
## International

### SOUTH PACIFIC FISHERIES CONFERENCE

A conference called by the Chilean Government to discuss conservation and preservation of natural resources in the South Pacific Ocean was held at Santiago, Chile, August 11-19. Chile, Ecuador, and Peru participated with official delegations, and an observer was present representing the Colombian Government.

Although no official reports have been issued as yet on the results of the conference, El Telegrafo of Guayaquil, Ecuador, published the following report:

CHILE, ECUADOR, AND PERU RESOLVE TO PROCLAIM SOVEREIGNTY OVER THEIR JURISDICTIONAL WATERS

They adopt various measures for the preservation of the riches they have and they will study means to increase them.

Sovereignty proclaimed over maritime lands in territorial waters and a fishing commission of permanent character will be created to watch over the riches of the sea.

A regulation will be drawn up for whale fishing based on the agreements of the Whaling Conference held in the U. S. A.

Santiago de Chile, August 19, (AP):

Chile, Ecuador, and Peru resolved to proclaim the sovereignty over their jurisdictional seas and adopted different measures for the conservation of the riches they contain as well as studies as to how they can be increased.

The said agreements were made in a closed session of the Conference on conservation and exploitation of the maritime riches of the South Pacific. Delegates from the three countries were present, and an observer from Colombia.

The agreements adopted must be ratified by the parliaments of the respective countries:

The conference approved:

1. The creation of a permanent fishing commission for the South Pacific which will be charged with watching over the maritime riches and completing a study on fishing in general.

2. The proclamation of sovereignty over maritime lands and submerged lands in territorial waters.

3. The creation of technical offices, with rotating chairmanship for whale fishing and fishing in general. These offices will gather industrial, scientific, and governmental data concerning the riches of the seas, and will submit a report at a time yet to be determined.

4. Regulation of species protected in open and closed areas, fishing seasons, etc.

5. Agreeing to draw up a regulation regarding whaling.

Juan Ruiz of Chile, who presided over the conference, declared that the resolutions adopted have as their object the protection of the flora and fauna of the seas of the respective countries, and systematic exploitation of these riches.

Ruiz said that the measures approved by the Conference were based on the agreements passed at the whaling conference held in Washington in 1946, but added that they eliminate the articles that prejudice the countries with a scarcity of ships, factories, and other resources to take full advantage of maritime exploitation.

Referring to the jurisdictional waters, Ruiz indicated that the proclamation of sovereignty is adapted to the new norms already accepted by the American republics and rejects the archaic concept of three miles from the coast which dates from the 17th century.

He added that the new precept was established by the President of the United States in 1945 and later by the governments of Mexico, Argentina, Peru, Chile, and others.

He added that the new doctrine was adopted by the Privy Council of Great Britain in 1950 with regard to the Falkland Islands.

Ruiz pointed out that the objective of the conference has been to avoid incursions of modern factoryships of foreign enterprises which "only hoist the flag of profit notwithstanding the good faith of their governments. The intervention of Ecuador and Peru has proved the brotherhood of our nation."

"These countries"--he added--"have not a nationalistic criteria, but have as a goal the right

of our countries to live and grow. We are disposed to accept maritime exploitation by those who have legitimate intentions."

The delegate from Ecuador, Charge d'Affaires Jorg Fernandez Salazar, speaking on behalf of the foreign delegations, acknowledged the hospitality of Chile and said that the conference signaled new norms of American cooperation.

## INTER-AMERICAN TROPICAL TUNA COMMISSION

FOURTH SESSION HELD IN SAN JOSE: Members of the Inter-American Tropical Tuna Commission met in San Jose, Costa Rica, August 13, 1952, for the Fourth Session of the Inter-American Tropical Tuna Commission, an American Embassy dispatch dated August 14 from that city reports.

There were, in addition to the opening ceremonies, a morning session devoted primarily to administrative matters and an evening session devoted largely to a review of the scientific investigations of the tuna population in the eastern Pacific. No major problems presented themselves for discussion, and no new policy decisions were made. The Commission adjourned the same day.

## FOOD AND AGRICULTURE ORGANIZATION

ADMISSION OF MONACO TO MEDITERRANEAN FISHERIES COUNCIL: Provisional arrangements for Monaco to attend the meetings of the Mediterranean Fisheries Council will be considered at the Sixteenth Session of the Council of FAO, which will convene on November 17, 1952. A formal decision on Monaco's application as a non-member of FAO to join the Mediterranean Fisheries Council will be rendered by the FAO Conference in November 1953. The Mediterranean Fisheries Council has already unanimously voted to accept Monaco's application.

## Anglo-Egyptian Sudan

FISHERIES DEVELOPMENTS: The successful introduction of rainbow trout in the forest reserve in the Imatongs was reported in the July 28, 1952, issue of Sudan Press Agency, an American consular dispatch from Cairo states. In 1949, fingerling trout were supplied by the Kenya Game Department and put out in the upper Kinyeti River. Catches this year have proven that the trout have established themselves and are breeding. Future plans call for additional stocking of other streams by the Forestry Department utilizing trout caught from the Kenyeti River.

Concerning fishing developments in the Red Sea, analysis of samples of fish meal and shark oil have given promising results, and it is planned to conduct full-scale shark-fishing activities in the Mohammed Gul area. Shark liver oil is reported to bring about US$360 per metric ton and fish meal about US$130 per ton.

It is also proposed to declare a closed area on the Dongonab Bay-Mohammed Gul coast and that a Beja cooperative society will develop this area in the future. The Marine Fisheries Ordinance is to be enforced in the future and all foreign vessels which have been fishing these waters without permission using illegal-sized nets are to be stopped.

## Brazil

FISHING BOATS ORDERED FROM DENMARK: A Danish shipyard has received an order to deliver 50 small fishing boats to Brazil by May 1953, according to Dansk Fiskeritidende (July 18, 1952), a Danish trade paper. The boats are to be 22 feet long with a pilothouse, engines, and electrical equipment.

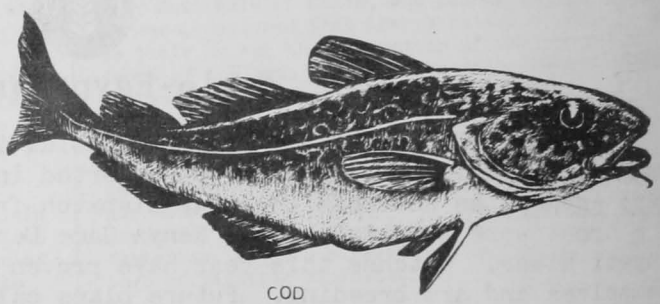
## Canada

FISHERIES OUTLOOK FOR 1952: World economic conditions seem to be growing more stable and sudden changes are less to be expected than in the recent past.

Easing of inflationary pressure in North America, together with the growth of trade restrictions in the sterling area and other "soft" currency countries, is making 1952 less of a seller's year than 1951. On the other hand, maintenance of high levels of economic activity points to a continuation of generally prosperous conditions.

Against this generally favorable background, the various branches of the Canadian fishery industry will view their prospects in the light of the particular factors of demand and supply, competition, restrictions, etc., that are revelant to their markets.

The market for fresh and frozen fish and shellfish lies almost entirely in Canada and the United States. Here consumer spending at high, perhaps record, levels will provide a great opportunity for increased sales, but these will have to be made in the face of increased competition from other suppliers, more ample supplies of other foods, opposition to some fishery imports by certain groups in the United States, and a somewhat anomalous food marketing situation in Canada due to the embargo on cattle imports into the United States. These difficulties must, however, be seen against the fact that very large groups of the population in both Canada and the United States are potential, but not yet actual, consumers of fish and that the market for Canadian fresh and frozen fish and shellfish therefore can yet be substantially expanded.



COD

It is the canned fish trade which will feel most keenly the newly imposed import restrictions in overseas markets; and a considerable readjustment of its market pattern will be necessary. Here again the domestic and some important foreign markets are by no means saturated, but canned fish is in close competition with other foods and success will depend on the ability of the industry to meet competition in both price and promotion.

For salted dried groundfish, which constitutes the bulk of the cured types, the prospects are good. World supply is likely to be somewhat short and demand is strong. The dollar shortage is not expected to affect Canadian salt-fish exports to the British West Indies. While the special arrangement under which Newfoundland fish has been sold for sterling in certain Mediterranean markets has come to an end this year, Portugal, Spain, and Italy are believed to be in a position to make sufficient dollars available to allow the movement of normal quantitie

into these areas. No significant change is forseen in other cured fish markets, but the prospects for dried salted herring are still obscure because of the situation in the Far East.

In the byproducts market, meals will be strengthened by the high consumption of feeds in the United States; but the oil market may be kept depressed by heavy production of vegetable and animal fats without a corresponding increase in effective demand.

NOTE: THIS IS AN EXTRACT FROM THE PUBLICATION: CANADIAN FISHERY MARKETS (OUTLOOK FOR 1952: REVIEW OF 1951), MARKET BULLETIN NO. 6, ISSUED IN JULY 1952 BY THE CANADIAN DEPARTMENT OF FISHERIES, OTTAWA, CANADA.

