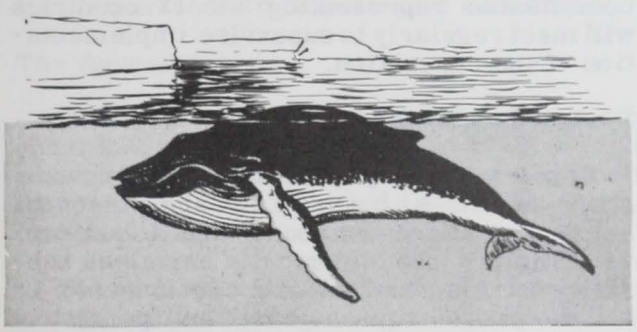
JAPANESE PREPARE FOR U.N. CONFERENCE ON WHALES

How to conserve whale species will be considered at the UN Conference on the Human Environment at Stockholm, Sweden, in June 1972. According to the Japanese press, Japan and the USSR will bear the brunt of attacks by other nations.

The Japanese believe that materials being prepared for the conference will show a sharp decline in blue whales over the past 40 years, and that the humpback whale is seriously threatened. They expect a decline in marine mammals to be attributed to Japan and USSR.



A Different View

Tatsuzo Oyama, the Japan Fishery Agency, states that most of the arguments are "groundless" and "emotional" rather than scientific. He believes there are about 17,000 blue whales in the Antarctic, and another 1,400 in the North Pacific. "These figures show that the species do not face extinction."

Kinji Fukuda, a whaling company official, notes that foreign fleets used to hunt whales for their oil and meat to be used as dog and cat food. However, in Japan, it is an important source of human food--about 10% of all meat consumed, or roughly half the beef consumed.

Whaling Restrictions

Dr. Hideo Omura, director of Tokyo's Whale Research Institute, states that whaling for humpback and blue whales was completely forbidden in 1963 and 1964. At present, only fin, sei, and sperm whales can be caught within quotas established by the International Whaling Commission. More than 70,000 catchable whales, excluding calves, are believed to exist in the Antarctic. Taking 3,000 to 4,000 a year will not deplete resources, Omura believes. Japan and the USSR are allowed 2,300 blue whale units (1 blue whale unit equals 1 blue, 2 fin, or 2.5 humpback whales.) An international agreement between Japan and the USSR on observers for the whaling fleets would help protect stocks.

Observers Stranded

Dr. Seiji Kaya, who set up a "Society to Protect Whales," notes that the Soviet fleet sailed before observers could board the vessels. This was a major setback. He would like to see the blue-whale-unit system abolished and a catch limit for each species substituted. ('Japan Times', March 6.)

12 EUROPEAN COUNTRIES SIGN ANTIPOLLUTION PACT

Twelve European countries signed a convention, in Oslo, Norway, on February 15 designed to stop the dumping of poisonous waste by ships and planes in the northeast Atlantic.

The convention prohibits totally the dumping of durable plastics and dangerous substances, such as mercury and cadmium, that find their way into the food chain. Less harmful substances and materials--arsenic, lead, pesticides, scrap metal, and tar--can be discharged only with special permits.

British Government officials, who began negotiations in London in June 1971 that led to the convention, described it as "the biggest single step yet taken to fight sea pollution."

The Signers

In addition to Britain and Norway, the signers were Belgium, France, Denmark, West Germany, Finland, Iceland, The Netherlands, Portugal, Spain, and Sweden. The Soviet Union and Poland were invited to join the convention but said no.

British officials stressed that the agreement was a large accomplishment--but that ships and planes caused only a small part of marine pollution.

Industrial and Domestic Discharges

Ninety percent of this pollution is caused by industrial and domestic discharges through rivers, estuaries, outfalls, and pipelines that are under national jurisdiction. No international action has been taken on this problem.

However, the convention preamble expresses the hope that the 12 signers will coordinate policies to control pollution of their own waterways.

Preventive Steps Asked

Article 1 of the 27-article convention calls upon the countries to "pledge themselves to take all possible steps to prevent the pollution of the sea by substances that are liable to create hazards to human health, to harm living resources and marine life, to damage amenities or to interfere with other legitimate uses of the sea."

The Convention area covers the high seas and territorial waters in the northeast Atlantic, including the North Sea and part of the Arctic Ocean. The area extends westward to Greenland, and southward to the Strait of Gibraltar. It excludes the Baltic Sea.

Parliamentary Approval Needed

The convention "for the prevention of marine pollution by dumping from ships and aircraft" becomes effective when ratified by the Parliaments of seven of the 12 countries. A commission representing all 12 countries will meet regularly to supervise implementation of the convention.

Banned Substances Listed

Besides mercury and cadmium compounds, other banned substances are poisonous halogen or silcon compounds that do not convert rapidly into biologically harmless substances. Also banned are carcinogenic, or cancer-producing, substances and "persistent synthetic materials" that float.

Specific Permits

Among the other substances that can be dumped with specific permits from national authorities are copper, zinc, cyanides, fluorides, and containers.

The convention states that when it is considered necessary to deposit waste in deep water, it should be done only when two conditions are fulfilled: (1) The depth is not less than 2,000 meters (about 6,500 feet); (2) The distance from the nearest land is not less than 150 nautical miles.

British officials said penalties for violation of the convention would be legislated initially by the parliaments of the member nations. But there will be an attempt to coordinate them after the convention becomes effective.

U.S. & DENMARK AGREE ON CURTAILING ATLANTIC SALMON FISHERY

The U.S. and Denmark have agreed on curtailing the salmon fishery off West Greenland, the U.S. Department of State reported Feb. 22, 1972. U.S. and Danish officials met in Washington, Feb. 3-5.

The high-seas fishery conducted off Greenland by Danish flag vessels will be phased out gradually over a 4-year period, 1972 through 1975. The inshore salmon catch by local Greenland fishermen will be stabilized.

The agreement is equitable to all parties, the U.S. believes: to the countries where the Atlantic salmon originates, such as the U.S., which spend much money to protect salmon in the streams of origin; and to Denmark in the local Greenland fishery, which has special importance to Greenland's economy.

The Agreement

Denmark will limit its high-seas catch to about 800 tons (round weight) in 1972. In the three following years, it will reduce the catch to about 600, 550, and 500 tons. After that, Denmark will end the fishery.

Salmon fishing by local Greenlanders within the 12-mile fishing zone will be limited to about 1,000 tons a year.

Denmark and the U.S. will seek to have the essentials of their agreement incorporated into the conservation regulations of the International Commission for the Northwest Atlantic Fisheries (ICNAF) at its annual meeting in May. They have been consulting other governments directly concerned--Canada, the United Kingdom, and Norway. Already, ICNAF has banned high-seas salmon fishing effective for 12 member nations.

Status of Salmon Stocks

Denmark or the U.S. can request a meeting to review the status of salmon stocks. In a joint statement on Atlantic salmon, Dec. 24, 1971, the U.S. and Canada pledged to cooperate closely on conserving Atlantic salmon. The U.S. also will seek to ensure that other conservation measures are undertaken within North American inshore waters.

BRITAIN TO REFER DISPUTE WITH ICELAND TO WORLD COURT

Britain has decide to take to the International Court of Justice in The Hague her dispute with Iceland over fishery limits. Iceland plans to extend her limits from the present 12 nautical miles to 50 on September 1. The British move was announced on March 6 in the House of Commons by Anthony Royle, Parliamentary Under Secretary at the Foreign Office.

Dispute is over Iceland's plan to extend its fishing limits from 12 to 50 nautical miles.

A week earlier, the House of Lords was informed that Iceland's proposed extension would deprive Britain of 20 to 25% of haddock, cod, and plaice.

Hope For Interim Arrangement

British officials have informed Iceland about the Hague move. They hope to reach agreement with Iceland on interim arrangements for British fishing in the waters affected while the case is before the World Court.

'Cod War'

There was a long "cod war" between Iceland and Britain in which clashes at sea occurred. In 1961, the 2 parties reached agreement. Iceland's fishing limits were set at 12 nautical miles. Britain maintains these limits cannot be ended by Iceland alone.

ICELANDERS EAT THE MOST FISH

Iceland leads all countries in annual per-capita consumption of edible fishery products: 86.1 pounds. Japan is second with 67.6. U.S. per-capita consumption in 1971 is estimated at 11.2 pounds.

