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

SINGAPORE



Government  
of Canada

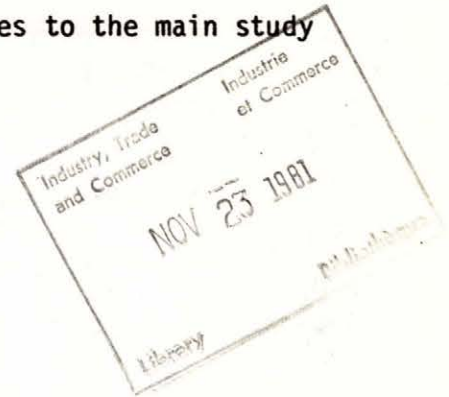
Gouvernement  
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Fisheries  
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Pêches  
et Océans

Canada. Dept. of Fisheries and Oceans. Fisheries Economic Development & Marketing  
Marketing Services Branch.

(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

SINGAPORE

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

With regard to the overall Study, we would like to acknowledge:

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E. Wong  
September, 1981

## 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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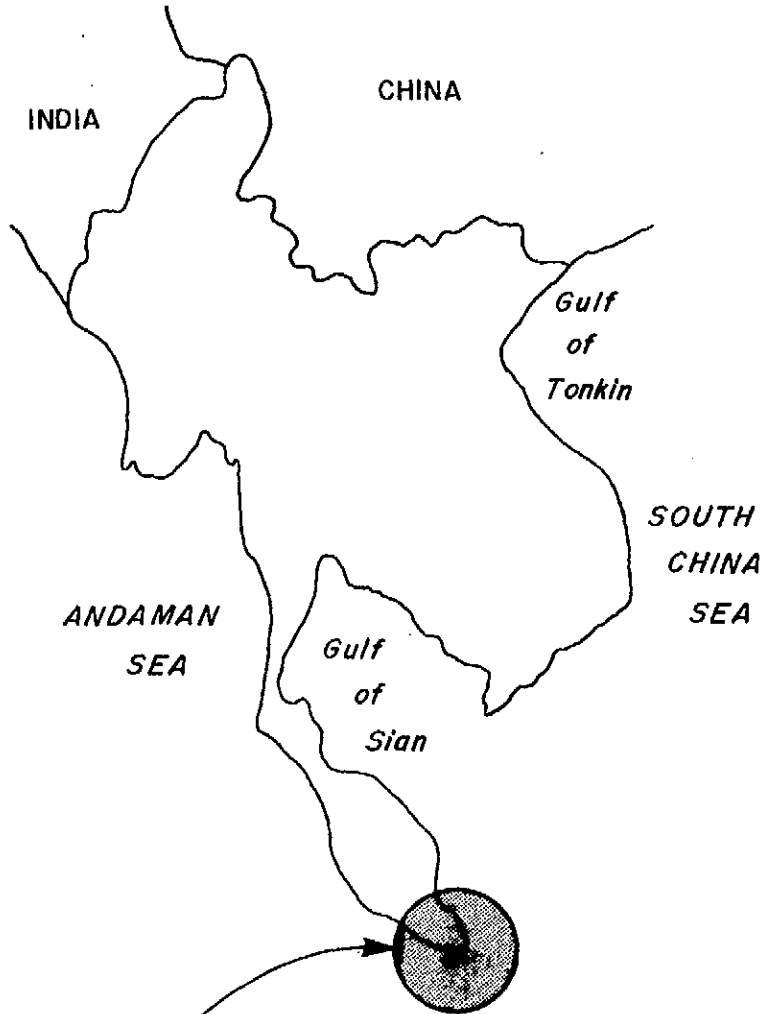
WORLDWIDE FISHERIES MARKETING STUDY

SINGAPORE

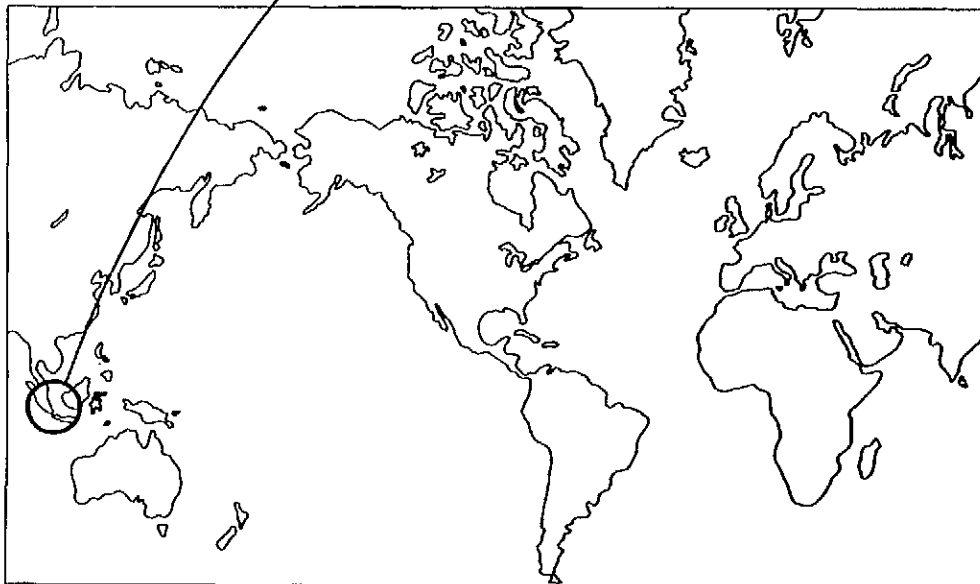
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# SINGAPORE



INDEX MAP



## A. DEMAND FOR FISH

### 1. The Market in General

In common with most Asian nations, Singapore records very high per capita consumption of fish, but its small population is one of a number of factors that would appear to rule it out as a significant growth market for Canadian fishery products.

The Republic of Singapore has become an important and prosperous investment and financial centre in southeast Asia, capitalizing on advantages that include its strategic location on the Strait of Malacca, its well-developed infrastructure, disciplined and skilled labour force, and a stable and efficient government.

The land area is something more than 616.3 square kilometres, including the Island of Singapore itself, plus some 50 small islands within its territorial waters, and reclaimed land.

In 1979, the population was estimated at 2.4 million, and it is expected to reach slightly more than 2.5 million in 1985. The government has in place a family planning program that is designed to achieve zero population growth, but over the past three years the population has grown consistently by 1.2%. This was expected to decline to 1.1% in 1984, and to 1% by 1985.

Singapore's population is a young one, with more than 50% of the people under 29 years of age, and the economy can be considered to be producing virtually full employment. Four official languages are spoken: Malay, Mandarin Chinese, Tamil and English, which is the language of business and administration.

The country's relative prosperity can be measured by the fact that personal incomes have doubled from a weekly average of S\$75.60 in 1972 to S\$131.30 in 1978. Between 1978 and 1979 alone, the weekly average wage increased 18% to S\$154.94 and this trend was expected to continue, as the authorities encourage the development of more specialized skills to promote the development of sophisticated technological expertise for the



production of export items.

