ANNEX TO THE **WORLDWIDE FISHERIES MARKETING STUDY:** PROSPECTS TO 1985

FRESHWATER FISH

Government of Canada
Fisheries and Oceans

Gouvernement du Canada
Pêches et Océans

(This Report is one of a series of country and species annexes to the main study - entitled the Overview)

DRAFT

Annex to the
Worldwide Fisheries Marketing Study:
Prospects to 1985:

FRESHWATER FISH

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The views expressed in this Study, however, are ours alone and reflect the Canadian perception of worldwide markets.

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FOREWORD

As a consequence of global extension of fisheries jurisdictions, a radical shift has taken place in the pattern of worldwide fish supply and demand. This change is still going on and will continue for many years before a new dynamic equilibrium situation is reached. However, in the midst of this re-adjustment, a new trade pattern is emerging -- some net exporting countries are now importing and vice versa. In the longer term, some countries will experience shortages of supply and others will have a surplus. Fortunately, Canada is amongst the latter group.

The implications for the marketing of Canadian fisheries products arising from the worldwide introduction of the 200-mile limit are extensive. With our vastly improved supply position relative to world demand, government and industry are understandably concerned about ensuring that the bright promise of increased market opportunities are real and can be fulfilled. One of the steps in this process is the publication of the Worldwide Fisheries Marketing Study which assesses the global potential on a country and species basis.

Specifically, the purpose of the Study is to identify the longer term market opportunities for selected traditional and non-traditional species in existing and prospective markets and to identify factors which may hinder or help Canadian fisheries trade in world markets. To date, over 40 country markets and 8 species groups have been analyzed. It should be noted that while the information contained in the Reports was up-to-date when collected, some information may now be dated given the speed with which changes are occurring in the marketplace. In this same vein, the market projections should be viewed with caution given the present and still evolving re-alignment in the pattern of international fisheries trade, keeping in mind the variability of key factors such as foreign exchange rates, energy costs, bilateral fisheries arrangements and GATT agreements which have a direct effect on trade flows.

Notwithstanding, the findings contained in these Reports represent an important consolidation of knowledge regarding market potential and implications for improvements in our existing marketing and production practices. The results of the Study should, therefore, usefully serve as a basis for planning fisheries development and marketing activities by both government and industry in order to capitalize on the identified market opportunities.

This draft report is published for discussion purposes and as such we invite your critical comments.

Ed Wong

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Ottawa

WORLDWIDE FISHERIES MARKETING STUDY
CANADIAN FRESHWATER FISH

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A. THE CANADIAN FRESHWATER FISHERY

1. Relative Importance

When it comes to inland water resouces, Canada is among the most richly endowed nations in the world. Yet Canada's harvest of freshwater fish is relatively small in comparison with marine fish landings, and in fact declined slightly in terms of both nominal landings and landed values in the decade 1969 to 1979.

For the past three years the volume of freshwater fish landed has remained relatively stable at about 3.5% of all Canadian fish and shellfish landings. The landed values of freshwater species have been rising, but on the whole not as rapidly as those of the marine species.

2. Recent Trends

Between 1970 an 1975 Canadian landings of freshwater fish averaged about 42 000 tonnes per annum, declining in the middle part of the last decade to a low of 39 000 tonnes in 1976 before recovering to 49 000 tonnes in 1979.

TABLE 1

Canadian landings of marine fish, shellfish and freshwater fish, 1969, 1974 and 1979
(Quantity (Q) 000 tonnes; Value (V) $000)

	1969		1974		1979	
	Q	V	Q	V	Q	V
Marine fish	1 204	120 952	829	205 255	1 112	605 977
Shellfish	91	47 168	93	67 294	261	224 011
Freshwater fish	55	15 660	47	18 241	49	43 234
Total landings	1 350	183 780	969	290 790	1 422	873 222

Source: Department of Fisheries & Oceans, Annual Statistical Review, Ottawa, 1979.

It appears that some of the pollution problems that beset the Lake Erie fishery in particular have abated somewhat in recent years. While not all the problems have been resolved, various industry and government sources believe the situation has stabilized with respect to much of the Great Lakes fishery. Current opinion is that stocks of major species in the Great Lakes have almost reach optimum levels, and that landings should remain stable over the next several years.

TABLE 2

Canadian landings of marine fish, shellfish and freshwater fish, 1977-1979

(Quantity (Q) in 000 tonnes; Value (V) $000

	1977		1978		1979	
	Q	V	Q	V	Q	V
Marine fish	998	329 670	1 116	481 452	1 112	605 977
Shellfish	209	126 487	236	186 739	261	224 011
Fresh water fish	47	31 091	48	32 959	49	43 234
Total landings	1 254	487 248	1 400	701 150	1 422	873 222

Source: I.B.I.D.

B. MARKETING FRESHWATER FISH

1. Domestic Consumption Patterns

Data respecting Canadian consumption patterns for freshwater fish are incomplete but some estimates of underlying trends have been made recently.

It has been estimated that per capita Canadian consumption of fish and shellfish has risen fairly steadily from 6.3 kilograms per capita (product weight) in 1975 to 7.4 kilograms in 1978 and 8.1 kilograms[1] in 1979.

