

## A PRELIMINARY SURVEY ON THE STATUS AND POTENTIAL OF AQUARIUM FISH AND ITS TRADE IN BANGLADESH

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### **Abstract**

A preliminary survey was conducted on 50 randomly selected aquarium shops in Dhaka city to assess the present status and potential of the aquarium fishes and its trade during the five months period from February to June 2004. Forty six species of aquarium fishes were found in the market of which nine were local and others were imported from Thailand, Singapore and India. Neontetra, Longfin, Glass catfish, Gold fish, Blackmoor, Rosybarb, Tigerbarb, Harlwequin fish, Cardinal tetra, Guppy, Platy, Angelfish and Lal Khailsha were abundant and of high demand while Zebra barb, Yellow tetra, Glass tetra, Red bellied piranha, Festivum, Zebra Malawi cichlid and Molly were of low demand. Big and small size shop owners earned a profit of Tk. 1,200 - 2,000 and Tk. 100 - 599, respectively per day. Most of the traders were graduates and 50% had no extra occupation. They were satisfied with their occupation. Most of the employees had good knowledge in keeping fishes in good condition. The household members, service holders and business personnel buy aquarium fishes for decoration as well as their hobby.

### **Introduction**

Aquarium fish rearing in Bangladesh is becoming popular among all classes of people for decorative purposes as well as hobby. As a result, the trade of aquarium fish, aquarium, equipments and accessories for aquarium is emerging. Until 1990, only five to six shops were engaged in aquarium fish and aquarium trade but after the establishment of Kataban, Dhaka University Market, 30 aquarium shops were established.<sup>(1)</sup> Still now, aquarium fish trading is mainly concentrated on Dhaka at Kataban but also spread to different areas. They sell aquarium fishes, aquarium, mini water pump, aerators, water filters, fish feed, chemotherapeutants and other aquarium accessories like aerator pipes, diffuser, small ornamental plastic trees etc. Aquarium fish exhibition organized by different organizations and aquarium fish traders at different times without published documents were some initiatives to point out the prospects of aquarium fish. Although current status, trends and problems of aquarium fish in different countries of the world have been identified<sup>(2-4)</sup> but in Bangladesh till now, the status of aquarium fish and its trading trend have not been

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assessed. The present preliminary study was conducted with the aim to assess the status and potentialities of aquarium fish and its trade in Bangladesh.

### Materials and Methods

The survey was conducted from February to June, 2004 in different shops located at different areas of Dhaka city. Randomly 50 shops were selected for the survey in which 30 belonged to the Kataban, Dhaka University market and other 20 shops were located in different areas like Farmgate, Mirpur-10, Pallabi, Kachukhet, Mohakhali, Mogbazar, Banani, Gulshan-1 and 2, Dhanmondi-15, Malibagh, Jatrabari and Luxmibazar of Dhaka city. The researchers themselves interviewing the shop owners, shop-manager, shop employees and customers on different categories using a pre-tested and appropriated questionnaire collected the data. The fish species were identified. <sup>(5-7)</sup>

### Results and Discussion

Table 1 shows the status of the species of aquarium fishes found in the markets for sell with their availability and demand by the buyers. Forty six species of aquarium fishes were found in the market. Fourteen species of fishes belonged to Cyprinid group (13 species belonged to Cyprinidae and one species belonged to Cobitidae), ten species belonged to Characin group (nine species belonged to Characidae and one species belonged to Rivulidae), three species belonged to Cyprinodontid group (Poeciliidae), four species belonged to Cichlid group (Cichlidae), five species belonged to Perch group (three species belonged to Osphronemidae, one species belonged to Ambassidae and one species belonged to Scaridae), six species belonged to Catfish group (six species belonged to six different families - Asperdinidae, Siluridae, Loricariidae, Mochokidae, Bagridae, Pangasidae), two species belonged to Mastacembelid group (one species belonged to Leiognathidae and one species belonged to Mastacembelidae), one species belonged to Osteoglossid group (Pantodontidae), and one species belonged to Atherinid group (Telmatherinidae). This may be the first attempt to identify the aquarium fish species scientifically to know the status of those species. Of the 46 species, nine species were of local origin. Eleven species of fishes were imported from Thailand and India; eight species from Thailand and Singapore while the rest 18 species were imported alone from Thailand. The aquarium fishes found in the shops were categorized into three groups based on their status of availability. Ten species of fishes were abundant that is they were distributed in all the shops in large proportion while 18 species of fishes were common that is they were found more or less in all the shops. Five species were fairly common that is they were found