Singapore's central location in southeast Asia has made it a natural crossroads. In addition to being the third busiest port in the world (in terms of tonnage handled), Singapore services numerous airlines.

External trade in 1980 was estimated to be about S\$92 billion\* - imports totalling S\$51 billion, exports S\$41 billion. Domestic exports are about 60% of total exports compared with about 40% in 1970. This increase indicates the growing importance of industry to Singapore's overall economy and the decreasing reliance on entrepôt trade.

The major trading partners of Singapore are Japan, the United States, Malaysia and the European Economic Community (EC) which together took 51% of its exports and provided 54% of its imports. In 1977 Canada ranked 26th as a supplier and 23rd as a customer, providing 0.4% of Singapore's imports and taking 1% of the republic's exports.

Singapore is very important in southeast Asia as a regional fish market. It plays two roles, firstly as an important export market for countries in the region, and secondly as a trans-shipment base for fishery products from these countries onward-bound to foreign markets inside and outside the region.

Singapore has facilities to repack, freeze, can and cure fisheries products to international standards. Hence high quality competitive products are widely re-exported from Singapore.

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\* The year end value of S\$1=C\$0.5411 (in 1979) and C\$0.5727 (in 1980).

## 2. Domestic Consumption

Fish consumption in Singapore, amounting to 47 kilograms live weight per capita in 1978, is among the highest in the world, and has remained relatively stable since 1970 in spite of above average price increases for fish in 1978 and 1979.

Singapore has been self-sufficient in eggs, poultry and pork for several years but this has not significantly affected the consumption of fishery products. Species consumed include threadfin (kurau), dorab (parang), Spanish mackerel (tenggiri), prawns and anchovies.

Consumption of fishery products should continue at a high level to 1985, with a modest population growth and substantial increase in real incomes expected. The rate of inflation, which averaged nearly 10% in the first half of 1980 is giving some cause for concern but living standards are rising rapidly, which should increase the demand for high-quality fishery products significantly.

## B. SUPPLY

### 1. Domestic Production

Local production is both from inshore and offshore catches. Fishing in Singapore waters produced about 5438 tonnes in 1978. Offshore fishing is mainly carried out in the South China Sea and parts of the Indian Ocean, and produced about 10 196 tonnes in 1978. An average of 650 tonnes of freshwater fish were also harvested from interior fish farms between 1973 and 1978.

The offshore fishing fleet employs about 1000 fishermen operating 150 boats ranging from 20 to 80 tonnes, but they catch less than 20% of domestic fresh fish supply. Vessels go out five to seven days. The fish is chilled round, immediately upon being caught.

Most fresh fish caught by both the domestic and neighbouring fleets is landed between 10 p.m. and midnight at the Jurong fish port, and is auctioned between 3 a.m. and 5 a.m. If it is to be bought fresh, fish must be sold by mid-morning, due to the high temperatures and lack of refrigeration in local markets. This leads to some wastage as unsold fish must be thrown away or made into meal. Average retail prices of fish in Singapore are shown in Table 1.

The waters surrounding the Republic of Singapore contain various species of fish. The electric ray, sardine, sprat, shad, anchovy, pike eels, barracuda, silversides, dorab, grouper and horse mackerel are still plentiful. The Singapore fish catch is detailed in Table 2.

Domestic production have remained relatively constant over the past nine years (Table 3). With the advent of more extensive fish farming, due to increasing pressure to find alternative domestic production methods, estuarinal and coastal aquaculture using floating cage nets is being encouraged. There is great potential, using these methods, to produce more groupers, golden snappers, red snappers, yellowfin jack, sea bass, perch and milk fish in the near future. With high water temperature and constant feeding these fish can be ready for the market in six months. Some of the more highly-valued species will also be available for export.

TABLE 1

Singapore: average retail prices of fish and other marine products

(Singapore dollars per kati)

1979 average S\$2.1655 = US\$1.00

1 kati = 1.33 lbs.

Period	Threadfin Kurau* (cut)	Dorab Parang* (cut)	Spaniah Mackerel Tenggiri*	Horse Mackerel Selar*	Gold Banded Scad Kunning*	Fresh Prawns	Fresh Cuttlefish	Anchovy Dried Bilis*	Dried Prawns	Mackerel Kembong*
1975	6.70	3.20	2.70	1.76	1.65	6.47	1.42	3.19	4.01	
1976	7.51	3.20	2.79	1.96	1.87	8.41	1.52	3.31	4.28	
1977	8.32	3.34	2.88	1.89	1.98	9.91	1.73	3.83	4.98	
1978	8.99	3.84	3.28	2.04	1.97	10.42	1.77	4.46	5.75	1.79
1979	9.44	4.01	3.26	2.06	1.96	12.46	1.88	4.47	6.29	1.81
1979	3.28	1.39	1.13	0.72	0.68	4.33	0.65	1.55	2.18	0.63

Source: Singapore Department of Primary Production

\* Common Singapore Name

TABLE 2

Singapore: catches of fish, crustaceans, molluscs, etc.

(tonnes)

	<u>1973</u>	<u>1974</u>	<u>1975</u>	<u>1976</u>	<u>1977</u>	<u>1978</u>
Freshwater Fishes NEI	700	680	632	654	754	490
Sea Catfishes	200	203	177	124	144	345
Lizardfishes NEI	200	32	30	117	254	309
Groupers NEI	100	92	80	63	76	210
Biliago-Whitings	100	9	7	24	23	53
Moonfish	0	34	37	10	0	84
Snappers NEI	100	2	3	16	7	55
Threadfin-Breams	700	649	566	452	388	414
Ponyfishes (Slipmouths)	100	77	67	41	24	108
Grunts (Grunters) NEI	0	0	0	7	3	47
Croakers, Drums NEI	300	173	151	176	223	405
Goatfishes	200	67	58	99	232	377
Barracudas	100	0	0	156	234	405
Mulletts NEI	100	0	1	34	0	94
Threadfin	600	311	271	110	180	138
Scads	100	84	73	54	46	147
Jacks, Trevallies	400	206	245	110	179	327
Carangids NEI	200	9	37	33	105	230
Butterfishes, Pomfrets NEI	0	5	16	5	9	62
Clupeoids NEI	700	148	129	168	0	276
Wolf-Herrings	100	83	73	57	25	128
King Mackerels NEI	100	106	93	28	6	109
Skipjack Tuna	0	0	0	4	0	40
Largehead Hairtail	0	52	46	15	25	71
Indian Mackerels NEI	100	85	74	31	29	102
Skates and Rays NEI	200	116	100	170	142	422
Sharks, Rays, Skates, etc.	200	136	118	100	127	271
Marine Fishes NEI	6 500	10 149	9 477	6 727	7 181	4 885
Mud Crab	100	0	0	32	0	62
Marine Crabs NEI	200	116	98	128	41	311
Panulirid Spiny Lobsters NEI	0	0	0	110	4	18
Slipper Lobsters	100	0	8	22	40	44
Natantian Decapods NEI	1 300	1 196	1 043	606	557	1 187
Cuttlefishes NEI	200	2	2	90	129	257
Common Squids	300	202	176	111	141	390
Total	14 300	15 024	13 880	10 684	11 328	12 873

Source: FAO Yearbook of Fishery Statistics, Volume 46.

