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REPORT ON THE
Canada.
CANADIAN FISHERIES
RECONNAISSANCE MISSION
TO ICELAND, NORWAY
AND DENMARK

SEPTEMBER 12th - OCTOBER 2nd 1964

DEPARTMENT OF TRADE AND COMMERCE
OTTAWA CANADA

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FISHERIES RECONNAISSANCE MISSION TO ICELAND, NORWAY AND DENMARK

- SEPTEMBER 12 TO OCTOBER 2, 1964 -

In its endeavour to provide the Canadian fishing industry and provincial governments with up-to-date intelligence on all phases of the fishing industries of the three countries concerned, the Department of Trade and Commerce sponsored a Fisheries Reconnaissance Mission to Iceland, Norway and Denmark which departed for Reykjavik on September 12th, 1964.

The principal objectives of the Mission were:

- To study marketing procedures and organizations;
- To obtain up-to-date information on Governmental assistance programmes and subsidies granted to the fishing industry;
- To gain an insight into the methods presently used in the catching and processing of fish and also to investigate the manner in which the utilization of ground fish is regulated.

Members of the Mission

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SUMMARY

Iceland, Norway and Denmark are Canada's competitors in the world market for fisheries products and fishing plays an important role in the economy of these countries. Through fisheries policies, the respective Governments endeavour to maintain and improve the living condition of their fishermen.

Iceland and Norway exercise strict controls over their fisheries. Fishermen in Iceland receive minimum prices for their fish and, in Norway, they are guaranteed a minimum weekly income. Producers and marketing organizations are well organized. Sales of certain species of fish come under their respective jurisdictions by statutory authority.

In contrast, there is no government control on prices paid to fishermen or on sales of fish products in Denmark. The fish landed is usually sold either by auction or direct to the fish trader. The auction system appears to provide healthy economic conditions to the fishing communities. There is no control exercised on exports of fish. However, only firms authorized by the Government can operate as exporters.

Iceland

The greatest part of Iceland's total fish catch is on the fishing grounds which surround her coast. The most important single product is frozen fish and there has been a relative decline in the production of salted fish.

The Icelandic fisherman has no particular interest in or control over the ultimate utilization of the groundfish that he catches. This is determined mainly by the industry on the basis of commercial consideration and the fish processor decides when and how much fish to buy for processing.

The fish processing industry of Iceland has relatively high labour costs. The normal wage rates approximate those paid by fish processors in the Atlantic provinces of Canada. Icelandic fishermen are assured of receiving a stated minimum price for their fish prior to the opening of the fishing season. The price is determined through negotiations.

Fish cannot be exported from Iceland without an export permit. The largest percentage of sales of fish products to foreign markets is handled by Associations. In theory, an export permit is issued automatically to anyone wishing to export fish, but individuals outside the Associations cannot sell until prices in given markets have been established by the Associations.

Norway

The bulk of the Norwegian catch is taken from the inshore grounds, although fishermen also participate in fisheries in the waters around Bear Island, Iceland, Greenland and Newfoundland. An important fishery takes place throughout the year in the many fjords of Norway.

With a few exceptions, Norwegian fishermen are not guaranteed a minimum or fixed price for their fish. However, the first-hand sales of almost all species of fish are regulated by law, and under certain regulations Norwegian fishermen are guaranteed a minimum weekly income.

Norwegian fishermen's sales organizations have considerable authority under the law and control first-hand sales of almost all fish landed in Norway. In addition to several statutory powers the organizations have the right to determine binding prices for raw fish.

The law also provides that negotiations and closing of sales to foreign markets must take place through an export committee. Any one of the fifteen export committees appointed by the Ministry of Fisheries may be granted the authority to fix conditions of sale and prices for one or more markets or for one or more products. Certain fisheries products can be exported only by members of national associations approved by the Government.

Denmark

Many major fishing banks are located close to the shores of Denmark. Herring is the species of fish taken in the greatest quantity.

Virtually all Danish fishermen are members of one or two central organizations. There are no fixed minimum prices or any Government control on prices paid to Danish fishermen for their catch. The fish landed in Denmark is usually sold either by auction or directly from the fishermen to the fish traders.

The Danish wholesale trade is concentrated in the main fishing ports. Most of the export trade is administered by the coastal wholesalers or processors. Only firms authorized by the Government can operate as exporters. No other government control of any kind is exercised on exports of fish.

There is no government assistance in the form of direct subsidies to Danish fishermen.

