Fishing gears, fish marketing and livelihood status of the poor fishermen around the Basantapur beel at Lalpur Upazila

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Abstract: The present investigation was carried out to assess the fishing gears, fish marketing and livelihood status of the fishermen in Basantapur beel of Lalpur upazila under Natore district. Forty five fishermen were randomly selected covering the study area for a period of one year, from November 2006 to October 2007 data collection purposes. Data were collected from the fishermen through some selected PRA tools such as individual questionnaire interview, key informant interview, focus group discussion and physical observation during fishing, landing and marketing. Eight types of nets, 7 types of traps, 6 types of spears and harpoons and 5 types of hooks and lines were found to be used in the beel both traditionally and commercially. The total fish landing from the beel was recorded 85,870 kg during the study period and the pick landing season was found in the month of December. The annual landings of different types of fishes were carps 22,600 kg, catfishes 11,665 kg, small fishes 44,785 kg, prawn 2,865 kg, and others fishes 4,205 kg. Most of the fishermen are professional (55%). Among the fishermen 44.44% are illiterate and landless. Their family size is usually consists of 3-8 members and nuclear family is the predominant among the fishermen. Forty eight percent of the fishermen primary occupation was fishing, 24% was engaged in agriculture, 13% in business, 5% in daily labour and 10% in other occupation. In the study, it was found that 75% of the fishermen house holds were solely depends on village doctors for their treatment and health check up. Moreover, majority of the fishermen of the community used tube-well water for drinking and household purposes but their sanitary condition was very poor. The daily income of the fishermen was 100-150 Tk/day. They are the poorest of the poor in the society and they have no alternative livelihood option to earn their bread other than fishing.
Key words: Basantapur beel, Fishing gears, Fish marketing, Livelihood

Introduction

The fisheries resource of Bangladesh consists of canals, rivers, beels, haors, oxbow lakes; flood plain etc. of inland open water bodies and closed water bodies consists of ponds, ditches, reservoirs and coastal line. The open water bodies including river and estuaries 1031,563 ha, beels 114,161 ha, Kaptai lake 68,800 ha, floodplains 2832 792 ha and polder/enclosures 873,000 ha (DoF, 2005). The fisheries sector plays vital role for providing animal protein, earning foreign currency, scope of employment and poverty alleviation (BBS, 2003-2004). The beels are biologically important habitats for fishes as they play vital role in the recruitment of fish population and riverine ecosystems provide nursing grounds for fishes. Soil and water of the beels are very productive and natural habitat of large and small indigenous species (SIS) of different food habits (FAP- 6, 1993). A large portion of rural family members are engaged in part time fishing from the beels (Hughes *et al.,* 1994). Many fish and prawn species move into inundated areas of beels from adjacent rivers and canals to feed and grow during monsoon season (Akteruzzaman and Arif *et al.,* 1997). Alam and Bashar (1995) estimated the average per capita annual income of the fisherman families of Tk. 2,442 which is 70% lower than the per capita income of the country as a whole. The present study is expected to provide some information about fishing gears, fish marketing, socio-economic status of the fishermen and problems associated with the livelihood in the area which is necessary for management the beel which would be helpful in planning and setting up of strategies for further development.

Materials and Methods

The present study was conducted in Basantapur beel at Lalpur Upazila under Natore District. For data collection, an interview schedule was designed for the study. The draft questionnaire was tested with 10 fishermen in the study area. The questionnaire was modified and rearranged according to the experience gathered in pre-testing of questionnaire. A combination of questionnaire interview and Participatory Rural Appraisal (PRA) tools such as Focus Group Discussion (FGD) and crosscheck interviews were conducted with the key informants such as Upazila Fisheries Officer, BRAC, Local leaders, officials of MACH project and NGOs workers. Moreover, physical observation during, fishing, landing and marketing were done personally. All the collected information were accumulated and analyzed by MS-Excel and then presented in textual, tabular and graphical forms to understand the present status of the fishing gears, fish marketing system and livelihood of the fishermen of the studied beel.

Results and Discussion

Description of Gears: In the present study 8 types of nets, 7 types of traps, 6 types of spears and harpoons and 5 types of hooks and lines were found in the Basantapur beel. A brief description and mode of operation of nets, traps and gears which were recorded in the beel are given bellow.

