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EXPORT OPPORTUNITIES FOR U.S. SQUID

Sunee C. Sonu

NOAA-TM-NMFS-SWR-022

U.S. DEPARTMENT OF COMMERCE
National Oceanic & Atmospheric Administration
National Marine Fisheries Service
Southwest Region

NOAA Technical Memorandum NMFS

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EXECUTIVE SUMMARY

World squid catches have nearly tripled during the past two decades, yet many nations face a continuing rise in demand for this particular seafood. As a result, imports of squid by the world's nations have increased dramatically. During the recent six years to 1987, world-wide imports of cephalopods rose 48 percent in volume and 111 percent in value. The U.S. squid industry has room for growth depending upon how successfully it can capitalize on expansion of export markets.

Market squid (Loligo opalescens) on the west coast, and longfin squid (Loligo pealei) and shortfin squid (Illex illecebrosus) on the east coast, are the three principal U.S. species for which opportunities exist for expanded overseas markets. Incipient markets have emerged in the Mediterranean countries for the east and west coast species, and in Japan for the west coast species.

Performance of U.S. squid in European markets, especially among the Mediterranean countries, in recent years has been encouraging. In 1988, exports of U.S. squid to Italy and Greece eclipsed those to Japan. Combined purchases of U.S. squid by Italy, Greece and Portugal increased fivefold from 1982 to 1988. Since these countries have difficulty meeting domestic demand through their own catches, continued expansion of sales to them appear promising.

Japan, the world's largest consumer and importer of squid, is unquestionably the most important potential market for U.S. squid. Japan's squid imports during the recent decade averaged over 50 percent of the total global imports. Imports of foreign squid into Japan are regulated by its government, which decrees not only the amount of annual import, but also the recipients of import quotas. Under this system, the nation managed to hold its annual quotas to around 50,000 tons or less and its quota recipients to three groups: trading firms, processors, and fishermen. Would-be importers not on the official list can obtain an import license for a fee by having it transferred from the official recipients. The fee, which may range from about $.10/lb to as much as $.40/lb, adds to the cost of imports. For the low-price market squid which sells for around CIF $.70/lb, such additional costs are highly detrimental to its sale.

Because of the limited quantities allowed for imported squid, importers seek items which fill special niches in the Japanese market and have good return on investment. One such item may be market squid with or without roe in small packages which are sold directly to consumers at supermarkets. This product, sold in 1-pound and 3-pound packages, has been popular for home cooking among Japanese housewives. Being a product for direct consumption, it commands higher prices than squid sold for raw material to processors. It also offers an interesting option for a partnership with Japan's giant chains of supermarkets, an industry which grosses more than $40 billion a year in sales. A partnership with them will assure large and steady sales in that country.

Additional strategies contributing to expansion of U.S. squid exports may include, but are not limited to, the following actions:

- Develop a stable domestic market for squid in the U.S. to nurture a viable squid fishery at home;
- Improve overseas sales efforts by incorporating service of local experts; and
- Cultivate a high-quality image for U.S. squid products through improved control for catching, handling and processing procedures.

1. INTRODUCTION

The squid fishery is one of the fastest growing fisheries in the world. World squid production has nearly tripled during the past two decades, and is still growing in order to keep pace with the continuing rise in demand. The success of squid industries in the U.S. depends upon their ability to capitalize on expansion of export markets, especially in the Mediterranean countries and Japan. In 1988, sales of U.S. squid to the Mediterranean countries surpassed those to Japan. Still, the Japanese market, which accounts for nearly half of all imported squid in the world, should be the logical target for a major effort to expand U.S. squid exports.

Various articles have been written about export of U.S. squid to foreign markets. Articles by Court (1980, 1981) focused on the Japanese market, detailing institutional barriers and severe international competition facing U.S. products, the high product quality which is traditionally demanded by Japanese consumers, and characteristics which are unique to Japan's squid industry and market. As part of the strategies for export expansion, he stressed the need for an established domestic market to complement exports to Japan. Veasy and Blaxall (1983) performed an analysis of both European and Japanese markets and discussed export prospects by species of squid as well as by countries of destination. These investigators concluded that the U.S. should seek ways to increase the Japanese import quota for squid.

At the National Marine Fisheries Service (NMFS), Southwest Region, the effort to develop strategies for increasing export of U.S. squid, particularly Loligo opalescens (market squid) from California, was begun around 1985. A preliminary overview of the Japanese squid market was completed the following year (Strombom, 1986). The purpose of the present paper is to expand on this initial effort by addition of global data and further analyses of trade factors.

2. WORLD SQUID FISHERIES

During the past two decades, the world squid catch has nearly tripled, from 697,000 metric tons (tons) in 1967 to 1.8 million tons in 1987. Figure 2-1 exhibits the history of world squid catch during this period of time. The world squid catch climbed to a 1-million tons level in 1979. Since then, the catch has continuously exceeded 1 million tons except for 1981 when it slipped to 0.98 million tons. The highest world catch on record thus far was 1.8 million tons, occurring in 1987.

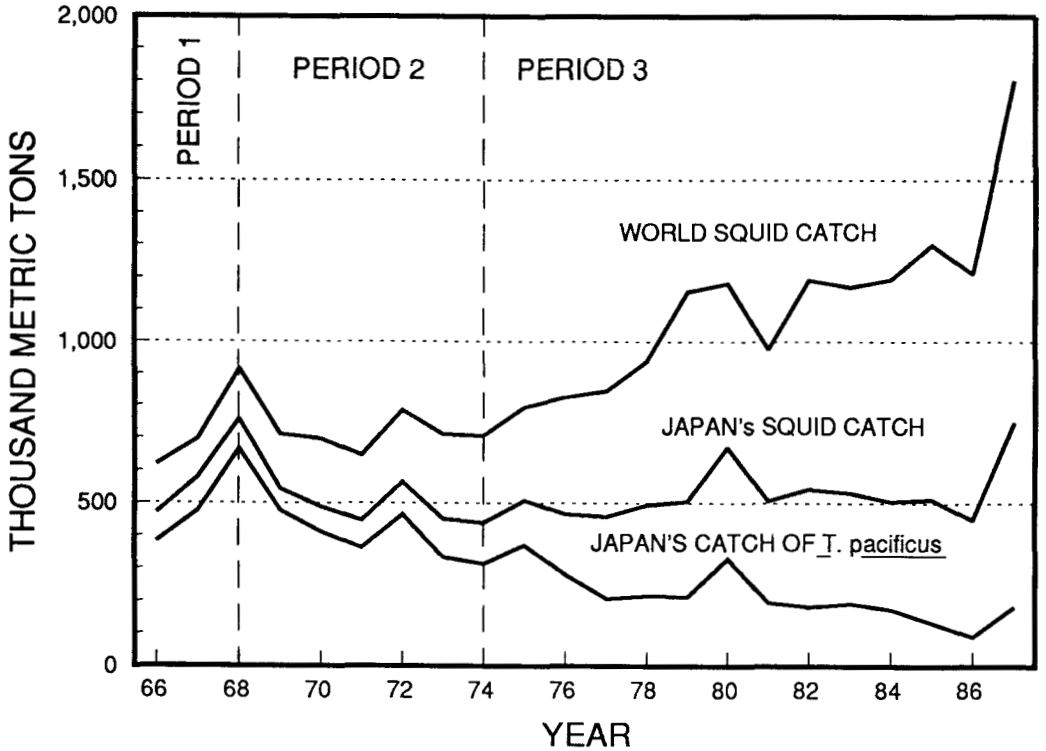


Figure 2-1. Total world squid catch vs. Japan's squid catch, 1966-87.

To place the current state of world squid fisheries in proper perspective, it is useful to divide the history into three distinctive phases. The first phase runs to about 1968, representing a period in which world squid fisheries were virtually dominated by the effort of one nation, Japan, and one species, Todarodes pacificus. For instance, the 1968 catch of T. pacificus totaled 668,000 tons, an historical high for this species, comprising 73 percent of the total world landings of squid for that year. This figure also represented 88 percent of Japan's annual catch of all squid (Figure 2-1, Appendix A-1).

The ensuing phase of 6 years, 1969 through 1974, was characterized by the collapse of T. pacificus squid fisheries in the Sea of Japan and the beginning of new fishing activities for Ommastrephes bartrami in the Northwest Pacific Ocean. Overfishing along with changes in hydrographic conditions in the Sea of Japan were blamed for the precipitous drop in the catch of T. pacificus in that region (Hotta, 1983). Also during this period, there was a sharp increase in squid landings by other nations. Although Japan's squid catches during this period declined somewhat, from 544,000 tons in 1969 to 439,300 tons in 1974, increased landings by other nations helped preserve the world total on a 700,000 tons level (Table 2-1).

The third phase, 1975 to the present, is characterized by a sharp climb in squid landings on a world-wide basis. The fast pace of growth in squid fisheries during the past decade is generally attributed to two factors: (1) the development of new fishing grounds in various regions of the world, and (2) increased interest among the world nations in squid fisheries (Hotta, 1979).

As indicated in Figure 2-2 and Appendix A-2, in addition to the traditional squid grounds in the Northwest Pacific, other regions of the world have now emerged as productive grounds, particularly in the Southwest Atlantic around the Falkland Islands and off Argentina, in the Western Central Pacific off Thailand, and in the Southwest Pacific around New Zealand and Australia. From 1975 to 1987, squid landings in these three regions increased more than 11 times, whereas the total world squid catch increased less than three times. In 1987, the combined squid landings in the three regions totaled about 953,000 tons, or 53 percent of the world catch, surpassing the catch in the Northwest Pacific totaling 618,000 tons. The increase in squid catch in the Southwest Atlantic was especially impressive.

A number of nations are actively engaged in squid fisheries, seeking increased export earnings as well as increased domestic food supplies. The number of nations with more than 20,000 tons in annual squid catch rose from 2 in 1966 to 11 in 1987. During the same period of time, combined landings by nations other than Japan increased more than 7 times, from about 150,000 tons in 1966 to about 1.06 million tons in 1987.

The increase in squid landings by the Republic of Korea, Poland, U.S.S.R. and Spain was particulary noteworthy during the past decade (Figure 2-3). Combined squid catches by these four nations rose from about 20 percent of the world total in 1978 to over 27 percent in 1987. As also shown in Table 2-2, which lists nations with more than 20,000 tons of annual squid landings averaged over a recent 5-year period from 1983 through 1987, Japan's share of the world catch was about 41 percent, while all other nations were under 11 percent. The U.S. ranked 9th with a 2.3 percent share, amounting to about 31,000 tons annually.

Table 2-1. World Squid Catch, by Major Countries, 1966-87 (1,000 Metric Tons).

Country	1966	1967	1968	1969	1970	1971	1972	1973	1974	1975	1976
Japan	469.6	581.1	758.0	544.0	487.5	446.8	563.7	451.5	439.3	507.9	466.1
Korea, Rep.	75.5	41.7	84.7	59.9	72.1	40.4	57.2	56.6	51.8	58.9	73.0
U.S.S.R.	0.5	0.8	3.2	16.3	4.6	28.5	23.2	29.8	26.1	39.6	41.9
Spain	15.6	18.0	14.5	13.8	15.6	15.6	26.1	36.2	48.4	43.8	29.4
Thailand	NA	NA	NA	24.5	59.9	23.5	44.7	37.5	42.0	32.2	36.2
China	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	35.8
Poland	NA	NA	NA	NA	NA	-	5.4	9.6	6.7	6.9	7.6
U.S.A	1.2	1.8	1.7	10.9	12.3	15.5	10.4	6.3	13.0	9.6	13.1
New Zealand	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.1
Philippines	11.4	9.9	17.9	13.1	12.1	12.7	7.5	15.5	21.4	30.7	23.6
Italy	7.7	6.3	6.9	6.9	7.3	7.1	7.1	6.4	7.5	7.5	13.2
Malaysia	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.6
Argentina	0.2	0.2	0.2	1.1	1.5	1.8	1.7	4.1	5.1	4.2	7.6
Hong Kong	1.8	1.1	1.7	3.3	3.2	2.4	3.7	3.0	3.3	4.5	6.1
France	3.7	3.8	-	6.1	8.0	12.5	9.1	13.8	3.6	4.4	4.8
Venezuela	0.5	0.7	0.3	0.5	0.4	0.8	1.2	1.7	2.2	1.6	1.2
Australia	0.1	0.2	0.2	0.2	0.3	0.2	0.2	0.3	0.2	0.2	0.2
Portugal	1.2	2.0	-	0.7	0.8	0.6	-	-	1.2	0.8	0.9
Greece	NA	NA	NA	NA	NA	1.2	1.0	1.1	0.8	0.7	1.2
Mexico	0.3	0.2	0.1	0.2	0.2	0.2	0.2	0.1	0.2	0.5	1.0
Canada	5.1	7.0	0.0	0.0	0.1	1.6	0.0	0.6	0.1	3.3	10.9
Total*	620.0	697.0	915.0	710.0	697.0	647.0	785.0	715.0	707.0	796.0	826.0

* Total also includes other countries not listed.

Data Source: FAO Yearbooks of Fishery Statistics, Catch and Landings, Vol 30-63.

Table 2-1 (Continued). World Squid Catch, by Major Countries, 1966-87 (1,000 Metric Tons).

Country	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987
Japan	459.6	494.3	504.5	669.7	509.4	543.0	530.7	504.5	511.7	448.6	748.0
Korea, Rep.	38.1	41.8	48.0	69.8	83.0	83.6	77.7	96.3	122.2	146.1	233.3
U.S.S.R.	75.3	96.7	55.8	51.0	44.5	67.6	53.4	66.7	121.9	114.9	103.0
Spain	23.6	43.1	30.9	40.4	33.4	26.4	34.5	26.1	23.6	66.6	62.9
Thailand	52.3	52.1	41.8	32.9	48.0	70.6	76.5	66.3	64.0	71.3	55.0
China	40.0	62.0	42.4	43.2	28.1	49.9	53.4	54.0	53.1	50.4	60.2
Poland	3.9	6.4	26.1	13.7	19.8	109.4	110.3	113.4	96.0	38.6	95.2
U.S.A.	11.3	18.7	22.1	16.0	25.0	27.0	27.8	21.8	25.8	38.1	41.3
New Zealand	0.6	1.8	7.4	0.3	8.9	30.6	38.6	27.7	44.1	31.3	44.5
Philippines	25.0	26.1	25.5	27.0	28.0	21.0	30.7	20.3	24.6	26.6	26.4
Italy	18.5	12.0	16.1	20.6	16.4	16.4	12.1	12.3	14.9	17.2	18.9
Malaysia	1.1	0.8	12.1	9.0	12.1	9.6	10.2	10.0	9.0	13.6	13.6
Argentina	2.2	59.2	87.2	9.3	10.8	39.1	28.9	29.1	21.8	12.7	51.3
Hong Kong	4.2	5.0	6.1	4.1	5.4	5.2	4.6	5.5	4.6	4.3	4.5
France	5.0	5.5	4.8	3.5	2.6	4.5	6.1	2.8	3.4	3.4	4.4
Venezuela	1.9	0.3	0.7	0.8	0.8	1.3	1.9	2.6	1.9	1.4	1.4
Australia	0.3	0.4	0.6	1.0	1.0	1.3	1.4	1.5	1.6	2.2	2.8
Portugal	1.1	1 4	2.4	4.8	1.6	1 0	1 9	1.3	1.1	1.5	3.1
Greece	0.7	0.9	0.8	0.8	1.8	1.1	0.9	0.7	0.7	0.7	4.1
Mexico	0.8	6.8	18.4	20.4	9.8	0.4	0.3	0.7	0.7	0.6	8.6
Canada	30.5	36.0	89.6	30.4	18.3	12.3	0.1	0.4	0.4	0.1	0.2
Total*	845.0	940.0	1155.0	1181.0	977.0	1191.0	1169.0	1192.0	1302.0	1211.0	1799.9

*Total also includes other countries not listed.

Data Source: FAO Yearbooks of Fishery statistics, Catches and Landings, Vol 30-63.

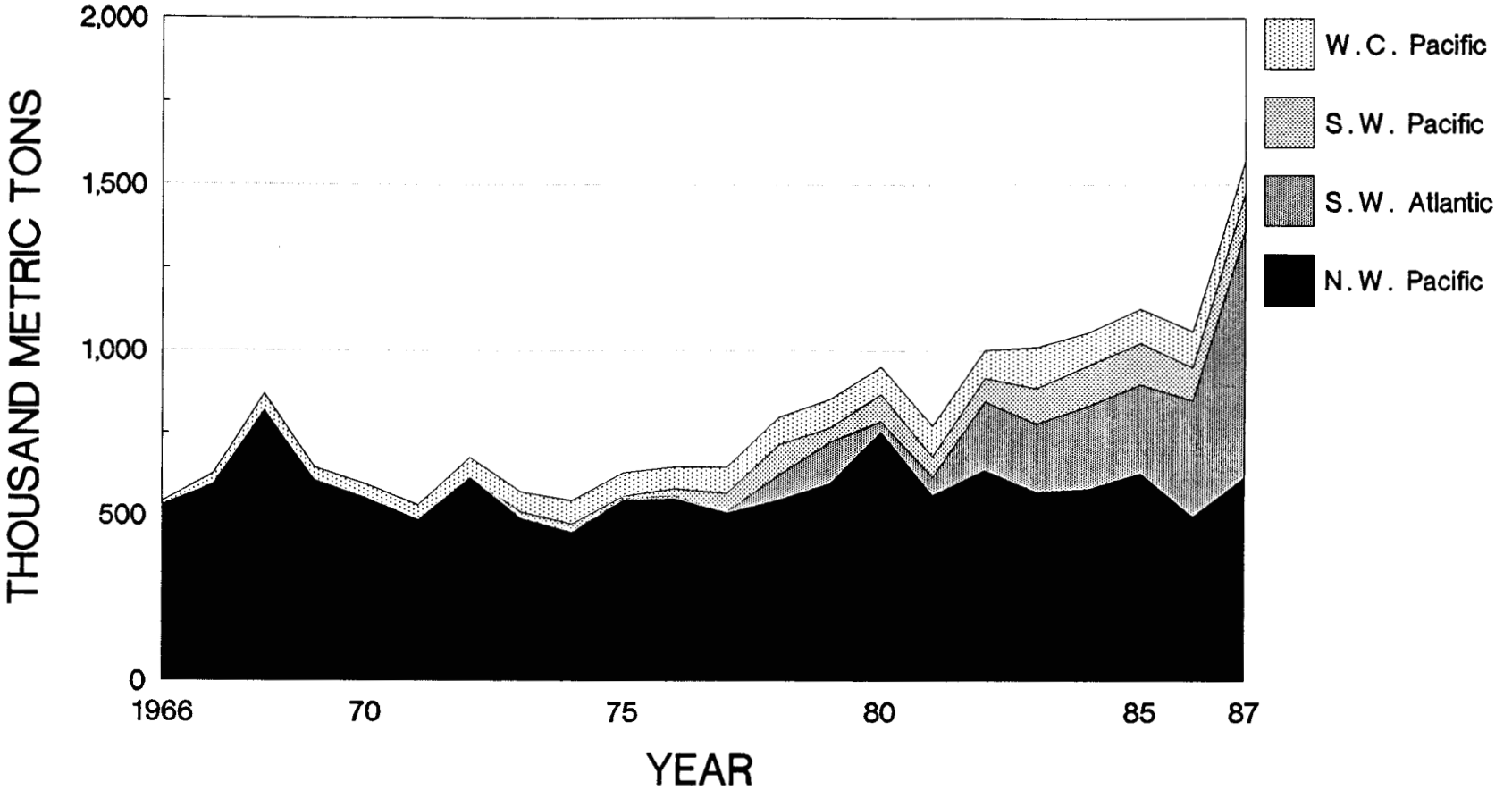


Figure 2-2. World squid catch in major areas, 1966-87.

