DEPARTMENT OF THE ENVIRONMENT

(FISHERIES SERVICE)

NEWFOUNDLAND REGION

NEWFOUNDLAND FISHERIES IN 1972

Newfoundland's seafish landings in 1972 amounted to 650.0 million pounds, a decrease of 25.6 per cent from the previous year's catch of 873.0 million pounds. However, the gross landed value of $34.6 million dropped only 3.0 per cent from the previous record of $35.7 million in 1971. The Fisheries Service, Department of the Environment, reports that the higher relative increase in landed value reflected the general trend of higher fish prices experienced during the year.

Groundfish landings amounted to 471.0 million pounds, down 12.6 per cent from the 1971 catch of 539.0 million pounds. Cod landings fell 18.3 per cent from the 1971 catch of 257.0 million pounds, while flounder landings decreased to 181.0 million pounds from 190.0 million pounds in 1971. The redfish catch fell by 6.7 per cent to 56.3 million pounds. Landings of Greenland Turbot declined by 7.9 per cent from the 23.5 million pounds of the previous year. Other groundfish species amounted to 7.6 million pounds, compared to 11.2 million pounds the year before.

Landings of pelagic and estuarial species amounted to 172.4 million pounds, down 43.2 per cent from 1971, and herring landings totalled 155.5 million pounds compared to 304.0 million pounds the year before. Salmon landings decreased by 15.2 per cent to 2.9 million pounds. However, the capelin catch increased by 73.5 per cent to 9.6 million pounds.

Landings of molluscs and crustaceans (shellfish) amounted to 4.3 million pounds compared to 11.4 million pounds in 1971. The lobster catch was down by 15.1 per cent to 2.6 million pounds. The province's scallop fishery yielded nearly five times the previous year's catch while mussel landings went from 130,000 pounds to 16,000 pounds. Squid seems to have disappeared again with landings in 1972 amounting to only 36 thousand pounds compared to 3.5 million pounds the year before.

The total number of fishermen fell slightly from 15,961 in 1971 to 15,450 in 1972. Of these, 2,000 fished 10 months or more; 7,200 fished between 5 to 10 months; while 6,250 fished less than 5 months. There were 13,650 fishermen involved in the inshore fishery this year compared to 14,262 in 1971. The offshore fleet provided jobs for 1,800 men, compared to 1,700 in 1971.

Salted Codfish

Salted cod production decreased to 100,000 quintals dry weight, from 146,923 quintals in 1971. the percentage of total cod landings used for salting fell to 21.3 per cent from 25.6 per cent the previous year. This is the lowest proportion of cod landings going to salt ever recorded. The trend of the last 10 years is shown below:

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	1963	1964	1965	1966	1967	1968	1969	1970	1971	1972
Total	59.1	54.3	45.9	45.5	59.7	43.3	36.9	32.3	25.6	21.3
Light	29.5	27.8	16.6	17.3	17.8	19.1	17.6	11.7	7.7	4.5
Heavy	29.6	26.5	29.3	28.2	41.9	24.2	19.3	20.6	17.9	16.8

Frozen Groundfish

Production of frozen groundfish fell from 136.4 million pounds in 1971 to 122.6 million pounds in 1972.

Frozen cod products accounted for 46.0 per cent of frozen groundfish production, followed by flounder and redfish at 35.0 per cent and 11.3 per cent respectively.

INSPECTION BRANCH

Salted Fish

Fish processing establishments in the province producing salted fish for export are required to meet regulatory construction, equipment and processing standards before the commencement of operations. This is considered necessary in order to ensure acceptable sanitary conditions for the proper handling of a food item and to assist in the production of a good quality product. Major improvements to several salted fish plants were made on the recommendation of the Inspection Branch and with the co-operation of the operators concerned. Seventeen salted fish plants were approved and registered in 1972.

The inspection of salted fish prior to export to foreign markets was carried out as in former years and no serious quality problems were found. Specific grades, sizes and moisture contents are contained in the Fish Inspection Regulations and inspection and packing are carried out accordingly. Improved plant and storage facilities, as well as greater care in splitting, washing and salting resulted in a noticeable improvement in quality.

Marketing was handled, as has been the case since 1970, by the Canadian Saltfish Corporation. Demand was brisk with very satisfactory prices which resulted in record returns to fishermen. Unfortunately, the production of salted fish again declined in 1972, which has been the trend over the past few years. The decline was attributed to severe ice conditions experienced on the north east coast, the continuous failure of the Labrador fishery, and the excellent market demand for cod in the fresh and frozen states.

