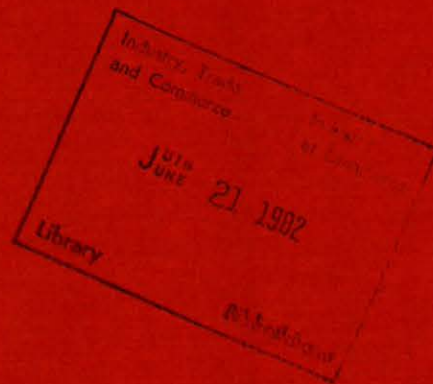


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# ANNEX TO THE **WORLDWIDE FISHERIES MARKETING STUDY:** PROSPECTS TO 1985

# POLAND



Government  
of Canada

Gouvernement  
du Canada

Fisheries  
and Oceans

Pêches  
et Océans

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

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D R A F T

Annex to the  
Worldwide Fisheries Marketing Study:  
Prospects to 1985

POLAND

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The preparation of the Worldwide Fisheries Marketing Study, of which this Report is a part, embodies many hours of work not only by the authors but also and more importantly by those who generously provided us with market information and advice.

Specifically, this Report would not have been possible without the cooperation and assistance of fishermen, processors, brokers, wholesalers, distributors, retailers, consumers and their organizations as well as government officials with whom we visited and interviewed. Though too numerous to mention separately, we would like to extend our sincere gratitude and appreciation.

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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- the cooperation of the Department of Industry, Trade and Commerce (IT&C);
- the dedication of the participants from various parts of the industry and government including officers at our diplomatic posts who formed the study teams;
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To all of the above, we extend our thanks.

E. Wong  
December, 1981.

This manuscript was originally submitted to the Marketing Services Branch during September, 1980.

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

Marketing Services Branch.  
Marketing Directorate.  
Fisheries Economic Development and Marketing.  
Department of Fisheries and Oceans.  
October, 1981.  
Ottawa

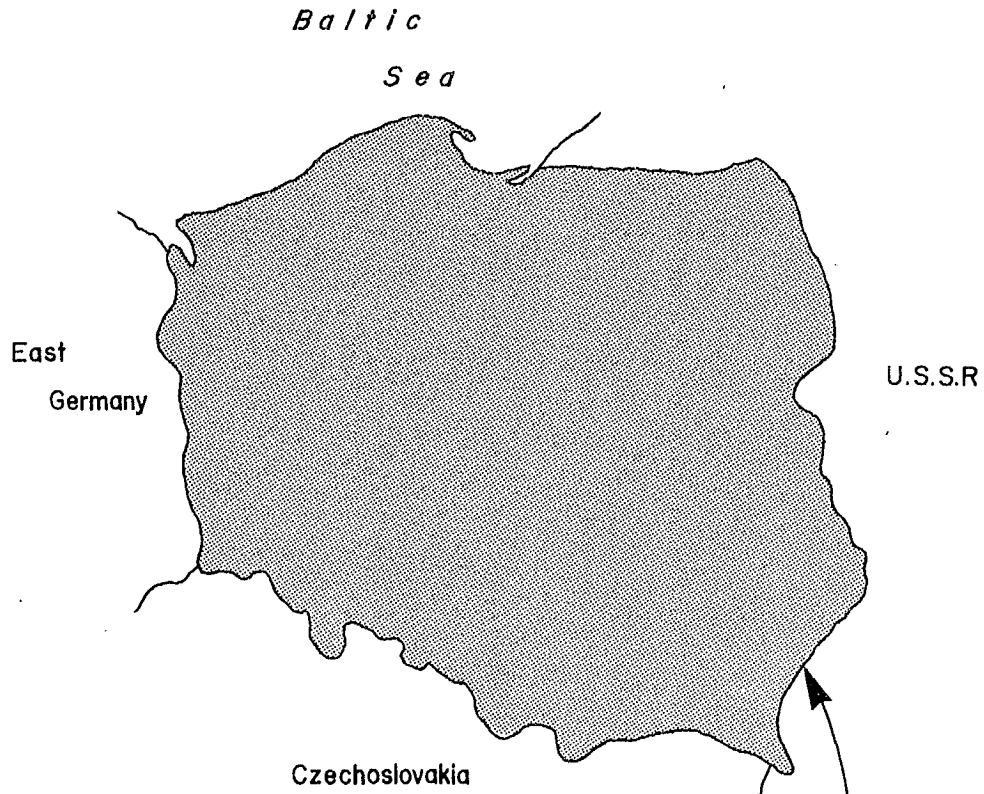
WORLDWIDE FISHERIES MARKETING STUDY

POLAND

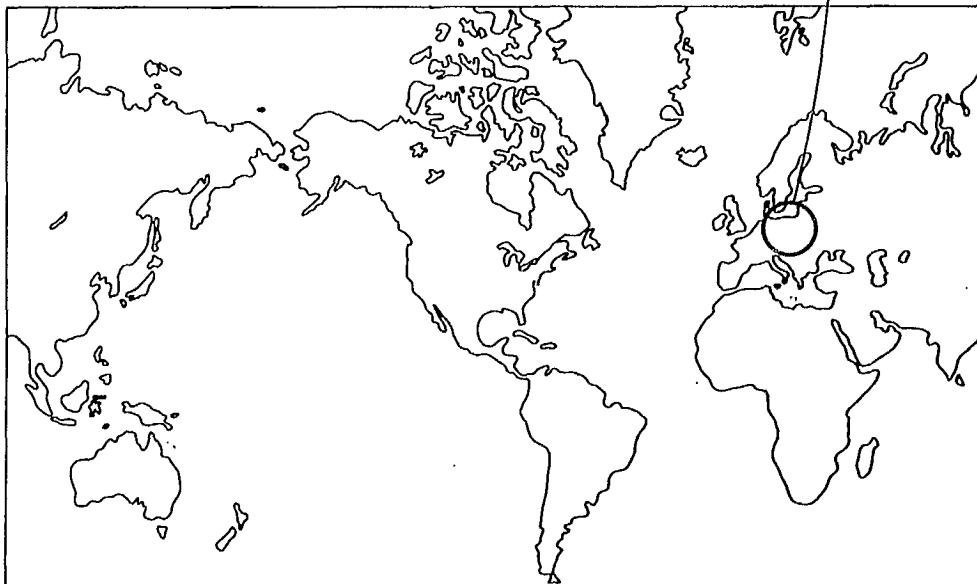
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# POLAND



INDEX MAP



## A. DEMAND FOR FISH

### 1. The Market in General

Poland has a potential market for an estimated 250 000 to 270 000 tonnes of imported fish products per year, according to available data, and it is obvious that present supplies are not meeting demand.

