# China

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## INTRODUCTION

In the past ten or so years, China obtained a level of rapid fisheries development. The total aquatic output increased from 12.37 million metric tons in 1990 to 45.65 million metric tons (algae production included) in 2002. Marine Fisheries remained an important component of China's fishery industry. In 2002, the marine production had amounted to 26.46 million metric tons, of which capture fisheries contributed 14.3 million metric tons.[1]

## POLICY FRAMEWORK

At the national level, the objectives of fisheries development include the enhanced protection and rational utilization of fishery resources; the development of artificial cultivation, the insurance of fisheries workers' lawful rights and interests, and the boosting of fishery production. The objectives are set forth in the *Fisheries law of the People's Republic of China,* first adopted on January 20, 1986 by the Standing Committee of National People's Congress. At the local level, each Province adopted its *Regulation on Implementation of Fisheries law of the People's Republic of China* that set forth its own objectives that are similar as national objectives.

In 2000, the *Fisheries law of the People's Republic of China* had been revised. The revised law entered into forth on December 1, 2000 and the main provisions revised are as follows:

- Catch limit management system. Based on the mandate of United Nations Convention on Law of the Sea (UNCLOS) and relevant international agreements, the revised law stipulates that total allowable catch of the fishery resources and a catch limits system for fishing shall be carried out.
- Improving the fishing permit system. The revised law stipulates that all Chinese vessels intending to conduct fishing operations on high seas and other regulated areas, must apply for fishing permit at national fisheries authority. The fishing permit should include fishing type, fishing area, duration limitation, number of fishing gear.
- Log book request. The revised law requests that all large-scale vessels must have log books on board.

## LEGAL FRAMEWORK

The Fisheries Law (China, 2001) stipulates that the administrative department for fisheries under the State Council and such departments under the people's governments of provinces shall strengthen their supervision over and inspection of the implementation of the catch limit system for fishing. According to the law and in practice, the Fisheries management system in China is constituted with the Bureau of Fisheries, held under the Ministry of Agriculture, as the top administration and each local fisheries bureaus of provincial or municipal level as basic institutes. The fisheries

[1] Unless otherwise stated, the data presented in this review are from the China Fisheries Year Books of 2000 2001, 2002 and 2003 (China, multiple).

administrations of each level are responsible for the implementation of the fisheries law and regulations. Bureau of Fisheries, Ministry of Agriculture is also called Bureau of Fisheries Management and Fishing Port Superintendence, P. R. China.

As the subsidiary bodies and branches of the Ministry of Agriculture, the Fisheries Law Enforcement Command of China is in charge of the coordination of fisheries law enforcement; while the Bureau of Fisheries Management and Fishing Port Superintendence of each regional sea (Yellow Sea, Bohai Bay, East China Sea, and South China Sea) is in charge of its regional fisheries law enforcement. The Bureau of Fishing Vessel Inspection, Ministry of Agriculture is responsible for the legal technology inspection to the fishing vessels. There are local fisheries administrations established in every province, major fishery cities, and counties that are under the supervision of local governments.

In China, the protection of all endangered aquatic animals is a function of the fisheries management. The fisheries law enforcement also covers protected area enforcement in the seas.

## STATUS OF FISHERIES IN CHINA

More than 3 000 of marine living species are found along the coast of China and 150 of marine living species have economic value. Over 100 species are targeted species, such as hairtail, chub mackerel, Pacific herring, Spanish mackerel, Chinese herring, sea eel, large yellow croaker, small yellow croaker, porgy, silvery pomfret, mullet, flounder, cuttlefish, squid, octopus, abalone, shrimps, crabs, sea cucumber, jellyfish. Such variety of targeted species provides for the characteristic multi-species nature of many fisheries in the China seas.

In 2002, the total fisheries catch was 45.65 million metric tons (algae production included) with US$37.56 billion of gross value of fisheries output, that represented 3.04 percent of gross domestic product (GDP) (US$1 234 billion).

Marine capture fisheries is one of the important components of Chinese fisheries. There are 279 013 fishing vessels with engines (gross tonnage was 6.07 million metric tons and total power was 13.4 million kw) and 20 435 fishing vessels without engines engaged in marine fishing operations. The most common fishing gear used is the trawlnet. In terms of catch, trawlers accounted for 50.1 percent of total catch, small scale gill and driftnets represented 16.4 percent and set-nets (including gape net and stake net) for 14.6 percent (see Table 1), purse seines took 5.1 percent, lines and hooks accounted for 4.0 percent, and other fishing gears take 9.8 percent. The pelagic species accounted for 39.2 percent of the marine capture catch, while the bottom species account for about 60.8 percent. The most productive area was the East China Sea (see Table 2). Among the catch, 9.24 million metric tons was from coastal area and 5.09 million metric tons was from off sea area.

## MANAGEMENT ACTIVITY

The Bureau of Fisheries, Ministry of Agriculture is in charge of the development and implementation of management measures. Except to the “zero growth” and “ minus growth” policy that were put forward directly by the Bureau of Fisheries, as normal way, the management measures are suggested by the local fisheries authorities, scientists as well as fishermen. After receiving such suggestions, the Bureau of Fisheries would conduct field investigation and obtain more views from stockholders. Based on the views obtained from the investigation and reports from other resources, the Bureau would organize draft working group consist experts and government staff to formulate the draft management measures. Such draft would then be distributed to the local fisheries authorities for comments within time frame. In some cases, such draft would be published on the China Fishery News—a weekly newspaper sponsored by the Ministry of Agriculture for public comments. After the given time, the management

TABLE 1
**The Largest Three Fisheries in China in terms of Catch (2002)**

| Fisheries | Catch (million mt) | % in total catch marine capture fisheries |
|---|---|---|
| Trawlers | 7.18 | 50.1 |
| Small scale gill and driftnets | 2.35 | 16.4 |
| Set nets | 2.09 | 14.6 |
| Purse seines | 0.7 | 5.1 |
| Lines and hooks | 0.6 | 4.0 |
| Other gears | 1.4 | 9.8 |

*Source*: China, multiple

TABLE 2
**The Catch of Marine Capture Fisheries Distribution by Area (2002)**

| Area | Catch (million mt) | % in total catch marine capture fisheries |
|---|---|---|
| East China Sea | 5.14 | 35.0 |
| South China Sea | 3.59 | 25.0 |
| Yellow Sea | 3.15 | 22.9 |
| Bohai Bay | 1.33 | 9.3 |
| Other Area | 1.12 | 7.8 |

*Source*: China, multiple

BOX 1
**Notification for Introduction of moratorium in the South China Sea**

In March 1999, the Ministry of Agriculture published its decision for a new management measure—starting from 1999, the area north to 12 degree, North latitude in the South China Sea would prohibit fishing from June 1 to 31 July each year. During this period, it prohibits the fishing operation by all trawlers and purse seines in the area.

The notification mentioned that in recent years, the fishing efforts went over the renewability of fisheries resources in the Chinese jurisdiction in the South China Sea and the fish stocks declined continuously. The catch of major economic fish species decreased sharply, the income of fishermen also decreased. Such problems had become negative factors for local economic development and social stability. In order to ensure the sustainable development of fisheries in the South China Sea, the effective measure must be taken to conserve and rationally use the fishery resources. The notification described the new management measure was based on:

- relevant provision of Fisheries Law;
- suggestion made by relevant local fisheries authorities, experts and fishermen;
- investigations and studies made by Bureau of Fisheries Management and Fishing Port Superintendence of South China Sea ;
- comments received from relevant local fisheries authorities; and
- successful experiences obtained in conducting moratorium in the East China Sea and Yellow Sea.

measures would be, with necessary revision based on the comments received, be submitted to the Ministry of Agriculture or to the State Council for approval. Then, the Bureau of Fisheries and local government (through its fisheries authorities) would be responsible for implementation of such measures. The new management measure would be publicized on the newspaper (People's Daily or China Fishery News) and on the internet at web of Ministry of Agriculture (www.agri.gov.cn.). An example of management measure proposals can be found in the Box 1.

As general approach, all marine capture fisheries are under management. China conducts overall control of fishing efforts, that includes fishing vessel and power control

TABLE 3
**Fishing Vessel and Power Control Quotas for Marine Capture Fisheries in 1996-2000**

| Area | Number of vessels | Power(kw) |
|---|---|---|
| **National total** | **26 5620** | **9 361 302** |
| Sub-total of Yellow Sea and Bohai Bay | 84 847 | 1 834 956 |
| 1.Liaoning Province | 30 275 | 568 627 |
| 2.Tianjin Municipality | 916 | 39 653 |
| 3.Hebei Province | 8 847 | 236 197 |
| 4.Shandong Province | 44 809 | 990 479 |
| Sub-total of East China Sea | 108 732 | 4 950 947 |
| 1.Jiangsu Province | 18 937 | 552 661 |
| 2.Shanghai Municipality | 663 | 140 907 |
| 3.Zhejiang Province | 37 802 | 2 807 467 |
| 4.Fujian Province | 51 294 | 1 449 912 |
| Sub-total of South China Sea | 72 040 | 2 575 399 |
| 1.Guangdong Province | 49 210 | 1 822 820 |
| 2.Guangxi Province | 10 348 | 377 242 |
| 3.Hainan Province | 12 482 | 375 337 |

*Source*: China, multiple

quota (see Table 3), approval and inspection system on fishing vessel replacement and fishing permit. For certain fisheries, particular regulations also apply, for instance, shrimp trawling fishery and set net fishery.

Due to shortage of financial input, the stocks were not assessed regularly, but occasionally depending on the financial input availability. However, according to provisions of revised Fisheries Law[2], it plans to conduct survey and assessment for two stocks as first step, namely hairtail fish in East China Sea and anchovy in Yellow Sea.

Although the regular assessment was not carried out, due to the overall fishing capacity was higher than the resources can sustain, the general status of fish stocks in Chinese water is depleted, i.e. marine fisheries resources in China are depleted increasingly.

Fishery managers are legally required by Fisheries Law adopt measures to address overfishing and rebuild depleted stocks.

Therefore, China introduced three months fishing moratorium in Yellow Sea and East China Sea for the first time in 1995. Thereafter, the moratorium has been carried out every summer. In 1999, China began another moratorium in parts of the area of South China Sea for two months. After that and till now, all Chinese sea areas have been subject to moratorium for two or three months each year. In 1998, China changed her policy in the marine capture fisheries and began to implement policy of "zero growth" for catch of marine and inland capture fisheries. In 2002, China started to carry out policy of "minus growth" for catch of marine and inland capture fisheries. In order to achieve the goal of minus growth of her marine fishery catch, China started a five-year buy back program in 2002. According to the program, China would reduce 30 000 fishing vessels and arrange 300 000 fishermen transmit to other jobs within the five years. The central government will input 33 million US dollars each year and local government will input about one to one counterpart fund in supporting the program.

Besides, other management tools were also used, like minimum size of fish, minimum mesh size in several fisheries, spawning stock protection area and period, juvenile protection area.

[2] In article 22 of the Fisheries Law, it says: Following the principle of keeping the allowable catch lower than the increase of the fishery resources, the State determines the total allowable catch of the fishery resources and applies a catch limit system for fishing. The administrative department for fisheries under the State Council is responsible for arranging surveys and assessment of the fishery resources to provide a scientific basis for the implementation of the catch limit system for fishing.

TABLE 4
**Comparison of fine levels charged under the Chinese Fishing Law (US dollar equivalence)**

| Violation | According to the old Law (US$) | According to the Revised Law (US$) |
|---|---|---|
| Using explosives or poisons for fishing | 60-6 050 | Less than 6 050 |
| Using electricity | If without approval, fine should be 60-360 | Less than 6 050 |
| Fishing operation in violation of restricted areas and closed seasons | 60-6 050 | Less than 6 050 |
| Using banned fishing gear and methods | 120-6 050 | Less than 6 050 |
| Minimum mesh size | 6-120 | Less than 6 050 |
| Juvenile fish proportion | No | Less than 6 050 |
| Type of operation, location, time limit and amount of fishing gear | 6-360 | Less than 6 050 |
| Fishing without a fishing license | 25-2 400 | Less than 12 100 |
| Manufacturing or selling banned fishing gear | No | Less than 12 100 |
| Violation by foreigners or foreign fishing vessels | Can be fined but no specific amount | 60 530 |

*Source*: China, 2001

BOX 2
**China Introduced More Serious Penalty on Violation of Fishery Law**

In comparison the old Fisheries Law (before 1 December 2000) and revised Fisheries Law in China, in particular the legal liability clause, more serious penalty on violation of fishery law can be found.

The old Fisheries Law only covered the following activities as violations:

- using explosives, poisons for fishing;
- engaging in fishing operation in violation of the regulations on restricted fishing areas and closed seasons;
- using banned fishing gear and methods;
- fishing nets with mesh smaller than the minimum size;
- Violation by foreigners or foreign fishing vessels;
- Activities against Criminal Law;
- conducting fishing without a fishing license; and
- conducting fishing in violation of the type of operation, location, time limit and amount of fishing gear specified in the license granted.

However, the revised Law expands the violations to:

- using electricity or other illegal means in fishing, that impair the fishery resources;
- catching juvenile fish the proportion of which exceeds the specified level;
- serious violation ( In the Law, there is no definition of this); and
- manufacturing or selling banned fishing gear.

In addition, the penalties imposed violations became more serious. Beside the confiscation of illegal catch, gains, fishing gears, revoking fishing license and some amount of fines, the revised Law stipulates that the penalty regarding serious violations can include the confiscation of fishing vessels. In addition, the amount of fines is increased (see table 4). In the old system, the Fisheries Law did not specify fine levels (although such levels appeared in the *Regulation of Implementation of Fisheries Law).* In the new system, all fine amounts are clearly stipulated in the Law itself.

It is very apparent that over the past ten years, more management measures have been developed. In order to monitor and ensure compliance with the measures, China has enhanced cruise inspection in her EEZ to safeguard fisheries operating order. The penalty imposed to the violation on the fishery law and regulation also became more serious (see Table 4 and Box 2).

It is estimated that more management measures will be developed and applied in the future if the legal requirement for applying catch limit system is fully complied with.

BOX 3
**The advantages and disadvantages of a moratorium in China**

Starting from 1995 and 1999, China has introduced moratorium systems in Yellow Sea and East China Sea as well as in some parts of South China Sea, respectively. In 2003, all Chinese marine waters were subject to the system for two to three months. Each year, about 118 000 fishing vessels (trawlers and set net vessels; including vessels of Hong Kong and Macao Special Administration Zone) are required to stay in fishing ports and more than one million fishermen should stay on land during the period. The system has been carried out for several years. Both experience and lessons have been learned:

**The advantages**. Spawning stocks and juvenile stocks of major economic species were given time and space for spawning and growing during the two-three months period. It was reported that, after the two-three month period, catches of some species increased when compared with the same period the previous year; indicating that the moratorium had a positive impact on stock rebuilding. In addition, stakeholder involvement increased: after implementation of the moratoriums, fishermen realized they could catch more with less time on the sea and other direct costs and the situation reversed. In the beginning, fishermen were forced to implement the moratorium. At later stages, the fishermen themselves tried to push the implementation of moratoriums. They made suggestions on how to carry out the moratorium, reported violations to the government, and asked for follow-up investigations.

**The disadvantages**. Due to high level of fishing capacity and lacking complementary management measures, the recovered stocks during the moratorium were susceptible to overfishing within one month after the end of the moratorium; therefore, the stocks continued to decline.

The introduction of management measures adopted in the past ten years improved the status of the fisheries/stocks. One such example, with its advantages and disadvantages, is presented in Box 3.

