



Australia

NEW FISHERIES DEVELOPMENTS: Canning: Barracuda taken by Victoria, Australia, fishermen are being sent to canneries in New South Wales and Tasmania. A cannery in Melbourne also has been processing this species, according to the June 1949 Fisheries Newsletter of the Australian Director of Fisheries.

If a cannery demand for pilchards can be developed, experiments already carried out in Victoria with various types of pelagic fishery nets indicate that appreciable quantities of these fish can be taken. A new fish cannery at Busselton in Western Australia went into operation on May 2.

Trawling: Two companies, each of which proposes to obtain a steam trawler with an experienced crew from England to fish along the southern coast of Western Australia, are being formed. The Government of Western Australia is deeply impressed with the trawling possibilities in waters off the southern part of the State, and as good markets are available, the ventures are receiving the full support of the Commonwealth Director of Fisheries and the Department of Industrial Development.

Crayfish Industry: The crayfish industry of Western Australia has been greatly expanded since the war, with landings reaching 2,750,000 pounds in 1948. It is intended to use a new and larger patrol vessel at a later date for investigation of new crayfish areas and to test out various types of small-boat fishing gear.

In 1947, successful trial shipments of 97,000 pounds of frozen crayfish tails arrived in United States ports from Australia. In 1948, imports by the United States ports of 514,290 pounds of frozen crayfish tails helped to eliminate gluts in Australian markets and to stabilize prices.

Imports of Australian frozen crayfish tails by the United States during the first quarter of 1949 amounted to 423,385 pounds as compared with 195,251 pounds in the like period of 1948.



Bizone Germany

OPERATION OF AMERICAN TRAWLERS: The first (the U.S.A. Surf) of the 12 motor trawlers purchased by the U. S. Army for use in German fisheries, completed its second trip to the North Sea herring grounds on August 25, bringing a full cargo of 130 metric tons of herring after a voyage of only 9 days, according to an August 30 report from the American Consulate at Bremerhaven. The German firm char-

tering the vessel from the "Fischdampfer Treuhand" is satisfied with its performance, which not only exceeded expectations but also exceeded the performance of several German steam trawlers operating in the same area. The success of the Surf is ascribed locally to its ability to pull the net more steadily and quickly than the average small steam trawler. This success has caused some of the firms, which applied unsuccessfully for one of the 12 trawlers, to try to get more aid funds allocated for the purchase of fishing vessels so that they might get a trawler under charter terms.

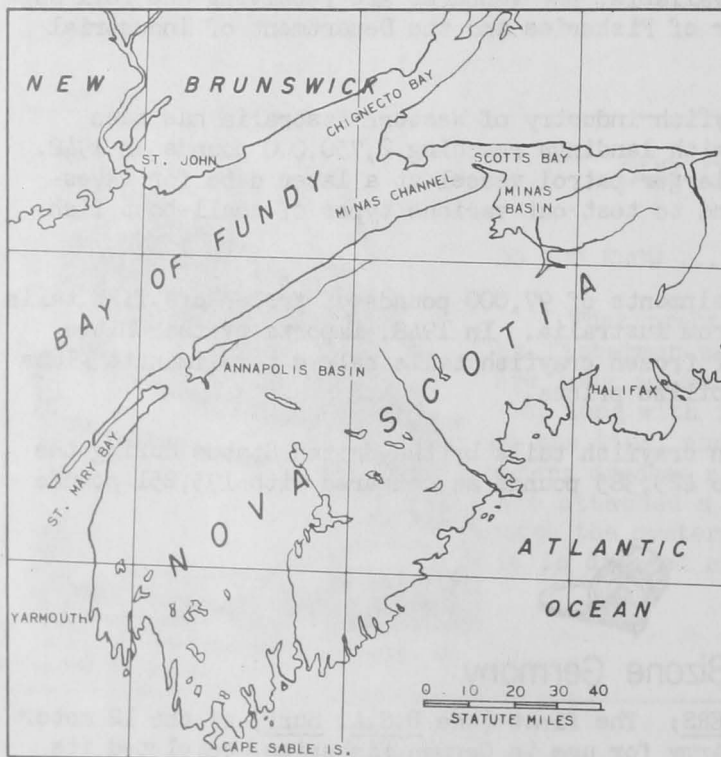
Although local fisheries circles are beginning to look upon the trawlers as a valuable addition to the German fleet, no German company has shown any desire to buy one of the twelve at the price paid by the U. S. Army in the United States. The Surf, for example, was valued by a German source at \$195,000, or less than 70 percent of its cost in the United States. Many Germans still believe that the Army would have been better advised to have had new fishing craft built in Germany with the money that was spent in buying and repairing the twelve used trawlers.

NOTE: Values converted on the basis of 1 Deutsche mark equals 30 cents U. S.



Canada

DRAGGING PROFITABLE IN WESTERN NOVA SCOTIA: Exploratory dragging for flounders in inshore waters by the Atlantic Biological Station of the Fisheries Research Board of Canada, at St. Andrews, N. B., has stimulated the development of a fleet of inshore commercial draggers in western Nova Scotia, according to the August 1949 Trade News of the Canadian Fisheries Department.



MAP SHOWS AREAS WHERE EXPLORATORY FLOUNDER FISHING WAS CONDUCTED.

Successful experimental dragging operations were conducted in 1948 in St. Mary Bay on the western coast of Nova Scotia, and in the spring of this year, the exploratory fishing was extended to the north shore of the Bay of Fundy, Scotts Bay, and Minas Basin.

The report on exploratory fishing states that an extensive area of smooth bottom and good fishing was found in Minas Basin off Kingsport and north to Cape Blomidon.

The winter flounders (about 14 inches) proved to be fast-growing fish. Fishing was comparable with that found in St. Mary Bay and Annapolis Basin and there were also suggestions of good haddock fishing.

St. Mary Bay fishermen are interested in the potentialities of this flounder resource as a means of supplementing a fishery which has been restricted both by variety and by seasons. Seven Cape Island boats, locally owned and operated, had rigged for dragging in St. Mary Bay by June of this year. A similar realization of the fishing potentialities of Minas Basin by fishermen of that area may be expected and the use of small draggers by them is anticipated as markets are developed.

The exploratory fishing, conducted from the research boat Pandalus, has already resulted in an extension of commercial dragging to Minas Basin. A comparison of the results of commercial dragging for flounders and haddock on these grounds, during one month following this discovery, with the average annual production of Kings County, N. S., is of interest. One ex-scallop dragger operating one month this year in Minas Basin made a catch of 76,000 pounds of winter flounder and 19,000 pounds of haddock. There was no catch of winter flounder in Kings County from 1937-46, while the average annual catch of haddock for the same period was 7,420 pounds.



Costa Rica

MAY CHANGE CURRENT FISHERY LEGISLATION: Interested Costa Rican government departments have been in consultation among themselves and with representatives of the fishing industry regarding proposed changes in current legislation concerning that industry, according to a September 26 report from the American Embassy at San Jose.

The press has pointed out that decrees issued in the early part of this year have been detrimental to the local fishing industry, and that changes will be made in fishing regulations and the tax structure for the industry, but there has been no official confirmation of those statements.



Cuba

FISHING VESSELS EQUIPPED WITH DEPTH RECORDERS: The Cuban Government on August 31, 1949, delivered 60 supersonic depth recorders, manufactured in the United States, to the same number of privately owned fishing vessels which usually fish off the Mexican coast, according to a September 16 report from the American Embassy at Havana. Money for these recorders (\$186,500) was voted May 1948 by the Cuban Government.

With these recorders, fishing vessels hope to save eight to ten days per voyage in locating schools of fish and to increase their catch by two-fifths.



Denmark

DANISH FISHING GROUNDS STOCKED WITH PLAICE FRY: The decline in catches of plaice in the traditional Danish fishing grounds of the Kattegat, the Limfjord, and the North Sea during recent years has given rise to a program of systematic planting of plaice fry in these waters, according to a September 22 report from the American Embassy at Copenhagen. Experiments so far conducted by the Danish Government in close cooperation with the fishery trade have shown encouraging results, and the program will be expanded in the future.

According to present plans, 5 million fry will be planted in these areas during March and April 1950.

The Danes would like to interest the British in the North Sea planting project, but to date, British authorities have refused to participate since it has been shown by past experiments that from 80 to 90 percent of the plaice caught in the North Sea is landed by Danish fishing vessels.

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FISHERIES OF THE FAEROE ISLANDS, 1948: Production: The production of the fisheries of the Faeroe Islands (Danish island group north of the British Isles) is obtained partly on fishing grounds near the Islands and partly on fishing grounds near Iceland, Greenland, the north coast of Norway, and Bear Island, according to the August 1949 issue of Konserves.

The fishermen fishing near the Islands are able to land fish suitable for producing frozen fish fillets and canned fish. The production from far-off fishing grounds is landed directly in a foreign port as iced fish, or salted on board and further treated when landed in the Islands. Only one schooner is equipped with freezing facilities at present.



Processing: The fish caught near the Islands, which are not consumed locally or exported as iced fish, are salted or canned. There is still only one cannery and it packs, among other items, fish balls, cod roe, and Norway lobster. The first plant for the production of frozen fish fillets is being built.

Formerly, a large amount of the salted fish landed in the Islands was dried. This industry, however, has declined considerably during the last few years since the prices for salted fish have been high.

