International

WORLD OUTLOOK FOR FISHERIES PRODUCTS--1950:[1] Production and Prices: After an upsurge which began in 1945, world landings of fish now seem to be stabilizing at the 1948 level, which the Food and Agriculture Organization (FAO) estimates to be in the neighborhood of 25 million metric tons. In Europe, where the returns from the North Sea are noticeably smaller, total quantities landed in 1949 amounted to some 5.7 million metric tons as compared with 5.9 million tons in 1948. In North America, 1949 landings were estimated at 3.6 million tons, compared with 3.2 million tons in 1948. In South America, 1949 landings have been estimated at 435,000 tons, compared with 425,000 tons in 1948. In Japan, which is the only country in Asia for which complete statistics have been reported, 1949 landings amounted to some 3.175 million tons against 2.45 million tons in 1948. Prices of fishery products generally declined in 1949, however, owing to larger supplies and lower prices of competing foods. Lay-up of craft because of depressed markets increased somewhat, and net income of fishermen generally declined. Great interest has been shown in the expansion of fisheries in underdeveloped areas, but such programs take time; no significant increase in world landings is expected during the next few years.

Reports from eight countries, which in 1949 accounted for 6.4 million metric tons or 25 percent of world landings, indicate an over-all increase of some 16 percent for the first five or six months of 1950 over the same period during 1949. This, however, is basically due to a large increase of herring landings in Norway, of which 85 percent was converted to oil and meal. For the individual countries, 1950 landings as percentages of 1949 landings were as follows: Canada 114, Denmark 99, Iceland 103, Ireland 98, Netherlands 87, Norway 137, United Kingdom 95, and United States 116.

The continued expansion, at high costs, of fishing fleets in many countries contrasts with relatively moderate increases in catch, sharply rising operating costs, and slowly declining fish prices. The United States 1949 monthly index of wholesale prices for edible fisheries products (1947=100) averaged 101.7, compared with 110.0 for 1948. The index for May 1950 was 94.7, compared with 100.9 in May 1949; in July 1950 it reached 97.5 as compared with 96.8 in July 1949. The "Consumers Price Index for Moderate-income Families for Large Cities Combined" in the United States showed a 7-percent decrease in fish prices from May 1949 to May 1950. In the United Kingdom, where cod has been described as flooding the rather sluggish markets, average prices for this species went down from about £38 per metric ton in January-July 1949 to about £29 in the same period of 1950. In a few other countries a different trend is shown: Canada's wholesale index increased, and in Norway prices to fishermen during the 1950 spawning cod season went above the fixed minimum.

1/ ABSTRACTED FROM THE WORLD OUTLOOK AND STATE OF FOOD AND AGRICULTURE-1950 (OCTOBER 1950), FOOD AND AGRICULTURE ORGANIZATION.

World Fisheries Status and Outlook: The fishing industry is in the painful process of adjusting itself to keener competition with other foodstuffs, now available at lower prices and in greater abundance. In March 1950 Iceland, heavily dependent upon fish exports, devalued the krona specifically to stimulate such exports. In the United Kingdom, the whitefish and herring industries were experiencing a serious crisis, and on July 5, 1950, subsidies were introduced for six months to assist catchers of whitefish in the near and middle waters, including inshore fishermen. Further restrictions on imports may be considered. In Portugal, a great number of sardine fishing craft were showing deficits in their operations. Increasing lay-ups of fishing craft, owing to lack of profitable markets, have been reported.

The decline in demand for fish appeared to be primarily a result of the greater availability and often lower prices of competing foods. In an attempt to attain a higher degree of self-sufficiency in food supply and a more diversified economy, fisheries have been expanded in consuming countries which used to import considerable quantities. Also, the fleets, in countries where war damage was great, have now been reconstructed and imports have been cut down.

A large increase in the quantity of salted cod produced during 1950 and a further decline in production of the less expensive varieties of salted herring also are likely. Production of oil and meal will probably increase further, even without the impetus of more favorable prices, because that is the best outlet when other channels are not as favorable. Prices of fisheries products might be prevented from slipping further to lower levels, and be stiffened at present or even higher levels should an appreciable increase in the prices of competing foodstuffs emerge. It is to be noted, however, that the changing economic pattern as influenced by the international situation might result in sharp increases in labor and other operating costs. With generally higher consumer incomes in 1950-51 and 1951-52, and intensified demands for most foodstuffs, the demand for fisheries products should tend to strengthen, with prices holding or rising somewhat on some products.

Fresh and Frozen Fish: The quantities of fish marketed as fresh and frozen in 1949 were, according to reports from 15 countries, somewhat larger than in 1948, but this situation has been changing rapidly during the first few months of 1950, when demand from importing countries declined.

In the United Kingdom, imports of fresh and frozen fish during January-July 1950 amounted to only 62,200 metric tons as compared with 119,000 tons during the same period in 1949 and 137,000 tons during the same period of 1948. Such changes in the supply pattern of the principal European consuming centers are also reflected in the export statistics of the principal suppliers. Iceland's export of fresh and frozen fish during January-July decreased from 94,500 metric tons in 1949 to 34,400 tons in 1950. The export statistics of Norway show a considerable decline in the exports of fresh fisheries products excluding herring: 16,600 tons during January-May 1950, compared with 32,800 tons during the same period of 1949.

Salted Fish: In Europe, much larger quantities of ground fish are being salted and it is likely that world production of salted cod in 1950 will exceed 300,000 metric tons, which is expected to meet the demand. The increase is mainly owing to the switch from fresh and frozen products which is now taking place in Iceland, dictated by drastic cuts in the imports of fresh fish into European markets, particularly Germany and the United Kingdom.

For salted herring there will possibly be a further decline in production, owing to a relatively unfavorable market outlook for this product. During the 1950

winter-herring season in Norway, the quantity salted was reduced to about half of what it was in 1949.

Canned Fish: Production of the relatively high-priced canned sardines, such as that in the countries of Southern Europe, hinges almost entirely on the availability of fish, which has been very low during recent years. Disruption of the prewar marketing pattern has caused difficulties for established producers and for new producers just entering the field. There is a downward tendency in the prices of less expensive canned sardines. Canned salmon will probably be produced in the same quantity, stimulated by a relatively good market outlook in the United States. However, competition from the U.S.S.R. may tend to reduce the European market for North American exports.

United States production of tuna, which reached a peak in 1949, also increased during 1950. The U. S. market, by far the most important, may not be able to absorb much larger quantities. U. S. domestic producers have expressed some fear of competition from Japan and other countries where tuna packing is being revived or initiated.

Oils and Meals: It appears likely that a relatively larger proportion of the 1950 landings of herring and allied species, and in some countries other species as well, will be converted into oils and meals. Both body-oil and liver-oil prices have dropped considerably since World War II. Fish meals from soft-currency countries still move relatively easily; in the United States and Canada, production faces competition with imports and with the synthetic "animal protein factor." Whether fisheries largely based on oil and meal production can be operated at a profit during the next year may largely depend on the extent to which recent technological improvements--which are being worked on diligently--can be applied to match the increasing competition from other products.

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FAO HERRING TECHNOLOGICAL MEETINGS: The United States Government was represented at the two herring meetings convened by the Food and Agriculture Organization (FAO) at Bergen, Norway, September 24-30,1950. Delegates of 12 countries attended--Belgium, Canada, Denmark, Finland, France, Iceland, The Netherlands, Norway, Sweden, United Kingdom, United States, and Western Germany; and representatives from the FAO and the International Council for the Exploration of the Sea.

The first meeting--the FAO Meeting on Herring Technology--convened on September 24 and adjourned on September 29, 1950. It was concerned with technological problems related to the processing, marketing, and distribution of herring.

Harold E. Crowther, Chief, Technological Section, Fish and Wildlife Service, U. S. Department of the Interior, was the United States delegate, and Herbert C. Davis, President, Terminal Island Sea Foods Ltd., Terminal Island, California, attended as adviser

The discussions during the week were concerned with the marketing of herring products in countries undersupplied with proteins; the marketing of various special herring products, such as, dried herring, canned herring, etc.; the development of new herring products; preservation methods of herring (fresh, frozen, and canned); production of fish meals and oils; and new reduction processes.

The second meeting--FAO Meeting of Fisheries Technologists--convened on September 29 and adjourned on September 30, 1950. Included in the agenda were discussions on the desirability of cooperation between fisheries technologists of the

various countries; arrangement for coordination of research and for cooperation between technologists in the same field; the region which such cooperation should cover; field covered by existing research programs in which international cooperation might be desirable; and need for extending field of research. This meeting was attended principally by the same delegates who attended the first meeting.

These meetings were an outcome of the FAO herring meeting held in The Hague, the Netherlands, in August 1949. One of the conclusions of the meeting last year was that in view of the existing trend towards a surplus in the herring industry, efforts should be made to find new outlets for herring products.

The following list of papers presented at the meetings will give an idea of the scope and subjects of the discussions:

THE UTILIZATION OF HERRING, BY G. A. REAY, UNITED KINGDOM.

HERRING, THE RAW MATERIAL, BY OLAV NOTEVARP, NORWAY

FACTORS INFLUENCING SUPPLY OF AND DEMAND FOR HERRING, BY G. M. GERHARDSEN, CHIEF ECONOMIST, F.A.O.

EFFORTS TO INCREASE SALES AND EXPORTS OF HERRING PRODUCTS, BY H. H. GOODWIN, SCOTLAND.

POSSIBILITIES FOR EXPORTING HERRING PRODUCTS TO ASIA AND THE FAR EAST, BY G. L. KESTEVEN, F.A.O.

HERRING PRODUCTS IN THE BRITISH DEPENDENCIES, BY C. F. HICKLING, UNITED KINGDOM.

FISHERY PRODUCTS OF INDO-CHINA, BY J. WESTENBERG, INDONESIA.

A REVIEW OF THE TECHNOLOGY OF BRITISH COLUMBIA HERRING PRODUCTS INVESTIGATED AT THE PACIFIC FISHERIES EXPERIMENTAL STATION OF THE FISHERIES RESEARCH BOARD OF CANADA, BY NEAL M. CARTER AND BASIL E. BAILEY, CANADA.

SALTED AND SPICED HERRING, BY D. J. VAN DIJK, THE NETHERLANDS

HERRING--DELIKATESSEN AND MARINATED PRODUCTS (SEMISTERILE HERRING PRESERVES), BY GEORGE BORGSTROM, SWEDEN.

PRESERVATION OF HERRINGS BY SMOKING AND DRYING, BY C. L. CUTTING, UNITED KINGDOM.

HOT SMOKING OF HERRING BY F. BRAMSNAES AND HALVOR PETERSEN, DENMARK.

HERRING CANNING, BY J. G. H. HUNTLEY, UNITED KINGDOM.

THE PRESERVATION OF FRESH HERRINGS, BY G. A. REAY AND J. M. SHEWAN, UNITED KINGDOM.

FREEZING OF HERRING, BY EIRIK HEEN AND OLOF KARLSEN, NORWAY.

FREEZING AND COLD STORAGE OF HERRINGS, BY A. BANKS, UNITED KINGDOM.

NEW REDUCTION PROCESSES, BY GUDMUND SAND AND TRYGVE SPARRE, NORWAY.

THE PRODUCTION OF HERRING OILS, BY J. A. LOVERN, UNITED KINGDOM.

FISH SOLUBLES, BY GUDMUND SAND AND TRYGVE SPARRE, NORWAY.

FAO is preparing a complete report on the meeting which will include all the papers presented at the meetings. Copies of the report will be available from FAO at a later date.

Note: ALSO SEE COMMERCIAL FISHERIES REVIEW, OCTOBER 1950, P. 73; SEPTEMBER 1950, P. 58; DECEMBER 1949, PP. 21-4.

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FAO CONFERENCE CONCLUDES SPECIAL SESSION: A Special Session[1/] of the FAO Conference met at its Washington headquarters November 3-11, 1950. Preceding it, the 18-government Council of FAO met beginning October 25. With the Food and Agriculture Organization's move to permanent headquarters in Rome, this was probably the last meeting of the Conference at its Washington headquarters.

The FAO Conference's last few days of the meeting were taken up with full Conference sessions to consider a number of matters, including the reports of the Conference committees, according to a news release from the National Conference of Non-Governmental Organizations on FAO.