The market share of all frozen fish products accounted for by freshwater fish was 4.7% in 1977, dropping to 4.1% in 1978 and recovering to 4.6% in 1979. Thus it is estimated that freshwater fish consumption was approximately 0.28 kilograms per capita in 1977, 0.22 in 1978 and 0.30 kilograms (product weight) in 1979.

The Western region, comprising the three Prairie provinces and the N.W.T., and the Province of Ontario account for about 95% of the country's freshwater fish production while the province of Quebec and New Brunswick make up the remainder.

The Freshwater Fish Marketing Corporation with headquarters in Winnipeg, a Federal Crown Corporation, was established in 1969. The corporation has the mandate to assemble, process and market virtually all of the fish caught within its area of jurisdiction (Northwestern Ontario, the Prairies and the N.W.T.). Fish production in the rest of the Province of Ontario is undertaken by a number of private sector fish processors located in communities boardering the Great Lakes and inland waters.

2. Projected Markets to 1985

Between now and 1985 the Canadian population is expected to increase at approximately 1% per annum from an estimated 23.6 million in 1979 to 25.7 million in 1985. The rate of increase in fish and seafood consumption in Canada over the last decade was in the order of 1.7% per annum although this rate of

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1) Department of Fisheries and Oceans The Canadian Fish and Seafood Industry - Ottawa, 1981.

increase did rise significantly to about 7.0% per annum in the last three years of the decade.[1]

A number of factors are expected to result in relatively slow rates in growth of consumption of freshwater fish during the next five years.

Among these are the following:

1) Anticipated relatively high rates of inflation and low overall economic growth rates in most of Canada for the first two years of this decade.

2) The current perception among much of the population that freshwater fish is somehow not as desirable a product as marine fish,

3) Anticipated higher energy and transportation costs will continue to adversely affect the ability of freshwater fish producers (especially those in the more isolated parts of the country) to compete with marine fish products on the consumer market.

For these reasons it is expected that the rate of growth in per capita consumption of freshwater fish will tend to continue in the lower range of increases observed in fish consumption trends in the last decade.

TABLE 3

Canadian consumption of freshwater fish products - actual, 1979 and estimated, 1985

	Estimated Consumption 1979 kg per capita	Canadian Population 1979 '000'	Estimated Consumption 1979 (tonne)	Forecast Rate of Annual Consumption Increase 1979/1985	Projected Canadian Population 1985'000'	Forecast Consumption 1985 (tonne)
All Products	0.30	23 671	7 000	1.7%	25 724	8 300

Source: Marketing Directorate, DFO. Own estimates.

It is estimated that Canadian consumption of freshwater fish products will increase from 7 000 tonnes (product weight) to 8 300 tonnes in 1985. Expressed in terms of round weight equivalent[2] consumption will rise from 9 500 tonnes in 1979 to 11 200 tonnes in 1985.

1) I.B.I.D.

2) Round weight equivalent is estimated to be 135% of product weight.

Table 4 shows the sales trends from the Freshwater Fish Marketing Corporation's annual report for the fiscal years 1974 and 1979. the data refers to the corporation's fiscal years beginning May 1 and ending April 30.

TABLE 4

Sales by major product grouping and area, Freshwater Fish Marketing Corporation

(tonnes , $000)

Fiscal Year Ending April 30, 1974

	Fresh		Frozen		Processed 1)		All Products	
	t	$	t	$	t	$	t	$
Canada	878	1 151	820	935	333	871	2 031	2 967
US	3 041	4 051	1 815	2 248	3 953	6 243	8 809	12 542
Europe	--	--	760	858	162	223	922	1 081
Total	3 919	5 202	3 395	4 041	4 448	7 337	11 762	16 590

Fiscal Year Ending April 30, 1979

	Fresh		Frozen		Processed		All Products	
	t	$	t	$	t	$	t	$
Canada	867	1 805	557	834	775	2 367	2 199	5 006
US	3 449	6 831	1 967	3 739	3 422	8 436	8 838	19 006
Europe	--	--	4 163	6 410	412	889	4 575	7 299
Total	4 316	8 636	6 687	10 983	4 609	11 692	15 612	31 311

Source: Annual Reports, Freshwater Fish Marketing Corporation, Winnipeg.

An examination of the sales trends in the three main product groupings (fresh, frozen and processed) for the fiscal year ending in April 1974 compared with similar periods for the corporation's last two fiscal years suggests the following:

1) Processed products include fillets and blocks.

- There appears to have been some shift from fresh fish products to frozen products. This trend is even more pronounced in the grouping of processed products where their proportion of sales has declined substantially between 1974 and 1980.

- The corporation's domestic sales have remained at approximately 16% to 17% of the total for a number of years. In the fiscal years 1979 and 1980, Canadian sales slipped to about 14% of the total, but it is not certain if this is indicative of any long-term trend.

- The most dramatic shift has occurred with respect to the European and United States freshwater fish markets. In 1974 the FFMC's US sales by volume accounted for almost 75% of the total; in the last two fiscal years this proportion has been reduced to approximately 57%. Sales to Europe, on the other hand, rose from less than 8% of the corporation's sales in 1974 to almost 30% in 1979 and 1980.

The sales statistics also show that the corporation's sales in Canada and the US have remained almost unchanged (in terms of volume) between 1974 and 1980. In that period, the corporation's total sales volume increased by about 34% and much of that increase was the result of increased sales in Europe.

