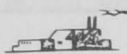




Algeria

MODERN FISH CANNERY OPENED: One of the most modern fish canning factories in Algeria went into operation during October, according to a November 4 report from the American Consulate General at Algiers. It is expected that the cannery will produce some 40,000 cans of fish daily, and will utilize approximately 200 workers.



Australia

TUNA SURVEY IN NORTHERN AUSTRALIAN WATERS: A comprehensive pelagic fish survey in the waters of northern Australia has been carried out by two vessels of the Commonwealth Scientific and Industrial Research Organization of Australia, according to a November 23 announcement from that agency.

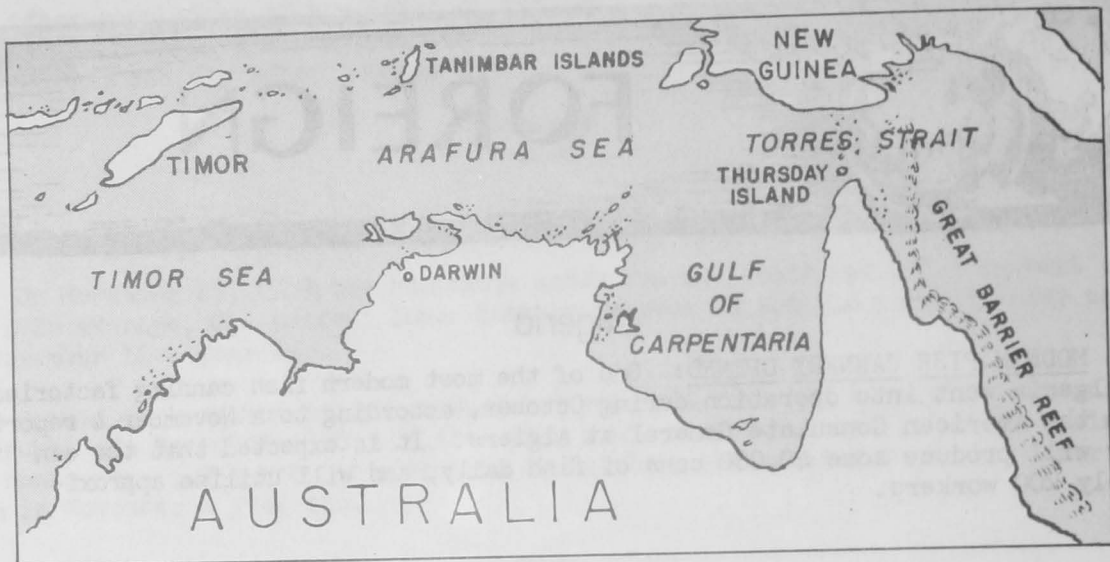
One vessel operated westwards from Thursday Island across the Gulf of Carpentaria to the 125th meridian, while the other worked simultaneously in the adjoining area westward, off the north-west coast of Australia. Both vessels have been at sea since mid-July.

The main objectives of the survey were to determine the occurrence and approximate abundance of tuna. Frequent schools of northern bluefin and mackerel tuna were at times encountered, principally between Darwin and Timor, and some of these were of considerable magnitude. Many were captured on the trolling lines, but the individual fish which were caught were smaller than those taken farther south on both the east and west coasts of Australia and they rarely exceeded 10 pounds in weight.

A most important biological discovery was the capture of a specimen of tuna about 1½-inches long, and it would appear that these northern waters constitute a breeding and nursery ground for this fish. Only two other tuna breeding grounds are at present known, these being in the Mediterranean and near Costa Rica.

Excellent weather, in which the large nets used elsewhere for the capture of tuna could be readily handled, was experienced to the west of Darwin throughout the period spent there, but in the Gulf of Carpentaria and eastwards conditions were rougher.

Reefs and banks yielded catches of pike, north-west snapper, three species of Spanish mackerel, red bass, sweetlips, sharks and many other kinds of fish. Of the big game fish, wahoo and swordfish were encountered.



At the conclusion of the tuna survey one ship spent four weeks at Thursday Island on work connected with investigations being undertaken there on pearl shell culture.



Canada

BRITISH COLUMBIA 1949 TUNA SEASON: Although British Columbia's 1949 tuna fishing season was shorter than 1948, the catch of 2,200,000 pounds was slightly higher and fishermen received \$350 a ton, according to the Canadian Fisheries Department Trade News of October 1949. The previous year the catch amounted to 2,174,000 pounds, valued at \$990,000 to the fishermen.

The 1949 price was much lower than in 1948 when packers suffered a substantial loss. Practically all of the 1949 tuna catch was sent to the United States for processing. Federal fisheries patrol vessels scouted wide areas of the Pacific, in the early days of the 1949 season. Several large areas of blue water, registering fairly high temperatures and showing signs of plenty of food, were discovered, indicating favorable tuna school conditions. While tuna were undoubtedly present, they seemed shy of the lures and few were taken.

Early in August, extensive runs were encountered off the West Coast of Vancouver Island. Between 60 to 70 Canadian vessels enjoyed excellent catches as weather conditions were ideal. On August 8 one boat landed 585 tuna.

This year the albacore tuna fishing showed a marked change from that of 1948. The tuna runs appeared at least two weeks later in the season and were of shorter duration. In 1948 the main catches were taken in offshore waters near the Queen Charlotte Islands with very light catches from more southerly waters. This year the bulk of the Canadian catch was taken in waters off the Washington and Oregon coasts. The tuna did not appear to any extent off the Queen Charlotte Islands in 1949.

Denmark

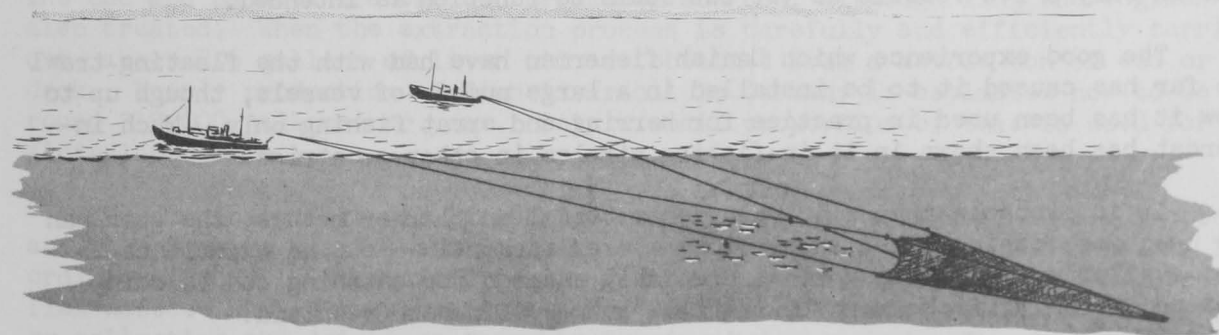
THE DANISH FLOATING TRAWL^{1/} (A New Invention for Fishing in Middle Waters), by A. Strubberg*: The principal gear used in sea-going fishing all over the world is the trawl. It takes various forms, but generally speaking it is a large bag net that is dragged along the bottom by the vessel to which it is attached. Fishing in the upper or middle waters--pelagic fishing--on the other hand, has been carried out almost exclusively by hooks, long lines, and purse seines (ring nets). These are not moved forward but fish only at the place where they are set out. The same to some extent is true of the various types of drift net--another principal implement of pelagic fishing--because they move only passively with the current.

