

THE SCARLET KING



Sea bream

A prime fish symbolizing several problems of Japanese coastal fishery



Gochi-ami (Sea bream) fishing at Aoh-ura in Nagasaki Prefecture



Among all the fishes of the sea the Japanese people set the highest value upon sea breams. Especially red sea bream (Pagrus major) is treated as "the king of fishes" in the adjacent seas of Japan, and it has been a custom from old times to use it as an offering in a ceremony, or a gift for happy occasions. Also in today's home life, red sea bream is one of the "special dishes" which always appears on a fest table. Why do only the Japanese people place such high value on sea breams which are given but scant attention in other countries?

It is rather customary for a specific race to have a special esteem for one specific creature. That means the specific creature has some special significance related to the living conditions of that race or is regarded as "a totem" of that race for incantational and religious reasons.

The Japanese people find dignity and elegance in the appearance of red sea bream and beauty in the bright red color. If the fact that the ethics of the Japanese people in general are highly aesthetical is also taken into consideration, the question becomes even more interesting. Red sea bream which is expensive and found in almost all coastal waters around Japan, poses an important problem in various fields, such as resources, fishing, distribution and consumption.

El pargo es uno de los peces más apetecidos por la gente del Japón. Especialmente el Pargo Rojo (Pagrus major), el cual en el área adyacente al mar del Japón es llamado "el rey de los peces". Una de las costumbres tradicionales en tiempos pasados era el uso del pargo rojo como ofrecimiento en festivales o como regalo en caso de una celebración. En la vida cotidiana actual, el pargo rojo sigue siendo usado en celebraciones y siempre se encuentra en las mesas de una fiesta.

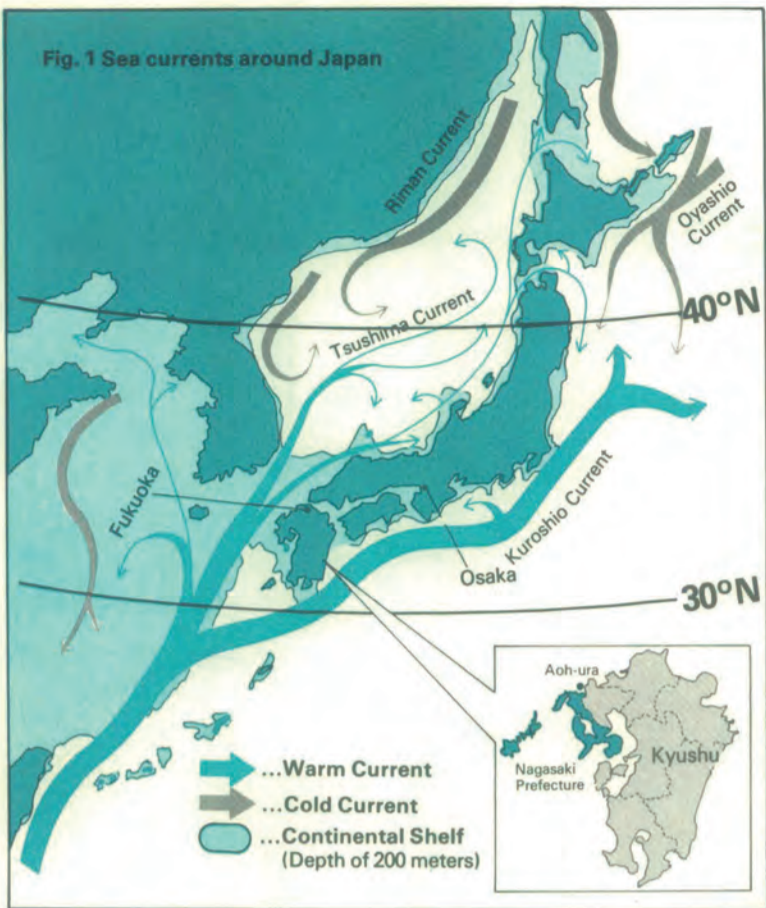
Cuál es la razón por la cual los japoneses le dan tanta importancia al pargo, mientras que en otros países las gentes no le dan mayor importancia?

Le peuple japonais estime hautement les pagres parmi la variété de poissons. La brème de mer rouge (Pagrus Major), en particulier, est traitée comme le "roi des poissons" dans la mer baignant le Japon, et autrefois il était coutume d'utiliser la brème de mer rouge comme offrande pour célébrer une fête ou donner en cadeau à l'occasion d'un événement important. Aussi, de nos jours, la brème de mer rouge est le plat de "célébration" d'un événement et apparaît toujours sur la table de festivité.

Pourquoi le peuple japonais estime-t-il hautement les pagres tandis qu'on n'y prête que peu d'attention dans les pays étrangers?

Coastal prime

Relation



More than 200 species of fish having a name ending in "Tai" (sea bream) inhabit the seas around Japan, but, strictly speaking, only several species such as red sea bream, crimson sea bream, yellow sea bream and black sea bream belong to the family Sparidae. The sea breams which are important as aquatic products are the above-mentioned four species, and catches of these sea breams in recent years are as follows (statistics of 1983):

Red Sea bream (*Pagrus major*) 14,699 tons
 Crimson sea bream (*Evynnis japonica*) 1,256 tons
 Yellow sea bream (*Dentex tumifrons*) 7,454 tons
 Black sea bream (*Acanthopagrus schlegelii*) 3,905 tons

Among these porgies, yellow sea bream, are caught by trawling mainly in fishing grounds located offshore or on the distant continental shelf. On the other hand, red sea bream, crimson sea bream and black sea bream are mostly caught, by various fishing methods, in the present condition and directions of future development of fishery is the most important bream fishery.



In Aoh-ura of Nagasaki Prefecture where we collected data on Gochi-ami fishing, the price per kilogram of red sea bream at the beach during May was as follows:

- (a). Natural live sea bream of more than 500g in body weight:
 average price=1,764 yen (high price 2,500 yen-low price, 1,300 yen).
- (b). Natural fresh sea bream of more than 500g in body weight:
 average price=1,254 yen (high price, 2,000 yen-low price, 1,000 yen).

These prices correspond to the producer's price ① shown in Fig. 6. In the process of distribution, distribution costs and sales margins are generally added to the fish price. According to the news report on market conditions, we can estimate that the "standard retail price" (⑤ in Fig. 6) of natural fresh sea bream in Osaka, a large consuming city, was about 1.6-1.7 times the producer's price for the same period.

Let us now consider how fresh fishes are sold and what factors affect the price formation in the process of distribution of marine products in Japan.

In Japan, it is a basic pattern that marine products are distributed through two markets, the market in the producing area and the wholesale market in the consuming area, where the circulating function is carried out and at the same time the appropriate price is formed by auction.

This market system has been developed in order (1) to distribute fishes in fresh form basically, (2) to gather many kinds of small quantity catches from the various coastal areas, and (3) to make it possible to purchase those diversified catches in small quantities in the consuming area. In this respect, we can say that a practical and efficient market system has been completed.

[In recent years, in Japan a new special type of transaction has begun to spread for natural live fish and shellfish, certain species of cultured practical fishes (prawn, Japanese eel, etc.) and frozen fishes, complicating the argument on the problems of marine products distribution. Here, however, we shall continue our explanation according to the above-mentioned basic pattern].

As regards this market system which moves fish from the market in the producing area to the wholesale market in the consuming area, an important point to note is that the standard prices of marine products are not fixed in the market in the producing area but in the market in consuming area. By auction at both markets, the market price is basically determined based on the daily demand-supply relation independent of production cost, and the standard price with nationwide dominating power is determined mainly by the wholesalers in the consuming area who can collect a wide variety of information and can meet the vast demand in the central wholesale markets of large cities where a large amount of diverse fishes are gathered. On the contrary, the wholesaler in the producing area decides his bidding price by judging circumstantially "what will be the price of this in the consuming area".

Generally, the prices of marine products fluctuate seasonally with the balance of "demand-supply" depending on the degree of fishing activity. A typical case of this fluctuation in prices is seen in mass-catch fishes such as sardine, saury pike and mackerel; however, fishes ranked as "prime fish" show rather different patterns of fluctuation in prices.