ICELAND

One may think of Iceland as a very remote part of the world, and as a very cold country, but the average temperature in Reykjavik, its capital, is about 52°F in July and about 30°F in January. Reykjavik has recently mushroomed into a fairly modern city with well designed homes and apartments and it may soon become one of the most interesting capital cities of the world.

Although Iceland expresses an outward appearance of prosperity, the rate of taxation and the cost of living are quite high. The educational system is progressive and free and there is an apparent labour shortage.

Fishing plays a prominent and an unique role in the Icelandic economy. Approximately 25 per cent of Iceland's gross national income is obtained directly from fisheries and sea products represent approximately 90 per cent of Icelandic exports. Because of its geographical position, Iceland enjoys great advantages as a producer of fish. As the quality of processed fish depends to a large extent upon its freshness as it enters the plant, the proximity to rich catching areas has permitted Iceland to build up a fisheries industry which is the very cornerstone of her economy.

LANDINGS AND PRODUCTION

The greatest part of Iceland's total fish catch is on the fishing grounds which surround her coast. In addition to the main cod fisheries conducted off the south and west coasts from January to May, cod fishing takes place from different points all the year round. Cod and red fish are also fished in distant waters, mainly off Greenland and Newfoundland. A recent innovation in the Icelandic cod fishery, the utilization of the ring net (purse seine) has resulted in the catching of large size cod during the spring season. During the summer excellent quality, high-fat-content herring is caught off the north and east coasts and in the fall, off the south-west coast.

The most important single product is frozen fish. Almost half of the 820 million pounds of groundfish landed during the calendar year 1963 were

filleted and frozen. Stockfish accounted for 160 million pounds with klipfish very close at 158 million pounds.

As in Canada there has been an increase in the processing of frozen fish accompanied by a relative decline in the production of salted fish. The utilization of the fish is determined by the industry largely on the basis of commercial consideration after quality determination by Government appointed inspectors, with the lower grade quality going into the production of stockfish and fish meal, although some prime quality fish is processed as stockfish.

Icelandic fishermen are assured of receiving a stated minimum price for their fish prior to the opening of the fishing season. The price is determined through negotiations between the vessel owners, fishermen and the various trade organizations involved. These minimum prices, which in most cases are the maximum ones, except when supplies are short, are as a rule negotiated twice a year for cod and related species -- in December for the winter fishing and around May for the balance of the season. The procedure is different for herring.

It is apparent that the fish processing industry of Iceland has relatively high labour costs. The shortage of manpower combined with strong labour organizations has forced processing plants to pay high rates of overtime during specified hours. The normal wage rates (which are basically the same for men and women) approximate the rates paid by fish processors in the Atlantic provinces of Canada.

The Icelandic authorities had been concerned with the operations of its trawler fleet and two years ago appointed a committee to explore and advise on the economic difficulties and trade conditions affecting trawler owners. The report made by the committee mentioned the serious decreases of the catches made by Icelandic trawlers fishing in distant waters. At the time the committee also voiced the opinion that this industry was in serious difficulties and would definitely need government aid in order to pay a reasonable dividend.

Frozen Fish

Visits to various processing plants gave the opportunity to gain an insight into methods used. The filleting of groundfish and related species is identical to ours. At this season only small quantities were being processed, as the boats were engaged principally in the catching of herring.

Salted Fish

Whereas in Canada the fishermen themselves almost invariably determine whether the groundfish they catch is split and salted, or sold fresh, the exact opposite is the case in Iceland. For the most part, the salt fish plants in Iceland acquire their supplies in the fresh form at, or above, the minimum prices for specific species, sizes and grades established for fresh fish for the particular catching season. In other words, the fisherman in Iceland, whether engaged in trawler fishing or in smaller vessels or boats, has no particular interest in or control over the ultimate utilization of the groundfish that he catches - it is the salt fish processing plants which decide when and how much fish to buy for processing. Only negligible quantities of fish are split, salted and dried by the fishermen themselves.

The major part of the annual production of salt fish in Iceland is processed during the winter months (Jan-May), but there is a fairly substantial fall production from fresh fish bought from the smaller fishing vessels rather than from the distant water trawlers.

Stockfish

Stockfish is produced from fresh fish caught by modern fishing vessels on the abundantly rich banks off the coast of Iceland and in distant waters.

All the gutted fish is brought ashore either fresh or iced, is beheaded and then thoroughly cleaned and washed. The fish are then tied in pairs and hung by their tails from wooden stocks to dry.

