# Fish species availability with their prices in fish markets of Khulna district in Bangladesh

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## ABSTRACT

*The present study was conducted to identify the available fish species, average fish price, and marketing system in five fish markets in Khulna district of Bangladesh. A total of 40 fish retailers were interviewed through a questionnaire survey for the collection of data. The results showed that freshwater species were dominant in the markets. Some marine and brackish water species were also abundant. According to the survey, kakila, khalisha, sarpunti, suri, shal baim, and koi were relatively less available, whereas boal, pabda and ayre were very rarely found. The lower priced fish were silver carp, pangas, tilapia, mrigal, suri, etc. whereas the price of ayre, vetki, bhangon, shing, magur, ilish, and golda chingri were higher. When ilish were abundant in markets, the price of other fish declined. Intermediaries such as wholesalers and retailers were involved in selling fish from fishers or fish farmers to the consumers. Fish were mostly carried to the markets through rickshaws, vans, easy bikes, etc. and sometimes the fish traders brought fish from distant places by larger vehicles like pick-ups, trucks, the roofs of buses, etc. The fish retailers faced some problems including higher transport costs, poor market infrastructures, inadequate drainage systems, poor water supply, unhygienic conditions, lack of storage facilities, lack of marketing facilities, etc. Therefore, fish market infrastructures should be improved with proper sanitation, hygienic condition, drainage as well as washing facilities and fish marketing channels need to be developed by establishing modern wholesaling facilities with the support of government or NGOs.*

*Key Words: Fish market, marketing system, Fish species, Fish price, Khulna*

## I. Introduction

Bangladesh is a developing country blessed with natural fisheries resources. The fisheries sector plays an important role in Bangladesh's economy including nutrition, employment, income, and foreign exchange earnings. This sector contributes 1.24% to the total export earnings, 3.57% to the national

GDP, and 26.50% to the agricultural sector. Moreover, about 60% of the daily animal protein intake of its people is driven by this sector (DoF, 2022). The yearly per capita fish consumption (about 23 kg/year) in this country has exceeded the recommended minimum requirement of 21.90 kg/year, which indicates that Bangladesh is self-sufficient in fish production (Azad and Azad, 2022).

Fisheries in Bangladesh are diverse, with about 795 native fish and shrimp species in the freshwater and marine waters of Bangladesh. Among them, 260 freshwater fish, 475 marinewater fish, 24 freshwater prawns, 36 marine shrimp, and 12 exotic species are widely known (Azad and Azad, 2022). IUCN Bangladesh (2015a) and (2015b) revealed that nearly one-fourth (64 species) of the 260 freshwater fish species are under threat. Indigenous carp as well as exotic carp from capture as well as culture sectors are mainly contributing to the total fish production. Brackish water species are generally cultured in coastal areas of Bangladesh (Azim et al., 2002).

Khulna is recognized as one of the most critical fisheries zones in the country. This district is enriched with various types of natural water resources. Thus, many varieties of fish from both inland water and marine water are available there. Considering these aspects, Khulna district is an important area for fish marketing. Several fish markets are located around the district town. Fish are usually transported to these markets through different transport systems for consumption of people. In the fish markets, the marketing chain from fish farmers or fishermen to consumers generally passes through several intermediaries (Aktar et al., 2013), although sometimes producers are directly involved in fish marketing (Sapkota et al., 2015). The market value chain often regulates the price of fish in markets (Deb et al., 2022). Fish price also depends on some other factors (Quddus, 1991; Shang, 1981). However, information on these aspects of different fish markets in the Khulna district is scarce. Therefore, the present study was carried out to know the availability of fish species, average fish prices, and the fish marketing system in several markets of Khulna district.

## II. Materials and Methods

The study was conducted at five fish markets, namely, Boro Bazar, Natun Bazar, New-market Bazar, Rupshaghat Bazar, and Samsur Rahman Road Bazar, in Khulna district. It was based on a market survey, obtaining information through a sample survey among fish traders. Five fish markets were surveyed among which, three were morning fish markets and two were evening fish markets. The data were collected for a period of three months from September to November of the year. Primary data were collected through questionnaire interviews and cross-checking interviews with key informants. For questionnaire interviews, 40 fish traders (retailers) were selected in 5 fish markets in the study area by simple random sampling. Cross-check interviews were conducted with key informants such as Upazila Fisheries Officer (UFO), District Fisheries Officers (DFO), and relevant GO and NGO officials. After collection, data were arranged and analyzed using Microsoft Excel Software and then presented in textual, tabular, and graphical forms.

