TRADE NEWS

May , 1955 Vol. 7 No. 11

DEPARTMENT OF FISHERIES · OTTAWA, CANADA

TRADE NEWS

PUBLISHED MONTHLY BY THE DEPARTMENT OF FISHERIES OF CANADA

CONTENTS

MAY, 1955

FEATURES

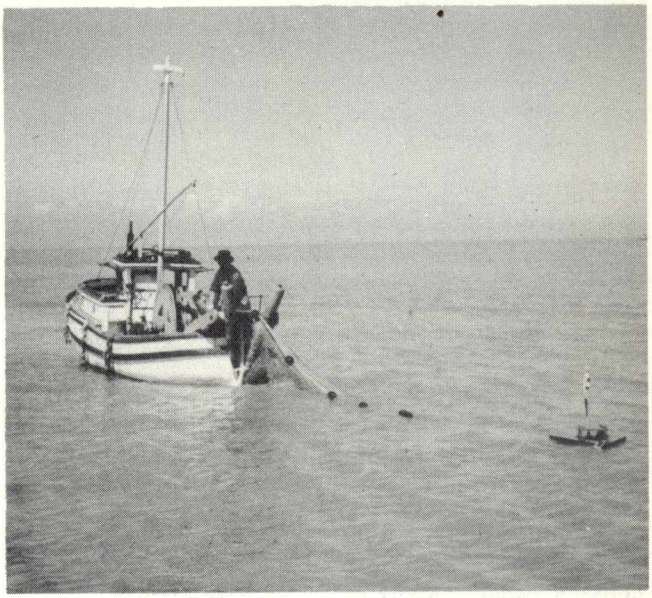
CANADIAN FISHERIES NEWS

FISHERIES NEWS FROM ABROAD

COVER PHOTOGRAPH: British Columbia fishermen of half a century ago hauling in a drag seine (see article on page 3).

The Old

The New



Evolution of the B.C. Fishing Fleet

By L.G. SWANN

BRITISH COLUMBIA'S ten thousand fishermen can surely be reckoned among the most modern minded of men. In an industry which has emerged from the weir traps, spears and canoes of Indian fisheries to the vast, highly organized fleet of today's modern fishboats, the men who operate these vessels are of a type who want the best. Lately times have been good enough for them to get it.

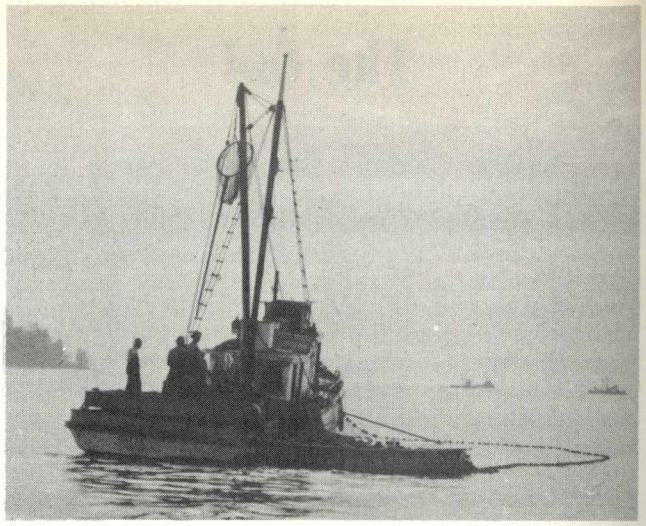
Fisheries statistics for 1954 show that the total capital outlay on fishing vessels in the Pacific area -- from the largest whaler to the smallest rowboat -- exceeds $43,000,000. Added to this there is $7,825,000 worth of gear. There are about 8,500 boats of all kinds. They are good boats and the gear is the best that money can buy.

Mr. Swann is Area Information Officer of the Department of Fisheries of Canada, stationed at Vancouver, B.C.

When other fishermen joined the Indians in operations off the B.C. coasts the first fishing boats were propelled by sails and oars. They were open boats. For many years during salmon seasons these small craft sailed or were towed out to the fishing grounds on a Sunday night and left there to fish for the ensuing week. The fishermen ate cold food and took whatever came in the way of weather. It was a tough life.

Eventually somebody thought to rig a canvas shelter over the boom in the bow of the boat, and this soon became general. Another bright spirit took along a primus stove and that ended the "hard tack and salt horse" period. Super-structure appeared here and there on gill-netters and in 1925 gasoline started the emancipation of the B.C. fisherman. It was still tough going. They set the nets and pulled them in by hand over the stern of the little boat, but at least they could get out to the fishing grounds and back to cannery or camp under their own power. Early in the thirties inventiveness again

Old-time gill-netters being towed to grounds



Modern purse seiner with net set

made things easier -- and more profitable. A large bobbin, now known as the drum, was installed in the stern of gill-netters and nets were set and hauled in around the drum by power from the gas engine. Today the Pacific coast gill-netter is a trim, speedy craft with electric lighting, plumbing, comfortable sleeping accommodation and small but efficient cooking range. Many have radio-telephone.

The first salmon seiners were small vessels, able to operate only in sheltered waters. These too have come a long way. Today's salmon and herring seiners may represent an outlay of $100,000 or more. All are equipped with radio-telephone and echo sounders and last year one pioneer captain put in radar. Salmon trollers, operated by one or two men, have kept pace with the progress. A bigger boat than the gill-netter, but smaller than seiners, these sturdy craft often fish many miles offshore in the open Pacific, staying out for days on end. Most of these have radio-telephone and many are equipped with automatic pilots.

In gear the industry has made similar strides. The change-over from linen to nylon gill-nets is almost complete; in the swing from natural fibres to synthetics the manufacturers of fishing gear have looked closely over everything used in the primary operations of fishing. Nylon ropes, nylon spoon leaders (used extensively in trolling) have taken the place of hemp and cotton; plastic seine and gill-net floats have replaced cork, and are cheaper and more durable.

A new type of seiner -- the drum seiner -- may change the aspect of salmon seining, and last year experiments were made with a new type of net, designed to operate at any desired depth. This too may result in drastic changes in fishing methods.

The recent sudden popularity of drum seiners in the salmon fisheries of the Pacific coast may be halted, if not checked entirely, by the introduction of a new development which was successfully tested on a table seine in mid-April. The innovation is a power drum which is hoisted to the head of the boom on a table seiner after the net has been draped over it. In making a set the net is paid out over the stern turn-table in the usual manner, but in the hauling-in process the new equipment comes in to reduce an operation formerly calling for 45 minutes of back-breaking work to 30 minutes of time with the crew practically looking on. After the net is put in position the power drum is hoisted aloft and the drum rotates by power from the ship's winch. The net is lifted high in the air and drapes itself on the turn-table with help from the crew. B.C. seine skippers who witnessed the recent demonstration on the "Western Warrior" say the equipment, when perfected, will enable an average seiner to make eight sets a day, where formerly four sets was considered a good average. They also claim there will be less exhaustive work for the crew and a saving in wear and tear of the net.

Progress of the fishing industry has been carefully charted throughout the years by officers of the federal Department of Fisheries. The annual report of each field officer summarizes the new developments of fishing boats and gear in his area.