NORWAY BUILDS FLOATING FISH MEAL & OIL FACTORY

A floating fish meal and oil factory, the 'Protangue', "the first plant in the world specially designed as a movable unit," is ready for delivery. It was built by Stord Bartz Industri A/S, Bergen, Norway, for the Portuguese firm Proteinas de Angola, Luanda.

The Protangue can process about 500 tons of raw material in 24 hours. This corresponds to about 100 tons of fish meal and 50-100 tons of oil--depending on type of fish.

The factory barge is 64.6 meters long overall, its breadth 17 meters, and dead weight 3500 tons.

The top deck is continuous from fore to aft. There is ample space for net repair and a helicopter deck.

The Protangue

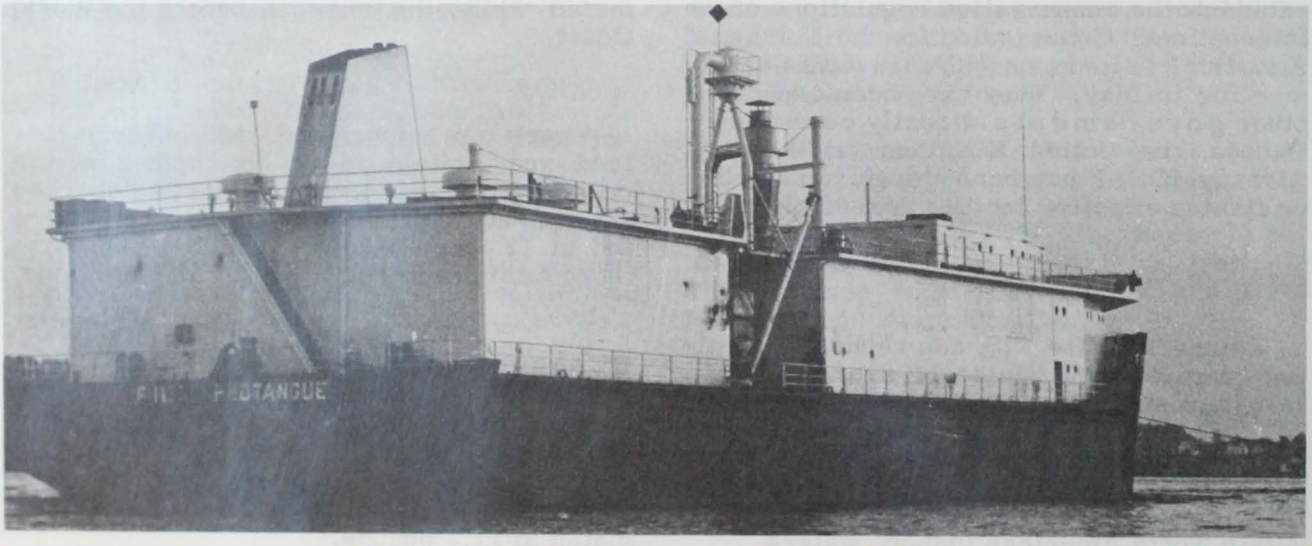
It is constructed as a compact factory ship, without its own propulsion engine. When in operation, it will lie at anchor in port or alongside quay and operate as a self-supporting shore factory. It also can be towed to other ports or areas.

The manufacturer states: "The floating factory is fully equipped with processing plant for meal and oil; unloading, loading, conveying facilities; diesel electric power station, main steam power plant, fresh water generators, and storage tanks for raw material, fish meal, fish oil, fuel oil, diesel oil, and fresh water." There are air-conditioned cabins and lounges, gallery, and complete service for 20 men in production staff and management; office, and production control laboratory.

The purposes of this floating factory are: to be able to move to another area if fish supplies fail, if industry in the area becomes oversized; or quotas reduce raw material quantities available; or other circumstances make removal desirable.

Plant's Special Advantage

A special advantage of a "mobile factory plant" is that local conditions may not offer favorable conditions to build industrial plants in areas where fish supplies are abundant.



This applies to the underdeveloped countries. Where new fish stocks are to be exploited, the application of mobile factories of this type will mean an excellent solution: they can be put into service quickly and moved easily.

This type of factory is considerably less expensive to build and operate than the big factory ships of orthodox type for pelagic operation.

Raw Material Handling

The fish are unloaded from fishing boats by 12" Karmoy-type submersible pumps at a rate of 1500 tons fish per hour. The pumping water is removed in a stationary screen and wire-belt conveyor that brings the fish to an automatic measuring device. The fish are distributed by screw conveyors to 4 storage tanks, each with 120-ton holding capacity. The tanks are made for automatic discharge and built specially for easy cleaning. Bloodwater is strained off thoroughly during transport of fish from holding tanks to factory. The bloodwater is treated separately and used in the fish meal and oil process.

Process and Plant

The plant is a single Atlas-Stord process line for 100% utilization of the raw material. The raw material is supplied from an automatic feeder to a continuous indirect cooker type SS-75/12 with special device for level control and automatic heat control. The cooked material is treated in a special pre-dewatering arrangement--a combination of strainer conveyor and vibrating dewaterer type SVS-30. After pre-dewatering, the material is passed over a stationary magnet and then supplied to a twin-screw, press-type BS-56 F, in which oil and water are separated.

The "dry phase", the presscake, is distributed by screw conveyors to two Rotadisc Driers type TST 80 R operated in parallel.

After grinding in a horizontal Hammer Mill type M-44, the fish meal is treated automatically with antioxydant. It is passed through an automatic scale and finally pressed into pellets in a CPM pellet plant. The pellets are distributed to the meal stores under deck by conveyors. This ensures good use of the holds and good trimming conditions.

"The meal holds have a network of thermo-elements for remote control of storage temperatures. Transshipment of pellets from factoryship to carrier is made by two pneumatic conveying systems with a capacity of 60 tons per hour."

The liquid phase from prestrainers and press is pumped via preheating tanks to a horizontal centrifuge-type Sharpless P-3400. The dry phase is mixed with the presscake; the liquid, consisting of oil and water, is treated in two automatic separators type Titan CNS 150. The separated fish oil is pumped to storage tanks. The remaining water, the stickwater, is processed to fish solubles in a stickwater-evaporating plant, type SAC 15 HLV, with stainless-steel tubes and automatic control.

The oil contents of the fish solubles are reduced to a minimum through separation in a solubles separator type Titan CNS 70. The soluble are mixed with the presscake and dried into whole meal.

Automatic controls are widely used. The complete plant can be operated at full production by 2-3 men.

ARSENAL OF OCEAN FISHERIES

Sergei Snegov

The Central Institute for Fishery Information and Technico-Economic Research (CIFITER) is only three years old. But within this short time, scientists at CIFITER gave the commercial fisheries numerous valuable recommendations--and set for designers problems the solution of which is bound to result in higher fish catch.

This article deals with the work of the commercial fishery laboratory headed by Ksenofont Pavlov, M.Sc. (Tech.).

What Kind of "Disposition" Does A Fish Have?

A fisherman will not find this question strange at all. He will probably suggest too that the quotation marks be crossed out. The point is that without knowing the fishes' disposition and behavior--differing not only in winter and summer, but even by day and at night--one cannot hope for a good catch. But, the system of "off-chance" and the concept of "fisherman's luck" are hopelessly outdated. Today, the successes of commercial fisheries must become constant and lend themselves to forecasting and exact calculation.

There is not room enough for all the vessels in traditional catch areas in shallow waters. Hundreds of trawlers and seiners sometimes crowd on small parts of the water area. Moreover, the stocks of valuable fish species in shelf waters require natural replenishment. So, the fishing flotillas sail ever farther and farther off the coast. Their catch of fishes and pelagic animals inhabiting the depths of the World Ocean is steadily growing. In our diet we now have mackerel and scad, capelin and tuna, anchovies and sardinelles, calmars and shrimps, as well as shark's "meat".

