



# FOREIGN

## International

### EUROPEAN ECONOMIC COMMUNITY

#### FISHERIES POLICY CONFERENCE POSTPONED:

The European Economic Community (EEC) fisheries policy conference, first scheduled for early in the fall of 1962, and later set tentatively for January 23, 1963, has been re-scheduled again, according to a January 3 report from the Brussels correspondent of a large newspaper in Copenhagen, Denmark. The EEC Commission set no new date or place for the conference because of the press of other meetings. It was hoped, however, that the Ministers of Agriculture, under whom fisheries matters come, might agree to hold the conference in late February 1963 in Brussels, Belgium. (Regional Fisheries Attache for Western Europe, United States Embassy, Copenhagen, January 3, 1963.)

Note: See *Commercial Fisheries Review*, January 1963 p. 65, August 1962 p. 51.

### FISH MEAL

#### WORLD PRODUCTION, NOVEMBER 1962:

World production of fish meal in November 1962 was 19.0 percent greater than in the same month of 1961, ac-

ording to preliminary data from the International Association of Fish Meal Manufacturers. World production during the first 11 months of 1962 was reported as 2,001,902 metric tons.

Most of the principal countries producing fish meal submit data to the Association monthly (see table).

World Fish Meal Production by Countries, November 1962

Country	November		Jan.-Nov.
	1962	1961	1962
..... (Metric Tons) .....			
Canada . . . . .	2,193	4,582	67,025
Denmark . . . . .	4,139	2,639	88,927
France . . . . .	1,100	1,100	12,100
German Federal Republic . .	4,803	5,535	66,801
Netherlands . . . . .	1/	900	1/ 4,300
Spain . . . . .	2,055	2,238	23,780
Sweden . . . . .	709	616	4,467
United Kingdom . . . . .	5,508	5,150	67,704
United States . . . . .	9,999	9,135	259,410
Angola . . . . .	4,375	2,745	29,050
Iceland . . . . .	1,218	1,539	93,980
Norway . . . . .	9,131	9,255	116,370
Peru . . . . .	145,543	114,541	965,181
South Africa (including South-West Africa) . . . . .	800	1,000	202,807
<b>Total . . . . .</b>	<b>191,573</b>	<b>160,975</b>	<b>2,001,902</b>

1/ Data available only for January-October 1962. Note: Belgium, Chile, Japan, and Morocco do not report their fish meal production to the International Association of Fish Meal Manufacturers at present.

The increase in world fish meal production in November 1962 was due mainly to greater output in Peru. World fish meal production during the first 11 months of 1962 was increased by heavier landings of anchoveta in Peru, record landings of pilchards in South Africa, record landings of summer herring in Norway and Iceland, and increased landings of industrial fish in Denmark.

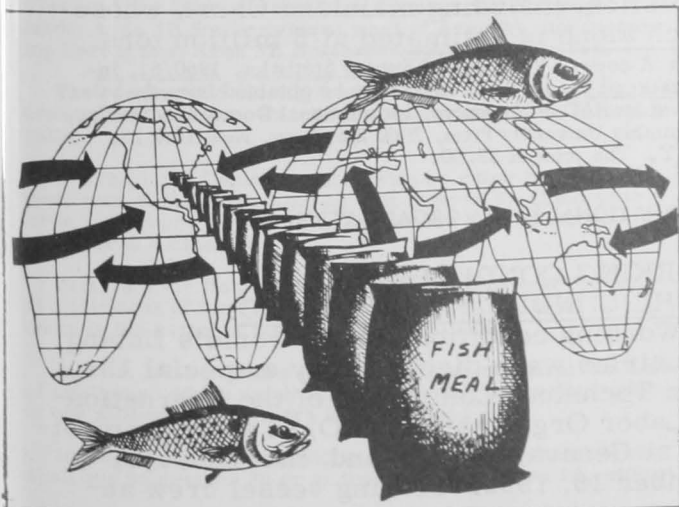
Peru accounted for 76.0 percent of world fish meal production (for countries listed) in November 1962.

During the first 11 months of 1962, Peru accounted for 48.2 percent of total fish meal production, followed by the United States with 13.0 percent and South Africa with 10.1 percent.

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#### FISH MEAL EXPORTS AND PRODUCTION FOR SELECTED COUNTRIES, JANUARY-OCTOBER 1962:

Member countries of the Fish Meal Exporters' Organization (FEO) account for about 90 percent of world exports of fish meal. The FEO countries are Angola, Iceland,



## International (Contd.):

Norway, Peru, and South Africa/South-West Africa.

Production and Exports of Fish Meal by Member Countries of the Fish Meal Exporters' Organization, January-October 1962

Country	October 1962		Jan.-Oct. 1962	
	Production	Exports	Production	Exports
	(Metric Tons)			
Angola . . . . .	4,780	4,437	24,666	25,229
Iceland . . . . .	357	2,421	92,762	59,012
Norway . . . . .	11,932	6,774	107,239	41,082
Peru . . . . .	92,353	63,337	819,338	893,865
South Africa (including So.-West Africa) . . . . .	2,550	10,280	200,419	171,961
Total . . . . .	111,972	87,249	1,244,424	1,191,149

In January-October 1962, Peru accounted for 75.0 percent of total fish-meal exports by FEO countries, followed by South Africa with 14.4 percent, Iceland with 5.0 percent, Norway with 3.5 percent, and Angola with 2.1 percent. (Regional Fisheries Attache for Europe, United States Embassy, Copenhagen, January 16, 1963.)

## FOOD AND AGRICULTURE ORGANIZATION

#### ADVISORY COMMITTEE ON MARINE RESOURCES RESEARCH MEETS IN ROME:

The new Advisory Committee on Marine Resources Research of the Food and Agriculture Organization (FAO) held its first meeting at FAO's Rome, Italy, headquarters, January 28-February 2, 1963.



The committee reviewed the FAO Fisheries Division's present work in marine resources research and discussed the draft program for 1964/65.

Established in October 1962, the Committee meets once a year and reports its findings to FAO's Director-General.

The Committee is made up of not more than 15 experts from various countries appointed for one-year terms by the Director-General. They have been selected on the basis of their expert knowledge and not as representatives of their governments.

In addition to its FAO role, the Committee will also act as the advisory group on oceanographic aspects of fisheries to the Intergovernmental Oceanographic Commission under the United Nations Education,

Scientific, and Cultural Organization (UNESCO). For this purpose two fisheries scientists from the Soviet Union will be added to the Committee.

Among the 13 members of the Advisory Committee on Marine Resources are two from the United States: Dr. Vernon E. Brock, Laboratory Director, Bureau of Commercial Fisheries Biological Laboratory, U. S. Department of the Interior, Washington, D. C.; and Dr. Wilbert McLeod Chapman, Director, Van Camp Foundation, California.

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#### WORLD TRADE IN FISHERY PRODUCTS REACHES NEW HIGH IN 1961:

International trade in fishery products reached a new high of 4.3 million metric tons and an estimated value of US\$1.3 to 1.4 billion in 1961, according to figures released by the Food and Agriculture Organization (FAO) late in 1962. The 1961 international trade increased by some 250,000 tons and \$50 million over 1960.

About 11.8 million tons of fish as they came out of the water were used to produce the products that entered international trade. That means that one-third of the catch in 1961 for the 127 countries submitting both catch and international trade statistics went into products for international trade. For those same countries, the catch was 35.7 million tons, or 87 percent of the total world catch.

FAO has reported the 1961 world catch at 41.2 million tons. This figure, however, includes FAO's estimate of the catches of countries which did not submit international trade statistics, including mainland China, whose catch alone is estimated at 5 million tons.

Note: A copy of Yearbook of Fishery Statistics, 1960/61, International Trade, Vol. XIII, may be obtained from the Sales Agent for FAO Publications, International Documents Service, Columbia University Press, 2960 Broadway, New York 27, N. Y. The price is \$5.00.

## INTERNATIONAL LABOR ORGANIZATION

#### WORKING CONDITIONS IN FISHING INDUSTRY REVIEWED:

Working conditions in the world's fishing industries were discussed by a special 18-man Technical Committee of the International Labor Organization (ILO) at a 10-day meeting at Geneva, Switzerland, that ended December 18, 1962. Fishing vessel crew ac-

## International (Contd.):

commodations and safety, accident insurance, vocational training, and certificates of competency were considered at the meeting in order to lay the groundwork for possible international conventions on those subjects. The Committee recommendations to the ILO will later be considered by the International Labor Conference which is the periodic meeting of delegates from 104 nations, including the United States, to discuss world labor problems.

The special Technical Committee has 18 members, six each from labor, management, and government, selected from various member nations of ILO. At the Geneva meeting, Thomas Rice, Assistant to the Commissioner of the U. S. Fish and Wildlife Service, served as a Government representative and Charles Jackson, Legislative Counsel of the National Fisheries Institute, served as an employer representative from the United States.

## INTERNATIONAL PACIFIC HALIBUT COMMISSION

## NORTH PACIFIC HALIBUT REGULATIONS FOR 1963:

Fishing for halibut will begin May 9 (at 6 p.m.) in all North Pacific areas (Areas 1, 2, and 3A) except in Bering Sea (Area 3B North) and waters west of the Shumagin Islands (Area 3B South), according to the recommendation of the International Pacific Halibut Commission to the Governments of the United States and Canada for the 1963 fishing season. The regulations this year do not differ substantially from those for 1962.

March 25 will be the opening date for fishing in Area 3B North and April 19 the opening date in Area 3B South. This year fishing will begin on the same dates as last year in all Areas, except Area 3B North. Last year Area 3B North was opened to fishing March 28, three days later than the opening date this year.

Fishing areas shall be: Area 1--south of Willapa Bay, Washington; Area 2--between Willapa Bay and Cape Spencer, Alaska; Area 3A--between Cape Spencer and Shumagin Islands; Area 3B South--waters west of Area 3A, not including Bering Sea; Area 3B North--waters in Bering Sea.

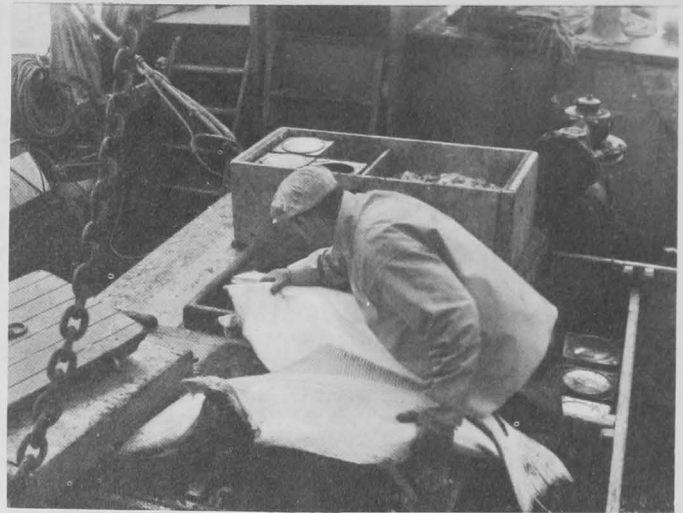
The opening and closing hours of the various regulatory areas shall be 6 p.m. Pacific standard time of the date indicated.

In Area 1 the fishing season, with no catch limit, shall terminate at the same time as that in Area 2. (Last year Area 1 was open to fishing to September 8 or to the date on which Area 2 closed.)

In Area 2 the fishing season shall terminate at the time of attainment of the catch limit of 28 million pounds (the quota is the same as last year and also 1961).

In Area 3A the fishing season shall terminate at the time of attainment of the catch limit of 34 million pounds, which is one million pounds more than last year.

In Area 3B South the fishing season, with no catch limit, shall end September 30 or at the closure of Area 3A, which-



Dressed halibut are stored in ice in the hold.

ever is the later (the closing date last year was 6 p.m. on September 30).

In Area 3B North the fishing season, with no catch limit, shall end October 15 or at the closure of Area 3A, whichever is later (last year Area 3B North was open to fishing to October 15).

The Commission will provide 10 days notice of closure of Areas 1 and 2, and 18 days notice of the closure of Area 3A as it did in 1962.

The Commission's recommendations for the 1963 season were announced on January 31 at the conclusion of its thirty-ninth annual meeting at Petersburg, Alaska, with Chairman Harold W. Crowther of Washington, D. C., presiding.

Other members of the Commission are Mattias Madsen and William A. Bates, representing the United States; and Dr. William Sprules (Vice Chairman), Harold S. Helland and Richard Nelson, representing Canada.

The Halibut Commission is responsible to Canada and the United States for the investigation and regulation of the halibut fishery of the northern Pacific Ocean and Bering Sea. Its specific function is the development of the stocks of halibut to levels that will permit the maximum sustained yield, and its decisions regarding regulation are based upon the findings of its scientific staff.

During the past 31 years of Commission management, there has been progressive improvement of the stocks and increase in annual yield. The annual catch, which had declined to 44 million pounds in 1931 the year before regulation, has averaged 72 million pounds during the past four years. The 1962 catch of nearly 75 million pounds was worth over \$22.5 million ex-vessel. The 1962 catch and value are all-time records.

The Commission reviewed the past year's fishery and the research conducted by its scientific staff. It also dealt with administrative matters and approved a research program for 1963. In the course of its sessions the Commission conferred not only with its staff, but also with representatives of the halibut fishermen's, vessel owners', and dealers' organizations. The scientific findings and all suggestions for regulations in 1963 were discussed at meetings.

The Commission announced also that the 1964 annual meeting will take place at Seattle, Wash. The date was not specified. The annual meeting this year was the first held in Alaska.

Dr. William M. Sprules of Ottawa, Ont., was elected Chairman and Harold E. Crowther of Washington, D. C., Vice Chairman for the ensuing year.

## International (Contd.):

Since in the past the United States and Canadian Governments have accepted the recommendations of the Commission without changes, it is fairly certain the 1963 regulations as recommended by the Commission will be approved by the two Governments.

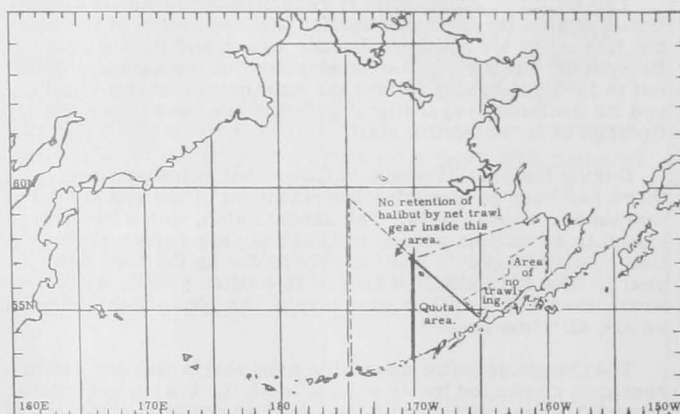
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### CONSERVATION RECOMMENDATIONS FOR HALIBUT OF EASTERN BERING SEA:

At its Ninth Annual Meeting, held in Seattle, Wash., in November 1962, the International North Pacific Fisheries Commission determined that the halibut stock of the eastern Bering Sea no longer meets the conditions of Article IV of the International Convention for the High Seas Fisheries of the North Pacific Ocean and recommended to the Contracting Parties that this stock of halibut be removed from the list of stocks under abstention as described in the Annex to the Convention.

At its Ninth Annual Meeting the Commission also agreed to hold an interim meeting in Tokyo, beginning on February 5, 1963, for the purpose of developing recommendations for conservation measures for halibut to be applied to the fisheries of the eastern Bering Sea at such time as the Contracting Parties approve the Commission's recommendation that halibut of the eastern Bering Sea be removed from abstention.

At the interim meeting each national section of the Commission expressed fully its views on necessary and appropriate conservation measures for the stock and area in question. In view of the results of research now available and taking into consideration the fact that the United States and Canada have long taken measures for the conservation of halibut in the eastern Bering Sea on the recommendation of the International Pacific Halibut Commission, the International North Pacific Fisheries Commission respectfully recommends to the governments of the Contracting Parties the following measures for the conservation of halibut in the



eastern Bering Sea. These measures will be required for the purpose of halibut conservation at such time as all the Contracting Parties accept the Commission's recommendation that halibut of the eastern Bering Sea be removed from the Annex to the International Convention for the High Seas Fisheries of the North Pacific Ocean:

1. That the area within which these joint conservation measures shall apply is that portion of the Bering Sea lying east of the meridian of 175° W. longitude.
2. That the period within which these measures shall apply is from 0000 hours on March 25, 1963, to

2400 hours on March 24, 1964. All times mentioned shall be local standard time.

3. That no halibut of length less than 66 centimeters (26 inches), as measured from the tip of the lower jaw to the extreme end of the middle of the tail, or halibut which, with the head off and entrails removed, are less than 2.25 kilos (5 pounds) in weight may be retained at any time by any fishing vessel of any of the Contracting Parties.
4. That nothing within any of these recommendations shall apply to or restrict the operations of a bona-fide research vessel under the direct control of a Contracting Party.
5. That within the joint conservation area the opening date for the retention of halibut by any fishing vessel of any of the Contracting Parties shall be 1800 hours, March 25, 1963.
6. Outside the triangular area as defined in item 7, fishing vessels of any Contracting Party shall not retain any halibut captured after 1800 hours on October 15, 1963, except as stated in item 8 below.
7. That within the triangular area bounded by a line connecting Cape Navarin and the northern tip of Cape Sarichef, Unimak Island; the meridian of 170° W. longitude; and the Aleutian Islands; (a) the catch quota for halibut for the 1963 season shall be 11,000,000 pounds or 5,000 metric tons to be computed with heads off and entrails removed, (b) fishing vessels of any Contracting Party shall not retain any halibut captured after 1800 hours on the date the catch quota has been reached or after 1800 hours on October 15, 1963, whichever is earlier.
8. That, outside of the triangular area defined in item 7 above, linefishing vessels may retain incidentally-caught halibut at a ratio of one pound of halibut for each seven pounds of other species until 1800 hours, November 15, 1963.
9. All vessels employing any type of net trawl gear shall return to the sea immediately any halibut taken within an area bounded by the meridian of 175° W. longitude; the Aleutian Islands and the Alaska Peninsula; a line from Cape Newenham to the intersection of a line from Cape Navarin to the northern tip of Cape Sarichef on Unimak Island with the meridian of 170° W. longitude, and a line from this point to the intersection of the meridian of 175° W. longitude with the line from Cape Navarin to the northern tip of Cape Sarichef on Unimak Island.

The Commission takes note, in relation to the above recommendations for conservation measures in the eastern Bering Sea, that the Government of Japan, as a domestic measure in 1963, intends to prohibit trawling of all kinds in an area defined as follows:

An area delimited by the line of 160° W. longitude; a line connecting the point of 58°10' N. latitude, 160° W. longitude, and the point of 57°10' N. latitude, 163° W. longitude; the line of 163° W. longitude; a line running from the point of 56°20' N. latitude, 163° W. longitude, through the point of 56° N. latitude, 164° W. longitude, to its intersection with a line connecting Cape Navarin of the U.S.S.R. and the northern tip of Cape Sarichef, Unimak Island; a line connecting Cape Navarin and the northern tip of Cape Sarichef; the Aleutian Islands; and the Alaska Peninsula.

This action by Japan will, to a great extent, afford protection for the young juvenile halibut known to be concentrated in the region.

The Commission also notes that, in relation to the above recommendations, the Government of Japan intends to estab-

International (Contd.):

lish for 1963 a minimum size limit of 66 centimeters for retention of halibut throughout the Bering Sea.

Further, the Commission records that it is developing a research program to provide information which will extend and improve the scientific basis for the conservation of the groundfish of the Bering Sea.

MARINE OILS

ESTIMATED WORLD PRODUCTION, 1955-63:

World production of marine oils (including whale and sperm-whale oils, and fish and fish-liver oils) in 1963 is expected to be down at least 3 percent from the partially estimated production of 1962. A reduction in whale-oil production is anticipated for the 1962-63 Antarctic season as well as a moderate reduc-

participants from the many countries interested in the fisheries and marine researches of the North Atlantic. Following this, the Commission received and accepted an invitation from the Food and Agriculture Organization (FAO) to hold the Symposium at its headquarters in Rome. The time for the Symposium has now been fixed for January 27 to February 1, 1964. The planning of the Symposium is already far advanced. More than 60 contributions have been promised, and it is hoped that the contributors will be able to submit their papers well in advance of the Symposium in order that they can be circulated and studied before the Symposium to ensure the most complete consideration and discussion of them during the Symposium.

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Estimated World Production of Marine Oils, 1955-1963

Type	1/1963	2/1962	3/1961	3/1960	3/1959	3/1958	3/1957	3/1956	3/1955
(1,000 Short Tons)									
Whale . . . . .	330	395	428	418	417	435	440	425	420
Sperm whale . . . . .	115	126	120	122	130	135	110	120	100
Fish (including liver) . . . . .	760	720	667	514	476	384	385	457	443
Total . . . . .	1,205	1,241	1,215	1,054	1,023	954	935	1,002	963

1/Forecast.  
2/Partially estimated.  
3/Revised.

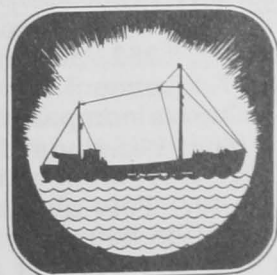
tion in output from whaling areas outside the Antarctic. The reduction in whale-oil output is expected to more than offset the anticipated increase in fish-oil production, principally by Peru, Chile, and perhaps South Africa. (Foreign Crops and Markets, Statistical Supplement, January 31, 1963, U. S. Department of Agriculture.

Note: Data completely revised from that published in Commercial Fisheries Review, January 1963, p. 66. Revision due to new method of compiling data by U. S. Department of Agriculture for years 1955-1963.

NORTHWEST ATLANTIC FISHERIES COMMISSION

ENVIRONMENTAL SYMPOSIUM PLANNED FOR 1964:

This Symposium, the main subject of which is to consider the influence of the environment on the groundfish stocks in the North Atlantic, was originally scheduled to take place in connection with Commission's 13th Annual Meeting in May-June, 1963, in Halifax, Canada. Later it was decided to postpone the Symposium until January 1964, and further to hold it in a place as easily accessible as possible for



THIRTEENTH ANNUAL MEETING SCHEDULED:

The Commission's 13th Annual Meeting is scheduled to take place in Halifax, Canada, May 22-June 8, 1963.

In advance of the meeting the scientific advisers to Panel 5 will meet at the U. S. Bureau of Commercial Fisheries Biological Laboratory, Boothbay Harbor, Me., to review research on herring and environmental studies and to develop programs of research. This meeting will take place May 8-22.

The meetings to take place in Halifax are scheduled as follows: (1) meeting of the Assessment Group, May 22-25; (2) meetings of the Standing Committee on Research and Statistics and of Groups of Advisers to Panels, May 27-June 1; and (3) Annual Meeting proper, June 3-8.

