

THE EUROPEAN ATLANTIC FISHERIES
Structure, economic performance and policy

November 1991



SIGN: L 28-88
EX. NO: C
MLV:

Agricultural Economics Research Institute (LEI-DLO)
Fisheries Division

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	Page
3.2.2 Present structure of the sector	67
3.2.3 Economic situation and outlook	68
3.2.4 Consumption, processing and foreign trade	69
4. BELGIUM	70
4.1 Historic development	70
4.1.1 Landings	70
4.1.2 Fleet	71
4.2 Present structure of the fishing sector	71
4.2.1 Fleet	71
4.2.2 Regional distribution	72
4.3 Economic performance of the Belgian fishing sector	73
4.4 Consumption, processing and trade	75
4.4.1 Consumption	75
4.4.2 Processing	75
4.4.3 Foreign trade	75
4.5 Fishery policy	75
4.5.1 Management of fishing effort	75
4.5.2 Management of landings	76
4.5.3 Support of the sector	77
4.5.4 Inspection and prosecution	78
5. DENMARK	79
5.1 Historic development	79
5.1.1 Landings	79
5.1.2 Fleet	80
5.2 Present structure of the fishery sector	81
5.2.1 Fleet	81
5.2.2 Regional distribution of fleet and landings	83
5.3 Economic performance of the Danish fleet	85
5.4 Consumption, processing and trade	87
5.4.1 Consumption	87
5.4.2 Processing	87
5.4.2.1 Fish meal industry	88
5.4.2.2 Processing of fish for human consumption	88
5.4.3 Exports	89
5.4.4 Imports	90
5.5 Fishery policy	90
5.5.1 Management of landings	91
5.5.2 Management of the fishing effort	92
5.5.3 Support of the sector	92
5.5.4 Inspection and prosecution	93

	Page
6. IRELAND	94
6.1 Historic development	94
6.1.1 Landings	94
6.1.2 Fleet	95
6.2 Present structure of the fishing sector	96
6.2.1 Fleet	96
6.2.2 Regional distribution	97
6.3 Economic performance of the Irish fishery sector	98
6.4 Consumption, processing and foreign trade	99
6.4.1 Consumption	99
6.4.2 Processing	99
6.4.3 Foreign trade	99
6.5 Management policy	100
6.5.1 Management of fishing effort	100
6.5.2 Management of landings	101
6.5.3 Support to the sector	102
6.5.3.1 BIM development plan	103
6.5.4 Inspection and prosecution	104
7. UNITED KINGDOM	105
7.1 Historic development	105
7.1.1 Landings	105
7.1.2 Fleet	107
7.2 Present structure of the fishing sector	110
7.2.1 Fleet	110
7.2.2 Regional distribution	110
7.3 Economic performance of the fishing sector	111
7.3.1 Demersal and pelagic fishery	111
7.3.2 England and Scotland	112
7.4 Processing, trade and consumption	115
7.4.1 Consumption	115
7.4.2 Processing	115
7.4.3 Foreign trade	116
7.5 Fishery policy	116
7.5.1 Management of landings	116
7.5.3 Management of fishing effort	118
7.5.2.1 Flexibility	119
7.5.3 Support of the sector	119
7.5.4 Inspection and prosecution	120
8. FRANCE	121
8.1 Historic development	121
8.1.1 Landings	121
8.1.2 Fleet	122
8.2 Present structure of the fishing sector	124
8.2.1 Fleet	124
8.2.2 Regional distribution	125

	Page
8.3 Economic performance of the French fishing sector	126
8.3.1 Artisanal fleet	127
8.3.2 Industrial fleet	129
8.4 Consumption, processing and trade	131
8.4.1 Consumption	131
8.4.2 Processing	131
8.4.3 Foreign trade	132
8.5 Fishery management	133
8.5.1 Management of catches	133
8.5.2 Management of fishing effort	134
8.5.2.1 Plan 'Mellick'	135
8.5.3 Organization of the sector	137
8.5.4 Support of the sector	139
8.5.5 Inspection and prosecution	141
9. SPAIN	142
9.1 Historic development	142
9.1.1 Landings	142
9.1.2 Fleet	143
9.2 Current structure of fleet and landings	144
9.2.1 Fleet	144
9.2.2 Regional distribution	147
9.3 Economic performance of the sector	149
9.3.1 Trends in production	149
9.3.2 Results per type of fleet	150
9.3.3 Investments	152
9.4 Consumption, processing and foreign trade	153
9.4.1 Consumption	153
9.4.2 Processing	153
9.4.3 Foreign trade	154
9.5 Fishery policy	154
9.5.1 Management of fishing effort	156
9.5.1.1 Fleet of 300 (EC basic list)	158
9.5.2 Management of landings	159
9.5.3 Support of the sector	159
9.5.4 Inspection and prosecution	160
10. PORTUGAL	162
10.1 Historic development	162
10.1.1 Landings	162
10.1.2 Fleet	163
10.2 Present structure of the sector	163
10.2.1 Fleet and landings	163
10.2.2 Regional distribution	165
10.3 Economic performance of the sector	166
10.3.1 Investments	167

	Page
10.4 Consumption, processing and foreign trade	169
10.4.1 Consumption	169
10.4.2 Processing	169
10.4.3 Foreign trade	170
10.5 Fishery policy	171
10.5.1 Management of landings	171
10.5.2 Management of fishing effort	171
10.5.3 Support of the sector	172
10.5.4 Inspection and prosecution	175
11. THE NETHERLANDS	176
11.1 Historic development	176
11.1.1 Landings	176
11.1.2 Fleet	177
11.2 Present structure of the fishing sector	178
11.2.1 Fleet	178
11.2.2 Regional distribution	179
11.3 Economic performance of the fishing sector	180
11.3.1 Cutter fleet	180
11.3.2 Trawlers	181
11.4 Consumption, processing and trade	181
11.4.1 Consumption	181
11.4.2 Processing	181
11.4.3 Foreign trade	183
11.5 Fishery policy	183
11.5.1 Management of fishing effort	184
11.5.2 Management of landings	185
11.5.3 Support of the sector	187
11.5.4 Inspection and prosecution	187
12. NORWAY	188
12.1 Historic development	188
12.1.1 Landings	188
12.1.2 Fleet	190
12.2 Present structure of the fishing sector	191
12.2.1 Fleet and landings	191
12.2.2 Regional distribution	192
12.3 Economic performance of the fishing sector	194
12.4 Consumption, processing and foreign trade	198
12.4.1 Consumption	198
12.4.2 Processing	198
12.4.3 Foreign trade	200
12.5 Fishery policy	201
12.5.1 Management of fishing effort	201
12.5.2 Management of landings	202
12.5.3 Support of the sector	203
12.5.4 Inspection and prosecution	206
12.5.5 Accession to the EC	206

	Page
LITERATURE	207
 ANNEXES	
Annex 1. List of interviewed persons	216
Annex 2. European Community	220
Annex 3. Germany	223
Annex 4. Belgium	228
Annex 5. Denmark	231
Annex 6. Ireland	234
Annex 7. United Kingdom	237
Annex 8. France	240
Annex 9. Spain	244
Annex 10. Portugal	247
Annex 11. The Netherlands	250
Annex 12. Norway	253
Annex 13. List of abbreviations	255

LIST OF TABLES

(per country incl. annex)

1.	European Atlantic fishery sector - main indicators	22
2.	European Community	
2.1	Production of fish in the world in 1987, (mln. ton)	40
2.2	Catches by EC fleet, 1972-1987, (1000 t)	41
2.3	Total catches by species by the fleet of the nine Atlantic EC countries, 1972-1987, (1000 t)	42
2.4	General size of fleet and employment in the nine Atlantic EC countries	43
2.5	Composition of the fleet by type	44
2.6	Nominal value of landings, 1972-1987, (mln. ECU)	45
2.7	Import and export of the EC-12, 1986-1990, (mln. ECU)	49

Annex 2.

1.	TAC's, 1987-1991, (1000 t)	220
2.	Foreign trade of EC-12 in 1990 by species, (mln. ECU)	221
3.	Foreign trade of the 12 EC member countries in 1990, (mln. ECU)	221
4.	EC foreign trade by major non-EC partner countries, 1990, (mln. ECU)	222
5.	EC foreign trade by degree of processing, 1990, (mln. ECU)	222
3.	Germany	
3.1	Landings of major species by the German fleet, 1972-1989, (1000 t)	54
3.2	Structure of the German fleet, 1967-1987, (per 31.12)	55
3.3	Structure of the German fleet in 1989, (per 31.12)	56
3.4	Regional distribution of landings by cutters, 1989	57
3.5	Value of landings, 1987-1989, (mln. ECU)	58
3.6	Age composition of the German fleet in 1988, (percent)	59
3.7	Average gross revenues per vessel, Baltic and North Sea, 1985-1987, (1000 ECU)	59
3.8	Multiannual Guidance Programme, (1000 hp, 1000 grt)	62
3.9	Financial support to fisheries in 1987 and 1989, (1000 DEM)	65
3.10	Landings in East Germany, 1972-1987, (1000 t)	67
3.11	Structure of the East German fleet, (end 1989)	68

Annex 3.

1. Fishing rights, 1987-1991, (1000 t)	223
2. Fish processing - gross sales by product group, 1977-1989, (mln. ECU)	224
3. Fishmeal industry - quantity and value, 1977-1989	224
4. Foreign trade - by major species, 1982-'89, (mln. ECU)	225
5. Foreign trade - by partner countries, 1982-1989, (mln. ECU)	225
6. Foreign trade - by degree of processing, (mln. ECU)	226
7. Prices of major fish species, 1967-1989, (DEM/kg, fresh fish)	226
8. Price index and exchange rate of ECU, 1972-1989	226
9. Composition of the cutter fleet by hp-groups, (31.12.1986)	227
10. Composition of the cutter fleet by age, 1988	227
4. Belgium	
4.1 Landings of major species by the Belgian fleet, 1972-1989, (1000 t)	70
4.2 Development of the Belgian fleet, 1967-1989	71
4.3 Composition of the fleet by size of vessels, (31.12.'89)	72
4.4 Participation of the fleet in different fisheries, 1988-'89	72
4.5 Distribution of landings by port, value and volume, 1989	73
4.6 Gross revenues of Belgian vessels according to their size, (1000 ECU)	73
4.7 Investments, 1970-1988	74
4.8 Multiannual Guidance Programme	76
4.9 Catch allocations for flatfish - first quarter 1991 (t/vessel)	77

Annex 4.

1. Fishing rights, 1987-1991, (1000 t)	228
2. Foreign trade - by major species, 1982-1987, (mln. ECU)	228
3. Foreign trade - by major partner countries, 1982-1989, (mln. ECU)	229
4. Foreign trade - by degree of processing, 1982-1989, (mln. ECU)	229
5. Price index and exchange rate of ECU, 1967-1989	229
6. Prices of selected species, 1972-1990, (BEF/kg, fresh fish)	230

	Page
7. Age composition of the fleet by size group, 1.1.1990	230
5. Denmark	
5.1 Landings of the most important species by the Danish fleet, 1972-1987, (1000 t)	79
5.2 Development of the Danish fleet and employment, 1967-1988, (per 31.12)	80
5.3 Structure of the Danish fleet by type of vessel (per 31.12.1988)	81
5.4 Structure of the Danish fleet by type and grt (number per 31.12.88)	82
5.5 Types of vessels and their target species in 1987	82
5.6 Regional distribution of fleet and landings, 1988	83
5.7 Regional distribution of landings of consumption fish, 1986, (percent)	84
5.8 Role of the fishing areas for the demersal fishery, 1978-1988, (1000 t)	84
5.9 Share in value of landings per species in 1987 and 1989, (percent)	85
5.10 Estimated gross revenues of the Danish trawlers by grt-group in 1987	86
5.11 Age composition of the Danish fleet by type of vessel, (31.12.1988)	87
5.12 Availability and utilisation of the most important species in 1986, (1000 t)	88
5.13 Major processed species and products, 1986	89
5.14 Regulation of the cod fishery in 1990, (t)	91
5.15 Multiannual Guidance Programme, (1000 hp, 1000 grt)	92

Annex 5.

1. Fishing rights, 1987 - 1991, (1000 t)	231
2. Foreign trade - by species, 1982-1989, (mln. ECU)	231
3. Foreign trade - by partner countries, 1982-1989, (mln. ECU)	232
4. Export of fishmeal - by partner countries, 1982-1989, (mln. ECU)	232
5. Foreign trade - by level of processing, 1982-1989, (mln. ECU)	233
6. Price index and exchange rate of ECU, 1967-1989	233
7. Nominal prices of selected species, 1972-1989, (fresh fish, DKK/kg)	233
6. Ireland	
6.1 Landings of the most important species by the Irish fleet, 1972-1987, (1000 t)	94

	Page
6.2 Five most important species - share in total value, 1977-1987, (percent)	95
6.3 Development of the Irish fleet, 1970-1985, (number of vessels)	96
6.4 Structure of the Irish fleet, 1987	97
6.5 Regional distribution of landings, 1987, (mln. ECU, 1000 t)	97
6.6 Age composition of the fleet in 1987	98
6.7 Multiannual Guidance Programme (1000 hp, 1000 grt)	101
6.8 Marine credit plan 1987 (percent)	102
6.9 BIM investment programme 1988-1991, (mln. IEP)	103

Annex 6.

1. Fishing rights, 1987-1989, (1000 t)	234
2. Foreign trade - by species, 1982-1987, (mln. ECU)	234
3. Foreign trade - by partner countries, 1982-1989, (mln. ECU)	235
4. Foreign trade - by level of processing, 1982-1989, (mln. ECU)	235
5. Price index and exchange rate of ECU, 1972-1989	235
6. Construction of new vessels, 1980-1986, (number)	236
7. Estimate of gross revenues per vessel in 1987, (1000 ECU)	236
8. Prices of selected species, 1973-1987, (fresh fish, IEP/t)	236
7. United Kingdom	
7.1 Landings of the most important species by the fleet of the United Kingdom, 1972-1989, (1000 t)	105
7.2 Relative shares of species in nominal value of landings, 1972-1989, (percent)	106
7.3 Relative shares in the total quantity and value - by regions, (percent)	107
7.4 Landings of wet fish by species and regions, 1972 and 1988, (1000 t)	107
7.5 Development of the British fleet by size, 1972-1988, (per 31.12)	108
7.6 Development of the employment on board, 1972-1988	108
7.7 Structure of the fleet by region and type of vessel in 1972 and 1988	109
7.8 Volume and value of landings per port or district, 1988, (1000 t, mln. ECU)	111
7.9 Total investment support in England and Scotland, 1981-'89, (1000 GBP)	112
7.10 Composition of gross tonnage by age (31.12.1988)	113

7.11 Examples allowed catches in the North Sea for various groups of vessels in June 1990	117
7.12 Multiannual Guidance Programme, (1000 hp, 1000 grt)	118
7.13 Grants to the fishing sector, 1981 - March 1989	119

Annex 7.

1. Fishing rights, 1987-1991, (1000 t)	237
2. Foreign trade - by species, 1982-1989, (mln. ECU)	237
3. Foreign trade - by degree of processing, 1982-1989, (mln. ECU)	238
4. Foreign trade - by partner countries, 1982-1989, (mln. ECU)	238
5. Price index and exchange rate of ECU, 1972-1989	238
6. Prices of selected species, 1972-1989, (fresh fish, GBP/t)	239
8. France	
8.1 Landings of important fish species by the French fleet, 1972-1988, (tonnes)	121
8.2 General development of fleet and employment, 1972-1989	122
8.3 Structure of the French fleet in 1989	124
8.4 Composition of the semi-industrial fleet, 1.1.1989	124
8.5 Regional distribution of the fleet, 1987	125
8.6 Relative regional distribution of landings, 1987, (percent)	126
8.7 Age composition of the French artisanal fleet, (percent)	127
8.8 Estimate of gross revenues of the artisanal fleet in Bretagne, 1989, (1000 ECU)	128
8.9 Effect of subsidies on capital costs, (1000 ECU)	129
8.10 Age composition of the industrial fleet, 1.1.1989	130
8.11 Results of the industrial fleet in 1984, (1000 ECU)	130
8.12 Canning industry - availability of raw material, 1989, (1000 t live weight)	132
8.13 Supply and demand on the internal market for canned products, 1989, (1000 t product weight)	132
8.14 Multiannual Guidance Programme, (1000 hp, 1000 grt)	134
8.15 Decommissioning scheme, (FRF)	136
8.16 Investment subsidies for artisanal fleet (Coremode), (percent)	139
8.17 Loans available for artisanal fleet at subsidized interest rate of 5 percent	140
8.18 Investment subsidies for industrial fleet, (percent)	140
8.19 Investment subsidies, 1986-'87	141

Annex 8.

1. Fishing rights, 1987-1991, (1000 t)	240
2. Foreign trade - by species, 1982-1989, (mln. ECU)	241
3. Foreign trade - by degree of processing, 1982-1989, (mln. ECU)	241
4. Foreign trade - by partner countries, 1982-1989, (mln. ECU)	242
5. Price index and exchange rate of ECU, 1972-1989	242
6. Prices of selected species, 1972-1987, (fresh fish, FRF/kg)	242
7. Fleet composition by type of vessel, 1972 and 1977	243
8. Fleet composition by length group, 1983-1989	243
9. Spain	
9.1 Landings of the important species by the Spanish fleet, 1972-1987, (1000 t)	143
9.2 Development of the Spanish fleet and crew, 1961-1991	144
9.3 Composition of the Spanish fleet in 1973 and 1986	144
9.4 Composition of the fleet by type of vessel in 1991	145
9.5 Composition of the Spanish fleet by type and size in 1986, (number)	146
9.6 Composition of landings by type of fleet, 1986	147
9.7 Regional distribution of the fleet in 1986	148
9.8 Regional distribution of fleet and landings in 1990, (percent)	148
9.9 Development of the total gross value, 1985-1990, (bln. ESP)	149
9.10 Development of landings and price of fresh and frozen fish, 1987-1990	149
9.11 Age composition of the fleet in 1986 and 1990, (percent of grt)	152
9.12 Review of basic lists, 1989	155
9.13 Multiannual Guidance Programme, (1000 grt, 1000 hp)	157
9.14 Support given to Spanish fishing fleet, 1987-1990, (mln. ECU)	158
9.15 Investment support as of 1991, (percent)	160

Annex 9.

1. Fishing rights, 1987-1991, (1000 t)	244
2. Foreign trade - by species, 1986-1989, (mln. ECU)	244
3. Foreign trade - by partner countries, 1986-1989, (mln. ECU)	245
4. Foreign trade - by degree of processing, 1986-1989, (mln. ECU)	245
5. Price index and exchange rate of ECU, 1972-1990	245

	Page
6. Prices of selected species, 1980-1986, (ESP/kg, fresh fish)	246
7. Average nominal and real price of total landings, 1983-1989, (ESP/kg, real prices of 1987)	246
10. Portugal	
10.1 Landings of the major species by the Portuguese fleet, 1972-1987, (1000 t)	162
10.2 Development of the Portuguese motorized fleet, 1972-1989	163
10.3 Composition of the Portuguese motorized fleet, 1.1.1991	164
10.4 Regional distribution of the fleet by type of vessel, (number)	165
10.5 Estimate of volume and value of landings per type of fleet, 1990	166
10.6 Investment projects, 1987-1989, (mln. ECU)	168
10.7 Age composition of the fleet, 1991	168
10.8 Type and size of processing plants by number of employees, 1985	170
10.9 Multiannual Guidance Programme, (1000 grt, 1000 hp)	172
10.10 Investment subsidies, (percent)	173
10.11 Total investment support by Portugal and EC, 1987-1989, (mln. ECU)	174
Annex 10.	
1. Fishing rights, 1987-1991, (1000 t)	247
2. Foreign trade - by species, 1986-1989, (mln. ECU)	247
3. Foreign trade - by partner countries, 1986-1989, (mln. ECU)	248
4. Foreign trade - by degree of processing, 1986-1989, (mln. ECU)	248
5. Price index and exchange rate of ECU, 1972-1990	248
6. Index of average real fish prices at auctions, 1977-1990, (1987=100)	249
11. The Netherlands	
11.1 Landings of important species by the Dutch fleet, 1972-1987, (1000 t)	176
11.2 Composition of the value 1972 and 1987, (mln. NLG)	177
11.3 Development of fleet and employment	177
11.4 Composition of the Dutch cutter fleet according to engine power and target species, 1990, (number)	178
11.5 Regional distribution of the cutter fleet, 1990, (number)	179

	Page
11.6 Average gross revenues of selected hp-groups, 1987 and 1989, (1000 ECU)	180
11.7 Age composition of the Dutch cutter fleet, (1.1.1990)	181
11.8 Composition of the processing industry by type of processing, 1988	182
11.9 Sales value of the processing industry according to species and type of processing, 1988, (mln. ECU)	182
11.10 Multiannual Guidance Programme, (1000 hp, 1000 grt)	185

Annex 11.

1. Fishing rights, 1987-1989, (1000 t)	250
2. Foreign trade - by species, 1982-1989, (mln. ECU)	250
3. Foreign trade - by partner countries, 1982-1989, (mln. ECU)	251
4. Foreign trade - by degree of processing, 1982-1989, (mln. ECU)	251
5. Price index and exchange rate of ECU, 1972-1989	251
6. Prices of selected species, (NLG/kg, fresh fish)	252
 12. Norway	
12.1 Landings of the most important species by the Norwegian fleet, 1972-1989, (1000 t)	188
12.2 Development of the total value of landings, (mln. ECU)	189
12.3 Development of the Norwegian fishing fleet, 1973-1987, (number and grt, per 31.12)	190
12.4 Economic role of vessels by size, 1987	191
12.5 Landings of various species by type of gear, 1987, (1000 t)	192
12.6 Regional distribution of fleet and employment, 1987	193
12.7 Regional distribution of landings according to regions and major ports, 1987, (1000 t, mln. ECU)	193
12.8 Value of major groups of species, 1983-1989, (mln. ECU)	194
12.9 Gross revenues per vessel, 1983-1988, (1000 ECU)	195
12.10 Average costs and revenues of selected groups of vessels, 1988, (1000 ECU)	196
12.11 New vessels of more than 25 grt, 1985-1988, (number)	197
12.12 Age composition of the Norwegian fleet, 1987, (number)	197
12.13 Norwegian fish processing in 1981 and 1987	199
12.14 Some individual quota for herring and cod, 1990	202

Annex 12.

1.	Important fishing rights, 1989-1990, (1000 t)	253
2.	Foreign trade - by partner countries, 1982-1988, (mln. ECU)	253
3.	Foreign trade - major products, 1988, (mln. ECU)	254
4.	Price index and exchange rate of ECU, 1972-1988	254
5.	Prices of selected species, 1972-1987, (NOK/kg, fresh fish)	254

Foreword

The first decade of the Common Fishery Policy will be completed by the end of 1992. The agreement allows for a continuation of the TAC (total allowable catch) and quota policy without any changes until the year 2002, but also for an extensive revision if considered necessary. The pro's and con's are being evaluated on national and international level on the basis of the experiences of the first nine years. At the same time discussions on alternative management systems is under way.

The formulation of a feasible fishery policy requires a sound knowledge of the structure of the European fisheries sector and of the economic strength of the its various segments. For most policies will be translated into instruments which are only effective through the forces of the market.

This report analyses the current structure of the European Atlantic fisheries sector and its recent economic performance. It also reviews the experiences obtained in the various countries with wide ranging policy measures. In this way the report aims to provide the facts and figures which are necessary when a fishery policy is to be formulated and applied under greatly diverging local conditions.

The Agricultural Economics Research Institute (LEI-DLO) would like to thank the Dutch Fishery Board and especially its Chairman Dick Langstraat for the support given to this research project. The execution of the study was greatly facilitated by several members of the 'European Association of Fishery Economists (EAFE)', namely Neil McKellar (United Kingdom), Jacques Weber (France), Hans Frost (Denmark), Paul Hillis (Ireland) en Per Sandberg (Norway). LEI-DLO owes special thanks to the Director General of Fisheries in Portugal Eurico Pimenta de Brito for his exceptional assistance. Finally, LEI-DLO would like to thank all the interviewed persons for their time, openmindedness and cooperation.

It must be stressed that this study does not pretend in any way to give a complete description of the highly diverse situations in the European Atlantic fisheries. It is not unlikely that in some instances it will present more questions than answers. Depending on the interest for this study and the reactions to it, the Agricultural Economics Research Institute may decide to prepare an updated version in the future. For this reason any comments, additions or corrections will be most welcome.

The Managing Director,


L.C. Fachariasse

The Hague, October 1991

Summary

1. General

The aim of this study is to present a review of the current economic situation of the fishery sector in the nine Atlantic EC member countries which are directly involved in the Common Fishery Policy and its possible revision as of 1993. The situation in Norway is also assessed because of the close links of this country with the EC.

2. European Community

The nine Atlantic EC member countries produce annually over 5 mln. tons of fish of which some 80 percent is caught within the 200 mile Exclusive Economic Zone. The value of this production may be estimated at some 4.6 bln. ECU. The real value of the landings has been quite constant since 1972. About one fourth of the catch is destined for fish meal. The composition of the landings has shifted considerably since 1972 - the importance of cod-fish has diminished while that of small pelagic species increased.

The fleet of the nine countries consists of almost 60,000 fishing craft with some 1.6 mln. grt and 8.5 mln. hp. About 200,000 people are employed on board the fishing vessels, of whom an unknown percentage only on a part time basis. Three quarters of the fleet are vessels measuring less than 10 m. The fresh fish fleet over 10 m consists of about 10,000 trawlers and 3,800 vessels which use other techniques. The distant fleet has about 700 freezer vessels, which are active mostly in non-EC waters.

The economic results of most segments of the EC fishing fleet are probably quite good. A constant level of the real value of the landings could be maintained thanks to favourable price trends. The fuel price decreased significantly since 1987. New technologies led to an increased productivity on board. However, the fleets which depend strongly on cod and haddock and cannot switch to other target species are facing increasing problems. The distant fleet finds it increasingly difficult to obtain access rights to foreign waters, but large individual enterprises often succeed in resolving their own problems.

The implementation of the TAC and quota measures taken within the Common Fishery Policy varies among the different countries. Consequently, wide ranging experiences have been gained regarding the distribution of the national quota among the individual fishermen or their organizations.

The data on landings is collected in most countries on the basis of the logbooks so that its reliability cannot be taken for granted. Comprehensive inspection of the reported catches and fishing areas lies far beyond the means available to the national administrations. It has to be recognized that the rather limited economic and social importance of the fisheries sector leads to an equally limited institutional attention for its specific problems.

All countries have introduced some kind of a licensing system to restrict the size and the growth of the whole fishing fleet or of some of its segments. However, formulation of an unambiguous standard of fishing effort and its measurement has presented serious practical problems. Thus a licensing system allows mainly to influence the relative level of fishing effort.

The prosecution of offenses against the fishery regulations leads mostly to a relatively low level of fines, without much of a preventive effect. The chances that an offence will be established and legally proven are very slim indeed.

Table 1 European Atlantic fishery sector - main of indicators

Country	Number of vessels	Grt (1000)	Hp (1000)	Crew (1000)	Landings	
					1000 t	mln. ECU
Belgium	200	26	105	1	39	80
Denmark	3000	122	731	14	1592	430
Germany	1800	129	309	9	250	230
France	10400	213	1625	18	587	840
Ireland	2000	47	250	8	228	100
Netherlands	600	80	640	3	333	390
Portugal	13300	165	590	37	379	340
Spain	17200	670	2680	85	1149	1620
U.K.	10700	193	1546	23	865	620
Norway	22000	490	.	30	1889	750
Total	81200	2135	.	228	7311	5400
- EC-9	59200	1645	8476	198	5422	4650

3. Germany

The reunification of Germany took place during the preparation of this study. Because of the essential structural differences between the fisheries in East and West Germany, the two sectors are treated separately.

The West German fishery sector has been reduced by more than half since 1972. A fleet of 560 cutters and 11 trawlers (174,000

hp, 48,000 grt) annually produces about 150,000 tons of fish with a total value of 110-130 mln. ECU. There are some 1,900 people working on board.

Some 200 small cutters operate in the Baltic fishing mainly cod and herring. The rest of the fleet is active in the North Sea. Over 200 smaller vessels catch shrimp, 70 larger ones fish for codfish whereas the remainder is engaged in a mixed fishery. The trawlers exploit especially herring, mackerel and cod, their share being about two thirds of the total production.

The economic situation of the North Sea cutters seems quite satisfactory during the past few years. The German national quota permit unrestricted fishing by individual vessels and even than remain regularly underutilized. However, the economic situation of the Baltic fleet has been deteriorating structurally since 1985. The results of the fresh fish trawlers are depressed due to their relative technological obsolescence and their low productivity as a result of the low level of the cod stock. There is no data on the results of the freezer fleet, but the statistics indicate a constant level of gross revenues.

The German fish processing industry achieves an annual turnover of about 1 bln. ECU. There is a clear shift away from marinated and canned products to frozen ones. As the national landings drop, the processors are forced to turn to foreign suppliers for raw material.

In Germany there is little need for a seriously restrictive fishery policy as many quota remain underutilized. Fishing effort is managed by a number of different licences, which give free or only temporary access to specific stocks. Some quota are explicitly divided between cutters and trawlers. The cutter fleet can usually fish freely. For the trawlers there is a system of company quota, which can be transferred if necessary. The Federal government annually allocated some 13 mln. ECU for the support of the sector. The financial assistance given by the Laender probably amounts to about 3 mln. ECU and that of the EC to a little over 4 mln. ECU.

Before the reunification, the East German fishing fleet consisted of 23 factory vessels, 13 support vessels, 200 cutters and about 600 small coastal craft. About 7,000 people were employed on board. The value of the total landings of almost 200,000 tons may be estimated at almost 100 mln. ECU. The productivity of the obsolete East German fleet was far below the West German level. It can be expected that an important part of the trawler as well as the cutter fleet will be decommissioned.

4. Belgium

Belgium has the smallest fishery sector within the EC. The fleet consists of some 200 vessels (105,000 hp, 25,000 gt). It employs about 900 people. The annual production lies between 35

and 40,000 tons with a total value of some 80 mln. ECU. Beam trawl is the most important gear with a share of some 70 percent in the total production.

The economic results of the beamer fleet have been very good. There have been considerable investments. The results of about 40 vessels which fish mainly for cod are on the other hand quite poor. Over the past 15-20 years there has been very little investment in this segment of the fleet.

The fishing effort is being regulated by two types of licences which are also required for non-quota species. The Fishery Law provides the possibility to restrict vessels to very specific activities, but that has not yet been necessary. The catches of flatfish are regulated by individual quota, which are determined on the basis of engine power. Occasionally by-catch regulations have been introduced.

Various investments are eligible for government support, which is either special credit or subsidy of interest costs. About 0.4 mln. ECU is available annually. There is a decommissioning scheme along the EC lines, but until the beginning of 1991 there were no applications.

5. Denmark

The professional fishing fleet consists of 3,000 vessels with a total of 120,000 grt and 730,000 hp. Furthermore there are over 3,000 small coastal boats which are not considered to be part of the professional fleet. Less than 300 vessels are larger than 100 grt. The total landings amount to some 1.5 mln. tons with a gross value of some 430 mln. ECU. About three quarters of the catch is processed into fish meal, which represents some 25 percent of the total value. About 10,000 people are employed on board year round. There is also an unknown number of seasonal crew members.

Three groups of professional vessels can be distinguished : 1,500 trawlers, 1,100 gill netters and 280 Danish seiners. A small but important group are the 11 purse seiners. The larger vessels are fishing in the North Sea for fish meal or for human consumption depending on the circumstances. The smaller vessels are fishing especially for cod in the Baltic, which has become more important than the North Sea in this respect. Many fisheries are strongly seasonal and the vessels can switch flexibly from one fishery to another.

The economic results of the fleet seem rather weak. In the past few years the low fish meal price was followed by a low quota for cod, so that the gross revenues remained depressed. There has been rather little investment in new construction or modernization since 1980. The average age of the fleet exceeded 30 years in 1991. The vessels can be operated on cash-flow basis only. There are regularly serious liquidity problems. The level

of indebtedness is high, despite the high average age. The remuneration of the crew is relatively low and there seems to be little interest from the young generation to continue in the profession.

Contrary to the fleet, Danish fish processing is a modern and thriving industry. Most of its output is exported, the export value reaching 1.6 bln. ECU in 1990. The most important products are made on the basis of imported raw materials, especially pandanus shrimp from Greenland, cod and salmon.

The fishery management system is rather complex as quota of various species and areas have to be dealt with. At the same time the specific seasonalities and the high flexibility of the fleet have to be taken into account. Quota per month or quarter are being set for different species and areas. The vessels which want to enter into a specific fishery must request permission, which is valid for two weeks or a month. During this period they are not allowed to enter a different fishery without a new permit. Maximum allowable catches per vessel, per trip or per month are also set in some cases.

In case of new construction an equal capacity has to be withdrawn from the fleet. However, it is difficult to obtain credit from commercial banks. The provision of credit by the Royal Fisheries Bank is being influenced by policy considerations. Considerable amounts have been spent on decommissioning. Still, a sizable overcapacity of the fleet persists.

6. Ireland

The development of the Irish fishing industry commenced only in the sixties. The annual landings amount to some 200,000 tons, of which about 75 percent consists of small pelagic species. The gross value is almost 100 mln. ECU. The fleet consists of about 2,000 vessels (47,000 grt, 250,000 hp), most of which are smaller than 10 grt. Of the larger vessels, there are 400-500 wet fish trawlers of 12-27 m, 16 trawlers equipped with rsw-tanks fishing for herring, mackerel and horse mackerel, six 49-55 m purse seiners a number of beam cutters and one large freezer trawler. Some 8,000 people work on board.

The economic results of the fleet have improved considerably since 1987 because of the rise in fish prices and the drop of the fuel price. The vessel owners have no problems to meet their financial obligations and there is a considerable interest for new investments.

The objective of the Multiannual Guidance Programme (1987-'91) was to reduce the fleet by some 16 percent. However, until 1990 Ireland did not have any reliable fleet register. Only vessels over 65 ft were obliged to renew their licence annually. Furthermore the fleet had been greatly expanded with EC support in the previous period.

Fishing on certain species or in certain areas is managed through specific licences. In some cases maximum catches per trip are set and there are various by-catch regulations. Some fisheries are open only seasonally. The fishery on pelagic species in the north is managed by a joint commission of vessel owners and processors in order to assure that the landings do not exceed the processing capacities.

Since 1987 the fleet received subsidies of about 4 mln. ECU.

7. United Kingdom

The size and the structure of the British fleet has changed profoundly since 1972. The English fleet which fished for cod in the north Atlantic has completely disappeared. On the other hand a new pelagic and bottom fleet has been put into operation. The size of the fleet dropped from 280,000 grt in 1972 to 137,000 grt in 1989, mainly because 160 large trawlers (130,000 grt) ceased fishing. The landings decreased in the same period from 920,000 t to 670,000 t. The catch of codfish decreased, while that of mackerel rose. The real value diminished by about one third, amounting to some 600 mln. ECU in 1988.

The introduction of the new register of fishing vessels has led to a considerable rise of the number of registered fishing vessels since 1988. In the beginning of 1991 the fleet consisted of 10,700 vessels with a total of 193,000 grt and 1.5 mln. hp. Three quarters of this fleet is below 10 m. Only about 240 vessels are larger than 24 m. The fleet in England consists mainly of small trawlers, liners and boats using passive gear. The Scottish fleet has relatively more larger trawlers and seiners and the large purse seiners play a very important role. There are some 23,000 people employed on board.

The economic situation was still fairly good in the beginning of 1991. The pelagic fleet passed through a period of stable prices and catches, which allowed for new investments without government support. The question for the future is whether the East European klondykers will continue their activities or whether alternative markets can be found. The bottom fleet lands a rather varied assortment. A drop of the cod and haddock quota by 30 percent would lead to a decrease of the total gross revenues by about 10 percent. This means that only the vessels which heavily depend on these two species would face very serious problems in the short run. The efficiency of the fleet could be improved as the crews are still quite numerous.

The fish processing industry realizes an annual turnover of some 1.5 bln. ECU and employs some 21,000 people. Cod and haddock represented in 1985 more than half of the total processed quantity. As the local landings decrease the processors rely more and more on foreign sources of raw material. The general short supply forced some processors out of business. The implementation of the

new EC hygienic standards in the U.K. will require very considerable investments and it is a serious question whether the smaller processors will be able to invest in a generally difficult period.

Most of the British landings are destined for the fresh market where high prices can be obtained. The processors import cheap frozen raw material from Iceland and Norway. An increase in the local landings could lead to a considerable deterioration of the average auction price, because of this structure of demand. Higher quota will therefore not necessarily lead to great improvements of the results of the cod fleet.

The catches are managed by 'pressure stock licences', which allow access to specific fisheries on the grounds of historical performance. The national quota for codfish is divided among 15 PO's (producer organizations) and the non-PO group. The PO's may manage their quota themselves. In practice many systems of individual rights are applied - quota per crew member, all associated vessels an equal amount or quota according to the size (length) of the vessels.

Fishing effort is managed in two ways. Specific licences are obligatory in certain fisheries, namely for beam trawling, purse seining and for the freezer trawlers. No new licences will be issued for these groups. Only replacement is allowed. The rest of the fleet is subject to a general licensing scheme. First, there were three length groups and replacement was only allowed within these groups. However, as this system was too rigid it was replaced in the beginning of 1990 by capacity licences expressed in hp and grt. These licences can be cumulated so that several smaller vessels can be replaced by a larger one, but only to a maximum of 90 percent of the total licence value.

Until 1989 the fleet received national subsidies of some 5 mln. ECU per year and some 4 mln. ECU from the EC. In March 1989 all investment subsidies were abolished.

The fishery policy is strongly supported by the judicial system, which can act quickly and impose high fines. The professional organizations exert a fairly strong influence on their members to enforce the rules. However, also the fishery policy in the United Kingdom faces a number of serious problems. Detailed inspection of catches is extremely difficult because of the length of the coast and the great number of ports and vessels. This applies also to the indication of the fishing areas in the logbooks, especially the distinction between the North Sea and north-west Scotland. As the boats of less than 10 m are not subject to regulations, new creative designs have been developed just below this limit. The licensing system puts monetary value on any registered vessel, which may be the reason of the large increase in registration in recent years.

8. France

The French fishing fleet consists of some 10,000 vessels (213,000 grt, 1.6 mln. hp). Within the fleet five groups can be distinguished. 1) There are some 8,000 small coastal boats under 12 m (50-80 hp). 2) The professional artisanal fleet, which is characterized by skipper-ownership, has about 2,000 vessels of 12-25/33 m (200-700 hp). 3) About 130 larger wet fish trawlers (25/33-38 m) are operated by companies (peche semi industrielle). 4) Four freezer trawlers. 5) About 30 tuna freezer purse seiners. The last two groups are called the 'industrial fleet'. The number of distant trawlers has been reduced considerably over the past two decades. There are some 18,000 crew members.

The fleet annually lands 550-600,000 t with a total value of 900 mln. ECU. Furthermore there is a considerable production of (cultured) bivalves with a total gross value of 300 mln. ECU. The real value of the landings increased by about 10 percent between 1972 and 1987. Tuna has become the most important species in terms of volume, but the composition of the landings is traditionally rather diverse.

Just as in other countries, the results of the French wet fish fleet seem to have been quite good in the past few years due to generally favourable trends in prices of inputs and fish. Furthermore, new investments were heavily subsidized. The investments in new construction and modernization were rather intensive. The owners generally have no problems in meeting their financial obligations. An exception is probably the wet fleet fishing in the Channel as it depends mainly on cod and sole. The quota of cod are decreasing and so is the price of sole (due to high catches of sole in the North Sea).

The results of the (semi-) industrial fleet are more difficult to assess. There is not much data available and the vessels are operated by larger companies so that their results would have to be viewed in a broader perspective. The larger wet trawlers carry out the same fishery as the smaller artisanal ones, so that they can be considered technologically oversized. The results of the tuna fleet have probably been satisfactory in view of the continued modernization in the sector.

The processing industry consists mainly of canning (tuna, sardine, anchovy) and freezing (cod- and shellfish). Its links to the French fleet are rather weak, as most of the landings go to the fresh market. The processors rely largely on imports.

In France management of landings is viewed mainly as an instrument to stabilise the auction prices. A number of national quota (cod, saithe, whiting, plaice, sole, mackerel and herring) is being divided among the five coastal regions and subsequently among the various PO's. The division is a result of negotiations, but the awareness of the potential importance of historical performance is increasing.

Since 1988 the French government attempts to control the size of the fleet by licences expressed in kw, which are required when new investments are undertaken. The licences are specific to five length groups. With one exception, only replacement within those length groups is permitted. The licences may be cumulated, but not split. In some case new investment is only allowed when 30 percent capacity extra is withdrawn.

A decommissioning scheme was introduced in the beginning of 1991 with the objective to withdraw 100,000 kw (10 percent of the fleet) in the course of that year. The chances of success of this operation are slim in view of the relatively low premiums offered and the voluntary character of application.

The French fishing industry has probably the best developed organization in Europe. It seems worthwhile to assess the possible value of its experience in a broader European context.

The French fleet enjoyed national investment subsidies of 17-21 mln. ECU per year. The annual EC support amounted to 10 mln. ECU. Furthermore a considerable amount was allocated to the support of interest costs.

9. Spain

The Spanish fishing fleet is the largest in the EC with 17,000 vessels, 670,000 grt and 2.7 mln. hp. The annual production amounts to 1.1-1.2 mln. t with a total gross value of 1,8 bln. ECU in 1990. The volume as well as the real value have decreased by 10-15 percent since 1972. There are some 90,000 people working on board.

The fleet is composed of seven segments : 1) Some 8,500 small coastal boats, mostly below 9 m. 2) About 4,500 (mostly small) longliners, of which 100 have access to the waters of EC-10. 3) 2,400 wet fish trawlers, of which 200 with access to EC-10 waters, 600-700 operating off the coast of Morocco, 1,300 in the Mediterranean and the remainder in the Spanish Atlantic waters or elsewhere along West Africa. 4) 1,800 small purse seiners. 5) About 400 distant freezer trawlers. 6) 60 freezer purse seiners. 7) 48 'bacaladeros' producing salted cod in the NAFO area.

The 1990 production consisted of 550,000 t of fresh fish valued at 1.3 bln. ECU. Sardine was the major species in terms of volume, but the value is realized especially with a diversity of bottom species. The frozen landings amounted to 340,000 t (product weight), valued at about 0.5 bln. ECU, hake, squid and tuna being the major species.

The economic results of the fleet are rather different depending on the type of fishery and region. No specific data is available. It can be assumed that the results of the fresh fleet are satisfactory thanks to the very high price level on the Spanish market. This applies especially to the vessels with access to

the EC-10 waters. The potential problem groups within the fresh fleet are those depending on the West African waters, because of long term insecurity, and the sardine purse seiners selling to the canning industry, because of heavy competition with Moroccan and Portuguese canners. However, until 1991 there were no serious problems within the fresh fleet.

The distant fleet faces the problem of access to fishing grounds. The closing of Namibian waters at the end of 1989 caused short term problems, but those were resolved at the company level. The situation of the smaller freezer vessels as well as that of the freezer purse seiners seems fairly good.