Exact sales figures are not available for the Ontario commercial fishery. It is estimated, however, that the landed value of the 1979 harvest caught outside the Freshwater Fish Marketing Corporation's zone in Ontario approximated $20 million in 1979. Assuming that the prices received by freshwater fish processors for their products averaged abut 150% of landed values, it appears that 1979 sales on the part of Ontario processors may have amounted to about $30 million, compared with the F.F.M.C.'s sales for the fiscal year ending April 30, 1979 of $31.3 million.

Information provided by industry and government sources in Ontario suggest that while some changes in the industry's sales patterns have occurred in the past six years, these changes have been less pronounced than those relating to the Freshwater Fish Marketing Corporation. The long association between Ontario's fish processors and their US distribution links, the physical proximity of many Ontario production facilities to major US Great Lakes cities

and relative ease of transportation to large US markets are cited as primary reasons for Ontario's heavy reliance on US markets for freshwater fish.

The best estimates are that the US market, particularly in the states bordering the Great Lakes, remains the major market for Ontario fish and accounts for about 80% of the Ontario industry's sales. Domestic sales, mostly within Ontario, and overseas sales, mostly to Western Europe and Japan, each account for about 10% of the sales.

In the last several years, encouraging markets have developed in Japan frozen smelt and in Western Europe, especially Switzerland, for frozen yellow perch fillets.

3. Product Development

Several product development programs are proceeding in an attempt to meet changing market conditions for freshwater fish:

- In order to capture a share of the potential market for convenience-packaged products for home use, the FFMC has recently introduced a polybag pack of IQF whitefish fillets.

- Some testing is underway with bake-ready products, attractively packaged with recipe instructions for cooking in microwave ovens.

- Considerable research has been undertaken and some new products have been introduced, such as frozen-pack and canned whitefish, tullibee, pike and sauger roe for the Japanese and West European specialty markets.

- The use of less-valued species such as mullet as a minced fish product for further processing is also being investigated.

The dominant species in the Ontario commercial fishery is yellow perch. The US remains a high-value market for perch products - both fresh and IQF fillets. As well, Switzerland has developed into a valuable export market for perch in the last three years. Product development currently is concentrated on producing small convenience-pack (250 to 300 gram) frozen perch fillets for the retail market. Some testing is also in progress to develop vacuum packaging for perch fillets.

C. CANADIAN LANDINGS OF FRESHWATER FISH

The following table shows Canadian landings of freshwater fish by major species and region for 1979 (actual) and projections to 1985.

TABLE 5

Canadian landings of freshwater fish - actual, 1979, and forecast, 1985

(tonnes, landed weight)

	Actual 1979				Forecast 1985			
	Western region 1)	Ontario	New Brunswick and Quebec	Total	Western region 1)	Ontario	New Brunswick and Quebec	Total
Whitefish	8 141	1 345	--	9 486	8 200	1 300	--	9 500
Pickerel	3 529	1 054	--	4 583	3 500	1 000	--	4 500
Sauger	1 271	16	--	1 287	1 700	50	--	1 850
Lake trout	909	166	--	1 075	900	200	--	1 100
Pike	3 846	314	--	4 160	3 900	300	--	4 200
Mullet	2 510	635	--	3 145	4 500	500	--	5 000
Carp	579	181	--	760	1 400	150	--	1 550
Lake herring	431	1 500	--	1 931	400	1 500	--	1 900
Smelt	--	10 979	--	10 979	---	11 000	--	11 000
Yellow perch	58	5 920	--	5 978	100	6 000	--	6 100
Other freshwater species	387	2 977	1 700	5 064	400	4 000	2 000	6 400
Total	21 661	25 087	1 700	48 448	25 000	26 000	2000	53 100

1) Western Region includes the provinces of Manitoba, Saskatchewan, Alberta and the Northwest Territories

Source: Department of Fisheries & Oceans, Annual Statistical Review, Ottawa, 1979.

1. Outlook to 1985 for the FFMC area

The consensus among industry and government sources in the corporation's area is that there is little likelihood of any significant increase in freshwater fish landings beyond the 1979 catch of 22 000 tonnes. The prevailing opinion is that the resource in the southern regions, particularly in Manitoba and Ontario, is more or less fully exploited at present. There does appear to be some prospect for small increases in landings in Saskatchewan and Alberta, but these are not expected to have any significant impact on overall landings.

The northern lakes of Manitoba and waters of the Northwest Territories have the potential to produce substantially increased volumes of freshwater fish. But there are economic factors working against the expansion of our northern commercial fisheries, including very high transportation costs in remote northern regions, the requirement for increased investment, and the additional effort involved. Thus, in spite of the considerable resource potential in the north, it is believed that commercial fish landings from this region will remain about the same in the period 1979 to 1985.

2. Outlook for Ontario

Similar to the outlook for the FFMC area of jurisdiction, the outlook for landings in the Ontario commercial fishery is for relatively stable catches in the period between 1979 and 1985.