(1). Although drastic fluctuations caused by seasonal differences in the size of catches

Why is it a "Prime Fish"?

In Japan, fishes are classified into "prime fish", "medium-grade fish" and "popular fish" according to the price, and examples of fishes of these three classes and their present rankings are as shown in Fig. 2. Red sea bream has been considered as a representative prime fish from old times,

and it has deeply established itself in the lives of the Japanese people, as suggested by the proverb that says "Sea bream is still a sea bream whether it is rotten" (meaning essentially that a good thing still has value even when it is spoiled).

What is the criterion for a "prime fish"? It cannot be explained simply by the meat quality, flavor of the fish, or the tastes of the Japanese people, however, there is an undeniable fact that the Japanese people have a custom of enjoying marine products raw as in the case of "Sashimi (sliced raw fish)" and "Sushi (vinegared fish and rice)". Besides, in traditional cooking, it is important to prepare dishes by making the most of the original taste of the material even when it is boiled or broiled. That is, as a main criterion in judging the value of perishable foods, the degree of freshness has been considered important. Of course, the difference in taste, like the degree of fatness is also an important criterion for measuring the food value, but in the fish market of Japan, the degree of freshness of fish is considered to be the major factor in determining the price.

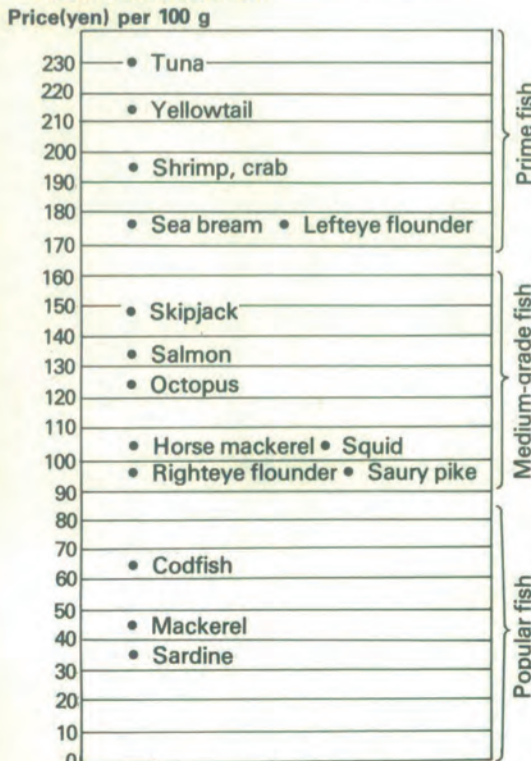
An experiment (by Mr. Hitoshi Uchiyama) showed that, when live fish is stored in ice after being killed by a special method called "Iki-shime", the time the freshness suitable for Sashimi in a fashionable restaurant can be maintained is 12 days for red sea bream and flounder, 6 days for yellowtail, 2-3 days for skipjack and 0.5 day for codfish.

"Iki-shime" is a special method to keep freshness, i.e. live fish is instantaneously killed by destroying the medulla oblongata, after which the duration of death rigor of the fish meat is extended.

In the case of red sea bream, the commodity value in the market is clearly distinguished between live fish (and its equivalent sea bream killed by the method of "Iki-shime") and ordinary fresh sea bream. Furthermore, in the case of all fresh fishes, the price is strictly set according to their appearance and the degree of damage (due to fishing method). On the other hand, due to the fact that in recent years it has become possible to transport highly fresh foods to consumers by the development of freezing and cold storage techniques, and the commodity value of some fish has increased with the decrease in catch, so the value of some fishes such as horse mackerel, squid and saury pike has transferred from "popular fish" to "medium-grade fish" or from "medium-grade fish" to "prime fish".

The above-mentioned price system for marine products has been formed based on the longtime dietary habits of the Japanese people. Therefore, a distribution system that is quite different from that of the advanced nations of northern Europe, which have unique processing methods for mass-catch fishes such as sardine and herring, has been developed in the Japanese fishing industry.

Fig. 2 Average purchase price of total households.

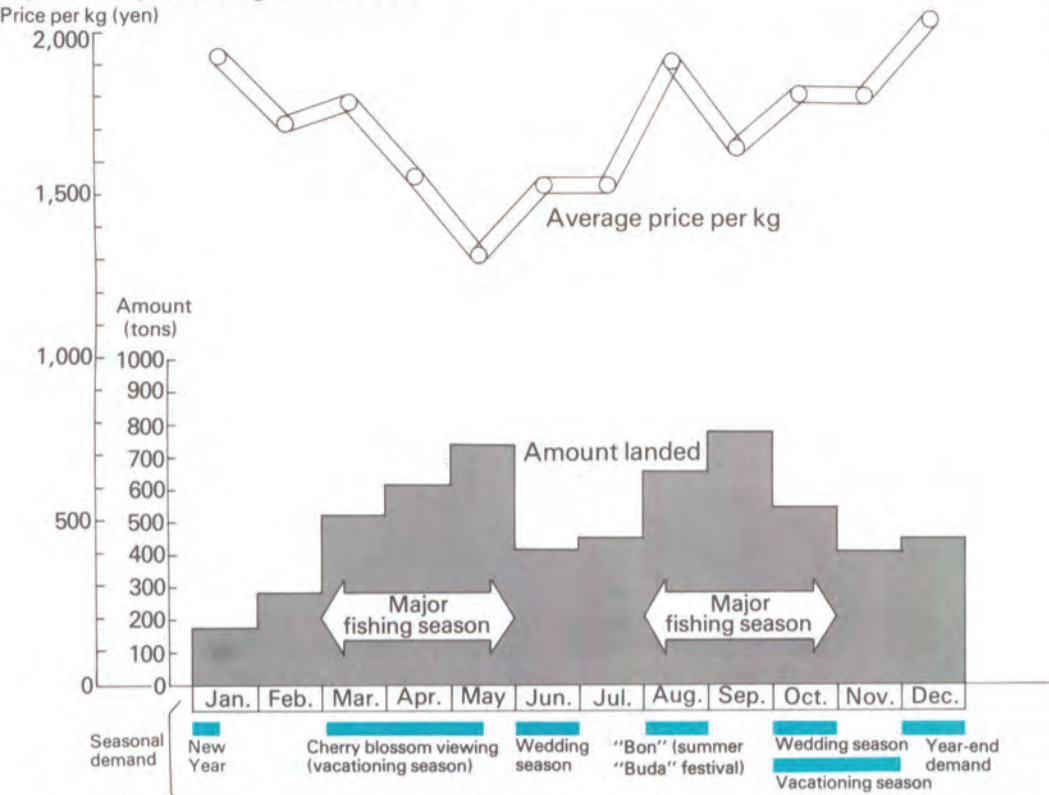


Source: Annual Report on Household Income and Expenditure Survey (1977)

Fish at a Turning Point

to Urban Economy

Fig. 3 Amount and price of fresh red sea bream landed in main fishing ports of producing areas (1977)



(From "Annual Statistical Report of Marine Products Distribution" by the Ministry of Agriculture, Forestry and Fishery)

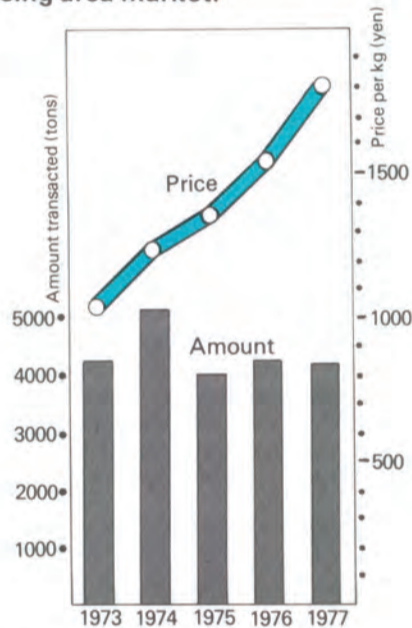
landed occur, the prices of prime fresh fishes show "high price stabilization" in the sellers' market.