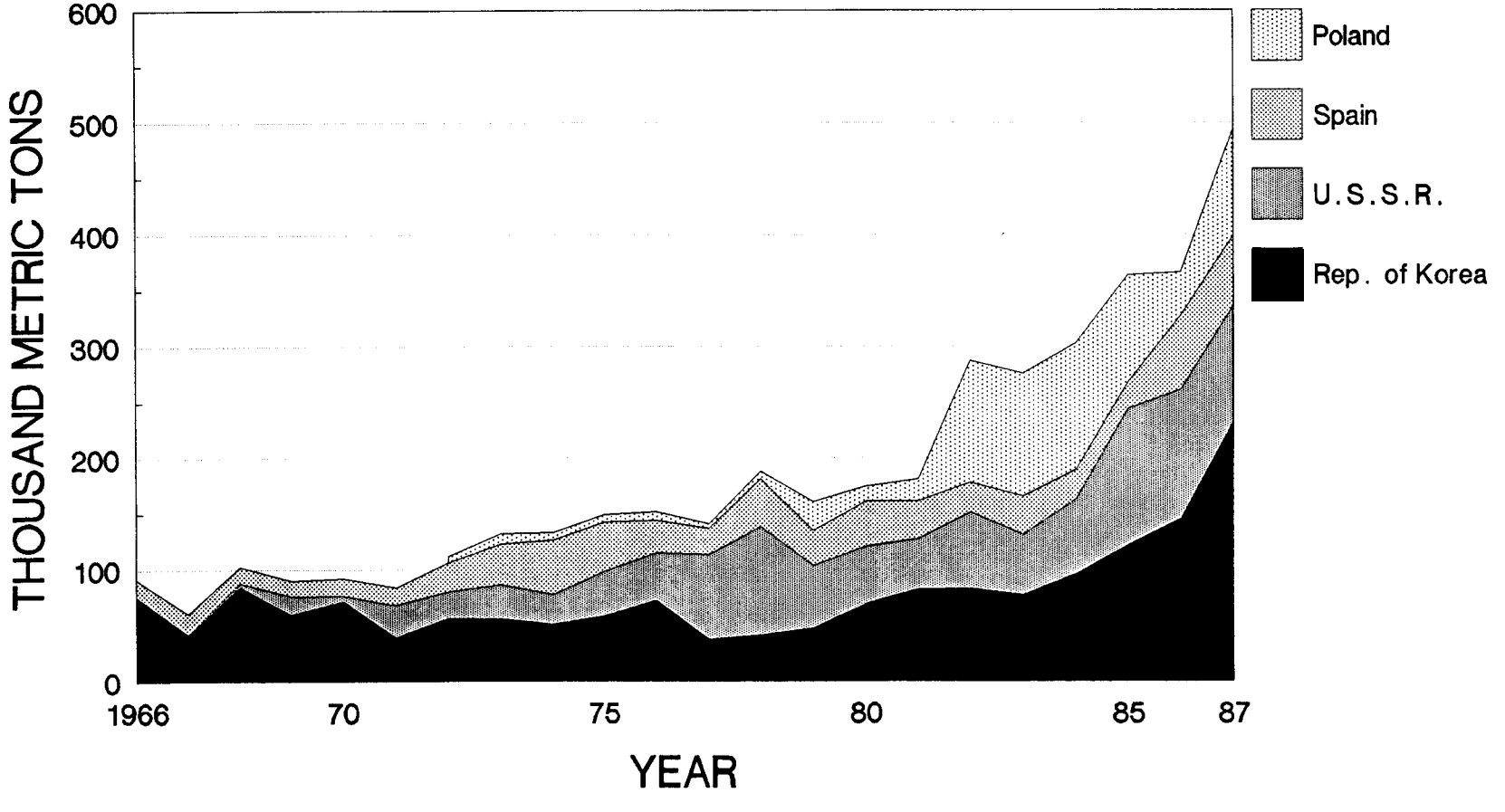


Figure 2-3. Squid catch by Republic of Korea, U.S.S.R., Spain, and Poland, 1966-87.

Table 2-2. Countries with more than 20,000 Metric Tons in Annual Squid Catch.

Country	5-Year Average (1983-1987) (1,000 Metric Tons)	(% of World)
Japan	548.7	41.1
Korea, Rep.	135.1	10.1
Poland	90.7	6.8
U.S.S.R.	91.9	6.9
Thailand	66.6	5.0
China	54.2	4.1
Spain	42.7	3.2
New Zealand	37.2	2.8
U.S.A.	31.0	2.3
Argentina	28.8	2.2
Philippines	25.7	1.9
Sub-Total	1,152.6	86.4
World Total	1,334.8	100.0

Data Source: FAO Yearbooks of Fishery Statistics, Catches and Landings, Vol. 46, 54, 62 and 63.

3. JAPANESE SQUID FISHERIES

Japan is by far the world's largest squid producing nation (Table 2-1). During more than two decades since 1966, Japan's squid production has consistently exceeded 400,000 metric tons (tons) annually. Although Japan's share of the world total has gradually decreased during this period of time, the Japanese squid fishing fleets today still account for about 40 percent of the total world production (Appendix 2-1).

The Japanese squid fishing industry pays special attention to Ommastrephidae, commercially the most important squids. There are four important species of Ommastrephidae in the Japanese squid market. These are: Todarodes pacificus; Ommastrephes bartrami; Nototodarus sloani; Illex argentinus.

T.pacificus is a relatively large species, averaging about 2-4 per Kg (1-2 per pound). This is the species most familiar to Japanese consumers and, as such, sets standards for appearance and taste for the entire market. The availability of this species essentially dictates the extent of use of other squid species. When catches of this species are low, T. pacificus goes to the high-valued direct consumption markets. Conversely, when

catches are high, more of it is used in processed form, at the expense of other species.

A sharp decrease in the catch of T. pacificus has been the distinct feature of Japanese squid fisheries during the past two decades (Appendix 2-1). For instance, in 1968, catch of this species in the Northwest Pacific totaled 668,000 tons, a historical high, which represented as much as 88 percent of Japan's total squid landing and 73 percent of the world squid landing for that year (Appendix 2-1). T. pacificus represented 84 percent of total Japanese squid catches in 1970, but dropped to 73 percent in 1975 and 49 percent in 1980. Japanese production of T. pacificus is presently down to about 10 percent of the world squid catch. Japan's recent catches of T. pacificus amount to about a quarter of those 20 years ago, representing only about 24 percent of the total squid landed by its fleets.

Increased catches of O. bartrami in the Norhtwest Pacific, beginning in the mid-1970's, has compensated for the decrease in catches of T. pacificus. O. bartrami is a preferred raw material for dried, shredded squid and smoked squid because of its thick mantle and shredding characteristics (Hirano, pers. comm.).

In order to extend the amount of time for squid fishing during a year, Japanese fleets fish squid in the Southern Hemisphere off New Zealand and Argentina from December to May. N. sloani, caught off New Zealand and Australia, is very similar to T. pacificus in flesh characteristics and enjoys a relatively secure position in the Japanese market (Hirano, pers. comm.).

Table 3-1 summarizes recent landing data for four species of Ommastrephidae fished by the Japanese. According to this table, there was a substantial increase in the catch of T. pacificus two years in a row in 1987 and 1988, doubling the production of 1986 in both years. The production of O. bartrami also increased sharply in 1987 but dropped back to the previous level in 1988. The production of I. argentinus doubled that of 1986 in 1987 and 1988. The production of N. sloani remained relatively stable during the three-year period, however.

Sharp fluctuations in Japanese squid catches in the last two years provided a rare insight about the sensitivity of squid prices to production levels. Table 3-2 summarizes the catches for 1986, 1987 and 1988, versus the average prices for the corresponding periods for the four leading species of Ommastrephidae: T. pacificus; O. bartrami; I. argentinus; and N. sloani.

Prices fell as the catch rose, and vice versa. The sharp rise in the production of T. pacificus in 1987 induced an immediate drop in the prices for that year, and as the production stayed about as high in the following year, the prices continued to fall. The price drop of frozen T. pacificus was sharper than that of fresh squid, probably reflecting an added effect of increased cold storage inventory of the frozen product. The trend of prices of O. bartrami was almost an exact inverse of the trend of the production, falling as the production rose and rising as the production dropped. The response of the price of I. argentinus to the production was remarkably similar to that of T. pacificus, demonstrating the pattern of continued fall in price when the production stayed high. In the case of N. sloani whose production remained essentially stable during the three-year period, the price eventually fell in 1988 due probably to the increased overall squid catches two years in a row.

Table 3-1. Japan's Catches of Four Species of Ommastrephidae, 1986-88.

Species	1986	1987 (Metric Tons)	1988	Average of 1987 & 1988 1986 (Percent)
T. pacificus	61,180	138,733	119,256	211
O. bartrami	107,951	131,791	101,100	108
I. argentinus	95,000	240,000	200,000	232
N. sloani	40,000	52,000	47,000	124
Sub-Total	304,131	562,524	467,356	169

Sources: Hokkai Keizai Shinbun, February 2, 1989
Hokkaido Fisheries Association, 1988

Table 3-2. Relationship Between Catch and Prices for Ommastrephid Squid in Japan, 1986-88

Species			1986	1987	1988
T. pacificus	Price*	Fresh	758	534	465
		Frozen	565	400	276
	Catch**		61,180	138,733	119,256
O. bartrami	Price*	Fresh	312	166	236
		Frozen	442	309	377
	Catch**		107,951	131,791	101,100
I. argentinus	Price*	Frozen	350	245	172
	Catch**		95,000	240,000	200,000
N. sloani	Price*	Frozen	305	358	176
	Catch**		40,000	52,000	47,000

* Yen/Kg ** Metric Tons

Sources: Hokkai Keizai Shinbun, February 2, 1989
Hokkaido Fisheries Association, 1988

4. JAPANESE SQUID MARKET

4-1. Supply.

Japan's supply of squid for any given year is comprised of three parts: the cold-storage inventory as of January 1, the catch by its own fleets in both domestic, distant and foreign waters, and the imports.

A relatively stable annual supply ranging between 435,000 and 475,000 metric tons (tons) prevailed for a 3-year period between 1984 and 1986 (Table 4-1). During this period, the January inventory averaged 77,000 tons (about 17 percent of the total supply), the catch 342,000 tons (about 74 percent), and the import 42,000 tons (about 9 percent).

The dominant influence of the catch on the overall squid supply in Japan was well demonstrated in 1987, when a sharp increase in catch resulted in a major glut in the squid market.

The increase in supply in 1987 amounted to about 240,000 tons over the preceding year. This increase also represented an almost 50 percent jump over the average annual supply for the preceding three years. In the meantime, the January cold storage holdings as well as imports for 1987 remained essentially unchanged from the previous years, indicating that the increase in supply in 1987 was due solely to an increase in catches.

Table 4-1 provides a breakdown of the supply by major species and fishing gear. In 1987, the increased catch of I. argentinus accounted for as much as 60 percent of the total increase in supply for that year, followed by T. pacificus which accounted for about 30 percent, and O. bartrami about 10 percent.

Table 4-1. Japan's Squid Supply and Consumption, 1984-89 (1,000 Metric Tons).

	1984	1985	1986	1987	1988	1989**
SUPPLY:						
Inventory, January 1	81	65	85	71	200	199
Catch:						
Jig:						
T. pacificus	132	108	61	139	119	N/A
O. bartrami	100	135	108	132	101	N/A
N. sloani	45	30	25	27	26	N/A
I. agentinus	0	29	75	180	99	N/A
Total Jig	277	302	269	478	345	357
Trawl:						
N. sloani	20	20	15	25	21	13
I. argentinus	55	48	20	60	101	30
Total Trawl	75	68	35	85	122	43
Total Catch ***	352	370	304	563	467	400
Imports	40	40	46	40	30*	45
SUPPLY TOTAL	473	475	435	674	697	644
CONSUMPTION	408	390	364	474	498	520
INVENTORY, December 31	65	85	71	200	199	120

(*) Presumption (**) Projection (***) Major squid species

Data Sources: Suisan Keizai Shinbun, January 5, 1989;
Minato Shinbun, April 27, 1988

The importance of I. argentinus to the overall supply of squid in Japan is well illustrated in Table 4-2. Squid fishing in the Argentine waters by Japanese fleets began seriously around 1982, and by 1987, I. argentinus accounted for about 43 percent of major squid landed by the Japanese fleets, the highest catch for a single species. In comparison, in 1987, T. pacificus accounted for about 25 percent of the catch, O. bartrami about 23 percent, and N. sloani about 9 percent. In 1988, the trend continued, with I. argentinus displacing T. pacific and O. bartrami as the leading species in landings.

Table 4-2. Catch Composition of Major Squid Species by Japan, 1984-88 (Percent).

Species	1984	1985	1986	1987	1988
T. pacificus	37.5	29.2	20.0	24.7	25.5
O. bartrami	28.4	36.5	35.5	23.4	21.6
N. sloani	18.5	13.5	13.2	9.2	10.1
I argentinus	15.6	20.8	30.3	42.6	42.8
Total	100.0	100.0	100.0	100.0	100.0

Data Sources: Minato Shinbun, April 27, 1988;
Suisan Keizai Shinbun, January 5, 1989

4-2. Consumption.

Since 1965, squid and cuttlefish have remained the most abundantly consumed seafood product in Japan. While demand for squid and cuttlefish is sensitive to price, they are still the most popular of all seafood products in Japan.

As shown in Table 4-3, per capita consumption of fresh and frozen squid and cuttlefish in 1987 was 1.65 kg or 3.63 lbs (round weight equivalent). This was as much as 1.8 times that for tuna, nearly 5 times that for salmon, 2.6 times that for yellowtail, and twice that for shrimp. Behind squid and cuttlefish, tuna and shrimp ranked second and third, respectively, in terms of volume of fresh and frozen seafood consumed in Japan. Per capita consumption of squid and cuttlefish gradually declined from 1980 to 1986, but the consumption jumped almost 17 percent in 1987 thanks mainly to a drop in price in the aftermath of a sharply increased catch that year.

According to statistics assembled by the Prime Minister's Office in 1988, tuna, shrimp and squid/cuttlefish ranked first, second and third, respectively, in terms of expenditure on fresh and frozen seafood by an average Japanese family in 1987. Of these three items, squid was the leader in terms of increased consumption in value from the previous year, at 5.5 percent, followed by shrimp at 2.8 percent and by tuna at 1.4 percent. In 1987, an average Japanese family spent 6,880 Yen ($47) on fresh and frozen squid and cuttlefish (Suisan Keizai Shinbun, March 7 & October 5, 1988).

Table 4-3. Japan's Annual Per Capita Consumption of Fish, Shellfish, and Meat, 1976-87 (Grams).

Species	1976	1980	1983	1984	1985	1986	1987
Fresh/Frozen							
Cuttlefish & Squid	1,843	2,079	1,645	1,597	1,438	1,406	1,649
Tuna	863	868	830	766	820	909	915
Shrimp	N/A	N/A	648	672	688	765	831
Sardine	718	651	698	752	681	701	710
Yellowtail	630	659	645	582	606	560	631
Saury	435	594	697	745	746	587	539
Pacific mackerel	840	826	514	532	525	490	427
Octopus	389	260	339	350	324	310	357
Skipjack	347	342	365	433	337	401	347
Salmon	375	282	330	352	316	369	345
Meat							
Pork	4,887	5,463	5,061	5,110	4,965	5,041	4,968
Chicken	3,075	3,797	3,798	3,918	3,909	3,945	3,932
Beef	2,095	2,396	2,576	2,701	2,646	2,689	2,840

Source: Suisan Keizai Shinbun, March 7 & Oct. 5, 1988

4-3. Cold-Storage Holdings.

Japan's cold storage holdings of squid fluctuate from year to year and from season to season. Table 4-4 shows the recent history of year-end cold storage holdings since 1981. A striking feature is the enormous escalation of cold storage holdings in 1987, from about 111,000 metric tons (tons) in 1986 to 191,000 tons, a jump of 72 percent. During the same period, the cold storage holdings for Ommastrephid squid, (T. pacificus, I. argentinus and N. sloani) nearly tripled, from about 43,000 tons to about 116,000 tons, while other squid showed only a slight increase.

Table 4-4. Japan's Year-end Cold Storage Holdings of Frozen Squid, 1981-88 (1,000 Metric Tons).

Year End	Ommastrephid* Squid	Other Squid	Total Squid
1981	50.8	85.8	136.6
1982	52.3	53.3	105.6
1983	49.0	55.3	104.3
1984	54.2	43.7	97.8
1985	59.1	65.5	124.6
1986	43.4	67.6	111.0
1987	115.9	75.0	191.1
1988	127.2	71.5	198.7

* Does not include O. bartrami.

Source: Foreign Fishery Information Release, 1982-89.

The sharp increase in inventory for Ommastrephid squid in 1987 was due to an unexpected surge in landings of T. pacificus in the Northwest Pacific, and of I. argentinus in the Southwest Atlantic. Total landings for these squid plus N. sloani surpassed 430,000 tons in 1987, an increase of 120 percent from 1986 and of about 89 percent from the three year average between 1984 through 1986 (228,000 tons). These statistics demonstrate a close correlation between year-end cold storage holdings and the landings of Ommastephid squid for that year (Table 4-5).

Cold storage holdings fluctuate by season as well (Figure 4-1). From 1986 through 1988 cold storage holdings were typically at an annual low around April and at a high around October. The exact timing of the low and high for any given year varied by about a month. This seasonal pattern in cold storage holding results from the timing of squid catches and landing from domestic waters, and delivery of catches from foreign waters.