The Spanish processing industry is closely related to certain segments of the fleet. The freezing companies acquire hake and squid from their own fleet. Tuna and sardine for canning are also landed by Spanish vessels. The fish freezing has grown rapidly in the last few years and its gross turnover amounted to over 1.5 mln. ECU in 1990. The canning industry has passed through a crisis in the eighties and many (small) companies had to close down. Since 1988 the results have been improving and new investments are being undertaken. Its gross sales amount to about 0.5 bln. ECU. Some 46,000 people are employed by the fish processing industry.

The restriction of fishing effort has for a long time been the central theme of the Spanish fishery policy. There are some 32 'basic lists', which regulate access of vessels with certain characteristics to certain fisheries. The number of vessels which are really admitted into a certain fishery is subsequently further restricted by periodical licences. Furthermore accompanying technical measures are being implemented. A special system is being applied to the 300 vessels with access to the EC-10 waters. These vessels are allocated a certain number of sea days, which can be traded if necessary.

The lists are not applied to the small coastal fleet. Its activities are managed through technical measures and closed seasons and areas.

Landings are restricted by quota only if this is stipulated in international agreements. There are also day-boat quota in some limited fisheries in Spanish waters.

Between 1987 and 1990 the Spanish fleet received a total of some 130 mln. ECU in national and EC investment subsidies, which is approximately 25 percent of the total investment amount. In case of new investments an equal capacity must be withdrawn from the same basic list.

10. Portugal

The Portuguese fishing fleet of the 'continent' consists of about 13,300 vessels with 165,000 grt and 590,000 hp. Another 2,500 vessels operate from Madeira and the Azores. The 1990 pro-

duction can be estimated at 325,000 tons with a value of 380 mln. ECU.

The fleet of the continent is composed of six segments : 1) About 6,000 small unmotorized boats. 2) 6,000 small motorized boats below 9 m. 3) 950 multipurpose vessels of an average size of 30 grt and 130 hp. 4) 150 wet fish trawlers (140 grt, 670 hp). 5) 270 sardine purse seiners (45 grt, 270 hp). 6) 100 distant vessels (830 grt, 1500 hp). The fleet employs some 35,000 people.

The economic results of the wet fleet were probably quite good in the recent years. The landings were stable, while the real prices of fish have increased by 18 percent since 1985. At the same time the fuel price decreased. The vessels are relatively old, but their equipment has been modernized. Only subsidized investments are feasible as otherwise commercial banks will not provide credit. It can be assumed that part of the small coastal fleet operates only seasonally.

The situation of the distant fleet is probably difficult because of the loss of fishing rights in various areas. Therefore the industry searches actively for new fishing opportunities while at the same time efficiency is being improved. However, there are no specific data on this sector.

The fish processing industry consists of some 50 canning and 75 freezing enterprises. There is also still some drying of imported salted cod. The waste from canning is processed into fish meal. Some 10,000 people are working in this sector.

The activity of the fleet is managed through authorizations and licences. The authorization specifies the fisheries in which the vessel may participate and its validity is unlimited. The licence is issued annually, determining the activity of the vessel in the coming year. It is more restrictive than the authorization. This system is also being applied to the small coastal fleet. Modernization or replacement must be approved by the authorities. In case of new construction an equal capacity has to be withdrawn elsewhere from the fleet.

The Portuguese fleet annually receives about 13 mln. ECU in subsidies for modernization and new construction. The average subsidy percentage amounts to about 40-50 percent. Extra subsidies are given for switching to longline as this is a selective technique.

11. Netherlands

In 1990 the Dutch fishing fleet consisted of about 570 cutters (570,000 hp) and 13 freezer trawlers (81,000 hp). The total landings amounted to about 350,000 tons with a an approximate value of 340-380 mln. ECU in the second half of the eighties . The fleet employed about 3,000 people.

Within the cutter fleet there are some 240 (mainly larger) vessels specialized in beam trawling for plaice and sole, about

110 small ones fish especially for shrimp and the rest carries out a mixed fishery on shrimp, cod and flatfish. A small number fishes seasonally also for herring. The value of the landings amounts to 280-300 mln. ECU. About 60 percent of this amount is based on sole and plaice. The cutter fleet depends almost entirely on quota species in the North Sea.

The freezer trawlers target on small pelagics like herring, mackerel and horse mackerel inside as well as outside the EC waters.

The economic results of the fleet fishing for flatfish have been rather good throughout the eighties. There has been a considerable modernization even without a high level of subsidies. The liberal investment climate together with high prices for second hand vessels made this modernization possible. The results of the vessels which largely depend on cod and whiting have deteriorated gradually because of falling quota for these species. The shrimp fishery is a relatively stable activity, carried out by small businesses with older vessels. The results are sufficiently good to continue the operation, but do not allow for extensive modernization.

There is no recent information on the results of the distant fleet, but in view of the regular investments the results probably were satisfactory.

The gross revenues of the fish processing industry amount to about 1.2 bln. ECU. The most important products are based on species landed by the Dutch fleet - sole, plaice, herring and shrimp. However, the need for imported raw material is increasing.

The landings of the two flatfish species are regulated through individual transferable quota. The catches of cod and haddock are restricted through a maximum allowed catch per ship per week. A by-catch regulation regarding codfish is applied to the beam trawlers.

The fishing effort has been restricted by limiting the maximum length of the beams to 12 m and by the imposition of a maximum number of sea days. In 1990 and 1991 most vessels were not allowed to spend more than 150 days at sea. The vessels fishing on quota species must have a licence expressed in hp of their engine. The licences are freely transferable within the cutter fleet. They can also be freely cumulated or split. New investments are only allowed if the investor possesses sufficient licences. New licences are not issued.

The fishery sector received only very limited financial support in the second half of the eighties. No support was given within the EC regulation 4028. Until 1987 there was a general investment subsidy of about 12.5 percent of the invested amount but later it was abolished specifically for fishing vessels. There is a decommissioning scheme since 1988. Some 40,000 hp have been withdrawn from the fleet through it.

There is a very elaborate and strict, but still not fully effective, inspection of landings. Prosecution of offenses can theoretically lead to forced closing down of the business. In practice increasingly severe fines are being imposed. Prosecution often takes a long time before the final verdict is reached.

12. Norway

The Norwegian fishing fleet is composed of a large number (22,000) of relatively small vessels (490,000 grt). The annual landings lately amounted to 1.8 mln. t with a gross value of about 770 mln. ECU. The volume of production will rise substantially in 1991 as fishing on capelin was reopened again after a five year moratorium. The gross value decreased during the late eighties. The fleet employs about 21,500 full time and 7,200 part time crew members.

Over 80 percent of the fleet are boats below 10 m. Only 3-4,000 vessels are fishing year round, and the rest only seasonally. The active fleet consisted in 1990 of eight segments : 1) 512 'traditional' (i.e. passive gear) vessels of 13-21 m. 2) 50-60 large wet fish trawlers run by freezing plants. 3) 454 mostly small wet fish trawlers. 4) 20 factory vessels. 5) 207 vessels fishing for reduction purposes, of which 63 trawlers and the rest purse seiners. 6) 65 larger longliners. 7) Over 100 vessels over 13 m using various gears. 8) Some 1,300 boats below 13 m.

The 1,450 active vessels over 13 m produced about 80 percent of the total landings. The 1,300 full time vessels below 13 m produced about 10 percent and the remaining about 19,000 vessels produced also about 10 percent. The share of the small fleet in the total value was a little higher, because the unit price of its catch is higher.

The economic results of the fleet have deteriorated seriously since 1987. The real value decreased by 25 percent by 1989. However, the results vary considerably by fleet segment. The vessels fishing for reduction seem to have obtained fairly good results. The size of the fleet has been reduced and the vessels were paid high prices for good quality raw material. The fresh fish trawlers fishing for cod are rather old, their task being to supply raw material to freezing plants. The cod quota of the large trawlers had been reduced so much that some vessels had to be operated in foreign waters or had to switch to other fisheries. Among the trawlers fishing for shrimp, only the 22 vessels with licences for Greenland have sailed fairly well. The small scale multipurpose fleet faced a considerable drop in catches so that the number of these vessels operating on year round basis in 1989 was much lower than in 1987. The prospects for 1991/92 are a little better as the capelin stock recovered so that the catches of cod should improve also.

The fisheries sector is a very sensitive issue in Norway for strategic and political reasons. Therefore its size will be maintained through government support.

Because of the lack of raw material, the Norwegian fish processing industry passes through a rather difficult period. The exports of the freezing industry to the USA have become less attractive with the falling value of the dollar. The EC market is protected by high tariff, but new opportunities will arise with the new EFTA agreement. The fish meal industry has thoroughly been restructured and reduced and produces especially high quality meal for use as feed in salmon farming. However, the reopened capelin fishery may oblige the Norwegian fish meal producers to turn to the world market again. The best results are probably achieved in the production of salted and dried cod. The fish processing industry achieves an annual turnover of some 1.3 bln. ECU and employs about 13,000 people.

The Norwegian government pursues a very active fishery policy already since the twenties and the thirties. The law allows only one fishery organization, which is also closely involved in the formulation and implementation of the various management measures. Fishing effort of non-traditional gears (trawl and purse seine) is restricted by licensing. There are eight different licences depending on the type of fishery, area or size of the vessel. With the exception of a few large longliners, all larger vessels are subject to licensing. There are limited possibilities to transfer the licences from one vessel to another.

Landings are managed through quota per species. The national quota is first divided between the three main groups of vessels - trawlers, purse seiners and the traditional fleet - and subsequently determined per vessel, usually on the basis of its size. There is also a limited transferability of the individual quota.

An explicit political choice was made in Norway to maintain the fisheries as one of the main activities in the remote rural areas. Therefore annual subsidies of 130-170 mln. ECU are needed to support the economic viability of the industry. The subsidies are given on fish prices, fishing inputs, social programs and investment.

1. Introduction

1.1 Objective and methodology

The first decade of the Common Fisheries Policy is coming to a close by the end of 1992. While the same policy could be pursued for another 10 years, it would also be possible to introduce some adjustments which may be considered necessary on the basis of the management experience obtained. Consequently, a profound discussion is taking place as to pro's and contra's of the CFP and the desirable or possible changes in it. The fisheries carried out along the European Atlantic coast are characterized by great diversity as to the combinations of applied technologies and target species, organization structures, economic outlook and the fisheries policy pursued in the various countries. Therefore it may be questioned to which extent a fairly generalistic policy from Brussels can be realistically expected to produce the desired effects within an acceptable time schedule. It is equally questionable whether sufficiently detailed policies, required in view of the large diversity of conditions, can be developed and implemented from a high central level.

It seems essential to discuss the future of the Common Fisheries Policy on the basis of sound qualitative and quantitative information regarding the specific conditions in the various countries. Otherwise there is a real danger of giving more weight to political preferences rather than to facts and figures. A study of these conditions should allow for an objective assessment of the observed interests on economic or social grounds.

The aim of this study is:

"To provide a basic understanding of the current situation in the fisheries sectors of the various European countries which are directly involved in the Common Fisheries Policy".

To put it in other words: "to get the facts and figures right". This seems a 'conditio sine qua non' for a sound judgment regarding the possibilities and impossibilities of any future Common Fisheries Policy.

This study deals with all European countries on the Atlantic coast, i.e. from Norway to Spain and Portugal. Hereafter they will be simply called 'European countries'. The EC member countries in the Mediterranean area are not dealt with as there is no CFP as yet and they have very little in common with the Atlantic fisheries. On the other hand Norway is covered. This country is of considerable importance to the EC fishing scene and it can be

expected that either Norway will accede to the EC or its involvement will further increase.

A standardized subdivision into five parts of all country chapters has been adopted in order to facilitate mutual comparability.

The first part gives a general description of the development of landings and fleet between 1972 and 1987. In some cases even 1967 is considered. This part offers a certain understanding of the historical logic of the current situation and of the consequences of the introduction of the 200 mile Exclusive Economic Zones. It shows the substantial changes in the structure of the European fishing industry.

The second part discusses the current physical structure of the fisheries sector in terms of composition of the fleet according to type and size, major target species and regional distribution of the fishing activities.

The third part attempts to assess the economic performance of the sector. Comprehensive statistics on this point are only seldom available so that it is necessary to draw conclusions on the basis of indirect indicators. Apart from the total value of the landings and revenues per vessel in specific fisheries (when available) use is being made of aspects like level of investment, age composition of the fleet and the interest of the young generation to work on board fishing vessels. This part relies heavily on the impressions obtained during the interviews held in the various countries with people involved in the industry.

The fourth part considers briefly the demand for fish, i.e. national fish processing industry, internal consumption and foreign trade in fish and fishery products. The aim is to indicate to what extent the fleet depends on local and foreign market and to what extent it must compete with imports. However, only the basic data is given. An in-depth analysis of these relations would be beyond the scope of this study.

The fifth and last part reviews the fisheries policies which were pursued recently in the different countries. A number of distinct policy areas is put into perspective -management of landings, management of fishing effort, financial support to the sector and inspection and prosecution. As far as the last subject is concerned it has been limited to indications regarding the level of the fines in case of infractions in an attempt to assess how deterrent the legal prosecution may be. Evidently, a profound analysis of all legal aspects would require a study of its own. Finally, in some countries the organization of the sector has been included, when it is of major importance to matters of policy preparation or implementation.

Each country chapter is completed with an annex, giving some further quantitative information regarding national quota of the past years, details on foreign trade, development of prices of major fish species, exchange rate and inflation. In some cases there is also a further elaboration on the structure of the fleet

or on the processing industry. There are almost no references to these tables in the main text, so that it is advisable to look at the content of the annexes independently, especially regarding foreign trade.

1.2 Technical remarks

A study of such a broad scope calls for a number of 'technical' remarks regarding the quality of the presented material. A well informed reader may notice considerable discrepancies with other sources.

First, a remark must be made on the statistics. The major source of data on landings is the FAO Yearbook of Fishery Statistics. These figures are regularly quite different from the national sources. The cause may be different multipliers to adjust landings to catches and some FAO's own estimates. However, all figures on landings must be interpreted with certain margins of error. Under the current conditions it must be ruled out that landings of one species could be registered exactly to the last 100 or even 1,000 tonnes. Sensible margins seem to be 10-15 percent up and down the indicated volume, although this is also a questimate. Finally, this study deals with sea fisheries only. Production of fresh water species, aquaculture and bivalves has been excluded, so that the total landings do not correspond with the totals in the FAO yearbooks.

The data regarding national quota may not always represent the exact allocations at the end of the year. It was impossible to get a full list of the quota swaps among the different EC member countries. Therefore the figures indicate the situation at the beginning of the year.

It is also necessary to relativize somewhat the description of the fisheries policies in force in the various countries. The situation in the fisheries is rather dynamic and the policy attempts to react flexibly to it. This means that the regulations have to be adjusted rather often to the new circumstances. The described policies give as accurate a picture as possible of the situation in 1990 and 1991. This description may offer some food for thought regarding the different solutions that were developed in various countries for basically similar problems. Evidently, the accuracy of the description will in time become outdated.

In most cases the national classification and terminology regarding the fleet segments have been maintained. In this way there is an unambiguous link with the original sources. On the other hand same terms may have a somewhat different meaning in different countries. When making international comparisons it is necessary to look at the real characteristics of the fleet rather than at their qualitative characterization only.

Fish meal and fish oil are explicitly discussed only for those countries where their production plays a role of importance

- Norway, Denmark and Germany. In most other countries this aspect was not included as the necessary imports do not compete to any large extent with the national landings for human consumption.

The reunification of the two German states took place while this study was being prepared. A new entity has been created for which almost no aggregated data are available. Furthermore a common discussion was difficult because of the basic differences in the historic development and in the economic systems. The two countries are therefore dealt with separately. The Federal Republic is referred to as Germany, while East Germany is called as such.

In the text round figures have been used even more than in the tables for the sake of easy reading. The nominal and the real value are usually expressed in ECU and local currency. The table in the annex on exchange rate and inflation allows for a recalculation of the original value. The ECU values prior to 1975 have been calculated with the 1975 exchange rate.

As for the foreign trade figures in the annexes it may be noted that the import and export values between two countries may not be exactly the same. The reasons for the discrepancies are : a) Landings in foreign ports are registered as imports but not as exports. b) Exports are registered FOB and imports CIF. c) There may be some statistical inaccuracy.

Descriptions of the fleets are often accompanied by indications of vessel sizes in terms of gross tonnage, engine power or length. It should be self-evident that these figures are only averages, sometimes resulting from considerably different sizes of individual vessels.

The assessment of the adherence of the national fishing fleets to various rules and regulations depends on the available information. However, this aspect is not given an equal priority in all countries. In fact in many countries the necessary information is either lacking or it is confidential and was not accessible. In some cases the actual problems may be considerably more serious than indicated in the text.

2. Review of the Atlantic fisheries of the EC

2.1 Role of the EC in the world

This chapter presents a general review of the fisheries in the nine Atlantic EC member countries. As this is a highly aggregated approach, round figures have been used and the link to the following chapters may not always be obvious. More detailed data can be found in the chapters on individual countries. However, it must be repeated that the landings or the size of the fleet are not known in many countries to the last 1000 t or 1000 grt.

The Exclusive Economic Zone of the EC is one of the richest fishery areas in the world. The world aquatic production amounted to little over 90 mln. t in recent years. The share of Europe is approximately 13-15 percent, of which about one half is produced by the European Community. Most of these catches are realised above the European continental shelf. An annual production of some 6 mln. t puts the EC among the five largest fish producers in the world.

The introduction of the 200 mile EEZ's in the beginning of the seventies restricted considerably the access of the European fleets to resources in other parts of the world and especially in the north Atlantic. In the southern hemisphere bilateral fishery agreements and joint ventures could mitigate the adverse consequences. Still a structural adjustment of some fleets became necessary. This applies especially to the German and the English distant fleet. As a result, the landings of cod in the EC member countries decreased considerably.

Comparing the EC with other important fish producing countries, the EC appears to depend only little on the globally important species and its catches are more diversified. Japan, United States and the Soviet Union depend for 45-55 percent of their catch on three species 1). In the EC the three major species (cod, mackerel and sandeel) represented only 29 percent of the total volume. The EC share in the world catch of cod and herring (numbers 6 and 8 on the world top list) amounted to about 25 percent only.

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- 1) Japan: Japanese pilchard (37 percent), Alaska pollack (11 percent) and Chub mackerel (6 percent); Soviet Union: Alaska pollack (30 percent), Chilean mackerel (7 percent) and Japanese pilchard (7 percent); USA: Alaska pollack (23 percent) and menhaden (21 percent). Chili en Peru depend for 80-90 percent on Chilean jack mackerel and South American pilchard.

Table 2.1 Production of fish in the world in 1987, (mln. t)

Country/ region	Sea fish a)	Other sea products b)	Fresh water	Total
EC-12	6.0	0.9	0.1	7.0
- Atlantic members c)	5.3	0.9	0.1	6.3
Non-EC Europe d)				
- Norway	1.8	-	0.1	1.9
- Sweden	0.2	-	-	0.2
- Iceland	1.6	-	-	1.6
- Poland	0.6	-	-	0.6
- Other countries	1.0	-	0.3	1.3
Europe	11.2	0.9	0.5	12.6
Major non-European countries				
- Japan	10.7	0.9	0.2	11.8
- Soviet Union	9.9	0.3	1.0	11.2
- China	4.3	1.1	3.9	9.3
- USA	4.8	0.8	0.1	5.7
- Chili	4.7	0.1	0.0	4.8
- Peru	4.5	0.0	0.0	4.5
- Other countries	24.9	1.4	6.5	32.8
World	75.0	5.5	12.2	92.7

Source: FAO, Yearbook of Fishery Statistics, vol.64.

a) Sea fish = fish and crustacea; b) Other sea products = mainly bivalves; c) Atlantic states = incl. catch of Spain and France in the Mediterranean and in the non-EC waters; d) Europe is excl. USSR.

The largest European producers of fish are Norway, Denmark Iceland and Spain. An important part of the landings of the first three countries is however destined for fish meal. The production of Norway dropped by one half between 1977 and 1987 because of a.o. the too intensive exploitation of capelin that resulted in a moratorium on this fishery between 1985 and 1990. On the other hand the landings of Iceland could grow as foreign vessels were expelled from Icelandic waters.

2.2 Landings in the EC

The EC fleet produces annually about 6 mln. t of fish, of which 5.3-5.6 mln. t is caught by the nine Atlantic countries. However, of this amount some 300,000 t originate from the Mediterranean fleet of Spain and France and from the Canary Islands. About 900,000 t is caught in foreign waters mainly by distant fleets of Spain, Portugal and France. This implies that 4.1-4.5 mln t is produced from the Atlantic EC waters. About 70 percent of these catches is destined for human consumption, while Denmark reduces about 1.2 mln. t into fish meal.

In general it can be concluded that the volume of the landings increased in the countries which developed new pelagic fisheries, i.e. The Netherlands and Ireland. The volume of the catches decreased in many other countries as they had lost important fishing areas.

Table 2.2 Catches by the EC fleet, 1972-1987, (1000 t) a)

Country	1972	1977	1982	1987
Belgium	58	45	47	39
Denmark	1392	1746	1832	1592
Germany b)	394	395	272	148
France	646	558	557	587
Ireland	81	86	203	228
Netherlands	228	200	372	333
Portugal	440	308	254	379
Spain	1353	1348	1207	1149
United Kingdom	1029	927	862	865
Sub-total Atlantic EC	5621	5613	5606	5319
Italy	425	427	541	554
Greece	96	106	105	135
Total EC	6142	6146	6252	6009

Source: FAO, Yearbook of Fishery Statistics, vol. 44 en 64.

a) Incl. catches in non-Atlantic areas and excl. freshwater and bivalves; b) Excl. East Germany.

The landings by species since 1972 were characterized by a number of distinct trends. The catches of codfish (cod, haddock, saithe and whiting) decreased considerably from almost 1.9 mln. t in 1972 to 0.9 mln. t fifteen years later. The continued reduction of the cod stock in the EC waters at the end of the eighties

reinforced this trend even further. The Spanish landings of hake have also fell.

On the other hand the production of low priced small pelagics has grown, which applies especially to mackerel and horse mackerel. The fishing for reduction switched from the relatively scarce herring to sandeel and blue whiting.

At the same time the landings of a number of valuable bottom species increased - mainly anglerfish and Norway lobster. Catches of sole and plaice remained rather constant. There has been a very distinct growth of the landings of tuna from some 150,000 t to 345,000 t, most of which is being caught in non-EC waters.

*Table 2.3 Total catches by species by the fleet of the nine Atlantic EC countries, 1972-1987, (1000 t) *)*

Species	1972	1977	1982	1987
Cod	1191	651	561	468
Haddock	268	201	222	153
Saithe	260	246	124	136
Whiting	159	190	177	119
Plaice	162	162	138	170
Mackerel	131	346	509	461
Sprat	94	378	372	142
Herring	708	201	243	437
Horse mackerel	157	194	213	263
Blue whiting	26	70	118	137
Norway pout	282	272	343	220
Sandeel	339	707	607	639
Tunas	150	193	222	345
Sardine	249	302	354	283
Squid	174	132	128	162
Hake	325	342	221	244
Other species	946	1026	1053	940
Total	5621	5613	5606	5319

Source : FAO Yearbook of Fishery Statistics, vol. 44 en 64.

*) Excl. catches by East Germany.

2.3 Fleet

The fishing fleet of the nine Atlantic EC countries consists of almost 60,000 vessels with a total of 1.6 mln. grt and 8.5 mln. hp. There are some 200,000 people working on board. However, these figures should not be taken at face value. A (small) part of this fleet operates in the Mediterranean and as such has little to do with Atlantic fisheries. It can be expected that a

considerable part of the East German fleet will be taken out of operation and will not be replaced. Finally, a large number of small boats is probably used only seasonally, although on the other hand it is not certain whether they are all registered.

There are very large differences between the individual countries as far as the average size of the vessels is concerned. Portugal and the Netherlands are at the far extremes with an average size of 12 grt and 24 hp in Portugal and 120 grt and 1100 hp in Holland. The average crew are between 2 and 5 men, East Germany being an exception because of the importance of large factory ships.

When considering the Atlantic fleet, the fishing sector of Norway should also be included with some 22,000 vessels, 490,00 grt and 30,000 crewmen.

Table 2.4 General size of fleet and employment in the nine Atlantic EC countries

Country	Number vessels	Grt (1000)	Hp (1000)	Crew (1000)
West Germany	1000	50	183	2
East Germany	800	79	126	7
Belgium	200	26	105	1
Denmark	3000	122	731	14
Ireland	2000	47	250	8
United Kingdom	10700	193	1546	23
France	10400	213	1625	18
Spain	17200	670	2680	85
Portugal (cont.)	13300	165	590	37
Netherlands	600	80	640	3
Total	59200	1645	8476	198

Some three quarters of the fleet consists of vessels below 10 m. This small scale coastal fleet represents probably some 20 percent of the gross registered tonnage. Its share in the total production is probably even lower. A large number of these boats probably fish only seasonally, but there are no detailed statistics. This would imply that several tens of thousands of fishermen must obtain part of their income from other activities. On the other hand it can be expected that the economic importance of the small scale fishing in some remote rural areas is relatively greater than the figures would indicate. It is not quite clear how the activities of the coastal fleet should be viewed from the biological point of view. This fleet is fishing in areas which often serve as nurseries but there are no exact figures on the

landings of the vessels below 10 m as they have no logbook obligation.

Table 2.5 Composition of the fleet by type

Country	Small coastal fleet	Fresh fleet		Distant fleet	Total number (1000)
		----- trawl	other		
Germany	1000	775	-	25	1.8
Belgium	-	200	-	-	0.2
Denmark	1300	1200	500	-	3.0
Ireland	1700	300	10	2	2.0
United Kingdom	7500	3000	46	2	10.5
France	8000	1650	600	34	10.3
Spain	13300	2000	1400	500	17.2
Portugal (cont.)	11800	150	1250	100	13.3
Netherlands	-	570	-	13	0.6
Total	44600	9845	3806	676	58.9

Some 13-14,000 larger vessels land fresh fish. About 70 per cent of this fleet consists of various types of trawlers: stern, side, pair and beam. The last group is small in terms of the number of vessels but important in aggregated engine power. The remaining vessels within the fresh fleet belong to very different categories - from small boats using longlines or gill nets in southern Europe or the U.K. to large Scottish purse seiners of over 50 m. A fleet of 1,000-1,500 wet fish vessels fishes regularly in non-EC waters, of which about one half off the coast of Morocco and the rest elsewhere off West Africa.

About 600-700 vessels can be characterized as the distant fleet. Their size and preservation facilities allow them to operate anywhere in the world. The largest group are some 500 freezer trawlers, most of which are targeted on cod, hake and squid and a few on small pelagics. Furthermore there are some 100 freezer purse seiners fishing tuna, the Spanish fleet of 48 'bacaladeros', a number of large longliners and some traditional Portuguese vessels using bottom gill nets. Most of these vessels depend on access to non-EC waters.

2.4 Economic situation

The nominal value of the landings in the nine Atlantic EC countries increased from about 1.6 bln. ECU in 1972 tot 4.5 bln. ECU in 1987. There has been a considerable shift in the composi-

tion of the catch. However, the real value of the landings remained rather constant between 4.3 and 4.7 bln. ECU.

The developments in the individual countries have been rather different. Only the smaller producers - Belgium, Ireland and the Netherlands - achieved a steady growth in real terms. Germany faced the largest decline of no less than 60 percent between 1977 and 1987. The real value of the landings in Spain and Denmark decreased by some 20 percent. The production value the United Kingdom, Portugal and France, was relatively low in 1982 but recovered subsequently. In the case of the last two countries the recovery even exceeded the 1977 level. In the U.K. the real value of 1987 remained 20 percent below the value of 1977.

Table 2.6 Nominal value of landings, 1972-1987, (mln. ECU)

Country	1972 c)	1977	1982	1987
Belgium	26	38	53	82
Denmark	146	301	375	431
Germany a)	107	162	152	111
France	300	476	609	836
Ireland	19	34	75	104
Netherlands	101	151	284	388
Portugal	108	161	220	340
Spain	559	1006	1413	1625
United Kingdom	290	391	476	622
Total	1656	2722	3657	4539
Real value b)	4732	4607	4358	4539

a) Excl. East Germany, ca. 95 mln. ECU in 1987; b) Real value in prices of 1987; c) The 1975 exchange rate used for 1972.

The values of the landings after 1987 are not available for all countries. There is no reason to assume the total real value surpassed the general indicated level. Although the following statements do not apply to all fleet segments, the constant level of real revenues has a very important general implication when viewed concurrently with other main trends. During the years of high fuel prices, between 1973 and 1987, the fleet could achieve apparently sufficient results to modernize and expand, in some cases with substantial government support. The productivity could continuously improve. A considerable drop of fuel prices occurred in 1987, in some cases of up to 50 percent. Therefore the general results of the fleet must have been improving since that year.

The results of the small scale coastal fleet are difficult to assess. The available data from some countries would indicate that the earnings in this sector are very low. However, it can be expected that the economy of this segment often falls beyond the statistical and fiscal registration. In view of the interest to build new small vessels, it could be concluded that the results are satisfactory.

The EC TAC and quota policy seems to impose serious restrictions on the wet fish fleet. However, the market trends have been favourable in as far as the consumer is willing to pay a high price for a good quality fresh product. The prices of fresh fish increased often more than the inflation. The decreasing catches of codfish could be compensated by some other bottom species. The technology has been optimized and there is a shift from 30/33 m vessels to smaller and more efficient 25 m ones. Smaller crews can be employed, capital costs reduced and better quality landed. An important exception to this trend has been the introduction of larger vessels in the North Sea beam trawl fishery.

In general, the results are depressed for those vessels which largely depend on cod and haddock, mainly in the U.K. and in Denmark. Their physical productivity has decreased due to the deteriorating state of the stocks. The prices could not compensate this, due to the global character of the market for these species and their substitutability by others. However, the number of these vessels is limited, as demonstrated by the fact that relatively few vessels had to adhere to the 8-days rule in 1991.

On the other hand the vessels fishing for other species seem to achieve quite good results, partially thanks to the investment subsidies with which they were constructed. Other trends already mentioned and in some cases the increased flexibility also contribute to the positive picture.

Beam trawling in the North Sea has been probably one of the economically most successful fisheries. Contrary to others, this fishery is highly specialised and investments in vessels of 35-40 m and 2,000 hp have been economically sound. This has been demonstrated by the developments in the Netherlands, United Kingdom and Belgium. Furthermore these investments enjoyed on the average lower subsidies than other parts of the wet fish fleet. The biologic situation of the two main species plaice and sole, has been rather good.

A conclusion on the situation of other parts of the fresh fleet, which fish largely on small pelagics is rather difficult. The Scottish purse seiners depend for their outlet on the East European klondykers. Developments in Eastern Europe and possible new outlets opened by the Scottish processing industry will largely determine the future of this sector. However, the fleet has regularly been modernized, so that sufficient income must have been realized. The Danish fish meal fishery depends on the world market and especially on the production in South America. The reopened fishery on capelin in Norway will further increase

the competition. However, many of these vessels can also target on fish for human consumption.

An important factor when assessing the economic viability of the wet fish fleet is that most vessels are being run as a family business. Strongly fluctuating annual results are a part of the accepted reality of this activity. Fishing is not only a source of income, but also a life style. Deterioration of economic results due to a restrictive government policy will therefore not lead to a very quick reduction of the size of the fleet.

The economic performance of the distant fleet is difficult to assess because the vessels are operated by fishing companies or large integrated enterprises so that their results must be viewed as a part of a larger entity. The general problem is the access to fishing grounds outside the EC. Despite some very serious problems, e.g. the closing of the Namibian waters in 1989, most vessels can be operated on a regular basis under bilateral agreements, in joint ventures or under private licences. The economic power of the larger companies, their relation to the banks and their need of raw material for the processing factories keep the distant vessels in operation for a long time even with some prolonged periods in port, and enable the individual companies to search for new fishing opportunities on their own.

The historical evidence shows that large distant fleets working in the north Atlantic, mainly those of the United Kingdom and Germany, have completely disappeared. Also the Spanish and Portuguese vessels fishing in the north Atlantic come under pressure of the NAFO regime. Bringing these vessels under flags of countries with no NAFO obligations presents a short term solution of the problems of an individual company. At the same time it creates a serious long term international judicial problem of stock management in international waters.

The distant fleet operating in the southern hemisphere seems to achieve better results, despite the international competition for markets and fishing grounds. However, in the long run when the various coastal states will decide to develop their own fishing industry, it will become increasingly difficult to exploit distant fishing vessels under an EC flag.

2.5 Consumption, processing and foreign trade

The national demand for fish is treated in this study only to show which factors are important for the price formation of national landings.

2.5.1 Consumption

The levels of consumption of fish are very different in the various countries and regions. In the north European countries the consumption is some 15-20 kg/person, while in Portugal it is

estimated at 60-70 kg. The consumption is mostly higher in coastal areas than in the interior. The estimates of consumption are in many countries rather general and the calculation often presents serious problems so that the results have to be interpreted with large margins. The reasons are lack of data and the ambiguity of some of the recalculations from product to live weight.

2.5.2 Processing

Apart from the simple preparation of fresh fish for the fresh market, a number of large segments can be distinguished within the European processing industry.

The freezing industry which produces products on the basis of codfish is increasingly dependent on imported raw materials from non-EC countries. This industry is located especially in Denmark, United Kingdom and Germany. The price which this industry is able to pay for the fresh landings on the auctions usually cannot compete with the price offered by the fresh trade. The direct landings by Norwegian or Icelandic vessels in the EC probably do have some depressing effect on the price level of the fresh fish.

The processing of flatfish, mainly in The Netherlands and the United Kingdom, is an important outlet for the North Sea beam trawl fleet. The first country produces mainly for export and the second for the internal market. Processing of herring in Denmark, Germany and The Netherlands relies also mainly on local supplies from the EC waters.

The freezing industry in southern Europe often operates its own fleet. The main products are on the basis of hake and squid.

Within the canning industry, which is mostly located in France, Spain and Portugal, a distinction must be made between sardine and tuna. Sardine is mostly acquired from the national fleet. Tuna is obtained from the vessels run by the companies but it is also imported.

The above review shows that there are links between the fleet and the processors only in a few specific cases - herring flatfish, sardine and to a lesser extent cod, tuna, squid and hake. For the remaining fleets and species the fresh market which determines the price.

2.5.3 Foreign trade

This part deals, contrary to the rest of the text, with the EC-12 instead of with the nine Atlantic EC countries only. The relation with the fleets is therefore not straightforward, but it is necessary to view the EC market as a whole, especially as of 1992.

The 12 EC member countries imported in 1990 fish and fishery products to a total value of 11 bln. ECU, incl. intra-EC trade.

About 55 percent of these imports originated outside the EC. On the other hand only 13 percent of the aggregate exports of 5.7 bln. ECU is destined outside the EC. If Italy and Greece are included, the total value of the EC landings could be estimated at 5.6 bln. ECU. This implies that the value of the imports is double that of the EC landings. Furthermore, between 1986 and 1990 the imports have grown faster than the exports, a trend which is even more pronounced when intra-EC trade is not considered.

Table 2.7 Import and export of the EC-12, 1986-1990, (mln. ECU)
*)

	Import		Export	
	1986	1990	1986	1990
Total	7188	11161	4188	5742
Non-EC	4005	6346	1081	766

Source: Eurostat.

*) Regarding the inconsistency of the import and export values of the resulting intra-EC trade see section 1.2.

The major traded species are cod, salmon, shrimp and squid. These four species represented 46 percent of the total import value and 36 percent of the exports in 1990. The share of this group in imports from non-EC countries was even higher - 58 percent.

More than half of the EC imports (incl. intra-EC trade) is destined for three countries - France (20 percent), Italy (17 percent) and Spain (16 percent). On the other hand only two countries account for 45 percent of the total exports - Denmark (28 percent) and The Netherlands (17 percent).

The major exporters from outside the EC are Norway and Iceland with relative shares of 16 and 11 percent within the non-EC group. 40 percent of the EC exports to other countries is destined for Japan, Switzerland and the United States.

Should, after the introduction of the Single Market in 1992, the intra-EC trade no longer be taken into consideration the trade balance of fish and fishery products would change dramatically. On the basis of 1990 figures it can be seen that the relation of value of exports to those of imports would change from 1:2 to 1:5. In the case of individual countries, the trade balance of large importers would improve and that of net exporters would deteriorate. For Denmark this would mean that a surplus of 0.8 bln. ECU would turn into a 0.4 bln. ECU deficit.

2.6 Fishery policy

2.6.1 Management of landings

The TAC and quota system is one of the major parts of the Common Fishery Policy. The major advantages of this system are its simplicity and its unambiguous division of the major stocks among the various member countries. The nine Atlantic EC countries produced in 1987 some 5.3 mln. t of fish of which 3.2 mln. t fell under the EC quota regime and another 0.4 mln. t under other arrangements in the north Atlantic (NAFO, Norway, etc.). Some 300,000 t were landed on the Mediterranean coast and on the Canary Islands and an unknown quantity was caught within the various bilateral agreements with third countries. Therefore it could be estimated that about 20-25 percent of all landings did not fall under any quota restrictions. The dependence of the fleet on quota species varies per country and per fleet segment. In general this dependence is greater in the north European countries than in those in the south.

The TAC's are set on the basis of biological advice and aimed at sustaining or improving the level of catches in the long term. This policy is pursued to maintain a viable fishing sector but also to supply the consumers with a sufficient quantity of fish. This argument seems specifically justified, in view of the large deficit of the EC for this group of products.

In 1990/91 almost all countries seemed to favour a continuation of the TAC/quota system in the second decade of the CFP. The position of Spain and Portugal is in this respect somewhat different. After their accession to the EC, these two countries have lost important fishing grounds (Portugal off Canada and Spain its own bilateral agreements) and in their view they have not been sufficiently compensated for this loss with other rights within the EC waters. However, it is a question for how long they could have maintained access to these waters on their own.

It remains to be seen how a system of national quota can be maintained while at the same time the integration of the EC advances. A detailed and reliable inspection system of landings presents already serious problems on a national level, so that it can be expected that an EC wide inspection system would face even larger difficulties.

Most countries rely on at random sampling to check on the correctness of the data given in the logbooks. In some cases the logbook data are also cross-checked with information from the auctions and from traders. However, it is evident that if vessels do have any reason to evade the rules, the chances are small that they will ever face prosecution. The main problems in this respect are:

1. Incorrect statement of quantities. The logbook regulation allows for a 20 percent margin of error. This implies that

some 600,000 t of fish extra could be landed without breaking any rules.

2. Incorrect statement of areas. It is rather difficult to determine where fish has been caught. To counter this problem somewhat, the Danish legislation specifies that if a vessel is caught in a forbidden area, it is the skipper who must prove that the fish on board was not caught there. Evidently this is a fundamental deviation from the usual legal practice.
3. The large number of vessels and potential landing places as well as the irregularity of landings make an effective control of restrictive measures impossible in view of the limited resources which a small sector like fisheries may hope to be allocated for such purposes.

Some countries have introduced a system of individual quota as a tool to implement the quota regulations. These systems vary from very general ones - quantities of fish annually allocated to large groups of vessels - to ones elaborated in detail - fixed shares in the national quota given to individual vessels. Also the degree of transferability varies. The various experiences deserve further evaluation. In general individual rights confront the fisherman directly with the TAC and quota decisions taken at high level. On one hand this offers the possibility to plan the activities of a vessel during the year, but on the other hand the possible necessity to systematically underestimate own catches becomes explicit. When the fleet fishes on one common quota, the need to underestimate individual landings is less pronounced, but there will be a 'race to fish' until the quota is exhausted and the fishery is closed.

An important consequence of the quota system is the increasing rigidity within the fleet. The individual vessels are assigned to specific fisheries (species, areas, gear) and lack the opportunity to switch to another one.

2.6.2 Management of fishing effort

As an effective inspection of landings has proven to be difficult, many countries imposed restrictions on the access to the fishing sector and some countries even actively stimulate withdrawal.

There are various licensing systems. Some licences have a rather general character, giving the right to put a vessel into operation and keep it running. The specifications of fishing rights then determines the access to specific fisheries. Other licences allow participation in certain activities. The most important aspect of the licensing is that the government is in the position to control the total size of the fleet or of its separate parts.

The differences between the various countries are considerable. In the United Kingdom for many years there were licences according to length categories, and a larger vessel could be built as long as it remained within the same length group. Switching to a smaller vessel was also possible, but it led to a loss of fishing rights. In 1990 a new system of transferable capacity licences was introduced, expressed in hp and grt. Aggregation of capacity was allowed, but in case of new larger construction an extra 10 percent of the capacity built had to be withdrawn. A similar reduction is also required in France, but as long as new construction does not take place the vessel can sail without any licence. Spain has a licensing system for each fishery, but independent of the size of the vessel. Portugal has general as well as fishery specific licences. The authorities of these two countries have a far reaching power to prevent capacity growth on an ad hoc basis by simply refusing new licences on stock management grounds. In the above countries only licences of whole vessels can be traded, if at all, and a large licence cannot be divided into smaller ones. The Netherlands have probably one of the most flexible licence systems where licences, expressed in hp can be divided or aggregated at will and where new construction does not require any extra reduction of the capacity.

A comprehensive licensing system is an absolute necessity for structural management of the fishing effort. However, there are several problems:

1. A licence is an access ticket. This leads to fairly high prices even for old vessels and it may slow down the natural withdrawal.
2. The conditions for the registration of a fishing vessel are different per country. In the United Kingdom for example the registered fishing fleet at the beginning of 1991 was much larger then at the time of the introduction of the licensing scheme. On the other hand Denmark excluded some 3,000 small craft (many under 5 grt) as only vessels providing more than 60 percent of the income of the owner are eligible for registration as professional fishing boats.
3. The dimension of the licences is often ambiguous. An objective measurement of grt or hp appears to be difficult. The length groups in the U.K. led to the well known phenomenon of 'rule beaters' - vessels just below the official limit but compensating on the size elsewhere.
4. Acquisition of a licence increases investment costs and obliges the owner to exploit his vessel more intensively, i.e. to fish more.

The Multiannual Guidance Programmes (1987/91) oblige various countries to reduce their fleet considerably. Most countries have formally achieved the set targets. A fast physical reduction of the fleet, however, has been difficult, the more so in the situ-

ation where the economic results do not force the vessel owners to stop fishing. The decommissioning schemes compete directly with the free market price to continue fishing, i.e. the value of the vessel, its fishing rights and the expected future income or profit. The experience of The Netherlands shows that a decommissioning scheme produces results only rather slowly. In fact only vessels with little economic future applied for the scheme. In many countries a decommissioning scheme is considered as a subsidy to modernize the fleet through scrapping of old vessels. The average technological level of the fleet may be increased in this way.

2.6.3 Support of the sector

Between 1987 and 1990 FEOGA provided subsidies for new construction and modernization of some 150-200 mln. ECU. The national authorities probably spent a similar amount. This would imply that the sector annually received a subsidy of 6-8 percent of its gross revenues. Furthermore, in some countries the fleet enjoyed subsidies on experimental fishing, low interest rates and general non-fishery specific investment support.

The support of individual investment projects varied between 15 and 50 percent of the investment amount. Such support does not seem compatible with the general objective of reduction of fishing effort and protection of stocks.

