

Trade News



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Trade News



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COVER PHOTOGRAPH: International accord is symbolized in this photograph of a protocol being signed by Canada and the United States to protect a mutually valuable fishery. Canada's Minister of Fisheries, Hon. James Sinclair (right) and His Excellency T. Livingston Merchant, U.S. Ambassador to Canada, signed an agreement in Ottawa, December 28, 1956, which placed the pink salmon of the Juan de Fuca-Fraser River area of the Pacific Coast under the management of the International Pacific Salmon Fisheries Commission. See item on page 20.

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Fishing Industry Looks to Science

CANADIAN fishermen and the industry in general are looking to the country's fisheries scientists for the knowledge and equipment that will enable them not only to take full and wise advantage of the resources in the inshore and inland areas but also to compete successfully with other nationals for their share of the fish stocks of the high seas.

Governments are also relying on science for guidance in conserving and developing the marine and freshwater species by preventing depletion resulting from natural causes as well as such man-made causes as over-fishing, pollution, hydro development and the like.

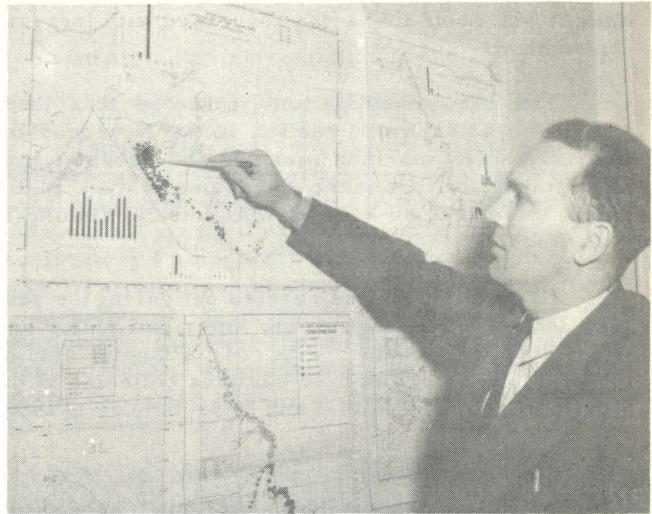
The wholehearted acceptance by scientists of these responsibilities is amply evidenced in the work of the Fisheries Research Board of Canada, Deputy Minister George R. Clark of the Department of Fisheries declared at the Board's annual meeting in Ottawa, January 7 to 9. (The full text of Mr. Clark's address commences on page 9.)

The Board, which for 57 years has served as the Department's scientific arm, heard reports from the directors of its stations and those heading special units. Investigations carried out during the past year and programmes planned for the year ahead showed that ashore and afloat the research conducted by the personnel in the Atlantic, Pacific, Central and Arctic regions had covered a wide range of biological, technological and hydrological aspects of the fisheries.

The meeting, which extended from January 7 to 9 under the direction of Dr. J.L. Kask, chairman of the Board, was preceded by special committee discussions. On January 4 the Board sponsored the tenth meeting of the Canadian Committee on Freshwater Fisheries Research. The morning session dealt with aquatic organisms in general while in the afternoon the fisheries and limnology of the Great Lakes were discussed. The next day meetings were held by the recently inaugurated Committee on Technological Investigations and by the Committee on Biological Investigations.

KNOWLEDGE FOR ICNAF

The northwest Atlantic waters off Canada's east coast, which are among the world's most fruitful and heavily exploited fishing grounds, were again the subject of various biological investigations by scientists of the Board's stations at St. Andrews, N.B., and at St. John's, Newfoundland. This research has important international implications in



Charting landings by Newfoundland's otter trawler fleet for ICNAF.

charting the deliberations of the ten-nation International Commission for the Northwest Atlantic Fisheries, which acts in the role of guardian for the area.

Of immediate concern to Canadian fishermen as well as others who fish northwest Atlantic waters was the report by Dr. W. F. Templeman, director of the St. John's station, that the previously abundant haddock stocks of the St. Pierre Banks became too scarce and dispersed to warrant a paying commercial fishery during the summer. Dr. Templeman predicted that these fish, of the 1949 year class, are likely present in sufficient quantities to give some good fishing during the present winter when they will be concentrated in deep water on the western slope of the Bank. There was no evidence of any significant survival of young haddock of the 1950 to 1954 year-classes, which will mean a considerable decline in this fishery until autumn of 1959 or the spring of 1960, when fish of the 1955 year-class, which showed a fairly good survival, will be of commercial size.

Fairly good haddock fishing should continue on the Grand Banks where the numerous 1949 year-class provided almost all the haddock of commercial size and two fairly numerous year-classes of 1952 and 1953 were approaching commercial size.

Deepwater dragging carried out by the Station's research vessel, "Investigator II", resulted in the discovery of a new redfish ground in the area

north of Flemish Cap. The redfish were of desirable commercial size, the bottom was smooth and indications were that good commercial fishing possibilities exist between 200 and 250 fathoms in this newly explored area.

Exploratory fishing was also carried out on the southwest slope of the Grand Bank at various depths, ranging from 100 to 360 fathoms. In this area it was found that sizes increased with increasing depth.

The 1956 investigations revealed that there are two varieties of redfish in the Newfoundland area, Sebastes marinus marinus and Sebastes marinus mentella. Of these the mentella type is the more important insofar as commercial fishing is concerned.

Groundfish studies carried out during the year also included research on the American plaice and witch flounder, together with cod. Plankton studies were also continued on samples collected in the Newfoundland area in 1955 and in September of 1956.

SALMON RESEARCH

Atlantic salmon populations, which have shown a general decline in recent years, are the subject of intensive research in the Atlantic provinces. Investigations covering many biological aspects, developed in consultation with the scientific sub-committee of the Atlantic Salmon Co-ordinating Committee, are carried out on such rivers as the Little Codroy in Newfoundland, the Pollett and Miramichi in New Brunswick and the Port Daniel in Quebec.



Seining with electrofishing to estimate population of young salmon at a Miramichi sampling station, N.B.

Reports on the progress of this work in their respective areas were given by Dr. Templeman and by Dr. J.L. Hart of the biological station at St. Andrews, N.B. These showed that the programme is developing satisfactorily and is providing much new and important data for the guidance of management authorities in efforts to restore and maintain

Research Board Committees

At the concluding session of its annual meeting in Ottawa January 7-9, the Fisheries Research Board of Canada followed the customary procedure of electing its executive and advisory committees for the coming year.

Members of the executive who, with the chairman of the Board, Dr. J.L. Kask, co-ordinate and implement the research programmes carried out at the various stations throughout Canada are: Dr. D. B. Delury, Ontario Research Foundation, Toronto; J.H. MacKichan, general manager, United Maritime Fishermen, Halifax, N.S.; R.E. Walker, President, British Columbia Packers, Ltd.; Dr. P.E. Gagnon, Director of the Department of Chemistry and Director of the Graduate School, Laval University, Quebec, P. Q.; Dr. T. W. M. Cameron, Director of the Institute of Parasitology, Macdonald College, McGill University, Ste. Anne de Bellevue, P. Q.

Dr. Kask is ex-officio chairman of the executive committee, and other ex-officio members are George R. Clark, federal Deputy Minister of Fisheries, and A. D. Wymbs, who serves as the Board's Honorary Treasurer.

The Eastern Advisory Committee of the Board has separate divisions dealing with biological and technological investigations. The biological division consists of Mr. MacKichan, Dr. Raymond Gushue, President of Memorial University of Newfoundland, St. John's, Dr. F.R. Hayes, head of the Department of Zoology, Dalhousie University, Halifax, N.S., and W.L. Williamson, Vice-President of Conley's Lobsters, Ltd., St. Andrews, N. B. Members of the technological division are: Dr. L. Piche, faculty of science, University of Montreal; Dr. Gagnon, and C. J. Morrow, President of National Sea Products, Lunenburg, N.S.

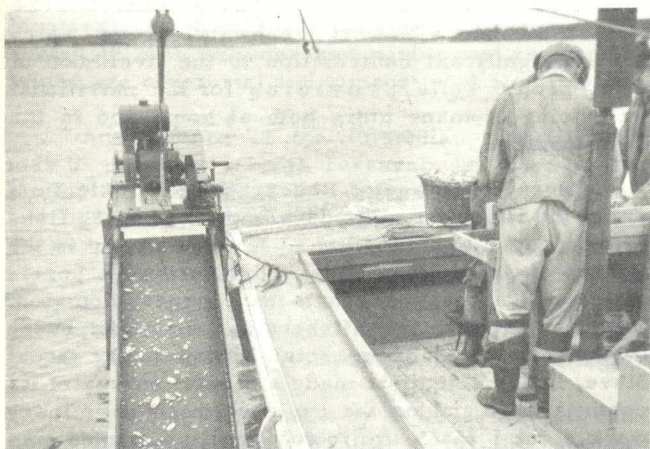
The Central Advisory Committee is comprised of Dr. J.R. Dymond, head of the Department of Zoology, University of Toronto, Dean Fraser and Dr. DeLury. The Western Advisory Committee has as its members K.F. Harding, general manager of the Prince Rupert Fishermen's Co-operative Association, Dr. W. A. Clemens, University of British Columbia, Mr. Walker, and Dr. Ian McT. Cowan, head of the Department of Zoology, University of British Columbia, B. C. Members of the Arctic Investigations Committee are Dr. Cameron and Dr. A.L. Pritchard, Director of the Conservation and Development Service, Department of Fisheries, Ottawa.

the stocks of this species at the highest productive level.

Dr. Hart reported that herring surveys conducted on the south coast of Newfoundland suggested that commercial quantities of this species can be taken in June with drift-nets in offshore areas of Hermitage Bay and Bay d'Espoir. This area was once the scene of a large herring fishery but a sharp decline has occurred in recent years. The coming year's programme provides for more concentrated investigation in this general area along the lines of that of last year which showed encouraging results. Increasing attention is also being given to the biology of the herring in the Bay of Fundy region, where the resource is actively exploited and where fluctuation of fish stocks sharply affect the industry. Investigations of the significant spawning groups and ocean currents in the area were begun in co-operation with the U.S. Fish and Wildlife Service.

Continuing research on lobsters, which are the basis of the east coast's most valuable inshore fishery, showed that conservation measures adopted in the past are paying off in high overall returns from the fishery. As the result of an extensive educational programme, the regulations introduced on the basis of scientific findings are now generally supported and there are even movements within the fishing ranks for larger size limits.

For oyster fishermen of New Brunswick and Nova Scotia who have experienced heavy losses in the past two years due to a precipitous decline in stocks, there was also news of an encouraging nature. There are very good indications that grounds can be rehabilitated more speedily by the introduction of breeding stocks from Prince Edward Island. An extensive programme of re-seeding along this line is planned for this year.



Experimenting with mechanical clam harvester in the Maritimes.

A somewhat similar situation exists in the case of the clam, which has shown a considerable

decrease in both yields and populations due to wasteful harvesting practices, diseases and pests. To counteract the first of these causes, Board scientists have devised a mechanical clam digger which has proved to be generally efficient and to reduce destruction of undersized clams. Careful studies are also being made to judge the safety and usefulness of introducing the European oyster to Maritime waters where mature oysters do not grow. These studies, if successful, would result in partial compensation for the reduction in the clam stocks.