TABLE 3  
Singapore: fresh marine fish landed and auctioned  
(tonnes)

PERIOD	LOCAL PRODUCTION	IMPORTS	EXPORTS	TOTAL AVAILABILITY	FISH AUCTIONED
1970	16039	50062	5050	61051	60671
1971	14295	53887	3542	64640	62324
1972	14797	53565	5929	62433	61855
1973	17950	57656	6036	69570	65593
1974	18556	51057	6170	63443	64200
1975	16927	50559	7877	59609	65803
1976	15775	53286	8310	60751	65976
1977	14350	69729	24629	59450	67478
1978	15634	68781	30398	54017	66883
1979 Jan	1109	3528	1094	3543	5155
Feb	905	6644	2774	4775	5114
Mar	1562	4964	2568	3958	6168
Apr	1432	5082	2222	4292	5387
May	1454	10569	7269	4754	5093
Jun	1422	8450	5175	4697	5529
Jul	1231	6265	3519	3977	5501
Aug	1381	6398	3472	4307	6087
Sep	1660	4862	1027	5495	6451
Oct	1479	5130	2080	4529	6347
Nov	1385	5083	3956	2512	5740

Note: Since 1969, with the opening of the Jurong Central Fish Market, all fresh fish auctioned has been centralized and the coverage of fish auctioned is now comprehensive.

Source: Singapore Department of Primary Production.

The Singapore government and the Southeast Asian Fisheries Development Centre (SEAFDEC), a regional organization representing the Philippines, Indonesia, Thailand, Malaysia and Singapore, are in the final stages of developing a commercially viable fish farming industry for fish and mussels as well as developing post-harvest technology for the use of "trash" fish to produce fish balls, fish cakes and fish fingers.\*

## 2. Imports

Traditionally, Singapore has depended on neighbouring countries for much of its fresh fish supply. Because local production has changed little in recent years, imports from Malaysia, Thailand, Taiwan and Indonesia have grown in importance. For the most part, imports from these countries are delivered directly to the Jurong market by vessels of the country concerned. In certain cases, transshipment at sea occurs as collector vessels pick-up from offshore suppliers.\* Table 4 shows fish imports by commodity items and species.

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\* There are three departments of SEAFDEC: The training Department in Bangkok, the aquaculture department in the Philippines and the Singapore research department. Various programs receive funding from the Canadian International Development Research Centre.

Singapore research facilities of SEAFDEC include a hatchery-cum nursery, a marine flow culture system, fresh water re-use tank culture and micro-organisms tank culture systems. There is also an experimental fish farm where brood stock is developed and maintained for the production of fingerlings. Freshwater fry are also produced for sale to fish farmers.

Fish: fresh, chilled or frozen

In the first 10 months of 1979, Singapore's imports of fresh and frozen fish included tuna, mackerel and threadfin and were valued at S\$15.4 million. Major suppliers included Malaysia, Thailand and the USSR. Taiwan provided most of the tuna.

Fish: dried, salted or in brine, smoked

Imports of this commodity in the first 10 months of 1979 included 816 tonnes of shark fins worth over S\$16.3 million. Canada and the UK provided almost equal amounts of smoked salmon, total imports of which were 16 000 kilograms valued at S\$572 000.

Crustaceans and molluscs: fresh, chilled, frozen, salted or dried

Malaysia was the principal supplier of prawns and molluscs, with Canada providing small quantities. The total value of the imports was nearly S\$20.5 million in the first 10 months of 1979.

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\* This is one reason why Indonesia is understated as a source of fisheries supply for Singapore in official import data.



TABLE 4

Singapore: movements of selected marine commodities

(January - October, 1979)

COMMODITY DESCRIPTION	IMPORTS		RE-EXPORTS		DOMESTIC EXPORTS		TOTAL EXPORTS	
	Quantity	Value(S\$)	Quantity	Value(S\$)	Quantity	Value(S\$)	Quantity	Value(S\$)
a) <u>Fish: fresh, chilled or frozen</u>								
Tuna, fresh or chilled (tonnes)	290	459 924	698	1 088 096			698	1 088 096
Kembong, frozen - mackerel (tonnes)	57	79 889	158	162 640	280	255 511	438	418 151
Kunning, frozen - gold banded scad (tonnes)	22	15 969	2	1 110	14	10 610	16	11 720
Kurau, frozen - thread fin (tonnes)	29	128 340			4	2 958	4	2 958
Parang, frozen - dorab (tonnes)	11	4 448	17	22 076	15	15 647	32	37 723
Tenggiri, frozen - spanish mackerel (tonnes)	2	4 475	6	12 351	11	11 809	18	24 160
Tuna, frozen (tonnes)	4 947	13 858 998	3 911	10 747 625	3 080	10 465 279	6 991	21 212 401
Fish fillets, frozen (tonnes)	162	783 277	439	1 232 351	172	542 862	611	1 775 213
Fish meal fit for human consumption (tonnes)	83	34 695	9	15 302	1	2 520	9	17 822

TABLE 4 (continued)

COMMODITY DESCRIPTION	IMPORTS		RE-EXPORTS		DOMESTIC EXPORTS		TOTAL EXPORTS	
	Quantity	Value(S\$)	Quantity	Value(S\$)	Quantity	Value(S\$)	Quantity	Value(S\$)
Cod, excluding fillets, dried (tonnes)	6	49 856		848		30		878
<b>b) <u>Fish: dried, salted in brine or smoked</u></b>								
beche-de-mer (tonnes)	555	4 240 991	509	2 660 738	10	43 749	520	2 704 497
Fishmews (tonnes)	139	1 565 636	385	3 062 915	1	7 130	386	3 010 945
Ikan bilis, dried or salted - anchovy (tonnes)	1 152	1 922 367	1 693	2 963 466	25	54 921	1 718	3 018 387
Sharks' fins, dried or salted (tonnes)	816	16 328 853	385	3 970 187	15	149 139	399	4 119 326
Salmon, smoked (kg)	15 909	571 699	4 080	155 897			4 080	155 892
<b>c) <u>Crustaceans and Molluscs: fresh, chilled, frozen, salted or dried</u></b>								
Lobster and crayfish, frozen (kg)	11 982	2 244 390	36 052	4 442 637	64 860	1 298 520	200 913	9 741 157
Oysters, frozen (kg)	23 784	249 199	1 331	14 856	614	2 200	1 945	17 056
Cuttle fish & squids, frozen (kg)	10 364 657	14 799 782	11 461 923	28 955 041	899 687	2 060 293		
Mussels, frozen (kg)	120	715						
Mussels, salted dried or boiled (kg)	10 016	68 103	7 921	44 499	596	892	8 517	49 391
Clams, frozen (kg)	8 686	157 164	1 086	20 117	271	1 225	1 303	21 342

TABLE 4 (continued)