In 1969, Lake Erie produced landings of 21 800 tonnes, about three-quarters of the Ontario catch of 28 700 tonnes. After that year landings for both Lake Erie and Ontario as a whole generally declined through 1976 (11 700 tonnes for Lake Erie and 18 600 tonnes for Ontario as a whole) but then began to recover. In 1979 Lake Erie fishermen took 18 600 tonnes while Ontario as a whole recorded landings of 25 100 tonnes.

Two species, smelt and yellow perch, have traditionally accounted for between 80% and 90% of Lake Erie's landings and almost 70% of Ontario landings.

For the period to 1985 it is expected that both smelt and yellow perch will stabilize at 11 000 tonnes and 6 000 tonnes respectively, slightly above 1979 landings. Pickerel (Walleye) ranks third in importance in Lake Erie with 500 tonnes caught in 1979 and the harvest could increase to 1 000 tonnes in 1985.

For parts of the Ontario fishery other than Lake Erie, accounting for the remaining 25% of Ontario landings, the catch for the past five years has been between 6 500 and 7 300 tonnes. The harvest from these areas is not expected to increase significantly during the next five years.

The following summarizes the expected landings from the Ontario fishery in 1985 compared with 1979.

TABLE 6

Freshwater fish landings, Ontario - actual, 1979, and forecast, 1985 (tonnes)

	1979	1985
Lake Erie - smelt	10 900	11 000
- yellow perch	5 500	6 000
- pickerel	500	1 000
All Lake Erie	18 600	19 000
Other Ontario	6 500	7 000
Total	42 000	44 000

Source: Marketing Directorate, DFO. Own estimates.

D. CANADIAN EXPORTS

Table 7 details the exports of freshwater fish and all other Canadian fishery products for the years 1969, 1974 and 1979. While Canadian exports of all fishery products increased by 21% in quantity and 474% in value, exports of freshwater fish increased at a somewhat lower level of 15% in volume and 280% in value during the 1969-1979 period. Over the same period, more pronounced changes have taken place in both the mix of products exported and in the number of countries importing Canadian freshwater fish.

TABLE 7

Canadian exports of fisheries products
1969, 1974 and 1979
Quantity (Q) in tonnes, Value (V) $000

	1969		1974		1979	
	Q	V	Q	V	Q	V
Groundfish	153 916	101 103	91 795	116 489	163 780	408 258
Pelagic and estuarial	155 886	85 124	128 535	150 279	162 843	501 325
Seafish NES	9 408	5 119	13 525	14 183	25 297	43 234
Shellfish	18 089	49 604	16 755	70 477	69 657	272 678
Freshwater fish	22 904	22 373	21 335	28 863	26 311	62 584
Miscellaneous fishery products 1)	56 218	15 817	62 138	56 394	57 484	35 210
Total	416 421	279 140	334 083	436 685	505 372	1 323 289

1) Quantity excludes seal skins which are reported in number of skins.

Source: Statistics Canada, Exports By Commodity, Bulletin 65-004, Ottawa, 1979.

Table 8 shows the change between 1969 and 1979 in the product mix of freshwater fish exports.

TABLE 8

Canadian exports of freshwater fish by major product, type and country, 1969, 1974 and 1979

(Quantity (Q) in tonnes, Value (V) $ 000)

	1969		1974		1979	
	Q	V	Q	V	Q	V
Fresh, whole or dressed						
Finland	--	--	45	48	16	29
France	6	4	54	61	15	32
Sweden	--	--	--	--	15	22
Poland	--	--	--	--	17	27
Japan	--	--	--	--	107	86
United States	9 418	8 843	8 985	9 759	8 907	18 189
Other	--	--	--	--	15	107
Total	9 424	8 847	9 084	9 868	9 092	18 492
Frozen, whole or dressed						
United Kingdom	--	--	--	--	331	244
Finland	267	169	464	526	620	990
France	244	162	236	304	703	1 642
West Germany	1	1	--	--	102	276
Netherlands	--	--	--	--	10	72
Sweden	--	--	14	18	261	616
Switzerland	0	1	42	126	31	203
Poland	--	--	--	--	504	832
Japan	--	--	290	158	2 093	1 782
United States	4 036	2 974	4 995	4 436	5 988	9 838
Other	20	13	1	1	5	11
Total	4 568	3 320	6 042	5 569	10 648	16 506

	1969		1974		1979	
	Q	V	Q	V	Q	V
Fillets, fresh						
Switzerland	0	0	--	--	21	188
Untied States	2 436	2 614	1 440	3 541	923	4 660
Other	--	--	0	0	1	5
Total	2 436	2 614	1 440	3 541	945	4 853
Fillets, frozen						
United Kingdom	--	--	--	--	16	49
Belgium-Luxembourg	6	7	--	--	2	6
Finland	--	--	14	32	17	62
France	144	138	51	77	276	780
West Germany	--	--	--	--	67	558
Netherlands	--	--	3	9	38	136
Sweden	--	--	--	--	7	29
Switzerland	53	71	2	7	204	1 807
United States	4 333	6 045	2 470	7 584	2 708	15 750
Other	1	1	0	0	2	16
Total	4 537	6 262	2 540	7 709	3 337	19 193
Blocks and slabs, frozen						
United Kingdom	--	--	--	--	18	24
France	20	14	76	109	209	525
United States	1 918	1 316	2 153	2 066	2 062	2 990
Other	--	--	0	1	--	--
Total	1 939	1 330	2 229	2 176	2 289	3 540
Grand total	22 904	22 373	21 335	28 863	26 311	62 584

Source: I.B.I.D.

