

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

HERRING

[v. 16]



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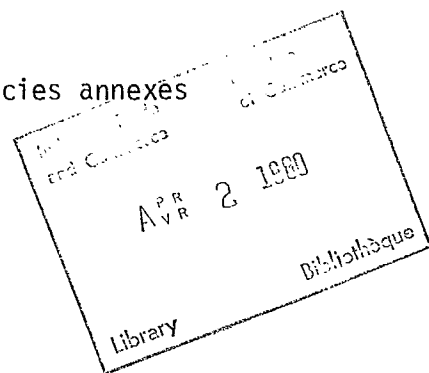
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Canada. Dept. of Fisheries and Oceans. Fisheries Economic Development & Marketing.
Marketing Services Branch.

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



D R A F I

Annex to the
Worldwide Fisheries Marketing Study:
Prospects to 1985

HERRING [v. 16]

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Department of Fisheries and Oceans

October 1979

ACKNOWLEDGEMENT

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

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E.W.
October, 1979

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 an 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 potential on a country and species basis.

Specifically, the purpose of the Study is to identify the short (1981) and longer-term (1985) market opportunities for selected traditional and non-traditional species in existing and prospective markets. In this initial phase, 14 country markets and 8 species groups are analysed. It should be noted that while the information contained in the Reports was up-to-date when collected during March-June 1979, some information may now be dated given the speed with which changes are occurring in the marketplace. In this same vein, the market projections to 1981 and 1985 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 the recently concluded GATT-MTN 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.

Thus, the results of the Study should usefully serve as a basis for planning fisheries development and marketing activities by both government and industry in order to capitalize on the identified market opportunities.

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

Ed Wong

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Department of Fisheries and Oceans

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I SUMMARY

The worldwide supply shortage of herring is expected to continue for several years, and the market outlook for good quality Canadian herring products is good for the near future. Prices levelled off in 1978 but could strengthen in 1979 if predicted supply shortages materialize.

Tables I and II summarize the marketing outlook for Canadian herring products in 1981 and 1985. These figures are estimates only based on information available in the spring of 1979. The 1981 predictions indicate that Canadian fishermen and processors should be able to market the total Canadian catch in traditional markets in that year. Some recovery of European stocks is expected by 1985, and some new markets will have to be developed in order to enable processors to market the total catch expected for that year. These additional markets could be developed by the industry in western countries, or Japan, or through government involvement in Eastern European countries.

The traditional herring consuming countries will continue to import from Canada for several years, especially if quality and grading is improved. The United States and Western Europe are the best markets for Canadian food herring products and Japan is expected to purchase any amount of roe produced on the West Coast.

Even when European stocks of herring start recovering, Canada is expected to have a price advantage due to the high energy and processing costs in Europe. The low value of the Canadian dollar relative to European currencies is presently giving Canadian exporters an additional advantage which is expected to continue for some time.

A number of assumptions made in preparing Tables I and II follow, and a further discussion of each market can be found in Section III.

HERRING FORECAST 1981

TABLE I

	Fresh, Whole or Dressed	Frozen, Whole or Dressed	Frozen Fillets	Smoked	Vinegar Cured Fillets Whole or Dressed	Pickled Split or Fillets	Spice- Sugar- Cured Pickled Whole or Dressed	Canned	Sardines	TOTAL	Roe	Meal	Oil
Canada					200			2,400		2,600			
U.S.A.	21,000	2,000	300	1,500	5,000	6,000	1,200	2,400		39,400		9,000	3,500
W. Germany		6,000	28,000		5,000	1,500	1,400			41,900			
Japan		5,000								5,000	5,000		
Netherlands		6,000	2,000				500			8,500			
United Kingdom		4,000	4,000		200	500	1,000			9,700		1,000	
France		1,800	4,500			500				6,800			
Belgium/ Luxemburg		800	1,500							2,300			
Sweden					500	1,500	3,000			5,000			
Denmark					200					200			
Norway			2,000		200					2,200			
Finland					100		1,500			1,600			
S. Korea		2,000								2,000			
Caribb. Countries				3,000			100			3,100			
Others		200	500		100	200	200			1,200			200
Product wt.	21,000	27,800	42,800	4,500	11,500	10,200	8,900	4,800	5,000	136,500	5,000	10,000	3,700
Conversion Factors	1	1	2.1	2.2	2.7	2.3	1.4	1.6	2.5		10		
Landed wt.	21,000	27,800	89,880	11,000	31,050	23,460	12,460	7,680	12,500	235,730	50,000		

HERRING FORECAST 1985

TABLE II

	Fresh, Whole or Dressed	Frozen, Whole or Dressed	Frozen Fillets	Smoked	Vinegar Cured Fillets Whole or Dressed	Pickled Split or Fillets	Spice-, Sugar- Cured Pickled Whole or Dressed	Canned	Sardines	TOTAL	Roe	Meal	Oil
Canada					500			2,600		3,100			
U.S.A.	20,000	2,000	3,000	2,000	7,500	7,000	1,000	2,400		44,900		9,000	
W. Germany		6,000	20,000		5,000	1,500	1,400			33,900			
Japan		5,000								5,000	7,000		
Netherlands		4,000	1,000							5,000			
United Kingdom		2,000	2,000							4,000		1,000	
France		1,000	2,500			700				4,200			
Belgium/ Luxemburg			1,000							1,000			
Sweden					500	1,500	2,000			4,000			
Denmark					200					200			
Norway										---			
Finland							1,500			1,500			
S. Korea		2,000								2,000			
Caribb. Countries				3,000						3,000			
Others		200	500		200	300	200			1,400			
Product wt.	20,000	22,200	30,000	5,000	13,900	11,000	6,100	5,000	5,000	118,200	7,000	10,000	3,500
Conversion factors	1	1	2.1	2.2	2.7	2.3	1.4	1.6	2.5		10		
Landed wt.	20,000	22,200	63,000	11,000	37,530	25,300	8,540	8,000	12,500	208,070	70,000		

ASSUMPTIONS FOR TABLES I & II

- Canada - Atlantic Coast herring landings will remain stable at about 230,000 tonnes + 20,000 tonnes.
- Pacific Coast landings will be used chiefly for roe production except for a limited quantity being frozen round for food or bait.
- U.S.A. - Herring landings will remain at current levels or only increase slightly by 1985 on the East Coast. Developments in Alaska could affect West Coast landings.
- The U.S. will maintain a share of the European frozen fillet market and will not be forced into curing for the domestic market.
- West Germany - The large size Canadian herring will be preferred for smoking and the demand for frozen whole herring will remain stable.
- Canada will maintain its share of the cured, barreled market.
- Canada should be able to supply frozen fillets to West Germany even when European stocks recover due to high fishing and labor costs in most European countries.
- Japan - The pressures on the Pacific roe herring fishery will increase the opportunity for round frozen herring with roe in Japan. The 1977 import of approximately 25,000 tonnes is not likely to occur again, but an annual demand of 5-10,000 tonnes is anticipated by 1985.
-
- France - If Canadian herring prices do not increase above 1978, the French processing industry should be able to maintain their current production levels.
- Netherlands
- Belgium - When the North Sea is re-opened, Belgium and the Netherlands should be in a favoured position for quotas in view of the proximity of the fishing grounds. Imports should therefore drop off.
- Sweden - The Swedish-caught Baltic herring will continue to move to Germany through Denmark as the herring is too small for the cured market and the returns in Germany are higher.
- Canada can compete with Icelandic-cured herring both with regards to quality and price.

II SUPPLY AND DEMAND

The total supply of herring declined further in 1978 as compared to earlier years, and very little improvement is expected for at least 3-4 years. A more detailed outlook for the various stocks is given in the Appendix.

Canadian East Coast landings have been in the range of 220-230,000 tonnes over the past three years. Resource predictions to 1985 are that landings will remain more or less static with annual fluctuations of 10-15% depending on the strength of the year classes.

Canadian West Coast landings declined from 97,290 to 81,553 tonnes between 1977 and 1978 with a further decrease of 20-30,000 tonnes indicated for 1979. The total allowable catches are projected to be in the range of 50-70,000 tonnes for the next few years.

The United States East Coast landings have been stable at about 50,000 tonnes for the past three years. In 1978, only about 21,000 tonnes were adult herring suitable for filleting, and only a moderate increase is expected over the next few years. On the West Coast, U.S. landings have been about 16,000 tonnes and these are not expected to increase unless additional effort is put into the Alaska fisheries.

There will be practically no commercial herring fishing in Norway in 1979 since the spawning stock of Atlanto-Scandia herring has reportedly declined since 1977. Over one third of the herring caught there in 1978 (20,000 tonnes) was hard-cured or sugar-cured and sold to Sweden and Finland, and about 40% frozen.

The North Sea and waters off Scotland are also closed for herring fishing in 1979 and no large year-classes have yet been identified in biological surveys. It is therefore unlikely that sizable catches could be taken from these areas in 1980, 1981 or even 1982. The North Sea herring has been the mainstay of the Danish, German, Dutch and British fishing and processing industries for centuries, and these will therefore have to be supplied from Canada, USA or Iceland for at least another three years.

Some fresh herring for the German processing plants will be available from Kattegat and Skagerrak (45,000 tonnes) but most of these are generally small, 1-2 year old fish. Ireland, the Isle of Man, and inshore Scottish fisheries could supply as much as 25,000 tonnes in 1979, with most of the landings going to the U.K. market.

Some quantities of the smaller size Baltic herring will be available in 1979 from Sweden, Finland and other Baltic countries. This herring can be used for certain vinegar-cured products, but it does not appear that it can replace larger, fatter herring in most formulations. The total allowable catch for 1979 has been set at 386,000 tonnes with most of this being taken by the USSR, Poland and East Germany. Perhaps as much as 40,000 tonnes will be shipped to West Germany, mostly through Danish ports.

The Icelandic summer spawning stock is continuing its slow recovery, and the 1979 quota should be at least as high as in 1978 (35,000 tonnes). Almost 200,000 barrels of hard-cured, sugar-cured and spice-cured were produced in 1978 and exported to the Soviet Union, Sweden, Finland, Poland, Denmark and the U.S. This stock is very similar to Canadian herring with respect to size and fat content, and Canadian processors can compete if grading and curing is carried out with care.

The supply shortage in Europe will therefore be even more acute than in 1978. However, the resistance to high prices that became evident last year is still very much in evidence. With the traditionally slow summer season coming up buyers tend to adopt a wait-and-see attitude, and this had led to further speculation about the future trend for prices.

However, the Western European markets still have a food herring shortage, and it is expected that prices for good quality products will firm up in early fall. This will be especially noticable if the predicted shortages of larger herring from the Bay of Fundy comes through.

In the Japanese market, Canada supplied about 80% of the herring roe and the export value increased to \$116 million. Herring roe is there-

fore by far the most valuable individual herring product exported from Canada. It is not likely that Canada will have any major problems in exporting all its future roe production to this market.

The total supply available from fisheries in Western Europe in 1979 will therefore only be around 150,000 tonnes. Since the demand in West Germany alone is over 200,000 tonnes, European countries will be heavily dependent on imports from North America. Even with declining consumption of herring, the total demand in Western Europe should remain well over 300,000 tonnes landed weight for the near future.

III HERRING MARKETS AND CANADIAN EXPORT POTENTIAL

1. General

The export of Canadian herring products for 1975, 1977 and 1978 is shown in Table III. It can be seen from this table that although the total tonnage of some products declined in 1978 from 1977, the export value increased considerably. The total value increased from \$75.5 million in 1975, \$186 million in 1977 to \$250 million in 1978. The sharpest increase in tonnage between 1975 and 1977/78 occurred in frozen products as a result of the collapse of European herring stocks over this period.

Indications are that markets for food herring will be much more selective as to quality and size grading over the next few months, and that "panic buying" will not occur to any extent. Over the past few months, there has been a concerted effort by some European importers and processors to lower prices and this put increasing pressure on Canadian exporters. The supply of food herring is going to be very limited in 1979-80 as indicated in Section II of this report; and if the Canadian dollar remains at 84-86 cents vis-a-vis the U.S. dollar, the prices for quality products, properly graded as to size and fat content, should not decrease below the prices quoted earlier this year (58-60¢/lb. for frozen butterfly fillets). Products of inferior quality, not graded as to size and fat content may be forced to sell considerably below these prices.

The major herring importing countries will be discussed separately in what follows.

