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FEATURES

CANADIAN FISHERIES NEWS

FISHERIES NEWS FROM ABROAD

COVER PHOTOGRAPH: Salmon taken from Rattling Brook, Norris Arm, Newfoundland, is tagged before being transferred to new spawning site in Great Rattling Brook. The transfer was made to save this particular salmon population, which was threatened by a hydro power development on Rattling Brook. (See "Trade News," July, 1958).

The Future of the Atlantic Salmon

Sport Fishermen Hear Addresses on the Situation In Canadian Streams

THE ATLANTIC salmon, in its fight for survival in Canada, has caught the imagination of a great many people of recent years. Concern for its well-being extends beyond the ranks of federal and provincial fisheries administrators and biologists, and commercial and sport fishermen.

This was made evident by the interest shown in two recent speeches made to associations of sport fishermen at their annual meetings -- that of the Miramichi Salmon Association, held in Boston, Mass., on January 23, and that of the Atlantic Salmon Association, held in Montreal on February 12. The first was given by federal Fisheries Minister J. Angus MacLean. The second also was to have been given by Mr. MacLean, but his regrets at being unable to be present because of urgent Government business were expressed by the Deputy Minister, George R. Clark, who delivered the speech in his stead.

FISHERIES MINISTER AT BOSTON

In the Boston address, Mr. MacLean pointed out that his Department recognized that the number of sport fishermen was increasing, but he was convinced that the salmon stocks could be managed to provide both a commercial and sport fishery, with certain regulatory restrictions. The salmon crop which could be harvested was not unlimited, and without restrictions it could all be taken by commercial interests. Similarly the crop could be taken by anglers. But if the latter should happen, he asked, could the connotation of the word "sport" be applied to the fishery, or would the commercial operation simply have been transferred from nets to rod and line?

Mr. MacLean said he understood that severe restrictions on salmon fishing were hard to take because of investments tied up in lodges, tackle, nets and boats. But, he added, "every individual with a real interest in the salmon should be willing to accept these stringent measures for the long-term good of the resource. I sometimes feel that the word 'conservation' has been too loosely added to the vocabulary of our generation. Certainly many people talk conservation but a much smaller number actually practice it."

Scene on the Miramichi River, N.B.

The M.S.A. members were informed that the Miramichi system had been a significant factor in all salmon activities of the Department and its Fisheries Research Board. Studies of salmon populations in the Northwest Miramichi had been made ever since 1950, said Mr. MacLean, when a co-operative experimental investigation was initiated there. This experiment, to control predator birds, especially the American merganser, could be said to have been most successful. There was a clear indication that there had been a definite reduction in the bird population on the river, and earlier investigations had shown that such a reduction of fish-eating birds resulted in an increase in the number of smolts going down to sea.

The Minister continued by saying that in all the studies carried on, outside help had been received, and those who had faithfully reported observations, such as marked or tagged fish, had contributed greatly to the success of the scientific programme. "Angling statistics also have been extremely useful," he said, "and complete data on all your catches would be even more welcome. There are about 75 fishing clubs in the Miramichi system, which is in the geographical centre of New Bruns-

wick and drains about one-sixth of the area of the province. Our scientists get regular reports from only about six of these clubs, which is a very small percentage on which to form the basis for proper research investigations. The scientists tell me that they would be delighted even if they received catch data from only another half dozen, as any such information helps advance our work in this field."

The Atlantic salmon had undergone many vicissitudes, Mr. MacLean said. "It used to be found on this continent in rivers all the way from southern New England to northern Labrador. As you know from your own observations, the salmon is a delicate creature, easily upset by environmental changes. Growing urban areas are not kind to the salmon, since they lead all too often to warm, muddy, polluted or unnatural waters while the salmon requires cool, clear and clean streams. We in Canada may be entering the phase that the United States went through some time ago, and without a good deal of care by all of us the centre of the salmon runs may move another step north to the relatively unsettled areas of Newfoundland, northern Quebec and Labrador.

"The salmon can still be found, in varying numbers, in about three hundred rivers and streams in Canada's Atlantic provinces. That sounds like quite a lot of streams but in many of them the runs are small. The fact is that the great majority of the salmon, about seventy-five per cent, run to half a dozen major river systems, one of which, of course, is the Miramichi.

"The salmon has many enemies, including man. It can survive many natural hazards -- after all, it has done so for untold years. We ourselves have helped it overcome some of these hazards by such things as stream improvement and the building of fishways. But human beings in general are the real villains in the piece". The minister went on to say that the freshwater environment of the salmon can be affected to a point at which whole populations can be wiped out. It can be done by blocking passage to spawning grounds, it may be by spraying forests and agricultural areas in insect control programmes, or it may be done by pollution of water or the use of water for any number of domestic and industrial purposes.

In connection with these threats to the salmon, Mr. MacLean said: "During the past few years the salmon of the Miramichi system, among others, have been subjected to an extra danger brought about by the spruce budworm epidemic, which spread to northern New Brunswick in the late 1940's. A programme of aerial spraying of the forests with DDT was carried out to save the trees, but as we all know the spray killed many young salmon in the streams and drastically reduced the aquatic insects on which the fish feed during the early, crucial period of their lives. I might say that the spraying was done with as much consideration as possible for the fish, but some damage was inevitable.

"I am happy to report now that the spruce budworm epidemic in New Brunswick has finally collapsed, and that there will be no spraying of the forests this year."

In speaking of conservation generally, the Minister said that it would be possible to retain certain salmon streams and improve them continuously for salmon production. "However, we cannot stop industrial progress and the march of civilization, so we cannot possibly maintain all the rivers that produced salmon in the early days of our history.

"Salmon management has several requirements. First is the scientific investigation of the life history, behaviour and the environmental requirements. This is the foundation upon which management is built. Then there is the application of scientific findings. This includes environmental improvement, prevention of environmental deterioration and the establishment of simple essential regulations. Good management procedures for soil and water and the forestry resource are also good management procedures for the fishery resource. In management of the salmon, government agencies can determine fishing seasons and regulate both rod and net catches to see that enough fish reach the spawning grounds."

The productivity of various waters can be determined by scientific workers so that it can be seen just how many fish can be produced in any particular river system, he said. But all this, as well as such things as fishways and hatcheries, will be of little use unless the streams themselves are kept as much as possible in a productive state.

"There is education of the public. All new facts must be made available to each individual so that he can play an important role in salmon management."

Mr. MacLean complimented the Miramichi Salmon Association on its efforts to bring home to the school children of New Brunswick the importance of the salmon resource to their province. "Educational work such as this is bound to pay dividends," he said, "and it is needless for me to add that we are always ready and willing to co-operate in any way possible. You might be interested to hear that last year my department distributed thousands of copies of the booklet 'Canada's Atlantic Salmon' as teaching aids in the schools, in addition to a similar number of Fisheries Fact Sheets."

He concluded by saying: "Private agencies and organizations, such as yours, can be of great value, and I hope we can continue to work together

to make it easier for the salmon to survive. Nature has endowed the salmon with sufficient adaptability and reproductive capacity that if we assist it a little we can be assured of some increase in their population which will benefit both the sportsmen and a limited commercial fishery."

SPEECH TO THE A.S.A.

After conveying Mr. MacLean's regrets at being kept away from the Montreal meeting through Cabinet responsibilities, Mr. Clark said he realized that in talking to the Atlantic Salmon Association he was talking to a group of experts who were not only fishermen but keen students of "Salmo salar" who, like the federal and provincial authorities, had its best interests at heart wherever it was found.

"We have one common aim," he said. "We want to assure the future of the Atlantic salmon. We all know that this has been, is, and will continue to be a tough proposition.

"Here in Canada we are faced with the same threat that faced, and defeated, salmon enthusiasts in New England and Maine during recent generations -- the gradual impingement of forces, natural and otherwise, on the freshwater environment of the Atlantic salmon. In fact, with the speed of modern development new factors are entering the picture continually, so that the threat to our salmon is without a doubt greater than ever before."

However, said Mr. Clark, we have one great advantage. "We are forewarned and we have an ever-growing mass of data, scientific facts, which we can use as weapons. It is possible that what happened to the salmon rivers and streams in the United States may have crept up so gradually that no-one knew exactly what was going on and, at first, did not have any means of combating it. In this day and age, we know just what the salmon is up against, and we have acquired a still-increasing backlog of scientific knowledge to use on the side of the salmon. Our joint object is to check the forces that reduce the salmon population and with proper procedures, if we can, increase the stocks of salmon available to both the angler and the commercial fisherman.

"I used the word 'joint' because governments need help and co-operation from the public in any conservation effort. In this particular job we have the help of the angling fraternity, and it is noteworthy that the general manager of the A.S.A., Mr. Robson Black, is a member of the advisory group which works closely with the Salmon and Trout Sub-committee of the federal-provincial Atlantic Fisheries Committee.

"The aforementioned group, which includes the five Atlantic provinces, is continuing the work started in 1949 by a federal-provincial co-ordinating committee which carried on, with a great deal of success, until last year, when it was replaced by the new federal-provincial organization."

