

Rapport nr. 314/56

**MARKED FOR FISKEBIPRODUKTER
TIL KONSUM I ASIA**



FÖRINGSFORSØK
MARKEDSUTVIKLING

RAPPORT-TITTEL

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Forstudie

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Det har ikke vært mulig å få alle slike data for alle de aktuelle produktene, særlig ikke mengder, men rapporten gir allikevel et godt inntrykk av muligheter som finnes. For torskfisk er mange typer biprodukter ikke i bruk. Dette behøver imidlertid ikke å bety at det ikke finnes markedsmuligheter, men det vil kreve introduksjon og intensiv markedsføring. Rapporten gir en oversikt over aktuelle importører.

Rapporten viser at biprodukter av laks (hode, bukklapper, ryggbein, mm.) er etterspurt og kan ha gode muligheter for salg. Det er allerede en viss eksport av hermetiske laksebein og -hoder fra Norge til Japan. I utgangspunktet synes Japan og Taiwan å være mest aktuelt for import av biprodukter. Selv om markedet i Hong Kong er forholdsvis begrenset synes det imidlertid å være muligheter for å selge svømmeblære av torsk til forholdsvis bra priser og dessuten utvikle markeder for fiskehoder/kjaker av laks og torsk. Kina har også et utviklingspotensiale når det gjelder fiskehoder/tunge, mens ellers synes mulighetene å være begrenset.

Særlig interessant er markedet for torskemelke i Japan. Totalt marked er 8-12.000 tonn/år, og importpris for fryst melke er 40-60 kr/kg. Ellers er det stor etterspørsel etter laksebiprodukter i Taiwan, og det antydes muligheter for å utvikle markeder for torsk hoder, og evt. tunge, melke og kjaker av torsk.

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Resirkulering og utnyttelse av
organiske biprodukter i Norge

**Preliminary Study on the Market for Fish
By-Products for Consumption in Asia
- Taiwan, Japan, China and Hong Kong -
A Research Project for Stiftelsen Rubin**

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Mangler figuren på side 18 i rapporten

Foreword

The overall attempt of this preliminary market study is to provide the readers with a current overview of the Asian market for fish by-products and to present a picture of the consumption of such products in four Asian countries. The countries covered in this report are: Taiwan, Japan, China and Hong Kong. It is hoped that this report will be of interest to people concerned with improved utilization of fish and fish by-products, to fishery companies, R&D institutions as well as to current and future exporters of such products to Asia. Furthermore, it is also our aim that this report should provide a foundation for further studies and research on the topic.

This market report is divided into four main chapters, according to the number of countries covered. The first chapter covers the Taiwanese market, and it starts with a brief outline of the methodology applied, and then goes on by presenting some key information about the country. After this, it provides the reader with an overview of the consumption of fish products and in particular fish by-products in Taiwan, and gives an overview of the distribution system of seafood in the country. The central part of each chapter is the description of the market possibilities for a number of fish by-products such as stomach, milt, head, tongue, jaw, eye, backbone etc. In this section, both the product side as well as the market side is given emphasis. After this, a list of potential importers of the various by-products are provided. Finally, a conclusion is given for the country including the researchers "own stomach feeling" about the possibilities for export of such products. After the chapter on Taiwan, a similar approach is applied concerning the Japanese, Chinese and Hong Kong markets.

This report is primarily based on expert interviews carried out by NTC Taipei, NTC Tokyo and NTC Beijing. Concerning the market for fish-by products in Hong Kong, staff from NTC Taipei has visited Hong Kong, done research and written the chapter on the market with assistance from the Royal Norwegian Consulate in Hong Kong.

We hope the report will provide the reader with ideas and inspiration for how to increase the export of fish by-products to Asia - an enormous market in continuous growth!

Tokyo, May 1996

Gjermund Tangen
Project Coordinator

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1. TAIWAN - The Market for Fish By-Products

1.1 Methodology

The purpose of this chapter is to give a preliminary view of the market for fish by-products in Taiwan. Availability of any kind of information was a major obstacle in the research for this investigation. Only macro level statistics were available from official sources, lumping together all edible fish by-products, separated only by whether it was dried, fresh or frozen.

For this reason most of the information regarding the specific product categories was acquired through interviews with market experts. More than 20 companies were interviewed based on a list of companies that had imported fish by-products in 1995.

2. General Introduction to the Taiwanese Market

2.1 Key information about Taiwan

Item	Taiwan
Capital	Taipei
Main cities	Taipei, Kaohsiung, Taichung
Population	21 million
The GDP growth	6%/year
GNP per capita	US\$ 11,000 (unofficial estimated 40% higher)
Total Imports Quarter 4 1995	25.61 bill. US\$
Total Exports Quarter 4 1995	29.73 bill. US\$
The main exports	Electronic products, machinery, textiles and plastic products
The main imports	Electronics, chemicals, petroleum, gold and maize.
Labor force	8.5 mill.
Compulsory education	9 years
Post secondary education.	12%
Land area	36,000 sq. km.
Climate	Subtropical
Ethnic Composition	Chinese 98.5%
Official Language	Mandarin
Native Tongue	Taiwanese

Taiwan's population is about 21 million, living in a subtropical island the size of Nordland Fylke in Norway. The official GNP per capita is around 11,000 US\$, but many estimate it to be much higher due to a high level of unreported economic activity.

The comparison below shows the changing pattern of household expenditure in Taiwan:

Consumption Pattern	1981	1991
Food	34%	24%
Beverages	7%	5%
Clothing	5%	5%
Housing	27%	28%
Transportation	8%	14%
Education & Recreation	20%	24%

Taiwan's economic growth continues to be high and has fallen between six to ten percent the last few years, while inflation is moderate. The following shows Taiwan's GDP structure:

GDP Structure	Year		
Component	1992	1993	1994
Agriculture	192,183	214,760	227,977
Manufacturing	1,692,173	1,790,377	1,849,517
Construction	266,036	309,936	340,410
Utilities	144,763	158,926	171,706
Commerce	799,742	888,668	978,857
Transp., Storage, Commun.	335,823	375,981	417,429
Government Services	588,080	633,475	677,880
Finance, Ins., Bus. Services	996,232	1,135,476	1,317,214
Total NT\$ Millions	5,337,693	5,874,513	6,380,199

The main driver of economic growth in Taiwan is trade. The Taiwanese have large export industries especially in textiles, electronics, computers, and bicycles; all of which are among Taiwan's (1995) exports of 1.4 billion NOK to Norway. In return Norway sells mainly salmon, paper, fertilizer and metals to Taiwan as part of a total (1995) export of 800 million NOKs. Norway has been closing the trade imbalance with Taiwan over the last few years.

Taiwan has a highly developed, but crowded infrastructure, and many projects underway to improve it further. The languages spoken locally are Mandarin Chinese, the official language of all China, and Taiwanese, which is the local Chinese dialect.

3. General information about the consumption of fish products and in particular by-products

The Taiwanese eat an average of 35 kilos per capita per year, or about ¾ of a million tons per year. Taiwan is an island, thus eating fish is common, like in Norway. The strong preference for eating fish together with increasingly liberalized trade policies and wealthier consumers who like to eat out, all make Taiwan a potential target for Norwegian fish exports. Furthermore, some Norwegian items such

as shrimp and especially salmon have a strong appeal to the Chinese, and fish imports in general are likely to continue growing as Taiwan's own fish catch declines in most species (if not in total).

The Chinese prefer fish with high fat content, nice color, large size and soft bones. They perceive fish as a healthy food. It should be noted that Taiwanese like to buy the whole fish or cutlets, not filets, and they have a preference for fresh fish. The fish is usually steamed or fried in Chinese dishes, but the Taiwanese also like to eat Japanese style raw fish. The Taiwanese will in general eat seafood at least once every day and often in combination with other meat. The Chinese like to have a variety of different dishes to choose from.

After the imported fish reaches Taiwan, the most common route to the consumer is from the importer to the wholesaler to distributors who sell to the traditional fish markets in the cities or to restaurants and hotels. There are usually many middlemen involved who make the fish very expensive for the final consumer. Norwegian fish exporters should consequently find clients with short routes to the final customer.

The various ways salmon and shrimp are distributed in Taiwan can serve as general examples for all species and are summarized as follows:

Fresh Salmon:

- √ ➤ Importer → Wholesaler → Food Distributor → Restaurant.
- √ ➤ Importer → Wholesaler → Restaurant.
- √ ➤ Importer → 5 Star Hotel.
- √ ➤ Importer → Distributor → Traditional Market (small amount).

Two rarer ways for Fresh Salmon are:

- √ ➤ Importer → Restaurant.
- √ ➤ Importer → Traditional Market.

