ANNUAL REPORT

of the

INSPECTION BRANCH

MARITIME REGION

1969

DEPARTMENT OF FISHERIES AND FORESTRY

(RESTRICTED TO OFFICIAL USE)

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INTRODUCTION

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Financial restraints and severe manpower restrictions combined to create serious difficulties in the Inspection Branch in 1969. The manpower shortage was most severe in the Shippegan-Caraquet area where Inspection responsibilities were not adequately carried out in all instances. This situation was created by the large expansion in the fishery in this area coupled with a serious reduction in the number of inspection officers due to separation because of death, sickness or retirement.

Implementation of employee contracts under collective bargaining combined with limited financial resources for overtime pay, resulted in significantly less supervision by our officers of night clean-up, pre-production clean-up, weekend and holiday processing operations and nightshift work. Operations were curtailed, programs were reduced or eliminated, and overtime strictly limited to emergency conditions so that financial resources would not be exceeded. However, in respect to the present objectives of the Inspection Branch, it is now questionable how further reductions in programs can be made without seriously impairing ability to carry out the responsibilities of the Inspection Branch.

A change in the contract of Primary Product Inspectors made in late 1969 that permits overtime to be eliminated by taking time off during slack periods will help somewhat in certain areas. Experience gained by various supervisors during the year in enforcing employee contracts should result in fewer problems in the coming year in administration.

Proposals were submitted to our Ottawa Headquarters during the year suggesting major changes in the organization of the Inspection Branch, Maritimes Region. Tentative approval was received at year's end. Under the new proposals Scientific Regulatory Officers, Grade 4, will be in Charge of Districts. Area Supervisors at the Grade 3 and Grade 2 levels will provide needed university trained technical personnel at the working and first supervisor level.

During July 15-25, Halifax, N.S. was the host city for a world wide FAO Technical Conference on Fish Inspection and Quality Control. Over 200 people from 45 countries participated in the Conference at which 106 papers were presented

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on various topics. Following the conference over 20 senior Fisheries Administrators from developing countries toured various maritime fish inspection laboratories and processing establishments prior to going to other regions. During the tour instructional talks and guidance through fish plants were provided by Maritime Inspection personnel.

Permanent laboratory facilities were provided at Sydney, N.S. enabling the Inspection Branch to dispose of the mobile unit which served as temporary facilities for over two years along with the unit that had been based at Yarmouth, N.S.

Seven fishery officers commenced their last year of University training and if successful they will receive their B.Sc. degrees in the spring of 1970. Several personnel registered for single credit courses at our various Maritime Universities.

The services of several of our laboratory and inspection officers was seconded for various periods of time to assist at fisheries exhibitions, the most notable being at Lunenburg, Summerside and Shediac.

The main body of the report outlines in detail the various parts of our program carried out by the Field Staff, Quality Control Laboratories and our Applied Research and Development Laboratory.

FIELD INSPECTION

FIELD INSPECTION

I.

A. Fresh and Frozen Fish

A generally improved market demand for groundfish fillets during 1969 resulted in a more optimistic outlook in the fresh and frozen fish industry at year's end compared to 1968.

During 1969, the groundfish industry in the Maritimes Region experienced significant changes. There was a marked decline in landed quantities of haddock which resulted in more utilization of redfish and flounder by Nova Scotia plants. Reduced Haddock landings also resulted in very large import shipments of frozen haddock blocks for utilization in fish stick manufacture. Inspection of these lots was carried out at the processing plants where several lots were found on examination to be decomposed and rejected.

In the Shippegan-Caraquet area, practically all of the smaller Chaleur and Gloucester vessels converted from groundfish to Queen Crab fishing. During the winter season, in southern New Brunswick, groundfish landings were reduced as a result of the large number of boats converting to the shrimp fishery. Along the eastern shore of New Brunswick, the scallop fishing, formerly concentrated in the Richibucto-Cape Tormentine, N.B. area moved to scallop beds in the Wood Island, N.S. region. Toward the end of the year, experimental red crab and shrimp processing operations were being carried out in South Western Nova Scotia and additional processing plants were showing an increased interest in these new fishery resources.

Certificates of registration for three fresh and frozen fish plants were not renewed in 1969 because of non-compliance with Schedule D and in addition three plants were destroyed by fire and certificates of registration for these plants were cancelled.

The Sea Seald Division plant of National Sea Products Limited, Halifax, one of the oldest plants in Maritimes Region ceased operations; most of the staff and draggers were employed by other National Sea Products Limited plants.

The firm of H.B. Nickerson, North Sydney, rebuilt processing facilities formerly destroyed by fire, and also commenced fish processing operations at the Georgetown Seafoods Limited plant at Georgetown, P.E.I. The plants producing for sale within the province or "feeder plants" in N.S. continued to pose problems in certain instances because of the lack of complementary Provincial Regulations which would permit adequate supervision of these plants by the Branch.

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Several meetings were held with representatives of the Cardinal Proteins Limited firm which is presently constructing a five million dollar plant at Canso, N.S. to produce Fish Protein Concentrate, utilizing the "Halifax Process". Members of the Food & Drug Directorate, Department of National Health and Welfare, attended these meetings and at the end of the year the company was expecting a favourable reply in response to their submission to the Bureau of Food Advisory Service, Department of National Health and Welfare, requesting amendment to present Food and Drug Regulations, to permit sale of this product in Canada. Section 18(b) of the Fish Inspection Regulations will be amended to require registration of plants producing Fish Protein Concentrate. It is anticipated that sampling and inspection of the product will be carried out in conjunction with the Food and Drug Directorate Laboratory, Halifax.

Meetings were also held with representatives of Sea Pool Fisheries, Clam Bay, N.S., regarding construction of trout and salmon rearing and processing facilities. The sea facilities will include tanks of water of controlled temperature where eggs and fingerlings of Rainbow Trout and Atlantic Salmon can be reared to maturity. These fish will then be slaughtered, dressed and air shipped to markets in major Canadian cities. Several experimental lots have been marketed to date.

Field Inspection Officers, Laboratory staff and Engineers of the Inspection Branch continued to provide assistance to the Industry regarding new construction, renovations and alterations to plant and equipment to bring operations into compliance with regulatory requirements and facilitate registration of plants. A comparison of the number of fresh and frozen fish plants in each of the Maritimes provinces is illustrated in the following table:

Number of Registered Fresh and Frozen Fish Plants

Maritimes Region

Year	Total	Nova Scotia	New Brunswick	Prince Edward Island
1969	103	58	31	14
1968	106	65	29	12
1967	80	54	16	10

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Six new plants were constructed to process crab and a number of registered filleting plants and canneries constructed new facilities, to process this species of fish. Two new shrimp plants in southern New Brunswick, in addition to the three present in 1968, processed shrimp caught off New Brunswick or imported in the raw state from Maine, U.S.A. Fresh shrimp continue to be exported to Europe by direct air shipments and some plants imported frozen shrimp from Cuba and Florida for further processing. On Prince Edward Island, in addition to the reactivation of the Georgetown plant, a shrimp processing plant was constructed to process shrimp imported from New Brunswick, one plant was remodelled to process scallops, and another to produce frozen fish cakes and vacuum packed, frozen lobster in shell.

In addition to the field staff reviewing plans for these new plants and inspecting construction as it proceeded, laboratory personnel conducted numerous "in-plant" bacteriological surveys to assist industry in producing a wholesome product. Detailed investigations were carried out in several plants to assist industry in developing reliable pasterurization processes for fresh and frozen crab and lobster meat products.

Four harbour water surveys were also carried out to determine sea water sources suitable for fish processing operations, and four sources presently in use were carefully monitored to determine the bacteriological quality of the intake source. Periodic pollution of the town water supply at Digby, N.S. was revealed during the summer months from weekly monitoring tests instituted by the Yarmouth Laboratory when the lake water used as the town supply becomes very shallow. This water problem was discussed with Department of National Health and Welfare authorities and eventually, town officials made arrangements to drill two artesian wells as auxiliary supplies and installed new chlorinating equipment on the municipal supply. The town of Lockeport, in conjunction with Provincial and Federal agencies, completed installation of a communal salt water supply for the three fresh and frozen fish plants in Lockeport, N.S.

The Queen Crab processing industry continued to expand in 1969. Landings increased from approximately four (4) million pounds to 14.4 million pounds. Six new plants, designed specifically to produce this product were constructed in the Shippegan-Caraquet area and eight canneries in the Westmorland-Kent counties of New Brunswick produced 40,000 cases of canned crab.

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In preparation for this development the Inspection Branch in January 1969 conducted a weeks training course for Inspectors in production and inspection of queen crab products. Following this course, a 5 day course on crab processing was held in the Fish Inspection Laboratory, Halifax for Industry personnel.

As a result of a recommendation from the Atlantic Queen Crab Association, the Fish Inspection Regulations were amended to permit the processing of only live crab. Preliminary to this amendment, processors of crab who were not members of the association and fishing captains were interviewed to determine their views on the proposed amendment. As a result of practically unanimous support from Industry, Maritimes Region recommended this amendment be adopted. During the season, considerable quantities of crab fished in Northern New Brunswick and Gaspé were trucked to southern New Brunswick. The Inspection Branch did not receive wholehearted support by Industry in the culling of dead crabs prior to processing and considerable difficulty was encountered in enforcing this regulation. Marketing of frozen queen crab products encountered difficulties as demand slackened and this was further complicated by the U.S. requirement that crab products of this species destined for import into U.S.A. be labelled "Snow Crab".

Clam fishing in the Annapolis Basin area continued to expand, with landings increasing by 1.5 million pounds to a total of 4 million pounds. Four shucking plants were registered for export and also were issued "export Certificates" by the Department of National Health and Welfare in accordance with International Shellfish Committee Agreement Standards. Production at these plants is systematically sampled to ensure compliance with bacteriological standards under this agreement.

The institution of the Frozen Fish Price Stabilization Program increased the responsibilities of the Inspection Branch since prior to purchase, an inspection certificate was required. Each date code of each lot was sampled to ensure compliance with quality standards prior to issuance of the Certificate. Thirty two lots consisting of 1,279,472 pounds were inspected. Markets have strengthened considerably since the inception of this program and purchased stocks were at a low level at year's end.

Approximately 26,000 pounds of fish produced by five plants in Maritimes Region were returned for various reasons following export to the U.S.A. and subsequent examination by the U.S. Food and Drug Administrative authorities. Catfish

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fillets were returned because of decomposition, three lots of haddock fillets for the presence of chlorotetracycline, one lot of smoked cod because of the addition of artificial colouring, and six lots of breaded products because of contamination by E.Coli.

At the request of Industry, a voluntary program of Irish Moss Inspection was initiated at buying stations of processing plants in South Western Nova Scotia. This program was designed to educate the fishermen and buyers in good handling procedures and product standards, with the aim to improve the landed quality of the moss purchased for processing. A short training course was conducted for Inspectors by personnel of the Industrial Development Section at the Irish Moss plant at Miminegash, P.E.I.

Both wet and dry lots of moss were inspected by Inspection personnel for percentage moisture, percentage foreign material in the lot, evidence of filth, mould, and other extraneous material as well as evidence of fresh water damage, "Bleeding", soaking or decomposition. A total of ninety-eight (98) inspections were carried out at the landing stage. Financial restrictions within the Branch caused termination of the program during the latter part of August. All dealers agreed that better moss was landed during this period compared to previous years, but not necessarily as a result of the voluntary inspection program. Industry suggested that a better growing season permitted better quality moss to be landed.