When the Danish scientific marine investigations began in the North Atlantic in 1903, the implement used for catching pelagic fish fry in the open ocean, during the first few years, was a small type of otter trawl. It was made of very light material and was kept open while the vessel was dragging by two small wooden boards. Later, this "young fish trawl" was replaced in investigation work by large conical bag nets, the mouth being held open by a circular iron ring 1-2 metres in diameter.

In practical fishing, however, the trawl has never been used for true pelagic fishing. Exceptions to this rule are very few places--e.g. in the Mediterranean--where a light bag-shaped net stretched between two vessels is dragged at or near the surface.

It is only in very recent years that the attention of several countries has been directed towards devising a practical gear for catching shoal fish in middle waters between the bottom and the surface. The first to succeed in constructing a pelagic drag net--the so-called floating trawl--was Mr. Robert Larsen, a Danish netmaker of Skagen. This floating trawl was first used in the winter and spring of 1948-49, when it contributed materially to the great yield from the Danish herring fisheries in the Skagerak that season.

The actual trawl or bag net used in the herring fisheries is 50-60 metres long with an opening at the front that is 15 metres high and about the same wide. The meshes of the bag diminish towards the end--from 70 mm. to 60-50-40 mm. aft, and 18 mm. (in herring trawling) and 11 mm. (sprat trawl) at the extremity. The "ground rope" is loaded with 6-8 kilos (13-17½ pounds). The floaters on the headrope are removable if desired. The net is dragged between two vessels by four warps fixed two to each side of the trawl mouth, the top warp going to the



THE TRAWL IN OPERATION

*of the Danish Ministry of Fisheries.

1/ This article appeared in the Danish Foreign Office Journal, July-September 1949, No. 3.

forward gallows of the towing vessel, the bottom warp at the same side of the bag mouth to the after gallows of the vessel. The warp is separated from the net bag by long ropes called "bridles." The top one is a 20-fathom, 3-4 inch Manila rope, the bottom one a 23-fathom rope loaded with chain or iron sinkers of about 60-70 kilos (132-154 pounds). The connection between warps and bridles is formed by slip hooks, which facilitate rapid unshackling when the vessels approach one another after about 15 minutes' towing. The bridles are taken aboard by the cutter which hauls the trawl. The actual hauling is effected by pulling in the bottom lines, whereupon the mouth of the trawl is closed and the gear rises to the surface.

The implement is towed between two cutters, which work side by side at a distance of 100-250 metres, and it is chiefly used at night. The gear is regulated to the depth of the herring shoal, as indicated by the vessel's echo-sounding device, by shooting the warps as required.

The depth at which the trawl works is greatly dependent on the length of warp employed and the speed at which the implement is towed. Experience gives some degree of certainty in assessing the approximate working depth from these factors, but a device has been produced which increases this certainty. This is an angle gauge which is attached directly to the warp and from which the angle between the surface and the position of the warp can be read. With the aid of a special table the depth of the implement can then be calculated with ease. The angle gauge is a relatively cheap instrument.

With the appliances, a floating trawl at present costs not quite Kr. 4,000 (approximately \$579). The cost of an echo-sounding device and its installation is about Kr. 15,000 (approximately \$2,172).

A number of cases have occurred where the floating trawl has been towed into a shoal of herring so large that it has burst and the catch has been lost. To avoid this loss of both catch and time a Danish fisherman has designed a "catch measurer." The increasing pull of the fish in the trawl is registered electrically, enabling a constant control to be kept on the amount of fish in the gear. This can then be hauled when a convenient catch has been made.

The measurer is placed on the boat deck, where the load in the trawl can be read at any time. It works on the principle that the pull in the trawl is transmitted to a compression spring which switches on an electric current when the pull has reached a certain strength.

This instrument, for which a patent has been applied for, has been tested out in only a few vessels as yet but seems to function as intended.

The good experience which Danish fishermen have had with the floating trawl so far has caused it to be installed in a large number of vessels, though up to now it has been used in practice for herring and sprat fishing only. Much interest has been shown in it in fishing circles in other countries.

It is probable that, with heavier material and larger meshes, the gear can be used for fishing other shoal fish -- e.g. mackerel -- but no experience is yet available. A floating trawl specially adapted for catching cod is being tested by Danish fishermen working this summer off West Greenland.

It will be necessary to change many details in the implement and the method of using it, when it is employed for catching fish other than herring and for fishing in other waters. But there is every sign that Danish ingenuity has succeeded once again in giving to sea fishing a new, practical and effective gear — a means of exploiting the wealth of fish in the ocean a great deal more efficiently than has been possible in the past.

NOTE: Values converted on the basis of one Danish kroner equals 14.4778 cents U. S.



France

NEW FISH MEAL PLANT UNDER CONSTRUCTION: A new factory is under construction on the coast of France about 40 miles northeast of Le Havre which will manufacture feed for livestock. Fresh fish will be the principal raw material, according to a December 5 report from the American Consul at Le Havre.



German Federal Republic

FISH OILS: For more than 10 years, the consumption of fats and oils in Germany has been restricted due to the insufficiency of supply, states a September 30 report from the American Consulate at Bremerhaven. Strenuous efforts have been made to develop domestic sources of edible fats and oils, and fish oil has become a highly prized commodity. Growing supplies of imported fats and oils are decreasing the demand for fish oil and fish fat, and black-market prices are little above the official prices. However, sea fish still are of importance in Germany's fats and oils supply, accounting for about 10 percent of the domestic production or about 2 percent of the total consumption.

Fish oil is produced in two ways. Fish liver oil is produced on the catching vessel at sea by the simple steam process which extracts between 70 and 80 percent of the oil contained in the livers. Ordinary fish oil is extracted by the fish meal factories ashore from inedible fish waste. From both types of fish oil, an edible, odorless and tasteless fat is being produced by several companies. According to the producers, the fat can be used unblended for any cooking purpose.

Only certain types of sea fish are used in Germany as a source of liver oil. The cod and haddock are the two principal sources, although ling and dogfish are also treated. When the extraction process is carefully and efficiently carried out, about 2.6 gallons of liver oil are obtained from a metric ton of cod or haddock. Yearly production of fish liver oil in Germany is estimated now to be around 317,000 gallons per year. Only a small proportion of this is used for medicinal purposes.

The ordinary fish oil is obtained as a byproduct by the fish meal factories and fish smoking plants, and is quantitatively more important as a source. This ordinary fish oil is obtained in the fish meal factories by grinding and pressing fish waste. During the herring season, additional quantities of oil are produced by collecting the drippings from the herring being smoked. The yearly production in Bizonal Germany is estimated to be around 1,321,000 gallons. Some of this oil is used in paint manufacture.