* * * * *

FILLETING IS PREFERRED TO DRYING AND SALTING IN NEWFOUNDLAND: The uncertainty of drying and salting fish in Newfoundland, particularly in hot humid weather, consumes more of the fishermen's time than supplying fish for filleting plants. The latter allows fishermen more time for fishing or other occupations, states an August 28 American consular report from St. John's. A fairly strong market for fillets is reported, and the tendency toward a gradual but sure transformation in fishing methods continues, since more fish at less cost and work with greater financial returns to fishermen is bound to be the goal. On the other hand, only those Newfoundlanders who feel that their destinies are tied to the sea are going to stick to their nets in the face of more remunerative employment ashore, now that the industrialization of the island is relatively under way.

* * * * *

SHRIMP FOUND IN NEWFOUNDLAND WATERS: Shrimp have been found recently in Newfoundland waters, an August 28 American consular report from St. John's states. It is reported that shrimp have also been found near the northern edge of the Grand Banks, in the Gulf of St. Lawrence, and off the coast of Labrador.

It is rumored that certain United States and Canadian mainland interests are looking into the matter of shrimp fishing off the east and west coast of Newfoundland, where shrimp of marketable size were discovered about a year ago by a government exploratory vessel.

Shrimp sell in Montreal for C$2.50 per pound and in St. John's, when available from the Mainland, for C$0.75 per quarter pound. (Editors' note: It is believed that shrimp referred to are cooked and peeled and that quotations are at retail.)

The local press has recently declared that two United States fish-packing firms are now engaged in investigating the possibility of undertaking shrimp fishing in Labrador waters; so far, however, no information of value can be secured from either official or commercial sources. One daily paper claims that exploration has established that the bottom of Lake Melville (Labrador) in certain areas is literally encrusted with large jumbo shrimp. Inquiry directed to the Newfoundland Fisheries Research Station, St. John's, confirms the existence of shrimp in many Newfoundland waters; the size is generally large and often suited to commercial purposes, but the frequent presence of large boulders and other obstructions would be likely to make shrimp fishing difficult in a number of areas.

* * * * *

LONG-LINERS PROVE SUCCESSFUL IN NEWFOUNDLAND: Long-liner fishing is readily becoming more popular in Newfoundland, according to an August 28 American consular report from St. John's. Four long-liners, operating experimentally this year off the Northeast Coast under the direction of the Canadian Federal Department of Fisheries, met with good success. Commercial fishing by this method should prove profitable.

The use of the "Cape Island" type of fishing boat, with which the government has been experimenting for some time and which appears suitable for fishing in Bonavista, is reported generally unsuitable for Newfoundland needs. In Bonavista harbor, this type of craft rarely has to go out more than 30 miles from shore to make catches; in most other areas, however, trips up to 50 miles are often required and the "Cape Island" craft is not suited to deep-sea fishing under all conditions. This type of boat, from which much was expected, resembles a glorified harbor craft or cabin cruiser with an open well aft, and Newfoundland fishermen are reported to hold that, whereas the vessel may be seaworthy enough under normal conditions, they definitely want a full-decked job in which they can make long trips with reasonable safety.

In any event, government experimentation with this proposed type of craft has served a good purpose in that it has focused attention of the industry on efficient boat design, and through experimental operation at sea has shown the advantages of long-lining. The old style banker and "Labrador floater" had practically no superstructure; hence the problem of building craft superstructures never arose until now that additional designing is called for. The use of aluminum instead of wood in building deck houses is receiving attention and in the future may be put into general use in constructing both long-liners and seiners.

* * * * *

NEWFOUNDLAND TO BUILD FISH-OIL HARDENING PLANT: The Newfoundland Provincial Government has announced final plans for the early erection of an oil-hardening plant at Harbour Grace--one of the last of the Government's industrialization projects. Work is expected to begin on the plant, within the next few weeks, reports an August 28 American consular dispatch from St. John's. An agreement between the Newfoundland Government and a German industrial firm was signed in London towards the latter part of August. A Canadian cement and machinery firm will construct the hardening plant under contract.

Some of the machinery for oil hardening has already arrived, and other equipment will reach St. John's by October, according to reports.

The German industrial firm is called upon by agreement to invest C$1,200,000 in the establishment of the plant, this amount to be in the form of machinery, equipment, and structural steel from Europe. This equivalent will be matched by the Province in the form of a ten-year interest-bearing loan to be utilized in constructing the building and as working capital.

The plant will make use of marine oils (mainly whale, seal, and herring, with some caplin) which will be deodorized, bleached, homogenized, and hydrogenated to a lard-like ingredient for the manufacture of soap, margarine, cosmetics, etc. The plant will import vegetable oils for manufacturing purposes, principally peanut oil, cottonseed oil, and soybean oil.

About 120 men are expected to be on the payroll at first, with the possibility of more help later. The plant's use of oils from the various fisheries, say reports, "is expected to have a marked stabilizing effect on the Island's economy, particularly with regard to the seal fishery and the caplin and herring fisheries."

## Ceylon

AIDS TO FISHERIES, 1951: Mothership towing has brought hitherto inaccessible ounds within the daily reach of Ceylon fishermen using indigenous craft, accord-g to the July 1952 Current Affairs Bulletin, issued by the Indo-Pacific Fisher-s Council Secretariat, FAO Regional Office, Bangkok, Thailand. Efforts have so been made to popularize the use of hand winches in shore-seining operations.

In the past year, the Government of Ceylon voted a sum of Rs. 3,000,000 (about $630,000) for assistance to fishermen's cooperatives.

With a view to relieving fisherman's distress due to seasonal unemployment ring the monsoons, a Fishermen's Provident Fund is being created with the coop-ration of the local leaders of the Catholic Church on the basis of a partial re-und of the tithe collected in certain areas.

## Colombia

PRESERVED OR CANNED FISH IMPORTS REGULATED: With the principal objective of timulating Colombian exports (other than coffee), the Government on August 1 ssued Decree 1830, which authorizes unrestricted exports of rice, sugar, corn, otatoes, salt, unmanufactured tobacco, tanned hides, beer, cigars and cigarettes, ement, textiles (cotton, wool or synthetic fibers), and gold manufactures. The xchange proceeds from these exports are convertible at 2.50 pesos per US$1 (40 S cents per peso), in addition to which the exporters receive a negotiable "right" o import up to the same value certain items on the Prohibited List. Preserved r canned fish[1/] are among the items specified. As distinct from the other items pecified, however, preserved or canned fish imports under Decree 1830 must come rom the country purchasing the export products giving rise to the exchange, re-orts an August 14 American consular dispatch from Bogota.

The Government is authorized to extend these privileges to other export com-modities as well as to suspend shipments of any items if the export price drops "notably" below the domestic price, or if shipments of these commodities threaten o create a domestic scarcity.

1/ FULL SPECIFICATIONS ARE: ITEM 120-A.-PRESERVED OR PREPARED FISH OTHER THAN SALTED, SMOKED OR DRIED, IMPORTED IN CANS, TERRINES OR HERMETICALLY SEALED CONTAINERS: 1. SARDINES. 2. OTHERS (INCLUDING SALMON). ITEM 120-B.-PRESERVED OR PREPARED FISH OTHER THAN SALTED, DRIED OR SMOKED, IMPORTED IN OTHER FORMS.

* * * * *

SPECIAL IMPORT DUTY EXEMPTION FOR EQUIPMENT TO ESTABLISH FISHING INDUSTRIES: A special exemption for one year from customs duties for imports of machinery, laboratory, and other equipment for the first three companies to establish fishing industries in Colombia was renewed by a decree of July 1. The original legislation on which this exemption is based was approved in 1938, but up to the present time only one company has availed itself of the exemption.

* * * * *

FISH CANNERY ESTABLISHED: A canning factory was officially opened at Santa Marta, July 29. The first products to be canned will be sardines, shrimp, mullets, and tuna. Later it is planned to include salmon, oysters, and other fish, with a possible production of fruits and fruit juices. Starting production is estimated at 720 cans per hour (size not indicated).

# Ecuador

TERRITORIAL WATERS SOVEREIGNTY REAFFIRMED: The Ecuadoran Congress in a joint session on August 20 passed a resolution reaffirming the law of November 6, 1950, concerning territorial waters, an August 25 American Embassy dispatch from Quito points out.

The resolution reasserts Ecuador's claim to a 12-mile limit drawn from a base line as provided by the law of November 6, 1950. However, that law has been interpreted in effect to claim a 36-mile limit since it claims 12 miles at 20 to a degree, whereas, there are actually 60 miles in a degree, and the maps prepared by the Ministry of National Defense, which were submitted with the despatches under reference show a 36-mile limit.


However, the Chief of the Ecuadoran Navy informed an officer of the Embassy that the law of November 6, 1950, was confusing and that apparently the phrase "20 to a degree" had something to do with Spanish leagues, and that, in any event, the resolution passed by Congress on August 20 represents a clarification and interpretation of the law. He stated that he had conferred with Congressional leaders and those congressmen particularly responsible for the resolution of August 20, 1952, and that on the basis of these conversations it was clear that the intent of Congress both in the law of November 6, 1950, and the resolution of August 22, 1952, was to assert and claim territorial waters 12 miles out from the base line as provided by the law, and that the apparent claim to a 36-mile limit was incorrect and resulted from a faulty drafting or interpretation of the 1950 law. The Chief of the Ecuadoran Navy added that therefore the 36-mile limit shown on the maps under reference is to be disregarded and the maps will be redrawn without this line.