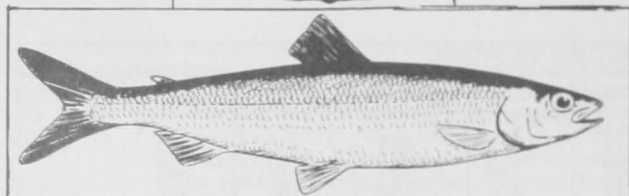
The meetings (1) and (2) will be held in rooms placed at disposal by the Dalhousie University; the Annual Meeting proper will be convened in the Nova Scotian Hotel in Halifax.

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International (Contd.):

#### MID-1962 MEETING OF COMMISSION SCIENTISTS:

This meeting was held at the Biological Station, St. Andrews, N.B., Canada. In the meeting participated a number of scientists working with Commission problems from the Biological Stations in St. Andrews, N.B., Boothbay Harbor, Me., and Woods Hole, Mass., and a representative from the Com-



Scallop and herring studies discussed.

mission Secretariat. The main subjects for the meeting were environmental conditions, herring, scallop, and groundfish. Results of work carried out during the preceding year were compared and considered, and plans for future work were elaborated.

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#### AGING TECHNIQUES WORKSHOP HELD:

At this meeting, held in Bergen, Norway, in November 1962, a number of experts directly concerned with the reading of otoliths for age-determination participated in the Workshop. The workshop dealt with the techniques of preparing otoliths for reading and in the main with certain difficulties encountered when reading the otoliths. A number of recommendations were passed aimed at achieving a complete comparability of otolith-readings, at furthering the exchange of otoliths between countries, and at securing the proper procedure for sampling for age-determinations.

The Subcommittee on Aging Techniques, at the 1961 Annual Meeting, regarded it as very valuable if the Secretariat would approach the International Pacific Halibut Commission requesting its cooperation in the Commission's halibut otolith exchange program. The Halibut Commission has cooperated in the reading of samples of halibut

otoliths submitted by Canada, Denmark, and Iceland and has now submitted two samples of Pacific halibut which are to be circulated to the three member countries participating in the exchange program.

#### TRADE FAIRS

#### WORLD FISHING EXHIBITION TO BE HELD IN LONDON, ENGLAND, MAY 27-31, 1963:

An international display of the latest developments in commercial fishing equipment will be shown at the World Fishing Exhibition to be held at Earls Court, London, England, May 27-31, 1963. Marine engines and auxiliary equipment, nets, fishing gear, marine electronics, and fishing vessel designs will be shown by exhibitors from at least 14 major manufacturing countries. A large display area will be devoted to fully rigged models of the latest midwater, off-the-bottom, and variable-depth trawls. The entire Exhibition will occupy 100,000 square feet of Earls Court.



The Exhibition is sponsored by leading fishermen's organizations in the United Kingdom, as well as by the London Chamber of Commerce, the World Fishing Magazine, the British White Fish Authority, and the Herring Industry Board.

The Exhibition will be open only to those engaged in the fishing industry, and those manufacturers, scientists, and technicians serving their needs. For ticket applications, contact the Exhibition Manager, Commercial Exhibitions, Ltd., St. Richards House, Eversholt St., London, NW1, England.



#### Australia

#### FISH AND SHELLFISH LANDINGS AND VALUE, 1960/61 AND 1961/62:

During the Australian fiscal year ending June 30, 1962, landings of fish and shellfish rose 7.1 percent in volume and 9.6 percent in value as compared with the preceding fiscal year. Landings of finfish in fiscal 1961/62 of 78.7 million pounds were the highest since 1948/49. This plus a record shrimp catch of 9.3 million pounds was largely responsible for the 11.1 percent increase in over-all land-

Australia (Contd.):

ings in 1961/62 over the preceding fiscal year. The 1961/62 landings of spiny lobsters (whole) of 28.8 million pounds valued at US\$12.7 million were up 4.8 percent in weight and 16.1 percent in value from a year earlier. The increase in the value of the spiny lobster landings in this past fiscal year was due primarily to higher prices paid for the frozen lobster tails exported to the United States.

FUNDS ALLOCATED FOR SURVEY OF SPERM WHALE RESOURCE:

The Australian Commonwealth Government has allocated £12,000 (US\$26,880) for each of the years 1963 and 1964 from the Fisheries Development Trust Account for a survey of the sperm whale resource off the Western Australian coast. The survey, to be conducted by the Commonwealth Scientific and Industrial Research Organization, will involve aerial spotting of sperm whales between

Table 1 - Australia's Fisheries Landings<sup>1/</sup> and Values, 1960/61 and 1961/62<sup>2/</sup>

Species	3/ 1961/62			3/ 1960/61		
	1,000 Lbs.	£1,000	US\$1,000	1,000 Lbs.	£1,000	US\$1,000
Finfish . . . . .	78,668	5,955	13,387	70,826	5,907	13,279
Spiny lobster . . . . .	28,813	5,660	12,724	27,494	4,877	10,963
Shrimp . . . . .	9,322	1,341	3,015	6,529	961	2,160
Crabs . . . . .	875	79	178	787	68	153
Oysters . . . . .	12,613	1,014	2,279	14,220	918	2,064
Scallops . . . . .	5,172	155	348	6,896	237	533
Other shellfish . . . . .	1,025	45	101	692	31	70
Total . . . . .	136,488	3/14,249	3/32,032	127,444	3/12,999	3/29,222

1/Landed weight.

2/Preliminary data.

3/Exclusive of Queensland's fresh-water fish catch.

Note: Australian pounds converted to US\$ at rate of £1 equals US\$2.240.

Table 2 - Landings by Australian States,<sup>1/</sup> 1960/61 and 1961/62

Species	Queensland		New South Wales		Victoria		South Australia		Western Australia		Tasmania	
	1961/62	1960/61	1961/62	1960/61	1961/62	1960/61	1961/62	1960/61	1961/62	1960/61	1961/62	1960/61
	(1,000 Pounds)											
Finfish . . . . .	8,834	6,892	27,071	28,260	11,995	11,444	15,059	12,735	9,300	7,596	6,182	3,503
Spiny lobster . . . . .	54	41	398	476	1,134	1,266	4,025	3,721	19,238	18,019	3,964	3,971
Shrimp . . . . .	4,400	3,500	4,678	2,916	4	7	-	-	239	106	-	-
Crabs . . . . .	625	595	190	144	-	-	-	-	59	48	-	-
Oysters . . . . .	323	242	12,204	13,296	65	162	-	-	10	515	1	5
Scallops . . . . .	400	1,600	-	-	-	-	-	-	-	-	4,772	5,296
Other shellfish . . . . .	117	67	-	-	894	557	-	-	14	68	-	-
Total . . . . .	14,753	12,937	44,541	45,092	14,092	13,436	19,084	16,456	28,860	26,352	14,919	12,775

1/Exclusive of about 239,000 pounds in 1961/62 and 396,000 pounds in 1960/61 landed in Australia's Northern Territory.

2/Exclusive of fresh-water fish caught in Queensland.

Australian 1961/62 landings as compared to the preceding fiscal year by States were marked by sharp increases in landings of shrimp in New South Wales (up 60.0 percent) and in Queensland (up 31.0 percent). The higher landings of finfish this past fiscal year over 1960/61 were due partly to record tuna landings in South Australia, increased mullet landings in Queensland, and an excellent salmon-trout season in Western Australia. The 25.0 percent decrease in landings of scallops during 1961/62 was due mainly to a sharp drop (75.0 percent) in the landings in Queensland. The Queensland scallop fishermen in 1961/62 diverted some of their fishing effort to the more lucrative shrimp fishery.

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Albany and Shark Bay, and will be augmented by spotting carried out by two private whaling companies. (United States Embassy, Canberra, January 11, 1963.)

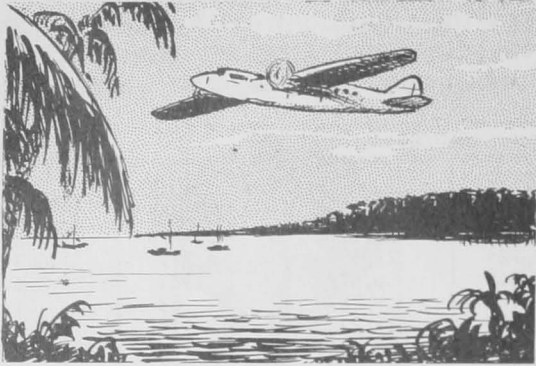
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TUNA SURVEY OFF WESTERN AUSTRALIA:

A total of £40,000 (US\$89,600) has been spent for a survey of the commercial potential of tuna off southwest Western Australia. Australia's leading tuna fisherman commanded the chartered tuna clipper Estelle Star to carry out the work. Despite abnormally bad weather conditions, the survey, which started on July 31, 1961, achieved good coverage of the area.

## Australia (Contd.):

During the closing stages of the survey, approval was given for the expenditure of up to £2,500 (\$5,600) for the charter of a suitable airplane to help in the exploratory operations. A twin-engined aircraft was



chartered from a Perth firm and 22 flights were carried out during May, June, and early July 1961.

The Estelle Star trolled for tuna continuously while at sea, and used the pole-and-live-bait method of fishing when suitable schools of tuna were found. An experimental long line provided by CSIRO was shot on six occasions.

The immediate conclusion of the survey is that tuna fishing on a commercial scale could not have been maintained during the 12 months the Estelle Star worked in the area. This conclusion is not equivalent to saying that a tuna fishery cannot be established, since the year may have been abnormal in some fundamental respects. Weather, for instance, was reported as "abnormally bad," but the basic reason for low catches seems to have been a scarcity of fish of the size required by the canner.

During the whole of the period of the survey, a CSIRO officer was on board Estelle Star and a great deal of valuable scientific information was obtained. More than 5,000 small tuna were measured and tagged, and over 1,000 observations made of the environmental conditions, including temperature and salinity. The tagging program particularly is of great value for the study of the distribution and migration of tuna around Australia. (Australian Fisheries Newsletter, November 1962.)



## Brazil

ERADICATION OF PIRANHA  
IN INLAND WATERS:

A small news item, "Piranhas a Problem in Brazil's Inland Waters" (Commercial Fisheries Review, January 1962 p. 9), has prompted a Brazilian Government biologist to write the following article in clarification of the piranha problem in Brazil

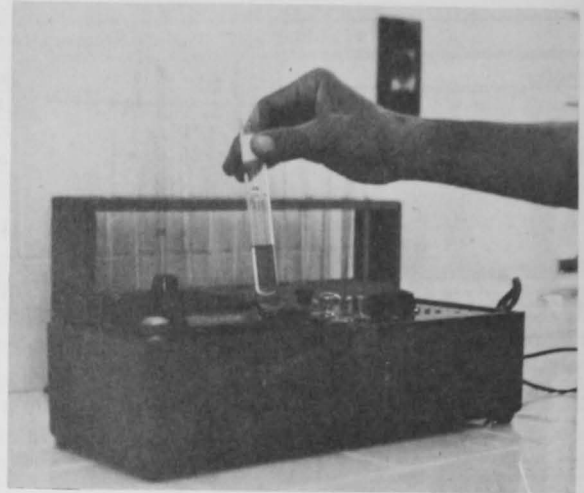


Fig. 1 - Determining the content of rotenone in a sample of timbo powder by the colorimetric-photoelectric process.

The results of the Brazilian Government's fight against the piranha (Serrasalmus) are tangible and compensating, and the cost relatively low.

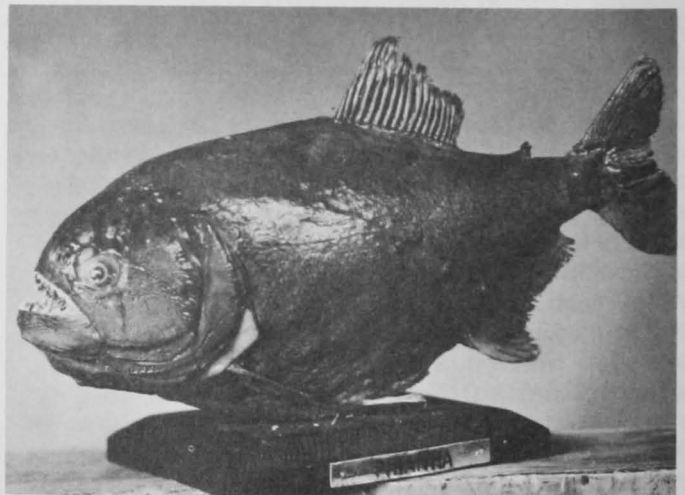


Fig. 2 - A specimen of piranha (Serrasalmus) measuring 14 inches in length, from the Jaguaribe River.

At the request of the Service de Piscicultura (Pisciculture Service) of the National Department of Works Against the Droughts



## Brazil (Contd.):

("Departamento Nacional de Obras Contra as Secas"), from 1957 to 1961, with the cooperation of the biologists of our agency, we intensified the fight against the piranha and succeeded in exterminating that harmful species in 10 dams, with a total hydrographic basin area of 18,532.8 square miles in the northeastern region of Brazil known as the "Drought Polygon."

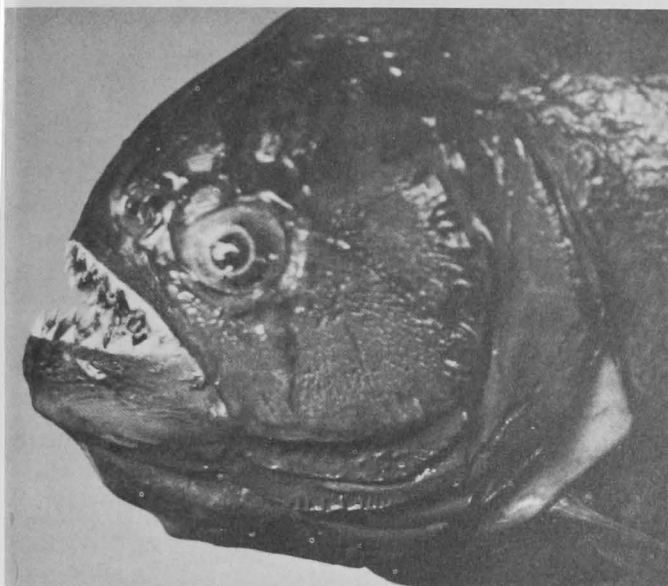


Fig. 3 - A close-up of a piranha's head, showing the teeth.

In the state of Ceara alone, its two largest hydrographic basins are infested with piranhas: Jaguaribe River (28,957.5 square miles) and Acarau River (15,354.7 square miles). In those areas, great losses are inflicted upon cattle and men, particularly those who fish for a living. Small scars, but also mutilations and even loss of lives are traceable to the awesome piranha.

The above rivers flow only in the rainy season, but the small lagoons remaining in their beds for the dry season present a serious danger for the livestock, as they are teeming with piranhas.

The dams constructed in those hydrographic basins become real piranha ponds, precluding people from taking advantage of them as a fishing source. Extensive damage is caused to fishing gear by the fish, and fishing is avoided because of its dangers.

The biologists of the Pisciculture Service carried out tests with "timbo" powder



Fig. 4 - The wound inflicted on a 16-year-old boy attacked by a piranha in the "Riacho dos Cavalos" Dam, Paraiba State. The photo was taken five minutes after the accident.



Fig. 5 - Fisherman in the "Riacho do Sanguê" Dam, Ceara State, shows a mutilated little finger caused by a piranha attack.

## Brazil (Contd.):

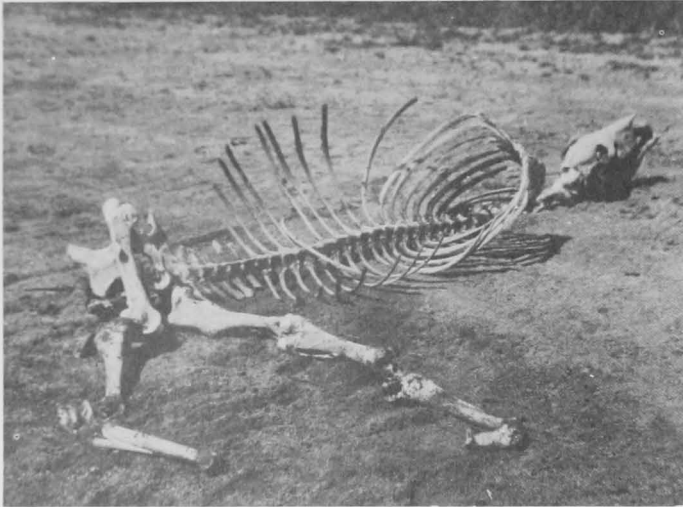


Fig. 6 - Remains of the skeleton of a horse eaten up by piranhas in "Santo Antonio de Russas" Dam, Ceara State.

and found that piranha is the regional species most sensitive to the action of the rotenone it contains (6 percent).



Fig. 7 - Workers handling timbo powder are protected by face masks.

The powder is obtained in the Amazon by grinding the roots of certain plants of the Sapindaceae, Leguminoseae, Euphorbiaceae family, popularly known as "timbo."

The tests with the powder were made by applying it to the water at the rate of 3 parts per million (p.p.m.). It eliminated the piranha (egg, larvae, young, and adult) within 11 to 15 minutes, with little damage to the young, fingerlings, and adults of all the other regional species.

Work plans were made and carried out in the dry seasons. While the engineers were building the dams, the biologists were search-

ing the upstream hydrographic basin, "poisoning" ("tin guiando") all the bodies of water, making a real selective eradication of the piranha.



Fig. 8 - Workers in canoes spraying timbo powder in deep waters.

"Oros" Dam is the largest basin where this work has been done. Its area totals 9,652.5 square miles. The "Oros" Dam was built on the Jaguaribe River, in the State of Ceara, and can impound 141,262,400,000 cubic feet of water, absolutely free from piranhas.



Fig. 9 - In deeper places, timbo paste is being applied with the aid of a funnel to which a rubber tube is attached.

Upstream from the "Oros" Dam, in the Jaguaribe River, an already existing dam called "Varzea do Boi" (1,833,232,796 cubic feet) was "poisoned." For economy sake, and also for increased efficiency, its volume was reduced to 42,378,720 cubic feet before the operation began. In that reservoir 3.5 metric tons of "timbo" powder were used, and 150 men and 40 boats employed to apply the ichthyotoxic substance.

## Brazil (Contd.):

Thousands of piranhas died in the three days the work was carried out. After 72 hours, 60 dynamite charges were blasted off in many places of the dam. Specimens of seven different species were collected be-



Fig. 10 - Specimen of a piranha killed by timbo powder.

longing to the *Cichlidae*, *Loricariidae*, *Characidae*, *Pimelodidae*, and *Poeciliidae* families, which shows the selective character of the process used to eradicate piranhas. A larger volume of water than the above, the largest ever successfully "poisoned," was the "Poço da Cruz" Dam, in the State of Pernambuco, in the Moxoto River basin of the São Francisco River, soon after its completion, when 60,044,000 cubic feet of water were impounded. Four metric tons of "timbo" powder were applied there in October 1957. The dam now holds 17,660,000,000 cubic feet, and not a single specimen of piranha has been reported so far, despite intensive fishing, which is proof of the efficacy of the poison.

To avoid the piranha plague in the "Araras" Dam (35,315,600,000 cubic ft.) in the Acarau River, a complete eradication program was carried out in its basin, an area of 1,351.3 square miles. While the engineers were building the dam, our biologists were working upstream.

The work was done in 113 days (October 27, 1957, to February 2, 1958). The expedition traveled 621.4 miles along the bed of 3 rivers and 67 creeks. "Poisoning" was done on 758 "pocos" (depressions in the bed of the river where water remains most of the dry season), 46 drinking places, 3 dams, and 1



Fig. 11 - Piranha (*Serrasalmus*) killed by timbo powder.

lagoon; test blasts with dynamite were made on 34 "pocos," 129 dams, 13 drinking places, and 6 lagoons; piranhas were found and eradicated in 48 "pocos" and 1 lagoon. A total of 4.5 metric tons of "timbo" powder was used.

The total cost of the work was Cr.\$1,531,255 (US\$9,754), including personnel and supplies for the complete eradication of the "Araras" Dam and its whole hydrographic basin.

In fishing licenses alone, from January 1961 to May 1962, in the "Araras" Dam, the Federal Government collected from fishermen Cr.\$4,625,548 (\$29,465). Accurate statistics for the same period show a production of 3,323 metric tons of fish, worth Cr.\$80,855,051 (\$515,047). Such work can never be deemed as costly, especially considering that the "Estevam Marinho" Dam, formerly "Curema" (48,029,216,000 cubic ft., therefore larger than the "Araras") collected in the same pe-

## Brazil (Contd.):

riod only Cr.\$2,018,788 (\$12,860) in fishing licenses and yielded only 1,366 tons of fish worth Cr.\$45,273,525 (\$288,392) because fishing was severely curtailed by the presence of piranha.

Even if the economic results obtained from fishing were not so high, the sole advantage of freeing the livestock and the people of the region from the carnivorous piranha would justify the cost of the work.



Fig. 12 - "Escama Peixe" (Fish Barrier) built in a drainage ditch to prevent entry of piranhas.

As the piranha does not leap or jump, and to prevent downstream specimens from returning to already "cleaned" dams, a special barrier, regionally called "Escama Peixe," is built in the spillway. Ceara is the North-



Fig. 13 - Two fishermen with a 200 x 3 meter nylon net caught 102 kilograms (224 pounds) of fish during a night's fishing in "Araras" Dam, Ceara State, thanks to the extermination of piranhas, formerly performed in that dam.

eastern state which benefited most from the piranha eradication work, as that species has been exterminated in the basins of the Jaguari-be and Acaraú Rivers, an area of 16,861,913.6 square miles, which amounts to 29.6 percent of the total State area.

In view of the remarkable results achieved, the Pisciculture Service intends to resume the piranha eradication work in the inland waters of the "Drought Polygon" of Northeastern Brazil.

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--Osmar Fontenele, Biologist,  
Pisciculture Service, National  
Department of Works Against Droughts,  
Brazil.

Note: Values converted at rate of 156.87 cruzeiros equal US\$1.



**Canada**

**ARCTIC CHAR FROM FAR NORTH WIDELY DISTRIBUTED:**

Providing a way can be found to spread small fishing operations over a large area of northern Canada, there seems to be a promising future for the Arctic char. This widely distributed species from the Far North is rapidly becoming a favorite item on hotel and restaurant menus in both Canada and the United States. It is also gaining popularity as a sport fish for anglers who like to travel far and explore new territory. In addition, the Eskimos have found it a new source of livelihood.

Scientists of the Fisheries Research Board of Canada have found Arctic char practically everywhere in the Arctic Archipelago. Last summer they made an extensive survey, mainly on fish and biological oceanography, and on marine mammals where possible, in the Canadian Arctic islands. A report submitted at the Board's annual meeting in Ottawa in January this year told of the extent of the survey.