Despite processors' claims that unblended fish fat is suitable for all home-cooking uses, the average consumer does not seem to value fish fat very highly. When conditions return more to normal, it is expected that fish oils will be used either for paint or for blending into edible fats.

* * * * *

NEW TRAWLERS PLANNED: One Bremen trawler company has plans ready for the construction of a fishing vessel 560 gross registered metric tons, according to a December 2 report from the American Consulate at Bremen. Although German trawling circles successfully pressed their demand to build trawlers up to 650 metric tons, the fact that the trawler speed is still restricted probably will prevent German firms from building up to the 650-ton limit prescribed in the agreement of 1949 between the Allied High Commission and the German Government.

* * * * *

PRESENT RESTRICTIONS ON GERMAN SHIPBUILDING RELAXED:^{1/} The terms of agreement reached by the three powers for the relaxation of the present restrictions on German shipbuilding were communicated by the High Commission to the Chancellor and are included in the text of protocol of agreements reached between the Allied High Commissioners and the Chancellor of the German Federal Republic on November 22, 1949. This text was made public by the U. S. Department of State on November 24, 1949.

With reference to German shipbuilding, the main provisions now agreed upon are as follows:

The construction of ocean-going ships excluding those primarily designed for passengers, and tankers up to 7,200 tons, fishing vessels up to 650 tons and coastal vessels up to 2,700 tons not exceeding 12 knots service speed may begin forthwith. The number of such ships to be constructed shall not be limited.

The Federal Government may, with the approval of the High Commission, acquire or construct before December 31, 1950, six special ships exceeding these limitations of size and speed. Further particulars on this point were communicated to the Chancellor.

^{1/} Also see Commercial Fisheries Review, May 1949, page 41.



Republic of Haiti

UNITED NATIONS MISSION RECOMMENDS EXPANSION OF FISHERIES: Desiring to take advantage of United Nations technical assistance in planning for the economic development of Haiti, the Haitian Government on July 10, 1948, requested a United Nations Technical Mission to examine the problems of and the conditions affecting the economic development of Haiti primarily in the fields of agriculture, fisheries, industry, and related activities.

With reference to fisheries, the report of the United Nations Mission of Technical Assistance to the Republic of Haiti (Mission to Haiti) released in July 1949 contains the following recommendations:

As concerns fishing waters, both coastal and inland:

1. Appropriate regulation should be instituted to guard against pollution by industrial waste (such as pulp from sisal decortication and pulp and fermenting juices from the processing of coffee) causing destruction of fish;

As concerns marine fisheries:

2. As the logical course for Haiti to pursue is to concentrate on raising the output of the present fishery industry within its traditional frame, measures should be taken, by means of gradual introduction of new methods, by making available better equipment, and by propagating the use of such methods and equipment, to improve the yield of that industry;
3. To assist in fostering the development advocated in recommendation 2, the Government may sponsor a modest project for experimental fishing, helpful in detecting needs and in testing modifications and improvements in methods, procedures and equipment which would be worth while trying in the local fishery; a model fishing vessel, power driven and relatively small in size should be provided for operating this project;
4. As reliable information on the occurrence in Caribbean open waters of oceanic migratory fish--a seafood resource of great potentiality--would be of value to all the countries in the region, the possibility of instituting a thorough survey, jointly sponsored by them, for seeking that information and for determining the characteristics and catchability of the species passing through these waters should be explored; while Haiti cannot alone undertake any large-scale experiment of this nature, judicious steps to encourage the reporting of relevant observations by operators in Haitian and adjacent waters may well be considered;

As concerns fish culture:

5. Since fish culture in ponds seems the only means capable of expanding the supply of fish from local resources (as distinct from supplies obtained through import) to a volume reasonably close to total consumption requirements, the Government should give full consideration to the feasibility of developing pond

culture on an intensive scale (that very real difficulties would be encountered in the realization of that development must be fully recognized; considerable experimentation calling for expert advice would be needed);

6. Before deciding on a programme of pond culture development, the services of a first-rate specialist familiar with successful practices in other countries should be secured for making an extended survey; if in the light of such survey decision is taken to embark seriously on fish farming, the specialist should be retained for a number of years to lay out pilot operations and supervise their implementation; further, steps should be taken to train at least two local men in the principles of fish culture, these men to be responsible for following up the plans of the specialist;
7. As there is need for efficient pond culture throughout the Caribbean, the possibility of enlisting the co-operation of the various countries of the region in a jointly sponsored programme of research and experimentation under supreme guidance of one and the same specialist should be explored;

As concerns processing, handling and marketing of the fish:

8. Active steps should be taken for improving the quality of the processed fish supplied to the market--to this end a much better grade of local solar salt than is now used should be produced, which could, in fact, be done without any great increase in cost;
9. As salting is the cheapest and most acceptable method for processing fish under Haitian conditions, careful and continued experiments should be undertaken at once to determine the best methods for wet and dry salting of the various types of fish under the particular climatic conditions obtaining in the different parts of the country;
10. While there is little immediate need for additional facilities for the handling and marketing of the fish, organized measures should be taken for improvement of these facilities and for their amplification in the event of a substantial expansion of the fish production.



LOCALLY-BUILT BOATS USED IN FISHING AND TRANSPORT ARE MADE OF HEAVY ROUGH-HEWN TIMBERS.

Iceland

ICED FISH EXPORTS, 1948: Iced fish exports, Iceland's highest export commodity in value, accounted for 22.8 percent of the total exports from Iceland in 1948, according to a November 3 report from the American Legation at Reykjavik. A little more than 125,400 metric tons (valued at \$13,888,900) were delivered to the United Kingdom and Germany. Of this total, the United Kingdom received 61,100 tons (valued, \$7,174,964) and Germany 64,300 tons (valued, \$6,713,936). Of the total amount of iced fish delivered to these countries, 95 percent was carried in Icelandic trawlers, while the balance was transported in trawl boats and carriers. Although the fish were generally delivered direct from the fishing grounds to the foreign ports, the trawlers did put into an Icelandic port to secure supplies and discharge about one-half of the crew before transporting their cargoes to Europe.

Icelandic trawlers in 1948 made a total of 504 trips--262 to the United Kingdom and 242 to Germany.

Trawler activities during 1948 on the whole were very successful, although several of the old vessels did not operate at a profit. Practically all of the iced fish that Iceland could supply and deliver was accepted by the United Kingdom and German markets.

Since fish production in other countries selling to the United Kingdom and Germany increased considerably during 1949, Iceland's trawler operations during this year were not so successful.

Outlook for 1950: It is believed that the United Kingdom and Germany, which have increased their own output, will not contract in 1950 for large quantities of iced fish as they did in 1948 and 1949. Consequently, a large part of the catches in 1950 probably will have to be salted since trawler fish generally is not quick-frozen (usually fresh fish, not over 24 hours old, is used for that purpose).

WOULD SEEK EXTENSION OF TERRITORIAL WATERS:^{1/} It is not unreasonable to assume that in the near future Iceland may carry its case for the extension of its territorial waters and the protection of sea life to one of the United Nations' agencies, according to an American consular report of December 1.