**Table 1. Shows the groups, local names, source, scientific name, status and demand of aquarium fish species in Bangladesh.**

Groups/ family	Local name of species	Source of fish species	Scientific name of fish species	Status of fish in shops	Demand of fish to buyers
<b>Cyprinid group</b>					
Cyprinidae	Goldfish	Thailand & India	<i>Carassius auratus</i>	Abundant	High
Cyprinidae	Black moor	Thailand	<i>Carassius auratus</i>	Abundant	High
Cyprinidae	Rosy barb	Thailand	<i>Barbus conchoniuis</i>	Abundant	High
Cyprinidae	Silver shark	Thailand & India	<i>Balantiochelus melanopterus</i>	Abundant	Medium
Cyprinidae	Zebra barb	Thailand & India	<i>Barbus fasciatus</i>	Common	Low
Cyprinidae	Tiger barb	Thailand & India	<i>Barbus tetrazona</i>	Abundant	High
Cyprinidae	Giant danio	Thailand & India	<i>Danio malabaricus</i>	Abundant	Medium
Cyprinidae	Red-tailed shark	Thailand & India	<i>Labeo bicolor</i>	Fairly common	High
Cyprinidae	Harlwequin fish	Thailand	<i>Rasbora heteromorpha</i>	Abundant	High
Cyprinidae	Darkina	Local	<i>Rasbora daniconius</i>	Common	Medium
Cyprinidae	Rani mach	Local	<i>Botia dario</i>	Fairly common	High
Cyprinidae	Black shark	Thailand	<i>Morulius sp.</i>	Common	Medium
Cyprinidae	Ghar poia/sucker fish	Local	<i>Garra gotyla</i>	Common	Medium
Cobitidae	Coolie loach	Thailand & Singapore	<i>Acanthopthalmus semicinctus</i>	Common	High
<b>Characin group</b>					
Characidae	Cardinal tetra	Thailand	<i>Cheirodon axelrodi</i>	Common	High
Characidae	Black widow	Thailand	<i>Gymnocorymbus ternetzi</i>	Fairly common	Medium
Characidae	Golden tetra	Thailand & Singapore	<i>Hemigrammus armstrongi</i>	Common	Medium
Characidae	Yellow tetra	Thailand	<i>Hypheobrycon bifasciatus</i>	Few	Low
Characidae	Silver dollar	Thailand & Singapore	<i>Metynnis roosevelti</i>	Common	High
Characidae	Glass tetra	Thailand	<i>Moenkhausia sanctae- filomenae</i>	Common	Low
Characidae	Neon tetra	Thailand & Singapore	<i>Paracheirodon innesi</i>	Few	High
Characidae	X-ray fish	Thailand & Singapore	<i>Pristella riddlei</i>	Few	Medium
Characidae	Red-bellied piranha	Thailand	<i>Serrasalmus nattereri</i>	Few	Low
Rivulidae	Longfin	Thailand & Singapore	<i>Pterolebias longipinnis</i>	Few	High

(Contd.)

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Groups/	Local name of	Source of fish	Scientific name	Status of	Demand of
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family	species	species	of fish species	fish in shops	fish to buyers
<b>Cyprinodont group</b>					
Poeciliidae	Molly	Thailand & India	<i>Molliensia sphenops</i>	Common	Low
Poeciliidae	Guppy	Thailand & India	<i>Poecilla reticulate</i>	Abundant	High
Poeciliidae	Platy	Thailand & India	<i>Xiphophorus maculatus</i>	Common	High
<b>Cichlid group</b>					
Cichlidae	Blue acara	Thailand	<i>Aequidens latifrons</i>	Few	Medium
Cichlidae	Festivum	Thailand	<i>Cichlasoma festivum</i>	Few	Low
Cichlidae	Zebra	Thailand	<i>Pseudotropheus zebra</i>	Few	Low
Cichlidae	Malawicichlid Angelfish	Thailand & India	<i>Pterophyllum scalare</i>	Abundant	High
<b>Perch group</b>					
Osphronemidae	Siamese fighting fish	Thailand and India	<i>Betta splendens</i>	Common	High
Osphronemidae	Paradise fish	Thailand & Singapore	<i>Macropodus opercularis</i>	Common	High
Osphronemidae	Lal Khailsha	Local	<i>Colisa lalius</i>	Abundant	High
Ambassidae	Ranga Chanda	Local	<i>Chanda ranga</i>	Common	High
Scaridae	Parrot fish	Thailand	<i>Bolbometopon sp.</i>	Common	High
<b>Catfish group</b>					
Aspredinidae	Banjo catfish	Thailand	<i>Bunocephalus coracoideus</i>	Few	Low
Siluridae	Glass catfish	Thailand & Singapore	<i>Kryptopterus bicirrhis</i>	Few	High
Loricariidae	Whiptailed catfish	Thailand	<i>Loricaria filamentosa</i>	Few	Medium
Mochokidae	Upside down catfish	Thailand	<i>Synodontis batensoda</i>	Few	High
Bagridae	Tengra	Local	<i>Mystus vittatus</i>	Few	Low
Pangasiidae	Thai Pangus	Local	<i>Pangasius sutchi</i>	Common	Medium
<b>Mastacembelid group</b>					
Leiognathidae	Spiny Eel	Local	<i>Macrogathus aculeatus</i>	Common	Low
Mastacembelidae	Baim	Local	<i>Mastacembelus armatus</i>	Fairly common	Medium
<b>Osteoglossid group</b>					
Pantodontidae	Butterfly fish	Thailand	<i>Pantodon buchholzi</i>	Common	Low
<b>Atherinid group</b>					
Telmatherinidae	Celebes rainbowfish	Thailand	<i>Telmatherina ladigesii</i>	Fairly common	High