Frozen Salmon:

Most frozen salmon importers buy whole containers, and sell to wholesalers.

- √ ➤ Importer → Processing by importer → Supermarket.
- √ ➤ Importer → Wholesaler → Distributor → Traditional Market.
- √ ➤ Importer → Wholesaler → Food Distributor → Restaurants.
- √ ➤ Importer → Wholesaler → Restaurants.

Smoked Salmon:

- √ ➤ Importer → Distributor → Restaurants/ Hotels
- √ ➤ Importer → Delis/ Restaurants/ Hotels

Shrimps:

Present Distribution Network for Imported Shrimp:

- √ ➤ Importer → Distributor/Wholesaler/delis → Traditional market/Supermarket
→ Restaurants/ Hotels

There are about 30 salmon importers in Taiwan, but the 10 largest dominate the market. The latter have an average staff of only 5-6 people, although a couple of them employ more than 20 people. Most of the importers are located in Taipei, but there are also some in Kaohsiung.

At the moment 31% of Taiwan's population shops in supermarkets at least once a week, as compared to Hong Kong's 80%. Many people are still shopping in the traditional marketplaces, especially for fish and other food since the selection is perceived as fresher, but this is changing. The number of shoppers is increasing by at least 5% every year, and Welcome supermarkets (Taiwan's largest chain with 81 stores), expects 56% of the population will go to the supermarkets at least once a week by 1997. This has obvious implications for the sale of fish. It is mainly the middle income group that go to supermarkets now, and the prices are higher than at the traditional market. Another type of store whose importance is growing is the hypermarkets such as Carrefour (8 outlets in Taiwan) and Macro (5 outlets), who specialize in high volume and low prices on a full range of consumer goods including food and durables. Macro alone sells about 3 tons of salmon per month and 700 tons of halibut per year.

The Chinese are known for eating virtually every part of the fish. If it is not found in their cuisine, chances are good that it will be found as part of their traditional medicine.

Taiwan is today by far Norway's largest export market for salmonheads, which are used for soup. In general these heads sell for the same price per kilogram as the fish itself. The import statistics for 1990-1994 were as follows:

Fish head, tails, lips, skins, bones and maws in kilograms					
	1990	1991	1992	1993	1994
Fish head, tails, lips, skins, bones and maws, edible, fresh, chilled or frozen	3,397	130,446	341,833	1,098,321	778,925
Fish head, tails, lips, skins, bones and maws, smoked	7,019			136	
Fish head, tails, lips, skins, bones and maws, dried	16,535	2,436	7,385	3,121	14,850
Fish head, tails, lips, skins, bones and maws, TOTAL	26,951	132,882	349,218	1,101,578	793,775

Taiwan's market for fish by-products is wide in terms of the products used; almost every part of the fish is used. The only products we were told are not being used from at least one species are gall bladder and eyes (although the latter are being sold to Japan for fish oil production). Not all by-products, however, are economically viable for promotion and marketing. Among the low value products are skins and bones especially; but they are often acquired by restaurants for free. On the other hand, especially from salmon, there is an increasing demand for bellyflaps and a consistent demand for salmon fishhead.

Promotion to increase the use of fishhead, jaw, cheekmeat (collarbone), bellyflap and perhaps milt and even tongue could make a difference in sales to Taiwan. Currently, while imports of fishjaw and collarbone (from salmon) do occur, only fishheads and bellyflaps are imported in significant quantities; other by-products eaten, come from local catch (such as milkfish and eel offals). There is also some import of fishbones and the like for the production of fishmeal.

Little is done on the demand side for fishproducts in Taiwan. Excess supply and falling prices is a constant problem for importers. The viability of promotion projects needs to be viewed in terms of the cost of delivering the product to the market versus the potential salesvolume and contribution margin. Except for fishhead and increasingly salmon bellyflap, most of the by-products are currently rather small niche markets.

4. Overview of the most relevant products

4.1 Stomach

4.1.1 Product information

Fish stomach is not a large market, but occasionally frozen shark stomach is sold. Regarding other species than shark, the stomach, liver and intestine (together) of milkfish and sometimes glassfish (a local species) are used for steaming and sold in the night markets of southern Taiwan as a delicacy. Eel is sometimes also used like this, but there is little potential for other species.

4.1.2 Market information

Fish offals are sold steamed for around NT\$ 10 to 20 (US\$ 0.35 to 0.70). This is not a mainstream dish and occurs only in Southern Taiwan, not in Taipei or other northern cities. This may be because the Taiwanese in the south are more traditional. In Hong Kong for example, the habit of eating fish offals has almost completely disappeared.

4.2 Milt

4.2.1 Product information

Milt is used primarily from salmon and mullet, but also some other local species. The milt is sold frozen or fresh and is prepared by frying, which gives a crispy texture preferred by Chinese. The milt of mullet is supplied based on a yearly catch season of only 20 days in the Taiwan straight. Milt and roe are usually sold together.

4.2.2 Market information

This is a small market. The price for the milt is around NT\$ 200 per kg., or a little over US\$ 7. The fish traders in Taiwan do not seem to find this an attractive market. It should be kept in mind though that promotion could make a big difference in increasing demand. At the moment mainly salmon and mullet are used for the milt, but other species could also be used.

4.3 Head

4.3.1 Product information

This is a traditional Chinese food prepared in a variety of ways including soup, fried dishes and steamed dishes. A very popular dish is fishhead Hwo Gwo, and kind of Chinese version of fondue. Big headed species are used, and it is preferred that the head is cut off in Japanese manner, or better yet: a straight cut including a generous portion of the fish's body, that is about 2 cm behind the gills of the salmon, including the collarbone (cheekmeat). The head is sold frozen or fresh, and heads as big as 1 kg sell best. Salmonheads have sold very well in Taiwan lately, and Taiwan is already the biggest market for salmonhead in the world. Other than salmon, mainly local species are used. Main characteristics desired from a fishhead include color, price, and freshness. To test the freshness, the Chinese buyer will use his fingers to touch the meat.

4.3.2 Market information

The CIF price for salmonhead is about US\$ 2.80 to US\$ 3.50 according to some sources. In retail the product can get a variety of prices. The salmonhead market is not as attractive to Taiwanese importers as it once was as profit margins have decreased substantially in general in the trade of salmon products. Yet, several containers of salmonhead are imported to Taiwan each month, selling wholesale at about NT\$ 210 per kg. The retailers will turn around and sell to the consumer at the same price, but for 0.6 kg. (the equivalent of one Taijing, a Taiwanese measure for weight). There is probably still room for promotion of salmonhead to increase its use in fishhead dishes such as Hwo Gwo.

4.4 Tongue

4.4.1 Market information

There is no established market for fishtongue in Taiwan. The tongue usually comes as part of the head.

4.5 Jaw

4.5.1 Product information

The jaw of many local species is used for soups as well as BBQ and frying. It is a rather new product introduced and currently has a market if it is meaty. Salmon is used for its jaw, and some importers are looking for suppliers of frozen fishjaw.

4.5.2 Market information

The fishjaw market is now growing in Taiwan, but it is not very large and is surpassed by the market for bellyflap.

4.6 Eye

4.6.1 Market information

Fisheye is not sold separately in Taiwan, but Japanese regularly come to Taiwan to buy fisheye for fish-oil production.

4.7 Backbone

4.7.1 Product information

Fishbone is used for soup, and is delivered frozen as a service free of charge to hotels and restaurants from local processing plants. Dried bone from eel is sold as a snackfood. Bone is also of course used for fishmeal.

4.7.2 Market information

Fishbone is a low value product that is delivered for free or very inexpensive. It is not a viable market at present.

4.8 Swim Bladder

4.8.1 Product information

This is sold as a dried product. The bladder is steamed and then put in seasoning. It is used mainly in restaurants, but also in homes as a snackfood. Species with large bladders are preferred.

4.8.2 Market information

Swim bladder is an expensive product. Unlike some other parts of China, however, this is a very small market in Taiwan. Only one importer was found for this product and that was for use in the companies own restaurants.

4.9 Gall Bladder

4.9.1 Product information

Gall bladder from fish is not eaten except sometimes as a medicine for the eyes. The Government warns against eating it, however, as they see it as a health hazard.

4.10 Fin

4.10.1 Product information

Only sharkfin is used in Taiwan.

4.11 Bellyflap

4.11.1 Product information

The bellyflap of salmon and salmontrout is increasingly popular as a barbecued or fried fingerfood sold in restaurants. There is a premium price over that of the whole fish price if the cut is 4 to 6 cm wide and includes the fins. They should be delivered fingerlaid in packaging. Lately some companies have been importing a full container or more per month of this product from Norway or Canada.