The principal impediments to more effective management in China are as follows:

- The domestic illegal, unregulated and unreported (IUU) fishing and increment of fishing capacity are two of the most serious problems in fisheries management.
- The public consciousness needs to be enhanced. The fishery resources are limited but this knowledge needs more recognition by the public in China. According to the survey conducted by Bureau of Fisheries of China in 2000, 125 483 fishery vessels were constructed after 1994. And according to the same survey, there were 104 200 vessels operating in the marine waters of China that had no appropriate approved documents (including approval for construction and fishing permit) and were not covered in the previous statistical system. It seems that, besides the need for more enforcement actions, additional educational actions are needed, inter alia, for the investors to understand that their investments may not be returned if the fishing capacity continues to increase.
- The rapid development in marine capture fisheries meant increases in the number of fishing vessels, fishing effort, and total catch levels. For example, in 1990, the total catch of marine capture fisheries increased to 5.51 million metric tons from 15 million metric tons caught in 1999. During the same period, the number of vessels with engines increased from 244 154 in 1990 to 279 994 in 1999.
- Financial, human, and capital inputs need to be increased to reflect increased management requirements. For example, in management of the large marine fisheries, the fishery law enforcement is costly; however, the inputs necessary for

enhancing fisheries law enforcement, although increased in recent years, remained at considerably low levels.

## COSTS AND REVENUES OF FISHERIES MANAGEMENT

The central government budget (local government budgets are not available from the present publications), increased over the past ten years. The budget directly linked with fisheries management in 1999 was 7 million US dollars (for fisheries law enforcement). In 1990 the budget was only 600 000 US dollars. Hence, the budget for fisheries law enforcement increased over ten times within the ten years. In addition, this budget continued to increase after 1999. For example, in the budget, 27.3 million US dollars were used for enhancing fisheries management ability in 2001, of which 8.3 million US dollars were used for the construction of new fisheries law enforcement vessels.

The increased budget ensured the smooth implementation of the moratoriums and deterred domestic IUU fishing activities.

## IMPLEMENTATION OF GLOBAL FISHERIES MANDATES AND INITIATIVES

China ratified UNCLOS in 1996 and, based on UNCLOS, China enacted a EEZ and Continental Shelf Law in 1998. China signed the UN Fish Stocks Agreement in 1996 with a statement expressing her view on use of force on high seas. China has not ratified the UN Fish Stocks Agreement and the Compliance Agreement.

With respect to recently adopted International Plans of Action (IPOA) relating to capacity management, IUU fishing, shark conservation, and seabird bycatch in longline fisheries, China has taken following steps to implement the IPOA:

- As a general approach, China is now drafting a National Plan of Action (NPOA) on Aquatic Living Resources Protection and all international initiatives, including four IPOAs adopted by FAO, will be covered in an appropriate way.
- With respect to the domestic IUU, as described above, there were 104 200 vessels operating in the marine waters of China in 2000. From this year, China has taken successive steps to deter the IUU fishing activities based on the principle of "Bring into Management and Treating Differently". By the end of 2002, 92 000 vessels have been brought into management and over 10 000 vessels have been scrapped or used for other no fishing purposes. With respect to the vessels operating on the high seas, in particular the tuna longline vessels, China conducted an investigation into the business relation between present Chinese owners and the fishermen having been or being engaged in IUU fishing activities. The vessels and companies having had such relationships, according to information sources, were asked to break these relationships. China submitted a progress report on the issue to International Commission for the Conservation of Atlantic Tunas (ICCAT) Working Group on IUU Fishing in May 2002. By the end of June 2003, the work of cutting down these relationship has been completed.
- With respect to the IPOA of shark conservation and seabird bycatch in longline fisheries, China deployed observers on board tuna longline vessels to collect data. Shark bycatch data have been reported to ICCAT and the Indian Ocean Tuna Commission (IOTC). To complement these efforts, training on how to identify different species of sharks was also conducted. The education of mitigating seabird bycatch was also undertaken.
- With respect to the IPOA of fishing capacity management implementation, as mentioned above, China has a buyback plan for five years in achieving to scrap 30 000 fish vessels and relocate 300 000 fishermen by the end of 2006. The year of 2002 was the first year of the plan and China scrapped 4 728 fishing vessels and relocated 30 000 fishermen to non-fishing jobs in that year.
- Enforcement action to deter illegal large-scale high seas driftnet fishing. The United Nations General Assembly adopted resolutions in 1992, 1993 and 1994 to

ban the high seas driftnet fishing. Before the UN adopted its first resolution on high seas driftnet fishing, China had made the decision to prohibit large-scale high seas driftnet fishing in June 1991. In 1993, China concluded a bilateral arrangement with United States of America for cooperative or joint enforcement against large-scale driftnet fishing on the high seas of the Pacific Ocean. Thereafter, cooperative or joint enforcement actions have been undertaken. In 2002, China made her interpretation on the definition of large-scale driftnet, i.e. any length of driftnet, if used or intended to be used on high seas shall be regarded as large-scale driftnet. In November 2002, China sent one of her fishery enforcement vessels on the high seas for inspection, signalling the first time that China had conducted high seas fishery law enforcement.

## PARTICIPATION IN REGIONAL FISHERY BODIES (RFBS)

China has over 60 distant water fishing enterprises, with more than 1 600 vessels conducting distant water fishing, and with an annual output of 0.8 million tons and total value of US$ 560 million. The fishing grounds cover the high seas of the Pacific Ocean, Atlantic Ocean, and Indian Ocean, as well as the jurisdiction zones of over 30 countries or regions through access arrangement or bilateral agreements.

China is a member of *the Convention on Conservation and Management of Pollack Resources in the Central Bering Sea* and joined the International Commission for the Conservation of Atlantic Tunas (ICCAT) in 1996 and the Indian Ocean Tuna Commission (IOTC) in 1998. China participated in the Multilateral High Level Conference on Conservation and Management of Highly Migratory Fish Stocks in Central and Western Pacific (MHLC). After adopting this Convention, China has been participating in the Preparatory Conference for the Establishment of the Commission for the Conservation and Management of Highly Migratory Fish Stocks in Central and Western Pacific. China has attended the working group to develop the *Convention for Strengthen of Inter-America Tropical Tuna Commission* (IATTC) since 2001.

In the Article 23 of Fisheries Law, it stipulates that fishing licenses for fishing on the high seas shall be granted upon approval by the administrative department for fisheries under the State Council. Article 19 of *Regulation of Distant Water Fisheries Management*[3] stipulates that the fishing vessels conducting fishing operations on the high seas shall comply with fishing area, fishing type, fishing duration as set out in the Fishing Permit of High Seas Fishery, and observe the international treaties and agreements that China had ratified or accessed. These two articles form a legal basis for China to implement management measures adopted by regional fishery bodies. In practice, as soon as measures are adopted by the relevant RFBs, and if the Chinese delegation so agrees, the Fisheries Authority (Bureau of Fisheries, Ministry of Agriculture) would notify the measures to the relevant local fisheries authorities and companies as well as research institutes for compliance. Additional domestic coordination at the central government levels also takes place at this point.

## SUMMARY AND CONCLUSIONS

Several management tools have been used including, in particular, the introduction of moratoriums and the implementation of buyback programs. Since then, the catches from marine capture fisheries dropped from 15 million metric tons in 1999 to 14.4 million metric tons in 2001 and 14.3 million metric tons in 2002, respectively. Sustainable development is now a national policy of China and, as a legal request, China will introduce a catch limit system based on the regular stock assessments. Therefore, it is expected that marine captures will continue to drop to an appropriate

[3] Revised and Enacted in April 2003.

level. In addition, China enacted a *Temporal Regulation of Fishing Vessel Scrapping* in 2002. When tied with enforcement of these management tools, the fishing capacity will continue to go down and it is estimated that the marine capture fisheries will be able to continue its important role in the Chinese Fisheries sector.

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## ANNEX TABLES

### Current Management of Marine Capture Fisheries in China

| Level of Management | % Fisheries Managed | % with Fisheries Management Plan | % with Published Regulations* | Trends in the number of Managed Fisheries over ten yrs. (increasing/decreasing/unchange) |
|---|---|---|---|---|
| National | > 67 | > 67 | > 67 | Increasing |
| Regional | > 67 | > 67 | > 67 | Increasing |
| Local | > 67 | > 67 | > 67 | increasing |

* In other cases of managed fisheries where no regulations have been published, licenses with conditions/rules are issued to participants under the Fisheries Act
** Only one fishery is concerned

### Summary information for three largest fisheries (by volume) in China

| Category of Fishery | Fishery | Volume metric tons | Value* USD | % of Total Volume Caught** | % of Total Value Caught** | Covered by a Management Plan? | # of Participants | # of Vessels |
|---|---|---|---|---|---|---|---|---|
| Industrial | Trawlers | 7 182 625 | n.a. | 50.1 | n.a. | Yes | n.a. | n.a. |
| Artisanal | Small-scale gill and drifnets | 2 353 894 | n.a. | 16.4 | n.a. | Yes | n.a. | n.a. |
| | Set-net | 2 096 121 | n.a. | 14.6 | n.a. | Yes | n.a. | n.a. |
| Recreational | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. |

* Value in 2002 U.S. Dollars.
** % values caught and % volume caught are based on the total for all categories.
Not included in the tables are purse seine, line and hook, and 'other gear' categories.
n.a: not available

### Use of Fishery Management Tools within the three largest fisheries in China

| Category of Fishery | Fishery | Restrictions | | | | License/ Limited Entry | Catch Restrictions | Rights-based Regulations | Taxes/ Royalties | Performance Standards |
|---|---|---|---|---|---|---|---|---|---|---|
| | | Spatial | Temporal | Gear | Size | | | | | |
| Industrial | Trawlers | Yes | Yes | Yes | No | Yes | No | No | No | No |
| Artisanal | Small scale gill and drifnets | Yes | Yes | Yes | No | Yes | No | No | No | No |
| | Set-net | Yes | Yes | Yes | No | Yes | No | No | No | No |
| Recreational | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. |

n.a: not available

### Costs and Funding Sources of Fisheries Management within the three largest fisheries in China

| Category of Fishery | Fishery | Do Management Funding Outlays Cover | | | Are Management Funding Sources From | | |
|---|---|---|---|---|---|---|---|
| | | R&D | Monitoring & Enforcement | Daily Management | License fees in fishery | License fees from other fisheries | Resource rents |
| Industrial | Trawlers | Yes | Yes | Yes | n.a. | n.a. | Yes |
| Artisanal | Small scale gill and drifnets | Yes | Yes | Yes | n.a. | n.a. | Yes |
| | Set-net | Yes | Yes | Yes | n.a. | n.a. | Yes |
| Recreational | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. |

n.a: not available

**Compliance and Enforcement within the three largest fisheries in China**

| Category of Fishery | Fishery | VMS | On-board observers | Random dockside inspections | Routine inspections at landing sites | At-sea boarding and inspections | Other (please specify) |
|---|---|---|---|---|---|---|---|
| Industrial | Trawlers | No | No | Yes | No | Yes | No |
| Artisanal | Small scale gill and drifnets | No | No | Yes | No | Yes | No |
| | Set-net | No | No | Yes | No | Yes | No |
| Recreational | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. |

* May be required to take observer on board. There is no observer programme.
n.a: not available

**Capacity Management within the three largest fisheries in China**

| Category of Fishery | Fishery | Does overfishing exist? | Is fleet capacity measured? | Is CPUE increasing, constant or decreasing? | Have capacity reduction programmes been used? | If used, please specify objectives of capacity reduction programme |
|---|---|---|---|---|---|---|
| Industrial | Trawlers | Yes | Yes | Constant or decreasing | Yes | The purchase of fishing licenses for the fishery,<br>A buyout of fishing vessels licensed to operate in the fishery |
| Artisanal | Small scale gill and drifnets | Yes | Yes | Constant or decreasing | Yes | The purchase of fishing licenses for the fishery,<br>A buyout of fishing vessels licensed to operate in the fishery |
| | Set-net | Yes | Yes | Constant or decreasing | Yes | The purchase of fishing licenses for the fishery,<br>A buyout of fishing vessels licensed to operate in the fishery |
| Recreational | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. |

n.a: not available

# Japan

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## INTRODUCTION

In 2002, the Japanese market consumed over 11 million tonnes of fish and shellfish (excluding seaweeds) in live weight terms; 80 percent directed to human consumption and the remainder for feed. In that same year, the annual per caput consumption of fish was 37.4 kg; providing up to 40 percent of the total animal protein consumption, or about 20 percent of protein from both animal and plant origin. At the global level Japan maintains one of the highest levels of per caput fish consumption. Over 90 percent of the domestic fish production is domestically consumed, half of which is eaten fresh. In a situation where domestic yields have declined and imports grown to fill the gap, the self-sufficiency rate in food fish has declined sharply during the last decade from 70 percent in 1992 to 53 percent in 2002.

This paper reviews the policy, institutional and legal framework for the management of marine capture fisheries in Japan on the basis of the policy directions as articulated in the Fisheries Basic Plan (FBP). The FBP was formulated in 2003 reflecting the basic concepts and objectives of the *Basic Law on Fisheries Policy* (BLFP) enacted in 2001.

The main findings of the current status of Japanese fisheries are briefly described, including current resource exploitation, expected future trends in fish demand and projected goals for fish production.

After presenting some observations on the characteristics, existing constraints and on-going management plans, the paper examines costs required for fisheries management planning and implementation at national level.

Japan's implementation of global fisheries mandates and initiatives, including participation in regional fisheries management organizations are described. The paper concludes with the main actions to be taken to achieve a rational and coordinated fisheries resources management as envisioned by the FBP.

## POLICY AND INSTITUTIONAL FRAMEWORK

### The Basic Law on Fisheries Policy (BLFP)

***Background and Rationale***

The *Basic Law on Fisheries Policy (BLFP), (Law No.89)* of 2001, came into effect on 29 June 2001. The rationale for the enactment of the *BLFP* arose from the need to address the key issues confronting the Japanese fisheries sector and to meet its objectives and strategies and targets for the sector as embodied in the *Fisheries Law (1949)*. This new policy guideline is based on two basic concepts: (i) to secure a stable supply of fish and fishery products; (ii) to realize the sound development of the fishing industry. Thus, it relates to policy implementation for all aspects of fisheries in a comprehensive manner, including the conservation and management of fisheries resources, fostering efficient entrepreneurship, securing the coordination between fishing, processing and marketing, reinforcing fisheries ports and fishing grounds, bringing about a better quality of life and environment to fishing communities.

Among several problems and constraints identified in the course of the sectoral review and assessment conducted during 1997 to 2000 by the Fisheries Agency of the Ministry of Agriculture, Forestry and Fisheries (MAFF), prior to the enactment of the

*BLFP,* there were three important issues which required Government attention; that is, (i) the compliance with the principles of the United Nations Convention on the Law of the Sea (UNCLOS); (ii) the declining trend of domestic fish production and as a consequence the decrease of the self-sufficiency rate; and (iii) the declining trend in the number of fishers as well as the ageing of the fishers population.

The *BLFP* was thus enacted in order to cope with the changes in the situation surrounding Japanese fisheries both internally and externally. It is a new policy guideline to replace the *Coastal Fisheries Promotion Law* (1963) which aimed at modernizing and streamlining the coastal fishing operations.

In the four decades following the enactment of the above law, much had been accomplished in the area of enhancement of productivity in coastal fisheries and exploitation of coastal resources (Hotta, 1992). The focus of the objectives of the *BLFP* clearly indicates a shift from that in the previous law where emphasis was rather on increasing productivity in coastal fisheries and uplifting small and medium scale fishers standard of living to the present stress on the resource sustainability through more efficient use of resources to bring about a stable supply of fish and the sound development of the fishing industry.

In conjunction with the enactment of the *BLFP*, partial amendments were made to the following laws.

