



Principal Species of Commercial Shrimp in Argentina

By Enrique E. Boschi*

The main commercial species of shrimp caught in Argentine waters in the South Atlantic is Hymenopenaeus mulleri, Penaeidae family. This species is locally known as "langostino" and is pink in color.

It makes up the bulk of the crustaceans caught in Argentina. Marketed fresh, frozen, and canned, some of the frozen shrimp are exported to the United States.

The average yearly Argentine production from 1955 to 1960 was 2,327,704 pounds, heads-on.

Due to the magnitude of the fisheries for this shellfish, several Argentine institutions have initiated comprehensive studies of the species, some of the results of which have already been published (Anelescu and Boschi, 1959).

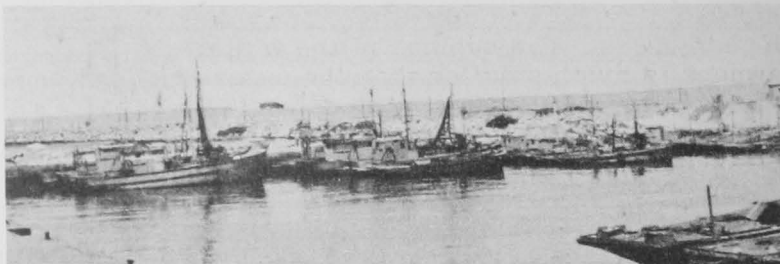


Fig. 1 - Shrimp fishing boats of Mar de Plata Port (Buenos Aires Province).

The first part of this investigation was conducted in the fishing area near the city of Mar del Plata, in the Province of Buenos Aires. This area was selected because it is the largest fishing port of the Republic and because of the facilities provided by the Marine Laboratory of the Department of Fisheries Investigations under the Secretary of Agriculture.

SAMPLING

Aproximately 3,000 specimens from the landings at the port were examined during 1954, 1955, and 1956. The specimens consisted of 15 lots corresponding to different months. Total length^{1/} varied between 32 mm. and 176 mm., the majority being between the limits of 70 and 129 mm. (classes VII-XIII, table 1). According to the data, the females had a mean total of 106 mm. and the males 94.73 mm.

SEXUAL CYCLE

The observations made during the years of 1954 through 1956 show that maximum spawning activity occurs during the warm season of the year, corresponding in the Southern Hemisphere to the months of December, January, and February. It is during that time that most ripe females are found. Their ovaries have a greenish coloration. During the winter months

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^{1/}Total length measured from the tip of rostrum to the tip of the telson.

Table 1 - Length Frequency and Percentage of Male and Female Specimens of *Hymenopenaeus mulleri* from Mar del Plata, February 1954 Through September 1956

Class No.	Classification at Intervals of 10 mm.	Male		Female		Male and Female	
		No.	%	No.	%	No.	%
IV	30-39	-	-	2	0.09	2	0.07
V	40-49	3	0.43	4	0.19	7	0.25
VI	50-59	14	2.03	17	0.83	31	1.13
VII	60-69	24	3.49	64	3.14	88	3.22
VIII	70-79	74	10.77	145	7.11	219	8.03
IX	80-89	143	20.81	272	13.34	415	15.22
X	90-99	186	27.07	341	16.73	527	19.33
XI	100-109	129	18.77	374	18.35	503	18.45
XII	110-119	72	10.48	311	15.26	383	10.45
XIII	120-129	29	4.22	223	10.94	252	9.24
XIV	130-139	9	1.31	134	6.57	143	5.24
XV	140-149	4	0.58	70	3.43	74	2.71
XVI	150-159	-	-	45	2.20	45	1.65
XVII	160-169	-	-	26	1.27	26	0.95
XVIII	170-179	-	-	10	0.49	10	0.36
Totals		687	99.96	2,038	99.94	2,725	99.90
Mean (X)		94.73±0.82		106.00±0.60		103.00±0.41	
Median		94.10±1.02		104.10±0.75		100.90±0.51	
Standard deviation (G)		21.53±0.58		27.33±0.42		21.84±0.29	
Skewness (Sk)		+0.087		+0.130		+0.288	

some females are also found with fully developed gonads. The number of the winter spawners is much smaller than the summer spawners, but it indicates that this species has sexual activity during the entire year, with a peak during the summer months.

It is probable that the coastal waters of Mar del Plata are not a suitable area for spawning, and this function evidently takes place in deeper waters.

HYDROLOGICAL CHARACTERISTICS OF THE ENVIRONMENT

The water masses over the continental shelf of the fishing grounds off the Province of Buenos Aires have certain special characteristics due to the combined action of the waters of various origins that are mixed during the year. The water masses are made up of:

(1) Fresh water from the Rio de la Plata

(2) Waters from the cold drift of the Malvinas, bearing waters of sub-Antarctic origin. These waters prevail on the borders of the continental shelf. Their winter temperature is 6° to 8° C. (42.8°-46.4° F.) and their salinity between 33 and 34 parts per thousand.

(3) The warm waters of the Brazilian current which invade the oceanic area outside of the slope. The summer temperature of these waters is over 20° C. (68° F.) and their salinity 36 parts per thousand.

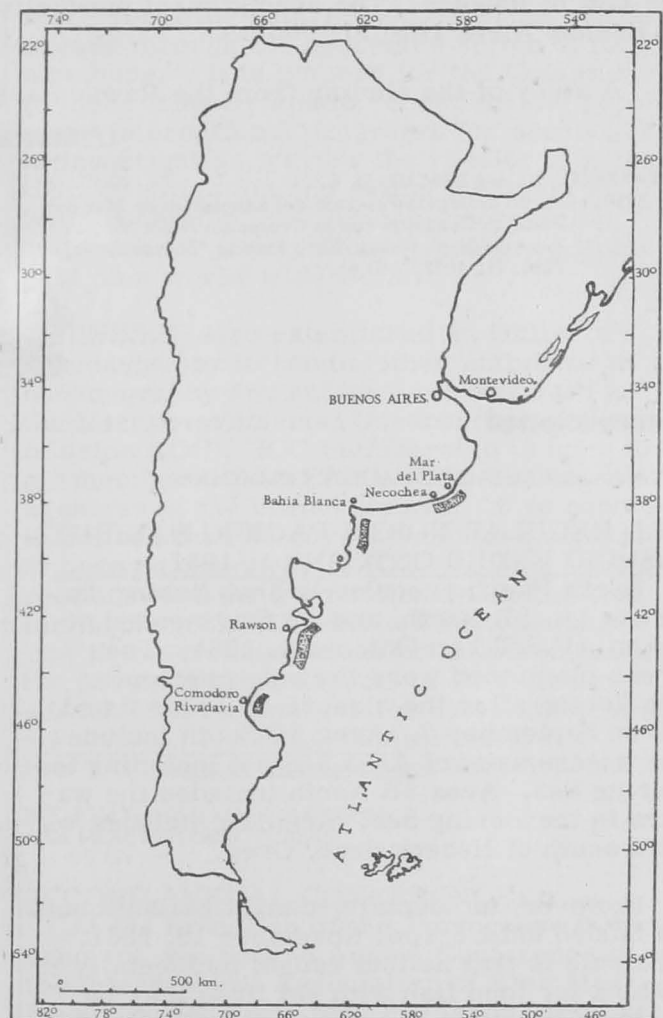


Fig. 2 - Stippled areas indicate principal shrimp fishing grounds along the coast of Argentina.

(4) Waters from upwelling originating in the deep layers of the slope. They appear in the vicinity of the shelf drop-off. Their temperature goes up to 6° C. (42.8° F.). Their salinity is high and they are rich in phosphates.

(5) In the coastal area, on the inside of the shelf, there is a "strip" of waters known as "residual" or "shelf waters." These waters are different from the bordering and slope waters because of their higher temperature and lower salinities. These have a movement back and forth along the coast during the various seasons of the year.

Summarizing the above information, one can say that the layer of waters at a depth of 20 meters (about 66 feet) that enclose the shrimp fishing grounds of Mar del Plata have a temperature of 9° C. to 20° C. (48.2-68.0° F.) and that the salinity varies between 33.27 and 34.94 parts per thousand.

FISHING

The fishing methods and gear common in the Mar del Plata area are the beam trawl and a smaller trawl. The fishing boats have an over-all length of 26 to 39 feet. The trawling is done in the sandy and muddy bottoms, generally at depths of 13 to 66 feet. Tows range from half an hour to one hour and a half. Fishing trips last one day, from very early in the morning until noon. The shrimp (heads-on) are stored in baskets and brought to port for cooking.

The greatest production in Argentina comes from the southern territory (Patagonia) near the city of Rawson. The second most productive area is near Bahia Blanca, in the Province of Buenos Aires (fig. 2).

A study of the shrimp from the Rawson area has been started.

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International

INTERNATIONAL PACIFIC HALIBUT COMMISSION

ALL REGULAR NORTH PACIFIC HALIBUT FISHING ENDED OCTOBER 1, 1961:

North Pacific regular halibut fishing in Areas 1A, 3B North, and 3B South ended at 6 a.m. (P.S.T.) on October 1, 1961. The areas mentioned were the only ones open for fishing after the closure of Areas 2 and 1B on September 7. Area 3B South includes the waters west of Area 3A, not including the Bering Sea. Area 3B North includes the waters in the Bering Sea. Area 1A includes waters south of Heceta Head, Oreg.

However, incidentally-caught halibut could be landed until 6 a.m. November 16, 1961. The rule is that halibut caught incidentally to fishing for food fish with set lines may be taken in the ratio of 1 pound of halibut to 7 pounds of other food fish. The November 16

deadline applied not to the catching of the halibut, but to landing and unloading.

The official opening date for all halibut fishing in the North Pacific regulatory areas this year was May 10 at 6:00 a.m. (P.S.T.), except that fishing in Areas 3B South started on April 25 and Area 3B North started on April 10.

Under the authority of the Convention between Canada and the United States for the Preservation of the Halibut Fishery of the Northern Pacific Ocean and Bering Sea, this year's regulations became effective on March 30, 1961.

INTERNATIONAL NORTH PACIFIC FISHERIES COMMISSION

JAPANESE PRESS COMMENTS ON MEETING OF COMMISSION:

The 8th annual meeting of the International North Pacific Fisheries Commission

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(INPFC) was scheduled for November 6-11, 1961, in Tokyo.

The Japanese press reported that discussions at the meeting would be centered on two principal issues: (1) whether to move the present provisional abstention line (east of which the Japanese abstain from taking salmon) westward from its position at 175° W. longitude; and (2) whether the three member nations (United States, Canada, and Japan) are satisfied that the stocks of salmon and halibut and those stocks of herring off the Canadian coast are such as to continue to warrant abstention under the terms of the Convention. Japan in past meetings of the Commission has insisted on the exclusion of those stocks of fish under the terms of the Annex to the Convention.

Japanese press stories implied that the Japanese Government would oppose any plan submitted by the United States and Canada to shift the abstention line westward. Some also conjectured that the question of the Soviet Union becoming a member of the INPFC would be discussed by the Commission since some fishery circles were reported to hold the view that in order to achieve adequate conservation of the fishery resources of the North Pacific it would be necessary to include the Soviet Union as a Party to the Convention when the Treaty is revised in 1963, according to Japanese press reports.

The Working Party on High Seas Salmon Distribution of the Committee on Biology and Research of the INPFC met in Tokyo, October 1-20, 1961. Composed of one expert each from Canada, Japan and the United States, it was established by the Commission's Committee on Biology and Research to undertake preparation of joint reports on salmon research. (United States Embassy, Tokyo, October 13, 1961.)

INTERNATIONAL COUNCIL FOR THE EXPLORATION OF THE SEA

FORTY-NINTH STATUTORY MEETING:

The 49th statutory meeting of the International Council for the Exploration of the Sea was held in Copenhagen, Denmark, October 2-11, 1961.

The Council's main functions are to encourage investigations in marine science and to coordinate operations to this end by par-

ticipating governments. Its area of operations may be roughly defined as the eastern North Atlantic Ocean and contiguous seas, including Greenlandic and Icelandic waters. The United States is not a member of the Council but is usually invited to send observers to the annual meetings. Three symposia, which began on September 25, were held in connection with the meeting. Two United States observers attended the meeting.

OCEANOGRAPHY

INTERGOVERNMENTAL OCEANOGRAPHIC COMMISSION MEETS:

UNESCO's Intergovernmental Oceanographic Commission held an organizational meeting in Paris, October 19-27, 1961, according to a State Department spokesman. UNESCO, at its 11th session, adopted a resolution establishing the Intergovernmental Oceanographic Commission "to promote scientific investigations with a view to learning more about the nature and resources of the oceans through the concerted action of its members." It is planned for the Commission to meet annually and to "consider and recommend international programs for oceanographic investigation, review the results of scientific investigation and define the basic problems requiring international cooperation," and work for the exchange of oceanographic data on a world-wide basis.

UNESCO also established an Office of Oceanography to handle other activities in oceanography and act as a secretariat for the Intergovernmental Oceanographic Commission (IOC). IOC membership is open to all members of UNESCO, FAO, and other agencies of the United Nations. It is reported that more than 35 governments are expected to become members of IOC. In June 1961 a resolution of the International Commission for the Northwest Atlantic Fisheries urged that member-delegations be fully briefed on the oceanographic aspects of fisheries research, and to work for the establishment of an advisory fisheries committee to IOC.

Note: See Commercial Fisheries Review, May 1961 p. 39.

INTERNATIONAL ASSOCIATION OF FISH MEAL MANUFACTURERS

SECOND ANNUAL CONFERENCE:

At the invitation of the Portuguese Government, the Second Annual Conference of the International Association of Fish Meal Manufacturers was held in Lisbon, October 26-27, 1961. The Conference was preceded

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on October 25 by meetings of the Executive Council and of the Scientific Subcommittee.

In addition to many Delegates from Metropolitan Portugal and Angola Portuguese Province, delegates and observers attended the Conference from the following member countries: France, Germany, Ireland, Netherlands, Norway, Peru, South Africa, Spain, Sweden, United Kingdom, and the United States. Delegates from Belgium and Morocco regretted their inability to attend. In addition, invited observers attended from Canada, Denmark, the Food and Agricultural Organization, and the Fishmeal Exporters Organization. During the Conference the Fishery Council of Canada was admitted to membership.

Apart from the usual business of an annual conference, among the matters discussed were means of increasing the consumption of fish meal and the better understanding of its value in less developed farming countries as well as in developed markets; the collection and dissemination of statistics in cooperation with FAO; and the practical and scientific assistance which the industry could give to FAO, WHO, and UNICEF in the development and utilization of fish in fish protein concentrate for human consumption in protein deficient countries. In particular, pilot-plant facilities and samples of fish meal for human consumption were offered to FAO to assist that organization and other international bodies in implementing plans discussed at the recent Fish in Nutrition Conference and Working Party in Washington, D. C.

Other scientific matters discussed were the continued effort further to improve the already high quality of this valuable protein food by expanding international studies, by improving methods of analysis, and by adopting the latest techniques of manufacture.

The principal objectives of the Association are the exchange and dissemination of scientific and technical information, examination and promotion of all matters of general interest to the industry, and representation internationally of the industry. The Conference provided a forum for discussion on scientific, manufacturing, and general trade problems. The Association was formed in October 1959.

Current problems which the Association is tackling, in some cases in conjunction with

other organizations, include promotion activities and the advancement of scientific knowledge which will assist in the opening of wider markets for fish meal in both developed and underdeveloped markets and the greater utilization of fish meal in animal feeding, technical work and exploration of the requirements and demand for fish meal and fish flour for human consumption, standardization of analytical methods, and a wide range of technical and nutritional problems.

At the FAO Meeting on Fish Meal held in Rome in March 1961, the Association was entrusted with the task of collecting and disseminating certain monthly statistics, and apart from cooperating in preparing the program and agenda, played a prominent part in the proceedings.

Delegates and Observers attending the Conference included leading manufacturers and scientists in the industry. Manufacturers' associations in the following countries have now joined the Association: Angola, Belgium, France, Germany, Iceland, Mauretania, Morocco, Norway, the Netherlands, Peru, Spain, South Africa, and the United Kingdom. In addition, most leading individual manufacturers in the United States, which have no individual Association, and the principal manufacturer in Sweden are members. (United States Embassy, Copenhagen, October 9, 1961.)

ORGANIZATION FOR ECONOMIC COOPERATION AND DEVELOPMENT

OECD REPLACES ORGANIZATION FOR EUROPEAN ECONOMIC COOPERATION:

The Organization for Economic Cooperation and Development (OECD), which came into being September 30, 1961, supplants the Organization for European Economic Cooperation (OEEC) which was created in 1948.

The new designation reflects the changes that have taken place in the world economic situation since the former organization was created to administer the Marshall Plan aid and to restore the European economy on a cooperative basis. It also reflects the fact that two non-European countries--the United States and Canada--now have become full members, bringing the total to 20 countries, and that the organization will stress the need for major free world industrial nations to consult closely on their economic policies.

On October 16-18, 1961, the Fisheries Committee of the OECD met in Paris to con-

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sider its work program for the coming year and review changes made during the past year in fishery policies of the member countries. The Committee discussed a draft program of work for the OECD in fishery matters; subsidies and other financial support to the fishing industries; the report on meeting of experts on the standardization of packaging material for fresh fish; and a progress report on technical actions on fishery matters.

