

# Annual Report on the Developments in the Fisheries Industry in FY 2003

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## **Introduction**

An annual report on the trends of the Japanese fisheries is prepared by the government to report new developments in the industry to the Diet under the Basic Law on the Fisheries Policy, which was established in 2001. The publication of the report is expected to explain the fisheries policy to people engaged in fishery administration or the fisheries industry and also to deepen the understanding of the general public about the fisheries.

In an effort to improve the style of this report, we started it with an article titled “Topics: Major Developments in the Fisheries in the Previous Year” and dedicated Chapter I to a special feature. Moreover, we have done our best to present the paper in clear and simple language to make it easier to read.

The opening article titled “Topics” introduces readers to five major developments in the fisheries in the previous year including the use of a list of officially approved tuna fishing ships to prevent illegal fishing activities.

Chapter I includes a special feature titled “The world’s supply and demand for fishery products and changes in the consumption of fishery products in Japan,” which firstly summarizes the world’s supply and demand for fishery products and then explains how Japan’s consumption of fishery products affects the world’s supply and demand.

In recent years, fisheries trade has become an increasingly important topic in international negotiations under WTO and bilateral negotiations for FTA. With an increase in imported fishery products sold in Japan, people have become more interested in receiving information about these products. Japan, which used to be the world’s largest exporter in value of fishery products, has become the largest importer of fishery products both in value and volume. The fishery products imported and consumed by Japan are affected by the trends in the world’s supply and demand for these products, while the trends in Japan’s consumption of fishery products, in return, affect the world’s supply and demand for these products. In this way, Japan and the world’s fisheries markets have a close correlation with each other. As fisheries resources are limited natural resources that will be exhausted without proper management, Japan needs to make efforts to promote the sustainable use of the resources through proper conservation and management not only for domestically produced fishery products but also for imported fishery products.

Chapter II describes the developments in the Japan’s fisheries from FY 2002 including Japan’s supply and demand for fishery products, international developments

surrounding Japan's fisheries, and fishery business management.

## **Topics: Major Developments in the Fisheries in the Previous Year**

### **1. Use of the positive list to prevent illegal tuna fishing**

Regarding frozen bluefin tuna, frozen bigeye tuna, and frozen swordfish, Japan has required, since November 2003, these products to be checked whether each of them has been caught by a fishing vessel included in the positive list, and also whether each of these products is in compliance with other conditions in order to be imported to Japan. The positive list is a list of fishing vessels officially approved by a relevant regional fishery management organization.

The sustainable use of tuna resources requires cooperation among many countries because they migrate throughout the world's Oceans, and they have been internationally managed by regional fishery management organizations, each of which has been established to cover different oceans such as Atlantic Ocean or Indian Ocean.

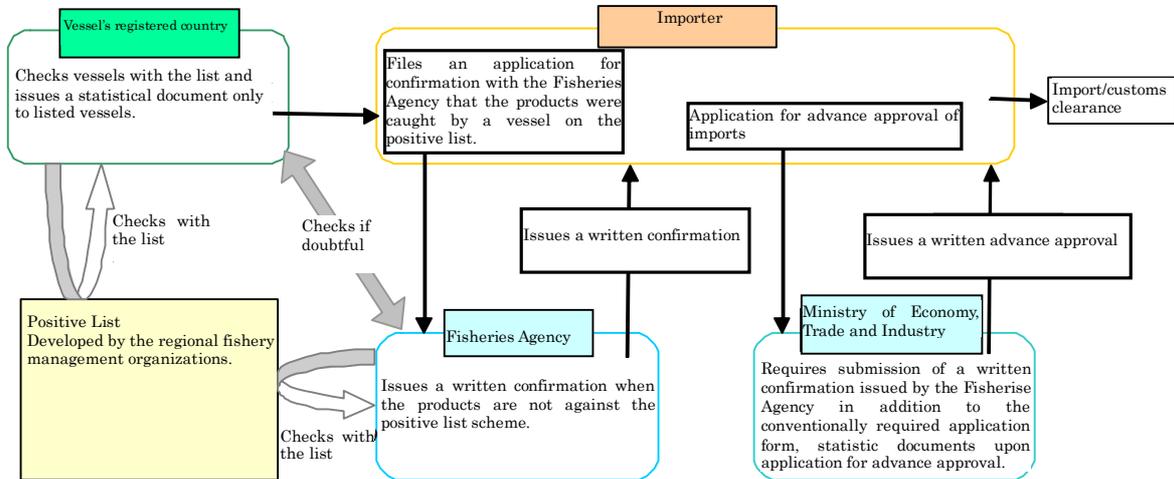
However, it has been reported that some vessels simply register with countries that have neither participated in nor extended cooperation to any regional fishery management organization in order to engage in illegal, unreported and unregulated (IUU) fishing activities, elimination of which is an urgent problem to be solved immediately. We have identified countries that let such fishing activities undermine the international management regime of tuna resources and have restricted imports of tuna products from those countries. We have also requested importers to refrain from trading tuna caught by any ship on a list of IUU fishing vessels.

Despite these measures, IUU fishing vessels have reportedly continued their fishery operations by frequently changing the nationality and name of vessels.

As the world's largest consumer of *sashimi* tuna (sliced raw tuna), Japan plays an extremely important role in promoting the sustainable use of tuna resources in the world. We need to fulfill the responsibilities as a tuna fishing and consuming country and take the initiative in cracking down on IUU fishing.

Therefore, the positive list scheme has been implemented to prohibit any import of tuna unless it is confirmed to have been caught by a fishing vessel listed on the positive list and also to be in line with other conditions.

## Flow of the Positive List Scheme



## 2. Outbreaks of Koi Herpes

From mid-October 2003, cultured carp died in large numbers in Kasumigaura Lake and Kitaura Lake. An investigation showed that this was the first case of mass infection of the Koi Herpes Virus (KHV) in Japan.

KHV is a fish disease unique to carp, which has been recently discovered. The virus is not contagious to any other species of fish other than carp and has no effect on people who have eaten infected fish either. The spread of the disease, which kills the infected carp at a high rate, could cause great damage to aquaculture operators of carp and other associated people. For this reason, it has been designated as one of the diseases<sup>1</sup> under the Law for Ensuring Sustainable Aquaculture Production since June 2003. Under the Law, measures to prevent the spread of the disease (restrictions on transfer of carp and order for incineration of infected carp, etc.) will be taken if a carp infected with the disease is detected. The disease has also become subject to the quarantine system<sup>2</sup> under the Fisheries Resources Protection Law since July 2003.

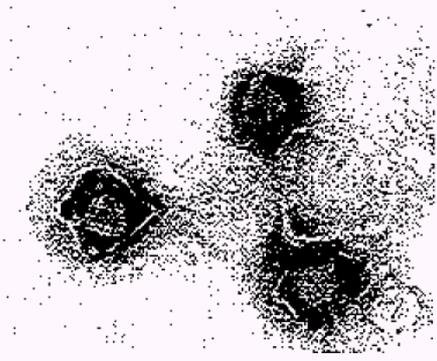
Since the first outbreak of KHV, KHV-infected carp have been discovered in 23 prefectures as of the end of January 2004. Although the virus has not caused significant damage except for in the cases in Kasumigaura and Kitaura, further efforts are being made to realize early detection and infection prevention in order to stop further spread of the disease.

In Japan, carp has long been a part of regional dietary culture as a nutritious food. The fish has also been used for ornamental purposes. In order to protect such an important species, more efforts will be made to promote studies and research that will contribute to developing effective prevention measures.

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<sup>1</sup> Diseases designated by the Law for Ensuring Sustainable Aquaculture Production :There are ten designated diseases in total, which are the Koi Herpes Virus and another disease particular to Cyprinidae fish, four diseases particular to Salmonidae fish, and four diseases particular to Penaeidae shrimp.

<sup>2</sup> Quarantine system under the Law for Conservation of Aquatic Resources: Any person who imports seeds of any of the designated aquatic animals must obtain prior permission from the Minister of Agriculture, Forestry and Fisheries. When applying for permission, the importer must submit an inspection certificate issued by the competent governmental authority of the exporting country that certifies that the imported animal is not infected with any of the designated diseases. Currently, 11 diseases are subject to restrictions under the quarantine system, which are the 10 diseases designated by the Law for Ensuring Sustainable Aquaculture Production and a disease particular to Penaeidae shrimp.



KHV observed by electron microscope (the diameter of the hexagonal structure is about 100 nanometers) (1 nm=1/10 billion meter)

### **3. The world's first successful artificial production of elver**

In July 2003, the National Research Institute of Aquaculture of Fisheries Research Agency (Incorporated Administrative Agency) announced its unprecedented success in artificial production of elver.

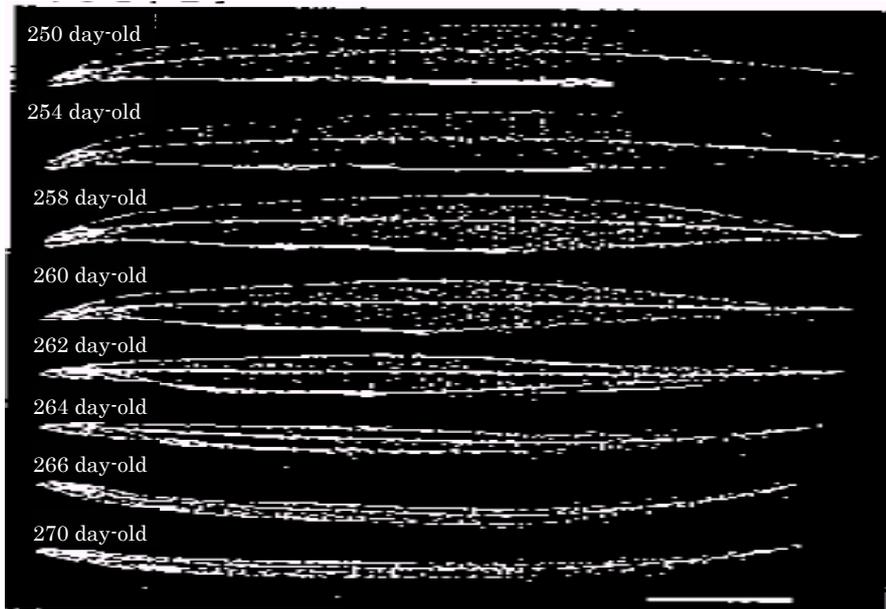
Previously artificial seed production technology had advanced to such an extent that it was possible to raise wild-caught elvers to the adult stage and have them spawn, and then raise the hatched pre-leptocephalus to leptocephalus (willow leaf-shaped eel larvae). The technology, however, always fell just one step short of succeeding in raising the leptocephalus to elver stage. One of the reasons for the failure was that we did not know what leptocephalus ate in their natural environment.

Recent marine research activities have revealed eel spawn in the sea area east of the Philippines. Unfortunately, researchers have only been able to capture leptocephalus and have been unable to find adult eel, fertilized eggs, or pre-leptocephalus.