COMMODITY DESCRIPTION	IMPORTS		RE-EXPORTS		DOMESTIC EXPORTS		TOTAL EXPORTS	
	Quantity	Value(\$)	Quantity	Value(\$)	Quantity	Value(\$)	Quantity	Value
Abalone, frozen (kg)	2 670	64 238	42	4 200			42	4 200
Abalone, salted dried or boiled (kg)	9 932	2 202 584	4 263	365 306			4 263	365 306
Jelly fish (tonnes)	284 906	718 355	179 420	1 097 187	1 500	9 900	180 920	1 107 087
d) <u>Fish: crustaceans and molluscs: canned, prepared or preserved</u>								
Herrings & brislings, canned (kg)	36 607	298 415	12 491	48 487			12 491	48 487
Mackerels, canned (kg)	2 822 910	5 426 952	1 746 265	3 359 597	25 267	50 737	1 771 532	3 410 334
Pilchards, canned (kg)	1 041	20 277	73	345			73	345
Salmon, canned (kg)	33 394	303 905	4 728	56 704	1	29	4 729	56 733
Sardines, canned (kg)	5 482 536	10 777 197	1 924 836	3 832 327	16 262	39 272	1 941 997	3 871 590
Fish fingers (kg)	70 648	580 642	3 773	38 864	80	5 090	3 853	43 954
Fish, boiled or steamed (kg)	876	59 805	174	561	1 883	5 012	2 056	5 573
Sharks' fins, prepared (kg)	9 546	409 251	3 245	89 864	21 259	1 131 923	24 504	1 221 787
Abalone, canned (kg)	43 368	8 609 406	245 507	3 860 966	838	17 452	246 344	3 878 418

TABLE 4 (continued)

COMMODITY DESCRIPTION	IMPORTS		RE-EXPORTS		DOMESTIC EXPORTS		TOTAL EXPORTS	
	Quantity	Value(S\$)	Quantity	Value(S\$)	Quantity	Value(S\$)	Quantity	Value(S\$)
Crabs, canned (kg)	17 760	74 359	3 825	29 205			3 825	29 205
Cuttlefish, canned (kg)	307 540	729 752	45 719	129 157	129 357	63 870	58 691	193 227
Prawns & Shrimps, canned (kg)	119 212	335 734	25 261	88 435	82 707	264 703	107 968	353 158
Other crustaceans, molluscs & preps, canned (kg)	262 066	1 173 103	27 696	151 959	45 094	137 022	72 790	288 981

Fish, crustaceans and molluscs: canned, prepared or preserved

Most salmon come from Japan and the US. Japan provided most of the canned sardines while China was the main supplier of canned herring, although a large proportion (about 5% of other canned fish) was shipped from Malaysia. New Zealand, Mexico and Australia dominated the Singapore market for abalone. Canada has been selling modest quantities of canned herring, canned salmon and other canned fish.

Singapore's major imports from Canada were smoked and canned salmon. A total of 20 800 kilograms of these products, valued at nearly S\$416 000 were purchased in 1978.

Small quantities of the following were also imported:

- molluscs: fresh, chilled or frozen;
- prawns: fresh, chilled or frozen;
- herrings and brislings: canned;
- other fish: canned, and other fish preparations including caviar.

3. Exports

Singapore plays a major role as a re-exporter of certain marine items, as can be seen in Table 5. Over 90% of the tuna exported in 1978 was re-exported, as well as a considerable proportion of molluscs. The exports of canned and preserved fish and molluscs indicate the importance of Singapore as a regional fish processor.

Fish: fresh, chilled or frozen

In the first 10 months of 1979, Singapore exported fresh and frozen fish valued at S\$24.6 million, 54% of which was classed as re-exports. Japan was the principal market for fish other than tuna. The US purchased nearly 70% of Singapore's exported tuna. Canada imported a small quantity of freshwater fish.

Fish: dried, salted or in brine, or smoked

Hong Kong was the major market for fish maws, salted shark fins and smoked fish. Sarawak was the major market for dried and salted fish. Malaysia imported sizeable quantities of most categories, especially smoked salmon and beche de mer (sea cucumber).

Crustaceans and molluscs: fresh, chilled, frozen, salted or dried

Total exports of these items in the first 10 months of 1979 were valued at S\$42.3 million, 82% as re-exports. The US was the major market for salted crustaceans, together with Australia and Hong Kong. Japan, Hong Kong and Malaysia received most of the non-oyster molluscs, salted and dried. Japan was a very valuable market for freshwater prawns (chilled or frozen) together with Hong Kong and, to a lesser extent, Italy.

Canada rates as a modest market for Singapore fish exports. None of the quantities or values are very large, but export manifests include: freshwater fish, fish maws, salt marine fish, beche de mer, crustaceans, canned horse mackerel and shark fins. Shark fins were the leading item, worth S\$204 140 in 1978.

TABLE 5

Singapore: fish exports and domestic exports from Singapore  
by commodity item and country of destination, 1978  
(Value = \$000)

	<u>Total Exports</u> (Jan-Dec)		<u>Domestic Exports</u> (Jan-Dec)	
	<u>Quantity</u>	<u>Value</u>	<u>Quantity</u>	<u>Value</u>
a) Fish: fresh (alive or dead), chilled or frozen				
<u>Marine fish excluding tuna, fresh chilled or frozen (tonnes)</u>				
Japan	5 445	7 944 009	223	366 077
Malaysia				
Peninsular	2 224	1 662 920	2 030	1 473 038
Others	2 180	5 218 928	159	458 347
Total	9 849	14 825 857	2 412	2 297 462
<u>Freshwater fish, fresh, chilled or frozen (tonnes)</u>				
Canada	1	13 852		
Hong Kong	30	62 968		
US	53	167 843		
Others	8	70 087		
Total	92	314 750		2 100
<u>Fish fry, alive</u>				
Total		541 359	1 239	269 521
<u>Tuna, fresh chilled or frozen (tonnes)</u>				
Italy	2 268	5 662 548	1 239	3 035 082
Japan	1 794	3 893 510		
US	9 488	22 825 106		
Others	358	681 460		
Total	13 908	33 062 624	1 239	3 035 082

TABLE 5 (Cont'd)

	<u>Quantity</u>	<u>Value</u>	<u>Quantity</u>	<u>Value</u>
<u>Marine aquarium fish (100)</u>				
Total	2 922	253 081	2 699	197 646
<u>Freshwater aquarium fish (100)</u>				
Total	1 441 297	32 198 242	1 384 008	30 912 754
b)	<u>Fish: dried, salted or in brine: or smoked</u>			
	<u>Fish maws (tonnes)</u>			
Total	73	711 986	2	30 046
	<u>Shark fins, salted or dried, not further prepared (tonnes)</u>			
Total	459	3 252 259	8	82 869
	<u>Marine fish, salted or dried (tonnes)</u>			
Total	3 332	6 652 438	139	194 124
	<u>Freshwater fish, salted or dried (tonnes)</u>			
Total	35	101 291	3	8 271
	<u>Salmon, smoked (kg)</u>			
Total	2 883	85 424	--	--
	<u>Fish, excluding salmon, smoked (kg)</u>			
Total	40 685	272 328	32	791
	<u>Bèche de mer (tonnes)</u>			
Total	515	1 671 530	--	826
c)	<u>Crustaceans &amp; molluscs: fresh, chilled, frozen, salted, in brine or dried</u>			
	<u>Crustaceans: salted, dried or boiled (tonnes)</u>			
Total	921	5 611 769	189	1 257 055