Under the new organization, the Fisheries Committee has been elevated from a working party under the Agriculture Committee to a position with status equivalent to Agriculture.

UNITED STATES-CANADA ST. CROIX RIVER BASIN PROJECT INCLUDES RESTORATION OF ANADROMOUS FISH RUNS

The U. S. Department of State announced October 2, 1961, that the Government of the United States has considered the report of the International Joint Commission, United States and Canada, on the development of the water resources of the St. Croix River Basin, dated October 7, 1959, and has approved the recommendations contained in the report with the exception of one which is still under study. A similar approval of the Commission's report was announced by the Government of Canada. The project affects the Canadian Province of New Brunswick and the State of Maine in the United States.

The International Joint Commission was established pursuant to the Boundary Waters Treaty of 1909 to provide for the settlement of questions and to make recommendations concerning the use of boundary waters between the United States and Canada. The Governments of Canada and the United States, pursuant to Article IX of the Boundary Waters Treaty of 1909, on June 10, 1955 requested the International Joint Commission to investigate and report on the possibilities of further development of water resources of the St. Croix River Basin in Maine and New Brunswick.

To conduct the necessary investigations in the area, the Commission established the International St. Croix River Engineering Board with members from both countries. Interested parties were invited to present their views to the Commission at a public hearing in Calais, Maine, on June 27, 1958. As a re-

sult of its investigations and testimony at the public hearing, the Commission made a number of recommendations which were made public on November 10, 1959. These have been carefully studied by the Governments concerned.

The Governments have accepted the Commission's recommendations regarding steps to be taken to abate the pollution of the St. Croix River and recommendations that anadromous fish runs be restored.

FOOD AND AGRICULTURE ORGANIZATION

WORLD TUNA CONGRESS FOR 1962 PLANNED:

One of the impressive developments in world fishing during the past few years has been the increase of the catch of tunas and bonitos from about 500,000 tons in 1952 to more than 800,000 tons in 1959. But nobody yet knows the extent of the stocks of this group of fish, and even their migratory and spawning habits largely remain wrapped in mystery.

In the past the sea fishing industry has chiefly concentrated its activities on rich fishing grounds such as those found in the White Sea, off Iceland, off Newfoundland, and in various areas of the Continental Shelf of Europe, the Americas, Africa, and Asia, and it is only recently that fishermen have discovered that the tuna and related species roam in the hundreds of thousands, perhaps millions, over the temperate and tropical oceans of the world. So tuna fishing has become a major industry, nowhere more so than in Japan where the tuna fleets catch more than 500,000 metric tons of fish per year compared with little more than 200,000 tons in 1952. Even those figures do not reflect the full extent of Japanese enterprise in this booming industry as the Japanese tuna fishing boats are now operating in all the great oceans.

With the rapid development of the tuna fishing industry have come questions and problems of concern to all the nations engaged in the industry, many of them problems which can best be solved through international cooperation. In this connection the Food and Agriculture Organization (FAO), Rome, Italy, has taken the lead and is convening a World Scientific Meeting on the Biology of Tunas and Related Species, which will be held, at the invitation of the United States Government, in La Jolla, Calif. July 2-14, 1962.

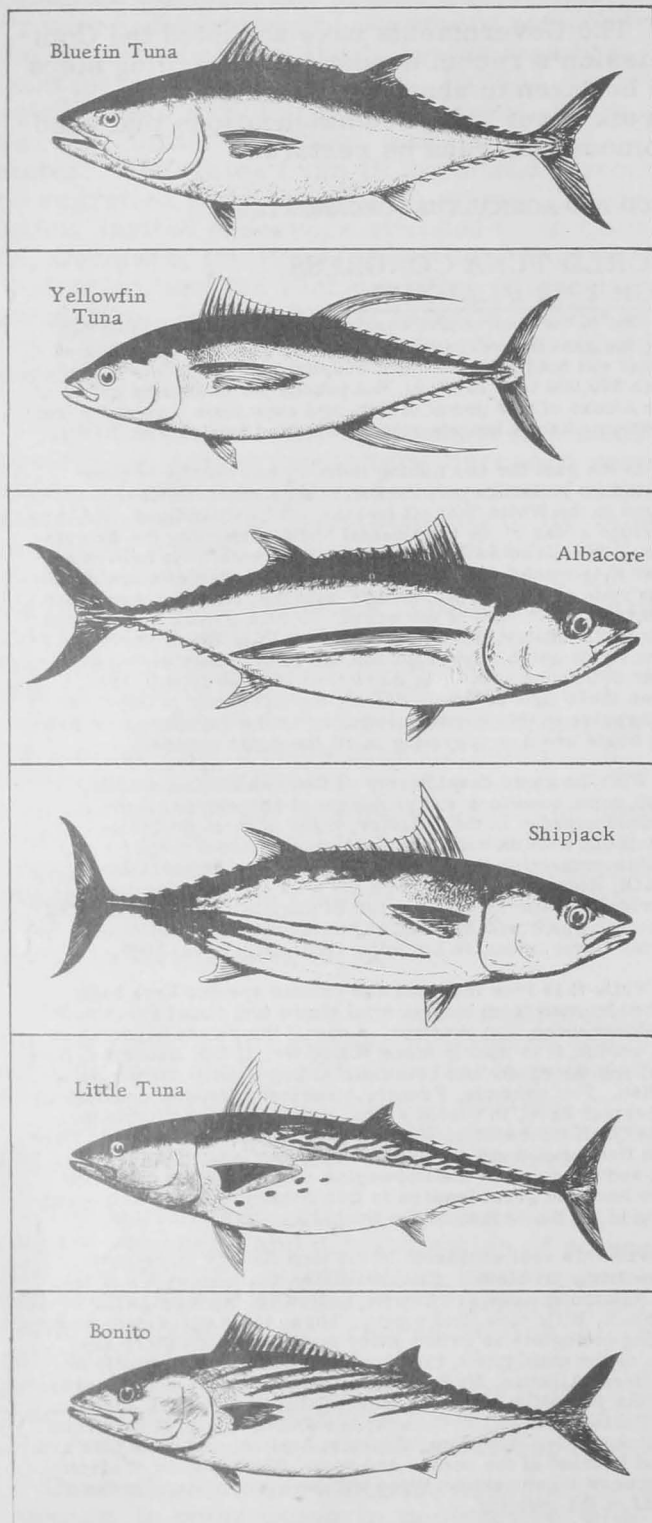
While it is true that tuna and related species have been fished by man from immemorial times (the tuna fishery in the Mediterranean, for example, is one of the oldest fisheries in the world), it is mainly since World War II that fishermen have realized the extent and commercial importance of this group of fish. For example, French, American, Japanese, and other fishermen have, in recent years, opened up a profitable tuna fishery off the coast of West Africa, while Norwegian and German fishermen have found they can catch tuna in the North Sea and in areas off the Norwegian coast. But the Japanese have been the great leaders in this fishery and they are operating in all the oceans of the world.

With this vast expansion of the tuna fishery there have come many problems. Commercially, the main types of tuna and related species are bluefin, yellowfin, big-eyed, albacore, skipjack, little tuna, and bonito. There is no agreement so far among biologists as to how many species of tuna there are. Two of the main types, the bluefin, which is found mostly in the North Atlantic, Mediterranean, and North Pacific waters, and the yellowfin, which is found mostly in the South Atlantic, the Pacific, and Indian Oceans, are among the most important commercially. Albacore, skipjack, bonitos, and little tuna are found in most of the oceans and seas. The question of identification of these various types will be a major item on the agenda of the meeting.

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It is expected that a good deal of discussion will center around the need for reliable and standard statistics on catch and effort.

At present, for instance, only a few of the increasing number of countries engaged in tuna fishing keep statistics of



catch and effort but with no agreed, uniform method so that the statistics are not comparable and much of their potential value is lost. "What is needed is an agreement among tuna fishing countries to standardize their methods of collection of statistics, which would be a big step towards assessing the magnitude of the world effort now going into tuna fishing and its effect on stocks."

Another big problem which concerns both biologists and fishermen is the migratory habits of this large and roaming species of fish. Nobody knows for certain, for example, whether the tuna which swim into the Mediterranean, presumably to spawn in the Aegean and Black Seas, form part of the vast tuna schools that migrate into the South Atlantic, down the west coast of Africa, and then across the ocean to the east coast of South and North America, or swim northward up the coast of Europe around the British Isles and over to North America.

In fact, we know very little about where tuna go in any of their seasonal movements. Attempts have been, and are being, made to track these migrations and there is some evidence to suggest from the catch of tagged fish that the bluefin tuna of the North Atlantic, for example, pass through the Mediterranean to spawn in the Aegean and Black Seas and then resume their thousands of miles of migration through the North and South Atlantic. But this is little more than hypothesis at present, supported only by the occasional catch of a tagged fish. For instance, two tuna which were tagged in 1954 by biologists of the Woods Hole Oceanographic Institute, Woods Hole, Mass., were caught five years later, in October 1959, by French tuna boats operating from the south of France. Similarly, tuna that had been tagged by biologists of the Inter-American Tropical Tuna Commission in California have been captured off the coast of Japan.

In view of the growing importance of the tuna fisheries, it is essential to know the full life story of tuna, the environment in which they live, the catch and effort of the fishing industry and an understanding of the dynamics of the population, if the stocks are to be exploited without depleting them.

The problems briefly mentioned, and many others, will be discussed by the World Congress. It is hoped that at the international meeting of fisheries scientists ways and means will be found to bring about effective international cooperation in investigating the riddle of the tunas so that ultimately we come to have sound knowledge of the magnitude of the resource and the effect that fisheries exert upon it.

Such knowledge is necessary if scientists are ever to be able to predict the volume which can be caught without impairing stocks. But that is looking far into the future and will, in any case, be a subject for discussion at the 1962 Congress.

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FORUM ON RESEARCH VESSELS HELD IN JAPAN:

The Research Vessel Forum convened in Japan by the Food and Agriculture Organization (FAO) opened September 18, 1961, in Tokyo. The purpose of the Forum was to provide information on all important technical aspects of the design and operation of research vessels, particularly those for fishery research, and to provide oceanographers, biologists, and naval architects an opportunity to exchange information and to discuss the work accomplished.

Discussions centered on "Jobs To Be Done." Oceanographers mentioned the increasing specialization in the various fields of oceanography. Considerable stress was laid on rapid changes in techniques used by physical and chemical oceanographers. Trends toward use of instruments which give multiple synoptic results through use of towed cables and special instruments were discussed. These methods of obtaining data require extensive hoisting devices with extremely sensitive controls.

New problems facing oceanographers created by radioactive waste were pointed out. Sampling of waters for trace elements requires large volumes of water. Weight

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of water samples taken plus the need to keep them free of outside contamination requires innovations in deck equipment. Use of radioactive tracers or "tags" by both physical oceanographers and biologists were discussed. Problems of vessel and vessel laboratory contamination were stressed. Suggestions were made for minimizing radioactive contamination through use of paints with specified procedures for their use. In this connection, laboratory design and organization (vessel layout) were discussed.

Requirements by biologists for shipboard facilities for keeping organisms alive presents special problems in vessel plumbing. Normal piping (galvan, iron, etc.) is not satisfactory because of toxic effects on larval forms. Plastic pipes were recommended. It was noted that in some instances bottom (copper) paint could affect survival of organisms necessitating intakes for aquarium facilities to extend beyond the hull.

Projects to be conducted by exploratory fishing, experimental fishing, and gear research vessels were discussed and factors influencing ship design were noted. Members of the Forum boarded the Japanese research vessel *Koyo Maru* for a two-day trip at which time equipment aboard the vessel was demonstrated and a visit was made to the fishing port of Hedate.

Exchange of information took place on specific needs of research vessels including laboratory space, power (steam, Diesel, Diesel-electric, etc.), range requirements (fuel, etc.), winches required for scientific and fishing activities, and electronic devices.

UNITED NATIONS CONFERENCE ON NEW SOURCES OF ENERGY

SOLAR DRYING DEVICES COULD SAVE MONEY IN FISHING AND FARMING:

Annual savings in the millions of dollars may be possible if effective, economical solar energy techniques could be applied in agriculture and fishing, the United Nations Conference on New Sources of Energy, which met in Rome, was told. A consulting chemical engineer of Denver, Colo., has suggested that these savings might be realized through lowering the costs of drying fish and various agricultural products; improving the quality of the products; and "reducing losses by spoilage, deterioration, transport delays, and other factors."

The comments were made in a discussion of the potentialities of solar energy for drying, cooking, and heat storage.

Some 500 scientists, engineers, technical experts, and government administrators from 70 countries attended the Conference, which opened on August 21-31, 1961. The participants considered practical ways of using energy from the sun, the wind, and the earth's underground heat, especially in less developed countries lacking conventional sources of energy for economic development.

In the discussion on solar energy, attention was drawn, among other things, to the widespread use of solar devices for drying grapes and fish, and to the contemplated application of solar drying of oil shale in Brazil to remove moisture from shale before oil extraction.

At least eight or ten improved types of solar cookers and ovens are available on the market, the Conference was informed, but costs of the units must be lowered before widespread use can be expected in the less developed countries. Local customs and traditions were considered to be "more serious obstacles" than technical problems in introducing solar cooking.

The Director of the National Physical Laboratory of Israel, said the prospects for increasing solar uses in food preservation were more favorable than those for air conditioning. The Director of the Kobayashi Institute of Physical Research of Japan said that solar water heaters were the most widespread direct use of solar energy. He spoke of a simple type of plastic heater developed in Japan.



Australia

FISHING VESSEL CHARTERED BY GOVERNMENT TO SURVEY TUNA RESOURCES:

The top vessel of the tuna fleet in New South Wales and South Australia, the M/V *Estelle Star*, has been chartered by the Australian Government to survey the commercial potential of tuna fishing off the southwest coast of Australia, the Minister for Primary Industry announced on August 3, 1961.

The survey was due to start in August and will last 12 months. The presence of tuna in the waters off the southwest coast of Australia has been clearly established, but little is known of the commercial prospects. The Commonwealth Government and the Western Australian Government are anxious to extend the tuna industry to the Western Australian area, the Minister of Primary Industry stated.

The *Estelle Star*, which was converted for tuna fishing two years ago, is 85 feet long, has a speed of 10 knots, and has refrigeration space for 42 tons of tuna. In the two years since it was converted to tuna fishing, the ves-

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sel has taken about 20 percent of the total Australian catch each year. During the 1960/61 season the vessel caught 870 tons of tuna.

"The Estelle Star is therefore a proven tuna fishing vessel and has an experienced crew. It is well equipped for survey work," the Minister stated.

"If the survey proves successful, I hope that a prosperous tuna industry will be developed in Western Australia to help meet the growing demand for this fish. The Australian tuna catch has grown from 115 tons in 1951/52 to an estimated 5,000 tons last year. It is now the second largest fishery in Australian waters.

"However, owing to the growing popularity of canned tuna with the Australian public, local supplies have proved inadequate and tuna imports have increased rapidly in the past 12 months," he added.

At present the Australian tuna catch is taken about equally in New South Wales and South Australia.

The survey will be financed by the Fisheries Development Trust Account which was established by the Commonwealth Government in 1956 with funds received from the sale of the Australian Whaling Commission's station at Carnarvon. The western Australian Government and the Commonwealth research office will cooperate with the Fisheries Division of the Department of Primary Industry in the survey.

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MODERN PILCHARD PURSE-SEINE GEAR INTRODUCED:

Pilchard purse-seine fishing using a modern nylon knotless seine and a power block has been developed in Australia during the past two years by the managing director of a fish cannery at Port Phillip.

For the purpose, a 68-foot fishing vessel (the M/V Surprise) was outfitted for purse-seining with a Japanese nylon net (150 fathoms long and 11 fathoms deep, equipped with plastic floats, nylon headline and footline, and a galvanized chain headline).

The Australian Fisheries Division imported from the United States a power block, with a rope drive worked from the purse winch, and this was lent to operators of the Surprise to use with the large purse seine in order to make the purse-seine operation as efficient as possible.

The necessary canning equipment to can pilchards in flat cans has been installed at the Port Phillip cannery.

The five-man crew of the Surprise consists of experienced purse-seine fishermen who have worked in the Adriatic Sea and out of San Pedro, Calif.

After final preparations, including the fitting of a turntable in place of the existing platform on the vessel to facilitate the handling of the net, the purse-seine net was placed aboard the vessel early in March and a trial set was made off Port Arlington.

On the first set the efficiency of the operation was well demonstrated. The whole operation can now be carried out, at night, in a little over 30 minutes.

Most of the fishing to date has been at night, using mercury vapor lights on the vessel and also on an 18-ft. boat. Catches at first were small, but indications of possible commercial quantities appeared at the end of May when the vessel landed 5 short tons in a single haul. (Australian Fisheries Newsletter, July 1961.)

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COMMONWEALTH FISHERIES COUNCIL FORMED:

A conference of Commonwealth and State Ministers responsible for Australian fisheries, meeting at Canberra on September 1, 1961, decided to set up an Australian Fisheries Council.

The Chairman of the conference was the Minister for Primary Industry. He said the conference agreed the Fisheries Council would be established on the lines of the Australian Agricultural Council which has been functioning for more than a quarter of a century to consider and recommend on agricultural questions of mutual interest to the Commonwealth and state governments.

