Original Article

Studies on the Socio-Economic Condition of Fishermen Community of Ornamental Fish Culture of West Bengal

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Abstract

Ornamental fish can be defined as an attractive colourful fishes of peaceful by nature that is kept as a pet in confined space of an aquarium or a garden pool with the purpose of enjoying their beauty for fun and fancy. The fisher community is very much associated with this ornamental fish culture. So their socio economic condition, age factors, education, caste system, family size and type are affected due to the ups and downs of the culture. Khare and Punekar (2001) reported that socio economic status of fisher women were found to be positive and significantly correlated towards fish farming. So the paper enlightens the background information of the fishermen community of ornamental fish culture.

Keywords: **O**rnamental; Aquarium; Community; Culture; Economic Enlighten.

Introduction

Ornamental fisheries have developed into a multibillion dollar industry as an important sub-sector within the fisheries and aquaculture sector. A number of endemic and native ornamental fish species known as indigenous ornamental fishes are dominating the export market recent times. Thus the indigenous ornamental fishery is also showing the sunlight to the unemployed people by providing them a source of livelihood. According to Ghosh et al. (2003) availability of labour, favourable environment and mostly availability of a number of indigenous potential fishes made this state unique in India in case of ornamental fishery. For the culture of ornamental fishes the socio-economic condition of ornamental fish farmers plays a significant role. According to Gracy (1998) the women in the fishing communities play an important role in the fisheries sector in terms of their involvement in fish related activities such as drying, storing, fish packing, grading and net making. According to Sharma and Kumar (2001) the fishermen managed to income not less than five thousand per month through this ornamental fish culture. Valiakandathil (1978) reported that among the fishermen community 22.7% dominated by primary educated fishermen community. Caste system has also been observed in the fishermen community. According to Halder et

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al. (1988) majority of fishermen were belonged to Scheduled caste community in some villages of West Bengal. Generally the marketing and trade of ornamental fishery is increasing day by day.

Materials and Methods

The studies were conducted in four districts of West Bengal i.e. North 24 Parganas, South 24 Parganas, Howrah and Hooghly. To conduct the study scientifically, a suitable research design was evolved in order to arrive at an authentic conclusion. This chapter deals with the details of the methodology adopted for the present study. Now for the sake of convenience the chapter is sub-divided in to the following sub-headings.

1.   Locale of the study for selection of sampling areas

2.   Selection of respondents.

3. Operationalization of variables and their measurement.

4. Methods of data collection.

5. Statistical analysis of the data.

1. Locale of the study for selection of sampling areas

Ornamental fishes are generally cultured in different districts of West Bengal namely Howrah, South 24 Parganas, Jalpaiguri, Darjeeling, Birbhum, Hooghly etc. But among those districts, South 24 Parganas, North 24 Parganas, Howrah and Hooghly districts were selected for this study because these districts are rich in ornamental fish and are adjacent to each other. The present study was carried out from the month of March' 2008 to February' 2011 among the selected districts.

2. Selection of Respondents

A list of all ornamental fish farmer of four selected areas was prepared. The number of fish farmers of four districts was seven hundred. Among them eighty ornamental fish farmers from each district and as a whole three hundred twenty fish farmers were selected by using simple random technique without replacement from the four districts. Thus three hundred twenty numbers of ornamental fish farmers i.e. respondents were taken as the sample size for this study.

Sum total nos. of respondents:

Howrah = 80 + Hooghly = 80+ North 24 Parganas = 80 + South 24 Parganas = 80

Total nos. of respondents: 320

3. Operationalization of the variables and their measurement

3.1. Personal Characteristics

I. Age

It refers to the chronological age of the ornamental fish farmers and consisted of the following three characteristics:

❖ Young ornamental fish farmers whose age upto 25 years.

❖ Middle aged ornamental fish farmers- It refers to between 26-50 years.

❖ Old aged ornamental fish farmers- It refers to those ornamental farmers whose age was above 50 years.

II. Education

It refers to ornamental fish farmers' academic qualifications acquired through formal schooling. The formal education levels, which were used in this study, are as follows-

➢ Illiterate- It refers to ornamental fish farmers whose education was nil.

➢ Middle- It refers to those ornamental fish farmers whose education upto middle class level (class V-VIII)

➢ Madhyamik- It refers to ornamental fish farmers who passed the school final examination.

➢ Higher Secondary- It refers to those ornamental fish farmers who passed the Higher Secondary examination.

➢ Graduate- It refers to those ornamental fish farmers whose education was upto graduation level.

III. Family Size

In a nuclear family it refers to total number of persons of the family of an ornamental fish farmer which includes the ornamental fish farmer's father, mother, sisters, brother and grandparents. The total number was taken as a family size.