In most cases, artificial seed production is conducted with reference to the life of the species concerned in nature. A large part of the life of eels, however, has not been revealed. We therefore had to make assumptions based on fragmentary data about eels through a process of trial and error. This time, we improved the breeding method and saw 50-60mm-sized leptocephalus aged 230 to 260 days start the metamorphosis into elver over a period of about 20 days.

Today's aquaculture of eel depends completely on wild-caught elver. As a result, the production of eel is greatly affected by the amount of catches of elver. Aquaculture operators of eel have therefore strongly hoped to develop the artificial seed production technology for eels that would enable them to complete the lifecycle of eels from eggs to the adult stage in an aquaculture environment. It has been proven that the elver bred by the artificial seed production technology grow well and can be used as seeds for aquaculture. The next step is to establish mass-production technology applicable to elver.

(Photograph 1)



(Scale: 10 mm)

(Photograph 2)



(Photograph 1) The metamorphosis of leptocephali into elvers cultivated by artificial seed production technology (a series of photographs of the same leptocephalus aged 250-270 days),

(Photograph 2) An eel reared by artificial seed production technology (about 20 cm in total length).

#### **4. Measures taken in the field of fisheries to promote the comprehensive strategy “Biomass Nippon”**

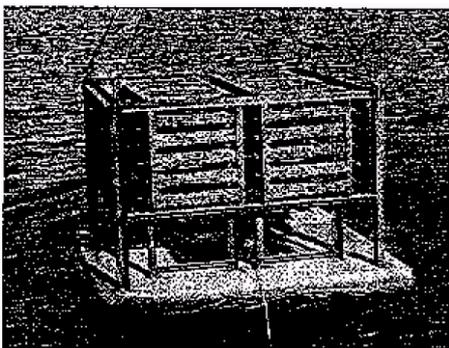
In pursuit of affluence and convenience of our life, we have depended heavily on fossil fuels such as coal and oil for our livelihood. Such a lifestyle has created a social system of mass-production, mass-consumption, and mass-disposal, causing various problems including global warming, accumulating waste and hazardous substances.

In order to reduce the amount of waste and make effective use of resources, we have to transform our society to a recycling-oriented society. For the transformation, the use of biomass (re-usable organic materials derived from plants or animals excluding fossil fuels) is important. In order to promote biomass use, the government adopted the “Biomass Nippon” strategy at a cabinet meeting in December 2002 and implemented related measures.

In the fisheries industry, some people have started recycling large quantities of shells of scallops and oysters, which are usually thrown away as waste by aquaculture operators, as a resource to build artificial fish reefs and also to treat waste water by using their function as simple and effective filtering material to reduce the levels of nitrogen and phosphorus in waste water.

While most shells of crabs and shrimps used to be discarded as waste, people now use chitin and chitosan contained in the shells as a resource for various products such as healthy foods, artificial skin, and soil enrichment.

While the use of fishery biomass is still in the beginning stage, it is steadily expanding. In the future, we hope to discover more ways of using today’s wastes as beneficial for our lives.



Artificial fish reefs made from seashells that used to be discarded as waste (Akitsu-cho, Hiroshima Prefecture)

## 5. New round of negotiations at the WTO : The results of the WTO Ministerial Conference in Cancun



WTO Ministerial Conference in Cancun (Opening ceremony: Photograph from the WTO website)

At the 4th World Trade Organization (WTO) Ministerial Conference in November 2001, a new round of WTO negotiations was started with the deadline for the conclusion of the negotiations set on January 1, 2005. In September 2003, the 5th WTO Ministerial Conference was held in Cancun, Mexico, in order to discuss the interim results of the negotiations.

Regarding fisheries and fishery products, participants in the WTO meetings discussed such problems as fisheries subsidies and hindrances limiting market accessibility such as tariffs on fishery products, the last of which has been handled by the Negotiating Group on Market Access for Non-Agricultural Products. In May 2003, the chairperson of the Negotiating Group proposed that fishery products should be subject to the negotiations for sectoral tariff removal. In the Cancun Ministerial Conference and its preparatory meetings however, negotiations were conducted mostly on a tariff reduction method and sectoral tariff removal and not on any specific sector or product item. The last Ministerial Conference ended without reaching any agreement because the gap between developed countries and developing countries remains wide open in terms of a stance toward the so-called Singapore Issues (four issues: investment, competition, trade facilitation, and transparency in government procurement). At the Ministerial Conference, no negotiations were conducted on fisheries subsidies.

Japan will continue to make utmost efforts to advocate the sustainable use of fishery resources and stress the importance of consideration for the roles of fishing villages.

With regard to tariffs, we will do our best to prevent fishery products from being subject to negotiations for sectoral tariff removal and to make a tariff reduction method to be desirable for Japanese fishery products.

## **Special Feature: The world's supply and demand for fishery products and changes in the consumption of fishery products in Japan**

### **1. The world's supply and demand for fishery products**

The volume of world's production of fishery products has almost doubled in the past 30 years, having reached about 130 million tons. The volume would be around 140 million tons if seaweed (seagrass) was included.

Catches all over the world leveled off in the 1990s. While the production volume of marine bottom fish which includes crustacean, mollusk such as shellfish, and freshwater fish such as carp has been stagnant, aquaculture production has increased.

Japan, the U.S., Canada, EU (15), and the former USSR, which accounted for more than 40% of the world's fishery production in volume 30 years ago, now account for less than 20% these days. On the other hand, developing countries have increased their presence. In particular, China has come to account for about one third of the world's fishery production in volume in recent years.

Data about the supply and demand for seafood in each region shows that China as well as the developed region including EU, North America, and Japan are large net importers, whereas South America is the major net exporter (Figure I-1).

(Regional differences in supply and demand)

Data on the production and supply of fishery products in major regions shows regional differences in terms of production volume and supply volume for consumption per person, and popular fish species (Figure I-2).

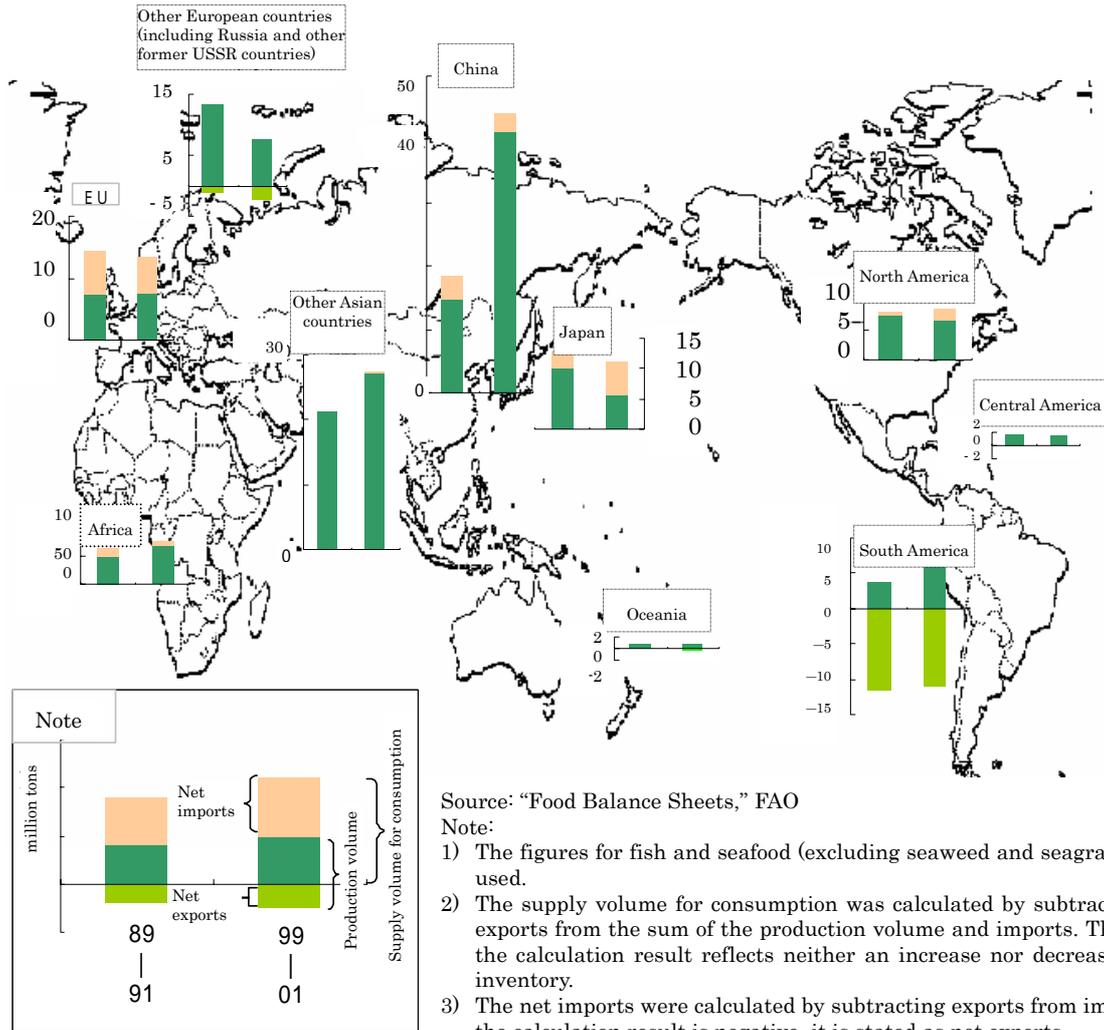
In EU, for example, major fish species for human consumption are marine bottom fish such as cod. Net imports have increased as the domestic production volume has decreased due to deterioration of the resource level in the surrounding waters.

In North America (the U.S. and Canada), a sufficient amount of marine bottom fish is produced for domestic consumption, although the net imports of crustacean such as shrimp is still high.

In China, the supply amount of seafood for human consumption per person has increased fivefold since the early 1980s. The increase was due mainly to a rise in the production of shellfish as well as fresh water fish such as carp, the aquaculture production of which has increased significantly.

In Japan, the supply of seafood for human consumption per person is larger than that of any other region. The consumption of seafood far exceeds the domestic production volume.

