

Japan and Her Fisheries

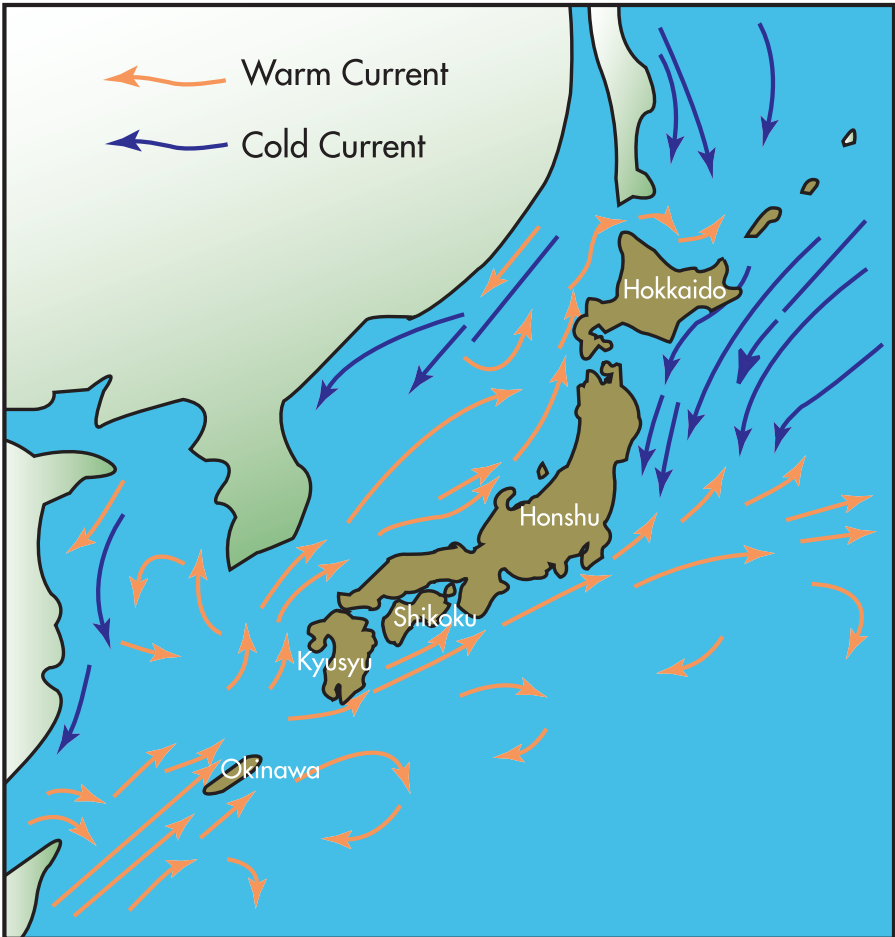
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Japan International Fisheries Research Society
(JIFRS)

July, 2004

**OVERSEAS FISHERY COOPERATION FOUNDATION
JAPAN**

This booklet was published by the Overseas Fishery Cooperation Foundation, Japan. The booklet was planned and compiled by JIFRS members. It covers wide aspects with many insights of the characteristics of the Japanese fishery. Therefore, the booklet will be a quite useful document as an exhaustive guide to Japan and her fishery.

Map of Japan



FOREWORD

The program of IIFET 2004 JAPAN conference includes three major aspects:

- (1) Study tours, from July 21 to 24, 2004
- (2) Main conference with special session and symposium from July 26 to 29, 2004
- (3) Publication of a booklet on Japanese fisheries

This booklet is designed to play a key role in the IIFET 2004 JAPAN Conference. It is hoped that this publication will be a valuable reference to participants both during the course of the conference and study tours, and later, as a case study for use in the planning of national fisheries development programs.

Particular features of fisheries in Japan are summarized as follows:

- i. Not only all fishermen, but also any person who is concerned with fisheries in any way—including fish processors, the operators of cold storages and others—are organized into some kind of membership association. This arrangement has made it easier for the government to render various services and guidance. In other words, in Japan there exists a close linkage between the government and fishing industries.
- ii. Those involved in various aspects of fisheries work together with their own colleagues in accordance with the articles of their association. The existence of these associations is one of the reasons why self-management of fisheries resources has been successful in Japan.

- iii. Both central and prefecture governments sometimes municipal governments provide fisheries infrastructure facilities such as fishing harbors, fish marketing facilities, and cold storage, as a part of public works.

There are many papers dealing with fisheries in Japan, which are written in English. The unique aspect of this booklet is the breadth of its coverage and the variety of viewpoints and disciplinary perspectives which are represented.

The booklet has been made available through the editorial effort of Dr. Mitsutaku Makino. The valuable assistance of Mr. Johannes Wilhelm during the early stages of its design and preparation is also gratefully acknowledged. The English in the booklet has been edited by Ms. Ann Shriver of the IIFET.F. Finally, we are thankful to the OFCF for its publication.

Tadashi Yamamoto
Honorary President of Japan Fisheries Research Association
July 2004

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Chapter 1. Facts about Japan

Tadashi Yamamoto

1.1 Geography

Japan is a volcanic island country, which is composed of (from north to south) Hokkaido, Honshu, Sikoku, Kyushu and Okinawa Islands. Mt. Fuji is a volcanic mountain, which is famous world-wide because of its distinctive shape. It is an inactive volcano. However, there still remain several active volcanoes. Because of the volcanic chain which exists throughout the country, many hot springs exists. These are enjoyed by Japanese, who are fond of taking a hot bath. For the same reason, Japan often suffers from earthquakes, which can cause extensive damage to a particular area, destroying many homes and commercial buildings with the fires, which are a frequent aftermath.

Japan is very mountainous. Mountains occupy two thirds of the total land area. As a result there is limited land available for housing, farming and industry. In the past there were limited mineral resources; however, these have been almost fully exploited. Thus, to maintain the national economy, Japan has to import not only raw materials for industries but also food for human consumption. Rice is the only surplus product produced.

Japan is located in a temperate zone of the northern hemisphere. There are four seasons. The seasons greatly influence not only the daily life of the people but also the agricultural and fisheries harvests. There is much rainfall throughout the year, which makes for high humidity. River water is generally clean, providing clean drinking water.

Because of the mountainous terrain of Japan, many tunnels are needed for the highway and rail transportation systems. Japan has been the world leader in tunnel construction techniques. It is well known that the undersea tunnel between France and England was constructed with Japanese techniques and equipment.

1.2 A Brief History

(1) It is said that the history of Japan has endured for over 2,600 years, ever since her first emperor, Jinmu, governed Japan from the then capital of Nara. For the next several centuries, Japan was ruled by his descendants. Thereafter, the Samurai (statesmen-warriors) governed the country until 1868.

Japanese culture has been greatly influenced by China. The Chinese cultures were at first introduced into Japan via Korea, because of its proximity to Japan. Subsequently, because of their shared religion of Buddhism, Japan was influenced directly by China. A typical example of shared culture is the use of Chinese characters for the written Japanese language. Some Japanese food items such as soybean cakes, fish paste, noodles, etc. are also originally from China.

During the period of Tokugawa Samurai government (Tokugawa Dynasty, 1603-1868), which was the last Japanese dynasty, communications with European countries were not allowed. The only exception was made for Dutch traders in Nagasaki, a natural harbor located on the west coast of Kyushu. Japan was regarded itself country cut off from Western culture.

(2) From Feudal Era to Modernization

In 1853, Admiral Matthew Perry came to Uraga, Japan, and requested the Samurai government to supply food, water, and fuel to American whalers. This incident caused the Tokugawa Samurai government to return power to the emperor Meiji in 1868, effectively establishing a new government. The policy of the new Meiji government was to modernize Japan in all respects, and Japanese representatives were sent to many to European countries.

In 1945, Japan was defeated in the Second World War. During the time from 1867-1945, the policy of the government changed from “modernization” to “militarism”. All government officials, military officers and soldiers and ordinary citizens were regarded as military personnel, reporting to the emperor. In other words, with the progress of militarism, every Japanese had been forced to serve the emperor.

(3) Democratization of Japan: Occupation

Japan surrendered to the Allied Forces on August 15th, 1945 and lost her independence until April 29, 1952, when Japan regained sovereignty. During this period the main policy of the occupied forces was the democratization of Japan. Men and women were both entitled to vote. Compulsory education was extended from primary school to junior high school. The compulsory military service system was completely abolished. Government officials became servants of the people.

The principal change resulting from the Occupation was land reform. Before the occupation, much farmland was owned by only a few landowners, who did not always farm the land. There were also many landless farmers. Using a land reform scheme, the government

purchased farmland from landowners by means of bonds. The farmlands so purchased by the government were distributed to landless farmers. As a result, there are no more landless farmers in Japan. A similar system was put in place for fishing rights (see section 4.1).

1.3 Society

(1) Independence, One language and One Religion

Since Japan became an independent country some 2600 years ago, Japan has never lost independence except for the period of occupation from 1945 to 1952. Japan has never been conquered by any other country. This is mainly due to the fact that Japan is an island country, although there were several occasions when Japan was attacked by Mongolia.

A single language, Japanese, is commonly in use throughout Japan, although there are a variety of dialects with differing accents. The majority are Buddhists, although there are some Christians. “Shinto” is considered to be Japan’s own religion. All Japanese respect Shinto though it is not considered as a real religion by Japanese people.

The only exception to this homogeneity of language and religion is the Ainu in Hokkaido, in northernmost Japan. Their numbers are few, but they are considered as natives to that area, with their own language and religion.

(2) Development of the Compulsory Education System

A six-year compulsory education system was introduced immediately after the Tokugawa Shogun returned his power to the emperor. This system has enabled Japan to develop its culture and

economy.

(3) From Large Families to Small Families

Before the World War II, the average size of a family was seven members; a father, mother and five children. Currently, the average number of children per family is between 1 and 2, which is called a nuclear family.

(4) Japan; the world's longest life-expectancy

Japanese longevity may be due to the development of a medical insurance system for everyone in Japan, including resident foreigners. Other factors may be increased income and better nutrition. However, a problem has occurred due to an increased ratio of number of pensioners to the total population paying pension premiums. This means that the people now paying premiums will be unable to have sufficient income to keep up with the cost of living when they retire.

1.4 Economy After the World War II

(1) Japanese Economy at the end of the World War II

When the war ended, almost all cities in Japan were in ruins due to the American bombing, except for Kyoto and Nara, which are the ancient capitals of Japan. For example, central Tokyo was reduced to a field with the exception of a few buildings. The cities of Hiroshima and Nagasaki were even more badly damaged, due to the atomic bombing there. The factories of almost all heavy and light industries had been damaged.

Food production from both agriculture and fisheries was at its lowest because of a lack of inputs such as fertilizers and fuels. Heavy inflation

took place throughout the country. The Japanese economy was entirely paralyzed.

(2) Post-war Japanese Economic Recovery

In 1950 the Korean War started in the Korean Peninsula. This provided an opportunity for the recovery of the Japanese economy. The 1960s was a decade when Japanese economy grew very quickly. In 1964 Japan was able to host the Olympic game. However, in the 1970s Japan suffered from oil shortages more than once.

The 1980s were said to be a decade of economic growth with sharp increases in land prices. There were many land sales with bank loans for the construction of skyscraper housing. Later land prices went down. As a result, loans made by the banks to speculators became unrecoverable by the banks.

The 1990s was the decade of de-industrialization of Japanese Economy. Labor costs in Japan went up sharply, whereas that in the China mainland they were only one tenth of Japan. As the result, many Japanese companies established factories in China, producing products under their own brand names. In the meantime, Japan became the largest automobile producer in the world.

Now, in the early years of the 21st century, economic recovery seems to have been achieved through the production of new products such as digital cameras, and portable telephones with Japanese technology, produced in Japan.

1.5 Food and Eating Habits

(1) “Do not eat the meat of a four-legged animal”

This is an old Japanese proverb, which appears among aged people in Hiroshima area. However, eating meat is not a taboo. Japan is surrounded by the ocean. Fish is consumed daily in Japan. Each fish species (including shellfish) has a unique taste. “Sushi”, which uses the flesh of many different fish, is a typical example of a Japanese fish dish.

(2) Rice consumption has decreased

Rice has been the traditional staple food. However, bread has now become popular. This is due partly to the inclusion of bread in primary school lunches, which began after World War II.

(3) Japanese enjoy the taste of fish

“Sashimi”, raw fish, is a good example of this preference. The fish in Chinese dishes, by contrast, is mostly cooked well, a significant difference between Chinese and Japanese cuisine.

Chapter 2. Fisheries Administration and Research in Japan

Tadashi Yamamoto

2.1 An overview of Japanese Fisheries Administration

Japan has a population of some 125 million—about half that of the United States. However, Japan’s population is likely to decline in the near future due to the decrease in family size.

Administratively, Japan is divided into 46 prefectures. Each prefecture is further divided into municipal units; such as cities, towns and villages. Prior to World War II, the governor of each prefecture was appointed by the central government and the governor of each municipality was appointed by the prefectural governor.

During the post-war process of democratization in Japan, which took place under the allied forces occupation, the governors of both prefectures and municipalities were elected by the people of the respective areas.

Tokyo is the capital of Japan since 1868, and the center of government. Japan has a parliamentary government, headed by a Prime Minister. Governmental agencies are called ministries, each led by a minister. The Ministry of Agriculture, Forestry and Fishery (MAFF) is responsible for fisheries through a body called the Fisheries Agency. The Agriculture, Forestry and Fisheries minister is appointed by the Prime Minister.

Although by law the prefecture government is autonomous, there are close ties between the prefecture government and the Ministry of

Agriculture, Forestry and Fisheries.

2.2 Fisheries Administration

(1) Enlargement of Fisheries Administration after World War II

Prior to the war, a governmental entity known as the Bureau of Fisheries was responsible for fisheries-related matters. This body's manpower and budget were greatly augmented under the guidance of the occupied forces. In this way the Bureau was upgraded up to the "Agency" level, and operations were decentralized. A typical example of this decentralization process was the transfer of the power to grant fishing rights to Fisheries Cooperative Associations (FCAs) from the central government to the prefecture government.

The main policy of the Japanese government after the war was the recovery of the Japanese national economy by means of large public works projects. In the area of fisheries administration, fishing harbors and ports began to be constructed in every fishing village, and fish marketing facilities were improved. Now these works are nearing completion. In fisheries administration, the construction of fishing harbor is considered a public work, as is the development of roads for the general public.

(2) Government services as opposed to government control of fishermen

In the past there were many fishing patrol boats under both the central and prefectural governments due to the large number of trawlers entering closed waters. There was also much disagreement between trawlers and small-scale fishermen. The number of trawlers has been reduced using multiple methods, which has led to greater harmony. The

government's current policy is to render services and provide guidance to fishermen rather than over-legislating their actions.

(3) Fisheries resource management responsibility has been transferred to fishermen

Due to the substantial post-war revision of the fishery laws, fishermen now have power to make optimum use of a wide variety of fisheries resources. The Fisheries Coordination Committees manage fisheries resources at the prefectural level. A system of co-management of fisheries resources is already in practice in Japan.

2.3 Fisheries Research and Statistical System

In Japan, fisheries research has developed in two ways. The first was through fisheries' experiment stations established by prefectural governments. The second was a series of fisheries research laboratories established by the national government, under the auspices of the Fishery Agency in the Ministry of Agriculture, Forestry and Fisheries (MAFF).

(1) Fisheries Experiment Stations (FES)

The FES does research which benefits local fishing industries. A good example of FES work is the development of a technique to make "*surimi*", a fish paste used in products known as "*kamaboko*" in Japanese. This *surimi*-making method was developed unintentionally by the Hokkaido Fisheries Experiment Station. Though the invention of *surimi* was unplanned, *surimi* is now well known in seafood markets around the world. Fisheries Experiment Stations exist in every prefecture, even those prefectures which do not have marine fisheries.

(2) Fisheries Research Laboratories (FRL)

The Fisheries Research Laboratory system was established circa 1950, on the advice of the occupation forces' Natural Resources Service. The main objective of the FRL is to perform stock assessments with the use of catch and fishing effort data by areas of capture. For this purpose, seven FRLs have been established at the regional level throughout the country.

The FRL system was originally established under the jurisdiction of the Fisheries Agency. However, in accordance with national policy, it has now become a legal body called the "Fisheries Research Agency", which is an umbrella agency for all FRLs, and which is independent of the Fisheries Agency. Although the main work of the FRLs is biological in nature, it does contain a department exclusively engaged in the economic analysis of fisheries and aquaculture.

Apart from the above two fisheries research systems, there was also a Fishery Statistical System (FSS) established under the Statistics and Information Department of the MAFF after World War II. After a difficult few years the FSS is now able to provide an annual series including a variety of fisheries statistics, which is the main source of data used to prepare the annual White Paper on Japanese fisheries.

Chapter 3. Japanese Fisheries

3.1 Japanese Fisheries at a glance

Tadashi Yamamoto

(1) Classification of Japanese Fisheries

For administrative purpose, Japanese fishery is classified into as follows: i) Capture and aquaculture in marine waters, ii) Capture and aquaculture in inland waters, and iii) Whaling.

Capture and aquaculture in marine waters are further classified into Coastal fishery, Offshore fishery, Distant water fishery, and Aquaculture in marine water.

Coastal fishery refers to capture fishery, which is run without boat, with the use of non-powered boat and powered boat of less than 10 gross tons, which are normally engaged in fishing by the family members of a fishing household to sustain their livelihood. The coastal fishery includes aquaculture, which is undertaken in both brackish waters and marine waters.

Offshore fishery refers to a capture fishery, which is run with the use of powered boat of 10 gross ton and above, excluding the distant water fishery. In other words, the offshore fishery is considered as a capture fishery, which is undertaken with the purpose to make profit with hired fishermen. The offshore fishery is normally undertaken within the EEZ of Japan.

Distant water fishery is the capture fishery, which operates in high seas and the EEZ of countries other than Japan.

Capture and aquaculture in inland waters is further classified into i) Capture in inland water, and ii) Aquaculture in inland waters. Whaling is treated as a fishery, which is independent of ordinary fishery. The statistics are counted in terms of the number of whales caught instead of weight.

(2) Annual Trend of Total Fisheries Production in quantity and value

(See **Fig. 3.1**: total production in quantity by sectors and total production in value.)

- 1) After the war, Japanese fishery achieved extremely steady and marked increase in the total fishery production till 1984 in spite of the fact that Japanese distant water fisheries was greatly affected by the establishment of EEZ by foreign countries. This was due to the natural recovery of Pacific pilchard stock. Thus, by 1984 Japanese total fishery production exceeded 12 million metric ton.