3. Germany

3.1 West Germany

This chapter discusses West and East Germany in two separate sections. A common treatment was neither possible nor desirable. The text was prepared at the time of the unification of the two countries. Furthermore there evidently were important differences in the economics of the two sectors, the clearest example being the gross value of the landings.

3.1.1 Historic development

The size of the German fisheries sector dwindled in the past 10-15 years by some 60 percent. The volume of the landings dropped from 380-400,000 t to some 150,000 t and the size of the fleet from 160,000 grt to 48,000 grt.

3.1.1.1 Landings

Germany had an important fishery in the North Atlantic directed at cod, saithe and redfish until the first half of the seventies. These three species made up about 70 percent of the total catches of some 390,000 t. The introduction of the 200 mile limits considerably restricted the fishing opportunities for these three species. The catches of cod alone decreased by

Table 3.1 Landings of major species by the German fleet, 1972-1989, (1000 t)

Species	1972	1977	1982	1987	1989
Cod	148	92	79	45	40
Haddock	6	10	6	4	0
Saithe	69	61	21	29	15
Plaice	5	6	4	2	1
Mackerel	1	6	12	16	19
Sprat	2	12	2	0	1
Herring	54	8	18	14	37
Shrimp	25	18	20	17	13
Redfish	61	89	60	14	6
Other species	25	93	52	6	13
Total	394	395	272	148	146

Sources: FAO, Yearbook of Fishery Statistics, vol.44 en 64; 1989 DFW 89/90.

100,000 t and in relative terms comparable decline also hit the other two species. The catches of herring had already diminished before because of the disappearance of the lugger fleet. The only species whereof an increase of catches could be realized was mackerel.

The real prices of the major fish species have remained relatively constant over the past 20 years. The real value of the landings decreased between 1967 and 1987/88 by about two thirds to 118 mln. ECU (prices of 1987) as a consequence of smaller quantities.

3.1.1.2 Fleet

The contraction of the German fleet started already before 1970 as a result of the introduction of larger vessels with a higher productivity. The number of trawlers decreased between 1967 and 1977 by 60 units while at the same time their average grt increased by 80 percent. A comparable development has taken place in the cutter fleet as well. During the following 10 years the size of the individual vessels did not increase much but their number, especially that of the trawlers, continued to fall because of the limited fishing opportunities.

Table 3.2 Structure of the German fleet, 1967-1987, (per 31.12)
a) b)

	1967	1972	1977	1982	1987
Number of vessels					
- distant fleet	143	80	66	29	13
- cutters	1028	864	663	625	612
Gross tonnage (1000 grt)					
- distant fleet	131.8	111.5	111.4	62.6	23.4
- cutters	29.0	30.2 c)	27.1	23.2	24.4

Source: DFW (various issues).

a) Excl. lugger and coastal fleet (1967 : 58 luggers and 665 motorised coastal vessels); b) Active fleet only; c) Grt cutters 1972 extrapolation between 1967 and '77.

3.1.2 Present structure of the fishing sector

3.1.2.1 Fleet and landings

The German fleet in 1989 consisted of 11 distant waters trawlers and 560 cutters. Some 400 other craft were also registered as fishing vessels, but in view of their small size they can barely be considered full time professionals.

Three segments can be distinguished within the German cutter fleet: cutters fishing for cod and herring in the Baltic, the larger North Sea cutters fishing for cod and the smaller ones fishing for shrimp. Furthermore about 11 chartered vessels (mostly Dutch) have been fishing temporarily under German flag.

A certain segmentation can also be found regarding the trawler fleet (vessels over 400 grt). There are 9 freezer (factory) trawlers and 5 fresh fish trawlers. The smaller fresh fish trawlers are included among the larger cutters in table 3.3. There are also two chartered pelagic trawlers. Statistics regarding landings give figures concerning these 16 vessels under the heading of 'distant fleet'.

Table 3.3 Structure of the German fleet in 1989, (per 31.12)

Type	Number	Hp	Grt
Trawlers			
- pelagic	1	5200	4500
- other distant	10	35000	20600
Cutters			
- 24 - 33 m	35	26200	6600
- to 24 m	524	107400	16300
Total	570	173800	48000

Source: DFW 89/90.

The entire fleet landed in 1989 some 146,000 t of fish, of which about two thirds was produced by the distant fleet and one third by the cutters. The share of the distant fleet has increased due to their landings of herring and mackerel.

The cutters are active exclusively in the coastal waters of the North Sea and the Baltic and land fresh fish. The North Sea fleet produced 20,000 t of fish (of which 7,300 t of cod) and 13,000 t of shrimp in 1989. The production in the Baltic amounted to 14,400 t of which 7,600 t of cod and 5,300 t of herring, (DFW).

The freezer trawler fleet is active in the entire North Atlantic. The vessels are usually fishing during one trip in different areas. In 1989 they had produced some 84,600 t of fish, worth 80 mln. DEM (38.5 mln. ECU). The fresh fish trawlers exploit mostly the areas west of Scotland, the Norwegian zone and the North Sea. Their catches amounted to some 14,000 t valued at 25 mln. DEM (12 mln. ECU). The major species landed by the trawlers were herring (31,300 t), cod (25,400 t), saithe (5,100 t) and redfish (6,300 t). Some 85 percent of the total catches is filleted and frozen on board.

Some German quota are not fully utilized, though it must be stressed that the utilization varies a great deal among various species and fishing areas.

The total fishing fleet employs about 1,900 people.

3.1.2.2 Regional distribution

The cutter fleet lands its catches in some 30 ports along the North Sea coast and in 12 ports along that of the Baltic. However, the value of the annual landings remains below 1 mln. DEM (480,000 ECU) in more than half of these ports.

The value of the landings in the Baltic amounted to about 9 mln. ECU in 1989, of which 75 percent was cod and 13 percent was herring. The Baltic fleet was composed of 3 larger cutters (24-33 m, average 530 hp) and 204 smaller ones with engines between 75 and 300 hp. Furthermore there is a large number of craft below 10 m and 75 hp, which probably participate in the fishery only seasonally.

The cutters operating in the North Sea are larger on the average. The 32 vessels in the 24-33 m group have an average engine power of 800 hp whereas the 320 smaller vessels one of

Table 3.4 Regional distribution of landings by cutters, 1989 a)
b)

Species	North Sea			Baltic	Total
	Nieder- sachsen	Bremen	Schl.- Holst.	Schleswig Holstein	
Value (min. ECU)					
- cod	7.4	3.9	1.2	6.8	19.2
- herring	-	-	-	1.2	1.2
- shrimp	10.8	-	13.8	-	24.6
- saithe	3.1	2.6	-	-	5.7
- other species	6.3	1.0	1.0	1.1	9.4
Total value	27.6	7.5	15.9	9.1	60.1
Quantity (t)					
- cod	5709	2968	827	6024	15528
- herring	-	-	-	4272	4272
- shrimp	3948	-	4946	-	8894
- saithe	3810	3513	-	-	7323
- other species	5207	723	278	1867	8075
Total quantity	18674	7204	6051	12163	44092

Source: Das Fischerblatt 1990.

a) Excl. bivalves, eel, salmon and trout; b) Fleet of Schleswig-Holstein landed also 9,100 t (11.5 mln. ECU) abroad and 1,670 t (2.1 mln. ECU) outside Schl.-Holstein in other German ports.

240 hp. Of these smaller vessels some 220 fished especially for shrimp, 70 for fish and about 30 for both. The larger vessels catch mostly codfish. The value of the landings from the North Sea amounted to some 51 mln. ECU, of which about one half was realized by shrimp and 25 percent by cod. Almost one half of the value was landed in three ports - Bremerhaven, Cuxhaven and Busum, (FB).

The trawlers are landing in two ports only - Bremerhaven (53,000 t, 16.5 mln. ECU) and Cuxhaven 45,000 t, 34 mln. ECU), (SB 1990).

3.1.3 Economic performance of the German fishing sector

The total gross value of the German landings amounted to some 240 mln. DEM (116 mln. ECU) between 1986 and 1988. In 1989 there was an increase of some 12 percent to 285 mln. DEM (138 mln. ECU). Of this amount 55 percent was realized by the cutters and 45 percent by the distant fleet.

Table 3.5 Value of landings, 1987-1989, (mln. ECU) *)

	1987	1988	1989
Landings in German ports			
- cutters	49	49	55
- trawlers	56	46	51
Landings abroad	13	20	26
Total	118	115	132

Sources: SB, DFW.

*) Excl. bivalves.

3.1.3.1 Cutter fleet

The German cutter fleet realized fairly good results in the beginning of the eighties, which led to intensive investments. 97 new cutters and 45 second hand transformed vessels were brought into operation between 1983 and 1986. There was a clear drop of investments in the subsequent years, only 16 new vessels being acquired in 1987-88. The age composition of the German fleet improved accordingly. In 1988 the shrimp fleet was clearly younger than the codfish fleet.

After 1987/88 a number of foreign vessels had been brought under German flag, often on temporary charter basis. Some restrictive administrative measures have been introduced to prevent this trend from getting out of control.

Table 3.6 Age composition of the German fleet in 1988, (percent)

Age (years)	Shrimp fleet	Codfish fleet
0 - 15	36	44
16 - 25	37	16
26 a.m.	26	40

Source: DFW.

The economic situation of many individual enterprises seems to have improved since 1981 as the real prices of the major species increased and the fuel costs dropped considerably in 1987. Shrimp revenues were exceptionally good in 1987 and 1989. The gross revenues from shrimp in the latter year amounted to more than 50 mln. DEM (24.6 mln. ECU) which was almost 50 percent above the 1986 level. The revenues in 1990 decreased to 35 mln. DEM.

The gross revenues of the Baltic vessels are considerably lower than those of the North Sea. The two areas show an opposite trend as far as the total revenues are concerned. The value of the landings in the Baltic decreased by almost one third from 15.8 mln. ECU in 1985 to 10.6 mln. ECU in 1989. The revenues of the North Sea fleet grew in the same period from 34.3 mln. ECU to 40.8 mln. ECU (excl. mussels).

Table 3.7 Average gross revenues per vessel, Baltic and North Sea, 1985-1987, (1000 ECU) a) b)

Year	North Sea	Baltic
1985	268	126
1986	262	124
1987	256	115

Source: ILM.

a) Survey of cutters of more than 150 hp and 17 m, excl. shrimp;

b) Average engine power - North Sea 420 hp, Baltic 210 hp.

The German cutter fleet obtained in 1989 45 percent of its gross revenues from shrimp, 28 percent from cod, 11 percent from saithe and 6 percent from sole. Therefore that the economic importance of other species has been very limited (herring 2 percent, plaice 1.5 percent).

3.1.3.2 Trawler fleet

The economic situation of the fresh fish trawlers and the freezer trawlers is very different. Most of the six fresh fish trawlers which are still in operation are technologically obsolete and their productivity has dropped as they are depending on biologically weak stocks which are already heavily exploited (cod, saithe).

On the other hand the nine freezer trawlers seem to achieve good results, although exact data is not available. This applies probably also to the two chartered pelagic vessels.

The total revenues of the trawler fleet recently amounted to some 55-60 mln. ECU, of which 80 percent is realized with frozen products.

Various quota available to the trawlers remained underutilized in the past - cod, blue whiting and redfish in the waters of Greenland and in the NAFO area and mackerel in areas XII and XIV. However, it is not certain whether these quota can be exploited profitably.

3.1.4 Consumption, processing and foreign trade

3.1.4.1 Consumption

The consumption of fish and fishery products in Germany increased in 1989 to a record level of 13.5 kg per capita. The adverse consequences of the nematodes incident in 1987 thus proved to be rather short lived.

The consumption is composed as follows : herring 30 percent, saithe 20 percent and cod and tunas 8-10 percent each. In terms of processing about 30 percent of the consumption consists of canned and marinated products, 20 percent of frozen ones, 19 percent of shellfish and 11 percent of fresh fish, (FIMA, 1989). The most important development in recent years is the growth of the market for more expensive products like salmon, shrimp and canned tuna.

3.1.4.2 Processing

The total gross revenues of the German fish processing industry (excl. fish meal) remained relatively constant between 1977 and 1986 at the level of 0.9 bln. ECU. The nematodes incident led to a slight decrease in 1987, but subsequently the situation improved again and in 1989 there was an increase of 9 percent to almost 1 bln. ECU.

The structure of the fish processing industry changed somewhat as the number of enterprises decreased and the activities shifted towards frozen products. As a result the number of employees diminished from 11,000 in 1977 to less than 9,000 ten

years later. Wholesale and retail trade employ in all some 20,000 people.

The fish processing industry is composed of three major segments: marinated, canned and frozen products. These three represent about 60 percent of the total turnover, but their relative shares have shifted considerably. The shares of the first two decreased from 20 resp. 17 percent in 1977 to 13 percent each in 1987. On the other hand the share of the frozen products rose in the same period from 22 to 37 percent. Within this group especially the breaded products experienced very fast growth, doubling their total value.

The output of the German fish meal industry declined by some 70 percent in 20 years time. An important part of this reduction already took place prior to 1977. Recently there has been a relatively stable production of some 27,000 t of fish meal and 7,000 t of fish oil per year. About 80 percent of the meal is produced in shore installations and the rest at sea.

The wholesale turnover amounted to some 1.3 bln. ECU in 1989, while at retail level this value has been estimated at 3.5-3.9 bln. ECU.

3.1.4.3 Foreign trade

Historically, Germany faces a structural deficit on its trade balance of fish and fishery products. The decreasing landings of the German fleet caused an ever rising need for imports of processed products as well as raw materials and half-products for the processing industry. This deficit increased from 0.4 bln. ECU in 1982 to almost 0.7 bln. ECU in 1989. During this period the value of imports increased by some 57 percent while that of exports by only 33 percent. The growth of imports was especially concentrated on products on the basis of codfish, salmon, tuna and shrimp.

The value of German imports amounted to 1.1 bln. ECU in 1989. Denmark and The Netherlands were its major suppliers, their relative shares being 25 resp. 12 percent. Considerable changes have taken place among the other countries exporting to the German market. The role of Canada, which was a major herring supplier when this species could not be fished in Europe, became less pronounced. On the other hand Norway and Iceland realized strong growth of 101 resp. 164 percent between 1982 and 1989. Little over a third of the German imports originates from a large number of countries.

The export of fish products for human consumption amounted to 350 mln. ECU in 1989. The major species is still cod, despite the decrease of its relative importance from 26 percent in 1982 to 19 percent in 1989. France and The Netherlands are the prime countries of destination.

Germany is one of the few countries in Europe where the export of fish meal also attains a certain importance.

3.1.5 Fishery policy

The main objectives of the German fishery policy have been the implementation of the EC structural programme and the promotion of fish consumption.

3.1.5.1 Management of fishing effort

The German MAGP allows to maintain the size of the fleet at an approximately constant level. Slight shifts have been foreseen in the various segments of the fleet - about one new distant vessel could be put into operation, while some 15 cutters should be withdrawn.

Table 3.8 Multiannual Guidance Programme, (1000 hp, 1000 grt)

Type of fleet	Engine power		Gross tonnage	
	situation	objective	situation	objective
	1.1.87	31.12.91	1.1.87	31.12.91
Distant fleet	40.1	43.8	22.6	21.2
Pelagic fleet	8.4	8.4	4.5	4.5
Mid-water cutter	23.5	23.5	5.8	5.8
Cutters	117.0	111.8	18.6	17.7
Total	189.0	187.5	51.5	49.2

Source: EC Official Journal nr. L66/5, 14.3.90.

Germany had introduced a decommissioning scheme already in 1977, offering a compensation of 600 DEM/grt 1). This scheme has later been adapted to the EC reg. 4028. Some 29 vessels with a total of 1,100 grt have been removed from the fleet in this way since 1988. Furthermore compensation is offered to vessels which are laid by temporarily, (see below).

The total size of the active fleet is kept under control as all fishing vessels are obliged to carry a fishing permit. Four such permits can be distinguished, (Keus, 1989):

- a) 'Allgemeine Fangeraubnisse' (general permit) - gives access to all available quota. All companies that were in the possession of a fishing permit prior to 1.1.1988 or that constructed their vessel with government assistance are eligible for this general permit.

1) Bundesanzeiger Nr. 157 of 24.8.1977 - S.1.

- b) 'Einzelfangerlaubnisse' (individual permit) - required for specific vessels fishing active in specific fisheries, e.g. vessels above 400 grt fishing in EC waters for cod, haddock, saithe, herring and mackerel and for those fishing for saithe in areas Vb (EC), VI, XII and XIV.
- c) 'Einzelnes Mengenzuteilung' (individual quota) - can be requested by companies which do not belong to the first two groups. This permit is issued only when the first two groups are unable to exploit fully the available quota. The chartered vessels operate under this permit.
- d) The Ministry of Agriculture can also issue the so called 'Sammelerlaubnisse' to companies or groups of fishermen (legal persons, PO's, etc.), which in their turn divide the obtained rights among their participants or members.

No new additional permits are being issued. If an old vessel is to be replaced by a new one, a new permit is required. The Ministry of Agriculture will then demand that an equal capacity in hp or grt is withdrawn from the fishery, so that the total capacity does not increase.

3.1.5.2 Management of landings

Maintaining the landings within the German quota does not seem to be a serious problem. Major fisheries have not been closed before the end of the year because of quota exhaustion. The division of fishing rights among the different groups can therefore remain rather general.

The cutter fleet is being allocated almost all quota of the demersal species in the EC waters as well as all herring in the Baltic. Only 1,000 t of cod (quotum 12,000 t) and 2,500 t of saithe (quotum 13,000 t) were allocated to the trawlers within the EC waters. The cutters are allowed to fish freely until the quota are exhausted.

There are two major exceptions to these general rules. The shrimp cutters are allowed only a certain maximum by-catch of sole, as of 1.4.'91 it is 1250 kg/week. The eleven chartered vessels receive individual quota of specific species depending on their respective sizes. In 1991 these vessels were given each approximately 300-500 t of plaice, 20 t of cod, 8 t of sole and they were also given access to the German quota of whiting and haddock.

The distant fleet may exploit the remaining quota of the demersals, the pelagic quota within the EC waters (a small quantity of herring being reserved for the cutters) and the quota of mainly cod and redfish in the waters of Greenland, in the Norwegian zone and within NAFO. Furthermore they may evidently be fishing on the EC undivided quota of blue whiting and horse mackerel. The quota given to the distant fleet are annually divided among the 3-4 fishing companies on the basis of their historic

performance and general consultation as to their requirements. Parts of the company quota may change hands in the course of the year, but only with the consent of the Min. of Agriculture.

3.1.5.3 Support of the sector

Apart from the structural reduction of the fleet, two other objectives are being pursued:

1. Partial reorientation of the distant fleet from non-EC to EC waters.
2. Modernization.

As for sustained modernization it is not very clear how it is to be promoted within the given constraints of the TAC-system. The second objective is pursued through financial support to the fleet - either subsidies for new construction, modernization and costs of interest or various credit lines.

The federal government runs the following support schemes:

1. Subsidies for new construction and modernization
 - 10 percent for the acquisition of a second hand cutter of at least 18 m and not more than 10 years old;
 - 20 percent for investment in new cutters of at least 12 m;
 - 20 percent for construction or modernization of a trawler 1).
2. Subsidy on costs of interest
 - Subsidy amounts to three percentage points of the interest and it is applicable to 75 percent of the loan. The loan must be at least 5,000 DEM with a minimum term of 4 years. The subsidy is given for ten years at the most 2).
3. Temporary laying by of a vessel
 - Cutters of over 18 m, which have been fishing in the current year for more than 120 days may under certain conditions obtain a compensation for a temporary laying by. The amount depends on the size of the vessel, e.g. 42-70 grt - 358 DEM/day, 950-1000 grt - 3,100 DEM/day, over 3,000 grt - 7,155 DEM/day 3).
 - In some cases cutters below 18 m are eligible as well 4).
4. Decommissioning
 - A decommissioning premium of 3,500 DEM/grt was available until 31.12.89. Thereafter it was reduced to 2,300 DEM/grt. To be eligible the vessels must have participated in the fishery for at least 5 years and in the previous

1) Bundesanzeiger nr. 157, 24.8.1977, S.1.

2) Bundesanzeiger nr. 136, 25.7.1967.

3) Bundesanzeiger nr. 205, 29.10.1988, S.4694.

4) Bundesanzeiger nr. 205, 15.12.1988, S.5225.

year they must have been fishing for at least 100 days 1).

5. Credit

- Government credits are available for modernization and new construction up to a maximum of 57 percent of the invested amount. The credit must be between 10,000 DEM and 100,000 DEM.
- If more than 400,000 DEM is being invested in a cutter of over 20 m, a credit can be given to a maximum of 25 percent of the investment or 200,000 DEM
- Credit for the fish processing industry is 50 percent of the total investment provided that it is at least 10,000 and at most 100,000 DEM.
- The rate of interest is 3 percent 2).

Table 3.9 Financial support to fisheries in 1987 and 1989, (1000 DEM)

Year/ type of support	Federal govt.		Laender	EC	Total
	trawlers	cutters	cutters	cutters	
1987					
New construction	1562	3763	2413	6480	14218
Modernization	-	433	635	662	1730
Temp. laying by	1432	8377	2589	1739	14137
Transit. arrang.	9493	-	-	-	9493
Decommissioning	-	113	71	-	184
Costs of interest	160	310	394	-	864
Total	12647	12996	6102	8881	40626
1989					
New construction	2663	1392	.	6727	10782
Modernization	282	378	.	621	1281
Temp. laying by	1133	4798	.	532	6463
Transit. arrang.	653	-	.	-	653
Decommissioning	-	3857	.	2194	6051
Costs of interest	-	1013	.	-	1013
Total	4731	11438	.	10074	26243

Sources: DFW, FB, EC.

1) Bundesanzeiger nr. 205, 15.12.1988, S.5225.

2) Bundesanzeiger nr. 38, 23.2.1974.

6. Subsidy for new fresh fish trawlers
- 23 percent of the invested amount, to a maximum of 3.5 mln. DEM 1).

The Federal government allocates annually some 12 mln. ECU to these programmes (25-30 mln. DEM). The Laender offer similar support to the fisheries as subsidies for new construction and modernization, costs of interest and low interest credits. The EC support to the German fleet amounted between 1987 and 1989 to an average of 3.6 mln. ECU/year (EC).

3.1.5.4 Inspection and prosecution

Germany disposes of relatively sufficient quota for its fleet, so that there is little need for a strict verification of landings. As in other countries, this would be rather difficult in view of the number of (small) fishing ports - 26 on the North Sea coast and 17 along the Baltic.

There are strict inspections at sea on the observance of 12 mile limits, mesh size regulations, etc. According to Das Fischerblatt (1988, p.132) fines for undersized fish and prohibited gear amounted to 400 to 2,650 DEM. The law would allow for fines up to 150,000 DEM. Some beam cutters have faced very severe claims from the prosecutors.

3.2 East Germany

3.2.1 Landings - volume and value

During the past two decades, the East German fleet faced a very considerable reduction of fishing opportunities. The volume of the landings decreased by about one half and their composition deteriorated as the relatively more valuable codfish was replaced by small pelagics.

In view of the absence of market prices in the East German economy, the value of the landings can best be assessed on the basis of fresh fish prices in West Germany. In that case the value of East German landings in 1987 could be put at some 95 mln. ECU.

1) Bundesanzeiger 194, 13.10.1976, S.4.

Table 3.10 Landings in East Germany, 1972-1987, (1000 t) *)

Species	1972	1977	1982	1987
Cod	41	19	12	6
Saithe	26	10	0	0
Mackerel	81	8	0	19
Sprat	14	19	1	1
Herring	109	62	51	50
Horse mackerel	0	3	98	47
Blue whiting	0	3	11	5
Redfish	15	19	5	9
Flounder	3	3	3	2
Sardine	2	13	10	8
Greenland halibut	10	11	4	5
Other	17	21	20	17
Total	318	192	215	169

Source: FAO, Yearbook of Fishery Statistics, vol.44 en 64.

*) Landings are incl. klondyking of ca. 60,000 t/year.

3.2.2 Present structure of the sector

At the time of the German reunification, the East German fleet consisted of a distant fleet, composed of 23 freezer and processing trawlers and 17 support vessels, and some 220 cutters between 10 and 26.5 m. Furthermore there were four shrimp trawlers working off the coast of Mozambique and four vessels in a joint-venture with Morocco. Finally, there were some 600 motorized 'beach craft', which could work close to the coast in good weather.

The distant fleet and the large cutters were operated by the VEB Fischkombinat Rostock, the distant fleet having Rostock as home port and the cutters Sassnitz. Some 4,500 people were employed on board. However, the company was involved in almost all activities related to fisheries - vessel construction, processing on shore, wholesale and retail trade as well as import and export. Even the institute for applied fisheries research came under it. The company employed in all some 15,500 people.

The small cutter fleet was organized in 27 cooperatives, employing some 3,050 people.

Herring has been the major target species for the cutter fleet, while the distant fleet concentrated on pelagic species in the waters of third countries (Canada, Faeroe Islands, Norway and USA) and in the international waters.

Table 3.11 Structure of the East German fleet, (end 1989)

Type of vessel	Number	Grt (1000)	Hp (1000)	Catch '89 (1000 t)
<i>Distant fleet</i>				
- trawlers	23	63.2	75.7	153 *)
- support vessel	13	55.7	57.3	-
- joint ventures	8	.	.	.
<i>Cutter fleet</i>				
- 26.5 m (Sassnitz)	43	6.6	12.2	22
- 10 - 24 m (Coop)	160	6.4	28.5	46
Coastal motorized	600	.	.	.

Sources: INFA and u.i.

*) Catch of distant fleet is incl. klondyking.

3.2.3 Economic situation and outlook

On the basis of the available information and the above estimated value of the East German landings it can be concluded that a large part of the fleet will have to be scrapped in the near future. A comparison between the gross revenues per man on board between East and West Germany - 30,000 resp. 150,000 DEM - shows how much lower the productivity is. The lower level of crew remuneration can barely compensate the profitability. This difference is partially the result of the high average age of the East German vessels, many of them being over 30 years old. The equipment on board is equally obsolete. The fuel efficiency is way below acceptable standards. However, it still remains to be seen exactly how many vessels will be able to continue operations under the new economic system of profit and loss accounting.

The unification put an end to most of the original fishing opportunities of the distant fleet. The bilateral agreements with the above mentioned countries were usually not acceptable to the EC. In case of Faeroe Islands and Sweden, East Germany gave away cod in exchange for herring. Norway was not prepared to increase the access of EC vessels to its waters with the original East German rights. The access to the Canadian waters was already questionable as East Germany did not have the necessary by-catch quota at its disposal. Furthermore East Germany usually supported Canada in the NAFO negotiations. The four vessels in Mozambique were brought into a joint-venture under local flag.

Far reaching adjustments have taken place since the reunification. VEB Rostock has been transformed into a limited company and is being temporarily managed by a trust fund under the federal government, just like most other previously state owned enterprises. It will be privatized if buyers can be found. It will probably be split up into a number of smaller viable

businesses. In the beginning of 1991 two of the seven younger freezer trawlers have been modernized, equipped with filleting machines, to produce frozen blocks of redfish and they have been put into operation in the Greenland waters. Further modernizations were being studied at that time just like the possibilities of integration of these vessels into the German distant fleet. The other vessels of the East German distant fleet have been laid by and may be sold to third countries.

Privatization is also being pursued with regard to the cutter fleet. The original cooperatives have been transformed into companies according to German law. The members are given the opportunity for a takeover. In the beginning of 1991 some 13 larger and 130 smaller vessels have been transferred into private hands.

The Federal government has spent about 100 mln. DEM (almost 50 mln. ECU) on the restructuring of the East German fleet. About 25 percent of was thereby eliminated. The monies paid out after 1. July 1990 will be considered for a partial restitution from the EC structural funds. These payments are especially meant to ease the social consequences (unemployment) and also for modernization investments. In the beginning of 1991 it was not clear how much money would be available for that year.

3.2.4 Consumption, processing and foreign trade

The consumption of fish in East Germany is estimated at 12.5 kg per person which is only slightly lower than that of West Germany. Some 20-25 percent is consumed fresh and the rest in various processed forms. Part of the fresh consumption consists of cultured carps.

The processing industry treats some 100,000 t of fish annually. There is a fairly equal distribution between frozen fillets, canned, smoked and other products. Nine of the processing plants were integrated within the VEB Rostock. Some cooperatives were also processing fish. It can be expected that also a number of these plants will have to be closed while the rest must be thoroughly modernized to meet western quality requirements.

The figures regarding East German foreign trade in fish and fishery products are not very consistent. The imports have been estimated between 1987 and 1989 at some 80-90,000 t, of which two thirds regards klondyking. The rest are mostly frozen and salted products.

The exports amounted in 1989 to some 38,000 t of which about one quarter to other Comecon countries. The Netherlands, Japan, Nigeria and Denmark were the major countries of destination with a total share of 45 percent of the total volume.

4. Belgium

4.1 Historic development

4.1.1 Landings

Belgium is the smallest fish producer in the EC. The Belgian fishing sector has been reduced seriously during the past 15-20 years. Landings as well as the size of the fleet diminished by some 40 percent.

Table 4.1 Landings of major species by the Belgian fleet, 1972-1989, (1000 t)

Species	1972	1977	1982	1987	1988	1989
Cod	24.5	12.2	7.6	8.8	6.2	4.5
Haddock	2.6	3.3	1.4	0.4	0.6	0.6
Saithe	2.5	1.6	0.2	0.2	.	.
Whiting	3.2	3.5	2.5	1.8	2.0	1.5
Plaice	6.1	7.9	8.5	12.3	14.7	13.7
Sole	3.1	3.3	4.0	4.6	3.5	4.1
Shrimp	1.1	1.2	2.2	0.8	0.6	0.8
Redfish	2.5	1.4	0.2	0.4	0.4	0.2
Skates	1.8	1.5	1.4	1.8	1.5	1.4
Other species	10.9	9.1	18.6	7.4	7.8	8.4
Total	58.3	45.1	46.9	38.6	37.2	35.2

Sources: FAO, Yearbook of Fishery Statistics. vol.44 en 64, BZ 1989.

A major cause for the downward trend has been the decrease of the landings of cod. The Belgian trawlers had been catching some 10,000 t of cod in the Icelandic waters in the beginning of the seventies. Access to this resource was restricted after the introduction of the 200 mile EEZ by Iceland. Consequently the Belgian catches in this area dropped to a few hundred tonnes. However, also the catches of cod in the southern North Sea decreased by about 8,000 tonnes. The fishing effort shifted increasingly from codfish to plaice in the North Sea and in the Irish Sea.

This change, coupled with a favourable price trend, allowed for an increase in the real value of the landings despite the decrease in volume. In 1972 this value was 2.7 bln. BEF and in

1987 3.5 bln. BEF (prices of 1987, 59 mln. ECU resp. 81 mln. ECU). In the years 1988/90 the landed value remained a few percentage points below the level of 1987. The contribution of cod dropped from 30 to 10 percent of the total value. That of sole grew on the other hand from 25 to 36 percent that of plaice from 8 to 23 percent.

4.1.2 Fleet

The structure of the Belgian fishing fleet has changed considerably. The number of vessels has diminished from 358 units in 1967 to 205 units by the end of 1989, but the total engine power remained almost constant at about 100,000 hp. The group of large "Iceland trawlers" disappeared almost entirely. In a bilateral agreement Iceland allowed 12 Belgian vessels to continue fishing after 1975. However, these vessels were not to be replaced so that in 1991 there were only three left.

In the course of the same period a new group of beam trawlers equipped with 500-1200 hp engines joined the Belgian fishing fleet. Furthermore a number of 300 hp Eurocutters was put into operation. The industry shifted from bottom (pair)trawl to beam trawl as its main gear.

Table 4.2 Development of the Belgian fleet, 1967-1989

	1967	1972	1977	1982	1987	1989
Number of vessels	358	284	219	203	201	205
Engine power (1000 hp)	93	85	83	90	101	105
Gross ton. (1000 gt)	31	23	21	22	23	25

Source: JEV.

4.2 Present structure of the fishing sector

4.2.1 Fleet

At the end of 1989 the Belgian fishing fleet was composed of 205 vessels with a total of 105,600 hp and 25,400 gt, (JEV 1989). The number of active vessels amounted to 222 in 1988 and 211 in 1989 (BZ 1989). This discrepancy can be explained by vessels joining and leaving the fleet.

Many vessels exercise various types of fishing according to season or potential results. Beam trawling is by far the most important, 171 vessels utilizing this technique in 1988. This fishery produced some 70 percent of the total value. The other fisheries - trawling for codfish, shrimp or Norway lobster - are of considerably less importance.

**Table 4.3 Composition of the fleet by size of vessels,
(31.12.1989)**

Group		Number of vessels	Engine power (1000 hp)	Gross tonnage (1000 gt)
Hp	Gt			
135-300	5-35	20	4.5	0.6
135-300	35-70	60	15.5	3.4
287-900	70-180	75	33.1	8.6
510-1448	180-400	49	52.2	12.5
	400 a.m.	1	1.2	0.5
Total		205	106.6	25.4

Source: JEV 1989.

**Table 4.4 Participation of the fleet in different fisheries,
1988-'89**

Type of fishery	Number of vesels		Average engine power	
	1988	1989	1988	1989
Bottom trawl	77	66	409	429
Herring pair trawl	-	31	-	253
Cod pair trawl	46	44	239	242
Shrimp	50	41	207	221
Beam trawl	171	162	690	698
Norway lobster	22	22	370	364
Other	2	6	450	414
Total active	222	211	554	567

Source: BZ 1988.

*) The columns do not add up to the total as some vessels carry out different fisheries.

Most fishing enterprises are relatively small. The 205 vessels were owned by 189 companies which means that only a handful of companies exploit more than one vessel.

Some 900 people are employed on board the fishing fleet.

4.2.2 Regional distribution

Zeebrugge is the most important port with a fleet of 107 vessels (68,000 hp), followed by Oostende (59 vessels, 24,300 hp) and Nieuwpoort (34 vessels, 11,300 hp).

Table 4.5 Distribution of landings by port, value and volume, 1989

Species	Oost- ende	Zee- brugge	Nieuw- poort	Foreign ports	Total
Value (mln. ECU)					
- cod	4.1	2.2	0.8	0.9	8.0
- plaice	2.4	7.9	0.3	3.7	14.3
- sole	8.3	18.8	1.8	1.6	30.6
- anglerfish	1.2	1.7	0.1	0.3	3.3
- other species	8.5	11.4	0.7	1.6	22.1
Total value	24.4	42.1	3.7	8.1	78.3
Quantity (tonnes)					
- cod	2290	1330	370	521	4511
- plaice	2409	7536	365	3420	13730
- sole	1116	2510	232	254	4112
- anglerfish	171	255	9	60	495
- other species	5514	5443	748	697	12402
Total quantity	11500	17074	1724	4952	35250

Source: BZ 1989.

4.3 Economic performance of the Belgian fishing sector

The increase of the real total value of the landings is above all the result of the favourable developments regarding catch of flatfish. Consequently the economic position of the beamer fleet has improved.

Table 4.6 Gross revenues of Belgian vessels according to their size, (1000 ECU)

Gt-group	1984	1985	1986	1987	1988
To 35	80	86	72	93	88
35-70	157	134	160	189	161
70-180	389	479	489	459	435
180-400	739	906	1027	977	901

Source: UBZ.

The data presented above show that on the average the Belgian fishing fleet achieved good economic results in the past few years. A good level of the real value of landings could be maintained while at the same time the size of the fleet remained constant. The production costs could be reduced thanks to the drop

of fuel prices in 1987, which strengthened the net results further.

The good results in the flatfish fishery have led to an increased level of investment in the past few years. Especially new beam trawlers of 300 or 1200 hp were being constructed so that the age composition of these hp-groups has improved considerably. The average age of the larger vessels has dropped between 1982 and 1988 from 13.6 to 9.6 years. Out of the 47 vessels belonging to this group, 34 were less than 10 years old at the end of 1988 (see annex 4, table 7).

According to the Official List of Belgian Fishing Vessels of 1989, some 44 vessels were equipped for bottom trawling. This group appears to be rather obsolete. Only two vessels were constructed recently (1986/87), while the others originate from before 1974. Most of these vessels were even older than 20 years. The investments in new engines have also been rather limited - only nine new engines were installed since 1974.

Table 4.7 Investments, 1970-1988

Period	Number of hulls	Number of engines
1970-'75	28	21
1976-'81	16	26
1983-'88	51	85

Source: JEV 1988.

The long term outlook for the Belgian flatfish fleet seems quite favourable, at least as long as the flatfish quota can be maintained at the '87-'91 level. The quota of the major species (sole, plaice and cod) are being fully utilized, while some others (especially herring and anglerfish) are not, so that the surplus can be swapped. As fairly good results have been achieved in the past few years, the individual enterprises have probably built up some reserves for possible meagre years in the future. The preliminary information available on 1990 indicates that a similar level of gross revenues has been realized as in the previous years. The 1991 quota should allow comparable results as well.

The outlook is much less favourable for vessels that depend largely on cod. During the past few years these vessels were already forced to accept a low level of revenues and in view of the poor state of the resource an improvement cannot be expected. It seems likely that this part of the fleet will gradually cease its operations because of technical and economic reasons.

4.4 Consumption, processing and trade

4.4.1 Consumption

The consumption of fish in Belgium is estimated at about 18 kg per head.

4.4.2 Processing

The Belgian landings are largely destined for the fresh market. Processing is carried out on quite a limited scale. Apart from a number of very small businesses, there are some 35 processors employing more than five persons, of which 8 have more than 50 employees. The processing industry has been growing and it treated some 30,000 t of fish in 1989, achieving a turnover of 4 bln. BEF (92 mln. ECU), (CR).

4.4.3 Foreign trade

Most processed products have to be imported. The total value of imports amounted to about 519 mln. ECU in 1989. The most important imported products are shellfish (30 percent of the value) and salmon (10 percent). The rest of the imports consists of a large variety of species and products, which shows a considerable diversity of demand in Belgium. A part of the imported fish is reexported again.

Belgium exported fish and fishery products worth 165 mln. ECU in 1989, shellfish and sole being the major items with relative shares of 35 resp. 20 percent.

The Netherlands and France are the major trading partners in terms of origin of Belgian imports as well as destination of exports.

4.5 Fishery policy

The Belgian fishery policy, summarized in its Multiannual Guidance Programme, broadly pursues two objectives: 1) Reduction of the fleet, and 2) Modernization and diversification of the fleet, maintaining at the same time its artisanal character.

4.5.1 Management of fishing effort

The total size of the fleet is kept under control with a double licensing system. Every fishing vessel must obtain a 'zeebrief' from the Min. of Transport. It is only eligible if it complies with the three following requirements : 1) sea worthiness; 2) 50 percent of the capital must be owned by a Belgian legal person; 3) the skipper must be a Belgian national. The law

Table 4.8 Multiannual Guidance Programme

	Situation 1.1.'87	Objective 31.12.'91
Engine power (hp)	106700	94100
Gross tonnage (grt) *)	25200	21300

Source : EC Official Journal Nr. L 62/2 of 14.3.90.

*) It is interesting to note that the MAGP gross tonnage in grt in 1987 is equal to gt-tonnage shown in the Belgian statistics.

does allow for a waiver in special cases on the last two requirements.

If a vessel is to be employed in professional fishing it must furthermore obtain an authorization from the Min. of Agriculture. An authorization is required also for non-quota species. It is not transferable. Even in case of replacement of a vessel, when there is no change of owner, the old authorization must be returned and a new one requested. There are two types of authorizations - one for vessels up to 300 hp and another one for those between 300 and 1200 hp.

The authorizations also offer a possibility to restrict further fishing effort as they can be issued specifically for a certain fishing method, species or fishing area. The possibility of introducing itq's is also left open.

A maximum limit has been set to the engine power of new vessels at 1200 hp. However, in view of general difficulties to measure horse power unambiguously, it is not certain whether this rule can be strictly applied.

In the beginning of 1989 a decommissioning scheme was introduced, exactly in accordance with the EC regulation 4028. The premiums are calculated as follows:

- up to 100 gt : premium = 2500 ECU + 2000 ECU * gt
- 100-400 gt : premium = 140000 ECU + 850 ECU * gt
- over 400 gt : premium = 316000 ECU + 410 ECU * gt

These premiums, which were still valid in the beginning of 1991, will probably be adjusted to the revised EC regulation 4028, which differentiates between the various ages of the vessels.

The Min. of Transport has annually some 20-30 mln. BEF (600,000 ECU) at its disposal to spend on decommissioning. No vessels were taken out of the fleet through the scheme during 1989/90. Considering the economic performance it does not seem likely that many vessels will apply in the near future.

4.5.2 Management of landings

A reduction of the size of the fleet is considered desirable to prevent exceeding the quota in some cases (BZ 1989). However,

as this reduction depends on the free will of the individual vessel owners, other measures have been introduced to limit landings. Rather detailed (by-)catch regulations for flatfish in the Channel and for cod in all accessible areas were adopted in 1988. However, the regulation for cod was abandoned later as the quota remained underutilised. At the same time the quota for flatfish were exceeded, making stricter measures necessary.

Table 4.9 Catch allocations for flatfish - first quarter 1991, (t/vessel)

Hp-group	Sole	Plaice
To 300	10	30
301-500	15	45
501-700	20	60
701-900	25	75
900 a.m.	30	90

Source: Belgisch Staatsblad 12.2.1991.

Furthermore a number of other regulations is in force in 1991:

- a maximum of 95 sea days in the first four months;
- if a vessel exhausts its allocation of one of the two species, it also has to cease fishing for the other one;
- if the total catch in the North Sea exceeds 1.000 tonnes before 31.3, than vessels with more than 300 hp are allowed to land a maximum of 25 kg of sole per sea day;
- minimum size of plaice is set at 27 cm (EC size is 25 cm);
- vessels permitted to fish in the Icelandic waters are not allow to fish in the EC waters.

4.5.3 Support of the sector

A third structural measure is the 'Scheepskrediet' (credit for vessels). Investors who want to build a new vessel may apply for a special credit with low interest rate if the engine power of the new vessel is at least below that of the old one and if the old vessel ceases active fishing. This credit can at the most amount to 80 percent of the total investment, it has a term of 15 years and an interest rate of 4 percent.

During the period 1985/89 an average loan sum of 230 mln. BEF (5.3 mln. ECU) was granted annually. The cost of interest subsidy amounted to 10 mln. BEF (230,000 mln. ECU) per year.

The second objective, modernization of the fleet, is being pursued through available subsidies. To be eligible the engine power of the vessel may not be increased and the vessel may not

be older than 20 years 1). If the investment exceeds 2.8 mln. BEF (65,000 ECU), the investor may apply for 'Scheepskrediet' from the Min. of Transport under the above indicated conditions.

Smaller investments are supported by the Min. of Agriculture, which has a budget of 5 mln. BEF/year for this purpose (115,000 ECU). In case of investments between 1.2 and 2.8 mln. BEF (28-65,000 ECU) a modernization grant of 10 percent may be given. Investments of less than 1.2 mln. BEF are eligible for a grant of 10-30 percent.

4.5.4 Inspection and prosecution

In principle landings can be verified through the auctions. Although selling fish through auctions is not obligatory, the municipal regulations require that every vessel landing fish in a fishing port must sell through its auction. In theory landing fish in other ports is possible, but in practice this leads to (elaborate) administrative procedures (health control, etc.).

Prosecution of offenses is usually settled out of court with a fine of some 60,000 BEF (1,400 ECU).