TABLE III

Canadian Herring Exports 1975-1978
(Q: metric tons, product weight; V: \$000)

TOTAL	1975		1977		1978	
	Q	V	Q	V	Q	V
Fresh, whole or dressed	24,897	2,483	40,429	8,614	26,931	6,982
Frozen, whole or dressed	12,890	6,949	27,067	17,013	23,669	20,194
Frozen fillets	13,784	7,076	41,117	32,410	37,461	49,275
Smoked	3,570	3,618	4,387	4,367	3,037	3,853
Vinegar-cured fillets	5,246	3,259	7,727	5,792	8,643	10,683
Vinegar-cured whole or dressed	496	243	1,319*	906	1,144*	1,361
Pickled fillets	4,820	3,141	4,578	2,885	6,460	7,978
Pickled split	386	251	651	477	1,400	1,272
Pickled, whole or dressed	9,387	4,362	9,740	4,973	7,577	6,695
Canned	4,677	7,473	3,966	7,707	3,553	7,738
Sardines	4,711	7,564	3,204	6,564	4,174	10,441
Sub Total	84,864	46,419	144,185	91,708	124,049	126,472
Herring Roe	4,804	24,437	12,328	87,835	9,295	116,242
Herring Meal	14,734	3,862	11,181	4,939	11,848	5,636
Herring Oil	2,278	819	4,124	1,446	3,679	1,785
Sub Total	21,816	29,118	27,633	94,220	24,822	123,663
GRAND TOTAL	106,680	75,537	171,818	185,928	148,871	250,135

* Values considered to be too high, may be revised by Statistics Canada.

2. The United States

The U.S. continues to be an important market for Canadian herring products as shown in Table IV.

The U.S. landings of herring over the last four years have been as follows:

	<u>East Coast</u>	<u>West Coast</u>
1974	32,607 tonnes	25,544 tonnes
1975	36,173 "	17,941 "
1976	50,133 "	18,321 "
1977	50,627 "	20,065 "

East Coast landings for 1978 also totalled about 50,000 tonnes with over 28,000 tonnes being juveniles. A high percentage of the large herring catch is processed as frozen fillets and exported to West Germany. This is expected to continue over the next few years with total landings expected to remain fairly constant or increase slightly. The Canadian export of vinegar-cured and pickled herring products is therefore not expected to be affected by U.S. landings.

Landings on the West Coast are generally utilized for the Japanese roe market. Unless a major effort is put into developing the Alaska herring fishery, no significant increase in landings is anticipated.

The fresh herring export from Canada to the United States takes place mainly in the Bay of Fundy where sardine canneries in Maine have traditionally been receiving supplies from New Brunswick weirs. This is expected to continue in the future with some fish also being shipped into Canada from Maine weirs.

Otherwise Canadian exports consist chiefly of pickled and vinegar-cured products. These are further processed by a few firms and marketed across the country chiefly to various ethnic groups. Total consumption appears to be fairly constant and Canadian exports are predicted to be maintained or increased slightly by 1985. There should be an opportunity for increasing the export of smoked herring products over the next five years.

TABLE IV

Canadian Herring Exports to the United States
(Q: metric tons, product weight; V: \$000)

	1975		1977		1978	
	Q	V	Q	V	Q	V
Fresh, whole or dressed	24,600	2,387	21,151	5,735	22,073	5,886
Frozen, whole or dressed	742	328	1,812	739	1,827	1,437
Frozen fillets	359	207	445	366	2,857*	4,447
Smoked	204	328	585	845	548	944
Vinegar-cured fillets	3,110	1,881	3,786	2,762	4,405	5,365
Vinegar-cured whole or dressed	494	242	757	473	430	422
Pickled fillets	4,120	2,602	2,430	1,594	4,654	5,774
Pickled split	141	102	429	293	708	753
Pickled, whole or dressed	2,051	1,041	1,440	894	1,400	1,453
Canned	2,856	4,948	2,438	5,415	2,378	5,728
Sardines	1,136	1,843	1,025	2,240	1,218	3,316
Sub Total	39,813	15,909	36,298	21,356	42,498	35,525
Herring Roe	31	95	88	508	41	427
Herring Meal	14,506	3,795	8,675	3,862	10,473	4,979
Herring Oil	2,259	807	3,490	1,224	3,579	1,733
Sub Total	16,796	4,697	12,253	5,594	14,093	7,139
GRAND TOTAL	56,609	20,606	48,551	26,950	56,591	42,664

Source: Statistics Canada

* Questioned by trade. Exports from Canada for U.S. consumption considered to be negligible.

3. Federal Republic of Germany

With an estimated long-term average of 250,000 tonnes catch weight, herring has traditionally represented about one third of domestically processed seafood. Before implementation of exclusive fishing zones, the German fishing fleet was able to supply about 25% of the demand as shown in the following table:

<u>Area of Catch:</u>	<u>1970</u>	<u>1974</u>	<u>1977</u>
North Sea; Channel; Sound and Belt Sea	50.7	15.1	0.2
The Baltic Sea	6.0	2.4	7.7
Scotland-Ireland	18.2	14.6	0.2
North West Atlantic	93.9	27.0	---
TOTAL TONNES	168.8	59.1	8.1

The table shows that about 50% of the herring catches by the fleet originated in the Northwest Atlantic before 1976. Since the beginning of 1977, catches have been limited to the Baltic and Skagerrak/Kattegat (8,400 tonnes in 1978), while the bulk of the demand of 225,000 tonnes (1977) had to be imported.

Table V shows the imports in 1977 and 1978 based on German figures and Table VI shows exports from Canada to FRG based on Statistics Canada data. Total supplies were reduced by about 10% in 1977, and have shown a further decline in 1978. The share caught by the German fleet has been drastically reduced from 22-25% to 3%. While 84% (117,000 tonnes) of herring imports in 1974 originated in EEC countries, their share declined to 56% in 1977 (74,000 tonnes product weight). Denmark remains the major supplier of fresh herring (41,453 tonnes product weight in 1977) with 85% of the imports while Sweden (4.5%) is replacing the U.K. (3%) in second place. In 1978, the fresh herring import declined further to an estimated 39,000 tonnes.

Canada supplied more than 56% of the frozen herring market (55,637 tonnes product weight in 1977), the U.S. less than 20%, Norway 10% and Denmark 6%. Preliminary data for 1978 indicates that frozen herring imports remained constant. The U.S. share of the market appears to have dropped to 10% while Denmark and Iceland increased their deliveries. Imports from Canada of frozen round herring and butterfly fillets decreased in 1978 but the value increased considerably.

With 73% of the total, Canada was also the major supplier of barrelled herring in 1977 while Iceland, for the first time, supplied 250 tonnes of spice-cured or pickled products. Canadian exports of barrelled products, especially pickled fillets, increased in 1978 and the value increased sharply.

TABLE V

West German Imports of Herring and Herring Products

1977 and 1978* ('000 tonnes)

<u>Form</u>		<u>Total</u>	<u>From Canada</u>
Fresh, round	1977	13.9	----
	1978*	11.9	----
Fresh, fillets and flaps	1977	27.6	----
	1978*	25.7	----
Frozen, round	1977	17.0	4.9
	1978*	17.1	8.3
Frozen, fillets and flaps	1977	38.6	26.4
	1978*	36.9	22.3
Dried, salted or smoked	1977	18.2	0.3
	1978*	16.2	0.2
Cured, pickled	1977	9.1	5.1
	1978*	9.7	6.2
Canned	1977	6.3	----
	1978*	4.8	----
	<u>TOTAL</u>		
	1977	130.7	36.7
	1978*	122.3	37.0

*Estimates based on January-November data.
Source: Spezialhandel nach Waren

TABLE VI

Canadian Herring Exports to West Germany, 1975, 1977 and 1978
(Q: metric tons, product weight; V: \$000)

	1975		1977		1978	
	Q	V	Q	V	Q	V
Frozen, whole or dressed	2,859	1,134	5,440	3,324	7,744	5,848
Frozen fillets	11,000	5,576	28,702	22,387	20,667	26,079
Vinegar-cured, whole or dressed	---	---	305*	310	0**	0**
Vinegar-cured fillets	3,110	1,881	3,658	2,793	3,928**	5,542**
Pickled, whole or dressed	14	11	769	656	867**	821**
Pickled, split	---	---	90	70	43	30
Pickled fillets	308	202	846	553	1,339	1,613
<u>TOTAL</u>	<u>17,291</u>	<u>8,804</u>	<u>39,810</u>	<u>30,093</u>	<u>34,588**</u>	<u>39,933**</u>

* Questioned by trade. Should probably be under "Pickled, whole or dressed".
** Revised by Statistics Canada, August, 1979.
Source: Statistics Canada

Eighty percent of the available supply of fresh and frozen herring is processed into marinades or canned products. The annual consumption of fresh herring is estimated at 15-20,000 tonnes and the balance is smoked, salted ("matjes fillets") or processed into salads.

In 1977, the output of consumer products were as follows:

Canned herring	53,200 tonnes
Marinades	67,500 tonnes
Salt herring	6,400 tonnes
Spice-cured and matjes fillets	5,900 tonnes
Smoked herring	3,200 tonnes

Approximately 20 million cans of various products are produced annually by 11-12 companies. Three of these (Hawesta, Wefina, Heyco) that specialize in the canning of herring, mackerel and similar species, account for 50% of the production. The largest company (Hawesta) has been forced to increase their use of mackerel to 30%, and has also shifted to the use of frozen herring from Canada.

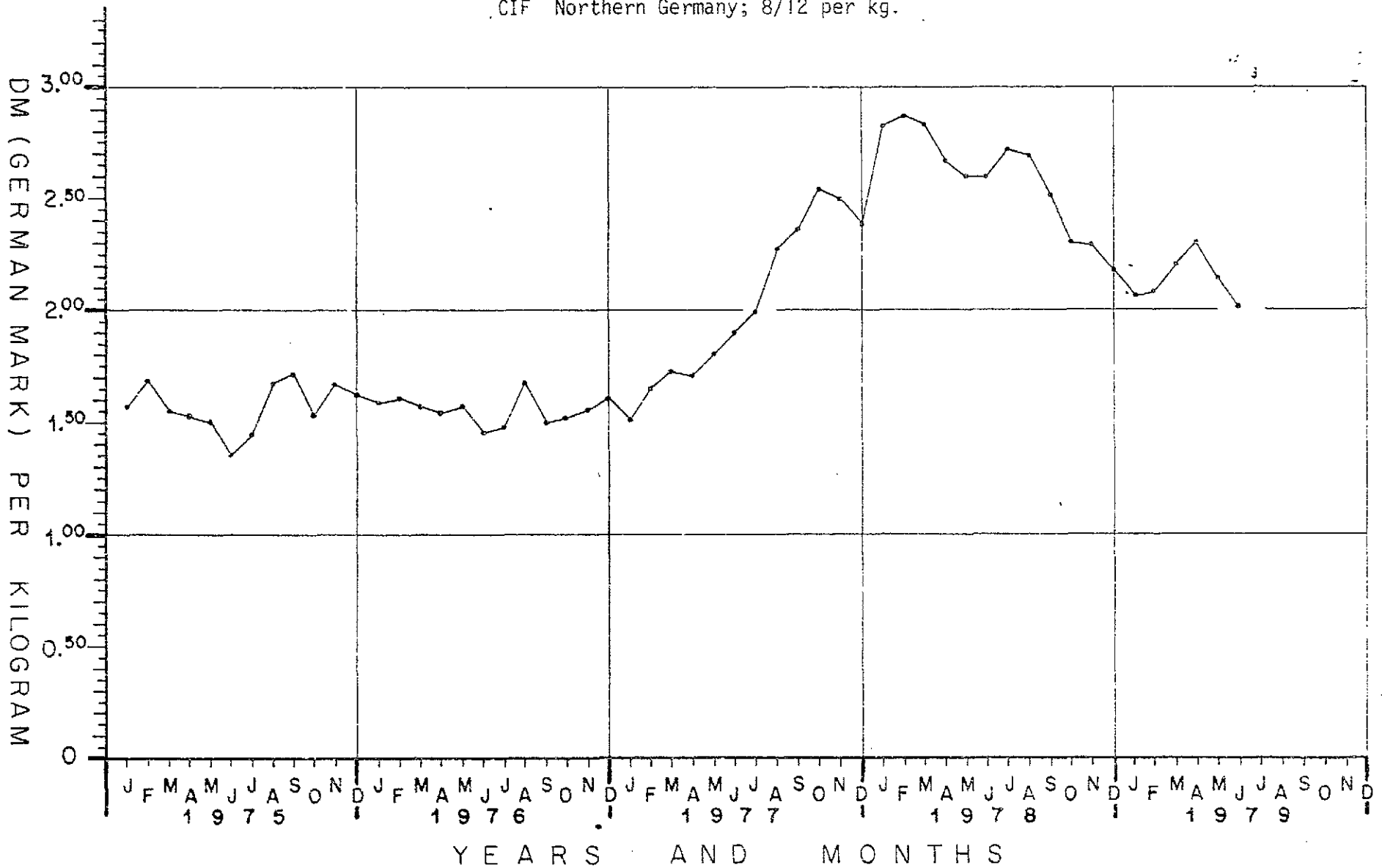
Despite the growing difficulties in obtaining raw material, the herring processing industry has so far been able to avoid plant closures. Companies that were dependent on fresh herring for their raw material were forced to switch to frozen or marinated round fish or butterfly fillets (flaps), and to absorb considerable increases in their raw material costs. Figure 1 shows the price development of frozen flaps over the past four years. In the period January-June, 1978, fresh herring prices varied between 1.22 and 1.83 DM/kg, and round frozen between 1.30 and 1.75 DM/kg.

