International

TERRITORIAL WATERS

INTER-AMERICAN JURIST COUNCIL PASSES RESOLUTION ON TERRITORIAL WATERS: A resolution to the effect that the three-mile limit is inadequate and not a normal part of international law, and that each state is competent to set its boundaries in territorial seas within reasonable limits was passed on February 1, 1956, at the third assembly of the Inter-American Jurist Council in Mexico City. The vote on the resolution presented by Mexico and eight other Latin American countries was 15 to 1, with only the United States voting against the resolution. Five nations abstained in the final voting. Cuba voted with the United States on some points when the resolution was presented article by article, but abstained in the final vote, according to reports.

The resolution covered more than just territorial waters since it dealt with many aspects of the regime of the seas.

The resolution recognizes as an expression of the juridical conscience of the continent, and as applicable between American States, the following rules, among others.

It declares that acceptance of these principles does not imply and shall not have the effect of renouncing or weakening the position maintained by various countries of America on the question of how far territorial waters should extend.

With reference to territorial waters the resolution states that (1) the distance of three miles as a limit of territorial waters is insufficient, and does not constitute the rule of general international law. Therefore, enlargement of the zone of the sea traditionally called "territorial waters" is justifiable. (2) Each state is competent to establish its territorial waters within reasonable limits, taking into account geographical, geological, and biological factors, as well as the economic needs of its population, its security and defense.

In regard to the continental shelf, the resolution asserts that the rights of a coastal state with respect to the seabed and subsoil of the continental shelf include the right to the natural resources found there, such as petroleum, hydrocarbons, mineral substances, and all marine, animal, and vegetable species that live in constant physical and biological relationship with the shelf, not excluding all benthonic species.

On the question of conservation of living resources of the high seas, the resolution states (1) coastal states, following scientific and technical principles, have the right to adopt measures of conservation and supervision necessary for the protection of the living resources of the sea contiguous to their coasts, beyond territorial waters. Measures that may be taken by a coastal state in such a case shall not prejudice rights derived from international agreements to which it is a part, nor shall they discriminate against foreign fishermen. (2) Coastal states have, in addition, the right of exclusive exploitation of species closely related to the coast,

life of the country, or needs of the coastal population, as in the use of species that develop in territorial waters and subsequently migrate to the high seas, or when existence of certain species has an important relation with an industry or activity essential to the coastal country, or when the latter is carrying out important works that will result in conservation or increase of the species.

There was also a section of the resolution which referred to base lines and pointed out that coastal states may draw straight base lines that do not follow the low-water line when circumstances require this method because the coast is deeply cut or cut into, or because there are islands in its immediate vicinity, or when such a method is justified by the existence of economic interests peculiar to the region or coastal state. In any of these cases the method may be employed of drawing a straight line connecting outermost points of the coast, islands, islets, keys, reefs, shoals, or shoals or banks, whether they rise above the surface intermittently or not. Drawing of such base lines must not depart to any appreciable extent from the general direction of the coast, and the sea areas lying within these lines must be sufficiently linked to land domain. (3) Waters located within the base line shall be subject to the regime of internal waters. (4) The coastal state shall give due publicity to straight base lines.

The part of the resolution dealing with bays states that (1) a bay is a well marked indentation whose penetration inland in proportion to the width of its mouth is such that its waters are inter faucesterrae and constitute something more than a mere curvature of the coast. (2) The line that encloses a bay shall be drawn between its natural geographical entrance points where indentation ceases to have the configuration of the bay. (3) The waters comprised within the bay shall be subject to the juridical regime of internal waters if the surface thereof is equal to or greater than that of the semicircle drawn by using the mouth of the bay as the diameter. (4) If the bay has more than one entrance, this semicircle shall be drawn on the line as long as the sum total of the length of the different entrances. The area of the islands located within the bay shall be included in the total area of the bay. (5) The same rules shall be applicable to estuaries. (6) The so-called "historical" bays may be subject to special regimes established by the coastal state or states.

WHALING

ANTARCTIC WHALING, 1955/56 SEASON: The Antarctic 1955/56 whaling season has had a poor start, preliminary reports from the South Georgia whaling stations indicate. With the total catch this season limited by the International Whaling Commission to 15,000 blue-whale units against 15,500 units last year, Norwegian whaling companies expect their share of the catch will be less than 50 percent.

Prices of whale oil sold early this year have been about 13 percent above the preceding year. If they are maintained at this level, they will help offset the anticipated reduction in the catch.

Japan's three whaling fleets this season make up that Country's biggest postwar whaling expedition. A total of 68 Japanese ships are taking part in the whaling season which opened January 7, 1956. The target set by the Japanese fleet is 850 sperm whales, 48,000 metric tons of whale oil, 42,000 tons of meat from blue and fin whales, and 645 tons of meat from sperm whales.

The reduction by 500 units in the catch quota for Antarctic pelagic whaling would be equivalent to a reduction in whale-oil output of from 10,000 to 12,000 short tons. However, the yield of whale oil per unit was below average in the 1954/55 season. Thus, if yields in the 1955/56 season are more nearly normal, whale-oil production under the new limit could still exceed the 332,000-ton Antarctic pelagic output of 1954/55.

A "blue-whale unit" is the measurement of the quantity of oil extracted, and represents either 1 blue whale or 2 fin whales or $2\frac{1}{2}$ humpbacked whales.
Note: Also see Commercial Fisheries Review, September 1955, p. 92.

Australia

TUNA FISHING PROSPECTS TO BE STUDIED: Funds for investigating the possibility of establishing a tuna fishing industry in South Australian waters has been included in budget estimates, the Australian Minister of Agriculture stated in November 1955.

The sum of US$17,900 has been provided for the purchase of a fishing vessel to be used in the research work and for the catching of live bait. Additional funds of US$21,300 were provided for a thorough investigation of the tuna fishing possibilities.

Two United States tuna fishing experts will be brought to South Australia and will use another boat based at Port Lincoln.

If the tuna catch is reasonably good, the cost of the project will be recovered, according to the December 1955 issue of Fisheries News Letter, a periodical issued by the Commonwealth Director of Fisheries.

Belgian Congo

FISH IMPORTS: The Belgian Congo's imports of canned herring and canned sardines have been practically monopolized by European suppliers during the past three years, reports the Canadian Foreign Trade of September 17, 1955. An encouraging note, however, was sounded at the outset of 1955 when Canadian sardines reentered the market at prices which bettered those of European suppliers. The African is very fond of canned fish and bought over US$1.6 million worth during 1954. There appears to be little or no let-up in the demand although stocks of canned fish were quite high in Leopoldville and other large centers late in 1955.

The Congo is also a heavy importer of dried salted fish of varying species--about 23,000 metric tons were imported during 1954 (valued about US$5.7 million). The principal sources were Angola, the Canary Islands, and South Africa. Because of a controlled retail price of 20 francs per kilo (about US$0.18 a pound), suppliers of dried salted cod must be prepared to land their fish at Matadi at between $12-13\frac{1}{2}$ francs per kilo (about US$0.12 a pound) in order to make any headway in this colony.

Chile

SHRIMP INDUSTRY: Chile's fishing for shrimp is generally incidental to some other fishery. However, now and then some experimental hauls may be made. Some consideration is being given to fishing for shrimp in deep waters (200 to 500 fathoms).

There are at least three, and probably more species of shrimp not yet identified, that can properly be called shrimp. In addition there is the langostino (probably

Table 1 - Chilean Shrimp 1/ Landings, 1945-54

Year	Quantity	Year	Quantity
	1,000 Lbs.		1,000 Lbs.
1954	223	1949	69
1953	57	1948	79
1952	48	1947	183
1951	36	1946	114
1950	53	1945	116

1/ Does not include langostino.
Source: Ministerio de Agricultura, Direccion General de Pesca y Caza, Republica de Chile.

several species of Galatheidae, the most important of which is Cervomunida johni), but this is not truly a shrimp.

Of the shrimp, the one nearest shore (taken in depths up to about 30 fathoms) is called the beach shrimp (camaron de la playa), Rynchocinetes typus. It is a small shrimp that runs about 100 headless to the pound or smaller. It is taken in traps and sold alive to nearby bars and restaurants.

The pink or nylon shrimp, Heterocarpus reedi, is a newly-described pandalid shrimp, pink in color, occurring in depths between 100 and 200 fathoms. This also

Fig. 1 - Sometimes the Chilean trawler catches are almost entirely of langostinos as shown in this photograph. The crew is sorting the catch.

is a small shrimp though somewhat larger than the beach shrimp. The cooked peeled meats average about 75 to the pound. It is fished for only on occasions as the market demands. They are brought in whole, without ice, and sold cooked-peeled, either fresh or frozen.