A coordinating base was established at Cambridge Bay on Victoria Island, Northwest Territories, and four stationary camps were established at Eureka on Ellesmere Island, Assistance Bay on Cornwallis Island, Cresswell Bay on Somerset Island; and at the mouth of the Thomsen River on Banks Island. All those islands are in the Arctic Ocean.

From those camps visits were made to Axel Heiberg Island, Grinnel Peninsula on Devon Island, Prince of Wales Strait, and lakes on several of the larger islands.

In addition to both landlocked and anadromous Arctic char, the scientists found lake herring, lake trout, and whitefish farther north than had been considered the normal range of these species. (Canadian Department of Fisheries, January 7, 1963.)

\* \* \* \* \*

**BASIC RESEARCH ON FISH FLAVORS MAY LEAD TO NEW PRODUCTS:**

Baked halibut that tasted and smelled like baked king spring salmon was prepared at Canada's Vancouver Fishery Technological Station during 1962. This was reported at the annual meeting of the Fisheries Research Board of Canada in Ottawa on January 5, 1963.

The new product with the switch in flavor was not prepared to fool the taste buds or to make halibut palatable for that choice fish has few taste superiors. Rather it was a blend of halibut, king salmon oils, and water prepared by the Board's scientists who are seeking to understand the phenomena of fish flavor. During this year, the studies are being concentrated upon the flavors of baked king salmon and Pacific oyster.

This basic research program may be expected to broaden considerably in the future. As new techniques are developed and perfected, scientists will be able to make appraisals of fish flavors that are impossible at the moment. (Department of Fisheries, Ottawa, Jan. 5, 1963.)

\* \* \* \* \*

**BRITISH COLUMBIA SHUCKED OYSTER PRODUCTION, 1962:**

Preliminary data on British Columbia's production of shucked oysters in 1962 shows an increase of about 11 percent as compared with 1961 and up 28 percent from the 78,395 Imperial gallons produced in 1960.

British Columbia Oyster Meats Production, 1961-62		
Liquid Measure	1/1962	2/1961
Half-pints . . . . .	411,235	353,931
Pints . . . . .	20,503	23,363
Quarts . . . . .	75,462	38,379
Gallons . . . . .	50,061	45,602
Total in Imperial Gallons . . . . .	100,343	90,372
1/Preliminary.		
2/Revised.		

Prices to producers for shucked oysters in December 1962 were as follows for Imperial measures: half-pints, C\$0.30-0.40; pints, \$0.60-0.75; quarts, \$1.00-1.65, and gallons, \$3.25-5.25. In December 1961 the price for Imperial gallons was \$3.15-5.25, and in December 1960 it was \$3.00-5.25.

The retail price of shucked oysters in Vancouver on January 15, 1963, for an Imperial half-pint was 50-55 Canadian cents or unchanged from the retail level on the same date of 1962.

Note: See Commercial Fisheries Review, March 1962 p. 35.

\* \* \* \* \*

**CONTRACT LET FOR NEW NEWFOUNDLAND BAIT SERVICE VESSEL:**

Contract for the construction of a new 165-foot freezer-bait vessel for Newfoundland was

## Canada (Contd.):

announced on January 15, 1963, by Canada's Fisheries Minister. The vessel, which will cost C\$1,415,380, will be built by a Province of Quebec shipbuilding firm.

The new vessel will play a prominent part in the Department's Newfoundland bait service program. It will be capable of freezing bait fish (such as squid, herring, and caplin) at point of capture and will be used to transport frozen bait stocks from areas of surplus to areas of shortage. The vessel will transport bait to bait depots and holding units located in some 50 fishing settlements around the coast of Newfoundland. When completed it will replace the M/V Arctica, which has provided yeoman service for the Province's fishermen for over 25 years.

Of welded-steel construction and aluminum superstructure, the new vessel will be strengthened for navigation in ice. It will have a holding capacity of 190 tons and its freezers will be capable of freezing about 15,000 pounds of bait in 18 hours. Modern principles of shipboard freezing will be employed and the bait will be frozen in blocks of uniform weight for storage in cardboard cartons.

A single-screw, Diesel-engined craft, the vessel is designed in accordance with the latest requirements of the Canadian Steamship Inspection Service. It is expected to have a cruising speed of 12 knots, and in addition to its bait supply services, it will assist other Departmental vessels in the Newfoundland area in patrol duties. When necessary it will also take part in search and rescue operations.

The replacement of the M/V Arctica, probably late in 1963 or early 1964, with this modern refrigerated vessel represents a further step in Canada's program of extending and modernizing the bait service. Over the past several years 28 bait-holding units have been added to the original 20 depots taken over at the time of Union and in addition three refrigerated trucks have been put into service to transfer bait between cold storages in those areas where road facilities exist.

Note: See Commercial Fisheries Review, November 1962 p. 59.

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FISH PROTEIN CONCENTRATE  
EXPERIMENTS ENCOURAGING:

The production of fish protein concentrate or fish flour from less expensive and easily available fish is being studied by technologists of the Fisheries Research Board of Canada. A report on this project was given at the Board's annual meeting in Ottawa early in January this year by scientists of the Board's research station in Halifax.

Recently a scientific team at that station produced a superior quality fish flour from cod fillets. This was done because of the interest of the Food and Agriculture Organization (FAO) in a product that would pass its rigid specifications. Preliminary reports on nutrition tests now being carried out by the Department of National Health and Welfare, the National Research Council, and the U. S. Bureau of Commercial Fisheries show it to be of excellent quality.

With the completion of this project, the Board's technologists are now producing a fish protein concentrate from cheaper fish. At present, work is continuing on the use of cod trimmings (not the head and viscera), non-oily fish, and oily species such as herring. Initial results show that non-oily starting material can be used to yield a fish flour of only slightly different appearance from the concentrate produced from cod fillets, but retaining the same nutritive qualities.

The development of fish flour is not new. It started as a postwar effort by FAO and was undertaken by many of the world's leading fisheries research laboratories, including the Halifax Station. The program was prompted by a desire to supply underdeveloped nations with a cheap supply of animal protein.

In addition, dietetic studies in Canada and the United States showed a need for additional proteins in some diet formulations, especially for people engaged in heavy manual work, postoperative patients, and elderly people. One of the simplest uses of the product would be as an additive to bread, cereals, and other foodstuffs where protein supplementation could be advantageous. Experimental work in this field is being carried out by the Consumer Branch of the Department of Fisheries of Canada.

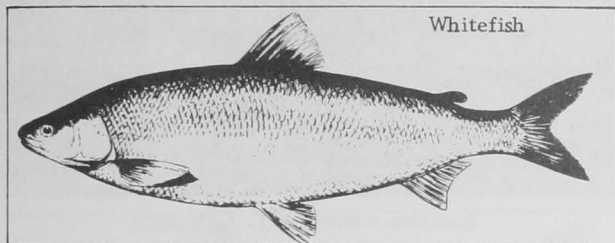
Canada (Contd.):

For all practical purposes properly prepared fish flour is tasteless and odorless. It is about 90 percent protein and of high nutritive value.

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FISH SAUSAGE MADE FROM WHITEFISH:

As part of Canada's policy of creating greater potential markets for fishery products, technologists of the Fisheries Research Board of Canada have developed a fish sausage made from fresh-water whitefish. The new product is similar in texture



to that of the more familiar pork product. A report on the project was given on January 5, 1963, at the Board's annual meeting in Ottawa.

The formula for the fish sausage resembles that of the pork product. Fish fillets are minced to a pulp in a grinder and are blended with precise amounts of fat, spices, and water. At first, cereal was used as a binder, but later this was discontinued as it was found that its absence did not affect the texture, consistency, and flavor of the product. Tests showed that the texture of the product was affected by the sequence of ingredients added in the mixing operation, by the temperature during the mixing process, and by the time consumed in the mixing operation.

Important assistance was given to the scientists by the appearance on the market of a new type of homogenizer or mixer. In the early stages of the project, the presence of bones in the ground-up fish had created problems. With the new homogenizer the small bones are reduced to a thin paste. (Department of Fisheries, Ottawa, January 5, 1963.)

Note: See Commercial Fisheries Review, September 1962 p. 66.

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FISHERY RESEARCH AIDED BY UNDERWATER OBSERVATIONS IN 1962:

The past year has seen an increased interest in underwater exploration by the staff at the St. Andrews, New Brunswick, Biological Station of the Fisheries Research Board of Canada. Not content with remaining at the surface without seeing directly what went on below, scientists and technicians alike have been actively seeking information on the bottom of the sea. The fields of this research have been quite varied; for example, one member of the St. Andrews team spent several weeks in the Arctic, assisting in the study of the distribution of marine arctic species.

In the Bay of Chaleur, divers mapped the areas where herring had spawned, and from their counts of the eggs, deduced how many herring there were in that part of the ocean and what percentage had been caught by local fishermen. They estimated that about 185 million fish, weighing 54.7 million pounds, had contributed to the spawning and of those 2.2 million pounds or four percent had actually been caught.

Lobsters have been studied, more to learn about the animal itself rather than about the fishery. Divers have seen how small lobsters are caught, or perhaps not caught, by special drags used to estimate the lobster population. They have also seen how lobsters hide under rocks and stones during the daytime, and how quickly they will move into drainage tile "houses" provided for them on the sea bed.

Of specific interest to the scallop fishery was the assessment of the efficiency of scallop drags by the divers. Members of the team took turns in riding on the drag as it was towed over the sea bed and counted the scallops that swam out from its path. They also followed the path of the drag picking up scallops the drag had missed. Finally they cleared a large measured area of scallops and brought them ashore for measuring so that the scallop population of the area could be assessed. From these sorts of observations it is hoped that in time more efficient ways of fishing scallops may be devised.

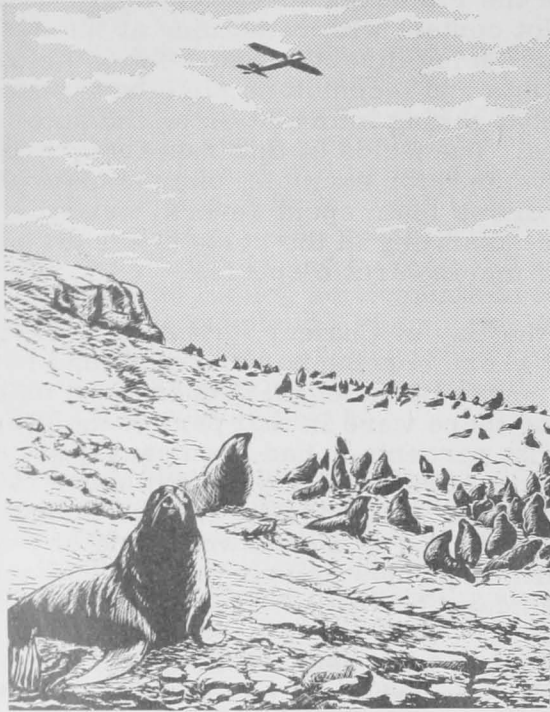
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SCIENTISTS REPORT ON FUR SEAL INVESTIGATIONS:

Scientists of Canada's Fisheries Research Board have completed five years of investigations of fur seals in cooperation with Japan,

## Canada (Contd.):

the United States, and the Soviet Union, under the terms of the Interim Convention on Conservation of North Pacific Fur Seals.

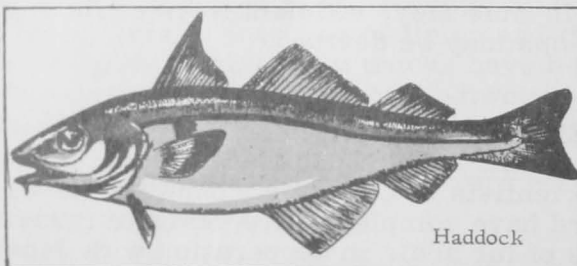


The fur seals were collected for study in Hecate Strait and the northern mainland inlets of British Columbia, the west coast of Vancouver Island, and in the Gulf of Alaska during 1962. A research vessel took 501 from total sightings of approximately 2,000. Nineteen tagged seals of Pribilof origin were recovered, according to a January 4, 1963, report on fur seals given at the Board's annual meeting in Ottawa.

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#### GROUND FISH RESEARCH REVIEWED AT 1962 ANNUAL MEETING OF SCIENTISTS:

Haddock: The haddock fishery on the Newfoundland Grand Bank, which has been highly productive in recent years, is tapering off rapidly as stocks have become de-



Haddock

pleted, biologists of Canada's Fisheries Board reported on January 5, 1963. No new year-classes of commercial importance have appeared since 1955 and 1956 and the fishery for that species has been intensified by the entry of the Russian fleet in 1960.

The haddock investigations also took in the St. Pierre Bank. Here the Board's research vessel A. T. Cameron found the species in

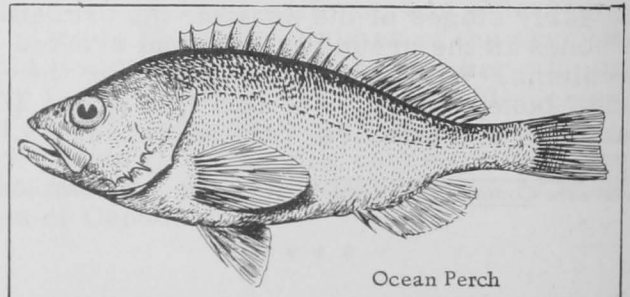


Research vessel A. T. Cameron.

short supply. At two stations small quantities of baby haddock were caught but it is too soon to say whether or not the small haddock are sufficiently abundant to sustain a fishery in the future. Past surveys have indicated, however, that patchy concentrations have never really produced very successful year-classes.

There has been no significant commercial fishery for haddock on the St. Pierre Bank since 1956.

Ocean Perch: In the past four years practically all the possible ocean perch trawling grounds in the Northwest Atlantic from Southern Nova Scotia to the Arctic have been surveyed by the staff of the St. John's, Newfoundland, Biological Station. This comprehensive survey, which covered the entire depth range of the ocean perch, extending down to 400 fathoms, was carried out by the A. T. Cameron.



Ocean Perch

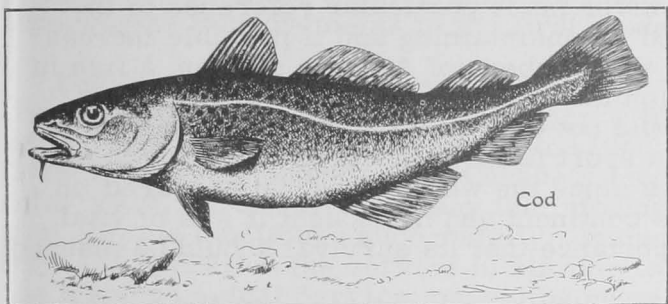


Canada (Contd.):

The purpose of the investigations has been to assess the magnitude of present stocks of ocean perch and the extent of the potential fishing grounds. Background biological information has also been collected on such things as growth, movements, feeding, and reproduction. This is used in the formulation of plans for obtaining maximum sustained yield from this valuable marine resource by rational exploitation.

Sea Dab: Another report was about American plaice or sea dabs which, it was found, grow faster on the southern half of the Newfoundland Grand Bank than on the northern half of the great underwater shelf.

Cod: Tagging was carried out in 1962 for the first time since 1954-55, when 19,000 cod were tagged in Newfoundland inshore and bank areas. The purpose of the present pro-



gram, in which 10,000 fish have been tagged, is to show what changes have occurred in the cod stocks and what intermingling takes place of the populations both inshore and offshore.

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LAMPREY POPULATION CONTROL IN LAKE SUPERIOR:

There is now concrete evidence of the possibility that the lamprey population of Lake Superior can be controlled. This encouraging information was contained in a report released on January 4, 1963, at the annual meeting in Ottawa of the Fisheries Research Board of Canada. The report also pointed out that the predator, which has played havoc with the valuable fish stocks of the Great Lakes, can only be checked fully through a stepped-up control program.

The report, presented by the Board's London, Ont., Biological Station, noted that the lamprey population in Lake Superior has been reduced greatly. This was indicated by



Electric barriers control sea lamprey spawning.

lamprey counts taken in 1962 at electrical barriers placed on streams tributary to the Lake. The barriers prevent the adult lamprey from ascending the streams to spawn.

The Board is responsible for much of Canada's share of the scientific investigations of the lamprey problem, under an agreement with the Great Lakes Fishery Commission (Canada and United States).

The smaller numbers of lamprey found in the Lake in 1962 are due undoubtedly to the scientifically developed control measures employed, the report stated. At the present time a lampricide, a specific toxicant, is used against the predators while they are in the larval stage, during which most of them live in burrows in the beds of streams where they are hatched.

The electrical barriers also may have contributed to the reduced populations. Although a small number of lamprey have managed to slip by the barriers and reached upstream spawning grounds, nevertheless there can be little doubt that they have prevented the major part of recent runs from spawning.

Despite the progress that scientists have made in unravelling the lamprey problem, there is still a great need for biological knowledge concerning its characteristics and life-history. Consideration must be given also to the matter of lamprey larvae populations in Lake Superior itself. The larvae, always thought of in the past as stream dwellers only, were found in fairly substantial numbers in the open Lake between 1960 and 1962.

## Canada (Contd.):

Although it is impossible to estimate their numbers, the report suggests that they constitute enough of a menace to fish stocks to warrant being included in lamprey control plans.

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#### NEW BARGE TO SERVE AS FLOATING LABORATORY FOR BIOLOGISTS:

A novel type of scientific vehicle will make its appearance along British Columbia's coastline in 1963. It will be a 76-foot steel research barge on which scientists of the Fisheries Research Board of Canada will conduct studies on fish populations. The barge is being built in British Columbia at a cost of C\$98,004 and should be ready for operation by April 1963.

The barge will be used as a floating laboratory and will be towed to various points along the coast where studies are to be made. It will be capable of accommodating an operating crew of 14 men for extended periods of time. Tentative plans call for the barge to be used along the British Columbia coast during the summer of 1963 to observe young salmon as they emerge from fresh water into the Pacific Ocean.

The hull and deckside of the barge will be constructed entirely of steel, while some other areas will be of wood construction. The barge will be assigned to the Board's Biological Station at Nanaimo, B. C.

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#### NEW DIRECTIONS IN FISHERIES RESEARCH DISCUSSED AT ANNUAL MEETING:

New directions in fisheries research, taken in the national interest, were noted by the Canadian Fisheries Minister at the opening (January 3, 1963) in Ottawa of the annual meeting of the Fisheries Research Board of Canada. He referred specifically to the Board's future role in the study of oceanography as well as its biological and technological programs under which results could be coordinated and applied to practical fishery management.

The Minister approved the fact that special consideration was given at the meeting to the study of oceanography and to the in-

creasingly complex subject of experimental biology. He thought Canada was fortunate in having well-organized programs in the former field developed through the Canadian Committee on Oceanography, where the needs and capabilities of all Canadian government agencies and oceanographic institutes could be considered and evaluated. He was pleased to note that representatives of the Department of Mines and Technical Surveys would be present at deliberations on oceanography.

In the field of experimental biology, he stated, more exact knowledge of the animals we are interested in became more and more important as man continued to change many aspects of the natural environment. This was particularly true, he said, of the fresh-water environment of salmon on both our coasts. He was gratified to know that the board had this important problem under constant and careful review and that answers were being developed as fast as our resources would allow. The Minister made particular reference to the need for maintaining and if possible increasing the numbers of Atlantic salmon, a fish in which there is great interest among many people not only as a commercial species, but as a sport fish. It has been declining in numbers since the white man first appeared on this continent and he thought it was of vital importance that its survival should be assured.

The progressive increase in fishing intensity on international fishing grounds by fishing fleets primarily from Europe and Asia was also mentioned by the Minister. Some of those grounds, off Canadian shores, have been fished by Canadian fishermen for so long that we have almost begun to think of them as our own, he said. The Minister was happy to see that the combined resources of the Department of Fisheries and the Fisheries Research Board were being brought to bear on improving the efficiency of fishing operations and the elimination of waste.

The international aspect of the fisheries was also referred to in the annual report of the Chairman of the Board, who said that the inevitable changes in the national and international fishing scene would be reflected in research requirements. It was certain, he said, that international studies would be continued if the conservation of high-seas resources was to be effective. In reporting on the manifold duties of the Board, the chairman said that more than half the resources of money, men, and materials spent on biological in-

## Canada (Contd.):

vestigations was devoted to researches dictated by the needs of the five international fishery and sea-mammal commissions to which Canada is party.

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OCEANOGRAPHIC INFORMATION SERVICE AIDED BY AIRBORNE RADIATION THERMOMETER:

The airborne radiation thermometer developed by the Pacific Oceanographic Group (Nanaimo, B. C.) of the Fisheries Research Board of Canada has proved very successful, the annual meeting of the Board was told in Ottawa on January 3, 1963.

The airborne radiation thermometer is a device which enables readings of water surface temperatures from high speed aircraft. Following the successful trials of the device, four new units are being built for use on the Pacific and Atlantic coasts. The new units incorporate improvements to the first model.

The oceanographic information service developed by the group in collaboration with other scientific bodies, has completed its first full year of operation on Canada's Pacific coast. Group officials say the information service functioned successfully. In concept and operation the service is similar to the Meteorological Service, providing regular assessments of oceanographic changes rather than those of the weather.

The oceanographic information service has potential as an important aid to commercial fishing operations, as its scope and coverage are extended. The day is already in sight, a senior Canadian oceanographer states, when fishermen will find this information as vital to them as are the weather forecasts now. The movements of fish are very closely related to temperature and other conditions in the sea, and prior knowledge of changes in such conditions will be of great use in locating fish at a given period and place.

\* \* \* \* \*

REFRIGERATED SEA WATER USED BY FISHING VESSELS:

The increasing use of refrigerated sea water for transporting salmon in British Columbia and the success of the brine-spray freezing system used on two Canadian tuna

vessels were described to the annual meeting of the Fisheries Research Board of Canada in Ottawa on January 4, 1963.

In British Columbia, refrigerated sea water equipment was added to two large barges in 1962. The barges have a combined capacity of over one million pounds of fish. The equipment was also added to four more salmon packers (transport vessels). British Columbia transport vessels using the equipment now have a combined single-trip holding capacity of 2.5 million pounds. In 1962, salmon packers were running long distances between the fishing grounds and canneries. The performance of refrigerated sea water equipment was considered superior in landing fish in prime condition.

Two applications of the refrigerated sea water system are in use in British Columbia. One involves mechanical refrigeration while the other uses a mixture of ice and salt for refrigeration.

Although the Canadian brine-spray freezing system is similar to the freezing method used on United States tuna vessels, it differs in three important respects. In the Canadian-designed system, freon refrigerant is used instead of ammonia; external heat exchangers are substituted for coils in the hold; and the fish hold is insulated and jacketed for dry-frozen storage of fish. The tuna catches landed by the two Canadian vessels equipped with the system were in excellent condition and the system was found to require little maintenance in operation.

Note: See Commercial Fisheries Review, November 1962 p. 61, February 1962 p. 59.

