Turkish J. Marine Sciences 3(3): 167-178 (1997)

Marketing Some Aquaculture Species in Turkey

Türkiye'de Bazı Akuakültür Türlerinin Pazarlanması

Meral Soylu

Marmara University, Vocational School of Technical Studies, Aquatic Products Department, 81400, Göztepe, Istanbul, Turkey

Abstract

This study covers the marketing of fish such as trout (*Oncorhynchus mykiss*, W.1792) salmon (*Salmo salar* Linnaeus 1758) sea bass (*Dicentrarchus labrax* Linnaeus 1758), sea bream (*Sparus aurata*, Linnaeus 1758), and mirror carp (*Cyprinus carpio*, Linnaeus 1758) produced in Turkey. For this purpose enterprises of production are investigated in different inland places for trout and mirror carp, on the Black Sea coasts (from the western part to Hopa, in the east) for trout, salmon, sea bess and sea bream and also in Aegean and Mediterranean regions for sea bass and sea bream.

Trout is marketed in various ways. Salmon is cultivated in only one enterprise, a small amount being sold to the domestic market and the rest exported. Sea bass and sea bream are marketed either as delivered to nearby notels and restaurants in small quantities or supplied to wholesale dealers in big lots. Three ways of marketing are also noted for mirror carp.

The fish cultivated in the country are presented to the market as fresh, frozen, smoked or processed. Among the fish exported especially are trout, salmon, sea bass and sea bream.

In the enterprises visited it is observed that the prices depended on the kind of fish and the period of fishing prohibitions and also are generally lower than world prices.

It is concluded that fish marketing in Turkey cannot be considered as sufficiently organized.

Keywords: Aqua culture, fish, marketing.

Introduction

An alarming decline occured in the amount of aquatic products obtained from our seas beacause of excessive and irrational fishing. In 1991, for instance, the production of aquatic products (fishing + cultivation) decreased to 364 661 tons from 676 000 tons in 1988. However, this amount increased to 649 200 tons in 1995 (Anon., 1995). Regarding the population growth in the country this is very inadequate The controled production of fish and other aquatic products has become important.

For the last 30 years, aquaculture in Turkey has been performed by utilising the inland water sources and a quick rate of increase is obtained (Soylu, 1992). Cultivation in sea is considered important only for the last few years (Baran ve Soylu, 1990). According to 1995's data, the sum of the production of aquatic products by cultivation is 21 607 tons of which trout accounts for 1289 tons (58.72 %), sea bream 4847 tons (22.43 %), sea bass 1.2733 tons (12.65 %), salmon 654 tons (3.02 %) and mirror cap 424 tons (1.96 %) (Anon., 1995). The income added by aquaculture to the national economy is 15 trillions of Turkish lira.

The consumption of aquatic products per person was determined as 6.40 kg in 1984, 8.73 kg in 1988, 6.16 kg in 1990, 7.80 kg in 1993 and 9.75 kg in 1995 (Anon., 1995).

The marketing of the five chosen species of fish (trout, salmon, sea bass, sea bream and mirror carp) produced in the country will be considered in this study.

Materials and Methods

The material in this investigation is obtained from the trout and carp enterprises in different parts of inner Turkey, the trout and salmon enterprises, sea bass and sea bream enterprises on the Black Sea Region (extending from the western part to Hopa in the east) and also sea bass and sea bream enterprises in the Aegean and the Mediterranean Regions.

The staff of the Minister of Agriculture and Village Affairs also helped in this study with their knowledge and the records of the fish markets. The work began in 1992 and continued till late 1996.

The study is based on the analysis of the information which is obtained from the enterprises.

Result and Discussion

The Chosen Species

Trout

The species of trout becoming widespread in cultivation in Turkey is rainbow trout (Oncorhynchus mykiss, W.1792). The trout cultivation began in 1968 in Akyazı (Soylu, 1989) in the country. It was cultivated in inland waters till 1990 when it also began to be cultivated in net cages in sea.

