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Attitude of Farmers towards Pond Ownership on Fish Production

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Abstract

The major purposes of this research study were to determine the attitude of farmers towards the effect of pond ownership on fish production and to explore the relationships between selected characteristics of the pond owners and their attitude towards the effect of pond ownership on fish production. The study was conducted in Ematpur Union of Mithapukur Upazila under Rangpur District. The study population was 1,263, from where 86 were drawn randomly to constitute the sample of the study. Data were collected during March to April, 2010 through personal interviewing. Person's Product Moment Coefficient of Correlation (r) was computed in order to explore the relationship between the dependent and independent variables. Twenty six percent of the pond owners had highly favourable attitude, while 57 percent favourable and rest 17 percent had moderately favourable attitude towards the effect of pond ownership on fish production. Out of the ten selected characteristics of the respondents' educational level, annual family income, extension media contact, cosmopoliteness, training exposure and knowledge about fish farming of the pond owners showed positively significant relationships with their attitude towards the effect of pond ownership on fish production. Thus, the above findings lead to the conclusion that to increase the production of pond fisheries to a significant extent the concerned authorities should take proper steps considering the significant characteristics of the farmers and in particular the aspects in which their attitude is specifically poor.

Keyworks: *Attitude, effect, pond ownership, farmer, and fish production.*

Introduction

Fisheries, one of the major components of agricultural activities, is playing a significant role in nutrition, employment, income generation, foreign exchange earnings n of Bangladesh as a whole. Fish and fish products accounted for about 4.07 percent of the GDP and 4.90 percent of total export earnings in 2006-07. In 2007-08 this earning amounted to TK.335.29 million from the export of 73,704 MT of fish and fish products (DoF, 2008).

The demand of fish has increased due to increase in population. Annual total fish demand is 2.55 million MT and per capita fish requirement is 18.0 kg per year, but the current consumption is only 16.62 kg. This has got a negative impact on the health condition of the people (DoF, 2008). Average annual growth rate of fish production is around 5 percent. Inland open water is the major source of fish production in the country. But the production from closed water bodies is sharply increased due to dissemination of adaptive technologies and effective extension services rendered by DoF. There are about 260 freshwater species, 12 exotic fish species, 24 freshwater prawn species, 475 marine fish species and 36 marine shrimp species in Bangladesh (DoF, 2008). Pond fish farming in Bangladesh is mainly a major carps and exotic carps oriented farming. At present major carps such as Rui (*Labeo rohita*), Katla (*Catla catla*) and Mrigal (*Chirrhinus cirrhosus*)

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along with exotic carps such as Silver Carp (*Hypophthalmichthys molitrix*), Grass Carp (*Ctenopharyngodon idella*), Bighead Carp (*Aristicthys nobilis*) and Common Carp (*Cyprinus carpio*) are cultured in polyculture system in ponds and gained much popularity because of their easy culture system, rapid growth, disease resistance and high market price.

Most of the freshwater pond fish farming systems in Bangladesh are either extensive or semi-intensive and in a few cases are intensive. In semi intensive culture system, ponds are stocked mainly with indian major carps and exotic carps, fertilizers (mainly cow dung, Urea and TSP) are used irregularly and supplemental feed consisting of rice-bran and oilcakes are given. In extensive method, fishes are grown on natural feeds and fertilizers are rarely used; if used, then also in small quantity and or irregular basis. Ponds are normally rainfed. The stocked fish are not specifically selected, predator are not eliminated and are not fertilized or managed throughout the production cycle. In general fish culture in Bangladesh is characterized by the use of both extensive and semi-intensive systems, and semi-intensive farming which began from 1993 onwards has produced on increase in production (Mazid, 2002). Despite having some management problems in extensive fish culture, it is hoped that semi-intensive culture could be able to minimize the lack of fish demand in Bangladesh.

However, although semi-intensive culture has good prospect in Bangladesh, it is not free from constraints. Various factors are thought to be responsible for low fish yield and production of so many ponds and tanks. These factors, however, vary from one location to another. Of these factors the following ones are noteworthy: (i) ownership of ponds, (ii) non-utilization of some ponds (iii) lack of scientific knowledge in fish culture (iv) shortage of credit facilities on easy terms and (v) violation of appropriate fish conservation acts. According to Chowdhury and Maharjan (1998), the ponds under single ownership had higher production and net return than the multiple ownership of ponds. It was also observed that less the number of owner higher the production, and net return. This could be attributed to the fact that if the number of owner of a pond is too many then it is difficult to take production decisions and to share the input costs. Thus, it is clear that pond ownership has a great influence on the pond fish production in Bangladesh. To use the concept of pond ownership in order to increase the fish production it is an important need to know the fish farmer attitude towards the pond ownership. In view of the foregoing discussion, the study aimed (i) to determine the attitude of farmers towards pond ownership on fish production; (ii) to determine the relationships between the attitudes of farmer towards the effect of pond ownership on pond fish production and their selected characteristics.