For instance, delivery of catches from off New Zealand begins in February and that from off Argentina in April. Fishing for T. pacificus in the Northwest Pacific also begins in late April. Thus landings rise sharply from May. By June, fishing for T. pacificus has spread to northern Japan and Hokkaido, adding to the squid landings throughout the remaining summer months. (Minato Shinbun, 1989; Shokuryo Shinbun, 1989; and Hokkaido Fisheries Association, 1988). Fishing for O. bartrami in the Northwest Pacific also begins in May and continues through the summer months. Landings of this species and I. pacificus are virtually completed by the end of November.

Squid is eaten all year in Japan, but consumption begins to rise in the fall as processors prepare products such as saki-ika (dried, shredded squid) which are used extensively during the traditional festive season in Japan in December and January. Due partly to the elevated consumption toward the late fall and winter and partly to the cessation of landings in domestic waters, the inventory declines at this time, usually maintaining its downtrend until April and May when the new landings begin to arrive again. (T. Hirano, pers. comm.)

Table 4-5. Comparison Between Landings and Year-end Cold Storage Holdings for Ommastrephid Squid*, 1984-87 (1,000 Metric Tons).

	1984	1985	1986	1987
Landings	252	235	196	431
Cold Storage	54	59	43	116

* Does not include O. bartrami

Data Source: Minato Shinbum, April 27, 1988;
Suisan Keizai Shinbun, January 5, 1989;
Foreign Fishery Information Release, 1985-88.

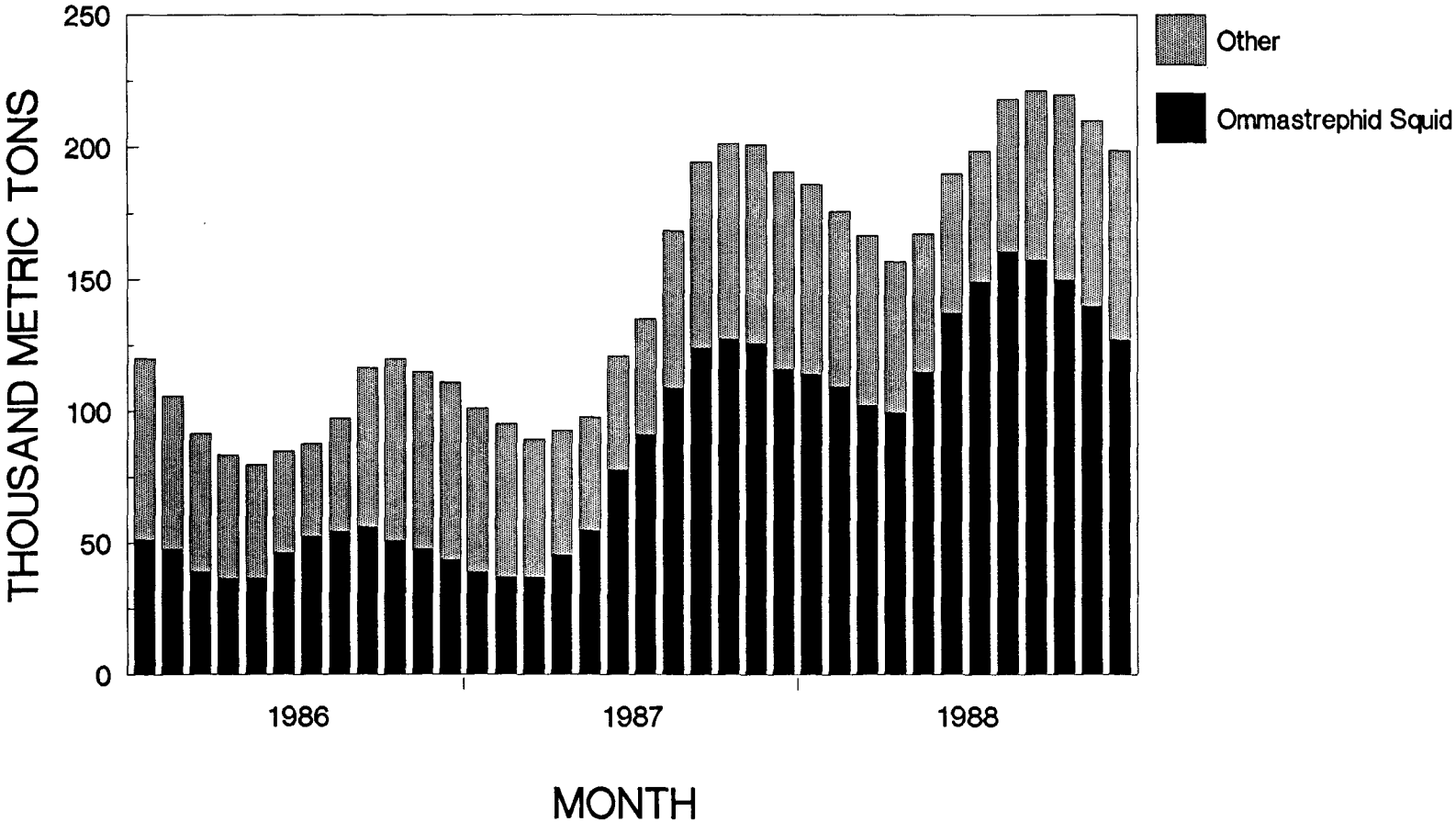


Figure 4-1. Japan's monthly cold storage holdings of frozen squid, 1986-88.

4-4. Price Trends

Dynamics of squid prices in the Japanese market has long been controlled by the domestic landings of T. pacificus. As the landings of this species decreased over the years, the influence of other squids has become progressively more prominent. In particular, the influence of I. argentinus, now the dominant species in volume being landed by the Japanese fleets, has become a major factor.

In Japan, historically, squid prices have fluctuated considerably (Table 4-6). Fluctuation was most conspicuous in the prices for T. pacificus, and less so in the prices of other species. For instance, between 1980 and 1987, prices of T. pacificus ranged from a low of about 200 Yen/kg to a high of 750 Yen/kg, a range of 550 Yen/kg. By comparison, prices of other species generally remained within a range of about 300 Yen/kg, about 200 to 500 Yen/kg.

Price fluctuations for T. pacificus seem to be primarily a function of the annual catch. This relationship is well shown in Figure 4-2 and Appendix A-4, which demonstrate that the greater the catch, the lower the prices, and vice versa.

Prices of T. pacificus inched upward from 1984 through 1986, as a result of a steady decline in catch of this species during the same period. Unexpectedly, landings of T. pacificus practically doubled in 1987, causing an immediate drop in price.

Table 4-6. Average Exvessel Prices of Squid by Species, 1980-87. (Yen per Kg.)

	T. pacificus		O. bartrami		N. sloani		I. argentinus
Year	Fresh	Frozen	Fresh	Frozen	Jig	Trawl*	Trawl*
1980	340	288	197	236	N/A	N/A	170
1981	469	172	358	363	172	170	320
1982	604	510	306	423	392	340	300
1983	570	435	250	307	322	340	300
1984	560	473	317	445	298	250-340	310
1985	658	516	269	508	384	280-350	300
1986	758	565	312	442	320	360-440	470
1987	534	400	166	309	397	220-470	270

* Wholesale prices

Source: Hokkaido Fisheries Association, 1988.

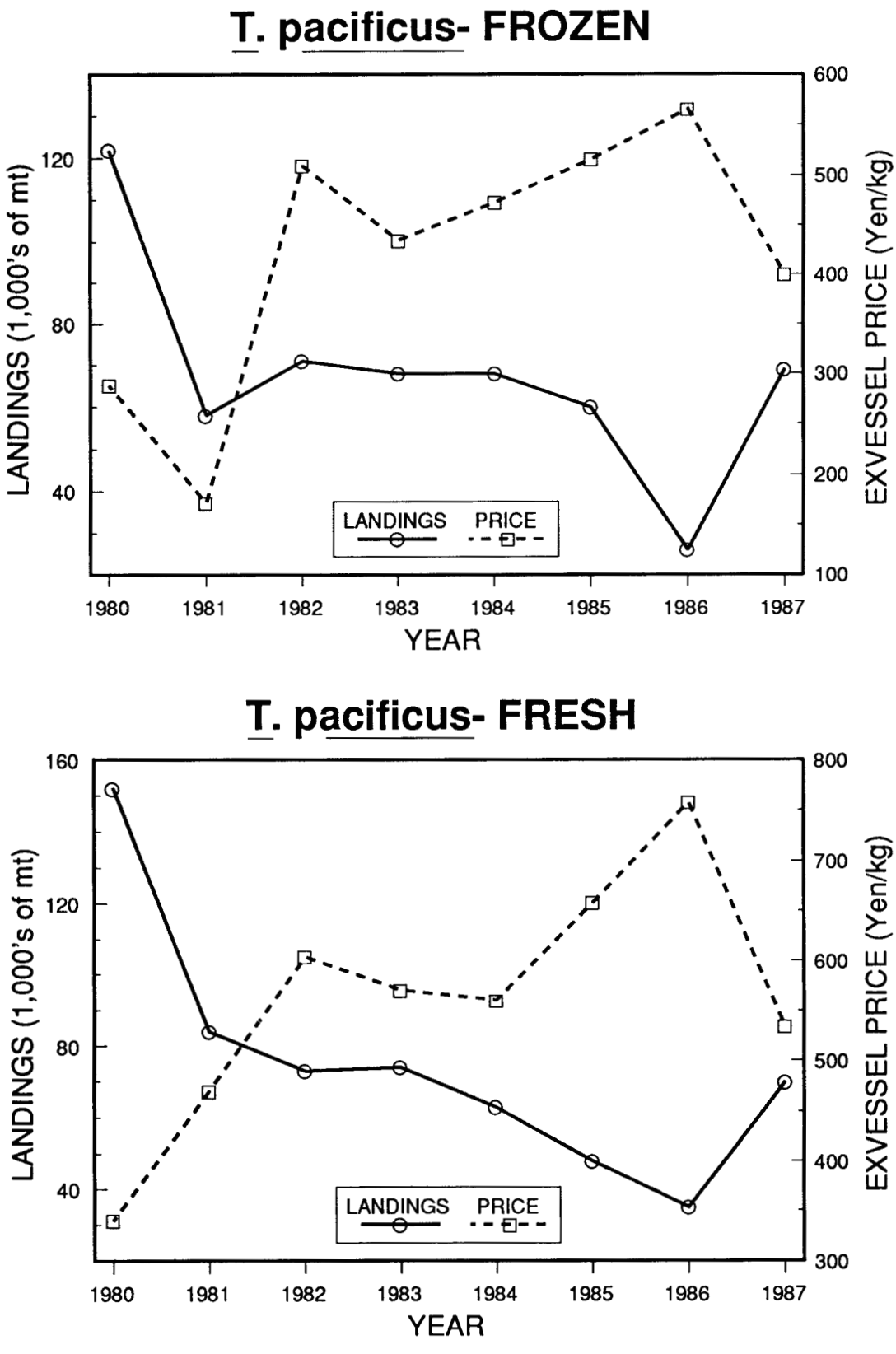


Figure 4-2. **Annual landings and average exvessel prices of <u>T. pacificus</u> in Japan, 1980-87.**

Prices of O. bartrami generally seem to follow an inverse trend to its annual catch, but the relationship between price and catch in the case of O. bartami is much less conspicuous than in the case of T. pacificus (page 21, Appendix A-5). Prices of N. sloani, which accounts for a relatively small proportion of the total squid volume caught by Japanese fishermen, are the most stable of the four major species. (page 22, Appendix A-6).

In 1986, I. argentinus became the primary species of squid landed by Japanese fishermen and nearly made up for the reduced landings which occurred with the three other major species that year. Reflecting the important role which it now plays in the overall supply of squid in the Japanese market, prices of I. argentinus rose sharply in the same year, when the overall catch fell considerably from the level of the previous years. At this time, I. argentinus marked its historical high price of 470 Yen/kg, exceeding the prices of both O. bartrami and N. sloani to rank only behind the T. pacificus (Figure 4-5, Appendix A-7). However, oversupply of squid in the following year led to significant deterioration in squid prices. For instance, the price of I. argentinus caught by trawl in 1987 dropped to 270 Yen/kg from 470 Yen/kg. Table 4-7 summarizes a three-year trend of March 31 prices for N. sloani and I. argentinus from 1986 through 1988 for different size classes of squid. The end of March prices for both N. sloani and I. argentinus in 1988 were about a third of those for 1986 for all the size classes.

The events which developed in the Japanese market in 1987 and 1988 provide important insights into the interplay of prices, landings, cold storage holdings, and consumption. With a sudden abundance of supply in 1987, a drop in price occurred almost immediately. At the same time, domestic consumption of squid which had been slipping during the preceding several years finally began to improve in 1987. However, the increase in consumption was not fast enough to keep pace with the increase in landings and thus the year-end inventory reached a record level of about 200,000 tons. By comparison, the year-end cold storage inventory which is considered adequate in the Japanese market is generally believed to be between 100,000 and 120,000 tons (Suisan Keizai Shinbun, 1989).

In the fall of 1987, Japanese squid industry associations met to discuss ways of stabilizing prices. The meeting, called Squid Supply-Demand Policy Liaison Caucus (Ika Jukyu Taisaku Renraku Kyogi-kai), was attended by the heads of the National Federation of Fisheries Cooperatives (Zen-gyoren), the Japan Large Vessel Squid Anglers Association (Ogata Ikatsuri Gyogyo Kyokai), the National Offshore Squid Anglers Association (Zenkoku Okiai Ikatsuri Gyogyo Kyokai), the National Drifting Net Squid Fisheries Association (Zenkoku Ika Nagashi-ami Gyogyo Kyokai), the National Federation of the Processed Fisheries Products Cooperatives (Zenkoku Suisan-kakogyo Kyodokumiai Rengokai), and the Fisheries Agency of the Japanenese Government.

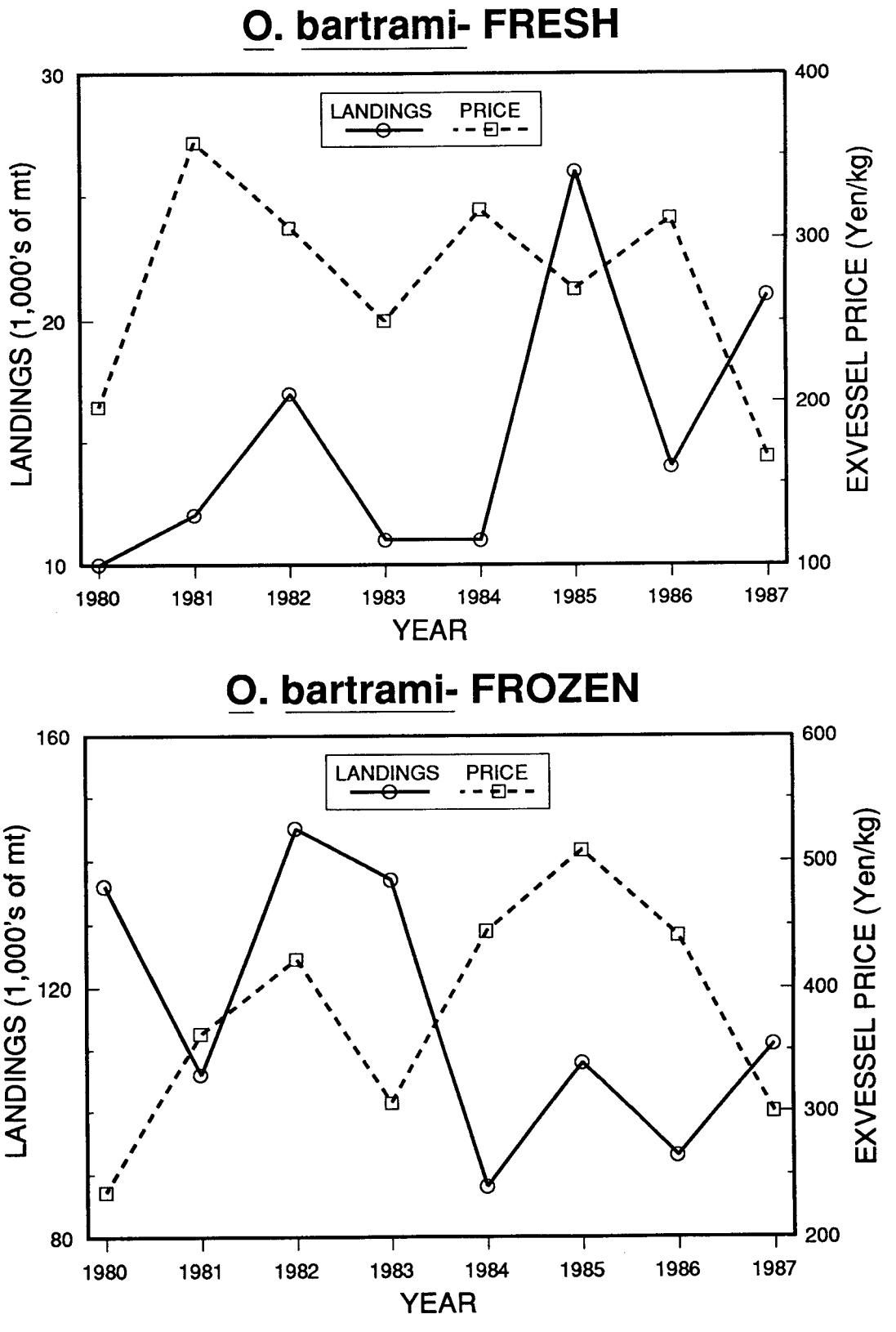
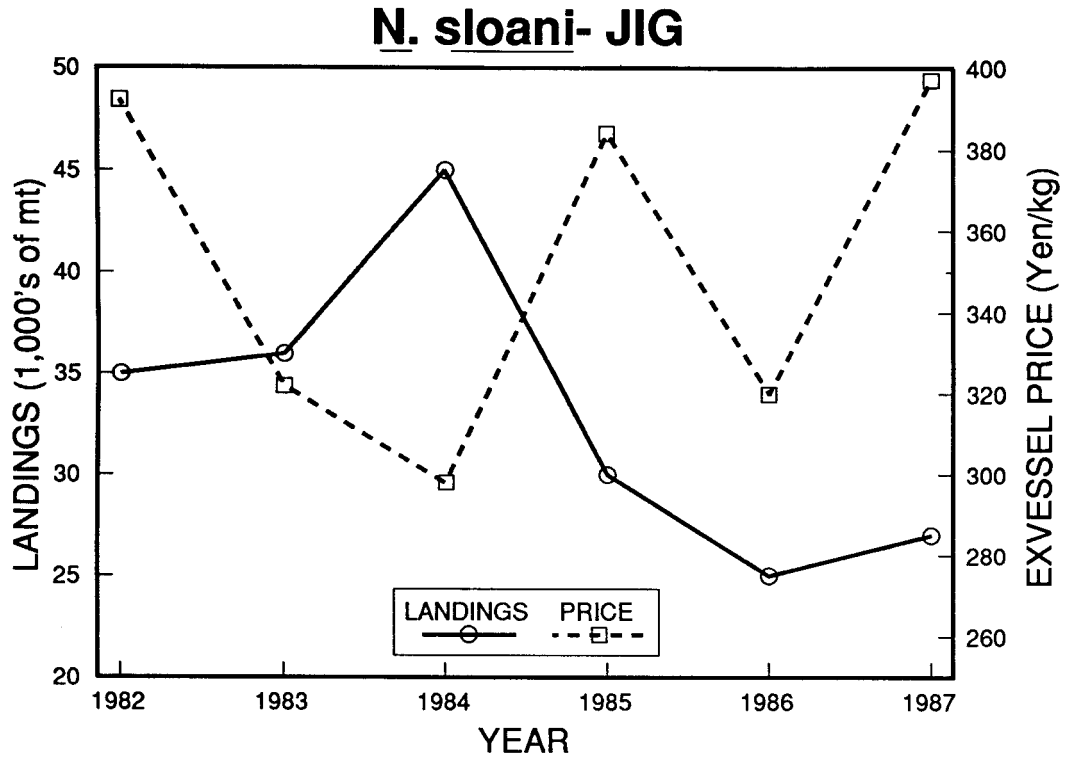