- The *Fisheries Law* (Law No. 267, 1949): (a) to strengthen the existing mechanism for the conservation and management of fishers resources (e.g. creation of Sub-Regional Fisheries Coordination Committee); (b) to foster efficient and stable fisheries enterprising management (e.g. designated fisheries, set net fisheries); (c) to reform fisheries rights management systems (e.g. common fisheries rights, specific demarcated fisheries).
- The *Marine Fisheries Resources Conservation and Management* (Law No. 60, 1951): to facilitate the recovery of fisheries resources in the waters surrounding Japan in a systematic and comprehensive manner (e.g. creation of TAE system, reform of TAC system).
- The *Fishing Vessels Law* (Law No. 178, 1950): to aim at relaxing restrictions to fishers (e.g. fishing vessel construction, registration period of fishing vessels).
- The *Fisheries Ports Law* (Law No. 137, 1950): (a) to advance the integrated development of fisheries ports and fishing grounds. (b) to facilitate the decentralization of fisheries ports development planning and implementation to local autonomous bodies; (c) to increase the transparency and objectivity of relevant projects (e.g. information disclosure, streamlining administrative procedures for project planning).

### The Fisheries Basic Plan (FBP)

Resolution of the problems on the declining trend of domestic fish production and the self-sufficiency rate would depend on the formulation and implementation of a long term comprehensive sustainable development plan on the basis of the *BLFP.* The Fisheries Basic Plan (FBP) was thus formulated in 2002 and subsequently approved by the Cabinet. The FBP is a Master Plan for the fisheries sector in which the major elements of the *BLFP* are translated to help fisheries administrators and managers design and implement sectoral strategies and programmes. The FBP consists of four components, that is, (i) the basic policy, (ii) goals for the self-sufficiency rate of fish and fishery products, (iii) major strategic initiatives; (iv) requirements for implementing the FBP.

The FBP provides the overall policy objectives and strategies to be used to advance the sustainability of the Japanese fishing industry in the next ten years or so. It is envisaged that the FBP will be evaluated every five years with regard to its effectiveness and validity, and be revised, if necessary, to reflect the need to deal with the changes that have occurred during the period under review.

Effective fisheries resources management is one of the important components contained in the FBP. This paper concentrates to a large extent on fisheries management aspects of the FBP.

***Policy Objectives and Goals***

The basic concept of sustainable fisheries development is defined in the FBP that resource utilization must be anchored on sound management policy for sustained long-term benefits to maintain a stable supply of fish and fishery products. Management reforms are urgent and imperative to recover the poor state of fish stocks in the waters surrounding Japan. This calls for forcing through reforms to the licensing and regulatory system to control and redirect fishing effort away from over-fished areas. Fisheries resource management will also aim at achieving the maintenance of the quality and processes of the entire ecosystems based on scientific evidence. Sustainable utilization of fisheries resources will be carried out encompassing the ecosystem of marine life including marine mammals. Anticipated reforms must be facilitated through the strong participation of stakeholders.

The major thrusts identified in the FBP for the sustainable utilization of fisheries resources are the following:

- Resource rehabilitation and its sustainable utilization in the waters surrounding Japan;
- Marine aquaculture development and stock enhancement;
- Preservation of marine environment and ecological systems;
- Strengthening of responsible fisheries on the high seas to ensure rational resources management in compliance with the principles of the UNCLOS;

***Resource rehabilitation and its sustainable utilization in the waters surrounding Japan***

*Institutional strengthening*

There is an urgent need to meet the increasing demands for implementing adequate regulatory measures to halt the declining trends of fish catches, facilitate the recovery of fish stocks and mitigate the worsening quality of the marine environment. Regulatory measures have been intensified to reduce excessive fishing effort, and in this context restructuring of the institutional setup has taken place at national and prefecture level.

*Restructuring at national level*

In 2001 the former nine national fisheries research institutes were consolidated to create the Fisheries Research Agency (FRA), and subsequently the FRA merged JARMAC (Japan Marine Fishery Resource Research Center) and JASFA (Japan Sea-Farming Association) in 2003. With this reorganization, the Government aimed at enhancing levels of required interaction or cooperation in planning, implementation and monitoring of research activities, apart from the reduction of administrative costs and duplication of efforts. Its main functions are to carry out research on population dynamics of commercially important species in the Japanese exclusive economic zone (EEZ), as well as that of tuna and tuna-like species in the high sea waters, environmental protection, resource conservation and management, stock enhancement, aquatic ecosystems, fish safety, rehabilitation of fishing grounds, revitalization of fishing communities, etc.

The FRA is mandated to provide information on the status of fish stocks every year. It endeavors to increase scientific knowledge of fish stocks and undertake further expansion in coverage. There is a strong demand for developing models to predict the likely changes in the magnitude of fish stocks in future through the improvement in accuracy and sophistication of analytical methodologies. Reliable stock assessment of major marine living resources including whales, marine environment and ecosystems also constitutes an important research item.

*Restructuring at prefecture level*

Shortcomings of the prefecture licensing system originate from the difficulties in the implementation of resource surveys in the waters outside a given prefecture. Particularly, the assessment of straddling and migratory fish stocks which encompass several prefectures was found difficult since prefecture research institutes were mandated to conduct research activities only on prefecture jurisdictional waters. This led to a failure to acquire accurate status estimates for migratory fish stocks. In this connection, a new strategy was taken aiming at involving multiple prefectures in resource studies to cover a wider sea-area under joint responsibilities.

***Rational fisheries resources management***

*Implementation of TAC and TAE regulatory measures*

Presently, the TAC system plays an important role in fisheries management within the EEZ. However, since the enforcement of the TAC Law in 1996 a number of shortcomings have been identified in the regulations including the absence of provisions to implement rigorous regulatory measures. It has been pointed out, for example that under the current TAC Law: (i) the management authority cannot impose the application of rigid management methods (e.g. cancellation of licenses), (ii) it is legally difficult to expand the list of fish species determined by the TAC Law.

Anticipating a more strict code of regulations under the TAC system in the future, the institutional framework is being restructured to attain smooth implementation of such regulations. Particular attention is paid to the following.

- The present status of fish stocks needs to be taken into account in setting the ceiling of annual allowable catches. Besides, priority should be given to domestic fishing fleets in granting the access to fish stocks within the EEZ rather than to foreign vessels.
- Voluntary self-regulated management concepts and initiatives need to be effectively applied in implementing the TAC principles (e.g. prevention of excessive race by fishing vessels to reach fishing grounds).

*Coordination between official management system and fishers' voluntary management initiatives*

The FBP stresses that, in the light of the basic concept of resources management, resource users should have a considerable responsibility in the conservation and management of fishery resources. Fishers' voluntary management initiatives have been well integrated into the official management system and, in general, effectively carried out. Currently, the TAC system forms the core of the official management measures within the EEZ and it calls for fishers' strong participation in the planning and implementation of the TAC regulations which impose a limit of catches of major species. In this respect, harmonization between management authorities and fishers' voluntary management schemes (e.g. voluntary vessel reduction schemes), is indispensable for achieving effective resource rehabilitation. Also, there is a need to involve recreational fishers numbering around 39 million fishers-days/year in management schemes from an early stage of planning (e.g. stock assessment). Resource users' participation in the formulation of a management plan is essential for generating the awareness among them of the importance of managing fish stocks.

*Shared stocks with neighboring countries*

Effective management systems need to be established for the shared stocks with China, Russia and the Republic of Korea to achieve resource rehabilitation through joint responsibilities.

*Aquaculture development and stock enhancement*

Demarcated Fishery Rights are granted to marine aquaculture for the coordinated use of coastal areas. Coastal aquaculture constitutes another sector under considerable stress as a result of excessive stocking rates, over-feeding and land based pollution. The FBP stresses that marine aquaculture needs to be strengthened so as to increase the harvest of existing and new species to offer significant prospects for higher production in order to secure a stable supply of fish. The environmental maintenance and rehabilitation of aquaculture sites are urgent matters to address through the proper enforcement of farm management measures. The *Law for Sustainable Aquaculture Production,* enacted in 1999, provides the legal and institutional framework for securing sustainable aquaculture development through the maintenance and improvement of the environment of aquaculture sites, including the prevention of fish disease, by encouraging fisheries cooperatives or groups of fish farmers to formulate voluntary plans for environmental protection of aquaculture sites.

Concurrent with the continued efforts to regulate fishing effort, priorities have been given to re-stocking or fish farming in its contribution to rebuild fish stocks in coastal waters. To hasten the regeneration of over-fished fisheries and rebuild degraded marine areas, a network of artificial habitats of sea-grass beds, tidal flats, etc. which are readily populated by small pelagic and near shore fish and shellfish have been established. In support of efforts to improve habitat rehabilitation, physical facilities have also been built at selected sites. Re-stocking is being intensified to increase the productivity of coastal waters through improvement of seed production technology. A cost sharing agreement between government and beneficiaries may need to be introduced on the basis of the assessment of effects of re-stocking programmes.

***Environment and ecosystem preservation***

*Environmental and ecological damage*

Water pollution is a major source of concern to fisheries. It relates not only to contamination of the water (e.g. oil sludge, floating debris and sedimentary waste piled up on the seabed) but also to degradation of the state of the water (e.g. increased water temperature) and degradation of the quality of the seabed. Pollution of the seawater is also caused by the inflow of agricultural chemicals, construction works near the shoreline and warm water waste discharged by power stations.

The main types of damages caused by pollution to fisheries are (i) a decreased operational efficiency, due to the breakage of fishing gears and lower yield on the fishing grounds due to gears encountering objects floating on the water surface or sedimentary waste piled up on the seabed, (ii) higher mortality and hindered growth of marine organisms caused by oil sludge and the red tide, (iii) inability for the industry to deliver safe food fish or shellfish to markets due to accumulated hazardous substances such as heavy metal or poly-chlorinated biphenyls (PCB) in their bodies, (iv) contamination of fishing vessels and gear by oil sludge.

According to the Fisheries White Paper published annually by the Fisheries Agency, in 2000 there were 139 cases where fisheries suffered sporadic damage on the surface of the seas. The total amount of damage reached US$36.5 million. Two major causes of the surface damage were the red tide and oil sludge; the former accounted for 67 percent of the whole incidents and 98 percent of the total amount of losses in terms of value. Yearly fluctuations have been considerably high during the last decade, while it is difficult to indicate a general trend.

*Maintenance of environment and ecosystems*

The legal, administrative and technological systems involved in pollution control, ecosystem and environmental protection of coastal and offshore waters are in place. The coastal zone is subject to increasingly severe pollution coming from a variety of

sources. The countermeasures have been taken to control various types of pollution, including oil spillage, red tide occurrences and facilitate to analyze pollution mechanisms and establish action plans to resolve relevant problems. The steps have been taken to monitor and prevent shellfish toxicity and public health hazards arising from heavy metal and PCB contamination of seafood.

Monitoring and control of water pollution is carried out on a continuous basis. The prefecture government deploys observers to monitor pollution and to conserve fishing grounds. Observers monitor the waters regularly, survey damage to fisheries caused by pollution and give immediate guidance on how to prevent or eliminate such damage and on actions to be taken by those concerned. The Fisheries Agency provides subsidies to promote monitoring activities conducted by local public bodies. Also, subsidies have been granted to various projects to assist in the removal of floating waste and accumulated waste, dredging operations to remove submarine sediments and sludge, removal of harmful fauna and flora and tillage of the seabed.

Action has also been taken to preserve coastal areas through rehabilitation of sea-grass beds and tidal flats which have been negatively affected from municipal sewage disposal and industry development. Sea-grass beds, tidal flats and reefs provide nursery and spawning grounds in coastal waters and also function to improve the quality of water and help decompose organic matters.

Strengthening the monitoring and surveillance of fishing grounds, recycling of industrial wastes and refuse disposal constitute important activities concerning environmental and ecological system protection. Cleaning of beaches carried out by volunteers contributes considerably to building people awareness of the need of preserving environment and ecology.

*Coordinated action among the agencies concerned*

Particular attention is paid to the health hazards to the general public as well as to the marine environment caused by chemical debris (e.g. dioxide, organic tin). Siltation results from erosion of soil in upland areas, leading to an excess of silt and sediment being discharged into coastal waters. As part of institutional strengthening, it is required to enhance coordinated actions among the fisheries, agriculture and forestry sectors to preserve the environment along rivers and in upland areas through forestation. The *Forestry Law* (Law No. 429) of 1951 provides the basis for the importance of establishing institutional linkages between fisheries and forestry to maintain nursery grounds and habitats in coastal areas. At the community level, the strategy has been to work towards maximum participation and involvement of all stakeholders and beneficiaries.

***Responsible Fisheries on the High Seas***

Japanese imports of fish and fishery products constitute around half of the domestic consumption and thus in recent years the general public has become more conscious of the status of fishery resources on the high seas. The government policy is therefore directed towards securing the access to the harvest of fish on the high seas and in EEZs of other nations through international forums and bilateral negotiations.

The FBP emphasizes the importance of making a constructive contribution in the international arena to the establishment of a management framework for commercially important species such as tuna and tuna-like species. Japan is a member of various international and regional management organizations including ICCAT, IATTC, CCSBT and IOTC[1]. Japan took the initiative to launch the formation of

[1] International Commission for the Conservation of Atlantic Tunas, Inter-American Tropical Tuna Commission, Commission for the Conservation of Southern Blue-fin Tuna, and Indian Ocean Tuna Commission, respectively.

the Organization for the Promotion of Responsible Tuna Fisheries (OPRT) whose functions include scrapping of tuna long liners involved in illegal, unregulated, and unreported (IUU) fishing, listing of officially permitted tuna vessels, collection of tuna landings data and eco-labeling in order to ensure responsible fisheries on the high seas. The government also enacted the Law concerning Special Measures to Strengthen Conservation and Management of Tuna Resources (1999) in order to call for cooperation from traders who should voluntarily terminate the import of tuna products from flags of convenience vessels and where appropriate, prohibit the import of tuna products caught in a way against international conservation and management measures.

## LEGAL FRAMEWORK

Before the Meiji Restoration took place in 1868 the provincial feudal lords used to issue exclusive fishing rights to the fishing communities, permitting them to operate in the coastal areas directly in front of them. Such measures were required in order to solve constant disputes over the limited fishing grounds between the hundreds of fishing communities throughout the country coast. The feudal provincial system was abolished in 1868, but the new Meiji Government continued to operate the existing fishing arrangements to minimize confusion. Between 1875 and 1886, the government initiated the drafting of a fisheries related law and in 1901 the Fisheries Law was enacted for the first time in Japan. The Fisheries Law, revised in 1910, laid the foundations of the fishing rights and licensing systems as practiced in modern Japan.[2]

### Present Japanese Fisheries Legislation

The marine capture fisheries of Japan are divided into coastal, offshore, and distant water components, although they are not legally defined. The distant water fishery is that which operates on the high seas beyond the Japanese EEZ and in those of other nations; the offshore fishery, usually employing boats above 10 GT, operates seawards of the coastal fishery but still within the Japanese EEZ; and the coastal fishery, for the most part using boats of less than 10 gross tonnes (GT) and which includes marine aquaculture, operates landwards of the offshore fishery.

Fisheries regulations in Japan constitute a dual system, i.e. fishery-licensing regulations and fishery rights regulations. The former principally applies to the fisheries carried out in the waters beyond the area secured for coastal fisheries, including the high seas and the latter to the fisheries operated in coastal waters, though some forms of licensed fisheries are also operated in coastal waters (refer to Figure 1).