Methodology

The study was conducted in Mithapukur upazila of Rangpur district where new ponds are grown day by day. Specifically more tendencies to prepare new ponds were found in Emadpur union of Mithapukur upazila. For this reasons this union was selected as a study area. All of the pond owners of the selected union were the population of the study. A list of all pond owners in selected union was prepared with the help of the Local Extension Agent for Fisheries (LEAF). Total number of pond owners was 850. About ten percent of the pond owners were selected randomly as sample of the study.

Thus, the sample size constituted 86 pond owners. Moreover, a reserve list of 15 pond owners was also prepared for use if any one under sample was not available during data collection. Sixteen statements were considered to measure the extent of attitude towards pond ownership. Five point raking scale such as "strongly agree", "agree", "no opinion", "disagree", and "strongly disagree" was used. Assigned scores against each response were arranged from 4,3,2,1, and 0, respectively.

A pre-tested and structured interview schedule was used to collect data from the farmers during 15 March to 5 April 2010. The researchers did not face any major problem in collecting data. Descriptive analysis such as mean, range, number and percentage, standard deviation and rank order were used to explain the data. Pearson's Product Moment Correlation Coefficient (r) was used to explore relationships between the concerned variables.

Findings and Discussion

Attitude of Farmers towards the Effect of Pond Ownership on Fish Production

The possible attitude score of farmers towards the effect of pond ownership on fish production could ranged from 0-64, 0 indicating highly unfavourable attitude and 64 indicating highly favourable attitude. The computed attitude scores of the pond owners ranged from 30-49, the mean being 41with a standard deviation of 4.16. Based on the obtained scores, the pond owners were classified into three categories as presented in Table 1. Data indicated that 56.98 percent of the respondents had favourable attitude, 25.58 percent had highly favourable attitude, and 17.44 percent had slightly favourable attitude towards pond ownership on fish production. Eighty three percent of the respondents showed favourable to highly favourable attitude. Thus, the findings indicate that most of the pond owners had favourable attitude towards pond ownership.

Extent of farmers Attitude towards Pond Ownership on Fish Production

To have an understanding about extent of attitude of pond owners towards pond ownership on fish production is discussed in this section. Rank order of the attitude of pond owners on fish production is given in Table 2. It is evident from Table 2 that "Joint ownership is helpful to protect fish from flood damage" has rank first as attitude of pond owners having score 312. Pond owners felt that joint ownership is more helpful to protect fish during flood than single ownership. The second one is "Joint ownership is effective to protect fish from thief" score 288, most of the pond owners think that joint ownership is effective to protect fish from thief because they are many in number. The third one is "Joint ownership never create any conflict among the pond owners for running a fish business" score 287 all most same in score on two. The

Table 1 Distribution of pond owners according to their attitude towards the effect of pond ownership on fish production

Respondent categories	Respondents percentage (N=86)	Mean	SD
Slightly favourable attitude (30-35)	17.44	41.0	4.16
Favourable attitude (36-45)	56.98		
Highly favourable attitude (above 45)	25.58		

statement fifteen and sixteen is "Joint ownership is helpful for selecting the type of fish culture" and "Single ownership may not ensure timely "netting" for maintaining water quality" pond owners showing most unfavourable attitude towards the effect of pond ownership on fish production. Most of the pond owners show the favourable attitude in joint ownership. This could be attributed to the fact that if the number of owner of a pond many then it is easy to take production decision and to share the in put cost. About 60 percent of the pond areas are jointly owned by private household and 56 percent jointly operated in Bangladesh (World Bank, 1991)

Table 2 Extent of attitude of farmers towards the effect of pond ownership on fish production