The Fisheries Council will consist of the six State Ministers responsible for fisheries, the Minister for Primary Industry, who will be Chairman, the Minister in Charge of Commonwealth Scientific and Industrial Research Organization (C.S.I.R.O.), the Minister for Territories, and the Minister for Trade.

The functions of the Council will include:

1. Generally to promote the welfare and development of fishing industries.
2. To arrange the mutual exchange of information regarding fisheries production and marketing.
3. To cooperate to ensure the improvement of the quality of fisheries products, and the maintenance of high grade standards.

Australia (Contd.):

4. To cooperate to ensure uniform management policy.
5. To consider the requirements of fishing industries in regard to production and marketing.
6. To promote the adoption of a uniform policy on external marketing problems, particularly those pertaining to the negotiation of intra-Commonwealth and International Arrangements.
7. To consult on proposals for the grant of financial assistance to the fishing industries.
8. To consider matters submitted to the Council by the Standing Committee on Fisheries.

According to the Minister for Primary Industry, the conference decided that the first meeting of the Fisheries Council should be held within a year's time. Meeting of the Council will be held in each state and Canberra in rotation.

The conference of Ministers also decided to set up a Standing Committee on Fisheries consisting of the principal fisheries officers of the six states, the Commonwealth Director of Fisheries, the chief of the C.S.I.R.O. Division of Fisheries and Oceanography, and a representative of the Department of Territories, to advise the Council on the functions already outlined. The first meeting of the Standing Committee will take place within six months time.

Excerpts from a statement by the Minister of Primary Industry follow:

"The responsibilities of the States and the Commonwealth are clear in such matters as the management of fisheries in territorial and extra-territorial waters, but as fishermen operate from state ports and the fisheries overlap the respective state/Commonwealth boundaries of administration, the need for close cooperation among all Government authorities is self-evident.

"However, while such cooperation is most necessary, we should nevertheless accept our respective responsibilities in the different fields. These areas of responsibility were

first defined in 1947 and it may now be opportune to review the situation in the light of developments since then.

"It is highly important to cooperate in our efforts to protect and conserve our fisheries. Owing to the migratory habits of fish it is necessary that we examine each fishery carefully and introduce measures of management which will be to the mutual benefit of all concerned in the fishing industry--whether it be the fisherman, the processor or the consumer--regardless of the State in which they may live. Similarly continuing liaison between all the Governments represented here today is most important for the development of our fishing industries. A feature of the agenda we have before us is the number of items which require the close cooperation of us all.

"A basic problem is that the Australian catch has not kept pace with our increase in population. While Australian production has remained more or less stable, imports have increased considerably to meet consumer demand. The inability of Australian production to grow at a desirable rate may well be attributed to both biological and economic reasons which require the attention of Governments to encourage efficient and economic development in all sectors of the industry.

"Although production from some fisheries has increased, there has unfortunately been a significant fall in the quantity of fish taken in other sections of the industry and as a result the overall production has remained relatively stationary. The decline of certain fisheries, particularly the East Coast trawling industry, may be due partly to scarcity of fish and partly to economic reasons.

"Statistics show that the production of Tiger Flathead in New South Wales last year was 1,265,000 pounds, which is only 40 percent of the catch seven years ago. Similarly, the 1959/60 barracouta catch of 5,870,000 pounds was less than two thirds of the 1952/53 catch. There has also been a recent and serious fall in Australian salmon (trout) production. Last year the quantity landed was 7,600,000 pounds, as compared with 12,160,000 pounds only three years ago.

"The decline in these important fisheries points to the need for more research to pinpoint the factors affecting the catch and to suggest means of maintaining production at a reasonable level.

Australia (Contd.):

"In contrast to the decline in some of our own fisheries there has been a substantial increase over recent years in the volume of imported frozen filleted fish. This is somewhat disquieting. Much of this imported fish is coming from the United Kingdom, South Africa, and New Zealand. The value of these imports in 1959/60 was approximately £3¼ million (about US\$7.3 million) compared with about £1½ million (about \$3.4 million) in 1956/57. This development in itself emphasises the need to encourage the production of a good quality Australian pack which can be sold in competition and still be profitable to both fishermen and processors.

"Actually half of the total fish and fish products consumed in Australia is imported. The total value of imports of fish of all kinds was £6,145,000 (\$13.7 million) in 1957/58 and £8,047,000 (\$18 million) in 1959/60. On the other hand, fish exports from Australia which in 1957/58 were valued at £2,800,000 (about \$6.3 million) had risen in value to £4,196,000 (about \$9.4 million) in 1959/60. However, crayfish (spiny lobster) exports to the United States represented about 90 per cent of the total.

"With regard to imports of fish, one of the problems we face is the direct Government assistance that is being given to fisheries overseas. This makes it possible for fish products to be landed in Australia at relatively low prices. The assistance varies from the subsidization of boat building, fishing operations, consumption and exports, to import restrictions. In the United States a part of the money raised by Customs duties on fish products is used for research and development, while a loan fund has been established to improve fishing fleets and to encourage more profitable operations.

"Though some of the forms of assistance used overseas may not be acceptable to Australian governments, the time has come when we should study more closely the methods which can best be used to improve our own fishing industry and so enable our fishermen to obtain a reasonable share of the domestic market.

"The Department of Primary Industry Fisheries Division has been studying developments in overseas fishing industries and according to the departmental reports it is

significant that there is a general tendency abroad to spread activities over a wider area in search of new fishing grounds. Vessels are becoming larger and in some fisheries the trend is towards operations by factory ships and fleets of catcher boats with a mother ship. This development is transferring boat ownership from individuals to large companies. Advances have been made in vessel design and construction with an increasing use of fibre glass and plastics. Refrigeration facilities are improving and greater use is being made of electronic navigation and fishing aids.

"Recently we introduced into Australia a power block in an attempt to speed up purse-seine fishing operations. Tests on the pilchard fishery have been most successful and it is hoped that the block will be used for other fisheries with the same result.

"As part of the drive to expand Australian fisheries, the Fisheries Development Trust Fund, founded on the sale proceeds of the Whaling Commission's station at Carnarvon, was established.

"Generally speaking the money can be spent on developing fisheries in extra-territorial waters, whether the fisheries are confined solely to those waters or extend into territorial waters, as well as on technical, scientific and economic research into fisheries. Because of the constitutional limitation, direct financial assistance to the states from the fund itself cannot be given. The major expenditure to date has been on testing the commercial possibilities of trawling in the Great Australian Bight. The remaining expenditure has been mainly for surveys of different fishing areas, construction of a barracouta survey vessel, and crayfish biological research. Total expenditure to date amounts to £378,000 (\$845,200).

"I would now like to say something on certain specific aspects of the industry which may be of general interest to Ministers.

"Crayfish: A feature of Australian fisheries is the commercial quantities of crayfish or spiny lobster taken off the coast from Port Macquarie to Shark Bay, and especially off the West Coast. The development of this industry is mainly due to the attractive United States market for frozen cray tails. The annual catch has increased considerably and estimated earnings have risen from \$1,850,000 in 1950/51 to \$8,400,000 in 1959/60.

Australia (Contd.):

"While we may be optimistic about the future of this industry, we must continue by careful management to safeguard it against depletion or over-exploitation which could adversely affect supplies and sales returns in the years to come.

"Tuna: The Australian tuna catch has shown a spectacular increase from 153 tons in 1950/51 to 5,000 tons in 1960/61. In volume it now ranks above all other Australian fisheries, except crayfish and mullet. Canned tuna has been readily accepted by the Australian public and the demand has grown at such a rate that, despite rising local production, imports are increasing.

"I hope it will be possible to raise our production so that we are not only self-supporting but are able to export substantial quantities of tuna in the round as well as in canned form. To do this we must aim at the development of this particular fishery not only in the existing areas but also in other States. As Ministers are probably aware, a survey of the tuna fishing potential was commenced recently in Western Australian waters in collaboration with the Western Australian Government and the C.S.I.R.O. I hope that not only will this survey lead to the successful establishment of a tuna industry in that State but also that it will encourage further development in other States as well.

"Pearling: As a result of competition from the plastics industry the Australian pearling industry is going through a difficult period. Prices for the lower grade shell have been poor, due mainly to the loss of the shirt button trade. Fortunately, Australian pearl oysters are capable of producing the larger cultured pearls and it is expected that a portion of the pearling fleet will eventually be used to supply live shell for the pearl culture farms. There are significant developments in this direction and I understand that some 15 leases in all have been granted for this industry.

"Pearl culture is comparatively new in Australia, but it could eventually make a substantial contribution towards our overseas income and should be encouraged along sound and orderly lines. However, it may be necessary in the best interests of this industry to watch closely its rate of expansion in relation to the demand on world markets and

also to maintain as much Australian capital as possible in it.



Burma

IMPORT DUTY RATES ON FISHERY PRODUCTS INCREASED:

The rates of duty for a number of imported commodities, including fishery products, were increased effective September 15, 1961, by a



governmental order issued under the Burma Customs Tariff Act of 1953. (United States Embassy, Rangoon, dispatch dated September 18, 1961.) The new and former rates of duty for fishery products follow:

Import Tariff Item No.	Name of Articles	Rate of Duty	Former Rate of Duty
7	Fish, dried or salted	50 pyas per viss	25 pyas
8	Fish, and fish products in airtight containers	75% ad valorem	40%
9	Prawns, dried	75 pyas per viss	50 pyas
11	Fish and fish products, not elsewhere specified, crustacea and molluscs and preparations thereof	100% ad valorem	40%



Canada

NEW BRUNSWICK FISH MEAL PRICES, SEPTEMBER 1961:

Fish-meal prices (60-percent protein) quoted by New Brunswick producers late in September 1961 averaged C\$120 a short ton (\$2.00 a protein unit) for both exports and

Canada (Contd.):

domestic sales. There has been no change in this price since late July 1961. (United States Consulate, Saint John, N.B., September 28, 1961.)

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SYNTHETIC MONOFILAMENT GILL NETS BANNED IN BRITISH COLUMBIA SALMON FISHERY IN 1962:

The use of monofilament synthetic material in gill nets used in the British Columbia salmon fishery has been banned for one year by the Canadian Department of Fisheries. All sections of the British Columbia industry and fishing gear suppliers have been notified that the Department will prohibit use of the monofilament salmon gill nets in 1962. The action will give the Department time to make a thorough appraisal of the administrative problems associated with this type of gear.

The decision to ban the gear was taken on the basis of evidence secured mainly during the 1961 season's operations. It has been established that monofilament nets will, under certain conditions, outfish nylon and other regular gill nets to a degree where serious management problems would follow widespread adoption of the gear. Significant numbers of fishermen planned to convert to monofilament nets next year, and any advantages to the fishermen resulting from increasing efficiency would have had to be met with further restrictions on fishing time.

Some idea of the efficiency of the monofilament nets may be gained from this single report on the use of this gear in the Rivers Inlet sockeye fishery in the 1961 season. In one week, when the average catch of all gill-net boats was 410 sockeye, two fishermen using complete monofilament nets took 1,100 and 1,546 sockeye each.

In another case, a fisherman who used a 50-fathom monofilament panel in his regular nylon net found it fished two or three times better than the remainder of the net.

The monofilament gill net first appeared in the British Columbia fisheries in 1959, when a few fishermen used sections of monofilament webbing in their nylon or linen nets. The new gear had been introduced in the State of Washington fishery the previous year and, in 1960, that State prohibited its use in the salmon fisheries.

The Department of Fisheries of Canada kept a close watch on the monofilament gill nets in 1960, but the generally low catches did not produce conclusive evidence that the gear posed a threat to salmon stocks greater than that of other gear. The decision to ban the monofilament gill net was a most difficult one for the Department. In view of the problems widespread use of the gear would create in management of the salmon resource, however, there was no immediate alternative. For the time being, the ban on the use of the monofilament gill net applies to the calendar year 1962 only. (Canadian Trade News, August 1961.)



Curacao

JAPANESE FISH CANNERY PLANNED FOR FREE ZONE:

A large Japanese fishery company has formed a subsidiary in Curacao for the pur-

pose of establishing a fish cannery in the Free Zone.

The Japanese subsidiary has an authorized capital of US\$1,140,000 and a paid in capital of \$134,000. As inducements to set up an industry in Curacao, the firm has been granted a 10-year tax holiday and a 10-year monopoly on the processing and canning of fish. The monopoly is believed to be attractive to the Japanese firm because it protects their labor supply from the potential competition of any processor who may enter the same business in Curacao at a later date. (United States Consulate General, Curacao, Sept. 8, 1961.)



Denmark

FISHERY TRENDS, JANUARY-AUGUST 1961:

A sharp upturn in the Danish fish catch during the summer months raised the total catch for the first 8 months of 1961 to 5 percent above a year earlier. The valuable flatfish catch was up about 25 percent and the herring catch almost 20 percent. As a result, exports of fresh, iced, or frozen fish were about 33 percent ahead of 1960 by weight and about 25 percent ahead by value. While fish meal exports showed comparable percentage gains over the low 1960 level, they remained far below earlier years.



Portable roller for beaching smaller Danish fishing boats.

Denmark (Contd.):

The size of the catch caused a further decline in domestic prices for consumer fish, with attendant grumbling from fishermen over this development and over continued low prices for industrial fish. Partly because of price developments and partly as a result of subsidies granted the farmers, some Danish fishermen were demanding export price guarantees and/or domestic subsidies. Much concern continued to be expressed over the difficulty of recruiting sufficient labor to man the fishing fleet.

Another problem of vital concern to Denmark's fisheries is accession to the European Economic Community (EEC). With important markets in the EEC countries, Danish fishery circles are almost unanimous in favoring accession, although some concern is expressed over the eventual effect of EEC membership on fishing rights. (United States Embassy, Copenhagen, October 16, 1961.)

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FISH FILLETS AND BLOCKS AND FISHERY BYPRODUCTS EXPORTS, JANUARY-AUGUST 1961:

Denmark exported 5.8 million pounds of fresh and frozen fish fillets and blocks during August 1961--only 195,000 pounds more than in August 1960. The United States received only 283,000 pounds, mostly cod and related species.

From January through August 1961, Denmark shipped 9.1 million pounds of frozen fish fillets and blocks to the United States, again mostly cod and related species.

Total exports of fresh and frozen fillets and blocks January-August 1961 amounted to 46.9 million pounds, an increase of 14.2 million pounds over the same period in 1960. Exports of fillets and blocks of cod and related species increased by 27.7 percent, and flounder and sole exports were up 22.0 percent.

Product	August		Jan.-Aug.	
	1961	1960	1961	1960
Edible Products: (1,000 Lbs.)			
Fillets and blocks:				
Cod and related species . .	1,597	1,402	24,396	19,014
Flounder and sole	2,761	3,185	15,612	12,794
Herring	1,421	-	5,988	-
Other	59	2/9	887	2/924
Total	5,838	4,596	46,883	32,732
Industrial Products: (Short Tons)			
Fish meal, solubles, & similar products	6,750	5,922	33,534	27,618
^{1/} Shipments from the Faroe Islands and Greenland direct to foreign countries not included.				
^{2/} Includes herring fillets.				

Denmark's exports of fish meal, fish solubles, and other similar products rose from 5,922 short tons in August 1960 to 6,750 tons in August 1961. But exports of industrial fishery products for the first eight months of 1961 were 21.4 percent greater than those of the same period in 1960.



Ecuador

IMPORT DUTY ON FISH NETS AND TWINE LOWERED:

Ecuador has lowered the specific import duty on fishing nets made of synthetic fiber and on twisted cotton thread.

Tariff items affected, their new duties in sucres per gross kilogram, percent ad valorem, and previous rate, are as follows (18.18 sucres = US\$1, official rate):

- 487. Netted fabric: (a) Fishing nets made of synthetic fiber, 10 sucres a kilo (55 U. S. cents a kilo or about 25 cents a pound) plus 10 percent ad valorem; former rate 120 sucres a kilo (\$6.60 a kilo or about \$3.00 a pound) plus 10 percent ad valorem; new subitem. (b) Other items unchanged from former rate, new subitem.
- 524. Twisted cotton thread, 10 sucres a kilo plus 10 percent ad valorem; former rate, 17 sucres a kilo (93.5 cents a kilo or about 42.4 cents a pound).

The reductions, set forth in Decree No. 1411, were published in Registro Oficial of August 19, 1961, and became effective on that date.



Fiji Islands

TUNA FISHING BASE PLANNED:

According to recent Japanese press reports, a plan to establish a fishing base in the Fiji Islands appears to have created much interest within the Japanese fishing industry. This plan was developed by a member of the Japanese Diet, who visited the Fiji Islands in June 1961 with fellow members to investigate possible localities for constructing fishing bases. He returned to the Fiji Islands in Sep-

Fiji Islands (Contd.):

tember to further his plan, which is reported to be of such an unprecedented character that existing Japanese policies concerning the establishment of overseas bases do not cover such conditions, and basic policy changes may need to be made to fit such situations. Also, the plan if carried out, would affect the future development of the fishing industry. Accordingly, the Japanese Fishery Agency Director has instructed the responsible section within his Agency to carefully study the plan.