There is still another shrimp, the "gamba" (probably a pandalid) which is bright red and occurs in depths beyond 200 fathoms. It is larger than the other two forms, the largest specimens are reported to run 20 to 25 to the pound fresh headless. It has only been taken experimentally, although one fisherman stated that the best

hauls he made averaged about 2,000 pounds of whole shrimp an hour, with a 50-foot trawl. This shrimp appears to be the most promising for future export markets. One boat was being outfitted by a private company to fish for this species.

The above three species (and probably some yet unidentified shrimp) comprise the shrimp fishery, which is small and for local consumption. The 1954 catch was about 223,000 pounds of whole shrimp.

Fig. 2 - Trawler catches often include a large proportion of langostinos.

The cooked meats of the langostino, mentioned above, are white with a reddish exterior and are quite tasty. These meats run about 35-50 to the pound cooked, and are flat rather than cylindrical like shrimp and prawns.

The langostinos occur in the same general habitat as the hake. They are usually taken at around 80 fathoms. The fishery for them began in 1953 when over 2 million pounds were taken. In 1954 over 5.8 million pounds were caught, some of which were canned as "rock lobster tails."

The local demand for langostinos has increased rapidly during the past three years. Prior to 1953 so few were sold that no production records were kept. In Santiago (September and October 1955) they were on almost all menus in the majority of the restaurants.

Langostinos are mostly marketed cooked-peeled or frozen cooked-peeled, though some are canned and some sold raw whole. The popular retail style in Santiago is cooked-peeled in transparent plastic bags of 2.2 pounds which retailed in October 1955 for about 60 U. S. cents (at the free rate of exchange.)

When hake are abundant, fishing for langostinos is sporadic, depending on market demand. The langostino trawl has smaller mesh than the hake trawl.

Shrimp and langostinos are landed whole, raw, and un-iced. The boats leave in the early morning, and return in late afternoon of the same day.

The principal ports are Antofagasto, Valparaiso, and San Antonio.

The prospects of increasing the catch in the present areas of operation are quite good, depending on market conditions. It is more than possible that new areas will be developed as the market grows.

The net that is used for the red shrimp fishery is 49 feet at the mouth. The wing mesh is 2-inch stretched, 18 thread. The bag is double-meshed 2-inch stretched, 42 thread. The doors are $6\frac{1}{2}$ feet by 3 feet; bracketed, and spaced with about 26-foot leads from the net. The lead line is cable and rope, wrapped. Glass floats are on the cork line. Like most Chilean trawlers the boat is rigged with gallows and uses $\frac{1}{2}$-inch diameter steel towing cables.

Some shrimp are marketed alive, but the majority are sold cooked-peeled fresh and some cooked-peeled frozen. The shrimp are landed the same day as caught. They are brought in whole and not iced. They are trucked to the factory and immediately boiled in sea water; after cooking they are peeled by hand. They are generally sold the next morning.

The cooked-peeled frozen shrimp are handled in the same manner up through the peeling. Later they are layer-packed by hand in stainless steel, elongated, rectangular trays, holding a little more than 7 ounces. They are covered with water and frozen in a plate freezer. In 1954 slightly over 220 pounds were prepared as described from about 2,600 pounds of raw whole shrimp in one plant in Valparaiso.

In the same year 57,000 pounds of raw shrimp produced 7,000 pounds of cooked-peeled shrimp. In all, 60,000 pounds of whole shrimp were processed. The yield in cooked-peeled meats of shrimp is about 13 percent of the total live weight. (Langostinos only yield out about 7 percent of cooked-peeled meats.)

REVIEW OF THE FISHERIES: Fish and Shellfish Catch: Chile's fish landings (round weight) in 1954 totaled 230.1 million pounds, the bulk of which was hake--123.7 million pounds. In the same year shellfish landings amounted to 86.2 million pounds, of which 5.8 million pounds were langostinos and 223,000 pounds were shrimp.

German capital is reported entering the hake fishery in increasing amounts, particularly in the southern part of the fishery. Besides trawlers they are financing fish-meal plants.

Fisheries Workers: In 1954 Chile had 13,700 persons working in the fishing and whaling industries, of which about 9,100 were fishermen and 4,600 worked ashore in plants.

Fishermen in general are paid fixed wages and a little additional for each box (about 55 pounds for hake and 33 pounds for langostinos) above a fixed quota. There are no regular shrimp fishermen, but about 100 may fish occasionally for langostinos. In general, a fisherman's wage is comparable to that of a skilled manual laborer in Chile.

Vessels: Some of the fishing trawlers are used exclusively for hake, other fish for hake and occasionally langostino, and less frequently a few try fishing

for shrimp. In 1954 there were 42 trawlers operating in Chile; all but one were along the central coast between Valparaiso and Taleahuano. There is a closed fishing season from September 1 to December 31 between Quintero and Quintay.

Foreign Trade: The fishing and whaling industries, by special decree for a period of 10 years from August 3, 1953, are the only industries in Chile which may freely use foreign exchange obtained from export sales. (The free exchange, from about mid-September to mid-October 1955, fluctuated between about 600 and 750 pesos to a United States dollar. The official rate for export and import of most products is about 300 pesos to the dollar.) If they make use of this privilege they may not take advantage of the official foreign exchange rate for importation of machinery, boats, and fishing gear.

Fig. 3 - Boxes of sardines and anchovies for the cannery at El Rio, a small fishing village on the Chilean coast.

Some fishing companies take advantage of the foreign exchange privilege while others do not. Their decision is based mostly on anticipated imports of machinery and equipment.

Export permits are required on fishery products and local quotas must be fulfilled before permits are granted. Also there are local price ceilings. As a consequence certain injustices occur. For example, Chile's greatest fishery export is hake fish meal. Local consumption requires about 5,000 metric tons of fish meal a year which comes mostly from Valparaiso and San Antonio because of lower freight rates owing to shorter distances between producing and consuming points. The local price ceiling is about one-half that of the world market. As a consequence the plants at Valparaiso and San Antonio are complaining since they must carry the entire load for local markets.

Since 1949, Chile has not imported any fishery products. This was accomplished first by not including these items in the foreign exchange budget and later by direct prohibition. Previously, small amounts of canned and dried shrimp were imported from the United States, but the amounts were never appreciable.

Government Assistance to the Fisheries: The Chilean Government has shown much interest in developing the fishing industry in general. This has been manifested through CORFO (Industrial Development Corporation) and through special legislation.

The CORFO began fishing operations in 1939 and in 1942 started a trawling company for hake. Now that fishery enterprises are well established in Chile, the CORFO is gradually withdrawing. They are selling all enterprises with the exception of the plant in San Antonio. There work will be devoted to a great extent to exploratory trawling for hake in areas not now fished. They are also purchasing a Norwegian filleting machine and fish-meal plant.

The CORFO also assists the fishery industry in obtaining beneficial legislation.

Decree No. 208 of July 21, 1953, grants special privileges to the fishing industry, some of which are:

1. Small boat owners, who operate their own boats, are exempt from certain taxes for a period of 10 years from date of publication of the law.

2. For this same period fishing industries and fish transformation industries are:

   a. Exempt from certain excess profits taxes.

   b. Have free use of foreign exchange, but if they use this privilege they are not entitled to official exchange on importation of machinery, boats, or fishing gear.

   c. Boats are subject to minimum charges for port costs, use of radiotelephone equipment, and pilotage fees.

   d. Exempted or have a reduced rate on several other taxes.

3. The fishing industry, and other industries which use at least 80 percent raw materials coming from the sea, are exempt from ad valorem import duties and storage, statistical, and customs taxes as well as consular fees.

4. Authority is given the President to expropriate lands adjacent to the sea for construction of low cost housing for fishermen and for fishery schools.

In addition to the above special legislation on fishery enterprises, the Chilean Government has special legislation designed to induce foreign capital to invest in Chile. This legislation grants exemption to certain import fees, provides means for withdrawing profits and capital investment from the country, and provides various other concessions for foreign investments.

The government provides special low rates for the shipment within the country by rail of low-priced fishery products.

Denmark

FISHERY PRODUCTS CATCH AT RECORD LEVEL IN 1955: The catch of fishery products by Denmark in 1955 broke records for both quantity and value, according to a report in the January 6, 1956, Dansk Fiskeritidende, a Danish trade periodical. The total catch amounted to about 923.7 million pounds as compared with 778.2 million pounds in 1954. Fishermen received about US$36.2 million for the 1955 catch as compared with US$32.0 million in 1954.

Exports of fishery products increased to a value of US$36.9 million from a total of US$32.7 million in 1954. The article stated that there were good prospects for further expansion of the exports of fishery products because Danish exports were well accepted on the world market and were competitive in every respect. Expansion of foreign markets would require an increase in the sales and distribution systems.