**Figure I-1 Fishery Production and Consumption in Major Regions in the World  
(Comparison between the average for 1989-1991 and that for 1999-2001)**

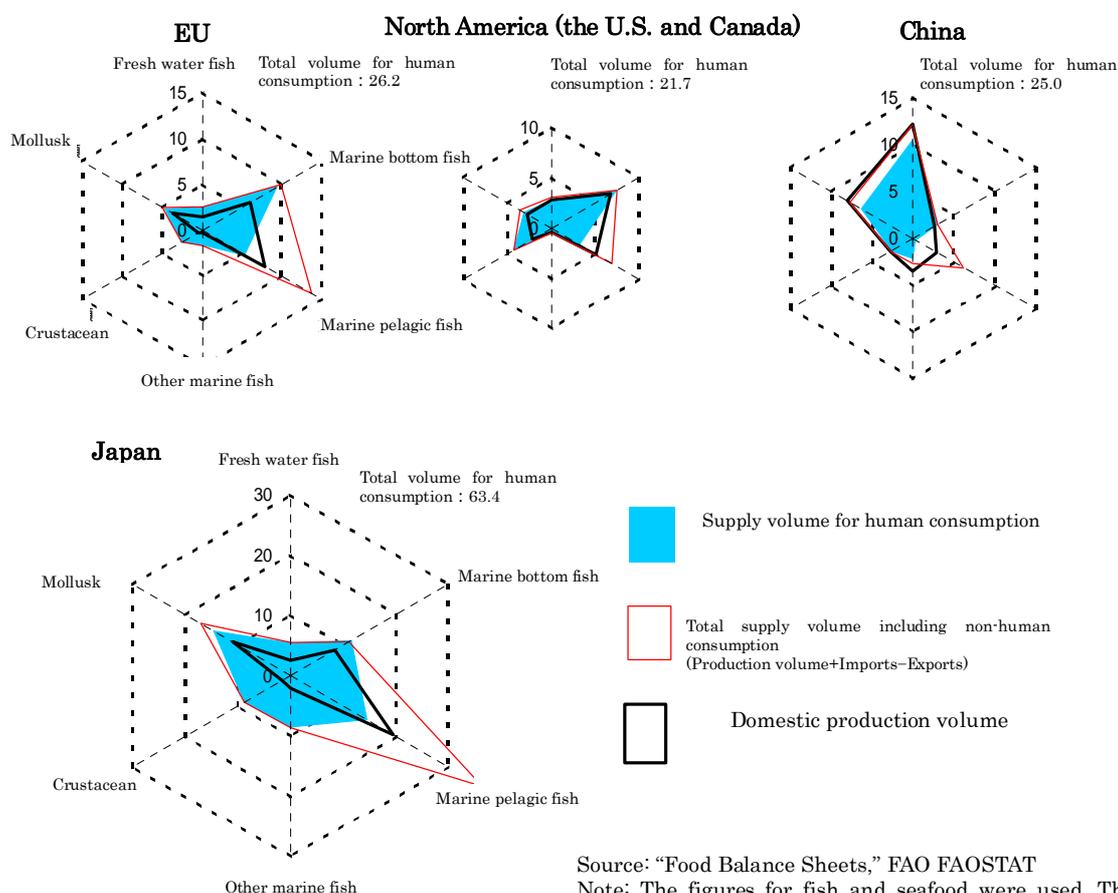


Source: "Food Balance Sheets," FAO

Note:

- 1) The figures for fish and seafood (excluding seaweed and seagrass) were used.
- 2) The supply volume for consumption was calculated by subtracting the exports from the sum of the production volume and imports. Therefore, the calculation result reflects neither an increase nor decrease in the inventory.
- 3) The net imports were calculated by subtracting exports from imports. If the calculation result is negative, it is stated as net exports.
- 4) The figure for China is deemed to include the figures for Hong Kong and Taiwan.

Figure - 2 Domestic Production Volume and Supply Volume of Seafood per Person (the average for 1999 - 2001)



Source: "Food Balance Sheets," FAO FAOSTAT  
 Note: The figures for fish and seafood were used. The unit of measure for the above graphs is kg/person/year.

## 2. Increase in fishery product trade and its trends in recent years

(Increase in fishery product trade)

The world's fishery product trade has increased with a rise in the demand for fishery products and also in the production volume of fisheries and aquaculture. The trade volume of fishery products accounts for about 30 to 40% of the total production volume on an original fish weight basis (38% in 2001). In 2001, the fishery product trade stood at about US\$60 billion in value and about 27 million tons (import basis) in product weight.

EU, North America, and Japan are the three largest importing country and regions, accounting for most of the world's imports (Figure I-3).

In all these three areas, the most imported fish species in value are shrimp, tuna,

salmon and trout, and crabs. In addition, EU imports a lot of marine bottom fish such as cod, while North America buys a great amount of crustacean such as shrimp and crabs from foreign countries. In Japan, the most imported fish species in value are shrimp followed by tuna, salmon and trout, and crabs.

(Trends in recent years)

While the three areas (Japan, North America, and EU) remain the largest importers, the proportion of their imports to the world's total imports has been decreasing. On the other hand, other countries and regions have been increasing their presence as importers in the world.

China, which has seen its imports increase in recent years, was the world's second largest importer in volume only after Japan in 2000 and 2001 and was the world's largest importer of fish meal. Fish meal for non-human consumption accounted for 40% of the total import of fishery products to China in 2001.

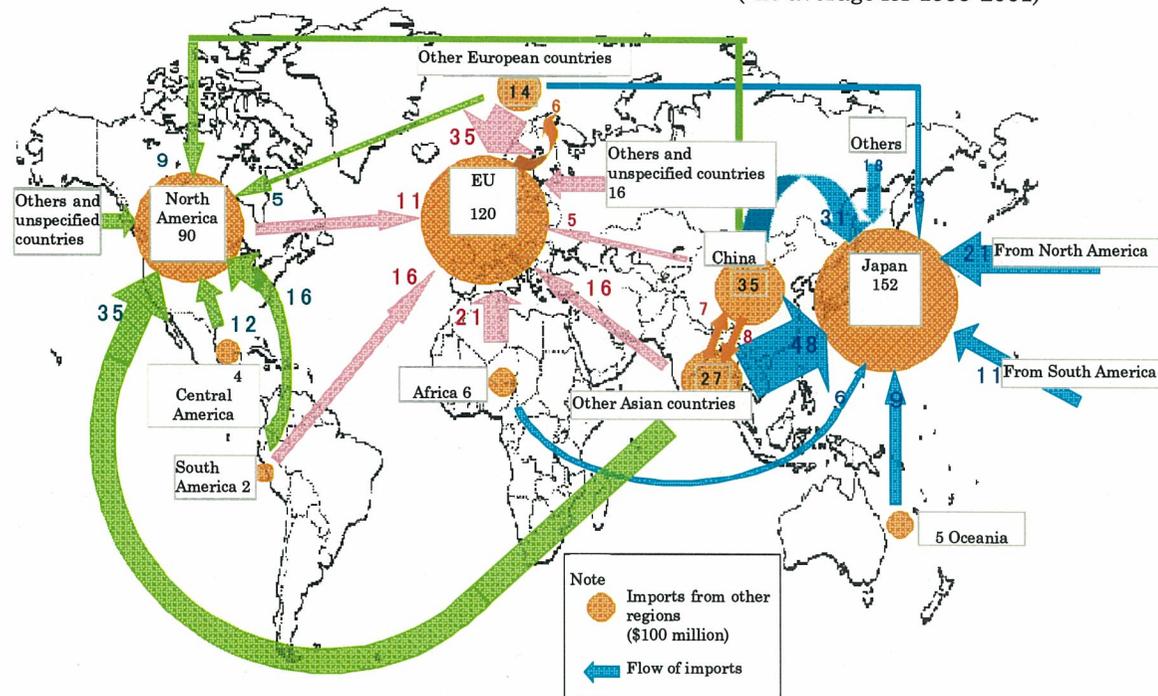
According to the Chinese Fisheries Yearbook, China, which has also seen its imports of fishery products for human consumption increase. However, about two thirds of the total volume of imported fishery products (1.41 million tons) excluding fish meal were imported from such countries and regions as Russia, the U.S., EU, and Japan in 2001, and exported after being processed in China under outsourcing processing agreements with these countries and region.

According to data on the world's fishery and aquaculture production of major fish species, the volume of aquaculture production of shrimp as well as salmon and trout has increased (Figure I-4). In particular, large-scale aquaculture production of salmon and trout has increased in the 1990s mainly for the purpose of exporting them.

While the production of tuna mainly depends on fishery catches, there has been an increase in the trade volume of tuna cultured in Australia, Mediterranean countries, and other countries.

Figure I-3 Major Flows of Imports in the World's Fishery Product Trade

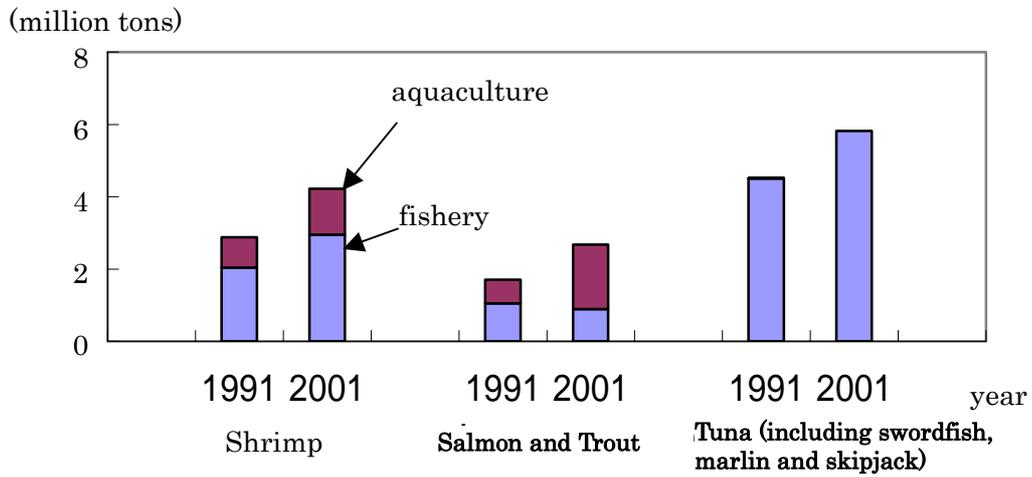
(the average for 1999-2001)



Source: "Yearbook of Fishery Statistics (Commodities) 2001- Trade Flow by Region (Imports)-" FAO  
 Information about the value of imports to Japan and the countries exporting to Japan was derived from the "Trade Statistics" issued by the Ministry of Finance.

- Note: 1) The imports to Japan in yen were converted into US dollars at 113.91 yen (1999), 107.77 yen (2000), and 121.53 yen (2001) to a US dollar.  
 2) The circles and accompanying figures in the above map indicate the value of imports (in US\$100 millions) from other regions (calculated by subtracting the imports of the countries within the regions from the total imports of all region).  
 3) The arrows and accompanying figures in the above map indicate the exporting countries and amounts (in US\$100 millions). Any export less than \$500 million is not indicated by an arrow and is included in the amount from "Others and (unspecified) countries."  
 4) The imports to China are deemed to include those to Hong Kong and Taiwan. The exports from China to Japan also include those from Hong Kong and Taiwan.

**Figure I-4 Fishery and Aquaculture Production of Shrimp, etc., in the World**



Source: "FISHSTAT (Capture production 1950-2001) and (Aquaculture production 1950-2001)," FAO

### **3. Changes in the consumption and trade of fishery products in Japan**

(Characteristics of the fishery product trade of Japan)

In 1976 (in the following year, the U.S. and the former USSR established 200-mile fishing zones), Japan was the world's largest exporter of fishery products in value (ranked fourth in volume). Exports have declined both in value and volume since the late 1980s mainly because Japan has lost its competitive edge due to a decrease in material fish in volume and a rise in the exchange rate of the yen.

On the other hand, the imports of fishery products to Japan has kept increasing to meet the rising demand for shrimp and other seafood and also to substitute for decreasing domestic products due to the withdrawal of Japanese fishing vessels from foreign 200-mile fishing zones. The imports to Japan grew very rapidly from 1985, when the Plaza Accord altering foreign exchange rates was established, to the mid-1990 (Figure I-5).