From Iceland's standpoint the country is justified in seeking international agreement on the protection of sea life, according to an article appearing in the newspaper Althydubladid of November 16, 1949. During the past year, innumerable foreign vessels have engaged in demersal fishing and there are definite signs pointing to overfishing in Icelandic waters. Iceland is particularly concerned because its livelihood is almost entirely derived from the sea.

The following are translated excerpts from the newspaper article:

First of all, territorial waters must be extended. The resigning cabinet took a bold step when it terminated the old Agreement with the British concerning territorial waters. This matter must be followed up and a great deal depends on the decision reached by the Permanent Court of International Justice at the Hague in the case of the British versus the Norwegians.^{2/}

^{1/}See Commercial Fisheries Review, February 1949, p. 45

^{2/}See Commercial Fisheries Review, November 1949, p. 56.

Furthermore, we must make use of the international organizations which deal with these matters and of which we are members. FAO arranged for a conference on the protection of fish stocks in the Western Pacific with good results. Why should not we, a small nation, approach the FAO with a request that the United Nations arrange for an international conference on the protection of fishing grounds off the Icelandic coast. If backed by such an organization, Iceland's position (with regard to the nations which are the most reluctant to consent to protective measures) would improve greatly.



Ireland (Eire)

PLANS ANNOUNCED FOR DEVELOPMENT OF FISHERIES: The Government's plans for assisting the sea fishing industry and for developing the brown trout sports fisheries were announced on November 6 by the Minister for Agriculture, according to a November 11 report from the American Legation at Dublin.

All commercial fishermen, the Minister said, could become members of the Sea Fisheries Association. The Association will be the only body in Ireland entitled to land fish in Ireland for sale on the domestic market-- it will guarantee prices, accept marketing responsibility, and supply suitable boats and gear on easy credit terms.

Markets will be developed for pelagic fish, fresh, cured or canned, as well as foreign markets for shellfish, using air transport where desirable.

It is also planned to supply, on easy terms, a recently invented radar apparatus for the location of fish shoals; to establish boatyards and expand existing yards; to develop net-weaving facilities and to experiment with new yarns for the manufacture of nets. A pilot fish freezing plant would be established to manufacture fish meal from the trimmings of fish which were put through a "deep-freeze" process.



Japan

FISHING AREAS EXTENDED BY SCAP: The Japanese authorized fishing area for fishing, whaling and similar operations was extended by a directive from the Supreme Commander for the Allied Powers issued on September 19, 1949, according to the Natural Resources Section's Weekly Summary of September 24.

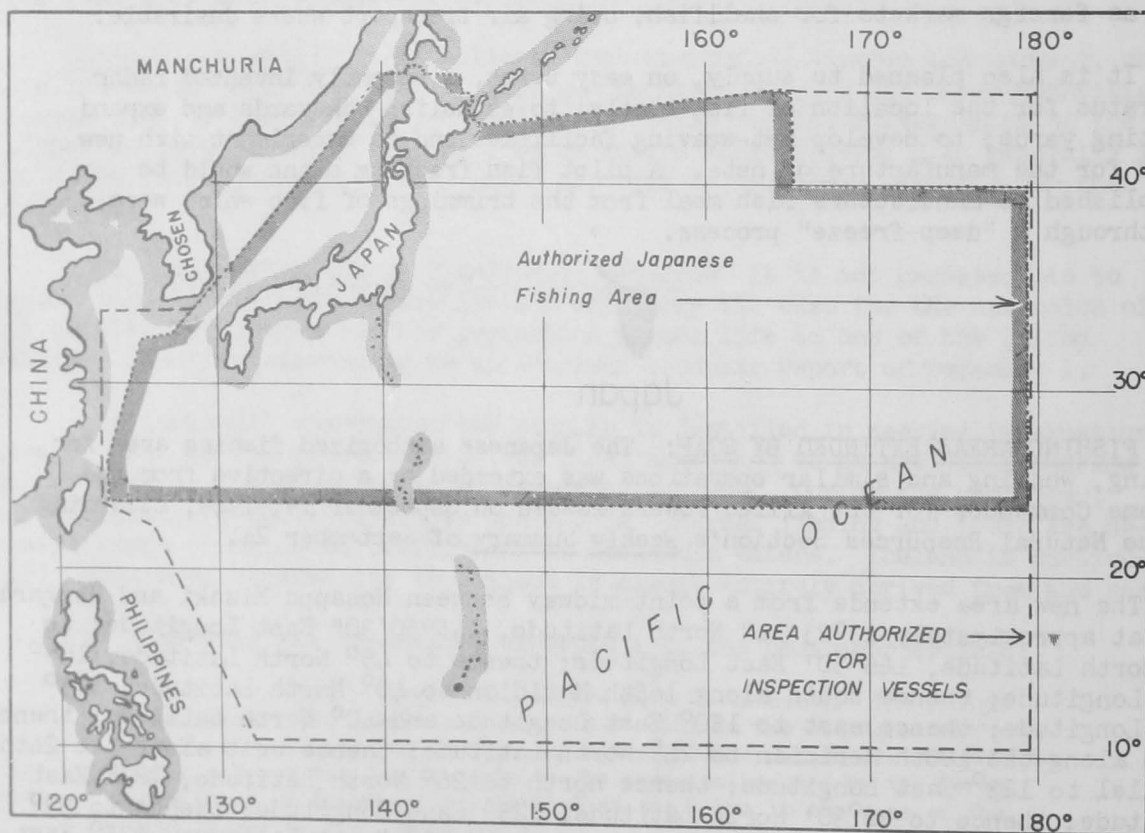
The new area extends from a point midway between Nosappu Misaki and Kaigara Jima at approximately 43°23'14" North Latitude, 145°50'30" East Longitude; to 43° North Latitude, 146°30' East Longitude; thence to 45° North Latitude, 165° East Longitude; thence south along 165th Meridian to 40° North Latitude, 165° East Longitude; thence east to 180° East Longitude and 40° North Latitude; thence south along the 180th Meridian to 24° North Latitude; thence west along the 24th Parallel to 123° East Longitude; thence north to 26° North Latitude, 123° East Longitude; thence to 32°30' North Latitude, 125° East Longitude; thence to 33° North Latitude; 127°40' East Longitude; thence to 40° North Latitude, 135° East Longitude; to 45°30' North Latitude, 140° East Longitude; thence east to 45°30'

North Latitude, 145° East Longitude rounding Soya Misaki at a distance of three (3) miles from shore; south along 145th Meridian to a point three (3) miles off the coast of Hokkaido; thence along a line three (3) miles off the coast of Hokkaido rounding Shiretoko Saki and passing through the Nemuro Kaikyo to a point 43°26'17" North Latitude, 145°48'03" East Longitude; thence in a southeasterly direction to the starting point midway between Nosappu Misaki and Kaigara Jima.

The new extension is subject to the provision that Japanese vessels will not approach closer than three miles (reduced from 12 miles) to any land area not under the present administration of the Japanese Government within the authorized area. Personnel from such vessels are not permitted to land on any such land areas, nor have contact with any inhabitants thereof, except in cases of serious emergency and provided permission to enter is obtained from local authority prior to such emergency entry.