In essence the plan proposes to:

1. Establish a joint company at Levuka, Fiji Islands, with each national party to the venture to contribute the equivalent of 50 percent, or 250 million yen (US\$694,400).
2. Construct a freezing plant with a daily freezing capacity of 40 metric tons and an ice-producing plant of 40-ton capacity. These plants would be constructed by a Japanese firm.
3. Construct a two-line cannery with a daily production capacity of 500 cases. This plant would be constructed by a Japanese can company.
4. Construct a fish meal and oil plant.
5. Construct a machine shop, wireless station, residences, supply, and recreational facilities.

Initially, the joint company would be operated by the joint company but management would eventually be turned over to a fishermen's cooperative. The cooperative, to be called the South Pacific Ocean Tuna Fishing Cooperative, is to be established immediately in Japan, and would negotiate a contract to deliver catches to the joint company. Under a five-year plan, the cooperative would dispatch 100 fishing vessels, each of 65 tons gross, to fish for this base, and of this number 20 vessels would be constructed in the first year. Vessel license restrictions would be waived, as the fishermen would be emigrating to the Fiji Islands. In addition, 40

technicians would be sent to manage the base and 200 or so natives hired as help. (Suisan Tsushin, September 14 and Suisan Keizai Shimbun, September 2, 1961.)

A New Zealand Press Association report of October 5, 1961, appearing in the Auckland Herald and the Wellington Dominion, states that Japanese tuna vessels will work from Fiji during the next tuna season in New Zealand waters.

It reports that according to a Suva, Fiji Island, solicitor, a Japanese-controlled company with a nominal capital of £250,000 (\$694,400) had been formed in Fiji and that work had begun on establishing a cannery and base for fishing boats at Levuka. The report goes on to state that the company in Fiji was first launched by seven citizens from Suva. A New Zealand firm was requested to submit a plan for the construction of a cannery. The controlling shares were purchased by Japanese interests and fishing experts from Japan were immediately sent to Fiji to establish the industry.

In an interview with a Fiji newspaper, the Suva solicitor said local and export markets would be investigated. "We intend to export to Hawaii, the United States, Europe, and Japan," he said. "If there are markets in New Zealand and Australia, we will export to those countries too," said the solicitor. "The fishing boats will be Japanese manned and the experts in the venture will be Japanese." (U. S. Embassy, Wellington, October 16, 1961.)



German Federal Republic

FISH MEAL PRICES, OCTOBER 6, 1961:

Type of Fish Meal	Protein Content (%)	Delivery	DM/Metric Ton ^{1/}	US\$/Short Ton
German	50-55	loco/ prompt ^{2/}	550.00	124.74
"	55-60	" " ^{2/}	560.00	127.01
"	60-65	" " ^{2/}	575.00	130.41
" std. brands	60-65	Oct. 1961	618.50	140.28
" herring	64-68	prompt/Oct. 1961 ^{3/}	640.00	145.15
Peruvian	65-70	prompt/Dec. 1961	535.00	121.34
"	65-70	Jan.-July 1962	525.00	119.07
Angola	65-70	loco/Oct. 1961 ^{2/}	597.50	135.52
Portuguese	50-55	prompt/Oct. 1961	547.50	124.18
Icelandic herring	70-75	loco/Oct. 1961 ^{2/}	677.50	153.66
South African	65-70	Nov.-Dec. 1961	585.00	132.68
" "	65-70	Jan.-Apr. 1962	565.00	128.14

^{1/}Values converted at rate of 4.0 deutsche marks equal US\$1.

^{2/}"Loco" means where and as it is at the time of sale, and all subsequent expenses to be at buyer's account.

^{3/}Delivered coastal location.

German Federal Republic (Contd.):

Prices reported at Hamburg Commodity Exchange as of October 6, 1961, for fish meal delivered ex-Hamburg warehouse, or c.&f. West German sea port are shown in the table on the preceding page.

As compared with September 4, 1961, fish-meal prices on the Hamburg exchange on October 6, 1961, were mixed, with both domestic and imported fish meal somewhat lower on the average. (United States Consulate, Bremen, October 12, 1961.)



Guatemala

JOINT JAPANESE-GUATEMALA SHRIMP BASE STARTS OPERATIONS:

The new fish processing installations and seven fishing vessels (belonging to two Guatemalan fishing companies) were blessed and inaugurated at the Pacific coast port of Champerico, Guatemala. President Ydigoras, as well as several of his Cabinet Ministers, prominent figures in the Guatemalan banking and business world, and a large delegation of Japanese businessmen attended the ceremonies.

The two companies have been reorganized recently with the introduction of Japanese capital representing 42 percent of the total investment, which has been declared at more than Q.1,500,000 (US\$1.5 million). Two Japanese companies are participating in this venture. A Japanese engineer is said to be a technical director for the fishing and processing operations. The six fishing vessels (each of 30 gross tons) and one tow boat are captained by Japanese and a substantial percentage of the crew members are also Japanese to provide training for the Guatemalans. The fishing vessels (built in Mexico) are reported to have a capacity in their freezing compartments for 12,000 pounds of fish, permitting them to remain at sea for seven days before returning to port. Besides the 6 fishing vessels, 14 local vessels are to be chartered, making a total of 20 shrimp vessels fishing for the joint company. Vessels which were formerly leased by one of the two Guatemalan companies from Panama were reported to have been returned to their owners.

At the present time the main activity of the joint operation centers around the catch-

ing, processing, freezing, and exportation of shrimp. The management said they hope to sell to the restaurant trade in the United States by providing quick service by air, but the bulk of the catch will be shipped by sea to United States ports to be sold to supermarkets and other retail outlets.

The price of shrimp is too high to find a large domestic market, sales generally being restricted to the more wealthy consumer. The consumption of fish products has traditionally been low in Guatemala. Therefore, as it was explained by members of the Japanese delegation, the companies plan to introduce a low-priced fish-meal sausage, which could be purchased by the poorest consumer, thus increasing the protein diet of these classes and creating a market for seafood other than shrimp.

President Ydigoras has given strong backing to the creation of a local fishing industry, as exemplified in the recently enacted law on deep-sea fishing, which gives preferential treatment to fishing companies incorporated in Guatemala and which register their vessels in Guatemala. The two Guatemalan companies involved in the venture with the Japanese have followed the procedures prescribed by the law and seem to have the President's blessing.

In addition, a cold-storage plant with a freezing capacity of 12.5 tons and holding capacity of 20 tons; and an ice plant of 15-ton capacity, are under construction and scheduled for early completion.



Iceland

SHRIMP INDUSTRY:

Iceland's export value for shrimp products as of October 1961 was about 25 million kronur (US\$656,000) a year. The export value of shrimp for the first six months of 1961 was 18 million kronur (\$472,000). The weight of the shrimp exported the first six months of 1961 was 25 percent more than in the same period in 1960. The expansion of the shrimp industry depends on finding new shrimp grounds. During a month-long search for shrimp fishing grounds carried out in the summer of 1961 on the north and east coasts, shrimp was found in 56 of the 87 locations explored. (United States Embassy, Reykjavik, report dated October 12, 1961.)

Note: Values converted to dollars at rate of 38.10 kronur equal US\$1.

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Iceland (Contd.):

FISHERY LANDINGS, JANUARY-JUNE 1961:

How Utilized	January-June	
	1961	1960
. . . (Metric Tons) . . .		
Herring^{1/} for:		
Oil and meal	28,657	38,430
Freezing	8,004	398
Salting	17,609	259
Fresh on ice	4,119	645
Groundfish^{2/} for:		
Fresh on ice landed abroad	15,539	11,500
Freezing and filleting	87,908	129,001
Salting	55,458	59,229
Stockfish	41,083	50,381
Home consumption	3,997	4,426
Oil and meal	1,717	2,360
Shellfish for:		
Freezing	3/1,105	-
Canning (shrimp)	126	-
Total production	265,322	296,629

1/Whole fish.
2/Drawn fish.
3/Shrimp 801 tons; lobster 304 tons.

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ICELANDIC PRODUCTION OF PROCESSED FISHERY PRODUCTS AND BYPRODUCTS, JANUARY-JUNE 1961:

Product	Quantity	Value	
		1,000 Metric Tons	Million Kronur / US\$ 1,000
Frozen			
Fillets	27.7	409.4	10,774
Fish waste	8.0	12.6	332
Herring	8.1	42.8	1,126
Fish roe	0.7	8.6	226
Shrimp and lobster	0.1	9.0	237
Total Frozen	44.6	482.4	12,695
Cured			
Salt fish, wet	25.0	226.1	5,950
Stockfish	7.0	158.9	4,182
Herring	12.4	92.5	2,434
Fish roe	0.2	1.8	47
Other	0.9	6.7	176
Total Cured	45.5	486.0	12,789
Canned			
Shrimp	1/	2.7	71
Byproducts			
Meal:			
Herring	6.8	31.8	837
Ocean perch	2.0	7.1	187
Lobster	0.1	0.1	2
Liver	0.2	1.1	29
Other	14.1	53.3	1,403
Oil	7.8	42.2	1,111
Solubles (50% solids)	0.6	0.9	23
Total Byproducts	31.6	136.5	3,592
Miscellaneous			
Fish skins	0.1	0.4	10
Whale products	1.6	9.8	258
Total Misc.	1.7	10.2	268
Grand Total	123.4	1,117.8	29,415
Fish landed abroad	19.7	75.7	1,992
Home consumption	8.5	22.5	592

1/Includes 40 tons of shrimp.
Note: Values converted at rate of 38 kronur equals US\$1.00.

India

FISHERIES MANAGEMENT INSTITUTE:

Plans for a Fisheries Management Institute are being implemented by the Government of India and the Food and Agriculture Organization (FAO). Financial support will be given by the United Nations Special Fund and the Government. The Institute will be jointly administered by FAO and the Government.

The Institute will be situated in Bombay, and will be housed in a new building, to be erected in the near future. FAO desires that each state in India be represented on the Board of Directors. FAO will also encourage eventual development of the Institute on an international basis.

The Institute will provide three years of training for carefully selected students, and their training will include management of fisheries, marine biology, and associated sciences. Eight students have already been accepted and a total enrollment of 40 to 50 students is expected. (United States Embassy, New Delhi, August 21, 1961.)



Ivory Coast

FISHING INDUSTRY EXPANDS:

The fisheries of the Ivory Coast have grown steadily since 1954. By 1961, Abidjan had 60 fishing vessels, 3 boatyards, and 2 ice plants.



Ivory Coast (Contd.):

The 2 ice plants have a total daily capacity of 150 tons.

In 1960, two-thirds of the Ivory Coast catch of 29,000 tons was smoked. Fresh fish without ice is marketed within a 30-mile radius of Abidjan. Fresh fish on ice is shipped in refrigerated trucks at night and reaches interior towns within 250 miles of Abidjan and Koumassi, Ghana.

The distribution of frozen fish is limited to the centers with cold-storage plants-- Bouake, Dimbokro, Divo, and Gagnoa. Smoke-dried fish reaches all the centers of the interior. (L'Industriel de Cote D'Ivoire, Bulletin No. 37, June 1961.)



Japan

NEW CANNED TUNA PRODUCTS SALES SMALLER THAN ANTICIPATED:

A large Japanese fishing company which introduced three new canned tuna products-- curried tuna, vegetable tuna, and sandwich tuna--in Japan in June 1961, is reported to have sold about 60,000 cases of those products as of September 1961. Sales are reported much lower than anticipated and they feel that it may take some time before the products gain acceptance with the general public.

However, sales, which averaged about 20,000 cases a month, are considered fairly good when compared with the sale of canned "tender tuna" introduced by another fishing firm in July 1960. That company's sales averaged slightly under 17,000 cases a month, or about 250,000 cases for 15 months, ending in September 1961. The "tender tuna" consist of four types of pack: tuna in soy sauce, tomato sauce, stew, and curry.

The fish firm hopes to promote curried tuna, vegetable tuna, and sandwich tuna so as to eventually sell about 500,000 cases a year in Japan. However, sales for the first year are expected to total only about 150,000 cases. (Suisan Tsushin, September 27, 1961.)

Translator's Note: Canned curried tuna consists of tuna and curry sauce. Vegetable tuna is made of tuna, tomato sauce, and po-

tatoes. Canned sandwich tuna is a sandwich spread.

PACK OF CANNED TUNA IN BRINE BY CAN SIZES, 1960:

During the calendar year 1960, the Japanese pack of canned tuna (light and white meat) in brine totaled 2,042,388 actual cases.

Japanese Canned Tuna Pack in Brine by Can Sizes, 1960			
Can Size & No of Cans/Cs.	Solid Pack	Flakes and Grated	Total
(Actual Cases)			
7-oz., 48	1,024,551	61,163	1,085,714
13-oz., 24	394,744	-	394,744
13-oz., 48	365	-	365
66-oz., 6	534,483	1,060	535,543
3 1/2-oz., 48	8,778	-	8,778
Odd sizes	949	16,295	17,244
Total (actual cs.)	1,963,870	78,518	2,042,388
Total (std. cs. 1/4)	2,023,647	93,042	2,116,689

1/A standard case is 48 7-oz. cans or the equivalent.

By can size, the 7-oz. 48 cans-per-case pack accounted for 1,085,714 cases, or 53 percent of the total brine pack. The institutional can size (66 oz., 6 cans per case) accounted for 535,543 cases, or 26 percent of the total. Most of the brine pack was solid, accounting for 96 percent of the total, with the balance in flakes and grated. (See table.)

FROZEN TUNA EXPORTS TO UNITED STATES, APRIL-SEPTEMBER 1961:

Frozen albacore and yellowfin exports to the United States from Japan proper, April 1 to September 30, 1961, declined, while transshipments to the United States of those species increased, according to data compiled by the Japan Frozen Foods Exporters Association (table 1).

Table 1 -Japanese Frozen Tuna Exports to U. S., April-September 1961 and 1960						
Species	1961			1960		
	Japan Proper	Transshipments	Total	Japan Proper	Transshipments	Total
(Short Tons)						
Albacore	6,521	3,649	10,170	8,176	1,645	9,821
Yellowfin	15,484	8,961	24,445	17,704	8,275	25,979
Big-eyed	433	-	433	68	-	68
Skipjack	197	-	197	70	-	70
Loins	1,883	-	1,883	1,682	-	1,682
Total	24,518	12,610	37,128	27,700	9,920	37,620

Note: Japanese fiscal year begins on April 1.

Exports of frozen tuna to Italy totaled 13,620 metric tons and to Yugoslavia 4,137 tons, between April 1 and September 30, 1961. Exports to those two countries for the same period in 1960 totaled 12,272 tons and 4,805 tons, respectively. (Suisan Tsushin, October 5 & 7, 1961.)

Translator's Note: On the basis of the values for the above exports, albacore exports to the United States from Japan

Japan (Contd.):

proper sold for an average of \$328 a short ton between April-September 1961 and \$294 a ton for the same period in 1960; frozen yellowfin sold for an average of \$281 a short ton between April-September 1961 and \$253 a short ton for the same period in 1960, all f.o.b. Japan.

According to earlier press reports, Japan established an export quota to the United States of 95,000 short tons of frozen tuna (see table 2).

Table 2 - Comparison of Japanese Frozen Tuna Quota and Exports to United States for Fiscal Year 1961

	Quota Target April 1, 1961- March 31, 1962	Exports ^{1/} Apr.-Sept. 1961 (Six Months)	Percent- age of Quota Exported
(Short Tons).....		%
Albacore:			
Japan proper	30,000	6,521	22
Transshipments ...	5,000	3,649	73
Yellowfin:			
Japan proper	30,000	15,484	52
Transshipments ...	30,000	8,961	30
Tuna Loins:			
Japan proper	3,600	1,883	52
Total	98,600	36,498	37

^{1/}Does not include big-eyed and skipjack exports.

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FROZEN TUNA SHIPMENTS, APRIL-SEPTEMBER 1961:

According to the Japanese tuna freezers association, total shipments of frozen tuna during the first half of the Japanese fiscal year 1961 (April-September) amounted to some 67,000 metric tons, almost the same as the previous year during the same period. Of the total, 23,900 short tons of Atlantic tuna went to Europe and Africa, 27,500 short tons were directly shipped from Japan to the United States and Canada, and 12,000 short tons were transshipped to the United States and others. (Note: Destination of the balance was not shown.)

Compared with the corresponding period the previous year, shipments (23,900 short tons) of Atlantic tuna to Europe and Africa were up 9 percent. To Italy, the principal market, 16,400 short tons (17,200 tons the previous year) were shipped, a decrease of 4 percent. But there were greater increases in shipments to Yugoslavia and other European and African areas. To Yugoslavia, shipments of 4,900 short tons (3,000 tons the previous year) were up 61 percent. To other European and African areas, shipments of 2,600 short tons (1,000 tons the previous year) were up 49 percent. During May and June 1961, fishing for Atlantic tuna was poor and scheduled June and July shipments were delayed one to two months. Beginning the latter part of July, fishing conditions improved and recovered to the same level as those prevailing the previous year.

Shipments during the first half of the fiscal year were up because of good catches of big-eyed. But yellowfin catches were poor. In August 1961, the 20-percent big-eyed limit (in effect since the previous fiscal year) was removed for mixed shipments. As a result, big-eyed made up for the shortage of yellowfin in the catches. However, the value of the 1961 fiscal year's shipments was expected to be less than the previous year because the price on any portion of big-eyed in excess of 20 percent of any shipment was reduced by \$15 a short ton. Czechoslovakia and Spain bought frozen tuna from Atlantic Japanese tuna vessels for the first time and were responsible for some of the increase in shipments in fiscal year 1960.

