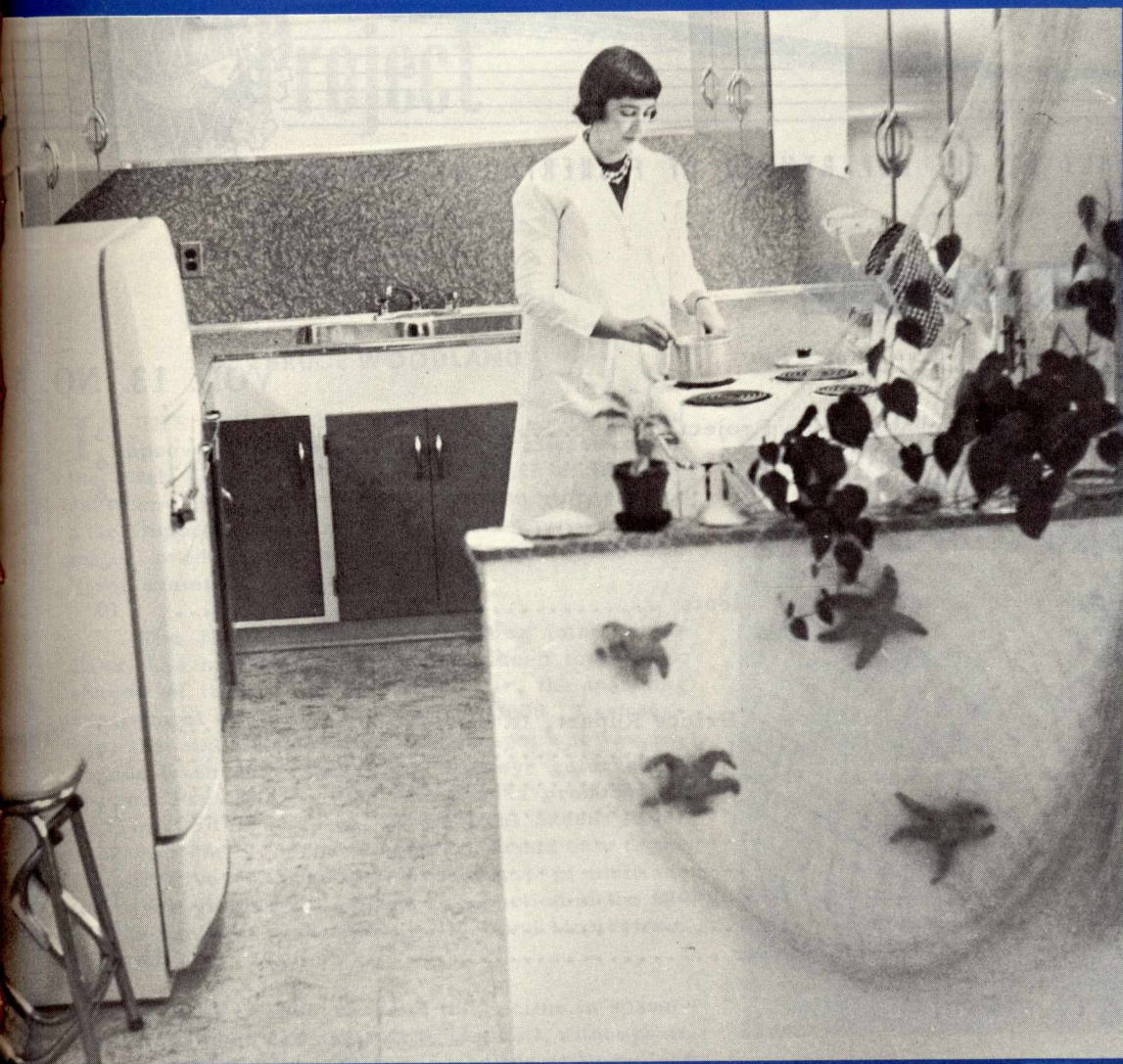


# Trade News



*November, 1960*



# Trade News



PUBLISHED MONTHLY BY THE DEPARTMENT OF FISHERIES OF CANADA

## CONTENTS

### FEATURES

VOL. 13 NO. 5

Nanika River Rehabilitation Project .....	3
The Newfoundland Bait Service .....	6
"Wet" Frozen Fish Blocks .....	8

### FISHERIES DEVELOPMENTS

Progress in Atlantic Fishing Fleets .....	10
---	----

### CANADIAN FISHERIES NEWS

FPC "Howay's" Open House at Prince Rupert, B.C. ....	5
Marine Railway at Great Slave Lake .....	7
Increase in Canadian Salt Production .....	9
Fishing Surveys .....	13
Sea Lamprey Programme .....	13
Fillet Slicing Machine .....	14
Frozen Cod Fillets in United Kingdom .....	14
Death of W.R. Menzies .....	14
Fishery Figures For September .....	15-16

### FISHERIES NEWS FROM ABROAD

Iceland: Export Table, January-June, 1960 .....	17
Norway: Export Table, January-March, 1960 .....	18

### CURRENT READING .....

COVER PHOTOGRAPH: Before it recommends any fish recipe to the public or demonstrates methods of fish cookery to interested groups, the Consumer Service of the Department of Fisheries carries out kitchen tests. In addition to its large test kitchen at headquarters in Ottawa, the Department maintains others, staffed by home economists in Toronto, Montreal, Halifax, Winnipeg, Edmonton and Vancouver. Home economist Elizabeth Wilson is shown here in the Toronto kitchen.

The contents of TRADE NEWS have not been copyrighted and may be reprinted although reference to the source would be appreciated. For further information regarding TRADE NEWS write to the Director of Information and Educational Service, Department of Fisheries, Ottawa, Canada.

# Nanika River Rehabilitation Project

Portable Hatchery  
New Concept in  
Fish Culture

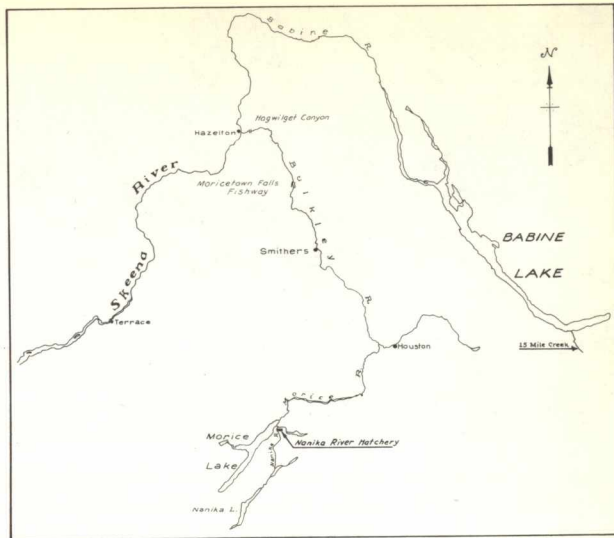
By BRUCE WOODLAND

IN THE UNCEASING struggle to maintain and improve salmon stocks on Canada's west coast, the Fish Culture Development Branch of the Department of Fisheries is endeavouring to restore a once-important stream to its former position as a major producer of sockeye salmon in the Skeena River system.

The Nanika River, which flows into Morice Lake, has had its sockeye run reduced to a tragic shadow of its 1951 level. That year, the spawning escapement was in the vicinity of 70,000. Last season, the sixth consecutive low escapement was recorded when less than 5,000 sockeye returned to spawn. Previous to 1952, the Nanika produced an estimated 10 per cent of the total Skeena River sockeye fishery. (The Skeena is second only to the Fraser River as a sockeye producer.) In addition, the river yielded a significant proportion of the native Indian food fish for Hagwilget and Moricetown villages.

The specific cause of the decline in spawning escapement was difficult to pinpoint, although an obstruction resulting from a rockslide at Hagwilget Canyon probably contributed significantly. This obstruction was removed in 1958. Earlier, fishways at Moricetown Falls had provided salmon a by-pass around a serious obstruction. The decline in spawning escapement, then, has continued despite these river improvements.

So that all possible factors might be weighed in determining the best means of rehabilitating the Nanika, the Department worked in close liaison with the Skeena River Management Committee. Scientists of the Fisheries Research Board of Canada,



Map showing location of the Nanika River hatchery in northern British Columbia. Also shown is the location of 15-Mile Creek where collections of sockeye salmon eggs have been taken for the hatchery



Drag seining a salmon stream. The net is pulled slowly across the river bed, trapping the salmon in its path. Both ends of the net are pulled ashore and the seine is "dried out."

for several years, have provided the Committee with information on the vast network of streams contributing to the Skeena River and its fisheries, and the Committee was thus able to provide valuable assistance to Fish Culture personnel. Among the considerations affecting the selection of remedial measures were the remoteness of the Nanika



In the photograph at left, the eggs are stripped from a female sockeye salmon. They are being fertilized in the centre picture, and at the right they are being washed in the stream. The washing process hardens the egg casing so that eggs can be safely transferred to the hatchery

area and the severity of its winter climate. Various methods of restoring the run were explored and the choice was a "portable-type" hatchery.