\* \* \* \* \*

REFRIGERATION STANDARDS FOR CARRIERS OF FISHERY PRODUCTS PROPOSED:

Regulations containing strict refrigeration standards for rail and motor carriers hauling fresh and frozen fishery products have been proposed by the Canadian Department of Fisheries, according to reports. The regulations would affect carriers moving fishery products in Canadian foreign trade as well as inter-provincial trade. The proposed regulations are said to contain the following standards:

(1) Fresh, whole, or processed fish shall be transported in export or import trade by

## Canada (Contd.):

carriers maintaining a maximum product temperature of 35° F.

(2) Frozen, whole, or processed fish shall be transported in export or import trade by carriers maintaining a product temperature of 0° F. or lower, provided that a transition period during which procedures may be improved and equipment modified may be permitted according to the following schedule: January 1, 1963 to December 31, 1963, maximum of 20° F.; after January 1, 1964, 0° F. or lower.

\* \* \* \* \*

NEW AIR PRESSURE SYSTEM FOR UNLOADING SALMON DEMONSTRATED:

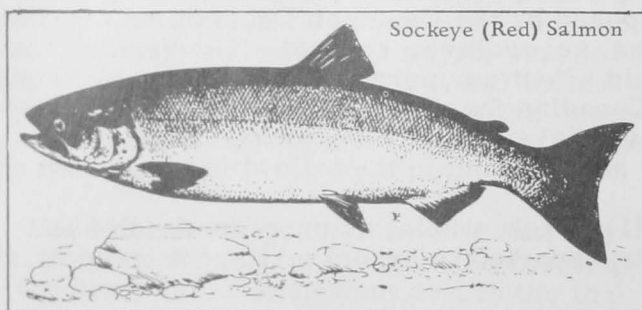
The "pneumatic unloading" system of the Canadian salmon packer Derek Todd puts salmon on the dock with remarkable speed. The system involves the use of air pressure to force fish out of specially constructed tanks. Successful trials of "pneumatic unloading" in British Columbia were described to the annual meeting of the Fisheries Research Board of Canada in Ottawa on January 3, 1963.

The Board's Vancouver technological station worked in collaboration with a Vancouver fishing company in developing the system. The Derek Todd was equipped with four air pressure tanks and has a total capacity of 129,000 pounds of fish. The vessel also has a mechanically operated refrigerated sea water unit.

\* \* \* \* \*

PACIFIC SALMON TAGGING AND DISTRIBUTION STUDIES, 1962:

The 1962 tagging and distribution studies of Pacific salmon on the high seas were described as an "outstanding success" in a report submitted on January 4, 1963, to the an-



nual meeting in Ottawa of the Fisheries Research Board of Canada.

Under the direction of the Board's biological Station in Nanaimo, B.C., four chartered vessels used Japanese long-line gear to take salmon over a broad area of the Gulf of Alaska--up to more than a thousand miles from the coast. Nearly 20,000 salmon of all species were caught, tagged, and released and over seven percent of them were recovered.

Primarily, the tagging program was aimed at charting the distribution of Canadian west coast salmon stocks on the high seas. This has been accomplished. The main bodies of Canadian salmon were found to be well east of current Japanese deep-sea salmon fishing operations, confirming conclusions reached earlier by fisheries scientists.

Distribution patterns were found to be surprisingly consistent and apparently linked to oceanographic conditions. This discovery has opened new approaches to the problems of ocean survival and growth, as well as to prediction of the sizes of runs.

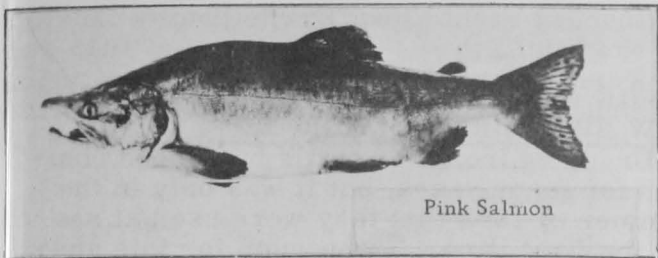
During April and May 1962, a preliminary attempt was made to identify the origin of the sockeye salmon, several weeks before the maturing fish would head for their home streams. Scale readings indicated that over two-thirds of the sockeye were headed for Alaskan streams and that the proportion bound for Adams River, B.C., was small. These estimates followed the actual catch percentages very closely. Alaska produced about 70 percent of the total North American sockeye catch in 1962, while the Adams River run was very small. Those results suggest that useful advance information on the relative abundance of runs may be gained through similar programs.

\* \* \* \* \*

PINK SALMON EGGS FROM BRITISH COLUMBIA TRANSPLANTED IN NEWFOUNDLAND RIVER:

A major undertaking in 1962 by the St. John's, Newfoundland, Biological Station of the Fisheries Research Board of Canada, was the transplant of some 2.5 million pink salmon eggs from British Columbia to Newfoundland. The eyed eggs, spawned in a British Columbia River, were transported by air in late November 1962 to St. John's, and from there were taken by road transport to North Harbour River, St. Mary's Bay.

Canada (Contd.):



Within days the transplant was completed, but preparation of the receiving channel had occupied many months. The channel, 1,770 feet long and 16 feet wide, was excavated about 2.5 miles upstream from the mouth of the river, and was filled with washed gravel to a depth of one foot.

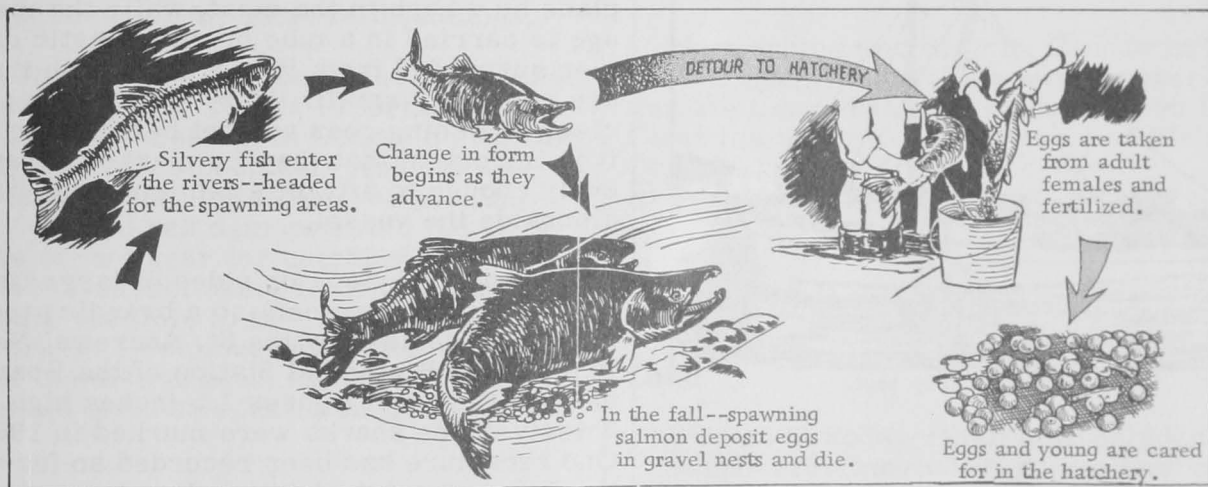
About 50 feet from the head of the channel a dam was constructed, and, to prevent scouring, the area below the dam for a distance of 65 feet was covered with small boulders.

SCIENTISTS EXTEND NORMAL LIFE CYCLE OF SOCKEYE SALMON:

Adult sockeye or red salmon which would have spawned and died under natural conditions have been kept alive in captivity at the Vancouver, B. C., Technological Station of the Fisheries Research Board of Canada. The Board heard a report on this and other activities of the Technological Station during its January 1963 annual meeting in Ottawa.

Some of the fish have survived for over a year in excess of their normal lifespan in an experiment which has stimulated studies of biochemical and histological changes as they relate to prolonging the salmon's survival.

During the normal period of spawning, some of the fish were force-fed, others were left unfed, and some were gonadectomized (spayed) and force-fed. In both groups a number of fish eventually resumed voluntary feeding, and they regained their normal coloration. It is hoped that the survival of spawned salmon can be studied more fully as a result of this work.



The Board was informed at its annual meeting in Ottawa on January 5, 1963, that work on the channel is to continue, in preparation for further transplantations in 1963.

The outcome of this experiment will be awaited with much interest. Success in the undertaking could mean the eventual establishment of a pink salmon fishery on the Atlantic coast, thus shifting some of the fishing pressure off the Atlantic salmon. This, in turn, could assist in the replenishment of the Atlantic salmon runs which for some years have been on the decline.

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By creating conditions which drastically alter the salmon's normal life-death processes, fisheries research scientists have opened significant new fields of study.

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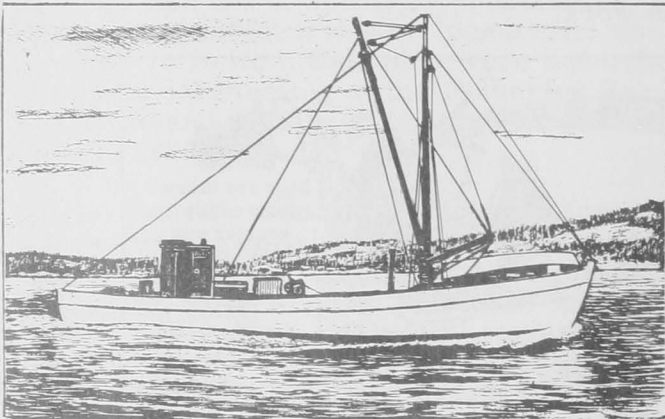
SCALLOP LANDINGS AT ATLANTIC PORTS SET NEW RECORD IN 1962:

Landings of sea scallops at Canada's Atlantic ports increased again in 1962 and established another record. Landings totaled about 14 million pounds of shucked meats valued at about C\$4 million. Both the offshore and the inshore scallop fisheries shared in the increase.

## Canada (Contd.):

The bulk of the landings (90-95 percent) were landed again by the offshore fleet which fished almost exclusively on Georges Bank. The increased landings were due to a further build-up of the offshore fleet (39 vessels in 1962 as compared with 28 in 1961). As was predicted, the catch per vessel was down from 1961. However, the ex-vessel price per pound increased and this compensated for the decrease in catch, and earnings should be the same or slightly more than in 1961. Vessel crew sizes in 1962 remained the same or were slightly smaller as compared with 1961.

Staff members of the Fisheries Research Board of Canada made two trips on commercial vessels to sample catches, study mortalities, and make biological observations. Their findings were contained in a report made on January 5, 1963, at the Board's annual meeting.



Typical Digby scallop boat.

The Digby scallop fishery showed an increase in landings in 1962 over 1961. This fishery is in one of its cyclic periods of abundance. Price increases in 1962 provided a further incentive for that fishery.

The outlook for the Canadian scallop fishery continues to be bright. The offshore fleet will probably increase in 1963 to about 50 vessels. Results of limited sampling indicate that the incoming year-class is not particularly strong and is about the same strength as the one that entered the fishery in 1962. Hence the catch per vessel may decrease further in 1963, but total landings may rise slightly due to the increase in fleet size. If the ex-vessel price for sea scallops continues to increase slightly, the earnings per vessel should be about the same in 1963

as in 1962. (Department of Fisheries, Ottawa, January 5, 1963.)

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#### SHARK MIGRATION STUDIES AIDED BY NEW BRANDING TECHNIQUE:

Branding irons for cattle have been common for many years, but it was only in the summer of 1962 that they were used at sea for the first time. The reason for this and the methods were explained on January 4, 1963, at the annual meeting in Ottawa of the Fisheries Research Board of Canada.

Recent interest in mackerel sharks as food, especially by Norwegian fishermen who have been catching them off Nova Scotia for the Italian market, brought out the fact that very little is known about shark migrations.

In fish migration studies, marking is usually done by attaching some kind of tag or clipping off various combinations of fins. Many of the tags used on large fish are of the dart or fish-hook type; that is, they are held in place by a barb in the meat, while the message is carried in a tube or on a plastic dangle suspended from it. On large fish these are relatively small. Many sharks are cut clear of fishing gear without being boated, so it is important that they be marked conspicuously enough to attract attention in the water alongside the vessel.

Scars on the back or sides of large fish are usually easily seen, so a branding technique was devised by the St. Andrews, New Brunswick, Biological Station of the Board, using letters and figures 1.5 inches high. Twenty-three sharks were marked in 1962. One recapture has been recorded so far--the fish was marked with both a tag and a brand at Corsair Canyon on southeast Georges Bank and re-caught at Hydrographer Canyon about 150 miles to the southwest a month later.

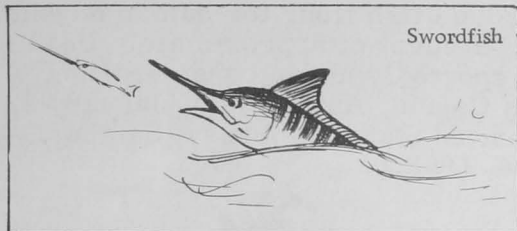
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#### COMMERCIAL CATCHES OF SWORDFISH BY LONG-LINE IN 1962 VERY GOOD:

The first commercial attempts in Canadian Atlantic waters to combine long-lining for swordfish with the traditional harpoon method of fishing has been successful. In early September 1962, the vessel Dorothea Reeves landed 101 swordfish at North Sydney, Cape Breton Island. Ninety-three of the fish were caught with long-lines. Before the 1962 sea-

Canada (Contd.):

Season ended there were at least 32 vessels long-lining for swordfish and preliminary records show that more than 1,500 swordfish were caught by that method. That number represents a landed weight of about 400,000 pounds and a landed value of more than C\$250,000.



One of the great advantages of long-lining swordfish is that the gear can be used at night and when the weather is unsuitable for harpooning, which greatly increases the fishing time per trip. In addition, there is evidence that both male and female swordfish can be caught with long-lines whereas only females are caught with harpoons. It seems possible, too, that long-lining will extend the fishing season by 6 to 8 weeks and provide better opportunity for increased landings.

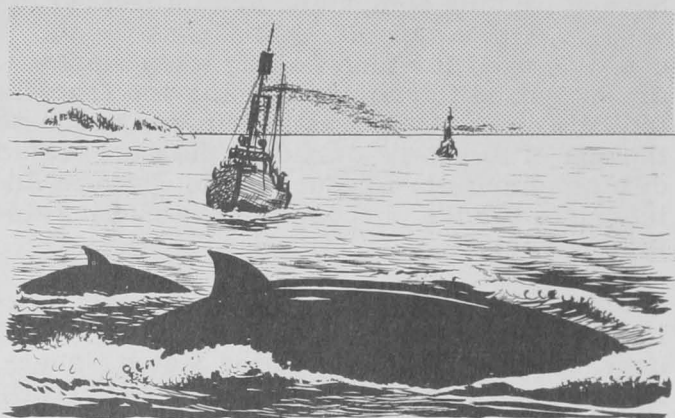
The St. Andrews Station of the Fisheries Research Board of Canada reported at the Board's annual meeting in Ottawa on January 8, 1963, that it has been carrying out long-lining experiments for large pelagic fish since 1960, and has demonstrated the effectiveness of that gear for catching swordfish, tuna, and mackerel sharks, all of which are potentially valuable to the fishing industry. This work will continue in an attempt to learn more of the distribution, abundance, and movements of those species in Canadian waters.

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**REVIVAL OF BRITISH COLUMBIA WHALING INDUSTRY AIDS BIOLOGISTS:**

Biological studies of eastern North Pacific whale stocks by the International Whaling Commission was given impetus in 1962 through the formation of a special committee with specific responsibility in that field. Canada is a member of the Commission, together with a number of other countries with whaling interests. A report on whale studies at the Nanaimo Biological Station, B. C., was presented on January 4, 1963, to the annual meeting in Ottawa of the Fisheries Research Board of Canada.

The resumption of whaling in British Columbia in 1962, after a shutdown lasting two years, provided a source of biological specimens vital to the research program. Fin and sperm whales, which normally predominate



in British Columbia catches, were scarce in 1962 and were dispersed farther offshore than is usual. Sei whales compensated for the reduced catches of fin and sperm in number, but not in oil yield, because the sei is a smaller whale.

No marking was done by Canada in 1962, but one marked sei whale was recovered. It was the first whale mark recovery in British Columbia waters. (Department of Fisheries, Ottawa, January 4, 1963.)

Note: See *Commercial Fisheries Review*, April 1962 p. 42; January 1962 p. 46.



**Chile**

**FISHERY TRENDS, DECEMBER 1962:**

A spokesman of the Japanese Embassy in Santiago has announced a visit to Iquique (in northern Chile) of representatives of Japanese firms interested in investing in Iquique. The Embassy also reported that two Japanese firms have requested sites in the industrial section of Iquique for setting up plants to make fish nets.

The rapid growth of the fishing industry in Chile has created a strong demand for new fishing vessels. At the present time, the only vessel building industry in northern Chile is the shipyard operated by a joint United States-Chilean firm in the port of Iquique. The firm, which can build 20 to 24 vessels a year, has all the orders it can handle. It is building all-

### Chile (Contd.):

steel vessels. The vessels are equipped with 250 horsepower motors and have an average holding capacity of 100 to 150 metric tons. Several fishing companies are interested in vessels with a capacity of 250 tons which could be used for tuna fishing when plants are expanded to provide canning and freezing facilities. An Antofagasta firm has requested the use of the piers owned by the Corporacion de Fomento de la Produccion de Chile in Antofagasta for the purpose of constructing steel fishing vessels.

The Chilean fishing industry is also seeking independent vessel owners willing to fish under contract. Three United States fishermen recently brought their trawlers to Chile. They are working under contract with a Valparaiso shellfish company fishing for langostino and shrimp. Empresa Pesquera Tarapaca, the integrated fisheries company organized by the Chilean Government, recently announced the delivery of its first vessel, but construction of the firm's fish meal plant

has not started. The vessel will, therefore, fish under contract for one of the privately-owned firms in Iquique.

Representatives of a large United States pharmaceutical firm visited Iquique in December 1962 and indicated that plans are under study for the construction of a plant to produce fish flour for human consumption. An investment of approximately US\$2 million was reportedly under consideration. (United States Consul, Antofagasta, January 2, 1963, and United States Embassy, Santiago, January 24, 1963.)



### Denmark

#### SECOND DANISH-BUILT FISH FREEZING VESSEL DELIVERED TO U.S.S.R.:

The M/S Vitus Bering, the second of four fish-freezing vessels being constructed by a Copenhagen shipyard, for V/O Sudoimport, Moscow, was delivered to the Soviet organi-



Fig. 1 - Aerial view of the M/S Vitus Bering, fish-freezing vessel built in Denmark for the U.S.S.R. Shows stern ramp for hauling in loaded cod ends and deck layout.



Denmark (Contd.):

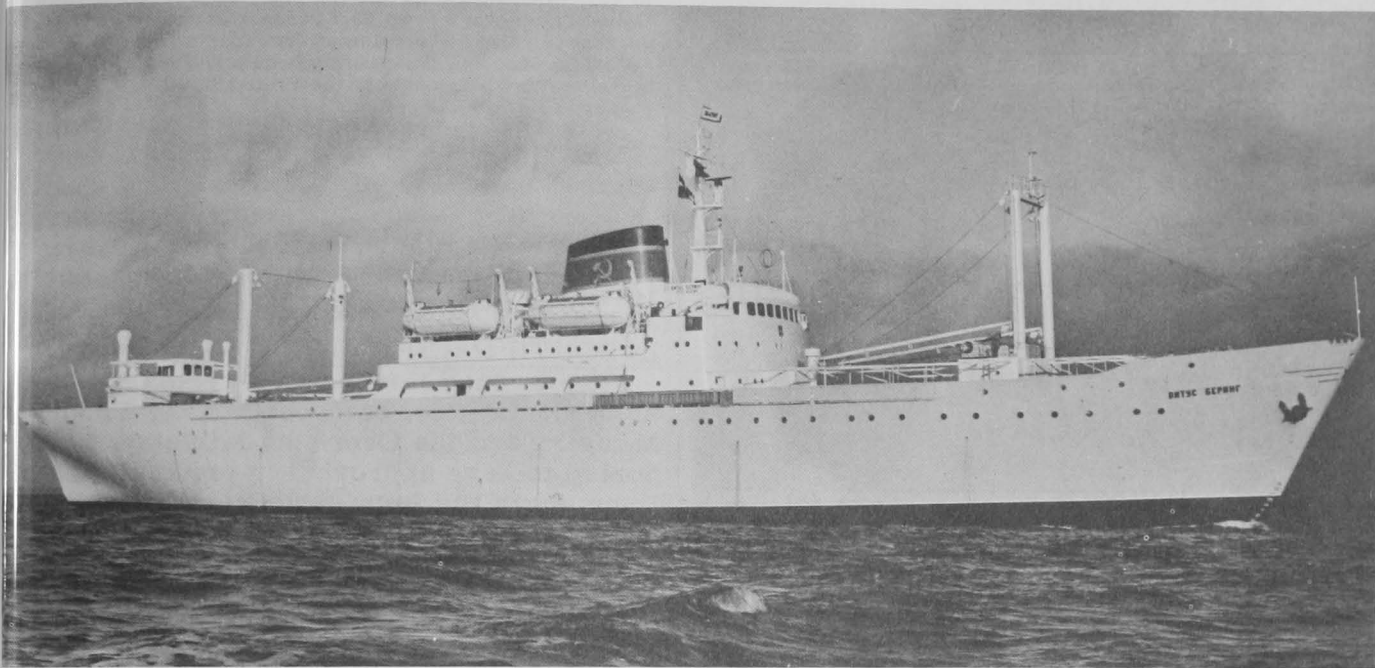


Fig. 2 - Another aerial view of the M/S Vitus Bering. Shows the clean modern lines of the new fish-freezing vessel which was assembled from six prefabricated sections in only 19 working days by a Danish shipyard.

ation early in January 1963. The 2,600-ton vessels, identical in size and equipment, receive fish, for dressing and freezing, from accompanying trawlers by way of a stern chute or over the side. The first refrigerated carrier vessel of this group, the M/S Kryplev, was launched on May 10, 1962. Fisheries Attache, United States Embassy, Copenhagen, January 16, 1963.)

See Commercial Fisheries Review, September 1962 p. 71, August 1962 p. 59, and July 1962 p. 104.

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**FISH FILLETS AND BLOCKS AND FISHERY INDUSTRIAL PRODUCTS EXPORTS, JANUARY-NOVEMBER 1962:**

Denmark's exports of fresh and frozen fillets and blocks during the first 11 months of 1962 were 19.6 percent greater than in the same period of 1961, mainly because of an increase of 107.4 percent in exports of herring fillets. Exports of flounder and sole fillets increased 8.4 percent, but exports of cod and related species declined 4.3 percent. During the first 11 months of 1962 exports to the United States of fresh and frozen fillets and blocks of about 10.8 million pounds (mostly cod and related species) were up from the exports of about 10.2 million pounds in the same period of 1961.