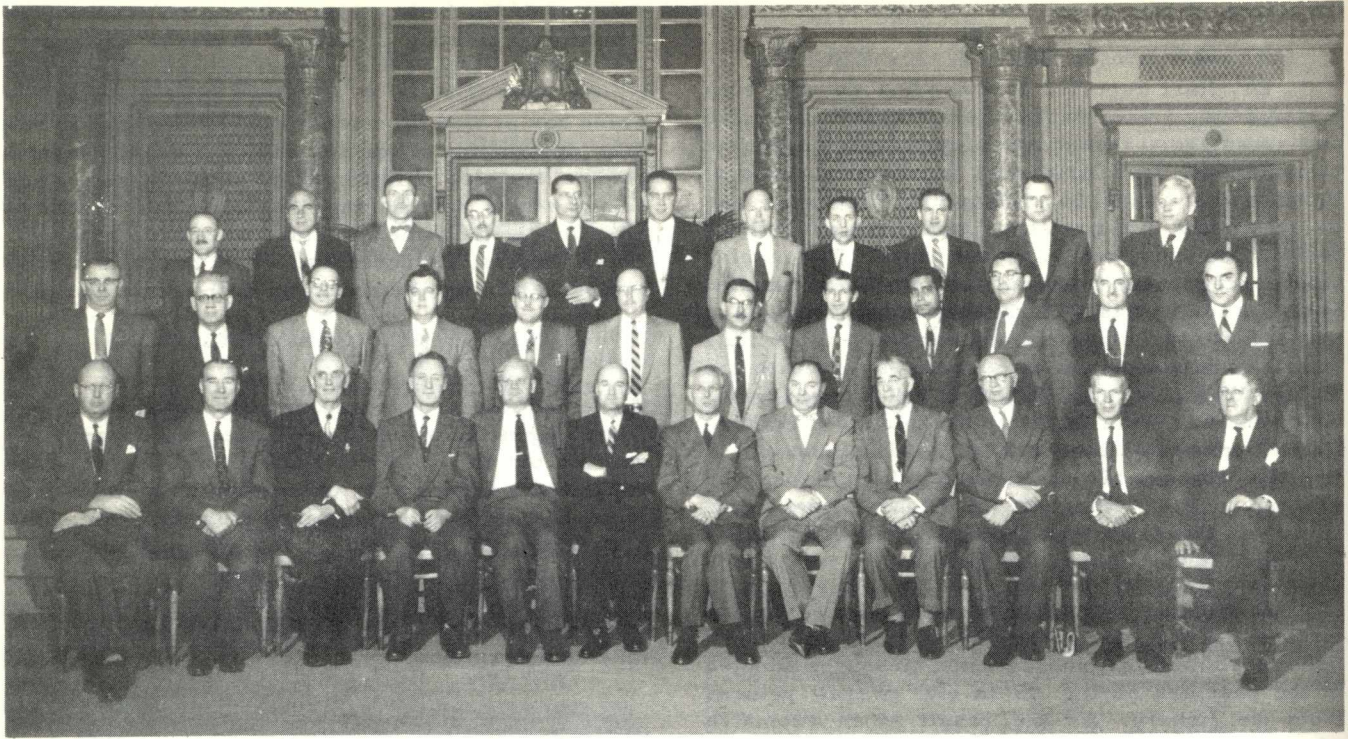
NORTH PACIFIC INVESTIGATIONS

During the past two years scientists of the Fisheries Research Board, in co-operation with research agencies of the United States and Japan, have carried out in the North Pacific the largest scale exploratory fishing ever undertaken as a single project. The information obtained from this continuing programme is required by the International Convention for the High Seas Fisheries of the North Pacific Ocean, which is studying the identification of stocks of fish at sea, so that their area of origin may be determined.



Aid to pink salmon stocks is seen in this artificial spawning bed at Jones Creek, B.C.

Scientists of the Research Board's station at Nanaimo, B.C., have played a prominent part in supplying the North Pacific Commission with vitally needed facts, it was indicated in the report presented by Dr. A.W.H. Needler, the station director. Research carried out in 1956 included a far-ranging programme of exploratory fishing by two chartered vessels as well as studies on salmon food, plankton and physical oceanography, to discover the factors influencing salmon distribution. Other investigations are aimed not only at identifying Asiatic and American stocks of salmon but also at determining river origins of various populations and their distribution in the sea. Results obtained from this research in 1956 were highly significant



Fisheries Research Board personnel and invited guests at the inaugural meeting of the Board's Committee on Technological Investigations.

and shed considerable new light on the species and fisheries concerned.

Acute problems of an entirely different nature from those encountered on the high seas are found in the freshwater areas where, in some instances, the scientists are literally battling for the lives of the various salmon species. Here the problems are to find solutions to the ever-increasing demand for industrial utilization of water resources which are the very basis of life of the salmon resource.

In their constant efforts to maintain the flow of parent fish to the spawning beds and the migration of the young to the sea, Nanaimo station scientists carry on widely diversified investigations, some of them extremely intricate. They have even lent a helping hand to nature, as in the case of the experiments carried out at Jones Creek, B.C., where an artificial spawning bed was constructed in conjunction with a power development.

In this man-made nursery the Board and the federal Department of Fisheries planted several million of salmon eggs from another stream in an effort to establish a new run of fish. Results have demonstrated that a substantial return can be obtained by such planting, with important implications for potentialities of future efforts.

Research on fishing gear, which was highlighted by the recent development of the mid-water trawl, has continued to show good results. A small

model of this apparatus, featuring several innovations, has been developed and used successfully on a 47-foot dragger to take commercial quantities of herring in November. Progress in this and related fields is watched with intense interest by an alert fishing industry ever on the lookout for such new developments which can be given practical application.

ARCTIC AND INLAND

Canada is not only fortunate in the abundance of the resources in the Pacific and Atlantic but she is also blessed with vast freshwater areas, which make a significant contribution to the livelihood of many people while providing for the nutritional well-being of many more both at home and in the United States.

Here, once again, Research Board scientists are to the forefront in the development of these fisheries along enlightened lines. A case in point is the fishery of Great Slave Lake in the Northwest Territories which today supports the largest combined whitefish and lake trout fishery in the world. Prior to the opening of commercial fishing in the Great Slave, Board scientists made a careful survey of its potentialities and on the basis of this preliminary work a total catch limit of $3\frac{1}{2}$ million pounds was imposed. Subsequent research showed that the resource could support a heavier exploitation and the limit was raised to nine million pounds.

This work comes under the Board's biological station at Winnipeg, and in his report Dr. W.A.

Kennedy, station director, advised that despite an intensification in the fishing effort in recent years no evidence of overfishing has been detected.

Most pressing problem facing "inland" scientists at the present time is the control of the predatory sea lamprey in several of the Great Lakes, which have all but killed off the valuable lake trout stocks. To find a solution to this menace, Canada and the United States have joined forces in the Great Lakes Fisheries Convention and scientists of both countries are exerting the greatest effort possible in a co-ordinated programme to save and develop the fishery.



Scientific research on Great Lakes includes this method of catching fresh water lamprey larvae by electric shocker.

Canada's vastness in the far north is also under examination by the Board through its Arctic Investigations Unit which has its headquarters in Montreal. Long range investigations are being conducted in both summer and winter and results obtained are of national and international significance.

An instance of the immediate benefits that may be produced by this research was cited by Dr. H.D. Fisher, head of the Unit. This concerns the special effort made to alleviate the plight of a group of Eskimos who faced starvation conditions last year when the caribou herds, on which they rely as their main source of food, became scarce. The area straddles the border of the Districts of Mackenzie and Keewatin just south of the Arctic Circle.

A survey was made by the Unit in co-operation with the Canadian Wildlife Service of the Department of Northern Affairs and National Resources to determine the fishing possibilities of two nearby lakes. This showed that the Eskimo population, if organized and trained, should be able to utilize the fishery resources of the lakes, which include fair stocks of whitefish and lake trout, and

thus be able to prevent a recurrence of the conditions that threatened their existence.

During the course of fishery explorations in the region of the Mackenzie Delta, less than 200 miles south of the permanent polar ice of the Beaufort Sea, scientists of the Unit set up two camps last year and studied about 10,000 fish of 16 different species. Plans for the coming year include the building of a practical fishing boat to demonstrate the feasibility of organized intensive inshore fishing coupled with proper storage of the catch.

Fish, marine mammal and oceanographic investigations were also carried out by the Board's scientists aboard the motor vessel "Calanus" in the Canadian eastern Arctic, as far north as Foxe Basin. The "Calanus" spent the winter in northern Foxe basin, and a scientific party which remained aboard carried out continuous biological and oceanographic observations over a period of 12 months.

WORKING FOR QUALITY

Products of the Canadian fisheries have a world-wide reputation for quality and many of the advances in the modern methods of processing and preserving fish owe their origin to the scientists of the Board's Technological Stations on both coasts.

A typical example is the action taken by several commercial fishing concerns in British Columbia to equip their vessels with a new type of fish preserving equipment which was developed by Dr. H.L.A. Tarr and his associates at the Board's Technological Station in Vancouver. This method centres around the use of tanks of refrigerated sea water in which, experiments have shown, fish have been kept at sea in excellent condition for periods of more than two weeks. This method of preserving quality could eliminate almost entirely the use of crushed ice while, at the same time, simplifying the problems entailed in loading and unloading. The experiment has been carried out with salmon, halibut and live crabs and has produced excellent results.

The use of chlortetracycline (aureomycin) in various phases of fish preservation, pioneered by Dr. Tarr, constitutes one of the most important developments in this phase of the industry in modern times. Successful trials have been made with various types of bottom feeding fish in which over 1,000 tons of ice have been treated with minute quantities of the antibiotic to extend the keeping time of fish, and further experiments are under way. The use of this antibiotic in preserving fish was recently legalized by the Food and Drug Directorate of the Department of Health and Welfare.

While the Board's investigations, in the main, are concerned with investigations having overall national interest, the research projects at the vari-

ous stations are frequently geared to the paramount needs of the areas in which they are located. Thus, on the east coast, the technological stations deal largely with the handling of groundfish and shellfish species and with technical and engineering aspects in the catching and processing fields.

The rapid expansion which has taken place in the mechanization of the salt codfish industry in Newfoundland in recent years has placed a heavy burden on the Technological Unit in St. John's, M.A. Foley, the head of the Unit, reported. Responding to the needs of industry, the Unit provided engineering advice on various subjects to more than 25 fish processing companies.

Throughout the year special attention was given to the experimental salt codfish plant being erected at Valleyfield by the Department as a centre for pilot studies into the production and utilization of fish in this form. At year's end the plant itself was completed and other related works were in the final stages of completion.

The installation of a continuous dryer could well have far reaching implications in the advance towards automation in the salt codfish industry. This equipment will be delivered at the plant site by next month, and the progress of the experiment will be watched with keen interest by fishermen as well as processing companies.

Extensive studies of both chemical and engineering natures were carried out during the year at the Grande Riviere Station in Quebec on salted codfish and various by-products. New products for the salt fish trade, based on an adaptation of the standard curing practice, have been prepared with shredded fish. Shaped in the form of slabs and dried artificially, these products are of good appearance, flavour and consistency.

This station also conducted special experiments on fish received from Cambodia for the purpose of assisting with the development of an artificial dryer which could be used there. Good progress was made towards this goal and further experiments are planned.

Investigations to discover the factors which cause spoilage of fish both at sea and in the plants have been for many years of great concern to the Board. Scientists at the Technological Station at Halifax, N.S., have succeeded in discovering many of the causes and in developing remedial measures, a fact which has meant much both to fishermen and the industry alike. The magnitude of this problem is increased with the advancement of the industry in recent years, resulting in the utilization of different species and the greater distances the vessels are forced to go to make their catches.

Each of these aspects presents its own problems and each calls for special studies in the

search for the answers. During the past year Dr. H. Fougere, the director, reported the Halifax station carried out a wide range of investigations, some of a long-term nature, which resulted in much new and valuable information being compiled.

Extensive research was continued into the development of fishery by-products. One such research project resulted in a technique for the manufacture from cod viscera of meal suitable for animal feeding. Sufficient information was obtained to calculate an estimate of industrial production cost. Another project, dealing with a method for the rapid and precise determination of fats in fish, showed that, under certain conditions, raw materials such as herring and fish livers can be rapidly processed into three main products, viz., high quality oil, a water soluble fraction containing important amounts of vitamins and mineral salts, and a fish meal of very low fat and moisture content.

Investigations of an engineering nature during the year included such matters as the treatment of fish before stowing, the quality of landings as affected by location of fish in pens, structural qualities of pen materials and material coatings, storage of fish ashore before filleting, salt fish washing and fish washing machines. All of these studies have a direct bearing on the production of fisheries products of the highest quality and, as such, have an immediate influence on the livelihood of thousands of Canadians.

In this article it has been possible to touch but lightly on the wide ramifications of the Research Board's work. Some aspects are capable of producing conclusions within a reasonably short period of time, others by reason of the complexities involved must extend over many years. In their laboratories and workshops and on ships at sea, Canada's fisheries scientists day by day are accumulating the knowledge that will not only give the nation's fishermen the adequate standard of living that their labours deserve but will also advance the welfare of peoples of other lands who are coming to depend more and more on the harvests of the sea. ✓

Large Transplanting

Completion of the second stage of an experiment in fish culture is reported by the Fisheries Research Board of Canada. Approximately one million eyed pink salmon eggs have been planted in an artificial spawning stream at Jones Creek near Hope, B.C., to join naturally spawned eggs which originated from an artificial planting in the same stream two years ago.

The transplanting was said to be the largest quantity of salmon eggs ever moved successfully for an appreciable distance immediately after fertilization.