Some of the main actions that the Conference took were:

Commodity Problems: The Conference decided to continue the Committee on Commodity Problems and to broaden the scope of its work. One of the first jobs the Committee will have to do under its expanded terms of reference is to analyze the recommendation of the International Cooperative Alliance for establishing a a World Surplus Commodity Co-operative.

Technical Assistance: After a discussion of FAO's technical assistance work, the Conference endorsed the way the program is being conducted. It adopted resolutions proposed by several governments, including one that the U. S. Delegation drafted. The U. S. resolution asked the Director-General in preparing future budgets and work programs to include information on technical assistance so that the technical assistance programs and regular programs can be looked at and evaluated together.

The U. S. resolution also asked the Director-General to provide for getting technical information to the individual producer.

The Conference voted to draw the attention of the Economic and Social Council to the fact that in many cases capital investment will be needed along with technical assistance in order to achieve economic development and raise living standards.

Regional Offices: The Conference agreed to abolishing the European Regional Office but requested that the Director-General maintain the technical and coordinating services for Europe in whatever way he thinks best. The question of additional subregional offices in Latin America was also left up to the Director-General. Latin American offices are already located at Santiago, Chile; and Rio de Janeiro, Brazil. The proposed North American Regional Office was approved, with the understanding that liaison with the UN and its agencies in North America would be maintained direct with the Rome headquarters.

A Near East Regional Office was the last item on the Conference agenda and was considered separately from the other regional office discussions because it was placed on the Conference agenda as a separate item by the Government of Israel. It was agreed that the Director-General would work out the most suitable arrangements for rendering FAO's services to Israel.

Long-Term Trends: The Conference requested the FAO Council to appoint a small working party to study the long-term problems of FAO and advise the Director-General on the formulation of his programs of work and budgets for 1952 and 1953. The working party would be composed of representatives of members of the Council selected on an individual basis because of their special abilities in the matters being considered.

Program and Budget: The Conference adopted the report of the Committee of the Whole which considered the program and budget. Among others, this action authorized the Director-General to plan his work on the basis of $4.5 million, and to set a fund to provide for the costs of moving to Rome. These removal costs may reduce the program budget by as much as $300,000.

The Conference approved the Report of the Special Committee on the Scale of Contributions, which maintains the U. S. contribution at its present level for 1951.

New Members: Five new members were voted in by FAO at this Conference, bringing the total membership to 68 countries. The new members are the Federal Republic of Germany, Viet Nam, Cambodia, the Hashemite Kingdom of Jordan, and Spain. All were approved by more than the two-thirds majority required by FAO's Constitution.

Officers: The Conference continued its chief officers, the Director-General and the independent Chairman of the Council, in office for another year. Norris E. Dodd will continue to be Director-General during 1951 and Viscount Bruce of Melbourne will preside over sessions of the FAO Council during the coming year. The Conference set up a committee to consider nominations to fill these positions and to be presented at the 1951 conference.

Constitution Amended: Amendments to FAO's Constitution were adopted in accordance with the recom-

1/ SEE COMMERCIAL FISHERIES REVIEW, NOVEMBER 1950, PP. 75-6.

mendation of the drafting committee. The main exception was that the Conference voted to continue three-year terms for members of the FAO Council instead of the four-year terms recommended.

Korean Relief: The Conference authorized the Director-General to cooperate fully with whatever administration for Korean relief and rehabilitation is established by the General Assembly. It approved the action of the Director-General in offering FAO's help.

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MEETING OF THE INTERNATIONAL COUNCIL FOR THE EXPLORATION OF THE SEA: The Permanent Council for International Exploration of the Sea held its 38th meeting in Copenhagen, Sweden, from October 2-10, 1950, an American Embassy dispatch from Copenhagen dated October 13, 1950, states.

According to a summary of the meeting by the Secretary General of the Council, about 125 delegates and experts from 12 European countries (Belgium, Eire, Finland, France, Great Britain, Iceland, Norway, The Netherlands, Portugal, Spain, Sweden, and Denmark) attended the meeting.

The meeting was opened at Christiansborg Castle on October 2 by the President, Dr. K. A. Andersson, Stockholm. The President and the four vice-presidents were re-elected. The other meetings were held at Charlottenlund Castle, where the work was performed in a number of subcommittees, partly area-committees, partly committees with special assignments (for example, the study of herring, salmon, and trout, whales, crustacea, hydrography, plankton, and statistics).

Results of the work of the committees were submitted to the Council at its final session on October 10. It was decided that in 1951 a scientific meeting concerning the effects of the hydrographic conditions (temperature and degree of saltiness, oceanic currents, and aliment salts) on fish and fisheries shall be held simultaneously with the Council's full meeting. Furthermore, it was decided that the committee shall establish a long-term program valid for the total area of the Council which includes the waters from the North Atlantic Ocean and adjacent waters, including Greenlandic and Icelandic waters, to the equator.

The chairman of the herring committee was requested to obtain the opinions of the council members concerning the use of echo-sounding gear and asdic for localization of the shoal of fish. This document will be sent to the manufacturers of these instruments with an invitation to them to submit their replies. Also, a subcommittee for investigation of whether or not protection of the salmon in the ocean is necessary was established.

At the meetings of the herring committee, it was pointed out that marking of herring has given interesting results. It was, for example, ascertained that herring marked at Iceland was re-caught at Norway and vice versa. This confirms a previously expressed theory to the effect that the North Icelandic and the Norwegian spring herring is of the same breed. The marking further has shown that herring caught on the western coast of Sweden immigrates to the western part of the North Sea, about Fladen Grund and Dogger Bank. A Norwegian fishery biologist has studied the fluctuations of Norwegian herring fisheries and has found that periods of good and poor fishing alternate. The poor periods on the western coast of Norway compound with good herring fisheries periods on the south-east coast of Norway and the Swedish Skagerak coast. As there has, during recent years, been a good period, he is of the opinion that we are now facing a poor catching period and that simultaneously the Skagerak coast will have a rich herring period. However, this theory is opposed by, among others, Swedish fishery biologists, who were of the opinion that herring caught on the western coast of Sweden is of another breed than the Norwegian spring herring.

The transplanting of plaice which for a number of years has been performed in Denmark now will be tested also in Norwegian and Swedish waters. At the meeting agreement was reached concerning a number of details related to the practical adjustment of such tests.

Concerning the stock of salmon in the Baltic, a Swedish fishery biologist pointed out that the reason for the extraordinarily large catches in these waters by Swedish and Danish fishermen is attributable partly to some larger year crops, and partly to the Russian embargo for Baltic fishermen to fish salmon in the open sea. All attendants of the meeting agreed that the small salmon should be protected, because the growth of the salmon in the sea is very fast.

American Samoa

STATUS OF THE FISHERIES, 1949:[1/] Fishing in American Samoa is primarily subsistence fishing, both for reef products and offshore fish, such as bonito and shark, according to the annual report of the United States to FAO. Reef products, such as small fish, shellfish, and edible seaweeds, provide a large part of the available protein and mineral factors in the diet for a large segment of the population. No records are available as to the amount of fish caught in the area.

The commercial fish cannery[2/] established a year ago in this area has not been able to operate due principally to the fact that while fish are plentiful on the fishing grounds, no successful methods have been devised to catch them in large enough quantity for economical operation of the factory.

1/ ABSTRACTED FROM THE ANNUAL REPORT OF THE GOVERNMENT OF THE UNITED STATES OF AMERICA TO THE FOOD AND AGRICULTURE ORGANIZATION OF THE UNITED NATIONS (SEPTEMBER 1950).
2/ SEE COMMERCIAL FISHERIES REVIEW, SEPTEMBER 1950, PP. 52-53.

Canada

LONG-LINING EXPERIMENT OFF NEWFOUNDLAND: Two boats have been used this summer in long-lining operations off Cape Bonavista, Newfoundland, to determine whether this type of gear would be profitable for cod fishing in that area, reports the August 1950 Trade News of the Canadian Fisheries Department. These two boats were chartered for the experiment by that Department.

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FISHERMEN REPORT MANY EUROPEAN VESSELS ON THE GRAND BANKS: Skippers of Canadian fishing vessels arriving in St. John's report a great number of French, Portuguese, and Spanish fishing craft operating on the Grand Banks off Newfoundland, the September 1950 issue of the Canadian Department of Fisheries Trade News reports.

These vessels are reported to range in size from the small 58-ton Spanish trawlers to 1,000-ton ships. The captain of the Newfoundland vessel Blue Spray says that recently he counted the lights of 38 vessels in one night. Most of the foreign vessels are Spanish trawlers carrying crews of 15 men. They fish in pairs, towing a net between them. So far this year, 65 Spanish vessels have called at St. John's for supplies and repairs. Most of them were "salt fishing." At least 17 Portuguese fish-

ing vessels have been noted on the banks off Newfoundland, and another 46 from that country have operated off Greenland; this season 48 French vessels have visited the banks, 15 of them after fresh fish.

China (Communist Mainland)

STATUS OF FISHERIES, 1950: China's (Communist mainland) production of fishery products during 1950 will amount to 736,000 metric tons, according to the Marine Products Control Bureau of the Ministry of Food Industry. The 1950 catch will be nearly double that of the previous year, but still less than half of the highest level in the past, according to an October 10 American consular dispatch from Hong Kong.

While the Government efforts were largely directed to regrouping the old-fashioned private fishing industry along the lines of cooperatives, steps have also been taken to develop the State fishing industry in order to make full use of the country's marine food resources.

The Fishery Industry Conference held this February assigned to East China the task of producing 244,000 metric tons of fish for the current year. To assure the successful accomplishment of this task, the Food Processing Industry Ministry of the Central People's Government allotted to East China certain quantities of foodstuffs, salt, and money as loans. Another loan was extended to the fishery industry in the Chusan Islands in May, at which time they were taken over by the Chinese Communists.

Denmark

FISHING FLEET EQUIPPED WITH AMERICAN SONIC DEVICES: Denmark's fishing fleet has been equipped with more than 150 American sonic devices which track fish schools electronically, according to a news release from the Economic Cooperation Administration. These fishing boats catch 30 percent more fish than those without sonic devices, the fishermen state. Fishing, Denmark's third most important enterprise after farming and manufacturing, is a big foreign currency earner.

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INTERNATIONAL MEASURES TO REGULATE FISHING IN NORTH SEA: On several occasions during recent years Danish observers have called attention to the increasing trend in revival of German fishing activities in the North Sea and the desirability of German participation in fish protection measures in that area where, according to some quarters, over-fishing has already reached serious proportions.

The Danish Minister of Fisheries touched upon this point and on the general situation with regard to international measures for protection of the fish populations of the North Sea, when replying to questions in the Landsting (Upper House) on October 12, 1950, during discussions of bills providing for a thorough revision of Danish fisheries legislation. The situation with regard to international measures to regulate fishing in the North Sea was described by an October 31 American consular dispatch from Copenhagen as follows:

A conference in London in 1946, which was attended by a United States observer, drew up the "Convention of April 5, 1946, Governing the Fixation of the Mesh-Size of Catching Equipment and the Minimum Size of Fish" (the so-called "North Sea Convention") which was signed by all participating countries (Belgium, Denmark, France, Great Britain and Northern Ireland, Iceland, Norway, Poland, Portugal, Spain, Sweden, and The Netherlands). Western Germany was not represented, presumably due to its political status at that time. The Convention was ratified by Denmark on April 11, 1947, and has now been ratified by all the signatory powers except Belgium. Article 14 of the Convention requires ratification by all ten signatory powers in order to become effective. The most recent information indicates that there is some likelihood of a change in the Belgian attitude which might remove this last obstacle to enforcement of the Convention in the near future.

Realizing the deficiency of the entire protection campaign if Western Germany remained outside international efforts, the Nordic countries have never relinquished their interest in drawing Western Germany into the program. At their meeting in Uddevalla, Sweden, during the summer of 1950, the three Nordic Ministers of fisheries agreed to take active steps to this effect. An inquiry directed to the British Government revealed that the changed political status of Western Germany precluded the possibility of Great Britain taking any initiative. However, a summer meeting in London of fishermen from all the Convention countries included the German question on the agenda; meetings were resumed at Gothenburg, Sweden, on October 12, 1950, by Danish, British, Dutch, French, Norwegian, and Swedish delegates and were attended by German observers. According to early unofficial reports from the Gothenburg meeting, the Germans, after stating that the subject of German participation in the North Sea Convention had never been brought to the attention of responsible fisheries quarters in their country, declared their interest in the program and their willingness to take it up for consideration by pertinent trade interests and authorities.

