Small chingri	<i>Palaemon spp</i>
Tepa	<i>Tetraodon cutcutia</i>
Veda	<i>Nundus nandus</i>
Pabda	<i>Ompok pabda</i>
Punti	<i>Puntius spp</i>

Table 4. Problems faced by the fishermen in fish marketing

<b>Reported problems</b>	<b>% of the fishermen</b>
Low price of fish	85
Lack of marketing facilities	75
Financial need	75
Poor communication	66

Table 5. Fishermen's suggestions regarding solution of the problems

<b>Suggestions</b>	<b>% of the fishermen</b>
Timely supply of the credit on easy terms	88
Development of the communication	76
Maintenance of rules and regulations in the fish market	76
Immediate sale of the fish	68