Denmark's exports of fresh and frozen fish fillets and blocks during November 1962 were 26.5 percent above exports in the same month in 1961. Of the total exports, about 19,000 pounds (mostly cod and related species) were shipped to the United States in November 1962 as against 16,000 pounds in the same month in 1961. The leading buyer of frozen fillets in November 1962 was West Germany with 50.0 percent of the total, followed by the United Kingdom with 14.1 percent.

Denmark's Exports of Fresh and Frozen Fish Fillets and Blocks and Fishery Industrial Products, Jan.-Nov. 1962 <sup>1/</sup>				
Product	November		Jan.-Nov.	
	1962	1961	1962	1961
.....(1,000 Lbs.).....				
<b>Fillets and Blocks:</b>				
Cod and related species	1,456	1,250	27,296	28,536
Flounder and sole . . . .	2,030	2,126	26,576	24,515
Herring . . . . .	3,987	2,512	24,298	11,713
Other . . . . .	40	51	593	1,081
<b>Total . . . . .</b>	<b>7,513</b>	<b>5,939</b>	<b>78,763</b>	<b>65,845</b>
..... (Short Tons) .....				
<b>Industrial Products:</b>				
Fish meal, fish solubles, and similar products . .	5,684	2,712	65,500	47,793

<sup>1/</sup>Shipments from the Faroe Islands and Greenland direct to foreign countries not included.

Denmark's exports of fish meal, fish solubles, and similar products in January-November 1962 were 37.0 percent greater than in the same period of 1961. Exports to the United States during the period were 110 tons in 1962 as against 28 tons in 1961.

During November 1962, Denmark's exports of fish meal, fish solubles, and similar products were 109.6 percent above the amount shipped out in the same month of 1961. The principal buyers were Finland and the United Kingdom.



**El Salvador**

**EXPORTS OF EDIBLE FISHERY PRODUCTS, 1961:**

Shrimp shipments to the United States accounted for 93.5 percent of the quantity and

## El Salvador (Contd.):

El Salvador Exports of Edible Fishery Products, 1961						
Commodity and Destination	Quantity			Value		
	Metric Tons	1,000 Colones	US\$ 1,000			
<b>Shrimp, Fresh and Frozen:</b> <sup>1/</sup>						
United States . . . . .	4,089.6	13,937.2	5,574.9			
Japan . . . . .	171.6	545.4	218.2			
Honduras . . . . .	15.4	29.3	11.7			
Guatemala . . . . .	0.3	0.5	0.2			
Total shrimp . . . . .	4,276.9	14,512.4	5,805.0			
<b>Shellfish (other than shrimp), Fresh, Frozen, and Cured:</b>						
Costa Rica . . . . .	7.3	14.2	5.7			
Guatemala . . . . .	52.3	17.5	7.0			
Honduras . . . . .	10.4	10.2	4.1			
Other countries . . . . .	2/	0.1	4/			
Total shellfish (other than shrimp) . . . . .	70.0	42.0	16.8			
<b>Fish, Fresh and Frozen:</b>						
Guatemala . . . . .	5.6	7.8	3.1			
Honduras . . . . .	11.1	10.6	4.2			
Nicaragua . . . . .	0.1	3/	4/			
Total fresh & frozen fish . . . . .	16.8	18.4	7.3			
<b>Fish, Cured:</b>						
Guatemala . . . . .	8.3	10.8	4.3			
Honduras . . . . .	1.3	2.0	0.8			
Total cured fish . . . . .	9.6	12.8	5.1			
<b>Fish and Shellfish, Canned:</b>						
Honduras . . . . .	0.3	1.3	0.5			
Grand Total . . . . .	4,373.6	14,586.9	5,834.7			

1/Probably mostly frozen.  
2/Less than one-half metric ton.  
3/Less than 500 colones.  
4/Less than 500 U.S. dollars.  
Note: Colones 2.5 equal US\$1.00.  
Source: Anuario Estadístico, 1961, Vol. 1, El Salvador.

95.5 percent of the value of El Salvador's total exports of edible fishery products in 1961.



## Faroe Islands

## EXPORTS OF FROZEN FISH FILLETS, JANUARY-SEPTEMBER 1962:

Exports of frozen fish fillets from the Faroe Islands during January-September 1962 were up 120.0 percent in quantity and 78.1 percent in value from those in the same period of 1961. The increase was due mainly to the development of markets in East Germany and Hungary and larger shipments

Faroe Exports of Frozen Fish Fillets, January-September 1962-61						
Country of Destination	Jan.-Sept. 1962			Jan.-Sept. 1961		
	Qty.	Value		Qty.	Value	
		Metric Tons	Kr. 1,000		US\$ 1,000	Metric Tons
United States . . .	188	592.0	85.6	334	1,099.0	159.0
United Kingdom . .	304	825.0	119.4	56	152.0	22.0
East Germany . . .	251	539.0	78.0	-	-	-
Hungary . . . . .	100	211.0	30.5	-	-	-
Denmark . . . . .	11	38.0	5.5	4	12.0	1.7
Sweden . . . . .	13	44.0	6.4	-	-	-
Total . . . . .	867	2,249	325.4	394	1,263.0	182.7

Note: (Danish) krone 6.911 equals US\$1.

to the United Kingdom. On the other hand, exports to the United States were down 43.7 percent in quantity and 46.1 percent in value. The value of the exports in 1962 did not increase as much as the quantity because of the decline in the higher-priced shipments to the United States. (Faroes in Figures, No. 20, December 1962.)



## France

## JOINT JAPANESE-FRENCH TUNA BASES IN SOUTH PACIFIC APPROVED:

The French Government's Foreign Investment Committee, composed of the Finance Ministry and the Overseas Ministry, is reported to have approved, in principle, establishment of the joint Japanese-French tuna bases in Tahiti and New Caledonia, as originally proposed by a large Japanese fishing company in early 1962. Formal approval by the French Government was expected to be given in a matter of weeks.

The proposed joint tuna enterprise at New Caledonia will be located on 72,000 square meters of land in the bay located nearby the capital city of Noumea, with French interests contributing 51 percent of the investment and the Japanese fishing company 49 percent. Base facilities will include a 2,000-ton capacity cold-storage plant and a freezer unit capable of quick-freezing 50 metric tons of tuna a day. In addition, docking facilities, living quarters, and storage areas will be constructed

The Japanese firm plans to contract about 40 Japanese fishing vessels to fish out of the New Caledonia base and reportedly will pay the same prices for tuna as those paid by the United States cannery in Samoa.

The proposed joint tuna base at Tahiti is to be constructed at Papeete. Parties to this joint venture, in addition to the same Japanese fishing company, are a large United States tuna packing company and a French company. Plans call for constructing a 2,000-ton capacity cold-storage plant at Papeete which would be used to store tuna for transshipment to the United States tuna company's packing plant in the United States. (Suisan Keizai Shimbu, January 11, 1963, and other sources.)

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## MESH SIZE REGULATION FOR OTTER TRAWLS IN NORTHWEST ATLANTIC FISHERY:

A decree of January 1, 1963, specified that French vessels fishing in the Northwest Atlan-

France (Contd.):

for cod, haddock, and certain flatfish may use otter trawls of a mesh finer than 114 millimeters (4.5 inches). Vessels trawling for other kinds of fish may use finer nets if their incidental catch of the specified species does not exceed certain percentages, mostly 1 percent. This decree is said to follow the recommendations of the 1961 session at Washington, D. C., of the Northwest Atlantic Fisheries Commission. (United States Embassy, Paris, January 12, 1963.)

See Commercial Fisheries Review, September 1961 p.61.



Greenland

FIRST PRIVATELY-FINANCED FISH-PROCESSING FIRM:

The establishment of a new fish-processing firm in Greenland as a joint venture of fishing industry interests in Greenland, Denmark, and the Faroe Islands marks the first step toward large fishery operations by private enterprise, rather than by the Royal Greenland Trade Department (a Danish governmental unit). The Department stimulated the development of the new company, which will fillet and freeze fish for the United States market and produce fish meal from fillet waste and, in season, from capelin.

Beginning in August 1963, the firm's new plant is expected to produce 40,000 pounds of fillets daily. (United States Embassy, Copenhagen, January 23, 1963.)



Hong Kong

FISH FARMING ADDS TO FOOD SUPPLY:

The constantly increasing population (rose from 1.5 million to 3.5 million in past ten years) of Hong Kong has posed serious problems of employment and food supply. However, the ingenuity and industry of the Chinese, who are even growing vegetable crops in the sand of the seashore, are helping to cope with the problem. And so are the experts of Hong Kong's Department of Agriculture and Forestry through its experimental stations in livestock, forestry, crops, and fisheries. Among the programs to provide

more protein, that of fish farming has been very encouraging.



Fig. 1 - How the embankments, causeways and fish ponds are built. Men cut the heavy, greasy clay and women slide it along ramps to be built up into causeways and banks to contain the ponds.

"In fact," said the Director of Agriculture and Forestry, in an interview with a Food and Agriculture Organization correspondent, "the acreage under fish ponds has almost doubled in the past two years, from about 600 to something like 1,100 acres."

Fish farming is increasing employment of the poorer classes of workers and adding to the income of the investors. It is also leading to a bigger supply of fish to the local market. On average, a pond of one acre yields around one ton of fish a year, a harvest which brings in, roughly speaking, a gross of about \$HK.5,000 (US\$875). The total value of the annual production from fish ponds in Hong Kong is now over \$HK.5 million (US\$875,000).



Fig. 2 - Some of the fish ponds that have been developed in the new territories area. The acreage under fish ponds has almost been doubled in the past two years, from about 600 to around 1,100 acres.

### Hong Kong (Contd.):

"As most of the fish farmers have between 3 and 6 acres of ponds, you can appreciate that fish farming is a worthwhile business," the Director stated. "But, of course, the farmers and their families also keep chickens and ducks, perhaps a pig or two and a water buffalo or other cattle, all of which adds to their standard of living."

The Chinese, who have practiced the art of fish culture for many centuries, obtain very high yields. Chiefly they cultivate grey mullet and various species of carp--grass, silver, mud, black, and common carp, for example. The number of fish that can be raised per acre depends on the fertility of the pond. They have also developed the art of raising pond fertility to a high level. They usually stock an acre of water with about 10,000 grey mullet fry and about 2,000 Chinese carp fry. Mortality rates are high due to a variety of causes, but the ultimate yield of fish per acre is also very high--probably the highest in the world.

The Hong Kong fish farmers have learned how to raise marine fish, the grey mullet, fresh-water fish, and the grass and several other species of carp, in brackish water. This calls for considerable skill and knowledge in maintaining a proper salinity value tolerable to both kinds of fish. And it is in such circumstances that science comes to the aid of the fishermen through the work of the Pond Fish Experimental Unit. This body of the Department of Agriculture and Forestry is concerned, among other things, with water analysis.



Fig. 3 - A biologist from the Freshwater Fisheries Experimental Unit of the Department of Agriculture and Forestry, Hong Kong, making a salinity test.

"Such work provides a useful service to the fish farmers," said the Director. "They no longer have to rely entirely on their own judgment but can, in effect, exercise scientific control."

The Pond Fish Experimental Unit has a big program of work and in order to carry this out it is expanding. The Unit started with two ponds and will shortly have 20 which will make it possible to carry out replicated trials. This is important as it will make possible accurate statistical analysis of results. The Unit also works on such problems as the growth rate of fish, the effects of different fertilizers on pond fertility, and other problems.

"The high yield of protein per acre from fish farming makes it particularly important in a crowded area such as Hong Kong where industrial and urban development encroaches on the limited amount of arable land available," the Director stated. He added, "fish farming which yields about \$HK.5,000 (US\$875) per acre makes excellent use of land that would otherwise yield only \$HK.300 (US\$52.50) if given to sea grass or brackish paddy. We are therefore doing our best to encourage fish farming but, of course, there is capital outlay involved. Although it costs a few thousand dollars to construct a fish pond, most fishermen haven't any capital. If, for example, we could obtain financial support under the Freedom From Hunger Campaign, we could help many more refugees and others to set up as fish farmers."

He pointed out that the Hong Kong Government had already carried through many land reclamation schemes for housing and industry. However, it would be possible to reclaim land from the sea for fish farming but that would need capital investment on a large scale.

"I cannot say how much would be needed before making a complete investigation and survey," he concluded. "But such a scheme, if carried through, would provide land for the settlement of some thousands of families and would, through fish farming and agriculture, help to feed Hong Kong's millions."



Iceland

FISHERY TRENDS, EARLY JANUARY 1963:

**Winter Herring Landings:** The herring catch on the southwest coast of Iceland, through January 5, 1963, amounted to 80,146 metric tons, compared with 74,999 tons taken by January 6, 1962. About 131 vessels were fishing for winter herring this season compared with 108 the previous year. According to Icelandic press reports, there has been some slowdown in herring landings because the reduction plants were unable to handle the load.

**Two Groups Interested in Buying Inactive Reduction Plant:** A group of 20 to 30 fishing vessel owners have expressed an interest in buying a reduction plant located in the inner harbor of Reykjavik, according to the newspaper *Althydubladid*. The processing capacity of the plant is about 337 tons per day. The State herring reduction plants in the north are also reported to be interested in the plant. The plant was built with United States Marshall Plan Funds but was never operated since its construction because of faulty machinery discovered during the trial run and also the lack of incentive resulting from a number of years of poor herring catches. The factory is partly owned by the City of Reykjavik and partly by private parties. The very favorable location of the factory would permit trawlers to unload their fish directly into the factory from the pier. The only other reduction plant in the Reykjavik area requires a 15-minute run by truck, which increases the cost considerably.

**Retail Fish Prices Increase:** As a direct result of the recent increases announced by the Fish Pricing Board, retail sales prices of fresh fish (excluding herring) increased 9.5 to 17.5 percent. (United States Embassy, Reykjavik, January 11, 1963.)

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FISHING FLEET AND ESTIMATED FISHERY LANDINGS, 1961-62:

The total tonnage of Iceland's fishing fleet in 1962 was 1.9 percent greater than in 1961 in spite of a small cutback in the trawler fleet. Fishing vessels accounted for 53.3 percent of the tonnage of all vessels registered in Iceland. A total of 26 Icelandic vessels with a combined tonnage of 1,685 gross registered tons were lost at sea, ran aground, or drifted ashore in 1962.

Size of Icelandic Fishing Fleet, 1962-61				
Type of Vessel	1962		1961	
	Number of Vessels	Gross of Tons	Number of Vessels	Gross Registered Tons
Trawlers . . . . .	47	32,816	48	33,470
Other fishing and whaling vessels of over 100 g.r.t. . .	111	18,206	100	16,246
Other fishing vessels under 100 g.r.t. . . . .	676	23,591	657	23,539
Total . . . . .	834	74,613	805	73,255

The Director of the Fisheries Institute of Iceland, estimated that Iceland's total fishery landings amounted to 820,000 metric tons in 1962. According to preliminary data, the total catch in 1961 amounted to 710,000 tons. (Data based on round or whole weight of fish.) The herring catch in 1962 totaled 473,000 tons, up 45.1 percent from the herring catch of 326,000 tons in 1961, according to the newspaper, *"Althydubladid."* The estimated fishery landings in 1962 indicate a decline in the catch of species other than herring. The shellfish catch in 1962 was estimated at 2,900 tons,

about the same as in 1961. (United States Embassy, Reykjavik, January 11, 1963.)

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FISHERY LANDINGS BY PRINCIPAL SPECIES, JANUARY-AUGUST 1962:

Species	January-August	
	1962	1961
. . . (Metric Tons) . . .		
Cod . . . . .	162,765	171,764
Haddock . . . . .	24,445	23,460
Saithe . . . . .	7,669	7,434
Ling . . . . .	4,605	3,900
Wolfish (catfish) . . . . .	11,335	11,079
Cusk . . . . .	3,696	3,586
Ocean perch . . . . .	9,655	20,508
Halibut . . . . .	975	1,106
Herring . . . . .	382,235	248,600
Shrimp . . . . .	349	430
Other . . . . .	8,540	8,215
Total . . . . .	616,269	500,082

Note: Except for herring which are landed round, all fish are drawn weight.

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UTILIZATION OF FISHERY LANDINGS, JANUARY-AUGUST 1962:

How Utilized	January-August	
	1962	1961
. . . (Metric Tons) . . .		
<b>Herring<sup>1/</sup> for:</b>		
Oil and meal . . . . .	301,210	179,779
Freezing . . . . .	18,138	10,204
Salting . . . . .	54,843	54,498
Fresh on ice . . . . .	7,718	4,119
Canning . . . . .	336	-
<b>Groundfish<sup>2/</sup> for:</b>		
Fresh on ice landed abroad . . . . .	14,559	16,960
Freezing and filleting . . . . .	108,597	118,049
Salting . . . . .	67,283	63,545
Stockfish (dried unsalted) . . . . .	31,940	42,495
Home consumption . . . . .	7,338	5,595
Oil and meal . . . . .	1,693	2,998
<b>Shellfish for:</b>		
Freezing: Lobster . . . . .	2,274	1,410
Shrimp . . . . .	263	304
Canning (shrimp) . . . . .	86	126
Total Production . . . . .	616,269	500,082

<sup>1/</sup> Whole fish.  
<sup>2/</sup> Drawn fish.

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FRESH FISH EX-VESSEL PRICES ESTABLISHED FOR 1963:

Ex-vessel fresh fish prices, effective January 1, 1963, have been established by Iceland's Fish Pricing Board. The average price increase is 9½ percent. Top-grade cod and haddock were increased 12½ percent or from 3.21 kroner per kilogram (about 3.36 U. S. cents a pound) to 3.60 kroner per kilogram (about 3.80 cents a pound). The

**Iceland (Contd.):**

price increases for fish of lower quality were smaller. (United States Embassy in Iceland, January 3, 1963.)

Note: Values converted at rate of 1 kroner equals 2.32 U. S. cents.

\* \* \* \* \*

**HERRING LANDINGS VERY GOOD THROUGH DECEMBER 1962:**

Aided by favorable weather conditions, Iceland's southwest coast herring catch through the end of 1962 was reported very good. If the same number of vessels continue to fish and if the weather continues favorable through January, it is predicted that the herring catch will be large enough to tax the capacity of the southwest coast reduction plants.

The contract recently concluded with the Soviet Union for southwest coast herring specifies a minimum 15 percent fat content and the catch through December 1962 was running at about that minimum.

**India****COLLABORATION SOUGHT FOR NEW FISH AND SHRIMP PROJECT:**

Financial and technical collaboration is still being sought by the Gujarat Fisheries Central Cooperative Association, Ltd., of Ahmedabad, India, for a commercial fisheries project it plans to establish at Okha Port on the Saurashtra coast of Gujarat State, India. The project envisages the employment of five medium mechanized vessels to exploit the shrimp resources of the Gulf of Kutch and two trawlers to carry on offshore fishing in the Arabian Sea. In addition, two transport launches are proposed to be bought to bring fish landed in the adjoining fish harbors by other fishermen.

The project will, moreover, include the establishment of fish canning, quick freezing, cold-storage, and fish meal plants. Besides exploiting the domestic markets in the principal cities such as Bombay and Delhi, efforts will also be directed to export processed fish to the United States, Germany, and other foreign countries.

The Gujarat Association is the largest fishermen's cooperative in India and the Gulf of Kutch is believed to offer considerable scope for shrimp fishing.

Note: See *Commercial Fisheries Review*, May 1962 p. 51.

**Indonesia****FIRST FROZEN TUNA EXPORTS TO UNITED STATES:**

The first exports of frozen tuna to the United States by the Indonesian General

Management Board of State Fisheries were made on January 7, 1963. The exports, amounting to 40 metric tons, were made under the production-sharing contract between an Indonesian firm and a subsidiary of a large United States tuna canning firm.

In a formal ceremony marking the occasion, the Minister for Agriculture and Agrarian Affairs remarked that, although the first shipment was small, it was significant as the first result of a production contract in the field of fisheries. (United States Embassy, Djakarta, January 11, 1963.)

**Japan****ATLANTIC OCEAN FISHING CONDITIONS AND FROZEN TUNA PRICES:**

Japanese albacore fishing in the Atlantic Ocean improved greatly in December 1962, and it was hoped that good fishing would prevail through January 1963. Reportedly, albacore tuna presently constitute 70-80 percent of tuna caught by vessels fishing in the South Atlantic.

Prices of frozen albacore tuna for export to the United States from the Atlantic Ocean fishery had recovered as of early January 1963. Reportedly, over \$320 per short ton was being paid for albacore unloaded at Las Palmas, Canary Islands, for transshipment to United States American canneries in Puerto Rico.<sup>1/</sup> As for the European tuna market, albacore tuna were being exported almost wholly to Yugoslavia at \$420 per metric ton, c.i.f. Hamburg. (Suisan Tsushin, January 11, 1963.)

<sup>1/</sup>Mid-January 1963 information indicates that \$315-\$320 per short ton was being paid for albacore landed at Las Palmas.

\* \* \* \* \*

**CANNED TUNA PRICES:**

The Japan Canned Foods Exporters Association's canned tuna sales committee, on January 8, 1963, conducted its first canned tuna export price negotiations of the year with the Canned Tuna Sales Company (representing packers). At the meeting, the Exporters Association sought agreement from the packers for a drastic price reduction of \$1 per case (48 7-oz. cans) for canned white meat tuna in brine and an 80-cent-per-case reduction for canned light meat tuna in

Japan (Contd.):

brine.<sup>1/</sup> However, the packers gave no definite reply at the meeting.

On January 17, the directors of the Japan Canned Tuna Packers Association met to discuss the price adjustments sought by the canned tuna exporters. Although no agreement was reached, opinions expressed at the meeting indicated strongly that the packers would not agree to the drastic price reductions. (Suisan Tsushin, January 10 & 19, 1963.)

Editor's Note: The most current price information for Japanese canned tuna is for September 1962 (Tenth Sale). At that time, white meat tuna in brine sold for \$10.40 per case and light meat tuna in brine \$7.80 per case (all prices f.o.b. Japan).

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PRICE RESTRICTIONS ABOLISHED ON FROZEN TUNA FOR EXPORT TO U. S.:

On October 22, 1962, the Japan Frozen Food Exporters Association opened a meeting of its tuna department for a discussion of the sales policy applied to the United States. As a result, the interfirm conference prices of \$340 a short ton f.o.b. for albacore and \$290 for yellowfin, which had been established in September 1962, were abolished.

At the same time, the system of bottom or floor prices for exports to the United States, which had been fixed at \$350 for albacore and \$310 for yellowfin, were also abolished.

Thus, export prices of frozen tuna for export to the United States are now free of restrictions, but the Association intends to examine means of stabilizing prices in close cooperation with the producers. (Japanese periodical, October 24, 1962.)