The vessel inspection program was continued during 1969. This program was designed to educate captains and crews in good fish handling and sanitation procedures as well as bring vessels into compliance with proposed requirements of Schedule E of the Fish Inspection Regulations. It is considered that this program has advanced as far as is possible on a voluntary basis and was reduced during the summer as a result of financial restraints.

The oyster monitoring program was continued; pre-season surveys of shellstock were bacteriologically analyzed to ensure stocks were free from pollution. "Over-lay" waters in two areas of Prince Edward Island were checked following high faecal coliform counts on the meats; the overlay water in both areas was subsequently found to be satisfactory. During the season, shellstock was monitored at shipper's sheds. No lots were detained and a summary of results indicate only 3% of the samples from shipper's sheds exceeded 250 faecal coliform/100g of meat.

At the Fourth Session of the Codex Committee on Fish and Fishery Products,held in Bergen, Norway, proposed standards

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were drafted for inclusion in the Codex Alimentarius International Standards for Fishery Products. These proposals pertain to quality and workmanship standards for fillets of cod, haddock, redfish and flounder. It was agreed that certain countries, including Canada, would test domestic production in comparison to these standards and report results and recommendations at the next meeting. Maritimes Region at years'end was conducting a survey of commercially produced lots to determine compliance with the proposed standards.

There were no prosecutions under the Fish Inspection Act or Regulations during the year. Nine lots of fillets were disposed of voluntarily by owners after being found decomposed on examination. Numerous lots were found to be decomposed in the plant by Inspectors and the fish involved was diverted voluntarily to fish meal without incident except in one instance. A vessel captain assaulted Fishery Officer J. Arsenault, Cheticamp, after Mr. Arsenault condemned fish as unsatisfactory for processing. A complaint was registered in Magistrate's Court and the captain was found guilty of assault, fined $10.00 and given a year suspended sentence.

An "Examination of Discovery" concerning a "Petition of Rights" filed by Pierce Fisheries Limited, Lockeport, N.S. was held during December. The petition concerned certain actions by the Department in respect to several lots of detained fresh and frozen fish belonging to Pierce Fisheries Limited.

B. Cured Fish

The registration program of salt fish plants designed to bring plants into compliance with Schedule C of the Fish Inspection Regulations on a "step-by-step" basis was continued in 1969. Where previous agreed time limits for correction of deficiencies were not met because of justifiable reasons, new time agreements with managers were arranged prior to renewal of registration. In several instances, owners decided they would not attempt to meet requirements and inspection of the product was discontinued at these plants requiring them to dispose of their products within the province.

Priority was given to assisting salt fish processing plants in locating approved sources of processing water and the 1969 letters of registration reminded owners that the source of processing water must be approved by July 1, 1970 and chlorinated if necessary.

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The announcement of the proposed legislation regarding the creation of the Salt Fish Development Corporation has somewhat slowed progress in correcting deficiencies since many owners do not know what role their plant will play in the new purchasing arrangement. Owners are reluctant to spend any sums of money until this uncertainty is resolved.

Notification was forwarded to Industry regarding the proposal to amend Schedule C to include the registration of smoked, pickled and marinated fish plants as well as salt fish plants as at present. Surveys have been conducted on these plants to establish deficiencies and obtain cost estimates to bring each plant into compliance with the proposed standards. The Branch has been testing as many of these plants water supplies as possible to determine the extent of the problem of obtaining approved water when this registration program comes into effect.

Ownership of the two self-contained sewage disposal units which were under test by the Applied Research and Development Laboratory were acquired by Terence Bay Fisheries and Abriel Fisheries at the conclusion of experimental testing; it was felt that units similar to these could be used by small salt fish plants where suitable soil was not available for a disposal field.

The number of registered salt fish plants decreased in 1969. Several ceased operations after many years in this industry while some plants elected to produce for sale only within the province. A comparison of the number of Registered salt fish plants in each of the Maritimes Provinces is illustrated in the following table.

Number of Registered Salt Fish Plants

Maritimes Region

Year	Total	Nova Scotia	New Brunswick	Prince Edward Island
1969	76	65	8	3
1968	83	69	9	6
1967	104	90	12	2

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Purchases of heavy and light salted hard dried cod fish were continued to be made by the Fisheries Prices Support Board in 1969 for relief shipments under the Canadian Foreign Aid Program. Surplus stocks from the 1968 production season were also marketed through the government aid program during 1969.

The amount of cured fish inspected during 1969 was 43.6 million pounds, a decrease of 0.3 million pounds from the 43.9 million pounds of 1968. The amount of salted and pickled fish inspected increased by 0.2 and 0.4 million pounds respectively and smoked fish decreased by 0.9 million pounds.

The amount of bloaters inspected continued the downward trend of last year with 0.6 million pounds less inspected during 1969; a decrease to 3.5 from 4.1 million pounds in 1968. Smoked herring fillets were also down to 0.8 million pounds from the 1.1 million pounds of 1968.

Pickled fish inspection increased by 0.4 million pounds to 3.2 million pounds. Pickled herring, mackerel and salmon decreased but inspection of alewives and pickled headless herring increased; alewives by approximately 0.5 million pounds.

Twenty seven thousand boxes of bloaters imported from the Magdalene Islands were found on inspection at Halifax to be infested with larvae beetle; this infestation was in the form of eggs and maggots; the latter being found both on the surface and in the gut cavity of the fish. These fish were returned to the Magdalene Islands and destroyed. Department of Agriculture officials were contacted for information relating to this problem and to determine a satisfactory disinfectant program to be instituted at the warehouse where some of the fish had been stored awaiting inspection. Fishery Officers relayed this information and checked disinfection of the premises.

During 1969, marinated and pickled fish processors were granted permission to pack and export their product in used barrels following request by industry, provided the barrels were sound and thoroughly cleaned to the satisfaction of the inspector prior to packing. A letter from the Department has advised all processors that marinated and pickled fish exported after June 30, 1970, must be packed in new, clean, sound containers. A number of letters from the Industry complaining of this ruling have been forwarded to Departmental Headquarters.

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C. Canned Fish

With the exception of sardine canneries, deficiencies in canneries were of a minor nature in respect to the Registration program under Schedule A of the Canned Fish and Shellfish Inspection Regulations. However, satisfactory progress has been made in modifications to bring sardine canneries into compliance by July, 1970, the date previously agreed to by Industry and the Department. Site preparation commenced during September toward construction of a new sardine cannery complex to replace three present canneries at Black's Harbour, N.B.

Several significant developments occured in the canned fish and shellfish industry during the year. A cannery was established by I.M.O. Foods Limited at Yarmouth, N.S., to produce canned herring fillets in various sauces, similar to the European type products, for distribution to North American and world markets.

However, problems with non-sterility and quality in the finished product were encountered by the Yarmouth plant. Personnel from the Halifax Quality Control Laboratory and the Applied Research and Development Laboratory provided extensive technical assistance including heat penetration studies to this plant to solve handling, processing and retorting problems. Evidence of confirmed non-sterility required the plant to extend their retorting times; bacteriological assessment by the Laboratory indicated the product was sterile when these new recommended times and temperatures were used for retorting. In addition, a flipper condition routinely occuring in a large percentage of the cans was eliminated as a result of this assistance program and several changes in processing methods were incorporated by the plant which improved the quality of the end product.

During the solution of these problems, close liaison was maintained with personnel of the Food and Drug Directorate, Department of National Health and Welfare, Halifax, N.S.

In all, seven lots of canned herring were found to be non-sterile by the Fish Inspection Laboratory and one lot by the Food and Drug Laboratory. Production of the plant was detained by the Branch until analysis of lots were completed by various Fish Inspection Laboratories and officials of the Food and Drug Directorate arranged a voluntary return of the product which had been marketed. Sterility tests were still being conducted by the Inspection Branch on these returned lots at years end.

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Following evidence of poor seams in cans of routine samples of crab meat, production at Maritime Packers, Pictou, N.S., was detained pending correction of can seams and results of sterility tests. Non-sterility was confirmed by the Fish Inspection Laboratory, Winnipeg, Manitoba, in a lot shipped to Winnipeg wholesalers. These goods were detained before distribution and were destroyed under supervision of Winnipeg Inspectors.

Canning of Queen Crab meat by eight lobster canneries located in Kent and Westmorland counties of New Brunswick also represented a significant development, particularly since the market for the frozen queen crab was unfavourable during most of the year and the demand for canned Crab was high.

Difficulties were encountered in the transport of live crab, fished near Sept Isle, Quebec, and trucked from Northern Gaspé to south eastern New Brunswick. Co-operation by Inspectors in the Quebec Region in supervising landing and trucking operations and efforts by local Inspectors and plant management assisted in permitting the great majority of crab to be delivered in the live state to canneries in New Brunswick. Close liaison was also maintained between Inspectors, plant management and personnel of the Shediac Quality Control Laboratory to overcome handling and processing difficulties to facilitate the production of a quality canned product. A strong demand for the canned product still continued at year's end and many plants were attempting to supply this demand by processing queen crab from frozen crab meat blocks. The trend towards canned crab production is expected to continue with at least three more plants in northern New Brunswick producing canned crab during 1970.

Ten lots of canned products, in addition to the canned herring, were disposed of as being found decomposed, tainted or unwholesome. These included canned mackerel, lobster paste, crabmeat, canned clams and tomalley. Large quantities of dead Queen Crab were disposed of prior to processing by mutual agreement between plant management and Inspectors. Dead crabs were also culled at the butchering table and after being cooked.

An unfavourable decision was handed down in two legal cases involving W.R. Cormier Company Limited, Lower Cape Bald, N.B. Mr. Cormier was charged with moving lots of canned fish while under Held Tag. The magistrate ruled that the Canned Fish and Shellfish Inspection Regulations and the Meat and Canned Foods Act are in conflict. The charges were laid on December 18, 1968, that the company acted contrary to Section

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8 (2) of the Canned Fish and Shellfish Inspection Regulations. A third charge against this company, laid at the same time regarding the movement of lobster meat while under Held Tag, resulted in acquittal and the case was subsequently appealed by the Department. The County Court Judge ruled in favour of the accused after the appeal.

An increase in lobster landings was reflected in the 0.23 million pound increase in production of fresh and frozen lobster meat. Production of cooked and frozen lobster in shell decreased by approximately two-thirds, from 185 thousand pounds to 69 thousand pounds; production of heat processed lobsters also decreased. Other products which decreased in quantities produced were sardines, crabmeat (fresh & frozen), scallop meat, kippered snacks and miscellaneous canned products. Increased production was reported for crabmeat (heat processed); 46,640 thousand cases compared to 7,822 processed in 1968. Shrimp production, both fresh and frozen, increased by approximately 300,000 pounds to 1.8 million pounds.

Canned mackerel production increased due principally to the canning of smaller "tinker" size mackerel during July and August. This smaller size mackerel is not normally processed, but canners utilized the smaller fish during 1969 since they were apprehensive that the fall mackerel run in the Gulf of St. Lawrence, adjacent to Prince Edward Island, would fail to materialize as it did in 1968; this precaution proved correct since the fall Gulf Mackerel run was again a failure. A large portion of the canned mackerel production was purchased by the Fisheries Prices Support Board for sale to the World Food Bank. Purchases were made provided the lot was issued a "Certificate of Quality" following inspection by the Fish Inspection Laboratory; this is the same procedure followed as in previous years.