## III. Results and Discussion

### Fish species availability in the markets

Different types of fish were available in fish markets of Khulna district (Table 01). Freshwater species were dominant in the markets. However, a few marine and brackish water species like suri, ilish, loitta, rupchanda, bagda chingri etc. were also found.

According to the survey, the fish availability was divided into three categories- Common, rare, and very rare. In the markets of Khulna, kakila, khalisha, sarpunti, suri, shal baim, and koi were relatively less available, whereas boal, pabda, and ayre were very rarely found. Generally, in the months of Ashar-Shrabon and Vadro-Arshin (June to October), fish species availability is the highest. Moreover, during the full moon, a higher number of fish species are found. The availability of fish species also varies from season to season. Haldar et al. (2020) and Hossain et al. (2015) similarly found both freshwater and marine species in the fish markets in Manikganj as well as Noakhali districts of Bangladesh, respectively. The available fish species in Khulna fish markets were more or less similar to those in Noakhali fish markets (Aktar et al., 2013), whereas fish markets in Barisal district of Bangladesh are highly abundant with ilish (Al-Hasan et al., 2014).

**Table 01. Availability of different groups of fishes in fish markets of Khulna**

| Local name | Scientific name | Availability type |
|---|---|---|
| Bele | *Glossogobius giuris* | Common |
| Boal | *Wallago attu* | Very Rare |
| Bata | *Labeo bata* | Common |
| Bagda chingri | *Penaeus monodon* | Common |
| Catla | *Catla catla* | Common |
| Golda chingri | *Macrobrachium rosenbergii* | Common |
| Ilish | *Tenualosa ilisha* | Common |
| Kakila | *Xenentodon cancila* | Rare |
| Khalisha | *Colisa fasciata* | Rare |
| Mrigal | *Cirrhinus cirrhosus* | Common |
| Mola | *Amblypharyngodon mola* | Common |
| Magur | *Clarias batrachus* | Common |
| Puti | *Puntius puntio* | Common |
| Rui | *Labeo rohita* | Common |
| Rupchanda | *Pampus chinensis* | Common |
| Shol | *Channa striata* | Common |
| Shing | *Heteropneustes fossilis* | Common |
| Silver carp | *Hypophthalmichthys molitrix* | Common |
| Sarpunti | *Puntius sarana* | Rare |
| Taki | *Channa punctata* | Common |
| Tilapia | *Oreochromis* sp. | Common |
| Tengra | *Mystus tengara* | Common |
| Thai Pangas | *Pangasius hypophthalmus* | Common |
| Parshe | *Liza parsia* | Common |
| Bhangon | *Labeo boga* | Common |
| Loitta | *Harpadon nehereus* | Common |
| Vetki | *Lates calcarifer* | Common |
| Suri | *Trichiurus haumela* | Rare |
| Shal baim | *Mastacembelus armatus* | Rare |
| Pabda | *Ompok pabda* | Very rare |
| Chital | *Chitala chitala* | Common |
| Ayre | *Sperata seenghala* | Very rare |
| Koi | *Anabas testudineus* | Rare |
| Common Carp | *Cyprinus carpio* | Common |
| Magur | *Clarias batrachus* | Common |

**Average prices of available fish species**

The price of fish mainly depended on the supply and demand of fish in the markets. Sometimes, the prices were determined by open bargaining between retailers and consumers. However, in the fish markets studied, lower priced fish were silver carp, pangas, tilapia, mrigal, and suri, whereas the price of ayre, vetki, bhangon, shing, magur, ilish, golda chingri were higher (Table 02). When ilish were very available in markets, the price of other fish decreased. During festivals like Pahela Baishak (the first day of the Bengali year) and Eid, the demands for ilish become higher, which results in the price of fish being higher than usual. Moreover, the price of fish varies from species to species (Azad et al., 2020). According to Afroz (2007), the demand for fish becomes excessive during Ramadan, which leads fish to be more expensive than other months. Thus, the price of fish varies from season to season because of fluctuations in the availability of fish (Shang, 1981). Fish prices also vary with size, quality, location, etc. Aktar et al. (2013) reported that Ilish was the high-priced fish at the markets in Noakhali of Bangladesh, which supported the present outcomes. Indigenous carp fetched higher prices than exotic carp in Dinajpur fish markets (Hossain et al., 2015), which coincides with the present findings.

