



**International**

**FISH MEAL**

**WORLD PRODUCTION, 1965**  
**AND JANUARY-FEBRUARY 1966**  
**WORLD COMPARISONS:**

World fish meal production in 1965 showed a sharp decline from the previous year due to a drop in the anchoveta catch off South America. Peruvian output was down 17 percent and Chilean production dropped sharply. The decline was partly offset by heavy production in Norway and Iceland where fishermen landed large catches of herring in 1965. Production of fish meal was also up in Canada, South Africa, the United Kingdom, and the United States.

Country	Jan.-Feb. 1966		Jan.-Dec. 1965	
	1966	1965	1965	1964
.....(Metric Tons).....				
Chile	13,965	14,674	90,387	66,200
Peru	13,291	14,816	111,189	109,687
Iceland	2,200	2,200	13,200	13,200
Can. Fed. Repub.	12,912	10,178	67,555	73,900
Iceland	1/	638	5,894	7,980
Denmark	1/	4,959	2/13,247	35,407
Spain	426	1,657	7,076	7,600
United Kingdom	15,756	15,036	80,845	74,813
United States	3,990	4,399	229,807	213,417
Argentina	9,679	12,603	47,668	59,701
India	12,830	9,167	172,073	127,739
Japan	32,585	24,608	309,149	185,901
U.S.S.R.	421,710	316,389	1,282,011	1,552,214
South Africa (including S.-W. Afr.)	21,681	31,456	272,388	257,440
Cameroon	750	750	4,500	4,500
Canada	60,541	23,745	70,352	144,456
Senegal	1/	1/	3/19,290	18,450
<b>Total</b>	<b>622,316</b>	<b>487,275</b>	<b>2,796,631</b>	<b>2,952,605</b>

1/Not available.  
 2/Available only for January-May 1965.  
 3/Available only for January-November 1965.  
 Japan does not report fish meal production to the International Association of Fish Meal Manufacturers at present. Japanese production of fish meal in 1964 was reported as 700 metric tons by the Food and Agriculture Organization.

World fish meal production in January-February 1966 was up 28 percent from the same period of the previous year due to heavy production in Peru and Chile.

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

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**PRODUCTION AND EXPORTS FOR SELECTED COUNTRIES, 1965 AND JANUARY 1966:**

Member countries of the Fish Meal Exporters' Organization (FEO) account for about 90 percent of world exports of fish meal. The FEO countries are Chile, Angola, Iceland, Norway, Peru, and South Africa/South-West Africa.

Country	1965		1964	
	Production	Exports	Production	Exports
.....(1,000 Metric Tons).....				
Angola	47.7	49.2	59.7	56.8
Chile	70.3	63.7	144.4	138.8
Iceland	172.1	146.2	125.4	124.3
Norway	309.2	268.2	185.9	179.4
Peru	1,282.0	1,260.0	1,552.2	1,416.5
South Africa (including S.-W. Africa)	272.0	224.9	257.4	226.5
<b>Total</b>	<b>2,153.3</b>	<b>2,012.2</b>	<b>2,325.0</b>	<b>2,142.3</b>

Country	Jan. 1966		Jan. 1965	
	Production	Exports	Production	Exports
.....(1,000 Metric Tons).....				
Angola	1/	1/	6.9	7.4
Chile	33.7	7.7	12.8	9.0
Iceland	5.5	13.9	4.2	9.6
Norway	3.4	22.7	5.9	13.2
Peru	242.4	144.8	194.1	164.9
South Africa (including S.-W. Africa)	4.2	6.7	8.7	11.3
<b>Total</b>	<b>289.2</b>	<b>194.8</b>	<b>232.6</b>	<b>215.4</b>

1/Angola data not available for January 1966.

**FOOD AND AGRICULTURE ORGANIZATION**

**WORLD TRADE IN FISHERY PRODUCTS, 1964:**

Europe Leads World: Europe, excluding the Soviet Union, exported and imported more fish and fish products than any other conti-

## International (Contd.):

ment in 1964, according to figures released January 27, 1966, in the Bulletin of Fishery Statistics (No. 8) of the Food and Agriculture Organization (FAO).

Country	Quantity	Value
	1,000 Metric Tons	Million US\$
Norway . . . . .	462	156
Denmark and Faroe Islands . . . . .	388	118
Iceland . . . . .	402	101
Netherlands . . . . .	206	57
Portugal . . . . .	106	49
Spain . . . . .	77	35
Federal Republic of Germany . . . . .	81	31
Sweden . . . . .	242	26
United Kingdom . . . . .	53	26
France . . . . .	36	17
Yugoslavia . . . . .	24	12
Poland . . . . .	14	6
Ireland . . . . .	10	6
Italy . . . . .	2	2.5
Hungary . . . . .	3	1.5
Greece . . . . .	3	1.3

Note: No other European nation exported as much as \$1 million worth of fishery products.

Total European fish imports amounted to 3,784,000 tons worth US\$1,047 million; exports were 2,124,000 tons worth \$656 million. This was substantially more than Europe's international trade in fishery products in 1963. Europe that year imported 3,456,000 tons worth \$887 million and exported 1,987,000 tons worth \$584 million.

The total European 1964 fish catch was 9.66 million metric tons out of a record world total of 51.6 million tons.

Country	Quantity	Value
	1,000 Metric Tons	Million US\$
United Kingdom . . . . .	710	275
Federal Republic of Germany . . . . .	795	158
France . . . . .	321	123
Italy . . . . .	258	93
Netherlands . . . . .	299	61
Belgium and Luxembourg . . . . .	189	53
Sweden . . . . .	139	49
Denmark and Faroe Islands . . . . .	212	33
Switzerland . . . . .	62	26
Norway . . . . .	95	21
Austria . . . . .	59	17
Spain . . . . .	69	16
Poland . . . . .	82	15
Yugoslavia . . . . .	54	12
Greece . . . . .	32	11
Portugal . . . . .	35	11
Finland . . . . .	38	10
Hungary . . . . .	37	7
Ireland . . . . .	15	5

Note: No other European nation imported as much as \$1 million worth of fishery products.

North America Imports Record Amounts: The countries and territories of North America imported 1,131,000 tons of fish and fishery products worth US\$542 million, and exported 547,000 tons worth \$322 million in 1964. North America includes Central America, Greenland and the Caribbean Islands, as well as Canada, Mexico, and the United States of America.

In 1963, North America imported 1,048,000 tons of fishery products worth \$493 million; exported 537,000 tons worth \$292 million.

Top exporting nation among the North American group in 1964 was Canada, selling abroad 351,000 tons worth \$184 million. Canada ranked second in the world in fishery export earnings in 1964, behind Japan, which exported 573,000 tons worth \$248 million. Canada also imported 28,500 tons worth \$20.5 million.

Top importing nation in 1964 in North America and in the world was the United States, buying 975,000 tons worth \$488 million.

The U. S. ranked second in North America and ninth in the world in export earnings, selling abroad 115,200 tons worth \$56 million.

Mexico exported 41,000 tons, mostly high-quality shrimp sold to the U. S. for a total of \$51 million. Mexico ranked third in North America and 10th in the world in fishery export earnings. Mexico also imported 35,600 tons worth \$5.7 million.

Barbados exported 800 tons worth \$1.6 million and imported 1,700 tons worth \$900,000. Costa Rica exported 1,200 tons (\$1.4 million) and imported 1,300 tons (\$615,000). El Salvador exported 4,300 tons (\$4.3 million) and imported 1,800 tons (\$706,000). Greenland exported 12,700 tons (\$7.2 million) and imported 200 tons (\$99,000). Honduras exported 300 tons (\$302,000) and imported 500 tons (\$195,000).

Nicaragua exported 1,900 tons worth \$1.7 million, imported 600 tons worth \$309,000. Panama exported 7,700 tons (\$7.6 million) and imported 2,500 tons worth \$1.2 million.

St. Pierre and Miquelon exported 3,100 tons worth \$1.3 million and imported 300 tons worth \$97,000. Trinidad and Tobago exported 100 tons (\$143,000) and imported 5,300 tons (\$2.3 million).

## International (Contd.):

Complete international fish-trade figures for Java and the other countries and territories of the region were not available.

Asian Fish Imports and Exports Rise: In 1965 the nations of Asia, excluding Mainland China, Indonesia, and a few others, exported 806,500 metric tons of fish and fish products worth US\$344 million and imported 560,000 tons worth \$193 million. In 1963, Asia exported 755,000 tons worth \$317 million and imported 479,000 tons worth \$160 million.

In 1964, the biggest fish-exporting nation in Asia and in the world was Japan, selling abroad 573,000 tons worth \$248 million. The Japanese were also Asia's biggest fishery importer, buying 187 million tons worth \$70 million.

Japan has for many years been the world's leader in fishery exports. Until three years ago it was the leading fish catcher, but now ranks number two behind Peru.

Besides Indonesia and Mainland China, international trade figures in Asia were unavailable for Brunei, Iraq, Laos, Lebanon, North Korea, North Vietnam, Macao, and Singapore.

International fish trade figures for the rest of Asia were reported as follows:

India exported \$6,000 worth of fish (quantity unavailable) and imported 5,200 tons worth \$2... million.

Cambodia exported 1,000 tons worth \$165,000 and imported 100 tons worth \$39,000.

Ceylon exported 200 tons worth \$191,000 and imported 42,700 tons worth \$14.4 million.

China (Taiwan) exported 1,800 tons worth \$1... million and imported 2,000 tons worth \$1... million.

Cyprus had no exports but imported 2,100 tons worth \$994,000.

Hong Kong exported 13,100 tons worth \$122 million and imported 68,700 tons worth \$322 million.

Malaya exported 20,600 tons worth \$14 million and imported 18,900 tons worth \$8.1 million.

Iran exported 4,600 tons worth \$4.1 million. Import figures for Iran were not available.

Israel exported \$2,000 worth of fish (quantity unavailable) and imported 19,300 tons worth \$4 million.

Jordan had no exports but imported 1,700 tons worth \$822,000.

The Republic of Korea exported 42,600 tons worth \$15 million. Korea had no fishery imports.

Malaysia, excluding Sarawak, for which figures were not available, exported 51,500 tons worth \$9.7 million and imported about 44,000 tons worth \$11 million.

Pakistan exported 43,800 tons worth \$21 million and imported 700 tons worth \$205,000.

The Ryukyu Islands exported 6,400 tons worth \$2 million and imported 11,500 tons worth \$4.4 million.

South Arabia exported 4,300 tons worth \$697,000. South Arabian import figures were not available.

Syria exported 800 tons worth \$232,000 and imported 3,700 tons worth \$1.2 million.

Thailand exported 8,400 tons worth \$4.1 million and imported 3,000 tons worth \$1.6 million.

Turkey exported 9,500 tons worth \$3.4 million and imported 200 tons worth \$74,000.

The Republic of South Vietnam exported 1,000 tons worth \$632,000. Import figures for South Vietnam were not available.

Africa Increases Fish Exports: In 1964, the countries and territories of Africa exported 618,000 metric tons of fish and fishery products worth US\$140 million and imported 209,000 tons worth \$94 million.

In 1963, Africa exported 514,000 tons worth \$118 million, and imported 214,000 tons worth \$91.5 million.

The biggest fish-exporting areas were South Africa and South-West Africa, with exports of 401,000 tons worth \$74 million in 1964. They also imported 5,200 tons worth \$4.2 million.

## International (Contd.):

The next biggest exporting nation was Morocco, selling abroad 87,100 tons worth \$33.5 million, and importing 100 tons worth \$164,000.

The biggest fish importers were the Congo (Leopoldville) and Nigeria. The Congo imported 25,400 tons worth \$21 million, and Nigeria imported 41,300 tons worth \$19.3 million. The Congo exported \$4,000 worth of fish. Nigeria exported 100 tons worth \$23,000.

International fish-trade figures for other African countries were reported as follows:

Angola exported 77,000 tons worth \$10.6 million, imported 3,600 tons worth \$2.5 million. Cameroon had insignificant exports, but imported 3,300 tons worth \$2.7 million.

The Central African Republic had no exports, but imported 500 tons worth \$397,000. Chad exported 300 tons worth \$127,000 and imported 100 tons worth \$150,000. The Congo (Brazzaville) had no exports, but imported 6,300 tons worth \$2.6 million.

Dahomey exported 100 tons worth \$58,000 and imported 1,100 tons worth \$333,000. Gabon had no exports but imported 2,100 tons worth \$1 million. Gambia exported 800 tons worth \$104,000, and imported 100 tons worth \$34,000.

Kenya exported 200 tons worth \$182,000 and imported 1,800 tons worth \$717,000. Libya had insignificant exports, but imported 1,400 tons worth \$733,000.

Madagascar exported 800 tons worth \$439,000, and imported 300 tons worth \$199,000. Mali exported 2,800 tons worth \$1.2 million and imported \$31,000 worth. Mauritania exported 8,400 tons worth \$1.4 million; data on imports were not available.

Mauritius had negligible exports, but imported 3,100 tons worth \$1.3 million. Niger exported 500 tons worth \$116,000, imported \$101,000 worth.

Southern Rhodesia exported 200 tons worth \$146,000, and imported 12,000 tons worth \$3 million.

Senegal exported 6,400 tons worth \$5.2 million and imported 600 tons worth \$845,000. Sierra Leone had negligible exports, but im-

ported 6,900 tons worth \$1.4 million. Somalia exported 1,300 tons worth \$467,000 and had no imports.

Sudan exported 600 tons worth \$143,000, imported \$2,000 worth of fish. Tanzania exported 2,000 tons worth \$481,000, and imported 1,600 tons worth \$548,000.

Togo reported exports worth \$8,000 and imports of 4,800 tons worth \$1.1 million. Tunisia exported 3,600 tons worth \$2.4 million and imported 200 tons worth \$108,000. Uganda exported 300 tons worth \$163,000, and imported 100 tons worth \$96,000.

The United Arab Republic exported 2,200 tons worth \$1.8 million and imported 6,200 tons worth \$2.2 million. Zambia exported 2,800 tons worth \$498,000 and imported 5,500 tons worth \$1.2 million.

Figures for 1964 for other African countries and territories were not available.

South American Trade: The nations and territories of South America conducted international trade in fish and fish products totaling 1,777,000 metric tons worth US\$208 million in 1964, according to the Food and Agriculture Organization of the United Nations.

South America's fishery imports were 72,000 tons worth \$27 million. In 1963, the continent's international fish exports amounted to 1,351,000 tons worth \$154.5 million; imports were 67,000 tons worth \$26.5 million.

The bulk of South America's international fish trade was Peru's 1,574,700 tons of exports, and the great majority of that was fish meal and oil for feeding animals, worth \$167 million. Peru ranked third in the world behind Japan and Canada, in fishery export earnings; it also imported 800 tons of fish worth \$573,000.

Next in the South American group came Chile, with exports of 168,000 tons worth \$22 million. Chile imported \$62,000 worth of fishery products. Complete 1964 figures for Bolivia, Paraguay, and Venezuela were not available.

International fish trade figures for the other South American countries were:

Argentina--exported 3,400 tons worth \$570,000 and imported 4,600 tons worth \$1.4 million.

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Brazil--exported 1,800 tons worth \$2.8 million, imported 26,300 tons worth \$14.6 million.

British Guiana--exported 3,100 tons worth \$4.1 million, and imported 3,200 tons worth \$11 million.

Bombia--exported 600 tons worth \$1 million and imported 10,600 tons worth \$1.8 million.

Ecuador--exported 8,100 tons worth \$3.5 million and imported 200 tons worth \$94,000.

French Guiana--exported 100 tons worth \$8,900 and imported 200 tons worth \$176,000.

Malaysia--exported 800 tons worth \$88,000 and imported 1,500 tons worth \$70,000.

Uruguay--exported 800 tons worth \$11,000 and imported 900 tons worth \$56,000. (FAO, Bulletin of Fishery Statistics No. 8, Fishery Commodities, 1964.)

FRESHWATER FISH

IBP TECHNICAL MEETING ON THE BIOLOGICAL BASIS OF FRESH-WATER FISH PRODUCTION:

A technical meeting on the biological basis of fresh-water fish production will be held September 1-6, 1966, at the University of Reading, Reading, England, under the sponsorship of the International Biological Programme (IBP).

The purpose of the meeting will be: (1) to review the present state of knowledge about the biological production of fish in inland waters, and to present and discuss leading ideas concerning factors influencing fish production and the flow of energy through fish in fresh-water ecosystems, (2) to identify and highlight aspects in which progress is lagging and generally to act as a starting point for IBP projects in the field of fresh-water fish production, and (3) to act as a background against which an IBP Handbook of needs for research into fresh-water fish production can be drafted.

The program of the meeting will consist of about 20 invited papers, each of which will review the present status of a limited field

from the viewpoint of production research. The authors will be chosen internationally and asked to illustrate significant points in their subject by examples drawn from their own original contributions. Considerable time will be allowed for the discussion of each paper or group of papers. There will also be discussion on methods suitable for IBP projects.

The main areas to be covered by the tentative list of papers are: (1) vital statistics of fish populations, (2) relation of fish populations to the food supply, (3) behavioral factors influencing production, (4) predation and exploitation by man, and (5) the contribution of fresh-water fish production to human nutrition and well-being.

The authors of papers and the participants in a working-party to draft an IBP Handbook will receive special invitations. All others who are interested in the meeting are invited to attend as observers, especially those who expect to participate in IBP fish research.

Additional information may be obtained from either: Dr. Shelby Gerking, Department of Zoology, Indiana University, Bloomington, Indiana 47405, or Mr. E. D. Le Cren, Fresh-water Biological Association, The River Laboratory, East Stoke, Wareham, Dorset, England.

HERRING

HERRING RESEARCH IN NORWEGIAN SEA:

Soviet Union, Norway, and Iceland have concluded an agreement for joint herring research in the Norwegian Sea during 1966. The Soviet institute participating is the Polar Institute of Fisheries and Oceanography (PINRO) of Murmansk.

GENERAL AGREEMENT ON TARIFFS AND TRADE

TWENTY-THIRD SESSION HELD IN GENEVA:

The 23rd Session of the Contracting Parties to the General Agreement on Tariffs and Trade (GATT) was held in Geneva, Switzerland, March 24-April 6, 1966.

The GATT is the principal international forum where the world's trading nations deal with trade policy problems. Its members carry on over 80 percent of world trade. It is a multilateral trade agreement which re-

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placed the pre-World War II bilateral trading system. The Kennedy Round of negotiations for lowering trade barriers is also taking place within the GATT framework.

A number of agenda items for the 23rd session dealt with the continuing efforts in the GATT to reduce and remove import restrictions. These efforts have enjoyed considerable success in recent years, and the reduction of the remaining restrictions continues to be an important aspect of U. S. commercial policy.

The agenda also called for regional arrangements to receive intensive attention at the session. These include the recently announced plans for free trade areas between Australia and New Zealand and between the United Kingdom and Ireland, as well as a number of older economic integration bodies, including the European Economic Community, the European Free Trade Area, the Central American Common Market, the Latin American Free Trade Area, and the Central African Economic and Customs Union.

In recent years, the Contracting Parties to GATT have turned increasingly to trading problems of particular interest to the less-developed countries. On February 8, 1965, they signed a new part (PART IV) of the General Agreement designed to provide an institutional and legal framework for dealing with these problems. In a parallel step, GATT established a new Committee on Trade and Development (CTD) to watch over implementation of the new provisions. The Committee's first year in operation was to be reviewed during the 23rd Session, and the work of the CTD during the coming year mapped out by the Contracting Parties.

Sixty-seven countries are now full Contracting Parties to the General Agreement. In addition, a number of other countries maintain varying degrees of association with the GATT, and several others have indicated their intentions to seek full membership during the coming year. (U. S. Department of State, March 21, 1966.)

#### INTER-AMERICAN TROPICAL TUNA COMMISSION

##### ANNUAL MEETING HELD IN GUAYAQUIL, ECUADOR:

Delegations from the five member countries of the Inter-American Tropical Tuna

Commission (IATTC): Costa Rica, Ecuador, Mexico, Panama, and the United States; and observers from Canada, Chile, Guatemala, Japan, Peru, and the Fisheries Department of the Food and Agriculture Organization of the United Nations, met in Guayaquil, Ecuador, April 19-20, 1966. The purpose was to review the status of the stocks of tuna in the eastern tropical Pacific, and to recommend fishing regulations, if necessary, to interested governments.



Annual Meeting of the IATTC, Guayaquil, Ecuador. Left to right: Senor Antonio Landa, Scientist on IATTC staff; Mr. Harold Loesch, Scientist on staff of Instituto de Pesca, Guayaquil; Dr. J. L. Kask, Director of Investigations, IATTC; Dr. W. E. Ricker, Canada, Observer; Senor Luis Pareja Pera, Director General of Fisheries, Ecuador; Senor Jose L. Cardona-Cooper, Chairman of IATTC; Dr. J. L. McHugh, U. S. Commissioner; Capt. Hector A. Chiriboga, Ecuador, Commissioner and Co-Director, Instituto de Pesca; Mr. Roy I. Jackson, Director, Dept. of Fisheries, FAO; Mr. Francois Bourgois, Director, Instituto de Pesca, Guayaquil; Senor Antonio Vaca Ruilova, Legal Adviser, Ministry of Industries and Commerce, Ecuador.

Members of the United States Delegation were Commissioners J. L. McHugh of Washington, D. C. (U. S. Department of the Interior), and John G. Driscoll, Jr., of San Diego, Calif. Advisers were W. M. Terry and D. R. Johnson of the Bureau of Commercial Fisheries, U. S. Department of the Interior; William C. Herrington, B. H. Brittin, and Richard Croker of the U. S. Department of State, and C. R. Carry and C. D. Day representing the tuna industry.

The scientific staff of the Commission, led by Dr. J. L. Kask, Director of Investigations, reported that the unregulated fishery in 1965 again overfished the yellowfin tuna resource slightly so that the present level of sustainable yield is about 85,000 short tons. The most recent estimate of the maximum sustainable yield of yellowfin is about 91,100 short tons. No estimate of the maximum sustainable yield of skipjack in the convention area has yet been possible. However, there is reason to believe that skipjack could sustain a substantially larger harvest.

To restore the yellowfin tuna resource to maximum productivity, it was necessary for the Commission to recommend a quota lower than 85,000 tons. It was agreed unanimously

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propose a quota of 79,300 tons for the 1966 yellowfin tuna fishery. This would restore the stock to maximum productivity in about three years. The best estimate of the scientists was that at the present rate of catching, the quota will be reached about the end of November 1966. When it becomes evident near the end of the year that the quota will be reached or about a certain date, tuna fishing vessels will be permitted to fish only for skipjack and other tunas, and further fishing for yellowfin will be prohibited. Since it is impossible to catch skipjack without making an incidental catch of yellowfin, the yellowfin fishery will be stopped before the full quota of 79,300 tons is reached. The exact amount will depend on the length of time remaining in the fishing season. Thereafter, catches of tuna will not be allowed to contain more than 15 percent of yellowfin until the 1967 fishery opens on January 1.

Before the United States Government can propose such regulations on its own fisheries, a notice of proposed rule-making would appear in the Federal Register as a prelude to public hearings.

The staff of IATTC, in cooperation with other institutions and governments, has found that tuna in the eastern tropical Pacific are sensitive to changes in ocean currents and other variables in their environment. The circulation of the ocean, in turn, is affected by changes in atmospheric pressure and the speed and direction of winds. Recent studies have shown that atmospheric conditions over a part of the world may affect oceanic circulation thousands of miles away. For example, the permanent zone of high atmospheric pressure in the vicinity of the Azores in the eastern Atlantic has an important effect on ocean conditions and tuna distribution and abundance in the eastern tropical Pacific. This emphasizes the importance of global studies of the atmosphere and the ocean if we are to understand how to harvest marine fish resources more efficiently.

AT THE SEA

CONVENTION ON FISHING AND CONSERVATION OF THE LIVING RESOURCES OF THE HIGH SEAS ENTERS INTO FORCE:

The Geneva Convention on Fishing and Conservation of the Living Resources of the High Seas entered into force March 20, 1966,

after the Netherlands became the 22nd country to ratify on February 18, 1966. The Convention is one of the four adopted at Geneva April 29, 1958, by the United Nations Conference on the Law of the Sea. The other three Conventions (the Territorial Sea and the Contiguous Zone, the High Seas, and the Continental Shelf) have entered into force.

Note: See Commercial Fisheries Review, December 1965 p. 48.

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CONFERENCE HELD AT UNIVERSITY OF RHODE ISLAND:

The first annual summer conference of the Law of the Sea Institute at the University of Rhode Island was held June 27 through July 1, 1966, at Kingston, R. I., with the help of a \$12,600 grant from the Office of Naval Research.

"The Federal Government's willingness to support this effort is just one indication of the growing concern, in both public and private circles, about serious national and international problems, dealing with the exploitation of the sea," the chairman of the University's Geography Department announced.

Progress in solving some of these problems was made at international conferences in Geneva, Switzerland, in 1958 and 1960, he said, but "there remain many areas in which continuing research and discussion are imperative. This is particularly true with respect to scientific studies pertaining to marine resource use."

The function of the Kingston conferences will be not only to clarify existing laws, but also to point up impending problems for which legal and scientific groundwork must be developed in advance.

"For instance," the chairman said, "we appear to have at least the basic scientific and technological knowledge needed to mine the sea floors, undertake shellfish farming, or similar projects, yet commercial activity is often discouraged because of the lack of clear-cut laws which give some protection for the heavy investments required."

The program was expected to draw about 150 persons for in-depth discussions of "Offshore Boundaries and Zones." Themes for conferences in 1967 and 1968 are "Extra-territorial Fishing Rights" and "The Exploitation of Minerals On and Beneath the Sea Floor."

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The conference convened with a series of speeches and invited papers on the topic: "The Present Status of the Law of the Sea." On succeeding days the general topics were: "The Use of Offshore Waters," "The Continental Shelf," and "Special Problems of Offshore Control." A panel was held to discuss the Geneva conventions and the need for future modifications.

The Law of the Sea Institute, which is believed to be the first of its kind in the nation, was founded at the University of Rhode Island about a year ago to provide a forum for the exchange of ideas and information on the law of the sea. (Press release of University of Rhode Island, Kingston, R. I., March 27, 1966.)

## NORTH SEA CONTINENTAL SHELF

AGREEMENT BETWEEN  
BRITAIN AND DENMARK:

A North Sea Continental Shelf Agreement between Britain and Denmark was signed in London, March 3, 1966, by officials of the two countries. The agreement is reported to follow the median line principal, i.e., a dividing line equidistant at all points from each country's territorial waters. The primary reason for negotiation of agreements in the North Sea is the valuable natural gas deposits believed to be in that area.

## NORTHWEST PACIFIC FISHERIES COMMISSION

REPORT ON TENTH MEETING  
BETWEEN JAPAN AND U.S.S.R.:

Scientific Committee: The Scientific Committee of the International Northwest Pacific Fisheries Commission (Japan-Soviet) began its meetings in Moscow on March 4, 1966, and completed discussions on March 18. After devoting 18 sessions to consideration of the herring, crab, and salmon resources, the Committee presented its report to the Commission. The report was used by the Commission as a basis for setting catch quotas for crabs and salmon for the 1966 season. In brief, the Committee reached the following agreements on the condition of the stocks of fish under regulation by the Commission:

1. Herring stocks in the Sakhalin-Hokkaido areas continue in a state of decline. The Committee recommended that scientific investigations and research be continued on natural environmental factors and their effect

on the survival of the stocks, and that study be made of measures necessary for the restoration of the resource.

2. King crab stocks in the West Kamchatka area are showing evidence of decline and every precaution should be taken for their protection and conservation.

