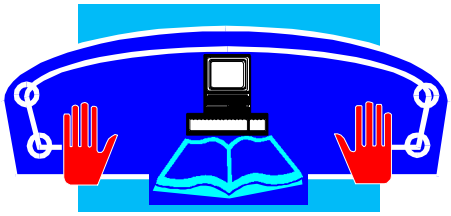

Market Considerations For The Commercial Fisheries Of Great Slave Lake And Surrounding Areas

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FISHERIES

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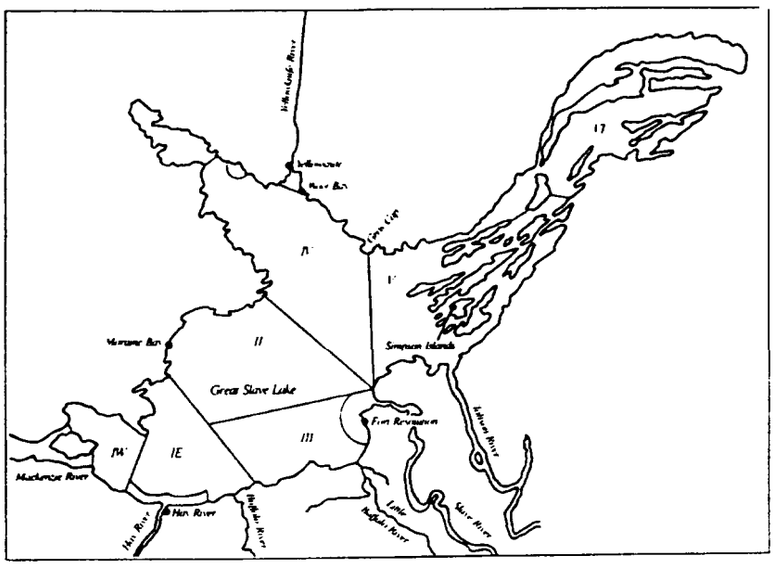

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INTRODUCTION

Commercial fisheries have been prosecuted on Great Slave Lake **since** 1945. **In early years the principal target was Lake** Trout, **with whitefish, pike and other species being of secondary importance. In the intervening years whitefish has risen to the dominant position, representing 2.5 million pounds annually ofa total , commercial catch of approximately 3.6 million** pounds. Pike is the second most prevalent fish, representing nearly 300,000 pounds of harvest per year, while the balance is made up of lake trout, walleye, inconnu, and mullet.

Fish producers originally did their own marketing, but the numerous small producers across central and northern Camda frequently felt exploited by the relatively few large buyers from the US who could effectively control market prices. To **counter this , in 1969 the federal government formed the "Fresh Water Fish Marketing Corporation" (FFMC). This firm was given the monopoly to market all fresh water fish produced in Northwestern Ontario, Manitoba, Saskatchewan, Alberta, and the Northwest Territories.**

Along with their monopoly FFMC was obligated by the Federal Government to buy all fish of good quality offered for sale by the fishermen within the area of their monopoly. This has assured fishermen of a market for their catch, but no particular defense that the market price will cover their costs. Conversely, because FFMC is obligated to buy all available fish, their only mechanism to control supply is by price adjustment to the fishermen.

This has led to conflicts between FFMC and the fishermen of Great Slave Lake, and the question as to FFMC'S effectiveness and commitment to promote the production of the NWT. The mandate of this study is to examine past markets, current markets, secondary processing prospects, and possible alternatives to FFMC. Our research has involved a review of past studies, and interviews both in person and by phone or fax with persomel involved in freshwater fisheries and distribution outside of the control area of FFMC. These include, Newfoundland, Quebec, Southern Ontario, Michigan, New York, Chicago, and France.

The marketing function involves all of the elements necessary to transfer a product from a producer to an end user. Recognizing this, we have reviewed the issue within the non FFMC jurisdictions with personnel from all sectors of the industry, including fishermen, regulators, primary processors, secondary processors, and distributors. Because the non sales functions have a significant impact on the market, we will begin by comparing the regulatory regimes and harvest techniques employed. We shall then discuss handling and primary processing techniques about all freshwater species generally. Secondary processing data and subsequent markets will concentrate first on whitefish, and then on other species will be reviewed. Finally we will discuss the approach of FFMC, and provide recommendations on alternate or modified marketing initiatives, and secondary processing prospects.

RESEARCH SOURCES

While there have been a great many studies done on the biology of freshwater fish, including those specifically from Great Slave L*, there has been practically no published work done on the actual marketing of these species. Nonetheless, some work has been undertaken on product development, notably by David Iredale of the Freshwater Institute in Winnipeg. These efforts have often been undertaken in collaboration with FFMC, and have met varying degrees of success.

These studies were sponsored by DFO under their "Fisheries Development Program. " They included work on whitefishcaviar, animal feed supplements made from fish waste, deboned fish mince made from mullet, and breaded products made from mechanically deboned fresh water fish. Work on the development of surirni from fresh water fish was undertaken but never finished, since the program was phased out around 1985.

The "Canadian Center for Fisheries Innovation" in Newfoundland did some follow up work on whitefish in 1990, including tests with caviar, but we found no other current work of significance.

Harvest and market data was accumulated through the Regulatory authorities in Manitoba and Ontario, DFO, the reports of FFMC, and various directories of fish producers, processors and distributors, that outlined their product lines. Export information was ratified with data from External Affairs.

Direct interviews took place with two secondary processor breading operations and two independent fresh water fish distributors in each of Quebec and Ontario. In addition, primary processors, fishermen, and industry affiliates such as regulators, boatbuilders, and gear manufacturers were interviewed in Southern Ontario. A list of these is included in appendix #l along with those interviewed by telephone.

REGULATORY REGIMES AND HARVEST TECHNIQUES

In Ontario on the Great Lakes, the commercial fisheries are regulated by the Ministry of Natural Resources. They work closely with industry, including both the harvesters and processors. The fishery is a limited entry fishery, with "Individual Transferable Quotas" (ITQ). Since the fishermen know how much fish is available to them by species, they are able to plan their fishing year to optimize both harvest and market potential. Their quota is also an asset of their individual businesses, and as such the businesses can be sold or transferred to succeeding generations as intact and fully functional operations. These factors help significantly to bring stability to their businesses.

In Lake Erie, the co-operation between producers, processors and regulators is unique, perhaps in any fishery in the world. Remarkably, there is total agreement between these parties that their system is fair and effective. The quotas and regulations are set by the commercial players and the ministry, in close consultation with representatives from the sports fishery. (see Exhibit#1) These regulations are then monitored by a dockside monitoring program that is jointly funded and managed. The ministry administers the program, whereby each landing is inspected and tallied by a ministry official. These numbers are then confirmed by actual weight by the processor. Any discrepancy in excess of 10% is immediately investigated by ministry persomel, as are any discrepancies as to fishing area. Seventy-five percent of the program is funded by the producers and processors who each contribute $.01 per landed pound of fish. The ministry provide the facilities and cover the remaining 25'% of costs for the program.

Having this level of co-operation on the management **of the fishery has had a positive impact on all aspects of the business, including the marketing. Linking the harvest to the processing in an orderly manner according to a schedule that maximizes market potential is beneficial to all parties, including the market place that have a secure and reliable supply of product.**

In Manitoba, ITQ's are also used for allocation, and these are available seasonally by species. Thus, the regulators, control when the fish is harvested, and correspondingly when it goes to market. But Manitoba also market through the FFMC, and they do not appear to be active at all in the scheduling of the fishery. Secure access for the market to a consistently fresh production does not therefore appear to be a consideration. Instead they would seem to take product into inventory as it is caught, and distribute it as it is ordered. In short the system is not **conducive to market planning.**

The regulatory regime on Great Slave Lake is essentially a competitive quota system by species. The producers are therefore in direct competition with one another, and since one is obligated to sell to FFMC, and they are obligated to buy,

Exhibit #1

LAKE ERIE
Fish Packers & Processors
ASSOCIATION

Office: 825-7511
Home: 676-2538

P. O. Box 1531
Erieau, Ontario
NOP 1NO

This Association represents eleven registered processing plants and one hundred and two commercial fishing licence holders in Essex and Kent Counties.

The Essex and Kent commercial fishery represents more than half of the landed dollar value of fish caught in all of Ontario.

The industry in Essex and Kent Counties employs directly in excess of eleven hundred people on the fish tugs and in our processing plants. This does not include or take into account those people employed in related industries, e.g. shipyards, restaurants, fishing gear supply companies, electronics equipment sales and service people. The economic effect of the industry is felt in the communities where the fishermen and plant employees work and live. In our smaller communities, commercial fishing is the largest employer of full-time workers and has historically been some municipalities' reason for existence.

The uniqueness of our industry attracts many tourists to our three ports of Kingsville, Wheatley and Erieau. Many people travel to these communities to buy fresh Lake Erie fish and stay to watch with great interest as our fish tugs unload their day's catch. Fishing is not only a commercial business, but a major tourist attraction in these communities.

The industry contributes greatly to the municipal tax base in our two counties and constitutes a major part of the tax base in the smaller communities.

The fishery becomes involved in the communities where they are located. Many of our plants support sports teams such as minor hockey or baseball both financially and with volunteers and with donations of fish to local organizations for fund-raising fish frys.

Our fishermen have in the past and will continue in the future to provide a search and rescue service to anyone in trouble on the lake. The experience and knowledge of the lake of our fishermen can and has meant the difference between life or death in thes situations.

Our association has endeavored to cooperate with other user groups in Essex and Ken& Counties, e.g. anglers, by avoiding heavy concentration of anglers, donating funds for re-stocking programs to replace incidentally caught sport fish and acting on angler complaints in conjunction with the enforcement branch of the Ministry of Natural Resources.

We are presently involved in a cooperative program with the Ministry of Natural Resources to monitor quotas, operate the port observer program and aid in obtaining fish samples for assessment purposes. This unique program

creates a better line of communication between the commercial fishery and the Ministry of Natural Resources to resolve day to day problems which has resulted in compliance rather than confrontation as had occurred in the past. This has resulted in few charges being laid and has reduced the costs of legal proceedings for both the industry and the MNR.

The implementation of quotas in 1984 has resulted in stabilization of prices and facilitated better marketing of our product. It has also brought about long term conservation of the resource through closely monitored harvest control. This system of controlled harvest is very effective as evidenced by the fact that since quotas were imposed, area allocations have never been exceeded!

ESSEX KENT FISHERY

Kent County - 49 licences
Essex County - 53 licences

Employment - approximately 600 involved in harvest
- approximately 500 involved in processing

1988 landed dollar value - $29,594,813.00
1988 processed product value - $94,703,401.00

Essex and Kent harvest is 56.8 percent of total landed dollar value for all of Ontario.

Approximately 75 percent of all processing in Ontario takes place in our plants in Essex and Kent Counties.

1988 payroll to employees on the fish tugs - $14,797,406.00.

We hope that you will find the enclosed information showing the status of the industry of value to you. We would be pleased to supply any further information you may require and endeavour to answer any questions you may have about the fishing industry in Essex and Kent Counties.

their fishing plan is based on regulations and who can catch the most fish first, rather on how to plan a fishery around the needs or requirements of the market place. This total lack of co-operation between the players is in fact detrimental to all.

On Lake Erie, boats of 40 to 70 feet are used for harvest. While otter trawls are used for smelt, the majority of catch is with gillnets. The vessels are full shelter deck as per figure #l, and are therefore very capable and comfortable ships in almost any weather, and the fishery is entirely a day fishery, with vessels going out as early as 4:30 AM but being obligated to land by 7:00 PM.

Lake Erie whitefish quotas have been relatively low in recent years, and quotas are currently set at only 3000 pounds per vessel. This particular allocation is normally caught in one day. The 3-4 man crew fish up to 200-300 nets per day. These gill nets are 180 feet by 6 feet and are set on the bottom, often tied one to the other in a chain. A new, 70 foot vessel of this sort costs about $400,000. ready to go fishing, but used ones without license are available for as little as $20,000.-$30.000.

Some Lake Erie fisheries, particularly in the western end of the lake, are prosecuted with traps and pounds. These have the advantage of live catching, but are largely untried in Great Slave.

The Manitoba fishery more closely resembles that of Great Slave, with small 18-22 foot skiffs and larger 40-4S foot boats (see figures 2 & 3) that fish in the open water seasons. In the winter under ice fisheries take place with bombardiers and skidoos. The boats, without shelter decks, are more constrained by bad weather. This is important in a gillnet fishery. because fish left too long in the net will die in the water, and this has an adverse effect on product quality.

Great Slave fishermen generally use 300 foot gill nets, but a skiff with a 2 man crew is reported to be making an average of only 20 hauls per day. These nets are yielding only 30-50 pounds per haul, or 600-700 pounds per day. Since bad weather often keeps them away from their nets for extended periods, the fish quality is subject to deterioration before it leaves the water.

Figure # 1 Typical Great lakes fishing tug -72 feet long by 18 feet wide

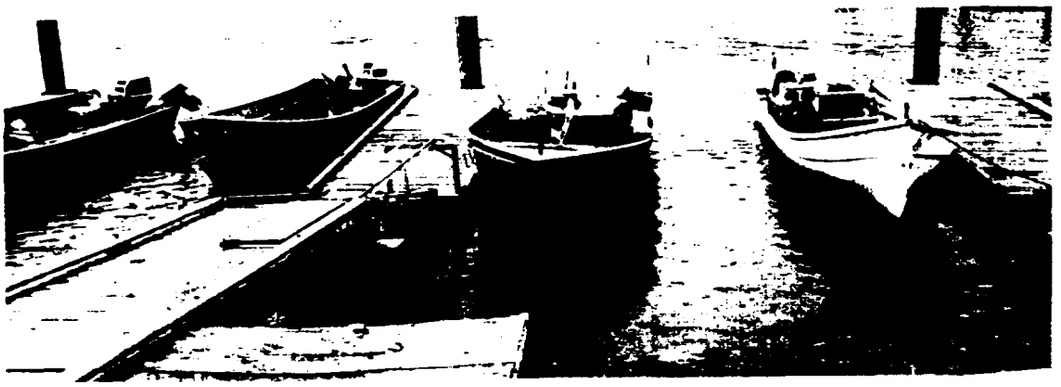


Figure # 2: Typical Lake Winnipeg skiffs and yawls for small boat fishery

Figure # 3: Larger syle of boat used on bigger lakes in Manitoba

HANDLING AND PRIMARY PROCESSING

There is no concensus on definitive handling techniques for fish out of the water but there are some elements of agreement. It is generally agreed that fish should be allowed to go into rigormortus as slowly as possible, kept in rigor as long as possible, and only be cut to a fillet stage after the fish has gone out of rigor. This is achiwed by icing the fish immediately after it is killed, and hoMing the temperature consistently at between -1.5 * and -2 * celsius.