TABLE 5 (Cont'd)

<u>Oysters, fresh, salted, dried or boiled (kg)</u>				
Total	108 166	339 596	7 770	15 788
<u>Molluscs, excluding oysters, fresh chilled or frozen (tonnes)</u>				
Total	2 936	7 741 959	957	2 026 820
<u>Molluscs, excluding oysters, salted dried or boiled (tonnes)</u>				
Total	1 013	5 146 239	14	18 872
<u>Prawns, fresh chilled or frozen (kg)</u>				
Total	3 486 936	24 455 442	1 499 787	8 319 211
<u>Crustaceans, excluding prawns, fresh chilled or frozen (tonnes)</u>				
Total	126	1 262 499	101	1 021 879
d)	<u>Fish: crustaceans &amp; molluscs, canned, prepared, or preserved</u>			
	<u>Sardines, canned (kg)</u>			
Total	3 112 732	6 790 986	25 874	887 379
	<u>Herring &amp; brislings, canned (kg)</u>			
Total	170 771	182 552	--	--
	<u>Horse mackerel, canned (kg)</u>			
Total	5 815 741	11 497 797	133 158	249 280
	<u>Salmon, canned (kg)</u>			
Total	5 466	74 649	--	--
	<u>Tuna, canned (kg)</u>			
Total	82 510	367 261	19	216
	<u>Fish paste (kg)</u>			
Total	53	528	--	--

TABLE 5 (Cont'd)

<u>Shark fins, prepared (kg)</u>				
Total	29 975	1 120 197	25 089	952 710
<u>Fish, boiled or steamed (kg)</u>				
Total	597	3 286	363	150
<u>Other fish, canned (kg)</u>				
Total	335 339	1 071 821	245 483	617 333
<u>Other fish &amp; fish preparations, including caviar (kg)</u>				
Total	328 808	1 019 737	42 275	173 393
<u>Abalone, canned (kg)</u>				
Total	185 197	2 627 533	1 400	9 939
<u>Crustaceans, molluscs &amp; preparations, excluding abalone, canned (kg)</u>				
Total	481 334	1 603 018	21 494	981 756
<u>Crustaceans, molluscs &amp; preparations, not canned (kg)</u>				
Total	1 205 133	3 935 133	660 775	2 415 955

Source: Singapore Department of Primary Production

#### 4. Demand/Supply Balance

It can be seen from the previous section and Table 5 that Singapore is a substantial net exporter of fish, although its domestic production satisfies only a fifth to a quarter of its local demand. Thus the export-import balance is an unusual concept in this context. Singapore specializes in adding value to the fish it imports before passing it to its domestic market or for export.

The outlook for production in the national and international waters around Singapore remains reasonably favourable and it is unlikely that the republic will become a net importer of fish in the foreseeable future. However, this does not preclude expansion of trade, particularly in highly desirable species. There may be increased imports of salmon and expanded exports of fresh, chilled or frozen prawns.

C. POTENTIAL FOR CANADIAN SALES

Trade relations between Canada and Singapore are carried out under the umbrella of common membership in the General Agreement on Tariffs and Trade (GATT). Most Canadian exports to Singapore enter duty-free, and Singapore's exports to Canada benefit from its status under Canada's General Preferential Tariff. Commercial relations with Singapore are also facilitated by the existence of a bilateral Convention for the Avoidance of Double Taxation and by a Foreign Investment Insurance Agreement.

Since it is a "free port" and a country in need of raw resources, there are very few government restrictions on fish sales to Singapore. There are no quotas, import taxes or trade barriers on marine products. However, due to the small size of the market, including re-exports, and the long transportation haul, particularly from Canada's east coast, large markets cannot be anticipated for Canadian fishery products.

1. Market Potential by Species and Products

Salmon: smoked and canned

The potential for continued sales of salmon is good, particularly with the development of the new and enlarged Singapore Airport. It is expected that over 10 million passengers a year will pass through Singapore in the early 1980s. Increased activity in search of offshore oil in the area and the demand for high-quality foodstuffs to feed the crews of drilling rigs will lead to larger markets for specialty products. These may expand opportunities for sales of Canadian salmon and other quality items.

Fresh fish

Singapore's large Chinese population prefers fresh fish over frozen products. This indicates that sources closer to Singapore will continue to be the major suppliers. The government expects that imported fresh fish will eventually meet about 80% of domestic demand.

Because of higher prices paid for fish products in Singapore compared to its neighbours, foreign fishermen have a net revenue advantage by delivering to Singapore. Malaysian suppliers also truck fresh fish into the country. These market pricing incentives are expected to operate so as to continue to meet the needs of the Singapore population through the 1980s.

Convenience foods: frozen, prepared and dried

The sector of the domestic Singapore market that appears to offer the greatest potential for Canadian export expansion is in convenience fishery products. Suppliers should concentrate on increasing sales of items currently being exported to Singapore, and on identifying new products.

Rising incomes are stimulating the demand for higher valued fresh and processed fish products. In addition, the growing trend toward two or more working adults per family, has begun to increase the demand for processed products that can be easily stored and quickly prepared for consumption. These would include frozen and prepared fishery products which are rapidly increasing in popularity. The government is encouraging Singaporeans to buy frozen fish to hold down consumer prices as increased fuel prices, causing the rising cost of fresh fish, means that frozen fish is less expensive.

The USSR has increased its supply of frozen fish to Singapore mainly through MARISSCO (a joint venture enterprise between the Russian fishing company, SOVRYOFLOT and Straits Fisheries of Singapore). The Soviets provide the fleet and the Singapore partners process and market the finished products.

Frozen squid (round and tubes)

It might seem that there is some potential for frozen Canadian illex since Singapore imported some 10 300 tonnes in January-October, 1979. Most of this was imported by MARISSCO, the joint venture mentioned above. However, the Singapore market absorbed this product very slowly and

considerable inventories remained in early 1980. This suggests that the potential for frozen squid exports is limited and needs thorough investigation before attempting to enter this market.

#### Dried squid

South Korea dominates the market for dried squid in Singapore and has become the consumers first preference. However, a recent decline in imports from that country was partly replaced by Canadian squid. But this situation could be reversed by changes in squid supply which are characteristically erratic.

#### Dried shark fins

Shark fins can be marketed if properly dried, with final processing in Singapore. Dogfish fins may also be used. Shark or dogfish fins should be packed in airtight polyester bags, because of their strong odour.

#### Dried sole

Another popular product in Singapore is dried sole, made from flounder for whole dried, or lemon sole for dried fillets. Taiwan is the main supplier of lemon sole, while Hong Kong supplies most of the flounder.