4.11.2 Market information

Salmon bellyflap is increasingly popular as a snackfood in restaurants. This is a fairly new fad, and many importers are looking for steady supply.

4.12 Collarbone and Cheekmeat

4.12.1 Product information

One company was found that has been importing salmon collarbone. This product is for the cheekmeat. The product is used for restaurants.

4.12.2 Market information

The collarbone market is not large, but may have some potential, perhaps also for large species such as cod. The company we talked to sells salmon collarbone at a wholesale price of NT\$ 140 to NT\$ 160 or US\$ 5.1 to US\$ 5.8 per kg.

5. List of potential importers

Name of company: Seapro Co. Ltd.
Products: This company imports salmonhead and bellyflap.
Tel: 886-2-5593637
Fax: 886-2-5593632

Name of company: Chung's and Li's Int'l Co. Ltd.
Products: This company imports salmonhead, bellyflap and collarbone.
Tel: 886-2-827-3771
Fax: 886-2-827-3773

Name of company: Orient Agricultural and Marine Products Co. Ltd.
Products: This company imports salmonhead and bellyflap.
Tel: 886-39-382-3125
Fax: 886-39-382-311

Name of company: Siam Argo Enterprise Co.
Products: This company imports salmonhead and bellyflap.
Tel: 886-2-709-2636
Fax: 886-2-701-5897

Name of company: Ho-Chain Sea Food Co. Ltd.
Products: This company imports salmonhead and bellyflap.
Tel: 886-7-385-5029
Fax: 886-7-385-5035

Name of company: Austrameat Int'l Co., Ltd.
Product: This company imports salmon bellyflap.
Tel: 886-2-221-7833
Fax: 886-2-221-7913

Name of company: Wan Jui International Trading Co., Ltd.
Product: This company imports salmon bellyflap.
Tel: 886-7-384-5790
Fax: 886-7-384-3069

Name of company: Chin Hu Freeze Enterprise Co. Ltd.
Product: This company imports salmon bellyflap.
Tel: 886-5-220-1277
Fax: 886-5-220-1021

Name of company: Ascocenda Enterprise Co. Ltd.
Products: This company imports salmonhead and bellyflap.
Tel: 886-7-389-4645
Fax: 886-7-384-3069

Name of company: Shih Pang Food Co. Ltd.
Products: This company imports salmon bellyflap and head.
Tel: 886-35-277-500
Fax: 886-35-277-555

Name of company: Ton Chain International Co., Ltd.
Products: This company imports salmon bellyflap.
Tel: 886-2-553-4747
Fax: 886-2-553-4022

6. Conclusion and recommendation

The Taiwanese market for by-products already has a significant volume of import for bellyflaps and heads from salmon. It seems that in general the by-products that are actually imported instead of supplied locally are from salmon and not other species. Perhaps the first attempt at expanding exports of by-products to Taiwan should be further promoting these two products. Another, should be to expand this market to other species, such as codhead. Perhaps there are other species suitable for bellyflap as well. A third, but more risky approach would be to try products with fairly or entirely undeveloped markets, such as fish tongue, milt or cheekmeat.

7. JAPAN - The Market for Fish By-Products

7.1 Methodology

The purpose of this report is to give a preliminary view of the market for fish by-products in Japan. Very limited information, about any aspect of the fish by-product market, was a major obstacle in the research for this investigation. No useful statistics covering the former mentioned types of by-products were available. For this reason most of the information regarding the specific product categories was acquired through a large number of expert interviews with executives of leading companies in the field. Altogether 18 companies and institutes were contacted in connection with this market research. The list at the end of this chapter includes names of some of the leading fish importers we contacted and/or visited in Japan.

8. General Introduction to the Japanese Market

8.1 Key information about Japan

Item	Japan
Capital	Tokyo
Other main cities	Tokyo, Osaka, Nagoya, Yokohama, Sapporo, Kobe, Kyoto
Population	125 million
GDP (in '94)	¥ 469.149 billion
The GDP growth	3.1% (average annual rate for the period of 1981-1994)
GDP per capita (in '94)	US\$ 28.220,-
Commodity exports '94 (fob)	US\$ 384.176 billion
Commodity imports '94 (fob)	US\$ 238.232 billion
Exports of goods and services in per cent of GDP	9.5%
Imports of goods and services in per cent of GDP	7.3%
The main imports	Crude oil, apparel, liquified methane gas, other petroleum products, computers/peripherals/parts and automobiles.
Labor force	68 mill.
Unemployment rate	Approx. 3.5% (according est. by OECD: about 7%)
Compulsory education	9 years
Land area	377,750 sq. km.
Climate	Japan is a long, thin, mountainous archipelago and climate varies considerably, depending on latitude, topography and ocean currents.
Official Language	Japanese
Currency	Yen
Net annual rate of population increase	0.4

Japan is the world's second largest single economy and has almost 125 million inhabitants, its own language, its distinct culture, the world's highest life expectancy and the second highest GNP per capita in the world (USD 28 220 in 1994) after Switzerland (GNP 33 510). The capital is Tokyo, a city almost twice the size of the population of Norway (8.2 millions), and a population density at 5 329 persons per square kilometer (Tokyo prefecture). The growth in GNP for the fiscal year 1996 is estimated to 0.3% by OECD. The inflation in Japan is estimated to increase by 0.7% the next two years, while the unemployment rate is expected to climb modestly from 3.2% today and reach a level of 4.0% in a couple of years, however, based on western definitions, the real unemployment is higher. The structure in Japanese industry has changed quite rapidly over the past ten years. While the role of the primary industry has gradually changed after the second world war, the share of the secondary industry increased in the 1960's, and reached a top in 1970, and thereafter it started to shrink. As commonly known, the tertiary industry increased strongly in Japan over the past years, and particularly strongly in the 1980's. Norway's export to Japan has increased gradually over the past decade, and 1996 will most likely become the best year for Norwegian products on the Japanese market. Japan is currently Norway's 9th most important export market, and the second most important market outside the EU after the U.S. In 1995 the total export of traditional goods from Norway to Japan totaled almost NOK 4.7 billion, and 1996 is expected to reach a level of almost NOK 5 billion. The most important export goods are seafood, metals and chemicals.

9. General information about the consumption of fish products and in particular by-products

There is no doubt that the Japanese are a fish-loving people. Even though a certain decrease in the overall fish consumption in Japan is expected in the next decades, e.g. due to the changed dietary preferences but also due to the weakened Japanese fish industry, Japan is still at the top in terms of fish consumption in the world, currently at a level of 75 kg per capita per year!

Today, the Japanese market is of significant importance for Norwegian exporters of marine products. The Norwegian export of fish to Japan has increased significantly over the past decades. In 1975, the export to Japan totaled only about NOK 10 mill. and in 1995 it reached a level of NOK 2.1 billion! With a level of more than 2 billion, Japan is Norway's most important fish-market only second to France. And it looks like the demand for imported fish to Japan is going to be kept at this high level. However, the prices have had a falling tendency, not because the Japanese consumers cannot pay, but because the stagnation in the Japanese economy has had a strong impact on the financial situation of the retailers. This is compensated by gradually higher profit margins on e.g. fish. The export of marine products from Norway to Japan must be considered as somewhat fragile in the sense that the three main product groups, namely mackerel, salmon fish and shrimps constitute approximately 80% to 85% in value of the total Norwegian fish export to Japan.

The distribution system in Japan for marine products is complex and diverse. Domestic and imported fish reach consumers through many different channels, involving many different kinds of organizations. However, the system is changing as new distribution channels develop. For instance, Norwegian salmon is distributed in Japan through a complex system which can involve four middlemen between the Norwegian processor and the Japanese retailer: importers, processors, primary wholesalers, and secondary wholesalers. Some Norwegian salmon passes through all of these stages in this order, and other may pass through stages in different order, skip one or more stages, or cycle through the

same stage more than once. For example, some imported salmon is sold from importers to Japanese processors, while other imported salmon is sold to wholesalers and then to Japanese processors. Some companies are involved in more than one stage of the distribution system. Below is a general overview of the distribution system of seafood in Japan. The left side of the diagram shows in-market distribution routes. Domestic coastal catch is likely to pass through both producer wholesale markets and consumer wholesale markets. Imported seafood which is distributed through in-market routes will pass through only consumer wholesale markets.