### Fishery-licensing system

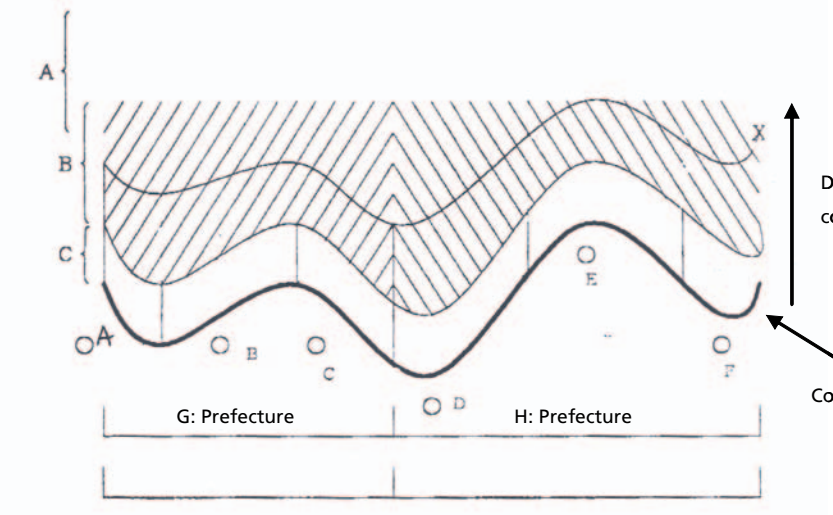
Licensed fisheries can be divided into two types, namely, Minister-licensed fisheries and Prefecture Governor-licensed fisheries. A license for distant water fishing and operations crossing several prefecture boundaries is issued by the competent minister. In the case of fishing grounds limited within prefecture boundaries, local prefecture governments issue licenses, by setting up prefecture fisheries adjustment regulations in accordance with the *Fisheries Law* (1949) or the *Marine Fisheries Resources Conservation and Management Conservation Law* (1951).

Before granting the license, the authorities announces the number of vessels to be allowed for each type of fishing operation within specific time limits, but priority is given to those with experience (or previous licenses) if there is an excessive number of applicants. The license specifies detailed terms and conditions of fishing, including restriction on tonnage of fishing vessels, gear, fishing area and season, mesh size, main engine power, fishing bases, etc.

[2] For an historical review of coastal fisheries institutions, refer to Ruddle, 1987 and Short, 1991.

FIGURE 1
**Zoning of licensed fisheries and fishery rights-fisheries**

A: Minister - Licensed Fishery Zone
B: Governor - Licensed Fishery Zone
C: Fishery Rights Fishery Zone




Sea district level – Sea District Fishery Coordination Commission
Multiple Prefecture level – United Sea District Fishery Coordination Commission
Regional level – Sub-Regional Fishery Coordination Commission
National level – Fisheries Policy Council

○ indicates fisheries cooperatives

The fishing licenses are granted to individual vessels and it is transferable in case the ownership of such vessels is changed or if the vessels are rented out, so long as they fulfill certain requirements. The licenses are valid for five years as a general rule if they are issued by the competent minister, but are only one year for those fisheries which may be affected by international negotiations.

*Minister-licensed fisheries*
These fisheries are categorized into Designated fisheries and Minister-licensed fisheries other than designated fisheries. A national license is required for those who carry out fishing on a nation-wide scale or on the high seas. A license is issued by the competent minister to an individual fisher, a group of fishers or a juridical person (corporation).

*Designated fisheries*
The following are the types of fisheries categorized as designated fisheries.

- Offshore trawling using a vessel over 15 GT;
- Trawl fishing in the East China Sea using a vessel over 15 GT;
- Distant water trawling using a vessel over 15 GT;
- Medium and large scale purse seiner using a vessel over 40 GT;
- Distant water tuna fishery using a vessel over 120 GT;
- Offshore tuna fishery using a vessel of 10-120 GT;
- Medium-scale salmon driftnetter using a vessel over 30 GT (in waters except for high seas);
- Squid jigging using a vessel over 30 GT;
- Saury fishery using a vessel over 10 GT;

- Red snow crab fishery in the Sea of Japan;
- All types of whaling.

*Minister-licensed fisheries other than designated fisheries*
This category of fisheries includes the following.

- Snow crab fishery using a vessel over 10 GT;
- Driftnetting in the Sea of Japan and the East China Sea using a vessel over 10 GT (in waters excluding high sea areas);
- Longline fishing in the East China Sea using a vessel over 10 GT;
- Longline fishing in the Atlantic Ocean;
- Bottom gillnetting in the Pacific Ocean.

***Prefecture Governor-licensed fisheries***
These fisheries are divided into two categories, namely, Governor-licensed fisheries approved by the competent minister and Governor-licensed general fisheries. In both cases, the Prefecture Fisheries Departments (PFD) formulate detailed regulations to control fishing operations to ensure the conservation and rational exploitation of living aquatic resources. These fisheries are operated offshore beyond the boundary of coastal areas (which are secured by traditional fishery rights fisheries). Whilst coastal territories are precisely defined as the seaward limit of a village's territory, offshore fishing grounds are not defined with precision throughout the nation, and the criteria for delineating these grounds vary.

*Governor-licensed fisheries approved by the competent minister*
Four types of fisheries come under this category as stipulated by the Fisheries Law, namely, (a) medium-scale purse seining using a vessel of 5-40 GT; (b) small-scale trawling using a vessel under 15 GT; (c) small-scale salmon driftnetting using a vessel under 30 GT; and (d) trawling using a vessel over five GT in the Seto Inland Sea.

These fisheries are licensed by the prefecture governor, but at national level the Minister of MAFF is in a position to determine the overall limit on the number of the licenses to be issued by the prefecture governors in order to prevent conflicts over fishing grounds among fishers and preserve fisheries resources. There is a likelihood of causing over-exploitation of resources should the issuance of licenses be left entirely to the discretion of the prefecture governors.

*General governor-licensed fisheries*
Licenses are granted by the prefecture governor on the basis of the fisheries adjustment regulations established by the prefecture governor within the framework of the *Fisheries Law* (1949) and the *Marine Fisheries Resources Conservation and Management Law* (1951). Types of fisheries which come under this category entail gillnetting, lift net fishing, purse seining, sail trawling, rod and lining, angling, trolling, longlining, spear fishing, etc.

## Fishery Rights System

Fisheries rights are granted when the fishing grounds are limited and fishers cannot survive without excluding entry of third parties and when the fishing operations are managed by all relevant fishers. The fishery rights system is thus designed primarily to protect the coastal fisheries from the deterioration caused by third party fisheries as well as non fishery activities. Under the *Fisheries Law* (1949), a fishery right is recognized as a property right. It may be mortgaged in principle, but not rented or transferred.

Fishery rights are defined in the *Fisheries Law* as the right to operate exclusively a specific gear in specified waters. It is only for a specific fishery or aquaculture in a specified area, but not a right to allow to catch or culture of all available marine species

FIGURE 2
**The process of fishing licensing establishment in Japan**

1. The use of a fishing ground changes with natural, social or economic needs of the time. The fishing operation, therefore, must be well planned and flexible enough to accommodate frequent changes. Before a licensing of a fishery right by the governor, the consensus of all the relevant fishers is sought through the Sea District Fisheries Coordinating Committee before the expiration of the existing license. The Committee seeks scientific and rational ways to use the fishing grounds. When there is an obvious need for issuing a fishery right, and if such fishery right does not affect the public interest adversely, an announcement is made specifying the fishing method, location of fishing grounds and the term of the license.

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2. After the above announcement, fisheries cooperatives apply for the rights. The license is granted by the governor after having examined the applicant's qualifications. The common fishery rights and some demarcated fishery rights are granted to fisheries cooperatives or their federation since these bodies are the only ones regarded qualified. As for the set net fishery rights, rights are granted primarily to fisheries cooperatives or local firms where local fishers constitute the majority.

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3. A large number of fishers work together after they have been given either common fishery rights or demarcated fishery rights (for seaweed and oyster culture). For better management, licensed fisheries cooperatives establish a bylaw to determine the qualification of those who can operate under the given license, the fishing season, closed areas and penalties for offenders. These regulations come into effect after more than two thirds of fishers consent and the governor gives his/her approval.

by any means in a specified water area. Rather it is a right limited to the capture and culturing of only targeted species by specified methods.

Fishery rights are issued by the prefecture governor. The actual licensing takes place as shown in Figure 2.

According to the Fisheries Law, the fishery rights are categorized into three, namely, Common Fishery Rights, Set Net Fishery Rights, and Demarcated Fishery Rights.

### *Common Fishery Rights*

A common fishery right is granted only to fishery cooperatives by prefecture governors which distribute it to among the membership. This type of right is further divided into five sub-types, i.e. Type 1 for the harvest of littoral immobile species (e.g. seaweeds, shellfish and other sedentary species such as lobster, sea-cucumber, sea squirt); Type 2 for the use of small stationary net (e.g. gillnet, weir) and small set net (e.g. masu-ami) operated at depths of less than 27 m; Type 3 for the use of beach seine, etc.; Type 4 for catching fish which gather around floating objects; Type 5 for inland fisheries excluding those operated in the lakes designated by the competent minister. The validity of the common fishery rights last for ten years. There were 6 702 licenses issued in 2001.

### *Set Net Fishery Right*

The set net fisheries rights are defined as a net set at depths of more than 27 m at the highest tide. This implies that the net is relatively large and that a substantial amount of capital is required for its construction and operation. Such nets are jointly operated by a large number of fishers. Upon granting the right, prefecture authorities allocate to operators a specified area for setting the net. In the selection of set net fishery operators, the first priority is accorded to fishery cooperatives which will operate according to self management principles and to fishery companies established by fishery cooperatives members. There are various requirements to meet the eligibility of applicants. This right is valid for five years and there were 1 876 licenses issued in 2001.

### *Demarcated Fisheries Rights*

A demarcated fishery right is a right for the conduct of marine aquaculture in a specific sea area to allow the culturing of seaweed, oyster, pearls, fin-fish, crustacean, shellfish, etc. In the selection of aquaculture operators, the first priority is accorded to fisheries cooperatives or the federation of fisheries cooperatives which meet the eligibility for applying the license. The demarcated right is valid for five years (in some cases, for ten years) and there were 10 103 licenses issued in 2001.

### *Recreational Fisheries*

Since there were conflicts between coastal fisheries and recreational fishers over fishing grounds as well as mooring quays, the *Recreational Fisheries Law* (RFL) (Law No. 99) was enacted in 1988 and integrated into the *Fisheries Law* (1949) in order to regulate recreational fishing to avoid disputes between two groups of fishers. In practice prefecture governors issues regulations concerning recreational fishing within the framework of the *Recreational Fisheries Law* taking into account local conditions which greatly differ from one prefecture to another. It should be noted that the *RFL* is meant for the guides who operate recreational fishing boats rather than recreational fishers. The aim of the *RFL* is therefore concerned with how to ensure safe navigation, proper utilization of fishing grounds and safety at sea for recreational fishers. Awareness building on resources conservation, fisheries management, and environment preservations also constitute part of important activities to be undertaken by management authorities under the *RFL.*

Whilst recreational boat operators are to be licensed, marine recreational fishers are not required to obtain a license and they pay only excursion fees directly to boat operators. There are some regulations to be observed by guide boat operators as to fishing areas, use of gear (e.g. use of a net is not permitted), fish species (e.g. harvest of seeds of eel and yellow tail is prohibited). It should be noted that recreational fishing is not subject to TAC and its catches are not included into the national catch statistics.

The FBP (Fisheries Basic Plan) emphasizes that sound development of recreational fishing is important as part of tourism development which contributes to the growth of the local economy through the increase of employment opportunities.

## Fisheries Management by Fisheries Cooperatives[3]

In 2001 there were some 1 600 fisheries cooperatives in coastal villages throughout the country. The basic functions of a fishery cooperative in Japan are to manage local coastal fisheries resources based on the fishery rights granted by the prefecture governor in addition to undertaking various economic activities such as marketing, credit and supplies, operation of physical facilities as well as educational activities including awareness building on resources conservation, environmental protection and 'women

[3] Refer to Sato, 2002 for an analysis of the roles of fisheries cooperatives in Japanese fisheries management.

in development' (WID). With regard to resources management, each cooperative has a bylaw providing details of regulatory measures tailored to local conditions, but within the framework of national and prefecture legislation and regulations. Bylaws are periodically assessed looking into the changes in demographic, socio-economic and sea conditions, and a partial revision requires approval by the prefecture government.

The *Fisheries Cooperative Association Law* (FCAL) (Law No. 242) was enacted in 1948 for the purpose of contributing to increasing fishery productivity and improving the economic and social status of fishers and fish processors. The *FCAL* restricts membership in fisheries cooperatives to fishers resident in the jurisdictional area of the cooperative and who are engaged in fishing over 90 days a year, the precise period being determined by each cooperative taking into account local conditions. Whilst coastal fisheries are subject to national and prefecture-level regulations, they are essentially self-managed by the individual fisheries cooperatives. This relatively high degree of local autonomy enables local fishers to determine the division of access rights among individual cooperative members and to ensure that the interests of all parties involved are considered and accounted for. This also motivates fishers to establish voluntary management measures.

In order to encourage a more flexible, quicker management response mechanism, a system was employed in 1991 permitting the initiative by the fishers of voluntary self-regulated management decisions which provided they were in some cases stricter than the existing official regulations.

These include (i) voluntary catch limits; (ii) voluntary propagation effort; (iii) efforts to increase income by catching fish at the time of the highest economic value; and (iv) efforts to prevent deterioration of the quality of products.

Although the implementation of regulatory measures provided in the bylaw of fisheries cooperatives is to a large extent in the hands of the fisheries cooperatives, there is nevertheless constant and continued interaction with the various levels of the fishery administration to manage fishery rights systems adequately.

Fisheries cooperatives are fully responsible for the administration of fishery rights. The ordering of operations among the various gears is a function of fisheries cooperatives; in addition measures for the conservation of resources such as surveillance are undertaken by the members of cooperatives through voluntary participation. The procedural details and area and gear specifications are defined in the bylaw of each cooperative. A Fisheries Right Management Committee is established in each cooperative to ensure democratic implementation of management policies.

### Fisheries Coordinating Committees at Various Levels

Fisheries disputes that occur between villages are handled by a Sea District Fisheries Coordination Committee formed in each prefecture. As a rule, one or two sea districts are established for each prefecture and a Committee established for each sea district. Altogether there were 66 sea districts across Japan in 2003. Such a committee arranges adjustments for fishing operations and fishing ground management through elected fishers' representatives and individuals nominated by the prefecture governor. The major functions of the committee are (i) to develop an overall plan for the utilization of the fishery resources and fishing grounds of the sea district; (ii) to advise prefecture governors with regard to the establishment and amendment of regulatory measures for the prefecture licensing fisheries outside the fisheries rights fisheries system; (iii) to take legal action against fishers in the enforcement of measures restrictive or prohibitive of certain fishing operations.

Whilst the Sea District Fisheries Coordination Committee deals with fisheries coordinating issues within a specified sea district, there also exist United Sea District Fisheries Coordinating Committees for multiple sea districts, which may be created by the governor or by the order of the competent minister, or voluntarily through

agreement between the existing committees under the *Fisheries Law* (1949). There are 49 United Sea District Fisheries Coordinating Committees. The rulings of the United Sea District Committee prevail over those of any single Sea District Committee, should the two types of committees issue contradicting directions.

Besides, a Sub-Regional Fisheries Coordinating Committee has been established for three regions in order to strengthen coordination nation-wide, namely, (i) Pacific, (ii) Japan Sea and Western Kyushu and (iii) Seto Inland Sea.

At the centralised level, there is the Fisheries Policy Council established with the Ministry of Agriculture, Forestry and Fisheries to deal with matters which come under the direct jurisdiction of the national government.

### Legal and Institutional Framework for Environment and Ecosystem Preservation

The *Basic Law for Environment* (BLE) (Law No. 91) enacted in 1993 is the fundamental law concerning environmental and ecological preservation. The *BLE* defines the duties of the central government, local autonomous bodies (i.e. prefecture government and municipal office) and business operators to control pollution and stipulates basic preventive measures against water pollution. The objectives of the *BLE* are to protect the people's health and preserve their living environment through promoting pollution control measures.