\* \* \* \* \*

DESCRIPTION OF TUNA CATCH STATISTICS:

A speech titled "Investigation for Tuna Catch Statistics," by Noriaki Oka, Chief, Fisheries Statistics Section, Statistics and Survey Division, Ministry of Agriculture and Forestry, was made at the Second Japan-United States Tuna Conference held at Tokyo in October 1962. Oka was a member of the Japanese delegation on Committee I, which discussed current trends in tuna production and forecasts for the tuna resources, expanded utilization of tuna fisheries, and measures to improve bilateral exchange of current information.

The text of the speech as translated from Japanese follows:

"Introduction: Statistics on fisheries have been considerably improved and expanded in Japan after World War II, but the users of statistics in our country are still clamoring for improvement. We are therefore continuing our efforts to fulfill this need. Particularly, in recent years, we have made progress in compiling comprehensive statistics for the agricultural and fishing industries. We are making an effort to compile fishery statistics which would include, in addition to catch data, general information on fish prices, profits and expenses of fishery management units, and on the living standards of the people engaged in fishery.

"In Japan, there are an extremely large number of small-scale coastal fishery operators, and they make up 90 percent of all management units. Even in the case of the tuna fishery, which is one of the larger distant-water fisheries, the small coastal fishery operators make up one-third of the management units. Production of these small coastal fishery management units is naturally small, but the improvement of their operations is an important domestic problem in Japan. Therefore, there is a need for compiling, in general, similar types of statistics for the coastal fishery. Moreover, with the exception of the census survey, statistical research for fishery, like that for agriculture, is almost entirely undertaken by the national statistical survey agencies. In these national statistical investigations, data requested by local autonomous bodies, such as prefectures, must be provided to a certain extent also.

"As can be expected, the above-mentioned situations contribute to abundance in kinds of fishery data. Moreover, the collection of such data requires a large staff of workers due to the fact that there are very many places and numerous species of fish to be investigated. Consequently, it is possible that we are not compiling comprehensive statistics for the important fisheries, particularly the tuna fishery.

"In our investigation of important fisheries, we are presently studying the possibility of confining our work areas to principal fish landing ports and establishing a system whereby only certain important items can be investigated, with special rapidity and accuracy, and promptly reported. At the same time, we also hope to make use of all reliable data that can be administratively collected through the Fisheries Agency, such as data from the mothership-type fishery and those fisheries involving landing of catches in foreign countries.

"Before proceeding with the explanation of investigation methods used in collecting data for tuna catch statistics, as background information I have briefly described the changes that are taking place in the compilation of fishery statistics in Japan. I would like to explain just one more item concerning tuna fishery statistics, which I believe will facilitate the understanding of investigation methods used in Japan for the compilation of tuna catch statistics.

"At the present time, the following kinds of fishery statistics are being collected:

"I. Tuna Statistics:

"A. Catch statistics (quantity of catch or landing, actual operational units, number of vessel trips, number of days per trip). These data are obtained from the following sources:

## Japan (Contd.):

- "1. Domestic marine fisheries (surveyed by the Statistics and Survey Division, Agriculture and Forestry Ministry).
- "2. Factoryship-type fisheries (each vessel is investigated by the Fisheries Agency).
- "3. Vessels based at foreign ports (each vessel is investigated by the Fisheries Agency).
- "4. Vessels operating in the Atlantic Ocean (each vessel is investigated by the Fisheries Agency).

- "B. Fishery census (management units, number of vessels in operation, vessel crews at peak of fishing season, number days fished, number of men engaged in fishing operations, etc.).

A national fishery census survey is conducted every ten years by the Ministry of Agriculture and Forestry and by government agencies in prefectures, cities, towns, and villages.

- "C. Management income and expense statistics (income, expenditure, assets, number of work days, etc.).

This survey is conducted by the Statistics and Survey Division and by the Fisheries Agency both of the Ministry of Agriculture and Forestry, fishery schools, and fishery cooperative associations, but the data are inadequate and generally unusable.

- "D. Fish prices (average prices paid or prices most frequently paid at production and consumer centers).

Data compiled by the Statistics and Survey Division, Ministry of Agriculture and Forestry, and market organizations.

- "E. Classification of use at landing places, fresh fish distribution network, quantity of processed fish. (Note: Collection of data on classification of use was started in 1962.)

Data compiled by the Statistics and Survey Division, Ministry of Agriculture and Forestry, and fishery products inspection associations.

- "F. Consumption statistics (quantity and value of purchases).

Data compiled by the Statistics and Survey Division of the Ministry of Agriculture and Forestry, Welfare Ministry, and the Statistics Bureau of the Prime Minister's Office.

- "G. Trade statistics (volume and value of trade).

Data compiled by the Ministry of Finance and the Ministry of International Trade and Industry.

## "II. Structure of Organizations Collecting Tuna Catch Statistics:

"As previously stated, the Statistics and Survey Division of the Ministry of Agriculture and Forestry conducts most of the statistical investigations for the tuna fishery. This Division not only compiles various fishery statistics, but also conducts statistical investigations for the agricultural and livestock industries. The organizational structure of this Division is as follows:

## "Central Office:

Statistics and Survey Division, Ministry of Agriculture and Forestry.

Number of offices: Five departments and three sections.

Staff: 500 (50 concerned with fishery statistics).

## "Prefectural Offices:

One statistical and survey office in each prefecture, each with six departments.

## "Hokkaido:

Four statistical and survey offices, each with six departments

Total number of regional (Prefectures and Hokkaido) fishery offices: 49.

Total staff members of regional fishery offices: Approximately 4,000 (287 concerned with fishery statistics).

Town and Village Offices: One in each fishing town or village.

Total number of offices: 787.

Total staff members of town and village offices: Approximately 8,500 (826 concerned with fishery statistics).

"The staff members, who are all experienced in statistical work, are given opportunities for on-the-job training. About 250,000 private individuals familiar in fisheries are assisting in the Government's statistical research on a part-time basis.

"Statistical investigations for the tuna fishery are undertaken by the following disciplines of the Ministry of Agriculture and Forestry:

## "Central Office:

Fishery Catch Statistics Section, Fishery Statistics Department, Statistics and Survey Division.

## "Prefectural Offices:

Fishery Catch Subsection, Fishery Catch Statistics Section, Fishery Statistics Department, Statistics and Survey Division.

## "Coastal Suboffices:

Chief, Fishery Statistical Office.

"Statistical investigation of the tuna fishery was authorized in 1952 by the Director, Administrative Management Agency, in accordance with Designated Statistics Ordinance No. 54, based on



## Japan (Contd.):

the Statistics Law of Japan, and, as such, tuna statistics are included within the list of important fishery statistics.

"III. Investigation Methods for Compilation of Tuna Catch Statistics:

"A. Summary:

"Statistical investigation methods for the tuna fishery, as well as those for other fisheries, have undergone several changes, each change bringing about a modification of the investigation system.

"In Japan, statistical investigation of fisheries on a national scale was started in 1870. Subsequently, the mayors of cities, towns, and villages submitted annual statistical reports to the Statistics Section of the Ministry of Agriculture and Forestry through the prefectural governor. This system continued until the termination of World War II. Statistical agents in cities, towns, and villages collected data on quantity of fish catch and on number of people engaged in fishery by different methods, and tabulated these data on the report form prescribed by the Ministry of Agriculture and Forestry. However, under this system of collecting data, wherein the methods of collection were never criticized, variations occurred in the tabulated catches, which were questionable, so, to avoid this situation, the regional statistical offices began to submit to the Ministry figures showing less fluctuations than those which actually existed.

"After the termination of World War II, fishery products were placed under a ration system and all local catches were delivered to a central point for distribution to consumer centers. Fishery associations were required to submit monthly production reports to the Government, and on the basis of these data, the Government compiled fishery statistics. However, for statistical purposes, the reports submitted by the fishery associations, which were compiled for business purposes, were unsuitable since they lacked statistically important data, they were submitted too late, or contained numerous omissions and incomplete data, due to administrative defects.

"In 1950, the Fishery Statistics Section was established in the Statistics and Survey Division of the Ministry of Agriculture and Forestry, and experts in fishery statistics were assigned to all the regional statistical survey offices, as well as suboffices. This marks the beginning of the fishery statistical investigation system as it generally exists today.

"Under this system, in the beginning a method was instituted whereby a few

incoming vessels were selected for sampling, and their catches actually inspected or determined by interviewing the vessel master. However, this method was subsequently found to be impractical, so it was discontinued and substituted by another method of tabulation whereby records of fish unloaded and received by fishery cooperative associations and fish wholesale markets were checked against catch data obtained from actual inspection of certain selected vessels or against data obtained from catch report forms issued to certain vessels. At present, this method is also virtually in disuse.

"B. Present method of investigation:

"1. Catch information:

"Depending upon quantity of fish unloaded at a port, the statistical agent conducts investigations under one of the following two methods, which are the only methods being employed in the compilation of tuna catch statistics.

"a. At major fishing ports, examines and tabulates all fish landing records (sales slips).

"b. In fishing villages, estimates catch by interviewing members of fishery cooperative associations.

"Under the interview method, there are two methods by which fish landings are investigated. They are:

"(1) In cases where it is not possible to calculate catch by tabulating every sales ticket, an interview is conducted to determine numbers and kinds of vessels engaged in actual fishing. With this as a basis, a certain number of fish tickets are sampled to determine catch composition by kinds of vessels, and from these two sets of figures, total catch is estimated for the different species by kinds of vessel.

"(2) In the case where sales slips are not employed in tabulating catch statistics, an interview is conducted to determine numbers and kinds of vessels engaged in actual fishing. Then, with this as a basis, a fishing association within a fixed area is selected for sampling and interviews conducted to obtain an estimate of total catch by species and by kinds of vessel.

"There are 3,000 fish landing ports in Japan. Of these, 150 ports are checked

## Japan (Contd.):

by the sales ticket system, as described in "a." Of these 150 ports, about 30 handle tuna. Fishing ports investigated under the interview system, as described in "b(1)" and "b(2)," number close to 2,800, of which about 10 percent handle tuna.

"Recently, sales slips have begun to be used at all landing ports. In the case of the tuna fishery, statistical workers are employing the sales slip tabulating method described in "b(1)" more widely than the straight interview method described in "b(2)" above.

"Fish landing records are prepared by licensed fishery cooperative associations or fish markets at time of unloading, based on mutual agreement with vessel owners. These records, which are also used to compute fishermen's shares, are reliable, but the statistical workers make further checks by comparing them with other data to verify their accuracy.

"The fishery cooperative associations are public enterprises established in fishing villages. They not only undertake such functions as loans, sales, purchases, and rental of equipment, but also conduct guidance and adjustment for fishermen engaged in the coastal fishery. Organized on the village level according to type of fishery, the fishery cooperative associations always have detailed information on production. However, at times catch data provided by the associations are further studied by statistical workers by comparing them with other data.

"2. Number of vessels in operation, number of trips, and number of trip days:

"The number of vessels fishing is obtained by interviewing vessel owners. At times, vessels which normally return to large ports enter prefectural ports, where vessel operations are not tabulated. (In 1961, a total of 2,629 tuna vessels were engaged in fishing.)

"In tabulating number of trips, the number of fishing vessels entering landing ports is recorded. At major landing ports, this is done by tabulating sales slips. In fishing villages, this data is obtained by interviewing fishery cooperative associations and from reports submitted by part-time statistical agents. (In 1961, the number of trips made by tuna vessels totaled 27,000.)

"The number of trip days is computed by multiplying the number of days per trip with the number of trips. At large fish landing ports, this information is

obtained by interviewing masters of incoming vessels or fish buyers at the market. (In 1961, the number of trip days for tuna vessels totaled 380,000 days.)

"Mention should be made at this point concerning statistical tabulations by fishing grounds. In addition to those statistics which are tabulated by large areas, detailed catch statistics by fishing area have been specially prepared for squid, saury, and mackerel. We have compiled catch statistics by five-degree areas for tuna vessels (over 30 gross tons) which operated during the period between April 1961 and March 1962. In April 1962, we compiled statistics for the first half of fiscal year 1961 (April 1961-March 1962) and are now tabulating the data for the second half of 1961. . . ."

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#### PACKER'S VIEWS ON TUNA PROBLEMS:

The Executive Director of Japan Export Tuna Packers Association was interviewed on January 12 by a reporter of the Japanese fisheries periodical, *Suisan Tsushin*, concerning problems confronting the Japanese tuna canning industry. His views on yield, inspection standards, sales prices, supply of raw materials, and on marketing are reported to be substantially as follows:

Yield: The standard yield of Japanese summer albacore tuna is 50 cases (48 7-oz. cans) per metric ton of albacore with fish averaging 18 kilograms (39.6 lbs.) in weight. Yield of winter albacore depends upon the quality of fish, but is based on the average fish weight of 20-22 kilograms (44-48.4 lbs.).

It is common knowledge that . . . in terms of quantity, yield in the United States is much higher than that in Japan. Extent of this difference in yield depends on type of raw product and processing method, but it can be assumed that United States packers pack at least 5-6 more cases of canned tuna per ton of raw fish than Japanese packers.

If United States packers can pack 62 cases of canned tuna per ton of raw tuna, then the difference in Japanese and United States yield would widen to 12 cases per ton of fish. . . There is no doubt whatsoever that Japanese packers can obtain much higher yields than United States packers if they were to follow the American packing method and not discard any meat portions in the packing process.

Inspection Standards: In Japan, inspection standards compel tuna packers to improve the quality of their pack. The spirit of the inspection standards, which was established before World War II for albacore tuna, even when they sold at extremely low prices, is still in existence today. . . .

The strict inspection standards applied in Japan seem to be out of line in these days when cost of raw materials is so high. Therefore, they should be revised and brought in line with standards in the United States. . . .

Export Prices: An objective appraisal of the quality of Japanese canned tuna indicates that a suitable price for Japanese tuna packed in brine would be about \$18 per case (48 7-oz. cans). Before World War II, Japanese canned tuna was retailing in the United States at almost the same price as well-known United States brands. Since Japanese canned tuna is very high in quality and its production regulated, we would like to see it exported at prices at least comparable with name American brands.

Japan (Contd.):

In the early postwar period, Japanese canned solid-pack tuna could be exported only at prices of chunk-style packs. However, due to subsequent efforts of Japanese exporters, coupled with the rising cost of raw materials, Japanese canned tuna began to sell at prices comparable to, or even higher than, United States private label packs. We hope that the exporters will exert still greater efforts to enhance Japanese canned tuna prices.

**Supply:** A study of the tuna supply situation reveals the existence of a constant supply shortage of albacore tuna in the world market. The demand for albacore tuna is very strong in Europe and the United States. However, price disruption in Japanese frozen tuna exports to the United States occurs about once or twice a year, without fail. . . Also, prices of frozen tuna exported from Japanese overseas bases are said to be lower than those exported from Japan proper, although we do not have detailed information concerning this matter. It would be very unfortunate if those two factors are contributing unnecessarily to the deterioration of the United States tuna market.

**United States Canned Tuna Market:** In the United States, canned tuna retail prices are relatively stable during the months of September, October, and November. Wholesale prices may fluctuate in certain regions of the United States where promotional sales are conducted. Those sales are conducted regularly. It seems that the prices of Japanese canned tuna sold in the United States still leave good margins, as calculated from c.i.f. prices. If those extra margins could be properly used to expand markets for Japanese canned tuna, that would indeed be desirable.

**Sales Policy:** Although every effort is being made to improve sales methods, Japanese canned tuna probably can be exported at better prices and in greater quantities if Japanese packers and exporters would fully apply the agreement they have on canned tuna sales (50-50 division of export quota). At this time when the Japanese Government is viewing with concern restrictions placed on tuna by GATT (General Agreement on Tariffs and Trade), which the Government considers excessive, we must not, under any circumstances, allow the United States canned tuna import quota (at the 12½-percent rate of duty) to remain unfulfilled. (Suisan Tsushin, January 14, 1963.)

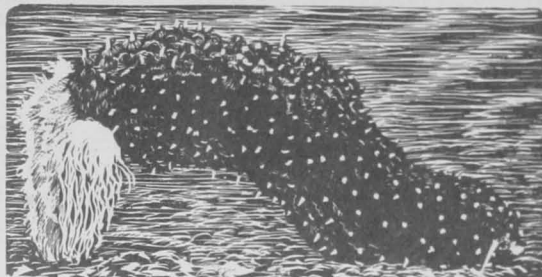
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**FISHING FOR TUNA IN SOUTH PACIFIC OCEAN PROMISING:**

The Japanese fishing firm which planned to build tuna fishing bases on both Tahiti and New Caledonia in the South Pacific has already obtained permission from the French and local governments, and also submitted a petition to the Japanese Fisheries Agency for approval. The plan was being studied by the Japanese Government and the general consensus was that permission to build the base would be granted.



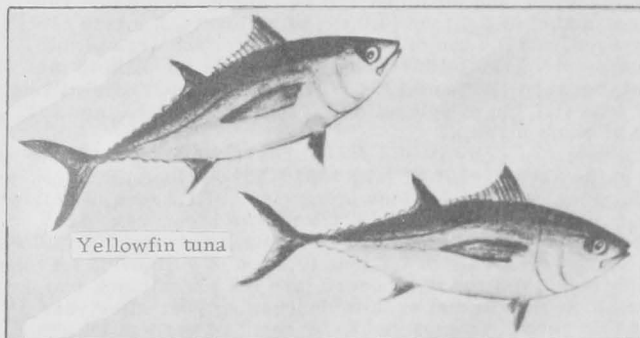
Tuna including skipjack and shark, are abundant around New Caledonia. The coastal fisheries in the area are promising for lobster, shrimp, crab, eel, oyster, and sea cucumber, in addition to pearl shells.



Sea cucumber.

As a result of a 30-day exploratory operation by Chiba Prefecture's guidance ship Boso Maru, it was determined that fishing in adjacent waters of New Caledonia is extremely favorable.

A total of 1,189 tuna were caught during a 15-day operation with an average catch of 99 tuna a day in an area designated "A" Area (off Candy Island, Australia). The breakdown



was 50.7 percent yellowfin, 21.5 percent striped marlin, 6.4 percent albacore and big-eyed. "B" Area (northwest of New Caledonia), for a 4-day operation yielded 113 tuna a day on the average for a total catch of 453 tuna. The breakdown was 63.1 percent albacore, and 18.1 percent yellowfin and black marlin. "C" Area (west of the New Hebrides Islands to New Caledonia) yielded 128 tuna a day on the average for a total of 1,408 tuna during an 11-day operation. The breakdown was 47.9 percent yellowfin, 42.2 percent albacore, black marlin, and others. (Japanese newspaper, December 31, 1962.)

Note: See Commercial Fisheries Review, January 1963 p. 117; August 1962 p. 82; June 1962 p. 62.

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Japan (Contd.):

### TUNA FISHING FORECAST FOR EASTERN PACIFIC, JANUARY-FEBRUARY 1963:

The Kanagawa Prefecture Fisheries Experimental Station released its forecast of tuna fishing for January and February 1963 as follows (tonnage indicates long-line catch per 1,800 hooks):

Central Eastern Pacific (20° N. lat., -10° S. lat. east of 150° W. long.): A good fishing period in the sea area 5°-10° N. lat., 110°-130° W. long. A heavier catch is expected in January at the rate of 5.0 metric tons (0.3 ton of yellowfin, 4.5 tons of big-eyed, and 0.2 ton of black marlin). February rate will be less than January at 3.5 tons (consisting of 0.2 ton of yellowfin, 3.2 tons of big-eyed, and 0.1 ton of black marlin).

Also, in the sea area west and east of the sea area, catch will be less at 1.5 tons (0.2 ton of yellowfin, 1.0 ton of big-eyed, and 0.3 ton of black marlin) in the western part. A rate of 2.3 tons (comprised of 0.3 ton of yellowfin, 1.8 ton of big-eyed, and 0.2 ton of black marlin) is expected in the eastern section. Catch and fishing ground will differ between January and February in the sea area from the equator to 10° S. latitude. In January, in the sea area from the Marquesas Islands to 120° W. long. the catch rate will be 4.5 tons (1.1 tons of yellowfin, 3.0 tons of big-eyed, and 0.4 ton of black marlin); in the sea area somewhat south of the area between 100°-120° W. long. the black marlin catch will be less compared with the western area and the catch rate will be 1.2 tons of yellowfin, 3.0 tons of big-eyed, and 0.3 ton of black marlin. In February, in the area from the equator to 7° S. lat., the Marquesas Islands to 120° W. long., big-eyed will be caught; south of the area 7°-10° S. lat., yellowfin, big-eyed, and albacore will be caught. The catch rate is estimated at 3.6 tons (0.9 ton of yellowfin, 2.3 tons of big-eyed, and 0.4 ton of black marlin) for the area of the equator - 7° S. lat., 130°-150° W. long. In the area to the east, between 120° and 130° W. long., the catch rate will be 4.5 tons (1.1 ton of yellowfin, 3.0 tons of big-eyed, and 0.4 ton of black marlin).

In the area 7°-10° S. lat., 120°-150° W. long., a catch rate is expected of 4.4 tons (comprised of 1.3 tons of yellowfin, 1.6 tons of big-eyed, and 1.5 tons of albacore). Also, much big-eyed will be hauled in the area between 100°-120° W. long. with a rate of 4.2 tons (0.3 ton of yellowfin, 3.4 tons of big-eyed, 0.3 ton of albacore, and 0.2 ton of black marlin). The catch rate in that area is decreasing year after year and this year it is expected to be about 10 percent less than last year.

Catches of big-eyed and striped marlin are expected around the Galapagos Islands. In January, the catch rate will be 4.5 tons (4.0 tons of big-eyed and 0.5 ton of striped marlin). In February, the rate probably will be 4.7 tons (comprised of 3.3 tons of big-eyed and 1.4 tons of striped marlin).

Southeastern Pacific (south of 10° S. lat., east of 150° W. long.): Catch west of 125° W. long. in January will be at the rate of 4.0 tons (2.2 tons of big-eyed and 1.8 tons of albacore); in February, a rate is expected of 4.0 tons (1.1 tons of yellowfin, 1.5 tons of big-eyed, 1.1 tons of albacore, and 0.3 ton of black marlin). In the area from 105°-125° W. long. in January the rate will be 3.9 tons (0.5 ton of yellowfin, 2.8 tons of big-eyed, and 0.6 ton of albacore); in February the rate will be 3.7 tons (consisting of 0.6 ton of yellowfin, 2.5 tons of big-eyed, and 0.6 ton of albacore). East of 105° W. long. in January, the catch rate is estimated at 4.5 tons (1.8 tons of big-eyed and 2.7 tons of striped marlin) and in February the rate will be 5.0 tons (1.0 ton of big-eyed, 4.0 tons of striped marlin).