As was the case in 1971, the Inspection Branch of the Fisheries Service, Department of the Environment, with the co-operation of the Canadian Saltfish Corporation, carried out a salted fish upgrading program. Twelve qualified term employees travelled the island and Labrador extensively during the period May to November. Contact was made with fishermen-producers in all areas and advice given on proper methods of cure and handling. Assistance and advice was also given to ensure a fair and proper intake cull.

Fresh and Frozen Fish

The Fish Inspection Regulations provide that filleting and freezing plants must be approved by the Inspection Branch and be covered by a Certificate of Registration before operations commence. Specific plant, equipment and operating requirements are necessary to ensure satisfactory sanitary operations. Certificates of Registration remain valid for a period of one year and are then subject

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to renewal. During the past year 54 filleting and freezing plants were registered as compared with 50 plants the year before.

Plant and operating conditions are under continual observation by qualified Inspection Officers during periods of production to ensure that satisfactory sanitary arrangements are being maintained. If such is not the case, the Certificate of Registration is cancelled until the necessary improvements are made. The Inspection Regulations prohibit the processing of fish which is considered tainted, decomposed or unwholesome, and such fish must be disposed of for non-human food purposes.

Production of fresh and frozen fish during the year was below the 1971 production, but markets remained firm and prices satisfactory. In many instances record prices were paid fishermen for various species of fish.

In an effort to ensure that uniformity of understanding existed on standards for plant construction, equipment and product grading between the Maritimes Region and the Newfoundland Region, arrangements were made in October, 1972, for an interchange of Inspection Officers between Regions for a period of one month. At the conclusion of this assignment any differences of opinion that were noted were discussed and agreement reached.

During the year the Inspection Branch of the Fisheries Service considered adoption of a long-range program to upgrade quality of processed fish, both for the domestic and export markets. Several meetings were held between representatives of the Inspection Branch, provincial authorities and industry to discuss the proposed program. One of the agreements reached was the necessity to provide additional supplies of ice for use in the inshore fishery, and plans in this direction are now being finalized. Boats used in catching and transporting fish must meet certain minimum standards, and in this regard surveys of various types of boats were carried out during the year to assist in drafting acceptable requirements. It is anticipated this program will become effective in 1974.

Pickled Fish

Increased activity was evident during the year in the production of pickled herring due mainly to a very active market demand, particularly in Scandinavian countries. However, herring was not as plentiful as in 1971, and, although the number of operators increased, the production was slightly below the 1971 figure. During the year under review, 137,500 barrels (approximately 200 pounds each net) were inspected and exported as against 141,340 barrels in 1971.

During the period February 21 to 25, 1972, a workshop dealing with the preparation and inspection of spice-cured, brine-cured and marinated herring was held at Stephenville. The workshop was arranged by the Inspection Branch of the Fisheries Service and was attended by industry personnel from the Maritimes, Quebec and Newfoundland, as well as Inspection Officers from the Maritimes, Quebec and Newfoundland Regions. With the co-operation of the Norwegian Ministry of Fisheries, two instructors experienced in the processing and inspection of cured herring products intended for export to European markets were made available and assisted greatly in the success of the workshop. At the conclusion of the workshop a summary of the results was prepared by the Inspection Branch and distributed to members of the trade and other interested parties.

The production of pickled turbot has been on the decline in recent years and only a small quantity was offered for inspection

in 1972. The quantity of mackerel produced for export was not significant although this species was reported plentiful in several areas. In addition, only small quantities of pickled salmon and Arctic Char were inspected for export. Quality of pickled fish products was generally satisfactory.

Further consideration was given during the year to amending the Fish Inspection Regulations thus providing for the compulsory registration of plants producing pickled and marinated fish products. This will mean that such plants will have to be upgraded to meet minimum construction, equipment and operating standards. It is intended that this requirement will become effective in 1973.

Inspection Laboratories

Inspection laboratories staffed by eight professional and 17 technical employees are located at St. John's, Grand Bank, Catalina, and on the floating laboratory M. V. "Belle Bay". These facilities were established to ensure that fish, shellfish, and fishery by-products are harvested and processed under conditions such that the marketed commodity meets national and international standards of wholesomeness and quality. Another objective of the laboratory program is to undertake investigational studies to aid industry in developing or improving products, technology and markets and to provide the Department with data on potential or existing risks to public health. All laboratories are equipped for microbiological analyses while facilities for chemical analyses are centralized in the St. John's laboratory. In 1972, samples submitted for microbiological or chemical analyses totalled 26,829 including 1,197 samples of domestically-canned fish. In addition, inspection and examinations were made of 64 shipments representing 82,855 pounds of imported canned fish.

