

# FUNDAMENTAL ISSUES FACING THE CANADIAN FISHING INDUSTRY IN THE 1980's

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The 1970's have seen significant changes in the structure of the fishing industry in Canada. It has brought opportunity and problems. The 1980's will be no different in that the changes will be at least as great if not greater and will bring a major challenge. As in most areas of research, the more that is investigated and answered, the more questions that are uncovered. The 1980's brings us the challenge of improving our knowledge of the species and of the technology of harvesting and marketing.

## Introduction

In this paper I attempt to give an insight into some major issues facing the Atlantic fisheries and areas of research and technological development as seen through the eyes of the fishing industry. It is necessary to mention that the views which I present are my personal views and are not necessarily supported by either of the companies for which I work or the industry I represent.

The subject matter of this paper is divided into 3 parts. The first section is a brief presentation of what the immediate past decade has brought to the Canadian fishing industry. Hopefully, this overview will give an idea of the structure and changes which have occurred and give a better feeling of some of the more significant problems which face this renewable-resource industry. The second section is my interpretation of some major, fundamental issues facing the industry during its entry into the 1980's. The third section will point out some of the research and technological developments which the industry sees it will require in the present decade.

## Changes in the Canadian Fishing Industry Between 1970 and 1979

The 70's have seen tremendous declines and growths in the Canadian fishing industry, particularly the east coast fishery with which I am most familiar. The entry into the 70's and the exit from the 70's have seen almost equal amounts of fish being caught by east coast fishermen. However, species, end-use, market areas, and value have substantially changed. Also during the 70's, a considerable dip in availability of groundfish occurred because of over-exploitation, primarily by distant water fleets from other countries. The following points illustrate the nature and the change in dimensions of the Canadian fishing industry.

### *Increases in Volume and Value of Fish Landed*

Canada's fishery, both on east and west coasts, is a near-water fishery based on traditional species. Canada has no distant water fleet and is unlikely to develop one because of the imposition of 200 mile limits by most foreign nations. The figures shown in Table I indicate that though the 1970 and 1978 landed tonnages were similar, their value was increased by 331%, much more than the consumer product or cost of living increased during that period. Table I does not show the dip in east coast groundfish landings, to 418,000 tonnes, that occurred in 1974. The increase in value has been one of the major changes in the 70's. The costs associated with this

increase in landed value have not been fully passed on to the consumer. By changes in technology and increases in product flow through the plants, costs have been kept in line. However, as we approach capacity of these plants and vessels, the cost squeeze will be felt by the processors and fishermen. This is because of requirement of additional capitalization for new plants and vessels as well as the law of diminishing return in vessel utilization. This profit squeeze has started to occur. It is noticeable, for example, in the reduced return on investment as shown in the 1979 financial returns for National Sea Products Ltd. (National Sea Products Ltd. 1980).

#### *Significance of Exports to the Canadian Fishery*

Canada presently is the largest exporter of fish in the world. This has been a significant change during the 70's. In 1970, we were in sixth place and by 1978, had increased to first place with exports of over  $\$1 \times 10^9$ . This points out the importance of exports and Canada's ability to viably compete in international markets. Traditionally, our largest market has been the United States. This is still true, although export patterns have changed in the 70's. During the period 1960-1969, groundfish and fishmeal were major exports. During the 70's pelagic species such as herring, mackerel, and squid have supplied an increasingly important segment of Canada's exports, e.g., major herring exports to Europe and squid to Japan. This trade will hopefully continue into the 80's because of the economic pressure to export the excess fish products.