in some shops while 13 species of fishes were few that is they were only found in only few shops. Twenty three species of fishes were of high demand, while 12 species had medium demand and 11 species of fishes had low demand to the customers. Usually

the abundant fishes had high customer demand except Silver shark and Giant danio, which had middle demand. “Few” status fish species had usually low demand but Neontetra, Longfin, Glass catfish, and Upside down catfish (locally called by traders as sucker fish) had high customer demand. The “Common” status fish species had mixed demand to the customers. From the survey it is revealed that the traders used to stock a lot those fishes, which had high demand to the customers.

Table 2 shows the ranking of the shops on the basis of number of aquarium with fishes, aquarium accessories and other aquarium related materials, sales and profit per day. There were 12 big sized shops with 25 to 35 aquariums with fishes. These shops kept all kinds of aquarium accessories and materials for sale which were the unique features of the big-sized shops. The sale per day ranged from Tk. 6,000 to 10,000 with profit of Tk. 1,200 to 2,000. As the big-sized shops had more capital, they had the opportunity for more sale and profit. The number of medium sized shops was 28, which had 15 to 20 aquariums with fishes. These shops were selling small sized aquariums and all aquarium accessories except water filters

**Table 2. Ranking of the shop according to the number of aquarium with fishes, aquarium related accessories and materials, sale and profit status.**

Ranking of shop	No. of shop	No. of aquarium with fishes	Aquarium related accessories and materials	Sell per day (Tk.)	Profit per day (Tk.)
Big size	12	25 - 35	Aquarium furniture, large aquariums, water filter, fish feed, aerators and chemotherapeutants	6,000 - 10,000	1,200 - 2,000
Medium size	28	15 - 20	Small glass aquarium, fish feed, aerators and chemotherapeutants	3,000 - 5,000	600 - 1,199
Small size	10	10 - 15	Mini glass aquarium, fish feed, aerators and chemotherapeutants	1,000 - 2,999	100 - 599

which was due to their limitation of investment and it can also be mentioned that water filters were of high price but with low customer demand. The sale per day ranged from Tk. 3,000 to 5,999 with profit of Tk. 600 to 1,199. The small sized shop numbering ten kept 10 - 15 aquariums with fishes and had mini glass aquariums, fish feed, aerators and chemtherapeutants. These shops were with less aquariums, aquarium fishes and aquarium accessories as they had limited investment but they were interested to expand their business due to the rising demand of aquarium fishes. The sale per day ranged from Tk. 1,000 to 2,999 with profit of Tk. 100 to 599. So, compared to other business, this business had more prospects in terms of sell and

profit. Table 3 shows the educational status of the traders. No trader was illiterate. Among the literate, 42 % were graduate followed by 28 % higher secondary, 18 % postgraduate, 10 % secondary school and only 2 % primary school level. As this kind of business need some scientific management, the involvement of educated trader had positive effects on the business. Out of 50 traders, 25 had no extra occupation while 13 had other businesses and 12 were in service as secondary occupation (Table 4). This situation reflects that most traders were totally dependent on the aquarium business and treated as their sole source of livelihood. From the survey (Fig.1), it was found that 72 % of the traders were satisfied while only 10 % were unsatisfied with the business and 18 % of the traders made no comment. The satisfactory level was high probably due to the good range of sell as well as profit per day.

