



Argentine Republic

CANNED FISH IMPORTS DECLINE: The marked decline in Argentine imports of canned fish is caused, to a considerable extent, by the increasing domestic production. This is a logical sequence resulting from the present import restrictions and falling value of the peso, which greatly increase the price to the consumer, according to a recent report in the Canadian publication, Foreign Trade, of November 6.

Canned Sardines: Sardines are undoubtedly the most important canned fish imported. There is a good demand for such fish and, since it is not produced locally, it must be imported from abroad either fresh, salted, or canned. The bulk of the sardines imported are packed in olive oil, although there are also certain quantities imported in tomato sauce. Most of the imports from the United States are pilchards packed in tomato sauce in oval tins of 15 ounces (425 grams). Spanish sardines are supplied in tins of various sizes from 4.6 ounces (130 grams) up to 2.2 pounds (1 kilogram). Smoked sardines are not popular, although they are supplied from Norway in small quantities.

Argentine Imports of Fishery Products

| Year | Canned Sardines in Oil or Sauce | | Canned Oysters | | Other Canned Fish & Shellfish | |
|------------|------------------------------------|---------------|-------------------|----------------|----------------------------------|---------------|
| | From U.S. lbs. | Total lbs. | From U.S. lbs. | Total/ lbs. | From U.S. lbs. | Total lbs. |
| 1947 | - | - | - | 308,167 | - | - |
| 1946 | - | 15,954 | - | 60,346 | - | - |
| 1945 | - | 373,241 | - | 17,079 | - | - |
| 1939 | 320,852 | 3,329,126 | 45,285 | 245,126 | - | 455,440 |
| 1938 | 251,139 | 5,419,603 | 39,435 | 980,839 | - | 519,891 |
| 1937 | 130,929 | 6,501,590 | 55,700 | 1,064,965 | - | 613,512 |

1/Includes mussels, winkles, and similar shellfish.

Canned Oysters: Import data on canned oysters include mussels, winkles, and similar shellfish. These are consumed in large quantities in most restaurants, where they are served as an oyster cocktail. They are shipped mostly in tins of 14 ounces (400 grams) or of 2.2 pounds, whereas, the canned oysters from the United States are mostly shipped in 6-ounce tins. Although they have a limited outlet owing to the high price, oysters are well liked. Other suppliers of canned oysters were Portugal, the United Kingdom, and Chile.

Other Canned Fish and Shellfish: As with other fish imports, purchases of sardines were practically nil during the war. Other suppliers were Sweden, France, Japan, and Belgium. During the three postwar years, 1945, 1946, and 1947, imports came exclusively from Brazil and Chile. On April 30, 1947, the Argentine Central Bank suspended the granting of import permits for sardines packed in oil or sauce.

The principal imports of other canned fish during the period 1937-39 were squid in oil and in its natural state, tunny fish in oil, and anchovies from Spain

and Portugal; squid and tunny from Italy; crab and crawfish from Japan. In addition, a few cases of canned salmon were supplied by the United Kingdom and by Russia, but this trade was insignificant. A wide variety of other canned fish is shipped, generally in olive oil, from Spain, Portugal, and Italy. Included in this group are clams, herring, bonito, and a few others. However, compared with canned squid and tunny, the trade in these fish is unimportant.

Possibilities for Canned Fish Limited: Even if the exchange regulations are removed, there would seem to be little hope of greatly increasing normal imports of canned fish into Argentina. In addition, the large proportion of the population of Italian and Spanish descent forms a more natural outlet for the canned fish produced in those countries. Insofar as Argentina is concerned, food and, particularly, fish, is not an essential item of import.



Australia

STATE OF VICTORIA TO IMPROVE FISH MARKETING FACILITIES: The Government of the State of Victoria in Australia is considering plans for the erection of freezing depots at each of the eight main fishing ports, as well as the provision of adequate storage facilities both at these ports and in the metropolitan area, according to the Canadian periodical, Foreign Trade, of November 20, 1948. This will enable stocks to be built up during the summer months when the catch is high, to provide for a controlled release during the winter months when few fish are taken.

The scheme envisages later the introduction of modern hygienic packing and more efficient distribution to inland areas. It is confidently felt that, when the plan has been implemented, retail fish prices will be materially reduced and greater quantities of fish will be sold.



Bizone Germany

GERMAN FISHING VESSELS: The German shipbuilding industry, which had begun a modest recovery prior to the currency reform on June 20, 1948, lost many of its outstanding contracts as a result of cancellations by would-be purchasers, as well as from a lack of funds to finance construction, according to a November 4 report from the American Consulate at Hamburg. Under an Allied Control Council agreement, 100 fishing trawlers were to have been constructed in German yards.

Definite approval was given for the construction, or completion (some of the vessels were already nearing completion), of a first series of 34 vessels according to the specifications for the Seebeck-Werft type:

| | | | |
|--------------|------------|-------------------------|----------------|
| Length | 140 feet | Capacity of holds | 3,200 baskets |
| Draft | 13.5 feet | | (about 350,000 |
| Motor | 600 hp. | | pounds) |
| Speed | 10.5 knots | Size of the vessel | 400 gross tons |

The size and allocation of the additional 66 trawlers to be constructed have not yet been determined.

There are 51 fishing vessels, each in excess of 400 gross-registered tons, now being used by German fishing concerns. Of the 51 vessels, 27 are owned by German fishing companies and 24 are vessels being operated for the German economy by German fishing companies, although title to the 24 vessels is retained by the United States (to 14 vessels) and by the United Kingdom (to 10 vessels), in accordance with allocations made by the Tripartite Naval Commission.

The final disposition of the 51 fishing vessels in excess of 400 gross-registered tons each, as well as the disposition of the additional six vessels which may be completed, has not yet been determined. Presumably, all these vessels would be withdrawn from service when their total tonnage could be replaced by the construction of new 400 and 350 gross-registered-ton trawlers.



Chile

NEW SOURCE OF VITAMIN OIL: The Ministry of Economy and Commerce has announced that an organization has been formed to produce vitamin oils from dogfish caught off the Chilean coast between the bays of Tolten and San Pedro (roughly latitudes 39° to 41°), according to a November 3 report from the American Embassy at Santiago, Chile. The extracting plant will be located at Valdivia and the oil (a large part of which is to be for export to Argentina) will be refined by a semi-government organization long engaged in similar enterprises.



Colony of Mauritius

FISHERIES REVIEW, 1947:^{1/} Production: The total catch recorded in 1947 at all controlled stations from which catch records are collected amounted to 3,207,693 pounds compared to 3,364,402 pounds in 1946, according to a September 17 report from the American Consulate at Mombasa, Kenya Protectorate.

