Seafood and Marine Products Sector Campaign
Campagne sectorielle des produits de la mer

HUMAN RESOURCE PROFILE OF THE CANADIAN FISH PROCESSING INDUSTRY

Industry, Science and Technology Canada
Industrie, Sciences et Technologie Canada

Canada

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EXECUTIVE SUMMARY

This report is the result of one of the framework studies undertaken under Phase II of the Fishery Products Sector Campaign. The campaign, a joint initiative of Industry, Science and Technology Canada and the Canadian seafood and marine products industry, was designed to improve the long-term international competitiveness of the sector. This series of framework studies was undertaken to provide strategic direction in the following four key areas: marketing, technology, aquaculture and human resource development.

The industry, as defined in this study, comprises:

> Establishments engaged primarily in eviscerating, skinning, filleting, breading, pre-cooking, blanching or otherwise processing fish, including molluscs, crustaceans, fish roe, and/or other marine animals and plants as well as establishments engaged primarily in producing fish oil. [Statistics Canada]

The focus of the framework study is on the commercial fisheries of Canada's six coastal provinces: Newfoundland, Prince Edward Island, Nova Scotia, New Brunswick, Quebec and British Columbia. Its purpose is to present a human resource profile of the fish-processing industry and to identify the long-term issues related to skills development for both plant workers and managers. It is concerned not with the resource management, industrial structure or marketing aspects of the industry, but with the people who actually do the work of getting the product ready for market. While the report does offer recommendations, it also provides a basis for discussions on long-term mechanisms to help the work force adjust, through sound human resource development practices, to new technology and international competition.

It provides a structural overview of the seafood and marine products industry, shows how it is organized and identifies the major players.

The Industry

There are well over a thousand fish-processing plants in Canada, the vast majority of which operate only on a seasonal basis. There are many causes for the precarious state of this industry. On the East coast, among other causes, there is a shortage of groundfish, which constitute the bulk of fish processed. For West coast processors, there have been bumper harvests of salmon, their mainstay. Coupled with worldwide expansion of salmon aquaculture production, this has created an excess supply problem, which, in turn, brings about declining prices. Also, the Canada-U.S. Free Trade Agreement and recent GATT decisions, which have allowed for large amounts of fish to be sent to the United States for processing, have intensified competitive pressures (U.S. workers earn significantly less than their Canadian counterparts).

Technological change, reduced quotas, new trading arrangements, falling prices and new competitors are taking their toll on industry employment levels. In 1978 there were 6 500 fish plant workers in B.C. who processed approximately 52 000 tonnes of salmon. In 1985, however, in excess of 72 105 tonnes of salmon were processed — an increase of 40 percent — while peak season employment was 5 000, a decrease of 23 percent.

Between 1981 and 1986, employment in the Newfoundland and Nova Scotia fish products industries declined by more than 9 percent and 15 percent respectively. During the same period, Quebec and New Brunswick experienced similar decreases.

The Work and the Work Force

Fish plant work is assembly line work and as such, is repetitive, tedious, intense and often stressful. Fish processing occupations do not require an advanced education and can be learned through on-the-job-training. While they cannot be classified as highly skilled jobs, endurance, excellent motor skills and an ability to work quickly and efficiently under pressure are required, since the speed at which the work is done is the major determinant of plant productivity.

The fish-processing industry has traditionally promoted its managers from the ranks. Managers became managers because of the notion that the best production workers possess the necessary skills for management positions. This notion is now being seriously questioned.

Education and Training

The impact of education on employment, incomes and economic development is profound. In 1988, Canadians with university degrees had an unemployment rate less than half that of those with high school educations.

With a national illiteracy rate of 24 percent, Canada compares very unfavourably with other developed nations such as West Germany (4 percent) and Japan (less than 1 percent). It is estimated that illiteracy represents a direct annual cost of $10 billion to Canadian society. It is also a major impediment to increasing skill levels — the lower the reading level, the more difficult it is to complete job-related training. It is interesting to note that in Canada, illiteracy increases from west to east, rising from 17 percent in B.C. to 44 percent in Newfoundland.

While recognized internationally as a leader in fisheries regulation and resource management, Canada lags far behind other fishing nations in the establishment of a national system for fisheries-related education, training, research, and technological development. The generally low education level and barriers to education for both workers and managers in the industry are problems that need to be addressed.

The barriers to skills development in the fishery are both attitudinal and systemic in nature. They include the following:

- illiteracy and low education levels
- low level of commitment to training by employers
- seasonal nature of most plant operations
- perception that training is not needed for work in fish processing
- lack of job opportunities outside of fish processing
- negative attitude toward education

According to one company official, Unemployment Insurance benefits constitute an impediment to a stable work force and to skill development.

Furthermore, the generally low education level of managers contributes to the generally poor management systems in place. Managers often do not understand the financial impact of their decisions. There also appears to be a need for more people trained in quality control and food scientists who also possess business, marketing and managerial skills.

Conclusions

The five questions posed by the study and their respective conclusions are as follows:

1 What are the skill levels in the industry at present?

Educational attainment, the range and complexity of jobs to be performed, experience, and physical demands are factors affecting skill levels in the industry.

If educational attainment is considered a representation of skill, then the skill level of workers and managers is not high. Similarly, if job complexity and number of jobs performed are the criteria, then again, the skill level is not high. The work force is, however, very experienced, and production workers possess excellent motor skills, stamina and the capacity to work quickly and efficiently under pressure.

2 What will training requirements be in the foreseeable future?

Employers do not perceive skill development as a critical issue. However, as technology and automation assume greater importance in the fish-processing industry, skill levels and job complexity may increase. Several areas that will require increased training are as follows:

- electronic maintenance
- basic literacy and numeracy
- proper work habits (handling of fish, food safety and occupational health and safety)
- human relations, accounting, marketing, production planning and technology development
- quality control
- food science (business, marketing and managerial skills)

It also should be noted that as technology becomes more pervasive in the industry, both workers and managers will need to acquire skills in communications, computers, planning and problem solving.

3 What impediments to human resource development confront the industry?

- negative attitude toward education, especially vocational education
- perception that training is not needed for work in the fish-processing industry
- lack of job opportunities outside of fish processing for which training might be pursued
- reluctance to travel to participate in courses
- reluctance to commit to programs longer than two weeks
- lack of financial or certification incentives
- low level of commitment to training by employers
- seasonal nature of most plant operations (making it uneconomic to embark on serious training programs)
- lack of affordable child care
- reluctance of workers to enrol in courses because of low educational attainment
- absence of a return on an educational investment in the form of higher wages
- inconvenient timing of workshops offered by educational institutions
- with respect to the West Coast industry, evolving trade regimes have contributed to the uncertainty that reduces interest in long-term training in some quarters

4 How can the retention of an adequately trained work force be ensured?

Training has not been perceived by either labour or management as a critically important issue. This is made evident by collective agreements negotiated in the fish-processing industry that do not really acknowledge the importance of education and training, and by the relatively low level of expenditures dedicated to training. Not until the importance of this issue is acknowledged can policies and structures be developed.

5 How might labour and management deal with the issue of skill development?

Collective bargaining and collaborative ventures would prove useful in dealing with this issue.

Recommendations

1 The federal government, through Industry, Science and Technology Canada, Labour Canada, Fisheries and Oceans, Employment and Immigration Canada, and the Atlantic Canada Opportunities Agency, should intensify the process of obtaining views, on the future of the industry, from those directly involved.

This process would have two parts. One would see government sitting down with union and management representatives to discuss pertinent issues such as impediments to human resource development, anticipated technological change, adjustment measures, and health and safety issues. The second part would consist of grassroots meetings, involving plant workers and low-level supervisory staff, focusing on training and technological change.

2 A sector-wide labour-management mechanism should be established to serve as: the focus for labour-management dialogue on the future of the industry; the focal point of industrial renewal efforts; and the prime organizer and facilitator of training and adjustment programs. The role of federal agencies would be limited to that of facilitator, providing assistance for administration and research in specific programs.

3 Because the negative attitudes toward education have more to do with past experiences, presentation and environment than with education per se, ways must be found to make education and training less intimidating, more interesting and relevant, and more participatory.

4 Unions and management must ensure that appropriate rewards and incentives are in place to encourage workers and managers to participate in skills development initiatives. This could be accomplished through collective bargaining or through another labour-management mechanism.

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June 1991

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INTRODUCTION

> Training should enable people to initiate, control and influence changes in their cultural, social and physical environment and should inculcate attitudes conducive to the development process and which promote self-respect, self-reliance and social integration.
>
> Francis Blanchard, former Director General, International Labour Office[1]

Canada's fishing industry has not gone unstudied. The Atlantic Provinces Economic Council (APEC) was only slightly exaggerating when it commented, "Library shelves groan under the weight of research reports documenting all aspects of the Atlantic fishery."[2] The Senate Committee on Fisheries, citing the Kirby report, observed that there have been over 100 official commissions alone in the past 100 years.[3] The West Coast fishery, while not as frequently scrutinized, has also been very carefully examined.

The present document is also about Canada's fishing industry — fish processing to be precise. However, it concerns itself not with resource management or industrial structure or marketing issues but with the people who actually do the work of getting the fish ready for market.

The paper considers the fish processing or fish products industry to be what Statistics Canada considers it to be; that is:

> Establishments primarily engaged in eviscerating, skinning, filleting, breading, pre-cooking, blanching or otherwise processing fish, including molluscs, crustaceans, fish roe, and/or other marine animals and plants as well as establishments primarily engaged in producing fish oil.

The focus is on the commercial fisheries of the six coastal provinces: Newfoundland, Nova Scotia, New Brunswick, Prince Edward Island, Quebec and British Columbia.

A much more modest effort that the other industry inquiries, this paper's aims are simply to construct a human resource profile of the fish processing industry, and to discuss the issue of skills development of both workers and managers in the industry.

More specifically, the paper tries to address the following questions:

- What are the skill levels in the industry at the present time?
- What will the training requirements be in the foreseeable future, in light of changing customer preferences, of highly competitive markets and of the need to advance technologically?
- What impediments to human resource development existed in the past and confront the industry now?
- How can the retention of an optimally trained, or at a minimum, adequately trained work force be ensured?
- How might labour and management deal with the issue of skills development?

The paper was undertaken as part of the Fishery Products Sector Campaign of Industry, Science and Technology Canada. However, three federal departments came together to oversee the project, the other two being Labour Canada and Employment and Immigration Canada.

Data gathering for the project proceeded in three ways. First, a vast amount of literature on the fish processing industry, technology, labour-management relations, and education and training was reviewed. Secondly, visits to eight fish processing plants on both coasts were undertaken. Thirdly, interviews were

conducted with industry, union and government officials, as well as with educators and consultants.[4]

Although this paper deals primarily with human resource issues, the first two sections provide a context, briefly describing the major players in the industry and supplying some basic economic performance data, as well as offering a few observations on labour-management relations. These sections suffer from the fact that accurate, up-to-date information was, in many cases, not readily available. Section 3 attempts to describe fish processing work and to provide a profile of the work force in terms of age, gender and educational level. Section 4 turns the reader's attention to the industry's apparent education and training needs, proposing for consideration models of training initiatives tried elsewhere. Section 5 presents the paper's conclusions and recommendations.

It would be presumptuous in the extreme for the author, a central Canadian, to suggest "solutions" for the ailments of the fish products industry. What is offered here instead is an overview study, a basis for further discussion and debate. Many of the paper's thoughts and conclusions may be — and probably will be — challenged. This is as it should be.

Its limitations notwithstanding, the paper represents an attempt to get more of the attention shifted onto human resource development issues. As the Economic Council of Canada recently concluded: "Success depends as much on innovations in organization and the development of human resources as it does on technical expertise."[5]

To illustrate the point, Thomas Kochan, an Industrial Relations Professor at the Massachusetts Institute of Technology, recently told the story of two unionized auto assembly plants in the U.S. According to Professor Kochan, it takes about 33 hours to assemble a car in a conventional auto plant in North America. To reduce this, General Motors decided to build a plant with state-of-the-art technology and it spent $50 million to do so. Regrettably, the technology was all

that was updated, with the result that it still took 31 hours to assemble a car. In other words, GM spent $50 million for a saving of two hours!

At another plant, jointly owned by GM and Toyota but managed by the latter, different kinds of changes were made. It did not introduce a lot of new technological hardware but it did institute a new way of doing things, of making decisions, one that involved the employees as much as possible. Toyota also made a commitment to worker training and to long-term employment security. In this plant, it takes 19 hours to assemble a car.

The message to companies — auto makers, fish processors and otherwise — seems clear: modernize, yes; improve your technology, of course; but also, attend to human needs and human processes at least as much as the technological needs.

Before proceeding, I would like to thank all those who in any way helped in the preparation of this report. A special thank you to those who agreed to be interviewed.

Gordon DiGiacomo
Ottawa, Ontario
January 1991

1 — INSTITUTIONAL OVERVIEW

This section seeks to provide a structural overview of the fishery products industry. It shows how it is organized and who the major players are, insofar as the private sector is concerned, and insofar as the processing end is concerned. Several other organizations are in place to work on behalf of those who harvest the fish. While they obviously have an interest in what goes on in the fish plants, their primary concern is with harvesting.

Industry Associations

The principal industry associations are the Fisheries Council of Canada (FCC) and the Fisheries Council of British Columbia (FCBC). The FCC was formed in 1915 and its main task is to maintain liaison with the federal government. It is comprised of six member associations: the Fisheries Association of Newfoundland and Labrador; the Seafood Producers Association of Nova Scotia; the New Brunswick Fish Packers' Association; the Prince Edward Island Seafood Processors Association; the Association Québecoise de l'Industrie de la Pêche; and the Fish and Seafood Association of Ontario. These associations are comprised of 189 companies which account for about 85 percent of the Atlantic industry's production.