It is believed that the production from nearby waters has not reached its peak, but in future years, the Danish fisheries would have to depend on the distant fishing grounds off the Faroes and Greenland. This would require larger and more seaworthy fishing craft.

French Morocco

FISHING INDUSTRY, 1954: Landings: The salt-water fish and shellfish landings by French Morocco's fishing fleet in 1954 totaled 93,200 metric tons (valued

Table 1 - French Morocco's Salt-Water Fish and Shellfish Landings, 1954

Species	Quantity	Species	Quantity
	1,000 Metric Tons		1,000 Metric Tons
Fish:			
Sardines	76.6	Anchovies	0.3
Bluefish	4.5	Gurnard	0.3
Young hake	1.6	Ray	0.3
Sea bream	1.3	Sole	0.3
Tuna	1.2	Shark & dogfish	0.2
Plain tuna	0.6	Mackerel	0.2
Bonito, skipjack, plain bonito	0.9	Shad	0.2
Croaker	0.6	Hake	0.1
Lichia vadigo	0.6	Red mullet	0.1
Cuttlefish	0.4	Other (more than 17 species)	2.1
Continued in opposite column		Total fish	92.4
Shellfish:			
Prawn and shrimp			0.6
Other 1/			0.2
Total shellfish			0.8
Grand total			93.2

1/ Includes lobster, crayfish, and other shellfish--all less than 25 tons.

at about US$6.8 million ex-vessel) as compared with 127,996 tons (valued at about US$7.6 million) in 1953 and 121,973 tons in 1952. The decline in landings between 1954 and 1953 was due primarily to a sharp drop in sardine landings--76,582 tons as compared with 103,413 tons, according to an August 19 dispatch from the United States consulate at Casablanca.

Disposition of Catch: During 1954 approximately 75.6 percent of the total landings were processed (canned, salted, etc.) as compared with 77.7 percent in 1953. The balance, except for small quantities used for bait, was consumed as fresh (see table 2). In 1954 a larger proportion of the sardine catch was used for canning (61.2 percent in 1954 as compared with 38.9 percent in 1953) resulting in much smaller quantities used for reduction into fish meal and oil.

Catch by Ports: Although salt water fish and shellfish are landed at 8 ports, the ports of Agadir and Safi lead the other 6 ports in total landings by a wide margin. The three ports of Agadir, Safi, and Casablanca accounted for 87.9 percent of the total salt-water landings in 1954, 88.1 percent in 1953, and 85.8 percent in 1952.

Fresh Fish Industry: The consumption of fresh fish delivered by the French Moroccan nonindustrial fishing fleet declined considerably in 1954. Fresh fish consumption in inland French Morocco declined so much as to cast serious doubt on the future of fresh fish as a staple item in the national diet. Fish consumption in seaboard localities, and particularly in Casablanca, declined substantially also.

Table 2 - Disposition of French Morocco's Fish and Shellfish Landings, 1953-54

Item	1954	1953
	1,000 Metric Tons	
Fresh as landed:		
In ports	13.9	15.1
Inland	0.3	4.6
Exported	8.3	8.7
Total fresh	22.5	28.4
Processed (canned, salted, dried, etc.):		
Sardines used for canning	43.0	38.7
Other used for canning, curing, reduction, etc.	27.3	60.7
Total used for processing	70.3	99.4
Used as bait	0.2	0.2
Grand total	1/ 93.0	128.0

1/ Does not include 178 tons of mollusks.

The financial situation of the nonindustrial fishing industry, which supplies the fish and shellfish consumed fresh, during the year was considerably better than it had been in 1953, although the fresh fish catch was smaller than during the previous year and the danger persisted that the continued utilization of too fine trawl nets will gradually deplete the sedentary fish along the Moroccan coast. Zoning regulations were strengthened in an effort to prevent fishing in given areas during certain seasons and in order to aid in conservation in coastal waters.

During the year the size and distribution of the nonindustrial fishing fleet underwent few changes. Casablanca continued to be the only important fresh fish market.

Table 3 - French Morocco's Total Fishery Products Exports, 1954

Commodity	Quantity	Value	Commodity	Quantity	Value
	Metric Tons	US$1,000		Metric Tons	US$1,000
Sardines, frozen	2,277	422	Salt-water mollusks	37	9
Sardines, fresh	2,293	382	Sardines, canned	31,147	16,795
Tuna, fresh	457	120	Tuna, canned	1,311	934
Other salt-water fish	3,267	413	Mackerel, canned	30	10
Dried fish, except cod	72	15	Other canned fish	35	18
Smoked fish	30	9	Crustaceans & mollusks, canned	118	161
Sardines, salted	715	131	Fish meal	8,832	1,088
Other salted fish	110	23	Fish oil, except cod-liver oil	2,125	334
Crustaceans	266	100			

The number of trawlers officially attached to the port of Casablanca at the beginning of 1955 was 36, according to reliable figures, and their combined tonnage equaled 2,673 tons. However, beginning in 1954 a growing number of these trawlers moved to the port of Agadir where the fishing was better and the boats less subject to work-stoppages by Moroccan crew members for political reasons. By mid-1955 as many as half the number of trawlers attached to Casablanca were fishing from Agadir and marketing their catch in Casablanca, using from two to ten refrigerated trucks daily for transporting the fish. Other ports with trawlers which provide fresh fish for regional markets were: Port Lyautey (6 trawlers, total of 321 tons), Agadir (5 trawlers, 325 tons), Rabat (2 trawlers, 54 tons), and Fedala (1 trawler, 28 tons).

In addition to deliveries by the trawler fleet, the French Moroccan fresh fish market continued to be supplied by ocean-going fishing clippers, two of which (the El Resk and the El Marbrouk) made several trips to Mauritanian waters during the winter months, bringing back from 70 to 100 tons at a time of such species as tuna, sole, croakers, and several varieties of bream. One of these clippers is equipped with freezing facilities and the other with refrigerated holds. Following the winter's fishing season, these clippers were employed in transporting fresh sardines

to such French Atlantic ports as Bordeaux and Nantes. There are reportedly no plans for increasing the clipper fleet within the foreseeable future, despite the value of such boats in the gathering of fresh fish and the delivery of tuna catches for the canning industries.

The total supply of French Moroccan table fish was delivered by units of the local fishing fleet during the year under review, with the exception of a certain quantity of lobsters which was delivered to the Casablanca market by ocean-going lobster boats from Brittany which fish in Moroccan waters for the Moroccan or

Fig. 1 - Typical purse-seine vessel used for sardine fishing in French Morocco.

Fig. 2 - Brailing sardines aboard a Moroccan fishing vessel.

French markets. The local fresh fish market, therefore, relies on the activity of the nonindustrial trawler fleet, which, apart from three larger clippers, is organized along artisan lines and frequently employs crews whose skills and training are inadequate.

Sardine and Tuna Fishing: The 1954 industrial fishing season was seriously below normal with regard both to the quantity of the catch (principally sardines) and the quality of the fish.

According to the Protectorate Government's Scientific Ocean Fishing Institute, the unsatisfactory sardine season was occasioned by unfavorable atmospheric and ocean conditions. The director of the Institute explained that the sardines habitually move toward spawning areas where water is warmer (between 18°-20° C. or 64°-68° F.) in late fall and early winter. These areas are located on the Moroccan coast between Casablanca and Cap Spartel on the north (which explains why Casablanca and Mazagan enjoy good fishing late in the season), and between Agadir and Spanish Sahara in the south. In springtime, however, the sardines move northward or southward toward the cooler waters between Mazagan and Agadir, where temperatures vary between 14.5°-16.5° C. or 58° and 62° F. During the past season adverse winds prevented the collection on the Moroccan coast of the cooler waters necessary for the migrations of sardines, as a result of which the fish remained near the spawning areas, that is, either south of Morocco or northward near Portugal.

The Scientific Ocean Fishing Institute played an important role during the 1954 fishing season, particularly with respect to its program for detecting and signaling

schools of sardines prior to the departure of the fleets for the fishing grounds. This was accomplished by the use of two sardine pilot boats attached one to the port of Safi and the other to Agadir, which departed daily approximately eight hours before the fleets for the purpose of studying the sea with sounding devices and hydrographic instruments. These services, which were available only to the fishing industries of the two major sardine ports, were provided by the Institute but subsidized by the interested canners and boat owners. An innovation in the field of scientific fish detection was made during the year by an association of canners at Safi which chartered an airplane to search the fishing waters visually for schools of sardines and communicate results by radio to the fishing fleet. Whereas those concerned with the experiment were enthusiastic over the outcome, the director of the Institute considered that the method was not efficient inasmuch as only schools of sardines close to the water's surface could be detected visually. The director is interested in equipping aircraft with electronic devices which might permit them to discover banks of fish at lower levels, provided such techniques are practicable.