In 1977, the overall shortage led to a considerable price increase for most product forms; its magnitude is indicated by the price for frozen flaps which doubled from DM 1.40-1.50/kg at the beginning of the year to DM 2.80-3.00 at year end (Figure 1).

FIGURE 1

GERMAN IMPORT PRICES OF FROZEN BUTTERFLY FILLETS

.CIF Northern Germany; 8/12 per kg.



In 1977, the price to the consumer, however, did not reflect the rapid increase in raw material price; between November, 1976, and November, 1977, the ex-plant price rose by 14.3%, in February, 1978, the annual price increase rose to 20%. At that point consumer resistance to further price increases led to stagnating sales which in turn exerted considerable pressure on the raw material prices resulting in losses at the importer level. Sales resumed their normal pace in September, 1978, but industry sources fear that the average raw material price is becoming too high to guarantee a profitable use of existing production capacities.

Between 15 and 20 firms handle the import of herring with the four largest, Fimex, Joergensen, Luebbert and Norda, accounting for 80% of the volume. Although the basic prices paid by the canners are strongly influenced by the daily auctions in Denmark, the smaller traders who account for the remaining 20% of imports were reported to have a disproportionate influence over market prices.

Since herring is no longer considered to be a cheap source of protein but has become a delicacy, quality requirements will become more stringent in 1979.

Complaints have been raised with regard to the lack of uniform standards, set and supervised by the Canadian government, with regard to grading by size, grading by fat content (both are considered essential parts of a sales contract), quality of the fish, proper cutting, and adequate packaging.

Importers also complain about a general ignorance of trading customs. These require that the exporter bears the transport loss by over-packing by 4% over stipulated weight while the importer has to accept the loss of thawing (3-5%). Also the difference in Canadian payment clauses from those of the Scandinavian exporters. Canadian exporters require cash payment against documents, forcing the importer to take all risks of financing, distribution and storage.

In order to maintain a long-term market even after return of the Nordsee herring, the Canadian industry will have to meet these complaints and establish a solid marketing reputation.

Since the German canning industry changed to smaller-sized cans in 1978, the preferred size is 7-11/kg and the average Canadian delivery of 4-6/kg appears too large. One Canadian product which would find easy market acceptance would be graded frozen fillets of the preferred size 10-14/kg. For smoking round herring size 3-5/kg with a fat content of 10-11% (up to 15% acceptable) are preferred.

The herring processing industry has searched for substitute raw material ever since the decline in herring catches became apparent in the early 1970's. After an early unsuccessful experiment with mackerel, efforts were concentrated on the "Heringfisch" or pilchards, especially various species of the Clupeidae family: *Sardina Walbaum*, *Sardinops*, *Sardinella*. Technical difficulties (unacceptable for smoking, small size and soft flesh made filleting difficult and labour intensive, limited shelf life) are at present compensated by the price differential of one third:

herring flaps 8/12; DM 2.10/kg cif FRG

pilchard flaps 8/12; DM 1.38/kg cif FRG (early March, 1979)

Consensus in the industry seems to be that with a return of herring catches and stable prices at a reasonable level, pilchards will widely be dropped from German processing plants.

A number of companies have resumed their development efforts on mackerel which until recently have been processed in smoked form only. They have been able to process mackerel for herring-like canned products which are finding increasing consumer acceptance. Development of mackerel marinades is progressing.

In 1977 the supply of mackerel consisted of:

own catch	5,100 MT (2% by inshore fleet)
<u>Import:</u>	
- r., fresh	7,200 MT (58% Denmark)
- r., frozen	18,600 MT (31% Netherlands) (20% Norway)
- fillets, frozen	1,500 MT (UK 64%)
- prepared	<u>3,500 MT</u>
TOTAL	35,900 MT product weight
Re-export	11,200 MT in various forms
Apparent domestic supply	24,700 MT

Prices of mackerel flaps are identical to those of pilchards (early March, 1979, 6-10 DM 1.36/kg). Canned mackerel products are sold at or even slightly above those of herring products to compensate for a somewhat lower yield.

The canning industry expects to continue the use of mackerel as long as (a) the German fleet can be employed in the fishing; and (b) import prices offer a wider profit margin than herring. The same reasoning applies to the increasing use of sprats in the canning industry.

Conclusions: Until 1985, the import of Canadian herring will depend less on the recovery of the herring stocks than on price and quality of imports. If the German industry's need for security of supply and guaranteed quality can be met in longer-term contracts (maximum six months), the current level of Canadian exports (80,000 tonnes catch weight) will be maintained. Stabilized prices at a reasonable level may increase exports by 20-30,000 tonnes, especially if some employment for the German fleet can be offered. Further increases may be realized if early indication of the over-fishing of mackerel stocks can be verified.

4. Japan

Due to declining catches of herring by the Japanese fishing fleet, the country has become increasingly dependent on imports as shown in the following table:

	<u>1976</u>	<u>1977</u>	<u>1978</u>	<u>1979</u>	<u>1981</u>	<u>1985</u>
Total catch ('000 tonnes)	66	20	16	16	14	14
Foreign zone landings	49	6	2	2	0	0

Predictions for the next five years are that only about 14,000 tonnes per year will be taken by Japanese vessels.

Herring Roe

The world market for herring roe is restricted almost entirely to Japan, and Canadian exports have shown a dramatic increase in value over the past four years (Q: metric tons, product weight; V: \$000):

Canadian Export of:	<u>1975</u>		<u>1977</u>		<u>1978</u>	
	Q	V	Q	V	Q	V
Herring Roe	4,682	24,273	12,224	87,296	9,243	115,723
Frozen whole	5,476	3,382	14,559	9,809	1,605	1,196
TOTAL	10,159	27,655	26,783	97,105	10,848	116,919

Source: Statistics Canada

Japanese import figures from the Japanese Marine Product Importers Association show that the following countries supply roe to this market:

	<u>1974</u>	<u>1975</u>	<u>1976</u>	<u>1977</u>	<u>1978</u>
Total Roe Imports ¹	12,423	7,611	11,698	10,275	9,616
U.S.A.	628	1,106	1,202	713	670
South Korea ²	1,013	975	1,360	377	636
China	6,057	1,116	1,447	397	700
Canada	4,314	4,360	7,661	8,767	7,588

¹ Excludes frozen roe

² Dropped in 1977 because Canadian law limited export of frozen round herring.

Total supplies of roe to the market increased from 7.6 thousand tonnes in 1972 to 12.6 thousand tonnes in 1974, dropping to 7.6 thousand tonnes in 1975, and increasing again to 11.7 thousand tonnes in 1977. During 1978, the roe market was shorted with imports amounting to only 10 thousand tonnes. Canada's share of this market increased steadily from 31 percent in 1972 to 80 percent in 1978, and the value rose to \$115 million in 1978.

Exports to Japan by China reached a peak of 6.1 thousand tonnes in 1974, declining to less than 500 tonnes in 1977 and 1978. Supplies of roe from the United States have been increasing, particularly since 1978 with an expanding fishery in Alaska.

The future potential of roe supplies from China are unknown, but most predictions are that this country will not supply more than 1,500 tonnes in future years. There is a good potential for increasing roe exports to Japan by Alaska due to the large herring stocks in the Bering Sea and South East Alaska. In 1979, these areas together will supply nearly 1,500 tonnes of herring roe from an 18 thousand tonne fishery. In the next few years the area could possibly supply substantially larger quantities.

Roe prices in Japan are very sensitive to supply levels with prices and total revenues declining sharply when quantities on the market attain a certain level. Statistical demand estimates in the past have determined that total revenues to wholesalers are maximized at 12 thousand tonnes. With the supply shortages that developed for roe herring in B.C. in 1979 (landings declined to 38,500 tonnes from 62,500 tonnes in the previous year), it is apparent that B.C. should devote as much herring as possible to the roe market in order to maximize revenues to B.C. producers. If the stocks rebuilt in B.C. to former levels, it will again be necessary to restrict supplies to the market, depending on quantities available from competitors.

The projection for herring roe exports from B.C. to Japan in future years is constrained by resource availability at the 5.0 thousand tonnes level in 1981, but will probably rise to 7.0 thousand tonnes by 1985.

Food Herring

The food herring market in Japan was the focus of attention in 1977 when there was an intensive Japanese buying activity abroad which increased the Japanese imports in that year to some 31 thousand tonnes compared to 6 thousand tonnes in 1976.

Frozen whole or dressed	<u>1976</u>	<u>1977</u>	<u>1978</u>
Herring imports (tonnes)	5,910	30,600	6,926
From Canada	4,500	21,392	1,122
From U.S.A.	996	8,691	5,401

Source: Japan Exports and Imports

That the market in Japan was not able to readily absorb this quantity of herring was apparent in the reports of high inventory levels and the 1978 imports of only 7 thousand tonnes. One of the major reasons for the sudden jump in imports in 1977 was the then impending threat of the closure of the herring grounds in the USSR fishery zone to the Japanese. While a partial closure did indeed occur and the Japanese herring landings declined to 20 thousand tonnes from 66 thousand tonnes in 1976, the increase in prices were such that a significant portion of the imported herring remained unused.

The bulk of consumption of herring in Japan is in the dried form known as *mégaké*, of which Japan consistently produced about 19 thousand tonnes per year between 1971 and 1976. In 1977, its production fell to 17 thousand tonnes reflecting the fall in supply of the raw material. Consumption in other forms is minimal and therefore the future of the market for food herring in Japan will depend on the demand for *mégaké*. Traditionally the raw material for this product came from Japan's domestic herring landings, and the imported roe herring carcasses. With the declining domestic landings and the restrictions in foreign supplies (e.g. Canadian reduction of allowable round roe herring exports from 25% of landings to 5%) the available supply has been severely restricted. On the other hand, the rapid increase in prices depressed the demand for *mégaké* so that gap equivalent to the fall in supply cannot be expected to occur. If it can be assumed that the *mégaké* demand is to stabilize at about 15 thousand tonnes, and that the product to round ratio is 20%, the total requirement would be about 75 thousand tonnes. Assuming further, that the domestic herring landings will stabilize at about 14 thousand tonnes, a shortfall of some 61 thousand tonnes can be expected. As noted, the carcasses from roe herring from Canada would supply 2-3,000 tonnes based on 5% of landings estimated between 40,000 and 60,000 tonnes.

There has been a food herring fishery for the export market in B.C. for the past three years. Landings have ranged from 6 thousand tonnes to 19 thousand tonnes. While the fisheries have been directed at supplying European and Japanese markets for food herring, food use is not the best utilization in B.C. because of the relatively low prices obtained for the product. Therefore, only a small scale fishery will be allowed in future years in view of the recent drop in total allowable catches.

Herring Roe on Kelp

There is currently a market in Japan for a maximum of 500 tonnes of herring roe on kelp. Good quality products supply the high class restaurant trade, and the lower grade products are marketed for home consumption in supermarkets and fish specialty shops. United States has traditionally supplied the lower grades of product while (since 1975) Canada has supplied the high class restaurant market.

The number of permits allowed in B.C. has increased from 13 in 1975 to 29 for the 1979 season. Production is currently at the 200 tonne level. This product is sold primarily in Japan although there are reported to be markets available in North and South America and Hawaii for people of Japanese descent.

It is projected that the B.C. production will increase by ten percent per year to 1985 resulting in total increase in supply of seventy percent by 1985.

5. United Kingdom

For the past year, the U.K. has had a severe shortfall of herring following the closure of the North Sea and Scottish herring fisheries. British landings were in the 145-155,000 tonne range in the years between 1970 and 1974. The rapid decline started in 1975 as shown in the following:

YEAR	1974	1975	1976	1977	1978
LANDINGS (tonnes)	149,300	112,700	91,100	43,049	16,157

The requirement to keep the U.K. processors in business is 160-170,000 tonnes which are used for kippers and other smoked products. To meet the enormous shortfall, many processors have diversified and are using such fish as mackerel in their plants. Others have used imported herring.

Total herring imports increased from 3,727 to 11,097 tonnes between 1977 and 1978 with Canada as the main supplier. Canada exported 3,210 tonnes frozen fillets, 3,191 tonnes frozen whole or dressed, and 1,573 tonnes cured products for a total export value of \$7.5 million to the U.K. in 1978.