When it is completely dry the fish is moved into warehouses where it is stored for a period of eight weeks in order to complete the final process. Careful sorting is carried out by specially trained stockfish sorters appointed by the Chief Inspector of Fisheries, who is a government official. All the fish are weighed and packed under their strict supervision.

During the process of drying, the fish loses most of its water content and becomes very hard. When this stage is reached it is called stockfish and is ready for export. It takes about six pounds of gutted headless fish to yield one pound of stockfish, and in addition to cod other species such as haddock and saithe are used.

Herring

The Icelandic herring fishery produced approximately 879 million pounds of fish during 1963. Iceland's summer herring catch at July 1964 was about 153,057 metric tons, an increase of 135 per cent compared with landings during the same period in 1963. This fishery is carried on by some 250 vessels many using purse seines and power blocks, and range in size of from 50 Gross Registered Tons to 300 G.R.T. averaging 130 G.R.T. The present trend is toward larger vessels in this fishery and it is expected that within the next ten years most of the vessels will exceed 100 G.R.T.

The Icelandic Herring Board controls the marketing of all types of salted herring products. The seven man board has the exclusive control, by export license, of all herring products except frozen fillets, herring meal and oil and consumer packages, which are sold in foreign markets.

Herring prices to fishermen are usually set for each season by the same body that establishes prices on groundfish. In Iceland it is illegal to put herring into pickle before the product has been sold. Thus the country is assured that there will be no over-production of this product.

Fish Meal and Oil

Because of its good herring fishery, Iceland is a large producer of fish meal and fish oil. Her total exports of fish meal reached 100,000 tons in 1963, 75 per cent of which was processed from herring. Approximately 55,000 metric tons of herring oil were sold to some seven countries and other fish oils were exported all over the world.

Of the meal and oil plants visited one was of particular interest. The plant's production is divided into three divisions - liver and oil extraction, liver oil refining and cod liver meal. The products sold are medicinal liver oil, animal feed oil, industrial liver oil and liver meal. In recent years total exports have amounted to 4,000 tons per annum with sales to 50 different countries. The company operating this plant is one of the largest exporters of liver oil in the world.

The raw materials used in the production is in the proportion of one fourth from the firm's own liver oil extraction plant and three fourths from other extraction plants located in southwest Iceland. The firm owns storage tanks with a capacity of 6,000 tons of oil, into which the product is sorted according to quality.

This company has a first-class extraction plant producing excellent liver oil, the waste being converted into liver meal sold to the United States and Germany for use as fodder for poultry and fur-bearing animals. This is the only plant in Iceland equipped to produce fish liver meal.

An interesting feature is their molecule distillation plant, the only one of its kind in Iceland, where the vitamins are recovered from the cod liver oil and then used to increase the vitamin content of other liver oils as required. A by-product is the substance cholesterol, used for the manufacture of synthetic vitamin D.

TRADE

Icelandic fishermen, producers and exporters belong to trade associations whose objectives are similar to our own Canadian organizations. One of these, "The Fisheries Association of Iceland", however, differs greatly from any organized group known to us. While its representatives are elected by the trade and act as a liaison between the industry and the Government, it also performs functions which would normally be the exclusive responsibility of our Federal or Provincial Departments of Fisheries. The publication of statistical information comes under its jurisdiction and it also administers some of the assistance programmes instituted by the Government. The Association's operating costs are shared by Government and Industry.

Fish cannot be exported from Iceland without an export permit. The Salt Fish Association (Icelandic Salt Fish Producers) is a producers association which sells over 90 per cent of the salt fish exported from the country. In theory an export permit is issued automatically to anyone wishing to export salt fish but not if the fish is to be sold at a price lower than that obtained by the Association for a given size and quality in any particular market. Only the Salt Fish Association can export fish while the price for export is being determined, i.e. individuals outside the Association cannot sell until the Association establishes a price in a given market. Basically similar arrangements are in

effect for stockfish and frozen fish. Stockfish is exported by the Union of Icelandic Stockfish Producers (55 per cent), the Federation of Icelandic Co-operative Societies (22 per cent) and by approximately 15 independent producers (23 per cent). The Icelandic stockfish producers have an arrangement with their main competitors, the Norwegian stockfish producers, whereby neither will sell in a given market below a given price for a states size and grade. The Icelandic Freezing Plants Corporation handles approximately 70 per cent of the total frozen fish exports of the country. The Federation of Icelandic Co-operative Services exports approximately 20 per cent, while two independent producers account for the remainder.