Dominican Republic

FISH OIL DUTY RAISED: In the latest of a series of changes in import duties on certain fats and oils, the Dominican Republic has raised sharply the duty on fish oil from about 3 cents to nearly 14 cents per pound. This change, according to the American Embassy at Ciudad Trujillo, was sanctioned by Dominican Law No. 2511 of September 16, 1950, published in the Gaceta Oficial of September 20, 1950.

It would appear with this increase in duty on fish oil that supplies of this item again are ample.

Formosa (Taiwan)

FISH PRODUCTION DECLINING: Fish production in Formosa has been decreasing in recent months, according to the Provincial Agriculture Commissioner and as reported by an October 18 American consular dispatch from Taipei. This decline is due chiefly to:

1. Strict and complicated control measures adopted by coast guard troops

2. Shrinkage of fishing areas
3. Shortage of rice supply
4. Steady increases in the prices of fuel oil for fishing boats
5. Shortage of working capital
6. Heavy tax burden on fishermen

Because Formosa's present population needs annually 150,000 metric tons of protein food (of which fish is an important component) and the fish production at present amounts to only 70,000 metric tons per year, it is planned to encourage pisciculture.

German Federal Republic

FULL-SCALE MODEL OF GERMAN ELECTRICAL FISHING DEVICE READY TO BE TESTED: In mid-October the inventors of the German electrical fishing device completed the installation of a full-scale experimental model of the device on their boat, the former mine-sweeper R 96. The long delay in completing this installation was caused by the desire of the inventors to have certain modifications built into the machinery and to the long period required by the manufacturer to make these modifications. The inventors state that they will begin to make field-strength measurements shortly and then will go to sea for actual fishing tests if the machinery will lay down the desired field strength, states an October 17 American consular dispatch from Bremerhaven.

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SUPPLY OF SUBSIDIZED FUEL TO FISHING FLEET CUT: Fresh- and salt-water fisheries and agriculture, inland shipping, and ocean shipping, receive allocations of Diesel oil at lower prices than those paid by non-privileged users. Sea-fisheries vessels pay DM120 ($28.56) per metric ton for medium Diesel oil, while non-privileged users pay DM380 ($90.44) per ton. The Federal Government makes a profit of about DM45 ($10.71) per ton on sales to non-privileged consumers and loses about DM215 ($51.17) per ton to privileged consumers. From the profits made on the sale of Diesel oil to the non-privileged consumers, the Federal Government pays the subsidy on the oil sold to the privileged consumers, according to a September 8 American consular dispatch from Bremerhaven.

Due to a decision not to subsidize privileged consumers from funds other than petroleum-sale profits, the Federal Finance Ministry found it necessary at the end of July to reduce all allocations for subsidized Diesel oil. The allocation for the high seas fisheries was cut 30 percent for the third quarter of 1950 with the result that many fishing cutters have had to tie-up during September. The cutter fishers cannot afford to pay the higher price for fuel as they are now marginal producers. The announcement of the reduction in allocations retroactive to July 1, 1950, came too late to allow many cutter fishers to plan their fishing trips so as to stretch out as much as possible their limited fuel allocation, and thus to avoid the necessity of tying up their vessels for a long period at the end of the quarter.

The cut in the supply of subsidized fuel allocations to the high-seas fisheries will not greatly reduce fish landings as only a part of the cutter fleet will be forced to stop fishing. Few German trawlers are motor trawlers and in any case the operators of the motor trawlers probably will find it cheaper to buy Diesel oil at DM380 ($90.44) per ton for one voyage or so than to tie up their vessels.

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NEW GERMAN TRAWLER: A new fishing trawler, Schlesien, was launched in June 1950 by a Bremerhaven shipyard. The vessel is 170.5 feet long, with a beam of 28.7 feet,

THE SCHLESIEN--TYPICAL OF RECENT GERMAN FISHING-TRAWLER CONSTRUCTION.

and draws 18.5 feet when loaded. It has a 750 h.p. reciprocating marine steam engine and a capacity of 250 metric tons of fish. The Schlesien, measuring 570 gross registered metric tons, is typical of recent German fishing vessel construction.

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PROPOSED REVISION OF DUTIES ON FISHERY PRODUCTS: The proposed new German import tariff drawn up for presentation at the international trade talks (which began at the end of September in Torquay, England) changes all duties on fishery products, a November 2 American consular dispatch from Bremerhaven states. The new tariff has 21 sections and 99 chapters; chapter 3 prescribes, among other things, duties on fish and semi-manufactured fish products while chapter 16 contains the provisions pertaining to manufactured fish products.

The new tariff classifies fish and fish products as follows:

Chapter No.	Tariff Item No.	Brief Description
3	0301	Unmanufactured fresh or salt-water fish other than shellfish
3	0302	Dried or salted fish, not smoked
3	0303	Smoked fish
3	0304	Unmanufactured lobster, crayfish, shrimp, etc.

Chapter No.	Tariff Item No.	Brief Description
3	0305	Unmanufactured oysters, mussels, etc.
16	1604	Manufactured fish other than shellfish
16	1605	Manufactured shellfish

The chief fishery product imported by Germany is fresh herring. For this item, a 5 percent ad valorem duty is proposed in place of the existing duty-free status. Since the German trawler fleet is able to land only enough fresh herring to keep the German herring processors supplied with raw material during the months August to December, imports of fresh herring are required during the remainder of the year by the German industry. The 5 percent duty placed on fresh herring is regarded more as a bargaining point than as a protective duty.

However, the situation is different in respect to salted herring. Salted herring producers the world over have been suffering from the continued decrease in the consumption of salted herring in countries not behind the Iron Curtain. The German salted herring producers in Vegesack, Glueckstadt, and Leer have been particularly hard hit since about ½ of their prewar markets now lie behind the Iron Curtain. Accordingly, a 12 percent ad valorem duty on salted herring is proposed in the new tariff to give the domestic industry at least the same degree of protection as in the past.

On fresh fish (other than herring), the proposed duties range from 10-15 percent ad valorem in contrast to the present duty of DM10 per 100 kg. (about 1.1 cents per lb.). Since at present price levels the old specific duty is equivalent to an ad valorem duty of 20 percent, the proposed new duty represents a reduction. However, the 10 percent duty is designed to reserve the domestic whitefish market for German producers except during the German herring season. The German trawler fleet is believed able to catch enough cod, pollock, and haddock to meet German whitefish needs at other times.

A 10 percent duty is levied on eels in the draft tariff as a compromise between the desires of the processors who formerly were able to obtain much of their needs in raw materials from the Baltic coast regions now behind the Iron Curtain and the desires of the fishermen in Western Germany who wanted the same measure of protection as was available under the 1902 tariff.

For smoked fish, a 20 percent duty is proposed in order to reserve the domestic market for German processors. Since Germany is dependent to a great extent upon herring imports, the 20 percent duty on smoked herring is designed to insure that the herring is imported in an unprocessed form. Germany has adequate capacity to process and use herring meal and oil. If Germany imports crude rather than smoked herring, her need for fish meal and fish oil imports will be accordingly smaller.

The duty proposed for manufactured fish products ranges from 30 percent to 40 percent, because in the German view the advantage of foreign fish canners in being able to purchase tin plate, condiments, etc., at much lower prices than the domestic canners, must be compensated, and because some of the products falling under this heading, e.g. caviar, strictly are luxury items.

One of the chief endeavors of the German delegation at Torquay will be to persuade foreign countries to lower duties on German manufactured goods. As a bargaining point, the German delegation may offer to lower German duties on raw materials, generally, and foodstuffs, in particular. Because of this tendency, German fishing interests show considerable reserve toward the Torquay conference.

However, the draft tariff which the German delegation took to Torquay embodies to a large degree the wishes of the German fishing interests. These fishing interests foresee an annual German production of 500,000 metric tons of fish with a consumption of somewhat under 700,000 tons of fish landed weight. They believe imports should be limited to about 160,000 tons of fresh herring during the first half of each year and perhaps 20,000 tons of fresh white fish during the German herring season. The duties provided for in the draft tariff will tend to restrain German imports to these amounts, deemed desirable by the fishing interests, although at the present time the limits set on the importation of the chief trade items in the various bilateral agreements and in exchange-allocations furnish more protection to the German fishery products producers than does the customs tariff.

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GERMAN CRITICISM OF WHALING PROHIBITION: At the present time, no German firm may operate a whaling vessel under the German flag due to restrictions by the Occupying Powers. Before the 1950-51 season, no German firm had a part in the operation of a whaling vessel under any other flag, but the former American T-2 tanker, Herman F. Whiton,1/ is expected to operate in the Antarctic in the 1950-51 season under the Panamanian flag for the Erste Deutsche Walfang Gesellschaft, a Hamburg firm, an October 11 American consular dispatch from Bremerhaven reports.

In the 1930's, one of Germany's whaling fleets used Bremerhaven as a home port and brought increased income to the city. The Bremerhaven Industrie- und Handelskammer is actively supporting German efforts to have the whaling prohibition lifted. The German representative in the Ocean Fishermen's Section of the International Transport Workers Federation brought in a resolution at the August 1950 meeting asking that the Federation try to get the ban lifted. Although the reports available do not indicate that favorable action was taken on this proposal, it is considered that by moving such a proposal, the representatives of German labor demonstrated an active interest in the question of the whaling prohibition. It is believed to be only a matter of time before the ban will be removed, but in the meantime it is expected that agitation against the ban will continue to be active.

Background of German Whaling and Consumption of Whale Oil: In the last years before World War II, Germany's consumption of whale oil averaged 180,000 metric tons per year or about 37 percent of the world's production at that time. During Germany's drive for self-sufficiency in the 1930's, her whaling fleet was expanded to comprise 5 German-owned and 2 chartered factory ships and over 60 killer boats. Germany was thus able largely to meet domestic demand with its own production. A number of refineries and hardening plants were constructed to process the landed whale oil, which became a very important ingredient in the production of margarine and other edible fats.

Norway is the only country now producing whale oil in excess of domestic demand. Norwegian whaling fleets produce about 180,000 metric tons of oil per year, of which only some 30,000 tons are needed to satisfy the home market. The only other large producer, England, has placed whale oil under government control so that none is exported and large quantities (1949--50,000 tons) are imported from Norway. The result is that Germany has been able to obtain only 10 percent as much whale oil as before the war, and has had to pay a price eight times the prewar average for this oil.

Due to a world oversupply in 1938, whale oil No. 1 brought about $50.00 (DM150.00) per metric ton in that year. With the introduction of limitations on the catch of

1/ ORIGINALLY IT WAS REPORTED THAT THIS ENTERPRISE WAS CONTROLLED BY AN AMERICAN COMPANY WITH OFFICES IN NEW YORK CITY, WITH THE GERMAN FIRM ACTING AS THE SOLE AGENCY OF THE AMERICAN FIRM FOR SUCH PURPOSES AS SUPERVISION AND EQUIPMENT. ALSO SEE COMMERCIAL FISHERIES REVIEW, JULY 1950, P. 34 AND P. 44.

whales in the postwar period, the price climbed to over $400 per ton in 1947; due largely to the changed relationship between the dollar and the currencies of the whale-oil producing countries, the price early in 1950 was $280 (DM1,175) per metric ton.