#### *The 200 Mile Limit and Stock Increase*

The greatest single change in fisheries in the 70's has been the introduction of the 200 mile limit, both in Canada and elsewhere. During the late 60's and early 70's, the majority of fish caught off Canada was by foreign vessels. For example, Spain and Portugal caught 620,000 tonnes of cod in the International Commission North Atlantic Fisheries (ICNAF) areas in 1968. The amount now caught is legally zero, but will probably be about 17,000 tonnes in the areas in the head and tail of the Grand Banks outside the 200 mile limit. Stocks are increasing after this over-fishing because of the removal of foreign fishing allocations, reduced quotas, and lower fish mortality. This trend will continue in the 80's with possible substantial inroads for Canada's fleet in non-traditional species. The reduction in catch, which all the distant water fleets of the world now feel, allows for increases in exports to countries now operating such fleets, e.g., Spain, Portugal, and eastern European countries. This opportunity is now being exploited by Canadian processors.

#### *Capital Investment in the Fishery*

During the last few years, capital investment in the fishery has greatly increased. Information is difficult to obtain as it is considered proprietary and confidential by most fishing operations. Table II gives the amount of capital invested in fishing vessels and plants. Replacement value of fishing vessels can be roughly obtained by multiplying existing capital factor by 3. The reasons for such a large escalation in capital costs are the increases in size of new, versatile vessels, engine horsepower, and additional equipment. Roughly speaking, plant capitalization can be considered to be  $\$0.20$  per pound of annual landed fish capacity.

#### *Legal and Fiscal Activities of Government in the Fishing Industry*

The 70's have been a time of tremendous increase in government regulation and control. The quota and management systems have been implemented as well as strong government regulation in licensing, catching power, and vessel replacement. Government involvement in financing has vastly increased. In 1976-1977 the Fisheries and Oceans budget was  $\$2.5 \times 10^8$ , compared with  $\$4.3 \times 10^7$  in 1970-1971.

**Table I.** Canadian seafish landings and landed values

		1970 (Actual)	1978 (Actual)	1979 (Projected)	1985 (Projected)
<b>Atlantic Total</b>	Q	1,173,959	1,153,231	1,242,450	
	V	125,685	408,466	485,100	
Groundfish	Q	579,033	612,052	705,800	
	V	54,543	162,266	207,400	
Pelagic	Q	515,453	313,408	265,450	
	V	23,636	67,499	60,100	
Molluscs	Q	79,473	227,771	271,200	
	V	47,506	178,701	217,600	
<b>Pacific Total</b>	Q	117,021	199,183	158,750	
	V	60,255	249,729	314,400	
Groundfish	Q	32,716	32,538	36,200	
	V	12,823	25,946	31,400	
Pelagic	Q	78,648	158,154	113,150	
	V	45,810	215,745	273,100	
Molluscs	Q	5,657	8,491	9,400	
	V	1,622	8,038	9,900	
<b>Canadian Total</b>	Q	1,290,980	1,352,414	1,401,200	2,669,000
<b>Sea Fisheries</b>	V	185,940	658,195	799,500	—

Q = tonnes V = 000's \$

Source: 1970—Annual Statistical Review of Canadian Fisheries, Vol. 10, Fisheries and Oceans, Ottawa  
 1978-1979—Tim Hsu, DFO, Personal Communication.  
 1985—DFO, Worldwide Marketing Study

**Table II.** Capital Investment in the Fishing Industry  
Value in '000,000's \$

		Atlantic Industry	Fresh Water Industry	Pacific Industry
Primary	'77	260 <sup>1</sup>	65 <sup>2</sup>	325 <sup>3</sup>
	'78	276	69	345
Processing	'77	490*		
	'78	670**	N/A	N/A

<sup>1</sup> 85% vessels<sup>2</sup> 95% vessels<sup>3</sup> 95% vessels

\* Estimate—Fisheries &amp; Oceans Statistics Section

\*\*No total available

Substantial government assistance is also available from provincial loan boards which have advanced greatly increased credits for the purchase of vessels during the last 2 years. In 1978-1979, the Nova Scotian Government, alone, lent \$3 x 10<sup>7</sup>. The Department of Regional Economic Expansion (DREE), Small Craft Harbours, the Unemployment Insurance Commission (U.I.C.), and others have all been involved in subsidizing and controlling the direction of development of the fishery.

