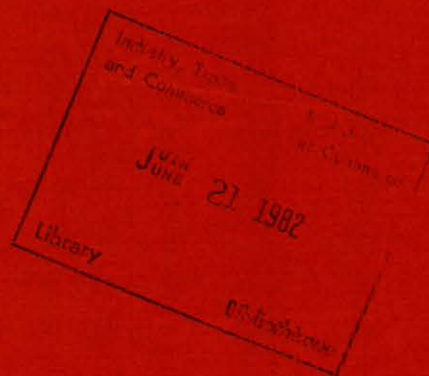


HD  
9464  
.C2A25  
Annex  
v.20

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

# MACKEREL



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).

HD  
9464  
C2A25  
Annex  
v.20

D R A F T

Annex to the  
Worldwide Fisheries Marketing Study:  
Prospects to 1985

MACKEREL

B. Dunbar  
Department of Fisheries and Oceans

December, 1981

(Disponible en français)

## ACKNOWLEDGEMENT

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:

- the encouragement and guidance of G.C. Vernon and J. John, Department of Fisheries and Oceans (DFO);
- the advice of K. Campbell, Fisheries Council of Canada; and R. Bulmer, Canadian Association of Fish Exporters;
- the liaison work of M. Foubert, DFO;
- 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;
- the analytical and editorial assistance of K. Hay and his staff at Economix International;
- the general assistance within DFO provided by the Headquarters word processing support services and the staff of the Marketing Services Branch.

To all the above we extend our thanks.

E. Wong  
December, 1981

This manuscript was submitted to the Marketing Services Branch in December, 1980.

## 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

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

WORLDWIDE FISHERIES MARKETING STUDY

MACKEREL

Table of Contents

<u>Section</u>	<u>Page</u>
A. INTRODUCTION .....	1
B. RECENT DEVELOPMENTS .....	4
C. WORLD CATCH OF MACKEREL .....	7
1. Recent Years .....	7
2. World Catches -- 1980 .....	13
D. MACKEREL AND DIRECT SALES .....	16
E. CANADA'S FUTURE IN THE MACKEREL FISHERY .....	18
F. MAJOR WORLD MARKETS .....	20
1. Japan .....	20
2. Africa .....	21
3. The Caribbean .....	24
4. Western Europe .....	26
5. Eastern Bloc .....	29
G. SUMMARY AND CONCLUSION .....	33
APPENDICES .....	37
I Jack and Horse Mackerel .....	38
II Statistical Tables .....	41
III US Atlantic Mackerel Fishery Management Plan .....	55
IV SOVHISPAN - Soviet and Spanish Joint Venture .....	59

## A. INTRODUCTION

In the past, in nearly all developed countries with the possible exception of France, mackerel was an underutilized species. As such, it received little attention from fishermen and was not a popular item in domestic markets. In the developing countries and Eastern Bloc nations, however, mackerel has for many years been a high-priority catch. These countries, by reason of their often precarious economic conditions and limited food-producing capacity, must look to the cheapest high volume sources of protein, and mackerel is one of them.

Only recently, in some countries of the European Economic Community (EC) such as West Germany (FRG) and Belgium, has mackerel begun to be promoted as a desirable product. Indeed, mackerel is now being promoted as a substitute for herring, given the need to supplement dwindling supplies of that species with another low-priced fish. This trend is expected to continue, and grow, as inflation continues to erode consumers' disposable incomes.

Furthermore, as the world food situation becomes increasingly critical, it is highly probable that any nation blessed with mackerel resources will be seeking to maximize the value of this protein resource in an environment in which new marketing opportunities will be created.

The tables that follow list the major mackerel fishing nations of the world, and the major mackerel consuming nations.

TABLE 1  
Major mackerel fishing nations

<u>Geographic Area</u>	<u>Mackerel</u>	<u>Jack and Horse Mackerel</u>
Africa	Morocco South Africa	Angola Morocco Namibia Senegal South Africa
Asia	China (PRC) India Indonesia Japan Malaysia Philippines Rep. of Korea Thailand USSR	Japan Rep. of Korea Turkey USSR
Europe	Bulgaria Denmark Faroe Islands France FRG Ireland Norway Spain UK	Bulgaria GDR Poland Portugal Romania Spain
Latin America	Chile Peru	Chile Peru



TABLE 2  
Major mackerel consuming nations

Africa

- \* Ghana
- \* Ivory Coast
- \* Nigeria
- Senegal
- \* Zaire

Asia

- India
- Japan
- \* Korea
- \* Malaysia
- \* Philippines
- \* Thailand
- USSR

Europe

- \* Belgium
- \* Bulgaria
- \* Czechoslovakia
- Faroe Islands
- \* France
- \* FRG
- GDR
- \* Hungary
- \* Italy
- \* Poland
- Portugal
- Spain

Caribbean

- \* Cuba
- \* Jamaica

Note: Countries that require imports of mackerel in order to satisfy demand are designated with an asterisk.

## B. RECENT DEVELOPMENTS

Since 1977, and particularly in the last two years, there have been a number of significant changes in the international mackerel fishery and in the species marketing. Some of these are discussed, by region and country, in the paragraphs that follow.

. Eastern Bloc countries have seen their traditional sources of mackerel disappear or begin to disappear. For example, in US waters, negotiated agreements have reduced quantities of mackerel to a minimum, to be taken only as by-catch, for example in United States waters. In other waters, such as those off the coasts of Namibia and South Africa, stocks have been over-fished to the point where coastal states have instituted severe restrictions including low total allowable catch (TAC) and restrictions on gear and net size.

Eastern Bloc countries have taken a number of actions to maintain their supplies. They have participated actively in scientific research to confirm significant new stocks such as those in the Indian Ocean; they have harvested to the limit and probably beyond in waters where they continue to enjoy free rein; they have formed bilateral agreements with some coastal states, which give them rights to fish; they are reported to have fished in some areas, for example off Latin America, with abandon, taking huge quantities of mackerel, running the risk of being caught and suffering the consequences; they have established joint ventures at the wholesale and retail distribution levels to act as regular purchasers (e.g. SOVHISPAN, (see Appendix IV, pg. 59 for a description) a joint venture of the Soviet Union and Spain, based in Las Palmas); and, finally, they have sought supplies through the arrangement known as direct, or over-the-side, sales.

. Japan has sought to protect its number-one position as a processor and exporter of canned mackerel. As this analysis later notes, domestic consumption per household is on a slight decline, which makes the need to establish and maintain export markets increasingly important. Of late, Japan's big markets have been in Africa and Southeast Asia. Although Japan enjoys substantial economies of scale in its canned mackerel processing industry, its fishing fleet continues to suffer economic hardships associated with high fuel costs and the need to cover great distances to obtain supplies of relatively low value mackerel.

. Latin America has developed an interest in mackerel, particularly since the collapse of the Peruvian anchovy fishery. Although quantities caught in the past have been significant (e.g. Peru in 1979 landed more than 550 000 tonnes), almost the entire catch has been reduced to fish meal and oil. Lately, however, mackerel-catching nations in this part of the world have begun to show interest in supplying frozen whole round and canned varieties. There is no information available on which to judge the likelihood of success of this new strategy, but Latin America products could move, for example, into West Africa through Las Palmas with few anticipated difficulties. Transportation prices could, however, make the products non-competitive, at least in the short run.

. The European Community has increased its use of mackerel, particularly as a herring substitute, in recent years. Countries such as the FRG are experimenting with substitutes to maintain production levels in canning factories and to supply products the consumer can afford. The interest in mackerel is expected to increase, even if the herring do return to the North Sea, since marketers predict that consumers will, by that time, have developed a taste for mackerel products.

. The 1980 season has seen the opening of a new direct sales fishery off the west coast of Ireland at Killybegs. Although there may be uncertainty as to quantities available, the fish is reported to be both "big and good", which will suit perfectly the requirements of markets such as West Africa. Indeed, the Irish have reportedly entered a joint venture with an important Nigerian partner, which will initially supply 1 000 tonnes per month to that market.

. The West African market has virtually "exploded" for frozen mackerel, horse mackerel and canned mackerel. Nigeria has increased its imports to more than 400 000 tonnes, and the heavy demand is expected to continue. This country's new-found oil wealth is expected to be duplicated to a certain degree in most West African coastal nations, since substantial oil reserves have been found all along the coast. This market area is, nonetheless, extremely price competitive and most of the countries should probably be regarded as high-volume, low-margin prospects. There are countries such as Gabon and Cameroon where market prospects for specialty mackerel products accompanied by higher margins are better, due to higher per capita incomes and the presence of a large French expatriate community whose members both prefer, and can afford, these products.

. Limited new interest is being seen in Middle Eastern nations, particularly in Egypt, Saudi Arabia also imports mackerel in most product forms, especially canned in oil.

. In 1979 the United States introduced a Mid-Atlantic Mackerel Management Plan (see Appendix III) which reinforces its interest in the scomber species of mackerel as a recreational fish, at least in the short term. US fishermen also take jack mackerel in relatively small quantities off the Pacific coast, where it is mostly canned. The product is sold both domestically and to export markets.

C. WORLD CATCH OF MACKEREL

1. Recent Years

Mackerel of all varieties have accounted for between 7% and 10% of the world's total fish catch in each of the last five years for which statistics are available (1974-1978).

The latest statistics show the world mackerel catch in 1978 increasing 14% over 1977 to more than 3.6 million tonnes (Table 3).

TABLE 3  
world landings of mackerel, 1974 - 1978  
(000 tonnes)

<u>Year</u>	<u>Catch</u>
1974	3 208
1975	3 285
1976	3 005
1977	3 202
1978	3 647

Source: FAO, Yearbook of Fishery Statistics, Vol. 46, 1978, Rome, Italy.

The major mackerel catching countries by volume are Japan, the USSR, the UK, Chile, Korea, Peru, Norway and India. The fishing nations for which mackerel constitutes a significant proportion of their total catches are as follows:

TABLE 4  
mackerel catch as % of total catch

<u>Country</u>	<u>1973</u>	<u>1974</u>	<u>1975</u>	<u>1976</u>	<u>1977</u>	<u>1978</u>
Angola	39	33	71	42	30	36
Bulgaria	51	44	60	45	40	33
Chile	18	17	30	28	36	40
Cuba	7	n/a	8	10	10	24
Faeroes	n/a	n/a	9	20	15	15
GDR	22	17	15	16	10	18
Ireland	9	10	15	15	26	34
Japan	13	16	16	13	16	17
Korea	n/a	n/a	n/a	n/a	n/a	15
Peru	5	5	2	2	22	17
Poland	26	21	17	18	14	22
Portugal	14	14	15	18	22	20
Romania	41	36	30	37	33	47
UK	2	3	5	8	19	31
USSR	16	14	15	18	15	15

Source: FAO, Yearbook of Fishery Statistics, Vol. 46, 1978, Rome, Italy.

