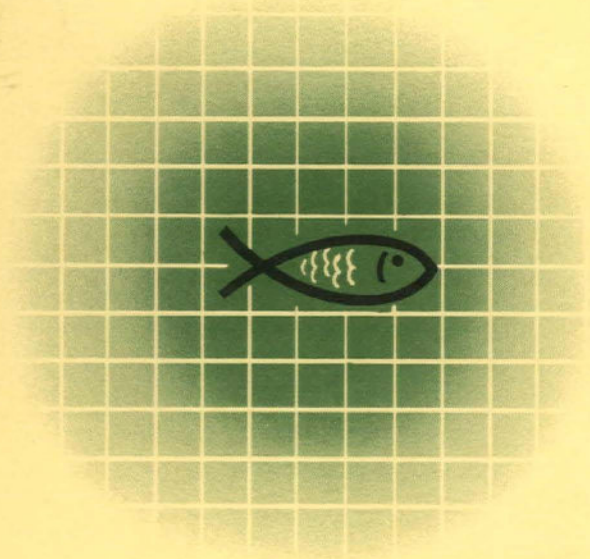


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REPORT ON THE
**CANADIAN FISHERIES
RECONNAISSANCE MISSION
TO LIBERIA, GHANA,
NIGERIA AND GREECE**

JANUARY 20 - FEBRUARY 11, 1965

DEPARTMENT OF TRADE AND COMMERCE
OTTAWA CANADA

new

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FISHERIES RECONNAISSANCE MISSION TO LIBERIA,

GHANA, NIGERIA, AND GREECE

JANUARY 20 - FEBRUARY 11, 1965

The aims and objectives of the Fisheries Reconnaissance Mission to West Africa and Greece were:

1. To learn at first hand the kinds and varieties of fisheries products being sold in Liberia, Ghana, Nigeria and Greece by competitive fish producing nations ;
2. To examine possible outlets for supplies of Canadian fisheries products particularly in the longer term ;
3. To investigate fisheries development in all four countries and to see the methods of production and marketing currently being used.

The members of the Mission were:

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Manager,
Fisheries Council of Canada,
Ottawa, Ontario.

Mr. F.A. James Laws, (Mission Leader - Ghana)
Manager,
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Mr. Robert L. Payne, (Mission Leader - Nigeria)
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Ottawa, Canada.

ITINERARY

LIBERIA	-	January 25 - 26
GHANA	-	January 27 - 30
NIGERIA	-	January 31 - February 2
GREECE	-	February 5 - 10

SUMMARY

The rapid strides being made in marketing frozen fish in West Africa were carefully noted. Within the space of three years, consumption has risen from almost negligible quantities to some 40,000 metric tons (round form), with anticipated consumption in 1965 in excess of 100,000 metric tons. Where free markets prevail, the landed price for frozen Whole fish ranges from 6¢ to 11¢ equivalent per lb., depending on species, and the cold storage wholesale price is 11¢ to 18¢.

It is quite apparent that with the advent of frozen fish, imports of dried, salted, and canned fish may decline. However, with the increasing populations and projected demands for fish protein supplies in West Africa (Nigeria alone is expected to require some 400,000 tons by 1970), there will continue to be a need for imports of important quantities of all forms of fisheries products. Indeed, in the short term, the most encouraging trade possibility in West Africa for Canadian exporters is for dried artificially-cured stock-fish in Nigeria.

In Greece, the Mission members found a keen interest in supplies of good quality Canadian wet salted cod as well as salmon roe and cod roe. This market was a very important outlet for dried salt cod from the province of Newfoundland in the prewar period. In recent years, Greenland, Iceland, and Faroe Islands have been the leading suppliers of wet salted fish, the product now preferred.

In connection with fisheries development, it has been generally known for some time in fishing and scientific circles that the West African sub-equatorial regions were rich in demersal and pelagic fishes, particularly croakers, bream, sardines and herring, and that both the equatorial and sub-equatorial regions were rich in tuna.

Excluding South Africa and Morocco (which are beyond the range of this discussion) it can be said that significant development commenced about 10 years ago when the Japanese fleets seriously began to harvest both the demersal and pelagic stocks of the Southern Sector and the pelagic stocks of the equatorial region.

The Americans followed with an attempt to purse seine tuna in the general area. However, it was soon demonstrated that this method, so productive in the Western Americas, was not viable in West Africa as practiced by U.S. vessels, which withdrew in favour of Japanese and Spanish long liners and bait boats. Japanese seiners are now apparently successful in this area.

Subsequent to initial development, the Japanese expanded the geographical limits of their endeavour to embrace the entire West African Coast and, about five years ago, were joined by the fleets of

the U.S.S.R. and Poland.

In 1963, 32 Japanese freezer trawlers were operating in the area in addition to the various support vessels and tuna fleets, and produced about 90,000 tons of fish. By October 1965, 55 Japanese freezer trawlers are expected to be in the area, plus 36 similar vessels of Polish origin and a fleet of U.S.S.R. vessels of undisclosed numbers.

Ghana has elected to buy a major fishing fleet and has set up the Ghana Fishing Corporation for this purpose. It now has five 950-ton freezer trawlers from the U.S.S.R. and two 1,850-ton Japanese vessels as the initial elements of an operation that is intended, within three years, to include 35 freezer trawlers, (mostly 1,350 to 1,850 tons each) 15 steel purse seine vessels and two processing complexes, one of German and one of Russian origin. The ships and key personnel are being supplied by the U.S.S.R., Japan, Poland, the U.K. and Norway. The management problems which confront this large fishing organization are not insignificant.