Fishing Fleet: In the last few years, the importance of trawlers for fishing further offshore has been recognized, and there are now 38 trawlers in operation. In 1948, some of these vessels were successfully fishing near Greenland.

Exports: In 1948, the Islands exported 25,421 metric tons of fresh fish, 34,277 tons of wet salted fish, 358 tons of salted dried fish, and 2,000 tons of cod liver oil.

Whaling: Whaling takes place from two land stations, and the total catch in 1948 was 271 whales. The products exported consisted of 420 metric tons of frozen whale meat, 230 tons of whale meal, and 1,500 tons of whale oil.

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USE ELECTRIFIED TUNA LINES: A Danish fisherman has begun to use electricity in the catching of bluefin tuna, according to Fiskaren, a Norwegian periodical. A hook is fastened to a wire which serves both to carry the current and as a catching line. The wire is coupled to a dynamo aboard the cutter. When a tuna bites he presses a button which completes the circuit and electrifies the line until the tuna is brought on board.



Greenland

FISHING SEASON, 1949: Danish and foreign fishing off the coast of Greenland has continued to expand during the summer of 1949. In addition to the Danish, Norwegian, and Faeroese vessels, which have been fishing off this coast for many years, Portuguese participation is increasing, according to an August 16 report from the American Consulate at Godthaab.

A Danish company which operates from Torkussak had caught 100 metric tons of fish by the end of June. Another firm also operating out of Torkussak expects a total catch of 1,000 metric tons this year. A freezing plant was completed at Torkussak last year.

In Faeringhavn there are about 35 large Norwegian and Faeroese fishing craft which are all connected with a Danish-Norwegian firm. They arrived early in June and by early July had made their first shipment of 850 metric tons. The physical installation at Faeringhavn has been expanded by several buildings this year.

The Greenland Administration is continuing its efforts to increase the participation of the local population in these fisheries. Freezing and canning plants are going to be constructed in Narsak and Egedesminde, Greenland.



Guatemala

LIMITS OF TERRITORIAL WATERS: The Guatemalan laws, decrees, regulations, treaties and other Government pronouncements concerning the delimitation and measurement of inland waters and marginal seas of Guatemala are contained in,

- (1) Decree No. 2393 of June 17, 1940;
- (2) Regulations for the Government and Police of the Ports of the Republic of May 22, 1939; and
- (3) The Civil Code of the Republic of Guatemala with amendments and changes made prior to 1944,

according to a September 2 American consular report.

Pertinent provisions of these documents are:

1. The territorial waters of the Republic of Guatemala are those which lie within 12 miles of the coast, counting from low tide or from the most salient point on the coast. The meaning here is obscure and the wording of Decree No. 2393 is not precisely the same as that found in the Regulations for the Government and Police of the Ports. Whether "the most salient point" is intended to mean low tide, or whether low tide at the most salient point on the coast is intended to be the point from which the 12 miles measurement should begin, is not clear.
2. The Bay of Amatique, commonly known as the Bay of Puerto Barrios, is specifically declared to be territorial waters of the Republic of Guatemala by Decree No. 2393.
3. Inland waterways, lakes and ponds are the property of the Nation under certain conditions. However, the Nation reserves as a zone for public use a strip of land 1,500 meters wide, counting from high tide, along the entire sea coast frontier of the Republic; a strip 200 meters wide around the shores of lakes; a strip 100 meters wide on each bank of navigable rivers; and a 10 meter strip around or on either side of springs and fountains which serve as a water supply for cities and villages.



Iceland

GUARANTEED PRICES ON EXPORTED FISH: A special committee, the "Fiskabyrgdarnefnd" (Fish Guarantee Committee), annually reviews the previous year's Icelandic Government guaranteed price list and establishes the prices to be paid to the exporters of frozen fillets and salted fish, according to a July 22 report from the American Legation at Reykjavik. Subsequently, the Minister of Fisheries reviews the Committee's price regulations, which go into effect on January 1 and expire on December 31 of each year.

In accordance with the Anti-Inflation Law effective January 1, 1949, the price paid to the fishermen for fresh fish delivered to the processing plants is \$4.54 per cwt. with heads on; \$5.90 per cwt. with heads off; and \$3.14 per cwt. for rock salmon (catfish) with heads on. The catches consist chiefly of cod and haddock. The export prices are based on guaranteed prices paid to fishermen and on the costs of production, such as filleting, freezing, packing, and storage. The basic Government guaranteed export price is 20.4 cents per pound f.o.b. for fillets (principally cod) and 15.72 cents per pounds f.o.b. for salted fish. The price of other fish, frozen or salted for export, depends upon the type of packing and the species of fish. There is no guaranteed price on frozen fish packed in cellophane, which is mainly exported to the United States and Switzerland. Prices, however, are subject to change as conditions warrant modification.

In 1948, the Government paid out of the National Treasury approximately \$3,228,286 to subsidize the export of frozen fillets and salted fish. Under a trade agreement, Iceland will export to the United Kingdom approximately 14,000 metric tons of frozen fillets. The British agreed to pay 16.8 cents per pound f.o.b. on cod fillets. Also, in view of the lowering of world market prices on frozen fish, it is believed that the total subsidy on fish exports that the Icelandic National Treasury will have to defray in 1949 may be considerably higher than that of 1948. The Netherlands, Czechoslovakia, and France pay the Government guaranteed price for Icelandic fillets; the United States and the United Kingdom pay the world market price, which is below the guaranteed price.

TRAWLER OPERATIONS AND MARKETING OF ICED FISH: Before World War II, Iceland salted a major part of its fish catches, which was exported chiefly to Mediterranean countries, according to a September 1 report. With the disappearance of these markets during the war, Icelandic fishermen discontinued salting fish and concentrated on delivering fresh fish on ice to the United Kingdom where it was in demand. This trade proved very profitable. With a part of the proceeds earned, the Icelandic Government, under the new reconstruction program commenced in the fall of 1944, contracted for the purchase of 32 modern steam-and diesel-powered trawlers, and one was ordered by private enterprise. The first of the 33 trawlers arrived in February 1947, and the last in August 1949. At present, Iceland has 51 trawlers; 46 of them are actually operated and 5 are laid up. The Icelandic Government has placed orders for 10 additional trawlers with British firms; one was contracted for by private enterprise. These 11 vessels are expected to join the fishing fleet before 1952.

In 1948, iced fish was Iceland's most important export commodity; 124,900 metric tons were exported, valued at \$13,889,008, compared with 61,008 tons, valued at \$6,659,950, for the period January to June this year.

Icelandic trawlers made 201 landings during January to June 1949; 141 to the United Kingdom and 60 to German ports. Of the total number of landings, 170 were made by new trawlers and 31 by old ones. In addition, fish carriers and trawl boats landed 105 cargoes in United Kingdom ports. Whereas, the trawlers fish and deliver their cargoes in their own bottoms, the trawl boats fish and at times buy fish from other small craft; the fish carriers purchase their whole fish cargo (round and flat fish) from the small motorboats at a Government fixed minimum price of approximately \$4.54 per cwt., gutted with head on.

Iced fish delivered by the new and old trawlers to the United Kingdom is not subsidized. However, the deliveries of iced fish by the trawl boats and fish carriers is subsidized by the Government depending upon the amount of fish available on local markets. The subsidy ranges, depending upon the size of the vessel, from \$1.05 per cwt. to \$2.10 per cwt. on the landed weight of fish, eviscerated and headless, delivered at a British port.

Since operational costs and wages are high in Iceland, it is said that only the new trawlers can operate at a profit. The average catch for the first seven months of 1949 for the new trawlers is 266 metric tons; for the old, 167 metric tons; and 50 to 300 metric tons of fish are transported by fish carriers and trawl boats.

Current indications are beginning to point to an oversupply of Icelandic fish in the United Kingdom and German markets, and marketing in those countries

may become more difficult. Moreover, the British and Germans have become more fastidious and are demanding particular species of fish. Price levels, although good, are tending to decline. It is reasonable to assume that as the British, German, and other European countries' fishing fleets increase in number and augment their catches, the demand for Icelandic iced fish will decline. Part of the trawler catches will be salted, which means that new markets for this type of fish will have to be found in Iceland's prewar markets.

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NEW RUSSIAN EXPEDITION OFF THE NORTH COAST: Fishermen off the north coast of Iceland noticed that a new Russian expedition (which included four boats of 200 tons each) had arrived on the herring fishing grounds August 26, according to an Icelandic newspaper report. These boats were first noticed at Grimsey. The Russians were first to arrive this spring on the herring grounds and it also seems that they are going to be the last ones to leave this fall.

NOTE: Values converted on basis of 1 Icelandic kroner equals \$0.1537 U. S.



Japan

FISHING FLEET, 1948: The Japanese fishing fleet as of December 31, 1948, consisted of 452,142 vessels of all types with a gross registered tonnage of

Type	Powered		Non-powered		Total	
	No. of Vessels	Tonnage (Metric Tons)	No. of Vessels	Tonnage (Metric Tons)	No. of Vessels	Tonnage (Metric Tons)
Steel	964	217,597	0	0	964	217,597
Wood	104,618	563,386	346,560	312,549	451,178	875,935
Total	105,582	780,983	346,560	312,549	452,142	1,093,532

1,093,532 metric tons, according to the August 20 Weekly Summary of SCAP's Natural Resources Section. The data was obtained from a Japanese Fisheries Agency publication, Statistic Tables of Fishing Vessels (General Report No. 1).