The 12,000 short tons of frozen Atlantic tuna transshipped to the United States were 7 percent less than the previous year. Of that total, yellowfin accounted for 10,200 short tons, 15 percent less than the previous year when 12,200 tons were shipped.

The albacore catch in the Atlantic improved after the season's opening the beginning of September 1961 and amounted to 1,840 metric tons, 140 percent more than the 760 tons caught the previous year.

Direct shipments from Japan to the United States and Canada amounted to 27,500 short tons during the first six months of fiscal year 1961, 5 percent less than the previous year. Two of Japan's largest fishery firms were the shippers. Of the total shipped, 9,100 tons were albacore (8 percent less than the 9,900 tons shipped a year earlier) and 18,400 short tons were yellowfin (3 percent less than the 18,900 tons a year earlier). Included in the albacore shipment was a transshipment from Suva, Fiji Islands. This was the quantity shipped as of the end of September 1961, but higher ex-vessel prices in the United States have heightened interest in exports. As of October 10, an additional 11,600 tons of albacore and 20,000 tons of yellowfin were shipped to the United States direct from Japan. This meant increasing the quota for direct shipments from Japan and the adjustment regulation drafting committee was studying the need for an increase in the quota. (Suisan Keizai Shimbun, October 14, 1961.)
Editor's Note: The data in this article differ from those in the previous article, but are believed to be more recent.

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FROZEN TUNA EXPORT QUOTAS AND SALES PROCEDURE CHANGES CONSIDERED:

On October 3, 1961, the Japanese Export Frozen Tuna Producers Association's Atlantic Ocean Tuna Liaison Committee met to discuss how sales of frozen Atlantic Ocean tuna transshipped to the United States should be handled in the future. The Liaison Committee agreed that beginning in January 1962, Atlantic Ocean-caught tuna should be sold through the Export Frozen Tuna Sales Company.

On October 5, the Association's board of directors met to discuss the problem of placing frozen albacore and yellowfin tuna under one over-all export quota and handling all sales of frozen yellowfin from Japan proper through the Sales Company.

The question of combining exports from Japan proper of frozen albacore and yellowfin under one over-all quota came up as a result of what was considered to be an insufficient export quota for yellowfin. Combining the albacore and yellowfin export quotas would make it possible to export more frozen yellowfin when albacore supplies are short; whereas, under the present quota system (one quota for frozen albacore and another for frozen yellowfin), it would not be possible to utilize the unused portion of a quota for one species by substituting another species in its place.

Japan (Contd.):

Strong opinions prevailed at the board of directors meeting that it would be undesirable to change the separate quota system and that the export quota of 30,000 tons for frozen yellowfin should be raised to 35,000 tons or 40,000 tons instead. This matter is to be discussed further by the board of directors as soon as it receives a report from the committee appointed to draft proposals concerning changes in export regulations. This committee was scheduled to meet during the week of October 8.

The question of yellowfin sales through the Sales Company arose as a result of claims made by the Exporters Association that yellowfin exports should be handled through the Sales Company in the same manner as albacore exports, since this would simplify business transactions. After deliberating over this matter, the Producers Association's board of directors agreed to consider the proposals made by the Exporters Association and to study this matter further. (Suisan Tsushin, October 4 & 6, 1961.)

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FROZEN TUNA DELIVERIES TO YUGOSLAVIA EXPECTED TO DROP:

The Japanese long-line tuna vessels operating in the Atlantic Ocean planned to fish along the Brazilian side of the Atlantic Ocean for albacore during the last three months in 1961. Their catch is expected to be exported to the United States, and this means that there will be less tuna available for export to Europe.

Yugoslavia wants to import a total of 4,900 metric tons between October and December (October--1,600 metric tons; November--1,800 tons; December--1,500 tons). However, indications are that Japan will not be able to deliver more than 430 tons (October--250 tons; November--180 tons), or less than 10 percent of the total amount desired by Yugoslavia. (Suisan Tsushin, September 14, 1961.)

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NEW REGULATIONS ON FROZEN TUNA LANDINGS AND TRANSHIPMENTS:

The Japanese Fishery Agency made public in September 1961, the following regulations governing the operations of Japanese tuna vessels in the Atlantic Ocean, Pacific Ocean, and the Indian Ocean.

Atlantic Ocean: Medium-type tuna vessels, distant-water tuna vessels, and portable-vessel-carrying tuna motherships shall be authorized to operate in the Atlantic Ocean for specified periods, except (1) when they do not have plans to export their catches to foreign countries; (2) when their operations are considered to have a bad effect on international relations; (3) when they plan to operate in the Atlantic Ocean for a period of over two years.

Essentially, all vessels must file with the Fishery Agency applications indicating their intent to engage in the Atlantic Ocean tuna fishery and must submit certain prescribed documents.

Permission to land or transfer catches, including products produced from the catches, at ports bordering the Atlantic Ocean, shall be granted separately for each trip, as a rule. However, permission will not be granted (1) when it is not altogether clear whether the catches, including products produced from the catches, will be consumed in the country to which they are delivered; (2) when it is felt that approval may result in obstructing the promotion of direct Japanese tuna exports.

Transfer at sea from one vessel to another of catches, including products produced from those catches, shall be prohibited.

Medium-type tuna vessels and distant water tuna vessels planning to land or transfer their catches, including products processed from the catches, at ports bordering the Atlantic Ocean must submit applications beforehand for clearance.

Portable-vessel-carrying tuna motherships planning to land or transfer their catches, including products produced from the catches, at ports bordering the Atlantic Ocean must submit certain prescribed documents before departing their Japanese home ports. They must also apply for clearance each time they want to land or transfer their catches at ports bordering the Atlantic Ocean.

Vessels which plan to export tuna to those localities not governed by the export regulations of the Export Frozen Tuna Producers Association, and plan to land or transfer their catches at ports bordering the Atlantic Ocean over an extended period of time at intermittent intervals, must first be cleared before they leave their Japanese home ports.

Indian and Pacific Oceans: Medium-type tuna vessels, distant-water tuna vessels, and portable-vessel-carrying tuna motherships will not as a rule be permitted to land or transfer their catches, including products processed from the catches, at ports other than Japanese ports. This rule will not apply in the case where it is clear that the catches or products will be consumed in the foreign country that they were delivered to. Landings of tuna at Samoa and Santo are also exempt from this ruling.

Applications to land catches, including products produced from the catches, at ports other than Japanese ports must be submitted in accordance with regulations governing the landing or transfer of tuna in the ports bordering the Atlantic Ocean.

Transfer of catches, including products processed from the catches, for the purpose of shipping them to Japan by vessels other than by vessels which originally landed the fish shall be prohibited. Such transfers shall be allowed only when it becomes necessary to transship tuna from the Atlantic Ocean to Japan to stabilize market conditions or permit the maximum utilization of the catch.

Medium-type tuna vessels and distant-water tuna vessels must submit a report to the Fishery Agency Director within 30 days after they land or transfer their catches, including products produced from the catches, at a foreign port. (Shin Suisan Shimbun, September 25, 1961.)

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RESTRICTIONS ON PORTABLE-VESEL-CARRYING TUNA MOTHERSHIPS RELAXED:

On September 20, 1961, the Japanese Fishery Agency announced changes in the regulations governing portable-vessel-carrying tuna motherships. The original regulations were formulated in April 1961 but industry claimed that they were too strict and impractical, and had requested that they be revised.

The biggest change is in the relaxation of restrictions on the building of portable vessels. Under the old regulations, which permitted the use of two or more portable vessels, to construct a second portable vessel one distant-water tuna fishing vessel of 180 tons or less had to be withdrawn from the fishery and 25 tons of this vessel put up as replacement, with the remaining tonnage of the retired vessel to be used in enlarging

other medium and distant-water fishing vessels. The new regulations authorize the use of three or more portable vessels and only one distant-water vessel need be retired for every two portable vessels beyond the first two.^{1/} However, size of the portable vessels would be restricted to 25 tons or less, as before.

Other important features of the revised regulations are:

A vessel will be licensed as a portable-vessel-carrying tuna mothership when one or more distant-water tuna fishing vessels of equivalent total tonnage as that of the vessel to be used as a mothership are retired from the fishery. In other words, two distant-water vessels of, say, 500 tons each could be put up as replacement to construct a 1,000-ton mothership.

Restrictions on the amount of distant-water vessel tonnages that can be used as replacement in constructing a larger tuna mothership shall be waived. However, the remaining unused tonnage of distant-water vessels cannot be used to enlarge medium-type or distant-water type vessels. They can only be used as replacement for constructing portable vessels.

Vessels will no longer carry dual classifications. They shall either be classified as a distant-water tuna fishing vessel or a portable-vessel-carrying tuna mothership. Those distant-water tuna fishing vessels converting to tuna motherships cannot revert to their original classification. This measure eliminates the confusion of classifying a vessel as a portable-vessel-carrying tuna mothership one part of the fishing season, and as a distant-water tuna vessel during another part of the year, depending on its operation.

The use of distant-water tuna fishing vessels over 180 tons for replacement purposes was authorized until November 30, 1961, only when such vessels were used primarily as replacements for the construction of portable vessels. This measure made it possible for all firms planning to operate portable-vessel-carrying tuna motherships to retire only one large distant-water tuna fishing vessel, say, one of 450 tons or larger, the vessel rights of which they could share to construct portable vessels for their motherships. (Suisan Keizai Shimbun, September 21, Shin Suisan Shimbun, September 25, 1961.)

^{1/}This is interpreted to mean that only 25 tons of a distant-water tuna vessel need be put up as replacement to construct every two portable vessels over and above the first two.

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Japan (Contd.)

STUDY OF POLE-AND-LINE SKIPJACK FISHERY UNDER WAY:

The Japanese National Federation of Tuna and Skipjack Fishing Cooperative Association has started a study of the problems involving the management of pole-and-line skipjack tuna fishing vessels. Over the years, the pole-and-line skipjack fleet has dwindled from about 500 vessels in 1955 to its present fleet of 348 vessels, of which 140 are medium-type (40 to 100 gross tons) and the remainder of less than 39 tons gross. This reduction in the fleet is attributed to the unstableness of the pole-and-line fishery and to the trend among owners of medium-type vessels to build larger vessels for distant-water tuna fishing. Medium-type vessels can be used as replacements in building larger vessels; whereas vessels under 39 tons, for which licenses are not required, cannot be used for this purpose.

The unstableness of the skipjack fishery is reflected in the catch of the pole-and-line vessels. Pole-and-line vessel landings dropped substantially in 1960, the decline occurring mainly in the catch of skipjack (see table).

Year	Skipjack	Other Tuna
 (Metric Tons)	
1960	78,546	109,577
1959	166,628	182,782
1958	1/	184,527

In addition to the decline in the catch of skipjack, the lower price which this species normally commands is reported to be a factor contributing to the unstableness of the pole-and-line fishery. It is estimated that a pole-and-line skipjack vessel must land over 25 million yen (about US\$70,000) worth of fish per year to show a profit, but that only about half of the fleet ever takes in more than this amount.

There is a definite trend towards building of larger vessels in the tuna fishery. The drop in the number of vessels in the tuna and skipjack fleet has occurred mainly in the number of medium-type fishing vessels, which also engage in skipjack fishing. This class of vessels has been used to a large extent for tonnage replacement purposes to construct large distant-water tuna vessels. (Suisan Keizai Shimbun, September 20 and May 31, 1961.)

IMPORTS OF CERTAIN MARINE PRODUCTS LIBERALIZED:

The Japanese Government plans to permit the importation of a number of marine products under a new trade liberalization policy. This policy is to be carried out in three successive stages extending over a period of one year. The most recent revised schedule of this plan calls for the removal of restrictions on imports of fresh and frozen tuna, swordfish, salmon, and all shellfish except scallops, beginning October 1, 1961.

The final draft of the plan was compiled by the Economic Planning Board, an independent agency directly responsible to the prime minister, after it held consultations with the Ministry of International Trade and Industry, Ministry of Agriculture and Forestry, and the Ministry of Finance. On September 26, the plan was to be submitted for discussion at a meeting of departmental heads concerned with the national economy.

The following marine products are covered in the final draft of the plan which was under consideration in September 1961:

Effective Date of Coverage	Description of Commodities
October 1, 1961	<u>Fresh and frozen:</u> tuna, swordfish, red snapper, salmon, sea cucumber, salmon roe, crustaceans, mollusks (except scallops). <u>Others:</u> salted salmon roe, whale oil, dried skipjack (katsuobushi)
April 1, 1962	agar-agar
October 1, 1962	<u>Fresh and frozen:</u> whale meat, yellowtail, jack mackerel, Pacific mackerel, sardine. <u>Salted and dried:</u> yellowtail, sardine, saury, jack mackerel, Pacific mackerel. <u>Salted and smoked:</u> whale meat. <u>Others:</u> dried cuttlefish, pearl.

Insofar as items like fish meal, fish oil, scallop, scallop muscle, herring, herring roe, and cod (including Alaska pollock) are concerned, they will not likely be covered under the trade liberalization plan for some time. The Japanese Government plans to take up those items separately as they are covered under the General Agreement on Tariffs and Trade. (Suisan Keizai Shimbun, September 22, 1961.)

Translator's Note: At the present time, imports into Japan are permitted under one of three systems. They are the Automatic Approval (AA) system, Automatic Fund Allocation (AFA) system, and a third system which covers items not covered under the first two systems. These three systems are briefly described on the following page:

Japan (Contd.):

The AA system is the least restrictive of all the three systems. Commodities listed under that category can be imported into Japan simply by arranging for an allocation of foreign funds directly with a bank.

The AFA system is more restrictive than the AA system. Items listed under the AFA system can only be imported after approval has been obtained first from the Ministry of International Trade and Industry (MITI). Thus, MITI is in a position to exercise control over imports of commodities in that category, if necessary. Upon obtaining MITI's approval, an importer can then negotiate directly with a bank for an allocation of foreign funds.

The third system is the most restrictive of all the three systems. Imports of items listed under that classification are strictly controlled by the Japanese Government. They include such commodities as foodstuffs (rice, for example), coal, tobacco, petroleum, machinery, etc.

Japan is liberalizing trade by changing the classifications of different commodities, placing many of the items now covered under the more stringent systems under the more liberal systems. For example, some marine products, such as shrimp and salmon, imports of which were allowed to some extent in the past by MITI under the AFA system, are being reclassified under the AA system. As far as can be ascertained, all the marine products listed in the schedule shown above in the news report are to be classified under the AA system.

According to information provided by the Consulate-General of Japan, in Los Angeles, the AA and AFA systems presently account for about 65 percent of total imports into Japan. A year from now, under the trade liberalization policy, these two systems should account for about 90 percent of total Japanese imports.

The relaxing of trade restrictions on tuna, imports of which apparently were not permitted in the past, is posing a problem to the Fishery Agency.

Insofar as tariffs are concerned, one Japanese trade paper reported earlier that the Japanese Government was planning to impose

a duty of 10 percent on imports of fresh and frozen tuna, and 15 percent on imports of processed tuna. Japan enacted a new tariff law on March 31, 1961, by which the Government can change a tariff rate by Cabinet Ordinance when the existing tariff rate is considered to be damaging to the national economy. Previously, the Japanese Diet acted on such legislation. This law makes it possible for the Japanese Government to act rapidly in a situation where, for example, Japan finds herself the target of a dumping operation. The law includes two other important provisions. They are: (1) authority to adopt a tariff quota system by means of which the Government can prescribe a higher tariff for goods imported over and above a certain annual quantity; and (2) provisions whereby the Government can make exemptions or refund duties on commodities administratively determined to be in critical demand in Japan.

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TUNA IMPORTS LIBERALIZED:

Effective in October 1961, the Japanese Government liberalized the importation of tuna into Japan under that country's trade liberalization plan. However, this measure is expected to have very little effect upon the Japanese tuna industry. The Japanese Fishery Agency feels that placing tuna on the trade liberalization list, now that the Japanese Government is relaxing trade restrictions, was only natural in view of the fact that the supply of tuna in Japan is expected to decline following an increase in the use of this product by Japanese fish sausage makers and the continued growth of the United States tuna market.

The Fishery Agency considers that tuna-producing countries, like the United States, Peru, and France, are not in a position to produce more tuna for export beyond their present capabilities. Very little tuna is expected to be imported by Japan, although tuna from such countries as Formosa and Okinawa may be imported to some extent. (Shin Suisan Shimibun Sokuho, September 21, 1961.)

Translator's Note: According to one earlier press report, an import duty of 10 percent may be levied on fresh and frozen tuna imported into Japan and 15 percent on processed tuna products.

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Japan (Contd.):

UNLICENSED TUNA VESSELS MAY BE REGISTERED UNDER FOREIGN FLAG:

The lifting of existing trade restrictions on marine products imports as proposed in the final draft now under consideration by the Japanese Government is expected to have little effect on the Japanese fishing industry as a whole. However, now that the Government is planning to allow tuna to be imported into Japan, the Fishery Agency expects that attempts will be made to dispatch fishing vessels without tuna fishing licenses to overseas bases, register these vessels under foreign flags, then convert them for tuna fishing and export their catch to Japan.