1) Koninklijke Besluit 1.3.58.

5. Denmark

5.1 Historic development

5.1.1 Landings

Denmark is the most important producer of fish within the EC in terms of landed volumes. 70-75 percent of the catch consists of small pelagic species destined for fish meal. The large annual fluctuations of landings are mostly caused by these species.

Table 5.1 Landings of the most important species by the Danish fleet, 1972-1987, (1000 t)

Species	1972	1977	1982	1987
Cod	153	154	193	150
Haddock	38	27	34	11
Saithe	19	21	10	8
Whiting	66	65	46	3
Plaice	48	49	36	37
Sole	1	1	1	1
Hake	1	2	2	2
Anglerfish	0	1	1	2
Norway lobster	2	1	3	3
Mackerel	2	23	25	31
Shrimp	4	8	10	16
Dab	5	4	7	6
Herring	358	94	84	157
Blue whiting	0	35	58	73
Horse mackerel	0	2	7	54
Sprat	20	260	338	134
Norway pout	277	261	341	219
Sandeel	337	680	544	617
Other species	61	59	92	67
Total	1392	1746	1832	1592
- human consumption *)	427	438	457	361
- fish meal *)	965	1308	1375	1231

Source: Yearbook of Fishery Statistics. vol.44 en 64.

*) Division into fish for consumption and fish meal is partially based on own estimate.

Cod is the most important species landed for human consumption, but since 1982 its relative importance has dropped by some 50 percent to 103,000 tonnes in 1989. The second ranking species is plaice. The role of haddock, saithe and whiting also diminished considerably. On the other hand, the relative share of the pelagic species - mackerel, horse mackerel and blue whiting - has increased.

The official landings of herring destined for fish meal diminished as a result of the various management measures that were taken. At the same time the fish meal industry relied more heavily on sandeel and sprat. However, it should be kept in mind that : a) fish landed for fish meal cannot always be identified properly; and b) unregistered by-catch of herring for fish meal is allowed in certain cases.

The value of the landings has been fluctuating since 1982 between 380 and 440 mln. ECU, (Andersen). In 1980 this value amounted to 320 mln. ECU.

5.1.2 Fleet

The composition of the Danish fleet has shifted from smaller vessels between 5 and 50 grt to larger ones of more than 200 grt. Consequently, the number of vessels has decreased while the total gross registered tonnage as well as the horse power increased.

Table 5.2 Development of the Danish fleet and employment, 1967-1988, (per 31.12)

Grt-group	1967	1972	1977	1988
Number of vessels a)				
- 5 - 15	1819	1281	1363	1239
- 15 - 50	2040	1804	1701	1291
- 50 - 100	165	199	230	202
- 100 - 200	89	201	274	169 b)
- 200 a.m.	3	17	75	113 b)
Total number	4116	3502	3643	3014
Total (1000 grt)	.	110.5	139.1	122.4
Total (1000 hp)	.	510.5	730.0	731.1
Employment (1000)				
- seasonal only	3.9	3.7	3.9	.

Sources: De Wilde; FB 1972, 1977; Fiskeriministeriet.

a) Until 1987 there were also some 3,600 craft under 5 grt registered as fishing vessels; b) For 1988 the two largest groups are own estimates.

5.2 Present structure of the fishery sector

5.2.1 Fleet

Until 1987 some 6,000 craft were registered as fishing vessels. About half of this number was, however, smaller than 5 grt and since 1987 they have been excluded from the fishing register and explicitly forbidden to catch quota species.

The most important group within the Danish professional fishing fleet are some 1,400 trawlers, of which more than 50 percent are smaller than 15 grt. More than 60 percent are equipped with engines between 200 and 600 hp and have a length of 12-21 m.

The second largest group are some 1,100 small vessels fishing usually with gill nets and lines. The average size of the vessels in this group is 13 grt, 80 percent are equipped with engines of less than 200 hp and are less than 13 m long.

Considerably less important are the 280 vessels working with Danish seines. Their average size is 34 grt and 90 percent of them have 12-20 m in length and 150-400 hp in power. The last group to be mentioned are the 11 large purse seiners, all operating from the northern harbour of Hirtshals. These vessels have on the average 600 grt and most are equipped with engines of more than 2,000 hp.

Table 5.3 Structure of the Danish fleet by type of vessel (per 31.12.1988)

Type of vessel	Number	1000 Grt
Side trawlers	923	40.8
Stern trawlers	264	29.4
Other trawlers	238	19.2
Purse seiners	11	6.7
Danish seiners	279	9.4
Gill netters, liners	1079	14.2
Fixed nets	172	1.3
Other vessels	48	1.6
Total	3014	122.4

Source: FM 1988.

The existing fleet carries out a large number of various fisheries. Especially the smaller trawlers (up to 150 grt) are able to adjust flexibly to changing availability of various species resp. to changing relative prices. Further research in 1988/89 indicated that the flexibility may be even greater than shown in table 5.5.

Table 5.4 Structure of the Danish fleet by type and grt (number per 31.12.88)

Type of vessel	Grt-group					
	5-15	15-50	50-100	100-150	150-250	250 a.m.
Side trawlers	68	641	112	64	31	7
Stern trawlers	69	61	27	33	46	28
Other trawlers	55	97	18	28	26	14
Purse seiners	-	-	-	-	1	10
Danish seiners	16	258	4	-	1	-
Gill netters/liners	841	210	26	2	-	-
Fixed nets	171	1	-	-	-	-
Other vessels	19	23	3	1	1	1
Total	1239	1291	190	128	106	60

Source: FM 1988.

Table 5.5 Types of vessels and their target species in 1987

Target species	Area *)	Trawlers (grt)						Purse seine	Gill net	Danish seine
		10-40	40-100	100-150	150-300	300-400	400 a.m.			
		40	100	150	300	400	a.m.			
Cod	B	X	X	X	X					
	N,S								X	
Lobster	S,K	X	X							
Shrimp	N,S	X	X	X						
Herring	S				X			X		
Plaice	N,S,K								X	X
Mixed	N,S	X	X	X						
Sprat	S,K	X	X							
	N			X	X					
Sandeel	N	X	X	X	X	X	X			
No. pout	N,A			X	X	X	X			
Horse mack.	Ch					X				
Mackerel	N							X		

Source: COWI.

*) Areas: N=North Sea, B=Baltic, S=Skagerrak, K=Kattegat, Ch=Channel, A=Atlantic Ocean.

5.2.2 Regional distribution of fleet and landings

The 3,000 fishing vessels are dispersed over some 210 harbours. Along the coast of the North Sea, Kattegat and Skagerrak the fishing activities are concentrated in three large ports (Esbjerg, Skagen and Thyboron) and six medium sized ones. A large number of small ports is located along the Baltic coast and between the islands. The most important Baltic port is Nekso on the island of Bornholm.

The fish meal fishery is largely concentrated in Esbjerg. Due to relatively good meal prices in recent years, fish for reduction represented probably more than 75 percent of the total fishery turnover of this port. Esbjerg produces about one half of all Danish fish meal. Other important fish meal ports are Thyboron and Hirtshals, whose aggregate share is about 30 percent.

Table 5.6 Regional distribution of fleet and landings, 1988 *)

Major harbour	(Fiscal area)	Landings		Fleet	
		1000 t	mln. ECU	Number	Grt
Esbjerg	(Esbjerg)	687	73.9	207	28503
Thyboron	(Lemvig)	234	66.7	343	16925
Hirtshal	(Hjorring)	171	57.2	190	16591
Skagen	(Skagen)	149	37.7	205	13060
Hanstholm	(Thisted)	52	26.4	164	6513
Hv. Sande	(Ringkøbing)	43	41.2	194	7476
Bornholm	(Bornholm)	65	43.2	285	10388
Other		190	97.0	1427	23073
Total		1591	443.1	3015	122529

Source: FM Fiskeriberetning.

*) The presented data is aggregated according to fiscal areas which also include some smaller ports.

The rising importance of the Baltic fishery has made Bornholm the most important port for landings of cod. Landings of flatfish, herring and mackerel are concentrated along the North Sea and the Skagerrak ports.

As there are only 20 auctions along the whole Danish coast, about one half of all consumption fish is sold directly to processors and traders. In the ports where an auction is being operated 66 percent of the volume and 77 percent of the value of the landings was sold through it. However, in the three largest ports

Table 5.7 Regional distribution of landings of consumption fish, 1986, (percent)

Species	West Jutland	North Jutland	East Jutland and Fyn	Sjaeland and Sydoerne	Bornholm
Cod	23	26	6	9	37
Flatfish	53	31	8	5	3
Herring	0	91	1	7	1
Mackerel	0	100	0	0	0
Other species	21	56	70	10	6
Total	18	53	4	7	17

Source: COWI.

the share of the auction in the total landings varies between 50 and 60 percent. Some 30 percent of all landings takes place in ports without an auction and in those cases 90 percent will be sold directly, usually to the processing industry. This applies especially to the Baltic cod. A large part of the flatfish will be auctioned, (COWI).

72 percent of all catches are made in the North Sea, 12 percent in Skagerrak, 5 percent in Kattegat and 6 percent in the Baltic. The high share of North Sea is evidently caused by landings of small pelagics. The catches of demersal fish (codfish and flatfish) have shifted strongly from the North Sea to the Baltic and since 1982 the second has surpassed the first. Although this trend has been weakened lately due to decreasing quota in area III, the landings in the Baltic in 1988 were still twice as high as ten years earlier, (Andersen).

Table 5.8 Role of the fishing areas for the demersal fishery, 1978-1988, (1000 t)

Area	1978	1982	1988
North Sea	74	105	84
Skagerrak & Kattegat	80	63	40
Baltic Sea	53	97	104
Fjords	1	1	-
Other areas	2	-	2
Total	210	266	230

Source: Andersen.

5.3 Economic performance of the Danish fleet

Between 1984 and 1988 the value of the landings amounted to 400-440 mln. ECU, (OECD, Andersen), of which about 70 percent was fish for human consumption and 30 percent was for fish meal. In terms of quantities the shares were 20 percent and 80 percent respectively.

Although there is no data for an unambiguous assessment of the economic performance of the fleet the general opinion in Denmark is that the results have been structurally rather weak in the past few years. In this respect the following indicators can be mentioned:

- The fleet has an average age of 30 years.
- Despite the high age, many vessels are still heavily indebted.
- The remuneration of the crew is on the average approximately 19-21,000 ECU per man per year, which is not much in Denmark.
- There is an outflow of young people from the sector because of the uncertain future outlook.
- The Fisheries Bank has suffered considerable losses in 1989 because of forced liquidations. Some 100 vessels had to be put on sale by the Bank in 1990 1).
- The loan repayment record of the Fisheries Bank is deteriorating. The total amount of repayments on credit which were not met on time has increased from 2.4 mln. ECU in 1985 to 10.7 mln. ECU in the beginning of 1989, (KDH 1988).
- In December 1987 the Danish government had to create a special fund of 100 mln. DKK to help businesses that had liquidity problems.
- Between 1985 and 1988 the Fisheries Bank granted on the average some 16.7 mln. ECU annually in new loans. However, the level of the years 1987/88 was about 45 percent lower than that of the two previous years.
- It is estimated that the Fisheries Bank finances at least 50-60 percent of all investments so that the annual investments in these four years would amount to some 28-34 mln. ECU/year at the most, which can be considered as rather low in relation to the size of the sector.

In view of the existing economic problems there is a general agreement in Denmark that the total overcapacity of the fleet amounts to some 30 percent.

In the years 1985/87 the available cod quota were still at a reasonable level, but the price of fish meal on the world market was low, which was of course reflected in the prices paid to the vessels. Later the fish meal price has increased with some

1) Eurofish report 346, fs/l.

50 percent, but at the same time the cod quota dropped considerably. Consequently there has been a marked shift in the composition of the total value of the landings as far as these two species are concerned. Still some 75 percent of the total value comes from cod, fish for meal, plaice, lobster and shrimp.

Table 5.9 Share in value of landings per species in 1987 and 1989, (percent)

Species	1987	1989
Cod	38	29
Other codfish	5	5
Plaice	11	8
Sole	2	4
Norway lobster	5	6
Shrimp	8	3
Herring	2	4
Other species	13	14
Total human consumption	85	71
Fish meal	15	29

Sources: FAO, FM 1989, Fiskeriberetning.

The changes in the relative availability of the various species have effected mostly the vessels using gill nets or Danish seines as these totally depend on fish for human consumption. The COWI report uses as a basis data for 1986 and it concludes that fishing for cod is a major contribution to a profitable exploitation of the vessels. In the subsequent study regarding the years 1987/88 (unpublished) a completely different conclusion had to be

Table 5.10 Estimated gross revenues of the Danish trawlers by grt-group in 1987

Grt-group	1000 ECU
10-20	80
20-40	100
40-60	200
60-100	250
100-150	350
150-300	470
400 a.m.	590

Source: COWI.

drawn on the basis of the changed situation. Flexibility regarding target species has proven to be essential for continuous operation of the vessels. There are indications that gill netters have been transformed into trawlers for this very reason. One half of some 1,500 trawlers that were operating in 1988 earned more than 50 percent of their gross revenue from fish for human consumption. 1,350 of the remaining 1,600 fishing vessels depended for their gross revenues for more than 90 percent on fish for human consumption, (Andersen).

The Danish fishing fleet consists of relatively old vessels with an average age of 29 years at the end of 1988. Almost two thirds of the vessels were built between 1955 and 1979. During these 20 years 65-85 new vessels had entered into the fishery. 850 vessels were built prior to 1955 and only 281 after 1980.

Table 5.11 Age composition of the Danish fleet by type of vessel, (31.12.1988)

Type of vessel	Age groups (years)				Total
	0-9	10-24	25-39	40 +	
Side trawlers	28	245	439	211	923
Stern trawlers	58	122	52	32	264
Other trawlers	29	85	83	41	238
Purse seiners	1	7	3	0	11
Danish seiners	7	45	129	98	279
Gill netters, liners	137	501	198	243	1079
Fixed gear	14	91	27	40	172
Other vessels	7	5	12	24	48
Total	281	1101	943	689	3014

Source: FM 1988.

5.4 Consumption, processing and trade

5.4.1 Consumption

The Danish consumption per capita can be estimated at some 17 kg/year (FAO), which seems quite low in view of the high landings. The North Sea species caught off the Danish coast (cod, plaice and herring) are the most popular ones.

5.4.2 Processing

Contrary to the fleet, the Danish fish processing is a modern and growing industry.

5.4.2.1 Fish meal industry

The six operating fish meal companies are in cooperative ownership of the local vessel owners and as such they are located in the major ports of Jutland. They annually process some 1.5 mln. t of fish into 300,000 t of fish meal and 90,000 t of fish oil. In 1986 their gross revenues amounted to 164 mln. ECU, of which 88 percent was from fish meal and 12 percent from fish oil. 70 percent of the total value is earned on foreign markets. The plants employ 600-700 people, (COWI).

The production of fish meal is largely determined by the seasonal availability of sandeel, most of which is caught between April/May and August, June being the most important month. This seasonality has in fact become more pronounced during the past 10 years. The capacity of the plants is sufficient for the top month so that the average annual capacity utilisation is only about 40 percent, (COWI).

5.4.2.2 Processing of fish for human consumption

Production of fish products for human consumption depends to a great extent on imported raw materials.

Table 5.12 Availability and utilisation of the most important species in 1986, (1000 t)

Species	Origin			Destination			Total
	Danish landings	Foreign landings	Imports	Danish consump.	Exports	Other *)	
Cod	160	33	119	32	259	21	312
Herring	80	40	35	16	137	2	155
Flatfish	53	8	21	15	51	16	82
Mackerel	22	20	5	14	26	7	47

Source: COWI.

*) Other = Mostly ready meals and breaded products which could not be subdivided into the other categories.

The Danish fish processing sector consists of about 300 enterprises of which 20-25 larger ones, each employing more than 100 people. Furthermore there are some 130 wholesalers. The industry employs a total of some 10,000 people. Its gross revenues were about 900 mln. ECU in 1986, (COWI).

Table 5.13 Major processed species and products, 1986

Species/product	Gross revenues (mln. ECU)	Quantity (1000 t) *)
Herring	102.7	103
- fresh, processed	42.8	68
- marinated	25.4	10
- frozen fillets	6.6	10
- salted fillets	5.8	6
Mackerel	41.3	19
- canned	34.3	17
Codfish	290.4	92
- frozen cod fillets	200.4	61
- other frozen fillets	32.4	12
- fresh cod fillets	32.2	10
- salted cod	15.3	12
Flatfish	68.6	15
- plaice fillets	53.3	12
- other fillets	10.4	2
- smoked whole fish	4.8	2
Salmonlike fish	51.3	4
- smoked salmon	44.7	3
- smoked trout	4.4	1

Source: COWI.

*) Product weight.

5.4.3 Exports

Denmark is the largest fish exporting country within the EC. The total value of its exports of fish and fishery products amounted to 1.5 bln. ECU in 1988, which is 45 percent more than the nominal value of 1982. In real terms the increase would be 8 percent.

Traditionally cod has been the most important species within the Danish exports, with a relative share of some 20 percent. However, since 1982 reexport of shrimp from Greenland has grown rapidly and by 1988 its share within Danish exports had risen to almost 25 percent. Salmon, trout and herring are considerably less important, (see annex 5).

The most important export products are the frozen pandanus shrimp and fresh cod fillets for the European market, the frozen cod fillets for the USA and the herring half products for the German processing industry.

The major countries of destination for Danish exports are Germany (20 percent of the total value in 1987/88), Italy (15 percent), France (13 percent) and the United Kingdom (12 percent). However, the importance of Germany has become less pronounced since 1979/80 as its share dropped from 30 percent to 20 percent. On the other hand, the importance of Italy has increased in the same period from 7 percent to 15 percent. About 70 percent of all exports are destined for other EC countries. Since the beginning of the eighties there has been a strong growth of exports to Japan - from 7 mln. ECU in 1982 to 116 mln. ECU in 1988 - especially due to shrimp which made up 90 percent of the total value. In 1988 salmon also has become of some importance (10 percent), (DFE).

5.4.4 Imports

The Danish imports of fish and fishery products are much smaller than its exports, although they have grown considerably faster than the exports since 1977. The bulk of the imported fish is destined for processing in Denmark and reexportation. In 1988 57 percent of the total import value consisted of pandalus shrimp and cod. These two species accounted for almost 70 percent of the growth of the import value since 1977.

There are traditionally three main countries of origin: Greenland, Faeroe Islands and Norway. The share of these three within the Danish imports amounts to almost 70 percent.

5.5 Fishery policy

The Danish fishery policy is rather complex as it aims to take into account a number of different factors:

- some quota of the same species have to be managed in two or more different areas;
- there are several important fish stocks;
- some fisheries are seasonal - Baltic cod between January and April, sandeel between May and August.
- the flexibility of the fleet creates a potential overcapacity in any 'good fishery' which may be found.

The fishery policy of 1990 is the result of policies that were followed in the past, but puts more restrictive limits on the flexibility of the vessels in terms of the fishing grounds which they are allowed to exploit and it sets maximum catches per vessel.

5.5.1 Management of landings

The landings are managed as follows:

1. Proportionate distribution of landings throughout the year is being pursued through quarterly quota.
2. The flexibility at any one time is being limited by the introduction of specific permits which give access to certain areas. This applies especially to the cod fishery in the Baltic and the herring and mackerel fishery in a number of other areas. The vessels which have a permit for these fisheries may not enter another fishery as long as their permit is valid, which is either for two weeks or one month.
3. Landings per vessel are being regulated by specific maxima per trip or per month, which ever is more restrictive.

This management system was to be valid during the first half of the year, whereas in the second half another one could be adopted. Furthermore the trip or month quota can be changed every month.

Table 5.14 Regulation of the cod fishery in 1990, (t)

	North Sea	Skagerrak	Kattegat	Baltic
Quotum per period in EC waters				
- 1.1-31.3	6050	4200	2500	
- 1.4-30.6	5200	4200	1000	37810 *)
- 1.7-31.12	9635	8455	1520	9500
Total EC	20885	16855	5020	47310
Swedish zone				5515
Maximum catch per vessel per calendar month				
- to 12 m	12	12	4 t/trip	25
- 12-16 m	16	16	"	35
- 16-20 m	17.5	17.5	"	35
- 20-22 m	17.5	17.5	"	45
- 22-26 m	19	19	"	45
- 26 m a.m.	19	19	"	50
Fish meal vessels				
- max./trip	1.5	1.5	2	0
- max./month	4.5	1.5	2 t/trip	0

Source: Fiskeriministeriet bekendtgørelse nr. 884 of 22.12.1989.

*) Total for the first six months.

5.5.2 Management of the fishing effort

The MAGP requires a reduction of the fleet by about 10 percent. The final objective for 1991 has already been achieved in the beginning of 1990 as a result of a decommissioning scheme which was introduced in 1987. In that year some 98 mln. DKK (12 mln. ECU) was spent for this purpose. In 1988 132 mln. DKK (16.6 mln. ECU) was spent and in 1989 66 mln. DKK (8.3 mln. ECU). Another 40 mln. DKK (6 mln. ECU) had already been spent in the period 1984/86.

Table 5.15 Multiannual Guidance Programme, (1000 hp, 1000 grt)

Type of vessel	Engine power		Gross tonnage	
	situation	objective	situation	objective
	1.1.'87	31.12.'91	1.1.'87	31.12.'91
Purse seiners	19	21	6.7	7.0
Trawlers above 36 m	83	74	29.4	24.0
Basic fleet	569	516	89.2	78.2
Vessels below 12 m	93	86	10.8	10.0
Total	764	697	136.1	119.2

Source: EC Official Journal nr. L66/16, 14.3.1990.

Investment in new vessels is being discouraged. One of the conditions for credit from the Fishery Bank is the obligation to withdraw 30 percent more tonnage from the fleet than the tonnage to be built. Exclusive funding by private banks appears to be difficult and even then tonnage equal to the new vessel must be withdrawn. These regulations have already been introduced in 1985. Furthermore all requests for financing by the Fishery Bank are being assessed by a commission in which the government as well as the industry are represented. This implies that even the Bank's decisions can be used to a certain extent to regulate the investments.

Vessels with an engine larger than 500 hp are not allowed to use beam trawl. Furthermore the minimum sizes of cod, haddock and saithe are larger in Denmark than those required by the EC.

5.5.3 Support of the sector

Most of the support to the sector is channelled through the Fishery Bank, which finances investments up to about 60 percent of the market value of the vessel. The credit conditions of the Bank are softer than those of the commercial banks - the interest

is 2-3 percent points lower and for relatively new vessels the term may be 15-20 years. For the older vessels it will be only 10 years. During the last few years the Bank has given some 40 loans with a total value of 250 mln. DKK (31.6 mln. ECU). The total number of outstanding loans is about 5,000. The Bank has also been in charge of the 100 mln. DKK (12.6 mln. ECU) special fund mentioned in ch. 5.3 with which short debts were transformed into long term credit.

Furthermore relatively small amounts have been allocated to specific activities:

- 3 mln. DKK within the EC regulation 355/77 for the modernization of fish processing for human consumption;
- 10 mln. DKK for modernization of the Danish fleet incl. vessel between 9 and 12 m which for which the EC regulation 4028/86 does not apply;
- 3.5 mln. DKK for experimental fishing;
- 2.1 mln. DKK for various consultants.

5.5.4 Inspection and prosecution

The Danish government has set up a fairly extensive system to check the level of landings since 1988. The fishery officers are supposed to check at random whether the logbook declarations are consistent with the landings. The logbooks must be submitted within 48 hours after landing. All first buyers of the fish must submit copies of their purchase documents.

A computerised system has been set up to process this data and to cross-check its consistency. The Fiskeriministeriet also has a computer on-line connection to all major fish auction. All vessels must report to Fishery inspectors at least two hours before landing their catch and must obtain their permission to unload.

Some offenses can be dealt with by administrative fines, e. 2,000 DKK when the logbook is not submitted within the required hours. The current legislation specifies that the entire catch revenue may be confiscated, even if it cannot be proven that it was entirely obtained illegally. Some heavy fines were imposed in relation to offenses related to (by-)catch regulations. The full gross revenue was confiscated plus a fine of three times this revenue. It is not clear whether the heavy fine is a rule or an exception.

6. Ireland

6.1 Historic development

6.1.1 Landings

Because of the historical circumstances the Irish fishing sector has only developed during the last 30 years. The landings have grown first between 1963 and 1972 from 25 to some 85,000 t and remained at this level until 1977. Within the Agreements of The Hague (1976), Ireland was allowed a further expansion of its fishing sector by adjusting its share in the various TAC's in excess of its historic performance. In the following five years the landings increased to 200,000 t.

Three quarters of the growth were realised by three small pelagic species herring, mackerel and horse mackerel. The share of these three species in the total landings amounts to some 75 percent.

Table 6.1 Landings of the most important species by the Irish fleet, 1972-1987, (1000 t)

Species	1972	1977	1982	1987
Cod	3.3	5.5	10.2	7.7
Haddock	5.6	0.9	5.5	3.3
Whiting	4.4	8.8	12.2	9.5
Plaice	1.5	1.7	1.7	3.1
Sole	0.2	0.3	0.4	0.5
Hake	0.1	0.1	1.1	1.8
Anglerfish	0.0	0.1	1.2	1.6
Megrim	0.2	0.2	1.8	2.4
Norway lobster	1.8	2.9	5.2	4.4
Mackerel	4.6	23.0	119.8	90.1
Sprat	5.9	6.1	4.1	2.2
Herring	47.8	23.4	29.7	39.6
Horse mackerel	-	-	-	31.5
Other species	5.9	13.3	9.6	23.2
Total	81.3	86.3	202.6	220.7

Source: FAO, Yearbook of Fishery Statistics. vol.44 en 64.

The economic importance of the various species has changed considerably during the past 5-10 years. Within the group of

pelagic species the role of mackerel and horse mackerel has increased at the expense of herring. The share of Norway lobster has increased also but fluctuates. A number of new species has gained importance too - namely plaice, hake, anglerfish, dogfish and megrim. In 1987 these species were almost as important as whiting. Consequently, the basis of the Irish fishery has become considerably more diverse.

Table 6.2 *Five most important species - share in total value, 1977-1987, (percent)*

Species	1977	1982	1987
Cod	8	10	10
Whiting	7	5	6
Norway lobster	9	17	12
Mackerel	7	29	15
Herring	25	11	8
Total	57	71	50

Source: Estimate on the basis of O'Connor and DM 1987b.

In 1987 the real prices were often higher than in 1982, but lower than in 1977. As a result of the falling fuel costs and rising price level, the economic performance of the fleet has improved considerably in the past five years.

6.1.2 Fleet

It is difficult to quantify the development of the fleet because the available information is not very reliable. The largest part of the fleet consists of vessels of less than 12 m. According to the law, vessels below 65 ft (20 m) do not need a fishing licence. They do need one at the time of their entry into the fleet, but they are not obliged to renew it annually. On the other hand there is probably an important number of small vessels, fishing without a licence. In 1990 Ireland was setting up a computerized updated register of fishing vessels. Therefore, figures regarding the fishing fleet should be considered as rough indications only.

The size of the Irish fishing fleet has probably grown gradually since the beginning of the seventies, thanks to the support through national and FEOGA funds. The largest part of the fleet, however, consists still of small vessels below 12 m/15 grt, which are active only seasonally. The number of small trawlers between 15 and 25 m has increased as well. Furthermore a new development has taken place since the seventies in the area of pelagic fish-

ing. First, a number of herring trawlers was put into operation. They were followed in the eighties by six large purse seiners (50/55 m) equipped with RSW-tanks. A 65 m freezer trawler was constructed in 1987. In the eighties also a number of Dutch beam-cutters was imported into Ireland to exploit the flatfish quota in the Irish Sea. Their catching capacity exceeds, however, their fishing rights so that they are forced to fish in other areas and with other gear during most of the year. Finally, there are 12 ex-Spanish trawlers operating in joint ventures under Irish flag. They are concentrating on hake, anglerfish and megrim.

There are some 8,000 people employed in the fishery sector, but more than half of them only on a part time basis.

Table 6.3 Development of the Irish fleet, 1970-1985, (number of vessels)

Grt-group	1970	1980	1985
To 10	636	1082	1064
11-15	23	115	72
16-25	30	40	55
26-50	160	154	183
51-75	59	110	105
75-99	-	47	36
100 a.m.	27	68	81
Total	935	1616	1596

Source: O'Connor.

6.2 Present structure of the fishing sector

6.2.1 Fleet

According to the BIM, the largest group within the fleet are the small 'inshore' vessels (ca. 6-18 m), which fish only seasonally with different kinds of gear. Their main target species being salmon, lobster and various bottom fish. These boats are rented to sport fishermen as well. During the high salmon season (June-September) some 1000 not motorized (or with outboard engine) boats are also being employed.

The 'near water' trawlers (18-27 m) are often more than 20 years old. The smaller ones fish mostly bottom species, while the larger (originally herring) boats fish herring as well as bottom fish according to the season and the relative abundance.

Sixteen 'off-shore' vessels are equipped with rsw-tanks for the pelagic fishery on herring, mackerel and horse mackerel. Six others, of which several are beam-cutters, exploit bottom spe-

cies. The 'distant water' fleet is composed of six purse-seiners (49-55 m). The largest vessel of the Irish fleet is a 65 m pelagic freezer trawler. A new freezer trawler for bottom fish was put into operation in 1990, (BIM).

Table 6.4 Structure of the Irish fleet, 1987

Type of vessel	Length (m)	Number
Inshore	to 12	1434
	12-18	282
Near water	18-21	171
	21-27	117
Off-shore	27-40	22
Distant water	49+	7
Total		2033

Source: BIM.

6.2.2 Regional distribution

There is a clear regional distinction between the landings of the demersal and of the pelagic species. Some three quarters of the pelagics is landed in Killybegs on the west coast, so that this is by far the most important fishing harbour in Ireland. The landings of the demersal species are considerably more dispersed.

Table 6.5 Regional distribution of landings, 1987, (mln. ECU, 1000 t)

Harbour	Demersals		Pelagics		Total	
	value	quantity	value	quantity	value	quantity
Killybegs	3.9	4.2	17.7	115.3	21.5	119.5
Howth	10.3	8.2	0.2	0.9	10.7	9.1
Castletownbere	4.9	3.3	0.5	2.4	5.6	5.7
Dunmore East	3.1	2.5	1.4	6.4	4.3	8.9
Rossaveal	3.7	3.1	1.1	4.4	4.7	7.5
Other ports	34.3	28.4	3.9	20.3	38.2	48.7
Foreign ports	8.6	3.8	0.0	2.6	8.6	6.4
Transshipment	-	-	2.6	14.8	2.6	14.8
Total	68.9	53.6	27.3	167.1	96.1	220.7

Source: DM 1987b.

About one half of all bottom fish is being landed outside the five most important harbours. The top port for this group of species is Howth, near Dublin, which has a share of more than 10 percent of the total Irish fish production.

6.3 Economic performance of the Irish fishery sector

The increasing prices of fish coupled with lower fuel prices have improved the economic performance of the Irish fishery sector considerably since 1987. In previous years the results had not been very good. This improvement has become evident from the regular reimbursement on several hundreds of loans to the BIM. Another indicator is the willingness to invest - some 260 requests for new licences were at the Dept. of Marine in the beginning of 1990.

In this respect two remarks have to be made. The profitability of the fleet is to a certain extent the result of the investment subsidies of up to 50 percent. However, there are no cost-benefit data available to assess the importance of the various factors. It is furthermore possible that a number of people have requested a licence as a precaution to have one in case a licensing system should be introduced.

The production of the Irish fleet consists to an important extent of non-quota species. In 1987 their share in the total volume was 32 percent, of which 25 percent within the pelagics, 28 percent of the demersals and 47 percent of the crustacea, (O'Connor, DM 1987b).

On the other hand, the Irish fleet faces a number of problems. The vessels are on the average old and small so that they are at a technological disadvantage when competing with other nations. Many can sail only during fair weather. The security is a serious problem. Therefore the vessels cannot exploit fishing grounds like Rockall and Porcupine Bank.

The age composition has been negatively effected as since 1984 investments in new vessels have dropped and second hand vessels from other European countries were imported instead.

Table 6.6 Age composition of the fleet in 1987

Length (m)	Average age (years)
To 12	18
12 - 18	30
18 - 40	24
40 a.m.	5

Source: BIM.

The quota of pelagic species is always fully utilised and the fishery has to be closed regularly before the end of the year. On the other hand the quota of the bottom species in the Irish Sea remain regularly underutilized as low catches do not allow a profitable fishery. In the Celtic Sea there is a conflict of gear between the Irish trawlers and the Spanish longliners.

The future development of the Irish 'off-shore' fleet will depend on the possibilities of exploiting non-quota pelagics. However, at the moment only horse mackerel is commercially attractive. Blue whiting could be used for fish meal only until now, which makes fishing on distant grounds unprofitable. Silver smelt may offer possibilities for minced fish products, but the appropriate processing techniques have still to be developed.

6.4 Consumption, processing and foreign trade

6.4.1 Consumption

The annual fish consumption in Ireland amounts to about 14 kg/capita, i.e. a national total of some 50,000 t. This implies that most of the Irish landings have to be exported, either processed or not.

6.4.2 Processing

There are some 100 fish processors in Ireland, of which 22 treat pelagic species, 40 bottom ones, 34 shellfish and some 26 produce smoked products, especially salmon. Some enterprises operate several processing lines. Their total turnover amounts to about 130 mln. ECU and they employed some 1,700 full-time and 1,200 part-time workers in 1987. The processing industry is relatively new, having been set up only some 10-15 years ago.

Most enterprises are relatively small - about 90 have less than 20 employees and 83 have a turnover of less than 1.3 mln. ECU. On the other hand there are 6 enterprises with more than 100 employees and 8 with a turnover of more than 4 mln. ECU, (O'Connor). These eight enterprises realized together 32 percent of the total turn-over of this sector. Some of them integrate processing and catching, (BIM).

Some 20-30,000 t is put into fish meal annually.

6.4.3 Foreign trade

In 1987 the imports amounted to some 40,000 t (product weight) with a total value of 51 mln. ECU. They originate mostly fish from the U.K., of which about two thirds were processed in Ireland and reexported. About 30 percent of the total was destined for the local consumption, especially fish fingers, breaded fillets and other processed products, (O'Connor).

The Irish export can be divided into two components. On the one hand there is the export of large quantities of block-frozen whole pelagic fish to Nigeria and other African countries and there are the over the side sales to East European and Dutch freezer trawlers. On the other hand there is the export of fresh, high value bottom species to France and Spain.

In terms of quantities, the U.K. and Nigeria are the most important countries of destination, their relative shares being 22 percent resp. 24 percent. The U.K. buys especially the traditional species cod, whiting and haddock. Nigeria is the market for frozen mackerel and horse mackerel. In 1988 mackerel was the most important species in terms of value, with a share of more than 20 percent.

Herring is exported as a half-product to Germany and the Netherlands or it is sold directly to the East European freezer vessels. The herring fishery in the south-west of Ireland is specially regulated for the roe season to supply the Japanese market. The export of this product has grown rapidly since 1982. In that year the value was almost nil, but by 1987 it amounted to almost 24 mln. ECU.

The diversification of the Irish landings has become possible thanks to new markets in Spain and France for new species like anglerfish, megrim and hake. The Spanish joint-ventures have probably considerably contributed to this development.

6.5 Management policy

6.5.1 Management of fishing effort

All fishing vessels are obliged to have a 'Sea Fishing Boat Licence' when they are put into service. The vessels above 65 ft must renew this licence annually, but not the smaller ones. The current register of fishing boats does not give an exact picture of the actual situation. It is not clear to which extent the real size of the fleet comes close to that which is assumed in the Multiannual Guidance Programme. All active vessels were requested to reregister by 31.8.1990 and a new computerized register was to become operational in the second half of that year.

Ireland is one of the countries that are supposed within the MAGP to reduce the size of its fleet, its specific objective being 47,000 hp (9,000 grt), i.e. about 17 percent.

However, the reasons for this reduction are not clear. The Irish fleet has been expanded with a strong EC and national support. Various demersal quota are not fully utilised. The pelagic quota are being exceeded, but the fleet is looking for new non-quota species. The foreseen reduction cannot be achieved in the pelagic fleet only.

Table 6.7 Multiannual Guidance Programme (1000 hp, 1000 grt)

Length group (m)	Engine power		Gross tonnage	
	situation	objective	situation	objective
	1.1.'87	31.12.'91	1.1.'87	31.12.'91
to 12	45	37	8.2	6.8
12 a.m.	243	204	44.8	37.1
Total	288	241	53.0	43.9

Source: EC Official Journal Nr. L 62/27.

6.5.2 Management of landings

A number of fisheries is being regulated through special licences, namely herring, mackerel, hake and sole. The vessels that want to participate in these fisheries must apply for a licence on the basis of their historic performance.

In case of herring, four different areas are being distinguished - Irish Sea, Celtic Sea, South/South-west and North/North-west. Only vessels below 50 ft are allowed into the Celtic Sea. In the South of Ireland the fishery is allowed only during the roe season. The catches in the Northern areas are being regulated through quota per vessel and in case of large landings which cannot be processed also temporary closure of the fishing. Until 1989 this was the responsibility of the Dept. of Marine, but since the beginning of 1990 it was taken over by a coordinative commission in which processors and vessel operators are represented.

In the hake fishery individual vessels are allocated maximum quantities which they may land per trip. In 1989 these were 4 t for trawlers, 7 t for seiners and 10 t for longliners. Vessels below 55 ft did not need any permit 1).

The quota of sole in the Irish Sea (above 52 30' NL) is divided between beam cutters and trawlers - in 1990 70 t for the first group and 26 t for the second. The catch of the beam cutters must not contain more than 40 percent of sole and that of side trawlers 5 percent. The beam cutters exhausted their quota in the first two months of 1990 and had to leave the area. In the areas VIIIfg the allowed share of sole in the catch for the two groups is 10 percent resp. 5 percent 2).

Mackerel fishery is managed with maximum catches per vessel and closed seasons.

1) Irish Fishermen Org., Information Bulletin, 1/90.

2) Irish Fishermen Org., Information Bulletin, 1/90.

6.5.3 Support to the sector

The Irish Sea Fisheries Board (BIM) is responsible for the promotion of the Irish fishery sector and all the support which is given is therefore channelled through this institution. The most important programme of the recent years is the Marine Credit Plan which was started in 1987. This plan combines national and

Table 6.8 Marine credit plan 1987, (percent)

Type of investment/ Size of vessel	Own capital	Grants		BIM loan	Bank loan	
		BIM	FEOGA		with guarant.	without guarant.
New construction						
- 6-9 m	10	25	0	65	0	0
- 9-17 m	10	10	35	45	0	0
- 17-25 m	10	10	35	0	20	25
- 25-33 m	10	10	35	0	0	45
Modernization *)						
- 6-9 m	15	15	0	70	0	0
- 9-12 m	15	15/10	0/35	70/40	0	0
- 12-20 m	15	15/10	0/35	70/40	0	0
- 20-33 m	15	15/10	0/35	0	0	40
Second hand vessels (<i><20 years</i>)						
a/ already in the fleet						
- 12-17 m	10	0	0	90	0	0
- over 17 m	10	0	0	0	45	45
b/ from abroad						
- 12-20 m	10	0	0	0	30	60
- 20-33 m	10	0	0	0	20	60

Source: BIM.

*) Which of the two percentages under modernization will be applicable depends on the total investment costs. To vessels below 12 m applies a value of 12,000 ECU and for larger ones 25,000 ECU. The smaller investments get the higher percentage support.

FEOGA grants and soft loans. The BIM assists the prospective investors with their requests for FEOGA support.

Young qualified skippers (below 40 years) may get an even higher support. The BIM grant for vessels of more than 12 m may

be 15 percent instead of 10 percent and the FEOGA grant for vessels below 33 m may be raised from 35 percent to 40 percent.

The interest on the BIM loans is equal to that on government bonds. The BIM pays this also to the Exchequer from where it gets its funds. This is considerably cheaper than the usual commercial credit - in April 1990 ca. 10 as against 14 percent.

6.5.3.1 BIM development plan

In 1988 BIM has formulated a development strategy in order to promote growth of the fisheries sector until 1991. The fisheries is considered one of the important sectors of the economy of rural coastal areas. The strategy specifies the following objectives and activities to be undertaken in relation to the fleet:

- a) Landings are to increase to 405,000 t, valued at some 140 mln. ECU. This should be achieved by expansion of the fleet, increase of TAC's and exploitation of non-quota species (experimental fishing in the Atlantic outside the 200 miles).
- b) Construction of 70 new vessels, modernization of 800 existing ones and scrapping of 200 older ones.

Table 6.9 BIM investment programme 1988-1991, (mln. IEP)

Type of investment/ Size of vessel	Number invest. projects	Total invest. amount	Support	
			BIM	EC
<i>New construction</i>				
- inshore (to 60 ft)	49	4.1	0.4	1.5
- near water (60-90 ft)	10	8.9	1.1	3.2
- off-shore (90-130 ft)	9	21.2	2.1	7.4
- distant (130 ft a.m.)	2	18.0	-	-
<i>Modernization</i>	800	17.3	1.6	5.1
Total	870	69.5	5.2	17.2

Source: BIM.

Between 1973 and 1986 Ireland has received EC assistance of some 40 mln. IEP for 446 projects in the fisheries sector, incl. fish culture, (BIM). this implies that in the period '88-'91 a continuation of this support was expected.

In general this programme is considered too optimistic. Its execution has barely come off the ground. The EC funds have not become available as Ireland has not met EC obligations regarding the computerized register of fishing vessels and the MAGP.

New investment in fish processing should amount to some 28 mln. IEP. 600 full time and 400 part time jobs would be created. The increased catching and processing capacity would allow the exports to achieve 246 mln. IEP, more than double the value of 1988. Emphasis is to be put on improved quality, higher value added and more intensive marketing. The Irish consumption per capita should grow by 0.2 kg/person/year. Aquaculture is also to be stimulated.

6.5.4 Inspection and prosecution

In 1986 49 vessels were judicially prosecuted because of non-compliance with various regulations. Eleven were fined for a total of 200,000 IEP. Three were acquitted and five received a warning. The other 30 cases had not yet reached a final verdict by mid-1990, (DM 1986a). Also in the subsequent years Irish as well as foreign vessels were prosecuted, but exact information is not available.

Inspection of landings takes place on the basis of the log-books and their correctness is being checked by some 12 fishery officers. A computerized system to process these data is being developed and introduced.

7. United Kingdom

7.1 Historic development

7.1.1 Landings

The structure of the fisheries sector in the U.K. has changed considerably since 1972. The total landings decreased from some 920,000 t in that year to 664,000 t in 1989. This is largely the result of the loss of the fishing opportunities around Iceland, in the Barents Sea and in the Norwegian zone. The U.K. fleet caught 270,000 t of fish in these three areas in 1972, but in 1985 only 3,000 t in the area IIa, (ICES). This has led to a marked change in the composition of the landings. The share of cod, which made up 70-80 percent of the catches in the three above mentioned areas, has dropped from 33 percent to 11 percent. The catch of other codfish species (haddock and saithe) has also decreased. The share of codfish in the total landings decreased during this period from 60 percent to 30 percent. On the other hand the catches of mackerel grew rapidly, especially during 1972

Table 7.1 Landings of the most important species by the fleet of the United Kingdom, 1972-1989, (1000 t)

Species	1972	1977	1982	1987	1989
Cod	302	148	114	94	68
Haddock	157	123	129	102	72
Saithe	48	36	17	15	11
Whiting	37	50	51	52	38
Plaice	40	36	24	26	26
Anglerfish	4	5	5	10	13
Norway lobster	16	15	20	24	27
Mackerel	9	187	186	189	158
Sprat	62	97	20	2	3
Herring	150	43	48	100	99
Skate	9	7	6	9	7
Sandeel	2	26	63	22	25
Dogfish	14	17	11	14	11
Crab	6	9	9	14	12
Other species	66	70	72	118	95
Total	921	867	774	790	664

Sources: MAFF, SFIA.

and 1977. The aggregate share of the four most important species - cod, haddock, herring and mackerel - has therefore remained fairly constant at 60-70 percent.