In his 1954 annual report W. Strachan, veteran fishery inspector for the Skeena river area, mentioned that five new salmon gill-net boats were built in his district last year. Four of these cost approximately $4,000 each and one was a $10,000 job. The big one had twin 100 hp engines; three of the others were equipped with 85 hp engines. This, of course, was in addition to the usual considerable work done each year to keep the large northern fleet of fishing boats in first-class shape. But in this area the big trend was in gear. The inspector reported that 350 nylon gill-nets were in use in the Skeena during the salmon season. Of their effect

Mr. Strachan said they proved much more efficient than linen gill-nets. Fishing in the muddy waters of the Skeena they caught two and one-half times as many sockeye salmon as the linen nets fishing alongside. In the clearer, "outside" waters the ratio was one and one-half to one in favour of the nylon.

A good yardstick in general trends of fishing in B. C. waters is the extensive Namu-Bella Coola area, where every known type of fishing vessel is liable to operate, and where the great bulk of the fleet, at any one time, is largely transient. H.V. Grainger, senior fishery officer for this area, said that in 1954 about 95 per cent of the gill-net fleet was using nylon gear. He noted, too, the significant fact that more salmon drum-seiners were observed in the area than ever before. A drum seiner looks like a big gill-netter and operates on similar lines. That is, the net is hauled in by power over the drum

Dual purpose boat (gill-netter, troller)

on its stern, instead of being partly man-handled as is the net on a table seiner. The drum seiner can be operated with a crew of four or five men, compared with the six hands usually found on a table salmon seiner.

In the neighbouring Bella-Bella area Fishery Officer H. Burrow is equally impressed with the onward trends, particularly with the increasing mobility of fishing boats. "They can now move at the drop of a hat, and travel great distances overnight because of their high speed engines," he said in his 1954 annual report.

By way of example the inspector tells of an occasion last year when upwards of 60 seiners, packers and tenders were assembled at Llama and Boddy passes during the herring fishing. On a certain morning fishing companies decided to suspend operations in that area. Within the short period of two hours all this accumulation of ships and gear, worth several million dollars, was out of the area and headed for other grounds. The inspector cited the almost universal use of radio-telephone as the mainspring of this remarkable mobility. All seiners and offshore trollers and three quarters of the inshore trollers and gill-net boats local to the Bella Bella area are now equipped with radio-telephone. The drum-seine evolution was also noted by this officer. Mr. Burrow spoke of the increase of this type and of its efficiency. In an area where salmon are relatively scarce, said Mr. Burrow, a drum seiner can stay and fish when it would not be commercially profitable to a table seiner.

Some of these improvements in fishing boats have resulted in an upsetting of fishing balances that have endured for many years. The gill-netter has made inroads into what was once traditionally seining territory. During the big Adams River sockeye run to the Fraser system last year about fifty of the larger type gill-netters went boldly into the rough waters of Juan de Fuca Strait and fished alongside 50 to 100 ton seine boats. These relatively small boats, seldom over 35 feet in length, took their share of the run while it was in outside waters.

The story of evolution and progress is seen in reports submitted from the field in all parts of British Columbia. Small shipyards around Vancouver Island every year are building new fishing boats, overhauling, reconditioning and re-engining. On the mainland at Prince Rupert, Steveston, New Westminster and Vancouver a good part of waterfront revenue comes from pride of ownership of B.C. fishermen. The new harbour for fishing vessels, on the Fraser river recently opened by Hon. James Sinclair, Minister of Fisheries, is the fitting haven for fishing vessels that, in the aggregate, cannot be out classed in modern design and equipment.

Of the future it can be predicted that when new and better methods of fishing are developed, British Columbia fishermen will be among the first to make use of them. This was illustrated in the short course for fishermen given under the sponsorship of the Department of Fisheries at the University of British Columbia last March. One of the periods was devoted to the demonstration of a recent adaptation of sonar principles which enable the captain of a ship to scan the seas under his vessel and in any angle for 180 degrees forward. It is a costly piece of equipment and its original purpose probably was navigational. But with it also a captain can "see" any schools of fish -- or individual fish if they are large enough -- and this is a fisherman's dream. In the classroom were upwards of thirty hard-bitten fishing skippers; not given to flights of fancy and probably a little quicker than average to ridicule anything that goes beyond the practicable. But the first question this reporter heard when the demonstration ended was "What do they cost?" ✔

Pacific Fisheries Technology

By H.L.A. TARR

Sixth Annual Conference Held in British Columbia

THE SIXTH annual conference of Pacific Fisheries Technologists, at which some 50 representatives of commercial fishing companies, government, university, and industrial laboratories from British Columbia, Alaska, Washington, Oregon and California were present, was held March 27-30 of this year at Harrison Hot Springs Hotel, British Columbia.

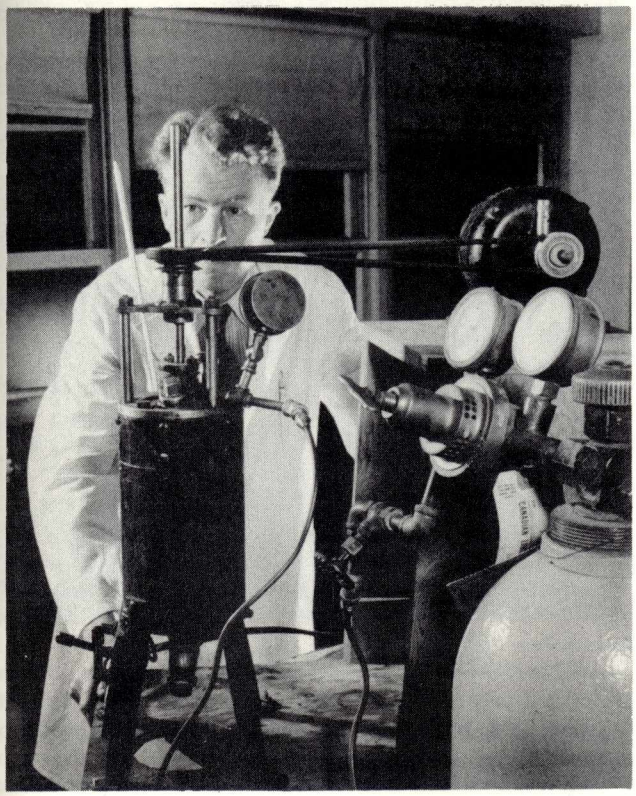
The first session dealt with transportation of chilled or frozen fish. Considerable emphasis was laid on the subject of transportation and storage of fish in sea water or correspondingly dilute salt solutions refrigerated to 28.5°F., a temperature which is just above that at which fish muscle normally freezes. It has been known for many years that fish stored under these conditions will usually keep very much better, and often twice as well, as those stored in ordinary ice under customary conditions. However, as is frequently the case, there has been an unfortunate lag between the discovery and its eventual application. It is encouraging to note that not only was the early groundwork for these investigations laid in Canada, but that the renewal of interest in this method of holding and transporting fish has resulted entirely from experiments initiated at the Pacific Fisheries Experimental Station of the Fisheries Research Board of Canada in Vancouver.

Dr. Tarr is Acting Director of the Pacific Fisheries Experimental Station of the Fisheries Research Board of Canada at Vancouver, B.C.