Under present conditions, the Fishery Agency would not be able to curb such trends effectively, inasmuch as it is not empowered to check the transfer of unlicensed vessels to jointly-operated overseas fishing bases. Such transfers are classified as exports, and the Ministry of International Trade and Industry and the Ministry of Transportation are responsible for these matters, although these two ministries do consult the Fishery Agency.

Also, the lack of a clearly defined Government policy concerning the establishment and management of overseas bases will make it somewhat difficult for the Fishery Agency to curb the transfer of unlicensed vessels to overseas bases. Applications to establish overseas bases had until now been judged on their individual merits. To correct this situation, in July 1961 the Fishery Agency requested all national and prefectural governmental agencies to submit a review of policies followed in licensing overseas bases. These reports are now being studied by the Agency for the purpose of adopting a uniform national policy.

On the other hand, the National Federation of Skipjack and Tuna Fishing Cooperative Associations takes the view that, in addition to the study being made by the Fishery Agency, consideration should be given to the stabilization of tuna prices in the light of the new trade policy, which would permit tuna to be imported into Japan, and which, in turn, would likely affect domestic prices. The National Federation appears to want tuna included in the Government's production adjustment and price stabilization programs, and intends to submit its recommendations to the proper authorities. (Nippon Suisan Shimbun, September 20, 1961, and miscellaneous sources.)

Translator's Note: In connection with the problem discussed in the above news article, the Japanese policy concerning the licensing of tuna vessels should perhaps be explained at this time.

The Japanese Fishery Agency rigidly controls the size of the Japanese tuna fleet over 40 tons gross (vessels under 39 tons do not require licenses) by limiting the total tonnage of all vessels in this category. Tuna vessels in this category are further classified as medium-type (40 to 100 tons gross) and distant-water tuna fishing vessels (over 100 tons gross).

New tuna vessels over 40 tons gross can only be built by retiring existing vessels through an intricate system of rules evolved by the Fishery Agency. Occasionally, these regulations are relaxed, permitting the construction of vessels larger than those replaced, as was the case in December 1960.

Thus, the restrictions placed on the construction of new tuna vessels over 40 tons serve to place a premium on existing tuna fishing licenses. These licenses are sold or traded on the basis of so many dollars a vessel ton, and recent reports indicate that this "right," as it is commonly called, is selling for over \$800 a ton. This means that a person who does not own a tuna fishing license and who wants to build a tuna vessel, say of 100 gross tons, must first acquire the "right" to a 100-ton vessel. In other words, he must pay the equivalent of \$80,000 for a tuna fishing license before he can even start building his 100-ton vessel, the construction cost of which is extra.

Insofar as the operation of tuna vessels out of overseas bases are concerned, the Fishery Agency frowns on the utilization of vessels out of overseas bases when such vessels are not properly authorized by the Agency to engage in tuna fishing.

Conceivably, Japanese firms with overseas bases could very well take advantage of the proposed trade liberalization program, which would allow tuna to be imported into Japan, by increasing their tuna vessels operating out of overseas bases and exporting their catches to Japan. Their overseas fleet could be increased by one of two means: (1) Dispatch vessels under 39 tons, for which tuna fishing licenses are not required, to overseas bases, with permission from the Fishery Agency; (2) "Export" to foreign countries (a) vessels less than 39 tons, and/or (b) vessels over 40 tons not now registered as tuna vessels in Japan and convert them for tuna fishing, once their registrations have been changed.

An example of (1) is seen where a large fishing company has submitted an application to dispatch tuna fishing vessels under 39 tons to an overseas base, according to a recent trade article. The Fishery Agency is reported to be studying this application carefully in view of the Government's plan to liberalize trade in tuna. As for (2), the Fishery Agency is fully cognizant that such a trend may develop and hopes to develop measures to cope with it.

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SHRIMP INDUSTRY AND MARKET TRENDS:

Shrimp imported by Japan are sold to tempura restaurants, other public eating houses, retail stores, and to wholesale houses. The major outlet for imported shrimp are the tempura restaurants. In Tokyo alone there are 110 large and approximately 500 small tempura restaurants and about 5,700 other restaurants which include shrimp tempura on their menus. Small quantities are sold to retail and wholesale dealers.

The preferable sizes for this trade are shrimp of 10-15 count to the pound and 21-25 count. The August 1961 c.i.f. prices for 10-15 count were 85 U.S. cents a pound and for the 21-25 count 80 cents a pound.

A shrimp fishery for taisho-ebi (*Penaeus orientalis*), a large shrimp, has developed rapidly in the Yellow Sea between Korea and Red China. This fishery is operated by two of Japan's leading fishery companies located at two ports--Tobata (Kyushu) and Shimonoseki. The shrimp beds are located in relatively deep waters (about 80 fathoms) and large boats and gear are required for this operation. The fishery takes place from November to March which is at a different time of year than for the other shrimp fisheries. The 1960 catch was estimated at 6,500 metric tons, consisting of shrimp about 340 mm. (13.4 inches) in length. Industry sources forecast that with reduced catches in January, February, and March 1961 production this year will be 30 percent less than in 1960.

In 1959, Japan's landings of taisho-ebi amounted to 6,532 metric tons of heads-off shrimp. During the first six months of the year domestic market demands were met and fishing companies conducted a profitable export business. During the last six months of 1959, however, there was a reversal in marketing trends. With reduced inventories and with good consumer demand, prices for large shrimp in Japan moved upward, making it profitable to import shrimp. Heavy domestic market demand continued in 1960 and 1961. This situation coupled with high domestic prices made shrimp relatively unprofitable. Japan exported 360 tons of frozen headless shrimp to the United States in 1960 as compared to 1,385 tons in 1959. Exports of frozen peeled shrimp in 1959 of 950 tons dropped to 700 tons in 1960. Exports to the United States for the first six months of 1961 consisted only of frozen peeled shrimp amounting to 400 tons.

Japan (Contd.):

Since July 12, 1961, imports of shrimp are no longer subject to exchange controls under the exchange allocation system of the Japanese Government. In other words, shrimp are now on the so-called automatic-approval (AA) list, which means that importers are not required to obtain a license in advance in order to import shrimp. As a result of this action, industry sources estimate that Japan will be importing about 5,000 tons of frozen heads-off shrimp in 1961. Of this total, it is estimated that about 3,000 tons will be imported from the United States and 2,000 tons from other shrimp producing countries. During the first five months of 1961, imports from the United States have amounted to over 500 metric tons.

The outlook for continued imports of shrimp to Japan in 1962, according to an industry source, will depend upon: (1) domestic production of large shrimp; (2) market conditions in foreign countries; and (3) the strength of the domestic market.

It is forecast that approximately 1,050 tons of frozen, peeled shrimp will be exported annually of which 800 tons will be consigned to the United States and 250 tons to Great Britain. During the first half of 1961, about 400 tons of frozen peeled shrimp had been exported to the United States. No frozen heads-off shrimp were exported to the United States during that period.

Estimates for 1962 place Japan's total consumption of large heads-off shrimp at approximately 10,000 tons which includes both domestic production and imports. Japanese shrimp interests forecast that prices for shrimp in the United States will continue at high levels and with a stabilized market in Japan shrimp will be imported only from Iran, Hong Kong, the China Mainland, and that imports from Mexico and other Latin American countries will be by direct shipment instead of being re-exported from the United States.

It is estimated that the 1962 production of species of shrimp other than taisho-ebi will be approximately 45,000-50,000 metric tons. Since those shrimp command a different market, that production will not influence the market demand for the large varieties of shrimp.

There are at least 29 kinds of shrimp which are taken commercially in Japan. Four of these are actually fresh-water species taken in Lake Biwa and elsewhere. The marine species are, however, by far the most important commercially from the standpoint of present domestic use and export values.

Of the marine species there are two basic groups: the Pandalid type shrimp found off Northern Honshu and Hokkaido is similar in habitat to the closely related forms found off Oregon, Washington, Alaska, and in the Gulf of Maine. The average size for the Pandalid shrimp is about 105 mm. (about 4 inches) in length. The Penaeid type shrimp are found in warm waters from Matsushima and Toyama Bay southward (Honshu Island) and are very similar to the shrimp found along the south Atlantic and Gulf coasts in the United States. The sizes range up to 340 mm. (13.4 inches), depending upon the species.

Of the warm-water shrimp, a very important shrimp fishery is that for the kuruma-ebi (*Penaeus japonicus*). This shrimp is found from Matsushima Bay and southward. The fishery is concentrated in the Inland Sea from June to November. The size of the shrimp is about 270 mm. (10.6 inches) in length and the catch is used almost entirely in the domestic market.

Unique to the shrimp industry is the culture of the kuruma-ebi shrimp in the old salt ponds located at Kumamoto (Kyushu) and Yamaguchi. Each year large numbers of post larvae shrimp are collected and placed in rearing ponds where they are fed to attain good growth. In 1960, a project was initiated to rear shrimp directly from brood stock. These installations are located at Takamatsu (Shikoku). In the first year of operation one ton of shrimp was marketed. These shrimp are sold at 200 mm. (about 8 inches) in length heads-off. Production in 1961 will be approximately 2 tons. In order to operate this

project on a profitable basis at least 300 tons of shrimp must be produced annually.

The landings of shrimp in Japan rose sharply in 1958 and rose more slowly but steadily subsequently. Total production for 1960 was estimated at 67,500 tons, an increase of 13.4 per cent over the 59,548 tons landed in 1959, and about 34.4 per cent above the 1956 landings of 50,224 tons.

The best prospects of increasing domestic shrimp production appears to be in the Hokkaido area of northern Japan. The Pandalid or small cold-water shrimp grounds in Hokkaido are still only partially exploited. According to the Hokkaido Government officials, there are large stocks of shrimp along the northern coast which are not being fished at the present time and which could easily double present production.

In very recent years, Japan has produced considerable quantities of shrimp in distant waters by mothership fisheries or by agreement with various countries. It is the plan of the fishing companies to operate this type of fishery wherever practicable. (U.S. Fisheries Attache, Tokyo, September 20, 1961.)

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YAIZU FISHERY LANDINGS, SEPTEMBER 1961:

Landings of tuna and other fish at the important Japanese tuna port of Yaizu during September 1961 totaled 7,202 metric tons, 1,200 tons more than for September 1960. The value of the September 1961 landings was US\$1,580,556, some \$250,000 less than in the same month of 1960.

Yaizu Fishery Landings, September 1961	
Species	Metric Tons
Tuna:	
Bluefin	9
Indian bluefin	39
Australian bluefin	1,300
Big-eyed	1,055
Albacore	176
Skipjack	2,623
Yellowfin	737
Other fish	1,263
Total	7,202

Landings of all fish at Yaizu this year during January-September totaled 98,800 tons valued at about \$25 million ex-vessel. Tuna made up half of the landings. Ex-vessel prices this year were lower than in the same period of 1960. (Suisan Keizai Shimbum, October 17, 1961.)

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CANNED SARDINE EXPORTS, APRIL-SEPTEMBER 1961:

Data compiled by the Japan Canned Sardine and Saury Sales Company show that sales of Japanese canned sardine for the period April 1 to September 30, 1961, totaled 279,464 cases. This represents a decline of 108,017 cases (28 percent) from the same period in

Japan (Contd.):

1960, attributed primarily to lighter landings of fish.

Japanese Exports of Canned Sardines, April 1-September 1961		
Country or Area of Destination	1961	1960
	(Cases)	
Philippine Islands	117,584	238,187
Belgium	47,502	46,688
West Africa	42,096	49,862
Burma	15,587	4
Indonesia	13,674	-
North-Central and South America .	11,169	37,720
Other countries	31,852	15,020
Total	279,464	387,481

Canned sardines were exported to Indonesia for the first time this year. Exports to Burma increased during 1961 due to that country substituting sardines for sauries (see table), according to Suisan Tsushin, October 9, 1961.

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SALMON PREDATION BY SHARKS STUDIED:

Japan undertook a full-scale study this year to determine the extent of salmon predation by mackerel and other sharks and dispatched the long-line vessel No. 5 Uraichi Maru (97 gross tons) to determine the distribution of mackerel sharks in the North Pacific Ocean and the Bering Sea, as well as to collect shark stomach samples. This vessel operated in the area bounded by latitudes 40° N. and 52° N. and by longitudes 145° E. and 177° W. for two months beginning in May 1961.

The Uraichi Maru made 56 sets and caught a total of 901 sharks--272 mackerel sharks, 623 blue sharks, and six other species of shark, including dogfish--and tagged 196 mackerel sharks, 494 blue sharks, and 4 dogfish. A total of 44 mackerel sharks was examined, and data on head length, body length, body weight, sex, gonad condition, and other data were collected. Examination of the stomachs of the 44 blue sharks showed that 27, or 61.4 percent, contained food, and 16, or 36.4 percent, contained salmon. Computed on the basis of the stomach samples which contained food, the number of samples containing salmon remains totaled 59.3 percent.

Studies were also conducted on sharks caught by the commercial salmon catcher vessels fishing for the salmon motherships. A total of 3,903 sharks was taken in the commercial gill nets. Examination of the stom-

ach samples of 773 sharks revealed that 332, or 42.9 percent, contained food and 252 samples, or 32.6 percent, contained salmon. Again, based on the samples which only contained food, the number of samples containing salmon totaled 75.9 percent. (Suisan Keizai Shimbun, September 6, 1961.)

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TWO FISH MEAL FACTORYSHIPS EXCEED QUOTAS:

Two fish meal factoryships (Renshin Maru, 14,094 gross tons; Kinyo Maru, 9,373 gross tons) which have been on the Bristol Bay bottomfish grounds since late April 1961 were due to leave the fishing grounds in late September. The Renshin Maru was scheduled to arrive at Yokohama on October 11 and the Kinyo Maru at Hakodate on October 13, with a combined total of over 33,000 metric tons of fish meal.

These two factoryships have already met their respective targets. The Kinyo Maru, which had a production target of 14,000 tons of fish meal, is expected to bring back well over 15,000 tons of fish meal; the Renshin Maru, with a quota of 16,000 tons of fish meal, was expected to produce 18,000 tons. The Renshin Maru was scheduled to depart for West Africa in late October, where she expected to operate off Angola for a period of about 75 days. Her production target for this operation was 7,000 to 8,000 tons of fish meal.

The Japanese Ministry of International Trade and Industry (MITI) announced that it had allocated \$660,000 in foreign currency for importing 27,000 metric tons of fresh fish for use in producing fish meal and oil. This money was allocated to a large fishing firm, which has sent its fish meal factoryship Renshin Maru to operate off Angola, West Africa. The money is to pay the Angolan fishermen for the catches delivered to the factoryship for processing into fish meal and oil.

The owner of the Renshin Maru and the Kinyo Maru hope to sell the fish meal production for an average price of 54,000 yen (US\$150) per metric ton. On the basis of this price, both factoryships were expected to show profits of about 100 million yen (\$278,000) each.

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EXPERIMENTAL KING CRAB FACTORYSHIP IN BERING SEA:

The same company's freezer factoryship Shinyo Maru (5,630 gross tons) was tentatively scheduled to leave the



Crab boats leaving Japanese king crab factoryship in Bering Sea to haul in nets.

Japan (Contd.):

eastern Bering Sea fishing grounds either in late September or in early October and dock at Aomori in northern Japan. The Shinryo Maru, which was licensed as an experimental king crab freezer vessel by the Japanese Fishery Agency, was on the fishing grounds since mid-April. Reports indicated that during the first half of September the vessel operated in the vicinity of 57° to 58° N. latitude and 171° W. longitude. (Nippon Suisan Shimbu, September 18, Suisan Keizai Shimbu, September 16, 1961, and miscellaneous sources.)

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INDUSTRY HOPES TO SEE WATERS SOUTH OF ALASKA PENINSULA OPENED TO FISHING:

The Japanese fishing industry is showing a profound interest in the International North Pacific Fisheries Commission meeting which was held in Tokyo early in November 1961. Industry hopes that the Japanese Government will take up the problem of bottom fish with a positive attitude. Specifically, industry wants the waters to the south of the Alaska Peninsula opened to fishing in 1962 and that Japan be permitted to take halibut on a limited scale within the area east of 175° W. longitude, where Japan has agreed to abstain from taking halibut under the International Convention for the High Seas Fisheries of the North Pacific Ocean.

The Japanese fishery interests claim that the halibut conservation measures of the United States and Canada in the Convention area east of 175° W. longitude, which prohibit Japan from taking halibut, are ineffectual since the Soviet Union, which is not a member of the Convention, is exploiting the halibut stocks in this area.

The Japanese fishing vessels this year have caught close to 10,000 metric tons of halibut in the waters west of 175° W. longitude outside the Convention area. The Japanese fishing industry is strongly urging the Japanese Government to discard its past passive attitude in regard to the Convention and to press for approval of halibut fishing in the Convention area up to an amount of around 3,000 tons. Industry is highly unhappy not only with the Convention itself but with the Fisheries Agency, which is reported to be planning on licensing the operation of drift nets only in the area southeast of the Alaska Peninsula in 1962, and prohibiting long-lining and bottom trawling in that same area so as to prevent halibut from being taken incidentally to other fish.