ASSISTANCE TO THE INDUSTRY

The broad objectives of Icelandic fisheries policies are:

- (a) to secure a continued improvement in living standards for the population by expanding the production of fisheries products;
- (b) to safeguard the fish stock of Icelandic waters from over-exploitation;
- (c) to ensure a continued operation of the fisheries in face of persistent inflation;
- (d) to secure maximum foreign exchange earnings from exports of fisheries products by favouring the development of processing industries yielding a maximum value for the catch.

Various loan funds have been established by the Government for the benefit of the industry. A fisheries Loan Fund provides loans for fishing vessels of all sizes, preferably those under 200 Gross Registered Tons, as well as loans for processing plants and other plants operated for the benefit of the industry.

Through the intermediary of the Iceland Bank of Development, loans are granted to the processing industry with the view towards increasing their productivity. There is also a Fisheries Fund for the purpose of assisting the processing industry and other enterprises connected with it. To facilitate the modernization of processing plants and equipment, loan guarantees are provided by the Icelandic Government.

Loan schemes operated by government institutions for the benefit of fisheries derive their income to a great extent from special levies on the export of fisheries products. The export levy, now at 5.6 per cent for groundfish products and 7.4 per cent for herring products, is collected by the Government - one half when the export permit is issued and the balance when the seller gets paid - and is used to finance the Fisheries Loan Fund and loans to the processing industry as well as various research and insurance schemes pertaining to that industry.

In January 1964 the Icelandic Parliament passed a bill increasing the retail sales tax from three to $5\frac{1}{2}$ per cent. One-half of one per cent is to be used to enable fish-freezing plants to pay more for cod and haddock. This in turn benefits the fishing vessel owners and the fishermen.

NORWAY

Norway has always been a fisheries nation. Its long coast line and the great quantities of herring and cod which come to its coast to spawn has throughout history made fisheries one of the country's most important means of livelihood.

The bulk of Norway's catches are taken from the inshore grounds. Most of Norway's fishermen live on the western and northern coasts, half of them north of the Arctic Circle. Fishermen also take part in fisheries in the waters around Bear Island, Iceland, Greenland and Newfoundland. Also important is the fishery that takes place throughout the year in the many fjords of Norway.

Fisheries contribute about three per cent to Norway's gross national income and represent approximately 15 per cent of total annual exports. Seventy-five per cent of the catch is processed for export and the fishing industry is therefore greatly dependent on sales conditions in the export markets.

With the object of maintaining profitable fishing operations and of securing an adequate and stable livelihood for those engaged in the industry, the Government of Norway has instituted various assistance programmes as well as laws and regulations which are administered by two branches: The Ministry of Fisheries in Oslo and the Directorate of Fisheries situated in Bergen.

The Ministry of Fisheries is divided into three departments. One department deals with the fishing activity and the social and economic conditions among the fishermen. A second handles questions related to the processing and the marketing of the fish products. The third department is responsible for general planning. The Directorate of Fisheries, which was in existence before the Ministry was created, is responsible for the technical aspect of fisheries and for this purpose is divided into four departments: The Administrative Department, the Institute of Marine Research, the Chemical and Technical Research Institute

and the Building and Engineering Department.

LANDINGS AND PRODUCTION

The waters along the Norwegian coast are among Northern Europe's richest in fish. While the main fisheries for herring, cod and some other species are seasonal, fishing is conducted throughout the year along the coast. The fish are landed and processed in many places.

Catches of herring and cod are by far the most important. Total landings of cod in 1963 at 417 million pounds were less than 1962 and the lowest quantity caught since 1954. Statistics at the end of June of this year show a further decline in landings compared with the same period last year.

While the 1,123 million pounds of herring caught during 1963 were a little less than the total landed the previous year, statistics at the end of June 1964 indicate that, as the result of a successful west coast winter herring fishery, Norway has doubled the quantity taken at the same time the year before. Norwegian scientists, however, believe that the west coast fisheries (Stavanger to Trondheim) are at the end of a 60 year favourable cycle while herring fisheries off the south coast in the Skaggerak area are just at the start of a 30 to 40 year good cycle. This seems to confirm the theory advanced by Danish scientists, who have predicted good seasons in Denmark for their herring fishery, to the effect that the decrease in catches in the last years was the result of migration of the species rather than depletion of the stocks. The herring fishery of Northern Norway is apparently entering another favourable cycle.

On the south coast and around the Oslo fjord, fishing for mackerel, lobsters and shrimp has considerable economic importance. Brisling, the main product of the canning industry, is taken partly in this area and partly on the west coast.