A description was given of small-scale tests on salmon trolling boats, and of how this has resulted in installation of much larger tanks on a British Columbia fish packing vessel, and on two large American scows which are to be used in Alaskan waters for holding salmon intended for canning. It was pointed out that this method offers considerable promise as a means of storing salmon at isolated collecting stations or fish camps. Bacterial contamination of the refrigerated sea water used and how this can be circumvented either by changing the water or by the inclusion of trace amounts of the antibiotic Aureomycin were mentioned. Current commercial tests with ice containing about one part per million of this antibiotic and its value in retarding bacterial spoilage of fish were outlined, as were methods of securing its relatively uniform distribution in block ice. Other speakers discussed the difficulties which arise in freezing and transportation of tuna intended for canning in the California area, the importance of chilling pre-cooked crab or shrimp prior to freezing, and the development of the overhead-bunker type of refrigerator railway car and its uses in Canada.

A second interesting symposium was that which reviewed some of the current problems which occur in production of fish sticks. It is well known that this product has proven extremely popular, and it was reported that the 1954 Canadian production was 1.69 million pounds, and that in the first two months of 1955, 863 thousand pounds were prepared. It appears that the fish of choice for this product are Atlantic cod and haddock and Pacific true cod, halibut and salmon not being so suitable. One speaker covered very thoroughly methods by which the fish used for fish sticks are prepared and frozen, and how a multiple cutter with reciprocating knives tends to avoid the production of waste "sawdust". It appears that most fish sticks contain about 75 per cent fish flesh and 25 per cent of the

breading material. From a discussion it appeared that it is desirable that the temperature of the frozen flesh used be raised, for example to 10 or 20°F., to permit suitable adhesion of the batter and breading materials.



Chemist using hydrogenation unit

Reference was made to types of frying oils used, the inclusion of permitted antioxidants in these, the apparent need for a low concentration of free fatty acids in the oils to improve browning of the breading material, and the relative merits of cracker and bread crumbs for breading. Methods of using fish sticks in the home and in restaurants were discussed, and certain special uses referred to. In general, it would appear that three normal sized fish sticks would provide more fish, and consequently more protein, than does an average serving of fish fried in batter in the usual "fish and chips" form.

Two sessions were devoted to the subjects of nutritional uses of fish proteins and to fish oil. Work which has been carried out on conditions necessary for production of high-quality herring meal were discussed by a member of the staff of the Pacific Fisheries Experimental Station, while an investigator on the staff of the Seattle U. S. Fish and Wildlife Laboratories reviewed the thorough survey which they have made of the distribution of the vitamins riboflavin, nicotinic acid and B12 in Pacific fish meals and condensed fish solubles. The problem of the methods of production of condensed fish solubles as they appear to the animal and poultry nutritionist were discussed.

The relative merits of the acid and enzyme methods of treating stickwater were referred to, and the dangers of bacterial putrefaction developing in enzyme methods, and of how this may be controlled, were covered. It appears that trace amounts of antibiotics such as penicillin and streptomycin offer considerable promise in controlling bacterial spoilage of stickwater prior to its evaporation to form condensed fish solubles. It also appears that a very considerable amount of valuable protein nitrogen may be lost as ammonia if putrefaction of stickwater occurs. Special mention was made of the evolution of low sodium dietetic canned tuna and its uses. Production of canned baby food from this fish was described, and the supposition that humans are particularly susceptible in an allergic manner to fish was stated to have little scientific basis. It would seem that it is very important that only fish of the highest quality be used in preparing homogenized canned baby foods.

The pressing need for the discovery of radically new uses for fish oils was emphasized, but there were, unfortunately, no concrete proposals concerning an immediate solution of this urgent problem. It is now well known that fish body oils, salmon egg oil, and in fact most marine oils, are rich in longchain polyunsaturated fatty acids, and it would appear that it might be wise to conduct more basic research into possible radically new uses for these.

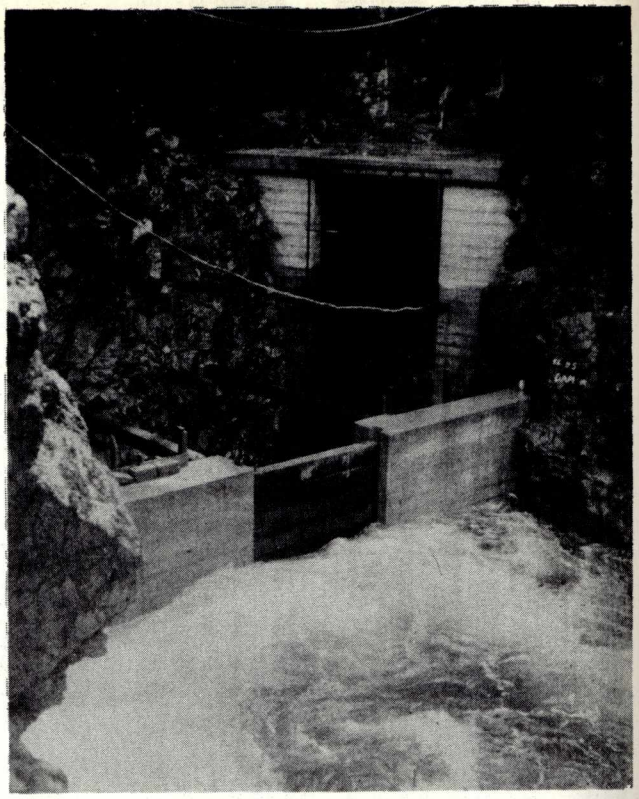
An analytical section dealt with quite varied subjects such as results obtained in the application of a "V.R.S." test for quality of salmon, methods for determining fat in canned salmon, and variations which may occur in determination of protein in fish products by different methods. ✔

Far Northern Fisheries

A British Columbia fishery scientist and his assistant will penetrate waters of the Arctic this summer and early winter in an effort to determine the potentialities of the fisheries in Canada's far northern waters. J.G. Hunter and F. Lehmann of the Pacific Biological Station of the Fisheries Research Board of Canada at Nanaimo, B.C., left on June 14 for the long trek which will take them to remote Mackenzie Bay, located between Baillie and Herschel Islands. The object of the trip is to record the species and assess the abundance of fishes and other marine life in these waters. Whales, seals and fish are important multipurpose resources in the economy of the far northland, where transportation is limited. The venture is being carried by the Fisheries Research Board in co-operation with the Department of Northern Affairs.

Stamp Falls Fishway - - -
New Milestone In

British Columbia Stream Improvement



Detail of Stamp Falls Fishway

ANOTHER major obstacle to spawning salmon was overcome May 20 when a new fishway at Stamp falls, B.C. was officially brought into operation.

Three hundred people made their way down the steep sides of a canyon in the heart of a provincial park to inspect the fishway and witness the impressive opening ceremony. In brilliant sunshine and against an awesome setting of swirling waters, H.R. MacMillan, B.C. industrialist, acting for Hon. James Sinclair, Minister of Fisheries, triggered mechanism which opened a gate letting waters of the Stamp River into the upper tunnel of the fishway. Competing with the roar of the cataract, Mr. MacMillan read a telegram from Mr. Sinclair, whose absence on other matters was unavoidable, and told the gathering that the fishway was another step in a programme of conservation measures which had been carried out by the Department of Fisheries in the Somass-Great Central lake area. Mr. MacMillan stressed the need for constant watchfulness and planned action to preserve and increase the salmon resources of the province. Mr. MacMillan was introduced by A.J. Whitmore, Chief Supervisor of Fisheries, and those present included Mayor L. Jordon of Port Alberni; Mayor B. Wright of Alberni; George Alexander, Provincial Deputy Minister of Fisheries; Dr. A.H. Needler, Director, Pacific Biological Station of the Fisheries Research Board of Canada, Nanaimo, representatives of the fishing industry; fishermen's organizations, the press and radio.