Figure: General overview of the seafood market in Japan

Imported seafood is generally brought to Japan by Japanese trading companies (shosha). The major importers are in principle large trading companies and large fishing companies, though in recent years there has been a substantial increase in participation by smaller trading companies. Wholesale markets are at the core of the Japanese fish distribution system. The Japanese distribution system typically consist of two types of wholesale markets, one at the ports where fish is landed and the other in the cities where the majority of fish is consumed. The wholesale markets at the ports are usually run by fishermen's cooperatives. Fish unload at nearby ports is brought into the wholesale market and auctioned. Except for those consumed locally, fish is usually transported to distant cities. In the cities, the other class of wholesale markets is run by licensed wholesalers and the city government. Fish transported from the ports is sold to retailers, processors and restaurants through primary and secondary wholesalers located in the wholesale market place. These two types of wholesale markets, one located where fish is landed and the other in cities where fish is consumed, are the center of the distribution system of the Japanese seafood market.

10. Overview of the most relevant products

10.1 Stomach

10.1.1 Product information

In general, animal stomachs are used in Japanese cuisine and fish industry, but not fish stomachs. According to a representative from the importer Mikuni Co. Ltd. in Osaka, stomachs from some types of animals are used to produce "Kanpoyaku" and "Shoyaku", which is traditional Chinese medicine where natural sources are used. However, marine sources like e.g. fish stomachs are not suitable for "Kanpoyaku" and "Shoyaku". Dried stomach is only used in some very few dishes in Chinese cuisine, and there is only a limited supply of this to e.g. some Chinese restaurants in China Town in down-town Yokohama.

10.2 Milt

10.2.1 Product information

Cod milt is a product which is part of traditional Japanese cuisine and constantly some volume is consumed in the household market as well as in the restaurant market, particularly in typical Japanese restaurants. There are two main ways to eat cod milt in Japan. One as appetizer or as a type of snack food, and in this case it is normal to pour some vinegar and some few drops of soya sauce over the milt and it is eaten as it is, maybe served together with some sake (Japanese rice wine, made from fermented rice and water) or beer. In other words, no cooking is necessary. A second way of serving cod milt is the way it is prepared at the typical type of Japanese restaurant called "Nabemono" (Nabemono = hot stew pan). In this case the cod milt is served in addition to meat, cod fillet, soybean curd, salt and vegetables cooked together in a deep pot or in a deep saucepan at the table. It is eaten from the pot while it is cooking. It should also be mentioned that cod milt is imported/served only during the winter season

(September/October to May). The milt should preferably be in fresh condition, and currently about 90% of the imported cod milt is fresh, while 10% of the cod milt is in frozen condition. It should be underlined that only genuine cod milt so far has been successfully marketed in Japan, and that milt from other codfish, e.g. haddock and saithe have not yet been introduced to any extent, but most likely this will be difficult to market in Japan. However, this is an issue that should be researched in further detail. It can also be added that e.g. milt from Alaskan cod is not suitable for the Japanese market.

10.2.2 Market information

Cod milt is traded in quite big volumes, and a rough estimate is 8.000 tons to 12.000 tons on an annual basis in Japan. The auction price on Tsukiji Fish Market in Tokyo in March 1996 ranged from ¥ 6.000,- to ¥ 8.000,- per kg for fresh Japanese cod milt (ca. NOK 390,- to NOK 520,-) and from ¥ 3.000,- to ¥ 5.000,- for fresh imported cod milt (ca. NOK 200,- to NOK 330,-). The difference in price between domestic and imported is due to the level of freshness and overall quality. The auction price in the same period for frozen imported cod milt was significantly lower, and in the range of ¥ 800,- to ¥ 1.000,- (ca. NOK 50,- to NOK 70,-). By deducting approximately 20% from the auction price, you will have the import price. So far, export of cod milt from Norway to Japan has only been on a test basis, and not yet on a commercial basis. Last year approximately 3-5 kg were sent from Norway to Japan. As mentioned above, freshness is of pivotal importance in order to get a good price, and one alternative could be to export whole cod fish to Japan, and have the buyers extract the milt after receiving it in Japan in order to make sure the milt will keep its good quality and to handle it in a most careful way. One importer could inform that very good quality genuine cod milt can be sold at Tsukiji Fish Market for ¥10.000,- per kg (approx. NOK 650,- per kg). However, it should be underlined that this price is for fresh, top quality milt only. The import duty on cod milt in Japan is currently 10% (ref. 03.02.70-020).

The following three companies have expressed an interest in importing cod milt from Norway. These firms are: Nozaki & Co., Ltd., Kasho Co., Ltd., Hasebe Co., Ltd. and Cocoon Japan K.K.. Please see addresses at the end of this chapter.

10.3 Head

10.3.1 Market information

Heads from salmon and trout have no commercial value in Japan. The same can be said about heads from cod, however, there is one exception. Sometimes cod is served in its entirety, and chopped into pieces of a certain size. In such cases, head is also included.

Concerning other fish species, heads from tuna fish and skip-jack (bonito) as well as from some particular types of big-size tropical fish are used at some types of Japanese restaurants. Usually the head is grilled over open fire or in oven. This type of food is called “Kabutoyaki” in Japan. It should also be added that tuna fish (and some bonito) are used to a large extent for production of DHA oil (Omega 3 oil) in Japan, which is currently of high interest.

10.4 Neck meat

10.4.1 Market information

A product which is quite popular in Japan is neck meat from salmon and trout, and this is sold in small packs, usually of 500g - 600g, but also in cans. According to Mr. Osamu Hasebe, President of Hasebe & Co., one of the largest importers of salmon from Norway, the product is quite popular in Japan due to the nice taste of the neck meat. The product can be found in many supermarkets, particular in big cities. Hasebe Co. Ltd. is currently importing this product, but not yet from Norway, even though atlantic salmon would be quite suitable, according to the company. The company could inform that they would be interested in importing this from Norway to a price of ¥ 200,- to ¥ 350,- per kg for fresh neck meat (ca. NOK 13,- to NOK 23,-). In retail, neck meat is sold for approximately ¥ 600,- per kg, (NOK 40,-) and therefore cheaper than salmon fillet etc. Superior quality of neck meat can possibly be sold at a level as high as ¥ 800,- (NOK 50,-) in the supermarkets. Frozen neck meat would also be of interest, but at a significantly lower price. Neck meat from trout is also acceptable. Neck meat from salmon is usually packed in small trays or packs of e.g. 600 g , and sold at ca. ¥ 200 in retail. Some neck meat (imported and domestic) is also delivered to smokeries in Japan. The price of canned salmon neck meat is somewhat cheaper than of canned salmon meat which costs, depending of the quality and type of salmon, approximately ¥160 per can (55g). In general, the market for canned neck meat from salmon (and trout) is said to be quite good in Japan, and should have an interesting potential for Norwegian exporters willing to provide size, slices, quality, etc. according to Japanese preferences. There is no available market information about the size of this segment.

10.4.2 Product information

The neck meat from salmon must be cleaned very thoroughly in order to remove the kidneys. The fresh neck meat is used for grilling after adding some salt. The canned product should be added some salt and be boiled at 115°C for 80-95 minutes before it is canned. Depending on which type of salmon is used, the product is marketed in Japan as “Red Salmon Neck Meat.” One brand name is “Akebono Nichiro” and is manufactured by Nichiro Corporation, one of the leading firms in Japan in terms of salmon and crab canning. Another possible importer could be Maruha Corporation. Please see addresses at the end of this chapter.

10.5 Tongue

10.5.1 Market information

In Chinese restaurants in Japan, dried tongues of various types of big-size tropical fish is used, however tongues from cold water fish as cod or salmon are not used. The Japanese does not like this, and this is only served in a few, very typical Chinese restaurants in Japan (e.g. in China Town in Yokohama) and possibly a little for home use, however, according to our sources, this is traded in very limited volumes.

10.6 Jaw

10.6.1 Market information

In our contact with several seafood importers we could not get in touch with anyone who was familiar with the market for jaws from cod or salmon, as this is not a recognized by-product in Japan. Jaw is only served at a very limited number of Chinese restaurants in Japan. Primarily tropical fish is used and the jaw is served dried.

10.7 Eye

10.7.1 Market information

There is no established market for such products in Japan, other than for fish oil.