Unlike Ghana, neither Liberia nor Nigeria is sponsoring a programme in the development of gear training or technology.

Greek fisheries development has been somewhat slower than that of West Africa. The inshore fisheries have been almost static but, beginning 15 years ago, an off-shore freezer trawler operation, dedicated to fishing the North West African waters, emerged. Some 26 vessels all of foreign origin and of various sizes and shapes, prosecute this fishery. It would appear that declining North West African fish populations are forcing the Greek fleet to use larger ships and move further afield. The Newfoundland Banks will likely

see Greek freezer trawlers in the near future.

All prices quoted in this summary and in the more detailed report which follows are those which were in effect during the Mission's visit, converted to Canadian dollar terms at the rate of exchange current at the time of the Mission's visit. They are, of course, subject to change.

LIBERIA

Liberia is the oldest independent republic in Africa. It has a population estimated at slightly more than one million. Approximately one-third of Liberia's population is concentrated in coastal areas with the remainder scattered throughout the hinterlands. Monrovia, the capital, is the country's largest city, with a population estimated at nearly 70,000 in the city proper and 80,000 in the metropolitan area.

Although Liberia has intensified efforts to establish a diversified economy by the development of light industries, the economy is, at present, based on agriculture and production of minerals. The economy is highly oriented towards foreign trade. Its main sources of wealth - natural rubber and iron ore - are produced for the export market. The country requires imports to fill economic needs not met by the presently limited productive capacity.

Based on strictly economic factors, the outlook for Liberia during the immediate future indicates a period of moderate growth. The long term prospects for its economy appear relatively good.

Production

The Liberian fishing industry can be divided broadly into two main groups. The first comprises the indigenous Kru fishermen and the Fanti fishermen; and the second group consists of recently established and more productive commercial fishermen with motor vessels of 30 feet to 65 feet used for trawling.

Commercial fishing is active from Liberian ports and a local pond-fisheries programme has been developed in some interior areas.

Since commercial fisheries began in 1953, three commercial fishing companies have been established in Monrovia:

- (1) The Mesurado Fishing Company, which handles 80 per cent of the total fish landed in the country;
- (2) The National Fishing Company, which reportedly has never functioned well, and
- (3) The Cooper and Grimes Fishing Company -- presently constructing a cold storage store.

In addition to these companies, there are a few individual fishermen who own boats. There is a total of nine powered vessels in the fishing industry. This does not include Japanese trawlers operating under contract, or the local Fanti (transplanted Ghanaians) and Kru canoes, some of which have outboard motors.

A variety of fish is taken off Liberia but the main commercial species are red fish (a rock fish variety), mackerel and tuna (mostly skipjack). The red fish and mackerel are sold in the round form.

An estimated 28 - 30,000 metric tons of fish were landed in Liberia in 1964, including 10,000 tons of frozen fish from locally-based foreign trawlers, and a domestic catch of 18-20,000 tons. However, no official statistics are compiled.

Marketing

During the early stages of the fishing industry, the marketing of fish was left to the fishermen, and distribution was a problem. There were no refrigerated trucks to transport fish to any distant places; therefore, the hinterland went without fresh fish. The lack of adequate roads added to the difficulties; smoked fish, which was available at times, could not reach the interior either. In 1962, the Mesurado Fishing Company undertook an expansion of its fishing

operations which entailed some \$2 million for expanding cold storage facilities in Monrovia and for establishing cold storage depots in Buchanan, Firestone, Bomi Hills, Gbarnga, Ganta and Nimba. The Company also acquired refrigerated trucks. These facilities made possible the distribution of fresh frozen fish into the interior. About three quarters of the total fish landings of the Mesurada Fishing Company now go into the Liberian hinterland.

The latest available figures for fisheries imports are for the calendar year 1961 and amounted to about 2,700 metric tons. This has quite likely decreased considerably since the local frozen fish operation commenced in 1962.

The Mission members met with Liberian government fisheries officials and completed a tour of the local fishing operations, cold storage, warehouses, principal fish market, as well as retail and wholesale fish stores. A visit was also made to the leading supermarket in Monrovia which carries many brands of canned and frozen fish. However, the principal fish sales are made by the "Mammies", who buy their supplies from the wholesalers mostly in frozen form in cardboard cartons of 20 and 30 kilos at roughly 11-18 cents per lb., depending on supply and demand. The "Mammies" in turn sell the fish singly, in pairs or in piles of 4 or 5 fish at so much per fish or pile. It is estimated that the price ranges from 20 to 25 cents per lb.

Fish is a staple food in the diet since the average consumer cannot afford the luxury of meat. It is eaten with rice and mixed with vegetables.

Frozen fish producers expressed the view that the increasing output of frozen fish will continue to lessen the demand for salt

and stockfish. Canned fish, salt fish and stockfish are sold chiefly during the rainy season, April to October.

In direct contrast were the prices quoted in the supermarket, including red rockfish fillets at 66 cents per pound; haddock fillets at 74 cents; sole fillets at 85 cents; flounder fillets at 74 cents; ocean perch fillets at 64 cents; and cod fillets at 65 cents. Such items are purchased almost entirely by the foreign population in Monrovia.