Table 1 - Controlled Catch

| | 1947 | 1946 |
|---------------------|-----------|-----------|
| | Pounds | Pounds |
| Nets | 892,910 | 884,875 |
| Basket traps | 1,195,865 | 1,326,888 |
| Lines | 350,882 | 343,763 |
| Octopi | 711,682 | 674,621 |
| Lobsters | 50,398 | 76,419 |
| Sharks | - | 57,836 |
| Miscellaneous | 5,956 | - |
| Total | 3,207,693 | 3,364,402 |

Conditions Affecting the Fishermen: The total quantity of fish landed by the professional fishermen in 1947 amounted to:

| | |
|--|-----------|
| | Pounds |
| Controlled catch | 3,207,693 |
| Uncontrolled catch - Estimated | 440,920 |
| Retained by the fishermen for their own consumption - Estimated | 440,920 |
| Total | 4,089,533 |

^{1/}See Commercial Fisheries Review, March 1948, page 36.

The average catch was about 2,000 pounds per man, which represents an earning of \$259 to \$305 per annum. The equipment used is very inadequate at present.

Maximum production has nearly been reached (4.4 million pounds) and intensification of deep sea fishing by present methods and equipment cannot be expected to bring in more than 441,000 to 661,000 pounds more every year.

Fish Available for Consumption: There is no doubt that much more fish could be absorbed if fish were cheap and the consumer used to a larger ration.

A comparative table of quantities available in 1947 and prewar follows:

Table 2 - Fish Available for Consumption

| | 1947 | 1936-38 Average |
|---|-----------|-----------------|
| | Pounds | Pounds |
| Fresh fish, production (edible portion) ^{1/} | 2,420,000 | 1,817,200 |
| Canned fish, imports | 187,000 | 809,600 |
| Salted fish, imports (edible portion) ^{2/} | 2,613,600 | 2,301,200 |
| Total available for consumption | 5,220,600 | 4,928,000 |

^{1/}55% of total catch equals edible portion.

^{2/}Double the actual quantity of actual imports equals edible portion.

Sharks: A large number of sharks were examined during the year by the Fisheries Branch of Mauritius and the following were recognized:

Seven species of Eulamia, by far the most common being Eulamia leucas (Bull shark).

Galeocerdo arcticus (Tiger shark).

Negaprion brevirostris (Lemon shark).

Mistelus canis (Dogfish).

Squalus sp.

Sphyrna tudes (Hammerhead).

Sphyrna zygoena (Hammerhead).

Fishing experiments for sharks with nets and with baited hooks have been carried out during the year.

A few sharks were taken among which was a 14½-foot Eulamia. Its liver yielded four gallons of oil.



Iceland

LATEST DEVELOPMENTS IN THE FISHERIES: Expansion of Fisheries: The Althing, the Icelandic legislative assembly, which convened on October 11, discussed the Marshall Plan signed on July 3 by Iceland, according to a November 16 report from the American Legation at Reykjavik. Iceland's four-year plan, submitted to ECA, was subjected to close scrutiny. Iceland anticipates financial aid through ECA to construct the following several major projects which include, among other items, herring liquefaction plants, a fertilizer plant, several fish meal factories, and several refrigerating plants. In addition, Iceland will endeavor under this plan to expand her merchant and fishing fleets and other major activities. The plan calls for an estimated increase of fish production by 34 percent; from 552,000 metric tons (1947) to 738,000 metric tons (1952).

Floating Fish Processing Factory: The floating fish processing factory, purchased under the 2.3 million-dollar ECA loan to Iceland, arrived on October 16

in Reykjavik. The vessel, Haeringer (6,900 tons d.w.), is undergoing reconditioning and will probably be utilized this winter for processing herring on the fishing grounds. If the undertaking is successful, similar vessels of this type may replace the construction of expensive herring factories. Preparations are being made for the opening of the herring season due to begin in November. Last year's catches of winter herring were unprecedented in the history of Iceland's winter herring fisheries.

Whaling: The whaling season, which commenced on May 1, came to a close on October 11 with a total catch of 239 whales.

Frozen Fish Fillets for Europe: An ECA conditional aid grant of \$3,500,000 will make available to European countries participating in the ERP, about 8,000 metric tons of Icelandic frozen fish fillets.



Japan

CALIFORNIA-TYPE PURSE SEINER SUCCESSFUL: A Japanese firm reported the successful results of an experiment with the Shirayuki Maru, the first California-type purse seiner, according to a report from the Natural Resources Section of SCAP. On August 3, 1948, the first day of operations, 65 miles southeast of Todogasaki, Miyagi Prefecture, 70 metric tons of bonito were caught in two hauls. The Shirayuki Maru is a new 100-ton, 250 hp. purse seine boat.

EXPERIMENTAL REFRIGERATED TUNA SHIP: A Japanese refrigerated tuna fishing vessel, Banshu Maru, returned to Tokyo after a month of tuna fishing with a fleet of three catcher boats, according to the September 11 Weekly Summary of SCAP. This project was an experiment to determine whether the refrigerated mothership method is practical for maintaining a high-quality product for export and, at the same time, financially profitable under existing fishing conditions.

The Banshu Maru brought in 138 tons of products, including 23 tons of albacore, 11 tons of bluefin tuna, and 41 tons of swordfish. The albacore was frozen in the round form, and the bluefin and swordfish were filleted and frozen. The bulk of the product is expected to be canned, although a portion of the albacore may be exported. The landed cargo represented 90 percent of an estimated production over an allotted time. Although a high-quality product resulted from quick refrigeration at sea, operational difficulties were encountered, especially in transferring the catches from the catcher boat to the refrigeration ship under adverse sea and weather conditions. In addition, the cost of this initial voyage is not expected to be covered by the sale of the products. The experiment will serve as the basis for planning future projects of this type.

BONITO FISHERMEN TO CONVERT TO PURSE SEINING: Several Japanese bonito fishermen want to convert to the American method of purse seining, according to the November 6 Weekly Summary of SCAP. This method of operation may increase production of present boats, especially when the boats are working schools of fish which refuse to take the hook. Because some question exists as to whether the American method of purse seining for bonito will be successful in Japanese waters, the Japanese Fisheries Agency will approve only a few of the 20 applications to convert.

BONITO CATCH - 1948: The Japanese Bonito and Tuna Association estimated the bonito catch in 1948 at 64 million pounds, compared to an average of 224 million pounds in 1936-38 and 144 million pounds in 1947. The number of boats averaged 674 in 1948, 560 in 1947, and 580 in 1936-38. Gross tonnage of these fleets increased from 33,000 tons in 1936-38 to 49,000 tons in 1947, and 59,000 tons in 1948. The amount of catch per ton of fishing boats decreased from 6,800 pounds of fish in 1938 to 3,200 pounds in 1947 and 1,200 pounds in 1948.