The Deputy Minister, speaking of regulations, said that the matter of restrictive laws had always been a touchy one. "Modern management concepts in the handling of natural resources call for the simplification of regulatory codes. During the past few months a special committee has been going over all the Atlantic salmon regulations in order to submit recommendations to the Salmon and Trout Subcommittee of the A.F.C. On this question of simplification, we are always open to suggestions, from individuals or groups.

"The Fish Culture Development Branch of the federal Department of Fisheries, and the Fisheries Research Board's biological stations, at St. Andrews, N.B., and St. John's, Newfoundland, have for a long time given a high priority to all matters pertaining to the Atlantic salmon fisheries. So has the Marine Biological Station of the Quebec Department of Fisheries at Grande Riviere on the Gaspe Peninsula."

He went on to explain that the salmon programmes of all these groups had been steadily expanded and co-ordinated, and an important phase of the federal Department's activities was the provision of young stock from hatcheries. "Hatchery-reared salmon are distributed in areas where salmon runs have been depleted and also where natural reproduction needs an assist," he said. "In 1957-58 more than eleven and a half million Atlantic salmon were so distributed. In the Maritime Provinces and Newfoundland the Department spent more than half a million dollars on its hatchery service, and nearly a quarter of a million dollars on its biological and engineering work. In the Maritimes the Fish Culture Development Branch maintains fifteen hatcheries, four rearing ponds and five salmon retaining ponds. I should add, of course, that the hatcheries are used to raise trout as well as salmon." Mr. Clark then listed a number of other phases of the fish culture programme, including lake and stream surveys, creel census work, the assessment and indexing of salmon streams, pollution studies, predator control, the design and construction of fishway facilities and the operation of counting fences.

Detailing some of the hatchery work, he said: "Hatchery stocks are used in many short- and long-term experiments carried out with a view to improving fish culture techniques and procedures. The experiments with early- and late-run salmon are typical of these. The very preliminary results so far obtained in this experiment indicate that progeny from early-run fish produce early running salmon in spite of tremendous variables in river environment and, conversely, progeny from late-run fish produce late running adults.

Experimental plantings of hatchery stocks have shown, too, he continued, that it is practicable to reinforce natural smolt runs with plantings made before or during the normal season of smolt descent in the spring. The minimum size of the fish to be planted is from five to six inches; the seasons at which such procedures would be most useful are now under study. One interesting discovery is that artificially-reared three-year-old fish, introduced into a strange river system, will return to that stream after having been to sea.

The bird control experiments on the Northwest Miramichi, mentioned in Mr. MacLean's speech to the M.S.A., was next referred to by Mr. Clark, who said that the experiment had been extended. "Since 1957 we have had a co-operative investigation programme on the Margaree River in Cape Breton, Nova Scotia," he said. "The programme involves the Department of Fisheries, its Research Board and the Canadian Wildlife Service of the Department of Northern Affairs and National Resources."

On the subject of pollution, Mr. Clark said that Canadian salmon rivers had suffered to some extent, although so far not nearly as much as those below the border. He added: "It is very difficult to tell at just what point a stream reaches the stage at which it is impossible for salmon to live and grow to maturity. Pollution can be insidious. Very often the effects on a stream can go undetected until the danger point is reached, because anything that is foreign to natural water poses a threat. By itself it may be harmless, but when it is combined with other foreign matter -- tin cans, drainage from fields which have been treated with chemical fertilizer, a hundred and one things -- it might just tip the balance and the stream will be uninhabitable as far as salmon are concerned.

"The removal of forest cover can cause water levels to rise or drop or it can affect water temperatures, and temperature is all-important. Salmon, under test, have died in water approaching ninety degrees Fahrenheit. The food supply can be affected. Mining, dam building, road construction and lumbering operations can all have bad effects. The dumping of pulpwood in rivers can be harmful to stream beds as well as the water itself. Maybe the increasing use of trucks for moving wood will be a good thing for salmon, as it will reduce the historic and colourful log drives on the rivers which actually are a menace to the salmon."

In speaking of the danger of a possible misinterpretation of increased catches, the Deputy Minister warned against over-optimism. He said: "I know that last year's catches, both angling and commercial, seemed to be encouraging, but they should not be taken as a sign that the salmon is staging a spectacular comeback. The figures show that the commercial catch throughout the Maritimes has been increasing to some extent since 1955. Last year, for instance, it was up fifteen per cent over 1957. Let me also hasten to say that you sport fishermen also had a good year in 1958. But a careful study of all the factors involved shows, as the scientists point out, that heavier catches do not necessarily mean bigger populations. Favourable fishing conditions, such as the right kind of weather at the right times and right water levels at the right times, could have been responsible for fuller creels and nets.

"The evidence still shows that the decline in salmon stocks is continuing. For instance, on three New Brunswick rivers, the Miramichi, the Restigouche and the Saint John, the prediction is that salmon stocks this year will be about fifty per cent of normal, and the curves on the scientists' graphs are still pointing downwards for next year and the year after."

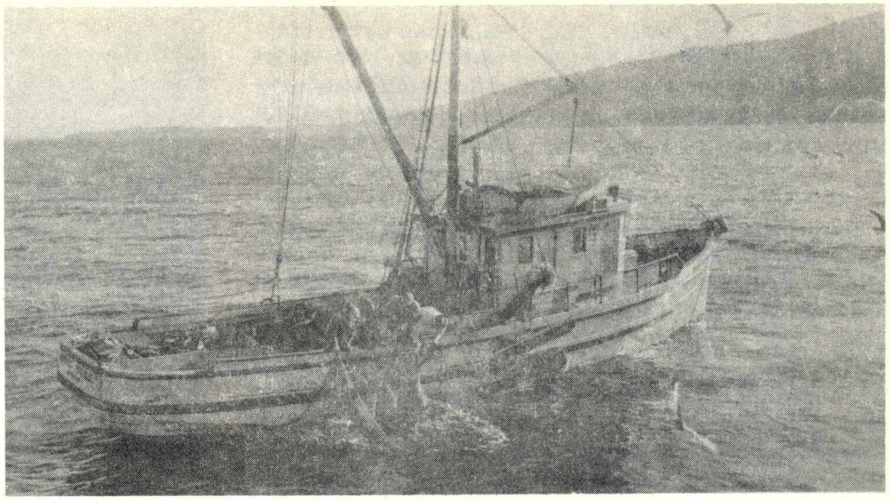
Mr. Clark stressed the importance of being conservation-minded, saying it was axiomatic that a true sportsman was a true conservationist. "The true sportsman does not estimate his catch in dollars and cents nor think of his fish as a food supply for the coming months.

"I should like to point out that there are practices which are of some concern to us. It is possible that those who follow those practices do not realize that they may be doing harm to the salmon. For instance if one angler catches the limit under the regulations and stays on the river for one month, he can take eighty-odd salmon. I realize, of course, that this is seldom, if ever, done. The point I am making is that you can catch quite a lot of fish under the regulations, but it is not necessary to take the full quota to get the full benefit out of fishing for the sport of it.

"Another of the practices I mentioned is that of using a barbless hook to play the fish until both fisherman and salmon are exhausted. In this case, of course, the fish gets away in the end, but that doesn't necessarily mean that it has been spared. Research work in British Columbia has shown that a fish which has used its fighting energy for some time, even if it is able to swim away on being released, may not be able to rid its body of the chemical which its strenuous activity has released into its blood stream, and it is likely to die within a few hours. The thing to do is to release the salmon as soon as possible -- don't play it too long or it will be just another dead fish."

Mr. Clark concluded with the statement that organizations such as the Atlantic Salmon Association could be of great value to research teams, and that he had no hesitation in asking for complete co-operation in understanding the need for regulations and in working to make secure the salmon resource of the Atlantic Provinces. ✔

Deep-Water Herring Fishery Indicated in Gulf of St. Lawrence As the Result of . . .



The single gear trawler "Phyllis Carlyle" with a catch of about one ton of herring in the codend of the net in Tumbo Channel.

Mid-Water Trawl Experiment

COMPLETION of a nearly two-months-long experiment with mid-water trawling for herring in the Gulf of St. Lawrence has satisfied its conductor that a deep-water herring fishery for such equipment exists in gulf waters. The conductor was Wesley W. Johnson, a Vancouver fisherman, who has been experimenting with mid-water trawling for the past ten years.

The gulf project was sponsored by the Industrial Development Service of the federal Department of Fisheries in conjunction with the Fisheries Division of the Department of Industry and Development of the New Brunswick Government.

Mr. Johnson did not catch any great amount of herring in the experiment but he caught sufficient to satisfy him that herring is there in abundance and that the mid-water trawl, with certain modifications, would be an efficient herring-catcher in the gulf.