Some feel that bleeding the fish from the throat while alive and eviscerating immediately will enhance flesh colour of the finished product. In addition, there is evidence that direct contact between the flesh of the fish and ice will speed oxidation and colour the flesh.

In Lake Erie, the custom is to ice the fish round and deliver it to the plant in that condition the same day. The plant keep it round overnight to leave the fish in rigor, and only scale, eviscerate, and fillet the fish the next day. That fish is then either delivered to the fresh markets for sale on the third day after being caught, or frozen in an IQF or block formate.

The fresh fillets are generally packed in waxed cardboard, 25 pound boxes, with a layer of ice on the bottom, a water tight poly liner to hold the fillets, and finally another layer of ice over the sealed poly liner of fillets. These are of course transported in refrigerated equipment, but the journey is short enough as to not require re-icing.

To contrast this with Great Slave Lake, fish moves from the fishermen in open boats, to a receiving station, to a transport boat, to Hay River, to Edmonton, to Winnipeg, and only then has it really arrived at the primary processing plant. That journey can take as long as 7 days and has at times taken longer. Clearly there are multiple opportunities for product deterioration during this journey. None of the product is competitive in the fresh markets, and the quality is generally inferior for further processed frozen products.

WHITEFISH PRODUCTS AND MARKETS

North America produces over 30 million pounds round weight of whitefish per year. This is made up of approximately 10 to 12 million pounds from the Canadian Great Lakes, 6-7 million pounds from the US commercial fisheries in the Great Lakes, 13 million pounds through FFMC, and 1-2 million pounds from elsewhere in **North America. Of this, South Central areas of the NWT including Great Slave Lake represent less than 3 million pounds. These species are also found in North Eastern Europe and Asia, in former Soviet Block States. While not a currently utilized species, their potential is immense, with perhaps as much as 10 times the available biomass.**

The term Whitefish actually describes four or five distinct species (including inconnu) and many subspecies with features distinct to particular lakes. Those features sought by the lucrative Kosher smoking market include, light coloured flesh, light coloured skin, high fat content, and thick backs. These prime fish are produced in a head on dressed and frozen form, and can achieve prices to the fishermen in the range of $2.65 US per pound, but are more normally between $1.OO-$1.50. Unfortunately, this traditional Jewish market in North America is shrinkin& and FFMC have indicated in the past that their share has gone from 6 million pounds to less than 1.5 million pounds.

The **fresh** markets for whitefish are primarily in the Great Lakes basin, in the urban areas on the American side. These include such cities as Chicago, Detroit, Cleveland and down to NewYork and the Atlantic corridor to a lesser extent. These markets were developed in the late 1940's and 50's when transportation networks for fresh marine fisheries were poor and expensive, and the Great Lakes fisheries, particularly in Lakes Erie and Huron were thriving.

The product was distributed in fish markets in fresh dressed head on form, and users were prepared to tolerate **the secondary cleaning and bones. The fishermen received between $.40 and $.80 per pound, but by the early** 1960's the fish were **disappearing and quotas were reduced. With the introduction of frozen convenience fish such as fish sticks, the market for fresh whitefish has been relatively stagnant, with little expansion from traditional geographic areas.**

Interestingly, with the whitefish quota decline, Lake Erie fishermen and packers, particularly the Olmsteads and Macleans of Wheatly, made a concerted effort to create a market for yellow perch. In the late 50's this was a nuisance fish, yielding only $.03 per pound to the fisherman. This product has been well promoted over the last 30 years, with supplies being matched to demand and thus pulling up the price. The fishermen now earn $2.50 per pound for their yellow perch, but are still only getting $1.00 per pound for their whitefish inspite of reduced quotas and the generally good acceptance of their whitefish in the market place.

Some whitefish is filleted into a skin on pinbone in IQF product, graded into various sizes as indicated in the FFMC product list in appendix #2. These are generally directed to institutional and food service markets. Yield data from the Center for Fisheries Innovation experience a skin off fillet yield of 45% from head on gutted whitefish.

The heads and racks are mechanically deboned to make fish mince. This can be block frozen for portion control products such as fish cakes or directed to other secondary users. Again this product is often used with mullet, carp, and pike, mince in the production of gefillte fish for the traditional **orthodox Jewish markets. A price list of the major producer of this product is also included in appendix # 3. Again, this is regarded as a diminishing market.**

All of these traditional products, particularly the ethnic ones, are still sold through seven or eight primary distributors. They are for the most part members of the oligopoly buying group from pre FFMC days in the 1960's.

The Golden Caviar produced from whitefish has been a relatively successful undertaking. FFMC began by trying to market this product in Japan, but found greater success in North America. While the product was pioneered by FFMC and the "Fresh Water Institute", it is being produced now elsewhere, such as the "Peelee Island Gold" being marketed by "Pemer Foods of Kingsville Ontario. It was on the strength of this particular product that the Center for Fisheries Imovation were encouraged to research the fresh water whitefish fishery in Labrador.

The remaining waste products for the fish have been used for various other value added **sales in the past. These skeletons, heads, and guts are essentially free raw material, so any utility that generates more than production cost is worthwhile. Where vast supplies of this material exist, it is used in the production of fish oil and fishmeal that can be made into solid animal or fish feed. DFO, under their fisheries development** program, **experimented with a simpler liquid silage for a hog feed supplement which had some success.**

Liquid fertilizers can be made from a relatively cheap plant that is produced in Norway. Gallant Fisheries in PEI have such a plant that produces in bulk for a chain of golf course. The simplest use of the waste is to be able to sell it as is. In Erieau Ontario, the offal was sold to a local mink rancher who would pick it up himself and still pay $ .07a pound for the privilege of doing so.

Table # 2: FFMC price lists, 1989-1992

Species & Form	Date	Sizes	Pack	Local Stock	4000-9999	10000-19999	20000-up
Whltefleh Drseased Medium	Oct. 88	1.5-3.Olb.	75lb.	$1.80	$1.60	$1.55	$1.50
"	June 91	"	"	"	"	"	"
"	Sept 91	"	"	"	"	"	"
"	June 82	"	"	"	"	"	,
"	Aug 82	"	"	"	"	"	"
whitefish Fillet IQF	Oct.89	all	4/5kg.	$2.85	$2.65	$2.60	$2.55
"	June 91	"	"	$2.95	$2.75	$2.70	$2.65
"	Sept. 91	"	"			,	
"	June 82	"	"	"	"	"	"
"	Aug. 82	"	"	"	"	"	"
Vacpac Boned Whitefish fillet	Oct. 88	all	4/5kg.	$3.60	$3,40	$3.35	$3.30
"	June 91	"	"	$3.70	$3.50	$3.45	$3.40
"	Sept. 91	"	"	"	"	"	"
"	June 92	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.
"	Aug. 92	N.A.	N.A.	N.A.	N.A.	N.A.	
Whitefish polybag pan ready	Oct. 89	1-3 lb.	25 lb.	$2.30	$2.10	$2.05	$2.00
"	Jan. 91	"	"	"	"	"	"
"	June 91	"	"	"	"	"	"
"	Sept. 91	"	"	"	"	"	"
"	June 92	"	"	"	"	"	"
Whtteflsh polybag dressed	Oct. 89	1.5-3 lb.	25 lb.	$130	$1.10	$1,05	$1.00
"	Jan. 91	"	"	"			
"	June 91	"	"	"	"	"	"
"	Sept. 91	"	"	"	"	"	"
"	June 92	"	"	"	"	"	"
whitefish Golden Caviar	Oct. 89	500gm tub	12 x 500	T.Q.S.	T.Q.S.	T.Q.S.	T.Q.S.
"	Jan. 91	50gm jar	12x 50	$30.00/doz.	$30.00/doz.	$30.00/doz.	$30.00/doz.
"	June 91	500gm tub	12 x 500	$7.00	$7.00	$6.40	$5.80
"	Sept. 91	June S2	12 x 500	$5.50	$5.50	$5.00	$4.60
"	June 92	June 92	12 x 500	N.A.	N.A.	NA.	N.A.

Table # 2: FFMC price lists, 1989-1992

Species & Form	Date	Sizes	Pack	Local Stock	4000-9999	10000-19999	20000-up
N et oc	Oct 89	3/22	66	$ 65	$	$ 40	$ 35
				$2	$2	$2	$2
"	Sept 9-	-	-	-			
"	June 92	"	"	"	"	"	"
"	Aug 92	"	"	"	"		
N Pike fillets IQF	Oct 89	5/20 oz.	4/5 kg.	$2.55	$2.35	$2.30	$2.25
"	June 91	"	"	$3.05	$2.85	$2.75	$2.65
"	Sept. 91	"	"	"	"	"	"
"	June 92	"	"	"	"	"	"
"	Aug 92	"	"	"	"	"	"

OTHER SPECIES PRODUCTS AND MARKETS

Pike:

Pike is produced into skinless fillets in either block form or IQF. The racks and other waste are mechanically deboned, and the mince block is distributed in the various ethnic markets. These include the Jewish gefillte fish market, but also Chinese and other Oriental markets.

By far and away the largest proportion is exported for sale in France. Although pike originating in Canada is subject to an 8% duty in the block or whole frozen form, and 9% in the IQF fillet form, Canada is by far the largest supplier to the French market. As table #1 indicates Canada is the major exporter, but French imports are declining, as is our market share.

Table#l: Canadian pike imports to France in metric tons

	1988	1989	1990
Total imports	822	1300	639
Imports from Canada	804	1278	613
% From Canada	**97.81**	**98.31**	**95.93**

The **decline** in French imports may not be due entirely to a drop in demand. In their 1990/91 annual report, FFMC note that a 25% production drop in northern pike has manifest itself in A product shortage. Table # 2 reflects this shortage in a price rise for 1991.

FFMC'S broker in France is Legraud & Malo of LeHarve. In communication with M. Michel Cheron of that firm, they indicated interest in access to approximately one container per month of pike. The product forms which **they use include, 4/9 dressed head on pike, IQF fillets, and deboned blocks. The production plant, particularly for the block, must be registered with the French Sanitary Authorities. They have asked us to reply with information as to price, and the exact source of the fish.**

Of note, they are also interested in **IQF walleye fillets, but not in arctic char or whitefish.**

Lake Trout:

Lake trout in the Great Lakes and elsewhere in Southern Canada are principally a sports fishery. **Conflict between sport fisheries and commercial fisheries in the Great Lakes has lead to the virtual elimination of fresh water ' commercial fishing in the US Great Lake states. It is therefore not a target species and as such no markets are developed.** As the FFMC price list **indicates, these fish are essentially dumped. It has been suggested that 30 % of fish consumed in Ontario are self caught. This is the category that Lake Trout falls into. In all likelihood, the proportion of self caught fish consumed in the NWT is even higher.**

Walleye:

Walleye or pickerel are the bread and butter of FFMC. This species is their single biggest money maker, and it is one of the few that they sell where supply is actually matched by or less than demand. The fish is usually filleted and graded by size, and sold IQF. Markets for this product are stable in both the US and Canada. It is possibly the only production from the NWT that FFMC would regret losing if NWT were to secede from the relationship.

BREADED AND BATTERED PRODUCTS

Canada has five main producers of breaded and battered fish products:
1) National Sea Products
2) Fishery Products International
3) Olrnsteads
4) Bluewater Seafoods
5) Janes Family Foods

National Sea and Fishery Products are the major players on the Atlantic coast, but both firms have traditionally produced from self caught fish.

Olmsteads have produced breaded fresh water products from their own catches, but really only produce breaded smelt now. The company is still a major producer of fresh water fish, but has be taken over by Hienz. Increasingly their production is moving to vegetable products, and their products list included in appendix#4 reflects this.

In Montreal we met with John Gates, operations Manager of Bluewater Seafoods. This company produces only breaded and battered fish products from block frozen mince and fillet blocks. The company is the Canadian subsidiary of a Gloucester Mass. firm called "Gorton's", all of whom are owned by "GeneraJ Mills". The are also owners of the "Red Lobster" chain of restaurants.

Bluewater's plant has 125 employees, working in two production shifts plus a cleanup shift, producing on three separate production lines. They produce their own brands as well as a "Presidents Choice" line for "Loblaws", and are also the sole producers of the "Fillet-o-Fish pattie for MacDonald's Canada.

In Toronto we met with Clem Janes Jr., president of "Janes Family Foods." The firm was started by his father in 1969, after working for 10 years with Bluewater Seafoods. Like Olmsteads, Janes have moved away from breaded fish products to vegetables, cheese, and chicken products. They operate with about 100 employees in two single line plants. Like Bluewater, their plants operate 24 hours, with 2 production shifts and one cleanup shift. In addition to their own brands, they also do some co packing for other brands.

In all our interviews, breaded and Battered seafood was described as a "mature market". They identified the Canadian market as very distinct from the US market. In Canada consumers are very species oriented and' buy in accordance with that. Thus, while a Canadian will distinguish between a fishstick made of cod or pollock (boston blue fish) and pay a premium for the former, the US consumer regards a fishstick as a fishstick regardless of raw material; much the way one might regard chicken as chicken regardless of the breed.

The price of the fish material is critical to these processors, and for this reason pollock and whiting are the preferred species at the moment. Pollock is available now from eastern block countries for as little as $.40 per pound. Whiting from South America is available at $.65-$.70 per pound. By contrast, cod block is currently $225 for fillet blocks, and even $.85 for mince. All this product comes in standard 16.5 pound blocks, ready to produce into controlled portions.

Both companies had had experience with mince blocks from FFMC made from mullet. Bluewater indicated that consistent block geometry was absolutely vital, and that excess water and air had to be properly squeezed from the blocks. They had sampled FFMC product **as recently as 6 months ago, and found these elements unsatisfactory, as well as poor colour and texture to the raw material.**

Janes had tried FFMC product earlier, and found that the blocks were not only inconsistent in geometry and density, but were also significantly contaminated with bits of skin, bone and scales.