#### Groundfish (Atlantic and Pacific, all species)

There is virtually no demand, nor is there any potential market in Singapore for Canadian groundfish in its traditional forms. There might be a very limited market for cod among the expatriate community and some overseas-educated Singaporeans. There may also be some potential for rockfish that may be a substitute for grouper, a very popular local fish. Products in sauces that are familiar in Singapore include barbecue, tomato and soy.

#### Other species and products

There is a great demand for live geoducks in Singapore and some demand

for king crab, and to a more limited degree, dungeness, snow and queen crab, frozen and canned. The dried air bladders of large cod are in demand and bring a good price. There may also be some potential markets for frozen maws, which could be thawed and dried in Singapore. There is very little potential for scallops and virtually none for Canadian oysters, clams and live lobsters. However, there is potential for abalone, frozen and dried; seal penises, frozen and dried; dogfish meat for surimi; and stockfish or larger whole groundfish salted.

## 2. Market Entry Requirements and Barriers

The sale of Canadian fish and fish products to Singapore has been largely handled through Canadian or foreign trading houses, rather than directly by Canadian fish packers or processors. Many importers have their main offices, branch offices and/or agents in Hong Kong. As their importing prices are higher than those of Hong Kong, they would prefer to import from exporting sources directly. Although regular shipping is available between Canada and Singapore, it is difficult and costly to ship small orders.

However, a well-connected agent who handles other Canadian products from the same geographical region may be able to help consolidate shipments into containers to facilitate transportation. Such an agent could also handle any local difficulties, deal with credit matters and operate within the Singapore system. One advantage for Canadian businessmen is that the legal system in Singapore is relatively easy to understand since it is similar to that of Canada. About 380 Canadian exporters have agents in Singapore, usually on an exclusive basis, although some products can be handled on a non-exclusive basis for a trial period.

Food products are handled by importers who sell to small retailers and a few large firms which import, wholesale and retail, through their own supermarkets or, in the case of chandlers, direct to shipping, oil drilling and airline companies. More than 30 Canadian companies have their own sales offices in Singapore.

### Retail and wholesale trade

There are currently three large supermarkets in Singapore, which serve not only expatriates but also the foreign-educated and middle-class Singaporeans. They are Cold Storage, a British company with three large stores and a wholesale operation; Fitzpatrick's, mainly selling American and Canadian brands with six stores; and Yohan's, a Japanese supermarket with two branches.

### Brand name identity and a trade consortium

A number of importers suggested that they would prefer to deal with packers rather than with trading companies removed from the producers. One way to resolve these communication difficulties could be the establishment of a Canadian export consortium or company for the Singapore or southeast Asian markets. This company would develop and promote product lines and brand names. Brand names such as Red Lion - red being a lucky colour to the Chinese, and lion being the symbol of Singapore - would have some appeal. Perhaps a secondary brand, Gold Lion, could be directed toward the expatriate and educated upper middle-class community.

Such a consortium could save the smaller independent operators much time and effort trying to sell products in southeast Asia. A sharing of transportation and promotion costs could help move more products into this market. This technique has been helpful to other Canadian exporters in the past.

D. SUMMARY AND CONCLUSION

1. The Republic of Singapore, with a superior economic base in terms of its trade, gross domestic product, personal consumption, unemployment, and other economic factors compared with neighbouring countries, can provide the incentive of price to attract fresh and processed fishery products. As a free port and a country in need of raw resources, it has very few government restrictions on fish sales. There are no quotas, import taxes, or trade barriers on marine products.
2. The Department of Primary Production in Singapore anticipates that by 1985, 80% of all fresh fish and over 95% of all frozen fish consumed in the republic will be imported.
3. The higher consumption level of fresh as opposed to frozen products, would indicate that Canada probably will not be a large supplier to Singapore. The main Canadian products will probably continue to be salmon (frozen, smoked or canned), dried squid and canned fish. Canned fish is preferred in tomato sauce rather than in oil. Prospects for smoked fish is limited to the expatriate population, the hotel industry and ship-chandling trade. Should regional oil exploration and logging companies increase their activities, some growth is foreseen for specialty fish items as these companies obtain their major requirements from Singapore.
4. Transportation costs will probably continue to limit Canadian exports to Singapore. Moreover Singapore's requirement per-shipment basis is relatively small, since large stocks are normally not required, because of the small domestic market. As a market for Canadian fish products, Singapore has limited potential not only as a consumer but also as a distributor for and re-exporter to the countries in the region. In these roles Singapore imports of fish and fish products should continue to grow modestly.
5. Singapore's prosperous population (per capita income is about S\$1 700) is increasingly taking-to home refrigeration and with a growing number of working wives and the rising cost of employing servants, the purchase of



frozen products will marginally increase. Some of these products could come from Canada as well as from the US, UK, Denmark, Netherlands and Norway. But the consumption of luxury and specialty items will not be in large volumes, because Singapore has only a small expatriate population.

APPENDICES

APPENDIX I  
SINGAPORE MARKET: TARIFFS AND TRANSPORTATION

There are no tariffs for the import of fish and fish products into Singapore. All Canadian exports valued at C\$500 or more must be accompanied by Canadian customs export form B-13 (Canada Customs Export Declaration).

The Department of Primary Products has yet to formulate health regulations and other requirements for packaging and labelling for the importation of fish and fishery products into Singapore. However, measures will be imposed as and when necessary, on an import of any fish product should it be found unfit for human consumption. The importer should own a licence for imports, exports and transshipment of fish. Such a licence is available through the Department of Primary Products.

As for customs requirements, the importer should make the required inwards declaration for every consignment. In the case of entrepot or in-transit goods, an export permit is required. Consignment and/or destination of entrepot goods may not be changed without authorization from the country of origin.

Much of Singapore's transit-trade is handled within the Free Trade Zone where goods may be loaded, stored, repacked and transhipped. Goods do not pass through Singapore customs unless they are removed from this area.

APPENDIX II

SHIPPING SERVICES BETWEEN CANADA AND SINGAPORE

Zim: three a month from  
Container Halifax  
Service

Containers, general cargo and  
refrigerated cargo; full containers  
and LCL accepted in Toronto and  
Montreal.

From Western Canadian Ports:

<u>Lines</u>	<u>Sailings</u>	<u>Accommodation</u>
Orient Overseas Container Line	Twice a month from Vancouver	Full container service
Mitsui O.S.K. Lines, ) Y.S. Line, ) Japan Line )	Weekly from Vancouver	Full container service

Container and general cargo sources

From Eastern Canadian ports:

<u>Lines</u>	<u>Sailings</u>	<u>Accommodation</u>
Barber Blue Sea Line	Twice a month from Saint John	Containers, general cargo, refrigerated cargo and bulk liquids; full containers and LCL accepted in Toronto and Montreal.

From Western Canadian Ports:

<u>Lines</u>	<u>Sailings</u>	<u>Accommodation</u>
East Asiatic Company	Twice a month from Vancouver	Containers, general cargo, refrigerated cargo and bulk liquids.
Fesco Lines	Monthly from Vancouver	Containers and general cargo.
Hoegh Lines	Monthly from Vancouver	Containers, general cargo, refrigerated cargo and bulk liquids.
Knusten Line	Twice a month from Vancouver	Containers, general cargo, refrigerated cargo and bulk liquids.