While the pace of increase somewhat slowed down in the late 1990s, the imports to Japan (¥1,762.2 billion, 3.82 million tons) was ten times larger than the exports from Japan (¥136.5 billion, 310,000 tons) in 2002. Japan is now the largest importer of fishery products, both in value and volume, accounting for 23% in value or 14% in volume of the world's total imports in 2001.

The sustainable use of fishery resources and aquaculture production depend largely on the way Japan consumes fishery products. Japan has taken part in implementing international measures against Illegal, Unreported and Unregulated (IUU) fishing of tuna for sustainable use of world tuna resources.

(Recent trends)

As the lifestyle of Japanese people has changed, household food consumption expenses spent on eating out and buying prepared foods has increased, whereas expenses spent on purchasing seafood has been in a decreasing trend.

These days, consumers mainly buy fishery products at supermarkets. Business consumers and major mass merchandisers play more important roles at the end of the distribution network of fishery products. Such market order stable volume of fishery products from suppliers in conformity with certain specifications at a stable price and deliver them regularly. Increasing severe price competition has allowed market to demand even lower prices.

China is the largest exporter of fishery products to Japan, accounting for 18% of the

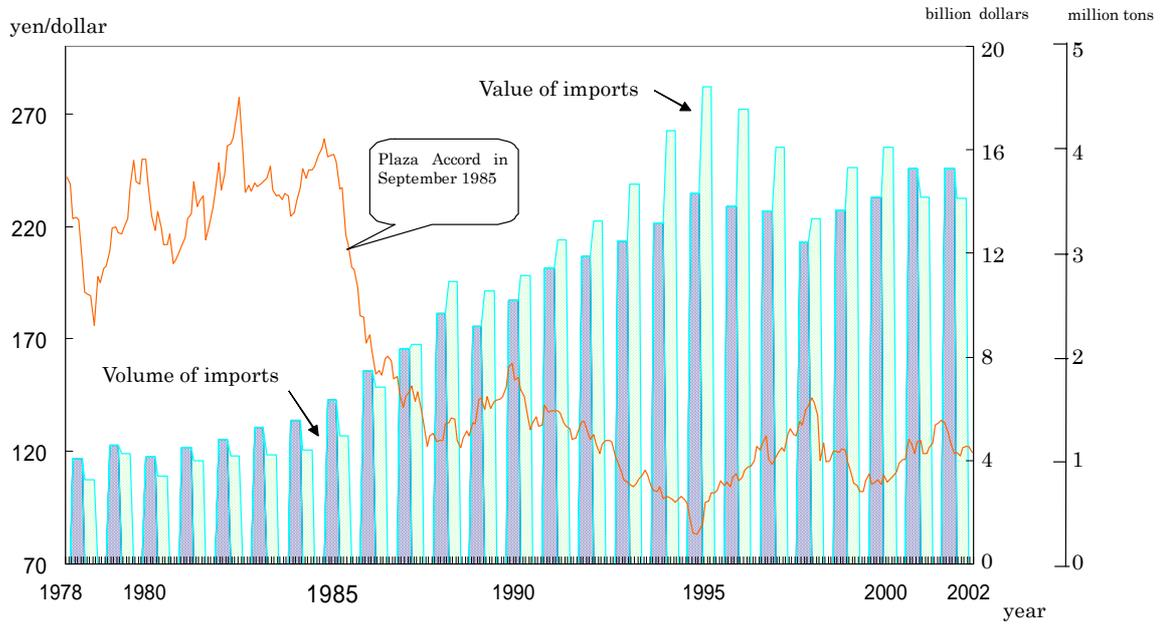
total imports to Japan both in value and volume in 2002. The imports of fishery products from China to Japan have increased in volume and also the proportion of processed or prepared food items such as fillets and prepared meals has increased (Figure I-6).

The same trend is seen in the imports from Thailand and Vietnam, etc., which reflects the efforts of Japanese companies to reduce production costs by outsourcing the task of preparing and processing fishery products to other countries where personnel costs and other costs are much lower compared to Japan.

With the intensification of competition in the restaurant industry and the retail industry, companies in these industries buy fishery products from any supplier, regardless of its nationality, that are able to provide the requested items and required quality at a favorable price, contributing to further globalization of the Japanese market for fishery products.

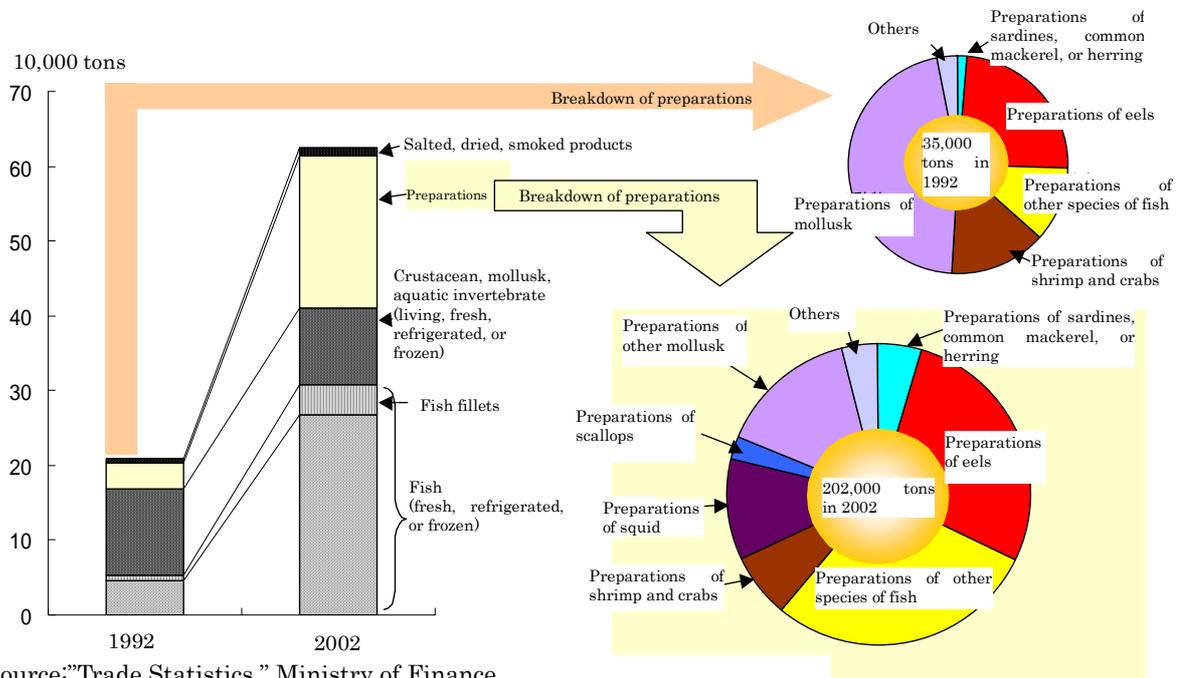
Under these circumstances, Japan has many challenges to tackle to ensure the healthy development of its fisheries industry in the future. First of all, it is important to address the growing public concern about food safety and reliability by taking effective measures. Moreover, further efforts must be made to add more value to fishery products and also to decrease its operating cost in order to meet the expectations of consumers and also to increase the competitiveness of Japanese fishery products on a global basis.

**Figure I-5 Value and Volume of Fishery Products Imported to Japan and Exchange Rate**



Source: "Trade Statistics," Ministry of Finance, "Financial and Economic Statistics," Bank of Japan

**Figure - 6 Imports of Seafood for Human Consumption from China to Japan (by imported item weight)**



Source: "Trade Statistics," Ministry of Finance

Note: Such products as living fish, fish meal, sea sponges, and seaweed are excluded.

**Measures to increase exports ---Example of fishermen in Hokkaido-----**

The Kushiro Motorship Fisheries Cooperative Association, which is an association of offshore trawl fishery operators and other operators, has started shipping of fresh walleye pollack since 1999. Around the same time, South Korea agreed to withdraw its pollack fishery from Japanese waters and started importing the fish from Japan to make up for the decrease in catches. Nowadays, the association ships most of fresh pollack to South Korea.

Other fishermen has taken measures to increase the export of chum salmon and has succeeded in increasing the exports of the fish to China and other countries in recent years.

## II. Developments in the Japanese Fisheries since 2002

### 1. Supply and demand for fishery products in Japan

#### (1) Domestic fishery production

(Fishery and aquaculture production)

In 2002, Japan saw its fishery and aquaculture production decrease 4% in volume from the previous year to 5.88 million tons (Table II-1) and also shrank 3% in value to 1,718.8 billion yen (Table II-2).

(Fishery resources in surrounding waters)

According to the results of a resource assessment conducted in 2003 on major fishery resources in the waters surrounding Japan, the levels of fishery resources are low for about half of the species or stocks on which the assessment was conducted.

Since FY 2003, such resource restoration plans as the “Resource Restoration Plan for Flatfish and Sandfish in the Northern Part of the Sea of Japan” and the “Resource Restoration Plan for Pacific Stock of Common Mackerel” have been implemented. In total, seven plans for 13 fish species have been implemented, including the four plans that have been implemented since FY 2002 (Figure II-1). Resource restoration plans sometimes require fishery operators to suspend fishing or take other measures that could directly damage financial earnings. It is therefore necessary for the parties concerned to make coordination on the details of the plans. Despite such a difficulty, more restoration plans need to be developed and implemented in the future.

(Aquatic environment)

The aquatic environment of such areas as coastal waters, which are important for fishing and aquaculture, are threatened by such factors as the influx of wastewater from factories and households, etc., as well as shrinkage in the size of seagrass beds and tidelands, land reclamation, and sea gravel extraction. In particular, the diminishment of seagrass beds has a tremendously negative effect on coastal fishery because seagrass beds are essential for aquatic animals to spawn and secure places for the fry to grow. Reason for the disappearance of about 40% of the seagrass beds is unknown.

According to past investigations, there are direct and indirect causes attributable to human activities. Direct causes include land reclamation, while indirect causes include a stagnant water flow caused by buildings or other structures and a change in the distribution of underwater sand. On the other hand, natural causes include an increase

in water temperature and feeding damage. In addition, a decrease in the clarity of water due to muddiness or contamination was pointed out as another reason, according to a study on zostera zones.

In 2003, the infestation of large jellyfish hindered fishery operations for two years in a row.

The causes of such infestation are mostly yet to be determined. Efforts are being made to develop technology to predict the spread of the infestation and possible affected areas and also to prevent jellyfish from coming into fishnets. In February 2004, the International Jellyfish Workshop was held with the participation of experts from South Korea, China, and Japan in an effort to identify the causes of jellyfish infestation.

Inland water fisheries and the ecosystem have been damaged by foreign fish species such as black bass, which has widened its habitat after being introduced into Japan. In order to solve this problem, it is necessary for Japanese nations to develop a deeper understanding of fishing environments and ecosystem preservation.

Since mid-October 2003, koi herpes has broken out and begun to cause damage. Measures to prevent the spread of the disease have been taken. Regarding the flavobacterium infection, the Committee against Flavobacterium of Ayu (sweetfish) was established by concerned organizations. The committee has been engaging in such activities as spotting the breakout of the disease, promoting the use of seed history cards, and checking whether the disease has spread from Ayu to other fish species. It is therefore necessary to further enhance measures to prevent and cure fish diseases such as gathering information, monitoring disease, and providing instructions at productions sites.