An interview with a leading importer of food products confirmed that sales of frozen fish are making inroads into the market for canned, dried and salted fish. This firm has imported relatively small quantities of pickled alewives and herring, as well as smoked herring bloaters and canned sardines from Canada.

Import prices for hard dried salt cod from Norway were quoted at \$25 per 100 lb. bale 18/20" size C.I.F. less 2% commission. Stockfish was imported at \$26.50 per 100 lb. bale C.I.F. less 5% commission. The duty and landed charges amount to about \$6.00 per bale. Wholesale prices for stockfish ranged around 42¢ per lb. while the retail price was 50¢ per lb. The retail prices for dried salt cod and pickled mackerel were 40¢ and 25¢ per lb. respectively. Annual imports of stockfish have been about 6,000 bales (100 lbs. per bale) and purchases of dried salt cod have amounted to some 2,000 bales. In 1962, there were excessive imports of stockfish which resulted in substantial losses to the importers. Imports were accordingly reduced in 1963 and 1964. However, it is expected that the quantity of stockfish to be imported in 1965 may reach 3-4,000 bales. Bloaters

were priced at \$2.80 c.i.f. per 18 lb. box.

Retail grocery shops were selling the following types of canned fish:

Salmon (mackerel - Morocco) 8 oz. tin - \$.25

Herring (Holland) 14 oz. tin - \$.25

Pilchards (Holland) 6 oz. tin - \$.15

Sardines (Spain) 4 oz. tin - \$.15

Sardines (Morocco) 1-3/4 oz. tin - \$.10

Sardines in olive oil (Morocco) 4 oz. tin - \$.18

Sardines (Portugal) 4 oz. tin - \$.15

Mackerel fillets in curry sauce (Morocco) 3-3/4 oz.

tin - \$.24

Sild (Norway) 3-3/4 oz. tin - \$.20

Mackerel in tomato sauce (Morocco) 9-7/8 oz.

tin - \$.29

At present there is no fish canning operation in Liberia - and the government officials indicated that such a venture would be encouraged.

Development

The traditional inshore canoe fishery has historically supplied the bulk of the country's animal protein needs - and still does.

About 12 years ago an FAO-sponsored survey led to the formation of a locally-owned, small-vessel, trawl fishery enterprise. This progressed with only modest success. Later a joint U.S., Danish and Liberian-owned cold storage was constructed in Monrovia. Its holding capacity is 2,000 tons at 18°C. It can brine freeze 100 tons

of tuna a day and manufacture 30 tons of ice. Fish supplies for local distribution through a Liberian distributor are secured under contractual arrangement with Japanese and Polish factory trawlers which catch, package and freeze in 20 and 30 kg. cartons, snapper, mackerel and a variety of other fishes. About 10,000 tons are now secured each year from these sources and distributed to refrigerated stations throughout the country.

In addition, the cold storage freezer company holds and trans-ships tuna landed locally by Spanish hook and line ice boats which frequent the area in season. Two competitors of this enterprise are in varying degrees of activity, but their success is not secured.

The Liberian proprietors of the freezer company are anxious to develop a locally-based, distant water (as opposed to canoe fishing), catching organization which will supply its requirements with more continuity than the present contractual arrangements with the Japanese and Polish vessels. They are seeking foreign assistance to implement this development.

Observations

Rapid progress is being made in the recently-established frozen fish industry in Liberia, and is tending to lessen imports of dried, salted and canned fish.

While the trade is in the hands of private industry, it is receiving the full support of the government - and indications are that the duty on imported fish products may be increased. Nevertheless, until the roads into the interior are improved, Liberia will continue to require some supplies of dried, salted and canned fish, particularly during the rainy season, April to October.

GHANA

Ghana was one of the first African countries to achieve independence. It became a republic within the Commonwealth on July 1st, 1960. The country has a population of approximately 7 million with 500,000 people living in the capital city of Accra. Although the country is experiencing difficulties at the present time, the standard of living and per capita income are among the highest in Africa.

Cocoa accounts for 60 per cent of Ghana's export earnings, and cocoa prices are crucial to the country's prosperity. Very low world prices of cocoa have driven the country's foreign exchange reserves down sharply. There is much pressure to industrialize rapidly, and major hopes are pinned on the Volta River Project (a hydro power development and a related aluminium smelting plant).

The stringent import control system in effect in Ghana reflects this serious condition, and short term prospects for a substantial liberalization of these controls are not promising. Ghana is seeking to reduce its great dependence upon cocoa as the principal source of foreign exchange but this will be possible only through broadening the country's economic base.

Production

Fishing along Ghana's 334 miles of coastline and in her rivers, lakes and lagoons is currently carried on by traditional as well as modern techniques. There are up to 150,000 people employed in the use of some 10,500 fishing craft which produce an inshore catch of 49,000 tons of fish per annum. The latest available statistics show that the overall catch in 1963 was 83,000 tons, an increase

of more than 43 per cent from 1962. This figure includes landings of foreign vessels on contract which reached 33,400 tons in 1963 compared to 20,500 tons in the previous year. This trend appears to have continued in 1964. Herring and mackerel account for 70 per cent of landings and snapper or red fish as well as a species of sardines are also taken.