A press statement on the extension of the authorized area stated that the new directive was issued in recognition of the effective work being done by the Japanese Government and industry to control violations and overfishing. It further states:

"Further developments concerning relaxation of restrictions on Japanese fishing activities will depend primarily upon the actions of the Japanese Government and fishing industry. The course which they follow will determine their ability to convince the Supreme Commander and the people of interested nations that Japanese fishermen will respect national and international



REVISED AREA AUTHORIZED FOR OPERATION OF JAPANESE FISHING VESSELS.

regulations and agreements, will not endanger the productivity of aquatic resources, and will make good neighbors upon the high seas."

This action extending the area also made necessary a change in the area to be covered by the Japanese fishery inspection system, in order that inspection vessels might be permitted to operate to the eastward beyond the 180th meridian and up to, but not closer than, three miles of islands not under the administration of the Japanese Government, lying within the area authorized for the operation of inspection vessels. The changes made in the regulations governing the operation of the fisheries inspection system are as follows:

- a. The purpose of the inspection system authorized by this Memorandum is to enable the Japanese Government to enforce the provisions of Memorandum for the Japanese Government, SCAFIN 2046, and any subsequent amendments or modifications thereof, as well as other pertinent fisheries regulations. Inspection vessels shall be responsible for assisting in the enforcement of instructions issued by the Supreme Commander for the Allied Powers and of laws and regulation of the Japanese Government in regard to Japanese fishery operations.
- b. Available vessels of the type and size suitable for conducting inspection duties shall be put into immediate operation and provisions shall be made to increase the number of vessels used if the need for such is demonstrated to be necessary to insure effective enforcement.
- c. Inspection vessels are authorized to operate within the area bounded as follows: From a point midway between Nosappu Misaki and Kaigara Jima at approximately 43°23'14" North Latitude, 145°50'30" East Longitude; to 43° North Latitude, 146°30' East Longitude; thence to 45° North Latitude, 165° East Longitude; thence east along the 45° parallel to 175° West Longitude; thence south along the 175th meridian to 10° North Latitude; thence west along the 10° North Parallel to 132° East Longitude; thence to 22° North Latitude, 126° East Longitude; thence to 24° North Latitude, 122°30' East Longitude; thence north to 34° North Latitude, 122°30' East Longitude; thence east to 34° North Latitude, 128°40' East Longitude; thence to 40° North Latitude, 135° East Longitude; thence to 45°30' North Latitude, 140° East Longitude; thence east to 45°30' North Latitude, 145° East Longitude rounding Soya Misaki at a distance of three (3) miles from shore; south along the 145th meridian to a point three (3) miles off the coast of Hokkaido; thence along a line three (3) miles off the coast of Hokkaido rounding Shiretoko Saki and following a mid-channel course through the Nemuro Kaikyo to a point 43°26'17" North Latitude, 145°48'03" East Longitude; thence in a south-easterly direction to the starting point midway between Nosappu Misaki and Kaigara Jima.
- d. Japanese inspection vessels shall not approach closer than three (3) miles to the coast of any island within the area defined in the preceding paragraph not under the present administration of the Japanese Government.
- e. The modified International E instead of the Japanese flag shall be used to mark inspection vessels.
- f. Inspection vessels shall not engage in fishing operations of any kind.
- g. Inspection vessels shall obtain authorization for each voyage from Commander, United States Naval Forces, Japan.
- h. Inspection vessels shall not be vested with police powers.

In making these changes, it was pointed out that they do not establish a precedent for any further extension of authorized fishing areas or for the operation of inspection vessels in any other area for any subsequent period of time; nor is it an expression of Allied policy relative to the ultimate determination of national jurisdiction, international boundaries, or fishing rights in the area concerned or in any other area.

CONDUCT RESEARCH ON SARDINES: Considerable research on sardines is being done in Japan because of the great importance of this fishery and the abrupt decline in its production in recent years, according to the September 24 Weekly Summary. Most of this work is directed toward either discovering the reasons for the decrease in catch or finding new fishing areas where the fish are more abundant.

The principal sardine investigations are included in a cooperative program conducted by the Japanese Fisheries Agency of the central government and the fish-

eries research stations of the prefectures interested in sardines. Much of the work is coordinated and supervised by the scientists of the Fisheries Agency. Most of the data are collected by the research boats and staffs of the prefectures, and the analysis of the data is done chiefly by Fisheries Agency scientists. The Fisheries Agency has been reorganized recently, and most of the research is in a preliminary stage; therefore, few definite results have been achieved at this time.

The investigations include offshore sardine exploration to determine whether sardines inhabit waters 500 miles offshore and to find the optimum oceanographical conditions for sardines in open waters; to accumulate data and further research for population and management studies on sardines and anchovies; to determine catch per unit of effort; to determine recruitment; discover the reasons for the recent poor catches; to learn the proper mesh size of gill nets for sardines and herring in various regions and proper depths at which to fish for them; and location of sardine schools with vertical supersonic sonar. In addition, some work on special problems, including utilization and processing, is being done by prefectural stations and universities.

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PRODUCTION OF FISH LIVER OILS: The average annual production of fish liver oil in Japan amounts to 15 or 16 trillion units, according to a recent report from Japan. The production for 1949 could be in the neighborhood of 17 trillion units, but inasmuch as the demand for fish liver oil has fallen off, it is felt that the production will be less than 17 trillion units and probably nearer the average.

Production seasons for low potency fish oil, such as that for cod and pollock livers, usually occur from December to March. The production of high potency oil, as obtained from shark and tuna livers, occurs the year round, but varies seasonally in accordance with geographic locations extending from the southern to the northern parts of Japan.

Statistics on the production of fish oils are inadequate and often inaccurate, influenced in part by production methods. Fish oil is produced in thousands of small home plants in the many fishing villages which dot the coast line of Japan.

The Japanese Fisheries Agency estimates a production of 8 thousand metric tons of crude fish oil for the fiscal year ending June 30, 1950.

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THREE TYPES OF FISHING OPERATIONS: Representatives of SCAP's Natural Resources Section observed three types of Japanese fishing operations in Shizuoka Prefecture, according to that agency's Weekly Summary of October 29.

Mullet Taking on Lake Hamatsu: A vertical net of small mesh is set surrounding a school of mullet. A net spread horizontally by bamboo poles about four feet long and six inches apart is laid along the water surface with the inside edge touching the float line of the vertical net. To confuse the fish the net is laid out along scalloped and irregular lines. In their efforts to escape, the mullet reach the vertical net, then leap into the air and attempt to pass the float line. They land on the horizontal net and are picked up with long-handled dip nets operated by crews of the small scull-propelled boats. The

operation observed included 30 boats with two to four men in each boat, with the entire area surrounded by the net about 200 yards in diameter. An operation of this size catches as much as 8,300 pounds a day.