The FCBC has been in existence since 1900 in one form or another and since 1984 in its present form. The seven member firms of the FCBC account for 70 to 75 percent of all fish production in B.C. The member firms are British Columbia Packers Ltd.; the Canadian Fishing Company; Ocean Fisheries Ltd.; J.S. McMillan Fisheries Ltd.; Bella Coola Fisheries Ltd.; Lions Gate Fisheries Ltd.; and Nelson Bros. Fisheries Ltd. (A subsidiary of B.C. Packers).

Like the FCC, the FCBC represents the industry's interests in government circles. But unlike the FCC, it has a sister organization, the Fish Processors' Bargaining Association of B.C., which negotiates collective agreements with the trade union and fish prices with the fishers.[6]

Enterprises

The three largest firms in the country are National Sea Products Ltd., B.C. Packers Ltd. and Fishery Products International. All are unionized. In Atlantic Canada, the three largest are National Sea Products Ltd., Fishery Products International and Clearwater Fine Foods. They account for well over 50 percent of all East Coast production. Comeau's Sea Foods Ltd. and Connors Brothers Ltd. are other important processors in Atlantic Canada. On the Pacific coast, the big three are B.C. Packers, the Prince Rupert Fishermen's Cooperative Association and Ocean Fisheries Ltd. B.C. Packers is said to be about four times larger than its nearest rivals.

National Sea Products, based in Nova Scotia, was listed by the *Financial Post* as Canada's 168th largest corporation (by sales) in 1989, up from 174th in 1988. Sales for the first three quarters of 1990 totalled $455 884 000, up slightly from $454 364 000 in the first three quarters of 1989. Net loss for the first three quarters of 1990 was $2 760 000, compared with a net loss of $13 651 000 in the same period of 1989. It has about 6 500 employees, although it is clearly in the process of downsizing. According to Henry Demone, the company's President, [7]

> . . . during the all-too-brief boom of several years ago, we operated over 60 vessels and 17 plants. Today, we have 32 vessels and nine plants, including the controversial Canso and St. John's operations.

(At the time of writing, the Canso plant was being sold and the St. John's plant was being converted to a shrimp peeling operation.) Both the federal government and the provincial government participate in the ownership of National Sea. The

Government of Nova Scotia's share is very small but Ottawa has a 19 percent interest in the enterprise.

Fishery Products International (FPI), based in Newfoundland, was listed by the *Financial Post* as Canada's 259th largest company (by sales) in 1989, down from 243rd in 1988. Sales for the first three quarters of 1990 were $394 406 000, up from the $235 074 000 recorded in the first three quarters of 1989. The net income for the first three quarters of 1990 was $4 513 000; the net loss for the first three quarters of 1989 was $12 885 000.

FPI's 1989 *Annual Report* lists Rev. Desmond McGrath, the Education Officer of Newfoundland's Fishermen, Food and Allied Workers' Union, as a member of the company's board of directors.

FPI has 19 plants, 16 in Newfoundland, one in Nova Scotia and two in the U.S. As a result of a falling capacity utilization rate — from 65 percent in 1988 to an estimated 45 percent in 1990 — FPI announced in January of 1990 that the plants in Gaultois, Grand Bank and Trepassey would be closed permanently. The Government of Newfoundland and Labrador provided about $11 million in order to keep the plants open until the end of 1991.[8]

FPI now has about 8 000 employees and is said to be moving to 6 000. In 1987, government participation in the ownership of FPI ceased.

B.C. Packers, a private company and a subsidiary of Weston, the giant food conglomerate, will not divulge its sales and income figures. At peak season, it has about 3 000 processing workers. According to the United Fisherman and Allied Workers' Union (UFAWU), B.C. Packers processes over half of all the canned salmon coming out of B.C.

There are well over a thousand fish processing plants in Canada, the vast majority of which operate only on a part-time basis. In 1988, the number of federally registered plants in each coastal province was as follows:[9]

Table 1

Province	Number of Plants
Newfoundland	250
Nova Scotia	337
New Brunswick	190
Prince Edward Island	65
Quebec	111
British Columbia	226

[10]

In B.C., the plants are located as follows:[11]

Table 2

	1988	1987	1986	1988	1987	1986	1988	1987	1986
	Lower Mainland			Vancouver Island			Central and North Coast		
Canning only	2	2	2	2	2	3	0	0	0
Cold storage	66	60	53	40	44	43	11	9	8
Canning and cold storage	4	4	4	1	2	1	4	4	4
Plant only	41	41	29	51	41	37	4	4	3
Total	113	107	88	94	89	84	19	17	15
Percent of total	50	50	47	42	42	45	8	8	8

In Nova Scotia, the plants are located as follows:[12]

Table 3

Area	1983	1984	1985	1986	1987	1988
Scotia-Fundy	245	242	250	288	302	317
Gulf	10	10	12	15	16	20
Nova Scotia	255	252	262	303	318	337

For Nova Scotia, it is possible to provide as well a 1986 breakdown of the plants by number of employees (table 4).[13]

Table 4

Number of Employees	Number of Plants	
	Eastern N.S.	Southwestern N.S.
Unknown	4	13
1 — 5	6	43
6 — 20	15	87
21 — 100	10	70
101 — 200	3	7
201 — 400	3	6
Over 400	1	1

In Newfoundland, processing facilities are heavily concentrated along the south and northeast coasts of the Island and southern Labrador. The Newfoundland Royal Commission on Employment and Unemployment observed that in 1985 most of the plants in the province were small, independently owned plants, as shown in table 5.[14]

Table 5

Owner/Operator	Number of Plants
The "Big Two"	30
Large Independents	48
Small Independents	112
Community-owned and Operated	12

CBOs, Unions

In the context of this paper, community-based organizations (CBOs) refer to cooperatives or other kinds of people's organizations, such as development associations or fishers' committees, that own or operate fish processing plants. It is estimated that about 10 percent of the processing plants in Newfoundland are associated with CBOs.

The federal Cooperatives Secretariat says that in 1988 there were 117 registered fishery coops throughout Canada. Some do processing only while others do harvesting and processing. The value of their production in 1988 was

$202.5 million. The largest is the Prince Rupert Fishermen's Cooperative Association which is also one of the largest processors on the Pacific coast.

The largest unions in the industry are the Canadian Auto Workers (CAW) and the United Fishermen and Allied Workers Union (UFAWU).

The CAW has about 167 000 members and 124 locals nationwide. It has five locals in Nova Scotia, two in New Brunswick and one in Newfoundland, known as the Fishermen, Food and Allied Workers (FFAW). Founded in 1971, the FFAW became a local of the CAW in 1989. It has 23 000 members.

The UFAWU, founded in 1945, has 6 000 members and 34 locals throughout B.C.

2 — THE STATE OF THE INDUSTRY

> "Education and training are key to increasing the value of the industry."
>
> Task Force on the Rationalization
> of Fish Processing in New Brunswick

Various words have been used to describe the state of the fish processing industry in Canada: unhealthy, shaky, precarious, slow, poor, lagging, slumping. Conditions vary, of course, depending on species and enterprise but, generally speaking, those on both coasts who were interviewed saw the industry as being in a precarious state.

The causes differ widely. On the East Coast, there is a shortage of groundfish — e.g. cod, haddock, flatfish — which constitute the bulk of fish processed. For West Coast processors, there have been bumper harvests in 1989 and 1990 of their mainstay, salmon. Thus, B.C. processors face an excess supply problem, particularly in some size categories, in addition to declining world salmon prices. Also, the Canada-U.S. Free Trade Agreement and recent GATT decisions, which have allowed for large amounts of fish to be sent to the U.S. for processing, have intensified the competitive pressures on B.C. processors since U.S. workers earn significantly less than their Canadian counterparts. Not surprisingly, for 1989 B.C. processors report declining sales and a 13 percent drop in the value of salmon production.

In Atlantic Canada, groundfish, which in 1988 accounted for 57 percent of total landings on the East Coast, has been on the decline since the early 1980s. The most severe decline has been in the Scotian Shelf-Georges Bank-Bay of Fundy area where the total allowable catch fell 53 percent between 1984 and 1990.[15] Overall, fish quotas in Atlantic Canada have been cut by 27 percent since 1984.

Processors on the Atlantic coast produce most of Canada's fish products by far. From 1983-87 the value of Canadian seafood production averaged about $2.5 billion yearly. The Atlantic coast accounted for about 70 percent of the annual average. Newfoundland alone accounts for about 30 percent of all Canadian fish processing activity. The Atlantic provinces also are responsible for roughly 70 percent of the value of Canadian seafood exports.

The number of processing plants in Atlantic Canada roughly doubled over the past decade, the result no doubt of the declaration of the 200-mile limit. However, reduced stocks in 1989 and 1990 have forced at least six large plants and many small ones to close or scale down operations.

Nova Scotia and Newfoundland dominate the East Coast processing industry, as the following table illustrates:[16]

Table 6

Province	Value of Production, ($000), 1986
Nova Scotia	836 609
Newfoundland	600 422
New Brunswick	346 196
Prince Edward Island	83 759
Quebec	209 611

The importance of fish processing to each province is demonstrated in the following table:

Table 7 — Contribution of Fish Processing to Provincial Economies, 1986

Province	Contribution to Provinical GDP	Contribution to Commodity-Producing Sector
Newfoundland	4.3%	13.0%
Nova Scotia	2.1	7.2
Prince Edward Island	1.7	5.8
New Brunswick	0.9	2.7
British Columbia	0.3	1.1
Quebec	-	0.1

Sources: Statistics Canada; Department of Fisheries and Oceans, Ottawa

In 1989, more than 80 percent of the value of total Canadian fish production was exported. As the following table shows, the value of Canadian seafood exports fell in 1989 below the amount recorded in 1986. Four of the six coastal.provinces experienced drops in the value of their exports in 1989.[17]

Table 8 — Exports of Fish Products ($000)

Province	1986	1988	1989
Nova Scotia	647 663	759 516	649 076
New Brunswick	307 582	258 289	237 771
Prince Edward Island	61 508	58 774	59 427
Quebec	143 338	164 219	117 573
Newfoundland	556 710	598 182	477 499
British Columbia	579 241	711 755	677 000
CANADA	2 432 727	2 701 136	2 400 572

Imports, on the other hand, increased in 1989 (table 9).

Table 9 — Imports of Fish Products ($000)

1982	364 992
1986	616 441
1988	737 142
1989	774 395

Source: Department of Fisheries and Oceans, Ottawa

The principal destinations for Canadian seafood exports are as follows:

Table 10 — Destinations of Exports

Destination	1986	1987	1988	1989
U.S.	58.8%	58.6%	52.5%	54.4%
Japan	18.3	17.3	22.3	10.6
European Community	14.5	15.8	16.5	15.5
Others	8.3	8.3	8.6	9.5

Source: APEC, *"The Atlantic Fishery in the 1990s: Background to Crisis," Atlantic Report,* Vol. XXV, No. 2, July, 1990, p. 7.

Atlantic Canada depends heavily on the U.S. for its exports. Three-quarters of Atlantic groundfish production is exported, 80 percent of it to the U.S. More than 90 percent of all seafood produced in Newfoundland and almost 80 percent of all seafood produced in Nova Scotia are exported.

Some 75 percent of the value of B.C.'s fish production is exported. Japan is the largest market, accounting for over 50 percent of the value of total exports in 1988 and 48 percent in 1989. Export sales of B.C. fish processors in 1989 were markedly lower than in 1988.

The Competition

Canadian processors, particularly those on the West Coast, feel the increasing competitiveness of their industry. In a recent industry analysis, the FCBC declared, "Competition in the marketing sector continues to be fierce."[18] It observed that American producers of Alaska salmon are gaining a larger share of the European and Japanese frozen salmon markets, while Norway's ability to

provide a consistent supply of fresh farmed salmon at competitive prices, coupled with its proximity to European customers, threaten the market position Canada has traditionally enjoyed. Norway has become the world's largest producer and exporter of farmed Atlantic salmon.

Other countries identified as competitors to B.C. processors are Chile, New Zealand and Scotland (farmed salmon), the Pacific Rim countries (groundfish) and Denmark (herring roe).

One factor making the industry so much more competitive is the sheer number of countries now in the game. Over 100 coastal states, both developed and developing, now control 99 percent of the world's marine fishery resource, in contrast to the situation a decade ago when it was dominated by a few maritime nations.[19] In this new scheme of things, Canada, even though a relatively large exporter of fish products, is but a small supplier. Indeed, Canadian shipments made up only 7.5 percent of the total value of international trade in fish products in 1987. Thus, East Coast processors find themselves competing vigorously not only with such traditional rivals as Iceland, Denmark, Norway and the U.S., but also with non-traditional suppliers, notably New Zealand, Argentina, Taiwan, Australia and Chile. Competition is particularly intense in the lucrative American market where a number of countries, promoting a variety of species and product forms, are striving to gain a larger piece of the action. Canada's share of the U.S. market has in fact declined since the mid-1980s.