Production of the various filleting, freezing, canning and smoking plants was checked regularly as part of the continuing program of assessing the microbiological quality of all types of products. Existing and proposed water supplies for all types of fish processing plants, community stages and holding units were examined to determine compliance with water quality standards. Recommendations were made to industry respecting improvements in processing technology and relocation of water intake sites. Results of water analyses were made available to other government departments and agencies and to consulting engineers in instances where new water supply systems were required. Analyses of by-products such as fish meal and of herring and mackerel were carried out for industry. These analyses have value in the marketing and utilization of these commodities. Fishery salts were analyzed for both the Canadian Saltfish Corporation and the provincial government to determine compliance with composition standards.

Investigational studies started in 1971 or were continued in 1972 and new projects initiated. A monitoring program to determine the levels of microconstituents in whole fish and fishery products was expanded to include analyses for cadmium, zinc, arsenic and copper, in addition to mercury. A collaborative study started in 1971 by the St. John's Biological Station, Fisheries Research Board of Canada, and the Fish Inspection Laboratory to assess seasonal fluctuations in chemical composition and biological parameters of various stocks of North Atlantic herring was completed in 1972. Projects to improve methods of microbiological analyses of fishery products and to determine the incidence of potentially pathogenic microorganisms in water, marine sediments and various species of fish were continued.

The M.V. "Belle Bay", which has played a significant role in the provision of inspection services to industry in the continuing program to improve the quality of Newfoundland fishery products, was retired December 31, 1972.

The retirement of the floating laboratory resulted from improvements in road and air communications in all sections of the province and provision of laboratory facilities at Corner Brook. These new facilities will more adequately serve the needs of the rapidly expanding fish processing industry in the western area of the island. The 70-foot steel vessel, fitted with a complete microbiology laboratory and accommodation for laboratory personnel, commenced operations in April, 1958. The vessel logged approximately 53,500 miles while providing laboratory facilities at fish processing establishments in Newfoundland and Southern Labrador. During this period a total of 35,415 samples were analyzed. Following completion of a refit, the "Belle Bay" will continue in service with the Department as a patrol vessel with the Conservation and Protection Branch.

CONSERVATION AND PROTECTION BRANCH

The Conservation and Protection Branch of the Fisheries Service, Department of the Environment, operated a fleet of 14 patrol vessels during 1972. Thirteen of these operated year round and the other part-time. Up to the end of December the 14 patrol vessels had logged a total of approximately 100,000 miles.

In addition to routine patrol duties, Department vessels were involved in search and rescue operations, and several instances occurred where broken down longliners were towed to port. Persons from isolated communities needing immediate medical attention were transported to larger centres where the necessary facilities were available.

The most outstanding and dramatic sea rescue operation was recorded March 15, 1972, when the Fisheries Service patrol vessel C.G.S. "Cape Freels" rescued the entire crew of the Nova Scotian fishing vessel "Sea Urchin" shortly before the vessel sank to the bottom after springing a leak on the south eastern section of the Grand Banks. The rescue was carried out during severe winter conditions, and the fact that the rescue operation was so successful was attributed not only to the superior display of seamanship on the part of the master and crew of the "Cape Freels", but also to the fact that the "Cape Freels" carried on board an inflatable dinghy. The rubber craft was used to good advantage at a time when use of the conventional type life-boats would, in all probability, have been entirely inadequate.

During a more tragic incident, two Fisheries Service patrol vessels, the "Pistolet Bay" and the "Porella" were involved in search and rescue as a result of a fire and eventual sinking of the coastal vessel "Del Roy" during the early hours of July 28. Out of a total of 15 persons on board, only six survived. Only one body was recovered from the waters of Placentia Bay, and this was picked up by the crew of the "Porella". Several days were spent by both vessels searching for the other victims.

Canadian trawlers and draggers were checked regularly in 1972 when they were fishing in areas designated by the International Commission for the Northwest Atlantic Fisheries to ensure that proper mesh sizes were being used for regulated fish species. In total, approximately 400 measurements were taken.