Night Fishing for Horse Mackerel at Uchiura: Each fleet consists of two small boats for attracting the fish and a pair of haul seiners (kinchaku ami), each equipped with a net 250 fathoms long and 50 fathoms deep. The two small boats go to the fishing grounds on moonless nights and, taking up separate selected positions, each suspends an electric light of 350 watts operated by a 32-volt battery, just below the surface of the water. When a sufficient number of horse mackerel (aji) collect about a light, the small boat signals its seine boats which approach and set the seines around the boat in the center of the attracted fish. The seines, with coarse meshed wings and fine meshed bag, then are hauled to the two seine boats. Until the foot rope of the seine has been hauled aboard the light boat remains within the circle of the net. These operations begin in Suruga Bay in February when the fish are only one or two inches long, and continue until the following January with the fish becoming larger up to six inches in length. The best fishing is during September and October. A fleet of these boats catches about 83,000 pounds of fish a year.

Use of Lights to Increase Catch of Set Nets: The Japanese Fisheries Research Institute is continuing experiments to test the use of lights to increase the catch of fixed nets (See Commercial Fisheries Review, February 1949, page 48). They have made arrangements for this purpose with a group of 13 fishermen operating a small trap net near Atami. Objectives of the investigations are: (a) to determine the influence of electric lights on catch, (b) to determine whether a chain of lamps can be substituted for the lead of the trap net, (c) to study the durability and cost of the equipment, and (d) to work out improvements in the equipment and method.

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U. S. PRIVATE INTERESTS ESTABLISH FROZEN FOOD EXPORT COMPANY IN JAPAN: Permission to have \$1,000,000 remitted to Japan by United States private interests has recently been granted by the Japanese Ministry of Finance for the purpose of building a frozen food export enterprise, states a November 14 American consular report from Kobe. The permit states specifically that the transactions and operations of the company are not exempt from the Japanese laws and regulations governing the acquirement by foreigners of property in Japan.

The company plans to operate a deep-sea fishing organization in Japanese waters and to produce chickens near Nagoya, Japan. It expects to export frozen sea food and chicken meat to America, with a portion of the company's food products to be sold in Japan. Capital allocation includes ¥145,400,000 (approximately \$393,000) for fishery equipment, an operational fund of ¥96,750,000 (\$261,000), a foreign trade fund of ¥72,000,000 (\$195,000), and an agricultural department fund of ¥55,850,000 (\$151,000).

Capitalized at ¥370,000,000 (approximately \$1,000,000), almost all of the shares of the new company are held by Japanese in the United States (including Hawaii), with only a very small percentage in the hands of Japanese in Japan.

JAPANESE GOVERNMENT



Mexico

CHANGES EXPORT TAX ON CERTAIN FISHERY PRODUCTS: In accordance with a decree published in the Mexican Diario Oficial of October 22 and effective three days after publication, the export tax on certain fishery products has been modified. an October 31 report from the American Embassy at Mexico, D. F., states.

The export tax tariff is modified by this decree so that Fresh or Frozen Fish, Unspecified (11-01) is now 3 centavos (approx. 0.35 cents U. S.) plus 10 percent ad valorem per net kilo (2.2 pounds); and Fresh, Raw, Dried or Peeled Shrimp (11-11) is now 30 centavos (approx. 3.5 cents U. S.) plus 10 percent ad valorem per 100 net kilos.

Actually the tariff remains the same on these two classifications, but the weight factor has been changed. Previously these items were taxed on the basis of gross weight; the new tax provides that the tariff shall be assessed on the basis of net weight.

This will make little difference on frozen or dried fishery products, but for those items which are shipped fresh and in ice there will be an appreciable reduction in the tax.

PROMULGATION OF INTERNATIONAL CONVENTION FOR THE REGULATION OF WHALING: The Presidential Decree, dated October 13, 1949, promulgating the International Convention for the Regulation of Whale Hunting which was signed in Washington on December 2, 1946, and adhered to by Mexico on June 17, 1949, was published in the Diario Oficial of December 6, 1949, reports the American Embassy on December 7.



Norway

EXPANSION OF SEAWEED PRODUCTS INDUSTRY PLANNED: A recent awakening in Norway to the possibilities in developing its seaweed resources has led to plans for expansion of existing companies and indications that many firms are keenly desirous of entering the field. A survey of export potential has begun. Tied in with these developments is the recent creation of a separate research institute for seaweed production which is to begin functioning early in 1950, states a November 21 report from the Oslo American Embassy.

The new institute will receive its financial support from the Norwegian Research Council, which in turn is jointly financed by grants from the Norwegian Government and contributions from private industries made through the Industri Forbund (National Manufacturers' Association). The beginnings of the institute will be small: it will be housed adjoining the University of Oslo, and will employ three botanists and one chemist in addition to an administrative director.

Professor Carl Henrik Oppegaard Printz, a botanist, who has been chosen administrative head of the institute, has indicated that one of the purposes of the institute will be to help increase Norway's commercial production of seaweed products from its present value of about \$421,000 to at least \$7,000,000 a year. This represents a utilization of only one percent of Norway's growth of seaweed each year. It takes on an average three years for a suitable new growth to take place.

Apparently Norway has one of the richest growth in Europe of brown algae (Phaeophyceae), a good source of alginic acid and other substances suitable for cattle feed. The institute will make tests of samples from different localities along the Norwegian coast to ascertain how much is available and the most economical means of harvesting it. Its director believes that the best growths are located along the coast of Finnmark, northern Norway, and that several new seaweed plants will probably be located in that area in the near future.

Much of the future development, however, hinges on markets as well as supply, and these in turn are greatly affected by developments of seaweed industries in other countries, and discoveries of new uses for seaweed products. Previously the utilization of brown algae seaweed was limited to extracting iodine and potash. Today modern seaweed industry extracts certain organic substances, such as alginic acid, mannitol, laminarin and fucoidine, as well.

There is a plant in Norway established in Drammen during World War II, which concentrates on alginic acid production. This firm produces only about 100 metric tons a year, but hopes in a year or two to increase production fivefold. Alginic acid and its salts are today widely used in production of textiles, plastics, cosmetics, films, ice cream, jam, paint, and other products. The firm, however, limits its production to the acid. It exports some to Sweden and Denmark. Reportedly the company obtains a c.i.f. price in the other Scandinavian countries of approximately \$1.60 a pound as compared with only 64 cents a pound received for British-manufactured alginic acid.

The other producer of seaweed products in Norway has for 12 years been manufacturing meal for cattle and horses in Kristiansund N. The firm sells its meal under the registered name of "Algit," and has a capacity of 3,000 metric tons of "Algit" yearly. The meal is made from a type of brown algae known as "Bladder-Wrack," which is cut from the roots of the seaweed Ascophyllum nodosum. It is dried in the sun and stored in the factory. The excess salt is then removed and its sugar content is caramelized in order to eliminate the sea smell which cattle and horses dislike. The company claims that this meal prevents or cures most of the common mineral deficiency diseases in cows, sheep, horses, pigs, poultry, and foxes and states that it has a food value not far from that of oats. It is stated that better milk, eggs, meat and fur can be produced on a feed allotment of 2 to 3 grams per living kilo weight (2.2 pounds) to the stock per day. According to the company, analyses show that the meal contains 58.6 percent carbohydrates, and these in turn contain 23.7 percent alginic acid, 9.3 percent lamina, 8.3 percent sugar, 7.3 percent fucus as well as other chemicals such as nitrate, chlorine, sulphur, calcium, potash, sodium and traces of zinc, copper and nickel.