Nets: Both the professional and non-professional fishermen use nets to catch fishes in different fishing points of basantapur beel (Fig.1).

Traps and wounding gears: In present study 7 types of traps were found in operation in the Basantapur beel. The percent of traps used and fishes caught is shown in Table 01. Spears and harpoons are used during the rainy season but sometimes traditional fishermen used it round the year. There are 6 types of spears and harpoons and 5 type's hooks and lines were used in fishing purpose in this beel (Table 1). The fishing technique that are currently used by the fishermen of Bangladesh have been broadly categories into Netting, Angling, Trapping, De-watering and Hand picking (Dewan and Mazid, 1994).

Fish marketing system
Maximum fishes from the beel are sold in four permanent retail fish market those are Lalpur, Baga, Chondipur and Ishordi fish market, which are near to the studied beel.
Fish landing: The total fish landing from the studied beel was recorded 85,870 kg during the study period (Table 2). The pick landing season was found in the month of December and the annual landing of different types of fishes such as Carps 22,600kg, Catfishes 11,665 kg, Small fishes 44,785 kg, Prawn 2,865 kg, and other fishes 4,205 kg. From the landing data it can be concluded that the small fish was dominated (44,785kg) and Prawn was least landing items from the beel (2,865 kg).
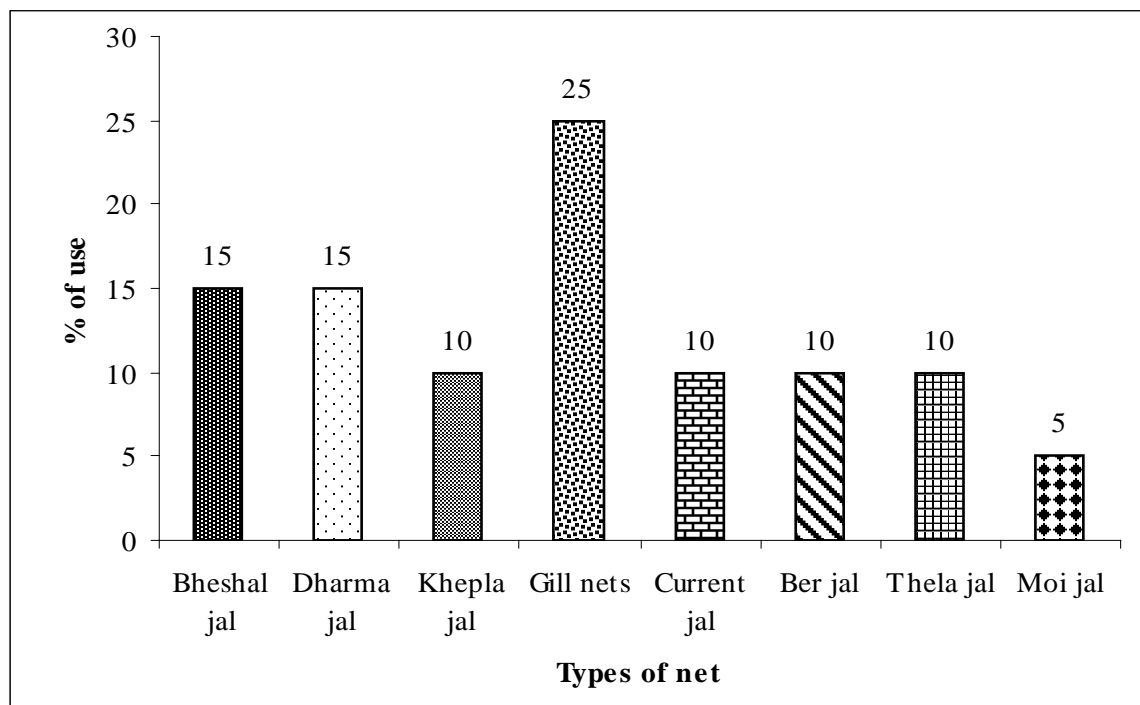

Fig. 1. Different types of nets used in Basantapur beel

Table 1. The percent traps and wounding gears used and fishes caught with the gears