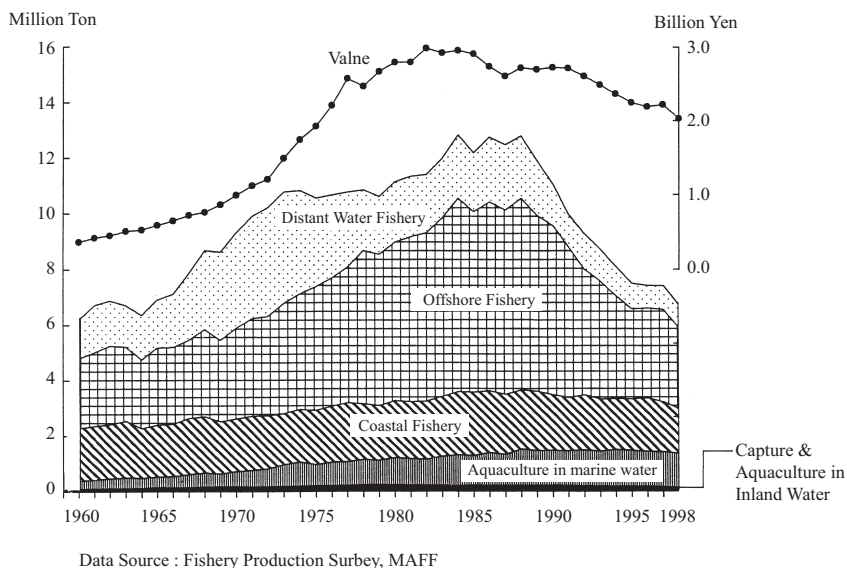
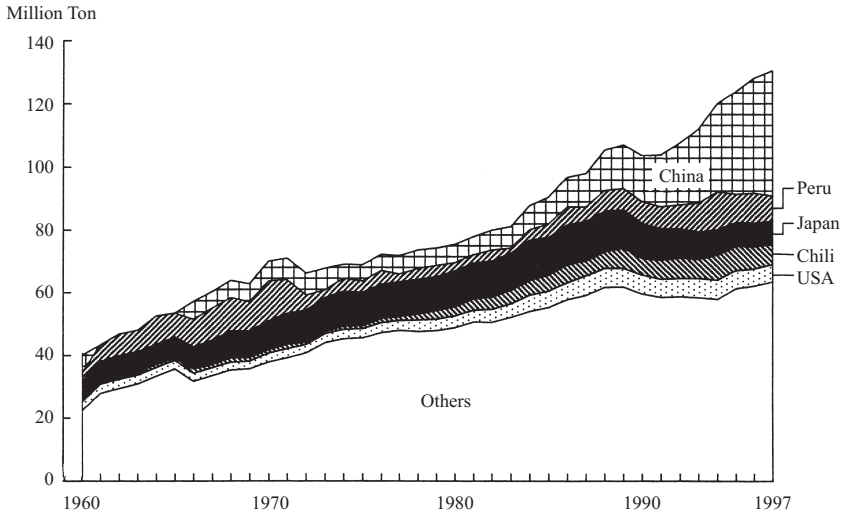


Fig 3.1 Japanese Fisheries Production in Quantity and Value from 1960 to 1998



Data source : FAO Yearbook of Fishery Statistics, Capture and Aquaculture
Production of seaweeds is included.

Fig 3.2 World Fisheries Production in Quantity by Countries from 1960 to 1997

2) Thereafter, the pilchard (sardin) stock began to decline, and has become the fish of phantom. The similar phenomena occurred for mackerel stock, resulting in a marked decline in the catch of the off shore fishery.

3) In spite of the fact that the total fishery production in quantity term tremendously declined particularly after 1990, the total fishery production in value term did not heavily declined. This is due to the low price of pilchard. (See **Fig. 3.1**)

(3) Trend of Fisheries Production by Sectors

1) Coastal Fisheries

A variety of fishing gears are in use, making use of both pelagic and demersal resources available in coastal waters. Major species

caught by coastal fishery in value terms are sedentary resources such as abalone, spiny lobster, halibut, etc. Catch taken by coastal fishery in quantity is relatively stabilized, being around 2 million metric tons per year. Nevertheless, migratory species such as pilchard, mackerel, etc. are also caught, resulting in some fluctuation in the magnitude of catch taken by coastal fishery.

2) Offshore Fisheries

In terms of quantity caught, offshore fishery plays most important role. Pair trawl, Danish seine and purse seine are major fisheries. In terms of quantity caught, purse seine plays major role. Decline of pilchard and mackerel stock has greatly affected to the total catch taken by offshore fishery.

3) Distant Water Fisheries

During the period from 1969 to 1975, total catch taken by distant water fishery exceeded 3 million metric ton, playing the significant role in marine capture fisheries. Thereafter, the catch began to decline from year to year.

4) Marine capture fishery as a whole

Yet, the marine capture fishery as a whole has played the most important role of Japanese fisheries in terms of quantity.

5) Aquaculture in Marine Waters

The yield from aquaculture in marine water has always followed an increasing trend. By 1994, the total yield exceeded 1 million tons.

6) Inland Water captures

The inland capture is minor sectors in Japanese fisheries.

Nevertheless, in every river there is a fisheries cooperative association (FCA) with a fishing right. Stock enhancement by means of releasing young fish like smelt fish has been commonly practiced in many river to entertain sport fishermen by charging an fishing fee.

7) Inland Water Aquaculture

Aquaculture for eel, carp and rainbow trout are commonly practiced for commercial scale. However, the production is stagnant.

8) Whaling

In the past Japan was one of the major whaling countries. To be sure the recovery of whale stocks, Japan is eagerly doing experimental whaling.

3.2 Economic Structure of Japanese Fisheries

Tadashi Yamamoto

(1) Differentiation of Fishery Household

While a fishery remained at a primitive stage, it is well assumed that all fishermen had engaged in their own fishery on own account basis. When a fisherman makes money and invests to build a larger boat, he needs an additional labor. Then, the man, who got a larger boat, will become an enterprise. At the same time, a fisherman, who was employed, became a fishing laborer. Such a process is called the differentiation of an economy.

Such a case has remained not only in Japan but also in many Asian countries. This is known as the dual structure of a fishery. In contrast, in many Western countries, fisherman, who engages in his own fishing, are hardly found. Almost all fishing activities are performed as an

enterprise.

(2) Dual Structure of Marine Fisheries

In Asia a fishery, which is undertaken by a fisherman alone without employment is called “Small scale fishery”. In contrast, a fishery, which is run with employed fishermen and using a larger boat is called “Industrial fishery”. In Japan, the industrial fishery is further classified into “Small and Medium size fishery” and “Large size fishery”.

Table 3.1 reveals the following facts:

- 1) Economic structure of Japanese marine fisheries forms a pyramid type, with so many small scale fishing households at the bottom and with a few large sized enterprises at the top.
- 2) Total number of fishing households/enterprises follows always a clear declining trend.
- 3) Although the table does not mention anything on the size of fisheries production, small and medium sized fishing enterprises have played a major role.

Table 3.1 Number of Fishing Households/Enterprises, 1975, 1988 and 1999

Sizes	1975	1988	1999
Total	216,314	190,271	150,228
Coastal Fishing Household (Capture)	146,341	141,866	115,367
Coastal Fishing Household (Aquaculture)	60,072	38,471	27,441
Small & Medium Sized Enterprise	9,713	9,874	7,290
Small & Medium Sized Enterprise	215	220	130

Definitions:

- i . Coastal fishing household includes those “without using boat”, “with non-powered boat”, “with powered boat of less than 10 gross tons” and those engaged in aquaculture in marine water.
- ii . Small & Medium Sized Enterprise refers to Fishing Enterprises, which run the powered of less than 1,000 gross tons by totaling all of his powered boats.
- iii . Large Sized Enterprise refers to Fishing Enterprises, which run the powered of more than 1,000 gross tons by totaling all of his powered boats.

4) There has been marked decrease in the number of coastal fishing households. However, during the period from 1975 to 1999, there was a remarkable increase in aquaculture production. This fact implies that during the said period the average area per aquaculture household has increased. This occurred particularly for sea laver aquaculture due to the introduction of an automatic machine to produce dried seaweeds.

(3) Significance in the analysis on the fisheries structural data

The year of 1970 was a historic year in the history of fisheries administration of Japan, as Prime Minister, Mr. Ikeda, declared a policy to make national gross income double in order to increase the income of people in rural area, which will result in the improvement of the living level of farmer and fishermen in rural area.

To achieve such a goal, the ministry of agriculture, forestry and fishery established an Agriculture Research Council to locate the measures for fisheries, which were summarized as follows:

1) The number of fishermen, who engaged in coastal fisheries, should be decreased by transferring some of them to another job other than fisheries. By that time, the total number of coastal fishermen had exceeded 700,000 according the result of a fishery census.

2) During that period, fisheries enterprises, which engaged in the medium and small scale fisheries had suffered from the serious decline in the price of fish on the occasion of good fishing. In response to such a situation, the council suggested a policy to increase the capacity of cold storages.

3.3 Fishery Production and Labor

Translated by J. Wilhelm based on White Paper on Japanese Fisheries for the youth released by Fisheries Agency.

Japan's fishery production was one of the highest worldwide, but its overall production has shown a decline to about half of the amount at its peak in the mid 1990s. While aquaculture and coastal fisheries production has remained stable, offshore and distant water fisheries production has declined dramatically (See **Fig.3.3**).

Japan has about 64 million people as working force, including male and female. Although Japan's population grew in the recent decades, the number of people working in the primary industry declined. Today, of 3.2 million (ca. 5% of the total work force) in the primary sector, ca. 260.000 work in fisheries. The fishery population is declining and simultaneously aging. In 2000, most of the fishermen worked in the coastal fishery (220.000), while there were ca. 40.000 in offshore and distant water fisheries. The numbers by gender were similar: 200.000 male and 40.000 female.

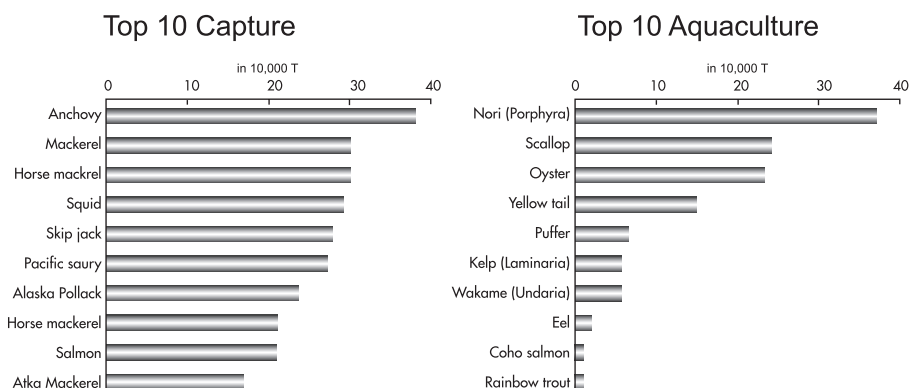


Figure 3.3 Main Species Caught or Cultured, 2002

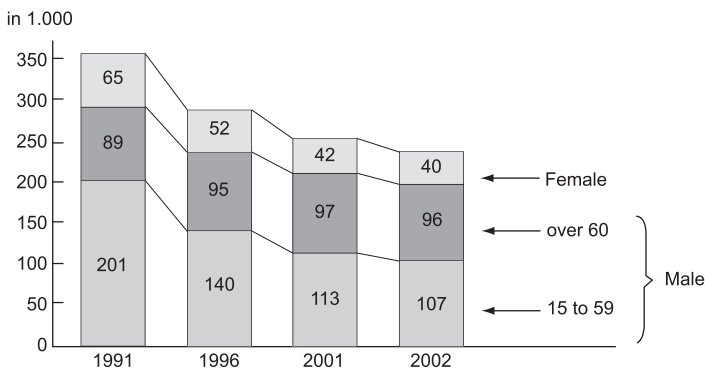


Figure 3.4 Japanese Fishery Work Force by Age

3.4 Characteristics of Main Fisheries by Major sectors

Translated by J. Wilhelm based on White Paper on Japanese Fisheries for the youth released by Fisheries Agency.

Coastal fishery: fishing done near the coast, i.e. species (including seaweed) that can be caught on a day trip. Various species caught but only small numbers of each. Most of the fishing population engaged. Average price of fishes throughout all species caught: 37 Yen / Kg (first sale price at time of unloading/landing).

Offshore fishery: fishing that is done in waters further off the coast. Fishing operations can take several days at sea. Variety of species caught is not as great as in the coastal fisheries, although the amount of the catch is larger. Due to the decline of pilchard resources the overall production in offshore fisheries has dropped. Average price of species caught: 17 Yen / Kg (at time of unloading/landing).

Distant water fishery: fishery done in high seas or the EEZ of countries other than Japan. Fishing operation can take several months

or even up to one year. Main species: skipjack, tuna, squid, etc. Production decreased due to stricter international regulations. Average price of species caught*: 25 Yen / Kg (at time of unloading/landing).

Marine Aquaculture: breeding, feeding and rearing fishes in cages; cultivation of shellfish or seaweed. Main species: yellowtail, red snapper, oyster, scallop, *nori* (Porphyra), *wakame* (Undariaceae). While overall production in Japanese fishery is declining, only aquaculture shows growth. Average price of cultivated marine products*: 43 Yen / Kg (at time of unloading/landing).

Inland fishery and aquaculture (in inland waters): fishing done in inland waters like lakes or rivers. Breeding of small fishes (salmon) or shellfish in inland waters. Main species: eel, *ayu* (Plecoglossidae), rainbow trout, carp, *shijimi* (corbiculae). Total production: negligible in comparison to the other types of fishery. Average price of products*: 86 Yen / Kg (at time of first sale).

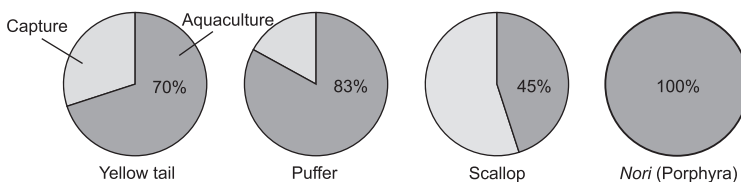


Figure 3.5 Main Products in Aquaculture (2001)

3.5 Economics of Marine Capture and Aquaculture

Tadashi Yamamoto

(See **Figure 3.6** and **3.7**)

(1) Fisheries Economic Survey in Japan

There are two fisheries economic surveys as follows:

1) Economic survey for fishing household:

Normally a fishing household has several income sources. For an example, the husband engages in fishing. His wife works for a super market as a cashier. His son works for a factory. The economic survey for fishing household aims at measuring the total income of a fishing household from every income source and also the household expenditure of a fishing household. A similar survey has been developed for a farm household and a salary man household in urban area. So that, income and living level of fishing household can be compared with those of farm household and salary man household.

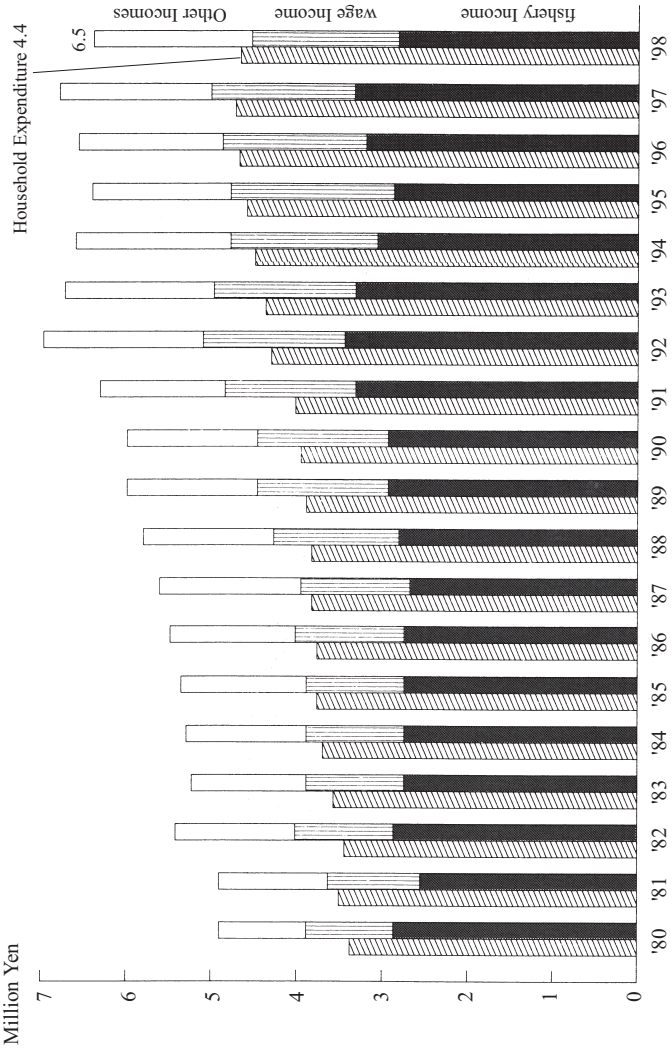
2) Cost and earning survey for small and medium size fishery:

The economic survey for small and medium size fishery is carried out to clarify whether the fishery is profitable or not by knowing the size of total sale of catch and the total cost spent for fishing. The difference between the total sale and the cost will be a profit. The total cost includes the depreciation of boat and engine.

(2) The Outcomes of the Fisheries Economic surveys

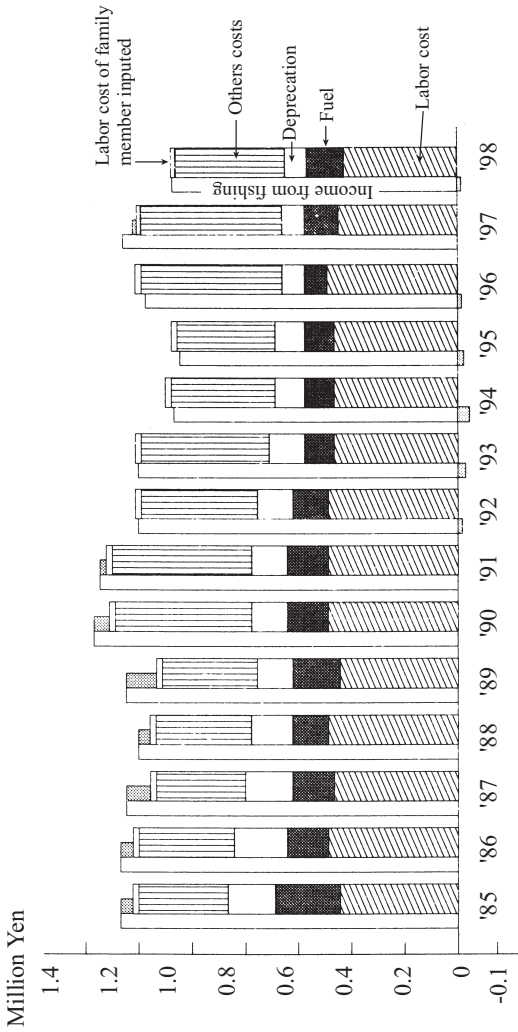
1) Economy of Fishing Household is quite healthy

The total income of fishing household exceeds far beyond the family expenditure. The difference between the total income and the family expenditure exceeds one million Yen, which goes to the saving. Such a



Data Source : Fishing household Economy Survey, MAFF
 For every year there are two histogram, the left one being the household expenditure and the right one the income by income sources.