With the exception of herring for reduction purposes, Norwegian fishermen are not guaranteed a minimum or fixed price for their fish. The first-hand sales of almost all species of fish, however, are regulated by law. Approximately 60 per cent of landings is sold at minimum prices compared to 40 per cent at fixed prices. These proportions, however, vary widely according to species and areas. The Norwegian fishermen, however, do not receive fixed wages, but are paid by shares or percentage of the catch value. To secure for the fishermen a minimum weekly income, schemes have been established under State supervision which guarantee each fisherman who participates in one or more fisheries during four consecutive weeks, on a craft with a crew of at least 2 men, a minimum weekly salary during the time of participation. If the fisherman's share is less than the stipulated minimum the difference is paid by the Government. Norwegian fishermen are not entitled to receive benefits under the state's unemployment insurance system, however, the minimum earnings programme is somewhat similar.

The mission's itinerary in Norway included visits to Oslo where the Ministry of Fisheries is located; Bergen with its Directorate of Fisheries and research centres; and Tromso in the extreme north, which has substantial fish processing facilities and is the headquarters of the leading fishermen's sales organization for groundfish, Norges Raafiskarlag.

At Bergen, the mission visited the Aquarium, the Research Station, the Fisheries Museum, and the Frionor freezing plant. Considerable time was spent in interviews with officials of the Directorate of Fisheries discussing marketing procedures and trade organizations, assistance to the industry and general topics related to our fishing industries. In addition to inspecting some processing facilities at Tromso, there were several meetings with officers of Norges Raafiskarlag.

TRADE

Because of the various assistance programmes sponsored by the State authorities and in view of special aid made available to fisheries co-operatives, a large percentage of Norwegian fishermen belong to co-operatives which operate in many fields: i.e. ownership of boat and gear; processing and marketing of fisheries products; manufacture and supply of fisheries requirements; insurance of life, boat, gear, financing and credit; etc.

Almost all fish landed in Norway is sold at first-hand through the fishermen's sales organizations which have been vested with statutory powers to control these sales. The Raw Fish Act of December 1951 prohibits the processing, distribution and export of fish or products unless the fish has been acquired at first-hand through a fishermen's sales organization which has been approved by the Ministry of Fisheries. This Act also provides for the Government to confer considerable authority on the fishermen's sales organizations.

After discussions with buyers, the sales organizations have the right to determine binding prices for raw fish. They are also permitted to direct a catch to a specific buyer and to specify that it shall be sold for a specific purpose. Furthermore they may levy dues on all fish supplied to the organizations in order to cover their administration expenses and other costs. According to the Act a sales organization is entitled to place a temporary ban or restriction on fishing. In addition they have the right to establish and operate production plants and other facilities for processing, marketing and export.

The principal objective of the sales organizations is to ensure that fishermen are paid realistic prices. Other important aims are to stabilize prices payable to fishermen and to ensure orderly delivery arrangements for members' catches. The activities of some organizations are restricted to a definite type

of fish, irrespective of the district in which it has been caught, while others sell a substantial amount of most species landed in specific districts.

According to their system, the sales organizations generally are of three types. One type of organization stipulates prices and terms of delivery, but leaves the fishermen free to deliver their catches to an approved buyer of their choice at or above the stipulations. The sales arrangement may include a system of price equalization if there are differences in prices when species are processed into two or more different products. Another type of organization stipulates prices and terms of delivery and directs the catches to the various approved buyers. This group arrangement is always based on a system of price equalization. Other sales organizations take over the catch from the fishermen and transport the fish to their own packing premises or to processing plants approved by them. They handle marketing themselves and settle directly with the fishermen.

Fifteen sales organizations have been given statutory protection in accordance with the Raw Fish Act. In herring fisheries all catches are handled by four sales organizations. Depending on the final product herring is sold either at a fixed or minimum price. One organization has the sole right to the first-hand sale of nearly all species of white fish landed in North Norway and the Northern part of West Norway. Minimum prices are established for all white fish sold first-hand by this group. White fish landings in South Norway are handled by the six sales organizations that have the sole right to the first sale in this area. Fixed prices are mostly used for white fish landed in South Norway and sold direct to the retailers, whereas catches destined for other purposes are sold at prices which are allowed to fluctuate to some extent. The other organizations have exclusive rights to certain species or to species within

certain areas.

Controls on exports of fish and fish products in Norway have been established by a number of acts, the latest being the Act of June 30, 1955. A basic principle of this Act is the Ministry's right to decide that negotiations and closing of sales to foreign markets must take place through an export committee. It may also be decided that a firm, in order to be entitled to export fish products, must be a member of an association of exporters, the articles of which are approved by the Ministry.