3. The level of the chum salmon run in 1966 will be close to that of 1965.

4. The size of the run of Asian red salmon in 1966 will be on the average level of the 1964 and 1965 runs.

5. King and silver salmon stocks in 1966 will be close to the average of recent years.

6. With reference to assessment of the total stocks of Asian salmon in 1966, the Committee concluded that the run will be equal to or somewhat lower than the level of the run in 1964.

Subjects Discussed: Japanese delegates agreed informally at the Japan-Soviet fisheries talks (which lasted almost six weeks) to the presence of Soviet officials at Japan's fishing bases in Hokkaido to inspect the counting of fish catches. The Moscow talks had been under way since March 1. This was the tenth meeting of the Commission under the Northwest Pacific Fisheries Convention which is due to expire in 1967. It is expected that the Treaty will be renegotiated.

Japanese and Soviet negotiators discussed at an informal session the Soviet-proposed creation of a new marine preserve in Zone A (north of the 45th parallel), curtailment of the fishing period in Zone B (south of the 45th parallel), and the problem of crab catch quotas.

According to Japanese delegation sources, the Soviets insisted last year's crab catch quotas for Japan--240,000 cases-- be cut in accordance with crab resources on the basis of a conclusion made earlier at a science subcommittee.

The Japanese side, on the other hand, called for the same number of cases as last year's level, saying the subcommittee's conclusion had no binding power on Japan for its reduction in crab catches. On the crab fishing zone, the Russians proposed to make the crab-rich area north of the 57th parallel an exclusive one for Russian fishermen, and to



International (Contd.):

annate the hitherto existing preserve south of the 53rd parallel to make it an exclusive fishing ground for Japan. The Japanese negotiators rejected this. They believed such a plan would put Japan at a disadvantage as compared with the Soviet Union. (The area north of the 57th parallel has heretofore been designated as a joint fishing ground for the two countries.)

Japan also rejected a Soviet plan calling for a reduction in Japanese crab catches from the present 6:4 ratio for the Soviet Union and Japan to 3:3 in the area between 56 degrees 20 minutes latitude and 53 degrees N. latitude.

Japan, however, agreed on a Soviet investigation into Japanese fishing operations in the northwestern Pacific after the close of the crab fishing period (April-August in past years) since the Russians alleged that Japanese trawlers and drag-netters caught a considerable quantity of crabs after crab fishing boats had completed operations and left the area.

The Soviet side at the Moscow talks proposed a reduction in the number of fishing vessels in Zone B (south of the 45th parallel), shortening of the fishing period by one month (now 8 days) in Zone A (north of the same parallel), and the creation of a new marine preserve.

Japanese fishermen engaged in salmon fishing in the northwestern Pacific made a strong plea to the Government to reject Soviet overtures at the Japan-Soviet fisheries talks. The representation was made to the Japanese Agriculture-Forestry Minister by scores of representatives of seven fisheries organizations composed of fishermen engaged in salmon fishing in the northern Pacific. The fishermen said they conducted fishing operations for a total of 100 days a year in Zones A and B--40 days in Zone A (north of the 45th parallel) and 60 days in Zone B (south of the same parallel). They expressed fear that if Japan accepted the Soviet proposal, their fishing periods would be cut to one month, causing small-size fishing interests to go bankrupt.

**Salmon and Crab Catch Quotas in Northwest Pacific:** Japan and the Soviet Union completed their talks on April 14, 1966. The major outcome of the meetings was the 1966 salmon and crab catch quotas in the fishing areas under the jurisdiction of the International Northwest Pacific Fisheries Commission.

The salmon quota allotted to Japan is 96,000 metric tons; and that for the Soviet Union is



Pulling in a gill net and removing salmon from the net aboard a Japanese fishing vessel in the Northwest Pacific.

50,000 tons fished in Soviet territorial waters. (The 1965 quotas were 115,000 and 65,000 tons, respectively. In 1964, the quotas were 110,000 tons for Japan and 65,000 tons for the Soviet Union.) The 1966 king crab quotas agreed upon are 240,000 cases (48 1/2-lb. cans) for Japan and 420,000 cases for the U.S.S.R. (In 1965, the quotas for both countries were the same. In 1964, Japan had a quota of 252,000 cases and the Soviet Union had a quota of 378,000 cases.) (Editor's Note: The Soviet pack of canned crab meat is put up in cases of 96 cans each. Hence, in some reports the Soviet quota is given as half the number of cases reported here.)

The 1966 Japanese salmon quota will permit a catch of 48,000 tons in Area A (north of 45° N. latitude) and 48,000 tons in Area B (south of 45° N. latitude).

In Area A the salmon fishing season for the Japanese mothership fleet is May 15-July 15 with a closed season July 1-July 14 in the area between 160° E. and 165° E. longitude and 48° N. and 52° N. latitude. For the land-based gill-net fleet, the season in Area A is June 21-July 25 with a closed season July 1-14 in the area between 160° E. and 165° E. longitude and 46° N. and 48° N. latitude.

In Area B, Japan's catch quota is 48,000 metric tons with a 10-percent tolerance above

## International (Contd.):

the quota. The fishing season for Area B is April 30-July 30 with no prescribed closed period. The Japanese quotas represent a decrease from 1965 of 8,000 tons in Area A and 11,000 tons in Area B. In 1964, the Japanese quota in each area was 55,000 tons. The Japanese expect to license for salmon fishing 11 motherships with 369 catcher boats for Area A. This is the same number of vessels which fished in that area in both 1965 and 1964.

Japan will operate 4 motherships in the king crab fishery, the same as in 1965. The U.S.S.R. plans to operate 7 motherships for king crab, 1 less than in 1965.

Japanese Reaction to Negotiations: As in past years, there were some differences of opinion in Japanese fishing industry circles as to the outcome of the negotiations. The larger enterprises, as represented by the Greater Japan Fisheries Association, were reported to be satisfied in general with the results. This group felt that the salmon fishing regulations and quotas were the most difficult issues in the negotiations. Since the number of motherships and catcher boats which would be allowed to fish in Area A were not reduced, this group was reported to be pleased with the outcome. On the other hand, the National Federation of Salmon and Salmon-Trout Drift-Net Fishing Industry Associations, which consist of medium and small fishery enterprises, expressed strong dissatisfaction with the establishment of new restrictive waters north of 46° N. latitude, although it was instituted for 1966 only. The 332 drift-net fishing vessels (the land-based fleet) which operate in Area B (south of 45° N. latitude), usually move north beginning about June 21 and fish between 45° and 48° N. latitude. The closed season in that area, between July 1 and 14, will result in stopping these fishing operations. According to the land-based group, that area is on the route of the fish migrating to West Kamchatka and it is a good fishing ground where, at times, as many as half of the drift-net vessels congregate. (Fisheries Attache, United States Embassy, Tokyo, March 24 and April 14, 1966 and various press sources.)

Note: See *Commercial Fisheries Review*, July 1965 p. 73, June 1965 p. 43, October 1964 p. 68, July 1964 p. 42.

## ORGANIZATION FOR ECONOMIC COOPERATION AND DEVELOPMENT

FISHERIES COMMITTEE MEETING:

The Fisheries Committee of the Organization for Economic Cooperation and Development met in Paris, March 10-11, 1966. Papers were reviewed on (1) confrontation of national fishery policies, including drafts for France and the United Kingdom; (2) fisheries standards; and (3) the program of work for 1966-1967. The main work of the Fisheries Committee in 1966-1967 will be a confrontation of national fishery policies. This will include a review of the necessity for subsidies, tariffs, etc. Objective is to aid free movement of fishery products in foreign trade.

## SALMON

UNITED STATES-CANADIAN PACIFIC SALMON CONFERENCE:

United States and Canadian fishery officials and industry representatives met in Ottawa, April 4-6, 1966, to give consideration to salmon fishing problems of common concern in the Pacific Northwest, British Columbia, and Southeastern Alaska. Technical consultants from the International Pacific Salmon Fisheries Commission were also present. A preliminary meeting to exchange views on these problems was held in Washington, D. C., October 12-14, 1965.

Serious consideration was given to problems arising from the intermingling in the United States and Canadian salmon fisheries in northern British Columbia and Southeastern Alaska of salmon bound for both Canadian and U. S. streams; and to the adequacy of the provisions of the 1956 Protocol to the 1930 Sockeye Salmon Convention which brought pink salmon in the Convention Area within the responsibilities of the International Pacific Salmon Fisheries Commission. Proposals to solve the problems under consideration were presented by both the United States and Canadian Delegations but no agreement was reached.

The Canadian position was that one country should not intercept salmon bound for the other. On this ground, Canada proposed some adjustment in the areas in which salmon net fishing is allowed.

International (Contd.):

The United States delegation said that the Canadian position overlooked the historic fisheries of each country which for many years have fished mixed stocks of salmon.

The Canadian Deputy Minister of Fisheries said that the rationale in support of the Canadian position is that the thrust of the effort to maintain the salmon stocks by regulation, to protect the spawning rivers from damage by other uses, and for positive measures to increase the stocks falls on the country which has the rivers in which the salmon are bred. To make these efforts worthwhile to that country it must be able to harvest the salmon and reap the benefits.

In applying this principle to the problem of mutual concern in the British Columbia-Alaska boundary area, Canada proposed the inward adjustment of salmon net-fishing limits on both sides of the border as one means of minimizing interception of salmon. The United States Delegation was not prepared to consider such a proposal and thus the Canadian Delegation stated it would be necessary to review its position with regard to the location of the salmon net-fishing limits currently in effect. The Canadian spokesman pointed out that Canada should not have agreed to the establishment of the present limits had it been known in 1957 that they were to be established in Alaska on a different basis from that in British Columbia and in the United States to the east. In 1959, and again in October 1965, Canada asserted the right to move these limits seaward.

The Canadian view was that to clarify the situation it would be necessary to declare that the limits as now agreed no longer exist as an agreement between the two countries. Canada could not predict how long the limits might exist in their present form as a domestic regulation. Canada suggested that a meeting be held in the near future to negotiate seaward net-fishing limits.

Canada recognized that other measures may be worth considering such as fishing closures at times when fish bound for the other country are caught. If this objective could be entertained by the United States, Canada was prepared to cooperate in investigations to determine what action would be effective to minimize the interception of salmon bound for the other country.

The Canadians said that in the absence of satisfactory joint action to revise net fishing limits at a meeting in the near future, it would be necessary for Canada to take a complete new look at the restrictions applied to its own fisheries with a view to possibly extending them seaward. The Canadian primary objective, however, is to minimize catching by one country of salmon bound for the rivers of the other using as a tool inward revision of the net-fishing limits.

The Canadian position with regard to problems related to the adequacy of the Pink Salmon Protocol, originally stated in Washington, was that the same principle could be applied. The Canadian view was that Canada should be getting a larger proportion of the salmon bound for the Fraser River. It was realized that there has been cooperation between Canada and the United States to build up the runs to the Fraser River, but Canada claimed that the economic cost to Canada has been several times greater than the cost of the joint effort.

The United States suggestions for the removal from division of some catches within the present Convention Area, which would have the effect of increasing the catches of Fraser River pinks by the United States, and of inward movement of the salmon net-fishing limit across Juan de Fuca Strait, which would affect Canadian more than United States fisheries, were of interest and the Canadian Delegation stated a willingness to discuss proposals of this kind on a broader basis involving the entire question of the division of catches. Canada was prepared to consider doing away with commercial fishing all the way into the Strait, but would not entertain proposals on a piecemeal basis adverse to the Canadian interest. Such proposals would have to be considered on a much broader basis involving consideration of the changing of the provisions under the Convention to give Canada a higher proportion of the catch.

The Chairman of the United States Delegation, summarized the United States position on these questions. It was that each country should fish the stocks of salmon originating in the rivers of the two respective countries, taking into account the historic fisheries of each country. The United States Delegation pointed out that the Canadian position as stated had overlooked the historic fisheries that for many years fished mixed stocks of salmon. Salmon fisheries of the two countries in the Strait of Juan de Fuca, northern Puget Sound and the extensive offshore salmon troll fishery of Canada and the United States take mixed stocks of salmon bound for United States and Canadian streams. The Canadian Johnstone Strait salmon fishery has traditionally taken mixed stocks of salmon from rivers of Canada and the State of Washington. These and other fisheries such as the United States and Canadian fisheries of northern British Columbia and southern Southeastern Alaska all operate to a greater or lesser extent on mixed stocks of salmon. The United States could not agree to action that would cause economic hardship to or erosion of these long-standing fisheries in the absence of any demonstrable conservation need of the resource--especially when such action benefits only one party at the expense of the other.

The United States made several suggestions as to how to further eliminate areas of contention between the fisheries, including a suggestion to consider a broadened international convention which would cover certain salmon problems of common concern, since the mixing of the British Columbia and United States salmon stocks is so extensive and in many areas so complete.

The United States stands ready to participate fully in programs which would have as their objective the improvement of the salmon resources of common concern.

In Southeastern Alaska and Northern British Columbia, the fishery in the national waters of each country harvests variable amounts of salmon from the rivers of the other country which migrate through these waters. The amount of intermixing is highly variable although both countries have little scientific knowledge regarding the extent of the variation. To the extent that United States national fisheries affect the achievement of a successful conservation program for Canadian stocks, it is willing to regulate its fisheries to accommodate such a goal. But in the area in question, no such need has yet been demonstrated. If Canada believes that United States fisheries are adversely affecting the conservation of salmon resources of Canadian rivers, the United States would appreciate evidence of this.

International (Contd.):

The United States has little knowledge of the effects of Canadian and United States fisheries upon the conservation programs of the stocks of salmon of northern British Columbia and Southeastern Alaska and is prepared to cooperatively study this problem and clarify the issues as they apply to these programs.

With respect to the salmon resources in the southern area, the United States believes that both countries should act whenever possible to improve the conservation programs which involve the salmon fisheries of common concern. To do less is to be unresponsive to a recent request made by the International Pacific Salmon Commission to both Governments to improve the conservation of pink salmon. The United States considers that its proposals for better management of the salmon stocks in this area are sound and consistent with good salmon management.

The present salmon convention has been an effective instrument for rehabilitating depleted runs of salmon and maintaining these runs and it has allowed United States and Canadian fisheries to operate with a minimum of friction. Nevertheless, it is believed that some administrative adjustments can be made within the terms of the present Convention to improve the conservation and management of the fisheries.

The United States emphasized that it is prepared to further explore all aspects of the fishery problems of common concern to the two countries and to fully participate in studies to determine conservation needs. On the other hand, the United States is determined to protect the important historic fisheries which operate on mixed stocks of salmon. The United States does not believe the Canadian proposal provides a practical means for resolving the common conservation and economic problems of the two industries.

One important result of the meeting was to focus attention sharply on the issues of common concern and to provide clarification of the positions of the two countries.

The second result was agreement to recommend to the two Governments a meeting between representatives of the two countries in Seattle, Wash., beginning May 17, 1966, to give consideration to determining seaward net-fishing limits anew. (Canadian Department of Fisheries, Ottawa, April 7, 1966.)

FISHING VESSELS

WORLD CONSTRUCTION DATA:

In 1964, the world's shipyards built 578 fishing and fish-processing vessels of over 100 gross tons, with a total gross tonnage of about 463,000. This was 125 percent more than in 1963, when the construction of new fishing vessels amounted to 206,000 gross tons. Japan still occupies first place with a gross tonnage of 106,000, closely followed by Sweden with 97,000, Poland 60,000, West Germany 45,000, and Spain 31,000. The United States occupies 17th place with the construction of 2 fishing vessels totaling 1,040 gross

tons. (Budownictwo Okretowe, Vol. 10, No. 8, 1965.)

Editor's Note: Data for construction of fishing vessels in 1964 by the U.S.S.R. and East Germany are not included in these totals.

In 1964, the United States added 19 vessels over 100 gross tons to the fishing fleet. Of those, 12 (3,000 gross tons) were new construction.

Table 1 - World Construction of Fishing and Fish-Processing Vessels Over 100 Gross Tons, 1964

Country	Vessels		Increase in Gross Tonnage Over 1963
	Number	Gross Tonnage	
Japan . . . . .	171	106,436	26,253
Sweden . . . . .	9	96,633	96,073
Poland . . . . .	21	59,613	19,146
German Federal Republic	15	44,576	34,123
Spain . . . . .	91	30,748	7,620
Netherlands . . . . .	56	26,001	16,069
Denmark . . . . .	5	23,497	18,797
Norway . . . . .	52	19,843	10,427
France . . . . .	43	15,438	5,622
United Kingdom . . . . .	17	11,312	6,934
Canada . . . . .	22	8,407	3,214
Italy . . . . .	12	7,730	3,893
Chile . . . . .	30	3,131	1/
Belgium . . . . .	7	2,323	1,890
Portugal . . . . .	1	2,162	1,702
Peru . . . . .	10	1,054	1/
United States . . . . .	2	1,040	-114
Yugoslavia . . . . .	4	640	510
Argentina . . . . .	4	560	1/
Greece . . . . .	1	505	217
Total . . . . .	578	462,477	256,630

1/Not available.  
 Note: Data do not include Soviet and East German fishing vessel construction. The data for the United States are incorrect (see "Editor's Note").  
 Original Source: Lloyd's Register of Shipping.

Table 2 - World Construction of Fishing and Fish-Processing Vessels of Over 100 Gross Tons by Percentage of Various Types

Type of Fishing Vessel	1964	1963	1962	1961
	. . . . . (Percent) . . . . .			
Fishing Vessels: . . . . .	51.0	88.2	71.1	61.7
conventional . . . . .	34.4	70.6	1/	1/
factory trawlers . . . . .	16.6	17.6	1/	1/
Fish-processing and transporting vessels . . . . .	49.0	11.8	28.9	38.3
Total (Percent) . . . . .	100.0	100.0	100.0	100.0
Total (in 1,000 gross tons)	463.0	206.0	1/	1/

1/Not available.  
 Note: Data for the Soviet Union and East Germany are not included.

Motherships, base ships, and fish carriers contributed almost one-half (49 percent) of the total new tonnage in 1964. Factory trawlers comprised about one-third of all operational fishing vessels built.



**FISHERY TRENDS IN 1965  
AND OUTLOOK FOR 1966:**

The Department of Fisheries, Federation of South Arabia, is making plans to substantially increase the area's fish catch which totaled 54,000 metric tons in 1964 and about 50,000 tons in 1965. The Department of Fisheries sponsored the construction of the Federal Star II, a 40-foot purse-seine vessel launched in Aden in December 1965. Two similar vessels are under construction, and two others planned. The Federal Star II is already demonstrating new fishing methods to fishermen in the area.

The sale of outboard motors in South Arabia has skyrocketed, especially in the area around Mukalla. Fishermen are also building larger vessels under the guidance of the Fisheries Department.

A proposed 3-year United Nations Special Fund Project, involving the expenditure of US\$90,000 and 4 or 5 experts to survey the fish resources in the area, is again under consideration after having been shelved for a year.

Plans to build a \$3 million fish meal plant at Mukalla to process up to 120,000 metric tons of sardines annually are being considered jointly by United States and British interests (United States Consul, Aden, March 25, 1966).

See Commercial Fisheries Review, February 1966 p. 50.



**Angola**

**GOVERNMENT REGULATIONS  
ENCOURAGE SOUTH AFRICAN  
FISHING FIRMS IN ANGOLA:**

Four South African fishing firms which entered the Angolan fishing industry in 1964 and 1965, only 1 is known definitely to be engaged actively in fishing in Angolan waters. This is attributed to the adoption by Portugal in November 1965 of legislation requiring the use of Angolan-owned fishing vessels and Portuguese majority control of local companies. One of the South African fishing companies has moved announced to its stockholders that it is completely withdrawn from the Angolan fishing industry and would probably forfeit US\$50,000 paid as a first installment on its

purchase of a fish factory in the port of Mocimedes. The South African companies had been attracted to Angola by reportedly large resources of pilchards and the absence of quota or seasonal restrictions on catches. (United States Embassy, Pretoria, April 13 1966, and United States Consulate, Luanda, January 20, 1966.)

Note: See Commercial Fisheries Review, December 1965 p. 50, March 1964 p. 40.



**Australia**

**TUNA SEASON SHORT  
IN NEW SOUTH WALES:**

The 1965 tuna fishing season in New South Wales was one of the shortest on record. It opened in mid-November and was over by the end of December. With some returns still due, the catch on January 1, 1966, was 2,260 metric tons, about 300 tons less than in the previous season. By early January, most of the fleet had shifted to South Australia. (Australian Fisheries Newsletter, February 1966.)



**Brazil**

**PACKING FIRM STARTS FISHING FLEET:**

A food packing company based at Belem (northeast coast), Brazil, is purchasing three trawlers from Mazatlan, Mexico. These first three vessels mark the beginning of the company's fishing fleet. The firm intends to produce shrimp and spiny lobster products for foreign markets and salt fish (bacalao) and fish meal for the domestic market. (Ocean Fisheries, vol. 2, no. 1, January 1966.)



**Canada**

**CATCH EXPANSION FORECAST  
AT ATLANTIC OFFSHORE  
FISHING VESSEL CONFERENCE:**

The first Canadian Atlantic Offshore Fishing Vessel Conference was held February 7-9, 1966, in Montreal. The vigorous campaign Canada is undertaking to increase its fish catch on the East Coast was emphasized at the Conference. Approximately 300 participants, including naval architects, fishermen,

## Canada (Contd.):

fishing vessel owners, and fishery administrators, as well as others allied with the fishing industry, attended. The Conference was sponsored by the Federal-Provincial Atlantic Fisheries Committee composed of the Governments of Quebec, Nova Scotia, New Brunswick, Newfoundland, Prince Edward Island, and Canada. The purpose was to stimulate development of vessel designs particularly suited to the specific requirements of Canada's Atlantic offshore fisheries through consideration and correlation of available data relating to the design of fishing vessels over 100 gross tons with a view to developing improved concepts. Thirty-three papers were presented. The General Chairman was the Federal Deputy Minister of Fisheries of Canada, and Session Chairmen were the Deputy Ministers of Fisheries from each Province.

In the opening address, the Federal Deputy Minister of Fisheries emphasized that in recent years there has been an expansion by Canadians in the long established East Coast fisheries for various species of groundfish, including cod, haddock, flounders, and ocean perch. Present catch is about one billion pounds annually. Based on the Canadian fishing industry's plans to increase its fishing power, an increase to two billion pounds or more in the next decade is expected.

The agenda of the Conference was composed of three main items, and a summary of the points stressed under each follows:

**Provincial Government Plans:** The Deputy Minister of Fisheries for each of the five Provinces reviewed the present offshore fishery and future plans for his province.

**QUEBEC:** During the next 3 years, the Province contemplates financing the construction of 19 vessels over 100 gross tons. They will range in size from 160 gross tons (90 feet) to 500 gross tons (155 feet). It is expected that by 1975, the main increase in catch will be made up of herring--from 40 million pounds in 1965 to 175 million pounds in 1975. Ocean perch catches should increase from the present 35 million pounds to 60 million pounds by 1975, and cod from 55 million to 78 million pounds.

**NOVA SCOTIA:** At the end of 1964, the deep-sea fishing fleet consisted of 120 vessels. By 1968, the fleet inventory and projected catch would be as follows:

Type of Vessel	Size	Number
	Feet	
Groundfish trawlers . . . . .	Over 100	90
Herring vessels . . . . .	Over 100	40
Whaling . . . . .	Over 100	5
Groundfish draggers . . . . .	84-100	16
Long-liners . . . . .	84-100	20
Scallop draggers . . . . .	Over 100	50
Total . . . . .		221

Item	1964	Forecast 1968	Percentage Change
	(Thousands of Pounds)		%
Groundfish . . . . .	350,251	414,000	+ 18
Herring . . . . .	98,545	500,000	+400
Whale meat . . . . .	1,600	5,350	+235
Swordfish . . . . .	11,856	10,000	- 16
Scallops . . . . .	15,979	12,000	- 25

By 1975, it is estimated no change will occur from the 1968 figures for swordfish, scallops, and whale meat; but groundfish landings should be around 560 million pounds, up from the 1968 figure of 414 million pounds, with herring doubling that of 1968, reaching 1 billion pounds.

**NEW BRUNSWICK:** Offshore fishing operations in this Province are still comparatively small. Plans call for an increase in these operations, but not by the construction of large single units (130-150 feet) since nearly all offshore fishing vessels are under single ownership and operation. The New Brunswick Fisheries Department has, therefore, recommended to the Fisheries Loan Board of New Brunswick that the limit in the size of trawlers to be financed for fisheries be 100 feet. The trend in New Brunswick is toward the financing and construction of many West Coast-type combination vessels of both steel and wood.

**PRINCE EDWARD ISLAND:** Offshore fishing in this Province did not start until 1950, when a 59-foot dragger commenced otter trawling. Vessels now range to 128 feet. No projections were made for the future. One of the main problems is finding crews for large offshore vessels. Fishermen in Prince Edward Island are concentrated in the lobster fishery which can be worked on a daily basis.

**NEWFOUNDLAND:** It is projected that the number of offshore trawlers operating out of Newfoundland will increase from the present 47 to 179 by 1975. The majority will consist of stern trawlers, each of about 400 gross tons. Groundfish landings are projected at 1 billion pounds by 1975, compared with 210 million pounds now. It is anticipated that the herring fleet, which consists of only four vessels, will increase considerably. The present herring fishery is based on cooperative exploration and gear research efforts by the Federal and Provincial Fisheries Departments and private industry carried out in 1964.

During the discussion which followed the Provincial presentations, no exceptions were taken to projected expansions in large vessel construction and landings. It was brought out, however, that production goals would also depend on increases in efficiency through new methods of mechanization, automation, and preservation, as well as expanded programs of fishermen's training, gear research, and exploration.

**Fishing Industry Viewpoint:** This session included the presentation of papers by leading members of industry. One industry representative stressed the need for greater coordination between government and the fishing industry in the future development of fisheries. He indicated emphasis should be placed on the necessity for automating fishing vessels to enable smaller crews to attain higher earnings as well as to improve handling methods and working conditions. The need for further explorations along with simultaneous development of new harvesting techniques for harvest of unutilized species was also stressed.

Canada (Contd.):

Other manager of a processing firm pointed out the importance of the United States market. He said, "The outlook for fishery products in North America is very optimistic. The demand in the United States will increase 40,000,000 pounds annually from population expansion alone . . . Our Canadian industry is trying to take advantage of this situation and our trawler fleets have seen considerable buildup in the past few years." He also mentioned that Canada's problems are not those of marketing, but of supply and rising operating costs.

Fishing vessel owner set forth his views in a paper entitled "A Skipper's Viewpoint on Offshore Fishing Vessels." He indicated that ships without efficient anchoring and pitching systems will be idle at the dock 5 years from now because they will be unable to get crews. Also, that the crews of the future will come from Canada's high schools and fisheries colleges, supplemented perhaps by immigrants. He said naval architects, shipbuilders, and vessel owners should now think in terms of building vessels on which men of the future will want to fish. Vessel operators will have to get used to providing accommodations equal to or better than the homes of shore workers.

**Vessel Design and Equipment Trends:** Twenty-two papers on a variety of topics ranging from the design of various types of vessels through economic considerations and hydrodynamic characteristics of specific Canadian-designed stern trawlers were presented during the session under this agenda item. Of particular interest were several papers on the various aspects of the design of a 149-foot stern-ramp trawler suitable for the northwest Atlantic fishery from Canadian ports. The design was the result of a cooperative undertaking between the Federal Industrial Development Service, the fishing industry, and a private naval architect.

Automation of fishing vessels was discussed in several papers. Additional papers of interest were those on combination stern trawler-purse seiners, single-deck combination vessels, trawler development in Great Britain and Germany, and construction and design of fishing vessels in Great Britain and Canada, 1955-65.