Figure 4-3. **Annual landings and average exvessel prices of <u>O. bartrami</u> in Japan, 1980-87.**



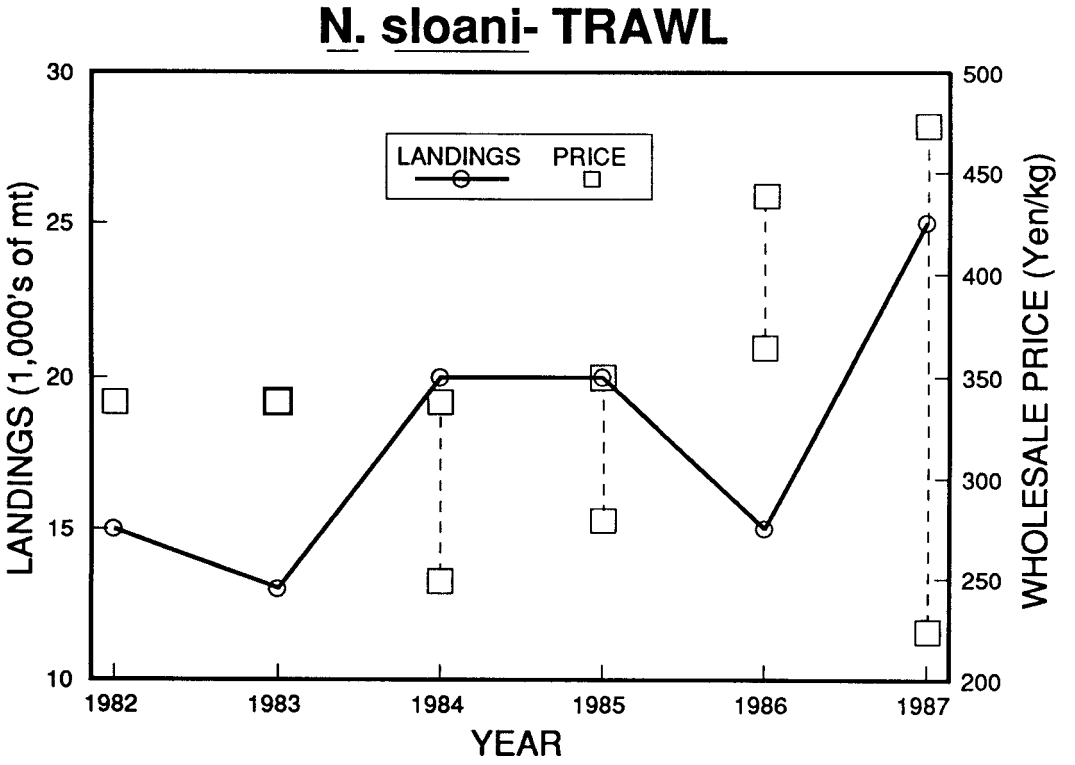


Figure 4-4. Annual landings and prices of N. sloani in Japan, 1980-87.

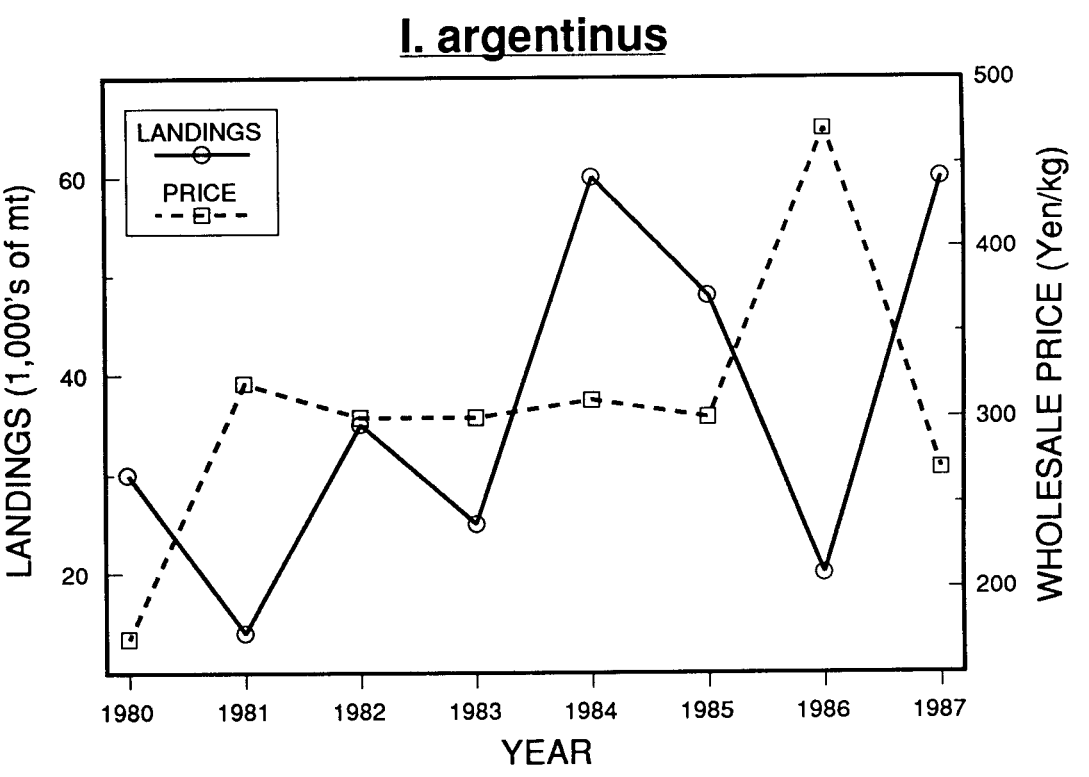


Figure 4-5. Annual landings and average wholesale prices for I. argentinus, 1986-88.

Table 4-7. Exvessel Prices by Size for N. sloani and I. argentinus, 1986-88

	Size (No. squid per 8.5 Kg Block)	1986	1987	1988
			(Yen per 8.5 Kg Block)	
N. sloani	11-15	3,800	3,600	1,250-1,300
	16-20	4,150-4,240	3,870	1,250-1,300
	21-25	4,203-4,480	4,300-4,350	1,300
	26-30	4,050-4,230	3,900-3,960	1,350-1,400
	31-35	3,900-4,000	3,500-3,600	1,300
I.argentinus	21-25	5,400-5,450	3,750-3,800	1,530-1,560
	26-30	4,400-4,450	3,500-3,550	1,600-1,610
	31-35	4,070	3,250-3,300	1,350-1,360
	36-40	3,600-3,700	3,350-3,400	1,330-1,360

Note: Prices are at landing ports on March 31.

Source: Hokkaido Fisheries Association, 1988.

Among the decisions made by the caucus were:

- To curtail landings in 1988 by shortening fishing periods, and improving information dissemination on price and quantity among members of the industry;

- To expand consumption by introducing new products, increasing value-added products and reinforcing promotion of squid products aimed at consumers;

- To reduce costs by conducting preliminary processing on board, and increasing catches of fish other than squid on ships licensed for mixed fishing;

- To advocate international coordination of resource management with Taiwan and the Republic of Korea.

Concerned over continued market deterioration, the caucus of Japanese squid operators met again in late 1988 to recommend measures aimed at curtailing the 1989 production by about 14 percent and trimming the cold storage holdings to 120,000 tons by the end of 1989. The recommendations called for reducing the fleet size and shortening the fishing season by one month in the Southwest Atlantic (Minato Shinbun, 1988 Suisan Keizai Shinbun, 1989).

4-5. Imports.

Japan is the world's largest importer of cephalopods (squid, cuttlefish, and octopus). In 1987, the latest year for which the world import data are available, Japan imported approximately 200,000 metric tons (tons) of cephalopods valued at about $660 million. This import represented 40 percent of the world total in volume and about 53 percent in value (Tables 4-8 and 4-9).

During the recent 11-year period of 1976-1987, Japan's imports of cephalopods nearly doubled in volume and tripled in value. Japan's imports also represented 52 percent in volume and 63 percent in value of the overall global imports during the 11-year period. In comparison, Italy, ranking second to Japan as an importer of cephalopods, accounted for only about 15 percent in volume and 13 percent in value during the same period (Tables 4-8, 4-9).

Japan's imports of squid and cuttlefish in 1987 were approximately 118,000 tons valued at U.S. $460 million. The fresh or frozen products were the most dominant form of squid and cuttlefish imports into Japan in 1987, representing as much as 87 percent in volume and 73 percent in value. Prepared/preserved products accounted for about 10 percent in volume and 17 percent in value, followed by salted, dried products with about 3 percent in volume and 10 percent in value (Table 4-10).

The countries which supplied squid (not cuttlefish) to Japan were U.S.A., Canada, New Zealand, Argentina, Poland and Bulgaria. Up to 1981, Canada was the major supplier of frozen squid to Japan. Since 1982, however, Poland has become the leading supplier. In 1988, 36 percent of Japan's import quota for fresh or frozen squid and cuttlefish came from this source. Both Poland and Bulgaria catch squid in Argentine waters. Imports from these countries as well as Argentina represented 45 percent of Japan's import quota for 1988. U.S.A.'s share of the import quota for 1988 was only 4 percent (Table 4-11; FAO, 1989).

Major countries which exported both squid and cuttlefish to Japan during 1988 were South Korea, Taiwan, the Philippines, Thailand, Spain, Chile, Morocco, and Hong Kong (FAO, 1989; Japan Marine Products Importers Association, 1989).

Japan presently maintains import restrictions on 12 categories of fishery commodities including squid and cuttlefish (Hokkai Keizai Shinbun, Jan. 1, 1988). Japanese have traditionally included both squid and cuttlefish under the common name of squid ("ika"). This tradition still lives in their trade regulations in which both squid and cuttlefish are combined and subjected to a single import quota.

Table 4-8. Imports of Squid, Cuttlefish & Octopus, by Major Countries, by Volume, 1977-87, (1,000 Metric Tons).

Country	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987
Japan	138.2	196.6	218.3	157.8	169.2	189.2	196.9	210.8	211.5	232.2	201.8
Italy	28.7	40.9	45.4	43.6	36.9	47.9	48.7	64.6	85.5	87.5	89.2
Spain	24.6	43.0	41.4	49.5	42.3	52.8	49.2	64.8	63.2	61.5	115.3
France	7.3	9.7	11.5	10.6	11.3	11.8	11.9	13.6	16.5	21.1	21.7
Portugal	1.9	0.1	1.4	0.6	2.2	1.1	5.0	8.1	12.9	18.4	15.0
Singapore	NA	NA	12.6	10.5	7.7	11.1	13.8	13.1	11.9	14.7	13.0
Greece	4.9	5.1	4.7	3.7	5.0	6.8	6.3	11.5	11.1	12.0	14.5
Hong Kong	1.1	1.3	1.4	2.7	3.1	5.9	5.5	6.4	6.7	8.5	10.4
Korea, Rep.	6.0	12.2	12.5	8.1	2.2	9.5	8.6	10.7	17.2	5.7	6.0
Germany, FR	1.7	2.3	2.3	2.9	5.1	4.5	4.0	4.7	4.1	4.5	5.0
Thailand	0	NA	0.3	0.2	0.6	0.9	0.8	1.6	0.5	3.8	2.9
Australia	0	0	0	1.1	1.7	1.5	1.9	2.6	2.1	2.8	2.9
Faeroe Is.	NA	1.5	1.0	NA	0.5	1.1	2.1	1.5	2.2	2.1	1.5
China	NA	0	NA	0	0	0	0.1	0.3	0.6	1.8	2.1
U.K.	0.4	0.6	1.0	0.8	0.7	0.6	0.6	1.1	1.1	1.1	1.6
Belgium	NA	NA	NA	NA	NA	NA	0.6	1.0	0.8	1.1	1.4
Argentina	1.9	1.5	1.6	1.0	2.0	1.0	0.7	1.0	1.3	1.0	0.7
Total*	220.1	320.0	367.2	311.7	286.8	342.9	360.5	421.7	452.8	481.7	507.1

* Total includes other countries not listed.

Source: FAO Yearbook of Fishery Statistics, by Commodities, Vol. 63 and 65.

Table 4-9. Imports of Squid, Cuttlefish & Octopus, by Major Countries, by Value 1977-87, (U.S. $Million).

Country	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987
Japan	222.8	328.6	525.9	408.4	377.9	375.2	426.7	450.4	507.4	708.2	658.8
Italy	29.8	61.9	69.6	81.8	65.9	73.1	76.0	77.9	115.5	163.8	185.3
Spain	25.6	49.7	73.9	85.8	64.8	73.7	66.2	80.9	79.8	106.9	221.1
France	10.6	16.1	23.7	22.8	21.0	21.3	21.8	21.0	22.6	38.8	45.4
Portugal	1.6	0.1	0.9	1.2	3.1	1.5	5.7	6.1	8.9	15.7	16.5
Singapore	NA	NA	7.3	3.9	5.6	6.4	10.5	15.9	8.0	11.0	11.9
Greece	5.3	6.0	6.2	6.0	7.4	10.3	11.1	16.2	17.2	18.5	30.6
Hong Kong	1.3	1.8	1.9	3.3	3.6	6.3	7.0	8.0	8.4	11.5	17.8
Korea, Rep.	3.7	11.6	12.9	6.9	2.2	10.4	8.2	10.6	15.9	6.6	5.6
Germany, FR	2.8	4.7	5.3	6.9	7.4	7.6	8.2	8.1	7.7	12.2	15.8
Thailand	0	NA	0.3	0.2	0.5	1.0	0.9	1.9	0.6	7.3	3.9
Australia	0	0	0	1.8	3.3	2.5	4.6	6.0	4.3	6.0	7.3
Faeroe Is.	NA	0.8	0.8	NA	0.3	1.0	1.6	1.0	1.4	2.7	1.8
China	NA	0	NA	0	0	0	0.1	0.4	0.6	1.6	2.4
U.K.	0.5	0.7	1.5	1.0	1.0	0.8	0.9	1.4	1.6	2.1	3.3
Belgium	NA	NA	NA	NA	NA	NA	1.3	1.9	1.8	2.8	4.5
Argentina	1.6	2.1	4.0	3.2	3.5	1.5	1.2	1.9	2.8	2.1	1.8
Total*	307.8	487.3	746.6	650.7	561.9	587.9	656.1	713.4	812.4	1121.6	1237.6

* Total includes other countries not listed.

Source: FAO Yearbook of Fishery Statistics, by Commodities, Vol. 63 and 65.

A total of 7 product forms of squid and cuttlefish are targeted for the purpose of import regulations in Japan. These are: (1) live squid; (2) fresh squid; (3) chilled squid; (4) frozen squid; (5) salted squid; (6) brine soaked squid; and (7) dried squid.

Product forms which are exempted from import regulations include processed squid which has been flavored, such as smoked ("kunsei") and prepared/preserved products (i.e. canned, boiled, seasoned, fermented products). A species of cuttlefish called "mongo-ika" (Sepia officinalis) is exempted from import quota. The import of this highly prized species, which is not caught in Japanese waters, was liberalized in 1978.

Squid imports were banned before 1971, since domestic demands were satisfied by the landings by their home fleets. After 1968, landings of the once abundant Japanese flying squid (T. pacificus) in the Sea of Japan dropped sharply due partly to overfishing and partly to changes in hydrographic conditions. In order to meet strong demands for this popular seafood at home, Japan began to import squid and cuttlefish in 1971 under a carefully administered quota system.

Table 4-10. Japan's Imports of Squid and Cuttlefish, by Product Form, 1986-87.

Product Form	Volume 1986 (1,000 Metric Tons)	Volume 1987 (1,000 Metric Tons)	Value 1986 (U.S. $ Million)	Value 1987 (U.S. $ Million)
Fresh/Frozen				
Cuttlefish*	81.8	62.8	282.2	246.0
Squid & other cuttlefish	43.5	39.2	71.7	91.1
Sub-Total, Fresh/Frozen	125.3	102.0	353.9	337.1
Salted/Dried**	4.8	4.1	45.3	45.4
Prepared/Preserved**	11.9	11.7	74.4	79.0
Total	142.0	117.8	473.6	461.5

Note: (*) Sepia officinalis
(**) Cuttlefish and squid

Source: Japanese Imports of Marine Products, 1987 and 1988.

Table 4-11. Japan's Imports of Frozen Squid from Selected Countries and Annual Import Quotas, 1977-88 (Metric Tons).