Bluewater particularly were interested in looking at new products based on NWT fish. This is in all likelihood due to their continued commitment to seafood products. Their co-packing arrangements with major marketers such as MacDonald's and Loblaws, as well as their corporate ties to Red Lobsters maybe worthy of pursuit. An example will be provide in the recommendations.

Freshwater Fish Marketing Board

FFMC is clearly the largest single player in the markets for fresh water fish, particularly in North America. In whitefish, the largest production from Great Slave Lake, they **dominate nearly half of the North American production. The only single entity that challenges this probably the Native Fishermen of Michigan. They have only recently co-ordinated their fishery but last year accounted for almost seven million pounds of whitefish They are probably FFMC'S largest single competition in the relatively lucrative Jewish market.**

The company does all distribution through a network of brokers. These are appointed on an apparently longterrn basis, with exclusivity for a particular geographic area. FFMC support this network with product exposure at various seafood shows such as boston and Anuga in Europe, and some promotional hand out material.

The exclusive broker system has benefits, particularly in an expanding market where a customer has a clear system for making orders and a local agency to expedite their needs. Unfortunately the broker introduces an additional layer between the producer and the end user, leaving the producer more remote and potentially screened from the end user by his broker.

This is particularly detrimental in shrinking markets. In the first place, the broker will tend to strongly support product lines for which he is getting an ever increasing call for orders, and ignore those that require greater effort for less and less sales. He will fight to retain the hot products, while just taking orders in those that are on a down turn. This inherent complacency is built into the broker system. The broker must sell to survive. He is given exclusivity by the producer, but does not have to reciprocate, and will therefore always search out new hot product lines to replace those that are dying.

A producer who is cognizant of this will be constantly producing new, revised, and hopefully better products, to keep his production in high demand. Unfortunately he can not rely on brokers to provide feedback on customer demand or preferences. It is simply not in their mandate. The producer must find that information from end users and consumers themselves.

FFMC has a dominant position in their marketplace, and yet that marketplace is shrinking. Their products are virtually unchanged since their foundation in 1969. While **it may not be their fault, it is clear that customer preference are not being met, and it could be in part that they are not adjusting to meet those preference.**

Distributors and producers alike who were interviewed, whether they used FFMC material or not, described the corporation as a price taker rather than a price leader, and many felt that FFMC tended to drag prices down. On the other hand, all markets agreed that what was needed for a successful product was consistent quality, consistent supply, and consistent price.

The FFMC mandate as it is currently practiced make that consistency nearly impossible to achieve. Their obligation to buy product means that they acquire product as it is made available, with little if any control over supply schedule or volumes. Their only control is the rather blunt tool of price to the fisherman, but this must be set in advance, and is frequently disrupted by an off setting subsidy.

This supply must then be inventoried, and the market satisfied by reserves held in inventory. In markets for perishable goods with a finite shelf life, and where the products deteriorate on an ongoing basis, the pursuit of quality is constantly being challenged. Furthermore, in this era of just-on-time inventory control and production, the FFMC formula is inherently uncompetitive.

These inventory and marketing problem are evident in whitefish, and can be seen from the FFMC price list. A container of dressed medium whitefish in 75 pound boxes, that is presumably destined to secondary processors such as smokers, is selling for $1.50 per pound. The same size fish, individually packed for retail in poly bags, and sold in 25 pound masters, costs only $1.00 per pound by the container inspite of having more value added packaging. This product is frequently available in supermarkets for $1.49 to $1.59 per pound. Since the main secondary processor market for this product would certainly know about this price discrepancy, we can only assume that the retail packages are product that this main market have already refused, and it has been reworked to dump on large retail chains for salvage value.

The economics of these retail packs are quite grim as we see in table # 3.

Table # 3

Projected FFMC profit / loss
Whole Dressed Whitefish Production (per pound)

Price to fisherman on Great Slave Lake	**$0.60**
Handling etc. in Hay River	**$0.05**
Transportation to Winnipeg	**$ 0.25**
Round weight value at plant	$ 0.90
Yield for H&G dressed whitefish 80%	
raw material cost = $ 0.90/ 80%	$ 1.125
Cost of dressing freezing& packaging at FFMC	**$0.15**
Cost of transport to end user	$ 0.075
Total FFMC product cost	$ 1.35
At sales price per container of $1.00 / lb.	
FFMC loss on whole dressed whitefish retail pack	($ 0.35)
At sales price per container of $1.50 / lb.	
FFMC profit on whole dressed whitefish wholesale pack	$ 0.15

Risk Analysis of leaving FFMC

The formation of FFMC twenty years ago was done in response to complaints from fishermen about unstable and unreliable markets, and inconsistent pricing. Their mandate was, and continues to be, to bring stable prices and predictable , markets to fishermem The included price lists indicate that their prices since 1989 have **been extremely stable, and have only changed in a positive direction. On the other hand, they required fishermen to voluntarily reduce whitefish harvests in 1990-91, while at the same time experiencing a 2S% drop in pike production which led to a market shortage.**

We might question the Corporation's management decisions, but their responsibility is to the fishermen and to Parliament. As such, they have little incentive to create new products or establish new markets. Products that involve substantial secondary process can potentially bring greater returns to the corporation, **and will certainly generate greater employment of both capital and manpower. But inherent with the new market creation is the substantial risk that these greater costs will not be recouped by the new products, particularly** in **the initial stages of development. Furthermore, while generating perhaps greater gross revenues for the Corporation, the greater operating costs may not glean additional income for fishermen. Initially, fishermen will benefit only from an an expanded volume demanded for their raw material, and not necessarily a higher price.**

Since all the Corporation profits are returned to the fishermen, who in turn have little or no interest in the production or marketing, **FFMC management are actually discouraged from taking any risk to fishermen' s income. This effectively stifles any incentive that FFMC might have to try anything new. Rather, their safe route is to follow the market for established products.**

On the **other hand, if a new product is developed eIsewhere, and the new market is discovered and seen to be lucrative, FFMC has both the resources and the raw material to leap into this new market after it has been developed by another party. This presents an intolerable risk for an NWT organization planning to develop new products. Because of higher NWT costs in all areas, FFMC will be able to walk into any newly developed market and always undercut an NWT operator.**

Unfortunately, simply pulling out of FFMC is not a viable option for the NWT. The current production from Great Slave Lake and the rest of the NWT is the most expensive and lowest quality of fish to arrive at the FFMC plant in Winnipeg. The species are for the most part ones which are either losers or just break even. (the exceptions are pike and walleye which make money) If NWT pull out they will essentially be doing FFMC a favor, by reducing their costs and their obligations on species that they regard as difficult such as whitefish.

At the same time, a new NWT sales entity will be in direct competition with **the leaner but still** immense and fully funded FFMC.

There are three potential strategies to avoid thisrisk:

1) Establish a sub-agency agreement with FFMC, which would allow protection within the corporation against competition from outside the Territories, for new products developed within the Territories.

2) Leave FFMC, but with a long term non-competition agreement that would prevent FFMC from directly competing on new products subsequently developed in the NWT, by a new NWT entity.

3) Find a marketable feature of the NWT product, whether in the raw material or process, that is uniquely and exclusively available in the NWT.

If a new organization is formed within the NWT, a secure supply of raw material will be essential to develop and sustain any new markets. The technologies currently employed by Great Slave fishermen are not as efficient, effective, or economic as those employed elsewhere. Since further secondary processing is unlikely to bring higher prices to the fishermen (particularly in early stages of development), their income can only be stabilized or improved if they become more efficient as harvesters. Any new development must include rationalization of their output.

Secondary processing can of course generate considerably more employment beyond the harvesters, and this has merit in its own right. Whether undertaken in co-operation with FFMC, or under a wholly new and independent organization, the new products developed will bring certain risks. Generally speaking, large buyers such as "Long John Silver" will make commitments to buy at a particular price for relatively short time frame; often 3 months but seldom more than 6 months.

Once deciding on a new product, their Quality Assurance Department will set out very specific and rigid product specifications. The Product Sourcing Department will then issue a standing order to brokers and suppliers. If the rigid specifications are met, the order inevitably goes to supplier who can provide the product according to the required schedule, at the required locations, and most importantly, at the lowest price.

Long John's specification for whitefish fillets is probably very precise as to shape, colour, weight, package, etc., but not as to species. This is because they are shopping for price, and will not care if the species is Argentine whiting, Korean pollock, or lake whitefish from Great Slave lake, provided that the specs are met and the product is delivered per schedule.

A strategy to marry a marketer more firmly to your product would involve forming a **joint venture with the marketing organization. If the producers and end marketers are committed by mutual investment in a project, the marketer, be it MacDonald's, Red Lobster, or Long John Silver, will see themselves as vertically integrated and more firmly committed.**

This will require an actual investment by the marketing organization in the new production facility, but they must in turn be able to see a future benefit that will exceed simply buying on the open market. That would imply that the greater profits would in large measure be returned to the investing marketers, rather than back to the fishermen. This may present a political risk with the fishermen, who are accustom to having any access profits returned to them by FFMC. As such, their protests could introduce a potential raw material supply risk to the new processing facility.

The risk of not getting an investment commitment from the marketers can be demonstrated with a case involving the Ontario Trout Producers and Loblaws. The super market chain placed an order form product packaged in an inert gas to improve shelf life. The equipment to do this process was extremely expensive, but the investment was made by the Trout Producers. Unfortunately, Loblaws cancelled the order after only three weeks, leaving the Trout Producers with an expensive production facility and no market.

On the other hand, the co-operation found on Lake Erie, between the harvesters, processors, the market place and indeed the regulators, appears to have created a series of on going enterprises that are mutually satisfactory. Some have actually gone futher afield into joint-ventures outside of the Lake Erie fishery. For example, "McLean Brothers Fisheries" of Wheatley have begun a joint venture in Polland. Recognizing that this Eastern Block country had a significant, and unutilized resource in fresh water perch, they approached local authorities to exploit the resource and develop a new fishery. A new firm has now been established, with McLean brothers providing expertise on harvest, production, and marketing. A new company has been established to service European Markets, particularly in Switzerland, and may actually begin to import freshwater species into North America.

In order to directly follow up with the potential marketing partners mentioned in the recommendations the key personnel are as follows:

Long John Silver
101 Jerrico Dr. **phone: 606-2636000**
Lexington Kentucky **fax: 60&263 6145**
40579
George Souza **V.P. Seafood Sourcing**
Bonnie Mays **Director of Quality Control**

Gorton's (parent of Bluewater Seafoods & Red Lobster)
88 Rogers St. **phone: 508-2833000**
Gloucester Mass.
01930
Mike Slinkard **Director of New Product Development**

Macdonald's Restaurants of Canada Ltd.
Macdonald's Place **Phone: 416-4431000**
Toronto Ont. **Fax: 416-4463406**
M3C3L4
Michel Schultz **Special Projects Manager**

McLean Brothers Fisheries Inc.
20 Erie St. South Phone: 519-8257160
Wheatley Ontario Fax: 519-8257650
NOP2P0
Douglas Franklin President

RECOMMENDATIONS

1. **Co-ordination, and co-operation between the resource managers, regulators, harvesters, and processors must be improved. This would probably include the introduction of ITQ's so that the fishermen would not be competing directly with one another. It is vital that all these players understand and cater to each others needs if supply is to be matched to demand, and the opportunities in the market place are to be maximized. NWT whitefish production represents less than 10% of the currently harvested North American resource. In other species their share is even smaller. The competition doesn't and shouldn't come from one another.**

2. Existing harvest technologies including boats and gear should be evaluated to ensure that it is producing the optimum quality of fish at an efficient and competitive cost. Programs for this type of research that directly involves the fishermen is available through DFO.

3. Both onboard and onshore handling procedures should be reviewed, and experiments in various techniques should be tested to find the best procedures for each species and the target market for that species.

4. Closely study the features of the sub-species of fish from Great Slave Lake, particularly the whitefish, to identify features that might distinguish this fish from fish from other areas, and be used to enhance marketability. Those features might not only be genetic, but may relate to cooking features, water quality, harvest technique or others. While the product, being caught in the NWT is unique in that respect, this is insufficient distinction to gain a sustainable market advantage.

5. Encourage, and perhaps insist that FFMC undertake primary processing closer to the harvest location. They will almost certainly argue that this has been tried before, and operations are too expensive, trained persomel are unavailable etc. On the other hand, the NWT production is having a second rate reputation thrust on it by the present handling system. If inferior quality whitefish is presently being dumped at a loss by FFMC, it can be argued that the loss has at least as much to do with quality as quantity. In all likelyhood enhanced quality out of Great Slave Lake production could generate prices that would offset any additional production costs, if any.

It would probably be worthwhile to compare all operating costs in Hay River with those of other fish production centers such as Winnipeg, Wheatly, Montreal, Canso, Lunenburg, and St. Johns. This comparison should include such elements as minimum wage and labor costs, serviced land cost, power cost , heating, taxes etc. In all likelyhood of course the NWT costs will be higher. But with the these elements separated and quantified, subsidy or relief such as municipal tax concessions or power company rebates can be tied more closely and legitimately to actual processing jobs created.

6. Work with FFMC to enhance the image of whitefish as an attractive and special product, rather than simply a cheap commodity, subject to dumping. Whitefish is part of the salmon family, and has many attractive features and existing markets that can be built upon. For example, the smoked whitefish is currently directed only at the Jewish ethnic market. The whole fish is distributed , with the bone in by Kosher outlets such as delicatessen. With changed packaging or product form such as boneless pre sliced and vacuum packed, wider distribution and sale could almost certainly be found.

7. If a commitment to secure supply, quality, and price can be affirmed, there are several types of joint venture opportunities possible. Macleans Fisheries in Wheatley have done a joint venture in Poland with perch production and are looking at pike. They could be interested in the same type of joint venture in NWT

Blue water also expressed interest in looking at a jointventure if quality and supply can be assured. Their inter-relationships with other companies might make them a very good partner with another market oriented partner.

As indicated, Bluewater presently produce the fillet-o-fish for MacDonald's. This product is produced only of cod, and has a minimum fish component of 75% as opposed to the 66% allowed in competing products. It is therefore an expensive item, but at the same time it is a very flat market with no apparent room for growth. This is in part because, although fish is generally a very healthy food for the cardiovascular system, the fillet-o-fish as a deep fried product has the highest saturated fat content of any MacDonald's sandwich.