#### **Column: Collaboration between fishery operators and forestry operators**

It has long been recognized among fishery operators that forests play important roles in conserving fishery resources. People call such forests, “fish-gathering forests.” In recent years, fishery operators recognized the importance of such roles of forests and started a reforestation movement throughout Japan.

Another nationwide movement is the creation of fish reefs with thinning wood. In some cases, fishery operators go into a forest to cooperate with forestry operators. The movement, which was started as an effort to promote the effective use of unused lumber from thinning, has promoted mutual understanding and cooperation between fishery operators and forestry operators.

**Table II-1 Fishery and Aquaculture Production by Volume**

(Unit: 10,000 tons)

	1992	1997	2001	2002	Rate of increase or decrease (%) 2002/2001
Total	927	741	613	588	4
Marine fishery	777	598	475	443	7
Far seas fishery	127	86	75	69	8
Offshore fishery	453	334	246	226	8
Coastal fishery	197	178	155	149	4
Marine aquaculture	131	127	126	133	6
Inland water fisheries and aquaculture	19	15	12	11	4

Source: "Annual Statistics of Fishery and Aquaculture Production," Ministry of Agriculture, Forestry and Fisheries

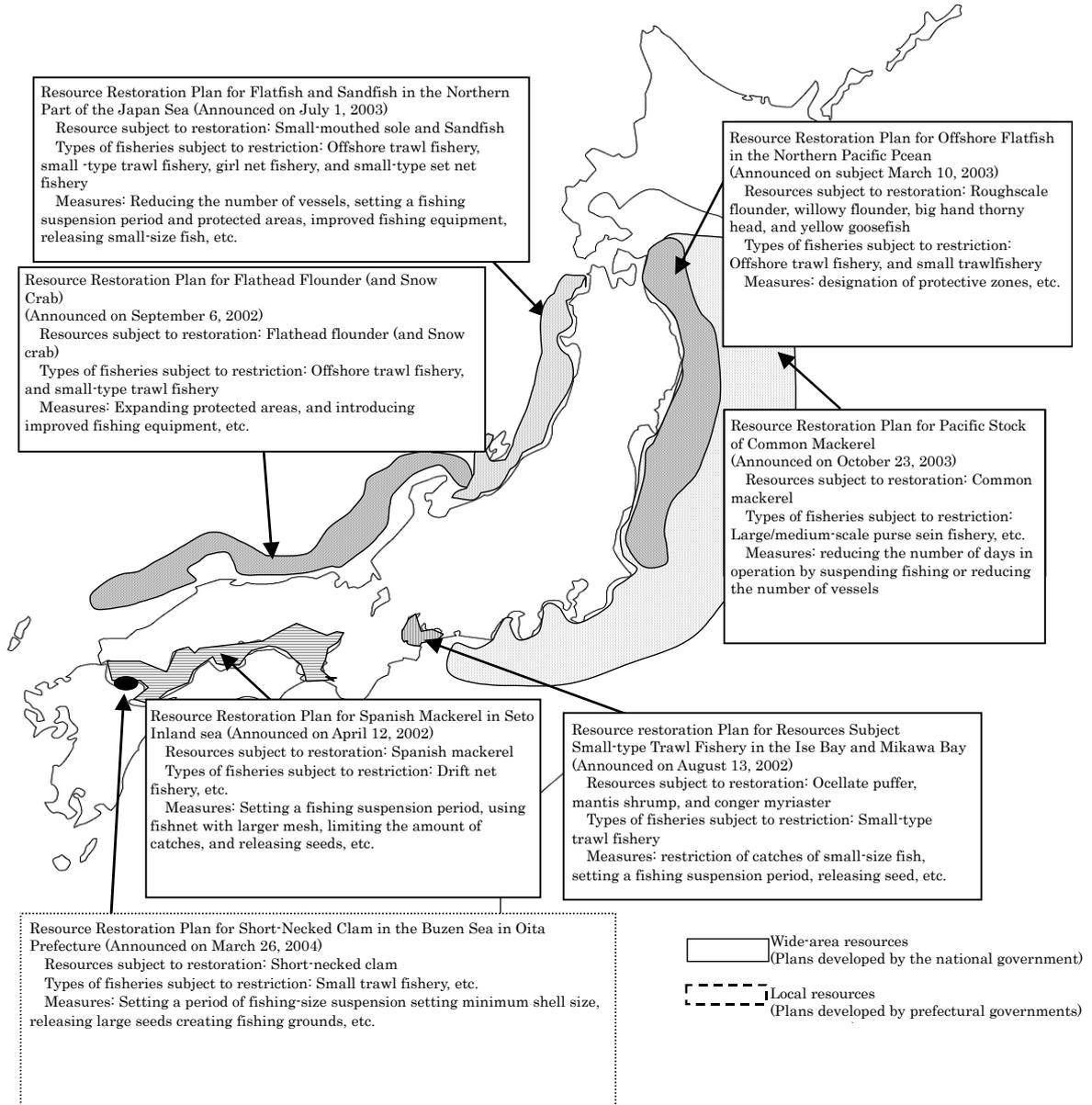
**Table II-2 Fishery and Aquaculture Production by Value**

(Unit: 100 million yen)

	1992	1997	2001	2002	Rate of increase or decrease (%) 2002/2001
Total	26,070	22,226	17,803	17,188	3
Marine fishery	18,272	14,674	11,651	11,359	3
Far seas fishery	4,501	2,633	2,009	1,813	10
Offshore fishery	6,107	5,377	4,206	4,130	2
Coastal fishery	7,663	6,664	5,435	5,416	0.4
Marine aquaculture	6,126	5,989	5,029	4,785	5
Inland water fisheries and aquaculture	1,665	1,556	1,116	1,039	7

Source: "Annual Statistics of Fishery and Aquaculture Production," Ministry of Agriculture, Forestry and Fisheries

**Figure II-1 Overview of the Resource Restoration Plans (as of March 2004)**



## **(2) Processing and marketing of fishery products**

(Production volume of processed fishery products)

The production volume of major items of processed fishery products has been on the decline as a whole mainly due to shrinking sales and unstable raw material supply. In 2002, the production volume of smoked products rose thanks to an increase in squid products, while that of salted products fell due to a decrease in such products as salted common mackerel. As a whole, in most product items amount of production volume decreased. According to the data compiled every five years since 1991 on revenue and expenditure of fishery processing operators, the proportion of operators of being in the red has been on the rise (18% in 1991, 35% in 2001). They have been facing difficult business management problems such as a decreasing supply of raw materials and intensifying competition over price and quality.

(Marketing of fishery products)

In 2002, the total catches landed at major fishing ports in the places of origin and listed in a nearby market decreased 9% compared to the previous year. The average price was 217 yen/kg. According to data on the 3-year average volumes and values of major fish species for the period from 1995 through 1997 and from 2000 through 2002, the value of landed fish has decreased for most fish species (Figure II-2). Prefectural governments have been taking measures to promote mergers among local markets on the site of production areas for the purpose of enhancing their functions and rationalizing their business management.

### **Selection of a port to land a catch based on a market forecast by use of IT**

**--- An example of measures taken by fishery operators and markets near major ports for purse seine fishery in the northern part of Kyushu ---**

At six markets in the northern part of Kyusyu, a new-internet system on information sharing was introduced.

These six markets are located at major landing fishing ports of purse seine fishing vessels, and these ports are connected through internet with the vessels, on shore offices of these vessels, sharing market forecast of these markets and predicted profit if landed at each port.

This system is currently in operation on a trial basis, and attracting attention as a model for effective supply system of fishery products at producing sites.

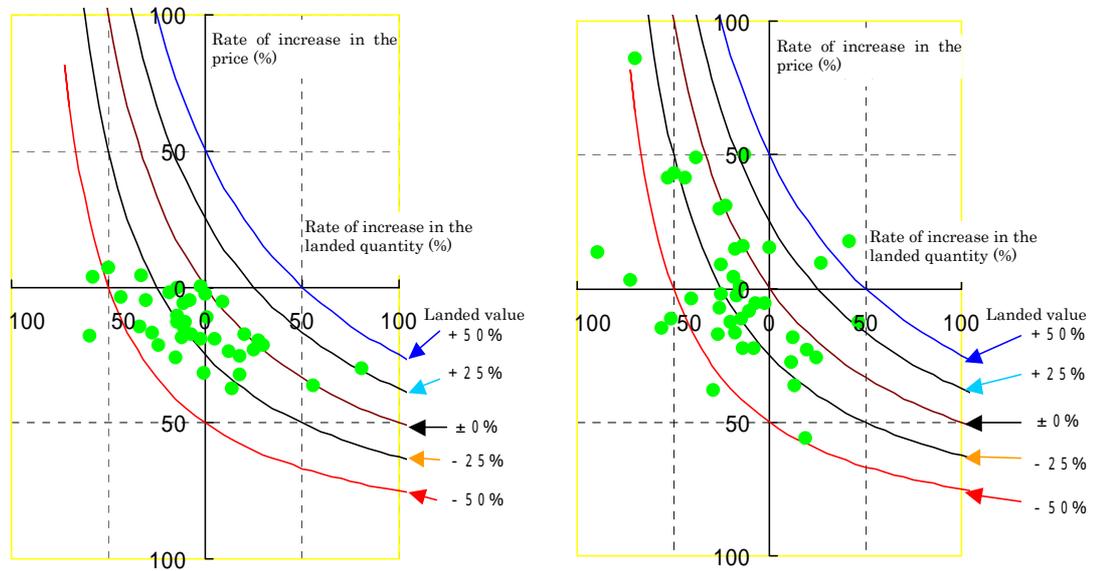
In 2002, the trade volume at major markets in consuming sites (central wholesale markets in 10 cities) decreased 2% from the previous year. The average price of trade fishery products was 796 yen/kg. The volume and average price has decreased 8% and 9% respectively in the past 5 years.

While the value and volume of fishery products traded at central wholesale markets has been on the decline (Figure II-3), about two thirds of all fishery products are estimated to be still traded through wholesale markets, which continue to play a central role in distributing fishery products. It is therefore important to transform the wholesale market system into a safer and more reliable and effective distribution system in order to meet the expectations of both producers and consumers. For this purpose, necessary measures are planned to be taken such as deregulation of trade rules, promotion of proper quality control, and facilitation of realignment of wholesale markets.