Fig 3.6 Income and Household Expenditure per Fishing Household From 1980 to 1998



Data Source : Fishing Enterprise Economy Survey, MAFF

Fig 3.7 Cost and Earning for Medium and Small Fishing Enterprise

For every year the left pillar in dicatis income from fishing and the right pillar indicate the cost for fishing by cost items

surplus for aquaculture household is much more than that of fishing operator's household.

2) Economy of Medium and Small Size Fishing Enterprise is not always profitable

In many instances, the total cost including depreciation cost exceeds the total sale, which means that running medium and small size fishing is not always profitable. This is mainly due to high labor cost for employed fishermen.

3.6 Fish Marketing and Demand

Translated by J. Wilhelm based on White Paper on Japanese Fisheries for the youth released by Fisheries Agency.

(1) Fish Markets in Fish Producing Area and Fish Consuming Area

There are some characteristics of marine products: they decompose quickly, can only be caught in certain seasons, vary in size, and are unable to be caught during rough weather.

There are two type of fish market in Japan. One is fish markets located at fish producing area, through which fishes caught are landed and sold. The other is those, which are located in fish consuming areas like Tokyo, Osaka, etc. The former is mostly run by fishery cooperative association (FCA). The latter is mostly run by municipal government. The price of fish is normally determined by auction.

When a catch is landed, they are sorted out for further processing, as soon as possible to prevent them from decomposing. The products are usually transported by truck to the fish markets in fish consuming areas.

Consumer markets (located in populous areas): Areas with a high population density have a high level of demand for food. The marine products caught and sold in local fish markets are transported here and resold to fish shops or supermarkets, where they are finally sold to consumers at retail outlets.

(2) Environment of Japanese Fisheries: Kuro-shio and Oya-shio

The Japanese archipelago consists of an arc of thousands of islands stretched from south to north, of which Kyûshû, Shikoku, Honshû and Hokkaidô are the biggest. Because of the archipelago's orientation from south to north, Japan has a wide range of climatic zones, from sub-tropical to sub-arctic. The islands' coasts are washed by several major currents, both warm and cold. As a result of this mix, the sea surrounding the Japanese Islands is very rich in marine resources, from tropical species in the south to halibut and cod in the north.

There are three main currents. The Japan Current (jap. *Kuroshio*) is a warm one, originating in the Indonesian region and flowing northeast, bringing such species as skipjack, tunas and other warm water pelagic species. Its size is comparable to the Gulf Stream. The Tsushima Current is a branch of the Japan Current and flows through the straits of Tsushima (between the Korean peninsula and Kyûshû) up into the Sea of Japan. Due to the Tsushima Current, the Sea of Japan is rich in species such as squid. The third is the Oyashio Current, which is cold and originates around the Kurile Islands, flowing southward to Honshû. The collision of the warm Japan Current and the cold Oyashio Current near to the offshore of the prefectures Fukushima, Miyagi and Iwate makes this region called *Sanriku-oki* (lit. the "Sanriku-offshore") one of the richest areas in marine resources worldwide. (See the map of Japan right after the cover page of this booklet.)

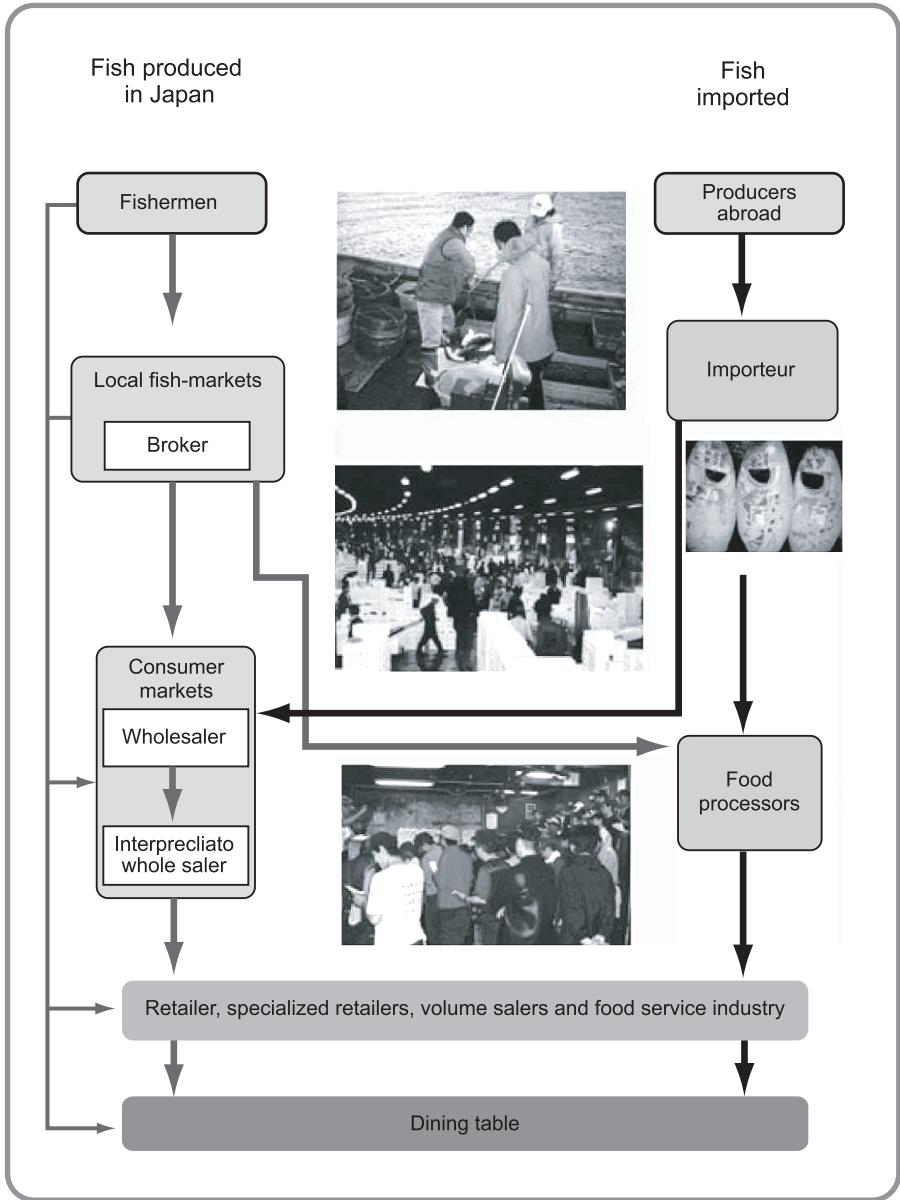


Figure 3.8 Fish Marketing in Japan

(3) Shell mounds as a proof of Japanese eating fish and shellfish

All around the country, archaeologists have found shell mounds (jap. *kaizuka*) of which some are more than 6.000 years old. These shell mounds are in fact small garbage-mounds of the indigenous people of Japan, and analyzing their contents shows us that these people depended heavily on marine products such as shellfish, fish, marine algae and other marine resources.

(4) Per capita fish consumption

Currently, annual total consumption of marine products is ca. 8.5 Mil. Tonnes, which means that the Japanese average per capita fish consumption is around 66 kg, being the sixth highest worldwide. Even on a headed and gutted weight basis, this would mean that each person in Japan has an average consumption of ca. 100 gram of marine products everyday.

Table 3.2 Per capita consumption of marine products in different countries and regions

	Country (region)	kg per annum
1	Maldives	154.0
2	Iceland	91.4
3	Kiribati	76.3
4	Guyana	72.3
5	(French) Polynesia	66.4
6	Japan	66.2
7	Seychelles	62.3
8	Portugal	58.1
9	Malaysia	51.7
10	Norway	50.1

(5) Fish consumption in Relation to Health

The Japanese diet used to be a very healthy and balanced combination of fish, meat, vegetables and fruits with rice as the primary

grain. But since the 1950s, consumption of higher fat products has increased, so that poor nutrition has become a major public health problem.

In one study of children’s nutrition, (5th grade students,; Graph) the lack of calcium, iron content and other important elements is obvious. There has been a major change in the Japanese diet; however, the amount of marine products consumed has remained relatively unchanged. Today, the Japanese derive approximately 40 % of their animal protein from marine products.

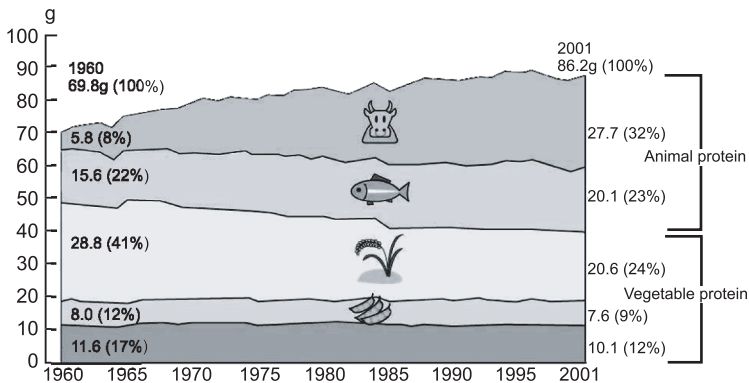


Figure 3.9 Changes in Per Capita Protein supply

It should be noted that marine products are not only an important source of animal protein, but are also a source of minerals such as calcium and iron. Marine products also contain fatty acids like EPA or DHA, which are suited to fight the “modern diseases” of high blood pressure, obesity and related disorders.

(6) Demand and Supply of Fish in Japan

Today, about half of the marine products in Japan are produced

domestically. . The other half is imported from abroad. As the Japanese have become more affluent, the popularity of shrimp and crab has increased, though local supplies are not sufficient to meet the demand. Another reason for the self sufficiency in seafood production lies in the decline of overall catches by Japanese fishers.

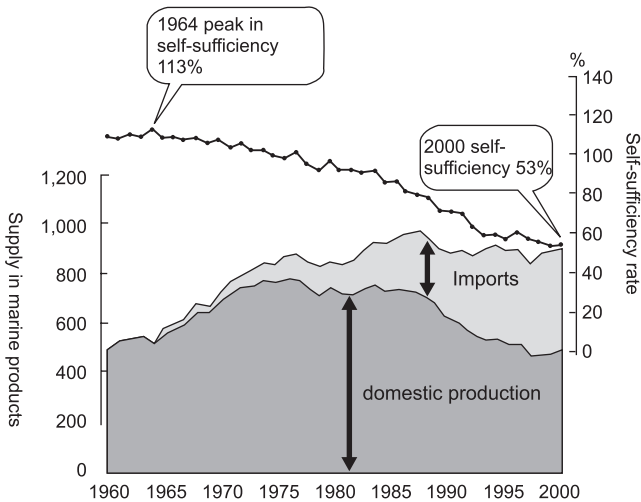


Figure 3.10 Changes in Self-Sufficiency of Marine Products

3.7 Fisheries Insurance System Developed in Japan

Tadashi Yamamoto

There are two insurance systems for fisheries, which has developed in Japan. One is that for fishing boat when a fishing boat was damaged or sunk, and the other for fisheries production at the time of poor catch or harvest.

(1) Fishing Boat Insurance System

The insurance system for fishing boat was introduced in 1939, which

was before the war. The size of the premium for the fishing boat insurance system is determined in accordance with the size of boat and its age, and the insurance is renewed every year.

(2) Insurance system for fisheries production

The insurance system for fisheries production was developed in 1967. This insurance system is classified into follows:

- i. That for the catch of capture fisheries and
- ii. That for the harvest of aquaculture.

For every type of capture fishery, the size of premium is determined in accordance with the size classes of fishing boat in use. When the annual catch of a boat does not reach to the 80 % of the standard catch, the difference between the 80 % of the standard catch and the actual catch is compensated by the insurance system. The same procedure is followed for aquaculture. The insurance is renewed every year.

At every prefecture an association for such fisheries insurance system has been established. To avoid a heavy risk of a certain prefecture fishery insurance association, the insurance system at a prefecture level has been reinsured at national level. The running cost at the insurance association at a prefecture level is subsidized by the national government.

Chapter 4. Fishery Management in Japan

4.1 Institutional History of Japanese Fishery Management System

Mitsutaku Makino

In this section, a historical overview of Japanese Fishery management and resource management is introduced, with special emphasis on changes in formal institutions.

(1) Until the Feudal Era

The first legal provision relating to fishery operation is found in the *Taiho* Code (A.D. 701-), promulgated in order to build a centralized government following the administrative framework of the *Tang* dynasty (A.D. 618-907) of China. In this provision, resource use of mountains, rivers, bushes, bogs, and coasts was basically open to all, and free from levies (in contrast to the terrestrial situation, in which specific land users were identified and levies were imposed by the central government). In other words, these areas were for common use, and managed by local users themselves. This basic policy was passed down to and adopted by successive rulers (**Table 4.1**).

In the feudal era (Tokugawa Dynasty: 1603-1868), communities controlled adjacent coastal areas, and were responsible for establishing appropriate rules for use of the area. Under such rules, qualified individuals living in the community were entitled to engage in fisheries activity. The role of the community, effectively an autonomous management body of fishermen, constituted the basis for present day Fisheries Cooperative Associations (FCAs). Offshore fisheries, however, were basically open access; anyone could fish there, regardless of the location of the fisherman's home community.

Table 4.1 Changes in Japanese fisheries institutions

Early Feudal Era (1603- circa1700)	Adjacent Coastal Areas	Communities controlled adjacent coastal areas, and were responsible for establishing appropriate rules governing use of these areas.
	Offshore Area	Open access. Anyone could operate here, regardless of the location of the home community.
Later Feudal Era (circa 1700-1868)	Adjacent Coastal Area	Development of labor-intensive and capitalized fisheries. A few wealthy fishermen monopolized fishing operations.
	Offshore Area	Large-scale fisheries operators established their own guild and made rules, protected by feudal lords.
Meiji Fishery Law (1901-1945)	Coastal Area	Fishing rights, as exclusive real rights, were granted to both Fisheries Societies (i.e., local fishermen's organizations) and individuals.
	Offshore and Distant water	Fishing licenses were issued to individuals or juridical persons.
Current Fishery Law (1949-)	Coastal Area	Fishing rights, as limited real rights, are granted to the Fisheries Cooperative Associations. There is a case, where a fishing right for the operation of a large set net fishery is granted to an individual, but this rarely happens.
	Offshore and Distant water	Fishing licenses were issued to individuals or legal persons.

Around the middle of the Feudal era, population increases and technological developments enabled the development of labor-intensive, capitalized fisheries such as beach seine fisheries or large set-net fisheries. A few wealthy fishermen monopolized coastal fishing operations. Large-scale offshore fisheries operators established their own guild, and made their own rules. These regimes were appreciated and protected by feudal lords in exchange for contributions (gelds), and they functioned, to some degree, as formal institutions.

(2) The Modernization of Japan with particular reference to Fisheries Institution (1968–1901)

The Tokugawa Dynasty was overthrown in 1868. Then, the new Japanese government, the *Meiji* government, carried out a radical modernization of the whole national institutional framework by modifying laws adopted from European countries. In that process, many missions in different fields were dispatched to European countries. It is said, for example, the basis of current Japanese civil law and criminal law were build with such a process.

Fishery was no exception. The first inquiry mission on fisheries institution was dispatched to Europe, but there was no good example to modify it for Japanese fisheries. It is said the mission was dispatched to Europa again.

(3) Meiji Fishery Law: 1901 - 1945

The Meiji Fishery Law, which was enacted in 1901, is the only law, which was worked out by Japan herself as a mixture of fishing rights granted during the feudal era and fishing rights newly granted to fisheries, which appeared with the progress of mechanization of fishing boats. This law put fishing rights and licenses, for the first time, in a

statutory form.

Fishing rights were granted to both Fisheries Societies (i.e., local fishermen's organizations) and individuals, and classified into four categories as follows:

- 1) set-net fishing rights;
- 2) specific fishing rights for beach seines, boat seines, etc.;
- 3) aquaculture rights for oyster, seaweed (Nori), pearl, etc.; and
- 4) exclusive fishing rights for capture fisheries in coastal water.

Exclusive fishing rights were further classified into

- a) Traditional exclusive fishing rights (which could be granted to some times an individual, based on customary use in the feudal era), and
- b) New exclusive fishing rights (newly granted by central government).

These exclusive fishing rights were area-based rights and valid to both sedentary and migrating resources occurring in the coastal sea area designated in the fishing right.

Fishing licenses, which were a sort of new fishing right, were issued to individuals or juridical persons for offshore and distant water fisheries.

The nature of these fishing rights was, in effect, that of property rights. Although the expiration period was fixed in the law, rights were virtually unconditional. Especially after the 1910 amendment, fishing rights became exclusive, real rights that could be sold, leased, transferred, and collateralized. During this period the rate of

technological innovation in fishing gear (e.g., cotton nets) and fishing boat mobilization had become increasing rapid.

(4) The Current Fishery Law after WWII (Shouwa Fishery Law)

The end of WWII and the Allied Occupation, following August 1945, brought dramatic and sweeping institutional changes to Japan, including the adoption of the current constitution.

Following agrarian land reform, GHQ (General Headquarters of the Supreme Commander for the Allied Powers) requested that the Japanese government reform fishery institutions in a democratic manner, and the current Fishery Law was enacted in 1949.

The legislative process is summarized in **Fig. 4.1**. The revision of fisheries law had to be done under the supervision of the occupied forces. For these two reasons, there were a lot of twists and turns until the Showa Fishery was enacted. .

Under this law, marine fisheries were classified into three categories:

- 1) fishing rights for coastal fisheries;
- 2) fishing licenses for offshore and distant water fisheries; and
- 3) free fisheries.

Coastal fishing rights were classified, in turn, as

1a) common fishing right: granted to FCA only

The right is valid to the following three fisheries, which operate in coastal sea area, which is defined in each fishing right. This fishing right is granted to a FCA.