10.8 Bone

10.8.1 Product information

A very interesting and relatively new product which has gained quite rapid popularity in Japan is canned salmon bones. This product was originally developed by Miyako Fishery College in Iwate in Northern Japan for about 10 years ago, and was first introduced by Miyako Fishery Cooperative in May 1993. The product is processed as follows: About 300 gram tailbone of the salmon is boiled together with salt and various additives, and this is sufficient for a 200 gram can, similar to the one you can find in Japanese supermarkets. The price of such can is approximately ¥200 - ¥250,- (NOK 13,- to NOK 16,-) and therefore significantly cheaper than canned salmon. When opening the can it is possible to see the actual fishbone, but due to the boiling process the bones are dissolved and easy to eat. The price for the raw material (bones) is somewhere in the range of ¥ 5 and ¥ 10 (NOK 0.30 to NOK 0.70) per can. Different types of salmon can be used, and the most common is Chum salmon, but Sockeye and trout is also used. Approximately 50% of the content of the box consist of bones. Canned smoked salmon bones is another version of this product concept, quite recently introduced. Miyako Fishery Association invested about ¥ 100 million (NOK 6.5 million) in order to build a can factory with the special purpose of taking care of this product concept. This factory started in March 1993, and the goal for the production has been approximately 600,000 cans per year. In addition to canned salmon bones, this factory is working on developing new products, as for instance powder from salmon bones. The next step will be to develop products without additives.

10.8.2 Market information

The sales has been very good for a couple of years, particularly from its introduction in 1993 to 1994/95, but industry people we have been in contact with, says the sales is not as strong as it used to be, since there are currently many companies marketing this product. The sales has peaked out and

is currently decreasing. As to the marketing of the product, the abundance of calcium is particularly highlighted in addition to the good taste. High content of calcium appears to be a very effective sales argument taken into consideration that many Japanese in their normal diet have a lack of calcium. Moreover, it is not difficult to emphasize the environmental aspect of the product since the bones normally are thrown after the salmon is processed. The size of the total market for canned salmon bones in Japan has been estimated to approximately ¥ 2 - 2.5 billion, but it should be underlined that there is a lot of uncertainty to the accuracy of this estimate. The Japanese department store Takashimaya could report that they had sold more than 100 000 cans only after the product had been introduced a few months, and that the customers in the beginning signed up on order sheets to buy additional cans. However, the competition in this segment has increased, and several new firms have entered this niche market. We have been informed that there have been as much as 30 Japanese firms at one point dealing with salmon bones in Japan, in addition to this, there has been some export to Japan from abroad. For instance the Norwegian company Firda Canning was one of the first non-Japanese firms to enter this market segment, and has been exporting canned salmon bones to Japan for approximately 2-3 years. One importer of such products in Japan is Kokubu Co., Ltd. in Tokyo. At the introduction in the spring of 1993 no particular marketing and promotional activities were initiated due to the significant uncertainty related to this product concept. But when a famous Japanese weekly magazine wrote an article about it, the product got widely known. Today, this product is distributed over most parts of Japan.

10.9 Swim Bladder

10.9.1 Market information

Swim bladder is not a recognized by-product in Japan.

10.10 Gall Bladder

10.10.1 Market information

There is no established market for gall bladder in Japan.

10.11 Fin

10.11.1 Market information

There is no market for fins from cod, salmon etc. in Japan, however, there exist a certain market for dried blue shark fin. Furthermore, there might be possibilities for fins from plaice. The firm Uniya & Co. in Kobe has expressed a certain interest in this product, and would like to get in touch with potential Norwegian exporters.

10.12 Meat from belly (“Harasu”)

10.12.1 Product information

Another product which has a certain potential in Japan is meat from the belly of salmon or trout. This product is called “Harasu” in Japanese, and can be prepared in different ways. The most common is grilled or smoked, but we have been informed it also can be served dried.

10.12.2 Market information

The import price in Japan is in the range of ¥ 200,- to ¥ 350,- per kg, and according to our sources, the product has a certain export potential to Japan. Retail price is about ¥ 600,- per kg (ca. NOK 40,-).

10.13 Other types of fish by-products

There are also a number of other Japanese products originating from fish by-products, but most of these must be considered as localities and might be difficult to deal with on a commercial basis. This market survey is limited to products commonly traded at Tsukiji Fish Market, the largest fish market in the world. One such product might be “Mefun” which is salted salmon kidneys and “Hizu” which is the cartilage of the salmon, marinated with various spices and vinegar. These products are eaten as snacks, but according to our information, only in certain parts of Japan.

11. List of potential importers

Name of company: Chuuka Takahashi Co., Ltd.
Address: 4-7-18 Moyoshi, Koto-ku, Tokyo 135, Japan
Contact person: Mr. Masashi Oka
Telephone: +81 3 3820-0030
Telefax: +81 3 3820-0039

Name of company: Cocoon Japan K.K.
Address: Nakatomi Building, 6-13-3, Tsukiji, Chuo-ku, Tokyo 104, Japan
Contact person: Mr. Pål A. Bakken, Representative Director
Telephone: +81 3 5565-3036
Telefax: +81 3 5565-3038

Name of company: Hasebe Co., Ltd.
Address: 20-7, Shiomi 1-chome Koto-ku, Tokyo 135, Japan
Contact person: Mr. Osamu Hasebe, President
Phone: +81 3 3644-8989
Fax: +81 3 3644-7007

Name of company: Kasho Co., Ltd
Address: Kasho Building, 2-14-9, Nihonbashi, Chuo-ku, Tokyo 103, Japan
Contact person: Mr. Hidetoshi Tsuruoka, Team Leader
Telephone: +81 3 3276-7905
Telefax: +81 3 3276-7990

Name of company: Kokubu & Co., Ltd.
Address: 1-1-1 Nihonbashi, Chuo-ku, Tokyo 103, Japan
Contact person: Mr. Katsuhiko Itoh, Import Department
Telephone: +81 3 3276-4131

Name of company: Maruha Corporation
Address: 1-1-2, Ohtemachi, Chiyoda-ku, Tokyo 100, Japan
Telephone: +81 3 3216-0821
Telefax: +81 3 3216-0342

Name of company: Nichiro Corporation
Address: 1-12-1, Yuraku-cho, Chiyoda-ku, Tokyo 100, Japan
Telephone: +81 3 3240-6211
Telefax: +81 3 5252-7963

Name of company: Nozaki & Co., Ltd.
Address: SAS Bldg., 2-2-6, Nihonbashi-Bakurocho, Chuo-ku, Tokyo 103-91, Japan
Contact person: Mr. Masayuki Itoh, Foreign Trader
Telephone: +81 3 5641-4351
Telefax: +81 3 5641-4397

Name of company: Tobu Boeki K.K.
Address: Nissei Bldg., 2-13-33, Kohnan, Minato-ku, Tokyo 108, Japan
Contact person: Mr. Komei Hashimoto, President
Telephone: +81 3 3458-5135
Telefax: +81 3 3471-1396

Name of company: Uniya & Company
Address: 9-3, 8-chome, Kumochi-cho, Chuo-ku, Kobe 651, Japan
Contact person: Mr. Uniya
Telephone: +81 78 382-0490 or +81 78 382-0490
Telefax: +81 78 221-2817 or +81 78 361-1637

Name of company: Wan Fu Lin Co., Ltd.
Address: 123, Yamashita-cho, Naka-ku, Yokohama 231, Japan
Contact person: Mr. Fu Lin Wan, President
Telephone: +81 45 681-3333
Telefax: +81 45-681-3334

12. Conclusion and recommendation

Even though the Japanese people traditionally have applied a philosophy that most of the food originating from the sea can be eaten, it is clear that the consumption of fish-by products is somewhat limited, even though there is a number of interesting opportunities which should be further investigated. As this preliminary market study shows, a market for top quality cod milt exist, and that this segment possibly could turn out to have an interesting export potential if developed in close cooperation with Japanese importers, restaurants, etc. The same can be concluded about neck meat from e.g. salmon and trout, and during the survey, we got specific requests from importers interested in importing salmon neck meat from Norway. Bones from salmon is another market segment which should be further explored, however, the supply of such products in Japan is currently rather vast, and the most efficient approach would be to link up with canned salmon bone producers in Norway. Finally, the last fish by-product which has an interesting potential for export to Japan, is meat from the belly of salmon. A couple of importers responded favorably when mentioning this product, and thought that Norwegian salmon is suitable for “Harasu.”

13. CHINA - The Market for Fish By-Products

13.1 Methodology

The purpose of this section is to give a preliminary view of the market for fish-by products in China. Most of the information regarding the specific product categories was acquired through interviews with market experts. In Beijing, Shanghai, Guangzhou, Dalian and Qingdao some 21 fish corporations, fisheries institutions and 17 hotels and Chinese restaurants were called and met with in person concerning the fish by-products. The 21 fish corporations, fisheries institutions and 17 hotels and Chinese restaurants are listed below.