Mr. Johnson's conclusions matched those of the Atlantic Herring Investigation Committee which thoroughly explored the herring potential in Maritime Atlantic waters from 1944 to 1950. A summary of its results was published in a Fisheries Research Board bulletin last year. It read:

"Fishing conditions and the concentration of fish were found unsuitable for purse-seining except in a few areas. However, other methods of fishing hold real promise. The work of the committee was followed up in 1950 and subsequently by exploration under the Fisheries Research Board. Bottom trawling produced catches as high as 2,800 pounds of herring per 90-minute drag but catches that large were not made consistently. The general picture of herring distribution as shown by the echo sounder suggests that an adequate mid-water trawl, when developed, will provide an efficient method of harvesting them."

Mr. Johnson's experiment was carried out in Gulf waters extending from Bonaventure Island off the Gaspe coast to the Northumberland Strait between Prince Edward Island and the island of Cape Breton in Nova Scotia. Orphan Bank, American Bank and the Miscou Flats were fished in the Gulf, and the greatest success was achieved in the latter area.

One of the handicaps in the experiment was the lack of a sufficiently sensitive recording instrument to pin-point herring schools. The boat used -- the "Dorothy & Rosalie," a 72-foot dragger skippered by Capt. Martin Chaisson, one of the high-line captains of the Caraquet dragger fleet -- was equipped only with conventional depth-recording apparatus. It was a single-phase recorder which records depths to 200 fathoms on a six-inch sheet. "It is too small a scale to show schools of herring," said Mr. Johnson. "It is not sufficiently sensitive to pick up fine schools."

Although more than 75 drags were made, the main catches were caught in six or seven tows. Nearly four tons of herring were caught in the small

number of drags. Few, and sometimes no herring were hauled in the majority of tows. Mr. Johnson attributed that situation to the inability of the detection apparatus to pick up schools of herring. One large school, however, was spotted. It extended over an area about 12 miles long. One of the largest single drags netted about a ton of herring. Unfortunately, one of the sweep lines broke as the trawl was being hauled in and the bulk of herring in the net escaped. "If that line hadn't broken," Mr. Johnson said ruefully, "We would have had a really big catch."

Mr. Johnson's log of his first five days' operation is of interest. In five drags on the first day 18 barrels of herring were caught. The log reads:

"First drag produced 1,500 pounds in mid-water with small indication on the recorder.

"Second drag produced 2,500 pounds on bottom with no indication on the recorder.

"Third drag was a mid-water haul. Recorder showed good in mid-water, but catch was on bottom.

"Fourth drag was in mid-water. It was all right on the recorder, but schools were passed. No herring. Fifty pounds of cod were caught.

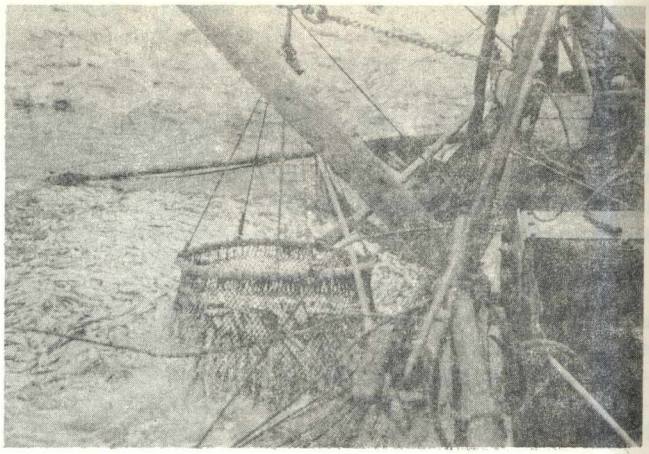
"Fifth drag in mid-water at night. Had we been luckier we could have doubled catch, but we were lucky in experience."

DESCRIPTION OF TRAWL

The mid-water trawl used by Mr. Johnson differs from the conventional otter trawl in a few important respects. It has a greater frontal working area than the conventional trawl. The mouth of the trawl is 30 feet by 35 feet, having greater vertical height and horizontal width than the rectangular-shaped opening of the ordinary trawl. It is 180 feet in length.

As opposed to the first type of mid-water trawl fished in British Columbia waters, the one used in the Gulf had a different hook-up. Lead lines of the first trawl rode on a plane four or five fathoms below the otter boards. In the newer design, the lines ride above the otter boards and keep the boards from snagging on the bottom. Instead of depressors, hydroplanes are used which help keep the trawl at a required depth. The new hook-up, said Mr. Johnson, gave the gear greater versatility.

Mr. Johnson's interest in herring trawling was spurred by the success of such operations by Danish and Swedish fishermen. That was in 1948. He began a study of the techniques used by European fishermen, and in 1951 he and an associate rigged a trawl and started herring fishing on the Pacific coast. Although their trawl was not too efficient, it caught herring anyway because there was a great abundance of herring that winter.



Brailing herring from the "zipper opening" after it is opened. A top section of the codend is actually opened up in a "zipper like" fashion and held opened by a series of outrigger and parallel poles and the starboard side of the trawler.

Innovations were made on the equipment and fishing was continued with a considerable degree of success. In 1954, the Industrial Development Service of the federal Department of Fisheries became interested in herring trawling and financial assistance was made available for carrying out experiments. W.E. Barraclough of the Nanaimo Biological Station of the Fisheries Research Board supervised the construction of the trawl to be used in the experiment. Since then the experiment has been carried on with varying degrees of success on the Pacific coast and, for the first time, was conducted on the Atlantic coast this year.

While agreeing that the mid-water trawl would never be as efficient as the purse-seine as a herring catcher, Mr. Johnson emphasized the high cost of purse-seining equipment made investigation into the efficiency of the trawl entirely feasible. More than that, he added, "I think the trawl is better than the purse-seine under certain conditions. I have encountered such conditions in Gulf of St. Lawrence waters. In such shallow water as 30 fathoms a purse-seine is apt to get hooked up on a rocky bottom".

Mr. Johnson believed that purse-seining in the Gulf waters he fished would be "shaky" at the best. However, he added, there should be fairly good fishing with gill nets, judging from the experiences he had encountered. "Gill nets," he said, "seem to catch herring when nothing else will."

The Vancouver fisherman said the greatest problem facing a herring fishery in the Gulf was the location of herring. "We must find them at their greatest abundance and on the grounds where this

abundance occurs. There are a lot more herring here than we imagine." He cited the case of the herring school extending along a 12-mile front as an example.

Finding of the fish hinged to a great extent on further experiments such as the one just concluded, Mr. Johnson contended. Little, he said, could be done in two months.

While there might be biological factors of which he was unaware, Mr. Johnson was satisfied there were great schools of herring in the Gulf. The main herring fishery in those waters so far, he noted, had been confined to inshore fishing in the spring when herring are caught when they come in to spawn. "There are some places where they school up, and those places we have to find."

Mr. Johnson described the trawl as the best possible tool for such survey work as he has conducted. "You can set the trawl on the bottom and even get herring when they are not recorded on the instrument we had on the Dorothy & Rosalie".

But for actual fishing under conditions he encountered, he said the gill net would be the most efficient gear to catch herring. That equipment, he said, could catch herring thinly-spread over wide areas and also herring near the surface.

The Vancouver fisherman said the efficiency of the trawl had been established definitely on the west coast, noting that "this particular net has taken great quantities of herring." The same gear, he claimed, could catch herring in commercial quantities, and cheaply too, once the schooling areas could be established.

TRAWL IMPROVEMENTS

Mr. Johnson said the Gulf experiment had given him some new ideas for improving the efficiency of the trawl. Reduction of otter board sizes would give more trawling speed and a finer twine for the trawl would mean that many more herring would be caught, he added. "I'd like to put more study to this. I would immediately try lighter netting in the trawl and I am sure that would be a great improvement."

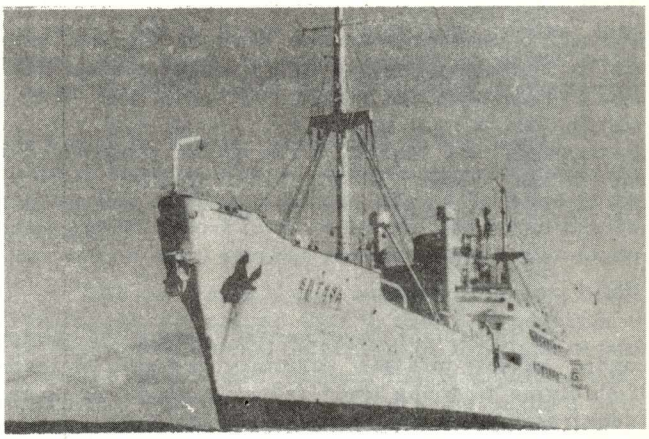
In addition to trawl improvements, Mr. Johnson said a fish-finding type of recorder would be a "must" in any further research. "We know the herring are there, but we must find out where they are if we are to catch them in commercial quantities."