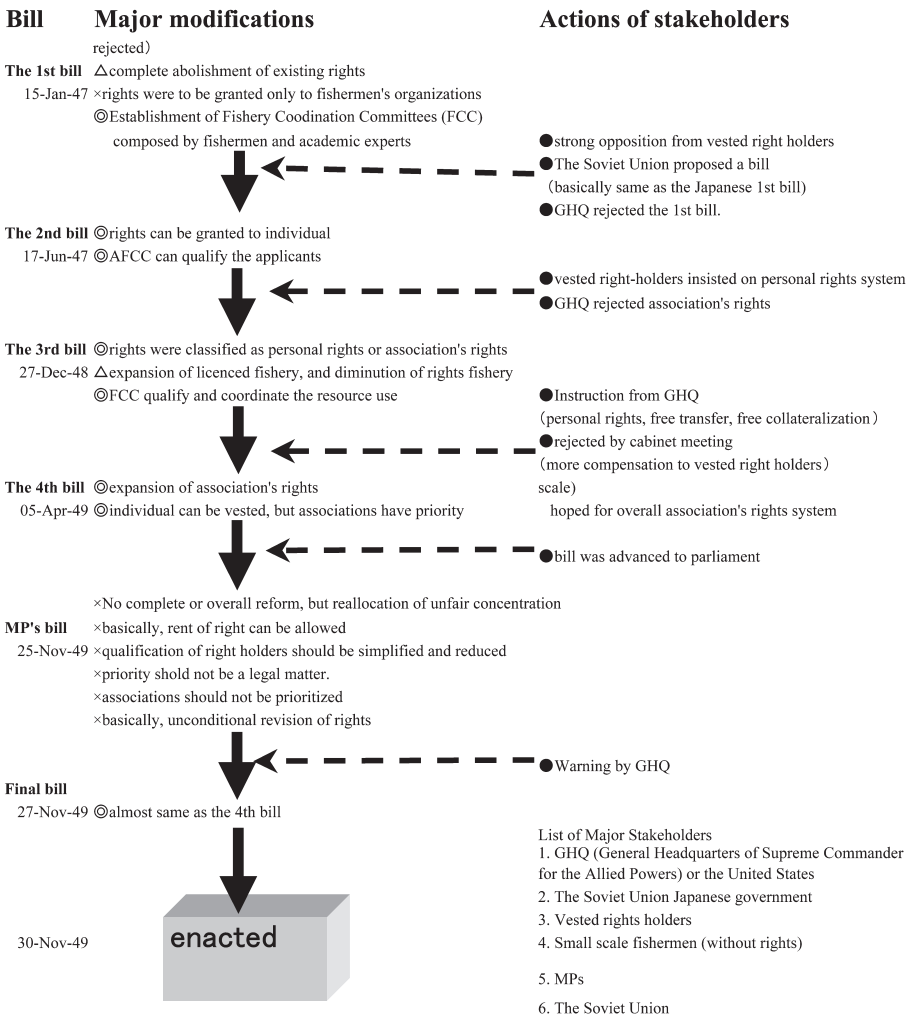


Figure 4.1 Legislative History of the Current Fishery Law

- i. To fish sedentary resources such as abalone, spiny lobster, etc.
- ii. To operate small scale set net.
- iii. To operate set gill net.

1b) large scale set-net fishing right, mostly granted to FCA.

1c) aquaculture (demarcated) fishing right: granted to FCA

(5) Recent Changes

a) Marine Fisheries Resource Development Promotion Law of 1971

There have been several recent amendments and further legislation relating to fishery management and resource management. The Marine Fisheries Resource Development Promotion Law of 1971 was amended in 1990, and the Resource Management Agreement System was established. This system encouraged autonomous agreements among fishermen for the purpose of conducting resource management under more intensive and yet stricter rules than had previously been the case under prefectural fishery coordinating regulations, FCA regulations and FMO rules. When agreement prevails at a certain level within the area, the government can affirm the agreement, and it becomes an official rule. It constitutes an official support system for autonomous resource management by fishermen.

b) Law Regarding Preservation and Management of Living Marine Resources (TAC Law)

In 1996, the “Law Regarding Preservation and Management of Living Marine Resources” was enacted under the United Nations Convention on the Law of Sea. With this law, a total allowable catch (TAC) system was introduced for seven species. A Total Allowable Effort (TAE) system was also introduced, following an amendment in

2001. The central government sets TAC and TAE for each species, and supervises and controls total fishing levies, while the allocation of quotas and the determination of access rules are the responsibility of fishermen's organizations. At present, seven species are subject to TAC, and two to TAE.

c) Basic Law on Fisheries Policy

In 2001, the "Basic Law on Fisheries Policy" was enacted in order to deal with the changes in the circumstances surrounding Japanese fisheries, such as the establishment of the 200 nautical-mile exclusive economic zone, the decreasing self-sufficiency, or advancing age of fishery workers. This law aims to achieve a symbiosis between producers and consumers, and between cities and fishing communities, by establishing a new policy framework for the 21st century. There are two basic principles in this law:

- 1) Securing a stable supply of fishery products, and
- 2) Healthy development of fisheries.

The government is to formulate a Basic Plan for the Fisheries Policy to set out the basic principles, where the targets for self-sufficiency in fishery products are included. The plan will be reviewed, basically, every 5 years.

4.2 Historical Development of Fishermen's Organization in Japan

Tadashi Yamamoto

(1) Fishermen's Association (FA)

In Japan a municipality such as city, town and village is divided into a number of communities. When the Meiji Fisheries Law was enacted

in 1901, fishing rights were granted to every community, on the condition that a fishermen's association (FA) is organized for every community. For this reason, during the early stages of FA, the total number of FAs throughout the country exceeded 3,000.

In those days, a FA was an organization to merely take care of the fishing right without any economic activity. With the progress of time, such FAs were amalgamated with neighboring FAs, and hence the number of FAs decreased.

(2) From FA to FCA

In around 1928 a big recession took place in Japanese national economy, resulting in the poverty of people particularly in rural fishing communities. To remedy such economic crisis, the Ministry of Agriculture and Forestry, which was responsible for fisheries, established a policy and measures to create a public works to provide fishing ports and fish marketing facilities to FAs.

An amendment to the FA Law was made to allow FAs to start fish marketing. Existing FAs were institutionalized and changed to Fisheries Cooperative Associations (FCAs) in accordance with this legal change provided that they met certain conditions. The marketing business of FCAs were often implemented at these facilities by auction between fishermen and fish dealers, on consignment basis. Before such a change occurred, fishers sold their catch directly to fish dealers: fishers were exploited by the fish dealers.

(3) FA and FCA were dissolved with the end of World War II and New FCAs were organized.

After the WW II, the Allied Forces ordered that all FAs and FCAs be dissolved, as they were not always organized in a democratic way.

According to the new law on FCAs, which was enacted in 1948, new FCAs were organized at local level with its federations at prefecture and national level.

(4) Problems Encountered by New FCAs

The total number of FCAs along the sea coast in 1991 was 1,947, which decreased to 1,637 in 2001. However, during the same period the total number of fishers engaged in marine fisheries and aquaculture sharply decreased from 355,000 to 252,000. This implies economic difficulties that FCAs met during this period. Thus, to strengthen economic capacity of FCAs became an urgent issue which necessitated FCA amalgamation promotion activities. This is the reason why all out efforts are have been being put into the promotion of FCAs across the country.

4.3 Current Problems of Fishermen's Organization and its Prospectus

Masaaki Sato

(1) Formation of a term "JF Group"

In order to promote all the activities of National Federation of Fisheries Cooperative Associations (FCA), which is known as "Zengyoren", Prefecture Federations of FCA and local FCAs are grouped as a unit with the name "JF Group" hereunder.

The JF Group is confronted with many issues. The most serious problem is financial: almost 40 % of FCAs in Japan are in deficit. Poor fish prices affected by low-priced fish imported and high costs of fuel oil are some of the main reasons for this difficulty. In value term Japan is the world's largest fish importer, accounting for more than 25 % of

the world's total import of fish. In terms of quantity this is equal to approximately 3.5 million tons per year.

To address financial management problems, National Federation of Fisheries Cooperative Associations organized a National Assembly of FCA Representatives in November 2002. As a result, the JF Group adopted a cooperative movement policy (CMP) for revamping business organization and management. Amalgamating the FCAs is one of the pillars of the CMP. Cutting 30 % of the business cost within three years (before the end of FY 2005, viz., 31 March, 2006) is another important objective of the CMP.

One of the characteristic features of Japanese FCAs in Japan is that virtually every fisher belongs to a FCA. The reason for this is the existence of special privilege, i.e. fishing rights granted to FCA by prefecture governor: unless a fisherman is a member of an FCA, he is not allowed to engage in fisheries in the fishing area as defined by a fishing right. In other words, "fishing right" is a key phrase to describe the function of the FCAs.

(2) Structure of the JF Group

Hereunder, the present structure of JF Group is briefly introduced and the present state of the group is discussed. Based on these situations, current challenges to the JF are presented.

In Japan, there are two basic laws that constitute the institutional structure of Japan's fisheries: one is the FCA Law of 1948, and the other is the Fisheries Law of 1949-. FCAs and their federations were established by the enactment of the FCA Law.

In 2001, the name “JF Group” was adopted to indicate that the FCAs and/or their federations belong to the cooperative sector of fisheries. JF Group stands for Japanese Fisheries cooperatives Group. The JF Group is a three-tiered organization with local, prefecture, and national levels.

The JF Group consists of the following (as of May, 31, 2003):

Number of FCA members	:	437,725
Number of FCAs	:	1,581
Number of prefecture federations	:	77
pref. fed. of FCAs		43
pref. credit fed. of FCAs		34
Number of national federations	:	2
JF ZENGYOREN*1		1
JF KYOSUIREN*2		1

*1: Responsible for all activities other than KYOSUIREN.

*2: Responsible for insurances relating to life, fire, car, etc.

(3) Characteristics of FCAs

One of the most important characteristics of FCA is the fact that “fishing rights” are granted to FCA by the prefecture governor. Unless fisherman is the member a FCA, he is not allowed to fish in the coastal waters of fishing rights of. Thus, almost all fishers are the members of a FCA.

Another point that needs to be noted is that FCAs have multiple functions. Article 11 of the FCA Law provides for business activities as detailed below:

- i. FCA may engage in fish marketing, granting credit, issuing insurance (life and property), supplying products, ice-making,

processing, running cold storage, and guidance.

- ii. FCA may also engage in non-economic activities such as lobbying, environmental protection, member education, consultation and resource management.

(4) Present Status of FCAs

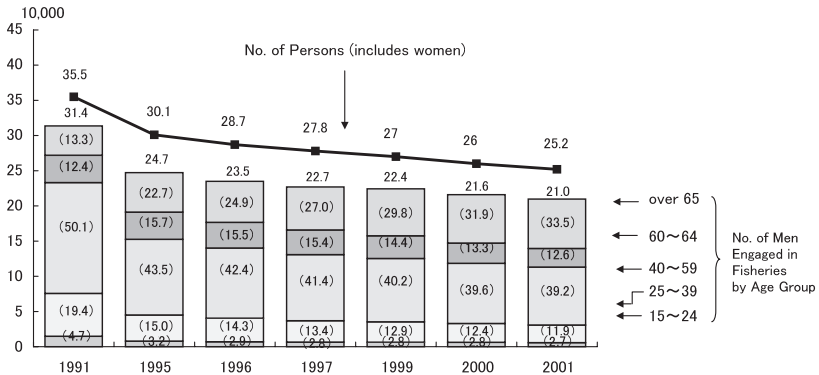
According to the latest statistics compiled by the ZENGYOREN, the organizational status and their economic activities in FY 2001 are summarized as follows:

- The average number of members per FCA is 270 (C members: 162 A members: 108).
- However. Out of the total number of FCAs, in 75.5 % of them the number of members was less than 200.
- Number of fishers has consistently decreased since the 1950s. Aging of fishermen is another serious problem. (see **Fig. 4.2**).
- Number of staff per FCA: Out of the total number of FCAs, 29% of them have less than - 3 employees, and those with 1 to 6 staff account for 55% of the total.
- Average amount of profit per FCA by section is as follows (**Table 4.2**):
- Average amount of share capital per FCA is 130,928,000 Yen.
- Average financial status of FCA, as of March 31, 2002 is given in **Table 4.3** and profit and loss statements for FY 2001 are given in **Table 4.4** and **Table 4.5** respectively.

Changes in the number of persons engaged in fisheries by age group in Japan

year		1991	1995	1996	1997	1999	2000	2001
		10,000	10,000	10,000	10,000	10,000	10,000	10,000
male	over 65	4,1762	5,6069	5,8515	6,1290	6,6752	6,8904	7,0350
	60~64	3,8936	3,8779	3,6425	3,4958	3,2256	2,8728	2,6460
	40~59	15,7314	10,7445	9,9640	9,3978	9,0048	8,5536	8,2320
	25~39	6,0916	3,7050	3,3605	3,0418	2,8896	2,6784	2,4990
	15~24	1,4758	0,7904	0,6815	0,6356	0,6272	0,6048	0,5670
sub-total		31.4	24.7	23.5	22.7	22.4	21.6	21.0
total		35.5	30.1	28.7	27.8	27.0	26.0	25.2

		1991	1995	1996	1997	1999	2000	2001
		%	%	%	%	%	%	%
male	over 65	13.3	22.7	24.9	27.0	29.8	31.9	33.5
	60~64	12.4	15.7	15.5	15.4	14.4	13.3	12.6
	40~59	50.1	43.5	42.4	41.4	40.2	39.6	39.2
	25~39	19.4	15.0	14.3	13.4	12.9	12.4	11.9
	15~24	4.7	3.2	2.9	2.8	2.8	2.8	2.7
sub-total		100.0	100.0	100.0	100.0	100.0	100.0	100.0



Source : Fisheries Census of MAFF

N. B. : The figures in the bracket indicate percentage composition (%)

Figure 4.2 Changes in the Number of Persons Engaged in Fisheries by Age Group in Japan

Table 4.2 The Average Amount of Profit per FCA by Section

Type of Economic Activities	Proceeds in 1,000 Yen	Type of activities engaged (% against to the total FCAs)
Average proceeds per FCA (a)	352,912	
Average cost per FCA (b)	281,740	
Average profit from business per FCA (a - b)	71,172	
Marketing activities	923,537	81
Supply activities	148,090	89
Guidance activities (see N.B.)	17,570	98

N.B. The cost of guidance activities is covered by income from membership fees, fishing access fees (for example, for use of aquaculture rights in a fishing rights area, those engaged in aquaculture pay access fees), appropriation from the profit of businesses to "educational activities", subsidies, and so forth.

Table 4.3 Balance sheet per FCA as of 31 March, 2002

		Yen (Million Yen)	Remarks
Assets	Total	1,337	
	of which Credit assets	977	
	Fixed assets	212	
	Current assets	140	
	Other assets	6	
Liabilities & Capital	Total	1,337	
	Liabilities	1,206	
	Capital	170	
	of which unsettled surplus at the end of current term	-27	

Table 4.4 Profit and Loss Statement in FY 2001

		Yen (Million Yen)	Remarks
Total amount of business transactions		71	A
of which	Marketing business	28	
	Supply business	11	
	Guidance activity	7	
	Ice-making & fish processing business	6	
	Credit business	5	
	Own business (such as running set net)	3	
	Mutual insurance business	2	
	Other	5	
Business management cost		78	B
of which	Personnel cost	51	
Profit from businesses		-6	C = A - B
Income from non-businesses		63	D
Cost for non-businesses		53,636	E
Net profit from non-businesses		10	F
Current term profit		3	G = C + F
Special profit		3	H
Special loss		2	I
Difference of the special profit minus special loss		0.7	J = H - I
Current term profit before tax		4	K = G + J
Corporate tax + resident tax		2	L
Tax adjustment (-)		-0.4	M
Current term surplus		2	N = K - L - M
Deficit carried over from previous term		-29	O
Transfer from special reserve		0.08	P
Previous year's tax adjustment (+)1		0.05	Q
Surplus at the end of the current term (FY 2001)		-27	R = N + O + P + Q

Table 4.5 Surplus at the end of FY 2001 as compared to that of FY 1991

At the end of FY (Million Yen)		1991		2001			
		No. of FCAs	%	No. of FCAs	%		
Deficit	More than 50	491 FCAs (25.2 %)	99	5.1	651 FCAs (39.8 %)	177	10.8
	30 - 50		53	2.7		42	2.6
	10-30		95	4.9		126	7.7
	5-10		52	2.7		75	4.6
	Less than 5		192	9.8		231	14.1
Profit	Less than 5	1,456 FCAs (74.8 %)	944	48.5	985 FCAs (60.2 %)	633	38.7
	10-5		191	9.8		131	8.0
	30-10		198	10.2		151	9.2
	50-30		54	2.8		42	2.6
	50 and above		69	3.6		28	1.7
Total Number of FCAs			1,947			1,636	

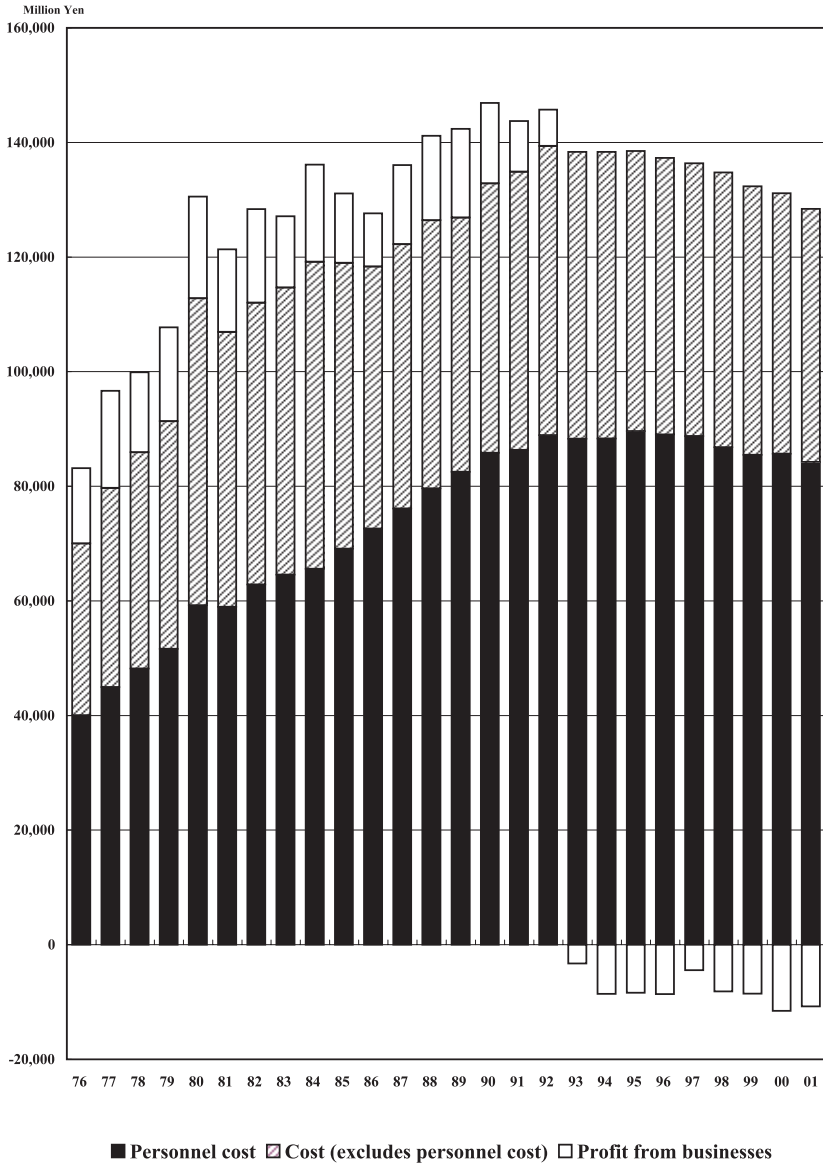


Figure 4.3 Changes in Japanese fisheries institutions

- Reflecting economic turndowns, FCA businesses in Japan have been in deficit since 1993 (see **Fig.4.3**)
- The percentage of those FCAs that had financial deficits increased from 25.2 % in 1991 to 39.8 % in 2001 (see **Table 4.5**).