On the surface this would appear to suggest significant market opportunities for exporters, but state restrictions on the spending of hard currencies impose strict limits on the country's imports.

To complicate matters still further, in 1961 the Polish government froze the price of such staples as cod, herring and sprat. Prices remain at these unrealistic levels, which means that if these species are imported they have to be sold to consumers at well below cost.

### 2. Domestic Consumption

Per capita consumption of fish in Poland has risen only marginally over the years, from 6.3 kilograms a year in 1970 to 7.3 kilograms in 1978, in spite of official efforts to increase the popularity of fish products.

Fresh and frozen fish and canned fish are the most popular product forms. Consumers developed a taste for those species on which prices have been set by the state and have been reluctant to switch, especially to species for which prices are higher.

TABLE 1  
Poland: per capita annual consumption of  
fish products, 1970-1978

Product Form	1970	1971	1972	1973	1974	1975	1976	1977	1978
	(kilograms)								
Fresh and frozen dressed fish	1.3	1.3	1.2	1.3	1.1	0.9	1.3	1.4	1.7
Inland water fish/fresh	0.5	0.5	0.5	0.6	0.6	0.6	0.6	0.7	0.7
Salted fish	1.1	1.2	1.1	1.0	1.0	1.0	1.0	0.9	0.7
Fillets	0.5	0.4	0.5	0.5	0.7	0.8	0.7	0.6	0.5
Smoked fish	0.9	1.0	1.1	1.2	1.2	1.0	1.1	1.0	0.9
Canned fish	1.0	0.9	1.1	1.2	1.2	1.3	1.5	1.5	1.4
Pickled fish	0.5	0.6	0.8	0.9	0.8	0.8	0.8	0.7	0.7
Ready made dishes	--	--	--	--	0.2	0.2	0.2	0.2	0.2
Other marine fish	0.5	0.5	0.5	0.5	0.5	0.6	0.5	0.6	0.5
Total	6.3	6.4	6.8	7.2	7.3	7.2	7.7	7.6	7.3

Source: Sea Fisheries Institute, Gdynia, Poland.



TABLE 2  
Poland: domestic market fish supply, 1970-1978.

Product Form	1970	1971	1972	1973	1974	1975	1976	1977	1978
	(tonnes)								
I. Sea fish	43 340	42 792	40 550	42 458	36 867	31 432	44 640	48 733	60 943
- fresh	--	9 278	8 805	7 140	7 528	7 283	7 626	10 771	11 958
- frozen	--	33 514	31 745	35 318	29 339	24 149	37 014	37 962	48 985
II. Inland water fish	15 888	16 117	18 065	20 193	20 431	19 950	21 426	24 136	23 012
- carp	--	--	--	--	--	11 920	--	14 616	11 342
III. Salted fish	37 177	38 580	37 126	34 358	34 978	35 731	35 092	29 719	25 803
- herring	--	--	--	--	--	--	--	25 979	15 802
IV. Fillets	16 879	13 086	15 639	16 840	22 536	27 194	24 874	19 887	15 911
V. Smoked fish	29 420	31 815	37 412	40 853	40 053	33 414	36 758	34 556	31 690
VI. Canned fish	25 853	29 996	32 602	39 407	42 920	45 354	53 015	52 736	48 692
VII. Pickled	19 387	22 055	27 535	30 314	--	--	--	--	--
VIII. Ready-made dishes	--	--	--	--	5 056	6 854	7 088	7 148	10 625
IX. Other marine fish	--	--	--	2	13	21	14	52	50
Total	187 944	194 441	208 929	224 425	202 854	211 870	222 907	257 562	243 870

Source: The Fisheries and Fish Institute in Poland, prepared for the Fishing Industry Advisory Board by Sea Fisheries Institute, Gdynia, Poland, 1980.

Discussions with Polish officials provided the following information on domestic demand:

- 1) Sea Fish - H & G 72 000 - 74 000 tonnes;  
- includes cod, herring, sprat, hake, blue whiting, antarctic icefish, pollock and sardinella.
- 2) Fresh water fish 24 000 - 27 000 tonnes;  
- 50% carp.
- 3) Salted fish; - prior to 1939, the consumption level was 60 000 tonnes, consisting mainly of North Sea herring. The present level of salted herring consumption is closer to 30 000 tonnes and represents the majority of salted fish produced. Sardinella and gaspereau are also salted.
- 4) Fillets; - these products are mainly for the restaurant trade with the annual consumption being 22 000 - 25 000 tonnes. The species include cod, hake and pollock.
- 5) Smoked fish; - the overall market is 35 000 - 36 000 tonnes. Traditionally herring, sprat and flounder were smoked. Smoked horse mackerel has been introduced and this has met with some success. Species of whitefish of lesser value are also smoked.
- 6) Canned fish; - 25 000 tonne annual demand.
- 7) Marinated; - 25 000 tonne annual demand, mainly herring.
- 8) Processed and semi-processed (i.e. fish sticks); - 12 000 - 15 000 tonnes but increasing.

### 3. Demand by Species

On a species by species basis, the following information was obtained:

### Cod

The price is fixed at the 1961 level and the real reason for low consumption is that the product is exported for hard currency. At one time, cod was widely consumed, and Polish officials indicated that because of poor handling, consumer preference shifted quickly to alternatives once they became available. The alternatives now include pollock and hake. However, because cod prices were set in 1961 and Polish cod landings have been significantly reduced since then, and the cost of production has increased, the state is effectively discouraging increased consumption.

The main supply of Poland's cod remains the Baltic, where cod landings were 64 114 tonnes in 1978. They were expected to be as high in 1979 and 1980.

### Pollock

Poland now has allocations of Alaskan pollock. While some is being consumed in Poland, most is sold to the United States after being processed on board Polish vessels, or after being processed in Poland and shipped back to the US.

### Hake

Hake has become the main substitute for cod, though it is believed this is more because of price rather than consumer preference. In 1979, over 100 000 tonnes was landed. Most of this comes from Peru (50 000 tonnes in 1978) where Poland has a joint venture. Significant quantities are still landed in the northeast Pacific (27 000 tonnes in 1978) and southeast Atlantic (30 000 tonnes in 1978).

Most of the hake is consumed in Poland, with the biggest demand being for headed and gutted fish. Hake fillets are considerably more expensive than cod fillets because cod prices were fixed in 1961, but the cod is more expensive to produce.