The Nanika River hatchery, completed in September 1960, is patterned in part after the Fisheries Research Board experimental hatchery at Kleanza Creek, B.C., and embodies many of the latest ideas in hatchery construction. Its compact size is made possible through the use of vertical racks of incubator trays, rather than troughs. The trays are of fibreglass construction and each holds wooden-framed egg containers with a capacity of 10,000 eggs. Water flows from the top of the rack, drawn through the trays by way of two apertures at the front end of each tray. Individual trays can be removed from the racks, or added, without impeding water flow. The eggs are incubated in the trays and, subsequently, the fry are placed in a tank which allows them to escape to the river when the migration period arrives.

The hatchery will have an operational capacity of 10,000,000 eggs. This is an astonishing number for a room that measures but 20' x 24'. For the initial year, however, less than 500,000 eggs were collected and placed in the hatchery. This number is sufficient to permit thorough testing of the facilities.

Because of the special nature of the Nanika River project, the hatchery was designed with portability as one of the prime considerations. Hatchery and living quarters for the staff are housed in a single building measuring 20' x 56'. It is of prefabricated construction and can be readily dismantled and moved to a new location. The hatchery facilities are very compact and can easily be moved from place to place as required.

The Nanika River hatchery is to be staffed throughout the winter by a two-man crew assigned



The hatchery and water tower at Nanika River, B.C. The building houses both the hatchery equipment and quarters for the staff. The building is prefabricated and can be dismantled and moved to a new location



Rack of incubator trays at Nanika River hatchery. The operational capacity of the hatchery will be ten million eggs. Each tray holds approximately ten thousand sockeye salmon eggs

to this important -- but lonely -- task. The hatchery site is over 50 miles from the nearest community.

#### THE DONOR STREAM

The sockeye eggs being used in this year's test operations were collected from 15-Mile Creek, which flows into Babine Lake, the main sockeye production area of the Skeena River system. In selecting the donor stream, several factors were considered, e.g., similar timing and distance of the migration and water temperatures. 15-Mile Creek not only satisfies these requirements but it has an adequate run of sockeye to allow egg collections. The salmon were taken by drag-seining, the eggs were fertilized, and were then flown to the Nanika hatchery -- 80 miles away -- the same day.

Results of the Nanika project will be carefully assessed by the Department of Fisheries. This new concept in fish culture will unquestionably gain significance and further application, should these results demonstrate the feasibility of the hatchery as a means of rehabilitating salmon runs in depleted streams. ✓



This shows the components of fibreglass incubator trays. In the centre of the tray is a plastic screen basket which holds the fertilized eggs. Water percolates up through the basket before flowing down to the next tray below

---

## FPC "Howay's" Open House at Prince Rupert, B.C.



Shown here are two photographs taken during the "Open House" held aboard the Fisheries Patrol Cruiser "Howay" during the initial two days of the Prince Rupert, B.C., Golden Jubilee Exhibition in September. The "Howay," an important unit of the Department of Fisheries Protection Service on the Pacific coast, was visited by more than 300 people in addition to an official party made up of Mayor P.J. Lester of Prince Rupert and the Commanding Officers of H.M.C.S. "Ste. Therese" and "Cape Breton," also in port for the occasion

# The Newfoundland Bait Service

By J.J. QUIGLEY

"The Canadian Government will seek legislation or take such other steps as may be necessary to provide that the Newfoundland Bait Service will be taken over and operated without fundamental change by the Department of Fisheries."

**T**HUS, in the Canadian Government White Paper stating the Terms of Union between Canada and Newfoundland in 1949 the federal Government, under Term 31, agreed to assume responsibility for certain services, including "The Protection and Encouragement of Fisheries and the Operation of Bait Services."

In the early days of the Bank fishery, fishing schooners were in most cases forced to catch their own bait and preserve it as best they could for the duration of the fishing voyage by buying stocks of natural ice locally. Often they augmented ice supplies by cutting it from cliffs or icebergs. Even in the late '90's the problem of preserving bait was recognized and the need of holding bait under refrigeration was mentioned in many reports of that era dealing with the codfishery of Newfoundland.

In the early 1930's the Newfoundland Government was approached by private fishing operators for assistance in resolving this ever present problem. Though the Government was in a poor financial position it recognized the need for a solution and four depots were built prior to the advent of Commission Government in 1934. These depots were located at Quirpon, Bonavista, Bay de Verde and Joe Batt's Arm.

Subsequently, 19 additional depots were built, and since Confederation three more have been added by the Department of Fisheries -- at Port au Choix, Old Perlican and Bonavista. The Department operates 18 sharp freezing depots. All these plants use ammonia systems, four are electrically driven and the balance diesel-engine powered. There are also two holding bait depots, one a Freon system (electrically driven), the other an ammonia system (diesel driven). A holding unit differs from the aforementioned in that it has no sharp freezing facilities, only refrigerated storage rooms.

In recent years the service has been further extended by considerably increasing facilities at the Long Harbour depot, the provision of two refrigerated trucks for making bait transfers, and the erection at strategic locations of 12 prefabricated bait holding units. The portable units, all Freon

systems driven by diesel engines, are automatically controlled. Each has a rated capacity of 20,000 pounds.

The work horse of the extensive bait service, and what might be considered a mobile depot, is the M/V "Arctica". This sturdy vessel, still playing a vital role after more than a quarter of a century, has a sharp freezing capacity of 12,000 pounds daily, with 300,000 pounds storage or cargo capacity. The "Arctica" was put into service by the Commission of Government to solve the problem of regional variations in supply and demand. In some

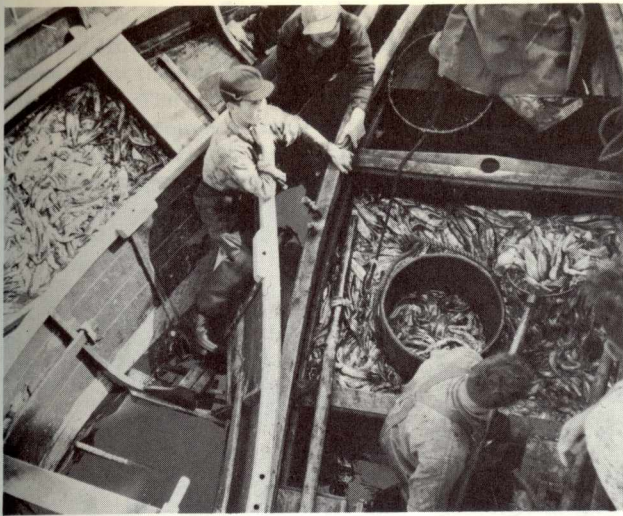


The M.V. "Arctica," refrigerated bait carrier operated by the federal Department of Fisheries in the Newfoundland Bait Service

areas and at particular times of the year demand for bait is greater than the supply and vice versa. It was in order to effect transfers of bait that the Government of the day commissioned the refrigeration-equipped vessel -- the indispensable key to the Bait Service. A familiar sight around the Newfoundland coastline, the "Arctica", ably commanded by Captain Harry Oake, logs an average of 12,000 miles per annum.

For its bait supplies the Department must depend on the fishermen who take fresh bait when it is available and sell it to the depots for freezing, storage and resale when required. The Department pays the prevailing rate in the area.

The principal function and prime responsibility of the Bait Service is to ensure that the re-



Young Newfoundlanders help unload bait. Squid, caplin and herring are caught for bait purposes

quirements of the inshore fishermen are met. In 1958 the appearance of bait fishes was abnormally low and the Department was obliged to obtain herring and mackerel from mainland sources and squid from as far away as Norway. Approximately one million pounds was purchased in this way to save the situation, which represented a considerable additional expense. However, it did provide much needed supplies of frozen bait to keep cod fishermen employed.

#### HERRING, SQUID POPULAR

Herring, squid, caplin and mackerel are the bait species used by Newfoundland fishermen. By far the most popular are herring and squid, which are in heavy demand for the spring and fall fishery. On the west coast, herring exclusively is used for lobster bait, while in Notre Dame Bay herring, squid and caplin are equally popular in season.



Trap boats moored at dock of the bait depot at Bonavista, Newfoundland

Two recent announcements by Canada's Minister of Fisheries, the Hon. J. Angus MacLean, were of particular interest to Newfoundland's inshore fishermen because they had reference to the Newfoundland Bait Service. First came the welcome news that a refrigerated hold is being installed in a new multipurpose fisheries patrol vessel, under construction at Halifax, N.S., so that part of its function will be to supplement the Department's bait service in Newfoundland. This was followed by a statement from the Minister that eight additional prefabricated bait holding units are to be supplied during the 1960/61 fiscal year.