**Fish marketing systems**

A marketing system incorporates all activities involved in the passage of goods from the points of production to the consumer. Farmers/fishermen are the main producers in the fish marketing systems. The marketing chain from farmers or fishermen to consumers involves a few intermediaries,

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such as wholesalers and retailers (Figure 01). In most cases (95%), the marketing chain used was Fisherman – wholesaler/Aratdar – Retailer – Consumer. In some cases (2%), fishermen sold fish to retailers and then the consumers bought from the retailers. Sometimes (3%), farmers/fishermen bypassed these channels and sold fish directly to the consumers. Related fish distribution channels were found in Mymensingh (Islam et al., 2018), Gazipur (Ahmed and Rahman, 2005), and Satkhira (Al Mamun et al., 2020) districts in Bangladesh. Aktar et al. (2013) identified five types of fish marketing channels in Noakhali and Hossain et al. (2015) observed three types of fish marketing systems in the Dinajpur district of Bangladesh, where different levels of intermediaries were associated. A number of middlemen are also involved in fish marketing systems in other countries like India (Kashyap et al., 2013), Kenya (Awuor et al., 2019), etc.

**Table 02. Average prices of available fish species in the fish markets**

| Local name | Scientific name | Average Price per kg (BDT) |
|---|---|---|
| Boal | *Wallago attu* | 650 |
| Bele | *Glossogobius giuris* | 600 |
| Bata | *Labeo bata* | 400 |
| Bagda chingri | *Penaeus monodon* | 600 |
| Catla | *Catla catla* | 300 |
| Golda chingri | *Macrobrachium rosenbergii* | 800 |
| Ilish | *Tenualosa ilisha* | 600 |
| Khalisha | *Colisa fasciata* | 300 |
| Mrigal | *Cirrhinus cirrhosus* | 200 |
| Mola | *Amblypharyngodon mola* | 300 |
| Magur | *Clarias batrachus* | 600 |
| Rui | *Labeo rohita* | 300 |
| Punti | *Puntius puntio* | 320 |
| Rupchanda | *Pampus chinensis* | 400 |
| Shol | *Channa striata* | 600 |
| Shing | *Heteropneustes fossilis* | 800 |
| Silver carp | *Hypophthalmichthys molitrix* | 200 |
| Sarpunti | *Puntius sarana* | 300 |
| Taki | *Channa punctata* | 300 |
| Tilapia | *Oreochromis sp* | 120 |
| Tengra | *Mystus tengara* | 400 |
| Pangas | *Pangasius hypophthalmus* | 180 |
| Parshe | *Liza parsia* | 500 |
| Bhangon | *Labeo boga* | 800 |
| Loitta | *Harpadon nehereus* | 250 |
| Vetki | *Lates calcarifer* | 550 |
| Royna | *Nandus nandus* | 300 |
| Shal Baim | *Mastacembelus armatus* | 300 |
| Suri | *Trichiurus haumela* | 160 |
| Magur | *Clarias batrachus* | 300 |
| Pabda | *Ompok pabda* | 500 |
| Chital | *Chitala chitala* | 600 |
| Ayre | *Sperata seenghala* | 700 |
| Koi | *Anabas testudineus* | 600 |
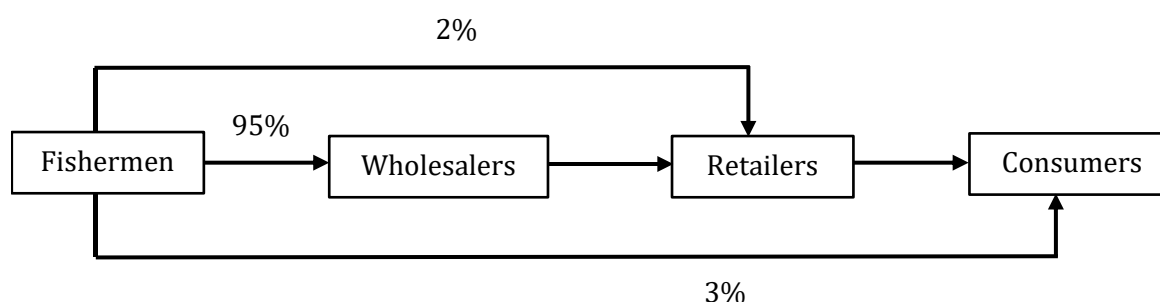