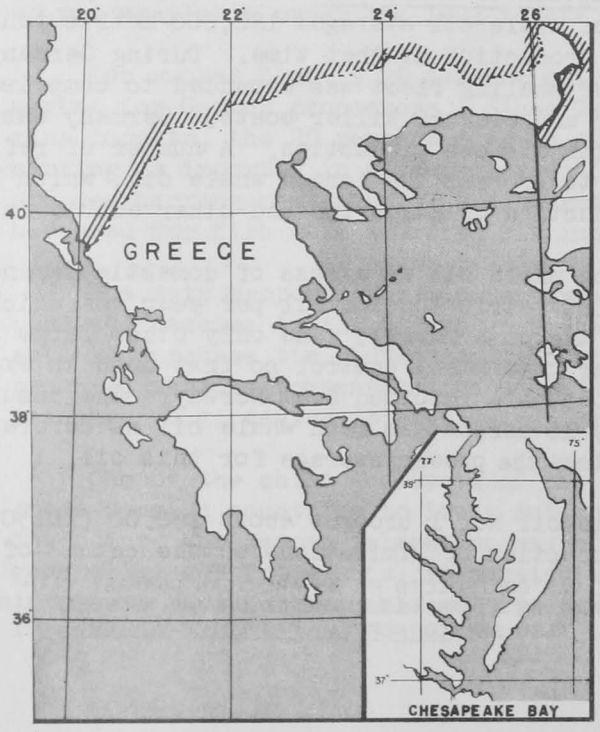
German margarine factories, accustomed during the 1930's to using hydrogenated whale oil, because of its good emulsifying and keeping qualities, have been forced to modify their processes to make use of other materials because of the lack of a German whaling fleet. In addition, the German plants devoted to the refining and hydrogenation of whale oil are suffering from lack of business as Norway, to keep its own refineries and hydrogenators in operation, reportedly has made sales of crude whale oil to Germany only at prices above the Norwegian domestic price and only conditional upon the purchase, at prices little above the cost of the crude oil, of "Margarit" or the hardened whale oil. The German refineries have been unable to meet this competition.

The best substitute for whale oil is herring oil. The supply of this oil again is to a large degree controlled by Norway, whose fishermen land about 15-20 percent of the world catch of herring. In any case, herring oil prices have also increased about 700 percent over the prewar figure and only small quantities are available.

Germany must expect to pay a high price for whale oil even if it is allowed to operate its own fleet. The high price is largely the result of the decreased number of whales and of the shortage of vegetable fats and oils. However, if Germany once again becomes a whale oil producer, it will not be forced to pay foreign refineries and hardeners for the processing of the oil it consumes.

Greece

ECA FUNDS AID FISHING INDUSTRY: A 12,000,000 drachma loan (about $8,000) of Marshall Plan funds to a fishing firm of Kalamata, Greece, has had an impact upon the economy of the entire area of the Southern Peloponnesus, according to a news release from the Economic Cooperation Administration. Nearly two years ago this firm obtained the loan and fitted up a refrigerated truck for carrying fish. Previously, fish were expensive in the area, partly due to the cost of fishing in poor vessels and also due to the reluctance of fishermen to go out fishing again until they had sold their last catch. This meant that fishermen sold a few fish for a high price.



Now the picture has changed. Where they used one fishing boat before their loan and caught 400 okes (1,000 pounds) a day, this Kalamata firm now uses nine boats and has an average daily catch of 9,000 okes (25,000 pounds). Fish that previously sold for 5,000 to 6,000 drachmas per oke (12 to 14 cents a pound) in Kalamata, the port city, are now sold out in the mountain villages for 1,000 to 2,000 drachmas per oke (2½ to 5 cents per pound).

The fish are transported out of Kalamata to the villages and are making record sales at the low price. The firm has established a flourishing business; consumers are getting plentiful supplies of fresh fish daily at low cost; the mountain villages have been able to add fish to their diets; and due to the amount of fish on the markets in the area, the price of meat has dropped.

Spurred by Marshall Plan aid, more fishermen--an estimated 30,000-- are taking more fish from Greek seas than ever before. From a prewar catch of 50 million pounds annually, the take increased to over 90 million pounds last year and may surpass 100 million pounds this year.

About 40 percent of the Greek fishing boats were destroyed during World War II, and the balance of the equipment had deteriorated. Marshall Plan funds have aided in rehabilitating and building up the Greek fishing fleet.

Guam

STATUS OF THE FISHERIES, 1949:1/ Fishing is confined to within-reef fishing and the amount of the catch was barely sufficient to meet local demands, according to the annual report of the United States to FAO. As of December 31, 1949, persons deriving their living mostly from fishing totaled 253. During the last six months of 1949, the total catch amounted to 134,585 pounds. There are possibilities for deep-sea fishing around the waters of Guam and some outside interests are considering such an undertaking.

1/ ABSTRACTED FROM THE ANNUAL REPORT OF THE GOVERNMENT OF THE UNITED STATES OF AMERICA TO THE FOOD AND AGRICULTURE ORGANIZATION OF THE UNITED NATIONS (SEPTEMBER 1950).

Iceland

NEW REDUCTION PROCESS TO BE USED BY NEW HERRING PLANT: The construction of a new herring plant in Reykjavik designed for the reduction of herring into meal and oil through the use of processes new to Iceland is practically completed. It is now planned to use the plant primarily for the processing of rosefish (redfish) rather than herring, a consular disptach from that city,dated September 29 reports.

Origin: The need for a herring reduction plant in the Reykjavik area received considerable attention as a result of the exceptionally good herring catch made in the Faxa Bay (Reykjavik) area in southwestern Iceland during the 1947-48 winter months. Herring had traditionally been caught until that time in the fishing grounds off the north coast during the summer months, and reduction plants were therefore entirely concentrated in northern Iceland. The heavy costs of transporting Faxa Bay herring to the northern reduction plants, together with the high profits resulting from the unexpected herring catch in the south, were the prime factor in the proposal to build a herring plant in Reykjavik. The Municipality of Reykjavik assumed the major burden of financing the plant and now owns a 60-percent interest; the remaining 40 percent is owned by a Reykjavik trawling firm. An ECA grant furnished much of the dollar exchange needed for construction and equipment.

Equipment and Operations: The new method employed in the plant was described in a talk delivered in February 1948 by Sveinn S. Einarsson, an engineer attached to

the trawling firm and the managing director of the new herring plant. All Icelandic herring plants have been using the wet-rendering or wet-pressing method of processing herring. (Briefly, this consists of pressing the fish, after cooking, in screw-presses made for the purpose, to separate the oil together with some of the water.) The new plant, however, will be using an entirely different method of processing herring and fish for reduction purposes. The process is as follows: the fish (submerged in oil to transfer the heat) are dried under vacuum in evaporators, continuously in operation; the oil is removed from the dried fish by solvent extraction (hexane).

According to Einarsson's estimates of capital investment and cost of production for factories in Iceland with a capacity of 750 and 1,500 short tons, the gross return will be greater for a factory using the new "drying-solvent" process than for a factory using the wet-pressing process and utilizing the stickwater, and even greater when compared with one using the wet-pressing process and not utilizing the stickwater.

The new plant is located on the southern end of Orfirsey, a small island in Reykjavik harbor, connected with the mainland by a breakwater-pier, and consists of:

One building, 54.5 meters by 37.2 meters (179 by 122 feet), housing the dehydration equipment and having room for storage for processed meal.

One building, 37.6 meters by 14.2 meters (123 by 47 feet), housing the extraction equipment.

Two round storage tanks for raw fish, each with a radius of 7.45 meters (24 feet) and a reported capacity of 1,700 metric tons; space has been set aside for eight similar tanks, should they be needed.

One round storage tank for fuel oil, with a radius of 9.5 meters (31 feet) and a capacity of 2,700 metric tons (approximately 17,000 barrels); this tank is on a 5-year lease to a local oil company but the new herring company may obtain fuel from it.

One round storage tank for fish oil, with a radius of 7.45 meters (24 feet) and a capacity of 2,600 metric tons.

Two round storage tanks for hexane (the solvent used in the extraction process), each with a capacity of 30 metric tons (approximately 10,000 gallons).

One boilerhouse, 15.0 meters by 14.8 meters (49 by 48 feet).

A landing pier for trawlers to unload their catches for the plant has been built adjoining the plant in the inner harbor.

The new plant is now completely equipped for operation, except for an automatic sprinkling system (the hexane solvent is very inflammable) which is in the process of installation. Actual operations have thus far been limited to dehydration tests on sample supplies of redfish (also known as rosefish, ocean perch, and Norwegian haddock), and a little herring last spring. A few bugs were found in the equipment at that time, but are believed to have been effectively eliminated. No test runs have yet been made on the equipment for extracting the meal and oil from the dry fish produced by the dehydration process, since it is considered too expensive to set this machinery in operation unless there is an adequate supply for two months' continuous operation. However, little difficulty is expected from the extraction equipment, which is of American manufacture and is similar to other machinery used in the United

States for processing cotton seed and soya bean. It will be necessary for a manufacturer's representative to come to Reykjavik from the United States in order to train personnel to operate the extraction machinery.

The operators of the new company, upon the basis of the tests last spring and further study, are still confident that the new vacuum dehydration and solvent extraction methods in the plant will result in a considerably more efficient reduction of herring into meal and oil. Einarsson's production estimates, modified slightly for simplification, are presented below:

Comparative Efficiency of Herring Reduction Methods

Method	Loss of Total Dry Material Content (%)	Loss of Total Oil Content(%)	Meal Obtained		Oil Obtained (% of raw weight 1/)
			% of raw weight 1/	Protein Content(%)	
Wet-pressing	25.7	3.0	18.2	71.0	11.9
New Method	5.2	0.5	21.0	81.0	13.7

1/Raw weight is for wet whole fish.

It should be noted that the herring considered for the above table has a fat content of 14 percent, taken as the average for herring found in Faxa Bay. In the 1947-48 winter, Faxa Bay herring had somewhat less fat content than this, but the herring being caught in the Bay in 1950 averaged 20-percent fat content. The estimates in the above table for meal and oil obtainable by the new processes will be proportionately lower and higher, depending on the fat content of the herring being handled.

The same measure of added efficiency will apply to rosefish (redfish) processed in the plant by the new method rather than by the wet-pressing method. The operators of the new company expect to obtain 200 to 220 kilograms (440-484 pounds) of meal from 1,000 kilograms (2,200 pounds) of wet whole rosefish. This is the same percentage as average Faxa Bay herring would produce, but rosefish meal would have a protein content of under 65 percent--much lower than herring meal. Oil obtainable from rosefish is expected to run from 30 to slightly over 50 kilograms (66-110 pounds) per ton of wet whole fish; this is less than one-third of the amount which could be expected from herring.

The new company has not been operating since it became operational this year because there has not been sufficient raw material. The plant requires 600 to 700 metric tons of wet whole herring each day for profitable operation. If an adequate supply was not immediately available, it was intended to store the raw herring in one of the tanks adjoining the plant until the necessary supply was on hand. Although the herring catch during the 1947-48 winter would have kept the plant operating at maximum capacity, that catch was unique in Icelandic fishing history, and there is no good reason to expect that it will be repeated again soon. The catches being made this year are exceptionally good, but they fall far short of the required minimum.

The operators of the plant estimate that only 400 tons daily of wet whole rosefish would keep the plant operating profitably. It has been intended for some time to concentrate on the processing of rosefish, since herring supplies cannot be counted on. However, rosefish operations have been impossible, because all of the Reykjavik trawlers have been laid up since last July 1 as a result of a labor dispute. It is hoped that some of the trawler fleet will be devoted to rosefish fishing exclusively, and that the new company will become operational soon after the present trawler tie-up is ended.

Rosefish vs. Herring: Although the new company was founded with the reduction of herring in mind, the operators of the plant are confident that the plant can operate profitably on rosefish. The smaller fat content and consequent oil output of rosefish, and the lower protein content of its meal, are offset to some extent by the lower cost of rosefish delivered to the plant as compared with herring. Whole wet herring was landed in northern Iceland this summer at 0.44 kronur per kilogram (approximately 1¼ cents per pound). At the same time, wet whole rosefish was landed in the same ports at 0.30 to 0.37 kronur per kilogram (about 0.8 to 1 cent per pound). The cost of herring from the Faxa Bay area (caught with drift nets) delivered in Reykjavik is traditionally higher than the cost of herring (caught in purse seines) in the north. Rosefish landed by trawlers in Reykjavik will be approximately as expensive as rosefish landed by trawlers in the north. It is therefore considered likely that the raw cost of rosefish will be only about one-half the raw cost of herring delivered to the new reduction plant.

Trawler operations for rosefish for reduction into meal and oil are cheaper than for fish for icing or salting; the latter two processes require labor and materials for special treatment of the fish on board. Fish caught for processing into meal and oil do not have to be gutted and cleaned on board, and will remain in satisfactory condition for a week--the length of a trip--without icing or salting.

A clear advantage in working on rosefish is that the processing season would run for 8 to 10 months of the year, the only dead time being late winter and early spring. On the other hand, a 4-months' season annually for Faxa Bay herring would be considered excellent.

Another advantage is that the plant can function efficiently on only 400 metric tons of rosefish daily, as compared with 600-700 tons of herring. It is expected that eight trawlers devoted exclusively to rosefish operations can furnish the required supply.