One East Coast industry spokesperson observed that, for his province, the competition comes not from other countries but from other foods. As the following table demonstrates, Canadians and Americans eat far more beef, pork and poultry than fish:[20]

Table 11 — Per Capita Consumption, in pounds, of Beef, Pork, Poultry and Fish in Canada and the U.S. in 1987

	Beef	Pork	Poultry	Fish
Canada	84.2	63.3	61.1	15.9
U.S.	75.6	58.8	60.8	15.4

Trying to get the consumers of North America to shift these patterns is proving to be a difficult job for processors particularly in a time of high interest rates which discourage borrowing and, because they push up the value of the dollar, make our exports more expensive.

The Technology

Typically, technologies are distinguished between those that are product-based — what will we produce? — and those that are process-based — how will we produce it? On both counts, Canada's fish processing industry, at least that on the East Coast, is generally perceived to be behind the times.

On the East Coast, a union spokesperson stated that, with a few exceptions, processing plants in his province are "technologically backward." Another unionist said that the technology ranges from "primitive to moderately advanced."

An industry spokesperson on the East Coast believes that the technology is "good relative to other countries but not good relative to what is available." Another explained that most firms are so small they do not have the resources for serious technological change. He also thought that the design of most plants is not as good as it could be.

On the West Coast, however, the perception is that the technology is relatively advanced. A number of respondents to our questions pointed out that a lot of updating has gone on in recent years in salmon canning, with state-of-the-art equipment being installed.

It is widely agreed that Japan and northern European countries — Iceland, Norway and Denmark — have done much more than their Canadian competitors to advance the state of the technology in their industries. The two reasons offered to explain this are that the fish processing industry is more important to their national economies than it is to Canada's, and that, because unemployment is so low in these countries, production workers are hard to find, forcing the companies to place more emphasis on eliminating the need for labour.

In a recent survey of processing operations in northern Europe, consultants from the NewLantic Group observed another factor at work, namely the influence of certain social values. "Social structures," said the consultants, "are essentially egalitarian, based on respect for the individual and his/her capability to make meaningful contributions to overall organizational efforts."[21] This commitment to the individual worker results in greater support for and trust in the process of technological change.

Elsewhere in their report, the consultants, whose work focused on the state of technology in the Newfoundland industry, summed up what can be said about the Canadian fish products industry in general:[22]

> . . . there have been very few investments in future technologies and, over the past few years, lack of profitability has inhibited even capital outlays for new plant and equipment. Accordingly, companies have been falling behind in the state of the art for plant and equipment at a time when changing market conditions indicate a need for investment and international competitors have been spending money to upgrade their processing capabilities.

This is not to imply that there has been a moratorium on technology development in Canada's fish processing sector. On the contrary, several changes have been made recently, affecting employment, efficiency and the nature of the work in serious ways. For example:

— an increasing number of plants are installing filleting machines, resulting in a significant decrease in filleters' jobs;

— computerized monitoring of worker performance is becoming more common;

— by 1985, all of B.C.'s large salmon canneries were using two-piece steel cans rather than the three-piece tin cans;

— a B.C. salmon processor is experimenting with an Automatic Retort Control System that controls the cooking process through microcomputers linked to a central computer which is monitored by an operator; and

— a Newfoundland firm, with help from Memorial University, the Technical University of Nova Scotia and the Marine Institute, has begun production of surimi, a processed protein derived from de-boned fish and used for making seafood analogs, e.g. simulated crab legs.

Generally speaking, however, the consensus seems to be that there is much room for technological improvement. Ways to do this include processing new or under-utilized species, developing new products and using more efficient equipment.

For the foreseeable future, given the industry's economic state and its dependence on human labour, it has been suggested that it focus on developing and using technology which can improve the efficiency of that labour.[23] For example, in Iceland working tables with built-in cooling systems eliminate the need to keep the temperature low in entire production areas, thus removing one source of discomfort and stress for the worker.

In the longer-term, however, there is mounting evidence to indicate that the technology used in fish processing will be vastly more sophisticated and complex than it is today. In her book, *FastForward and Out of Control*, Heather Menzies, referring to a speech by FPI Executive Vice President, William Wells, says that FPI plans to introduce a robotic processing, portioning, de-boning and packaging system at its Catalina plant reducing the work force by 80 percent.[24] (That FPI is moving steadily toward greater computerization of its plants was confirmed in a telephone interview with a senior FPI official.)

On the west coast, the Department of Mechanical Engineering at the University of British Columbia established a Chair in Robotics with financial help from B.C. Packers. Another company is experimenting with electronic sensors, able to weigh each fish, measure width and thickness and tell a computer-controlled chopper where to cut it. The result is an increase in the yield from each fish.

The National Research Council (NRC), in a survey of the technology needs of the fisheries industry, noted that processors are seeking help in several areas, including the application of robotic and vision systems in fish sorting and in the removal of parasites.

R.W. Verge, in a speech to the Atlantic Fisheries Technology Conference, stated:[25]

> Developments currently taking place in technology, particularly in electronic sensing and computer control, have the potential to revolutionize the fish processing industry. Some of this technology can be used to replace labour, but it will also allow greater control over processing activities and product characteristics than is now achievable. Applications of the new technology to fish processing are still in the early stages of development but can be expected to be increasingly available over the next five to 10 years.

Finally, a 1987 document obtained from the Newfoundland and Labrador Institute of Fisheries and Marine Technology (the Marine Institute) notes that competitor nations like Norway, Denmark and Japan have already directed a considerable amount of resources toward the development and application of electronics technology. In Newfoundland, innovations of this kind have been limited but, says the document, we can expect to see "increased usage of electronic sorting and control systems." In rural Newfoundland, "the impact of this eventuality will have a pronounced socioeconomic impact on the community as a whole and also on the working environment within the plant."

Eventually, too, biotechnology will come to fish processing. The NRC is in fact carrying out research to see if biotechnology can be used to determine the freshness of fish after it has been landed. Innovations like this will undoubtedly impact on employment but in what ways cannot be predicted at this time.

Experience enables us to make one prediction, however; that is, that the extent to which workers and their unions are involved in managing the process of technological change will determine whether it will be accepted or resisted, whether it will be effectively employed and whether it will be used to everyone's advantage or primarily for the benefit of a few.

Employment and Earnings

As of 1988, the provincial distribution of fish processing employment was as follows:

Table 12

Province	Employment (in person-years)
Newfoundland	11 160a
Nova Scotia	10 900a
New Brunswick	7 080a
British Columbia	5 600 (ave. monthly employment)b
Quebec	1 840 (1987)c
Prince Edward Island	1 440a

Sources:a)APEC, *"The Atlantic Fishery in the 1990s: Background to Crisis," Atlantic Report*, Vol. XXV, No. 2, July, 1990, p. 4.
b)Price Waterhouse, *The Economic Impacts of Fishing in B.C. — 1988 and 1989*, prepared for the FCBC, May, 1990, p. 19.
c)Senate Committee on Fisheries, *The Marketing of Fish in Canada, Report on the East Coast Fisheries*, Dec., 1989, p. 32.

Evidence is accumulating to show that technological change, reduced quotas, new trading arrangements, falling prices and new competitors are taking their toll on industry employment levels. For example, a study by the Trade Union Research Bureau for the UFAWU and funded primarily by Labour Canada, pointed out that at the peak of the salmon season in 1978 there were 6 500 fish plant workers in

B.C. processing salmon. During that year, approximately 52 000 metric tonnes of salmon were processed. In 1985, however, in excess of 72 105 metric tonnes of salmon were processed — an increase of 40 percent over 1978 — while peak season employment in salmon processing was 5 000, a decrease of 23 percent.[26]

EIC figures show that from 1981 to 1986 employment in the Newfoundland fish products industry declined by over 9 percent; in Nova Scotia, it declined by more than 15 percent; and in B.C., it dropped by over 17 percent. Quebec and New Brunswick also experienced decreases.

In Nova Scotia, data compiled by the federal Department of Fisheries and Oceans (DFO) in Halifax show that, as of July, 1990, 23 plants had closed, resulting in 1 915 lost jobs. Another 45 plants had reduced operations, affecting 1 350 employees. Table 13 shows that fish processing employment in Nova Scotia declined dramatically in the first two quarters of 1990.

(Most fish plant work is seasonal. To determine the actual number of fish plant employees, APEC suggests that the person-year figure be multiplied by 1.2 or 1.5. For example, 11 160 person-years multiplied by a factor of 1.5 would show that as many as 16 740 people worked in Newfoundland fish plants in 1988).

Table 13

Year/Quarter	Employment (in person-years)
1984	9 125
1	7 300
2	10 400
3	10 800
4	8 000
1988	10 200
1	8 300
2	10 700
3	12 700
4	9 100
1990	4 350
1	4 000
2	4 700

Source: EIC, Economic Services, Halifax

In Newfoundland, the employment trend is as follows:

Table 14

Year/Quarter	Employment (in person-years)
1975	3 878
1978	7 446
1981	8 486
1984	7 900
1987	10 800
1988	11 160
1989	9 150
1	4 600
2	13 200
3	12 100
4	6 700
1990	7 950
1	6 100
2	9 800 (preliminary)

Sources:Royal Commission on Employment and Unemployment, *Building on Our Strengths*, Final Report, St. John's, Nfld., 1986, p. 125; Government of Newfoundland and Labrador, Cabinet Secretariat; APEC, op. cit., p. 4.

We found nothing in our research to indicate that fish plant employees work in other industries, e.g. other food processing plants, during the off-season. One reason is that many plants are located in small, isolated communities where there

are no other industries. Work in the informal economy seems to be the main activity when the fish plants are idle.

In terms of earnings, Statistics Canada figures show that the average hourly earnings of hourly employees in the fish processing industry lag behind those of hourly employees in the food and beverage industry and in manufacturing generally (table 15).

Table 15 — Average Hourly Earnings (including overtime) of Hourly Workers

Industry	1980	1984	1988	1990 (Jan.-June Average)	Percent Increase 1980-1990
Fish Processing	6.13	8.04	9.52	10.79	76.0
Food & Beverage	7.30	10.42	11.97	12.96	77.5
Manufacturing	7.79	11.04	12.84	14.14	81.5

Source: Statistics Canada, Labour Division

Among fish processing workers, the highest paid are in B.C., as the table below indicates.

Table 16 — Average Hourly Earnings (including overtime), Hourly Employees, Fish Processing Industry

Province	1980	1984	1988	1990 (Jan.-June Average)
British Columbia	10.38	13.26	14.95	14.44
Newfoundland	5.56	7.69	9.12	10.62
Nova Scotia	5.67	7.53	9.15	10.47
Quebec	n/a	7.79	8.19	9.95
New Brunswick	5.13	6.92	8.06	8.58
Prince Edward Island	n/a	n/a	6.50	7.68

Source: Statistics Canada, Labour Division

There is disagreement as to what hourly workers earn in a year. According to a Price Waterhouse survey of the B.C. industry, their earnings in recent years have been in the $20 000 to $25 000 range. However, the UFAWU contends that in 1987 a shoreworker earned about $10 000.[27]

In a 1985 speech, Ron Bulmer, President of the FCC, estimated that labour costs are about 20-25 percent of total operating costs. The raw material — that is, the fish — accounts for about 55 to 60 percent of total operating costs.

Labour-Management Relations

There are industries in Canada with a worse labour-management relationship than that which exists between fishing companies and their unions. Neither side is completely compliant or totally uncooperative. Despite a turbulent industrial relations history and tough adversarial bargaining, the fishing industry has produced several collaborative ventures at both the firm and plant levels, focusing predominantly on health and safety issues.

In Newfoundland, officials from FPI and the FFAW report a generally positive relationship. In Nova Scotia, the arrival of the CAW seems to be changing the nature of labour-management relations. As a more assertive union, it is prepared to make new demands on employers. Thus, in 1989, the union negotiated the first fully funded, company-paid pension plan for National Sea workers in Nova Scotia. It would appear that at this time managers are uncertain as to how to approach this "new kid on the block."

Data on the degree of unionization in the industry are not kept by Statistics Canada. However, a good guess would be that between 45 percent and 50 percent of fish plant workers are members of unions.

Incentive systems and the close monitoring of worker performance are strategies often employed by processors to improve plant productivity. However, there are serious questions about their effectiveness and about their impact on relations at work. Consultants R.W. Verge and Aldwin Boone, in their examination of the industry, write:

> More attention has been paid to symptoms than to underlying problems. For example, there has been excessive concern about costs of direct labour and, consequently, programs have, often been directed only at getting employees to work harder. Indirect labour, utilization of raw materials and interrelationships among different functions have largely been ignored as potential sources of productivity improvement. This situation is in contrast with that in Iceland, where workers generally work at a slower pace than those in Newfoundland in trying to maximize yields and where considerable attention has been paid to process flow and materials handling.

Table 17 — Work Stoppages, Fish Products Industry

Year	Number	Workers Involved	Person-Days Not Worked
1980	11	9 527	290 420
1981	9	2 164	46 400
1982	10	6 372	69 040
1983	3	1 165	62 370
1984	7	5 655	127 690
1985	8	2 021	28 280
1986	5	5 379	7 200
1987	3	423	2 850
1988	3	4 015	9 060
1989	6	6 880	212 170
1990	3	291	7 840

Source: Labour Canada, Bureau of Labour Information

Another report, by the Fishery Research Group of Memorial University, compared the labour climate at each of the processing plants in Burgeo, Catalina and Arnold's Cove. The researchers found the Arnold's Cove plant to have lower levels of stress and worker hostility and considerably fewer accidents. They also found that formal grievances were rare and productivity was higher. In their view, the reasons for the generally more pleasant atmosphere at Arnold's Cove included the absence of an incentive system, less surveillance, infrequent use of disciplinary procedures and a system of job rotation.