Fishing activities in Ghana comprise deep-sea fishing, off-shore fishing and inland fishing. Ghana's off-shore fishing grounds, as a natural free resource of the economy, can be described and evaluated in terms of the natural or geographical phenomena determining its richness. There are three such factors: the "fishing" width of the continental shelf, the "upwelling" of fish nutrients at certain locations, and the "thermocline" or boundary between the warm surface sea water layer and a lower colder layer. Fishing width of the off-shore fishing grounds coincides roughly with the width of the Ghana continental shelf. The shelf width varies from 7 miles at Ghana's eastern border to 12 miles off Tema-Accra, then widens to a maximum width of some 40 miles off Takoradi. Thereafter it narrows sharply towards the western border.

With a view to decreasing its dependence on imports, the Government of Ghana established, in 1961, the Ghana Fishing Corporation with the main object of developing and managing long-range fishing vessels and marketing the fish at cheap prices throughout the country. The Corporation accordingly signed a fishing agreement with foreign concerns for fish caught by their trawlers in West African waters and to be sold by it to the public. The Corporation later began operating its own fishing vessels; two in 1962, and three more in 1963.

Under its seven-year development plan ending in 1970, Ghana will have 35 large fishing vessels in operation including 10 trawlers and two carriers from Japan; seven trawlers from Norway; six trawlers from Britain; and 10 trawlers from Russia. A further delivery of 12 seventy-five foot vessels from Yugoslavia is also expected. At present there are five trawlers from Russia and two from Japan being used.

Ghana is planning a fisherman's training school in an effort to provide Ghanaian fishermen to operate these vessels. It is understood that Norway is furnishing five trained specialists or personnel as well as some equipment. In addition, the government has constructed two local boat yards which are building 60 foot wooden boats, powered by 180 horsepower diesel engines, at a cost of \$72,000 each. The cost of the seine will be extra. Vessels of 40 feet in length are also being built. These will have 88 horsepower diesel engines and will cost about \$22,500 plus the cost of the seine, about \$15,000. Financing will be on the basis of a 25 per cent down payment. The government will furnish an interest free loan payable monthly over a period of six years.

Marketing

Landings from the largest fishing vessels normally are either sold directly to wholesalers "Mammies" or transported to adjacent cold stores. Fish stored in the cold stores generally remains there for only a short period, especially during the busy seasons. Landed fish is sold in the round to wholesalers and may be immediately resold to retailers at the dock side or nearby. As in the case of Liberia and other countries in West Africa, the "Mammies" administer

the sales. It is not uncommon for fish to change hands two or three times before reaching the final consumer, even in the seaboard area. No limit is placed on the quantity of fish a wholesaler can buy from the fishing companies, though in seasons of short supply, a sort of rationing is sometimes employed by sellers to maintain their customers. Purchases from the fishing companies generally are strictly for cash. Sale is by weight either in "cartons" of 20 kilos (44 lbs) (for purchases from Japanese trawlers) or 30 kilos (66 lbs) (for purchases from Russian trawlers). Locally caught fish normally is marketed in boxes of 56 to 60 pounds.

Canoe-fishermen still follow traditional distribution methods. The landed catch is shared among the canoe-fishermen on a count basis. Individual shares are then sold on the beach to wholesalers or retailers ("Mammies"), many of which are relatives of the fishermen on credit. Fish is usually sold by count and on personal judgement of quality rather than by weight. Bargaining is the usual method of determining price. From the beach the fish is taken to the local market.

Fish purchased from cold stores or directly from the landing dock generally is transported inland at the purchaser's own expense. Fish transported inland is packed in a variety of containers. Smoked and dried fish travel in baskets, boxes or bags. Fresh or frozen fish is trucked in boxes or insulated vans with loose ice used to extend the length of feasible transport time. Retail price ceilings on the various species of fish are in existence.

During its stay in Accra, the Mission had discussions with senior Government fisheries officials both in Accra area and in the

fishing port of Tema. Visits to the local fish markets, retail stores, fishing companies, a major ocean cargo firm, cold storage plants, fishing vessels, shipyards, Fisheries Inspectorate Division, Marine Biological Laboratory, and the local representative of FAO rounded out a very enlightening and constructive programme.

A check of retail prices for canned fish revealed the following: canned sardines (Morocco) $4\frac{1}{2}$ oz. tin - 14¢; canned sardines (Canary Islands) $4\frac{3}{4}$ oz. tin - 15¢; canned mackerel (Japan) 5 oz. tin - 14¢; canned mackerel (Japan) 15 oz. tin - 32¢; canned saury (Russia) 8 $\frac{4}{5}$ oz. tin - 22¢. Quotations for Japanese canned mackerel ranged around \$7.35 per case of 100 x 5 oz. tins C.I.F., while wholesale C.I.F. prices for Moroccan canned sardines were about \$9.45 per case 100 x $4\frac{1}{2}$ oz. tins. Keys were included in both instances. Salt fish prices were: Corvina 10/12 tails (Canary Islands), packed in 45 kilos or 100 lbs. cases - \$435.00 per metric ton, and dried Cazon or shark 20 tails (Canary Islands) - \$258.00 per metric ton. The Ghana National Trading Corporation, which has a monopoly on all imports of canned fish, indicated that it would be interested in purchases of Canadian canned or salted fish if prices are competitive.

During 1963 imports of fish into Ghana were as follows: dried, salted, or smoked fish 4,153 tons; stockfish 245 tons; and canned fish 8,817 tons. Imports of dried salt fish in 1964 were substantially less than in the previous year because of increased consumption of frozen fish and the late issuance of import licences for salt fish. The Mission members were informed that a contract has already been made with exporters in the Canary Islands for supplies in 1965. However, indications were that Ghana could consume even larger quantities of salt fish.