One prime unknown in rosefish operations is the true reserve of rosefish in the Icelandic fishing grounds. Vessels have been fishing here for rosefish for years, but not as steadily and intensively as now proposed. It is possible that rosefish supplies, after a while, may turn out to be not much more gratifying than the supplies of the lucrative but very elusive Faxa Bay herring.

Description of the New Method: DRYING OF THE HERRING: The herring is pumped into evaporators together with some oil. The oil transfers the heat from the heating surfaces of the evaporators into the herring which is in continuous movement in relation to the heating surfaces. The transfer of the heat is, therefore, very rapid even while the herring is whole. There is a vacuum in the evaporator and the steam from the herring is condensed in condensers after passing through double cyclones in order to cleanse out the oil which might pass along from the herring.

Drying completed, the evaporator delivers a "substance" consisting of the entire substance of the herring, its own oil, and additional oil which was originally pumped into the evaporator, plus a small percent of water.

This substance is fluid as it contains approximately 70 percent of oil and is consequently easily pumped.

The next step in the curing consists of separating all the free oil from the substance. This may be done in two ways, either by filtering in vacuum filters or in a special kind of centrifuge. The cake derived then contains approximately 45 percent of oil and will be called "dry herring." There is also separated some oil containing a small amount of solids.

A part of this oil or all of it, plus an additional quantity is then pumped back into the evaporator, but the quantity is decided by the fatty contents of the herring. If the herring is fat, it will not be necessary to pump all the free oil back, and then the purification of the remainder is completed by filtering through a filter-aid under pressure in pressure filters. The cake which has been formed and which consists of fine meal and filter-aid is mixed with the dry herring and hence is not lost. A filter-aid must naturally be of stuff harmless to animals for which the meal serves as fodder.

The production of the dry herring completes the first stage of the process.

THE EXTRACTION: The dry herring is introduced into the upper end of a so-named extractor and gradually moves down therein. The solvent is pumped into the lower end and it rises in the extractor, washing the oil from the herring on the way down, and finally flows from the upper end of the extractor together with the oil.

When the meal leaves the extractor, it is damp from solvent and is conveyed to a dryer where the solvent evaporates. The meal may then be ground and sacked.

The mixture of solvent and oil leaving the upper end of the extractor carries a small quantity of fine solids with it. A centrifuge cleans most of this away, but the remainder is filtered away by pressure filtering through a filter-aid. These solids are mixed with the dry herring and are, therefore, not lost.

The oil is finally separated from the solvent by distillation. The oil is thus fully recovered and purified.

Special provisions are made for the preservation of the solvent which evaporates from the meal and oil, and this is used repeatedly. Losses in it cannot, naturally, be fully prevented.

It will be seen from the above description that from a factory of this type there flows only distilled water (from the herring). The complete process occurs inside enclosed machines and no odor is carried to the environment.

This process of drying herring is protected by patents both in Iceland and other countries.

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HERRING PRODUCTION TAX ABOLISHED: Iceland's production tax on herring caught off the Northern Coast of that country, which has been in effect since March 1950, has been abolished by an announcement of the Ministry of Industry, dated October 12, 1950, published in Logbirtingablad (Law Gazette), No. 67 (October 18, 1950).

A production tax of 8 percent of the export value was levied on all herring products, except canned herring, by the Act of March 19, 1950, which devalued the Icelandic krona. The Act provided that the Government might lower or abolish the tax if herring catches were below certain minimum figures, reports an October 23 American consular dispatch from Reykjavik. Proceeds from this tax were to be used to assist the herring industry.

The abolition of the tax resulted directly from the failure of the 1950 summer herring season. Final reports indicate that only 25,754 metric tons of her-

ring were delivered to factories for reduction into meal and oil, as against 45,923 metric tons in 1949, which was also a poor year; only 55,561 barrels (7,500 metric tons) were salted in 1950, as against 86,156 barrels (11,631 tons) in 1949. Consequently, receipts from the production tax were much lower than expected and of minor value in any scheme to assist the industry.

Simultaneously, with the abolition of the production tax, the price of North Coast herring delivered by fishermen was increased. The increase amounts to 5 kronur per "mal" or 135 kilograms of fresh whole herring (approximately 13 cents per cwt.) delivered to factories for processing, making the total price to the fishermen 70 kronur per mal (about $1.43 per cwt.). The increase for salted herring amounts to 12 kronur per barrel (based on 135 kilograms of fresh whole herring) and brings the total cost to 122 kronur per barrel (about 24½ cents per cwt. and $2.50 per cwt., respectively).

Ireland (Eire)

FISHERIES LEGISLATION TO PROTECT IRISH INSHORE FISHERMEN: The Fisheries (Consolidation) Bill of 1950, prepared by the Irish Ministry of Agriculture, was to be considered in the Dail in late October. This bill is an act to consolidate the Fisheries Acts of 1842 to 1949, and also contains certain other enactments relating to fisheries, states an American Embassy dispatch from Dublin dated October 23.

In a speech on the Fisheries Estimate before the Dail on July 4, 1950, the Minister for Agriculture declared, "It is the fixed policy of this Government.... to reserve the domestic fish market for the exclusive enjoyment of the inshore fishermen along our coasts." The present bill, which also reconstitutes the Sea Fisheries Association, has this policy as its objective and should it be approved by the Parliament, the only agency legally permitted to land fish in Ireland for consumption will be this Association acting as a statutory cooperative for Irish inland fishermen.

In the speech referred to, the Minister commented that he was deliberately asking Irish consumers to pay uneconomic prices for fish in order to create employment for these inshore fishermen. Some indication of what this concession will be was indicated by the prices existing in Dublin in October for certain types of fish as contrasted with prices existing in Aberdeen. These prices, 50 to 100 percent higher in Dublin than in Aberdeen, the Minister believed could not be defended if maintained for the benefit of a commercial enterprise but were justified "so long as we protect the inshore fishermen and so long as we aim at steadily narrowing the gap by improved efficiency and improved methods between the world's price and the price we must charge for fish in order to preserve for the inshore fishermen a reasonably modest standard of living."

Statistics on inshore fisheries employment provided by the Minister on this occasion were 1,913 men exclusively employed in fishing and 8,150 employed part-time. The numbers of motorboats and "unengined" boats used for fishing alone were 578 and 2,260, respectively, with 446 boats used part-time. The Sea Fisheries' Association handled 70,530 hundredweight (112 pounds) of wet fish in 1949, compared with 68,981 hundredweight in 1948 (7,899,360 and 7,725,872 pounds, respectively), according to the Minister, whereas the total quantities of wet fish landed in Ireland, according to the Irish Trade Journal, were 365,112 hundredweight in 1948 and 202,155 in 1949 (40,892,544 and 22,641,360 pounds, respectively).

Japan

BIOLOGICAL OBSERVATIONS ON MOTHERSHIP TUNA EXPEDITION:[1] The first mothership tuna expedition, using the Tenyo Maru No. 2, operated about three months (June 18-September 2, 1950) in the general area between latitudes 1° to 9° N. and longitudes 140° to 160° E. Fish caught by the expedition can be grouped as follows: yellowfin and other tunas, marlin and other spearfishes, sharks, and miscellaneous fish. In terms of weight, yellowfin tuna and the black marlin were taken in the greatest quantities. Extensive fishing and operations data were collected, and biological investigations were conducted throughout the operations, the October 7 Weekly Summary of SCAP's Natural Resources Section reports.

Scarcity of data on the abundance of the fish stocks in this general area makes it impossible to reach conclusions as to the extent of these populations or the effects, if any, of the mothership expedition just completed. Significant, however, is the fact that throughout the operations, the various species were found and taken by the tuna boats without any definite fall in catch rate. Fluctuations from day to day were observed, but more data and complete analysis of data already obtained will be required before it can be determined whether the fluctuations have any significance.

1/ ALSO SEE COMMERCIAL FISHERIES REVIEW, NOVEMBER 1950, P. 61; SEPTEMBER 1950, PP. 46-7; JULY 1950, P. 46; JUNE 1950, PP. 52-4.

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INCREASE IN NUMBER AND GROSS TONNAGE OF JAPANESE FISHING VESSELS: A significant increase in the number and gross tonnage of Japanese fishing vessels is noted (see table) in a report prepared by the Japanese Fisheries Agency, according to the September 30 Weekly Summary of SCAP's Natural Resources Section.

Japanese Powered Fishing Vessels (Five Gross Tons and Over)--June 1950

Item	As of Dec. 1949	As of June 1950	Increase	Percent of Increase
No. of vessels	27,198	28,180	982	3.6
Gross tonnage (metric tons)	694,927	717,357	22,240	3.2
Horsepower (total)	1,564,000	1,644,000	80,000	5.1

Most of the increase in number and tonnage of vessels has occurred in the class of vessels ranging from 5 to 19 gross tons. This increase is reflected in the fisheries for sardine purse seiners, miscellaneous drag nets, fish carriers, and miscellaneous seine fisheries. The offshore trawling fleets showed a slight decrease in tonnage and number of boats as of June 1950, compared to December 1949. Geographically, increase in tonnage occurred principally in the Tokyo area (refrigerated ships), Nagasaki (purse-seine fisheries), Hokkaido (improved system of collecting statistics), and Aomori (pole-and-line fisheries for cuttlefish).

The present policy of the Fisheries Agency is to limit new construction to the replacement of old or sunken craft. The agency is experiencing some difficulty in enforcing this policy effectively. The Fisheries Agency recently obtained passage of legislation designed to improve surveillance over the boat-building program through coordination of the work of national and prefectural fisheries agencies.

In spite of the war (World War II) and its after effects, more and more Japanese fishing boats have had engines installed, so that the total horsepower of the fishing

fleet now is about 70 percent greater than in 1939. Even though more petroleum has been made available to the fisnermen, numerous petitions for higher allocations have been filed by fishermen's groups.

Petroleum products (as well as cotton and Manila fiber) make up the principal materials which must be imported for use of the Japanese fishermen. Petroleum is purchased and imported into Japan with funds made available by the United States for the rehabilitation of the Japanese economy. Amounts of such products allocated to fisheries have increased progressively since the Surrender until in 1950 they are greater than the amount used by Japanese fishermen operating before the war.

In spite of the increased horsepower of the modern Japanese fishing fleet, however, over-all production has not increased in the same proportion. In many instances, the growth in the size of the motorized fleet has resulted in overfishing the coastal fishery resources. Under such conditions, further increases in fishing intensity would serve primarily to heighten the competition between boats for the limited amount of fish available, resulting in higher costs without a commensurate rise in returns to the fishermen. In addition, catches during succeeding years would decrease because of depletion of the fish populations.

According to a statement of policy released by the Natural Resources Section, "allocation of petroleum products sufficient to meet the requirements of the Japanese fisheries, will, within the limits of supplies available in Japan, be approved in the following cases:

1. "Where sustained or increased fishing effort will result in maintaining or enlarging production without overfishing the resources.

2. "Where overfished resources have been protected adequately against continued overfishing by (1) enactment and enforcement of effective conservation regulations, such as, reduction in the number of boats; (2) limitation of the fishing season or catch; or (3) other suitable measures."

In addition, the statement points out that increases in the allocation of petroleum products for fisheries will not be approved where there is evidence of continued overfishing caused by lack of adequate conservation regulations or effective enforcement of such regulations; and that to obtain increases the Fisheries Agency, of the Japanese Ministry of Agriculture and Forestry, must submit satisfactory evidence that the requested increases meet the other conditions of this policy.

The Fisheries Agency has indicated that it agrees with these principles for allocation of petroleum and will cooperate fully in putting them into effect.

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REDUCTION OF EAST CHINA SEA FLEET: A reduction of approximately 30 percent in the number of Japanese vessels engaged in bull and otter trawling in the East China Sea was completed on September 20, 1950, according to the October 7 Weekly Summary of SCAP's Natural Resources Section. In a letter to that agency, dated September 20, 1950, the Japanese Minister of Agriculture and Forestry reported that the operation of 310 bull and otter trawlers had been either suspended or restricted under the provisions of the Law for the Prevention of Exhaustion of Marine Resources.

Original schedules for this reduction contemplated restriction or suspension of operation of 295 vessels by December 31, 1950.1/ This action was based upon the results of preliminary research on fish populations in the East China Sea. Approximately 338 pairs of bull trawlers and 58 otter trawlers continue to operate in that area.