Technical assistance continued to be provided to Industry by Inspectors and Quality Control Laboratories. The Queen Crab Industry required particular attention. The Code of Practice for Processing Queen Crab, issued by personnel of the Process and Product Development Section, was found to be particularly useful.

Technical advice was provided by the Shediac Laboratory to several producers who were required to recondition staphylococci contaminated frozen Queen Crab Meat. Pasteurization procedures, by blanching in hot water and in hermetically sealed cans were developed.

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A number of canners attended the course on Queen Crab Processing at Halifax conducted by personnel of the Halifax Laboratory. Another course for Canners was presented at the Charlottetown Laboratory, attended by thirty representatives of the Canning Industry. Mr. H. McAllister and other consultants, engaged by the Industrial Services Branch, provided valuable advice to both Inspectors and Canners in practical aspects of processing Queen Crab.

A comparison of the number of registered canneries in the Maritimes is shown in the following table:

Number of Registered Canneries

Maritimes Region

Year	Total	Nova Scotia	New Brunswick	Prince Edward Island
1969	57	13	26	18
1968	59	10	32	17
1967	51	4	31	16

TABLE I

FIELD INSPECTION - MARITIMES REGION

FRESH FISH LANDINGS, CURED AND CANNED FISH INSPECTION

		Total 1969	
1.	Landings of Commercial Fish		
	(a) Groundfish	465,196,300	lbs.
	(b) Pelagic & Estuarial	694,297,700	lbs.
	(c) Crustaceans & Molluscs	72,675,000	lbs.
	(d) Seaweeds - Irish Moss	96,394,800	lbs.
2.	Inspection of Cured Fish		
	(a) Salted Fish	36,030,684	lbs.
	(b) Pickled Fish	3,257,906	lbs.
	(c) Smoked Fish	4,315,898	lbs.
	(d) Other - Smelts	1,106,221	lbs.
	- Oysters	2,467,190	lbs.
3.	Inspection of Canned Fish and Fresh & Frozen Shellfish		
	(a) Sardines	1,106,866	*
	(b) Lobster Meat - Fresh & Frozen	2,514,467	lbs.
	(c) Lobster in Shell - Cooked & Frozen	69,181	lbs.
	(d) Lobsters (heat processed) (½'s)	46,640	**
	(e) Crab Meat - Fresh & Frozen	1,472,952	lbs.
	Crab Meat (heat processed (½'s)	42,874	**
	(f) Shrimp - Fresh & Frozen	1,854,700	lbs.
	(g) Scallop Meat - Fresh & Frozen	12,341,800	lbs.
	(h) Clam Meat	381,400	lbs.
	(i) Kippered Snacks	90,699	*
	(j) Tuna (all species)	187,966	**
	(k) Miscellaneous (Lobster Cocktail, Lobster Paste, Tomalley, Chicken Haddie, Mackerel, Herring, Fish Cakes, Fish Chowder, Clams, Mussels)	189,012	**

* cases of 100 cans
** cases of 48 cans

LABORATORY PROGRAMME

LABORATORY PROGRAMME

II.

A. QUALITY CONTROL SECTION

1. Monitoring Control Programme - Paralytic Shellfish Poison

The toxicity scores in shellfish during 1969 in Southern New Brunswick and Nova Scotia were low throughout the year at all sampling stations in both provinces and no known cases of paralytic shellfish poisonings occurred in the Maritimes.

Summary of the Samples Extracted by the Various Laboratories

	Halifax	Black's Harbour	Shediac
Shellfish Area Surveillance	157	247	-
Commercial Checks	-	64	7
Experimental & Special	-	33	-
TOTALS	157	344	7

For detailed information on Shellfish Toxicity during the year 1969 reference should be made to, "Shellfish Toxicity Records, 1969" by H. L. Boyd and Armand Lachance.

2. Domestic Fish Products - Inspection for Freshness

A. Detained Lots

Samples from detained lots of groundfish and scallops, submitted freshness (quality) evaluation were examined in the raw and cooked state, organoleptically graded, and chemically tested for T.M.A. content.

1. Groundfish & Scallops

Two (2) lots of crabmeat (7175 lbs.) were examined for freshness, both were found to be unfit and recommended for rejection.

Twelve (12) lots, totalling 207,598 lbs. were reinspected for freshness. Eight (8) lots totalling 171,861 lbs. were not confirmed as being unfit and were released for sale. Four lots totalling 35,737 lbs. were confirmed as decomposed. These included two (2) lots of crabmeat, one (1) lot of haddock blocks and one (1) lot of haddock fillets.

2. Canned fish Products

Twenty-two (22) lots of canned fish products were inspected as being suspected unfit. Of this total, eight (8) lots were found to be satisfactory and were released. The remaining fourteen (14) lots were found on official inspection to be unsatisfactory and were further detained.

In addition to the lots of canned fish which were detained for decomposition, thirty-nine (39) lots of fish and shellfish were detained for suspected shortweight conditions. Thirty-one (31) lots were confirmed as being shortweight. Three (3) lots of Lobster Cocktail were checked due to suspected low percentage of lobster meat. Two lots were confirmed as having less than the required amount of lobster meat.

Thirteen (13) lots of canned fish were detained for suspected low vacuum; on official inspection all lots were released as being quite satisfactory.

Eleven consumer complaints were investigated during the year; five (5) were confirmed as being factual.

Reinspections

Ten (10) lots of canned fish were reinspected for freshness. Of these, five (5) lots were rejected as decomposed, 5 lots released.

Of the rejected lots there were three (3) lots of lobster paste and one (1) lot each of lobster and Queen Crab.

B. Routine Production Samples

Laboratory examination of Routine Domestic Production samples of canned fish products was continued during the 1969 calendar year. Nineteen (19) types of products were examined. A total of 840 (3 cans per sample) were examined.

C. Domestic Canned Fish Submitted for Quality Inspection Certificate

Eighty-seven (87) lots of Canned Mackerel were submitted for inspection. Of these, eight (8) lots were graded as Grade 3 and certification was refused.

Nine (9) lots of Sardines in Oil and one (1) lot of Tuna were submitted for inspection and were found to be of satisfactory quality and were so certified.

III. Domestic Fish Products - Inspection for Wholesomeness

A. Suspected Faecal Coliform Contamination

The lots of fillets, lobsters, scallops, crab and breaded products noted below were placed under detention since the end-of-line samples had excessive numbers of faecal coliform. All lots were found to be free from Salmonella and Shigella organisms. Those lots with excessive faecal coliform were referred to Regional Headquarters for disposition, the remainder were released by the Quality Control laboratories.

NOVA SCOTIA

Fillets	19 lots	(364,107 lbs.)	Total
	13 lots	(268,901 lbs.)	Referred to HQ
	6 lots	(95,206 lbs.)	Released
Scallops	3 lots	(16,900 lbs.)	Total
	2 lots	(12,450 lbs.)	Released
	1 lot	(4,450 lbs.)	Detained Grade III Quality.
Queen Crab	1 lot	(195 lbs.)	Referred to HQ
Breaded Products	5 lots	(3,261 lbs.)	Total
	3 lots	(2,457 lbs.)	Referred to HQ
	2 lots	(804 lbs.)	Released

NEW BRUNSWICK

Fillets	5 lots	(16,970 lbs.)	Total
	1 lot	(9,348 lbs.)	Referred to HQ
	1 lot	(3,600 lbs.)	Released
	3 lots	(4,022 lbs.)	Referred to Shediac.
Queen Crab	2 lots	(590 lbs.)	Total
	1 lot	(350 lbs.)	Released
Rock Crab	1 lot	(240 lbs.)	Referred to HQ
Lobster	3 lots	(5,439 lbs.)	Total
	3 lots	(5,439 lbs.)	Released

PRINCE EDWARD ISLAND

Fillets	15 lots	(155,289 lbs.)	
	9 lots		Released
	6 lots		Referred to HQ

PRINCE EDWARD ISLAND

Crab	1 lot	(	925 lbs.)	Released
Lobster	4 lots	(	130,404 lbs.)	Released
Frozen Clams	1 lot	(	27 lbs.)	Released

B. Suspected Staphylococci Contamination

The lots of lobster and crab meat noted below were detained because routine bacteriological analysis of end-of-line samples showed excessive staphylococci organisms were present on the products.

NOVA SCOTIA

Crab	7 lots	(	4,897 lbs.)	Total
	1 lot	(	635 lbs.)	Pasteurized
	1 lot	(	314 lbs.)	Referred to HQ
	2 lots	(	3,948 lbs.)	Released
Lobster	6 lots	(	8,734 lbs.)	Total
	1 lot	(	2,856 lbs.)	Referred to HQ - Detained for Freshness.
	5 lots	(	5,878 lbs.)	Released

NEW BRUNSWICK

Crab	59 lots	(	86,497 lbs.)	Total
	4 lots	(	2,067 lbs.)	Pasteurized
	38 lots	(	70,655 lbs.)	Released
	15 lots	(	11,675 lbs.)	Referred to HQ
	1 lot	(	2,100 lbs.)	Disposed
	1 lot	(	?)	Shipped

NEW BRUNSWICK

Lobster	8 lots	(20,688 lbs.)	Total
	5 lots	(18,942 lbs.)	Released
	3 lots	(1,746 lbs.)	Pasteurized

PRINCE EDWARD ISLAND

Lobster	7 lots	(17,064 lbs.)	Total
	6 lots	(13,650 lbs.)	Released
	1 lot	(2,412 lbs.)	Pasteurized
Shrimp	2 lots	(2,230 lbs.)	Released

C: Suspected Non-Sterile

NOVA SCOTIA

Lobster	3 lots	( )	Non-Sterile
	3 lots	( )	Released
Clams	1 lot	(71x24x5 oz.)	Non-Sterile
	1 lot	(30x24x5 oz.)	Released
Lobster Paste	5 lots	(3192 x 3 oz.)	Non-Sterile
Herring Fillets	7 lots	(954 x 24 x 7 oz.)	Non-Sterile
	15 lots	(242 x 24 x 7 oz.)	Released
	7 lots	(2255 x 24 x 7 oz.)	Decomposed & Reinspected
	4 lots	(1550 x 24 x 7 oz.)	Released on Reinspection
	3 lots	(705 x 24 x 7 oz.)	Rejected on Reinspection

NEW BRUNSWICK

Queen Crab	10 lots	(1085 x 24 x 5 oz.)	Released
	1 lot	(44 x 24 x 5 oz.)	Non-Sterile
		(55 x 24 x 5 oz.)	Non-Sterile
Herring Fillets	9 lots	(2387 x 27 x 7 oz.)	All Sterile
		6 Lots	Released
		3 lots	Decomposed & Referred to HQ

PRINCE EDWARD ISLAND

Lobster	1 lot	(10 x 48 x 2 1/2 oz.)	Referred to HQ
Herring Fillets	4 lots	(1154 x 24 x 7 oz.)	Released
Clam Chowder	1 lot		Released

4. Inspector Training Samples

As an aid to District Inspection Officers in maintaining uniform quality grading of fresh fish by field officers, routine training samples are submitted to the laboratory by the field officers. The grade assigned to the samples by the Laboratory is determined by considering the results of the organoleptic assessment in conjunction with the trimethylamine values.

The following tables show the number of samples submitted, the species, and the agreement between field and laboratory quality assessments.