The decrease in catch in 1947 and especially in 1948 may be due principally to changes in coastal currents affecting the availability of the schools, and a reluctance of the fish to take the hook. Because of the poor bonito season, most of the bonito fishing boats plan to engage also in tuna fisheries, particularly during the winter when considerable emphasis is placed on offshore fishing for tuna.

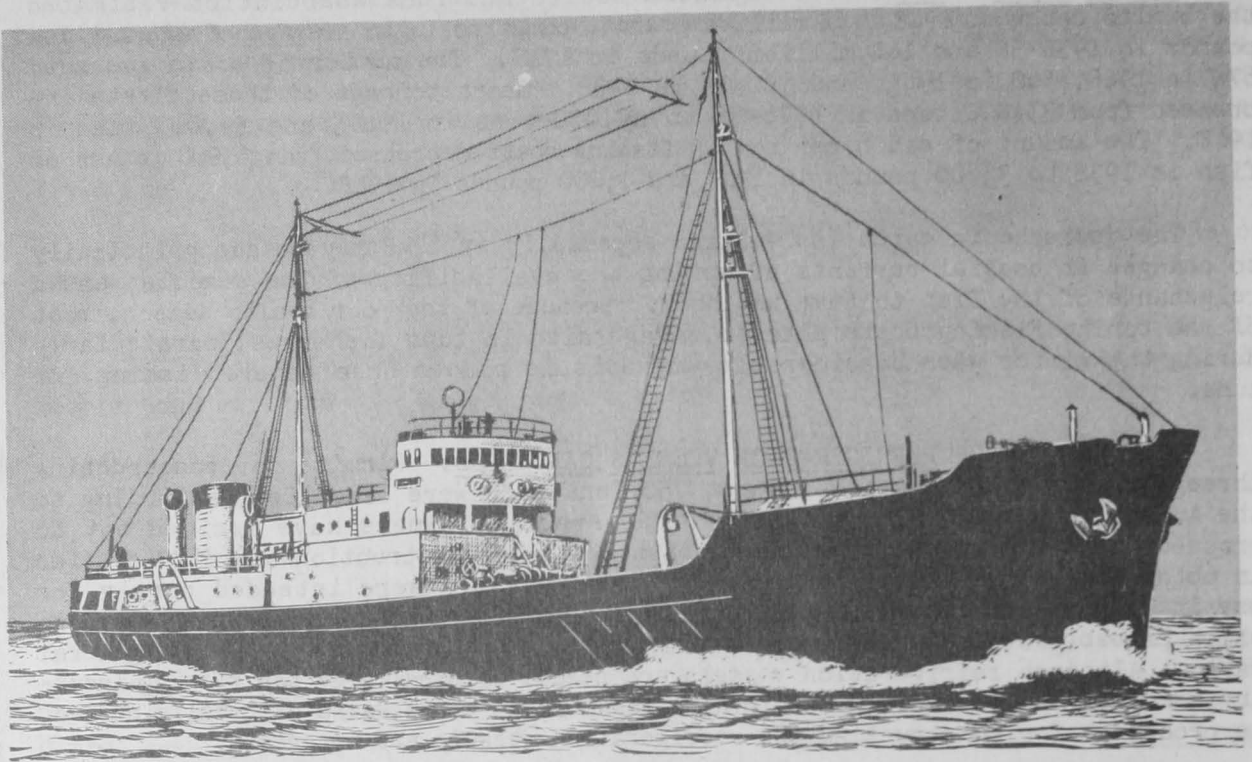
CONSTRUCTION OF REFRIGERATION VESSELS CANCELLED: Permits for constructing three refrigeration vessels of about 750 tons each were cancelled, according to the August 28 Weekly Summary of SCAP. Prospective owners have decided not to proceed with the building because of high costs of construction and difficulties in obtaining refrigerating machinery. These vessels were intended partly for use in transporting fish. Instead of the three refrigeration vessels, three cargo ships probably will be built for use in carrying both processed fish and general cargo. Although refrigeration vessels are needed critically by the fishing industry, it appeared advisable to obtain additional cargo ships, also critically needed, as prospects for constructing the refrigeration vessels are uncertain.

CONVERSION OF FOUR SHIPS TO FISHERY VESSELS: Two applications for the conversion of four vessels were approved, according to the October 2 Weekly Summary of SCAP. The first application requested permission to convert two 99-gross-ton steel tuna boats into trawlers and to remodel a Japanese ex-naval vessel into a fisheries school ship. The second application requested permission to remodel a Japanese ex-naval craft into a refrigerator vessel for use in transporting fish and seafood products. The above conversions will not increase the over-all size of the Japanese fishing fleet above the level previously approved by the Supreme Commander for the Allied Powers.

FISHING IN MEXICAN AND ARGENTINE WATERS: Japanese fishing in Mexican and Argentine waters before World War II was done only by members of one Japanese company, according to the August 21 Weekly Summary of SCAP.

Operations in Mexican Waters: In 1935, boats were sent to the waters off the west coast of Mexico and into the Gulf of California on an exploratory and experimental cruise. No appreciable quantity of fish was taken. Commercial operations began in 1937 when two large diesel-powered trawlers were sent to these waters from Japan. During 1938 and 1939, five and nine small trawlers, respectively, were sent to the same area, in addition to the two large boats. These boats, all diesel powered, which weighed from 80 to 100 tons, fished with small otter trawls. Nine of the small trawlers fished also in 1940, the last year of operations, and the number of large trawlers was increased to four.

The four large trawlers, owned and equipped by a Japanese company, were based in Tobata, and the bases of operation in Mexico were Mazatlan and Guaymas. All funds and equipment came from Japanese sources, and the boats returned to Japan each year for repairs. The smaller Danish-type trawlers were repaired in Mexico.



TYPE OF LARGE JAPANESE DIESEL TRAWLER WHICH OPERATED IN MEXICAN WATERS

In 1936, all the crew members were Japanese. From 1937-40, the Mexican Government required that about 50 percent of the crew be Mexicans and that it include a Mexican inspector who was to acquaint himself with the fishing operations.

About one-half the catch of shrimp and all other fish caught were sold in Mexico and sent to markets in southern California. The remaining shrimp were frozen and shipped aboard Japanese merchant ships to Japan, via Los Angeles. Small quantities of shrimp were bought by the Japanese from the fishing association at Topolobampo, Mexico.

Wages of the crews and shore help (all Mexican) were paid with money received from local sales of the fish and shrimp. Purchases of fuel oil at Los Angeles also were made with these funds.