Expansion of Fisheries Research



Deputy Minister of Fisheries George R. Clark (third from right) addressing the annual meeting of the Fisheries Research Board of Canada in Ottawa early in January. Left to right: A.D. Wymbs, Chief Treasury Officer, Department of Fisheries; Dr. N.M. Carter, Special Assistant, and O.C. Young, Assistant Chairman, Federal Research Board; S.V. Ozere, Assistant Deputy Minister, Department of Fisheries; Mr. Clark; Dr. J.L. Kask, Chairman, and H.A. Wilson, Executive Assistant, Fisheries Research Board.

(An address given in Ottawa by Deputy Minister of Fisheries G.R. Clark at the Annual Meeting of the Fisheries Research Board of Canada.)

THE PAST YEAR has been one of increased and expanded activity in the work both of the Fisheries Research Board of Canada and the Department of Fisheries. It has been my privilege to work closely with your Chairman and Assistant Chairman and with practically all of the station directors. It has been a happy association and the assistance and co-operation I have received have been most valuable. There is no doubt in my mind that the close relationship between the Department and the Board has made it possible to fulfill the duties which have been placed upon us by the Government. I am sure you would not want me to review all of the functions which have been performed during the past year, but there are some outstanding matters which I feel should be mentioned.

During the past few years Canada has taken a prominent and active part in the international fish-

eries field. Canada is now signatory to seven international fisheries treaties and on December 28 signed with the United States a protocol to amend the Fraser River Sockeye Salmon Convention to place pink salmon of the Juan de Fuca Straits-Fraser River area under that Convention. During the past thirteen months negotiations have been going on with the United States, Japan and the U.S. S.R. for a new Pacific Fur Seals Convention. It is now expected that this new agreement (which will replace the present Fur Seals Agreement between Canada and the United States) will be signed in Washington within the next two weeks.

These international fisheries agreements have placed added responsibilities and work on both the Board and the Department. All of them, but particularly the International Convention for the Northwest Atlantic Fisheries, the International North Pacific Fisheries Convention and the Great Lakes Fisheries Convention, have imposed increased work and responsibilities on the Board and its personnel. The pink salmon of the Fraser River area (that is

the area outside the Convention zone) will mean additional activity on the part of the Board. Under the proposed new Fur Seals Convention, Canada is obligated to undertake certain scientific investigations. Here again this will mean new activity for the Board. I do not think these additional responsibilities need curtail or impede the other important and valuable work of the Board. Rather, I think, these added important and urgent responsibilities should be looked upon as the natural growth and development of the Fisheries Research Board. It is perhaps not necessary for me to tell you of the confidence which the Minister has in the Board. I can assure you, however, that were it not for the interest and excellent work of the Board in these particular fields, Canada would not be in the position she is of giving leadership to and showing the way of co-operation with other fishing nations of the world.

SALUTES RESEARCH STAFFS

In this field of international fisheries I must pay tribute to the work of the directors and staffs of the various stations. Drs. W.R. Martin, W. Templeman, F.D. McCracken, A.M. Fleming and J.L. Hart and the personnel of the St. Andrews and St. John's Stations have, in fact, been the leading lights in the work of the International Commission for the Northwest Atlantic Fisheries. The successful operation of the progress of investigation has been, in very large measure, due to their efforts.

In the outstanding work in connection with the research programmes of the International North Pacific Fisheries Commission, Dr. A.W.H. Needler and his associates at the Nanaimo station have and are making a tremendous contribution. I am convinced that were it not for the leadership shown by Dr. Needler in working with his fellow scientists from the United States and Japan, the programmes of co-ordinated investigation adopted by this important Commission would fall far short of attaining the objective of the Convention. You are all aware, I am sure, of the importance and urgency to meet the deadlines written into the North Pacific Fisheries Convention -- the cases for continuance of the abstention conditions are of major significance to both Canada and the United States. Dr. Needler and his group are to be highly commended for the excellent work and effort they have given and, I am confident, will continue to give.

One of our newest international fisheries operations is now beginning to get into high gear. Dr. W.A. Kennedy and his group are making a most valuable contribution in connection with the fisheries of the Great Lakes. This task is perhaps one of the most difficult because in addition to the programme for fisheries research to ensure the maximum sustainable productivity of the Great Lakes, there is the very serious and difficult problem of attempting to eliminate, or at least control within reasonable limits, the lamprey predator. Dr. Ken-

nedy and his associates are doing a great job and I am confident as the programmes get underway more fully the objectives of the Convention will be met successfully.

AID IN INDUSTRIAL DEVELOPMENT

The Board too has been of material assistance to the Department in its Industrial Development Service programmes. There is a close working arrangement in this field with the Board's Chairman and Assistant Chairman and with the personnel of the technological and biological stations. Within the next few months we will see the coming into operation of the Department's experimental plant at Valleyfield, Newfoundland. The construction and operation of the Valleyfield plant was a specific directive by the Government to the Department and, as I pointed out at a previous annual meeting, is the responsibility of the Department. We, however, need the help and assistance of the Board in carrying out the technical processes and procedures. The advice and assistance of the Board's personnel have been given freely and while there will undoubtedly be many problems attached to the operation of the Valleyfield plant I am confident we will do the job well and efficiently. Other projects of the Department's Industrial Development Service have been helped materially by the co-operation and assistance of the Board. I am grateful for the Board's understanding and help in this connection.

I have noted that the terms of four of the Board members will expire during 1957. These members are Messrs. W.A. Clemens, I.M. Fraser, K.F. Harding and J.H. MacKichan. The Minister asked that I extend his thanks to these members who have served so long, so faithfully and so well. Of the four members Dr. Clemens has been associated with the Board for the longest period, both as Director of one of the Board's oldest and now largest biological station at Nanaimo, B.C., and as a Board member since 1943. His combined service with the Board approaches thirty years. The other three members have each served two full terms. Practically all of the significant growth of this great fisheries research organization has taken place during the time these gentlemen have been associated with it. This is particularly so in the case of Dr. Clemens. Messrs. Fraser, Harding and MacKichan have helped guide the Board through the critical times of the last decade during which the Board's operations have increased more than three-fold in terms of expenditures and its responsibilities have increased many times more than the increase in expenditure indicates. I should like to add my sincere thanks to these gentlemen for the major contribution which they have made to the fisheries of Canada.

While on the subject of Board members, may I say how pleased I am to see present at this annual meeting the newest member of the Board, Mr. Leigh Williamson of St. Andrews, N.B. Mr. Williamson

will, I know, prove a valuable colleague and I am sure he will find his participation in the Board's activities interesting and useful.

Earlier I spoke of the importance and significance of the International Fisheries Convention to which Canada is signatory. I think it is desirable for all of us to recognize that world fisheries and especially high seas fisheries are undergoing momentous changes. When the U.S.S.R. Minister of Fisheries visited Canada last August and September he and his party arrived at St. John's, Newfoundland, on the trawler "Sverdlovsk" which was referred to in the press, and I think with good reason, as the world's most modern deep-sea trawler. The Russian Minister informed us that the Soviet Government was building approximately 100 more such trawlers. The question which immediately comes to mind is: "Where are all these boats going to fish?" The trawling grounds of the world's oceans and seas are not unlimited and some of the very best fishing grounds and the most extensive lie off the coasts of Canada. Russian trawlers have already been reported, following the exploratory cruises of the "Sverdlovsk," as fishing on the Grand Banks or close to them. I think we can look forward to an increase in this activity.

It is also significant that Japanese exploratory fishing vessels are active in the Atlantic although to our knowledge they haven't yet come as far north as the waters off the Canadian coast. We have been informed that operators in the United Kingdom have placed orders for two additional factory trawlers of the "Fairtry" class and that a new up-to-date West German fleet is beginning to be organized. We also understand that modern Norwegian trawlers will be fishing the Grand Banks again this year and the French are augmenting or renewing their fleet; the new French trawler the "Zealand" of almost two thousand tons made its first trip to the Grand Banks this past season. With all of this activity it seems to me there is a clear indication that there is going to be a great deal of competition for the available fish in the North Atlantic.

VESSEL AND GEAR RESEARCH

In my opinion if Canadian fishermen are to be able to compete for their share of the catch it is imperative that Canada keep up with modern developments in vessels and gear. I know that the Research Board has some of its personnel active in the fishing gear field at the present time but it does seem to me that it is highly desirable for the Board to review its programme in this particular field in the light of some of these recent developments which I have mentioned. I suggest the Board should consider establishing a unit, the duties of which would be to investigate and develop for the benefit of the Canadian fishing industry vessel design, propelling power requirements and fishing gear techniques. This subject was brought out during the session last Saturday afternoon of the newly formed

Committee on Technological Investigations. It is a very specialized field, but one which I consider should be given careful consideration with a view to formulating a definite programme as a continuing function of the Board.

POLLUTION OF WATERS

Another important matter which I think should be given immediate consideration by the Board is the problem of pollution of our rivers, lakes and coastal waters. The rapid growth and progressive industrialization of Canada are having, and will continue to have, serious effects on the fish resources. Each new use of the fresh waters of Canada usually makes them somewhat less suitable as an environment for fish. Industrial and urban pollution is becoming an increasingly important factor in our streams and rivers for the continuance of both resident and anadromous species of fish.

To evaluate the extent and effect of pollution and to recommend cures and remedial measures, insofar as fish are concerned, is a departmental responsibility under the Fisheries Act. But we must look to the Board to supply us with much of the technical information required in this important field throughout our range of responsibility. I am sure that we will be confronted with this problem to an increasing degree in the highly industrialized and thickly populated Great Lakes area where, under the Great Lakes Fishery Convention we have assumed additional federal responsibility.

It is my understanding the matter of pollution is already under active study in some areas by the Board's personnel. I do think, however, that the Board should also in this field give serious consideration to adopting a full-scale and continuing programme. If we start now on a well-defined programme we will be, I think, ahead of the game, but if we delay too long the pollution problem may become one impossible of solution.

Before closing, I should also like to say that during the past few years I have attended quite a number of international fisheries meetings and I have seen in operation the scientists of the research agencies of many of the fishing nations of the world. Based on this experience there is not the slightest doubt in my mind that the Fisheries Research Board of Canada, with its very excellent staff, is one of the finest, indeed if not the finest, fisheries research organization in the world. This Board has established through its accomplishments and achievements a world-wide reputation of the highest order. I am proud to be associated with it. And finally, Mr. Chairman, I am certain that the Board can look forward in 1957 and succeeding years to increased activity and even greater contribution to the welfare and expansion of Canada's fisheries wealth in both the biological and technological fields. ✓

New Station Replaces Sandheads Lightship

AN OLD ORDER of things has yielded place to new on the Fraser River, British Columbia. Fishermen and other mariners, on their approach to the Pacific coast river, are now guided by a new light station, where formerly a battered but well-loved lightship had done duty since 1913.

The new station is mounted on a pier structure of steel piles encased in concrete, with reinforced concrete deck. The superstructure consists of a rectangular steel building, clad with aluminum panelling, providing living quarters for the three-man crew, and housing fog alarm equipment and other gear.

This is surmounted by the light tower, from which is beamed a fixed white light, with a high intensity red flash superimposed every five seconds. It is visible from all points of approach, and has a range of 14 miles in clear weather. The new station is also equipped with a fog alarm and radio beacon.

The cost of construction and installation was approximately \$275,000. The station will be serviced by Department of Transport lighthouse tenders.

Sailors from all parts of the world will join British Columbia mariners and fishermen in hailing the new and improved aid to navigation, but probably many will carry nostalgic memories of the old ship.

A light was installed at the northern entrance to the Fraser as early as 1905, but the bulk of the service was carried out by lightship No. 16, from 1913 to 1955.

Lightship No. 16 originated as the "Thomas A. Bayard", a 67-ton schooner, built in Brooklyn, N. Y. in 1880. An 86-footer, with a comfortable 21 foot beam, the "Bayard" carried freight and passengers between San Francisco and Nome in the Alaska gold rush. Later she fitted out as a sealer



New Sandheads light station at mouth of Fraser River, B.C.

and was used as such until a series of bad storms left her badly damaged.

The "Thomas A. Bayard" was purchased by the Canadian Government in 1913 and was registered out of the port of Victoria. The vessel became Lightship No. 16 and took up its unglamorous but important duty of guiding other ships safely to harbour.

In February, 1947, a terrific storm lashed at Lightship No. 16 with such fury and persistence that the old ship finally slipped her anchors and drifted ashore. Her one-man crew, Captain Len James, managed to walk to shore along the rocks of the north arm stone jetty.