TABLE II

MARITIMES REGION - DISTRICT #1			LABORATORY GRADING		
Species	No. of Lots	Field Grading	Grade I	Grade II	Grade III
COD & HADDOCK	18	Grade I - 3	3	-	-
		Grade II - 15	1	10	4
		Grade III - -	-	-	-
FLOUNDER Field Grade not shown on 2 lots	18	Grade I - 5	5	-	-
		Grade II - 10	-	8	2
		Grade III - 1	-	-	1
SOLE	6	Grade I - 3	3	-	-
		Grade II - 1	-	1	-
		Grade III - 2	1	1	-
OCEAN PERCH	4	Grade I - -	-	-	-
		Grade II - 4	-	4	-
		Grade III - -	-	-	-

Percent agreement 80%

Where there was disagreement the laboratory was more severe in grading 15% of the time, and the field more severe 5% of the time.

TABLE III

MARITIMES REGION - DISTRICT #2			LABORATORY GRADING		
Species	No. of Lots	Field Grading	Grade I	Grade II	Grade III
HADDOCK & COD	56	Grade I - 22	19	3	-
		Grade II - 32	6	21	5
		Grade III - 2	-	-	2
CUSK	3	Grade I - 1	-	-	1
		Grade II - 2	-	1	1
		Grade III - -	-	-	-
POLLOCK	1	Grade I - 1	-	1	-
		Grade II - -	-	-	-
		Grade III - -	-	-	-
REDFISH	1	Grade I - -	-	-	-
		Grade II - -	-	-	-
		Grade III - 1	-	-	1

Organoleptic Scallops 3 lots

Percent Agreement is 72%

Where there was disagreement, the laboratory was more severe in grading 18% of the samples, and the field more severe 10% of the samples

5. Imported Canned Fish and Shellfish Inspections

Examined at the Halifax Laboratory	96 lots	610,525 lbs.
Examined by Field Officers	98 lots	791,601 lbs.
Total for Maritimes Region	194 lots	1,402,126 lbs.

Seven complete lots and part of 5 additional lots examined at the Laboratory were recommended for Rejection, namely:

Whole Oysters	-	Japan	-	165
White Meat Tuna	-	Japan	-	1,680
Kipper Snacks	-	Norway	-	609
Bonito Tuna	-	Peru	-	94,088
Shrimp	-	U. S. A.	-	4,059

Reinspections - Original inspections at Halifax, Montreal and Toronto.

The total number of reinspections were 29 lots of which 12,233 lbs. were passed and 41,503 lbs. were rejected.

Sample Lot Inspections

Four sample lots of imported canned fish were received for label and quality inspection prior to importation of these products into Canada. Reports of these inspections were provided to assist in the orderly importation of these products

Imported Fresh and Frozen Fish and Shellfish Inspection

Examined at the Halifax Laboratory	72	666,177 lbs.
Examined by Field Officers	288	6,764,123 lbs and 354 U.S. Gallons.
Total for Maritimes Region	360 lots	7,430,300 lbs. and 354 U.S. Gallons.

Of the 72 lots examined by the Laboratory 6 and part of 1 lot as listed below were - Recommended for Rejection:

Peeled & Deveined Shrimp	-	Cuba	- 33,810 lbs.
Frozen Shrimp in Shell	-	India	- 18,300 lbs.
Haddock Blocks	-	Iceland	- 99,900 lbs.
Haddock Blocks	-	Norway	- 63,187 lbs.
Peeled & Deveined Shrimp	-	U.S.A.	- 3,458 lbs.

Reinspections:

Seven (7) requests for reinspections were received, namely:

Cuba	- Peeled & Deveined Shrimp	-	24,171 lbs.	PASSED.
			9,597 lbs.	REFUSED ENTRY.
Great Britain	- Frozen Haddock Blocks	-	33,000 lbs.	ENTRY PERMITTED. BELOW AVERAGE QUALITY.
Iceland	- Frozen Haddock Blocks	-	99,900 lbs.	PERMITTED ENTRY.
Norway	- Frozen Haddock Blocks	-	30,187 lbs.	DECOMPOSED.
U.S.A.	- Peeled & Deveined Shrimp	-	207 lbs.	SHORTWEIGHT.
	- Peeled & Deveined Shrimp		1,206 lbs.	PART SHORTWEIGHT (540 lbs.) PART RELEASED (666 lbs.)
	- Peeled & Deveined Shrimp	-	2,252 lbs.	QUALITY SATISFACTORY.

Labelling:

As in the past year, the Maritimes Region continued a close and systematic check on labels, both domestic and imported.

TABLE IV

APPENDIX IV

ANALYSES OF FISHERY PRODUCTS BY FISH INSPECTION LABORATORIES

ANALYSES	Halifax, N.S.	Sydney, N.S.	Yarmouth, N.S.	Shediac, N.B.	Shippegan, N.B.	Black's Harbour, N.B.	Charlottetown, P.E.I.	P.E.I. Mobile	TOTALS
TMA	4484					6			4490
TMA Oxide									
Volatile Acids									
Volatile Bases									
Indole									
Toxicity Extracts	157			6		352			515
pH	280			1293	6	65	59		1703
Moisture	556			5			66		627
Fat	65			3			80		148
Ash	19						49		68
Protein	306			2		4	71		383
Total Phosphate	268								268
Drip									
Storch				15					15
Glycogen									
Iron	145								145
Salt: $CaSO_4$, NaCl, $MgSO_4$, Insolubles	55			21	92	4			172
Organoleptic Assays	7598			4024	104	1180	1633		14539
Miscellaneous	144			4					148
Copper	131								131
B.O.D.	376								376
Cl.	6								6
Solids	204								204
Calcium Turbidity	688 9								688 9
Sodium Electrophoresis	409 60								409 60
Magnesium T.B.A.	228 9								228 9
Total for Month									
Total to Date	16197			5373	202	1611	1968		25341

TABLE V

APPENDIX II

BACTERIOLOGICAL ANALYSES CARRIED OUT BY FISH INSPECTION LABORATORIES

LABORATORIES	Type of Analyses							TOTALS
	S.P.C.	MPN/100g		Staphy-lococci	Entero-cocci	Salmon-ellae	Steril-ity	
		Coli. Forms	Faecal Coli					
Halifax, N.S.	1297	575	1552	789	86	96	1387	5782
Sydney, N.S.	1289	570	1415					3274
Yarmouth, N.S.	1215	3516	975	44				5750
Shediac, N.B.	1029	610	1415	674		8	382	4118
Shippegan, N.B.	1514	1026	1675	1624				5839
Black's Harbour, N.B.	1378	558	1829	90		12	678	4545
Charlottetown, P.E.I.	1387	1130	2341	415			192	5465
P.E.I. Mobile								
Total for Month								
Total to Date	9109	7985	11202	3636	86	116	2639	34773

B. INDUSTRIAL SERVICES SECTION

General

The provision of a programme of technical and engineering assistance to the fish processing industry in the handling and processing of fish and fishery products continued as the major role of the Industrial Services Section in 1969.

Plans and specifications for new plants, modifications to existing plants and equipment designs were assessed and discussed with other Departmental officials as well as with plant management. Industry was provided with information pertaining to the construction of various processing plants and processing equipment.

Engineering Advice to Processing Establishments

Discussions were held at Black's Harbour, N.B. with the management and plant superintendents of Connors Bros. Ltd., to discuss their cannery deficiencies and the necessary work required to rectify these deficiencies by 1970.

Plans and specifications for the I.M.O. Foods Ltd. plant at Yarmouth, N.S. for the production of canned herring fillets were reviewed and comments regarding deficiencies and other observations prepared and subsequently discussed with the consulting engineers preparing the plans. Subsequently, a visit was made to the plant in Yarmouth, to advise management on ways of improving the cleaning of the equipment used in processing and canning herring.

A visit was also made to the new plant constructed by Cape Sable Sea Foods at Clark's Harbour, N.S. for the processing of red crab. Deficiencies and other suggestions were pointed out to the owner, Mr. B. Blades. A review of the sketches and specifications of the processing equipment was also made and discussed.

The plans for the Sea Pool Fisheries Ltd. processing plant being built at Clam Bay, N.S. were reviewed and discussed with a representative of the consulting engineering firm, Neill and Gunter Ltd. The discussions were confirmed by a written report. This plant will process trout, being reared by this firm on their own premises.

Mr. Pond accompanied by Mr. A.B. Dewar of the Food Science Section, spent a week in the Shippegan - Shediac areas of New Brunswick visiting plants processing Queen Crab. Detailed reports were prepared on the procedures and practices used.

A visit was made to several smelt processing plants in the Shediac area in conjunction with a study being planned to improve the handling and freezing of smelts.

Projects

a) Depuration of Clams — G.R. Pond and G. Upham

Two members of the section participated in a meeting at Digby with departmental personnel to discuss and obtain information regarding the clam industry. The aim of this meeting was to determine the involvement of this department and ramifications, should a clam depuration plant be constructed and demonstrated to industry.

b) Commercial Disinfectants — K.R. Freeman

Work continued on the project "Testing of Commercial Disinfectants". Preliminary bacterial suspension density values (using a Nephelometer) were prepared. Graphs showing bacteriological numbers versus nephelometer readings were prepared for four test organisms.

c) Superchilling using CO_2 "Snow" — J.G.P. McKinney and G.R. Pond

This section participated in an experiment whereby fresh fillets were superchilled by means of CO_2 snow. The semi-automatic CO_2 snow producing machine was being demonstrated to High Liner Division of National Sea Products by Liquid Carbonic Corporation. Samples of fillets were subjected to taste panel evaluation. Colour, odour, flavour or texture were not adversely affected by the use of CO_2 snow on the fillets. Subsequently, in co-operation with Canadian Liquid Carbonic Corporation representatives, fresh fillets were superchilled and held at the Halifax Laboratory. These tests were to determine time-temperature relationships of superchilling and holding fresh fillets by using CO_2 "snow". Results indicate this method of superchilling is effective and could be easily applied by industry.

d) Insulated Master Containers

J.G.P. McKinney and G.R. Pond

Experiments were conducted to determine time-temperature relationships of frozen fish fillets stored in a styrofoam master container. Ninety pounds of fillets, in 5 lb. cartons were frozen to -40°F and packed in the styrofoam container and held at an ambient temperature of 70°F until the fillets reached 0°F. This occurred in 6 hours with the fish only. An addition of 20 pounds of ice increased the holding time to 8 hours while the addition of 33 pounds of dry ice increased this time to 43 hours.

Time-temperature relationships for holding both iced fresh fish and superchilled fresh fish in insulated master containers were also conducted at the Halifax Laboratory. The two containers tested were a formed styrofoam box holding 20 lbs. of fish and also a double corregated kraft box with a waxed kraft liner holding 50 lbs. of fillets.

e) Salt Water Purification

G.R. Pond and J.G.P. McKinney

Three members of this section visited Woods Harbour Fisheries to direct the testing and observe the operation of a pilot plant for the purification of salt water. The system generates floc and chlorine by means of electrolysis of salt water. It also has sand filters. The analysis of the water samples was carried out at the Yarmouth Laboratory. The system was further evaluated, using a highly contaminated source (Halifax Harbour water). These tests showed the system to be effective.

f) Prototype Equipment

G. Kartalos and G.R. Pond

The design was completed and specifications and design sketches were finalized for the construction of an "Experimental Crab Meat Washing and Brining Unit". The experimental unit was not manufactured in accordance with the drawings. After a brief trial usage the equipment was returned to the manufacturer for modifications. Experiments will be conducted to determine its effectiveness in washing and brining by use of sprays in an attempt to eliminate "dip tanks" which are a major source of bacterial contamination.

g) Abatement of Pollution Due to Herring Pump Water

R.H. Davis
J.G.P. McKinney

Jar tests were conducted on Herring Pump Water samples to determine composition. Calculations were made of the chemical costs in the pilot plant project to recover protein. A laboratory staff training programme was prepared and two summer students were instructed in the procedures to be used.