Besides, there are a number of laws which regulate the water pollution to attain the aforementioned objectives: (i) the *Water Pollution Control Law* (Law No. 138) of 1970 to regulate the flow of water from factories and places of business, (ii) the *Law Related to Treatment and Incineration of Waste* (Law No. 138) of 1970 to regulate ordinary waste (e.g. household and industrial waste), (iii) the *Law on Special Measures for Environmental Conservation of the Seto Inland Sea* (Law No. 110) of 1973 aiming to prevent eutrophication and restrain reclamation in closed waters, (iv) the *Laws on Marine Pollution and Preventions of Maritime Disaster* (Law No. 136) of 1970 concerning ocean pollution including coastal waters, (v) the *Environmental Assessment Law* (1999) to evaluate any adverse impact of construction projects which would prejudice the intended benefits. With the above-mentioned laws providing the main legal basis for environmental and ecological preservation, administrative and technological guidelines have been formulated by prefecture governments for preservation of environment of fishing grounds in each sea district.

## STATUS OF THE FISHERIES

### Resources and Current Exploitation

The marine fisheries resources of Japan comprise a large number of species. According to the Fisheries Research Agency (FRA), responsible for the assessment of major stocks in the waters surrounding Japan, nearly half of the major marine fish stocks are over-exploited and in a critical state.

Table 1 shows the level of exploitation of major fish species by family and group as assessed by the FRA. It is apparent that the exploitation of the main fish stocks continues to follow the general trend observed in previous years. The situation has worsened in recent years, and the number of fish stocks in high abundance decreased from 15 family groups in 2002 to 13 in 2003. The fish stocks in medium abundance exploited decreased from 30 in 2002 to 22 family groups in 2003 and the number of stocks in low abundance increased from 41 in 2002 to 42 in 2003.

### Production Trends

The past ten years have seen a steady and notable decline in fish production from 9.21 million tonnes in 1992 to 5.88 million tonnes in 2002 with an annual rate of decrease of 12.8 percent (Table 2). It is noteworthy that declining trends have occurred in all

TABLE 1
**The status of fish stocks**

| Level of fish stock | 2002 | 2003 | Major fish species by family and group (FG) |
|---|---|---|---|
| high | 15 FG | 13 FG | saury (Pacific North/east FG), squid (autumn FG), sea bream (Pacific central FG), etc. |
| medium | 30 FG | 33 FG | jack mackerel (Pacific FG), snow crab (Pacific North FG, Japan Sea FG ), sand fish (Japan Sea Western FG), etc. |
| low | 41 FG | 42 FG | mackerel (Pacific FG), sardine (Pacific FG), Alaska pollock (Japan Sea Northern FG), snow crab (Okhotsk FG), etc. |

*Notes*: FG = fish species family groups
The level of fish stocks has been determined on the basis of the assessment of biomass over the last 20 years and grouped into three stages (i.e. high, medium, and low).
*Source*: Fisheries Agency and Fisheries General Research Center, 2003

TABLE 2
**Fisheries production in quantity and value (2002)**

| | Quantity (thousand tonnes) | Value (US$ million) |
|---|---|---|
| **Total** | **5 880** | **13 975** |
| Marine water | 5 767 | 13 130 |
| Capture fisheries | 4 434 | 9 236 |
| Distant water | 686 | 1 472 |
| Offshore | 2 258 | 3 357 |
| Coastal | 1 489 | 4 407 |
| Aquaculture | 1 333 | 3 894 |
| Inland water | 113 | 846 |
| Capture fisheries | 61 | 488 |
| Aquaculture | 51 | 358 |

*Source*: Annual statistical report on fisheries and aquaculture, MAFF, 2003a

sectors, namely, coastal, offshore and distant water fisheries. As a consequence, Japanese fisheries have been confronted with unprecedented difficulties caused by increased imports, dwindling fish prices, increased wages and ageing of crew, shortage of young manpower. Moreover, there has been a decrease in the competitiveness of distant water fisheries against those of the Republic of Korea and Taiwan Province of China.

## Coastal fisheries

In 2002 there were around 208 000 coastal fishers, of whom 176 000 or 85 percent were fisheries operators or boat owners and the rest were crew or employees. They are distributed to some 6 200 fishing villages scattered along the coastline extending 35 000 km.

Yields from coastal waters have also continued to decline from 1.97 million tonnes in 1992 to 1.49 million tonnes in 2002 or by 24 percent; in value these yields dropped from US$6 228 million to US$4 407 million or by 30 percent. Whilst there was some recovery in the production of set net fisheries, the fall in squid jigging and sail trawling affected negatively the overall production of coastal fisheries.

## Offshore fisheries

As of 2002, there were 35 340 fishers who were involved in both offshore and distant water fisheries, of whom 4 760 fishers or equivalent to some 13 percent were boat owners and the rest were crew. There has been a downward trend in the number of fishers during the last decade, the decline being 5.3 percent per annum from 59 160 in 1992 to 35 340 in 2002. It should be noted that some of the offshore resources are shared with Russia, the Republic of Korea and China.

Offshore fisheries have also suffered from a serious setback during the last decade; their production declined from 4.53 million tonnes in 1992 to 2.26 million tonnes in 2002, or by 50 percent at an annual rate of decrease of 7.2 percent. In terms of value,

the drop was 32 percent. This was due to a large fall of catches of pelagic species such as sardine, jack mackerel and mackerel.

### *Distant water fisheries*

The catches by distant water fleets (EEZs of other nations and High Seas) amounted to 1.27 million tonnes in 1992, while they dropped to 686 000 tonnes in 2002, a decrease of about 45 percent. In terms of value, the drop was higher and amounted to nearly 60 percent. The main reason for this is due to the gradual and continuing exclusion of Japanese vessels from fishing grounds within the EEZs of coastal states. However, the share of production by distant water fisheries has remained almost unchanged during the last decade in the order of 15 percent of the total output from marine capture fisheries.

Attempt has been made to prepare a table to show, in broad terms, Japan's dependence on fishing in the EEZs of other countries as well as on the high seas in Table 3. However, figures should be treated with a certain degree of caution as some of the catches cannot be precisely quantified. Because there are some discrepancies between the agreed quotas and the actual catches, the latter being normally lower. It should be noted that fishing agreements are concluded either on a government-to-government basis or on a private sector to foreign government basis. The table indicates that the yield from the EEZs of Russia, China and the Republic of Korea, which were based on official agreements, totaled 97 000 tonnes in 2002. The EEZs of other nations including South Pacific, African and Indian Ocean countries also offered fishing grounds to Japanese distant water-going vessels. However, a breakdown of catches from these waters is not available since fishing agreements are signed on a commercial basis and individual catches from the private sector are difficult to identify and quantify, although Japan concluded government-to-government agreement with some of South Pacific and African countries (e.g. Kiribati, Solomon Islands, Marshal Islands, Morocco, Senegal). Besides, Japan has been operating joint ventures in New Zealand (bottom trawling, tuna longlining, squid jigging), Argentina (squid jigging) and Falk Islands (squid jigging). The individual catch data on these joint ventures are not either available though the total output is aggregated in the national catch statistics.

The catches by Japanese fleets on the high seas given in Table 3 include the yields from the EEZs of other countries and those from the high seas. The table shows that the yields have continued to decline from 759 000 tonnes in 2000 to 589 000 tonnes in 2002. During the last decade or so distant water fisheries have been seriously affected by coastal states' policies as well as a number of international regulations.

TABLE 3
**Distant waters capture fisheries production (000 tonnes)**

| | 2000 | 2001 | 2002 |
|---|---|---|---|
| EEZs of other nations | | | |
| Russia | 18.0 | 14.6 | 14.4 |
| China | 71 | 70 | 63 |
| Rep. of Korea | 7 | 16 | 20 |
| Other nations[1] | ..... | ..... | ..... |
| High seas [2] | 759 | 648 | 589 |
| **Total** | **855** | **749** | **686** |

*Source*: Prepared on the basis of the Annual Statistical Report of Fisheries and Aquaculture, MAFF, 2003a

*Notes*: In the case of Russia, figures indicate the aggregated actual catches based on both official and commercial agreements.

1. Data on catches from EEZs of nations other than those specified in the table are not available. As of 2001 access agreements with foreign countries excluding those mentioned in the table were as follows. Canada, Kiribati, Solomon Islands, Marshall Islands, Micronesia, Palau, Tuvalu, Nauru, France, South Africa, Australia, Morocco, Senegal, Gabon, Seychelles, Sierra Leone, Gambia, Mauritania, Guinea Bissau, Cape Verde, Madagascar, Mozambique, Mauritius, Fiji. It should be noted however that the existence of fishing permits does not necessarily mean that fishing is carried out every year.
2. Figures in high seas include catches from the EEZs of 'other nations' and those from the high seas.

## Recreational fisheries

In Japan recreational fishing can be classified into (i) angling (rod and line, hand line) on board a boat, (ii) angling from the shore, (iii) collecting of shellfish and (iv) others (diving, etc.). Angling on board can be further sub-divided into (a) angling using a boat of recreational fishing guide and (b) angling using own pleasure boat.

According to the 10th Fishery Census conducted in November 1998, 33 million man-days were spent for marine recreational fishing a year. This was sub-divided into: (i) 21 million man-days in angling on beaches, breakwaters or jetties, and gathering shellfish at low tide; (ii) 12 million man-days in angling on board.

With regard to the catch data on marine recreational fishing, only the amount of fish taken by angling using a boat of recreational fishing guide is available. Since the Fishery Census conducted every five years does not include catch data, the Fisheries Agency conducts field sampling surveys every five years focusing on angling using boats of recreational fishing guides.

According to the survey conducted in 2002, 4.5 million man-days per year were spent by recreational fishers using boats of fishing guides. The total amount of fish taken by them was 29 300 tonnes, as compared with 29 500 tonnes taken by 5.8 million man-days fishers in 1997. By kind of fish, jack mackerel represented 17 percent, followed by isaki (8 percent), yellow tail (8 percent), seabream (6 percent), squid (5 percent) and those five species accounted for 44 percent of the total catch.

Looking at the declining trend of catches by the coastal fisheries sector, it is evident that recreation fishing has exerted a certain degree of impact to coastal resources. In fact, the 1997 catch of 29 500 tonnes corresponded to 1.5 percent of the total output of coastal fisheries, while the ratio rose to 2.7 percent in 2002. It was also pointed out that in some areas the catch by recreational fishers exceeded that by professional fishers (e.g. seabream in the central Japan on the part of the Pacific Ocean).

## Marine aquaculture

With the continued decrease in total Japanese marine capture fish landings, the importance of marine farmed fish has grown to fill the gap between demand and supply. However, the rate of increase has been meager during the last decade: reaching 1 333 000 tonnes in 2002 from 1 306 000 tonnes in 1992 (MAFF, 2003b).

Since farmed fish and shellfish are hardly exported, increased aquaculture production has contributed to meeting domestic demand, particularly for high valued species. Rapid acceleration in production of certain commodities has contributed to lower prices of these products. In fact, the farm production in terms of value declined by more than 20 percent from US$4 980 million in 1992 to US$3 890 million in 2002, and many farms, both large and small faced some financial difficulties, particularly in the sector of seabream, oyster, scallop, and *nori* culture.

## Fish Trade

### *Exports*

In the past at global level Japan ranked first in fish exports in terms of value with canned fish (mainly tuna, skipjack, sardine) as major items. However, since the late 1980s fish exports began to decline due to decreased catches of some pelagic species for canning and decreased competitiveness in the international market as a result of rising value of the national currency. Nowadays, fish plays a minor role as a source of foreign exchange earnings. Fish exports amounting to US$1 110 million in 2002 represented only 0.26 percent of the national merchandise exports in that year. However, it is noteworthy that during the last several years exports of some commodities have increased. A notable example is Alaska Pollock exported to the Republic of Korea, due mainly to the partial withdrawal of Korean bottom trawlers from the Japanese EEZ (MAFF, 2003b).

### *Imports*

Japan's fish imports continued to increase as a result of withdrawal of the domestic fleet from the EEZs of other nations, seeking substitution for the decrease of national outputs, increased demand for shrimp, etc. A sharp increase was witnessed after 1985 when the change of the exchange rate of the Japanese yen was agreed at the Plaza Seven-Nation Summit Meeting. Although the increasing trend slowed down since the latter half of 1990s, Japan is still the world's largest importer of fish and fishery products in world fish trade both in value and quantity, representing 23 percent and 14 percent respectively. In 2002, Japan's imports were worth US$14 325 million with 3.82 million tonnes as compared with its exports worth US$1 110 million with 310 000 tonnes, thus being more than tenfold greater than exports. Shrimp, tuna, salmon and *surimi* are the dominant products imported into Japan (MAFF, 2003b). Japan's imports originate from many countries of all continents. Major suppliers in 2002 were China (e.g. prepared eel, shrimp, tuna, squid), USA (e.g. *surimi*, fish roe, salmon, cod) and Thailand (e.g. shrimp, cuttlefish, *surimi*).

## Future Trends

### *Demand*

The demand for fish has two distinct components, that for direct human consumption and the derived demand which operates through the demand for fish meal. In 2000, the Japanese Government projected possible future levels of demand for food fish.[4]

The demand for food fish is affected by the economic forces influencing demand, particularly income and price. Assuming a continuance of past trends and no change in relative prices, by 2012 total demand for fish and shellfish will be about 10.82 million tonnes live-weight, of which 8.48 will be required for food fish, that is, 70 000 tonnes more than the amount consumed in the base period 1999/2000. Per capita consumption is also expected to increase from 36.4 kg to 36.9 kg per annum.

The potential demand for fish for feeding purposes whether of cultured fish species or livestock can be expected stagnate or fall. Average consumption in 1999/2000 was in the order of 2.35 million tonnes and it is estimated that the demand will be around 2.34 million tonnes in 2012.

Total demand for seaweeds is expected to decrease by 60 000 tonnes wet weight from 1 080 000 tonnes to 1 020 000 tonnes over the period from 1999/2000 to 2012. Per capita consumption of seaweeds is likely to decrease to 1.4 kg from the present level of 1.5 kg during the above period.

### *Supply*

With stagnating demand for fish for direct human consumption and decreasing demand for fish meal as seen in the preceding section, the Government established goals in 2000 for future levels of production by type of fisheries and aquaculture at 2012 assuming that the present framework for international fisheries will remain unchanged.

It has been projected that total domestic marine landings will be about 6.82 million tonnes in 2012 over the 1999/2000 production of 5.85 million tonnes and there will be an overall increase of some 970 000 tonnes[5]. Whilst a setback will be seen in distant water fisheries from 845 000 tonnes in 1999/2000 to 790 000 tonnes in 2012, it is expected that both offshore and coastal fisheries will demonstrate a notable increase from 2.695 million tonnes to 3.42 million tonnes, and from 1.48 million tonnes to 1.7 million tonnes respectively due to the effects of stock enhancement and continuing resource management implementation. There will be a significant increase of 80 000 tonnes in the marine aquaculture sector.

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[4] Supporting material of the Fisheries Basic Plan, 2002 and an updating of Hotta, 1997.
[5] Ibid.

It is estimated that the output of seaweeds will marginally increase from the present level of 665 000 tonnes in to some 670 000 tonnes in 2012.

In summary, the domestic production of fish and shellfish in 2012 would approximate 6.82 million tonnes as against a projected demand for fish for direct human consumption of 8.48 million tonnes, implying a shortfall of 1.66 million tonnes. Although the gap between supply and demand in 1999/2000 and that in 2012 would decrease from 2.55 million tonnes to 1.66 million tonnes, the shortfall will continue to be met by imports. Should real price increase, it may be expected that a decline in average per caput consumption will take place, but the extent to which this occurs is likely to vary according to the availability of substitutes (e.g. meat).

### *Goals for self-sufficiency*

On the basis of the goals established for domestic fish production, the Government also set up a goal to achieve an increased level of self-sufficiency for fish and fishery products. The self-sufficiency rate in food fish in 2012 has been targeted to 65 percent as compared with 53 percent in 2000, an increase of 12 points and seaweeds from 63 percent to 70 percent. The government is committed to achieve these goals pursuant to the directions provided in the *BLFP (Basic Law on Fisheries Policy)* and the BFP (Fisheries Basic Plan). Detailed elements to address policy directions encompassing fisheries management component are presented therein.