IV. Gender

It refers to ornamental fish farmer's sex and considered of two categories i.e. male and female.

3.2. Socio Economic Characteristics

I. Economic Status

It refers to the ornamental fish farmer's earnings through fishing activities as well as through other agricultural activities. This study was done based on the categories like BPL (bellow poverty line) and APL (above poverty line) as directed by the Government.

II. Caste

It refers to caste of the ornamental fish farmers. Three categories of the caste were considered in this study namely scheduled caste, general caste and scheduled tribe.

III. Religion

It refers to religion of the ornamental fish farmers. Three categories have been identified i.e. Hindu, Muslim and others.

IV. Land Holding

It refers to the total land areas (cultivated and house hold) possessed by ornamental fish farmers which range from one kattha to five bighas.

3.3. Communicational Characteristics

I. Utilization of Information Sources

It refers to the various sources through which the respondent receives the information regarding fishery activities. According to the frequency of utilization sources had been allotted for individuals sources…. "most often"-4, "often"-3, "sometimes"-2 and "never"-1.

II. Personal characteristics

Age	: Chronological age in years
Education	: Schedule was developed for the study
Family Size	: Schedule was developed for the study
Gender	: Gender in male and female

III. Socio-economic Characteristics

Cast	: Schedule was developed for the study
Religion	: Schedule was developed for the study
Economic status	: Schedule was developed for the study
Land holding	: Schedule was developed for the study
Water body processing	: Schedule was developed for the study

4. Method of the data collection

The final data for this study were collected with the help of structured interview. The data were collected during March' 2008 to February' 2011. The respondents were contacted twice in order to establish rapport with them and obtaining factual information. The researcher herself individually interviewed the respondents selected in the sample in order to gather the required and relevant information for the study.

5. Statistical Analysis of Data

The collected data were checked and put in prepared format for bring out proper results. For making simple comparisons the frequency tables were constructed and the respective percentages were calculated. The acquired data were analyzed by following statistical techniques.

Mean

Mean or average, taken as representative of groups of item implies a measured degree of validity. The arithmetic mean is the simple average, which is calculated as the sum of the items divided by the number of items.

The formula for the mean of a series of numbers is as follows:

$$X = \frac{\sum X}{N}$$

Where $\sum X$ = Sum of the individual items.

N = Number of items.

Percentage

Percentages were used mainly for making simple comparison. For calculating percentages the frequency of a particular characteristic were divided by total number of respondents in that particular characters and multiplied by 100.

The formula for the percentage is as follows:

$$Percentage = \frac{Frequency}{N} \times 100,$$

where N= Number of items.

Results

The results of that study have been presented broadly in three parts here. The results occurring from descriptive analysis of the data regarding ornamental fish farmers have been presented. In the first part, the result regarding personal, socio-economical and communicational characteristics of ornamental fish farmers have been presented. The second part dealt with the cultural practices and the problems faced by the farmers. In the third part, the marketing system of ornamental fishes in the study area has been described.

1. Background information of the ornamental fish farmers

In order to understand the present status of ornamental fish farming clearly and comprehensive

for this study some of the personal, socio-economical, communicational characteristics were taken into account which include their age, education, family size, caste, land and water bodies holding and utilization of information sources of ornamental fish farmers.
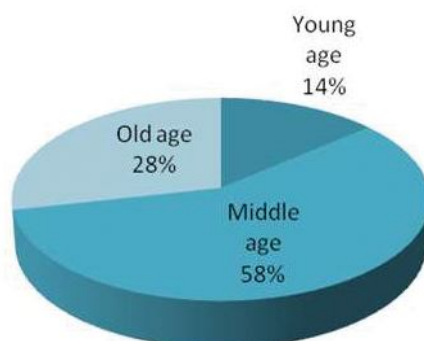
1.1. Personal Characteristics

1.1.1. Age

The age of the ornamental fish farmers varied from 17 years to 60 years.