Operations in Argentine Waters: Operations in Argentine waters were conducted by a corporation formed by a Japanese company and by private Argentine financial interests. The Japanese contributed boats, gear, and crews, and the Argentinians furnished money for operating expenses.

Fishing began in Argentine waters in 1936, using two large trawlers with crews and gear from Japan. About five Argentinians worked as crew members during 1936, and an Argentine co-captain was assigned on each boat. The ownership of the boats was transferred to the Argentine company, and their registry was changed to Argentina. The original gear had come with the boats, but replacements were obtained in Argentina. The two large diesel trawlers from Japan were the only boats used in this fishery.

In 1937, the Argentine Government ruled that 25 percent of the crew should be Argentinian, and in 1940, this figure was increased to 60 percent. The remainder of

the crew was Japanese. By 1940, nine of the 23 Japanese fishermen had been hired from among Japanese residing in Argentina.

All catches of these boats were sold in Argentina.

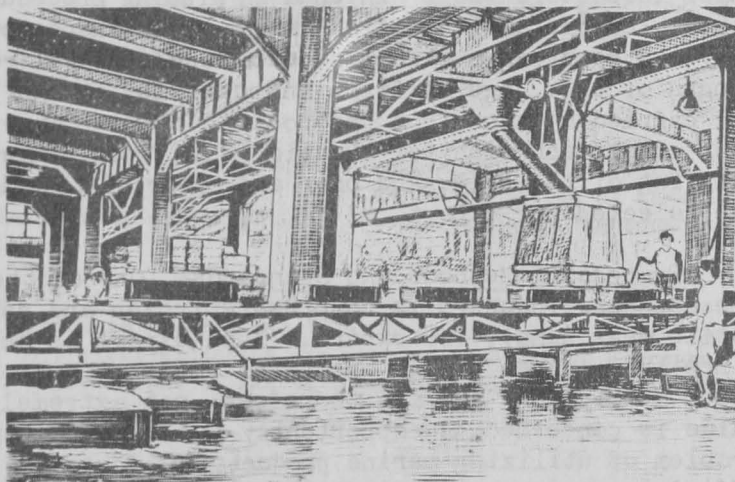
INSTITUTIONS THAT PUBLISH FISHERIES RESEARCH MATERIAL: The institutions listed below publish material that is important to fisheries research in Japan, according to the October 16 Weekly Summary of SCAP. Summaries or larger parts of each publication are in English, so the studies are suitable for publication exchange with fisheries research agencies in other countries.

| <u>Name</u> | <u>Address</u> |
|--|--|
| Hakodate Fisheries College | Kameta, Hakodate, Hokkaido |
| Hokkaido Fisheries Experimental Sta. | Yoichi, Hokkaido |
| Fisheries Institute, Faculty of Agriculture, Hokkaido University | Sapporo, Hokkaido |
| Fisheries Institute, Faculty of Agriculture, Tohoku University | Katahiracho, Sendai City |
| Fisheries Institute, Faculty of Agriculture, Tokyo University | Hongo, Bunkyo-ku, Tokyo |
| Fisheries Experimental Station of Fisheries Agency | Tsukishima, Kyobashi, Chuo-ku, Tokyo |
| First Fisheries Institute (Tokyo Fisheries College) | Kurihama, Kanagawa Prefecture |
| Science Institute for Natural Resources | Hyakunin-cho, Okubo, Yodobashi-ku, Tokyo |
| Fisheries Institute, Faculty of Agriculture, Kyoto University | Maizuru, Kyoto Prefecture |
| Fisheries Institute, Faculty of Agriculture, Kyushu University | Hakozaki-cho, Fukuoka City, Fukuoka Prefecture |

PROCESSING METHODS AND INSPECTION STANDARDS OF FISHERY PRODUCTS SURVEYED:

An attempt is being made to improve processing methods and inspections standards in the Japanese fishing industry so that a maximum percentage of quality fish will be available for export.

A special technical adviser from the United States surveyed processing methods and inspection standards of fishery products in Japan, according to the September 11 Weekly Summary of SCAP. Albacore intended for export is received and processed at 11 major ports in Japan and 10 of these ports were visited.



PACKING FISH IN ICE IN A JAPANESE PLANT

Sanitation and Inspection Standards:

Sanitary conditions of the cold storage plants were in a passable condition, although a few exceptions were found. The storage compartments in some of the plants contained, in addition to export fish, large quantities of domestic fish products stored in wooden boxes. Frozen albacore appeared to be in an excellent state of preservation, perfectly glazed, and displayed no rejective defects. Storage and freezing temperatures were sufficient to preserve the fish properly. However, the exact

degree of freshness or decomposition of hard frozen fish is impossible to determine, and satisfactory examinations can be made only when the fish are thawed to a degree where the elasticity of the flesh can be tested and flesh odors are released.

Canning factories were inspected for sanitation and for methods and procedures of plant operations. With the exception of fly screening of windows and doors, proper cooling rooms for pre-cooked fish, and a system for rodent control, plant sanitation was satisfactory.

Preparation of albacore for canning displayed high-quality workmanship. Examination of the canned products showed the fish to be of excellent quality; the cans registered from two to ten inches of vacuum; had normal can and meat odors; good color; firm texture; and no honeycomb was noted. A sufficient amount of salt and good quality cottonseed oil was added.

Since Japanese fishermen believe that crushed ice melts faster than block ice, they continue to use the antiquated and unsatisfactory system of taking 300-pound blocks of ice to the fishing grounds and breaking them into chunks for storing the fish on the boat. Most Japanese fishing boats carrying albacore partially fill the hold with sea water and add chunks and blocks of ice as a brine refrigerant. Data recently procured disclosed that a maximum of 30 percent of all albacore landed was in passable condition for export.

Facilities for transporting frozen fish from receiving ports to shipping centers are inadequate.

All frozen and canned tuna intended for export to the United States is examined by Boeki Kodan, a part of the Boeki Cho (Foreign Trade Board), before the time of processing. At present, 29 inspectors are stationed in the ports where tuna intended for export are received. These inspectors are instructed and supervised by six chief inspectors who train them in grading procedures and quality-standard requirements. Before arrival of a fishing boat, inspectors are notified by radio so that they can be present when the boat docks. Data relating to the time of catch, length of trip, age of fish, and quantity of ice used are collected. The fish are carried by hand from the boat to the refrigeration plant. The inspectors then check each fish for elasticity of flesh, color of skin and eyes, cuts, splits, scuffing of the skin, and odor and color of the gills. Only fish free of defects are selected for export.