The featured speaker emphasized the need for continued activity and improvement of all vessel designs. He also indicated the great need for operational records on the actual performance of fishing vessels as a basis for future development.

--E. A. Schaefer, Chief,  
Branch of Exploratory Fishing,  
Bureau of Commercial Fisheries,  
U. S. Department of the Interior,  
Washington, D. C.

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**PROCESSING COMPLEX ON GASPE PENINSULA PLANNED:**

The small fishing community of Riviere-au-Renard on the Gaspé Peninsula is the site of a \$15 million fish-processing plant being built with financial aid from the Quebec Provincial Government. Attraction of the location is a harbor that is practically ice-free year-round. The Quebec Provincial Government also proposes to finance the construc-

tion of an ice-making plant, cold-storage, and vessel facilities at Riviere-au-Renard.

Plans for the new facilities on the Gaspé Peninsula were announced February 23, 1966, during the dedication of a new cold-storage and fish-distribution center at Quebec. The announcement was made jointly by a representative of a large fisheries cooperative federation and the Quebec Provincial Minister of Industry and Commerce.

It was also announced that the fisheries cooperative had under construction a 157-foot trawler which is sufficiently large to operate all year. The federation was also building two smaller trawlers, 87 and 60 feet long, respectively. (United States Consul, Quebec, March 3, 1966.)

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**FISHERY LANDINGS, 1965:**

Canadian total sea fisheries landings (including Newfoundland) during 1965 amounted



Fig. 1 - Off the British Columbia coast of Canada, a purse-seiner is drawing the net tighter around a good catch of herring.

Species	Landings		Value	
	1965	1964	1965	1964
	.. (1,000 Lbs.) ..		.. (1,000 C\$) ..	
<b>Atlantic Coast:</b>				
Cod . . . . .	569,661	575,702	23,152	22,061
Haddock . . . . .	92,721	106,313	6,041	6,224
Pollock . . . . .	51,712	56,956	1,878	1,832
Flounder and sole . . . . .	201,523	161,864	6,509	5,240
Herring . . . . .	403,972	312,605	4,272	3,206
Swordfish . . . . .	8,034	11,857	3,347	3,561
Lobsters . . . . .	40,491	41,876	26,616	24,244
Scallops . . . . .	19,710	16,684	10,847	7,276
<b>Pacific Coast:</b>				
Halibut . . . . .	1/32,372	2/33,292	1/10,914	2/8,309
Herring . . . . .	443,555	505,286	6,158	6,167
Salmon . . . . .	86,099	124,220	24,962	30,244
1/Including 7,387,000 pounds (C\$2,482,000) landed in U. S.				
2/Including 8,168,000 pounds (C\$2,039,000) landed in U. S.				

Canada (Contd.):



Fig. 2 - The Acadia Albatross, a modern Canadian stern trawler. The vessel, all-welded steel strengthened for navigation in ice, is 152 feet long overall. Vessel is operated by a Nova Scotia fisheries firm.

to 2,295.6 million pounds (valued at C\$140.7 million) as compared with 2,238.8 million pounds (valued at C\$132.4 million) during 1964. (Monthly Review of Canadian Fisheries Statistics, December 1965.)

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**GOVERNMENT TO HELP FISHING INDUSTRY REPAIR NEWFOUNDLAND STORM DAMAGE:**

The Canadian Federal and Newfoundland Governments have reached agreement on compensation to fishermen who suffered severe losses in the storms of January 19 and 28, 1966.

The damage reported from all sections of Newfoundland totaled C\$510,000 with a major concentration of loss in the Conception Bay-Southern Shore area, where losses reached approximately \$400,000. Losses covered a wide range of fishing vessels and equipment, although the heaviest losses involved destruction of fish-processing and other shore installations.

Compensation plans were announced by the Federal Fisheries Minister on April 7, 1966. The Canadian Federal Government will assume responsibility for assisting fishermen

in the restoration of landings and local processing facilities in settlements where these have been largely demolished. This will be done through an acceleration of the Federal Government's community program to provide suitable facilities in Newfoundland for the handling of either fresh or salted fish depending on the wishes of the fishermen concerned. It is estimated that the additional cost of such works may reach \$500,000 over the next year.

The Newfoundland Provincial Government will assume responsibility for compensation up to 60 percent of replacement value to individual fishermen in the major disaster areas for their losses of fishing vessels, engines, and cod traps.

In view of the time required to plan and design suitable community facilities, the Federal Fisheries Minister pointed out that in any community where damage was such that fishermen could not carry on the 1966 fishing operations, temporary facilities would be provided as quickly as possible. The minister also indicated that the Federal Department of Public Works would endeavor to restore public wharves and other facilities as quickly as possible and particularly in settlements where damage seriously interferes with the 1966 fishery. (Canadian Department of Fisheries, Ottawa, April 7, 1966.)

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**QUEBEC'S MARITIME FISHERIES, 1965:**

Total Quebec landings of fishery products in 1965 amounted to about 142.4 million pounds

Quebec's Maritime Fisheries Catch and Value of Selected Species, 1964-1965				
Species	1965		1964	
	1,000 Lbs.	C\$ 1,000	1,000 Lbs.	C\$ 1,000
Cod	51,265	2,019	53,536	1,887
Herring . . . . .	46,065	270	40,957	290
Ocean perch . . . . .	27,678	766	20,208	559
Salmon . . . . .	571	361	448	259
Lobster . . . . .	3,293	1,801	3,168	1,549
Halibut . . . . .	449	95	428	106
Plaice . . . . .	7,369	234	5,634	174
Mackerel . . . . .	771	23	1,980	61
Haddock . . . . .	427	21	622	30
Smelt . . . . .	642	52	743	86

with a value of C\$6.3 million as compared with 131.2 million pounds, valued at C\$5.3 million in 1964-- an increase of 8.5 percent in quantity and 18.9 percent in value. (Quebec Bureau of Statistics.)

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Canada (Contd.):

**PROGRAM TO IMPROVE FISH HANDLING AT SEA:**

The Inspection Service of the Canadian Federal Department of Fisheries is placing emphasis on the proper handling of fish aboard fishing vessels as part of its program to bring about improved quality of fishery products. Increasing competition from other countries in traditionally Canadian markets for processed fish, together with rising living standards in the countries where those markets exist, has resulted in demands for high-quality products.

Dockside inspection is now carried out on a voluntary basis in Canada. There have been suggestions from leaders in the fishing industry as well as from government officials that such inspection should be mandatory. This would ensure the maintenance of proper construction standards and cleanliness of fish-holding pens aboard vessels. It would also ensure that each vessel had sufficient ice aboard to chill the catch adequately.

In the meantime, the Canadian Inspection Service is cooperating with fishing skippers and crews in an educational program designed to demonstrate the best methods of handling fish at sea. (Trade News, Canadian Department of Fisheries, January 1966.)

\* \* \* \* \*

**DEVICES TO UNLOAD SALMON DEVELOPED IN BRITISH COLUMBIA:**

The following summary of British Columbia development work on fish pumps for large-size fish was published by the Canadian Department of Fisheries in Trade News, December 1965:

Four fish pumps have been developed in British Columbia. Experimental work began at the Vancouver laboratory of the Fisheries Research Board of Canada in 1961 on an unloading method based on the assumption that fish could be lifted from a pressure vessel by the impelling force exerted by circulating water. Compressed air was provided to regulate the fish as they left the tank and to maintain the necessary static pressure.

The small laboratory apparatus designed for these tests operated very successfully and provided the engineering data for much larger equipment installed on a salmon packer that year.

**"Derek Todd" Pump:** The significant findings from the laboratory experiments were that the fish delivery pipe should be a little larger than the depth of the largest fish and that the linear velocity of the transporting water should be about 4 feet per second. The prototype pump was installed on the salmon packer Derek Todd, and has been used during salmon seasons for the last 5 years. It is used to rapidly unload salmon from four cylindrical pressure tanks permanently installed in the holds of the vessel where fish are held in refrigerated sea water.

Although it seems unlikely that future vessels will be equipped to discharge salmon in this way, the Derek Todd installation has provided much useful information which has been incorporated into the design of succeeding pumps.

The fishing company which owns the Derek Todd soon developed a successor to that pump. It was installed on a barge to serve as fish unloader for a fleet of fishing vessels and collectors.

**Barge Pump:** This pump combines a suction system for sucking up fish from the hold in a stream of water, with the pressure discharge system used on the first pump. Two pressure tanks are used alternately to provide continuous unloading, one tank being filled with fish, while the other one is emptied. The piping system employs swing check valves, and butterfly valves to reverse the flow and bypass the pump.

Most of the problems encountered in the design of the second pump and in early trials have now been overcome, and satisfactory performance has been achieved during the last two seasons. Maximum fish unloading rate is about 60 short tons of fish per hour. Salmon up to 30 pounds in weight are routinely handled and fish up to 60 pounds have been passed.

Provision for surplus water and tank storage had to be made. This was necessary to avoid pollution from harbor water, to simplify priming the system, and provide a jet of water for stirring up fish in the tanks, which is necessary for continuous unloading. This storage tank, plus the two main unloader tanks, together with the other equipment such as diesel engine, pumps, vacuum pump, etc., comprise a very heavy load for the barge.

Canada (Contd.):

In this system the fish must be introduced into a 10-inch pipe twice--the second time when leaving the tanks on the barge. Pumping rate for the circulating water is variable between 700 and 2,000 gallons per minute. Alternate cycles for loading and unloading the tanks are at two-minute intervals. The operator makes the necessary valve change manually. The single operator required for the barge pump stands on a small platform attached to the suction pipe just above the intake nozzle. From this position he can start or stop the pump, raise or lower the intake or rotate the nozzle, and direct the flow of returning water to ensure continuous fish unloading. This arrangement facilitates removal of surplus ice and flushing out of the fish hold.

Power is supplied by a 90-horsepower diesel engine and most of the components are direct driven from it.

Laboratory Design for Improved Water Suction Pump: The next pump is one developed at the Vancouver laboratory of the Fisheries Research Board of Canada. This pump was developed simultaneously with the previous one, but with the intention of rectifying or eliminating some of the less desirable features of the "barge" pump which were evident even before it was built. At the present time, the new laboratory pump has not been fully proven and further development work is needed. However, a pilot model performed very well, as did the prototype during brief trials. The pump resembles the previous one in that there are two chambers with screens for collecting fish, and check valves and butterfly valves are used to alternately direct the flow of water to certain points in the system. However, the fish-collecting chambers are much smaller in this model and the internal diameter remains 10 inches. Since each of these chambers holds only 25 fish per cycle, alternate cycles occur much more frequently--at full capacity the cycles being about 25 seconds for filling the first chamber, followed by 5 seconds for the unloading cycle. Automatic control of the system is achieved through a differential pressure controller which actuates a compressed-air operated ram to change the valve settings.

The features of this pump are: (1) It is relatively small and requires little auxiliary equipment, although it is a full-sized pump having an output of 30 tons per hour. (2) Out-

put can be regulated through the pressure controller. (3) After the fish enter the 10-inch intake, no subsequent reorientation is needed. (4) Little, if any, make-up water is required so that when unloading from refrigerated sea water carriers there is little heating of the circulating water, a very desirable feature if further storage on shore is necessary. (5) Because of its relatively small size, the pump can be mounted for raising or lowering and tidal changes need not affect it. (6) Pump motor size is 30 horsepower for a 6-inch centrifugal pump having an output of 1,500 gallons per minute against a 60-foot head.

"Air-Lift" Pump: Finally there is the "air-lift" pump which is also an experimental model developed at the Vancouver laboratory. Air-lift pumps have long been used for pumping from wells and in other applications requiring pumping from considerable depths. The equipment required is simple and inexpensive and satisfactory flow rates are achieved if the necessary submergence can be obtained.

The operation of these pumps depends on the introduction of air into a pipe below the surface of the liquid at a depth approximately twice the distance that the liquid is to be lifted above its surface. The density of the column of air and liquid in the pipe is thus reduced below that of the liquid outside and a continuous flow results. The unique feature of the air-lift system developed in Vancouver for use in elevating fish, is the creation of a "false" submergence by connecting a second vertical tube to the first with a return bend. By introducing air into the discharge leg of this U-tube at a suitable depth, a mixture of water and fish can be pumped from near the surface to a higher level. Further, by adding a syphon to the intake leg of the U-tube, fish can be pumped from the hold of a vessel onto a wharf providing the water is deep enough to obtain the necessary submergence. This depth of water can also be obtained by sinking a caisson beside the wharf.

Some advantages of the air-lift pump over other types are: (1) It is inexpensive to build, cost of the rigging being the major item. (2) The fish do not meet any restrictions after they enter the intake. They do not encounter any such devices as check valves, screens, or airlocks. Consequently the likelihood of physical damage is greatly diminished. (3) A skilled operator is not required since there

Canada (Contd.):

air timing devices or stages. As has been pointed out, most of the other pumps utilize either airlocks or valve arrangements to transfer the fish from suction to discharge. The estimated unloading rate is approximately 30 tons per hour.

For additional information write to the Canadian Department of Fisheries, Director of Information and Education Service, Ottawa, Canada.

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BULK HANDLING OF HERRING MEAL TRIED IN BRITISH COLUMBIA:

Work is being carried out in British Columbia to develop suitable handling, storage, and unloading devices for herring meal in bulk. Recent investigations by the Fisheries Research Board of Canada established the antioxidant BHT (Butylated Hydroxytoluene) to be effective in reducing oil oxidation and attendant "heating" in herring meal. This led to the introduction in 1965 of experimental bulk handling and shipping of BHT-treated meal by fish meal plant. Preliminary tests using large cartons were followed by successful bulk shipments to the United States of 250 tons of meal in railway hopper cars. (Trade News, Canadian Department of Fisheries, December 1965.)



Colo

REAPPEARANCE OF ANCHOVY PREVENTS CLOSURE OF FISH MEAL PLANT:

Mass reappearance of anchovy off the Colombian coast in December 1965 came in time to prevent the closing of the fish-meal processing factory at Iquique operated by South African fishery interests. This was revealed by the Chairman of a South-West African firm with an interest in the Iquique plant. The Chairman had indicated to shareholders earlier that if no fish of any consequence were caught in December 1965, the factory would be left on a care-and-maintenance basis.

Reporting on the favorable turn of developments, the Chairman advised stockholders on February 2, 1966, as follows: "Fishing has improved considerably, and your plant has processed over 20,000 metric tons since December 8. This tonnage handled is in excess of the total amount processed during the first 11 months of last year. I must point out,

however, that it now appears that this is a seasonal fishery and we cannot expect heavy fishing during the winter months. We have now covered all our outstanding fish meal commitments and thus are in a position to take advantage of the considerably higher fish-meal prices presently appertaining on world markets." (The South African Shipping News and Fishing Industry Review, February 1966.)

\* \* \* \* \*

INAUGURATION OF ANCHOVY CONSERVATION:

Following the establishment of a conservation program in Peru, the Government of Chile recently took the first official action to protect Chilean anchovy resources. Supreme Decree 118 (Ministry of Agriculture) of March 4, 1966 (Diario Oficial of March 28) prohibits the "extraction, sale, purchase, transport and possession: of anchovy less than 12 centimeters (about 4.7 inches) long; a tolerance of 20 percent is allowed in the catch.

Although this is the first official conservation measure introduced for the anchovy, the industry had previously attempted to limit the size of the fish taken through an unofficial program of voluntary restraints. The decree establishes no sanctions, and enforcement is recognized as still a major problem. (United States Embassy, Santiago, April 4, 1966.)



Colombia

JAPANESE TUNA ENTERPRISE FAILS TO MATERIALIZE:

A Japanese-Colombian joint tuna enterprise was to be established in Colombia. This information was based on an article in the Japanese periodical Suisan Kezai Shim-bun of November 25, 1965. It has since been reported that this enterprise failed to materialize.

Note: See Commercial Fisheries Review, February 1966 p. 56.



Cuba

ADDITIONS TO CUBAN FISHING FLEET:

On March 20, 1966, the first of the six cod-fishing trawlers built for the Cuban Na-

## Cuba (Contd.):

tional Fishing Institute by Vigo (Spain) shipyards arrived in the Havana fishing port. Named Manjuari, the trawler is manned by 56 men, including 9 officers. The captain and chief mate of the Manjuari are Soviet citizens, the rest are Cubans. The trawler will operate primarily in the Northwest Atlantic, off Newfoundland and Labrador Peninsula.

On March 25, 1966, a 575-ton tuna fishing vessel (the Jurel) was launched for Cuba in Bilbao, Spain, shipyards, the Associated Press reported.

\* \* \* \* \*

FISHERY LANDINGS IN 1965:

At a Cuban National Fishing Institute press conference in Havana, preliminary data on Cuban fisheries were reported. Total fishery landings in 1965 amounted to about 40,000 metric tons, about 10 percent more than the 36,300 tons in 1964. Fishing cooperatives (similar to Soviet "kolkhozes") in 1965 landed about 32,000 tons and the state-owned deep-sea fleet about 8,000 tons. Cooperatives' catch included about 9,000 tons of spiny lobsters, mostly for export.

Over 600 small vessels have been added to the Cuban fishing fleet. Cuba now has on order 20 tuna clippers and 6 cod-fishing trawlers in Spain in addition to a stepped-up program of domestic vessel construction. These additions are bound to increase Cuban high-seas landings considerably; 1966 plan for the state-owned fleet provides a catch of 17,000 tons or about 130 percent over last year's. To satisfy the need for crews, over 3,000 students are presently training in various fishery institutes, schools, and training centers; several hundred of these study in the U.S.S.R.

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HAVANA FISHING PORT:

Havana's fishing port will be finished on or about July 26, 1966, to celebrate the Cuban revolutionary holiday, according to Cuban sources. Built at a cost of 30 million pesos (US\$30 million), the Havana port will accommodate 130 medium-sized (250-600 gross tons) Cuban and Soviet fishing vessels.

\* \* \* \* \*

IMPORTS OF MOROCCAN FISH MEAL:

Morocco plans to export about 4,000 metric tons of fish meal to Cuba in 1966. Those exports were included in a trade agreement signed between Morocco and Cuba in February 1965. (United States Embassy, Rabat, February 4, 1966.)

Editor's Note: In the past, Morocco also exported to Cuba large amounts of canned sardines and small quantities of canned mackerel and canned tuna.

\* \* \* \* \*

SERVICING OF SOVIET FISHING VESSELS:

An agreement was signed at Havana on February 4, 1966, between Cuba and the Soviet Union providing for the servicing of the Soviet fishing fleet in the newly constructed fishing port at Havana. Built with Soviet assistance, the Havana fishing port is the largest in Latin America. Its ship repair yards, floating dock, and cold-storage plant are fully operational. A communications center was being installed.

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SHELLFISH EXPORTS TO FRANCE:

In January 1966, France imported from Cuba fresh and preserved crustaceans valued at 705,000 F (US\$143,000) and natural sponges valued at 123,000 F (US\$25,000). (United States Embassy, Paris, March 22, 1966.)

Editor's Note: Crustaceans exported were no doubt spiny lobsters.

**Denmark**FISHERY LANDINGS, PRICES, PROCESSING, AND FOREIGN TRADE IN 1965 AND OUTLOOK FOR 1966:

Catch: Landings of fish in local ports by Danish fishing craft during 1965 were 3 percent less than in 1964, according to preliminary data (table 1). A poor last quarter was responsible for the first annual catch decline since 1960. There was a decline in the catch of herring, industrial fish, flatfish, brisling, eel, Norway lobster, and starfish. But landings were up for cod, cod-like fish, mackerel, salmon, deep-water shrimp, and mussels. Production of pond trout set a new record.

Denmark (Contd.):

Table 1 - Danish Fishery Landings, 1964-1965

Species	1965	1964
Landings in Denmark by Danish Vessels: .. (Metric Tons) ..		
Flatfish <sup>1/</sup>	58,415	74,063
Cod	77,744	65,737
Cod-like <sup>2/</sup>	74,968	58,544
Herring	344,776	360,445
Whiting	5,285	10,868
Mackerel	6,769	6,551
Shells	3,245	3,331
Salmon	1,417	1,371
Ground trout	10,976	8,460
Other fish <sup>3/</sup>	217,997	241,746
Norway lobster	1,780	2,292
Deep-water shrimp	4,990	3,280
Other shellfish	129	60
Mussels	18,248	16,388
Starfish	1,936	3,447
Total <sup>4/</sup>	828,675	856,583
Landings in Denmark by foreign vessels	203,587	200,930
Grand Total	1,032,262	1,057,513
Danish landings in foreign ports	3,724	4,290

1/Plaice, flounder, dab, common sole, etc.  
2/Haddock, coalfish, hake, ling, etc.  
3/Mostly industrial fish such as sand eel, Norway pout, etc.  
4/Does not include Danish landings in foreign ports.  
Source: Danish Ministry of Fisheries.

Danish landings in foreign ports were down 3 percent as a result of unloading difficulties in Great Britain. Landings by foreign fishermen (mostly Swedish) in Danish ports were slightly higher.

Prices: The ex-vessel prices paid for landed fish were generally higher during 1965. Table 2 shows monthly prices for selected species for July-December 1965 as well as the price range for July-December 1964.

Processing: Danish production of most processed fishery items was higher in 1965

than in 1964 (table 3). The overall production of fresh and frozen fillets (including blocks) was up substantially. Increased production of cod and herring fillets more than

Table 3 - Danish Production of Processed Fishery Products, 1964-1965

Product	1965	1964
.. (Metric Tons) ..		
<b>Canned Products:</b>		
Herring & sprat	2,805	2,868
Mackerel	1,897	2,148
Other fish	3,912	4,196
Shellfish	1,300	994
Mussels	710	633
Total canned	10,624	10,839
<b>Semipreserved Products:</b>		
Herring & sprat	5,596	4,800
Other fish	506	382
Mussels	748	628
Total semipreserved	6,850	5,810
<b>Fresh &amp; Frozen Fillets:</b>		
Cod	26,596	20,873
Cod-like <sup>1/</sup>	3,300	1,415
Plaice	17,054	18,556
Other flatfish	2,151	1,236
Herring	51,538	35,997
Other fish	114	163
Total fresh and frozen fillets	100,753	78,240
<b>Smoked Products:</b>		
Herring & sprat	2,067	2,001
Mackerel	1,783	1,808
Eel	715	705
Salmon & trout	767	514
Other fish and shellfish	235	196
Total smoked	5,567	5,224
<b>Miscellaneous Products:</b>		
Force meat <sup>2/</sup>	1,979	1,708
Salted herring	159	127
Dry-salted cod	186	417
Other fishery products	1,598	1,279
Total miscellaneous	3,922	3,531
<b>Industrial Products:</b>		
Meal	112,700	108,030
Oil	39,733	31,801
Ensilage <sup>3/</sup>	5,969	7,240
Solubles	16,822	11,829
Total industrial	175,224	158,900

1/Haddock, coalfish, hake, ling, etc.  
2/Groundfish, milk, and flour.  
3/Chemically-treated raw fish.  
Source: Danish Ministry of Fisheries.

Table 2 - Danish Ex-Vessel Average Prices During July-December 1965 and Price Range for July-December 1964

Species	1965						July-December 1964	
	July	August	September	October	November	December	High	Low
.. (U. S. Cents Per Pound) ..								
Cod, drawn	6.5	6.7	7.3	7.3	8.6	8.7	8.4	5.7
Plaice, drawn	16.3	17.4	19.6	19.1	20.2	19.1	15.1	11.1
Industrial fish	1.6	1.8	1.9	2.0	2.1	2.0	1.5	1.2
Herring for food	6.5	6.3	6.2	5.5	5.6	6.3	5.1	4.1
Turbot	47.6	49.1	49.7	44.5	44.6	39.9	43.2	33.1
Salmon	92.5	85.2	86.6	87.0	110.4	123.7	131.5	101.8
Haddock	6.1	6.2	7.0	6.3	9.4	10.0	7.8	6.0
Coalfish	5.2	5.5	8.9	10.0	12.3	12.6	13.1	6.1
Common sole	76.9	81.0	82.9	67.6	61.2	75.1	100.6	76.0
Eel, silver	-	64.8	58.4	-	89.8	88.0	88.4	50.2
Eel, yellow	-	48.6	46.4	-	46.2	47.7	46.0	39.9
Norway lobster	47.6	51.0	49.8	45.6	49.8	57.9	50.3	26.4
Lobster	145.4	137.6	130.1	104.1	89.3	93.0	136.5	84.5
<b>Shrimp:</b>								
deep-water	23.9	28.4	28.2	25.5	29.9	37.8	40.3	32.7
ordinary	43.7	73.5	89.8	91.3	-	-	106.4	58.5
Dogfish	-	-	-	-	7.8	9.9	7.0	6.5

Source: Danish Ministry of Fisheries.

Denmark (Contd.):

offset a slight decline in that of plaice fillets. More fish meal, oil, and solubles were produced in 1965 despite a poor last quarter. The

quantity of smoked and semipreserved products increased, but that of canned fish was down slightly because of lower production of herring, sprat, mackerel, and other fish items such as tuna, trout, liver, and roe.

Table 4 - Danish<sup>1/</sup> Fishery Exports by Commodity, 1965

Product	Exports in 1965			Change from 1964	
	Quantity	Value		Quantity	Value
	Metric Tons	Kr. 1,000	US \$1,000	.. (Percent) ..	
<b>Fresh Products:</b>					
Herring and sprat . . . . .	55,369	61,246	8,881	-27	-2
Fillets . . . . .	52,480	108,520	15,735	+18	+39
Plaice . . . . .	8,097	22,853	3,314	-33	-18
Cod . . . . .	7,681	19,297	2,798	-20	-11
Pond trout . . . . .	6,949	43,809	6,352	+23	+6
Eels . . . . .	3,493	39,659	5,751	-6	+8
Offal . . . . .	17,574	7,998	1,160	+2	+14
Other . . . . .	29,899	94,425	13,692	-3	+14
Total fresh products . . . . .	181,542	397,807	57,683	-9	+11
<b>Frozen Products:</b>					
Herring and sprat . . . . .	4,537	4,980	722	-28	-15
Fillets . . . . .	38,629	174,481	25,300	+10	+29
Pond trout . . . . .	3,793	26,940	3,906	+50	+32
Other . . . . .	5,323	26,375	3,824	-8	+35
Total frozen products . . . . .	52,282	232,776	33,752	+5	+28
<b>Salted Products:</b>					
Wet-salted cod . . . . .	3,604	10,268	1,489	-6	-1
Dry-salted cod . . . . .	1,638	8,071	1,170	+41	+52
Other . . . . .	964	4,487	651	+9	+40
Total salted products . . . . .	6,206	22,826	3,310	+5	+21
<b>Smoked Products:</b>					
Salmon and trout . . . . .	381	9,389	1,361	+44	+29
Other . . . . .	377	2,008	291	+3	+6
Total smoked products . . . . .	758	11,397	1,652	+20	+24
<b>Canned Products:</b>					
<b>Fish:</b>					
Sprat and herring . . . . .	3,696	13,481	1,955	-16	-11
Mackerel . . . . .	553	2,334	339	+21	+15
Other . . . . .	1,444	6,293	912	+15	+18
Total canned fish . . . . .	5,693	22,108	3,206	-7	-2
<b>Shellfish:</b>					
Shrimp . . . . .	896	10,456	1,516	+55	-54
Mussels . . . . .	923	4,113	596	+58	+61
Other . . . . .	9	116	17	-50	-66
Total canned shellfish . . . . .	1,828	14,685	2,129	-55	+52
<b>Semipreserved Products:</b>					
<b>Fish:</b>					
Caviar . . . . .	526	7,184	1,042	+58	+57
Sølaks <sup>2/</sup> . . . . .	171	1,614	234	+61	+47
Herring . . . . .	670	1,964	285	+83	+92
Sprat, spiced . . . . .	69	174	25	-80	-73
Other . . . . .	534	3,238	469	+38	+50
Total semipreserved fish . . . . .	1,970	14,174	2,055	+29	+49
<b>Shellfish:</b>					
Shrimp . . . . .	205	4,498	652	+27	+49
Mussels . . . . .	769	3,154	458	+10	+14
Other . . . . .	2	30	4	-30	-52
Total semipreserved shellfish . . . . .	976	7,682	1,114	+13	+31
<b>Industrial Products:</b>					
Herring meal . . . . .	64,380	84,784	12,294	+14	+37
Other fish meal . . . . .	4,735	5,683	824	-4	+22
Fish solubles . . . . .	24,090	12,917	1,873	+39	+47
Fish ensilage . . . . .	91	55	8	-54	-38
Trout food <sup>3/</sup> . . . . .	341	566	82	+349	+229
Fish oil . . . . .	51,791	70,876	10,277	+71	+104
Total industrial products . . . . .	145,428	174,881	25,358	+33	+59
Grand total . . . . .	396,683	898,336	130,259	+6	+24

<sup>1/</sup>Includes direct shipments from Greenland.