British importers and processors have been very vocal in complaining about the poor quality of Canadian herring, although they will admit that there has been some improvement in the past year. They have also resented the high prices being charged by Canadian exporters and claim they cannot compete with other nations, such as the Netherlands, where the consumers have a higher disposable income than in Britain.

In the past year or two, the U.K. market has not been particularly interested in importing value added products such as kippers from Canada (10-12% duty vs. 0% on unprocessed herring). However, the recent increase in the value of the pound and a worsening supply situation, has created a new situation and opportunities for kipper export should be excellent for at least the next year or two. The greatest requirement from the U.K. processors will be for frozen fillets or whole/dressed herring, and certain cured products in order to keep their plants going until supplies are again available from their own waters. There is currently also a strong demand for herring milt in the U.K.; especially for first quality milt frozen in blocks.

TABLE VII

Canadian Exports to the United Kingdom
(Q: metric tons, product weight; V: \$000)

	1975		1977		1978	
	Q	V	Q	V	Q	V
Frozen, whole or dressed	8	3	604	404	3,191	2,385
Frozen fillets	18	7	1,470	1,023	3,210	3,962
Vinegar-Cured fillets	--	--	30	18	112	90
Pickled, whole or dressed	--	--	781	483	1,144	905
Pickled, split	--	--	16	10	317	241
Sub Total	26	10	2,901	1,938	7,974	7,583
Herring Meal	228	67	1,426	589	1,214	569
GRAND TOTAL	254	77	4,327	2,527	9,188	8,152

Source: Statistics Canada

6. France

Herring landings by French fishermen have decreased from 30,500 tonnes in 1975 to about 3,000 tonnes in 1977. In spite of an increase of imports of about 8,000 tonnes, total consumption is estimated to have declined by about one third.

According to Canadian statistics, Canada exported 1,900 tonnes of frozen herring fillets to France valued at \$927,000 in 1976, and 4,800 tonnes worth close to \$4 million in 1977. In 1978, the quantity levelled off at 4,500 tonnes valued at over \$6 million (Table VIII).

The annual consumption of herring in 1975-76 was about 23,000 tonnes, and was estimated to be divided among the following products:

- | | |
|---|--------------|
| a) fresh | 6,300 tonnes |
| b) fillets (sour) flat in 200 grams vacuum packed or rolled | 5,000 tonnes |
| c) kippers | 3,300 tonnes |
| d) bouffi (smoked herring) round in wooden boxes of 5 kg | 2,700 tonnes |
| e) salted or marinated | 6,300 tonnes |

Canadian exporters should be able to remain in this market for at least the next 2-3 years if prices remain at levels somewhat below the peak reached last year.

TABLE VIII
Canadian Exports to France
(Q: metric tons, product, weight; V: \$000)

	1975		1977		1978	
	Q	V	Q	V	Q	V
Frozen, whole or dressed	251	68	705	352	1,595	1,252
Frozen fillets	---	--	4,781	3,735	4,546	6,252
Pickled, whole or dressed	---	--	18	9	42	63
Pickled, split	---	--	---	---	97	100
Pickled fillets	---	--	30	16	68	74
TOTAL	251	68	5,534	4,112	6,348	7,741

Source: Statistics Canada

7. Netherlands

Landings of herring by Dutch fishermen decreased from 57,090 tonnes in 1976, 19,701 tonnes in 1977 to only about 7,000 tonnes in 1978. As a result of these decreased landings and the higher prices for imports, per capita consumption has dropped from 2.7 kg in 1976 to 1.7 kg in 1978, or from 37,500 tonnes in 1976 to 24,000 tonnes in 1978. Consumption of the traditional Maatjes cured herring, a lightly salted (mild cure) product prepared from fat herring, shows a substantial decline due to supply shortages and high prices. Netherlands imported about 5,000 tonnes frozen herring from Canada in 1977, both fillets and whole or dressed, which increased to over 10,000 tonnes whole or dressed and 1,200 tonnes cured in 1978 (according to Dutch statistics). Considerable quantities of herring from British Columbia were included in these shipments. Canadian export statistics show considerably lower figures (Table IX).

Netherlands has traditionally been a large exporter of herring products, and the quality of fish imports is of primary concern to Dutch

traders. The Dutch international trading position depends upon the quality of their exported products. Therefore, unless the quality of imported raw materials can match that of fish produced at home, inferior products will result which will damage their recognized position as quality producers. The Dutch have established markets throughout the world and will attempt to retain and service these markets by relying on imported raw materials, as long as it is profitable for them to do so.

The perception of Canadian quality certainly appears to influence the price that the Dutch are prepared to pay for Canadian fish, but to interpret their bargaining in fish negotiations with Canada as only price consciousness is misleading. Their perceptions of inferior Canadian quality continue to underlie any sales negotiations. Until this negative perception of Canadian quality can be overcome, Canadian exporters can expect to meet price resistance in Dutch markets, particularly in species such as herring.

The Dutch are especially dissatisfied with the Canadian grading system for herring. They normally want the following grades for herring: under 6 per kg, 6 to 9 per kg, and 9 to 12 per kg. It would appear that it is not unusual for an importer to request a grading of 6 to 9, and receive a load of herring which has a large number of small fish and large fish which when averaged give between 6 and 9 per kg, but have very few fish in the 6 to 9 size range.

Dissatisfaction was also expressed with the fact that the fat contents quoted by Canadian exporters often have very little resemblance to the level requested. The Canadian west coast herring has experienced difficulties in the Netherlands. The problem could perhaps be viewed as one of interpretation. The Europeans are trying to use spawning herring to make smoked products, etc. The bellies of these herring are too soft to be transformed into their traditional products. This may be a case of the Canadian misrepresenting his product, or the European misinterpreting what he is getting.

If Canadian exporters could resolve these problems, it appears that this would go a long way towards minimizing the effects on the imports of

herring into the Netherlands from Canada when the North Sea is opened for herring fishing. Part of the Netherlands herring market could be retained by clearing up these problems.

Another factor to be considered is that the European processors have sold much of their equipment. It will take time for them to re-establish their herring processing operations.

As a result of the herring ban in the North Sea a number of herring trawlers are now fishing mackerel. A number of herring processors have also converted to processing mackerel. In order to encourage the switch, the EEC and the Dutch government are subsidising Dutch firms that export mackerel to non-EEC countries. The subsidy is presently 5 units of account per 100 kg and is reviewed every three months. A unit of account is equal to 3.4027 Dutch Guilders which equals approximately 17 guilders per 100 kg, or Canadian \$100 subsidy per tonne of mackerel exported. Because of this subsidy, it is possible for the Dutch to export mackerel into Canada at approximately \$460 per tonne CIF Canadian port. This price is very close to what our own Canadian processors can sell mackerel for in Canada.

While some officials consider that mackerel is being used as a substitute for herring, there is a growing feeling that this is not the case, but that a new product has been introduced into the European market.

TABLE IX

Canadian Exports to the Netherlands
(Q: metric tons, product weight; V: \$000)

	1975		1977		1978	
	Q	V	Q	V	Q	V
Frozen, whole or dressed	---	---	3,516	1,722	5,076	3,223
Frozen fillets	203	112	2,178	1,981	1,940	2,582
Vinegar-cured fillets	---	---	---	---	12	26
Pickled, whole or dressed	---	---	105	50	668	429
Pickled, split	---	---	46	38	---	---
Sub Total	203	112	5,845	3,791	7,696	6,260
Herring Oil	---	---	634	222	---	---
GRAND TOTAL	203	112	6,479	4,015	7,696	6,260

Source: Statistics Canada

8. Sweden

Sweden exported 26,500 tonnes of fresh Atlantic herring and 5,300 tonnes of Baltic herring in 1977, and with considerably higher prices in 1978, an even greater percentage of catch was exported. Swedish fishermen are therefore taking advantage of the high prices in Denmark brought about by the ban on North Sea herring fishing.

Imports in 1977 (according to Swedish statistics) included 8,700 tonnes of salted herring of which 3,800 tonnes came from Canada, and 4,500 tonnes of spice-and/or sugar-cured of which 720 tonnes came from Canada.

Iceland is the chief Canadian competitor for cured herring, especially since Norway has banned fishing in 1979 as recommended by their biologists. Other suppliers have been Ireland and Denmark.

The outlook for continued import of Canadian cured herring remains good. Canada was the chief supplier of hard-cured herring to Sweden in 1977, and should be able to retain that place if prices remain competitive. The import prices for hard-cured given in the statistics should indicate the prices buyers were willing to pay for top quality herring: 6.86 kr/kg for Norwegian, 4.68 kr/kg for Icelandic, and 3.46 kr/kg for Canadian in 1977. Similar differences were found in prices for spice-cured herring. The 1978 prices were, of course, considerably higher.

One common complaint about Canadian-cured herring is the low yield. Most Canadian herring are fall spawners and therefore have roe and milt. Norwegian and Icelandic herring are mainly spring spawners, and will therefore have a fillet yield of as much as 10-15% higher; up to 60% yield from headless nobbed vs. 45% from Canadian. Canadian processors should therefore consider shipping more cured fillets when this is acceptable to the buyers. Other complaints include extensive bruising caused by careless pumping of live fish. Canadian herring can compete with Icelandic herring if quality and yield can be improved. Herring from the North East coast of Newfoundland is considered to be the best quality.

A majority of Swedish processors have changed to products packed in glass jars, and the raw material for many of these products is vinegar-cured fillets. Considerable quantities are produced in Sweden from Swedish caught herring and some imported from Denmark. Since practically no large herring are landed in these countries, most of these fillets are very small by Canadian standards. It should therefore be possible to increase our export of vinegar-cured fillets to Sweden. One importer who purchased 2,000 barrels from Canada complained of extensive bruising and ragged fillets in the shipment.

Plastic barrels can be used for vinegar-cured products, but some importers are still not happy about their use for hard-cured or spice-cured herring. The two largest processors, ABBA and FOODIA, store barrelled herring in large caves, and they complain that plastic barrels cannot be stacked high enough to take full advantage of this unique, temperature-controlled storage area.

TABLE X

Canadian Exports to Sweden

(Q: metric tons, product weight; V: \$000)

	1975		1977		1978	
	Q	V	Q	V	Q	V
Frozen, whole or dressed	---	---	---	---	39	35
Frozen fillets	---	---	---	---	36	66
Vinegar-cured, whole or dressed	3	1	179	92	135	129
Vinegar-cured fillets	---	---	13	15	81	117
Pickled, whole or dressed	4,062	1,986	3,686	1,847	3,241	1,991
Pickled split	---	---	65	65	159	110
Pickled fillets	171	147	1,253	703	392	501
TOTAL	4,236	2,134	5,200	2,738	3,194	3,041

Source: Statistics Canada

9. Norway

Norway imported about 2,000 tonnes of frozen herring fillets from Canada in 1978 and also smaller quantities of cured products. It is understood that most of the fillets were used for the production of canned kipper snacks and largely re-exported. As soon as the Norwegian or North Sea fishery is re-opened, the huge Norwegian fishing fleet should be able to supply this market. It is therefore not expected that Norway will have to import herring after 1981.

TABLE XI

Canadian Exports to Norway
(Q: metric tons, product weight; V: \$000)

	1975		1977		1978	
	Q	V	Q	V	Q	V
Frozen, whole or dressed			---	---	59	62
Frozen fillets	272	157	110	103	2,080	3,135
Vinegar-cured, whole or dressed			---	---	18	20
Vinegar-cured fillets			---	---	178	176
Pickled, whole or dressed			54	43	31	31
TOTAL	272	157	164	146	2,366	3,424

Source: Statistics Canada

10. Belgium

Belgian catches of herring have not exceeded 2,500 tonnes, and the country has therefore traditionally been a net importer. The table below shows that Canada exported the following to Belgium:

	1975		1977		1978	
	Q	V	Q	V	Q	V
Frozen, whole or dressed	---	---	110	108	626	693
Frozen fillets	345	195	2,195	1,902	1,286	1,699
TOTAL	345	195	2,305	2,010	1,912	2,392

* (Q: metric tons, product weight; V: \$000)

Until the North Sea herring stocks have recovered, in 3-4 years at the earliest, Canada should be able to continue this export to Belgium. With more stringent grading by Canadians, improved quality and reliability of supply, Canada should be able to maintain a share of the market even further down the road.

Reports from Belgium note that in 1978 a situation developed which put the integrity of the Canadian herring industry in question. Conflicting reports on price and availability of product were prevalent in Europe. European buyers were being offered Canadian herring products at a firm price by the Canadian processors only to be offered similar product within a week by an intermediary directly at the same or lower price. There was also evidence that although herring products were invoiced at the current market price, credit notes were later issued to the buyer. There was confusion on the true value and availability of product from Canada.

There were also complaints that small buyers were receiving products at the same price as the larger buyer and getting delivery service.