The vessel was repaired and restored to station as soon as possible, and stayed there until November 11, 1955. On that fateful day another heavy storm proved too much for the anchors, and once more Lightship No. 16 was blown onto the rocks, this time suffering heavy damage.

The Department of Transport decided the time had come to make a permanent installation at Sandheads. Hence the modern new light station. While the new structure was being built, a light buoy served to mark the position, but the men who sail in and out of the Fraser River heaved a sigh of relief when it was announced the new station would begin to function. This section of B.C. has been subject to particularly thick fogs and the old lightship fog-horn had been sadly missed. ✓

Urban Family Expenditures For Fish

By HAROLD C. FRICK

URBAN Canadian families bought, on the average, in 1953 and 1955, 40 to 50 cents worth of fisheries food products a week, and a third or more of them did not include fish in their weekly purchases for home consumption. Including members of families which bought no fish, the average value per person of urban family fish purchases was in the neighbourhood of 15 cents a week. About half of the family fish purchases, by value, consisted of fresh, frozen or cured products, about one-third was canned salmon; and the remainder, other canned fish and shellfish.

This and other information has become available through sample surveys of family food expenditures in five Canadian cities conducted by the Dominion Bureau of Statistics in 1953 and 1955. The cities were Halifax, Montreal, Toronto, Winnipeg, and Vancouver. Records of food expenditures for a consecutive two-week period were collected by interview from about 200 families in each month, the sample being changed each month but restricted to families with an income in the range of \$1,800 to \$6,500 a year with specified composition patterns of adults and children ranging from two to six persons per family (spending unit).* The Markets and Economics Service of the Department of Fisheries was given access to the original survey reports, to take off for further analysis the quantity and value figures for fish purchases.

The family purchases of fish were recorded under three classifications: (a) Fresh fish, cured fish, and other seafood; (b) Canned salmon; and (c) Other canned fish and canned seafood. It would be expected that fresh and frozen varieties would make up the major part of the first group or classification. Unfortunately, however, a considerable part of frozen fish purchases in 1955 may have been reported, not as fish, but under a classification comprising all frozen foods except frozen vegetables, fruit and fruit juices. Expenditures for these "Other Frozen Foods" averaged seven cents per family per week in 1955 (compared with one cent in 1953), but it is not possible to determine what share represented fish purchases. At any rate, this qualification needs to be kept in mind when comparing 1955 with 1953 fish purchase figures.

Mr. Frick is an economist with the Markets and Economics Branch, Department of Fisheries, Ottawa.

Unfortunately, also, some families did not know or failed to report the weight or size of tins or packages purchased, hence (apart from the problem of determining edible weight) the quantity totals cannot be accurately computed. In consequence, only value figures are used in the following analysis.

For each year, the weekly family reports have been grouped according to the scale of expenditure for fish, the first and largest group being those which reported no fish purchases -- 32 per cent of the total number of weekly reports in 1953, and 43.5 per cent of the total in 1955. Apart from these, the next largest group of weekly reports for both years consisted of those listing fish purchases in the "26 to 50 cents" range. Weekly purchases in the "51 to 75 cents" and "76 to 100 cents" classifications were also substantial in number. Details are given in Table I.

Family expenditure patterns for the individual cities were similar to the composite illustrated in Chart I, although, as might be expected, family expenditures for fish in the two coastal cities, Halifax and Vancouver, averaged somewhat higher than those in Montreal, Toronto, and Winnipeg, and a smaller proportion of reports in the coastal cities listed nil expenditures for fish. It is noteworthy that in all five cities, a larger proportion of weekly reports in 1955 showed no fish purchases than in 1953. This group comprised one-half of the total in Montreal and Winnipeg in 1955, as shown in Table I and Chart II. This evidence does not indicate success in the campaign to induce Canadians to eat more fish. However, it does not show, for instance, that one-half of the Winnipeg sample families bought no fish in 1955, but only that one-half listed no fish purchases in the two weeks for which they kept records. Furthermore, a number of families showing no fish purchases may have listed frozen fish purchases in the "Other Frozen Foods" category, as mentioned above.

In Chart III is shown for each city and for the whole sample the proportion of expenditures on each of the three classifications of fish for each of the two survey years. The data appear in Table 2, along with figures showing the number of families and persons in the sample. In both years, for the five cities, about one-half of expenditures was for fresh and frozen fish and shellfish. Purchases of

* See Urban Family Food Expenditure 1953, Reference Paper No. 60, Dominion Bureau of Statistics, Ottawa, 1955.

Table 1

Urban Canadian Family Fish Purchases in 5 Canadian Cities in 1953 and 1955: Frequency Distribution of Weekly Family Reports, by City and Amount of Expenditure for Fish; Percentage Listing No Fish Purchases*

| Description | 1953 | | | | | All 5 Cities |
|---|---------|----------|---------|----------|-----------|--------------------|
| | Halifax | Montreal | Toronto | Winnipeg | Vancouver | |
| No. of weekly reports | 278 | 1612 | 1396 | 556 | 886 | 4722 |
| Nil Expenditure for fish | 43 | 532 | 454 | 250 | 237 | 1516 |
| 1 to 25 cents | 18 | 54 | 79 | 36 | 24 | 211 |
| 26 " 50 " | 51 | 403 | 327 | 112 | 210 | 1103 |
| 51 " 75 " | 33 | 193 | 177 | 55 | 167 | 625 |
| 76 " 100 " | 40 | 184 | 143 | 43 | 118 | 528 |
| 101 " 125 " | 31 | 99 | 82 | 22 | 53 | 287 |
| 126 " 150 " | 18 | 55 | 57 | 14 | 37 | 181 |
| 151 " 175 " | 13 | 37 | 27 | 6 | 20 | 103 |
| 176 " 200 " | 11 | 20 | 16 | 3 | 10 | 60 |
| 201 " 225 " | 10 | 13 | 9 | 3 | 5 | 40 |
| 226 " 250 " | 4 | 7 | 7 | 5 | 0 | 23 |
| 251 " 275 " | 1 | 4 | 7 | 2 | 2 | 16 |
| 276 " 300 " | 1 | 1 | 7 | 2 | 1 | 12 |
| 301 cents or more | 4 | 10 | 4 | 3 | 2 | 23 |
| Percentage reporting nil expenditure | 15.5 | 33.0 | 32.5 | 45.0 | 26.8 | 32.1 |
| | | 1955 | | | | |
| No. of weekly reports | 246 | 1538 | 1156 | 576 | 834 | 4350 |
| Nil expenditure for fish | 77 | 767 | 483 | 288 | 277 | 1892 |
| 1 to 25 cents | 8 | 51 | 51 | 29 | 15 | 154 |
| 26 " 50 " | 41 | 284 | 277 | 102 | 200 | 904 |
| 51 " 75 " | 31 | 146 | 110 | 62 | 131 | 480 |
| 76 " 100 " | 35 | 147 | 105 | 47 | 109 | 443 |
| 101 " 125 " | 19 | 57 | 54 | 19 | 49 | 198 |
| 126 " 150 " | 16 | 33 | 35 | 12 | 20 | 116 |
| 151 " 175 " | 6 | 16 | 17 | 7 | 15 | 61 |
| 176 " 200 " | 5 | 14 | 8 | 5 | 8 | 40 |
| 201 " 225 " | 0 | 15 | 7 | 1 | 5 | 28 |
| 226 " 250 " | 2 | 2 | 1 | 1 | 3 | 9 |
| 251 " 275 " | 2 | 0 | 5 | 1 | 1 | 9 |
| 276 " 300 " | 1 | 2 | 2 | 1 | 0 | 6 |
| 301 cents or more | 3 | 4 | 1 | 1 | 1 | 10 |
| Percentage reporting nil expenditure | 31.3 | 49.9 | 41.8 | 50.0 | 33.2 | 43.5 |

*Data from Dominion Bureau of Statistics urban family food expenditure surveys.

canned salmon made up about 35 per cent, and other canned items about one-sixth, of the total amount spent for fish.

In Halifax, Montreal and Vancouver, fresh and frozen products made up two-thirds to one-half of the total of purchases. Canned salmon purchases were relatively large in Toronto and Winnipeg; Vancouver was close to the group average with respect to this product. Canned salmon and other canned

products had apparently gained in proportion to fresh and frozen fish in 1955, compared with 1953, but here again we reckon without the unknown amounts listed as "Other Frozen Foods" in 1955.

Average weekly fish purchases per capita for the two years are shown in Table 3 and Chart IV. Evidently, expenditures per person for fish were lower in 1955 than in 1953 in all five cities. Halifax had the highest weekly value of fish purchases

Table 2

Average Weekly Fish Purchases by a Sample of Families in 5 Canadian Cities in 1953 and 1955:
Amount and Percentage by Type of Product

| Description | 1953 | | | | | All |
|---|---------|----------|---------|----------|-----------|----------|
| | Halifax | Montreal | Toronto | Winnipeg | Vancouver | 5 Cities |
| Number of families | 139 | 806 | 698 | 278 | 443 | 2,364 |
| Number of persons | 457 | 2,621 | 2,225 | 894 | 1,403 | 7,600 |
| Average number of persons per family | 3.29 | 3.25 | 3.19 | 3.22 | 3.17 | 3.21 |
| Average weekly purchases of fish by all families (in dollars): | | | | | | |
| All types | 117.38 | 414.77 | 350.94 | 111.72 | 242.35 | 1,237.16 |
| (1) Fresh, frozen and cured | 78.96 | 234.98 | 150.92 | 52.95 | 122.42 | 640.23 |
| (2) Canned salmon | 18.80 | 127.93 | 151.41 | 42.94 | 86.79 | 427.87 |
| (3) Other canned | 19.62 | 51.86 | 48.61 | 15.83 | 33.14 | 169.06 |
| Percentage of total weekly purchases: | | | | | | |
| All types (per cent) | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 |
| (1) Fresh, frozen and cured | 67.3 | 56.7 | 43.0 | 47.4 | 50.5 | 51.8 |
| (2) Canned salmon | 16.0 | 30.8 | 43.1 | 38.4 | 35.8 | 34.6 |
| (3) Other canned | 16.7 | 12.5 | 13.9 | 14.2 | 13.7 | 13.6 |
| | | | | | | |
| | 1955 | | | | | |
| Number of families | 123 | 769 | 578 | 288 | 417 | 2,175 |
| Number of persons | 451 | 2,498 | 1,790 | 930 | 1,372 | 7,041 |
| Average number of persons per family | 3.67 | 3.25 | 3.10 | 3.23 | 3.29 | 3.24 |
| Average weekly purchases of fish by all families (in dollars): | | | | | | |
| All types | 76.61 | 285.31 | 235.98 | 98.26 | 203.17 | 899.33 |
| (1) Fresh, frozen and cured | 46.34 | 159.72 | 88.42 | 38.69 | 89.72 | 422.89 |
| (2) Canned salmon | 17.22 | 75.52 | 113.13 | 44.21 | 68.97 | 319.05 |
| (3) Other canned | 13.05 | 50.07 | 34.43 | 15.36 | 44.48 | 157.39 |
| Percentage of total weekly purchases: | | | | | | |
| All types (per cent) | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 |
| (1) Fresh, frozen and cured | 60.5 | 56.0 | 37.4 | 39.4 | 44.2 | 47.0 |
| (2) Canned salmon | 22.5 | 26.4 | 48.0 | 45.0 | 34.0 | 35.5 |
| (3) Other canned | 17.0 | 17.6 | 14.6 | 15.6 | 21.8 | 17.5 |

Table 3

Average Weekly Fish Purchases, Per Person, by a Sample of Families in 5 Canadian Cities in
1953 and 1955