Type of fishing gears		Harvested common fish species	Av. % of use	Remark
Traps	Bana	Rui, Cattla, Mrigle, Boal, Ayre, Tengra. Etc.	11	Small fish species
	Bitti	Tengra, Bain, Gharua, Taki, Pabda, Shing, Punti, Guchi, Bele, Prawn, Gnanda	18	Small fish species
	Kholsun	Khalisha, Guchi, Bele, Punti, Patasi, Baspata, Tengra, Chanda, Baluchata, Gorkuma	22	Small fish species
	Chunga	Bela, Shol, Taki, Tengra, Gharua, Baim, Shing,	12	Small size species
	Chhupi	Shol, Boal, Gajar, Rui, Catal, Mrigel, Ayre, Guzza, Bighead, Japani, Grass carp, Ghitol, Pholi	10	Large size species
	Polo	Shol, Boal, Gajar, Rui, Catal, Mrigel, Ayre, Guzza, Bighead, Japani, Grass carp, Ghitol, Pholi	8	Medium & large sizes of species
	Bhair	Bain, Tengra, Catal, Rui, Mrigel, Boal, Guzza, Ayre	12	Medium sizes of species
	Others	-	7	All size fishes
Wounding gears	Jhupi	Shing, Magur, Taki , Khorsula, Raik, Tengra etc	20	Small fish species
	Jute	Boal, Carps, Shing, Magur etc.	10	Medium sizes of species
	Aro	Taki, Boal shole etc.	12	Small size species
	Ek-ata	Boal, Carps, Shing, Magur etc.	8	Medium sizes of species
	Tin-Phala	Boal,, Carps, Tengra etc.	10	Medium & large sizes of species
	Konch	Carps , Boal, Ayre etc.	25	Large size species
	others	-	15	All size fishes
Hooks and lines	Basha barsi	Shol, Jut puti, Taki, Shing, Magur etc.	20	Medium sizes of species
	Dari barsi	Baila, Puti, Tengra, shing etc.	15	Medium & large sizes of species
	Danti barsi	Shol, Taki, Shing, Magur, Bail etc.	20	Medium sizes of species
	Pata barsi	Shing, Magur, Bail, Puti Tengra , etc.	20	Medium & small sizes of species
	Wheel Barsi	Boal, Ayre, Baila, Tengra etc	5	Large size species
	Others	-	20	All size fishes

Table 2. Monthly landing of various types of fishes and other fisheries items from the Basantapur beel

Month of the year	Carps (kg)	Cat fishes (kg)	Small fishes (kg)	Prawn (kg)	Other fishes (kg)	Total (kg)
Nov' 06	1980	1370	6120	445	580	10495
Dec' 06	2475	1730	8910	490	620	14225
Jan' 07	1670	1110	5340	250	450	8820
Feb' 07	1810	1205	4300	150	410	7875
Mar' 07	1405	1130	2900	90	370	5895
Apr' 07	1260	910	2100	110	320	4700
May' 07	950	670	1500	60	120	3300
Jun' 07	2500	630	2425	190	215	5960
Jul' 07	2450	660	2510	175	250	6045
Aug' 07	3590	1250	3510	475	380	9205
Sep' 07	2250	1190	5170	405	510	9525
Oct' 07	1900	1180	6120	470	650	10320
Total	22600	11665	44785	2865	4205	85870

Price of fish: The price of fish is fluctuating with its availability and seasonality. Generally the small fishes (1.5-24 cm) were sold at Tk 30-65 and the big fishes (25 cm-1.2 m) were sold at Tk 120-175 in the market of the study area (Table 3). Low product price, lack of water in dry season and lack of marketing facilities are the dominant problems for fishermen (Haider, 1995).