The nominal value of the landings increased between 1972 and 1988 from 109 to 403 mln. GBP (from about 195 to 610 mln. ECU). However, if the inflation is taken into account, in terms of 1987 prices there was in fact a decrease from 519 to 383 mln. GBP. The real average price had decreased slightly as well. There had also been a marked shift in the economic importance of the various species. The share of cod dropped by one half, while the role of sole, anglerfish, norway lobster and mackerel increased.

Table 7.2 *Relative shares of species in nominal value of landings, 1972-1989, (percent)*

Species	1972	1977	1982	1987	1989
Cod	43.6	31.4	28.6	21.1	19.2
Haddock	19.5	19.6	20.1	19.1	17.1
Whiting	3.6	5.6	5.4	6.2	5.8
Plaice	7.0	6.1	5.5	5.5	5.6
Sole	0.9	1.1	2.2	4.1	4.0
Anglerfish	0.4	1.3	2.0	4.5	6.5
N. lobster	4.6	4.6	8.5	10.5	11.7
Mackerel	0.4	6.0	7.7	5.2	5.2
Herring	5.3	5.3	2.4	3.0	3.1
Others	14.6	19.1	17.6	20.9	21.8
Total	85.4	80.9	82.4	79.1	78.2

Source: MAFF 1972-1989.

Within the United Kingdom, the fishery activities had shifted from England to Scotland. The trawler fleet which exploited cod and haddock in the North Atlantic waters has largely disappeared after the access to these fishing grounds was lost. On the other hand the mackerel fishery north-west of Scotland has expanded.

Table 7.3 Relative shares in the total quantity and value - by regions, (percent)

Region	1972	1977	1982	1987	1988
Quantity					
- England	50	54	32	25	22
- Scotland	48	45	64	73	75
- N. Ireland	1	1	3	3	3
Value					
- England	59	52	40	34	33
- Scotland	40	47	57	63	63
- N. Ireland	1	2	3	3	4

Sources: MAFF 1972, 1988.

Table 7.4 Landings of wet fish by species and regions, 1972 and 1988, (1000 t)

Species	England		Scotland	
	1972	1988	1972	1988
Demersal species				
- cod	239	31	61	43
- haddock	42	6	115	91
- other demersals	125	60	86	123
Total demersals	406	97	262	257
Pelagic species				
- herring	8	1	138	87
- mackerel	7	15	2	161
- other pelagics	25	5	38	6
Total pelagics	40	21	178	254

Source: MAFF 1972 and 1988.

7.1.2 Fleet

The size of the fleet (vessels above 12 m) has decreased between 1972 and 1988 from 280,000 to 150,000 grt. This was especially due to the disappearance of the large trawlers above 42 m. In 1972 168 of these vessels were in operation, but 16 years later only nine. The number of trawlers between 33 and 42 m fell during the same period from 174 to 48 units. The total number of fishing boats has increased due to the construction of small (less than 12 m) trawlers and other coastal fishing craft.

The introduction of the new legislation regarding the registration of fishing vessels (Merchant Shipping Act) led to a considerable increase in the size of registered fishing fleet to 10,700 vessels with 193,000 grt and 1.5 mln. hp by the beginning of 1991. However, some 7,500 vessels were smaller than 10 m and it is not certain to which extent they should be included in the full time professional fleet.

Table 7.5 Development of the British fleet by size, 1972-1988, (per 31.12)

Length (m)	1972	1977	1982	1987	1988
Below 12.2 *)	4067	4601	4485	6251	6122
12.2 - 24.4	1763	2023	2073	1700	1731
24.4 - 33.5	155	108	120	149	161
33.5 - 42.7	174	124	86	81	83
42.7 a.m.	168	97	33	23	29
Total	6327	6953	6797	8204	8126
Total grt (1000)	279	216	160	128	145

Source: MAFF 1972-1988.

*) Changes in the numbers of vessels below 12.2 m are due largely to a change in definition for this fleet.

Table 7.6 Development of the employment on board, 1972-1988

	1972	1977	1982	1987	1988
Full time	18413	16337	16346	17153	17095
Part time	4290	6143	6665	5271	5373
Total	22703	22480	23011	22424	22468

Source: MAFF 1972-1988.

The fleets of England and Scotland have developed differently. The number of small vessels in England has been increasing, while in Scotland it decreased. On the other hand 46 large purse seiners have been introduced into the Scottish fleet.

Table 7.7 Structure of the fleet by region and type of vessel in 1972 and 1988 *)

Type of fishery	Size (m)	England		Scotland		North Ireland	
		1972	1988	1972	1988	1972	1988
Trawlers	below 12	509	1192	101	237	-	26
	12 - 24	447	384	449	611	105	194
	24 - 33	98	90	47	21	1	-
	33+	271	45	70	9	-	3
Drifters	below 12	43	104	0	2	-	64
	12 - 24	3	-	10	-	-	-
Seiners	below 12	3	6	28	4	-	-
	12 - 24	182	65	408	243	-	-
	24 - 33	0	0	3	4	-	-
Purse seiners	24 - 33	-	-	-	10	-	2
	33+	-	-	-	36	-	1
Liners	below 12	308	604	418	62	138	-
	12 - 24	57	27	8	1	-	-
	24+	0	25	6	-	-	-
Ringnets	12 - 24	1	0	45	0	-	-
Other	below 12	1369	2717	1036	1037	9	68
	12 - 24	70	148	83	57	-	-
	24+	1	26	-	-	-	-
Total		3362	5433	2712	2334	253	358

Source: MAFF 1972 and 1988.

*) Many vessels use different techniques in the course of the year; in the table above they are subdivided according to the major one.

7.2 Present structure of the fishing sector

7.2.1 Fleet

The structure of the fishing industry in the United Kingdom is closely related to its regional distribution. The English fleet is twice as large as the Scottish one in terms of numbers, but it consists for 85 percent of vessels below 12 m as against 57 percent in Scotland. Only 280 vessels of the whole British fleet are larger than 24 m and most of these are again smaller than 33 m.

The 'inshore' vessels use trawl for the nephrops and various passive gear for codfish. The larger vessels are usually equipped for trawl and seine fishing for various bottom species. An important specialised group are some 170 beam cutters, which operate from ports in the south of England. Apart from the seven freezer trawlers, all other vessels land fresh fish, the 50 purse seiners having a large share in the total volume.

The target species of many vessels are cod, haddock and whiting, which represented some 29 percent of the volume and 42 percent of the value in 1989. The pelagic fishery for herring and mackerel contributes 41 percent of the volume but only 8 percent of the value. In terms of value two other fisheries are also of importance : the one for Norway lobster with a share of 12 percent and that for plaice and sole with 10 percent.

7.2.2 Regional distribution

The UK fleet depends especially on the North Sea and the areas north-west of Scotland. Other areas around the British Isles are of much less importance and there is practically no fishing activity outside waters which were originally British.

In 1989 70 percent of the volume and 60 percent of the value of the demersal fisheries is concentrated in Scotland. For the pelagic fisheries these percentages are 94 percent resp. 93 percent and for shellfish 52 percent resp. 64 percent. The most important fishing ports are located in Scotland. Over 30 percent of the total value of landed fish is realized in four ports - Peterhead, Aberdeen, Ullapool and Fraserburg. On the other hand 50 percent of the value and 40 percent of the volume is landed in a large number of small ports throughout the U.K.

Table 7.8 Volume and value of landings per port or district, 1988, (1000 t, mln. ECU) *)

Harbour	Demersals		Pelagics		Total	
	volume	value	volume	value	volume	value
Peterhead	87	95	29	5	116	100
Aberdeen	37	44	14	3	51	47
Ullapool	4	5	140	24	144	29
Fraserburg	13	15	24	5	37	20
Lowestoft	14	23	-	-	14	23
Newlyn	10	21	-	-	10	21
Grimsby	9	14	-	-	9	14
Brixham	8	17	1	-	8	17
Hull	10	11	-	-	10	22
Plymouth	3	8	6	2	9	10
Ayr	17	18	1	-	18	18
Other	250	289	65	12	315	301
Total	462	560	280	51	742	611

Source: MAFF 1988.

*) Incl. North Ireland (22,500 t, and 23.6 mln. ECU) and incl. all shellfish (under demersals), of which bivalves represent about 50,000 t valued at 108 mln. ECU). These two factors explain the differences between the totals in this table and the totals in tables 7.1 and 7.4.

7.3 Economic performance of the fishing sector

In the beginning of 1990 the fishing sector seemed to achieve fairly satisfactory economic results. However, looking at the various segments of the sector separately (England-Scotland, demersal-pelagic) the results do not seem equally favourable everywhere.

7.3.1 Demersal and pelagic fishery

Some 80 percent of all pelagics is landed by the 50 purse seiners and the remaining 20 percent by 10 pelagic trawlers. In the past few years the volumes as well as the prices remained relatively stable. The total value of the pelagic landings amounted to 33 mln. GBP in 1988 (50 mln. ECU). The private vessel operators have been renewing their fleet regularly, despite the fact that they did not receive any financial assistance. The purse seiners did qualify for modernization support. There is no specific information about the financial results of the pelagic fleet, but in general it is considered quite good.

The outlook of the pelagic fleet cannot be assessed unambiguously. The revenues depended to a great extent on East-European klondykers. In view of the political and economic changes there, it is not certain whether the trade will continue as before. On the other hand the industry is setting up a new processing infrastructure on shore and is actively looking for new market outlets.

The results have also been quite good in recent years in the demersal fishery. Specific conditions in the beginning of 1990 have led to a high price level so that the total nominal revenues could be kept at the 1989 level despite a considerable drop in landed quantities. In real terms there was a small deterioration compared to 1989.

The outlook of vessels that depend on bottom species also seems still quite reasonable. It can be concluded from table 7.2 that a decrease of quota for cod and haddock by some 30 percent would produce a decline in total value by about 10 percent if prices would remain constant. Exploitation of new species like anglerfish, megrim and shellfish is increasingly important. The value of the last group has grown from 32.1 mln. GBP (57 mln. ECU) in 1982 to 92.5 mln. GBP (140 mln. ECU) in 1988. Its share in the total value has grown from 15 to 23 percent, (MAFF 1988). Furthermore the plaice quota still offers considerable possibilities for expansion.

7.3.2 England and Scotland

A comparison between England and Scotland concerns almost exclusively the demersal fishery as the pelagic one does not play

Table 7.9 Total investment support in England and Scotland, 1981-'89, (1000 GBP)

Size vessel/ type investment	Total amount		Number		Amount/project	
	Engl.	Scot.	Engl.	Scotl.	Engl.	Scotl.
<i>Below 80 ft</i>						
- new constr.	4236	440	8	1	530	440
- new engine	672	632	11	10	61	63
- other	1628	5566	554	444	3	13
<i>Over 80 ft</i>						
- new constr.	7350	23471	159	158	46	149
- new engine	2328	2248	304	181	8	12
- other	6579	12187	3974	4565	2	3
Total	22793	44544	5010	5359	5	8

Source: SFIA 1988-'89.

an important role in England.

During the eighties about 25 percent of all investments was financed by SFIA. This implies that the total investments in England amounted to some 90 mln. GBP and in Scotland to 160 mln. GBP.

Some 29 percent of the investments in England were spent on vessels of more than 80 ft. Another important group were the vessels between 10 m and 40 ft - 160 of such units having been constructed. On the other hand about one half of the investments in Scotland was devoted to vessels in the 50-80 ft range.

The result of these investments has been that the Scottish fleet has a considerably more favourable age structure.

Table 7.10 Composition of gross tonnage by age, (31.12.1988)

Age group (years)	Total		Below 80 ft		Over 80 ft	
	number	Grt	number	Grt	number	Grt
England						
- 0 - 4	85	5599	77	2558	8	3041
- 5 - 9	173	5553	168	3089	5	2464
- 10 - 14	162	10184	136	3934	26	6250
- 15 - 19	206	14145	166	4744	40	9401
- 20 - 24	166	9278	126	3622	40	5656
- 25 a.m.	695	30336	627	15098	68	15238
Total	1487	75095	1300	33045	187	42050
Scotland *)						
- 0 - 4	123	10455	113	8028	10	2427
- 5 - 9	181	11069	169	7458	12	3611
- 10 - 14	223	21505	186	11670	37	9835
- 15 - 19	297	12317	285	10430	12	1887
- 20 - 24	196	6531	189	5264	7	1267
- 25 a.m.	317	10471	315	10053	2	418
Total	1337	72348	1257	52903	80	19445

Sources: SFIA 1988-'89, MAFF 1988, DAFS 1988.

*) Scotland grt incl. ca. 3,000 grt of vessels below 10 m.

Table 7.10 shows that in terms of grt more than one half of the English fleet consists of vessels of more than 80 ft. The age composition is so unfavourable because half of the vessels is older than 20 years. Among the smaller vessels some 30 percent were constructed more than 20 years ago.

The Scottish fleet is composed of smaller as well as younger vessels. Almost three quarters is below 80 ft and nearly 60 percent is younger than 15 years.

The U.K. fishing fleet is relatively flexible, most vessels around 80 ft being of the multipurpose trawler/seiner type.

The total numbers of vessels in England and Scotland are approximately equal. Unfortunately the grt's cannot be compared because the two regions apply a completely different calculation method. The gross earnings of the Scottish fleet are about twice those of the English one. There is also a difference in the structure of ownership and marketing of fish. The larger vessels in England are still being run by fishing companies so that the overhead costs are relatively higher. In Scotland most vessels are in the hands of skipper-owners. Scottish vessels market their catch through so-called 'salesmen' and in some cases through a cooperative. The tasks of the salesmen are broader than just being an agent at an auction. They take care of the entire financial administration and often have a small share in the vessel itself. In this way the vessel-owner is more credit-worthy when dealing with his bank as the assets of his salesman function as a guarantee. In England fish is sold by the fishermen themselves (also through auction), the role of salesmen being limited to that of an agent.

On the basis of these indications it could be concluded that the fishing sector in Scotland is on the average stronger than in England. The profits are probably higher and the position of the owner stronger when dealing with a bank. SFIA carries out annually a survey of costs and earnings of the fishing fleet. Between 1986 and 1988 most groups of vessels had a positive cash-flow. As some 50 percent of investments are subsidized and owners probably also invest their own capital, it seems likely that the general solvability position has improved. Repayments on loans have not lagged behind schedule. A negative exception to this overall positive situation are the owners who have invested in the course of 1989 when interest rate has increased quickly to 18-19 percent while at the same time subsidies on investment had been abolished.

In the longer run the processing industry may pose a new problem for the catching sector. If the shortage of cod and haddock should continue, the economic position of the Scottish primary processors will become increasingly difficult, leading to lower processing capacity and thus lower demand and possibly lower prices. The relatively high auction prices in 1990 paid by the fresh trade have obliged the processors to look for substitute raw material for frozen products. Especially Iceland and Canada were able to supply cheaper white fish. Between these two price levels, there is only little demand. It remains to be seen what happens should the landings increase somewhat in the future. An increase is not very likely in the short run.

7.4 Processing, trade and consumption

7.4.1 Consumption

The total supply of fresh and frozen fish and fishery products to the U.K. market amounted to some 350,000 t in 1988 (product weight). Although no exact figures regarding consumption are available it is estimated at some 17 kg/capita/year (live weight, incl. canned products). The most important species are cod, haddock and plaice, which together account for some 50 percent of the consumption of fresh and frozen fish, (SFIA 1989b).

7.4.2 Processing

According to SFIA there were some 988 processing plants in 1986/87. About 70 percent were primary processors, who carry out the first treatment (deheading, filleting, etc.). 20 percent are secondary processors who mostly freeze or smoke. The last 10 percent are processors of shellfish. The total turnover of these three groups amounted to 332, 522 resp. 129 mln. GBP (488, 768 resp. 190 mln. ECU). The processing industry employed some 21,000 people, of whom 4,000 part-timers, (Banks).

Most (728) plants are rather small, with an average of 5 employees. Almost half of the total employment is provided by the 33 large companies, which have an average work force of 272 people. The most important fish processing centres are Grimsby, Hull and Aberdeen. In Aberdeen there is especially the primary processing, while Grimsby houses the freezing plants.

The industry annually processes about one million tonnes of fish (live weight), of which 65-70 percent bottom and the rest pelagic species. Within the first group there has been a marked shift to imported raw materials since 1975. In that year 77 percent of the supply to the industry originated from the British fleet, whereas in 1986 this was only 50 percent. 50-60 percent of the processed bottom fish consist of cod and haddock. Plaice plays a much less pronounced role, with a relative share of 6 percent in the primary processing, (Banks).

The processing of pelagic species has remained at a fairly constant level of 150,000 t between 1981 and 1985, of which 20-30 percent had been frozen. The pelagic processors are attempting to switch from herring to mackerel.

In 1990 the processing industry faced two problems. First, prices at auctions increased, while delivery contracts to supermarket chains were based on previous lower price levels. The contracts usually have a duration of several months. The new EC hygienic requirements present another problem for the processing industry. The industry in Scotland estimates the required investments at some 200 mln. GBP. This may prove difficult to realize at a time when the economic results are already depressed.

The Scottish processors are afraid that a number of plants will have to be closed due to continuous shortage of raw material. In the first five months of 1990 nine plants with 300 employees had to be closed in the Aberdeen area only. Another question that arises is how to maintain the current market share in order not to face demand problems once the landings will increase again. By mid-1990 the British authorities were not willing to give any financial support to the sector.

7.4.3 Foreign trade

The nominal value of the imports of fish and fishery products almost doubled between 1982 and 1988 from 400 to 780 mln. GBP. (714 and 1182 mln. ECU). Taking the inflation into account the increase would have been about 50 percent. Two major trends can be distinguished. There are increasing imports of cod and haddock from Iceland, Norway and Denmark to serve as a raw material for the processing industry. A second development is the rising import of tropical species - tuna and shrimp - especially from Thailand, which became the fourth most important exporter in 1988.

The United Kingdom also annually imports fish meal and fish oil worth of 450-600 mln. ECU.

The value of U.K. exports of fish and fishery products amounts to some 600 mln. ECU per year. The exports are composed of a large number of species and products, the most important being shrimp with a share of 16 percent in 1988. Furthermore, lobster, crab and salmon also are important export items.

Almost half of the export is destined for France and Spain. These two countries account for some 70 percent of the recent growth in the U.K. export value.

7.5 Fishery policy

Throughout the years the United Kingdom has developed a national fishery management policy taking account of a great variety of local and regional interests. There are restrictive measures regarding fishing effort as well as landings. The fishing effort is maintained constant through a distinction of various length-sizes of the vessels, replacement of vessels having to take place within the same category. The landings are managed through the so called 'pressure stock licences' (PSL), which allow access into a specific fishery.

7.5.1 Management of landings

The PSL-system operates as follows. All quota species, except North Sea plaice and Norway lobster, are subject to the PSL-system. The licences are issued on the basis of historic per-

formance, but they allow only the access to the specific species and do not give an entitlement to a specific quantity of fish.

The majority of the fleet is organized within PO's, that play an important role in the quota management in the U.K.. The Fisheries Departments (MAFF, DAFS, DANI) distribute the quota of cod, whiting, saithe and haddock among the 15 PO's and a part is kept for the non-PO (so called non-sector) vessels. The formula on the basis of which this distribution takes place is not clear, but apparently accepted. The historic performance of the individual members of the PO's is taken into account in this respect. The PO's are free to manage their own quota, but they can also request the Government to do so. The distribution of the PO quota among its members is also free and does not necessarily reflect their historic performance. In practice there is a considerable variety of systems. The Anglo-Scottish PO gives some quota on the basis of the number of crew members who are on board during a specific trip. The SFO gives an equal amount to all member vessels independent of their size. Vessel of other PO's as well as the non-sector vessels are allocated a vessel-quota according to their length. These quota may be adjusted monthly depending on the utilisation of the overall quota. This may be necessary as the PO's cannot influence the number of vessels which enter into

Table 7.11 Examples allowed catches in the North Sea for various groups of vessels in June 1990 d)

Group of vessels	Cod	Had- dock	Saithe a)	Sole a)	Her- ring b)	Mack- erel c)
1. Anglo-Scottish PO kg/crew member	3000	1000/2300	0			
2. Scottish Fishermen's Org. a)	15	10	10			
3. Non-PO vessels						
- to 40 ft	5	3	4			
- 40-60 ft	8	6	8			
- 60-80 ft	12	9	12			
- 100 ft a.m.	12	15	12			
4. All vessels with PSL						
- to 40 ft			4	8	8/15	2.54
- 40-60 ft			8	8	8/15	2.54
- 60 ft a.m.			12	8	8/15	2.54

Sources: ASFPO, SFO.

a) t/vessel/period; b) t/week/vessel southern North Sea, 15 t in northern North Sea; c) t/trip; d) There are no restrictions on catch of whiting, hake and plaice.

a specific fishery. In 1990 it has been attempted to regulate this aspect too.

Regarding all other pressure stock species MAFF determined centrally maximum quantities which may be caught by one vessel each month. The PSL-system is not applied to boats under 10 m, which has lead to some 'creative' boat building.

7.5.3 Management of fishing effort

The PSL-system is supported by two related licence systems to regulate the development of the size of the fleet:

- a) The effort in certain fisheries is kept constant as new licences are no longer issued. This regards the two freezer trawlers, 51 purse seiners and about 170 beam cutters.
- b) Until the beginning of 1990 all fishing vessels were divided into three length groups : 10 m-40 ft, 40-80 ft and 80+ ft. New vessels were not allowed to enter, while replacements (modernization, extension) could only take place within the same category.

The Multiannual Guidance Programme required a reduction of the fleet by some 6,000 grt to a total of 142,000 grt. However, the licence system could not prevent a growth from some 150,000 grt in the beginning of 1987 to over 190,000 grt in the beginning of 1991. (It has been mentioned before that the calculation of the grt in Scotland and England widely differs. The introduction of the new Merchant Shipping Act in 1988 will in the very long run put an end to this discrepancy as all new vessels will be measured according to the same methodology.).

As an additional measure to protect cod all vessels were obliged to choose as of April the 15th 1990 between 110 mm minimum mesh size and 92 sea days for the rest of the year. Most Scottish vessels chose for the 110 mm. The professionals question the effects of this measure as a larger mesh will also protect whiting and thus increase the natural mortality of cod. The pro-

Table 7.12 Multiannual Guidance Programme, (1000 hp, 1000 grt)

	Engine power		Gross tonnage	
	situation 1.1.'87	objective 31.12.'91	situation 1.1.'87	objective 31.12.'91
Below 80 ft	210	173	45	37
Over 80 ft	822	844	103	105
Total	1033	1017	148	142

Source: EC Official Journal.

fessional organizations have taken legal steps against the 92 days measure. The court ruled that the authorities may fix the number of fishing days, but not the number of days at sea. The ruling seriously undermined the practical effectiveness of the measure.

7.5.2.1 Flexibility

The management system applied at the beginning of 1990 limited to a great extent the flexibility of the fishing enterprises. It was not possible to shift from a larger to a smaller vessel without loss of fishing rights, complicating further the structural adjustment of the fishing effort to fishing possibilities. In order to improve the flexibility, the licences per length group were abolished in the spring of 1990 and replaced by transferable capacity licences. It became possible to aggregate licences of two vessels (expressed in hp and grt) and to construct a new one up to a maximum of 90 percent of the original capacity. In this way it is hoped to maintain the necessary modernization of the fleet and at the same time achieve a modest reduction of the capacity.

Furthermore, there is an intensive consultation between the authorities and the industry about the possible introduction of individual transferable quota (ITQ's). By mid-1990 there was still a large number of matters to be clarified so that the introduction of this system was not feasible in the short run, if at all desirable.

7.5.3 Support of the sector

Until the beginning of 1989 the U.K. fishing fleet enjoyed considerable financial support from SFIA and FEOGA. Most applications for new construction or modernization qualified for a grant of some 60 percent of the investment cost. 364 new vessels were

Table 7.13 Grants to the fishing sector, 1981 - March 1989

Type of grant	To 80 ft		Total value (mln. GBP)	Above 80 ft		Total value (mln. GBP)
	number applic.	number awarded		number applic.	number awarded	
New construction	556	355	33.1	20	9	4.7
New engine	628	556	5.5	24	24	1.7
Other	11015	9579	20.8	1282	1051	7.6
Total	12199	10490	59.4	1326	1084	14.0

Source: SFIA 1989a.

constructed under these schemes between the beginning of 1981 and March 1989. The fishery sector received a total of 73 mln. GBP in grants and 14 mln. GBP in concessionary loans. The interest rate of these loans was 2-3 percentage points lower than that of the commercial banks and the term was longer. Some 60 percent of all grants were given to the Scottish fleet and 30 percent to the English one. 80 percent of the support was given to vessels below 80 ft, (see also table 7.9).

Since the beginning of 1989 all financial support to the sector has been stopped. Only vessels lost at sea and safety improvements on board are an exception to this rule.

7.5.4 Inspection and prosecution

The responsibility for quota management lies with the MAFF, DAFS and DANI. However, where the PO's have requested it, they have been delegated this responsibility. The authorities have officers at all auctions who count the landed fish boxes and sometimes also weigh them. There are regular contacts between the authorities and the professional organizations regarding the level of utilisation of quota.

The implementation of the quota management regulations is supported strongly by the judicial system which is capable of taking quick action and imposing high fines. As such the authorities as well as the PO's have a strong position against the potential offenders. If necessary a court ruling can take place within a day (injunction). In normal cases it may take 5-6 weeks.

The salesmen or agents are obliged to pass on the sale slips to the Ministries and PO's so that these can maintain up to date records regarding the landings (quantities, sizes, prices).

The statutes of the PO's contain sanctions against members who do not obey the rules. For example, SFO may impose a fine of up to 50,000 GBP or expel the member. This happened in 1989. The members may only leave the PO on one year notice. Leaving a PO would leave the member without any fishing rights for the rest of the current year and possibly also for the following one, as only after the 12 months notice his historic rights would be transferred to the non-sector quota or to another PO he may join. As most vessels are relatively small, the indicated fine represents a large percentage of the annual gross revenues.

Still, also in the United Kingdom it seems quite difficult to implement a foolproof verification system of landings. Evidently, before any punishment can be imposed the offence has to be proven in court, which may not always be possible. There is a very large number of small vessels landing in small harbours. In the past boxes contained more fish than officially assumed. However, the greatest problem is the declaration of wrong fishing areas - especially north-west Scotland instead of the North Sea.

8. France

8.1 Historic development

8.1.1 Landings

It should be realized when assessing the quantitative data regarding French fisheries that these may regard the total of Atlantic and Mediterranean fisheries, production of the distant fleet (tuna) and mariculture (especially bivalves). These four parts cannot always be explicitly distinguished. When necessary, the exact meaning of the figures in the various tables are indicated in footnotes.

Table 8.1 Landings of important fish species by the French fleet, 1972-1988, (tonnes) a), b)

Species	1972	1977	1982	1987
Cod	97	67	46	62
Haddock	22	16	22	14
Saithe	88	86	69	73
Whiting	34	41	44	33
Plaice	5	3	6	8
Sole	4	4	5	7
Hake	22	17	18	18
Anglerfish	14	14	21	18
Megrim	6	7	7	6
Norway lobster	10	11	8	9
Mackerel	43	39	18	13
Anchovy	8	5	3	8
Herring	30	4	15	9
Horse mackerel	4	8	6	7
Skates	13	12	12	15
Dab	4	3	2	3
Ling, blue ling	14	26	20	27
Tunas	61	73	69	119
Crab	13	19	18	14
Sardine	31	21	28	26
Squid	22	13	10	10
Other species	102	67	108	87
Total	646	558	557	587

Source: FAO, Yearbook of Fishery Statistics. vol.44 en 64.

a) Incl. Mediterranean Sea; b) Excl. bivalves.

Between 1972 and 1977 the French landings dropped by some 90,000 tons (14 percent). Since then the landings fluctuated between 550 and 600,000 tons. Not only could some distant grounds not be exploited any more (e.g. Barents Sea), but the catches in the North Sea had decreased too, (ICES).

The landings are characterised by a relatively large diversity of species. In 1972 cod was still the most important one, with a relative share in volume of 15 percent. The four codfish species together (cod, haddock, whiting and saithe) accounted for some 37 percent in that year. In the following 15 years their share dropped to about 31 percent. On the other hand, tunas have gained importance especially during the years '82-'87. The share of most other species is usually less than 2-3 percent.

The nominal value of the French landings increased from 1.9 bln. FRF (360 mln. ECU) in 1972 to 8.1 bln. FRF (1.2 bln. ECU) in 1987. In real terms the growth has been about 10 percent.

8.1.2 Fleet

It is difficult to give an unambiguous quantitative description of the development of the French fishing fleet, because of the changing criteria for inclusion of the vessels in the statistics. The older statistics included only vessels which fished actively for at least three months per year. However, in the recent ones only one day in a year is considered sufficient. There have also been several complete changes in the subdivision of the fleet, which make it impossible to identify and quantify trends in specific fisheries, (see annex 8, tables 7 and 8).

Table 8.2 General development of fleet and employment, 1972-1989

	1972	1977	1983	1987	1989
Number of vessels	14163	12524	11661	11355	10361
Hp (1000)	1154	1233	1499	1538	1625
Grt (1000)	279	243	213	205	213
Employment *)	34609	28852	20693	18293	.

Sources: DP 1972-1987, Weber.

*) Employment includes 3,000-3,500 people working in mariculture.

The French fishing fleet can be broadly subdivided into five categories:

1. Small inshore fleet (below 12 m)
2. Artisanal fleet (12-25 m)
3. Semi-industrial fleet (33-38 m)

4. Distant fleet (38+ m)

5. Tuna fleet

The historic development can best be viewed on the basis of these groups, (see annex 8, tables 7 and 8).

The distant fleet fished for cod in the north Atlantic waters until the beginning of the seventies. The catch was either salted or frozen. The vessels operated from Fecamp, St. Malo and Bordeaux. After the introduction of the 200 mi EEZ by Canada and Norway the extent of the distant fishing had to be reduced. The number of vessels dropped from 23 (60,800 hp) in 1973 to 9 (29,000 hp) in 1980. Production of salted fish was abandoned completely. The landings of frozen fish have been maintained at some 20,000 t, the most important species being cod and saithe.

The semi-industrial fleet consists of the fresh fish trawlers above 100 grt (about 25/33-38 m) owned by fishing companies. Their major ports are Boulogne, Lorient, Concarneau and Etel. They are mostly active in the seas around Ireland and Scotland. These vessels have lost traditional fishing grounds also, especially within the 12 mi limit of Ireland and the U.K. and in the EEZ of the Faeroe Islands.

The artisanal fleet, with vessels up to about 25 m owned by skippers, is characterized by considerable flexibility in terms of gear and target species. The total number of artisanal vessels has been decreasing from about 13-14,000 in 1972 to some 10,000 in 1989. However, the average size and to an even greater degree the average engine power have been increasing. Some 80 percent of these vessels are smaller than 12 m (4-6 grt, 60-80 hp).

The number of boats below 12 m has decreased by 1300 units between 1983 and 1989. The number of those between 12 and 25 m increased with 50 units. The total engine power has grown with 146,000 hp (13 percent) and the gross tonnage with 10,000 grt (9 percent).

The share of the artisanal fishery in the total value of landed fish (excl. shellfish) has grown slightly.

Most tuna is caught by large freezer purse seiners which operate in tropical waters. The tuna fishery in the south-west of France and in the Mediterranean plays only a modest role. Between 1980 and 1987 the catches have grown from 60,000 to 120,000 t. 90 percent of this total consists of yellowfin and skipjack, (DP 1987).

The number of tuna freezers has increased between 1972 and 1977 from 36 (50,000 hp) to 57 units (74,000 hp). During the following decade there was a qualitative shift to larger vessels so that in 1989 there were 30 freezers with a total of 90,500 hp. This implies that the average size of these vessels doubled.

8.2 Present structure of the fishing sector

8.2.1 Fleet

In 1989 there were about 10,000 fishing vessels, of which 80 percent below 12 m. The categories 12-16 m and 16-25 m, represented each a little less than 10 percent. Only 2 percent of the total consist of vessels larger than 25 m. The share of this group within the total gross tonnage amounts to 47 percent and within total horse power to 21 percent.

The inshore boats (mostly 8-10 m, 60-80 hp) employ on the average 1-2 crew members and work with various passive gears - lobster traps, longlines and gillnets. The slightly larger vessels (12-16 m, 200-300 hp) carry out a comparable fishery, but fish also with trawl. The trips do not last longer than 1-2 days. The vessels above 16 m are mostly trawlers. The smaller ones make fishing trips of up to 4 days and the larger ones (20+ m) sail 12-14 days, fishing south of Ireland and west of Scotland.

Table 8.3 Structure of the French fleet in 1989

Length-group (m)	Number	1000 Grt	1000 Hp
To 12	8156	36	618
12-16	929	22	222
16-25	1043	58	454
25-38	131	23	94
38 a.m.	102	74	237
Total	10361	213	1625

Source: Weber.

Table 8.4 Composition of the (semi)-industrial fleet, 1.1.1989
*)

Type of vessel	Number	Gross tonnage (1000 grt)	Engine power (1000 hp)
Fresh trawlers	132	44.8	156.9
Freezer trawlers	4	8.6	13.4
Tuna vessels	30	26.1	90.5
Total	166	79.5	260.8

Source: UAPF 1989.

*) Only members of UAPF.

Among the 233 vessels of more than 25 m some 160 would belong to the semi-industrial fleet.

8.2.2 Regional distribution

About one third of the fleet operates from Mediterranean harbours (20 percent in hp and 10 percent in grt). These are mostly vessels below 12 m.

Table 8.5 Regional distribution of the fleet, 1987

Region	Length-group (m)				Total
	to 12	12-16	16-38	38 a.m.	
<i>Number</i>					
- North west	1166	197	198	23	1584
- North Bretagne	956	96	75	4	1131
- South Bretagne	1516	284	385	59	2244
- South west	1181	161	229	8	1579
- Mediterranean	2712	143	227	0	3082
Total number	7531	881	1114	94	9620
<i>Engine power (1000 hp)</i>					
- North west	87.4	43.4	88.8	46.5	266.0
- North Bretagne	63.4	21.0	28.7	13.4	126.5
- South Bretagne	110.8	64.4	189.1	143.0	507.2
- South west	85.8	32.2	86.6	19.3	223.9
- Mediterranean	142.2	24.3	89.0	-	255.4
Total engine power	489.5	185.2	482.2	222.2	1379.1
<i>Gross tonnage (1000 grt)</i>					
- North west	6.6	4.8	12.7	13.3	37.5
- North Bretagne	5.1	2.2	6.0	8.3	21.5
- South Bretagne	7.3	7.4	31.8	40.1	86.5
- South west	6.1	3.6	12.5	6.4	28.6
- Mediterranean	7.9	2.2	10.2	-	20.3
Total gr. tonnage	32.9	20.3	73.2	68.1	194.4

Source: DP 1986-87.

Areas : North west = Dunkurque to Cherbourg
 North Bretagne = Saint Malo to Camaret
 South Bretagne = Douarnenez to Nantes
 South west = Noirmoutier to Bayonne.

South Bretagne is the most important region with the major ports Concarneau, Lorient and Le Guilvinec. The first two are

also important for the industrial fleet, harbouring some 50 percent of the vessels above 38 m. Boulogne is the third important industrial port with a share of 17 percent.

Table 8.6 Relative regional distribution of landings, 1987, (percent)

	Fresh water	Sea fish	Crusta- cea	Bivalves	Total
Quantity					
- Atlantic coast	37	90	98	94	92
- Mediterranean	63	10	2	6	8
Value					
- Atlantic coast	63	89	97	94	91
- Mediterranean	37	11	3	6	9

Source: DP 1986-87.

The productivity in the Mediterranean is clearly lower than in the Atlantic - the relative share of the fleet is considerably higher than that of the landings. The major species in the Mediterranean are sardine (46 percent of volume of sea fish), tuna (10 percent) and anchovy (7 percent). 45 percent of crustacea consists of green crab. The bivalves are mainly mussels (50 percent) and oysters (30 percent).

8.3 Economic performance of the French fishing sector

There is only indicative information available regarding the economic performance of the French fishing fleet. The various 'Centres de Gestion' have detailed data regarding the financial results of their members, but overall statistics are not being produced.

The value of the total production of fish and shellfish amounted to about 1.2 bln. ECU in 1987/88. Of this amount about 300 mln. ECU consisted of revenues from mussels and oysters, of which 80-90 percent came from cultures. The value of the Mediterranean landings amounted to about 90 mln. ECU. The gross revenues of the Atlantic fleet were 780 mln. ECU, of which about 130 mln. ECU from the industrial fleet and 650 mln. ECU from the artisanal one.

The real value of the French landings has remained quite constant since 1972. As mentioned before the total employment decreased by 50 percent and the total horse power grew by 40 percent.

To assess the economic performance properly, a distinction must be made between the artisanal and the industrial fleet.

8.3.1 Artisanal fleet

The artisanal fleet in The Channel area has been in difficulties for the last several years. The fleet depends on a small number of species, the major targets being cod and sole. It does not have the flexibility of the Bay of Biscay vessels. In Boulogne alone, the turnover dropped by 7.4 percent between 1987 and 1988, which was caused by the artisanal as well as the industrial sector. The catches of cod are low, while at the same time the price of sole dropped due to its relative abundance in the North Sea in 1990.

The artisanal fleet in the Gulf of Biscay did produce good results during the past few years. Thanks to their flexibility the vessels are able to adjust seasonally to changes in relative abundance of the various species. Until the end of 1988 the level of investments was quite high. The introduction of the PME-system (see ch. 8.5) has put an end to this expansion. In South Bretagne some 56 new vessels were put into operation in 1988, but only 13 in 1989.

The good results however must be partially due to the available investment subsidies, which depress capital costs. Depending on the situation 22-50 percent of the investment could be subsidized. The investor needs only 8 percent in own capital, while the rest can be borrowed under very favourable conditions from Crédit Maritime (term 12 years, interest 5 percent, grace period 2 years). The interest rate of the commercial banks was about 10.5 percent in July 1990.

In 1988 alone the Crédit Maritime provided more than 110 mln. ECU worth of professional loans, of which about one half on concessionary conditions. The intensive investments have re-

Table 8.7 Age composition of the French artisanal fleet, (percent)

Years	Number	Engine power
0 - 4	18	23
5 - 9	18	21
10 - 14	16	16
15 - 19	18	18
20 - 24	13	11
25 a.m.	18	12
Total	100	100

Source: CCFM.

sulted in a quite favourable age composition of the French artisanal fleet. Half of the vessels with 60 percent of the engine power is younger than 15 years.

A number of recent studies has dealt with the financial results of the artisanal fleet (Lantz, Foucault). It has been noted that especially in the recent years solvability deteriorated (ratio own/foreign capital) while the liquidity improved (ability to meet short term debts). An explanation may be that the fleet is heavily indebted because of the new investments (up to 92 percent could be obtained from Crédit Maritime). At the same time the new vessels produce good results, but their effect on solvability will only be noticeable in the long run.

The Crédit Maritime Mutuel does not run much risk with its only borrowings. The skipper-owners must be a member of a cooperative in order to be eligible for the CMM credit. The cooperative will often take a (small) share in the ownership of the vessel so that it is also responsible for the financial obligations. The CMM has had practically no repayment problems recently. If the skipper does not produce satisfactory results the cooperative can pass the vessel to someone else. This does happen, though not very often. The skipper must become sole owner within 10 years. The initial participation of the cooperative offers significant fiscal advantages. The investment subsidies received by cooperatives are not taxed, whereas private persons have to include such subsidies in their income.

The Bretagne fleet achieves a fairly high level of annual revenues.

Table 8.8 Estimate of gross revenues of the artisanal fleet in Bretagne, 1989, (1000 ECU)

Engine power (hp)	Annual revenue
50-80	40-90
200-250	120-230
300-400	340-430
400-600	430-950

Source: Own estimate from unpublished information.

On the basis of four qualitative indicators it can be concluded that the artisanal fleet has produced satisfactory results during the recent years:

1. Important investments have taken place.
2. The level of annual gross revenues is quite high.
3. Forced sale of vessels is an exception.
4. Crédit Maritime does not have any serious problems to recover its loans.

Still in general the opinion is that profitable exploitation is only possible thanks to the existing subsidies. It is demonstrated below that indeed these subsidies reduce the annual capital costs of a 20 m/500 hp trawler by 65-80,000 ECU. This conclusion is equally applicable to other countries where similar grants are available.

Table 8.9 Effect of subsidies on capital costs, (1000 ECU) a)

	Maximum loan 92%			Maximum loan 66%		
	Commercial bank	Crédit Maritime		Commercial bank	Crédit Maritime	
	10.5%	5.0%	5.0%	10.5%	5.0%	5.0%
Interest rate	10.5%	5.0%	5.0%	10.5%	5.0%	5.0%
Subsidy rate	0%	22%	45%	0%	22%	45%
Investment	950	950	950	950	950	950
Subsidy	0	209	428	0	209	428
Loan	874	682	481	627	489	345
Equity capital	76	59	42	323	252	178
Loan servicing	131	77	54	94	55	39
- repayment b)	73	57	40	52	41	29
- interest	59	20	14	42	14	10
Equity capital						
- depreciation b)	6	5	3	27	21	15
- interest, 5%	2	2	1	10	7	5

a) Assumptions: investment in a fishing vessel of 20 m/500 hp/70 grt, investment amount 950,000 ECU; b) Repayment and depreciation over 12 years.

8.3.2 Industrial fleet

It is difficult to get a clear understanding of the economics of the 106 industrial trawlers of over 33 m (160,000 hp). The general opinion is that the situation is rather serious, a few companies excepted. The industrial vessels are usually being exploited by companies, that also operate processing plants and distribution networks. This makes the determination of the profitability of the vessels by itself even more difficult. Not only has the extent of the traditional fishing grounds been reduced, but the productivity has dropped considerably too. In some cases the fleet is not even able to catch its quota.

The tuna vessels are also operated by integrated companies to supply raw material for their canneries. The results depend

largely on the situation on the world market and the EC agreements with third countries regarding the access to their resources. The results are probably reasonable.

The age composition of the industrial fleet is quite good. 60 percent of the trawlers is younger than 15 years. For the tuna fleet this is even 90 percent.

Table 8.10 Age composition of the industrial fleet, 1.1.1989

Years)	Trawlers			Tuna freezers		
	Number	Engine power		Number	Engine power	
		1000 hp	%		1000 hp	%
0-4	22	37.8	24	1	2.4	3
5-9	16	15.7	10	14	47.0	50
10-14	24	44.5	28	11	34.8	37
15-19	32	51.1	32	4	10.3	11
20-24	12	10.3	6			
Total	106	159.5	100	30	94.5	100

Source: UAPF 1989.