The people we met with in person were:

Mrs. Lin Jiaorong	Deputy Director of Aquatic Bureau
Mr. Zhao Jiang	Deputy Section Chief
Mrs. Xie Jie	Manager of Import and Export Co. of CNFC
Mr. Yuan Quaxian	Deputy General Manager of Qingdao Fisheries Supplying and Marketing Co.
Mr. Kong Qingyuan	Deputy General Manager of Shanghai Fisheries Co.
Mr. Zhao Yuesheng	Manager of Ocean Trade Co. of Guangdong Fisheries Supplying and Marketing Co.
Mr. Wang Xichang	Professor, Faculty of Food Science and Technology, Shanghai Fisheries University
Mr. Lin Xiao	Sales Manager of Beijing Fisheries Corp.
Mr. Lin Siwei	General Manager of Beijing Mandarin Food Corp.
Mr. Tang Yiwei	Manager of Shanghai Dah Chong Hong Food Industries Ltd.

The hotels and restaurants visited in Beijing and Shanghai included Beijing Hilton Hotel, China World Hotel, SAS Hotel, Jingguang New World Hotel, Kempinski Hotel, Palace Hotel, Shunfeng Hotel, Rainbow Food World and Wanjia Denghua Restaurant.

14. General Introduction to the Chinese Market

14.1 Key information about China

Fisheries in China is an industry with a long history and promising future. It is also an important sector of China's national economy. Located in East Asia continent, China is a Pacific Rim country with its territory extending cross tropical, subtropical and temperate zones. It faces to the southeast the Bohai Sea, Yellow Sea, East China Sea and South China Sea with total continental coastal line of over 18,000 km, and a total island coastal line of 14,000 km. It owns numerous harbors and a vast marine fishing ground. China also stands on the list of the countries having most inland waters in the world. Vast seas, abundant inland waters and appropriate climate provide favorable natural conditions for the growth of

aquatic life. Chinese fisheries including inland fisheries, marine enhancement and aquaculture, marine fishing, distant water fishing, marketing and processing of fishery products, fisheries management and fishing port superintendents, science and education, international fishery cooperation and trade and fishing vessel and fishery industry etc.

Item	China
Capital	Beijing
Main cities for fishery industry	Beijing, Shanghai and Guangzhou
Population	1.2 billion
The GDP growth	9.8% in 1995
GNP per capita	US\$ 500
Total Imports	90.62 bill. US\$
Total Exports	107.04 bill. US\$
Labour force	645 million
Land area	9.5 million square kilometers
Compulsory education	9 years
Climate	Tropical, subtropical and temperate
Official language	Mandarin Chinese

The total fishery production in China is about 23 million tons in 1995, 43% of which is marine catch, 17% from seawater farming and 40% from fresh water farming. Total import value reached 1 billion USD in 1995. Export of Norwegian salmon to China is currently increasing, however, one major growth area for Norwegian fish exporters is expected to be in pelagic fish such as cod, mackerel, herring, saithe, haddock as Chinese customers gradually will become familiar with such species.

15. General information about the consumption of fish products and in particular fish by-products

Chinese people in mainland China consumed an average of 19 kg per capita last year. China is a country with a very long coastline, thus eating fish is rather common. The mainland people see some seafood such as salmon, yellow fish, eel and shellfish as luxurious foods, and due to the rapid economic development over the past few years, the people's consumption of fish, especially in the bigger cities are expected to go up along with the increasing purchasing power and the new consumption preferences. As a result, Norwegian fish exporters are coming to pay more attention to one of the biggest fish markets in the world, and recently Norwegian deepsea red shrimp as well as pelagic fish are coming to be recognized and accepted by Chinese importers.

Most of the seafood in China comes from state-owned fishery companies and is distributed to retailers, supermarkets, shops, hotels and restaurants. One point of particular attention is that many

private fish companies are playing a very active role in sharing the task which is done mainly by state-owned companies in the past years.

The various ways salmon and shrimp are distributed in China can serve as general examples for all species and are summarized as follows:

Foreign exporters - Chinese importers - restaurants/hotels/supermarkets/shops/processing plants

In China, where the supply of fish and the income of the people have changed dramatically over the last few years, only one fish by-product has a significant market, namely fish head, especially in the Guangdong province. Fish tongue is another product which might have an interesting potential in the future. It should be kept in mind that promotion for market development for the sale of by-products is necessary, and it is also possible to develop a market for the products that are traditionally not sold in China. An example of successful promotion is salmon, which previously had no market in China but is now available and can be found in hotels and restaurants in the big cities of China.

16. Overview of the most relevant fish by-products

16.1 Stomach, milt, intestines, bellyflap, swim bladder, gall bladder and bone

16.1.1 Market information

The above mentioned fish by-products are not the recognized by-products in China. All the companies we called showed that they were not familiar about the listed by-products and we were told by representatives of the Aquatic Bureau of the Ministry of Agriculture that all these by-products usually are used for making fish oil.

16.2 Head

16.2.1 Market information

Our research findings shows it has a limited market in Shanghai and Guangzhou, however, it should be mentioned that the local people are used to fresh water fish head in their traditional cooking method for soup. We were told by a number of chefs during our visits to the above mentioned restaurants that the head of salmon is very rich in taste and heavy for cooking soup.

16.3 Fish tongue

16.3.1 Market information

This is not a recognized fish by-product at present, however, it may have a certain potential if the product is promoted in the future.

16.4 Fin

16.4.1 Market information

Only sharkfin has a market, and the price for sharkfin in China is currently rather high.

16.5 Fish skin

16.5.1 Market information

It seems that some R & D institutes currently are making experiments to process the skin into handbags.

17. List of potential importers

In Beijing

Name of company: China National Fisheries Corporation

Address: Seafoods Trading Company

Import and Export Dept.

31 Minfeng Lane, Xidan, Beijing

Contact person: Mr. Xin Shaoyi

Telephone: 6015917

Name of company: Beijing Fisheries Corporation

Address: Foreign Trade Department

No. 90 Tianjinzhuang, Fengtai District, Beijing

Contact person: Mr. Ling Xiao

Telephone: 7235171

Name of company: China Huanong Fisheries Corporation
Address: Beijing Bluewaters Promotion Corporation
No. 2 Import Export Department
No. 15 Tuanjiehu Mid-Road Chaoyang District
Attention: Mr. Wang Guoquan
Telephone: 5986593

Name of company: Mandarin Fine Foods Co.
Address: Rm. 205, No. 8 Baijiazhuanglu, Chaoyang District
Contact person: Mr. Lin Siwei
Telephone: 5069398

Name of company: Beijing Cereal, Oil and Foodstuff I/E Corporation
Address: Import Department
No. 22 Fuwaidajie
Contact person: Mr. Suo Bangtai
Telephone: 85 86 248

In Shanghai:

Name of company: Shanghai Fisheries Corporation
Address: Foreign Economic and Trade Department
18 Zhongshan Dongyilu, Shanghai
Contact person: Mr. Cao Pingmei
Tel: 021 63299626

Name of company: Shanghai Deepsea Fisheries Co.
Address: Business Department
10 Jiangpu Road, Shanghai
Contact person: Mr. Xie Liming
Telephone: 021 65370880-7305

Name of company: Shanghai Marine Fisheries Development Co.
Overseas Enterprise Department
Address: 486 Gongqinglu, Shanghai
Contact person: Mr. Zhou Lin
Telephone: 021 65194521

Name of company: Shanghai Aquatic Supply and Marketing Co.
Address: No. 1 Branch
10 Jianpulu, Shanghai
Contact person: Mr Xun Zheng, General Manager
Telephone: 021 65450485

Name of company: Shanghai Fisheries General Corporation Supply and Marketing
Development Co.
Address: Import and Export Department
1100 Yangshupulu (In West Building), Shanghai
Contact person: Mr. Ding Weiping
Telephone: 021 65352200

Name of company: Shanghai DCH Food Industries Ltd.
Address: 5B, 106 Shilonglu, Xuhui District, Shanghai
Contact person: Mr. Chu Hin-Fai, Chairman
Telephone: 02164700971

In Guanzhou

Name of company: Guangdong Aquatic Products Synthesis Purchase and Supply Corporation
Address: 547, Nanhuadonglu, Guanzhou
Contact person: Mr. Wu Jiaquan, Vice Manager

Name of company: Guangdong Xin Jie Food Co., Ltd.
Address: 547 Nan Hua Dong Lu, Guanzhou
Contact person: Mr. Lin Zhimei
Telephone: 020 4421277

In Qingdao

Name of company: Qingdao Aquatic Products Supplying and Marketing Co.
Address: 19 Sichuan Lu, Qingdao
Telephone: 0532 2881214
Telefax: 0532 2874821

In Dalian

Name of company: Dalian Fisheries (Group) Co.
Address: 51 Binhaijie, Xiganqu, Dalian
Telephone: 0411 2633468
Telefax: 0411 2803017

18. Conclusion and recommendation

In general, the market for fish by-products is currently very small and it would be rather difficult to get profit from export of fish by-products to China. But head and tongue might be accepted in a small quantity first, and might have the potential to increase through our promotions in the future.