<sup>2/</sup>Coalfish or saithe (colored to simulate salmon).

<sup>3/</sup>Includes small quantity of animal food.

Note: Export data include direct landings by Danish vessels in foreign ports, which in 1965 included 2,884 tons delivered to the United Kingdom, 482 tons to Norway, 303 tons to Sweden, and 29 tons to the Netherlands.

Source: Danish Ministry of Fisheries.

Denmark (Contd.):

**Exports:** For the year 1965, Danish fishery products were again exported in record amounts with a 6-percent increase in quantity and a 24-percent increase in value (table 4.) The amount of fresh fish exported declined 9 percent mainly due to the continued exportation of less herring in the round and more as fillets. The value of frozen fillet exports increased 29 percent on a 10-percent gain in quantity, as increased demand resulted in higher prices for cod, plaice, and herring fillets. More smoked salmon, caviar, sølaks (salmon substitute), shrimp, mussels, and other higher-priced fishery products were exported--a reflection of rising European purchasing power. The average prices received for exports of fish meal, solubles, and oil were up 21 percent, 6 percent, and 19 percent, respectively, as world market prices for industrial products increased in 1965.

The European Common Market once again was the best market for Danish fishery products, accounting for 44 percent of the value of the 1965 exports (table 5). Denmark's

Table 5 - Value of Danish Fishery Exports<sup>1/</sup> by Areas and Major Countries, 1965

Destination	1965		Change from 1964 Percent
	Kr. 1,000	US\$ 1,000	
<b>Areas:</b>			
Common Market (EEC) . . . . .	362,000	52,490	+18
European Free Trade Assn. (EFTA)	325,000	47,125	+21
East Bloc . . . . .	34,000	4,930	- 3
Other countries . . . . .	106,000	15,370	+29
<b>Total<sup>1/</sup></b>	<b>827,000</b>	<b>119,915</b>	<b>+20</b>
<b>Leading Countries:</b>			
West Germany . . . . .	244,000	35,380	+24
United Kingdom . . . . .	138,000	20,010	+ 5
Sweden . . . . .	110,000	15,950	+39
United States . . . . .	60,000	8,700	+82
Switzerland . . . . .	51,000	7,395	+28
Italy . . . . .	47,000	6,815	+ 7
Belgium . . . . .	26,000	3,770	+24
Netherlands . . . . .	23,000	3,335	+15
France . . . . .	22,000	3,190	-12
Czechoslovakia . . . . .	12,000	1,740	+71

<sup>1/</sup>Fish oil exports not included; as a result, total does not compare with that in table 4.

Source: Danish Ministry of Fisheries.

EFTA partners accounted for 39 percent. Exports to the East Bloc countries dropped slightly. By country, West Germany was the leading buyer, followed by the United Kingdom, Sweden, and the United States. The major share of exports to West Germany consisted of fresh herring, herring fillets, and eel. Flatfish, cod, cod-like fish, and pond trout comprised the bulk of the exports to the United Kingdom. Sweden took a wide variety of

products. Herring and fish meal accounted for most of the sales to the East Bloc.



Fig. 1 - Fishing cutters at the dock in Kalundborg, one of the smaller Danish fishing ports.



Fig. 2 - Gammel Strand fish market in Copenhagen. Live eel and plaice are sold in this market. Copenhagen is a market for fishery products rather than an important fishing port.



Fig. 3 - Plaice hung out for drying--dried plaice is a specialty known all over Jutland.

## Denmark (Contd.):

Exports to the United States: Danish exports to the United States in 1965 rose 80 percent in quantity and 82 percent in value (table 6). The sharp rise was due mainly to larger shipments of cod fillets and blocks. Improved landings of cod in Greenland and higher prices offered by U. S. importers contributed to the increase.

Export Outlook for 1966: The quantity of fish exported in 1966 by Denmark is expected to be about the same as in 1965 though the value of the exports may be slightly more. This forecast is based on the lack of any significant improvement in the catching power of the fleet, the continuing difficulty in recruiting fishermen, and the apparent shortage of plaice. Food fish prices should continue at current relatively high levels and possibly increase if prices of competing foods do not decline. On the other hand, in early 1966, world prices for fish meal and solubles showed some decline from the high levels of 1965.

The value of trout exports should be greater, perhaps even for a somewhat lower quantity. Trout prices have recovered from the low 1965 levels.

No Common Market action is expected this year which would adversely affect the important sale of herring products to West Germany. Prices for specialty fish products such as caviar, smoked salmon, eel, and mussels may rise during 1966 due to the high level of consumer purchasing power in Europe.

Danish processors and exporters are continuing to press for liberalization of fresh fish landings by foreign fishermen and other imports to augment supplies of domestic raw fish for processing. In March 1966, Denmark allowed the importation, thawing, boning, re-freezing and exportation to West Germany of 100 tons of cod blocks originally frozen aboard West German factory trawlers.

Imports: Danish imports of fishery products in 1965 rose 15 percent in quantity and

Table 6 - Danish Fishery Exports to the United States<sup>1/</sup>, 1965

Product	Exports in 1965			Change from 1964	
	Quantity Metric Tons	Value		Quantity   Value .. (Percent) ..	
		Kr. 1,000	US \$1,000		
<b>Fresh &amp; Frozen Products:</b>					
Pond trout .....	699	4,115	597	+ 33	+ 6
Salmon <sup>2/</sup> .....	50	491	71	2/	2/
Trout eggs .....	1	89	13	+ 0	+ 19
Flatfish .....	177	1,858	270	- 25	- 12
<b>Filletts:</b>					
Flatfish .....	274	871	126	+ 23	+ 11
Cod .....	10,536	39,331	5,702	+115	+156
Other .....	690	2,474	359	+ 51	+ 54
Norway lobster .....	167	4,604	668	- 16	+ 17
Other .....	3/	2	4/	-	-
Total fresh and frozen .....	12,594	53,835	7,806	+ 93	+ 94
<b>Salted Products:</b>					
Wet-salted cod .....	7	30	4	- 84	- 74
Salted herring .....	44	148	22	+ 29	+ 90
Total salted .....	51	178	26	- 35	- 15
Smoked Products .....	2	50	7	- 11	+ 9
<b>Canned Products:</b>					
Sprat & herring .....	507	2,708	393	- 11	- 3
Mackerel .....	26	181	26	+ 37	+ 65
Other fish .....	10	78	11	- 39	- 20
Shrimp .....	122	1,376	200	+ 4	+ 16
Mussels .....	152	706	102	+158	+ 92
Total canned .....	817	5,049	732	+ 5	+ 11
<b>Semipreserved Products:</b>					
Caviar .....	25	302	44	+ 92	+ 83
Other fish .....	1	8	1	+ 0	- 37
Shrimp .....	7	111	16	+600	+484
Total semipreserved .....	33	421	61	+120	+116
Fish Solubles .....	600	642	93	+ 50	+ 68
Grand total .....	14,097	60,175	8,725	+ 80	+ 82

<sup>1/</sup>Does not include exports to Puerto Rico.

<sup>2/</sup>Greenland salmon; data for 1964 not available.

<sup>3/</sup>Less than one metric ton.

<sup>4/</sup>Less than \$500.

Note: Exports shown include direct shipments from Greenland in 1965 as follows: cod fillets 4,986 tons, flatfish fillets 257 tons, other fish fillets 681 tons, and semipreserved shrimp 4 tons.

Source: Danish Ministry of Fisheries.



Denmark (Contd.):

percent in value (tables 7 and 8). The principal imports were fresh herring landed directly in Danish ports by Swedish fishermen, fish oils, fish meal, fresh and frozen fish, spiced and salted herring and herring-bone fish, and fish offal.

Fresh herring is imported mainly for filleting and re-export, principally to West Germany. Imports of fish meal and fish oil (principally herring oil from Iceland and anchoveta oil from Peru) are used domestically and also re-exported. Large quantities of salted herring and herring-like fish (sprat and anchovy) are imported for further proc-

Table 7 - Danish Imports of Fishery Products, 1962-1965

Products	1965			1964			1963			1962		
	Quantity Metric Tons	Value		Quantity Metric Tons	Value		Quantity Metric Tons	Value		Quantity Metric Tons	Value	
		Kr. 1,000	US \$1,000		Kr. 1,000	US \$1,000		Kr. 1,000	US \$1,000		Kr. 1,000	US \$1,000
<b>Fresh or frozen:</b>												
Herring	166,676	163,450	23,700	155,994	129,189	18,732	132,431	97,855	14,189	103,720	102,548	14,869
Shellfish	268	3,386	491	450	3,591	521	574	3,584	520	398	2,857	414
<b>Smoked or smoked:</b>												
Spiced & salted herring, etc. 1/	4,103	9,166	1,329	4,265	8,397	1,218	4,429	8,633	1,252	3,735	7,196	1,044
Met- and dry-salted cod	2,180	7,713	1,119	1,170	4,614	669	3,400	3,400	493	499	1,212	176
Other 2/	473	4,277	620	223	971	141	113	318	46	126	337	49
<b>Canned and semipreserved:</b>												
Herring	1,269	7,590	1,101	1,306	8,310	1,205	1,194	5,582	809	1,101	5,435	788
Shellfish	715	9,610	1,393	731	9,518	1,380	383	6,127	888	285	4,075	591
<b>Industrial products:</b>												
Fish meal	20,835	28,220	4,092	18,626	20,835	3,021	12,309	11,914	1,728	15,520	16,616	2,410
Herring oil	28,885	41,722	6,050	11,521	15,304	2,219	2,545	2,399	348	11,861	1,505	218
Medicinal oil	2,281	4,271	619	2,570	4,724	685	2,557	3,837	556	2,439	3,218	467
Other marine oil	13,890	20,260	2,938	14,089	18,072	2,620	19,032	12,211	1,771	17,738	14,215	2,061
Fish offal	41,735	17,292	2,507	23,920	9,648	1,399	16,448	6,349	921	11,476	4,083	592
Other fishery products	34,739	16,741	2,427	40,902	16,661	2,416	9,349	4,755	689	4,656	3,578	519
<b>Total imports</b>	<b>318,049</b>	<b>333,698</b>	<b>48,386</b>	<b>275,767</b>	<b>249,834</b>	<b>36,226</b>	<b>202,576</b>	<b>166,964</b>	<b>24,210</b>	<b>163,554</b>	<b>166,880</b>	<b>24,198</b>

Herring, sprat, & anchovy--does not include items classified as semipreserved.  
 1/ Mainly smoked but also other types of preparation; mostly fish roe.  
 2/ Includes 13,033 metric tons of refined fish oil from Peru valued at Kr. 18.7 million (\$2.7 million).  
 Source: Danish Statistical Department.

Table 8 - Danish Imports of Fishery Products, by Commodity and Country, 1965

Product	Iceland	Norway	Sweden	Nether-lands	United Kingdom	West Germany	United States	Other Countries	Total 1965			
									Quantity Metric Tons	Kr. 1,000	US \$1,000	
												..... (Metric Tons) .....
<b>Fresh or frozen:</b>												
Herring	1,125	2,015	159,332	1,724	342	977	38	1,123	166,676	163,450	23,700	
Shellfish	1	118	75	29	3	2	14	26	268	3,386	491	
<b>Smoked or smoked:</b>												
Spiced & salted herring, etc. 1/	2,771	461	495	321	35	-	-	20	4,103	9,166	1,329	
Met- and dry-salted cod	276	1,306	-	2	-	-	-	596	2,180	7,713	1,119	
Other 2/	371	57	6	-	2	-	-	37	473	4,277	620	
<b>Canned and semipreserved:</b>												
Herring	4	97	84	1	12	2	63	1,006	1,269	7,590	1,101	
Shellfish	37	120	8	-	-	-	310	240	715	9,610	1,393	
<b>Industrial products:</b>												
Fish meal	11,102	9,732	1	-	-	-	-	-	20,835	28,220	4,092	
Herring oil	24,996	51	-	-	-	3,838	-	-	28,885	41,722	6,050	
Medicinal oil	681	1,179	-	-	53	346	-	22	2,281	4,271	619	
Other marine oil	83	583	19	-	2	19	-	3/13,184	13,890	20,260	2,938	
Fish offal	497	710	473	5,860	455	32,537	-	1,203	41,735	17,292	2,507	
Other fishery products	-	1,267	4/26,202	2,166	712	3,819	181	392	34,739	16,741	2,427	
<b>Total 1965</b>	<b>41,944</b>	<b>17,696</b>	<b>186,695</b>	<b>10,103</b>	<b>1,616</b>	<b>41,540</b>	<b>606</b>	<b>17,849</b>	<b>318,049</b>	<b>333,698</b>	<b>48,386</b>	
<b>Total 1964<sup>5/</sup></b>	<b>28,115</b>	<b>11,651</b>	<b>184,211</b>	<b>3,032</b>	<b>1,137</b>	<b>28,753</b>	<b>2,519</b>	<b>16,360</b>	<b>275,778</b>	<b>249,419</b>	<b>36,166</b>	

Herring, sprat, and anchovy--does not include items classified as semipreserved.  
 1/ Mainly smoked but also other types of preparation; mostly fish roe.  
 2/ Includes 13,033 metric tons of refined fish oil from Peru valued at Kr. 18.7 million (\$2.7 million).  
 3/ Primarily fish for reduction.  
 4/ Slight discrepancy from 1964 data shown in Table 7.  
 5/ Products originating in Greenland or the Faroe Islands are not included.  
 Source: Danish Statistical Department.

## Denmark (Contd.):

essing into semipreserved specialties consumed in Denmark. Fish offal, primarily selected cod waste, is imported by Denmark's important mink-raising industry.

Imports from the United States: The quantity and value of fishery products imported from the United States in 1965 fell 82 percent and 31 percent, respectively (table 9). In 1965, there were no imports of menhaden oil, which in previous years accounted for the major share of all imports from the United States.

King crab, shrimp, and salmon accounted for most of the imports from the United States



Fig. 4 - Tuna fishery in Oresund. Bluefin tuna landings in Denmark vary considerably from year to year. Most of the catch is made in the North Sea.

in 1965. All the king crab and much of the shrimp and salmon were of Alaskan origin. Among other U. S. fishery products from which a market might be developed in Denmark (and other European countries) are Maine lobsters, eel, scallops, and oysters.

Import Outlook for 1966: The Danish Ministry of Commerce issued a decree on December 21, 1965, liberalizing the importation



Fig. 5 - Danish fisherman standing on a typical live box or float in which live plaice are held for marketing in Fredrikshavn.

Table 9 - Danish Imports of Fishery Products From the United States, 1964-1965

Products	1965			1964		
	Quantity Metric Tons	Value		Quantity Metric Tons	Value	
		Kr. 1,000	US\$1,000		Kr. 1,000	US\$1,000
<u>Fresh or frozen:</u>						
Salmon, fresh or chilled . . . . .	14.9	130.3	18.9	0.5	9.1	1.3
Salmon, frozen . . . . .	23.3	245.7	35.6	38.6	415.7	60.3
Shrimp . . . . .	14.2	215.5	31.2	0.1	2.4	0.3
Other fresh and frozen . . . . .	0.1	2.6	0.4	0.6	10.2	1.5
<u>Salted or smoked:</u>	-	-	-	0.8	10.2	1.5
<u>Canned:</u>						
Salmon . . . . .	57.5	430.8	62.5	27.7	172.5	25.0
Tuna . . . . .	2.6	17.4	2.5	3.1	20.5	3.0
Shrimp . . . . .	157.8	1,398.3	202.8	91.6	818.6	118.7
Crab . . . . .	138.2	2,189.0	317.4	159.4	2,412.3	349.8
Other canned fishery products . . . . .	2.6	34.7	5.0	10.1	112.4	16.3
<u>Semipreserved:</u>						
Fish . . . . .	0.6	6.1	0.9	1.0	10.6	1.5
Shellfish . . . . .	13.3	214.0	31.0	12.6	204.2	29.6
<u>Industrial:</u>						
Fish oil . . . . .	-	-	-	2,072.4	2,871.2	416.3
Fish meal . . . . .	0.3	1.0	0.1	-	-	-
Other . . . . .	0.1	10.7	1.5	0.3	5.0	0.7
<b>Total . . . . .</b>	<b>425.5</b>	<b>4,896.1</b>	<b>709.8</b>	<b>2,418.8</b>	<b>7,074.9</b>	<b>1,025.8</b>

Note: Does not include agar-agar or seaweed.

Source: Danish Statistical Department.

Denmark (Contd.):

Most of the remaining fresh and frozen fish and shellfish still restricted. A rise in the amount of food fish imported should result. Landings of fresh herring in Danish ports by Swedish fishermen, which account for a major share of the imports, were down in the first months of 1966 as a result of bad weather. The shortage of plaice landed by Danish vessels continues, more imports of plaice from the Netherlands will be needed to help processors meet export orders. If supplies of raw fish, especially cod, shrimp, and flatfish, landed by Danish fishermen are inadequate to meet processors needs, direct landings by foreign fishermen (as presently permitted in the case of Swedish herring) may be approved by the Danish Fisheries Ministry which has been favoring a more liberal attitude to such imports. (Regional Fisheries Attache for Europe, United States Embassy, Copenhagen, February 23, March 24, and April 6, 1966.)

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FISH MEAL, OIL, AND SOLUBLES  
PRODUCTION AND EXPORTS,  
FEBRUARY 1966:

In February 1966, Denmark produced 6,902 metric tons of fish meal, 8,826 tons of fish oil,

Country of Destination	Fish Meal <sup>1</sup>	Solubles
. . . (Metric Tons) . . .		
Netherlands . . . . .	-	85
Denmark . . . . .	20	-
United Kingdom . . . . .	1,445	-
Germany . . . . .	140	1,783
France . . . . .	40	-
Norway . . . . .	300	-
Sweden . . . . .	351	-
Italy . . . . .	800	-
Czechoslovakia . . . . .	300	-
Total . . . . .	3,396	1,868

<sup>1</sup> Mostly herring meal.  
 Danish exports of fish oil in January 1966 totaled 5,317 metric tons; fish oil export data for February 1966 not available.

257 tons of fish solubles. (Regional Fisheries Attache, U. S. Embassy, Copenhagen, April 4, 1966.)

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SMALL FISH MEAL PLANT  
FOR RESEARCH USE DEVELOPED:

A small fish-reduction plant--designed and built for research use with a capacity of 100 pounds of chopped fish per hour--is being marketed by a Danish research company.

The plant combines cooker, press, and dryer in one unit mounted on a wheeled frame for mobility. According to the company, the fish are processed exactly as in a large commercial plant so that realistic experimentation in cooking, pressing, and drying may be carried out on a small scale.

Main specifications of the plant are: cooker--indirect steam in jacket and rotor as well as direct steam, variable-speed drive; press--single screw, 1 to 4 ratio, variable-speed drive; and dryer--steam jacketed with steam-heated rotor, variable-speed filling.

The dimensions are 75 inches long by 31½ inches wide by 63 inches high. The price of the unit is US\$12,000 f.o.b. Esbjerg, Denmark. (Regional Fisheries Attache, U. S. Embassy, Copenhagen, March 14, 1966.)

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SEALSKINS FROM  
GREENLAND AUCTIONED:

The Royal Greenland Trade Department held another of its regular auctions for Greenland sealskins on February 23, 1966, in Copenhagen, Denmark. Demand was good and prices were up.

The entire offering of about 28,100 sealskins (mostly ringed skins) was sold for a total of about US\$488,650. Prices were considerably above the prices for skins of comparable quality sold at the September 1965 auction. Ringed sealskin prices increased about 20 percent, harp 3 percent, bladder-nosed 10 percent, and saddle 18 percent. The best quality skins increased the most with some poorer quality skins declining in price. A few of the latter sold for only 30 cents a skin while numerous top-quality lots brought \$53.60 a skin. No sealskins from Alaska or Canada were offered.

All important foreign buyers were present. Representatives of large West German companies bought most of the coat skins, but the auction was well supported also by buyers from the French shoe manufacturing industry.

The next sale of Greenland sealskins by the Royal Greenland Trade Department is expected to be held September 14, 1966, preceded by a week of inspection of offerings.

January 1966 Greenland seal catches landed in Umanak were reported to be the best in

Denmark (Contd.):

25 years and said to be a sign that it is becoming colder in Greenland. (Regional Fisheries Attache for Europe, United States Embassy, Copenhagen, March 3, 1966.)

Note: See Commercial Fisheries Review, December 1965 p. 53.



## Ecuador

### LAW ON FOREIGN FISH LANDINGS:

According to the legal advisor of the Ecuadoran Navy, the matter of landing fish from foreign vessels falls within Article 874 of the Ecuadoran Commercial Code which considers the landing of merchandise in general. Such a landing is permitted only when it is judged to be a "forced landing" for the following causes: (a) If the owners of the merchandise require that it be landed in order to prevent its damage or spoilage; (b) if the landing is absolutely necessary in order to repair the vessel; and (c) if it is recognized that the cargo has been damaged.

In addition, the landing of fish by Ecuadoran vessels in any foreign port must be made through previous conformance with the Ecuadoran export law. (United States Embassy, Quito, April 11, 1966.)



## East Germany

### FISHING VESSELS SOLD TO DANISH AND SWEDISH FIRMS:

An East German shipyard at Rosslau on the Elbe River has contracted to deliver 8 small fishing vessels to Swedish firms during 1966, according to the Swedish press. The East German shipbuilder is also reported to have contracted to deliver 20 to 25 small stern trawlers to Danish firms. (Various sources.)



## Greece

### FISHERY LANDINGS AND TRENDS, 1965:

Greek fishery landings in 1965 were estimated at about 106,000 metric tons with an ex-vessel value of US\$41.6 million. That was

a gain of 1.4 percent in quantity and 19.6 percent in value over the previous year.

Landings from the Atlantic in 1965 totaled 27,073 tons (up 29 percent) with an ex-vessel value of \$10.5 million. The increase reflected the buildup of the Greek freezer-trawler fleet from 27 to 32 vessels during 1965.

The 1965 landings also included a Greek coastal catch of about 67,000 tons (same as in 1964), a Mediterranean catch of 4,000 tons (down 88 percent), and an inland catch of 8,500 tons (down 12 percent). United States Embassy, Athens, March 8, 1966.)

\* \* \* \* \*

### FROZEN FISH IMPORTS BANNED:

The issuance of import permits for frozen fish was suspended by the Greek Ministry of Commerce as of March 17, 1966, until further notice. The measure is intended to allow the sale of large stocks of frozen fish, estimated at 12,000 metric tons, brought in by Greek deep-sea trawlers. The measure primarily affects Japanese fish imports into Greece. Sale prices for the various kinds of fish were pegged at the maximum prices on March 4, 1966. (United States Embassy, Athens, March 25, 1966.)



## Guinea

### FISHERY AID BY SOVIETS:

Soviet aid to Guinean fisheries was promised in an Agreement on Cooperation in Marine Fisheries, signed in Conakry in February 1966. Under the Agreement, the U.S.S.R. will: (1) Supply Guinea 10 fishing vessels and provide technical experts for 3 years to train Guineans how to use and repair them; (2) Accept 60 Guinean students and apprentice fishermen to train in Soviet fishery schools and universities. (Tass, February 2, 1966.)



## Iceland

### EXPORT STOCKS OF PRINCIPAL FISHERY PRODUCTS, FEBRUARY 28, 1966:

As of February 28, 1966, Iceland's stocks of frozen groundfish (fillets) for export to the United States totaled 1,662 metric tons, a gain

Iceland (Contd.):

Item	Quantity		Value	
	Metric Tons	Million Kr.	US\$ 1,000	
<b>Fish, frozen:</b>				
<b>export to:</b>				
U.S. ....	1,662	43.2	1,003.2	
Other countries ....	2,518	46.7	1,084.5	
Iceland ....	500	16.5	383.2	
<b>total, frozen</b> ....	2,030	12.8	297.2	
<b>Industrial products:</b>				
<b>meal:</b>				
Herring ....	16,418	137.9	3,202.5	
Other fish ....	7,802	56.3	1,307.5	
Herring oil ....	17,665	143.1	3,323.3	

<sup>1/</sup>Includes only stocks intended for export.  
<sup>2/</sup>1 Icelandic kronur 43.06 equal US\$1.00.

107 tons from the stocks on hand January 1966. (United States Embassy, Reykjavik, April 5, 1966.)

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EXPORTS OF FISHERY PRODUCTS, 1964-65:

During 1965, there was a considerable increase in Iceland's exports of herring oil, herring meal, and iced fish (including herring) compared with 1964, according to the Ice-

Product	1965			1964		
	Qty.	Value f.o.b.		Qty.	Value f.o.b.	
	Metric Tons	1,000 Kr.	US\$ 1,000	Metric Tons	1,000 Kr.	US\$ 1,000
Fish, dried	2,554	51,888	1,205	1,138	28,154	653
Fish, uncured	25,980	439,941	10,217	23,955	371,321	8,615
Fish fillets	1,882	33,199	771	1,428	21,839	507
Fish, salted	1,486	20,109	467	1,173	14,765	343
Fish	12,243	375,944	8,731	11,580	337,403	7,828
Fish on ice	11,553	8,014	186	392	1,104	26
Fish on ice	56,529	187,899	4,364	34,512	215,039	4,989
Fish, frozen	25,621	164,033	3,809	21,991	129,918	3,014
Frozen fish, whole	7,554	96,649	2,244	4,814	53,050	1,231
Frozen fish fillets	49,125	1,148,033	26,661	54,095	1,096,264	25,433
Crab & lobster, froz.	1,002	129,810	3,015	1,171	109,926	2,550
Frozen	2,255	34,602	804	1,703	27,900	647
Iced fish	682	32,637	758	381	20,067	466
Cod liver oil	6,399	68,248	1,585	9,815	91,717	2,128
Fish roes, salted	867	45,814	1,064	419	10,609	246
Fish roes for food,						
Iced	2,033	33,530	779	2,971	43,939	1,019
For bait, salted	1,588	14,627	340	3,049	25,280	586
Fish, salted	39,027	491,054	11,404	46,223	517,085	11,996
Fish oil	82,172	677,627	15,737	52,403	417,619	9,689
Herring oil				28	188	4
Fish oil	3,066	28,184	654	4,499	37,582	872
Fish meal	19,532	133,432	3,099	26,738	166,368	3,860
Herring meal	124,371	943,362	21,908	96,379	594,803	13,799
Herring meal	3,258	24,201	562	2,265	13,239	307
Meals of fish, froz.	9,148	34,046	791	7,165	22,967	533
Herring meal	607	4,311	100	575	3,827	89
Crab & shrimp meal	50	231	5	156	686	16
Fish meal	1,363	8,593	200	1,387	7,698	179
Fish meal, frozen	2,660	23,878	554	2,277	18,167	421

<sup>1/</sup>Values converted at rate of 1 krona equals 2.32 U. S. cents.