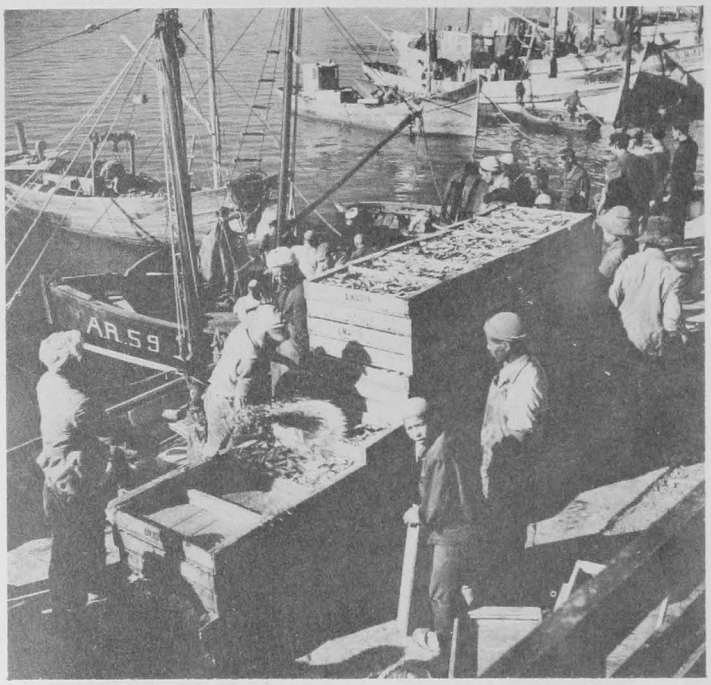

Fig. 3 - Unloading sardines at the fish pier in Agadir.

The 1954 tuna catch was also a great disappointment, since the tonnage delivered fell to little more than one-third that of 1953. Tuna was fished by the industrial fleet, as well as by means of two tuna nets (madragues) located respectively about 32 miles north of Port Lyautey near the border of Spanish Morocco, and in the Bay of Agadir. These nets extended outward from the shore to a distance of two to three miles, and were provided with the usual arrangement of lead and dead chambers. The northern net, which was the largest, was destined for the collection of red tuna, while the net at Agadir collected other table fish in addition to tuna.

The disappointing results of the 1954 tuna catch caused the Scientific Ocean Fishing Institute to redouble its efforts to prove to the fishing industry and the general public that an important future lies in the development of the tuna fishing grounds along the Atlantic coast of French Morocco. In fact, it is the aim of the Institute to encourage the development of tuna fishing to a point where it may eventually constitute a major economic activity, and one approaching in importance that of sardine fishing. It is believed that tuna exist in large numbers in the deeper waters off the Atlantic coast, and particularly in the straits between the mainland and the Canary Islands. As in sardine fishing, the industrial fleet now generally fishes for tuna in the shallower coastal waters in depths of less than 230 feet, whereas the same boats with present equipment could catch tuna in deeper waters. The Institute intends to conduct tests and experiments with a view to determining the methods of tuna fishing best adapted to Moroccan waters. An experimental tuna (and sardine) boat was scheduled for construction at Casablanca and, beginning in 1956, was expected to undertake studies on scientific fishing methods in local waters. The boat was to be 82 feet long and equipped with a 260 horsepower engine; it was to be furnished with the most modern fishing devices, including nylon nets and equipment for vertical and horizontal soundings. The Institute hopes, as a result of such experiments,

to be able to counsel the industrial fishing fleet on the subject of deep-sea tuna fishing, so that a greater number of boats can be employed in this activity and eventually the entire sardine fleet can engage in tuna fishing during the months between the end of the year and the following May when the fleet is normally idle.

The industrial fishing fleet consisted of some 350 sardine boats employing on the average a crew of 15 men, according to reliable but unofficial figures published early in 1955. The largest sardine fleet is located at Safi and consists of 133 vessels with a combined tonnage of 3,500 metric tons. The second fishing fleet is attached to the port of Agadir and consists of 127 vessels with a combined tonnage of 2,300 tons. The Casablanca fleet consists of 57 boats with a combined weight of 850 tons, while the Mogador fleet numbers 14 vessels. In addition, from 3 to 7 boats are attached to each of the ports of Fedala, Mazagan, Rabat, and Port Lyautey. Whereas the average French Moroccan sardine boat has a weight of 20 gross tons, boats operating from the southern ports in particular weigh up to 35 tons and are frequently 39-49 feet long and 16 feet wide and draw $6\frac{1}{2}$ feet of water. While the horsepower of motors varies considerably, the average boat has a speed of about 13 knots and is adaptable to deep-sea fishing conditions.

Canning Industry: During 1954 a total of 70,257 metric tons of fish was delivered to the processing industries, compared to 99,390 tons in 1953. An indication of the importance of the production of salted, dried, and smoked fish can be obtained from the following statistics on the exportation of these commodities during the year: salted sardines 715 tons (812 tons in 1953), other salted fish 110 tons (12 tons in 1953), dried fish 71 tons (212 tons in 1953), and smoked fish 30 tons (9 tons in 1953). The greater part of these exports again was directed to France and French Union countries.

Of the remaining tonnage of fish for processing, some 42,982 metric tons of sardines were used for canning during the year, compared to 38,698 tons during the preceding year. Since the quantity of sardines processed by the French Moroccan canning industry was roughly equal to that of 1953, the reduction by 30,000 tons in the total sardines available for processing purposes was particularly disadvantageous to the fishery byproducts industry.

In 1954 the French Moroccan canning industry produced 1,300,000 cases of canned fish, according to the most reliable available figures, compared to 1,400,000 cases produced in 1953. While the tonnage of sardines for canning in 1954 was slightly higher than in 1953, the inferior quality of the fish resulted in greater waste and consequently a smaller output. The output of canned tuna and other varieties of fish likewise declined as a result of the unfavorable fishing season.

Exports: According to official statistics, exports of French Moroccan canned sardines during 1954 equaled 1,500,000 cases (31,147 metric tons), compared to slightly over 2,000,000 cases (42,527 tons) exported during the preceding year. This drop in exports was accompanied by reduced shipments to a great majority of markets by comparison with the preceding year's record. Exports to the United States declined from 163,090 cases (3,368 tons) in 1953 to 57,456 cases (1,037 tons) during the year under review. By way of exceptions to this rule, exports increased during the year to such areas as French West Africa, British African Territories, Italy, Uruguay, Syria, Belgium-Luxembourg, Togoland, and particularly to Great Britain, which purchased some 32,800 cases of French Moroccan sardines compared to 886 cases in 1953. It should be noted that the less favorable export situation was due entirely to reduced production as a result of insufficient raw materials, and not to prices for the French Moroccan product which remained at the level of the preceding year.

Paralleling this reduction in French Moroccan canned sardine exports was the considerable increase in competitive canned sardine exports by Portugal. The

Portuguese product was sold in larger quantities in a majority of markets during the year, and particularly in those of a number of European countries. (Total Portuguese sardine exports in 1954 equaled 42,000 metric tons, compared to 32,000 tons during 1953, according to published statistics. The United States reportedly purchased 136,000 cases or 2,457 tons of Portuguese sardines.)

Byproducts: The byproduct industry of French Morocco suffered from the greatly reduced sardine tonnage used for reduction. The promising development and expansion of this industry was abruptly checked. During the year exports of fish meal declined to 8,832 metric tons, compared to 16,434 tons shipped during 1953. The portion absorbed by the United States remained equal to that of the preceding year, but an anticipated rise in shipments to this market was prevented by lack of available output. Similarly, fish-oil exports in 1954 declined to 2,125 tons from 3,581 tons in 1953.

Exports: The United States again purchased three fishery products in French Morocco in 1954. United States imports of canned sardines in 1954 fell to 1,037 metric tons (57,456 cases), compared to 3,368 tons (163,090 cases) in 1953, the United States moving from third to eighth place among French Morocco's customers. While not again importing canned tuna in 1954, the United States nevertheless purchased 700 pounds of canned mackerel. Finally, United States imports of fish meal remained at the level of the preceding year, with 5,836 metric tons purchased in 1954 compared to 5,851 tons in 1953, the United States remaining the first customer of French Morocco for that commodity.