**Figure - 2 Changes in Prices in Landed Volume and Prices at Ports of Producing Site (Fish and other aquatic animals) - Changes from the three-year average for 1995 through 1997 to that for 2000 through 2002 -**

Fishery products that had an average price for 1995 through 1997 of at least ¥500/kg

Fishery products that had an average price for 1995 through 1997 of less than ¥500/kg

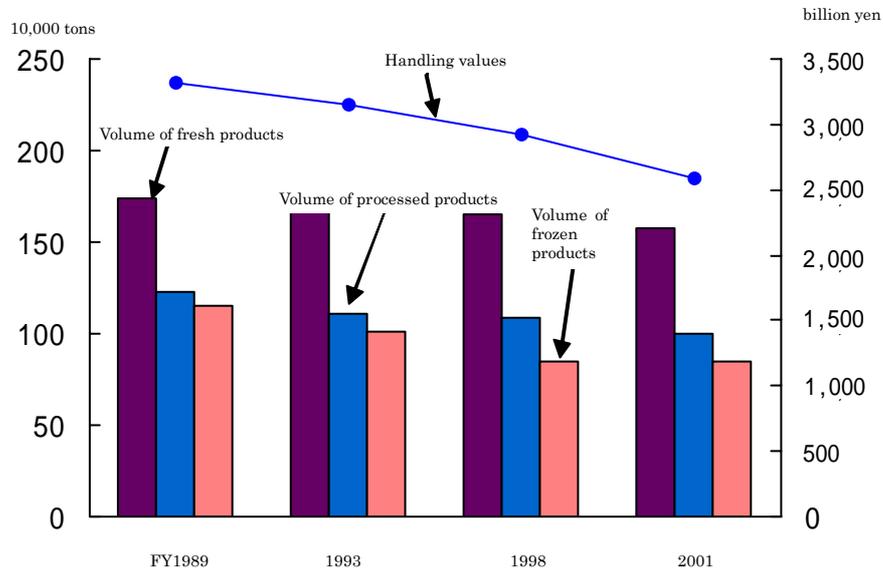


Source: Made using "Annual report of Distribution Statistics on fisheries Products," Ministry of Agriculture, Forestry and Fisheries

Note: (1) The study for the statistics was made on 204 ports for the period from 1993 through 1995, 206 ports for the period from 1996 through 1998, 205 ports for 1999 and 2000, and 203 ports for 2001 and 2002.

(2) The graph was prepared based on the date of 78 product items of fish and aquatic animals. In the case of a species that is separately listed in more than one category such as fresh, frozen, unshelled, and shelled, each type of product of the fish was considered as an individual product item.

Figure II-3 Changes in the Handling Quantities and Values at Central Wholesale Markets



Source: Commerce and Marketing Division, General Food Policy Bureau, Ministry of Agriculture, Forestry and Fisheries

### **(3) Safety and labeling of fishery products**

(Establishment of the Food Safety Basic Law, etc.)

Following the establishment of the Basic Law on the Food Safety in May 2003, the Food Sanitation Law, the Pharmaceutical Affairs Law, and other related laws and regulations were revised. In this context, the Ministry of Agriculture, Forestry and Fisheries established the Food Safety and Consumer Affairs Bureau. Due to these changes, the food safety administration has been drastically reformed. In the field of fishery, the use of unapproved medical products (including formalin used by some aquaculture operators of tiger puffers for parasite extermination) has been prohibited by law. The comprehensive restrictions on the use of fishery medical products have been imposed on all fish species. Regarding feed for cultivated aquatic animals, a study is currently underway to establish comprehensive specifications and standards applicable to each fish species.

(Improvement and enhancement of labeling)

Since July 2000, the label of each fresh fishery product has been required to show the name and place of origin, and also to indicate whether the product is “defrosted” or “cultured” as the case may be. Since April 2001, the label of each processed food has been required to indicate the ingredients and use-by date. Since February 2002, the label of each designated processed item such as salted mackerel has been required to show the place of origin of its raw material. The number of designated items is currently six.

In order to make labels easier to understand, two sets of guidelines were established: the Outlines of the Guidelines for the Names of Fish and Shellfish (implemented since April 2003) and the Guidelines for Indication of Place of Origin (Producing Water Area) of Fresh Seafood (implemented since July 2003) (Figure II-4).

Regarding processed foods, a study is underway based on a report submitted by the “Joint Committee on Food Labeling” to determine whether more processed food items should be required to indicate the place of origin of their raw materials on labels.

### **(4) Consumption of fishery products and self-sufficiency rate**

In 2002, the fishery products supplied for domestic consumption decreased 2% to 11.11 million tons from a year earlier, of which about 80% was supplied for human consumption, down 3% compared to the previous year to 8.55 million tons. The amount of fishery products consumed per person was 37.4 kg per year on a net weight basis.

The self-sufficiency rate of fishery products for food consumption in 2002 was 53%, remaining the same level as the previous year (Figure II-5).

#### **Differences in the purchase of seafood in comparison of age**

The older a householder, the more fresh seafood the household purchases in contrast to fresh meat. It is probably because people usually increase their preference for seafood as they age and also because today's seniors have eaten seafood frequently since they were young.

In recent years, the amount of seafood purchased by a household member has decreased from the level of 20 years ago, where the household headed by a person aged 49 or younger is concerned. Future seniors may not show the same correlation between aging and the purchase amount of seafood as shown in the previous paragraph.

Seafood contains a lot of EPA and DHA, which help to prevent lifestyle-related diseases, and also contains a great deal of calcium and iron, which are often in sufficient in the modern Japanese diet. It is therefore important to educate today's young people about the nutritious benefits of seafood so that they will inherit the traditional Japanese diet of abundant seafood in the future.

#### **Example of measures to promote communications between aquaculture operators and consumers**

Consumers are concerned about the safety of cultured fish and its feed as well as the environment of aquaculture grounds. Consumers tend to doubt the quality of cultured fishery products mostly because they often have little information about aquaculture operators due to the distance between the consuming area and the aquaculture grounds.

Since 2003, measures have been taken to deepen the mutual understanding between consumers and producers by allowing consumers to visit aquaculture grounds to see aquaculture production sites and exchange opinions directly with producers and ask questions about cultured fishery products.

**Figure II-4 Examples of Appropriate Use of Names of Exotic Fish Species**

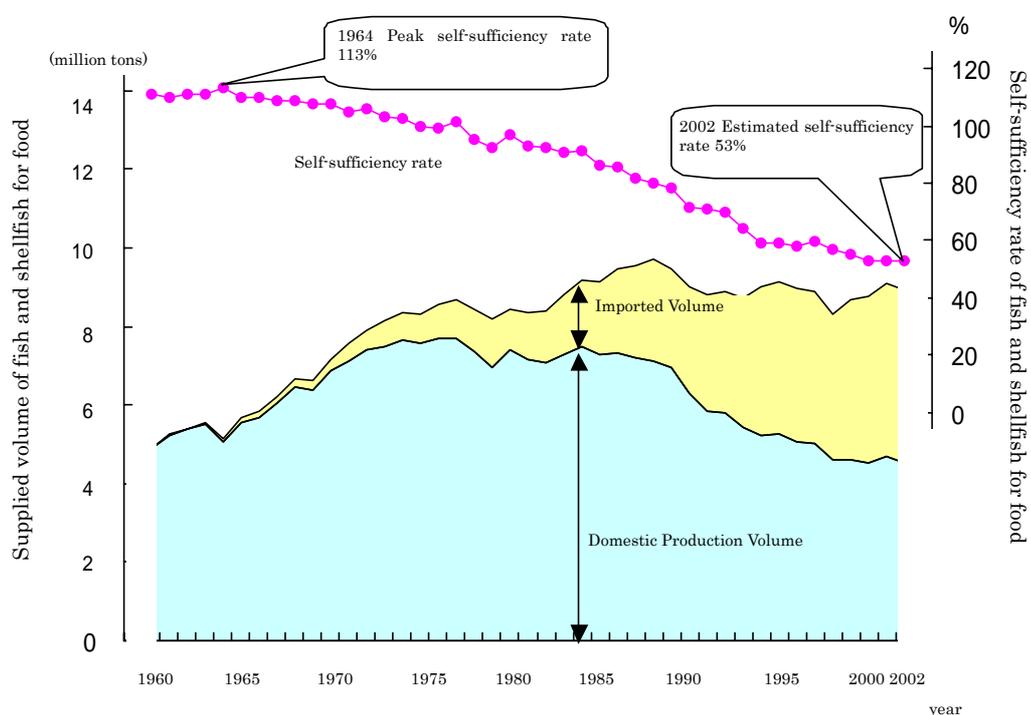
The names of exotic species must not mislead consumers into believing that they are better than what they really are in terms of quality. The labels of exotic fish and shellfish, etc., should display names in wide use that most accurately describe the fishery products in accordance with the general rules.

Examples of exotic fish species

Usable names	Magellan-ainame (Patagonian toothfish), mero (mero)	Kingukurippu (kingklip)	Shirubah (silver), Shirubah-warefu (silver warehou)
Prohibited names	Ginmutsu	Amadai	Okiburi

(Reference) Patagonian toothfish, mero (Notothenioidei), mutsu (Scombropidae), kingklip (Ophidiidae), amadai (Branchiostegidae), silver, silver warehou (Centrolophidae), buri (Carangidae)

**Figure - 5 Transition in Self-Sufficiency Rate, etc, for Fish and Shellfish for food**



Source: "Food Balance Sheets," Ministry of Agriculture, Forestry and Fisheries

## **2. International developments surrounding Japanese fisheries**

### **(1) Bilateral fishery relations**

Japan has concluded an agreement with South Korea and China respectively and **fishermen of these countries** fish in each other's waters under these agreements.

Based on the Japan-Russia Adjacent and Offshore Fishery Agreement, Japan and Russia fish in each other's 200-mile zone. Moreover, based on the Japan-Russia Fishery Cooperation Agreement, salmon and trout are fished for in the northern sea. Furthermore, based on the Framework Agreement Concerning the Operations of Japanese Fishing Vessels in the Waters around the Four Northern Islands, Japanese fishing vessels operate in the waters.

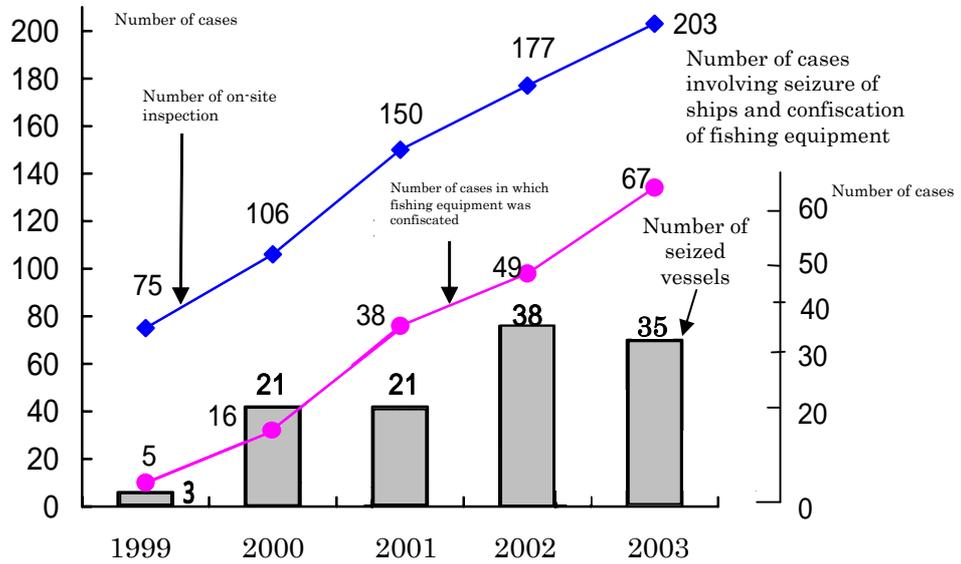
Japanese fishing vessels also operate in the 200-mile zones of Pacific countries and African countries under an agreement concluded between the government of Japan and that of these respective countries etc.