Packed in paper bags of 110 pounds each, the domestic market price is quoted at \$34.35 per metric ton f.o.b., and the c.i.f. price, East or Gulf coast, U. S. A., is quoted at \$69.30 per metric ton, provided 300 metric tons or more are ordered. For smaller quantities the price is \$79.85 per ton. The firm is very much interested in entering the U. S. market and has gotten in touch with prospective agents.

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HERRING FACTORY SHIP: Conversion of the 354-foot English landing craft, which will be Norway's first specially-built floating herring reduction plant, is well underway, according to Fiskaren of November 10. The vessel, with a speed of 16 miles per hour, was taken over equipped with 5200 hp. engines. Of course, this speed is not needed for its new work.

The engines, bridge, and accommodations for officers, crew, workers, superintendent, and chemists, will be located aft. Staterooms will accommodate from 2 to 6 men each.

Reduction machinery, of Norwegian make, will be installed forward so that it can readily be added to, if necessary. Since there are yet many unsolved problems in the complete utilization of herring, it has been difficult to decide upon the reduction method to be used.

There is space on board for 1800 metric tons of herring, tank space for 3,000 metric tons of herring oil and fuel oil, and storage for about 1,000 metric tons of herring meal. Four unloading booms will be carried forward and four aft. There will be four bins for holding fresh herring with conveyors to the reduction equipment. Consideration has been given to elevators and pumps for unloading, but hoists will be used in the beginning.

If delivery of the needed foreign equipment is received on schedule, the factory ship should be ready to operate in February 1950. It will be stationed at Smørhavn in Bremanger as long as raw material is available.

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ICELANDIC HERRING FISHERIES: A total of 261 Norwegian vessels participated in the Icelandic herring fisheries in 1949, approximately the same as last year. Total catch is reported at 223,700 barrels (approximately 27,900 metric tons), according to a November 29 report from the American Embassy at Oslo.

GREENLAND FISHERIES: Norwegian vessels operating off Greenland yielded 6,000 metric tons of cod and 300 tons of fresh and frozen halibut during the 1949 season. All the cod has been made into klipfish for which demand is strong. It is planned next season to use 50 vessels in this expedition instead of the 30 used this year.



KLIPFISH STACKED DURING CLOUDY WEATHER, BUT LATER WILL BE LAID OUT FOR SUN DRYING.

KLIPFISH: The Klipfish Exporters Association has reported sales during the 1948-49 season of 750 metric tons to the United States; 450 tons to Trieste; 423 tons to Belgium; 681 tons to Switzerland; 500 tons to Holland; 1500 tons to Sweden; 180 tons to Finland; about 1900 tons to Africa; and about 100 tons to other markets.

The current season's production is scheduled to be delivered as follows: Italy, 2,800 metric tons; Belgium, 350 tons; Holland, 450 tons; United States, 500 tons; Switzerland, 200 tons; Trieste, 350 tons; France, 75 tons; West Africa, 475 tons; and the domestic market, 300 tons.

LARGEST HERRING MEAL FACTORY BEING CONSTRUCTED: Progress has been made on the construction of the largest herring oil and meal factory in Europe at Moltu.

The first section of the factory is scheduled to be completed in time for the herring season and will have a capacity at the end of the first year of 4,500 hectoliters (approximately 405 metric tons) per 24-hour day. A second section of the factory, for which all equipment has been contracted, is expected to be completed late in 1950 and will double this capacity.

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NYLON LINES AND HERRING TRAWL TESTED: A herring nylon trawl gave catches four to five times as large as a comparable cotton trawl, according to Fiskets Gang in a report on tests made by Norwegian fishermen. The trawls were identical in construction and used alternately in the same area. Despite the smaller thread, the nylon trawl had a high breaking strength and was otherwise easy to handle.

Tests with nylon lines were made in Lofoten in 1948 but detailed results are not available. Comments were to the effect that they were strong, elastic, supple, and fished well, but splices were apt to fail and they were very slippery when hauling in, especially if there was weight on the line. Some fishermen said nylon lines tangled easily, but one said it fished twice as well as other lines.

However, it was feared nylon would be costly because of the gear losses experienced by the present fishing methods.

A test of one nylon forerunner in small-whale fishing resulted in 16 whales being taken on one trip. It was reported to be very strong, easy to work, never broke, and withstood wear and tear as well as the usual forerunner.

TESTS ON BRINE- AND DRY-FROZEN BAIT HERRING: Practically all of the bait herring frozen in Norway is chilled-brine frozen--the brine is in direct contact with the herring during freezing, according to a report of the Norwegian Fishery Directorate's Chemical-Technical Research Institute published in Fiskets Gang. However, fishermen having access to dry-frozen bait herring have claimed it fishes better.

Tests made in 1946 and later with air-frozen herring and brine-frozen herring demonstrated that, on the average, air-frozen herring gave better catches despite the fact that it hardly was frozen as carefully as the brine-frozen type.

Tests in early 1949 with brine-frozen herring and a special pack of dry-frozen herring were too few to be conclusive, but resulted in a 68.5 percent greater catch with the use of the latter. There are strong indications that line catches could be increased considerably by using well prepared dry-frozen herring in place of brine-frozen herring, especially when the bait must be stored for some time before using.

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PLANS FLOATING FISH OIL FACTORIES:^{1/} Based on the precedent set by open-sea whaling, where the catch is processed aboard huge factory ships, Norwegian fisheries experts are planning floating herring oil factories which can set up operations wherever the fish are found, states a November 19 report from the Norwegian Information Service.

^{1/}See also Commercial Fisheries Review, June 1949, page 46.

Already an experimental vessel is being fitted out as a floating oil factory, and will be tested on the herring banks this winter. If rich herring schools were to appear in new fishing areas, as a number of specialists contend, the catch could be processed with a minimum of transport problems. This first plant, however, will be used primarily for testing new reduction machinery.

Serious consideration was given this subject at a recent meeting in Tonsberg of the Association of Norwegian Whaling Companies in view of a possible employment slump in the Norwegian whaling industry. Only slight modification would be required, it was pointed out, to fit present whaling factory ships for fish oil processing.



Pakistan

FISHERIES TO BE DEVELOPED: Following a recent visit by the head of the Danish Fisheries Biological Research Institute, Pakistan intends to develop its fisheries to yield five times the present catch, according to the November 26 issue of the British periodical, The Fishing News. This contemplated production will meet all internal needs and produce a surplus for export. An investigation of the possibilities of byproducts and shark liver oil industries also will be made.

A tentative scheme for the development of the Pakistan fisheries has been drafted and inquiries have been made in Australia as to possibility of obtaining boats, and equipment for fishing harbors. (See Commercial Fisheries Review, November 1949, page 57.)



Ryukyu Islands

STUDY OF FISH PRODUCTION IN RELATION TO FOOD REQUIREMENTS: In determining food requirements and production in the Ryukyus and to study fish production in relation to food requirements, a representative of Natural Resources Section visited the Ryukyu Islands to assist a United States Food Mission, states a November 5 Weekly Summary from SCAP.

