

FY2016 Trends in Fisheries

FY2017 Fisheries Policy

White Paper on Fisheries:
Summary

This document is a report on fisheries trends and the policy implemented during FY2016 in accordance with the provisions of Article 10, paragraph (1) of the Fisheries Basic Act (Act No. 89 of 2001) as well as the policy to be implemented in FY2017 in accordance with the provisions of paragraph (2) of said Article.

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“FY 2017 Fisheries Policy” Overview

Note: The maps in this document do not necessarily inclusively show Japan's territory.

Chapter 1 Special Feature

Japanese Fisheries Connect to the World

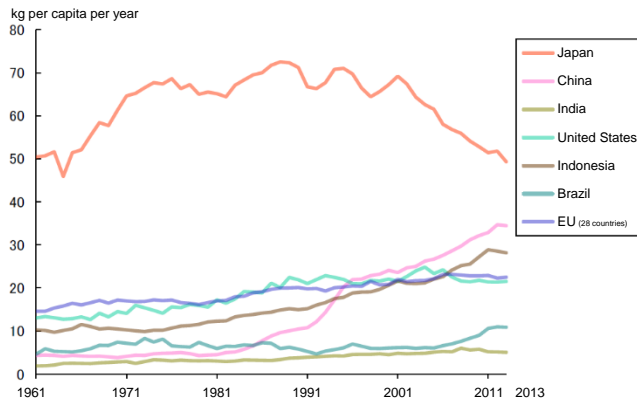
-An Answer to the International Sustainable Use of Fishery Resources-

Section 1 Status of World Fisheries

(1) The World's Increasing Demands for Fish and Fishery Products

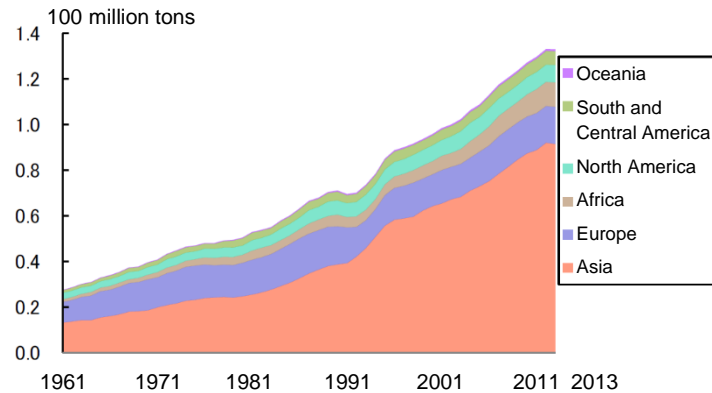
- The world's per capita consumption of edible seafood has nearly doubled in the past half century, due to the globalization of food distribution, a shift to high-protein dietary habits, etc. The consumption shows significantly-increasing trends, especially in emerging countries such as China.
- Since the world population is expected to continue to increase, the world's increasing demand for fish and fishery products is also expected to continue in the near future.

Annual consumption of fish and fishery products per capita in major countries/regions (gross food based)



Source: "FAOSTAT" (FAO) and "Food Balance Sheet" (The Ministry of Agriculture, Forestry and Fisheries)

Trends in the World's Consumption of Fish and Fishery Products (gross food based)

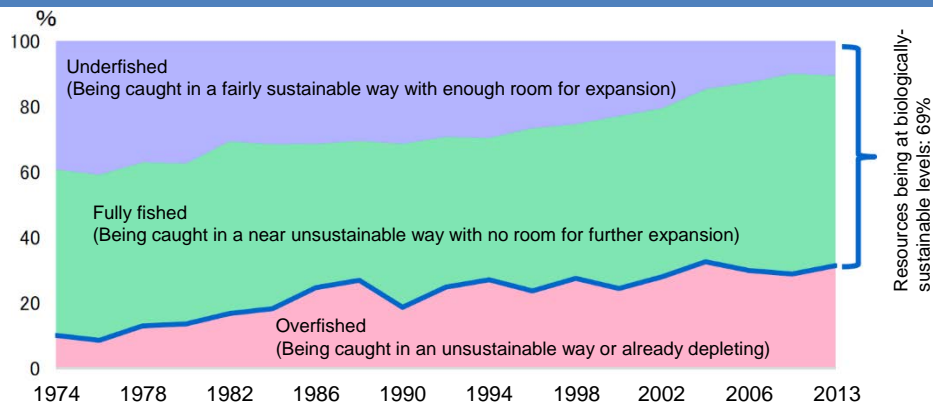


Source: "FAOSTAT" (FAO) and "Food Balance Sheet" (The Ministry of Agriculture, Forestry and Fisheries)

(2) Trends in the World Fisheries Resources

- The ratio of the world fisheries resources being exploited within biologically-sustainable levels is on a gradually-decreasing trend. In 2013, 69% of the world fisheries resources were at biologically-sustainable levels and 31% of them were at an overfished level. World fishery resources with enough room for production expansion were 11%.
- Proper fisheries management in the future is important in order to increase the fishery resources remaining at a proper level. To maintain a proper level allows us to reply increase of catch in the future.

Status of World Fish Stocks

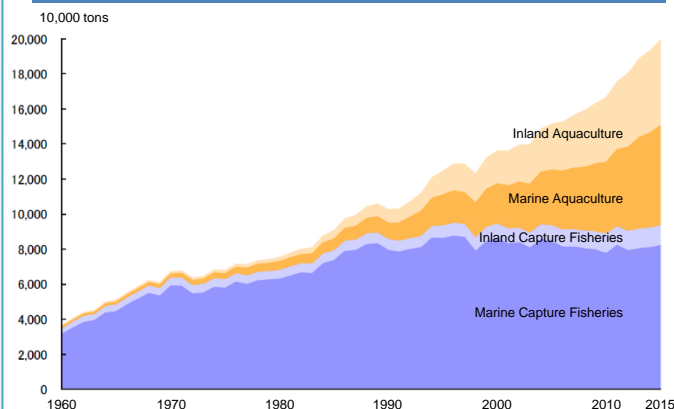


Source: Prepared by the Fisheries Agency, based on "The State of World Fisheries and Aquaculture" (FAO)

(3) Production of World Fisheries and Aquaculture

- The production volume of world fisheries and aquaculture increased by 3% to 199.77 million tons in 2015. The tonnage is broken down into 93.77 million tons of capture fisheries production and 106.01 million tons of aquaculture production.
- The capture fisheries production has reached its peak since 1980s. For example, in the EU, the United States, and Japan, the capture fisheries production has remained almost flat or declined. In contrast, the capture fisheries production in China, Indonesia, or Vietnam has increased.
- Aquaculture production has significantly increased in both marine and inland aquaculture production. China is dominant in world aquaculture production, both marine and inland.
- The world's focus on fish and fishery production has been shifting to aquaculture business, the increasing speed of aquaculture production is expected to be sluggish. Fish meal materials as an aquaculture feed are supplied by capture fisheries. Both capture fisheries and aquaculture will continue to play a key role in supplying fishery products.

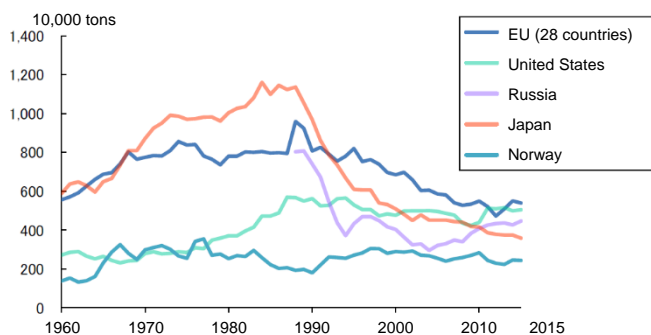
Trends in Production Volume of World's Fisheries and Aquaculture



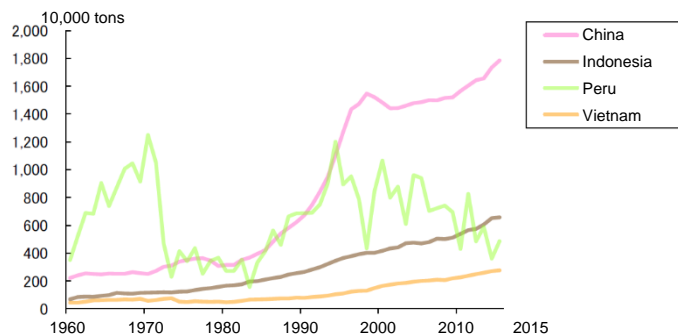
Source: "Fishstat" (FAO) and "Fisheries and Aquaculture Production Statistics" (The Ministry of Agriculture, Forestry and Fisheries, Japan)

Trends in Catches in the World's Major Fishing Countries and Regions

<Developed Countries>



<Developing Countries>

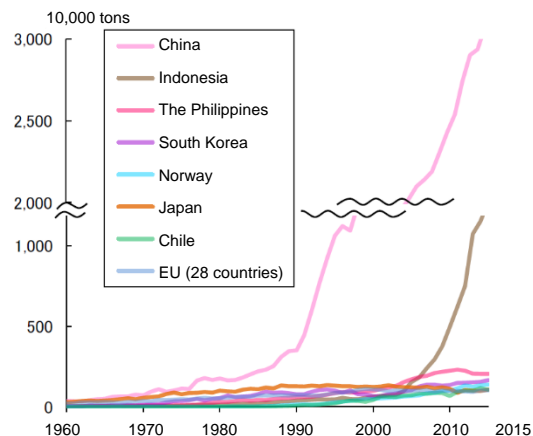


Source: "Fishstat" (FAO) and "Fisheries and Aquaculture Production Statistics" (The Ministry of Agriculture, Forestry and Fisheries, Japan)

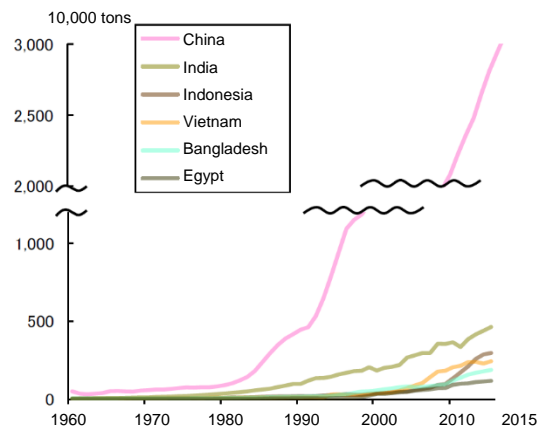
Note: Distinguishing between developed and developing countries was based on the definition by the United Nations.