(5) Current Issues of the JF Group and Strategies for Development

In November 2002, JF ZENGYOREN organized a National Assembly of FCA Representatives in Makuhari, Chiba Prefecture. As a result, a JF Group cooperative movement policy (CMP) was adopted, the object of which was to revamp the organization and management structure of FCAs and empower their businesses in order to overcome various difficulties confronting the fishery sector. In other words, this is a summary of present issues of the JF Group and its four main strategies for development.

1) Promotion of FCA amalgamation

The implementation of an amalgamation program is planned, with the objective of consolidating the existing number of FCAs (1,669 as of April, 2002) into 250 by the end of FY 2007 (March 31, 2008), strengthen their business management structures, and make them more competitive entities. This should enable them to improve their financial situations so as to meet the expectations of the member fishers.

The ultimate objective is to establish one FCA per prefecture. However this will not be possible in some prefectures within the current timeframe. In these cases, establishment of a plural number of FCAs per prefecture is allowed as a temporary measure.

2) Improvement of FCA management:

It is planned to cut 30 % of the management costs of JF Group businesses (this includes not only the management cost of FCAs but also that of their federations).

Efforts will also be made to institutionalize an auditing system for the JF Group.

3) Promotion of member participation in the FCA movement, and contribution to fishing communities:

It is planned to establish a JF Group platform for the promotion of the cooperative movement (Note: this was established in June, 2003). Cooperation among cooperatives of different sectors, promotion of management transparency, an increase in the percentage of use of FCA businesses, are but a few of the contents of this item.

4) Improvement of business performance:

Improvement of human resources (staff and member education programs) and business facilities are key strategies for manpower improvement.

Most importantly, sustainable use of resources must be the primary objective for promoting the fisheries cooperative movement. In this sense, wise use of fishing rights is important. Fishing rights are granted to FCAs by prefecture governors. Unless a fisherman is a member fisher of a FCA, he is not allowed to engage in fisheries in the fishing rights area.

All of the above are being actively implemented by the JF Group.

4.4 Japanese Co-management Developed with the Initiative of Local Fishers

Mitsutaku Makino

(1) The Concept of the Japanese Fisheries Management

As explained in section 4.1, the end of World War II brought dramatic and sweeping institutional changes to Japan, including the adoption of the current constitution. Following agrarian land reform, the current Fishery Law was enacted in 1949.

In the immediate aftermath of the war, food shortages were the most important national issue. According to government documents made available in 1963 (Fisheries Agency 1963), the principal aim of fishery reform at this time was to develop fisheries productivity in order to cope with the domestic food shortage, and to improve the economic status of fishermen actually engaged in fishing operations. To achieve this goal, the overall objective of the government at that time was the efficient and extensive development of fishery resources without overexploitation. The government recognized a strong need for the “enhancement and conservation of aquatic animals and plants” as a prerequisite of the reform.

How could this goal be achieved? How could resources be utilized more efficiently, extensively and sustainably? The methodology was “the holistic utilization of sea surfaces”, provided in Section? of the current Fishery Law. This is the most fundamental feature of the current Japanese institutional framework, and is explained below.

In contrast to the terrestrial situation, sea areas can be utilized in three dimensions. At a fishing ground, a wide range of target species

can be harvested using various kinds of gear. In addition, a fishing operation conducted by one person can, by its nature, influence others' operations, either actually (physically) or potentially. Most fisheries, especially finfish fisheries, cannot be conducted without using a certain minimum amount of sea area. Therefore, it is necessary to arrange and coordinate various fishing operations within a certain area from an overall point of view, and not simply from the viewpoint of each economic unit. This is termed "holistic fisheries coordination." Various levels and scales of coordinating organization have been instituted to facilitate holistic fisheries coordination.

(2) Various Scales and Levels of Coordinating Organizations.

Table 4.6 shows the various coordinating organizations for varying levels and scales. The smallest-scale coordinating organizations are local Fisheries Cooperative Associations (FCA). They are composed of local fishermen, and are basically established in each fishing community. In order to achieve holistic fisheries coordination for local fishing grounds, FCA have to establish operational regulations (FCA regulations) that stipulate gear restrictions, as well as closures of the fishing ground (by season or area), among other management measures.

Area Fishery Coordinating Committees (AFCCs) have been established in each prefecture. Each AFCC consists of 9 elected fishermen, 4 academic experts, and 2 representatives of public interests (usually local government officials). The AFCC's considerable power and authority is explicit in the Fishery Law. All rights (based on the Fishery Ground Plan) and licenses (based on the Prefectural Fishery Coordinating Regulations) are granted by prefectural governors, following recommendations or advice from the AFCC. In effect, the AFCC decides the allocation of fishing rights and licenses in areas

within their jurisdiction. Also, the AFCC can restrict the attributions of fishing rights and licenses, and can issue Committee Directions as appropriate. The objective of Committee Directions must be to promote the “enhancement and conservation of aquatic animals and plants” in order to achieve efficient and extensive fishery production, without violating sustainability. The AFCC can request a Prefectural Governor’s Order to enforce compliance, on the part of fishermen, with directions.

Table 4.6 Coordinating organizations in Japan

Level	Organization	Function
National Level	Fishery Policy Council	The advisory body to the government for national level fishery coordination, design of national fishery policy, etc.
Multi Jurisdictional Level	Wide-Area Fisheries Coordinating Committees (WFCCs)	Coordination of resource use and management of highly migratory species. Also addresses Resource Restoration Plans.
Prefecture Level	Area Fishery Coordinating Committees (AFCCs)	Mainly composed of democratically elected fishermen. Coordination through the Fishery Ground Plan, Prefectural Fishery Coordinating Regulations, and Committee Directions.
Local Level	Local Fisheries Cooperative Associations (FCA)	Composed of local fishermen. They establish operational regulations (FCA regulations) that stipulate gear restrictions, seasonal/area closures of fishing grounds, etc.
More Specialized Purpose	Fishery Management Organizations (FMOs)	Autonomous body of fishermen. FMO rules are more detailed and more strict than the FCA regulations.

Wide-Area Fisheries Coordinating Committees (WFCCs) were established by an amendment of the Fishery Law in 2001; these committees act at levels higher than that of Prefectural jurisdiction. WFCCs coordinate resource use and management of highly migratory species, and address Resource Restoration Plans (drawn up by the Minister of Agriculture, Forestry and Fisheries) in order to restore overexploited resources.

The highest-level coordinating organization is that of the Fishery Policy Council; this council constitutes the advisory body to the government with respect to national-level fisheries coordination, design of national fishery policy and other issues.

In addition to these formal coordinating organizations, a number of new operational ideas have been developed since the late 1970s, largely on the initiative of the fishermen. These developments include what is known as “*Shigen Kanri-gata Gyogyo*” or Resource Management-type Fishery. In order to maintain and improve incomes, as well as sustain resources, various management measures have been initiated by autonomous bodies of fishermen, called Fishery Management Organizations (FMOs). FMOs are often formed by a group of fishermen within a FCA. Sometimes, FMOs are organized by members from several neighboring FCAs or even from FCAs of several prefectures.

(3) Fisheries Co-management in Japan

Under the current institutional framework of fishery management, the Fishery Law simply provides a framework for fishery management, through a system of fishing rights and licenses. In order to achieve holistic utilization of sea surfaces, coordinating organizations with wide-ranging authority and power have emerged. For example, AFCCs can decide on allocation and restrict the applications of fishing rights/licenses using the Fishery Ground Plan and Committee Directions.

In addition, a variety of fishing restrictions have been stipulated in prefectural fishery coordinating regulations, FCA regulations and FMO rules. Prefectural fishing regulations broadly stipulate fishing

restrictions, in order that the regulations may be applicable throughout the prefecture. FCA regulations stipulate more detailed fishing restrictions, applicable to local conditions. These FCA regulations take into account the restrictions set out in the Prefectural Fishery Coordinating Regulation but also include some restrictions that have not been stipulated in the prefectural regulations.

In the same manner, the FMO rules are even more detailed and yet stricter than the FCA regulations. Therefore, in the current institutional framework, local fishermen themselves manage fishing operations, subject to resource enhancement and conservation of the area. In other words, resource conservation and enhancement restrain the full exercise of fishery rights and licenses.

As reviewed above, local fishermen have become the principal decision-makers, but the government also plays a vital role in fishery resource management. Co-management literature makes it clear that local fishermen or fishermen's organizations cannot function efficiently without government co-operation or intervention. It is much the same for the current Japanese institutional framework. For example, the prefectural fisheries division is responsible for the issue and renewal of fishing rights and prefectural licenses, based on advice from the AFCC. Furthermore, in many cases, scientific information or administrative guidelines presented by the prefecture forms a basis for regulations and rules devised by local fishermen. At the same time, local fishermen also bear the transaction costs for fisheries management.

4.5 Resource Enhancement

Yoshiaki Matsuda

(1) Ways of Resources Enhancement Method Adopted

A variety of methods have been adopted to enhance fisheries resources. These include; protection of spawning and nursing grounds, fishing restrictions such as area closures and closed seasons, removal of predators, reduction of fishing effort, e.g. the restriction in the size of fishing gear in use, the number of days to fish in a week and so forth, ranching of valuable fish seeds, construction of spawning and nursing grounds such as artificial reefs, tree planting in the mountains nearby the sea coast to improve stream habitat, and building marine forests. These tools are used alone or in combination for better results. Japan has a unique experience in resource enhancement.

(2) Marine Ranching, which is called sea farming in Japanese

The term “marine ranching” refers to a system under which artificially reared fingerlings are released into the open sea, then later recaptured after growing to market size. This system also includes modification of the physical environment, such as construction of artificial reefs, in order to improve survival of the reared fingerlings. Thus, marine ranching is a combination of artificial rearing, based on individual property rights, and capture, based on common fishing rights.

(3) History of Marine Ranching

In the history of marine ranching in Japan, salmon ranching has the longest history with successful results, beginning in 1876. In fact, Japan learned the method of salmon ranching from the USA. It has been developed mainly in the Hokkaido and partly in the northern part of

Honshu. It has been intensified with the era of the 200 miles exclusive zone.

On the other hand, marine ranching of other species such as Kuruma prawn and swimming club started in the Seto Inland Sea Marine Ranching Centers in the early 1960s, triggered the development of prefectural and municipal marine ranching in the early 1970s. At present, 16 national Marine Ranching Centers and nearly 500 Prefectural and/or Municipal or Private Marine Ranching Centers or Hatcheries are in operation all over Japan.

(4) Species for which marine ranching has been developed

Major target fishes are salmon (*Onchorynchus spp.*), trout (*Salmo gairdneri irideus*), Bastard halibut (*Paralichthys olivaceus*), red sea bream (*Pagrus major*), puffer (*Fugu rubripes rubripes*), hardtail (*Caranx delicatissimus*), yellowtail (*Seriola quinqueradiata T. et S.*) and herring (*Clupea pallasii C. et V.*). Among crustacean, “kuruma” prawn (*Penaeus japonicus B.*), “yoshiebi (*Metapenaeus monoceros*)”, blue crab (*Neptunus trituberculatus M.*), and king crab (*Paralithodes brevipes B.*) are major species. Among Molluscs and others, scallop (*Pecten yessoensis J.*), abalone (*Haliotis discus R.*), and ark shell (*Anadara broughtoni*) and sea urchin (*Pseudocentrotus depressus* and others) and common octopus (*Polypus vulgaris*) are major species.

At present, nearly 80 species are artificially propagated, and raised to fingerlings and released along Japan’s sea coasts. Challenges have been made to develop marine ranching of bluefin tuna (*Thunnus thynnus*), which is largely migrate fish.

(5) Effects of marine ranching

The scientific philosophy behind marine ranching is to artificially protect the critical life stages of commercially valuable target species in order to increase survival or recovery rates, resulting in the enhancement of fisheries resources. However, this is not easy. Technical difficulty of artificial fingerling production varies from one species to another. Some are easy, some are not. Recovery rates are also difficult to predict, though intermediate culture techniques are used. The economic performance of marine ranching, however, is not clear yet except for a few species such as salmon, red sea bream and scallop. This can be attributed to environmental degradation along the Japanese coasts due to post-war industrialization.

After a spectacular age of economic growth, Japan has faced an unprecedented long depression since the middle of the 1990s. Also at that time the general public began to realize what they had done to the environment: water was polluted, and spawning and nursing grounds had been destroyed. Many businesses and governments now think that there is no way to survive in the 21st century unless they take care of the environment. People are now recognizing the various roles of fisheries in providing opportunities for income and employment in the rural communities, signaling the need for protection of the environment, recreation, preserving cultural heritage, and national security as well as food security.

(6) Forestation along the sea coast or in the sea

In Japanese, we have a popular word, “UOTSUKIRIN” which means “forests for fish.” Fishermen believe that fish prefer to gather and rest in the shade, in clean natural water. The practice of systematically planting trees in the mountains which started in feudal times, used to be

common in fishing communities. Recently, much attention has been paid to this practice in fishing villages and it has again become popular among citizens. As a result, salmon and other species are coming back to Japan's shores. Many fishermen are now thinking that we must keep the environment healthy and preserve natural wealth for generations to come, not only for our generation.

Forestation in the sea is another way to enhance fisheries resources. Governments have given this a high priority since the 1960s, but allocation of funds for real protection of spawning and nursing grounds has been very limited. The majority of the government budget for fisheries has been spent on ports and infrastructure. Ironically, this did not enhance fisheries resources. As a result, the cost performance of this infrastructure building has been questioned. As a result, the Fundamental Law of the Fisheries and the Law of Ports and Grounds were enacted in 2001. Under the new framework, ports and grounds are regarded as an integral part of fishing community development. For instance, there is considerable public awareness of the value of maintaining artificial kelp forests using established aquaculture technology.

(7) Conclusion

Japanese coastal fishermen have now begun to realize the importance of their initiatives for sustainable fisheries development. There are many cases of fisheries today which have achieved successful management practices in cooperation with government and popular support.

4.6 Community-Based Coastal Fisheries Management Developed in Japan

Tadashi Yamamoto

Japan International Fisheries Research Society (JIFRS)

Tel/Fax (81)3-3350-1867, E-Mail yamachu@tkb.att.ne.jp

In recent years there are many people, who use a term, “CBFM”, which is abbreviation of “Community Based Fisheries Management, without paying much attention to its meaning. The present paper aims to illustrate its meaning, by referring to CBFM developed in Japan.

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Abstract

1. Small Scale Fishery is a Target for CBFMS
2. Limited Entry Regime is a Prerequisite for the Development of CBFMS
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4. Advantage and Disadvantage by Different Types of Fisheries Management
5. Organization Responsible for Fisheries Management and Cost Involved for the Government
6. Fishing Right and Fishing License in Japan
7. Coastal Fisheries Management Plan at Prefecture Level
8. Incidental Occurrence of CBFMS in Japan
9. Fisheries Management Organization in Japan
10. Conclusion

ABSTRACT

FAO/Japan Expert Consultation on the Development of Community-based Coastal Fishery Management Systems for Asia and the Pacific was held in Kobe, Japan, 8-12 June 1992. This was the first occasion, when a term "Community-Based Coastal Fishery Management" was officially used.

Dr. Francis T. Christy Jr., who was once a senior policy and planning

officer of FAO, was a technical advisor to the Consultation, and hence he was supposed to be a person, who created this technical term. However, it was strange that the Consultation never discussed even the general meaning of "Community-Based Coastal Fishery Management". Therefore, so far there has been no definition, which is internationally defined and agreed upon among those, who are concerned.

On the other hand, Japan International Fisheries Research Society (JIFRS), in collaboration with the National Federation of Fisheries Cooperative Associations (ZENGYOREN), organized an International symposium on fishery management from 26 August to 3 September, 1991 in Tokyo, which was only eight months prior to the Kobe Consultation as referred above. For this seminar Dr. Kevin Short, who was one of resources speakers on behalf of Japan, used "The Japanese Coastal Fisheries Management System Based on Exclusive Fishing Rights" as the title of his paper.

For the same symposium, Akira Hasegawa, Haruhiko Miyazawa and Tadashi Yamamoto prepared a paper entitled "An Overview of Japanese Fisheries Management Systems developed under the initiative of fishermen". Judging from the contents of discussions held in Kobe Consultation, the meaning of the term we used in the 1991 international symposium was the same as the one used in the 1992 Kobe Consultation.

To avoid any confusion among the readers, the meaning of Community-based Coastal Fisheries Management System in the present paper will be as follows:

<p>"Community-based fishery management system is a fishery management system, which was developed by fishermen based on fishing right granted to them through a Fisheries Cooperative Association (FCA). Naturally, fishery management is practiced with the initiative of fishermen."</p>
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The present paper gives the essence of Community-Based Fisheries Management System developed in Japan.

1. Background

In Japan, even before the World War II a fishing right system was in existence. However, in 1948 all the fishing rights granted based on the previous fishery law were nullified. Subsequently, a new fishery law drafted in democratic manner was promulgated in 1949. The new fishery law clearly follows a limited entry regime.