Fifteen committees, representing processors, fishermen and exporters, through their organizations, have been appointed. The Ministry can give an export committee the authority to fix conditions of sale and prices for one or more markets or for one or more products. For exports to some countries, the selling of certain products is made by the export committee or by a firm authorized to negotiate sales on behalf of the committee. For the majority of fish products to markets without centralized exports, minimum export prices and sales conditions are fixed.

Under the Act, seven national associations of exporters have been approved and their members have the right to export the following fish and fish products: stockfish, klippfish; salt fish, salt and sugar-cured roe; salt large and spring herring, smoked and salted herring; salt fat herring; and salt Iceland herring. The aim of each association is limited to that of rationalizing the export trade. The Act also provides that anyone denied membership in an association is entitled to appeal his case to the Ministry of Fisheries.

The right to export fish and herring products which are not covered by an association may be made conditional upon special approval being given by the Ministry of Fisheries. There are no national associations representing the frozen

fish or frozen herring trade and the associations for fresh fish, fresh herring, canned fish, fish meal and herring meal do not enjoy the same protection as those which have been approved under the Act of June 30, 1955.

ASSISTANCE TO THE INDUSTRY

In addition to the subsidies to increase fishermen's income, (i.e. price supports or guaranteed earning) various assistance schemes have been instituted by the Government of Norway with a view to aiding the fishing industry. These various programmes which are submitted periodically to the Organization for Economic Cooperation and Development Committee for Fisheries may be divided into three categories: Support to the Fishing Fleet, Support to Regional Fishing and Processing and Support to Processing and Support to Processing and Trade.

The Government of Norway supports its fishing fleet through various subsidies. Loans to encourage the construction and repair of vessels as well as the acquisition of boats and equipment may be granted by the State Fishery Bank. In addition the Bank helps to finance special Regional investments in vessels, gear and other equipment. Assistance is also provided to reduce prices on equipment and bait and to stimulate the scrapping of old vessels.

In 1960, the Storting (parliament of Norway) passed an Act on the Special Areas' Development Fund for the purpose of raising the income level as well as improving the economic conditions of the population in less developed areas. The Fund attaches great importance to the direct or indirect effect a project may have on the employment and income situation in the coastal regions. In the circumstances, assistance is granted to finance large vessels and trawlers to increase the supplies of fish to the processing industry. The Fund also supports plans aiming at rationalization and modernization of already existing processing plants.

Finally the Norwegian government helps the processing industry, especially fishermen's cooperatives, to improve processing facilities through purchase of shares, loans and short term credit.

DENMARK

Denmark has a population of 4,650,000 and an area of only 16,576 square miles. It consists of the peninsula of Jutland and about 500 islands, 100 of which are inhabited. A coastline of nearly 5,000 miles with many belts and inlets offer favourable conditions for fisheries. Many of the great fishing banks are located close to the Danish shores.

Associated with the Kingdom of Denmark are the Faroe Islands and Greenland. The Faroese have to rely on the sea for the greater part of their livelihood and fishing is the most important occupation. This applies to Greenland where only the coastal fringe of the southern tip of the island is inhabitable. These islands were not visited nor did the mission have the opportunity to obtain data on their fisheries.

Although it represents a very small percentage of the country's annual income, the Government of Denmark considers the fishing industry a very important part of its economy. While before 1948 matters pertaining to the fishing industry were dealt with, at first, by the Ministry of Agriculture and later (1945) by the Ministry of Commerce, a separate Ministry of Fisheries was established in 1948. An Industrial Inspectorate Division controls applications to operate as fish factories and carries out inspections and sampling tests. They also advise the Ministry on all matters affecting factory layouts and the packaging and marketing of fish and fishery products. Fish inspection is carried out by the Fishery Control Division which also enforces fisheries laws and regulations.

Also responsible to the Ministry of Fisheries are the Danish Fisheries and Marine Research Institute and the Research Laboratory. The Royal Danish Fisheries Bank provides credit facilities for the modernization of the fishing fleet.

LANDINGS AND PRODUCTION

Fishing is carried on in all Danish waters, mostly from a number of base ports, many of which have specially built harbours. The principal ports are: Esbjerg, Skagen, Hirtshals, Thyborøn, Frederikshavn, Rønne, Nexsø, Grenå, Hundested, Århus, Gilleleje and Kerteminde.