The resolution as passed states:

"THE CONGRESS OF THE REPUBLIC OF ECUADOR CONSIDERING:

"That the territorial sea is an integral part of the national territory, according to Article 4 of our Political Constitution;

"That by Law of November 6, 1950, published in the Registro Oficial No. 756 of the 6th of March, 1951, there was declared the minimum extension of our territorial waters, in the zones surrounding the continental coastlines of Ecuador as well as the zones relative to the Archipielago de Colon;

"That there has arisen the problem of interpretation regarding the various resolutions relative to the territorial waters and to navigation rights, a problem which should not exist by virtue of the categorial declarations contained in the Constitution of the Republic and the Law under reference;

"That it is necessary to reaffirm Ecuadoran sovereignty over the national territory, which includes the territorial waters;

"AGREES:

"To reaffirm the Law passed by the Congress of the Republic on November 6, 1950, regarding national dominion over the territorial waters, which shall include a distance of twelve marine miles counted from the outermost points of the Ecuadoran coastline in the Pacific Ocean, as well as the interior waters of the gulfs, bays, straights, and canals included within a line drawn between these points. At the same time, to ratify Ecuadoran sovereignty over the interior waters included within a perimeter of twelve marine miles counted from the outermost points of the outermost islands of the Archipielago de Colon.

"Given in the Sala de Sessiones of the National Congress in Quito, the twentieth of August, 1952."

## Fiji Islands

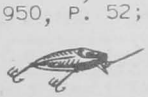
TUNA VENTURE ASSETS SOLD: The tuna fishing fleet (except the Isa Lei) owned by a fishery company of Suva and the cannery in American Samoa (owned by another firm of that Island) have been sold, according to the Australian Fisheries Newsletter of July 1952.

The joint interprise was organized by a former world flier for the purpose of catching tuna in Fijian waters and canning them in American Samoa, which would enable the product to be admitted into the United States duty free. Unfortunately the Fijian company was unable to catch tuna in sufficient quantity.

The clipper, Senibua, which pioneered pole fishing with live bait in Australia, returned to San Pedro, California, where it was purchased. The two other clippers, Senirosi and Senileba, have been sold to the Indonesian Government, and two 48-ft. bait boats to the Ceylon Government.

The cannery was sold by a San Francisco-New York firm. The cannery was purchased by the Samoan Governor's office for US$40,000 to prevent it being removed to foreign territory.

NOTE: SEE COMMERCIAL FISHERIES REVIEW, MAY 1952, P. 18; JUNE 1951, PP. 56-7; FEBRUARY 1951, PP. 47-9; OCTOBER 1950, P.41; SEPTEMBER 1950, P. 52; FEBRUARY 1949, PP. 58-9.



## French Morocco

SARDINE FISHING POOR: This year's fishing season in French Morocco, according to informed sources, was unfavorable because the sardine schools traveled northward to waters off Portugal. The fishing season is almost over, states a September 5 American consular dispatch from Tangier. Present inability of most Moroccan fishermen to navigate farther north than the entrance to the Mediterranean

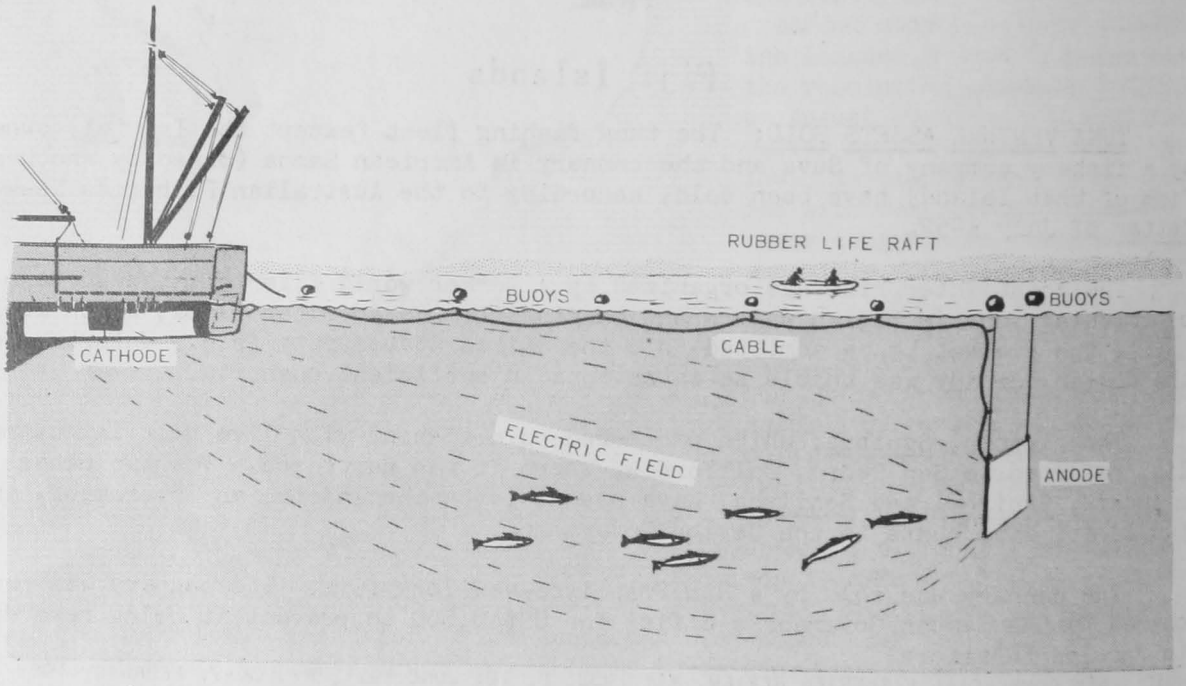
is a source of anxiety for future seasons, and contributes to the present serious crisis facing the fishing and canning industry in that country.

## German Federal Republic

ELECTRICAL-FISHING EXPERIMENTS IN SALT WATER REPORTED SUCCESSFUL: The much-discussed electrical fishing equipment developed by Dr. Konrad Kreutzer in Hamburg, Germany, was seen by the author on June 3, and the experimental work done to date was discussed with Mr. H. Peglow. Peglow has been associated with Kreutzer in developing the equipment and in carrying out the experiments.

Two small units and one large unit have been developed. One of the small units is for use in fresh water and the other for use in stunning tuna or other large fish after they have taken a hook. The large unit is that used on the vessel R-96 for experimental use in salt water.

In all three units, power is conserved by using a pulsating direct current with a very high amperage peak. The duration of the discharge of current is extremely short and the period between pulses is much longer than the duration of




AN ARTIST'S CONCEPTION OF HOW ELECTRICAL-FISHING EXPERIMENTS WERE CONDUCTED AT SEA.

the discharge. The controlling switches are designed in such a manner that they do not carry any current at the time that the switch is opening or closing. This prevents the usual burning of the contact points and allows the use of very small switches for the size of the current carried.

The fresh-water unit is designed to operate from 24-volt storage batteries and weighs about 24 pounds without the batteries. It is capable of putting out 120 amperes and is supposed to be able to cover an area 30 meters in diameter. A number of these units have been manufactured and sold to various European government agencies and research institutions. The unit is said to be selective as to the size of fish, with larger fish responding to the current more readily than smaller fish.

The shocking unit for tuna is somewhat larger than the fresh-water unit, and is made to handle four tuna lines. As soon as the tuna takes the hook and the hook is set, the button controlling that line is pressed and the fish is paralyzed. It can then be landed without difficulty. If the fish begins to revive before being landed, it can be given another "shot." Consequently, one person can handle several lines if necessary. The average size of tuna on which the device was tested was approximately 275 pounds.

The large unit, which is being used for experimental salt-water work, is on the former German Navy mine sweeper R-96. This vessel originally had two 900 horsepower Diesel engines. One of the engines has been removed and the electrical apparatus installed in its place. The equipment consists of a 400-kilowatt DC generator, a large bank of inductance coils, a large bank of condensers, a control apparatus, and a mechanical impulse switch. In the recent experiments, the cathode consisted of large curved steel plates fastened to the hull near the stern of the vessel and the anode was a large steel plate which could be suspended from floats at a distance from the vessel. The area of the cathode was estimated to be approximately 45 square feet and that of the cathode 25 square feet.

An experimental cruise was made at sea during April of this year. Peglow emphasized that they had not caught fish with the device, and that they had not tried to catch fish with it. He stated that they were anxious to first prove that fish could be led in the direction desired with electrical equipment and then to find a means of applying this knowledge to fishing apparatus. On this cruise it was proven that in salt water fish could be made to travel towards the anode with the equipment on the vessel. Live herring were released between the vessel and the anode. The anode was reported to be approximately 18 meters (about 59 feet) from the vessel. The current was then turned on and off at varying intervals. Whenever the current was on, the fish immediately swam toward the anode. When the current was turned off, the fish began swimming in the direction that they were traveling before the current was turned on.

Now that it is known that the fish can be made to swim toward the anode, work will be begun on finding the specific frequency for various types and sizes of fish and on practical applications of the method. In general, larger fish respond to lower current impulses than do smaller fish. Experiments indicate that flatfish do not respond to electrical stimulation in the same manner as do other fish, and that they probably cannot be controlled as can other fish.