Trends in Production Volume in the World's Major Aquaculture Countries and Regions

<Marine>



<Inland water>

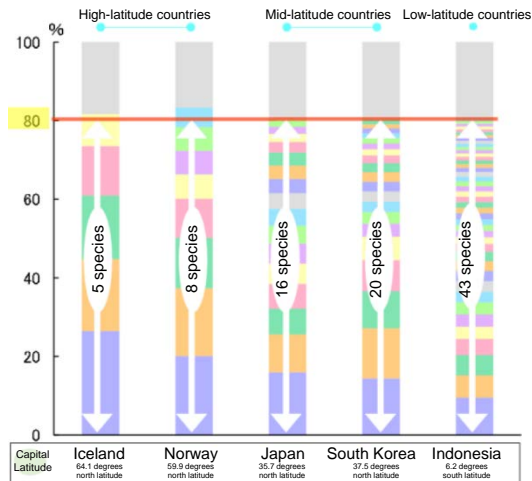


Source: "Fishstat" (FAO) and "Fisheries and Aquaculture Production Statistics" (The Ministry of Agriculture, Forestry and Fisheries, Japan)

(4) World's Fisheries Production Structure

- Fisheries production systems vary depending on the natural environmental and socioeconomic conditions of each country/region. As compared to high-latitude areas, a low-/mid-latitude area has higher biodiversity and many varieties of fish species are reflected in the diversity of fish catches.
- In Asia, majority of fishers are involved in small-scale fisheries, which play an important role in the aspect of food supply or economic activities in coastal communities. In Europe, especially in high latitude areas, large-scale fisheries on a single resource hold an important position as their export industry.

The Number of Fish Species that Account for 80% of the Global Catch



Source: Prepared by the Fisheries Agency, based on "Fishstat" (FAO)

Comparison of the Fisheries Structure Among Countries

Country	No. of fishers (1,000 persons)	No. of fishing boats (Boats)	Production volume of fisheries and aquaculture (1,000 tons)	Per capita production volume of fishers (Tons per capita)
Indonesia	6,011	639,600	20,884	3.5
China	14,161	1,065,319	76,149	5.4
Japan	173	152,998	4,769	27.6
South Korea	109	71,287	3,313	30.3
Norway	18	5,939	3,788	214.5
Iceland	5	1,394	1,104	225.2

Source: Prepared by the Fisheries Agency based on "The State of World Fisheries and Aquaculture 2016" (FAO), "Fishstat" (FAO), "OECD Review of Fisheries: Country Statistics 2015" (OECD), "The 2013 Census of Fisheries", "Report on the Trends in Fishery Employees", "Fisheries and Aquaculture Production Statistics" (compiled by the Ministry of Agriculture, Forestry and Fisheries), and "China Fishery Yearbook" (compiled by Bureau of Fisheries, the Ministry of Agriculture, of People's Republic of China).

(5) Global Fisheries Sustainable Development and International Resource Management

- In order to respond the increasing global demand for food, sustainable and effective use of fisheries resources is essential.
- In particular, international resource management is one of the global challenges. The significance of international resource management is also growing in Japan.

Section 2 International Situation Surrounding Japan's Fisheries

(1) International Situation on Distant Water Fishery

- The advent of 200 nautical miles era forced Distant water fishery vessels to be withdrawn from the fishing grounds and to operate at a reduced scale.
- The recent far-seas fishing in Japan has placed more emphasis on skipjack and tuna fishing. Highly-migratory species are mainly managed by regional fisheries management organizations.
- Although EEZ of the Pacific Ocean island countries continues to serve as vital fishing grounds, the severity of fishery environment continues to increase due to fishing fee hikes, etc.

(2) International Situation on Offshore Fishery

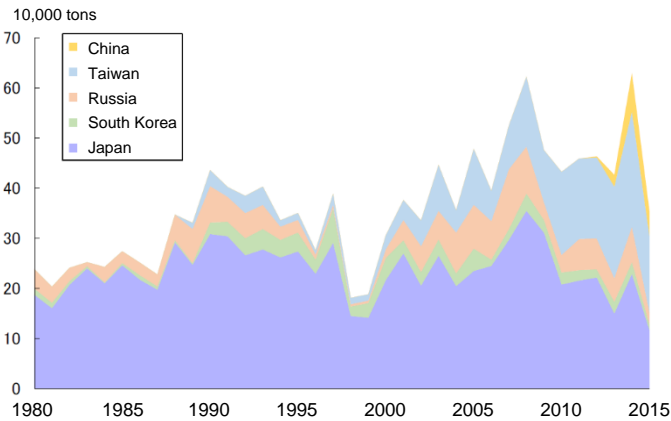
(a) Relationship with neighboring countries/regions

- Japan's offshore fishery operates under the bilateral governmental agreement with Russia, South Korea, China, and Taiwan.
- In January 2016, the Russian government passed a bill to totally ban drift netting in Russian waters, which prevented Japanese fishing boats from operating drift net fishing to catch salmon and trout. The Japanese government, therefore, continues to take measures to mitigate impacts on the related regions.
- The Japanese and Korean governments have not reached agreement about operation conditions in this fishing season and therefore, mutual consultations are still underway.
- The Japanese and Chinese governments agreed to reduce the number of Chinese squid fishing boats operating within Japan's EEZ along with their catch quotas, to promote efforts to eradicate Chinese illegal fishing boats and to enhance the management of tiger net fishing boats, etc.
- The Japanese and Taiwanese governments have consultations regarding review of operation rules in zones where the civil fishery agreement applies.

(b) Foreign Fishing Vessels Operating in the High Seas Adjacent to Japan's EEZ

- In recent years, rapid increases have been observed in the number of foreign fishing vessels targeting finfish such as Chub mackerel, Pacific saury, etc. in the high seas adjacent to Japan's EEZ, while the Total Allowable Catch (TAC) system has been set in place to manage Chub mackerel and Pacific saury stocks in Japan's EEZ. Alleged Chinese boats were observed to violate international rules. Foreign fishing vessels expanded their operation both in the East China Sea and the Sea of Japan. These trends raise concerns about the impact of catch by foreign fishing vessels on the fishery resources.
- Since 2000, the catches of Pacific saury by Taiwan have significantly increased. In 2012, China started harvesting this species. The catches of Chub mackerel by China have rapidly increased.

Trends in Pacific Saury Catches by Country/Region



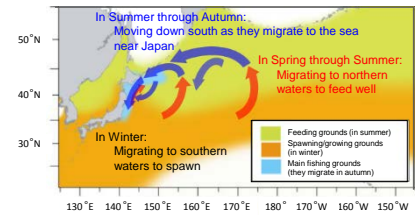
Source: The Fisheries and Aquaculture Production Statistics (The Ministry of Agriculture, Forestry and Fisheries), FAO Fishstat, and NPFC's materials

Column: Poor Catches of Pacific Saury, an Autumn Delicacy, Were Recorded Again

Catches of Pacific saury in Japan declined for a consecutive two years.

In the period from 2015 through 2016, warm water mass approached the south east coast of Hokkaido, which forced Pacific saury to migrate far offshore south of Japan. Typhoons occurred in their best fishing season are considered to be one cause of the poor catch. Concerns have been raised among domestic fishers about the impact of catch by Taiwanese/Chinese vessels on Pacific saury stocks.

Therefore, Pacific saury stocks need to be solidly managed within an international framework.



Source: Japan Fisheries Research and Education Agency

(c) Impact of Skipjack Catches in Tropical Waters on Japan

- In recent years, increasing numbers of foreign large scale purse seine boats significantly raised the catches of skipjack in the western and central Pacific. This pointed out the possibility of having reduced migration of this species in the seas around Japan through its range contraction.

Column: Status on the Stock Assessment of Skipjack

In the 2016 meeting of the Scientific Committee of the Western and Central Pacific Fisheries Commission (WCPFC), the Secretariat of Pacific Community (SPC), which had been commissioned by the WCPFC to assess stock status of highly migratory species, presented their several assessment results, but they choose only one of those results and put forward their conclusion that skipjack resources were improved, even after having declared that those assessment results might be equally plausible. In contrast, Japan and some other countries did not support its conclusion by insisting that, if such results are equally plausible, the final assessment result should be given in range between the upper and lower limits of those results. Consequently, the Scientific Committee did not approve the assessment results presented by SPC but agreed to continue research on the distribution of skipjack.