Although the sea area south of 13° S. lat. is a fishing ground for albacore and black marlin, the heavier the catch of albacore, the closer fishing will be to the Tahiti Islands with a catch rate of 3.8 tons, (2.6 tons of albacore and 1.2

ton of black marlin. Around 125° W. long. in January and in February, the catch rate is estimated 3.5 tons (comprised of 0.5 ton of yellowfin, 0.2 ton of big-eyed, 2.2 tons of albacore, and 0.6 ton of black marlin). Around the Tahiti Islands in January, the catch rate of 3.8 tons will consist of 0.5 ton of yellowfin, 1.1 ton of albacore, and 2.2 tons of black marlin; and in February, a catch rate of 3.3 tons will be 1.8 tons of albacore and 1.5 tons of black marlin. (Japanese periodical, December 27, 1962.)

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### YAIZU FISHERY LANDINGS, JANUARY-NOVEMBER 1962:

At Yaizu (leading tuna fishing port) in November 1962, a total of 8,441 metric tons of fish was landed, valued at \$2,621,250. Landings in November 1962 were down 5 percent from the previous year, but because of higher ex-vessel prices, the value of the landings was up 24 percent. Included in the November 1962 landings were 5,000 tons of tuna.

Landings at Yaizu for January-November 1962 of 123,922 tons were valued at \$33.3 million ex-vessel as compared to 117,121 tons valued at \$29.5 million for the same period in 1961. (Suisan Keizai Shimibun, December 29, 1962.)

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### FISH MEAL OPERATIONS:

Japanese fish meal factoryship operations in the eastern Bering Sea are expected to be reorganized drastically in 1963. The Japanese fishing company, which pioneered the development of that fishery, plans to terminate its meal operations in the Bering Sea and will withdraw its two meal factoryships (Kinyo Maru, 9,373 gross tons; Renshin Maru, 14,094 gross tons) from that fishery. The large fishing company that operates the meal factoryship Soyo Maru (11,192 gross tons) and the meal-oil factoryship Tenyo Maru (11,581 gross tons) and still another firm that operates the meal factoryship Gyokuei Maru (10,357 gross tons) are reported to be planning on curtailing their meal operations and concentrating on frozen fish production.

Reportedly, the decline in bottomfish resources in the eastern Bering Sea and competition from low-priced Peruvian meal have made meal operations in the eastern Bering Sea unprofitable.

The first of the three firms referred to above is said to have suffered large losses in 1962 from its Bering Sea meal operation. The firm that owns the Gyokuei Maru re-

## Japan (Contd.):

portedly will assume the first firm's liability, totaling close to 3 billion yen (US\$8.3 million), and take over the management.

Under the reorganization, there are plans to expand the Renshin Maru's production of frozen fish off Angola and on continuing the mothership-type king crab operations in the eastern Bering Sea and the Okhotsk Sea. As for the Kinyo Maru, the firm that has taken over plans to work out an agreement with a South American meal-producing nation whereby fishing vessels of that country would deliver their catches to the Kinyo Maru, which would be anchored offshore, for processing into fish meal. (Suisan Tsushin, January 12 & 17; Suisan Keizai Shimbun, January 13, Shin Suisan Shimbun, January 14, 1963.)

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## FISH MEAL IMPORTS:

The Japanese Government early in January 1963 approved the importation of 20,000 metric tons of Peruvian fish meal at a c.i.f. price of \$136 per ton. This represents a price increase of \$10 per ton since December 1962. (Shin Suisan Shimbun Sokuho, January 17, 1963.)

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## FISHERIES AGENCY'S 1963 BUDGET:

The Japanese Government has prepared budget estimates for fiscal year 1963 (April 1963-March 1964), which were presented to the Diet (Parliament) when it reconvened in late January. Budget estimates for the Fisheries Agency, Ministry of Agriculture and Forestry, total ¥17,064 million (US\$47.4 million), an increase of nearly ¥1.9 billion (\$5.3 million), or 12.5 percent, over the previous year's regular fishery budget of ¥15,166 million (\$42.1 million).

For the program on "biological research related to international fisheries," the Fisheries Agency is requesting an increase of 44.5 million yen (\$124,000). This increase is to be used primarily for carrying out an extensive tuna research program involving the use of about 50 prefectural research and training vessels, with emphasis to be placed on the investigation of tuna resources, rather than on the development of new tuna fishing grounds. (Nihon Suisan Shimbun, January 11, 1963.)

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## BUDGET FOR PROMOTION OF AGRICULTURAL AND MARINE PRODUCTS EXPORTS IN 1963:

Following conferences with the Ministry of Finance, the Japanese Ministry of Agriculture and Forestry announced on January 9, 1963, that a budget of 148,680,000 yen (US\$413,000) has been approved for the promotion of exports of agricultural and marine products for fiscal year 1963 (April 1963-March 1964). The export promotion program will be administered by the Japan Export Trade Promotion Agency (JETRO), a quasi-governmental body.

JETRO's proposed program for FY 1963 includes stationing, for the first time, an agent at San Francisco, whose responsibility will be to analyze market trends of agricultural and marine products in the western United States, primarily in California. The Japanese Government is contributing 75 percent of the cost (2,220,000 yen or \$6,167). As for other areas, like New York City, Hamburg (Germany), and Hong Kong, JETRO plans to continue to maintain personnel in those areas.

JETRO plans to continue surveys on products like canned tuna and canned saury, as in past years. Concrete plans for conducting those surveys are to be drafted by April 1963, following consultations with industry. A budget of 15,875,000 yen (\$44,100) is being allotted for all market surveys, with the Government contributing the full sum.

In the field of promotion, JETRO plans to conduct an advertising campaign in France to promote the sale of pearls. This is a new program, and the Government is contributing half of the cost, or 5 million yen (\$13,890). A similar amount is being contributed by the Government for sales promotion in England.

Promotion of marine products, like canned tuna and frozen tuna, is to be continued, with concrete plans to be formulated by April 1963. (Suisan Keizai Shimbun, January 10, 1963.)

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## SARDINE CANNING TRENDS, JANUARY 1963:

Sardine canners in the Sanin area of Japan on the Japan Sea early in January 1963 were reported to have begun buying sardines being landed in the Sanriku area at \$30-\$38 per ton ex-vessel. As of early January, canned sar-

## Japan (Contd.):

dines packed in the Sanriku area were equally divided between domestic use and export. Almost all the export pack (mostly No. 1 cans in tomato sauce) was of high quality and good enough to pass export inspection for the United States.

Exporters were of the opinion that exports of canned sardines would be resumed in January, and an estimated 100,000 cases were expected to be exported.

Sardine packing along the Sanriku coast was progressing smoothly toward the end of 1962 and some 30,000 cases packed for export had been consigned to the joint sales company according to a January 10 report. Almost 20,000 cases had passed inspection for export to the United States. (Suisan Tsushin of January 4 and 10, 1963.)

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TRAWLER FISHING IN NORTHWEST  
ATLANTIC LANDS FIRST  
TRIP AT ST. PIERRE:

The Japanese stern-trawler Aoi Maru No. 2, which left Nagasaki in August 1962 and began fishing off Newfoundland about mid-October, landed its first trip of frozen fish either late in December last year or early January this year at St. Pierre for transshipment to the United States. The catch, consisting of about 657,000 pounds of round and dressed fish, arrived in Gloucester, Mass., on January 15, 1963 (see table).

Japanese Stern-Trawler Catch from Northwest Atlantic Grounds Landed at St. Pierre and Transshipped Frozen to Gloucester, Mass.

Species	Net Weight
	Pounds
Cod . . . . .	34,452
Haddock . . . . .	127,952
Flounder . . . . .	274,296
Sole . . . . .	41,360
Hake . . . . .	128,586
Halibut . . . . .	4,268
Ocean perch . . . . .	15,796
Pollock . . . . .	3,575
Lobster . . . . .	572
Shrimp . . . . .	88
Miscellaneous . . . . .	26,098
Total (14,871 pkgs.) . . . . .	657,043

Note: Fish were frozen in so-called "logs" and wrapped in bur-lap. The cod, haddock, hake, and pollock were headed and gutted (dressed); most of the remainder was round.

A report by the Japanese periodical, Suisan Tsushin of December 31, 1962, stated that since the vessel arrived on the fishing grounds (Grand Banks) the catch of cod was

not up to expectations. However, according to the periodical, the vessel was expected to have a full load by the end of 1962.

The same source reports that with better weather conditions the vessel expects to survey a wide area east and north of Newfoundland. The Japanese sponsors of the expedition feel that another trawler is needed to cover the wide area to be investigated and will probably request permission to send another vessel to aid the Aoi Maru No. 2 to investigate the bottomfishing potential in the Northwest Atlantic.

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BOTTOMFISH MOTHERSHIP ASSOCIATION  
FISHING PLANS IN NORTH PACIFIC  
FOR 1963:

The Japanese Northern Waters Bottomfish Mothership Association, composed of the 16 companies operating bottomfish fishing fleets in the Bering Sea, North Pacific Ocean, and the Okhotsk Sea, met on December 17, 1962, in Tokyo, to discuss 1963 bottomfish operations. At the meeting, the Association agreed to restrict its 1963 operations to a total of 25 motherships and 346 catcher vessels, and submitted a final proposal to that effect to the Fisheries Agency. The proposal represents an increase of 52 catcher vessels over actual 1962 operations, when 294 catcher vessels were employed, according to the Japanese periodical Suisan Keizai Shimbun, December 18, 1962.

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BERING SEA BOTTOMFISH  
LANDINGS, 1961-62:

The bottomfish landings (including shrimp but exclusive of king crab) of Japanese mothership fleets operating in the Bering Sea in 1962 were down about 20 percent from the

Japanese Bering Sea Bottomfish Landings, 1961-62 <sup>1/</sup>		
Species	1/1962	1961
	. . . . . (Metric Tons) . . . . .	
Flatfish . . . . .	346,553	453,963
Halibut . . . . .	9,942	11,005
Cod . . . . .	9,642	6,764
Alaska pollock . . . . .	59,455	24,404
Silver cod (sablefish) . . . . .	28,340	26,231
Rockfish <sup>2/</sup> . . . . .	12,618	10,543
Shrimp . . . . .	16,797	10,255
Herring . . . . .	9,942	72,260
Miscellaneous . . . . .	3,655	5,719
Total . . . . .	496,944	621,114

<sup>1/</sup>Preliminary.  
<sup>2/</sup>Statistics from various Japanese sources vary as to the landings of rockfish in 1962.

## Japan (Contd.):



A Japanese trawler fishing bottomfish for the mothership in the Bering Sea.

previous year. The decline was due mainly to a cutback in the number of mothership fleets operating during that year. The Japanese Fisheries Agency licensed only 23 mothership fleets to fish for bottomfish in the Bering Sea in 1962 as compared to 33 motherships licensed in 1961.

In 1962, there was a sharp decline in the Japanese Bering Sea catch of herring (down 86.2 percent) and flounder (down 24.0 percent). The decline was offset partly by an increase in the catch of Alaska pollock (up 143.6 percent), and shrimp (up 63.8 percent).

Area E was the main fishing ground for the vessels serving the five fish meal factoryships in the Japanese Bering Sea bottomfish fleet. Fish meal production was hampered by the small size of the flatfish caught as well as by the decline in the total flatfish catch. The increase in the catch of Alaska pollock, which was used only for fish meal, did not offset the decline in the flounder catch. The Japanese Bering Sea fish meal factoryships were reported to have lost money in 1962.

Note: See *Commercial Fisheries Review*, February 1963 p. 76; August 1962 pp. 74-76; and June 1962 p. 56.

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#### FROZEN HALIBUT EXPORTS:

Japanese exports of frozen halibut to the United States as of mid-December 1962 a-

mounted to some 2,000 short tons during the 1962 Japanese fiscal year (began April 1, 1962). Of that amount, 95 percent was steaks. It is estimated that another 700 or 800 metric tons (almost all dressed) were exported to Great Britain. Exports to Britain in 1962 were more than five times as much as the previous year. Exports to the United States in 1962 were twice as much as in 1961.

Export c.i.f. prices to the United States for steaks were a maximum of 48.5¢ a pound and averaged 40¢ a pound--7-10¢ higher than the previous year. Prices for dressed halibut to Britain were 2 shillings 2-3 pence (30-31 U. S. cents) a pound c. & f.--2-3 pence (2-3 cents) higher than the previous year.

Some 500 tons are reported in stock in Japan, but purchases are expected for the Lenten season. Export demand for frozen halibut was sluggish in December 1962.

The price of broadbill swordfish started to drop in November 1962 and towards the end of December was 1¢-2¢ per pound cheaper on the average. Inasmuch as it is reported that broadbill swordfish long-line fishing in waters off the east coast of the United States is being developed, many in Japan are inclined to feel that it will take some time for the market to recover. (Suisan Tsushin, December 26, 1962.)

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Japan (Contd.):

PEARL ESSENCE IMPORT DUTY REDUCED:

The Japanese import duty on pearl essence (Tariff item 3209-2) will be reduced from 10 to 8 percent ad valorem as a result of the United States-Japanese compensatory trade agreement announced December 31, 1962.

In the agreement, Japan granted tariff concessions to the United States in compensation for the modification by Japan of a number of concessions previously made under the General Agreement on Tariffs and Trade (GATT).

During 1961, Japan imported pearl essence valued at \$606,000 from the United States.

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TRAWLING OPERATIONS IN DISTANT WATERS:

As of early 1963, Japan had 27 large trawlers (12 belonging to one firm and 10 to another) operating off the west coast of Africa, north of Australia, and the Northwest Atlantic. By the end of 1963, the Taiyo Maru No. 3 (1,500 gross tons) will be completed and join others in the Atlantic. In addition, four new large trawlers of the 2,800- to 3,500-ton class are planned to be built beginning in 1964.) Besides a trawler of the 2,500-ton class to be completed in August 1963, the same firm has revealed its plan to build two more of the same type.

The competition among Japanese trawlers is becoming evident at operational bases in Ghana, Spain, Italy, Greece, Las Palmas, and Capetown. There are signs of decreasing catches per vessel.

There is a move to dissolve the current "Sansuikai" organization comprising seven overseas trawling companies and in its place organize an adjustment organization of the industry similar to the Northern Sea Mothership Council (organization of owners of salmon-trout motherhips of northern seas). Establishment of such an organization by the end of 1963 is the goal. The plan is to assimilate organizations in the industry having legal backing to adjust export prices and destinations, catch, regulation of fishing grounds, study and research in resources, and others. (Japanese newspaper, January 4, 1963.)

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TRAWLER TO EXPLORE WATERS SOUTH OF ALASKA PENINSULA:

Japan announced at the Ninth Annual Meeting of the International North Pacific Fisheries Commission (INPFC) held in Seattle in November 1962 its intention of sending one integrated trawler during the 1962/63 winter to explore the waters south of the Alaska Peninsula. The January 13, 1963, issue of the Japanese periodical Suisan Keizai Shimbun reported that Japan planned to dispatch the 1,454-ton stern trawler Akebono Maru No. 51. The vessel was scheduled to depart from Hakodate, Hokkaido, on January 18 for the Gulf of Alaska, where it will conduct trial fishing for shrimp, redfish, cod, and sablefish. Its production target is 744 metric tons of bottomfish. The trawler is scheduled to return to Kurihama, Kanagawa Prefecture, on April 12.

Under the proposal of intentions submitted by the Japanese National Section at the 1962 INPFC Meeting, the Akebono Maru is expected to avoid areas of concentration of halibut, return to the sea any halibut caught incidental to its operations, avoid fixed gears (such as king crab pots or halibut long lines) fished by Canadian or United States fishermen, and to submit a record of its operations to the INPFC.

According to an announcement made by the Japanese Fisheries Agency, a U. S. Bureau of Commercial Fisheries fishery research biologist will board the vessel before its departure from Japan as an observer for the United States. (Suisan Keizai Shimbun, January 13, 1963.)

The Akebono Maru reportedly will operate in the North Pacific Ocean north of 50° N. latitude and east of 170° W. longitude, according to the following cruise plan.

Date	Area of Operation	Position (Longitude W.)	Species to be Explored
Feb. 6-11 . . .	So. of Unimak Is.	164°-165°	Redfish
Feb. 12-20 . . .	W. of Shumagin Is.	159°-161°	Shrimp
Feb. 23-Mar. 5	Off Kodiak Is.	152°-155°	Cod
Mar. 6-11 . . .	No. of Portlock Bank	149°	Redfish
Mar. 12-17 . . .	SW of Yakutat Bay	141°-142°	Sablefish & Redfish
Mar. 18-21 . . .	Off Kodiak Is.	152°-155°	Cod
Mar. 24-Apr. 2	W. of Shumagin Is.	159°-161°	Shrimp

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LARGE STERN TRAWLER BEING BUILT:

A Japanese fishing firm plans to construct a 3,000-ton stern trawler in 1963. The trawler is to be built at a total cost of ¥700 million (US\$1.9 million), with construction to be started in the spring. Target date for completion is mid-September. (Suisan Keizai Shimbun, December 22, 1962; Nihon Keizai Shimbun, January 15, 1963.)

日本

Kuwait

FISHERIES SURVEY BY FAO EXPERT:

The Food and Agriculture Organization (FAO) has assigned an FAO fisheries consultant to the Government of Kuwait for three months. In January 1963, the FAO expert arrived in Kuwait to survey the fisheries in the area and to make recommendations for



Kuwait (Contd.):

their development. He carried out similar assignments as an FAO expert in 1962 in Mauritania and in Nyasaland. (Food and Agriculture Organization of the United States, Rome, January 25, 1963.)



## Norway

### FISHERMEN STRIKE FOR HIGHER SUBSIDIES:

A fisherman's strike for higher Government subsidies in 1963 began throughout Norway on January 1, this year. The strike as of the second week in January had little effect on consumer supplies, since retail stocks of fresh and frozen fish were high and January is an off-month for fishing. However, some fish-processing plants had begun to lay off workers and the Government feared that a prolonged strike could cause considerable unemployment in Northern Norway, with public works or other stop-gap local employment largely ruled out by the severe winter.

The conflict arose when the fishermen's organization (Norges Fiskarlag) demanded a 20-percent increase in income for 1963, estimated to require a total of 245 million kroner (US\$35.5 million) in Government subsidies on prices or equipment costs. The Government countered with a demand to defer negotiations until the spring, when they could be coordinated with the general round of wage and price negotiations in industry and agriculture; but the fishermen would agree only on condition that they be granted an immediate "transitional" increase of 10 percent (to 190 million kroner or US\$26.6 million). The Government rejected this demand, announcing that pending the spring negotiations the subsidies would be continued at the 1962 level of 99 million kroner (US\$13.8 million). Negotiations were reopened early in January, and there was hope of a compromise settlement before mid-January. (United States Embassy, Oslo, January 8, 1963.)

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### FISHERMEN'S STRIKE SETTLED:

The Norwegian fishermen's 9-day strike ended January 9, 1963, when negotiators reached an agreement. Fishing was quickly resumed because the fishermen's organization (Norges Fiskarlag) notified its 28,000

members to go back to work immediately. The settlement was subsequently approved by Government officials and the national committee of Norges Fiskarlag.

The settlement involved a transitional arrangement. Previous provisions for state subsidy to the fishing industry were to be prolonged for several months, with certain supplementary benefits added. Negotiations on a new subsidy agreement will be resumed in the spring of 1963. The Government will then consider a settlement with Norges Fiskarlag in conjunction with the other major settlements due to be negotiated in coming months. These will be conducted between trade unions and industry, and between the state and agricultural organizations. At issue are new price and subsidy arrangements for farmers and new management-labor contracts. (News of Norway, January 17, 1963.)



## Okinawa

### IMPORT LICENSES EAGERLY SOUGHT FOR JAPANESE TUNA VESSELS:

Since the recent notice by the Japanese Government permitting Okinawa to import tuna vessels amounting to 2,250 gross tons, orders for Japanese fishing vessels have poured in from Okinawan fishing companies. As soon as import licenses are issued by the Okinawan Government, orders for the entire tonnage are expected to be placed.

The vessels allocated to Okinawa are secondhand ones without Japanese tuna fishing rights, and talks between buyers and dealers are based on 700-, 500-, and 300-ton class vessels. Vessels of those tonnage classes have been used by the Japanese for tuna fishing in the Atlantic.

Okinawa may export frozen tuna to the United States and Europe. It is likely that Japanese exporters will handle the exports directly or indirectly and the market for Japan's frozen tuna exports may be affected. (Suisan Tsushin, December 31, 1962.)



## Pakistan

### SHRIMP TRAWLER FLEET EXPANDED:

A new addition to Pakistan's shrimp fishing fleet is the factory mothership Mahia which was scheduled to be handed over to her

## Pakistan (Contd.):

owners some time early in 1963. Also, a number of small stern trawler-type shrimp fishing vessels were recently built for the Pakistan fishery, the latest from an Aberdeen, Scotland, shipyard. These were built primarily for fishing the west coast of Pakistan and adjacent areas in the Indian Ocean which have been found to be productive, and very favorable for shrimp-trawling operations. The impetus in building a new shrimp fishing fleet in Pakistan is largely attributed to the popularity and increasing demand for shrimp in the United States. Pakistan's shrimp exports to the United States during January-November 1962 were 2.7 million pounds, more than double the 1.3 million pounds exported in the same 11 months of 1961.

The *Mahia* is 1,220 gross tons and was formerly the *Sapele*, a cargo vessel operated by the Elder-Dempster Lines. She was delivered to a Norwegian shipyard during the summer of 1962 for conversion into a shrimp freezer vessel for a Pakistani firm in Karachi. Conversion of the vessel, as well as repairs, were in accordance with Lloyd's 100 A.1. class, and met the specifications and requirements of the Pakistan Government's Ministry of Communications (Directorate General of Ports and Shipping).

The vessel's over-all length is 224'5", has a length of 210' between perpendiculars, moulded breadth of 36'6", and a depth of 21'8" to upper deck. Her main engine is a 3-cylinder, triple-expansion steam engine manufactured in 1938. A new engine-room was constructed in the vessel for the installation of the increased number of auxiliaries needed for the various factory machines installed for handling and processing the catch. It has 2 auxiliary steam engines with 15 kVA generators, and also 2 auxiliary Diesel engines developing 150 b. hp. each at 1,250 r.p.m., and each directly coupled to a 110 kVA alternator of 220 volts d.c.

The refrigerating equipment in the *Mahia* is operated by 3 compressors. Two are driven by electrical motors, the third being directly driven by a steam turbine. Although the refrigerating plant is operated normally by thermostatic refrigerant control, arrangements are provided so that the thermostatic controls may be bypassed and the plant operated by manual controls. Plate freezers with a capacity for 12 tons of shrimp per 24 hours are mounted on the main deck.

Automatic shrimp-processing machinery manufactured by a New Orleans, La., firm installed in the vessel consists of the following: 1 automatic shrimp peeler; 1 automatic shrimp-cleaning machine; 1 automatic shrimp-waste separator; 1 capacity-automatic shrimp deveiner; and 1 fast precision high-capacity grader for raw peeled shrimp.

The vessel's 2 cargo holds are both kept at a temperature of  $-20^{\circ}\text{C}$ . ( $-4^{\circ}\text{F}$ .) and have a total capacity of 28,510 cubic feet. Another 2 storerooms have a total capacity of 1,446 cubic feet, and a refrigerated storeroom aft has a capacity of 300 cubic feet.