Icelandic Statistical Bulletin, February 1966. Exports of frozen fish fillets, cod-liver oil, and salted herring showed a decline in 1965.

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FISHERY LANDINGS BY PRINCIPAL SPECIES, JANUARY-OCTOBER 1965:

Species	Jan. -Oct.	
	1965	1964
	... (Metric Tons) ...	
Cod	229,799	270,469
Haddock	46,290	48,992
Saithe	23,311	20,216
Ling	4,539	4,302
Wolffish (catfish)	7,482	8,159
Cusk	1,673	2,962
Ocean perch	27,677	25,174
Halibut	850	1,019
Herring	558,392	501,350
Capelin	49,612	8,640
Shrimp	632	348
Other	15,168	12,453
<b>Total</b>	<b>965,425</b>	<b>904,084</b>

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

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UTILIZATION OF FISHERY LANDINGS, JANUARY-OCTOBER 1965:

How Utilized	Jan. -Oct.	
	1965	1964
	... (Metric Tons) ...	
<b>Herring and Capelin<sup>1/</sup> for:</b>		
Oil and meal	531,338	436,003
Freezing	18,836	20,570
Salting	57,328	53,199
<b>Groundfish<sup>2/</sup> for:</b>		
Fresh on ice	29,272	31,671
Freezing and filleting	172,417	173,935
Salting	84,325	87,768
Stockfish (dried unsalted)	52,188	82,067
Canning	533	242
Oil and meal	2,760	3,455
<b>Crustaceans for:</b>		
Freezing	3,547	2,816
Canning	204	159
Home consumption	12,677	12,199
<b>Total production</b>	<b>965,425</b>	<b>904,084</b>

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

Source: Icelandic Statistical Bulletin, February 1966.

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TRADE AGREEMENTS WITH EAST EUROPEAN COMMUNIST COUNTRIES:

U.S.S.R.: An Icelandic-Soviet trade agreement for 1966-1968 was signed in Moscow in mid-November 1965. The new agreement is of similar scope to previous Soviet-Icelandic trade protocols. Under the 1966-1968 agreement, the Soviet Union will purchase from Iceland annual quotas of 12,000-15,000 metric tons of frozen fish fillets, 5,000 tons of bulk frozen fish, 5,000 tons of frozen herring, 10,000-15,000 tons of salted herring, canned goods to a value of between 24 million and 33½ million kronur (US\$557,000-778,000), and various nonfish-

**Iceland (Contd.):**

ery items. In return Iceland will buy gasoline, fuel oil, machinery, vehicles, timber, iron, and steel.

**Poland:** A new trade agreement between Poland and Iceland was signed in November 1965 for 1 year providing for Polish exports of iron and steel (including slipways), timber, coal, textiles, and chemicals in return for Icelandic exports of salted herring, frozen fish, fish meal and oil, sheepskins, and other goods.

**Czechoslovakia:** After an official visit to Czechoslovakia in late 1965, the Icelandic Minister of Commerce expressed the hope that the next trade agreement between the two countries would be on a freer basis. The Director of the Czech trading organization Centrotex said during an October 1965 visit to Iceland that he hoped that trade with Iceland might be increased and that it would be possible to hold a Czech trade exhibition in Reykjavik in 1966. No doubt included in such an agreement would be exports of fishery products by Iceland. (Icelandic Review, vol. 3, no. 4, 1965.)

**India****EXPANSION OF SHRIMP EXPORTS TO THE UNITED STATES:**

India's shrimp exports to the United States may be expanded by a new contract with a New York City firm. Plans of that U. S. firm to contract with Kerala State, India, for the delivery of one million pounds of fishery products annually were announced in February 1966. A representative of the U. S. firm mentioned the need to modernize fish-processing methods in India to increase export earnings. The same theme was recently stated by an Indian shrimp packer in the article "Reorientation of Packaging Pattern for the U. S. Market," which appeared in the first issue (January 1966) of the Seafood Trade Journal, Cochin, India.

\* \* \* \* \*

**FISHING CHART OF INDIA'S WEST COAST TO BE PUBLISHED BY NORWAY:**

A fishing chart of the west coast off India is to be published by the Norwegian Agency for International Development for the use of India's growing fishing fleet.

The chart is being prepared by a Norwegian fisheries expert who spent four years with the Indo-Norwegian Project to develop the fishing industry along the south coast off India.

Of the 16 grounds to be shown on the chart several were previously unknown. In particular, a rich belt of lobsters and shrimp at a depth of 1,800 feet will be indicated. The Norwegian Agency for International Development will distribute the chart free of charge to fisheries departments in Indian States who, in turn, will make them available to Indian fishing skippers.

The Indo-Norwegian Project, started in 1953, has set up six fishing stations in the States of Kerala, Mysore, and Madras with boat-building yards, ice factories, freezing plants, and insulated transport vans. (Fishing News International, February 1966.)

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**FRESH-WATER FISHERIES DEVELOPMENT:**

Under a special Indian Government development program, 43 fisheries projects, covering 9 states and costing US\$4.9 million have been undertaken. The program is designed to increase production through surveys, introduction of fish-culture techniques, investigation of fish breeding, and development of reservoir fisheries. (Editor's Note: India's fresh-water fisheries catch amounted to 459,900 metric tons in 1964, according to the Food and Agriculture Organization.)

On March 17, 1966, the Government of Uttar Pradesh, an inland state in northern India, announced the establishment of a state-owned Fisheries Corporation with an authorized capital of \$1.2 million to develop the State's inland fisheries resources. (United States Embassy, New Delhi, April 7, 1966.)

**Ireland****FISHERIES EXPANSION IN 1965:**

Irish fish consumption increased 11 percent in 1964 and 13 percent in 1965. Intensified promotion and better distribution were the main reasons for the gain. In early 1966, Dublin fish merchants reported that the relaxation of Catholic Lenten fast had caused no loss of business.

**Ireland (Contd.):**

Fish landings of finfish in 1965 amounted to 1.0 million pounds with an ex-vessel value of £1.3 million (US\$3.6 million) as compared with 54.6 million pounds valued at £1.1 million (\$3.0 million) in 1964. Irish shellfish landings were valued at slightly over £400,000 (\$1 million) in both 1964 and 1965.

The increased landings in 1965 can be attributed to the efforts of the Irish Sea Fishers Board to encourage deep-sea fishing, mainly through financial assistance to fishermen purchasing vessels. The demand for fishing craft in Ireland is said to be unprecedented and some 100 applications for vessels were before the Board for consideration in May 1966. (United States Embassy, Dublin, February 25, 1966.)



**Ivory Coast**

**DEVELOPMENTS IN TUNA FISHERIES:**

There are two recent developments of interest in the tuna fisheries of the Ivory Coast.

Although the invitation to bid for the proposed 3,000-ton capacity freezing plant was withdrawn in the summer of 1965, a new proposal was then issued for a freezer of the same capacity plus a tuna-canning plant having a capacity of 50 metric tons of raw fish per day, both plants being incorporated in one project. The new bids had been received (2 from U. S. companies and 2 from French firms), and announcement of the bid award was expected. It is expected that this cannery is to be constructed to the most modern and efficient plans, and that the canned tuna thus produced will be competitive on the world market both as to quality and price.

The Abidjan laboratory of ORSTOM (Office de la Recherche Scientifique et Technique Outre-Mer) is acting as the center for a program of tuna research (for the present directed mostly to fishing effort and catch statistics) participated in by the ORSTOM laboratories in Dakar and Pointe Noire. While the Pointe Noire program is now in its third year, Dakar commenced its work in November 1965 and Abidjan started its program on January 1, 1966. Future work in tuna research will depend largely on ORSTOM activities during the next several years. (Fish-

eries Attache, United States Embassy, Abidjan, February 3, 1966.)



**Japan**

**TUNA PRICES DECLINE:**

Beginning in late March 1966, frozen tuna export and ex-vessel prices began to decline. The f.o.b. price of frozen round albacore, which reached a high of about US\$535 per short ton around March 24, had subsequently declined by as much as \$20 a ton for vessel-frozen products. The ex-vessel price dropped from 200 yen (\$504 a short ton) to about 185 yen a kilogram (\$467 a short ton). Buy offers (albacore, round, f.o.b. \$525-530; yellowfin, gilled & gutted, f.o.b. \$510-515) from U. S. packers located at Puerto Rico slackened, and prices declined by \$5-10 a ton.

The quality of skipjack caught off Japan was found to be too soft to make a first-rate pack and U. S. packers stopped buying that species after having contracted to purchase about 4,500 short tons. This development, in turn, caused the ex-vessel price of skipjack at Makurazaki, southern Kyushu, to drop to 85 yen a kilogram (\$214 a short ton), from 120 yen a kilogram (US\$302 a short ton). At Yaizu in late March, the ex-vessel price declined by 15-18 yen a kilogram (\$38-45 a short ton), to 103-105 yen a kilogram (US\$260-264 a short ton). (Suisan Tsushin, March 29 and April 1, 1966.)

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**EXPORT QUOTAS FOR FROZEN TUNA, 1966/67:**

The Board of Directors of the Japan Frozen Tuna Exporters Association at a meeting on March 4, 1966, adopted the quotas on exports of frozen tuna for the fiscal year 1966 (April 1, 1966, through March 31, 1967).

1. Exports to the United States and Canada from Japan proper--110,000 short tons.
2. Exports to other countries--70,000 metric tons.
3. Tuna loins for export to the United States--9,000 short tons.
4. Exports to overseas bases--48,000 metric tons. (These "exports" are the frozen fish landed at overseas bases by the fishing or transport vessels operating in the area.

## Japan (Contd.):

The fish are subsequently "reexported" to Europe, the United States including Puerto Rico, and some may be shipped to Japan proper.)

5. Swordfish exports to the United States-- 5,500 short tons.

A general meeting of the Association was scheduled for March 17 when the export quotas were expected to be approved.

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### CANNED TUNA EXPORT PLANS OF TRADING FIRMS:

The Japan Canned Foods Exporters Association, for the purpose of developing export plans for the coming business year, conducted a survey of its 18 member firms handling canned tuna to determine the type and quantity of canned tuna in brine they hoped to purchase for export to the United States. In making the survey, the Association used two export targets, one of 2.8 million cases and the other of 2.5 million cases, and proceeded on the premise that 70 percent of the export target would be allotted to the exporting firms on the basis of merit (past performance record). The survey, the results of which are summarized in the table, indicates that buying by the trading firms would

### FROZEN TUNA EXPORTS TO U. S. AND PUERTO RICO, JANUARY 1966:

Japan's exports of frozen tuna to the United States and Puerto Rico increased in January 1966, as compared with December 1965

Species	1966 January		1965 December	
	Qty.	Value	Qty.	Value
	Short Tons	US\$ 1,000	Short Tons	US\$ 1,000
<b>Albacore:</b>				
United States . . .	2,105	815	846	349
Puerto Rico . . .	1,416	528	1,525	515
Total . . . . .	3,521	1,343	2,371	864
<b>Yellowfin:</b>				
United States . . .	2,535	993	877	325
Puerto Rico . . .	308	93	930	231
Total . . . . .	2,843	1,086	1,807	556
<b>Big-eyed:</b>				
United States . . .	60	20	-	-
Puerto Rico . . .	92	24	102	25
Total . . . . .	152	44	102	25
<b>Skipjack:</b>				
United States . . .	117	33	-	-
Puerto Rico . . .	806	132	1,181	173
Total . . . . .	923	165	1,181	173
Total United States	4,817	1,861	1,723	674
Total Puerto Rico	2,622	777	3,738	944
Grand Total . . .	7,439	2,638	5,461	1,618

Japanese Trading Firms' Canned Tuna in Brine Export Plans for 1966

Can and Case Size	Quantity Firms Hope to Export Based on Targets of				Actual 1965 Exports	
	2.8 Million Cases		2.5 Million Cases		(Utilization of Merit Quota)	
	(Merit Quota: 1.96 Million Cases)		(Merit Quota: 1.75 Million Cases)			
	Cases	%	Cases	%	Cases	%
Whitemeat & lightmeat:						
7-oz. 48's . . . . .	715,754	(36.5)	625,050	(35.7)	782,751	(36.0)
13-oz. 24's . . . . .	389,603	(19.9)	352,943	(20.1)	478,133	(22.0)
4-lb. 6's . . . . .	895,903	(43.6)	774,920	(44.2)	900,079	(41.4)
3 1/2-oz. 48's . . . . .	-	-	-	-	11,777	( 0.5)
6 1/2-oz. 48's . . . . .	-	-	-	-	1,345	( 0.1)
Total . . . . .	1,961,260	(100)	1,752,913	(100)	2,174,085	(100)

be heaviest for the 4-lb. cans (6 cans per case), as in 1965. (Kanzume Nippo, January 22, 1966.)

Note: As of late February 1966, the canned tuna exporters and packers had not yet come to terms on the drafting of a new export agreement for business year 1966. The old agreement expired November 30, 1965, so a provisional agreement was adopted. The exporters were reported holding firm for a 70-percent merit and 30-percent adjustment quota, the packers a 40-percent merit and 60-percent adjustment quota.

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Exports to the United States proper tripled in quantity and value. The quantity and value of exports to Puerto Rico dropped. (Fisheries Attache, United States Embassy, Tokyo, March 31, 1966.)

\*\*\*\*\*

### EXPORT PRICE OF CANNED TUNA IN BRINE TO UNITED STATES:

Following the trend of several months, the Tokyo Canned Tuna Sales Company announced price rises for March sales of canned tuna in brine to the United States. The price increases varied from 90 cents a case (24 13-oz. cans) for lightmeat tuna to \$1.65



Japan (Contd.):

Type of Pack	March 1966 Price	Increase over Feb. 1966	Increase over Nov. 1965
. . . . . (US\$/Case). . . . .			
<b>White meat:</b>			
13-oz. 48's	11.80	1.30	2.90
13-oz. 24's	10.95	1.25	2.75
4-lb. 6's	12.55	1.65	2.75
<b>Light meat:</b>			
13-oz. 48's	10.05	1.10	2.90
13-oz. 24's	9.50	0.90	2.85
4-lb. 6's	10.90	1.45	2.45

price (6 4-lb. cans) for whitemeat tuna. Compared with the price in November 1965, the increases amounted to \$2.65 a case for the lightmeat 13-oz. cans and \$2.75 for the whitemeat 4-lb. pack.

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**FROZEN SWORDFISH EXPORT VALIDATIONS TO U. S. AND CANADA, JANUARY 1965-JANUARY 1966:**

Japan's export validations of frozen broadswordfish (fillets, chunks, and "other" forms) to the United States and Canada in January 1966 totaled 403 short tons valued at US\$707,561. This compared with 433 tons valued at \$290,084 in January 1965 and 422 tons valued at \$300,319 in December 1965.

For the 10 months April 1965-January 1966, export validations of frozen swordfish to the U.S. and Canada totaled 3,939 tons valued at \$2,289,898. As in the previous 9 months, fillets accounted for 64 percent of the total. For the 10 months in the 1964/65 business year, frozen swordfish export validations totaled 38,863 tons, valued at \$2,196,638. (Fisheries Attache, United States Embassy, Tokyo, Mar. 31 1966.)

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**EXPORTS OF FROZEN RAINBOW TROUT, JANUARY 1966:**

Destination by Country	Quantity Short Tons	Value US\$
United States . . . . .	70	56,045
United Kingdom . . . . .	18	11,975
Canada . . . . .	5	3,753
Netherlands . . . . .	3	1,947
Australia . . . . .	8	6,000
Other . . . . .	2	1,950
<b>Total . . . . .</b>	<b>106</b>	<b>81,670</b>

Japan's exports of frozen rainbow trout in January 1966 dropped in comparison with the exports in the previous month--about 40 percent in quantity and about 40 percent in value. Exports in December 1965 amounted to 181 short tons valued at \$135,787. Substantial decreases occurred in exports to all countries. (Fisheries Attache, United States Embassy, Tokyo, March 31, 1966.)

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**EXPORTS OF MARINE PRODUCTS, NOVEMBER 1965:**

Japan's exports of marine products in November 1965 consisted principally of fresh and frozen fish valued at over US\$4 million

Product	Quantity	Value
	Metric Tons	US\$ 1,000
<b>Fresh &amp; frozen:</b>		
Tuna, skipjack . . . . .	1,032	156
Tuna, other . . . . .	5,908	1,841
Marlin . . . . .	673	556
Sea bream . . . . .	853	153
Mackerel . . . . .	139	25
Saury . . . . .	1,687	450
Salmon . . . . .	7	11
Other fish . . . . .	2,503	1,033
<b>Total fresh &amp; frozen . . . . .</b>	<b>12,802</b>	<b>4,225</b>
<b>Cured:</b>		
Cod . . . . .	5	5
Boiled and dried . . . . .	36	17
Shark fins . . . . .	95	164
Other . . . . .	26	36
<b>Total cured . . . . .</b>	<b>162</b>	<b>222</b>
<b>Shellfish, etc., fresh, frozen, dried:</b>		
Scallops . . . . .	3	22
Oysters . . . . .	19	22
Shrimp . . . . .	153	325
Squid . . . . .	694	167
Octopus (fresh) . . . . .	104	42
Whale meat . . . . .	1,516	325
Bull frog . . . . .	72	131
Other . . . . .	15	25
<b>Total shellfish, etc. . . . .</b>	<b>2,576</b>	<b>1,059</b>
<b>Canned:</b>		
Salmon . . . . .	2,227	2,989
Tuna, skipjack . . . . .	1,277	1,044
Tuna, other . . . . .	1,753	1,644
Mackerel . . . . .	2,486	919
Saury . . . . .	201	83
Sardine . . . . .	118	53
Horse mackerel . . . . .	658	253
Other fish . . . . .	1,953	1,864
Crab . . . . .	399	1,153
Shrimp . . . . .	8	56
Squid . . . . .	449	166
Other shellfish . . . . .	500	467
<b>Total canned . . . . .</b>	<b>12,029</b>	<b>10,691</b>
<b>Others:</b>		
Seaweed, Kombu . . . . .	65	36
Seaweed, laver 1/ . . . . .	212	11
Agar agar . . . . .	20	78

1/In 1,000 sheets.

## Japan (Contd.):

and canned products valued at over \$10 million. (Fisheries Attache, United States Embassy, Tokyo, March 31, 1966.)

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**JAPAN-COMMUNIST CHINA  
(PRIVATE) FISHERIES AGREEMENT:**

Japanese private fishing interests and representatives of Communist China renewed their fisheries agreement for another two years from December 23, 1965. The previous agreement was effective December 23, 1963--also for two years. The new agreement is reported to impose stronger restrictions on Japanese fishing operations in the area covered. Primary differences between the new agreement and the one signed in 1963 are: (1) Provisions to control the size of mesh in trawl nets and the catch of young fish; (2) creation of a special zone in which the number of fishing vessels which may operate is to be limited. The 1963 agreement merely called upon the Japanese "to take appropriate measures to prevent your fishing vessels from forcing Chinese fishing vessels from the said fishing ground" without imposing a specific limitation. Basic provisions of the new agreement are reported to be:

(1) Agreement to be effective for two years from December 23, 1965.

(2) Areas covered by the agreement are the high seas of the Yellow Sea and East China Sea north of 27° N. latitude and east of an approximate north-south line about 50 miles off the Chinese mainland.

(3) Establishment of 6 fishing zones and fishing seasons for each zone.

(4) Regulations governing mesh size; the taking of young fish.

(5) Regulations setting aside an area in the central Yellow Sea limiting the number of vessels which may fish there from October through February.

(6) Establishment of emergency ports of call in each country and providing for emergency assistance to fishing vessels.

(7) Both countries to conduct resource investigations and gear improvement studies and to exchange data.

(8) Both countries to settle fishery disputes and fishing violations in accordance with procedures established.

The joint communique issued by the parties claimed that the agreement made positive contributions in preserving the fish resources of the area, maintaining order in operations, and promoting friendship and cooperation between the people and the fisheries circles of the two countries, between whom diplomatic relations have not been restored. The parties expressed serious concern about and opposition to the "Japan-Republic of Korea Treaty" which "normalized" relations between Japan and South Korea. (Fisheries Attache, United States Embassy, Tokyo, April 5, 1966.)

Note: See *Commercial Fisheries Review*, January 1964, p. 61.

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**SOUTH GEORGIA ISLAND  
WHALING OPERATION TO CEASE:**

One of Japan's leading fishery firms has decided to give up whaling operations centering on use of South Georgia Island beginning with the next whaling season (autumn-spring 1966). The base has been used for three years. The firm has made its decision known to the British firm whose base it has leased. This Japanese company and two other Japanese whaling companies several years ago began



Fig. 1 - Stripping blubber from whale at Japanese land whaling station, Leith Harbour, South Georgia Island.



Fig. 2 - Portions of whale blubber awaiting processing at shore base at Leith Harbour, South Georgia Island.

pan (Contd.):

whaling in the South Atlantic, using Georgia Island as a base, for offsetting reduction of Antarctic whaling quotas.

However, all of the whaling companies had been incurring a deficit for these operations owing to the smallness of their catches and the high fees they had to pay for renting bases. This led two of the companies to suspend their whaling operations in the season which began in the fall of 1964.

The third company had continued operations under its four-year base contract ran to 1966. The company decided to end the contract, moreover, as such base whaling might adversely affect Japan's future Antarctic whale quota. (Japan Economic Journal, April 5, 1966).



**Mauritania**

**FISHERIES DEVELOPMENTS:**

"Mauritania Intends to Establish a National Fishing Industry," was the title of an article in the March 19, 1966, issue of the French-language newspaper Marches Tropicaux. Among the items covered in the article are the following:

- (1) Six 112-foot stern trawlers have been ordered, to be built in France. The vessels will be refrigerated.
- (2) The Government of Mauritania intends to enforce its 12-mile fishing limit. To be able to obtain enforcement vessels, financial assistance is expected from France.
- (3) The Government plans to enter into bilateral agreements with other countries giving those foreign nationals the right to fish in a 6- to 12-mile zone provided that some or all of the catch is processed ashore in Mauritania.
- (4) It is planned to establish a mixed private industry-government fisheries corporation in Mauritania.
- (5) Plans are being made to build, at some future time, a fish meal plant in Mauritania with an annual capacity of 50,000 metric tons of raw fish to produce about 10,000 tons of meal. (Regional Fisheries Attache, United States Embassy, Abidjan, Ivory Coast, April 1, 1966.)

See Commercial Fisheries Review, May 1966 p. 59.



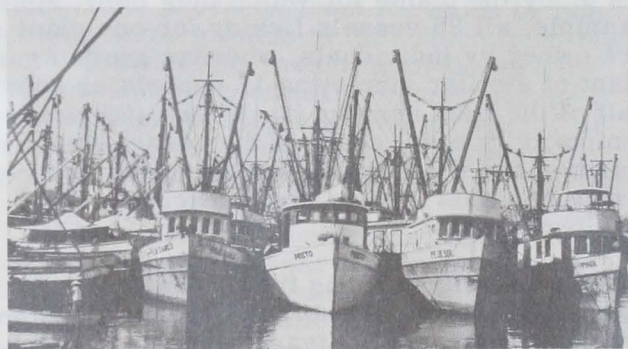
**Mexico**

**SHRIMP FISHERY OF CIUDAD DEL CARMEN:**

Ciudad del Carmen in the State of Campeche is the leading shrimp port of Mexico's Gulf Coast. The entire economy of this city of 25,000 people is geared to the shrimp industry.

Shrimping started in the 1940's when fishermen and distributors from the United States Gulf Coast expanded their operations with Carmen as an advance base. At first, the fresh shrimp were flown to packing plants in the United States, but soon freezing plants were built in Carmen and all the shrimp were shipped frozen.

The profits were great, and before long Mexican investors began building vessels and freezing plants, until the industry is now nearly all Mexican, including the entire fleet, and only one plant is partly American-owned. For many years Carmen rode a boom, but eventually the catches leveled off and increasing costs narrowed the profit margin.



Shrimp fishing vessels at the dock in Mazatlan (on west coast of Mexico), the leading shrimp port. Ciudad del Carmen in 1964 was in second place.

Until the rapid rise of the Pacific Coast fishery in the late 1950's, Carmen was the leading shrimp port of Mexico. By 1963, Carmen was in third place, behind the West Coast ports of Mazatlan and Guaymas. In 1964, Carmen landings rose to a record high of 11,811 metric tons (live weight equivalent), up from 1963's total of 10,289. This increase, coupled with a slump in Guaymas, moved Carmen into second place behind Mazatlan. Although 1965 figures are not available, it is believed that Ciudad del Carmen held its position.

Ciudad del Carmen, an old colonial city, is located in a beautiful tropical setting on

## Mexico (Contd.):

the island of the same name. All highway travel has to cross to the island by ferry. The island, along with two peninsulas, forms a very large lagoon known variously as Laguna de Terminos or Laguna del Carmen. The lagoon is one of the finest nursery areas for shrimp in Mexico and no shrimping is conducted in inside waters. A fleet of canoes and small launches fishes for finfish in the lagoon, but this fishery for the local market is relatively unimportant. Of all Mexico's shrimp ports, none is closer to complete concentration on shrimp alone than Carmen.

Ciudad del Carmen is home port to a fleet of 252 shrimp trawlers. Some of these range afar and occasionally land their catches at other ports, and vessels from other places also sometimes land their catches at Carmen. The vessels stay at sea up to 12 days, although some of the smaller ones are limited to trips of 6 or 8 days. All use ice to preserve their catches. Although manned by members of fishermen's cooperatives, most of the vessels are owned by private individuals or by the plants for which they fish. For example, all 35 vessels fishing for one plant are owned by individuals, whereas another plant of similar size owns 17 vessels or about half of the fleet serving it. When catches are temporarily poor, some of the vessels leave Carmen and neighboring ports and fish for freezing plants located on the Nicaraguan-Caribbean coast.

The waterfront along the lagoon shore is lined with an almost unbroken row of shrimp-freezing plants and boatyards serving the fleet. Eight freezers are now in operation. Shrimp at Carmen are smaller than at nearby Campeche, hence much of the production is peeled and deveined or butterfly shrimp individually quick frozen, which permits better use of the predominant medium sizes. About 80 percent of all production is of this type. Only the largest sizes are shipped as heads-off, shell-on. The small sizes are shipped to the Mexico City market, mostly peeled and cooked. All export shipments are made by refrigerated truck.

All of the approximately 8 small boatyards in Carmen are kept busy with maintenance work on the shrimp fleet. In addition, 9 new trawlers are reportedly under construction or being outfitted. In mid-March 1966, every

marine railway was occupied and other boats were awaiting their turn. Also all ship chandlers were busy. In August 1966, vessel owners and fishermen's cooperatives will negotiate new operating contracts and apparently everyone is dreading a possible impasse like the one that tied up the West Coast industry in September 1965. (United States Embassy, Mexico, April 13, 1966.)

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#### TREND IS TOWARD INCREASED NATIONALIZATION OF FISHERIES:

It appears more and more likely that the trend toward nationalization of Mexico's fisheries will increase. In early 1966, plans were being developed to increase financial support of the Government-controlled fishing installation at the port of Alvarado on the Gulf of Mexico. This action was being considered in spite of public complaints that the Alvarado operation has not been economically sound. A new Government five-year plan was also proposed which indicated even more nationalization of the fisheries, with credit facilities for Federally-operated fishing enterprises, and probable Government influence on prices for fish and fishery products. Cooperatives would also receive more Government financial backing, according to the plan.