In Japan, efforts have been made to elucidate the migration mechanism of skipjacks, gradually revealing their migratory route in the Pacific. In the future, further efforts will be made to clarify in detail the interrelation in skipjack resource between the stock in tropical waters and the coastal region of our country.

(3) International Situation Surrounding Japan's Coastal Fishery

- In Japan, coastal fishing harvests Pacific saury, mackerels, skipjack, Pacific bluefin tuna, and other finfish species. In the management and use of these fishery resources, taking actions with global perspectives will play a key role.
- The most urgent issue facing Pacific bluefin tuna is recovering the stock under international cooperation initiatives. Management of this stock needs to be strengthened on step-by-step basis, in accordance with the international agreement made at the Western and Central Pacific Fisheries Commission (WCPFC).
- In 2018 and beyond, Japan will apply the TAC system to Pacific bluefin tuna, so that the catches can be quickly and correctly grasped and further can be suitably managed.

(4) Japan's Fisheries Being Strongly Tied to International Society

- In recent years, the relationship between Japan's fisheries and international fishery resource management is no longer a mere bilateral relationship in far-seas fishing or in parts of the ocean.
- It is essential for our country to address unified management of fishery resources under an international framework in collaboration with other relevant countries/regions.

Section 3 International Fisheries Management

(1) International Framework for Fisheries Management based on the “UN Convention on the Law of the Sea”

(a) “UN Convention on the Law of the Sea” and “UN Fish Stocks Agreement”

- The “United Nations Convention on the Law of the Sea” which forms the basis of maritime order also provides the basic rules for fisheries. The coastal State exercises its sovereign right for fisheries resources within EEZ, States concerned cooperate to manage highly migratory fish stocks via international organizations, and the flag States are responsible for fishing vessels in the high seas.
- The “UN Fish Stocks Agreement”, which is an agreement to implementing the “UN Convention on the Law of the Sea”, is a basic framework for the management of fisheries in the high seas and internationally-utilized fishery resources. The UN Fish Stocks Agreement articulates that regional fisheries management organizations shall play a central role in international fisheries resource management. In addition, the agreement introduces the concepts of “the precautionary approach” and “the ecosystem approach”.

(b) IUU Fishing Issues and “Port State Measures Agreement”

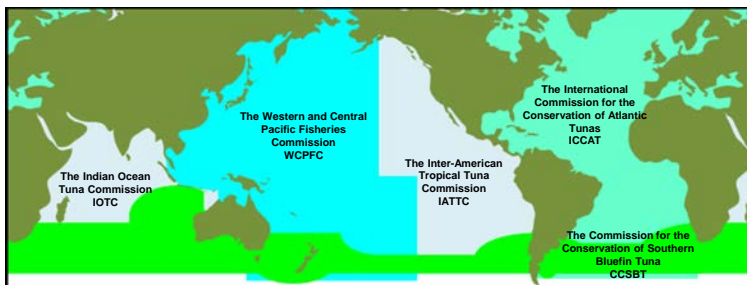
- IUU (illegal, unreported, and unregulated) fishing becomes a serious threat to efforts on international fisheries resource management.
- The regional fisheries management organizations take measures such as making lists of authorized and/or IUU vessels and Catch Documentation Scheme (CDS). Bilateral efforts are made to deter and eliminate IUU fishing.
- “Port State Measures Agreement”, which in principle bans any access of IUU vessels to ports, entered into force as of June 2016. This agreement carries high expectations in promoting measures against IUU fishing. In Japan, the bill was submitted to the Diet in February 2017, so that the agreement can be concluded as early as possible.

(2) International Resource Management by Regional Fisheries Management Organizations

(a) Regional Fisheries Management Organizations Managing Tunas Species

- The global fishery resources of tuna and skipjack are covered by five regional fisheries management organizations. Consequently, certain results including fish stock recovery were recovered in Atlantic bluefin tuna, southern bluefin tuna, etc.
- In recent years, from a long term standpoint, debates are gaining momentum regarding management strategies to ensure sustainable use.
- The Western and Central Pacific Fisheries Commission (WCPFC) continues to discuss introduction of emergency rules on Pacific bluefin tuna if the recruitment decreases drastically, WCPFC agreed to establish, by the end of 2017, the next rebuilding target for the period until 2030.
- Inter-American Tropical Tuna Commission (IATTC) has been taking measures equivalent to the Pacific bluefin tuna management measures by WCPFC. IATTC decided to establish, by 2018, its next rebuilding target for the period until 2030.
- The International Commission for the Conservation of Atlantic Tunas (ICCAT) had been practicing stringent control of tuna species, resulting in recent increase of Atlantic bluefin tuna resources. Therefore, the TAC has been raised incrementally.
- The Indian Ocean Tuna Commission (IOTC) has been introducing the restrictions on catches of yellowfin tuna. IOTC adopted harvest control rules for skipjack in case of a drastic deterioration of the stock.
- The Commission for the Conservation of Southern Bluefin Tuna (CCSBT) gave their assessment that Southern Bluefin Tuna stock is on a recovery trend. An increase of TAC for the period from 2018 to 2020 has been set using the management procedure (MP).

Regional Fisheries Management Organizations Managing Tuna and Skipjack



Column: Management Strategies Aim for a Long-term Resource Management

The management strategy is a framework to undertake fishery resources management and composed of stock assessment techniques, data collecting, and the decision rule to establish fishery management measures while adapting its stock status (harvest control rules). In this strategy, harvested quota is continuously tweaked on the preliminary assumption of natural variation in stocks, allowing for long-term and stable resource management. CCSBT is the first regional tuna/management organization in introducing a management strategy called MP (management procedure). The MP has greatly contributed to facilitating discussions and practicing adaptable management.

Column: Stock Assessment on Pacific Bluefin Tuna

In 2016, the International Scientific Committee for Tuna and Tuna-Like Species in the North Pacific Ocean (ISC)* conducted a stock assessment on Pacific bluefin tuna. Based on the results of the assessment, WCPFC decided to continue the current measures.

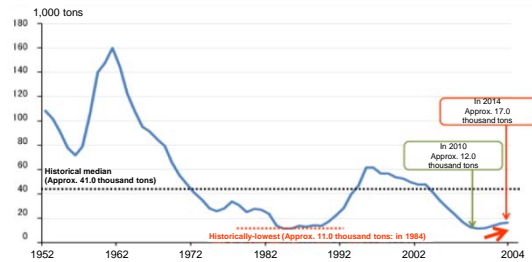
Although the Spawning Stock Biomass in 2014 still remains around the historically-lowest level, the decreasing trend was halted and the Spawning Stock Biomass has been increasing since 2010 (See the figure).

A simulation suggested that catch reduction in small size fish was more effective than that in large size fish.

The survivability of juveniles to contribute recruitment depends upon the environmental factors. No apparent correlation between Spawning Stock Biomass and recruitment was observed. The stock assessment incorporates not only the impacts of fisheries but also the correlation between Spawning Stock Biomass and the recruitment and was carefully conducted in a scientific manner.

* An organization entrusted by WCPFC to conduct the stock assessment of Pacific bluefin tuna

Trends in Spawning Stock Biomass of Pacific Bluefin Tuna

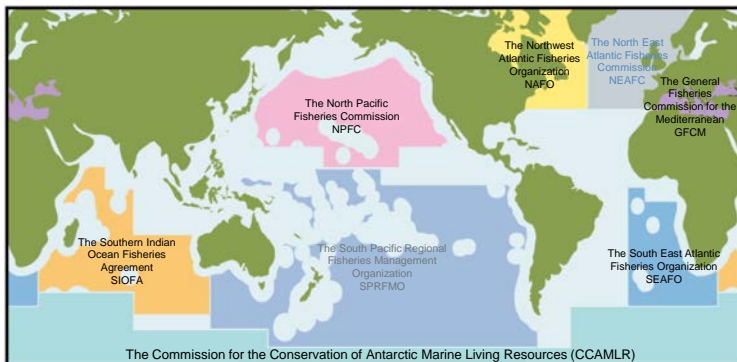


Source: ISC "2016 Pacific Bluefin Tuna Stock Assessment"

(b) Regional Fisheries Management Organizations Managing Resources other than Tunas Species

- New regional fisheries management organizations for fishery resources other than tuna and skipjack were established one after another.
- The North Pacific Fisheries Commission (NPFC) was established in 2015 under the leadership of Japan, whose purpose is to manage fishery species such as Pacific saury, chub mackerel, North Pacific armorhead, etc. in the high sea area adjacent to the Japan's EEZ in the North Pacific.
- The NPFC agreed to refrain from a rapid increase in the number of saury fishing vessels operating in the high seas until the introduction of a new conservation and management measure based on the stock assessment (scheduled to take place in 2017). The NPFC also agreed to complete the stock assessment on chub mackerel as soon as possible, and until then encourages the Members to refrain from an increase in the number of chub mackerel fishing vessels operating in the high seas. NPFC is moving forward for the introduction of full-fledged conservation and management measures.

Major Regional Fisheries Management Organizations Managing Other Resources than Tunas and Skipjacks



Note: Japan is neither currently a member of SPRFMO nor of NEAFC.