Table 1: Distribution of Respondents according to age   (N=320)

Sl. No.	Category	Frequency	Percentage
1.	Young (upto 25 years)	44	13.75
2.	Middle (26-50 years)	185	57.81
3.	Old (above 50 years)	91	28.44

Fig. 1: Chart showing the Percentage of Age of respondents

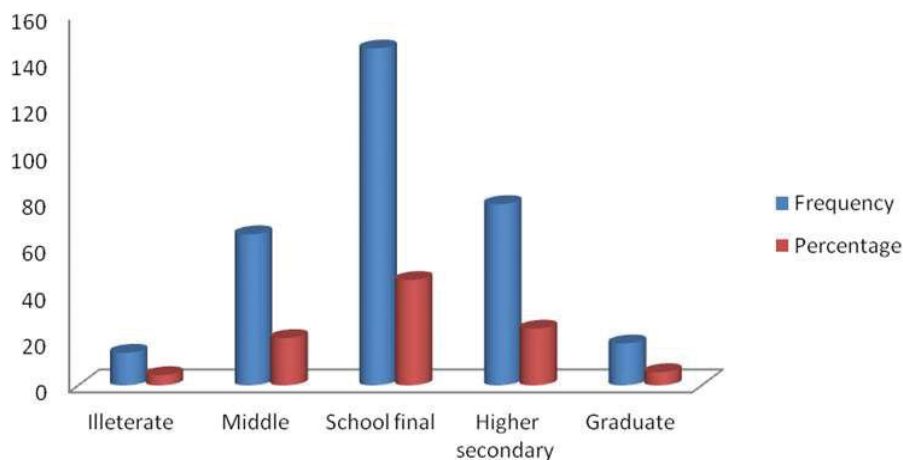Out of 320 ornamental fish farmers, majority i.e. 185 numbers (57.81%) were in the age group of 26-50 years (middle), 91 (28.44%) were belonged to old category i.e. above 50 years and remaining 44 (13.75%) ornamental fish farmers were in age group of upto 25 years (young) (Table 1, Fig.1).

1.1.2. Education

Table 2: Distribution of respondents according to education   (N=320)

Sl. No.	Category	Frequency	Percentage
1.	Illiterate	14	4.37
2.	Middle	65	20.31
3.	Madhyamik (School Final)	145	45.31
4.	Higher Secondary	78	24.37
5.	Graduate	18	5.62

Fig. 2: Chart showing the frequency and percentage of Education of respondents

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The results showed that out of 320 ornamental fish farmers only 14 ornamental fish farmers (4.37%) were illiterate and rest of 306 (95.63%) were literate.

Out of 306 literate ornamental fish farmers 65 numbers (20.31%) were in middle level and majority i.e. 145 numbers (45.31%) were in Madhyamik level and 78 numbers (24.37%) were in higher secondary level where as only 18 ornamental fish farmers (5.62%) were graduate level (Table-2, Fig-2)
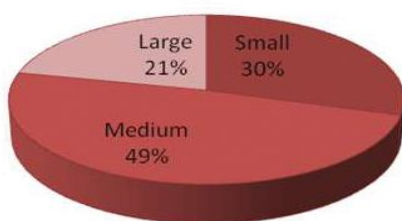
1.1.3. Family Size

The maximum and minimum numbers of family members of ornamental fish farmers in the study were 12 and 2 respectively.

Table 3: Distribution of respondents according to Family Size (N=320)

Sl. No.	Category	Frequency	Percentage
1.	Small (1-4 nos.)	95	29.68
2.	Medium (5-8 nos.)	156	48.75
3.	Large (9 and above nos.)	69	21.56

Fig. 3: Chart showing the percentage of Family size of respondents.

Out of 320 ornamental fish farmers, majority i.e. 156 (48.75%) were having medium size family (5-8 nos.) followed by 95 (29.68%) who were having small size (1-4 nos.) of family. Only 69 (21.56%) ornamental fish farmers were having large size family (9 and above) (Table-3, Fig.3).
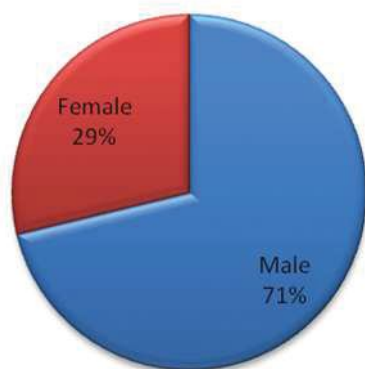
1.1.4. Gender

Both male and female ornamental fish farmers were found in the study area.

Table 4: Distribution of respondents according to their gender (N=320)

Sl. No.	Category	Frequency	Percentage
1.	Male	228	71.25
2.	Female	92	28.75

Fig. 4: Showing the percentage of Zender of ornamental fish farmers

The study indicated that out of 320 respondents, the majority were 228 (71.25%) male ornamental fish farmers and 72 (28.75%) female ornamental fish farmers out of 320 respondents (Table-4, Fig-4).
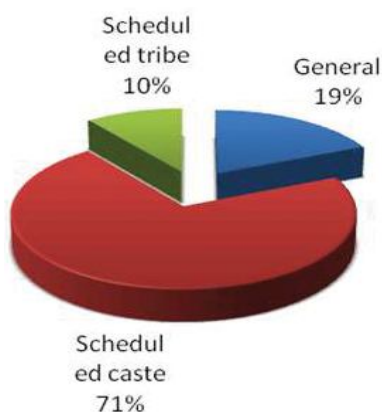
1.2. Socio-economic Characteristics

1.2.1. Caste

The findings of the study indicated that the majority of ornamental fish farmer belonging to scheduled caste community.