It is useless to try to catch the ocean's quick and timid inhabitants by old methods and tackle. New models of fishing equipment are being developed at institutes and designing bureaus with due account of the life and behavior of fish. But before speaking about them, we must answer the question: Where should pelagic fish be looked for? Does it have any favorite depths and location under the ocean surface that adds up to a hundred million square kilometers? (Scientists consider the areas where pelagic catch objects are to be found so immense.) Yes, it does. And they may be located through the simple taste of the oceanic population. Four fifths of all sea fishes and animals feed on plankton. And the development of phyto- and zoo-plankton proceeds in waters that are rich in nutrients: phosphorus, nitrogen, and potassium, in approximately a 45-meter layer which the sun rays necessary for photosynthesis penetrate. Plankton "clouds" stretch to approximately two kilometers down, and scientists consider that

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below that the ocean depths are almost uninhabited. Moreover, there are "dead" zones on the surface too. They account for 69% of the total area. These zones are reigned by circular currents, the water evaporates intensively, and its salinity increases. Heavy salt water ousts, as it were, the nutrients from the central areas of the World Ocean. There is nothing for a fisherman to do in these sea "deserts."

THE SACK THAT HAS BEEN TURNED INTO A STRUCTURE

The trawl, which used to be hauled over the bottom by a small vessel that used all the 600-650 h.p. of her steam engine, cannot qualify as anything but a sack. Fifteen or 20 years ago, such a sack, about 50 meters long and opened vertically but to a meter or two, was the main fishing tackle. It was attached to the trawler by two cables--wires. Its inlet--the mouth--was opened in the vertical plane by floats and sinkers, and in the horizontal by spacers on wires, flung open at a certain angle towards the direction of movement. Sluggish cods and haddocks and, less frequently, bass and flounder were the usual catch in those days.

It was considered that the catch could be increased by enlarging the trawl. And this meant greater resistance to be overcome by the tackle during travel, when water seeps through the small meshes of the net. Only a vessel with a powerful engine (several thousand h.p.) was capable of pulling it--and at a speed that would prevent the fishes from "escaping" from the trawl. There was another reason for the renovation of the trawling fleet: fisheries were becoming the expedition type. Vessels started sailing thousands of miles to fishing grounds and were away from home long months. A large-tonnage trawler, possessing a high degree of autonomy, was provided with a freezing plant. And then, too, an actual fish-processing shop appeared on such vessels.

The changeover to pelagic fishing, which began several years ago, proved much less simple than it might seem to the layman. At first sight, there is nothing difficult here: just pick the trawl off the ground, pull it closer to the vessel, and the pelagic fish will get into the net. Moreover, commercial fishermen have echo-sounders and fish locators. The trawl master has to only to look at the screen of the hydroacoustic receiver and to aim the mouth of the trawl at the shoal. At first, trawling often used to end in failure. The main reason was established when the trawl operation was observed directly under water. Skin-divers and then researchers of the Kaliningrad Special Experimental Designing Bureau (SEDB) for commercial fishery saw the complex behavior of various fish species near fishing tackle. The scientists went down in the "Atlanti-1" aquaplane. The fishes showed no "intention" of breaking through the netted walls of the trawl. They stayed three or four meters away from them. This meant that there was no need for small meshes. The very first tests of large-mesh trawls showed their advantages. The reduction of the hydrodynamic resistance of the net helped to enlarge considerably the dimensions of pelagic fishing tackle. The nets now used are so great that their "mouth"--the inlet--is capable of swallowing a multistoried building. Smaller resistance resulted in

much greater trawling speeds. Commercial fishing vessels pull whole shoals of quick mackerel and scad on board.

The mesh pitch already exceeds a meter for some experimental trawls. What is the optimum mesh size? How does the complex 3-dimensional structure, which ought to be called a "submarine plant," behave at various travel speeds? How is such a 100-meter-long "sack" to be controlled and aimed precisely at fish shoals? These are a few of the numerous questions to be answered. A large testing pool is being constructed in Kaliningrad. It will contain a thousand tons of water circulating at the velocity of 3-4 meters per second. It will help to experiment with models of trawls, propulsion screws, and turbines. The test pool will save much money now spent on marine testing the hydrodynamic characteristics of new trawling systems.

ELECTRIFIED TRAWL

Specialists from Poland, the German Democratic Republic (GDR), and the Soviet Union have tested it in the North Sea. The catch capacity of a trawl with netted electrodes attached to it is increased by two-thirds. The principle underlying the operation of this tackle is rather simple. The fish that gets into the zone of the electrodes effects is periodically hit by current and deprived of the possibility of escaping from the trawl forward.

The pulse electric device made in the GDR may operate in six different cycles. The most suitable is chosen for the definite fish species. Work with the electric trawl is quite safe. An automatic device limits the tensioning of the high-voltage cable, protecting it against overloads. The pulse generator is switched on only after 200 meters of cable are overboard. When the last 100 meters run out, a warning signal sounds.

An experimental specimen of an electric trawl for shrimp catch has been developed and constructed at the Kaliningrad SEDB. It produces a 40-50% higher effect than conventional shrimp trawls. Electric current is doing a fine job in the fishermen's trade.

THERE IS A NET, BUT NO VESSEL

Or, to be exact, there is no seiner that can cope with the most efficient pelagic catch tackle--the purse net.

What is a purse net like today and how is it used? It is a net of high-strength synthetic material, 1,000-1,200 meters long and 200-280 meters high. It is cast to trap a shoal located by search instrument or from a helicopter. After the ends of the net are drawn together (the gate is shut, as fishermen say), the cable running through rings on the lower edge of the net is tightened. The net turns into a giant purse stuffed with fish.

The very principle of purse-net catch demands that both seiner and her equipment possess special properties. The main ones are high speed and maneuverability of the

vessel and efficient operation of the net-drawing machine. Specimens of high speed and reliable deck mechanisms have already been tested and are being prepared for serial output. Now it is time to develop a seiner equipped with steering devices and active rudders meeting all requirements.

Meanwhile, fishermen have to resort to all possible devices to prevent the fish from escaping from nets.

FISHING "COMBINE" PUT OUT TO SEA

She carries various fishing tackle on board. A modernized bed trawl does good service in shallow waters. Its spacers are adjusted to raise directional mud clouds, leaving for the fish a single clean passage--into the trawl. The pelagic giant controlled from a desk in the steering room will report on all movements via an ultrasonic "channel" or via cable. The trawl may even become autonomous: it will be provided with its own submarine tugs.

Before the ocean "combine" starts a purse-net catch, an automatic steering system based on electronic computers will be switched on. Analyzing instruments will quickly appraise the catch conditions and suggest the most rational decision to the captain.

Bright lights will flare up at night over the surface and in the depth, and a fish pump will start delivering "live silver" into the ship's holds.

An acoustic device that reproduces the sounds of a feeding shoal will gather tuna fishes into a flock. An aromatic bait will attract the fish species into traps.

This looks like a fantastic picture. But each of the above ideas is already being worked on. Some, like the netless catch of Caspian sprats with the aid of light, are already practiced. So fantasy does not play so great a role in the description of future all-purpose fishing vessels.

THE GREEK FISHING FLEET AND MARKET

In mid-1971, Greece's distant-water fleet totaled 49 freezer trawlers with freezing capacity of 16,300 tons. Seven fished shrimp only. Six transport vessels serviced the fleet.

In 1970, the production of this fleet had increased 3% over 1969 due to three basic factors: 1) cancellation of certain price ceilings that enabled fishermen to earn more (this freed 15 vessels withdrawn from service in 1969); 2) increase in fishing time through development of a transhipment system; and 3) extension of hake fishing to South American waters.

Medium-Distance Fleet

The medium-distance fleet totaled 700 vessels: 388 trawlers (15,400 GRT), and 312 purse seiners (4,900 GRT). Forty to 50 vessels operated off Northern Africa; results have been discouraging. Production was down 8% from 1969. The decline has been attributed to poor fishing off Mauritania, the ban on fishing off Libya, and generally declining yields off northwest Africa. Fishing conditions in Greek territorial waters also were unfavorable.

Early 1972 Situation

At the end of 1971, the market for frozen fish weakened and wholesale prices declined. A decision was reached to restrict imports, except those under commercial agreements. Yields on fishing grounds off Northwest Africa were moderate. Because of increased fishing-license cost in Mauritania, and many foreign fleets off that country, Greek vessels are exploring more productive fisheries.

Fishermen Received More in 1970

In 1970, landings by the Greek fishing fleet for all sectors were 122,500 metric tons worth US$78.9 million. This compared with 122,900 tons in 1969. Prices at landing points rose an average 36% above 1969. The Atlantic fleet accounted for 27% (33,268 tons); the Mediteranean and coastal fleet took 43% (52,000 tons) and 21% (33,500 tons). ('Alieia', Dec. 1971; OECD, 1970.)