Mackerel caught is normally one of three varieties: Atlantic, chub, (Spanish), and Indian. A catch by species breakdown confirms the importance of the chub variety, as seen in the Table 5 which follows:

TABLE 5  
Mackerel catch by species, 1975 - 1978  
(percentage of total mackerel catch)

<u>Variety</u>	<u>1975</u>	<u>1976</u>	<u>1977</u>	<u>1978</u>
Chub	58	55	69	71
Atlantic	34	37	22	20
Indian	<u>8</u>	<u>8</u>	<u>9</u>	<u>9</u>
Total (%)	100	100	100	100

Source: FAO, Yearbook of Fishery Statistics, Vol. 46, 1978, Rome, Italy.

The Atlantic mackerel is found in the northeast Atlantic from Norway to Morocco and the Canary Islands, and in the Mediterranean and Black Seas. In the northwest Atlantic it is present from North Carolina to Labrador.

The chub mackerel is found in more tropical waters, for example down the entire west and southwest coast of Africa, off the coast of eastern South America, in the Caribbean, and off Japan and other Far East shores.

Indian mackerel is found throughout the Indian Ocean and in waters off the Philippines. World catches by areas are shown in Table A-3, Appendix II.

Catches of Atlantic mackerel have declined, both in total and relatively, since the establishment of 200-mile limits in 1977. Many countries have restricted the catches of foreign fleets, which had in several instances placed the future of this species in danger due to heavy over-fishing.

Consequently, these fishermen have turned in the short term to catching chub mackerel, since many countries that now control stocks of this species are developing nations who have been somewhat slower in their efforts to control the activities of foreign fleets. Also, foreign fleets have been able in certain cases to enter into agreements with some countries to continue and/or to expand fishing activities in return for such things as guaranteed markets, transfer of technology, and training and education.

Preliminary reports on catches in 1979 indicate that serious over-fishing in the North Sea in 1978 and in 1979 caused the closure of the North Sea fishery in October. Up to that time the UK had already exceeded, by 33 000 tonnes its record 1978 catch of 320 000 tonnes. Indeed mackerel became the main species in the UK catch in 1979. Partly as a result of this, mackerel has taken on new significance as a subject for research, in marketing and in measures proposed for better management.

A breakdown of the fishing grounds from which the UK mackerel catch was taken during the 1973 - 1977 period can be found in Appendix II in Table A-4.

Table A-5, Appendix II, shows the quantity and value of UK mackerel landings in the last 10 years. The British catch has increased more than 76 times in that period. Most of the catch in recent years has been sold fresh through direct sales to foreign factory freezer trawlers.

Scottish vessels play a significant role in the development of the mackerel fishery from August to October off the west coast of Scotland and from November to March off the coast of Southwest England. The Scottish mackerel fishery contributed 105 000 tonnes to the annual catch in 1979, valued at C \$9.9 million. The main ports for direct sales transactions were Ullapool and Mallaig. In 1979, 88% of the mackerel catch was sold for human consumption and, of this total, 71% was sold directly to foreign fishermen. The remainder, 12% of the total catch, went into processing for fishmeal. (See Table A-6, Appendix II.)

Other nations in the EC, with the exception of Norway, have not been fishing mackerel in great quantities. They have, however, increased their efforts since the decline of the herring fishery and do take sufficient quantities to supply the European Community's needs for fresh and frozen mackerel.

India's burgeoning mackerel catch is believed to be consumed domestically, mostly in the fresh state. The catch has increased dramatically from a five year low of 41 100 tonnes to a high of 90 049 tonnes in 1978.



Japan's landings were down from 1.4 million tonnes in 1978 to 1.2 million tonnes in 1979. Nonetheless, Japan has accounted, on average, for nearly 45% of world mackerel landings in any recent year.

The large fleets of the Eastern Bloc countries have consistently exploited stocks of mackerel as cheap raw material for conversion to fish meal and for export marketing in the fresh/frozen whole or canned forms.

For the six Eastern Bloc countries that maintain distant-water fishing fleets, total mackerel catches for 1975-1978 are shown in Table 6. They account, in total, for a large but declining proportion of the mackerel catch. In 1975, the Eastern Bloc caught 30% of the total. By 1978, its percentage had dropped to 13% of reported catches.

TABLE 6  
Eastern Bloc mackerel catches, 1975 - 1978  
(tonnes)

<u>Country</u>	<u>1975</u>	<u>1976</u>	<u>1977</u>	<u>1978</u>
Bulgaria	43 204	48 091	8 413	2 316
Cuba	6 601	13 124	4 760	258
GDR	58 178	42 918	9 834	1 131
Poland	100 645	82 651	25 378	2 329
Romania	11 649	20 006	7 036	3 129
USSR	<u>765 223</u>	<u>746 207</u>	<u>681 949</u>	<u>451 724</u>
TOTALS:	985 500	952 997	737 370	460 887

Source: FAO, Yearbook of Fishery Statistics, Vol. 46, 1978, Rome, Italy.

In an attempt to maintain catch levels, Eastern Bloc fleets have been forced to move their operations, for example, from the North Sea and the Northwest Atlantic to the coastal waters of West Africa and South Africa, in response to the enforcement of 200-mile limits or the depletion of stocks. This has not, however, proven to be adequate to supply their needs.

In addition, freezing capacities of the large Eastern Bloc fleets (see Table A-7, Appendix II) have been put to good use in recent years as catches were supplemented by direct purchases of mackerel from fishing vessels in the coastal waters of countries such as the UK and Canada. In addition, various joint-venture companies have been established, such as SOVHISPAN (Spain-USSR), FRANSOV (France-USSR) and SOVIPESCA (Italy-USSR) to permit purchasing on the free market.

Reliable data are not available, but indications point to a decline in the total mackerel catch of the Eastern Bloc countries for 1979. The northwest Atlantic fishery has been virtually cut off. Southwest African stocks have been severely overexploited in the last few years, resulting in the introduction of TACs in 1980. For example, the chub mackerel TAC off Namibia is being set at 500 000 tonnes in 1980 to be shared by more than 15 countries. This figure is equivalent to nearly 75% of the USSR catch in 1978. Mackerel stocks off the coast of West Africa appear to be fully exploited and perhaps somewhat over-fished. East Bloc catches of mackerel off the coasts of South America and in the Indian Ocean remain relatively unknown quantities.

Canada has not focussed its efforts on mackerel in the past. In the last 25 years, annual catches have ranged from a low of 4 500 tonnes in 1962 to around 30 000 tonnes in 1979 (See Appendix II, Table A-8 for catches for the years 1975-1979 inclusive). Mackerel is a "glut" fishery, available in the spring and fall when other, more profitable, species are fished. At times existing processing and storage facilities are incapable of handling the excess created by a good mackerel catch if other competing fisheries have had a good year. Mackerel are also difficult to predict with respect to size and location of run, since concentrations of the species vary with availability of food and water temperature. Nonetheless, foreign fleets were, prior to the declaration of the 200-mile limit in 1977, taking nearly 400 000 tonnes per year of mackerel from waters under jurisdiction of the North Atlantic Fisheries Organization (NAFO). This was, however, essentially a Georges Banks catch, whereas Canada's mackerel fishery at present focusses more on the inshore.

Only a small portion of Canada's catch has been exported, as most mackerel is used for bait and a small quantity is consumed domestically. (See Appendix II, Table A-8). Until recently, the majority of the exports of whole, frozen

mackerel were to the US, again for use as bait. Lately, however, the export market has begun to diversify with sales to Nigeria, Western Europe, and the Eastern Bloc. The sales to East Bloc countries are not primarily the result of export promotion by the processing industry, but are among the products involved in direct, or over-the-side, sales.

The majority of Canada's exports of pickled mackerel have gone to countries in the Caribbean. In addition, small quantities have gone to several EC countries and the US. In the case of the EC, it may be possible in future to increase exports as mackerel becomes established as a substitute for herring.

Mackerel is also canned and sold for export under Canada's contribution to the World Food Program (WFP) through the Canadian International Development Agency (CIDA). Traditionally, this product has been canned only if other, more profitable, species are not available. Often, canning plant owners maintain that at CIDA's price per case, canned mackerel is at best a break-even proposition; but it does keep many plants open when no alternate source of employment is available. In 1980, CIDA was to purchase up to C\$2 million worth of canned mackerel for distribution to needy countries.

The Canadian domestic market for mackerel products is in its infancy. An attempt in 1974 to introduce canned mackerel with a major promotion ended in failure. Consumers, with disposable incomes that allowed them to purchase the preferred tuna and salmon, rejected the low-priced mackerel, apparently because of its dark colour and oily texture. Recently, there have been efforts to promote fresh mackerel, frozen round mackerel and frozen pre-packed mackerel fillets. Canada's large population of European origin is more familiar with mackerel and should be evaluated as a target market. Ironically, canned mackerel continues to be imported as "gourmet" food from countries such as Spain and Yugoslavia. Canadian producers may want to explore the prospect of replacing these imported products.

## 2. World Catches - 1980

Only limited information is available on 1980 world catches. The TAC for mackerel stock in the North Sea was set at 350 000 tonnes - a 20% reduction from 1979. The EC allocation is 307 000 tonnes, of which the UK claims the major

share. By the end of the first quarter of 1980 the UK had exported about 160 000 tonnes, most of it by direct sales in the fresh state to the USSR. Other direct buyers included the GDR, Poland, Nigeria, France, Bulgaria, Egypt and Romania. Licences to fish for North Sea mackerel were suspended in mid-August by MAFF, the Ministry of Agriculture, Fisheries and Food, to prevent over-fishing. Weekly quotas were introduced for fishing off the Scottish west coast. These were cut by 10% in relation to the overall reduction in TAC of 20%. The weekly quota scheme, as introduced on August 9, 1980 is shown in Table A-16, Appendix II. The distribution of the 4 000-tonne mackerel TAC under the US total allowable level of foreign fishing (TALFF) is shown in Appendix III. These quotas are a far cry from the quantities fished by foreign fleets off the Canada - US east coast before 1977, when catches were as high as 400 000 tonnes in 1973.

The US recognizes that mackerel is a trans-boundary stock and has made certain assumptions concerning Canadian catches. It also recognizes that its TAC could change in the event of an east coast agreement and appears to be moving to fish greater quantities to establish an historical precedent to protect its recreational mackerel fishery and leave the option available for commercial fishing and exports.

. Canada's catch of mackerel in 1979 was 30 000 tonnes. Preliminary reports on 1980 landings indicate a drop to 18 619 tonnes. Canadian scientists have indicated that a shared Canada-US TAC for mackerel of 150 000 to 200 000 tonnes would be possible, assuming the fish move far enough into Canadian waters sufficiently early in the fishing season. However, in terms of the total world catch, Canada's is at present a drop in the bucket.

. Japanese catches of mackerel declined in 1979 to 1.2 million tonnes 84.5% of the 1978 catch. The first trimester catch for 1980 was running 24% ahead of 1979's first trimester landings, at nearly 400 000 tonnes.