From around 1960 on, the income of the Japanese people rose along with the growth of the economy, resulting in rapid improvement in the dietary life. As regards the demand for marine products too, the purchase of luxury "prime fishes" increased. Moreover, as the increase of income prevailed from large cities to local towns and farm villages, the prices of some fishes settled at higher level. This is clearly seen in the movements of the quantity and unit price of tuna, yellowtail, sea bream and shrimp purchased by the ordinary household (from Family Income and Expenditure Survey).

(2). Especially, red sea bream, as mentioned above, has a special commodity value as a "festive fish", and its demand increases sharply around the festival days of the New Year and "Bon", and during the "wedding season" and "vacation season" in spring and autumn. Therefore, the market price of fresh red sea bream in the producing area shows seasonal fluctuation, showing a peak high price at the specific demand seasons. (In the markets of consuming areas, since a large quantity of cultured red sea bream and imported frozen fish are concentratively brought in during the high price season, fluctuation in prices is rather slight throughout the year as compared with that in the markets of producing areas.)

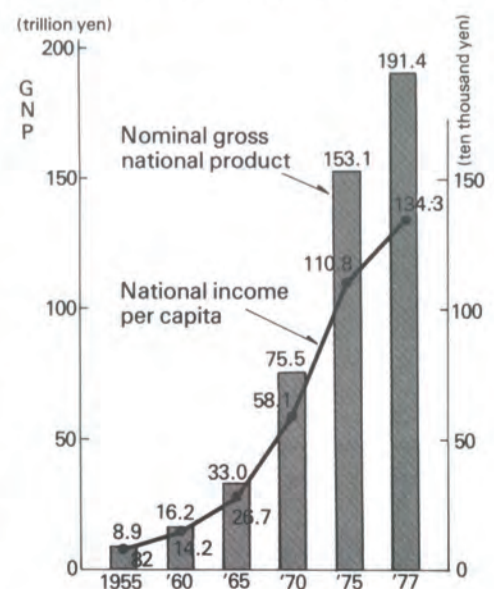
(3). During the past two or three years, there has been no increase in the price of fresh red sea bream. (See Fig. 4) As reasons behind this phenomenon, the following two or three factors can be cited: (a). In recent years, due to the fact that production of cultured red sea bream has increased, and at the same time its quality has been improved, the demand-supply relation has become more favorable to the buyers. (Remarks) Cultured red sea bream accounts for 30 percent of the 25,000 tons of total production of red sea bream. (b). The trend of increase in the price of marine products during 1975-1977 has induced a decline of the consumer's will to buy, i.e., "to avoid eating fish".

Fig. 4 Amount and average price of fresh red sea bream transacted in producing area market.



(Remarks) From "Annual Statistical Report of Marine Products Distribution" by the Ministry of Agriculture, Forestry and Fishery)

Fig. 5 Gross national product (nominal and national income per capita)

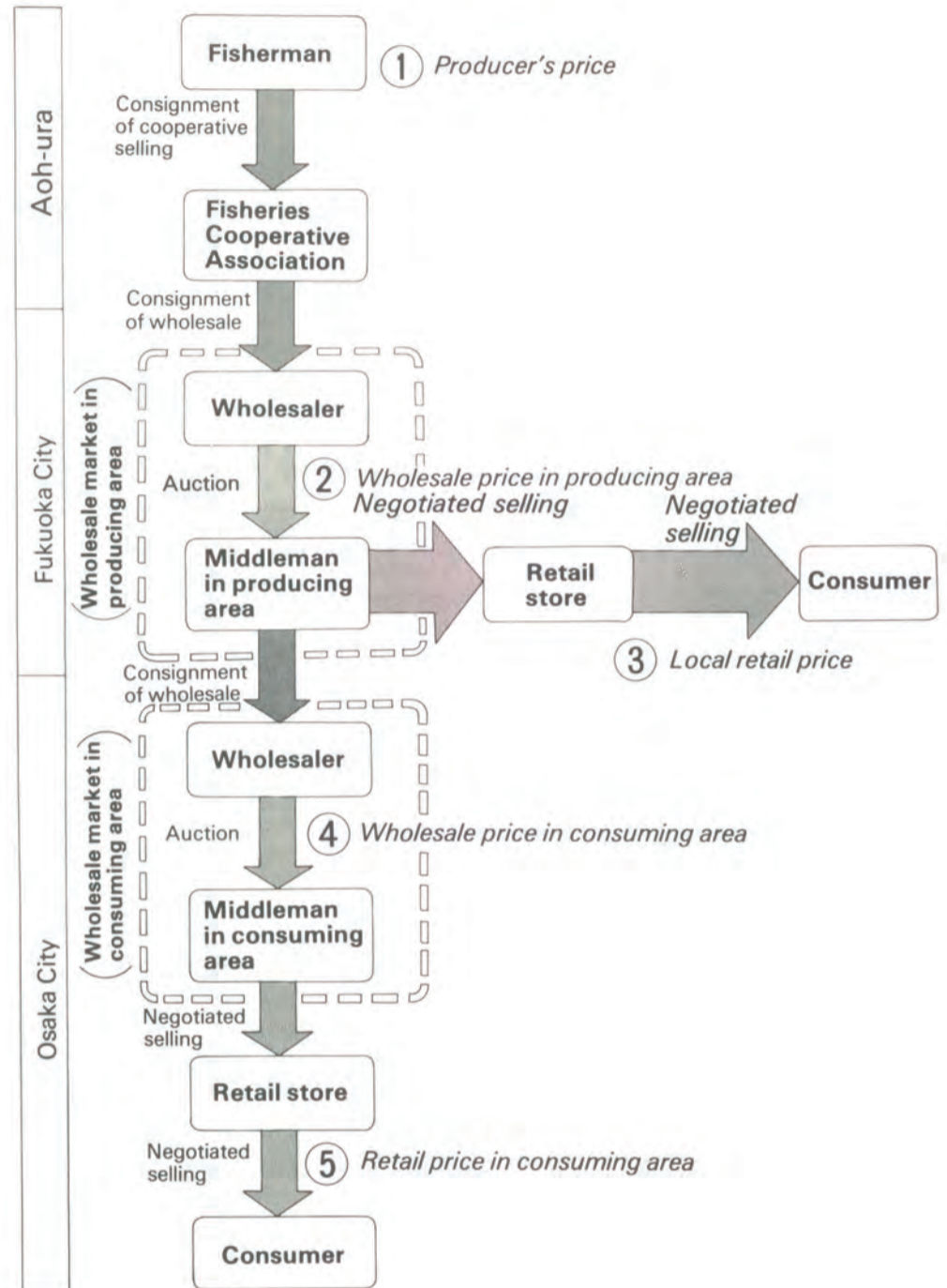


(Remarks) From "Annual Statistical Report of National Income" by Economic Planning Agency.

(c). With the time around 1975 as a turning point, the Japanese economy was reconverted from a high-growth type to a low-growth type, and the increase rate of the national income per capita has stagnated. (See Fig. 5) As a result, the trend of luxury consumption of people has receded, and savings have come to be emphasized.

From the afore-mentioned facts, the price of red sea bream can be considered as an index of the relation between coastal fishery and the consumption economy of the cities.

Fig. 6



Más de 200 especies con el nombre "algodai" viven en los mares alrededor del Japón, pero en realidad sólo varias especies como el pargo rojo, el pargo carmesí, el pargo amarillo y el pargo negro pertenecen a la familia de los Sparidae. Estas cuatro especies tienen gran importancia como productos marinos y de acuerdo a las estadísticas de 1983, los siguientes tonales fueron pescados: Pargo rojo (*Pagrus major*)

.....14,699 toneladas
Pargo carmesí (*Evynnis japonica*)
.....1,256 toneladas
Pargo amarillo (*Dentex tumifrons*)
.....7,454 toneladas
Pargo negro (*Acanthopagrus schlegelii*)
.....3,905 toneladas

El pargo amarillo es pescado a la arrastra especialmente en altamar o en aguas continentales lejanas. El pargo rojo, el carmesí y el negro son pescados por diferentes métodos en bahías o aguas costeras. Ahora nos gustaría introducir las condiciones presentes y el camino a seguir en el futuro desarrollo de la pesquería costera del pargo rojo, el cual es la especie más importante.