The largest fishing areas are the North Sea and Skagerrak where the main species of fish caught are herring, plaice, dabs, sole and cod.

Denmark's fisheries landings in 1963 amounted to 805,000 metric tons (1,775 million pounds) valued at 468 million kroner (Can \$73 million or less than one per cent of the country's total income), an increase of three per cent in quantity and one per cent in value from 1962. The 1963 landings of plaice, cod and whiting were at a new high and pond trout production reached a new peak. At the end of March 1964, Danish fisheries landings in home ports were approximately 9 per cent below those in the same period of 1963 due to a sharp drop in landings of industrial fish which more than offset landings of most food fish items. Everything indicates, however, that 1964 will be a good year and stocks of fish appear to remain constant.

As in Norway, the Mission's visit to Denmark was limited by distances and time and did not allow travelling to more than one fishing center. The programme included a visit to Esbjerg and to a commercial trout hatchery at Brons as well as interviews with officials of the Ministry of Fisheries at Copenhagen. A new government had been installed a day or two before the arrival of the mission and meetings with the hosts were consequently also limited.

Esbjerg is the principal fishing center. It is situated on the west coast of Jutland and is the terminus for the ferry service to England, as well as the transshipment point for Faroese fish shipments to Europe. The fishing harbour is separate from other sections of the port, with the auction hall along one side of the quay and about 20 processing plants located along the foreshore. Fish meal and fish oil are produced at three separate plants. Only one of the many canneries in Denmark operates at Esbjerg.

Approximately 550 vessels ranging in size from 50 to 100 Gross Registered Tons, most of which are owned by individual fishermen, supply the processing plants of Esbjerg. The most common methods of fishing are Danish seining for flounder and other trawling for industrial fish.

Like other Scandinavian fish producing countries Denmark has a labour shortage and a certain pressure is therefore exercised on processors by fishermen unions. The rate of unemployment is less than one per cent. Most plant workers are paid a minimum salary plus a piece work return and wages paid to male workers are slightly higher than for women. A filleter would average \$60. to \$70. per week and is usually employed for an average of nine months per year.

Esbjerg - top producer of flounder

Cod and plaice (flounder) are the principal edible species of fish processed in Denmark and rank third and fourth in annual landings of all fish. Because of its location the larger percentage of edible fish landed at Esbjerg is plaice and this was most evident on visits to some of its filleting plants.

The newest and most modern fish filleting plant in Denmark is located there. It is a limited liability company owned by approximately two hundred vessel owners and operators, each of whom shares (or will eventually share) in any of the company's profits. In this sense it is similar to a cooperative enterprise. Employing some 50 to 60 people when operating at capacity, the plant is capable of producing between 10 to 12 tons of frozen fillets a day. The output to date has been principally frozen flounder fillets although some fresh fish is also handled. Both one-pound consumer packages and seven-pound frozen blocks are produced.

Fish meal and fish oil

The Danish fish meal and fish oil factories purchased an estimated 470,000 metric tons of fish and fish waste in 1963. Production of fish meal during that year was estimated at 90,000 metric tons and fish oil 25,000 metric tons.

One of the three reduction plants located at Esbjerg is believed to be the largest in the world. About 180,000 tons of fish are processed annually into 25,000 to 30,000 tons of fish meal. Its total annual capacity is claimed to be 250,000 metric tons of raw fish. This plant uses whole fish exclusively and the species processed are herring, whiting and sand eel. Meal with a protein content as high as 80 per cent can be produced.

This meal and oil plant is owned and operated by a cooperative association of fishing boat owners.

The canning industry

Most of the Danish canning industry is centred in the Jutland area and there is only one canning plant at Esbjerg. When the mission visited the Esbjerg cannery, operations consisted of canning mackerel. Other products of this "specialty" cannery are cod roe, cod livers, fish balls, tuna, cod liver paste and sardines.

Denmark - an exporter of trout

Denmark is well known for its trout, which is produced in hatcheries. There are approximately 500 farms in Denmark where trout is produced commercially. This industry's expansion is due, first to the numerous streams and the relative ease with which hatcheries can be constructed because of the topography, and secondly, to the excellent facilities for obtaining good, fresh food consisting of surplus fish.

From Esbjerg the Mission travelled to Brons where a combined research and commercial trout farm is located. Made up of about 70 ponds this hatchery has an annual production of 70,000 pounds of fresh fish.

Herring

Herring is the species of fish caught in the greatest quantity in Danish waters. In 1963, an estimated 259,000 metric tons were landed, 75 per cent of which was used in the production of meal and oil.