. Most EC countries were reporting normal catches for 1980. Major exporters, the Netherlands and Norway, were on target at mid-year when compared to 1979 (see Appendix II, Table A-11).

Quotas have been attacked by the industry as inadequate. The Scottish west

coast mackerel season started slowly, because the fish arrived in mid-September, about one month late. Prices were approximately the same as in 1979, which, in fact, represents a lower return to fishermen since their costs have increased and inflation has eroded the value of the pound sterling. The Scottish Fishermen's Organization has adopted the official EC minimum price of £75 per tonne for the fishery (C \$206).

. The US has yet to consider the potential of mackerel as more than a recreational fishery. Under the auspices of the Mid-Atlantic Fishery Management Council, a management plan for mackerel was devised for the 1980-81 season. (See Appendix III for a detailed outline of the plan).

Annual catch quotas for 1980 for both domestic and foreign fishermen were as follows:

TABLE 7  
US mackerel TAC, 1980  
(tonnes)

Domestic annual TAC	20 000
Foreign TAC	4 000
Reserve	<u>6 000</u>
Total TAC	30 000

Source: US Atlantic Mackerel Fishery Plan, see Appendix III.

D. MACKEREL AND DIRECT SALES

Mackerel has been one of the principal species in demand for direct or over-the-side sales to foreign fishing vessels over the past three years. Quantities available to foreigners to date have been small, relative to their total requirements, but make up a significant portion of Canada's overall mackerel catch. If Canada is to approach its potential TAC of, say, 50 000 to 100 000 tonnes (assuming the fish turn up in Canadian waters in sufficient quantities, at the right times) the question is whether to consider an expansion of direct sales to foreigners or a serious commitment to Canadian domestic capability to handle and market this species. One might gain some insight into this issue by examining the UK direct sales program.

Since 1977, the UK has had available a substantial mackerel resource in its coastal waters. Neither the domestic processing industry nor the domestic market was capable of handling the enormous quantities of mackerel that these waters could produce. Concurrently, foreign nations, which had historically fished for mackerel in these waters, and were now excluded, recognized that they needed a supply of mackerel for domestic use and/or export to earn needed foreign exchange. Their huge investments in fishing and transshipping fleets required continuous operation, and it became apparent that the easiest and cheapest way to obtain fish was to purchase direct from fishermen.

Consequently, foreign countries entered into agreements with the UK, under which they were allowed to place their ships in UK waters to purchase mackerel "directly" from local fishermen.

But by all reports, by 1980, the UK fall program started in crisis. Fishermen off the Scottish west coast where the mackerel fishery concentrates during the fall were reported to have sold as much as possible to foreign factory ships at prices much lower than at on-shore auctions, fearing that if they were not supplied, the foreigners might not sign contracts when the Cornish season opened. Reports indicate that foreigners were paying £80-£85 per tonne when on-shore auctions prices were approaching £114. Foreigners paid similar prices in 1979 so, recognizing the effects in inflation, UK fishermen are receiving even less for their mackerel in 1980. Shore-based buyers barricaded the pier at Ullapool on September 22 and fish factories were laying off staff by

the hundreds. The situation for UK buyers has been described in Fishing News, September 26, 1980 as having "a disastrous effect all round the country".

Towards the start of the season prices hovered around £75 per tonne, which fishermen found unacceptable and consequently the catch was limited. Now, however, the foreigners appear to be in control. One transshipping agent, Ocean Resources, acting for Romanian interests, paid a consistent £94 per tonne throughout the season. Thus, although some foreigners are not playing the price/supply manipulation game, the overall effect appears to be very serious and very negative. It is also reported that over-quota mackerel is being fished and sold to foreign factory ships at special discount rates.

Although British processors face some difficulty with mackerel due to the seasonal nature of the fishery and its geographic split, both of which increase production costs, the industry apparently does see a future for increased production of canned mackerel but only if heavily subsidized, for example, an EC export refund.

Concurrently, with some of the factory ships heading off unexpectedly to Ireland's coast, the concern of the fishermen is that there will be an insufficient number of factory ships to handle catches off the Cornish coast.

The UK has already moved to reduce TACs, applied a weekly and seasonal quota system and banned the use of purse seine nets and trawls with a mesh size smaller than 70 millimetres off southwest Cornwall for part of the season.

Regardless, with Britain's most important fishery in a state of disruption, officials on the Ministry of Agriculture, Fisheries and Food and the Department of Fisheries in Scotland, can be expected to re-examine policy decisions made with respect to the future direction of the fishery.

## E. CANADA'S FUTURE IN THE MACKEREL FISHERY

At this point, it would appear that if Canada is at all serious about developing a mackerel fishery, it must be prepared to do so in a big way. Mackerel marketing involves huge quantities of fish, caught and sold by fishing countries that have established good connections with transshippers and with distributors in major markets. Most markets in which mackerel is sold consume large quantities, and they expect reliable delivery of orders.

It is recognized, however, that the species presents a number of problems. First, it is a seasonal fishery of unpredictable size which, when combined with its current lower value, makes investment decisions for any processor difficult to rationalize. It is also a fishery that in the past could be displaced by other species which were far more lucrative. It is a fish which, because of its fat content and inherent tendency to turn, requires fast processing and special care. It is also a species associated with the food aid program, which for many east coast processors meant breaking even or losing money. The unsuccessful mackerel program in 1974 which was to introduce various mackerel products to domestic consumers may have left some bad memories in the marketplace.

The direct sales program could distort one's view on price, since foreigners have consistently offered Canadians a price higher than that available locally, and a price which is higher than that available to direct sellers elsewhere. To the degree that quantities purchased annually directly in Canada represent less than one-tenth of what is currently being purchased off the UK, and prices paid in Canada are higher (average of 10% in 1979), one must question the use of guarantees, since these are obviously the inducement that make it worthwhile for the foreigners to purchase in Canada.

All sectors of the industry must recognize mackerel is most efficiently handled as a high-volume, low-margin species. Markets for frozen whole round mackerel are extremely price competitive. At our present catch levels, east coast producers are not competitive. Also many sellers and buyers of mackerel are extremely hard-nosed and doing business with these people can be especially risky. But this alone should not be used as a reason for failing to explore alternatives, since what may be possible is an effort directed to expanding this



fishery to economies of production that allow for transportation and handling arrangements to make it more profitable.

Also, mackerel could be used as a test product to encourage the industry (most preferably using export incentives) to diversify its markets in areas of the world such as West Africa and the Far East. Getting a share of the market in Nigeria, for example, cannot help but lead to new market opportunities in neighbouring African countries.

At a time when Canada's aid role is being debated, mackerel has been a major product in the fisheries sector's contribution to the World Food Program. Nonetheless, complaints have been made by CIDA in some years about lack of supply. An industry geared up to process mackerel could make a greater contribution to feeding starving millions and better stabilize employment in some Atlantic Canada's canneries and pickling operations.

The aid program could also put Canada's name in the forefront and help to develop the connections that could assist Canada in making inroads into supplying equipment and expertise to the numerous fisheries development projects that arise in developing countries, particularly if Canada can approach aid recipients on a bilateral basis.

Finally, a concentrated mackerel marketing effort could also be directed, when the time is ripe, to an expansion of the domestic market. For example, scientific work being done in Nova Scotia is designed to produce an improved canned mackerel product, new canned mackerel in sauce products, retort pouch mackerel products, etc., all destined for the domestic market. These products could find market opportunities abroad as well.

In short, proper management and marketing of mackerel could produce a variety of direct and indirect benefits for Canada, particularly in the medium to long term. But this is not likely to be possible without some form of export marketing assistance to the industry (e.g. information gathering and dissemination, export financing, barter arrangements). Due to the nature of the world market this marketing challenge would be best tackled by the larger fish processors or consortia of small and medium-sized firms.

F. MAJOR WORLD MARKETS

1. Japan

Japan accounts, on average, for nearly 45% of world mackerel landings in any recent year. Although total domestic consumption of mackerel in all product forms is substantial, per capita consumption is slipping as other fish and meat protein become increasingly popular.

TABLE 8  
Mackerel consumption in Japanese households

	Grams/Household*				
	<u>1974</u>	<u>1975</u>	<u>1976</u>	<u>1977</u>	<u>1978</u>
Fresh, Frozen Mackerel	3 327	3 308	2 935	3 231	3 170

\*Working households in cities with populations of 50 000+

Source: Ministry of Agriculture, Forestry and Fisheries, Japan.

The need for Japan to be a major net exporter of mackerel, selling excess production in various canned and frozen forms, is self-evident. Japan's production of canned mackerel in 1978 was reported at 222 000 tonnes net product weight (or roughly 18.4 million cases) of which roughly 46% was exported, down from 60% in 1975-76. Exports in 1979 were up slightly at 180 000 tonnes, valued at C \$213 million. Mackerel is the biggest volume item in both production and export of all of Japan's canned fishery products.

At this scale of production, Japan can satisfy any customer's particular tastes and offer supply at a market-leader price. Canned mackerel is mainly exported to developing countries in Southeast Asia and Africa.

## 2. Africa

West African countries constitute a healthy market for suppliers of both frozen whole mackerel and canned mackerel. Frozen whole mackerel imports for key countries in this region for 1976-1978 inclusive are as follows:

TABLE 9  
Frozen whole mackerel imports

	<u>1976</u>		<u>1977</u>		<u>1978</u>		<u>Total Q</u>
	Q (t)	V(\$/tonne)	Q (t)	V(\$/tonne)	Q (t)	V(\$/tonne)	
Cameroon	197	650	149 1 020		710	370	1 056
Gabon	1 001	630	1 249	920	1 195	1 090	3 445
Chana	13 195	630	9 633	870	11 836	850	34 664
Ivory Coast*	4 561	--	2 694	--	6 013	--	13 268
Nigeria*	100 000	--	110 000	--	180 000	--	390 000
Mauritania	--	--	--	--	1 010	140	1 010
Senegal	--	--	56 1 490		60	1 660	116
Total	114 393		123 781		200 824		443 559

\*Figures for Ivory Coast and Nigeria do not include imports from USSR, Poland and Bulgaria. Due to gaps in reporting systems, statistics for Cameroon, Gabon and Ghana do not include sales made by East Bloc countries. Thus the total sales in each year for these countries could likely be revised upwards 5% to 10%.

The West African market is often unstable. Imports can fluctuate wildly in each country depending on political conditions, economic conditions and government import restrictions. Nigeria, however, is the key to this entire market area and its total demand for fish is expected to increase by 50% by 1985. Frozen round mackerel and canned mackerel will probably constitute 35% to 40% of this 1.4 million-tonne demand for fish, or 490 000 to 560 000 tonnes.

The average selling price to Nigerian importers in 1979 for frozen whole mackerel was C \$425 to 430 per tonne, C & F Lagos. Most of the direct-sales mackerel moved into this market was being purchased at C\$0.10 per pound from UK fishermen and sold, at C\$0.20 per pound. By 1980, Nigerian supplies of frozen mackerel were mainly from the USSR, Bulgaria, the UK and Netherlands, Norway and Poland.