Lykes Line	Monthly from Vancouver	Containers, general cargo, refrigerated cargo and bulk liquids.
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Indirect shipping services by sea (transshipment)

From Eastern Canadian Ports:

<u>Lines</u>	<u>Sailing</u>	<u>Accommodation</u>
Japan ) Line, ) Mitsui ) O.S.K. ) Lines, ) NYK Line, ) Y.S. Line)	Weekly from Saint John	Full container service, containers accepted in Montreal and Toronto.
Orient Overseas Container Line	Twice a month from Saint John	Full container service; containers accepted in Montreal and Toronto.

Shipping services by air

There are no direct flights from Canada to Singapore. Canadian Pacific Airlines offers a good service from Vancouver to Hong Kong, which connects with Cathay Pacific flights to Singapore. From Eastern Canada, Air Canada connects with Singapore Airlines in London, England, and other flights from major centres in Europe. Singapore Airlines and Continental Airlines inaugurated scheduled air services between the US west coast and Singapore in the second half of 1979.

Prices and quotations

Prices should usually be quoted CIF Singapore, US or Canadian dollars. At the early discussion stage, when the Singapore buyer just wants an idea of the cost, FOB prices are acceptable provided an estimate of insurance and freight costs is given as well. A Canadian forwarder can help with this estimate.

Invoices with printed offers of discounts for quick payment should not be used if the customer cannot meet the condition because of the distances involved and consequent delays in making payments due to the postal service.

Usual terms and methods of payment

Established Singapore importers usually have an excellent payment performance record, but initially it is best to ask for payment by irrevocable letter of credit. Once the business relationship is well established, a variety of credit terms can be used, but should almost always be preceded by a current credit check.

APPENDIX III  
LIST OF FISH PROCESSORS AND IMPORTERS

PROCESSORS

CENTRAL FISH PROCESSING FACTORY  
9 Jalan Tepong  
Jurong  
Singapore 2261  
Tel: 651-042

PAN SEAS ENTERPRISES (PTE) LTD  
15 Jalan Tepong  
Jurong  
Singapore 2261  
Tel: 650-557

GRANDSEA PTE LTD  
21 Fishery Port Road  
Jurong  
Singapore 2261  
Tel: 652-561

SINGAPORE FROZEN FOOD CO PTE LTD  
486 Tanglin Halt Road  
Singapore 0314  
Tel: 641-023

HOCK BEE FROZEN FOOD ENTERPRISE PTE LTD  
10 Fishery Port Road  
Jurong  
Singapore 2261  
Tel: 2689-144

THEY SENG TRADING CO PTE LTD  
19 Fishery Port Road  
Jurong  
Singapore 2261  
Tel: 2214-587

MARINE FOODS (PTE) LTD  
11 Jalan Tepong  
Jurong  
Singapore 2261  
Tel: 2611-562

TRI-MARINE ASSOCIATES (PTE) LTD  
15 Fishery Port Road  
Jurong  
Singapore 2261  
Tel: 656-388

MARISSCO (PTE) LTD  
5 Jalan Tepong  
Jurong  
Singapore 2261  
Tel: 2618-209

FAR OCEAN SEA PRODUCTS (PTE) LTD  
25 Fishery Port Road  
Jurong  
Singapore 2261  
Tel: 656-415

MONTANA FROZEN FOOD PTE LTD  
1 Fishery Port Road  
Jurong  
Singapore 2261  
Tel: 2611-125

NGOH AI FROZEN FOODS PTE LTD  
15 Blk 19 Marsiling Ind. Est  
Singapore 2573  
Tel: 2696-023

OCEANWIDE FROZEN FOOD LTD  
Blk, 1011, Toa Payoh  
Lorong 8  
Singapore 1231  
Tel: 2567-075

IMPORTERS

Chin Guan Hong (Shark fin)  
Pte Ltd  
17 North Canal Road  
Singapore 0104

Cold Storage Singapore Pte Ltd  
Empire Dock  
Singapore 0409  
Tel: 4790-111

Fitzpatricks Food Supplies  
2 Enterprise Road  
Singapore 2262  
Tel: 2618-411

Hock Bee Fishing Ind. Co.  
10 Fishery Port Road  
Singapore 0105  
Tel: 2689-144

Hoo Thye  
109/111 & 113 Ellenborough St  
Singapore 2261  
Tel: 435-592

Jasons Supermarket  
G1 Orchard Towers  
Singapore 0923  
Tel: 2354-355

Lee Brothers Poultry Inds.  
15 Chin Bee Avenue  
Singapore 2261  
Tel: 2612-743

Lian Aik Hang  
39 Hongkong Street  
Singapore 0105  
Tel: 434-665

S.J. Low Bros & Co  
32 Wallich Street  
Singapore 0207  
Tel: 2223-437

Mr. Reginal Tan, Administrator, is very knowledgeable of Canadian products and Singapore markets and would be a valuable source of information. He would be pleased to comment on samples of dried marine products.

Malayan Refrigerating Co  
200 Cantonment Road  
Singapore 0208  
Tel: 2218-522

Sin Sar Trading Pte Ltd  
55-A China Street  
Singapore 0104  
Tel: 983-930

Singapore Frozen Food Co  
406-B Tew Chew Street  
Singapore 0105  
Tel: 914-843

They Seng Trading Co  
38 Nelson Road  
Singapore 0409  
Tel: 2214-181

Chia Teck Soon Trading Co  
56 South Bridge Road  
Singapore 0105  
Tel: 2227-045

Guan Soon & Co Pte Ltd  
37 Hongkong Street  
Singapore 0105  
Tel: 967-60

Hiap Heng Chen (S) Pte Ltd  
5/6 North Canal Road  
Singapore 0104  
Tel: 929-57

Primary Industries Enterprise  
4th Floor URA Bldg  
Maxwell Road  
Singapore 0106  
Tel: 2218-511

Sin Guan Huat Fishing Ind Co  
113 Golden Mile Tower  
Singapore 0719  
Tel: 2589-476

Song Fish Dealer  
90 Deport Lane  
Singapore 0410  
Tel: 2730-861

\* Singapore Food Industries Pte Ltd  
Cable Add Foodsing  
Singapore  
Telex RS 26090

\* This is a crown Corporation which purchases food for gov. institutions, police, military, and prisons.



APPENDIX IV  
SINGAPORE FISHING FLEET

A breakdown of the types of fishing vessels is shown below. Although the number of licensed fishing vessels was reduced to 719 in 1978, down by 17 from 1977, the total gross registered tonnage of powered fishing vessels increased from 6 077 GRT to 6 711 GRT, as fishermen replaced smaller vessels with larger ones.