Fishery	Type of Construction	Powered		Non-powered	
		No. of Vessels	Tonnage (Metric Tons)	No. of Vessels	Tonnage (Metric Tons)
Sardine purse seine	Steel	2	30	0	0
	Wood	3,883	45,030	2,926	11,720
	Total	3,885	45,060	2,926	11,720
Trawling in eastern area	Steel	30	1,074	0	0
	Wood	2,801	66,766	0	0
	Total	2,831	67,840	0	0
Full trawling in western area	Steel	440	35,405	0	0
	Wood	567	33,762	0	0
	Total	1,007	69,167	0	0
Tuna and bonito	Steel	267	38,936	0	0
	Wood	1,544	62,072	0	0
	Total	1,811	101,008	0	0

PROCESSING, DISTRIBUTION, AND HANDLING OF AQUATIC PRODUCTS INVESTIGATED: A visiting expert assigned to Natural Resources Section of SCAP, completed an investigation of processing, distribution, and handling of Japanese aquatic products, according to that agency's August 20 Weekly Summary. Information was obtained through intensive field trips and visits to 10 ports where albacore tuna was received and processed for export. Also inspected were canneries and cold storage plants for general sanitation and processing techniques. The principal objective was to reduce losses of aquatic products through spoilage caused by poor processing and handling methods and facilities in Japan.

Sanitary conditions observed in the fish canning industry were satisfactory. Canned tuna examined was of a passable quality. The cold storage plants were not well equipped mechanically, but most of them were operating as efficiently as possible with the equipment available. Facilities for transportation of frozen fish from receiving ports to shipping centers were not adequate.

The following summarizes the recommendations made by the visiting expert:

CANNERIES

(1) All raw fish should be inspected in the canneries, and a double check should be made on all cooked fish loins before cleaning and packing.

(2) The Japanese tuna fish canners should discontinue the wasteful practice of severing the heads and slitting the sides of tuna fish prior to precooking.

(3) After being butchered tuna fish should be washed with fresh running water instead of immersed in tubs which may become unsanitary.

(4) The precooking times and temperatures should be carefully controlled. Frozen tuna fish should not be precooked immediately after butchering but should be allowed to thaw and drain at least two hours before precooking.

(5) Daily production records should be kept showing the amount of cans packed each day, the different batch numbers, and details of the sterilization processes.

(6) Steam hose lines should be installed in all fish canners. Live steam is the most efficient and thorough cleaning agent that can be used in industrial plants.

(7) Japanese Government inspectors should place greater emphasis on the more important factors, such as plant sanitation, sterilization, and odor, color, and texture of the finished product, and less on appearance of the product.

COLD STORAGE PLANTS

(1) Modern air-blast sharp freeze equipment should be installed to reduce freezing time and improve the product.

(2) Duck boards with proper spaces for air circulation should be used on the floors and walls of all storage rooms.

(3) Fish intended for export should be kept separate from domestic fish where possible.

(4) Ice used for chilling fish should be clean and should be used in sufficient quantity.

Complete utilization of the catch of marine products in Japan will not be possible until modern equipment is available and techniques of handling and processing are improved. Technological improvements have not been available to the Japanese fish industry since 1940, and consequently most equipment is obsolete. It is hoped that the industry can avail itself of modern equipment, technological advancements, and research information in the near future.

UTILIZATION OF SCALLOPS: Scallops (Pecten yessoensis Jay) are gathered in commercially important quantities along the northern and eastern coasts of Hokkaido. Although they are collected during the entire year, the main collection period is July and August, according to the August 20 Weekly Summary.

Scallops are processed for export in dried, canned, and frozen forms. During 1948, about 105 short tons of frozen scallops, 150 short tons of dried scallops, and 450 cases (48 one-pound cans) of canned scallops were exported.

The edible portion of a scallop is only 35 percent of the total weight, including the shell. This estimated percentage is based on 30 percent for the shell, 28 percent for the adductor muscle, 7 percent for the mantle, and 35 percent for other parts (labial palp, stomach, gonads, gill, intestines, and liver).

Complete utilization is made of all parts of scallops in Japan. The adductor muscle is frozen, canned, or dried, mainly for export, and the mantle is separated and dried for local consumption in the form of "tsukudani" (preserved food boiled down in soy sauce). Other portions of the animals (entrails, etc.) are dried and used as fertilizer. The shell is used as cultch for collection of oyster spat or is sold to shell collectors for use as ornaments and utensils.

WHALE MARKING AND RESEARCH: A Japanese whaling company catcher boat left Yokosuka on July 12, 1949, on a 30-day whale marking and research trip in the authorized area north of Latitude 30° N., according to the July 16 Weekly Summary. A representative of the Fisheries Agency and representatives from each of the three major whaling companies are sailing with the vessel. They will endeavor to mark as many whales as possible, make head counts of whale populations, measure water temperature at various depths, collect plankton specimens, and measure the salinity of water. The vessel should cover about 3,500 miles during the trip. (See Commercial Fisheries Review, May 1949, page 46.)

REDUCTION OF THE EAST CHINA SEA TRAWLING FLEET: One of Japan's principal fisheries is carried on by bull trawlers (trawls towed by two boats) in the East China Sea, according to the July 16 issue of the Weekly Summary. In addition to nearly 1,000 such boats there is a fleet of about 58 large otter trawlers operating in this area. This fishery in 1947 produced about 340,000,000 pounds of fish.

Most of the vessels in the East China Sea trawling fleet were taken over by the Japanese Government and lost during World War II. Following the surrender in 1945, the East China Sea trawling fleet was rapidly restored by an extensive building program. By the spring of 1947, it appeared that the fleet was being overbuilt, and further construction was stopped by SCAP. The Japanese Government and private Japanese agencies began intensive scientific investigation of the East China Sea trawling fisheries to determine how large a catch the fishery resources of this region could support without reducing future productivity. Preliminary results of these investigations show that the resources are now being extensively overfished and that the present fleet is at least one-third larger than is needed for adequate exploitation of the resources. SCAP therefore has insisted that overfishing must be corrected through an adequate reduction in fishing intensity, before there can be any consideration by SCAP of Japanese petitions for extensions of this fishing area or discussion with other interested nations of a possible international agreement concerning fishing operations in these waters.

The ranking officials in the Japanese Fisheries Agency and some of the more enlightened leaders in the fishing industry have cooperated fully in developing a program for reducing fishing intensity but there has been much opposition and obstructionism on the part of the majority of operators. The intense opposition stems from the hope-fostered belief that the area will be extended regardless of the Japanese attitude toward overfishing and exhaustion of resources, the critical financial condition of many operators, and the unemployment which would be created by reducing the fishing fleet. In spite of this, the Japanese Government

has developed a program for reducing the fleet beginning July 1, 1949. This program will reduce the fleet of bull trawlers from 986 to 650 vessels; the fleet of otter trawlers from 58 to 43 vessels. The reduction is to be completed within one year. Boats to be eliminated will include:

- (1) All vessels violating SCAP directives regarding Japanese fishing operations.
- (2) Vessels not in a condition to operate or which have not operated for a long time.
- (3) Vessels making only occasional trips.
- (4) Vessels with conspicuously low operating efficiencies.
- (5) Ten percent of the vessels owned by any one concern.
- (6) All leased vessels operated by non-owners.

Sunken vessels will not be replaced until the fleet has been reduced to the approved level. On completion of the first adjustment program, there will be a further reduction of 10-15 percent of the licenses owned by concerns operating more than five pairs of bull trawlers. Otter trawlers will be reduced on the same basis as bull trawlers. Coastal vessels of not more than 50 tons will be limited to the waters West of Longitude 130° East.

The details of this program are being worked out by a committee of the Western Japanese Trawlers Association.

Compensation to the owners and crews of vessels whose licenses are cancelled, is being worked out. This will be paid from funds assessed against the vessels which continue in operation. Some subsidy also may be supplied by the national government.

PROGRAM FOR ASSISTING JAPANESE IN CONSERVATION OF AQUATIC RESOURCES: The SCAP program for assisting the Japanese in the conservation of their aquatic resources includes the following activities, according to the July 30 Weekly Summary:

(1) Education of Japanese scientists, the fishing industry, and the public to the importance of wise management and use of aquatic resources. This is being accomplished by speeches, discussions with Japanese research workers and leaders of the fishing industry, press releases, and the acquiring of research publications from other countries for the Japanese.

(2) Encouragement and advice on reorganization of aquatic research and allocation of governmental research funds to make possible more effective research on problems regarding the management of aquatic resources.

(3) Assistance and advice on:

(a) Reorganization of the Research Department of the Fisheries Agency and employment of the research personnel best qualified in the field of resource utilization.

(b) Reorganization of the system for collecting

fishery statistics to improve their accuracy and adequacy for use in study of aquatic resources.

(c) Development of an adequate research program to cover the most critical problems facing the Japanese fishing industry at present, particularly those problems concerning use of resources.

(d) Training of personnel to improve the quality of Japanese research in this field.

(e) Enactment and enforcement of conservation legislation in all cases where available facts and evidence show that fishing activities are over-intensive or unwise.

(4) Promotion of consultation of Japanese research workers with research representatives of other nations to provide for cooperation in investigations of mutual interest and to supply Japanese research workers with the stimulus arising from such contacts.