Built under contract for the Department of Fisheries by a private construction company at a cost of approximately $115,000.00, the fishway was designed by federal Department of Fisheries engineers under C.H. Clay, Pacific area divisional engineer, with Raymond Fahlman as Fisheries resident engineer on the work.

Completion of the Stamp Falls fishway rounds out a programme of stream improvement in this area which has occupied the attention of the Department of Fisheries for many years. The Somass-Great Central lake system is the spawning and nursery area for important runs of sockeye, spring and coho salmon which pass through the Barkley Sound salmon fishery every year. Salmon which escape the fishery migrate into the Somass river which, at a point about four miles upstream, divides into two main branches, the Sproat and Stamp rivers.

Rock formations at Sproat Falls and Stamp Fallshave, at certain seasons and at varying stages of water, caused serious difficulties for ascending salmon and conservationists have given this system considerable attention in the past fifty years. As far back as 1927 the Department of Fisheries installed at a cost of $10,000.00, a standard pool and weir type of fishway which, at certain water levels proved highly effective, particularly to the coho runs. In 1951 a fishway was completed at Sproat Falls at a cost of $45,000.00, putting this branch of the system at maximum efficiency.

Stamp Falls, however, continued to be a trouble spot under highwater conditions. At certain

(Continued on page 15)

Canadian Landings, Jan.-Mar. 1955

DURING the first three months of this year, Canadian fishermen landed 235 million pounds of seafish valued at close to seven million dollars. This was four million pounds less than in the same period of last year; but the catch was more valuable this year by $183,000. This was due not to higher price levels but to the fact that the decline in weight was mainly in herring, a low-priced fish, and was partly offset by heavier landings of haddock and smelts, relatively high-priced.

The situation on each coast was quite different from the other. In the east, with good fishing offshore, more herring caught in Newfoundland and the Bay of Fundy, and a spurt of great activity as the smelt fishery closed, the catch was twelve million pounds heavier and $336,000 more valuable than in the first quarter of 1954. In the west, with a short and disappointing herring season only slightly offset by heavier shellfish landings, the catch was down by sixteen million pounds and $153,000.

ATLANTIC COAST

On the east coast the groundfish catch was eight million pounds heavier than in the first quarter of last year and contained a much larger percentage of haddock. In fact, the haddock catch increased by seventeen million pounds. There was actually a decline of about ten million pounds in landings of cod and rosefish, and slight variation in the catch of other related species. Neither cod nor rosefish was thought to be scarcer than in the previous year. Rosefish are found in "shore deeps," not on the banks with other groundfish; and operations on the banks were so successful that few vessels took time out to go rosefishing. In the case of cod, nets were hardly in the water long enough to take the usual quantities, before they had filled up with haddock and were lifted. The high percentage of haddock was most in evidence off southern Nova Scotia and in the Bay of Fundy, where offshore vessels often landed catches which were from 70 to 80, sometimes even 90 per cent haddock. As this is the highest-priced groundfish with the exception of halibut, which is not an active fishery in the first quarter of the year, the value of the catch increased by $200,000. This increase would have been much greater but for the fact that American fishermen also shared in the excellent fishing on the banks and in the heavy landings of haddock, so that both price and demand for this fish dropped in the United States, which is the Canadian fisherman's main market for groundfish. There was a firmer demand for market cod.

Offshore fishing out of all the larger winter ports was very active throughout the quarter but inshore fishing, limited in any case to southern Nova Scotia and the Bay of Fundy, was further restricted by very rough weather. In the Gulf of St. Lawrence, harbours were frozen until late in the period and then blocked with drift ice.

At the end of the quarter, stocks of frozen groundfish on the Atlantic coast totalled about seven million pounds, compared with four million at the same time last year.

The smelt fishery began badly but ended with a flurry of great activity. This fishery centres in the Miramichi estuary in New Brunswick and is the main winter activity of fishermen on the North Shore and the Gaspe. The fish are taken through the ice in January and the season normally closes early in February. This year, however, January was unseasonably mild and no ice formed over the fishing grounds until a cold snap occurred at the end of the month. The fish then proved to be plentiful and of a good size. Fishing was very active for about two weeks and the legal open season was extended to the end of February. By mid-month adequate supplies had been taken, the price had dropped, the weather was warm again and the fish became relatively scarce. In the meantime, however, fishermen had landed nearly two million pounds more than last year and canned $200,000 more.

The Newfoundland herring fishery, while not rated as a successful operation, nevertheless showed better results than last year. The catch was heavier by about 2.5 million pounds and more valuable by about $30,000. When weather permitted, seiners off Grand Manan also looked for herring, in response to good demand from canneries in the area. The fish were not plentiful but persistence yielded a catch of over half a million pounds, which sold for $15,000. This was clear gain over 1954, when no herring was caught in the area in the first quarter. Taking the Atlantic coast as a whole, however, increases in the herring catch were partly offset by a decline in sardines, which were even more scarce in the Bay of Fundy than during the same period last year. The catch was smaller by more than half a million pounds and sardine fishermen canned $16,000 less.

The steepest decline was in the lobster fishery. The season was open in southern Nova Scotia throughout the quarter and also in the upper reaches of the Bay of Fundy through March; and a prevailing price of 65 cents per pound to fishermen encouraged all possible activity. But the seas were so rough that much gear was lost, it was often impossible to haul traps for days together and, as usually when

waves are high, the yield was low. The catch was down half a million pounds and $100,000 from the same period last year.

PACIFIC COAST

On the Pacific coast there was a drop of $153,000 in fishermen's earnings, as compared with the first quarter of last year. This occurred as follows. The herring fishery declined in value by $235,000, the cod fishery by $30,000, the salmon fishery by $12,000, a total of $277,000 on the three fisheries. This was partly offset by the fact that the shellfish catch was more valuable by $101,000, the sole catch by $15,000, the catch of other fish by $8,000, a total of $124,000 on the three groups.

When herring seining was resumed after the Christmas holidays, early results were better than in 1954 and there was a firm demand from the reduction plants. The canneries were not buying in their accustomed quantities, as the market for their products was dull. Producers of dry salt herring were also cautious, doing little processing ahead of orders.

The fishery ended rather abruptly early in February, when expected new schools of herring failed to appear. Landings were negligible in March, compared with 57 million pounds in that month last year. The quarter's catch, mostly landed in January, amounted to 117 million pounds and the season's catch, including pre-Christmas fishing, amounted to about 330 million pounds, the smallest since 1946-47.

In spite of this, production of oil, at over 3.5 million gallons for the season (fall and winter) was the second highest on record; and 29,000 tons of meal also came from the reduction plants. Demand was good for both products and nearly the entire output had been marketed by the end of February. Selling prices were higher than in the previous season. Oil rose from 7 3/4 cents per gallon to 9 3/4 cents during the season, compared with a range of 8 1/4 to nine cents a year earlier; and meal rose from $1.90 to $2.40 per unit f.o.b. Vancouver, compared with $2.15 a year earlier.