Generally speaking, fishermen observed regulations governing

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commercial and sports fisheries. However, offences against the regulations resulted in 215 prosecutions, approximately the same number as the previous year. Fines imposed by the courts ranged from $5.00 to $100. However, three foreign fishing vessels were fined $1,500 each and another was fined $2,500 for violating the Coastal Fisheries Protection Act.

Salmon anglers landed an estimated 27,000 fish in 1972, a decrease of about 6,000 salmon from the previous year's total catch of 33,000. Commercial salmon fishing licenses were issued to 4,984 fishermen, a decrease of 1,576 licenses from 1971, while landings totalled approximately 2.9 million pounds, a decrease of about 500,000 pounds from the 1971 catch.

One hundred forty-three vessels and 6,721 seal hunters were licensed to take part in the annual seal harvest in 1972. Fishery officers stationed on board large sealing vessels were on the ice with the seal hunters at all times. Regulations governing killing methods, opening and closing dates, and encroachment by foreign vessels were continually monitored by aerial patrols.

During the year, 5,120 lobster boats were registered; 7,967 lobster fishermen licensed, and four special lobster pound licenses issued. Lobster landings during the year amounted to 2.5 million pounds, a decrease of about 450,000 pounds from the 1971 catch.

The two whale factories at Williamsport, White Bay, and Dildo in Trinity Bay, again operated in 1972. Six whale catcher vessels were licensed and 65 whale hunting licenses issued. The total take was 265 fin whales, 97 minke and two sperm whales.

Under provisions of the Otter Trawl Fishing Regulations, 100 trawlers, draggers and Danish seiners were licensed and 124 personal operators' licenses issued.

RESOURCE DEVELOPMENT BRANCH

The Resource Development Branch of the Fisheries Service, Department of the Environment, has primary responsibility for biological information required in fisheries management for the maintenance and development of greater fish resources and for protection of those resources from industrial and natural hazards.

Exploits River Development

In 1972 further steps were taken to develop the vast Exploits River watershed for Atlantic salmon. The first success in the program was the transfer of fish to Great Rattling Brook, a large tributary draining into the Exploits River below Grand Falls. The next major step involved construction of the Noel Paul's Brook spawning channel. Several additional steps were taken during the year to promote the increase of salmon in the Exploits River.

The Noel Paul's Brook controlled-flow spawning channel has operated since 1968 and produces salmon fry for stocking of a portion of the central Exploits drainage area presently inaccessible to sea-run salmon. During the year under review, 312,000 fry were produced in the channel and distributed to the natural rearing areas of the brook. The second substantial smolt run from Noel Paul's Brook occurred in the spring. The smolt productions indicate that the channel-produced fry are producing smolts at acceptable rates of survival.

An exit sluice and trap was placed in the Bishop's Falls powerhouse forebay during the year. This opening allowed the kelts

and smolts, which previously had to either remain in the forebay or pass through the turbines, to pass from the forebay and be released downstream thereby removing them from the hazards of delay and passage through the turbines.

Two fishways are under construction and a new counting facility was opened in 1972. The counting facility at Bishop's Falls allows easier fish passage over the dam and rapids and provides a site for an annual census of the run to the Exploits River. A new fishway is being constructed at Camp One Falls on Great Rattling Brook to provide fish passage over the waterfall. The old fishway at this site was no longer reliable due to deterioration of the dam atop the waterfall.

The most important fishway construction is at Grand Falls which has historically been the farthest upstream point of salmon migration. The adults returning to the newly-developed Noel Paul's Brook have to pass Grand Falls. This fishway will allow them to ascend to an area where they will be collected and transferred above the dam at Grand Falls. As the runs to areas above Grand Falls increase, a second phase of construction will permit the fish to pass this obstruction without transferral.

In 1972 the salmon run to the Exploits River was below average as was the commercial fishery catch in the Bay of Exploits. However, the sports catch was higher than expected with anglers taking over 400 fish.

With the new fishways, the predicted returns of fish produced in Noel Paul's Brook, increased production from the spawning channel, adn further extensive development and management measures, the salmon run of the Exploits River will begin to expand in 1973 beyond the present level of approximately 3,000 fish. An annual production of approximately 80,000 Atlantic salmon should be realized in 20 to 25 years which, with proper management, will yield approximately 20,000 fish to the sports fisherman and will add approximately 140,000 pounds of salmon to the commercial fishery.