19. HONG KONG - The Market for Fish By-Products

19.1 Methodology

The purpose of this report is to give a preliminary view of the market for fish by-products in Hong Kong. Availability of any kind of information was a major obstacle in the research for this investigation. Only macro level statistics were available from official sources, lumping together all fish by-products, including non-edible as one category for import.

For this reason most of the information regarding the specific product categories was acquired through interviews with market experts. In Hong Kong some 70 fish importers were called and asked about fish by-products, but only 7 of them had any detailed knowledge and experience. These same 7 companies are listed and described briefly in section 5. Representatives from 4 of these companies were met in person:

Heep Tung Hong Ltd., Mr. Ricky Leung

Asia Marine Product Co., Mr. Alfred Tse

Ausino Development Ltd., Mr. Steven K. M. Cheng

Dah Chong Hong Ltd., Mr. K. Y. Lee

Two other people were also met with in person:

Mr. Wilson W. S. Yeung, Chinese Cuisine Expert and Columnist, Life President of the Association for Hong Kong Catering Services Management, Lecturer at the Hong Kong Management Association, Chief Lecturer at the Catering Management Study Centre, Vice Conseiller/Culinair at “Confrerie de la Chaine des Rotisseurs.

Mr. Chan Kim-Hung, Fisheries Officer at the Hong Kong Agriculture and Fisheries Department.

20. General Introduction to the Hong Kong Market

20.1 Key information about Hong Kong

The city of Hong Kong has a population of 6 million people and averages a GDP growth of around 6% per year. The GNP per capita is as high as USD 20,000, driven by a total export of 134.1 billion US\$. The main export items are garments, imitation jewelry, travel goods and other light manufactured

goods, many of them from Mainland China. The official languages are Mandarin Chinese and English, while the Chinese dialect of Cantonese is the native tongue.

Main city	Hong Kong
Population	6 million
The GDP growth	5.9%/year
GNP per capita	USD 20,000
Total Imports Quarter 4 1995	49.22 bill. US\$
Total Exports Quarter 4 1995	44.98 bill. US\$
The main exports	Garments, imitation jewelry, travel goods, umbrellas, clocks, etc.
The main imports	Electronics, textiles, vehicles, machinery.
Labor force	2.97 mill.
Compulsory education	9 years
Land area	1,071 sq. km
Climate	Subtropical
Ethnic Composition	97% Chinese
Official Language	Chinese and English
Native Tongue	Cantonese

Hong Kong residents are quite wealthy, and their pattern of expenditure of the household budget is as follows in percentages:

Foodstuffs	34.21
Housing	25.58
Fuel & light	2.4
Alcohol/tobacco	1.35
Clothing & footwear	7.52
Durable goods	3.83
Misc. Goods	6.7
Transport & vehicles	7.6
Services	10.81

The total number of households is 1.293 million. 41.6% of the employed population have monthly salaries above HK\$ 10,000, while the median is HK\$ 8,500. A normal apartment size in Hong Kong is only 45 to 60 sq.m.

The bulk of exports to Norway from Hong Kong is mainly garments, followed distantly by toys, games and sporting goods at a total of USD 193 million in 1994. Norway's exports to Hong Kong were mainly metals and fish totaling USD 91.6 million.

Hong Kong has a highly developed infrastructure, and many projects underway to improve it further, such as a new airport.

21. General information about the consumption of fish products and in particular by-products

The Hong Kong Chinese eat an average of 50 kg fish per capita per year. Hong Kong is a coastal city, thus eating fish is common. The Chinese in Hong Kong see fish and shellfish as luxurious foods, and thus its consumption tend to go up along with increasing purchasing power. This makes Hong Kong an attractive target for Norwegian fish exports. Furthermore, some Norwegian items such as shrimp and especially salmon have a strong appeal to the Chinese, and fish imports in general are likely to continue growing as Hong Kong's income increases.

The Chinese prefer high fat content, large size and soft bones in their fish. They also pay attention to meat's color. The fish is prepared in a variety of ways, and the Chinese like to have a variety of different dishes to choose from.

Most of the fish in Hong Kong comes from local fisheries and from coastal aquaculture in the Guangdong province in China. About 40% of Hong Kong own consumption of fish is imported. Total import of salmon from Norway, the main species sold to Hong Kong from Norway, was 1410 ton in 1995. The usual routes of distribution are:

The various ways salmon and shrimp are distributed in Hong Kong can serve as general examples for all species and are summarized as follows:

√ ➤Exporter →Importer

or

√ ➤Exporter

→Restaurants.

√

→Hotel.

√

→Traditional Fishmarket.

√

→Supermarket.

√

→Deli shop.

√

→processing/packaging/smoking.

The fish goes either directly to the retailers from the exporter or via an importer or processor.

The import statistics for 1990-1994 were as follows for fishparts non-edible and edible lumped together:

Fishparts (in Kg.)	1991	1992	1993	1994	1995
USA	136,240	174,908	96,931	104,748	176,933
Norway					84,480
Netherlands					82,000
Taiwan	8,251	1,398	5,400	37,456	6,000
Indonesia					706
Thailand	1,076			2,000	810
Japan	1,001	2,670			1,200
China	164,415	209,429	261,590	425,669	808,555
Korea				19,050	3,884
Vietnam		5,200			1,198
Malaysia		18,689			90
Singapore		720			370
Total	310,983	413,014	363,921	588,923	1,166,226

In Hong Kong, though, where the supply of fish and the income of the people have changed dramatically over the last few years, only two fish by-products have a significant market: Fishmaw and fishhead. Skin and bones are used as a cheap snack, and offals are very rarely eaten any longer. Parts of the head such as tongue, jaw and eye are rarely, if ever, sold separately from the head. The exception here would be the cheekmeat. It should be noted also that Hong Kong Chinese are concerned about the cholesterol content of some fish by-products, especially the offals. Also, the consumers in Hong Kong are now quite wealthy and if they want to eat fish they can afford to eat up-market species selected in live form, so it is with the exception of sharkfin, fishmaw and fish head, the market for by-products at a profitable price is limited.

Skin, bone, stomach and intestines most likely fail to get a high enough market price to justify the extra shipping and labor costs from Norway. Fishmaw and head, however, are marketable and possibly also belly flap if the market is developed. Finally, sharkfin is always easy to sell to Hong Kong at very high prices.

One important characteristic of Hong Kong is that it functions as a distribution center for a lot of fish sales to Mainland China. Even the by-product fishmaw comes through Hong Kong from places such as India and Africa.

It should be kept in mind that promotion for market development for the sale of by-products is essential, and it is also possible to develop a market for things that are traditionally not sold in Hong Kong such as fish tongue. An example of successful promotion is salmon, which previously had no market in Hong Kong, but is now common and popular. The question is, however, if the potential market size and profitability would make such projects financially sound. Also, does it make sense to cut the tongue out to sell it when this means that you cannot sell the head? Finally, one needs to keep in mind the value added in terms of labor cleaning and shipping to determine if the by-product is marketable or not.

Especially the restaurants of Hong Kong are willing to try new products and may help in developing a market for the items of cheek, bellyflap, head and maw. New products serve as a nice break from the traditional species such as snapper and grouper. Other by-products are according to our sources of low

potential. Seafood in general is being promoted as a healthy food that is low in cholesterol (except certain by-products) and may even have anti cholesterol properties. This latter factor is beneficial in general for seafood sellers.

22. Overview of the most relevant products

22.1 Stomach, Milt and Intestines

22.1.1 Product information

Fish milt is not a recognized by-product in Hong Kong, whereas stomach and intestines are part of some traditional Chinese dishes, usually steamed. These dishes have virtually disappeared from the menus over the last few years though, as people have changed their eating habits especially due to the fear of high cholesterol in fish offals, and the affordability and availability of high quality fish products. Live fish for example is very popular and expensive in Hong Kong.

22.1.2 Market information

The stomach of the fish is not used much in Hong Kong. There are rare exception in which special orders are made for stomach and intestines, but there is no established market for it. Two reasons mentioned are that Hong Kong Chinese are very concerned about cholesterol, and fish offals are perceived to have a high content of this substance, and that the affordability and availability of fish products is very high in Hong Kong now, and this has urged the Chinese away from some of their old eating habits such as eating offals of the fish.

22.2 Head and parts thereof

22.2.1 Product information

Fish head is a traditional Chinese food used from a variety of especially fresh water fish that have large heads. It is sold fresh or frozen and served in a variety of ways. Salmon head has increased in popularity over the last few years. Size and species as well as freshness are primary factors determining the marketability of fish heads.