(c) IWC Managing Whale Resources

- Japan considers that whales are, like other fisheries resources, important food resources that can be used in a sustainable manner. Japan has been working through the International Whaling Commission (IWC) to resume sustainable commercial whaling. But regrettably, due to the fundamental differences in positions between those countries who support sustainable use of whales and anti-whaling countries, IWC cannot adopt any conservation and management measures for sustainable commercial whaling.
- In order to obtain scientific evidences necessary for the resuming of sustainable commercial whaling, Japan is conducting scientific whale research programs. Japan undertook the second year of the New Scientific Whale Research Program in the Antarctic Ocean (NEWREP-A) during the period from December 2016 to March 2017. In addition, the proposal for the Research Plan for New Scientific Whale Research Program in the western North Pacific (NEWREP-NP) was submitted to IWC's scientific committee, of which objectives are to contribute to optimizing the catch limits of common minke whales around the coastal waters of Japan as well as to calculating catch limits of sei whales offshore the country.
- Bearing in mind that there is fundamental differences in positions regarding whales and whaling among the members of the IWC, in IWC Commission meeting 2016, Japan made a proposal to discuss a way forward of the IWC. Japan will lead future discussions on this subject.

(3) Conservation of Marine Environment and Fisheries

(a) Fisheries as an Environmental Issue and Sustainable Use of Fishery Resources

- Conservation of marine environment and marine ecosystem is a critical in order to sustain fisheries.
- Although, considering its impact on ecosystem, a call for significant restriction on fisheries has become more intense, it is essential to ensure balance between sustainable use of fishery resources and conservation of ecosystem or protection of by-catch species by utilizing the best scientific knowledge, taking social/economic influences into account, and gaining from fishers cooperation.
- In a regional fisheries management organization managing groundfishes, management measures for vulnerable marine ecosystems (VME) (such as cold-water coral reef ecosystem) has been introduced and strengthened. Both of conservation of VME and continuity of fisheries are ensured.
- In long-line fisheries, by-catches of sharks, sea turtles, or sea birds occur. Regional fisheries management organizations managing tuna and skipjack have introduced the measures to reduce bycatch of sea turtles/sea birds. As far as sharks are concerned, full utilization of shark carcasses is mandatory to prevent "shark finning" in which fins are removed from sharks but their bodies are discarded back to the ocean. Although there are some opinion to deny the sustainable use of sharks, Japan has been promoting the conservation/management and full utilization of shark resources based on scientific knowledge.
- International movement towards establishment of marine protected areas (MPA) has been gaining momentum. MPA does not necessarily mean no-take zones and may make great contributions to increase fisheries resources if it is established and operated in an appropriate manner. MPA is important to be effectively operated along with its clear purpose, adequate management measures, and continuous monitoring, all of which is based on scientific knowledge.

Column: Japan's MPA

There are so many waters surrounding the coastal regions of our country that satisfy the definition of MPA as specified in "Marine Biodiversity Conservation Strategy of Japan". In most of MPAs in Japan fisheries resource management and ecosystem management, both of which are led by fishers, have been implemented. The "Basic Plan on Ocean Policies" focuses on the improvement of management measures in MPAs, the appropriate promotion of establishment of MPAs, and the national/international dissemination of Japan's policy of MPA.



(b) CITES and Fisheries

- Toward the Conference of the Parties to the CITES (Convention on International Trade in Endangered Species of Wild Fauna and Flora) in 2016, special focus was placed on Pacific bluefin tuna and Japanese eel. Although no proposals for inclusion of these species on Appendix were submitted, decision was made that eels resource and trade situations should be investigated and discussed. Japan, as a range state and consumer of Japanese eel, is going to be actively taking part in this initiative.
- In the same meeting, proposals for inclusion of shark species on Appendix were adopted by voting, although the FAO expert advisory panel concluded the proposals did not meet the listing criteria.
- For commercially-exploited aquatic species, in principle, appropriate fisheries management should be undertaken by regional fisheries management organizations that possesses expertises and it should be important to balance the conservation and utilization based on scientific knowledge.

(4) Implementation of International Conservation and Management Measures Undertaken by Country/Region

- Conduct of the conservation/management measures established by a regional fisheries management organization is the role of every country/region. Every country/region as the responsibility to ensure not only fishing boats operating within the country's EEZ but also fishing boats of which flag State is the country should comply with the rules.
- There are some practical issues resulted from various circumstances for every country or for every region. Individual countries/regions have to make continued efforts to fulfill their management responsibility as a flag State.
- In Indonesia, there are lots of small-sized coastal fishers engaged in fisheries in so many islands. Therefore, it is very difficult for the country to grasp the whole picture of fisheries, raising not only compliance problems but also scientific aspect problems caused by insufficient data. Fishing statistics and information gathering are being further strengthened and improved. Besides, as measures against illegal fisheries, their monitoring and enforcement scheme have been further enhanced.
- In China, "three-nos" fishing boats engaged in Illegal fishing are becoming of great concern. As seen in precious coral-poaching boats emerged during the period from 2013 to 2014, illegal fishing boats are operating outside the China's EEZ, which becomes concerns for NPFC resource management. Japan requested Chinese government to strengthen the monitoring of and enforcement on such illegal activity.
- In South Korea, illegal operation of far-seas fishing vessels have been international concerns since around 2010. South Korean government has been strengthening their monitoring and enforcement scheme. Since there still exist so many South Korean boats operating in Japan's EEZ that violate the Japan-South Korea fishery agreement, Japan requested the South Korean government to further strengthen countermeasures against such illegal operation.

Section 4 Sustainable Fisheries in the International Society

(1) Resource Management in Pursuit of Sustainable Use

(a) Resource Management based on the Framework of Regional Fisheries Management Organizations

- Although a critical eye may be turned on the current international resource management framework, regional fisheries management organizations are able to take an effective action based on their expert knowledge.
- Each regional fisheries management organization, based on the reflections on the past, has been devoted to enhancing its functions through, for example, improvement based on performance reviews, or cooperation among organizations.
- In the future, it will remain important to surely implement the resource management based on regional fisheries management organizations and to ensure sustainable use of fishery resources. Japan, as a responsible fishing nation, is actively taking part in this initiative.

(b) Importance of Scientific Reasoning

- Although fisheries resource management will entail scientific knowledge, stock assessment cannot avoid uncertainty in it. "United Nations Fish Stocks Agreement (UNFSA)" specifies not only the introduction of conservation management measures based on the best available scientific reasoning but also precautionary approaches.
- In addition to these, improvements in data quality and decreases in uncertainty levels by way of improving analysis techniques will play a key role in stock assessment.

(c) Compatibility between Conservation and Use of Resource

- Conservation and use of resource should be compatible with each other in an appropriate balance.
- Resource management should be based on scientific reasoning and should progress to the next stage by obtaining an understanding of/cooperation with fishers, after full consideration of social and economic aspects including, continuity of fisheries and local communities, supply of food, etc.

(2) Establishing a Robust Implementation System

- Provisions set forth by regional fisheries management organizations are legally binding only to the countries/regions which determined to follow the decision made by the organization (such as a member state of each organization). It is essential to develop a robust system in which all the countries/regions directly related to the fisheries including fishing countries/regions and coastal countries/regions participate in RMFO.
- It is indispensable that a respective countries/regions should fulfill its obligations of the management of fishing boats belonging to the country/region.
- It will be essential to support capacity building of some countries/regions which face challenges in developing the system required for fulfilling their obligations.

(3) Japan, As a Responsible Fishing Nation/Fishery Product Consuming Nation

- Japan is one of the major far-seas fishing countries and one of the major "fishery product" consuming countries around the world at the same time. Bearing in mind a responsible fishing nation/fishery product consuming nation, Japan should take great responsibility in the international management and sustainable use of fishery resources.
- It is necessary for Japan to continue fulfilling the responsibilities to be taken as a fishing flag state. That is why our nation has been devoted to conducting monitoring and regulations using Vessel Monitoring System (VMS), dispatching fishery patrol vessels, or inspecting fish catches during landing.
- Another important challenge for Japan is preventing illegal catches from being distributed. Japan is attempting to strictly operate the Catch Certificate system and to conclude "Agreement on Port State Measures to Prevent, Deter and Eliminate Illegal, Unreported and Unregulated Fishing" as early as possible.
- On consumption side, any consuming country should take the continuity of the resource into consideration. In response to such continuity, the movement towards adoption of Marine Eco-Label Certification System has been increasing. It is also necessary to reduce food (fishery product) loss and utilize captured fishery resources in an effective manner.
- Japan is continuously expected to play an initiative role within the framework of regional fisheries management organizations and to contribute to realization of appropriate resource management and sustainable use of resource.