In the salt-water equipment, the pulse shape is very high and narrow, with a peak pulse current of as high as 25,000 amperes and a duration of 2 milliseconds. The rate of pulsation can be varied from 0 to 100 pulses per second. The rate of pulsation is correlated with the type and size of fish attracted by the anode.

The formula for determining the area over which the equipment may be effective is as follows:

$$R = \sqrt{\frac{I \cdot F \cdot W}{G \cdot 2\pi}}$$

In this formula, R is the radius of the area over which the current will be effective in attracting fish; I is the peak impulse current (expressed in amperes); F is the length of the fish; W is the specific resistance of the sea water which varies with salinity and temperature; G is the "anatomic voltage drop" between the head and tail of the fish. If the anode is placed at a point away from the surface or bottom, the $2\pi$ is changed to $4\pi$ as the field affected by the current will be changed to a sphere rather than a hemisphere. The "anatomic voltage drop" of most

salt-water species is usually between 0.5 and 0.8 volts. However, it will vary from one species to another. (In this formula all distances should be expressed in the same unit. For instance, if R is desired in meters, F should be in meters and G should be in ohms per cubic meter.)

In connection with the experiments in electrical fishing in salt water, it has been discovered that when a cable conducting the pulsating direct current is run through the water, a field is set up around the cable that fish will not penetrate. Based on this phenomenon, Peglow suggested that in conjunction with their equipment it may be possible to use a single cable set in a circle, as an electric purse seine. However, additional experimental work is needed on this phase of the project.

Because of limited financial resources, the experiments are proceeding very slowly but, at the present time, they give every indication of ultimate success for the salt-water equipment. The other two devices seem to be already proven and are in limited commercial production.

NOTE: SEE COMMERCIAL FISHERIES REVIEW, JUNE 1952, P. 39; OCTOBER 1951, P. 25; JANUARY 1951, P. 53; DECEMBER 1950, P. 36; AND P. 75 OF THIS ISSUE. ALSO FISHERY LEAFLET 348 (GERMAN COMMERCIAL ELECTRICAL FISHING DEVICE).

C. E. PETERSON CHIEF, STATISTICAL SECTION
BRANCH OF COMMERCIAL FISHERIES,
U. S. FISH AND WILDLIFE SERVICE, WASHINGTON, D. C.

* * * * *

DEVELOPMENTS IN INTERZONAL TRADE IN FISH: On May 5, 1952, a new West German-East German barter agreement was signed providing for the delivery to the Soviet Zone of fishery products valued at DM7,500,000 (US$1,786,000), according to an August 5 American consular report from Bremerhaven. The shipments will be predominantly canned fish, but will include also fresh fish and small quantities of pickled (marinated) fish. No salted herring is to be shipped, much to the disappointment of the West German fishing industry which still has on hand large stocks of salted herring set aside for delivery to the Soviet Zone under the 1951 interzonal trade agreement which became inactive on November 30, 1951. Bremerhaven alone has on hand 30,000 barrels of salted herring valued at DM1,800,000 (US$428,000) originally set aside for that purpose.

The disadvantage of this barter agreement to the West German fishing industry is that the West German fish merchants must wait for payment until counter-shipments are received from the Soviet Zone and thus have no control over the terms or rate of payment. The advance payments made by the Bank Deutscher Laender under the official interzonal trade agreement do not apply in the barter agreement. This has the effect of restricting interzonal trade to those larger firms that are not dependent on immediate payment for their products. The West German fishing industry feels, however, that in spite of the financial difficulties, deliveries to East Germany must be made in order to avoid losing the market to Holland and Scandinavia.

A further difficulty for interzonal trade in fish was an order issued by the East German authorities in the first week of July 1952 stopping all fish shipments by truck to the Soviet Zone. Whereas previously all West German fish deliveries to the Soviet Zone were by truck, now only rail shipments are to be allowed.

In the first week of May 1952 representatives of the West German fishing industry sent a memorandum to the West German Federal Government requesting a resumption of interzonal trade in the volume set in the Berlin agreement or the conclusion of a barter agreement providing for DM35,000,000 (US$8,333,000) worth of fishery products and fish meal. To emphasize the danger of losing the East German market to other West European countries, the memorandum pointed out that Holland had sold large quantities of salted herring to East Germany, that Great Britain

also exported salted herring to the Soviet Zone, and that Denmark had concluded a barter agreement providing for the delivery of US$7,143,000 worth of fish to East Germany. Also, Norway was to deliver 160,000 barrels of salted herring to the Soviet Zone of Germany during 1952. In addition, the memorandum demanded an agreement embodying a guarantee of financial aid to the fish industry in the case of a politically-caused interruption of interzonal trade.

In support of their demand for increased interzonal trade in fish, West German fish merchants state that the Soviet Zone is willing to import DM35,000,000 to DM50,000,000 (US$8,333,000-US$11,905,000) worth of fishery products, including 60,000 barrels of herring, from West Germany. The West German Federal Economic Ministry, however, opposes an increase in fish shipments to the Soviet Zone on the grounds that West German's food supply situation requires that food products should be traded only for food products.

## Hong Kong

NEW ARTIFICIAL FISH DRIER INSTALLED: A modest but useful plant capable of drying 6,000 pounds of fish in 30 hours has been installed close to the new Aberdeen Fish Market in Hong Kong, according to the July 1952 Current Affairs Bulletin, issued by the Indo-Pacific Fisheries Council Secretariat. After being gutted, washed, and salted, fish are loaded into trays which fit into upright trolleys which can be wheeled into drying chambers. Each of the 12 trolleys can support 12 trays bearing 500 pounds of fish. A draught of air blows through the chamber at 3½ miles per hour. The temperature is raised to 78° F. inside the chamber while humidity is reduced to 50 percent and water is extracted from the fish at 56 pounds an hour. Attached to the plant, there are also two cold-storage rooms each with a capacity of 125 metric tons for storing the fish.

## Italy

WHALE FACTORYSHIP ALMOST READY: Italy's first whale factoryship (the Trinacria) will be ready in September, according to the August 9 issue of The Fishing News, a British periodical. The vessel is expected to leave for the Antarctic grounds in November. Of 22,500 tons, the vessel is reported able to process a whale every 50 minutes.

## Japan

CONTINUATION OF TUNA IMPORT CONTROLS FAVORED: Important segments of the Japanese tuna industry are in favor of continuing limitations on the export of tuna to the United States, reports an August 19 American Embassy dispatch from Tokyo. The Japanese press (Kyodo, August 16) reported that Japanese exporters of canned tuna have announced "they will continue the voluntary control on export of their products to the United States." These exporters are included in the important Council for Tuna Exports. This Council also includes exporters of frozen tuna. Exports of tuna to the United States are limited by Japanese Government regulations to 1,000,000 cases of canned tuna (brine and oil) and 12,000 tons of frozen tuna. These limitations are for the period April 1, 1952, to March 31, 1953.

Because of an unusually large run of albacore in June, the Government is be ing subjected to heavy pressure by some units of the industry to raise the quota on frozen tuna. The proponents for relaxation of the control refer to consister demands from United States importers for more Japanese frozen tuna. Increased demands for frozen tuna are also coming from Canada and Hawaii.

This comment was made after the publication of a "foreign dispatch from Washington that American food canners have asked the Japanese Government for an increase in shipments of Japanese canned tuna goods to the United States."

The Council for Tuna Exports "suggested that due considerations will be pai on the issue if the U. S. Government formally asks for removal of the control.

It added, "Japan exported to the United States 11,500 tons (metric) of froze tuna by mid-August since the beginning of this year. This figure represents an increase of 4,500 tons over the target for the period. Total volume to be expor ed to the United States during this year is 12,000 tons."

* * * * *

TUNA EXPORTS TO CANADA INCREASE: Exporters of Japanese frozen tuna are re- ceiving an increased number of inquiries from firms in Canada. This activity wa reported in the Suisan Shimbun on August 8. The Japanese Ministry of Internation Trade and Industry (MITI) is concerned with the possibility of tuna reaching the United States from Japan through Canada by a three-way trade. Some individuals have charged that three-way trading is being done to bypass the Japanese quotas on export of tuna to the United States. Authorized exports to Canada in 1952 to August 18 were reported to total 2,555 short tons as compared to 1,527 tons for the entire year of 1951, states an August 18 American Embassy dispatch from Toky

Following press item states in part:

"Exports to Canada may jump to 3,000 tons; suspect of three-way trading in frozen tuna dissipated....

"These Canadian inquiries are not only for large quantities but conditions and price are the same as those of American inquiries. It is causing the indust to be very enthusiastic, naturally...."

* * * * *

TUNA EXPORT QUOTAS TO U. S. MAY BE INCREASED: Japanese tuna export quotas and check prices to the United States were the subject of a meeting of Japanese Government officials on September 15, according to an unconfirmed report publish on September 16 by the Japanese press.

Tuna allocations and the check price system on exports to the United States will be continued according to the press report, states an American Embassy dis- patch from Tokyo. However, an additional 6,000 metric tons of frozen tuna will authorized as part of the frozen tuna export quota. This means that the frozen tuna export quota of 12,000 metric tons for the quota year April 1, 1952, throug March 31, 1953, will be increased to 18,000 metric tons.