Indian River Development

During the early sixties, part of the watershed of Indian River, which drains into Halls Bay near Springdale, was diverted for hydro-electric purposes. This diversion resulted in the loss of valuable Atlantic salmon stream spawning and rearing areas within the headwaters. In co-operation with the Bowaters Company, a controlled-flow spawning channel was built to compensate for the loss of spawning beds due to the diversion.

The channel is into its tenth year of operation. The fry produced are used to stock Indian River below the area affected by the diversion. The areas stocked were not previously being utilized to their fullest extent by natural salmon populations.

Extremely low water flows and temperatures during the winter of 1971-72 reduced channel and river fry production. Winter drought and ice conditions destroyed many of the eggs that normally hatch in the spring. However, the cold winter did not affect the 1972 spring smolt production. The summer run of adults into Indian River during 1972 fell below the predicted value, as with other streams draining into Halls Bay. The Halls Bay commercial fishery was also lower than normal.

Torrent River and Lomond River Development

In 1965, a vertical-slot fishway was constructed at Torrent River falls to open a large expanse of this river for

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Atlantic salmon production. To aid natural escapement, an adult transfer program began in 1972. When complete, this development program will increase the sports creel from the present 50 fish per season to an estimated 750 fish per season.

Along the same lines, a start was made in 1972 on development of the Lomond River. Sufficient adults escaped upstream to fully stock this area. These programs will continue for six years to establish adult runs at full production levels.

Labrador Investigations

As a result of the large commercial salmon fishery off West Greenland, the Resource Development Branch in 1969 started an Atlantic salmon smolt tagging project in Labrador as part of an international investigation to determine the origin of the stocks being exploited in the Greenland area. Sand Hill River was selected as the project site and construction of facilities began in 1968. Between 1969 and 1972, approximately 35,000 smolts and 1,500 adult salmon were tagged and released. Tag returns indicate that a large component of the Sand Hill River salmon population return from the sea as salmon over six pounds. They are heavily harvested while at sea by the West Greenland, Labrador and eastern Newfoundland coastal fisheries. Smaller salmon or grilse are also taken at sea during their return to Sand Hill River but only within the Labrador and eastern Newfoundland coastal fisheries.

Sport Fishery Investigation (Metro-Area Lakes)

Investigations into the recreational fishing potential of approximately 20 lakes near the metropolitan area of St. John's were completed during 1972 and several of the lakes have been chosen for possible lake access development. It had been planned to start this development during 1972. However, negotiations with the province regarding provincial government participation in the project have taken longer than expected.

The forage fish introduction and evaluation program initiated during 1971 was continued and, in fact, expanded during 1972. Approximately 135,000 sticklebacks were released into Thomas and Paddy's Ponds, and these tiny food fish now constitute a major item in the diet of brook trout and ouananiche in these lakes. In addition, a start was made on the evaluation of the potential of smelt as a forage species in local lakes.

Reservoir Studies and Lake Inventory

Beginning in the early spring of 1972 a start was made on a post-impoundment study of Victoria Lake, which has been impounded as part of the Bay D'Espoir Hydro-electric Development. The purpose of this study was two-fold. The first objective was to compare the limnology and fish populations of Victoria Lake Reservoir with those of pre-impoundment Victoria Lake baseline data obtained during a study in 1965. The second objective was to inventory the sport fish resources of one of the island's largest lakes.

The preliminary results indicate that following four years of impoundment changes in productivity of the Victoria Lake Reservoir have been almost negligible. However, the resident salmonoid fish populations, particularly ouananiche, appear to have experienced a marked increase in growth and survival rates, while spawning success may have been reduced by inundation of spawning areas.

While the study team was in the Victoria Lake area, they took the opportunity to investigate nearby Long Lake in terms of its

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limnology and sport fish populations. The objective was to determine whether large fish are inhabiting Long Lake and what limnological factors are operating in this lake. Incomplete results indicate that while a good ouananiche population is present in Long Lake, it may be no better than populations inhabiting other lakes of a similar size.

Water Resources Protection

Reorganization of the Department of the Environment resulted in a division of pollution control activities. Much of the Resource Development Branch responsibility in this area was transferred to the Environmental Protection Service as of April 1, 1972. Work retained includes that requiring action to maintain fish resources in the face of industrial activities which produce physical changes in the aquatic environment. Liaison with other services and governmental departments ensures protection of fish stocks from pollution.