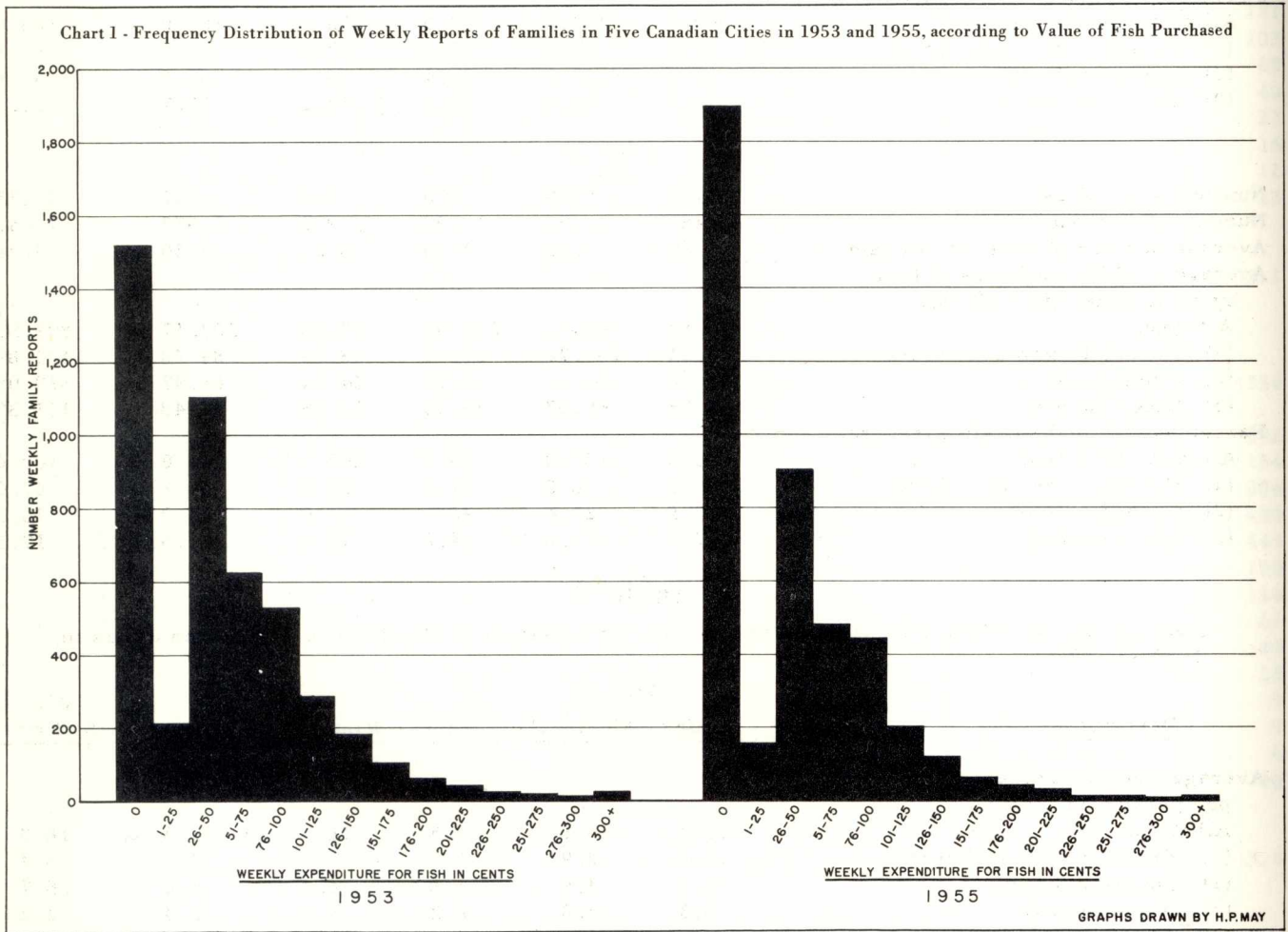
| Description | 1953 | | | | | All |
|--|---------|----------|---------|----------|-----------|----------|
| | Halifax | Montreal | Toronto | Winnipeg | Vancouver | 5 Cities |
| Average weekly purchases of fish per person (in cents): | | | | | | |
| All types | 25.7 | 15.8 | 15.8 | 12.5 | 17.3 | 16.3 |
| (1) Fresh, frozen and cured | 17.3 | 8.9 | 6.8 | 5.9 | 8.7 | 8.4 |
| (2) Canned salmon | 4.1 | 4.9 | 6.8 | 4.8 | 6.2 | 5.7 |
| (3) Other canned | 4.3 | 2.0 | 2.2 | 1.8 | 2.4 | 2.2 |
| | | | | | | |
| | 1955 | | | | | |
| Average weekly purchases of fish per person (in cents) | | | | | | |
| All types | 17.0 | 11.4 | 13.2 | 10.6 | 14.8 | 12.8 |
| (1) Fresh, frozen and cured | 10.3 | 6.4 | 5.0 | 4.2 | 6.5 | 6.0 |
| (2) Canned salmon | 3.8 | 3.0 | 6.3 | 4.7 | 5.0 | 4.5 |
| (3) Other canned | 2.9 | 2.0 | 1.9 | 1.7 | 3.3 | 2.3 |
| "Other Frozen Foods" purchases | 1.7 | 0.9 | 4.6 | 1.4 | 1.5 | 2.0 |

Table 4

Average Weekly Expenditure Per Person for Fish in Proportion to Weekly Expenditure for All Foods, by Cities, in 1953

| | Halifax | Montreal | Toronto | Winnipeg | Vancouver | All 5 Cities |
|--|---------|----------|---------|----------|-----------|-----------------|
| Weekly expenditure per person for all foods * (\$) | 5.95 | 7.73 | 6.64 | 6.03 | 6.80 | 6.94 |
| Weekly expenditure per person for fish: | | | | | | |
| (1) Amount (\$) | .257 | .158 | .158 | .125 | .173 | .163 |
| (2) Percentage of expenditure for all foods (%) | 4.3 | 2.0 | 2.4 | 2.1 | 2.5 | 2.3 |

* From Urban Family Food Expenditure 1953, Dominion Bureau of Statistics, Table III, P. 12.



per capita: 25.7 cents in 1953, and 17 cents in 1955. Vancouver was next in line, followed by Toronto, Montreal and Winnipeg, in that order. The group average was 16.3 cents per person in 1953, and 12.8 cents in 1955. If we adopted the extreme assumption that "Other Frozen Foods" purchases in 1955 consisted entirely of frozen fish, another two cents would be added to the 1955 per capita average figure, making it 14.8 cents, but only the Toronto

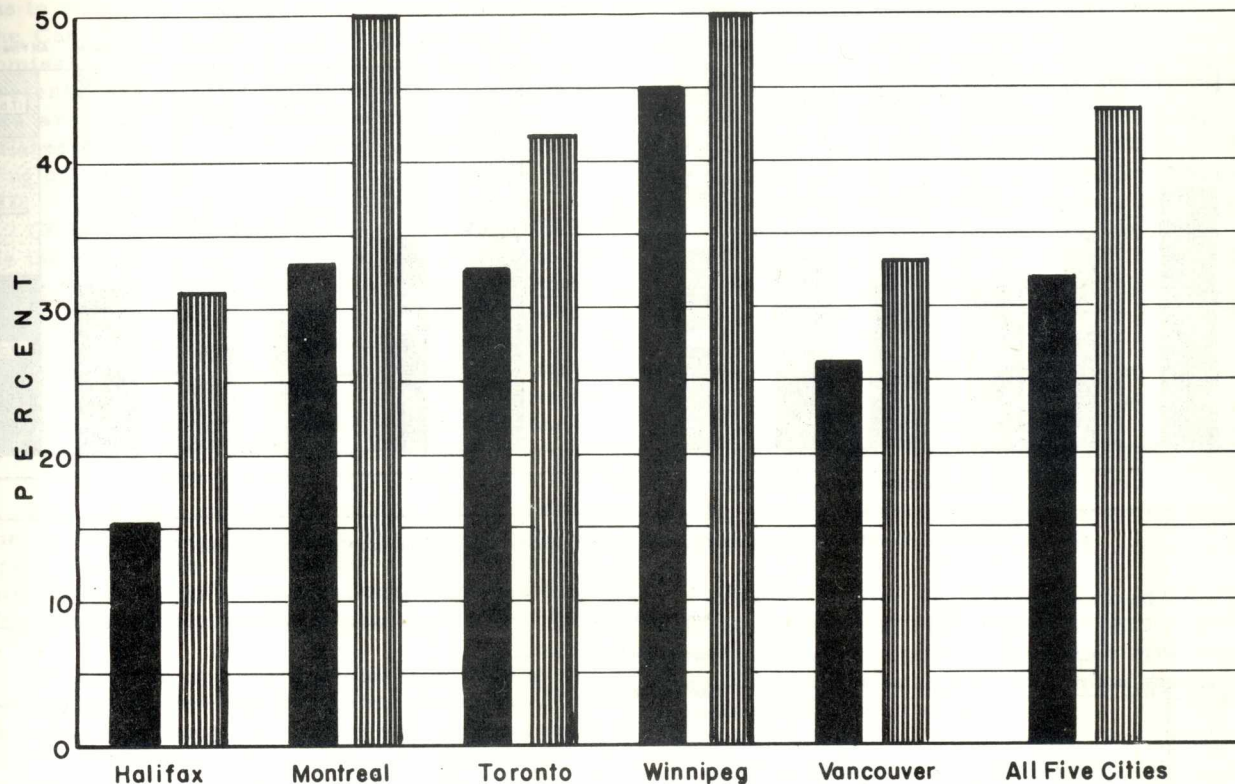
per capita expenditure would be larger in 1955 than 1953.

The generally low level of fish consumption in Canada is emphasized by comparison of fish purchases with the total food budget. Weekly purchases of fish represented only 2 to 4.3 per cent of total expenditures per person for food in 1953, as indicated in Table 4.

Chart 2 - Percentage of Weekly Reports by Families in Five Canadian Cities

Listing No Fish Purchases

■ -1953 ▨ -1955



Some inter-city differences in expenditures for fish shown in the charts may be explained by differences in the availability of various fish products and in fish-eating habits between coastal and interior cities. But the data are insufficient for a more elaborate analysis involving, for instance, consideration of possible effects of price differences, for fish and for other protein foods, between cities and between the two survey years. There is so little information, in fact, from any source concerning the reasons why Canadians buy or do not buy fish, and the details of what they do buy, that any statement about the effects of quality or price on the demand for fish is likely to be conjectural. Even the national fish consumption must be computed from residual figures -- from production after allowing for quantities exported and changes in stocks, and must therefore embody any error or deficiency in those statistics as well as losses through wastage or spoilage.

Detailed market surveys, if undertaken on a scale large enough to be representative of the nation within a small margin of error, are enormously expensive. Shortly after the end of World War II, the

federal Department of Fisheries carried out studies of the wholesale and retail distribution of fish and shellfish in three Ontario cities, accompanied by a consumer survey in one of them, but although useful information was obtained, it was at best incomplete and could not be considered representative of the year-around and country-wide distribution pattern. In the general paucity of information on fish purchasing and consumption habits, the Bureau surveys of urban family food expenditure have made a valuable contribution to our knowledge.

Some additional qualifications must be stated, however, concerning the surveys and the evidence presented by the survey material. There may be some question of the adequacy of the sample, because of its small size and selective coverage, to represent consumer purchases of fish in all Canadian cities or even in those from which the samples were taken. Furthermore, only urban family expenditures were sampled. In the absence of data on rural fish purchases, it may be surmised that they would be below the urban level in many parts of Canada, simply because of lack of distribution facilities for fresh and frozen fish. It should

Chart 3 - Average Weekly Fish Purchases by a Sample of Families in Five Canadian Cities, 1953 and 1955