### **(2) Crackdown on illegal foreign fishing vessels**

Japan monitors and cracks down on foreign fishing vessels in its exclusive economic zones etc. In 2003, there were 35 seizures, which was the second highest number of seizures to the number recorded in 2002 (Figure II-6). Illegal fishing operations have increased in frequency and seriousness. Japan needs to further improve and enhance its control over its surrounding waters.

Figure - 6 On-site inspections by Inspectors of the Fisheries Agency on Fishing Vessels of Neighboring Countries and Regions

**Number on-site inspections**



Breakdown of the nationalities of seized vessels					
South Korean vessels	3	16	17	25	23
Chinese vessels	-	5	3	12	12
Russian vessels	-	-	-	1	-
Taiwanese vessels	-	-	1	-	-
<b>Total</b>	<b>3</b>	<b>21</b>	<b>21</b>	<b>38</b>	<b>35</b>

Source: Fisheries Agency

### **(3) Multilateral fishery relations**

#### **A. Developments with regard to tuna and skipjack fisheries**

(Measures to eliminate the operations of Illegal, Unreported and Unregulated (IUU) fishing vessels including vessels flying a flag of convenience)

The International Commission for the Conservation of Atlantic Tuna (ICCAT), the Indian Ocean Tuna Commission (IOTC), and other regional fishery management institutions are making international efforts to eliminate IUU fishing vessels.

ICCAT and other organizations have compiled a positive list of fishing vessels that have received official approval from the respective member countries. These organizations are trying to establish rules to exclude catches of any unlisted fishing vessels from international trade. In November 2003, Japan introduced the measure to implement the rules.

(Developments in the conservation and management of tuna in the Western and Central Pacific Ocean)

In September and October 2003, at a preparatory meeting for the commencement of the Western and Central Pacific Tuna Convention (WCPFC Convention), the rules of procedure of the North Committee which deals with such resources as blue fin tuna living in the North Pacific Ocean (the area north of 20 degrees north latitude) were established. The procedure specifies that any measures of conservation and management on blue fin tuna and other fishery resources are not to be taken without the consent of Japan.

#### **B. United Nations Food and Agriculture Organization (FAO)**

At a meeting of the Committee on Fisheries of FAO held in February 2003, participants emphasized the need for international measures to prevent IUU fishing activities and agreed to hold a governmental meeting in 2004.

It was also agreed to hold another governmental meeting to review the effects of fisheries subsidies on the sustainability of resources immediately after the above-mentioned governmental meeting in 2004.

At recent meetings held under the Convention on International Trade of Endangered Species of Wild Fauna and Flora (CITES), some signatory countries that demand animal protection, considered to be excessive, have submitted many proposals to protect marine species under CITES. In order to prevent biased protectionism, it was

agreed to establish an appropriate framework that enables FAO to have an appropriate influence over CITES and thereby extend further cooperation based on the concrete work schedule agreed by parties concerned. In addition, it was decided to establish within FAO a study group where experts study proposals to list threatened species in the CITES Appendixes.

According to a research paper, whales annually eat three to five times more fishery resources than the world's annual catches. This paper is attracting a lot of attention worldwide. Taking account of this situation, reconfirmation was made on the decision to have the Committee on Fisheries conduct a study on conflict between fisheries and marine mammals. Furthermore, it was agreed that FAO is carrying out tasks related to the management of ecosystem as a whole.

At the U.N. General Assembly in 2003, the U.S. submitted a proposal to restrict long-line fishery which is allegedly to catch incidentally a lot of sharks. After consultation and discussion during the GA, parties agreed to adopt a resolution concerning sustainable fisheries which included a statement calling for effective use of sharks by using not only the fins but also the entire body.

### C. International Whaling Commission (IWC)

At the IWC annual meeting in June 2003, participants adopted a resolution to establish a Conservation Committee in charge of developing measures to protect all whales, including species which stock or abundant. Because this resolution is designed solely to protect whales and therefore violates the purpose of the IWC Convention, Japan has withheld cooperation with the conservation committee. Japan's request for an interim quota for coastal small-type whaling has been rejected for consecutive 15 years. At this meeting, Japan submitted a request for a quota of 150 Minke whales (coastal small-type) and 150 Bryde's whales (coastal large-type) for verification tests to be used in the Revised Management Scheme (RMS). This proposal was also rejected by a vote. Japan plans to continue its efforts to obtain understanding for resumption of commercial for whaling and review all possible measures to positively influence the IWC.

## **3. Fishery business management**

### **(1) Trends concerning fishery operators**

In 2002, the number of fishery operators engaging in marine fishery decreased 4% from the previous year to 136,000, consisting of 129,000 coastal fishery operators, 7,000

small and midsize fishery operators, and 128 large –sized fishery operators.

## **(2) State of fishery business management**

### **A. Coastal fishery operators**

#### **(Income and expenditure of marine fishing vessel operations)**

In FY 2002, fishery incomes remained almost the same as that of the previous year. Despite a 5% increase in personnel costs, the fishery expenses remained about the same thanks to a decrease in expenses for fishery related materials. The average fishery earnings were 2.27 million yen, remaining about the same as the previous year's level. The details of the financial conditions of each fishery operator differs greatly depending on the conditions of the respective area they operate in (For example, the fishery earnings in the northern Pacific Ocean was 3.12 million yen, while that in the East China Sea was 1.61 million yen.) (Table II-3).

#### **(Income and expenditure of marine aquaculture operators)**

In FY 2002, aquaculture operators saw their earnings drop 12% from the previous year to 6.02 million yen based on weighted average for all types of aquaculture. While aquaculture operators cultivating yellowtail, pearls, and wakame seaweed saw their earnings increase, aquaculture operators cultivating sea bream saw their incomes plummet because of a fall in the price of sea bream (Table II-4).

### **B. Small and midsize fishery operators**

#### **(Income and profit of small and midsize fishery operation)**

Regarding the average fishery profits of small and midsize fishery operators, they posted a loss of 830,000 yen in FY 2002. The fishery incomes dropped 6% from the previous year to 88.52 million yen, while the fishery expenses shrank 5% to 89.35 million yen thanks to a decrease in costs for labor and oil, etc. (Table II-5).

The proportion of pre-depreciation profits to fishery incomes, which used to be around 14-15% in the period from 1987 through 1990, has decreased to 7-8% in recent years.

#### **(Financial conditions of small and midsize fishery operation)**

In FY 2002, the value of fixed assets, about 50% of which consisted of fishing vessels and fishing gears, etc., fell 2% from the previous year, while the value of current assets such as deposits and savings dropped 4%. As a result, the total assets decreased 3% to 144 million yen. On the other hand, debts, which accounted for about 80% of total liabilities, declined 3% from the previous year, while the liabilities as a whole shrank

2% to 132 million yen.

As a result of restraint on investment, the fishery fixed assets and debts have been reduced to 64% and 68% of the amounts recorded 10 years ago respectively.

**Table II-3 Fishery Incomes of Coastal Fishery Operators for Fishing Vessels in Recent Years**

(Unit: ¥10,000)

	1998	1999	2000	2001	2002	Rate of increase or decrease (%) 2002/2001
National average	216	217	195	226	227	0
Hokkaido	228	322	198	342	285	17
North Pacific	215	220	196	250	312	25
Central Pacific	252	227	220	224	269	20
South Pacific	156	158	171	189	183	3
North Japan Sea	197	213	194	216	221	2
West Japan Sea	188	183	207	189	187	1
East China Sea	181	139	134	163	161	1
Seto Inland Sea	227	201	194	217	219	1

Source: “Survey Report on Fishery Economy (Fishery Household Section)” (up to 2000), “Survey Report on Fishery Business Management” (from 2001 onward), Ministry of Agriculture, Forestry and Fisheries

**Table II-4 Fishery Incomes of Marine Aquaculture Operators in Recent Years**

(Unit: ¥10,000)

	FY1998	1999	2000	2001	2002	Rate of increase or decrease (%) 2002/2001
Average	639	694	822	687	602	12
Yellowtail	1,261	2,343	2,901	404	280	-
Sea bream	1,186	873	1,065	1,198	177	85
Pearl	241	362	271	117	473	303
Pearl oyster	157	293	275	149	79	47
Oyster	687	718	975	832	774	7
Scallop	741	816	801	942	687	27
Laver (Nori)	644	575	801	889	765	14
Wakame seaweed	361	392	250	294	384	31

Source: “Survey Report on Fishery Economy (Fishery Household Section)” (up to 2000), “Survey Report on Fishery Business Management” (from 2001 onward), Ministry of Agriculture, Forestry and Fisheries

**Table II-5 Earnings of Small and Midsize Fisheries**

	FY2001				FY2002			
	Fishery income (Unit: ¥10,000)	Pre-depreciation profit (Unit: ¥10,000)	Fishery profit (Unit: ¥10,000)	Sales profit rate (%)	Fishery income (Unit: ¥10,000)	pre-depreciation profit (Unit: ¥10,000)	Fishery profit (Unit: ¥10,000)	Sales profit rate (%)
Average of small and midsize fishery operators (Reference)	9,380	810	21	0.2	8,852	684	83	0.9
10-30 tons	2,946	210	109	3.7	2,960	341	81	2.7
30-50 tons	6,824	845	105	1.5	5,969	946	454	7.6
50-100 tons	11,586	150	859	7.4	12,573	328	617	4.9
100-200 tons	28,113	2,251	305	1.1	25,182	1,549	675	2.7
200-500 tons	35,912	1,279	702	2.0	34,979	163	2,791	8.0
500+ tons	87,977	7,046	146	0.2	81,143	3,500	3,499	4.3

Source: "Survey Report on Fishery Business Management," Ministry of Agriculture, Forestry and Fisheries

### **(3) State of fishery workers**

#### **A. Fishery workers**

In 2002, the number of fishery workers decreased 4% from the previous year to 243,000. The proportion of male fishery workers aged 65 or older to the total number of male fishery workers increased by 1 percentage point to 35%, showing evidence that the aging of fishery workers is on the move (Figure II-7).

Fisheries cooperative associations and fishery operators have started accepting people who desire to become fishery workers giving them fishery training and also taking other measures to secure and foster new fishery workers.

#### **Example of measures to train new fishery workers through short-term fishery training courses**

In the east Kishu region, mainly Owase-city and Kumano-city of Mie Prefecture, short-term fishery training courses have been offered since 2001 for people who desire to become fishery workers, regardless of whether or not they are residents of Mie Prefecture. There are two types of courses. The first one is a three-night course for groups of people, while the other is one-week course for individuals. The one-week course is offered by local fishery workers for actual fishing operation experiences. The purpose of these short courses is to allow participants to self-evaluate their aptitudes for fishery before starting long-term training so that those who newly enter the fishery industry can adapt to the new working environment gradually.