Wage settlements in the industry have generally been similar to those in the food and beverage and manufacturing industries (table 18) and somewhat below rises in consumer prices (table 19).

Table 18 — Major Wage Settlements (500 or more employees)

	Fish Products		Food & Beverage		Manufacturing	
Year	No. of Agree.	Average Annual Increase	No. of Agree.	Average Annual Increase	No. of Agree.	Average Annual Increase
1980	5	11.5%	26	11.4%	164	11.6%
1981	5	13.7	15	13.0	111	12.5
1982	2	8.7	15	10.9	130	9.1
1983	2	-	19	5.4	97	5.5
1984	3	2.4	15	1.6	150	4.2
1985	4	4.7	21	4.5	109	4.4
1986	4	3.0	16	3.6	92	3.8
1987			7	4.6	117	4.3
1988	4	4.0	20	4.2	113	4.7
1989	5	6.1	12	5.9	67	5.6
1990 (Jan.-Oct.)			3	5.2	76	5.9

Source: Labour Canada, Bureau of Labour Information.

Table 19 — Consumer Prices

Year	Annual Percentage Increase
1980	10.2
1981	12.5
1982	10.8
1983	5.8
1984	4.4
1985	4.0
1986	4.1
1987	4.4
1988	4.1
1989	4.1
Percent change October/80 — October/90: 74.9 percent	

Source: Statistics Canada

An analysis of the major collective agreements in force in the fish products industry shows some, but hardly adequate recognition of the importance of education and training. Consider:

Table 20 — Collective Agreements, Fish Products Industry, Selected Provisions

Coverage — workplaces with 500 or more employees

No. of Agreements — 7

Total no. of workers covered — 11 910

Provision	Agreements		Employees	
	No.	Percent	No.	Percent
Education Leave — Job Related				
Unpaid	4	57.1	7 935	66.6
No Provision	3	42.9	3 975	33.4
Education Leave — General Education				
Partly Paid	1	14.3	2 375	19.9
Unpaid	2	28.6	3 000	25.2
Unknown	1	14.3	800	6.7
No Provision	3	42.9	5 735	48.2
Education Leave — Union Education				
Paid	1	14.3	735	6.2
No Provision	6	85.7	11 175	93.8
Training/Apprenticeship				
Paid	1	14.3	4 200	35.3
No Provision	6	85.7	7 710	64.7
Technological Chanage				
Advance Notice	5	71.4	10 310	86.6
Notice of Layoff	2	28.6	6 575	55.2
Reference to Retraining	3	42.9	3 735	31.4
Joint Committee	3	42.9	7 200	60.5
No Provision	2	28.6	1 600	13.4

Source: Labour Canada, Bureau of Labour Information

3 — THE WORK AND THE WORK FORCE

> "[People] make themselves through their own choices - by taking decisions and accepting responsibility for what they choose. This is the process of self-determination and growth. A work situation which offers no - or only the most trivial - opportunities for choice, decision, and the acceptance of responsibility is therefore one which offers no opportunities for growth."
>
> Alan Fox, Sociologist

The Nature of Fish Plant Work

Nobody should have any illusions about the intrinsic rewards derivable from fish plant work, as it is currently organized. For the most part, it is assembly-line work and as such, it is repetitive, tedious, intense, and often stressful. There is apparently very little in the way of job rotation and many employees describe their work as constraining, meaning that they feel unable to alter the content and/or tempo of their work.[28] With few exceptions, the work environment in a plant is damp, cool, smelly, frequently noisy, and generally uncomfortable. The seasonality of the work often means that a considerable amount of processing must be done in a short period of time. Thus, workers have to cope with shift work and/or long days and weeks.

In some plants, the turnover rate is said to be very high, in others quite low. A number of observers have pointed out that absenteeism and turnover are continuing problems in the Newfoundland context.

In the sense that fish processing occupations do not require an advanced education and are quickly learned, they cannot be classified as highly skilled jobs. However, they do require endurance, excellent motor skills and an ability to work quickly and efficiently under pressure. Also, the daily decisions of some workers,

such as trimmers, quality control people and filleters (in those plants that have not automated the filleting function), have considerable bearing on a plant's productivity and profitability. As one company spokesperson said, "a trimmer makes numerous decisions that make dollars for the company."

Methods of processing fish obviously depend in part on the kind being processed. The processing of groundfish requires the completion of several functions, and the speed with which they are performed is the major determinant of plant productivity. They include grading, heading, filleting, skinning, de-boning, trimming, packing, weighing and quality control. Increasingly, in the larger plants these functions are being automated, with the result that some employees become machine operators and monitors.

Filleting involves separating the flesh from the bone and removing the offal from the fish. Filleters were the production workers with the highest status in a plant. However, where this job has been automated, the number and status of filleters have been reduced.

Trimming is now said to be the high status occupation. Trimmers take individual fillets and, working with a knife, cut off any bones, bruises or faults in the fillet. This job will be very difficult to automate because of the judgment capability needed to deal with an inconsistent raw material.

The third major labour-intensive function in groundfish processing is the packing function. Depending on the size of the product, packers either arrange the fillets in the packaging material or weigh the product and then wrap.

In B.C., the processing of salmon, most of which is canned, is more automated. Salmon that has been weighed and graded is brought to butchering machines which remove head, fins and tail and eviscerate the salmon. Prior to canning, the salmon is washed by a large crew of workers (mostly women). A highly mechanized process follows where the salmon is cut and deposited into cans.

After the cans are vacuum sealed they are fed into a retort, or steam oven, and cooked for about two hours.

In fresh/frozen salmon operations, butchering is done by hand, although here too mechanization is gradually being introduced.

Overall, EIC has identified four occupational categories in fish processing. The largest is the Fish Canning, Curing and Packing group which includes the filleting, trimming and packing functions. To qualify for these jobs, only elementary education is required. Previous experience is not essential and training is done mostly on the job.

A second category is Machine Tending and Operating. This group includes occupations concerned with setting up, operating and tending machines. Previous experience is not essential but secondary schooling is preferred. Training is done on the job. In B.C., Retort Operators, those who tend the ovens that cook the salmon, must, by law, be certified.

Inspecting and Grading constitute a third occupational category. Workers doing these jobs are concerned with quality control activities. They examine samples before and after processing and report on product quality and plant sanitation. Increasingly, completion of secondary school and of specialized courses in fisheries technology is being demanded for entry into these jobs. At least one or two years experience in a processing plant or a diploma in Fisheries Technology is also required.

The fourth category is referred to as Elemental Fish Processing Occupations. These are the labouring jobs within a plant requiring mainly physical strength and endurance. Only elementary schooling is required. Previous experience is not essential and training is done on the job.

Another occupational category, Repair and Maintenance, is not included here but, as we shall see later, is assuming greater importance in the fish processing industry.

A pilot study by Susan Williams and Barbara Neis of the Fishery Research Group of Memorial University found that "there are significant problems with stress and muscle strain among deep-sea and possibly inshore fish plant workers in Newfoundland."[29] The results of their interviews and questionnaires indicate that workers endure a number of stress-related symptoms including sleeplessness, irritability, anxiety, depression, stomach pains, chest pains and respiratory ailments. The following workplace stressors were identified:

— quantitative overload — meaning that the work is excessively repetitive and the unvarying pace is felt to be too fast;

— qualitative overload — meaning that the worker feels the work to be monotonous and unchallenging;

— excessive supervision;

— social isolation — resulting from lack of communication with fellow workers and the inability to move around;

— shiftwork and overtime;

— environmental stressors — such as cold air temperatures, exposure to chemicals, slippery floors and poor ventilation.

Since these findings were based only on a pilot survey, no firm conclusions can be drawn. However, further research is clearly warranted. Also, the fact that fish plant workers suffer from stress should not be surprising. A large body of research confirms that unskilled and semi-skilled workers and those who do repetitive assembly line jobs do suffer from a disproportionately high incidence of stress-related diseases.[30]

Repetitive strain injuries are also widespread among fish plant workers. Known also as cumulative trauma disorders, these injuries encompass a range of painful conditions that involve damage to muscles, tendons and nerves, particularly in the hands, arms, neck and back. They have been described as the occupational disease of the 1990s. Improper tool use and/or design, inappropriate postures, stress and prolonged repetitive movements are among the causes. In the B.C. fish processing industry, a union-management committee is presently looking at ways to resolve the problem.

Consultants R.W. Verge and A. Boone, in their examination of Newfoundland processing plants, observed that during a production shift, "workers physically handle thousands of pounds of fish, usually while standing in one position over a work table." This in itself is very demanding. It is made more difficult by the fact that work stations in use throughout the industry have fixed design features, thus disregarding the physical characteristics of the worker. This, say the consultants, "contributes to fatigue for many workers, who must work in awkward positions, and also prevents them from applying their skills in the best way that might be achievable."[31]

According to the Workers' Compensation Board (WCB) of B.C., the number of wage loss claims filed by fish plant workers declined from 1 293 in 1981 to 907 in 1985 but jumped back up to 1 253 in 1989 (see table 21). Cuts and back strains are the most common injuries suffered. WCB figures show as well that injuries associated with repetitive motion constitute a significant and growing proportion of the injuries reported to the Board by B.C.'s fish plant workers.

The Workers' Compensation Board of Nova Scotia reported a drop from 1985 to 1989 in the number of claims filed by the province's fish plant workers. It was unable to provide data on the kinds of injuries suffered.

In Newfoundland, the Workers' Compensation Commission reported a decline in claims filed between 1985 and 1989. The most frequently injured parts of the body and the nature of the injury are as follows:

— finger(s), thumb, hand — cuts, lacerations, punctures;

— back, shoulder(s), wrist, lumbar spine — strains, sprains.

Table 21 — Number of Claims Filed by Fish Plant Workers

Year	British Columbia	Nova Scotia	Newfoundland
1981	1 293	n/a	2 696
1985	907	1 885	2 761
1989	1 253	1 753	2 420

Work Force Profile[32]

As can be seen in table 22, about 40 percent of the workers in the industry were below age 30 in 1986. Comparable figures for all manufacturing and all industries were 33 percent and 35 percent respectively.

Workers in the industry seem to be very experienced. At B.C. Packers, for instance, they have an average of eight years of service. At Clearwater, workers and managers have about 10 to 12 years' experience, while at FPI over 60 percent of the managers have been there for at least five years. At National Sea's Lunenburg plant, workers have between 15 and 20 years of experience, and at the Chéticamp Fish Co-op, over 50 percent of the workers have at least 10 years of service.

Traditionally, the fish processing industry has promoted its managers from the ranks. Managers became managers because they were the best production workers and, therefore, were thought to possess the necessary skills for managing. However, as we shall see in the next section, this notion is being seriously questioned.

Table 22 — Age Profile, Fish Products Industry/ Employed Labour Force, 1986

Ages	Fish Products Industry (Percent)	All Manufacturing (Percent)	All Industries (Percent)
15-19	5.3	3.2	6.1
20-24	16.7	13.1	13.8
25-29	17.9	16.3	15.0
30-34	15.2	14.7	14.1
35-39	13.5	13.5	13.3
40-44	10.2	11.2	10.7
45-49	7.3	8.8	8.4
50-54	5.4	7.8	7.2
55-59	5.1	6.6	5.9
60-64	2.9	3.8	3.7
65-69	0.4	0.6	1.1
70+	0.1	0.3	0.7
TOTAL	100.0	100.0	100.0

The low level of educational attainment in the industry is brought out in table 23 and table 24. In 1986, almost 70 percent of the employed labour force in fish processing had not completed high school. This stands in marked contrast to the corresponding figure for all industries which was 32 percent in 1986.

Table 23 — Educational Profile, Fish Products Industry, Employed Labour Force, 1986

Level	Fish Products Industry (Percent)	All Industries (Percent)
High School Incomplete	68.6	32.4
High School Diploma	9.7	14.0
Some Post-Secondary	5.7	12.5
Trades Diploma	10.6	12.3
Post-Secondary Diploma	3.5	13.2
Undergraduate Degree	1.6	11.7
Graduate Degree	0.3	4.0

These figures on the educational level of fish plant employees are consistent with the responses we obtained during interviews. An official from one of the larger firms said that only about 10 percent of the company's work force had finished high school.

Table 24 — Age and Educational Attainment for Employees of the Fish Products Industry, 1986 (Distribution by Percentage)

	Age												
Level of Education	15-19	20-24	25-29	30-34	35-39	40-44	45-49	50-54	55-59	60-64	65-69	70+	Total
Less than secondary school	74.1	59.1	58.5	65.9	68.6	74.1	78.5	84.6	85.6	82.1	81.1	75.0	68.6
Secondary school	12.4	15.2	14.7	8.7	7.3	5.7	5.8	2.9	2.7	7.1	0	16.7	9.7
Some post-secondary	9.2	9.2	6.3	5.4	4.9	5.1	3.6	2.3	1.4	2.0	8.1	0	5.7
Trade-vocational	2.6	10.9	13.5	14.1	13.0	9.5	6.9	6.9	6.8	5.2	5.4	0	10.6
Post-secondary non-university	1.1	4.2	5.0	3.0	3.7	3.8	3.6	1.5	2.0	2.0	2.7	0	3.5
Undergraduate	0.4	1.2	1.9	2.8	2.1	1.5	0.8	1.3	0.7	2.0	0	0	1.6
Graduate	0	0.6	0.2	0.1	0.3	0.4	0.6	0.4	0.5	0	0	0	0.3
Total	100	100	100	100	100	100	100	100	100	100	100	100	100

Table 25 below shows that in 1986 the work force was male dominated, although women have increased their share substantially since 1971.