The USSR, Bulgaria, Poland, Ireland and the UK are each represented via a joint venture in Nigeria. Nigeria is also the key to Cameroon, since the only frozen and stockfish importer there is a wholly-owned subsidiary of Ibru Seafoods Limited, a Nigerian company, and the country's number one frozen fish importer. Ibru is now dealing with SOVHISPAN (SA) out of Las Palmas, a fish trading arm of the USSR.

Gabon, Senegal and Ivory Coast maintain strong connections to France, but here too the USSR presence has recently become strong. For example, Ivory Coast imports of fresh/frozen mackerel indicate a constant shift in purchasing emphasis, as shown in Table 10:

TABLE 10  
Ivory Coast imports of mackerel by country, 1976-1979  
(as % of total imports)

	<u>1976</u>	<u>1977</u>	<u>1978</u>	<u>1979</u>
USSR	0.66	0.10	0.04	-French landings and
Bulgaria	0.32	--	--	exports down signifi-
France	--	0.60	0.95	cantly
Poland	--	0.24	--	-USSR controls the
Other	<u>0.02</u>	<u>0.06</u>	<u>0.01</u>	market
				(Detailed statistics
Total	1.00	1.00	1.00	unavailable)

Source: Trade Statistics, Ivory Coast, Department of Customs.

The USSR is represented in its mackerel deals in French West Africa through FRANSOV, a USSR-France joint venture. Thus the "French connection" is present in these business dealings as well.

One frozen fish importer interviewed in the Ivory Coast suggested that Soviet vessels can enter with 13 000 to 14 000 tonnes and glut the market, thus depressing prices. He was of the opinion that insofar as operations of the USSR factory freezer trawlers are concerned, the price at which fish is sold is not of prime importance. Rather, he felt, the Soviet objective is to maintain a presence for reasons related to surveillance and for eventual control.

A proportion of the French mackerel exports into the Ivory Coast is landed by three Ivory Coast freezer trawlers owned by CAPAFROID, a private company. This firm owns a company in St. Malo, France, and the ships are registered under the French flag.

A number of West African countries, including Nigeria, impose price restrictions or ceilings on frozen fish imports. The Nigerian government, for example, imposes a ceiling price of US \$610 per tonne, CIF Lagos which must cover all costs.

The most popular canned mackerel imports are those packed in tomato sauce, followed by mackerel boiled in water. These products commanded between C \$1 000 and C \$1 600 per tonne in 1978, depending on the market in which the product was sold. The average price was C \$1 270 per tonne.

From a local supply perspective, Morocco is canning mackerel and is the largest supplier of canned mackerel to France (444 tonnes out of total 1 000 tonnes in 1978) and is also a leading supplier to Belgium (1 150 tonnes in 1977). A number of these coastal developing countries propose to establish viable canning industries and they have done so with tuna (in Ivory Coast, Senegal, Mauritius and Ghana) and pilchards (in Senegal and, until recently, in Namibia). Mackerel is available locally and could be canned somewhere in the area for either domestic use or exports to EC countries. Through ECOWAS (Economic Community of West African States), intra-state trade is being encouraged and duties on most goods are non-existent or negligible. Sales to the EC have been, and would continue to be, facilitated by the provisions of the Lomé Convention, the effects of which have been to reduce tariffs to nil for all ACP (Africa, Caribbean, Pacific) member producers of canned fish. Also the harmonization of UK tariff rates with those of the rest of the EC has provided a further boost.

Further, many West African countries are immediate markets for large amounts of food aid, primarily due to the severe drought of 1980. Canned mackerel could be distributed in Ghana, Chad, Gambia, Mauritania and Mali. Smoked mackerel would be acceptable as well.

Many Central and East African countries are also seen as markets for canned mackerel food aid as a result of serious drought. Mozambique, Tanzania, Zambia and Zaire are ideal targets, but under CIDA's bilateral aid program any recipient country must first make a specific request for fish from Canada. Under the World Food Aid Program, CIDA must either expand its total budget or displace part of its grain purchases with fish to enable Canada to supply more canned mackerel. Processors must concurrently make firm commitments to produce for the program.

In Saharan Africa, Egypt has opened up in 1980 as a possible market for frozen whole mackerel. Initial quantities mentioned by the state procurement agency are 12 000 tonnes per year. A visit to Canada in November, 1980, by senior Egyptian buying officials has left open the possibility of future purchases of Canadian mackerel products. Saudi Arabia purchased nearly 8 000 tonnes (equivalent) of canned mackerel, mainly in oil, in 1979.

### 3. The Caribbean

Mackerel is imported into the Caribbean as whole frozen, whole smoked, and canned in oil or tomato sauce. Imports of fish products to the Caribbean market in 1978 totalled about 96 000 tonnes, of which 45% went to Cuba. This total is down from 1976 and 1977 totals, due almost entirely to a large decline in purchases by Cuba. Mackerel ranks behind hake and pollock in popularity in the whole frozen form, and in the dried, salted and smoked forms, and behind tuna in the canned form. At this time, it is not possible to determine specific quantities of mackerel imported.

The major importing countries in the region are as follows:

TABLE 11  
Major (Importing) Caribbean countries, 1978

<u>Fresh chilled, frozen fish</u>	<u>Dried, salted, smoked</u>	<u>Canned fish products</u>
Cuba	Jamaica	Cuba
Jamaica	Cuba	Dominican Republic
Martinique	Dominican Republic	Jamaica
Neth. Antilles	Martinique	Bahamas

Source: Opportunity for Expanding Export of Fish Products From the Latin American Region to the Caribbean Market, INFOPECA, Technical Report #22, August, 1979.

Tables A-9 and A-10 in Appendix II provide highlights on the supply side and on imports.

Cuba accounts for 75% of fresh, chilled, frozen fish consumption, 21% of dried, salted, smoked fish consumption, and 38% of canned fish products, according to the most recent statistics available (1978.) As with many developing countries in other parts of the world, the ability to purchase varies from year to year. Jamaica, for example, has recently been increasingly hard pressed to release foreign exchange, with its politics in turmoil and its economy precarious.

Nonetheless, Caribbean people are mackerel consumers. The competition in the fresh/chilled/frozen forms and dried/smoked/salted forms will come from South American hake, in particular if transportation difficulties can be ironed out. For example, in 1978, to ship a ton of frozen hake from Spain to Jamaica cost US \$90. The same freight from Argentina was US \$282. Although canned tuna is preferred to canned mackerel, its relative price makes it prohibitive to many Caribbean people. The market for dried/salted fish is slackening, due primarily to price. Major sales growth in future, unless cheaper substitutes can be found, will be in frozen and canned fish. The regional market for fish imports

(excluding Cuba) is expected to grow, according to INFOPECSA, at the rate of 7 000 to 7 500 tonnes per year.

Tariffs and duties on Canadian fish are higher than on fish entering from countries associated with the Caribbean free trade grouping (CARICOM) or with the EC. The rate of duty varies from 15% to 32% for fresh, chilled and frozen fish; dried, salted and smoked fish from 0% to 15%; canned fish from 0% to 25%, and crustaceans and molluscs from 15% to 30%. Canada, without any regional bilateral arrangement, is at the upper end of the scale on all product forms.

Fish products traded within CARICOM are exempted from the tariff, provided that at least 50% of the input into the product was provided within the CARICOM country. As canning capacity expands, local canned products may become an effective substitute for imported canned mackerel.

Another alternative in this region is the possibility of providing development assistance to establish a canning industry or assist one already developed. Canning factories will process imported mackerel. Trinidad, Curaçao and Jamaica are all involved in plans in this area. Jamaica, in 1978, also expanded its production of dried, salted fish, which increased its annual import requirements for whole, frozen fish by 7 200 tonnes.

#### 4. Western Europe

Prior to the establishment of the 200-mile limit the EC average mackerel catch in ICES areas IIIa, IV, VI, VII and VIII formed a small proportion of average total catch of all countries fishing in these waters. Since 1977, however, EC nations and in particular the UK, have taken the lion's share of the mackerel catch. The UK has, in turn, sold most of its mackerel direct to many nations that previously fished in these waters. Catches have increased considerably as fleets have switched their attention to mackerel following the loss of the Icelandic cod fishery and North Sea herring fishery. Of a total TAC in 1980 in ICES areas IIIa, IV, IV, VI, VII and VIII of 405 500 tonnes, EC countries account for 313 400 tonnes or 77%.

Selected statistics on landings and balance of trade in mackerel for 1978 - 1979 and part of 1980 are presented in Appendix II, Table A-11. The EC, even if one excludes UK supplies, is now more than capable of supplying internal requirements.



Consumption of mackerel in EC nations is primarily in the smoked and canned forms.

West European markets for canned mackerel are France, Italy, Belgium, FRG, Sweden, UK and the Netherlands. Traditionally the French market has been the largest, followed by Italy, then Belgium.

Statistics on imports of prepared or preserved mackerel for 1971 - 1978 are shown in Appendix II, Table A-12. West European markets are largely self-sufficient through trade deals made under the umbrellas of the EC and the European Free Trade Association (EFTA). For example, in the early 1970s canned mackerel in the UK was supplied almost exclusively from Japan at an extremely competitive price despite the shipping distance and an EC import tariff. In 1978, Japan supplied only 36% by weight in a fairly static market. The Japanese were displaced, largely due to their own supply problems, by European canners. In the Netherlands, mackerel is now the most important wet fish canned, although it remains a small industry. In France, in 1979, mackerel was edged out only slightly by tuna as the most important fish canned (19 700 tonnes versus 19 430 tonnes of processed weight).

Several European countries have been encouraging consumption of canned mackerel. FRG, for example, has included mackerel in a recent promotion campaign to increase the use of lesser known types of fish. This promotion has been extremely successful as declining disposable incomes encourage consumers to turn to cheaper types of fish.

In-home placement tests in the UK in May of 1979, which provided consumers with an opportunity to compare British (Atlantic) and Japanese (Pacific) mackerel indicated a relatively even preference for either product. The UK White Fish Authority sees this as indicating an opportunity to substitute Atlantic mackerel, particularly since consumers indicated decisions to purchase would probably not be based on price.

Nonetheless, UK canners have, of late, seen large supplies of mackerel diverted to foreign factory freezer trawlers. Fishing News, September 26, 1980, reports "where the processors get really steamed up is when they see British-caught mackerel disappearing overseas and coming back on the British consumer market as a canned fish product."

So it appears that the UK, along with other West European countries, will continue to import canned mackerel. Countries in EFTA and the ACP will likely continue to be major suppliers due to tariff preferences (Table A-13, Appendix II).