Small container lots were being sold house to house at the same price as the larger lots were being delivered port destination. This created some apparent inequities in the eyes of some large buyers. This type of trade practice has undermined the function of the Canadian Association of Fish Exporters (CAFE), and created doubts in the buyers about the integrity of Canadian sellers.

11. Finland

Finland has traditionally been a consumer of cured herring products, and Finnish vessels used to participate in the summer herring fishery off Iceland. Since this fishery declined and eventually disappeared in the late 1960's due to over-fishing of the Atlanto-Scandia stock, supplies of barreled herring have been imported from various countries. In 1978 about 40% came from Iceland, 30% from Norway, 14% from Canada and 10.5% from Great Britain according to official import statistics. Since there will be no herring fishery at all in Norway in 1979, and only a very limited fishery off Great Britain, Canadian processors this year have an excellent opportunity to increase their share of the market. Since the Iceland herring fishery is

carried out in October-November, and their cured products are marketed in winter and spring, Canadian processors should be able to take advantage of supply shortages in late summer and fall.

Baltic herring are generally small and lean, and are therefore not particularly suitable for most cured products. More than half the Finnish catch of 78,000 tonnes in 1977 was used as animal feed, and considerable quantities are marketed fresh throughout the year. A limited quantity was also exported to Germany in 1978.

Finnish processors use mostly sugar-cured or spice-cured herring in their products, although vinegar-cured fillets are also being used to a considerable extent, including butterfly fillets as small as 12-17 per kg.

Finnish statistics show that imports of cured herring declined by almost 30% between 1976 and 1978. The chief reason for this appears to be buyer resistance to the high herring prices since it was indicated that Finland had just experienced a two year period of considerable economic difficulties. The drop in imports from Canada reflected the limited revival of the Icelandic cured herring industry, and also the lack of supply of suitable products from Canada:

	<u>Canadian Exports to Finland</u>					
	1975		1977		1978	
	Q	V	Q	V	Q	V
Vinegar-cured, whole or dressed			18	7	---	---
Vinegar-cured fillets			11	7	10	17
Pickled, whole or dressed	433	299	319	269	372*	501
TOTAL	433	299	348	283	382	518

Source: Statistics Canada

* Finnish import statistics list 624 tonnes from Canada in 1978 and 1,355 tonnes in 1976.

(Q: metric tons, product weight; V: \$000).

Finnish importers have shown considerable interest in supplies of sugar-cured, spice-cured or vinegar-cured Canadian herring. One major importer still prefers wooden barrels for sugar- and spice-cured, since it is his claim that herring do not cure properly in plastic barrels, especially with regard to softness ("ripeness"). Plastic barrels can be used for vinegar-cured products and some importers may also accept sugar-cured in these.

The fat content of herring to be used for sugar-cured products should be in the range of 14-20%, and recommended quantities of salt and sugar are 17 and 5 kg per barrel respectively. This is less sugar than that preferred by Swedish consumers.

The chief complaints about Canadian herring are low yield and high variation in quality. Since most Canadian East Coast herring are fall spawners, the barreled, headless (nobbed) herring contains various amounts of roe and milt. This is lost in processing and filleting, and can mean as much as a 10-15% loss in fillet yield as compared to spring-spawning Icelandic herring. Since the market situation for roe and milt is excellent at the present time, processors should consider various means of removing these before packaging, for instance by squeezing or by shipping fillets instead of headless. Since Canadian cured herring may have been packed at different localities and times of the year, and may belong to different stocks, quality and cure is not as uniform and consistent as the Icelandic product. However, some improvement in quality had been noted in Canadian cured herring over the past few years by Finnish importers.

12. Denmark

A situation similar to that in Norway exists in Denmark. As soon as the fishery is re-opened in the North Sea, it is not expected that Denmark will be an important market for Canadian herring.

According to Statistics Canada, herring exports to Denmark were as follows:

CANADIAN EXPORTS TO DENMARK

(Q: metric tons, product weight; V: \$000)

	1975		1977		1978	
	Q	V	Q	V	Q	V
Frozen, whole or dressed			---	---	654	290
Frozen fillets	34	23	324	270	346	476
Vinegar-cured fillets					77	77
Pickled whole					23	47
TOTAL	34	23	324	270	1,100	890

13. Caribbean Countries

Most of the Canadian production of smoked herring (bloaters) is exported to Caribbean countries, especially the Dominican Republic. It is also expected that these countries will be able to take the largest part of the Canadian production in future years. Canadian statistics indicate that exports have varied between 3,000 and 4,000 tonnes over the past three years.

14. Other Countries

Relatively small quantities of various herring products are exported from Canada to a number of countries such as Australia, Israel, South Korea and Eastern Europe. Some of these markets could become quite important by 1985. Since East European countries have government controlled import organizations, normal free market trade does not apply. Yet, these countries have large populations that were traditionally consuming herring products, and their fishing fleets are no longer able to supply the demand. Through various arrangements at the governmental level, considerable quantities of herring products could be exported to these countries in future years.

APPENDIX A

THE WORLD HERRING RESOURCE

Total catches of Atlantic and Pacific herring between 1974 and 1977 are listed in Table XII. It can be seen that catches in the Northwest Atlantic declined by over 150,000 tonnes, and in the Northeast Atlantic by 421,000 tonnes over this period. Further declines were experienced in 1978. A high percentage of the landings listed under the Northeast Atlantic consists of small and less valuable Baltic herring. Landings of Pacific herring remained fairly constant, but with Japanese catches showing a sharp decline.

In the following sections the various major stock complexes will be discussed and estimates for possible recovery times given. In the discussions of the individual importing and consuming countries following, the catches taken by these countries from all areas will be discussed.

1. Canada

Landings and landed value for Canada are shown in Figure 2. Peak catches on the Atlantic Coast were reached in 1968 with most of the landings used for meal and oil production. The landings levelled off in 1972-73 and are expected to remain in the range of 210 to 250,000 tonnes over the next five years. The sharp increase in value coincides with the increasing shortages in Europe.

Pacific landings recovered from the low levels of the late 1960's; but following declining catches in 1979, the predicted total allowable catch for the next few years has been revised downwards to the 50-70,000 tonnes range.

TABLE XII

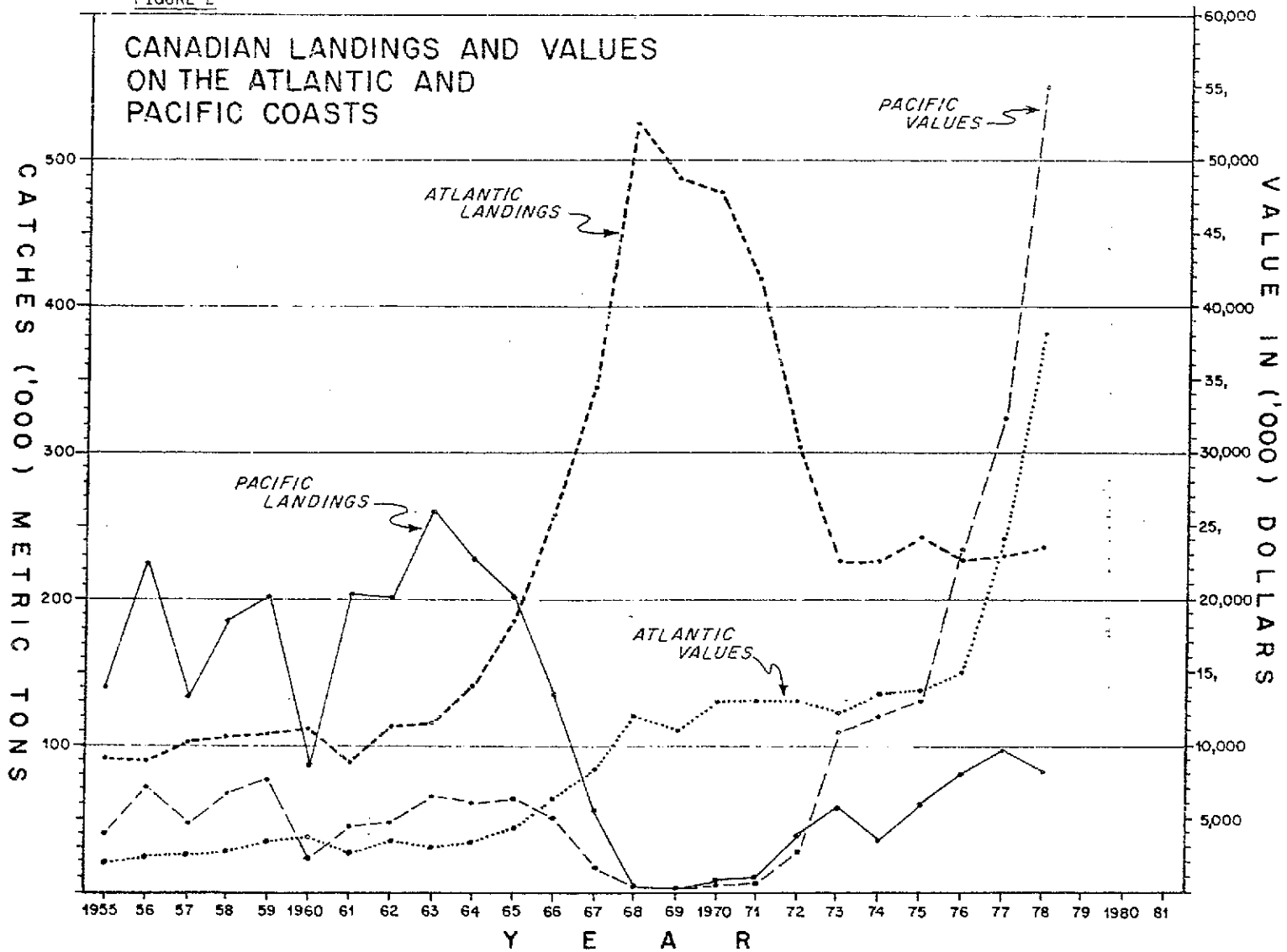
Worldwide Landings of Atlantic and Pacific Herring

NOMINAL CATCHES BY SPECIES, MAJOR FISHING AREAS AND COUNTRIES
 CAPTURES NOMINALES PAR ESPECES, PRINCIPALES ZONES DE PECHE ET PAYS
 CAPTURAS NOMINALES POR ESPECIES, PRINCIPALES AREAS DE PESCA Y PAISES

SPECIES ESPECE ESPECIE	COUNTRY PAYS PAIS	AREA ZONE AREA	1974 MT	1975 MT	1976 MT	1977 MT
ATLANTIC HERRING HARENG DE L'ATLANTIQUE ARENQUE DEL ATLANTICO			CLUPEA HARENGUS 1,21(05)001,05			
BULGARIA	21		1800	422	114	-
CANADA	21		225583	241914	225461	229615
CUBA	21		-	1309	327	171
FRANCE	21		4080	4853	1196	-
GERMAN DM RP	21		32538	30901	7891	-
GERMANY FED	21		26987	24349	9549	-
GREENLAND	21		28	10	6	3
JAPAN	21		3400	2079	868	1
POLAND	21		39513	38463	10539	119
ROMANIA	21		2019	1544	124	9
SPAIN	21		-	10	3	-
USSR	21		64696	62933	16113	1836
USA	21		32607	36173	50133	50627
AREA TOTAL	21		433251	444960	322324	282381
BELGIUM	27		627	2461	1445	57
BULGARIA	27		600	814	224	-
DENMARK	27		176896	216662	107252	93589
FAEROE IS	27		38700	37813	22040	20588
FINLAND	27		73840	70557	76861	78051
FRANCE	27		21199	25645	20466	4164
GERMAN DM RP	27		76196	76409	62016	62452
GERMANY FED	27		32078	27584	13249	8135
ICELAND	27		40471	33433	29976	28925
IRELAND	27		39608	28744	23725	23436
JAPAN	27		36	-	-	-
NETHERLANDS	27		59307	70980	57090	19701
NORWAY	27		76082	40213	36540	20070
POLAND	27		73130	79048	74414	60220
ROMANIA	27		-	147	303	-
SWEDEN	27		115274	100599	92756	108324
USSR	27		147558	142525	139580	131726
UK ENGLD WAL	27		11145	8541	12162	1792
UK SCOTLAND	27		129418	98506	73079	38275
UK NO IRELD	27		8704	5610	5770	2982
UK ISLE MAN	27		11023	11113	7663	8729
AREA TOTAL	27		1131892	1077402	856611	711216
GRENADA	31		0	0	0	0
AREA TOTAL	31		0	0	0	0
ITEM TOTAL	S		1565143	1522362	1178935	993597
PACIFIC HERRING HARENG DU PACIFIQUE ARENQUE DEL PACIFICO			CLUPEA PALLASI 1,21(05)001,07			
JAPAN	61		67532	63349	59880	17294
KOREA REP	61		370	2401	99	4378
USSR	61		285100	313700	192163	253227
AREA TOTAL	61		353002	379450	252142	274899
CANADA	67		44670	59639	81105	97172
GERMAN DM RP	67		-	1538	465	-
JAPAN	67		5305	1189	5335	2415
POLAND	67		-	1138	-	-
USSR	67		19800	14201	16812	46
USA	67		23214	16862	17229	16273
AREA TOTAL	67		92989	94567	120946	115906
POLAND	77		-	250	-	-
USA	77		2330	1079	1092	3792
AREA TOTAL	77		2330	1329	1092	3792
ITEM TOTAL	S		448321	475346	374180	394597

AREAS:
 21 Northwest Atlantic
 27 Northeast Atlantic, includes the Baltic Sea
 31 Western Central Atlantic
 61 Northwest Pacific
 67 Northeast Pacific
 77 East Central Pacific

FIGURE 2



2. The United States

Since foreign fishing for herring off the coast of the United States has now been phased out, it would be expected that U.S. landings could increase sharply over the next few years. However, the stock situation on Georges Bank appears to be more serious than expected and the fishery will have to exploit the Jeffreys Ledge - Gulf of Maine Stock complex. Landings have been nearly constant at about 50,000 tonnes in the past three years, and it is predicted that it will be at least another two years before any increase can be expected.