Equipment for the project was received and installed at the B.C. Packers plant at Lower East Pubnico, N.S. in June. The major components tested were:- vibrating screens, tangential screen, Kason separator and the pressure floatation flocculation unit. Each of these major units were operated at various flow rates and pump water consistencies. Laboratory tests were conducted to determine the effectiveness of each piece of equipment in the reduction of solids and the recovery of protein matter. The laboratory analyses were conducted at the Yarmouth Laboratory.

Due to the shortage of herring the B.C. Packers plant at Lower East Pubnico ceased operations in the middle of the season. The pilot plant equipment was relocated to Superior Sea Products Limited plant in Yarmouth. Equipment evaluation continued as planned.

The field portion of the project was terminated and the equipment returned to the owners in September.

The analyses of the data, the calculation of the results as well as the draft copy of the final report has been completed. The conclusion: of this investigation is that the organic solids content of pump water is very low and it is impractical and uneconomical to recover these solids by floatation. The most effective means of maintaining this low solids content is by screening in a trommel screen. When roe are present, the pump water requires heat coagulation and screening or centrifuging.

h) Sewage Treatment Unit — R.H. Davis, J.G.P. McKinney and G.R. Pond

Two small commercial sewage treatment units have been under study for some time to evaluate their mechanical reliability for year round operation and their efficiency in reducing the B.O.D. and coliform levels in the effluents. Sufficient progress has been made in this investigation that under the pressure of economic restrictions this project was terminated. Although both units have some limitations, they were turned over to the plants in which they are installed.

The Converto System (anaerobic) is effective in reducing the B.O.D. to 0.9 to 29.7 p.p.m. ; Suspended Solids - 4.5 to 22.3 mgs/l; M.P.N. Coliform- less than 2 to 5.4 per 100 ml.

The Pollution Control System (aerobic) is less effective than the Converto System being comparable to a septic tank.

Engineering Service to Branch Laboratories

The details for the installation of the Kjeldahl Unit to be installed in the Yarmouth Laboratory, were prepared.

At the Halifax Laboratory, plans and specifications were prepared and the work completed for the electrical control system for the temperature control and monitoring of the insulated heated cabinets in the cold storage room. These insulated cabinets are now operational and permit long term storage of fishery products, at a predetermined temperature; i.e. higher than the -30°F temperature of the room. The panel also incorporates extensive temperature monitoring and recording instruments.

The anteroom of the cold storage room was partitioned and the necessary controls installed to enable this new room, so formed, to be operated at a predetermined temperature, usually 33°F or any other temperature higher than the temperature of the anteroom, which is at 5°F.

The drawing was prepared and a requisition raised for the construction of a fibreglass insulated cabinet to be installed in the cold storage anteroom. This cabinet will be electrically heated and the temperature controlled to enable long-term storage of fishery products at a predetermined selected temperature.

Plans and specifications were prepared and the work supervised for the renewal and revising of the boiler, feed water piping system, in the boiler room, of the Fish Inspection Laboratory in Halifax.

Detailed plans were prepared showing laboratories, benches, electrical, water, gas and air outlets for the proposed expansion (1/5 of the 2nd floor plus the 3rd floor) of the Halifax Laboratory. These plans were forwarded to the Department of Public Works who were preparing the detailed plans and specifications for this addition and other alterations. Several meetings were also held with various Department of Public Works representatives, to discuss further details regarding this expansion. Word was received in July that the expansion of the Fish Inspection Laboratory in Halifax has been shelved for at least two years.

The plans and detailed specifications of the "Cannery Extension" of the Halifax Laboratory were reviewed and were designed to incorporate additional features.

The expansion of the present cannery will result in a process laboratory of approximately twice the size of the present cannery and is necessary in order to carry out product development work. Authority has been given to proceed with this alteration early in 1970.

Requisitions and specifications were prepared for repairs and modifications at the Shippegan Laboratory. This work included repairs to the roofing, caulking, a new sewer line and modifications to the windows to prevent water from running into the building.

Bacteriological Surveys

An investigation was carried out at Riverport Seafoods Ltd. plant to investigate problems relating to their fresh water supply. An inplant bacteriological survey was carried out at the Mersey Seafoods plant to determine the cause of the high Standard Plate Counts the plant had previously experienced.

Planning and visits to Field Laboratories were continued with respect to coordinating and planning the water harbour surveys to be conducted at Lameque, N.B., Woods Harbour, N.S. and Shorts Beach, N.S. Plans, indicating sampling stations, were prepared for Lameque and Woods Harbour.

Courses and Meetings

Various members of the section participated in the Queen Crab courses given at the Halifax Laboratory to the Field Staff in January, and to members of the Industry in April.

Mr. G.R. Pond attended the "Meeting on Atlantic Crab Fishery Development" conference held in Fredericton. He delivered a paper entitled "Queen Crab Processing Plant Layout". Mr. Pond also attended the "Cannery Course for Industry" presented by this Branch in Charlottetown. He delivered two papers, "Plant Water Supply" and "Queen Crab Processing Plant Layout and Mechanization".

Mr. G. Kartalos spent a week at Departmental Headquarters in Ottawa with other engineers of this Branch and Industrial Development Services discussing the design aspects of "Producing and Freezing Herring Fillets at Sea". This group also visited Georgetown, P.E.I. to examine the vessel "Gulf Gunn" to be converted for the R.S.W. holding of herring which would subsequently be billeted on shore.

Mr. Pond attended several sessions of the conference on pollution held by the Atlantic Chapter of the Chemical Institute of Canada in Halifax.

Miscellaneous

Mr. G. Kartalos, Engineer with this section, has been on leave-of-absence since July and is not expected back until July, 1970.

Mr. K. Freeman, Bacteriologist with this section, resigned effective June 16th to accept a position with the Fisheries Research Board of Canada, Marine Ecology Laboratory.

C. PROCESS & PRODUCT DEVELOPMENT SECTION

Financial restrictions introduced in 1969 severely limited the acquisition of laboratory facilities and qualified personnel for the section. The freeze on recruitment into available positions and the cancellation of extension to the Laboratory left the section with inadequate space and staff.

During the year, three new technicians were recruited while one chemist and a technical officer were separated. The latter employee returned to the local university for graduate studies.

The activities of the section were concentrated mainly in research and development work, training of plant and departmental personnel, direct technical assistance to the industry and limited inspection of fishery products.

Training was given to plant managers and foremen on plant sanitation and the processing of Queen Crab. The course was held in the Halifax Laboratory in April. Assistance was provided to the Charlottetown Quality Control Laboratory in giving a cannery course for Island fish canners.

Courses were given for departmental personnel on the quality evaluation of Queen Crab Meat and Fresh and Frozen Fillets. Training courses were also organized for Halifax Laboratory personnel to assess the quality of various fishery products.

Assistance was rendered periodically to the Quality Control Section and to the local Food and Drug Laboratory in the inspection of various fishery products. Grading sheets for assessing the organoleptic quality of Queen Crab and Red Crab Meat and Redfish Fillets were prepared.

Numerous technical inquiries were answered from the industry and the public at large, on preservation, canning and processing of fishery products, on pollution of shellfish and shellfish growing areas and food poisoning. Direct technical help was rendered to fish plants by the assessment of pasteurization and heat preservation processes. Recommendations were submitted to the Department on proposed sampling plans and proposed "General Standards for Fish Products".

The services of a chemist and a technician as well as the use of a gas-chromatograph were seconded to the Halifax F.R.B. Laboratory for about two months during the investigation of "Red Herring" problem in Newfoundland that was caused by elemental phosphorous.

Laboratory procedures were adopted, evaluated and described for the quantitative analyses of salt (NaCl), phosphate and various other elements. A comprehensive evaluation was carried out and an internal

report prepared on the usefulness of T.B.A. procedures to measure the rancidity of fish samples. A procedure was also evaluated and adopted for the isolation of aerobic and anaerobic bacteria spores from fishery products. Literature surveys were conducted on the development of smut and struvite in heat processed fishery products, on the effect of slow and fast freezing on fish muscle, on the isolation of anaerobic bacteria and the detection of some bacterial toxin in fishery products as well as quantitative measurement of DDT in fish samples by gas chromatographic techniques.

Numerous investigational studies were carried out on problems concerning the processing of Atlantic Queen Crab, Red Crab, Pickled Mackerel, Smoked Eels, Pickled Herring and Canned Chicken Haddie. A number of reports and papers were presented or published.

A brief summary of projects, project reports and papers are detailed below:

SUMMARY NO. 1

CODE OF PRACTICE FOR PROCESSING QUEEN CRAB

C.M. Blackwood
S. Varga
A.B. Dewar

Paper presented at the Meeting of Atlantic Crab Fishery Development, March 4 - 5, 1969, Fredericton, N.B.

The paper contains a "Code of Practice" for processing of Queen Crab (Chionoecetes opilio) to produce top quality fresh, frozen and heat processed products. Solutions to technical problems in processing and plant sanitation are discussed.

SUMMARY NO. 2

EFFECT OF CITRIC ACID ON QUALITY
OF HEAT PROCESSED CRAB MEAT

S. Varga
A.B. Dewar
W.E. Anderson

paper presented at the Meeting of the Atlantic Crab Fishery Development, March 4 - 5, 1969, Fredericton, N.B.

Many workers recommend the acidification of crab meat to prevent blue discolouration and struvite formation. The concentration of acid suggested for use and the mode of application varies greatly. To assess the influence of citric acid treatment on blue discolouration, struvite formation as well as the meat quality and drained weight of Queen Crab Meat, a study was conducted and the results presented. It was found that citric acid exceeding 0.1% of the can contents stopped the formation of struvite, failed to prevent smut formation, retarded the development of blue discolouration and adversley affected meat quality and the drained weight. Injection of pickle containing the required amount of citric acid was found to be desirable in order to have an accurate control on the citric acid content of the final product.

SUMMARY NO. 3

EFFECT OF POST-MORTEM SPOILAGE ON THE QUALITY OF PROCESSED QUEEN CRAB.

S. Varga
A.B. Dewar
W.E. Anderson

Paper presented at the Meeting of Atlantic Crab Fishery Development, March 4 - 5, 1969, Fredericton, N.B.

This paper discusses the results obtained from an experiment devised to determine the effects of post-mortem spoilage on the quality of frozen and heat processed Crab meat. Crabs were killed and whole crabs, uncooked and cooked sections, were held at room temperature and in ice respectively.

The rate of spoilage and the quality of the processed product was assessed and discussed.

SUMMARY NO. 4

EVALUATION OF THE TBA TEST FOR RANCIDITY

G.G. Sims
D.J. Perry

Various workers recommend the thiobarbituric acid (TBA) test as a measure of the oxidative rancidity of many foodstuffs. This test was investigated and its possible application to the rancidity of salt mackerel tested. The results clearly indicated that the TBA

values did not parallel the rancidity development in the salted mackerel. An internal report was prepared by Mr.Sims.