Table 3. Month wise fish selling price in different fish market in the study area

Months	Baga fish market		Lalpur fish market		Ishordi fish market	
	Big fishes (Tk/kg)	Small fishes Tk/kg)	Big fishes (Tk/kg)	Small fishes (Tk/kg)	Big fishes (Tk/kg)	Small fishes (Tk/kg)
Nov' 06	130	48	133	50	140	50
Dec' 06	132	45	135	48	135	52
Jan' 07	155	48	150	50	152	50
Feb' 07	160	52	162	50	165	55
Mar' 07	165	48	160	48	162	52
April' 07	170	60	175	55	180	65
May' 07	165	55	70	50	170	60
Jun' 07	160	75	165	75	160	70
Jul' 07	165	50	170	45	155	45
Aug' 07	150	38	155	40	152	35
Sep' 07	145	35	140	30	130	33
Oct' 07	135	36	130	25	120	30

Livelihood status of the fishermen in the beel

Age distribution: Age distribution of the beel fishermen is very important in determining the potential human resources. From the survey, it was found that 27% of fishermen were 31-40 year age group, 15% were below 20 year, 20% were 20-30 year, 24% were 41-50 year, 11% were 51-60 and 3% above 60 year of age. Bhaumik and saha (1994) reported that age structure of fishermen at Sundarbans was ranged from 20 to 70 years which more or less agreed with the present study.

Occupational status: Most of the people around the Basantapur beel are involved in fishing as their primary occupation however, many are engaged in agriculture and day labour as their main occupation. The present study has reaveal that 48% of fishermen were engaged in fishing as their main occupation, 24% is in agriculture, 15% in business, 5% in daily labour and 10% were engaged in other occupation.

Religion status: From the present study it was found that Muslim is the absolute majority of the fishermen. In the study area 93.33% of the fishermen are Muslim and the remainder 6.66% are Hindu with no Buddhists and Christians. Saha (2004) found in his pond survey in Tangail sadar upazila, 86% pond farmers were Muslim and 14% were Hindu.

Family type and size: Dutta (1893) classified the family types such as nuclear, extended and joint family and reported similar results. Most of the families in the study area are nuclear (51.11 %) among the fishermen, 33.33 % are joint and 15.53 % extended family (Fig. 2). From the study, it was found that 75% fishermen had family size of 5-7 members, 15% had <5 and 10% had their family size of 8-10 members. Saha (2004) found in his pond survey in Tangail sadar Upazila that the average family size was 5.65. So, the result of the present study was agreed with Saha's (2004) observations.

Educational status: Most of the fishermen at Basantapur beel are illiterate (44.44%). Some of the fishermen only can sign but illiterate (33.33%), 13.33% fishermen education level was up to primary and 8.88% fishermen were from secondary level. There was not a single fisherman from higher secondary or above in the Basantipur beel area (Fig.3). Mahbubur (2001) reported that 68% of hoar fishermen were illiterate, 28% up to primary level and 4% had only secondary level education.
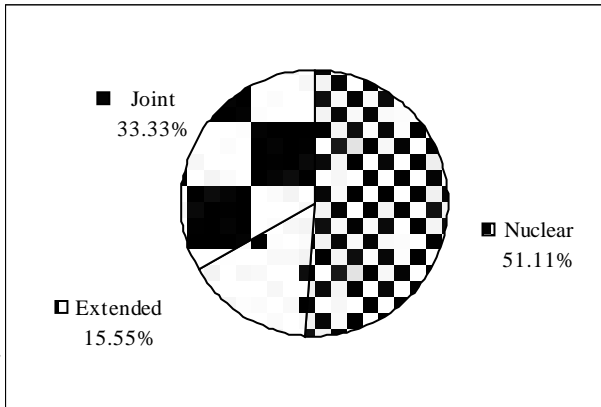
Fig. 2. Family types of the fishermen in the study area
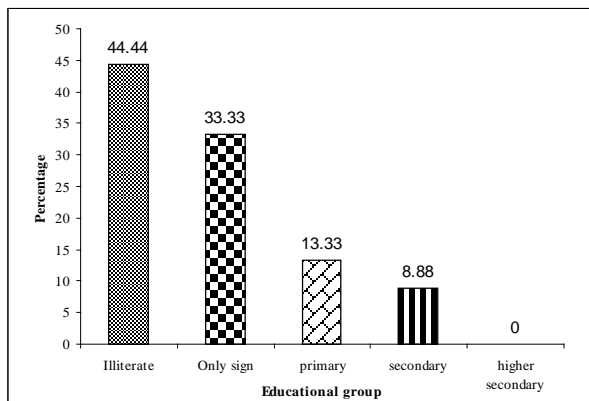
Fig. 3. Educational status of fishermen of the Basantapur beel