In summary, the situation for availability of stocks looks extremely good for the 80's. The slump in the mid-70's has turned into a boom in the late 70's. Unofficial sources quote that stocks of traditional groundfish will be above the levels estimated in 1978 in government publications. The health of the inshore fishery presently looks good; however, significant over-capitalization and lack of concern over efficiency or quality will cause restrictions upon operating profit in this sector. The same may occur in the offshore fishery. The processing industry could also incur profit reductions in the 80's. This all goes along with the cyclic nature that the fishery has seemed to follow. This is all likely to continue and, in my personal viewpoint, we will be in very tight financial operating conditions for the next 3 to 4 years. It is very possible that the prices paid to fishermen will drop over the next few years as has occurred on the west coast.

### **Fundamental Issues for the Fishing Industry in the 1980's**

The fishery is an industry based upon renewable resources. It differs from other resource industries, e.g., agriculture, forestry, or mining because the resource can only be controlled by management of the level of harvest. Hence the direction of general development of the fishery is limited not only by intangible factors of fish biology but also by legal issues arising from regulation. Below, I have outlined a number of the fundamental issues that will affect the industry in the 80's. It is not a complete list, but does provide insight into some of the factors which will control the development.

#### *Common Property Issue*

The industry is characterized by the common property aspect. In agriculture with the ownership of land, and in mining with mineral rights ownership, there is direct control over the resource, thus giving farmers and miners some ability to control production. In fishing, anybody can have access, dependent only upon government regulations in existence at the time. The total allowable catch (TAC) is available for harvesting by any individual meeting these regulations. His primary motivation is to catch more of the TAC than his neighbor; therefore his response is to increase his own fish catching power to the ultimate allowed by his financial ability and existing government regulations.

This common property aspect of fishing has led to the effort to catch more fish regardless of cost efficiencies or quality considerations. Therefore, people have replaced existing vessels with larger boats, factory freezer vessels, placed gutting machines on board, increased the horsepower of their vessels and so on—all to gain a bigger cut of the common property, at the expense of costs, labor, and fish stocks. This common property aspect will no doubt be modified in the 80's as it has in the 70's by the implementation of quotas, controls on fishing activities by controlling vessel horsepower or gear. The implementation of changing this common property aspect is a difficult one and rests primarily in the political sector. The pressure to change will no doubt come from the fisheries management sector of government. It may be asked "How can we change the common property aspect?" One suggestion has been to have boat or enterprise allocations of catch, i.e., boat quotas or percentages of the TAC which could be caught by each vessel. This would be considered to

be transferrable and could be sold on a commodity or stock market basis. Thus a fisherman, or fishing company, could select the species which he wanted to harvest and the amount which would be the most suitable for his vessel or for the one which he was building. Then the effort would be to maximize profitability by increasing efficiency and quality. This would then have the effect of controlling the harvest and hopefully improving efficiency. This has been implemented to a limited degree in the Labrador shrimp fishery and the mobile herring seiner fleet. My personal reservations about these procedures are associated with the methods of implementation, the division of quotas, and the way of activating such a system.

### *Overcapitalization*

It can be shown by economic projection, and it has been proven by experience, that substantial profits are made in virgin fisheries that are undercapitalized both in fishing and processing equipment. However, as the fishery matures, effort increases, capitalization increases, efficiencies decrease because of excess processing and fishing capacities, thus leading to drops in catch per unit effort and lower profit.