Appropriate actions to meet this challenge, many of which have already been taken, can be broadly classified as (a) efforts to increase and sustain production through fisheries management, stock enhancement and aquaculture development; (b) protection of the marine environment of coastal fishing grounds, etc.

## MANAGEMENT ACTIVITIES

### Implementation of Resource Recovery Plans

The potential magnitude of fish stocks has been considerably deteriorated in the coastal and offshore waters as evidenced by the declining trends of fish production during the last decade. There is an urgent need for regenerating fish stocks in the waters surrounding Japan. In this context the Government has been rigorously implementing area-specific or fishery specific resource recovery plans at a wide range of operational levels throughout Japan (Figure 1). As of March 2004, there were seven on-going plans targeting 13 fish stocks (Table 4).

TABLE 4
**Current resource recovery plans in Japan**

| Region | Target species | Gear types | Management tools |
|---|---|---|---|
| Northern part of the Japan Sea | Flat fish, sand fish | Offshore trawling, small bottom trawling, gillnetting, small set net fishing: | Withdrawal of fishing vessels; application of non-fishing days, closed areas; operation of newly devised gear; re-stocking programs. |
| Western Japan | Flat fish, demersal species | Offshore trawling, small trawling | Expansion of closed areas, operation of newly devised gear |
| Northern Pacific | Flat fish and other demersal species | Offshore trawling, small bottom trawling | Closed seasons |
| Pacific ocean | Mackerel | Large and medium size purse seine | Withdrawal of vessels, setting up non-fishing days, reducing the number of fishing days. |
| Ise bay and Mikawa bay | Puffer fish, sea mantis, conger eel | Small trawling | Size limits, closed seasons, restocking |
| Seto Inland Sea | Spanish mackerel | Drift gillnet, trolling, trawling, purse seining | Closed seasons; enlargement of mesh size; restocking. |
| Buzen sea in Oita prefecture | Short-neck clam | Small trawling | Closed seasons; size limits, establishment of fry nursing grounds. |

## Major Management Measures

### *Institutional Strengthening*

New management initiatives for strengthening fisheries adjustment and research coordination among multiple prefectures are envisioned in order to have a comprehensive system covering the following.

- Concurrent with the distribution of responsibilities and intensified coordination and collaboration between prefectures, it is envisaged to expand research dimensions, enhance the accuracy in stock assessment and identify the cause of biological and environmental deterioration in marine waters.
- A resource rehabilitation plan is to be formulated on a nation-wide basis, as well as on a sea-district basis with the active participation of fishers, PFDs (Prefecture Fisheries Departments) and research institutes leading to institutional strengthening in fisheries resources management.
- A control on fishing effort includes a vessel reduction scheme, application of non-fishing days, species size limits, gear and methods control on the basis of resource rehabilitation plans established for each area covering several prefectures. Changes of fishing effort and the impact need to be regularly monitored and assessed in order to reflect the effects of management measures on future plans.

In case where there is evidence that fishers' average income decreases as a result of effort control, remedial measures are to be taken by applying the existing fishery insurance schemes.

### *Vessel Registration System*

The total number of vessels and the gross tonnage are closely monitored by the Government in order to maintain an adequate level of fishing effort nation-wide. When deemed necessary, the Ministry sets an upper limit on the total number and/or total gross tonnage of fishing vessels. Official permission is required for construction, modification and conversion of fishing vessels.

*The Fishing Vessels Law* (1949) stipulates the regulations including the following with regard to the registration of fishing vessels.

- The information required for vessel registration includes the name of the ownership, the name of the vessel, the gross-tonnage, the date of construction, the name and location of the boat-building yard.
- Registered vessels will be inspected by the prefecture government every five years.
- The registration of a vessel will be expired in the event of scrapping; the change of ownership and the change of the base port.

### *Total Allowable Catch (TAC) and Total Allowable Effort (TAE) System*

A catch control system has been introduced for the management and conservation of marine living things in the Japanese EEZ through TAC (total allowable catch) and TAE (total allowable effort) systems.

Currently the TAC system is applied to seven major species, i.e. sardine, mackerel, jack mackerel, saury, Alaska pollock, common squid (*Todarodes pacificus*) and snow crab. These species were chosen on the basis of the following criteria.

- The fish are abundant nation-wide and of high commercial value.
- The status of fish stocks is extremely poor and urgent measures are required for resource management and rehabilitation.
- The fish are sought with great interest by foreign vessels.

TAE system has been introduced in order to manage fish stocks whose abundance is difficult to be assessed due to the inherent fluctuations. The TAE system gives an upper limit on the number of fishing days as well as vessels in a specific area within the EEZ. This management method is implemented in a more flexible manner even without scientific data unlike the case of the TAC. Thus, the TAE system can be applied when

TABLE 5
**TAC and TAE measures**

| System | Management measures | Target species |
|---|---|---|
| TAC | set the upper limit of catches (e.g. saury = 334 000 tonnes in 2003) | saury, Alaska pollock, jack mackerel, sardine, mackerel, common squid, snow crab |
| TAE | fishing seasons, areas, total number of days of fishing operations | flat fish, Spanish mackerel, puffer fish, other demersal species |

*Source*: Fisheries Research Agency, 2004

TABLE 6
**Vessel Reduction Programmes for Offshore and Coastal Fisheries (US$ million)**

| | 1998 | 1999 | 2000 | 2001 | 2002 | 2003 |
|---|---|---|---|---|---|---|
| Vessels reduced | 34 | 51 | 88 | 80 | 12 | 8 |
| Subsidies US$ million | 19.60 | 5.88 | 23.4 | 49.8 | 7.97 | 3.41 |

*Source*: Fisheries Research Agency, 2004

the abundance of fish stocks is in a downward trend or in a large fluctuation as a result of the changes in oceanic conditions.

The competent minister is authorized to determine the ceiling of catches of the fish species designated by TAC and control fishing effort through the application of TAE (Table 5).

### *Vessel Reduction Programmes*

In Japan, the number of fishing vessels is restricted by regulations in each category of fisheries. However, it is recognized that cases exist in which the number of vessels could be reduced further; leading to higher catches per vessel and associated economic benefits without exerting a negative impact to fish stocks. In such cases, vessel reduction programmes have been voluntarily implemented by fishers themselves with official support.

#### *Domestic fisheries*

Procedures taken by voluntary vessel reduction programmes are as follows.

- Fisheries cooperatives by type of fisheries (e.g. purse seine fisheries cooperatives) initiate action by soliciting volunteers who will agree to the withdrawal of vessels.
- The proposed number of vessels to be withdrawn is brought to the attention of the prefecture federation of fisheries cooperatives, for on-forwarding to the Japan Fisheries Association (JFA) at national level.
- The MAFF provides subsidies to fishers through JFA, which represents 44 percent of the total cost. The prefecture government and the fishers who remain in the fisheries contribute 56 percent of the programme costs.

Voluntary withdrawal from fishing takes place mainly in offshore fisheries where the fishing enterprise is managed in the form of corporation. Generally fishers or crew employed by such companies can find alternative job opportunities in another type of fishing. However, in the case of small-scale coastal fisheries, fishing is carried out on a family scale and the withdrawal from fishing would mean the suspension of income. Therefore, vessel reduction is rarely seen in coastal operations.

The main types of fisheries which have participated in vessel reduction programmes during the last decade include offshore bottom trawling, large-medium scale purse seine, small-scale trawling, shrimp traps, bottom trawling operated in Eastern China Sea and sail trawling. Of them sail trawling and small-scale bottom trawling belong to coastal fisheries, while the rest are classified as offshore fisheries. The geographic coverage of this programme is nation-wide.

Table 6 indicates the Japanese vessel reduction programmes for offshore and coastal fisheries during the 1998 to 2003 period.

*High sea fisheries*

In the case of high sea fisheries, there are two types of vessel reductions, voluntary and compulsory reductions. The latter occurs as a result of restrictions or banning of fishing by international regulations, leading to the redeployment of distant water vessels. As the remaining fishers may not enjoy increased rents from the programme, they are not required to shoulder any financial burdens for compensating vessel owners leaving the sector. The entire compensation is made by the Government.

The government subsidization programme can be grouped into (i) Subsidy for recovery of costs (e.g. gear, equipment, retirement lump sum grant or income subsidization); (ii) Special subsidy (e.g. licenses nullifying); (iii) Scrapping of vessels. The subsidy rate is as follows. A fixed amount with a ceiling is granted to categories (i) and (ii) and 2/3 of the total cost required for scrapping vessels and nullifying vessels.

Major vessel reduction programmes implemented during the last decade are shown below.

- **1990-92**: Withdrawal of salmon fishing from the high seas in the North Pacific due to the driftnet moratorium. The Government subsidized US$325 million in this connection.
- **1992-94**: Withdrawal from driftnet fishing from the northern Pacific: A total of US$16.3 million was provided for destruction of vessels and nullifying licenses.
- **1998**: Reduction of tuna vessels by 20 percent from 650 vessels to 518 vessels. US$163 million was allocated for this scheme (i.e. (i)-(iii))
- **2001**: Since the quota for cod fishing in Russia's EEZ was reduced by 83 percent compared with the previous year, US$2.4 million was subsidized for compensation.

*Stock enhancement*

Salmon is by far the most important fishery in terms of the scale of stocking operations. In 2002 some 1.8 billion fingerlings were released and 221 000 tonnes of salmons were harvested in the same year. It is estimated that more than 95 percent of the total output were derived from the released fingerlings. This clearly shows that salmon restocking is indispensable for sustaining salmon fisheries in Japan. The number of salmon fingerlings released has been kept quite constant during the last several years in the order of 1.8 billion. As regards shellfish, scallop is the dominating species in re-stocking programs with the release of over three billion spats in 2002 with the harvest of 236 000 tonnes. Seabream, flounder, prawn, crab, abalone, top shell, sea urchin and red shellfish have gained popularity in re-stocking programs during the last three decades and in 2002 a total of 5.3 billion fry/fingerlings of these species were set free into the sea. Mass production of seed is undertaken by prefecture research centers; there are at present 49 such centers throughout the country. Seed produced by the centers are sold at subsidized prices to fisheries cooperatives which undertake the responsibility of releasing and the management of the seed. At the central level, the FRC (Fisheries Research Center) is responsible for coordination and monitoring of re-stocking programs (Hotta, 1997).

## Regulatory Measures by Type of Fisheries

*Coastal fisheries*[6]

Fisheries management is carried out for coastal fisheries through a variety of regulatory measures, including the prefecture licensing system, fishery rights systems, TAC and TAE.

[6] This section benefited from the works of Hotta, 1992 and Kawaguchi & Naruko, 1992.

In order to ensure compliance with the rules and regulations and smooth implementation of the TAC system fishers have been responsive in fulfilling their obligations such as submission of catch reports on the designated species. Fisheries cooperatives and the nationwide network including federations of fisheries cooperatives provide data on fish landings to the government, reducing administrative costs of the government.

Fishers have become increasingly involved in the implementation of voluntary resource management since 1991 when a system was employed permitting the initiatives by the fishers of voluntary self-regulated management decisions (e.g. catch limit, propagation efforts, product quality assurance). Such voluntary initiatives have been well blended with the fishery right system which has a connotation of community-based fisheries management (CFM) where fisheries cooperatives play a vital role in resource management planning and implementation. There are a variety of regulatory measures in CFM with a different set of objectives and methods as stated below.

*Control of fishing effort* - A management system to reduce excessive effort and cost by limiting the number of boats and gear; setting up the area and seasonal closures.

*Management on the use of fishing grounds* - This aims at ensuring the discipline and order in operations at fishing grounds and the equitable access to the harvest of fish stocks through varied operational arrangements. These include a pooling account system under which the profits from the sales are distributed equally among fishers involved; a shift and rotation system under which the vessels have an equal access to rich fishing areas; control of vessel deployment at fishing grounds.

*Maintenance of fish prices* - This aims at preventing large fluctuations and fall of fish price as a result of bumper catches. A production and shipment limitation mechanism has been found effective to stabilize the level of fish prices.

*Control of recruit of fish resources* - This system aims at ensuring the effective use of fishery resources through protection of juvenile fishes. Size limit and mesh size control are widely practiced. When small size fish are caught, they are set free again into the sea.

*Propagation of fishery resources* - Restocking of seedlings is widely carried out to enrich coastal resources. Fishing is forbidden in the area where juveniles were released. The minimum size of fish to be caught is determined.

*Reproduction management* - This system aims at protecting reproducing-age fish to ensure resource sustenance and increase. Fishing is forbidden during spawning seasons and parent fish are to be set free when caught.

It should be noted that the government has provided considerable assistance to fishers in respect of the provision of information on fish stocks (e.g. distribution, abundance, growth, mortality of target species).

***Offshore Fisheries***

Offshore fisheries target both pelagic and demersal species which widely distribute within the EEZ. A variety of regulatory measures are applied which include licensing systems by both the competent minister and prefecture governors, catch control by TAC and effort control by TAE,

*Distant Water Fisheries*

Distant water fisheries are operated in the EEZs of other nations as well as on the high seas. These include tuna fishing within the EEZs of South Pacific countries (e.g. Kiribati, the Solomon Islands, Palau, Federated States of Micronesia, the Marshall Islands) and those of African countries (e.g. Morocco, Cape Verde, Senegal) through bilateral agreements concluded by the private sector and foreign governments as well as government to government agreements. Distant water bottom trawling is carried out in the Russian Pacific waters (e.g. Alaska Pollock), the Antarctic Ocean (i.e. krill)

and North Atlantic (i.e. demersal species) pursuant to the allocations made by regional fisheries management organizations. Also, this type of fishing is operated in the form of joint ventures in New Zealand, Argentina and Flak Islands (i.e. squid jigging).

These fisheries are regulated by a variety of management measures including vessel registration, licensing by the competent minister and other regulatory measures agreed upon by bilateral negotiations as well as international fishery management organizations which are integrated into Japanese national regulations. Examples include withdrawal of tuna vessels agreed upon at international fishery management organizations for tuna (i.e. ICCAT, IOTC, IATTC, CCSBT).

## Fisheries Enforcement

### *Illegal operations by domestic vessels*

Fisheries surveillance and enforcement is carried out by two agencies at national level, that is, the Japan Coast Guard (JCG) and the Fisheries Agency of the MAFF. Both agencies own airplanes and patrol boats to fulfill their duties and the geographic coverage is nation-wide within the EEZ. Prefecture governments are also equipped with patrol boats and cooperate with the national agencies to this end. Table 7 shows the number of illegal domestic vessels detained by the patrol boats of the Fisheries Agency. Violation is mainly concerned with the encroachment of offshore vessels to coastal waters and the lack of discipline in observing established rules and regulations (e.g. closed areas).

In coastal waters main efforts have been made to detect and arrest poachers whose number has increased in recent years. They target high-value species such as abalone and lobster, but detailed data are not available in this respect. In order to cope with these issues, the entire nation was divided into six blocks and regular meetings have been held between coastal and offshore fishers in each block to prevent illegal fishing and realize a proper and rational utilization of fishery resources.

As regards enforcement on the high seas, the Fisheries Agency undertakes responsibilities to maintain discipline and good order of Japanese distant-going vessels to comply with international rules and regulations through a variety of activities including a vessel monitoring system (VMS) for tuna long-liners, routine inspection at landing sites for tuna vessels and at-sea boarding and inspection for trawlers.

The maximum penalties for the violation of the above regulations are three years imprisonment and/or the levy of US$18 000 (Yen 1 000 000). Besides, the management authority may confiscate fish catches, gear, equipment and fishing vessels used for the fishing and revoke or suspend licenses.