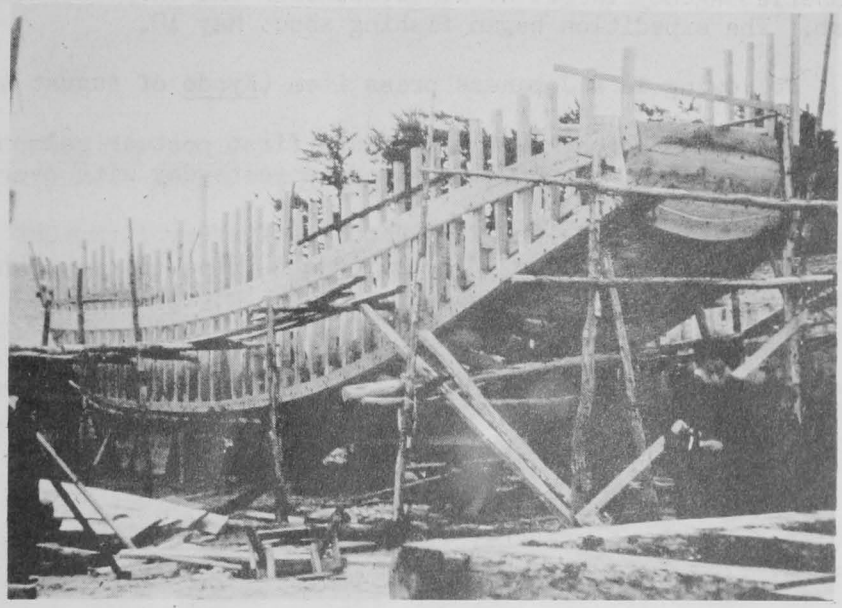
The quota for canned tuna is 1,000,000 cases at the present time, and the pr item pointed out that an increased allotment for canned tuna exports will be con sidered separately.

The press item also stated that United States approval is to be sought by Ambassador Araki for these actions.

* * * * *

FISHERMEN BUILDING LARGER TUNA BOATS: Japanese tuna fishermen are showing interest in larger boats for operations in distant parts of the Pacific. Plans have been completed to construct a 500-gross-ton boat which will be the largest boat of its kind in the Japanese tuna fishery. Several 300-gross-ton vessels are already in operation and several more of the same class are nearing completion, reports an American Embassy dispatch from Tokyo dated September 8.

The tuna-bonito fleet as of the end of 1951 (latest available published statistics of the Japanese Fisheries Agency) consisted of 1,698 boats, aggregating approximately 104,000 gross tons. Of this total, 1,437 (64,633 gross tons) were wooden boats, many of which fish principally for bonito (skipjack). The balance of 261 were steel boats (39,345 gross tons) engaged in tuna and some skipjack fishing. Most of the wooden boats were less than 100 gross tons. Most of the steel boats (232) were in the 100- to 199-gross-ton class and only 8 in the 200- to 500-gross-ton class. Actually the largest tuna boat in 1951 was 314 gross tons.



THE FRAMEWORK OF A SMALL JAPANESE TUNA BOAT.

According to the Japanese press (Minato Shinbun, August 28), the proposed 500-ton tuna ship will be a converted vessel--the Akagi Maru now engaged in transporting ice to Korea. The new vessel will have a 550 horsepower engine, capable of 9 knots. Conversion of the vessel will begin in September. October 20 is scheduled as the sailing date for her first tuna trip.

Tuna boats of this 500-ton class are arousing special interest of Japanese tuna-boat operators as a basis for determining whether boats of this type can efficiently and profitably replace the mothership-type tuna fleet.

Successful fishing by large-size Japanese tuna boats (300-gross-ton class) in waters south of Hawaii has stimulated interest in the construction of larger vessels. The Japanese press (Nihon Keizai, August 13) reported:

"A number of large-size fishing craft, with a tonnage of 300, or twice the average thus far used in fishing operations, are showing good results in their fishing activities in waters south of Hawaii, chiefly because of their long cruising range and excellent cold-storage equipment. Stimulated by these excellent fishing craft, as many as 7 fishing vessels are now under construction, and the building of 3 others has already been authorized by the Government, in addition to the previous applications filed with competent government authorities for several of these craft.

"On the other hand, since the total tonnage of tuna-fishing craft is pegged at a certain limit, fishermen desiring to build new vessels must purchase an authorized tonnage from others. An increasing number of fishermen who possess small-type vessels of 40 to 50 tons and inefficient craft of the 100-ton class that were built increasingly in postwar years, are selling their authorized tonnage. The quotation of such transactions, which was about 10,000 yen per ton (US$28) at the beginning of this year, recently rose by several thousand yen per ton."

* * * * *

NORTHERN PACIFIC SALMON EXPEDITION EXCEEDS CATCH GOALS: The Japanese salmon expedition operating in the Northern Pacific has exceeded the catch goals set by the Japanese Fisheries Agency and the three participating companies. As of July 31, the expedition's salmon catch totaled approximately 2,000,000 fish against the Fisheries Agency target of 1,500,000 fish and the companies' goal of 1,830,000 fish. The expedition began fishing about May 10.

Following is a Japanese press item (Kyodo of August 4):

"Fourteen ships, part of Japan's first postwar salmon and trout expedition to North Pacific, returned to Hakodate yesterday with over-target catches.

"The 14 ships belong to a Japanese fishery firm, but two other companies also took part in the fishing. The ships consisted of the mothership Tenryu Maru, 10 catcher boats, two survey ships, and one patrol boat.

"The skipper of the mothership said the first expedition shows salmon and trout fishing in North Pacific is a paying enterprise. He warned against a rush of ships to this fishing region for salmon and trout as it would be detrimental to preservation of the fishing resources.

"He said most of the catch boats had their nets worn out by the time the expedition ended. Therefore, if boats carry more spare nets, catches would increase...."

* * * * *

NORTH PACIFIC SALMON EXPEDITION CATCH: The Japanese Fisheries Agency has issued a final tabulation (see table) of the catch of salmon by the Japanese expedition which recently operated in the North Pacific, states an August 18 American Embassy dispatch from Tokyo. The expedition consisted of 3 fleets with a total of 50 catcher boats. Fishing began on May 10 and ended on August 6. The fleet operated south and west of the Aleutians (west of 177° E. longitude) until July 3, then shifted to better fishing grounds off Kamchatka and northern Kurile Islands.

North Pacific Salmon Expedition Catch

| Species | No. of Fish |
|---|---|
| Red Salmon ..... | 737,489 |
| White Salmon .... | 638,571 |
| Trout ..... | 701,157 |
| King Salmon ..... | 1,365 |
| Silver Salmon ... | 24,205 |
| Total | 2,102,787 |

One fleet left the fishing grounds on August 6, a second on July 30, and the last on July 28.

* * * * *

ADDITIONAL GOVERNMENTAL FINANCIAL ASSISTANCE PLANNED FOR FISHERIES: The Japanese Government is planning additional financial assistance to the Japanese fisheries. A special credit fund is expected to be created. This fund will be used

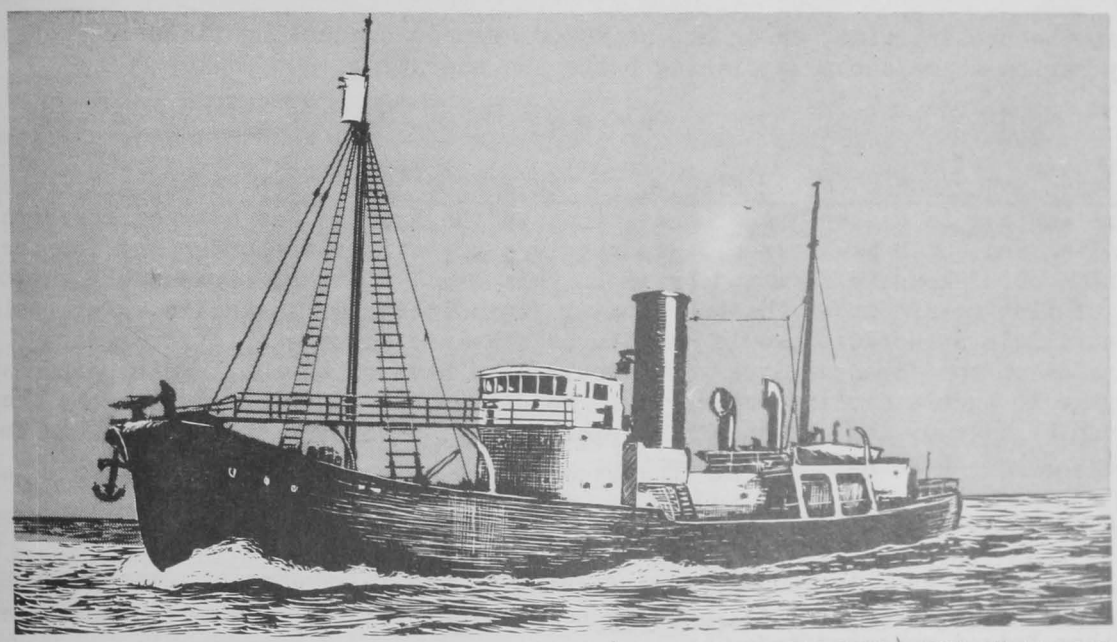
for the financial relief of smaller fishery firms. The plan was publicized in the press (Kyodo, July 22) and confirmed by the Japanese Fisheries Agency, reports a July 30 dispatch from the American Embassy at Tokyo.