Country	1977	1978	1979	1980	1981	1982
U.S.A.	2,439	1,909	3,025	1,591	2,208	3,746
Canada	7,423	27,156	15,483	18,478	3,058	705
New Zealand	332	152	6,789	64	175	2,891
Argentina	27	9,825	22,295	4,858	339	9,444
Poland	0	0	8,435	3,390	368	11,433
Bulgaria	0	644	156	0	0	0
Total	10,221	39,686	56,183	28,381	6,148	28,219
Import Quota	40,000	60,000	76,500	18,000	25,000	41,000

Country	1983	1984	1985	1986	1987	1988
U.S.A.	169	127	556	1,462	2,932	2,051
Canada	203	0	200	67	45	398
New Zealand	3,048	1,594	2,290	1,382	2,039	1,201
Argentina	9,845	6,541	5,803	5,541	6,009	2,151
Poland	25,305	21,064	17,726	13,356	7,229	19,298
Bulgaria	0	2,310	5,110	2,194	3,724	2,533
Total	38,570	31,636	31,685	24,002	21,978	27,632
Import Quota	38,000	41,000	46,000	53,000	53,000	53,000

Source: Japanese Imports of Marine Products, 1978-89; Suisan Keizai Shinbun, January 17 & February 24, 1989; Foreign Fishery Information Release, 89-6.

Import quotas of squid and cuttlefish have increased several-fold since then (Table 4-12). Key reasons for this trend are: landings of domestic species have remained depressed; Japan's access to foreign squid resources have been severely restricted due to the 200-mile economic zone proclamation by the world's nations; there has been increasing Japanese participation in overseas squid fishing joint ventures; and, squid and cuttlefish have continued to remain one of the most important seafood items in the Japanese diet.

Import quotas are reviewed every six months, with new quotas decreed on April 1 and October 1 (Table 4-12). This practice reflects the government's concern over the balance of supply and demand in the domestic market. In deriving a new quota, the government appeared to weigh a desired price level to protect fishermen as well as such factors as existing inventories and projected domestic harvests (especially those of Ommastrephid squids).

Imports generally exceed no more than 10 percent of total domestic consumption of squid, thus are too small to influence domestic prices. It rather appears that imports are impacted by the prices for domestic squid, instead of impacting them, in spite of import quotas. When the prices are low, the importers have little incentive to fill the quota.

Table 4-12. Japan's Import Quotas for Squid and Cuttlefish, 1971-88 (1,000 Metric Tons).

Fiscal Year	April-Sept.	Oct.-March	Total
1971	3.5	3.5	7.0
1972	4.5	5.5	10.0
1973	6.0	6.0	12.0
1974	7.2	7.7	14.9
1975	7.7	8.2	15.9
1976	8.2	10.0	18.2
1977	15.0	25.0	40.0
1978	25.0	35.0	60.0
1979	40.0	36.5	76.5
1980	0	18.0	18.0
1981	0	25.0	25.0
1982	16.0	25.0	41.0
1983	18.0	20.0	38.0
1984	18.0	23.0	41.0
1985	18.0	28.0	46.0
1986	20.0	33.0	53.0
1987	20.0	33.0	53.0
1988	20.0	33.0	53.0

Source: Foreign Fishery Information Release, 89-6.

While the Ministry of International Trade and Industry (MITI) is the lead agency in administering the quota system, it coordinates its actions closely with the Fisheries Agency under the Ministry of Agriculture, Forestry, and Fisheries. In addition to setting quotas for imports, the government also controls allocations of quotas. The quota is divided among pre-approved recipient groups:

A. Traders' quota: For trading companies with past import history;

B. Users' quota: For processors associations, which usually assign traders for a fee to perform import functions on their behalf;

C. Fishermen's quota: For fishing companies operating within foreign 200-mile zones;

D. Joint venture quota: For joint ventures with foreign counterparts in which the Japanese equity exceeds 40 percent.

There is a great deal of variation in the amount of quota held by individual importers, who are reported to number more than 200. A list of major Japanese trading firms holding squid imports quota allocations and a list of the holders of users quota allocations as of 1989 is given in Appendix B. A list of major Japanese importers of seafood products is given in Appendix C.

The Japanese government does not publish the distribution of import quota allocations of squid and cuttlefish. According to data furnished by Hokkai Keizai Shinbun in Japan, in 1987, trading companies hold the largest share of quota allocations, about 45 percent. The share of the processors associations, once the leading holder of allocations, is believed to have dropped to about 41 percent, and the fishermen's quota was 4 percent, while the joint venture quota was 10 percent (Table 4-13).

Quota allocations can be purchased for a fee, and the fees may vary depending upon the prevailing squid prices, say between a low of about 30 Yen/kg ($0.11/lb at an exchange rate of ¥125 = US$1) to a high of as much as 100 Yen/kg ($0.36/lb) (Hokkai Keizai Shinbun, Aug. 6, 1987). The performance of a transferred import license is credited to the original holder. Since the import quota allocation is based mainly on prior performance, the system guarantees that the same holders will continue to be given allocations even if they have no intention of exercising the allocation themselves.

It is of interest to note that there is no official quota allocation earmarked for mass retailers such as supermarket chains and department stores. There has been a dramatic expansion of mass-retailing business in recent years in Japan, with the advent of huge national chains of supermarkets catering directly to consumers. The national chains typically maintain their own import departments dealing directly with foreign buyers.

Table 4-13. Allocations of Squid and Cuttlefish Import Quotas for Recipient Group (1,000 Metric Tons).

Group	1985	1986	1987
Traders Quota	21.8	23.9	23.8
Users Quota	18.6	21.7	21.8
Fishermen's Quota	0	2.0	2.0
Joint Venture Quota	5.6	5.4	5.4
Total	46.0	53.0	53.0

Source: Hokkai Keizai Shinbun, July 30, 1988

Procedures for quota application are quite complex. Before issuing users import quota allocations, the Fisheries Agency issues an "advisory for import order" called "naiji-sho", which in effect suggests a maximum ceiling of allocation (called "waku") to which each user is considered to qualify based on his prior records and other factors weighed by the Agency. The user then submits an application for quota allocations, within the framework of the Agency-suggested advisory, to the Ministry of International Trade and Industry (MITI). Application for quota allocations to the MITI may be handled by the traders assigned by the users. Once the quota application is approved, an import license is issued by the MITI, and the importer must turn it over to a government certified foreign exchange bank to obtain Ministry of Finance approval to pay for the imports. Import licenses are valid for 4 months and the foreign exchange certificates for 6 months, from the date of issuance (Hokkai Keizai Shinbum, Jan. 1, 1988).

Imports of squid and cuttlefish into Japan are subject to tariffs. The current tariff structure of squid and cuttlefish products imported into Japan is shown in Table 4-14. As Japan and the U.S. are signatories to the General Agreement on Tariffs and Trade (GATT), the lower tariff of 5 percent applies to U.S. exports of fresh/chilled/frozen squid and cuttlefish products. Tariff rates are calculated as a percentage of CIF value.

Table 4-14. Japanese Tariff Structure for Squid and Cuttlefish, 1988 (Percent of CIF Value).

	Fresh/Chilled/ Frozen	Salted/Dried	Prepared/ Preserved
GATT	5.0		
General	10.0	15.0	15.0

Source: Japan Marine Products Importers Association, 1989.

5. U.S. SQUID FISHERIES

5-1. Catch.

There are three major commercially important squid species in U.S. waters, Loligo opalescens on the Pacific coast, and L. pealei and Illex illecebrosus on the Atlantic coast.

The U.S. squid fishery averaged an annual landing of approximately 43,100 metric tons (tons) from 1986 through 1988. The 1988 landings, totaling 57,700 tons in volume and $23.9 million in value, represented a sharp increase over 1987, by 55 percent in volume and 42 percent in value. Much of this increase was accounted for by a steep increase in the catch of the west coast squid (L. opalescens), which surpassed the 1987 landings by as much as 86 percent in volume and 79 percent in value. In 1988, landings of the east coast squids were valued twice as high as those of the west coast squid (Table 5-1).

L. opalescens (market squid) is a small squid also called California squid by traders. In commercial landings in Monterey, males average 150 mm in mantle length and weigh 70 g, while females are 140 mm and 50 g (Fields, 1965). Maximum mantle length is reported to be about 190 mm for males and 180 mm for females. Nearly all market squid taken by the commercial fishery are mature and are caught during the spawning season. This species is caught in shallow waters, generally within a mile or less from the coast (Kato and Hardwick, 1975).

Landings of California market squid from 1976 through 1988 are summarized in Table 5-2. Historically, Monterey was the center of squid fishing on the Pacific coast. However, a squid fishery in southern California, based at San Pedro (Los Angeles) and near Santa Barbara, has become quite active in recent years.

Table 5-1. U.S. Commercial Squid Landings, 1986-88.

	1986	1987	1988	1986	1987	1988
	(1,000 Tons)			($ Million)		
Atlantic Ocean	15.1	17.7	21.2	10.3	12.5	16.2
Pacific Ocean	19.2	19.6	36.5	4.4	4.3	7.7
Total	34.3	37.3	57.7	14.7	16.8	23.9

Source: National Marine Fisheries Service, 1987-89.

Table 5-2. California Market Squid Landings, by District, 1976-88 (Metric Tons).

Year	Eureka	San Francisco	Monterey	Santa Barbara	Los Angeles	San Diego	Total
1976	--	--	2,283	1,540	5,383	24	9,230
1977	--	--	2,031	2,439	8,358	10	12,838
1978	--	--	9,389	1,175	6,617	--	17,181
1979	--	--	12,894	150	6,979	--	20,023
1980	--	--	7,142	1,097	7,171	5	15,415
1981	2	--	12,845	2,231	8,294	4	23,377
1982	2	2	10,609	1,406	4,299	--	16,319
1983	--	463	493	7	856	1	1,820
1984	--	97	392	10	66	--	565
1985	--	77	3,820	2,277	2,654	--	9,328
1986	--	834	5,499	6,847	8,142	--	21,322
1987	--	343	5,601	8,479	5,190	3	19,617
1988	30	295	4,907	16,933	14,549	3	36,717

Note: -- less than one metric ton.

Source: California Department of Fish and Game, Long Beach CA., 1987-89

In 1987 and 1988, landings in southern California averaged 23,000 tons, as compared to about 5,000 tons in Monterey. It has been said that the squid fishery in Monterey Bay is supply limited, as evidenced by the rather pronounced fluctuations which characterized catches in this region. On the other hand, the squid fishery in southern California is said to be demand limited, suggesting that the stocks could support greater landings once the demand is improved. The lower landings in 1983-85 reflect the effect of anomalous ocean conditions ("El Niño") in those years.

While it is generally acknowledged that market squid is underutilized, detailed information about the size of the resources is unavailable. This squid occurs virtually along theentire Pacific coast of North America between Vancouver Island to the southern tip of Baja California, but status of the stocks is unknown for all areas.

L. pealei is probably the most important commercial species of the three because of its higher value (Rathjen, 1983). It is a large squid with maximum mantle length of 500 mm for males and approximately 400 mm for females. L. pealei is preferred in the European markets for its excellent taste and texture qualities, and brings a considerably higher price on foreign markets than either I. illecebrosus or L. opalescens. This is indicated by the landing values in Table 5-1, in which the two Atlantic coast squid are valued nearly four times higher than the Pacific coast squid. L. pealei inhabits deep waters of the continental shelf most of the year, moving into shallow waters to spawn between late spring and summer (Rathjen, 1973). While foreign vessels have been catching this species since the mid-1960's, heavy fishing by U.S. fishermen only began after 1970, peaking around 1973 when a record high of about 43,000 tons was landed. Landings of L. pealei have since declined in spite of increasing effort.

I. illecebrosus is distributed along the entire coast of North America between Florida and Labrador. It stays in deep waters beyond the continental shelf during the spawning season in winter and early spring, moving into shallow waters in the spring and summer and becoming available to domestic fishermen (Rathjen, 1973). Fishing for this species by U.S. fishermen began around the mid-1970's, with landings of approximately 1,100 tons in 1976.

The U.S. squid fishery off the Atlantic coast has increased substantially since around 1982 as the National Marine Fisheries Service (NMFS) and the Mid-Atlantic Fishery Management Council initiated a policy of tying foreign fishing allocations to agreements by foreign interests to purchase squid from U.S. fishermen. As a result, foreign allocations and catches declined, while the U.S. domestic catches increased. Between 1981 and 1988, the domestic catches of L. pealei and I. illecebrosus rose from 3,300 tons to nearly 21,200 tons, while foreign catches dropped from about 35,000 to 3 tons.

5-2. Exports

U.S. squid exports from 1982 through 1988 are summarized in Tables 5-3 and 5-4. Exports of U.S. squid suffered a serious setback during the El Niño period on the west coast from 1983 through 1985, but made a significant recovery in 1986. In 1988, U.S. squid exports were worth more than $25 million at 17,000 metric tons (tons), more than double the figures for the previous year. The surge in exports of U.S. squid in 1988 was due mainly to the increased acceptance of U.S. squid in the European Communities countries, especially Italy, Greece, Spain, Portugal, the Netherlands and France. From 1987 to 1988, exports of U.S. squid to these six E.C. countries more than tripled. In 1988, Italy replaced Japan as the largest buyer of U.S. squid, followed by Spain and Greece, then Japan.

Table 5-3. U.S. Squid Exports to Leading Destinations by Volume (Metric Tons), 1982-88.

Country	1982	1983	1984	1985	1986	1987	1988
Italy	396	541	231	840	560	888	3,305
Spain	616	1,904	320	162	1,494	518	3,112
Greece	674	206	57	198	321	658	2,498
Japan	3,167	60	175	504	1,594	1,820	1,920
Netherlands	91	43	0	166	202	487	891
Portugal	212	22	0	0	52	34	802
France	341	179	366	292	346	812	791
W. Germany	597	108	38	162	148	164	635
Yugoslavia	0	0	0	0	0	0	514
Total*	9,149	4,022	2,139	3,176	6,520	7,449	17,167

Note: (*) Total also includes other countries not listed.

Source: U.S. Department of Commerce, Bureau of the Census, 1983-89.

U.S. exports of squid to Japan have been traditionally dominated by L. opalescens (Tables 5-5 and 5-6). In fact, except for the El Niño years of 1983 and 1984, U.S. exports to Japan have been almost exclusively confined to market squid. Japan is a big buyer of species of Illex from around the world, but her purchase of U.S. Illex is extremely limited, as her interest in Illex is focused mainly in waters in the Southwest Atlantic.

Table 5-4. U.S. Squid Exports to Leading Destinations by Value (U.S. $1,000), 1982-88.

Country	1982	1983	1984	1985	1986	1987	1988
Italy	574	1,019	398	998	1,072	2,041	5,878
Spain	1,103	3,601	480	224	3,080	866	4,313
Greece	412	363	87	285	373	692	3,209
Japan	4,659	97	648	853	2,735	2,818	2,643
Portugal	112	33	0	0	70	49	1,647
France	375	373	637	338	660	1,269	1,155
Netherlands	106	95	0	237	188	489	1,048
W. Germany	748	169	52	224	205	220	875
Yugoslavia	0	0	0	0	0	0	479
Total*	13,252	7,847	4,494	4,746	11,811	11,939	25,113

Note: (*) Total also includes other countries not listed.

Source: U.S. Department of Commerce, Bureau of the Census, 1983-89.

Table 5-5. U.S. Squid Exports to Japan, by Volume, 1981-88.

Year	*Loligo opalescens* (A) (Metric Tons)	Total (B) (Metric Tons)	Comparison (A)/(B) (Percent)
1981	1,666	1,778	94
1982	3,033	3,167	96
1983	8	59	14
1984	18	175	11
1985	484	504	96
1986	1,439	1,523	90
1987	1,772	1,820	97
1988	1,904	1,920	99

Source: U.S. Department of Commerce, Bureau of Census, 1982-89.

Table 5-6. U.S. Squid Exports to Japan, by Value, 1981-88.

Year	*Loligo opalescens* (A) (U.S. $1,000)	Total (B)	Comparison (A)/(B) (Percent)
1981	2,202	2,386	93
1982	4,484	4,659	96
1983	22	97	23
1984	149	649	23
1985	816	853	96
1986	2,401	2,640	88
1987	3,531	2,818	90
1988	2,453	2,643	93

Source: U.S. Department of Commerce, Bureau of the Census, 1982-89.

5-3. Imports

Prior to 1986, squid imports into the U.S. were so insignificant that there were no government statistics. However, large amounts of squid began to enter the U.S. market in 1986 (Table 5-7). Table 5-8 gives the value of squid imports into the U.S., which in 1988 totaled about $25.8 million, mostly consisting of labor-intensive products originating in countries where inexpensive labor is readily available. For instance, imports from Taiwan, South Korea, Thailand, and Uruguay together accounted for nearly 60 percent of that year's imports. The U.S. government does not impose import quotas on squid, nor is there a tariff for frozen squid entering the U.S.

Table 5-7. U.S. Imports of Frozen Squid, by Major Country of Origin, by Volume (Metric Tons), 1986-88.

Country	1986	1987	1988
Taiwan	2,135	2,045	3,512
Uruguay	876	1,425	2,216
Argentina	2,079	4,937	1,188
Thailand	1,484	1,668	861
Spain	167	403	560
Japan	647	761	550
South Korea	743	916	503
New Zealand	287	235	497
Others	1,182	2,538	1,399
Total	9,600	14,928	11,268

Source: U.S. Department of Commerce, Bureau of the Census, 1987-89.

Table 5-8. U.S. Imports of Frozen Squid, by Major Country of Origin, by Value ($ 1,000), 1986-88.

Country	1986	1987	1988
Taiwan	5,631	9,364	8,493
Uruguay	948	1,552	1,654
Argentina	2,328	4,545	1,008
Thailand	2,899	3,468	2,033
Spain	555	1,369	1,400
Japan	2,794	3,186	2,610
South Korea	1,566	2,980	2,979
New Zealand	707	623	1,566
Others	3,089	7,810	4,073
Total	20,517	34,897	25,817

Source: U.S. Department of Commerce, Bureau of the Census, 1987-89.

5-4. Consumption.

U.S. consumption of squid products has risen recently, eclipsing the 50,000 tons level in 1988. In 1988 the domestic catch provided for 78 percent of the domestic consumption (Table 5-9).

Table 5-9. U.S. Squid Consumption, 1986-88. (1,000 Metric Tons)

	1986	1987	1988
Supply:			
Catch	34.3	37.3	57.7
Imports	9.6	14.9	11.3
Total Supply	43.9	52.2	69.0
Exports	6.5	7.4	17.2
Consumption	37.4	44.8	51.8

Source: National Marine Fisheries Service, 1987-89;
U.S. Department of Commerce, Bureau of the Census, 1987-89.

In the U.S., there are two distinct consumer groups. One may be termed "ethnic group" comprised of people whose backgrounds are in countries where squid has been a traditional food, particularly Asia and the Mediterranean. The other consumer group, or the "non-ethnic group", largely consumes grilled, breaded and sauteed squid which have been prepared from imported cleaned squid. Domestic frozen whole squid are sold in three different markets: domestic ethnic consumers, export market, and animal food and bait. In 1987, 73 percent of the landings went to the ethnic consumers, 20 percent to the export market, and 7 percent to the animal food and bait market (Table 5-10). On the other hand, product forms which cater to restaurants, processors and non-ethnic consumers are mainly value-added imported products.