Housing condition: From the present study of three types of houses were identified, such as three main types i) Kacha houses ii) Tin shade houses iii) Pacca houses. About 82.22% of housing structures were katcha while 11.11% were semi-pucca and only 6.66% were pucca (Fig. 4).
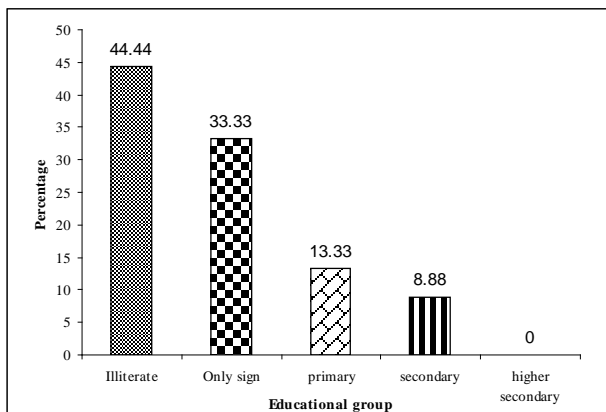
Fig. 4. Housing condition of the beel fishermen

Daily income: Income is the most important indicator of socio-economic status of the people. The daily incomes of most of the fishermen are range of 100-150 Tk/day. The income of the fishermen is little bit higher than the national average income of Tk, 22,500 (BBS, 2002).

Health facilities: The fishermen of the Basantapur beel are poor and illiterate and health condition is not satisfactory. In the study area it was found that 75% of fishermen households were depend on "village quack" that did not have any knowledge on medical science. Only 20% usually get heath service from the Upazilla Health Complex and 5% have medical services from MBBS doctors.

Drinking water and Sanitary facilities: In the present study 48% fishermen were found using only tube-well, 28% tube-well and well and 22% fishermen use tube-well and pond water for their household purposes.It was observed that the fishermen sanitary conditions were very poor. About 55.55% fishermen had kacha sanitary latrine, 26.66% semi-pacca, 5.5% pacca, and 6.66% close pit, 4.44% open pit latrine and 2.22% still used open field for his sanitation. The present study reveals that the sanitary conditions of the beel fishermen were not satisfactory than rice-fish farmers in Mymensingh district where Podder (2005) in her study found that 58% of the rice-fish farmers had semi-pucca, 10% had katcha and 17% had pucca sanitation facilities.

Credit access: The national and local NGO like BRAC provide credit only to the organized poor members for purchase fishing gears and boats. After repayment only 52.63% became self sufficient who do not need financial help but 7.89% borrow money from their neighbors, 15.78% from relatives, 18.42% from NGO's and 5.26% from co-operatives for their fishing business.

Socio-economic constraints of the fishermen: Fishermen are facing various problems during fishing and marketing their goods. The main problem was identified as extortion by the local extortionist, other problems were inadequate credit facility, presence of aquatic vegetation, lack of marketing facilities, lack of knowledge of fishing, lack of appropriate gears and disturbances by dacoits and thieves. Most of the fishermen are very poor and they have limited resort to buying nets and other fishing equipments. They are neglected in all respect in the society. Most of them are illiterate and live from hand to mouth. Being very poor their children often go for fishing rather than going school. As a result, generation after generation they remain illiterate and not being able to contribute for the betterment of their community.

From the study information it can be concluded that the fish production, species diversity in this beel have been declining alarmingly due to the change in habitat by siltation, abstractions of water for irrigation, use of agro-chemicals in surrounding crop fields, over exploitation and indiscriminate use of gears. Besides, there was no policy for this beel fisheries management. The implementation of this sanctuary and some other beel management police should be adopted to protect the species which are a degree of extinction and recover sustainable production of the beel. The increase of fish production will definitely improve the socio-economic condition and nutritional status of the poor fishermen and nearly villagers. On the other hand, Majority of the fishermen of the beel are illiterate, so necessary steps should be taken to develop the awareness among the fishermen by GO and NGOs to

protect the species which are at the degree of extinction and to have sustainable production from the beel.

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