Our most suitable sea for trout cultivation is the Black Sea, but the temperature of the water goes over 23°C in summer thus affecting the cultivation adversely (Soylu ve Soylu, 1996).

The number of enterprises for trout aquaculture has been gradually increased. In 1985, there were 103 enterprises and the number reached to 305 in 1994 (Anon., 1996). In the same way, the amount of cultivation has also increased to the sum of 12 689 tons in 1995. There is an expectation of explosion lately in the amount of trout cultivation, because net cages are begun to be used in lakes and dam lakes.

According to the water temperature, trout is raised to portion size starting from 7 months to 12 months in Turkey. The portion size differs from 170 g to 250 g. When they are 80-100 g, the trouts raised in the Black Sea Region are put in net cages in the sea (in late September and early October). They are fed in these cages till they are 600-1000 g in the following period of 7-8 months. As the water temperature increases in June, the fish are taken from the cages and they are ready for consumption. The matured and unsold stock are transferred back to the inland ponds (Soylu-Soylu, 1996).

Salmon

The salmon species cultivated in the country is *Salmo salar* Linnaeus, 1758. Its cultivation in the Black Sea began in the early 1990's and there were 10 enterprises in the beginning. The water temperature of the Black Sea goes over 23°C in summer which is a disadvantage; that is why the salmon cultivation has lost its early attraction. Now there is only one enterprise (in Sinop) which is still active (Soylu and Soylu, 1996).

The eggs of salmon are imported. When the larvae hatched in freshwater and are 40-100 g, they are taken to net cages in the sea and stocked there. The cultivation period of salmon varies between 18-24 months and the

marketing size of the fish between 1500-3000 g according to the water temperature.

Sea Bass and Sea Bream

The sea bass species cultivated in our seas in *Dicentrarchus labrax* (Linnaeus, 1758) and the sea bream species cultivated is *Sparus aurata* Linnaeus, 1758. In the country, sea bass and sea bream cultivation began in the Aegean Sea in 1983. The number of enterprises and the amount of production has gradually increased until 1990's. The most suitable environment for the fish is Aegean and Mediterranean coasts. However, some enterprises in the Black Sea especially in Ordu-Perşembe began to cultivate sea bream and sea bass as well as trout.

Sea bass and sea bream are cultivated in net cages of 4 m x 4 m x 5 m and 5 m x 5 m x 5 m, in earthen ponds and also in water tanks. Generally, net cages are used with the majority of 97 %. The cultivation period for sea bass and sea bream is different in Aegean and Mediterranean. The time for reaching the portion size is 10-18 months for sea breasm and 14-24 months for sea bass. The weight for transferring sea bass and sea bream to net cages is 2-100 g. The marketing size for sea bass is about 1000 g and for sea bream 300-350 g.

There is a different situation in the Black Sea. Here, the sea bass and sea bream larvae of 2-3 g which are supplied from the enterprises of Aegean and Mediterranean are placed in net cages in the Black Sea. The cultivation period extends to 20-24 months because the water temperature is too low for this species. Here, the marketing size of sea bass and sea bream is 300-400 g.

Mirror Carp

Mirror carp (*Cyprimus carpio* Linnaeus, 1758) cultivation is the least preferred. The places of carp cultivation are usually lakes, dams and ponds formed by filling water to the pits (made by taking soil out. The weight of portion size of mirror carp is 300-500 g, reached in 12-24 months (Soylu, 1989).

Marketing

Marketing Channels

Trout

There are 6 ways of marketing channels for portion size trout (Figure 1):

1. Directly to the last consumer who comes up to the enterprises,
2. Conveying to the local markets, restaurants, cafeterias of factories by the management of the enterprises,
3. Taking away from the enterprise by some important customers.
4. Delivering to the processing facilities directly,
5. Delivering to the big city fishmarkets by the manager, management,
6. Some big enterprises export their products. Exporting by large enterprises the products in the form of fresh, smoked and frozen.