### *Illegal operations by foreign vessels*

In 2003 Japan detained a total of 35 foreign vessels which conducted illegal operations within the EEZ; 23 vessels from the Republic of Korea and 12 from China (ibid) (Table 7). There was a seven fold increased between 1999 and 2000 and an increasing trend can be witnessed in the number of illegal operations during the last several years.

TABLE 7
**Breakdown of Illegal Vessels arrested by Japanese Patrol Vessels**

| | 1999 | 2000 | 2001 | 2002 | 2003 |
|---|---|---|---|---|---|
| Rep. Korea | 3 | 16 | 17 | 25 | 23 |
| China | - | 5 | 3 | 12 | 12 |
| Russia | - | - | - | 1 | - |
| Taiwan Province of China | - | - | 1 | - | - |
| **Total Foreign Vessels** | **3** | **21** | **21** | **38** | **35** |
| **Total Domestic Vessels** | **20** | **15** | **19** | **29** | **14** |

*Sources*: Fisheries White Paper, MAFF, 2004 and Fisheries Research Agency, 2004.
*Note*: The above figures indicate the number of illegal vessels detained by the patrol boats of the Fisheries Agency.

TABLE 8
**Fisheries management costs at national level (US$ million )**

| Categories | 2000 | 2004 |
|---|---|---|
| 1) Research (FRA) | 203.25 | 212.21 |
| 2) Overall management activities (MAFF) | 152.00 | 158.07 |
| (i) Management services | 78.02 | 81.15 |
| Fisheries Management Division | 76.86 | 79.93 |
| Coastal/Offshore Fisheries Division | 0.64 | 0.68 |
| Distant waters Fisheries Division | 0.51 | 0.54 |
| (ii) Enforcement services | 97.56 | 80.4 |
| (iii) International Affairs | 1.63 | 1.63 |

*Source*: MAFF, 2004
*Notes*:
1. Overall management costs of MAFF are the addition of (i), (ii) and (iii), however, those figures do not tally with the total because of duplications between (i) and (ii).
2. The enforcement services for 2000 include the construction cost of a patrol boat.

The Japanese Government issues a fishing permit to the Republic of Korea, China and Russia based on bilateral fisheries agreements to allow them to operate within the Japanese EEZ. Illegal operations occurs as a result of violation of rules contained in the fishing permits including the encroachment of unauthorized vessels and use of illegal gears such as driftnets, longlines and traps.

The maximum penalty for the violation of the regulations (e.g. illegal operation without license) is the levy of a fine amounting to US$ 81 300 (Yen 10 000 000) and fish catches, gear, equipment and vessels used for the operation may be confiscated.

## COSTS OF FISHERIES MANAGEMENT

The costs to support fisheries management can be classified into two categories: (1) research and (2) overall management activities; the latter is further divided into three, namely, (i) management services; (ii) enforcement services; and (iii) international affairs.

This chapter discusses the budget allocations earmarked for fisheries management activities carried out by the Fisheries Research Agency (FRA) and the Ministry of Agriculture, Forestry and Fisheries (MAFF), while it excludes those of prefecture governments, municipal offices, fisheries cooperatives and the private sector as it was not possible to obtain relevant figures expended by the latter entities.

Table 8 shows the 2004 budget allocations made for research and overall management activities as compared with the 2000 budget.

### Research

The Fisheries Research Agency (FRA) is organized into five Departments: Research Promotion and Development, Fisheries Stock Enhancement, Marine Fisheries Research and Development, Administration and Finance.

The total budget of the FRA for the fiscal 2004 amounted to US$212.2 million, of which US$158 million has been allotted to personnel costs, the rest being for research activities. There was an increase of 4.4 percent as compared with 2000.

### Overall Management Activities

#### *Fisheries Management Services*

The overall responsibility for fisheries resources management is vested in the Fisheries Agency of the MAFF. The total budget allocated to the Fisheries Agency for the fiscal 2004 amounted to US$230.7 million, of which US$15.8 million or 6.85 percent has been appropriated for fisheries management related activities including personnel costs. This can be broken down into three budget lines, namely, management services, enforcement and international affairs.

There are three divisions concerned with management services, namely, Management, Coastal and Offshore, and Distant Water Divisions. The major functions of these divisions include vessel registration, licensing, resources conservation and management and associated disciplines.

The budget for management services totaled US$81.15 million, of which 79.93 (98.5 percent) was allocated to Fisheries Management Division, US$680 000 (0.83 percent) to Coastal and Offshore Fisheries Division and US$540 000 (0.67 percent) for Distant Water Fisheries Division, respectively.

*Fisheries Enforcement*

Fisheries surveillance and enforcement is carried out by two agencies at national level, that is, the Japan Coast Guard (JCG) and the Fisheries Agency of the MAFF. Enforcement costs represent nearly half of the overall management costs, amounting to US$80.4 million in 2004 which will cover personnel expenses, administration costs including the running of six government patrol boats as well as the chartering of 32 patrol boats from various entities.

*International affairs*

A total of US$1.63 million has been allocated to this budget line to be spent for organizing international meetings in Japan, staff overseas travel, and other related matters.

### Other matters

Contribution to international organizations and trust funds for international aid are earmarked under different budget lines. In 2004 the Government allocated US$48.8 million under the budget line of Fishery Grant Aid for developing countries for the fisheries sector. But the entire allocation is not expended for fisheries management purposes. The allocation for Fishery Grant Aid has declined from US$81.3 million in 2000 to US$48.8 million in 2004 due to financial difficulties.

## IMPLEMENTATION OF GLOBAL FISHERIES MANDATES AND INITIATIVES

### UNCLOS, other conventions, and Japanese initiatives

The foremost important objective of the Japanese foreign fisheries policy is to ensure a stable supply of safe, fresh and high quality fish for consumers. The Government considers that the attainment of this objective depends on the implementation of effective resources management initiatives pursuant to the principles of the UNCLOS. These relate to the sustained utilization of fisheries resources on the basis of scientific data and evidence. Japan will continue to address the international community concern on resource sustainability issues through active participation in regional fisheries management bodies. The FBP dictates that Japan should contribute to establishing rational management of fisheries resources on the high seas in compliance with the principles of the UNCLOS.

The Government has been responsive to comply with the intent and purpose of the United Nations Convention on the Law of the Seas (UNCLOS) which came into effect in July 1996. Subsequently a number of new management measures have been initiated for coastal and offshore fisheries including the Total Allowable Catch (TAC) and the Total Allowable Effort (TAE) systems.

With regard to distant water fisheries, Japan withdrew from the drift net squid fishing in the North Pacific (1992-94) under the FAO Compliance Agreement (Compliance with International Conservation and Management Measures by Fishing Vessels on the High Seas). Withdrawal from the Pacific Salmon Fishery took place (1990-1992) under the North Pacific Anadromous Fish Convention (NPAFC). Japan reduced 132 tuna longliners corresponding to 20 percent of the total vessels in 1999 pursuant to

the International Plan of Action of reducing fishing capacity of FAO Compliance Agreement. Bottom trawling was suspended in the high seas area of the Bering Sea beyond the EEZs of Russia and USA as a result of the enactment of the Bering Sea Fisheries Convention (1995). Japan signed and ratified in 2000 FAO Compliance Agreement to Promote Compliance with International Conservation and Management Measures by Fishing Vessels on the High Seas. Japan has signed, but not yet ratified the1995 UN Agreement on the Conservation and Management of Straddling Fish Stocks and Highly Migratory Fish Stocks dealing with tuna and tuna-like species.

As a private sector initiative, the OPRT (Organization for Promotion of Responsible Tuna Fisheries) has been established in Japan with a view to promoting responsible tuna fisheries. The member of the OPRT includes large-scale tuna longline fishery organizations from Japan, China, Taiwan Province of China, Indonesia, Republic of Korea and the Philippines. The functions of the OPRT includes (i) to disseminate information related to the IUU vessels for tuna fishing, (ii) collect data on tuna catches for each vessel and report back the data to the states of flags of convenience vessels for cross-checking, (iii) scrapping of IUU vessels.

### CITES (The Convention on International Trade in Endangered Species of Wild Fauna and Flora)

At the 12th Session of CITES held in Chile in 2002 there was a strong movement toward taking up commercial marine living resources at CITES and five species of marine animals (e.g. sea horse) were proposed to be listed. "Mero" (Patagonian Tooth fish) which is consumed in Japan was removed from the annex at the end due to Japan's objection. However, two species of shark and sea horse were included in the annex II (Trade Permit System). Japan made reservations on the inclusion of these three species in the annex on the ground that there were neither reliable data on the extinction of these stocks nor evidence regarding negative impacts on the resources demonstrated by international trade.

### National plan of action to prevent, counteract and eliminate illegal, unregistered and unregulated fishing

Japan has been heavily involved in the elimination of IUU vessels to comply with rules and regulations internationally agreed. Major policy initiatives taken by Japan in this respect are as follows.

- Since large quantities of tuna caught by flags of convenience vessels were imported by traders despite the recommendations made by regional fisheries management bodies, the Japanese Government took an action in 1999 to force tuna importers to report the name and origin of fishing vessels pursuant to *the Law concerning Special Measures to Strengthen Conservation and Management of Tuna Resources (Law No.101, 1996).* The Government further requested fish traders to refrain from importing fish caught by flags of convenience fishing vessels.
- Japan prohibited the importation of Atlantic bluefin tuna from Belize and Honduras in 1997 following ICCAT recommendations, while lifted the ban in January 2004. Likewise, the ban of importing bigeye tuna from St. Vincent was lifted in January 2004.
- Japan has been prohibiting the import of Atlantic bluefin tuna from Equatorial Guinea since 2000.
- The import of bigeye tuna from Bolivia, Cambodia and Georgia has been banned. The import of bluefin, bigeye tuna and swordfish from Sierra Leone has been banned, too.
- In order to monitor the trade of fish caught by IUU vessels, a number of initiatives have been taken by Japan including the collection of catch statistics on various tuna species and tooth fish. Any person who import bluefin tuna, southern blue-

fin tuna, bigeye tuna, swordfish, Patagonian-tooth fish, and Antarctic tooth-fish must submit import data and other statistical reports to the management authority in accordance with the rules set by the relevant international fisheries management organizations.

- Japan may suspend the import of the above mentioned fish species in accordance with decisions made by the relevant organizations, if the fish were harvested in a manner to undermine conservation and management measures adopted by international/regional fisheries management organizations.
- In 1999, a work plan was formulated under a joint effort between the Japanese and Taiwanese governments toward the elimination of IUU vessels. The work plan included scrapping of IUU vessels, changing to Taiwanese registration, etc. As of 2003, it was estimated that there still remain around 25 IUU vessels. In April 2003 it was agreed between the industries concerned of the two nations that new initiatives would be taken to eliminate the remaining IUU vessels.
- Japan has had a series of talks with China over the issue of IUU vessels requesting to halt IUU vessels' access to China and also restrict the increase in number of tuna vessels. Subsequently, China consented that it would discontinue the contact with the owners of IUU vessels and that it would ban the import of used large tuna vessels. But China still holds the right to build tuna vessels as part of the rights owned by developing countries.

## National plan of action for incidental catches of seabirds in longline fisheries

Pursuant to the International Plan of Action for Reducing Incidental Catch of Seabirds in Longline Fisheries (1999), Japan is implementing a National Plan of Action to reduce incidental seabird bycatch in longline fisheries.

In order to minimize incidental catches of seabirds the following mitigation measures have been implemented on the basis of the following basic guidelines:

- The creation of an environment in which fishers may voluntarily implement measures to reduce incidental catches, bearing in mind their long experience in longline fishing;
- The development of a wide-range of environmentally friendly and cost effective mitigation devices; and
- The due consideration to reducing fishers' burdens and securing their safety at sea.

### *Guidance, extension, education*

*Current actions* - Long-line fishing industry bodies have taken the following actions with the assistance of the government and research institutes:

- Preparing and distributing guidelines stressing the need to reduce incidental catches of seabirds;
- Preparing and distributing handy waterproof pamphlets to be used by fishers onboard to illustrate how to treat trapped seabirds; and
- Holding on-site seminars for fishers (boat owners and crew).

*Future course of action* - The following actions will be taken in the future:

- Preparing and distributing bird identification sheets to fishers;
- Developing videos and posters for distribution to fishers, fisheries managers, fishing gear technologists and others;
- Disseminating information on the use of devices to eliminate or mitigate incidental catches when setting longline gear;
- Holding seminars on how to release seabirds when they are caught alive; and
- Including the subject on incidental catches of seabirds in the curriculum of senior fisheries high schools and other educational institutions.

***Research***

*Development and assessment of devices to avoid incidental catches* - The following subjects are being studied and/or implemented:

- The improvement of streamers in order to increase the effectiveness of the existing ones and also to enable small vessels to use them;
- The development of bird scaring devices using lights and sounds;
- The use of additional weights on gear to increase sinking speed of the gear and/or underwater casting of longlines to deter stealing of baits from hooks by seabirds;
- The testing of colored baits to make baits less conspicuous;
- The assessment of the effectiveness of such methods by use of research vessels and actual longliners to improve the quality of devices.

*Information collection and monitoring of surveys* - In order to strengthen research and environment preservation, the following activities will be facilitated:

- Collection and storage of data in database on incidental catches surveyed by official vessels and researchers.
- Collection and storage of information in database on behaviors and stocks of seabirds (e.g. migration, distribution of stocks, feeding habits, breeding and habitats conditions).
- Cooperation has been established with the interested countries with regard to the collection and exchange of information on distribution, behaviors, ecology of seabirds, monitoring of research activities and protection measures of seabirds. Such cooperation will be further strengthened.

***Improvement of breeding environments and facilitation of seabird reproduction***

In tandem with fisheries regulations, it is indispensable to improve the environments in which seabirds reproduce and live by, for example, removing up-stream silt deposits and growing grass in the seabird habitats.

## National plan of action for sharks

Pursuant to the International Plan of Action for Conservation and Management of Sharks, Japan is implementing a National Plan of Action that mandates the government to perform analyses on the impact of Japanese vessels on shark resources and to establish appropriate management measures for the conservation of shark resources.

***Types of fisheries and shark species***

During the 1950s, Japan annually harvested from 90 000 to 110 000 tonnes of sharks and rays and was one of the largest shark producing countries globally. In the past decade, this production has decreased to range between 20 000 to 25 000 tonnes. The major species caught include blue shark (*Prionace glauca*), piked dogfish (*Squalus acanthias*) and salmon shark (*Lamna ditropis*).

The sharks considered by the national plan of action are those which are taken within the Japanese EEZ as well as those taken by Japanese fishing vessels in the high-sea areas. Fisheries involved in shark fishing are classified by type of fishing and fishing area.

- Gillnet fishing along the coast of Hokkaido
- Bottom trawling in North Pacific and the Japan Sea
- Bottom trawling in the East China Sea
- Tuna longlining in high sea waters

***Information collection***

In Japan there are very few fisheries which target sharks as sharks are usually caught as bycatch of other target fisheries. As such, stock assessments could not be based solely on catch reports submitted by fishers. Therefore, a group of marine scientists was formed to carry out the stock assessment of sharks based on the following data:

- Catch data provided by commercial fishing vessels;
- Data provided by research vessels belonging to national government, prefecture government and other institutions;
- Research material submitted by scientific researchers;
- Data of shark landings at fisheries ports; and
- Statistics on catches of shark compiled by national and prefecture governments.

*Effective utilization of retained sharks*

The demand for shark remains high in Japan: the flesh of sharks is used to produce *surimi*, the meat as a raw material for prepared products (e.g. fish cake), the fins for soup, the heart as a delicacy, the skin as high quality leather, and the bone to produce medicine. However, due to storage costs during longer-term fishing trips and the relatively high value of shark fins, fishers often retain only the shark fins to maximize their returns on any fishing trip. The Japanese government is willing to admit such partial use (e.g. fins) provided that sharks are not the target species and that the status of the sharks is not critical. However, the government and relevant organizations are promoting research to improve the use of shark resources.