Since the trawling experiment was started in British Columbia four years ago, the net has been modified three times and three different types of otter boards have been used. ✔

Russian Research Vessel

The large 5,500-ton Russian oceanographic research vessel, "Vityaz", (the English meaning is "Prowess") docked at Vancouver recently to refuel and take on provisions. This was the first visit by a Russian research vessel to Canadian Pacific waters since the last war. Canadian fishery scientists took full advantage of this most opportune occasion by taking part in a scientific seminar on the vessel at which time the Russian scientists reviewed their past and present programmes in fisheries and oceanographic research as well as outlining some of their plans for the future. The Fisheries Research Board of Canada, the Department's Scientific agency, reciprocated by inviting the officers and scientists of the "Vityaz" to visit the Board's Biological Station and Oceanographic Group at Nanaimo.

Russian scientists aboard the vessel conduct large scale studies in oceanography as well as observing physical, chemical, geological and biological processes that occur in seas and oceans. The purpose of these projects is to discover new ways to utilize the resources of oceans and seas in the interest of Soviet economy. Canadian scientists were impressed with the quality and quantity of the equipment and scientific work being performed on the vessel. The vessel has 13 scientific laboratories -- hydraulic, meteorologic, plankton, hydrochemic, etc.



The "Vityaz", which is a converted cargo diesel vessel, has been used since 1949 as a research vessel studying Far-Eastern seas and the Pacific Ocean. Some of the changes made possible by conversion besides the laboratories include a deep tank for reserve fuel, a platform built in the stern-holds housing an auxiliary electro-station and a refrigerator for stores.

The vessel is powered by a two-beat, non-compressor type diesel 3,000 h.p. engine. The "Vityaz" is capable of cruising 18,600 miles or 66 days at full speed. The ship has a crew of 73 and can accommodate 137 men if necessary.

Canadian Fisheries Production

May - December, 1958

AS INDICATED by the figures on page 15, the fishing year which began last May yielded poor results to the end of December for Atlantic fishermen, especially those in Newfoundland, but brought good fortune to the Pacific coast.

Newfoundland's salt cod output was the lowest on record. Cod, haddock, plaice, greysole, herring, mackerel, alewives and squid were scarce on all Atlantic fishing grounds. Unusually windy autumn weather hampered halibuting and lobstering. Even clam digging was cut short by the ice of an early winter. The federal government's winter works programme was intensified on the east coast to alleviate serious economic conditions in many fishing communities.

British Columbia fishermen landed the largest sockeye salmon catch in fifty years and very heavy quantities of fall herring. With the rising unit prices that prevailed on both coasts, individual incomes on the Pacific were at record levels.

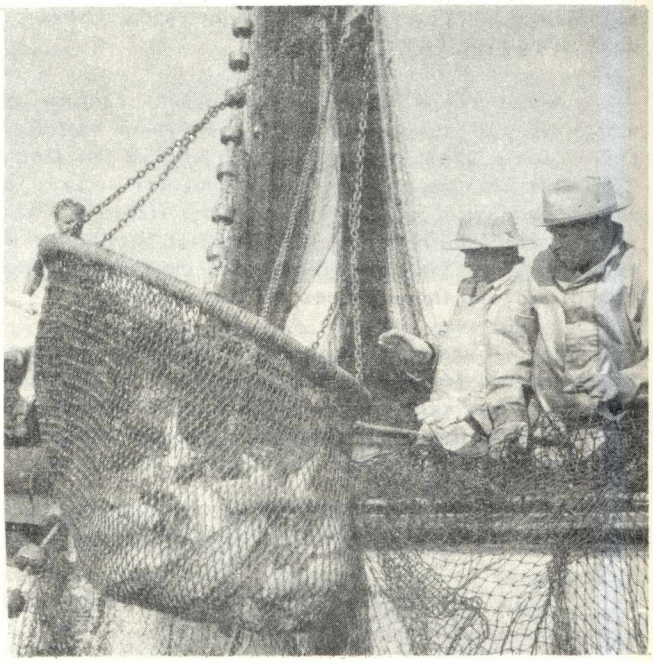
Value of Canada's fishery exports during the May-December period was $20 million higher in 1958 than in 1957. Sale of the entire canned sockeye pack to British buyers and heavy exports of canned pink salmon accounted for much of the increase. Also, fresh or frozen products from both coasts were sold in greater volume and at better prices.

At the end of December, stocks of salted and pickled fish were low but, largely because of heavy supplies of frozen dressed salmon and salmon steaks on the Pacific coast, total frozen stocks were about two million pounds heavier than a year earlier.

An important development during the period under review was the voluntary decision of many fish firms to bring their freezing plants up to the requirements of the Canadian Government Specifications Board, thus earning for their products the right to use the maple-leaf shaped stamp marked "Canada Inspected" in the case of frozen fish or "Processed under Government Supervision" in the case of fresh fish. The programme goes into effect April 1, 1959.

GROUNDFISH

The groundfish industry on the Atlantic coast continued through September and October in the general pattern of scarce fish, good markets and rising prices established during the summer. Through November and December fishing was curtailed by the weather.



Brailing salmon on B.C. purse-seiner

Cod and haddock continued to be scarce through the early fall on both Grand and Nova Scotia Banks. By the end of December, after eight months' fishing, cod landings from all areas were down 131 million pounds or 22 per cent from the previous year and the decline in the haddock catch, also 22 per cent, amounted to 14 million pounds. Because of higher unit prices, however, the decrease in value was only 17 per cent in the case of cod and four per cent in haddock. Other similar species seemed to be present on the Banks in their usual quantities. They produce catches which are relatively small but which this year increased under heavy fishing: the pollock, hake and cusk by 20 per cent; redfish by 30 per cent. Thus the total catch of cod and other species just mentioned declined by only 16 per cent in quantity and 10 per cent in value.

With flatfish added, total landings of all Atlantic groundfish were less than those of the previous year by 14 per cent in quantity and nine per cent in value. The halibut catch was 17 per cent smaller, but rather because rough weather interfered with longlining than because of any apparent scarcity; and fishermen's income from this source remained about the same. Plaice and greysole were less plentiful than in the previous year, small mixed flatfish more plentiful.

Vessel captains believed that, in line with the usual pattern, supplies of cod and haddock increased

on the Banks after reaching their annual low point in October. Storms so reduced the later fishing effort that total landings continued to decline steeply but individual catches increased and showed a growing proportion of these two important species.

Throughout the fall many fresh fish plants in both the Maritime Provinces and Newfoundland operated at less than capacity for lack of supplies. The market for fresh and frozen fish, fillets and blocks had been good all summer and improved in the autumn. Shipments of haddock fillets and blocks dropped by 40 per cent, reflecting the scarcity of this species, but a larger than usual proportion of available cod was diverted to freezing and total exports of fresh and frozen groundfish products actually declined by only about two per cent. With rising prices, their dollar volume expanded somewhat.

November saw the beginning of bonus prices when fleets out of ports in the Gulf of St. Lawrence began to lay up for the winter and plants with backlogs of unfilled orders offered extra payments to keep them fishing. By January 1 the larger firms throughout the Atlantic Provinces were offering premium prices for fancy quality fresh fish.

The salting industry was more crippled than the freezing industry by scarcity of cod. Newfoundland produces most of the supply for salting and it was there that the fishery had failed. Because of this known failure, foreign buyers began even in December to secure supplies for Lenten sales. In spite of efforts to meet this unusually heavy year-end demand, salting plants fell behind their previous year's shipments.

MARITIME PROVINCES

The groundfish industry in the Maritime Provinces suffered less from the cod scarcity than plants in Newfoundland. A good run of cod in the Gulf of St. Lawrence during the summer had been intensively fished. Also, with better supplies of other groundfish, the three more southerly provinces are always less exclusively dependent on cod. Their overall production of fresh and frozen products was maintained at normal levels. Their salting industry, however, reflected the reduction in supplies of saltbulk fish from Newfoundland.

The lobster, herring and smelt fisheries were active through the fall.

A profitable lobster season in Northumberland Strait closed early in October. The Bay of Fundy opened soon after and at the beginning of December the open area was extended around southern Nova Scotia to Halifax. Very high landed prices encouraged intensive fishing early in the fall and induced many lobstermen to leave their gear in the water during the stormy later months. Trap losses consequently were rather heavy. Initial catches were excellent in newly opened areas. Although, as usually happens, landings dropped rather steeply after the early heavy catches, the total fall catch was heavier and much more valuable than in 1957 and, after a rather disappointing summer, brought May-December figures almost up to those of the previous year in quantity and well ahead in value.

Herring fishing was poor in the Gulf of St. Lawrence in September but excellent off southern Nova Scotia in October. By November catches were dropping, weather was unfavourable, and fishermen's attention turned to preparations for winter lobstering. With a good demand for herring all fall at bait freezers and pickling plants, landed prices were higher than in the previous season. Canned sardine production was at the low level normal for the latter months of the year, with adequate canned stocks on hand and shipments going out regularly to meet steady market demand.

Early heavy ice formation in Northumberland Strait favoured the smelt bagnet fishery and the catch to the end of December was considerably ahead of the previous year.

Total landings in the Maritimes and Quebec of all species, including groundfish, were 44 million pounds smaller for the May-December period than they had been in 1957 but more valuable by $1.3 million.