### Herring

If the price was right and foreign currency made available, the demand for herring would be very great. The Poles prefer the Baltic herring, which tends to be lower in fat content than other herring (up to 20%, but as low as 7%). The minimum accepted size for the salted herring is 22 centimetres after salting. Smaller herring are marinated. At present Poland's main supply of herring is the Baltic (63 850 tonnes in 1978). However, some officials believe the North Sea herring stocks are recovering.

### Atlantic Mackerel

Very little mackerel is consumed, and while officials indicated this was because of supply problems, price is probably the real reason. In 1975 Poland had an allocation of 90 000 tonnes in the Atlantic. This would suggest mackerel is popular but once again the fixed prices of 1961 restrict the amount that can be imported, as these imports would have to be subsidized. Some Polish officials felt that there was a possible consumption of 30 000 tonnes round weight, with hot smoked mackerel, headed and gutted, and cold smoked fillets being the preferred form. Canned mackerel would be the second preference.

The larger-sized horse mackerel is a substitute for Atlantic smoked mackerel. There have been attempts to introduce the small horse mackerel for canning, but there have been problems with the scales, and the substitution of horse mackerel for Atlantic mackerel has met with limited success. Some horse mackerel is being marinated.

### Squid and Shellfish

There has been very limited success in introducing these products into the market. Originally whole frozen squid was marketed but the government is now trying to market squid tubes. However, sales are only 250 to 300 tonnes a year. Generally there has been little success in introducing any shellfish.

Redfish

At one time there was a market of 5 000 to 8 000 tonnes but the products have lost their popularity due to interruptions in supply. At present the Canadian prices are too high for the Polish markets. Polish data indicate that in 1975, Polish landings of redfish were 26 104 tonnes, indicating that the species may have been popular.

B. SUPPLY

1. Domestic Landings

Polish landings still supply most of the fish consumed on the domestic market. Landings peaked in 1975 at 801 000 tonnes. It was felt they would be close to that again in 1979, but official figures indicate they fell short (see Table 4). Recent reports indicated that Polish landings would be as high in 1980.

TABLE 3  
Poland: nominal fisheries catches (000 tonnes)

	<u>1973</u>	<u>1974</u>	<u>1975</u>	<u>1976</u>	<u>1977</u>	<u>1978</u>
All areas	580	679	801	750	655	571
Marine	577	657	777	726	629	550

Source: FAO, Yearbook of Fisheries Statistics-Fishery Commodities, Rome, Italy, 1973-1978.

Table 4 outlines the trends in catches of the most important species of marine fish for 1970-79. Catches of cod are down, due largely to decreased landings in the northwest and northeast Atlantic. The Baltic remains the most important source of cod. Blue whiting, jack mackerel and Antarctic icefish hake are up considerably, however. Blue whiting is not yet declared fit for human consumption because of parasite problems.

Herring landings have also dropped, largely due to the demise of the North Sea herring fishery and decreased landings of herring in the northwest Atlantic. The Baltic remains the main source of herring landings. Mackerel landings are also down considerably.

TABLE 4  
Poland: catches of the most important species of salt  
water fish, 1970 to 1979

Species	1970	1975	1979
	(Tonnes, live weight)		
Brackish - water fish	3 372	5 375	4 206
Eel	418	276	271
Salmon	70	88	87
Halibut	29 394	13 164	5 759
Flatfish	8 480	10 455	9 108
Cod	126 218	97 451	69 325
Ocean perch	11 172	26 104	3 807
Jack mackerel	9 309	40 629	157 103
Herring	129 216	118 899	63 850
Sprats	20 171	71 958	28 574
Mackerel	76 593	100 652	11 294
Blue whiting	--	4 704	19 923
Hake	54	133 853	108 554
Antarctic fish	--	--	69 141
Pilchard	--	79 824	2 633
Miscellaneous	37 831	113 256	102 245
Total	452 298	816 688	655 880

Source: Market Report, The Fishing Industry and Fish Distribution in Poland,  
 prepared for the Fishing Industry Advisory Board, by the Sea Fisheries  
 Institute, Gdynia, Poland.

Appendix I gives a complete breakdown by species of landings by Poland from 1973 to 1978. There was no information on future projections, nor were officials willing to speculate. The uncertainty of allocations and policies of coastal nations with emerging fishing industries of their own probably make it very difficult to predict Polish catches. Perhaps in anticipation of more restrictive policies, Polish officials indicated that they have begun to explore for fishing grounds beyond 200 mile zones and in the Antarctic area. It is worth noting at this time that the species mix of the landings has shifted since 1973. Because of the extension of jurisdiction to 200 miles, as well as depletion of historical fishing grounds, Poland's fishing effort has shifted dramatically to the Southern Hemisphere. This will be discussed in greater detail in reviewing Poland's fishing policies with other countries.

## 2. Imports

In 1978, Poland imported 217 557 tonnes of fish and fish meal, up from 157 953 tonnes in 1977 and 137 583 in 1976 (Table 5). Canada's share of the Polish market has been relatively small, with sales worth around \$3.5 million in 1978 and 1979, but dropping considerably in 1980, due largely to financial problems besetting Poland.

Surprisingly, however, the majority of Poland's imports are from Western countries rather than from other Eastern Bloc nations. In 1978, Poland imported more than 200 000 tonnes from Western countries and only 1 688 tonnes from Communist neighbours, (see Table 5). It should be noted that the Polish figures do not correspond with FAO data, but the trend is consistent. The main product imported is fish meal, which is not a major export of the Canadian fisheries industry. All fish purchases are controlled by Rybex.

As noted previously, most fish prices are set by the state, which means not only that imports must be paid for with scarce hard currency, but also that in all likelihood products are sold to consumers at less than the real cost. The overall result, of course, is to discourage imports. The currency needed to buy imported fish must be generated by the Polish fishing industry, generally through exports to hard-currency countries.



TABLE 5

Poland: imports of fish and fish meal.