Some of the problems dealt with in 1972 were:
- siltation and sediment deposition caused by highway construction;
- advice to alleviate problems caused by culverts poorly placed during highway construction;
- monitoring of logging operations;
- maintaining liaison with provincial and federal agencies to be aware of proposed or current projects that relate to environmental manipulation affecting the fisheries resource;
- investigating and monitoring the construction and operation of new town water supplies.

Diversion of the White Bear River, part of the Bay D'Espoir Power Development, resulted in significant water flow reduction having possible detrimental effects on a salmon population estimated at 500 to 1,500 fish. Studies were continued to determine present levels of fish utilization and to detail the stream features. An agreement between the Newfoundland and Labrador Power Commission and the Department provides measures to protect the fish stocks. Flows within the river will be maintained above certain levels, and some salmon-rearing areas within the system were made accessible to fish in compensation for production areas lost by flow reduction.

Filling of the Smallwood Reservoir of the Churchill Falls Power Development resulted in reduction of water levels in the Naskaupi River. A field survey investigated the effects on fish populations. Overall objectives of the study included (1) determining whether obstructions to fish migration developed on the river or at the mouths of tributaries as a result of reduced flows; and (2) to determine fish utilization and population densities.

Proposed plans to integrate Come By Chance River into a water supply system initiated the Department's study to monitor the effects such a plan would have on that stream's fish populations. Efforts have been directed toward determination of the fish population size and the nature of the stream's fish-rearing capability.

Laboratory Services Unit

The Laboratory Services Unit is responsible for water sampling and analysis. Some of the work undertaken in 1972 included:
- technical support to Environmental Protection Service during the period of divided responsibilities;
- a water quality inventory was initiated for the island, with several hundred samples being collected and analyzed;

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- reconnaissance surveys on six large lakes were carried out to check accessibility, water quality, depth, temperature profile and dissolved oxygen;
- routine analyses for water quality on samples submitted by the the other groups within the Branch.

Engineering Projects

Largest project undertaken by the Engineering Group during the year was the design and construction of fish collection and transfer facilities on the Exploits River at Grand Falls. This project forms part of the Exploits River Atlantic Salmon Development and Management Program. As an integral part of the collection and transfer facilities an access road was constructed to the site. The road was built under contract and supervised by department project engineers. Work on the project began in September. It is expected the fish collection and transfer facilities will be available for use in 1973.

Also, as part of the overall development program for the Exploits River, two facilities were constructed at the hydro-electric development at Bishop's Falls. One of the facilities completed was a fishway located at the south end of the dam which enables the upstream migrants to surmount the dam with little difficulty. The second facility was constructed at the forebay of the powerhouse and allowed the downstream migrants to be collected and released downstream. Both facilities functioned satisfactorily during the year.

Remedial work on several obstructions on White Bear River on the south coast of the island was undertaken in 1972. This project was carried out in conjunction with the Newfoundland and Labrador Power Commission which financed the work as part of the agreement in connection with the Bay D'Espoir Power Development. The project consisted of drilling and blasting of channels at obstructions which had prevented salmon and trout from migrating to the spawning and rearing areas in the upper reaches of the river.

Engineering surveys were carried out at several locations for access roads into lakes or ponds along the Trans-Canada Highway on the Avalon Peninsula. Further investigations will be necessary before any construction can be undertaken.

INDUSTRIAL DEVELOPMENT BRANCH

The Industrial Development Branch of the Fisheries Service, Department of the Environment, actively continued its role in fishery development during 1972 with a view to further expanding and modernizing the commercial fishery of Newfoundland. Constantly mindful of the ever increasing need for modern technology in a very competitive industry, the Branch has been successful in providing technical advice and assistance for a development program which includes a variety of projects ranging from the design and operation of fishing vessels and gear to the production of speciality seafood products.

A large portion of this program is being undertaken jointly with the Newfoundland Fisheries Development Authority.

Exploratory Fishing

Offshore exploratory fishing efforts have resulted in the location and study of migratory patterns of large offshore capelin stocks which until this year have been virtually unexploited by Canadians.

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Four Canadian fishing vessels -- two mid-water trawlers and two purse seiners -- were assisted to enter the offshore capelin fishery and as a result more than four thousand tons of capelin were landed at processing plants along the south coast of Newfoundland during the two-month period early June to early August..

While most of this fish was used for reduction into meal and oil, some was frozen, especially the female fish, and exported to Japan for human consumption.