	Statements	Extent of Opinion					Total	Rank
		SA	A	NO	DA	SDA		
+	Joint ownership is helpful to protect fish from flood damage.	56	29	0	1	0	312	1
+	Joint ownership is effective to protect fish from thief.	32	53	0	1	0	288	2
-	Joint ownership never creates any conflict among the pond owners for running a fish business.	1	7	0	32	46	287	3
+	Joint ownership is helpful to manage fund for buying aqua drug to protect fish from disease.	13	71	0	2	0	267	4
-	Joint ownership cannot afford to buy/ rent a water pump for supplying water in pond when necessary.	1	3	1	68	13	261	5
+	Joint ownership is better for timely application of lime, fertilizer and cow	17	58	0	11	0	253	6
-	Single ownership is less costly for repairing pond bottom and dike.	1	15	0	60	1	235	7
-	Single ownership can provide sufficient supports (such as money, materials, transport etc) for proper fish processing.	0	17	0	65	4	228	8
+	Single ownership may not ensure sufficient fund to buy required artificial feed for fish.	8	56	0	22	0	222	9
+	Single ownership may not ensure sufficient money and labour for timely removing aquatic weed.	11	38	1	36	0	196	10
+	Single ownership cannot ensure required fund to buy fish fry at the beginning of the season due to high price.	6	45	0	35	0	194	11
-	Single ownership is sufficient for applying necessary knowledge and skill on water management.	0	33	5	46	2	89	12
-	Joint ownership cannot ensure timely application of feed to the pond.	2	32	0	52	0	188	13

	Statements	Extent of Opinion					Total	Rank
		SA	A	NO	DA	SDA		
+	Joint ownership is better for timely fish harvesting.	4	36	0	46	00	170	14
-	Joint ownership is helpful for selecting the type of fish culture.	5	62	0	19	0	119	15
-	Single ownership may not ensure timely "netting" for maintaining water quality.	6	65	0	15	0	110	16

Note: SA = Strongly Agree; A = Agree, NO = No Opinion, DA = Disagree, SDA = Strongly Disagree

Selected Characteristics of the Farmers

The distribution of the farmers according to their selected characteristics have been shown in the Table 3.The findings indicate that the highest proportion (66.28 percent) of the pond owners were in the middle aged category compared to 19.7 percent belonging to young aged category and 13.95 percent to old aged category. An overwhelming majority (41.86 percent) of the pond owners had primary education. Only 10.47 percent of the respondents had higher education, while 16.28 percent had secondary education, there were 31.39 percent farmers having no formal education.Compare to national average literacy rate (62 percent BBS, 2008) it is visible that the pond owner's educational situation was a reflection of the national scenario.The majority (46.51 percent) of the pond owners had medium sized family, while 44.19 percent had small and 9.30 percent had large family.

Data indicated that the average family size (5.94) of the respondents in the study area is merely higher than the national average of 4.9 (BBS, 2008). The majority (62.79 percent) of the pond owners had small farm size, 34.88 percent had medium and 2.33 percent had large farm size. The average farm size of the pond owners was 1.09 ha, which was larger than that of the national average (0.46 ha; BBS, 2006). The majority (67.44 percent) of the pond owners had low family income, while 17.44 percent had medium family income and 15.15 percent of the respondents were higher family income.

The average family income of the respondent was 88.87 thousand Tk, which was higher than the national average of Tk. 41,103 (BBS, 2008). It was found that 31.40 percent of them had low extension media contact and 56.98 percent had medium and 11.63 percent high extension media contact. Most 50 percent of the respondents had high cosmopoliteness as compared to 19.78 percent having low cosmopolitenessa, 30.23 percent having medium cosmopoliteness. Data indicated that 52.32 percent of the respondents below to medium aspiration category, while 41.8 percent had high aspiration and 5.81 percent had low aspiration.

The highest proportion (60.47 percent) of the respondents had no training, 25.58 percent had short training, and 13.95 percent respondents had medium training. Data indicated that 36.04 percent of the respondents below to medium knowledge category, while 15.12 percent belonged to high knowledge and 48.84 percent low knowledge categories. This finding provides a clue that these pond owners would have low knowledge about fish farming in the study area.