**Figure 01. Fish distribution chain from fishermen to consumers.**

**Fish transporting vehicles**

Fish were brought from fishermen or wholesalers to the retail markets through different types of vehicles. Fish retailers commonly used rickshaws, vans, easy bikes, etc. for bringing fish from nearer places. However, the fish traders also used larger vehicles like pick-ups, trucks, the roofs of buses etc. for transporting fish from a greater distance (Figure 02). Aktar et al. (2013) found that fish at the markets in Noakhali was carried by boats, buses, trucks, or trawlers. Asogwa and Asogwa (2019) reported that the means of transportation in fish markets range from wheelbarrows, motorcycles, taxis, jeeps, pick-up vehicles, buses, trucks, and lorries.
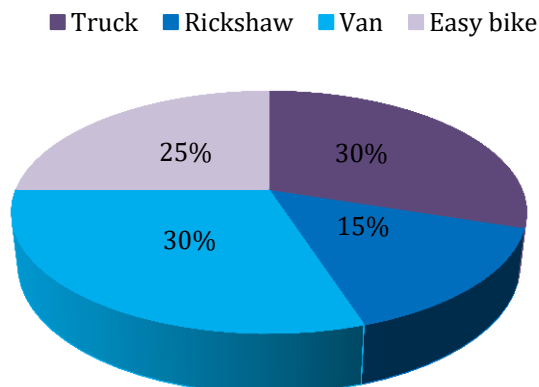


**Figure 02. Fish transporting vehicles for carrying fish to the markets.**

**Fish handling and safeguarding Ways**

Fish retailers used fresh water (15%) and ice (30%) to maintain the quality of fish while selling in the market, although in most cases (55%), fish were kept in normal conditions without water or ice (Figure 03). Generally, water was used for catfish to keep them alive, whereas carp like rui, catla, mrigal, etc. remained in normal condition (without water or ice) and ilish, chingri, etc. were kept using ice. If any fish were not sold, fish retailers used ice for the preservation of those fish to sell them the next day. Some ice plants and ice storage facilities exist in some fish markets in the Noakhali district of Bangladesh (Leela et al., 2018).
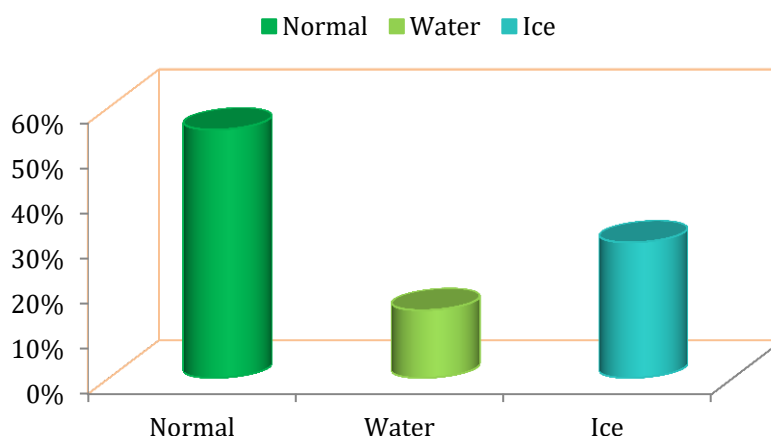


**Figure 03. Fish handling and safeguarding Ways in the fish markets.**

**Problems in fish marketing**

According to the survey, the fish retailers faced some problems. It included higher transport costs, electricity costs, poor road communication facilities, poor market infrastructures, inadequate drainage systems, poor water supply, poor sanitary facilities, unhygienic conditions, lack of storage facilities, lack of marketing facilities, etc. They also get lower prices of fish as a result of exploitation by intermediaries. Retailers sometimes faced fish transport as well as marketing problems due to political disturbances. As a result, perishable fishes became deteriorated, and the traders were to sell those at a cheaper price. Similar fish marketing problems were found by Rokeya et al. (1997) and Hossain et al. (2015). Alam et al. (2010) found many intermediaries to be involved in the marketing channel in Dhaka, Bangladesh, as a result, the fishers or farmers do not obtain the actual price for their

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products. In other countries like Nepal (Mishra and Kunwar, 2014; Karki, 2016) as well as India (Abdurrahman et al., 2017) the fish traders also faced the same problems due to the involvement of intermediaries and poor market infrastructures.

## IV. Conclusion and Recommendations

Fish marketing is an important part of fisheries, contributing significantly to increased food production, economic diversification, employment opportunities, and maintained rural communities. Both freshwater and marine species are available in the markets of Khulna districts, although all species are not readily available throughout the year. Fish availability in the markets varies with season. However, several middlemen are involved in the marketing channels. Fish price mainly depends on the availability, size, quality and season. Markets in Khulna district often lack basic infrastructure such as clean water supply, adequate drainage system, hygienic conditions, storage facilities, etc.

However, markets and marketing channels need to be developed through the establishment of modern wholesaling facilities with the support of the government or NGOs. It is also recommended to improve fish transport systems, fish handling facilities by proper consciousness as well as training for the fish traders. Fish markets should be improved with proper sanitation, hygienic conditions, drainage, and washing facilities. Preservation facilities can be enhanced by establishing more ice plants and cold storage.

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