A successful fishery is dependent on an adequate bait supply, and in providing the latter the federal Department of Fisheries shoulders a heavy responsibility -- a responsibility written into the Terms of Union whereby Newfoundland became Canada's tenth province. ✓

## Marine Railway

The Department of Fisheries' former Central Area Director, Gordon S. Reade, drives the "golden spike" in the Department's marine railway at Great Slave Lake, North West Territories. Mr. Reade retired earlier this year (see Trade News, August, 1960). The railway was built entirely by Central Area staff, and will service the Department's two northern protection vessels, the "Marila" and the "Mareca". By means of a steel cradle which runs along the railway down into the water, a vessel can be manoeuvred onto the cradle and then hauled back along the tracks to land. The railway has its own power system. The two vessels will be removed from the water before winter ice conditions set in. Necessary repairs will be made to the vessels during the winter before they are returned to the water next spring.



# "Wet" Frozen Fish Blocks

By W.J. DYER

Many plant operators have trouble in producing fish blocks for eventual use as fish sticks. The processors of the latter claim the blocks are too "wet" and that there is too great a loss in broken sticks during frying and packing. What is the source of this "wetness"? And how does it affect the fish sticks so that they are more fragile and easily broken?

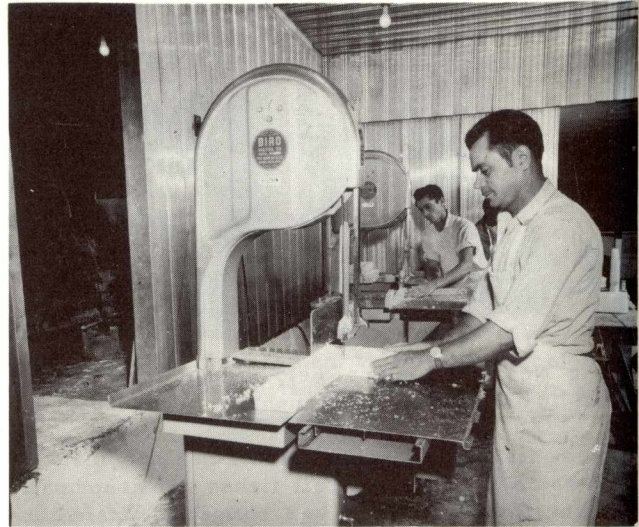
The most obvious answer to the first question is the drip which is present in varying degrees in all frozen fish. This drip is the excess water which drips out of a piece of frozen fish on thawing and which is not absorbed by the tissues. In a freshly frozen good quality fish it may be less than five per cent but in one stored for several months at too high temperatures, it may be as high as 40 per cent or even higher. It will be less in good fish than it will be with poor quality fish. Slow freezing results in much more drip than rapid freezing. It used to be thought that this was because the slower rate of freezing resulted in the build-up of large ice crystals which then allowed the drip to escape on thawing. However, the real factor is the ability of the proteins to re-absorb the fluid released by the melting of ice crystals during thawing of the muscle tissue. After all, most fish muscle contains about 80 per cent water but only about 18 per cent protein. Such factors as slow freezing, long storage, storage at temperatures above about 0°F., drying out or freezer burn, all damage the protein, and decrease its capacity to hold water.

These factors, of course, are those which affect the storage quality of frozen fish. The damage to the protein results in less moisture-holding capacity with increased drip and a parallel deterioration in texture, or increased toughness.

Thus when the sticks cut from these stored blocks are fried, considerable drip may be formed. This will result in some wetness and softness but since the protein will be tougher, the only effect should be to reduce the eating quality of the sticks rather than increase the incidence of broken sticks.

Drip may of course be almost eliminated by giving the fillets a brine dip prior to freezing. After a few seconds in brine, half saturated or less, the fillets absorb sufficient salt to increase the affinity of the muscle proteins for water. This effect is retained in the frozen product and the drip during thawing is reduced to less than five per cent unless very poor freezing and storage conditions are used.

Dr. Dyer is head of the Biochemical Division of the Halifax Technological Station of the Fisheries Research Board of Canada.



Sawing fish sticks



Packaged fish sticks in refrigeration room.

However, the use of brining has declined in recent years. One reason may be that since much frozen fish is now cooked without prior thawing, the messiness of drip is avoided. Another is its tendency to promote fat oxidation and rancidity, which may become serious on long storage or with fatty species.

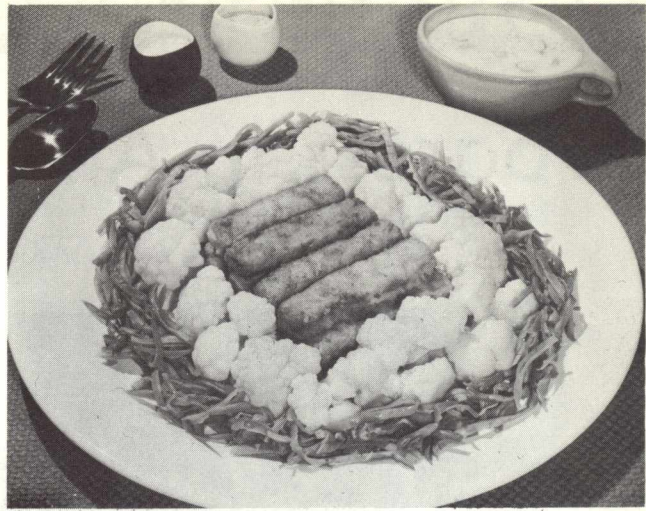
Brining, however, does eliminate the drip problem and should be useful in the non-fatty species where long storage is not required.

Apparently then we have to look further for the main cause of broken fish sticks. Perhaps if we

take a look at a typical fish block processing and packing line we may find the answer. As the fillets come from the skinning machines, they are usually quite wet. They may be carried in flumes and may also pass through a tank of brine or antibiotic before they arrive at the packing table. Almost always they accumulate somewhere along the way in piles and inspection will show that the fish in draining build up puddles of fluid which does not run away. They are put into the trays, which in the case of blocks are usually about 2 in. thick, about 11 1/2 in. wide and 21 in. long, holding about 17 lb of fillets. Here further draining occurs and a visible development of water pockets, small and large, may be observed among the fish in the tray. The extent of accumulation of this water obviously depends on the amount of draining of the fillets prior to being packed. But it also depends on the time elapsing between packing and going into the freezer. It is influenced also by the quality of the fish, a soft fish draining much more than a good quality firm fish. (Drip in very fresh fish will be discussed in a later article.)

The measures necessary to minimize this formation of water pockets in the blocks are probably obvious by now. First, the fillets should be allowed to drain adequately before being packed. This can only be done in single layers, probably best on screens of some type if satisfactory sanitary measures can be found. Second, the trays should go immediately into the freezer after packing so that there is no time for drip formation and water build-up to occur in the blocks. In practice, the stringency of the measures to be employed will be governed by the type and quality of the fish being processed.

Now what happens to this water when the blocks are frozen? If there is a lot of drip and excess water, some of the juice gets squeezed out during the freezing between the edges of the car-



The finished product

tons, and onto the plates. Deformation of the cartons may occur; the cartons and the freezers become very messy. Examination of the frozen blocks where excess water was allowed to accumulate will show ice pockets of varying size, sometimes two or three inches square and 1/2 in. or more in thickness. This, however, is of little concern to the operator at this stage. But what of the fish stick fryer? He saws up the blocks, ice as well as fish, breads and batters the sticks and fries them. But now the ice melts. Some sticks will have only water in one end or the other, but more may have a layer of ice between pieces of fillet so now these will separate and the sticks will break apart. Thus a much greater loss due to broken sticks will result than if good blocks were used. This then is the most important cause for the complaints about "wet" fish blocks and why the block-producing plants must strive to lessen the accumulation of liquid in the blocks just prior to freezing. ✓

---

## Increase in Canadian Salt Production

The annual production of salt in Canada increased at a remarkable rate during the five-year period 1954 to 1959. The 1959 record production of 3,233,512 short tons was more than 36 per cent greater than the output of the previous year and well over three times the amount produced in 1954. The rapid expansion of the Canadian salt industry is attributed to two factors -- the opening of a rock-salt mine at Ojibway, Ontario, by the Canadian Rock Salt Company Limited in 1955, and the initiation of a programme of brine export by Canadian Brine Company at Sandwich, Ontario, in 1958. A further increase in salt production can be expected in 1960 as Canada's two new rock-salt mines, one at Pugwash, Nova Scotia, the other at Goderich, Ontario, enter their first full year of production. Both were officially opened on November 4, 1959.

Salt imports increased slightly -- from 340,887 short tons in 1958 to 369,967 short tons in 1959. Exports, on the other hand, showed a substantial increase -- from an estimated 906,707 short tons in 1958 to 1,274,077 short tons in 1959. Most of the salt exported in 1959 was in the form of brine for use by chemical plants in the United States.