Table 3 Silent feature of the selected characteristics of the pond owners

Selected Characteristics (unit of measure--ment)	Possible value	Observed range	Respondent Categories	Respondents percent (N=86)	Mean	SD	CV
Age (Year)	Unknown	24-60	Young(up to 30) Middle (31-45) Old (above 45)	19.7 66.28 13.95	37.34	7.31	19.57
Educational level (Year of schooling)	Unknown	0-14	No education Primary(1-5) Secondary(6-10) Higher secondary (above 10)	31.39 41.86 16.28 10.47	3.38	3.83	113.31
Family size (Number)	Unknown	3-10	Small (up to 4) Medium (5-6) Large (above 6)	44.19 46.51 9.30	5.94	1.84	31
Farm size (Hectare)	Unknown	0.18-8.50	Small(0.2-1) Medium(2-4) Large (above-4)	62.79 34.88 2.33	1.09	1.07	98.16
Annual family income (`000Tk)	Unknown	14-280 thousand Tk.	Low (14-100) Medium (101-150) High (151-280)	67.44 17.44 15.12	88.87	58.74	66.09
Extension media contact (Score)	0-33	5-26	Low (0-11) Medium (12-23) High(above-23)	31.40 56.98 11.63	13.67	4.73	34.60
Cosmopoliteness (Score)	0-18	1-17	Low(0-6) Medium(7-13) High(above 13)	19.77 30.23 50	1.33	3.87	290.9
Aspiration (Score)	0-18	6-18	Low (0-6) Medium(7-13) High(above 13)	5.81 52.32 41.8	12.61	3.24	25.69
Training exposure (Day)	Unknown	0-5	No training (0) Short training (1-2) Medium training(3-5)	60.47 25.58 13.95	0.97	1.29	132.98
Knowledge about fish farming (Score)	0-23	6-22	Low (0-8) Medium(9-14) High(above 14)	48.84 36.04 15.12	13.58	4.29	31.59

Relationship between the Selected Characteristics of the Farmers and their attitude

The summary of the results of the correlation analysis between the selected characteristics of the respondents and their and their attitude towards the effect of pond ownership has been shown in the Table 4. Out of the ten selected characteristics of the respondent educational level, annual family income,

extension media contact, cosmopoliteness, training exposure and knowledge about fish farming of the pond owners showed positively significant relationships with their attitude towards the effect of pond ownership on fish production. That is, educated farmers show favourable attitude towards pond ownership on fish production. The more the annual income of the farmers, the more they will show favourable attitude. Extension contact, cosmopoliteness, training exposure had immense influence on increasing favourable attitude of farmers towards pond ownership on fish production. While, family size of the pond owners had no relationship with their attitude towards the effect of pond ownership on fish production. Thus, the above findings lead to the conclusion that to increase the production of pond fisheries to a significant extent the concerned authorities should take proper steps considering the significant characteristics of the farmers and in particular the aspects in which their attitude is specifically poor.

Table 4 Correlation between dependent and independent variables

Independent variables	Correlation coefficient (r) (df=84)
Age	0.146
Educational level	0.295**
Family size	-0.089
Farm size	0.085
Annual family income	0.270*
Extension media contact	0.319**
Cosmopoliteness	0.382**
Aspiration	0.144
Training exposure	0.359**
Knowledge about fish farming	0.388**

*Significant at 0.05 level of probability
** Significant at 0.01 level of probability
Dependent variable: Attitude of farmers towards the effect of pond ownership on fish production.

Conclusions

The findings of the present study revealed that education had a positive significant relationship between their education and attitude of farmers towards the effect of pond ownership on fish production. Thus, it may be therefore, concluded that increasing educational level could ensure high fish production. Any effort to improve further their functional educational level will contribute towards the success of any programme directed towards fish production in the study area. More family income indicates stronger financial resources to invest in their ponds and farms ultimately leading to their increasing fish production. Training experience of the pond owners had a significant positive relationship with their attitude towards the fish production. Training is an effective means to increase the knowledge and skills of an individual for the performance of any job. It may, therefore, be concluded that, the attitude level of the pond owners in the study area is possible to increase if the concerned authorities make provision for adequate and effective training programs for the pond owners.

Cosmopoliteness had a significant positive relationship with attitude of farmers towards the effect of pond owners on fish production. The pond owners having more cosmopoliteness are likely to have more opportunity to interact with others sharing their ideas and exchanging views and opinions. It may, therefore, be concluded that favourable attitude of the pond owners will increase if they are motivated to have more frequent visits to different places outside their own social system.

Knowledge is an important factor for pond fish farming but more than fourth-fith (84.88 percent) of the pond owners had low to medium knowledge on various aspects on pond fish farming. Their knowledge was particularly lower in such aspect of pond management as fish disease management, fish harvesting and marketing and release of fish fry in ponds. These facts lead to the conclusion that the production of pond fisheries will not be possible to improve to a significant extent unless the concerned authorities take proper steps to improve their knowledge in overall fish production and in particular the aspects in which their knowledge is specifically poor.

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