	1976		1977		1978	
	Tonnes	%	Tonnes	%	Tonnes	%
To centrally-planned countries						
Frozen fish, dressed	12 052	60.0	742	14.2	--	--
Salted herring	3 117	15.5	1 988	38.0	--	--
Canned Fish	4 710	23.4	2 294	43.8	1 171	69.4
Other	225	1.1	210	4.0	517	30.6
<b>Total</b>	<b>20 104</b>	<b>100.0</b>	<b>5 234</b>	<b>100.0</b>	<b>1 688</b>	<b>100.0</b>
From EC and other free market countries						
Frozen fish, whole and dressed	12 007	8.7	21 266	13.5	40 452	18.6
Frozen fish, dressed	7 273	5.3	11 582	7.3	22 203	10.3
Filletts	3 391	2.5	7 570	4.8	5 722	2.6
Salted Herring	9 638	7.0	5 220	3.3	3 508	1.6
Canned fish	220	0.1	608	0.4	278	0.1
Fish meal	102 987	74.9	109 819	69.5	142 621	65.6
Inland-water fish	241	0.2	87	--	958	0.4
Fish fry	392	0.3	19	--	675	0.3
Shellfish, canned	750	0.5	493	0.3	194	0.1
Other	684	0.5	1 289	0.9	906	0.4
<b>Total</b>	<b>137 583</b>	<b>100.0</b>	<b>157 953</b>	<b>100.0</b>	<b>217 517</b>	<b>100.0</b>

Source: Sea Fisheries Institute, Gdynia, Poland.

### 3. Exports

The majority of supply for the domestic market is produced by Polish vessels. Officials of the Polish industry indicated that 85% of landings are for domestic consumption. The remaining 15% is sold to hard currency countries to acquire the necessary funds to operate the fishing fleet. Frozen fish accounted for 77% of exports to western countries in 1978. Total exports to the West in that year were 58 487 tonnes, (see Table 6).

There has been a 40% decline in exports between 1976 and 1978, due to decreased landings resulting mainly from the extension of jurisdiction by coastal states. However, as landings have likely increased in 1979 and 1980, exports may also have been increased. The increase in landings is due to new bilateral agreements, particularly with countries in the southern hemisphere.

Poland's export business has an advantage in the fact that the processing industry would appear to have few new capital expenditure requirements. While they are old, factories appear to be functional with only some new machinery being required. Some new equipment has been installed with a view to increasing exports.

Poland views the US as an attractive market to gain currency and thus sells frozen pollock block ( 4 000 tonnes January-June 1980) and frozen whiting (hake) blocks (1 000 tonnes January-March 1980). There are also some frozen fillets being supplied, and there are plans to begin producing frozen fish battered portions for sale to the US, again using pollock and hake. All of these products enjoy a considerable price advantage over similar cod products. The pollock is caught by Polish vessels in the Pacific northwest and the hake in the northern and southern Pacific.

### 4. Joint Ventures

In order to overcome the problem of vessel utilization caused by extension of jurisdiction by coastal states, Poland has moved to form joint ventures. These joint ventures involve the use of Polish catching capacity in exchange for use of Polish vessels, technological assistance, or purchase of fish products. Poland has entered into joint ventures with several South American and African

TABLE 6

Poland: exports of fish, 1976-1978.

	1978		1979		1980	
	Tonnes	%	Tonnes	%	Tonnes	%
To centrally-planned countries						
Frozen fish, dressed	2 328	61.5	16	0.9		
Fillets	447	11.8	598	51.5	360	58.3
Canned Fish	996	26.3	545	47.6	258	41.7
Other	11	0.4	--	--	--	-
<b>Total</b>	<b>3 782</b>	<b>100.0</b>	<b>1 159</b>	<b>100.0</b>	<b>618</b>	<b>100.0</b>
To EC and other free market countries						
Frozen fish, dressed	68 489	70.1	71 656	79.7	45 325	77.5
Fillets	20 647	21.1	11 784	13.1	4 915	8.4
Canned fish	1 051	1.1	1 403	1.6	399	0.7
Pickled	651	0.6	763	0.8	935	1.6
Inland-water fish	1 582	1.6	1 566	1.7	1 137	1.9
Other	5 352	5.5	2 754	3.1	5 776	9.9
<b>Total</b>	<b>97 772</b>	<b>100.0</b>	<b>89 926</b>	<b>100.0</b>	<b>58 487</b>	<b>100.0</b>

Source: Sea Fisheries Institute, Gdynia, Poland.

countries. A joint venture with Peru is the most important, involving an allocation of 200 000 tonnes of hake to Poland. The country also entered into a joint venture with New Zealand, but little is known about this.

C. POTENTIAL FOR CANADIAN SALES

For variety of reasons, it would appear there are few if any prospects for Canadian suppliers developing significant new markets in Poland.

Even though the demand may be there, as noted previously the Polish government is reluctant to spend hard currency and has therefore imposed restrictions on imports.

In fact Canadian sales of fish to Poland have been dropping steadily, from 9 140 tonnes worth \$6 million in 1978 to 5 013 tonnes worth slightly more than \$3.6 million in 1979. For the January-June period of 1980, Canadian sales stood at 365 tonnes with a value of \$241 000.

TABLE 7

Canada: exports of fish products to Poland

	1978		1979		1980	
	tonnes	(\$000)	tonnes	(\$000)	tonnes	(\$000)
<u>Whole or Dressed</u>						
Haddock, hake, fresh	--	--	38	7	--	--
Herring, fresh	--	--	1	0	--	--
Seafish, fresh, NES	--	--	13	3	--	--
Whitefish, fresh	--	--	17	27	--	--
Herring, frozen	--	--	961	256	--	--
Mackerel, frozen	45	21	206	109	--	--
Salmon, Atlantic, frozen	--	--	15	106	--	--
Salmon, chum, frozen	7	33	15	90	--	--
Seafish, frozen NES	--	--	871	189	--	--
Whitefish, frozen	1 923	3 397	504	832	--	--
<u>Fillets</u>						
Herring, frozen	--	--	19	26	--	--
<u>Salted or Dried</u>						
Fish, salted or dried, NES	1 800	405	381	338	105	68
<u>Pickled</u>						
Herring, wet or dried NES	139	67	2 050	1 648	260	173
Squid, whole	--	--	12	4	--	--
Fish meal	5 226	2 079	--	--	--	--
Totals	9 140	6 002	5 103	3 635	365	241

Source: Statistics Canada, Exports by Country., Ottawa.

D. SUMMARY AND CONCLUSIONS

1. There is a potential market in Poland for 250 000 to 270 000 tonnes of imported fish per year, and present supplies are not meeting demand. That situation would suggest significant marketing opportunities, except that state restrictions limit the spending of hard currency on imports.

2. Prices of such staples as cod, herring and sprat are frozen at 1961 levels which means they have to be sold to consumers at well below cost, further discouraging imports.

3. Per capita consumption of fish in Poland has risen marginally from 6.3 kilograms per year in 1970 to 7.3 in 1978. Fresh and frozen fish and canned fish are the most popular forms.

4. Polish domestic landings peaked at 801 000 tonnes in 1975, then declined to 550 000 tonnes in 1978, but may now have recovered to the 1975 level.