Greek fishing vessel returning to its home port near Pireus, landing point for vessels supplying Athens. (FAO: H. Henjaud)

JAPAN'S FROZEN-SHRIMP IMPORTS SOAR 2,000% IN 10 YEARS

William B. Folsom

Japan's 1971 shrimp-import season ended with a record spurt in volume and value at year's end. Beginning in October (See Fig. 1), the Japanese increased their imports to 6,808 metric tons worth US$18.9 million; in November, 8,471 tons ($28.2 million) and, in December, 11,429 tons ($41.3 million). Total 1971 imports reached 78,874 tons valued at $214.0 million, an increase of 38% in quantity and 48.7% in value over 1970 imports (57,146 tons worth $137 million). All of Japan's shrimp imports are frozen.

Many American shrimp importers felt at the time that the Japanese "buying spree" was touched off by devaluation of the U.S. dollar and that resulted in large-scale speculation in shrimp by Japanese firms trying to exchange dollars for shrimp. They were correct in that some nonfishery firms (textile,

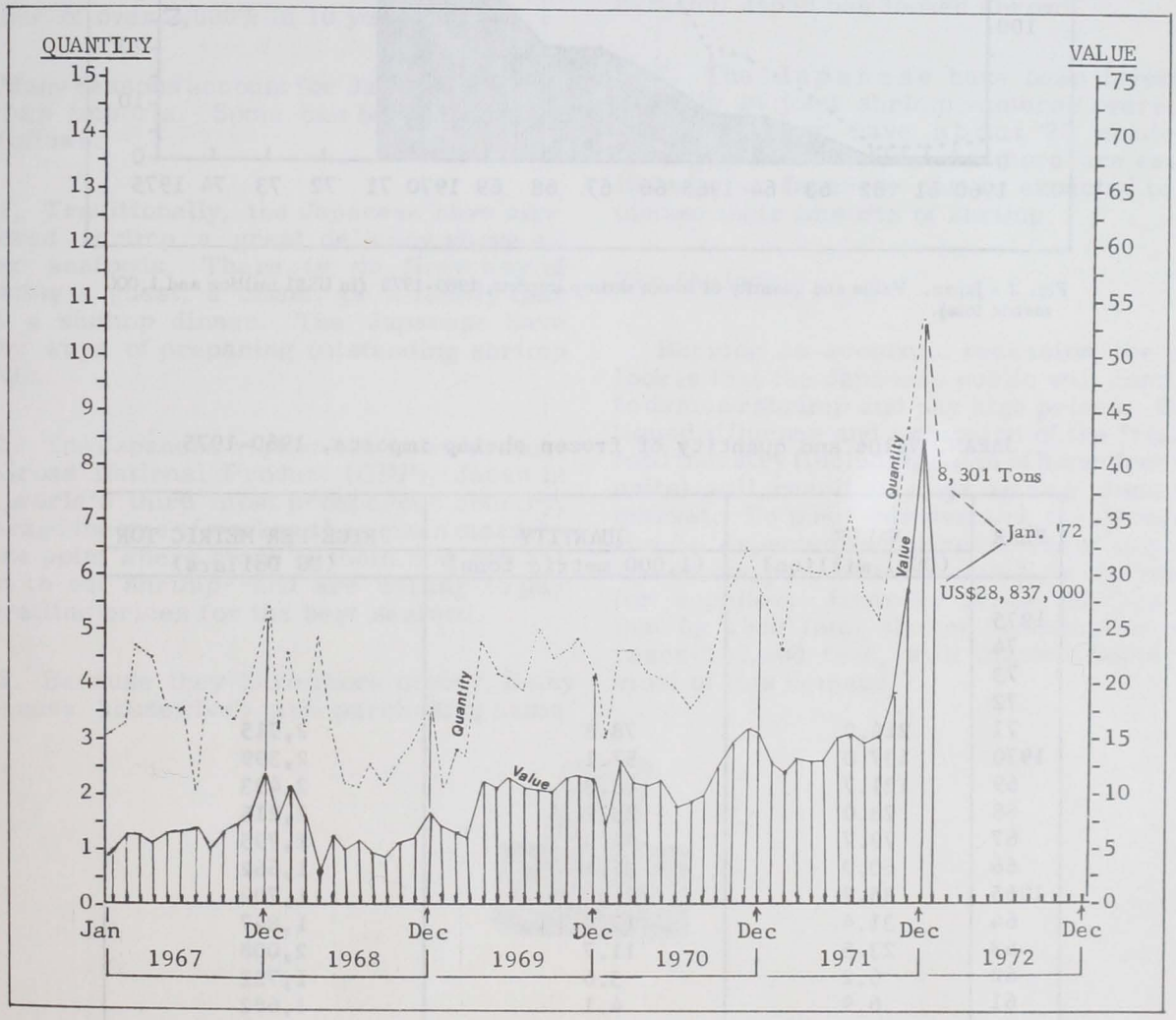

Fig. 1 - Japan. Frozen shrimp imports, value and quantity, by month, 1967-1972 (in 1,000 metric tons and US$1 million).

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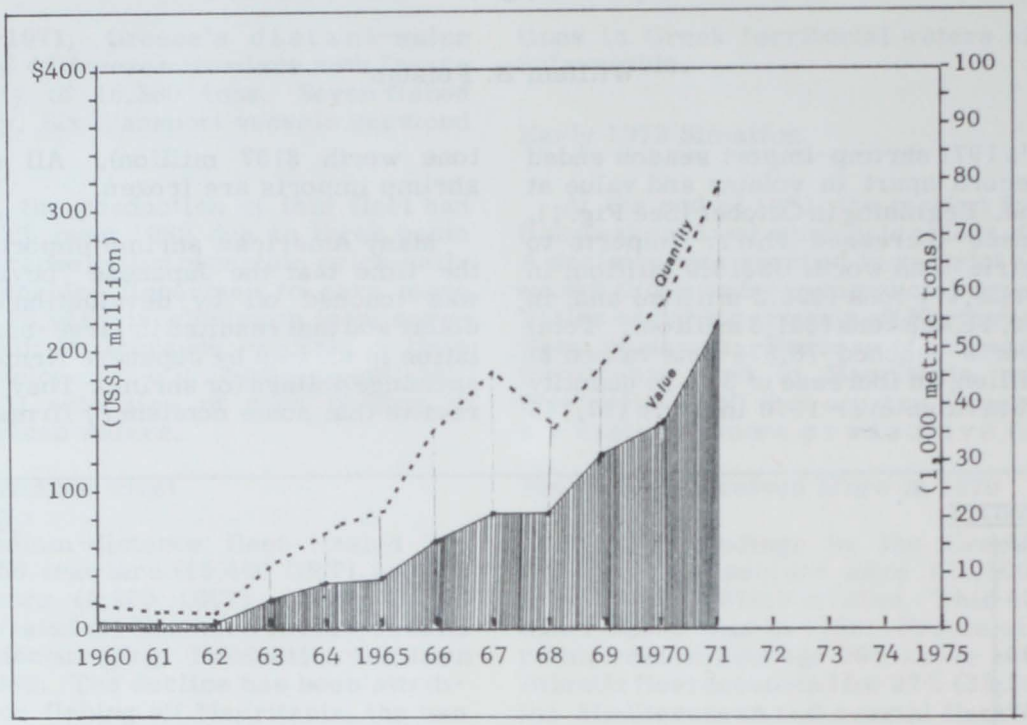


Fig. 2 - Japan. Value and quantity of frozen shrimp imports, 1960-1975 (in US$1 million and 1,000 metric tons).

JAPAN. Value and quantity of frozen shrimp imports, 1960-1975

YEAR	VALUE (US$1 million)	QUANTITY (1,000 metric tons)	PRICE PER METRIC TON (US Dollars)
1975			
74			
73			
72			
71	214.0	78.8	2,715
1970	137.0	57.1	2,399
69	121.7	48.8	2,493
68	78.0	35.2	2,215
67	79.7	44.4	1,795
66	60.0	36.1	1,662
1965	35.9	21.0	1,709
64	31.4	17.0	1,847
63	23.5	11.7	2,008
62	6.2	3.6	1,722
61	6.9	4.1	1,682
1960	6.6	-	

Note: Quantity is expressed in heads-off weight.

cement, and fruit importers) apparently did engage in buying shrimp on the world market. As a result, the Japanese market was reported glutted with certain-size shrimp, and some firms were compelled to sell shrimp below cost.