Table 5: Distribution of respondents according to their Caste (N=320)

Sl. No.	Category	Frequency	Percentage
1.	General	59	18.43
2.	Scheduled Caste	228	71.25
3.	Scheduled Tribe	33	10.31

Fig. 5: Showing the percentage of caste of ornamental fish farmers

So from the above data it can be concluded that majority of the respondents i.e., 228 (71.25%) belonging to scheduled caste and the rest respondents i.e. 59 (18.43%) belonging to general caste followed by 33 (10.31%) farmers belonging to scheduled tribe (Table 5, Fig. 5).
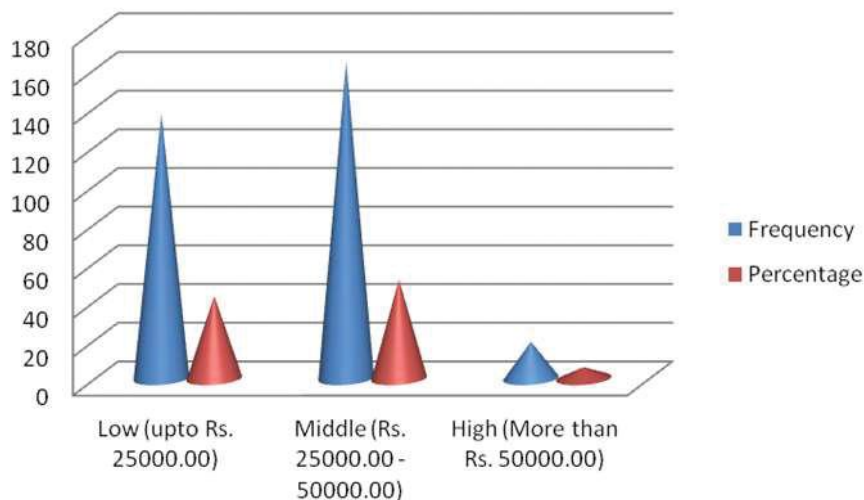
1.2.2. Annual Income

On the basis of annual income of the ornamental fish farmers they can be categorized as lower, middle and higher income groups.

Table 6: Distribution of respondents according to their Income   (N=320)

Sl. No.	Category	Frequency	Percentage
1.	Lower (upto Rs. 25000.00)	137	42.81
2.	Middle (Rs. 25000.00 -50000.00)	164	51.25
3.	Higher (More than Rs. 50000.00)	19	5.93

Fig. 6: Chart showing the annual income of the ornamental fish farmers.

The present study revealed that out of 320 ornamental fish farmers, majority i.e. 164 (51.25%) farmers belonging to middle a income group (Rs. 25000.00-50000.00) followed by 137 (42.81%) ornamental fish farmers belonging to lower income group (upto Rs.25000.00) and the others i.e. 19 (5.93%) ornamental fish farmers belonging to higher income category (more than Rs.50000.00) (Table-6,Fig-6.)
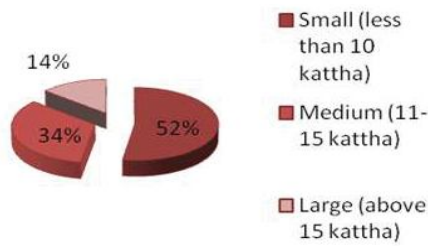
1.2.3. Land Holding

The land holding capacity of the respondents of the study area were reported from 4 cattah to 5 bigha

The majority of the respondents 168 (52.50%) had less than 10 katthas land, 108 (33.75%) respondents were reported of holding 11-15 katthas land and the rest i.e. 44 (13.75%) of respondents had large size land of above 15 katthas (Table-7, Fig- 7).

Table 7: Distribution of respondents according to their Land Holding   (N=320)

Sl. No.	Category	Frequency	Percentage
1.	Small (less than 10 kattha)	168	52.50
2.	Medium (11-15 kattha)	108	33.75
3.	Large (above 15 kattha)	44	13.75

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Fig. 7: Showing the percentage of land holding of the respondents

14%
34% 52%

■ Small (less than 10 kattha)

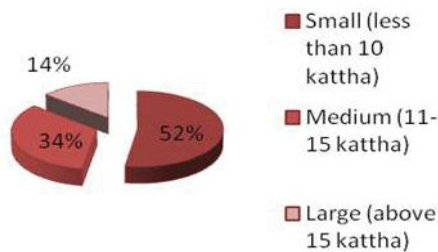■ Medium (11-15 kattha)

□ Large (above 15 kattha)

1.2.4. Total Water Bodies

The minimum and maximum water bodies owned by the respondents were 1.5 katthas and 15 katthas respectively.