A new fish product which could address the health problem, attract attention because of a Northern relationship, and be produced to a reliable quality standard by Bluewater participation, might benefit from the market exposure that a firm such as MacDonald's could bring to it. Both Red Lobster and Loblaws are also effective marketers, but any of these potential colleagues must first be assured of supply, quality and to a lesser, but none the less important extent about price.

Appendix #1
Study Contacts

Study Contacts

Producers and Harvesters:

- **Les Fruit de Mer Imperial Inc.**
  St Hyacinthe, Quebec

- **Aberfoyle Fisheries Limited**
  Guelph, Ontario

- **Ontario Trout Producers Co-operative Ltd.**
  Guelph, Ontario

- **Lakeshore Fisheries**
  Port Dover, Ontario

- **Erieau Packers Limited**
  Erieau, Ontario

- **McLean Brothers Fisheries Inc.**
  Wheatley Ontario

Secondary Producers of Breaded Products:

- **Blue Water Seafoods**
  Lachine, Quebec

- **Janes Family Foods Ltd.**
  Concord, Ontario

- **Olmsteads Foods Limited**
  Wheatley, Ontario

Other Producers and Distributors:

- **Le Grand and Malo**
  La Harve, France

- **Pioneer Live Shrimp**
  Chicago, Illonois

- **B. Manichewitz Inc.**
  Jersey City, N.J.

- I. Rokeach & Sons Inc.
  Englewood, N.J.

- Sam Aikens Fisheries
  Blenhiem, Ontario

- Salasneck Fisheries Inc.
  Detroit Michigan

Other Contacts:

Great Lakes Fish Producers Coop
Garden Michigan

Frank Prothero
Editor, Great Lakes Fisherman Magazine
Port Stanley Ontario

- Bob Rehill
  Ontario Ministry of Natural Resources

Dave Iredale
Freshwater Institute

Catherine Horan
Canadian Center for Fisheries Inovation

Appendix # 2

Product and Price list of FFMC

FRESHWATER ml MARKETING CORPORATION
CANADIAN PRICE LIST

'MID-SUMMER SEASON' PRICES
Effective: August 1, 1982

WE

	Size Range Pounds	(Grams)	Pock	Ex Local stock	Delivered Customer Stg. 4400-9999	10000-19999	20000-UP
afish Dressed Medium	10s-3.0 lbs	(680-1361)	7$ lbs.	1.80	1,s0	$*SS	1.50
afish Fillet I.Q.F.	6/8,8/10,10/12 oz.	(110-22?, 227-284) (204 "340)	4/5 kg.	2.9s	2.1s	2.70	2.66
erel/Dore I.Q.F. Fillets	Under 202,	(20-s2)	41s k9.	4.20	4,10	4.00	3,90
erel/Dore I.Q.F. Fillets	2/4 Ot.	(57-113)	41S kg.	$.25	5.05	4.95	4.85
erel/Dore I.Q.F. Fillets	4/6 oz.	(113-170)	4/$ kg.	6.35	6.15	6.05	5.95
erel/Dore I.Q.F. Fillets	6/8, 8/10 oz.	(170-227,227-284)	4/5 kg.	6.35	6.15	6.05	5.95
erel/Dore I.Q.F. Fillets	10/12 oz.	(284-340)	4/5 kg.	6.35	6.15	6.05	5.$s
erel/Dore I.Q.F. Fillets	12/14 oz.	(340-397)	4/5 kg	5.40	5.20	5.10	5.00
LESS AVAILABLE, ADD $.50 TO ABOVE PRICING							
y Pickerel/Dore Fillets	Under 1 1/2 oz	120+5)	4/5 kg.	4.20	4.10	4,00	3.90
y Pickerel/Dore Fillets	4/6 oz.	(113-170)	4/$ kg.	6.3s	6.15	6.05	5.95
y Pickerel/Dore Fillets	6/8, 8/10 010	(170-227,227-284)	4/$ kg.	6.35	6.15	6.05	5.9s
e Trout Dressed	2-4 lbs	{)0?= 1014)	15 tbs.	1.40	1.29	1.15	L10
e Trout Dressed	4-8 lbs	(1814-3629)	75 lbs.	1.60	1,40	1.3s	1.30
ike Fillet Blocks $/L	3/22		66 lbs.	2.7s	2.55	2.45	2.3$
thers Pike Fillets I.Q.F. $/L	5/20 oz.	(142-567)	4/$ k9.	?.0s	" " 2.8s	2.?s	2*U

RICE REVISION
= 11 lbs net
ew Item

continued on other side

FRESHWATER FISH MARKETING CORPORATION
1199 Plessis Road
Winnipeg, Manitoba, Canada R2C 3L4

OFFICE DE COMMERCIALISATION DU POISSON D'EAU DOUCE
1199 chemin Plessis
Winnipeg, Manitoba, Canada R2C 3L4

Telephone (204)983-6600 • Fax (204)983-6497 • TX 07-57169

Canada

"SUMMER SEASON" PRESS
Effective: JUNE 1, 1992

CANADIAN mu LIST

EDGO SERVICE

Product	Size Range Pounds	(Grams)	Pack	Ex Local	Delivered Customer Stg. stub 4000-9ss9	10000-19999	20000-UP
* Arctic Char Dressed	2-4 lbs.	(908-1814)		2010	1.9s	1.00 ,	1.75
* Arctic Char Dressed	4-7 lbs.	(1814-3175)	75 lbs.	3.25	3.05	3.00	2.95
* Arctic Char Dressed	7"10 lbs.	(3178-4536)	75 lbs.	2.90	2.10	2.65	2.60
* Arctic Char Dressed	10-12 lbs.	(4536-5443)		2.s0	2,70	2.8s	2.60
Tullibee Dressed Medium	.75-1.5 lbs.	(340-680) "	75 lbs.	1.10	.90	.0s	.00
Tullibee Dressed Large	M lbs. - up	(680 ● I	75 lbs.	L20	1.00	.95	.90
Inconnu Headless	Random		75 lbs.	2.10	1.90	Los	Loo
Goldeye Dressed Small	lo/12 oz.	(226-340)	75 lbs.	1.35	1.15 ,	1.10 ,	1.05
Goldeye Dressed Medium	12/16 oz.	" (340-4s4)	1S lbs.	2.60	2.40	2.2s	2.30
Goldeye Dressed Large	16 oz.-up	(454 +)	75 lbs.	Los	2*6C	"," 2.20"	2.5s
Carp Headless	Random		1S lbs.	.95	.75	.70	.65
Mullet Headless	Random		75 lbs.	,00	JO	.55	.50

RETAIL PACKS

Whitefish PanReady - Polybag	1-3 lb.	(454-1361)	25 lbs.	2.30	2.1o	2,0s	2.00
Whitefish Dressed - Polybag	1.5-3 lb.	(680-1361)	2s lbs.	1.30	1.10	"1.0s	1.00
Lake Trout Drsd - Polybag	2-4 lb.	(907-1814)	25 lbs.	1.60	1.40	1.35	1.30

VACUUM PACKED

Pickerel/Dore Cheeks	1 lb. Erect wt. (454)		4/6 kg.	9.00	0.00	8.70	8.60

* PRICE REVISION
5 kg. = 11 lbs. net
N = new item

TERMS: "met 31 days
-All delivered customer's storage orders subject to F.F.M.C.'s confirmation
-Prices subject to change without notice
-Prices based on "weight shipped"
-This price list supercedes all others

Tel : 334-4750 Fax: 334-4385

Les Importations Cacheres HAHAMOVITCH Kosher Imports INC.

Montreal, Quebec

6600 Boul. Thimens H4S 1B5

P R I C E L I S T

All prices are F.O.B. our warehouse

AN	KOSHER PRODUCTS	UPC code 12700	Pack per Case	Price per Case	Price per Unit	Suggested Consumer Price
s me Egg W o s	d Matzos) n Matzos) nion Matzos) nat Matzos)	0001a 00047 00049 00035	24/275g	1. 50	91.604	$2.09
Ma o	Meal	00026	24/300g	29. S0	1.229	1.59
Ma	ariel	00027	24/340g	32, !50	1,354	1.75
a	Starch	00013	24/340g	42.00	1.75	2.27
M	Meal - Bulk		25 lbs.	27.00	1.08	
a N	m Cracker) Tam Tams) ama) Tams) amn) nat matzo cracker) tzo Crackers)	00022 00043 00042 00020 00018 00021 00019	24/225g	18.50	1.604	2,09
e e	Fish jelled) " liquid) nfilte Fish)	10100 10101 10105	12/340g	29.50	2.45U	3,19
s	s)	10098				
e Swee	e Fish jelled) " liquid) pfilte Fish)	10079 10080 10081	12/680g	51.00	4,25	5,$2
s	s)	10078				
W e	sh & Pike jelled) " " liquid)	10102 10103	12/340g	30.50	2*541	3,30
Wh e	sh & Pike jelled) " " liquid)	10082 *10003*	12/680g	52.00	4,333	5.63
h e Low	)) Borscht) Borscht.)	101G5 10167 10166	12/320m	19.00	1,583	2.05
Scha		10163	12/320z	21.00	1,75	2.27

MANISCHEWITZ PRODUCTS	UPC code 72100	Pack per case	Price per case	Price per unit	Sugg Consu price
Matzo Ball soup in jar a	10181	12/680g	$25.00	$2,083	$2.7C
Matzo Balls in broth	10180	12/680g	29. 50	2.456	3, 19
Chicken Soup Clear)	10111	24/284ml	26.00	1.003	1. 4c
" " w/matzo balls)	10114				
Mushroom & Barley soup)	10144				
Vegetarian vegetable)	10140	24/297g	26.00	1.083	1.4C
Green Split Pea)	10145				
Tomato)	10146				
Tomato Mushroom Sauce)	00151	24/312g	29.50	1.229 "	1.5$
Kasha & Gravy)	10150	24/297g			
Matzo "Ball Mix)	00007	24/125g	32.50	1.354	1.7:
Matzo Ball & soup mix)	00011				
Baki t.	00068	24/85g	25.00	1.041	1.3:
Potato Pancake Mix	00057	24/85g	24,00	1,00	1●25
" " "	00064	24/170g	30.00	1.583	2,05
Potato Kugel	00012	24/170g	30,00	2●50	3.25
Some Stuff	00078	12/170g	25.00	2.083	2.7[
Soup Mandlen	10217	24/28g	21,00	,0 "/5	1.1⁴
" "	10218	24/49g	29.50	1.229	1,5:
Fine Noodles)	10401				
Medium ")	10404	12/340g	15.60	1.39	1.69
Broad ")	10405				
Egg Noodle Soup Mix foil)	10187	48/63g			
Kasha Soup Mix foil)	10189	48/63g	26.00	.541	. 7C
Onion " " ")	10186	48/42g			
Vegetable Soup mix w/mushrooms)	10200				
Split Pea " " w/seasoning)	10201				
" " " " w/barley)	10202	24/170g	18,50	,77	1.0(
Lima Bean " " w/barley)	10203				
Minestrone " ")	10204				
Bows w/vegetables)	10873				
Noodles w/ ")	10863	24/113g	24,00	1.00	1.2[
Alphabets w/ ")	10883				
OSEM OF ISRAEL	77544				
Orange Tea Biscuits)	10160				
Chocolate Tea biscuits)	10120	72/150g	36.00	*50	.6:
Plain Tea biscuits)	10110				
Petit Beurre	10920	24/150g	16,50	.6875	.8[
Chocolate Petit Beurre	10600	24/250g	22. (')0	.916	1.15
Marie	12920	24/200g	18.25	.76	.95
Bunny Wheat Crackers w/bran)	13740				
" " " no salt no sugar)	13960	24/200g	18. 25	,76	,95
" " " regular)	13840				
Cream Crackers	11100	24/250g	26.00	1.083	1.4C

Appendix #4

Product and Price list of Companies Producing Breaded Fish Products

1. Blue Water Seafoods
2. Janes Family Foods LtcL
3. Omstead Foods Limited

BLUE WATER SEAFOODS

1600 Norman Crescent, Lachine, Que H8T 3N1 Telephone: (514) 637-1171 - Fax: (514) 637-5250

Code	Product Description	Pack
	FISH STICKS	
1019-92	Minced Cod Fish Sticks	12/200 g
1021-92	Haddock Fish Sticks	12/250 g
1023-92	Cod Fish Sticks	12/250 g
1012-92	Haddock Fish Sticks	12/350 g
1018-92	Sole Fish Sticks	12/350 g
1019-92	Boston Bluefish Sticks	12/350 g
1051-92	Boston Bluefish Sticks	12/700 g
1050-92	Cod Fish Sticks	12/350 g
	JUMBO FISH STICKS	
1070-92	Haddock Jumbo Fish Sticks	2/300 g
1072-92	Cod Jumbo Fish Sticks	2/300 g
1074-92	Sole Jumbo Fish Sticks	2/300 g
	FISH FRIES	
1504-92	Minced Cod Fish Fries	12/200 g
1506-92	Boston Bluefish Fries	12/GLI(l g
1507-92	Boston Bluefish Fries	12/227 g
1508-92	Haddock Fish Fries	12/227 g
	LIGHT RECIPE TEMPURA BATTER	
1510-92	Fish in Light Tempura Batter	12/700 g
1536-92	Sole in Light Tempura Batter	12/350 g
1566-92	Haddock in Light Tempura Batter	12/350 g
1577-92	Boston Bluefish in Light Tempura Batter	12/350 g
1599-92	Cod in Light Tempura Batter	12/350 g
	KNIFE & FORKED PORTIONS	
1092-92	Haddock Fish Strips	12/227 g
1094-92	Boston Bluefish Strips	12/227 g
1096-92	Boston Bluefish Strips	12/680 g
	FISH & CHIPS	
1541-92	Minced Cod Fish & Chips	12/40(.) g
1551-92	Haddock Fish & Chips	12/400 g
1583-92	Boston Bluefish & Chips	12/75(1 g