Table 5-10. Disposition of U.S. Squid Landings, 1987 (Metric Tons).

Human Consumption:	
Domestic	27,400
Export	7,400
Animal and Bait	2,500
Total	37,300

Source: National Marine Fisheries Service, Fisheries Statistics Division.

5-5. Growth Potential for the U.S. Squid Fishing.

The U.S. has a significant potential for growth of the domestic squid market. The ethnic population which consumes squid is expanding, and consumption of squid has been spreading among non-ethnic groups for several reasons. Squid fits nicely with the recent so-called "grazing" trend, a tendency for people to be satisfied with appetizer only, without a full meal. The low fat content of squid also appeals to consumers of all backgrounds. Squid is also attractive to restaurants, since products such as breaded squid rings and steak strips are easy to prepare, and because squid blends easily with various seasonings.

Exports of U.S. squid also have significant potential for growth. Among the key factors favoring this outlook are: a significant improvement in the quality of U.S. squid, the lower value of the dollar, which makes our exports more competitive in the international market, and the large resource of squid in U.S. waters.

6. CONCLUSIONS

Market squid (Loligo opalescens), longfin squid (Loligo pealei) and shortfin squid (Illex illecebrosus) are the three principal U.S. species for which opportunities exist for future expansion of overseas markets. Incipient markets have already emerged in the Mediterranean countries for the east and west coast species and in Japan for the west coast species. United States exporters should focus their efforts on these countries to further expand the market share. Strategies involved in these efforts may include, but not be limited to, the following considerations:

- Develop a stable domestic market for squid in the U.S. to support a viable squid fishery at home;

- Enhance overseas sales efforts, including recruitment of market analysis and sales consultant services by local experts, exhibitions and test sales of new products in the target countries, joint ventures with foreign importers, distributors and/or retail chains;

- Cultivate a high-quality image for U.S. squid, with improved techniques and quality control procedures in the catching, holding, processing and packaging of the products.

A viable domestic market will not only cushion sales fluctuations in the overseas markets, but will also support development of product lines which could be sold overseas as well as at home.

Selling U.S. products overseas nowadays takes considerable effort. This is true because a successful sale almost invariably means outdoing international competition. In order to sell, a demand must be identified and duly accommodated, and this takes in-depth understanding of the practices and idiosyncracies of the local market as well as the traditions, customs, psychology and taste preferences of the consumers. More efforts should be made to recruit local experts for advice on sales strategy. Very often, personal contacts and mutual compatibility could be the keys to a successful consummation of business transactions. Given sufficient incentives, the local businessman and experts will not only function as effective guides, but also become willing partners who share in the success of market penetration. Partnership with Japanese retail chains is among the exciting options along this line of approach. The numerous supermarkets under the control of gigantic national chains have become a significant factor in Japanese economy. A direct partnership with them will assure adequate size and steadiness of sales and direct exposure to consumers.

Squid used for direct consumption bring a higher price than that used as raw material for processed products. To qualify as premium squid, the usual high quality standards must be met as demanded by consumers, particulary in Japan where a long tradition of fish eating has led to a highly refined preferences in appearance, color, flavor and other qualities of seafood products.

One of the key factors affecting the quality of fresh/frozen squid is the time between catching and freezing. This is particularly relevant to harvests in areas where the trip between fishing grounds and freezing plants on shore is more than a few hours. Freezing at sea may be a solution but its

economic feasibility must be analyzed carefully.

The Japanese prefer larger Loligo opalescens, so size grading is another important requirement. The favored size range is 13 - 20 squid per kg (6-9 per lb), and packs including smaller individuals will decrease acceptability. Buyers in Japan are accustomed to seeing shipments of squid in uniform sizes because different sizes of the major species of squid generally go to different uses. Female squid which bear roe may bring the best prices on the Japanese market.

REFERENCES

California Department of Fish and Game, Marine Fisheries Statistics Division, Long Beach, Ca.

Court, W. 1980. "Japan's Squid Fishing Industry." Marine Fisheries Review, vol. 42, No. 7-8, 1-9.

Court, W. 1981. "Japan's Squid Market." Proceedings of the International Squid Symposium, August 9-12, Boston, MA. Prepared by New England Fisheries Development Foundation, Inc., 295-316.

FAO. 1970-89. "FAO Yearbook of Fishery Statistics - Catches and Landings Series." Vols. 30-63.

FAO. 1988-89. "FAO Yearbook of Fishery Statistics - By Commodities." Vol. 63-65.

Fields, W.G. 1965. "The Structure, Development, Food Relations, Reproduction, and Life History of the squid, Loligo opalescens Berry." California Department of Fish and Game, Fish Bull., vol. 131., 108p.

Foreign Fishery Information Release. 1980-89, Various Issues. National Marine Fisheries Service, Southwest Region.

Hirano, T. Diamond Seafoods Co., LTD. Tokyo, Japan (Personal communication).

Hokkaido Fisheries Association. 1988. "Trends of Supply and Demand for Squid." (in Japanese)

Hokkai Keizai Shinbun. 1987-89. Various Issues. (in Japanese)

Hotta, M. 1979. "Japan as a Market for Fishery Products - The Medium-Term Outlook to 1985." FAO Fisheries Circular No. 721, FAO, Rome. 68 p.

Hotta, M. 1983. "The International Market for Cephalopods." ADB/FAO Infofish Market Studies, Vol 4, 53 p.

Japan Marine Products Importers Association, 1978-89. "Japanese Imports of Marine Products (Statistics) - Calendar Year 1977-88." Tokyo, Japan.

Kato, S. and J.E. Hardwick, 1975. "Export Consultation on Fishing for aquid and other Cephalopods." 107-127.

Minato Shinbun, 1987-89. Various Issues. (in Japanese)

National Marine Fisheries Service, 1987-89. "Fisheries of the United States."

National Marine Fisheries Service, Fisheries Statistics Division, Washington, D.C.

Rathjen, W. F. 1973. "Northwest Atlantic Squid." Marine Fisheries Review, Vol. 35, No. 12, Paper 1023, 20-26.

Rathjen, W. F. 1983. "East Coast Squid Fisheries." Proceedings of the West Coast Squid Symposium, Feb. 1983, Newport, OR. Prepared by the West Coast Fisheries Development Foundation and Oregon State University Extension Sea Grant Marine Advisory Program, 122-139.

Shokuryo Shinbun, 1989. (in Japanese)

Strombom, D.B. 1986. "The Japanese Market for Squid." National Marine Fisheries Service, Southwest Region. Administrative Report SWR-86-14, 18p.

Suisan Keizai Shinbun. 1987-1989. Various Issues. (in Japanese)

U.S. Department of Commerce, Bureau of the Census, 1982-89.

U.S. Embassy, Commercial Section, Tokyo, Japan.

Veasy, E. B. and M. O. Blaxall. 1983. "Export Opportunities for United States Producers of Squid." A report prepared for the West Coast Fisheries Development Foundation, Portland, Oregon by BBH Corporation, 41p.

Appendix A-1. Total World Squid Catch vs. Japan's Squid Catch, 1966-87. (1,000 Metric Tons)

Year	Japan T.pacificus (A)	Japan Total (B)	World Total (C)	Comparison (Percent) (A)/(C)	(A)/(B)	(B)/(C)
1966	383	470	620	62	85	76
1967	477	581	697	68	82	84
1968	668	758	915	73	88	83
1969	478	544	710	67	88	77
1970	412	488	697	59	84	70
1971	364	447	647	56	81	69
1972	465	564	785	59	82	72
1973	334	452	710	47	74	64
1974	315	439	707	45	72	62
1975	370	508	796	46	73	64
1976	280	466	826	34	60	57
1977	208	460	845	25	45	54
1978	216	494	940	23	44	53
1979	213	505	1,155	18	42	44
1980	330	670	1,181	28	49	57
1981	197	509	977	20	39	52
1982	182	543	1,191	15	34	46
1983	192	531	1,169	16	36	45
1984	174	505	1,192	15	34	42
1985	133	512	1,302	10	26	39
1986	90	449	1,211	7	20	37
1987	183	748	1,800	10	24	42

Data Source: FAO Yearbooks of Fishery Statistics, Catches and Landings, Vol. 30-63.

Appendix A-2. World Squid Catch in Major Areas, 1966-1987 (1,000 Metric Tons).

Year	N.W. Pacific (A)	N.W. Pacific (B)	S.W. Atlantic	S.W. Pacific	W.C. Pacific
1966	468.0	60.6	1.4	0.0	11.4
1967	524.0	70.5	2.9	0.0	29.5
1968	758.1	58.9	4.1	0.0	47.6
1969	544.7	58.9	1.5	0.2	37.6
1970	484.3	69.0	1.3	0.1	40.3
1971	401.9	84.8	1.8	0.0	43.0
1972	517.9	97.0	1.8	0.1	59.7
1973	378.3	113.9	4.1	15.1	59.8
1974	346.4	103.9	5.0	19.7	70.0
1975	410.7	136.9	4.6	7.9	69.8
1976	325.7	226.8	9.2	19.7	66.8
1977	225.9	283.6	3.3	55.5	79.6
1978	234.3	314.9	74.6	92.2	82.2
1979	239.0	361.4	124.0	42.6	87.2
1980	379.0	378.4	30.8	80.0	82.9
1981	259.2	305.1	53.8	63.2	92.3
1982	247.9	391.2	208.1	70.9	84.5
1983	230.1	344.2	205.0	107.1	123.8
1984	220.0	361.2	251.3	122.4	100.7
1985	192.5	437.6	269.0	122.6	103.8
1986	127.6	370.9	351.2	100.6	109.5
1987	243.4	375.0	744.9	112.2	95.7

Note: (A) - Todarodes pacificus
(B) - Other than T. pacificus
N.W. - Northwest
S.W. - Southwest
W.C. - Western Central

Data Source: FAO Yearbooks of Fishery Statistics, catches and Landings, Vol. 30-63.

Appendix A-3. Japan's Monthly Cold Storage Holdings of Frozen Squid, 1986-88 (1,000 Metric Tons).

End of Month	Ommastrephid Squid*			Total		
	1986	1987	1988	1986	1987	1988
January	51.2	38.8	114.0	119.9	101.1	186.0
February	47.7	36.7	109.3	105.7	95.0	175.7
March	39.0	36.7	102.2	91.5	89.2	166.6
April	36.6	45.4	99.4	83.5	92.6	156.8
May	36.6	54.7	114.8	79.6	97.6	167.3
June	46.3	77.7	137.2	84.8	120.8	190.0
July	52.4	91.0	149.3	87.6	134.9	198.6
August	54.1	108.9	160.5	97.2	168.5	218.4
September	56.0	124.0	157.5	116.3	194.5	221.5
October	50.7	127.4	149.9	119.8	201.4	219.9
November	47.5	125.7	139.8	114.8	201.0	210.0
December	43.4	115.9	127.2	110.9	190.8	198.8

* Does not include O. bartrami

Source: Foreign Fishery Information Release, 1986-89.

Appendix A-4. Annual Landings and Average Exvessel Prices of T. pacificus in Japan, 1980-87.

Year	Landings		Exvessel Prices	
	Fresh	Frozen	Fresh	Frozen
	(Metric Tons)		(Yen/Kg)	
1980	152,767	122,965	340	288
1981	84,339	58,389	469	172
1982	73,487	71,295	604	510
1983	74,507	67,974	570	435
1984	63,415	68,011	560	473
1985	47,777	60,093	658	516
1986	35,165	26,015	758	565
1987	69,683	69,050	534	400

Source: Hokkaido Fisheries Association, 1988

Appendix A-5. Annual Landings and Average Exvessel Prices of O. bartrami in Japan, 1980-87.

Year	Landings		Exvessel Prices	
	Fresh	Frozen	Fresh	Frozen
	(Metric Tons)		(Yen/Kg)	
1980	10,887	136,650	197	236
1981	12,608	106,639	358	363
1982	17,327	145,673	306	423
1983	11,484	137,388	250	307
1984	11,604	88,064	317	445
1985	26,305	108,293	269	508
1986	14,898	93,058	312	442
1987	21,007	110,784	166	300

Source: Hokkaido Fisheries Association, 1988

Appendix A-6. Annual Landings and Prices of N. sloani in Japan, 1982-87.

Year	Landings		Exvessel Prices	
	Jig	Trawl	Jig*	Trawl**
	(Metric Tons)		(Yen/Kg)	
1982	35,000	15,000	392	340
1983	36,000	13,000	322	340
1984	45,000	20,000	298	250-340
1985	30,000	20,000	384	280-350
1986	25,000	15,000	320	360-440
1987	27,000	25,000	397	220-470

* Average exvessel prices
** Wholesale prices

Source: Hokkaido Fisheries Association, 1988

Appendix A-7. Annual Landings and Average Wholesale Prices of I. argentinus in Japan, 1980-87.

Year	Landings		Wholsale Prices
	Jig	Trawl	Trawl
	(Metric Tons)		(Yen/Kg)
1980	0	30,000	170
1981	0	14,000	320
1982	0	35,000	300
1983	0	25,000	300
1984	0	60,000	310
1985	29,000	48,000	300
1986	75,000	20,000	470
1987	180,000	60,000	270

Source: Hokkaido Fisheries Association, 1988.

APPENDIX B

JAPANESE MAJOR SQUID IMPORT QUOTA HOLDERS

MAJOR TRADING COMPANIES:

C. Itoh & Company, Ltd.
Hoko Fishing Co., Ltd.
Ito-Yokado Co., Ltd.
Kabushiki Kaisha Sealaska Japan
Kanematsu-Gosho Ltd.
Kasho Company Ltd.
Kobe Yoko Ltd.
Kyokuyo Co., Ltd.
Marubeni Corp.
Matsuoka Co., Ltd.
Meiwa Trading Co., Ltd.
Mitsubishi Corp.
Mitsui & Co., Ltd.
Nakamura Suisan Co., Ltd.
New Toyo Seafoods Co., Ltd.
Nichirei Corp.
Nichiro Gyogyo Kaisha, Ltd.
Nippon Suisan Kaisha, Ltd.
Nissho-Iwai Co., Ltd.
Nozaki & Co., Ltd.
Okura & Co., Ltd.
Shibamoto & Co., Ltd.
Sumitomo Corp.
Taiyo Gyogyo Kabushiki Kaisha
Tokyo Comercial Co., Ltd.
Tokyo Maruichi Shoji
Toshoku Seafood Ltd.
Toyoda Tsusho Kaisha, Ltd.

PROCESSORS:

Zenkoku Suisan Kakogyo Kyodokumiai Rengokai
(National Federation of Processed Fisheries Products Cooperative)

Zenkoku Ika Kakogyo Kyodokumiai
(National Cooperative Association of Squid Processors)

Zenkoku Chinmi Shokuryo Kyodokumiai Rengokai
(National Federation of Processed Delicacy Food Products Cooperatives)

Zenkoku Chori Shokuhin Kogyo Kyodokumiai
(National Federation of Pre-Cooked Food Manufacturers)

Nihon Suisan Kansume Kogyo Kyodokumiai
(Japan Canned Fish Manufacturer's Cooperative)

Zenkoku Kyushoku Busshi Hanbai Kyodokumiai Rengokai
(National Federation of School Lunch Products Cooperative)

Zenkoku Gyogyo Kyodokumiai Rengokai
(National Federation of Fisheries Cooperatives)

Zenkoku Kamaboko Suisan Kakogyo Kyodokumiai Rengokai
(National Federation of Kneeded Fisheries Products Cooperatives)

Source: U.S. Embassy, Commercial Section, Tokyo

APPENDIX C

MAJOR SEAFOOD IMPORTERS
JAPAN MARINE PRODUCTS IMPORTERS ASSOCIATION

COMPANY: **Ataka Produce Co., Ltd.**
ADDRESS: Y-Bldg, 13-2, Shibaura 3-chome, Minato-ku, Tokyo 108
PHONE: Marine Dept. No. 1 (03) 798-0641
Marine Dept. No. 2 (03) 798-0841
FAX: (03) 798-0845
PRODUCTS: Marine Dept. No. 1 - Salmon, black cod, snapper, red fish, salmon roe, herring roe.
Marine Dept. No. 2 - Tuna, skipjack, marlin, shark, lobster, denton, king crab, snow crab, octopus, cuttlefish, abalone.

COMPANY: **Bokusui Sangyo Co., Ltd.**
ADDRESS: 2-2, 1-chome Uchisaiwaicho, Chiyoda-ku, Tokyo 100
PHONE: (03) 508-1163
FAX: (03) 504-2637
TELEX: 222-2392
PRODUCTS: Tuna, marlin, shrimp, squid, cuttlefish, cod, dory, herring, salmon.

COMPANY: **Cato Marine Trading Co., Ltd.**
ADDRESS: Kikyobizen Bldg,19-6, 1-chome Nishishinbashi, Minato-ku, Tokyo 108
PHONE: (03) 581-2927
FAX: (03) 581-2995
PRODUCTS: Salmon, herring, red fish, etc.

COMPANY: **C.I. Seafoods Ltd.**
ADDRESS: 2F OS Bldg, 4-12, 4-chome Tsukiji, Chuo-ku, Tokyo 104
PHONE: (03) 542-2383
FAX: (03) 542-2539
TELEX: 252-2749 CISEA J
PRODUCTS: Shrimp, lobster, arctic shrimp.

COMPANY: **C. Itoh & Co., Ltd.**
ADDRESS: 5-1, 2-chome Kitaaoyama, Minato-Ku, Tokyo 107
PHONE: (03) 497-6186
TELEX: J 22295, J 22296, J 22297
PRODUCTS: Tuna, skipjack, marlin, yellowfin, albacore, sanma, squid, octopus, cuttlefish, snow crab, herring, herring roe, salmon, smelt, butterfish, Black cod, halibut, capelin, capelin roe, red fish, saith, canned tuna, canned mackerel, canned sardine.

COMPANY: **Co-Optrade Japan Ltd.**
ADDRESS: Seikyo Kaikan, 1-13, 4-chome Sendagaya, Shibuya-ku, Tokyo 105
PHONE: (03) 497-9127
FAX: (03) 470-1593 (03) 405-9038
TELEX: J 23393 COOPTR
PRODUCTS: Shrimp, eel, salmon, salmon roe, herring, herring roe, black cod, snow crab, pollack, pollack roe, octopus, baby clam.