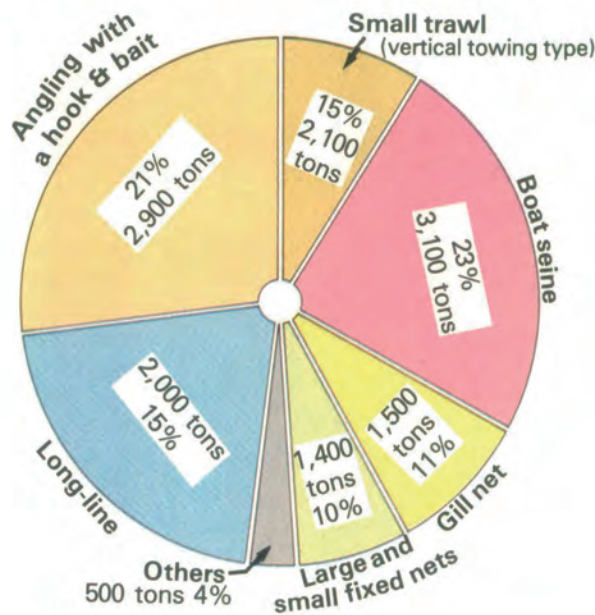
Plus de 200 espèces de poissons ayant le nom de Dai un tel (pagre) vivent dans les mers aux alentours du Japon. Mais à vrai dire, il n'y a que quelques espèces telles que la brème de mer rouge, la brème de mer pourpre, la brème de mer jaune et la brème de mer noire qui appartiennent à la famille Sparidae. Les pagres qui constituent des produits de mer importants sont les quatre espèces mentionnées ci-dessus, et les prises de ces pagres dans les années récentes sont résumées ci-après (statistiques de 1983):

Brème de mer rouge (*Pagrus major*)
.....14,699 tonnes
Brème de mer pourpre (*Evynnis japonica*)
.....1,256 tonnes
Brème de mer jaune (*Dentex tumifrons*)
.....7,454 tonnes
Brème de mer noire (*Acanthopagrus schlegelii*)
.....3,905 tonnes

Parmi ces pagres, la brème de mer jaune est prise par chalut principalement dans la pêche au large et sur le banc continental éloigné. La brème de mer rouge, la brème de mer pourpre et la brème de mer noire sont pris principalement par des méthodes de pêche variées dans la baie ou les eaux côtières. Voici maintenant, les conditions présentes et l'orientation du développement avenir de la pêche à la brème de mer rouge qui est l'espèce la plus importante dans la pêche de pagre côtière.



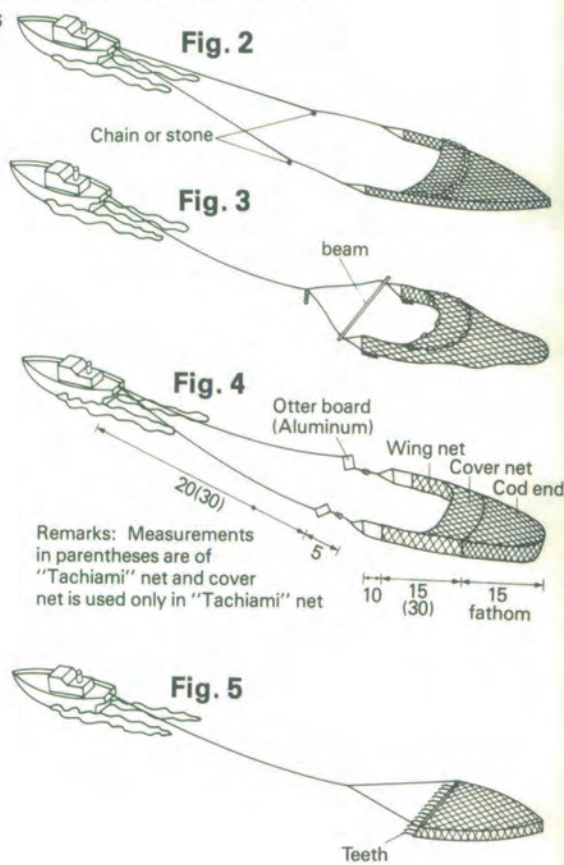
Fig. 1 Catch by fishing method in coastal red sea bream fishery (1983): Total 13,500 tons



Remarks: Catch by the kind of fishery

Coastal fishery	13,500 tons
Offshore fishery	900 tons
Pelagic fishery	600 tons
Total catch	15,000 tons

Small trawl net



Fishing methods can be divided broadly into two types, net type and angling type, and at present the following fishing methods are used to catch red sea bream in coastal waters:

(1). Net type:

- * Small trawl net (lengthwise towing type)
- * Small trawl net (sideways towing type)
- * Boat seine
- * Small purse seine
- * Lift net
- * Gill net
- * Large and small fixed nets
- * Beach seine

(2). Angling type:

- * Angling with a hook and bait
- * Long-line

(Remarks) Besides coastal fishery, red sea bream is caught by medium-sized trawl net in the sea around Japan and by large trawl net in the distant seas.

The main fishing methods used to catch sea breams in coastal fishing grounds are angling with a hook and bait, boat seine, long-line, small trawl net (The lengthwise towing type), gill net and fixed net, as shown in Fig. 1. In the past, besides the above-mentioned methods, small trawl net (sideways towing type), small purse seine, lift net and beach seine were used to catch red sea bream, however, they are rarely used today due to (1) shortage of manpower, (2) the passive nature of these fishing

methods, and (3) the decrease in the amount of fish coming into the coastal waters.

Net Methods

Small trawl net (lengthwise towing type)

In Japan, small trawl net fishery in coastal waters is restricted in terms of operation area, number and type of fishing boats, horsepower of the engine, fishing gear and so on for the purpose of protection of resources and coordination with other fishing methods. The operation of trawl net by powered fishing boats is limited to under 15-ton class, and as regards the fishery administration, permission to operate fishery is granted by the prefectural governor. There are two kinds of trawling, one-boat trawling and two-boat trawling, but the former overwhelmingly exceeds the latter in number. The fishing gear used are classified into (a) nets without any device for opening the mouth of the net [Fig. 2], (b) nets equipped with an opening device such as a beam [Fig. 3], (c) nets equipped with otter boards at the mouth [Fig. 4], and (d) nets equipped with a dredge [Fig. 6], but the use of nets of (b), (c) and (d) is prohibited in some districts.

Net Meth and Angling G

Boat Seine

This method of boat seine is called "Gochi-ami" and is actively operated in western Japan, where it brings in the largest catch. The operation method is as shown in Fig. 6. The net having a bag-like portion is thrown into the water in a triangle form, and about half of the warp is allowed to lie on the bottom. Then, the net is hauled slowly by pulling the warp hand over hand to drive fishes into the net as the mouth of the net closes gradually. This net is operated by a single boat in some districts and by two boats in other districts. In Aoh-ura of Nagasaki Prefecture, sea bream fishing had been formerly operated by angling

using a hook and bait, and long-line. Around 1955, however, a fisherman brought back this net fishing method which he learned in another district, and tried it by himself. The method has spread rapidly because of the advantages that fishing efficiency is markedly higher than with angling and long-line and that no bait is necessary.