As table 8 shows, during the period 1969-1979 the quantity of fresh, whole or dressed products exported has actually declined slightly while the quantity of frozen, whole or dressed products has increased by more than twofold. The export of fresh fillets has declined in both absolute and proportional terms. Shipments of frozen fillets have also declined over the past 10 years. Although they continue to account for less than 10% of all freshwater fish products exported, frozen blocks and slabs have recorded a small increase in terms of volume exported during the '969-79 period.

E. CANADIAN IMPORTS

1. Changing Levels

Table 9 shows the change in the levels of imports of freshwater fish between 1969 and 1979. Although relatively small in terms of Canada's total trade in fishery products. Canadian imports of freshwater fish have more than doubled from 850 tonnes in 1969 to 2 100 tonnes in 1979.

TABLE 9
Canadian imports of freshwater fish by species and by country, 1969, 1974 and 1979
(Quantity (Q) tonnes, Value (V) $000)

	1969		1974		1979	
	Q	V	Q	V	Q	V
Trout, fresh or frozen						
Denmark	187	306	--	--	--	--
South Africa	--	--	13	11	--	--
Japan	181	185	615	1 350	323	989
United States	52	86	234	453	742	2 840
Other	--	--	0	1	--	--
Total	420	577	862	1 815	1 065	3 829
Freshwater fish, fresh or frozen, nes						
Italy	--	--	42	23	20	49
Netherlands	22	32	116	331	22	97
Portugal	--	--	--	--	42	92
Romania	61	97	139	458	--	--
Israel	--	--	7	14	--	--
Turkey	2	2	--	--	--	--
South Africa	--	--	--	--	18	26
Hong Kong	5	2	3	4	6	11
India	--	--	9	34	--	--
People's R. China	--	--	23	16	--	--
Philippines	--	--	5	6	--	--
Japan	--	--	--	--	10	19
Thailand	--	--	--	--	16	25
United States	340	227	396	348	908	1 531
Other	--	--	--	--	0	0
Total	430	360	740	1 234	1 042	1 850
Grand Total	850	937	1 602	3 049	2 107	5 679

Source: Statistics Canada, Imports by Commodities, Ottawa, 1979.

Trout, fresh or frozen, accounts for the largest single freshwater species that Canada imports, from other countries. It is interesting to note that our imports of trout (approximately 1 000 tonnes per annum) virtually equal our annual domestic production of this species. The US remains Canada's largest supplier of freshwater fish and currently accounts for between 80% and 90% of our imports.

2. Canadian balance of freshwater fish, 1979 to 1985

The anticipated supply-demand balance of freshwater fish in 1985 indicates there could be a shortfall between the expected growth in domestic consumption and export requirements and the relatively limited potential for growth in domestic production. Based on the trend in average annual rates of growth during the last 10 years in both per capita domestic consumption and Canadian exports of freshwater fish products, it is anticipated the freshwater fish import requirement will almost double from 2 100 tonnes in 1979 to 4 000 tonnes in 1985.

TABLE 10

Canadian freshwater fish balance - actual, 1979, and forecast, 1985

(tonnes, product weight)

	Domestic Consumption		Production		Exports		Imports	
	Actual	Potential	Actual	Potential	Actual	Potential	Actual	Potential
	1979	1985	1979	1985	1979	1985	1979	1985
All Products	7 000[1]	8 300[2]	31 300	33 000	26 300	29 000	2 100	4 000

1) Includes estimated consumption of 4 900 tonnes of domestic products

2) Forecast consumption in 1985 is based on 1970-79 trend in average annual consumption of fresh and frozen fish and seafood products.

Source: Marketing Directorate, DFO. Own estimates.

F. THE US MARKET FOR FRESHWATER FISH

1. Per capita consumption

Consumption of freshwater fish has ranged from a high of 99 000 tonnes (landed weight basis) to a low of 91 000 tonnes in the past three years, but overall it has increased somewhat since the 1960s when it was estimated to be about 88 000 tonnes. Some of the increase, however, is accounted for by the increase (5 000 tonnes) in the US catch of alewives (totalling 11 000 tonnes in 1979) which are largely used for reduction.

TABLE 11

US freshwater fish supply, 1977-1979

(000 tonnes, landed weight equivalent)

	1977	1978	1979
US Landings	55	57	51
Imports	39	42	40
Total	94	99	91

Source: US Department of Commerce, Fisheries of the United States, N.M.F.S., Washington.

If the alewives are eliminated from the supply figures, the supply of freshwater fish to the US was approximately 86 000 tonnes (landed weight equivalent basis) in 1979. US consumption for that year was about 0.36 kilograms per capita (landed weight equivalent) and 0.23 (product weight basis).

2. Importance of the US market

In 1969, the US accounted for almost 97% of Canadian exports and approximately 80% to 85% of the Canadian industry's output. In recent years this overwhelming reliance on the US market has been reduced somewhat as new markets for Canadian products have been developed in Western Europe and Japan. Nonetheless, the US remains of prime importance to the Canadian industry and absorbed 78% of our exports in 1979 and approximately 62% of Canada's total output of freshwater fish products that year.