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TRADE AND BUSINESS MISSION EN ROUTE TO JAPAN: A special mission to study existing trade and business procedures and advise the Supreme Commander of the Allied Powers as to revisions which might be helpful is en route to Japan, the Department of the Army announced on September 15. The Study is being made at the request of SCAP.

Some of the fields to be examined are import and export procedures; domestic financing of trade involving foreign exchange and certain aspects of the general economic situation effecting trade and business in Japan.



Mexico

DRAFTS NEW FISHERY LAW: A new fishery law has been drafted and presented to the Mexican Congress, according to an October 5 American consular report from Mexico, D. F., which quotes accounts appearing in local papers. Under this proposed new law, there will not be two separate laws as in the past--one pertaining to local fishermen and one pertaining to foreign fishermen, and at the same time, there will not be a separate law for foreign fishermen operating in the Pacific. The basic law will be the same for both coasts of Mexico.

If this law is approved by the Mexican Congress, shrimp fishing will no longer be completely reserved for cooperative fishermen. The cooperatives will have reserved to them inland or protected waters on both coasts and the ocean waters of Lower California, Sonora, Sinaloa and Nayarit, on the West Coast. All other areas will be open for fishing by anyone. Species of fish reserved exclusively for the cooperatives would be reduced, and mullet, robalo, squid, and octopus removed from the reserved category.

One part of the law is devoted to regulating fishing in territorial waters by foreign vessels whose products are destined exclusively for foreign markets.

The first article of the proposed legislation determines that everything concerned with the field of fisheries comes exclusively under Federal jurisdiction, and specifically the responsibility of the Ministry of Marine.

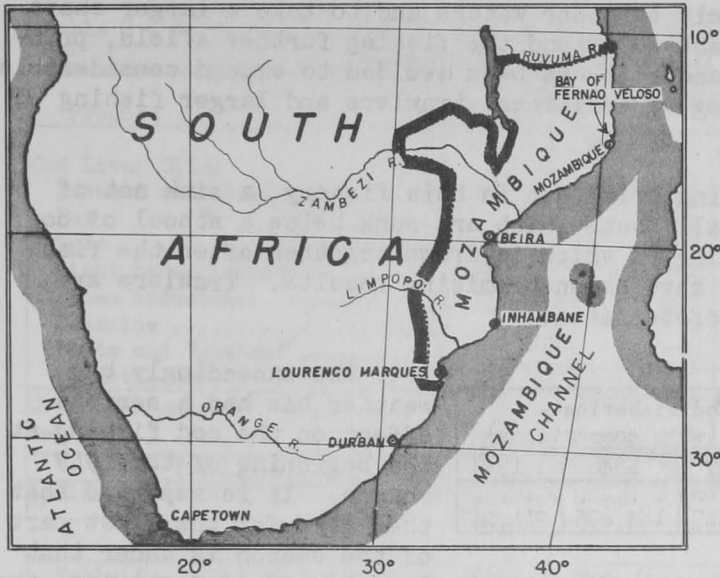


Colony of Mozambique

FISHERIES REVIEW, 1946: Statistical data or reliable estimates beyond 1946 are not available for the fishing industry, according to a May 27 report from the American Consulate General at Lourenco Marques. In 1946, the Government reported 7,267,966 pounds of fish distributed and sold; consisted of 4,354,814 pounds of fresh fish, 1,247,209 pounds of shellfish, and 1,665,943 pounds of dry fish.

There were 4,351 persons engaged in the industry, using 2,546 pieces of various types of fishing equipment, and 1,115 small fishing boats most of which were either wind or oar propelled.

Mozambique's persistent meat shortage has created an abnormal demand for fish, and in most cases, distributors find their stocks wholly inadequate to meet the local demand.



MAP SHOWS MOZAMBIQUE AND SOUTH AFRICA

During 1946, a Mozambique fishing company organized regular deep-sea fishing trips off the southern coast of Africa as far west as Capetown. The company purchased a 340-ton fishing boat in the Netherlands, and made regular monthly trips. The catches have been large and the voyages well publicized. Stocks have been completely sold out within 72 hours after the ship's return to Lourenco Marques harbor.

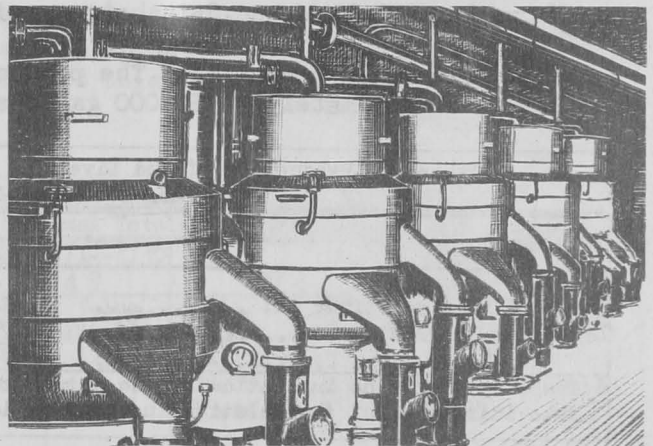
This same company has also started a canning factory in the outlying area of Lourenco Marques; but its output of canned fish has, thus far, been negligible because of the shortage of fresh fish supplies as well as canning materials and equipment.



Norway

COD LIVER OIL INDUSTRY 1948 AND 1949: Cod Fishing Prospects: It is the opinion of the Norwegian Directory of Fisheries that cod fishing in Norwegian waters is on a decline at the present time, according to April 8 and June 30 reports from the American Consulate at Bergen. The main cod fisheries start in January and end in May and June of each year. The size of the catch depends not only on conditions of the stock of fish but on other factors, such as weather and hydrographic conditions, competition from foreign fishing boats and trawlers, etc.

The 1937 class of cod, the principal source now being found and estimated to be about three times larger than normal, is on the decline and the classes of 1938, 1939, and 1940, which were poor years, are beginning to appear. Norwegian fisheries experts believe that the cod fishing in Norwegian waters will decline until the year classes of 1941 and 1942, which were comparatively good years, begin to appear. It has been found that the fish ordinarily migrate for spawning from the ages of seven to ten, the peak being at the age of ten. However, it is also believed that the introduction of larger boats and more modern equipment will enable the Norwe-



ONE TYPE OF CENTRIFUGES USED BY EUROPEAN COUNTRIES PRODUCING FISH OILS.

gian fishermen to follow the schools to other waters and to take a larger share of the fish. Efforts are being made to extend the fishing further afield, principally in the vicinity of Greenland. It has been decided to expend considerable funds on the purchase and equipping of additional trawlers and larger fishing boats.

Two types of nets are now being tried out in this fishery, a sink net of rectangular shape supported by small boats which are sunk below a school of cod, and a purse or ring net, the opening of which is drawn together after the fish are caught. Trials of these nets have shown promising results. Trawlers are now forbidden to be used in the Lofoten area.

Table 1 - Principal Norwegian Cod Fisheries--
Production Jan. 1 to June 25, 1949 (with comparisons)

Year	1949	1948	1947	1946	1939
Period	In Metric Tons				
Jan.1-June 25	112,995	133,712	229,117	184,695	211,247

The exceedingly bad weather has had a serious effect on the cod fishing at the beginning of the 1949 season. It is reported that the catch for the first part of the season is under that

for the same period last year and, according to the Directorate of Fisheries, the outlook for the remainder of the cod fishing year is not promising.

Since 1947, the Government has been marking fish and reports of the markings made in 1947 and 1948 are beginning to be received principally from the Lofoten district. It is hoped in this way to follow the movements of the fish and so increase future fishing possibilities.

A number of expeditions have been sent out by the Research Department of the Bureau of Fisheries to investigate the fishing in the North Atlantic area and a research vessel left in May to conduct investigations in the ocean between the Norwegian mainland and Spitsbergen and off West Greenland.

Cod Liver Oil Production: The production of cod liver oil for 1948 was estimated at approximately 2,550,000 gallons.

Table 2 - Production of Cod Liver Oil by Larger Norwegian Steaming Plants, Jan. 1 to June 25, 1949 (with comparisons)^{1/}

Product	Period January 1 to June 25				
	1949	1948	1947	1946	1939
	In Gallons				
Steam refined cod liver oil	1,544,024	1,467,624	2,948,853	2,657,178	2,420,847
Livers to other oils	29,482	109,606	129,684	131,321	125,087
Total	1,573,506	1,577,230	3,078,537	2,788,499	2,545,934

^{1/} These data give no indication of the actual total production, but do give a fairly accurate indication of the relative increase or decrease in production from year to year.

Prices: The export price of medicinal cod liver oil during April 1949 was \$67.50 per 30-gallon drum c.i.f. east coast of the United States. The price last year of \$73.50 was increased on July 12, 1948, to \$77.00 and on January 20, 1949 was reduced to the present price. It is understood that the Government export tax on this price is approximately \$10.00 per drum. The Government-fixed price to the producer of medicinal cod liver oil is about \$42.47 per barrel of 235 pounds f.o.b. Lofoten district and \$41.46 for Finnmark district.