---

A new synthetic salmon seine webbing from Japan was tried out in British Columbia for the first time this summer. Like other synthetics, it proved to be light and not resistant. It was also inexpensive and water absorbent. This last characteristic made it sink readily, overcoming a major objection to other synthetics.

# Fisheries Developments

## Progress in Atlantic Fishing Fleets

By MARK RONAYNE



Group shot of the delegates and their advisers to the Shediac meeting

**N**OTABLE advances in fishing boats and catching gear along Canada's Atlantic coast were reported at the annual meeting of the Industrial Development Section of the Federal-Provincial Atlantic Fisheries Committee which was held this month in Shediac, New Brunswick. Reviews submitted by top fisheries officials of the five Atlantic Coast Provinces indicated that progress in these fishery fields, far from being confined to particular regions or techniques, is spread over a wide area and affects many operational activities.

The Federal-Provincial Atlantic Fisheries Committee was formed two years ago in Shediac. One of its main groups is the Industrial Development Section whose primary responsibility is to examine and report on immediate and long-term prospects for technological development, industrial ap-

plication and overall modernization of the Canadian Atlantic coast fishing industry. This includes reviewing development in all phases of fishing operations both in Canada and on the world scene with a view to determining the practicability of such operations in the Canadian Atlantic region. The Industrial Development Section also assembles reports and other information, and recommends to the parent FPAFC appropriate policy and programmes designed to encourage industrial progress and technological advances.

Senior fisheries officials at the Shediac meeting included the Chairman, L.S. Bradbury, Director, Industrial Development Service, Department of Fisheries, Ottawa; Hon. Leo Rossiter, Minister of Fisheries, and Eugene M. Gorman, Deputy Minister of Fisheries, Prince Edward Island; Leonce Chen-

ard, Deputy Minister of Fisheries, New Brunswick; Brian Meagher, Director of Fisheries, Nova Scotia; Kenneth Harrison, Department of Fisheries, Newfoundland, and Pierre Guay, Department of Fisheries, Quebec. Advisers were present from the various provincial fisheries departments, the Industrial Development Service and the Information Service of the federal Department of Fisheries, Ottawa. Special representatives from other federal government departments were Superintendent of Charts C. H. Martin, Department of Mines and Technical Surveys, S. T. Mathews and J. T. Tothill, Hydrodynamics Section, National Research Council, and H. O. Buchanan, Steamship Inspection Service, Department of Transport, Halifax.

The review by provinces of progress in primary fisheries activity during the past year showed marked advances on many fronts. Reporting for New Brunswick, the host province for the meeting, Deputy Minister of Fisheries Leonce Chenard said that five experimental fishing projects had been completed and several new types of fishing vessels had been introduced. A mechanical clam digger had been used in experimental fishing, and a new type of dredger had found new fishing grounds for this shellfish in the Gulf of St. Lawrence.

Mr. Chenard said that the province had for the first time tried gill-netting in fishing for cod and experiments had also been conducted in purse seining for mackerel. Exploratory fishing with the newly developed mid-water trawl was carried out early in the year and there would be further experiments with this gear in the Bay of Fundy later this year or in the early spring.

Danish seining for flatfish was tried for the first time this year in New Brunswick waters and proved so successful that there are now eight seiners operating in the province.

"They had bigger landings than some draggers," the Deputy Minister reported.

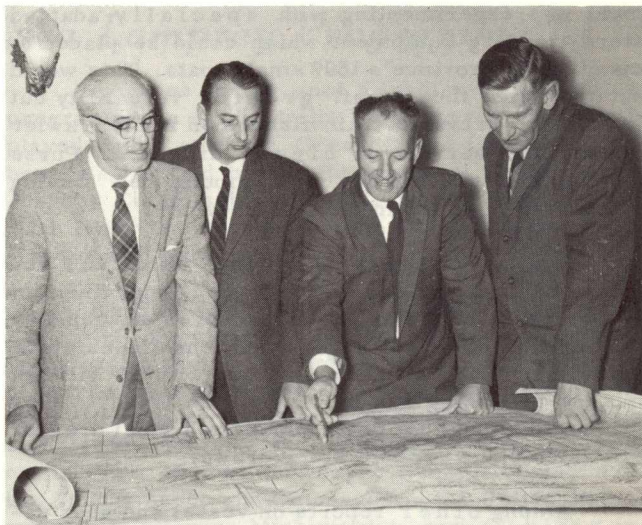
#### EXPANDED OFFSHORE FLEET

Kenneth Harrison, Naval Architect with the Newfoundland Department of Fisheries, stated that fishing results in this province had at least been as good as last year. Newfoundland's offshore fleet had been expanded with the addition of two new trawlers from Europe and a third was on the way. There were marked improvements in the small-boat fleet, featured by the building of three 66-foot long-liners, the largest of their class in Newfoundland, and experimentation in fishing methods had continued with the use of gill-nets for cod.

Nova Scotia's Director of Fisheries Brian Meagher reported that his province's programme of modernization in boats and gear had continued on a satisfactory level throughout the year. The now widely-known Danish seining experiment at Cheti-



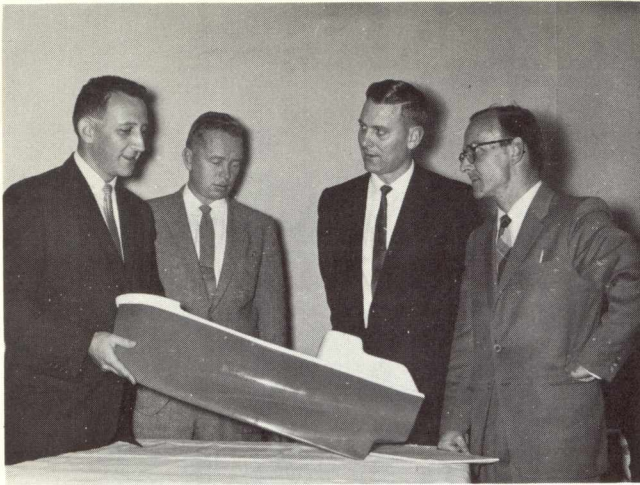
Studying a report on gear development are, left to right, L. S. Bradbury, Eugene M. Gorman, Brian Meagher and Leonce Chenard



Charts and their advantages to fishermen came in for close study

camp had exceeded expectations and he predicted that the fleet would eventually number one hundred or more. This method of fishing had also been tried with considerable success in other areas of Nova Scotia. Experimental fishing with aluminum lobster traps had proved the superiority of this type of trap over the traditional lath and twine trap in resisting damage in storms. Another important project was the effort being made to improve the productivity of fishermen in areas where other industrial opportunities were lacking.

Eugene M. Gorman, Prince Edward Island's Deputy Minister of Fisheries, disclosed that his province was making a strong bid to increase the earning power of its lobster fishing fleet by devis-



Model of plastic fishing boat especially prepared for the meeting



Almost as fine as cobweb was this netting used in gill-nets displayed at the meeting

ing alternative fishing gear which would enable these craft to fish for various species. His department was experimenting with specially adapted stern-trawling equipment which could be placed on many of the province's 1500 small boats. This would not only give these craft greater versatility but would also serve to train fishermen in the trawler method for service on bigger draggers. Purse seining and gill-netting were among new fishing operations tried out in the Gulf province.

Similar progress in various fields was reported by Pierre Guay of the Quebec Department of Fisheries. The fishing fleet had been expanded by the addition of new draggers and long-liners while experiments had been carried out with the gill-net method of fishing and a new redfish trawl. Other projects included the development of a steel dragger for which plans are now being drawn.

Among other reports on vessel and gear development was one by Jean Frechet, Department of Fisheries, Ottawa, concerning developments in electronic aids to fishing. These include a device which, attached to the mouth of a trawl, records the volume of fish going into the net so that the fishermen can tell when the net is well fished.

#### IMPACT ON ECONOMY

In a discussion on economic aspects of the fishing industry, John Proskie of the Economics Service, federal Department of Fisheries, Ottawa, pointed out that the commercial fisheries are not only a major industry but also have a tremendous impact on other phases of the Atlantic coast economy.

One example of this was the employment provided in the construction of 450 new fishing boats under the Federal-Provincial Modernization Programme during the period 1947-60.

"Throughout the five provinces -- New Brunswick, Nova Scotia, Prince Edward Island, Quebec and Newfoundland -- a total of 450 boats were built under the plan," Mr. Proskie said. "Their construction provided about 5 million man hours of labour for shipyard workers and people in allied industries."

The building of one 60-foot dragger alone, he said, entails 14,000 man hours of labour. Added to this was the fact that every fishing vessel represents additional labour, not only for the crews but in the employment provided by periodic repairs and refits and other services.