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Report on ... Mission ...

Jan. 20 - Feb. 11, 1965

Development

Ghana's Fisheries Development Programme is among the most remarkable in the world. Three years ago the country's annual protein needs were supplied to a great extent by the indigenous native canoe fishing. Today five 950-ton Russian built freezer trawlers, two 1,850-ton Japanese freezer trawlers, six other freezer trawlers and a number of smaller craft supply a distributing network which includes a 4,500-ton and two 1,000-ton cold stores, and a number of smaller units. Within three years the Ghanaian fleet will exceed 35 deep sea trawler freezers, most with a capacity of 1,850 tons each. A fleet of this class will be substantially larger than that of Britain, Norway, and indeed any country outside the Soviet Bloc. Two cannery reduction and freezer plant complexes are also under construction with the assistance of West German and Russian capital. Fifteen purse seiners have been constructed in Yugoslavia. The U.S.S.R., Japan, Norway, Britain and Denmark are all major contributors of ships, equipment and personnel to the programme.

Although fisheries development was initiated by three private firms, each operating in conjunction with a foreign fishing organization (Japan, U.S.S.R. and Poland) the Government-owned Ghana Fisheries Corporation now dominates the scene and will apparently continue to do so. Government plans now require that all fish must be landed from Ghanaian ships and the existing private sector is not permitted to expand. All current expansion is in the government sector. The future of private enterprise under this dominance is problematical. Any Canadian government support of the Ghanaian development programme will suffer by comparison with the enormous foreign support

now in existence.

A major U.S. tuna packer holds the exclusive tuna export rights from Ghana, effectively closing this door to other participants. This tuna is being trans-shipped with the exception of small quantities of the yellowfin variety.

It would appear that groundfish stocks will shortly be under full harvest and that, presuming reasonable effectiveness, the new purse seiner fleet will bring full-fledged and modern fishery to fruition. Further development of shrimp and crayfish stocks may be possible.

Observations

With the tremendous expansion taking place in local fisheries and with the severe system of import restrictions, it is unlikely that Ghana will be a worthwhile market for imported fish in the near future. All imports into Ghana require an import licence from the Ministry of Trade. This enables the government to control effectively the level of imports. Although there is a demand for canned and dried salted fish, it is unlikely that Ghana will be willing to spend much of her foreign exchange earnings on these commodities in the short term.

The demand for dried and smoked fish results principally from its use in soups and stews which constitute the normal Ghanaian diet. Dried, salted and smoked fish, of course, are also more easily transported into the interior where there is a great need for increased protein.

NIGERIA

The population of Nigeria is about 55 million, approximately one-quarter of the population of the African continent. The federal capital is Lagos, with a population of some 500,000.

Nigeria's economy is based heavily on agriculture, but the range of crops is diverse - both in exports and local consumption, and Nigeria is the world's leading exporter of peanuts, palm oil, and palm kernels. It is a major supplier of cocoa. Because tropical products are subject to fluctuations in world prices, Nigeria is striving to develop additional export crops and diversify its economy through industrialization.

Agriculture provides over 80 per cent of Nigeria's export earnings, but recent petroleum discoveries and marketing facilities may soon make oil Nigeria's major export earner.

Nigeria's total annual imports have a value of some \$600 million. This is expected to increase as the country's six-year development plan, implemented in 1962, moves forward and large scale developments move into the construction phase.

Production

The first steps by the government of Nigeria towards the development of the fishing industry were taken in 1942, when the exigencies of war and the dislocation of imports from Europe emphasised the need for developing local resources in fisheries as in other fields.

In 1953, under the new constitution, the administrative responsibilities for fisheries research and development in each territory were assigned as follows:

1. Federal Fisheries Service - Federal Ministry of Economic Development, Lagos.
2. Western Region Fisheries Division - Western Ministry of Agriculture and Natural Resources, Ibadan.
3. Eastern Region Fisheries Division - Eastern Ministry of Agriculture, Enugu (now located at Aba).
4. Northern Region Fisheries Section - Northern Ministry of Agriculture, Kaduna.

The Federal Fisheries Service is responsible for research and development in international waters. It may also conduct regional research projects on request of the regional government.

It is generally acknowledged that the people of Nigeria, in common with the people of much of Africa, suffer from a protein deficient diet. Because of the lack of adequate statistics, it is difficult to estimate how much of the protein consumption of the country is of fish protein, and how much of this fish protein is of local origin and how much is imported. However, the landings of the mechanized fishing fleet at Lagos are fairly well known, and in 1964 amounted to about 20,000 metric tons of frozen fish compared with 3,500 tons in the previous year. Estimated landings from that source in 1965 are expected to reach 35-40,000 tons.

According to the Federal Fisheries Service, an estimate of the current landings from the indigenous sea fishery is much less easy to obtain. It is estimated that some 15,000 tons of fresh fish are taken in the Western Region, with approximately 10,000 tons landed in the Eastern Region. Some 15,000 fishermen are wholly or partly engaged in the fishery.

A survey of fish production from Lake Chad indicates that the Nigerian areas of the lake may produce as much as 6,000 tons of dried fish annually, this being minimally equivalent to 15,000 tons of fresh fish. The Lake Chad fishery is the most important fresh water fishery of the Federation and is the only one for which any production estimate is available. The production of fresh water fish elsewhere in Nigeria is not large, and a very high proportion of it is consumed locally, and does not enter trade channels. The local fisheries officials assume that the remainder of Nigeria produces a quantity equal to the estimated Lake Chad catch giving an overall fresh water fisheries production of about 30,000 tons.