The plan is to establish a fund in the amount of 2 to 4 billion yen (US$ 5,555,000 to $11,100,000). This fund will be created by deposits from fishermen's federations, and prefectural governments. The fund will guarantee repayment of loans borrowed by the members of the fund from the Agricultural and Forestry Central Bank (Government institution) and other financial institutions. The Government will in turn guarantee payments made from the fund. The fund will be administered by the Minister of Agriculture and Forestry (which includes the Fisheries Agency) and the Minister of Finance.

A bill to provide proper legislative measures to establish and operate this fund will be introduced in this next session of the Diet which was expected to reconvene in September.

* * * * *

REPORT ON NORTHERN PACIFIC WHALING: The Japanese whaling expedition to the northern Pacific has caught 44 whales in 10 days since it started fishing July 19,



A TYPICAL JAPANESE WHALE CATCHER OR KILLER BOAT (385 GROSS METRIC TONS) USED IN ANTARCTIC WHALING.

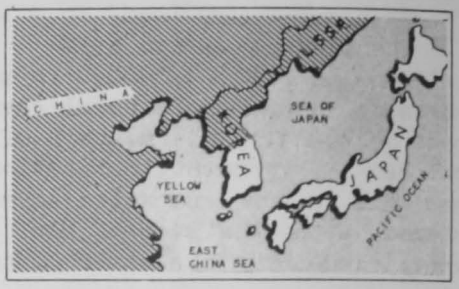
according to a report received by the Japanese Fisheries Board (Fisheries Agency). This was reported in the Japanese press (Kyodo, July 29) and was confirmed by an official of the Japanese Fisheries Agency, states an August 5 American consular dispatch from Tokyo.

The Japanese whalers have resumed fishing in this part of the world after an 11-year suspension. The catches are slightly lower than the target of 5.5 whales a day. But the Fisheries Board expects the hauls will increase if the weather improves.

The expedition is being undertaken jointly by three leading fisheries companies. The whaling team consists of one mothership, four catcher boats, and eight transports.

* * * * *

FISHERMEN SEEK PROTECTION AGAINST BOAT SEIZURES BY RUSSIA AND RED CHINA: Japanese fishermen have petitioned the Diet and the Japanese Fisheries Agency for protection of Japanese fishing boats against seizure by Russia and Red China, declares an August 14 American Embassy dispatch from Tokyo.




The Nippon Times (August 12) reports: "approximately 280 Japanese fishing boats with some 2,700 fishermen engaged in fishing in the East China Sea and the Sea of Okhotsk (north of Hokkaido) have been captured by Communist patrol boats during the past seven years."

The news item states that Russia captured 195 Japanese boats, of which 134 have been released. Approximately 1,700 Japanese fishermen were captured, but only 1,536 have been released.

Red China has captured 84 Japanese fishing boats and has returned all but one wooden boat. (Note: An official report of the Fisheries Agency shows 87 boats seized by Red China.) Japanese fishermen captured by Red China number 1,040. To date 890 have been released and returned home.

At the present time, Japan has no armed vessels conducting fisheries patrols in any region where Japanese fishing boats are operating.

* * * * *

PLANS FOR RESUMING PEARL FISHING IN THE ARAFURA SEA: Japanese pearl fishermen are anxious to resume prewar operations in the Arafura Sea between Northern Australia and Dutch New Guinea. Reportedly, negotiations are under way for the formation of a Japanese firm to engage in this pearl fishing. Presumably, proposed areas of fishing are under the territorial jurisdiction of Australia. Permission of Australia's authorities would have to be obtained under such circumstances. Permission of the Japanese Government would also have to be obtained by Japanese to engage in such a fishing enterprise. No request for such permission has been received to date by the Japanese Fisheries Agency, according to the American Embassy at Tokyo in an August 27 dispatch.

A Japanese press item (Kyodo, August 21) reported:

"Japan will shortly resume pearl fishing in the Arafura Sea, between Northern Australia and Dutch New Guinea, pending permission from the Australian Government, the Nihon Keizai reported today.

"Preparations are being made for the resumption of the operations, which have been suspended since the war, by several Japanese firms, the economic daily said.

"If permission is obtained from the Australian authorities, a firm capitalized at ¥200 million will be set up with operations slated to be commenced within this year, the paper said.

"Plans at present call for the extracting of 500 tons of pearls annually, which will be exported to the United States, the journal reported.

"Before the war, an average of some 4,000 tons annually were gathered by the Japanese operating from Palau Island, which then was under Japanese mandate, the paper said.

"These were mainly exported to America for use in making buttons and ornaments.

"Operations after the war were halted because of a loss of the base of operation, ships, and adverse international conditions, the journal reported.

"Improvement in various conditions since Japan's independence, however, prompted these interested to work for the resumption of the pearl operations, the journal said."

## Mexico

WEST COAST SHRIMP SEASON DISAPPOINTING: The Mexican west coast shrimp fishing season this year ended by the middle of July and was disappointing, reports an American Embassy dispatch from Mexico dated August 25.

Fishing fleets were being overhauled and shrimp freezing plants closed down towards the latter part of July.

* * * * *

GUAYMAS' SHRIMP INDUSTRY OUTLOOK FOR 1952/53: August and September are the two months constituting the closed season on shrimp fishing for the Guaymas fleet, and the port during August was filled with boats moving in and out of shipyards as their owners prepared them for the coming season. The shrimp freezing plants also took advantage of the lull to inspect and repair their equipment, reports a September 5 American consular dispatch from Guaymas.

According to data issued by the Instituto de Pesca del Pacifico, the Guaymas shrimp fleet landed during the 1951-52 season (October-July) 3,455 metric tons of shrimp (see table).

It is reliably reported that only five of Guaymas's seven shrimp-freezing plants will be in a position to begin operations in October. The firm operating the remaining two has evidently been so weakened by the industry's financial reverses of the past two seasons (largely a result of overrapid expansion) that without an "angel" from outside the industry it cannot make the necessary outlay to ready both its fleet and plant for operation.

Shrimp Landings by Guaymas Fleet, 1947/48-1951/52

| Season | Quantity |
|---|---|
| | Metric Tons |
| 1951-52 ... | 3,455 |
| 1950-51 ... | 5,257 |
| 1949-50 ... | 5,430 |
| 1948-49 ... | 4,586 |
| 1947-48 ... | 2,867 |

Though it is expected that all or nearly all of the Guaymas boats will sail on the opening day of the season (October 1), many will not be properly refitted and equipped to begin a new season. They will not be able to work through the season unless early trips provide the necessary funds for further repairs.

## Netherlands

FROZEN FISH INDUSTRY: Packaging of frozen fish, which had its inception in the Netherlands late in 1950, progressed considerably within the past year, according to a July 15 American Embassy report from The Hague.

At present there are two plants engaged in processing frozen fish, both located at Ijmuiden. Their combined capacity is estimated at 500 metric tons of fish per eight-hour working day.

Domestic sales of packaged frozen fish are large and stable, even though there is considerable competition from adequate supplies of fresh fish. On the other hand, exports are erratic, and before there can be any real improvement in

FISH AUCTION AT IJMUIDEN, NETHERLANDS

foreign sales, existing difficulties will have to be worked out. At the present time the two Ijmuiden plants process frozen fish on a customs basis for a variety of Dutch exporters, according to demand. As a result of this system, poor-quality products have sometimes been processed, and packaging has occasionally been substandard. However, the industry has now asked the Netherlands Control Board for Fisheries for its cooperation in limiting the number of firms licensed for such exports. In this way the packers hope to eventually standardize their packing methods and streamline the marketing system.

* * * * *

STABILIZATION OF HERRING MARKET ATTEMPTED: Fishery fleet owners in Scheveningen and Ijmuiden (two important Netherlands fishery ports) are attempting to stabilize the herring market by setting up a fund from which subsidies can be paid to ship owners. When cargoes do not come up to the guaranteed minimum auction

price of fl.11 per 50 kilos (a little over 2½ US cents per pound) the shipowners association will take the herring out of the market and sell it to the fish-meal factories at fl.6 per 50 kilos (almost 1½ US cents per pound). Individual ship owners will receive the difference from the subsidy fund. Capital for the subsidy fund will be raised by a ten percent levy on all auction sales, declares an August 27 American Embassy dispatch from The Hague.

## Norway

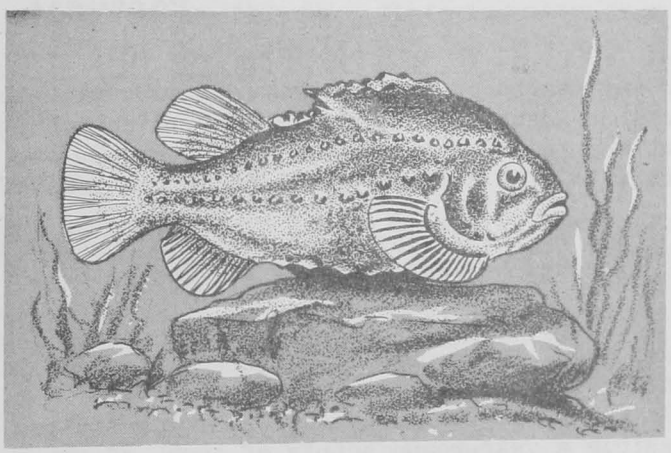
RECORD TUNA LANDINGS REPORTED: Record quantities of tuna have been landed during the latter part of July and August by Norwegian fishermen off the coast of western Norway, south of Bergen, according to an August 28 news item from the Norwegian Information Service. Large catches have been made off the northern Helgeland district, too. Most of the fishing is done with purse seines, rather than with harpoons and trawl, as in former days.