Code	Product Description	Packs
	SPECIALTIES	
1061-92	Fish cakes	12/200 g
1125-92	Sole in Lemon Butter	12/170 g
	DINNER	
1111-92	Haddock Fish & Chips	12/283 g
	SNACKS	
1562-92	Ocean Snacks Italienne	12/227 g
1568-92	Ocean Light Bites	12/227 g
1572-92	Ocean Snacks Haddock w/Shrimp Stuffing	12/227 g
1580-92	Crunchy Fried Clams	12/227 g
1571	Popcorn Shrimp	227 g.
	MICROWAVE	
1535-92	Breaded Shrimp	12/142 g
1538-92	Breaded Scallops	12/142 g
1542-92	Large Cut Fish Fillets - Ranch Flavour	12/250 g
1544-92	MI crowave Crunchy Fish Sticks	12/250 g
1547/92	Microwave Crunchy Fish Fillets	12/200 g

BLUE WATER #3 SEAFOODS
1600 Brunswick Crescent, Lachine, Que. H8T 2N1 · Telephone: (514) 637-1171 · Fax: (514) 637-5250

Code	Product Description	Por./cs	Por. Size ounce	Por. Size gram	Net Weight/cs lb	Net Weight/cs kg
	BATTER PRODUCTS					
202s	Minced Cod	80	--	50.()	8*8	4.00
2031	Minced Boston Bluefish	80	--	50.0	8.8	4.00
2068	Boston Bluefish	80	--	50.()	8.8	4.0()
2081	Cod	80	--	50.()	8.8	4.00
2085	Haddock	80	--	500."	8.8	4.0()
2087	Haddock	40	--	100.0	8.8	4,00
2095	Natural Fillet in Batter	--	2 1	—	11.0	5,0()
	BREADED PRODUCTS					
2083	Fish Cakes	1(M)	--	50.0	11.0	5,0()
*2089	Fish Cakes	27	--	50.0	2,98	1,35
2163	Minced Cod Fish Sticks	2(HI	--	25,()	11.0	5.00"
2167	Minced Boston Bluefish Sticks	2(H)	--	25,0	11s)	5.00
2206	Haddock Regular Cut	36	4.0	114.0	9.()	4008
2215	Natural Sole Fillet	--	4.0	--	8,8	4.00
2260	Burger Portions - Cod	64	--	62.5	8.8	4.0()
2531	Custom Cut Cod	48	4.0	114.0	12.0	5,49
	SNACKS & STUFFED PRODUCTS					
2040	Scallops Batter Fry	--	--	105ct/kg**	4.4	2.00
2043	Ocean Light Bites	--	--	55ct/kg**	4A	2s)()
2045	Shrimp Batter Fry	--	--	67ct/kg*.	4.4	2.0()
2047	Ocean Snacks	--	--	105ct/kg**	4.4	2.00
2996	Haddock w/Crab Stuffing	24	4.0	114.0	6.0	2,72
2997	Sole w/Crab Stuffing	24	4.0	114.0	6.0	
	PRE-COOKED PRODUCTS					
2420	Minced Cod Batter Portion	100	--	50,()	11,0	5,0()
2430	Minced Cod Burger Portion	80	--	62.5	11.0	5.00
2438	Fish Nuggets	--	--	30ct/kg**	4.4	2.00
2444	Natural Fish Fillets	--	2 3	--	11.0	5.00
2451	Breaded Shrimp	--	--	90ct/kg**	4.4	2.00

* Case sale program

** ct/kg is approximate

JANES

FAMILY FOODS LTD.

PRICE LIST - ONTARIO

EFF: FEBRUARY 1, 1992
REP: MAY 15, 1991

CODE	DESCRIPTION	PORTION	PACK	PRICE/CASE
	"J&J GOURMET" BRAND BATTERED NATURAL FILLETS - DEEP FRY			
2222s	Haddock Fillets	2-4oz	10lb	$40.00
22104	Haddock Fillets	4-5oz	10lb	$42.00
2322s	Cod Fillets	2-4oz	10lb	$31.00
23045	Cod Fillets	4-5oz	10lb	$31.00
24104	Alaska Pollock Fillets	4oz	10lb	Disc.
26225	Blue Whiting Fillets	2-4oz	10lb	$27.00
26104	Blue Whiting Fillets	4-5oz	10lb	$27.00
	"J&J" BRAND BATTERED FISH PORTIONS - DEEP FRY			
22020	Haddock, Wedge Cut	2oz	10lb	$33.00
22040	Haddock, Square Cut	4oz	10lb	$33.00
22044	Haddock, Filet Cut	4oz	10lb	$33.50
23020	Cod, Wedge Cut	2oz	10lb	$27.50
23030	Cod, Diamond Cut	2oz	10lb	Disc.
23040	Cod, Square Cut	4oz	10lb	$27.50
23044	Cod, Fillet Cut	4oz	10lb	$28.00
23058	Cod (Minced) Wedge Cut	2oz	10lb	$16.00
24020	Boston Bluefish, Wedge Cut	2oz	10lb	$22.00
24618	Fish Nuggets (Pollock)	1/4-1/6ct	10lb	Disc.
26040	Halibut, Square Cut	4oz	10lb	$45.00

Disc. - Discontinued

2160 No. 7 Highway, Carnival, Ont. L4K1W6 - Tel. (416) 669 1648 Fax (416) 669 6027

The specialists in homestyle coated foods

[illegible] ONTARIO

EFF: FEBRUARY 4, 1991
REP: MAY 15, 1991

CODE	DESCRIPTION	PORTION	PACK	PRICE/CASE
	"J&J" BRAND RAW BREADED FISH - DEEP FRY			
22441	Haddock	48/4oz	12lb	$51.50
23441	Cod	48/4oz	12lb	Disc.
23541	Cod (Minced)	48/4oz	12lb	$21.60
23888	Admiral Burger (Cod)	48/2.25oz	6.3lb	Disc.
25s01	Sole Fillets	4oz	10lb	T.O.S.
25s05	Sole Fillets	5oz	10lb	T.O.S.
25502	Sole Fillet - Splits	2-3oz	10lb	$28.50
25654	Sole Fillets "J&J Gourmet" Brand	4oz	10lb	Disc.
25655	Sole Fillets "J&J Gourmet" Brand	5oz	10lb	Disc.
	"JANES FAMILY FAVOURITES" BRAND BREADED & BROWNED FISH FILLETS OVEN HEAT			
22900	Genuine Scottish Haddock	3-5oz	10lb	$41.00
23950	Fillet of Cod	3-5oz	10lb	$32.00
24622	Tender Fish Nuggets (Pollock or Whiting)	14-18ct	10lb	$29.00
24900	Fillet of Fish (Pollock or Whiting)	3-5oz	10lb	$29.00
25900	Fillet of Sole	3-4oz	10lb	$38.00
26300	New Zealand Orange Roughy	3-5oz	10lb	$41.00 N
	"CRISP & DELICIOUS" BRAND BREADED & BROWNED FISH PORTIONS OVEN HEAT			
22321	Haddock Fillets, Wedge Cut	2oz	10lb	$33.50
23322	Cod Fillets, Wedge Cut	2oz	10lb	Disc.
23352	Fish (minced fillets), Wedge Cut	2oz	10lb	$16.50
23511	Cod Sticks	1oz	10lb	$33.00
23771	Fish Sticks (minced fillets)	1oz	10lb	$18.00
23775	Fish Sticks (minced fillets)	1oz	5lb	Disc.
24323	Fish Fillets (Pollock or Whiting)	2oz	10lb	$22.50
24s11	Boston Bluefish Sticks	1oz	10lb	$22.00
24889	Admiral Burger (Pollock or Whiting)	2.25oz	6.3lb	$17.35
25320	Sole Fillets, Wedge Cut	2oz	10lb	$27.00
27520	Fish Cakes	2oz	10lb	$11.00

Disc. - Discontinued T.O.S. - Temporarily out of stock N - New Product

PRICE LIST - ONTARIO

EFF: FEBRUARY 1, 1992
REP: MAY 15, 1991

CODE	DESCRIPTION	PORTION	PACK	PRICE/CASE
	"J&J" BRAND BREADED/BATTERED SHELLFISH - DEEP FRY			
28065	Shrimp, Battered	26-34ct	5lb	$26.00
29066	Scallops, Battered	30-40ct	5lb	$21.75
29090	Scallops, Raw Breaded	22-28ct	5lb	Disc.
2W10	Scallops, Raw Breaded	30-40ct	5lb	$27.50
29505	Oysters, Raw Breaded	12-16ct	5lb	$18.50
	"JANIS FAMILY FAVOURITES" BRAND BREADED & BROWNED SHELLFISH OVEN HEAT			
28705	Black Tiger Shrimp	26-30ct	5lb	$26.00
28710	Crunchy Shrimp	26-30ct	10lb	Disc
29525	Natural Whole Oysters	12-16ct	5lb	$18.50
29510	Crunchy Oysters	12-16ct	10lb	Disc.
2970S	Natural Whole Scallops	18-24ct	5lb	$34.00
29710	Crunchy Scallops	18-24ct	10lb	Disc.
	"GOLDEN GATE" BRAND BREADED & BROWNED CHICKEN - DEEP FRY			
11204	Chicken Breast Strips (natural breast tenderloins)	12-14ct	4kg	$33.00
12604	Chicken Breast Burgers (all white meat)	90gr	4kg	$28.00
12704	Chicken Breast Nuggets (all white meat)	18-22ct	4kg	$26.50
	"JANIS FAMILY FAVOURITES" BRAND BREADED & BROWNED CHICKEN OVEN HEAT			
11404	Chicken Breast Fillets (natural breast tenderloins)	10-15ct	4kg	$34.50
12645	Chicken Breast Burgers (all white meat)	90gr	4kg	$28.00
12745	Chicken Breast Nuggets (all white meat)	18-22ct	4kg	$26.50
	"J&J GOURMET" BRAND IQF RAW SEASONED CHICKEN			
70s00	Breasts, Skinless, Boneless	Random	8/3lb	
70501	Breasts, Skinless, Boneless	Random	4kg	PRICES
70s03	Breasts, Skinless, Boneless	3oz	4kg	QUOTED
70s04	Breasts, Skinless, Boneless	4oz	4kg	WEEKLY
70sos	Breasts, Skinless, Boneless	5oz	4kg	
70506	Breasts, Skinless, Boneless	6oz	4kg	
70507	Breasts, Skinless, Boneless	7oz	4kg	
70508"	Breasts, Skinless, Boneless	8oz	4kg	
72104	Wings	Random	4kg	

Disc. - Discontinued T.O.S. - Temporarily out of stock

FOR FAVOURITES IN A FAMILY

JANES

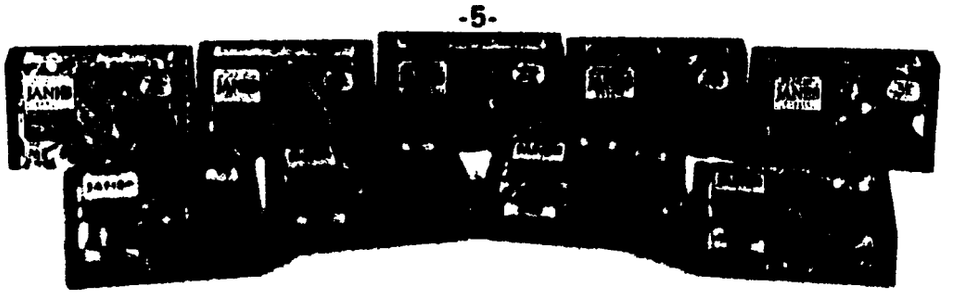
FAMILY FAVOURITES

EFF: FEBRUARY 1, 1993
REP: NOVEMBER 1, 1991

PRICE LIST - ONTARIO

"Janes Family Favourites" Retail Box

Product Code	Product Description	Pack	Pricing per case
22912	Genuine Scottish Haddock Breaded b browned	W21b	$62000
25912	Filet Of Sole Breaded b browned	W21b	52,00
26312	New Zealand Orange' Roughy Breaded b browned	6/2lb	62.00
28712	Black Tiger Shrimp Breaded & browned	6/2lb	72,80
11412	Chicken Breast Fillets Breaded & browned	6/2lb	47050
13012	Chicken & Chips Breaded fillets & french fries	6/2lb	32.00
12712	Chicken Breast Nuggets Breaded & browned	6/2lb	38,00
71012	Boneless Chicken Breasts Skinless	6/2lb	57.00
72112	Cooked Chicken Wings Honey & Hickory Flavour	6/2lb	46,00
22924	Genuine Scottish Haddock Breaded & browned	6/3lb	124,00
26924	Filet of Sole Breaded & browned	6/3lb	104*00



WHITEAD W LIMITED

RETAIL FOOD OUTLET PRICELIST

HOURS: MONDAY - SATURDAY 8:30 - 5:00
SUNDAY 11:00 - 5:00
(NOTE: CLOSED SUNDAYS BETWEEN NEW YEAR'S AND EASTER)

PHONE: 825-4203

*** ALL PRICES SUBJECT TO CHANGE WITHOUT NOTICE ***

BATTERED FISH AND SEAFOOD

Battered Yellow Perch	$ 150 55/2#
Battered Cod	70 40/2#
Battered Haddock	8, 85/2#
Battered Smelt	40 30/2#
Battered Shrimp	7,45/LB.
Battered Scallops	8.20/LB.

BATTERED VEGETABLES

Onion Rings	$ 3.15/2#
Onion Chips	2.85/2#
Mushrooms	5.10/2#
Cauliflower	3.90/2#
Cheese Flavoured Cauliflower	30 90/2 #
Zucchini Sticks or Slices	3.65/2#
Mixed Vegetables	4.00/2#
Broccoli	3.55/2#

FRENCH FRIES

3/8" Straight Cut	$ 3,50/5#
1/2" Crinkle Cut	3.50/5#
Dollar Chips	3.75/5#
Country Cuts	3050/5#
Shoestrings	3.60/4#
Prime Cuts	4.25/5#
Hashbrown Patties	2,50/3$
Diced Hashbrowns	3.50/5#
Spicy Potato Mix	2.45/2#
Spicy Potato Wedges	2,45/2#

BATTERED CHEESES

Mozzarella Cheese Sticks	$ 9, 60/2#
Cheddar Cheese Cubes	9.60/2#
Broccoli Cheesekrisps	6.25/2#

CONTINUED. 0000000, . .