Trend Began After 1962

Japan's late 1971 shrimp buying was indeed striking, but the increase in imports, accentuated in 1971, is part of a long-term trend that began after 1962 (See Fig. 2). Imports totaled 3,600 metric tons in 1962, rose sharply to 11,700 tons in 1963 and, in 1971, totaled 78,800 tons. This was an increase of over 2,000% in 10 years.

Many reasons account for Japan's growing shrimp imports. Some can be summarized as follows:

1. Traditionally, the Japanese have considered shrimp a great delicacy above all other seafoods. There is no finer way of treating a guest, a client, or a family than with a shrimp dinner. The Japanese have many ways of preparing outstanding shrimp meals.

2. The Japanese worker has more money. In Gross National Product (GNP), Japan is the world's third most prosperous country. Average income of workers has risen steadily to the point where more of them now can afford to eat shrimp--and are willing to pay prevailing prices for the best seafood.

3. Because they have more money, many Japanese housewives are purchasing home freezers, refrigerators, stoves, etc. These purchases have increased sharply in the past 5 years. The housewife now can store frozen shrimp. Along with this development, the frozen-food industry has expanded rapidly. Frozen foods are becoming a big business. The industry has responded vigorously. Supermarkets are being constructed throughout the country.

4. The domestic catch of shrimp (generally sold live or fresh) has been static. It has averaged 60,000 to 70,000 metric tons per year and shows signs of a gradual decline. In the early 1960s, production was as high as 80,000 tons. To meet increased domestic demand, Japan has looked abroad.

5. The Japanese have been investing steadily in joint shrimp ventures overseas. Currently, they have about 25 scattered throughout the world. As more are established, the Japanese can be expected to increase their imports of shrimp.

The Outlook

Barring an economic recession, the outlook is that the Japanese public will continue to demand shrimp and pay high prices. Continued affluence and expansion of the frozen-food industry (including sales of home freezing units) will result in a growing domestic market. To meet this demand, the Japanese can be expected to increase their imports and to compete actively with U.S. importers for supplies. Japanese trade sources say that by 1980 total shrimp consumption may reach 150,000 tons, with imports supplying most of this demand.

JAPAN

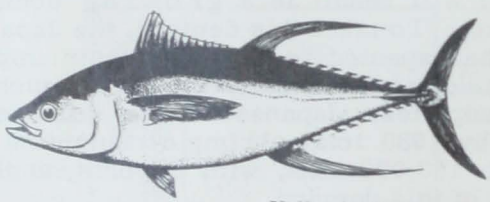
CULTURE OF YELLOWFIN AND BLUEFIN TUNA IS SUCCESSFUL

A tuna-culture experiment of the Pelagic Fisheries Research Laboratory, Japan Fishery Agency, has achieved marked success in raising yellowfin and bluefin tuna.

The research centered on (1) collection of spawn from mature yellowfin tuna, fertilization and hatching of eggs, and raising the young; and (2) raising immature bluefin tuna, whose stocks have decreased sharply in recent years.

Yellowfin Experiment

In the yellowfin-tuna experiment, about 1.2 million ripe eggs were collected from two mature yellowfin tuna and fertilized artificially. Hatching required 24 to 30 hours in water temperature of about 79° F (26° C); about 10,000 larvae were produced. One of these larvae lived 20 days--the longest survival in the experiment. Data on food and conditions of the water tank were collected. The experiment likely can be extended to cover the whole process from fertilization to raising of mature yellowfin tuna.



Yellowfin Tuna

Bluefin Experiment

In the bluefin-tuna experiment, young fish were captured by set nets and reared at culturing centers. Some were kept alive through the following winter. When caught in August 1971, the fish weighed 7 to 10 ounces (200 to 300 grams); in January 1972, about 3 kilograms (6.6 lbs).

Bluefin Tuna

Catching Young Fish Difficult

Although the artificial raising of young tuna from eggs collected from cultured, mature fish has succeeded experimentally, the method of catching young fish, such as bluefin tuna, at sea, has defects:

1. Systematic production of fish through culturing is difficult because young fish must be caught and the catch varies greatly from year to year.

2. It is becoming more difficult to adjust the catch for culture in competition with conventional fisheries. Fish culture and commercial fishing interests will have to determine how many young fish can be taken safely without upsetting the resources. This is not easy.

3. Seaweed beds in coastal waters, indispensable for the growth of immature fish, are becoming polluted; as a result, the catch of young fish is decreasing sharply.

So, it has become necessary to rely on artificial propagation--from raising mature fish to spawn collection, fertilization, hatching, and to rearing larvae and young fish.

The success of the latest yellowfin-tuna propagation experiment is an advance in fish culture because yellowfin is considered difficult to raise. ('Asahi Evening News', Feb. 17.)

JAPAN (Contd.):

SKIPJACK VESSELS SWITCHING TO CARP AS NEW BAIT

The Japan Tuna Association (NIKKATSUREN) plans to use grass (or silver) carp, Hypophthalmichtys moritrix, as live bait during the 1972 fishing season. This decision stems from successful experiments in 1971, in which grass carp were transported to the tuna fishery in tropical waters. Grass carp is abundant in Japan. ('Suisan Keizai', Feb. 4.)

NMFS Comment: Live bait is essential to Japan's skipjack (pole-and-line) tuna fishery, which long has had supply problems. The lack of live bait was an important reason for the slow expansion of the skipjack fishery in southwestern Pacific.

The live-bait problem can be summarized as follows:

(1) Anchovy is especially important in the skipjack fishery. However, anchovy is subject to high mortality due to handling. It must be caught, transferred to holding pens, kept for a week, transferred to holding pens aboard tuna vessels, and transported to distant-fishing grounds. Bait mortality normally runs as high as 50-70%. In 1970, anchovy marketed as live bait totaled 24,027 tons, or 10.7% of total anchovy catch. This accounted for only 27% of the skipjack fishery's bait requirements.

(2) The uncertain supply of commercial quantities of live bait in distant foreign ports. This uncertainty inspired bait-research cruises by the government and by industry. Bait-supply depots may be established in certain southwestern Pacific islands in 1972.

The Japan Tuna Association began experiments with grass carp in 1971. The tuna longliner 'Sakura Maru No. 18' fished with about 15,000 grass carp and reported success. In mid-September, the Japanese sent a survey team to Taiwan, where they found the Taiwanese using carp widely in their tuna fishery.

The Japanese now are studying the use of young "nishiki koi," a species of carp, as baitfish. Results have not yet been announced.

The successful experiments with grass carp mean that the pole-and-line fishery should be able to expand into new areas.

* * *

FIRM WILL FISH SKIPJACK FROM PONAPE, U.S. TRUST TERRITORY

The trading firm Marubeni Iida plans to form a skipjack venture with the Ponape District Fishery Corporation, U.S. Trust Territory of the Pacific Islands. On Feb. 10, 1972, Iida sent a 5-man team to that island on a one-month baitfish survey trip.

Fishing plan for the first year involves four 20-40 gross-ton skipjack poling vessels and one refrigerated mothership (500 to 1,000 gross tons) to be chartered from Hoko Suisan. The catch will be brought back to Japan. Plans under consideration include construction of a cold storage and processing plant at Ponape.

Other Venture Suspended

In 1971, trading firm Mitsui Bussan and the Okinawan Sanyo Fishing Co. established a joint skipjack fishing venture at Ponape. However, they have suspended fishing temporarily because of poor fishing conditions. ('Katsuo-maguro Tsushin', Feb. 23.)

* * *

GYOGYO TO FISH SKIPJACK IN INDIAN OCEAN

Kaigai Gyogyo (Overseas Fisheries Co.), one of several fishing skipjack off New Guinea and Indonesia, has decided to extend operations to the Indian Ocean. This decision followed a feasibility study at Seychelles Island in the Indian Ocean. Details are not available, but reports indicate one or two Gyogyo skipjack vessels have been fishing experimentally off Madagascar since Feb. 9, 1972. Gyogyo's advance into the Indian Ocean indicates increasing industry interest. ('Katsuo-maguro Tsushin', Feb. 22.)