The unprecedented catch of tuna has strained cold-storage and transport facilities to the limit. In fact, from time to time, supplies have exceeded shore and shipping facilities to the point that tuna fishing has been temporarily banned, as authorized under the Fisheries Act.

The tuna is largely going to Italian canneries, some of which are located as far south as Sicily. Altogether, the Norwegian State Railways have delivered about 550 carloads of frozen tuna to Italy. Other shipments have been made by refrigerated transport vessels.

* * * * *

LUMPFISH FISHERY INCREASING IN IMPORTANCE: The lumpfish (steinbit) fishery has in the last few years played an increasingly important role in the Norwegian fisheries, according to information released by the Norske Frossen-Fisk Technological Department, Bodo, Norway. The catch of 5,000 to 6,000 metric tons in spring and early summer gives work to fishermen and packers in this usually slack season in Norway.



LUMPFISH (CYCLOPTERUS LUMPUS) IS A BOTTOMFISH WHICH REACHES A MAXIMUM LENGTH OF 23 INCHES AND A MAXIMUM WEIGHT OF 14 POUNDS. THE AVERAGE WEIGHT IS 6 TO 8 POUNDS.

The frozen fish industry has developed the lumpfish from an almost unknown species to a fairly important one. Both in quality and appearance lumpfish yield white-meated fillets which look good in a cellophane package.

Since the lumpfish is fatty and becomes rancid rather quickly in cold storage, special care is taken in handling the fish. The fish are gutted, bled, and the blood close to the backbone removed by the fishermen aboard the boat. They are washed several times until the final wash water remains clean, and then carefully packed in boxes with ice. This preliminary processing is done within one hour after the fish is brought aboard. The fish are filleted ashore and the fillets packaged and frozen.

* * * * *

HELICOPTER TO BE USED IN WHALING OPERATIONS: The managers of one of the Norwegian whaling expeditions have ordered a helicopter from England, reports the August 1952 issue of The Norwegian Whaling Gazette. The helicopter will be used in the Antarctic during the 1952/53 whaling operations.

## Peru

NO BAIT-FISHING PERMITS: There have been some reports of the possibility of United States tuna-fishing vessels obtaining bait-fishing permits for the territorial waters of Peru. However, according to the latest information available, there is no provision in Peruvian law for issuance of bait permits to foreign fishing vessels. Also, there does not seem to be any possibility that a law permitting the issuance of bait permits will be enacted in the near future.

## Republic of the Philippines

REQUEST FOR HIGHER CEILING PRICES ON IMPORTED CANNED SARDINES REJECTED BY GOVERNMENT: A request by a Philippine food importers association for higher ceiling prices on imported canned sardines was rejected by the Philippine President. Importers stated that prices charged or quoted by foreign suppliers were higher. The President expressed the belief that non-importation would force consumers to resort to dried and fresh fish, thereby giving impetus to the development of the local fishing industry, states a September 5 American Embassy dispatch from Manila referring to a news item which appeared in a recent issue of the Bulletin.


## Portugal

TWO U. S. VESSELS PURCHASED FOR TUNA FISHING: An Aveiro (Portugal) fishing company has purchased two American submarine chasers for use in tuna fishing, reports an August 29 American Embassy dispatch from Lisbon. Press reports indicate that the vessels are equipped with two 900 hp. motors, and have refrigerated compartments with a capacity of 450 metric tons of fish.

One of these vessels completed a successful trial run on August 26 and both are expected to leave shortly to fish with lines in the area off the Canary Islands.

Except for a few small boats operating from the Cabo Verde Islands, Portuguese tuna fishing has been limited to about three months a year (May-August) when tuna are caught by traps off the Algarve coast. These fish, with dark meat, are sold mainly to Italy. Use of powerful fishing craft and line fishing should make possible a year-round supply of tuna, of which a major proportion would be of the white-meat variety acceptable to the American market.

## Sweden

ELECTRIC TUNA FISHING SUCCESSFUL: Electric tuna fishing in Scandinavian waters has now been successfully tried by Swedish fishermen. It is considered such a success that it may revolutionize tuna fishing, reports an August 27 dispatch from the American Embassy at Goteberg.

The method used originates from an invention made by three German scientists who, after some years of experiments, have succeeded in reaching a satisfactory method for electrical fishing of tuna.

The tuna caught in Scandinavian waters can reach a weight of about 800 pounds and are difficult to boat after they are hooked. It is estimated that nine out of ten fish are lost while being hauled on board, but with this new method all hooked fish can easily be hauled on board.

The equipment used is very simple. It consists of one motor converter receiving its current from an accumulator. Small hooks are used. When the fish has been hooked it generally turns around and, when lying parallel with the line, starts running out to free itself. When it turns, it comes into an electric field developed by poles in the hook and the line. The fish becomes temporarily unconscious and can easily be hauled on board. The equipment is easy to manage. It generally consists of three lines with small hooks baited with mackerel and kept at the required depth by floats. When the floats show that a fish has been hooked the current is turned on and the fish hauled in. The fish has to be killed immediately when on board as it does not remain unconscious very long after the current has been cut off.

This electrical method appears to save manpower as two men can fish with three lines and haul one fish on board simultaneously, whereas by the old method it required at least four men on a boat and still only one fish could be hauled aboard at a time. In addition, the number of fish lost was very large.

The price of this equipment is not known, but it is stated to be low and within the range of all fishermen engaged in tuna fishing. It is reported from Norway that electrical tuna-fishing equipment can be fully paid for in a short time.

NOTE: SEE PP. 62-4 IN THIS ISSUE.

* * * * *

NEW FISH PACKAGING AND MERCHANDISING METHOD: In Sweden extensive use is being made of a new method of packaging and merchandising fishery products. The new method consists of cutting frozen fish in portions. These are packed in plastic bags with all the ingredients necessary for cooking. The package is then vacuum sealed. When the contents are to be used, the whole package is heated in boiling water, reports the November 8, 1951, issue of Fiskets Gang. When sufficiently heated, the fish is ready for eating.

## Union of South Africa

CANNED FISH PRODUCTION, FISCAL YEAR 1951: The total canned fish and shellfish pack in the Union of South Africa reached 44,533,000 pounds in the year ended October 31, 1951, of which approximately 25,000,000 pounds were pilchards, 10,000,000 pounds maasbankers, and 6,300,000 pounds spiny lobster.

The total catch of pilchards and maasbankers was reported as 800,000,000 pounds. Data are not available on the catch of rock lobsters.

Domestic consumption of canned fish and shellfish during that year totaled about 19,540,000 pounds and exports were approximately 25,530,000 pounds. Export of spiny lobster were widely scattered throughout the world. Exports of canned fishery products other than spiny lobsters totaled 20,794,000 pounds in 1951 and reflect the phenomenal growth of this segment of the industry, as only 542,396 pounds were exported in 1946.

* * * * *

SPINY LOBSTER EXPORT QUOTA FOR 1952 ESTABLISHED: Pending results of investigations by the South African Marine Biological Laboratories, 1952 quotas for the South African spiny lobster industry have been set at 5,300,000 pounds of canned and 2,140,000 pounds of frozen tails. Exports of these products are subject to quota control for conservation purposes, according to the August 23 Foreign Trade of the Canadian Department of Trade and Commerce, and the purpose of the investigations is to determine whether the existing system of control ensures conservation of the country's spiny (rock) lobster resources.

* * * * *

FISH MEAL FOR HUMAN FOOD: Although fish meal is used in most countries only as a food supplement for animals and is highly successful when fed to cattle, pigs and poultry, the South African Government is planning to introduce it into the nation's bread, and the idea has been received with enthusiasm by all parties of the House of Assembly, according to the September 6 issue of The Fishing News, a British fishery periodical.

The natives do not get enough protein, vitamins, minerals, and fats in their diet, and their health suffers accordingly. To combat this the South African Government intends to introduce into bread a small proportion of a highly purified and palatable white fish-meal flour.

Announcing this development, the Minister of Health said that successful experiments at Capetown, Pretoria, and Witwatersrand Universities had indicated that the addition of fish meal to bread and mealie meal would go far to curing tuberculosis and blindness among South Africa's population. The Minister added: "I am now in a position to feed 20,000 children in institutes of my department, and we will give them this food."

## United Kingdom

TRAWL FOR USE AT PRE-SET DEPTHS: Experiments are in process in Hull and Grimsby with a type of trawl which will keep off the sea bottom and which is expected to catch many fish which go over the top of the ordinary trawl, reports The Fishing News, a British fishery periodical, in its August 23 issue. In addition, since the new type of trawl will operate off the bottom, it should be possible to avoid tearing the net on rocks or rocky bottoms.

Icelandic fishermen have used this type of trawl and have considerably increased their catches.