There are a number of reasons for overcapitalization, which differ from the point of view of the fishing sector and from that of the processing sector. In the fishing aspect, as shown above, the common property character of the resource leads to overcapitalization, but in addition, government regulations and subsidies exacerbate this pressure. Subsidies such as those from DREE and low interest loans such as those from the Fishermen's Loan Board increase the ease of companies and individuals to invest significantly more capital in the industry than is required. During the 1970's there has been an increase in the rate of transfer of public money into the fishery sector and this rate continues to grow with no effort to realistically control it. The government support of the increase of seasonality by weighting the inshore versus offshore balance in catching capability accentuates the problem. The issue causing the tying up of the offshore trawlers in January 1980 was because the shift in quota allocations under the Groundfish Management Plan-1980 provided insufficient fish for year-round fishing. The Federal Department of Fisheries imposed the quota split in favor of the inshore boats which have proliferated and caused an over-capitalization during the last five years. Over-capitalization will be a major cause of a decrease in profitability of fishing and processing operations in the 80's.

### *Requirement for Year-Round Processing*

The industry is increasingly becoming a seasonal operation because of various regulations and efforts by the Federal and certain Provincial governments. This move must be reversed to permit efficient year-round operation of plants and to maintain fully employed personnel. Modern plants require vessels which fish year round and thus demand a viable offshore fleet. In a Federal government study in Newfoundland (Nicholson, in lit), the seasonal plants were estimated to be used at 45%, while offshore plants were utilized to at least 65% of capacity. Simple economic projections on processing and fishing costs clearly show the incorrect management approach in this issue that has been taken by Federal management officials. The increase in seasonality of fishing has been seen by the proliferation of new vessel licenses during the last decade, during a time when the number of vessels operating offshore has actually decreased. In southwestern Nova Scotia alone, an estimated 750 new inshore licenses have been allowed, and in the Atlantic region as a whole, the number probably approaches 2500. Quota allocations have removed the offshore fleet from the Gulf of St. Lawrence area, and have restricted fishing on the Scotian Shelf. Large trawlers are now barred from 50% of the groundfishing grounds, but 3 years ago they were barred from only 30%. There is no doubt that in

certain areas it is best to remove large wetfish trawlers, but a balance is required in the industry which is not being maintained.

### *Control of Technology*

Government managers have tried to control fishing activities and efficiencies by controlling new technologies: for example, the 125% vessel replacement rule, which allows owners to replace their boats by a maximum increase in length of 25% over their existing vessel, and control of freezer vessels to a limit of 200 feet. When one starts to control technology, inefficiencies are bound to appear. Thus more effective methods of control of the resource itself are needed rather than attempts to regulate the industry by impeding the development of implements required for efficient harvest. In farming, Agriculture Canada does not try to control the size of the harvest by controlling the horsepower of tractors.

### *Collective versus Individual Standards in the Fishing Industry*

Hitherto, the market has dictated the exploitation of fish stocks and this has led to the disappearance of the resource and emasculation of the industry. The result has been agreement by the industry of measures to understand the biology of the resource and to control its harvest. There remain a number of attitudes rooted in this history that require modification in the 80's. Some of these are discussed. It is clear that the quality of the product plays a role in the share of the international market enjoyed by the Canadian fishery. Yet a fish buyer on the wharf is always under pressure to keep his plant supplied with fish. If only second class fish is available, he buys it because he knows that a second buyer stands ready to take the catch, a second buyer who will inevitably have preference the following day. Thus the decision of the buyer to take inferior fish is correct from his point of view but incorrect as the collective industry in the context of developing a product of highest quality.

Similar considerations apply to inaccurate reports of the size of the catch by fishermen who consider such practice to be a personal gain in the total fishery (CAF-SAC 1980). As such information is the basic data whereby fish stocks are managed, this behavior inevitably leads to managed fishing.

Fishing is still considered a part-time employment, and the Government has aided and abetted this way of life by requiring 12 weeks employment in the fishery to qualify for year-round unemployment insurance benefits. In fact, fishing has been subsidized by transfer payments to U.I.C. from so-called better-off provinces such as Ontario, Alberta and British Columbia. These unethical U.I.C. rules have often forced a part-time fishery.