22.2.2 Market information

After fishmaw (swim-bladder), the by-product with the best potential for market development is fish head. In Hong Kong the products that are part of the head such as the eyes, and the jaw do not really have a market by themselves, with a small exception for the cheekmeat, and even more exceptional: the

tongue. The cheekmeat of cod has been sold as a very tender fish meat in restaurants, and the tongue of Latin American grouper has been imported for stir fry dishes. Neither fish cheek or tongue are popular dishes in Hong Kong and constant supply is a problem for importers, but this market has a potential for development. There is no statistics available to show the size of the fish head market, but salmon is increasingly popular as a specie, and from contacting several fish importers it seems clear that the salmon head market is only at a level of a few containers per year at this point. Many market insiders feel that this market can be developed further, also for species like cod and others with large, meaty heads. There is stiff competition in this market, however, with local carpfish heads (very large) sell for only Hong Kong \$ 3 per pound. Salmon head is sold to Hong Kong (frozen) at a C&F price of US\$ 1,300 to US\$ 1,500 per ton. The importers contacted would import a 20 or 40 foot container every 2 to 3 months or so.

22.3 Bellyflap, Skin and Bone

22.3.1 Product information

In Hong Kong the fish skin and bones are cheap by-products that are occasionally used as a crispy fried snack food. Crispy salmon skin, bone and fins are available in canned form as a snack food. In supermarkets fried salmon skin as a snack sells for only Hong Kong \$ 12 per pound. The bellyflap is also used as a snack in certain restaurants, but it does not have an established market, and according to some insiders, the price is only one third of that of fillets. This is unlike Taiwan, where bellyflaps from salmon are increasing in popularity, and can get a premium price if cut a little wider than usual.

One exception to the above cases is shark bone. Shark bone has a market as it is perceived to be a medicine against cancer.

22.3.2 Market information

Skin and bone products are low value products that would not be attractive for development. The bellyflap may have a better potential as a value added snack food if one is to draw parallels between Taiwan and Hong Kong.

22.4 Swim Bladder

22.4.1 Product information

This is the king of fish by-products in Hong Kong. Actually the 4 most expensive seafood delicatessens in Hong Kong are in order: abalone, sea cucumber, sharkfin and fishmaw. Dried, large, high quality fishmaws from certain species can sell for several thousand Hong Kong dollars in the market. The maw is used for several dishes including soup, steamed and fried dishes. Main characteristics looked for in the maw is shape, size, color (transparency), thickness (thicker is better) species and gender.

The product is usually imported in either dried or frozen form. If the maw has been cleaned nicely from oil and dirt (a strong detergent is used for this purpose), then the dry weight of the frozen maw is about 28%, whereas a dirty one gets about 23% to 25% yield. Before exporting there is no need to classify the product, this can be done later by the importers. The price is determined on a case by case basis after a

subjective judgment of the value of the maw. This is again a function of species, gender, color, thickness and shape as well as yield for the frozen product.

Maws popularity as a delicacy stems from the Chinese belief that the fishmaw has medicinal value for the respiratory function, and it also has a low fat and high protein content. This is unlike the other offals, which are considered to be high in cholesterol and not so attractive. Just like sharkfin, maw is fairly tasteless and without significant smell. Some people like the low “fishiness” of these two products.

Labor cost is an important factor to consider for the maw market. There is a significant labor content in the product in terms of cleaning, grading and drying, and this is why this work is done in Mainland China, Africa and India or other countries with cheap labor. If the product is shipped by air then it is very important to include a health certificate for the shipment. If the shipment is by sea, then the certificate is not essential.

22.4.2 Market information

The fishmaw market is dominated by Nile Perch from Africa, which gets about 70% to 80% of the domestic fishmaw market of about 30 tons per month. Nile perch maw has a price of about US\$ 50 to 70 per kg if the maw is of a good grade. Another popular species is eel, which get US\$ 80-100 per kg. A third popular species is a “codfish” (according to Chinese “cod”, according to English “Croaker” or “Corvina”) from the Indian Ocean and China Sea, which can get several hundred dollars per kg. One company told us that this “cod” is very different from the one they had bought from Europe at about US\$ 5 to 6 per kg frozen, cleaned maw. On the other hand, any species that has a large, thick, symmetrically shaped maw with a nice transparent color has very good potential for marketing in Hong Kong as well as China. Actually, most of the fishmaws imported to Hong Kong are re-exported to mainland China.

The fish maw in Hong Kong is mainly eaten in restaurant (about 80% of the volume), and a small portion in private homes (20%). The dried maw is first put in water for a few hours to soften the texture. The large maws are used for soups (thick maws are needed to prevent the maw to completely dissolve) or steamed. Smaller maws are used for “dim sum”, that is as a fried snack food, especially for breakfast.

22.5 Gall Bladder

In our contact with several fish importers we could not find anyone who knew about a market for fish gall bladder in Hong Kong.

22.6 Fin

Only sharkfin has a market, with the exception for salmonfin mentioned in the section above under “bellyflap, skin and bone.” The sharkfin is a very expensive and sought after food in Chinese cuisine and sell for very high prices depending on the grade.

23. List of potential importers

A sample of 70 fish importers were called in Hong Kong, but only 7 traded in fish by-products, either salmonhead, fishmaw or assorted by-products in frozen block form for fishmeal production in China. The importers were as follows (except the fishmeal producers):

Name of company: Ausino Development Ltd.
Product: Fishmaw
Contact: Mr. Steven Cheng
Tel: 23772515
Fax: 23772351
Address: 11F, The Leader Commercial Bldg.
54 Hillwood Rd., Tsimshatsui
Kowloon, Hong Kong

Name of company: Chiap Heng Cheng (Hong Kong) Ltd.
Product: Fishmaw
Contact: Mr. Poon
Tel: 25404112
Fax: 28581484
Address: 1F 155-157 Des Veoux Rd. West, Hong Kong

Name of company: Dah Chong Hong Ltd.
Product: Salmon head in 40 ft. containers every 2 to 3 months at US\$ 1,300 to US\$ 1,500 per ton. Has also imported Cod cheek and Grouper tongue, but only as an experiment.
Contact: Mr. K.Y. Lee, Provisions Dept.
Tel: 27683388
Fax: 29530163
Address: 8F, Kai Cheng Rd., Kowloon Bay,
Kowloon, Hong Kong.

Name of company: Full Success Trading Co.
Product: Fishmaw from Nile Perch, Cod, and Lingcod. Total quantity equivalent to 100 tons dried maw per year.
Contact: Mr. Chu, Tak Wai
Tel: 25487720
Fax: 28582699
Address: Rm 402, 19 Des Voex Rd. West, Hong Kong.

Name of company: Gourmand Foods Ltd.
Product: Salmonhead, one 20 ft. container (8 tons) of frozen head every 2 to 3 months at 1 US\$ per kg.
Contact: Mr. Lawrence Lee
Tel: 28903992
Fax: 25774810
Address: G/F, Wun Sua Tower, 41 Wun Sha Street,
Causeway Bay, Hong Kong

Name of company: Heep Tung Hong
Product: Fish maw, 30 tons dried per month, mostly Nile Perch.
Contact: Mr. Ricky Leung
Tel: 25467005
Fax: 28582613
Address: 13F, Wing Yue Bldg.,
60-64 Des Voex Rd West, Hong Kong.

Name of company: Hip Shin Hong
Product: Salmonhead from Canada 40 to 60 tons per year at US\$ 1000 per ton.
Contact: Mr. William Yip
Tel: 23802227
Fax: 23970815
Address: Flat D, 9F, European Asian Bank Bldg.
749B Nathan Rd., Kowloon, Hong Kong.

24. Conclusion and Recommendation

The Hong Kong market is a hard sell for fish by-products, and it must be considered as limited compared to e.g. the Taiwanese market. The market is fiercely competitive with a large number of market participants, and abundant supply of a variety of high quality fish products from its own fisheries and from The Coast of Southern China. It seems that fish maw and fish head are the only established markets for by-products, and that any other part would need substantial promotion to penetrate Hong Kong's kitchens. The fish head market, however, is supplied very well by local big headed species for a fraction of the price of imported fish, so imported fish would also need strong promotional backing to compete successfully. Fishmaw on the other hand can be profitable, but one needs to sample large sized maws and also need to consider the substantial amount of labor involved in separating the maw as well as cleaning and drying it (the last two things do not need to be done in Norway, but can be done by the importers in Hong Kong). In conclusion, although there is a market in Hong Kong, it would be rather hard to make a profit from selling fish by-products to this market.