TABLE 12  
ACP and EFTA Tariff Preferences in the EC

ACP countries	<ul style="list-style-type: none"><li>- Same tariff rates as EC</li><li>- Special concessions, e.g. Morocco allowed in 1978-79 a duty-free quota of 14 000 tonnes and a further 10% duty quota of 6 000 tonnes.</li></ul>
EFTA countries	<ul style="list-style-type: none"><li>- Special concessions, e.g. Portugal effective Jan. 1, 1980 preferential tariff for canned mackerel reduced by 60% from 18.75% to 7.5%.</li></ul>

Source: Eurofish Report, March 5, 1980, World Fishing, May, 1980.

Japan continues to be a strong supplier, primarily due to price and availability factors.

Canada would continue to pay the Common Customs Tariff (CCT) of 25% on canned mackerel in the absence of a special arrangement.

Indeed, we may see the EC as an aggressive exporter of canned mackerel, assuming one can believe the statements of several UK processors that if a generous EC export refund on canned mackerel became available they would then be in a position to compete with Japan and the Eastern Bloc in Third World markets. "Two important markets they have in their sights are Nigeria and the Philippines," according to Fishing News, September 26, 1980, page 19. At present, they enjoy good market potential only when the Japanese encounter supply problems.

As for potential markets for other mackerel product forms, Western Europe does consume wet (fresh) mackerel, mackerel fillets, and smoked mackerel. But again due to tariff preferences (see Tables A-13, A-14, Appendix II), regional

tastes and domestic production capacity, supplies will likely come from the EC and EFTA.

Smoked mackerel products are getting a better reception, particularly in the FRG, and this trend is expected to continue.

Fresh mackerel consumption in the UK, according to the results of the White Fish Authority's fourth annual omnibus survey, is relatively static overall. WFA has produced a recipe booklet, which has already been distributed to more than 250 000 households, as a small start toward encouraging greater use of mackerel. Consumers, out of economic necessity, may become more interested in mackerel in an increasing variety of ways.

Finally, the EC will continue to export some of its mackerel in direct competition to Canada as long as sizeable EC export refunds apply to frozen and salted mackerel. These export refunds and the areas in which they apply are shown in Table A-15 in Appendix II.

## 5. Eastern Bloc

Information on Eastern Bloc countries' domestic consumption by species, type, etc. is extremely difficult to acquire. The information available to date is shown in the Table that follows.

TABLE 13  
Eastern Bloc per capita fish consumption, 1970-1980  
(Kg)

<u>Country</u>	<u>Year</u>				
	1970	1975	1976	1977	1980 (projection)
Bulgaria	5.2	5.9	6.5	5.9	8.0
Hungary	2.3	2.7	2.7	NA	3.6-4.0
Poland	6.3	7.2	7.7	7.6	9.9-10.0
GDR	7.9	8.5	8.4	7.6	NA
Romania	1.5	NA	NA	NA	6.0
Czechoslovakia	5.2	5.8	6.0	6.0	7.8
USSR	15.4	16.8	18.4	17.7	18.2

Source: Le Courrier des Pays de l'Est #232, September, 1979, P. 15.

Using the most recent population statistics available, 1978 catch figures (adjusted by 4% to account for underreporting) and per capita consumption statistics, consumption as a percentage of fish landings is as follows:

TABLE 14  
Eastern Bloc consumption and catch

<u>Country</u>	<u>Consumption as % of total catch</u>
Bulgaria	24
Hungary	NA
Poland	45
GDR	61
Romania	9
Czechoslovakia	NA
USSR	52

Source: Population statistics from Europa Yearbook 1980, Vol. 1. Catch statistics from FAO Yearbook, Vol. 46., 1978, Rome, Italy.

a. Poland

In 1977, the market for mackerel in Poland was estimated to be 60 000 to 70 000 tonnes, with an increase of 50% expected by 1982. In 1978, the Polish catch of mackerel was, according to FAO figures, around 130 000 tonnes. Much of the surplus is sold to neighbouring countries such as Czechoslovakia, Hungary, and Greece as whole, frozen fish. Poland has also purchased directly from the UK since 1978, and in 1979 bought nearly 13 000 tonnes fresh/chilled whole mackerel at an average price of £85 (C \$211) per tonne. Again, much of this, if not all, appeared to be heading for export markets, especially Nigeria, through the joint venture, Nigerian Polish Fisheries Limited, and into the Ivory Coast. Poland also cans mackerel for domestic consumption and for export to the Caribbean and Europe.

The Poles are said to consume mackerel primarily in the hot smoked form. This is a perishable product with a shelf life of seven to nine days and is normally produced from headed and gutted frozen mackerel. Poland also consumes limited quantities of head-on mackerel, which is smoked using the Dutch technique. The remainder, approximately 1/3 of domestic sales, is canned mackerel. The low-price market utilizes mackerel headed and gutted; the high-price market uses butterfly fillets.

If Canada is to provide Poland with quantities of mackerel, it must recognize that much of this fish could end up directly (or indirectly by allowing mackerel supplies from other countries to be diverted as exports) in existing or potential Canadian export markets. Poland's balance of payments problems encourage the export of consumer goods to earn needed hard currency. If we are to continue to supply fish, we may have to move in the direction of barter trade and/or new financing terms or programs to enable the Poles to purchase.

b. Bulgaria

According to FAO statistics, Bulgaria has consistently been a net exporter of fish and fish products, including large sales of frozen mackerel and canned mackerel. However, Bulgaria's catches of mackerel, at least as reported, have been dwindling dramatically in recent years. At present, the only area where Bulgarian ships are reported to be catching mackerel in large quantities is off the coast of Southwest Africa, where they take cape horse mackerel. Bulgaria has lately been supplementing its catches with purchases made directly from fishermen of, for example, the UK and Canada.

Much of the country's mackerel exports have been moving through its export firm for frozen and tinned fish, BULGARRIBA, as whole, frozen exports to Nigeria through the Bulgarian - Nigerian - UK joint venture, Globefish Industries Ltd., and to the Caribbean. Bulgaria exports its canned mackerel to countries such as FRG, Italy, Austria, Hungary, Greece and Syria. The production of canned mackerel has, indeed, become extremely diversified.

c. Romania

This country offers limited potential for sales of mackerel, due to small and declining imports, price competitiveness and lack of hard currency for payment. Romania is actively expanding its fleet and is primarily interested in direct purchases of mackerel.

d. USSR

The USSR continues to catch substantial quantities of mackerel, although in its traditional fishing areas the total harvest has been diminishing.

No specifics have yet been uncovered on USSR consumption of mackerel. It is known that mackerel is consumed domestically, although much of the Soviet catch (and purchases) is exported for hard currency. Mackerel sales involving Canadian product in a frozen, whole round state, may be possible under a barter trade arrangement.

e. Czechoslovakia

This market demands high-quality products at the best available price. Czechoslovakia produces its own canned mackerel and smoked products. It is at present a market only for whole frozen mackerel and mackerel flaps in quantities of 10 000 tonnes each. The preference is for frozen-at-sea products. Import regulations are strict. Present imports of mackerel are primarily from Norway, Denmark and Iceland. At today's prices, Canada is not competitive. Prices quoted in October of 1980 for frozen round mackerel with a fat content around 20%, packed in 30 kilogram polylined cartons, each mackerel averaging 1/3 to 1/2 kilogram, were FAS, C\$0.42-0.45 per kilogram and CIF C\$0.55 per kilogram at destination.

Czechoslovakia's per capita fish consumption is showing healthy gains (see Table 13). Recent discussions between Canadian officials and officials of KOOSPOL, the state buying agency for food products, indicated that Canadian companies should work with KOOSPOL on product forms appropriate to the Czech market.

f. Hungary

Per capita fish consumption is low, but the government is seeking to reduce pressure on the meat industry by encouraging increased use of fish. At the time of a meeting between senior officials of the Department of Fisheries and Oceans Canada and Hungarian officials in October, 1980, Canadian fish prices were on average around 20% higher than those of other similar imports. Nonetheless, officials of TERIMPEX, the export-import agency for agriculture and fishery products, expressed an interest in Canadian headed and gutted frozen mackerel and 500-gram mackerel fillet packs with Hungarian labels. Barter trade, including fish products, could be highly desirable.

G. SUMMARY AND CONCLUSIONS

1. Mackerel has long been an underutilized species in most developed countries. In the Eastern Bloc and the Third World it is an important food item and a cheap source of protein. Recently, a trend has been developing in some West European countries to promote mackerel as a desirable food product and as a substitute for herring, which is in short supply.
2. Among other recent developments, Eastern Bloc fishing fleets have been ranging far afield, searching for new stocks and negotiating access arrangements with foreign countries in response to dwindling supplies and the virtual disappearance of some traditional sources.
3. Japan must establish and maintain foreign markets in order to keep its number-one position as a processor and exporter of canned mackerel. Currently, its big markets are in Africa and Southeast Asia. Domestic per capita consumption is in a slight decline, and the Japanese fleet is beset by high fuel costs and the need to cover great distances to harvest relatively low-value mackerel.
4. Latin American countries are showing new interest in mackerel as a food fish, and have begun supplying whole round and canned products. In the short run, transportation costs could make their products non-competitive.
5. The West African market has virtually "exploded" for frozen mackerel, horse mackerel and canned mackerel, with Nigeria alone increasing its imports to more than 400 000 tonnes, and the heavy demand is expected to continue.
6. Mackerel of all varieties accounted for between 7% and 10% of the world's total annual fish catch in the period 1974-78. For 1978 the world mackerel catch was slightly more than 3.6 million tonnes, an increase of 14% over 1977.

7. The major mackerel catching countries are Japan, the USSR, the UK, Chile, Korea, Peru, Norway and India. Canada has not focussed much attention on mackerel, with catches ranging from a low of 4 500 tonnes in 1962 to around 30 000 tonnes in 1979, then dropping to 18 619 tonnes in 1980, according to preliminary reports: a drop in the bucket by world standards.
8. Before 200-mile zones were established, foreign fleets took nearly 400 000 tonnes annually from North-West Atlantic waters. Since the limits were imposed, overall catches of Atlantic mackerel have declined. Many countries have restricted the activities of foreign fleets, which in a number of areas had endangered the future of the species by heavy over-fishing.
9. Canadian scientists estimate that Canada and the US could share a possible total allowable catch (TAC) of 150 000 to 200 000 tonnes of Atlantic mackerel, the Canadian share depending on the fish moving far enough into Canadian waters sufficiently early in the season. The US has yet to consider the potential of mackerel as more than a recreational fishery, but has nonetheless developed a management plan and set a total TAC of 30 000 tonnes for 1980.
10. Historically, most of Canada's mackerel catch has been used as bait by Canadian fishermen, with small quantities exported to the US and small amounts sold on the domestic consumer market. Lately, however, Canada has made sales to Nigeria, some West European countries, and Eastern Bloc nations. Mackerel is one of the major items involved in direct or "over-the-side" sales, mainly to Eastern Bloc vessels. Mackerel is also canned and exported as part of Canada's contribution to world food aid, but canners say the prices paid by the Canadian International Development Agency (CIDA) make this at best a break-even proposition.
11. The domestic market for mackerel products is currently limited, but has potential. A major effort in 1974 to promote canned mackerel ended in failure, apparently because consumers rejected the dark colour and oily texture of the fish. Ironically, canned mackerel is imported as a "gourmet" item from many foreign countries. Canada's large ethnic



population is more familiar with the species, and would be a target market, with a view to replacing imports.