Processing Methods and Standards: One of the most pressing problems facing the Japanese industry is to prepare frozen and canned tuna, especially albacore (white meat tuna), for export. Tuna export is being resumed for the first time since 1939. Even though the total amount of exportable albacore may not exceed 1,000 metric tons and is, therefore, not extremely important insofar as size or value is concerned, the opportunity for export is important to the over-all Japanese problem of utilizing marine products. If fishermen, fish processors, transportation officials, and exporters establish a high standard both for operating technique and quality in export fish, the accomplishment may be used as an example of what can be done with existing facilities and may encourage progressive leaders of the fishing industry to take the lead in establishing higher-quality standards for fish intended for domestic use.

No technological improvement of consequence has been made in the Japanese fishing industry for many years.

The immediate problem facing the Japanese tuna fishing industry is to improve operating conditions to a point where they will be comparable to tested and proved methods used in other countries.

RECOMMENDATIONS FOR IMPROVEMENT OF FISHERY PRODUCTS PROCESSING METHODS: Based on the above study of the Japanese fish processing industry, recommendations were prepared to guide Natural Resources Section and military government personnel in assisting the fishing industry to improve processing methods, according to the September 18 Weekly Summary. Some of the recommendations can be made effective immediately. Others are included for reference and long-range planning. The recommendations are:

1. Canneries:

- a. Equipment used in preparing fish should be of non-corrosive metals. Stainless steel is especially good; galvanized iron or aluminum is satisfactory.
- b. Floors and equipment should be cleaned thoroughly, preferably with a good detergent, hot water, and steam, at the end of each day's operation. All rodent-harboring refuse should be eliminated.
- c. Windows and doors should be screened. Large fans blowing outwardly through open doorways are effective against the entrance of insects and also provide air circulation.
- d. Clean clothing, adequate head coverings, and sanitary wash rooms and toilet facilities are essential for all employees. Each employee should wash his hands with clean water and detergent upon entering and leaving the toilet room.
- e. Each retort should be equipped with an indicating mercury thermometer, recording thermometer, steam pressure gauge, steam and water spreader, and condensate valve. An adequate number of properly spaced vents should be installed on each retort. A daily production record should be kept, containing details such as packing date of product, its variety, container size, processing number, batch number, codes, number of containers in each batch, sterilization temperature, and duration of sterilizing process. Coding on can lids should be die embossed to show date of pack, plant name, and product and style of pack. This procedure is recommended especially for export processing.

2. Cold Storage Plants:

- a. Sanitation in freezing and storage rooms should be maintained. Duck boards should be used to permit proper air circulation. Fish should be tiered or racked so that air can circulate about them, and export fish should be stored in separate rooms.
- b. Precaution should be taken to insure that freezing coils in storage and freezing compartments do not leak, because ammonia gas is absorbed by fish. Defrosting of coils should be periodic to prevent excessive ice encrustation, which decreases maximum freezing efficiency. Circulation of air by fans is recommended for a faster decrease in temperature.

3. Boat Refrigeration:

- a. Modern ice crushing facilities are recommended for all docks and plants where boats are loaded with ice. By using the blower system for loading crushed ice, boats can carry 20 percent more ice. This system loads 50 tons of ice per hour.
- b. Boats using ice should be equipped with mechanical refrigeration to conserve ice and fuel oil and to permit 20- to 30-day trips with minimum spoilage.
- c. A recommended method of using ice with mechanical refrigeration: normally, one ton of crushed ice suffices for two tons of fish. The vessel is filled with ice by a blower with a long flexible hose leading into the holds. When stowing fish, the

bottom banks of refrigeration coils are turned off to permit water from the ice to drain into the bilge to be pumped overboard. The bilge must be pumped frequently, because seepage into storage holds thaws the bottom layers of fish. Over a bottom layer of ice six inches deep, fish are placed belly down in single layers, with at least four inches of ice between each layer. After storage, top coils only are turned on, thus allowing the ice to melt very slowly. Albacore, a delicate fish, must be stored very carefully. A partial filling of the hold at first will settle crushed ice about the fish and protect the bottom layers from crushing. After the filling, the ice will settle from melting. Ice should be added so that the top fish are entirely covered at all times.

d. The brine freezing system is the most practical for preserving tuna on vessels. The hold has six to ten tanks or wells of 8 to 30 tons capacity each, with air-tight hatch covers, water inlet and outlet, and refrigeration coils. These tanks are filled with sea water chilled to 30° F. and the fish are placed in them for 24 to 30 hours. After the fish are glazed, the tanks are drained and refilled with clean brine, pre-chilled to 10° F. Fish should be completely frozen within 72 hours. The tanks are again drained, and the hard frozen fish are kept at 18° to 20° F. by dry refrigeration. Vessels using this system can make 90 to 120-day trips and deliver catches in excellent condition.

4. Transportation:

a. High priorities should be established for moving fishery products from receiving ports to shipping centers, and only first-class equipment should be used. Hard frozen tuna for export should be transported in refrigerated vessels. Storage of the product on the refrigerated vessel until it is loaded on the transport ship would reduce handling and eliminate much spoilage.

U. S. SUPPLIES FISHING EQUIPMENT: The United States Government recently supplied fishing equipment and supplies amounting to more than \$15,000,000 to Japan so that production of aquatic products in the coming year can be maintained, according to SCAP. Although these materials are in Japan and are now being distributed in the form of nets, twine, and rope, small fishermen do not have funds to purchase them. It is the responsibility of the Japanese Government to take action to insure that these materials reach the fishermen and that the fishermen are adequately financed to purchase the materials.

VIOLATIONS OF AUTHORIZED FISHING AREA: A representative of Natural Resources Section of SCAP, addressing a meeting of the Tuna and Bonito Association in Tokyo, August 10, 1948, declared that many conditions in the fishing industry have improved in the last six months, according to the August 14 Weekly Summary of SCAP. These improvements include greater supplies of fishing materials, decreases in the black market, raising the status of the Japanese Bureau of Fisheries to Fisheries Agency, and recent increases in fish prices. However, in one major respect conditions had become worse. Violations of the authorized fishing areas had increased. At the association meeting six months ago, its members were urged to cooperate with the Government in controlling violations. Natural Resources Section representatives emphasized that increasing violations are adversely affecting the fishing industry in various ways. Because of the seriousness of the situation, the Japanese Fisheries Agency was instructed to take immediate action in developing a more adequate program for obtaining compliance with SCAPIN 1033, which defined the Japanese fishing area.

According to the October 9 Weekly Summary, a delegation from the Trawler Association of Japan reported on the success of their efforts, in cooperation with the Japanese Government, to curb the violations of the authorized fishing area by trawlers fishing in the East China Sea. Their report agrees with other information received by the Natural Resources Section indicating no violations by trawlers during August and September. (See Commercial Fisheries Review, November 1948, page 54.)