Almost all the herring landed at Esbjerg is used for reduction as the North Sea herring caught during the months of July to October is normally too fat for freezing, pickling and canning. Esbjerg vessels generally catch herring by pair seining or by midwater trawling. These vessels range in size from 50 to 120 Gross Registered Ton, 80 per cent of which are of the 50 to 55 ton type. Esbjerg fishermen normally receive 25 ore per kilo for industrial herring (1.6 cent per pound) and 60 ore per kilo (3.8 cent per pound) for herring to be used for human consumption.

Danish Fisheries Officials have expressed some concern in relation to the E.E.C. tariffs against non-members which shall reach 20 per cent by the year 1966. (The present rate applicable to imports of herring into West Germany, their big market, is six per cent on that portion in excess of the annual quota). Of more concern to Denmark, however, is a very recent development within the E.E.C. France has stipulated minimum prices for imported herring, a measure aimed chiefly at the Dutch who have sold large quantities in France at low prices. Danish officials fear that this measure will divert low-priced Dutch herring into competition with theirs in West Germany. This could have a detrimental effect on Danish exports.

TRADE

Virtually all Danish fishermen are members of one or two central organizations: the Danish Fishermen's Association and the West Jutland Fishermen's Association. The freshwater fisheries have their own organization, the Freshwater Fisheries Association, to which all hatchery owners belong. These associations act as intermediaries between their members and the authorities. Merchants and exporters, as well as other segments of the industry have their separate association.

The Fisheries Council is a federation of the largest associations in the industry and handles the industry joint interests and in many cases acts as a liaison between the Government and the industry.

There is no fixed minimum prices or any Government control related to prices paid to Danish fishermen for their catch. The fish landed in Denmark is usually sold

either by auction or direct from the fishermen to the fish traders. About 60 per cent of the fish landed are sold at these auctions. In certain ports the fishermen have formed sales co-operatives which control 20 to 25 per cent of all landings and are responsible for the sale and processing of fish caught by their members. Individual contracts or sales direct to buyers account for the balance.

The sales system viewed in Esbjerg may be taken as quite typical. The fishing boats land their catches at a shed 700 feet in length. Expected landings by species are listed on a bulletin board for the benefit of buyers. Men employed by the auctioning organization sort the fish by species and sizes into shallow boxes and they are inspected immediately by the Fishery Control staff. Inspectors grade the fish into only two classes: edible and non-edible (not fit for human consumption). The latter is sprayed liberally with a brilliant red dye. The boxes of edible fish are laid out in display on the floor, with the name of the boat indicated.

Auctioneers travel the length of the shed followed by buyers who may be local retailers or wholesalers or buyers for the processing firms. Lots are sold to the highest bidders. The auction begins by sales of small lots, not more than two boxes, to ensure that top quality fish is available to the small retailer or to other buyers who may need only small quantities. The fishermen receive payment for their fish the same day.

The auction takes five to six per cent of the value of the fish landed to cover maintenance and administration costs as well as auctioneers' commissions. The auctioneer, who is appointed by the Government is paid a commission ranging from half to $1\frac{1}{2}$ per cent of sales. The pier used by the auction is owned by the Government and fishermen must pay two per cent of the value of the total catch as a harbour or docking charge. These docking charges are levied on all fishermen to assist in the construction and maintenance of wharfage facilities.

Government officials are very much in favour of the auction system which in their view provides for healthier economic conditions that could be engendered by

any government-regulated system of minimum prices. It is, furthermore, a definite incentive to fishermen to land fish in the very best conditions so as to get maximum prices at the auction.

The Danish wholesale trade is concentrated in the main fishing ports. In inland districts there are a few wholesalers and the retailers as a rule get their supplies direct from the coastal wholesalers. Most of the export trade is carried out by the coastal wholesalers or processors. Only firms authorized by the Government according to the regulations of the Act on the Control of the Quality of Fish and Fish Products can operate as exporters. This form of control does not, however, prevent new exporters from establishing themselves in the business. In contrast with Iceland and Norway, no other government control of any kind is exercised on exports of fish.

ASSISTANCE TO THE INDUSTRY

There is no government assistance in the form of direct subsidies to Danish fishermen. The ministry, however contributes an annual amount from Treasury funds for trade promotional purposes such as development of production methods, advertising participation in exhibitions abroad, etc..

Through the Royal Danish Fisheries Bank, loans are granted to encourage the construction of new craft and the modernization of old vessels. Loans are also granted to modernize and expand the processing industry.