SEAFOODS

King Crab Legs	$19.75/LB.
Lobster Tails	22.00/LB.
Peeled and Deveined Medium Shrimp (36-40/#)	17.00/2# BAG
Shell-on Medium Shrimp (36-40/#)	12.25/2# BAG
Peeled and Deveined Jumbo Shrimp (26-30/#)	29.95/3# BAG
Shell-on Jumbo Shrimp (26-30/#)	34.00/5# BAG
"CAMPECHE" Jumbo Shrimp (26-30/#)	42.00/3# BAG
Scallops	9.50/LB.
Orange Roughy	5.85/LB.

FROZEN FISH (without batter*** Individually Frozen)

Yellow Perch Fillets	$ 7.75/LB.
Pickerel Fillets	7.00/LB.
White Perch Fillets	2.85/LB.
Skinless White Perch Fillets	3.50/LB.
Dressed Smelt	2.20/LB.
Round Smelt	1.95/2# BAG

FROZEN FRUITS

Apples	$ 4.95/4.41b. BAG
Wild Blueberries	10.30/4.41b. BAG
Cherries	6.25/4.41b. BAG
Melon Balls	2000/LB.
Mixed Fruit	7.00/4.41b. BAG
Peaches	7.10/4.41b. BAG
Pineapple	9.90/5 lb, BAQ
Raspberries	6.00/2.21b. BAG
Raspberries Crumble	3.95/2.21b. BAG
Rhubarb	3,75/4,41b. BAG
Strawberries	6.75/4.41b. BAG

VEGETABLE BLENDS

3 or 4 Bean Salad	$ 3.90/4.41b. BAG
Pasta Salad	4.95/4.41b. BAG
Regular Mixed Vegetables	3.25/4.41b. FtAG
Scandinavian Blend	3.85/4.41b. BAG
Garden Blend	4.70/4.41b. BAG
Winter Mix	4.95/4.41b. BAG
Italian Blend	4.35/4.41b. BAG
Oriental Blend	6.00/4.41b. J3AG
Country Style Soup Mix	3020/4041b, BAG
Peas and Carrots	3.10/4.41b. BAG
Vegetable Saute Blend	3.75/4.41b. BAG
Mexicali Blend	4.95/4.41b. BAG
Italiano Blend	4.95/4.41b. BAG

CONTINUED, 00,, , •, •• .,

VEGETABLES

Asparagus Cuts	$11.65/4.41b. BAG
Lima Beans	5.30/4.41b. BAG
Italian Green Beans	4.30/4.41b. BAG
Regular Cut Green Beans	3.60/4.41b. BAG
Wax Beans	4.20/4.41b. BAG
French Cut Green Beans	4.60/4.41b. BAG
Broccoli Cuts	5.35/4.41b. BAG
Broccoli Spears	3.75/2 lb. BLOCK
Baby Brussel Sprouts	4.90/4.41b. BAG
Diced Carrots	2.25/4.41b. BAG
Sliced Carrots or Carrot Sticks	2.40/4.41b. BAG
Petite Carrots	5.80/4.41b. BAG
Cauliflower	5.00/4.41b. BAG
Celery Diced or Sliced	3.15/4.41b. BAG
Corn	4.20/4.41b. BAG
Peppers - Green - Diced	4.05/4.41b. BAG
Peppers - Red - Diced	5.35/4.41b. BAG
Mushrooms - Sliced or Baby Whole	5050/2 LB. BAG
Onions - Diced or Pieces	3.15/4.41b. BAG
Parsnips	2.90/4.41b. BAG
Peas - Baby	4.50/4 o41bo t3AG
Peas - Petite	4090/4 .41bO BAC3
Potatoes Diced Sliced - or Small Whole	2.40/4.41b. BAG'
Rutabaga	20 20/4 o41bo BAG
Spinach	2.95/2 LOO block
Squash	3.55/4.41b. BAG
Sugar Snap Peas	4,90/2 LB. BAG
Chinese Pea Pods	5.50/2LB. BAG
Water Chestnuts	5.05/2LB. BAG
Zucchini	4.75/4.41b. BAG

MEAT A! HOUUCTS

All Beef Hamburger Patties	$14.95/6 LB.
All Beef Jumbo Hotdogs	14.95/6 LB.
Sliced Canadian Back Bacon	4.79/ LB.
Smoked Mennonite Sausages	3.99/ LB.
Pepperettes	7.80/ LB.
Souvlaki (Pork Kabobs)	7.50/pkg of 5

CHICKEN PRODUCTS

Chicken Strips	$ 6.50/ LB.
Chicken Nuggets	5.40/ LB.
Chicken Breastwich	10.55/pkg. of 5
Chicken Burgers	4.50/pkg of 5
Chicken Wings	7.50/2.21b. BAG
Stuffed Chicken Breasts--Broccoli & Cheese	3.00 each
--Ham & Cheese	3.00 each
--Garlic & Butter	3.00 each

CONTINUED, 00000006 ...

MISCELLANEOUS PRODUCTS

Mini Panzerottis	$ .99 each
Pizza Fingers	2.75/pkg Of 5
"LITTLE CHARLIE'S " Mini Pizzas	1.50 reach
Meat Ravioli	7.25/2.21b. BAG
Cheese Tortellini	7.25/2.21b. BAG
Cinnamon Buns	3.00/pkg Of' 6
Pie Shells (unbaked)	2099/pkg *of* 2
2" Tart Shells (unbaked)	4 oOO/pkg of 40
3" Tart Shells (unbaked)	6.50/pkg Of 60
COOKIES (unbaked) ..... Chocolate Chip	7070/2 dozen
..... Hermit	7.70/2 dozen
..... Oatmeal & Raisin	7.70/2 dozen
COOKIES (baked) ..... Chocolate Chip/Pecan	3,60/dozen
..... Oatmeal & Raisin	3.60/dozen
PEROGIES (potato with cheddar cheese)	3.20/pkg of 18

SHOP AT SOMEHEAD RETAIL FOOD OUTLET
AND SAVE YOUR FAMILY THE REST !!

REVISED JULY 9, 1997.

Table 14. Total landed values of commercial harvests, by province, for the major Canadian freshwater fisheries, 1946 - 1983. Values in thousands of dollars. Data from: Canadian Fisheries - Annual Statistical Review.

Year	Ont.	Man.	Sask.	Alta.	NWT	Total
1945	6483	3418	882	742	112	12,138
1946	5597	3304	729	600	288	10,914
1947	4803	3477	484	449	143	9,689
1948	5683	3181	513	375	387	10,641
1949	5497	2821	521	342	549	10,212
1950	6252	3880	718	437	612	12,376
1951	7035	4263	910	544	535	13,855
1952	7407	3439	679	654	735	13,457
1953	7027	2717	553	667	471	12,114
1954	7013	3088	741	667	636	12,725
1955	6783	3477	763	687	742	13,124
1956	7927	2947	784	790	788	13,892
1957	7046	3279	939	854	721	13,471
1958	7217	3540	1091	879	682	14,024
1959	4866	3757	1190	1016	703	12,103
1960	4983	3867	1367	1159	700	12,765
1961	5745	3174	1385	883	675	12,450
1962	5341	4229	1478	714	860	13,346
1963	5498	4356	1300	676	796	13,297
1964	5222	3720	1490	799	833	12,715
1965	6402	4370	1734	677	977	14,972
1966	5995	4788	1706	844	765	14,853
1967	5988	2527	1163	758	775	11,831
1968	5968	3276	1382	915	759	12,957
1969	7389	3354	2294	935	1013	15,660
1970	6535	2151	2083	826	1087	13,237
1971	6948	2258	1839	413	960	13,132
1972	8119	4113	1641	469	839	15,840
1973	10,370	4928	1778	468	809	19,095
1974	9655	4871	1806	313	738	18,241
1975	11,052	5940	1791	423	677	20,944
1976	12,513	7062	2277	579	872	24,146
1977	14,555	10,231	3145	'729	1100	31,091
1978	17,161	12,830	2629	646	1541	32,959
1979	25,873	10,801	2663	797	15'76	43,234
1980	23,644	16,591	3794	1014	1793	48,352
1981	31,767	17,846	3262	899	1538	57,125
1982	36,788	15,508	2686	834	1674	58,847
1983	27,838	14,515	2762	788	1151	48,464

APPENDIX III

GREAT SLAVE LAKE FISHING FLEET

Table 15. An historical record of the Great Slave Lake summer fishing fleet including the numbers of fishing companies, fishing boats, and skiffs (in parentheses) which have operated since 1945. Data from Dep. of Fish. and Oceans MS and Data reports.

	McInnes	Menzies	Alaska	Gateway	Inland	Clark	Kutcher and Trefiak	Carter	Total Fleet
1945	20								20
1946	22								30
1947	18								22
1948	19	2							24
1949	21	17	6	4	7	8			66
1950	22	16	8	5		6			57
1951	21	12	9	10			9		62
1952	16	8	9	10			10		53
1953	12	9	?	?			7		40
1954	14	lo(3)	11(3)	6			9		51(6)
1955	15	lo(3)	14(3)	7			10	8	65(6)
1956	15	9(1)	13(2)	9			9	lo(l)	70(4)
1957	18(1)	lo(3)	15(3)	9			9	lo(2)	68(11;
1958	14	12(1)	lo(4)	5			9	7(2)	57(11;
1959	14	12(3)	16(2)				lo(2)	7(15)	59(22;
1960	14	lo(3)	13(7)				9(4)	7(15)	53(29:
1961		9(4)	14(6)				8(5)	5(10)	40(25)
1962		11(35)	13(19)				10(8)	5(15)	39(77;
1963		9(17)	15(16)				9(15)	7(11)	40(59)
1964									38(38:
1965			Data for private sector						39(31)
1966			involvement unavailable						39(55)
1967									31(40)
1968									31(23)
1969			After 1969 the FFMC was						29(25)
1970			the only fish buying						37(58)
1971			company operating in						34(50)
1972			the NWT						24(40)
1973									18(56)
1974									14(56)
1975									14(37)
1976									16(54)
1977									22(68)
1978									23(54)
1979									24(50)
1980									22(37)
1981									18(39)
1982									19(24)
1983									19(29)
1984									17(31)
1985									22(52)

APPENDIX IV

FIGURES

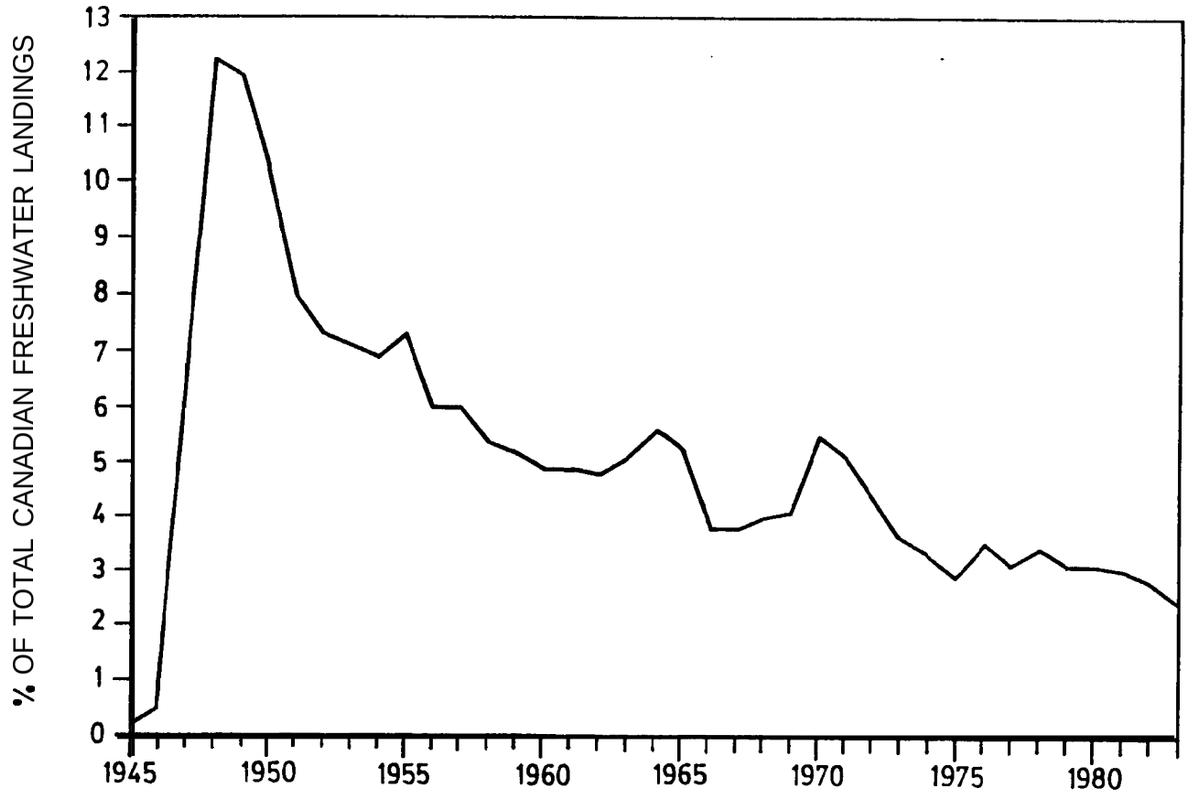


Figure 1 Total commercial landings of the N.W.T., expressed as a percentage of the total Canadian freshwater landings, 1945-1983. Data from D.F.O. Data Reports and Canadian Fisheries - Annual Statistical Review.