Table 3 - Norwegian Exports of Various Types of Fish Oils, Period Jan. 1 to June 11 for the Years 1947-49 and the Annual Totals 1946-48

Product	Period Jan. 1-June 11			Annual Totals		
	1949	1948	1947	1948 ^{1/}	1947	1946
 Gallons Gallons		
Cod Liver Oils:						
Steamed medicinal	249,936	679,300	1,362,420	1,880,213	2,592,481	2,796,187
Raw "	159	18,651	780	19,232	2,271	48,635
Pale	749,914	1,515,598	1,045,770	3,584,432	2,375,408	1,514,462
Light brown industrial	369,581	171,794	249,480	379,091	482,568	674,175
Brown industrial	44,329	608	12,360	4,544	12,548	17,356
Stearine	737	5	-	246	-	-
Waste and "grakse"	496,728	61,579	-	902,977	-	-
Total cod liver oils	1,911,384	2,447,535	2,670,810	6,770,735	5,465,276	5,050,815
Greenland shark oil	182,466	196,097	32,370	412,826	159,840	109,448
Seal oil	408,784	102,289	144,660	339,359	444,570	207,192
Grand Total	2,502,634	2,745,921	2,847,840	7,522,920	6,069,686	5,367,455

^{1/}Also exported 125,088 pounds of halibut liver oil.

Table 4 - Value of Norwegian Exports of Fish Oils, Period January 1 to April 30 for the Years 1947-49 and Annual Totals 1946-48

Product	Period 1/1--4/30		Annual Totals		
	1949	1948	1948	1947	1946
 U.S.\$ U.S.\$		
Liver Oils, chiefly from cod	2,230,333	3,566,228	13,261,881 ^{1/}	11,028,109	8,555,106
" " , from other fish	4,573,104	1,456,016	5,792,316	2,424,469	1,082,508
Seal Oil	531,648	207,078	726,390	1,027,907	286,350
Total	7,335,085	5,229,322	19,780,587	14,480,485	9,923,964

^{1/}Of this amount, the value of medicinal cod liver oil was \$4,188,069.

Stocks on Hand: According to information given by one of the largest exporters of cod liver oil, stocks are fair in spite of the comparatively small production this year. It is understood that this is partly due to high prices with a resulting decrease in orders.

Table 5 - Leading Importers of Norwegian Steamed Medicinal Cod Liver Oil Period January 1 to April 30, 1949, and Annual Totals 1946-48 (Quantity and Value)

Country	Period 1/1--4/30		Annual Totals			
	1949		1948		1947	1946
	Gals.	Value	Gals.	Value	Gals.	Gals.
United States	73,758	\$156,320	368,131	\$820,831	353,545	350,956
Belgium and Luxembourg	5,416	12,133	86,359	190,900	96,635	66,097
Bulgaria	-	-	29,059	72,801	79,781	14,424
China	-	-	19,443	43,883	86,808	15,560
Czechoslovakia	-	-	-	-	571,701	307,685
Denmark	4,623	10,111	48,053	111,628	41,370	78,249
France	15,639	35,794	99,700	240,849	163,736	101,073
Italy	-	-	110,240	260,465	229,991	178,846
Netherlands	8,163	16,380	285,705	478,463	175,307	214,061
Poland	-	-	252,525	574,115	267,319	122,551
Sweden	-	-	43,642	110,010	409,286	352,330
Switzerland	1,717	5,056	56,349	130,030	58,171	75,977
Turkey	-	-	97,164	246,512	-	40,974
U. S. S. R.	-	-	-	-	-	414,279
United Kingdom	5,468	12,538	42,717	95,248	16,907	72,992

Vitamin Content: The Norwegian medicinal cod liver oil ordinarily has a vitamin potency of 850 units of Vitamin A and 85 units of Vitamin D. This is understood to be less than the cod liver oil produced in the United States which has about 1,000 units of Vitamin A and 100 units of Vitamin D.

NOTE: Values converted on basis of 4.945 Norwegian kroner equal \$1.00 U.S.

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KELP BEDS CHARTED: An extensive investigation of seaweed and algae resources along the Norwegian coast by a Norwegian professor has revealed that only a fraction of this valuable raw product is being utilized at the present time, according to a Norwegian Information Service report dated September 3. The investigation shows that there are some 20 million tons of algae in coastal beds, a third of which can be processed each year without depleting the supply, according to the professor. Processed into the various algae derivatives, this supply represents a value of some \$1,000,000,000 against the \$600,000 in algae derivatives which Norway presently exports yearly.

To realize fully the value of these deposits, the professor recommends a complete rationalization of the industry with special attention to a refining process which will make possible the export of refined derivatives instead of a semi-refined raw product.

NEW ELECTRIC WHALE GUN DEVELOPED: A Norwegian arms firm is predicting that the new electrocuting whale gun recently developed will increase whaling efficiency by as much as 10 percent, according to an August 27 report. The electrocuting harpoon has been in experimental stages since before the war, and was used with "comparative success" during the past season.

From 20 to 25 percent of the whales struck with the regular explosive harpoon used to escape or sink—a figure which has recently been cut to some 10 percent with the use of tougher nylon line. However, using an electrocuting, rather than an explosive head, loss through sinking can be cut to nothing as the electrocuted whale remains afloat and does not struggle. The new system is much more humane and there is no danger of line breakage.

The Norwegian plant, which specializes in whale guns, has built ten new units this year. Its output of some 700 harpoon guns during the past few years has supplied Norwegian, British, South African, Newfoundland, and Japanese expeditions.

NORWEGIAN-BRITISH SEA BOUNDARY DISPUTE: The Norwegian-British sea boundary controversy is expected to come before the Court of International Justice at The Hague shortly after the beginning of next year, according to an October 8 report. It is further noted that the Court Secretariat expects the British to deliver their summons against Norway during the next few days. The summons will call up for final settlement a long-standing controversy between the two countries concerning the extent of territorial waters in which Norway can claim sole fishing rights off the Norwegian coast. The summons is being delivered by Great Britain following a mutual agreement on procedure.

According to the Norwegian Foreign Ministry, Norway can take no steps until the British summons has been delivered, although a committee has been named to prepare the case. With both sides given opportunity to submit two written pleas in addition to oral pleading before the Court, it is expected that considerable time must yet pass before the parties can obtain a decision. (See Commercial Fisheries Review, September 1949, page 38; and October 1949, page 52; and page 64 of this issue.)

OVERSUPPLY OF WHALE BEEF: A limited freezing capacity combined with an unexpected supply and an indifferent home market are responsible for the current bottleneck in Norway's whale beef industry, according to a July 30 report. On the Norwegian west coast, coastal whalers were reportedly forced to dump their cargoes in several instances.

According to press reports, some 400 small whaling operators have had an unusually successful season in the Barents Sea, with a catch estimated at approximately 35 metric tons per boat per trip. Increased hog and cattle deliveries, however, have cut domestic demand for whale meat and freezing plants from Bergen to Kirkenes are now reportedly filled to capacity. As the meat must be frozen and packed before it can be exported, the Norwegian Supply Minister contends that plant capacity and not the availability of whales would have to determine the rate of production in this field.

PROPOSED USE OF HELICOPTERS ON ANTARCTIC WHALERS: Norwegian whalers are considering using helicopters for spotting whales in Antarctic. Whales are more easily located from the air, and with its low speed, the craft can hover over a whale and determine whether it is up to size before the harpoon is fired, according to a September 10 report.

* * * * *

TUNA FISHING IN NORTH SEA: A 70-ton fishing vessel, belonging to a Norwegian fishing company located at Stavanger, is seeking bluefin tuna on the Fladen Grounds in the North Sea, according to Fiskaren, a Norwegian periodical. Lines will be used to catch the tuna. The greater part of the catch will be frozen, but a portion will be canned. Much is expected from the experiment.



Pakistan

DEVELOPMENT OF FISHERIES: Pakistan, a member of the Indo-Pacific Fisheries Council, has officially announced that approval in principle has been given to the construction of a new fish harbor at Karachi, providing modern facilities for the berthing of fishing boats and trawlers, modern hygienic fish curing, extraction of shark liver oils, cold storage warehouses, and wholesale marketing, according to an August 3 American consular report from Karachi.



Portugal

EXPORT PROMOTION FUND: A special Export Promotion Fund to be earmarked for specific undertakings to inject new life into sales of Portuguese commodities in foreign markets was created by the Portuguese by Decree Law No. 37538 of September 2, according to a September 26 report from the American Embassy at Lisbon.

Using this fund, the Government proposes to make grants or loans to Portuguese Missions or organizations which undertake intimate analyses of foreign markets for all or specific commodities, and to finance advertising, sales promotion and protection of Portuguese products in foreign markets.

There is reason to believe that projects for early consideration will include the financing of special analyses of the American market for sardines, wines, and cork, some of these to include the enlisting of services of private market counselors.



Ryukyu Islands

U. S. ARMY SENDS MISSION TO STUDY ISLANDS' FOOD ECONOMY: A mission, which will study agricultural and fishery programs in the Ryukyu Islands with a view to increasing production and improving the diet of Island residents, left the United States the week of September 12, the U. S. Department of the Army announced on September 15.

The Mission is making the study at the request of SCAP. Members of the group will begin their work in Tokyo before proceeding to the Ryukyu Islands where the survey is expected to take about five weeks. The Mission consists of two experts from the U. S. Department of the Army and four from the U. S. Department of Agriculture.

Methods to increase food production for consumption on the Islands will be analyzed by the Mission. Local technicians will be used to carry out the Mission's recommendations.



Spain

FISHING INDUSTRIES, 1948:^{1/} Introduction: Two-thirds of the Spanish population lives on the coasts which border the Mediterranean Sea, the Atlantic Ocean and the Bay of Biscay. In view of this fact and the geographic position of the Iberian Peninsula, the fishing industry in Spain has been considered as the second largest in importance, the first being agriculture.