Table 25 — Gender Mix for Occupations in Fish Products Industry

Occupation	1971		1981		1986	
	Male	Female	Male	Female	Male	Female
Managerial	92.6%	7.4%	90.2%	9.8%	88.5%	11.5%
Clerical	50.0	50.0	35.3	64.7	32.6	67.4
Service	83.7	16.3	78.3	21.7	77.8	22.2
Foreperson	90.7	9.3	89.5	10.5	85.9	14.1
Fish Processing						
Occupations*	52.1	47.9	39.0	61.0	38.3	61.7
Inspection	68.0	32.0	47.6	52.4	34.0	66.0
Labour**	65.9	34.1	59.3	40.7	46.2	53.8
Assembly/Repair	97.9	2.1	92.1	7.9	96.0	4.0
Transport Equipment						
Operator	99.4	0.6	98.3	1.7	99.4	0.6
Material Handling	76.3	23.7	86.4	13.6	87.3	12.7
Total	68.5	31.5	58.1	41.9	54.9	45.1

*Includes filleters, trimmers, packers and machine operators.

**Refers to a worker performing uncomplicated tasks, usually physical in nature.

From interviews, we learned that in three of the largest enterprises — FPI, B.C. Packers and Clearwater Fine Foods — the male share of the work force is about 60 percent, the female share about 40 percent, generally confirming the picture presented in table 25.

Also, one will notice in table 25 that, even though in 1986 women made up 45.1 percent of the work force and even though they held most of the fish processing occupations and most of the labouring jobs, they had only 11.5 percent of the managerial jobs and only 14.1 percent of the foreperson's jobs.

4 — EDUCATION AND TRAINING NEEDS

> "The Commission advocates that education be seen as an investment, both for the individual and for society. It should be considered as not simply a matter of preparing people for a particular style of working and living, or training them to fit a specific niche within an industrial system, but rather as a way of improving the quality of the human resources of our society. It is a matter not only of training people to fill the jobs that become available, but also to be able to create jobs for themselves, improve their performance in the jobs they already hold, and contribute more to the social and economic fabric of their communities."
>
> Newfoundland Royal Commission
> on Employment and Unemployment

Education, Employment and Incomes

The impact of education on employment, incomes and economic development is profound. As table 26 shows, in 1988 those Canadians with a university degree had an unemployment rate less than half of what those with a high school education had. It is a ratio which holds in all regions of Canada. Also, in 1986, the average income of Canadians with a university degree ($33 059) was two and a half times larger than the average income of those with 0-8 years of education ($12 197).[33]

A recent study by the Economic Council of Newfoundland and Labrador found that, compared to Nova Scotia, Quebec, Ontario and B.C., Newfoundland has both the lowest level of educational attainment (i.e. the lowest median years of schooling, the highest percentage of the population with less than Grade Nine and the lowest percentage of the population with post-secondary education), and the lowest level of economic performance (i.e. the highest rate of unemployment and

the lowest GDP per capita). Conversely, the provinces with the highest levels of educational attainment, Ontario and B.C., also have the strongest economies.[34]

The study also compared Canada with Japan, Sweden, West Germany and the U.S. and found that the two countries with the highest levels of post-secondary education, West Germany and Sweden, have the strongest economies as well.[35]

Table 26 — Unemployment Rates in 1988 by Level of Education Overall and by Gender, Age and Region

	Overall	0-8 Years	9-13 Years	Some Post-Secondary	Post-Secondary Diploma	University
Canada	7.8	10.6	9.1	7.4	5.5	4.0
Males	7.4	10.1	8.7	6.9	5.1	3.4
Females	8.3	11.7	9.7	8.0	5.8	4.8
15-24	12.0	20.8	3.6	8.8	7.0	7.5
25-44	7.2	13.3	8.5	6.9	5.4	3.9
45+	5.7	7.5	5.8	5.8	4.4	3.1
Atlantic Provinces	12.4	18.8	14.3	11.1	8.4	4.8
Nfld.	16.4	23.1	20.0	n/a	11.7	n/a
P.E.I.	13.0	n/a	14.7	n/a	n/a	n/a
N.S.	10.2	14.9	11.6	11.1	7.2	n/a
N.B.	12.0	17.7	14.3	n/a	n/a	n/a
Quebec	9.4	12.1	11.0	8.9	6.3	5.3
Ontario	5.0	6.0	5.9	5.2	3.6	2.9
Prairie Provinces	7.9	11.7	9.1	8.0	5.4	4.1
Man.	7.8	10.1	9.1	7.8	5.0	n/a
Sask.	7.5	10.5	8.6	n/a	n/a	n/a
Alta.	8.0	12.8	9.5	7.3	5.8	4.2
B.C.	10.3	13.9	12.3	9.3	8.1	4.8

Source: CLMPC, *Report of the CLMPC Task Forces on the Labour Force Development Strategy*, March 1990, p. 87.

Illiteracy

That Canada, particularly Eastern Canada, has a problem with illiteracy is well-known by now. With a national illiteracy rate of 24 percent (which includes the basic illiteracy rate and the functional illiteracy rate), Canada compares very unfavourably with West Germany, which has a 4 percent illiteracy rate, and

Japan, where the rate is said to be less than 1 percent. According to the Canadian Business Task Force on Literacy, illiteracy represents a direct annual cost of $10 billion to Canadian society.[36]

Illiteracy increases from west to east, rising from 17 percent in B.C. to 44 percent in Newfoundland.

An October, 1989 survey by Statistics Canada designed to assess reading skills found that the majority of the adult population (62 percent) aged 16 to 69 has reading abilities sufficient to deal with most everyday reading requirements. However, the figure for Atlantic Canada is much lower (52 percent) and it drops to an astonishing 39 percent for Newfoundland (see table 27).

In general, Canadians with greater reading abilities have a higher proportion of above-average incomes. Almost 60 percent of those with incomes between $10 000 and $19 999 are at the Level 4 reading category, but more than 80 percent of those with incomes over $40 000 are in the Level 4 reading category.

Table 27 — Percentage Distribution of Persons Aged 16-69 by Reading Skill Levels, Canada and Provinces, 1989

Jurisdiction	Reading Skills			
	Level 1	Level 2	Level 3	Level 4
Canada	7%	9%	22%	62%
Atlantic	6	13	30	52
Nfld	7	17	36	39
P.E.I.	-	-	-	-
N.S.	5	10	28	57
N.B.	6	12	26	56
Quebec	6	13	25	57
Ontario	9	8	21	62
Prairies	4	7	19	70
Man.	5	7	23	65
Sask.	3	5	19	72
Alta.	4	7	17	71
B.C.	5	7	19	69

Source: *Perception*, Vol. 14, No. 3, Summer, 1990, pp. 20-21.

Level 1 — Canadians at this level have difficulty reading. They most likely consider themselves as people who cannot read.

Level 2 — Canadians at this level can use printed materials only for limited purposes such as finding a familiar word in a simple text. They would likely recognize themselves as having difficulties with common reading materials.

Level 3 — Canadians at this level can use reading materials in a variety of situations provided the material is simple, clearly laid out and the tasks involved are not too complex. While these people generally do not see themselves as having major reading difficulties, they tend to avoid situations requiring reading.

Level 4 — Canadians at this level meet most everyday reading demands. This is a large and diverse group which exhibits a wide range of reading skills.

Education and Training in the Fishery

In an area where one would expect Canada to be out front, namely the fishery, it is said to be a mediocre performer. According to a Marine Institute paper,

> While recognized internationally as a leader in fisheries regulation and resource management, Canada lags far behind other major fishing nations, notably Iceland, Japan, Norway and Denmark, in the establishment of a broadly based and integrated system of fisheries-related education, training, research and technological development.

In an effort to determine the education and training needs of the industry, we asked our interviewees to respond to five sets of questions having to do with,

a) skill shortages and skill needs;

b) future skill requirements;

c) impediments to skills development;

d) addressing skill needs; and

e) prospects for labour-management cooperation on training.

What follow are the overall responses to these questions as well as comments and findings of other investigators and interested observers.

a) Skill Shortages and Skill Needs

Generally speaking, skills development is not perceived to be a burning issue by industry people, at least not according to our research. However, many of those interviewed said that more maintenance people, particularly electronic maintenance people, are needed. This finding was confirmed by a recently completed technology survey of eight fish processing companies. The survey report says that,

> The large scale processing plants experienced shortages of labour skilled in maintaining advanced equipment having significant electronic components. In these instances, employees' skills were no longer current and there were shortages of new entrants to the labour market that had the requisite skills.

As the industry becomes more automated, this need is likely to become more acute.

A number of respondents thought that workers ought to get more and better training in proper work habits, in the handling of fish and in food safety. A couple of union interviewees thought that occupational health and safety training at present is inadequate.

A spokesperson for a large West Coast processor said that basic accounting and business skills ought to be offered to plant workers so that they could improve their access to jobs outside of the fish processing industry. In a somewhat similar vein, the report of the Newfoundland Royal Commission on Employment and Unemployment points out that the level of economic literacy — that is, knowledge of the workings of our economic system — is very low. It, therefore, recommended that "the principles of economic self-reliance and those underlying our economic system" be taught at all levels of the education system.

A 1987 Marine Institute document makes the point that the skills of workers have not been addressed in a concerted manner by the seafood processing industry. It asserts that,

> Workers skills are key components of the effective operation of a processing plant and as the technology becomes more sophisticated the importance of worker skills will also increase.

Similarly, a comparative analysis of small manufacturing firms in Nova Scotia and New England argues that the Nova Scotia fish processing industry appears to "lose its competitive advantage once the fish is out of the water."37

> Management has not trained the employees to ensure a consistent level of quality production even in relatively unskilled activities such as cutting, filleting and trimming groundfish; . . . it is clearly a matter of concern that they do not appear to be especially careful in the basic cutting and trimming operations raising doubts about their ability to produce high value-added products, unless the labour force is re-trained.

The Task Force on the Rationalization of Fish Processing in New Brunswick agrees. It states that to respond to the challenges associated with quality improvement and increased automation, "Workers need more training in fish processing practices which enhance quality and support the higher quality standards."

There is an almost universal perception that managers and supervisors should get more education and training. Union spokespersons believe that they should receive more training in human relations. Industry people and "third parties" say they need to know more about production planning, accounting, marketing and technology development, in addition to human relations. For example, the Kirby Task Force identified the low educational levels of managers as being a contributor to the generally poor management systems in place in the fish processing sector. Similarly, Verge and Boone, in their 1984 analysis of the Newfoundland industry, make the point that, because of inadequate information systems, managements often do not understand the financial impacts of their decisions. But even if adequate management information systems were in place, say the authors, they would be of limited value since most managements at this point do not understand the need for and usefulness of the information that would be provided.

Clearly, the generally low educational levels of both workers and managers in the industry need to be addressed in a vigorous way. As we saw earlier, in 1986 almost 70 percent of the employed labour force in the industry had not completed high school. In addition, the education report of the Newfoundland Royal

Commission on Employment and Unemployment shows that educational levels in the industry were lower than those in any other industrial sector.[38]

Finally, there appears to be a need for more people trained in quality control and for food scientists who also possess business and managerial skills.

b) Future Skill Requirements

From our research and interviews, we know that advanced technology is slowly but surely coming to fish processing, at least to the larger operations. We know, too, that the way it is implemented is based not only on economic and technical considerations but also on ethical and social factors (which we may not even be conscious of). New technology may be used to further Taylorist principles (further narrowing of worker discretion, more routinization, greater hierarchical control), or it may be used to promote efficiency while meeting the worker's needs for purposeful work, discretion, variety and accomplishment. If it is designed with the former priority in mind, de-skilling will occur and training becomes a non-issue. If it is implemented with the latter objective in mind then certain skills are necessary.

What kinds of skills? In *Education for Self-Reliance*, the Royal Commission on Employment and Unemployment argues that [39]

> Training programmes must be re-oriented from specific skills training for industrial jobs to generic and flexible training for the changing range of work opportunities that will characterize the post-industrial era.

It suggests further that training be "stock-piled."

> Education can be used as part of an incentive package to attract industry to particular regions. Industries prefer to locate in areas where there is already a highly skilled work force. During periods of high unemployment, education should be "stock-piled". The unemployed and underemployed can be seen as an educated pool of individuals: a trained work force ready to take up employment

> when opportunities arise or are created. It is short-sighted to train people only for jobs that are already available.

Similarly, a recent report prepared for the Atlantic Canada Opportunities Agency (ACOA) points out that the availability of training and research centres is a major consideration in investment decision-making. It noted that in Newfoundland a number of people were trained as welders for off-shore oil development. Although the oil development failed to materialize, the training did provide a pool of unemployed welders in Port aux Basque where, subsequently, another employer was enticed to the area to make use of this skilled labour. [40]

In another report for ACOA Professor P.N. O'Farrell makes a similar point. In making the case for more training in generic skills, he states:[41]

> In countries such as the U.S.A., Canada and the U.K., on-the-job training provides little beyond task related instruction. By contrast, in West Germany and Japan, on-the-job training is heavily relied upon to develop general as well as specialized skills. Workers in Germany and Japan acquire general and specific skills through a combination of highly structured workplace assignments, training and some vocational schooling. What firms need increasingly today is not just "functional" skills dedicated to a specific purpose but adaptable workers in the skills . . . that can be put to many different, and most crucially, as yet unknown, future uses. Broad high level skills improve production not only through their direct impact upon worker performance but also through their effects upon workplace organization. German workers are superior at coordinating their activities and are more likely to be able to maintain and repair the machines on which they work. This contributes to greater flexibility in production, the ability to manufacture a wider range of products, to higher rates of machine utilization and lower rates of defects and rejects.