Norway

CATCH FLUCTUATIONS DEMAND FURTHER STUDY: Viewing the expanding industrial activity based on Norway's fisheries, Norwegian oceanographers and biologists have voiced the warning that past experiences with the surge and slump of coastal cod and herring fisheries accentuate the need for further studies of the fish and their periodic movements. The Oceanographic Director of the Norwegian Bureau of Fisheries recently outlined known data on these periodic fluctuations for a group of scientists in Bergen. He observed that two types of fluctuations have been noted on the Lofoten cod banks: year-to-year periodicity as well as fluctuations over longer intervals, according to the Royal Norwegian Information Service.

It was noted that there appears to be a correlation between the yield of the Lofoten Banks and the distribution of cod in eastern Arctic waters near Spitzbergen and Bear Island. Rises and falls in the latter districts have paralleled those off the Norwegian Coast. Recent observations may forecast another change in the offing, as fisheries off Bear Island and Spitzbergen have again shown a downward trend. It has at the same time been observed that banks in these regions are to an increasing degree being cooled by waters of a very low temperature. In case hydrographical conditions influence the habitat of the cod by extending or contracting its feeding grounds, there is a possibility that the progressive influx of cold water on the banks will cause a reduction of the food supply thereby affecting the stock with respect to quantity and quality. There is evidence to show that the Arcto-Norwegian stock of cod is declining at the present time.

Similar fluctuations are noted when the past centuries of coastal herring fishing are analyzed. Studies have shown that periods when herring are plentiful off the Norwegian coast have a duration of from 50 to 80 years with intervening periods of slump lasting from 30 to 60 years. The present upsurge in herring fisheries appeared about the turn of the century.

The Oceanographic Director admitted that while the present deep-sea fishing fleet could operate in other areas, thus diminishing the effects of a possible fisheries slump, the prospects of such a situation should continually be borne in mind.

FISH SCALES LAUNCH A NEW INDUSTRY: Scales of the herring are providing raw material for a new Norwegian industry. The thin luminous film which coats the fish scales is being processed by two new Norwegian firms into a pearl paste now in high demand by celluloid, plastic, and bakelite industries. The product is also used in the manufacture of artists' colors and nail polish as well as artificial pearls.

A highly complicated process, the manufacture of pearl paste was a carefully guarded production secret until the last decade. German firms earlier produced the bulk of this product, importing their raw materials from Norway. Purchasers of the new Norwegian export item are pleased with its high quality. With its extremely rich herring fisheries, Norway is in a good position to expand output to meet growing demand.

NEW GIANT FLOATING WHALE FACTORY DELIVERED: The 23,500-ton Thorshøvdi, newest of Norway's floating whaling factories, was delivered by Danish shipbuilders on October 19. Within ten days after delivery, the vessel's owners had stocked it with supplies for the winter's whaling season, and by the month's end, the Thorshøvdi was on its way to join the Norwegian whaling fleet in Antarctica.

With delivery of the new vessel, Norway's whaling fleet has regained its pre-war tonnage. Aboard is a complete plant for the processing of the whale—rendering tanks, refineries, etc., all of the most modern design. A 100-ton blue whale, for example, can be prepared for the rendering tanks within 90 minutes after it is hauled aboard. Daily capacity of the Thorshøvd is from 20 to 25 blue whales. Ten catching vessels operate out from the mothership. With cabin accommodations for over 400 men, the ship is a city which is isolated from the rest of the world for nearly 6 months of each year. Special attention has been paid to adequate recreation rooms, libraries, and a powerful radio receiving unit.

PLAN FILLET EXPORTS TO U. S.: Experimental shipments of Norwegian fish frozen in cellophane-wrapped pound packages have met with real success in the mid-western United States, according to Norwegian fish exporters. The Royal Norwegian Information Service reports that preliminary shipments sent early this spring were followed by a 200-ton export of packaged cod, haddock, and assorted types later in the year. Present plans anticipate sizable shipments of Norwegian frozen fish to the United States early in 1949.

Though the Norwegian export product must compete with American fish as well as fish from Canada and Iceland, Norwegian frozen fillets compete most favorably in price and quality with other brands. A number of Norwegian freezing plants have already indicated their intention to pack for the American market during the coming fishing season.

WHALE MEAT PROCESSING RESEARCH: Whether the whaling waters of Antarctica may, in time, provide quantities of fresh "sea beef" for the tables of meat-hungry Europe is to be determined by scientists accompanying Norway's whaling expeditions to the South Polar areas this season. Until now, the principal source of fresh-frozen whale meat has been land-stations on the Norwegian coast. Limited exports of this cellophane-packaged product have proven highly popular—particularly in England—where its reasonable price and beef-like quality have created a growing demand.

Before whale beef from Antarctica can be marketed in similar fashion, research must unravel numerous technical problems; i.e., how long the meat will keep without refrigeration. With the present whaling system, a certain period must pass between the time the whale is harpooned and the time it reaches the factory ship. For best results, whale beef should be frozen with a minimum of delay.

A complete laboratory has been fitted out aboard Norway's newest whaling factory ship. The Thorshøvd scientists will spend the season in the field to determine why the thousands of tons of meat now simply regarded as a source of oil cannot be frozen there in Antarctica to help relieve the European meat shortage.

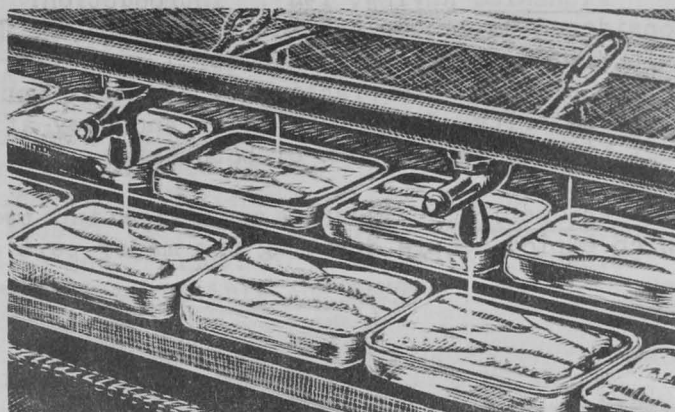


Portugal

FISHING INDUSTRY OF MAJOR IMPORTANCE: The Portuguese fishing industry is of major importance to Portugal, according to the Canadian Trade News of September 1948. Portuguese waters are rich in fish; sardines are produced in large quantities and are of good quality and, consequently, can command a good price in export markets; tuna and anchovies are also produced. However, sardine runs are decreasing and this explains why Portuguese sardine production has been declining since 1945.