Outlook: To solve the ship owners financial difficulties because of smaller catches, the Government took the following measure in 1955: most canning factories were "concentrated" into several groups, in which only the best equipped and most important plants process the entire production, in order to reduce the general expenses and to make possible the payment of higher prices for fresh fish supplies. There are now in Morocco 25 groups consisting of 130 factories; 55 plants remained independent, and 15 semi-independent.

However, the difficulties met by ship owners, due to defective organization of the wholesale fish market and to the poor condition of the old fishing fleet, could not be solved, despite larger Government loans and higher prices paid by canning factories for industrial fish. In fact, these measures, to be efficient, implied normal fish supplies. During the first semester of 1955, according to the local press, the total industrial catch of sardines was only 20,000 metric tons, compared to 77,000 tons during the 1954 calendar year. This decrease in production was particularly noticeable at Safi, where the catch from January 1 to June 30, 1955, reached only one third of 1954's total production. The reason for this decline, the local press observed, was primarily political, as strikes started at Safi at the very time when fish were plentiful along the coast.

Note: See Commercial Fisheries Review, February 1955, pp. 58 and 97; October 1955, p. 81. Values converted to US$ on the basis of 350 francs equal US$1.

German Federal Republic

IMPORT DUTIES ON CERTAIN FISHERY PRODUCTS LOWERED: In an effort to reduce prices of various items, duties have been temporarily lowered on 120 categories, including a few fishery products, of German tariffs. The following list gives the tariff description of the fishery products with their present temporary rates in percent ad valorem; and normal rates shown in parentheses.

Ex 0301.* Fresh or frozen salt-water fish, wholly or divided into portions, except fillets: Haddock, ling, rosefish, halibut, codfish, and sea salmon, free (10).

Ex 1504. Cod liver oil, raw, free (5).

Ex 1604.* Sprats (Clupea sprattus) in airtight containers, 14 (15).

The "ex" preceding the number means that the discription does not cover all items appearing under that number in the tariff schedule. The "asterisk" following the tariff number indicates that an individual license is required for import of that item.

Gold Coast (British)

IMPORT LICENSES FOR CANNED FISH REQUIRED: Exporters of canned fish from the United States and Canada to the British Gold Coast are required to have licenses in 1956, according to a January 31 dispatch from the United States Consul in Accra. "Notice to Importers No. 4" was published in the Gold Coast Gazette of January 21, 1956. Similar licenses were required in 1955 and 1954.

Greece

DEEP-WATER TRAWLING PARTIALLY SUCCESSFUL: The Greek trawl fishery in depths up to 250 fathoms has been profitable only at certain places and at certain seasons of the year, according to a well known trawler owner. In prewar days deep-water fishing was undertaken at only a few places, but after the war successful attempts were made in depths of 150-180 fathoms off Mytilene. Other trials off Crete were made in 150-250 fathoms, according to the December 1955 Aleia, a Greek monthly fishery magazine.

Since the early successful trials in 1950, Greek trawlers have fished regularly in depths ranging between 100-250 fathoms and trials have been made in depths up to 360 fathoms.

* * * * *

SPONGE FISHERY, 1955: During the April to November 1955 sponge fishing season in Greek, African, and International waters, Greek sponge fishermen harvested 126 metric tons. The fleet of sponge fishing boats consisted of 147 craft and 45 auxiliary vessels with 705 divers and 812 crewmen, according to Aleia (December 1955).

Israel

IMPORT DUTIES ON SOME FISHERY ITEMS CHANGED: Tariff items affected by changes in customs duties in affect since August 1955 include herring in brine, dried fish, and canned fish, the United States Embassy at Tel Aviv reports. The new rates are: specific in Israeli pounds per kilogram, and/or percent ad valorem; former rates are shown in parentheses.

129: Herring in brine, financed by allocation of foreign currency, 0.004 (0.004); otherwise financed, 0.003 (0.004).

130: Dried fish, cod type, 0.010 (0.010), but exempt if imported for fish meal.

132: Canned fish, 2.000 (1.000)

132a: Fish other than herring, in brine, 1.000 (0.750)

Note: 1 Israeli pound = US$0.56.

Japan

ARGENTINE COASTAL FISHERIES SURVEY POSTPONED: The Japanese Fishery Agency's research vessel Toko Maru (1,098 tons) was to have been sent to Argentina in November for fishing explorations, but because of changes in the Argentine Government its sailing was postponed several times. Now because of budgetary considerations, the dispatch of the vessel has been given up for this fiscal year. It is believed that if the situation in Argentina becomes clarified the cruise may be made in the next fiscal year, probably in October, according to the January 16 Nippon Suisan Shimbun.

Note: Also see Commercial Fisheries Review, October 1955, p. 93

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NEW GUIDANCE AND RESEARCH SHIP LAUNCHED: The new guidance and research ship Sagami Maru (680 tons), of Kanagawa Prefecture, was launched in February at Shimizu. This vessel, built at a total cost of US$433,000 was under construction since the summer of 1955 and was planned since 1954, or immediately after the formulation of a fisheries agreement between Ceylon and the fishing industry of the prefecture. Its construction is another step in the program of relieving the depression in the coastal fisheries by shifting effort to the high seas.

The new ship represents an increase of the prefectures's research potential, as compared with the old 160-ton Sagami Maru, and it has the most modern equipment, including a dispensary and a repair shop, so that it can perform the functions of a mothership for Kanagawa Prefecture fishing boats operating in such distant grounds as the Indian Ocean reports the January 26 Nippon Suisan Shimbun.

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SHRIMP CATCH AND EXPORTS, 1952-54: In the years 1952-54 the Japanese catch of shrimp averaged close to 100 million pounds annually. Most of the catch is consumed in Japan, but some frozen, canned, and dried shrimp are exported. The United States' share of the frozen shrimp exports was about 89.4 percent of the 273,000 pounds exported in 1953 and 92.8 percent of the 291,000 pounds exported in 1954.

Table 1 - Japanese Shrimp Catch and Exports, 1952-54

Year	Catch	Exports								
		Frozen			Dried			Canned		
		U. S.	Other	Total	U. S.	Other	Total	U. S.	Other	Total
	(1,000 Lbs.)							(Cases)		
1954	112,040	270	21	291	101	1,285	1,386	22	72	94
1953	91,096	244	29	273	132	972	1,104	624	156	780
1952	96,734	-	-	-	-	-	-	377	407	784

The shrimp catch is made up of three predominant species: "kuruma-ebi" (Penaeus japonicus), "kuma-ebi" (Penaeus semisulcatus) both averaging about 5 shrimp to the pound; and "shiba ebi" (Penaeus joyni) averaging about 40 shrimp to the pound. (Presumably heads-on in all cases.)

The principal shrimp fishing areas in Japan are Uchiura Bay, Hokkaido; the waters off northeastern Hokkaido; the Inland Sea; Osaka Bay; Ise Bay; and Ariake Bay, Kyushu. The fishing season is from June through September.

About 90 percent of the catch is made by small 15-20 ton trawlers using trawl nets. The remainder of the catch is taken by miscellaneous boats using a number of types of gear. Most of the vessels catching shrimp, especially the trawlers, do not catch shrimp exclusively, but take all types of fish, among which shrimp average about half the catch during the shrimp season.

There are no known freezing plants or canneries which operate exclusively for shrimp; during the shrimp season the plants which handle other types of marine products and canned goods simply take on shrimp as an additional line.

At the present time there is little prospect of any unusual expansion of the shrimp fishery.

Republic of Korea

REVIEW OF THE FISHERIES, 1954: The total landings of South Korea's fisheries in 1954 amounted to 248,287 metric tons, according to statistics supplied by

Table 1 - Republic of Korea's Fisheries Landings, 1954

Species	Quantity	Species	Quantity
	Metric Tons		Metric Tons
Fish:		Shellfish, etc:	
Ray	4,721	Oyster	1,346
Flat fish	4,795	Clam	412
Mackerel	26,568	Heart clam	980
Halibut	2,899	Abalones	440
Perch	747	Sea mussel	652
Cod	1,568	Crab	1,005
Sea bream (porgy)	1,398	Octopus	1,114
Alaska pollock	13,787	Cuttlefish	8,621
Yellowtail	2,868	Shrimp	13,051
Big-eyed tuna	128	Prawns	1,878
Tuna	85	Other shellfish	12,066
Bonito	17	Total shellfish	41,565
Anchovy	15,869	Marine Animals:	
Croaker	1,613	Whales	1,748
Hairtail	28,180	Seaweeds:	
Sardines	15	Dulse	4,136
Herring	19	Japanese jelly plant	5,482
Mackerel pike	8,253	Caminariodes	4,432
Gurnard	21,545	Other seaweeds	3,202
Other fish	52,647	Total seaweeds	17,252
Total fish	187,722	Grand total	248,287

the Office of Marine Affairs of the Korean Ministry of Commerce and Industry. In 1953 landings amounted to 279,053 metric tons.