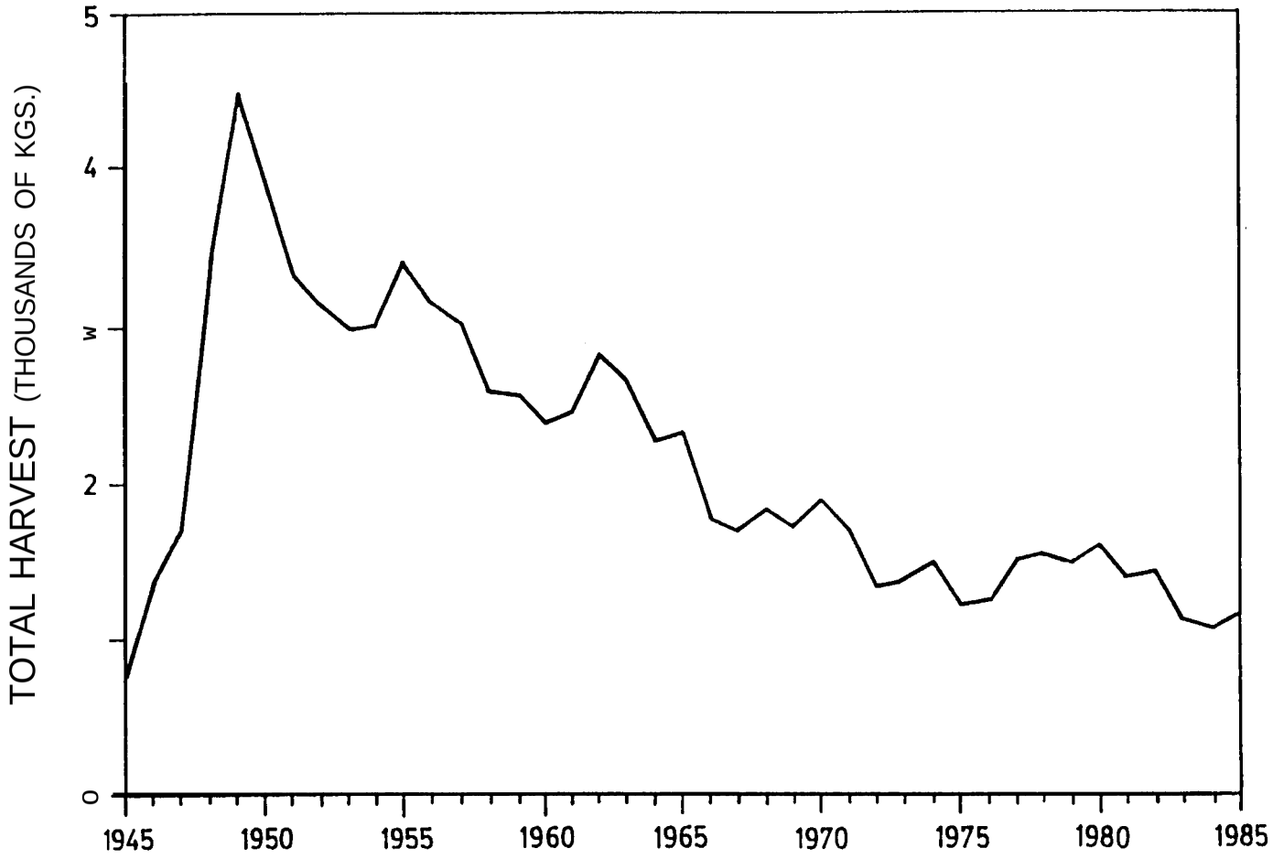


Figure 2. Total commercial landings for all species ɛroɷ Great Slave Lake, 1945-1985. Data from ɔ.F.O., Data Reports.

TOTAL WHITEFISH HARVESTS BY REGION

(1974 -19831 (by weight)

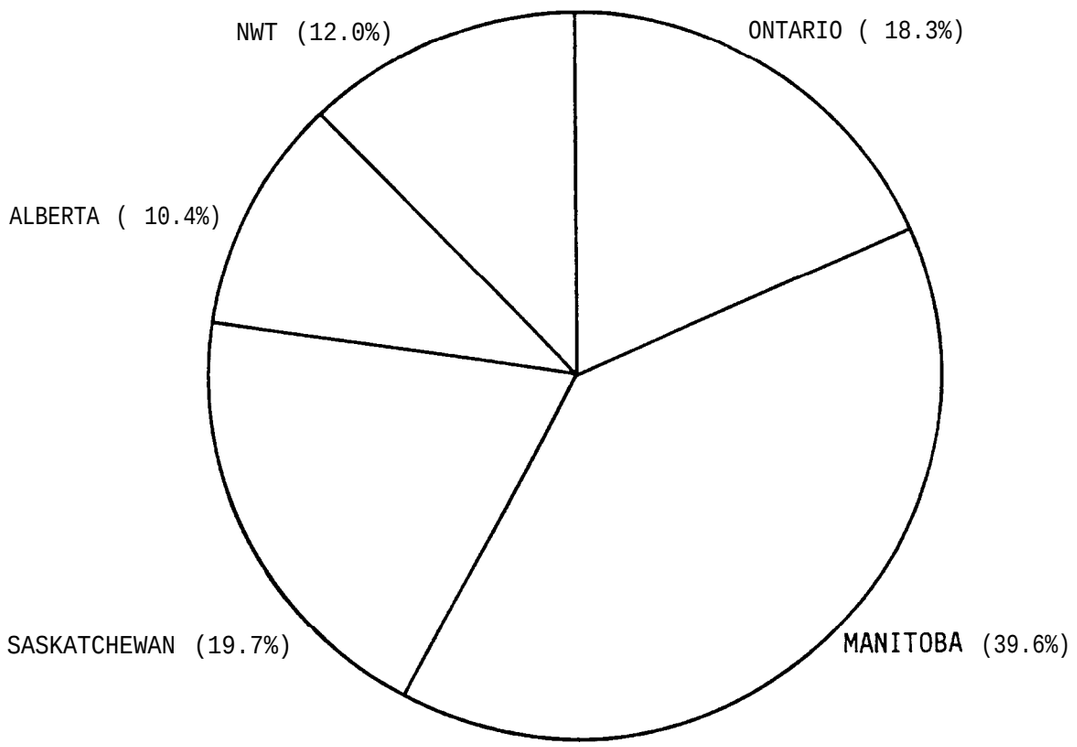


Figure 3. Relative contributions of each major producing province to the total production of whitefish, 1973-1983. Data from the Canadian Fisheries - Annual' Statistical Review.

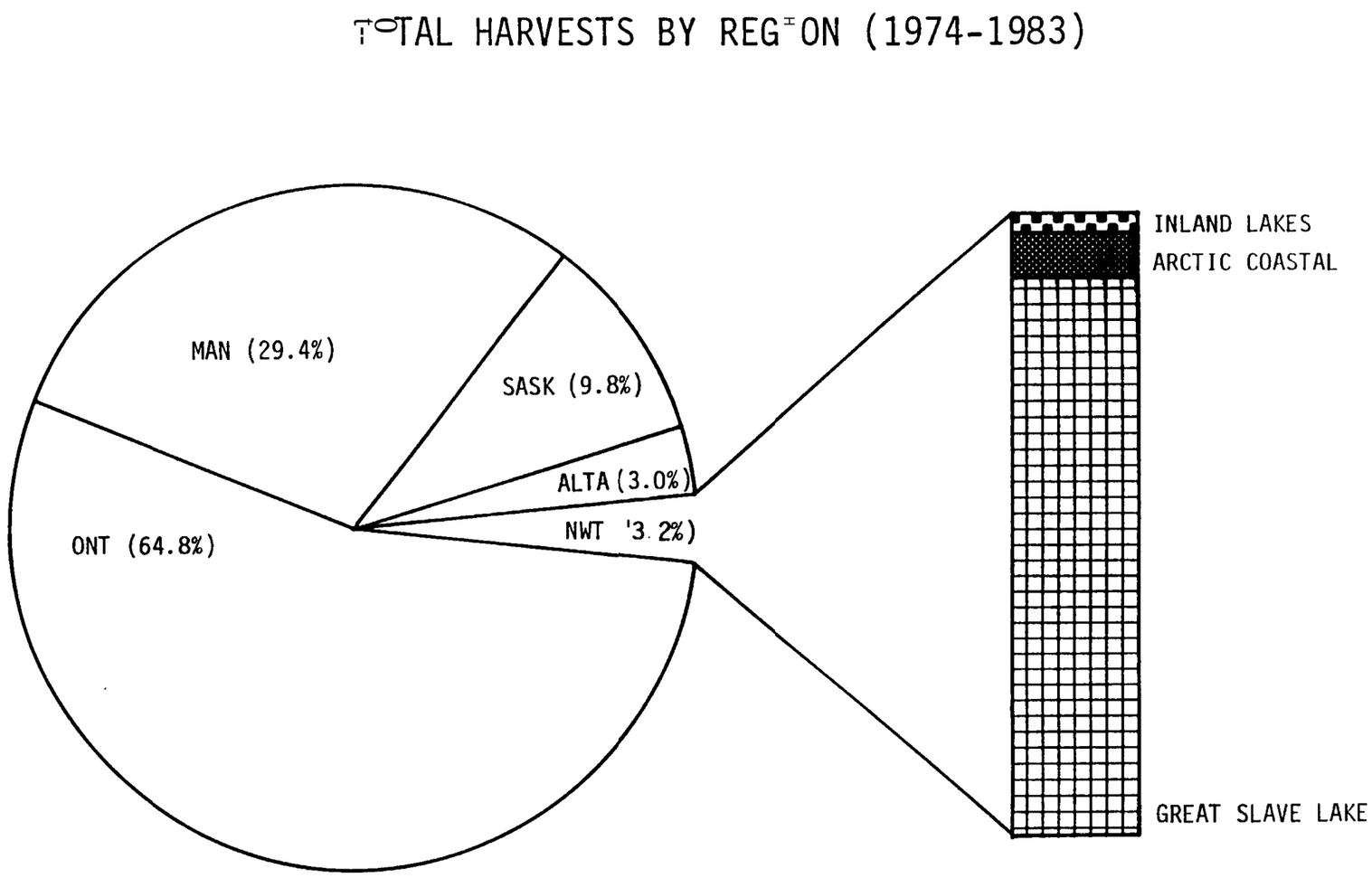


Figure ⊏. Canadian freshwater landings showing relative contributions of the major producing regions, 1974-1983 combined. Data from Canadian Fisheries - Annual Statistical Review and D.F.O., Data Reports.

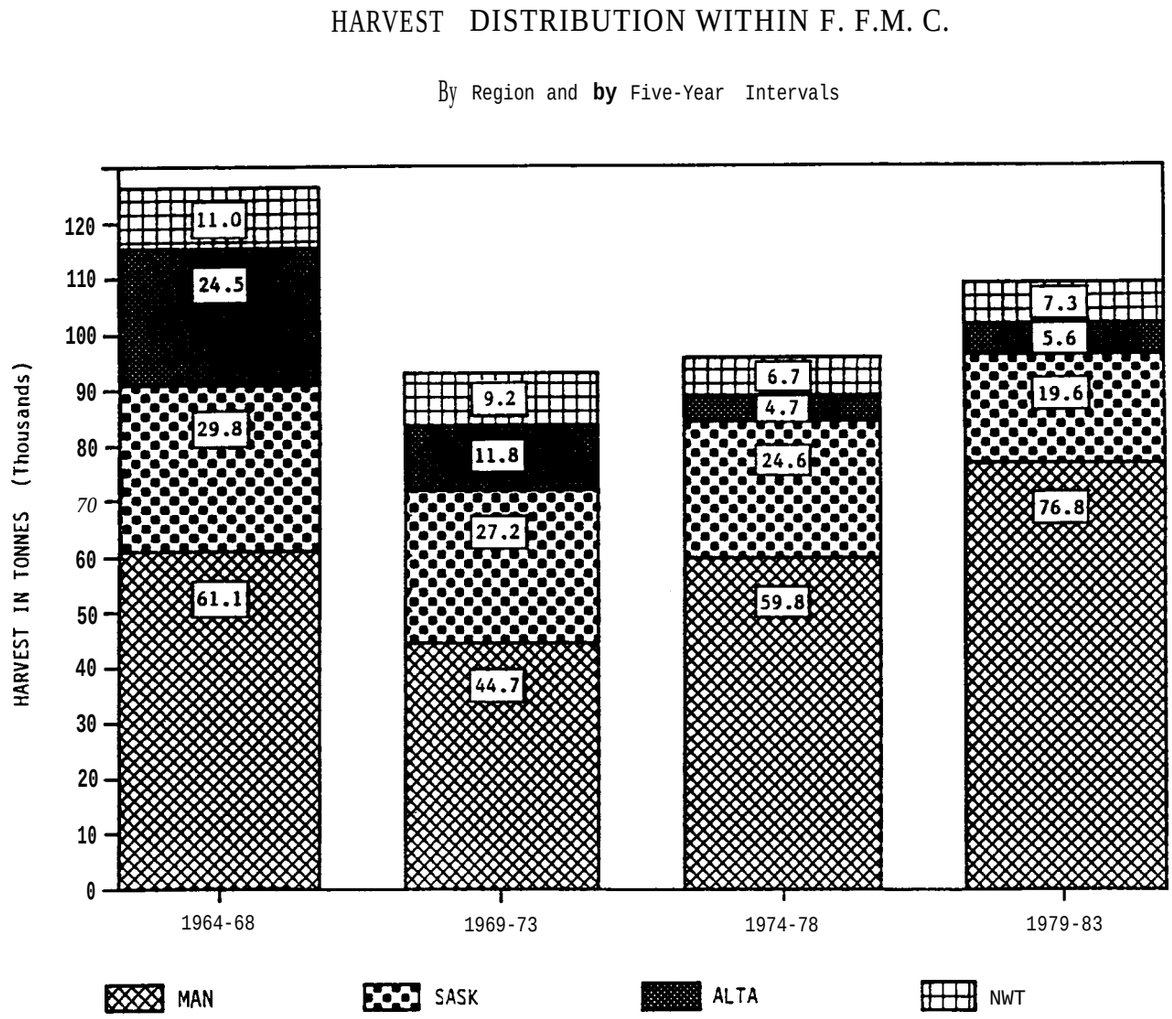


Figure 5. **Comparison of total commercial production from F.F.M.C. regions at five year intervals.**