*) The age concerns the year in which the vessel was put into operation in France. Therefore the real age may be higher.

The only available information regarding costs and revenues dates from 1984 (UAPF 1985). At that time the smaller trawlers did not earn enough to cover their depreciation, but the large ones did operate profitably.

Table 8.11 Results of the industrial fleet in 1984, (1000 ECU)

	Trawlers			Freezer trawlers	Tuna purse seine	
Aver. length (m)	34	46	55	90	54	70
Aver. hp	800	1800	2000	4000	2400	3600
Gross revenues	975	2045	2296	4681	2529	3315
Fuel	224	447	514	647	456	587
Other costs	719	1738	1674	3393	2000	2618
Gross profit *)	32	-140	108	641	73	110

Source: UAPF 1985.

*) Gross profit is before depreciation and interest.

8.4 Consumption, processing and trade

8.4.1 Consumption

The annual consumption of fish and fishery products in France is estimated at about 22 kg per capita. About 66-75 percent of the total consists of fresh fish, the rest being equally divided between frozen and canned products. The consumption of cans has remained at a quite constant level of 160,000 t since 1978. The demand for frozen products has been growing throughout so that since 1984/85 it has surpassed the demand for the canned ones, (IC, Meuriot).

8.4.2 Processing

There are two main components within the French fish processing industry - freezing and canning. Processing of smoked and salted products is of minor importance. The first two groups are increasingly dependent on imported raw materials, (OECD 1986, 1987).

The freezing industry is in fact a successor to the freezer fleet which operated until the beginning of the seventies. As the supply of sea frozen codfish decreased, an industry was set up on shore to supply the local market on the basis of imported raw materials.

Various larger product groups can be distinguished within the freezing industry itself. Most important are the products based on codfish (cod, saithe, hake), mostly frozen fillets but recently also ready meals. A second group are frozen shellfish products. In 1982 there were some 250 freezing plants, most of which were relatively small. Only five of them processed more than 5,000 t in 1980.

Some 90 percent of the canning industry is based on the production of tuna, sardine and mackerel. The last two species originate increasingly from foreign sources. While in 1964 the imports of sardine and mackerel were negligible in 1978-'83 75 percent resp. 50 percent was imported. Still the share of the French canneries on the French internal market decreased between 1973 and 1983 for sardine from 52 percent to 42 percent and for mackerel from 75 percent to 21 percent (Meuriot).

The 24 canning enterprises owning 31 plants achieved a total gross revenue 3.4 bln. FRF (475 mln. ECU) in 1989. The eight largest companies accounted for 86 percent of this total. Most factories are located in Bretagne where 71 percent of the total volume of 105,000 t is being processed. The canning industry employed some 3,500 people in 1989, while ten years before this figure was 6,900, (IC).

Table 8.12 Canning industry - availability of raw material, 1989, (1000 t live weight)

Origin	Tuna	Mackerel	Sardine
French landings	3.8	8.6	7.0
Imports	42.0	20.2	13.1
Total processed quantity	45.8	28.8	20.1

Source: IC.

Table 8.13 Supply and demand on the internal market for canned products, 1989, (1000 t product weight)

	Tuna	Mackerel	Sardine
Supply			
- Total production	53.3	29.1	20.2
- Imports	56.4	1.3	24.6
Total supply	109.7	30.4	44.8
Demand			
- Internal consumption	105.5	30.4	45.6
- Exports	7.3	0.5	0.5
Total demand	112.8	31.0	46.1

Source: IC.

*) Stock change is the difference in supply and demand.

The competitive position of the French canning industry differs per species. In the case of mackerel there are barely any competitors. Tuna products face strong competition from imports from Thailand and the Philippines. Canned sardines have to compete with those from Morocco.

In 1985 there were some 40 plants producing smoked and salted products. They processed some 20,000 t, 90 percent of which was herring.

8.4.3 Foreign trade

France has a considerable deficit on the trade balance for fish and fishery products. The value of 1988 imports amounted to about 1.9 bln. ECU while the export value was only 620 mln. ECU.

The most important imported species are crustacea, tuna, salmon and cod. These four species represented about 48 percent

of the total import value in 1988. The relation between processed and unprocessed fish has remained relatively constant throughout the eighties. The most important countries of origin are the United Kingdom, Morocco and Denmark.

The French exports are quite diversified, tuna and shrimp being the major species. 64 percent consists of fresh products. The major countries of destination are Italy and Spain.

8.5 Fishery management

8.5.1 Management of catches

Management of catches is not considered a serious problem in France. Landings in excess of quota are looked upon as an exception which regards only a small minority of fishermen. The prime objective of the management of landings is of an economic nature: to prevent large price fluctuations. This approach is being actively pursued by the various cooperatives, which may buy some fish when landings are too abundant or which may direct their member towards different target species. Evidently the cooperatives cannot influence the price level structurally as they are limited by the available funds which they obtain from a levy on the turnover of their members.

The landings are being registered by the Centres Statistiques, which are located in the various ports. The basic data comes from the logbooks and information from the auctions, where most artisanal vessels sell their fish. Also direct sales should be declared to the auctions. However, exact landing data is impossible to compile because of the long coast line, the large number of ports as well as of vessels above and below the 10 m limit, the latter not having the logbook obligation. Declaration of wrong fishing area or species belongs to the possibilities to avoid restrictions.

Most quota are traditionally managed at a national level. In 1989 a regional management system was introduced for five species - sole, cod, whiting, plaice and saithe. The national quota for these species have been subdivided into five regional quotas, which were subsequently subdivided among the various PO's. In some cases the PO quota was closed. The division has taken place on the basis of negotiations. A problem is that some 20 percent of the artisanal fleet is not member of any PO and consequently is not obliged to follow the regional agreements 1).

In the current situation the individual skipper-owners have little reason to hide their catches from the authorities, unless a fishery has been closed. On the contrary, the potential rel-

1) France Eco Pêche, 4/91.

evance of building up a historical track record receives increasing attention and that requires to get the catches registered.

8.5.2 Management of fishing effort

The access to the French fishing sector was in principle free until September 1988. The investments were being subsidized. However, the MAGP requires a reduction of the fleet of 9 percent in horse power and of 3 percent in gross tonnage, which called for an introduction of restrictive measures.

Table 8.14 Multiannual Guidance Programme, (1000 hp, 1000 grt)

Length-group (m)	Engine power		Gross tonnage	
	-----		-----	
	situation 1.1.'87	objective 31.12.'91	situation 1.1.'87	objective 31.12.'91
to 12	598	514	34	31
12-16	215	194	22	21
16-38	533	496	81	78
38 a.m.	228	228	71	71
Total	1573	1432	208	201

Source: EC Official Journal Nr. L124/49 of 15.5.1990.

The Comité Central des Pêches Maritime (CCPM) has introduced in September 1988 a so called 'Permis de Mise en Exploitation' (PME). This is a licence required in all cases of new construction or modernization of fishing vessels. The vessels which operate and are not being modernized or replaced do not need a PME. The system works as follows (Weber):

- Certain groups of vessels do not need a PME : those operating exclusively in ponds, coastal lakes and river estuaries, those exploiting cultured or wild bivalves and the distant water tuna purse seiners.
- All vessels having fished at least one day during the previous two years are eligible for a PME.
- PME specifies the engine power of the vessel (in kw) and its length. Five length-groups are distinguished - to 12 m, 12-16 m, 16-25 m, 25-38 m and 38+ m.
- It is allowed to aggregate the kw's of various PME's to construct a vessel with a larger power, but the vessel must remain within the same length group. This restriction does not apply to the two groups between 16 and 33 m.
- In case the owner has possessed his vessel for over two years, he will be allowed to replace it by a new one of

equal size. If this is not the case the PME will be worth only 77 percent of the original horse power, e.g. for every additional kw 1.3 kw must be withdrawn. The old ship has to cease fishing. If the new engine is larger than the old one, then the factor of 1.3 is applied to the whole power, not only to the marginal one.

- Owners who made investment decisions prior to the introduction of the PME system were given a free licence, (see ch. 8.5.2.1).
- In some regions 'kw-funds' seem to have been set up in order to give potential investors some additional kw's should their PME fall short of their requirements. How these funds operate is not quite clear.

Two years after the introduction (mid-1990) there was still some confusion about the working of the PME-system. A number of unexpected problems had arisen which had to be dealt with on an ad-hoc basis. There was the question of a large number of new boats being ordered just before September '88. However, it does not seem likely that these would lead to further expansion of the fleet. First, the validity of unused PME's is limited to 6-48 months, depending on the circumstances. Second, these orders would not be eligible for investment support programmes. The construction activity in shipyards has decreased since.

The participation of the cooperatives in the ownership of the vessels could well make the 30 percent reduction requirement rather theoretic. The price was at about 2-2,500 FRF/kw in July 1990. It is not unlikely that old vessels will now be kept sailing (one day in two years!) in order to maintain their kw-market value. On the other hand the new vessels may have to fish more intensively as they have to recover a higher capital investment. The most important objection against the PME system under French circumstances is that the access of young skipper-owners becomes more difficult and that there is a danger of concentration of ownership rights.

8.5.2.1 Plan 'Mellick'

In the beginning of 1991 France did not yet approach the objectives set in the MAGP, so that a decommissioning scheme was introduced named after the acting minister at that time. The objective was to withdraw 100,000 kw (136,000 hp), which is about 10 percent of the fleet, in the course of 1991. Decommissioning rates were set depending on the size of the vessel. Furthermore a distinction was made between vessels which would be dismantled and those sold outside the EC. In order to achieve maximum result in the short term, the rates would be decreased in 1992. Small vessels with relatively large engines would receive higher rates.

Table 8.15 Decommissioning scheme, (FRF) *)

Grt-group	A	B	C
to 5	12500	9000	7500
5-15	12500+10000*grt	10000+7000*grt	7500+6000*grt
15-50	42500+8000*grt	33000+5500*grt	30000+4500*grt
50-100	192500+5000*grt	133000+3500*grt	105000+3000*grt
100-400	292500+4000*grt	183000+3000*grt	155000+2500*grt
400 a.m.	692500+3000*grt	583000+2000*grt	555000+1500*grt

Source : France Eco Pêche 4/91

*) A = dismantling before 1.1.1992;

B = dismantling after 1.1.'92 or sale outside the EC during '91;

C = sale outside the EC after 1.1.1992.

A 400 grt vessel would receive in 1991 some 270,000 ECU. The French authorities have allocated 175 mln. FRF (25 mln. ECU) for this scheme, of which about two thirds would be reimbursed by the EC.

The potential success of this measure is not self evident. The rates are not very high and the applications are voluntary. Furthermore the amount received by the vessel owner will fall under the income tax, making his net benefit even lower. New vessels are unlikely to apply. Tables 8.7 and 8.10 indicate that about 40 percent of the artisanal fleet older than 20 years would have to be decommissioned in order to achieve the set targets.

Apart from the decommissioning the system of PME's has become stricter:

- A vessel withdrawn from the fleet as a compensation for new construction must be in the possession of the investor prior to 15.3.1991. This should restrict the trade in old fishing boats.
- The criteria as to which vessels are considered 'active' have become stricter.
- The validity of the PME's issued to people who undertook investment obligations at the time of the introduction of the system will expire if the actual construction was not started by 15.3.1991. It is expected that this measure alone will reduce the amount of issued PME's by 30-40,000 hp 1).

1) France Eco Pêche 4/91.

8.5.3 Organization of the sector

The current structure of the French fishery sector is strongly influenced by the existing professional organizations. Two types can be distinguished administrative and commercial ones. The organizations of the artisanal and industrial fleet are separated. Apart from services to their members they also play a role on the political level defending the interests of the sector.

The central administrative organization is the Comité Central des Pêches Maritimes (CCPM), which was created in 1945. On regional and local level CCPM is represented by Regional and Local Committees (LC).

The basis of the administrative organization are the 47 Local Committees, which are set up per port. They are the meeting point of four groups : employers, employees, cooperatives (incl PO's) and traders. The industrial as well as the artisanal fleet is represented in case they both play a role in the specific port. The tasks of the Local Committees regard collective services - education, representation of local interests and execution of decisions taken at a higher level.

The Regional Committees are set up at the initiative of the Local ones. They deal with general problems. There are five Regional Committees - Nord, Bretagne, Basse-Normandie, Pays de la Loire and Mediterranean. The first two are not very active.

Next to the geographically based organizations there are 18 Comités Interprofessionnelles, which are set up per (group of) species. They deal with the technical and economic aspects of a specific fishery. The four groups indicated above are also represented here. The CI's are legally competent to take decisions which are to be implemented by the Local Committees.

The Local and Interprofessional Committees are represented at the national level at the CCPM. The objective being to achieve coordination of local decisions. The Ministère de la Mer is represented as well so that the national policy can be taken into account.

CCPM faces a number of organizational and institutional problems because of the autonomous developments of the various parts of this organization, the development of the commercial organizations and the introduction of the EC fishery policy. A certain Union may sometimes represent the employees as well as the employers. There are large differences between the various CL's and CI's due to their size and the intensity of their activities. There is not an unambiguous structure of decision making and implementation. The tasks of the CI's are in fact inconsistent with the EC regulations and they overlap with the PO's. A profound reorganization is being considered, (Hennequin).

Within the commercial organizations a distinction can be made between the artisanal and the industrial ones. The inshore fleet of vessels below 12 m is mostly not organized.

The industrial fleet is being represented by the Union des Armateurs à la Pêche de France (UAPF). 35 fishing companies exploiting 166 vessels were members in 1989. The size of the companies varies between one vessel of 470 hp and 17 vessels with a total of 14,500 hp.

The matters regarding the EC market regulations are dealt with in the three FROM's (Fond Régional d'Organisation du Marché du Poisson - Nord, Bretagne and Sud-Ouest). The FROM's originate from CI's for bottom fish and have a PO status.

The artisanal fleet and some inshore vessels are organized within the CCMCM (Confédération de la Coopération, de la Mutualité et du Crédit Maritime). This is an umbrella organization set up in 1901, which unites a number of specialised ones. The five most important ones are:

- FEDOPA (Fédération des Organisations de Producteurs de la Pêche Artisanale). Its members are the 11 major artisanal PO's. However, these PO's are very diverging in character - some being linked to the cooperatives and some being set up on regional or species basis.
- CGPA (Centre de Gestion de la Pêche Artisanale). The local Centres de Gestion elaborate the complete fiscal administration for the affiliated fishermen. Such a system exists in France for all artisanal producers. By joining a Centre de Gestion they become eligible for a special fiscal deduction.
- APMAR (Association de Prévoyance Maritime) - a social security fund which pays illness or disablement benefits. The crews that work on share basis cannot apply for unemployment support.
- Coop Maritime - unites cooperatives which buy fishing inputs.
- CMM (Crédit Maritime Mutuel) is a specialised fisheries bank. The CMM is affiliated to the Crédit Cooperatif and has a monopoly on the distribution of concessionary loans subsidized by the government. CMM has a network of 12 'Caisses Regionales' and some 120 local 'Agences'.

The five above mentioned organizations operate independently of each other. The individual fisherman will join the local units depending on his personal needs.

Finally, there is the FIOM - Fond d'Intervention et d'Organisation des Marchés des Produits de la Pêche Maritime et des Cultures Marines). FIOM forms a part of the CCPM and carries out the following tasks (OECD 1986):

- settlement of the EC minimum prices between the PO's and FROGA;
- support of experimental fishing projects;
- education of PO personnel;
- promotion of fish consumption through advertising campaigns, publications and participation on fairs;
- financing of market surveys;

- research and development regarding fish processing;
- financial support of cooperatives (credit insurance);
- support of unemployment funds regarding bad weather benefits.

8.5.4 Support of the sector

The French fishing fleet enjoys traditionally considerable financial government support in terms of subsidies for investment and interest costs. The vessels above 16 m are supported through a national programme (Coremode) and the smaller ones through regional funds (Cripa). Every year there is a fixed amount available. To support a greater number of investment projects, the average subsidy for each one of them has to be reduced. Every year there are 4-5 times as many requests as approvals. The choice of the projects which should be supported is made by local and regional commissions in which the local skipper are also represented. In this way an expert assessment of the financial as well as technical merits of the projects is assured.

The investors can apply for national or regional investment grants and for concessionary loans. The level of the subsidies depends on the region and on the FEOGA support. There is a basic subsidy percentage, which will be reduced or increased in case FEOGA support does or does not take place. These subsidies are available for new construction or modernization of vessels between 5 and 15 years old. Acquisition of second hand vessels or modernization of older ones is not eligible for support. The support is available for the artisanal fishermen, i.e. skipper-ow-

Table 8.16 Investment subsidies for artisanal fleet (Coremode), (percent) b)

Type of subsidy	Weak regions a)	Other regions
Basic premium	15	15
- of which conditional	10	5
Additional premium	7	7
FEOGA	35-40	20-25
Total support		
- with FEOGA	40-45	30-35
- without FEOGA	22	22

Sources: Circulaire de 14.1.1983, EC reg. 355/77.

a) Weak regions are arrondissements Quimper and Lorient; b) The above regulation is applicable for vessels over 16 m on the Atlantic coast and over 18 m on the Mediterranean coast.

ners who sail on their vessel and do not possess more than one (or a share in one).

Under certain conditions the investor may also request a concessionary loan from CMM. Contrary to the subsidies, there is no ceiling as to the total amount borrowed per year.

Investors who do not meet the criteria for artisanal fishermen can apply for a subsidy available for the industrial vessels,

Table 8.17 Loans available for artisanal fleet at subsidized interest rate of 5 percent a), b)

Type of investment	Maximum loan (percent investment) grace period		Term/ Investment (years)
	general	first ship	
New construction			
>12 m	66	92	12/2
<12 m, no trawlers	20	50	9/1
Modernization >12 m a)	50	75	7/-
Second hand ships a)			
>12 m	20	75	10/1
<12 m (no trawlers)	-	30	9/1
First equipment	-	30	3/-

Source: Circulaire de 14.1.1983 (incl. adjustments).

a) Not for vessels older than 15 years; b) Only for owners of one vessel.

Table 8.18 Investment subsidies for industrial fleet, (percent *)

Type of subsidy	To 33 m		Above 33 m	
	weak regions	other regions	weak regions	other regions
Basic premium	22	22	22-30	22-30
- of which conditional	7	2	12-15	2-5
Additional premium	-	-	-	-
FEOGA	35	20	35	20
Total support				
- with FEOGA	50	35	45-50	40-45
- without FEOGA	22	22	22-30	22-30

Sources: Circulaire de 14.1.1983, EC reg. 355/77.

*) New construction and modernization.

which may amount to 22-50 percent of the investment sum Under certain conditions they may also obtain a soft loan to a maximum of 60 percent of the total investment.

The total amount of subsidies available from national and regional funds in 1986/87 can be estimated at about 15-20 mln. ECU/year. This was probably the amount in 1988 as well as the investments were approximately at the same level. Furthermore the support of interest costs could be estimated at some 10 mln. ECU per year. Since the introduction of PME's the intensity of investments has decreased. During the years 1987-'89 the EC investment support amounted to some 10 mln. ECU pr year. In 1990 the EC has stopped FEOGA support as various member countries could not achieve their MAGP objectives. This means that the French government would have to make more money available for investments which were already approved or the number of projects would have to be reduced.

Table 8.19 Investment subsidies, 1986-'87 a), b)

Type of fleet	1986		1987	
	subsidy mln. ECU	number projects	subsidy mln. ECU	number projects
Inshore fleet (to 16 m)	.	.	3.7	211
Artisanal fleet (16-24 m)	6.8	56	7.9	74
Industrial fleet	5.6	12	11.7	26
Total (national) a)	12.4	68	23.4	311
Total EC (artis. fleet)	8.0	.	10.9	.
Total	20.5	.	34.3	.

Sources: OECD 1986, 1987, JC.

a) Growth between 1986 and 1987 is partially caused by faster disbursements. b) Excl. interest subsidy.

8.5.5 Inspection and prosecution

There is no specific information regarding the prosecution of offenders of the fisheries regulations. The legislation specifies fines, confiscations and even jail terms for various offenses. The general impression is that in practice the rulings of the courts are quite mild 1).

1) Loi 83-582 of 5.7.1983 and Loi 85-542 of 22.5.1985.

9. Spain

9.1 Historic development

Spain has probably the most complex fisheries sector of all EC member countries. Spain has been able to maintain its distant water fleet through new forms of access, at the time when the distant fleets in most other European countries collapsed due to the introduction of the 200 mile Exclusive Economic Zones. The sector contains just about any type of fishing from non-motorized coastal craft to integrated multinationals which operate distant fleets, processing plants and distribution chains.

When interpreting Spanish data it should be realized that they may concern European Atlantic waters, the Mediterranean as well as the waters of third countries. The shellfish culture plays also an important role in Spain. Therefore it is necessary to determine the exact contents of the figures regarding landings and fleet.

9.1.1 Landings

The total landings decreased from about 1.5 mln. t in the beginning of the seventies to 1.1-1.2 mln. t fifteen years later. Two distinct developments have taken place. The landings of cod dropped dramatically due to the restrictions imposed in the north Atlantic. Also the landings of hake decreased because of the collapse of the South African fisheries. On the other hand the catches of tuna have grown substantially. Finally, the landings of small pelagic species - sardine, mackerel and horse mackerel - have fluctuated.

Only about 30 percent of the total production is caught in the ICES areas of the north-east Atlantic (some 350,000 t in 1987) (ICES). About 15 percent is caught in the Mediterranean. The remaining 55 percent originates from waters of third countries. About 100,000 t is landed at the Canary Islands.

The nominal value of the landings has increased by 540 percent from 35 bln. ESP (about 0.5 bln. ECU) to 224 bln. ESP (1.6 bln. ECU) in 1987. However, taking inflation into account there has been a decrease of the real values by about 10 percent.

Table 9.1 Landings of the important species by the Spanish fleet, 1972-1987, (1000 t)

Species	1972	1977	1982	1987
Cod	224	80	35	36
Haddock	10	1	1	2
Saithe	13	25	0	1
Sole	3	3	4	5
Hake	256	292	189	201
Anglerfish	16	15	21	15
Megrim	11	13	20	14
Norway lobster	5	6	6	3
Anchovy	29	82	40	20
Horse mackerel	88	120	57	67
Blue whiting	26	22	36	39
Shrimp	33	34	11	19
Ray	6	6	2	18
Ling/blue ling	3	3	3	7
Tunas	83	107	144	211
Sardine	128	189	216	163
Mackerel	41	33	32	28
Squid/octopus	145	102	110	127
Other species	231	205	273	167
Total	1353	1348	1207	1149

Source: FAO, Yearbook of Fishery Statistics, vol. 44 en 64.

9.1.2 Fleet

The development of the modern Spanish fishing sector started in 1960/61 when substantial credits were made available for construction of vessels of preferably over 150 grt. The expansion lasted till the mid-seventies when the 200 mile limits and the fuel crises imposed external restrictions. Since then there has been a stabilisation of the number of vessels and even a small decrease of the gross registered tonnage.

The composition of the Spanish fleet changed slightly between 1973 and 1986. The number of 'bacaladeros' was halved while the number of freezer vessels (trawlers and purse seiners) increased by about one third. The off-shore fleet, mainly wet fish trawlers, was also reduced by one third. The average tonnage remained quite constant, but the engine power increased. The number of small craft (below 20 grt) rose, causing a rise in the total number of fishing vessels, while at the same time the total tonnage fell.

Table 9.2 Development of the Spanish fleet and crew, 1961-1991

Year	Fleet			Crew (1000)
	number vessels	Grt (1000)	Hp (1000)	
1961	13328	425	593	106
1972	15998	677	1961	109
1977	17153	818	2751	113
1982	17499	738	2736	107
1986	17464	649	2561	94
1991	17200	670	2680	85

Sources: Iresco, MAPA 1986, 1991 see table 9.4.

Table 9.3 Composition of the Spanish fleet in 1973 and 1986

Type of fleet	1973		1986	
	number of vessels	Grt (1000)	number of vessels	Grt (1000)
Distant fleet				
- 'bacaldero'	150	82	69	35
- freezer fleet	379	184	502	244
Off-shore fleet *)	1424	245	1055	186
Coastal fleet				
- to 20 grt	11847	57	13393	59
- 20-100 grt	2602	132	2445	126
Total	16402	700	17464	650

Sources: Iresco, MAPA 1986.

*) Vessels over 100 grt.

9.2 Current structure of fleet and landings

9.2.1 Fleet

The fleet can be broadly divided into seven segments:

1. Coastal fleet
2. Wet fish trawlers
3. Fresh purse seiners
4. Longliners
5. Bacaladeros (salted cod)
6. Freezer trawlers
7. Freezer purse seiners

The structure of the fleet is analyzed below on the basis of unpublished data, as the most recent published statistics date from 1986.

Table 9.4 Composition of the fleet by type of vessel in 1991

Type of vessel	Number of vessels	Grt (1000)	Hp (1000)	Average/vessel	
				Grt	Hp
Coastal fleet	8500	33	280	4	33
Longliners	4500	87	390	19	87
Wet fish trawler	2400	210	900	88	375
Fresh purse seiners	1300	50	300	38	231
Bacaladeros	50	25	60	500	1200
Freezer trawlers	400	200	570	500	1425
Freezer purse seiners	60	65	180	1083	3000
Total *)	17210	670	2680	39	156

Source: Own estimate on basis unpublished data.

*) In the beginning of 1991 the Spanish register contained some 20,000 fishing vessels, incl. those used in shellfish culture and the auxiliary ones.

The small coastal fleet consists largely of vessels below 9 m, which are equipped with outboard engines only. This fleet uses mainly gill nets, lines and other passive gear, landing a variety of bottom species.

Many longliners are relatively small. Some 900 are over 12 m and only 20 are larger than 33 m. One hundred of these vessels are allowed to fish in the EC-10 waters (areas VI, VII and VIII). the most important target species is hake. Most other longliners operate in the Spanish waters. A small number fishes for swordfish and shark on more distant grounds.

Most (some 800) fresh fish purse seiners are between 9 and 18 m (10 to 40 grt). Some 300 of these vessels are between 18 and 33 m (average 95 grt and 450 hp). The remaining vessels are very small. The fleet fishes for small pelagics (sardine, anchovy, mackerel and horse mackerel) which can be found off the Spanish coast. The catch is mostly destined for the canning industry but also for the fresh market and for bait of the longliners.

Some 2,000 wet fish trawlers are between 12 and 33 m. Many of the smaller trawlers operate in the Mediterranean. Some 200 of these vessels are allowed into the EC-10 waters. About 600 operate in the waters of Morocco and 100-200 elsewhere along the West African coast.

The freezer trawlers have on the average 400 grt and 1,500 hp. The smaller ones operate from the Canary Islands and the south Atlantic ports. The home ports of the larger vessels are in the north-west, mainly Vigo. About 80 percent of the total production (value and volume) consists of hake, shrimp, squid (illex) and octopus. The major fishing grounds can be found along the coasts of southern Africa (Mozambique, Angola, Namibia till 1989), the Falklands and the international waters of NAFO.

The freezer purse seiners fish for tuna in the south Atlantic and in the Indian Ocean. They are operated from ports in the North and north-west of Spain. Their size varies from 400 to 2,200 grt.

Table 9.5 Composition of the Spanish fleet by type and size in 1986, (number) *)

Grt-group	Coastal fleet	Fresh trawlers	Fresh purse seiners	Bacalados	Freezer trawlers	Freezer purse seiners	Total
To 20	12329	397	667	-	-	-	13393
20-50	228	633	537	-	-	-	1398
50-100	63	623	361	-	-	-	1047
100-150	21	296	201	-	13	-	531
150-250	1	373	45	6	110	4	539
250-500	-	106	6	33	255	6	406
500-900	-	-	-	26	26	18	70
900-1800	-	-	1	4	34	28	67
1800 a.m.	-	-	-	-	5	3	8
Total	12642	2428	1818	69	443	59	17459

Source: MAPA 1986.

*) Excl. 5 factory trawlers (4.500 grt).

In 1986 the distant fleet landed some 400,000 t of fish worth some 0.5 bln. ECU. This volume dropped in 1990 to 335,000 t, but the nominal value remained approximately constant. In real terms there was a decrease of some 25 percent. The freezer purse seiners land almost exclusively bluefin tuna and bonito. Hake had the highest share within the production volume of the freezer trawlers with a total of 141,000 t. Shrimp contributed most to the value (28 percent) followed by hake (22 percent).

The available statistics do not allow an unambiguous division of the fresh landings among the various fleet segments. Hake was the most important among the bottom species with 63,000 t and 225 mln. ECU in 1986. It is landed by trawlers and by longliners.

Most other bottom species - the major ones being anglerfish, megrim and blue whiting - are caught by trawlers and by the coastal fleet. The small pelagics are landed by the purse seine fleet. The large pelagics are caught by the longliners (tuna and swordfish, 42,000 t, 110 mln. ECU). Shellfish is landed by trawlers and by the coastal fleet. Shrimp and Norway lobster are important for the first group, and crab, lobster and octopus for the second.

Table 9.6 Composition of landings by type of fleet, 1986

Type of fleet	Target species	Total catch (1000 t)	Total value (mln. ECU)
Distant fleet			
- Bacalderos	Cod	56	61
- Freezer seiner	Tunas	61	56
- Freezer trawlers	White fish	151	104
	Shrimp, lobster	21	168
	Squid	107	162
Total distant fleet		396	551
Wet fish fleet			
	Bottom fish	203	501
	Pelagic species	386	333
	Shrimp, lobster	12	94
	Bivalves	13	16
	Squid, octopus	21	52
Total wet fish fleet		635	995
Total all fleets		1032	1546

Source: MAPA 1986.

9.2.2 Regional distribution

Some 45 percent of the fleet (in grt) is concentrated in the north and north-west of Spain. Only the medium size vessels of 25 to 100 grt are relatively more concentrated along the Mediterranean coast. 90 percent of the distant fleet (over 500 grt) operates from the north and north-west.

The regional distribution remained quite constant between 1983 and 1986, the only exception being the continued concentration of the distant fleet in the north and north-west at the expense of the Canary Islands. While in 1983 there were still some 28 large vessels (31,000 grt) based at the Canary Islands, in 1986 there were only 7 (7,600 grt). The fleet in the north increased during the same period from 99 to 134 vessels.

Table 9.7 Regional distribution of the fleet in 1986

Area	Grt-group				Total
	to 25	25-100	100-500	500 e.m.	
<i>Number of vessels</i>					
- North	1781	279	371	42	2473
- North-west	4558	367	536	92	5553
- South Atlantic	1065	348	277	6	1696
- Mediterranean *)	4418	1139	76	1	5634
- Canary Islands	1804	79	218	7	2108
Total number	13626	2212	1478	148	17464
<i>Gross tonnage (1000 grt)</i>					
- North	10.2	15.1	69.2	36.2	130.7
- North-west	20.3	20.2	116.4	100.6	257.6
- South Atlantic	7.7	21.9	64.1	9.0	102.6
- Mediterranean *)	19.6	58.9	10.0	1.1	89.6
- Canary Islands	6.5	4.3	50.2	7.6	68.6
Total tonnage	64.3	120.3	309.9	154.6	649.2

Source: MAPA 1986.

*) Mediterranean incl. Balear Islands.

The regional distribution of the landings reflects that of the fleet. It should be noted that in the north of Spain 17 per cent of the fleet (in grt) produces only 12-14 percent of the catch. The north-west shows the lowest average price, which can be attributed to the high share of relatively cheap frozen fish landed in Vigo. The south Atlantic ports realize the highest average price due to (frozen) shrimp from West Africa. Relatively

Table 9.8 Regional distribution of fleet and landings in 1990, (percent)

Region	Volume	Value	Gross tonnage
North	12	14	17
North-west	56	39	46
South Atlantic	10	20	14
Mediterranean	15	19	15
Canary Islands	7	8	8
Total	100	100	100

Sources: MAPA 1990 and u.i.

high prices are also achieved on the Mediterranean coast thanks to the demand from the tourist industry.

9.3 Economic performance of the sector

An assessment of the economic situation of the Spanish fishing sector is rather difficult as there is almost no data according to the type of fleet. The evaluation is therefore mainly based on the qualitative information obtained during the interviews.

9.3.1 Trends in production

The nominal value of the landings increased between 1985 and 1990 by some 14 percent, but in real terms there was a 16 percent fall. The background of this development is not quite clear. The

Table 9.9 Development of the total gross value, 1985-1990, (bln. ESP) a)

Year	Nominal	Real b)
1985	211	240
1986	217	229
1987	224	224
1988	231	220
1989	230	205
1990	240	202

Sources: MAPA 1986, 1988 en 1990.

a) Incl. fish culture of 5-10 bln. ESP; b) Prices of 1987.

Table 9.10 Development of landings and price of fresh and frozen fish, 1987-1990

	1987	1988	1989	1990
Fresh fish				
- quantity (1000 t)	635	616	553	545
- price (ESP/kg)	237	252	284	301
- value (bln. ESP)	150	155	157	164
Frozen fish				
- quantity (1000 t)	297	294	310	335
- price (ESP/kg)	231	214	200	209
- value (bln. ESP)	69	63	62	70

Source: MAPA 1988 and 1990.

landings of fresh fish dropped, but the real price increased slightly. The opposite has been the case with the frozen product - an increase in landings and a fall in price. However, it is not clear whether the price changes were produced by demand pull or by a change in the composition of the production.

9.3.2 Results per type of fleet

Similar to other countries, the Spanish fleet must have profited considerably from the drop of the fuel price in 1987. This applies especially to the larger vessels with higher total fuel costs.

The results of the small coastal fleet (incl. small longliners) vary strongly by geographical area. The authorities have been trying to maintain a good productivity level through closed areas and seasons. The prices at landing are fairly high because of the short trips resulting in high quality, which is rewarded on the Spanish market. This applies even more to the Mediterranean coast. It is not clear which part of the small coastal fleet operates only seasonally.

Among the wet fish trawlers, the best results are probably achieved by vessels with access to the EC-10 waters. These vessels have a quota of some 60,000 t of valuable bottom species, which obtain on the average a price of 500 ESP/kg (3.9 ECU/kg). This implies that an average vessel (150-250 grt/ 600-1200 hp) can realize gross revenues of some 850,000 ECU per year. This is a very good result, the more so as the vessels are on the average of an older construction year. The results of the smaller coastal trawlers are less favourable. the trawlers operating in the Moroccan waters are faced with falling physical productivity and relatively high costs of access.

The results of the small fresh purse seiners also vary according to region. The ex-vessel prices on the Mediterranean coast are very high so that the results could be reasonable. An improvement has probably also been achieved in the north of Spain as the price of sardine more than doubled between 1986 and 1990. However, the canning industry faces an increasing competition from the Moroccan canners, which certainly has a negative effect on the price level in general. The results are probably the worst for the purse seiners on the Canary Islands as they fish for reduction purposes so that they depend on the developments on the world market.

The results of the larger longliners are mostly satisfactory as the Spanish market appreciates fish caught with this gear. A hundred of these vessels have access to EC-10 waters where good catches of hake can be realized. Also swordfish and shark caught on more distant grounds are commercially interesting target species.

The major problem of the freezer trawlers is the access to fishing grounds. This is especially the case for some 150-200

large vessels (800-900 grt) which used to fish in the Namibian waters for shrimp and squid until 1989. The number of licences for the Falklands was also reduced. This group of vessels is obliged to turn to the NAFO area, where the fishing possibilities are also limited. Greenland halibut, caught at great depth (2,000 m) is seen as one of the potential future species. Furthermore there is a fleet of some 250 smaller freezer trawlers (250 grt) based at the Canary Islands and fishing along the West African coast for export to Japan. The results have been good, partly due to low tariffs imposed on exports from the Canary Islands to Japan. This preferential treatment will be eroded by future integration of the Islands in the EC. A third group of freezer trawlers fishes for crustacea off the coast of Senegal, Angola and Mozambique. Their catch has evidently a high unit value and the results are probably good.

The freezer trawlers are considered a problem group and there are speculations that half of the fleet will have to be taken out of operation. The above figures indicate that the total landings have not been effected by the closing of the Namibian waters. The future of this fleet seems indeed uncertain. The vessels are often owned by large integrated companies striving both for profitability and a stable supply of raw material. Fishing is only a part of the whole enterprise. Still some of these companies may be prepared to trim down their fleet as it would not lead to their total collapse. This is an essential difference to family owned smaller vessels.

The fleet of some 60 freezer purse seiners apparently achieves good results, which have justified very high investments and allow for a short pay-back period.

The last 48 'bacaladeros', which fish in the NAFO area, face also the problem of access. The price of salted cod has increased considerably, making it a luxury product from a basic one, but nevertheless the results are probably not sufficient. One of the problems may be that there is relatively more smaller cod in the catch, which is not suitable for salting. Some of these vessels have installed freezing equipment and they seem to fare better.

In general it can be concluded that the outlook for the wet fish fleet working in the EC-waters (incl. Spanish) is reasonable due to high prices and access to resources. The fleet which depends on the bilateral agreements with West African countries is facing higher access costs and the uncertainty of extension of the agreements. It can be expected that many coastal countries will in the end prefer to have their own industry exploiting their marine resources. This applies also to the distant fleet. The Spanish distant fleet is much more diversified than at the time the distant fleets of the U.K. or Germany. Still it remains a question for how long this fleet can remain under Spanish flag.

From a technological point of view there is probably certain room for efficiency improvements. Especially the crews seem rela-

tively numerous. However, the labour legislation makes a reduction difficult and costly.

The interest of the young generation to work on board fishing vessels seems diminishing, one of the reasons being the fragmentary social life which is a consequence of the long fishing trips. In some areas there is already a shortage of crew.

9.3.3 Investments

The investment level can be estimated only on the basis of the support provided by the EC. Between 1987 and 1990 a total of 53 bln. ESP (390 mln. ECU) was invested in 262 new construction projects and 18 bln. ESP (130 mln. ECU) in 770 modernizations. It follows that the price of the new vessels was on the average about 1.5 mln. ECU and the average cost of modernization was 170,000 ECU 1).

Furthermore some 532 new vessels and 359 modernizations were supported through national and regional programmes only. These were all vessels below 9 m which were not eligible for FEOGA grants within the EC regulation 4028. The total sums invested were however rather small as it concerns small scale fishing. Finally, an unknown amount was invested in larger vessels above 33 m (especially freezer seiners), which were not eligible for support either and had to rely on private sources of funding.

The annual investments amounted thus to some 130 mln. ECU during the indicated period. However, high investments had really taken place in the period 1985-'87. The investment level in the subsequent years was already much lower.

The age composition of the operating fleet (in grt) changed as a result of these investments. The share of vessels of less than 10 years increased. At the same time the share of gross tonnage older than 20 years increased from 33 percent in 1986 to 42 percent in 1990.

Table 9.11 Age composition of the fleet in 1986 and 1990, (percent of grt)

Age (years)	1986	1990
To 10	15	22
10 - 20	52	35
20 - 30	25	31
30 - 40	8	11

Sources: MAPA 1986; 1990 (u.1).

1) El Mar 3/91.

9.4 Consumption, processing and foreign trade

9.4.1 Consumption

The combination of a large population and a high average consumption of fish makes Spain the largest fish market in the EC. The consumption was estimated at 30 kg/person/year in 1989 1).

9.4.2 Processing

The large size of the Spanish fisheries sector gave rise to a significant fish processing industry. Its two main segments are freezing and canning.

The freezing industry consists of some 105-110 companies, which pack their product and 30-40 smaller enterprises which carry out intermediate processing. There are some large multinational companies, the largest being Pescanova, which realized a gross turnover of 60 bln. ESP (430 mln. ECU) in 1988 2). The total processing capacity of the freezing sector amounts to some 300-350,000 t per year. In 1990 the total production amounted to some 290,000 t with a total value of 200 bln. ESP (1.5 bln. ECU). The gross revenues grew between 1987 and 1989 by some 17 percent per year. In 1990 this growth slowed down because of the Gulf crisis.

This sector employs some 8,000 people. The major products are made on the basis of hake and squid. The plants are mostly located in Galicia and around Madrid.

The future outlook is quite favourable. In 1992 the EC Single Market will broaden the possibilities for exports, especially of prepared products. However, higher prices can usually be realized on the Spanish market. Supply of raw materials has not presented serious problems. Some two thirds are still obtained from the Spanish fleet and one third has to be imported. It can be expected that there will be a further concentration of activities and that a number of small enterprises will disappear.

The canning industry annually produces some 200,000 t, valued at 70-80 bln. ESP (560 mln. ECU) (OECD 1987). 60-65 percent of the volume consists of tuna and sardine. There has been a constant concentration and the number of companies has from about 400 in 1975 to 170 in 1990. The total processing capacity amounts to about 300,000 t, so that there is still a fair underutilization, the problem being the seasonality of some fisheries. The Spanish canning industry represented serious competi-

1) Eurofish Report 332:fs/2) However, other estimates point to 36-38 kg.

2) Eurofish Report 321, fs/3.

tion to the French and Italian ones at the time of Spain's accession to the Community. Therefore it was agreed to reduce the tariffs on canned sardine only gradually in the course of the subsequent ten years.

This sector employs about 38,000 people (OECD 1988). Most of the raw material is supplied by the Spanish fleet (87 percent in 1988).

The economic situation of the canning industry was rather difficult throughout the eighties, partly because Morocco had an easier access to the EC market than Spain. However, since 1988 there have been signs of improvement and new investments were undertaken. Nevertheless it is expected that some 40 small canners will cease operating 1).

9.4.3 Foreign trade

Spain is a large net importer of fish and its deficit in fish trade has been increasing. The value of exports has grown between 1986 and 1989 by 70 percent to some 470 mln. ECU. At the same time the imports grew by 123 percent to 1.5 bln. ECU.

The Spanish exports consist mainly of products made of tuna and sardine, often in cans. The major countries of destination are Italy (30 percent) and Portugal.

The composition of the imports is very diverse, the major species being shrimp, squid and hake. The origin of the imports is equally diverse.

9.5 Fishery policy

The foundations of the current fishery policy were laid in 1980 2). The law allows for a management of the fishing effort through restrictions on gross tonnage, gear, engine power, closed areas and seasons. The legislation which was subsequently introduced regulates the access to almost all fisheries. The only exception are the small coastal activities, which are managed through closed seasons and areas.

Fisheries management through restrictions on landings (quota) is applied only when this is required in international agreements. Vessel quota are used only rarely. The fishery usually continues until the quota is exhausted.

1) Mar 11/90.

2) Real Decreto 681/1980.