Gill net

In many districts, red sea bream is caught by various types of bottom gill nets. Besides red sea bream, bottom fishes inhabiting rocky shore



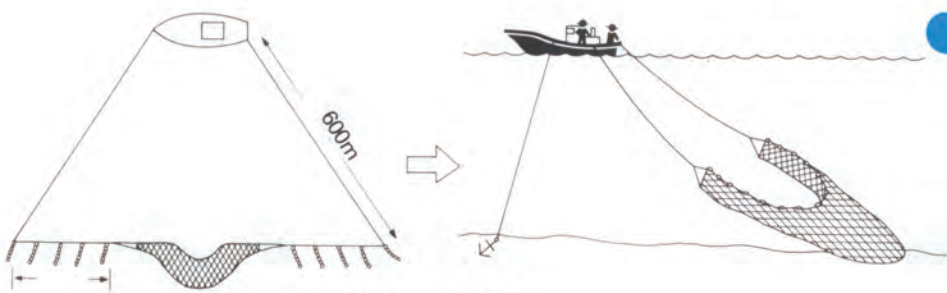


Fig. 6 Boat seine

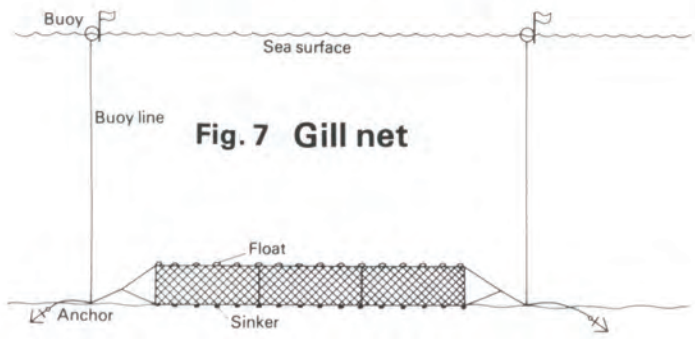
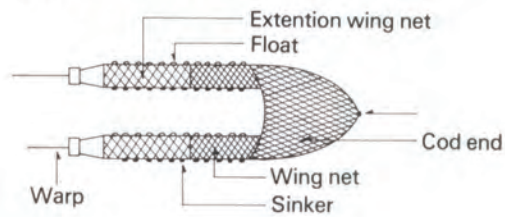


Fig. 7 Gill net

Net Methods

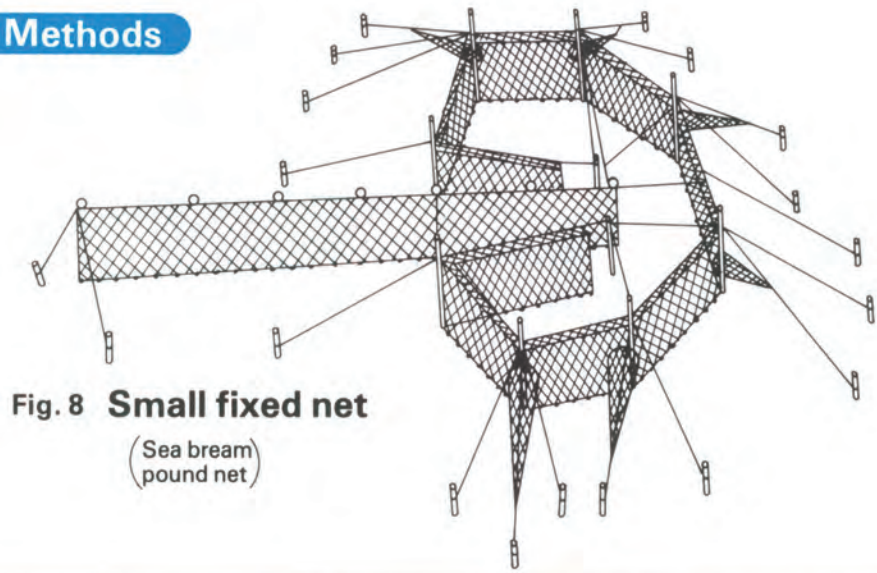
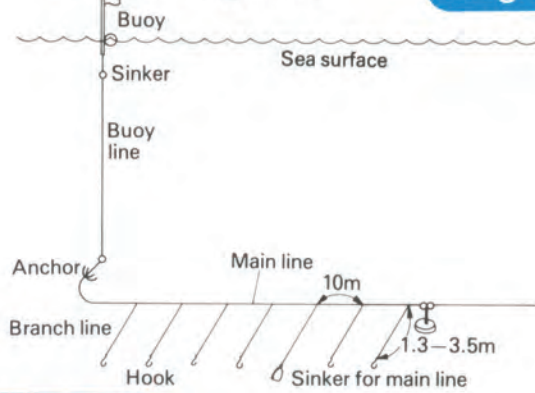


Fig. 8 Small fixed net

(Sea bream pound net)

Fig. 9 Long-line

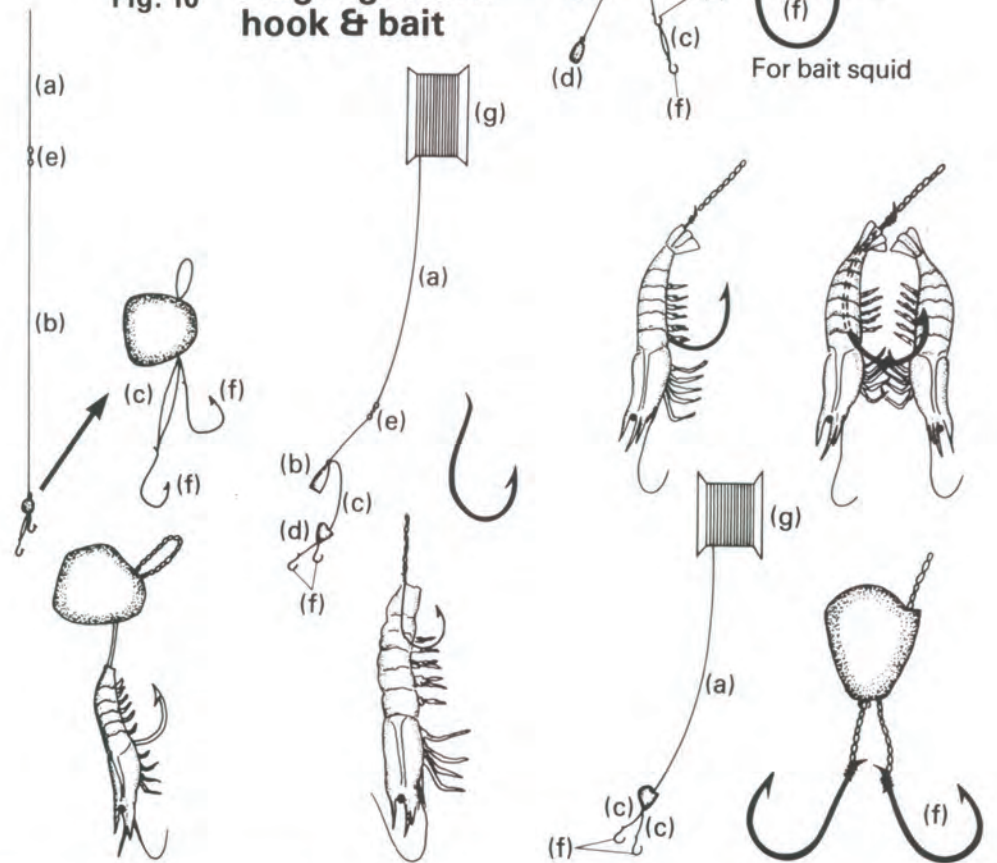


Angling Methods

Source: Angling with a hook and bait fishery in the seas of western Japan'' compiled by Fisheries Experimental Stations of Kyushu and Yamaguchi Block.

- (a) Main line
- (b) Trunk line
- (c) Branch line
- (d) Sinker
- (e) Swivel
- (f) Hook
- (g) Spool

Fig. 10 Angling with a hook & bait



Angling Methods

Angling with a hook & bait

This is a method that hooks fishes one by one by hand. It requires a high level of knowledge of the habits, life cycle and fishing grounds of red sea bream based on experience as well as fairly advanced angling technique.

The type of fishing tackle (thickness and length of line, shape of hook, size and number of sinkers etc.) varies greatly with the district. The figures show several examples of fishing gear which are used in Nagasaki Prefecture where red sea bream angling with a hook and bait is most actively being operated.

Small shrimps and squids are most often used as baits, however, we have to note that there are various types of attaching methods for baits.

Long-line

This is a fishing method in which many branch lines are attached to a main line, and a hook fixed with a bait is attached to the end of each branch line. This long-line is set in a straight line near the bottom to catch fishes. In most cases, it is laid on a comparatively shallow bottom (40-50 m deep) around reefs.