Table 8: Distribution of respondents according to Total Water Bodies (N=320)

Sl. No.	Category	Frequency	Percentage
1.	Small (below 4 kattha)	158	49.37
2.	Medium (4-8 kattha)	84	26.25
3.	Large (above 8 kattha)	78	24.37

Fig. 8: showing the percentage of water bodies of the respondents

14%
34% 52%

■ Small (less than 10 kattha)

■ Medium (11-15 kattha)

□ Large (above 15 kattha)

The present communication revealed that majority of the ornamental fish farmer i.e. 158 (49.37%) owned small area of water bodies followed by 84 (26.25%) owned medium areas of water bodies only 78 (24.37%) farmers had large water bodies (Table-8,Fig-8)

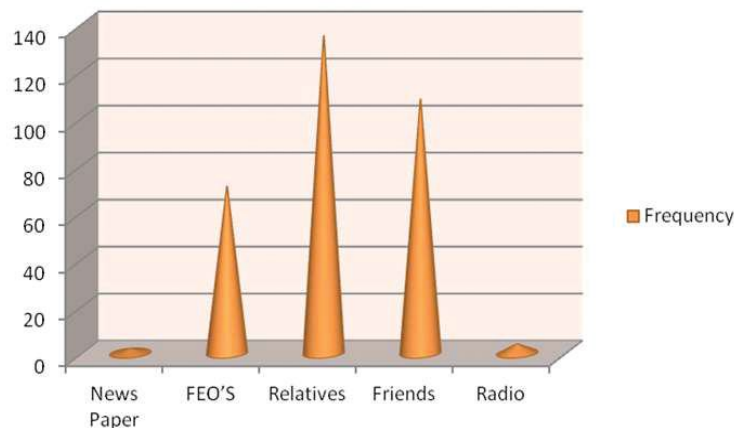### 1.2.5. Communicational Characteristics

Information Sources

Ornamental fish farmers use different sources of information for the ornamental fish farming. They collected information related to culture practices and marketing. Sometimes they kept themselves in touch of various schemes and projects of the government.

Table 9: Distribution of respondents according to their use of Information Sources

Sl. No.	Category	Frequency	Rank
1	News Paper	2	5
2	FEO'S	71	3
3	Relatives	135	1
4	Friends	108	2
5	Radio	4	4

Fig. 9: Chart showing the frequency of source of information of the respondents

From the present study it was revealed that the majority of ornamental fish farmer i.e. 135 (42.18%) received necessary information from their relatives. Friends were the most credible sources of information to 108 (33.75%) ornamental fish farmers 71 (22.185) numbers of ornamental fish farmer used to get information from the Government officials. Only 2 (0.62%) received information from news papers and 4(1.30 %) received information through broad casting system (Table 9, Fig.9).

Discussion

The present study indicated that the majority of ornamental fish farmers (both male and female) belonged to middle age group i.e. age group of 26-50 years. In case of female farmers similar results have been reported by Sathiadas and Ashaletha et al., (2003) In case of family size of ornamental fish farmers the majority of the respondents belonged to medium size of family having 5-8 members. The present findings was corroborated with Halder et al., (1998) and Hug et al., (1985) with their findings which was reported that the average family size of the fish farmers. Males were dominated the ornamental fishery business but a large number of females are also engaged in this occupation. Females generally helps in water exchange, feeding , rearing and packaging of he fishes as the male went for other agricultural work. So, it is clear that other members of the family actively participated in ornamental fishery.

Regarding educational status, it is evident that majority of the ornamental fish farmers having madhyamik level of education. Out of 320 respondents only 14 respondents i.e. 4.37% were reported to be illiterate i.e. 95.63% respondents were literate. In this regard Maiti, A, (2003) reported that 90.67% respondents belonged to educational status of literacy level.

The present findings showed that the majority of respondents belonging to scheduled caste community. This work corroborated with the work of Halder et al., (1998), Bhaumik et at., (1991) and Das (2006) in this respect. The present communication also revealed that the majority of the ornamental fish farmers possessed small land area around less than ten katthas.

The present work also indicated that friend, relatives and Government officials were the most credible sources of information to the ornamental fish farmers.

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