Table 9.12 Review of basic lists, 1989

Type of fishery	Number of vessels
<i>Coastal fleets in areas VII and VIII</i>	
- Sardine vessels below 100 grt	57
- Longliners below 100 grt	80
- 'Pole and line' vessels below 50 grt	158
- Anchovy	281
- Anchovy for bait	224
- Fresh tuna vessels	808
- 'Palomateros'	124
Total coastal fleet	1732
<i>Fleet active in Spanish waters</i>	
- Bottom longline (n/n-w) a)	830
- Trawl (n/n-w)	223
- Rasco (n/n-w) b)	237
- Volanta (n/n-w) c)	169
- Trawlers (<35 grt), south Atlantic	174
- Surface longline	163
- Purse-seine	1217
- 'Claro' d)	17
- Anchovy in Golfo de Leon	176
Total Spanish waters	3206
<i>Off-shore fleet</i>	
- Trawlers over 100 grt (EC base list)	197
- Longliners over 100 grt (EC base list)	103
- Bacaladeros (NAFO)	46
- Freezer trawlers below 601 grt (NAFO)	15
- 'Poterros' (NAFO) e)	2
Total off-shore fleet	363
<i>Waters of Portugal f)</i>	
- Trawlers	20
- Longliners	131
- Albacore fishery	19
Total Portuguese waters	170

Source: MAPA 1989.

a) n/n-w = north and north-west; b) rasco = type of gillnet; c) volanta = type of bottom gillnet; d) claro = type of purse-seine; e) potero = freezer trawlers on squid (illex); f) Actual fishing in the Portuguese waters has been very limited.

9.5.1 Management of fishing effort

The fishing effort is managed through so called 'censos' or 'listas de base'. These are lists of vessels with certain characteristics regarding size, gear or fishery. The vessels are given access to specific activities and they may not switch to others without prior consent of the authorities. In case of seasonal fisheries, vessels may be included on several lists.

Apart from the above lists, some 1,100 vessels operate in the waters of third countries within bilateral fishery agreements. About half of this number works in the waters of Morocco. Also in these cases there are lists of vessels according to the type and possibly the area to which they are assigned.

The activity of each basic list is further regulated by the so called 'fishing plan'. These are periodical lists, which allow access to the indicated vessels and which may be more restrictive than the 'basic lists'. The periods may vary between one day (anchovy for bait) and two months (longliners). Finally, for each period a number of licences is issued, which may be even lower than the number of vessels on the periodical list. In this way the fishing effort is managed in three steps. Finally, special regulations regarding closed seasons and areas, restrictions on gear, minimum size of fish, target species and by-catch percentages, may be applicable to specific fisheries.

Two examples of technical measures may be given:

- The longliners are divided into three grt-groups (to 20, 20-50 and over 50 grt). For each group a maximum length of the longline as well as the number of hooks is set : 6,250 m with 2,500 hooks, 8,000 m with 3,200 hooks and 10,000 m 4,000 hooks. The size of the hooks is set depending on the target species. Only one longline may be shot per day. The lines have to be recovered on Saturdays and may be shot again on Mondays 1).
- The bottom trawlers in the north and north-west have to be over 100 grt and are allowed to fish only beyond 100 m isobath. The minimum mesh size depends on the exact area. Some areas are seasonally closed. A vessel is not allowed to operate more than on an average of 22 days/ months during one year 2).

A compensation is paid to vessels effected by closed seasons or areas. For example the 278 purse seiners in Galicia were stopped between 1.3 and 15.4.1991. They were compensated as follows:

- vessel up to 10 grt : 8,000 ESP/day;
- 10-40 grt : 8,000 ESP/day + 600 ESP/grt above 10 grt;

-
- 1) Orden 30.6.1983.
 - 2) Orden 30.7.1983.

- over 40 grt : 26,000 grt/day + 300 ESP/grt above 10 grt;
- crew members receive between 1,728 and 1,920 ESP/day depending on their position 1).

When a new vessel is constructed or an old one enlarged, an equal compensation in grt and hp has to be withdrawn, of which at least 80 percent must come from the same basic list. An expansion of the capacity without compensation is allowed only when there are sufficient fishing opportunities or when the enlargement does not exceed 6 percent of the original size. The capacity licences cannot be divided so that a withdrawal in excess of the minimum requirement is lost. Furthermore only 'active' vessels are admitted as a compensation, i.e. those which have sailed at least 120 days in the previous year. The basic lists may also include 'operational vessels', which must have fished at least once in the previous 24 months. These vessels may become active, but cannot be accepted as a compensation.

The above system allowed Spain to keep the total size of the fleet under control since the beginning of the eighties and to achieve the objectives set by the Multiannual guidance programme. Spain has also introduced a decommissioning scheme, along the EC lines, but there has been very little interest to apply. Only 21 vessels were decommissioned in 1989 and even less in 1990.

Table 9.13 Multiannual Guidance Programme, (1000 grt, 1000 hp)

Type of vessel	Gross tonnage		Engine power	
	situation	objective	situation	objective
	1.1.'87	31.12.'91	1.1.'87	31.12.'91
Small coastal fleet				
- below 6 m	8	8	131	129
- 6 - 9/12 m	25	25	565	554
Vessels over 9/12 m *)				
- Spanish waters	136	134	710	695
- EC waters	99	97	285	280
- Third countries	295	258	791	683
- Freezer purse seiners	59	68	166	188
EC basic list (300)	66	66	301	301
Total	687	655	2950	2829

Source: EC Official Journal No. L 66/28, 14.3.90.

*) 12 m limit applies to trawlers, 9 m to all other fishing boats.

1) Industrias Pesqueras, 15.3.1991.

The MAGP (1987/91) requires a reduction of the fleet by some 5 percent. However, it is not quite clear what the size of the fleet was in the beginning of 1987. According to MAPA (1986) the Spanish fleet numbered on 31.12.1986 650,000 grt and 2,560,000 hp, which would have been less than the size according to the MAGP.

9.5.1.1 Fleet of 300 (EC basic list)

The 300 vessels over 100 grt with access to EC waters deserve a little more attention as this is the only fleet in Europe which is managed through transferable sea days.

The fishing capacity of these vessels is expressed in so called 'unit ships'. A vessel of 700-800 hp serves as a basis. In the Accession treaty coefficients have been set for all other sizes. A maximum of 150 'unit vessel' may fish concurrently, with a specific division according to areas : 23 in Vb+VI, 70 in VII and 57 in VIIa,b,d. Every two months a fishing plan has to be elaborated, specifying the vessels per area.

The available sea time is divided among the 300 vessels on the basis of their relative shares, which were determined from historic performance. The shares are specific for the three areas and the original ones were calculated already in 1981 within the agreement between Spain and EC at that time. The shares are expressed in sea days. In Spain they are also called 'access rights'.

The access rights are divided between ten associations in which the 300 vessels are organized. The allocations to these associations is based on the rights of their members, but within each association the division among the members may be different.

Under certain conditions the right may be leased or sold. In principle they can be transferred only together with the vessel to which they are linked. However, the owner may keep the rights if the vessel is withdrawn from the fishing fleet (temporarily or definitely) without applying for decommissioning support or if it is employed in another fishery which is not restricted by a basic list. The owner loses his rights if he does not comply with the above conditions or if he does not replace a lost vessel within a specified period. In such cases the rights are transferred to his association 1).

The Accession Treaty stipulates rather particular conditions for this fleet. Not only are its operations limited by quota, they are also restricted by the number of allowed vessels. There are no fleets in the EC-10 which are managed in this way.

1) Orden 12.6.1981.

9.5.2 Management of landings

Spain attempts to manage landings through fishing plans and restrictions of fishing effort. Fishery on species subject to quota are free until the quota is exhausted and then the fishery is stopped.

In some small specific fisheries maximum catches per day are set. This is the case for example in the Pais Vasco:

- anchovy fishery : 6 t/day/vessel;
- mackerel fishery : 8 t/day/net plus 500 kg/crew member 1).

9.5.3 Support of the sector

Investments in the Spanish fishing fleet are eligible for EC and national support along the EC regulation 4028. Between 1987 and 1990 some 1,000 investment projects benefitted from the scheme and received a total of some 130 mln. ECU. 24 percent of this amount was given by the Spanish authorities and 76 percent by the EC. The average subsidy amounted to 25 percent of the investment.

Table 9.14 Support given to Spanish fishing fleet, 1987-1990, (mln. ECU)

Type of investment	Number of projects	Total investment	Support		
			EC	Spain	total
New construction	262	392	72	23	95
Modernization	770	132	28	9	37
Total	1032	525	101	31	132

Source: Mar 3/1991.

As EC did not support investment in vessels below 9/12 m, Spain introduced its own scheme for small coastal boats between 6 and 9 m. It subsidized 10 to 30 percent of the investment amount 2). 530 new small boats were built and 360 were modernized between 1987 and 1990 3).

Support was only given if the above indicated conditions were met, i.e. mainly the withdrawal of fishing capacity elsewhere.

- 1) Industrias Pesqueras, 15.3.1991.
- 2) Real Decreto 535/1987.
- 3) Mar 11/1990.

In 1991 Spain adopted fully the new EC regulation 3944.

The young skipper owners may be given an additional subsidy of 6 percent, but the total subsidy may not exceed 30 percent of the investment 1).

There are also substantial investment programmes for the processing industry and for the improvement of port facilities. Investments of 85.5 bln. ESP (0.6 bln. ECU) are foreseen in the period 1990-93 within the EC regulation 4042/1989 for improvements in processing and marketing. Half of these investments could be funded by the EC and national subsidies 2).

Table 9.15 Investment support as of 1991, (percent)

Size of vessel (m)	Weak regions *)		Other regions	
	EC	Spain	EC	Spain
5-9/12	35	5-25	20	5-25
9/12-33	30	5-25	15	5-25
>33	20	5-25	5	5-25

Source: Real Decreto 222/1991 of 22.2.1991.

*) Weak regions are Andalucia, Canary Islands, Galicia, Ceuta and Melilla.

9.5.4 Inspection and prosecution

The 'Marina Mercante', which is a part of the Ministry of Transport, is in charge of the inspection on fishery regulations. Evidently, this is only a small part of the tasks of this body. The landings are followed through logbooks and data supplied by the auctions. However, in view of the length of the coast line, the large number of auctions (about 230) and other potential landing places a foolproof inspection is difficult to implement. Some 13,000 vessels are below 10 m and as such have no logbook obligation. Their production is estimated on the basis of surveys. An obligatory first sale through auctions was proposed in Galicia in the beginning of 1991 in order to get better landings data.

Administrative sanctions can be imposed when infractions have been proven 3). The legislation does not only cover the Spanish territorial waters, but also the waters where Spanish vessels operate under international agreements.

1) Orden 18.5.1989.

2) Mar 7-8/1990.

3) Ley 53/1982 of 13.6.1982.

Three categories of infractions are distinguished:

- a) Light - mainly inconsistencies on muster roll, fines up to 1 mln. ESP (7,700 ECU);
- b) Heavy - fishing without a licence, during closed seasons or areas or with forbidden gear, fines of 1-4 mln. ESP (8-31,000 ECU);
- c) Very heavy - fishing with explosives, infractions on international agreements, which could jeopardize them, fines of 4-10 mln. ESP (31-77,000 ECU).

If a same infraction is repeated within two years the fine is increased by 50 percent. For third time and more by 100 percent. However, the total fine may not exceed 35 percent of the value of the vessel, incl gear. Gear and catch may be confiscated as well as up to 10 percent of the legal catch. In very severe cases the skipper may be forbidden to fish for three to twelve months.

Most infractions on fishery management fall under the second category. Similar to other countries, the prosecution does not seem prohibitive.

10. Portugal

10.1 Historic development

In the case of Portugal, the presented data may concern the continent as well as the Azores and Madeira islands. Over 90 per cent of the fisheries sector is concentrated on the continent.

10.1.1 Landings

The total landings of the Portuguese fishing fleet have been fluctuating because of the main species caught. These are small pelagics (sardine and horse mackerel) and a large variety of demersals off the coast of Portugal. The second important area is the north Atlantic, where the Portuguese used to fish for cod and in the recent years their target species has been redfish. A third traditional area is the coast of West Africa between Morocco and Angola, where hake, squid and shrimp are caught. The fluctuations were caused by the small pelagics on the one hand and the varying access to fishing grounds on the other.

The major shifts have been the dramatic fall in the catches of cod and the recent rise in the catch of redfish in the NAFO area.

The nominal value of the landings increased from 2.8 bln. PTE in 1972 to 55 bln. PTE in 1987. In real terms the value fluctuated between 40 and 55 bln. PTE (260 and 340 mln. ECU) (INE).

Table 10.1 Landings of the major species by the Portuguese fleet, 1972-1987, (1000 t)

Species	1972	1977	1982	1987
Cod	132	32	15	23
Hake	38	22	7	10
Mackerel	19	13	6	17
Horse mackerel	64	56	36	33
Redfish	4	3	2	51
Tunas	7	13	9	15
Sardine	88	80	101	91
Squid, octopus	6	6	6	20
Other species	83	83	72	119
Total	440	308	254	379

Source: FAO, Yearbook of Fishery Statistics. vol.44 en 64.

10.1.2 Fleet

The number of fishing vessels more than doubled between 1972 and 1989. This increase was caused mainly by the vessels below 25 grt. The gross tonnage increased as well during the first years, but subsequently fell again. This is a result of a policy pursued since the beginning of the seventies, which impeded the net growth. Furthermore in recent years there is a noticeable shift from vessels over 100 grt to smaller ones. The average size of the vessels below 100 grt has not changed much.

Table 10.2 Development of the Portuguese motorized fleet, 1972-1989 a)

Grt-group	1972	1977	1982	1989
Number of vessels				
- to 5	1668	2832	3858) 7824 b)
- 5-25	1556	1616	1644)
- 25-50	433	486	479	446
- 50-100	197	195	222	229
- 100 a.m.	210	243	271	317
Total	4064	5372	6474	8816
Gross tonnage (1000 grt)				
- to 5	5	6	8) 26 b)
- 5-25	18	17	19)
- 25-50	15	17	16	15
- 50-100	13	13	15	15
- 100 a.m.	122	148	148	132
Total	173	201	206	188

Sources: INE, GEPP 1989.

a) Incl. islands; b) All vessels below 25 grt.

10.2 Present structure of the sector

10.2.1 Fleet and landings

In the beginning of 1991 there were in Portugal some 15,900 fishing boats with a total of 186,000 grt and 672,000 hp. Some 13,300 vessels (165,000 grt, 590,000 hp) operated from the continent and the rest of the fleet worked from the islands. Some 35,000 people were employed on board. The fleet has landed in 1990 some 325,000 t of fish worth 70 bln. PTE (380 mln. ECU).

Five segments can be distinguished within the Portuguese motorized fleet which is based on the continent: a) small coastal fleet, b) coastal trawlers, c) sardine vessels, d) larger multipurpose vessels and e) distant fleet.

**Table 10.3 Composition of the Portuguese motorized fleet,
1.1.1991**

Type of vessel	Number	1000 grt
Small coastal fleet (to 9 m)	6007	12.2
Multipurpose vessels (over 9 m)	948	30.5
Wet fish trawlers	151	21.1
Sardine purse seiners	274	12.2
Distant (freezer) fleet	100	83.1
Total	7480	159.1

Source: GEPP (u.i.).

Next to the motorized fleet there were also some 6-7,000 non motorized registered fishing boats, with an average of 1 grt. It may be that in reality part of this fleet is motorized. It can be assumed that most of these vessels operate only seasonally and serve to supplement the income of the owner from other sources.

The small coastal fleet consists of vessels averaging 2 grt and 15 hp. The fleet exploits pelagic as well as demersal resource with various types of gear.

The average size of the multipurpose vessels is 32 grt and 130 hp. The activities are broadly comparable to those of the small coastal fleet. Some of the vessels operate also in the waters of Morocco and Mauritania. The most important single species in 1990 was 5,800 t of octopus, which represented a little over 10 percent of the total volume.

The wet fish trawlers are on the average 140 grt and 670 hp. Within this group there was a shift in the eighties from 30/33 m vessels to smaller ones of some 25 m. Over one third of these vessels is not only active in the Portuguese waters, but fishes also off the coast of north-west Africa. By far the most important species is the horse mackerel, the catches of which amounted to 10,000 t in 1990 from Portuguese waters alone. Blue whiting, mackerel and octopus are also important.

The purse seiners (average 45 grt and 270 hp) depend mainly on sardine, which represented 80 percent of their catch in 1990. Mackerel and horse mackerel are caught as well.

The average size of the distant vessels in 1988 was 830 grt and 1500 hp. Most of these vessels are freezer trawlers, but there are also some large gill netters (1,000-1,500 grt) and longliners. In 1990 90 percent of the catch of this fleet was realized in the NAFO area, redfish being the major species. Since the mid-eighties redfish served as a substitute target species for the lower quota of cod. Good markets have been developed in Japan and in Portugal. The remaining production comes from the

south Atlantic, mainly the Falklands and Angola 1). Until 1989 some 18 vessels used to fish in the Namibian waters.

10.2.2 Regional distribution

Three major regions from where the fleet operates can be distinguished - Aveiro to the north, Lisbon and Algarve (south coast). About two thirds of all fishing activities are concentrated in these areas. The fisheries of the Azores and Madeira are rather small as the islands have almost no continental shelf and have thus very limited resources. An exception is the pole and line tuna fleet which operates from Madeira.

Aveiro is the major port for the distant fleet. Therefore 'Central' Portugal has a relatively high share in the gross tonnage. The Algarve fleet, on the other hand, is composed of fairly small vessels.

Table 10.4 Regional distribution of the fleet by type of vessel, (number)

Region	Small coastal fleet	Multi-purpose fleet	Trawlers	Purse seiners	Tuna vessels	Distant fleet
North	1559	262	10	108	0	14
Centre	581	50	38	27	0	46
Lisbon	1629	367	36	135	0	44
Alentejo	157	22	0	5	0	0
Algarve	1881	318	33	128	0	0
Azores	572	205	0	0	0	5
Madeira	20	159	0	5	27	2
Total	6399	1383	117	408	27	111

Source: MAPA 1987.

In terms of the landed volumes, the area around Lisbon is the most important one with a share of some 30 percent of the total. The northern region has a share of 40 percent in the total landings of sardine as well as a high share in horse mackerel and blue whiting. The share in the total landings is therefore some 25 percent, which is disproportionately high compared to the share in the fleet. The central regions receive about 20 percent of all landings. This implies that only about 25 percent is landed on the coast south of Lisbon. However, here the average

1) O Jornal, 24.5.1991.

price is much higher as the bottom species play a more important role.

10.3 Economic performance of the sector

The economic situation of the Portuguese fishing sector can be evaluated only on the basis of rather aggregate data. There is no information as to the costs and earnings of different types of vessels.

The total value of landings in 1990 was estimated at some 380 mln. ECU. This figure is based on information from the auctions plus an estimate of direct sales.

*Table 10.5 Estimate of volume and value of landings per type of fleet, 1990 *)*

Type of fleet	Volume (1000 t)	Value (mln. ECU)
Non-motorized boats	8	17.4
Small coastal fleet	16	34.9
Multipurpose vessels	41	89.3
Wet fish trawlers	40	78.8
Purse seiners	116	44.6
Distant fleet	75	82.1
Total	296	347.1

Sources: Estimate based on GEPP 1988 and 1990 and O Jornal of 24.5.1991.

*) Continent only, production of the islands is some 30,000 t and 30 mln. ECU.

Thousands of small coastal boats (motorized or not) provide probably only a supplementary source of income. The importance which should be given to these activities depends on the availability of other economic activities in the region. Part of the catch consists of high value bottom species which can be sold directly to restaurants. For these reasons, an assessment in terms of economic rentability is not only difficult but also of little significance without an explicit consideration of other relevant aspects.

The advantage of the multipurpose vessels is that they can turn flexibly to different species depending on their economic attractiveness. The results are probably quite good.

The wet fish trawlers within the Portuguese fleet achieve a relatively high productivity. Their average annual gross revenues

can be estimated at 400-500,000 ECU, which is a good result for an average 24 m vessel.

The major problem of the purse seiners are their large crews. Due to the rising fresh consumption, the price of sardine increased from 27 PTE/kg in 1985 to 56 PTE/kg in 1990. which means a real growth of 22 percent. The fleet sells to the canners under contract. It could be expected that the contracts allow for sufficient economic results.

The total landings of the wet fish fleet remained rather constant between 1985 and 1990 at 220-240,000 t. At the same time the real price increased by 18 percent (annex 10, table 6). The fuel prices decreased. It can be concluded that the economic results of this fleet must have improved.

According to the published information, the distant fleet should be in serious economic problems. After the accession of Portugal to the EC, its bilateral agreements with Canada and Norway came to an end. The distant fleet could not be offered many alternative fishing opportunities. The Portuguese cod quota in the NAFO area dropped from 41,000 t in 1988 to 14,600 t in 1991. The 18 vessels working off Namibia had to leave at the end of 1989. The official landings of the distant fleet have consequently dropped from over 100,000 t in 1986 to some 75,000 t in 1990. The size of the fleet fell from 100,000 grt in 1987 to 83,000 grt in 1990. The financial position of a number of enterprises has been rather difficult.

The Portuguese distant fleet will probably continue to play a role of importance in the future, despite the recent difficulties. In the NAFO area the vessels could switch from cod to redfish. The companies have invested in new labour saving technologies on board and in some cases switched to smaller more cost efficient vessels. New fisheries are being sought, if necessary in joint venture arrangements.

10.3.1 Investments

Investment projects worth 20 bln. PTE (115 mln. ECU) were approved in Portugal between 1987 and 1990. Approximately half of this amount was funded through national and EC subsidies. About 16 percent of the total investments took place on the islands and the rest on the continent. Investments without subsidies are extremely difficult as the banks will not provide the necessary credit so that the investor would have to rely on his own capital. The commercial interest amounted to 20-22 percent in May 1991. About 90 percent of the total investments was spent on some 100 new vessels and the rest on an equal number of modernization projects. By mid 1990 many projects, especially of the 1989 and 1990 FEOGA tranches were not yet completed.

The number of requests for subsidies is much greater than the number of approvals. In view of the size of the fleet, the investment level does not seem sufficient to maintain a favourable

Table 10.6 Investment projects, 1987-1989, (mln. ECU) a)

Type of investment	Number of projects	Total investment
New construction		
- wet fish fleet	45	26.1
- distant fleet	13	37.1
Modernisation		
- wet fish fleet	76	5.5
- distant fleet	8	4.1
Coastal fleet b)	632	10.7
Total	774	83.5

Source: SEP.

a) Continent only; b) Portuguese programme for boats of less than 9 m.

ble age composition. However, this is not viewed as a major problem. The vessel owners are of the opinion that well maintained old hulls, equipped with modern technology serve just as well. There is little incentive to undertake investments for fiscal reasons.

Table 10.7 Age composition of the fleet, 1991

By age groups			By type of vessel	
Age (years)	Number	Grt (1000)	Type	Average age
To 10	1372	24.5	Coastal fleet *)	21
10 - 20	3320	43.2	Wet fish trawler	19
20 - 30	1899	35.9	Purse seiners	22
30 a.m.	2005	47.1	Distant fleet	27
Unknown	4706	14.7		
Total	13302	165.4		

Source: SEP (u.i.).

*) Incl. multipurpose vessels.

10.4 Consumption, processing and foreign trade

10.4.1 Consumption

There are rather diverging estimates of fish consumption in Portugal. The national sources indicate 60-70 kg/person/year (live weight), (MAPA 1987).

10.4.2 Processing

The Portuguese fish processing industry consists of three segments : canning, freezing and salt-drying of cod. There is also a small production of fish meal.

In the eighties, the canning industry passed through a process of concentration. The total processed quantity remained between 40 and 50,000 t but the number of enterprises dropped from 104 in 1978 to 60 in 1988, (Morselli, MAPA 1987). One of the reasons is the relatively low level of capacity utilization, which was estimated at 52 percent in 1985. Mainly small plants were obliged to close down. The canning industry employs about 7,500 people.

About 60 percent of the production consists of sardine and 20-25 percent of tuna. Mackerel, anchovy and small quantities of other species are processed as well. Of the four species mentioned, only the processing of tuna has structurally grown. About 90 percent of the output is destined for export, which amounted to 86 mln. ECU in 1989.

About half of the canning industry is located in the north (Povoia de Varzim, Matosinhos and Aveiro) as this is also the major fishing area for the species concerned. The second major area is Algarve with a share of 20-30 percent, (Leal, MAPA 1987). The cannery obtain their raw materials from the local fleet, They are seldom part of an integrated enterprise which would operate its own vessels.

The frozen products are mostly produced on board the distant vessels. This is about 50-60,000 t of headed and gutted fish (product weight). The major species are redfish, cod, squid and hake. A large part is directly exported and the rest is processed further on shore - cut, filleted and repacked.

In 1986 there were some 80 freezing plants in Portugal, employing 3,200 people. About 40 percent are rather small scale operations, their major activity being storage of small pelagics to allow for year round canning. The large freezing companies are integrated with their own fleet. In some cases they also process other products than fish. The plants are concentrated around Lisbon and Oporto, the major ports being Aveiro (distant fleet port) and Peniche (sardine), (Leal, EC).

Prior to the introduction of the 200 mi EEZ's a large distant fleet landed salted cod in Portugal - one of the basic items of the Portuguese diet. The cod was subsequently dried on shore.

This activity disappeared almost entirely. Only 1,865 t of slated cod was landed in 1988 (GRPP 1988) and Portugal has to rely on imports. Some 36,000 t of dried salted cod were produced in 1985, of which 15,000 in Aveiro and 13,000 in Setubal. The 25 plants which operated in that year had a total processing capacity of 400 t/day, which was substantially underutilized (Leal, EC). The situation of this industry deteriorated probably further in the second half of the eighties because of the growing shortage of cod.

Portugal also has a small fish meal industry, which lately produced some 7,000 t of meal and 2,000 t of fish oil. The plants are run by groups of canners to process their offal.

Table 10.8 Type and size of processing plants by number of employees, 1985

Number of employees	Canning	Freezing	Drying
To 25	4	35	3
25-50	13	22	13
51-100	19	9	7
100 a.m.	23	9	2
Total	59	75	25

Source: Leal.

10.4.3 Foreign trade

In the years 1987-'89 Portugal has annually imported some 190,000 t of fish products worth some 360 mln. ECU. In 1990 this volume increased to 220,000 t. Some 80-90,000 t was salted fish (mainly cod) from Iceland, Norway and Canada. Other important species were frozen hake (30,000 t) and fresh horse mackerel (18,000 t). Depending on national landings sardine and tuna may be imported by the canning industry.

The Portuguese exports reached 200 mln. ECU in 1989, an increase of 50 percent over the previous year. Almost 30 percent of the value consists of canned sardine and about one third of a large variety of products and species. Cod in various product forms and canned tuna and mackerel are also important export products. Canned tuna is mostly produced in the Azores.

The major countries of destination are Italy, Spain and France, which accounted for 50 percent of the total export value in 1989. About two thirds of the Portuguese exports remains within the EC.

The large deficit on the trade balance for fishery products is a serious consideration for the formulation of the Portuguese fishery policy.

10.5 Fishery policy

10.5.1 Management of landings

Inspection of landings is not a major issue within the Portuguese fishery policy, as only some 20 percent of the total landings fall under the EC or NAFO quota regime. Inspection is therefore aimed at technical measures.

10.5.2 Management of fishing effort

The decree 43/87 specifies a large number of technical measures which should be adhered to - minimum sizes of fish and meshes, allowed gears (by type and size), access of certain groups to specified areas, etc. For example, the action radius of the small coastal fleet is restricted to the area between the ports north and south of the home port.

The fishing effort is regulated since the beginning of the seventies through a system of authorizations and licences. The authorization indicates in general the areas and the gears permitted to the vessel. The validity is unlimited as long as the vessel remains in a minimum activity.

The licences must be requested annually, also by the small coastal vessels. They specify the rights for the current year. These rights cannot be in excess of those of the authorization. The government can refuse a licence for reasons of biologic management or because of previous misuse by the owner. A licence can be withdrawn if it remains unutilized for more than six months. The request for a licence must be accompanied by information on catches, gross revenues and fuel consumption during the previous year.

The licence costs between 13 and 130 ECU. Although this amount is very low, its calculation is interesting as it is based on the 'principle of average selectivity' of the used gears. The price of the licence can also be increased if the target species require extra protection. The following formula is used:

$$T = VB * \frac{(a_1+a_2+...+a_n) + (e_1+e_2+...+e_m)}{(n + m)} * P$$

Where : T = price to be paid
 VB = basic amount depending on the size of the ship (up to 5 grt 2,000 PTE, over 100 grt 20,000 PTE)

- a = coefficient for specific gear, between 0.5 and 1, depending on selectivity
- e = coefficient for species, beginning 1991 only two fresh water species were specified
- n = number of gears
- m = number of protected species
- P = weighing coefficient = $[1+(n*0.1)]$

The authorizations and licences are tied to the 'livrete de actividade', a document indicating the size and the activities of the vessel.

The decree requires a permission to be requested at every new construction, acquisition or modernization (art. 70). The request must be accompanied by information as to where, how and what the vessel will fish. Construction of new fishing capacity has to be compensated by withdrawing similar capacity elsewhere from the fleet. The authorization cannot be divided so that in some cases large distant vessels have been replaced by smaller fresh fish boats. The authorities have the power to decide on an ad hoc basis whether an investment will be permitted or not, so that they have a decisive influence on the development of the sector. The authorizations may only be transferred together with the vessel.

10.5.3 Support of the sector

The MACP 1987/91 allowed for a limited modernization of the fleet through an increase of engine power especially for the

Table 10.9 Multiannual Guidance Programme, (1000 grt, 1000 hp)

	Gross tonnage		Engine power	
	situation 1.1.'87	objective 31.12.'91	situation 1.1.'87	objective 31.12.'91
Continent				
- local fleet	18.2	16.9	79.9	85.4
- coastal fleet	70.2	70.8	375.7	375.9
- distant fleet	99.8	96.8	170.4	165.3
Madeira and Azores *)				
- local fleet	4.1	3.3	18.2	18.3
- coastal fleet	10.2	15.6	48.7	81.1
- distant fleet	6.1	6.1	8.3	9.1
Total	208.7	209.5	701.1	735.1

Source: EC Official Journal No. L 66/24, 14.3.90.

*) Separate objectives are set for Madeira and the Azores.

coastal fleet of the islands. None of the fleet segments is to be reduced despite the fact that the fishing opportunities of the distant fleet were substantially reduced and the Portuguese coastal resource are probably fully utilized.

A comparison of the MAGP with the registered fleet at the end of 1990 shows that the fleet is smaller than the set objective so that there remains some scope for expansion.

The investments in the fleet benefitted from two support schemes. The small coastal fleet (below 9 m) received subsidies from a national scheme. The larger vessels could apply for national and FEOGA grants.

Table 10.10 Investment subsidies, (percent)

Type of investment	National	EC
A. Vessels between 5 and 9 m		
New construction, another vessel withdrawn		
- use of original gear	20	0
- line fishing only	45	0
- line fishing at least 4 months/year	35	0
New construction, several vessels withdrawn		
- use of original gear	25	0
- line fishing only	50	0
- line fishing at least 4 months/year	40	0
Modernization		
- 5-9 m	20	0
- over 9 m, if amount lower than EC minimum	20	0
B. Vessels between 9/12 and 33 m		
New construction, another vessel withdrawn		
- longliners	20	35
- other gears	15	35
New construction, no other vessel withdrawn	10	35
Modernization	20	35
C. Vessels over 33 m		
New construction, another vessel withdrawn	15	25
New construction, no other vessel withdrawn	10	25
Modernization	20	25

Sources: MAPA 1988, DGP 1989.

The above percentages are increased for the small coastal fleet by 15 or 25 percent points if the vessels switches partial-

ly or fully to line fishing. Larger vessels can obtain an extra subsidy of 5 percent. Finally, another 5 percent may be approved if the withdrawn capacity largely exceeds the constructed one or if some other special conditions are met.

Various priorities are set to a certain extent for different types of vessels. In case of trawlers these are replacement of larger by smaller ones and installation of refrigeration on board. For purse seiners an improvement of quality of fish, safety and living conditions on board are pursued. Decommissioning of new vessels and reorientation towards new fisheries (species and grounds) are the priorities for the distant fleet.

The support scheme for the small scale coastal fleet (5-9 m) aims at an increase of the action radius, utilization of abundant resources, an improved selectivity of gear, quality of fish and security on board. Vessels are eligible for the support in case of replacement, modernization or switch to line fishing. Investments in (long)lines as such and security measures are subsidized for 50 percent.

Table 10.11 Total investment support by Portugal and EC, 1987-1989, (mln. ECU)

Type of investment	Portugal	EC
<i>New construction</i>		
- wet fish fleet	4.7	8.9
- distant fleet	5.3	10.5
<i>Modernization</i>		
- wet fish fleet	1.3	1.8
- distant fleet	0.8	1.0
Total	12.1	22.3

Source: SEP.

The Portuguese fisheries sector received between 1987 and 1989 10-13 mln. ECU per year in investment subsidies for new construction and modernization. Some 4 mln. ECU were spent annually on decommissioning, temporary laying up of vessels and experimental fishing. The small coastal fleet received in the same period about 1.3-1.7 mln. ECU in annual subsidies. On the average some 50 percent of the invested amounts were financed by these subsidies.

10.5.4 Inspection and prosecution

The Portuguese authorities carry out an extensive investment programme worth some 23 mln. ECU (4 bln. PTE) to introduce an integrated inspection system. Half of this amount is funded by the EC. The system includes inspection from the air (incl. satellites) and at sea as well as computerized processing of landings data. The legal validity of evidence collected by satellite was not yet settled in 1991.

However, it seems evident that the controls will continue to face difficulties because of the large number of vessels and potential landing places. The law allows for imposition of administrative fines between 20,000 and 2 mln. PTE (120 to 12,000 ECU). Some 500 fines are imposed annually, mostly for light infractions. The withdrawal of a licence belongs also to potential penalties. The fines are paid without judicial procedures as the judges have in some cases imposed even higher ones.

11. The Netherlands

11.1 Historic development

11.1.1 Landings

Three major developments have taken place in the Dutch fishery sector since 1972. The catches of cod fish (cod, haddock and saithe) dropped by some 60 percent. The total landings of the two most important flatfish species (sole and plaice) increased by about one quarter, but the composition fluctuates from year to year. Finally, The catches of the pelagic species increased by 200 percent, due to the new fishery on horse mackerel and the recovery of the herring stock after 1980.

Table 11.1 Landings of important species by the Dutch fleet, 1972-1987, (1000 t) *)

Species	1972	1977	1982	1987
Cod	48	31	37	21
Haddock	6	2	2	1
Saithe	13	8	0	0
Whiting	8	10	13	9
Plaice	52	54	56	79
Sole	18	12	18	11
Mackerel	11	38	68	34
Herring	56	20	35	100
Horse mackerel	0	2	96	66
Blue whiting	-	-	9	9
Shrimp	5	4	7	-
Dab	4	4	5	-
Other	8	16	26	3
Total	228	200	372	333

Source: FAO, Yearbook of Fishery Statistics. vol.44 en 64.

*) Excl. bivalves.

The nominal value of the landings increased between 1972 and 1987 from 316 to 905 mln. NLG. In real terms the increase was about 35 percent. This may be considered as quite exceptional as the real value of the landings in most other countries remained either constant or in some cases even diminished.

Table 11.2 Composition of the value 1972 and 1987, (mln. NLG)

Species	1972	1987
Flatfish	167	480
Codfish	46	98
Small pelagics	54	197
Other species	49	130
Total	316	905

Sources: 1972 Min. of Agriculture, 1987 estimate.

11.1.2 Fleet

The Dutch fishing fleet consists of two segments - the cutters and the trawlers. The first group mainly fishes flatfish, codfish, shrimp and some herring. The trawlers fish small pelagic species.

The number of trawlers decreased substantially from 72 units in 1972 to 13 units by the end of 1987. However, at the same time the average size of the individual vessels increased so that the total horse power dropped 22 percent only.

Table 11.3 Development of fleet and employment

	1972	1977	1982	1987
Number of vessels				
- cutters	600	495	567	611
- trawlers	72	42	26	13
Engine power (1000 hp)				
- cutters	259	325	450	581
- trawlers	76	66	64	59
Employment				
- cutters	2625	2107	2592	3040
- trawlers	858	581	511	349

Source: LEI 1978 and 1988.

In the middle of the seventies the number of active cutters diminished as a result of a decommissioning scheme. Later large investments were undertaken, especially in the years '80-'81, '83-'84 and '87-'88. The number of vessels increased above the 1972 level while the total engine power grew 125 percent. The composition of the fleet shifted strongly towards larger vessels. In 1972 the largest group was the one of vessels between 300 and

600 hp, numbering 229 units. In the same year there were only 4 vessels with more than 1100 hp. Fifteen years later there were only 44 300-600 hp units, but 225 had engines above 1100 hp.

The trend in employment on board the cutters has been similar to that of the fleet. First, there was a decrease in the middle of the seventies and subsequently a rise to about 3,000 man-years in 1987. The number of crew on board the trawlers decreased steadily throughout.

11.2 Present structure of the fishing sector

11.2.1 Fleet

At the end of 1990 the Dutch fleet numbered about 570 cutters and 13 trawlers with a total engine power of 563,000 hp resp. 80,500 hp.

In broad terms three smaller groups can be distinguished within the cutter fleet:

1. Small cutters up to 260 hp mostly fishing shrimp.
2. Medium sized vessels of 300-1100 hp, which mostly carry out a mixed fishery on flatfish, cod, herring and shrimp.
3. Large cutters above 1100 hp, fishing almost exclusively plaice and sole.

Table 11.4 Composition of the Dutch cutter fleet according to engine power and target species, 1990, (number)

Hp-group	Type of fishery				Total
	Shrimp *)	Codfish	Flatfish	Mixed	
To 260	95	3	7	44	148
261-1100	13	10	18	146	186
1101 a.m.	0	2	213	14	229
Total	108	15	238	204	565

Sources: Min. of Agriculture, LEI (u.i.).

*) All shrimpers are below 300 hp.

The Dutch fishing fleet is highly specialized in terms of target species as well as gear - flatfish and shrimp being caught with beam trawl and cod fish with bottom or pair trawl. Furthermore almost all traditional fishing grounds are on the North Sea. The limited quota in other areas (Irish Sea, Bay of Biscay) are usually swapped to increase the fishing opportunities on the North Sea.

The freezer trawlers can be employed world wide, not only for fishing but also for transportation. In the EC waters they fish for herring, horse mackerel and mackerel. They also operate regularly in the waters of the USA and the Falklands and sometimes off West Africa.

11.2.2 Regional distribution

As the Netherlands has a relatively short and straight coastline, the regional distribution is not a major factor, although some regional characteristics can be pointed out. Most specialized shrimpers operate in the Wadden Sea. Major home ports for the beamers are Urk, Den Helder and Stellendam. The cod fleet traditionally works from IJmuiden and Wieringen.

Table 11.5 Regional distribution of the cutter fleet, 1990, (number)

Region/port	Type of fishery				Total
	Shrimp	Codfish	Flatfish	Mixed	
Breskens	4	0	4	12	20
Vlissingen	0	0	15	4	19
Stellendam	4	0	47	11	62
IJmuiden	4	8	16	24	52
Den Helder	5	0	44	18	67
Wieringen	13	2	6	43	64
Urk	3	5	99	31	138
Other ports	75	0	7	61	163
Total	108	15	238	204	565

Sources: Min. of Agriculture, LEI (u.i.).

A considerable share of the catches is not being marketed in the port of landing, but because of the short distances it is transported by road to another auction. Some auctions reimburse part of the transportation costs in order to attract additional business. This is why the auction of Urk has by far the largest turnover of around 200 mln. NLG despite the fact that the port of Urk cannot be reached by the larger vessels. There is also a certain specialization among the auctions - plaice in Urk, cod in IJmuiden and sole in Vlissingen.

11.3 Economic performance of the fishing sector

Assessing the economic performance of the fishing fleet, it is again necessary to distinguish between the cutters and the trawlers. But also within the cutter fleet the various groups obtain different results.

11.3.1 Cutter fleet

The highest total gross revenue of 794 mln. NLG (341 mln. ECU) was realized by the cutter fleet in 1985. Since then the amount dropped to some 650 mln. NLG (279 mln. ECU) in 1988-89 and some 690 mln. NLG (296 mln. ECU) in 1990. The share of the beam trawling has been about 75 percent throughout. The contribution of the other fisheries has shifted somewhat as the importance of cod fishing further diminished from 16 percent to 9 percent while that of shrimp fishing increased from 4 percent to 9 percent in 1989. This implies that the vessels involved in flatfish and shrimp fishing achieved fairly good results, but those which depended heavily on cod have been facing ever increasing financial difficulties.

Table 11.6 Average gross revenues of selected hp-groups, 1987 and 1989, (1000 ECU)

Hp-group	1987	1989
151-260	141	132
261-300	322	332
401-600	333	324
801-1100	504	474
1301-1500	840	785
2000 a.m.	1320	1038

Source: LEI.

The relatively high revenues in the years 1985-'87 have led to high investments so that in the course of 1987 and 1988 a considerable number of large new cutters was added to the fleet. At the same time older vessels were sold abroad, especially to the United Kingdom. Consequently the Dutch cutter fleet has a very favourable age composition.

Table 11.7 shows that three quarters of the small vessels and almost 60 percent of the 261-800 hp-group is older than 20 years. The larger vessels have been constructed more recently so that in the beginning of 1990 85 percent of the cutters with more than 1500 hp was younger than 10 years. The level of modernization becomes even more pronounced when the age of the engines

Table 11.7 Age composition of the Dutch cutter fleet, (1.1.1990)

Age (years)	Hp-group				Total
	to 260	260-800	800-1500	1500 a.m.	
0-5	19	35	5	61	120
6-10	7	24	17	68	116
11-15	6	1	24	19	50
16-20	1	11	42	4	58
21-25	1	43	5	0	49
26 a.m.	112	59	5	0	176
Total	146	173	98	152	569

Source: LEI.

alone is considered as then 82 percent of the total was younger than ten years, a half of which was even younger than five years.

11.3.2 Trawlers

By the end of 1990 there were 13 large freezer trawlers operating under Dutch flag with a total engine power of 80,500 hp. This is a very modern fleet. The operational results allowed for considerable recent investments. Seven vessels with some 55,000 hp were built after 1985.

1985 was also a top year for the trawler fleet with a total gross revenue of 215 mln. NLG (92 mln. ECU). However, by 1988 the revenues were down to 139 mln. NLG (60 mln. ECU), partially because of the sale of seven smaller vessels to Peru.

11.4 Consumption, processing and trade

11.4.1 Consumption

The consumption of fish in the Netherlands amounts to about 14 kg/capita/year. In recent years it has been fairly stable.

11.4.2 Processing

There are some 380 fish processing plants. In 1988 they had realized a total gross revenue of 2.7 bln NLG (1.2 bln ECU). some 70 percent of these sales had been realized on foreign markets. the industry employs some 7,000 workers, of whom 1,500 on part-time basis. In many cases the companies also carry out other activities besides fish processing like wholesale trade or operation of fishing vessels. Ten companies have a turnover of over

50 mln. NLG (21 mln. ECU). Seventy plants realize 80 percent of the total gross revenues. The value added can be estimated at 675 mln. NLG (290 mln. ECU).

Table 11.8 Composition of the processing industry by type of processing, 1988 *)

Type of processing	Number
Fresh fish	269
Frozen fish	58
Smoked fish	56
Salted herring	27
Marinated and canned fish	35
Total	445

Source: LEI (u.i.).

*) Some plants may be included under various headings.