Fixed net

Large and small fixed nets set in bays having deep coastal bottoms, catch red sea bream together with migrating fishes such as yellow-tail, tuna, horse mackerel and squid.

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Los métodos pesqueros pueden ser divididos, a grandes rasgos, en dos clases: series de redes y series de cañas, y actualmente los siguientes métodos son usados para pescar el pargo rojo en aguas costeras:

(1) Redes

- * Red de arrastre pequeña (del tipo de arrastre vertical).
- * Red de arrastre pequeña (del tipo de arrastre horizontal)
- * Bote con jábega (barredera)
- * Red barredera pequeña
- * Red de grúa
- * Red flotante
- * Redes fijas grandes y pequeñas
- * Arrastre en la playa
- (2) Pesca con anzuelo:
- * Pesca con caña
- * Pesca con palangre

Los métodos más comunes para la pesca de pargo en aguas costeras son caña y anzuelo, bote con barredera, palangre, red de arrastre pequeña (del tipo vertical), red flotante y red fija.

Les méthodes de pêche peuvent être classées approximativement en deux catégories: la série au filet et la série à la canne à pêche. Et à présent, les méthodes de pêche suivantes sont utilisées pour la prise de la brème de mer rouge dans les eaux côtières.

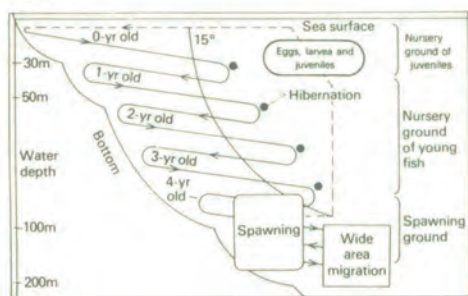
- (1) Série au filet:
- * Petit filet à la trôle (type de chalut vertical)
- * Petit filet à la trôle (type de chalut horizontal)
- * Senne de bateau
- * Petite senne plissée
- * Filet à lever
- * Filet à lamelles
- * Grand et petit filets fixes
- * Senne de rivage
- (2) Série à canne à pêche
- * Canne à pêche et ligne
- * Longue ligne

Les méthodes de pêche principales utilisées pour prendre les pagres dans les zones de pêche côtières sont la canne à pêche et ligne, la senne de bateau, la longue ligne, le petit filet à la trôle (type de chalut vertical), le filet à lamelles et le filet fixe.

Developmental Directions in Sea Bream Fishery

Compared with surface fishes, bottom fishes like red sea bream are more apt to be influenced by excessive fishing pressure, and in some parts of the coastal waters, the decline in the level of catch is a problem of concern. Among the diverse coastal fishes, there are many resources like red sea bream which perfectly suit people's taste and thus are in large demand. In developing fishery, the basic line of any program must be the "preservation and increase of resources". In order to control resources, we must take into account not only the population size of adult fishes, but we must also design all-round countermeasures such as conservation of the seaweed bed environment where juvenile and young fish grow, and appropriate fishing plans corresponding to their life cycles.

Fig. 2



Relation between life cycle and environment of red sea bream (Source: Fisheries Experimental Station of Fukuoka Prefecture)

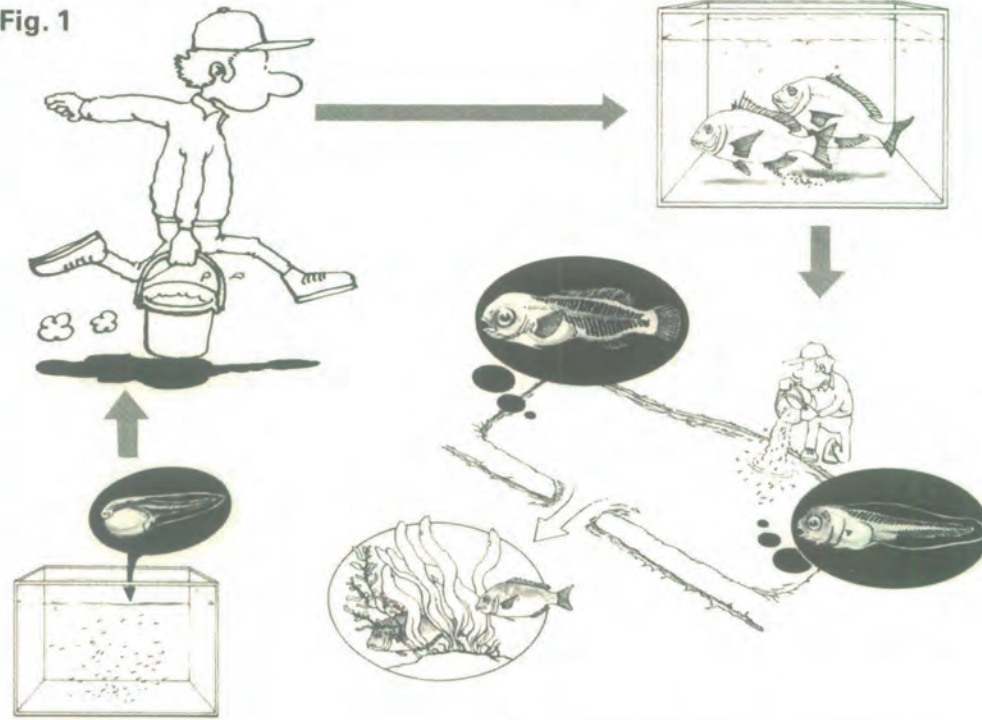
In the spawning season from spring to early summer, red sea bream comes into a specific spawning ground in comparatively shallow waters (60-100m deep). The egg is planktonic, and the larva hatches after 20 or 30 hours at a water temperature of about 18°C. The larva and juveniles are carried to coastal nursery grounds by drifting caused by winds or the surface current. In some cases depending on the condition of the ocean current, eggs and larvae are transported and dispersed over a fairly wide area.

It is said that the juvenile grows to a total length of 13-18cm about 40 days after hatching, and begins to inhabit the bottom layer. The habitat of the juvenile is mostly limited to shallow waters less than 30m deep, and the bottom material of the habitat varies with the area, i.e., it may be seaweeds, sand or rock.

The juvenile (0-year old) grows by eating planktons, and in autumn it begins to eat small shrimp and the like.

In winter, it migrates to a deep place and hibernates under some kind of shelter. Hibernated one-year old red sea bream migrate again to a shallow place and begin

Fig. 1



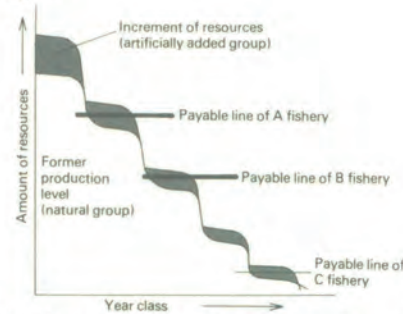
to seek food.

Red sea bream grows to a three-year old fish by repeating "deep-shallow migration" in the summer and winter as mentioned above, and gradually moves to a habitat in the deep sea. Four-year old fish begins to mature sexually and to spawn, and at the same time it enters into a wide-area migration stage.

For "the conservation and increase of resources", (1) the protection of nursery environment and (2) the careful planning of fishing must be simultaneously undertaken. In Japanese sea bream fishery, besides these countermeasures, efforts are undertaken to increase the resources by (3) liberation of artificial seeds. The main points of this process are shown in Fig. 3.

The purposes of "culture fishery by additional liberation of artificial seeds" are to increase valuable marine products and to maintain sufficient resources to profit each fishery in the coastal fishing ground.

Fig. 3



* The description of this section relies on the papers by Mr. Katsuichi Kobayashi (Division of Fishery Promotion, Fukuoka Prefecture) and Fisheries Experimental Station of Fukuoka Prefecture.