The Government is justifying increased nationalization of fisheries on the basis of: (1) Increased foreign exploitation (primarily U. S., Japanese, and Soviet) of fishery resources off the coasts of Mexico; (2) the recent declining condition of the Mexican fishing industry; and (3) the national plan to increase production, domestic consumption, and exports of fishery products substantially within the next five years. (Various sources.)



#### Morocco

##### SHRIMP SHORTAGE IN TANGIER:

A shortage of shrimp in Tangier was reported by the local press in early April 1966. Shrimp was becoming increasingly scarce in the city and what was available was selling for US\$2 to \$3 a pound whereas shrimp had never before sold in Tangier for more than 50 cents a pound. Part of the shortage was reported to be due to exports to France and Spain of most of the locally-caught shrimp.

Morocco (Contd.):

(United States Consulate, Tangier, April 15, 1966)

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**SARDINE FLEET RECOVERS FROM STORM DAMAGE:**

The Safi fishing fleet, damaged by a severe storm which lashed the Moroccan coast throughout of February 20-21, 1966, was being rapidly repaired and the losses did not appear to be as grave as initially feared. The prompt activity by the Government and the vessel owners to refloat and repair the vessels was successful. About 75 vessels of the 125-boat sardine fleet were ready to sail by May 1. About 40 of the sardine boats were lost.

The lack of insurance on many of the boats was also not as severe a blow as expected since during the off-season many of the boats were stripped of nets, radios, and other equipment. (United States Embassy, Rabat, March 23, 1966.)

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**TANGIER SARDINE AND TUNA CANNING SEASON:**

Early in April 1966, the major fish cannery in Tangier was making preparations to begin its third season of tuna canning. The company's giant madrague nets (large beach seines) were being placed in position, and canning operations were expected to begin in late April.

Local industry officials were pessimistic as to the future of canning and fishing in Morocco. The company will export more fresh fish (sardines) this year, rather than canned. The company points out that it can obtain nearly double the price for the fresh fish it exports than that received for the canned product, and this helps to cut increasing operating costs which eat into profits. The company has also experienced the effect of recent credit restrictions. At the beginning of each season the company must make considerable financial outlays to purchase packing, salt, and the cans necessary in canning operations. Without bank credits, the company is hard put to make these necessary purchases.

The Tangier fishing fleet from 35 vessels has been reduced to 7 in service and will soon

number only 5 as actively engaged in fishing on a commercial scale. Several reasons were given for this situation. First, the Moroccan Government has prohibited the fishing vessels from calling at nearby Spanish Ceuta. Moroccan fishing boats had previously sold their catches in Ceuta at nearly double the Tangier prices; they could also buy fuel and make repairs in Ceuta at less expense than in Morocco. Added to this was the fact that the bottom has literally fallen out of the fish market in Tangier. Fish prices in Tangier have been extremely low all winter and are the lowest in Morocco. This price problem is made worse by the local regulation making it difficult for the local fishermen to move their catch out of Tangier to other domestic markets. Tangier fishermen are also disappointed over the failure of the national Government to construct the long-promised central fish market. It was also reported that marine credits have not been forthcoming to enable repairs on the fishing vessels and engines. This reportedly results from the fact that the present Tangier fish market is not integrated under the law which applies to other Moroccan ports whereby the Government can withhold the proceeds from the sales of fish to repay loans granted to fishermen from the banks. Finally, the members of the fishermen's union are continually demanding increased wages. They recently struck for a wage hike ten days before the madragues were scheduled to be set.

Given the factors enumerated above, it was considered that this year will prove to be a difficult one for the Moroccan fishing and canning industry. The local sardine cannery had received no orders for canned sardines and the sardine canners would therefore be unprepared if orders finally materialize. This was due to the inflated price of canned sardines stemming from the OCE nationalization of canned fish exports. It was also noted that there was almost a complete absence of shrimp in the northern waters. The opinion was expressed that there was a great deal which the local and national governments could do to help ease the situation, but nothing was being done.

After the recent destruction of many fishing vessels at Safi because of a violent storm, Tangier fishermen had been hopeful that the Safi interests would come to Tangier to purchase the idle boats with insurance money received for their sunken craft. However, the Government insurance has required that the

Morocco (Contd.):

damaged and sunken craft be first repaired before any insurance money would be paid, even if this entailed an outlay of additional funds on the part of the vessel's owner above the value for which it had been insured. Thus the prospect of sales of the idle craft seems dim. (United States Consulate, Tangier, April 8, 1966.)

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NEW FISH COMPLEX PLANNED:

A fish-processing complex may be built at Al Hoceima on the central Mediterranean coast of Morocco, according to the Moroccan press. Included will be an ice and cold-storage plant and a cannery. The cold-storage plant will store fish to be processed in the cannery during the off-season for fishing. (United States Consulate, Tangier, April 15, 1966.)

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AGAR-AGAR PLANT TO MOVE FROM TANGIER:

The director of the company in Tangier which produces agar-agar, reported that his company decided to transfer their plant from Tangier to El Jadida. The decision to move was made by the company's head office in Italy, primarily to reduce operating costs by relocating the plant at the source of its seaweed raw material, which is near El Jadida. The company produces about 120 metric tons of agar-agar annually, 30 percent of which is exported to the United States. The relocation of the plant at El Jadida will have the additional advantage of being close to Casablanca from where all the company's shipments to the United States are made. The company encountered considerable difficulty in making shipments directly from Tangier to the United States. It was unable to find regularly scheduled ships going to the United States from Tangier and, therefore, sent its shipments to the United States via Casablanca, which entailed additional transportation costs. The move was scheduled to begin the end of July 1966 and requires about five months to be completed. Of the staff of 45 employees, only about 12 will move with the plant to El Jadida. (United States Consulate, Tangier, April 6, 1966.)



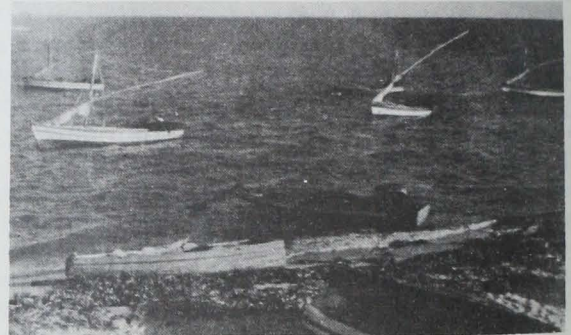
**Mozambique**

FISHERIES PRODUCTION, 1961-1965:

At the end of 1962, the Mozambique fishing industry employed 13,717 fishermen who used 4,128 oar or sail boats and 92 motor-

Fisheries Production, 1961-1965					
Species	1/1965	1964	1963	2/1962	2/1961
	(Metric Tons)				
Fish, unspecified . . . . .	3,319	3,508	2,545	-	-
Clams . . . . .	196	164	158	-	-
Shrimp . . . . .	386	262	383	-	-
Shellfish, other (including spiny lobster and crab) . . . . .	257	418	284	-	-
Total . . . . .	4,158	4,352	3,370	3,257	3,285
1/For January through September only. Estimated total for the year, 4,425 metric tons.					
2/Species breakdown not available.					

driven craft. Since 1962, there has been an increased interest in the fishing industry. One company remains dominant in the industry. This company displayed a variety of fishery products for export, including canned and otherwise preserved shellfish, at a trade and industrial fair in Lourenco Marques during July-August 1965.



Typical fishing craft operating out of Lourenco Marques, Mozambique.

In 1965, a spiny lobster fishing and export company, with two United States shareholders declared its voluntary bankruptcy. For several years, this company was Mozambique's only lobster tail processing and export company, with an assured distribution in the United States. (United States Consulate, Lourenco Marques, March 28, 1966.)



**Netherlands**

FISHERY LANDINGS, 1964-1965:

Fishery landings in the Netherlands in 1965 totaled 320,655 metric tons with an ex-

Netherlands (Contd.):

Netherlands Fishery Landings, 1964-1965

Species	1965		1964			
	Quantity	Value	Quantity	Value		
	Metric Tons	Fl. 1,000 US\$1,000	Metric Tons	Fl. 1,000 US\$1,000		
<b>FRESH-WATER FISH:</b>						
<b>Groundfish:</b>						
Haddock	24,291	7,375 2,049	14,892	4,816 1,338		
Cod	17,585	11,059 3,072	9,117	6,451 1,792		
Plaice	7,767	3,286 913	4,082	2,004 557		
Whiting	8,063	2,775 771	5,949	2,701 750		
Trout	321	190 53	227	141 39		
Salmon	35	47 13	45	53 15		
Perch	223	999 277	271	992 276		
Other groundfish	2,533	1,449 402	1,425	815 226		
<b>Total groundfish</b>	<b>60,818</b>	<b>27,180 7,550</b>	<b>36,008</b>	<b>17,973 4,993</b>		
<b>Flatfish:</b>						
Plaice	20,738	14,618 4,060	22,233	11,291 3,136		
Fluke	490	166 46	510	144 40		
Dab	1,204	595 165	949	436 121		
Sole	11,592	45,674 12,687	7,463	39,740 11,039		
Other flatfish	1,591	4,698 1,305	1,607	4,071 1,131		
<b>Total flatfish</b>	<b>35,615</b>	<b>65,751 18,263</b>	<b>32,762</b>	<b>55,682 15,467</b>		
<b>Herring:</b>						
Fresh	37,323	16,928 4,702	56,708	16,255 4,515		
Salted	34,850	28,307 7,863	47,697	30,088 8,358		
Crab	3,756	773 215	4,856	539 150		
Other herring-like fish	1,359	315 87	470	148 41		
<b>Total herring &amp; herring-like</b>	<b>77,288</b>	<b>46,323 12,867</b>	<b>109,731</b>	<b>47,030 13,064</b>		
Wackerel	17,960	5,294 1,471	17,531	5,421 1,506		
Miscellaneous salt-water fish 1/	4,294	676 188	2,888	390 108		
<b>FRESH-WATER FISH:</b>						
Trout	2,275	9,200 2,555	1,984	7,127 1,980		
Other fresh-water fish 2/	10,647	1,298 361	9,396	1,239 344		
<b>Total fresh-water fish</b>	<b>12,922</b>	<b>10,498 2,916</b>	<b>11,380</b>	<b>8,366 2,324</b>		
<b>SHELLFISH:</b>						
Oyster	716	4,586 1,274	557	3,436 955		
Mussels	96,084	11,444 3,179	100,714	12,009 3,336		
Shrimp	8,047	17,289 4,802	8,886	11,327 3,146		
Other shellfish 3/	6,911	480 133	9,210	501 139		
<b>Total shellfish</b>	<b>111,758</b>	<b>33,799 9,388</b>	<b>119,367</b>	<b>27,273 7,576</b>		
<b>Grand Total</b>	<b>320,655</b>	<b>189,521 52,643</b>	<b>329,667</b>	<b>162,135 45,038</b>		
1/ Mostly immature fish.						
2/ Mostly whitebait.						
3/ Mostly immature shrimp.						
Source: Netherlands Central Bureau of Statistics.						

essel value of fl. 189.5 million (US\$52.6 million). Compared with the previous year, that was a drop of 3 percent in quantity, but a gain of 17 percent in value.

The decline in quantity was due to a drop in herring landings. The decline was almost offset by increased landings of haddock, cod, other groundfish, and sole. The increase in value was due to higher prices for shrimp and herring as well as the heavier landings of groundfish and flatfish.



Nigeria

NEW SHRIMP FISHING ENTERPRISE FORMED:

On February 24, in Enugu, representatives of the Government of Eastern Nigeria and a

group of American investors signed agreements establishing a joint shrimp-fishing company. The American group, with 75 percent of the equity capital, will have a controlling interest in the firm.

The new enterprise, registered as Sea Harvest Nigeria Ltd. (SHN), will operate a fleet of trawlers (initially 13 in number) in the Bights of Benin and Biafra, under the direction of an American citizen with long experience in shrimp fishing in the Gulf of Mexico. The shrimp catch, expected to be about three million pounds a year at the start, will be frozen and packaged at a Port Harcourt plant for export to the United States. Other catch is to be marketed locally. Some consideration is being given to the possibility of processing industrial fish into fish meal and fish protein concentrate.

## Nigeria (Contd.):

SHN's backers are hopeful that further proving of the still relatively virgin Nigerian shrimp-fishing grounds will justify rapid expansion of the company's fleet. (United States Consulate, Enugu, March 25, 1966.)

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#### FROZEN FISH MARKETING AND DISTRIBUTION:

Four fishing companies in Lagos land and distribute throughout Nigeria 4,000 to 5,000 metric tons of frozen fish each month.

Three of the companies, corporately inter-related and in part owned by the Nigerian Government and Liberian-Danish-Greek interests, handle about 30 percent of the frozen fish marketed annually in Nigeria. Their fish is obtained entirely from foreign-owned factory trawlers (Japanese and Polish) based in Nigeria but fishing in waters 1,500 to 2,000 miles distant. One of these companies has 300 tons of cold-storage capacity. Another of the companies has 1,500 tons of cold-storage space. Some of the frozen fish is shipped to the northern part of Nigeria in a refrigerated railway car owned by a local Nigerian-American food company which brings beef to Lagos from the north.

The fourth fishing company, owned and operated by a local family, handles 70 percent of the frozen fish landed and distributed in Nigeria. This company owns 3 Japanese trawlers, each 165 feet long, with a 180-ton carrying capacity, and 2 Soviet trawlers of slightly smaller size. The vessels carry a 50-percent Nigerian crew and are based in Nigeria. The company selected Nigerians for these trawlers for the purpose of training and eventually having the vessels completely Nigerian-manned. The company has instituted a program aimed at acquiring men with a minimum of 4 years of secondary education and preferably 6. This endeavor is working out well with a retention of approximately 90 percent to further complete the Nigerianization of operations.

The company has stressed the need for a Federal Fisheries School, and, to this end, a proposal for the formation of such a school has been formulated by the Federal Service.

This company has decided to embark on a shrimp-fishing venture, a decision which was

influenced in a large measure by positive results of reports from the Federal Fisheries Office and of AID-sponsored trawling operations which clearly indicated a shrimp potential. This will consist of three trawlers now being built in Japan, with 51 percent Nigerian interest and 49 percent Japanese. Marketing for these trawlers will be handled by the Japanese for export to Japan. The trawlers will be under 60 feet in length since this is an acceptable size for economical fishing, and, in addition, will comply with existing minimum Nigerian manning regulations. The company feels that this type of vessel can be entirely Nigerian-manned in a shorter length of time. The three vessels will be delivered before the end of 1966.

Another 5 vessels are being constructed by an Austrian firm, the first 2 of which will be delivered about September and the remainder in early 1967. These vessels will be owned outright with a ten-year repayment period. They are 59 feet long and of simple design. It is expected that marketing of the shrimp from these vessels will be done through U. S. buyers.

The company is planning a new shore installation. This will include a processing plant, dock, ice-making facilities and storage. The storage facility as well as a small ice plant are already in operation.

The company feels that the fishing interests of Nigeria can be served best by lending assistance in the field of research and exploratory work on the sea fishery as well as introducing a proper training school. It is believed that the build-up of an indigenous trawler fleet would be impossible without the requisite trained manpower and capital to purchase new boats. The company and others will be in a position to buy the products from such fleets.

The company has fairly extensive cold-storage facilities (at about 13 locations) in Lagos, and the Eastern, Midwestern, and Western Regions of Nigeria. These range in size from 40 to 50 tons capacity to about 3,000 tons. The company plans to continue expansion and ultimately hopes to increase monthly fish hauls from the present 3,000 to 12,000 metric tons a month. (United States Embassy, Lagos, March 31, 1966.)





Norway

HERRING AND COD FISHERY TRENDS, MARCH 19, 1966:

Herring: As of March 19, the 1966 Norwegian herring catch amounted to 4.86 million hectoliters (452,000 metric tons) and the capelin catch amounted to about 863,000 hectoliters (80,260 tons). That was about double the catch of herring and capelin during the same period of 1965. Fish meal and oil plants absorbed all of the 1966 capelin catch and 80 percent of the herring catch.

Cod: The Norwegian catch of spawning cod in Finmark as of March 19, 1966, totaled 4,833 tons of which 11,077 tons went for filleting, 10,038 tons for drying, 16,230 tons for salting, and 4,838 tons for fresh consumption. The 1966 cod fishery off northern Norway has been somewhat more productive than in the past two years when catches were very light. (Skeets Gang, March 24, 1966.)

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BAN ON FOREIGN FISHERY LANDINGS MAY BE RELAXED:

The Norwegian Government plans to ask parliamentary approval of a new landings bill. While retaining a general ban on foreign landings, the new bill would allow the issuance of special landing permits for foreign-registered fish provided such landings do not distort prices and other marketing conditions in domestic or export markets for Norwegian fish. Foreign landings would also be permitted when necessary to implement international agreements, and in cases of vessels in distress. A shortage of fish, especially groundfish, for processing is the reason for the new proposal. (United States Embassy, Oslo, April 10, 1966.)

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ANTARCTIC FACTORYSHIP MAY BE ADAPTED TO HERRING FISHERY:

As of early March 1966, Norway's two Antarctic factoryship fleets -- Kosmos IV and Orshavet -- reported very poor whale catches in the Antarctic season. On March 8, 1966, operators of Kosmos IV announced that the vessel would probably be withdrawn from whaling after the present season for use as a factory-freezer vessel in the Norwegian coastal herring fishery. This is another move in the gradual liquidation and conversion of Norwegian whaling vessels.



Pakistan

12-MILE FISHING LIMITS DECLARED WITH RIGHTS TO EXTENDED "CONSERVATION ZONES":

On February 19, 1966, the President of Pakistan proclaimed exclusive fishing rights for Pakistan within a distance of 12 nautical miles from the coastline.

In the Proclamation, Pakistan also claimed the right to establish conservation zones to a distance of 100 nautical miles from the outer limits of territorial waters, and to regulate fisheries in the zones so established, subject to the provisions of any international agreement or convention to which Pakistan is or may become a party. (United States Embassy, Rawalpindi, February 23, 1966.)



Panama

INTEREST IN DEVELOPING THE FISH MEAL INDUSTRY INCREASES:

In early April 1966, at least 6 new potential investors (4 Panamanian, 2 American) were known to be investigating the feasibility of establishing fish-meal enterprises in Panama. One investor had established a company and was negotiating for the purchase of a fish meal plant, probably from Peru.

Suppliers of fish-meal equipment, nets, marine hardware, and similar items may wish to investigate sales of those items in the Republic of Panama. Initial inquiries could be directed to the U. S. Embassy in Panama. The importation of fishing vessels into Panama generally is prohibited and vessels used in the domestic industry normally must be constructed in Panama.

All of the four proposed new plants on which there is definite knowledge are to be built on the Bay of Panama, near Panama City on the Pacific side of the Isthmus. It is assumed that any additional plants constructed in Panama also would be located on the Bay of Panama, the primary fishing area in the Republic for anchoveta and thread herring, the raw material for the industry.

One group was known to be interested in the possible construction in Panama of large fishing vessels for the express purpose of fishing for anchoveta and thread herring.

### Panama (Contd.):

The remaining groups hoped to convert local shrimp vessels to supply their fleet needs.

The Director of Panama's Bureau of Fisheries expressed concern that Panama may face a too rapid development of its fish-meal industry. He stated that no definitive information is available concerning the anchoveta and thread herring population in Panamanian coastal waters. He advised that he has counseled potential investors to limit the size of their initial plants pending the development of more precise information concerning the extent to which Panamanian waters can support this new local industry. According to the same official, the Government currently has no plans to limit the number of licenses issued for the construction of fish-meal plants since Panamanian law requires that all potential new investors in the industry must be treated in the same fashion as previous applicants for licenses. However, should it appear the industry is growing too rapidly, steps undoubtedly would be taken to restrict fishing or plant construction with a view to exercising some degree of fish conservation. The fear also has been expressed that the new industry might result in a major diversion of vessels away from local shrimp fisheries. (United States Embassy, Panama, April 7, 1966.)

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### SHRIMP CATCH AND EXPORTS, 1965:

In 1965, Panama's shrimp catch totaled 12,900,275 pounds and was divided by species as follows: white--4,990,911 pounds; pink--2,841,073 pounds; "titi"--4,161,672 pounds; tiger--831,472 pounds; and "solenoceras"--75,206 pounds. The value of the catch was not given. Good catches of white and pink, the preferred species, brought high prices and offset the fact that the total shrimp catch was below the 1964 level of 15,500,000 pounds. Panamanian shrimp imports were valued at \$600,000 in November 1965, and \$630,000 in December 1965. (United States Embassy, Panama, March 23, 1966.)



### Peru

#### FISH MEAL AND OIL SITUATION, MARCH 1966:

Peruvian anchovy landings for October 1, 1965-February 28, 1966, were estimated at

5.5 million metric tons, only 1.5 million tons short of the quota-limit established by the Government for the current season (October 1, 1965-June 30, 1966). The quota-limit was expected to be reached by late April or early May. Plant owners want the Government to increase the catch quota and reduce the length of the closed season (July through September 1966). The fishermen are also concerned over the prospects of being four or more months out of work.

Fish meal production remained at high levels during the early months of 1966: January--242,380 metric tons; February--179,330 tons; March 1 to 15--90,000 tons (estimated). The anchovy resource situation over the long term, however, is still doubtful because of the large proportion (60 percent) of immature fish being taken which was resulting in considerably less oil production than would otherwise be obtained from adult fish. Anchovy catches in early 1966 were estimated as follows: January--1,740,000 metric tons; February--1,830,000 tons; March 1 to March 15--970,000 tons. (United States Embassy, Lima, March 30, 1966.)



### Poland

#### FISHERY AID TO SYRIA:

In December 1962, Poland and the Syrian Arab Republic signed an agreement for economic cooperation which was enlarged by a supplementary protocol in June 1965. The protocol provides for the exportation to Syria of Polish fishing vessels, as well as for their maintenance (presumably by Polish technicians).



### Portugal

#### CANNED FISH EXPORTS, 1965:

Portugal's total exports of canned fish in oil or sauce during 1965 were up 18 percent from 1964, due mainly to larger shipments of sardines and mackerel. Sardines accounted for 75 percent of the total canned fish exports in 1965.

Portugal's principal canned fish buyers during 1965 were Germany with 18,758 metric tons, Italy 13,866 tons, the United Kingdom 8,417 tons, France 5,535 tons, the United

Portugal (Contd.):

Portuguese Canned Fish Exports, 1964-65				
Product	1965		1964	
	Metric Tons	1,000 Cases	Metric Tons	1,000 Cases
<b>In sauce:</b>				
Pilchards	61,383	3,230	55,272	2,909
Chinchards	2,667	140	3,305	174
Mackerel	10,310	412	5,349	214
Maasbanker	3,456	115	2,097	70
Anchovy fillets	3,654	365	3,247	325
Other	794	42	665	35
<b>Total</b>	<b>82,264</b>	<b>4,304</b>	<b>69,935</b>	<b>3,727</b>

Stits 6,372 tons, and Belgium-Luxembourg 5,000 tons. Italy's purchases of canned fish from Portugal in 1965 were up 70 percent from 1964, and purchases by Germany were up 100 percent. (Conservas de Peixe, February 1966.)

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CANNED FISH PACK, 1965:

The Portuguese total pack of canned fish in 1965 was about the same as in 1964. A decline in the important sardine pack was offset by a sharp gain in the mack-

Portuguese Canned Fish Pack, 1964-65				
Product	1965		1964	
	Metric Tons	1,000 Cases	Metric Tons	1,000 Cases
<b>In sauce:</b>				
Pilchards	56,147	2,955	70,209	3,695
Chinchards	2,330	122	1,542	81
Mackerel	13,055	522	4,211	169
Maasbanker	7,253	242	5,931	196
Anchovy fillets	4,232	422	3,002	300
Other	1,838	96	737	39
<b>Total</b>	<b>84,855</b>	<b>4,359</b>	<b>85,632</b>	<b>4,480</b>

erel pack and some increase in the pack of pilchards, chinchards, and anchovy fillets. (Conservas de Peixe, February 1966.)

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MODERN VESSEL JOINS COD FLEET:

In early April 1966, the Cidade de Aveiro, a modern cod vessel valued at US\$1.75 million, was launched in Portugal. It is the only vessel in the Portuguese cod fleet to be powered by an electric diesel engine. The vessel will fish off the coasts of Greenland and Labrador and will have a storage capacity of 1,000 metric tons of salted and frozen fish.

At the launching ceremony, the Portuguese Minister of Marine noted that the Cidade de Aveiro was one of three new cod vessels (the other two will be ready in July and October 1966) envisaged under the Intercalary Devel-

opment Plan to bring the supply of cod in line with demand. He added that 35 Portuguese fishing vessels with a total value of 541,500 contos (US\$18,952,500) were either under construction or would be by the end of 1966.

An increase in the cod catch will be welcome in Portugal where dried cod (bacalhau) is a favorite dish. Last year, over 5,000 tons of cod had to be imported to supplement local production. (United States Embassy, Lisbon, April 12, 1966.)



South Africa

PELAGIC SHOAL FISH CATCH UP IN 1965:

The combined shoal fish catch for South and South-West Africa was 1,261,710 short tons in 1965, compared with 1,194,635 tons in 1964.

A significant rise in the anchovy catch contributed to the record total shoal fish catch made by the South African industry in 1965. The South African anchovy catch rose from 104,630 metric tons in 1964 to 194,673 tons in 1965 and the total pelagic catch rose from 471,578 tons to 526,777 tons.

On the other hand, the South African pilchard catch fell from 282,301 tons in 1964 to 224,890 tons in 1965. Included in the total of 526,777 tons are 63,374 tons of maasbanker and 43,840 tons of mackerel.

The pilchard catch in South-West Africa reached 734,299 tons in 1965, compared with 723,057 tons in 1964; and the 634 tons of anchovy which were also caught brought the shoal total for the year to 734,933 tons.

The fish meal processed from the shoal fish catch totaled 124,122 tons in South Africa and 175,964 tons in South-West Africa, a total for 1965 of 300,086 tons. The comparable figure for 1964 was 283,989 tons.

The December catches which contributed to the 1965 totals were: In South Africa, 1,215 tons of pilchards, 1,036 tons of anchovy, and 2,344 tons of maasbanker.

According to the Division of Sea Fisheries, during December no pilchards were canned in South Africa, but a total of 410,280 pounds of maasbanker were canned. The total prod-

### South Africa (Contd.):

uction of fish body oil in South Africa during the month was 33,613 imperial gallons.

The total production of fish body oil in South Africa reached 4,863,605 imperial gallons during 1965. During the year, 2,905,992 pounds of pilchards were canned in South Africa together with 10,097,328 pounds of maasbanker and 9,865,680 pounds of mackerel, making a total of 22,869,000 pounds. (South African Shipping News and Fishing Industry Review, February 1966.)



## South Africa Republic

### HAKE FINDS GOOD MARKET IN GREAT BRITAIN:

Cape hake which South Africans had no part in catching was in the news in January 1966 in the port of Fleetwood on the northwest coast of England. One of the four major centers of the British trawling industry, Fleetwood was hard hit when many trawler crews would not go to sea in the Christmas-New Year holiday period.

As a result, in early January landings fell sharply and fresh northern hake was one of the species in short supply. The price rose to a high of about US\$93.00 a 140-lb. box (61 cents a lb.) wholesale and merchants turned to supplies of frozen hake available at about a third of that price.

The frozen fish was hake caught off South Africa by Japanese fishing vessels.

As supplies of fresh hake picked up, the demand for the frozen product fell off again. The British consumer, however, was reported becoming accustomed to this import from South Africa and difficulties in finding the northern hake point to a steady increase in demand from the United Kingdom.