The labour representatives on the Task Force on Human Resource Planning of the Canadian Labour Market and Productivity Centre (CLMPC) advocate "broadly based skill training" that would minimize dependence on a single employer, allow for "personal flexibility in the labour market" and enhance "the ability of workers to shape the organization of work."[42]

Finally, a study done for the Organization for Economic Cooperation and Development (OECD) points out that the effective implementation of technological change "requires a strong commitment by management to deepen the involvement of those affected by new products, processes and systems." This means [43]

> a shift from "Tayloristic" patterns of organization, with their fragmentation of work tasks and layers of supervisory management, toward multi-skilling and the devolution of responsibility. Such change will require the re-training of both managers and workers.

The present document is not able to say precisely what "broadly based" or "generic" skills would be valuable in the computerized fish plants of the future; indeed, company and union officials seemed unable to say so. However, we can get some idea from the literature which identifies several categories of skills that are said to be essential for work in highly automated plants.

Computer skills constitute one category and are obvious requirements for employment in plants equipped with robots and computer-controlled tools. Interpreting the information that computers yield requires a second set of skills — math skills.

Communications skills are another category. Here, we are referring to the ability to read and write and to be able to teach or pass on information to others effectively.

Planning, conceptual and problem-solving skills are yet another set. These are particularly important in workplaces where the decision has been made to integrate or at least bridge the conceptual and implementation functions.

In this regard, union spokespersons believe that training should also provide workers with "comprehensive knowledge of new technologies or systems" so that they could influence job design and the overall organization of the work process.[44]

Finally, in workplaces organized around teams social skills (i.e. cooperation skills) are essential, as is proficiency in more than one technical skill.

c) Impediments to Skills Development

The barriers to skills development in the fishery are formidable ones. They are both attitudinal and systemic in nature.

In Newfoundland, the Marine Institute has identified a widespread negative attitude toward education. When combined with the low esteem in which work in the fishery is held, it does not make for very fertile soil to germinate education and training "seeds".

In Nova Scotia, there seems to be a cultural bias against vocational education. Only three students per 1 000 are in vocational training while the national average is 12 per 1 000. At the same time, Nova Scotia has a higher proportion of university students than does the country as a whole.

Negative views toward education may be changing, however. During our interviews, three union respondents from B.C., PEI and Newfoundland indicated that an increasing number of their members are conveying a desire for more training.

Another barrier to skills development is apparent in the oft-raised question, "training for what?" To many people, both workers and managers, the need for training to fillet a fish is not obvious. Here, one asks, "What about training in the off-season for other jobs?" The answer comes back, "What other jobs?" Many

fish plants are located in remote communities where, regrettably, they are the "only game in town."

The Marine Institute and its predecessor the College of Fisheries have been offering continuing education courses for fishers and fish plant workers for over two decades. However, participation rates have been low because of:

— reluctance of people to enrol in courses due to low formal education levels;

— reluctance to travel to participate in courses;

— reluctance to commit to programs longer than two weeks;

— lack of recognition by industry and government of the importance of education and training in the fishing industry;

— lack of financial or certification incentives to participate;

— myriad regulations by the major funding agency, CEIC, which inhibit participation by part-time workers.

(The opinion of one company official should also be noted here: "The perception of the industry as an entry vehicle to UIC [unemployment insurance benefits] is the greatest impediment to a stable work force and skills development.")

The view among Canadian employers that training is not important cuts across industry lines. One report says that Canadian business spends less than 0.5 percent of payroll on formal training programs for the employed labour force. This is less than half the level in the U.S. which in turn spends only a fraction of that spent in other advanced industrial nations.[45]

A spokesperson for the West Coast fishing industry acknowledged that in the past one of the biggest impediments to skills development was management complacency. On the East Coast, an official from one of the larger processing

firms said that his company's training budget was about $500 000. With several thousand employees, this works out to about $60 per employee. In contrast, as table 28 illustrates, expenditures on training by other industries are well above this figure.

Another barrier has to do with the cost of training. Most processors are small-scale, seasonal operators. It does not make economic sense to invest seriously in training for work in a plant that may operate for only one, two, three or six months of the year. One owner-manager said that he would like to do more training but "if I had $20 000 I probably would not put it in training but somewhere else."

Many fish plant workers are single parents. It may be that the lack of affordable child care prevents these workers from taking training and upgrading courses.

Table 28 — Expenditures per Employee and per Participant in Formal Training, by Industry, 1987

Industry	Average per employee	Average per employee of companies supporting or providing training	Average per participant in formal training
Food, beverage, tobacco	120	160	630
Wood, paper, energy	180	250	630
Chemicals, chemical products, textiles, metallic minerals, metal products	170	240	870
Machinery and equipment, transportation equipment, electrical and electronic products	260	350	950
Construction and related activities	110	260	810
Transportation services, communications	190	260	630
Finance and insurance, general services to business	220	270	430
Accommodation, restaurants and recreation services, food retailing, consumer goods and services	90	170	410
Other	90	210	700
All companies	160	240	570

Source: Statistics Canada, Human Resource Training and Development Survey, 1987

Many workers, too, lack basic skills and may be among the functionally illiterate. Thus, job-related training courses will not be open to them until they acquire basic literacy and numeracy skills. One company official explained that, whenever his company offers training courses for its employees, instructors have to start at a very basic level.

We have not been able to verify it but, according to the Task Force on the Rationalization of Fish Processing in New Brunswick, "Workers have not generally received any financial benefit from their investment in training, either in the form of improved rates of pay or working conditions."[46] Not being able to

reap the rewards from one's efforts would indeed constitute a serious disincentive to training.

A union official on the West Coast said that the uncertainty in the industry caused by the Free Trade Agreement and recent GATT decisions is proving to be a discouragement to further training.

Finally, a Nova Scotia operator said that the timing of the workshops offered by the institutions "was not always the best." He also said that sending people to the Marine Institute in Newfoundland gets expensive.

d) Addressing Skill Needs

Most of the training for both production workers and managers takes place in-house, mainly on the job. Increasingly, however, companies are sending their managerial staff to courses offered by post-secondary institutions and private training companies. Also, an official from a large East Coast firm said that his company "wants more Marine Institute grads."

Eastern Canada is blessed with several institutions able to provide training for all aspects of the industry. Among them are the Marine Institute, Memorial University of Newfoundland, the Technical University of Nova Scotia, St. Francis Xavier University in Nova Scotia, Holland College in PEI, the Université de Moncton in New Brunswick, and, in Québec, Université de Québec à Rimouski and Laval University.

In Newfoundland, the Marine Institute and Memorial University have come together with several processors to establish the Seafood Management Education Association (SMEA). Its mission is taken from recommendation sixteen of the Royal Commission on Employment and Unemployment: to provide "through Memorial University and the Institute of Fisheries and Marine Technology, . . . a

strong program for business, marketing, financing, and technical training for fish plant owners and managers."

Beginning in September, 1991, the Institute hopes to offer a 20-week Groundfish Plant Skill Workers Certification Program. Several courses would be taught including Filleting Skills, Trimming Skills, Packaging Skills, Quality Control Techniques, Seafood Plant Sanitation and Processing Machine Operation. Life Skills, Communication Skills and Introductory Mathematics would be the secondary courses offered. According to the Institute, no other similar programs are available in Canada.

On the West Coast, the FCBC, in conjunction with the B.C. Institute of Technology, has established a Fish Harvesting and Processing Technology. Program. Two courses have been sponsored to date: a 12-week Seafood Retailing and Distribution course and an eight-week Seafood Processing and Quality course. In the latter course, students learn, among other things, how to evaluate seafood quality, how to handle seafood with minimal quality loss, how to apply basic plant sanitation principles, and how the processing of salmon, herring and groundfish works. Courses are open to both workers and managers and to those inside and outside the industry.

A 10-member advisory group has been set up comprising representatives from the companies, the union, government and the University of B.C. Food Science Program.

e) Prospects for Labour-Management Cooperation

Generally speaking, prospects for a sector-wide labour management committee on the East Coast to address such issues as training seem favourable. Certainly, the Nova Scotia Federation of Labour sees the need for such a committee. In the *1989 Fisheries Policy Review* of the Federation, it states:[47]

> Now, more than ever before, fishermen and fish plant workers are looking for an opportunity to participate in the re-defining of the industry. The time has come for fishermen, plant workers and those in allied industries to share, as equal partners, the responsibility for the management of the resource. With the increased strength of unions in the fish processing sector, and the increasing organization of independent fishermen, industry workers now have the means to speak with one united voice.

Emphasizing the point, the Federation declares:[48]

> We believe that labour must also be fully represented in this mechanism, thus including representation of the real stakeholders in the fishery — the fishermen, fish plant workers and other industry support workers in this province.
>
> Further, since Nova Scotia is a coastal province and our social and economic interests and well-being are at stake, we need to be an equal partner of the decision-making team rather than arms-length advisors and hence victims of other people's decisions.

Two of the Federation's recommendations are:

1) That Canada develop a NEW FISHERIES POLICY that recognizes the rights of Canadian fishermen and plant workers in the management of the industry.

2) That Canada immediately change its fisheries management structure so that workers in all aspects of the industry and affiliated support industries are fully represented in the decision-making process and are equal partners with government and industry.

National Sea's President, Henry Demone, has also stressed the importance of joint action:[49]

> But let me stress once more that we can't accomplish this as individual sectors, individual gear types, individual companies, different levels of government, labour and management. Markets neither know nor care anything about such factions. We have to do it together, creating, with as much fairness as possible to all participants, an environment that will result in Canadian products of the highest quality . . .

A senior official of FPI also indicated his firm's willingness to undertake joint initiatives with labour and pointed out that a number of labour-management committees exist at FPI, including committees on technological change, employee assistance and occupational health and safety.

Although prospects for a sector-wide committee can be described as good, some of those interviewed could not see the need for such a committee, while another thought that fish processing enterprises were so numerous and diverse and the industry so unstable that the employer side would have difficulty speaking with one authoritative voice.

From the West Coast we get conflicting messages about the prospects for an industry labour-management committee. On the one hand, all of the company and union respondents agreed that the labour climate is not healthy in that a considerable amount of mistrust permeates the relationship at this point. The strike in 1989 and developments in international trade are said to be among the causes of the sour relationship. On the other hand, officials from both companies and the UFAWU give qualified support to the idea of joint, sector-wide action on mutual concerns.

At one West Coast company, a joint action group on training has even been formed. As part of their last collective agreement, the Prince Rupert Fishermen's Cooperative Association and the UFAWU agreed to include an Equal Opportunities for Employment Memorandum of Understanding which called, among other things, for the development of a training manual by a joint committee. In 1989, the federal minister of Employment and Immigration, the B.C. Minister of Advanced Education and Job Training, the Cooperative, and the UFAWU signed an agreement to set up an Industrial Adjustment Committee, consisting of two members appointed by the Cooperative and two members appointed by the union. The two sides were to select an impartial chairperson of the Committee. The terms of reference of the Committee were as follows:

To research and recommend organizational structures and personnel systems that will enhance the economic viability of the Prince Rupert Fishermen's Cooperative Association based on the following goals:

— Satisfy the requirements of the Equal Opportunities for Employment Memorandum of Understanding.

— Develop a training manual as required to support the Equal Opportunities Memorandum.

— Study and ensure employment equity as it affects seniority and opportunity within the Vancouver plant.

— Identify the need, recommend, develop and monitor a series of programs and strategies which will assist the parties' efforts to initiate a formal human resource plan.

— Make the most effective use of all public employment measures and services, with the assistance of the Industrial Adjustment Service.

At the time of writing, the Committee was wrapping up its work. It has produced the training manual and it will be used as new job openings arise. Each job in the plant has been categorized and is described in the manual. Training requirements are also included. The manual can be adjusted or updated when necessary.

Models of Joint Action in Other Industries

Throughout Canada and the U.S. labour and management are coming together to address mutual concerns such as skills development. For example, the Ontario Federation of Labour (OFL) began a program in 1988, with financial help from the Ontario government, called Basic Education for Skills Training (BEST). Training is now going on in about 100 workplaces and is scheduled to increase to 150 workplaces. The BEST program is sponsored by local unions and **instructors are rank-and-file union educators.** The union negotiates with the employer to provide lost wages or pay workers for a portion of the time spent in the program, and to provide the facilities to conduct the training. The curriculum

is designed in consultation with the participants and typically involves reading, writing, math, communication skills and a second language. The BEST program is being used at, among other places, the Kingston General Hospital, the Chateau Laurier Hotel in Ottawa and Canadian General Electric in Peterborough. It is said to be the largest basic education program for adults in North America.[50]

With financing from the federal government, the Canadian Labour Congress (CLC) has initiated a literacy training program in New Brunswick which will expand into Newfoundland next year. Like the BEST program, the aim of the CLC's initiative is to negotiate agreements with employers whereby literacy training would be carried on at the workplace. **Materials would consist of documents familiar to the workers**, such as the collective agreement. A full-time coordinator has been hired in New Brunswick and the program is just getting under way.