Chapter II

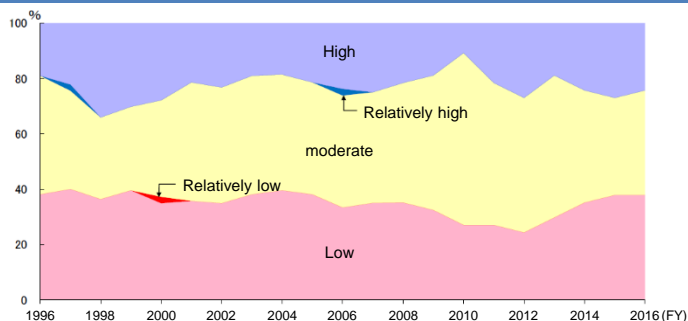
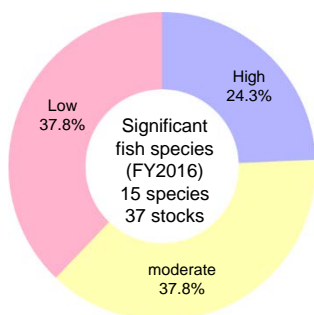
Trends in Japan's Fisheries Since FY2015

Section 1 Trends in Fisheries Resources and the Fishing Ground Environment

(1) Fisheries Resources in the Waters around Japan

- In the management of fisheries resources, it is indispensable to estimate the resource abundance, the levels, and the trends by way of stock assessment, and, based on these results, to take appropriate management measures.
- The results of the FY2016 stock assessment in the waters around Japan (for 84 stocks of 50 species) show that stocks are high in 14 groups, moderate in 29 groups and low in 41 groups.
- As for 37 stocks of 15 species that are significant for the lives of people, stocks are high in 9 groups, moderate in 14 groups and low in 14 groups.

Status and Trends in Resource Levels in Waters around Japan (Major Species)



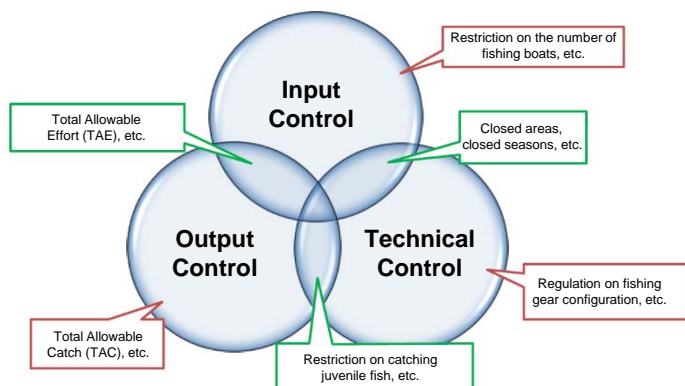
Source: Prepared by the Fisheries Agency based on "Fish Stock Assessment in the Waters around Japan" (Japan Fisheries Research and Education Agency, Fisheries Agency), etc.

(2) Japan's Fisheries Resource Management

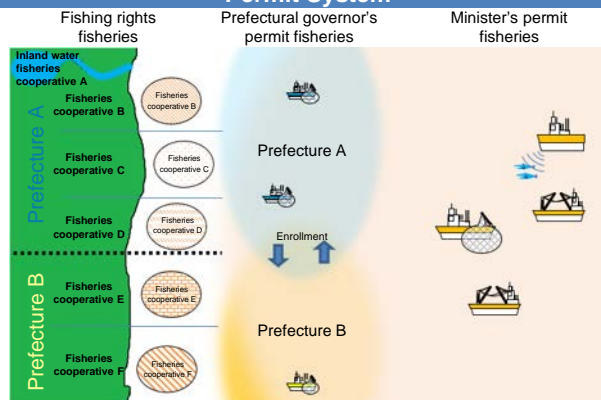
(a) Japan's Fisheries Resource Management System

- Techniques for resource and fisheries management are primarily classified into 1) input control, 2) technical control, and 3) output control. A variety of methods are combined in Japan to properly manage resources, taking into account the characteristics of fisheries, the number of fishermen, status of targeted stocks, etc.
- The resource management in shellfish/seaweed collecting, in set net fishing, and in aquaculture was conducted based on a fishing rights system whereas the resource management in offshore/Distant water fishery based on a fishing permit system.
- The Total Allowable Catch (TAC) system covered 7 fish species.
- In large- and medium-sized purse seine fishing in the Northern Pacific, trial resource management on mackerel was conducted based on the IQ system.

Correlation Between Resource Management Methods



Conceptual Diagram for Fishing Rights and Fishing Permit System



(b) Fishers' Voluntary Resource Management

- In Japan, not only statutory regulations but also fishers' voluntary management, which imposes limits on fishing periods, fish lengths, operating time, or fishing areas, play a key role in fisheries resource management.
- The central and prefectural governments set the Resource Management Guidelines from 2011, based on which the groups of fishers developed and implemented their own resource management plans. The resource management and income stability measure is provided for fishers who are systematically engaged in resource management.

Case Example: Youth Association of Fisheries Cooperative Tackling Fisheries Resource Management

1. Sea Cucumber Resources Proliferation in Which Resource Management, Breeding Grounds Development, and Released seedlings are All Streamlined

Kawauchi-Machi Fisheries Cooperative (Aomori Prefecture) restricted the body length of sea cucumbers harvested and further, constructed breeding grounds for sea cucumbers using scallop shells. The Youth Association of the fisheries cooperative was devoted to developing a special tiller that maintains and recovers the function of the breeding grounds as well as tackling artificial seedling collection tests in collaboration with a research institute.



A Tiller Now Tilling Scallops
(Photo courtesy: Youth Association of Kawauchi-Machi Fisheries Cooperative)

2. Efforts towards Recovery of Short-Necked Clam Stocks

In Buzen Sea, toward which Yukuhashi fishery cooperative (Yukuhashi city, Fukuoka Prefecture) is facing, short-necked clam catches decreased in the past. Youth and Middle Aged Association of the Fisheries Cooperative made continued efforts to grow short-necked clam stocks by utilizing a research institution-developed system named "KAGUYA" that was designed to grow juvenile stocks of short-necked clam. In 2016, they successfully shipped short-necked clams for the first time in 20 years.

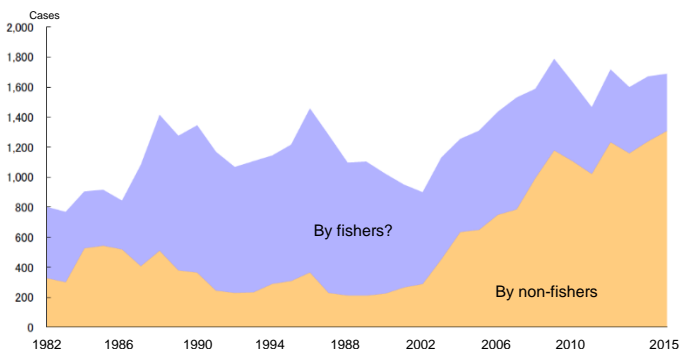


"KAGUYA" Dropping Down (Left) and Cultured Clam Juveniles (Right)
(Photo courtesy: Fukuoka Prefecture)

(3) Approaches to Practical, Effective Resource Management

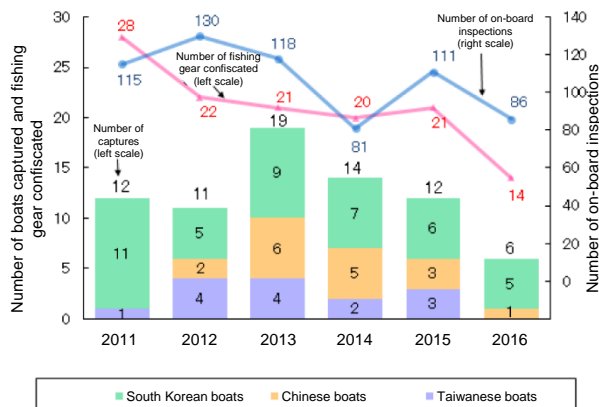
- The number of arrests for violation of fisheries laws and regulations stood at 1,856 in 2015 (1,703 in coastal waters and 153 in inland waters). The number of poaching conducted by non-fishers has increased. In particular, malicious and skillful poaching of reef resources, which is systematically conducted by antisocial forces, has become another serious problem.
- Authorized fisheries supervisors are engaged in regulatory activities in cooperation with the coast guard and police officers while fishers belonging to fisheries cooperatives patrol fishing grounds and report illegal fishing. Japan has been taking measures to prevent poached catches from being distributed.
- In 2016, the Fisheries Agency conducted 86 on-board inspections and captured 6 foreign fishing boats; and the number of confiscations of illegal fishing gear totaled 14. In order to eradicate illegal operation by foreign fishing boats, Japan implemented regulations in an effective and efficient manner by deploying vessels for inspection in specific water regions/season.

Trends in the Number of Poaching Events in Japan's Marine Regions



Source: Prepared by the Fisheries Agency

Trends in the Number of Foreign Fishing Boats Captured or Inspected



Source: Prepared by the Fisheries Agency

(4) Measures to Actively Enhance Fisheries Resources

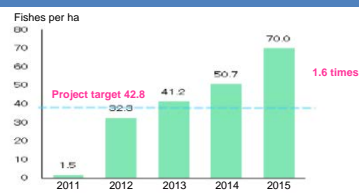
- Not only resource management but also release seedlings will pay a critical role in long-term stabilization and increase of catches.
- In the 7th Farming Fisheries Guidelines, the government further promoted “resource-creating farming fisheries” where a part of adult fish are conserved for the next generation reproduction.
- The Frontier Fishing Ground Enhancement and Development Project has been underway to enhance offshore fisheries resources by constructing protective and nursery reefs and mound reefs (breeding grounds). These activities have been working well in conservation and proliferation of fisheries resources.
- Inland water fisheries cooperatives, meanwhile, are working on programs to release sweetfish/eel seedlings and set up spawning beds.

Case Example: Achievements in “The Frontier Fishing Ground Enhancement and Development Project”

The “Frontier Fishing Ground Enhancement and Development Project” is a government-led project for enhancing and developing fishing grounds that have been set in place since FY2007, with aims of the conservation and productivity enhancement of fisheries resources in the EEZ.