White fish--round as well as flat--spend the greater part of their lives on or near the sea bottom, but there are times when round fish leave the bottom and school in upper waters. However, to trawl for them in mid-water blindly would not be worth while. Recently, because of the rapid improvement in the sensitivity of the various types of echo-sounding devices, it is now possible to locate schools in mid-water. Frequently skippers report markings on their echo-sounding charts which are believed to indicate clearly schools of fish in mid-water. If a net can be towed with a wide-open mouth at any desired depth and if that depth is capable of rapid adjustment, it seems likely that on some fishing grounds it will be possible to take fish in mid-water.

Reports indicate that the bottom of the fishing grounds near the Westman Islands is so rough that it has never been possible to tow an otter trawl in that area. The general practice was to fish as close as possible to the rocks. This spring it was observed that Icelandic trawlers were sailing right over the roughest of this ground and catching large quantities of cod. Because of this, several enterprising firms in Grimsby and Hull have been carrying out experiments recently, but so far nowhere have conditions been found where results can be obtained comparable with the mid-water fishing on the fishing grounds near the Westman Islands. The English firms have obtained from Iceland full information as to the gear and the methods used by the Icelandic vessel which pioneered mid-water trawling and successfully used it. Therefore, the English experiments are based on the Icelandic mid-water trawling method.

The mid-water trawl is an old idea brought up to date. Net-making firms have been working in cooperation on it and it is based on sketches which were drawn in 1895. Net makers believe that it will be cheaper than the normal type because it needs no "reels" and "bobbins." A net maker was quoted in a daily newspaper as saying: "The nets, which will billow out under the water like huge aerodrome windsocks, will be drawn through the water above the sea bed at any depth required. The net--its secret is in its hauling gear--has already proved successful in trials."

It is essentially a cod trawl for seasonal use when fish school in mid-water. Even if it should be adopted, the present type of trawl would still be needed for flounders and at times when other fish stay close to the bottom. The trawl has not yet been thoroughly tested at sea.

The net maker is also reported to have said: "The net will result in bigger catches, quicker and cheaper trips, and better-quality fish. Skippers of ships equipped with apparatus for indicating fish shoals will now be able to set a depth indicator and their floating nets will go down to the level of the shoal."

* * * * *

HERRING PRESERVATION METHODS: A summary of the experiments carried out on herring preservation by the Food Investigation Organization of the British Department of Scientific and Industrial Research appeared in the periodical Food Manufacture for September 1952, reports a September 15 American Embassy dispatch from London. This summary as it appeared in the periodical follows:

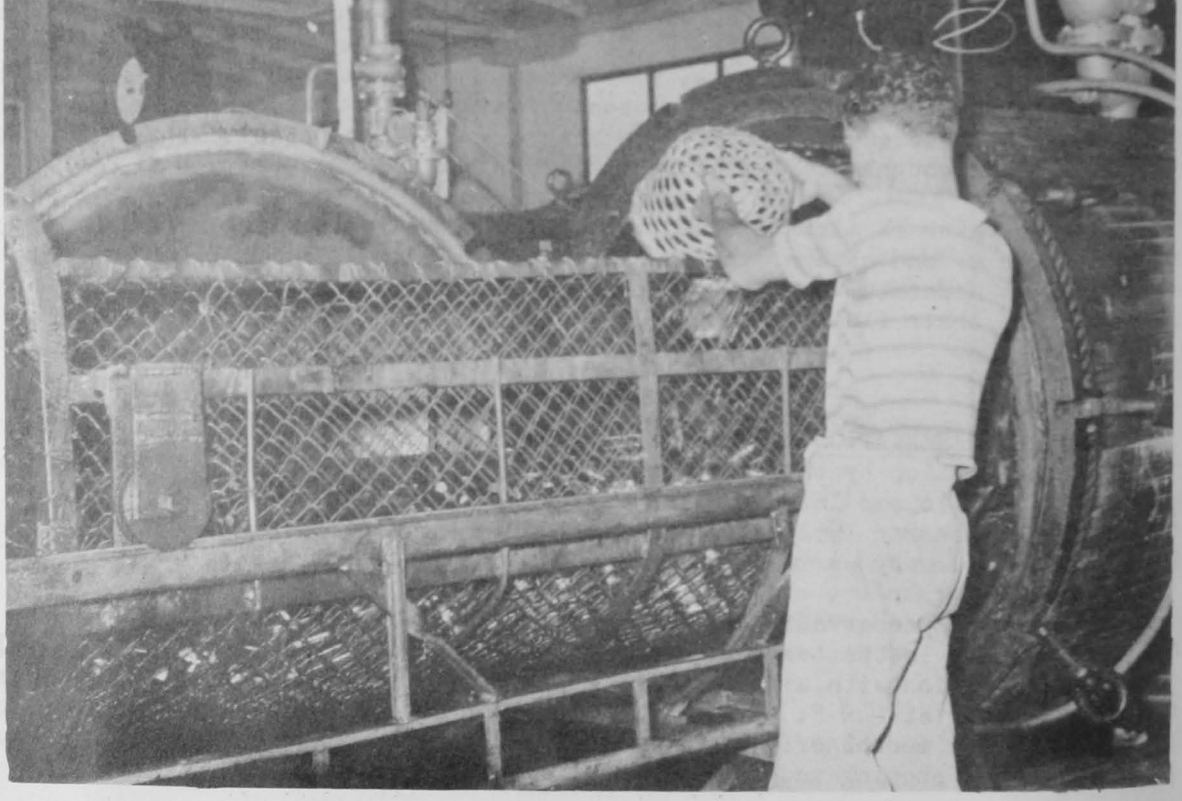
"Successful preservation of fresh herring should prevent rancidity in the fat and also changes in the texture of the flesh. Rancidity can be prevented by glazing the frozen fish with a thin coat of ice by dipping them in water or by spraying them and storing at -4° F. to -22° F. Fish so treated will keep in good condition for three to six months or more. Changes in flesh texture can be avoided by quick freezing before storing under the same conditions.

"A recently published report describes pilot-scale trials on the freezing and cold storage of herring. Some 137 tons of fish were quick frozen and cold stored at about 0° F. and -17° F. under commercial conditions. Two methods of freezing were used, some of the herring being frozen in a multi-plate freezer, the rest in an experimental air-blast freezer. On examination, it was found that fish frozen by either method and stored at -17° F. were suitable for kippering or distribution as fresh herring after as long as nine months in store, but at 0° F. the storage period was cut to six months or less.

"To maintain a supply of kippers throughout the year, the herring can be frozen and cold-stored immediately they are landed; they can then be withdrawn from storage and kippered as required, to keep the smoke-curing plant working steadily through the year. This method produces the best kippers. Alternatively the herrings may be kippered on landing and the kippers stored before release to the market. The kippers will remain in good condition for about three months at -4° F. or five months at -22° F. Good kippers can be produced in this way, and the simple freezing process involved may sometimes be preferred to the freezing of herring as a means of spreading seasonal supplies over the year."

## Venezuela

CANNED FISH MARKETS SOUGHT: Venezuelan fish canners are asking that the Government act to prevent unusually large importations of United States canned sardines during the period before the revised trade agreement takes effect, states a September 15 American consular dispatch from Caracas.



FINAL PROCESSING OF CANNED SARDINES IN A VENEZUELAN CANNERY.

The canners are looking forward to the date when the duty of 2 bolivares per gross kilogram (27.3 US cents per pound) can be applied to United States canned sardines. At the same time, they are complaining of oversupplies which they cannot market in the United States because of high duties.

The canners want the Government to negotiate agreements with the countries of the Far East for Venezuelan canned fish. They believe they can supply fish to Indonesia, the Philippines, and other densely-populated Far Eastern countries. In fact, their only hope for a good market lies in that region, according to the canners.

NOTE: SEE COMMERCIAL FISHERIES REVIEW, SEPTEMBER 1952, PP. 57-9.

* * * * *

ROVING SCHOOL TO TEACH METHODS FOR SALTING FISH: A roving school to acquaint fishermen with modern methods of salting fish has been established by the Venezuelan Ministry of Agriculture, reports an American Embassy dispatch dated September 18 from Caracas.

The school is housed on a special launch that will visit all the coastal and river points where fish are salted. The Chief of the Bureau of Agricultural Economics, which administers the fisheries, states that at present 80 percent of the fish catch in Venezuela arrives at the market in poor condition.

The system being taught stresses the use of clean water, refined salt, and the use of a press. The Ministry of Agriculture has the presses for sale. In those cases where the fishermen lack funds to purchase these, arrangements have been made with the Banco Agricola y Pecuario to advance them credit for this purpose.

The question is being studied of limiting the marketing of salt fish from those places where the school has taught the new system to the type "bacalao" (salt cod), thus giving the plan impetus.

Venezuela production of salt fish for the calendar year 1951 was 9,875 metric tons, and for the first six months of 1952 it amounted to 8,782 metric tons.

## THE MEXICAN FISHERY INDUSTRY

Mexico has practically no offshore fishing fleet. The greater part of all offshore fishing done in Mexican waters is by United States boats. Mexican fish canning plants even contract United States boats to supply their needs for offshore species.

The Mexican fishing industry is dedicated almost entirely to coastal waters, estuary, and lagoon fishing. The average Mexican motor-driven vessel is not equipped for extensive sea voyages and fishermen seldom stay out over 36 hours.

--Fishery Leaflet 339