An average of about 50 percent of the country's domestic needs for cod are filled by the catch of Portuguese fishermen who each year fish on grounds off the coasts of Canada and Newfoundland, and the balance is imported. The Portuguese cod catch in the fiscal year 1947-48 amounted to 33,719 metric tons of green fish which yielded 23,146 metric tons of dried fish.

Under the corporate structure of the country, several guilds and commissions are concerned with cod imports. Deliveries under the 1947-48 contracts, now expired, were made from Norway and Newfoundland as follows:



PORTUGUESE SARDINE ASSEMBLY LINE SHOWING OIL MACHINES AUTOMATICALLY ADDING OLIVE OIL TO FILL THE CANS.

Portuguese Dried Cod Imports

| | <u>Metric Tons</u> |
|---------------------|--------------------|
| Norway | 25,018 |
| Newfoundland | 8,899 |
| Total Imports | <u>33,918</u> |

The wholesale prices for cod, small, medium (corrente), and large, ranged from about \$27 to \$32 for lots of about 132 pounds. Prices at which all cod is sold are determined by the Comissao Reguladora do Comercio de Bacalhau (Cod Trade Regulating Commission). As to the cure, it was indicated that the Newfoundland type is preferred; i.e., hard, light salt, and natural.

In the current season, the Portuguese authorities, especially the Conselho Tecnico Corporativo (Corporative Technical Council) which controls import permits and exchange licenses, have been more and more inclined to prefer, as much as possible, imports from "soft currency" countries and to conclude compensatory deals, such as those with France and Belgium.



Republic of Panama

BAIT FISHING DECREE AMENDED: The Minister of Agriculture, Commerce and Industries of the Republic of Panama issued on August 3, Decree Number 564, which amended Article One of Decree Number 408, permitting fishing for bait by large sea-going vessels within Panamanian waters, according to a November 1 report from the American Embassy at Panama. The text of the Decree follows:

Article One of Decree No. 408 of April 27, 1946, is amended in order to permit the fishing for bait in the waters to the South of eight degrees forty-seven minutes (8°47') North Latitude, instead of eight degrees thirty minutes (8°30') same Latitude, as fixed by the mentioned Decree.



Republic of the Philippines

FISHERIES REVIEW, 1947: Introduction: The fisheries of the Philippines are considered to be the second industry in the Islands, being preceded only by agriculture, according to a December 1 report from the American Embassy at Manila. Marine products are practically the sole source of animal protein food for the great majority of the population and they afford employment, both part time and full time to many people of both sexes.

Production: Fisheries are divided into two sections: the commercial fisheries, which employ people devoting the major part of their time to take or rear fish



BANGOS PONDS. IN MANY LOCALITIES IN THE PHILIPPINES, ONLY A DIKE TO SURROUND THE AREA IS NECESSARY IN ORDER TO MAKE A POND OF ANY SIZE DESIRED.

for the market and the subsistence fishing, carried out by a large segment of the population of the provinces who supply their needs for this food when they are not otherwise employed. It is estimated that as much fish is caught by the latter type of activity as by the former. There is no definite statistical collection of data in the field except in certain places, mainly the ten principal cities where district fisheries offices are maintained. Fish handled outside of these cities are generally unaccounted for in the figures..

The Philippine Bureau of Fisheries reports that there was an increase in powered fishing vessels operating in the Philippine Islands from 344 in 1946 to 482 in 1947. In addition, 3,385 acres of new areas for fish ponds were leased by the Government to private operators which gives a total of 154,492 acres of swamp lands devoted to that purpose. Fish landed at certain selected points in 1946 totaled 35.2 million pounds; whereas, in 1947, landings at the same places had increased to 46.2 million pounds. Estimates by the Philippine Bureau of Fisheries of total production of fish from the sea and from fish ponds in 1947 amounted to 426.8 million pounds.

Consumption: Consumption of fish in the Philippines is considered by the Philippine Government to be in the neighborhood of 21.35 pounds of sea food per person per annum. This is less than one ounce of fish per person per day and it is recognized as being much too low an estimate.

Filipinos in the past consumed approximately $4\frac{1}{2}$ ounces of sea food per person per day. The increase in population plus the devastation wrought in the industry by the war, together with the void left in the production system by the removal of Japanese fishermen, who were a major factor in this system before World War II, have, without a doubt, reduced this level. Most authorities agree that consumption is at least half of the prewar level and total production is now probably at about 880 million pounds per annum. That production is increasing is also evidenced by the fact that the price of fish has been slowly dropping during the past year. A

conservative estimate would seem to indicate that the drop is from 34 cents per pound to 23 cents per pound.

Fisheries Being Rehabilitated: Rehabilitation of the fisheries is going on constantly. Private capital is finding a ready outlet in the fishing industry and encouraging increases in operating units have been noted all over the Islands. Many small ports which previously depended upon manual fishing now have powered vessels operating from them; and under the guidance of the Philippine Bureau of Fisheries and the United States Fish and Wildlife Service's Philippine Fishery Program, which is operating in the Islands to assist in fisheries rehabilitation, the effort is being gradually expanded to new grounds. Offsetting this, however, is the tendency to overfish the most readily accessible and proven areas.

Canned Fish Imports: Significant gains are noted in the imports of canned fish.

In 1949, probably a number of the imported foodstuffs will be placed under import control. Import of canned fish may be restricted as the local fishing industry is developed.

| Philippine Imports of Fish (In Metric Tons) | | | | |
|--|---------------------|--------|--------|--------------------|
| | 1948 (Jan.-June) | 1947 | 1946 | 1935-39 average |
| Fresh | 177 | 93 | 25 | 154 |
| Canned | 23,275 | 41,797 | 20,455 | 13,964 |
| Cured | 701 | 1,261 | 798 | 1,863 |