SUMMARY NO. 5

ELEMENTAL DETECTION - "RED HERRING" PROJECT

G.G.Sims
C.E. Cosham
M.C.S. Murray

Following pollution of Placentia Bay, Newfoundland by an industrial plant, the Fisheries Research Board set up a programme for the determination of phosphorous. Personnel from the Fish Inspection Laboratory were requested to assist in the project. These workers performed phosphorous analyses by gas chromatography, on various inorganic samples such as muds, waters, effluents and cores. The procedure enabled a highly efficient extraction of the phosphorous from the samples. Then an extremely sensitive determination of the phosphorous content was possible by gas chromatography. A report of these methods was made for future reference.

SUMMARY NO. 6

PRELIMINARY PESTICIDE INVESTIGATION

G.G. Sims
C.E. Cosham

Recent concern over the suspected high levels of pesticide pollution (e.g. DDT) prompted a proposal that the Halifax Fish Inspection Laboratory begin a programme for the determination of chlorinated hydrocarbon pesticides. A brief period of training was undertaken with the Halifax Food and Drug Laboratory. A Hewlett-Packard Model 5750 Gas Chromatography unit was set up with a tritium electron capture detector. The necessary procedures were assembled and the required chemicals and apparatus were obtained. It is expected that the method validation will be complete early in 1970 and the laboratory will then be ready to handle samples.

SUMMARY NO. 7

QUALITY INSPECTION OF PRE-COOKED FISHERY PRODUCTS IN CANADA

A.B. Dewar

Paper presented at the Technical Conference on Fish Inspection and Quality Control, Halifax, July 15 - 25, 1969.

The production of pre-cooked fishery products began in Canada in the late 1940's with the marketing of fresh and frozen lobster (Homarus americanus) and Crab Meat (Cancer irroratus). In the mid 1950's products such as fish sticks, breaded scallops (Placopecten magellanious Gmelin) and regular portions of breaded Cod (Gadus morhua) and breaded Haddock (Melanogrammus aeglefinus) etc. were added. Within the last two years pre-cooked Shrimp (Pandalus borealis), whole and peeled breaded, were included in the growing list of pre-cooked products. To ensure a high standard of freshness and wholesomeness an inspection programme was developed with in-plant inspection supported and augmented by a laboratory programme. The in-plant inspection programme carried out by trained fishery personnel involves evaluation of plant construction, equipment, sanitation, operating methods, and quality of the raw material and finished product. The final product is examined organoleptically by field officers and laboratory personnel for such quality factors as colour, odour, flavour and texture. Breaded products must meet regulatory requirements concerning percent breading and workmanship factors. In addition to subjective examinations, bacteriological and chemical tests are used extensively to round out our inspection programme.

SUMMERY NO. 8

TRAINING AND EVALUATION OF TRAINEES FOR THE ORGANOLEPTIC ASSESSMENT OF FISHERY PRODUCTS FOR QUALITY CONTROL LABORATORIES.

S. Varga

Paper presented at the Technical Conference on Fish Inspection and Quality Control, Halifax, July 15 - 25, 1969.

Organoleptic quality assessment of a great variety of fishery products is carried out by industrial control laboratories and governmental inspection laboratories. Taste panels are used for only a small fraction of these assessments. The majority of quality determinations are made by an individual or a small group of graders. The training of panels and individuals to identify different levels of quality is important. The various grades and quality must be described as precisely as possible and should also be defined by available chemical indices. This paper describes a method for training panels and individual graders with samples prepared under controlled conditions.

SUMMARY NO. 9

EFFECT OF SEAWATER CHILLING ON
LANDED QUALITY OF SCALLOP MEAT
J. Fish. Res. Bd. Canada 26: 2523-2526

C.M. Blackwood
S. Varga

Landed quality of scallop (Placopecten magellanicus Gmelin) meat was improved by chilling in seawater prior to bagging and icing. The results suggested a significant increase in ice storage time of more than 2 days on trips to Georges Bank and further increase on trips to grounds where water temperatures are higher than 60° Farenheit.

SUMMARY NO. 10

SHELFLIFE OF SMOKED EELS
at 38 - 40°F STORAGE

S. Varga
W.E. Anderson

Internal report presented in December, 1969.

Minique Fisheries Ltd., Pubnico, N.S. considered the production of smoked eels for the European market. Moisture, salt content as well as the shelflife of the final product were determined by the laboratory.

The smoked eels contained an average of 50.1% water and 4.2% salt. The shelflife at 35 - 40°F storage was 68 days.

SUMMARY NO. 11

INVESTIGATION CONDUCTED TO STUDY THE PICKLING OF LEAN AND FAT MACKEREL USING THE STELLA MARIS PROCESS

S. Varga
G.G. Sims
W.E. Anderson

Internal report presented to the Department in September, 1969.

In 1967 the Stella Maris Ltd. fish plant introduced a process to cure mackerel in individual consumer plastic bags. The purpose of the new process was to cut production costs and improve marketing. Soon after commencement of production, problems arose with the shelflife of the product.

Our Laboratory was directed to study the shelflife and to investigate conditions to improve the quality of the product.

The study showed that the major factors influencing the shelflife of the product were the fat content, availability of oxygen and temperature during curing and holding. Fat mackerel cured individually at room temperature was usually rancid by the time the curing process was completed. Lean mackerel pickled individually at room temperature had a rather short (5 week) shelflife.

Use of vacuum packaging and low temperature curing and holding significantly increased the shelflife of individually cured mackerel.

SUMMARY NO. 12

PRELIMINARY REPORT ON HYDROGEN PEROXIDE TREATMENT OF PICKLED HERRING FILLETS.

S. Varga

Internal report submitted to the Department in August, 1969.

Hydrogen peroxide bath (0.035 - 0.052%) is used by some fish processors in the Maritimes Region to whiten herring fillets after pickling and prior to packing. Questions were raised as to the effectiveness of treatment as claimed by the users.

The Halifax Laboratory was directed to assess the effectiveness of the bath. The study conducted indicated that the process was effective as claimed.

SUMMARY NO. 13

PRE-COOKING REQUIRED FOR RED CRAB SECTIONS

S. Varga
A.B. Dewar
W.E. Anderson

Technical Report No. 1, October, 1969.

Precooking of red crab sections (Geryon quinquedens) trapped off the East Coast of Nova Scotia during exploratory fishing, was assessed for yield, ease of meat extraction and the quality of the preserved meat.

The study showed that the red crab sections can be cooked either in fresh boiling water or in live steam. The minimum cooking required in water was 4 minutes. The yield varied from 19.4 - 22.9% (meat/live weight x 100). The length of cooking time used did not influence either the ease of meat extraction or the meat quality adversely.

SUMMARY NO. 14

SURVIVAL OF RED CRABS HELD ON ICE AND IN REFRIGERATED AIR

S. Varga
A.B. Dewar
W.E. Anderson

Technical Report No. 2, December, 1969.

Crabs must be kept alive prior to processing in order to pack high quality meat. Live holding is possible in sea water, on ice and in moist cold air for various periods of time. Mortality losses during holding are of interest to the fishing industry as well as to the Inspection Branch. A study was conducted to estimate the survival of red crabs during holding on fresh water ice and in moist (95 - 100% R.H.) cold (35 - 40°F) air. The losses were determined during a period of time and the mortality rates were calculated with a confidence limits of 95% level of probability.

INVESTIGATIONAL PROJECTS IN PROGRESS

(1) Effect of Polyphosphate on Thaw Drip and Quality of Frozen Queen Crab Meat.

S. Varga
G.G. Sims
W.E. Anderson

Frozen fish products generally lose considerable amount of moisture on thawing. To prevent or minimize the weight loss, due to drip, some of the frozen fish products are treated with polyphosphate. The efficacy of treatment and its effect on the quality is of interest to the processor. The experiment designed is expected to provide this information.

(2) Effect of Cold Storage on the Quality of Crab Sections

S. Varga
A.B. Dewar
W.E. Anderson

Cold storage of brine frozen cooked crab sections is one of the methods of holding crab meat prior to processing. The effect of this storage on the quality of meat is very important. This experiment was devised to evaluate the length of time crab sections can be kept in cold storage at -15° and 0°F.

(3) Effect of Sodium Hexametophosphate on Quality and the Development of Struvite in Heat Processed Chicken Haddie

A.B. Dewar
G.E. Mack
K.B. Swansburg

Hexametophosphate is recommended by some workers to prevent the formation of struvite in canned fishery products. An experiment was devised to assess its claimed effectiveness of preventing struvite as well as its influence on the quality of the product. In the study, the concentration of this additive was varied and its effect was assessed in the heat preserved product.

Results showed that the additive prevented the formation of struvite at 250 ppm concentration without lowering the quality of canned chicken haddie.

(4) Shelflife of Heat Processed Crab Meat

S. Varga
A.B. Dewar
W.E. Anderson

An experiment was begun to determine the shelflife of canned Queen Crab stored at ambiant temperature. The evaluation is in progress.

(5) Effect of Additives on the Development of Smut in Canned Fishery Products

G.G. Sims
A.B. Dewar
G.E. Mack

Occurrence of smut in heat processed fishery products is a persistent problem causing losses to the industry. A study was conducted to evaluate the effect of E.D.T.A. and higher phosphates on the development of smut as well as their effect on the quality of the product. A report on the results is in preparation.

(6) Effect of Various Can Lacquers on the Inhibition of Smut in Canned Crab Meat and Chicken Haddie

A.B. Dewar
W.E. Anderson

One method of preventing the development of smut in canned fishery products could be the use of high quality lacquers able to inhibit the migration of iron ions from the steel cannister into the pickle. Suggestions for the existence of this high quality lacquer were made by canning companies. A cooperative study was initiated between the Halifax Laboratory and the American Can Company to evaluate three of the best lacquers available.

Preliminary reports indicate that none of the lacquers succeeded in inhibiting the formation of smut in canned crab and chicken haddie samples.

(7) Pasteurization of Queen Crab Meat

S. Varga
V. Marryatt
A.B. Dewar
W.E. Anderson

Presently, most of the crab packed locally is preserved by freezing. During cold storage, fishery products may lose the delicate flavour characteristic of fresh meat. Pasteurization is an alternative short-term preserving method in which the flavour loss is negligible, particularly at the early stage of shelflife. The latter method of preservation holds considerable potential for the crab processing industry. Experiments underway in the Halifax Laboratory were designed to determine the pasteurizing heat process required for the 1/2 lb. containers and the shelflife of pasteurized meat at 34°F storage.

(8) Development of Botulinum Toxin in Pasteurized Crab Meat

S. Varga
M. Marryatt

The pasteurizing process eliminates vegetative bacteria cells from the pack, but not the bacteria spores. Therefore, when the pasteurized fish products are stored at high temperatures the spores germinate and the multiplying bacteria spoils the product. Some of these spore forming organisms produce highly lethal toxin as well. A study is underway to determine if permitted chemical additives may inhibit the germination of spores thereby decreasing the public health hazard when the produce is accidentally mishandled. The knowledge whether a particular pasteurized product is able to support the growth of toxin producing organisms is also very important.

(9) Densities of Aerobic and Anaerobic Bacteria Spores in End-of-Line Crab and Lobster Meat

S. Varga
V. Marryatt

The type and densities of bacteria spores in heat preserved crab and lobster meat is of interest. The success of heat sterilization depends a great deal on the types and the densities of the spores present in these products. Since information concerning local products is non-existent, a study was devised to obtain it.

(10) Effect of Cold Storage on the Quality of Cooked Red Crab Sections.

S. Varga
A.B. Dewar
W.E. Anderson

This experiment is similar to the one described for the cooked brine frozen Queen Crab sections.

(11) Effect of Post Moetem Spoilage on the Quality of Preserved Red Crab Meat.