2. Particular Nature and Effects of the New Fishery Law

- Even in a same sea area, for an example a sea area right off a prefecture, a variety of different fisheries resources are found and they are fished by different group of fishermen with different gears. For this reason, the new fishery has envisaged that a plan to make rational use of these fisheries resources must be established with the participation of all fishermen concerned.
- In 1950 when the new fishery law was introduced to Japanese fishery, no one had thought that a community-based fisheries management system (CBFMS) would develop with the initiative of fishermen.
- Within a few years after the new fishery law was promulgated, many CBFMSs appeared mostly at the level of Fisheries Cooperative Association (FCA) with the initiative of fishermen. Thereafter, the number of CBFMSs has increased year after year.
- Another reason why the number of CBFM□ has increased from year to year is due to the advancement of resource enhancement at the expense of a FCA. Naturally, fishermen consider that fish released by them are their own property. Fishermen consider that their sea is a sort of a bank, that increase the size of interest to be paid to them.

3. Lectures Learnt from Japanese Experiences

- CBFM is materialized only under the limited entry regime, whereby fishermen think that fisheries resources available in sea area as defined by fishing rights are their own.
- For the development of CBFMS, a sort of fishermen's organization is

absolutely essential. However, such a fishermen's organization can be automatically materialized, when a law stipulates that in principle a fishing right is granted only to fishermen's organization (FCA).

Hereunder, how FCBM has been developed will be illustrated in more detail.

1. Small Scale Fishery is a Target for CBFM

(1) Dual Structure of Marine Fishery in Japan

	Objective of Fishery	Nature of Fishing labors
Small Scale Fishery	To earn money to support a day-to-day life of a fishing household.	Mostly family member of a fishing household.
Industrial Fishery	To pursue a profit.	Mostly hired crew.

Such a dual structure of marine fisheries is found in all Asian countries including Japan. In contrast, marine fisheries developed in the most of Western countries are Industrial fisheries.

(2) Border between Small Scale and Industrial Fisheries

The border varies from country to country according to the extent of development of national marine fishery.

	Small Scale Fishery	Industrial Fishery
Japan	Fishery using in-board powered boat of less than 10 gross tons.*1	Fishery using in-board powered boat of 10 gross tons and above.
Thailand	Fishery using in-board powered boat of less than 5 gross tons.*1	Fishery using in-board powered boat of 5 gross ton and above.
Indonesia	Fishery using out-board powered boat.*2	Fishery using in-board powered boat.

*1: Including fishery using out-board powered boat and non-powered boat and that without using any boat.

*2: Including fishery using non-powered boat.

(Note) In Japan, mari-aquaculture is regarded as a part of small scale fishery, as the most of them are run by the family member of a fishing household.

2. Limited Entry Regime is a Prerequisite for the Development of CBFM

There is a fundamental difference in the access to fisheries resources between "Open access" and "Limited entry".

(1) Open Access (Free Access)

Under "open access regime" fisheries resources are considered as a property owned by people. Therefore, any person is allowed to fish regardless of whether he is a fisherman or not.

Such a regime was originated in England at the time of signing of Magna Carte in 1215, when the Crown ceased to grant rights to inshore tidal fisheries.

Then, the open access regime spread to the world, during the time when many parts of the world were the colony of England. Even areas other than the British colonies were influenced by the open access regime.

(2) Limited Entry

Under "Limited entry regime", only persons, who have rights or permit to fish, are allowed to exploit fisheries resources.

Such a right is called a fishing right, which is usually treated as a property right. The fishing right is defined in terms of sea area, species and/or gear type. A fishing license issued to a particular person under "limited entry regime" is also considered as a kind of fishing right.

When a fishing right is granted to a group of fishermen, they begin to conceive that fisheries resources covered by the right is their own property. This has been a great incentive for fishermen to create their own CBFM.

3. The Type of Tools in Use for Fisheries Management

Type of Tool for Fisheries Management	Way of Management	Applicable to
1. Catch Limit	The government sets up TAC.	
1.1 TAC alone	Fishing is allowed until total catch reaches to TAC.	Industrial Fisheries under Open access regime.
1.2 IQ or ITQ	Part of TAC is allocated to an individual.	
2. Indirect Method	Fishing is restricted by : Fishing season Fishing area Fishing gear Size of fish	Any fishery under both access regimes
3. Monetary Measures	(1) A tax is imposed to fishermen, when fishing has to be discouraged. (2) A subsidy is given to fishermen, when fishing has to be encouraged.	Any fishery under both access regimes
4. Restricted Fishing License *1	Fishing license is issued to individual fisherman in limited number.	Both small and Industrial fisheries
5. Fishing Right *1	Fishing right is granted to fishing community or fishermen's Organization.	Small scale fishery

*1 : The establishment of two tools, i.e. “Restricted Fishing License” and “Fishing Right” is the conditions, by which CBFM can be developed.

**Advantages and Disadvantages by Different Type
of Tools for Fisheries Management**

Type of Tools For Management	Advantages	Disadvantages
1. Catch Limit		
1.1 TAC alone		<ul style="list-style-type: none"> ● Over-investment and Over-fishing ● MCS is Extremely Costly
1.2 IQ or ITQ	<ul style="list-style-type: none"> ● No more over-investment, as number of fishermen with quota will be limited. ● No competition among fishermen 	<ul style="list-style-type: none"> ● Inflexible in relation to change in the size of TAC ● Inreversible even To TAC alone ● Data fouling
2. Indirect Methods	Fishermen may easily accept the regulation	There still remains some violations, for which MCS is required.
3. Monetary Measures		
4. Restricted Fishing License	<ul style="list-style-type: none"> ● Can reject the third party to come into the fishing ground. ● Fishermen conceive that resources are their owns. This will 	As time goes, fishing capacity of the fleet increases. Then, the reduction in number of boats is required.
5. Fishing Right	<ul style="list-style-type: none"> ● stimulate their self management. 	Almost no compliance problem exists.

MCS : Monitoring, Control and Surveillance

(Note) Advantages and Disadvantages as listed above are not exhaustive.

5. Organizations Responsible for Fisheries Management and Cost Involved for Government

Way of Fisheries Management	Type of Management	Organization Responsible for Management	Cost involved for government
TAC alone	Institutional Management (<i>Top down management</i>)	Government	Cost is extremely high (MCS is a great trouble to the government)
IQ or ITQ	Co-management *2	Government and Fishermen together	
Restricted fishing license and Fishing Right	(<i>Bottom up Management</i>) Self Management (CBFMS) *1	Fishermen (Ideally Fisheries cooperative association)	No cost.

*1 : In Japan, CBFMS has been developed mostly at a community level, where a FCA exists.

*2 : When CBFMS develops at prefecture level, co-management appears as a joint venture between all FCAs concerned and prefecture government.

6 Fishing License and Fishing Right in Japan

Fishing license and fishing right are legal tools, by which a Japanese fisheries management system has been developed.

(1) Fishing License (*Mainly for Industrial Fishery*)

The fishing license is issued to an individual fisherman, who operate in sea area beyond the sea area covered by the fishing rights. For each type of fishery using same gear, number of licenses, size of boat, area of operation, etc. are restricted.

Types of fishing licenses in use are as follows:

A) National fishing license.

- a. For fisheries operating within Japan's EEZ
- b. For fisheries operating in high seas and EEZ of other countries

B) Prefecture fishing license.

For fisheries operating only within a sea area right off a prefecture

(2) Fishing Rights (*For Small Scale Fishery*)

The fishing right is granted to a fishery cooperative society.

There are three categories of fishing rights as follows:

a) Common fishing right

1. For sedentary resources
2. For non-mobile gear such as small set net, bottom gill net, pot, basket, etc.
3. For artificial reef, fish aggregating devices, beach seine, etc.

b) Large scale set net fishing right

c) Aquaculture fishing right

Note: For further detail on Fishing right and license systems, please refer to the proceedings of The JIFRS/IIFET/ZENGYOREN SYMPOSIUM ON FISHERIES MANAGEMENT.

7. Coastal Fisheries Management Plan at Prefecture Level

In sea area around Japan, a variety of fisheries resources are available, and these are caught by many different groups of fishermen. Coastal fisheries management plan (CFMP) is a plan to make harmonious and rational use of these resources by different groups of fishermen by means of fishing license and fishing right systems. A CFMP is prepared with the following procedure:

(1) FCA's Proposal

Every FCA makes their proposal to prefecture governor as to how to make use of fisheries resources available in sea right off their coast by referring to the conditions of fishing license and fishing right as established in the fishery law.

(2) Regional Fisheries Coordination Committee

At every prefecture, a regional fishery coordination committee (RFCC) has been established with 16 committee members, of whom 9 are elected among fishermen. RFCC prepares CFMP taking into account the FCA proposals and referring to past fisheries data.

(3) Application of Fishing License and Fishing Right

Based on the CFMP so finalized, a FCA apply to Prefecture Governor for fishing right and fishing license.

(4) Prefecture Governor

In response to applications from FCA based on the CFMP, the prefecture governor issue/grant fishing license and fishing right.

(5) FCA Fisheries Management Committee

Within a FCA, there are several different groups of fishermen who employ different gears or aquaculture. A fisheries management committee, which has been established within FCA, is responsible for allocating its fishing area and/or resources to these groups in terms of equity.

8. Incidental Occurrence of CBFMS in Japan

It so happened that community-based fishery management occurred with the initiative of fishermen during the course of the following steps :

Drastic Revision of a Fishery Law drawn with Democratic Manner under the enthusiastic leadership of Late Takashi Hisamune, 1946-49

↓

Promulgation of a new fishery law, December 1949,
and
Nullification of all old fishing rights, 1950,
(The government bought all old fishing rights by means of a bond)

↓

Establishment of a Coastal Fisheries Management Plan (CFMP) at a Prefecture level through (1) Regional Fisheries Coordination Committee and (2) public hearing (Participation of Fishermen)
and
Granting fishing licenses and fishing right by Prefecture Governor based on the CFMP, 1950 *1

↓

Incidental occurrence of Community-Based Fisheries Management.
In 1952 there were already 329 fishermen's organization with own fishery management system, which increased to 1524 in 1993. Nearly a half of fishermen in Japan participate in CBFMS.

*1: Owing to change in fisheries environment, the coastal fisheries management plan is renewed at the interval of 10 years, and hence the fishing license and fishing right are also renewed at the interval of 10 years.

*2: It may be noted that echo management has been well developed in Japan.

9. Fisheries Management Organization for CBFM

(1) The Size of Fisheries Management Organization (FMO)

There are three sizes of FMO as follows :

- a) A group of fishermen within a fisheries cooperative association (FCA), which are involved in a particular fishery.
- b) A FCA it self.
- c) A group of neighboring FCAs.

The majority of FMOs are either a) or b). However, there is a trend that a FMO is established at a prefecture level with the participation of all FCAs in a prefecture, focussing to a particular species like Bastard halibut, for which a marine ranching has been developed.

(2) The Type of Activities Developed by FMOs

The way of fishery management developed by FMO varies from a very simple one to a quite sophisticated one. Some examples are given below:

a) Limiting the Number of Fishing Units

A FCA may establish a limited entry system to a certain species like spiny lobster, for which FCA issues fishing licenses to its limited members.

b) Minimum Size of Fish for capture fishery

FCA may establish a minimum size for a certain species, which is bigger than the one established by prefecture governor.

c) Rotation of fishing grounds with closed season

A sea area off FCA is divided into several sub-areas, for which fishing is allowed by rotation.

d) Enlargement of gillnet mesh size

The mesh size of gillnet is enlarged with an agreement of all fishermen. In this way, catch in value increases, though catch in quantity decreases.

e) Pooling system

A FMO leader decides day for fishing. On that day, all FMO members go out for fishing. Although catch for each member varies, catches for all members are pooled. The sum of catches in value minus the operational cost, which is mainly fuel cost, will be equally distributed to all members.

f) TAC System

Total allowable catch is determined by a prefecture fishery experimental station based on its research. The FMO concerned follows the TAC so determined. Such a system has been developed in the Ise Bay, where anchovy resources are shared by fishermen of both Aichi and Mie Prefectures.

g) Moratorium

Some years ago, catch of "Hatahata", which is a kind of demersal fish being fished by three different gears in Akita Prefecture, heavily declined. All fishermen agreed to cease the fishing for this species for three years. Now, a good recovery of the resources has been noted.

g) Marine Ranching

Initially marine ranching began at the expense of the central government with the establishment of marine ranching centers, which are large hatcheries. Now, similar marine ranching center has been established at every prefecture.

FCA's do marine ranching at their own expense with fries and fingerlings bought from prefecture marine ranching centers. Such a marine ranching also stimulates the development of CBFM, as fish released into sea are considered to be their property.

10. Conclusion

For the development of a community-based coastal fishery management system, a fishery law, which will make it possible to do the tasks as listed below, is absolutely required.

In Japan, the use of fisheries resources and fishing ground for fishery is determined with the participation of fishermen. A fishing right granted based on the fishery law assures safety fishery operation in their fishing ground.

Coastal fisheries resources and coastal sea area are under the jurisdiction of fishermen, though legally not complete. These are main reasons why community-based coastal fisheries management systems have been well developed under the initiative of fishermen.

Japanese fishermen are well organized into a fishery cooperative society. This gives more chance to fishermen to talk about the conservation of fishery resources. This is not a case for the most developing countries in Asia. However, this could be achieved, if the fishery law stipulates that a fishing right is granted only to a fishermen's group, which is organized by all fishermen in the area concerned.

It has to be mentioned that in Japan the government has seldom encouraged fishermen to create CBFMS. In other words, the government has little budget for coastal fishery management. However, there were campaign made by fishery economists through the national federation of fisheries cooperative associations. Professors Akira Hasegawa and Yutaka Hirasawa are those, who did such campaign to the great extent. It is a great pity that they have passed away.

At last, it should be mentioned that for the promulgation of the new fishery law, no pilot survey was taken. In fact, a law is not a thing to do any test.

It is difficult to measure the effect of the CBFMS. However, the production from coastal capture and aquaculture fisheries in both quantity and value has been stable over the past two decades. It is more important to know that in 1995 coastal fishery in Japan occupied 56 % of the total in terms of value.

Chapter 5. Case Studies

5.1 Particular Aspects of Village Life and Fisheries

Johannes H. Wilhelm

Introduction

(1) Importance of Coastal Fishery

When looking at the economic indicators (Table 1) of Japanese fisheries (JF) we see that the Coastal Fisheries (CF), especially the small scale coastal fisheries which carry out “Japanese aquaculture” are the most important part of the JF not only economically, but also socioeconomically.

Table 5.1 Some economic indicators related to CF

CF households as a percent of all fishery households	95 %
CF production as a percent of total fishery production)	approx. 45 %
CF fishery product sales as a percent of all fishery product sales	approx. 60 %

Coastal fisheries are mainly carried out by fishermen organized in FCAs based in their fishing villages. About 75% of the Japanese population lives in metropolitan areas around the cities of Tokyo, Nagoya, Osaka/Kobe, Hiroshima and Fukuoka from north to south. In other words, fisheries in Japan cannot be seen only as economic factors on a national level but must also be seen as playing a vital role in the regional economies of rural, and in our case coastal areas.

(2) Problems encountered by coastal fisheries

Japanese coastal fisheries are facing serious problems, which have socio-economic (aging rural society) and other aspects. A major cause

of this is Japan's transformation into a hyper-industrialized high-tech nation with an enormous service sector. Urban living standards are especially attractive to young people. Fisheries labor is seen as a so-called "3 K" job. The Ks stand for *kiken* (dangerous), *kitsui* (hard) and *kitanai* (dirty). Unlike other trades, fisheries have no legally granted holidays nor even a steady income. These facts are reflected in the relatively high average age of marriage.

Most fishing ports are in fishing villages. Due to Japan's volcanic geology, many coastal villages are located in limited space between mountains/hills, and the sea.

Village Society

(1) Difference in society between fishing village and agriculture village

In Japan, the household (*ie*) is seen as basic unit of social organization. Ideally, an *ie* consists of a "stem family", i.e. three generations living together. In some cases the stem family includes even distant relatives. Fishing village populations are not counted by individuals, but rather by the number of households a village contains. The same can be said about "social recognition" or orientation. In many cases village members share the same family names (these are main family names, called *honke*, and branch family names, called *bunke*). *Yago* or *ie-jirushi* (lit. household marks or symbols) are used to differentiate between them. Famous company names as Yamaha, Marubeni, Maruha etc. are former *ie-jirushi* or company marks.

The *ie*-based society of Japan differs between fishing villages and agricultural villages, and the differences can be quite complex. One distinction is a simple one: "marginal" geographic location of fishing

villages. Another striking difference can be explained in a short discourse on Japanese self-identity. There are many more agricultural villages (about 135.000) than fishing villages (about 2.250) in Japan, and Japanese culture itself is seen as having its roots in the cultivation of rice on rice paddies, which require a high level of social management and organization. This culture is seen as reason for the so-called “group oriented” social organization of the Japanese. Although in fisheries there is also a need to organize in groups (for example net- and ship-groups) there has been a strong bias in the Japanese autostereotype that group orientation has its roots in rice-paddy culture. This prejudice (and also the geographical location) led to a “marginalization” or in some cases even a “stigmatization” of fishing villages. Another difference can be found in specific aspects of the local religion (which is Shinto) and folklore beliefs in “sacred visitors” (*ebisu-gami*) or specific social practices regarding adoption of children.

(2) Different groups of people in Fishing Village in terms of Gender, Age classes and so forth

Fishing households mostly run some sort of side business in forestry or agriculture (depending on location) or even some sort of business in the service sector such as recreational fishing. Providing sleeping accommodations or shipping services for recreational fishermen are two examples of services provided. A traditional Japanese village is often organized by age and class groups. The groups are divided by gender and age. Each community member is initiated into a group beginning with the boys- or girls-group and ending with initiation into the elders-group. The names of these groups show a variety all over Japan and in some cases there is no gender division at all.

Parallel to and mostly overlapping with the ACGs there exist other

groups like the fire brigade, the women’s association and of course the FCA. A scheme of these groups can be seen in **Table 5.2**.

Age	Female		Male		
60+	Women's association	Old women group (<i>baba kô</i>)	Old men group (<i>jiji kô</i>)		
50-60		Group of Kannon (goddess of mercy <i>kannon kô</i>)	Group of retired persons (<i>kôshin kô</i>)		
20-50		Group of middle aged women (<i>jizô kô</i> or <i>yama no kami kô</i>)	Middle aged or Business group (<i>jitsugyô dan</i>)		
15-20		Girls group (<i>anegodachi</i>)	Boys or Youth group (<i>seinen dan</i>)		
5-15		Childrens group	Childrens group		

(3) Lottery system for the use of sea area for aquaculture

In regard to fishing activities the role of local beliefs and religious practices is important. For example, in many Japanese fishing villages the sectoral fishing-rights, which are commonly specific to aquaculture, are distributed via the FCA by lottery. (In Japan, aquaculture of *nori* (*Porphyra*) can be traced back to the 18th century. Simple techniques for resource enhancement, like throwing stones prepared with seaweed-spores (like for *konbu*=*Laminariaceae*) also have a long tradition which can be traced back at least 250 years from now. The cultivation of *wakame* first succeeded after World War II.) This lottery often takes place on village festivals (*matsuri*: Note, that the word for ‘politics’ is read in Japanese as *matsuri-goto*, i.e. literally a ‘festival thing’).