3. US landings of freshwater fish, 1979 to 1985

American landings of all freshwater fish were 50 900 tonnes in 1979, a decline of almost 7 000 tonnes from the previous year and about 5 000 tonnes below the average harvest for the five-year period 1975-79. Alewives have usually accounted for about 30% of the freshwater fish harvest annually but in 1979 this species comprised only 20% of total landings. It is expected there will be little variation in the catch of freshwater fish over the next several years and that landings will be in the range of 51 000 to 56 000 tonnes in 1985.

4. US Imports

According to American statistics, US imports of freshwater fish varied little in the four years between 1977 and 1980. Imports were 26 800 tonnes (product weight) in 1977, 27 800 tonnes in 1978 and then declined slightly to 25 400 tonnes in 1979. Canada retained its position as the primary supplier and actually increased its share of the market from approximately 50% in 1977 to more than 60% in 1979. Brazil has been the supplier next in importance, with a 30% market share during the past several years, made up mostly of catfish fillets. Canadian exports to the US have consisted of a variety of freshwater fish species and product forms. The most significant of these, in terms of volume, has been fresh or frozen whitefish in whole or dressed form.

It should be noted that US import statistics may understate Canadian exports in the order of 4 000 tonnes per year. When US and Canadian trade figures are compared it appears that much of this slippage occurs in the classification of fish blocks and slabs (mostly whitefish and pike) where Canadian figures show exports of over 2 000 tonnes per annum while US data consistently report about one-tenth of that volume in this product classification.

According to Canadian export statistics, US imports of frozen perch fillets, pickerel, sauger fillets and fresh, whole or dressed whitefish are among the products that have shown the most rapid and consistent rates of growth in the past several years.

5. US exports

American trade statistics do not classify exports of freshwater fish as a separate item, but exports of freshwater species are not believed to be large. However, Canada is probably the largest buyer of freshwater fish from the US, with imports having risen steadily for the past three years from 50 tonnes of trout and 340 tonnes of other species (probably mostly catfish) in 1977 to 740 tonnes of trout and 900 tonnes of other freshwater species in 1979.

6. US balance of freshwater fish

The following table details the US balance of freshwater fish for human consumption (alewives have been excluded) in 1979 and forecast for 1985.

TABLE 12

US balance of freshwater fish, actual, 1979, and forecast, 1985

(000 tonnes, product weight)

	Consumption		Domestic Production		Exports		Import Requirements	
	Actual	Forecast	Actual	Forecast	Actual	Forecast	Actual	Forecast
	1979	1985	1979	1985	1979	1985	1979	1985
All products	51.1	53.1	24.8	26.8	3.2	3.2	29.5	29.5

Source: Marketing Directorate, DFO. Own estimates.

The projected 1985 balance shows that US consumption of freshwater fish products is expected to rise slowly by about 3.9% between 1979 and 1985. The increased requirement of 2 000 tonnes will probably be met by a small increase

in domestic landings from 39 000 tonnes in 1979 (alewives not included) to 42 000 tonnes in 1985. US imports, which have been in a slight decline for the past two years, are not expected to increase between 1979 and 1985.

7. Canadian exports to the US

Table 13 illustrates the trend in Canadian freshwater fish exports to the US between 1978 and 1980. While the US remains our most important customer, in 1980 Canadian exports south of the border declined to 18 900 tonnes from 20 600 tonnes the previous year. By 1985 it is anticipated Canadian sales to the US will not exceed 19 000 tonnes and could be slightly lower.

TABLE 13

Canadian exports of freshwater fish to the US by major species, 1978-1980

(Quantity, tonnes, value $000)

	1978		1979		1980	
	Q	V	Q	V	Q	V
Perch	1 470	5 512	1 829	10 564	1 769	8 277
Pickerel	2 514	8 380	2 809	12 348	2 294	13 189
Pike	1 315	2 050	1 260	2 737	1 266	2 745
Smelt	3 088	3 189	3 752	4 489	3 524	4 075
Whitefish	5 605	9 932	4 525	10 009	4 577	11 091
Freshwater fish NES	5 556	7 445	6 413	11 280	5 483	10 863
Total freshwater	19 548	36 508	20 588	51 427	18 913	50 240

Source: Statistics Canada, Exports by Commodity. Bulletin 65-004, Ottawa.

G. OVERSEAS MARKETS FOR FRESHWATER FISH

As mentioned previously, the European market has taken an increasingly significant share of Canadian freshwater fish products over the past ten years. This increase is likely due to both the decline in local European supplies of freshwater fish as a result of contamination and pollution in the heavily industrialized countries and more intensive sales efforts on the part of Canadian exporters. In 1969 Canadian sales of these products to Europe accounted for only 3.2% of our exports of freshwater fish while the US accounted for all of the remainder. By 1974 these proportions had changed to 4.7% and 93.9%, and in 1979 shipments to Europe accounted for 13.3% while the proportion taken by the US had declined to 78.2%. Export statistics for 1980 indicate that this trend continued during the year just past: the European market accounted for 20% of our exports, Japan for 12% and the US for 68% of Canada's exports of freshwater fish. In absolute terms the US share of our freshwater fish shipments has also declined - from 22 000 tonnes in 1969 to 20 600 tonnes in 1979 and 18 900 tonnes in 1980. Sales to Europe, on the other hand, have increased from 700 tonnes in 1969 to 3 500 tonnes in 1979 and 5 800 tonnes in 1980.