S. Varga
A.B. Dewar
W.E.Anderson

Technical Report No. 3, presently at the Queen's Printer.

Experience shows that crab meat stored on ice deteriorates rapidly. The rate the changes occur is of particular interest to the processor who may wish to hold crab meat at 32°F for short periods of time prior to further processing. Since this information on the locally fished red crab (Geryon quinquedens) is not yet available, studies were undertaken. Whole dead crabs and cooked sections were stored on ice for various periods of time after which the meat was extracted, preserved in cans and evaluated by a 4-member experienced taste panel.

The study showed that the red crab sections held on ice do not develop blue or black discolouration like the Queen Crab sections. Spoilage rate is very rapid, therefore only live crabs should be used for processing. Storage of cooked sections should be considered only in an emergency and the storage should not exceed 24 hours at 32°F. A drop in the meat quality was more extensive when the meat was preserved by heating.

(12) Development of Quality Standards for Locally Fished Shrimps

W.E. Anderson
A.B. Dewar
S. Varga

Fishing for shrimp on the Atlantic Coast was recently introduced. The shrimp is held at sea uncooked in ice or cooked, cooled and stored in special boxes, prior to processing on shore. A study was initiated to describe the spoilage pattern of shrimp under the conditions mentioned and develop a grading sheet for assessing organoleptic quality.

(13) Development of Caviar from Lump Fish

A.B. Dewar

The availability of quantities of fish roe in the Maritimes Region, particularly the lump fish roe and the high demand for caviar on the North Eastern U.S. Market, induced the fish processing industry to consider the processing and marketing of fish roe.

Directive to provide assistance to the industry in the utilization of fish roe was given to the Halifax Laboratory. Thus this laboratory has begun a cooperative project with the Nova Scotia Department of Fisheries to develop caviar from locally available raw material.

(14) Effect of Hydrogen Peroxide Bath on Pickled Herring Fillets

G.G.Sims

A preliminary experiment described earlier established that a peroxide bath effectively whitened the pickled herring fillets. The magnitude of residue, if any, in the tissue as well as in the bath after the treatment, however will remain to be established. An experiment designed for this purpose will be carried out in 1970.

MISCELLANEOUS

MISCELLANEOUS

III. Attendance at Conferences & Special Events During 1969

Queen Crab Grading Course Halifax, N.S. January 22-24	Representatives of the Crab Processing Industry Provincial Govt. & Other Federal Agencies & Inspection Branch Personnel.
Workshop on Organoleptic Examination For Fish and Seafoods U.S. Food & Drug Administration Brooklyn, N.Y. January 21-24	Mr. D.C. Horne Mr. P.M. Winchester
Course in Reclassification Halifax, N.S. February 3-6	Mr. G.E. Mack
Meeting with N.B. Water Authority Shippegan, N.B. March	Mr. R. Rodgers
Meeting with National Food & Drug Halifax, N.S. March	Mr. R.J. McNeill Mr. F. Rahey
Meeting on Atlantic Crab Fishery Fredericton, N.B. March 4-5	Dr. C.M. Blackwood Mr. P.M. Winchester Mr. R. Pond Mr. A. Dewar Mr. S. Varga Mr. G.E. Mack Mr. J. Myrick Federal & Provincial Representatives and Industry
Interdepartmental Shellfish Committee Meeting Ottawa, Ontario March 4	Mr. H.L. Boyd
Workshop on Inspection Standards used by USFDA Boston, Mass. March 12-13	Mr. P.M. Winchester

Meeting with Public Works Halifax, N.S. March 14	Mr. R.J. McNeill
Meeting Chaired by Atlantic Development Board Fredericton, N.B. March 14	Mr. H.A. Laventure Mr. K.L. Swansburg
Meeting re Refrigerated Sea Water Ottawa, Ontario March 17-21	Mr. G. Kartalos
Program Working Party on the Application of Fisheries Technology in Maritimes Region Halifax, N.S. March 21	Mr. R.J. McNeill Mr. G.E. Mack Mr. S. Varga Mr. R. Pond Dr. D.R. Idler Dr. J.C. Stewart Dr. W.J. Dyer Mr. P.M. Jangaard Mr. H.E. Power
Cannery Course Charlottetown, P.E.I. March 24-28	Mr. A. Dewar Mr. G. Pond Mr. S. Varga Mr. H.A. Laventure Mr. D.J. Perry Mr. E.R. Gaudet All P.E.I. Fishery Officers, Laboratory Personnell & Industry.
Meeting of Inspection Branch Representatives from Regions across Canada Ottawa, Ontario March 24-28	Mr. P.M. Winchester
Meeting with Marine Colloids Limited Halifax, N.S. April	Mr. R.J. McNeill Mr. P.M. Winchester Mr. L. Deveau Mr. Jorgenson Mr. D. Johnston
Meeting of OIC's of Fish Inspection Laboratories Halifax, N.S. April	Chaired by Mr. P.M. Winchester

Queen Crab Workshop Halifax, N.S. April 7-11	30 Members from Industry 5 Representatives from Atlantic Provincial Govt.'s
Meeting with B.C. Packers Ltd Effluent Project Planning Dartmouth, N.S. April 9	Mr. R.H. Davis Mr. L. Hume Mr. H. Dabner Mr. Moffatt Mr. C. Atkinson
E.M.O. Course Arnprior, Ontario April 14	Mr. G.E. Mack
Meeting of Field Supervisors & Heads of Laboratories (Districts 3 & 4) Moncton, N.B. April 23-24	Mr. R.J. McNeill Mr. H.A. Laventure Mr. J.D. Thompson Mr. R. Rodgers Mr. W.A. Murphy Mr. H.L. Boyd Mr. M.G. Cormier Mr. K. Swansburg Mr. A.R. Barry Mr. E.R. Gaudet Mr. C. Landry Mr. D.J. Perry Mr. W.P. Deveau
National Sea Products Limited Dry Ice Superchilling Test Lunenburg, N.S. May	Mr. J.G.P. McKinney Mr. R.H. Davis Mr. C. Read
Meeting of Field Supervisors & Heads of Laboratories (District 2) Yarmouth, N.S. May 7-8	Mr. R.J. McNeill Mr. P.M. Winchester Mr. G.H. Joudrey Mr. D.C. Horne Mr. J. Melanson Mr. W.E. Beggs Mr. L.P. Daneault
Meeting of Field Supervisors & Heads of Laboratories (District 1) Sydney, N.S. May 14-15	Mr. R.J. McNeill Mr. P.M. Winchester Mr. D.C. Horne Mr. G.E. Romkey Mr. J.H. Sheppard Mr. J.R. MacLean Mr. D. Brackett Mr. F.J. Rahey Mr. W. Watts

Meeting with Industry Inspection of Irish Moss Yarmouth, N.S. May 29	Bonda Foods Genu Products Marine Colloids Senior Inspection Personnel Yarmouth
Meeting with Canadian Atlantic Salt Fish Exporters Assoc. Halifax, N.S. May 30	Mr. R.J. McNeill
Meeting of the Canadian Institute of Food Technology Ottawa, Ontario June 9	Mr. G.E. Mack Mr. S. Varga
Meeting with Provincial Dept. of Fisheries Halifax, N.S. June 24	Mr. R.J. McNeill Mr. M. Myketyn
Course on Gas Chromatography Montreal, P.Q. June 26	Mr. G. Sims
Meeting with National Sea Products Limited Halifax, N.S. June 26	Mr. R.J. McNeill Mr. J. Estey Mr. Ian Langlands Mr. D. Wood
B.C. Packers Limited Effluent Project Tests Lower East Pubnico, N.S. July	Mr. R.H. Davis Mr. J.G.P. McKinney Mr. J. Myrick
FAO Technical Conference Halifax, N.S. July 15-25	Mr. R.J. McNeill Mr. D.C. Horne Mr. P.M. Winchester Mr. S. Varga Mr. A.B. Dewar Other Inspection personnel attended as observors.
Course on Personnel Classification Halifax, N.S. August	Mr. H.A. Laventure
Meeting with Provincial Department of Fisheries & I.M.O. Foods Ltd. Halifax, N.S. August 7	Mr. R.J. McNeill Mr. P.M. Winchester Mrs. D.M. Burgener Mr. B. Meagher Mr. S. MacPhail Mr. B. MacIsaac Mr. V. Thomsen

Superior Sea Products Effluent Project Tests Bunker Island, N.S.	August	Mr. R.H. Davis Mr. J.G.P. Mckinney Mr. J. Myrick
Meeting to Discuss Proposed Regulations for Fish Protein Halifax, N.S.	September 8	Mr. P.M. Winchester Cardinal Proteins Ltd. National Food & Drug
Meeting to Discuss Requirements for Export of Scallops Halifax, N.S.	September 11	Mr. R.J. McNeill Mr. P.M. Winchester Mr. R. Lambie (Usen Fisheries)
Meeting with Canadian Colors & Chemical Dominion Ltd. Halifax, N.S.	September 12	Mr. R.J. McNeill Messrs. Turner & Wale
Fourth Session of the Codex Committee on Fish & Fishery Products Bergen, Norway	September 25 - October 10.	Mr. R.J. McNeill
Meeting re Changes in Regulations to Meat & Canned Foods Act Moncton, N.B.	September 29	Mr. O. Linton Mr. C.G. O'Brien Mr. P.M. Winchester Mr. H.A. Laventure & Industry
Meeting with Senior Laboratory Personnel, D.I.O, & Field Personnel Shediac, N.B.	November 20-24	Mr. R.J. McNeill Mr. H.A. Laventure Mr. W.A. Murphy Mr. R.S. Rodgers Mr. E.R. Gaudet Mr. C.E. Landry
Meeting of Chiefs of Inspection Ottawa, Ontario	November 25-28	Mr. R.J. McNeill
Effluent Project Sampling Canso, Mulgrave, Petit de Grat, Bickerton, N.S.	December 1	Mr. R.H. Davis Mr. J.G.P. McKinney
Meeting with Dept. of Regional Economic Expansion Halifax, N.S.	December 30	Mr. R.J. McNeill Mr. P.M. Winchester Mr. Mann & Mr. McDermott

Visitors to Inspection Branch Maritimes Region 1969

Mr. Frankland	Frankland Canning Company Church Point, N.S.
Mr. A. Orlic	J.D. Koppernaes Engineering Co. Halifax, N.S.
Mr. S. Goodyear	Canadian International Development Agency Dept. of External Affairs
Mr. John Moseley	Guy Tombs Ltd. Shipping Agency Montreal, Quebec
Messrs. Gagnon & Ricard	S.T.E. Fetterly & Son Ltd. Halifax, N.S.
Mr. Embree	Appeals Division Income Tax Department Halifax, N.S.
Mr. C. Murray	Torry Research Station Great Britain
Messrs. Leo Brink & Robert Damato	Tantallon, N.S.
Mr. S. Taraldsson	Icelandic Fisheries Laboratory Reykjavik, Iceland
Dr. C.J. Edmonds & Mr. R.W. Kuzyk	James F. MacLaren Ltd. Toronto, Ontario
Mr. B. Carew	Dept. of Manpower
Mr. Corelli	Montreal, Quebec
Messrs. P.E. Crane & A. Farmer	Dept. of Trade & Industry Halifax, N.S.
Mr. N.T. Jorgensen	Genu Products Canada Ltd. Pubnico, N.S.
Mr. L. Deveau	Marine Colloids Ltd. Dartmouth, N.S.