Croaker seems to be the species taken in greatest quantity by the local fishermen. Other species include threadfin, bigeye, spadefish, catfish, sole, ray and grunter.

Estimated overall current landings are therefore 30,000 tons (fresh water), 25,000 tons (Indigenous) and 20,000 tons Nigerian - based trawlers, making a total of some 75,000 tons.

Marketing

The import of chilled or frozen fish (including fillets) is mainly for the Supermarket trade and originates principally in Norway and Britain. Total annual imports are in the region of 2,000 tons. A further total of about 3,000 tons of canned fish products are imported annually. In the past these were chiefly sardines and came from South Africa, Portugal, Netherlands, and North Africa.

The major fish imports are the 37,000 metric tons of stockfish from Norway and Iceland valued at about \$21 million. About 500 tons of other dried fish products are also imported.

It has been estimated that the annual need for fish in Nigeria is about 350,000 tons. At the present rate of population increase, the need in 1970 will be 400,000 tons.

With a view to assessing the market possibilities for Canadian fisheries products, the Mission members met first with the Federal Fisheries officials, then called on leading producers and importers of fish. The prohibitive tariff of 50 per cent on all fish products other than stockfish (established August 3, 1964) would make it extremely difficult to dispose of supplies of salt fish in Nigeria, and only negligible quantities of Canadian canned fish have entered the market during the past few years. The duty on stockfish from all sources is 1 d. per lb. It appears that the local consumers prefer stockfish to salt fish because of its superior keeping qualities and toughness of texture. Most of the leading importers of stockfish showed an interest in the possible production of artificially-cured stockfish in Canada. They were quite prepared to test the market - and one firm indicated that it had already sold some supplies of locally-cured artificially-dried fish in Nigeria. The C.I.F. quotations for Scandinavian stockfish included: round cod (20/40 centimetres) - \$35.25 per 100 lb. bale; round cod (35/50 and 50/70 centimetres) - \$36.60; and round cod (70 centimetres and over) - \$35.25.

The wholesale price for stockfish made from cod is about 40 dollars per 100 lb. bale while saithe stockfish was quoted at 32 dollars per 100 lb. bale.

The retail price for canned mackerel of Japanese origin was 20¢ per 8-oz. tin.

C.I.F. prices noted for imports of canned fish into Nigeria

were as follows:

Herring (Netherlands) 48 x 14 oz. tins - \$9.65
Pilchards (Netherlands) 48 x 14 oz. tins - \$9.50
Mackerel (Morocco) 48 x 15 oz. tins - \$9.25
Sardines (Morocco) 100 x 4 oz. tins - \$14.80

The Mission members also visited the local fish markets, and saw some locally-caught fish being landed. It appears that a limiting factor in increasing consumption is the inefficiency of the present marketing structure. Middlemen (the "Mammies") are operating on margins which more than compensate them for the functions they perform. The close-knit organization under which the ("Mammies") operate puts them in a monopoly position permitting the extraction of a sizable profit. However, despite the confusion and congestion in markets where wholesale and retail activities are conducted simultaneously, there appeared to be insufficient supplies to satisfy the needs. No credit is extended to the ("Mammies") who seemed to have no difficulty in paying cash for their requirements. As in Liberia and Ghana, the fish was sold in the round form.

Development

The traditional canoe fishery of this country appears to be the only section of the industry unchanged in the last three years. The inshore trawl fleet, a somewhat primitive and, by Canadian standards, unproductive force, has not significantly changed its productivity nor its localized urban seashore market area, but boat efficiency has improved somewhat by the import of a few small wooden draggers.

The major change is the emergence of an apparently huge frozen fish market supplied exclusively, as in Liberia, by larger trawlers of Japanese, Russian and Polish registry. In 1963 some 300 tons entered Nigeria from these sources; in 1964 - 15 to 18,000 tons were imported, and it would appear that 35-40,000 tons will be consumed in this country in 1965. Purchase and distribution is presently in the hands of two West African groups. The first is IBRU Fishing Co. Ltd., the pioneer, headed by an impressive young Nigerian of that name, who draws his supplies from the U.S.S.R. fleet under contract negotiated annually, and Taiyo Fisheries Ltd., the Japanese giant, with whom he has long-term arrangements covering both frozen imports, shrimp development and export distribution. The second is a consortium of international West African fish purchasing - distributing companies. These are Mesurado Fishing Co. Ltd., Nigerian Frozen Fish Development Industries Ltd., and Nigeria Cold Stores Ltd. The consortium draws its supplies from Polish vessels and the Nippon Suisan group of Japan.

Shrimps of North American market quality prevail in the Nigerian estuary and its environs. Until January 1965, however, no serious attempt was made to catch and process them on an exportable scale. In January 1965 a pair of U.S. shrimp draggers, owned by an international group of Iraqi origin and managed by a U.S. national, embarked on the first serious attempt to develop this resource. Although reports of initial results are sketchy, there is good reason to believe that the operation will be commercially successful and that a viable export industry will result.