NEWFOUNDLAND

In Newfoundland, where cod provides by far the largest and most valuable catch, the scarcity of this species created serious problems. The cod trap fishery, after a good beginning, ceased at the end of July when the schools moved offshore much earlier than usual. Fishermen then turned to the trawl fishery, which was a failure. Non-appearance of squid resulted in severe shortage of bait but the cod failure was due to shortage of fish on the grounds.

With an excellent summer market, more freezing plants opened than in 1957. Production of cod fillets and blocks increased slightly and output of redfish, plaice and greysole fillets expanded substantially. Prices rose a little and remained firm through the fall.

Heavier frozen production left little cod for saltfish, production of which fell off by 35 per cent (light dry weight basis) to the lowest output on record. In Notre Dame and Bonavista Bays less than half as much was produced as in 1957. On the Labrador coast where fishing was much better but weather much worse than elsewhere, output of salted fish dropped by only 10 per cent. Although there was a halt this year in expansion of Newfoundland's mechanical drying facilities, there was a further increase in the proportion of saltbulk dried on the Island. Shipments of saltbulk to the Canadian mainland declined considerably.

In spite of a substantial carryover from 1957 production, demand for light-salted fish exceeded the supply. This maintained export prices and brought prices to fishermen gradually up to the previous year's levels. Brazil came back into the salt fish market during the fall, after an absence of several years. Stocks on hand at the end of December were very much smaller than a year earlier and it was plain that there would be no significant carryover into the 1959 fishing season.

The fall herring fishery on the west coast yielded a much smaller catch than in 1957. Large schools of herring were present, but often in locations where seining was difficult or impossible. Windy weather and early appearance of ice on the fishing grounds were further adverse factors. The smaller fall fishery in Placentia Bay on the south coast was fairly profitable to local fishermen because of good landed prices. Markets were steady for both pickled herring and bait.

The mackerel fishery was a failure. Seventy-seven barrels of pickled mackerel fillets were produced, compared with 710 barrels in the previous year.

Salmon landings increased by five per cent but their value by only two per cent, as lower prices were paid on the Labrador coast and on the Southern Shore. About 80 per cent of the catch was marketed fresh or frozen, there was a substantial increase in output of pickled salmon and the balance was canned.

Lobstering was on the whole more successful than in 1957, with heavier landings on the east and south coasts more than offsetting a slight decline in yield of the important west coast fishery. Most of the lobsters were exported alive to the United States. Experimental use of wood shavings for packing for air transport gave promising results. Production of canned lobsters continued to decline. As already indicated in relation to groundfish, the squid fishery was a complete failure.

Turbot landings increased by half in value and by more than half in quantity. Most of the catch was taken in western Notre Dame Bay, one of the areas most seriously affected by the cod scarcity. Following the usual routine, the fish was pickled and shipped to the Canadian mainland. Although the average of landed prices had dropped, reflecting the heavy catch, there was a steady market for the pickled product and these shipments saved a considerable number of Notre Dame Bay communities from destitution.

Decline in Newfoundland's forest industry in 1958 caused an increase in the number of men who engaged in fishing. The meagre returns of the latter industry therefore had to be divided among more persons so that the average of individual incomes was very low. When the bait shortage became apparent, the federal Department of Fisheries co-operated with the larger fishing firms to locate, import and distribute bait from Nova Scotia, California, New England and Europe. At the time, this bait only proved that the cod scarcity was real and continuing; but enough of it remained on hand to keep the fishermen adequately supplied until the 1959 squid fishery commences.

As winter approached, many fishermen had not sold enough fish to qualify for unemployment insurance benefits. Late in the year the Minister of Fisheries announced that, as part of the winter employment programme across Canada, twenty community fishing stages would be built in Newfoundland. Before the end of December his Department was co-operating with the Department of Public Works in the first phases of the project.

PACIFIC COAST

For Pacific fishermen 1958 was a banner year. The salmon pack amounted to 1,908,000 cases of which 1,079,000 cases were sockeye, while pinks accounted for 456,000 cases and chums for 229,000 cases. The sockeye pack was just short of the all-time record. As noted in the October issue of Trade News (page 12), the United Kingdom lifted currency controls from its salmon imports September 18 and on the following day British interests bought the entire sockeye pack, except 300,000 cases reserved for the domestic market, for $26 million. The salmon fishermen's gross income was estimated at between $35 million and $36 million, about double the 1957 figure.

The salmon seine and gillnet fisheries closed in October but chum salmon were still so plentiful on the fishing grounds in November that brief re-openings were permitted. Largely because of bad weather, results were poor. The weather also brought a continuing light salmon troll fishery to a virtual standstill.

A longshoremen's strike, which threatened to interfere seriously with autumn fisheries, was settled September 24 after the men had been out for about a month.

A record summer herring catch of 85 million pounds landed in 1957 was far surpassed last summer when a spectacular new record of 142 million pounds was established. As usual, the fleet tied up for a two-week period in October and then started the winter fishery. Record landings continued. Herring, which are fished under quota control, were so abundant that many local quotas were extended. By December rough weather in Hecate Strait seriously hampered seining but before operations were broken off for the Christmas holidays the vessels had landed a further 202 million pounds. Most of the Pacific herring catch goes to reduction plants, which sometimes operated round the clock to keep up with receipts.

(Continued on page 14)

Canadian Fisheries News

Maritimes Area Meeting

Few aspects of the fisheries in the Maritimes were left untouched during the five-day annual meeting of the Department of Fisheries, Maritimes Area, which convened in Halifax early in February.

Senior officers from the department's Ottawa headquarters and scientists of the Fisheries Research Board of Canada participated in the meeting with Area Director Loran E. Baker and his field representatives from the three provinces.

Two days each were devoted to the Conservation and Development Service and the Consumer and Inspection Service. Directing discussions by the former group was E.B. Young, Assistant Director of the Service. Co-operating with him was Forrest Watson, Chief Protection Officer for the Maritimes.

H.V. Dempsey, Director of the Inspection and Consumer Service, Ottawa, and Ross E.S. Homans, Chief Inspection Officer for the Maritimes Area, conducted the meetings of that branch. All phases of this Service's work were reviewed, with particular emphasis on the new Canadian Government Inspection specifications which come into effect April 1.

A comprehensive break-down of administrative operations was given by J.J. Lamb, Director of Administration Service, Ottawa. On hand to give advice on matters affecting departmental legal matters was Solicitor M. J. Ellsworth, of the department's Legal Service, Ottawa.

An interesting highlight of the Protection Branch meetings was Mr. Watson's figures showing prosecutions for fisheries violations. In the three provinces 744 fishermen were prosecuted, as compared with 718 in the previous year. New Brunswick had 198 prosecutions last year, including 94 for lobster fishing violations. Prince Edward Island prosecutions -- all involving lobstering violations -- totalled 155 with convictions in all but two cases. Nova Scotia recorded 391 fishing offences, 242 of which were for illegal lobster fishing. There were convictions in all but 11 of Nova Scotia's cases involving lobsters.

Total fines levied in the Maritimes last year were $14,800 as compared with $12,400 in 1957.

The Department of Fisheries in Nova Scotia also conducted two successful prosecutions against two Canadian deep-sea trawlers for violating the International Commission for the Northwest Atlantic Fisheries regulations. These regulations provide for specific mesh sizes for groundfish operations on the fishing banks.

Touching on the important lobster fishery which put more than $12,000,000 into the pockets of Maritime fishermen last year, Mr. Young suggested that more education as well as rigid enforcement was required to conserve this important fishery. The Ottawa official emphasized that the Minister of Fisheries appreciated fully the problems of enforcement and that their work had his full support.

A report on the work of the Fish Culture Branch was given by the Regional Supervisor of Fish Culture, Murray Butler, Saint John. The report had special reference to the problem of stream pollution which is becoming more acute each year.

SALMON, ALEWIVES, SMELT

Dr. J. L. Hart, Director of the Research Board's Biological Station at St. Andrews, N. B., covered the salmon and alewives fisheries in his brief talk. The alewives fishery was important to the commercial fishermen, he noted, but added there was no indication it was over-exploited at the present time.

Another member of the St. Andrews station, R.A. McKenzie, reviewed the smelt fishery in the Maritimes. The catch had dropped to less than half of what it was 40 years ago. While natural predators took their toll, obstructions on spawning streams had much to do with the decrease in smelt population, he said.

The care and shipping of live lobsters was the topic discussed by Dr. D. W. McLeese, of the St. Andrews station's biological staff, while Dr. F.D. McCracken, also a biologist at St. Andrews, discussed the groundfish fishery of the northwest Atlantic.

Dr. R. R. Loggie and H. R. Found, of the shellfish station at Ellerslie, P.E.I., reviewed the success attending the current programme of oyster rehabilitation in Nova Scotia and New Brunswick. The Department of Fisheries will conclude a three-year oyster transplant programme this year.

The project calls for the transfer of 10,000 barrels of disease-resistant P.E.I. oysters to infected beds in the two sister provinces.

Mr. Baker was general chairman of the five-day sessions, which were held in the department's area headquarters at Halifax.