3. Norway

a) The Atlanto-Scandian Stock or Norwegian Spring Spawning Herring

This stock represents one of the most dramatic examples of total collapse of a stock of fish as a result of intensive exploitation by modern fishing fleets. This stock was exploited at all stages of its life cycle by several countries due to its migratory pattern and the peak catches of 1,955,000 tonnes were taken in 1966. (Table XIII, Figure 3).

The chief spawning grounds for this stock was the west coast of Norway (Figure 4), and the fishery on the migrating spawners would start in January-February when the fish were known as Storsild (large herring). At this point the fat content was usually 12-14%, and large quantities shipped fresh to European markets, hard cured or frozen. The major part of the catches were used for the production of meal and oil. The spawning and post-spawning fish were known as Varsild (spring herring); these were lean (6-8%) and chiefly used for meal and oil. The survivors then started on their long feeding migrations to the west and north.

The juvenile herring could be found in the Norwegian fjords and off Northern Norway. They were heavily fished as one or two year olds ("Mussa") which were packed as sild sardines, or as three year olds ("Feitsild") which were of excellent quality for hard-cured or sugar-cured products. However, large quantities of these immatures were also used for reduction.

The mature herring were normally feeding heavily in the Iceland-Jan Mayen areas, and in late summer and fall the fishery for these so-called Icelandic herring ("Islands sild") were carried out. The large fat herring (>18-20%) were excellent for hard-cure or sugar-cured products. Expeditions of driftnetters, some with motherships loaded with barrels, set out from several countries to the fishing grounds off Iceland. Later, purse-seiners also participated, and eventually an extensive meal and oil fishery was carried out. The herring started their spawning migration towards the Norwegian coast in late fall, and the Faroes fishery was carried out as the fish migrated past these islands.

When the fishery was carried out by gillnet vessels, shore seines or later by small purse-seiners operating with dories, the stock situation remained healthy. Gradually seiners became more mobile, and power blocks and modern fish-finding equipment enabled seiners to fish farther from shore and in poorer weather. The collapse of the stock was a result of over-exploitation of both adults and juveniles in a period of several poor year classes. By 1972, practically no spawners appeared on the traditional spawning grounds.

With practically no fishery carried out between 1972 and 1977, the spawning stock increased to an estimated 200,000 tonnes in 1977 but declined again in 1979. The Norwegian government has therefore banned all fishing for 1979 except limited amounts for fishermen's own use.

The outlook is for a very slow recovery of this stock, with perhaps a token fishery of 10,000 tonnes permitted in 1980. It is unlikely that catches will be much higher than 60-80,000 tonnes by 1985 unless a strong year-class appears this year or next.

b) Other Stocks

Norway has also traditionally fished in the North Sea and off Scotland. No fishing will be permitted in these areas in 1979, and the only Norwegian landings anticipated would have to come from Kattegat-Skagerrak and so-called Fjord herring, and would total only a few thousand tonnes.

TABLE XIII

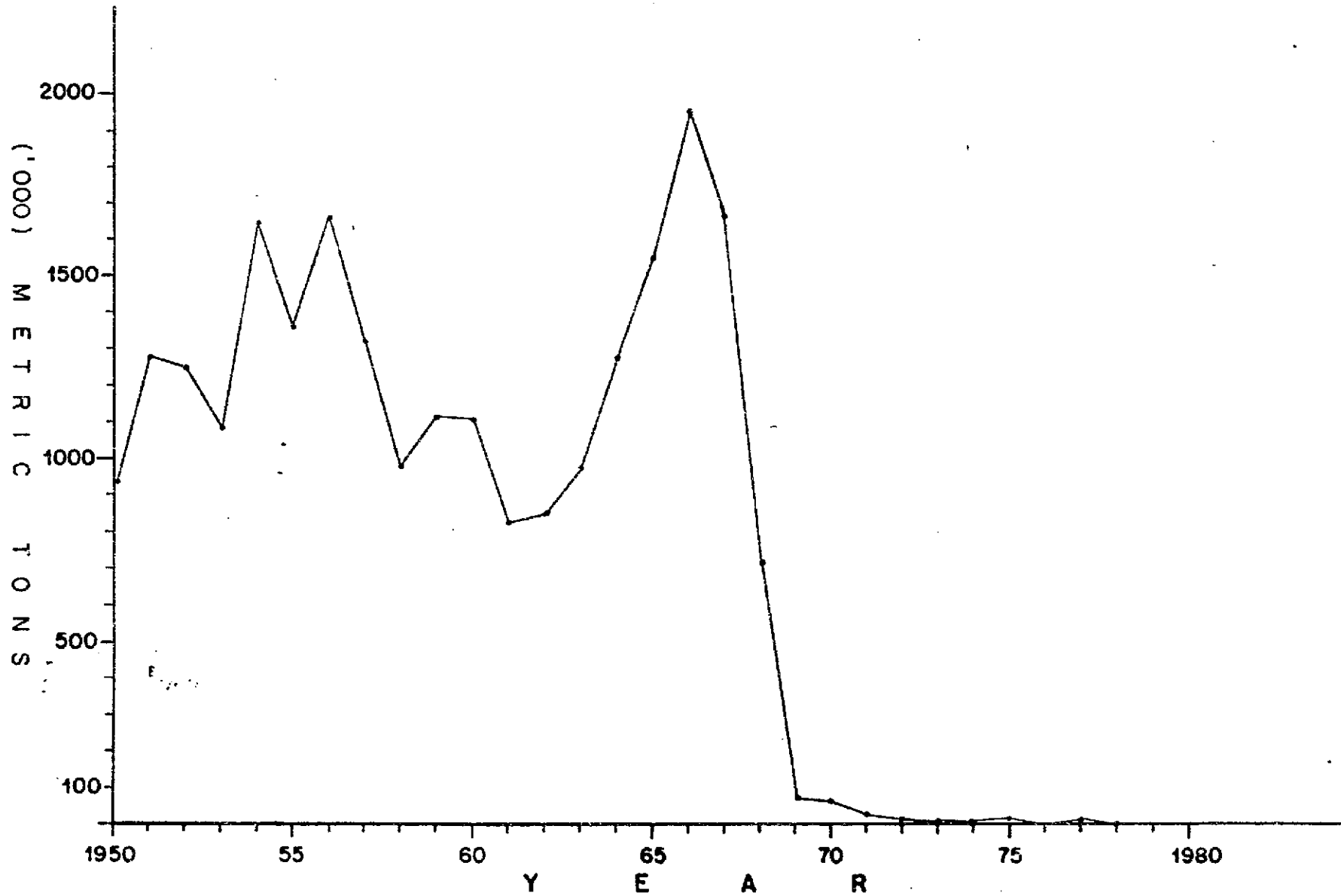
NORWEGIAN SPRING SPAWNING HERRING (ATLANTO-SCANDIA STOCK)

Total Catches in Thousand Metric Tons

YEAR	ADULTS					JUVENILES	TOTAL
	Norway	Iceland	USSR	Faeroes	Fed. Rep. of Germany	USSR & Norway	
1950	781.4	30.7	14.0	---	---	106.9	933.0
1951	902.3	48.9	43.0	---	---	284.2	1,278.4
1952	840.1	9.2	69.9	---	---	335.6	1,254.8
1953	692.2	31.5	110.0	16.2	---	240.7	1,090.6
1954	1,103.6	15.2	160.0	27.6	---	338.1	1,644.5
1955	979.3	18.1	207.0	13.1	---	142.3	1,359.8
1956	1,160.7	41.2	235.0	23.7	---	198.8	1,659.4
1957	813.1	18.2	300.0	17.0	---	171.2	1,319.5
1958	356.7	22.6	388.0	17.7	---	201.6	986.6
1959	426.9	34.5	408.0	13.7	---	228.0	1,111.1
1960	318.4	26.7	465.0	11.0	---	280.7	1,101.8
1961	111.0	85.0	285.0	16.9	---	332.2	830.1
1962	156.2	176.2	209.0	9.8	---	297.4	848.6
1963	130.4	177.5	350.0	12.9	---	313.7	984.5
1964	366.4	367.4	365.8	18.3	---	163.9	1,281.8
1965	259.5	540.0	489.2	31.5	5.6	221.9	1,547.7
1966	497.9	691.4	447.4	60.7	26.1	231.5	1,955.0
1967	423.7	359.3	303.9	34.9	9.7	545.7	1,677.2
1968	55.7	75.2	124.3	16.1	1.8	439.1	712.2
1969	15.6	0.6	3.2	4.4	0.3	43.7	67.8
1970	20.3	---	---	0.6	---	41.4	62.3
1971	6.9	---	---	---	---	14.2	21.1
1972	---	---	---	---	---	13.2	13.2
1973	---	---	---	---	---	6.8	6.8
1974	---	---	---	---	---	6.3	6.3
1975	---	---	---	---	---	3.1	3.1
1976	---	---	---	---	---	---	---
1977	---	---	---	---	---	13.3	13.3
1978	---	---	---	---	---	---	---
1979	---	---	---	---	---	---	---

FIGURE 3. Atlanto-Scandia Stock

Catches by All Countries



Source: ICES

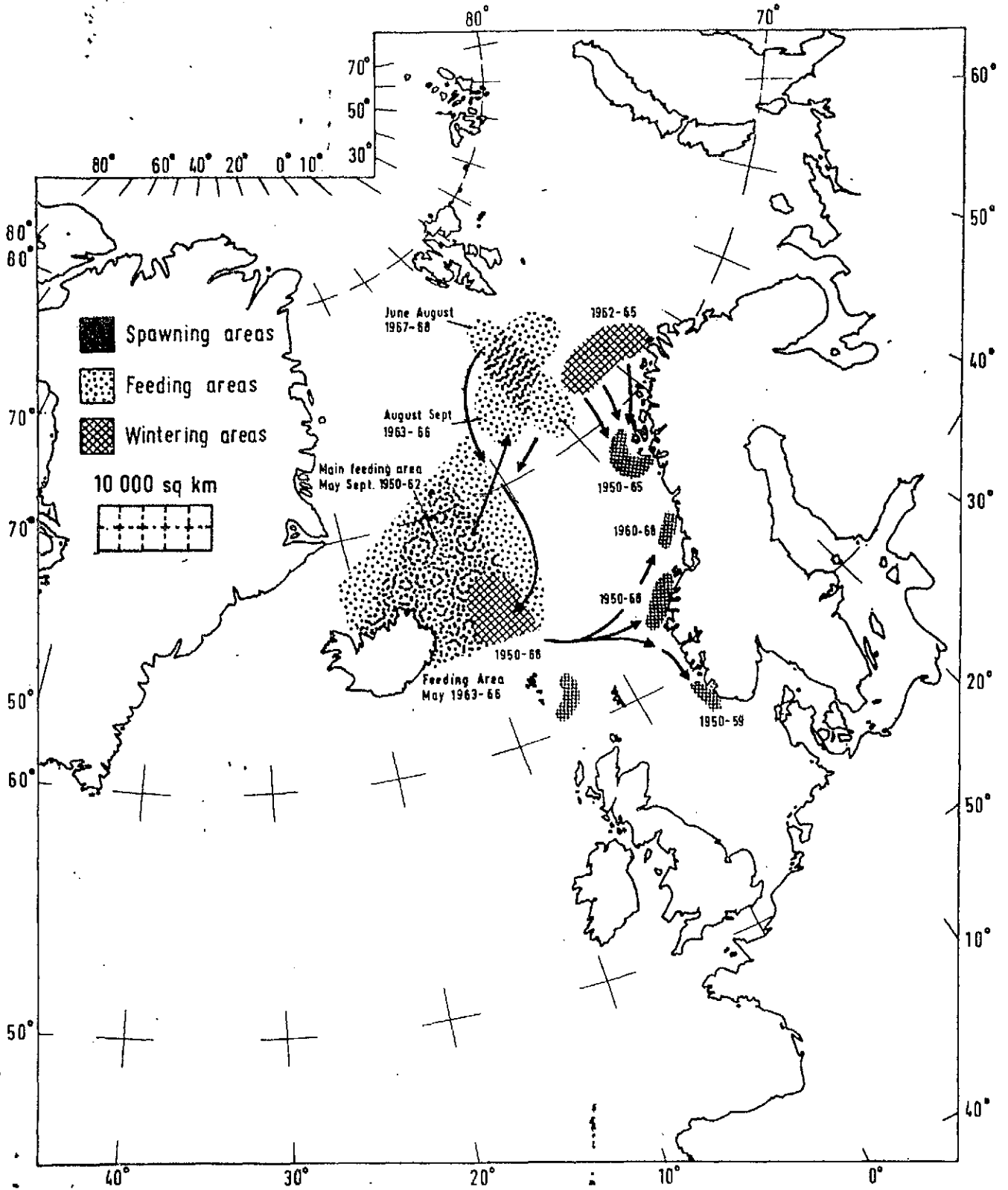


Figure 4. Atlanto-Scandian herring.