In FY 2002, a total of seven people became fishery workers after taking those courses, of which three people started engaging in purse seine fishery and four in set net fishery.

#### **B. Workers on fishing vessels**

In 2002, the number of workers employed for offshore and distant water fishery shrank 7% from the previous year to 31,000.

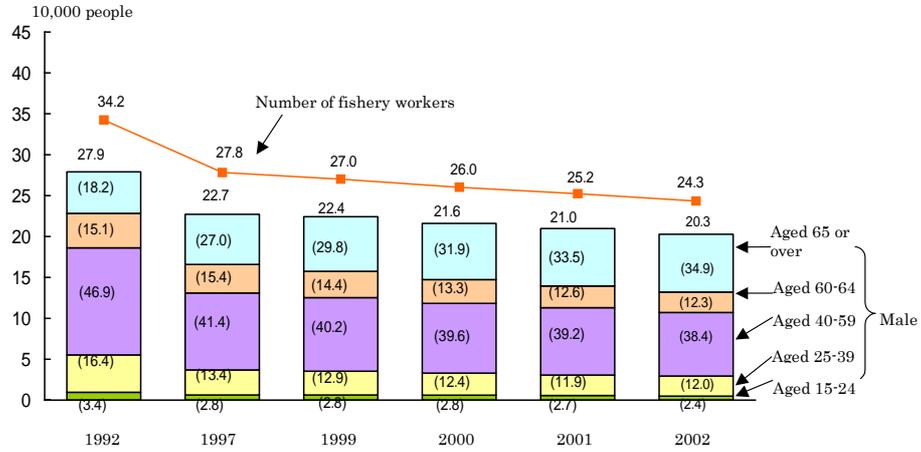
Due to personnel shortages of Japanese workers who are willing to work on fishing vessels, foreign workers have been allowed to work on Japanese fishing vessels under the “maru-ship system” (“Maru-ship” refers to a Japanese ship manned by non-Japanese crew. “Maru” indicates Japanese ships, whose names often end with “Maru”)

#### **(4) Fisheries cooperative associations**

The business operations of fisheries cooperative associations have been either on a plateau or on the decline, reflecting the worsening fishery environment such as decreasing fishery production and sluggish prices of local fish. As a result, the financial conditions of fisheries cooperative associations have worsened.

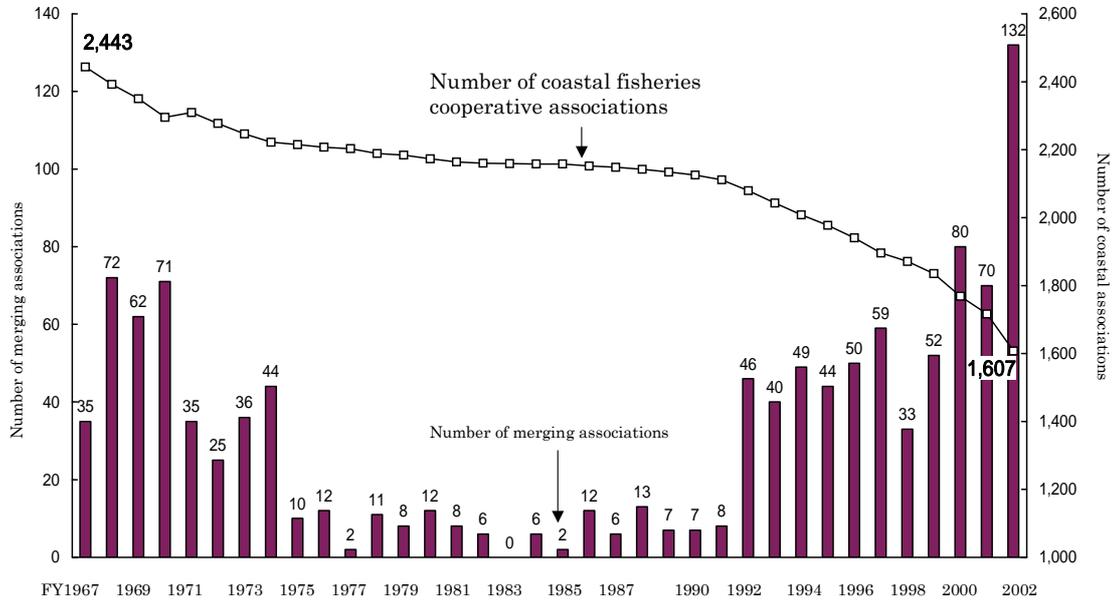
They have been making efforts to strengthen associations through mergers and the transfer of a cooperative banking functions to other parties. In FY 2003, 124 fisheries cooperative associations merged into 32 associations as of March 1, 2004 (Figure II-8).

Figure II-7 Number of Fishery Workers in Recent Years



Source: "Annual Statistics on Movement of Fishery Enterprises" (up to 2001), "Annual Statistics on Movement of Fishery Workers" (2002) Ministry of Agriculture, Forestry and Fisheries  
 Note: The figure in each bracket indicates the proportion of the population of that age group to the total number of male fishery workers.

Figure II-8 Number of Coastal Fisheries Cooperative Associations and Merging Associations



Source: Fisheries Agency

#### **4. Current state of fishing villages and efforts for their revitalization**

##### **(1) Measures to improve the living conditions of fishing villages and to revitalize them**

###### **A. Measures to improve the living conditions of fishing villages**

Fishing villages are usually located in geographically disadvantageous areas such as far-off places, isolated islands, and peninsulas. Therefore, the development of living conditions of fishing villages has been slow in comparison to that of cities. Since FY 2000, the national government, local governments, and related organizations have, in collaboration, commenced the Fishing Village Life Environment Improvement Movement (Fishing Village Refresh Movement).

###### **B. Measures to revitalize fishing villages**

In some fishing villages, groups of people including enthusiastic young male fishery workers and members of the women's departments of fisheries cooperative associations have undertaken measures to revitalize local communities by taking advantage of local resources such as fresh seafood.

##### **(2) Coexistence and exchanges between cities and fishing villages**

Fishing villages are expected to play the role of providing city dwellers with recreational opportunities and give children experiential learning opportunities about fishery.

In June 2003, organizations such as private companies, NPOs, and local governments as well as individuals jointly established the "Committee to Promote Coexistence and Exchanges between Cities and Agricultural, Mountainous, and Fishing Villages" as an entity to commence a national movement for coexistence and exchanges between cities and villages. The committee commenced the campaign activities to promote the movement, which is called as "All right! Nippon," taking measures to spread the movement and educate the general public.

#### **5. Multiple functions of fisheries and fishing villages**

Fisheries and fishing villages play not only the role of providing people with fishery products but also other various roles to enrich and enhance people's lives. Fisheries and fishing villages would not be able to play such roles without fishery workers and other local residents engaging in fishery activities continuously.

The multiple functions of fisheries and fishing villages have not been discussed or

studied in enough detail whereas the functions of agriculture and forestry have been well researched and subject to various measures.

The Minister of Agriculture, Forestry and Fisheries submitted a document titled “Identification and Assessment of Multiple Functions of Fisheries and Fishing Villages that Affect the Global Environment and Human Lives” to the chairperson of the Science Council of Japan in October 2003 based on the Law of the Science Council of Japan. The document was submitted in order to further deepen public understanding by identifying and assessing the multiple functions of fisheries and fishing villages.

Examples of measures for revitalization

Revitalization of local communities by selling seafood in season: Fukura Branch of Women’s Department of Yamagata Fisheries Cooperative Association

Landing of live horse mackerel caught by purse seine fishery: Kitaura-cho, Miyazaki Prefecture

**Table II-6 Multiple Functions of Fisheries and Fishing Villages (Overview)**

Functions		Details
Material cycling function		Nitrogen and phosphorus, etc., which are indispensable nutrients for terrestrial plants, flow from the land to the sea as part of the global water cycle and are produced in marine plants from sunlight and, then, passed onto marine creatures through food webs. Fisheries play a role of bringing back these nutrients to the land through fishery catches.
Environment.conserva.tion	By fisheries	In coastal areas, secondary nature has been developed and used by fisheries. Fishery activities contribute to maintaining ecological functions of filter-feeding creatures such as bivalves and also those of sea grass beds and tidelands, contributing to purifying water and maintaining biodiversity.
	By people living in fishing villages	People in fishing villages have protected forests in coastal areas to conserve fishery stock since the Edo era, and have recently been actively engaging in afforestation activities. In addition, they make efforts to preserve the coastal environment by regularly cleaning seashore, surrounding areas of fishing ports, and sea bottom. They also contribute to removing oil contamination.
Function of protecting the lives and properties of Japanese people		On the shoreline that extends for about 35,000 km, a port is located approximately every 8.8 km, while a fishery community exists every 5.6 km. Residents of these fishery communities contribute to marine rescue operations, national border surveillance, disaster relief efforts, and marine environment monitoring, etc.
Function of providing opportunities for recreation, exchanges, and learning		Fisheries and fishing villages play a significant role in providing people with opportunities to restore their humanity and learn new things. About 60% of the nations have visited fishing villages or seaside areas for marine recreation in the past year.
Function of preserving fishing villages and passing down fishery cultures		Having such characteristics as “collective activities for production” and “close relationships among community members,” fishing villages have developed unique fishery communities with the spirit of mutual assistance, which perform special social functions nonexistent in urban areas. In addition, fishing villages have the role of passing down diverse local cultures created by fisheries.
Function of offering earning and employment opportunities		Remote islands and peninsular areas lack alternative industries other than fisheries. Since fisheries need various supporting industries, they contribute to creating employment in these remote areas as mainstay industries. Also, fisheries are expected to provide employment opportunities for the elderly

Source: “Report of the Review Committee on the Assessment of Multiple Functions of Fisheries and Fishing Villages (March 2003),” Project entrusted by the Fisheries Agency

## Conclusion

The world's production volume of fishery products has almost doubled in the past thirty years. The supply volume of seafood for human consumption per person has also increased by about 50%. Such a large increase will, however, not continue for long.

According to the State of World Fisheries and Aquaculture of Food and Agriculture Organization (FAO), the rate of increase of the world's catches was about zero in the 1990s. Today, most aquatic resources are used to their limits.

As shown in Chapter I, while the household spending on fishery products has decreased and the competition over the prices of such products has intensified the globalization of the Japanese fisheries market has been growing. As fishery resources are limited natural resources, they will be exhausted without proper conservation and management. Therefore, Japan has to make efforts to ensure the sustainable use of fishery resources as the world's largest importer of fishery products.

Needless to say, the Japanese fishery industry must play an important role of securing a stable supply of high-quality fishery products at reasonable prices. The Basic Fisheries Law emphasizes the importance of increasing domestic fishery production in view of unstable factors that could affect the world's fishery trade and the supply and demand for fishery products in a manner unfavorable to Japan. Moreover, the law recommends Japan to maintain an appropriate balance between domestic production and imports.

To attain these goals, various measures need to be taken to help fishery operators become more efficient and stable and to establish collaborative relationships with fishery processors and fishery distributors.

It is therefore important to promote communication among the government, consumers, fishery operators, and other concerned parties to reflect their opinions in measures taken in the future. It would be of great satisfaction to see this report promote such communication.

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