At a company called Navistar International in the U.S., the company, the United Steelworkers, the state AFL-CIO and a local college have joined forces to establish an Employee Education Centre. The updating of foundry technology shifted workers from traditional factory work to more skill-intensive work. They are increasingly called upon to interpret written plans and blueprints, and to participate in "directed work groups" requiring effective communication skills. At the Centre, training in reading is combined with other types of skills upgrading. A flexible, personalized program for each-worker is developed that includes one-on-one instructor time.[51]

Also in the U.S., the Bricklayers Union and mason and tile contractors have, through collective bargaining, established an International Masonry Institute. Among its objectives is the setting up of regional skill training centres for masonry workers.[52]

In the early 1980s, Ford and the United Auto Workers (UAW), through collective bargaining, set up a National Development Training Centre which provides personal counselling, basic literacy and communication skill training, computer training and targeted training for specific occupations. It is also developing "wide-ranging college and university opportunities" to meet the career needs of employees. **Both active and laid-off employees can take advantage of the Centre's services.** Money for the Centre comes from the UAW, Ford and the state of Michigan. The UAW has negotiated a similar program with GM.

In 1986, the Communications Workers of America (CWA) and AT&T followed the same route as the UAW and Ford and established the Alliance for Employee Development and Training under joint management.[53]

At Ford's Essex Engine plant in Windsor, new workers must attend a week-long training session for which they are paid. The skilled trades chairperson of the local union (the CAW) reviews the papers of all skilled trades personnel hired. For electrical trades workers, the union and management have developed an in-plant training program for groups of four workers. Each group takes four hours of instruction each day for four weeks. The employees learn fundamental electronics and digital theories, and how robots and computer controls work in the plant. They also learn how to repair equipment, thus reducing down-time in plants that formerly had to wait for the vendor's repair personnel. First-line supervisors at the plant receive ongoing training.[54]

In recent years, a number of industry-wide labour-management bodies have emerged in Canada to deal with a variety of issues, including skills development. At the present time, at least six such committees are functioning: the Canadian Steel Trade and Employment Congress (CSTEC); the Sectoral Skills Council (SSC) of the electrical/electronics industry; the Western Wood Products Forum (WWPF); the Canadian Textile Labour-Management Committee (CTLMC); the Centre d'adaptation de la main-d'˝uvre aerospatiale au Québec (CAMAQ); and the Council of Maritime Affairs (COMA).

CSTEC was founded in 1985 with a two-pronged mandate: to address trade-related issues facing the industry and to develop labour adjustment programs suitable to the specific needs of the workers. Recently, it took on a third objective, that is to examine environmental issues in the steel industry.

The board of directors has 10 members, comprising five steel company executives and five officers of the United Steelworkers. The board has two co-chairs, one from the employers and one from the union. CSTEC also has two committees, a trade committee and an employment and adjustment committee, with equal representation from companies and union, and an environment task force. The Congress, which has a staff of five, is funded by employer, employee and government contributions. Since its inception, it has undertaken numerous activities, including:

— lobbying for the removal of maturing steel industries from the U.S. system of General Preferential Tariffs;

— monitoring of steel imports; and

— staging of seminars for members on topics such as unfair trade complaints.

In 1988, under its Innovations Program, EIC agreed to contribute $20 million over three years to CSTEC to deliver labour adjustment services to steel workers affected by lay offs and downsizing. For its part, CSTEC agreed to provide counselling; training assistance for basic education, skills upgrading and new skill development; mobility assistance; and entrepreneurial assistance.

For CSTEC to get involved, both workers and management must demonstrate their commitment to the adjustment process. Seed money, up to $5 000, may then be provided for the development of a work plan by a joint committee. To implement the work plan, CSTEC will provide additional funds and an array of support services such as negotiating with educational institutions for reduced fees for displaced workers. As of December, 1989, CSTEC had assisted nearly 90

percent of the 2 704 workers displaced at a cost of about $7 722 000, or approximately $3 125 per worker assisted.

CSTEC does not address collective bargaining issues.

The SSC, formerly known as the Joint Human Resources Committee of the Canadian Electrical and Electronics Manufacturing Industry, was formed in 1988. It has 12 members, six nominated by the Electrical and Electronics Manufacturers Association of Canada (EEMAC), and six nominated by the three unions involved, the Communications And Electrical Workers of Canada (CWC), the United Steel Workers of America (USWA) and the International Brotherhood of Electrical Workers (IBEW). Like CSTEC, the SSC has two co-chairs, one from labour and one from the employers. There are subcommittees on training, technological change, communications, and education, and each has representation from labour and management.

The objectives of the Council are to:

— provide a forum for discussion, by business and labour, of the major human resources issues facing the industry, outside the collective bargaining process;

— identify human resources areas in which joint sectoral action would be appropriate and effective, and to set the overall direction of such action;

— guide the work of individual issue-specific sub-committees, to review, amend and approve their proposals/recommendations, and to act on them; and

— represent the industry on human resources issues of joint concern to the parties, as the vehicle through which the industry's views on such concerns are formally communicated to other parties (e.g. governments, educational institutions).

A major accomplishment of the SSC has been the setting up of a Sectoral Training Fund. The Fund's aims are to:

— increase the amount of training and skill upgrading;

— encourage firms and employees to work together on training solutions; and

— improve the effectiveness of the training being offered.

The Fund has a particular interest in increasing employee competence in portable job skills — skills that can be applied in more than one firm. Thus, the Fund can be accessed for trades updating, literacy training and training in subjects like statistical process control and group skills. Workers are also able to use a portion of the Fund for career-related education and training. They will be able to build up training entitlements which they can cash in to take paid educational leave.

Contributions to the Fund are voluntary. They have been set at 0.25 percent of the wages of participating employees and will be matched equally by employers, the federal government and the Ontario government.

Management and groups of employees at specific workplaces must mutually agree to take part in the Training Fund, which will be available to all employees of participating firms: hourly paid, salaried, unionized, non-unionized, clerical, professional, or management.

Each workplace participating in the Training Fund will have an account administered by the SSC. How that account is used will be decided by a committee of management and labour representatives at the participating workplace.

5 — CONCLUSIONS AND RECOMMENDATIONS

> "Human progress has always depended on our technical ingenuity and a capacity for cooperative action."
>
> World Commission on
> Environment and Development

Conclusions

We can now respond, in a concise way, to the questions posed in the Introduction to this report.

- What are the skill levels in the industry at present?

In trying to thoroughly assess industry skill levels, it would seem that one would have to look at several factors, including educational attainment, the range and complexity of jobs one can perform, experience, and physical demands. We should also have some idea of the skills a worker uses outside of the workplace.

If one were to take educational attainment only, then, as we saw, the skill level of workers and managers is generally not high. Similarly, if job complexity and number of jobs performed are the criteria, then again, the skill level for the most part is not high. However, it should not be forgotten that the industry has a very experienced work force, and that production workers must have excellent motor skills, stamina and the capacity to work quickly and efficiently under pressure. Also, the fact that plant workers do manage when the plants are closed can be attributed not only to UI, but also to their ability to function well in the informal economy.

As more plants hire graduates of the Marine Institute and other institutions, and as technology assumes greater importance in the industry, skill levels, in terms of education and job complexity, may increase.

- **What will training requirements be in the foreseeable future?**

Although employers do not perceive skills development to be a critical issue, our respondents and research identified several areas where more training would be helpful.

— There is a need for people trained in electronic maintenance.

— There is a need for more basic literacy and numeracy training. The suggestion is made, too, that students at all levels of the system get more education in economics.

— Workers ought to receive more training in proper work habits, in the handling of fish, in food safety, and in occupational health and safety.

— Managers ought to receive more training in human relations, accounting, marketing, production planning and technology development.

— There is a need for more people trained in quality control and for food scientists who also possess business and managerial skills.

As more advanced technology comes to the industry, depending on how it is organized, workers and managers will need to acquire communication skills; computer skills; planning and problem-solving skills; and social skills.

Trade unionists and others emphasize the need for more training in generic skills that, in their words, would "minimize dependency upon a specific employer and allow for personal flexibility in the labour market."

- What impediments to human resource development confront the industry?

Our research found many:

— a negative attitude toward education, especially vocational education;

— the perception that training is not needed for work in the fish processing industry;

— lack of job opportunities outside of fish processing for which training might be pursued;

— reluctance to travel to participate in courses;

— reluctance to commit to programs longer than two weeks;

— lack of financial or certification incentives to participate;

— the low level of commitment by employers to training;

— the seasonal nature of most plant operations, making it uneconomic to embark on serious training programs;

— the lack of affordable child care;

— reluctance of workers to enrol in courses because of low educational attainment;

— the absence of a return on an educational investment in the form of higher wages;

— the Free Trade Agreement, which is causing uncertainty in the West Coast fishery; and

— the inconvenient timing of the workshops offered by educational institutions.

- How can the retention of an adequately trained work force be ensured?

Our research leads to the conclusion that training is not perceived by industry people to be a critically important issue. Certainly, our interviews confirm this. In addition, we saw that the training expenditures in the food, beverage and tobacco industry, which includes fish processing, are at a very low level and that the training budget of a major Canadian fish processor is even lower. And we saw that the collective agreements negotiated in the industry do not really acknowledge the importance of education and training.

Given this cluster of initial evidence, it might be that the first step toward retention of an adequately trained work force is for both labour and management to take the education and training issue more seriously. They cannot leave it to public institutions alone, especially in view of the country's illiteracy problem and the technological changes that are coming to the industry. Once they have acknowledged the issue's importance, they will then be in a position to develop the appropriate structures and policies.

- How might labour and management deal with the issue of skill development?

In a word, together — through collective bargaining and through collaborative ventures.

CSTEC, the SSC of the electrical/electronics industry, the Basic Education for Skills Training, or BEST program of the Ontario Federation of Labour (OFL), and the other models of joint action described in the previous section of this paper all provide us with ideas as to how a collaborative venture on education and training would work.

Such a project may not be difficult to launch. As indicated earlier, union and management people on both coasts gave support to the idea (some doing so more tentatively than others).

Recommendations

The first recommendation is that the federal government, through Industry, Science and Technology Canada (ISTC), Labour Canada, the Department of Fisheries and Oceans, Employment and Immigration Canada (EIC), and the Atlantic Canada Opportunities Agency (ACOA) intensify the process of obtaining the views, on the future of the industry,of those who are directly involved in it.

This process might have two parts to it. One would see the above departments inviting union and management officials from both coasts to a round table to discuss pertinent issues, such as impediments to human resource development, anticipated technological changes, adjustment measures, health and safety issues, etc. A second part would consist of a series of grassroots meetings, to be held throughout all six provinces, involving plant workers and lower-level supervisory staff, focusing on such issues as training and technological change.

The second recommendation of this report is that a sector-wide labour-management committee, similar to those described earlier, be established. This committee would serve as the locus of labour-management dialogue on the future of the industry, the focal point of industrial renewal efforts, and be the prime organizer and facilitator of training and adjustment programs. It would address the human resource development issues raised in this study.

It is essential that ownership of the committee reside in the hands of the labour and management officials who sit on it. Thus, such questions as overall purpose, agenda, work plan, and committee membership and structure must remain the responsibility of the committee itself, not a government agency. The companies and unions represented on the committee would also have to be prepared to cover the committee's operating costs.

This being said, federal agencies could play a facilitating role and might be interested in providing assistance to the committee for administration, for specific programs or for research work. For example, the Executive Director positions of CSTEC, the SSC and others were funded through the Labour Assignment Program of Labour Canada.

To unions, the committee would be attractive because they would be involved more fully in industry decision-making. In particular, on training, they would have input into issues like the extent of training, course content and the distribution of training opportunities. This is important because union involvement would prevent the polarization of training. In her research, Heather Menzies found that training for clerical staff and production workers is often restricted to the teaching of technical skills, while theory and concepts are reserved for management courses, often held away from the job site in universities or resort-like settings. Menzies refers to a study of Labrador women working in clerical jobs and the retail trade which concluded that the training was poor even in conveying the technical skills and that it did not enable the women to understand the system as a whole or their part in it.[55]

For large companies, the sector committee would be attractive because, by working in partnership with labour — involving it as early as possible in technological change and other matters — they could be assured of stability in the industry, at least on the labour relations front. And rather than resenting the new technology, workers would be inclined to accept it and use it efficiently. A sector-wide labour-management committee would also be consistent with the views of National Sea President, Henry Demone, who called upon industry participants to develop "la common strategy." "We must do this together", declared Mr. Demone, "abandoning confrontation among participants, as we set our course for compromise solutions."

Smaller companies would find the idea attractive because, by joining with others, they would be able to afford more training for their workers and managers. As one industry association official pointed out," . . . if programs are designed for small, as well as large companies this may help reach into areas where training may be in demand but there is less money available for funding."

Former federal Deputy Minister of Labour, Jennifer McQueen, pointed to another potential benefit of joint committees; that is, "They can have a tremendous impact on policy development." In a recent speech, Ms. McQueen noted:[56]

> . . . CSTEC was able to get six Cabinet Ministers and the Prime Minister to meet with them and, as a result, problems related to quotas on steel imported into the U.S. were resolved. And both parties now administer their own extensive adjustment program.

A variation of the sector committee idea has been proposed by Brian Briffett of EIC's Newfoundland office. In his overview of the Newfoundland fishery, he recommends that EIC "establish formalized communication links with representatives of employers and employees in the fishing industry."

> This committee, in conjunction with the inter-governmental committee, would provide a mechanism for the exchange of ideas and serve as a forum for all parties to come together and solve problems for the common good. This group would work as partners in the development of realistic and viable responses to the problems besetting the fishery.