Over 250,000 persons in Spain are engaged in full or part-time fishing activities with an annual average production of 550,000 metric tons of fish.

Fishing Fleet: Although several new vessels were added during 1948 to the Spanish fishing fleet, the 1947 total of 37,832 vessels is not believed to have changed to any noticeable extent since a number of old craft have either been lost at sea or dismantled, according to April 25 and June 1 reports from the American Consulate at Vigo.

Medium-range vessels are those from 80-200 metric tons equipped to remain on the fishing grounds from 15-30 days, working usually in pairs. This type represents a large percentage of the total Spanish fishing craft. Coastal vessels are those up to 80 metric tons which can operate from 24 to 48 hours from the home port and devoted to fish-netting all along the littoral, especially for those varieties suitable for canning.

Cod Fishery: Cod fishing and processing in Spain is a relatively new industry. The industrial processing of this species did not commence until about 1924
^{1/}See Commercial Fisheries Review, July 1949, pp. 45-6.

when a group of Spanish capitalists, probably influenced by the satisfactory results of the then recently-organized industry in Portugal, decided to study the advisability of establishing this industry in Spain.

Since cod constitutes the principal staple food during the winter months for the medium and lower classes, Spain has always imported substantial amounts of it from Newfoundland, Norway, and other northern European countries. The domestic consumption of cod in Spain is estimated at about 100,000 metric tons per year. To remedy present shortages caused by the scarcity of foreign exchange, as well as to follow the Spanish Government's policy of self-sufficiency, factories have been established (principally in the Canary Islands) for the salting and curing of corvina which is used as a substitute for cod when the supply of the latter is insufficient to meet domestic requirements.

The fishing and curing of cod has also received great impulse during the past years. The main purpose of the new industry, which to a certain extent enjoys Governmental protection, is to obviate the necessity of importing this vital staple food from foreign countries. However, the combined catches of the three companies has thus far been insufficient to meet the domestic demand and it will probably be many years before this will be possible.

The interest of the Spanish Government in the development of this industry, is shown by the fact that the three companies engaged in this fishery have been granted large amounts of money through the Government-operated "Credito Naval" for the construction of their fishing boats. These credits cover in most instances between 60 and 80 percent of the ship's cost, bear no interest, and may be redeemed between 25 and 50 years.

COD FISHING FLEET: The three companies operating cod fishing vessels are reported to own 25 ships. These ships, which are all of similar characteristics, have a displacement of 1,200 tons and carry crews of 60 men. They are equipped to remain at sea for a period of four to six months. Fishing is usually done by means of a trawl line and the vessels have modern equipment for this type of fishing.

COD PRODUCTION: The three cod-processing plants operating in continental Spain have a combined output of 25,000 to 30,000 metric tons per year. The plant at El Ferrol del Caudillo is the largest one, followed by those at Vigo and Pasajes de San Juan, respectively.

In addition there are a number of smaller drying plants in the Canary Islands which process corvina and other similar varieties which find a ready sale in the domestic markets in the absence of cod.

Table 1 - Spanish Cod Production, 1946-48^{1/}

Year	Lbs.
1948	113,204,159
1947	96,713,544
1946	43,827,520

^{1/}Gross or round weight. Actual landings are 60 percent less since the fish is headed, gutted, and bones removed at sea. The waste is thrown overboard.

It is interesting to note, however, that in spite of the industry's expansion, imports cannot totally be dispensed with and during the early part of 1949, the first postwar shipments of Norway cod arrived at Spanish ports. These shipments are expected to continue, but their size will, of course, largely depend on the availability of foreign exchange or the balance of payments under the Spanish-Norwegian trade agreement.

A larger number of cod fishing vessels of Spanish flag were operating in 1948 and that accounts for the substantial increase of cod production in that year.

There are no figures available as to the production of cod liver oil.

Fishing Grounds: The principal fishing grounds for the Spanish fleet are as follows:

<u>Grounds</u>	<u>Type of Fish Caught</u>
Newfoundland and Greenland	Cod
Purcupine, Grand and Petit Soles, and La Rochele ...	Hake and small hake
Cantabrian and Portuguese coasts	Sardines, jurel, bonito, anchovies and other small varieties

Table 2 - Spanish Fish & Shellfish Production & Average Landed Prices, 1940-48

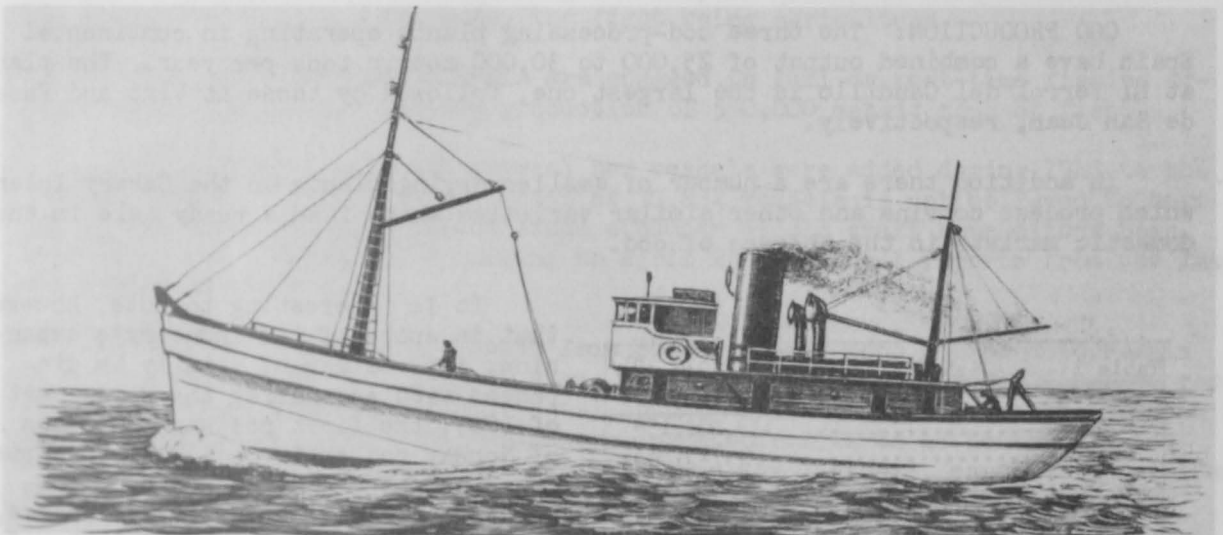
Year	Quantity Lbs.	Avg. Prices \$ per cwt.
1948 ^{1/}	1,046,630,299	15.51
1947	1,249,251,091	14.85
1946	1,307,412,671	11.99
1945	1,195,579,440	9.59
1944	1,018,743,585	9.37
1943	946,219,267	9.71
1942	999,422,600	9.16
1941	974,212,186	9.27
1940	951,811,742	6.96

^{1/}Catches of cod not included. However, in 1947, the average price for cod was \$5.18 per cwt. (1948 value and average price not available--quantity totaled 113,204,159 pounds).

Vessels with home ports in southern Spain also fish along the African coast.

Operation Costs: The immediate necessity of the Spanish fishing industry is the procurement, at reasonable prices, of large quantities of materials and equipment needed to continue operations on a normal scale. Normally most of these requirements were obtained from abroad. According to the trade, costs of operation of the ships during 1948 increased more than 30 percent over 1947, which year was already considered unprofitable.

Catches and Prices: Excluding cod catches, 1948 production of fish and shellfish declined 9 percent in volume and 11 percent in value.



A MODERN SPANISH TRAWLER

During 1948, anchovies and bonito and tuna were the only species caught in larger quantities than the previous year. Sardines and hake, the varieties on which fishing interests evaluate the prosperity or failure of the fishing campaigns, show appreciable declines in volume when compared with 1947. The price trend for these varieties, however, continued upward.

Species	1948		1947	
	Quantity	Value	Quantity	Value
	Lbs.	\$ per cwt.	Lbs.	\$ per cwt.
Sardines	167,483,243	12.79	220,065,747	12.01
Anchovies	97,283,958	8.53	55,626,496	11.31
Bonito & tuna ..	40,711,499	24.21	35,648,644	27.62
Hake	63,522,400	33.92	96,404,601	33.59
" , small	115,258,290	21.65	119,644,092	20.16

The larger catches of anchovies were not a source of profit to fishermen. Most of the catch had to be disposed of fresh at lower prices since the fish packing industry, which is the chief consumer, was reluctant to place any large orders because it had accumulated stocks. Difficulty was encountered in disposing of stocks in normal consuming markets abroad as a result of the unfavorable rate of exchange which existed during the year.

Unexpected large runs of young tuna and bonito in the southern Atlantic waters off the Canary Islands helped to keep the volume of the catches at the level of the previous year. The fish-canning industry established in the Islands was caught unprepared and was not able to absorb any substantial quantities for preservation, and a larger percentage of the catch was consumed in the Islands or shipped to southern Spanish ports for salting.