COMPANY: **Daimaru Kogyo Ltd.**
ADDRESS: 11-9, Kodenmacho, Nihonbashi, Chuo-ku, Tokyo 103
PHONE: (03) 639-2678/9
FAX: (03) 663-7283
TELEX: J 24396
PRODUCTS: Salmon, herring, salmon roe, herring roe, halibut, black cod, smelt, butterfish, squid, pollack roe, shrimp, flounder, sole, king crab, tanner crab, bloody clam, abalone, etc.

COMPANY: **Daiyoshi Takashima Fisheries Co., Ltd.**
ADDRESS: West 16, North 12, Chuo-ku, Sapporo, Hokkaido 060
PHONE: (011) 736-8851/5
FAX: (001) 736-8856
PRODUCTS: Herring, herring roe, cooked snow crab section, raw snow crab section, crab claw, shrimp, red fish, welk.

COMPANY: **Diamond Seafoods Co., Ltd.**
ADDRESS: 1-17, 4-chome Tsukiji, Chuo-ku, Tokyo 104.
PHONE: Section 1: (03) 543-2461
2: (03) 543-1811, 2561
3: (03) 543-2535
4: (03) 543-3695
FAX: (03) 545-1817
TELEX: 252-3931
PRODUCTS: Section 1 - Octopus, cuttlefish, caramary, red snapper, merluza, king clip, ladyfinger (kisu), pomfret, boiled clam, illex, clam, sea urchin, California squid, silver warehau.
Section 2 - Shrimp, scampi, lobster.
Section 3 - Salmon, salmon roe, herring, herring roe, capelin, capelin roe, king crab, snow crab, spot shrimp, butterfish, black cod, herring roe on kelp, red fish, caviar, flounder, sole, pollack roe.
Section 4 - All items.

COMPANY: **Eastern Products Co., Ltd.**
ADDRESS: 7F Tokyo Kaijo Bldg,2-1, 1-chome Marunouchi, Chiyoda-ku, Tokyo 100
PHONE: (03) 215-0371
FAX: (03) 215-0370
TELEX: J 26285 EPCTOBU
PRODUCTS: Shrimp, cuttlefish, octopus.

COMPANY: **Ebijyo & Co., Ltd.**
ADDRESS: 23-5, 6-chome Tsukiji, Chuo-ku, Tokyo 104
PHONE: Business Dept. (03) 542-1361
Section B (03) 542-2710
Section C (03) 546-3541
FAX: (03) 541-1518
TELEX: 252-2369 EBIJYO J
CABLE add: SHRIMPPRAWN TOKYO
PRODUCTS: Section B - Salmon, herring, salmon roe.
Section C - Shrimp, lobster, cuttlefish, squid, oyster, scallop.

COMPANY: **Ebiko Corporation**
ADDRESS: 1-8, 6-chome Tsukiji, Chuo-ku, Tokyo 104
PHONE: (03) 542-3435
FAX: (03) 542-7665
PRODUCTS: Shrimp, lobster.

COMPANY: **Ebino Daimaru Co., Ltd.**
ADDRESS: 21-7, 6-chome Tsukiji, Chuo-ku, Tokyo 104
PHONE: (03) 541-7281
FAX: (03) 541-7475
TELEX: 252-3826 EBIDAI
PRODUCTS: Shrimp, Allied products.

COMPANY: **Hanwa Co., Ltd. Tokyo**
ADDRESS: 13-10, 1-chome Tsukiji, Chuo-ku, Tokyo 104
PHONE: Import Dept. (03) 545-0851/2
Section No. 1 (03) 544-2326, 2344
Section No. 2 (03) 544-2318, 2323
FAX: (03) 545-1079, 1083
TELEX: 2522358 HANWA J 2522342 HANWA J
PRODUCTS: Section No. 1 - Shrimp, lobster.
Section No. 2 - Salmon, herring, capelin, red shrimp, black cod, herring roe, cuttlefish, red fish, etc.

COMPANY: **Happy World Inc.**
ADDRESS: Marue Bldg, 19-10, 1-chome Jinnan, Shibuya-ku, Tokyo 150
PHONE: (03) 464-2638
TELEX: 2424093 HAPPIN J
PRODUCTS: Salmon, shrimp, horse mackerel, etc.

COMPANY: **Hohsui Corporation**
ADDRESS: 9-13, 7-chome Tsukiji, Chuo-ku, Tokyo 104
PHONE: (03) 542-2576
FAX: (03) 542-6808
TELEX: 252-2987
PRODUCTS: Fish meal, Surimi, pollack roe, barracuda, tanner crab, herring, herring roe, horse mackerel, red fish, butterfish, shrimp prawn, salmon, salmon roe, black cod, squid, mongo ika, barracuda, baby clam.

COMPANY: **Hokkaido Fisheries Co., Ltd.**
ADDRESS: 3-9, 1-chome Higashishinbashi, Minato-ku, Tokyo 105
PHONE: (03) 573-1121
(03) 573-1127
FAX: (03) 574-0721
TELEX: 2522541 HGK TJ
PRODUCTS: Shrimp, lobster, red snapper, Geoduck clam, loco, abalone, Tsubuclam, octopus, sea urchin, horse mackerel, mackerel, eel, herring, herring roe, salmon, salmon roe, black cod, cod, Pacific ocean perch, halibut, sole, flounder.

COMPANY: **Hokkai Seafoods Co., Ltd.**
ADDRESS: 13-5, 7-chome Tsukiji, Chuo-ku, Tokyo 104
PHONE: (03) 546-1261
FAX: (03) 546-1260
TELEX: 02522571 SEAFOD J
PRODUCTS: Salmon, herring, capelin, squid, salmon roe, herring roe, Ccpelin egg, herring roe on kelp, mullet roe.

COMPANY: **Hoko Fishing Co., Ltd.**
ADDRESS: 2-4, 1-chome Tsukiji, Chuo-ku, Tokyo 104
PHONE: (03) 542-5641/4
FAX: (03) 545-2167
TELEX: 2522933
PRODUCTS: Octopus, cuttlefish, squid, merluza, sea bream, horse mackerel, shrimp, lobster, snapper, butterfish, capelin black cod, red fish, mackerel, flatfish, salmon, herring, salmon roe, herring roe, crab, pollack roe, bluefin tuna.

COMPANY: **Icicle Seafoods (Japan) Ltd.**
ADDRESS: Sandai Bldg, 1-1, 1-chome Tsukiji, Chuo-ku, Tokyo 104
PHONE: (03) 545-4751
FAX: (03) 545-4767
PRODUCTS: Salmon, herring, black cod, halibut, salmon roe, herring roe, imitation crab meat, king crab, tanner crab.

COMPANY: **Itoman & Co., Ltd.**
ADDRESS: Sumitomoseimei Aoyama Bldg, 1-30, 3-chome Minamiaoyama, Minato-ku, Tokyo 107
PHONE: (03) 478-9131, 9130
Sapporo Office - (011) 621-1641
FAX: (03) 479-4367
TELEX: J 22810
PRODUCTS: Shrimp, lobster, salmon, sea urchin, various shells & other seafoods, squid, dried squid, cuttlefish.

COMPANY: **Itoman Produce Co., Ltd.**
ADDRESS: 5F Sumitomoseimei Aoyama Bldg, 1-30, 3-chome Minamiaoyama, Minato-ku, Tokyo 107
PHONE: (03) 478-9247
TELEX: J 22568
PRODUCTS: Tuna, shrimp, salmon, crab, Etc.

COMPANY: **Ito-Yokado Co., Ltd.**
ADDRESS: 1-4, 4-chome Shibakouen, Minato-ku, Tokyo 105
PHONE: (03) 459-3304
FAX: (03) 438-0375
TELEX: J 23841
PRODUCTS: Whole Seafood.

COMPANY: **Iwayama Shoten Co., Ltd.**
ADDRESS: 1-chome Kiba, Kushirocho, Kushirogun, Hokkaido 088-06
PHONE: Section 1 - Imports (0154) 37-2955
Section 2 - Domestic (0154) 37-8677
FAX: (0154) 37-0325
PRODUCTS: Section 1 - Opilio crab, tanner crab, hair crab, salmon, halibut, flatfish, black cod.
Section 2 - Hair crab, salmon roe, salmon stick, salmon filet, tangle.

COMPANY: **Kabushiki Kaisha Sealaska Japan**
ADDRESS: 4F Ikeda Bldg, 4-5, 4-chome Tsukiji, Chuo-ku, Tokyo 104
PHONE: (03) 542-9301
FAX: (03) 542-9385
TELEX: J 24234
PRODUCTS: Salmon roe, herring roe, salmon, black cod, snapper, shrimp, snow crab, halibut, jellyfish, squid.

COMPANY: **Kanekyo-Sanyu Reizo Co., Ltd.**
ADDRESS: Kachidoki Shuhan Bldg, 10-10, 7-chome Tsukiji, Chuo-ku, Tokyo 104
PHONE: (03) 543-5318
FAX: (03) 545-6071
TELEX: J 2523969 KANEKY J
PRODUCTS: All fishery products.

COMPANY: **Kanematsu-Gosho Ltd.**
ADDRESS: 14-1, 2-chome Kyoobashi, Chuo-ku, Tokyo 104
PHONE: (03) 562-8534
FAX: (03) 562-7071
TELEX: J 22333, J 22334
PRODUCTS: Eel, shrimp, lobster, octopus, cuttlefish, squid, salmon, crab, snapper and other fish.

COMPANY: **Kasho Co., Ltd. Tokyo**
ADDRESS: 14-9, 2-chome Nihonbashi, Chuo-ku, Tokyo 103
PHONE: (03) 276-7631/4
FAX: (03) 278-8280, 8684
TELEX: 222-2393, 222-3886
PRODUCTS: Shrimp, cuttlefish, kisu, salmon, crab, lobster, squid, mongo ika, abalone, clam, Llco, various fish roe, etc.

COMPANY: **Kato Marine Trading Co., Ltd.**
ADDRESS: Kikyobizen Bldg, 402, 19-6, 1-chome Nishishinbashi, Minato-ku, Tokyo 105
PHONE: (03) 581-2927
FAX: (03) 581-2995
PRODUCTS: Salmon, herring, red fish, etc.

COMPANY: **Kawasho Corporation**
ADDRESS: World Trade Cntr Bldg, Hamamatsucho 2-chome, Minato-ku, Tokyo 105
PHONE: (03) 435-4064/6
FAX: (03) 438-2974
TELEX: J 24277, J22511, J 24340
PRODUCTS: Salmon, salmon roe, shrimp, red fish, flatfish, squid, herring roe.

COMPANY: **Kinsho-Mataichi Corporation**
ADDRESS: 2 Shuwa Shinkawa Bldg, 24-1, 1-chome Shinkawa, Chuo-ku, Tokyo 104
PHONE: (03) 297-7270
FAX: (03) 297-7398
TELEX: J 22356
PRODUCTS: Cuttlefish, shrimp, mackerel, sole, cod, Etc.

COMPANY: **Kobe Yoko Ltd.**
ADDRESS: 9F KIMM Bldg, 2-8, 4-chome Isobedori, Chuo-ku, Kobe 651
PHONE: (078) 232-3821/5
FAX: (078) 232-3723
TELEX: J 78838 KOBEYOKO
PRODUCTS: Shrimp, lobster, cuttlefish, abalone, broiled ivoly clam meats (Shijimi), baby clam (Asari), red snapper, red sole, periwinkle escargot, dried cuttlefish, jellyfish.

COMPANY: **Koki Gyorui Co., Ltd.**
ADDRESS: Daiki Bldg, 7-5, 7-chome Tsukiji, Chuo-ku, Tokyo 104
PHONE: (03) 543-1091/3
FAX: (03) 543-1026
TELEX: 2522011 KOKIGY J
PRODUCTS: Salmon, salmon roe, herring, herring roe, black cod, ocean perch, squid, butterfish.

COMPANY: **Kyokuyo Co., Ltd.**
ADDRESS: 1-1, 2-chome Marunouchi, Chiyoda-ku, Tokyo 100
PHONE: (03) 211-0154
FAX: (03) 214-7048
TELEX: 222-2493 KYOKUA
PRODUCTS: Octopus, red fish, squid, mongo ika, capelin, butterfish, salmon, salmon roe, herring, herring roe, black cod, tanner crab, shrimp, lobster.

COMPANY: **Marubeni Corporation, Tokyo Head Office**
ADDRESS: 4F Ohtemachi Bldg, 6-1, 1-chome Ohtemachi, Chiyoda-ku, Tokyo 100
PHONE: (03) 282-4752
FAX: (03) 282-9654
TELEX: 2224441
PRODUCTS: Tuna, shrimp, octopus, cuttlefish, squid, red fish, salmon, salmon roe, herring, herring roe, capelin, capelin roe, crab, pollack roe, surimi.

COMPANY: **Marubeni Reizo Co., Ltd.**
ADDRESS: 8FMS Shibaura Bldg, 13-23, 4-chome Shibaura, Minato-ku, Tokyo 108
PHONE: Section 1 - (03) 769-00034
Section 2 - (03) 769-00035
Section 3 - (03) 769-00036
Section 4 - (03) 769-00037
Section 5 - (03) 769-00038
FAX: (03) 769-0043, 769-0044
TELEX: 242-4602
PRODUCTS: Section 1 - Capelin, capelin roe, snow crab, swimming crab, Pacific saury, whiting, red striped rockfish, queenfish, black cod, Pacific mackerel, abalone, Lobster.
Section 2 - Herring, herring roe, salmon, salmon roe, salmon caviar, herring roe on kelp, cod roe.
Section 3 - Salmon.
Section 4 - Octopus, cuttlefish, Pacific squid, cod, silver whiting, butterfish, sole, Greenland halibut, horse mackerel, flounder, red snapper, sablefish, ocean perch, bottomfish.
Section 5 - Squid, cuttlefish, Loligo.

COMPANY: **Matsuoka Co., Ltd.**
ADDRESS: 10-12, 1-chome Higashiyamatomachi, Shimonoseki City, Yamaguchi Pref. 750
PHONE: (0832) 67-5566
FAX: (0832) 67-5286
TELEX: 6823-66 MATSU J
PRODUCTS: Dried squid, seaweeds, seasoned fish, eel, salmon, herring, black cod, pollack roe, salmon roe, herring roe, red fish, octopus, cuttlefish, squid, sea bream, tuna, cuttlefish fillet, shrimp.

COMPANY: **Meiwa Trading Co., Ltd.**
ADDRESS: 3-1, 3-chome Marunouchi, Chiyoda-ku, Tokyo 100
PHONE: (03) 240-9388/91
FAX: (03) 240-9560
TELEX: J 22336, J 26746, J 25317
PRODUCTS: Jellyfish, cuttlefish, squid, flyingfish eggs, herring roe, salmon roe, sea urchin, top shell, short neck clam, hard clam, eel, horse mackerel, spanish mackerel, skipjack & other bonito, albacore, tuna, swordfish, salmon, hairtails, croakers, sea bream, shark, shark fin, capelin, shrimp, lobster, crab, octopus, etc.

COMPANY: **Mitsubishi Corporation**
ADDRESS: 3-1, 3-chome Marunouchi, Chiyoda-ku, Tokyo 100
PHONE: A Team - (03) 210-6670
B Team - (03) 210-6801
C Team - (03) 210-6414
D Team - (03) 210-6666, 6695
FAX: (03) 210-6726, (03) 213-3529
TELEX: J 22222/5, 222-2071, 6333
PRODUCTS: A Team - Tuna, skipjack, marlin, moroshark.
B Team - Shrimp, lobster.
C Team - Salmon, salmon roe, herring, herring roe, black cod, cod, cod roe, red fish, capelin, crab, smelt, mullet roe, pollack roe, butterfish, etc.
D Team - Octopus, cuttlefish, squid, snapper, shellfish, other fishes from southern hemisphere.

COMPANY: **Mitsui & Co., Ltd.**
ADDRESS: 2-1, 1-chome Ohtemachi, Chiyoda-ku, Tokyo 100
PHONE: Section 1 - (03) 285-5907
Section 2 - (03) 285-6003
Section 3 - (03) 285-5972
FAX: (03) 285-9802
TELEX: J 22253
PRODUCTS: Section 1 - Tuna, skipjack, marlin.
Section 2 - Shrimp, lobster.
Section 3 - Salmon, salmon roe, herring, herring roe, king crab, octopus, cuttlefish, squid, mongo ika, loco, capelin, red snapper.

COMPANY: **Nakamura Suisan Co., Ltd.**
ADDRESS: 3-15, 3-chome Kaigan, Minato-ku, Tokyo 108
PHONE: (03) 452-3756
FAX: (03) 452-7269
TELEX: 2422503 NAKAUO J
PRODUCTS: Salmon, salmon roe, herring, herring roe, cuttlefish, squid, capelin, cod.

COMPANY: **New Toyo Sea Foods Co., Ltd.**
ADDRESS: Ishikawa Bldg, 20-1, 2-chome Misakicho, Chiyoda-ku, Tokyo 101
PHONE: (03) 262-4408
(03) 264-4373
FAX: (03) 263-6947
TELEX: J 25220 NEWFOOD
PRODUCTS: Shrimp, lobster, deepwater prawn, scampi, cuttlefish, squid, mongo ika, octopus, herring roe, black cod, red snapper, cod, fishing trawlers, freezing plants, fishing gear and equipment.

COMPANY: **Nichimen Corporation**
ADDRESS: 13-1, 1-chome Kyoobashi, Chuo-ku, Tokyo 104
PHONE: (03) 566-2291/5
FAX: (03) 566-2759
TELEX: J 22329 NICHI
PRODUCTS: Shrimp, herring, salmon, crab, lobster, cuttlefish, squid, abalone, loco, lady fish, etc.

COMPANY: **Nichirei Corporation**
ADDRESS: 3-23, 3-chome Misakicho, Chiyoda-ku, Tokyo 101
PHONE: Section 1 - (03) 237-2231
Section 2 - (03) 237-2222
FAX: (03) 237-2277
TELEX: J 22450, J 25340
PRODUCTS: Section 1 - Frozen tuna, squid, octopus, cuttlefish, denton, acerola, shrimp.
Section 2 - Salmon, snow crab, squid, cuttlefish, herring, red fish, G. turbot, capelin shellfish (abalone etc.), others.

COMPANY: **Nichiro Gyogyo Kaisha, Ltd.**
ADDRESS: 21-1, 1-chome Yurakucho, Chiyoda-ku, Tokyo 100
PHONE: Department 1 - (03) 240-6371
Department 2 - (03) 240-6353
FAX: (03) 287-2326/8
TELEX: 222-3661 NICHIR J
PRODUCTS: Department 1 - Salmon, salmon roe, herring, herring roe, crab, red fish, black cod.
Department 2 - Shrimp, lobster, cuttlefish, sea urchin, swordfish, octopus, squid, sea bream, tuna, butterfish.