* * *

JAPAN (Contd.):

COMPETITION FOR SHRIMP SHARPENS IN AFRICA

Intense competition looms among major Japanese trading firms for African shrimp, 'Mainichi' reported on March 3. Marubeni, C. Itoh, Sumitomo Shoji, Nissho-Iwai, and Mitsui are all interested.

Marubeni and Kyokuyo Hogei (large fishing company) set up a joint shrimp venture in Madagascar. Itoh plans joint ventures in Nigeria and Madagascar. Sumitomo Shoji plans to send fishing experts to Africa to survey resources. Nissho-Iwai and Mitsui are interested in a survey.

A First Step

The trading firms hope to "use their fishing ventures as footholds for their full-scale entry into the African markets and for the development of rich African mineral resources."

NMFS COMMENT: The Japanese are anxious to establish themselves in Africa. Shrimp resources there remain relatively untapped and the Japanese want to be first.

* * *

3 VESSELS EXPLORE OFF PERU

Three Japanese vessels began exploratory fishing in November 1971 off Peru for marine resources not now consumed there. Peru has an annual catch of over 10 million metric tons, nearly all anchovy. The anchovy are reduced to fishmeal for export.

Japanese participation in this research resulted from an agreement involving Nihon Hogei (a whaling firm), Mitsubishi Corp. (a trading firm), and EPSEP, Peru's food-fish promotion agency. Three 350-GRT vessels are exploring.

The 'Challwa Japid' is concerned mainly with pelagic and demersal fish species. The 'Koyo Maru' and one other vessel are searching for shrimp. The vessels operate with mixed Japanese-Peruvian crews.

For Peruvian Consumers

The fish caught by the Challwa Japid are destined solely for the Peruvian market. The Peruvians hope to develop a larger market for fish to meet local protein needs. The total catch will meet Peruvian demands first; the remainder will be exported to Japan. ('Pesca', Jan. 1972.)

* * *

OCEAN DUMPING RECOMMENDATIONS SUBMITTED

The Japanese fishing industry is reported generally pleased with recommendations on disposal of wastes in the sea submitted on March 16 by the Central Pollution Advisory Council to the Director General of the Environment Agency. These specify:

(1) the disposal of non-hazardous wastes (coli, mud) should be 50 miles or more from shore; (2) disposal of non-hazardous wastes (cinder, scrap-metal) should be confined to 5 places where water is deeper than 1,500 meters (3 in Pacific, 2 in Japan Sea); and (3) disposal of hazardous wastes (mercury, cadmium, lead) should be in the same 5 areas after being placed in concrete or sealed in suitable containers.

Pollock fishermen operating their own boats are being urged by processors, shallow-sea culturists, and administrators to process their catch aboard ship before returning to port in order to minimize pollution along Japan's coast. ('Suisan Keizai', Mar. 21-22.

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FROZEN-TUNA EXPORTS ROSE IN 1971

In 1971, Japan exported 73,460 metric tons of fresh, chilled, or frozen tuna valued at US$38 million. This is an increase over 1970's 62,414 tons worth $32 million. It reverses the slump that began in 1967 (see Figures 1 and 2).

Fig 1. JAPAN. Exports of frozen skipjack, albacore, yellowfin and bluefin tunas, by quantity; 1960-1971.

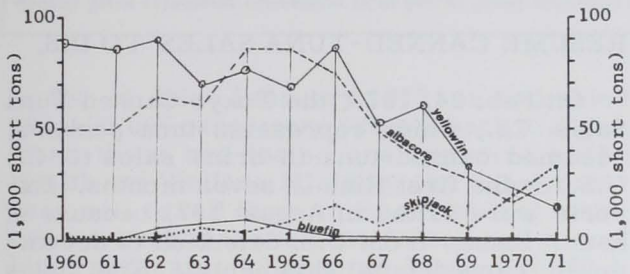
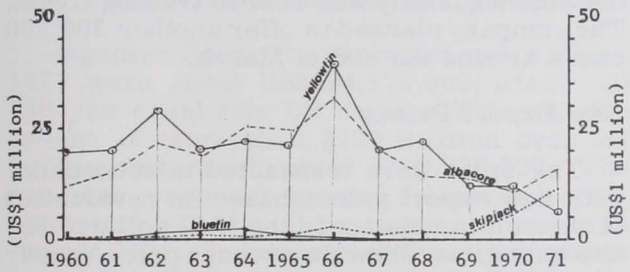


Fig 2. JAPAN. Exports of frozen skipjack, albacore, yellowfin and bluefin tunas, by value; 1960-1971.



Skipjack tuna became the leading export item: 32,342 tons in 1971, 20,564 tons in 1970. The Japanese have increased their fishing effort for it in the southern Pacific.

Albacore exports also increased in 1971: 25,116 tons; 17,280 tons in 1970. This reversed a long, steady decline that began in 1964-65.

Yellowfin exports decreased in 1971: 13,961 tons; 21,756 tons in 1970. It continued the decline begun in 1967-68.

Bluefin exports (0.2 ton versus 22 tons in 1970) remained small. This was due primarily to high domestic demand for it as "sashimi" (thinly sliced fish served raw). Japanese importers flew bluefin to Japan from the U.S., Taiwan, and Australia to meet demand.

Where Exports Went

The U.S., Japan's best customer, imported 77,563 short tons of frozen tuna and tuna loins worth US$41 million. (Includes direct exports and transshipments.) This was a 36% increase in quantity and 42% in value over 1970. It resulted partly from the 10% U.S. surcharge on canned tuna goods imposed in fall 1971. Frozen tuna was not subject to the surcharge. So it helped fill the gap left by slumping canned tuna sales due to surcharge and decontamination problem.

Also, the Japanese exported sizable quantities of tuna to Puerto Rico, American Samoa, and Fiji for processing and/or transshipment to the U.S.

Italy was another important market. It is normally supplied by Japanese tuna fleets in the Atlantic, mainly off West Africa. Ghana was one of Japan's principal African buyers. Most of the remainder went to Western Europe.

JAPAN (Contd.):

TWO FIRMS CEASE SAURY FISHING OFF U.S. WEST COAST

Taiyo Gyogyo and Nippon Suisan have announced they will not fish for saury off the U.S. Pacific coast in 1972 due to financial losses during the past three years. The other firms, Nichiro, Hoko Suisan, and Hokuyo Suisan, still plan to continue their exploratory fishery. ('Suisan Keizai', Feb. 10.)

NMFS Comment: The Japanese began exploring for saury off the U.S. West Coast in 1969 when their fishery off Japan reached a low--52,290 tons taken by 1,200 vessels. In 1970, the Japanese coastal saury catch increased to to 87,000 tons; by Nov. 1971, to 176,000 tons. This increase means that Japan needs to rely less on distant-water production. Exploratory fishing for saury off the U.S. has been unprofitable: in 1969, 500 tons; in 1970, 3,278 tons taken by 15 vessels; and 1,300 tons by 10 vessels in 1971.

* * *

SAURY FISHING OFF U.S. TO BE REDUCED SHARPLY

Japanese distant-water saury fishing will be cut sharply this year. For the past 3 years, the Japanese have been fishing experimentally in the central Pacific and off the U.S. northwest coast. They sustained heavy losses because of poor fishing. Only a very few saury vessels are likely to operate this year in that region. Most firms that had sent vessels have cancelled fishing plans for 1972 because price improvement in Japan seemed uncertain; in contrast, the coastal fishery seems headed for a good season.

Begun In 1969

Saury fishing off the U.S. West Coast was first undertaken in 1969 by 7 government-licensed vessels. On that trip, they caught many off Vancouver, B.C., in September, but their total catch was only about 470 tons. In 1970, 36 vessels were licensed, but only about 20 fished; these processed about 3,000 tons of frozen fish. In 1971, the number of licensed vessels was increased to 48; of these, 12 or 13 participated and processed about 1,000 tons of fish.

Problems Facing Japanese

The problems facing the Japanese are: 1) long distance to the fishing grounds; 2) unstable fishing conditions; 3) absence of large fish (even a good-sized saury measured only 9-10 inches and weighed about 2.9 ounces; and the count of 120-130 fish per 22-pound box obtained from the catch is not a very good size, even for tuna bait); and 4) heavy occurrence of parasites--making the fish unsuitable for humans. ('Suisan Tsushin', Mar. 28.)