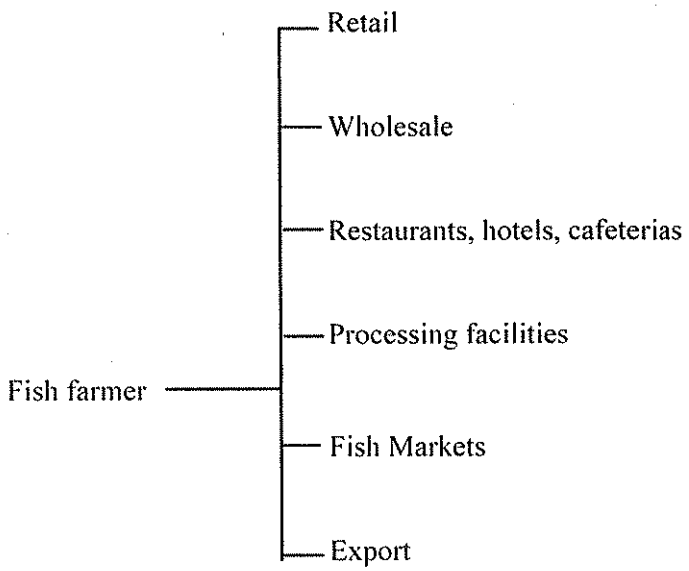

Figure 1. Marketing channels for trout in Turkey.

Salmon

Salmon is cultivated only in one enterprise. A small amount is presented to the domestic market and the rest is exported (Figure 2). The fish sent to

İstanbul by the management to be sold. Salmon marketing is also executed in frozen, smoked and fresh state.

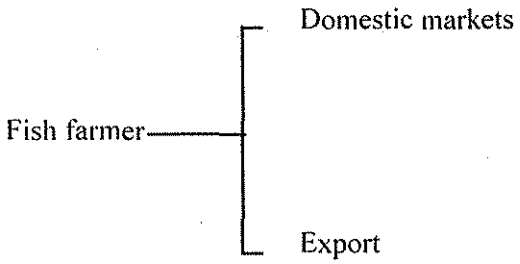

Figure 2. Marketing channels for salmon in Turkey.

Sea Bass and Sea Bream

The are two marketing channels for sea bass and sea bream (Figure 3). The fisheries either delivered to nearby hotels and restaurants directly from the enterprise or sold to wholesalers who export in large amounts as well as supplying the fish markets in big cities.

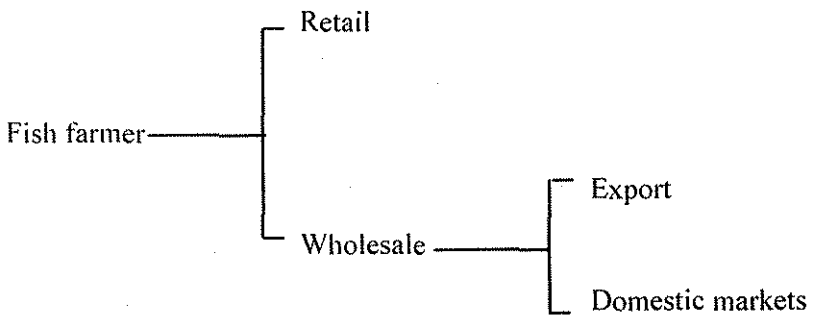

Figure 3. Marketing channels for sea bass and sea bream in Turkey.

Mirror Carp

The carp is marketed in 3 ways (Figure 4):

1. Directly from the enterprise to the last consumer,

2. From local markets to the consumer,

3. Delivering to the big city fish markets by the management.

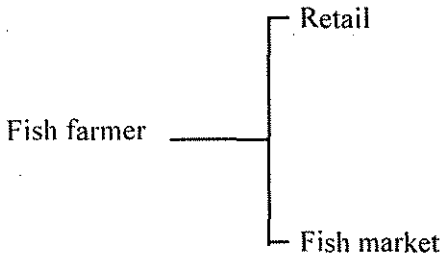

Figure 4. Marketing channels for mirror carp in Turkey.

Products

Trout Products

Fresh

Fresh trout is presented either alive or frozen in wooden cases and it is gutted. The preferred weight is 170-250 g.