12. With the prospect of Canada approaching a potential mackerel TAC of 50 000 to 100 000 tonnes, the question posed is whether to consider expanding direct sales to foreign ships, or to make a serious commitment to Canadian domestic capacity to handle and market this species. The UK experience indicates the direct sales system is fraught with problems, i.e., fishermen committed to selling to foreigners at prices below those offered at British onshore auctions, and the domestic canning industry in an uproar because mackerel caught in UK waters return to the UK market as imported products.
13. If Canada is serious about developing a mackerel fishery, it must be prepared to go into it in a big way. Marketing of mackerel involves huge quantities of fish, and the species must be recognized as a high-volume, low margin product. Developing a mackerel fishery presents a number of problems. It is a seasonal fishery of unpredictable size and that, combined with its current relatively low value, makes it difficult for processors to rationalize investment decisions. Because of its fat content and an inherent tendency to turn rancid, mackerel requires fast processing and special care.

Markets for frozen, whole, round mackerel are extremely price competitive. Importing countries consume large quantities, and they expect reliable delivery. They are dealing with companies that have established good connections with transshippers and distributors. At present catch levels, Canadian east coast producers are not competitive. Nonetheless, mackerel could be a test product to encourage the industry to diversify its markets in areas such as West Africa and the Far East. Obtaining a share of the big market in Nigeria, for example, would open up opportunities in neighbouring African states.

14. Canada's world food aid program should not be overlooked as a factor in developing a mackerel fishery. An industry geared up to process mackerel would not only help to feed starving millions, but could stabilize employment in canneries and pickling factories in the Atlantic Region. The food aid program could also put Canada's name forward and help develop the connections that could in turn open the way to supplying equipment and expertise to developing nations.
15. A concerted effort to sell mackerel abroad could also be extended, when the time is ripe, to an expansion of the domestic market. Already, work is in progress in Nova Scotia, Quebec and Newfoundland to develop improved canned mackerel products for sale in Canada.
16. Proper management of the fishery and marketing of the product could produce a variety of direct and indirect benefits for Canada, particularly in the medium to long term. However, this will probably require some form of marketing assistance to the industry, such as information gathering and dissemination, export financing, and making barter arrangements. The nature of the world market is such that the challenge would be best faced by large processors or groups of small and medium-sized companies.

APPENDICES

APPENDIX I  
JACK AND HORSE MACKEREL

Although these mackerel (Trachurus genus) originate from a different fish family, they are often consumed as substitutes for mackerel (Scombers) in many less developed world areas, especially African and Eastern Bloc countries. Most countries have, however, always viewed jack and horse mackerel as inferior fish and this has been reflected in lower prices. This can, however, be subject to local tastes since recently in Northern Nigeria horse mackerel has become the preferred species.

World landings of major types of jack and horse mackerel for 1974 through 1978 are shown in the following table.

TABLE A-I  
World landings of jack and horse mackerel, 1974-78

<u>Species</u>	<u>1974</u>	<u>1975</u>	<u>1976</u>	<u>1977</u>	<u>1978</u>
Atlantic horse	284 758	282 493	382 019	223 871	174 991
Japanese jack	168 520	193 226	135 960	94 748	64 039
Chilean jack	322 508	299 104	396 459	848 071	1 014 457
Mediterranean horse	16 708	18 007	23 616	21 447	21 531
Cape horse	196 498	315 794	547 854	688 456	551 830
Cunene (chinchard)	130 487	107 746	31 298	33 764	387 255
Carangids	127 249	174 838	164 560	177 573	187 129
Others	<u>564 236</u>	<u>533 357</u>	<u>535 677</u>	<u>615 862</u>	<u>419 314</u>
Total (Rounded)	1 810 964	1 924 565	2 217 443	2 703 792	2 820 546
Increase in Total Catch	6%	15%	21%	4%	

Source: FAO, Yearbook of Fisheries Statistics, Vol. 46, 1978, Rome, Italy.

The largest catches in 1977 and 1978 were off the coasts of Chile and Peru, (Chilean horse mackerel) and off Southwest Africa (Cape horse mackerel and Cunene horse mackerel). Virtually all of the Chilean horse mackerel is caught by Chile and Peru.

Preliminary FAO figures for 1979 indicate increased catches in Latin American waters, particularly by Chile, Mexico, Argentina, Peru, and Uruguay. Peru, for example, increased its recorded mackerel catch by 10%, from 500 000 to 550 000 tonnes.

In the past, most, if not all, of this mackerel was processed into fish meal and oil. This is changing as an increasing proportion is finding its way into the food fish industry.

Latin American mackerel could become a serious competitor in markets such as the Caribbean and West Africa if, in the case of the former, transportation logistics can be reconciled and, in the case of the latter, if more mackerel is made available as food.

South America has also expanded considerably its fish canning industry. Peru now has a capacity of 100 000 tonnes per year. Canned mackerel from here may also provide stiff competition since these operations have been subsidized by their respective governments and, in general, have lower operating costs.

Landings of jack and horse mackerel by Eastern Bloc nations are shown in Table A-2 below:

TABLE A-2  
Jack and horse mackerel landings Eastern Bloc, 1975-1978  
tonnes

<u>Country</u>	<u>1975</u>	<u>1976</u>	<u>1977</u>	<u>1978</u>
Bulgaria	51 662	27 343	45 590	35 906
Cuba	10 900	8 953	14 600	49 843
GDR	217	1 344	11 848	34 126
Poland	40 629	58 013	78 586	127 693
Romania	28 741	26 459	42 342	61 672
USSR	<u>649 960</u>	<u>983 652</u>	<u>887 845</u>	<u>871 343</u>
TOTAL (rounded)	782 109	1 105 764	1 080 811	1 180 583

Source: FAO, Yearbook of Fisheries Statistics, Vol. 46, 1978, Rome, Italy.

APPENDIX I (CONT'D)

These mackerel are a significant fishery for the Eastern Bloc nations. (See Table A-17, Appendix II for total Eastern Bloc landings of mackerels by all types for comparison).

Japan continues to be an important jack and horse mackerel fishing nation. Its Pacific jack catches are supplemented by stocks fished in the southeast Pacific and southeast Atlantic. This mackerel is processed for canning and for meal and oil.

The People's Republic of China (PRC) also fishes mackerel in huge quantities. Information on Chinese operations is limited. Although most of the landings go to the domestic market, the PRC recently has donated mackerel to certain African countries as an aid gesture. It is the objective of the PRC to sell fish for export and where this places its mackerel catches in the future total world trade picture is difficult to predict. Nonetheless, the PRC bears observing as a potential significant supplier.

APPENDIX II  
SELECTED STATISTICS

APPENDIX II  
TABLE A-3  
World mackerel catches, by area, 1973-1978

	MACKERELS						JACK & HORSE MACKERELS						TOTAL			TREND 1973-1978				
	1973	1974	1975	1976	1977	1978	1973	1974	1975	1976	1977	1978	1973	1974	1975	1976	1977	1978		
Northwest Atlantic	420 400	339 619	287 196	241 534	76 482	29 994	--	--	--	--	--	--	420 400	339 196	287 196	241 534	76 482	29 994	Severe Decline	
Northeast Atlantic	617 700	647 468	805 354	838 009	613 586	687 259	366 000	284 512	276 583	381 747	223 695	174 771	973 700	931 980	1 081 937	1 219 756	837 281	862 030	Moderate Decline	
Western Central																				
Atlantic	23 800	26 456	24 494	23 711	24 443	21 625	--	--	--	--	--	--	23 800	26 456	24 494	23 711	24 443	21 625	Stable	
Eastern Central																				
Atlantic	158 300	153 344	177 742	154 753	171 892	80 979	486 400	493 177	458 830	430 365	492 345	330 413	644 700	646 521	636 572	585 118	664 237	411 392	Moderate Decline	
Mediterranean																				
Black Sea	12 900	16 162	13 965	9 720	11 814	12 324	64 200	46 613	50 201	77 347	61 184	52 380	77 100	62 775	64 166	87 067	72 998	64 704	Stable	
Southwest Atlantic	19 600	17 726	16 673	7 315	9 573	33 655	200	1 500	500	1 293	1 655	2 004	19 800	19 226	16 973	8 608	11 220	35 659	Significant Increase	
Southeast Atlantic	64 800	33 715	74 569	52 985	158 540	200 248	483 200	346 371	453 472	609 481	751 217	965 697	548 000	380 086	528 041	662 466	909 757	1 165 945	Significant Increase	
Western Indian Ocean	86 300	53 985	62 987	67 815	93 952	108 000	2 700	2 887	4 494	5 034	38 139	12 985	89 000	56 872	67 481	72 849	132 091	120 985	Moderate Increase	
Eastern Indian Ocean	10 900	19 223	7 385	14 176	18 415	18 130	--	--	--	--	4	--	10 900	19 223	7 385	14 176	18 419	18 130	Moderate Increase	
Northwest Pacific	1 411 300	1 657 566	1 559 968	1 301 395	1 623 863	1 956 824	130 800	168 520	193 226	135 960	94 748	64 039	1 542 100	1 826 086	1 753 194	1 437 355	1 718 611	2 020 863	Moderate Increase	
Northeast Pacific	--	--	--	--	--	--	--	--	3 066	800	192	1 564	--	--	3 066	800	192	1 564	Decline	
West Central																				
Pacific	222 300	434 190	233 147	209 876	208 775	226 918	--	--	--	--	--	--	222 300	434 190	233 147	209 876	208 775	226 918	Stable	
Eastern Central																				
Pacific	200	532	1 939	2 039	8 336	25 015	9 400	11 580	17 363	17 590	49 957	30 845	9 600	12 112	19 302	19 629	58 293	55 860	Significant Increase	
Southwest Pacific	0	41	3	79	75	534	15 700	19 227	13 817	16 290	17 526	9 911	15 700	19 268	13 820	16 369	17 601	10 445	Moderate Decline	
Southeast Pacific	68 800	63 485	38 823	92 884	187 334	274 188	160 600	322 508	299 104	396 459	848 081	1 014 457	229 400	385 543	337 927	489 343	1 035 405	1 288 645	Significant Increase	

Source: FAO, Yearbook of Fishery Statistics, Vol. 46, 1978, Rome, Italy.