Vancouver Aquarium

The immense popularity of the Vancouver Public Aquarium as a civic institution is reflected in the annual report for 1958 of the Vancouver Public Aquarium Association. This shows that during the year the aquarium had 293,861 visitors. Of this total 175,278 were adults and 118,583 were children. During last summer the aquarium co-operated with the federal Department of Fisheries in the preparation of a centennial exhibit on the three main fisheries of British Columbia. Herring were

A few of the many thousands who visited the Vancouver Aquarium during 1958

featured in July, halibut in August and salmon in September. These displays were seen by 136,803 visitors.

A great variety of new specimens were obtained for the permanent displays, including a 105-pound skate, leopard sharks, stingrays and many tropical marine fish. The laboratory facilities of the aquarium were extensively used during the year and five public lectures of exceptionally high quality were presented by the association.

Small Boat Refrigeration

The use of refrigerated sea water for the preservation of newly caught fish, developed by scientists and engineers of the Fisheries Research Board of Canada, can now be adapted to small fishing vessels.

Installations were made in two steel vessels built in British Columbia during 1958. In their construction the engineering staff of the Board's Technological Station at Vancouver worked in collaboration with a naval architect and the shipbuilders to develop overall plans and equipment layouts which give the vessels considerable versatility. As a result it was proved that refrigerated sea water can be applied to a vessel with little hindrance to its main function of catching fish.

Most important of the new and interesting features of one of these vessels was the installation of double-walled steel tanks for preserving fish in refrigerated sea water without reducing its normal holding capacity.

This vessel is primarily a salmon troller but it has also operated successfully as a seiner and as a fish packer. In addition, it can be used for crabs, which can be brought to port alive in the tanks. Furthermore it can easily be employed for long-line halibut fishing or for use as a trawler.

A refrigerated sea water installation for a salmon cannery, completed in 1958, has given a successful practical demonstration of the suitability of this medium for refrigerating large quantities of salmon for short-term holding. The chilling of whale meat by this method is being investigated on the Pacific Coast.

The suitability of refrigerated sea water in Atlantic coast fisheries is being assessed on that coast.

FISHERIES PRODUCTION . . .

(Continued from page 12)

Markets for both herring meal and herring oil were rather slow.

Halibut had been plentiful during the spring fishery, which opened in May. In spite of bad weather on the fishing grounds, the catch had almost equalled that of the previous year and with markets steadier and prices higher its landed value had been greater by about $1.0 million. The fall season consisted of two weeks of fishing in Hecate Strait in September. Results were about average and in terms of fishermen's income the lead over the previous year was maintained.

Groundfish landings were light for various reasons. Early in the fall fishermen were preoccupied with salmon. In November individual trawler catches were considered good for the time of year but weather permitted very little fishing. By December receipts at Vancouver had dropped so low that local firms were importing fillets from the United States for the domestic market.

Shellfish were in good demand throughout the fall months and markets strengthened as the holiday season approached but weather was consistently unfavourable to these fisheries, especially on the west coast of Vancouver Island, where they are normally active. A shrimp trawl fishery in the Nanaimo-Ladysmith area was one of the more successful efforts.

Fishery Figures For December

SEAFISH: LANDED WEIGHT AND LANDED VALUE

	May-Dec., 1957		May-Dec., 1958	
	'000 lbs	$'000	'000 lbs	$'000
CANADA - TOTAL	1,475,645	67,845	1,591,984	88,606
ATLANTIC COAST - Total	1,183,212	42,153	1,029,798	41,327
Cod	598,365	13,767	467,684	11,425
Haddock	63,471	2,123	49,628	2,043
Pollock, Hake & Cusk	58,942	1,106	71,158	1,276
Rosefish	44,369	977	56,851	1,370
Halibut	5,090	1,143	4,204	1,080
Plaice & Other Flatfish	73,666	2,279	71,839	2,260
Herring & Sardines	206,676	2,365	191,765	2,542
Mackerel	18,720	741	15,435	803
Swordfish	5,179	1,341	5,182	1,388
Salmon	2,936	1,026	3,383	1,212
Smelts	1,739	233	2,476	365
Alewives	11,077	152	8,735	122
Other Fish	33,571	421	30,321	491
Lobsters	40,685	12,781	39,372	13,390
Clams & Quahaugs	5,873	280	4,401	208
Scallops	2,651	1,000	2,669	1,003
Other Shellfish	10,202	418	4,695	349
PACIFIC COAST - Total	292,433	25,692	562,186	47,279
Pacific Cods	9,086	666	6,803	463
Halibut	22,054	3,611	22,264	4,603
Soles & Other Flatfish	5,680	318	5,590	285
Herring	114,289	1,895	343,790	5,692
Salmon	131,099	18,541	174,743	35,558
Other Fish	3,255	88	2,203	67
Shellfish	6,970	573	6,793	611
BY PROVINCES				
British Columbia	292,433	25,692	562,186	47,279
Nova Scotia	349,825	17,206	360,216	17,954
New Brunswick	173,071	6,354	148,279	6,799
Prince Edward Island	39,177	3,370	37,103	3,514
Quebec	126,570	3,410	98,692	3,398
Newfoundland	494,569	11,813	385,508	9,662

MID-MONTH WHOLESALE PRICES, Dec., 1958

		Montreal $	Toronto $
Cod fillets, Atl. fresh, unwrapped	lb.	.314	.357
Cod fillets, Atl. frozen, cello 5's	lb.	.280	.303
Cod fillets, smoked	lb.	.341	.380
Haddock fillets, fresh, unwrapped	lb.	.413	.453
Herring kippered, Atl.	lb.	.248	.292
Mackerel, frozen, round	lb.	.227	.285
Lobsters, canned, Fancy	case 48-½s	41.01	41.99
Sardines, canned	case 100-¼s	9.04	9.01
Halibut, frzn., dr.	lb.	.396	.388
Silverbright, frzn., dr.	lb.	.448	.437
Coho, frozen, dr.	lb.	.624	.600
Sockeye, canned, gr. A	case 48-½s	22.16	21.63
Pink, canned, gr. A	case 48-½s	12.76	12.94
Whitefish, fresh	lb.	.412	.365
Lake Trout, frozen	lb.	.441	.442

PRICES PER CWT. PAID TO FISHERMEN

(Week ending Dec. 20th)

	1957 $	1958 $
Halifax		
Cod steak	3.75	4.00
Market Cod	3.25	4.00
Haddock	6.00	6.00
Plaice	3.25	3.50
Yarmouth		
Haddock	6.00	8.00
Black's Harbour		
Sardines	-	-
St. John's, Nfld.		
Cod	2.00	2.25
Haddock	3.00	2.00
Rosefish	2.00	2.00
Vancouver		
Ling Cod	10.00-13.50	12.00
Gray Cod	4.00- 6.00	4.00-5.00
Soles	8.00- 9.00	6.00-8.00
Salmon(Rdspg.)	23.00-28.00*	35.00**

* small ** mixed

Fishery Figures For December

STOCKS AS AT END OF DECEMBER

		1957	1958
		'000 lb	'000 lb
TOTAL - Frozen Fish, Canada		52,643	54,848
Frozen-Fresh, Sea Fish - Total		33,518	37,528
Cod Atlantic, fillets & blocks		4,035	2,810
Haddock, fillets & blocks		1,211	1,761
Rosefish, fillets & blocks		1,778	2,158
Flatfish (excl. Halibut), fillets & blocks		2,610	2,981
Halibut Pacific, dressed & steaks		6,624	7,284
Other Groundfish, dressed & steaks		3,150	1,938
Other Groundfish, fillets & blocks		2,985	2,299
Salmon Pacific, dressed & steaks		5,707	9,895
Herring Atlantic & Pacific		740	2,190
All Other Sea Fish, all forms		2,960	3,126
Shellfish		1,718	1,086
Frozen-Fresh, Inland Fish - Total		6,697	7,458
Perch, round or dressed		293	627
Pickerel (Yellow), fillets		530	221
Sauger, round or dressed		124	159
Tullibee, round or dressed		389	404
Whitefish, round or dressed		1,622	1,214
Whitefish, fillets		700	936
Other, all forms		3,039	3,897
Frozen-Smoked Fish - Total		2,244	1,449
Cod Atlantic		969	481
Sea Herring, kippers		746	703
Other, all forms		529	265
Frozen for Bait and Animal Feed		10,184	8,413
Salted and Pickled Fish, Atl. Coast			
Wet-salted - Total		43,455	28,726
Cod		35,889	19,195
Other		7,566	9,531
Dried - Total		29,750	20,331
Cod		28,527	18,728
Other		1,223	1,603
Boneless - Total		525	737
Cod		503	615
Other		22	122
Pickled - Total	(barrels)	32,508	24,405
Herring	"	22,583	7,567
Mackerel	"	1,360	6,203
Alewives	"	8,463	10,529
Turbot	"	102	106
Bloaters	(18 lb boxes)	228,755	160,147
Boneless Herring	(10 lb. boxes)	5,115	5,408

CANADIAN EXPORT VALUE OF FISHERY PRODUCTS, MAY- NOVEMBER

(Value in Thousands of Dollars)