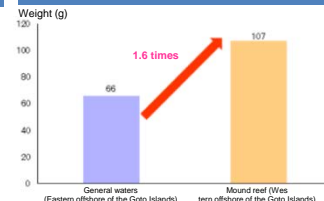
In the area of Western Japan Sea, thanks to the installation of the protective and nursery reefs, the difference in the population density of snow crab compared to common waters was 1.6 times the target value. Meanwhile, in the area of West Offshore Sea of Goto Islands (off-shore Nagasaki Prefecture), thanks to the installation of the mound reefs, the body weight of one-year-old jack mackerel increased by 1.6 times compared to that in other common waters.

Difference in the Population Density of Snow Crab between the Protective and nursery reefs of Western Japan Sea and the Common Waters



Source: Prepared by the Fisheries Agency

Body Weight of 1 year-old Jack Mackerel in the Mound Reef Constructed in West Offshore Sea of Goto Islands



Source: Prepared by the Fisheries Agency

(5) Trends in Fishing Ground Environment

- Ensuring increases in fishery resources and sustainable use of the resources will require not only efforts such as resource management, released seedlings, etc. but also the conservation and recovery of sound fishing ground environment.
- Raising the level of productivity in the entire ecosystem will require the conservation of seaweed beds and tidal flats and the recovery of their functions. In light of the “Seaweed Bed and Tidal Flat Vision”, broad-based conservation measures have been promoted by combining the local government’s development of seaweed beds/tidal flats with the fishers and residents’ conservation of seaweed beds/tidal flats.
- In fish farms, a fishery cooperative, etc. formulates a “fishing grounds area improvement plan”. Improvement of fish farm environment has been promoted in support of “Resource Management and Income Stability Measure”.
- As far as inland water fisheries are concerned, in accordance with the “Guidelines on Promotion of Inland Water Fisheries”, the relevant ministries and agencies, local governments, and fisheries cooperatives have been cooperative with one another to make their efforts to tackle restoration of fisheries resources and recovery of the fishing ground environment.
- An environmental change resulting from climate changes should be monitored. Adaptation to environmental changes have been promoted by, for example, understanding the resource abundance under environmental changes, improving the accuracy in fishing ground prediction, or developing aquaculture species resistant to high temperature.
- Ocean pollution problems due to plastic debris have attracted the public attention. Plastic debris may enter into fishery catches and have impact on the environment, ecosystem, fisheries. The Japanese government has been supporting collecting ocean debris that may drift ashore and the measures to prevent generation of such debris and devoted to the development and dissemination of recycling technology for fishery wastes.

Case Example: Seaweed Beds/Tidal Flat Conservation in Cooperation between Fishers and Divers

In recent years, Jogashima island (Miura city, Kanagawa prefecture), was facing the decline of seaweed beds that may be caused by fish species (rabbit fish) or sea urchin (*Diadema setosum*).

In January 2014, Jogashima Fishery Cooperative and fishers belonging to the cooperative, and local “Jogashima Diving Center” jointly established “Jogashima Seaweed Bed Conservation

Activity Organization” to start efforts to conserve seaweed beds. Reduced damages to seaweed beds by recovered the abundance of Arame seaweed and kazime seaweed



Column: Hoping for the Conservation of Japanese Eel Habitats

Decreases in the population of Japanese eel may be affected by not only fisheries, but also a change in their habitat environment. It is essential to conserve the environment that is habitable for eels, which should have habitat continuity in rivers and estuaries, various hiding places, and an ecosystem that feed organisms can grow.

In March 2017, Ministry of Environment released “Concept for Conservation of Japanese Eel Habitats”. This is expected to serve as a reference for efforts by the parties involved.



Ishikura Breeding Reef (left-side) and Inhabitant Eel (upper right-side)

(6) Effects and measures of Wildlife on Fisheries

- In recent years, reports have come out about fishery damages caused by wildlife, such as Steller's sea lion, *Ascidia* *aspersa*, large-size jellyfish, etc. Especially in the region around Hokkaido, damages to fishing gears and feeding damage of catches have frequently occurred, possibly by Steller's sea lions. For a wildlife that distributes/migrates across the prefectural borders, only if wide-area measures are expected to be effective for damage prevention/alleviation, the government will support investigations on haunting status and provision of the related information, development of technologies to alleviate damages, eradication activities, etc.
- Inland fisheries have been facing the problems of resource damages due to feeding by great cormorant, largemouth bass, etc. , thereby promoting their control measures.

Column: Eat and Eradicate a Harmful Aquatic Life!

Current trends seem to be shifting towards not only exterminating harmful organisms, but also effectively utilizing them as food.

Marineactive, a general incorporated association based in Nagasaki, successfully developed a unique technology which makes rabbit fish suitable for food. The rabbit fish is considered to be one of the causes of Isoyake (withered seashore) and had not been actively used for food.

If edible demand for this species increases, this is expected to promote capturing and exterminating, to alleviate the damages to seashore, and to improve fisheries business management.



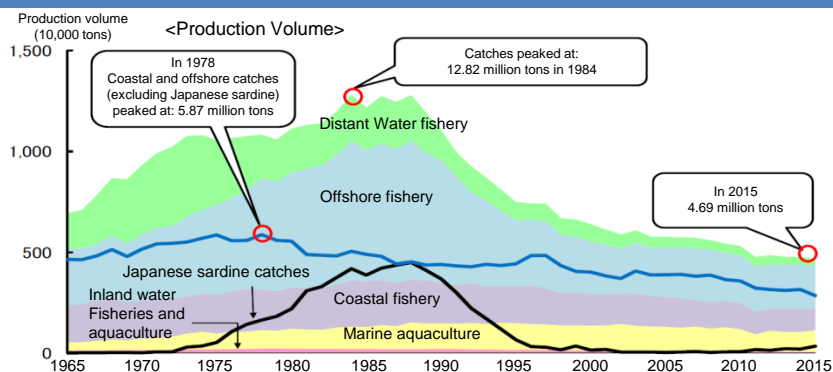
Rabbit fish Turns into Sushi
(Photo courtesy: ((general incorporated association) Marineactive))

Section 2 Trends in Japan's Fisheries

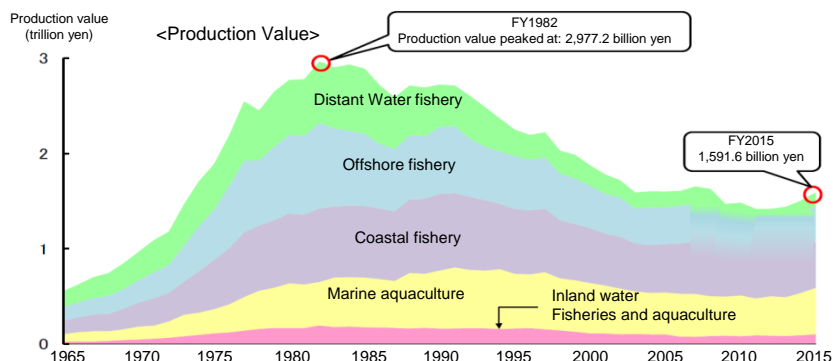
(1) Trends in Fisheries and Aquaculture

- The volume of domestic fisheries and aquaculture production was 4.69 million tons in 2015, which is lower by 80,000 tons than in the previous year. Marine fisheries production decreased by 170,000 tons to 3.55 million tons. Scallop and saury decreased while Japanese sardine and mackerel increased. Marine aquaculture increased by 80,000 tons to 1.07 million tons. Scallop and seaweed increased. Inland fisheries and aquaculture production increased by 5,000 tons to 69,000 tons.
- The value of domestic fisheries and aquaculture production increased by 87.6 billion yen to 1,591.6 billion yen. Marine fisheries increased by 34.3 billion yen to 1,001.1 billion yen. Marine aquaculture increased by 42.6 billion yen to 486.9 billion yen. Inland water fisheries and aquaculture also increased by 10.7 billion yen to 103.6 billion yen.

Trends in Production Volume and Value of Japan's Fisheries and Aquaculture



		FY2015 (2015)
Production amount	Total:	4,688
	Marine	4,619
	Fisheries	3,550
	Distant Water fishery	358
	Offshore fishery	2,110
	Coastal fishery	1,081
	Aquaculture	1,069
	Inland water	69
	Fisheries	33
	Aquaculture	36



		FY2015 (2015)
Production amount	Total:	15,916
	Marine	14,880
	Fisheries	10,011
	Distant Water fishery	...
	Offshore fishery	...
	Coastal fishery	...
	Aquaculture	4,869
	Inland water	1,036
	Fisheries	184
	Aquaculture	853

Source: The Fisheries and Aquaculture Production Statistics (The Ministry of Agriculture, Forestry and Fisheries)

Note 1: The figures of far-seas fishing, offshore fishing and coastal fishing shown above (2007-2010) are all estimates.

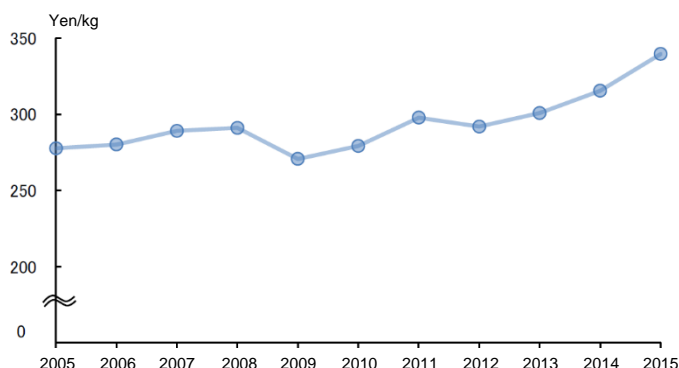
Note 2: Coastal fisheries production by segment in terms of value has not been available since 2007.