For example in a small village in Naruto city (Tokushima prefecture),

the lottery for *wakame* (*Undaria*) aquaculture fishing-rights takes place in the mid-October on the occasion of the local *matsuri*. The festival occurs just days the seaweed spores will be prepared for cultivation. The cultivating fishermen also prepare and clean equipment which is used communally on this day. Resource management is obviously deeply rooted in local tradition and even if new cultivation techniques are introduced, (as in the case of *wakame*), fishermen also use traditional practices. A scheme of the lottery-system is presented in Figure 5.1. Each sector (1, 2 and 3) is subdivided into a number of subsectors (a, b, c and d). The use of each subsector is distributed through a lottery. In some cases, a sectoral fishing right is allocated to one of the age-class-groups like the youth group for practicing aquaculture (**Figure 5.1**, No. 3).

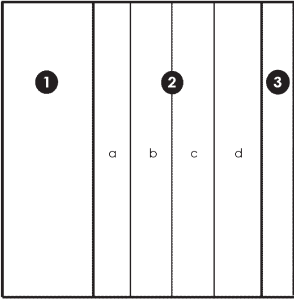


Figure 5.1 Scheme of sectoral use rights lottery

(4) Fishing-related traditional practice

Other fishing-related traditional practices with special *matsuri* are “season-opening ceremonies” (*kaikin-bi* or *kuchiake-bi*). Today, in most cases the FCA restricts access to marine resources by implementing “open seasons” when fishermen are allowed to catch certain species. Formerly this was rooted in a localeligious ceremonies such as special ritual cleaning ceremonies for fishermen going out for the first of the

season. This means that the religious system of a traditional Japanese fishing village is made not only to foster a locally normative system to community members but is also an institution to regulate access to resources or simply needed to organize resource management locally.

Although the present FCA-based economic life of a fishing village is managed through a modern and democratic election system, one finds that in many cases the spouses of traditional village or district headmen (*amimoto*, often wealthy merchants of the *shoya*-class which were responsible for tax collection legal matters and lending money in feudal times were elected to important positions. Thus, everyday life in fishing villages still has pre-modern aspects. Other evidence of this is the fact that the *tanomoshi*-credit system, a traditional villager-based credit institution, still exists in many places, and is a parallel to the FCA's credit institution.

However, the transformation of the Japanese society and economy led, as indicated in the heading of this chapter, to serious socio-economic problems in fishing villages. One of these is the problem of an aging population. A traditional social system as described cannot survive without enough marriage partners. In many fishing villages, people try hard to allow traditions to survive and in some cases, even “new traditions” are being invented. A sad but true fact is, that in most cases, these “invented traditions” fail to root and if repeated, lead to a loss of self-identity. The erosion of traditional local norms has a deep impact on fishing village society. An example of the impact of the erosion of local norms is the exodus of capital from fishing villages. Many villagers not only have an account at the local FCA bank but also keep funds at other financial institutions in the cities. This leads to erosion of the local FCA-based credit system and in addition to an

erosion of trust in cooperative action. The emergences of pool-system activities which are often carried out without the FCA as management institution are just one example. Another example is the phenomenon of FCA mergers. The FCAs are forced to merge because of a lack of local capital.

Economic aspects

A very important aspect of economic-life in many fishing villages is the problem of fishing rights compensation which can cause situations leading the fishery management system itself *ad absurdum*.

(1) Legal Nature of Fishing Right

As it is stated in the chapter on fishery rights, the Fishery Law of 1949 explicitly prohibits selling and buying of fishing rights (which was a crucial aspect of the former Meiji fishing law because it led to impoverishment of the “small fishermen”). Fishing rights are use rights (not explicitly property) for specific sea areas. They are locally managed through the FCA that delegates the use of parts of a FCA’s sea area to its members. On the other hand, the Japanese Public Law (*minpo*; Art. 262) states, that (common) use rights are to be seen as “real right” (*bukken*). This means, coastal fishing rights are somewhat in between use rights and property.

Based upon this fact, in many fishing villages a *de facto* selling and buying of fishing rights is practiced (even if official statements of the fishery administration would deny this).

One example is closely related to the social problems in fishing villages. If for example a fisherman is too old to carry out his own

aquaculture projects, in many villages we find the practice of “lending” sectoral fishing rights to another fisherman who is able to manage them. If we look at this, the concept of “sea tenure” which was defined by Akimichi and Ruddle in 1984 describes the character of Japanese fishing rights quite adequately.

(2) Reclamation of Sea Area for the use other than Fishery

Other examples are compensations due to large reclamation projects, as there had been in the Tokyo bay area or in case of the Kansai or Kobe International Airport projects or the construction of nuclear power plants such as in Fukushima or Miyagi prefectures. In the case of the Onagawa nuclear power plant in Miyagi prefecture (Oshika city), fishery households of surrounding hamlets received up to ¥10,000,000 (approx. US \$ 100,000) each. Some of those households bought new cars or renewed their housings, others invested in new fishery techniques or tools for specific aquaculture, some even left their villages to begin a new life in the cities.

Specialization on High-Value Marine Products

Globalization heavily influences local economy, too. Ayukawa in Miyagi prefecture (Oshika city) used to be a flourishing whaling port. The whaling moratorium of 1982 led to a decrease of Ayukawa’s population from ca. 13,700 in 1955 to ca. 5,650 in 2000. (A detailed analysis can be found in Iwasaki-Goodman, Masami (1994): *An Analysis of Social and Cultural Change in Ayukawa-hama (Ayukawa Shore Community)*. Ph.D. Diss. Edmonton: University of Alberta.)

The area around Oshika city was the place where aquaculture of the very popular seaweed *wakame* (*Undaria pinnatifida*; especially

consumed in Japan and Korea) first succeeded after WW II. Fishermen and fisheries administration put a huge amount of hope into this new technique. But in the 1960ies, the cultivation technique transferred to the Korean peninsula where workforce was cheaper. The boosting worldwide production of *wakame* let prices fall and made cultivation in countries with a relatively expensive workforce (such as Japan at that time) untenable. Until about 1965 the production of *wakame* in Japan and South Korea was stable at around 6.000 metric tones. We see that in the second half of the 1960ies the overall production shows a rapid increase, especially in Japan. Korea's lift-off can be observed after 1970. From 1974 onwards, Korea's *wakame* production overrode the Japanese.

Another characteristic is the decline of value after 1995. Its main reason is the overproduction in the first half of the 1990ies which led to falling prices. An analogy can be seen in the second half of the 1980ies which parallels the decline of Japanese production since that time. As said above, workforce in Japan was more expensive, and as worldwide production grew, *wakame* cultivation in Japan became more and more untenable. For this reason *wakame* cultivators shifted to other cultivated products if possible (in means of investment). Today we find a wide variety of cultivated marine products at the Sanriku-coast such as scallop, sea squirt (ascadian) or even high-value products like abalone.

Concluding Remarks

Concluding we see that the fishing villages of Japan face serious socio-economic problems. If the decrease of the fishing population continues as it has in the past decades, there will soon be no such thing as a "traditional fishing village" in Japan at all. The Japanese

government is making an effort to manage these problems. An example of this is the program to encourage “local leadership” as is being done in Fukushima prefecture. Time will tell if these programs are to succeed.

5.2 The General Functions of Fisheries Cooperative Association

Translated by Mitsutaku Makino with some annotations.

According to the law of fisheries cooperative association, every fisheries cooperative association (FCA) has to establish their own article. There is a standard article hinted by the MAFF. Therefore, there is a similarity in the content of the article among FCAs.

The Articles as illustrated bellow refers to that for the Souma Futaba FCA as an example for the readers. They set down the general structure, businesses, and other activities, which may be carried out by the fisheries cooperative association.

(1) An Overall Structure of the Article of The Souma Futaba FCA

The article of the Souma Futaba FCA is composed of six chapters as listed below..

- Chapter I General Provisions
- Chapter II Membership
- Chapter III Share capital contributions, levies and reserves.
- Chapter VI Officials
- Chapter V General meetings
 - V-2 Division members’ meetings
 - V-3 Representatives meetings
- Chapter VI Board of directors

Chapter VII Execution of businesses and accounts

Chapter VIII Treatment of surplus funds and losses

Chapter IX Sanctions

In order to let the readers of this booklet to be clear on the nature and general activities of FCA, reference is made hereunder, limiting to Chapter 1 and 2.

Chapter I General Provisions

Objectives

Article 1 The purpose of this Cooperative is to improve the economic and social status of the members through members' cooperation in their business activities with a view to raising their productivity in fishing.

Businesses

Article 2 This Cooperative will carry out the following businesses for the benefit of the members:

1. Fishery resource management, and enhancement of marine animals and plants
2. Education of and provision of general information to the members with a view to improving their business management, fishing techniques.
3. Extending loans to the members for their business or living;
4. Receiving deposits or fixed savings from the members;
5. Supply to the members of equipment or goods required for their business or life.
6. Providing facilities for joint use by the members for their

- business or life;
7. Transport, processing, storage or sale of the catch or other products of the members
 8. Providing welfare facilities for the use of fishery grounds
 9. Providing welfare facilities for fishery operations
 10. Prevention of marine accidents, giving relief in case of accidents and acting as a medium for the members' subscription to the fishing boat insurance
 11. Providing facilities for members' mutual aid
 12. Providing welfare facilities for the members
 13. Education to the members with a view to improving their cooperative-business management and fishing techniques, and provision of general knowledge to members
 14. Conclusion of a collective contract for the members with a view to improving their economic position

(Name)

Article 3 This Cooperative shall be called Souma-Futaba Fisheries Cooperative Association.

(Area)

Article 4 The area covered by this Cooperative shall be the administrative area of Souma City, Haramachi City, Souma-gun Shin-chi-Machi, Kasima-Machi, Odaka-Machi, Futaba-gun Namie-Machi, Futaba-Machi, Ohkuma-Machi, Tomioka-Mach, and Nagai-Machi of Fukushima Prefecture.

(Office)

Article 5 This Cooperative shall have its main office in Obama, Souma-City, Fukushima Prefecture

Chapter II Membership

(Qualifications for membership)

Article 8 The following persons are eligible for regular membership in this Cooperative:

- (1) Individuals who have residence in the area of this Cooperative and who are engaged in fishing (either on their own account or as employed workers) more than 90 days per year;
 - (2) Fishing production associations, which have the address or work place within the area of this Cooperative;
 - (3) Legal persons who run the business of fishing (excluding fisheries cooperative associations and fisheries production associations) with the address or work place within the area of this Cooperative and whose workers normally employed do not exceed 300 persons and total tonnage of the fishing vessels normally used do not exceed 1,500 gross tons
2. The following persons are eligible for the associate membership of this Cooperative:
- (1) Individuals who are engaged in fishing with the residence in the area of this Cooperative, but who do not meet the requirements mentioned in (1) of the preceding paragraph;
 - (2) Individuals who are engaged in fishing with the residence outside of the area of this Cooperative, but who have the base place of their fishing activities within the area of this Cooperative;

(Affiliation)

Article 9 Any person who wishes to become a member of this Cooperative shall submit to the Cooperative an application form that contains the name, the address or the location of the work place and the number of shares which he/she will contribute.

5.3 Fisheries Management and other activities developed at Souma-Futaba FCA

Compiled and translated by Masaaki Sato based on reference metatarsals provided by Fukushima Prefecture office and Soma-Futaba FCS with their courtesies.

(1) Introduction (Basic Plan)

Souma-Futaba Fisheries Cooperative Association (FCA) is located at the Pacific coast of Fukushima prefecture. Before introducing the fisheries management program implemented by this FCA, it would be worthwhile to understand the overall fisheries management plan, which was worked out by the Fukushima prefecture government. The basic idea of the Prefecture's Plan is to enhance the resources of Hirame., which is known as "bastard halibut" in English (*Paralichthys olivaceus*)/

There are a variety of flat fishes, which are caught in water around Japan. Of these flat fishes, "Hirame" is most delicious in taste, when it is eaten either as raw or cooked, fetching very high price. being equivalent to that of red sea bream.

The Fukushima Prefecture Plan is composed of the four components

as listed below:

1) Hirame stock enhancement

- Yearly release of one million juvenile hirame in coastal water areas, in order to enhance the Hirame resource
- Catching Hirame of less than 30 cm in total length (TL) is forbidden..

2) Voluntary Abstention

- Under the unified slogan of “abstain from catching, selling and eating” hirame of less than 30 cm in TL, FCA member fishers within the prefecture have been positively practiced as a voluntary cooperative movement
- Basic concept: “The sea is regarded as a bank providing high interest when the resources are properly managed, it will produce a lot of hirame as interest.”
- Thus, a juvenile hirame of 100 yen/fish released in summer will grow to about 30 cm in TL within one year, and the price will increase approximately proportional to its growth.

3) The Support from Women’s Groups of the FCAs

- In fishing communities, it is a common practice for men (FCA member fishers) to fish, while women, who are the wives the FCA members, will wait until her husbands return to the port, and help the work of unloading and selling the catch. The women also responsible for preparing the sale of fish .

- 4) The establishment of a Fund for Hirame resources enhancement:
- In order to establish such a fund, FCA member fishers began in 1993 to pay 5 % of the value of the hirame catch to the Fund. This is considered to be “the beneficiaries’ contribution” to the Fund established in the prefecture.

The overall Plan began with the release of one million juvenile hirame in 1996. The necessary hatchery facilities were established with the prefecture’s budget, while the cost for the purchase of juvenile hirame would have to be covered by the Fund, i.e., by the contribution from FCA member fishers. This is a typical example of FCA member fishers’ participation in Community-based Fisheries Resource Management (CFRM).

(2) A Brief Introduction to Souma-Futaba FCA

1) Souma-Futaba FCA

Souma-Futaba FCA is an FCA, which came into being on October 1, 2003 as a result of a merger of the following 7 FCAs:

- Shin-chi FCA
- Souma Haragama FCA
- Matsukawa-Ura FCA
- Isobe FCA
- Kashima FCA
- Ukedo FCA
- Tomikuma FCA.

Original Souma Haragama FCA functions as the head office of the amalgamated FCA. The other FCAs have become its branch offices.

The present state of Souma-Futaba FCA as of the end of FY 2003 i.e., March 31, 2004 is as follows:

- Number of members: 1,343
Regular members: 1,106
Associate members: 237
- Number of directors: 30
- Number of employees: 77, of which, male : 50, and female: 27
- Main fisheries: trawl, gill net, boat seine, seashell dredging
- Number of fisheries licenses: 2,384
- Share capital: 985 Million Yen

Regular members have voting rights, while associate members do not.

Souma-Haragama branch (former Souma-Haragama FCA) took a leading role in the promotion and implementation of CFRM (community-based fisheries resource management) in the prefecture.

(2) Souma-Haragama branch

As of the end of FY 2003 (i.e., March 31, 2004), the outline of Souma-Haragama branch of Souma-Futaba FCA was as follows:

- Number of members: Regular members 455
Associate members 25
- Number of directors: 9
- Number of employees: 44, of which, male: 31 and female 13
(It has two departments consisting of 8 sections in all.)
- Main fisheries: trawl, set gill net, boat seine, seashell dredging

- Business results of FY 2003
 - Marketing Dept: 4.1 billion Yen
 - Outstanding amount of savings: 3.2 billion Yen
 - Outstanding amount of loans: 1.2 billion Yen
- Number of fishing households: 312
- Number fishing boat of member fishers: 206 (operated year-round)
- Share capital: 524 Million Yen
- Proceeds by type of fisheries: See the following table (**Table 5.3**)

Table 5.3 Proceeds by type of Fisheries

Type of Fishing Gear employed	Catch		Remarks
	Metric ton	Million Yen	
Trawl	5,637	2,316	Offshore trawlers: 34 Small trawler: : 172
Bottom gill net	946	761	Flatfish, rockfish etc
Danish seine	4,742	396	Sand lance, “white fish” etc.
Long line	79	95	“Ainame”, sea bass, etc
Basket net	714	281	Conger eel, octopus, etc
Shellfish dredge	147	57	Surf clam (<i>Spisula</i> sp.)
Others	201	171	Set net, squid jigging, etc
Total	12,466	4,077	

- Age composition of Regular members (See **Table 5.4**)
- Specific Features of Activities, which are not always practiced in other FCAs

1) Live fish

Shipping of live fish began in the latter half of 1962. Live fish

Table 5.4 Age composition of common members

Age group	Number of Regular members		%	
15 ~	3	27	6.0	0.7
20 ~	24			5.3
25 ~	23	71	15.6	5.1
30 ~	21			4.6
35 ~	27			5.9
40 ~	50	208	45.7	11.0
45 ~	51			11.2
50 ~	60			13.2
55 ~	47			10.3
60 ~	34			34
65 ~	115	115	25.2	25.2
Total	455	455	100.0	100.0

accounts for a high percentage of marketing department work.

Various efforts have been made to improve fishing gears, fishing methods, and necessary equipment and/or facilities on the fishing vessels in order to ensure better quality of fish caught.

2) Activity in port

Live fish are marketed by auction. Fresh fish are marketed by a bid for each basket (width 45 cm x breadth 60 cm x depth 20 cm): the catches of trawlers have been marketed by this method since June, 1997, and those of small boat since December, 1997.

The morning bidding in the Souma-Haragama branch fish market is very lively.

3) Frequent meetings of many committees

In order to ensure that member fishers to observe various rules and regulations (including their own) to the full extent possible,

various committees such as gear-specific committees have been established within the FCA. All member fishers of any of such committees take part in discussions as necessary.

Frequent meetings of these committees are held.

4) Youth Group activities

The FCA's Youth Group has 80 members and has been very active. Among others, the gear-specific groups (trawl fishers group and small boat fishers group) have been quite positive in various activities, such as the promotion of community-based fisheries resource management, farming fisheries, and the vitalization of fishing communities.

5) Implementation of Community-based Fisheries Resource Management (CFRM)

a. Voluntary fishing abstention day

- Every Saturday is a self-imposed fishing abstention day. This was introduced as a way of cooperating with the FCA's efforts to keep up fish prices, to conserve resources and to assure a certain volume catch per trip.