4. The North Sea

The North Sea herring stock complex, including herring taken in the Skagerrak-Kattegat area between Denmark and Sweden (Figure 5) supported herring fishing fleets and processing industries from fifteen European countries up to the middle 1970's as shown in Tables XIV and XV. From peak catches of close to a million tonnes in 1968, landings declined steadily year by year in spite of warnings by biologists whose recommended total allowable catches (TAC) were often greatly exceeded (Figure 6). An internationally agreed partial ban on fishing was imposed between March 1, 1977, and June 30, 1977, and between July 27, 1977, and January 31, 1978. The United Kingdom took unilateral action to ban herring fishing in her section of the North Sea from July 1, 1977. A total ban on directed fishing for herring has been in effect also for 1978 and 1979 except in Skagerrak and Kattegat (Table XV). Of the 41,200 tonne North Sea catch in 1977, about 10,000 tonnes were taken as by-catches in the industrial fisheries.

Biologists consider the Skagerrak and Kattegat stocks to be inter-dependent with the North Sea stocks as shown in Figure 5. For example, the eastern and northern part of the Kattegat are considered to be feeding areas for juvenile herring from waters around Scotland as well as further north, and the eastern part of the Skagerrak for young herring from several other areas. Since the Skagerrak and Kattegat fisheries in the past two years have exploited chiefly one and two year olds (0 and 1 groups) biologists are seriously concerned about the effect of this fishery on the spawning stock. Unless this fishery can be stopped, the stock recovery may take longer than predicted. Since the 1974 and 1975 year classes are considered to be very poor, resumption of fishing will probably not take place until 1981 with very gradual increase in quotas over the following 3-4 years depending on the success of subsequent year classes. The Skagerrak and Kattegat TAC for 1979 is 45,000 tonnes.

Source: ICES

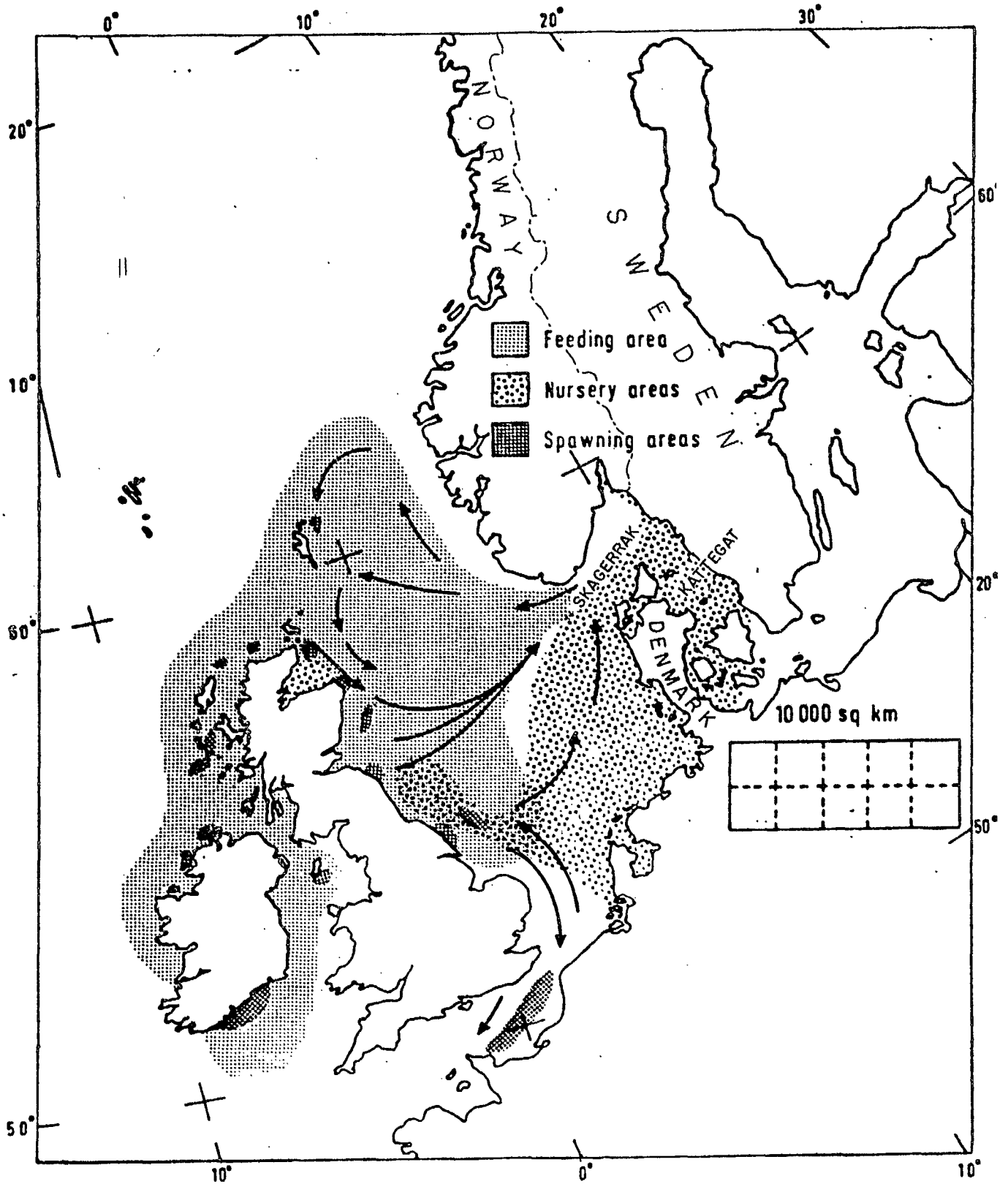


Figure 5. Herring - North Sea and Irish Sea.

TABLE XIV

CATCHES OF HERRING IN THE NORTH SEA AND ENGLISH CHANNEL (IV and VII d, e), 1970-77

Country	'000 tonnes (live weight)							
	1970	1971,	1972	1973	1974	1975	1976	1977*
Norway	193.1	125.8	117.5	99.7	41.0	34.2	27.4	2.9
Denmark	133.3	185.4	213.7	174.3	61.7	115.6	34.8	12.8
Faroe Islands	58.4	45.5	48.4	54.9	26.1	25.8	14.4	6.9
Netherlands	46.2	32.5	24.8	34.1	35.1	38.4	20.1	4.1
United Kingdom	31.6	29.2	17.9	18.3	20.7	15.4	24.7	11.4
Iceland	22.9	37.2	32.0	23.7	29.0	16.3	9.4	-
U.S.S.R.	18.1	9.5	16.4	30.7	18.1	20.7	10.9	-
France	11.5	11.4	12.9	22.2	12.5	20.4	14.5	1.2
Germany Fed. Rep.	7.2	3.6	3.1	10.6	12.5	7.0	1.7	0.2
Poland	5.1	2.0	2.2	5.7	9.9	7.1	7.1	-
Others	36.1	38.0	8.6	8.1	7.5	12.0	9.8	1.7
TOTAL NORTH SEA & ENGLISH CHANNEL	563.5	520.1	497.5	482.3	274.1	312.9	174.8	41.2

* Provisional

Source: I.C.E.S.

This and subsequent tables are reproduced from: "Herring and its Markets in Western Europe," Report prepared for the Fishing Industry Advisory Board of Newfoundland by the Fishery Economics Research Unit, White Fish Authority, Edinburg.

TABLE XV

CATCHES OF HERRING IN THE SKAGERRAK AND KATTEGAT, 1970-1977

'000 tonnes (live weight)

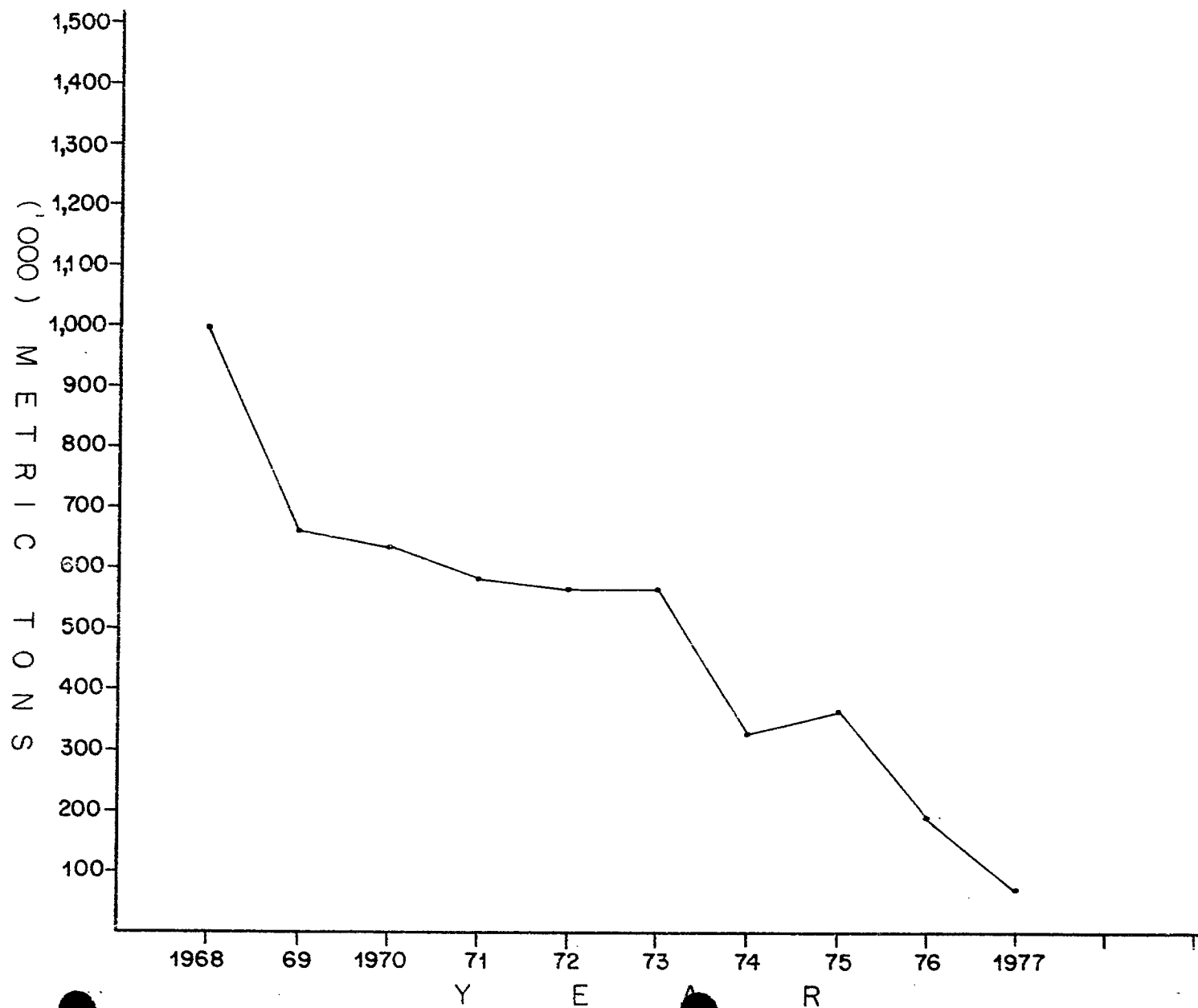
Country	1970	1971	1972	1973	1974	1975	1976	1977
Denmark	69.6	77.5	89.2	118.4	90.4	79.0	49.1	52.7
Norway	9.7	9.7	6.2	3.2	2.0	1.9	2.8	2.5
Iceland	6.4	3.1	7.3	4.8	1.2	1.2	0.1	
Sweden	*	*	*	*	*	30.8	33.5	46.7
Faroe Islands	-	-	4.1	14.5	7.1	8.1	1.6	.9
TOTAL	85.7	90.3	106.8	140.9	100.7	121.0	87.1	110.7

* Swedish figures for these years are not available (being included in the Swedish catch for North Sea). Totals for 1970-74 are, therefore, understated.