Mr. Proskie said that 422 vessels built under the modernization programme had total landings of fish in 1959 valued at close to \$9 million. Of this amount, some \$1 million was spent on maintenance and repairs; nearly \$2 million went into operating expenses and provisions and take-home pay by the crews amounted to \$3.85 million. Interest payments, insurance and other items accounted for the balance.

"While at this stage it is not possible to determine the multiplied effect of these gross earnings," Mr. Proskie said, "It must be of some importance to many fishing communities and ports which have been affected by the modernization programme."

Delegates were given food for thought in a breakdown of figures covering the initial investment and production from the operation of various sizes of deep-sea trawlers. These showed, according to Mr. Proskie, that the most suitable and profitable trawler capable of fishing such deepsea grounds as the Grand Banks would range in length from 90 to 120 feet and require an investment of \$200,000 to \$350,000. Above this size landings tended to decrease in relation to added investment. ✓

# Canadian Fisheries News

## *Fishing Surveys*

In the October issue of Trade News the first in a series of reports on the cruises of the "A. T. Cameron" of the Fisheries Research Board of Canada, was reviewed. In this issue, cruises 28, 29, and 30 are summarized.

Staff from the St. John's Biological Station, Newfoundland, took part in cruise 28. The vessel sailed from the Newfoundland capital for the eastern, northeastern and north slope of the Grand Bank. The purpose of this trip was to conduct a survey of the area in order to study the distribution and abundance of American plaice and cod.

Best catches of plaice were taken in the eastern portion of the bank, from 44°30'N. along the slope to about 46°N. The largest of these was 5000 pounds at 150 fathoms. Cod was another matter, though, as no commercial catches of this fish were recorded in the area. However, 8000 pounds of redfish were taken in depths of 200 fathoms. The northeastern section of the bank, from 46°N north-eastward to 49°W longitude, yielded very little plaice; the largest catch was only 600 pounds. Also, one catch of cod totalling 900 pounds was taken here at 125 fathoms. Fishing in the northern portion of the bank, 49°W longitude north-westward along the northern slope to 51°W, the vessel had only one reasonably large catch of plaice -- some 2000 pounds. Cod catches were negligible.

A preliminary study of the sizes of plaice in the catches shows the presence of a considerable number of this fish below the size limit set for commercial fishing. Plaice seem to be quite widespread from 40 fathoms out to 80 fathoms. The greatest concentration of the species was in the northeast and north sectors where the slope of the bank is very gradual and where the bottom temperatures are fairly uniform over a wide area.

With scientific personnel of the St. Andrews Biological Station, N.B., aboard, cruise 29 was primarily concerned with comparing the fishing results during daylight hours of the "A. T. Cameron" with those of another Research Board vessel, the "Harengus".

Thirty-three comparative tows of 30 minutes each showed that the "A. T. Cameron", with a No. 41 net, caught about twice as many species of fish per tow, and twice as many fish of all species as did the "Harengus" with a No. 39 otter trawl. Otter trawling activities took place south of the Gaspé Coast, on Miscou Bank, the western slope of the Laurentian Channel, and northeast of Magdalen Islands.

Cruise No. 30 was also concerned with comparing the fishing results, principally for haddock, of the "A. T. Cameron" with the "Harengus". This study, too, was conducted by members of the St. Andrews Biological Station.

The results of 25 comparative 30-minute tows showed that the "A. T. Cameron", otter trawling with a No. 41 net, caught about one and a quarter times as many fish of commercial species as did the Board's other research vessel with a No. 36 trawl. For flatfish (yellowtail and plaice) the ratio was about four and a half to one; the haddock ratio was one to one. For 19 of the 25 tows for haddock, the ratio was about two to one in favour of the "A. T. Cameron". However, for the other six, the ratio was reversed -- two and a half to one for the "Harengus".

## *Sea Lamprey Programme*

Progress in the joint Canadian-United States programme to eradicate the sea lamprey, which has played havoc with the Great Lakes fisheries, has been reported by the International Great Lakes Fishery Commission. This is a statement that the Fall River in Baraga County, Michigan, has been treated with lampreycide.

The Fall River operation completes the initial series of chemical treatments of Lake Superior lamprey-producing streams in which many millions of larvae were destroyed. A total of 52 streams in the United States and 20 in Canada have been treated since 1958. Most of the treatments were carried out in 1959. Among the larger streams treated are the Tahquamenon and Ontonagon in the United States and Kaministikwia, Michipicoten, and Goulais in Canada. A small start was made this year in Georgian Bay, Lake Huron, where four streams were treated, and in Lake Michigan where seven streams were disposed of. Treatments are carried out by staff of the Fisheries Research Board of Canada and the U.S. Bureau of Commercial Fisheries under contract with the Great Lakes Fishery Commission.

Positive evidence of a decline in the population of sea lamprey will come from the continued operation of electrical barriers on a number of Lake Superior streams. Numbers of spawning sea lamprey taken in 1961 may be somewhat reduced but a substantial decrease is not likely because most of those taken at the barriers will have come from stocks which moved to the lake in 1959 before their parent streams were treated. Therefore, the full effects of the chemical programme cannot be evident until the spawning run in 1962.

The destruction of young lamprey in streams is expected to reduce lamprey predation on the lake trout that remain in Lake Superior, but the trout population has been so damaged that an immediate recovery cannot be expected. The build-up of trout stocks will be particularly slow in some areas because of the scarcity of spawning fish. Plantings of hatchery-reared trout are needed to aid the recovery of this population.

Steps to restore the lake trout in areas where they have been drastically reduced have been undertaken by federal, state, and provincial agencies co-operating in a joint programme co-ordinated by the Commission. Hatchery-reared trout have already shown a high rate of survival after planting and they will likely play an important part in the recovery of the fishery.

The Great Lakes Fishery Commission is an international organization established by the United States and Canada in 1955. The formulation and implementation of a programme to eradicate or minimize sea lamprey populations in the Great Lakes is one of its major responsibilities.

## *Fillet Slicing Machine*

One of the latest projects to be completed at the Fisheries Research Board of Canada Technological Station in Halifax is the construction of a machine to slice cod fillets. The designing and building of the machine was a joint effort by Dr. Henri Fougere, Director of the station, and Harry E. Power of the Station's engineering staff.

A description of the machine is given in Circular No. 6 issued by the Station. Interested persons may obtain copies by writing directly to the Halifax station.

The circular noted that "experiments have shown that a substantial increase in the efficiency of candling cod fillets for parasites can be expected if the fillets are first sliced longitudinally into one-half inch slices before candling." With that thought in mind, Dr. Fougere and Mr. Power designed a machine to perform the task.

First designed was a fairly large apparatus which measured seven feet long and 10 feet wide and was constructed of aluminum and steel.

This machine was tested in various fish plants in Nova Scotia and New Brunswick. On the basis of the tests, it was decided that it was too large and that a smaller machine requiring less maintenance to the cutting mechanism would be better in adapting the slicing machine to existing cutting lines. Accordingly, a more compact machine employing circular knives in place of the previously used multiple-band knives was designed.

A complete description of the new machine is given in the Circular. Scaled figures show details of construction and how the machine operates.

## *Frozen Cod Fillets in U.K.*

Samples of the first shipment of fresh frozen Newfoundland inshore cod fillets ever landed in Britain were featured recently at a luncheon in one of London's famous eating places.

To impress the trade with the excellence of this product, the importer invited 15 prominent members of trade and allied organisations to sample cod fillets cooked in nearly a dozen different ways. The result was unanimous agreement that inshore cod fillets, properly processed and expertly cooked, are fine fare. The samples were drawn from a 100-ton shipment. Another 400 tons are scheduled to follow and the cod will be distributed to British wholesalers in London and Hull.

Packed in 14-pound slabs, the fillets are expected to find a particularly good reception in the "institutional" market. At the same time there is substantial evidence that the fish-frying trade is interested. A logical projection would be the introduction of a consumer package that would advertise the unique qualities of this special type of fillet. All in all, signs for the future appear excellent.

---

## **W.R. Menzies**

One of the pioneer commercial fishermen of Great Slave Lake and other northern waters, William R. Menzies, died this month in his Edmonton home after a brief illness. Mr. Menzies, a well known Edmonton fish distributor, was 79.

Born on a farm near Sarnia, Ont., Mr. Menzies left that province for Regina in 1903 and moved to Edmonton a year later. He began his commercial fishing career at Jackfish Lake, North Battleford, Sask., in 1905 and went to Lake Wabamun in 1907.

He set up fishing operations on Lesser Slave Lake in 1913 after reaching the lake by horse and wagon. He was among the first to export fish out of Alberta. The fish were hauled from the lake by sleigh to Athabasca and then shipped by rail to Calgary to wholesale buyers.

In 1959 a member of the Information Service of the federal Department of Fisheries tape-recorded an interview with Mr. Menzies. Reminiscing about his early fishing experiences on the northern lakes, Mr. Menzies had many colourful tales to tell of pioneer fishing and of life in general of that era.