(2) Trends in Fishery Management

(a) Trends in the Local Prices of Fish and Fishery Products

- The price of fishery products will vary depending on the multiple factors including the condition of each species fishery, the status of overseas fishery production, domestic and overseas demand for the species.
- In recent years, the average local prices in fisheries and aquaculture are nearly on the upward trend. The price increased by 24 yen/kg to 339 yen/kg in 2015.

Average Local Prices in Fisheries and Aquaculture



Source: Prepared by the Ministry of Agriculture, Forestry and Fisheries based on the Fisheries and Aquaculture Production Statistics.

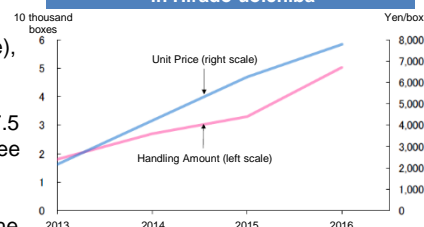
Note 1: Estimated, with the fisheries/aquaculture production value divided by its production volume.

Column: “Ago Dashi” Led to the Spike in Flying Fish’s Price

Owing to the “Ago-Dashi” boom, in Hirado-uoichiba (Nagasaki Prefecture), in August 2016, the price of flying fish increased to nearly 7.5 times the price of three years ago.

A change in demand significantly affects the price. Efforts towards realization of the fixed consumption of this fish are important.

Trends in the Handling Amount and the Average Unit Price of Flying Fish in Hirado-uoichiba



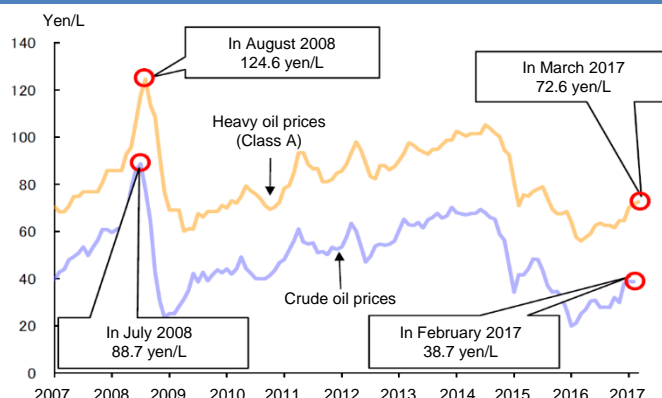
Source: Prepared by the Fisheries Agency, based on the interview made to Hirado-uoichiba co., Ltd.

Note 1) The value for FY2016 covers from April to December of the year.
2) A single box weighs around 12kg.

(b) Trends in Boat Fishery/Aquaculture Management

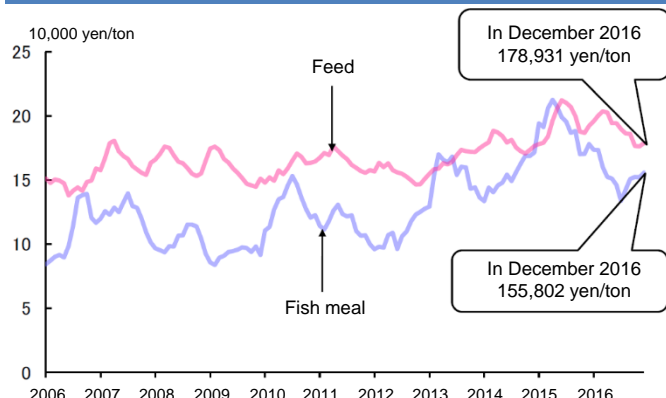
- The average fishing income of coastal fishing households increased about 620,000 yen to 2.61 million yen in 2015, as compared to the previous year, or 2.82 million yen including non-fishing income.
- Businesses engaged in boat fisheries reported that, in FY2015, the deficits in fishing income contracted compared to the previous year. Non-fishing profits (from fish processing, etc.) have been on the rise and the operating profit was 10.42 million yen, which is a surplus for the first time in 8 years.
- Fuel oil prices have fluctuated significantly over the past decade. While since the middle of 2014, the prices have declined sharply and remained low level.
- The fishing income of coastal aquaculture households in 2015, increased by 2.81 million yen to 8.22 million yen as compared to the previous year.
- Imported fish meal prices in April 2015, increased to nearly three times the average price in 2005, which may be due to growing consumption by aquaculture (primarily in China) and due to a decrease in fish meal production caused by declining anchovy resources in Peru. The price has slightly leveled off from May of the year.

Trends in Fuel Oil Prices



Source: Prepared by the Fisheries Agency

Trends in Feed Prices and Imported Fish Meal Prices



Source: Trade Statistics (The Ministry of Finance), Prepared by Japan Fish Feed Association and by Fisheries Agency

(c) “Seashore Revitalization Plan” to Boost Incomes

- The “Seashore Revitalization Plan” aims to boost fishing incomes by at least 10% in five years with voluntary efforts to come up with measures and implement them. 635 cases entered into an implementation stage by the end of March 2017.
- In FY2015, the “Wide-Area Seashore Revitalization Plan” has also started, in which efforts are made for enhancing wide range competitiveness. As of the end of March 2017, 113 cases were established and carried out.

Case Example: “Seashore Revitalization Plan” Suits for Each Region Circumstances

1. Aiming at Expanding Sales Channels With Market-in concept,

In the Seashore Revitalization Plan of Odawara district (Kanagawa prefecture), processed foods that meet consumer's needs have been developed and their branding is also underway.



2. Tackling Branding Challenges with Unique Farming Techniques

In the Seashore Revitalization Plan of Noda district (Iwate prefecture), branding of scallops grown with their unique culture techniques has been successful. They hold several events where their sales promotion activities are carried out.



3. “Fishery-Tourism Cooperation” Efforts Being Underway

In the Seashore Revitalization Plan of Toba district (Mie Prefecture), “fishery-tourism cooperation” efforts have been made so that both the fisheries industry such as ama (women diving) fishery, and the tourism industry can be developed.

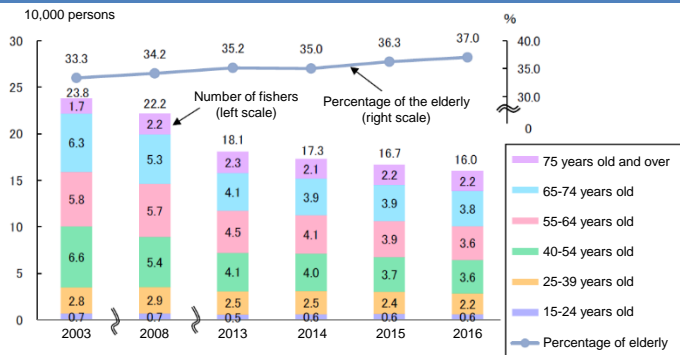


(3) Trends in Number of Fishers

(a) Trends in Fishers and efforts to secure new entrants into fisheries

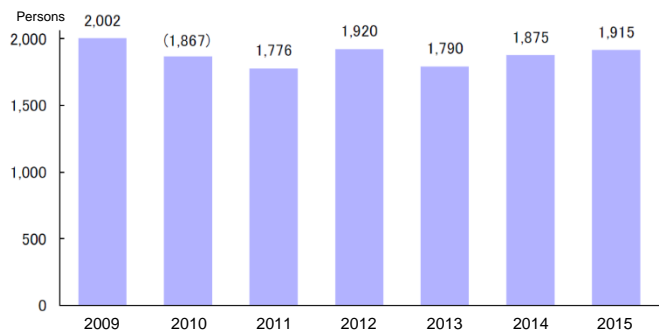
- The number of fishers follows downward trends and totaled 160,020 in 2016. The percentage of aging fishers gradually increased and reached 37%.
- To encourage entry into fisheries, the government supports offering employment consultation seminars and long-term OJT training. Giving supports appropriate for each stage will promote entry and settlement into fisheries.
- The number of new entrants into fisheries stood at 1,915 in 2015, about 70% of which are younger than 40 years old.

Trends in Number of Fishers



Source: “The Census of Fisheries” and “Report on the Trends in Fishery Employees” (conducted by the Ministry of Agriculture, Forestry and Fisheries)

Trends in Number of New Entrants into Fisheries



Source: Estimates based on prefectural governments' surveys on new entrants
Note: The data for 2010 are the estimates obtained based on the trends in other prefectures than Iwate, Miyagi and Fukushima.