Offshore explorations are presently underway off northern Newfoundland and southern Labrador where large capelin schools were recently located. Samples revealed that this fish has an extremely high fat content which could no doubt be of significant importance to the industry. It appears quite evident that capelin production will make a significant contribution to the fishing industry in the near future.

Inshore explorations, mainly for shellfish, (crab, shrimp, scallops, mussels, etc.,) were undertaken in co-operation with the Newfoundland Fisheries Development Authority during the past year with varying degrees of success. A more vigorous inshore explorations program is planned for 1973.

Fishing Operations

The conversion of existing fishing vessels for multi-purpose fishing; the design, construction and operation of new types of fishing gear; the demonstration of new and modified fishing gear to inshore fishermen were some of the projects undertaken with a view to developing more diversified fishing operations.

The introduction of the "Scottish Ringnet" together with the provision of the technical services of an expert ringnet fisherman from Scotland to demonstrate this method of fishing, resulted in a highly successful fishing operation.

Involving the use of two 45-foot gillnetters converted for ringnetting, the operation was most productive, especially for mackerel fishing, and daily catches of up to 80,000 pounds were made.

In view of the success of this project and the fact that many areas around Newfoundland during the past several years experienced large mackerel schools which were underexploited, it is anticipated that a greatly increased effort in the development of the mackerel fishery will be seen during 1973.

Fish Farming

Scallop farming, a project which was started during 1971, was continued and expanded with most encouraging results. This is to be continued and further expanded to several areas of the province in 1973.

In a proposed joint program with the province for 1973, a study will be undertaken to investigate the possibility of farming additional fish species.

Product Development

Technical assistance and expert advice in food technology has been made available to several fishing companies who appear keenly interested in the production of speciality fish products. Some products being developed have already been evaluated with very pleasing results.

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The Industrial Development Branch in the past year has been most successful in the recruitment of technical experts to complement the services provided by a permanent technical staff. During 1972, some 17 technical experts from six major fishing countries were hired under contract to provide technical advice and assistance on a wide variety of fishery development projects.

NEWFOUNDLAND BAIT SERVICE

The Newfoundland Bait Service supplied an estimated four million pounds of frozen bait to inshore fishermen in 1972. The pattern of bait distribution continues to shift southward with less concentration on the east, northeast and Straits areas.

Squid

Squid failed to make an appearance in 1972 for the fifth consecutive year. Landings in the years 1965, 1966 and 1967 averaged about 14.5 million pounds. The 1968 landings fell abruptly to two or three thousand pounds and continued at this low pace until last year when landings increased to 3.5 million pounds, a beginning of the end of what was hoped to be a cyclic low. However, in 1972 landings were less than 40,000 pounds, the major reason for the sharp drop being the abnormally low water temperatures around the island and Labrador coasts.

Mackerel

Increasing usage of mackerel bait in traditional trawling areas, South Avalon and South Coast waters, has somewhat blunted the adverse effect of the squid shortage. Mackerel output by the Bait Service in 1972 matched the total squid output in the early sixties. The island is becoming less dependent on outside sources of mackerel supply as local processors increase production of this species.

Capelin

Sufficient capelin was procured during the year for bait purposes.

Herring

Supplies of herring for bait are becoming more difficult to accumulate and more costly to purchase. The Bait Service must now compete with a growing and aggressive food herring industry for the same size and quality of herring. An attempt was made in 1972 to substitute redfish frames (the whole fish minus the fillets) for herring as lobster bait. Experimental lots were stocked at several west coast outlets at a lower price than herring.

FISHING VESSEL INSURANCE PLAN

Vessel Insurance

During the past year 415 new policies were written with a total insured value of $3,735,075. Renewal policies totalled 668 with the total insured value amounting to $5,239,750, for a grand total of 1,083 policies valued at $8,974,825.

Fifty-six claims were paid with indemnity payments totalling $165,142.

Fishing Vessel Assistance Program

One hundred applications were approved in the year under review. The breakdown of the vessels by size and approximate construction costs is as follows:

	Number of Vessels	Length	Costs
	27	45	$ 756,000
	32	50	1,280,000
	34	52	1,530,000
	2	56	120,000
	4	58	268,000
	1	64	87,000
Total	100		$4,041,000

All field appraiser/adjusters were involved in the construction inspections of the above noted vessels, some of which are still under construction. The federal government pays 50% of the vessel construction costs.