Source: I.C.E.S. Bulletin Statistique

See footnote on Table XIV

FIGURE 6. North Sea Landings, All Countries



5. North West Scotland and Northern Ireland

Historic catches by various countries from these stocks are listed in Table XVI, and this shows that catches have declined sharply since the peak of 248,000 tonnes was reached in 1973. The United Kingdom has taken the largest catches, and the fishing ban now in effect has severely hurt the processing industry in that country. A limited fishery could possibly be permitted for Scottish fishermen in 1980, but recovery to catches of 100,000 tonnes or higher is expected to take at least five years.

6. The Baltic

Catches of herring in the Baltic Sea (Figure 7) are considerable (Table XVII), and the TAC for 1979 is 386,000 tonnes. However, the Baltic herring, although classified biologically as Clupea harengus, only grows to a maximum length of 7-9 inches and generally has a low fat content. It had therefore not been considered suitable as raw material for a number of popular consumer products in the major consuming countries in Western Europe such as West Germany and Sweden. However, with the recent shortages of larger herring, several products have been developed and are selling well in these countries. It is therefore likely that an increasing proportion of Baltic herring will be used for human consumption which could affect the traditional consumer preference for larger herring.

The herring stocks in the Baltic are considered to be fairly healthy but landings are expected to show a slight downward trend over the next five years due to the heavy exploitation currently taking place.

7. Iceland

In addition to the Atlanto-Scandia stock (Table XIII), Icelandic fishermen also exploited local stocks along the south coast. However, these stocks were also decimated in the late 1960's, and the fishery was closed until 1975 when some 13,000 tonnes were taken. These stocks have been rebuilding and 35,000 tonnes were taken in 1978. It is expected that the slow recovery will continue with catches approaching 100,000 tonnes by

TABLE XVI

CATCHES OF HERRING OFF THE COAST OF NORTH WEST SCOTLAND
AND NORTHERN IRELAND, 1970-77

'000 tonnes (live weight)

Country	1970	1971	1972	1973	1974	1975	1976	1977*
U.K.	103.5	99.5	107.6	120.8	107.5	85.5	53.4	25.5
Norway	20.2	76.7	17.4	36.3	26.2	0.5	5.3	1.1
Germany Fed. Rep.	16.6	7.7	4.1	17.4	14.4	9.1	5.0	0.1
Faroe Islands	15.1	8.1	8.1	10.0	5.4	3.9	4.0	3.6
Ireland	11.7	12.2	17.3	14.7	12.6	10.4	8.6	7.2
Iceland	5.6	5.4	2.1	2.5	6.9	2.6	3.3	-
Poland	3.7	-	-	5.6	6.4	2.9	3.1	-
Netherlands	1.1	9.3	23.4	32.7	19.6	19.4	20.8	8.3
J.S.S.R.	-	-	N.A.	2.1	5.4	3.2	3.1	-
Others	1.5	2.9	1.8	5.9	2.6	3.7	4.9	1.8
TOTAL	179.0	221.8	181.8	248.0	207.0	141.2	111.5	47.5

* Provisional

Source: I.C.E.S.

See footnote on Table XIV.

||

TABLE XVII

CATCHES OF HERRING IN THE BALTIC SEA, (IIId) 1970-77

'000 tonnes (live weight)

Country	1970	1971	1972	1973	1974	1975	1976	1977
USSR	110.0	120.7	118.9	127.1	117.9	113.7	124.5	126.0
Finland	51.2	57.2	53.8	67.1	73.1	69.6	75.6	78.0
Poland	46.0	43.0	45.3	51.2	56.0	68.5	63.8	60.2
Sweden	31.8*	32.4*	41.7*	60.0*	60.4*	62.8	34.7	57.7
Ger. Fed. Rep.	6.0	5.4	3.0	2.6	2.4	3.6	2.7	3.1
Denmark	5.6	8.6	4.1	10.3	11.3	9.5	15.5	14.1
Ger. Dem. Rep.	-	-	-	59.0	63.6	64.6	55.6	61.5
TOTAL	250.6	267.3	266.8	377.3	384.7	392.3	372.4	400.6

* Includes some herring caught in the Sound and Belt Sea.

Source: I.C.E.S. Bulletin Statistique

See footnote on Table XIV.

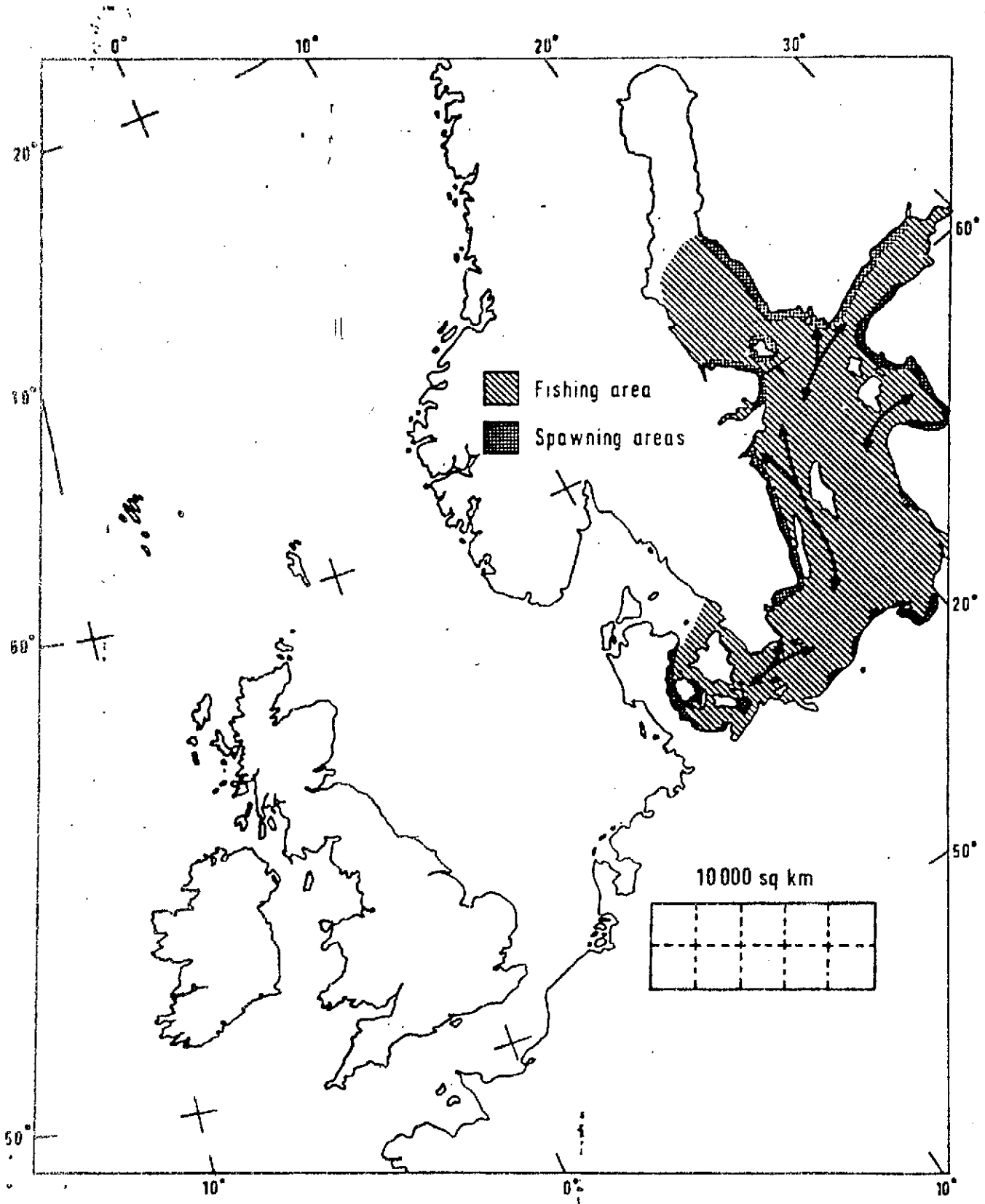


FIGURE 7. Baltic Herring - Fishing and spawning areas.

1985. The quota for 1979 has not been set, but is expected to be at least 35,000 tonnes.

The Icelandic south coast herring is very similar in quality to Canadian herring and has a fat content in the range of 12-16%. Most of the landings in 1978 were barreled, and total production was 194,400 barrels cured herring. About 60,000 barrels were exported to the Soviet Union, 31,000 to Sweden and 35,000 to Poland.

APPENDIX B

HERRING PRODUCTS

In the following pages some of the primary products from herring are listed together with some of the consumer products marketed in various countries.

Source: "OECD Multilingual Dictionary of Fish and Fish Products" and other sources.

Appetitsild. Skinned fillets of spice-cured small herring or sprats packed in vinegar, salt, sugar and spices.

Bismarck Herring. Fillets or headed and gutted herring, vinegar and salt cured, then packed in a milder vinegar-salt solution with slices of onions, cucumbers, carrots and spices, also with sugar added. Semi-preserved.

Bloater. a) In Canada a heavily salted and smoked whole herring, smoked a minimum of five weeks. Similar to Red Herring.

b) U.K. and Europe. Large, whole ungutted fat salted herring, cold or hot smoked to a straw color.

Bratbückling. Small herring, lightly cured in brine, cold smoked, fried before eating.

Brathering (Germany). Headed and gutted fried herring in vinegar brine, also packed as fillets or pieces, semi-preserved.

Bratrollmops (Germany). Rolled fried herring or herring fillets without tail or bones with pickles, slices of onions, etc., and fastened with small sticks or cloves, in vinegar brine, semi-preserved or pasteurized.

"Buckling. Fat herring, sometimes headed or nobbed, lightly salted and hot smoked.

Butterfly Fillets. (Flaps) Double fillet joined in belly section, backbone, tail and head removed.

Digby Chick. Heavily salted and smoked small herring prepared at Digby, N.S.

Dressed. Headed and gutted.

Dutch-Cured. Herring gibbed and salted on board, re-packed ashore.

Gaffelbiter. Sugar or spice cured fat herring, fillets cut into "tidbit" pieces, packed in spiced brine, or vinegar or sauces flavored with wine, dill, etc.

Gibbing. The process of removing the gills, guts and stomach from the herring; the milt, roe and some of the pyloric ceca are left in the fish.

Golden Cure. Milder type of Red Herring that is smoked only for five or six days instead of several weeks. Also called Mediterranean cure.

Hard Cure (Pickled). Whole, nobbed, gibbed, gutted or fillets. Salted with 25 to 33% of its weight in salt. (Salt content in tissues above 24%).

Hareng Saur (France). Salted herring, partially desalted and cold smoked ("Gendarme").

Kipper. Fat herring, split down the back from the head to tail, lightly brined and cold smoked. Kippered fillets are also canned in brine or oil and marketed as Kipper Snacks.

Klondyked Herring (UK). Fresh, ungutted herring preserved for a few days by sprinkling with ice and salt.

- Matje Cure. 1. Young fat herring, mild cured (salted).
2. Germany: Gibbed, fat herring, light cured with salt, sugar and sometimes saltpetre, used as raw material for Matjes Fillets.
3. In Sweden the term "Matjesfileer" are also used to designate fillets and tidbits of sugar-cured Icelandic or Canadian herring.

Nobbed. Head removed, stomach and intestines pulled out. Roe and milt left in, belly not cut.

Red Herring. Whole, ungutted herring, heavily salted and cold smoked for two or three weeks until hard.

Rollmops. Marinated herring fillets wrapped around pickle or slices of onion and fastened with sticks or cloves. Packed with mild vinegar brine, spices, etc., also mayonnaise, remoulade or other sauces with various flavors.

Sauerlappen (Germany). Vinegar and salt cured fillets used as raw material for various products.

Scotch Cured. Fresh herring, free from feed, unwashed, gibbed, mixed with salt and packed in barrels, mild cured in their own pickle (90% brine) not repacked, limited keeping quality.

Spice Cured. Herring usually nobbed cured with salt, sugar and spices. Spice-cured sprats are used for Scandinavian Anchovies (ansjos) products.

Split. Backbone left in, split from back, tail and usually head left on.

Steaked. Cut in pieces at right angles to the backbone.

Sugar-Cured. Herring cured with a mixture of salt and sugar.

Vinegar-Cured. Fillets or dressed herring preserved in various mixtures of vinegar and salt.