5. About 85% of the Polish catch is consumed by the domestic market, with the remainder exported almost entirely to Western countries as a means of earning hard currency needed to keep the fleet operating.

6. In 1978, Poland imported 217 557 tonnes of fish and fish meal, and it exported 58 487 tonnes of fish products in the same year.

7. In order to overcome access problems created by the establishment of 200-mile economic zones, Poland has moved into joint ventures with several African and South American countries. The most important of these is a joint venture with Peru that gives Poland an allocation of 200 000 tonnes of hake.

8. There are few prospects for Canadian suppliers developing significant new markets in Poland. Canadian sales to Poland have been dropping, from 9 140 tonnes worth \$6 million in 1978 to 5 013 tonnes worth slightly more than \$3.6 million in 1979, and 365 tonnes with a value of \$241 000 for the January-June period of 1980.

9. Poland considers the United States an attractive market for earning hard currency, and is selling significant quantities of frozen pollock blocks, frozen hake blocks and some frozen fillets. Plans are being made also to produce frozen battered portions for sale to the US, again using pollock and hake. The country has catch allocations of Alaskan pollock, and while some of the catch is consumed in Poland, most of it is sold to the US after processing on board Polish vessels, or processing in Poland.

A P P E N D I C E S

APPENDIX I  
NOMINAL CATCHES OF THE POLISH FISHERY  
BY SPECIES AND AREAS, 1970-1978

Source:

Market Report, The Fishing Industry  
and Fish Distribution in Poland,  
prepared for the Fishing Industry  
Advisory Board,  
Newfoundland by the Sea Fisheries  
Institute,  
Gdynia, Poland.

TABLE A-1  
NOMINAL CATCHES OF THE POLISH FISHERY BY SPECIES AND AREAS FOR 1970

tonnes, round fresh, live weight

Fish - Species	Baltic	Atlantic, Northeast	Atlantic, Northwest	Atlantic, Eastern Central	Total all areas	Per cent of total
	27	27	21	34		
Freshwater fishes	3 372	--	--	--	3 372	0.7
European eel	418	--	--	--	418	0.1
Atlantic salmon	70	--	--	--	70	--
Greenland halibut	--	21 124	8 270	--	29 394	6.5
American plaice	--	--	418	--	418	0.1
Witch flounder	--	--	3 568	--	3 568	0.8
Flatfishes	3 962	16	516	--	4 494	1.0
Cod	68 440	8 047	49 730	1	126 218	28.0
Haddock	--	--	15	6	21	--
Hake	--	--	15	39	54	--
Ocean perch	--	5 326	5 864	--	11 172	2.5
Jack mackerel	--	1 192	--	8 111	9 303	2.1
Atlantic herring	46 018	10 289	71 909	--	128 216	28.4
Sprat	20 171	--	--	--	20 171	4.5
Mackerel	--	6 259	68 189	2 145	76 593	16.9
Other marine fish	4 196	4 757	7 878	20 979	37 810	8.4
<b>Total</b>	<b>146 647</b>	<b>57 010</b>	<b>216 012</b>	<b>31 281</b>	<b>451 292</b>	<b>100.0</b>
Percentage by areas	32.5%	12.6%	48.0%	6.9%	100.0%	



TABLE A-2  
NOMINAL CATCHES OF THE POLISH FISHERY BY SPECIES AND AREAS FOR 1971

tonnes, round fresh, live weight

Fish - Species	Baltic	Atlantic, Northeast	Atlantic, Northwest	Atlantic, Eastern Central	Total all areas	Per cent of total
	27	27	21	34		
Freshwater fishes	4 282	--	--	--	4 282	0.9
European eel	377	--	--	--	377	0.1
Atlantic salmon	58	--	--	--	58	--
Greenland halibut	--	21 086	5 238	--	26 324	5.3
American plaice	--	--	604	--	604	0.1
Witch flounder	--	--	5 408	--	5 408	1.1
Flatfishes	4 094	--	682	--	4 776	1.6
Cod	54 151	2 603	29 466	6	86 226	17.5
Haddock	--	62	1	--	63	--
Saithe	--	6 139	3	--	6 142	1.2
Hake	--	--	148	38	186	--
Roundnose grenadier	--	--	105	--	105	--
Ocean perch	--	2 861	8 447	--	11 308	2.3
Jack mackerel	--	627	27	9 861	10 515	2.1
Atlantic herring	43 022	4 867	88 328	--	136 217	27.3
European pilchard	--	315	--	--	315	0.1
Sprat	31 855	--	--	--	31 855	6.3
Mackerel	--	10 963	112 296	3 099	126 358	29.3
Other marine fish	6 383	3 788	18 829	19 070	48 070	9.6
Total	144 222	53 311	269 582	32 074	499 189	100.0
Percentage by areas	28.9%	10.7%	54.0%	6.4%	100.0%	

TABLE A-3  
 NOMINAL CATCHES OF THE POLISH FISHERY BY SPECIES AND AREAS FOR 1972.

tonnes, round fresh, live weight

Fish - Species	Baltic	Atlantic, Northeast	Atlantic, Northwest	Atlantic, Eastern Central	Atlantic, Southeast	Atlantic, Western Central	Atlantic, Southeast	Total all areas	Per cent of total
	27	27	21	34	47	31	87		
Freshwater fishes	5 052	--	--	--	--	--	--	5 052	1.0
European eel	320	--	--	--	--	--	--	320	0.1
Atlantic salmon	87	--	--	--	--	--	--	87	--
Greenland halibut	--	15 859	7 122	--	--	--	--	22 981	4.4
American plaice	--	2	3 374	--	--	--	--	3 376	0.6
Witch flounder	--	5	4 017	--	--	--	--	4 022	0.8
Flatfishes	4 940	--	--	--	--	--	--	4 940	0.9
Cod	56 746	2 180	42 256	--	--	--	--	101 192	19.2
Haddock	--	1 471	1	--	--	--	--	1 472	0.3
Saithe	--	1 453	8	--	--	--	--	1 461	0.3
Hake	--	--	16	336	3 145	--	2 500	5 997	1.1
Roundnose grenadier	--	82	270	--	--	--	--	352	0.1
Ocean perch	--	1 611	3 986	--	--	--	--	4 897	0.9
Capelin	--	--	24	--	--	--	--	24	--
Jack mackerel	--	2 081	36	10 216	4	--	--	12 337	2.3
Atlantic herring	45 343	5 638	49 520	--	--	--	--	100 501	19.1
Round sardinella	--	--	--	1 486	--	--	--	1 486	0.3
European pilchard	--	847	--	1 350	--	--	--	2 197	0.4
Sprat	38 861	15	--	--	--	--	--	38 876	7.4
Mackerel	--	13 463	142 244	4 479	206	--	--	160 392	30.4
Squids	--	--	5 428	--	--	--	--	5 428	1.0
Other marine fish	6 830	8 755	9 504	22 064	686	64	1 415	49 378	9.4
Total	158 179	53 462	267 806	39 931	4 041	64	3 915	526 758	100.0
Percentage by areas	30.1%	10.1%	50.7%	7.6%	0.8%	--	0.7%	100.0%	