Smoked

Some processing facilities smoke the trout in cold or hot systems. The preferred weight of fish for this process is 300-400 g. Oak wood is usually used in smoking. Some plants like thyme, laurel-leaf and garden-sage are also used in the process to give aroma. The final product is supplied either in fillets or whole to the market. The fillets are vacuum packed. Those which will be consumed soon are marketed in wole. Vacuum packing is also preferred for smoked trout if to be consumed in 1-3 months.

Conserved trout

Conserved trout is prepared in small amounts. Daphne, salt and olive-oil are also used in this process. The preferred weight is 100-150 g. All these products are prepared both for international and domestic market.

Frozen trout

This process is for export trouts only. The fish of 200-250 g weight are preferred.

Salmon Products

These are prepared either for domestic market or more for international market.

Frozen

Salmon weighing 1000-3000 are preferred. Frozen salmons are exported. They are prepared in whole or fillets.

Smoked

1000-3000 g weighing salmons are used. Processing is just the same as in trout smoking. The smoked salmon is marketed in fillets in vacuumed packages.

Fresh

1000-3000 g weighing salmons are preferred. These are prepared for both domestic and international markets.

Sea Bass and Sea Bream Products

Fresh

Fresh sea bass and sea bream are presented to the domestic market as frozen (frosted) inwooden boxes and are exported in the same way.

Frozen

Frozen sea bass and sea bream are for exportation. Marketing weight is 1000 g for sea bass and 300-350 g for sea bream (in both processes).

Mirror Carp Products

Fresh

Fresh carp products are delivered frosted in wooden boxes both to domestic and international markets.

Table 1 presents some fish prices of the five species which are produced in Turkey. Here, the ex farm prices (= ex enterprise price, as retail price) are given as $ 3.5 for trout, $ 9.4 for sea bass, $ 6.7 for $ 3.5 sea bream, $ 4.4 for salmon and $ 2.2 for mirror carp. These prices are very cheap compared with overseas prices. For example, the price of salmon is $ 13.0-15.0 in England, in $ 7.0-8.0 France and $ 10.0 in Scotland. In

addition, sea bass is $ 8.0-15.0 in France and sea bream is $ 10.5 in Spain when they are put on the market (Shaw and Curry, 1989).

Actually there is not a very sufficiently organized marketing system in the country. The price of a product is formed in different ways. The prices of sea bass and sea bream are determined by wholesalers. Then the producer either waits for the advantageous time to market the fish or submits to the wholesaler. The price for salmon is formed according to the producer's will. The price for trout is formed in two ways. The first one is the price determination by the family enterprises. This is not very risky because the amount of production is small. The price is usually determined by the producer.

The market is ruled by the major producing enterprises. As they supply in large amonuts they hold the price low. For the mirror carp, the price is determined in local markets by the producer.

Fishing prohibitions are also very effective in price formation. During the prohibition period, the prices of cultivated fishes increase. In autumn and winter seasons, sea fish fall in price because they are abundant.

Trout		TL/Kg.	US $/ Kg.
Ex farm price	Retail	320.000	3.5
	Wholesale	240.000	2.7
Fish market price		300.000	3.3
	Smoked	965.000	10.7
	Cooked	750.000	8.3
	Conserved	810.000	9.0
Exportation price			3.4-7.5
Salmon			
Ex farm price	Retail	400.000	4.4
	Wholesale	340.000	3.8
Fish marked price		400.000	4.4
Smoked		1.080.000	12.0
Cooked		900.000	10.0
Exportation price			5.6-20.0
Sea Bass			
Ex farm price	Retail	850.000	9.4
	Wholesale	600.000	6.7
Fish marked price		1.100.000	12.1
Cooked		1.500.000	16.7
Exportation price			4.9
Sea Bream			
Ex farm price	Retail	600.000	6.7
	Wholesale	450.000	5.0
Fish market price		850.000	9.4
Cooked		1.200.000	13.3
Exportation price			4.0-7.2
Mirror Carp			
Ex farm price	Retail	200.000	2.2
Fish market price		300.000	3.3
Cooked		600.000	6.7
Processed		1.500.000	16.7
Exportation price			6.3