			1957	1958
Total Exports			85,490	105,486
By Markets:				
United States			63,386	69,257
Caribbean Area			9,892	9,147
Europe			10,118	25,194
Other Countries			2,094	1,888
By Forms:				
Fresh and Frozen			54,297	60,709
Whole or Dressed	19,586		24,588	
Salmon, Pacific	4,487		7,988	
Halibut, Pacific	2,329		3,069	
Cod, Haddock Pollock, etc.	423		470	
Swordfish	1,807		1,762	
Other Seafish	2,850		2,833	
Whitefish	3,133		3,221	
Pickerel	1,734		1,791	
Other Freshwater fish, n.o.p.	2,823		3,454	
Fillets	22,201		23,882	
Cod, Atlantic	8,223		9,618	
Haddock	3,094		2,024	
Rosefish, Hake, Pollock, etc.	1,698		2,604	
Flatfish	3,435		3,701	
Pickerel	2,533		1,878	
Other	3,218		4,057	
Shellfish	12,510		12,239	
Lobster(Alive & Meat)	11,126		11,037	
Other	1,384		1,202	
Cured		13,841	12,653	
Smoked	802		871	
Herring	483		608	
Other	319		263	
Salted, Wet & Dried	10,877		9,999	
Cod	9,409		8,659	
Other	1,468		1,340	
Pickled	2,162		1,783	
Herring	1,105		969	
Mackerel	663		294	
Other	394		520	
Canned		11,979	27,335	
Salmon, Pacific	8,524		23,979	
Sardines	1,332		1,515	
Lobster	1,858		1,585	
Other	265		256	
Miscellaneous		5,373	4,789	
Meal	2,651		1,817	
Oil	486		568	
Other	2,236		2,404	

Fisheries News From Abroad

How the U.S. Fisheries are Faring

In their widening search for food fish, vessels of the United States commercial fishing fleet today are dispatched to waters thousands of miles apart and increasingly distant from home ports. Seiners of the Northwest comb the North Pacific for salmon. Yankee trawlers drag the Grand Banks of the northwest Atlantic for cod and haddock, and the sleek clippers of the California tuna fleet travel far down the Pacific coast of South America to set their lines for yellowfin.

Despite these ambitious voyages, however, the domestic fishery has in recent years been falling short in its attempts to meet the growing demand for fish brought on by a steady increase in population. Imports of fish for human consumption have been rising and last year reached a new record in value.

Only in that other segment of the fishery given the general name of "industrial" catch, has this country, through increased production, remained more or less self-sufficient.

FOOD-FISH LANDINGS DECLINE

A look at the record of the last ten years shows that the U.S. catch of fish for human food had dropped by 500 million pounds, but the catch for industrial use has gone up by 900 million pounds. This means a net gain of 400 million pounds but only a $43-million increase in the total value of landings because of the greater proportion of "cheap" industrial fish.

Revised figures for the 1957 catch place total landings at 4.75 billion pounds, worth $351 million at an average price of 7.39 cents a pound. The catch for human food accounted for 2.52 billion and the catch for industrial products for 2.23 billion pounds of the total.

The 1957 catch, however, slipped by 500 million pounds from the record of 5.25 billion pounds set in 1956, chiefly because of the 500-million-pound decrease in menhaden landings, which reached an unprecedented 2.10 billion pounds the year before. Because the menhaden, a noted sea-rover, makes up about 80 per cent of the industrial catch and his equally itinerant relatives in the herring family a good deal of the remainder of it, it is not surprising that there are wide fluctuations in this catch from year to year.

COMPLEX PROBLEMS LIMIT PRODUCTION

The problems facing the domestic fishery, and especially the food fishery, cannot be traced to any one factor as simple and direct as the peregrinations of the herring schools.

A witness before a congressional committee recently provided this list of reasons for the decline in the domestic catch: "changes in water temperature, over-fishing, diminution of food in the sea, changes in currents, pollution, labour problems, weather, mysterious disappearance, and the many vagaries of nature". Doubtless this list is not complete -- nor was it probably intended to be. Nevertheless, it points up the Herculean task of those dedicated to boosting production through any but the most uneconomic measures.

The exporting countries that look to the United States as a place to sell many of their food-fish products see in the statistics on the long-run decline in domestic production reason to expect that this under-supply will continue. As the following table shows, recent landings of important species have fallen far below record. Furthermore, the considerable time that has passed since many of these records were set and the fairly steady downgrade of these species ever since (in spite of the fairly large sums of money which have been spent looking for solutions to their problems) strongly suggest chronic ailments not likely to be cured quickly.

U.S. AND ALASKA LANDINGS AND COMPARISONS

Species	Landings million lbs 1956-1957		% Change from 1956	Change from record year
	1957	1956		
Menhaden	1,700	2,100	-20	-20 (1956)
Tuna	296	329	-10	-24 (1950)
Salmon	257	324	-21	-67 (1936)
Sea Herring				
Maine	154	140	9	-17 (1950)
Alaska	118	107	10	-55 (1937)
Shrimp	204	224	- 9	-24 (1954)
Groundfish	338	368	- 8	
Cod	33	35	- 5	-90 (1880)
Haddock	133	152	-12	-55 (1927)
Hake	6	6	-12	-85 (1929)
Ocean Perch	133	151	-12	-49 (1951)
Pollock	32	23	39	-22 (1938)

Expressed in absolute terms, the haddock catch in 1957 was 135 million pounds less than the record landings of 1927. Similarly, the cod catch last year was down 275 million pounds from record, salmon down 500 million, ocean perch 125 million,

lake whitefish 100 million, and lake trout 13 million. On the Pacific coast the sardine catch, that in the halcyon days went as high as one billion pounds, last year totalled only 40 million.

U.S. LEADING FISH IMPORTER

In the face of the shortfall of production at home, the U.S. in 1957 was again the world's leading importer of fisheries products and these imports reached a new record of $297 million (at the foreign port of shipment). This represents an increase of 4 per cent above 1956 and 50 per cent above 1950.

About 59 per cent of the groundfish used in the United States last year, 36 per cent of the tuna used in canning, 16 per cent of the canned tuna, 42 per cent of the lobster, 35 per cent of the shrimp, 14 per cent of the canned salmon and 24 per cent of the fishmeal were imported. Canada, the best customer for United States fisheries products, was the principal supplier in 1957.

Although the value of imports was higher than ever in 1957, the volume, at 1.10 billion pounds, was only the second highest on record next to 1952. The greater value is explained, however, by the fact that last year products imported for food purposes predominated, reaching 884 million pounds and representing an increase of 100 million pounds over 1956. They were worth $251 million, some 84 per cent of the total value of fish products imports. The volume of non-food products fell to 46.5 million pounds, the lowest since 1950, and they were valued at only $46.5 million.

As the primary source, Canada supplied fisheries products valued at $97.4 million (at port of shipment) an increase of about $2 million from 1956. Frozen fillets, frozen and canned salmon, lobsters, fresh-water fish and fishmeal were some of the important items shipped to the U.S.

Of total imports of fresh and frozen groundfish fillets and blocks -- the third most important commodity group, following lobsters and shrimp in value -- Canada provided some 108 million pounds, or 76 per cent.

The second largest supplying country, Japan, increased the value of sales to the U.S. by $6.5 million last year. Shipments from Mexico and Norway were each down in value by $2.5 million.

FISH EXPORTS FALL

The increase in value of fishery imports into the U.S. in 1957 was paralleled by a decrease in value of exports to $36 million, down $4 million from 1956.

Canada became the best customer for United States fisheries products and increased her purchases to more than $8 million -- some 22 per cent of total U.S. fisheries export sales. Frozen and canned shrimp, valued at nearly $5 million, were the principal items in this trade.

Shipments to the Philippines, leading buyer in 1956, were down by $2 million to $6 million, chiefly because of smaller sales of canned sardines.

West Germany, the principal market for U.S. fish oils bought $5.1 million worth of fisheries products, about $1 million less than the year before.

PRODUCTION STEADY, DEMAND UP

With the early part of the winter season still to go, the Bureau of Commercial Fisheries estimated that total landings for 1958 would be almost identical with the 4.75 billion pounds of 1957. The only significant changes forecast were possible decreases of some 60 million pounds in the menhaden catch and 35 million in sea herring. Both of these declines would be more than offset by an expected increase of 120 million pounds at least in the Pacific sardine harvest. Among some of the minor species, jack mackerel for example, landings to date indicate varying decreases. Except for a sizable increase over 1957 in the canned salmon pack, output of the other important species should not differ greatly.

Holdings of food fish, sea fish in particular, were running about parallel with 1957, although the frozen portion was slightly higher and the fresh slightly lower. Prices were good. In September the wholesale price index of fresh, frozen and canned fish and shellfish stood at 130.1 per cent of the 1947-49 level, or 8.4 per cent higher than a year ago. The increase was particularly large in prices of fresh and frozen fillets. The fresh haddock fillet price, for example, was up 36.7 per cent.