* * *

RESUME CANNED-TUNA SALES TO U.S.

On Feb. 24, 1972, the Tokyo Canned Tuna Sales Co., which represents tuna packers, resumed canned-tuna-in-brine sales to the U.S. for the first time in seven months. Exports were halted in August 1971 because of heavy losses from U.S. detention of decomposed canned-tuna shipments. The Sales Company offered about 300,000 cases--about 250,000 cases of canned white-meat tuna and 50,000 cases of light-meat tuna. By March 3, the entire quantity was sold to trading firms. The company planned to offer another 300,000 cases around the end of March.

New Export Prices

The sales were transacted in accordance with new export prices based on revaluation of the yen in relation to the U.S. dollar. The new quotations show an average price reduction (in yen) of 5.6% for canned white-meat tuna and 2.9% for light-meat tuna. The range was unexpectedly small, particularly for the institutional pack, compared with the 16.88% upward revaluation of the yen (new official exchange rate is 308 yen = US one dollar). ('Suisan Tsushin', Feb. 26; 'Kanzume Joho', Mar. 6.)

Refunds for Recalled Canned Tuna

The Sales Company has informed trading firms that their canned tuna rejected by the U.S. will be repurchased in quantities up to 4,000 cases per firm at 5,600 yen (US$15.55) a case. Payment will be made upon presentation of a warehouse receipt, provided labels have been removed from all cans before they are returned.

JAPAN (Contd.):

	Price Per Case (Exwharehouse, Shimizo)							
	White Meat Tuna				Light Meat Tuna			
	New Price		Old Price		New Price		Old Price	
	Yen	US$	Yen	US$	Yen	US$*	Yen	US$
Solid								
7-oz. 48s	5,180	17.27	5,600	15.55	3,950	13.17	4,150	15.53
13-oz. 24s	5,080	16.93	5,550	15.42	3,870	12.90	4,110	11.42
66½-oz. 6s	6,250	20.83	6,450	17.92	4,850	16.17	4,900	13.61
Chunk								
66½-oz. 6s	-	-	-	-	4,630	15.43	4,680	13.00

*Dollar price represents conversion from yen at going exchange rate of 300 to one U.S. dollar. Previous rate: 360 yen to one.

As of late February 1972, an estimated 160-170,000 cases were shipped back to Japan. When these are tested and approved by the Health and Welfare Ministry, the Sales Company will resell them to mass-feeding institutions, such as the defense forces and school lunch program. ('Kanzume Joho', Feb. 21.)

* * *

1971 FISHERY IMPORTS ROSE SHARPLY

Japanese fishery imports during Jan.-Dec. 1971 were about US$424,178,000, based on 360 yen equal one US dollar. This was increase of more than $105 million over the 1971 imports worth about $318,900,000. The yen was revalued upward following implementation of new U.S. economic policy in August 1971. So imports of fishery products rose sharply during second-half 1971. By December, the new official exchange rate was 308 yen to the dollar.

Frozen Shrimp 50% of Imports

Frozen shrimp imports rose spectacularly from 1970's 57,146 tons worth $137 million to 78,874 metric tons valued at $203 million. These imports represented close to 50% of total fishery imports.

Among other fresh and frozen products scoring substantial gains were skipjack tuna, 17,587 tons (5,399 tons in 1970), and octopus, 64,455 tons (35,000 tons). ('Suisan Shuho', Mar. 5.)

* * *

MINKE WHALE FLEET ATTAINS GOAL OF 3,000 WHALES

On Feb. 18, 1972, Taiyo-operated Antarctic minke whale fleet reached its goal of 3,000 whales. The fleet is formed by the factoryship 'Jinyo Maru' (9,113 gross tons) and 4 killer boats. The fleet operated near 64° S. and 121° E. The average kill per day was 37 whales, higher than the planned 30/day. Body length of whales averaged 8.5 meters (previously believed 7-8 meters). The catch was processed into 7,500 tons of frozen meat and 1,000 tons of whale oil. This was the first time in Japanese whaling history that a mothership-type minke whaling expedition was sent to the Antarctic. ('Suisan Tsushin', Feb. 24.)

* * *

CRAB FLEETS DEPART FOR BRISTOL BAY

Two crab fleets departed Hokkaido, Japan, for Bristol Bay on March 1, 1972. The factoryship 'Keiko Maru' (7,536 gross tons) with 16 catcher boats and two 'Kawasaki' deck-loaded boats will fish from March 13 to September 24 and return to Japan October 5. Its 1972 quota is 19,148 cases of king crabs and 7,460,000 tanner crabs.

The factoryship 'Kyo Maru' (7,480 gross tons) with 14 catcher boats and two 'Kawasaki' boats will fish from March 11 to September 25 and return to Japan October 30. Its quota is 18,325 cases of king crabs and 7,140,000 tanner crabs.

JAPAN (Contd.):

Both factoryships will freeze their king crab catch instead of canning them aboard. The king-crab quota for the frozen production is 440,000 crabs for 'Keiko Maru' and 425,000 crabs for Koyo Maru. ('Suisan Tsushin', Mar. 31.)

* * *

ROUNDNOSE FLOUNDER HATCHED EXPERIMENTALLY

The roundnose flounder--Eopsetta species, called "mushi-garei" in Japan, where it is very expensive flatfish--has been hatched at the Shimane Prefectural Fishery Research Station.

The experiments were conducted by Yojiro Imazeki, chief of Utilization and Research Station. They began in a tank on Jan. 31, 1971. Imazeki injected sex-stimulating hormones into the fish on Feb. 10 and 16. One female hatched 40,000 to 50,000 eggs on Feb. 20. The water temperature was kept at about 14°C (50°F) and salinity increased. Roundnose flounders live at depth of 130 meters (426 ft.).

Exvessel prices for "mushi-garei" range from US$0.73 to $1.10/lb., and retail at about $0.48 apiece. ('Mainichi,' Feb. 28.)

* * *

SPECIAL SHIPBOARD SCALE DEVELOPED

Scales to measure weights aboard ship can err around 10%, even more in heavy seas. This is troublesome because proper scales are needed on factoryships for canning operations. Now a special scale has been developed to weigh objects correctly even in pounding seas.

Very Accurate

The scale was developed by Takubo Kogyo Co. of Osaka with Professors Ryuichi Masuo and Chikayoshi Maeda of the Osaka Institute of Technology.

Its error is less than 1/400th. The scale is designed so it will not be affected by a rolling ship. Tests were conducted for 6 months aboard a Japanese trawler in the Bering Sea.

Commercial sales of the scales have begun. ('Japan Economic Journal', March 1.)

* * *

THERMAL EFFLUENT USED FOR FISH CULTURE

A fish-culture pond believed to be the world's largest is being built at the Tokai atomic power station northeast of Tokyo. The budget is $550,000 over 5-year period. The project is to breed fish through the use of heated water discharged by the nuclear power plant.

Under present plans, 20,000-square-foot pond will be built first. A larger breeding pond of 70,000 square feet was scheduled to be completed by March 1972. Breeding will begin 3 months later. Sea bream, prawn, abalone, and eels are being considered for breeding and cultivation. Sponsors of the project are the Japan Fishery Resources Conservation Association, Science and Technology Agency, and the Fisheries Agency. The electric power industry will grant $490,000 in subsidies. ('Japan Report', Jan. 1.)

* * *

FISHERY AID MISSION TO VISIT 'THIRD WORLD'

The Japanese will send a "Fishing Ground and Marine Resources Development Cooperation Mission" to Latin America, Africa, and Southeast Asia later this year. The mission is being planned by officials of the Japanese Foreign Ministry, Fishery Agency, and the Japan Fisheries Association. The goal will be to explore ways Japan can help in development of marine resources.

The Agenda

The mission will consist of three 5-man groups. The first two teams will leave in September 1972 for Latin America (Argentina and Brazil) and Africa (Senegal and Rwanda). The African team also will visit Spain and Portugal. The last group will depart in November and visit Thailand, Burma, Malaysia, and Singapore. The teams will spend two weeks in each country. ('Japan Economic Journal', Feb. 11.)