But great care has to go into the preparation of fish exports to this highly discriminating market. The right quality will only be obtained when the South African hake is frozen aboard soon after it is caught. Chilled fish taken by Cape Town trawlers, landed in ice and then frozen is not the product expected to find increasing acceptance in Britain in the future.

British trawler owners may decide to join the foreign fleet fishing off Southern Africa. This year the number of freezer stern trawlers operating mainly out of Hull and Grimsby will be nearly doubled. Those vessels, ranging in size from 700 to 1,700 gross tons, are at sea for periods of 40 to 50 days and bring in catches of 400 and 500 metric tons.

In the designs of several of them there is provision for their transfer to far distant waters and the presence in South Africa of representatives of the White Fish Authority and of the Torry Research Station is an indication of British interest in that area. (South African Shipping News and Fishing Industry Review, February 1966.)

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### RECORD WHALING SEASON IN 1965:

The South African 1965 offshore whaling season was a record one, according to the annual report of one South African whaling company. The highest production was achieved since the company discontinued its Antarctic whaling operations--a record for the value of production during the season and the greatest number of whales ever taken in one season.

The Chairman announced that for the first time, in the 1966 season, a restricted catch would be applied to the company's offshore whaling.

This development results from a meeting of the International Whaling Commission in London in June 1965 when a recommendation from a special meeting held in May was adopted restricting the catch of baleen whales by land-based stations.

The Commission recommended that the Governments concerned should restrict baleen whaling operations from land stations in the Southern Hemisphere during 1966 on a voluntary basis as an interim measure. The recommendation was later accepted by the South African Government.

The company's report revealed that this decision would reduce the 1966 catch of baleen whales to 90 percent of the previous year's catch. This would mean that about 750 baleen whales could be taken, compared with 826 last year.

Baleen whales formed about one-third of the total season's catch.

South Africa Republic (Contd.):

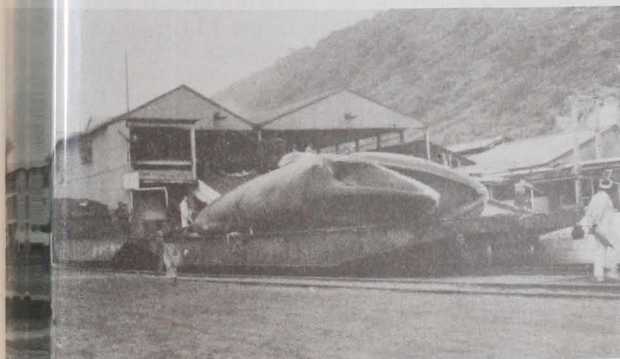
Viewing the 1965 season, the Chairman said that the weather in the latter part had been most favorable, as had been the case for the best few years. Of the 234 days of the season, 66 were lost when ships were weathered out, compared with 76 "lost" days out of a total of 236 in the 1964 season.

There had been no significant reduction in the average size of whales taken. It was difficult to draw any definite conclusion whether the general increase in the number of whales taken had resulted from greater catching effort or from more favorable weather. A third possibility was that this might be an indication that the stock of whales on which the company was drawing was not being overtaxed.

In the coming season, he said that last year he had referred to the company's intention of making provision for processing the whole of the crude sperm oil production. It has been decided to defer this action for the time being.

This was partly on account of the substantial increase in the production of crude sperm oil and partly because the plant in use was apparently capable of meeting the existing demand for processed sperm oil. As a result the company would continue to market a portion of its sperm oil production as crude sperm oil.

In the 1965 season, the price for crude sperm oil was substantially the same as for the previous season, but the company had sold off some of its expected 1966 production at somewhat higher prices.



Whale being transported to plant in Durban, South Africa.

Last season there were 12 catchers operating, 2 more than in the previous season, and of those, 4 were fitted with ASDIC equip-

ment. While the additional craft increased operational costs, they had also contributed to the increased catch.

As in the past few seasons, two spotter aircraft had been employed to assist in locating and tracking whales, and to report back to the catchers.

The company's products were sold in 16 foreign countries including Chile, Mexico, Switzerland, Zambia, and Colombia.

A breakdown of the season's total catch shows that of the 3,640 whales, there were 826 baleen whales (6 blue whales, 361 fin, and 459 sei whales). The balance of 2,814 was sperm whales.

The 1966 season opened on February 1 when five catchers went into commission in search of sperm whales, which are the only type which can be taken in the early stages of the season. As conditions improved and whales became more plentiful, the number of catchers were increased to 12--the same as last year. (The South African Shipping News and Fishing Industry Review, February 1966.)



South-West Africa

BOAT OWNERS REQUEST INCREASE IN PILCHARD PRICE:

The Walvis Bay Fishing Boat Owners Association requested a price increase from about US\$12.38 a metric ton to about \$14.06 for pilchards delivered to the 7 Walvis Bay fish factories. As of March 18, 1966, the factory owners had not yet replied. The boat owners requested the increase on the following grounds:

The world price for fish meal has doubled since the price of raw fish was last fixed and it is felt that a fair share of the product profits should be passed on to the primary producer. The cost of replacing vessels has doubled since the last increase was granted. The cost of maintenance has doubled since the last increase was granted. The cost-of-living generally has increased substantially since the last increase was granted. (Namib Times, Walvis Bay, March 18, 1966.)



## Spain

### SIGNALS USED BY PAIR TRAWLERS IN NORTHWEST ATLANTIC:

Spanish pair trawlers began fishing off New England in the vicinity of Georges Bank, in the spring of 1966.

Following is the text of Spanish regulations governing signals to be used by Spanish pair trawlers operating in the Atlantic Ocean off the northeastern coast of the United States:

(1) Vessels engaged in trawling in pairs must, upon the approach of another vessel, in order to keep the latter from passing between the two vessels forming the pair, display a torch or flare alongside the net, in addition to other required signals.

(2) In the daytime, for the same purpose, two black spheres or bodies, 0.61 meter (2 feet) in diameter, shall be raised vertically at least 1.20 meters (3.9 feet) apart, with a pennant above them.

(3) The two vessels forming the pair shall display the signals by day and by night.



## Taiwan

### FISHERIES DEVELOPMENT TRENDS:

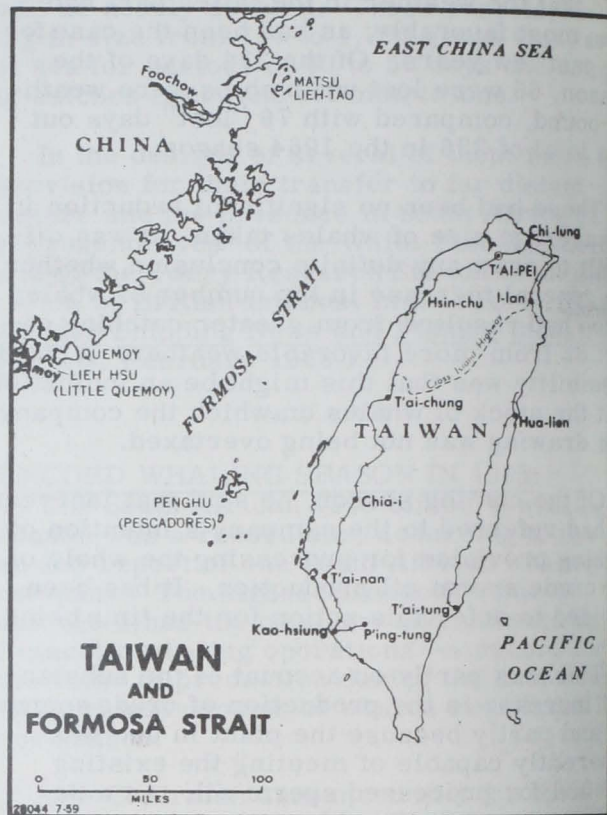
Taiwan's fishing industry has been developing rapidly and today ranks second only to Japan in Southeast Asia. During the annual convention of the China Fisheries Association in Taipei (December 12, 1965), K. T. Li, the Minister of Economic Affairs, in a speech regarding the further development in the fisheries of Taiwan said, in part:

The first problem I would like to bring up concerns the potential for future fisheries development. Fishing activities have shown a gradual decline due to the shortage of labor in such industrialized countries as the United States, Great Britain, Japan, and West Germany. This offers a golden opportunity for the developing countries having low-cost and abundant labor to fill the gap. We are in a position to take advantage of it:

(1) In respect to manpower, we are blessed with a large supply of industrious and intelligent labor.

(2) Among sources of funds available for fisheries development, can be the idle local capital. Through proper arrangements and guidance, it can be directed toward investment in fisheries. Foreign financial assistance in the form of equity or loan capital can also be obtained. Already several American fish canneries have expressed their willingness to extend loans for

boat construction in Taiwan. Another significant source of funds is the World Bank, whose loans may continue to be available as long as we can set up bankable projects.



(3) The United States and several European countries have large and ever-increasing demand for import of fish products. Japan, the largest fish-producing country in the world until 1964, used to export nearly US\$30 million of fish annually, but its exports have been falling and imports rising since three years ago with yearly imports of fish products exceeding US\$60 million in 1964. At present, frozen tuna and shrimp constitute the bulk of our fish exports. I hope that fish canning will be developed and foreign markets for canned fish further explored. For example, we can step up our efforts for the export of canned sardines to the Philippines, to take advantage of the fact that the products of the Union of South Africa are in disfavor in the world markets because of racial discrimination. In this connection, it is significant to note that manufacture of aluminum cans on a large commercial scale is now practicable as a result of the joint development effort of the Taiwan Fisheries Research Institute and the Taiwan Aluminum Corporation. Future efforts in fisheries development should be directed toward (a) promotion of export; (b) development of deep-sea fisheries; (c) mechanization and modernization of production facilities; (d) development of processing; and (e) development of shrimp culture.

At the present stage, a great deal of emphasis is being placed on the development of deep-sea tuna fishing, which undoubtedly warrants further encouragement in view of the increasing demand for frozen tuna in the world market and decreasing supply of this product by Japan. Our position as a tuna-producing country has now been considerably strengthened following the expansion of our tuna fleet with vessels constructed with

Taiwan (Contd.):

World Bank loan and the success of the overseas base operation at American Samoa.

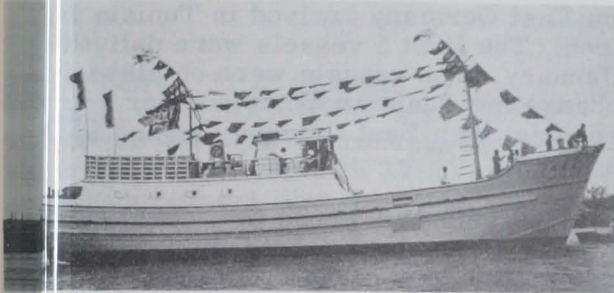


Fig. 3 - Type of modern tuna long-liner now used by Taiwan fishermen. This was launched in 1965.

Shrimp fishing is also promising. The export as well as production of shrimp has steadily increased in recent years.

The development of large-stern trawler fishing has been a matter of discussion for many years; it has developed very quickly in Japan and other advanced countries and seems to be a fairly profitable undertaking.



Fig. 3 - Tuna displayed for auction at Taiwan's Kaohsiung market.

Taiwan exports various kinds of fishery products besides frozen and canned tuna, including canned salmon, canned crab, pearls, etc.; it occurs to me that it may be worthwhile for us to initiate studies on the feasibility of going into these various export fields.

Deep-sea fishing is beyond the capacity of family-type small operators. We have a few relatively large fishing companies, all newly established with World Bank and the Joint Commission on Rural Reconstruction (JCRR) financial assistance. These enterprises are still too small and too few to permit economies possible to large companies.

The motorization of fishing craft and wide use of synthetic lines and nets have been introduced with success in Taiwan. However, electronic equipment, including fish finders, is still not popular in Taiwan. For instance, only a few hundred out of upwards of 8,000 motorized fishing boats are equipped with fish finders.

Little work has been done in mechanizing fishing operations.

The average annual catch per fisherman in Taiwan is only 2.4 metric tons, as compared with 64 tons in West Germany. This may be attributed to a number of factors; but inefficient fishing methods and equipment are by far the most important.



Fig. 4 - Purse-seine fishing was introduced in Taiwan only a few years ago. Bonito in net will be brailled out with scoop net (far right).

We should also report two important achievements in the field of fish culture. One is the success in the induced spawning of Chinese carp, the other is the phenomenal 200-300 percent increase in fish yield obtained by the application of chemical fertilizers in freshwater fish ponds. Artificial spawning will save large amounts of foreign exchange spent annually for import of fish fry, while the increase in fish production in freshwater ponds will permit fuller utilization of reservoir ponds.

The oyster growers in Australia enjoy a good income and live well. In contrast, the oysters grown in Taiwan are generally small and unsightly and our oyster farmers poor. A study should be made for improvement of oyster culture so that better harvest can be assured and the living standard of oyster farmers improved.

We frequently hear of complaints by foreign buyers about the quality of our fishery exports. I hope that such

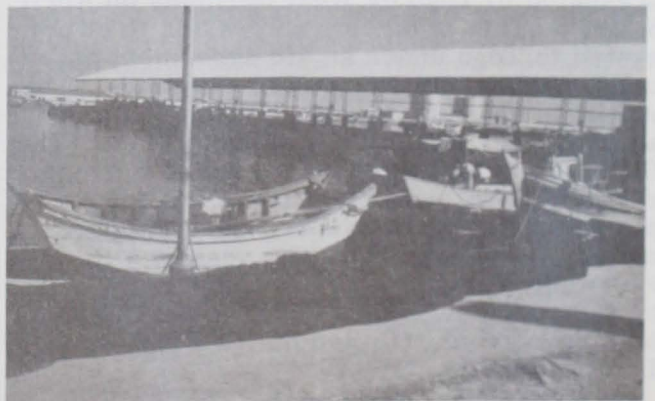


Fig. 5 - Fish market at Makung on Pescadore, Taiwan.

## Taiwan (Contd.):

complaints will be kept to a minimum in the future. We must make our producers quality-minded and strengthen our export inspection system. The establishment of a system of self-inspection by the industry should be promoted.

We have up to now done very little for promotion of market news services. This work is extensively conducted by such countries as the United States and Japan, both of which have their own vast networks spreading all over the world. We have to keep close contact with and make effective use of these foreign fish market news services. However, we must have such services of our own some day.

International cooperation is another field to which we should attach great importance. In the last two years, we have sent a number of technicians to South Vietnam, Singapore, Sierra Leone, and Malta to help develop fisheries in those countries. We have made gifts of Chinese carp fry to South Vietnam and the Philippines. We also should seek technical cooperation with countries that are economically advanced but deficient in fish supply such as Australia.

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## TO BUY FISHING VESSELS:

The Government of the Republic of China plans to submit an application for a World Bank (IBRD) loan of US\$10.9 million. The loan would finance the construction and gear for 28 fishing vessels (of which 24 would be 150 gross tons and 4 only 15 gross tons). (United States Embassy, Taipei, April 9, 1966.)



## Republic of Togo

### RECEIVES FISHING VESSEL FROM WEST GERMANY:

A gift of a fishing vessel (the Berlin) was presented to Togo by West Germany on April 5, 1966. This is one of two vessels to be presented to Togo under an aid agreement of December 1963 between the two countries. The vessel is about 57 feet long, has a beam of about 18 feet, and a draft of about 6 feet. The Government of Togo with the aid of German specialists will use the two vessels for exploratory fishing and fishing gear improvement and development. The vessels will operate out of the new port in Lome being built by German contractors under a West German loan agreement. (United States Embassy, Lome, April 13, 1966.)



## Tunisia

### FIVE FISHING VESSELS FROM EAST GERMANY:

The last 5 of 10 fishing vessels ordered from East Germany arrived in Tunisia in March. The first 5 vessels were delivered in January. The vessels were obtained in exchange for Tunisian exports under a trade agreement with East Germany signed in August 1964.

The vessels (100 gross tons each) carry a crew of 15 and have a cold-storage capacity for 20 metric tons of fish. The vessels were built for operation in warm climates and can fish anywhere in the Mediterranean Sea. After the crews have gained experience, it is expected that the vessels will also fish in the Atlantic Ocean.

With these new vessels, the National Fisheries Office now has a fleet of about 50 relatively large and modern fishing vessels. The National Fisheries Office (Office National des Peches) is a Government agency. (United States Embassy, Tunis, March 9, 1966, and previous reports.)

Note: See Commercial Fisheries Review, March 1966 p. 69, and June 1964 p. 58.



## U.S.S.R.

### PACIFIC SCALLOP PRODUCTION AND EXPORTS TO U. S.:

In mid-April 1966, the vessels of the DALMORPRODUKT (the Far Eastern Specialized Marine Products Administration) began to fish for scallops in the Pacific Ocean. The season will continue throughout the rest of the year (7-8 months) and a total of 3,000 metric tons of landings are planned. In addition, 6 Sakhalin kolkhoz (cooperative) seiners also began harvesting scallops near the Kuril Islands, but their catches were small. Editor's Note: In 1965, the U.S.S.R. exported almost 650,000 lbs. (about 300 metric tons) of Pacific scallops to the U. S. A New York fishery broker and importer imported the scallops under a 5-year exclusive contract concluded with the Soviet Union in early 1965. Soviet scallop fishermen operating close to Siberian shores were accused of destroying the scallop stocks and beds and were ordered to stop that fishery until the resource recoverers. As a result, the U.S.S.R. offered only



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

small quantities for export in 1966 and the U.S. importer decided against taking any.

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PRODUCTION COSTS:

Soviet economic studies show that one metric ton of fishery products can be produced in the U.S.S.R. with 25-30 percent less total investment than the same quantity of meat products. Similarly, it costs 2-5 times as much to produce one ton of cattle (slaughter weight) as compared to one ton of fish (landed weight). (Rybnoe Khoziaistvo, March 1966.)

See Commercial Fisheries Review May 1965 p. 77.

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EXPANSION OF PACIFIC FISHERIES:

By 1970, the Soviet Union plans to catch 3 million metric tons of fish, shellfish, and other aquatic products from the Pacific and Indian Oceans (including the catches of Far Eastern whaling flotilla in the Antarctic).

The new plan, incorporated into the Draft of the 15-Year Plan, was submitted to the 23rd Congress of the Soviet Communist Party, which met in Moscow in March-April 1966. Ratified by the Congress automatically, the plan has the force of any other Soviet Government regulation and is considered almost inviolable.

In 1965, the vessels of the Far Eastern Fisheries Administration (which directs Soviet fishing in Pacific and Indian Oceans) produced 1,970,000 metric tons of fishery landings. During the next 5 years, the yearly rate of increase will have to amount to about 100,000 tons of fishery landings to give a total catch of 3.2 million tons in 1970.

To obtain such large yearly increases, the Soviets intend to: (a) increase the exploitation of all available fishery resources of the North Pacific. Particular attention will be paid to deep-water trawling for halibut and haddock. Another resource which will be exploited are the saury stocks off Aleutian Islands and off British Columbia. Since saury is now mostly caught in the nearby Sea of Japan by seiners, whose range is limited, large saury-processing factoryships will be acquired. (b) expand into new, hitherto unexploited fishing areas in the South Pacific and Indian Oceans. One of the major

targets in the equatorial parts of this area are "the enormous tuna resources." An increase in the Far Eastern tuna fleet is foreseen. Another promising area is the New Zealand Plateau and the Great Australian Bight where large red snapper schools were discovered early in 1966 by two Soviet fishery research expeditions.

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PACIFIC OCEAN PERCH CATCH BY LARGE STERN FACTORY TRAWLER:

Soviet catches off United States and Canadian Pacific coasts are reported in the Kamchatskaia Pravda issue of April 12, 1966.

The article described the homecoming of the large stern factory trawler Itelmen (BMRT 399). Constructed in 1965, the 3,200-gross-ton trawler left her home port of Petropavlovsk Kamchatskii (on the tip of the Kamchatka Peninsula) in December 1965. Most of her fishing was done off British Columbia (Queen Charlotte Islands). During 3 months of fishing, the Itelmen caught 4,082 metric tons (about 9 million pounds) of ocean perch and produced 2,170 tons of frozen products (packed in cases of 35 kg. or 77 pounds each), 370 tons of fish meal, and 16 tons of oil. The average catch per crew member during the 3 months was almost 200 tons (440,000 pounds).

Upon its arrival at Petropavlovsk on April 9, the Itelmen crew was received by the Secretary of the City Committee of the Communist Party, representatives of the Trade Unions, and by officials of the Kamchatka Regional Fisheries Administration. Being the top producer among the about 30-40 Soviet large factory stern trawlers in the Pacific, the crew of the Itelmen received a number of awards. One of the awards indicates that most of the Itelmen crew consists of members of "communist youth" probably in the age range of 18-25. All the honors and recognition were in addition to a handsome bonus paid to the fishermen for producing above the planned amounts.

The first quarterly plan for 1966 of the Itelmen provided for a catch of about 2,500-3,000 metric tons. Its 1966 official yearly catch plan of 10,980 metric tons was upped by the crew to 11,500 tons.

The Itelmen was scheduled to go to the Petropavlovsk shipyards for maintenance and

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

repairs, which normally take a month to finish. But the enterprising crew of the Itlemen decided to work in the shipyard when on shore leave and to shorten the repair time to about 2-3 weeks.

Editor's Note: Although the Itlemen was the highest producer among the Soviet large stern factory trawlers (BMRT's) during January-March 1966, similar and even larger catches are not unusual among the Soviet Far East stern trawlers. In 1964, one of them landed 15,000 metric tons of fish (mostly ocean perch) and yearly catches of 10,000 metric tons are not uncommon.

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OCEAN PERCH FISHERY  
OFF PRIBILOF ISLANDS:

In 1960, the Soviet fishing fleets began summer fishing for Pacific ocean perch near the Pribilof Islands after the herring season was over and caught about 7,000 metric tons. But in 1961 with the beginning of the highly successful Gulf of Alaska ocean perch fishing, the Pribilof area received no further attention. This year, however, Soviet Far Eastern fishery administrators began to make plans to begin anew the ocean perch fishery near the Pribilofs.

An additional resource of Pacific ocean perch discovered in 1965 is being fished by the Soviets in the vicinity of the Commander Islands; medium fishing trawlers are reportedly catching 2.5 metric tons of fish per drag.

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## SHRIMP CATCH IN THE GULF OF ALASKA:

In the first 3 months of 1966, the Soviet shrimp fishing fleet (15 medium freezer trawlers of the type SRTM-Maiak) caught about 4,000 metric tons (8.4 million pounds) of shrimp south of the Aleutians near the Shumagin Islands. If the Soviet vessels were fishing for shrimp every day of their stay in the area (a total of about 1,300 vessel days), then their average catch would amount to almost 3 tons a day. Assuming that some fishing time was lost due to bad weather and other causes, their average daily catch was probably considerably higher.

Soviet shrimp operations in the Far East are directed by a special administrative unit

called DALMORPRODUKT (Far Eastern Specialized Marine Products Administration) whose main task is to develop fisheries for export products (shrimp, squid, scallops, mussels, seaweeds, etc.).

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## SEALING OPERATIONS BEGIN IN PACIFIC:

Early in April 1966, the Far Eastern sealing fleet sailed from its home port at Vladivostok for 8 months of operations in the Bering Sea and the Sea of Okhotsk. In addition to bearded seals, the Soviets will also harvest sea lions, ringed seals, and other pinnipeds not protected by the International Fur Seal Convention.

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## WHALING BEGINS IN THE NORTH PACIFIC:

The Sovetskaia Rossiia, which finished her Antarctic whaling operations by mid-April 1966, will continue whaling in the North Pacific for a few months before returning to her home port of Vladivostok. At the same time, other Soviet whalers left the Far Eastern ports to begin their operations off the Kuril Islands and (normally by mid-May) off the Aleutian Islands. Editor's Note: Not all the whale catch will be used for domestic production. As in previous years, part of the whale meat will be exported to Japan (5,000 metric tons in 1966); this year, also, for the first time, the Soviets will export to Japan 150 metric tons of whale hearts, fins, and peritonea.

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## EXPANSION OF FISHING FLEET:

The Soviet Union plans to add 1,500 small and large vessels to her fishing fleet during the 5-Year Plan 1966-1970. Most of them will be constructed in domestic shipyards but foreign purchases, especially from Eastern Europe, will also be numerous.

The additions will consist of 13 different classes. Among the larger types of vessels the following planned additions are known: 150 large stern freezer trawlers (Maiakovskii class from the U.S.S.R. and Kosmos class from Poland); 100 large tropical stern trawlers (Atlantik class from East Germany); a 40,000-gross-ton giant fishing mothership (Vostok class, now being built at Leningrad); 145 refrigerated fish carriers (many purchased in Western Europe); an undetermined

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

number of floating fish factories (Soviet, West German, Swedish, and Japanese construction); and others. Soviets admit that "there is not enough room" on existing fishing grounds for all these vessels. The only way to successfully use the new additions is for them "to cover new, unexploited fishing grounds." Most of these would be in the South Atlantic, South Pacific, and in the Indian Ocean.

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ADDITIONS TO PACIFIC FLEET:

The Nikolaev Shipyards (on the Black Sea) have begun the construction of 12 large factory stern trawlers of the Maiakovskii class (330 gross tons) for the Far Eastern Fisheries Administrations. The first trawler, the Vladimir Kotelnikov, was delivered in mid-April 1966 and is on its way to the Pacific where it will be added to the Sakhalin fishing fleet. Editor's Note: In early 1966, the U.S.S.R. operated about 35 large stern factory trawlers in the Pacific and Indian Oceans; all were based in Soviet Far Eastern ports.

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FREEZER-TRAWLER "PRILUKI" DELIVERED TO SOVIETS BY DANISH SHIPYARD:

The freezer-trawler M/S Priluki was delivered to V/O Sudoimport, Moscow, by a Copenhagen shipyard March 21, 1966. The vessel is part of a series of freezer trawlers for the U.S.S.R. being built by the Danish shipyard to the following specifications:



Freezer-ship M/S Priluki which can also be used as a stern trawler.

length between perpendiculars 91 meters (298.5 feet), breadth 16 meters (52.5 feet), and deadweight tonnage 2,500 to 2,600 metric tons. The first vessel in the series was the M/S Skryplev launched May 10, 1962.

The Priluki can operate as a stern trawler, but it is designed primarily to operate as a freezer-ship, receiving catches from other trawlers. The vessel is equipped with butchering lines to head and gut fish and airblast freezers for freezing dressed fish in blocks in metal pans. (Regional Fisheries Attache for Europe, United States Embassy, Copenhagen, March 30, 1966.)

(Editor's Note: The Priluki was reported to have joined the Soviet fleet in the Northwest Atlantic.)

Note: See Commercial Fisheries Review, February 1966 p. 83.

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EXPERIMENTAL CATAMARAN TRAWLER:

A Soviet shipyard in Kaliningrad is said to be building an experimental vessel made up of the hulls of two trawlers linked by a common deck. Plans call for this vessel to be tested in the Atlantic in 1966. The Soviets believe this catamaran vessel will make possible the use of very long sweep nets which will be fished from the stern. The catamaran is expected to catch twice as much fish as an average trawler.

Soviet specialists also plan to use the vessel to conduct studies on the efficiency of twin-hull fishing vessels. (Fishing News, London, April 1, 1966.)

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NORTHWEST ATLANTIC FISHERY RESEARCH:

After an 11,000-mile three-month cruise in the North Atlantic, the research vessel Sevastopol returned to Murmansk on March 10, 1966. Most of the biological studies were done off Greenland's western and eastern coasts (in the Davis and Denmark Straits), in the Sea of Labrador, and on the Grand Banks. In the Sea of Labrador, large schools of cod were discovered. By measuring water temperatures at various depths and at the bottom and comparing them to previous measurements, Soviet scientists determined that the Labrador Sea is becoming warmer. This to them indicates a future increase of cod resources in the Sea of Labrador. Ex-

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

periments with deep-water trawling were also made.