Fig. 4 Essentials of red sea bream culture fishery

Addition of resources	① Production of artificial seeds ② Intermediate rearing of larva and juvenile ③ Liberation				
	<ul style="list-style-type: none"> Reclamation of nursery bank for larval fish and seaweed bed Removal of predator species 				
Conservation and rearing of resources	Reclamation of domestic fishing ground		Setting of large fish banks		Setting of spawning bank
Age	0-yr old	1-yr old	2-yr old	3-yr old	4-yr old and over
Depth of nursery ground	Less than 30m	30 - 80 m			More than 80 m
Kind of fishing	Catching of juveniles for culture fishery		Small trawl net		
			Angling, Long line		
Fisheries management	Restriction on amount of catch Prohibition of catching (Legally controlled nursery waters)		<ul style="list-style-type: none"> Establishment of closed fishing season and closed fishing ground Regulation on fishing gear and method Restriction on operation frequency Allocation of fishing ground 		
			Boat seine		

From the viewpoint of resources control and propagation

In Japanese sea bream fishery, in addition to about 17,000 tons (1975-1977) of catch by fishing boat fishery, 4,000-8,000 tons (1975-1977) are produced by culture fishery. Culture means the method of rearing natural larvae and juveniles or artificial seeds by a concentrated management system, and the process has now been industrialized by the private sector.

The probable effect of the collection of larvae and juveniles as "raw material fish" by the culture industry on the resources of natural red sea bream is argued in some districts, and the correlation between the two is not yet completely clear. Recently, production of larvae and juveniles has been increased by an artificial method for taking seeds.

Red sea bream culture is carried out mainly using a pen as in the culture of other fishes, but in many places along the Seto Inland Sea extensive culture (for intermediate rearing of juveniles) is conducted by utilizing the remains of a salt pan, and is bringing satisfactory results.

Del punto de vista del control de recursos y propagación

Comparados con peces de superficie, peces de aguas profundas como el pargo rojo son altamente influenciados por pesca excesiva, causando disminución en su número en las aguas costeras. Entre los peces costeros hay muchos tipos como el pargo rojo que son apetecidos por su sabor y por lo tanto tienen una gran demanda. Cuando se está desarrollando un proyecto pesquero se debe tener muy en cuenta la línea básica de "conservación y aumento de recursos". Para controlar los recursos se debe tener en cuenta no solo el tamaño de la población de peces en estado adulto, sino también las contramedidas comprensivas tales como la conservación del medio ambiente donde los alevinos y peces jóvenes crecen. Se debe también planear un programa de pesca que se adapte a su ciclo de vida.

Du point de vue du contrôle des ressources et de la propagation

Comparés aux poissons de surface, les poissons de fond comme la brème de mer rouge sont susceptibles d'être affectés par la pêche excessive, et dans certains secteurs des eaux côtières, il est à craindre que le contingent diminue. Parmi les diverses pêches côtières, il existe de nombreuses espèces telles que la brème de mer rouge qui conviennent au goût de la population et sont très demandées. Dans le cadre du développement des ressources de pêche, il convient de suivre strictement la ligne de base pour la préservation et l'accroissement des ressources. Pour le contrôle des ressources, il s'agit non seulement de tenir compte de l'importance de la population concernant les poissons adultes, mais aussi les mesures globales devant être prises comme par exemple la conservation de l'environnement marin où le frai et les jeunes poissons se développent, ainsi qu'une planification de pêche adéquate correspondant aux cycles de vie de ces espèces.



Fisherm Seaside

By promoting the direct connections their new way of life

There is one example where fishermen have constructed seaside resort facilities by means of a joint investment and have been managing those facilities with their own family members. "Marinpea Kuroi" was opened in July of 1977 in a small village on the coast of the Sea of Japan, located about 20km north of Shimonoseki City which is a major city of western Japan. A clubhouse, a training center, villas for rent, and recreation facilities such as tennis courts and an athletic course in the woods have been constructed within a site of 230,000m², and a swimming beach, a fishing pond and a restaurant have been arranged on the beach. Let us consider the reasons behind the decision by fishermen, whose occupation is to catch fish, to go into the tourist business.

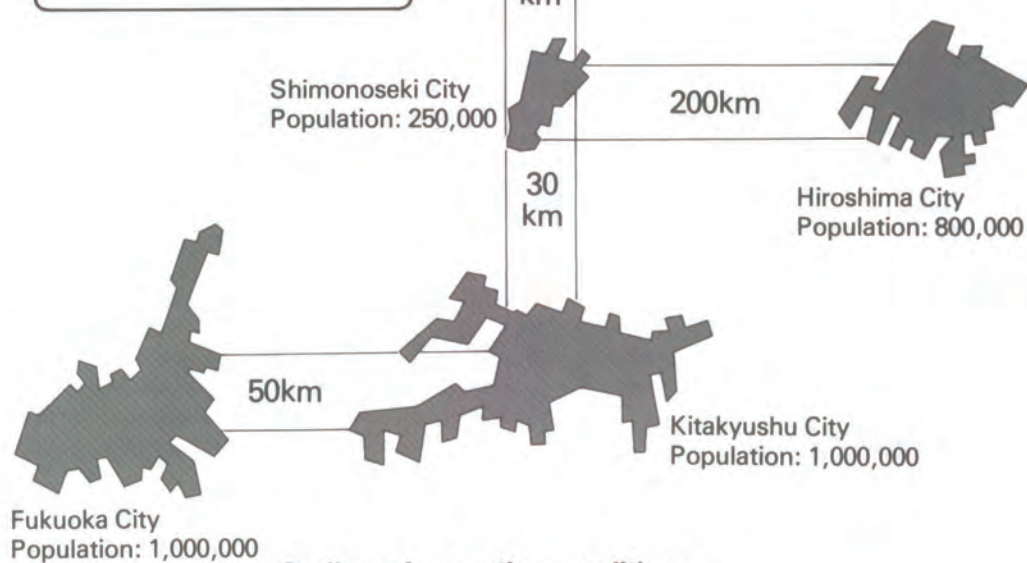
History

Originally, people in this village engaged partly in agriculture and partly in fishery. There is a record which says that, around 1920, about 200 households were each cultivating 0.7ha of fields on the average, and 60% of their yearly income was gained from agriculture and the remaining 40% from fishery. Fisheries in those days were entirely dependent on net fishing methods such as beach seine, boat seine and purse seine, which require many hands. Since the 1950's, however, with the development of industry and the advance of economic growth within the country, fisheries requiring many hands were no longer able to be continued because of the difficulties of obtaining manpower and maintaining payability. On the other hand, a commodity-dependent economy had en-



Marinpea Kuroi

Geographical relation to neighboring cities



Outline of operative conditions

Period	Number of users of facilities	Proceeds from facilities (thousand yen)	Proceeds of cultured fish (thousand yen)
July 1977 ~ June 1978	115,200	365,818	200,818
July 1978 ~ June 1979	186,340	619,360	240,340
July 1979 ~ Dec. 1979 (For six months)	130,000	621,120	188,200

en Managing Recreation Center

sales of cultured fishes and attempting to create with city markets, they are trying to find in the fishing village.....

tered and spread rapidly within the fishing village. As a result, the necessity of earning a larger cash income rose, and young people began to seek employment in the urban industries.

In the village, a situation in which only the aged continued to be employed for little income in small-scale fishing such as pole-and-line prevailed. The composition of the income of inhabitants in this district in recent years had changed to a pattern consisting of (1) earned income, 85%, (2) agricultural income, 10%, and (3) fishery income, 5%. The fisheries cooperative association had almost lost its significance as a functional union, and thus it was pressed with the task of working out new countermeasures.



coastline, "Marinpea Kuroi", was opened. This project was a result of the culture of red sea bream and yellowtail and the promotion of sales of these fishes.

At present, the culture fishery here produces about 100,000 young yellowtails (200 tons) and about 200,000 red sea breams (120 tons) a year, but they are all sold directly to the visitors of the fishing pond and restaurant. Therefore, no fish are shipped through the existing distribution channel. The annual sales are about three hundred million yen.

Motive

In 1965, the Kuroi Fisheries Cooperative Association started the culture of young yellowtail by a union management system, based on the policy of the 1st structural improvement plan of coastal fishery worked out by the government. Trial and error in production and sales were repeated, and the leaders of the association faced a variety of problems, especially that of finding a market.