TABLE A-4  
Fishing grounds on which UK mackerel catch was taken, 1973-77

	1973		1974		1975		1976		1977	
	000 tonnes	%	000 tonnes	%	000 tonnes	%	000 tonnes	%	000 tonnes	%
English Channel	7.6	35.7	19.0	63.0	29.3	60.6	49.2	56.4	113.8	60.8
West of Scotland	5.2	24.3	8.0	26.6	16.2	33.5	28.0	32.3	52.8	28.3
Bristol Channel	5.4	25.3	2.4	8.1	2.2	4.4	8.5	9.7	18.4	9.9
North Sea	3.0	14.0	0.4	1.5	0.6	1.3	1.3	1.5	1.6	0.9
Irish Sea	0.2	0.7	0.3	0.8	0.1	0.2	0.1	0.1	0.1	0.1
Total	21.4	100.0	30.1	100.0	48.4	100.0	87.1	100.0	186.7	100.0

Source. Handling and Processing Mackerel, J.N. Keay, No.66 (Revised) P.5-6.  
(MAFF, Torry Research Station, Edinburgh).

TABLE A-5  
UK mackerel landings, 1970-79

Year	British Vessels			Foreign vessels		UK Total	
	Wales*	Scotland	Northern Ireland	Total			
	000 tonnes	000 tonnes	000 tonnes	000 tonnes	000 tonnes	000 tonnes	£'000
1970	3.4	1.0	0.2	4.6	0.8	5.4	259
1971	4.8	1.4	0.3	6.5	0.8	7.3	357
1972	6.9	1.8	0.1	8.8	1.7	10.5	457
1973	13.1	8.2	0.1	21.4	1.7	23.1	1 160
1974	21.2	8.8	0.1	30.1	1.0	31.1	1 486
1975	31.6	16.7	0.1	48.4	0.3	48.7	2 309
1976	57.4	29.6	0.1	87.1	0.2	87.3	5 264
1977	132.4	54.2	0.1	186.7	0.2	186.9	14 673
1978	--	--	--	320.9	--	--	--
1979	--	--	--	352.5	--	--	--

\* Denotes catches in British waters.

Source: Handling and processing mackerel, J.N. Keay, No. 66 (Revised) P. 5-6.  
 (Maff, Torry Research Station, Edinburgh).

TABLE A-6  
Principal ports for UK mackerel landings, 1976-77

Port	Landing 000 tonnes	
	1976	1977
Plymouth	31.4	66.9
Ullapool	7.5	27.2
Falmouth	6.7	24.2
Newlyn	10.3	20.4
Milford Haven	0.5	13.2
Mallaig	7.3	12.3
Stornoway	8.3	8.7
Hull	5.0	5.0
Lerwick	0.8	2.0
Ayr	<u>0.8</u>	<u>2.0</u>
Total	78.6	181.9
	90%	98%

(OF BRITISH CATCH)

Source: Handling and processing mackerel, J.N. Keay, No. 66 (Revised pp. 5-6  
(MAFF, Torry Research Station, Edinburgh).

TABLE A-7  
Fleets of the Eastern Bloc countries as of 1979  
trawlers and fishing vessels  
divisions of tonnage

	100-499		500-999		1 000-1 999		2 000-3 999		4 000 +	
	#	Gross tons	#	Gross tons	#	Gross tons	#	Gross tons	#	Gross tons
Bulgaria	4	560	--	--	--	--	30	77 390	--	--
Cuba	127	15 497	34	22 524	10	13 420	32	115 277	--	--
GDR	82	13 700	61	48 223	2	2 362	17	53 811	--	--
Poland	181	19 708	50	14 086	48	63 558	12	27 004	--	--
Romania	--	--	--	--	--	--	37	111 344	--	--
USSR	1 967	405 810	953	611 018	144	232 511	792	2 193 953	28	137 103
Total	<u>2 361</u>	<u>454 715</u>	<u>1 098</u>	<u>695 851</u>	<u>204</u>	<u>311 851</u>	<u>920</u>	<u>2 578 779</u>	<u>28</u>	<u>137 103</u>
World	(.15)		(.54)		(.33)		(.84)		(.64)	
Total	15 823	3 360 867	2 027	1 381 800	615	872 401	1 100	3 060 907	44	215 296
Canada	397	80 050	92	61 014	1	1 040	1	2 350	--	--
(for comparison)										

Fish carriers and fish factories

	100-1 999		2 000-3 999		4 000-5 999		6 000-9 999		10 000 +	
	#	Gross tons	#	Gross tons	#	Gross tons	#	Gross tons	#	Gross tons
Bulgaria	--	--	1	3 288	5	28 888	--	--	--	--
Cuba	--	--	--	--	--	--	--	--	--	--
GDR	--	--	3	8 046	3	15 281	2	19 284	1	12 237
Poland	--	--	--	--	3	15 376	4	32 217	2	27 747
Romania	--	--	--	--	2	10 240	-	-	4	48 272
USSR	238	135 791	102	333 025	75	397 435	45	306 930	116	1 531 861
Total	<u>238</u>		<u>106</u>		<u>88</u>		<u>51</u>		<u>123</u>	
World	(.61)		(.87)		(.95)		(.78)		(.94)	
Total	388	212 417	122	392 251	93	490 742	65	534 012	131	1 749 265
Canada	1	102	--	--	--	--	--	--	--	--

Source: Lloyd's Register of Shipping Statistical Tables, 1979, pp 62-63

TABLE A-8

Canada: Mackerel, catches and landed values, 1975-1979

<u>1975</u>		<u>1976</u>		<u>1977</u>		<u>1978</u>		<u>1979</u>	
Q (tonnes, live weight)	V (\$'000)	Q tonnes	V (\$000)	Q tonnes	V (\$000)	Q tonnes	V (\$000)	Q tonnes	V (\$000)
13 552	1 696	15 755	2 083	22 511	2 563	25 432	3 882	30 245	5 887

Source: Department of Fisheries and Oceans, Economic Development and Marketing, Ottawa.

Exports by Canada of mackerel, 1974-1979

	1974		1975		1976		1977		1978		1979	
	Q tonnes	V \$000	Q tonnes	V \$000	Q tonnes	V \$000	Q tonnes	V \$000	Q tonnes	V \$000	Q tonnes	V \$000
Mackerel, whole, frozen	1 480	538	1 067	417	711	309	2 213	871	9 502	2 460	4 713	1 895
Mackerel, whole or split, pickled	1 230	686	1 080	630	606	360	1 142	506	1 074	595	1 089	813
Mackerel fillets, pickled	<u>378</u>	<u>179</u>	<u>359</u>	<u>194</u>	<u>694</u>	<u>450</u>	<u>592</u>	<u>374</u>	<u>347</u>	<u>287</u>	<u>389</u>	<u>317</u>
Total	3 088	1 403	2 506	1 241	2 011	1 119	3 947	1 841	10 923	3 342	6 191	3 025
Value/tonne - Whole frozen		363		391		435		304		402		402
- Whole/split, pickled		558		583		594		522		554		747
- Fillets, pickled		210		540		648		632		827		815

Source: Statistics Canada, Exports by Commodity, Cat. 65-004  
Ottawa, 1974-1979.

TABLE A-9  
Main suppliers of fish to The Caribbean

<u>Whole, frozen fish</u>	<u>Dried, salted, and smoked</u>	<u>Canned</u>
USSR	Canada	Canada
Spain	UK	Japan
Argentina	Spain	UK
Canada	Norway	US
UK	Holland	Norway
	USSR	Spain
		USSR
		Poland

Source: Department of Fisheries and Oceans, International Directorate, Ottawa.

---

Note: In recent years Canadian sales by species include mackerel but consist primarily of haddock, cod and herring with salmon, trout, and miscellaneous types available in small quantities.

Canadian sales have been made primarily to the Bahamas, Bermuda, Barbados, Cuba, Dominican Republic, Haiti, Jamaica and Trinidad-Tobago. Mackerel sales have been made to only a few of the countries listed.

TABLE A-10  
Imports of fish products (1978)  
to the Caribbean market area (tonnes)

Country	Fresh Chilled Frozen Fish	Dried Salted Smoked Fish	Crustaceans & Molluscs Fresh Frozen	Canned Fish Products	Total
Antigua	43	442	7	101	593
Bahamas	304	67	253 (2)	1 154 (4)	1 778
Barbados	237	453	22	744	1 456
Bermuda	508	680	480 (1)	532	2 200
Cayman Islands	0	0	--	--	--
Cuba	27 500 (1)	7 300 (2)	--	9 000 (1)	43 800 (1)
Dominica	356	307	--	93	756
Dominican Rep.	58	7 243 (3)	12	4 677 (2)	11 990 (3)
Grenada	--	500	--	200	700
Guadalupe	755 (5)	1 313	114	422	2 604
Haiti	1	2 256 (5)	1	170	2 427
Jamaica	3 857 (2)	9 156 (1)	167 (5)	4 519 (3)	17 699 (2)
Martinique	1 758 (3)	2 274 (4)	182 (4)	412	4 626 (4)
Neth.Antilles	1 022 (4)	200	239 (3)	708	2 169
St. Kitts	16	172	--	39	227
St. Lucia	129	301	5	36	471
St. Vincent	0	202	--	56	258
Trinidad	46	1 721	9	842 (5)	2 618 (5)
Total:	36 590	34 587	1 491	23 705	96 372

Source: FAO, Fisheries Statistics, 1980, Rome, Italy.

Note: Parantheses enclose column rankings by size of imports.

TABLE A-11  
Major mackerel statistics - selected West European countries  
1978, 1979, 1980 (partial)

Fresh, chilled, frozen

Country	<u>Landings (tonnes)</u>		<u>Imports (tonnes)</u>		<u>Exports (tonnes)</u>		
	<u>1978</u>	<u>1979</u>	<u>1978</u>	<u>1979</u>	<u>1978</u>	<u>1979</u>	<u>1980</u>
Belgium	--	--	1 161	1 304	--	--	--
Denmark	NA	NA	NA	NA	NA	NA	NA
Eire	31 994	24 217	--	--	1 710	10 160	5 771 (JUL)
Faeroes	NA	NA	NA	NA	28 869	27 156	16 535 (AUG)
France	40 272	35 031	22 645	26 734	12 206	8 877	5 795 (SEP)
FRG	18 657	10 734	24 134	22 360	21 471	17 781	13 432 (JUL)
(Fillets)	NA	NA	1 555	3 296	NA	NA	NA
Italy	NA	NA	6 814	9 111	NA	NA	NA
Netherlands	48 964	60 895	12 694	13 709	58 760	91 249	49 098 (JUN)
Norway	92 889	123 970	--	--	27 804	44 983	21 952 (AUG)
Spain	NA	NA	NA	NA	907	2 742	2 625 (JUL)
Sweden	2 893	3 407	2 054	1 564	1 592	2 051	790 (JUL)
UK	320 960	352 530	--	--	240 649	NA	189 616 (OCT)
(Fillets)	--	--	--	--	6 011	NA	1 135 (OCT)
Total	556 629	610 784	71 057	78 078	399 979	204 999	306 749

Canned, prepared

Denmark	NA	NA	--	--	5 918	6 837	4 631
Italy	NA	NA	6 636	6 943	--	--	--
Netherlands	NA	NA	1 237	1 117	1 978	2 284	NA
Norway	NA	NA	--	--	941	1 002	714
Sweden	NA	NA	2 284	2 668	--	--	--
UK	NA	NA	1 254	1 395	1 525	1 382	792
Total	--	--	11 411	12 123	10 362	11 505	6 137

Dried, smoked

Netherlands	NA	NA	NA	NA	2 685	2 744	1 361
-------------	----	----	----	----	-------	-------	-------

Grand total            556 629   610 784   82 468   90 201   413 026   219 248   314 247

Source: Various Government Statistics.