### *The Role of Government in the Fishing Industry of the 1980's*

There are 3 facets of the Government's role in the fishing industry that need clarification as soon as possible.

The first concerns which level of government has jurisdiction over the regulations governing control of the resource. Looking specifically at the Atlantic coast, there are 5 separate provinces struggling to gain an authoritative input into the fisheries policies that will apply to each of their supposed jurisdictions. However, common sense will tell anybody who takes time to study the situation that the fishery is a Canadian resource that is not divisible by provincial boundaries. Most of this confusion has arisen by Federal dictates on policy which have ignored local wishes and have often been decorated by advisory committees sitting after the policies had been decided. I believe that the Federal jurisdiction must be maintained but a management and policy setting group should be locally situated. Such a council or group should have a competent staff of representatives from each of the 5 Atlantic

provinces, the Federal Government, and both sides of the industry. This council would then set practical fisheries policy and implement it.

Secondly, better relations between Government and the industry are required. In general, regulations need to be simple and clearly enunciated; the least possible government involvement is the most desirable. Thus an explicit, long-term national fisheries policy based on the principle of resource protection is required to permit fishermen and processors to know where they stand and how they should plan their future.

Thirdly, there is a need for greater efficiency in the relationship between government and the industry. This involves education by the government to enable fishermen to become more market-oriented, to be acquainted with new techniques, involving not only equipment but improving knowledge of the scientific basis of the resource. Contrariwise, there is a need for a more streamlined management structure in the Federal Civil Service. More than 5,000 people are employed by Fisheries and Oceans, and the size of the Canadian fishing industry is about  $2.5 \times 10^4$  man years in the primary resource sectors. In Iceland, where the fishery lands about twice the tonnage of fish landed in Canada and where quality is extremely high, about 250 civil servants are responsible for management. It is clear that the Canadian management structure is inappropriate for the industry. There seems to be a case for financing the management of the industry by imposing a levy on each pound of fish landed. This would encourage economy, as the industry could not afford exorbitant levies, nor poor resource conservation.

### **Research in the 80's**

In the 1980's, research, both applied and academic, is required in various areas. These encompass areas of engineering, biology, economics, and biochemistry.

Quality retention research to improve the quality of the product now marketed is a necessity and must include work from the catch to the market.

Comprehensive industrial engineering and operations research is required at the vessel and plant level to develop and implement new and more efficient fish handling and processing methods. Imaginative engineering design of fish processing equipment to reduce cost and increase yields will be required in the 80's.

Greater utilization of the fish that is landed must be obtained in the 1980's. This will require research into use of offal for greater food and pharmaceutical usage. Presently, two-thirds of the fish goes in the offal chute and, at best, is dried for meal.

Pressure on reducing the cost, in terms of dollars and fuel usage of fishing, will necessitate continued research into better understanding of fish behavior, fish finding, remote sensing of fish, and operations research into fishing.

Better understanding of exploited multi-species biology and management regulation will be needed as management of the total economic resource is required to optimize the potentials available in our fishing areas.

Continued resource and technology development on under-utilized species is required to develop knowledge of the species, and to develop harvest and utilization methods and markets.

Aquaculture research on selected resource-limited species such as lobsters is necessary. Approximately 6 to 8% of the weight of fish landings in the world is cultivated by man. The majority of these are from Asian and Pacific-rim countries. Canada lags most parts of the world because our resources have tended, in the past, to be market limited. For species such as lobsters, we have become resource limited and aquaculture research is called for to develop additional procurement sources.

Industrial pollution has been the demise of a number of the fresh-water lake and river fisheries in Canada. Investigative research in the level of damage already inflicted on the marine fisheries is required. Already some fisheries have detectable levels of PCB and pesticides in the fish. Fear also has been expressed that the sexual fecundity of some stocks may be endangered by pollution. Research, funded by government, is required to investigate the levels and potential harm of continued production.

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