Percentage of Total Value on Each of Three Categories of Fish Products

Fresh, Frozen and Cured ----- ■
 Canned Salmon ----- ▨
 Other Canned ----- ▩

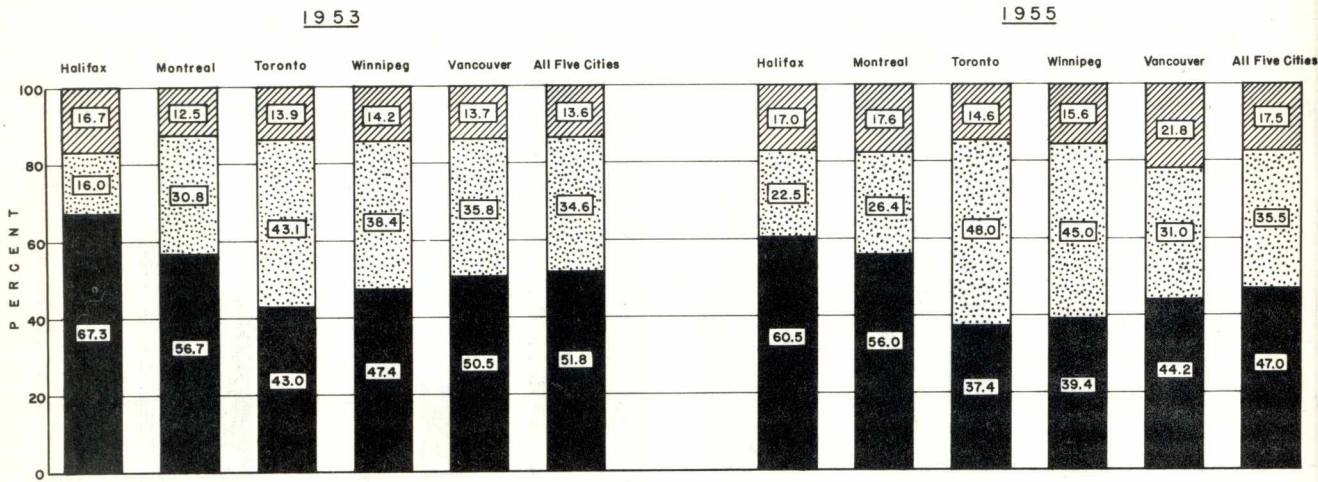
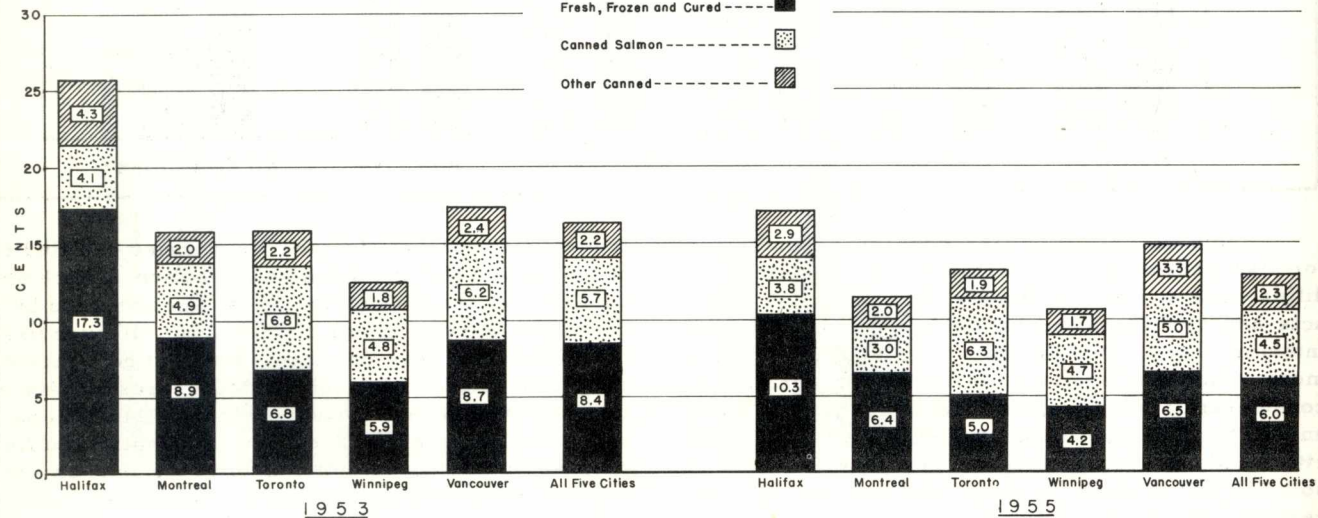


Chart 4 - Per Capita Weekly Fish Purchases by a Sample of Families in Five Canadian Cities in 1953 and 1955

Value in Cents

Fresh, Frozen and Cured ----- ■
 Canned Salmon ----- ▨
 Other Canned ----- ▩



be noted, also, that the surveys covered only purchases of fish for consumption in the home. Fish consumption in restaurants was accounted for insofar as it was represented in expenditures for "food away from home", but not as fish purchases. The Department of Fisheries wholesale distribution studies in Ontario cities indicated that sales to hotels, restaurants, and institutions may amount to as much as 40 or 45 per cent of the total value of wholesale sales of fish -- at least, in inland centres. The information obtained in the family food expenditures surveys relates, therefore, to only a part -- perhaps little more than half -- of urban fish con-

sumption, and not at all to the expenditure patterns of rural consumers.

Use of the urban per capita average value of fish purchases to represent the whole of Canada involves, therefore, some precarious assumption -- for instance, the implicit assumption that lower average fish purchases in rural areas are counterbalanced by sales to restaurants and institutions, since neither are included in the urban average. Nevertheless, it is interesting to see what the annual value of Canadian fish purchases would be if the urban average were valid for the whole popula-

(Continued on page 21)

Canadian Fisheries News

Great Lakes Advisory Committee

Hon. James Sinclair, Minister of Fisheries, plans to establish an Industry Advisory Committee to the Canadian section of the Great Lakes Fishery Commission. This committee will be selected from representatives of the fishing industry in the Great Lakes area and from others directly interested in the fisheries, including the federation of sports fishing organizations.

Deputy Minister of Fisheries George R. Clark made the announcement in an address at the annual meeting of the Ontario Council of Commercial Fisheries in Toronto on January 22. He expressed the conviction that such a group would provide the means whereby the Canadian representatives on the Canada-U. S. Great Lakes Fishery Commission would have the benefit of sound advice from those with practical fishery experience.

Mr. Clark's reference to the Great Lakes Fishery Commission was made during a review of the part Canada has played in the initiation and functioning of the seven international fisheries conventions in which she participates.

"Where two or more nations are fishing the same stocks of fish", the Deputy Minister said, "it is only by co-ordinated effort and joint conservation measures that the stocks of fish can be developed and managed to ensure the maximum sustained yield for present and future generations. Where there are fisheries of common interest (and the fish know nothing of international boundaries) it would be foolish and, indeed, against all reason for one country to do the conserving and other countries to do the catching."

Mr. Clark's references showed that beginning in 1923 with the North Pacific Halibut Convention -- which was the first international fisheries treaty of its kind in the world and the first international treaty of any kind that Canada signed in her own right -- Canada has been prominent in protecting, conserving and developing on an international scale the fisheries in the oceans and in inland areas wherever her interests are concerned.

Besides the Great Lakes Fisheries Convention and the North Pacific Halibut Convention, Canada participates in the Fraser River Sockeye Salmon Convention of 1930 with the United States; the Pacific Fur Seal Agreement with the United States, 1942 and 1947; the International Whaling Convention of 1946, composed of 17 nations; the International Convention for the Northwest Atlantic Fisheries of 1950 to which ten nations are signatory; the Inter-

national North Pacific Fisheries Convention of 1952 between Canada, Japan and the United States.

In the past few months Canada had negotiated and signed a protocol with the United States to bring the pink salmon of the Juan de Fuca-Fraser River area within the scope of the International Pacific Salmon Fisheries Convention. Negotiations on a new convention covering the fur seal herds of the North Pacific Ocean had been in progress for the past fifteen months with the U.S., Japan and the U.S.S.R., and a new convention would be signed on February 9.

On the basis of considerable personal experience with practically all of these International Commissions, the Deputy Minister said he was strongly convinced that they are doing outstanding work in fisheries conservation and rehabilitation -- providing for the continuance of the resource at highest productive levels.

"In my opinion," Mr. Clark added, "these Commissions have also played a part of perhaps equal importance in promoting better understanding of each country's problems and in the general field of international relations."

Referring to the Great Lakes Fishery Commission as being of especial interest to the Ontario Council, the Deputy Minister said that the Commission was making progress in its investigations to find ways and means of counteracting the depredations of the sea lamprey. It should be realized, however, that there was no easy and quick way to produce the desired results, and, although confident of eventual success, he felt it would not be realistic to expect sensational achievements overnight.

Another important aspect of the fisheries investigation of the Great Lakes was the need for development of techniques for the utilization of the numerous fish stocks in the lakes, some of which have not been exploited apparently because of lack of technical knowledge. In addition, there were many problems regarding suitable, efficient and economic fishing gear as well as handling and processing techniques. The Deputy Minister said that the Department of Fisheries and the Fisheries Research Board have commenced to examine these problems from a technical and economic standpoint, and he was hopeful that progress in these studies would be made known before too long.

In these pursuits and others of an international character, however, the Department could not meet

its obligations and assume its share of the operations involved without the support and co-operation of the fishing industry as a whole.

Concluding his address, Mr. Clark said: "Fisheries present many complex problems, but working together and in harmony with organizations such as yours we can, I am convinced, improve and expand the riches of Canada's great natural resources -- the fisheries of the seas around us and of our inland lakes".

30 Years With Research Board

Dr. W.A. Clemens, whose term as a member of the Fisheries Research Board of Canada expires this year, has devoted practically his entire life to



Dr. Clemens.

scientific research in fisheries. This service includes thirty years of direct association with the Board, first as director of the Board's Biological Station at Nanaimo, B.C., and later as a member of the Board.

Following his graduation from the University of Toronto in 1912, Dr. Clemens first engaged in Fisheries work at the Freshwater Biological Station of the Biological Board of Canada (later the Fisheries Research Board) at Go Home Bay on Georgian Bay. He later did graduate work in freshwater biology at Cornell University where he received his Ph.D. in 1915. For a short period he was on the staff at the University of Maine at Orono, Maine, and he also served with the conservation department of the State of New York in a study of the trout streams in Oneida County, New York.

Returning to the staff of the University of Toronto, Dr. Clemens spent a summer at the Atlantic Biological Station in St. Andrews, N.B., before starting work in 1920 on the ciscoes of Lake Erie. During his tenure he organized, as a section of the Department of Biology, the Ontario Fisheries Research Laboratory, which expanded its programme to many areas in Ontario, including Lakes Nipigon and Nipissing, the Great Lakes and Algonquin Park. He became Director of the Pacific Biological Station of the Fisheries Research Board of Canada in 1924, remaining there until 1940, organizing and developing the programmes.

Dr. Clemens was made head of the Department of Zoology at the University of British Columbia in 1940, retiring from that position in 1954. It was largely due to his efforts that the University now has an active Institute of Oceanography and Fisheries Institute.

Commenting on Dr. Clemens' retirement from the Fisheries Research Board of Canada, which becomes effective at the end of this year, Dr. J.L. Kask, Chairman of the Board, paid this tribute:

"The development of the Fisheries Research Board of Canada can be identified with Dr. Clemens' long and fruitful career as much as with that of any man. Dr. Clemens served first as Director of the Board's Biological Station at Nanaimo from 1924 to 1940. Under his guidance casual summer work in marine biology developed into a directed and full-time fisheries science. Many of the Board's present senior scientists and directors were trained and matured under his leadership.

"In 1943 Dr. Clemens was appointed a Member of the Fisheries Research Board. In this capacity he has continued to give freely of his time and efforts to the further development and successful operation of this important scientific organization with which his name is so intimately identified.

"Add to this his services to Canada and to the science which he helped to develop, the long list of young scientists which he has inspired and trained, and the organization and early guidance of the Institutes of Fisheries and Oceanography which are now going concerns on the University of British Columbia campus, and we have indeed a review of substantial accomplishments by one man in his lifetime."

New Salmon Treaty Signed

Canada and the United States wrote a new chapter in co-operative fisheries management on December 28, 1956, with the signing of an agreement providing for joint control over the pink salmon stocks of the Juan de Fuca Straits--Fraser River area of the Pacific coast.

Signing the agreement for their respective countries were the Hon. James Sinclair, Minister of Fisheries of Canada, His Excellency T. Livingston Merchant, United States Ambassador to Canada, and Dr. W. C. Herrington of the United States Department of State, Washington.

Mr. Sinclair said that the occasion was another auspicious one in the friendly relations that exist between the United States and Canada. He recalled that Canada and the United States were the first countries in the world to sign an international fisheries treaty, the International Pacific Halibut Fishery Convention of 1923.

Since then, he said, the two countries had signed four more bilateral treaties, all designed to conserve common fisheries resources, and their example had been followed by other countries.

The pink salmon treaty was not only another great step forward in conserving the resources of the sea but it was also a further example of the really practical co-operation that exists between the two nations.

Mr. Sinclair said that the fishermen of the Pacific coast would be happy at having the pink salmon placed under the management of the International Pacific Salmon Fisheries Commission, which had done such a splendid job in rehabilitating the sockeye salmon populations of the Fraser River.

He predicted that the scientific investigations and joint management which the Commission provides would not only guard the stocks of pink salmon against depletion but would also increase the catch in the years ahead.

U.S. Ambassador Merchant said that he was happy to echo the minister's sentiments, adding that in this new agreement both countries were giving another demonstration of the closeness with which they worked together and their ability to resolve problems of common interest. He said that the treaty would be of great and important value to the fishermen of both countries.