Thus there has been a significant shift in the direction of trade in Canadian freshwater fish, although the characteristics of the overseas markets vary considerably from country to country. Table 14 shows the trend in exports of freshwater fish to Europe and Japan between 1978 and 1980.

1. Finland

Finland has steadily increased its purchases of freshwater fish products from Canada since the late 1960s. Frozen, dressed whitefish and, more recently, frozen whitefish fillets are the most popular of Canadian freshwater products on the Finnish market, with sales of about 650 tonnes during the period 1977-1979 and more than 800 tonnes in 1980. Finland is not, however, a completely open market since importers are obliged to comply with a fairly stringent system of import licensing and quotas and currency controls. It is anticipated, therefore, that in the period to 1985 Finland will probably remain a steady customer for whitefish, but will not offer much opportunity for significant growth beyond current levels.

TABLE 14
Canadian exports of freshwater fish to Europe and Japan, 1978-1980

(Quantity in tonnes, Value $000)

	1978		1979		1980	
	Q	V	Q	V	Q	V
Perch						
Switzerland	146	858	204	1 807	251	1 770
Other Europe[1]	74	407	147	1 050	224	1 526
Sub-total	220	1 265	351	2 857	475	3 296
Pickerel						
Europe	13	88	--	--	--	--
Sub-total	13	88	--	1	55	209
Pike						
France	1 344	2 715	1 055	2 614	1 239	3 241
Other Europe	60	113	7	10	29	67
Sub-total	1 404	2 828	1 062	2 624	1 268	3 308
Smelt						
Japan	3 162	2 626	2 199	1 867	3 245	2 647
Europe	33	44	44	65	40	29
Sub-total	3 195	2 670	2 243	1 932	3 285	2 676
Whitefish						
Finland	662	862	639	1 066	860	1 470
Other Europe	2 050	3 550	601	1 026	87	139
Sub-total	2 712	4 412	1 240	2 092	947	1 609
Freshwater fish NES						
Sweden	218	466	232	567	277	565
Other Europe	600	658	595	1 081	2 738	2 024
Sub-total	818	1 124	827	1 648	3 015	2 589
All exports						
Europe and Japan	8 362	12 387	5 723	11 154	9 045	13 687

1) With the exception of a few isolated instances of exports to Eastern Europe (chiefly Poland), most of the exports go to Western Europe.

Source: Statistics Canada, Exports by Commodity. Bulletin 65-004, Ottawa.

2. Sweden

The Swedish market for Canadian freshwater fish has developed more recently than that of Finland. Canadian sales to Sweden were very small until 1975, when they expanded rapidly and for the past several years sales have remained at the level of 300 to 400 tonnes annually. Lake trout and whitefish in that order, are the leading Canadian freshwater products, in demand in Sweden.

3. West Germany

From negligible volumes 10 years ago, recorded exports of freshwater fish to West Germany expanded to the range of 100 tonnes to 200 tonnes during the period 1977-79 and consisted mainly of whole frozen pike and frozen yellow perch fillets. The latter product has become increasingly popular in a number of Western European countries in recent years and appears to have won a relatively small but stable market in West Germany. While the market for Canadian perch fillets may be expected to remain stable and perhaps expand slightly, the longer-term prospects will depend on the product's price competitiveness with other meat and fish products and with the state of European supplies of freshwater species, including perch.

In recent years West Germany has also become a significant market for Canadian freshwater eels. Canadian export statistics do not record specific figures for eels, but it is estimated that between 1977 and 1981 exports of this species (principally whole frozen eels to several Western European countries) averaged 1 000 to 1 200 tonnes per annum[1]. West Germany in turn accounted for about 60% of this total yearly.

In the spring of 1982 the West German Ministry of Health undertook to enforce a very stringent tolerance standard for mirex levels in eels. It appears that this standard will likely hamper, at least in the short term, the export sales

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1) Canadian export figures do not record eel products as a separate classification. According to West German import statistics, exports of eels from Canada were about 600 tonnes in 1981.

prospects of a proportion of eels found in some Canadian freshwater habitats. At the time of writing it is not clear what the levels of Canadian eel exports to Western Europe and West Germany will be during the near term pending the resolution of concerns about contamination.

4. France

France has become a significant importer of Canadian freshwater fish products. Between 1974 and 1980 Canadian exports to France increased threefold - from 400 tonnes to 1 300 tonnes. In terms of volume, France has become the largest importer in Europe of Canadian freshwater fish products. Pike, in frozen whole, frozen fillet or block form accounts for more than 80% of Canadian freshwater fish shipments to France. In turn France now accounts for one-half of our total exports of pike products. In the past several years, while frozen whole pike has maintained its level, exports of pike blocks have increased significantly and it is believed that much of the future growth in the French market for pike will be concentrated on block products. In absolute terms, however, it is expected that French imports of pike will soon reach a plateau.