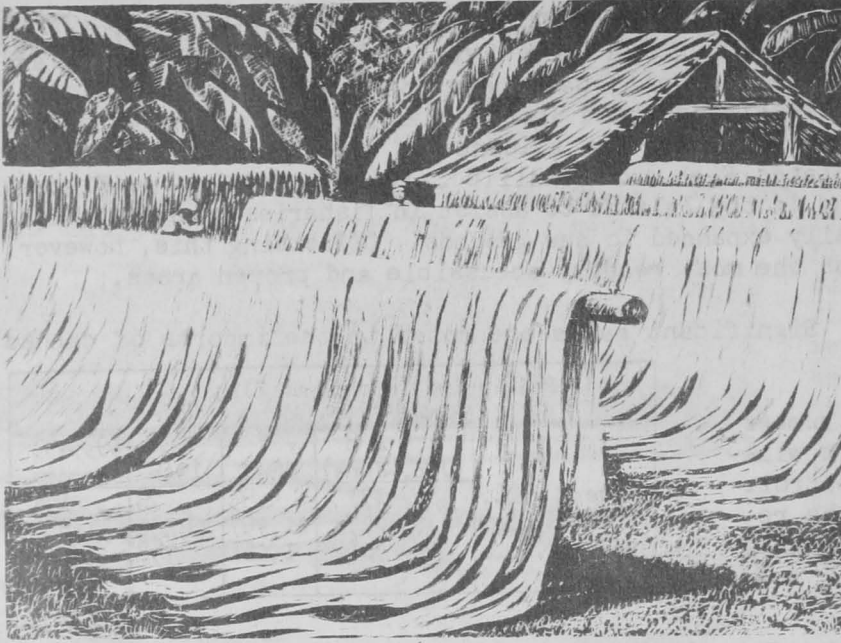
MANUFACTURE OF NETTING: The first steps toward Philippine sufficiency in fishing gear are to be consummated in the immediate future with the establishment of net manufacturing mills in the Philippines, according to the Philippine Bureau of Fisheries and the Fish and Wildlife Service's Philippine Fishery Program.

One of the objectives of the Philippines for the past three years has been to secure an adequate supply of fish nets. After all sources of supply had been explored, it was concluded that the only answer to the Philippine problem was to establish an industry within the nation for this purpose. Two mills are now in prospect which together will produce approximately 20 percent of the nation's requirements. It was indicated that operations will be underway early in 1949 and that netting will be in fair supply by the middle of the summer. In the meantime, no efforts to increase the supply of netting on the Philippine markets are being relaxed.

TO TEST RAMIE FISHING NETS: Tests will be conducted of Philippine produced and processed ramie fibers for fish netting, according to a November 10 report. The tests will involve the construction of panels of netting made from ramie twine and placing these panels in actual service aboard the Service's vessels now operating in the Philippines.

One of the earliest uses suggested for ramie fiber was fish netting and fishing gear twine. The development has been slow due to certain difficulties inherent in the processing of the ramie plant. One American concern is reported to have expended \$250,000 in an effort to adapt ramie for netting manufacture, and abandoned the attempt due to the fact they were unable to get a sufficiently flexible twine that would knot and still retain its strength under vigorous fishing conditions. Experts believe that this difficulty can now be overcome as the result of experiments conducted on these fibers for the past several years. The problem has been to prepare a twine with a high degree of elasticity and at the same time retain the native toughness and wearing qualities of the ramie fibers.

With the impending establishment of netting mills in the Philippines it is desirable that native fibers of dependable quality be available. Three fibers produced in the Philippines hold greatest promise. They are abaca, cotton, and ramie. The demand for abaca for other uses is at present time very great and its use in local netting in large quantity would present economic difficulties and probably result in a fishing gear beyond the price range of the fishing industry's ability to pay. Cotton, which has been almost universally used for many years in the heavier types of fish nets such as otter trawls, gillnet nets, purse seines, and similar items, while produced



RACKS OF ABACA PLANT FIBERS SET OUT TO DRY AT DAVAO, ON THE ISLAND OF MINDANAO, WHERE SOME OF THE FINEST QUALITY ABACA IS PRODUCED.

in the Philippines, is too limited in supply and by current practices, probably too expensive to produce to compete with foreign-grown cotton. Improved agricultural practices might produce an adequate supply of cotton that would be suitable for netting purposes, but present production is inadequate. Ramie, on the other hand, is relatively inexpensive and can be produced advantageously in the Philippines, according to current information.

The estimated annual consumption of cotton nettings and twine in the Philippines is valued at about $2\frac{1}{4}$ million dollars. Practically all of these needs at the present time are imported either in the form of webbing or twine. It is hoped to reduce this annual imported item by substituting ramie which is now grown in the Islands.



Spain

FISH CANNING: The Spanish fish canning industry was developed primarily as an export business, but for various reasons, its export trade is at a standstill and the general position of the industry is precarious, according to an October report from the American Consulate at Vigo. Factors which continue to affect the industry adversely are shortages of tinsplate, lead, and rubber. But the major problem is the loss of its foreign markets due to the unfavorable exchange rate of the Spanish peseta. Portuguese canners quote a case of sardines packed in oil (100 cans of 1/4 Club 13 mm.) at \$12.00 c.i.f., whereas, the lowest price at which Spanish canners can quote is \$32.00 f.o.b. Portuguese canned fish is replacing Spanish in many foreign markets.

The Spanish Government had promised to supply the industry with requirements of materials at officially fixed prices sufficiently in advance of the canning season, but for one reason or another it has not yet delivered the supplies (except olive oil) which had been allocated for January and February of this year. The 1948 allotment of tinplate is still short and the impression is gained that no more shipments will be made for many months to come. The manufacture of tinplate and other items has been suspended, according to reports, owing to the lack of tin and iron.

Some canners are reported to have made exports to several countries at prices below cost of production in order that they might realize in foreign exchange 33 percent of the value of the merchandise which is permitted by the Spanish Government, and use it for the purchase of foreign materials and equipment for their factories.

Another factor which adversely affected the canning industry was the small size of the catches of preservable varieties of fish. Sardines and bonito (albacore) which are the principal species, were delivered in such small quantities that packers by agreement rotated their purchases at the fish auctions in order to avoid, by competition among themselves, a further inflationary price for fish.



Sweden

NEW FREEZING PLANT: Seven tons of frozen fish per day is the capacity of a new freezing plant just completed on the Swedish west coast, according to the October 30 issue of the English periodical Fishing News. The plant, which can store some 100 tons of frozen fish, was built by a Swedish company which is expecting to find a market for frozen fish, especially cod, on the Continent. By the end of this year, the company's products will be available in Sweden.



Union of South Africa

STATUS OF FISHERIES: Fish products are in plentiful supply in South Africa and there is an exportable surplus of approximately 8,000,000 pounds of canned fish and approximately 3,500,000 pounds of canned crayfish and 1,500,000 pounds of fresh or frozen crayfish tails, according to an October report from the American Legation at Pretoria. The Gold Loan Agreement provides for 13,500,000 half pound tins of canned fish for the United Kingdom. The United States secures substantial quantities of frozen crayfish tails.

The annual fish catch of about 100,000,000 pounds has an important and beneficial effect principally on the urban consuming population. Fish forms an integral part of the diet in private homes and in commercial restaurants and hotels. The urban population and even small villages have fish made available to them. It is a food crop of growing importance for the domestic market as well as for commercial exportable supplies. The fishing industry has expanded considerably in recent years. There is a limit of 6,000,000 pounds placed by the South African Government on the amount of crayfish products which can be exported but otherwise there are no restrictions limiting the expansion of the fishing industry.