The agreement will become effective upon exchange of instruments of ratification following approval by the Canadian parliament and the United States Senate.

Details of the agreement were worked out at a conference in Ottawa during October between representatives of the two governments headed by Deputy Minister of Fisheries, George R. Clark for Canada, and W.C. Herrington of the State Department in Washington for the United States. Mr. Clark was present with Mr. Sinclair at the signing ceremony.

Leaves Salmon Commission

Robert J. Schoettler, Director of Fisheries for the State of Washington, since October, 1950, last month submitted his resignation to Governor Arthur B. Langlie, effective January 16, 1957.

He also has sent a letter to President Eisenhower resigning from the International Pacific Salmon Fisheries Commission, which he currently heads as chairman. United States Members of the commission are appointed by the President. He has been a commissioner and twice chairman since 1950.

His resignation as director will automatically terminate his membership on the Pacific Marine Fisheries Commission, of which he is the outgoing chairman.

Mr. Schoettler served with the Washington State Department of Fisheries since May, 1950, when he was appointed administrative assistant by the late Alvin Anderson. He succeeded the latter as director following his death in October of that year.

EXPENDITURES FOR FISH . . .

(Continued from page 18)

tion. For 1953, the weekly average of 16.3 cents becomes about \$8.50 per person per year, or \$125 million worth of fish for 14.8 million people in Canada (at mid-1953). The 1955 survey figure -- between 12.8 and 14.8 cents per capita, depending on how much is allowed for fish purchases in the "Other Frozen Foods" classification -- would represent \$6.65 to \$7.70 per person per year, or retail purchases in the range of \$104-120 million for 15.6 million people in 1955. This value is from 4 to 17 per cent below the level of the earlier year.

The official figure for "marketed" value of fisheries products in Canada in 1953 is \$60 million -- the residual of production valued at \$174 million less exports of \$114 million, with no allowance for changes in stocks. Preliminary estimates place the 1955 domestic marketed value of fisheries products at \$50 million, or about 17 per cent below the 1953 figure. Marketed value represents, in the main, free-on-board value at plant, whereas transportation and wholesale-retail distribution costs would have been added at the consumer level. Acceptance of a retail value figure of \$125 million in 1953 for products worth \$60 million at plant involves, therefore, the assumption that there was an average total mark-up of 108 per cent on plant cost to cover distribution costs. Similarly, in 1955 the mark-up would have been from 108 to 140 per cent of plant costs of \$50 million. Mark-up figures for some specific products can be determined, but there is no way of determining how widely in error these general retail or consumption value figures may be. At least, they agree with the official marketed values in showing a decline in 1955 from the 1953 levels.

However doubtful these national consumption values based on the urban averages may be, the survey data presented in the charts and tables shown do emphasize some facts, none of which is likely to be surprising to men in the industry: (1) A large proportion of Canadian families do not regularly buy any fish for home consumption. This must be in marked contrast with family purchases of meat, eggs, and vegetable protein foods, which are likely to be included in every weekly budget. (2) Families in coastal cities spend more money for fish, on the average, than those in prairie and central Canadian areas. (3) Canned salmon is an important fish food in almost all areas, but particularly in inland parts of the country. ✓

Fishery Figures For November

SEAFISH: LANDED WEIGHT AND LANDED VALUE

| | Jan. - Nov. 1955 | | Jan. - Nov. 1956 | |
|-------------------------------|------------------|--------|------------------|--------|
| | '000 lbs | \$'000 | '000 lbs | \$'000 |
| CANADA - Total | 1,610,944 | 70,583 | 1,855,944 | 82,271 |
| ATLANTIC COAST - Total | 1,239,191 | 45,280 | 1,302,271 | 49,226 |
| Cod | 565,812 | 13,988 | 609,012 | 15,233 |
| Haddock | 124,200 | 3,945 | 142,904 | 4,526 |
| Pollock, Hake & Cusk | 55,803 | 898 | 67,524 | 1,127 |
| Rosefish | 42,014 | 957 | 55,618 | 1,212 |
| Halibut | 4,228 | 902 | 5,485 | 1,292 |
| Plaice & Other Flatfish | 78,950 | 2,533 | 71,634 | 2,260 |
| Herring | 182,906 | 1,742 | 153,679 | 1,635 |
| Sardines | 10,529 | 230 | 29,906 | 647 |
| Mackerel | 26,847 | 1,078 | 21,041 | 785 |
| Swordfish | 4,564 | 1,100 | 4,153 | 1,169 |
| Salmon | 2,604 | 871 | 2,606 | 947 |
| Smelts | 5,458 | 587 | 4,313 | 515 |
| Alewives | 17,681 | 157 | 16,142 | 155 |
| Other Fish | 40,239 | 455 | 40,417 | 456 |
| Lobsters | 44,132 | 14,147 | 45,582 | 15,181 |
| Clams & Quahaugs | 9,507 | 409 | 8,114 | 422 |
| Other Shellfish | 23,717 | 1,281 | 24,141 | 1,664 |
| PACIFIC COAST - Total | 371,753 | 25,303 | 553,673 | 33,045 |
| Pacific Cod | 7,925 | 533 | 9,058 | 647 |
| Halibut | 18,950 | 2,468 | 22,500 | 4,892 |
| Soles & Other Flatfish | 6,939 | 328 | 8,411 | 387 |
| Herring | 187,207 | 2,487 | 378,405 | 5,401 |
| Salmon | 129,442 | 18,336 | 110,703 | 20,518 |
| Other Fish | 5,998 | 162 | 10,700 | 280 |
| Shellfish | 15,292 | 989 | 13,896 | 920 |
| BY PROVINCES | | | | |
| British Columbia | 371,753 | 25,303 | 553,673 | 33,045 |
| Nova Scotia | 393,612 | 19,819 | 400,285 | 20,774 |
| New Brunswick | 150,130 | 6,139 | 185,327 | 7,599 |
| Prince Edward Island | 35,170 | 3,158 | 39,648 | 3,697 |
| Quebec | 116,215 | 2,699 | 124,364 | 3,553 |
| Newfoundland | 544,064 | 13,465 | 552,647 | 13,603 |

PROCESSING OF ATLANTIC FISH

In Per Cent of Total Catch (Jan. -Nov. 1956)

| | Fr or Fz | | Cured | Canned | Non-Food |
|-------------------------|----------|----------|-------|--------|----------|
| | Fillets | Wh or Dr | | | |
| Cod | 33 | 2 | 65 | - | - |
| Haddock | 91 | 5 | 2 | - | 2 |
| Pollock, etc. | 5 | 24 | 64 | 7 | - |
| Rosefish | 97 | - | 1 | - | 2 |
| Halibut | 7 | 93 | - | - | - |
| Plaice & Other Flatfish | 92 | 3 | 2 | 3 | - |
| Herring | - | 23 | 40 | 3 | 34 |
| Sardines | - | 5 | - | 95 | - |
| Mackerel | 2 | 40 | 35 | 2 | 21 |
| | Shell | | Meat | | |
| Lobsters | 55 | 20 | - | 24 | 1 |
| Clams | 14 | 51 | - | 34 | 1 |
| Oysters | 98 | (1) | - | 2 | - |

PRICES PER CWT. PAID TO FISHERMEN

(Week ending Nov. 17th)

| | 1955 | | 1956 | |
|--------------------------|-----------|--|-------------|--|
| | \$ | | \$ | |
| Halifax | | | | |
| Cod Steak | 3.50 | | 3.50 | |
| Market Cod | 3.25 | | 3.50 | |
| Haddock | 5.00 | | 5.50 | |
| Plaice | 3.00 | | 3.25 | |
| Yarmouth | | | | |
| Haddock | 5.00 | | 5.00 | |
| Black's Harbour | | | | |
| Sardines | 2.00 | | 2.00 | |
| St. John's, Nfld. | | | | |
| Cod | 2.00-2.25 | | 2.00 | |
| Haddock | 3.00 | | 3.00 | |
| Rosefish | 2.00 | | 2.00 | |
| Vancouver | | | | |
| Ling Cod | 12.00 | | 10.00-13.00 | |
| Gray Cod | 5.00 | | 6.00 | |
| Soles | 8.00 | | 8.00 | |
| Salmon, Redspring | 38.00 | | 45.00 | |

(1) Less than 1%.

Fishery Figures For November

MID-MONTH WHOLESALE PRICES, Nov., 1956

| | | Montreal | Toronto | Winnipeg |
|-------------------------|------|----------|---------|----------|
| | | \$ | \$ | \$ |
| Fresh Cod Fillets | lb | .264 | .300 | - |
| Fresh Haddock Fillets | lb | .366 | .393 | - |
| Kippered Herring | lb | .246 | .256 | .273 |
| Frzn. Halibut, Dr. | lb | .452 | .419 | .413 |
| Frzn. Salmon, Coho, Dr. | lb | .640 | .621 | .580 |
| Fresh Whitefish | lb | .408 | .392 | - |
| Lobster, Fancy | case | 36.520 | 37.412 | 38.850 |
| Sardines, Smoked | case | 8.908 | 8.898 | 9.159 |
| Sockeye, Salmon A | case | 22.295 | 21.992 | 22.580 |

STOCKS AS AT END OF NOVEMBER

| | 1955 | 1956 |
|--|----------------|----------------|
| | ('000 lbs) | ('000 lbs) |
| TOTAL - Frozen Fish, Canada | 46,202 | 74,633 |
| <u>Frozen - Fresh Sea Fish - total</u> | <u>36,710</u> | <u>44,601</u> |
| Halibut Pacific, dressed & steaks | 6,795 | 8,415 |
| Groundfish Fillets & Blocks | 16,334 | 16,573 |
| Herring | 1,199 | 786 |
| Salmon Pacific, dressed & steaks | 4,881 | 9,693 |
| Other | 7,501 | 9,134 |
| Frozen - Fresh, Inland Fish - total | 7,241 | 8,922 |
| Whitefish, dressed | 1,270 | 1,109 |
| Tullibee, round or dressed | 495 | 529 |
| Picklerel, filleted | 1,615 | 899 |
| Other | 3,861 | 6,385 |
| Frozen - Smoked Fish - total | 2,251 | 3,083 |
| Cod and Haddock, Atlantic | 825 | 1,008 |
| Other | 1,426 | 2,075 |
| Frozen for Bait and Animal Food | - | 18,027 |
| Salted and Pickled Fish, Atl. Coast | | |
| <u>Wet - Salted - Total</u> | <u>29,207</u> | <u>53,842</u> |
| Cod | 24,717 | 46,250 |
| Other | 4,490 | 7,592 |
| Dried - total | 24,086 | 31,526 |
| Cod | 22,275 | 30,319 |
| Other | 1,811 | 1,207 |
| Boneless - total | 932 | 1,127 |
| Cod | 877 | 1,093 |
| Other | 55 | 34 |
| Pickled - total (barrels) | 37,986 | 26,777 |
| Herring | 11,671 | 9,215 |
| Mackerel | 12,998 | 6,218 |
| Alewives | 13,317 | 11,344 |
| Bloaters - total (18 lb. boxes) | 182,015 | 212,330 |

CANADIAN EXPORTS OF FISHERY PRODUCTS

| | Value In Thousands Of Dollars To End Of Oct. | |
|-------------------------------|--|----------------|
| | 1955 | 1956 |
| Total Exports | 106,086 | 114,260 |
| By Markets: | | |
| United States | 77,353 | 85,258 |
| Caribbean Area | 14,452 | 13,930 |
| Europe | 9,981 | 12,019 |
| Other Countries | 4,300 | 3,053 |
| By Forms: | | |
| Fresh and Frozen | 63,635 | 69,010 |
| <u>Whole or Dressed</u> | <u>22,287</u> | <u>24,899</u> |
| Salmon Pacific | 4,797 | 4,712 |
| Halibut Pacific | 2,612 | 3,102 |
| Cod, Haddock, Pollock | 393 | 569 |
| Swordfish | 1,328 | 1,691 |
| Other Seafish | 2,687 | 3,290 |
| Whitefish | 4,650 | 4,815 |
| Picklerel | 2,409 | 2,719 |
| Other Freshwater Fish | 3,411 | 4,001 |
| Fillets | 24,331 | 26,859 |
| Cod Atlantic | 8,252 | 8,584 |
| Haddock | 5,231 | 5,660 |
| Rosefish, Hake, Pollock, etc. | 1,591 | 2,471 |
| Flatfish | 3,902 | 4,032 |
| Picklerel | 2,770 | 3,170 |
| Other | 2,585 | 2,942 |
| Shellfish | 17,017 | 17,252 |
| Lobsters (live,meat) | 15,588 | 15,866 |
| Other | 1,429 | 1,386 |
| Cured | 19,312 | 17,510 |
| <u>Smoked</u> | <u>1,129</u> | <u>1,417</u> |
| Herring | 734 | 986 |
| Other | 395 | 431 |
| Salted, Wet or Dried | 15,556 | 13,446 |
| <u>Cod</u> | <u>13,922</u> | <u>11,703</u> |
| Other | 1,634 | 1,743 |
| <u>Pickled</u> | <u>2,627</u> | <u>2,647</u> |
| Herring | 1,355 | 1,294 |
| Mackerel | 653 | 733 |
| Other | 619 | 620 |
| Canned | 13,794 | 15,759 |
| Salmon Pacific | 10,445 | 11,890 |
| Sardines | 1,294 | 1,649 |
| Lobster | 1,662 | 1,869 |
| Other | 393 | 351 |
| Miscellaneous | 9,345 | 11,981 |
| Meal | 4,926 | 7,180 |
| Oil | 1,696 | 1,921 |
| Other | 2,723 | 2,880 |