Two factors contributed to the heavy production of oil. The market for canned herring was poor, so that a large percentage of landings went to reduction plants. And the yield, averaging 22 gallons per ton, was the highest on record. Several reasons for this were suggested locally. Possibly the plants are increasingly efficient. Possibly the early cessation of fishing gave a higher average of fat herring. Some customary areas were not fished at all; possibly they run to lean herring.

The cod catch was smaller than last year but sufficient to meet demand. There was no halibut fishing. Landings of halibut were high in 1954 and there was a heavy carryover in frozen form. Prices dropped to a level where it was hard to realize costs.

Troll catches of red spring salmon were light, were sold fresh locally, and brought about the same prices as last year. The only carryover of canned salmon was chums and pinks.

Landings of clams in January and February were twice as heavy as a year earlier. Local canners were active, trying to finish their orders before the green feeding of March, which causes clams to darken in the can. Canners in the United States provided a fairly steady market for Japanese clams. The demand for oysters was good, with local plants building stocks of both canned and frozen products for the summer trade; but trained labour for the shucking plants was hard to find.

There was a heavy run of eulachons but the demand was not great enough to encourage much fishing.

Canadian Commercial Fisheries of the Great Lakes

The Department of Fisheries has released a publication under the above title as Basebook No. 2 on fishery statistics. The publication has been prepared to bring together in one volume pertinent statistical and other information of interest and use to legislators, administrators and persons in the fishing industry concerned with problems of the Great Lakes fisheries.

The volume is made up in three sections. The first section contains maps and tables dealing with the distribution of fishing enterprises and of fishermen, of commercial fishing licenses by type and of the fish packing and processing industry. The maps also show drainage basins, lake profiles, depth contours, lake levels, surface area, volume, mean outflow and shoreline length.

In the second section annual landings of fish by weight are given for the period 1867 to 1953 by species and by lakes. The period covered for the individual species varies, depending upon the availability of information from official reports.

Tables in the last section of the book show landed values for the years 1945 to 1953 by species and by lakes. Also included are data on fishing craft and equipment for the years 1920 to 1953 by lakes.

Fishery Figures For March

SEAFISH: LANDED WEIGHT AND LANDED VALUE

	Jan. - March 1954		Jan. - March 1955	
	'000 lbs	$000	'000 lbs	$000
Atlantic Coast				
Cod	43,649	1,399	35,892	1,139
Haddock	21,996	901	38,179	1,354
Pollock, Hake & Cusk	3,187	42	3,082	38
Rosefish	4,592	101	2,740	62
Halibut	931	209	875	178
Plaice & Other Flatfish	4,932	139	6,658	214
Herring	6,436	70	9,115	113
Sardines	2,184	55	1,561	39
Mackerel	48	2	25	1
Swordfish	-	-	-	-
Salmon	-	-	-	-
Smelts	2,254	251	4,130	439
Alewives	190	4	18	1
Other Fish	867	24	1,544	37
Lobsters	2,650	1,328	2,233	1,226
Clams & Quahaugs	761	38	510	29
Other Shellfish	183	44	250	73
Total Atlantic	94,860	4,607	106,812	4,943
Pacific Coast				
Pacific Cod	2,590	151	2,159	121
Halibut	-	-	-	-
Soles & Other Flatfish	926	47	1,307	62
Herring	135,672	1,697	117,050	1,462
Salmon	146	39	104	27
Other Fish	396	11	630	19
Shellfish	4,557	214	6,873	315
Total Pacific	144,287	2,159	128,123	2,006
Total Both Coasts	239,147	6,766	234,935	6,949
By Provinces				
British Columbia	144,287	2,159	128,123	2,006
Nova Scotia	54,647	3,445	58,685	3,369
New Brunswick	5,680	347	7,202	520
Prince Edward Island	253	13	502	28
Quebec	228	28	540	55
Newfoundland	34,052	774	39,883	971

PROCESSING OF ATLANTIC CATCH

In Per Cent of Total Catch Jan. - Mar. 1955
(Newfoundland Not Included)

	Fr & Fz Fillets	Fr & Fz Wh or Dr	Cured	Canned	Non-Food
Cod	71	6	23	-	-
Haddock	90	6	4	-	-
Pollock, etc.	23	28	49	-	-
Rosefish	98	2	-	-	-
Halibut	2	98	-	-	-
Plaice	98	2	-	-	-
Herring	-	82	16	-	2
Sardines	-	-	-	100	-
Mackerel	-	100	-	-	-
	Shell	Meat			
Lobsters	95	5	-	-	-
Clams	4	50	-	46	-
Oysters	100	-	-	-	-

PRICES PER CWT PAID TO FISHERMEN MAR. 15

	1954	1955
Halifax		
Cod Steak	$ 4.75	$ 3.50-3.75
Market Cod	3.75-4.25	3.25
Haddock	5.25-6.25	4.50-5.00
Plaice	3.00	3.50
Yarmouth		
Haddock	6.50	5.00
Black's Harbour		
Sardines	2.50	2.50
St. John's, Nfld.		
Cod	2.25	2.25
Haddock	3.00	3.00
Rosefish	2.00	2.00
Vancouver		
Ling Cod	12.00	10.00
Gray Cod	5.00	3.00-5.00
Soles	7.00	8.00
Salmon, Redspring	-	35.00

MID-MONTH WHOLESALE PRICES, MARCH, 1955

		Montreal	Toronto	Winnipeg
Fresh Cod Fillets	lb.	.275	.294	-
Fresh Haddock Fillets	lb.	.338	.351	-
Kippered Herring	lb.	.252	.254	.267
Frzn. Halibut, Dr.	lb.	.344	.318	.303
Frzn. Salmon, Coho, Dr.	lb.	.525	.482	.470
Fresh Whitefish	lb.	-	.451	-
Lobster, Fancy	case	33.94	35.40	37.36
Sardines, Smoked	case	8.54	8.50	8.99
Sockeye, Salmon A	case	18.18	17.76	18.05

STOCKS AS AT END OF MARCH

	1954 ('000 lbs)	1955 ('000 lbs)
Fresh Fish		
Dressed Halibut	2,759	4,372
Groundfish Fillets	5,848	7,690
Herring	4,962	282
Salmon	4,627	3,650
Other	2,449	2,363
Total Fresh Sea Fish	20,645	18,357
Whitefish, Dressed or Filleted	307	760
Tullibee, Round or Dressed	347	302
Pickerel, Dressed or Filleted	403	218
Other	1,001	1,242
Total Fresh Inland Fish	2,058	2,522
Total Fresh Fish	22,703	20,879
Smoked Fish		
Cod and Haddock Fillets	1,301	1,219
Other	876	939
Total Smoked Fish	2,177	2,158
Salt Fish (Excl. Newfoundland)		
Wet Salted Cod	5,401	6,238
Other Wet Salted	2,291	1,072
Dried Cod	3,004	3,383
Other Dried	919	597
Boneless	284	231
Pickled Alewives (Barrels)	6,009	14,819
Other Pickled (Barrels)	13,034	3,073
Bloaters (18 lb boxes)	211,817	45,393
Salt Fish (Newfoundland only)		
Shore	16,760	21,517
Nfld. Soft Cure	1,379	1,762
Labrador	2,682	788
Total Salt Fish (Newfoundland)	20,821	24,067

CANADIAN FISH EXPORTS

Total Value in Thousands of Dollars To End of Mar.