TABLE A-12  
EC imports of canned, prepared mackerel, 1971-1978

	<u>1971</u>	<u>1972</u>	<u>1973</u>	<u>1974</u>	<u>1975</u>	<u>1976</u>	<u>1977</u>	<u>1978</u>
	(000 tonnes)							
Mackerel, prepared or preserved of which:	19.1	20.0	21.3	17.6	17.9	17.9	13.8	12.7
EFTA	5.8	7.8	9.4	4.5	2.4	2.4	3.4	4.0
- Norway	0.5	0.4	0.5	0.6	0.5	0.5	0.6	--
- Portugal	5.3	7.4	8.9	3.8	1.8	1.9	2.8	3.4
Morocco	4.9	2.1	1.8	2.1	1.8	3.9	3.3	3.5
Japan	6.8	8.8	7.9	4.7	10.1	7.2	3.5	2.6
South Korea	--	--	--	0.8	1.2	0.7	1.2	1.2

Source: Department of Fisheries and Oceans, International Directorate, Ottawa.

TABLE A-13  
EC tariffs on mackerel as of December 31, 1981

<u>Whole/headless/pieces</u>	<u>Conventional (MFN)</u>
From Feb. 15 to June 15	
Fresh/chilled	Free
Frozen	Free
From June 16 to Feb. 14	
Fresh/chilled	20
Frozen	20
Fillets (all year)	
Fresh/chilled	18
Frozen	15

Source: Common Customs Tariff, Official Journal of the European Communities,  
December 31, 1981

Note: Canada, along with other suppliers, also faces the EC reference price system as a possible additional trade barrier. Reference prices for mackerel in 1982 are as follows:

TABLE A-14  
EC reference prices for mackerel, January, 1982

	<u>ECU/tonne</u>	<u>C\$/tonne</u>
Fresh and Chilled	193	241
Frozen - whole with head	313	390
- whole, headless	348	434
- sides (product cut in the longitudinal plane)	482	601
- presented as butterfly fillets	608	758

Conversion rate is:

IECU = C\$ 1.2466 (February, 1982)

Note: Reference prices are converted to member countries currency by official "green rates".

Source: Commission Regulation (EC) No. 3730/81, December 21, 1981

TABLE A-15  
EC mackerel export refunds  
as of July 29, 1980

	<u>Refund ECU/100 kg</u>
Frozen mackerel, whole, headless or in pieces for export to all destinations <u>excluding</u> Sweden, Norway, Faroe Islands, Finland, Iceland and the USSR	4.75
Frozen mackerel fillets for export to all destinations <u>excluding</u> Sweden, Norway, Faroe Islands, Finland, Iceland and the USSR	3.10
Mackerel, dried, salted or in brine, whole, headless, or in pieces for export to Jamaica, Trinidad or Windward and Leeward Islands	4.00

Conversion rate is: £=1.61641 ECU

Source: Eurofish Report, July 23, 1980, pp. BB/7, BB/8.

Since August 1, 1980, the average refund in Canadian funds on one tonne of each product sold is as follows:

Frozen mackerel, w/h/p	C\$82.03
Frozen mackerel fillets	C\$53.57
Mackerel dried, salted, brine	C\$68.92

Conversion rate is: £1=C\$2.791

TABLE A-16  
UK weekly quota scheme, 1980

<u>Registered length</u>	<u>Quantity (tonnes)</u>
Less than 55 feet:	70
55 - 90 ft.	95
90 - 120 ft.	110
120 - 140 ft.	120
140 - 170 ft.	140
170 ft. or more	160
Purse Seiners:	
55 - 90 ft.	115
90 - 120 ft.	120
120 - 140 ft.	130
140 - 170 ft.	140
170 ft. or over	160
Freezer trawlers:	225

Freezer trawlers can opt instead of weekly quotas for a quota of 1200 tonnes for the period August 10 through December 31.

Source: Fishing News, August 1, 1980.

TABLE A-17  
Total mackerel landings, all types  
by East Bloc countries, 1975-1978  
(tonnes)

<u>Country</u>	<u>1975</u>	<u>1976</u>	<u>1977</u>	<u>1978</u>
Bulgaria	94 866	75 434	54 003	38 222
Cuba	11 501	22 077	19 360	50 101
GDR	58 395	44 262	21 682	35 257
Poland	141 274	140 664	103 964	130 022
Romania	40 390	46 465	49 378	64 801
USSR	<u>1 415 183</u>	<u>1 729 859</u>	<u>1 569 794</u>	<u>1 323 067</u>
Total (rounded)	1 761 609	2 058 761	1 818 181	1 641 470

Source: Table 6 and Table A-2, APPENDIX I

APPENDIX III

US ATLANTIC MACKEREL FISHERY MANAGEMENT PLAN

The Mid-Atlantic Fishery Management Council has prepared a management plan for Atlantic mackerel, which first appeared in the US Federal Register on September 13, 1979. Amendments have appeared in the Federal Register of February 21, 1980 and April 1, 1980. The objectives of the plan are as follows:

1. Prevent the exploitation of these resources from exceeding those levels which reduce the probability of successful (i.e. the historic average) recruitment to the fisheries.
2. Promote the growth of the US commercial fishery, including the fishery for export.
3. Provide the greatest degree of freedom and flexibility to all harvesters of these resources consistent with the attainment of other objectives of the FMP.
4. Provide marine recreational fishing opportunities, recognizing the contribution of recreational fishing to the national economy.
5. Increase understanding of the conditions of the stocks and fisheries.
6. Minimize harvesting conflicts among US commercial, US recreational and foreign fishermen.

These regulations control domestic and foreign vessels within the US fishery conservation zone, fishing for all Atlantic mackerel Scomber Scombrus ranging from Labrador to North Carolina (although in a forthcoming amendment all Atlantic mackerel in the US fishery conservation zone is included) until March 31, 1981. These regulations include the following:

- (1) Annual catch quotas for both domestic and foreign fishermen
- domestic annual harvest capacity 20 000 tonnes
  - total allowable level of foreign fishing (TALFF) 4000 tonnes allocated as follows:

<u>TALFF distribution of mackerel</u>	
<u>(tonnes)</u>	
<u>Country</u>	<u>Quantity</u>
Bulgaria	165
Cuba	238
Italy	239
East Germany	100
Japan	100
Mexico	100
Poland	2 000
Romania	165
Spain	363
Unallocated	<u>530</u>
Total	4 000

NOTE: Poland's receipt of a 2 000-tonne allocation of mackerel is contingent on an agreement that it provide useful data on mackerel to the National Marine Fisheries Service. (Catches of foreign nations have reached as high as 400 000 tonnes in the recent past. Since 1977 catches of Atlantic mackerel available to foreign vessels off the US east coast have been declining dramatically).

- reserve 6 000 tonnes available to both domestic and foreign fisheries;
- (2) No apportioning of mackerel among domestic recreational and commercial fishermen, since the council believes it has set a sufficiently high domestic annual harvesting capacity (DAH) to provide adequate catches for both sectors.

- (3) Any vessels fishing for mackerel must obtain a fishing permit if catching more than 100 pounds per trip.
- (4) Any operator of a fishing vessel issued a permit to fish for mackerel must maintain a log book and submit all records to US fishing authorities.
- (5) Reporting is mandatory for all dealers/processors. Such information is to include date of transaction, name of the vessel from which mackerel was received, and the amount and price paid for mackerel and all other fish received.

The TALFF has been established in recognition of the fact that mackerel is an incidental catch to the hake and squid fisheries.

The management unit of this FMP is all Atlantic mackerel under US jurisdiction, since the objective was to develop an FMP which would be valid regardless of the outcome of the Canada/US discussions of a bilateral fishing agreement.

Although the initial draft of the FMP presented much scientific evidence to suggest that the stocks were depressed, thereby recommending an optimum yield of 15 200 tonnes, new evidence indicated an increase in the mackerel stock size to 631 000 tonnes in 1979 from, 515 000 tonnes in 1978. This increase has been identified as due primarily to an abundant 1978 year class. Consequently, the FMP optimum yield for the fishing year 1980-81 was increased from 15 200 tonnes to 30 000 tonnes, which the plan's drafters considered to be conservative.

The US FMP also examined the ecological relationship of Atlantic mackerel with Atlantic sea herring, since these species share many common characteristics, such as distribution, abundance, and size. A 1974 study examined the overlap in eating habits of mackerel and herring. A general conclusion was that both species often feed on the same types of prey, although the proportions of specific items frequently vary significantly between species. Scientific evidence indicates that mackerel feed on a larger number of

smaller prey than do herring. As the stocks move up toward the Georges Bank area, the diet of both herring and mackerel is more and more similar as the variety of available forage is reduced.

In drafting the FMP, the expectation for growth in 1980-81 is due to (1) greater availability of the species due to the reduction of the directed foreign mackerel fishery in US waters, (2) a reduction in abundance of other species, including groundfish, which should act to transfer some commercial fishing effort to mackerel, and (3) the expected development of a US mackerel fishery for export.

As for development of the domestic harvesting sector, it is felt that such development could occur not only through development of domestic markets for mackerel, but also through joint ventures that would employ domestic harvesting resources, at least until such time as the domestic market for mackerel nearly matches the capacity of the harvesting sector.



APPENDIX IV

SOVHISPAN - SOVIET AND SPANISH JOINT VENTURE

SOVHISPAN is a Soviet government - Spanish private sector joint venture firm. It is joined by a number of sister companies, such as FRANSOV (USSR - France), to establish a private sector fish marketing system for the USSR government. SOVHISPAN's main offices are located in the free ports of Las Palmas and Tenerife in the Canary Islands, where a Russian senior management team directs the flow of fish mainly into southern and eastern Europe and West Africa. The firm also maintains branch offices in all major West African port cities and major South African ports of supply. Fish supplies derive primarily from the USSR fleet, but the company will obtain fish, as any company would, from any reliable customer offering a competitive price. In Spain, the firm's intentions are constantly questioned by the government. In the spring of 1981, for example, senior Soviet executives were directed to leave the country having been charged with espionage. Nonetheless, the firm continues to expand its business. In Nigeria, the major West African market, SOVHISPAN is dealing with IBRU Seafoods, the main fish importer. IBRU also supplies fish to Cameroon, Gabon, Ghana and Ivory Coast.