Fisheries News From Abroad

Iceland

EXPORTS OF PRINCIPAL FISHERY PRODUCTS

January - September, 1956

For Comparative Table See "Trade News," December, 1955

Quantities in Thousands of Pounds

Value in Thousands of Kroner⁽¹⁾

| DESTINATION | TOTAL EXPORTS | | MAINLY COD | | | | | | HERRING | | FISH MEAL | OILS | | OTHER ⁽²⁾ PROD. |
|---------------------------------|---------------|---------|------------|---------|------------|------------|------------|-------------|---------|---------|-----------|---------|---------|----------------------------|
| | Value | Quan. | Fresh | Frozen | Dry Salted | Wet Salted | Stock-fish | Other Types | Fro-zen | Salted | th. lb. | Cod | Other | th. lb. |
| | th. kr. | th. lb. | th. lb. | th. lb. | th. lb. | th. lb. | th. lb. | th. lb. | th. lb. | th. lb. | | th. lb. | th. lb. | |
| U. S. A. | 82,615 | 31,819 | - | 26,526 | - | 110 | 95 | - | - | - | 110 | 2,341 | - | 2,637 |
| <u>Other Western Hemisphere</u> | | | | | | | | | | | | | | |
| Brazil | 19,445 | 5,446 | - | - | 5,446 | - | - | - | - | - | - | - | - | - |
| Cuba | 5,975 | 1,945 | - | - | 1,888 | - | - | - | - | - | - | 57 | - | - |
| Panama | 107 | 33 | - | - | 33 | - | - | - | - | - | - | - | - | - |
| Puerto Rico | 34 | 15 | - | - | - | - | - | - | - | - | - | 13 | - | 2 |
| Venezuela | 156 | 44 | - | - | 44 | - | - | - | - | - | - | - | - | - |
| <u>Europe</u> | | | | | | | | | | | | | | |
| Austria | 77 | 66 | - | - | - | - | - | - | - | - | 66 | - | - | - |
| Belgium | 483 | 437 | - | - | - | - | - | - | - | - | 430 | 7 | - | - |
| Cyprus | 285 | 245 | - | - | - | - | - | - | - | - | 243 | 2 | - | - |
| Czechoslovakia | 42,106 | 17,806 | - | 12,154 | - | - | - | - | 3,087 | 353 | 2,210 | - | - | 2 |
| Denmark | 9,466 | 7,053 | - | ø | 9 | 3,124 | 55 | - | - | 15 | 3,096 | 591 | - | 163 |
| Eire | 4,429 | 3,958 | - | - | - | - | - | - | - | - | 3,958 | - | - | - |
| Faroe Islands | 474 | 368 | - | - | - | - | - | - | 368 | - | - | - | - | - |
| Finland | 19,945 | 9,261 | - | 86 | - | - | 478 | - | 66 | 4,772 | 3,299 | 377 | - | 183 |
| France | 7,654 | 4,811 | - | 1,076 | - | - | 291 | 13 | - | - | - | - | - | 3,431 |
| Germany (East) | 13,624 | 4,886 | - | 4,886 | - | - | - | - | - | - | - | - | - | - |
| Germany (West) | 48,958 | 40,666 | 11,213 | - | - | 487 | 946 | 296 | - | ø | 8,388 | 8,009 | 7,891 | 3,436 |
| Gold Coast | 8 | 2 | - | - | - | - | 2 | - | - | - | - | - | - | - |
| Greece | 7,838 | 4,876 | - | 55 | - | 4,625 | - | - | - | - | - | - | - | 196 |
| Italy | 40,245 | 21,713 | - | - | - | 14,597 | 1,663 | 5,338 | - | - | - | 115 | - | - |
| Netherlands | 21,906 | 10,345 | - | - | - | - | 2,212 | 4 | - | - | 485 | 5,646 | 18 | 1,980 |
| Norway | 3,484 | 2,373 | - | - | - | - | - | - | - | - | - | 1,687 | 684 | 2 |
| Poland | 10,994 | 8,799 | - | - | - | - | - | - | 2,695 | 2,796 | 3,308 | - | - | - |
| Portugal | 51,203 | 29,770 | - | - | 2 | 29,768 | - | - | - | - | - | - | - | - |
| Spain | 22,510 | 6,858 | - | - | 5,583 | - | 479 | - | - | - | - | 110 | 686 | ø |
| Sweden | 22,506 | 13,138 | - | 668 | - | 243 | 205 | 18 | - | 7,424 | 664 | 227 | - | 3,689 |
| Switzerland | 556 | 443 | - | - | - | - | - | - | - | - | 333 | 110 | - | - |
| Trieste | 13 | 2 | - | - | - | - | 2 | - | - | - | - | - | - | - |
| United Kingdom | 48,609 | 22,707 | 198 | 655 | - | 4,400 | 6,032 | - | - | - | 2,416 | - | - | 9,006 |
| U. S. S. R. | 128,694 | 58,701 | - | 44,091 | - | - | - | - | - | 14,610 | - | - | - | - |
| Yugoslavia | 399 | 185 | - | - | - | - | - | - | - | - | - | 185 | - | - |
| <u>Other Countries</u> | | | | | | | | | | | | | | |
| Australia | 1 | ø | - | - | - | - | - | - | - | - | - | - | - | ø |
| Egypt | 1,917 | 1,103 | - | - | - | 1,008 | - | - | - | - | - | 95 | - | - |
| East Africa | 2 | ø | - | - | - | - | - | - | - | - | - | ø | - | - |
| Indonesia | 49 | 22 | - | - | - | - | - | - | - | - | - | 22 | - | - |
| Israel | 5,106 | 2,808 | - | 1,705 | - | - | - | - | - | - | 1,103 | - | - | - |
| Fr. Equat. Africa | 2,666 | 653 | - | - | - | - | 653 | - | - | - | - | - | - | - |
| Liberia | 7 | 2 | - | - | - | - | 2 | - | - | - | - | - | - | - |
| Nigeria | 19,411 | 4,920 | - | - | - | - | 4,880 | - | - | - | - | - | - | 40 |
| Sudan | 1 | ø | - | - | - | - | - | - | - | - | - | - | - | ø |
| Total - Jan. -Sept. '56 | 643,958 | 318,279 | 11,411 | 91,902 | 13,005 | 58,362 | 17,995 | 5,669 | 6,216 | 29,870 | 30,109 | 19,594 | 9,279 | 24,767 |
| Total Jan. -Sept. '55 | 550,417 | 278,085 | 6,117 | 73,576 | 17,437 | 58,999 | 7,713 | 4,873 | 276 | 22,114 | 45,379 | 18,086 | 3,826 | 19,689 |

(1) A "Kroner" is the equivalent of about 6 cents in Canadian Currency.

(2) Includes all Whale products which totalled in January-September, 1956, 12,035 th. lb., and in January-September 1955, 7,248 th. lb.

ø Represents quantities less than 1,000 lb.

Current Reading

"Frozen Fish, Improved Quality and Packing as a Way to improved Marketing and Consumption," (the European Productivity Agency of the Organization for European Economic Co-operation, Paris. \$1.25).

This publication is a report on a training course, sponsored by the European Productivity Agency, on "The Improved Quality and Packing of Frozen Fish," held at Kiel, German Federal Republic, from March 14 to 19, 1955. This training course, the second of its kind (the first was held in 1954 at Aalesund, Norway), was attended by some 50 delegates from 14 member countries of O.E.E.C.

The report as now published was compiled by the course organizers and does not attempt to convey a complete picture of the entire proceedings, but includes statements presented at the course, technical papers read, and a summary of the conclusions reached by the participants.

In many European countries frozen fish products already form a large part of the home market and are said to have contributed to an increase in total fish consumption.

"Yearbook of Fishery Statistics, 1954-55, Vol. V," (Food and Agriculture Organization of the United Nations, Rome, Italy. \$4.00)

The arrangement of material in this volume generally follows that adopted in the preceding Yearbook published by FAO, but the summary tables provided have been increased in number and elaborated in detail. This has been made possible partly by improvements in the basic data obtained, including previously unavailable official or semi-official figures for some countries, and partly by a more extended use of estimates in the calculation of totals. Important summary data are also presented in diagrammatic form.

Section A contains world-wide summaries of quantities caught and landed, broken down by continents, regions, groups of species, and major fishing areas, as well as by countries. Available data have been supplemented by estimates to make calculation of all relevant world totals and sub-totals possible. Availability of certain official U.S.S.R. statistics and of recently published figures on the fisheries of mainland China has made possible substantial revisions of earlier estimates affecting also estimated total world catches.

Section B gives catch summaries in greater detail for a selected group of seventy-three coun-

tries, accounting for about seventy-five per cent of the world catch, for which adequate and sufficiently detailed data were available. Estimates have been used, as necessary, to make the totals comparable from year to year, but not to extend the coverage of the tables in this section beyond that provided by the selected countries.

The detailed statistics of quantities landed in Section C (for seventy-three countries) and of the value of landings, in national currencies, in Section D (for thirty-six countries) are, as in the preceding volume, by standard groups of species, but include and breakdown into components which reflect the classification used in the respective national statistics. Whaling data formerly included with the tables in Section C are now shown separately in Section H.

Section E shows the disposition of the catch by main channels of utilization and consists of a summary table presenting, with the help of estimates, a world picture, and six tables of country data arranged by continents. Section F presents the production of preserved and processed commodities in one summary and twenty-one detailed tables, each for one commodity of major importance.

Whale products, although included in summary table F-1, have been eliminated from the other twenty-one tables in this section and transferred to Section H.

"Current Technological Problems in Fish Canning," by Dr. E. Hess, (a paper in "FAO Fisheries Bulletin," October-December, 1956, Food and Agriculture Organization of the United Nations, Rome, Italy. Annual subscription, \$1.00; single \$0.30).

This report adheres strictly to the limited field indicated in the title, i.e., those problems which are specific and characteristic of the fish canning industry. It deals primarily with the raw material (fish, mollusks and crustaceans), its handling and preparation, the container/contents relationships, the fish canning operations and the effect of heat processing and of storage upon the quality of canned fisheries products. The article states that many fish canners and research workers in this field think that solutions to such problems as external corrosion of the cans are among the most important technological tasks to be undertaken.

This issue of the Bulletin also includes a preliminary literature survey, compiled by Richard H. Fleming and Taivo Laevestu, of the influence of hydrographical conditions on the behaviour of fish.



This fish went to market

Yes, to market, to be bought for an appetizing meal. That's why it had to go to market at the peak of flavour and freshness. And this freshness started with the fisherman.

You see, the fisherman is a man of common sense as well as skill. He realizes his job doesn't stop with bringing in the catch. It is a major part of his responsibility to *make sure* the fish—while it's in his hands—stays as fresh and wholesome as when it was hauled from the water.

For the rest of its journey to market, the fisherman relies on the other people in the fishing industry to *maintain* freshness and quality. The processor, the distributor, the retailer—part of their living depends on *fresh fish*, too.

And they are doing a good job. That is why everyone in Canada's great fishing industry can look forward to a secure future . . . for fish at the peak of flavour and nourishment —will always find a *steady* and profitable market.



DEPARTMENT OF FISHERIES

OTTAWA • CANADA

HON. JAMES SINCLAIR, M.P. MINISTER • GEORGE R. CLARK, DEPUTY MINISTER