* * *

NEW NICHIRO HEAD STRESSES 'SYSTEMATIZATION'

"The secret for success in business operation lies, in the final analysis, in how top executives get hold of correct information and data and pass them along the company grapevines in the shortest possible period of time." That is what Takeshi Hirano, new president of Nichiro Fisheries Co., told the Japan Economic Journal, Feb. 22, 1972.

"For this purpose," Hirano added, "rank-and-file employees, who form the base of a 'company triangle' should be in front, while top executives, who occupy the pinnacle of the 'triangle,' should hold up the rear. If top executives elbow their way to the front and personally urge their employees to greater efforts, the tactic is liable to backfire. Under such circumstances, employees are most likely to pay greater attention to currying favor with top executives than to their own business roles."

Troubled Fishing Industry

The fishing industry is plagued by knotty problems, including tightening international controls on fishing and the serious business slump caused by the "dollar shock."

"I will try my damnedest," Hirano states, "to turn our company into an all-embracing foodstuff manufacturer from a mere fishery firm.

"Fishery is very much a seasonal industry, so to speak. If we continue to depend on fishery alone, we shall not be able to cope with the rapid fluctuations of the world's economy. We have to process fish and other marine products and turn them into commodities equipped with high added value."

Nichiro Is Diversified

Already, Nichiro Fisheries is more than a fishery company with its subsidiaries engaged in a wide variety of business, including bakery and production of cola, feedstuffs, frozen foods, etc. It has about 6,000 employees.

Chukyo Coca-Cola Bottling Co., one of the subsidiaries, has become Nichiro's biggest profit earner. "We will go into any fields related either with fishery or foodstuffs in general," Hirano says.

He emphasizes frozen foods: "The living standards of the Japanese people have been greatly elevated in recent years. The tendency to use fish 'clean'--without guts, bones and heads etc.--will grow in the future. This year will prove a year of preparations for the serious debut of frozen foods."

The problem, he noted, is that the systematization of the nation's distribution channels is still far from completed.

"If there is no rail," Hirano says, "there will be no transportation. We will put everything into building and consolidating frozen-food distribution chains this year."

Role in World Arena

Hirano will advance into the international arena. Nichiro is now engaged in

consignment production for Nichiro Heinz Co. This is a joint foodstuff sales venture with J. H. Heinz Co. of the U.S.

Nichiro is emphasizing too the development and import of marine resources in foreign countries, especially African and Latin America.

"Self-restraints are indispensable in fishing operations," Hirano explains. "If we sail mighty 'black ships' in the seas off developing nations whose only assets are deserts and the seas and start catching fish and prawns at random, such nations are certain to believe that we are marauding on their own natural resources. Fishing is one industry in which international cooperation and restraints are of maximum importance."

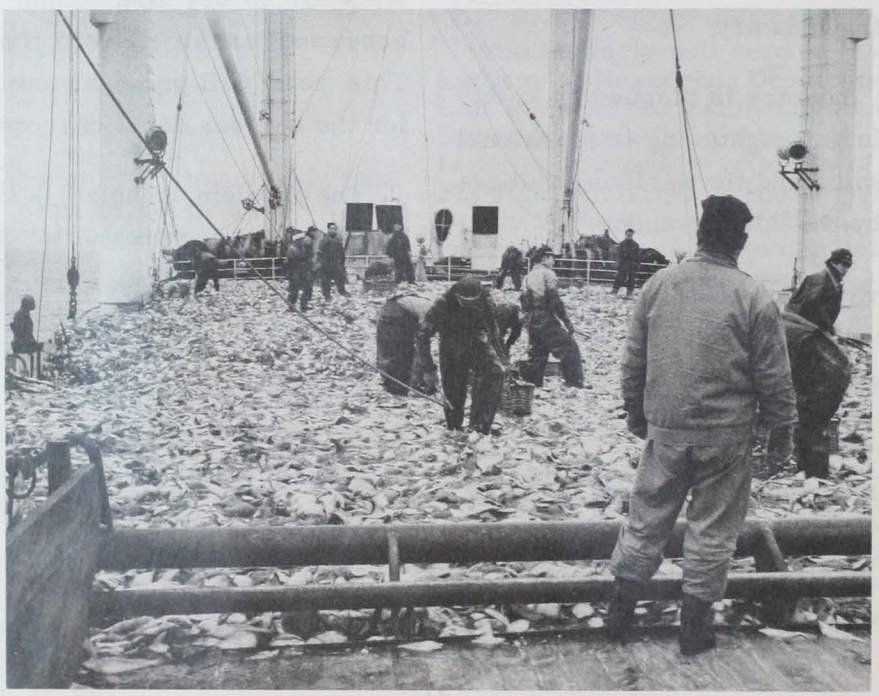
[Note: Hirano and 4 top aides plan to discuss fisheries, processing, and feed with Chinese officials after the 1972 Spring Canton Trade Fair.--'Suisan Tsushin,' March 2.]

His Management Philosophy

In Hirano's management philosophy, front-line workers get top priority. "Success of business operations heavily depends on front-line workers. Our company will enjoy success only when the three different armies of our employees--men working on fishing boats, men engaged in factory works and men selling our products--are working truly hand in hand."

To attain this, he advocates systematization of distribution channels and management structures.

"If men get used to working as part of systems, the spirit of cooperation--or esprit de corp, if you like to call it--is naturally born and men will stop having 'scoop mentality.'"



TAIWAN'S FISHERY PRODUCTION ROSE 6% IN 1971

Taiwan's total fishery production in 1971 reached 650,096 metric tons, up 6% over 1970's 613,044 metric tons, but below the set target of 665,000 metric tons.

	1972	1971	Increase
	M.T.	M.T.	%
Deep-sea fisheries	293,780	277,955	5.7
Inshore fisheries	250,679	234,704	6.8
Coastal fisheries	27,876	27,690	0.7
Fish culture	77,761	72,695	7.0

The 7% increase in fish-culture production was due mainly to the conversion of rice fields into fish ponds. It is estimated that about 3,000 hectares of low-yielding rice fields were converted for rice production in 1971.

Mullet Propagation

Continuing the work started 8 years ago, the Tungkang Marine Laboratory in South Taiwan produced about 60,000 fingerlings of grey mullet by induced spawning. This was made possible by the completion of the weather-proof nursery ponds at the laboratory.

Shortage of Seed Eels

The acreage of eel ponds in Taiwan increased to about 1,000 hectares by the end of 1971. It was estimated that about 30 tons of seed eels would be required to stock these ponds. The catch of elvers from the coastal waters, however, was only about 15 tons as of the end of February. Due to the shortage, the price has soared from about NT$1 (US$0.025) at the beginning of November to NT$7 (US$0.175) for each elver in February. In face of this situation, the government has prohibited export of elvers and permitted their import from Japan.

--T. P. Chen
Chief, Fisheries Division

S. KOREA WILL INCREASE DEEP-SEA FLEET TO 800 BY 1976

South Korea will enlarge its deep-sea fishing fleet from the present 335 to 800 vessels by 1976, according to Director Dong-soo Kim, Office of Fisheries. The expansion will require US$200 million in foreign exchange. Kim plans to conclude a fishery cooperation accord with Spain and Ivory Coast this year to facilitate Korean fishing in the Atlantic.

To Increase Fisherman Income

S. Korea also plans to boost per-capita fisherman income from the present 53,000 won (approx. US$140) to 80,000 wons ($210) a year by 1976. There are 1,160,000 fishermen in Korea. Their annual income is $10 less than farmers'. ('The Korean Herald', Feb. 8.)

SOUTH PACIFIC

AUSTRALIAN ROCK-LOBSTER SEASON LOOKS PROMISING

The 1971-72 rock-lobster fishing season in Western Australia and southern States looks fairly good, reports 'Australian Fisheries', Feb. 1972. The State catch will be about 17.9 million pounds, about the previous season level--but up from the 15.5 million pounds in 1969-70.

Catches in the central area of Victoria have been poor. In western and eastern areas, catches have been good.

On the West and East Coast of Tasmania, catches are reported better than average. Catches in the South Australian season have been poor.

Prices paid to fishermen run from A$1 to A$1.20 per pound. (A$1 equals US$1.15.)

The 1970-71 record production was up 13% from 25.2 to 28.5 million lbs. Western Australia, main producing State, took 17.8 million pounds.