Landings in 1955 consisted of 187,722 metric tons of finfish, 41,565 tons of shellfish, etc., 1,748 tons of whales, and 17,252 tons of seaweeds.

The production of canned fish and other processed fishery products was not very significant.

South Korea's fisheries exports consisted of dried fish and shellfish, fresh fish and shellfish, salted fish and shellfish, agar-agar, laver, fish-liver oils, canned fish, and other miscellaneous fishery products.

South Korea's fishing fleet in 1954 consisted of 42,186 vessels of which 2,687 were fish-carrier boats and the balance of 39,499 was actually fishing boats. Only a small percentage of the vessels were powered, states a November 23 report from the United States Embassy at Seoul. In 1953 the fishing fleet totaled 42,584 vessels.

Note: Also see Commercial Fisheries Review, January 1955, p. 57

Liberia

OCEAN FISHERIES BEING DEVELOPED: Through the assistance of a marine biologist, considerable effort has been expended by a number of Liberian businessmen in creating an ocean-going fishing fleet to tap the rich grounds lying off Sierra Leone and French West Africa. Meanwhile small trawlers and native dugouts and canoes continue to fish the sparse grounds off the Liberian coast.

A Liberian fishery company took the initiative in starting an ocean-going fleet. On September 9, 1955, its one 106-foot refrigerated trawler landed a record 27 metric tons of fish in Monrovia on its maiden voyage. This caused a sudden and temporary drop in the retail price of fresh fish from US$0.30 to US$0.10 a pound. A labor dispute has caused the temporary halting of this company's operations.

A fishing company, controlled by mixed Swiss, German, Italian, and Liberian capital is operating one 104-foot refrigerated trawler, and fishing the grounds off of Monrovia on a daily basis. It lands about 4 metric tons of fish each day. As soon as its ice plant, now under construction and nearing completion, is completed it will fish the waters off of Sierra Leone and French Guinea. A second refrigerated vessel was scheduled to arrive from Italy towards the end of 1955. Smoking houses to prepare about 8 tons of fish a day for sale in the hinterland market will be constructed as soon as labor can be diverted from work on the Capitol building.

Another fishing enterprise under the direction of a United States citizen is continuing to fish the Monrovia waters. Launched in April 1954, it operates two 65-foot nonrefrigerated Sicilian trawlers and lands between 1 and 2 tons of fish a day. This company states that it plans to purchase a refrigerated vessel sometime in 1956 in order to fish the Sierra Leone waters, a United States Embassy dispatch (November 23, 1955) from Monrovia points out.

A German national operates a small nonrefrigerated vessel in the Monrovia waters and his daily catches range from 600 pounds to a ton.

Finally, there are countless Fanti, Bassa, and Kru fishermen whose total daily catch is less than a ton of fish. They fish in seven-men canoes or two-men dugouts according to their custom, and use surface nets or hand lines.

The total landed catch in Monrovia at present ranges from about 36 to 48 metric tons a week, which sells for an average price of US$0.15 a pound. When the refrigerated vessels begin fishing the larger and richer grounds off of Sierra Leone, this catch will increase to an estimated 120 tons a week with a retail selling price of approximately US$0.10 a pound.

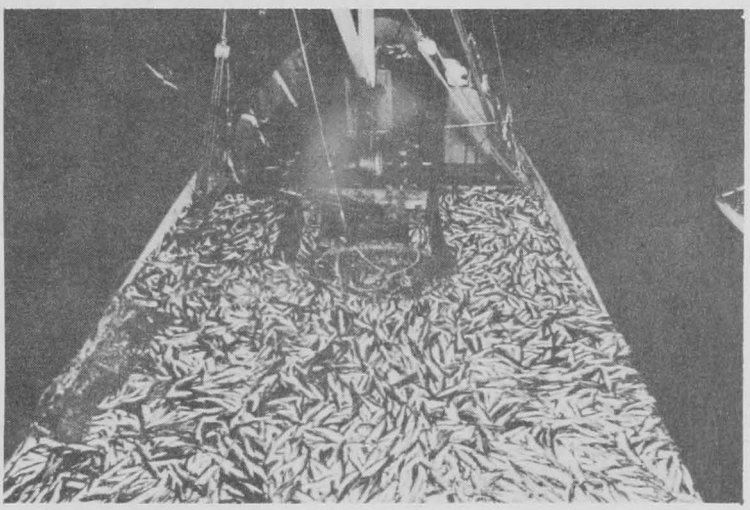
Mexico

FISH MEAL PLANT PLANS COMPLETED: The holder of various United States patents on the VioBin azeotropic (solvent extraction) process for making fish meal has stated that plans for erecting a plant at Salina Cruz, Oaxaca, Mexico, have been completed. The plant, with a capacity of 75 tons of raw fish, will produce fish meal for animal feeds. The source of the raw material will be the unsalable fish caught by the shrimp trawlers supplemented by fish and sharks from other fisheries.

Reports indicate that the new firm may have some difficulty obtaining sufficient raw material for capacity operations. The new plant is expected to start operations about April 1956 and will cost an estimated US$100,000, financed by both United States and Mexican capital. If successful, this new plant should be the beginning of another fishing industry in Mexico.

Norway

WINTER HERRING FLEET STARTS 1956 SEASON: Some 25,000 Norwegian fishermen, manning about 1,700 vessels, including 600 superefficient purse-seiners, sailed from Aalesund for the start of the 1956 winter herring fisheries. The ocean research vessel G. O. Sars, staffed by Norwegian scientists, sailed ahead of the fleet to search for the whereabouts of the herring shoals. Judging from preliminary findings, the fisheries may produce a record catch, granted fair weather, states the January 12 News of Norway.



A Norwegian drift-netter loaded with herring homeward bound.

As soon as the G. O. Sars found the first sizable herring shoal, the exact location was radiotelephoned directly to the fishing fleet, instead of being relayed by Aalesund Radio, as in former seasons. To pinpoint the herring, the Norwegian ocean researchers use several types of electronic instruments, including the recently-developed combination sonar-echo sounder. According to latest reports from the G. O. Sars, large shoals of herring have been contacted in deep water about 85 nautical miles from the Norwegian coast.

In addition to the 600 purse-seiners, hundreds of drift-netters and other vessels are participating plus a fleet of some 500 transport vessels, standing by to carry the catch to herring meal and oil reduction plants. The plants along the coast between Trøndelag and Vest-Agder had last year a processing capacity of some 34,000 metric tons of raw fish a day, and a storage capacity of nearly 570,000 tons. Both production and storage capacities are larger for the 1956 season, and possibilities for processing the landed herring this year have been improved.

The best year ever for Norway's western herring fisheries was 1954, when landings totaled almost 1,090,000 metric tons, with a first-hand value of US$28.1 million. The catch for 1955 was somewhat smaller--1,030,000 tons, valued at US$27.3 million.

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RUSSIAN FISHING VESSELS SEIZED INSIDE FOUR-MILE LIMIT: In a series of actions on January 30, 1956, Norwegian navy patrol boat crews boarded and seized 13 Russian fishing vessels which, in violation of international law, were allegedly operating within Norway's 4-mile coastal fishing boundary. The seized Russian craft included a 7,000-ton depot ship and 12 trawlers. Two of the trawlers had to be halted with warning shots. The seizures were made off the western port of Aalesund, where the annual fat herring fisheries are now in full swing. The Russian fishing fleet on the banks was estimated at 50-60 craft, states the February 2, 1956, News of Norway.

In a decision handed down December 18, 1951, the International Court at The Hague upheld the principles of a decree of July 12, 1935, under which Norway had delimited its territorial waters for fishing purposes. Under this decree, still in force, the limit for foreign fishing vessels follows a series of straight lines drawn at a distance of 4 miles from and parallel to so-called base lines between extreme points along the coast.

In ruling that the decree was in agreement with international law, the World Court observed that Norway for centuries has been delimiting its fishing waters in accordance with special local conditions. Noting that the Norwegian boundary delimitation remained "virtually unchallenged" until the present century, the Court decided that Norway had thus established title to the fishing banks along its coast on historical grounds.

Republic of the Philippines

IMPORT DUTIES ON FISHERY ITEMS RAISED: A general increase in rates of duty which increases those on fishery products 30 percent became effective on January 1, 1956. This action does not alter the tariff preference accorded United States articles under the revised U. S.-Philippine trade agreement. Thus, United States articles imported into the Philippines in the 3-year period 1956-58 will be subject to only 25 percent of the increased duties.