1/ ALSO SEE COMMERCIAL FISHERIES REVIEW, SEPTEMBER 1950, PP.49-50; JUNE 1950, P. 57.

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VIOLATIONS OF AUTHORIZED FISHING AREA: A total of 136 Japanese fishing vessels were reported during September 19, 1949-October 1, 1950, operating beyond the limits of the area authorized for Japanese fishing operations by SCAPIN 2046 (September 1949). These vessels were 3 tuna boats found beyond the limits of the fishing area in the Pacific Ocean south and east of Japan, and 5 otter trawlers and 64 pairs of bull trawlers found beyond the limits of the fishing area in the East China Sea--a total of 72 cases. Two tuna boats, four otter trawlers, and eight pairs of bull trawlers were reported by Allied authorities, the October 14 Weekly Summary of SCAP's Natural Resources Section reports. One tuna boat, one otter trawler, and 56 pairs of bull trawlers were reported by the Japanese Fisheries Inspection System.

As of October 1, 1950, the Japanese Government had taken the following punitive action in the 72 cases reported: 6 cases were under investigation by the Fisheries Agency, 10 cases did not warrant judicial action and were disposed of administratively, and the remaining 56 cases were reported to procurators. After further investigation, procurators dropped 10 of these latter cases and filed indictments in 46. Four of the 46 cases have been tried; one was dropped during trial for lack of evidence, and the accused were convicted in the other three. The sentence in each case was 10 months' penal servitude, with execution of the sentence suspended for two years.

The Minister of Agriculture and Forestry took parallel action in 17 of the 56 cases reported to procurators, revoking the licenses of two tuna boats and 29 bull trawlers. The licenses of 29 other bull trawlers were voluntarily surrendered by their owners, bringing the total to 60. Thus of the total of 72 cases, six are under investigation, 42 await trial, and in 24, punitive action has been completed.

AMERICAN FISHERIES EXPERT TO AID IN DEVELOPMENT OF FISHERIES ADMINISTRATION SYSTEMS: A visiting expert consultant on fisheries, Richard S. Croker, arrived in Japan on October 9, 1950, to begin a three-months' assignment with the Natural Resources Section of SCAP. Croker, who is Chief of the Bureau of Commercial Fisheries of the California Fish and Game Commission, is to assist and advise the Supreme Commander for the Allied Powers and Japanese Government officials in the development of a coordinated and unified fisheries administration program. He will determine whether the existing fisheries administration systems, including laws and regulations for enforcement at both national and prefectural levels, are contributing to the proper conservation of the aquatic resources of Japan.

The complicated systems of fisheries regulations which have evolved over many years have created overlapping authority by the national and prefectural governments and in many instances work against the common objective of utilizing aquatic resources fully on a sustained yield basis.

At the conclusion of the assignment, Croker will prepare a report including specific recommendations for improvement of the fisheries administration systems and regulations.

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OYSTER CULTURE: Oysters are a valuable food item in Japan for they provide many of the elements essential to a balanced diet. They are especially important to the Japanese, who lack adequate protein foods, according to SCAP's Natural Resources Section Report No. 134 (Oyster Culture in Japan),[1/] recently issued.

DIVING FOR PEARL OYSTERS

Seventeen species of oysters have been recognized in the waters of Japan Proper, according to this report. Five species are used as food (Ostrea gigas, O. rivularis, O. denselamellosa, O. nippona, and O. echinata), but only O. gigas and O. rivularis are cultured commercially. O. denselamellosa has been cultured experimentally but not commercially. O. gigas is by far the most important of Japanese food oysters.

The culture of oysters in Japan started in the early 17th century, in Hiroshima Prefecture, which remained the center of oyster culture for nearly 300 years. Early culture procedures were simple, consisting of the sowing, stone, and bamboo stick methods. Although these methods are still used to some extent in various places, they have been largely supplanted by the modern hanging culture methods.

The hanging methods consist of the raft, long-line, rack, and umbrella modifications, each of which has its special advantage and is adapted to specific purposes or conditions. The hanging methods have proved much more efficient than any of the earlier systems, in growth rate and quality of the oysters and in total production per unit area. Because these methods utilize the middle stratum of water between the bottom and the surface where food organisms are especially abundant, the growth rate of the oysters has been greatly accelerated. When the oysters are hung vertically, the number that can be raised per unit area of sea bottom is greatly increased. Because contact with the sea bottom is avoided and the vertical position can be maintained at any desired level, many areas previously considered unsuited to oyster culture because of bottom type, water depth, or the abundance of parasites, become available and highly productive. Also, quality of oysters raised in clear sea water is better.

The export of spat of O. gigas from Japan is the basis for the oyster industry of the Pacific Coast of the United States and Canada. The export of spat on a commercial scale began in 1925 and continued until 1941 when World War II stopped the shipments. Export was resumed in 1946. During 1925-49, 585,156 cases of spat were exported. The United States and Canada have been the principal recipients of these shipments, with a total of 581,907 cases valued at $1,869,285. The center of the spat export trade is Miyagi Prefecture, especially the Ishinomaki Bay area.

For domestic consumption the Japanese oysters are available on the market either raw or canned; the canned oysters are sometimes smoked. Domestic consumption during 1908-45 was 2,063,311 metric tons. Byproducts of the oyster industry are confined to the utilization of the shell, as chicken feed, paint, slaked lime, fertilizer, and medicines.

Both elemental and biological factors cause damage to the oyster. Elemental enemies are changes in water temperature, wind, and floods. Biological enemies are the red tide, oyster drills, starfish, internal parasites, and fouling organisms.

1/ ISSUED BY THE U. S. FISH AND WILDLIFE SERVICE AS FISHERY LEAFLET 383.

Norway

FISHERY BYPRODUCTS OUTPUT BEING INCREASED: The output of Norwegian herring oil plants is being boosted, according to an October 12 report from the Norwegian Information Service. In accordance with a large-scale expansion plan, drawn up by the Government's Directorate of Industries, total daily capacity will be increased by about 38,000 barrels of herring. Almost half of this increase will be accounted for by factories in the provinces of More and Romsdal, whose capacity is due to be stepped up by about 16,000 barrels of herring a day.

FISH LEATHER RELIEVES NORWAY'S LEATHER SHORTAGE: Leather for ladies' shoes, bookbinding, and brief cases is now being made from skins of cod and horned pout at the Norsk Havlaerfabrikk, in the northern district of Vesteraalen, Norway. Production so far is on a modest scale, but the high quality products of this plant will, nevertheless, do their bit to relieve Norway's persistent leather shortage.

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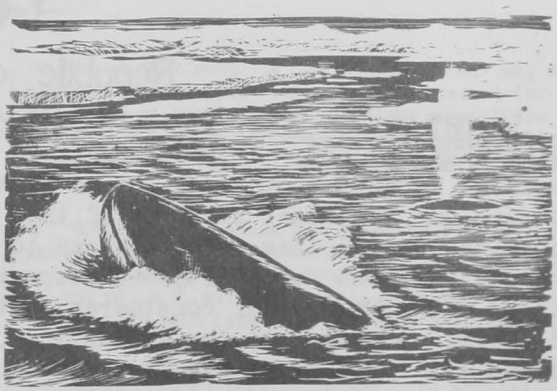
NORWEGIAN FISHING OFF GREENLAND SUCCESSFUL: Most of the Norwegian fleet of 24 vessels which has been fishing off western Greenland during 1950 has had a very satisfactory season, an October 26 news release from the Norwegian Information Service reports. It is estimated that the 1950 catch will total 12,000 tons of salt cod, or about twice as much as last year. The operators of the vessels are said to be well pleased with the results and it is estimated that the crews' share of the catch will amount to between $700-800 per man.

Some halibut was caught, too. The Norwegian refrigerated vessel Kolastind brought about 200 tons of halibut from Greenland to New York--the first time in 25 years that Norwegians have tried to ship frozen fish directly from the fishing grounds.

FISHERMEN OUTFITTING FOR LOFOTEN FISHERIES: Fishermen are actively preparing for the Lofoten fisheries in northern Norway. Preliminary estimates indicate that tackle and other equipment worth 8-10 million kronurs ($1.1-1.4 million) have been ordered so far.

Many fishermen are buying new seines and echo-depth sounders. Last year, seine fishing for ground fish was tried for the first time at Lofoten and the 100 seine gangs that were licensed by the Government showed excellent results. Expectations are that more licenses will be granted for the coming season.

ADVANCE SALES OF WHALE OIL: Almost two months before the start of the Antarctic whale season, the Norwegian whaling companies have made advance sales of whale oil totaling 60,000 tons. Half of the total quantity will go to the British Ministry of Food, and the other half to Norwegian refineries. In both instances, the advance price obtained was £100 ($280) per metric long ton.



Norwegian companies will be expected to set aside 42,000 tons of whale oil for domestic consumption, according to the Norwegian Journal of Commerce and Shipping.

The Norwegian whaling company "Kosmos" has announced that its 1949-50 net profit was more than 14 million kroner ($1,960,000) after setting aside well over 15 million kroner ($2,100,000) for depreciation, and 11.4 million kroner ($1,596,000) for reserves.

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DRIED FISH EXPORTS 1950: Norwegian exports of dried fish in 1950 will total approximately 15,000 metric tons as compared to an average of some 8,000 tons during each of the prior postwar years, the president of the Norwegian Dry Fish Exporters' Association predicts. Demand for dried fish on the world market is increasing. However, the 1950 Norwegian exports will fall far short of the prewar average of 25,000 to 28,000 tons per year, according to a September 29 American consular dispatch from Oslo.

Peru

COMPANIES PROCESSING FISH FOR EXPORT REQUIRED TO HAVE FISHING FLEETS: Concerns to be established in Peru for the purpose of processing fish in any form for export purposes must have their own fishing fleets, according to Supreme Resolution No. 342 of October 16, 1950, published in the official gazette El Peruano of October 30, 1950. The resolution also prescribes that no licenses will be granted for the operation of fish companies or the exportation of fish products unless the above-mentioned provision has been complied with.

The preamble of the resolution states in substance that this measure is taken in order to avoid interference from activities of fish-processing companies with the normal supply of fresh fish for domestic consumption, a November 1 American Embassy dispatch from Lima reports.

The Peruvian Bureau of Fisheries and Wild Life informally has indicated that this measure applies solely to new fish-processing companies to be established in Peru and not to those now in existence.

Republic of the Philippines

REPORT OF THE U. S. ECONOMIC SURVEY MISSION TO THE PHILIPPINES INCLUDES FISHERIES RECOMMENDATIONS: At the request of the President of the Philippine Republic, President Truman appointed a United States Economic Survey Mission to consider the economic and financial problems of that country and to recommend measures that will enable the Philippines to become and to remain self-supporting. The Mission surveyed in July and August 1950 all aspects of the Philippine economy (including fisheries), and gave special consideration to immediate measures to help raise production and living standards in the Philippines. In its report (submitted to President Truman and delivered to President Elpido Quirino in October 1950), the Mission reports that "Economic conditions in the Philippines are unsatisfactory... Unless positive

measures are taken to deal with the fundamental causes of these difficulties, it must be expected that the economic situation will deteriorate further and political disorder will inevitably result." Summarized below are some of the recommendations and findings of the Mission regarding the fisheries and foreign trade of the Philippines.

Among the recommendations submitted by the Mission, are the following:

"That steps be taken to diversify the economy of the country by encouraging new industries;.....that the natural resources of the country be systematically explored to determine their potentialities for economic development;.....

"That to avoid a further deterioration in the international payments position and to reduce the excessive demand for imports, a special emergency tax of 25 percent be levied for a period not to exceed two years on imports of all goods other than rice, corn, flour, canned fish, canned milk, and fertilizer; that if such an emergency import levy is not possible under the Trade Agreement with the United States, either very heavy excise taxes should be imposed or a tax of 25 percent should be levied on all sales of exchange; that, as a safety measure, the present exchange and import controls be retained but their administration be simplified and liberalized and the full remittance of current earnings be permitted; that a Treaty of Friendship, Commerce and Navigation be concluded between the Philippines and the United States and the present Trade Agreement re-examined in the light of the new conditions.....