The *Mahia* will be operating with a fleet of shrimp trawlers and after taking on board the trawlers' shrimp catches, a feed tank is used to cool the shrimp to a temperature of approximately  $32^{\circ}\text{F}$ . From the feed tank the shrimp are conveyed into the automatic shrimp peeler which is located atop the new deckhouse, and then through the cleaning machine also located on the new deckhouse. From there, they move down through the shrimp-waste separator to the automatic deveiner on the upper deck. From those machines the shrimp pass through the high-capacity grader on the tweendeck. After being packed by factory workers on the vessel the shrimp will be frozen in the freezing machines, packed in cartons, and loaded into the cold-storage holds.

In order to accommodate the extra staff required for the factoryship workers, two new cabins have been built 'tweendecks aft of the factory working space, and a new deckhouse has been added between the midship and aft areas of the vessel. (Submitted by P. Brady, Fleetwood, Lancashire, England.)



## Peru

## ANCHOVY VESSELS AND CATCH, 1961:

A large part of Peru's great anchoveta catch is taken in small wooden vessels. The vessels known as "anchoveteras" average 65 feet in length and have a capacity of about 120 metric tons. The average "anchovetera" re-



Fig. 1 - Peruvian "anchovetera" with hold and decks full of fish unloading at Chimbote.

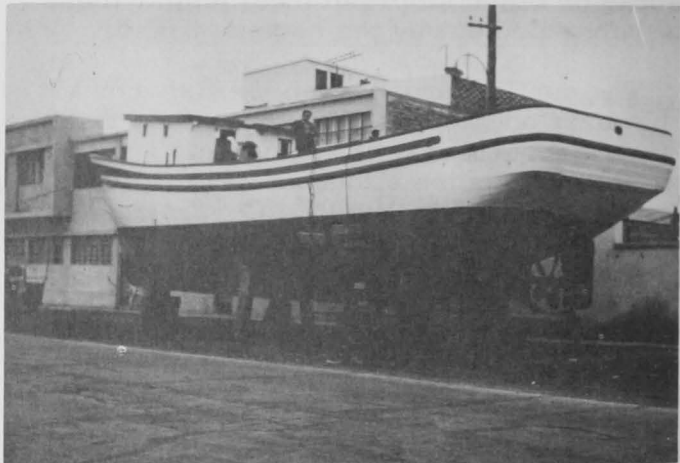


Fig. 2 - A typical Peruvian "anchovetera."



Fig. 3 - Conveyor belt carrying anchovies into fish meal plant for processing.

Peru (Contd.):

quires a 200-horsepower motor. The vessels are also called "bolicheras" because they use a purse-seine net known as the "boliche." The vessels usually make one-day trips and fish during daylight hours. Some fish meal plants use suction hoses to unload fish from the vessels.

In 1961, Peru's anchoveta catch amounted to 5 million metric tons or about 96 percent of the total Peruvian fish catch. The increase in Peruvian fish meal production indicates that Peru's anchoveta catch was even larger in 1962. Anchoveta is the raw material for Peru's fish meal industry. (United States Embassy, Lima, January 23, 1963.)



**Philippine Republic**

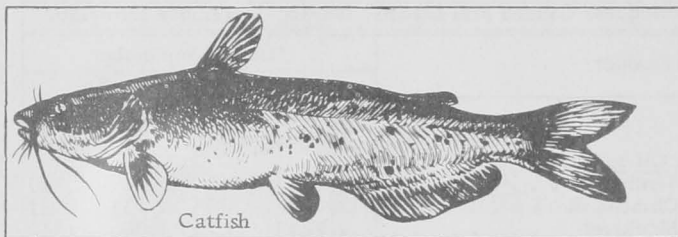
**FISHERIES OF BIGGEST LAKE BEING STUDIED:**

Laguna de Bay is the biggest lake in the Philippine Islands. It is about 355 square miles and is well known locally for its fishery resources, as well as ducks. Laguna de Bay has been fished for generations, but the extent of its potential and that of other lakes in the Philippines is relatively unknown. The shores of the lake are thick with water hyacinth, a pest plant which spreads like a miniature jungle and also grows in clumps in the bays. One of the problems faced by the local fishermen and scientists in assessing the fishery resources of the lake is control of the water hyacinth if fishing in Laguna de Bay is to continue.

The rapidly growing population of the Philippine Islands is now estimated at 30 million compared with about 20 million ten years ago. The result is a constantly increasing demand for more food, especially protein-rich food such as fish. The Government is planning substantial increases in the national food supply, particularly in rice and fish, and has introduced scientific methods to the local fishery. Laboratories, store-rooms, lecture rooms, and other facilities have been built at Los Banos near Laguna de Bay to house the staff of the Freshwater Fisheries Investigation Unit which has been formed by the Philippine Bureau of Fisheries. The Unit consists of two sections, one for biology and the other for aquatic resources.

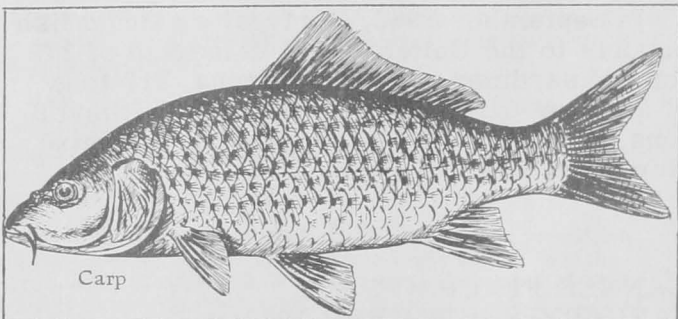
Assistance in setting up the Philippine Freshwater Fisheries Investigation Unit was given by the Food and Agriculture Organization (FAO) which sent a fresh-water fisheries biologist to assist the local staff. Another FAO fisheries expert was scheduled to go to Los Banos early in 1963 to continue the work of assisting the local Philippine scientists in their investigations. Most of the scientific equipment used was provided by Great Britain under the Colombo Plan, and fishing gear and other equipment used in the scientific studies were donated by FAO.

According to a member of the Unit's scientific staff, their objective is to determine the fish population of Laguna de Bay to see how much fishing can be carried on to obtain maximum yield without impairing the fish stocks. The investigation being conducted by the Unit is extensive. It covers chemistry, hydrography, plankton studies, the life history of the lake fish and shrimp, fish taxonomy, and fish populations. The lake has been divided into four areas to carry out such investigations and research. The lake has a wide variety of fish including catfish, carp, mullet,



Catfish

goby, perch, and other species. Fresh-water shrimp in commercial quantities is also caught in the lake.



Carp

One of the scientists on the Freshwater Fisheries Investigation Unit staff spent a year in Great Britain on a Colombo Plan scholarship. At the Los Banos Laboratory, he is studying non-biting midges (small winged insects which breed in water). Fish feed on the larvae of the insects. The scientists hoped to cultivate the insect larvae in

## Philippine Republic (Contd.):

ponds, to use with algae as a food for fry and fingerlings raised in fish farming. (Food and Agriculture Organization, Rome, January 20, 1963.)



## Portugal

CANNED FISH EXPORTS,  
JANUARY-SEPTEMBER 1962:

Portugal's total exports of canned fish during the first nine months of 1962 were about unchanged from the same period of 1961. Sardines accounted for 78.7 percent of the 1962 exports of canned fish, followed by anchovy fillets with 8.5 percent.

Portugal's principal canned fish buyers in the first nine months of 1962 were Germany with 9,999 metric tons, followed by the United Kingdom with 7,799 tons, the United States with 5,870 tons, Italy with 5,714 tons, and France with 3,729 tons.

Portuguese Canned Fish Exports, January-September 1961-1962

Product	January-September			
	1962		1961	
	Metric Tons	1,000 Cases	Metric Tons	1,000 Cases
<u>In Oil or Sauce:</u>				
Sardines . . . . .	39,305	2,067	40,281	2,120
Chinchards . . . . .	1,626	85	1,733	91
Mackerel . . . . .	1,722	69	1,060	42
Tuna and tuna-like . . . . .	2,833	94	2,689	96
Anchovy fillets . . . . .	4,253	425	3,770	377
Others . . . . .	214	11	186	10
Total . . . . .	49,953	2,751	49,719	2,736

In September 1962, Portugal's canned fish exports to the United States consisted of 378 tons of sardines, 157 tons of tuna, 218 tons of anchovy fillets, 8 tons of mackerel, and 9 tons of other species. (Conservas de Peixe, November 1962.)

\* \* \* \* \*

CANNED FISH PACK,  
JANUARY-SEPTEMBER 1962:

Portugal's total pack of canned fish in oil or sauce for the first nine months of 1962 was 15.1 percent greater than in the same period of 1961. The sardine pack accounted for 63.4 percent of the total pack, followed by mackerel with 12.0 percent, tuna 10 percent, and anchovy fillets 8.1 percent of the January-September 1962 total. The canned

sardine pack for the first nine months of 1962 was up about 4.1 percent as compared with the same period in 1961. Packs of all other canned fish products also increased in January-September 1962 as compared with the same period of 1961.

Product	Portuguese Canned Fish Pack, January-September 1961-1962			
	January-September			
	1962		1961	
	Metric Tons	1,000 Cases	Metric Tons	1,000 Cases
<u>In Oil or Sauce:</u>				
Sardines . . . . .	30,781	1,620	29,651	1,561
Chinchards . . . . .	2,724	143	1,987	104
Mackerel . . . . .	5,838	233	2,766	110
Tuna and tuna-like . . . . .	4,856	162	3,957	140
Anchovy fillets . . . . .	3,938	394	3,638	364
Others . . . . .	433	23	211	11
Total . . . . .	48,570	2,575	42,210	2,290

During January-September 1962 sardine landings amounted to 69,385 metric tons, up fractionally from sardine landings of 69,164 tons in the same period of 1961. (Conservas de Peixe, November 1962.)

\* \* \* \* \*

MORE BONDS ISSUED TO  
AID FISHING INDUSTRY:

The sixth series of bonds, issued for the benefit of the fishing industry, has been authorized by the Portuguese Ministry of Finance and Navy. The bonds, amounting to 24 million escudos (about US\$840,000), will be used under the Second Six Year Development Plan for the construction and modernization of trawlers, the completion and equipping of the new fishermen's wharf near Lisbon, and the construction and conversion of cod fishing vessels.

Although fish is a major item in the Portuguese diet, the fishing fleet is below modern standards. The cod fishing fleet, that operates in the western Atlantic for about seven months each year has failed to supply the need for salt cod. In 1961, Portugal imported close to US\$8 million worth of salt cod from other countries. (United States Embassy, Lisbon, December 21, 1962.)



## Spain

NEW FISHERY FIRM PLANS  
LARGE-SCALE EXPANSION:

The six freezer-trawlers of a new Spanish fishery firm landed 4,500 metric tons of fro-

## Spain (Contd.):

open hake in 1962. The trawlers fished off the coast of South Africa and South America (mainly off the coast of Argentina). The firm plans to expand its fishing fleet, begin producing fish meal, and raise its production of frozen fish and fish meal to 14,000 tons in 1963 and 25,000 tons in 1964.

Two more vessels will be completed for the new firm by June 1963. The firm plans a fleet of 21 vessels, including two refrigerated transport vessels and a factoryship. The latter is being converted from the former transatlantic liner Havana. It will be renamed Pescanova I and operate as a refrigerated transport vessel, as well as a factory for processing fish and producing fish meal. It has a registered tonnage of 6,213 and a cargo capacity of about 7,000 tons. Pescanova I will be Spain's first factoryship.

The new firm is also exploring new fishing grounds. This is apparently the first mission of each new vessel added to its fleet. The firm is the only Spanish firm known to be operating outside the traditional fishing grounds worked by the Spanish fishing fleet. For the time being, the firm is only interested in hake, but other species are being considered for future exploitation. Working under an ambitious plan, the firm has not hesitated to attempt the introduction of frozen fish in the Spanish market. While this innovation had only lukewarm reception at first, it is gaining greater acceptance among the consuming public in inland areas, where the supply of fresh iced fish is uncertain. (United States Consulate, Vigo, January 18, 1963.)

Note: See Commercial Fisheries Review, June 1962, 1. 61.



## Thailand

### INDUSTRIAL PROMOTION ACT OF 1962 INCLUDES BENEFITS FOR THE FISHING INDUSTRY:

The Promotion of Industrial Investment Act of Thailand, a revision of previous laws relating to the promotion of industrial investment, including private foreign investment, went into force on February 10, 1962. The new law substantially increased the privileges and benefits awarded to promoted industries. The law provides that promotion certificates may be granted to individuals and

firms that plan to establish or expand certain types of industries in Thailand. The promotion certificates carry specific guarantees, rights, and benefits including tax reduction. The following parts of the fishing industry are eligible for promotion under the new law: fish processing, deep-sea fishing, and pearl oyster breeding. To qualify under the law, a fish processing operation must have a minimum daily capacity of five metric tons. Deep-sea fishing projects are required to include a shore plant with the capacity to process the catch of a vessel of at least 30 gross tons operating in waters of a depth of at least 30 meters (98 feet). Deep-sea fishing applications must cover both shore and offshore operations as a package project. The minimum investment required of a pearl oyster breeding project is \$100,000.

Note: Detailed information about the new law is given in Industrial Promotion Act of Thailand, 1962, WTIS Part 1, Economic Report No. 62-81. Price 15 cents. That report is supplemented by Investment Factors in Thailand, 1962, WTIS Part 1, Economic Report No. 62-82. The reports were issued by the Bureau of International Programs, U. S. Department of Commerce, Washington, D. C., and are sold by the Superintendent of Documents, U. S. Government Printing Office, Washington 25, D. C., and by U. S. Department of Commerce field offices.



## U.S.S.R.

### FISHING FLEET OPERATIONS IN WATERS OFF U. S. COAST, 1962:

Highlights of the Soviet fishing effort off the United States coast in 1962 by areas:

North Pacific and Bering Sea: In this area, a peak of about 200 Soviet fishing vessels was sighted in mid-June 1962, mostly in the Bering Sea. Segments of the fleet began to move into the eastern North Pacific and the Gulf of Alaska in June; over 100 sightings of Soviet vessels were reported in the Gulf of Alaska in late November. In mid-November, 18 Soviet fishing craft were 30 miles south of Cordova, Alaska.

The North Pacific Soviet catch was reported to have included king crab, herring, ocean perch, cod, sablefish, Alaska pollock, and flounder. The quantity of each species taken is not known. No reports have been received of Pacific halibut being taken.

In 1961, over 100,000 metric tons of fish and shellfish were taken by the Soviets in the eastern Bering Sea; the 1962 catch is expected to total several times that of 1961. Soviet plans call for a maximum sustained annual catch of 500,000 metric tons from the eastern Bering Sea. No catch goals have been announced for the Gulf of Alaska. (Unpublished and other Soviet sources.)

Other Areas in the Pacific: In the early summer of 1962, two Soviet exploratory fishing vessels were reported off the coasts of Oregon and Washington; species taken unknown.

Northwest Atlantic (Georges Bank): A peak of about 160 Soviet fishing vessels was sighted on Georges Bank in August 1962. Herring was taken in quantity. Bottomfish such as ocean perch, cod, haddock, flounder, and Atlantic halibut probably were taken in lesser quantities. A Soviet exploratory vessel was reported to have taken menhaden.

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

In 1961, the Soviet catch in the Northwest Atlantic (including the Grand Banks and Georges Bank) was about 350,000 metric tons of fish, of which about 158,000 tons were cod, 68,000 tons were herring, 60,000 tons were ocean perch, 40,000 tons were haddock, and the remainder a variety of other species. The 1962 catch is reported to have been at least as large if not larger. (Various published and unpublished sources.)

North and South Carolina and Florida Coasts: In late 1962, several Soviet vessels were reported engaging in exploratory fishing off the Carolina coasts and Florida. The species taken are not yet known, but commercial quantities of menhaden, shrimp, and possibly tuna were probably being sought.

Caribbean and Gulf of Mexico: Five Soviet trawlers are believed to be operating in the Caribbean and Gulf of Mexico out of Cuba. In late 1962, three of the vessels docked in Veracruz, Mexico, for supplies. In August 1962, announcement was made of a Soviet-Cuban fishing base to be built in Havana, Cuba. The base is expected to aid Soviet fishing operations throughout the Western Atlantic.

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NEW CRAB FACTORYSHIP:

Late in December 1962, the newest Soviet crab canning factoryship, the Aleksander Obukhov, left Leningrad for its home port of Vladivostok. This vessel is reported to be outfitted with equipment superior to that used on canning ships currently operating in the North Pacific and Bering Sea. The canning line has a daily capacity of 200,000 cans of fishery products. (Unpublished sources.)

\* \* \* \* \*

SOVIET FISHERY RESEARCH EMPHASIZES THE DEVELOPMENT OF FISHING IN THE PACIFIC OCEAN:

Soviet fishery research has been placed under the control of a new State Committee within the U.S.S.R. Council of Ministers. Some of the plans and goals of Soviet fishery research were described in a statement by the Assistant Director of the U.S.S.R. All-Union Scientific Research Institute of Marine Fisheries and Oceanography (VNIRO), which appeared in the Soviet newspaper, Krasnaia Znamia, September 20, 1962. Following is a translation of the statement:

"All the scientific research necessary for the development of the Soviet fishing industry will be conducted more regularly and purposefully now that the scientific establishments of the fishing industry have been transferred to the State Committee. The task of increasing the total catch to 50 million metric centners (about 11 billion pounds) by 1965 has been set by the Communist Party and the

Government. This can be achieved mainly by developing ocean fishing.

"Science is faced with big tasks connected with the study of new fishing areas and new species of fish in the world ocean. The most perfect technique and latest discoveries in radio-electronics, automatics, and computing equipment must be used in research for the maximum mechanization of fishing operations and fish processing.

"The Pacific is one of the world's richest fishing areas. In the northern part of that ocean, catches have greatly increased in the last few years. The (Soviet) fishing industry of the Far East has, therefore, a particularly big chance to obtain larger catches of fish and other marine produce.

"We propose to organize several important research expeditions in the near future. One of them will be devoted to the study of invertebrates and algae. . . . In many countries, including those of Western Europe, invertebrates are more valued than fish. . . . In the U.S.S.R. that branch of fishing is poorly developed as yet and must be advanced.

"The study of sea depths over 400-500 meters (1,312-1,640 feet) is another major task in fishing research. Modern trawl fishing reaches depths of 250-300 meters (820-984 feet). But we know that greater depths--300-1,000 meters (984-3,280 feet)--are very promising. Explorations conducted by the U.S.S.R. and other countries show that great quantities of valuable fish inhabit those depths--for example, some species of ocean perch and turbot. . . . This research will provide additional fishing facilities in old fishing areas.

"A practical step has already been taken in this direction. In the Bering Sea, good catches have been made at a depth of 400-700 meters (1,312-2,296 feet) by a combined expedition of the U.S.S.R. Pacific Research Institute of Marine Fisheries and Oceanography (TINRO) and VNIRO. Trawling tests yielded a regular catch of up to 2.5 metric tons of fish per hour.

"Special attention will be paid to research on ocean fishing, especially for saury, tuna, and some other species. Besides yielding high-quality raw material, ocean fishing is important because of its regularity--differences in the catch are very small in different years.

J. S. S. R. (Contd.):

"Before the end of 1962 we propose making arrangements for a big expedition which will study the schools of whales in the North Pacific and their migration routes from the wintering areas to summer pastures. The area of operations for new (Soviet) whaling fleets arriving in Vladivostok will then be more clearly defined.

"The organization of the State-Committee for the fishing industry involves various measures meant to improve the material and technical facilities of scientific establishments, including those engaged in Pacific ocean research. . . . Several research ships of large displacement are under construction. Some of them will be placed at the disposal of TINRO."

Note: See Commercial Fisheries Review, July 1962 p. 102, April 1962 p. 64.



**United Kingdom**

**FISHERMEN FROM SOUTHWEST ENGLAND SEEK 12-MILE FISHERIES LIMIT:**

Soviet fishing pressure has led English fishermen operating off the coast of Devon in southwest England to seek a 12-mile fisheries limit. In December 1962, a fleet of 70 Soviet trawlers was reported to have caused over £5,000 (US\$14,000) damage to nets and gear used by English fishermen from Devon. The Soviet vessels were said to have destroyed hundreds of English lobster pots and crab lines while fishing just outside the three-mile limit. (Fish Trades Gazette, December 22, 1962.)



**Venezuela**

**EXPORTS OF EDIBLE FISHERY PRODUCTS, 1961:**

Shipments to the United States accounted for 76.1 percent of the quantity and 81.1 percent of the value of Venezuela's total exports of edible fishery products in 1961. Shrimp was the leading fishery product exported to the United States by Venezuela in 1961.

Venezuelan Exports of Edible Fishery Products, 1961

Commodity and Destination	Quantity Metric Tons	Value	
		Bolivares 1,000	US\$ 1,000
<b>Shrimp:</b>			
United States <sup>1/</sup> . . . . .	1,400.0	3,297.7	984.4
Aruba and Curacao Islands . . . . .	5.3	14.5	4.3
Total shrimp . . . . .	1,405.3	3,312.2	988.7
<b>Fresh and Frozen Fish:</b>			
United States . . . . .	0.6	1.1	0.3
Aruba and Curacao Islands . . . . .	311.5	407.1	121.5
Total fresh & frozen fish . . . . .	312.1	408.2	121.8
<b>Dried, Cured, and Salted Fish:</b>			
United States . . . . .	1.5	3.0	0.9
Curacao Island . . . . .	4.0	7.0	2.1
Total dried, cured, and salted fish . . . . .	5.5	10.0	3.0
<b>Canned Fish:</b>			
United States . . . . .	851.5	1,377.8	411.3
West Germany . . . . .	81.8	142.6	42.6
Colombia . . . . .	48.8	84.2	25.1
Curacao Island . . . . .	18.4	28.7	8.5
Italy . . . . .	9.3	11.6	3.4
Puerto Rico . . . . .	138.0	276.6	82.6
Other . . . . .	1.8	2.9	0.9
Total canned fish . . . . .	1,149.6	1,924.4	574.4
<b>Unclassified Edible Fishery Products:</b>			
United States . . . . .	7.1	10.5	3.1
Aruba and Curacao Islands . . . . .	88.8	113.9	34.0
Italy . . . . .	1.0	0.8	0.2
Total Unclassified . . . . .	96.9	125.2	37.3
Grand Total . . . . .	2,969.4	5,780.0	1,725.2

<sup>1/</sup>Probably mostly frozen.

Note: Venezuela bolivares 3.35 equals US\$1.00.

Source: Boletin de Comercio Exterior, December 1961.



**CORRECTION**

In a map on page 83, February 1963 issue, there was an error in geographic location. "Iceland" should have been the identification instead of "Spitsbergen."