	1954	1955
Fresh or Frozen	14,315	15,073
Whole or Dressed	6,224	5,847
Salmon	968	855
Whitefish	1,510	1,616
Halibut	1,109	786
Pickerel	897	780
Cod, Haddock, Pollock	239	137
Other	1,501	1,673
Fillets	5,224	6,136
Cod	1,733	2,172
Haddock	1,043	1,974
Rosefish, Hake, etc.	541	332
Flatfish	912	525
Pickerel	497	534
Other	498	599
Shellfish	2,867	3,090
Lobster	2,690	2,945
Other	177	145
Cured	6,935	6,096
Salted, Wet or Dried	5,618	4,973
Cod	5,159	4,396
Other	459	577
Pickled	862	726
Herring	344	340
Mackerel	247	199
Other	271	187
Smoked	455	397
Herring	321	242
Other	134	155
Canned	4,788	4,494
Salmon	4,488	3,591
Sardines	81	521
Lobster	127	284
Other	92	98
Miscellaneous	2,711	3,555
Meal	1,827	2,150
Oil	541	858
Other	343	547
Total Value	28,749	29,218
Exports to United States	20,014	19,446
Exports to Caribbean Area	3,960	4,679
Exports to Europe	3,371	3,379
Exports to Other Markets	1,404	1,714
Total Value	28,749	29,218

Research Discussions

Dr. J.L. Hart, Director of the Atlantic Biological Station, Fisheries Research Board of Canada, St. Andrews, N. B., has extended an invitation to members of the fishing industry from Quebec and the Maritimes to the station on June 27 and 28 to discuss fishery problems. Three subjects will be discussed each day.

The meetings will be held in the common room at the biological station. Speakers and their topics will be Loran E. Baker, "Application of Fisheries Research to Administrative Problems"; Dr. J. Kerswill, "Relationship Between Angling and Commercial Salmon Fishery"; Noel Tibbo, "Results of Herring Exploration"; Hugh McLellan, "Application of Hydrography to Fisheries"; Dr. W.R. Martin, "The Expected Effect of New ICNAF Regulations on the Canadian Fishery", and Dr. D. G. Wilder, "The Biological Basis for Lobster Regulations."

The annual meeting of the Atlantic Fisheries By-Products Association will be held concurrently with this meeting.

Crab Investigations

Northern B.C. crab fishermen are co-operating with scientists from the Pacific Biological Station of the Fisheries Research Board of Canada at Nanaimo, B. C., in a crab tagging programme designed to bring greater knowledge of the crab population on the Hecate Strait and Dixon Entrance crab fishing grounds. Between 1,500 and 2,000 crabs will be tagged in the current northern crab fishery, which got under way April 1. Tags formerly used were fastened to the hard shell of the crab and were lost when the crab moulted. A new type of tag, used in the current programme, is placed at a point where the old shell splits in moulting and, being affixed with stainless steel wire, remains in position after the crustacean has made its periodic change of shell. Scientists still lack certain facts about the crab population of the British Columbia coast. They want a clearer picture of the migration habits of the smaller groups of crabs; they want to know more about moulting seasons and they still have something to learn about the rate of growth of this species in various parts of the coast. With crab fishing in B. C. at or approaching maximum productivity, fisheries scientists are anxious to accumulate all possible knowledge so as to be in a position to recommend controls at the right time and in the proper manner when this becomes necessary.

Rome Conference

Canada was represented by three officials at the first world meeting of the International Technical Conference on the Conservation of the Living Resources of the Sea at Rome, Italy, when a new chapter in the history of fisheries was written.

Convened at the request of the General Assembly of the United Nations to study the problem of the international conservation of the living resources of the sea, a wide area of agreement was reached by the conference.

A report of the conference has been referred to the International Law Commission of the United Nations who, in turn, will report to the General Assembly on the basic aspects of the international regulation on fisheries. Scientific and technical recommendations for the guidance and information of the Law Commission were formulated by the delegates.

Canada was represented by Dr. J. L. Kask, Chairman of the Fisheries Research Board of Canada; S. V. Ozere, Assistant Deputy Minister of the federal Department of Fisheries, both of Ottawa, and Alfred Pick of the Canadian Embassy in Rome. The Canadian representatives played an important role in the discussions at the plenary session and, in addition, served on three committees.

Representatives from Canada were appointed to the Credentials Committee along with delegates from Brazil, Egypt, Indonesia, Japan, Mexico, the Netherlands, Poland and the Union of South Africa. The committee held two meetings and submitted a report on the credentials of the representatives.

The conference elected a nominations committee on which Canada was represented together with Argentina, France, Greece, India and Poland. This committee was given the function of proposing a vice-chairman for election by the conference.

Canadian representatives were also named by the general committee to one of the three drafting sub-committees to prepare a draft report for the conference. Others serving on this group were delegates from Colombia, Indonesia, Norway and Poland.

The hard-working conference continued discussions for 23 days. Delegates from 45 nations and observers from six other countries, a total of 51, were in attendance.

The conference reached agreement on the following:

1. Objectives of conservation.

2. That conservation measures should be based on scientific and technical facts.

3. The types of research that should be included, and

4. The general principles upon which international conventions should be based.

It was generally agreed that most of the international conservation problems of fishery resources not covered by existing conventions could be handled by international agreement, making use of the present types of conventions. This would be possible provided that nations fishing the same resources would accept the responsibility of co-operating with each other in research and, where necessary, in regulation of these resources.

Even under these conditions, however, it was recognized there would be problems remaining and

the conference decided that such problems needed further study.

It was generally agreed that international co-operation in research (including statistical investigation) and regulation in the conservation of living resources of the high seas is essential. Regulations should primarily be based on the geographical and biological distribution of the species under consideration.

The question of the special interests, rights, duties and responsibilities of coastal states in the matter of the conservation of the living resources of the sea was discussed. The opinion of the conference on these matters and the question as to whether the conference was competent to consider them was evenly divided.

It is expected that as a result of the conference, the International Law Commission may revise the Fisheries Articles, a draft of which was submitted to the U.N. General Assembly at its eighth session.

The conference was held at the Headquarters of FAO, which provided the facilities for its conduct.

Inspectors' Course

A special three-week course for selected federal fishery officers concerned with freshwater fish and plant inspection began on May 16 at South Bay, Ont.

Attending the course were fishery officers of the Central Area of the Department of Fisheries from Windsor, Hay River, N.W.T., Montreal, Winnipeg, Sault Ste. Marie, Kenora, Edmonton and Toronto.

Instructors from the Department of Fisheries, the Department of National Health and Welfare and the Fisheries Research Board of Canada brought the officers up-to-date on various phases of grading freshwater fish, plant inspection and sanitation and other related subjects such as water supply and sewage disposal.

The Ontario Department of Lands and Forests co-operated with the Department of Fisheries in making available its well-equipped South Bay laboratory on Manitoulin Island. Whitefish and other species were caught daily by boats chartered by the laboratory so that their complete catch history could be known. Spoilage was allowed to take place under controlled conditions in order that the inspectors might become proficient in the types of grading for quality. Laboratory techniques including the use of microscopes, forced air dryers and freezers were taught so that the inspectors could become acquainted with the technological aspects of fish inspection.

F.R.B. Scholarships

Aimed at encouraging university students to enter the field of fisheries research, the Fisheries Research Board of Canada has for the first time in its history awarded a number of scholarships.