Fish Canning Industry: The year 1948 was most unfavorable for the canners. For normal profitable development the industry must have an export market, but

Table 4 - Spanish Exports of Canned and Salted Fish

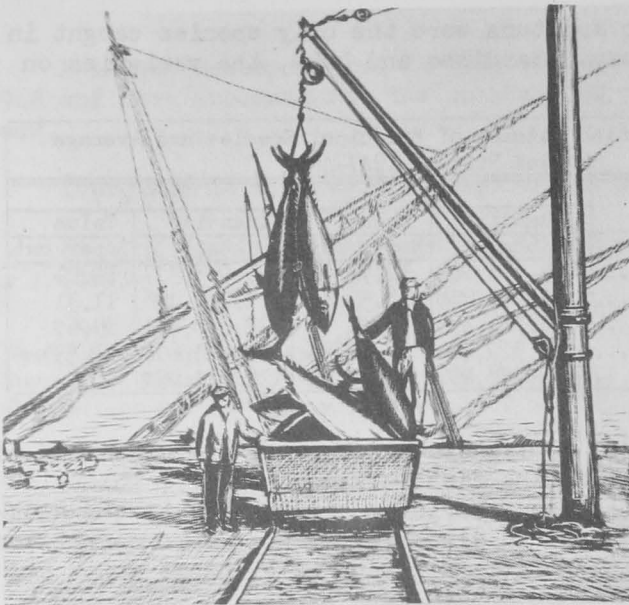
Year	Canned Fish			Total Salted Fish
	Sardines in oil	Other Fish in oil	Total Canned	
	Lbs.	Lbs.	Lbs.	
1948	6,981,968	5,504,099	12,486,067	2,195,431
1947	5,374,512	6,673,757	12,048,269	8,432,369
1946	7,347,846	3,150,367	10,498,213	1,311,200
1945	3,930,300	7,836,726	11,767,026	3,402,740
1944	1,350,360	1,999,666	3,350,026	822,800
1943	3,573,240	2,479,605	6,052,845	25,372,160
1942	5,282,640	6,591,781	11,874,421	11,650,540
1936	9,154,640	2,730,330	11,884,970	653,840
1935	47,877,500	13,626,138	61,503,638	3,322,880

and equipment needs either replacement or repair. According to the secretary of the Fish Packers Association in Vigo, if the industry were at present to resume large scale operations, it would require a minimum of \$27,000,000 to keep the factories working at normal capacity.

During 1936 to 1942, there was an embargo on exports, the total production having been consumed in the home markets in substitution for other food products not then available. Exports during 1948 were somewhat higher than in the previous 12 months due in part to the "grant" given by the Government to the packers permitting them to retain 33 percent of the foreign currency obtained from their ex-

owing to the unfavorable exchange rate of the peseta, the canners have been unable to compete with foreign packers. However, during the last month of the year, the exchange rates were revised and small quantities of canned fish, chiefly anchovies, were exported.

The industry is also faced with raw material shortages such as tin plate, solder, and other essential materials which, in normal times, were imported from abroad. Much of the machinery



UNLOADING TUNA AT A SPANISH PORT FROM A SAIL-FISHING VESSEL.

The industry prepares a diversified number of varieties of fish, but principally depends on sardines, tuna and bonito, and anchovies in oil.

Outlook: Since the Government has not taken any steps to assist the Spanish fishing industry, which has entered its fifth year of unsatisfactory returns, the outlook for the fishing fleet in 1949 is very discouraging.

There are signs, however, that the present year may see the turning point for the better for the fish-canning industry, if fish suitable for preservation becomes available. Packers are confident that Government assistance will finally be given to the industry by lifting many of the present controls and by

granting more favorable exchange rates to enable them to combat foreign competition.

NOTE: Values converted on basis of 10.95 Spanish pesetas equal \$1.00 U. S.



Sweden

NEW FLOAT FOR TRAWL NETS INVENTED IN SWEDEN:^{1/} A new type of float for herring trawl nets has been invented by two Swedes, according to a September 15 report from Goteborg. The new float is built on the lines of a hydroplane and the faster it is drawn through the water, the greater its lift, directly opposite to the operation of the present glass-ball floats which lose lifting power with increased speed. The new float has been thoroughly tested in the tank of the local Ship Testing Institute and in actual use at sea on the Government's inspection ship, the Eystrasalt.

The float looks like a toy speed boat. It is 23 cm. (approximately 9 inches) in width, 38 cm. (approximately 15 inches) in length. The bottom is shaped like the "V" of a speed boat, while the top is stream-lined like an airplane wing. At the "stern" there are two rudders, one horizontal and one longitudinal. In the center of the "keel" is a fastener, and a line runs from it to the trawl net.

The models used in developing this float have been made of wood or light metal, but in all probability plastic will be used when it gets into production. Wood has the disadvantage of becoming impregnated by water at great depths, making it water-logged. If it were made of hollow metal, it would not be able to withstand the pressure at great depths. But this objection has been overcome by boring a small hole near the stern of the float through which water can enter and compress the air within, thus equalizing the outside and inside pressures. When the float rises, the air will expand as the water pressure decreases, thus forcing the water out of the float.

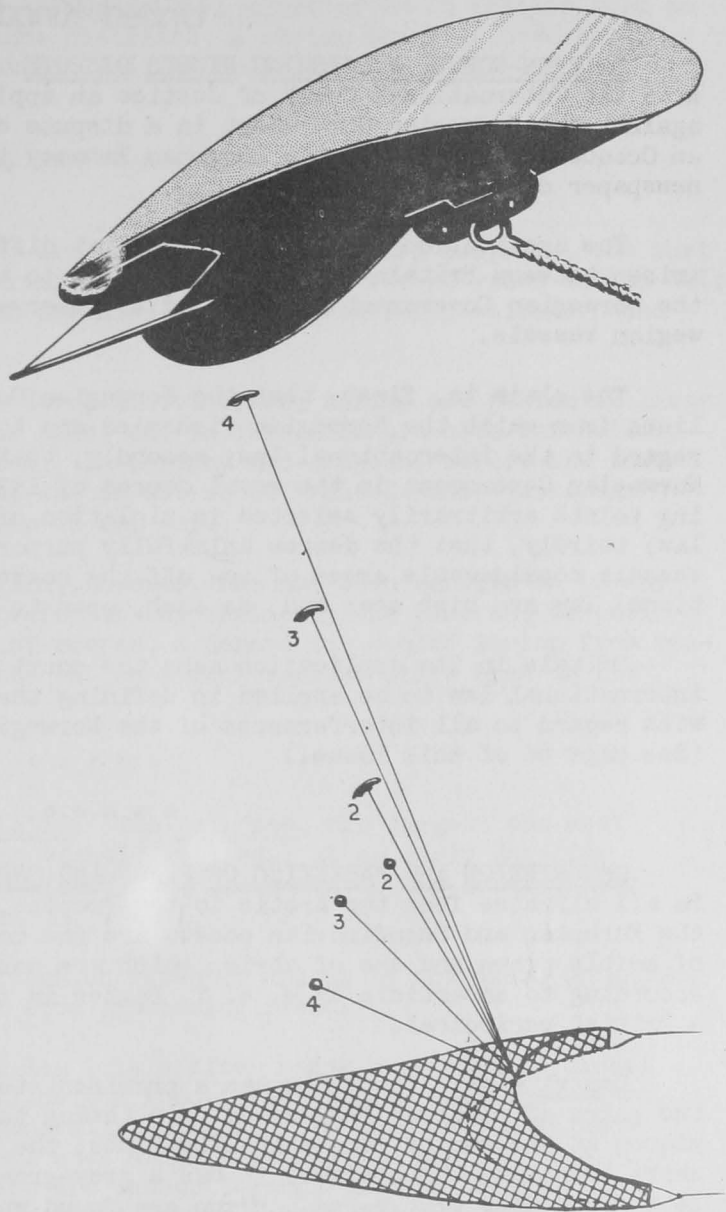
^{1/}See page 63 of this issue.

At a speed of 2 knots, the new float has a slightly greater lifting capacity and smaller resistance than the usual glass ball, but when the speed is increased, the difference is great. While the lifting power of the ball is the same or slightly less, its resistance has increased to 7.7 pounds. But the new float, when pulled at 3 knots, increases its lifting capacity to 11.9 pounds, while its resistance has only increased to 5.5 pounds. At 4 knots, the ball's resistance has increased to 11 pounds, while its lifting power remains at about 5.5 pounds. But at 4 knots, the new float has increased its lifting power to 17.4 pounds, while its resistance has increased only to 8.8 pounds.

The inspection vessel, Eystrasalt, in its tests fully confirmed the superiority of the new float. Using the ship's herring trawl with the usual number of glass balls, the upper and lower lips of the trawl net were found to be about $6\frac{1}{2}$ feet apart. Then the center ball was replaced by one of the new floats and the opening was then found to be $8\frac{1}{2}$ feet. When half of the balls were replaced by the new float, the opening increased to 15 feet, a result which far exceeded expectations; and when the new float was substituted for all the balls, the mouth spread to 36 feet.

It would be possible to make similar planes for the lower lip of the trawl net mouth which could be constructed to cut downwards. These would reduce the weight of the leads necessary to keep the lower section down.

The new float has already been registered as an invention and the owners plan to enter foreign markets by granting rights to manufacture on a royalty basis.



TOP DRAWING IS SIDE VIEW OF NEW-TYPE FLOAT. LOWER DIAGRAM INDICATES LIFTING POWER AND DIRECTION OF LIFT OF THE USUAL GLASS-BALL FLOATS AND THE NEW FLOAT. THE LOWER THREE LINES INDICATE THE POSITION OF THE GLASS FLOAT AT 2, 3 AND 4 KNOTS, WHILE THE UPPER THREE INDICATE THE POSITION OF THE NEW FLOAT AT THE SAME SPEEDS, RESPECTIVELY. LENGTH OF LINES INDICATES FORCE OF THE LIFTING POWER, WHILE THE ANGLE OF THE LINES INDICATES THE ANGLE OF THE PULL. THE FORCE OF THE LIFTING POWER IN THE BALL FLOAT IS PRACTICALLY THE SAME AT ALL THREE SPEEDS, WHILE THE LIFTING POWER OF THE NEW FLOAT GREATLY INCREASES WITH INCREASE IN SPEED.