# Fishery Figures For September

SEAFISH: LANDED WEIGHT AND LANDED VALUE

	May - Sept. 1959		May - Sept. 1960	
	'000 lbs	\$'000	'000 lbs	\$'000
<u>CANADA - TOTAL</u>	<u>1,137,701</u>	<u>63,899</u>	<u>1,108,690</u>	<u>62,432</u>
<u>ATLANTIC COAST - Total</u>	<u>994,203</u>	<u>39,825</u>	<u>995,091</u>	<u>41,582</u>
Cod	546,561	13,977	514,321	13,809
Haddock	34,750	1,516	33,458	1,272
Pollock, Hake & Cusk	56,205	1,096	61,403	1,334
Rosefish	31,318	731	30,425	746
Halibut	3,452	830	3,246	762
Plaice & Other Flatfish	55,819	1,772	69,215	2,152
Herring & Sardines	171,790	2,490	183,194	2,696
Mackerel	6,506	318	10,554	575
Swordfish	6,614	1,363	3,878	1,336
Salmon	3,909	1,432	3,497	1,428
Smelts	268	29	296	31
Alewives	10,968	167	7,286	128
Other Fish	18,762	304	19,846	295
Lobsters	35,581	12,335	40,247	13,535
Clams & Quahaugs	4,653	201	2,403	112
Scallops	2,942	1,108	4,848	1,173
Other Shellfish	4,105	156	6,974	198
<u>PACIFIC COAST - Total</u>	<u>143,498</u>	<u>24,074</u>	<u>113,599</u>	<u>20,850</u>
Pacific Cods	5,352	376	5,642	449
Halibut (1)	27,818	5,221	29,827	4,823
Soles & Other Flatfish	2,757	149	5,076	264
Herring	12,446	226	2,195	61
Salmon	88,876	17,640	62,190	14,610
Other Fish	2,098	83	3,187	115
Shellfish	4,151	379	5,482	528
<u>BY PROVINCES</u>				
British Columbia	143,498	24,074	113,599	20,850
Nova Scotia	259,457	14,471	272,595	14,659
New Brunswick	163,324	6,497	160,267	6,776
Prince Edward Island	33,717	3,460	31,943	3,791
Quebec	94,952	3,515	79,896	3,338
Newfoundland	442,753	11,882	450,390	13,018

(1) Includes halibut landed in U.S. ports by Canadian fishermen.

MID-MONTH WHOLESALE PRICES - Sept. 1960			PRICES PER CWT. PAID TO FISHERMEN (Week ending September 17th)		
	Montreal	Toronto		1959	1960
	\$	\$	Halifax	\$	\$
Cod fillets, Atl. fresh, unwrapped lb	.300	.303	Cod Steak	3.75-4.00	4.25
Cod fillets, Atl. frozen, cello 5's lb	.233	.257	Market Cod	3.50-3.75	3.25
Cod fillets, smoked lb	.340	.393	Haddock	4.25-4.50	5.00
Haddock fillets, fresh, unwrapped lb	.376	.428	Plaice	3.25	3.75
Herring kippered, Atl. lb	.246	.290	<u>Yarmouth</u>		
Mackerel, frozen, round lb	.223	.253	Haddock	6.00	-
Lobsters, canned, Fancy case 48- $\frac{1}{2}$ s	41.80	42.20	<u>Black's Harbour</u>		
Sardines, canned case 100- $\frac{1}{4}$ s	9.02	8.61	Sardines	2.00	2.00
Halibut, frozen, dressed lb	.356	.358	<u>St. John's, Nfld.</u>		
Silverbright, frozen, dr. lb	.510	.517	Cod	2.25	2.25
Coho, frozen, dr. lb	.783	.753	Haddock (round)	2.25	2.25
Sockeye, canned, gr. A case 48- $\frac{1}{2}$ s	27.61	26.91	Rosefish	-	2.00
Pink, canned, gr. A. case 48- $\frac{1}{2}$ s	14.91	14.82	<u>Vancouver</u>		
Whitefish, fresh lb	.386	.333	Ling Cod	8.00-14.00	5.50-12.00
Lake Trout, frozen lb	.422	.408	Grey Cod	5.00- 9.00	5.00- 9.00
			Soles	6.00- 9.00	5.00- 9.00
			Salmon (rds)pg	34.00-60.00	35.00-73.00

## Fishery Figures For September

### STOCKS AS AT END OF SEPTEMBER

	1959	1960
	'000 lbs	'000 lbs
<u>TOTAL - Frozen Fish, Canada</u>	82,487	88,191
<u>Frozen-Fresh, Sea Fish - Total</u>	60,555	65,591
Cod Atlantic, fillets & blocks	18,508	23,030
Haddock, fillets & blocks	7,018	4,663
Rosefish, fillets & blocks	2,745	3,072
Flatfish (excl. Halibut), fillets & blocks	2,556	4,418
Halibut Pacific, dressed & steaks	12,503	10,614
Other Groundfish, dr. & steaks	2,113	2,001
Other Groundfish, fillets & blocks	3,841	5,208
Salmon Pacific, dressed & steaks	5,471	7,377
Herring Atlantic & Pacific	503	539
All Other Sea Fish, all forms	3,793	3,109
Shellfish	1,504	1,560
<u>Frozen-Fresh, Inland Fish - Total</u>	7,659	6,320
Perch, round or dressed	298	12
Pickerel (Yellow), fillets	162	744
Sauger, round or dressed	177	472
Tullibee, round or dressed	147	160
Whitefish, round or dressed	2,541	1,389
Whitefish, fillets	523	582
Other, all forms	3,811	2,961
<u>Frozen-Smoked Fish - Total</u>	2,551	1,778
Cod Atlantic	1,474	757
Sea Herring, kippers	603	676
Other, all forms	474	345
<u>Frozen for Bait and Animal Feed</u>	11,722	14,502
<u>Salted and Pickled Fish, Atl. Coast</u>		
<u>Wet-Salted - Total</u>	55,071	70,843
Cod	44,275	56,853
Other	10,796	13,990
<u>Dried - Total</u>	11,215	17,683
Cod	10,676	16,257
Other	539	1,426
<u>Boneless - Total</u>	633	621
Cod	587	559
Other	46	62
<u>Pickled - Total (barrels)</u>	23,428	27,055
Herring	5,414	10,123
Mackerel	1,382	4,961
Alewives	13,310	9,820
Turbot	3,322	2,151
Bloaters (18 lb. boxes)	213,470	180,216
Boneless Herring (10 lb. boxes)	8,396	8,453

### CANADIAN EXPORT VALUE OF FISHERY PRODUCTS, MAY-AUGUST

(Value in Thousands of Dollars)

	1959	1960
<u>Total Exports</u>	52,927	52,141
<u>By Markets:</u>		
United States	42,123	42,345
Caribbean Area	4,303	5,390
Europe	5,733	3,378
Other Countries	768	1,028
<u>By Forms:</u>		
<u>Fresh &amp; Frozen</u>	38,065	38,843
<u>Whole or Dressed</u>	12,845	13,142
Salmon, Pacific	2,775	2,773
Halibut, Pacific	2,145	2,025
Cod, Haddock, Pollock, etc.	225	163
Swordfish	1,664	1,261
Other Seafish	1,634	2,077
Whitefish	1,859	2,032
Pickerel	1,012	1,093
Other Freshwater fish, n.o.p.	1,531	1,718
<u>Fillets</u>	14,256	13,274
Cod, Atlantic	5,937	5,230
Haddock	2,222	1,564
Rosefish, Hake, Pollock, etc.	940	761
Flatfish	2,409	2,635
Pickerel	643	535
Other	2,105	2,549
<u>Shellfish</u>	10,964	12,427
Lobster (Alive & Meat)	9,996	10,657
Other	968	1,770
<u>Cured</u>	4,549	5,588
<u>Smoked</u>	417	468
Herring	270	310
Other	147	158
<u>Salted, Wet &amp; Dried</u>	3,456	4,586
Cod	2,463	3,407
Other	993	1,179
<u>Pickled</u>	676	534
Herring	407	324
Mackerel	78	51
Other	191	159
<u>Canned</u>	6,372	4,898
Salmon, Pacific	3,971	2,035
Sardines	964	1,046
Lobster	1,268	1,503
Other	169	314
<u>Miscellaneous</u>	3,941	2,812
Meal	2,385	1,454
Oil	235	133
Other	1,321	1,225