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#### FISHERY AND OCEANOGRAPHIC STUDIES OF THE PACIFIC OCEAN:

The Pacific Science Association (Honolulu, Hawaii) was advised by the U.S.S.R. Academy of Sciences that the representative institution for the Association in the U.S.S.R. is the Academy. In July 1965, the Association was advised by the Presidium of the Academy that a Soviet National Committee had been created for the Association. That Committee requested the well-known Soviet scientist P. A. Moiseev, Deputy Director of the Soviet Federal Scientific Research Institute for Marine Fisheries and Oceanography (VNIRO), to prepare a short survey of Soviet fisheries and oceanographic research in the Pacific. This survey was published in the Information Bulletin of the Pacific Science Association (vol. 18, nos. 1 and 2, February - April 1966). Excerpts from the report follow:

The basin of the Pacific Ocean is characterized by varied flora and fauna. The vast area stretching from the Arctic to the Antarctic, the wide range of depths, some thousands of islands dispersed both in the boreal and in the tropical areas, the powerfully flowing permanent currents (principally the Kuroshio and the Humboldt Currents), the historical characteristics of the formation and settling of the aquatic fauna--all these characteristics of the Pacific Ocean make it extremely productive from the biological point of view.

Despite relatively little knowledge of the Pacific Ocean (considerably less than of the Atlantic Ocean), about 30 million metric tons of aquatic organisms, more than half of the world catch, are now caught in the Pacific Ocean. Certainly that level of catch taken by the fishery cannot be a limit, and after sufficiently thorough study of the resources of the Ocean, and with rational fishery (by taking measures aimed at the increase of biological productivity), the potential resources of the Ocean may ensure much higher catches of aquatic species. It is enough to recall the extremely rapid growth of catches taken by Peru (up to 9 million tons) and by the U.S.S.R. (up to 2 million tons), the sustainable high level of catch taken by Japan (6.5 million

tons), as well as catches taken by other countries to understand the great possibilities in the development of fisheries in the Pacific Ocean.

Taking into account the rapid growth of the population of Siberia and of the Soviet Far East, the U.S.S.R. fisheries investigations in recent years aimed at finding and studying fishery resources, mainly in those areas which are so far insufficiently investigated.

Twenty exploratory and research vessels (displacement from 400 to 4,000 tons) belonging to TINRO participated in the expeditionary work, in addition to some 15 vessels which were used for conducting research work. In addition, large amounts of biological and statistical materials were collected by various commercial vessels operating in different areas of the Pacific Ocean.

The northeast part of the Pacific Ocean, in contrast to earlier existing ideas, should be considered an extremely productive area of the World Ocean, which can ensure a catch of some million tons of aquatic species and, principally, of flatfish, Pacific ocean perch, herring, pollock, grenadier, shrimp, and others. This high productivity is assured by biogenic elements brought to the surface layers as a result of upwelling in the area of the Continental Slope (bathyal), which is clearly observed in the north part of the Pacific Ocean.

Fishery investigations in the north Pacific Ocean covered not only traditional depths usually fished by the fishing fleet, but were also conducted in relatively deep waters from 350 to 1,000 meters (1,148 to 3,281 feet) with good results. It appears that a number of fish species inhabit that area, feeding on organisms living in the surface layers, and forming dense concentrations which could ensure high and sustainable catches amounting to some tons per one-hour trawling. Scientific data collected by this expedition is being completed and four volumes have already been published.

Another vast area of the Pacific Ocean investigated thoroughly by the Soviet scientists during the last five years is its western part. Special attention was given to investigations of distribution, migration, and stock conditions of saury near the east coast of Japan, in waters near the Kuril Islands, and in the area of drift in the Pacific Ocean. The results of investigations showed that saury stocks were

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

although at present Soviet and Japanese fishery catches take only a small part of those stocks.

Studies on the biology of the Pacific salmon, and especially of the reasons for fluctuations in their abundance, were made in coordination with Japanese scientists. Soviet ichthyologists and oceanographers organized fishery research in the Seas of Japan and China, some of it carried out with North Korean and North Vietnamese scientists. The results of those investigations were published in different Soviet, Vietnamese, and Korean editions.

Soviet research vessels recently began operations in the vast tropical areas of the Pacific Ocean and the eastern part of the Indian Ocean with the purpose of finding oceanographic characteristics of the fishing areas and preparing a scientific basis for the development of tuna, dogfish, sailfish, and other pelagic fisheries. In addition, fishery investigations were carried out in some other areas off the southern part of the Pacific Ocean.

A number of specialized investigations of the biology of whales, fur seals, seals, commercial invertebrates, and algae were also made in various parts of the Pacific Ocean. Most of them (investigations of whales and fur seals) are based on programs coordinated with scientists of other countries, and the results are regularly presented to the International Commissions.

Soviet scientists assume that the Pacific Ocean area could ensure a much higher level of sustainable catch than it does now, provided that there is a thorough study based on scientific data and collaboration with other countries concerned in the utilization of water resources and in rational and effective fishery.

\* \* \* \* \*

RESEARCH IN THE INDIAN OCEAN:

The fisheries and oceanography research vessel Mikhail Lomonosov (6,000 displacement) is scheduled to leave late in April for a cruise in the Indian Ocean. On previous trips, the vessel participated in the Joint Cuban-Soviet Fishery and Oceanography Research Expedition in the Gulf of Mexico and the Caribbean Sea (1964-1965),

collaborated in the mapping of a Pacific Ocean relief map, and during September 1965-January 1966, studied the formation of radioactive fields in the Northeastern Atlantic.

\* \* \* \* \*

STUDY OF FISH REACTION TO SOUND:

The Soviet fishery research vessel Tunets of the Polar Scientific Research Institute of Marine Fisheries and Oceanography (PINRO) spent a month and a half in the Bering Sea studying the reaction of fish to sound. Soviet scientists carried out hundreds of experiments using hydro-acoustic equipment and various frequencies and intensities of sound. The preliminary report claims that certain frequencies make fish gather into dense schools where they can be conveniently fished.

\* \* \* \* \*

FISHERIES MINISTER TO VISIT JAPAN:

Soviet Fisheries Minister Ishkov was scheduled to visit Japan in May 1966 at the invitation of Japanese Minister of Agriculture Sakata to discuss technical cooperation in fisheries between both countries and the operations of Japanese fishermen around Shikotan Island and the Habomai Islands. The Habomai Islands and Shikotan, off Hokkaido's eastern tip, were occupied by Soviet forces at the close of World War II. The islands have been retained by the U.S.S.R. which claims jurisdiction over them until the signing of a peace treaty with Japan. The area is a traditional fishing ground for Japanese fishermen who have often been arrested by the Soviets for violating "Soviet territorial waters."

The first move for a Japanese-Soviet understanding of the thorny problem of the Japanese fishermen's operations in the southern Kurils was made during the 1965 visit of the then Japanese Minister of Agriculture Akagi to Moscow. Akagi was also received by Premier Kosygin and made a strong presentation of Japan's case. The Joint Communique issued after Akagi's visit mentioned this problem and included a Soviet promise to study it.

\* \* \* \* \*

PATROL VESSELS ORDER JAPANESE TRAWLERS FROM FISHING AREA:

Japanese trawlers operating in the Sea of Japan about 18 miles off the coast of the Soviet Maritime Region (Primorskii Krai) of

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

Siberia were ordered by a U.S.S.R. patrol vessel to leave the area. The incident, which occurred on March 14, 1966, and involved 16 Japanese trawlers, was reported to be the third such action by the Soviets in 1966. According to reports from Otaru City on the west coast of Hokkaido, the home port of the Japanese trawlers, previous similar incidents occurred on January 26 involving 6 vessels and February 15 involving 16 vessels. No such incidents took place in 1965.

As described by the captain of one of the fishing vessels, the Soviet patrol vessel first ordered the trawlers to move 15 miles to the east. The 16 trawlers moved as ordered but later that afternoon 3 Soviet patrol vessels ordered the Japanese to "leave the place." In addition to patrol vessels, a Soviet aircraft was also seen in the vicinity. It is reported that Japanese fishermen were protesting Soviet action which might adversely affect their livelihood. (Sankei, March 15, 1966.)



## United Arab Republic

SOVIET FISH LANDINGS DROP OFF:

Sales of Soviet-delivered fish have fallen off from 30 metric tons a day to one-half ton a day during the past few years. Cold-storage stocks are reported as large and excessive. The reason for decreased sales is consumer resistance and possibly the refusal by fish brokers to handle Soviet products. (Al-Jumhuriyya, Cairo, September 26, 1965.)



## United Kingdom

FISHERY LOAN INTEREST RATES REVISED:

The British White Fish Authority announced that their rates of interest on loans made as from April 2, 1966, would be as follows:

For fishing vessels of not more than 140 feet, new engines, nets and gear: on loans for not more than 5 years,  $7\frac{1}{2}$  percent (increase  $\frac{3}{8}$  percent); on loans for more than 5 years but not more than 10 years,  $7\frac{3}{8}$  percent (increase  $\frac{3}{8}$  percent); on loans for more

than 10 years but not more than 15 years,  $7\frac{1}{2}$  percent (increase  $\frac{1}{2}$  percent); on loans for more than 15 years but not more than 20 years,  $7\frac{3}{4}$  percent (increase  $\frac{3}{8}$  percent).

The rate to processing plants for loans of not more than 20 years is unchanged at  $7\frac{3}{4}$  percent.

The rates on loans made before April 2, 1966, are unchanged. (The Fishing News, London, April 7, 1966.)

Note: See Commercial Fisheries Review, January 1966 p. 98.

\* \* \* \* \*

SOVIET FROZEN HERRING QUALITY DISPUTE:

Trouble broke out at Aberdeen in March 1966 over a cargo of frozen herring brought by the Soviet vessel Sayani. The consignment was 150 metric tons.

After about 70 tons had been discharged, Aberdeen processors decided to return their consignments. The frozen herring were about to be reloaded, when the mate of the Sayani closed the hatches, refusing to let the herring back on board.

One of the Aberdeen processors said that the herring were of a different quality from the first consignment which had arrived towards the end of 1965. "The sizes of the Sayani's herring were mixed, from large downwards. They were packed differently and were more difficult to defrost. We had several tons ashore and sent them back," the processor pointed out.

Finally the processors who rejected the herring agreed to accept them.

Before going to Aberdeen the Sayani landed 350 tons of frozen herring at Yarmouth. (Fish Trades Gazette, March 19, 1966.)

\* \* \* \* \*

LARGE FREEZER-TRAWLER "CASSIO" LAUNCHED:

The freezer-trawler Cassio was launched at Glasgow, April 5, 1966. The vessel is the 4th in a series of 7 large freezer-trawlers being built for a British firm. The Cassio has a storage capacity for over 500 tons of frozen fish. The vessel is designed to stay at sea up to 58 days and can operate in both northern and tropical waters. Specifications of the vessel are: length overall 224 feet,

United Kingdom (Contd.):

length between perpendiculars 194 $\frac{3}{4}$  feet, breadth moulded 39 feet, depth moulded to upper deck 25 feet, depth moulded to main deck 17 feet, speed in service 13 $\frac{1}{2}$  knots, main diesel engine 2,350 horsepower, cold-storage capacity 27,000 cubic feet, and crew accommodations for 51. The vessel is equipped with a controllable pitch propeller. Main machinery space is at the afterend, enabling the cold-storage rooms to be placed amidships.

\*\*\*\*\*

**SUPPLY SITUATION FOR FROZEN PROCESSED GROUND FISH PRODUCTS, JULY-SEPTEMBER 1964-1965:**

British stocks of frozen processed groundfish totaled 24,101 long tons on September 30, 1965, an increase of 36 percent over stocks

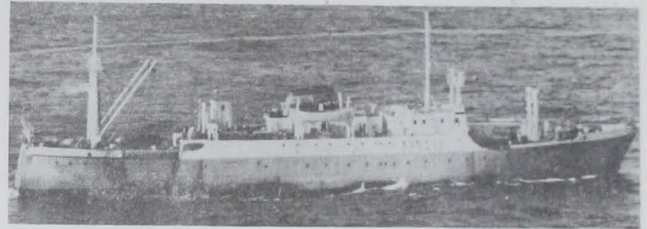


Fig. 1 - Large factory stern trawler, one of several Soviet vessels fishing in the Northwest Atlantic.

ly estimates to mid-April showed that about 75 Soviet vessels were operating off southern New England. By month's end, the fleet had increased to more than 100 vessels. The increase was due to the recent arrival of about 25 medium side trawlers (mainly from the Kaliningrad Fisheries Administration).

A total of 128 vessels (exclusive of duplication) were sighted during April and identi-

British Supply Situation for Frozen Processed Groundfish Products, July-September 1964-65

	1965			1964		
	Institutional Pack	Consumer Pack	Total	Institutional Pack	Consumer Pack	Total
	..... (Long Tons) .....					
Ending Stocks, July 1	15,104	8,332	23,436	10,882	10,077	20,959
Production, July-September	8,579	7,042	15,621	8,628	4,960	13,588
Exports, July-September:						
Denmark	1,321	1,135	2,456	969	1,963	2,932
Ireland	1,985	65	2,050	1,026	-	1,026
Iceland	2,283	921	3,204	1,290	44	1,334
Netherlands	86	-	86	65	-	65
South Africa Republic	135	68	203	48	43	91
Spain	36	-	36	50	-	50
Sweden	306	-	306	209	-	209
Switzerland	129	-	129	208	-	208
United States	6	-	6	3	-	3
United Kingdom	628	-	628	1	-	1
Far Islands	150	-	150	-	-	-
Other Countries	27	-	27	27	-	27
Total imports	7,092	2,189	9,281	3,896	2,050	5,946
Stocks, July-September:						
Retail market	10,774	9,729	20,503	10,916	8,535	19,451
Wholesale estab. abroad	151	4	155	248	-	248
Wholesale stores	157	-	157	192	-	192
Wholesale exports	2,009	1,413	3,422	1,929	903	2,832
Total sales	13,091	11,146	24,237	13,285	9,438	22,723
Ending Stocks, September 30	17,684	6,417	24,101	10,121	7,649	17,770

at the end of the year and a year earlier. (British White Fish Authority.)



**Foreign Fishing Off U. S. Coasts**

APRIL 1966:

Northwest Atlantic: U.S.S.R.: Soviet fishing in the Northwest Atlantic off the United States coast increased throughout April. Week-

ended on information from surveillance flights by U. S. Bureau of Commercial Fisheries management agents with U. S. Coast Guard cooperation, plus information obtained from other sources.

fied as 56 large factory stern trawlers, 10 large freezer factory trawlers, 24 large side trawlers, 28 medium side trawlers, 4 refrigerated fish transports, 3 factory base ships, and 3 fuel and water carriers. This compares to 107 vessels sighted during March 1966 and 107 during April 1965.

Soviet fleets, operating generally in large groups, were dispersed along 200 miles of the 100-fathom curve of the Continental Shelf from Cape Hatteras to south and southeast of Cape Cod.



Fig. 2 - Aerial view of Soviet refrigerated transport vessel with factory stern trawler alongside in Northwest Atlantic.

The principal species of fish--whiting and red hake--caught by the Soviets remained unchanged for the past two months. But it appears that the Soviets are not putting as much emphasis on red hake as they did a year earlier but have concentrated primarily on catching whiting. The fact that many large factory stern trawlers had their reducing plants operating indicates that a portion of the catch is being reduced to fish meal.

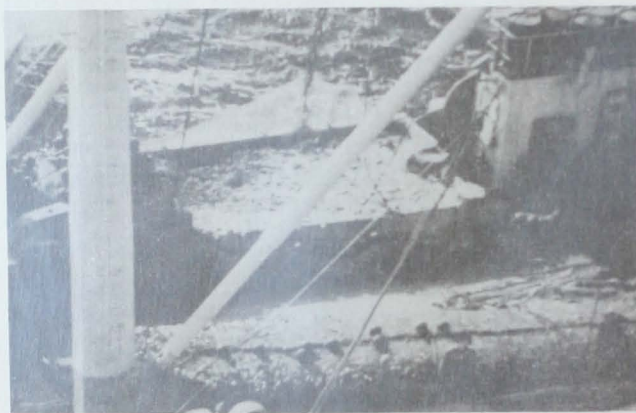


Fig. 3 - Deck view of Soviet stern trawler in North Atlantic--mostly red hake and whiting (silver hake).

Only a few Soviet vessels fished on Georges Bank in April. This in all probability is attributed to the abundance of fish off southern New England and the Middle Atlantic coast.

**SPAIN:** In the first week of April, 24 Spanish vessels operating as "pair trawlers" were located in southeast Georges Bank. Heavy to moderate catches of fish observed on the decks of those vessels were primarily

large cod and haddock. The fishing gear in use appeared to be the proper mesh size. Crewmen on deck were beheading and splitting the fish prior to salting. No information is available on the location or operations of the Spanish fleet for the balance of the month.

**CANADA:** An estimated 30-35 Canadian fishing vessels fished for haddock in the Northeast Peak of Georges Bank in the first week of April (not far from the Spanish vessels). Because large concentrations of other foreign fishing vessels south of that area required increasing surveillance, no observations were made on Canadian fishing activities for the balance of April.

**Off Mid-Atlantic Coasts: U.S.S.R.:** Foreign vessel surveillance flights off the Middle Atlantic coast were drastically reduced due to poor weather conditions. Only 6 Soviet large factory stern trawlers were sighted and identified 65 miles east of Cape Henry, Va. They were fishing at depths of 50 to 75 fathoms. Heavy catches of fish on deck appeared to be primarily scup (porgies). Several hauls were observed with estimated catches of between 25,000 and 30,000 pounds of fish per haul. Dehydration plants were in operation on all vessels.

Although surveillance flights allowed only limited coverage, it is estimated that about 50 Soviet vessels fished intermittently along the mid-Atlantic coast during April.

**In the Gulf of Mexico and Caribbean: NORWAY:** Since leaving Norway in June 1965, Norwegian shark fleet of four vessels (each equipped with radar, depth-recorder, and direction finder) has been fishing off the eastern and southeastern coasts of the United States in the Atlantic Ocean, the Gulf of Mexico, and the Caribbean Sea. In early 1966, the fleet sailed down the Central American coast to Trinidad, and then to Charleston, S. C., where supplies were taken on in March and April. The fleet's total catch (mainly brown and mackerel sharks with small quantities of dolphin and swordfish) probably did not exceed 450 tons after about 10 months of fishing. Long lines from 20 to 35 miles in length and equipped with radar buoys are reported to be the gear used. The catch is frozen for further processing in Norway or Germany. Italy is the intended market.

**U.S.S.R.:** No precise information on Soviet fishing in the Gulf of Mexico and Caribbean



can is available although Soviet sources report a recent increase in the number of vessels operating out of Cuba's newly-constructed fishing port at Havana.

**Northeast Pacific: U.S.S.R.:** In the first week of April, a part of the Soviet fishing fleet operating off British Columbia moved south to the Pacific ocean perch fishery off the Oregon coast. Since the fleet was widely dispersed, the same vessels were sighted in several locations. This led to exaggerated reports on the size of this fleet ("over 200 fishing vessels") in the local and national press.



Fig. 4 - In North Pacific, Soviet trawler transferring Pacific ocean perch to reefer vessel.

The total number of Soviet fishing vessels off Oregon during the first three weeks of April never exceeded 30 units. About 25 were medium fishing vessels of various types; the rest were processing vessels (refrigerators and base ships), tankers, and one research vessel. Up to two large stern factory trawlers were also sighted.

In the fourth week of April an important change took place with the arrival of 6 additional large stern trawlers from the disbanding flounder fishery in Bristol Bay. It is believed that the trend to employ more large stern factory trawlers (among the most efficient Soviet fishing vessels) will continue as long as fishing remains good.

As of April 29, the fleet totaled 37 vessels as compared to 26 vessels on April 2. Of the 37 vessels, 29 were fishing vessels--7 large stern factory trawlers and the balance medium trawlers with or without refrigeration and freezing equipment. The rest of the fleet included 4 large refrigerator transports and base ships (from 3,300 to 5,500 gross tons), 2 support vessels, 2 research vessels.

U. S. Bureau of Commercial Fisheries field agents estimated that the fleet was catching about 1.2 to 1.9 million pounds of fish a day. They believe that the Soviets in about 2 to 3 months will catch about 80 million pounds of

fish. However, the Bureau's Foreign Fisheries Specialists in Washington (who have access to Soviet data on average catches for vessels of the type fishing off the Pacific Northwest) estimate that the Soviets are catching somewhat less than 1.0 million pounds of fish a day.

The Soviet fleet, whose vessels at the beginning of April were scattered from Vancouver Island to Coos Bay (Oregon), was concentrated by mid-April on the Continental Shelf about 15-35 miles from Yaquina Head (Oregon). Trawling mostly in waters deeper than 100 fathoms, they were catching mainly Pacific ocean perch and some other rockfish species.

Ocean perch caught aboard the medium fishing trawlers without refrigeration (SRTs) are chilled and transhipped as soon as possible aboard modern refrigerator and processing vessels to be quick-frozen and transported to Siberian home ports. Medium fishing trawlers with refrigeration (SRTRs) or freezing equipment (SRTMs) handle perch landings immediately but unload them eventually to refrigerated fish carriers. This enables those vessels as well as the SRTs to remain on fishing grounds for months at a time. Large stern factory trawlers freeze ocean perch themselves and either unload it (packaged in cartons) aboard refrigerated transports or take it to Soviet ports themselves, depending on the amount of time they have already spent at sea, mechanical condition of the vessels, and the cruise plan for the stern trawler.

Though most ocean perch are frozen, there is in the Soviet Far Eastern Fisheries underway a drive to begin large-scale production of ocean perch fillets. There is little doubt that perch fillets are in great demand in the Soviet Union.

The Soviets fished in strength off the Pacific Northwest twice before. In April 1965, a group of about 15 fishing vessels detached themselves from the Gulf of Alaska fleet and began fishing 50-150 miles west of Cape Flattery (off northern Washington State). After about 10 days of fishing they returned to the Gulf of Alaska. In mid-June 1965, a small Soviet fleet, accompanied by a research vessel and a refrigerated fish transport, again began fishing about 30-60 miles off Cape Flattery, and moved south to the waters off northern Oregon. But they soon departed for Alaskan fishing grounds.

The 1966 "expeditionary" pattern of the Soviet fleets, however, indicates that this time they intend to stay as long as fishing is good. A commander of the fleet aboard the base ship Churkin directs all fishing and processing operations. Fishing vessels are supported by refrigerated transports, tankers, fuel and water carriers, and research vessels. This allows the fleet to operate as an independent unit, which was not the case in 1965.

The real reason behind the 1966 Soviet move south off Oregon may be the fact that the Soviet Far Eastern Fisheries Administration was unable to fulfill the production quota for the first quarter of 1966. One way to increase the production is to tap unexploited and little exploited fishery stocks.

Alaska: JAPAN: At the end of April about 82 Japanese fishing vessels were operating off Alaska.

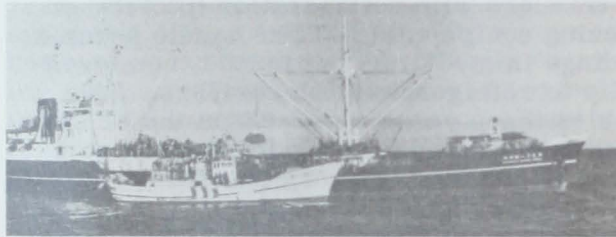


Fig. 5 - Japanese refrigerated fish transport and supply vessel supplying a wooden trawler with new nets in Gulf of Alaska. Typical high-seas support operations.

Only 1 fish meal and oil fleet remained in the Eastern Bering Sea by month's end. This fleet (composed of a factoryship and 30 trawlers) fished the Bristol Bay flat north of Unimak Island. Of the other fleet in this fishery, one returned to Japan and the second shifted to the shrimp fishery.



Fig. 6 - Japanese fish factoryship in Gulf of Alaska.

Of the 11 factory trawlers licensed by the Japanese to fish in the Gulf of Alaska this year, 2 began operations southwest of Kodiak Island in late April. The first trawler which arrived was boarded by a U. S. Bureau of Commercial Fisheries biologist observer as

part of the International North Pacific Fisheries Commission (INPEC) program to determine the effects of extensive trawling (primarily for ocean perch) upon Gulf of Alaska stocks of halibut and king crab.

Two other factory trawlers operated along the central Aleutians presumably for ocean perch during most of April.

Waters 100 to 200 fathoms in depth along the Continental Shelf edge northwest of Unimak Pass were fished by two additional Japanese factory trawlers in April. Observations and boarding indicated Alaska pollock comprised the vast bulk of the catches in that area.



Fig. 7 - Washing silt and dirt from trawl-caught fish on the main deck of a typical Japanese factoryship fishing off Alaska.

In early April, a factoryship with 11 trawlers moved from the pollock and flounder fishing ground near Unimak Pass to the usual shrimp-fishing region near the Pribilof Islands. This fleet was joined at the end of the month by a second factoryship with 13 accompanying trawlers.



Fig. 8 - Japanese stem-ramp trawler typifying the modern self-sufficient vessels catching and processing shrimp and Pacific perch in the eastern Bering Sea.

The Japanese king crab fishery in the Eastern Bering Sea reached full strength in

mid-April when the second factoryship joined her predecessor on the outer Bristol Bay ground. The factoryships, each of which is accompanied by five tangle net-handling trawlers, fished north of Port Moller in the same region as their Soviet counterparts.

**U.S.S.R.:** The total number of Soviet fishing and support vessels off Alaska decreased considerably during April from about 200 reported in March 1966 to about 160. This total number is somewhat smaller than it was last year at the same time.



Fig. 9 - Type of Soviet small trawler fishing in the eastern Bering Sea.

The transfer of vessels to the fishery off the Pacific Northwest reduced the size of the Gulf of Alaska Pacific ocean perch trawling fleet to about 70 vessels in mid-April. By month's end the Gulf fleet operating from Yakutat to Portlock Banks was again built up to about 100 vessels apparently by transfers from the disbanding Bristol Bay flounder fleet.



Fig. 10 - Zakharov-class factoryship operating in the king crab fishery of the eastern Bering Sea. In the shadow of the vessel is an SRT trawler. Factoryship carries 12 motorboats for king crab fishing - one is near the bow and another near the stern.

The Soviet shrimp fleet in the Gulf of Alaska consisted of 12 medium freezer trawlers (SRTMs) operating on the shrimp grounds near Shumagin Islands. The fleet was supported by one refrigerated carrier.

The flounder fleet in the outer Bristol Bay flats was being disbanded. Some of the participating vessels were transferred to the ocean perch fishing fleets, while others joined fisheries off Kamchatka. With the transfers to the Central Gulf of Alaska perch fleet, it is estimated that the remaining flounder fleet consists of 20 to 30 vessels.

In early April three Zakharov-class factoryships accompanied by about 11 tangle net-handling trawlers entered the king crab fishery in the Eastern Bering Sea (Bristol Bay). Throughout the month the vessels concentrated on the traditional crab-fishing grounds north of Port Moller (mid-Alaska Peninsula).



#### STURGEON IS THE LARGEST FRESH-WATER FISH

The giant sturgeon (Huso huso), inhabitant of the Volga River, and other large rivers emptying into the Black Sea, is the largest fresh-water fish species in the world. The largest known was 14 feet 2 inches, weighing 2,250 pounds. (Conservation Notes, Iowa State Conservation Commission, March 28, 1956.)