Similar to those of the National Research Council, the awards, covering 1955-56, consist of six studentships worth $1,100 each and four bursaries worth $800 each.

The Fisheries Research Board is a research organization and has need of highly trained researchers in sufficient numbers in the appropriate sciences to conduct the investigations considered significant. In some branches of science it has been found difficult to get recruits to fill out the establishments. As the situation was not righting itself, it was felt that some inducement should be used to encourage students to go into appropriate post graduate fields.

Officials of the National Research Council's Awards Section carried out all the arrangements for the cataloguing, screening and awarding of the fellowships. The administering of the funds will also be conducted through the appropriate National Research Council channels.

The procedure was necessary this year because the decision to enter the scholarship competition was not made until late last year. Thus there was not sufficient time to advertise the board's intentions nor to set up an organization to handle applications. When the President of the National Research Council became aware of this, he volunteered to place his organization's facilities at the Board's disposal.

The terms governing the present awards were stipulated by the Minister of Fisheries and deviate in some respects from those for scholarships awarded by similar Canadian institutions such as N. R. C. and the Department of Agriculture. The board's post graduate work is restricted to Canadian universities and overseas fellowships or awards to students proposing to continue their studies in the United States are not possible under the present terms.

A list of award winners by provinces follows:

Nova Scotia: $800 bursary, Miss Jane Ogilvie, Yarmouth, a graduate from the University of New Brunswick.

Quebec: $800 bursary, Joseph E.H. Legare of

Charlesbourg, a graduate from Laval University.

Ontario: $1,100 studentships, A.H. Houston, Carleton Place, a graduate of McMaster University; Neil Fitzroy Bourne, Hamilton, a graduate of McMaster University, and James Michael Neelin, Port Arthur, a graduate of Toronto University; $800 bursary, Donald A. Hurley, Toronto, a graduate of Toronto University; $1,100 studentship, A. M. McCombie, Toronto, a graduate of Toronto University.

Alberta: $1,100 studentship, Mary Hollands, Innisfail, a graduate from the University of British Columbia.

British Columbia: $800 bursary, J. D. M. Newstead, Vancouver, a graduate from the University of British Columbia and a $1,100 studentship, D.G. Irvine, Victoria, a graduate from the University of British Columbia.

Salmon Studies at Sea

Initial steps in a long term programme for the study of Pacific salmon under marine conditions will be taken this summer by scientists of the Pacific Biological Station of the Fisheries Research Board of Canada at Nanaimo, B.C. The Canadian investigations will be part of a programme of research by United States, Canada and Japan for the International North Pacific Fisheries Commission.

Canadian researches on salmon distribution in the sea will start from the coast and work seawards from year to year. Pacific Biological Station scientists will try to find an answer to the question of what happens to the vast swarms of sockeye, pink, coho, chum and spring salmon after they leave B.C. streams as fry and yearling fish.

Two vessels from the Nanaimo station will work throughout the summer and fall in coastal waters. They will catch salmon in specially designed gear, examine the fish for food content, take scale samples and tag live fish from the fry stage onwards. One boat will work in the Johnstone Strait and Queen Charlotte Strait area, while a second will be in the Skeena River area.

Huge Spawning Deposit

A herring spawning deposit of 1,100,000 square yards in a region hitherto unsurveyed was discovered off Point Roberts last spring by scientists of the Pacific Biological Station of the Fisheries Research Board of Canada at Nanaimo, B.C. In a recent report F.H.C. Taylor, scientist in charge of herring investigations, said the big mass of herring spawn, mostly in American waters, was 1.4 miles in length with an average width of 500 yards.

B.C. STREAM IMPROVEMENT...

(Continued from page 8)

water levels the falls present a 25 foot water barrier, made more formidable in the fact that at this point the river makes a sharp turn. Fishery engineers reviewed the situation and recommended fishways of the vertical slot, or Hell's Gate baffle type to augment the existing fishways. In 1954 the work was authorized and construction began in the summer of that year.

Justification of the new structure was seen in the early stages of construction, when heavy rains in the fall caused the break through of a tunnel which was to form part of the fishway. Large numbers of spring salmon were endeavouring to negotiate the existing fishways but were hampered by the rush of water. As soon as the break-through occurred the fish, sensing an opening, passed through the small aperture accidentally provided and proceeded upstream. It was estimated that approximately 6,000 spring salmon took advantage of this unscheduled use of the fishway under construction.

The new Stamp falls fishway was built in two units, referred to as the upper and lower fishways, with connecting link in the centre. When water velocity makes it impossible for fish to negotiate any part of the falls they will enter the lower fishway which is a 100 foot tunnel. An open section comprising 25 feet of connecting fishway will take spawners into another tunnel, 60 feet long, thence to another open section in the form of a triple rectangle.

At certain stages of low water salmon may ascend the lower part of the falls by way of the natural river channel; under these conditions they will enter the fishway at the centre connecting section and pass through the upper fishway only. This auxiliary entrance will be used only when necessary.

In the tunnels and open fishways water velocity will be checked by a series of vertical slot baffles set in concrete supports at the walls and on the floors of the fishways. Eleven of such baffles in the lower fishway and 26 in the upper fishway will regulate and reduce the force of water during periods of salmon spawning runs. Height of baffles varies according to floor levels, but the general average of 15 feet shows that this is a fishway capable of handling a considerable flow of water. Baffles are timber stop logs set in concrete supports and pillars at intervals of ten feet. Eddies form between each baffle to provide resting pools for the fish when traversing the 200 foot bypass.

Access to tunnels and open fishway will be possible at normal water stages, when maintenance crews will clean, repair and make necessary adjustments. ✔

Fisheries News From Abroad

Sweden's Fishing Industry

In the February, 1955, issue of the Swedish monthly publication on agricultural economics, entitled Jordbruksekonomiska Meddelanden, is published a report by Charles Hamrin, Swedish fish exports representative in Bonn, on the Swedish fish trade. This report represents a valuable contribution to our knowledge of current Swedish fisheries.

The catches of fish and shellfish by Swedish fishermen have increased since World War II, reaching a record level in 1952. Increases within the past few years have been pronounced in the catches of ordinary herring (sill), cod, mackerel and salmon. The total catch by deep-sea fishermen in 1954 was 413.9 million pounds, compared with 408.6 million pounds in 1953, but was approximately 33 million pounds below the peak year of 1952. Annual catch figures include landings by Swedish fishermen direct in foreign ports, chiefly in Denmark and the United Kingdom.

The greater portion of landings by Swedish fishermen are made on the West Coast. Gothenburg, located on that coast, is the country s principal fishing port. Approximately half of the 1954 landings comprised herring, while other species caught in significant quantities were, in order of importance: cod, mackerel and sprat. In addition, haddock, whiting, eels, plaice, flounder, hake, witch and salmon were caught.

The 1954 catch of Baltic herring was a little higher than that of 1953. The average annual catch since 1950 however, represents a decline from landings of the previous decade.

Swedish imports of fish and fish products in 1954 totalled 80.5 million pounds, made up principally of fresh sprat, fresh and salted herring, fish roe, oysters and other shellfish, canned fish and canned shellfish. Imports in 1954 were a little lower than those of the previous year, and were well below pre-World War II levels.