TABLE A-4  
NOMINAL CATCHES OF THE POLISH FISHERY BY SPECIES AND AREAS FOR 1973.

tonnes, round fresh, live weight

Fish - Species	Baltic	Atlantic, Northeast	Atlantic, Northwest	Atlantic, Eastern Central	Atlantic, Southeast	Atlantic, Western Central	Atlantic, Southeast	Total all areas	Per cent of total
	27	27	21	34	47	67	87		
Freshwater fishes	4 500	--	--	--	--	--	--	4 500	0.8
European eel	225	--	--	--	--	--	--	225	--
Atlantic salmon	98	--	--	--	--	--	--	98	--
Greenland halibut	--	5 271	9 066	--	--	--	--	14 337	2.4
American plaice	--	--	1 388	--	--	--	--	1 388	0.2
Witch flounder	--	1	11 812	--	--	--	--	11 813	2.0
Flatfishes	4 278	257	--	--	--	--	11	4 546	0.8
Cod	49 790	3 110	28 800	--	--	--	--	81 700	13.7
Haddock	--	4 708	480	--	--	--	--	5 188	0.9
Saithe	--	12 081	23	--	--	--	--	12 104	2.0
Blue whiting	--	28	--	--	--	--	--	28	--
Hake	--	7	343	136	36 890	1 920	35 407	74 703	12.5
Roundnose grenadier	--	10	294	--	--	--	--	304	0.1
Ocean perch	--	496	5 199	--	--	8	--	5 703	1.0
Searobins	--	161	1 052	514	244	--	--	1 971	0.3
Capelin	--	--	3 417	--	--	--	--	3 417	0.6
Jack mackerel	--	3 921	491	7 957	8 467	9	35	20 880	3.5
Atlantic herring	51 213	13 233	50 307	--	--	58	--	114 811	19.3
Round sardinella	--	--	--	385	94	--	--	479	0.1
European pilchard	--	147	--	15 394	--	--	--	15 541	2.6
South African pilchard	--	--	--	--	30	--	--	30	--
Sprat	49 835	84	--	--	--	--	--	49 919	8.4
Mackerel	--	11 107	117 254	1 556	270	--	--	130 187	21.8
Squids	--	5	9 427	170	17	--	--	9 619	1.6
Other marine fish	582	2 076	15 685	8 272	3 856	491	1 086	32 048	5.4
Total	160 521	56 703	255 038	34 384	49 868	2 486	36 539	595 539	100.0
Percentage by areas	27.0%	9.5%	42.8%	5.8%	8.4%	0.4%	6.1%	100.0%	

TABLE A-5  
NOMINAL CATCHES OF THE POLISH FISHERY BY SPECIES AND AREAS FOR 1974.

tonnes, round fresh, live weight

Fish - Species	Baltic	Atlantic, Northeast	Atlantic, Northwest	Atlantic, Eastern Central	Atlantic, Southeast	Atlantic, Western Central	Atlantic, Eastern Central	Atlantic, Southeast	Total all areas	Per cent of total
	27	27	21	34	47	67	77	87		
Freshwater fishes	5 028	--	--	--	--	--	--	--	5 028	0.7
European eel	272	--	--	--	--	--	--	--	272	--
Atlantic salmon	119	--	--	--	--	--	--	--	119	--
Greenland halibut	--	6 688	7 105	--	--	--	--	--	13 793	1.9
American plaice	--	--	706	--	--	--	--	--	706	0.1
Witch flounder	--	--	6 202	--	--	--	--	--	6 202	0.9
Flatfishes	4 668	456	--	--	--	--	--	--	5 124	0.7
Cod	48 650	19 190	33 749	--	--	93	--	--	101 682	19.5
Haddock	--	6 971	--	--	--	--	--	--	6 971	1.0
Saithe	--	26 775	4	--	--	--	--	--	26 779	9.7
Blue whiting	--	341	--	--	--	--	--	--	341	0.1
Hake	--	13	140	9	32 341	44 354	--	63 908	140 765	19.5
Roundnose grenadier	--	19	181	--	--	--	--	--	200	--
Ocean perch	--	1 293	4 865	--	--	120	--	--	6 278	0.9
Searobins	--	14	542	--	--	--	--	--	556	0.1
Capelin	--	--	9 476	--	--	--	--	--	9 476	1.3
Jack mackerel	--	5 850	11	4 610	13 520	--	34	21	24 046	3.3
Atlantic herring	55 957	17 173	39 513	--	--	--	--	--	112 643	15.6
Round sardinella	--	--	--	98	59	--	94	--	251	--
European pilchard	--	283	--	23 685	10 188	--	--	--	34 156	4.7
Sprat	61 969	58	--	--	--	--	--	--	62 027	8.6
Mackerel	--	26 925	96 104	2 168	768	--	--	--	125 965	17.5
Squids	--	--	6 709	2	36	--	--	--	6 747	0.9
Other marine fish	5 073	8 967	9 835	6 043	4 869	84	--	811	35 682	5.0
Total	181 736	121 016	215 142	36 615	61 781	44 651	128	64 740	725 809	100.0
Percentage by areas	25.2%	16.2%	29.8%	5.1%	8.5%	6.2%	--	9.0%	100.0%	

TABLE A-6  
 NOMINAL CATCHES OF POLISH FISHERY BY SPECIES AND AREAS FOR 1975.