Singapore Fishing Vessels Licenced  
(end of period)  
(number)

<u>Year</u>	<u>Total</u>	<u>Non- Powered</u>	<u>Powered Inboard</u>	<u>Powered Outboard</u>	<u>Licenced Fishermen</u>
1968	1616	890	252	474	3902
1969	912	347	258	307	1348
1970	932	361	273	298	1919
1971	794	221	284	289	2209
1972	776	241	258	277	2265
1973	816	287	245	284	2277
1974	769	260	240	269	2194
1975	737	238	236	263	2059
1976	709	216	228	265	1986
1977	736	197	250	289	2078
1978	719	173	243	303	2084

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Source: Singapore Department of Primary Production.

APPENDIX V  
SINGAPORE: REGIONAL CONSTRAINTS AND GOVERNMENT AID  
TO FISHERY DEVELOPMENT

Further expansion of the Singapore fishing fleet, beyond modernization and upgrading, is not foreseen in the immediate future due to several factors:

- (1) The territorial waters of Singapore are relatively small in size (estimated 956 square kilometres) and have contributed an average of less than one quarter of the total domestic landings for the past six years, with the balance being supplied by Singapore vessels fishing offshore "traditional" grounds. Many of these traditional fishing areas are being claimed as territorial waters by coastal states. If traditional fishing rights are not recognized, or if other arrangements to permit fishing are not made, then Singapore could lose a substantial portion of the catch by its national fleet. It should be noted that Singapore will not have a 200-mile limit because it is considered to be in the category of "land-locked and geographically disadvantaged state" because of the proximity of Malaysia and Indonesia. On March 15, 1980, Malaysia announced plans to introduce an Exclusive Economic Zone (EEZ). The effects of this announcement are still unclear.
- (2) The successful development of commerce and industry has resulted in higher wages, particularly in the areas of manufacturing and construction. This economic prosperity has caused many coastal fishermen to seek shore-based employment where working conditions and earnings are better than at sea.
- (3) At times, the price of fish landed by foreign trawlers is lower than the price paid for domestic production. The larger volume of imported fish at its relatively lower price tends to keep the price of local fish lower than levels that would normally be dictated by the cost of production or by market conditions associated with lower imports.

- (4) The higher than normal risks in the fishing industry make it difficult to obtain funds at a reasonable cost. The strong demand for capital by other sectors of the economy makes it even more difficult. As opposed to Canada and the US which subsidize new fishing vessel construction in a number of ways, the Singapore government does not make direct loans or assist in procuring them for fishing vessels.

The Government of Singapore has recognized the constraints in building up a Singapore flag fishing fleet, and has put effort and assistance in other directions to make up for the fleet's diminishing size. Foreign fishing vessels may enter, clear and dispose of their catch with free port privileges and a minimum of formality. Immigration laws are flexible to allow immigrants to fill seasonal, unskilled and other jobs to counter shortages of labour.

To develop the secondary processing industry, several joint-venture agreements were made between companies in the Republic of Singapore and companies in countries such as Australia, Italy, Korea, Taiwan and USSR, which possess fishing capability, technical expertise or access to foreign supply. The Government of Singapore itself does not get involved directly in the joint-ventures, but leaves these arrangements to the partners.

The government has expressed no concerns about the extent of foreign ownership. It is becoming evident that vertical integration with control over fishing effort makes raw material supply more assured, so joint ventures usually incorporate a capability for catching fish.

Fish merchants finance fish buying activities in countries shipping fresh fish to Singapore, and also for buying exportable products. Local businesses are financing vessels of foreign registry that fish out of Singapore.

The government of Singapore provides both direct and indirect incentives for secondary fisheries development. In the past, these have taken the form of:

- (i) infrastructure such as wharf, port and market facilities, free or at nominal cost (e.g. Jurong Central Fish Market);

- (ii) land for secondary industry at centralized locations on long-term, nominal cost lease arrangements (e.g. Jurong Fishing Harbour Complex);
- (iii) free technical services, such as quality and health control and laboratory facilities to assist meeting import and export standards; and
- (iv) loans for fishery industries made either direct or through government banks or other agencies.

The Fisheries Division of the Singapore Primary Products Department continues to be the authority which carries out research and regulates the fishing industry by licensing fishermen, fishing boats, fish farms and fish processing plants, as well as providing services in the issuing of health certificates and the conducting of tests for the export of processed fish products.

## APPENDIX VI

### POTENTIAL MARKETS FOR CANADIAN PRODUCTS

#### 1. Dried Squid

In the first six months of 1980, Canada did supply 162 metric tonnes of dried squid to Singapore. Some sales of Canadian Illex were made through Hong Kong importers.

Buyers perceived three types of dried squid shipped from Canada in 1979. The best quality, with a light powdery appearance, was the 100 percent sun dried product. The mechanically dried squid did not have quite the appeal although it generally had a standard shape and size making it acceptable for processing. There was also the half-sun/half-mechanically dried squid which could be of very good quality.

Good quality squid requires an even powdery appearance not patchy, with no cracks. Note that the Chinese markets have a different preference than the Japanese when it comes to dried squid. A disadvantage with the sundried squid is that if it hangs by its tentacles for too long, there is some potential for some black rot to appear on the end of the tail. This has to be overcome by laying the squid flat in its final stages of drying.

Another criteria that is looked for in judging the value of dried squid is its expansion ratio. This cannot be determined until it is actually soaked. However, Canadian Illex is considered to have a better expansion ratio than Argentine squid.

The Korean dried squid is the first preference in the Singapore market. Its shape and size have become the market norms. It has a more gradual rounding of the tube, to form a triangle shape, as opposed to our more pointed shape squid. It is also slightly larger, on average about 300-400 g round weight, and thicker than Canadian dried Illex.

In terms of value, there is about a 10-20 percent price difference between the Korean squid and the Canadian dried squid. Our squid, however, is considered very acceptable and of good quality if it arrives properly packed and handled.

Recently exports of dried squid from Korea have been declining and some of those shipments have been replaced by Canadian squid. However, should exports of Korean dried squid increase, Canadian squid may have more problems in this market.

About half of all the dried squid that was imported from Canada was used for prepared snack foods, that is, it was mechanically shredded, roasted, and flavoured. Generally, they were the smaller squids, those which had been mechanically dried, were consistent in shape and texture and could easily be handled by the processing machines. The larger squid were sold on the retail market.

A problem expressed by several importers was that product shipped was not always like the sample provided or the product requested. They bought on the assumption that they were ordering sun dried squid only to find they received all three forms of dried squid.

The squid should ideally be at 18-20 percent moisture content for the hot, humid climate in Singapore.

It should be packed in cartons containing similar size, shape and quality and shipped via reefer containers.

The Singapore market has a 3 by 3 matrix grading system for dried squid:

Grade A - the length of the tube is 8 inches or larger;

Grade B - tube length of 6-8 inches; and

Grade C - less than 6 inch tube length.

The following three characteristics can apply to grades A, B or C:

- 1) a very gradual narrowing of the tube, flat, slightly powdery white on amber colour;
- 2) more sharply pointed tube, wrinkles, cracks, good colouring; and
- 3) off grades, pink, too much powder.

Good Illes can be rated A-2 or B-2. As our tube shape is not consistent with an A-1 rating.

There is also a market for dried squid heads and tubes sold separately. The potential for future Canadian sales of dried squid are good if we can deliver a good consistent quality product.