# Fisheries News From Abroad

## Iceland

### EXPORTS OF PRINCIPAL FISHERY PRODUCTS

January - June 1960

For Comparative Table, see "Trade News", October 1959

Quantities in Thousands of Pounds

Value in Thousands of Kroners

DESTINATION	TOTAL EXPORTS		MAINLY COD						HERRING		FISH MEAL	OILS		OTHER PROD. (1)
	Quan.	Value	Fresh	Frozen	Dry Salted	Wet Salted	Stock-fish	Other Types	Frozen	Salted		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.	th.lb.
U.S.A.	17,481	99,224	-	15,393	-	121	-	485	165	2	44	686	-	585
<u>Other Western Hemisphere</u>														
Brazil	880	5,337	-	-	880	-	-	-	-	-	-	-	-	-
Cuba	1,418	7,706	-	183	1,140	-	-	-	-	-	33	62	-	-
Honduras	2	10	-	-	-	-	-	-	-	-	-	2	-	-
Jamaica	1,102	2,815	-	-	1,102	-	-	-	-	-	-	-	-	-
Panama	295	1,804	-	-	295	-	-	-	-	-	-	-	-	-
Trinidad & Tobago	26	116	-	4	-	-	-	22	-	-	-	-	-	-
Venezuela	190	979	-	-	190	-	-	-	-	-	-	-	-	-
<u>Europe</u>														
Austria	66	125	-	-	-	-	-	-	-	-	66	-	-	-
Belgium	68	131	-	-	-	-	-	-	-	-	66	2	-	-
Czechoslovakia	7,060	20,132	-	3,675	-	-	-	-	-	-	2,722	584	-	79
Denmark	14,824	26,647	-	-	-	344	-	7	-	88	12,675	324	467	919
Finland	4,070	8,445	-	-	-	-	-	-	-	-	3,693	300	-	77
France	2,368	7,889	-	1,208	-	-	-	4	-	-	-	-	-	1,156
Germany East	16,508	53,156	-	9,200	-	-	-	-	5,088	2,205	-	-	-	15
Germany West	12,326	19,704	5,754	Ø	-	170	-	578	882	399	3,995	22	-	526
Ireland	1,102	2,037	-	-	-	-	-	-	-	-	1,102	-	-	-
Italy	11,160	48,567	-	Ø	-	9,707	139	1,296	-	-	-	-	18	-
Greece	2,282	8,513	-	-	-	992	-	-	-	-	-	-	18	1,272
Netherlands	3,998	13,476	-	1,664	-	-	-	-	-	-	2,330	-	-	4
Norway	52,659	105,767	-	-	-	-	11	-	-	-	-	143	52,320	185
Poland	6,834	7,490	-	-	-	-	-	-	5,511	-	1,323	-	-	-
Portugal	15,904	69,595	-	-	-	15,904	-	-	-	-	-	-	-	-
Roumania	1,182	1,968	-	-	-	-	-	-	-	1,182	-	-	-	-
Spain	110	361	-	-	-	-	-	-	-	-	-	-	110	-
Sweden	22,193	37,753	-	18	-	110	-	31	-	1,016	6,001	-	-	15,017
Switzerland	4	139	-	Ø	-	-	-	-	-	-	-	-	-	4
United Kingdom	34,505	88,275	21,171	3,823	-	5,062	1,572	-	2	22	1,488	-	-	1,365
U.S.S.R.	48,871	212,224	-	38,968	-	-	-	-	-	9,903	-	-	-	-
Yugoslavia	57	224	-	-	-	-	-	-	-	-	-	57	-	-
<u>Other Countries</u>														
Australia	2	11	-	2	-	-	-	-	-	-	-	-	-	-
Egypt	20	36	-	-	-	-	-	-	-	-	-	20	-	-
Faroes	778	1,699	-	-	-	-	-	-	778	-	-	-	-	-
Ghana	2	10	-	-	-	-	2	-	-	-	-	-	-	-
Nigeria	5,566	42,915	-	4	-	-	5,562	-	-	-	-	-	-	-
Total Jan. - June '60	285,913	895,280	26,925	74,142	3,607	32,410	7,286	2,423	12,426	14,817	35,538	2,238	52,897	21,204
Total Jan. - June '59	251,887	503,122	9,005	87,371	7,154	26,040	9,412	1,424	7,180	19,043	45,231	15,324	5,974	18,729

(1) Includes all whale products which totalled in Jan-June '60, 373 thousands of pounds and in the first six months of 1959, 3,469 thousands of pounds.

Ø Represents quantities less than 500 lb.

# Norway

## EXPORTS OF PRINCIPAL FISHERY PRODUCTS

January - March 1960

Quantities in Thousands of Pounds

Value in Thousands of Kroners

DESTINATION	TOTAL EXPORTS		MAINLY COD				HERRING				CANNED FISH	OILS	OTHER PRODS.
	Quan.	Value	Fresh	Frozen	Salted & Dried	Stock-fish	Fresh	Frozen	Salted	Meal			
	th.lb.	th.kr.	th.lb.	th.lb.	th.lb.	th.lb.	th.lb.	th.lb.	th.lb.	th.lb.			
Canada	262	683	-	-	-	-	-	-	-	-	236	-	26
U.S.A.	14,507	21,709	-	2,403	174	18	-	-	2,903	-	5,040	181	3,788
<u>Other Western Hemisphere</u>													
Brazil	15,195	25,548	-	-	15,071	-	-	-	-	-	-	124	-
Br. W. Indies, Others	137	95	-	-	-	-	-	-	-	-	-	-	137
Colombia	47	46	-	-	-	-	-	-	-	-	-	47	-
Cuba	2,164	4,229	-	-	2,052	-	-	-	-	-	-	-	112
Dom. Republic	320	240	-	-	-	-	-	-	-	-	-	-	320
Fr. Dep. N.A.	154	114	-	-	-	-	-	-	-	-	-	-	154
Jamaica	143	95	-	-	-	-	-	-	-	-	-	-	143
Mexico	413	795	-	-	298	-	-	-	-	-	-	115	-
Netherlands W. Indies	121	202	-	-	121	-	-	-	-	-	-	-	-
Peru	15	41	-	-	15	-	-	-	-	-	-	-	-
Trinidad & Tobago	295	327	-	-	196	-	-	-	-	-	-	-	99
U.S. Dep. in N.A.	148	104	-	-	-	-	-	-	-	-	-	-	148
Venezuela	463	948	-	-	463	-	-	-	-	-	-	-	-
<u>Europe</u>													
Austria	2,915	2,031	-	955	-	-	-	295	-	1,043	-	141	481
Belgium	4,473	3,819	851	-	-	110	-	886	-	1,565	454	-	607
Bulgaria	2,205	800	-	-	-	-	-	2,205	-	-	-	-	-
Czechoslovakia	17,164	7,373	-	1,682	-	-	4,541	8,710	-	-	-	1,497	734
Denmark	2,380	1,894	-	-	-	-	-	-	148	-	-	1,087	1,145
Finland	518	630	-	119	-	-	-	-	-	-	-	124	275
France	9,895	5,236	2,875	31	-	-	-	1,138	112	4,837	112	93	697
Germany East	35,062	9,634	-	-	-	-	24,017	9,943	-	1,102	-	-	-
Germany West	43,605	16,442	126	4,182	-	75	25,648	6,947	785	2,967	256	397	2,222
Greece	234	206	-	-	-	-	-	-	-	-	-	-	234
Ireland	212	298	-	-	-	-	-	-	-	-	212	-	-
Italy	5,289	7,999	1,038	485	18	1,671	-	-	-	1,052	-	381	644
Netherlands	5,268	4,444	368	88	-	123	1,486	-	-	2,593	64	339	207
Poland	4,266	2,723	-	1,398	-	-	-	1,102	-	-	-	443	1,323
Portugal	66	105	-	-	66	-	-	-	-	-	-	-	-
Spain	1,647	2,336	-	-	1,550	-	-	-	-	-	-	-	97
Sweden	13,145	13,833	1,268	2,156	-	-	-	-	2,366	3,274	13	657	3,411
Switzerland	7,751	4,102	-	597	-	-	-	-	-	2,657	-	141	4,356
United Kingdom	35,089	30,640	7,905	2,394	-	137	6,168	750	-	11,616	2,716	51	3,352
U.S.S.R.	21,155	8,455	-	-	-	-	-	12,207	8,948	-	-	-	-
Yugoslavia	71	43	-	-	-	-	-	-	-	-	-	71	-
<u>Other Countries</u>	104												
Belgian Congo	104	70	-	-	-	-	-	-	-	-	-	-	104
Egypt	258	182	-	-	-	-	-	-	-	-	-	-	258
Fr. Cameroons	1,433	2,878	-	-	-	1,433	-	-	-	-	-	-	-
Ghana	106	212	-	-	-	106	-	-	-	-	-	-	-
Hong Kong	170	125	-	-	-	-	-	-	-	-	-	170	-
Iraq	98	163	-	-	-	-	-	-	-	-	98	-	-
Israel	1,096	1,143	-	1,096	-	-	-	-	-	-	-	-	-
Liberia	410	472	-	-	-	181	-	-	-	-	-	-	229
New Zealand	245	478	-	-	-	-	-	-	-	-	245	-	-
Nigeria	16,938	32,372	-	-	-	16,609	-	701	-	-	168	-	-
Portuguese E. Africa	397	713	-	-	397	-	-	-	-	-	-	-	-
Portuguese W. Africa	470	810	-	-	470	-	-	-	-	-	-	-	-
Turkey	62	45	-	-	-	-	-	-	-	-	-	62	-
Union of S. Africa	571	1,084	-	-	-	-	-	-	-	-	571	-	-
Other	15,021	13,103	86	1,064	573	524	1,825	2,945	454	2,482	1,863	1,509	1,696
TOTAL Jan-Mar., 1960	284,173	232,069	14,517	18,650	21,464	20,447	63,685	47,829	15,716	35,188	12,048	7,727	26,902
TOTAL Jan-Mar., 1959	329,560	228,214	14,333	17,453	13,975	18,415	86,903	57,234	20,002	56,542	12,308	8,195	24,200

# Current Reading

"Keys to the Marine Fishes of Arctic Canada," by D. E. McAllister. (National Museum of Canada, Natural History Papers. No. 3. Department of Northern Affairs and National Resources, Ottawa).