tonnes, round fresh, live weight

Fish - Species	Baltic	Atlantic, Northeast	Atlantic, Northwest	Atlantic, Eastern Central	Atlantic, Southeast	Atlantic Western Central	Atlantic, Western Central	Atlantic, Eastern Central	Atlantic, Southeast	Total all areas	Per cent of total
	27	27	21	34	47	31	67	77	87		
Freshwater fishes	5 375	--	--	--	--	--	--	--	--	5 375	0.7
European eel	276	--	--	--	--	--	--	--	--	276	--
Atlantic salmon	88	--	--	--	--	--	--	--	--	88	--
Greenland halibut	--	4 717	8 447	--	--	--	--	--	--	13 164	1.6
American plaice	--	100	632	--	--	--	--	--	--	732	0.1
Witch flounder	--	1	4 583	--	--	--	--	--	--	4 584	0.6
Flatfishes	5 139	--	--	--	--	--	--	--	--	5 139	0.6
Cod	69 318	10 963	16 384	--	--	--	786	--	--	97 451	11.9
Haddock	--	3 129	--	--	--	--	--	--	--	3 129	0.4
Saithe	--	40 221	17	--	--	--	--	--	--	40 238	4.9
Blue whiting	--	4 704	--	--	--	--	--	--	--	4 704	0.6
Hake	--	48	384	8	37 126	9	34 450	22 790	39 032	133 847	16.4
Roundnose grenadier	--	6	1 499	--	--	--	--	--	--	1 505	0.2
Ocean perch	--	4 987	4 470	--	--	--	15 444	1 203	--	26 104	3.2
Searobins	--	--	852	--	--	--	--	--	--	852	0.1
Capelin	--	1 544	24 875	--	--	--	--	--	--	26 419	3.2
Jack mackerel	--	2 348	--	5 935	28 610	--	3 056	680	--	40 629	5.0
Atlantic herring	68 533	10 515	38 463	--	--	--	--	--	--	117 511	14.6
Round sardinella	--	--	--	1 411	--	--	--	--	--	1 411	0.2
European pilchard	--	198	--	76 720	--	2 906	--	--	--	79 824	9.8
South African pilchard	--	--	--	--	8 970	--	--	--	--	8 970	1.1
Sprat	62 445	9 513	--	--	--	--	--	--	--	71 958	8.8
Mackerel	--	23 886	74 281	1 677	801	--	--	--	7	100 652	12.3
Squids	--	--	6 836	--	28	--	--	--	--	6 864	0.8
Other marine fish	2 491	3 152	5 924	6 539	694	47	3 858	911	252	23 868	2.9
Total	213 665	120 032	187 647	92 290	76 229	2 962	57 594	25 584	39 291	815 294	100.0
Percentage by areas	26.2%	14.7%	23.0%	11.3%	9.3%	0.4%	7.2%	3.1%	4.8%	100.0%	

TABLE A-7  
NOMINAL CATCHES OF THE POLISH FISHERY BY SPECIES AND AREAS FOR 1976.  
 tonnes, round fresh, live weight

Fish - Species	Baltic	Atlantic, Northeast	Atlantic, Northwest	Atlantic, Eastern Central	Atlantic, Southeast	Atlantic Antarctic	Atlantic Southwest	Pacific, Northeast	Pacific, Eastern Central	Pacific, Southeast	Total all areas	Per cent of total
	27	27	21	34	47	48	41	67				
Freshwater fishes	4 181	--	--	--	--	--	--	--	--	--	4 181	0.5
European eel	300	--	--	--	--	--	--	--	--	--	300	--
Atlantic salmon	103	--	--	--	--	--	--	--	--	--	103	--
Greenland halibut	--	3 566	5 942	--	--	--	--	--	--	--	9 508	1.2
American plaice	--	210	138	--	--	--	--	--	--	--	348	--
Witch flounder	--	34	4 029	--	--	--	--	--	--	--	4 063	0.5
Flatfishes	4 394	5	--	--	--	--	--	--	--	--	4 399	0.6
Cod	70 466	10 501	20 403	--	--	--	--	8	--	--	101 378	13.1
Haddock	--	2 589	--	--	--	--	--	--	--	--	2 589	0.3
Saithe	--	40 124	25	--	--	--	--	--	--	--	40 149	5.2
Blue whiting	--	11 475	--	--	--	--	--	--	--	--	11 475	1.5
Hake	--	21	215	71	56 287	--	--	25 352	1 070	47 137	130 153	17.0
Roundnose grenadier	--	2	101	--	--	--	--	--	--	--	103	--
Ocean perch	--	4 139	4 061	--	--	--	--	4 335	23	23	12 581	1.6
Searobins	--	--	1 521	--	--	--	--	--	--	--	1 521	0.2
Capelin	--	--	15 121	--	--	--	--	--	--	--	15 121	1.9
Jack mackerel	--	3 076	--	10 689	43 551	--	--	747	118	601	58 782	7.6
Atlantic herring	63 850	10 564	10 939	--	--	--	--	--	--	--	85 353	10.9
Round sardinella	--	--	--	1 399	--	--	--	--	--	--	1 399	0.2
European pilchard	--	573	--	108 119	--	--	--	--	--	--	108 692	13.8
South African pilchard	--	--	--	--	2 279	--	--	--	--	--	2 279	0.3
Sprat	56 079	10 472	--	--	--	--	--	--	--	--	66 551	8.6
Mackerel	--	23 427	51 999	1 896	5 769	--	--	--	10	97	83 198	10.7
Antarctic krill	--	--	--	--	--	21	554	--	--	--	575	0.1
Squids	--	--	7 565	--	98	--	--	--	--	--	7 663	1.0
Other marine fish	925	3 804	4 279	9 238	3 102	--	25	272	1 016	2 176	24 837	3.2
Total	200 298	124 582	126 338	131 412	111 086	21	579	30 714	2 237	50 034	777 301	100.
Percentage by areas	25.8%	16.0%	16.1%	16.7%	14.6%	--	0.1%	4.0%	0.3%	6.4%	100.0%	

TABLE A-8  
 NOMINAL CATCHES OF THE POLISH FISHERY BY SPECIES AND AREAS FOR 1977.  
 tonnes, round fresh, live weight