The regular rate of duty on canned sardines, in oil or tomato sauce, has been 15 percent ad valorem. This has now been increased by 30 percent so that the full duty is 19.5 percent ad valorem. (This rate will apply to imports from other countries.) Imports of canned sardines from the United States will be subject to a duty amounting to 25 percent of the 19.5 percent or 4.875 percent ad valorem. This same rate applies to canned salmon and mackerel. Other "commonly prepared fish" have been dutiable at 20 percent and will be similarly increased to 26 percent as a result of the order.

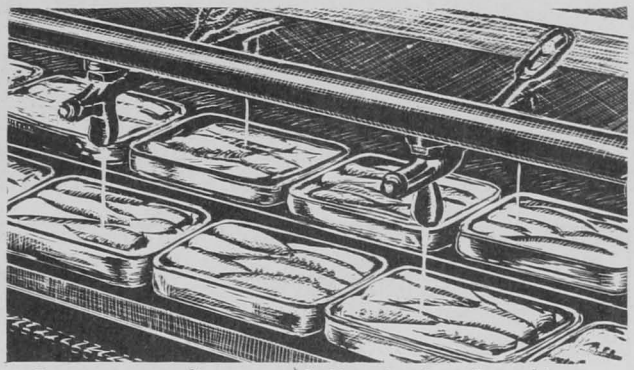
The new basic rate of duty on fishing nets entering the Philippines will be 60 percent ad valorem.

The 17-percent special import tax was not affected by the order. This applies to all canned fishery products except canned sardines.

Portugal

OPORTO THE LEADING SARDINE CANNING CENTER: The Oporto area has gradually become the leading center for sardine canning in Portugal, a February 2 United States Embassy dispatch from Lisbon points out. In the absence of regional statistics, general figures have to be interpreted as a direct reflex of conditions in

its main centre. Thus, total Portuguese canned fish exports, which up to the end of November were up nearly 30 percent in tonnage and almost 25 percent in value compared with the same period of 1954, confirm the view generally held of a fairly successful year for the Portuguese canning industry.



Portuguese sardine assembly line showing oil machines automatically adding olive oil to fill the cans.

Fishing was more productive and demand from abroad kept abreast of production, so stocks at the end of 1955 were only moderate. In the early part of the season price competition was very keen but towards the end of the year prices had become firmer and trading results appear to have been generally satisfactory.

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CANNED FISH EXPORTS, JANUARY-SEPTEMBER 1955: Portuguese canned fish exports totaled 5,265 metric tons (277,000 cases), valued at US$2.6 million, during September 1955; and 42,769 tons, valued at US$21.7 million, during January-September 1955.

Portuguese Canned Fish Exports, September 1955 and Comparisons

Species	Sept. 1955		Jan.-Sept 1955	
	Metric Tons	1,000 US$	Metric Tons	1,000 US$
Sardines in olive oil	4,708	1,968	33,962	16,591
Sardinelike fish in olive oil	336	206	3,484	2,315
Sardines & sardinelike fish in brine	205	48	1,495	295
Tuna & tunalike in olive oil	340	244	1,770	1,304
Tuna & tunalike in brine	49	20	545	276
Mackerel in olive oil	189	100	1,040	633
Other fish	41	21	472	260
Total	5,268	2,607	42,768	21,674

Portugal's exports of canned fish in September 1955 maintained the high level of previous months, according to Conservas de Peixe, December 1955. During January-September 1955 Germany continued as the leading receiver with US$4.0 million of canned fish (about all sardines in oil), followed by Italy with US$3.6 million (principally sardines and tuna), Great Britain with US$2.8 million, and the United States with US$2.4 million, principally 1,943 tons of sardines in oil or sauce, 11 tons of tuna and tunalike fish in oil, and 1,215 tons of anchovies. Exports of canned fish to these 4 countries amounted to 59.2 percent of the total exports.

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CANNED FISH TRENDS, JANUARY-JULY 1955: The pack of canned sardines in oil or sauce for January-July 1955 amounted to 9,076 metric tons (net weight). The July 1955 pack was 3,296 tons as compared with 2,701 tons in July 1954.

Portuguese Canned Fish Pack, Jan.-July 1955

Product	Net Weight	Canner's Value	Product	Net Weight	Canner's Value
	Metric Tons	1,000 US$		Metric Tons	1,000 US$
Sardines in brine	529	77	Tuna in brine	63	30
Sardines in olive oil or sauce	9,076	4,922	Tuna in olive oil	749	611
Sardinelike fish in brine	969	292	Tunalike fish in olive oil	75	46
Sardinelike fish in oil	2,185	1,210	Other species (including shellfish)	512	265
Anchovies, rolled & filleted	818	867	Total	14,976	8,320

(Continued in opposite column)

South Africa

SOUTH-WEST AFRICA AND UNION OF SOUTH AFRICA CATCH AND PACK OF PILCHARD AND JACK MACKEREL, 1954 AND PART OF 1955: The 1955 fishing season for pilchards in South-West Africa ended late in October when its quota of 250,000 metric tons was reached, according to a November 28 dispatch from the United States Consul at Cape Town. It was also reported that the Union of South Africa would probably reach the seasonal quota of 250,000 short tons late in November. Catch data for pilchard and jack mackerel for 1954 and 1955 through September 30 are presented in table 1.

Table 1 - South-West Africa and Union of South Africa Landings of Pilchards and Jack Mackerel, 1954 and Jan.-Sept. 1955

	Pilchards		Jack Mackerel		Total	
	U. of So. Africa	S.-West Africa	U. of So. Africa	S.-West Africa	U. of So. Africa	S.-West Africa
	(Short Tons)					
12 Mos. 1954	93,791	275,000	133,471	-	227,268	275,000
Jan.-Sept. 1955	130,803	235,000	85,127	-	215,930	235,000

The pack of canned pilchards and canned jack mackerel to October 23, 1955, is given in table 2. As of this date the production of canned pilchards exceeded that of the entire season of 1954. Unless the pack of jack mackerel is extremely heavy during the months of November and December, the data indicate a much lower production in 1955 as compared with 1954. It is probable that a larger share of the 1955 jack mackerel catch is being diverted to the reduction plants than was the case in 1954.

Table 2 - South-West Africa and Union of South Africa Canned Pilchard and Jack Mackerel Pack, 1954 and Jan.-Oct. 23, 1955

Type Can	No. Cans Per Case	Pilchards				Jack Mackerel			
		1954		1955 to Oct. 23		1954		1955 to Oct. 23	
		Union of So. Africa	S.-West Africa	Union of So. Africa	S.-West Africa	Union of So. Africa	S.-West Africa	Union of So. Africa	S.-West Africa
		(1,000 Actual Cases)							
1-lb. Oval	48	51.2	84.5	65.9	67.9	-	-	2.7	-
1-lb. Talls	48	225.8	360.9	197.1	545.5	905.3	-	278.4	-
1/2-lb. Bft.	48	79.9	333.9	81.1	226.4	93.1	-	170.5	-
1/2-lb. Flat	48	32.6	54.3	55.4	66.4	5.3	-	4.2	-
5-oz. Jitneys	100	-	116.6	14.4	146.3	-	-	-	-
Total	-	389.5	950.2	413.9	1,052.5	1,003.7	-	455.8	-

In addition to the canned pack in table 2, the Union of South Africa canneries in 1954 packed 114,000 actual cases and from January 1-October 23 a total of 109,082 cases of true mackerel.

Through a supplementary allocation by the Union of South Africa Government, the annual catch of pilchard and jack mackerel in South-West Africa (Walvis Bay) in 1954 totaled 275,000 short tons--25,000 tons above the fishing quota imposed by the Government on catches in both South-West Africa and the Union. The quota was first imposed in 1953.

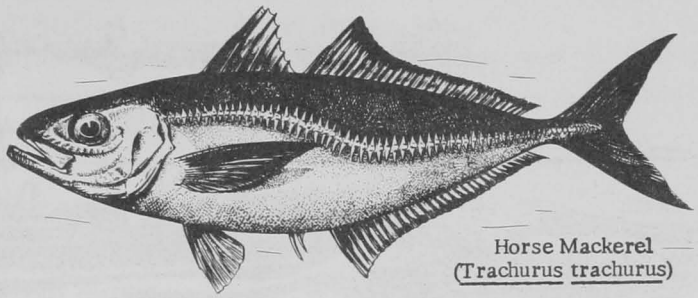
Union of South Africa

FISH FLOUR FROM MAASBANKER DEVELOPED: After many years of research, the South African Fishing Industry Research Institute has developed a commercially-adaptable process for the production of a neutral fish flour from the cheap and abundant maasbanker (Trachurus trachurus). This fish flour can be introduced to such foods as bread without altering the taste, smell, or color. The addition of the fish flour could be the means of increasing the protein diet of undernourished people, according to the South African Shipping News and Fishing Industry Review, September 1955.