The Japanese fishing industry claims that it really wants to fish for arrow-toothed halibut (Atheresthes species) and rockfish in the Gulf of Alaska and that it would not be profitable for the industry to engage in herring fishing in the Gulf; that rather than completely curtail fishing for rockfish and arrow-toothed halibut for fear halibut may be taken incidentally to those fish, industry wants the Government to allow a limited amount of halibut to be taken.

The Japanese Government, however, cannot support the desire of its fishing industry unless the present Convention is revised. The only recourse open to the Japanese Government under the present arrangement is to counter United States and Canadian arguments by systematically presenting Japan's dissatisfaction with the present enforcement of the abstention principle in regard to halibut. (News item translated from the Japanese periodical Suisan Keizai Shimbu, October 21, 1961.)

Kuwait

PERSIAN GULF FISHING INDUSTRY:

The major fishing interests in Kuwait have pooled their resources and two companies have now been organized to fish the entire Persian (Arabian) Gulf area and possibly the offshore areas of the Sudan. The first modern commercial fishing operation in the Gulf focussed on shrimp and was organized by a Kuwaiti merchant with the cooperation of a United States company. The interest of a Kuwait shaikh in a fishing fleet (an interest inspired by a Sudani entrepreneur and heightened by the success of the already established company's first partial shrimp season--1959/60), the latter part of 1960 assumed formal dimensions. After prolonged negotiations, the two groups merged to create two new companies in which both, with others, would share. One company is based in the city of Kuwait. The owners of the original shrimp fleet (which at the time of merger comprised four trawlers) were paid cash for 71 percent participation by the Shaikh interest. The remaining 29 percent of the company remained in the hands of the original owners. Of the 71 percent, some part is scheduled for outside interests. The second company is based in Dubai and its control is divided as follows: 25 percent to the original owners of the shrimp fleet; 5 percent to the Ruler of Dubai; and 70 percent for the Shaikh group. Although it was originally planned that 20 percent of the latter shares would be assigned to a foreign company which would provide technical advice as well as capital, there is now consideration of revising the share holdings to provide for 50 percent foreign participation.

Although separate legal entities, the two companies will in fact, at least initially, share facilities, fishing fleet, and top-level management. A new office has been opened in Kuwait from which the planning for both operations emanates. This office belongs to the first of the two companies mentioned, which was as of early October 1961 the only one of the two companies "off the ground."

The Kuwait-based company, as indicated above, will essentially be an extension and expansion of the shrimp operation which began its third season in the fall of 1961. During the first partial and second full seasons, the original fleet of 2 trawlers of 15- and 17-ton capacity, respectively, increased to 4 trawlers; all brought from the United States.

Kuwait (Contd.):

Since the merger of the companies, 3 more locally-built trawlers of unknown capacity were purchased. (The names of the seven trawlers are: Dasman I, Naktoom, Rihab, Taroob, Zafar, Rubyan and Rashid.) It is hoped that at least 20 more locally-built craft will join the fleet in the next two years. The pace at which trawlers are added to the fleet will depend on many developments whose outcome is not now predictable. These include the following:

1. The catch in 1961 and related experience which will have a bearing on the extent of the fishing potential in the Gulf: The shrimp take in 1960 was "not up to expectations" according to officials of the company, who attributed this fact to the dynamiting which accompanied an oil company's geophysical and seismic survey of its offshore petroleum concession area. However, company officials and the United States trawler captains are unwaveringly optimistic about the vast potential of the Gulf and look forward to the 1961 catch to prove the point.

2. Markets: Company officials have no doubt they are able to sell abroad (mostly to the United States) all of the shrimp caught. The United States company has been retained as an "agent" for distribution and the company hopes to handle the anticipated increased shrimp catch and to improve the product by installing automatic shrimp-processing machinery. Negotiations have been under way for some time with a Geneva firm whose representatives visited Kuwait early in 1961 and apparently were successful in persuading company officials of the value of automation. However, the project will be held in abeyance until a disputed piece of land along the harbor, a necessary location for the plant, comes into the hands of the company. Arrangements have also been made to cover the local market more effectively and to begin introducing a variety of Gulf fish into the regional market. The company plans to open soon in Kuwait a new privately-owned fish market containing the most modern of refrigeration conveniences for the sale of both fresh and frozen fish of all varieties. The company hopes also to be able to contract with the large foreign (mostly oil) companies in the vicinity and with the Kuwait Government to supply them with fish. Regional distribution will begin with Lebanon. The company is arranging an outlet in Beirut and plans to ship fresh and frozen fish by

air in the return flight of the craft now chartered to bring fresh fruit and vegetables to Kuwait from Lebanon. In the longer run, company officials think in terms of a fleet of refrigerated trucks transporting and exchanging the green produce of its neighbors and Kuwait's fish.

3. The rapidity of the development of fish processing capability: Although the only tried and hitherto successful aspect of commercial fishing for export in the Gulf has been for shrimp, the company officials have based the founding of both companies on the expectation of large-scale fish processing including the freezing, canning, and smoking of fish, production of fish meal, and extracting of fish oil. As conceived, the major part of the fish-processing aspects of the business would be based in Dubai and vested in the second fishing company mentioned. However, progress there will depend on the speed with which foreign technical and capital help becomes available and the success which attends the other elements of the business. (United States Embassy, Kuwait, October 2, 1961.)



Libya

BUREAU FOR FISHERIES AFFAIRS SET UP:

A Bureau for Fisheries Affairs as part of the Ministry of National Economy of Libya was created by Ministerial Resolution No. 1/1961 published in the Federal Official Gazette of June 29, 1961. The lack of such an



agency previously made it difficult to coordinate recommendations of foreign experts who were making Libyan fisheries studies. The agency was set up in order to facilitate the work of technical aid fisheries experts expected to advise the Libyan Government, and who may be seconded by the Governments of Germany, Japan, the United Kingdom, or Nationalist China.

Libya (Contd.):

The new Bureau shall be responsible for:

- (a) Carrying out researches and collection of data and statistics on fish, fishing, marketing and industrialization of fish, and publishing such data and statistics.
- (b) Laying down sound plans and rules for this industry.
- (c) Guiding and giving advice on the most modern methods used in fishing, preparation, preserving, transporting, and giving advice and aid on increasing the production and marketing of fish, and encouraging fishermen to adopt such advice and training workers in fishing.
- (d) Proposing the arrangements necessary for aiding fishermen and providing them with modern tools and equipment therefor.
- (e) Encouraging and assisting the forming of fishing cooperatives.
- (f) Consulting and cooperating if necessary with the competent foreign or international bodies with a view to verifying the foregoing purposes.
- (g) Proposing the regulations deemed necessary for the protection, administration, investment, and improving the traps and doing other things related to fishing or fishing industry. (United States Embassy, Tripoli, September 23, 1961.)



Mexico

GUYMAS SHRIMP FISHERY TRENDS, 1960/61 SEASON:

The Gulf of California deep-sea fishing season closed on July 15, 1961, when the "veda" or prohibition on shrimp fishing in the Gulf went into effect. Fishing activities in September 1961 were resumed on a highly optimistic note. Shrimp were plentiful and United States market prices were at a high level.

Total shrimp landings by the Guaymas fleet during the 1960/61 season, which closed on July 16, 1961, were 15.6 million pounds as compared with the almost 12.0 million pounds in the 1959/60 season. Of the total catch, 14.5 million pounds were caught on the high seas and 1.1 million pounds in the coastal areas. The number of deep-sea vessels at Guaymas which are ready for the 1961/62 season was reduced to 182. Five vessels were lost during the past season and only one new vessel was added to the fleet. Although prices for shrimp during the 1960/61 season were below normal, the sea-

son was mildly successful due to the increase in shrimp landings of 3.6 million pounds.

The prohibition on shrimp fishing in the coastal areas by small craft was lifted on September 1. Since there is practically no communication with the small ports where bay fishing is economically important, specific data on the actual amount of the catch in those ports are not available, but all indicators point to a fine season there as of mid-October 1961.

During the first five days of the deep-sea fishing season, 34,000 pounds were landed at Guaymas by 9 vessels. The shrimp were caught relatively near the port.

During the "veda" or closed season offshore, nearly the whole Guaymas fleet stayed in port for refitting instead of fishing off the west coast of Baja California. When the "veda" was lifted for deep-sea fishing, 161 craft left port. The remaining vessels in the harbor were held up by ice shortages and incomplete repairs. This fall, the number of vessels in the Guaymas fishing area is expected to be augmented by 10 vessels from Salina Cruz, Oaxaca.

In October, the spiny lobster fishing season began at Bahia Kino in Sonora. Spiny lobster prices were 15 pesos a kilo (54.5 U.S. cents a pound) ex-vessel, and fishermen were hopeful for an improvement over last season's poor landings of 45 metric tons. Lobsters in the Bahia Kino area are caught with traps and by divers.

A "veda" or closed season was placed on the capture, sale, and consumption of marine turtles and marine turtle eggs, effective September 14, 1961.

In his inaugural speech, Governor Encinas of Sonora stated that credits would be made available for the construction of more fish-processing plants and promised more aid for fishing cooperatives. (United States Consulate, Nogales, report of October 13, 1961.)

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FISH LANDINGS AT VERACRUZ REPORTED LIGHT:

The principal species of fresh fish landed in the state of Veracruz (namely the cities of Veracruz and Alvarado) totaled only 569 metric tons during the first 6 months of 1961, according to a United States Consular dispatch dated September 15, 1961, from Veracruz. (Alvarado depends on fishing almost entirely.)



A stand in the fresh fish and shellfish market in Veracruz.

Mexico (Contd.):

The largest decline in catch was reported by Alvarado for sierra or Spanish mackerel--only 88 metric tons were landed at that city during the first 6 months of 1961 in contrast to 461 tons during the calendar year of 1960. Robalo (snook) landings also decreased considerably this year with only 168 tons landed the first 6 months this year as against 558 tons during all of 1960.

For Alvarado 1960 was a poor year with landings only a little more than half of each of the previous three years, and 1961 landings will probably be even lower. In addition, the city's fish office reports that the oyster beds in the area have been destroyed by floods in the last four years. But that office pointed out that the area's shrimp fleet has been increasing and should result in an increase in shrimp landings in the future.

The Veracruz city fish office reports that only 320 tons of sierra or Spanish mackerel were landed in that city through March 1961 as compared to 669 tons in the same period of 1960. (United States Embassy, Veracruz, September 15, 1961.)



Nigeria

FISHERY LANDINGS, 1960:

In 1960, Nigeria's fresh-water fish landings of 30,000 metric tons exceeded marine landings of 28,600 tons.

The marine landings were made chiefly by the indigenous canoe fishery which brought in approximately 25,000 tons. Trawlers based in Nigeria landed only about 3,600 tons of fish. Dugout canoes and ring-gill nets are used for fishing bonga (*Ethmalosa* sp.) and sardines



A 20-foot aluminum surf boat designed and built for the Nigeria Federal Fisheries Department in 1956. An experimental vessel for ring-net fishing. Rudder being placed in position prior to sailing for its first trials.

(*Sardinella* sp.). Beachseines are also employed.

It is thought that the bonga fishery could contribute to a substantial increase in production, even for fish meal. The sardine resource, however, is thought to be limited. Eleven trawlers operate out of Lagos and land 250 to 300 tons of fish monthly (about 3,500 tons annually). The inshore grounds where they fish are considered capable of supporting a maximum of 40 trawlers producing about 10,000 tons annually. (Fisheries Survey of Nigeria, ICA Consultants Reports, Series No. 3., August 14, 1961.)



Peru

INDUSTRY TO MANUFACTURE FISH FLOUR:

The President of the Peruvian National Fisheries Society announced that a group of Peruvian fish meal producers have decided to begin manufacture of edible fish flour. The decision was made after medical experiments proved the high protein value of fish flour for human consumption.

Nutritional experiments on use of fish flour are being carried out by a Peruvian doctor. Undernourished infants at the British-American Hospital in Lima are fed fish flour. Results have been most satisfactory. Edible fish flour is not yet produced in Peru, but if production can begin on a large enough scale with a low enough price for consumers, it will have important economic consequences. (United States Embassy, Lima, September 28, 1961.)

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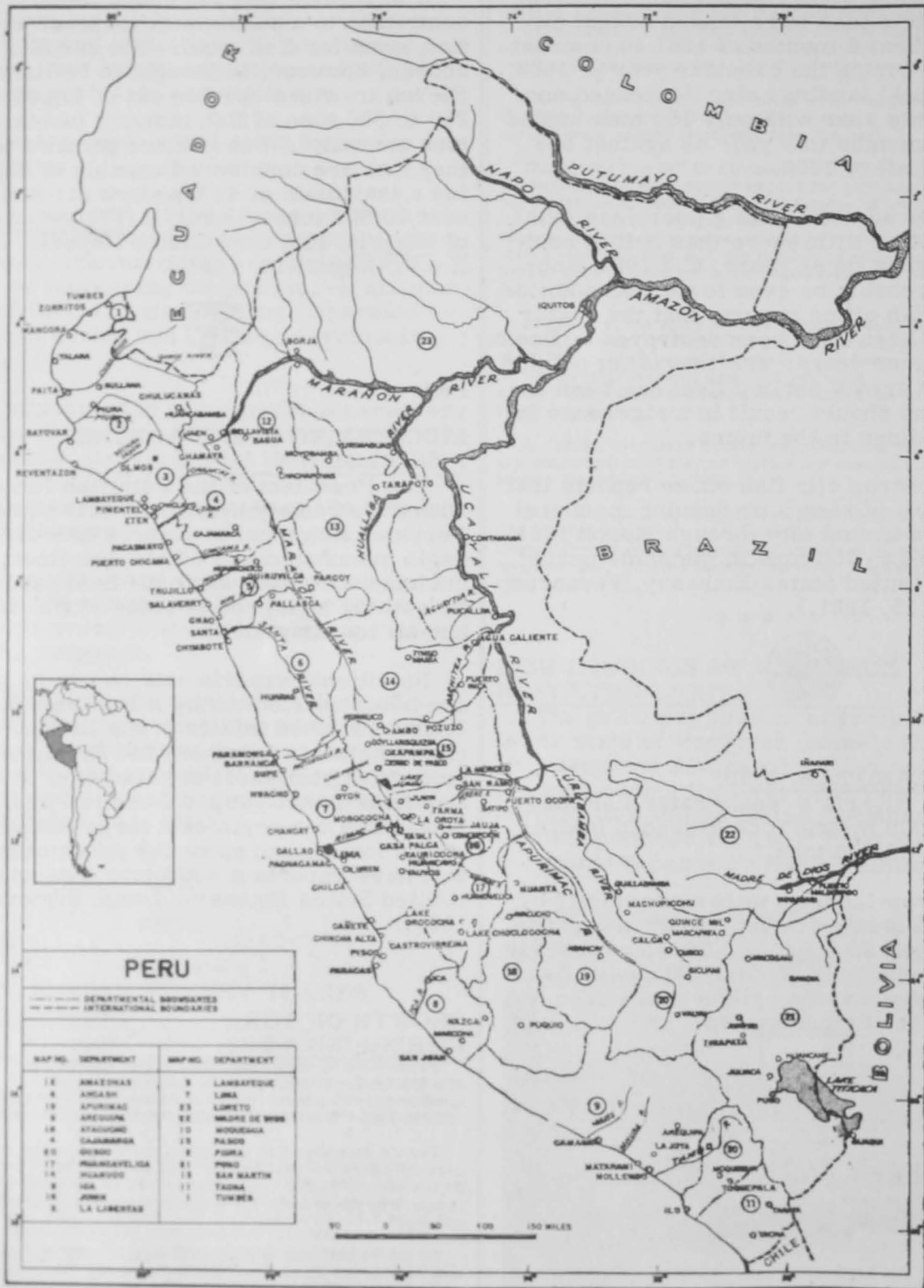
GROWTH OF THE FISHING INDUSTRY, 1955-1960:

From 1955 through 1960, landings of fish in Peru increased at a tremendous rate. Most of the catch was utilized in fish meal production, which increased more than 22 times from 1955 to 1960--from 25,000 metric tons to 560,000 tons.

Peru's domestic fish consumption for human food also increased sharply--139 percent from 1953 to 1960--from 30,500 tons to 73,000 tons. Higher prices for meat is the reason why the demand for fishery products in Peru has increased.

Of the 73,000 tons of fish consumed in 1960, 35 percent was used in the Lima area, according to the Peruvian Servicio de Pesqueria. This does not include 21,000 tons of dried salted fish destined principally for the Peruvian mountain villages, and 5,000 tons of canned fish. Another 500 tons of fishery products were consumed locally throughout Peru.

Peru (Contd.):



Peru (Contd.):

Table 1 - Peru's Exports of Principal Processed Fishery Products, 1960 ^{1/}

Product	Quantity	Value		
		Metric Tons	1,000 Soles	US\$ 1,000
Fish:				
Frozen	18,129	54,797	2,048	
Preserved ^{2/}	15,423	154,713	5,782	
Salted	345	662	25	
Fish meal	507,042	1,056,443	39,478	
Fish oil	35,008	99,163	371	
Whale meal	2,783	4,696	175	
Sperm oil	13,500	48,341	1,806	
Total	592,230	1,418,815	49,685	

1/Revised.

2/Not further identified, but believed to be mostly canned bonito.

Production of certain processed fishery products for calendar year 1960 was: frozen fish 18,000 metric tons, canned fish 1,700,000 cases, fish meal 550,000 metric tons, and fish oil 48,000 tons.