Fish - Species	Baltic	Atlantic, Northeast	Atlantic, Northwest	Atlantic, Eastern Central	Atlantic, Southeast	Atlantic Antarctic	Ind. Ocean Antarctic	Atlantic, Southwest	Pacific, North East	Pacific, Southeast	Atlantic, Northwest Joint Ven- ture with Nickerson	Total all areas	Per cent of total
		27	21	34	47	48	58	41	67	87			
Freshwater fishes	4 396	--	--	--	--	--	--	--	--	--	--	4 396	0.6
European eel	267	--	--	--	--	--	--	--	--	--	--	267	--
Atlantic salmon	80	--	--	--	--	--	--	--	--	--	--	80	--
Greenland halibut	--	224	6 006	--	--	--	--	--	--	--	--	6 230	0.9
American plaice	--	329	34	--	--	--	--	--	--	--	--	363	0.1
Witch flounder	--	--	3 117	--	--	--	--	--	--	--	--	3 117	0.4
Flatfishes	4 879	--	--	--	--	--	--	--	--	--	--	4 879	0.7
Cod	4 703	1 471	9 244	--	--	--	--	--	9	--	337	15 764	8.3
Haddock	--	490	6	--	--	--	--	--	--	--	7	503	0.1
Saithe	--	12 380	17	--	--	--	--	--	--	--	20	12 417	1.8
Blue whiting	--	6 539	--	--	--	--	--	2 057	--	--	--	8 596	1.2
Hake	--	2	32	11	35 525	--	--	284	22 186	59 771	282	118 093	16.6
Roundnose grenadier	--	11	--	--	--	--	--	16	--	--	--	27	--
Notothenids	--	--	--	--	--	7 735	--	2	--	--	--	7 737	1.1
Scotia icefish	--	--	--	--	--	1 340	--	37	--	--	--	1 377	0.2
Antarctic icefish	--	--	--	--	--	3 949	54	136	--	--	--	4 139	0.6
South Georgia icefish	--	--	--	--	--	6 343	--	--	--	--	--	6 343	0.9
Ocean perch	--	175	2 280	--	--	--	--	--	195	--	9	2 659	0.4
Searobins	--	--	546	--	--	--	--	--	--	--	--	546	0.1
Capelin	--	--	5 300	--	--	--	--	--	--	--	--	5 300	0.7
Jack mackerel	--	814	--	11 890	65 690	--	--	--	192	1 078	--	79 664	11.2
Atlantic herring	60 212	8	119	--	--	--	--	--	--	--	119	60 458	8.5
Round sardinella	--	--	--	39 364	188	--	--	--	--	--	--	39 552	5.6
European pilchard	--	--	--	136 113	--	--	--	--	--	--	--	136 113	19.2
South African pilchard	--	--	--	--	11 677	--	--	--	--	--	--	11 677	1.6
Sprat	50 503	--	--	--	--	--	--	--	--	--	--	50 503	7.1
Mackerel	--	2 546	17 186	1 430	4 216	--	--	--	--	596	2 509	28 483	4.0
Antarctic krill	--	--	--	--	--	6 966	--	2	--	--	--	6 968	1.0
Squids	--	--	3 827	4	70	--	--	3	--	--	3 012	6 916	1.0
Other marine fish	2 007	1 788	1 806	14 617	17 269	453	62	122	1 927	3 072	146	--	6.1
Total	127 047	26 777	49 520	203 429	134 635	26 786	116	2 659	24 509	64 517	6 441	666 436	100.0
Percentage by areas	24.0%	3.8%	7.0%	28.7%	19.0%	3.8%	--	0.4%	3.4%	9.0%	0.9%	100.0%	

TABLE A-9  
 NOMINAL CATCHES OF THE POLISH FISHERY BY SPECIES AND AREAS FOR 1978.  
 tonnes, round fresh, live weight

Fish - Species	Baltic	Atlantic, Northeast	Atlantic, Northwest	Atlantic, Eastern Central	Atlantic, Southeast	Atlantic, Antarctic	Indian Antarctic	Pacific Antarctic	Atlantic, Southwest	Pacific, North East	Pacific, Southeast	Pacific, Western Central	Total all areas	Per cent of
	27	27	21	34	47	48	58	88	41	67	87	71		
Freshwater fishes	4 206	--	--	--	--	--	--	--	--	--	--	--	4 206	0.6
European eel	271	--	--	--	--	--	--	--	--	--	--	--	271	--
Atlantic salmon	87	--	--	--	--	--	--	--	--	--	--	--	87	--
Greenland halibut	--	544	5 215	--	--	--	--	--	--	--	--	--	5 759	0.9
American plaice	--	28	159	--	--	--	--	--	--	--	--	--	187	--
Witch flounder	--	--	3 490	--	--	--	--	--	--	--	--	--	3 490	0.5
Flatfishes	5 418	--	--	--	--	--	--	--	--	13	--	--	5 431	0.8
Cod	64 113	681	4 517	--	--	--	--	--	--	14	--	--	69 325	10.6
Haddock	--	63	--	--	--	--	--	--	--	--	--	--	63	--
Saithe	--	5 696	--	--	--	--	--	--	--	--	--	--	5 696	0.9
Blue whiting	--	8 206	--	--	--	--	--	--	11 717	--	--	--	19 923	3.0
Hake	--	--	4	--	30 306	--	--	--	--	27 671	50 573	--	108 554	16.6
Roundnose grenadier	--	19	51	--	--	--	--	--	559	--	--	--	629	0.1
Notothenids	--	--	--	--	--	13 392	--	--	--	--	--	--	13 392	2.0
Scotia icefish	--	--	--	--	--	1 912	--	--	--	--	--	--	1 912	0.3
Antarctic icefish	--	--	--	--	--	48 266	196	--	--	--	--	--	48 462	7.4
South Georgia icefish	--	--	--	--	--	5 735	--	--	--	--	--	--	5 735	0.8
Ocean perch	--	2 957	708	--	--	--	--	--	--	142	--	--	3 807	0.6
Searobins	--	--	--	--	--	--	--	--	--	--	--	7 952	7 952	1.2
Capelin	--	10 863	1 538	--	--	--	--	--	--	--	--	--	12 401	1.9
Jack mackerel	--	61	--	4 872	122 572	--	--	--	--	188	25 288	4 122	157 103	24.0
Atlantic herring	63 850	--	--	--	--	--	--	--	--	--	--	--	63 850	9.7
Round sardinella	--	--	--	40 539	--	--	--	--	--	--	--	--	40 539	6.2
European pilchard	--	--	--	2 633	--	--	--	--	--	--	--	--	2 633	0.4
South African pilchard	--	--	--	--	3 021	--	--	--	--	--	--	--	3 021	0.5
Sprat	28 574	--	--	--	--	--	--	--	--	--	--	--	28 574	4.4
Mackerel	--	--	2	42	2 285	--	--	--	--	--	7 910	1 055	11 294	1.7
Antarctic krill	--	--	--	--	--	1	--	36	--	--	--	--	37	--
Squids	--	--	1 944	--	104	--	--	--	4 366	1	--	--	6 415	1.0
Other marine fish	8 001	401	498	1 216	5 851	945	120	23	4 393	1 343	2 643	58	25 492	3.9
Total	174 520	29 519	18 126	49 302	164 139	70 251	316	59	21 035	29 372	86 414	13 187	656 240	100.0
Percentage by areas	26.6%	4.5%	2.8%	7.5%	25.0%	10.7%	--	--	3.2%	4.5%	14.4%	0.8%	100.0%	