COMPANY: **Nihon Hogei Co., Ltd.**
ADDRESS: 1-1, 2-chome Uchisaiwai-cho, Chiyoda-ku, Tokyo, 101
PHONE: (03) 506-5376
FAX: (03) 506-5386
TELEX: 2222869 NIHOCO J
PRODUCTS: All fishery products.

COMPANY: **Nippon Suisan Kaisha, Ltd.**
ADDRESS: 6-2, 2-chome Ohtemachi, Chiyoda-ku, Tokyo 100
TELEX: NISSUI J 32221
FAX: (03) 244-7269

Overseas Operations & Trade Department I

PHONE: North Pacific Trade Division (03) 244-7212
North Atlantic Trade Division (03) 244-7216

PRODUCTS: North Pacific - Crab, salmon, salmon roe, herring, herring roe, black cod, Pacific cod, etc.
North Atlantic - Crab, herring, herring roe, capelin, squid, Greenland prawn, horse mackerel, red fish, flounder, etc.

Overseas Operations & Trade Department II

PHONE: Southern Trade Division (03) 244-7230

PRODUCTS: Argentine red shrimp, squid (from South America).

Overseas Operations & Trade Department III

PHONE: Shrimp Trade Division (03) 244-7233
Fresh/Froz Seafood Trade Div. (03) 244-7243/5

PRODUCTS: Shrimp Trade Division - Shrimp, lobster, swimming crab, school whiting, abalone, etc.
Fresh/Froz Seafood - Octopus, cuttlefish, tuna, squid, minced fish, etc.

Fishery Products Marketing Department I

PHONE: Fishery Prod. Marketing Dept. (03) 244-7148
FAX: (03) 244-7428
TELEX: 2222271 NISSUI J
PRODUCTS: Shrimp, lobster, deepwater prawn.

COMPANY: **Nissho Iwai Corporation**
ADDRESS: Nissho-Iwai Bldg,4-5,2-chome Akasaka,Minato-ku,Tokyo 107
PHONE: Section 1 - (03) 588-3568, 3574, 3579, 3763, 3525
Section 2 - (03) 588-3569, 3456, 3547, 3986
FAX: (03) 588-3777, 4812
TELEX: J 22233
PRODUCTS: Section 1 - Salmon, salmon roe, herring, herring roe, capelin, capelin roe, tuna, red fish, octopus cuttlefish, squid, crab, shark fin, black cod, mongo ika.
Section 2 - Shrimp, lobster.

COMPANY: **Nomura Trading Co., Ltd. Tokyo Branch**
ADDRESS: Shin-Yaesuguchi Bldg,2-1,2-chome Yaesu,Chuo-ku,Tokyo 104
FAX: (03) 272-3778
TELEX: J 63367 NOMURA A J63367

Shrimp Section
PHONE: (03) 277-4766
PRODUCTS: All sort of shrimp, lobster, scampi.
Southern Region Section
PHONE: (03) 277-4777
PRODUCTS: Cuttlefish, squid, octopus, horse mackerel, sillago, abalone, clam, top shell, crab.
North American Section
PHONE: (03) 277-4771
PRODUCTS: Salmon, salmon roe, herring roe, black cod, red fish, butterfish, crab, smelt.
Europe Section
PHONE: (03) 277-4772
PRODUCTS: Capelin, capelin roe, herring, herring roe, red shrimp, red fish, flounder, crab.

COMPANY: **Nosui Co., Ltd.**
ADDRESS: 2-1, 3-chome Tamagawa, Fukushimaku, Osaka 553
PHONE: (06) 443-8653
FAX: (06) 443-5896 (06) 444-0009
TELEX: 252-4326
PRODUCTS: Shrimp, salmon, salmon roe, herring roe, cuttlefish, octopus, horse mackerel, crab, spanish mackerel.

COMPANY: **Nozaki & Co., Ltd.**
ADDRESS: 16-19, 7-chome Ginza, Chuo-ku, Tokyo 104
PHONE: Section 1 - (03) 542-9220
Section 2 - (03) 542-9221
FAX: (03) 545-2006
TELEX: J 22375
PRODUCTS: Section 1 - Salmon roe, herring roe, crab, black cod, butterfish, jumbo tuna, etc. Export: Scallop, crab-flavored surimi products, etc.
Section 2 - Octopus, cuttlefish, squid, capelin, capelin roe, shrimp, red fish, clam, abalone, top shell, etc.

COMPANY: **Okaya & Co., Ltd.**
ADDRESS: 2F Shinmaru Bldg, 1-5, 1-chome Marunouchi, Chiyoda-ku, Tokyo 100
PHONE: (03) 214-8732
FAX: (03) 214-8792
TELEX: J 2-2245
CABLE add: OKAYASTEEL TOKYO
PRODUCTS: Shrimp, lobster, salmon, salmon roe, crab, herring, herring roe, bottomfish.

COMPANY: **Okura & Co., Ltd.**
ADDRESS: 5F Ohkurabekkan Bldg,4-1,3-chome Ginza,Chuo-ku,Tokyo 104
PHONE: (03) 566-6580/5
FAX: (03) 562-2779
TELEX: J 22306
PRODUCTS: Shrimp, king crab, snow crab, salmon, salmon roe, herring roe, black cod, halibut, idiot, red fish, rock sole, ocean perch, herring, mackerel, horse mackerel, flounder, smelt, capelin, capelin roe.

COMPANY: **Osaka Uoichiba Co., Ltd.**
ADDRESS: 1-86, 1-chome Noda, Fukushima-ku, Osaka City 533
PHONE: (06) 466-2271
FAX: (06) 461-2283, 4084
TELEX: 524-2811, 524-2813
PRODUCTS: Surimi, pollack, pollack roe, herring, herring roe, salmon, salmon roe, eel, shrimp, squid, all marine products.

COMPANY: **Sanyo Trading Co., Ltd. Head Office**
ADDRESS: 11, 2-chome Kanda-nishikicho, Chiyoda-ku, Tokyo 101
PHONE: (03) 233-5881/3
FAX: (03) 233-5917
TELEX: J 28470 PHOENIX
PRODUCTS: Shrimp, cuttlefish, octopus, baby clam, agar agar, mackerel, and others.
Osaka Branch
PHONE: (06) 203-2591
FAX: (06) 222-6502
TELEX: 5222477 STC OSA
PRODUCTS: Shrimp, lobster, salmon, red fish, snapper, black cod, and others.

COMPANY: **Schooner Trading Corporation**
ADDRESS: Tomizen Bldg, 11-4, 2-chome Ginza, Chuo-ku, Tokyo 104
PHONE: (03) 545-6301
FAX: (03) 545-8670
TELEX: 252-4124 SCHTRD J
PRODUCTS: Squid, herring, herring roe, capelin, crab, shrimp, red fish, etc.

COMPANY: **Shibamoto & Co., Ltd.**
ADDRESS: 1-12, 1-chome Minato, Chuo-ku, Tokyo 104
PHONE: (03) 552-4231/7
FAX: (03) 552-4877
TELEX: J 23621 SHIBAMOTO
PRODUCTS: Shrimp, salmon, salmon roe, herring roe, black cod, squid, red snapper, cuttlefish, loco, etc.

COMPANY: **Shin Nihon Global Inc.**
ADDRESS: 3F SK Bldg, 13-19, 1-chome Shintomi, Chuo-ku, Tokyo 104
PHONE: (03) 555-3600
FAX: (03) 555-3601
TELEX: J 27607
PRODUCTS: Salmon, crab, shrimp, black cod, red fish, halibut, herring, mackerel, salmon roe, herring roe.

COMPANY: **Shin Nishoku Co., Ltd.**
ADDRESS: SN Bldg, 3-19, 3-chome Kachidoki, Chuo-ku, Tokyo 104
PHONE: (03) 533-7911
FAX: (03) 533-2044
TELEX: 2524730 SINSOK J
PRODUCTS: Salmon, black cod, snow crab, prawn.

COMPANY: **Shinyei Kaisha**
ADDRESS: 77-1, Kyomachi, Chuo-ku, Kobe 651-01
PHONE: (078) 392-6861
(078) 392-6865/9
FAX: (078) 332-3127
TELEX: SHINYEI J 78830
PRODUCTS: Shrimp, lobster, butterfish, smelt, squid, red snapper, crab, whelk, clam, ark shell, abalone, fish, shellfish.

COMPANY: **Sumitomo Corporation (SC Marine Products Co., Ltd)**
ADDRESS: 4F Toyokawa Bldg,14-6, 5-chome Ginza, Chuo-ku,Tokyo 104
PHONE: Section 1 - (03) 543-4551
Section 2 - (03) 543-4987
Section 3 - (03) 543-4910
FAX: (03) 545-3458
TELEX: 222-2251 SUMIT J
PRODUCTS: Section 1 - Shrimp, deepwater shrimp, scampi, lobster.
Section 2 - Salmon, Salmon roe, herring, herring roe (Pacific), crab.
Section 3 - Herring, Herring roe (Europe & Atlantic), bottomfish (black cod, ocean perch, etc.), Misk fish (smelt, ladyfish, butterfish, etc.), squid, mongo ika, abalone, other clam.

COMPANY: **Taito Seiko Co., Ltd.**
ADDRESS: Imaasa Bldg, 1-21, 1-chome Higashi-shinbashi,Minato-ku, Tokyo 105
PHONE: (03) 572-3235
FAX: (03) 571-7881
TELEX: J 25306
PRODUCTS: Tuna, squid, kensaki surimi, herring, capelin, capelin roe, red fish.

COMPANY: **Taiyo Fishery Co., Ltd.**
ADDRESS: 1-2, 1-chome Ohtemachi, Chiyoda-ku, Tokyo 100
PHONE: (03) 216-0811
TELEX: J 22278 OCEANFIS

Overseas Trade Department
FAX: (03) 287-0660
PHONE: (03) 284-0153, 0157
PRODUCTS: Deepsea prawn, herring, capelin black cod, bottomfish, fresh tuna, butterfish, salmon, salmon roe, herring roe, crab squid.

International Trade Department No. 1
FAX: (03) 201-6251
PHONE: Section 1 - (03) 284-0472
Section 2 - (03) 284-0473
Section 3 - (03) 284-0474
Section 4 - (03) 284-0158
PRODUCTS: Section 1 - Spanish origin octopus, cuttlefish, squid, hake.
Section 2 - Tuna, skipjack, billfish, squid.
Section 3 - Korean & Morocco origin tuna, octopus, cuttlefish, squid, flounder, snapper.
Section 4 - Korean origin octopus, cuttlefish, squid, cod, pollack, herring, flounder, salmon.

International Trade Department No. 2
FAX: (03) 201-6251
PHONE: Frozen Fish Section 1 - (03) 284-1488, 0154
Frozen Fish Section 2 - (03) 284-0150
Frozen Fish Section 3 - (03) 284-0470, 213-8652
PRODUCTS: Frozen Fish Section 1 - Indian shrimp, Aust. shrimp, NZ snapper, abalone, perna, horse mackerel.
Frozen Fish Section 2 - Shrimp, lobster.
Frozen Fish Section 3 - Shrimp, scampi.

Overseas Fisheries Operations Department
PHONE: (03) 287-0561/2, 216-0946
PRODUCTS: Tuna, Canned tuna, smoked tuna (Solomon).
Shrimp (Bangladesh, Indonesia).
Shrimp (Nigeria).
Shrimp (Madagascar).
Shrimp (Mozambique).

COMPANY: **Takaei Trading Co., Ltd.**
ADDRESS: 22-4, 6-chome Tsukiji, Chuo-ku, Tokyo 104
PHONE: (03) 542-4791
FAX: (03) 542-4794
TELEX: 2523736 TAKAEI J
PRODUCTS: Tuna, skipjack, marlin, shark, scallop.

COMPANY: **Takeichi & Co., Ltd.**
ADDRESS: 2F Fujimoto Bldg, 12-6, 3-chome Nihonbashi Kayaba-cho, Chuo-ku, Tokyo 103
PHONE: (03) 669-9161
FAX: (03) 669-3540
TELEX: J 23348 TAKESUN
PRODUCTS: Butterfish, squid, herring, herring roe, mackerel, red fish, lobster, crab, shrimp, miscellaneous fish.

COMPANY: **The Marine Foods Corporation**
ADDRESS: 13-1, 3-chome Shibaura, Minato-ku, Tokyo 108
PHONE: (03) 452-7121
FAX: (03) 452-8912
PRODUCTS: Cuttlefish, jellyfish, top shell, abalone, scallop, fish roe, squid, seaweed, sea urchin, octopus, surimi, clam, shrimp, cod, pollack, loco, salmon, salmon roe.

COMPANY: **Toei Reefer Line, Ltd.**
ADDRESS: 5F, Kokusai Hamamatsucho Bldg, 9-18, 1-chome Kaigan, Minato-ku, Tokyo 105
PHONE: (03) 438-3203
FAX: (03) 437-6176
TELEX: J 27529 FISHERY
PRODUCTS: Tuna, squid.

COMPANY: **Tokusui Co., Ltd. Tokyo Office**
ADDRESS: 4F Tokyo Suisan Kaikan Bldg, 5-9, Toyomicho, Chuo-ku, Tokyo 104
PHONE: (03) 533-5131
FAX: (03) 533-5173
TELEX: 2522697
PRODUCTS: Shrimp, tuna, black cod, red fish, butterfish, sole, swimming crab, etc.

COMPANY: **Tokyo Commercial Co., Ltd.**
ADDRESS: Playguide Bldg, 6-4, 2-chome Ginza, Chuo-ku, Tokyo 104
PHONE: (03) 534-1301/8
FAX: (03) 531-6045
TELEX: 0252-2432
PRODUCTS: Tuna, marlin, shark, misk fish, shrimp, lobster, deepwater prawn, black cod, red snapper, sea bream, salmon, crab, abalone, flounder, sole, kisu, octopus, cuttlefish, squid, mongo ika, loco, denton, ocean perch, pargo, blue fish.

COMPANY: **Tokyo Maruichi Shoji Co., Ltd.**
ADDRESS: 16-9, 2-chome Uchikanda, Chiyoda-ku, Tokyo 101
PHONE: (03) 256-1121
FAX: (03) 254-0467
TELEX: TOKMARU J 22427
PRODUCTS: Salmon, crab, shrimp, herring, squid, capelin, capelin roe, perch, pollack roe, cod roe, herring roe, fish roe, Alaska pollack, Pacific cod, arkshell meat, clam meat, abalone, seaweed, red snapper, silver, smelt, other fishes.

COMPANY: **Tokyo Seafoods Ltd.**
ADDRESS: 14-4, 1-chome Kyobashi, Chuo-ku, Tokyo 104
PHONE: (03) 561-4571
FAX: (03) 561-4575
TELEX: 2522527
PRODUCTS: Tuna, octopus, cuttlefish, squid, herring, salmon, crab, herring roe, salmon roe, cod roe, black cod, red fish.

COMPANY: **Toshoku Ltd.**
ADDRESS: 2-4, Nihonbashi Muromachi, Chuo-ku, Tokyo 103
PHONE: (03) 245-2178, 2185
FAX: (03) 245-2215
TELEX: J 22352
PRODUCTS: Tuna, nori, wakame.

COMPANY: **Toshoku Seafoods Ltd.**
ADDRESS: Sumitomo Tsukiji Bldg, 4-14, 5-chome Tsukiji, Chuo-ku Tokyo 104
PHONE: A Team - (03) 541-1171 B Team - (03) 541-1172
C Team - (03) 541-1173 D Team - (03) 541-1140
E Team - (03) 541-1176 F Team - (03) 541-1175
FAX: (03) 545-2203
TELEX: J 22352
PRODUCTS: A Team - Salmon, salmon roe.
B Team - Herring, herring roe.
C Team - Tuna, octopus, cuttlefish, squid.
D Team - Black cod, red snapper, horse mackerel, etc.
E Team - Crab.
F Team - Shrimp, tuna.

COMPANY: **Towa Foods Co., Ltd.**
ADDRESS: 2-1, North 3 East 3-Jo, Nishishoro, Shiranuka-cho, Shiranuka-gun, Hokkaido 088-05
PHONE: (01547) 5-2014
FAX: (01547) 5-2329
PRODUCTS: Salmon roe, ikura.

COMPANY: **Toyota Tsusho Kaisha, Ltd.**
ADDRESS: 3-18, 2-chome Kudanminami, Chuo-ku, Tokyo 102
PHONE: (03) 230-8390, 8081/3, 8087
FAX: (03) 230-8055, 8042
TELEX: J 22827
PRODUCTS: Squid, tuna, shrimp, lobster, salmon, capelin, wakame, black cod, loco, mackerel, butterfish.

COMPANY: **Toyo Menka Kaisha, Ltd.**
ADDRESS: Kokusai Shin-akasaka Bldg, 1-20, 6-chome Akasaka, Minato-ku, Tokyo 107
PHONE: (03) 588-6911
Section 1 - (03) 588-6917
Section 2 - (03) 588-6927
FAX: (03) 588-6627/8
TELEX: J 22421, J 22548, J 22332
PRODUCTS: Section 1 - Shrimp, lobster.
Section 2 - Salmon, salmon roe, herring, herring roe, herring roe on kelp, king crab, snow crab, red fish, capelin, capelin roe, squid, horse mackerel, mackerel, cuttlefish, jellyfish, abalone, sea urchin, Geoduck, octopus, loco, flounder, sole, red snapper.

COMPANY: **Toyo Suisan Kaisha, Ltd.**
ADDRESS: 13-40, 2-chome Kohnan, Minato-ku, Tokyo 108
PHONE: (03) 458-5161
FAX: (03) 474-8900
TELEX: J 28606
PRODUCTS: Salmon roe, herring roe, tanner crab, king crab, shrimp, eel, wakame, bottomfish, salmon.

COMPANY: **Wako Marine, Inc.**
ADDRESS: 5-13, 3-chome Tsukiji, Chuo-ku, Tokyo 104
PHONE: (03) 543-0501
FAX: (03) 543-0867
TELEX: 2522713 WAKOMA J
PRODUCTS: Tuna, shrimp, crab, salmon, scallop, shark, swordfish, black cod, halibut, cuttlefish.

COMPANY: **Yuasa-Funashoku Co., Ltd.**
ADDRESS: 18-4, 4-chome Miyamoto, Funabashi City, Chiba Pref 273
PHONE: (0474) 32-8351
FAX: (0474) 31-9757
TELEX: 2983394 YUASA J
PRODUCTS: Shrimp, lobster, salmon, salmon roe, herring, herring roe, black cod, snow (opilio), etc.