The Swedish fishing industry is enjoying a period of prosperity as the result of increased catches and, more important still, the fact that demand in the export markets has grown considerably. Total exports of fish and fish products in 1954 amounted to 118 million pounds, an increase of 12.7 million pounds over 1953. The principal products exported were fresh herring, smaller amounts of salted herring, and substantial quantities of other species in fresh form, along with some canned fish and shellfish.

The chief customers for Swedish exports of products of the fishery are East Germany, Denmark, West Germany, and the United Kingdom. In 1953, East Germany imported from various West European countries fish and fish products valued at 55 million kroner (approximately $Can. 10.5 million). Of this total, it imported from Sweden 67.3 million pounds valued at 16.9 million kroner ($Can. 3.2 million) worth, mainly fresh and salted herring and fresh mackerel. Maintenance of the East German market depends, among other things, upon the possibilities of balancing the trade and payments position.

Denmark is the most important Scandinavian market for Sweden's exports of fishery products, although that country's exports to Sweden in 1953 were valued higher by about a third, than her imports from Sweden. This results from the fact that a large part of Danish exports comprises higher priced fish or processed products; as was noted above, Sweden exports principally unprocessed - i.e., fresh - fish. Sweden exported to Denmark in 1953 fish and fish products totalling 53.6 million pounds.

Sweden's exports to West Germany, which consist chiefly of herring, represent only a small portion of the latter country's imports. Swedish exports to that market totalled, in 1953, 23.4 million pounds.

Sweden's exports to Great Britain also consist largely of herring, which are landed direct in British ports by Swedish fishermen. Total Swedish exports of fish and fish products to Great Britain in 1953 amounted to 15.7 million pounds.

The basic concern of the Swedish fishing industry today is both to increase domestic consumption, and to maintain the country's position in export markets.

Australian Whaling

Australia's whaling industry experienced another successful season in 1954, says the January, 1955, edition of the "Fisheries Newsletter" which is published by the Commonwealth Director of Fisheries, Department of Commerce and Agriculture, Australia. Each of the five whaling stations secured its quota, the total catch being 2,040. All of these were humpbacks with the exception of one female blue whale.

Current Reading

"Tackle Making for Fishermen," by H. H. Eeles, (Clarke, Irwin and Company, Limited, Toronto, Ont. $1.60).

With moderate skill, patience and a few simple tools, says the author of this book, many items of an angler's equipment can be made successfully by an amateur. His practical instructions and explanations are based on the theory that all anglers are handymen and masters of improvisation by nature and necessity. There are no directions for the making of any article which requires tools of greater complication than a hand drill (no mention is made of reels, except with regard to the treatment they should receive for efficient maintenance, because reels cannot be made satisfactorily without a lathe). The writing is concise, and details of fabrication are adequately shown by line drawings throughout the book, which makes an admirable workshop guide to be laid at hand together with materials and tools. Mr. Eeles covers rods, nets, floats, artificial baits, tackle, traces and spinning leads, and also describes methods of dressing trout and salmon flies.

"A Seal's World," by Frank Stuart, (Clarke, Irwin and Company, Limited, Toronto, Ont. $2.65).

In the first three years of its life, the harp seal of the Arctic, in a perambulating migration, sometimes travels as much as 10,000 miles across the northern hemisphere and back. Every mile of its course is fraught with danger, from polar bears, sharks, devil-fish, Eskimos and professional seal hunters as well as from natural hazards such as storms and shifting ice. This book follows a female seal from birth to her adulthood, describing her life in its various phases in various parts of the northern oceans, showing how she travels and how she grows and survives, often remaining alive only because of the instincts which so often take care of wild things when all their natural endurance is at an end. Although making no pretensions to being a work of zoology, and presented as an adventure story more than anything else, "A Seal's World" is first-rate natural history with the ring of authenticity. It is attractively illustrated with drawings by Walter Ferguson and endpapers showing the wanderer's travels.

"Analysis of Catches of Nine Japanese Tuna Longline Expeditions to the Western Pacific Ocean," by Garth I. Murphy and Tamio Otsu, (Special Scientific Report -- Fisheries No. 128, Fish and Wildlife Service, United States Department of the Interior, Washington, D.C.).

The authors of this report accompanied six of the nine Japanese expeditions after tuna made by the Japanese between June, 1950 and October, 1951, as observers from the Pacific Oceanic Fishery Investigations of the U.S. Fish and Wildlife Service. They have summarized the records with regard to the abundance of the principal species of tuna comprising the catch -- yellowfin, bigeye and black marlin -- and have examined the relation of abundance of catches to factors in the environment of the fish. The authors also examined the possibility that the catch rates (usually expressed as the catch per 100 hooks) might be affected by factors other than abundance, such as the type of bait used and vessel efficiency.

"Lady With a Spear," by Eugenie Clark, (The Musson Book Company, Limited, Toronto, Ont. $3.75).

Written in "popular" style, fresh and entertaining, this is more or less a book of reminiscences of the author's career to date in the marine world. As an ichthyologist, Miss Clark has investigated the fishes of the Atlantic and Pacific coasts of the United States, the Bahamas, the South Pacific and the Red Sea. An ardent underwater fisherman as well as a sound, scientific observer, she has invaded the fishes' habitats with spear and mask, coming up with specimens of fanlike corals, clown fish, vermilion sponges and other exotic species. She also tells of occasional experiences with tiger sharks, barracuda and giant clams. "Lady With a Spear," with its account of the author's adventures, the techniques she employed and the scientific problems she explored is full of interest for anyone with a curiosity about the sea. It is illustrated by a collection of photographs taken on the various expeditions which Miss Clark undertook in three oceans.

"Halibut Schooner," by Lyman R. Ellsworth, (The Musson Book Company, Limited, Toronto, Ont. $3.75).

The author of this book went to Alaska to become a commercial fisherman. Working as one of the crew of a fishing boat which long-lined for halibut and black cod, he learned the hard way. His account of a season on the "Explorer" is full of interest, and his descriptions of the gear and methods used are detailed. In addition, the book contains much of the lore of Alaskan waters and quite a bit of the history of the territory from the time it was dominated by the Russians. The author makes it clear that the life of a halibut fisherman in Alaska is a rugged one, but he finds that it is a rewarding one as well.

The Age-old Way...

LONG AGO, commercial fishermen developed a multiple hook line known as a set-line, long-line or trawl. Off the Pacific Coast, halibut are caught entirely this way. In the Maritime Provinces and Newfoundland, it is an age-old method of capturing cod, halibut and haddock, and is just as popular today in certain communities as it was in the days of sail.

The long-line consists of strong rope, made up in lengths of 300 feet. Into it are spliced the "gangens" or "snoods" of lighter line to which the hooks are attached. Properly baited, these long stretches of line and hooks are set out over the sea bottom where bottom-feeding fish are likely to be looking for something to eat.

The long-lines are set from many types of boats. In the Pacific, where the halibut are big fish, heavier lines and hooks are used and the boats are motor-propelled. In Atlantic long-line fishing, some boats are open motor-boats which stay fairly close to home ports, but other lines are set from the dories of larger sea-going vessels.

Long-lining is one of the most important methods used in the Canadian fishing industry and brings in a large proportion of the total catch. The Department of Fisheries works with fishermen and the fishing industry to protect and improve this famous and important phase of Canada's harvest of the seas.

DEPARTMENT OF FISHERIES

OTTAWA • CANADA

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