**Table 3. Educational status of the traders.**

Level of education	Number of traders	Percentage
Illiterate	0	0
Primary	1	2
Secondary	5	10
Higher Secondary	14	28
Graduate	21	42
Post-graduate	9	18

**Table 4. Secondary occupations of the traders.**

Occupation	Number of traders	Percentage
Service	12	24
Other business	13	26
No extra occupation	25	50

Table 5 presents the status of employment through aquarium fish trade. Only four importers imported fishes, other materials and accessories from abroad, and eight local suppliers engaged in supplying local fishes and local materials like glass, teak and wood for aquarium. One hundred forty two employees were found engaged full-time or part-time with 50 shops. Sixteen aquarium carpenters were engaged in making aquarium for the shops. So, a total of 220 people were engaged directly with aquarium business while several other were indirectly involved in the trade and it was increasing day by day. Fig. 2 shows the level of knowledge in keeping fishes in good condition among the employee. Three levels of knowledge were identified on the basis of experiences, knowledge received from books and trainings. Out of 142 employee 15.50 % of them had high level of knowledge who received knowledge from

books and long-time experience while 72.53 % of the employee had good level of knowledge who had received knowledge from experienced employees and only 11.97% of the employee had low level of knowledge who were actually receiving knowledge and training from the experienced one.

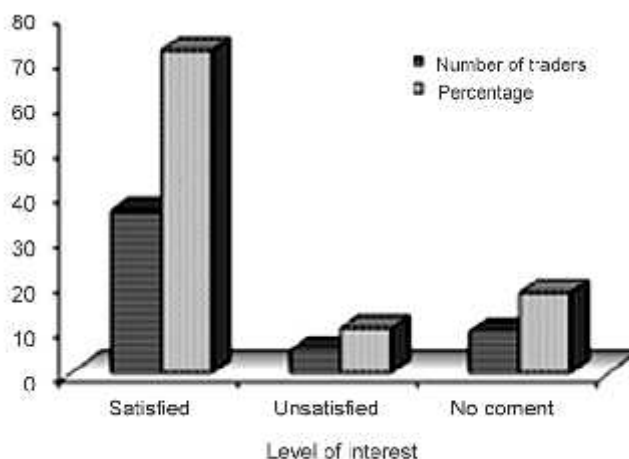


Fig.1. Level of interest of the traders in aquarium trade.

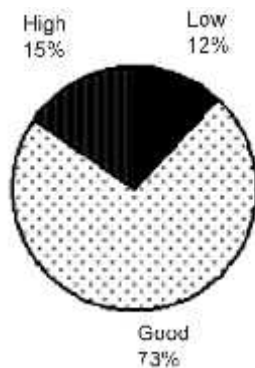


Fig. 2. Level of knowledge of employee in keeping fishes in good condition.

Table 6 presents the composition of the buyers. Out of 100 buyers, 47 % were household members, 14 % were service holder, 29 % were business personnel and 10% belonged to the miscellaneous categories of people. The household member bought the aquarium and aquarium fishes for the purposes of home decoration and for hobby. Service holder and business personnel bought them for office decoration and miscellaneous categories of people bought them for hobby. So, aquarium fishes

becoming part of the home and office decoration and people are taking the aquarium fish keeping as hobby.

**Table 5. Status of employment through aquarium fish trade.**

Employment status	Number	Percentage
Importer	4	1.81
Local supplier	8	3.63
Shop owner/trader	50	22.72
Employee	142	64.54
Aquarium carpenter	16	7.27

**Table 6. Type of buyers of aquarium fish (out of 100 buyers).**

Type of buyers	No. of buyers	Percentage	Purposes
Household member	47	47	Home decoration
Service holder	14	14	Office decoration
Business personnel	29	29	Office decoration
Others	10	10	Hobby

Some local supplier-cum fish breeder were supplying local aquarium fishes and foreign aquarium fishes like Goldfish but they had less intention to breed the other aquarium fishes like Silver shark, Tiger barb, Giant danio, Red-tailed shark, Molly, Guppy, Platy, Angelfish, Siamese fighting fish which were being produced locally in India. <sup>(8)</sup>

This preliminary survey reveals the potentiality of the aquarium fish trade in Bangladesh which can only be flourished by proper training, management and policy implementation by the government as well as private organizations and then this sector can save as well as earn foreign currency and create better livelihood opportunity.

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