*Extension and education*

Extension and education need to be intensified to create awareness of the sustainable use and conservation of sharks. In addition to the preparation and distribution of pamphlets and posters currently in use, it is envisaged to increase the dimension of extension and education by including the following activities:

- Holding seminars for fishers on shark resource management and distribution of identification sheets of shark species;
- Educational programmes and videos for general public on sharks;
- Provision of relevant information to fishers and fisheries bodies;

*Management measures*

The Japanese government contemplates holding expert consultations on a regular basis to assess the status of shark stocks. Expert consultations will draw attention to the following issues:

- Biological characteristics and sustainability of resources;
- Characteristics of shark fishing;
- Safety at shark fishing and mitigation of fishers burdens; and
- Social and economic effects as a result of the implementation of conservation and management measures.

On the basis of the above assessments, the government would convene a committee comprising scientists, administrators, and fishers representatives to discuss the necessity of applying regulatory measures and reflecting such measures in the national plan of action.

## PARTICIPATION IN REGIONAL FISHERY BODIES

Japan's involvement in international fisheries can be grouped into the following: (i) bilateral fisheries agreements with neighboring countries (i.e. the Republic of Korea, China, Russia), (ii) high seas fisheries, (iii) environmental and conservation-related management, and (iv) bilateral assistance to developing countries.

### Tuna Fisheries on the High Seas

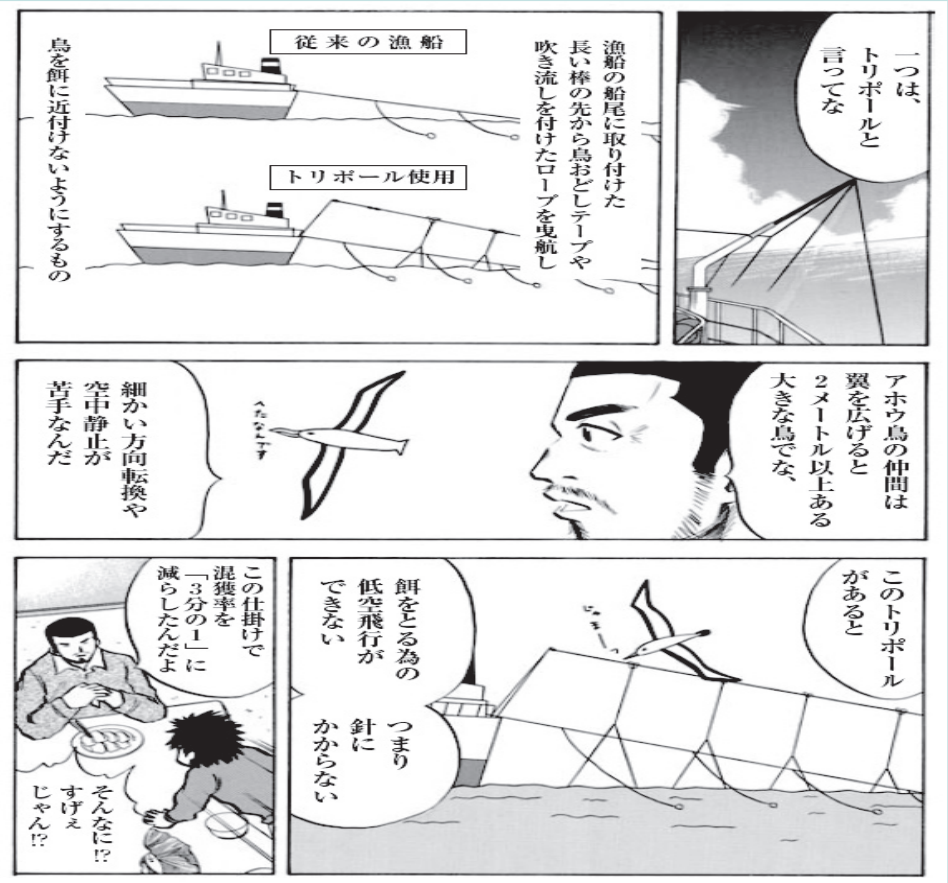
Tuna fisheries are by far the most important activity carried out by the Japanese fleet on the high seas. In 2000 the world production of tuna and tuna-like species (i.e. bluefin, southern bluefin, yellowfin, albacore, bigeye, other tunas) amounted to some 1.7 million tonnes, of which 290 000 tonnes or 17.1 percent were captured by Japan,

BOX 1

**Example of information dissemination on Japanese NPOAs**

The following excerpt demonstrates one medium used by the Japanese government to increase public awareness of conservation and sustainable use of natural resources through the implementation of National Plans of Actions on Sharks and Seabirds.

**Seabird conservation technology explained through the use of a comic book**




*Source*: Global Guardian Trust (GGT) booklet published as part of the Japanese programme on "Educational Material for Better Understanding of Japan's NPOA-Seabirds & NPOA-Sharks". http://www006.upp.so-net.ne.jp/GGT/

followed by Taiwan Province of China (14 percent), Spain (7 percent), Mexico (6.1 percent), France (5.5 percent), the Philippines (5.5 percent) (FAO, 2001). In the same year the Japanese consumption of tuna amounted to some 640 000 tonnes live weight, including the domestic production and imports (MAFF, 2003b).

Regional fisheries management organizations for tuna and tuna-like species have been established in various regions and the participating countries have the obligation to comply with the rules and regulations, such as the total allowable catches established by such organization. Japan is a member of the following regional management organizations for tuna and tuna-like species.

- International Commission for the Conservation of Atlantic Tuna (ICCAT): established in 1969 and Japan joined in 1969.
- Commission for the Conservation of Southern Bluefin Tuna (CCSBT): established in 1994 and Japan joined in 1994.

- Inter-American Tropical Tuna Commission (IATTC): established in 1950 and Japan joined 1970.
- Indian Ocean Tuna Commission (IOTC): established in 1996 and Japan joined in 1996.

Japan's financial contribution to regional fisheries management organizations has been and continues to be significant. In 2004 Japan has contributed a total of 123 million yen or US$ 1.1 million, representing over 11 percent of the total budget of these organizations (MAFF, 2004).

Other international or regional fisheries bodies of which Japan is a member include CCAMLR, NAFO, SEAFDEC, NPAFC, APEC, IWC, CECAF, GFCM, WECAFC, NPAFC, PICES.[7]

## SUMMARY AND CONCLUSIONS

The foregoing sections clearly indicate that despite painstaking efforts made by the government to halt the declining trends of catches in all capture fisheries sectors, any significant sign of recovery has not yet been observed and a number of problems are being increasingly experienced in the fisheries sector of Japan at present. It should, however, be noted that the income level of a coastal fishing boat operator has been on average maintained in the order of US$46 000 per year during the last several years in spite of the declining catches. This might be partly due to the decrease of the number of coastal fisheries operators (i.e. 194 300 in 1999 to 175 680 in 2002) and also due to small variations in the fluctuations of wholesale fish prices at producing areas. In the case of offshore and distant water fisheries, it seems that a merit has not yet emerged since a notable decline has been experienced both in the number of fisheries operators (i.e. 4 960 in 1999 to 4 760 in 2002) and the average level of income (US$936 000 in 1999 to US$720 000 in 2002) for medium-scale fisheries operators.

In summary, the government will face a critical challenge over the medium term, and it will call for the rigorous implementation of management measures to ensure resource sustainability and improve the level of production in capture fisheries. Continued efforts will be made to respond to: (i) declining fisheries production due to over-exploitation and loss of habitats; (ii) environmental damages; (iii) reduced access to fish stocks on the high seas and in the EEZs of other nations.

The government is fully committed to implement the Fisheries Basic Plan (FBP) where policy reforms are underway to redirect fishing effort toward desired management and development goals. It ultimately aims at increasing net benefits from fisheries resources through various sets of measures embracing improvement of management systems, maintenance of stable enterprise management, reduced conflicts among resource users, institutional setup and increased community welfare.

The government is mandated to carry out the following actions to maximize the effects of fisheries management measures for the achievement of policy objectives and goals for sustainable development of fisheries as enunciated in the FBP.

### Assessment, updating and amendment of policy measures

The FBP will be evaluated every five years and, where necessary, revised to reflect the changes that have occurred in the state of fish stocks, extent and condition of coastal habitats, pattern of resource exploitation as well as in Government policies and structures.

[7] Convention on the Conservation of Antarctic Marine Living Resources; Northwest Atlantic Fisheries Organization; Southeast Asian Fisheries Development Center; North Pacific Anadromous Fish Commission; Asia-Pacific Economic Cooperation; International Whaling Commission; Fishery Committee for the Eastern Central Atlantic; General Fisheries Commission for the Mediterranean; Western Central Atlantic Fishery Commission; North Pacific Anadromous Fish Commission; and North Pacific Marine Science Organization, respectively.

### Effective financial assistance

Financial assistance will be required for supporting the execution of the FBP such as strengthening of fisheries infrastructure, e.g. artificial reefs which protect marine environment and enhance fish habitats. Care must be taken not to duplicate efforts through coordinated actions among the agencies concerned.

### Information dissemination

Information dissemination and public participation will be important in order to ensure the transparency of policy implementation. Awareness building on the objectives and the associated measures form part of important activities to be undertaken by the national and local government and related organizations to reflect views and opinions of stakeholders and the general public on relevant issues.

### National and local government

There should be a clear division in the functions to be played by national and local government. Local government (i.e. prefecture government and municipal office) will take into full account local conditions in policy planning and implementation. Efforts should be made to bring about strong cooperation from various stakeholders including fisheries cooperatives, recreational fishers and consumers, as well as local residents, NPO (non-profit organizations) and the private sector.

### Harmonization with international disciplines

It is important to establish a harmony with international regulations in the implementation of policy measures. In the event of formation of new international regulations, utmost effort has to be made to fully reflect the position and views of the Government in such regulations. Efforts have to be made to obtain information on international fisheries trends in a timely and systematic fashion. It is required to strengthen research capabilities on fisheries policies and management measures of foreign countries.

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## APPENDIX TABLES

### Current Management of Marine Capture Fisheries in Japan

| Level of Management | % Fisheries Managed | % with Fisheries Management Plan | % with Published Regulations | Trends in the number of Managed Fisheries over ten yrs. (increasing/decreasing/unchanged) |
|---|---|---|---|---|
| National | 100 | 100 | 100 | Increasing |
| Regional | 100 | 100 | 100 | Increasing |
| Local | 100 | 100 | 100 | Increasing |

### Summary information for three largest fisheries (by volume) in Japan (2002)

| Category of Fishery | Fishery | Volume 1000 tonnes | Value* mil US$ | % of Total Volume Caught** | % of Total Value Caught** | Covered by a Management Plan? | # of Participants | # of Vessels |
|---|---|---|---|---|---|---|---|---|
| Industrial | purse seine | 913 | 1 238 | 19.2 | 13.1 | Yes | .. | 443 |
| | longline | 615 | 2 000 | 12.9 | 22.2 | Yes | .. | 1 122 |
| | trawling | 565 | 1 120 | 11.9 | 12.4 | Yes | .. | 1 698 |
| Artisanal | set net | 509 | 1 006 | 10.7 | 10.6 | Yes | .. | (14 157) |
| | trawling | 342 | 1 640 | 7.2 | 17.3 | Yes | .. | 20 743 |
| | gillnet | 229 | 623 | 4.8 | 6.6 | Yes | .. | 45 292 |
| Recreational | rod/line on board | .. | .. | .. | .. | Yes | .. | .. |
| | on-board handline | .. | .. | .. | .. | Yes | .. | .. |
| | rod /line on beach | .. | .. | .. | .. | .. | .. | .. |

*Notes*: * Value in 2002 U.S. Dollars; ** % values are based on totals for each category of fishery; .. = not available.

1. There are no data regarding the number of vessels used by set net fishers as they set nets very close to the beach and they use un-motorized vessels. The figures in the bracket show the number of fisheries enterprises involved in the set net fisheries.
2. For recreational fishing, separate data by category are not available. The total number of recreational fishers is 33 million man-days/year. The catch data are available only for those who fish on recreational boats operated by guides, which amounted to some 15 300 tonnes in 2003 (see the text).

### Use of Fishery Management Tools within the three largest fisheries in Japan

| Category of Fishery | Fishery | Restrictions | | | | License/ Limited Entry | Catch Restrictions | Rights-based Regulations | Taxes/ Royalties | Performance Standards |
|---|---|---|---|---|---|---|---|---|---|---|
| | | Spatial | Temporal | Gear | Size | | | | | |
| Industrial | purse seine | No | Yes | Yes | No | Yes | Yes | No | No | No |
| | longline | No | Yes | Yes | No | Yes | Yes | No | No | No |
| | trawling | No | Yes | Yes | No | Yes | Yes | No | No | No |
| Artisanal | set net | No | Yes | Yes | Yes | No | No | Yes | No | No |
| | trawling | No | Yes | Yes | Yes | No | Yes | Yes | No | No |
| | gillnet | No | Yes | Yes | Yes | No | Yes | Yes | No | No |
| Recreational | on-board rod/line | No | Yes | Yes | Yes | Yes | No | Yes | No | No |
| | on-board handline | No | No | No | No | No | No | No | No | No |
| | on-beach rod/line | No | No | No | No | No | No | No | No | No |

### Costs and Funding Sources of Fisheries Management within the three largest fisheries in Japan

| Category of Fishery | Fishery | Do Management Funding Outlays Cover | | | Are Management Funding Sources From | | |
|---|---|---|---|---|---|---|---|
| | | R&D | Monitoring & Enforcement | Daily Management | License fees in fishery | License fees from other fisheries | Resource rents |
| Industrial | purse seine | Yes | Yes | Yes | No | No | No |
| | longline | Yes | Yes | Yes | No | No | No |
| | trawling | Yes | Yes | Yes | No | No | No |
| Artisanal | set net | Yes | Yes | Yes | No | No | No |
| | trawling | Yes | Yes | Yes | No | No | No |
| | gillnet | Yes | Yes | Yes | No | No | No |
| Recreational | on-board rod/line | No | Yes | No | No | No | No |
| | on-board handline | No | Yes | No | No | No | No |
| | on-beach rod/line | No | Yes | No | No | No | No |

**Compliance and Enforcement within the three largest fisheries in Japan**

| Category of Fishery | Fishery | VMS | On-board observers | Random dockside inspections | Routine inspections at landing sites | At-sea boarding and inspections | Other (please specify) |
|---|---|---|---|---|---|---|---|
| Industrial | purse seine | Yes | No | No | No | Yes | No |
| | longline | Yes | No | No | Yes | Yes | No |
| | trawling | Yes | No | No | No | Yes | No |
| Artisanal | set net | No | No | No | No | No | No |
| | trawling | No | No | No | No | No | No |
| | gillnet | No | No | No | No | No | No |
| Recreational | on-board rod/line | No | No | No | No | No | No |
| | on-board handline | No | No | No | No | No | No |
| | on-beach rod/line | No | No | No | No | No | No |

**Capacity Management within the three largest fisheries in Japan**

| Category of Fishery | Fishery | Does overfishing exist? | Is fleet capacity measured? | Is CPUE increasing, constant or decreasing? | Have capacity reduction programmes been used? | If used, please specify objectives of capacity reduction programme |
|---|---|---|---|---|---|---|
| Industrial | purse seine | Yes | Yes | Decreasing | Yes | .. |
| | longline | Yes | Yes | Decreasing | Yes | .. |
| | trawling | Yes | Yes | Decreasing | Yes | .. |
| Artisanal | set net | Yes | Yes | Decreasing | Yes | .. |
| | trawling | Yes | Yes | Decreasing | yes | .. |
| | gillnet | Yes | Yes | Decreasing | Yes | .. |
| Recreational | on-board rod/line | No | No | .. | No | .. |
| | on-board handline | No | No | .. | No | .. |
| | on-beach rod/line | No | No | .. | No | .. |

*Note*: .. = not available.