Observations

Fish is a desired item in the diet of the people. Some 200,000 tons (fresh fish equivalent) are being consumed annually. It is estimated that the present need is 350,000 tons and the projected requirement for 1970 is about 400,000 tons. With the rapid progress being made in the output of frozen fish from foreign-based trawlers, a greater supply will be available in that form. However, because of the lack of adequate transportation and roads into the interior, large supplies of stockfish will be required. If Canadian exporters are able to produce an artificially-cured product, they may have good opportunities to dispose of significant quantities in Nigeria. Some interest was shown in the possible import of dried caplin from Canada.

GREECE

Greece consists of a deeply indented mountainous peninsula of many islands in the Aegean and Ionian Seas, and of the Islands of Crete and Rhodes in the Mediterranean. Its population is approximately 8.5 million, and its area 50,550 square miles. Athens, the capital city, has a population of 1.8 million.

The Greek economy progressed, on the whole, in encouraging fashion in 1964, and most signs indicate that this progress will continue during the current year, provided the present confidence in the drachma is maintained.

Greece has a basically agricultural economy, although emphasis is now on industrial development. Perhaps the best indication of industrial progress is the possibility that, in 1965, its total product may surpass that of agriculture for the first time in the country's history.

Unlike many developing countries, Greece is financially sound although its imports exceed by far its exports. Fortunately, income from various invisibles (shipping, tourism and immigrants' remittances) offsets to a large extent the heavy trade deficit.

Production

Greek fishermen prosecute mainly the inshore fishery although deep-sea fishing activities have developed, in the post war period, in the Mediterranean, in the Atlantic near the coastline of West Africa (Mauritania), and the central Atlantic ocean. Greek fisheries officials report that deep-sea fishing is responsible for some 60 per cent of production.

Fishing operations are conducted chiefly from Piraeus,

Salonica, Volos, Chalkis, Cavala, Patras, Myteline, Samos, Chios and Rhodes. The estimated domestic fish production in 1964 was 121,000 tons compared to some 80,000 tons in 1958. Landings included 92,000 tons from the inshore and Mediterranean catches, 8,000 tons from the inland fisheries and 21,000 tons of frozen fish.

The most important species taken by the Greek fishermen are sardines, anchovies, bonitos, horse mackerel, tuna, hake and mullet. Also significant are sea bream, croaker and redfish (rock-fish family) landed by the Atlantic fishing vessels.

At the close of 1964 some 6,729 vessels with an aggregate tonnage of 51,729 were using power propulsion. These included 29 Atlantic freezer-trawlers, 359 ordinary trawlers, 294 purse-seiners, 139 multi-purpose boats (combined trawlers and purse-seiners), and 5,909 inshore boats. While the rate of shipbuilding has slowed in recent years, the improvement of maritime technical equipment is under constant review. The Atlantic fishing fleet continues to progress and is expected to reach 35 vessels by the end of 1965.

The number of full-time Greek fishermen at present is estimated at about 55,000. There appears to be a shortage of trained and key personnel, due principally to large-scale emmigration and the more lucrative wages and better conditions offered by other domestic industries. Fishermen are remunerated both on the basis of fixed pay and on a share basis. In the major and medium fisheries, collective wage agreements ensure an average level of earnings comparable to that of industrial workers, currently \$162 monthly for deckhands. However, in the minor fishery where there is no standard form of pay, wages are estimated at about \$72 per month.

During 1964 about 7,000 tons of fish were absorbed by the processing industry, while the balance of the total landings were marketed in the fresh and frozen forms.

The processing of sardines and anchovies in the salted state is the major output and ranges around 6,000 tons annually. In addition, some 1,000 tons of canned fish was put up in 1964 by a few fish canneries and general vegetable canning plants. The Atlantic fishing fleet, equipped with deep-freezing facilities, accounted for over 21,000 tons in 1964. The output of frozen fish by the Atlantic vessels in 1965 is expected to reach 25,000 tons.

Marketing

In former years, the marketing of fresh and frozen fish was confined almost entirely to the coastal towns and villages. However, indications are that the interior parts of Greece are now also receiving important supplies of these products. This development has resulted in a relatively small decline in the consumption of salted fish. On balance, nevertheless, the Greek authorities anticipate a continued overall growth in fish consumption. Forecasts based on statistics prepared by the Greek Ministry of Coordination indicate that consumption of fisheries products in Greece should reach 173,000 tons in 1967 and about 200,000 tons in 1973. These figures compare with some 117,000 tons in 1960. Major gains are anticipated in the consumption of fresh and frozen fish, and sales of canned fish are expected to be higher. Declines are noted in salted fish.

The pattern of distribution in many of the fishing ports of Greece is for catches to be sold either directly to consumers by the fishermen or through the intermediary of commissioned agents.

While facilities in most of the fishing ports are inadequate for the marketing of fish, modern fish piers have been completed in Piraeus, Patras and Chalkis and others are under construction in the important landing centres of Salonica, Volos, and Cavala. However, none of these centres has, as yet, a cold storage plant, although there are cold storage facilities for the storing of surplus fish. The overall cold storage capacity in Greece amounted to 600,000 cubic meters in 1964, including 230,000 cubic meters in the Athens area.

The Mission noted that the retailing of fresh fish in the larger cities such as Athens, Piraeus, and Salonica takes place principally in general food markets. It was reported that there are several fish shops with modern equipment in nearly all of the cities and towns. During the past few years, practically all grocery stores have been equipped with frozen fish counters. It was pointed out that sales of salted and other processed fish products are conducted in the grocery stores.