The increasing interest in the development of the fisheries of northern Canada, for food and for recreation, has resulted in a need for a means of identification. These keys are intended to provisionally satisfy this need. They include marine and anadromous species of fish, as well as those freshwater species commonly entering brackish water. The key covers species of the Canadian waters of the Arctic Ocean; the Beaufort Sea east of the Alaska-Yukon boundary, the waters about Franklin district (Canadian Arctic Archipelago), Hudson Bay, Hudson Strait east to the northern tip of Labrador, and the waters west of the centre of Baffin Bay and Davis Strait.

The keys are based on a series of statements which are true or false with regard to the specimen that is to be identified. The specimen is first keyed to a family, then to species. The key to the families is made simpler by the use of line drawings.

"Fishery Policies in Western Europe and North America," (Organization for European Economic Co-operation, 2, rue Andre-Pascal, Paris, France. \$3.00).

General principles for co-ordinated fisheries policies, the implementation of which would make it possible to reduce measures impeding trade in fish, are included in this report on fisheries policies in Western Europe and North America published by the Organization for European Economic Co-operation.

The report contains individual studies on all O.E.E.C. member and associated countries, describing in detail their fishing industries and the official policies pursued in this field. (Canada and the United States are associated countries). These studies conclude with appraisals of the position in each country and broad recommendations for governmental action are put forward. The overall development of the fisheries industry is traced and inter-country comparisons are made. Fishery policies pursued and the various measures adopted by governments to encourage fish production are compared and analysed.

An extensive body of factual information on fish production and trade is brought together in this report, including comprehensive statistics on fish

landings and processing, employment, fishing fleets, foreign trade in fish and fish consumption. It also makes available details of customs duties and quantitative restrictions on fish imports, subsidies and other financial aid.

All maritime Member and Associated countries possess commercial fisheries and their aggregate output in 1958 accounted for one-third of the world's fish production. Most of the Western European countries are by now covering the bulk of their demand for fish and edible fish products by their own fishing efforts. Intra-European trade in such products, which account for roughly 20 per cent of total fish consumption in the area, fell in the early 1950's from a comparatively high level immediately after the war. In recent years such trade has increased again without, however, having regained previous levels. On the other hand a strong expansion has taken place in intra-European trade in fish meal. In North America, Canada is one of the world's principal exporting countries for fish products, while the United States, although being the largest fish producer in the O.E.E.C. area, nevertheless is the world's leading importer of fish products. The growth in United States imports of such products, and in particular of frozen fish and canned goods, is a significant feature in the postwar development in the fish trade. Up to now, markets outside the O.E.E.C. area have, however, been the principal outlets for the increasing production of edible fish products in the major exporting countries of Western Europe.

"Species Composition of Industrial Trawl Fish Landings in New England, 1958," by Robert L. Edwards and Lewis Lawday. (Special Scientific Report, Fisheries No. 346, United States Fish and Wildlife Service, Washington, D.C.).

The species composition of the landings of the industrial trawl fishery of New England for 1958 is presented in this report. Industrial fish are, for the most part, utilized in the production of fish meal and homogenized condensed fish -- products that are used as additives to poultry and livestock rations. They have been valued as an inexpensive source of protein, as well as for their "unidentified growth factor." The controversies that have developed over the industrial fishery in the United States usually have involved charges that excessive quantities of valuable food species and very small fishes are taken. The information in this report is presented in such a manner as to permit an evaluation of the potential effects of this fishery on any or all of the fishes of commercial importance in New England waters.

*G. R. Clark*  
Deputy Minister.

If undelivered return to:  
Department of Fisheries of Canada  
OTTAWA

## YOUR DEPARTMENT OF FISHERIES AND WHAT IT DOES — FOR YOU

- Conservation and Development of Fish Stocks
- Design, Development of Vessels and Gear
- Exploratory Fishing to Discover New Stocks
- Development of Improved Processing Methods
- Development of New and Improved Products and Packaging
- Inspection of Fish and Fishery Products to Ensure Quality
- Improving Fish Transportation Methods by Land, Sea, Air
- Promotion of Fish and Fishery Products

The increasing need for the Canadian fishing

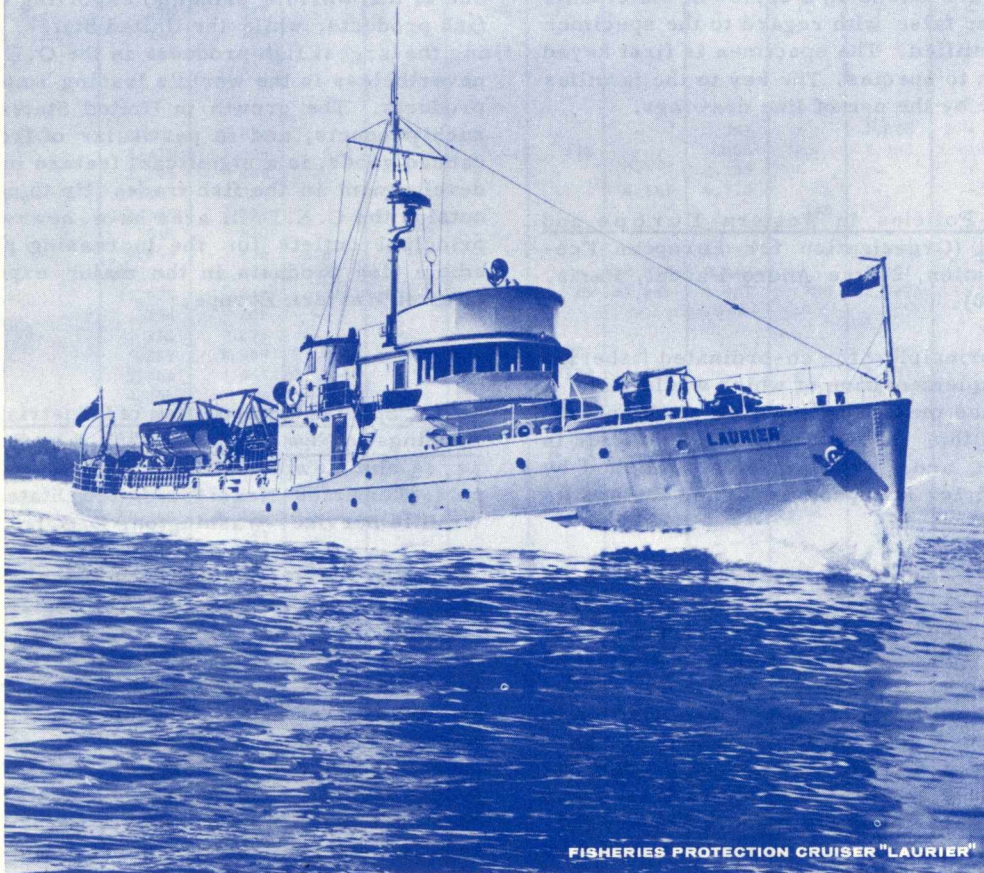
industry to keep abreast of modern developments and technological "Know How" prompted these and other services provided by the Department of Fisheries. Your Department is doing everything possible to attain the highest possible utilization of the fisheries resource. Emblematic of the Department's efforts in carrying out its responsibilities to Canadians is the official insignia worn by its fishery officers.



### DEPARTMENT OF FISHERIES

OTTAWA, CANADA

Hon. J. Angus MacLean, M.P. Minister—George R. Clark, Deputy Minister



FISHERIES PROTECTION CRUISER "LAURIER"



### DEPARTMENT OF FISHERIES

OTTAWA, CANADA

Hon. J. Angus MacLean, M.P. Minister

George R. Clark, Deputy Minister