The final discovery in a search that has engaged fishing industrialists as well as scientists was made recently after two years of intensive experiment in the Cape

Town laboratories. The process is efficient and economical, and the finished product is completely without smell or fishy taste. The fish flour is a new and potentially-valuable product of the South African west coast fishery.

Neutral fish flour is no revolutionary discovery and had actually been produced years ago in some of the more highly-developed fishing nations. A good white fish flour was also produced some years ago in South Africa. What the Institute has achieved, in collaboration with the fishing industry, is a process ideal for large-scale production using raw material sufficiently cheap to make the project a better business proposition.



Horse Mackerel
(Trachurus trachurus)

The processing methods adopted go through four stages. These are: (1) A special mixed solvent to remove the oil. This is the basic operation and renders the meal almost completely neutral. After the solvent has removed the oil, a cheap and easy way of reclaiming the solvent and making it available for continued use was found. (2) Faint traces of smell and flavor are removed together with certain off-flavors. (3) In the third stage, residual trace flavors are effectively masked. (4) Whatever minute trace of smell or flavor remains is caged in each flour particle.

The final problem encountered by the Institute was that of blending the fish flour into an acceptable bread. It was found that up to eight percent fish flour could be added to the bread but the two percent level is recommended for use in the enriched bread. The fish flour produced from the maasbanker was found to remain neutral under storage conditions.

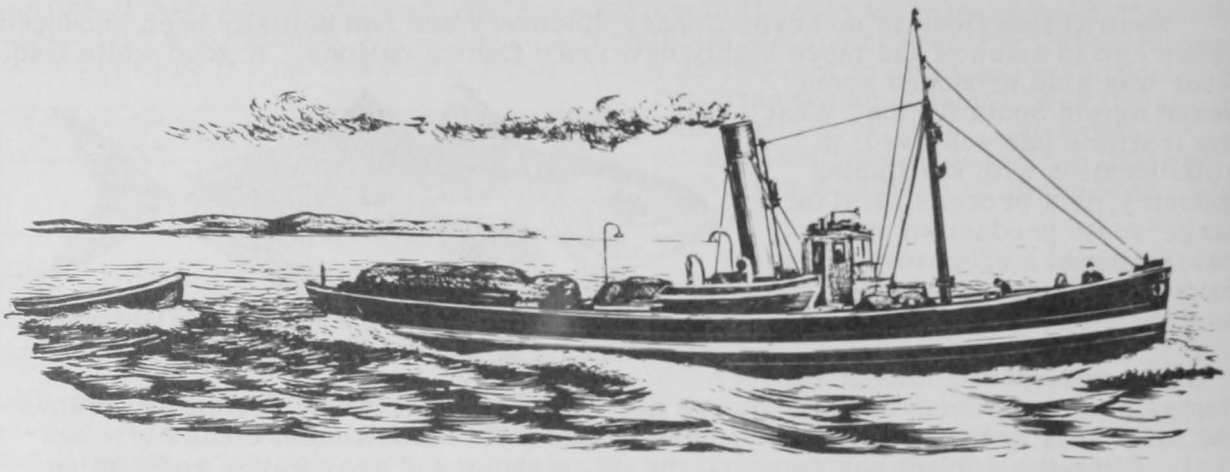
A pilot commercial plant will start producing the flour in the Dido Valley factory of Marine Oil Refiners of Africa Ltd. This will be a standard solvent extraction plant plus additional equipment for the final stages.

Spain

REVIEW OF THE 1955 FISHING SEASON AT VIGO: Landings: The fishing industry, the most important single industry in the Vigo area, was better off than in 1954. Landings at the port of Vigo, as reported by the local Fish Exchange, totaled 134 million pounds or about 10 percent over 1954 (value increased 18 percent). Catches of the types (needlefish, small hake, and hake) used for local consumption were relatively good, but cod catches were fair. Unfortunately for the canning industry, sardine, albacore, and anchovy were not abundant. The sardine catch, which in former years was the basis of the fishing and canning industry in the Vigo area, improved during the 1955 fall months, but was still seriously below totals of 8 or 10 years ago. The scarcity of sardines continued to be a source of concern.

Limited progress was made in the modernization of the fishing fleet during the year. The loan of about US$1.1 million toward this end made through the National Government to the fleets at Vigo and Marin was helpful but considerably below needs. While supplies of Diesel oil and coal were satisfactory, the price of nets and other equipment remained extremely high and the supply situation unsatisfactory. In spite of the various difficulties faced by the industry in 1955, the over-all picture was comparatively good, principally because of high prices paid for the catches.

Canning Industry: The fish canning industry did not enjoy a good year because of the scarcity of albacore, sardines, and anchovies. At least one local firm of importance is known to have had to cancel contracts for export to the United States



Typical Spanish sardine mothership, "Galeo" (about 40 gross metric tons and 66 feet in length), uses large seine net which occupies most of the deck space.

because of the scarcity of albacore. In the absence of these varieties the industry canned aguja, or needlefish, used as a substitute in the local market for sardines. Scarcity of tinplate, oil, and other essentials continued. However, in view of the scarcity of raw fish for canning, these shortages had no serious effects. The year as a whole then for the canning industry was poor.

Surinam

NEW PLANT TO PACK SHRIMP: A new shrimp freezing and packing plant is expected to start packing shrimp about April 1956, according to a report dated January 25, 1956, from the United States Consul at Paramaribo. The new company, Surinam American Industries, Ltd., will be managed by two United States citizens experienced in the shrimp fisheries and refrigeration. The plant is expected to employ 200 persons either full or part time exclusive of the shrimp fishermen.

The capacity of the plant is reported to be about 10,000 pounds of cooked and peeled shrimp a day under normal operating conditions with a storage capacity of 100,000 pounds. At the present time the shortage of reefer space on ships to the United States is a factor that might limit the plant's output. If sufficient reefer space could be obtained, the maximum capacity of the plant, on a basis of a 20-hour day, would be about 7 million pounds a year. The plant has new equipment, including a blast-type freezer.

The firm has been granted an exclusive franchise for 15 years and also a tax holiday by the Surinam Government, but final action on the tax holiday has not been issued as yet.

Taiwan (Formosa)

FISH CATCH IN 1955 BROKE ALL PREVIOUS RECORDS: The 1955 fish production in Taiwan reached 180,618 metric tons. This broke all previous records and exceeded the target set in the Four-Year Production Plan by 20,618 tons. (The target for 1955 was 160,000 tons.)

MECHANIZATION OF SMALL FISHING CRAFT: With the installation of Diesel engines on 69 sampans under the assistance of a JCRR (Joint Commission on Rural Reconstruction) loan in 1954 as a start, the mechanization program gained momentum in 1955. As of the end of September 1955, a total of 463 sampans had been equipped with Diesel engines of 4 to 6 hp. This number includes 151 sampans mechanized with JCRR assistance, but does not include 20 bamboo rafts which were equipped with 2-hp. Diesel engines under a JCRR demonstration project.

Taiwan Fish Catch, 1954-55

	1955	1954
	(Metric Tons)	
Deep-sea fishing	36,413	27,053
Inshore fishing	51,334	40,462
Coastal fishing	47,175	43,343
Fish culture	45,696	41,689
Total	180,618	152,547

MILKFISH INDUSTRY SUFFERED FROM COLD SPELL: The cold spell of January 8-12, 1956, dealt the milkfish industry a hard blow. Air temperature dropped to 8° C. in southern Taiwan, where most of the milkfish ponds are located. From some 32 million milkfish fingerlings impounded in wintering ponds, some 22 million were killed by low temperature. This means the milkfish farmers will find themselves in need of two-thirds of the fingerlings required for stocking their ponds at the initial period of the rearing season.

--T. P. Chen, Fisheries Specialist,
JCRR, Taipei, Taiwan.

MIGRATIONS OF FLORIDA SPINY LOBSTERS

The Florida crawfish, or spiny lobster (Panulirus argus), wanders over short distances--about five miles or less. Occasionally, however, individuals or small groups make considerably longer migrations, up to 125 miles. As a result of these movements, a gradual mixing of the lobster population occurs. This is of considerable practical importance since it reveals that the population must be considered as a biological unit. Conditions which affect one part of the population will ultimately influence other parts. For example, overintense fishing in the southern grounds will, over a period of time, deplete the northern grounds. Conversely, an area depleted will gradually be repopulated by the slow influx of animals from other areas. However, the tendency for the spiny lobsters to remain in a relatively restricted area will make these influences slow to appear.

--The Marine Laboratory,
University of Miami, Coral Gables, Fla.