Fishery Officers R.E. Mills & R.J. Dowe	Newfoundland Region
Mr. Hurley	Rolph-Clark-Stone Eastern Ltd. Halifax, N.S.
Dr. L.W. Regier	Process and Products Research Halifax, N.S.
Mr. C.V. Chris Bauer	Export Manager Grace Kennedy & Co.(Canada) Ltd. Montreal, Quebec
Mr. Berman	Montreal, Quebec
Mr. M.S. Hayto	Foundation of Canada Engineering Corporation Limited Montreal, Quebec
Mr. Renpei Koga	The Japan Canned Food Inspection Association (KOBE Branch) 16, 6-Chome, Kano-Cho Ikatu-Ku, Kobe, Japan
Mr. Mikeyton	Dept. of Fisheries Province of Nova Scotia Halifax, N.S.
Messrs. J. Frontain & Pierre de Roussy	United Maritime Fishermen Halifax, N.S.
Messrs. Ian Langlands & Estey	National Sea Products Ltd. Halifax, N.S.
Mr. Yo	Hong Kong
Mr. R.J. Tonge	District Manager Fabrieka-Canada Limited Dorval, Quebec
Messrs. Max Loewe & Ray McCabe	Star-Kist Foods Inc. Terminal Island, California, U.S.A.
Mr. H.Y. Dumont	Public Service Commission of Canada Moncton, N.B.

Mr. Sing Tsang	Senior Fishery Officer Dept. of Agriculture & Fisheries Hong Kong
Mr. Jack T. Hayston	Agricultural Attaché (Veterinary) Australian Embassy Washington, D.C.
Mr. W.A. Dore	Industrial Development Bank Halifax, N.S.
Mr. Sylvain d'Eon	Minique Fisheries Ltd. Middle West Pubnico, N.S.
Dr. Pallai	Dept, of Fisheries India
Mr. Marrien Barnes	New Brunswick Water Commission
Mr. Paul E. Crane	Cardinal Proteins Ltd. Halifax, N.S.
Dr. A. Zieren	Consulting Engineer Chemiebau 5 Koln, Aachener Strasse 958
Mr. H.G. Turner	Sales Representative Canada Colors & Chemicals (Dominion) Ltd., Montreal, Quebec
Mr. Gordon Wall	Sales Manager Canada Colors & Chemicals (Dominion) Limited Montreal, Quebec
Professor Dr. Fritz Bartz	University Freiburg Germany
Mr. R. Smith	Food & Drug Laboratory Halifax, N.S.
Joan Marshall	C.B.C., Halifax, N.S.
Mr. Thomsen	I.M.O. Foods Yarmouth, N.S.

Mr. A.M. Farmer	Director Regional Services & Promotion N.S. Dept. of Trade & Industry
Mr. S.J. Hughes	Administrative Assistant to Deputy Minister of Trade & Industry
Mr. J.C. Arthur	Supervisor of Industrial Loan Board Halifax, N.S.
Mr. F. Paturel	St. Pierre & Miquelon (Brokers) Halifax, N.S.
Mr. R.L. Van Toor	Maassluis, Holland
Messrs. Kenneth & Raymond Pearman	Devonshire, Bermuda
Mr. A. Williamson	Manager Wood Harbour Fisheries Wood Harbour, N.S.
Mr. G. O'Brien	Fisheries Council of Canada
Messrs. D. Pike & Tupper	National Sea Products of Canada
Mr. Bradford	Connors Brothers Limited Blacks Harbour, N.B.
Mr. R.E. Poley	Diversey of Canada Dartmouth, N.S.
Mr. A.M. Farmer	N.S. Dept. of Trade & Industry Dartmouth, N.S.
Mr. R.E. Nurnber	Canadian Liquid Carbonic Corp. Dartmouth, N.S.
Messrs. E.J. Keough & S. Engler	Canadian Liquid Carbonic Corp. Montreal, Quebec
Mr. T.J. Rusk	Public Health Engineering Div. Dept. of National Health & Welfare Moncton, N.B.

Mr. J.D. MacIntosh, P.Eng. Mr. F. Farmer, P.Eng.	Neil & Gunter Ltd. Consulting Engineers Halifax, N.S.
Mr. C. Read	National Sea Products Ltd. Lunenburg, N.S.
Messrs. R. Mills & R. Darne	Inspection Branch Federal Dept. of Fisheries Newfoundland Region St. Johns, Newfoundland
Mr. P.J. Bridgeman	Surveyer Nenniger & Chenevert Inc. Montreal, Quebec
Mrs. R. Bishop	Architect Dept. of Public Works Halifax, N.S.
Mr. G.B. Denton	Fibreglass Canada Limited Moncton, N.B.
Mr. R.L. Negus	Water Processing & Chemical Co. Bedford, N.S.
Mr. A. Williamson	Manager Woods Harbour Fisheries Woods Harbour, N.S.
Mr. R. d'Amato	Prospective Shipper Dartmouth, N.S.
Mr. D.C. Austen	D.C. Austen Equipment Dartmouth, N.S.
Mr. E.A. Ross	Canadian Plant & Process Engineering Co. Ltd Halifax, N.S.
Mr. N.G. Flinn	Canadian Johns Manville Ltd. Halifax, N.S.
Mr. Dieter Forck	Sales Manager Chester Plastics Limited Chester, N.S.

Mr. D. Stoddart	Industrial Suppliers Limited Dartmouth, N.S.
Mr. H. Ball, P.Eng.	Project Engineer CIMCO Limited Halifax, N.S.
Mr. Redmond	Saguenay Shipping Halifax, N.S.
Mr. M. Billstein	Cryogenic Laboratory McGill University Montreal, Quebec
Mr. G.H. Pearson	Bauer Brothers Brantford, Ontario
Mr. B. Barnes, P.Eng.	N.B. Water Authority Fredericton, N.B.
Mr. K. Bedford	Fisher Scientific Co. Ltd. Halifax, N.S.
Mr. F.W. Stewart	S.T.E. Fetterley & Son Ltd. Halifax, N.S.
Mr. H. Rossiter	(Sweco Canada Ltd.) W.G. Hewlings Co. Ltd. Halifax, N.S.
Mr. L.J. De Rouin	W.S. Tyler Co. of Cda. Ltd. Montreal, Quebec
Mr. J.M. Sutherland	(W.S. Tyler Co.) Railway & Power Engineering Corporation Ltd. New Glasgow, N.S.
Mr. O.C. O'Hara	(Commercial Filters Ltd.) Purves-O'Hara Distributors Ltd. Halifax, N.S.
Mr. G.H. Pearson	The Bauer Bros. Co. (Cda) Ltd. Brantford, Ontario
Mr. P.A. Dillon	Thomas A. Dillon(Cda) Ltd. Toronto, Ontario

Mr. R. Southgate, P.Eng.	Separator Engineering Ltd. Montreal, Quebec
Mr. J.K.D. Hayden, P.Eng.	N.B. Water Authority Fredericton, N.B.
Mrs. Hans Lundgren	The Permutit Company Paramus, New Jersey
Mr. M.R. Cameron, P.Eng.	The Permutit Co. Of Cda. Ltd. Scarborough, Ontario
Mr. F.M. Hrebik	The Permutit Co. Of Cda. Ltd. Montreal, Quebec
Mr. Colin W. Cantley	(Permutit) Marlite Co. Ltd. Halifax, N.S.

PERSONNEL CHANGES - 1969

Appointments

Daneault, L.P.	Bact.2	FS6-229	Yarmouth,N.S.	13-01-69
Jackson, B.D.	A.Tech.3	FS6-162	Blacks Hbr.N.B.	20-01-69
Cosham, C.E.	E.G.3	FS6-407	Halifax,N.S.	17-03-69
Murray, M.C.	Tech.1	FS6-408	Halifax Lab	31-03-69
Myrick, J.B.	EGESS4	FS6-427	Halifax,N.S.	01-09-69

Separations

Foster, P.A.	F.O.2	FS6-134	Caraquet,N.B.	24-01-69
Hall, J.A.	Chem.2	FS6-154	Halifax,N.S.	26-03-69
Shum, G.T.C.	T.O.3	FS6-152	Halifax,N.S.	26-04-69
MacSwain, J.L.	T.O.2	FS6-328	Ch'town,P.E.I.	28-05-69
Beggs,W.E.	T.O.3	FS6-106	Yarmouth,N.S.	02-06-69
Freeman,K.R.	Bact.2	FS6-404	Halifax,N.S.	16-06-69
Robichaud,J.A.	P.I.2	FS6-250	Shippegan,N.B.	26-06-69
Kavanagh, D.	EGESS2	FS6-395	Yarmouth,N.S.	04-07-69
MacLeod, E.E.	ST-1	FS6-448S	Ch'town, P.E.I.	03-09-69
Breau, E.Y.	ST-2	FS6-446S	Shediac,N.B.	08-09-69
Perry, D.J.	T.O.3	FS6-248	Shippegan,N.B.	20-09-69
Chiasson, L.A.	GS-BUS-1	FS6-384	Shippegan Lab	28-01-70

Transfers and/or Promotions

Angel, J.R.	From:	T.O.2	FS6-124	Halifax,N.S.	
	To:	T.O.3	FS6-124	Halifax, N.S.	01-07-68
Bourgeois,G.J.P.	From:	Tech.2	FS6-256	Shediac,N.B.	
	To:	Tech.3	FS6-256	Shediac,N.B.	14-11-68
Vacant Position	From:	T.O.4	FS6-147	Ch'town,P.E.I.	
	To:	T.O.4	FS6-147	Sydney, N.S.	01-01-69
Gaudet, E.R.	From:	T.O.3	FS6-226	Halifax, N.S.	
	To:	T.O.3	FS6-226	Shippegan,N.B.	01-05-69
Angel, J.R.	From:	T.O.2	FS6-124	Halifax,N.S.	
	To:	P.E.1	FS4-59	Halifax,N.S.	01-01-69
Gaudet, E.R.	From:	T.O.2	FS6-226	Shippegan,N.B.	
	To:	T.O.3	FS6-226	Shippegan,N.B.	01-05-69

Transfers and/or Promotions (cont'd)

Freeman, K.R.	From:	Bact.1	FS6-404	Halifax,N.S.	
	To:	Bact.2	FS6-404	Halifax,N.S.	01-11-68
Burgener, D.M.	From:	Bact.1	FS6-146	Halifax,N.S.	
	To:	Bact.2	FS6-146	Halifax,N.S.	01-06-69
Surette, L.M.	From:	ST-3	FS6-411	Yarmouth,N.S.	
	To:	CR-3	FS6-411	Yarmouth,N.S.	01-07-69
Gaudet, E.R.	From:	SG-1	FS6-226	Shippegan,N.B.	
	To:	SG-2	FS6-127	Shippegan,N.B.	01-05-69
Melanson, J.B.	From:	SG-1	FS6-330	Yarmouth,N.S.	
	To:	SG-2	FS6-329	Yarmouth,N.S.	02-06-69
Deveau, W.P.	From:	Bact.1	FS6-228	Shediac,N.B.	
	To:	Bact.2	FS6-228	Shediac,N.B.	08-06-69
Hiltz, P.M.	From:	CR-3	FS6-442	Halifax,N.S.	
	To:	ST-5	FS6-440	Halifax,N.S.	31-12-69

Positions Transferred from Establishment

Vice Stephen,J.	F.O.2	FS6-89	Halifax, N.S.	01-04-68
Vice McCarey,E.A.	F.O.2	FS6-242	Ch'Town,P.E.I.	01-04-68