Table 2 - Peru's Fish Meal Production, 1955-1960

Year	1,000 Metric Tons
1960	560
1959	330
1958	125
1957	70
1956	30
1955	25

The 1960 production of fish meal was at a record high, exceeding 1959 by 230,000 metric tons, and about 3½ times the 1958 production.

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ANCHOVY LANDINGS

JANUARY-JUNE 1961 SET NEW RECORD:

During the first half of 1961, Peru's anchovy landings reached the new record of 2,325,148 metric tons or close to 5.1 billion pounds. Landings amounted to 1,500,544 tons in 1960 and 829,630 tons in 1959. Reasons for the increase were given as greater technical skill in fishing and the increased number of vessels engaged in anchovy fishing, the United States Embassy in Lima reported on September 28, 1961.



Philippine Republic

INLAND FISHING RESEARCH PROJECT:

Under the sponsorship of the United Nations, the Philippines has launched a five-year project aimed at collecting information on inland fishing. The site of the project is a barrio in Los Banos, Laguna, on the shores

of Laguna de Bay. A team of fishery experts headed by a fishery technologist and assisted by an FAO fishery expert will undertake the following projects: (1) survey current and potential inland waters from the aspect of fish production; (2) test new scientific equipment; (3) study the life cycle of domestic fish; and (4) study water chemistry. The fishery team expects it will be able to make useful recommendations on expanding the Philippine inland fishing industry as the project progresses. (United States Embassy, Manila, October 19, 1961.)



Portugal

SARDINE FISHERY TRENDS:

According to figures recently released by the Sardine Fishing Guild, 31,420 metric tons of sardines were landed in Portugal during the first seven months of 1961 as compared with 28,137 tons in that period of 1960. Other species landed by the sardine fleet during the same 1961 period were: mackerel--705 tons (567 tons in 1960), anchovy--2,761 tons (2,550 tons in 1960), and chinchards--22,673 tons (16,174 tons in 1960).

On October 4, 1961, the Matosinhos sardine fleet landed a record total one-day catch of 73,000 cabazes (approximately 1,800 metric tons) of sardines valued at about 7,500 contos (US\$262,500). The over-all fishing season compared very favorably with that of last year. Canning factories were kept active and exports were maintained. (Report from United States Embassy, Lisbon, October 12, 1961.)



Sierra Leone

FISHERIES LOAN AND CREDIT FUND:

The Government of Sierra Leone has established a Fisheries Loan and Credit Fund to be used for the following purposes: (1) the purchase of outboard motors and parts; (2) the conversion of canoes to take outboard motors; (3) the purchase of inboard engines and parts; (4) the purchase of improved fishing gear; (5) the purchase of materials for the construction of buildings for the fishing or fish preserving industry.

Sierra Leone (Contd.):

It is understood that the Government will limit these loans for the present to cooperatives only. (United States Embassy, Freetown, September 13, 1961.)



South Africa Republic

PILCHARD-MAASBANKER FISHERY INDUSTRY, JANUARY-JUNE 1961:

The Republic of South Africa Cape west coast pelagic shoal fishery catch for the first six months of the 1961 season totaled: pilchards 386,996 short tons, maasbanker 41,350 tons, and mackerel 45,726 tons. The total catch was 474,072 tons. In 1960 the total catch for the same period was: pilchards 261,666 tons, maasbanker 44,850 tons, and mackerel 28,353 tons; a grand total of 334,869 tons. In 1959 the total catch for the first six months was 221,646 tons.

The June catch was: pilchards 43,181 tons, maasbanker 11,439 tons, and mackerel 10 tons. The total June catch was 54,630 tons. In June 1960 the catch was: pilchards 50,141 tons, maasbanker 1,707 tons, and mackerel 80 tons; a grand total of 51,928 tons.

The June catch this year yielded: fish meal 12,402 tons, fish body oil 821,837 Imperial gallons, canned pilchards 1,206,228 pounds, canned maasbanker 3,820,152 pounds, and canned mackerel 9,144 pounds. (From The South African Shipping News and Fishing Industry Review, August 1961.)

Fish Meal	Fish Oil	Canned		
		Pilchards	Maasbanker	Mackerel
Short Tons	Imp. Gals.	(1,000 Lbs.)		
101,263	8,821	18,505	10,576	13,775

During June 1961 the Walvis Bay shoal fishing industry of South-West Africa caught: pilchards 67,940 tons. The total Walvis Bay

catch to the end of June was 195,924 tons.

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INDIAN OCEAN RESEARCH:

South Africa's biggest fishery research vessel, the Africana II, in the autumn of 1961 left on a 40-day cruise as part of the 1960-64 Indian Ocean Project, designed to probe some of the mysteries of that ocean. This is the first of 3 South African vessels to join in this international operation in which more than 40 modern research vessels from 20 countries will take part.

During her 3,000-mile voyage, special fishing equipment was to be used to seek samples of plankton, young fish, bottom fish, and sharks. Efforts will also be made to catch tuna by the Japanese long-line method. (The Fishing News, September 8, 1961.)



Spain

VIGO FISHERIES TRENDS, THIRD QUARTER 1961:

Landings: The third quarter 1961 at Vigo, Spain, was favorable for landings of the most marketable industrial variety--sardines. Tuna landings rose from 553 tons in July to 2,165 tons in August. Over-all landings in Vigo in the third quarter were up 31 percent in quantity and 52 percent in value over the previous quarter, and were up 12 percent and 8 percent, respectively, as compared with the third quarter of 1960.

Period	Quantity Metric Tons	Value	
		1,000 Pesetas	US\$1,000
July-September 1961	22,921	239,586	3,993
April-June 1961 . .	17,461	157,931	2,632
July-September 1960	20,425	221,343	3,689

The main species (sardines, horse mackerel, albacore, and small hake) comprised about 60 percent of the total landings in the third quarter 1961, with the balance made up

Species	1961						1960		
	July-September			April-June			July-September		
	Quantity Metric Tons	Pesetas/Kilo	U.S. \$/Lb.	Quantity Metric Tons	Pesetas/Kilo	U.S. \$/Lb.	Quantity Metric Tons	Pesetas/Kilo	U.S. \$/Lb.
Sardines . . .	5,093	5.30	4.0	1,411	5.20	3.9	3,619	4.39	3.3
Horse mackerel	3,334	2.70	2.0	2,391	2.71	2.1	2,779	3.72	2.8
Albacore . . .	3,078	22.56	17.1	188	23.04	17.5	3,351	17.30	13.1
Small hake . .	2,455	24.27	18.4	2,973	19.84	15.0	2,531	23.19	17.6

Spain (Contd.):

of more than 40 different species (table 2).

The shellfish season opened on October 1, with large catches of clams and cockles ("berberecho").

Fish Canning: The Galician fish-canning industry in the third quarter was at the height of production owing to the summer abundance

U. S. S. R.

FISHING OPERATIONS IN BERING SEA:

During the summer of 1961, Soviet fishing fleets operated in the eastern Bering Sea, especially along the 100-fathom curve west of northwest of the Pribilof Islands. Numerous modern Soviet fishing and associated vessels worked the fishing grounds on the shelf's edge. One fleet operating in Bristol Bay consisted of 6 refrigerator ships, 2 Pushkin-type stern trawlers, 26 medium (SRT) trawlers,

Table 3 - Utilization of Vigo Fishery Landings, Third Quarter 1961 with Comparisons

Period	Shipped Fresh to Domestic Markets	Canning	Other Processing (smoking, drying, fish meal, etc.)	Local Consumption
	(Metric Tons)			
July-September 1961	11,635	7,326	3,037	923
April-June 1961	10,948	1,302	4,440	771
July-September 1960	10,078	5,085	3,963	1,299

of sardines and tuna (table 3). There was a steady demand for Spanish canned fish in the domestic and foreign markets. (United States Consulate, Vigo, October 18 and 25, 1961.)

Note: Values converted at rate of 60 pesetas equal US\$1.



Sweden

TWO LARGEST FISH CANNERS PLAN MERGER:

The two largest canning companies in Sweden (one located in Goteborg and one in Stockholm) have made plans to amalgamate on January 1, 1962. The two organizations, which employ about 900 persons, are responsible for about 75 percent of Sweden's production of canned herring.

The two companies during the transition period will carry out their activities as hitherto but under a central management. The final decision about the amalgamation is subject to approval of the stockholders.

The Goteborg firm owns six canning plants located in Goteborg, Lysekil, Stromstad, Grebestad, Gullholmen, and Hamburgsund, all on the Swedish west coast, as well as a canning plant for vegetables in Kristianstad.

The Stockholm firm owns three canning plants on the Swedish west coast, located at Gravarne, Vajern, and Bovallstrand. In addition, the company has facilities in Goteborg for the purpose of freezing certain products. (American Consul, Goteborg, Oct. 13, 1961.)



and 1 small freighter. The bulk of the catch was apparently small gray flatfish (sole and flounder).



Soviet transport surrounded by factoryship and fishing vessels Bering Sea (April 1959).

Another Soviet fleet in Bristol Bay consisted of a crab factoryship, the Andrey Zakharov, and 12 small catcher boats. This large ship, estimated to be 540 feet in length and of 15,000 gross tons, was seen launching the catcher boats, each of which carried 8 to 10 crewmen. The king crab catch by the tangle nets appeared to be good. Other medium (SRT) trawlers were seen operating on the fringes of the fleets and may have been exploring the fishing grounds.

In deeper water, west of the 100-fathom line, red rockfish (redfish) were seen being

U. S. S. R. (Contd.):

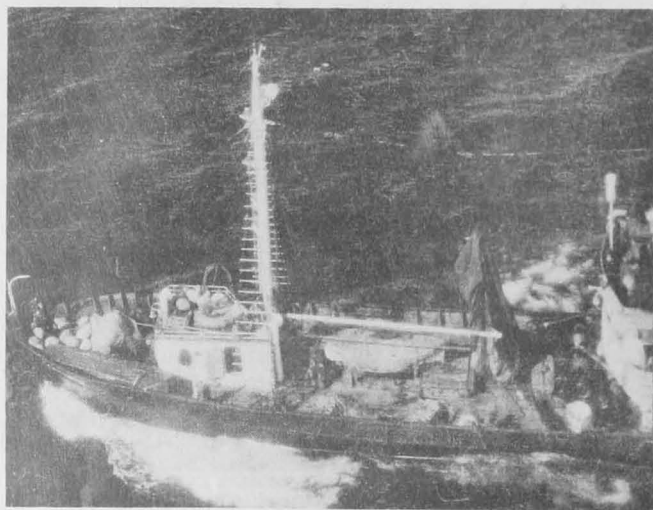
transferred from an SRT trawler to a fleet refrigerator ship.

The Soviet fishing effort in the Bering Sea in 1961 evidently increased over 1960. But the fishing effort by the Soviet fleets continues to be less intense than that observed among the Japanese fleets. In 1960, the estimated Bering Sea catch of the U. S. S. R. was 300 million pounds and that of Japan 975 million pounds.

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NORTHEASTERN PACIFIC FISHERY RESEARCH:

The U. S. S. R. is expanding its exploratory fishing in the Northeastern Pacific and the Gulf of Alaska. A trawler-research vessel, the Orlik, in mid-1961 reportedly left on a four-months expedition for the Soviet Pacific Ocean Institute for Fish Economy and Oceanography. Also, the freezer-trawler Ulya-



Soviet trawler engaged in exploratory fishing and research in the Gulf of Alaska in June 1959.

novsk departed for redfish fishing grounds in the Northeastern Pacific where it was to be joined by another trawler, the Adler.

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NORTHWESTERN ATLANTIC FISHERIES:

In a speech titled "Basic Trends of the Technical Progress in Fish Industries," A. A. Ishkov, a member of the Council of Ministers of the U. S. S. R., made an important reference to fisheries in the Northwest Atlantic Ocean. After predicting a rise in Soviet per capita fish consumption from the

current 9.5 to 9.7 kilograms (about 21 pounds) per year to 13.6 kilograms (30 pounds) in 1965, the Minister pointed out that the Northwest Atlantic is the principal region for Soviet expansion in the immediate future. (Rybnoe Khosiaistvo, Moscow, May 1961.)

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WHALE OIL SOLD TO WESTERN EUROPE:

The Soviet Union, a rapidly growing member of the world's family of whaling nations, made its first sales on the world whale oil market in 1960. Approximately one-third of its 1960 production of whale oil went to an international trading firm, presumably for resale to West Germany and the Netherlands, two large outlets for United States vegetable and fish oils. Russian whale oil production in 1960 was the equivalent of 2,782 blue whales, slightly below the U. S. S. R.'s quota for the year.

Currently, the Soviet Union imports large amounts of hardened marine oils from Norway; therefore, there was some surprise at the Russians exporting whale oil. In the future they are expected to consume most of their production domestically. (Foreign Agriculture, October 1961, U. S. Department of Agriculture.)

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MOTHERSHIP WITH ALMOST 4 MILLION POUNDS OF HERRING:

In a period of three months this year in the North Atlantic herring fishery, the Soviet mothership Iokhannes Vares processed 1,740 metric tons (3.8 million pounds) of herring and serviced 100 fishing vessels with supplies and technical assistance.

Of the processed catch, 4,000 11-pound containers consisted of "special salted herring." After a brief stay in port, the mothership sailed to the Newfoundland banks for the ocean perch fishery.

At the same time, a large freezer trawler, six medium trawlers, and six other vessels which had taken part in the herring fishery were ordered to Newfoundland without first going to port.

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NORTH PACIFIC WHALING:

During the 1960 summer season, the U. S. S. R. operated four whale shore stations

U. S. S. R. (Contd.):

on the Kurile Islands and one whale factory-ship off Kamchatka. The 13 catcher boats based at the shore stations caught 1,931 whales and the 9 catchers operating from the factoryship caught 2,472 whales. Most of the catches consisted of sperm whales. (Norsk Hvalfangst-Tidende, July 1961.)

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MARINE STUDIES CENTERED AT SEVASTOPOL:

The Marine Hydrophysical Institute will be transferred from Moscow to Sevastopol on the Black Sea. Already located at this port is the Marine Biological Institute, Ukrainian Academy of Sciences. (Current Review of the Soviet Technical Press, October 6, 1961.)

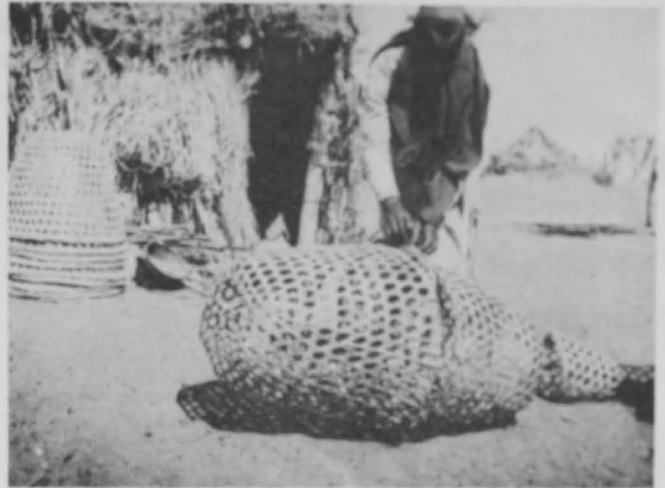


Yemen

FISHING INDUSTRY:

While Yemen has considerable potential for developing its Red Sea fishing resources, fishing today is still conducted on a small scale and in a primitive manner. Fish is an important feature of the diet for the inhabitants of coastal towns, and in areas around Hodeida, Mocha, and Salif where there is sufficient population to support fishermen, small fishing fleets are in operation. In addition to kingfish, red snapper, pompano, and other varieties of edible fish, shrimp in relatively large quantities, crab, and spiny lobster are found in the waters off the Yemeni coast. The fishermen currently devote their efforts almost exclusively to obtaining catches of fish. They are, nevertheless, familiar with the techniques required for catching shellfish

and would no doubt fish for shrimp and crabs if a market existed for them.



Fishermen in Yemen making a fish trap from straw.

In addition to fishing for the Yemeni coastal market, Yemeni fishermen also catch and export a small fish ("wazeef") which appears to be a variety of sardine. Although the export industry has declined sharply in recent years, it still has a sound economic basis and could be revived. The Yemeni fishermen who catch "wazeef" operate from Mocha or Khawkha and fish in waters adjacent to these locales. While some of the fish are dried at Khawkha and sold throughout the southern Yemen, generally the fishermen take their catch either to Amran on the Protectorate coast or directly to Aden where the fish are dried and prepared for export. Consequently, Aden trade figures do not reflect the portion of the Aden fishing industry that is conducted by Yemeni boats in Yemeni waters. In 1959, the combined Aden-Yemen dried fish exports consisted of 2,575 metric tons valued at £183,965 (US\$515,000). Ceylon which purchased 83 percent of Aden's dried fish provided the only significant market. (United States Legation, Taiz, October 9, 1961.)



HERRING REST IN DEEP WATER

Russian scientists utilized submarines to observe herring behavior in the Norwegian Sea in 1959. During the day, winter herring were restful--even motionless--in deep water, with heads down or upward, and even belly up. They rose toward evening and grew more and more agile through the night, reaching a peak of activity at dawn and then subsiding. The study is printed in Russian in Rybnoe Khoziaistvo 35(7), 1959.