Table 1. Some Prices of Trout, Salon, Sea Bass, Sea Bream and Mirror Carp Which are Produced in Turkey (in 1996)

Özet

Bu çalışmada, ülkemizde yetiştiriciliği yapılan alabalık *(Oncorhynchus mykiss*, W.1792), somb alığı (*Salmo salar* Linnaeus, 1758), levrek (*Dicentrarchus labrax* Linnaeus, 1758), çipura (*Sparus aurata* Linnaeus, 1758) ve aynalı sazanın (*Cyprinus carpio* Linnaeus, 1758) pazarlama durumları araştırılmıştır. Bu amaçla, Türkiye'nin iç kesimlerinde değişik yörelerde yer alan alabalık ve aynalı sazan işletmeleri; Karadenizde batıdan Hopaya kadar olan kıyı şeridinde bulunan alabalık, som balığı, levrek ve çipura işletmeleri; Ege ve Akdenizde kurulmuş levrek ve çipura işletmeleri incelenmiştir.

Alabalık altı ayrı yolla pazarlanmaktadır. Som balığı bir tek işletmede üretilmektedir. Küçük bir miktar iç pazara sunulmakta ve büyükmiktarı da ihraç edilmektedir. Levrek ve çipura iki yolla pazarlanmaktadır. Küçükbir miktarı yakındaki otel ve restoranlara, büyük miktar da toptancı firmalara verilmektedir. Aynalı sazanise üç ayrıkanalla pazarlanmaktadır.

Üretimi yapılan bu balıkların taze, dondurulmuş, füme ve işlenmiş olarak piyasaya arz edildiği belirlenmiştir. Özellikle levrek, çipura, alabalık ve som balığının büyük miktarlarda yurt dışına pazarlandıkları saplanmıştır.

İncelenen işletmelerde fiyatın, ürüne ve av yasakları dönemine bağlı olarak oluştuğu gözlemlenmiştir. Araştırmada, işletme çıkışı ürün fiyatlarının diğer ülkelerdeki fiyatlardan daha düşük olduğu belirlenmiştir.

Araştırma sonucunda, Türkiye'de su ürünlerinde yeteri kadar organize bir pazarlama sisteminin bulunmadığı tesbit edilmiştir.

References

Anonymous (1995) Su Ürünleri İstatistikleri, T.C. Başbakanlık Devlet İstatistik Enstitüsü Yayınları No: 1995, Ankara.

Anonymous (1996) Su Ürünleri Dergisi, Sayı 51-52 Temmuz-Ağustos, Enformasyon Uluslararası Yayıncılık, İstanbul.

Baran, İ. and M. Soylu (1990) Yavru üretimi yapan çipura (Spaura aurata L.) işletmesi ile, yavruyu doğal ortamda sağlayan çipura işletmesinin ekonomik açıdan karşılaştırılması, İ.Ü. Su Ürünleri Dergisi, 4,1: 43-52, İstanbul.

Shaw, S.A. and A. Curry (1989) Markets in Europe for selected aquaculture species. Fish Utilization and Marketing Service. FAO-GLOBEFISH. Rome.

Soylu, M. (1989) Marmara Bölgesinde tatlısu ürünleri üreten işletmelerin yapısal analizi. İ.Ü. Su Ürünleri Dergisi 3,1-2:79-96, İstanbul.

Soylu, M. (1992) Marmara Bölgesinde tatlısu ürünleri üreten işletmelerin ekonomik analizi. İ.Ü. Deniz Bilimleri ve Coğrafya Enstitüsü Bülten.9.9:255-270 (1994). İstanbul.

Soylu, M. and E. Soylu (1996) Karadeniz'de ağ kafeslerde üretim. II. International Symposium on Aquatic Products, September 21-23. İ.Ü. Fac. of Aquatic Products (in press). İstanbul.

Received 30.5.1997

Accepted 1.7.1997