"That the United States Government provide financial assistance of $250 million through loans and grants, to help in carrying out a five-year program of economic development and technical assistance; that this aid be strictly conditioned on steps being taken by the Philippine Government to carry out the recommendations outlined by the Mission, including the immediate enactment of tax legislation and other urgent reforms; that expenditure of United States funds under this recommendation, including pesos derived from United States loans and grants, be subject to continued supervision and control of the Technical Mission; that the use of funds provided by the Philippine Government for economic and social development be coordinated with the expenditure of the United States funds made available for this purpose; and that an agreement be made for final settlement of outstanding financial claims between the United States and Philippines, including funding of the Reconstruction Finance Corporation loan of $60 million."

For the fisheries, the Mission specifically recommends that "economic and technical assistance should continue to be furnished the (Philippine) Bureau of Fisheries. With the research already conducted by the (U. S.) Fish and Wildlife Service, a small staff of technical assistants would aid materially further development of the fishing industry."

In its analysis of the fisheries of the Philippines, the Mission points out that commercial fisheries (not including sustenance and pond fishing) in the Philippines have not restored production to the prewar level, but sustenance and pond fishing have recovered rapidly. However, the production of fishery products (including sustenance and pond fisheries) has increased from 170,000 metric tons in 1940 to 226,000 metric tons in 1949. The estimated investment in fisheries and ponds for the period 1945-49 was estimated at ₱35,000,000 (approximately $17,500,000).

Further, the report states:

"The fishing industry, which is a major source of protein food in the Philippines, was demoralized following the Japanese occupation. Most of the commercial fishing had been in the hands of the Japanese and was almost totally destroyed. Local and pond fishing was sharply reduced by war damage and neglect.

"The Philippine Rehabilitation Act of 1946 authorized the U. S. Fish and Wildlife Service to cooperate with the Government of the Philippines in the rehabilitation and development of the fishing industry and to develop a program of conservation of the fishery resources in the Philippines and adjacent waters. A technical Fisheries Mission was sent to the Philippines, and with its aid all types of fishing in the Philippines made considerable progress. However, the authority of this Mission expired on June 30, 1950, and it is feared that much of the progress made may now be lost. The Philippine Government has asked for a continuation of economic and technical assistance in the development of its fisheries and such assistance seems advisable in a program to expand food production.

"Commercial fishing has expanded rapidly in the postwar years. The number of vessels engaged in commercial fishing has been increased from 358 in 1946 to 826 in 1949, with more emphasis being placed on power boats than formerly. Despite this increase in vessels, the commercial fish catch (not including sustenance and pond fishing) is still only about half of prewar. In Philippine waters, the expansion in commercial fishing is limited by the small areas that have a sufficient fish population for economical operation. The technical Fisheries Mission found the most

likely areas for pelagic fishing to be in Sulu and Celebes seas and recommended establishment of a tuna cannery in southwest Mindanao. There are extensive areas for tuna fishing which were formerly fished by the Japanese, and the expansion of tuna fishing in these areas is feasible.

"Municipal and sustenance fishing has been given impetus by the high price of fish. Further expansion of this type of fishing appears possible through assistance to local fishermen in getting gear, by providing cold storage transportation to expand the market for fish, and through the development of freezer packers. Pond fishing is expanding rapidly, the catch of 1949 exceeding that of prewar years. It is estimated that up to the present only about one-fifth of the total possible areas for pond fishing has been developed. In order to stimulate this industry, a law was recently enacted permitting the sale of areas for pond fish development which had formerly been available only under lease."

Poland

PLANS LARGE-SCALE FISHERY IN NORTH SEA AND AROUND ICELAND: A large-scale fishery in the North Sea and around Iceland is planned by Poland, according to a September 19 American consular dispatch from Bremerhaven. Poland hopes to be given free port privileges either at Cuxhaven or in Denmark on the Skagerak. The trawler fleet for this fishery would be based in the free port and freighters would be used to haul the fish to Poland. Due to its location at the entrance to the Kiel Canal, Cuxhaven is an ideal location for such a free port.

Three Belgian-owned steam trawlers (Eduard Anseele, Nautilus, and Christ Mahlmann) have been sold to the nationalized fishery of Poland. These vessels, which were chartered by a Bremerhaven firm in 1949 and operated out of that port with German crews, have been returned to their owners, who in turn sold them to Poland.

In addition, negotiations now are underway to sell some of the 80 over-age German trawlers to the Polish national fishery. Many of these 80 over-age trawlers will be scrapped by the German owners at the end of the 1950 herring season unless other purchasers can be found. When sold for scrap, a 295 gross-registered-ton trawler will bring only DM 12,500 ($2,975). Poland presumably will pay a much larger sum.

Spain

TIN-PLATE SHORTAGE AFFECTS FISH CANNING: Because the acute shortage of tin plate threatens a complete paralyzation of the Spanish fish canning industry, the Spanish Government has agreed to make $125,000 available to the Fish Packers Association for the purchase of tin supplies abroad. The trade feared, however, that the measure has been taken too late to be useful during the present packing season, especially because of the difficulties existing in the tin plate producing countries as a result of government controls, an October 6 American consular dispatch from Vigo reports. Since the rolling mill at Bilbao claims to be unable to supply tin plate unless furnished with tin, packers have also been authorized to buy tin in the open market.

The acute shortage of tin plate experienced during the first part of October was temporarily solved by the arrival of German tin plate and the delivery of Spanish tin plate manufactured at Bilbao with refined tin supplied by the canners. While the

struggle for stocks of tin plate continues, there is now more optimism in the industry since German tin mills have accepted orders for delivery within the next few months. Local packers hope that substantial quantities of French tin plate will become available soon under the recently signed French-Spanish trade agreement.

Union of South Africa

SURVEY OF FISHING INDUSTRY PRESENTED AT SOUTH AFRICAN CHEMICAL INSTITUTE CONVENTION: The South African Chemical Institute Convention this year restricted its agenda to papers relating to the fishing industry, a September 28 American consular dispatch from Cape Town reports. The Convention was held on September 26 at that city. One of the papers presented at this Convention was "Survey of South African Fishing Industry with Special Reference to Fish Meal and Oil," by W. M. Neale-May, managing director of a South African marine-oil refining company. The following are some excerpts from this paper:

Fishing Areas: "The principal South African fishing grounds are to be found in two areas along the South African coast. The first and major portion consist of the continental shelf extending from Table Bay to the Kunene River Mouth; that is, the whole of the West African coast up to the Angola Border. The second portion is the continental shelf stretching from Danger Point to approximately Port Elizabeth. This area is on the South Coast, and is known as the Agulhas Bank. Apart from these two fishing grounds, there are no other areas of economic importance elsewhere on the South African coast...."

Production: According to the author, these fishing grounds would be capable of yielding an annual catch of about 500,000 short tons without being depleted. He states that present production totals about 250,000 tons....

"It can be concluded, therefore, that the physical and chemical conditions existing on our West Coast fishing ground are comparable with those of other established fisheries, and the presence of high densities of plankton of the correct type indicates that the fishery should be a very vigorous one." The author states that the following is the estimated production of the fisheries of the South African fisheries for 1950:

Principal Types of Fish Caught	Estimated Production for 1950 Short tons
1. Surface Netting:	
Pilchards (Sardina sagax)	125,000
Maasbanker (Trachurus trachurus)	25,000
Miscellaneous	2,000
2. Trawling:	
Hake (Merluccius capensis)	25,000
Sole (Austroglossus pectoralis)	2,500
Miscellaneous	5,000
3. Trapping:	
Crayfish (Jasus lalandi)	12,500
4. Trolling:	
Snoek (Thursites atun)	8,000
5. Variety of other fish taken by other methods	15,000
Total	220,000

"The approximate present day value of this catch is £4,000,000 (approximately $11,120,000). Of these fish, those caught by trawling provide the bulk of the fresh, frozen fish eaten in the Union today. This fresh fish supply is augmented by the large variety of line-caught fish included under Item 5 above. Most of the line-caught fish are, however, consumed in the coastal towns, as opposed to the trawled fish which are sent in a frozen condition to the inland markets.

"The bulk of the crayfish is exported either as frozen tails or canned, and earns much needed dollars for the country. Almost all snoek is dry salted and sold as such.

"Of the total catch of pilchards, about 10,000 tons will be canned in 1950. The balance of the pilchards, and virtually all the maasbanker, will be turned into fish meal and oil.

"The Fish Meal and Oil Industry: WHITE FISH MEAL: Production of this material first started in South Africa in 1937 when the disposal of offal and inedible fish from the trawling industry had become a problem. The first fish meal plant was established in the Cape Town Docks, and since going into production has produced 'white' fish meal from waste products of the trawling industry, i.e. hake, kabeljou, and miscellaneous groundfish, offal, etc.

"Fish tissue with a low fat content is usually used in the manufacture of white fish meal, and for this reason it is only necessary to cook the fish tissue and dry it down to 8-10 percent moisture content to insure a suitable product. Some processes reduce the costs of evaporating the moisture by first subjecting the material to high pressure thus expelling a portion of the moisture present. Whichever method is to be used depends on the economics of pressing versus evaporation.

"Good white fish meal should have the following average analysis:

Crude protein	75 - 80%
Moisture	8 - 10%
Oil	1½ - 3%
Digestibility factor	90 - 92

It will be noted that the percentage of fat in the meal is extremely low, and for this reason white fish meal does not develop rancidity. The quality of the protein is high, as indicated by the digestibility factor.

"White meal is used in the manufacture of balanced rations and concentrates for the animal feeding industry. The annual South African production is about 3,000 tons.

"An interesting series of experiments utilizing white fish meal made from cod and other non-oily fish has recently been conducted in Norway. White fish meal containing 70-80 percent protein was solvent extracted to remove any oil present and the resultant oil-free product finely ground and mixed to an extent of 7-10 percent with wheaten flour. The bakery products made from the mixture showed no noticeable change in taste. By paying particular attention to the selection of material from which the fish meal was made, it is claimed that up to 20 percent of this flour can be mixed with grain flour and the resultant mixture utilized in many bakery products without a fishy taste developing.

"If these claims can be substantiated, the advantages to South Africa are obvious. The considerable protein potential of the white fish meal industry of the Union could then be utilized to supplement the country's slender supplies of protein at a reasonable price. Valuable minerals such as lime, phosphate, and iodine would increase the value of the fish flour supplement in our wheaten products.

"CRAWFISH MEAL: According to van Rensburg (1948), the body of a crawfish represents between 65-72 percent of the total weight of the fish. In former years, all tissue other than the valuable tail was dumped as waste products. Recent legislation, however, now makes it illegal to dump this material, and it must now be dried and crushed to produce a meal well suited for poultry feeding. Because of the large proportion of mineral matter and fibre contained in the shell, the protein content is relatively low. However, for poultry feeding the high mineral content is desirable. Annual production is about 2,000 tons.

The following is an average analysis:1/

	Minimum	Maximum	Average
Protein	29%	51.3%	39.6%
Moisture	3.5 %	11.6%	7.3%
Sand, salt, etc.	0.9 %	18.1%	9.5%

1/ 1949/50 REPORT OF THE FISHING INDUSTRY RESEARCH INSTITUTE.

"OILY FISH MEAL: The production of oily fish meal and fish oil today, is by far the largest section of the South African fishing industry. In 1945, the first experimental continuous reduction plant was built. This plant had a daily capacity of 20 tons of fresh fish.

"Today, approximately five years later, there are on the West Coast of the Union of South West Africa, twelve modern factories with a reduction-plant capacity equivalent to 3,000 tons a day. That is not to say that this large quantity of fish is processed every day. On the contrary, owing to climatic conditions, the phases of the moon, variation in water currents, and to no small extent the moods of the fishermen, daily catches vary considerably.

"The fish, pilchard and maasbanker, are normally caught on the surface of the water at night during the dark of the moon. Fishermen, working from 40-ft. and 50-ft. boats, encircle the shoals of fish with long nets. The trapped fish are then brailed into the holds of the boats with baskets. The usual boat load is from 30 to 65 tons."

The author estimates that the 1950 South African mixed catch of pilchard and maasbanker sent to the reduction plants is estimated at 140,000 tons, which will yield about 26,000 tons of meal and 11,000 tons of oil.

"On arrival at the factory, the holds are flooded with sea water and the total contents pumped out by means of large pumps into large storage bins, holding from 150 to 300 tons each. On the way to the bins, the stream of fish passes over a continuous weighing machine. The rate of pumping is about one ton of fish per minute. An interesting feature about this method of unloading a boat is that although the fish pass through a centrifugal pump, surprisingly few are found damaged on discharge. This makes it possible for a cannery attached to a fish reduction plant to secure supplies of suitable fish from the main stream going to the reduction plant.