Mr. Briffett also advances the interesting suggestion that his proposed committee look at the potential of processing plants to produce other kinds of food products during periods when the plants are idle.[57]

The sector committee idea would find support as well from the Phase 11 Committee on the Labour Force Development Strategy of the Canadian Labour Market and Productivity Centre. In its report, it recommends that greater responsibility for the design and delivery of labour market programs be shifted to committees at the local and/or sectoral level. It is at this level, says the report,

"where most practical experience and first-hand knowledge of local labour market needs reside." Majority representation on such committees should come from business and labour.[58]

Finally, in Ontario, a report from the Premier's Council, which includes representatives from business, labour and academia, recommends the establishment of an Ontario Training and Adjustment Board, with equal representation from labour and management. It would oversee the work of sectoral training committees, formed to direct training efforts in different industries. In the words of one commentary, " . . . the Council is proposing that those with the greatest stake in training programs — labour and management — assume most of the responsibility for developing them."[59]

The **third** recommendation of this report is that alternative, learner-centred educational methods be part of any industry training initiative.

It may be that the negative attitudes toward education have more to do with presentation and environment and past experiences than with education per se. Ways must therefore be found to make education and training less intimidating, more interesting and relevant and more participatory.

We can get some idea as to what these methods might be by going back to the organizations described in the previous section of this report. For example, in the BEST program of the OFL, instructors are rank-and-file union members who come directly from the workplace; the curriculum is designed in consultation with the participants; and courses are conducted in the workplace. The CLC's literacy program employs materials that workers are familiar with, such as the collective agreement. The Training Fund of the SSC can be accessed **by employee groups** wanting to hold seminars that benefit the whole group. And at the Essex Engine plant in Windsor, the in-plant training program for electrical workers concentrates on only four workers at a time.

These are the kinds of methods that must be elements of any education and training strategy for the fish processing industry.

For help in devising appropriate methods for work-related education, several organizations can be contacted, in addition to the OFL, the CLC and the SSC. The Extension Service of St. Francis Xavier University, the Literacy Secretariat of Secretary of State Canada and the Canadian Association for Adult Education immediately come to mind.

The **fourth and final** recommendation is that unions and managements ensure that appropriate rewards and incentives are in place to encourage workers and managers to participate in skills development initiatives. This may be accomplished through the collective bargaining process or through the sector committee process.

ENDNOTES

1. The International Labour Office is the secretariat of the International Labour Organization (ILO), an agency of the United Nations, founded in 1919 and managed by a Governing Body comprising 28 government members, 14 worker members and 14 employer members. Its purpose is to formulate policies and programs to improve living and working conditions world-wide.

2. Atlantic Provinces Economic Council (APEC) , "The Atlantic Fishery in the 1990s: Background to Crisis," *Atlantic Report*, Vol. XXV, No. 2, July, 1990 p. 15.

3. Standing Senate Committee on Fisheries, *The Marketing of Fish in Canada: Report on the East Coast Fisheries*, Interim Report 111, Ottawa, December, 1989, p. 2.

4. Data gathering in B.C. was done by Jane McNamara an Ottawa-based consultant.

5. See G. Betcherman, et al., eds. *Two Steps Forward: Human Resource Management in a High-Tech World*, Ottawa, Economic Council of Canada, 1990, p. xi.

6. In order to avoid sexist language, the word 'fisher' is used instead of fisherman, except where the latter is part of an official title or a direct quote.

7. Henry Demone, "Atlantic Fishery Faces Grim.Survival Challenge," *Canadian Speeches*, April, 1990, p. 41.

8. Fishery Products International, *Annual Report 1989*, St. John's, Nfld., P. 16.

9. Figures obtained from the Moncton office of the Department of Fisheries and Oceans. If a plant exports fish out of a province, it must register with the federal government. if not, it need only obtain a license from the provincial government. This may account for discrepancies between federal figures and provincial data.

10. Price Waterhouse, *The Economic Impacts of Fishing in British Columbia*, prepared for the FCBC, May, 1990, p. 1. This figure was obtained by Price Waterhouse from the B.C. Ministry of Agriculture and Fisheries.

11. *Ibid.*, Appendix 4.

12. Tina Haché, *The Fishery: Striking a Balance,* Economic Services, Employment and Immigration Canada (EIC), Nova Scotia Region, 1989, Table 4.1.

13. *Ibid.*, Table 4.2.

14. Royal Commission on Employment and Unemployment, *Building on Our Strengths*, Final Report, St. John's, Newfoundland, 1986, p. 130.

15. APEC, *op. cit.*, p. 4.

16. Tabulated from the Standing Senate Committee on Fisheries, *Op, cit.*, p. 33.

17. Department of Fisheries and Oceans, Ottawa.

18. FCBC, *Trends in the Commercial Fishing Industry of British Columbia,* 1983-87, Vancouver, April, 1989, p. 14.

19. Standing Senate Committee on Fisheries, *op. cit.*, p. 3.

20. *Ibid.*, p. 38.

21. A.H. Boone, R.W. Verge, *Mechanisms to Promote Adoption of New Technology and Operating Methods by Newfoundland Fish Processor*s, a report prepared for the Development Branch, Department of Fisheries and Oceans, St. John's, Newfoundland, March, 1985 p. 32.

22. *Ibid.*, p. 22.

23. Industry, Science and Technology Canada (ISTC), *Processing of Atlantic Groundfish, Opportunities in Technology*, Ottawa, May, 1988, p. 82.

24. H. Menzies, *FastForward and Out of Control*, Toronto, MacMillan of Canada, 1989, p. 129.

25. R.W. Verge, "A Need for Change in the Technology and Management of Fish Processing," *New Directions in Fisheries Technology,* proceedings of the Atlantic Fisheries Technology Conference, Charlottetown, 1985, ed. James F. Roache, p. 96.

26. David B. Fairey, *Managing Technological Change in the British Columbia Fish Processing Industry*, a report by the Trade Union Research Bureau for the UFAWU, March, 1986, pp. 8-9.

27. Price Waterhouse, *op. cit.*, p. 18; UFAWU, information pamphlet, "Fish for Our Future" Conference, 1990.

28. Fishery Research Group, *The Social Impact of Technological Change in Newfoundland's Deep-sea Fishery*, St. John's, Newfoundland, Institute of Social and Economic Research, Memorial University, December, 1986, p. 89.

29. Susan Williams, Barbara Neis, *Occupational Health in Newfoundland's Deep-sea Fishing Industry: Stress and Repetitive Strain Injuries among Plantworkers; Accidents on Board Trawlers,* Final Report, St. John's, Newfoundland, Institute of Social and Economic Research, Memorial University, March, 1990, p. 77.

30. Canadian Mental Health Association, *Work and Well-Being, The Changing Realities of Employment*, Toronto, 1984, pp. 132-139.

31. A. Boone, R.W. Verge, *An Approach to Solving the Operational Problems of Newfoundland Fish Processors using Industrial Engineering Techniques*, a report prepared for the Development Branch, Department of Fisheries and Oceans, St. John's, Newfoundland, March, 1985, pp. 54-55.

32. The tables in this discussion were provided by the Sector Studies Directorate, EIC.

33. Economic Council of Newfoundland and Labrador, *Education and Labour Market Training: Prerequisites to Economic Development in Newfoundland and Labrador*; March, 1990, p. 25.

34. *Ibid.*, p. x.

35. *Ibid.*, p. xi.

36. See Jaroslav Zenchuk, "At Last, Answers for the Dispossessed," *Dialogue*, 1990, pp. 4-5.

37. P.N. O'Farrell, in association with Gardner Pinfold Consulting Economists Ltd., *Small Manufacturing Competitiveness: An Analysis of Matched Pairs in Nova Scotia and New England*, prepared for ACOA and the Nova Scotia Department of Industry, Trade and Technology, March, 1990, p. 14.

38. Royal Commission on Employment and Unemployment, *Education for Self-Reliance*, October, 1986, p. 78.

39. *Ibid.*, p. 113.

40. Gardner Pinfold Consulting Economists Ltd., et al., *A Study on the Need, Provision and Take-up of Training and Skills Development in the Atlantic Provinces* prepared for ACOA, February, 1989, pp. 2-3 and 2-4.

41. P.N. O'Farrell, *op. cit.*, p. 34.

42. See CLMPC, *Report of the CLMPC Task Forces on the Labour Force Development Strategy*, Ottawa, 1990, pp. 260-265.

43. OECD, *New Technologies in the 1990s, A Socio-Economic Strategy*, Paris, 1988, p. 15.

44. See CLMPC, *op. cit.*; and Nancy Jackson, "Working Knowledge, The Politics of Skills Training," *Our Times*, May, 1989, p. 20.

45. CLMPC, *op. cit.*, p. 263.

46. Task Force on the Rationalization of Fish Processing in New Brunswick, *The New Brunswick Fisheries and Aquaculture Industry: A Time for Decision*, Discussion Paper, Moncton, September, 1990, p. 14.

47. Nova Scotia Federation of Labour, *Fisheries Policy Review, A Labour Perspective*, 1989, p. 7.

48. *Ibid.*, p. 8.

49. Henry Demone, *op. cit.*, p. 46.

50. For information on the BEST program, see Economic Council of Newfoundland and Labrador, *op. cit.*, pp. 150-151; Sonya Procenko, "The Best Example of Responsibility and Renewal," *Our Times,* October, 1990, pp. 32-34; Deborah Davis, "Beating Illiteracy," *Human Resources Professional*, February, 1989, pp. 8-9; and CLMPC, Basic Skills Training in the Workplace," *Labour Research Exchange*, March, 1989, p. 1.

51. CLMPC, "Union Participation Key to Success in Literacy Training," *Labour Research Exchange*, March, 1989, p. 2.

52. U.S. Department of Labor, *Productivity and Employment: Challenges for the 1990s*, report on an international symposium, Washington, D.C., April, 1988, p. 18.

53. See Everett Kassalow, "Technological Change: American Unions and Employers in a New Era," *New Technology*, eds., Greg Bamber, Russell Lansbury, London, Union Hyman Ltd., 1989, p. 54.

54. G. Betcherman, et al., *op. cit.*, pp. 18-19.

55. Menzies, *op. cit.*, p. 207.

56. Jennifer R. McQueen, *Excerpts from Remarks to the Public Policy Forum Seminar "Managing Companies and Unions in the 1990s"*, Vancouver, May 1, 1990, p. 6.

57. Brian Briffett, *Fishery Overview 1989, Newfoundland Region,* St. John's, Newfoundland, EIC, 1989, p. 76.

58. CLMPC Phase 11 Committee, *A Framework for a National Training Board*, Ottawa, July, 1990, pp. 3-8.

59. See "Rethinking How To Nurture The Skilled Workers We Need," *Challenges*, Fall, 1990, Special Insert.

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Interviews

Government officials:

Keith Torrie — ISTC, Ottawa

Marcel Plamondon — CEIAC, Hull

Myles MacKinnon — NRC, Halifax

Brian Murray — Newfoundland Department of Development

Wayne Follett — Department of Fisheries and Oceans, Newfoundland

John Mercer — Department of Fisheries and Oceans, Newfoundland

Les Dean — Newfoundland Department of Fisheries

Marion Wilson — ISTC, Vancouver

Linda Farris, Ruth Emery — EIC, Vancouver

Dale Blair — ISTC, Halifax

Mel Coombs — ACOA, Halifax

Tina Haché, Charles Dixon — EIC, Halifax

Gordon Snow — Department of Fisheries and Oceans, Ottawa

Paul Matteau — NRC, Montreal

Union Officials:

Noe Studley — CLC, Ottawa

Reg Anstey — FFAW, St. John's

Sandra Gertsch — UFAWU, Vancouver

Ray Gallant — UFCW, PEI

Rick Clarke — N.S. Federation of Labour

Marilyn Crook — CAW, Lunenburg

Dale Paterson — CAW, Halifax

John Kearney — MFU, Nova Scotia

Company Officials:

Kevin Coombs — FPI, St. John's

Doug Alley — B.C. Packers, Vancouver

Ralph Drew — Canadian Fishing Co., Vancouver

Charlie Minns — J.S. MacMillan, Vancouver

Bob Parker — Ocean Fisheries, Vancouver

Dennis Maihara — Prince Rupert Fishermen' Co-op, Van.

Ray Beliveau — Poisson Raymond Ltd., New Brunswick

A. Finn — Pêcheries F.N. Fisheries Ltd., N.B.

Boyce Taylor — T&H Fisheries, Nfld.

Y. Deveau — Chéticamp Fish Co-op, Nova Scotia

Wayne Brooks — National Sea, Lunenburg

Morgan Eisenhaur — Clearwater Fine Foods, Shelburne, N.S.

David Reid-National Sea, Halifax

R. MacClure-Gulf Seafoods, Pictou, N.S.

Eric Roe — Clearwater Fine Foods, Bedford, N.S.

Industry Association Officials:

Rob Morley — Fisheries Council of B.C., Vancouver

Peter Dysart — N.B. Fish Packers Assoc., Moncton

A. Baker — PEI Fish Processors Assoc., Beach Point

B. Chapman — Fisheries Assoc. of Nfld. and Lab., St. John's

R. Stirling, Jay Lugar — Seafood Processors of N.S., Halifax

Ron Bulmer — FCC, Ottawa

Educators:

Denise Nordin — B.C. Institute of Tech., Vancouver
Dr. John Vanderstoep — Univ. of B.C., Vancouver
John Merritt — Technical Univ. of N.S., Halifax
R. Whitaker, C. Campbell — Marine Institute; St. John's

Consultants:

Irwin Woodrow — B.C. Food Technology Centre, Vancouver
R.W. Verge — NewLantic Group, St. John's

Several other people were contacted for assistance in obtaining documents, identifying potential interviewees and to help fill in information gaps.