Present basic ration requirement of the Ryukyuan people is 25.3 pounds of fish per capita a year. An estimated 45 pounds of fish per capita were consumed each year in 1935-37. On the basis of population and fish production in 1949, the yearly consumption of fish per capita probably amounts to 28.5 pounds, although this average does not apply uniformly for each of the three main regions of population, Okinawa, northern Ryukyus, and southern Ryukyus. The southern Ryukyus, because of its relatively large catch in proportion to its population, undoubtedly consumed more fish per capita than the northern Ryukyus and much more than Okinawa.

Fish production can be increased by 1951 to meet a requirement of 40 pounds per capita and to provide a small surplus of at least 1,000,000 pounds. Attainment of this production, however, will depend on procurement and distribution of fishing materials to meet seasonal requirements and the construction of new fishing boats to replace obsolete craft.

St. Pierre—Miquelon

PLANS TO STORE AND FILLET FRENCH TRAWLERS' FISH: St. Pierre and Miquelon may now have developed a plan in which they have been interested for years, according to an item in the September 16 issue of a French publication Le Marin reported in Fisket Gang.

A freezer, built to utilize the fish on the Newfoundland banks, was completed on St. Pierre in 1920 but operated thereafter with little success. With the new French trawlers now in operation and with the French more accustomed to frozen fish, an opportunity may now be present to utilize St. Pierre's strategic importance.

The situation has been under study by the French Government, especially the Minister for Overseas Possessions. In discussions with the vessel owners' association it has been proposed that French trawlers deliver regularly to the St. Pierre freezer. About six trawlers fishing for fresh fish would deliver two-thirds of the catch to the freezer and one-third to France. In this way the freezer would secure 1,200 metric tons of fish per month. Almost all of the tonnage would be filleted, producing 20 metric tons daily. A cargo vessel would transport the frozen fillets monthly to France.



Spain

FISH MEAL INDUSTRY: In spite of the availability of raw materials, the industrial processing of fish waste in Spain was not attempted until about 1935, when the manufacture of fish meal was undertaken by one of the largest fish packers in Vigo, states a November 16 report from the American Consulate in that city.

Until the opening of the plant, fish residue was disposed of in bulk for use as fertilizer or dumped into the sea.

At present the firm has two fish-meal-producing plants and is equipped for a daily production of 17,600 pounds; however, due to shortages of fish, production had been kept at less than 10 percent of capacity for the past two or three years.

While sardines constitute the bulk of the raw material used in the manufacture of the meal, the product cannot be properly labelled as "sardine meal" since other varieties are also used in the manufacture of the product, especially "jurel."

Two classes of fish meal are at present being manufactured by this firm, i.e., for animal feed and for use as agricultural fertilizer.

In the production of animal feed only fresh fish in the very best condition is being used, since the firm takes pains to guarantee a minimum of 63-percent protein. Price for first quality fish meal is quoted today at 4.00 pesetas per kilo (approximately \$360 per metric ton) (in bags of 50 and 100 kilos), and 3.40 pesetas (approximately \$306 per metric ton) for the second grade.

While the stepping up of production will of course depend on the availability of raw material, local manufacturers do not foresee any possibility of exporting the product in the next few years since production is below domestic demands.

Sweden

PRODUCTION OF FISHERY PRODUCTS, 1948: In 1948, the production of fresh and salt-water fishery products amounted to 215,000 metric tons, considerably above the normal production of about 160,000 tons per year of salt-water and 15,000 tons of fresh-water fish, states a November 26 American Consular report from Stockholm.

1948-49		1947-48		Average 1938-49	
Imports	Exports	Imports	Exports	Imports	Exports
..... (In Thousands of Metric Tons)					
26.2	36.3	20.5	39.5	42.8	27.0

Imports of fresh and salted fish in 1948-49 (fiscal year ending August 31) amounted to 26,200 tons, while exports reached 36,300 tons. Direct landings in foreign ports reached 16,000 tons during the year. If these latter landings are included, Sweden had an export surplus of 26,000 tons in 1948-49.



Union of South Africa

FISHERIES OUTLOOK, 1949-50: The Union of South Africa's food supply position for 1949-50 is expected to be maintained satisfactorily, states an October 25 report from the American Embassy at Pretoria. Supplies of fishery products are plentiful and there is an exportable surplus of canned fish and crayfish.

The increase in canned fish production during the last year is phenomenal and represents another important development in the postwar period. Canned pilchards production is increasing significantly. Exportable surpluses of canned fish are expected to mount during the next few years.

Product	Unit	Production 1948-49 ¹	Export Surplus ¹
Fish:			
Fresh	Pounds	86,000,000	-
Canned	"	23,000,000	15,000,000
Spiny lobsters (fresh or frozen, tails & canned)	"	7,000,000	6,000,000
Fish body oils	Short tons	6,000	2,000
¹ /Estimated.			

Fishery products form an integral part of the average South African consumer's diet. The marketing of fishery products to every consuming center in the Union, including small interior villages, is so well organized that fish can be obtained freely and at almost any time. Fish is a standard first course for all meals at hotels and restaurants and in most homes.

Fish body oil production is expected to increase. Processors are examining the possibilities of markets in the United States for exportable surpluses. The United Kingdom has been a market for surpluses but it appears that prices may be better in the United States.



United Kingdom

SCOTLAND PLANS FISH EXPORTS TO U. S.: Leading fish firms in Aberdeen are interested in developing an export market in the United States, according to a November 22 American consular report from Edinburgh. Many years ago there was a considerable export business with the United States, but this trade gradually died out until exports at the present time, consisting mostly of frozen fish and canned fish, approximate only about £10,000 (approximately \$28,000) per month. There would appear to be no reason why this volume should not be increased at least fivefold because of devaluation and an expansion of the canning and curing industry.

Aberdeen is prepared to export not only frozen herring and haddock, but also frozen sole. It also has available for export kippered herring, canned herring in tomato sauce, and canned soured herring.



Yugoslavia

NEW FISH AND SHELLFISH CANNERY: Yugoslavia's largest and most modern fish canning factory is under construction near Zadar and is to be completed by spring 1950, according to an August 31 newspaper account reported in an American consular report from Belgrade.

The factory, which will increase fish canning in Dalmatia by 60 percent, will not only can fish but will also utilize fish waste for the manufacture of livestock feeds. Products to be canned will include sardines, mackerel, tuna (packed in oil), and oysters.

Oysters come from artificial oyster beds at Novigrad, where 20 carloads are produced annually. Up to the present, oysters have been intended for local consumption on the Dalmatian Coast. But although the oyster industry on this coast represents only a minor aspect of the fishing industry, the new factory may make possible the export of canned oysters or their consumption in the interior of the country. In addition to projects for expanding the oyster beds, experiments are being carried on in the processing of salt-water fish and the production of fish paste.

Almost more than half completed, the factory will also contain a modern salting room capable of handling 792,000 pounds of salted fish. Mechanization of production is expected to result in a 40 percent reduction in production costs and a 25 percent reduction in manpower.