Greek import statistics show that the main imported fish items are salted cod, smoked herring, canned fish, and fresh and frozen fish. Imports of salted cod alone amounted to 10,740 tons in 1963 with Greenland, Iceland, the Faroes, Russia, and Norway being the principal sources of supply. Canned fish imports, supplied chiefly from Japan, United States, Portugal, and Netherlands, reached 8,351 tons. It is estimated that imported fisheries products currently account for twenty per cent of total fish supplies in Greece.

Greek officials mentioned that imports of frozen fish are not subject to any quota restrictions although fresh fish may be

imported only during the winter months for the use of salt fish processors and canners.

Some years ago, when there were import restrictions on salt cod, it was imported exclusively by the Union of Codfish Importers under authorization from the Greek Government. At that time the Government was represented on the Union's governing board. However, following the liberalization of trade in salt fish, four unions of codfish importers and dealers were established. Two are located in Piraeus, and the other two in Patras. Imports of salt cod are also made by individual importers outside of the unions.

Frozen fish fillet prices in Athen's supermarkets were quoted as follows:

Flaice fillets (Denmark) 1 lb. package - 40¢
Flounder fillets (Denmark) 1 lb. package - 38¢
Sole fillets (Denmark) 1 lb. package - 57¢
Codfish fillets (Denmark) 4.4 lb. blocks -
per pound - 29¢
Codfish fillets (Denmark) 1.1 lb. blocks -
per pound - 31¢

The Mission visited the fishing port of Patras and its fish handling facilities as well as the fishing port of Tolon. A tour was also made of the cold storage plant in Athens and operations at the principal Greek fishing port of Piraeus. This included retail and wholesale fish markets, fish piers, Greek Atlantic trawlers, and other fish retail and wholesale outlets. Fresh fish is preferred in Greece and sells at considerable premium over the frozen product.

A check of prices in the main Athens fish markets showed the range of prices for such species as red fish, croaker, and horse mackerel was from 60 to 90 cents per lb. in the fresh round state, while the frozen form was quoted at 17 to 24 cents per lb. Wet salt cod white naped from Greenland (the popular product) was selling at 31 cents per lb. with black naped wet salt cod originating in the Faroes selling at 28 or 29 cents per pound.

Canned Japanese mackerel pike fillets in cottonseed oil with keys were priced at \$10.80 per case of 100 x 4-2/5 oz. tins; canned mackerel in natural oil (salmon style) 48 x 15 oz. tins - \$7.75; canned sardines in tomato sauce 24 x 15 oz. tins - \$4.80, 48 x 7 1/2 oz. tins \$5.40, and 100 x 5 oz. tins \$8.90 C.I.F. Piraeus.

Leading importers of fresh, frozen, canned, and salted fisheries products were interviewed, as were Greek fisheries officials. They reported that the trend is to wet salted codfish white naped, although Greek importers are quite prepared to purchase supplies of Canadian wet salt fish black naped provided the quality is satisfactory. There is a good demand for competitively-priced Canadian salmon roe and cod roe and canned sardines packed in cottonseed oil or tomato sauce with keys. Canned salmon exports have suffered from sales of the cheaper canned mackerel (salmon style). Squid in canned form is in demand. It was priced at \$5.50 - \$6.25 per case 48 x 15 oz. tin C.I.F. The present supplies come from California.

In view of the preference in Greece for wet salt cod from Greenland, Iceland, and the Faroes, the Mission made a careful on-the-spot study of the requirements of the market - and special processing points, which will be brought to the attention of both the Federal and

Provincial departments of government concerned with the production of salt fish in our Atlantic provinces. There is a good demand for this particular product in Greece, and if Canadian exporters are interested in opening new outlets, special care will have to be taken to provide the consumers with the type and kind of salt fish required. C.I.F. Piraeus quotations for Greenland wet salt cod were \$495.00 per metric ton, while prices for the Faroes product ranged around \$450.00 a ton.

Development

The Greek offshore freezer trawler fleet now numbers 26 vessels, ranging to about 1,300 tons gross. All these vessels have been purchased elsewhere or converted from other uses. One leading shipping company has two 2,200 ton factory vessels presently under conversion. They will have a holding capacity of 1,500 tons, 40 tons per day whole fish freezer capacity, plus eight tons per day plate freezer capacity, and 3600 horse power engines. Total accommodation per vessel is 72 including eight officers, 25 fishermen or deckhands, and others employed in the freezing facilities and the engine room. The vessels are expected to be in operation in the fall of 1965.

Despite government financial support for the offshore fleet, it is not expanding rapidly, probably impeded by declining productivity on the traditional grounds, and a domestic market somewhat inflexibly oriented towards fresh locally-caught fish. Decreasing productivity in the trawler operations is now causing concern, and plans are being considered for an expanded operation afield, notably to the Grand Banks of Newfoundland and Angola fish producing areas.

Other forms of fishing are not under vigorous development nor is significant expansion discernible.

Observations

A good demand exists in Greece for wet salted cod similar to that produced by Greenland, Iceland, and the Faroes. The importers stress that the fish should be white-faced and contain ample salt. Greek importers are also anxious to purchase supplies of Canadian salmon caviar and cod roe.

Importers expressed the view that, except for two points, Canadian sardines should be more saleable on the market: first, the market prefers a pack in cottonseed oil or olive oil, and also a keyed can; second, four or five fish per can are preferred. Price, of course, is a determining factor. Some interest was also shown in the possible supply of canned squid.