United Kingdom

BRITISH-NORWEGIAN FISHING RIGHTS DISPUTE: The British Government has filed with the International Court of Justice an application instituting proceedings against the Norwegian Government in a dispute over fishing rights, according to an October 3 report from the American Embassy in London which quotes a London newspaper despatch.

The application recalls the fact that differences have from time to time arisen between Britain and Norway relating to the limits at sea within which the Norwegian Government is entitled to reserve fishing exclusively to Norwegian vessels.

The claim is, first, that the Norwegian Government when it prescribes base lines from which the Norwegian fisheries are to be delimited, is bound to have regard to the international law; secondly, that the base lines prescribed by the Norwegian Government in the royal decree of 1935, consist of straight lines joining points arbitrarily selected in violation of the principles of international law; thirdly, that the decree unlawfully purports to close to British fishing vessels considerable areas of sea off the coast of Norway which under international law are high seas and, as such, open to the fisheries of all nations.

Britain in its application asks the court to declare the principles of international law to be applied in defining these base lines and to award damages with regard to all interferences of the Norwegian Government in this respect. (See page 56 of this issue.)

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DESCRIPTION AND MARKETING OF PRAWN AND SHRIMP: Prawn and shrimp are found in all climates from the Arctic to the Tropics, although the species found around the European and Scandinavian coasts are the more hardy. There are two varieties of edible prawn and one of shrimp which are caught off the coasts of Great Britain, according to an article by W. A. T. Baxter in the August 20 Fish Trades Gazette, a British periodical.

Description: The prawn has a prominent toothed and pointed rostrum and has two pairs of pincers; the second pair (being the larger and more developed) are placed at the end of long whip-like limbs; the front pair are equipped with stiff, short bristles. When alive, it has a grey-green body with red stripes; when cooked, it turns a deep orange-red. Prawn are found where the coast is stony and are usually caught in baited pots or bags.

The brown shrimp has no toothed and pointed rostrum, the front end of the carapace being short and blunt. The first pair of legs are short and flattened, each terminating in a little movable hook-like claw that can be closed against a short sharp spine; the second pair of legs have very minute claws, while the remaining three pairs of walking legs are long and slender and have pointed ends. When alive, it has a grey-greenish tint and is speckled brown like the sand in which it is found; when cooked, the familiar brown color appears.

The so-called pink shrimp is in reality not a shrimp at all, but a small prawn; it differs in not having any visible pincers on its first pair of legs; the second pair, however, are long and slender with very minute pincer claws, although it has the toothed and pointed rostrum similar to the larger common prawn.

Shrimp are dredged, and along the sandy east coast of Great Britain form an industry of some importance. In some districts, a shrimp trawl is used behind a horse and cart, while in deeper waters, sailing boats (really small trawlers) are employed.

Marketing: Shrimp are usually cooked on board the vessel immediately after catching.

Considerable amounts of shrimp are used for manufacturing purposes, the most common of which is the familiar shrimp paste, although of recent years shrimp which do not attain the highest standards are used and processed for fertilizers and poultry foods.

In several of the continental European countries, shrimp are peeled in large quantities before being offered for sale, and in this form are used extensively in hors d'oeuvre, salads, and sauces. In Germany and Belgium, before the last war, a method of mechanical peeling was in use which reduced labor costs enormously and did not damage the shrimp in any way.

The peeling of shrimp in England, however, has not been carried on to any extent commercially. The public prefer to buy shrimp by the pint and to peel them as they eat them. There is, of course, a demand for peeled shrimp from restaurants and catering establishments but on a much smaller scale than on the European Continent.

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"FAIRFREE" TO FISH ON GRAND BANKS: The Fairfree, the largest and most modern British quick-freeze fishing vessel, will sail at an early date for the Grand Banks off the coast of Newfoundland, according to the British periodical, The Fishing News, of August 13, 1949.

The ownership of this vessel changed recently and it is now owned by another English firm with interests in the food processing field.

The vessel recently completed its trials after being converted to diesel operation. Important features include the incorporation of a whaleback stern, over which the trawl nets are mechanically shot, and the paravane arrangement used to keep the two glove-like nets open while trawling. When full, the nets are mechanically hauled and the fish are passed through hatches to cleaning boards on the deck below. Processing will follow normal practice, the fish being packaged and quick frozen. After removing from the freezer, the frozen fish is stored in special fish holds, where a system of booms is used to facilitate storage.

NEW TYPE TRAWLER "PRINCE CHARLES": A new trawler was recently built in England which has an experimental deep-freeze plant and storage room, with filleting and loading tables close by, according to reports in the British periodical, The Fishing News. The outward appearance of this new oil-fired trawler, Prince Charles, is the same as the most recent trawlers built in England. The innovations in design have been made internally.

The deep-freeze plant and storage room (with a capacity of 10 metric tons) are arranged under the main deck forward of the fish hold (wood lined throughout and with a capacity of 16,000 cubic feet) with the filleting section on top under the top-gallant forecastle. To assist in preserving the fish, a cooling plant has been installed. A thermometer on the bridgehouse enables the skipper to keep a check on the temperature in the hold.

All of the crew are accommodated either amidships or aft, with access under cover to other parts of the vessel (right up to the bridge) through the engine and boiler casings. They will not have to cross the open foredeck in bad weather.

Returning to Grimsby on September 13 from a maiden voyage of 22 days to the White Sea, the Prince Charles landed approximately 500,000 pounds of fish with a gross value to the fishermen of 10,392 pounds sterling (approximately \$29,100). Included in the cargo were five metric tons of quick-frozen fish fillets experimentally processed at sea.

With reference to quick-freezing at sea, the skipper stated that freezing on board takes some time, but he believes that it can eventually be done on a large scale.

On this trip, the vessel used a new float^{1/} invented by Mr. Jack Phillips of Grimsby, and it is reported that the tests with this new float were successful. The buoyancy and lifting power of the floats are retained no matter which way the tide is running or how the ship is turning, according to the vessel's skipper. The new float has a curved hydrofoil at the base which gives three times the lifting power of an ordinary float. After using 60 of the old-type floats during the first two days of fishing, the new-type floats were used for the balance of the trip and it required only 40 floats to achieve better results.

NOTE: Value converted on the basis of one pound sterling equals \$2.80 U.S.

^{1/}See page 63 in this issue.

TO DEVELOP SALES OF KIPPERS IN U. S.: With a view to developing the sales of British kippers in America, the chairman of the British Herring Industry Board is expected to come to the United States some time in October for a period of two months. The Board is making a special study of the American market, according to the September 10 issue of the British periodical, The Fishing News, in order to explore the possibilities of increasing the demand for British kippers in the United States.

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POSTWAR GROWTH OF SCOTTISH FISHERIES: A report recently compiled by the Scottish Home Department on Scottish fisheries is the first Government report to be issued since the war, according to an August 18 report from the American Consulate at Glasgow. It shows that the industry has grown since it was curtailed by World War II and states that it is on the whole remunerative to the men involved.

The number of Scottish vessels engaged in all types of fishing was greater than before the war (5,298 by the end of 1948 as compared with 5,067 in 1938). This increase was due in part to the fact that many small motor vessels which had previously been unregistered were now in commission. There was, however, a decrease of almost 700 in the number of fishermen engaged in the industry as compared with prewar (17,228 in 1948 and 17,915 in 1938).

The total landings of herring in 1948 amounted to 326,256,000 pounds, which compared favorably with an average of 294,672,000 pounds during the years 1934 to 1938. The 1948 catch was sold at an average price of \$3.81 per cwt., or almost three times more than for the period of 1934-38 when it was sold for \$1.41 per cwt. The total Scottish landings in 1948 are the highest since 1935.

The 1948 catch of whitefish amounted to 375,950,736 pounds and was worth \$33,724,885. Although this was slightly lower than for 1947, it was 89,600,000 pounds more than for 1938.

NOTE: Value converted on the basis of one pound sterling equals \$4.03 U. S.



FRIED ROSEFISH FILLETS



- | | |
|---------------------------|----------------------------|
| 2 pounds rosefish fillets | 1 tablespoon milk or water |
| 1 teaspoon salt | 1 cup breadcrumbs, cracker |
| 1/8 teaspoon pepper | crumbs, cornmeal or flour |
| 1 egg | |

Sprinkle both sides of the fillets with salt and pepper. Beat egg slightly, and blend in the milk. Dip fish in the egg and roll in crumbs. Place fish in a heavy frying pan which contains about 1/8 inch melted fat, hot but not smoking. Fry at a moderate heat. When fish is brown on one side, turn carefully and brown the other side. Cooking time is about 10 minutes depending on the thickness of the fish. Drain on absorbent paper. Serve immediately on a hot platter, plain or with a sauce. Serves 6. If rosefish fillets are not available, any other type of small fillets could be substituted.

A Fish and Wildlife Service tested recipe. This is one in the series of recipes using fishery products tested and developed in the Service's test kitchens.