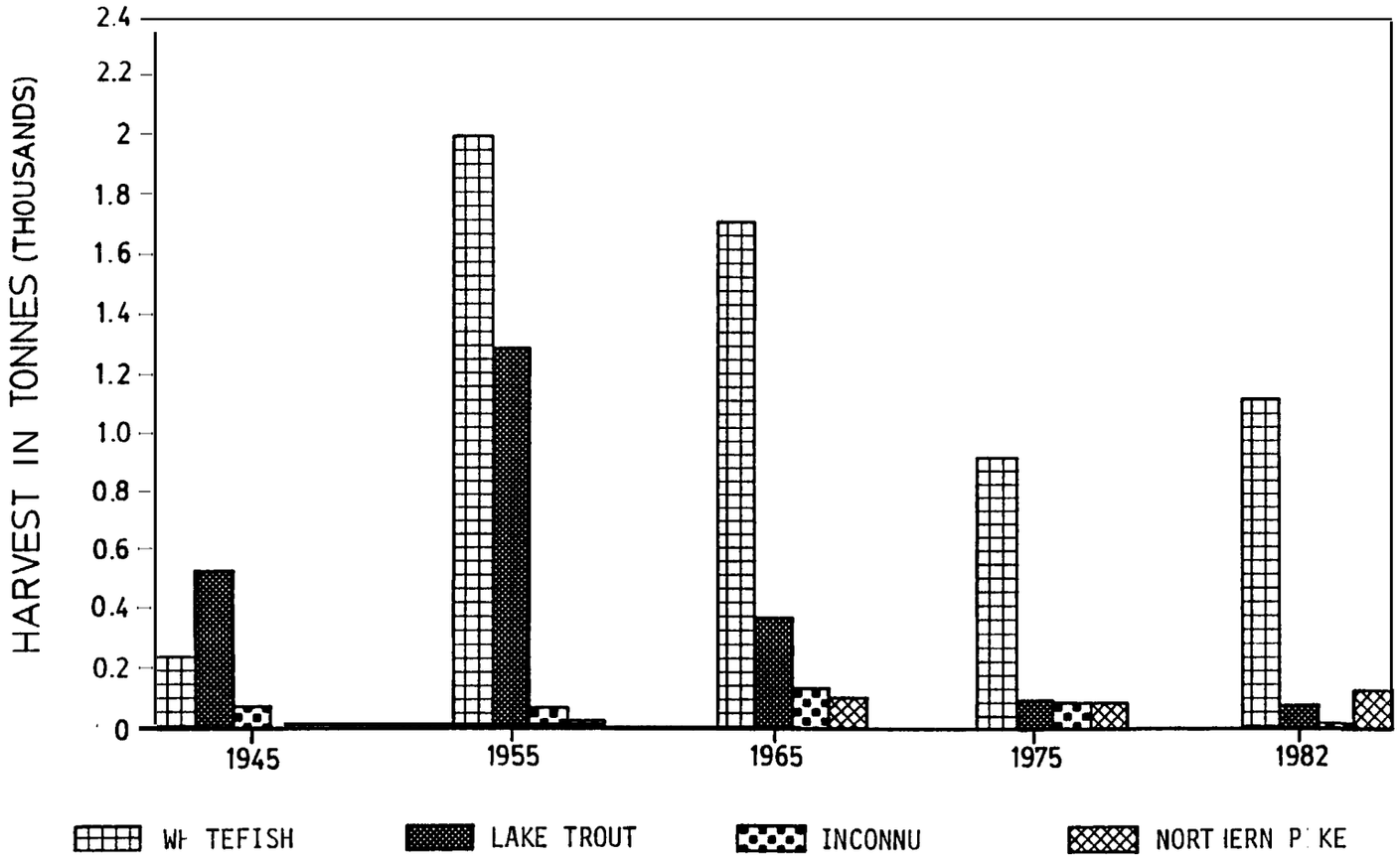


Figure 6. Species composition of the commercial catch from Great Slave Lake, 1945-1982. Data from D.F.O., Data Reports.

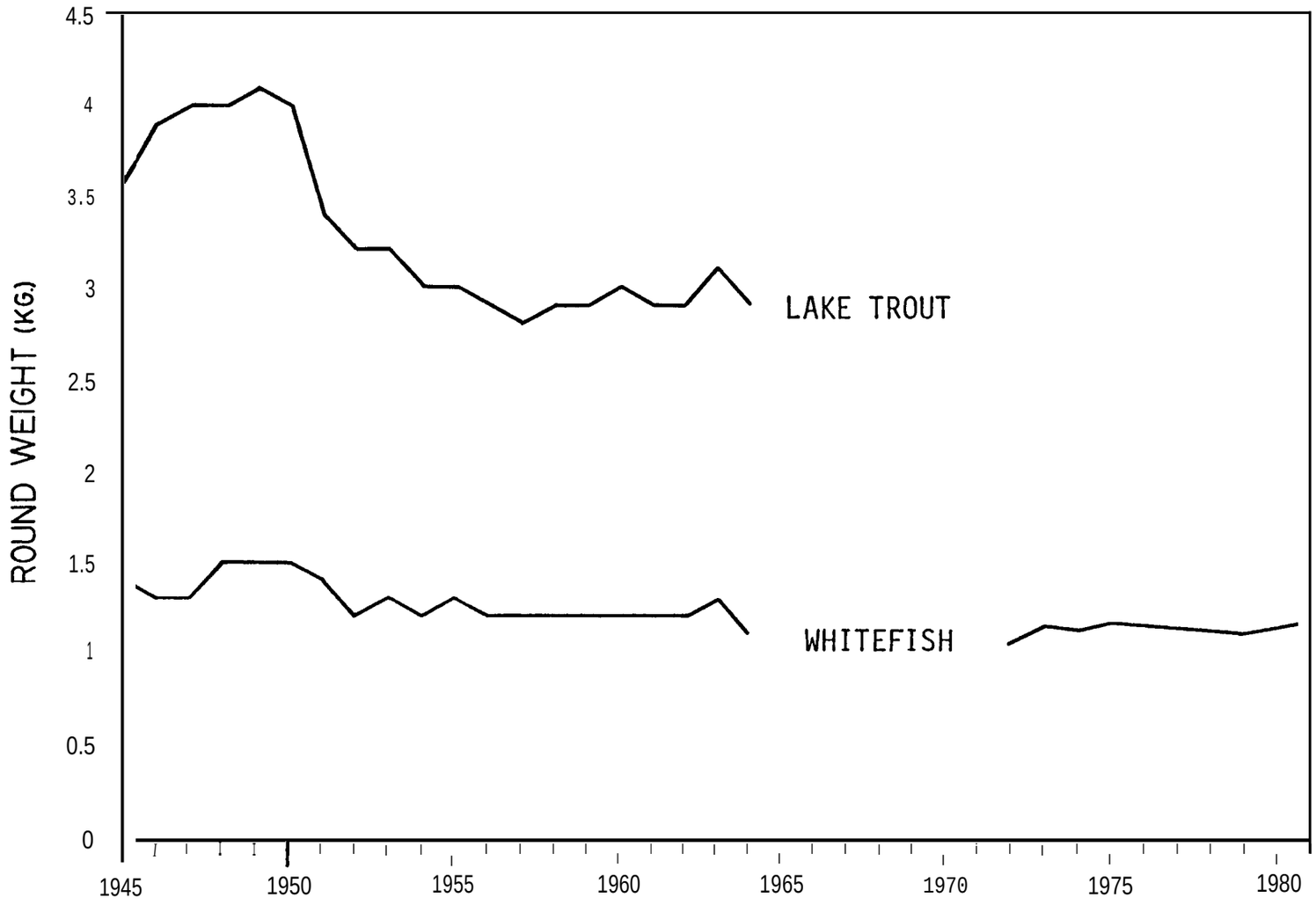


Figure 7. Changes in the average round weights of whitefish and lake trout taken from Great Slave Lake, 1945-1981. Data from D.F.O., Data Reports and M.S. Reports.

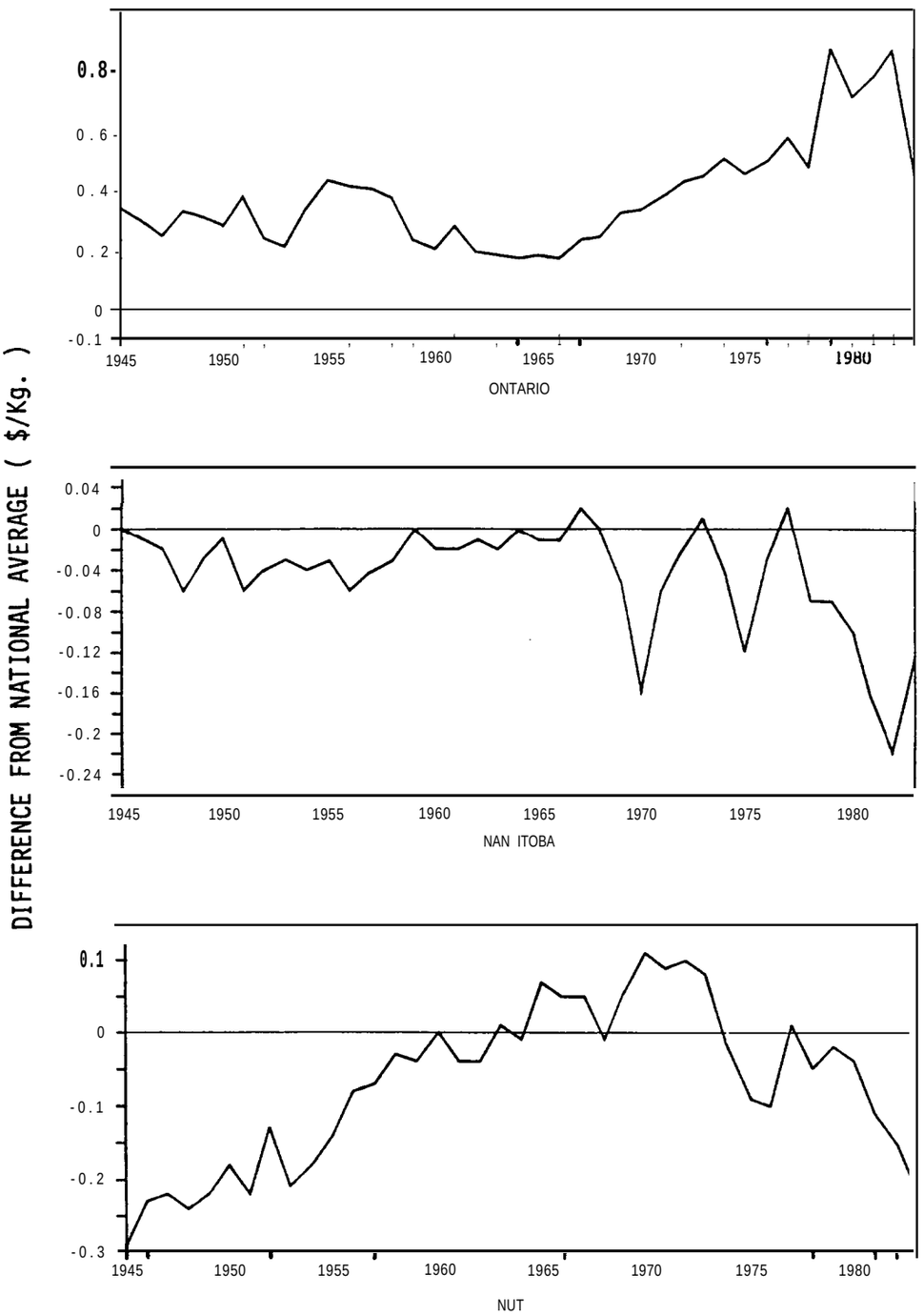


Figure 8. A comparison of landed values of whitefish for Ontario, Manitoba and the N.W.T., 1945-1982. Values represent the amount, in dollars/kg, above or below the national average landed value for freshwater fish in a given year. Data from the Canadian Fisheries - Annual Statistical Review.

APPENDIX V

LIFE HISTORIES OF IMPORTANT COMMERCIAL FISH SPECIES

The eggs develop over winter in water temperatures between 0 - 2.2°C. Hatching occurs in March or April, but the young remain in the gravel until June or July. The young of anadromous charr remain in freshwater for 3-8 years before making their first migration to the sea. During this freshwater period they feed initially on zooplankton and gradually shift to insect larvae and crustaceans. Once in the sea, they feed primarily on fish and large crustaceans, but will utilize whatever prey is easily available.

The growth rate of Arctic charr is slow, and varies greatly among different populations. Anadromous Arctic charr grow faster and larger than freshwater charr due to greater food abundance in the marine environment. Freshwater charr seldom exceed 350 mm even though they may live 20 years or more. In addition, eastern anadromous Arctic charr are slower growing than western charr, but tend to live longer, reaching a greater maximum size. Eastern anadromous charr have attained ages of 29 years, while the maximum age for western anadromous charr is between 10 to 14 years. The differences in growth between western and eastern stocks may be the result of different environments or genetic makeup.

Although some freshwater populations mature as early as age 3, most Arctic charr populations mature between the ages of 4 to 9 years. In general, western charr reach sexual maturity 1 to 3 years before eastern charr and freshwater charr mature 1 to 3 years before anadromous charr. In both freshwater and anadromous populations, males mature 1 to 4 years before females. Females spawn every second or third year, but seldom every year except in the southern parts of their range.

Freshwater charr feed almost exclusively on aquatic insects and crustaceans. Anadromous charr feed predominately on crustaceans and fish, including whitefish and several marine species.

.Arctic charr have few natural predators, although young charr are eaten by larger charr, loons, and terns. Larger charr are also preyed upon by seals.

Utilization

Domestic fishing for Arctic charr occurs along the north and east coast of the Territories. Inuit fishermen generally prefer the anadromous charr because of its larger size and ease of capture. Most are taken in estuaries and rivers during their spring and fall migrations and are used for both human and dog food.

The high price this species commands and its reputation as a gourmet food have made Arctic charr one of the most valuable commercial species in the Territories. Commercial fishing, however, is restricted primarily to the eastern Arctic anadromous stocks. In fact, the Rankin Inlet, Cambridge Bay, Pelly Bay, and Nettilling Lake fisheries account for most of the charr harvested commercially. Attempts to commercially fish freshwater populations have generally proven uneconomical and the limited abundance of the western anadromous stocks have prohibited extensive utilization. Because the eastern charr grow slowly and are in tremendous demand, strict management regulations have been necessary to ensure enough young charr escape the commercial harvest to maintain their populations. These regulations have included a 5.5 inch (13.9 cm) and 2.5 inch (6.35 cm) stretched mesh restriction for the anadromous and freshwater populations respectively.

A combination of excellent eating and fighting qualities have made the anadromous Arctic charr a prized sport fish. Most sport fishing for Arctic charr occurs near Rankin Inlet or Baffin Island, or in streams entering Coronation and Queen Maud Gulf.