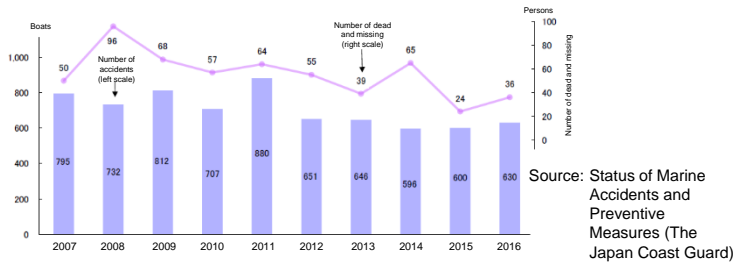
(b) Fostering, In Fisheries, Those Who Will hold The Seamen's Competency Certificate

- In order to secure the safety of operating fishing vessels, required types of certificates and required number of persons are specified according to the tonnage of the fishing vessel. Aging and short of those who hold the seamen's competency certificate have become a problem. If it is impossible to board anyone who holds seamen's competency certificate, departure from ports may be denied.
- In fishery related organizations, employment consultation services are held where new entrants are recruited as well as efforts are made to offer planned training programs.

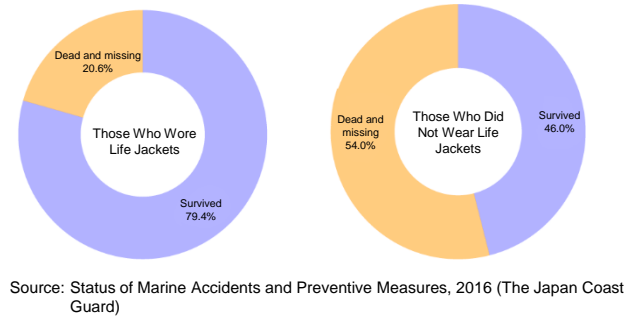
(4) Provision of a Safe and Healthy Working Environment for Fisheries

- In 2016, the number of accidents was 630 and the number of dead and missing reported in those accidents was 36.
- 72 fishers fell overboard in 2016 (excluding those related to marine accidents), of which 48 persons were dead or missing.
- As life jackets are vital to saving the lives of those who have fallen overboard. The government expanded the scope of obligations to wear life jackets for small water crafts. In 2018 and ahead, all persons on board outside the cabin shall have to wear life jackets.
- It is also an important challenge to improve living environment in the ship, such as improvement of Internet settings.

Trends in the Number of Fishing Vessel Accidents and the Number of Dead and Missing Associated with the Accidents



Survival Rates of Those Who Have Fallen Overboard with and without Life Jackets



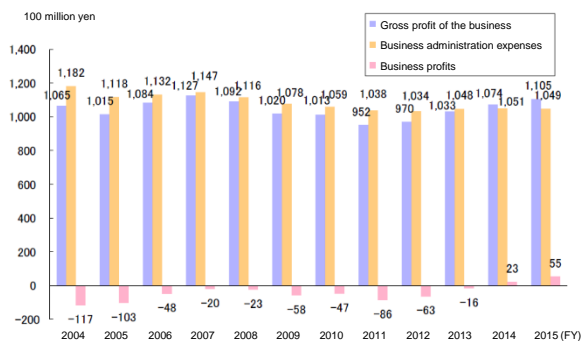
(5) Development of New Technologies and Introduction into Actual Fisheries in Fisheries and Aquaculture

- Developing varieties of technologies for effective fisheries through energy and cost savings and alleviation of physical/mental burdens in fisheries have been promoted, which include: fish finding using drones, visualization of fishing ground environment using ICT.
- In aquaculture, the development of seaweed species resistant to high temperature as well as the development of technologies to mass-produce the artificial seedlings of Japan eels or Pacific bluefin tunas have been promoted.

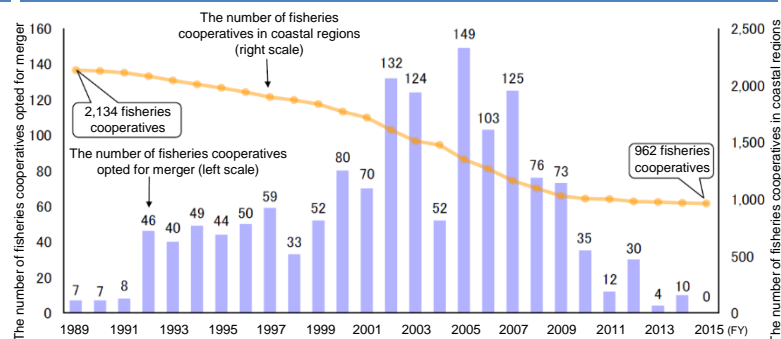
(6) Trends in Fisheries Cooperatives

- Fisheries cooperatives are an organization that plays a core role in improving fishery management, appropriately using and managing fishery resources, and supporting regional economies and social activities in a fishing community.
- About 70% of the fisheries cooperatives reported losses in FY2015. The total sales of all fisheries cooperatives in coastal regions increased and turned to surplus due to recovery in fish prices. The amount of accumulated loss has decreased due to efforts to cancellation.
- Fisheries cooperatives should promote mergers between them. The number of fisheries cooperatives as of the end of March, 2016 is 962.

Trends in the Business Conditions for Fisheries Cooperatives in Coastal Regions



Trends in the Number of Fisheries Cooperatives in Coastal Regions and the Number of Fisheries Cooperatives Opted for Mergers

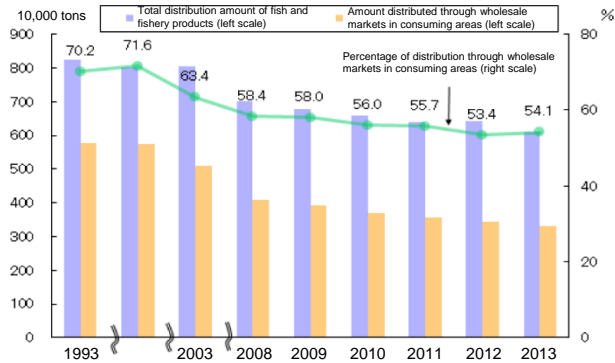


(7) Trends in the Distribution and Processing of Fish and Fishery Products

(a) Trends in the Distribution of Fish and Fishery Products

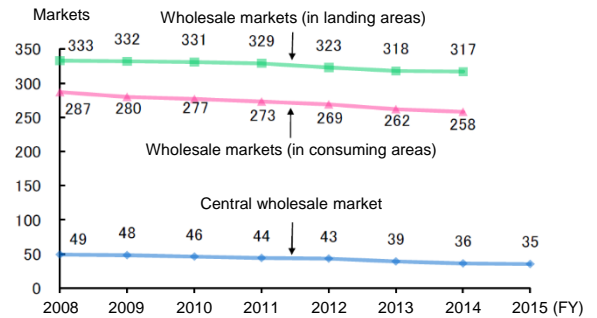
- In 2013, the percentage of the amount of fish and fishery products distributed through wholesale markets in consuming areas decreased to 54% of the total.
- The government is promoting the restructuring of wholesale markets. The number of wholesale markets in landing areas and that of wholesale markets in consuming areas both decreased.
- Wholesale markets will play a critical role in effectively distributing fish and fishery products. On the other hand, the wholesale markets still have challenges, such as maintaining and strengthening market functions and responding to the needs of consumptive interest.

Volume Distributed Through Wholesale Markets in Consuming Areas and Its Percentage in Total



Source: Wholesale Market Database (The Ministry of Agriculture, Forestry and Fisheries)

Trends in the Number of Wholesale Fishery Markets



Source: Wholesale Market Database (The Ministry of Agriculture, Forestry and Fisheries)

Note: Data for central wholesale markets are the data at the end of every year but data for local wholesale markets are the data at the beginning of each year (up to 2011) and at the end of each year (2012 or later).

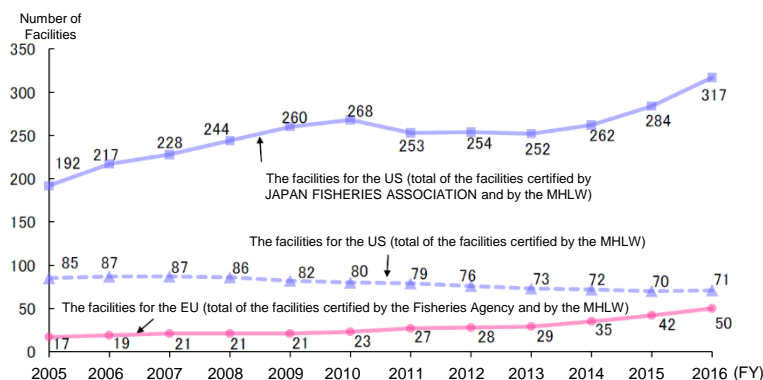
(b) Trends in the Fishery Processing Industry

- The production volume of processed edible fishery products decreased by 20,000 tons to 1.68 million tons in 2015.
- Almost every fish processing companies are small- and medium-sized businesses with employees of 300 or less. In particular, the number of fish processing companies, especially, of small-sized fish processing companies are decreasing.
- Important challenges in fishery processing industry are to secure processing ingredients and skilled employees.

(c) HACCP

- Fishery processing facilities need to introduce the HACCP (Hazard Analysis Critical Control Point) principles which is introduced in the US and the EU when exporting fishery products to the US, the EU, etc.
- The government supports the holding of seminars about prerequisite programs and HACCP principles and renovation of fishery processing facilities for acquiring the HACCP authorization.
- In order to promote HACCP authorization for export to the EU, the Fisheries Agency became an authorization body in addition to the Ministry of Health, Labor and Welfare, and started authorization activities in October 2014. The number of authorized facilities in the fish processing industry is 50 for the EU and 317 for the US as of the end of March 2017.

Trends in the Number of HACCP Authorized Facilities in Fishery Processing Industry



Source: Prepared by the Fisheries Agency