In 1969, the association gave the culture farm away to the citizens and began to operate a commercial fishing pond. Further, a small restaurant was opened as an annex to cook and serve the fish caught by the visitors. This new type of business was "successful". That is, it had the effect of attracting visitors for leisure from the neighboring cities.

Under these circumstances, a recreation facility in the beautiful landscape of this

Commercialization

This project is unique among the over 2,800 fisheries cooperative associations in the whole country. Mr. Ichitaro Masuda, Chairman of Kuroi Fisheries Cooperative Association, spoke of the idea behind this project as follows: "There was criticism that this is not a proper project for a fisheries cooperative association, but we did not intend in any way to become a travel agent. The aim was simply to elevate the living standard and the social status of our members. And, it is possible to attain this aim



Mr. Ichiro Masuda



Mr. Naoyuki Wataka

entirely by means of the labor of our members. This plan for a recreation center came about as a means to connect our culture fishery directly with the city markets".

In 1976, Kuroi Fisheries Cooperative Association established a separate corporation called the "Kuroi Fisheries Cooperative Association's Natural Seaside Center". This company had five million yen as starting capital, of which three million and six hundred thousand yen were invested by the Kuroi Fisheries Cooperative Association, based on the consent of members, and the remaining one million and four hundred thousand yen were jointly invested by individual members. That is, most of the members made a double investment in this enterprise.

Out of the 76 workers in the facilities, except for two persons, all are members of the fisheries cooperative association or their family members.

As mentioned above, the "Marinpea Kuroi" business is managed by the support and cooperation of all members of the fisheries cooperative association. The following is a comment given by Mr. Naoyuki Wataka, Representative Director of the Federation of Credit and Fisheries Cooperative Associations of Yamaguchi Prefecture, who participated in the planning and helped with funds. "Some great changes are taking place in the undercurrent of the modern fishing village society, and fishermen no longer believe that fishing is their only vocation. They are seriously thinking over how they can better commercialize their fisheries and also their selling activities. This project is an example of a regional development project by local people based on the promotion of fishery, aiming at the following points:

- (1). To strengthen the economic foundation of the district.
- (2). To develop local industries to provide jobs for the young and women.
- (3). To give the aged, retired from fishery a chance to work again.

- (4). To preserve the natural environment of the seaside."

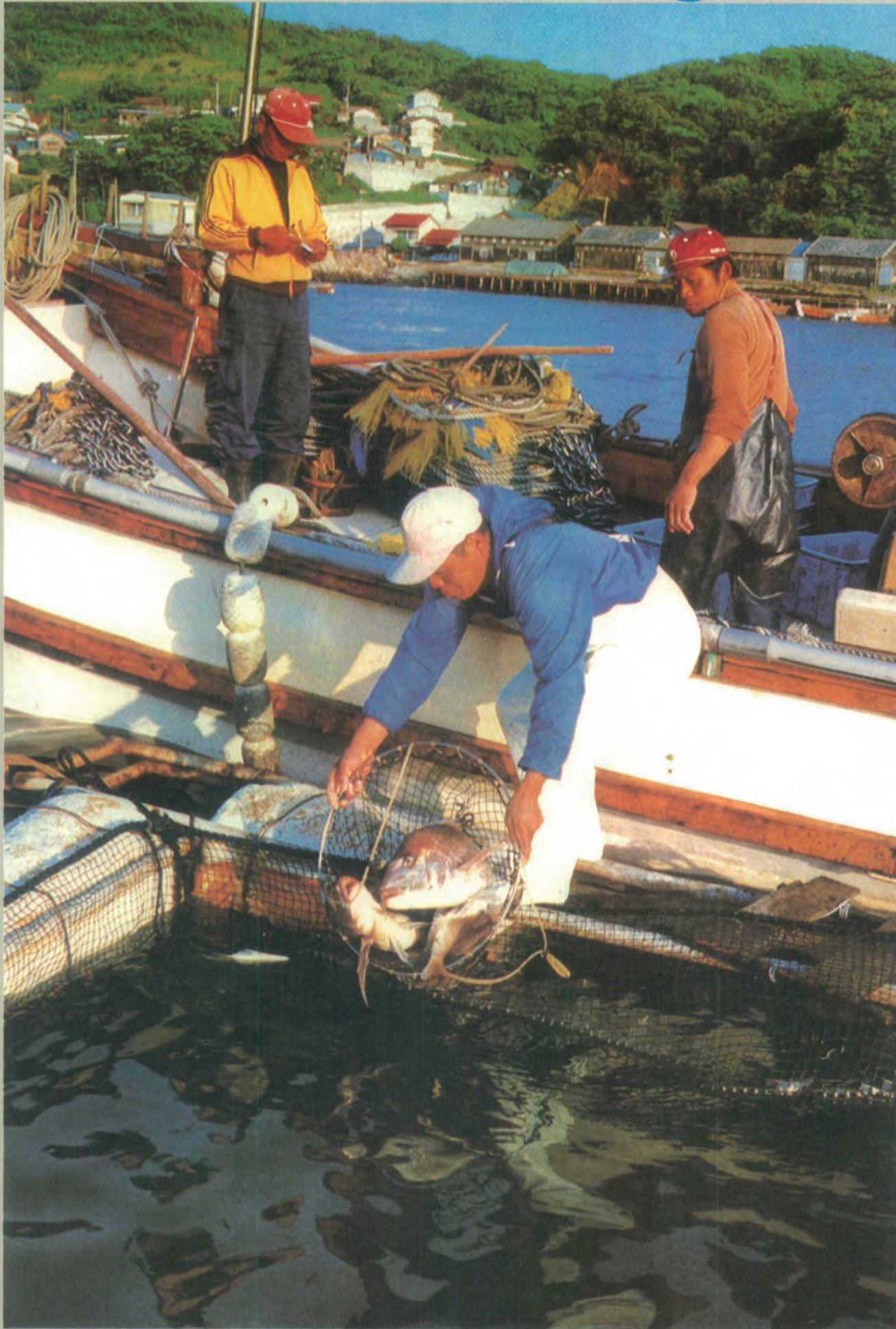
Administración de Centros de Recreo al lado del mar para los Pescadores

En varios casos los pescadores han construido a base de contribuciones sus propios centros de recreo los cuales son administrados por miembros de sus familias. "Marinpea Kuroi" se abrió al público en julio de 1977 en una pequeña aldea en la costa del Mar del Japón, situada a unos 20 km al norte de la ciudad de Shimonoseki, una ciudad importante del oeste japonés. Se han construido sobre una superficie de 230.000 m² un club, un centro de entrenamiento, una villa para alquiler y facilidades de recreo como campos de tenis y campos atléticos en el bosque. También se han incluido una playa para baño, un lago de pesca y un restaurante en la playa. Consideremos ahora porqué pescadores, cuyo oficio es la pesca, se han aventurado en el negocio del turismo.

Les pêcheurs animent un foyer récréatif des marins

Un fait exemplaire à noter, c'est que des pêcheurs ont construit des installations récréatives de mer en participation et gèrent ces centres récréatifs avec les membres de leur famille. "Marinpea Kuroi" s'est ouvert en juillet 1977 dans un petit village sur la côte de la mer du Japon, et situé à environ 20 km au nord de Shimonoseki qui est une ville importante dans la partie ouest du Japon. On y trouve un club, un centre de formation, une villa à louer, et des installations récréatives telles qu'un court de tennis et un parc athlétique construit dans les bois sur un terrain de 230.000 m². De plus, une plage où l'on se baigne, un étang pour la pêche et un restaurant sont prévus sur la plage. Il est intéressant de savoir pour quelles raisons les pêcheurs dont l'occupation principale est d'attraper le poisson se sont lancés dans l'industrie des loisirs touristiques et vacanciers.

From Landing to Shipment



Transferring into a fish preserve (for regulating shipment quantity)....live red sea bream



Weighing



Temporary storage in iced water



Sorting

Putting into boxes according to body size



Shipping to a fresh fish transport boat