- In the case of trawlers, (in addition to the Saturday fishing abstention,) they may leave port to fish only once a day. This voluntary measure has been in place since September 1987.

b. Fine-tuning: agreement on fishery operations arrangements

- Example: agreement to comply with the self-imposed rules on the use of fishing grounds between trawlers and bottom

gill-netters

c. Implementation of other voluntary activities including restrictions

- Sand lance boat seine fishery:
restrictions on fishing operation in terms of hours, quantity of catch, and length of season
- Shellfish dredge fishery:
quantitative survey of resources, fishing area restrictions and frequency of dredging
- Trawl fishery:
restrictions on size and quantity of catch of tanner crab
- Establishment of closed area around artificial fish reefs:
fishing method and duration are restricted in the waters around man-made fish reefs.
- Enlargement of mesh size of bottom gill net
- Expansion of voluntary restriction areas:
from Souma-Haragama FCA area to a larger area covering Souma-Futaba FCA area.
- Normal: activities at the fish market of Souma-Haragama branch

Time Activities

- 06:00
- Fishing boats return to the port (this continues until the auction ends)
 - Sorting of fish by species, condition, (live or not) and by size and quality
 - live fishes are put into live fish tanks

07:30~ – Auction starts

Small fishing vessels - - - This refers to fishing vessels of less than 7 gross tons (GT) in size.

- Small fishing boat unload their catch (live fish) from their fish tank to baskets. The baskets are neatly arranged in the fish market. The buyers check the fish and buy them at auction.
The whole process proceeds like an assembly line system. After this, the purchased live fish are shipped out on the tank-equipped buyers' trucks.
- Fresh fish (not live) are also put into baskets, and arranged neatly in the fish market. They are sold by bidding, and then taken to a workshop.

Trawler - - - These are 18-48 GT in size.

Both live and fresh fish are handled the same way as on smaller fishing vessels.

They are sorted first by species and size and then put into baskets. They are marketed by auction on a first-come, first-served basis. When the fish in baskets have been passed on to the buyers, another batch of baskets belonging to the next fishing vessels in line is put up for auction.

The process (from auction until the placing of baskets again in the fish market) is normally repeated two to three times per day.

10:00 – Auction ends

Fresh fish are sorted again, and packaged into polystyrene boxes.

12:30 – February~May: Bidding begins on fish for processing

and/or freezing (e.g., sand lance)

- July~August: Bidding begins on octopus caught by basket net fishery in offshore waters
- Dec~March: Bidding begins on “whitefish” caught by boat seine fishery.

After the bidding process, all of these fish are transported to fish processing plants or freezing plants by truck.

15:00 Work at the fish market ends

Some additional information at Souma-Haragama branch of Souma-Futaba FCA:.

- * Number of authorized buyers : 85
- * Number of days/year when the fish market is open : approx. 200 days
- * Major shipping destinations : Metropolitan wholesale fish markets in Tokyo, Nagoya, Osaka etc.

(3) Isobe branch of Souma-Futaba FCA

As of the end of FY 2003 (i.e., March 31, 2004), the outline of Isobe branch of Souma-Futaba FCA was as follows:

- Number of members: Regular members 97
Associate members 16

- Business results of FY 2003
 - Marketing Business Dept.: 407 million Yen
 - Supply Business Dept.: 68 million Yen
 - Outstanding amount of savings: 640 million Yen
 - Outstanding amount of loans: 42 million Yen

- Number of fishing households: Regular member : 69
Associate member: 11
- Number of fishing boats: 76

Less than 3 GT	5
3 - 5 GT	66
5 - 7 GT	5
- Share capital: 57.3 Million Yen
- Main type of fisheries:
 - surf clam dredge (June-January)
 - boat seine (March-May and August-November) mainly targeting sand lance and pilchard
 - bottom set net (year round) mainly targeting “hirame” and other flat fish
 - basket net (September-June and July-November) targeting octopus, conger eel and othesr bottom set net (mid-September to mid-November) targeting fall chum salmon
 - taking of littoral resources (May-August) such as sea urchin, abalone etc.
 - “mebaru (a rock fish sp.)” angling (February-March)
- Characteristics
 - Most of the member fishers of Isobe branch are engaged in surf clam dredge fishery.
 - In 1977, the production of surf clam increased. Since then, production has leveled off and remained relatively stable.
 - Fresh fish, including live fish caught by stationary set net, are unloaded at Souma-Haragama branch.

(4) Summary of the Community-based Fisheries Resource Management (CFRM) at Souma-Haragama branch

Size limit: In the offshore trawl fishery, from October 29, 1993 to the present, catching and marketing of certain species has been banned to ensure resource conservation (**Table 5.5**). This is a voluntary measure implemented by the FCA in addition to the prefectural and other regulations. Of the species in Table 5.5, the ainame catch size limit of 15 cm has been expanded, (subsequent to September 1, 1998) to include all the fishers within the prefecture.

Table 5.5 Voluntary Size Limit at Souma-Haragama FCA (= the present Souma-Haragama branch of Souma-Futaba FCA)

Species			Size limit
Japanese name	English name	Scientific name	
Nikumochi garei	Flatfish sp.	Dexistes rikuzenius	13 cm
Megochi	Big-eyed flathead	Suggrundus meedervoorti	17 cm
Ainame	Rockfish sp.	Hexagrammos otakii	15 cm
Maanago	Conger eel	Conger myriaster	25 cm
Kegani	Hairy crab	Erimacrus isenbeckii	5.5 cm
Mizudako	Pacific giant octopus	Paroctopus dofleini	1 Kg
Yanagidako	Pacific giant octopus	Paroctopus conispadicedus	1 Kg
Madako	Common octopus	Octopus vulgaris	500 g
Kemushi kajika	Whip sculpin	Hemitripteris villosus	15 cm
Baba garei	Slime flounder	Microstomus achne	23 cm

N.B. This voluntary size limit at this FCA has been implemented since October 29, 1993 to date.

- Quantitative catch limit: Since 1990, the FCA has continued to ban fishing of tanner crab of less than 8 cm in carapace. Further, it has also implemented a quantitative limit: the maximum catch allowed today is 700 Kg per fishing trip. Later, in 1996, a Ministerial ordinance banned the catching of tanner crab of less than 8 cm in carapace in Souma-Haragama area.
- The Fukushima prefecture government introduced the CFRM regulation begun by the Souma-Haeagama FCA, that is, [to]

Table 5.6 Business Calendar at Souma-Haragama branch of Souma-Futaba FCA - of May, 2004 -

× : Closed ● : Voluntary Fishing Abstention Day

Date		Souma-Haragama Branch		Fishing boat yard closed	Remarks
		Fish market closed	Finance division closed		
1	Sat.	×	×		●
2	Sun.	×	×	×	Small boats: non fishing day Trawl boats: fishing allowed Fish auction: closed
3	Mon.	×	×	×	National holiday (Constitution Day) Allowed to go for fishing but fish auction: closed
4	Tue.			×	National holiday (People's Day)
5	Wed.		×		National holiday (Children's Day)
6	Thu.				
7	Fri.				Account settlement day
8	Sat.	×	×		●
9	Sun.			×	
10	Mon.				
11	Tue.	×			Allowed to go for fishing but fish auction: closed
12	Wed.			×	(Central wholesale Market: in Tokyo is closed)
13	Thu.				
14	Fri.				
15	Sat.	×	×		●
16	Sun.			×	
17	Mon.				
18	Tue.				
19	Wed.				
20	Thu.				Account settlement day
21	Fri.				
22	Sat.	×	×		●
23	Sun.			×	
24	Mon.				
25	Tue.	×			Allowed to go for fishing but fish auction: closed
26	Wed.			×	(Central wholesale Market: in Tokyo is closed)
27	Thu.				
28	Fri.				
29	Sat.	×			●
30	Sun.		×	×	
31	Mon.		×		

“abstain from catching, selling and eating” hirame smaller than 30 in TL, prefecture-wide from January, 1993 to the present.-

- From the standpoint of resource conservation, and with the hope of contributing to fish price stabilization, Souma-Haragama FCA has set a “voluntary fishing abstention day”, and continues to implement it. (Table 5.6)

5.4 The Functions of the Tokyo (Tsukiji) Central Wholesale Market

Extracted by Mitsutaku Makino from a guiding pamphlet issued by the Tokyo Metropolitan Central Wholesale Market Office

(1) Background

Each prefecture can establish its own public wholesale markets in order to contribute to the stable food supply available to citizens. The Central Wholesale Market of Tokyo is the biggest public wholesale market in Japan, and it consists of 12 branch markets, each of which is specialized or characterized by the traded goods and locations. The Tsukiji Market is best known among them, and has become synonymous with the Japanese wholesale market. It deals with fish, fruits and vegetables.

The beginning of the central wholesale market of Tokyo dates back to the early period of the feudal era (Tokugawa dynasty, 1603-1868). When Tokyo (then called Edo) became the capital of Tokugawa dynasty, the first Shogun, Ieyasu Tokugawa, brought in the fishermen from Western part of Japan (Osaka) in order to let them purvey seafood to the castle. At the same time, he gave them permission to sell fish to people living in Edo.

In 1923, the Central Wholesale Market Law was enacted, which administered the opening of public markets nationwide. In 1971, the great changes in the environment surrounding the markets, such as the fast growth of the Japanese economy and concentration of urban population in Tokyo resulted in the revision of the Law into the current Wholesale Market Law.

(2) Actors in the central wholesale market

Wholesalers: They sell by auction the products that are consigned to them by producers. Their commission fee is fixed by municipal ordinance at 5.5% of the price for seafood (8.5% for vegetables, 7.0% for fruit, 3.5% for meat, and 9.5% for flowers). Wholesalers must have permits from the Minister of Agriculture, Forestry and Fisheries.

Intermediate wholesalers: They purchase products from the wholesalers, and sell them at their own shops to buyers, including stock purchasers. To do business as intermediate wholesalers, permissions from the Establishment Authority are required.

Authorized buyers: These are basically retailers and supermarket agents, who usually buy goods from the intermediate wholesalers in the market. They, however, can also buy directly from the wholesalers at auction if the Establishment Authority approves.

Establishment Authorities: In order to assure safety and reasonable prices, the Tokyo Metropolitan Government administers the market as the Establishment Authorities. They construct/maintain the infrastructure, manage the market, and provide direction and supervision according to the Wholesale Market Law.

(3) Processes of the market

Around 3:00 pm the previous day, product is brought to the market from producers, brokers, producers' cooperatives, and abroad. The products are laid out in the auction hall until midnight. Then, from about 5:00 am, the auction starts. The highest bidder buys the product (price determination).

Intermediate wholesalers place their purchased goods in their shops, and sell them in smaller size/volume. The market is busy with a number of buyers until about 11:00 am.

(4) Function of the Central Wholesale Market

The main function of the central wholesale market is as follows

- 1) Collection: Every day, a wide variety and vast quantity of produce from all over the country and abroad is gathered here.
- 2) Pricing: Prices are basically determined by auction, which means the price will be competitively determined reflecting each day's supply and demand.
- 3) Distribution: Products are divided into smaller quantities and sizes, and sold to a number of stock purchasers.
- 4) Proper settlement of accounts: Payment is made quickly and correctly under fixed rules.
- 5) Reduction in distributing costs: By buying and selling goods in large quantity at one place, transportation and other costs incurred in distribution can be reduced.
- 6) Providing information: Prompt information on what and how much product is delivered in the market, (as well as on the wholesale prices for the day) is available.
- 7) Hygiene inspection: The Sanitation Inspection Station conducts hygiene checks on traded goods based on the Food Hygiene Law. It

also gives guidance in sanitary handling of foods for the wholesalers or buyers.

5.5 Recreational Fishing in Japan

Mitsutaku Makino

(1) Overview

Recently the number of recreational anglers has increased year by year due to the increase in leisure time and the growing national interest in the outdoors. Now the annual cumulative number of sea anglers is over 30 million. For several target species and areas, anglers' catches now exceed fishermen's. At the same time, recreational fishing is a new income opportunity for fishing communities (in providing accommodation, vessels and guide services for recreational fishers), and some communities try to attract anglers in order to economically revive their villages. The influence of recreational fishing on marine resources cannot be ignored. The participation of the recreational anglers in resource management is a current subject for discussion among Japanese fishery institutions.

(2) Case of Kanagawa Prefecture

1) Background

Kanagawa Prefecture is the anglers' mecca, particularly for boat fishing. According to the 1998 fishery census, about 1,870,000 anglers enjoyed sea fishing in Kanagawa area, of which 1,210,000 were boat fishing. More than 10,000 pleasure boats were registered in Kanagawa prefecture in 2001, while only 3,755 professional fishing vessels were registered. It is estimated that recreational anglers captured about 5000t of fish, which amounted to about 20 % of the total catch by commercial coastal fishing vessels. In addition, it is estimated that the amount of

red sea bream caught by recreational anglers exceeds professional fishermen's catch.

For local Fisheries Cooperative Associations or individual fishermen who engage in an anglers' guide service as a side-business, recreational fishing is one of the most important sources of income. In 2000, the income from the anglers' guide service was 10,900 million yen, which exceeded the sum of coastal and offshore fisheries production (9,600 million yen). Recreational fishing is now an indispensable source of income for fishery communities in Kanagawa Prefecture.

As for the institutional framework surrounding recreational anglers, fishing gears that can be used by anglers are specified in the Kanagawa Prefectural Fishery Coordinating Regulations (article 45), which are established by Area Fishery Coordinating Committees (see Sec 4.4 for detail). Apart from these gear limits, recreational fishing has been outside the institutional range of the resource management. Recently, in the Fishery Basic Law of 2001, it became required for anglers and anglers' guide service companies to cooperate with resource management bodies (article 6-2). Administrative bodies were expected to implement appropriate measures for resource management (article 31).

2) Current Situation

The following issues are addressed in connection with commercial fisheries and local communities.

- Competition for resources, especially artificially hatched or released resources like red sea bream,
- Physical obstruction of fishing operations at fishing grounds,
- Uncontrolled ground-baiting of fish that leads to diffusion of fish

shoal,

- Waste dumping leading to environmental degradation, and
- Disorderly parking around fishing ports.

In order to cope with these issues, the following measures have been taken with the help of local administrative bodies.

- Since the mid-1970s, Local and Prefectural Fishing Consultative Meetings (informal bodies) were established, and several Mutual Consents on Recreational Fishing were adopted.
- The Anglers Guide Service Ships Law was legislated in 1999, and the registration system of guide ships was established.
- The Fishery Ground Use Agreement, provided in the Coastal Fishery Ground Improvement and Development Law, can be applied as a formal agreement between fishermen and anglers.

(3) Future Tasks

The measures presented above are basically ground-use adjustment, and the regulations on the catch limit or resource management has not yet been established. Moreover, enforcement is left to local self-management. Therefore, it can be said that remarkable differences exist between the Japanese system and those in the United States, Canada, or Australia, where public organizations manage both the professional fishery and recreational fishing. The following issues remain to be solved.

- What is the legal status of recreational anglers and anglers guide service companies? What are their rights and duties?
- Should anglers' guide service companies be authorized as full members in local Fishing Cooperative Associations?
- Should an anglers' license system be adopted?
- Should anglers catch statistics be made mandatory? and

- Would it pay (in benefit/cost terms) to organize the unspecified anglers for resource management?

Chapter 6. The Impact of Globalization

- for the conclusion of this booklet -

Yuichiro. Harada

(1) What does globalization mean for fisheries?

There are many aspects to the meaning of the globalization. In the case of fisheries, it may indicate the increasing number of countries that view fisheries as one of the means to develop an export-oriented domestic industry. In this respect, Japan is one a country that has been severely impacted by globalization.

(2) The impact of globalization for Japanese fisheries

In 1976, Japan was the largest fish exporting country in the world in terms of value (the fourth in volume). In 2001, Japan became the largest fish importing country in the world, in both value and volume, with 23 % in value and 14 % in volume, as a proportion of the world's fisheries. Globalization has changed Japan from a fishing country to mainly a fish consuming country, although the Japanese government and the fishing industries are doing their utmost to maintain these industries.

(3) Change in the role of Japanese fisheries in the international community

In the past, Japan was often criticized as a country that puts pressure on fish resources by over-fishing. Japan is changing its image and is now emerging as one of the most responsible fishing countries in the world. The establishment of the Organization for the Promotion of Responsible Tuna Fisheries (OPRT) is one example of Japan's concern for fish resources. Japan is taking the initiative to conserve and manage tuna resources. Despite Japan's commitment to sustainable fishing,

Japan's strong and continuous demand for seafood clearly puts pressure on marine resources. For example, more than 70 countries export tuna to Japan from their fishing vessels or fish farms. The Japanese market is an attractive incentive for some countries to develop their fishing industries.

To ensure sustainable marine resources and fisheries, Japan must take responsibility for the capacity of its market and the impact of that capacity.

(4) Rising need of private initiative for responsible fisheries

In an increasingly globalized world where the economies of many countries are interrelated and where the industries of different countries have close connections, responsible fishing cannot be successfully pursued with only the efforts of a single fishing industry. It becomes necessary to have the cooperation of all stakeholders, including traders, distributors and consumers. The effectiveness of responsible fisheries can be pursued through the introduction of a legal framework by governments, but different governments sometimes have differing interests, and it often takes a long time to introduce effective resource management measures. An example is the case of eliminating IUU fishing activities. In order to expedite the implementation of responsible fisheries, the promotion of private initiatives by all stakeholders is becoming more important, as are the efforts by governments and international fisheries resource management organizations. Japan may be in a position to promote initiatives for various fisheries based on its experience of promoting responsible tuna fisheries in the world.

List of Authors

Mr. Yuichiro HARADA, Organization for the Promotion of Responsible Tuna Fisheries (OPRT).

harada@opr.or.jp

Dr. Mitsutaku MAKINO, COE Fellow, Yokohama National University.

makino@ynu.ac.jp

<http://risk.kan.ynu.ac.jp/makino>

Dr. Yoshiaki MATSUDA, Professor of International Marine Policy, Kagoshima University. President of JIFRS.

matsuda@fish.kagoshima-u.ac.jp

Mr. Masaaki SATO, General Manager of International Affairs Department, National Federation of Fisheries Cooperative Associations, Japan..

kokusai-sato@r6.dion.ne.jp

Mr. Johannes Harumi Wilhelm, PhD-candidate of Bonn University/Germany, Lecturer of Akita University/Japan.

wilhelm@ed.akita-u.ac.jp

<http://www.ipc.akita-u.ac.jp/~wilhelm>

Dr. Tadashi Yamamoto, Former FAO Senior Fisheries Statistician, Former Professor of Fisheries Economics, Nihon University. Honorary President of JIFRS.

yamachu@tkb.att.ne.jp

Postscript

For the preparation of this booklet, reference has been made often to “White Paper on Japanese Fisheries for the Youth” and Indexes for Fishery Statistics (Suisan Tokei Shihyou), both of which were released by The Fishery Agency.