5. Switzerland

Canadian exports of freshwater fish products to Switzerland have increased more than ninefold in the past six years, from 40 tonnes in 1974 to almost 400 tonnes in 1980. In the last several years Canadian frozen perch fillets and, more recently, fresh perch fillets have been in increasing demand by Swiss importers. These two products account for almost all of our sales of freshwater fish products to that country, and Switzerland is the single largest European importer of Canadian perch products. In 1980, Western European countries took almost 30% of Canadian frozen perch fillets exports as opposed to 10% in 1977. Switzerland is an important distribution and transshipment point for a number of food products, including fish, in Western Europe. It should be noted, therefore, that a significant proportion of Canadian perch products exported to Switzerland are in fact consumed in neighbouring countries.

In the period to 1985, it is possible there may be room for further expansion of Canadian exports of freshwater fish, including perch, to Switzerland and other Western European countries, but this would be contingent on several factors:

i) the likelihood that Canadian landings of perch have probably reached a plateau;
ii) the availability of "local" European perch supplies (Ireland is a major supplier of European perch);
iii) the maintenance of good quality of the Canadian product;
iv) the relative price competitiveness of perch with other fish and protein foods.

6. Eastern Europe

In 1978 and 1979 substantial quantities of frozen whole whitefish were exported to Poland under a then-operative commensurate benefits policy related to fishing rights and market access. Although there is probably an underlying potential for increased exports of freshwater fish to eastern Europe, it is also likely that considerations of relative prices for other protein foods and foreign exchange difficulties will preclude any significant development of trade in freshwater fish products to Eastern Europe.

7. Japan

The Japanese market for Canadian freshwater fish is concentrated on frozen whole smelt, and Japan has become an important buyer of this product. From 300 tonnes in 1974, Japanese purchases of frozen freshwater smelt have grown more than 3 000 tonnes in 1980 and Japan now accounts for approximately half of our combined exports of fresh and frozen smelt products. Some efforts have been made to introduce other freshwater fish to the Japanese market, but for the most part these have not been successful.

The prospects for 1985 are that Canadian sales of smelt to Japan will stabilize at near current levels. Indications are that the smelt landings from Lake Erie (accounting for almost all of the smelt catch) will probably not exceed the 11 000 tonnes caught in the past two years. Furthermore, Japanese buyers have shown a decided preference for the smaller-sized portion of the smelt catch, and this would appear to preclude the possibility of establishing a market for larger fish.

TABLE 15

Canadian exports of freshwater fish to the US, Japan and Europe, 1978-1980

Q: tonnes, V: $000)

	1978		1979		1980	
	Q	V	Q	V	Q	V
All Species						
US	19 548	36 508	20 588	51 427	18 913	50 240
Europe	5 200	9 761	3 524	9 287	5 800	11 040
Japan	3 162	2 626	2 199	1 867	3 245	2 647
All Exports	27 910	48 895	26 311	62 401	27 958	63 927

Source: Statistics Canada, Exports by Commodity. Bulletin 65-004, Ottawa.

H. SUMMARY AND CONCLUSION

1. On the basis of information currently available it appears that sales of Canadian freshwater fish will not increase significantly in the period to 1985. Instead of absolute increases in volume, there are indications that the composition of the domestic and foreign markets for freshwater fish will continue to change over the nest five years.

2. The US market for Canadian freshwater fish, which 10 years ago took 85% of Canada's production and more than 90% of exports, is not expected to expand during the next five years. Slow growth rates and anticipated slight increases in domestic supplies suggest that the proportion of Canadian exports going to the US might continue to decline from 67% in 1980 to perhaps 60% in 1985.

3. The Canadian market offers the prospect of a moderate increase in freshwater fish consumption over the next five years. For the past decade Canadians have consumed approximately 15% to 16% of the freshwater fishing industry's output, but in 1979 this share declined to approximately 14%. There are indications, however, that some concentration on new convenience packages designed for easy home preparation may be successful in increasing Canadian consumption of domestic output to 18% or 20% by 1985. As with marine species of fish, however, the ability of the industry to maintain price competitiveness relative to other protein foodstuffs will be crucial in maintaining or increasing the market share.

4. Subject again to price considerations and the maintenance of high quality standards, the trends of the past several years suggest that the Western European market could expand somewhat and take an increasing share of our exports, largely at the expense of the US share. From less than 10% a decade ago, Western Europe accounted for almost 21% of Canada's exports of freshwater fish in 1980. There are indications that sales to Western Europe could increase to perhaps 25% or 30% of total exports by 1985.

5. From very small quantities 10 years ago, Japanese imports of Canadian freshwater smelt increased to 3 000 tonnes more than 10% of total exports) in 1980. Since smelt landings are expected to stabilize at current levels and the Japanese market is not expected to diversify its imports of freshwater fish, sales to Japan are not expected to change by 1985.

6. It appears that the potential production increase for Canadian freshwater fish between 1979 and 1985 will be quite limited, perhaps in the order of 2 000 tonnes from 31 300 tonnes (product weight) in 1979 to 33 300 tonnes in 1985. While total Canadian exports increased from 26 300 tonnes in 1979 to 28 000 tonnes in 1980, exports to the US declined from 20 800 tonnes in 1979 to 18 900 tonnes in 1980, and may continue to decline.

7. In short, the market for Canadian freshwater fish products is expected to increase slightly by 1985 - perhaps by 1 000 tonnes in the domestic market and by 1 000 tonnes (to 29 000 tonnes per annum) in exports.