"From the storage bins, the fish are fed by mechanized conveyors into the reduction plant. There are different makes of plants in use in South Africa, but basically the processes are all the same. The first step consists of cooking the fish in continuous pressure cookers in order to break down the cells of depot fat and so release the oil from the tissue. The cooked meal is then pressed, and the oil and liquor (or stickwater) is separated from the remaining meal. The secret of making good fish meal rests with the cooking procedure, as incorrect cooking will lead to poor conditions in the press, and thus to poor separation of the oil from the meal. The oil and stickwater emerging from the press are sent to oil-recovery equipment, and the pressed meal containing about 50 percent moisture is first milled and then dried down to about 7 percent moisture content in continuous driers. After drying, the meal is again milled, air classified, and bagged.....

"Most South African presses are of the single or double-screw type, the screws operating in tandem against a perforated screen.

"The liquor and oil are forced through the perforated screen and the pressed meal emerges through an annular space at the end of the shaft. Modifications of this type of press employ knives or chains to prevent the meal from churning. In one design, two paralled screws were employed. However, none of the different modifications appear to be able to reduce the oil content of the dried meal below 7-8 percent.

"An entirely different type of press has recently been installed by two companies. This consists essentially of two large perforated disks, set at a slight angle to one another in the vertical plane, and rotating in the same direction. The cooked meal is fed in at the top where the distance apart of the disks is largest.

It travels downwards the rotation of the disks and in so doing is compressed as the disks approach each other at the bottom. The liquor and oil is discharged through the perforations, and a chute arrangement removes the pressed meal. Whether this type of press is an improvement on the usual type, under South African conditions, remains to be seen.

"Meal driers consist in essence of inclined rotating cylinders into which the milled wet meal is fed. In the case of direct heat driers, hot furnace gases pass concurrently with the meal down the inclined tube. By watching the humidity of the exit gases, some heat economy can be achieved by re-circulation, but this is not practised to any extent in the industry. The exit gases must be passed through cyclones to remove fine particles of meal before they are discharged into the air.

"Driers utilizing indirect heating are fitted with a series of steam-heated tubes round the internal periphery. The moisture in the meal is vaporized by the heated surface of these tubes, and the water vapor is drawn off by fan into a jet condenser.

"A recently installed plant utilizes an air-lift drier in place of the conventional rotary drier. The behavior of this type of drier is being watched with interest by the industry.

"The following results on the analysis of fish meal have been reported by the Fishing Industry Research Institute for the year April 1949-March 1950:

	Minimum	Maximum	Average
Protein contents.....	55.3%	73 %	63.5%
Moisture.....	0.7%	13.9%	6.9%
Fat.....	0.4%	18.7%	9.5%

"The variation of the oil contents is extremely high. The difference between an oily fish meal and a white fish meal will be noted. The oil content of white fish meal is considerably lower and the protein content somewhat higher. The digestibility factor of the protein present in the oily meal has not been recorded for South African fish meals so far as I am aware, but it can be accepted that it varies considerably, dependent to a large extent upon the method of drying the meal. It is well known that overheating decreases the digestibility of the protein, and for this reason the meal produced in direct heat driers, whether fired by oil or coal, is probably inferior in this respect to the meal from indirect steam driers. Fish meal is sold on the basis of its percentage of crude protein. However, no allowance is made for the digestibility factor of the protein at present. As our farming community becomes more scientifically minded, premium prices will be paid for meals with high digestibility factors.

"CONDENSED FISH SOLUBLES: After the crude stickwater and oil have been expelled from the press, the mixture passes through a series of separating devices designed to separate insoluble suspended tissue, aqueous extract, and oil into three different products. The devices employed vary in different factories, and may consist of various combinations of settling tanks, foots reels, vibrating screens, bulk centrifuges, sludge discharging centrifuges, and polishes.

"Varying degrees of efficiency of separation are achieved; the recovered solids are fed into the meal drier, the clear stickwater in most cases goes to waste, and the oil to storage.

"In one factory, however, the value of stickwater is recognized, and equipment has been installed for the production of condensed fish solubles. After discharge from the centrifuges, stickwater is run into large storage tanks and held at 180° F. or above. Sulphuric acid is added to adjust the pH down to about 4.5 and this coagulates a proportion of the soluble protein contained in the stickwater, and frees a small proportion of emulsified oil. The hot liquor then goes to separators for the removal of the precipitated oil and meal. The separated liquor is then evaporated in triple or quadruple effect evaporators to a 50-percent-solids consistency--the condensed fish solubles of commerce.

"Condensed fish solubles will usually have the following average analysis:

Total solids.....	50.0%
Fat.....	2—6%
Ash.....	8—9%
Crude protein (N x 6.25)..	33.5%
A variety of trace elements	—

"One ton of fresh fish yields about 170 gallons of stickwater. The total solids content of this water is seldom less than 7-8 percent, and may increase to 10-12 percent, depending upon the condition of the fish. The oil content varies between 0.8 and 1.0 percent.

"If we assume that in 1950, 100,000 tons of fish are treated by reduction plants not fitted with stickwater recovery units, we find that 5,959 tons of total solids plus 680 tons of oil have been fed back into the sea, if we take the lower figure of 7 percent. Since these solids contain 67-70 percent of protein, this is equivalent to fish meal being lost. This is about 30 percent of the actual amount of meal produced from 100,000 tons of fish, or alternatively, about 23 percent of the total potential meal taken from the sea is wasted. Valuing this meal at £30 per ton (about $83)--a very low estimate in view of its high content of B vitamins and animal growth factors--and the oil at £60 (approximately $167), at least £180,000 ($500,400) of meal and £40,000 ($111,200) worth of oil is being lost annually, a total of £220,000 ($611,600). As a minimum figure, this is an enormous sum of money. If cooperative stickwater recovery units were erected at Walvis Bay, Lamberts Bay, Velddrif, and Stompneus, the investment would be recovered very rapidly and this enormous waste would be prevented.

"The whole problem of the efficient processing of fish to ensure that the valuable factors originally present in the fish, are retained in the meal, can be solved by carrying out the reduction in a totally different manner.

"In Norway, and recently in Iceland, plants have been installed for utilizing this process on herring. The fresh fish are fed into a large vacuum evaporator together with a predetermined amount of previously recovered fish oil. The evaporator has agitators and is steam heated. Moisture in the fish is evaporated off under maximum vacuum to the required point, and then the mixture of oil and dried fish tissue is passed to a solvent extraction plant where the oil is separated from the meal.

"The meal made by this method contains all the factors originally present in the fish, has a low oil content, and provided a low boiling solvent is used in the oil extraction, will have a high digestibility factor. The oil will probably be darker than that produced by the usual methods, but in other respects will be equal in quality. Yields of meal will be anything from 5-7 percent higher, and oil 2-3 percent higher.

"FISH OIL: Apart from the materials at present lost in the stickwater, the cleaning up of the oil at the South African factories is usually done efficiently. The moisture contents usually vary between 0.25 percent and 2.5 percent and insoluble impurities, etc., do not often exceed 0.10 percent.

"The smell, and to a large extent the color, of the oils are controlled by the degree of decomposition that has taken place in the fish before it is processed. Oils of bad odor, dark color, and high free fatty acid content are invariably the result of processing decomposing fish. Oils from very fresh fish are low in free fatty acid, lighter in color, and sweet smelling. The color of pilchard oil, however, even when produced from fresh fish is always appreciably darker than that of good maasbanker oil. The reason for this is the large amount of pigment found in the stomach walls of pilchards. The free fatty acid contents range from 0.5 percent in very good oils up to 7.5 percent in very poor oils. The average is slightly below 2.0 percent.

"The principal difference between pilchard and maasbanker oils lies in the degree of unsaturation of their fatty acids as shown by the iodine values.

Pilchard -185/200 by the Wys method
Maasbanker-158/170 " " " "

This property dictates the uses to which the oils are ultimately put. Maasbanker finds its principal use in hardening plants, where with the aid of activated nickel catalyst it can be hydrogenated relatively easily to produce excellent fats of both industrial and edible grades. These fats are being widely used in margarine and cooking fats, and in soap and candle manufacture. Pilchard oil, on the other hand, is much more difficult to hydrogenate than maasbanker. Not only does it require considerably more hydrogen, but the life of the catalyst is less.

"For these reasons, not much pure pilchard oil is hardened. Instead, it can be processed in a number of ways to produce excellent oils for the drying oil industries, such as paint and varnish oils, putty and core oils, printing ink varnishes, waterproofing compounds, etc. Both pilchard and maasbanker are used in the tanning industry in the crude and the sulphated state....."

In conclusion, the author points out that the South African fish meal and oil industry has made remarkable progress when one considers that it virtually did not exist four years ago. "Production will increase still further in the coming years and we can look forward with confidence to our industry becoming one of the major producers of meal and oil in the world," he says.

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PRICES OF WHALE PRODUCTS FOR 1950-51 SEASON ESTABLISHED: A South African whaling company has entered into a contract with the British Ministry of Food stipulatin a price of £100 ($280) per long ton (2, 00 lbs.), ex-ship United Kingdom port, for all whale oil produced by the company during the 1950-51 whaling season, an American consular dispatch from Durban dated October 11 reports.

It has also been ascertained that the agreed upon price for whale meat meal during the coming season will be 13/- (approximately $1.82) per protein unit. The price realized for meat meal during the last season was 11/- ($1.54) per protein unit.

While the new price to be paid for whale oil represents an increase of 25 percent over the price in effect last year, officials of the company point out that the cost of equipment, fuel, and other working costs have increased to such an extent that the margin of profit will not be increased as much as it might appear.

United Kingdom

BRITISH FISH MARKETING SURVEY: The Organization for European Economic Cooperation (O.E.E.C.) is conducting a survey of fish marketing in Great Britain. The comprehensive survey will cover the catching and distribution of fish, with the object of determining whether means can be found for increasing consumption, reports the October 14 issue of Fish Trades Gazette, a British fishery periodical.

The small panel of men which will carry out the survey will be drawn from countries which are members of O.E.E.C. Several of the main fishing ports and inland markets will be visited by the panel. The survey was to be completed by November 9.

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WHALE OIL SOLD TO UNITED KINGDOM FOR $280 PER LONG TON: The entire 1950-51 output of whale oil of the United Kingdom's largest whaling factory ship, the Balaena, has been sold on a forward basis to the British Ministry of Food, according to a report from the American Embassy at London.

The agreed price for the oil is £100 ($280) per long ton. It is believed that since the sale involves the total production of the Balaena expedition (which produced nearly 45 percent of all the whale and sperm oil output of the three United Kingdom expeditions in the 1949-50 season) that the price may indicate the level at which other sales in 1950-51 will take place.

U. S. Trust Territory of the Pacific Islands

STATUS OF THE FISHERIES, 1949:[1/] The commercial fisheries of the Trust Territory are developed to a very minor degree at this time, according to the annual report of the United States to FAO. Small amounts of bonito and other deep-sea fish are regularly taken from the waters of Saipan and the Palau Islands and some commercial catches of reef fish and crustaceans have been shipped from the Palaus. The fresh fish markets of Guam have been the only export market available for this fresh fish. Very little fish is processed in the islands for export.

Although appreciable quantities of trepang (beche-de-mer) are available, the only sizable markets for this product (China) have been closed. Trochus is taken in quantity for the shell most of which is exported to Japan to be manufactured into buttons.

The administration is continually studying methods to develop the deep-sea fisheries off the Trust Territory Islands. Lack of local skill and initiative, the necessity for heavy investment in fishing boats and processing equipment, and the distance from potential markets have consistently delayed progress in this field.

1/ ABSTRACTED FROM THE ANNUAL REPORT OF THE GOVERNMENT OF THE UNITED STATES OF AMERICA TO THE FOOD AND AGRICULTURE ORGANIZATION OF THE UNITED NATIONS (SEPTEMBER 1950).

Venezuela

FISHING FLEET EXPANDED: The Venezuelan Development Corporation has announced that by mid-November, 30 new fishing vessels were scheduled to be completed, an October 30 American consular dispatch from Caracas states. These new boats have displacements of from 10 to 20 metric tons and will be used for marine fishing.