The population of the United States is increasing at the rate of about 225 thousand a month and during October passed the 175 million mark. Per capita consumption of fish in the U.S. has remained steady during the last two years at 10.2 pounds. The consumption of fresh and frozen fish and shellfish rose one-tenth of a pound a person at the expense of canned products, which declined the same amount.

In view of these facts, the demand for fisheries products, fresh and frozen ones in particular, may be expected to rise in proportion to the population increase. And, because domestic production is likely to merely hold its own, in the short run at least, the need for imports should continue to grow.

The foregoing article, by W. Adair Stewart, is reprinted from "Foreign Trade," published by the Department of Trade and Commerce, Ottawa.

Current Reading

"A Checklist of the Freshwater Fishes of Canada and Alaska," by W.B. Scott, (Royal Ontario Museum, Division of Zoology and Palaeontology, Toronto, Canada. $0.35).

The last checklist of the freshwater fishes of Canada was written by Andrew Halkett and published in 1913. Halkett's checklist included the marine and freshwater fishes of "British North America." Since the publication of the list, knowledge of the freshwater fish fauna has increased as a result of the numerous regional works that have been published. Other distributional records have been published in a variety of scientific journals, many of which are not available except in large libraries. This publication brings together all these scattered records.

"Fishery Statistics of the United States, 1955," by A.W. Anderson and E.A. Power, (United States Fish and Wildlife Service. Statistical Digest No. 41. For sale by the Superintendent of Documents, U. S. Government Printing Office, Washington 25, D.C. $2.00).

The statistics in this 446-page volume include data on the volume and value of the catch of fishery products, employment in the fisheries, quantity of gear operated, number of fishing craft employed in the capture of fishery products, and certain information on the volume and value of manufactured fishery products and byproducts.

The 1955 total catch of fishery products in the United States and Alaska amounted to approximately 4,794,281,000 pounds with a dockside value of $335,778,000. Compared with the previous year, this catch represented an increase of 52.4 million pounds or one per cent in volume but a decrease of 19.9 million dollars or six per cent in value. The average price of fishery products paid to the fishermen decreased from 7.5 cents per pound in 1954 to 7.0 cents per pound in 1955, due mainly to increases in the catches of fish for industrial uses and lower prices received for haddock, halibut, tuna and other food-fish items. Many of the major fisheries recorded marked decreases during 1955 and the total catch would have been below that of 1954 had there not been a noteworthy gain in the production of menhaden.

During the past 25 years, the catch of shrimp, although fluctuating yearly, has increased at an average rate of about five per cent a year, due mainly to consumer demand. The continuous popularity of shrimp was primarily responsible for this fishery developing into the most valuable in the United States and Alaska during the early 1950's. In 1955 this shellfish continued to provide the greatest revenue to United States and Alaskan fishermen, accounting for approximately 18 per cent of the value of the total catch.

It is estimated that the 1955 catch was marketed as follows: 1,568 million pounds (round weight basis) as fresh and frozen products; 1,039 million pounds for canning; 86 million pounds for the production of cured products; and 2,101 million pounds into byproducts and for use as bait. About 650 million pounds of waste from filleting, canning, and otherwise preparing fish for market were likewise used in the manufacture of byproducts.

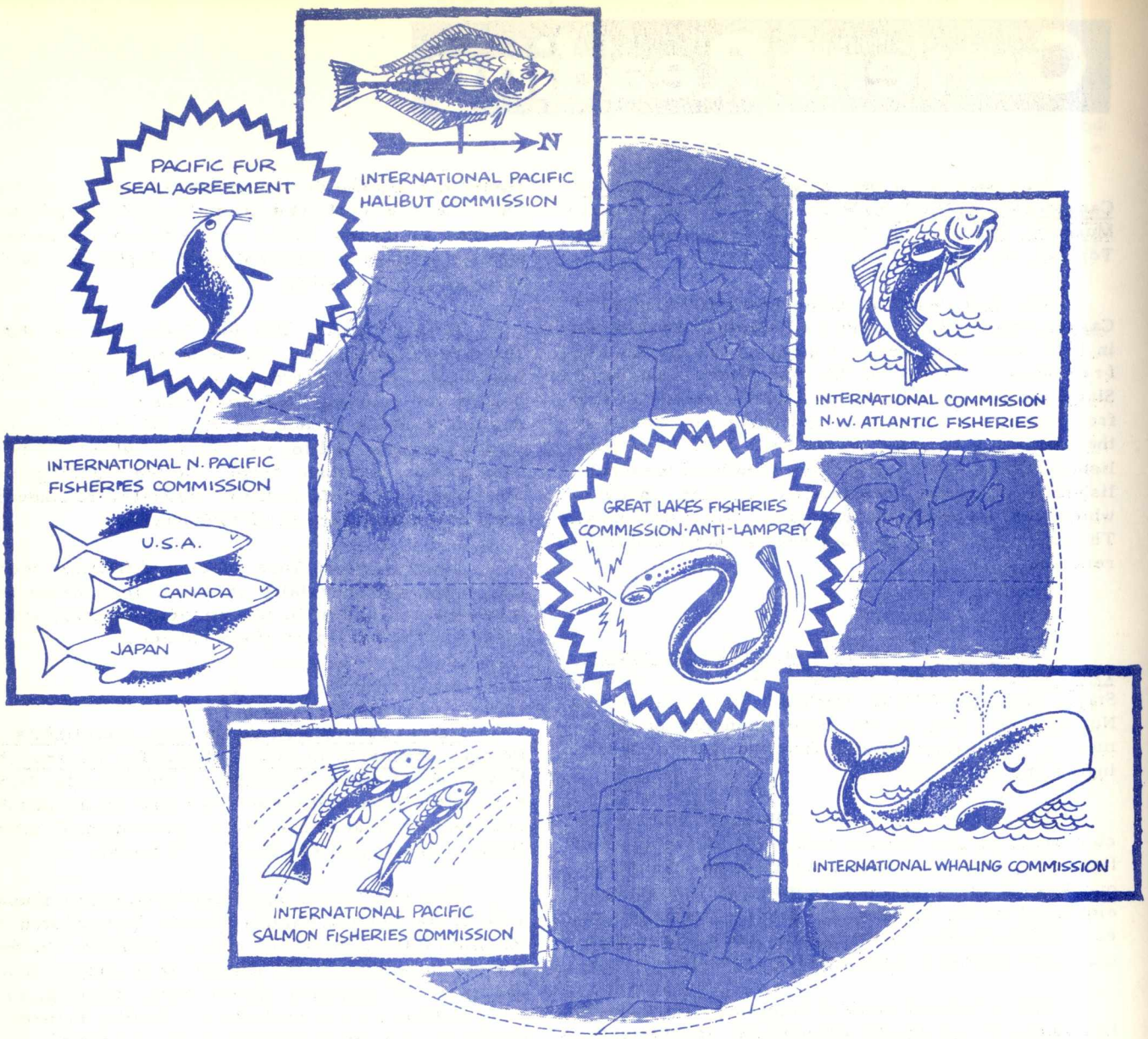
Many of the various species of fish and shellfish taken commercially in the United States and Alaska are shown in the pictorial section which makes up the back part of the volume.

"Distribution, Abundance, and Habits of Pelagic Sharks in the Central Pacific Ocean," by Donald W. Strasbourg. (Fishery Bulletin 138, U.S. Fish and Wildlife Service. For Sale by the Superintendent of Documents, U.S. Government Printing Office, Washington 25, D.C. 25 cents).

This is a report on the distribution and abundance of the central Pacific sharks, investigated by longline fishing methods during 1952-55. In this period more than 6,000 sharks were caught; these belong to 12 species. Great Blue, whitetip, and silky sharks predominated. Bonito, thresher, mackerel and other species were uncommon or rare.

"Annotated Bibliography on the Cutthroat Trout," by Oliver B. Cope. (Fishery Bulletin 140, U.S. Fish and Wildlife Service. For sale by the Superintendent of Documents, U.S. Government Printing Office, Washington 25, D.C. 30 cents).

Publication of articles on the cutthroat trout began before the turn of the century, after explorations in the Intermountain Region of the western part of the North American continent had brought several forms of the cutthroat to the attention of fishery workers. This compilation brings together 135 abstracts of papers which deal with the biology, culture, distribution and management of the cutthroat, prepared by United States and Canadian investigators. Twenty-seven zoological names proposed for the cutthroats are listed, and 70 vernacular names, taken from the literature, are presented.



INTERNATIONAL CO-OPERATION

means wise use of fishery resources

Canada has been a pioneer in the establishment of international commissions, the aims of which are to conserve and develop stocks of fish, sustaining their productive level whenever this is threatened by human and natural causes.

This country is a party to three bilateral fishery agreements with our neighbour to the south, and is also a member of four international conventions which include other countries in addition to the United States.

Fish populations renew themselves if given the chance. The purpose of international co-operation is to make sure that they *are* given this chance . . . through practical programmes of scientific research and by common sense fisheries regulations.

DEPARTMENT OF FISHERIES

OTTAWA, CANADA

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