Table 11.9 Sales value of the processing industry according to species and type of processing, 1988, (mln. ECU)

Species	Type of processing					Total
	fresh	frozen	salted	smoked	marinated and canned	
Fresh water	37.4	7.4	-	59.1	25.8	129.7
- eel	17.2	1.2	-	39.6	-	58.0
Codfish	83.7	79.7	17.0	3.4	0.3	184.1
- cod	50.1	11.2	17.0	3.4	-	81.7
Flatfish	202.7	189.5	-	0.6	-	392.8
- sole	78.9	47.6	-	0.0	-	126.4
- plaice	62.2	132.4	-	0.0	-	194.6
Pelagics	6.0	80.4	53.9	12.5	47.5	200.3
- herring	4.3	21.2	53.3	4.9	25.2	108.9
- mackerel	1.2	41.1	-	6.8	5.2	54.4
Crustacea	95.8	31.4	-	-	6.6	133.8
- crangon	56.0	1.2	-	-	-	57.1
- other	34.2	26.7	-	-	-	60.8
Bivalves	60.0	24.3	-	-	40.7	125.0
- mussels	47.1	7.8	-	-	14.6	69.5
- cockles	0.2	7.1	-	-	26.1	33.3
Total	485.6	412.7	71.0	75.5	120.9	1165.8

Source: LEI (u.i.).

Five components can be distinguished within the fish processing sector in respect of the major processed species: flatfish, herring, frozen small pelagics, shrimps and mussels. This subdivision shows that the industry has strong ties to the traditional segments of the Dutch fishing fleet. Still it also relies to a great extent on imported raw materials. While the total landed value, incl. shellfish, amounted to 990 mln. NLG (425 mln. ECU) in 1988, the value of imports was 1010 mln. NLG (433 mln. ECU).

42 percent of the gross revenues is realized with fresh products and 35 percent with frozen ones. The share of plaice and sole amounts to 34 percent. In case of flatfish fresh and frozen products are equally important. The most important single product is frozen plaice with a relative share of 11 percent in the total sales value.

11.4.3 Foreign trade

The Netherlands is the third largest fish exporting country in Europe, after Denmark and Norway. The value of exports amounted to 1.9 bln NLG (815 mln. ECU) in 1988 and to 2.1 bln NLG (901 mln. ECU) in 1989. The imports of fish had a value of 429 mln. ECU resp. 515 mln. ECU.

Between 1982 and 1989 the nominal value of the exports increased by 60 percent and in real terms by 54 percent. The most important species are sole and plaice, their share being almost 30 percent. Almost 40 percent of the Dutch exports consists of a large variety of species and often it may concern reexportation of previously imported and possibly reprocessed fish. Only 20 percent of the exports consists of fresh whole fish. 26 percent is shellfish and 54 percent is fish which has undergone some kind of processing. The most important export markets are traditionally Italy, Belgium, Germany and France. 64 percent of Dutch exports is destined for these four countries.

The nominal value of the imports of fish and fishery products increased by 107 percent between 1982 and 1989. The most important single species is shrimp with a share of 20 percent. 43 percent of the imports consists of whole fresh or frozen fish which is often destined for the processing industry. The four major countries of origin are Denmark, Germany, United Kingdom and Belgium, which provide 53 percent of the total value.

11.5 Fishery policy

The Dutch fishery policy pursues two objectives. First, to maintain the landings within the quota allocations and second to reduce the size of the fishing fleet according to the aims of the Multiannual Guidance Programme.

11.5.1 Management of fishing effort

The short term policy to reduce fishing effort is based on two measures. The maximum length of the beams was set at 12 m in 1988. Considering that before the introduction of this measure beams of 14-17 meter were being employed by the large cutters, a reduction of the fishing effort by about 5 percent has been achieved.

Furthermore the cutters are only allowed to spend a certain maximum number of days at sea. This number has gradually decreased from 172 in 1988 to 150 in 1990 and 1991. In addition the EC regulation regarding the 8 consecutive days in port every months was imposed on a certain group of vessels fishing for cod in the beginning of 1991. As prior to these restrictions the large cutters used to fish more than 200 days per year, it can be estimated that this restriction has led to a further reduction of effort of 10-14 percent in the years 1988-'90.

Certain individual vessels which possess sufficient fishing rights may be exempted from the 150 days rule, as the government is obliged to allow for sufficient sea time to enable each vessel to use its rights. This applies to cutters with sufficient individual flatfish quota and to cutters whose gross revenues depend for at least 75 percent on shrimp. In 1990 there were 68 vessels which were given additional sea days on the basis of their flatfish rights and 82 because of their shrimp fishing. In many cases the increase amounted to 50 days.

In order to achieve a certain distribution of landings throughout the year, the sea days are explicitly divided in four quarters. A beam cutter with 150 days was allowed 32-42-32-44 days at sea in the four quarters of 1990. The distribution was a little different for vessels fishing for cod in order to take into account the various fishing seasons.

Consistently with the 12 m beam rule it was decided that newly built beamers may not be equipped with an engine of more than 2,000 hp. As many large cutters were constructed only recently, this regulation will have effect only in the long run.

The fishing effort is further being managed by two structural measures - licensing and decommissioning.

Since the end of 1984 all vessels fishing for quota species are obliged to have a licence specifying their engine power. Licences were also issued to people who could prove that they had new investments under way. Further licences would not be issued, so that the total size of the fleet was fixed, making further growth impossible.

The licences can be sold freely. Depending on the requirements of an investor they can be cumulated or divided into smaller parts. Licences which have not been used lose their validity after two years.

The decommissioning scheme, which is related to the EC regulation 4028, offers a premium to those vessel owners who wish to

withdraw their vessel permanently from the fleet. Until mid-1991 the cutter owners were eligible for about 1,800 ECU/grt and the trawler owners for 650 ECU/grt. Later the rate for the cutters was reduced to 1,500 ECU/grt. This is approximately the maximum which is supported by the EC funds. However, only vessels in the possession of a licence and which have fished for at least 150 days in the previous year are eligible for the scheme. About one half of the total cost is covered by the Dutch government, 10 percent by the industry (until mid-1991) and the remainder by the EC. Because of the seriousness of the problems in the cod fleet, the premium offered to vessels holding cod rights was increased by 50 percent during the second half of 1990. The Multiannual Guidance Programme requires a reduction of the Dutch fishing fleet by 160,000 hp. The total decommissioning costs are expected to amount to some 40 mln. ECU.

Table 11.10 Multiannual Guidance Programme, (1000 hp, 1000 grt)

Type of vessel	Engine power		Gross tonnage	
	situation	objective	situation	objective
	1.1.'87	31.12.'91	1.1.'87	31.12.'91
Cutters	598	457	68	52
Trawlers	79	63	14	13
Total	677	519	82	65

Source: EC Official Journal, 14.3.90, No. L66/9.

The licence of a decommissioned vessel will be withdrawn in order to reduce the size of the fleet structurally. The owner may, however, sell his vessel as long as it does not enter the fishing fleet somewhere within the Community. He can also sell his flatfish quota. Some 38 cutters and 2 trawlers with a total of 40,000 hp have thus been withdrawn from the fleet between 1988 and 1990. Another 30 requests (33,000 hp) were being considered by the Min. of Agriculture at the end of 1990.

As the effort reduction due to beam length and sea days is also considered within the MAGP, by the end of 1990 the Netherlands had almost achieved the MAGP objective.

11.5.2 Management of landings

The landings are maintained within the national quota with five measures:

- a) systematic inspection of landings;
- b) national reserve for sole and plaice;

- c) individual transferable quota for sole and plaice;
- d) individual non-transferable quota for cod and whiting;
- e) cod and whiting by-catch restriction for beam trawlers.

About 5-10 percent of the national quota for sole and plaice is kept in the so called national reserve instead of being distributed among the holders of the itq's. The purpose of this reserve is to cover illegal landings which cannot be traced back to a specific vessel.

The remaining 90 percent of the quota for sole and plaice is divided among the holders of the itq's. The itq's were introduced in 1977 on the basis of historical performance together with specific norms regarding the size of the vessel. Since then the itq's are annually adjusted in accordance with the changes in the national quota.

The individual flatfish quota are freely transferable. They can be sold or temporarily rented. All transactions must be registered and approved of by the Min. of Agriculture to allow for subsequent checks. Transferability in the course of the year did produce considerable administrative problems. Therefore trading has been prohibited for those vessels that have exhausted more than 90 percent of their allocations.

In some areas and seasons, especially in the southern North Sea, beam trawling produces considerable by-catch of cod. As these catches threatened the fishing opportunities of the traditional cod fishermen, landings of cod and whiting by the beam trawlers has been restricted to a maximum number of boxes per trip. The total beamer fleet was allocated 20 percent of the national cod and whiting quota. Each beam cutter was allowed to land a maximum of 5 boxes of cod per trip in 1990.

80 percent of the quota for cod and whiting is distributed among the so called 'document holders'. These are vessel owners who traditionally depend on codfish. Two kinds of documents can be distinguished. The vessels which had realized at least 65 percent of their gross revenues on the basis of cod and whiting during the base period, were given an annual document. Those vessels which obtained more than 25 percent (but less than 65 percent) of their gross revenue from cod fish obtained a seasonal document, which allows fishing during three months only. These documents serve as a ticket to enter the fishery but do not represent any specific entitlement as to a quantity of fish. The government decides how many boxes the document holders may land per week. This quantity may be adjusted up or down in the course of the year depending on the rate of exhaustion of the quota. In this way a certain distribution of the landings throughout the year is being pursued.

If a cod vessel is decommissioned, all remaining vessels will profit equally from additional fishing opportunities. At the end of 1990 there were some 80 vessels with an annual document and about 60 with a seasonal one. About 20 cutters of the first

group had applied for decommissioning after the increase of the premiums.

The policy regarding the catches of the freezer trawlers is slightly different. As the group is composed of only seven enterprises they will elaborate a fishing plan, dividing their quota among themselves, and submit it for approval to the Min. of Agriculture. As herring is being exploited by cutters as well as by trawlers an arrangement is prepared at the Dutch Fishery Board specifying who may fish where (North Sea and Channel), during which seasons and how much per trip or per month.

11.5.3 Support of the sector

Until the beginning of 1987, investors in the fishing industry profited from the general investment support. This amounted to about 12.5 percent of the invested amount, which was at first given as a grant but later on only as a tax deduction so that only profit making enterprises benefited from the scheme.

Since the beginning of 1987 fishing has been explicitly excluded. Modernization has been supported on a limited scale.

11.5.4 Inspection and prosecution

The landings are being inspected in a very detailed manner by the General Inspection Service of the Min. of Agriculture. The inspection takes place at a number of different levels - log-books, counting boxes during unloading, administrative checks of fishing companies, auctions and processors. To make the inspection possible during unloading, fish may be landed only in 11 designated ports during well specified hours of the day. The skippers must inform the inspectors at least two hours before entering port that they are going to unload and they must obtain a permission to do so.

Offenses against fishery regulations are theoretically prosecuted in three steps. The first offence leads to a seizure of the catch, a fine and a warning. After a second one the prosecutor may request to stop the vessel if a third offence is committed. A third offence may lead to stopping the vessel for a certain period of time. However, in practice the judicial procedures prove to be rather time consuming. Furthermore the judges are inclined to increase the level of the fines only very gradually. Prohibitively high fines which would have a clear discouraging effect are rather rare. During 1990 tens of skippers were prosecuted for offenses committed in 1988 and the fines varied from several 100 to 100,000 NLG.

In case it is proven that an individual vessel owner exceeded his flatfish rights, his allocation for the following year will be cut by the Ministry of Agriculture by excess volume.

12. Norway

12.1 Historic development

12.1.1 Landings

The Norwegian landings have decreased from 2.8 mln. t in the years '72-'84 to 1.8 mln. t between 1986 and 1989 due to the collapse of the stock of capelin, which was by far the most important source of raw material for the fish meal industry. The increase of landings of sandeel and herring could not compensate this loss. Consequently the supplies to the meal factories dropped by about two thirds.

Table 12.1 Landings of the most important species by the Norwegian fleet, 1972-1989, (1000 t)

Species	1972	1977	1982	1987	1989
Cod	470	427	344	299	187
Haddock	48	42	47	75	39
Saithe	168	151	232	148	144
Mackerel	160	282	74	155	141
Sprat	19	34	31	10	5
Tusk	19	23	27	30	32
Herring	156	20	40	345	268
Horse mackerel	65	0	0	17	89
Blue whiting	1	40	170	193	265
Norway pout	179	148	169	81	123
Shrimp	11	26	52	42	55
Greenland halibut	18	4	3	7	28
Redfish	7	9	10	18	10
Sandeel	19	79	48	197	195
Ling, blue ling	27	26	31	25	28
Capelin	1556	2137	1153	143	107
Other species	187	37	51	102	55
Total *)	3109	3486	2483	1889	1771
of which (percent)					
- human consumption	23	25	38	55	.
- fish meal	77	75	62	45	.

Sources: FAO, Yearbook of Fishery Statistics, vol. 44 en 64.;
FD a.

*) 1977 is not representative for the general trend as exceptionally high catches of capelin had been realized.

The landings of fish for human consumption have increased somewhat from 800,000 t in 1973 to more than 900,000 t in the years '86-'88. The most important species is cod, but its relative share has decreased from 55 percent in 1972 to 29 percent in 1987. The second ranking species is saithe, but its availability diminished as well. On the other hand the importance of shrimp and herring for human consumption increased.

The nominal value of the landings increased from 1.6 bln. NOK in 1972 to 5.8 bln. NOK in 1987 (0.25 to 0.75 bln. ECU). However, if inflation is taken into consideration there has been in fact a slight decrease. Especially since 1982, the real value of the landings was lower than in the previous ten years. The nominal value of the landings in 1989 was 20 percent below the figure for 1987 (These values include price subsidies).

The loss of revenues from industrial fishing has been just about compensated for by the increase of revenues from fish for human consumption. Traditionally, four species play an important role - cod, shrimp, saithe and haddock. The share of these four in the total value amounts to 70-80 percent. The importance of cod decreased while that of shrimp rose. The share of industrial fishing diminished from 32 percent in 1972 to 8 percent in 1987. The role of industrial fishing will increase again in the begin-

**Table 12.2 Development of the total value of landings,
(mln. ECU)**

Species	1972 *)	1977	1982	1987	1989
<i>Human consumption</i>					
- cod	87	201	217	296	166
- shrimp	10	33	72	95	105
- saithe	18	39	92	73	55
- haddock	10	16	25	46	27
- other species	48	77	128	181	.
Total for consumption	172	365	534	690	.
<i>Fish meal</i>					
- capelin	54	129	91	11	11
- sandeel	1	5	4	14	20
- herring	5	0	0	13	49
- other	20	33	31	23	.
Total for fish meal	80	167	126	62	.
Total	252	533	660	752	623

Sources: Statisk Sentralbura, Fiskeristatistikk, 1972, 1977, 1982, 1987, FD a/ 1990.

*) For 1972 the 1975 exchange rate of ECU=6.48 NOK was used.

ning of the nineties as large catches of capelin are expected as of 1991.

12.1.2 Fleet

The number of registered fishing vessels dropped between 1973 and 1987 from almost 27,000 to 22,000 units. More than 80 percent of the fleet consists of vessels below 10 m and this group contributed very considerably to the reduction of the total fleet. A number of different developments can be distinguished. The number of small open boats (average 3 grt) as well as that of wooden decked boats (average 15 grt) decreased. At the same time the number of small plastic boats (average 8-10 grt) and large steel vessels has grown. The average size of the last mentioned group increased since 1982 by some 70 percent. Consequently it can be estimated that the total gross tonnage of the Norwegian fishing fleet increased since 1982 by some 150,000 grt (43 percent).

Table 12.3 Development of the Norwegian fishing fleet, 1973-1987, (number and grt, per 31.12)

Type of vessel	1973	1977	1982	1987
<i>Number</i>				
Open boats	19326	17230	17827	12994
Decked boats				
- wood	6585	6019	5835	4820
- steel	587	681	660	696
- other	325	917	2411	3504
Total number	26823	24847	26733	22014
<i>Gross tonnage (1000 grt)</i>				
Open boats	60	66	51	36 *)
Decked boats				
- wood	117	105	87	64
- steel	175	200	186	354
- other	2	7	17	35
Total gross tonnage	354	378	341	489

Source: FS 1978 and 1987.

*) Grt open boats in 1987 = own estimate with average 2.8 grt/boat.

These large numbers do not give a correct picture of the actual fishing effort as in 1987 there were only 4,000 vessels operating on a year round basis.

It is difficult to obtain an unambiguous indication regarding the employment in the Norwegian fishing sector as many fishermen also earn income from other sources. In the eighties there were some 28-30,000 people working on the fleet, of whom 6-7,000 as part-timers. Since about 1970 the employment has decreased by 10-15 percent.

12.2 Present structure of the fishing sector

12.2.1 Fleet and landings

In 1990 the Norwegian fishing fleet included some 22,000 boats of which 20,000 were below 13 m and only some 3,000 were operated during the whole year. The reason for this very large fleet of relatively small sized and inactive vessels is the explicit political decision to maintain fishing as an economic activity in the distant rural areas along the very long coast.

About 90 percent of the volume and 80 percent of the value of the catches in 1988 was realized by 1,440 vessels of more than 13 m which operated during the whole year (i.e. more than 30 weeks). This group could be sub-divided into the following segments (LU):

- 512 vessels of 13-21 m using traditional passive gear like gill nets, lines and Danish seine for various bottom species;
- 454 small trawlers (336 of less than 50 grt) fishing mostly shrimp;
- 84 large trawlers, of which 20 factory ships (freezing and salting) and 50-60 fresh fish trawlers. (The Norwegian law

Table 12.4 Economic role of vessels by size, 1987 *)

Length group (m)	Number vessels	Catch		Value	
		1000 t	%	mln. ECU	%
To 8	13416	20	1	13	2
8-10	5203	80	4	54	7
10-13	1550	102	5	70	9
13-20	1116	131	7	97	13
20-30	311	158	8	77	10
30-45	222	418	22	148	20
45 a.m.	196	984	52	293	39
Total	22014	1893	100	752	100

Source: FS 1987.

*) Partially own estimate.

allows the ownership of fishing boats by fishermen only. An exception to this rule are the fresh fish trawlers which are operated by freezing companies.)

- 207 vessels fishing for fish meal, of which 63 are trawlers and the rest are purse seiners;
- 65 larger longliners;
- 116 multi-purpose vessels using various gears.

It follows that the Norwegian fishing fleet uses a large variety of fishing gear.

The most productive gears are trawl and purse seine with relative shares of 44 percent resp. 37 percent of the total quantity. Third is the longline with 8 percent. However, as most of the purse seine production is destined for fish meal, its share in the total value is only 17 percent while that of the trawl amounts to almost 50 percent and that of the longline to 15 percent.

Table 12.5 Landings of various species by type of gear, 1987, (1000 t)

Species	Total	Purse seine	Trawl	Long- line	Danish seine	Other
Cod	305	-	179	51	49	27
Haddock	75	-	25	38	3	10
Saithe	152	47	70	2	23	10
Tusk	30	-	-	27	-	-
Mackerel	157	147	-	-	2	8
North sea herring	243	243	1	-	-	-
Other herring	102	93	7	-	-	3
Horse mackerel	17	17	-	-	-	-
Blue whiting	193	-	193	-	-	-
Norway pout	81	-	81	-	-	-
Shrimp	42	-	42	-	-	-
Redfish	18	-	8	1	7	2
Sandeel	199	-	198	-	-	1
Ling, blue ling	25	-	1	17	7	-
Capelin	142	142	-	-	-	-
Other species	109	13	22	9	16	48
Total	1893	702	827	145	106	113

Source: FS 1987.

12.2.2 Regional distribution

Two major fishing areas can be distinguished in Norway (see note table 12.6). A large part of the small coastal fleet oper-

ates in the three northern provinces. In this region about one half of all fishermen produce about 50 percent of the total landed value and 40 percent of the volume. The south-west of Nor-

Table 12.6 Regional distribution of fleet and employment, 1987

Region	Open boats	Decked boats			Employment	
		number	Grt	% grt	number	%
South-west	3602	2697	276667	61	10994	37
North	7089	5010	153987	34	15143	51
Other	2303	1313	22100	5	3778	13
Total	12994	9020	452754	100	29915	100

Source: FS 1987.

Table 12.7 Regional distribution of landings according to regions and major ports, 1987, (1000 t, mln. ECU)

Region/port	Quantity		Value	
	1000 t	%	mln. ECU	%
Regions				
- South-west	1134	60	269	36
- North	509	27	367	49
- Other	102	5	53	7
- Abroad	148	8	63	8
Major ports				
- Eigersund	247	13	21	3
- Askoy	104	5	7	1
- Vogsay	178	9	34	5
- Alesund	84	4	57	8
- Heroy	88	5	18	2
- Tromso	62	3	36	5
- Other	1130	60	1346	77
Total	1893	100	752	100

Source: FS 1987.

Regions: South-west = Rogaland, Hordaland, Sogn og Fjordane, More og Romsdal
 North = Nordland, Troms, Finnmark
 Other = Ostfold, Akershus, Buskerud, Vestfold, Telemark, Aust-Agder, Vest-Agder, Sor-Trondelag, Nord-Trondelag.

way harbours 268 of the 418 vessels above 30 m. This area produces relatively more fish for meal. The south and south-east of Norway have only a very small fishing sector.

The landings are scattered throughout some 200 ports and landing places. In 1987 the landings were in excess of 1,000 t in about 100 ports and some 40 ports registered volumes of over 10,000 t. The share of the three largest ports in the total value amounted to only 17 percent. This illustrates that the landings of fish for human consumption are very dispersed.

12.3 Economic performance of the fishing sector

The various segments of the Norwegian fishing fleet attain rather diverging results, but considerable financial support by the government is often required (see ch. 12.5). It has already been indicated that between 1987 and 1989 the nominal value decreased by 20 percent mainly due to low availability of cod. This trend was not reversed in 1990.

Table 12.8 Value of major groups of species, 1983-1989,
(mln. ECU)

Year	Codfish	Herring sprat etc.	Mackerel capelin etc.	Crustacea	Other	Total
1983	310	25	176	108	36	656
1984	322	39	158	119	40	678
1985	349	52	121	131	48	700
1986	394	56	86	117	57	711
1987	460	55	76	97	64	752
1988	355	55	85	93	53	642
1989	349	52	110	111	.	623

Sources: FS 1987, INFA 3/90.

Almost all fisheries were effected by these unfavourable developments. Between 1983 and 1987 the average nominal gross earnings of most sizes of vessels have decreased, except of the largest ones. Therefore the share of this group increased in this period from 44 percent to 52 percent of the total value. On the other hand the share of the smaller vessels dropped from 21 percent to 17 percent.

The results of the operation of most larger vessels in 1988 and 1989 were not very good:

1. A fleet of some 20 factory trawlers was built between 1986 and 1988 as strong year classes of cod were predicted.

Table 12.9 Gross revenues per vessel, 1983-1988, (1000 ECU)

Length group (m) :	13-21	21-31	31-41	41 a.m.
- average length :	16	25	35	53
- average grt :	32	118	253	721
1983	121	357	678	1212
1984	119	354	635	1324
1985	122	365	786	1389
1986	111	380	822	1650
1987	132	369	812	1825
1988	120	359	726	1745
1989	132	347	845	1644

Source: LU.

- However, by 1990 the quota allocated to this group of vessels dropped to one tenth of the 1987 level. Six vessels were therefore transferred to foreign waters and the remaining ones were obliged to concentrate on other species. These vessels were financed on fully commercial terms (with a considerable share of owners capital) and they are not supported by the Norwegian government. Despite the market oriented concept of these vessels (sea frozen, high quality products packed to buyers' requirements) it will remain difficult to operate this fleet in the Norwegian waters. It is not likely that sufficient quota could be allocated to this group in the foreseeable future and a number of these vessels may have to be sold or operated abroad permanently.
2. The economic results of the fresh fish trawlers are not satisfactory either. These vessels are relatively old and their low indebtedness makes it feasible to operate them on cash-flow basis. However, modernization will not be possible. As this fleet is in the hands of the processing industry, its operation results have to be viewed in broader perspective, their main task being to supply raw material. For this reason it may prove rather difficult to reduce their number.
 3. Some 100 purse seiners that were active in 1990 have achieved reasonable results in the past years. The size of this fleet has diminished very considerably since about 1975. The average price of their catch increased due to a larger share of landings for human consumption and an improved quality of fish for reduction. Thus it became a suitable raw material for the high quality lt-meal (low temperature). It is expected that the number of purse seiners will decrease further.
 4. Some 80-90 larger longliners have also been facing financial problems because they are depending on the scarce species like cod, ling and tusk. Furthermore the share of the crew

(fixed within a general agreement by the Norges Fiskarlag) is too high and it does not allow the owners to meet their financial obligations. This fleet will probably be reduced in the future to 50-60 units.

5. The results of some 150 shrimp trawlers are difficult to generalize. The 22 larger vessels, which have quota in the Greenland waters have been doing quite well thanks to their export to Japan. The others, which operate in the Barents Sea have been in difficulties because of increasing energy costs and the recently weak prices for the pandalus shrimp.
6. The profitability of the coastal fleet (below 33 m) is in general lower than that of the larger vessels, although also in this case there are large differences between regions, fisheries and individual vessels. This fleet is of considerable political importance and it receives extensive financial support because of the priority given to rural settlement. Although many small coastal boats fish only seasonally, the sheer size of the fleet represents a real danger for potential fishing effort which may turn effective as soon as the biologic situation of one stock improves. Therefore it may be rather difficult to improve the average financial results. A reduction of this fleet is politically difficult to achieve.

Table 12.10 Average costs and revenues of selected groups of vessels, 1988, (1000 ECU)

Length (m)	Average grt	Revenues	Costs (*)	Net revenue per man
13-21	32	120	144	16
21-31	118	359	412	24
31-41	253	726	825	29
41 a.m.	721	1745	1944	39

Source: LU.

*) Costs incl. crew.

The net revenues per man year are clearly lower on smaller vessels.

The 1440 larger vessels that operate the whole year round have a very high share in the total value of the production. This implies that the remaining 20,000 smaller units offer a very meagre source of revenue to their owners. In 1987 this group would have realized only some 800 mln. NOK (103 mln. ECU), i.e. 40,000 NOK per vessel before deduction of costs. However, it is not clear whether the official statistics also include the direct sale from the vessels to the consumer.

There were considerable investments between 1985 and 1987 especially in factory trawlers and smaller multi-purpose vessels. These investments were made possible because of the credit liberalization policy in 1985. A number of scallop trawlers were constructed in this period as well, but later on they had to be laid by because the fishery completely collapsed (OECD 1988). The investments dropped sharply in 1988 and in 1990 there were almost no requests for new construction.

The current age composition of the fleet indicates that between 1985 and 1987 the construction of small vessels below 10 m was considerably less intensive than in the previous 15 years. On the other hand relatively more vessels of 10-20 m and

Table 12.11 New vessels of more than 25 grt, 1985-1988, (number)
*)

Type	1985	1986	1987	1988
Multipurpose coastal	20	21	10	12
Purse seiners	2	2	3	2
Factory trawlers	-	2	7	7
Shrimp freezer trawlers	-	2	1	2
Stern trawlers	5	1	9	-
Longliners	-	-	2	6
Scallop factory trawlers	-	6	3	-

Source: OECD.

*) In few cases older reconstructed vessels.

Table 12.12 Age composition of the Norwegian fleet, 1987, (number)

Year of constr.	Age (years)	Length groups (m)					Total
		to 10	10-20	20-30	30-45	45 a.m.	
To 1949	37+	1141	733	42	10	27	1953
1950-59	28-37	2533	290	82	48	19	2972
1960-69	18-27	4078	348	87	77	38	4628
1970-79	8-17	6392	635	61	73	83	7244
1980-84	3-7	3090	358	22	7	1	3478
1985-86	1-2	751	180	13	4	13	961
1987	0	197	106	4	3	14	324
Unknown		437	16	-	-	1	454
Total		18619	2666	311	222	196	22014

Source: FS 1987.

45+ m had been put into operation. In 1987 about 25 percent of the vessels below 13 m was younger than 7 years and about one third was between 8 and 17 years old. The age composition of vessels between 13 and 45 m was a little less favourable - only 6-12 percent was younger than 7 years and 30-50 percent was older than 28 years. More than half of the number of vessels above 45 m was constructed after 1970.

From a regional point of view it can be concluded that in 1990 the vessels based in the south-west of Norway faced greater financial problems because of heavy investments, than those in the north. However, their long run prospects are probably better. The biologic predictions regarding capelin are very favourable. Catches of 5-600,000 t could be realised as of 1991. As cod feeds on capelin, the outlook for this species in the Barents Sea is also improving. The southern fleet possesses the necessary flexibility to exploit these stocks even if they are on relatively distant grounds. The greater dynamics of this fleet is also evident from the fact that young people are still interested in working on board which is not always the case in the north.

On the other hand, the vessels in the north, being smaller and having a smaller action radius, will not be able to profit to that extent from the positive developments which are expected. Therefore the outlook of this fleet remains doubtful. However, the quota allocated to this fleet will be certainly sufficiently high to assure its survival.

12.4 Consumption, processing and foreign trade

12.4.1 Consumption

The Norwegian annual consumption of fish is estimated at some 40 kg live weight per person. This implies that the total consumption would amount to some 160,000 t (OECD 1990).

12.4.2 Processing

A continuous concentration of the processing industry has been going on since 1981. The number of enterprises had decreased by 1987 from 709 to 625 and the employment from 15,700 to 12,800. The nominal gross earnings increased in the same period from 7 to 10 bln. NOK (1.1 to 1.3 bln. ECU). However, in real terms there was in fact a decrease of some 9 percent.

There are three major activities within the Norwegian fish processing industry - freezing, salt-drying and fish meal.

The fish freezing industry has been in serious difficulties recently because of various reasons - shortage of raw material, devaluation of the US dollar, high EC tariffs for processed products (15-20 percent) and in some cases unsaleable stocks of double frozen products. Serious losses were publicized already in

1987 and 1988 1). These unfavourable conditions continued also in 1989 and 1990.

On the other hand the salting industry has realized considerably better results. This sector has usually been capable of paying higher prices to the fishermen. Most enterprises are quite small (family) and have low fixed costs, so that they have greater flexibility to survive in difficult times. The umbrella organisation of the salting industry (Unidos al.) was obliged to import large quantities of raw material in 1990 because of the fixed contracts with foreign buyers and general shortage in Norway. The Norwegian share on the world market for dried salted cod is estimated at some 85 percent.

The fish meal industry has been reorganized substantially during the eighties. The number of plants was reduced from 50 in 1980 to 16 in 1990. Three of the plants in the north were closed down after the collapse of the capelin fishery in 1986, but kept operational and will probably be reopened in 1991. Almost all plants are technologically capable of producing high quality meal, which is used as feed in salmon farming. This made the Norwegian fish meal industry less dependent of the developments on the world market and the unit price was much higher until 1990. The industry is thus capable of paying higher prices to the vessels.

Table 12.13 Norwegian fish processing in 1981 and 1987

Type of processing	Number of enterprises		Employment		Revenues (mln. ECU)	
	1981	1987	1981	1987	1981	1987
Drying *)	364	340	4436	3710	393	429
Freezing	116	105	6397	5162	318	495
Canning	56	39	1904	1599	83	104
Fish meal and oil	52	25	1328	595	202	100
Other	121	116	1597	1694	89	147
Total	709	625	15662	12760	1084	1275

Source: FS 1987.

*) Incl. salting and smoking.

Still, the large abundance of capelin may present marketing problems. The demand of the salmon industry will probably not grow as the current production level has to be reduced with 15-

1) Eurofish Report 27.10 and 24.11.1988.

20 percent. At the same time the farming technology is becoming more refined, so that the quantities of feed are being reduced (closed circuit on shore farming, danger of pollution at sea). There are not many foreign outlets for expensive meal. Due to large expected abundance of raw material in 1991, the fleet had to accept a considerable price reduction in its negotiations with the meal industry.

The regional distribution of the fish processing industry is quite similar to that of the fleet, north and south-west housing most of these activities. The freezing industry is relatively more concentrated in the north and the canning in the south-west. The fish meal factories are mostly located in the south and the south-west. The other industries are equally distributed. The share of other areas is limited to 6 percent of gross revenues and 10 percent of employment.

12.4.3 Foreign trade

A high percentage of the Norwegian fish production is destined for export because of the small size of the internal market in relation to the landings. The export value amounted to 10.7 bln. NOK (1.4 bln. ECU) in 1988, which makes Norway as large an exporter as Denmark. The nominal value of the exports increased between 1982 and 1988 by 80 percent and the real one by 19 percent.

By far the most important export product is the fresh and frozen salmon, which represented 30 percent of the total value in 1988. Two other important product groups are frozen fillets of codfish and dried-salted fish with respective shares of 15 percent and 9 percent.

The importance of EC as a buyer of Norwegian fish products has increased considerably. Its share grew from 42 percent in 1982/84 to 57 percent in 1988. The fastest growth was realized on the markets of France, Italy and Germany. On the other hand the nominal value of exports to non-EC countries has remained quite constant since 1984, the USA and Sweden being the most important countries of this group.

Especially the fish freezing industry considers the accession of Norway to the EC as very important for its survival at the present level. There are fears that Norway otherwise will be reduced to a supplier of raw material to the processing industry in the EC, 1).

The Norwegian value of fish imports amounted to little over 1 bln. NOK (136 mln. ECU) in 1988, triple that of 1982. The most important countries of origin are Denmark and to a lesser extent Iceland, USA, Canada and Sweden. This fast growth was caused

1) Eurofish Report 3.3.1988.

mainly by certain processed products like preserved shellfish and herring.

12.5 Fishery policy

In Norway there is a long tradition of intensive involvement of the government in fisheries matters. Already in the twenties and thirties legislation was adopted specifying that only one fishermen organization would represent the sector (Norges Fiskarlarlag - NF) and creating various monopolies regarding the sale and export of various species of fish. Because of its institutional competence, NF is rather influential in the formulation and implementation of the national fishery policy.

12.5.1 Management of fishing effort

There is a general consensus that a considerable overcapacity exists in the various segments of the Norwegian fishing fleet. However, an explicit distinction must be made between three groups - purse seiners, trawlers and 'traditional' gears.

A system of licences has gradually been introduced in order to maintain the fishing effort under control. There are 8 types of fishing licences and they apply to most larger vessels, with the exception of longliners.

1. Purse seiners of over 27.5 m fishing pelagic species (herring, capelin, mackerel). These licences are subdivided into five groups according to the size of the fish hold - <4,000 hl, 4-6,000 hl, 6-8,000 hl, 8-10,000 hl and >10,000 hl. This regulation is applicable to 102 vessels.
2. Purse seining on saithe.
3. Trawling for shrimp (about 150 vessels).
4. Trawling for cod in the Barents Sea. There are separate licences for three sizes of vessels - <21 m, 21-34 m and >34 m.
5. Trawling for reduction by vessels below 300 grt. These vessels operate mostly in the North Sea.
6. Trawling for silver smelt by vessels below 300 grt.
7. Trawling and purse seining for blue whiting.
8. Trawling for capelin.

There are no restrictions on the use of 'traditional' gears.

With the exception of the purse seiners and cod trawlers, the licences do not specify the size of the vessel, but only the owner and the vessel for which the licence was issued. There is a certain possibility of transfer, but its approval by the Fiskeridirektoratet depends on various considerations (e.g.

regional distribution, difference in vessel size, etc.) that are not specifically written down.

The existing legislation allows if necessary for an introduction of new types of licences (e.g. traditional gears). A licence that has not been used loses its validity after 2 years, (FS 1987).

12.5.2 Management of landings

Norway has to negotiate with the neighbouring countries (EC, Soviet Union, Iceland, Faeroe Islands) on many of the stocks its fleet exploits. The important Norwegian quota are first divided between the three major fleets (trawlers, purse seiners and coastal fleet) and subsequently determined per vessel. Although the first division is in principle based on the historical performance, there is no fixed key. For example, in 1990 the coastal fleet received a considerably higher share of cod than in the previous years.

The purse seiners annually receive individual quota for capelin, mackerel and herring. The quantity depends on the volume of the fish hold, which is indicative for the catching capacity. These quota have originally been determined in a way to maintain the earnings of the crews on board small and large vessels at approximately the same level. The larger vessels receive relatively (in relation to their size) less quota than the smaller ones because their crew is not proportionately larger. This is also a reason for limiting the quota transferability and aggregation possibilities. The fishing rights of one purse seiner can be acquired by another one, but not for their nominal quantity. The buyer will receive proportionately less as if he would have expanded his fish hold by the volume of the selling vessel (and thus theoretically have a little larger crew). Such a transfer may mean that the buyer would expand his catching possibilities by approximately 10-15 percent of the acquired quota.

Table 12.14 Some individual quota for herring and cod, 1990

Type/size of vessel	Herring (hl)	Cod (tonnes)
Coastal fleet		
- up to 7 m	135	5.2
- above 26 m	2835	119.1 a)
Trawlers		
- up to 21 m/ 60 grt	-	66 b)
- above 34 m/250 grt	-	100

Source: Fiskeridirektoratet.

a) For vessels of 27.5-33.9 m; b) trawlers with shrimp licence get only 50 t.

The vessels using traditional gear (i.e. except trawl and purse seine) receive quota for cod and herring according to their length. Quite a large number of length groups is being distinguished - 13 for cod and 21 for herring in 1990. Each length group is allocated a number of 'shares' (i.e. relative size of the individual quota in relation to other length groups) so that knowing the number of vessels in each group it is possible to calculate the quantity of a certain species represented in one 'share'. The length based quota for cod was introduced in 1990.

In the north of Norway there are individual quota for cod, saithe and haddock. Until 1989 there were no individual restrictions for the coastal fleet, but only a total permitted quantity for this group. However, as the Arctic cod quorum was reduced dramatically a more refined management became necessary. The cod fishing had to be closed in 1989 already by mid-April.

Aggregation of individual quota for bottom species is formally only possible within one company that owns several boats. It has to stop one vessel and fish its total quorum with another one. With the exception of the fresh fish trawlers, fishing companies are quite rare. However, in practice two vessel owners can merge by exchanging shares in each others vessels and make transfer of quota possible.

Apart from the individual quota, the landings are further limited by various technical measures and by-catch regulations.

12.5.3 Support of the sector

The Norwegian fisheries sector receives very considerable government support. This support is justified on the basis of the political decision to maintain the scattered distribution of the population along the coast. Fisheries is one of the few economic activities in the remote areas. Norges Fiskarlag annually negotiates with the government on the total level of the required support. It also can request additional funds if the income in fisheries would lag behind that of other sectors.

During the second half of the eighties, the support amounted to some 1 bln. NOK (130-150 mln. ECU) per year. The largest part of the support programmes is financed from the annually agreed amount, but some ad hoc funds may be allocated by parliament if necessary. The support consists of five components:

1. Price subsidies
2. Support of operational costs
3. Social security
4. Restructuring
5. Other

ad 1. Price subsidies

The price subsidies are a nominal amount per kg. They are being administered by the various sales organizations. The system is rather complex because each subsidy depends on various factors

- nine price regions, species, type of fishery, total amount landed by the vessel, etc.

In 1990 there was 186 mln. NOK (24 mln. ECU) available for price subsidies, some 16 percent of the total support budget. This is about 30 percent of the 1989 value of landings. The relative importance of price subsidies is diminishing. In the first half of the eighties it was 45-50 percent (Jentoft). Within the EFTA negotiations Norway will probably be obliged to abolish its price subsidies within several years.

ad 2. Support of operational costs

Various categories of vessels can obtain support from the Statens Fiskarbank for their operational costs in order to mitigate incurred losses, depending on the development of their costs and revenues. These are mainly liquidity loans and grants as well as support to meet interest payments. In 1990 96 mln. NOK (13 mln. ECU) was available for this purpose.

The Statens Fiskarbank may also write off some of the outstanding loans and interest. In such cases the private banks are required to write off an equal amount. Some 50 mln. NOK (7 mln. ECU) was allocated in 1990 of which about half was used during the first nine months benefiting some 840 cod vessels between 8 and 33 m.

ad 3. Social policy

The social policy is executed by the Garantikassen for Fiskere. It is composed of four programmes:

- a) Guaranteed income. If the average share of a crew member remains below 1,800 NOK/week during a period of four months he will receive support up to this level. This is the most important part of the social policy, disposing annually of some 150-170 mln. NOK (21 mln. ECU).
- b) Holiday benefit. The crews pay 3 percent of their income to the Garantikassen and receive the paid amount a year later increased by 175 NOK for every 14 days sailing (to a maximum of 294 days). The total of this benefit amounts to some 50 mln. NOK (7 mln. ECU).
- c) Disability insurance. The vessel owners are obliged to pay insurance for their crews (4,436 NOK/man/year) which covers payments during illness or benefits for widows. GF subsidizes this insurance fee with 1,600 NOK.
- d) Unemployment insurance. The GF pays 250 NOK/day (6 days/week) in case of unemployment or when the vessel cannot sail because of repairs or closure of a fishery, etc. Because of the early exhaustion of cod quota in 1989, GF paid out a total of 120 mln. NOK (16 mln. ECU).

ad 4. Structural policy

The Statens Fiskarbank is also in charge of the execution of the structural policy, which is composed of four programmes and which costs annually some 300-400 mln. NOK (40-53 mln. ECU):

- a) Soft loans
- b) Interest subsidy
- c) Investment subsidies
- d) Decommissioning

The Statens Fiskarbank usually gives the first priority loans up to 50-60 percent of the total investment amount. Its interest rate was about 12.5 percent in November '90, 2-3 percentage points lower than that of commercial banks. Some credit is given at subsidized interest rates, which is a further 4-10 percentage points lower. Fiskarbank can also subsidize interest costs of commercial banks. In 1989 Fiskarbank approved loans for a total of 295 mln. NOK (40 mln. ECU) for total investments of 442 mln. NOK (59 mln. ECU). The investment subsidies amounted to 18 mln. NOK (2.5 mln. ECU) and interest subsidies to 62 mln. NOK (8 mln. ECU), (SFB).

The Fiskeridepartementet gives to the bank specific guidelines as to which types of investments should be supported and up to which total amount. At least 50 percent of the total support must be allocated to the three northern provinces. Vessels between 15 and 35 m get priority.

A decommissioning scheme has been in operation since 1978, but only vessels above 10.5 m and older than 20 years can apply. 682 vessels were decommissioned during the first ten years at a total cost of 719 mln. NOK (over 100 mln. ECU). In 1990 alone 150 mln. NOK was available and 110 vessels left the fishery through the scheme. The basic premium is calculated as: $(75,000 + 6,250 \times \text{grt}) \text{NOK}$. This means about 90,000 ECU for a 100 grt vessel, which is only about a third of the new maximum grants introduced by EC in 1991.

ad 5. Other

Furthermore there are some minor support programmes as repayment of tax on fuel (0.31 NOK/l, 32 mln. NOK in 1989), support to and restructuring of the fish processing industry, subsidy for modernization to increase fuel efficiency, automation of longline fishery, etc.

Some 15-20 percent of the total annual support budget is not allocated and it remains free at the disposition of the Norges Fiskarlag to use according to the needs which may arise in the course of the year. If there are funds left at the end of the year they can be spent by increasing the originally given support so that the money is not lost for the fishery sector.

12.5.4 Inspection and prosecution

Some 100 fishery officers of the Fiskeridirektoratet check at random the correctness of the declarations of landings. Other checks are carried out by the coast guard and through the registration of the sales organizations. The Fishery Law specifies that offenders may be punished by fines, confiscation of the catch and even a prison sentence of up to six months, (Act). Confiscation and fines of up to several 10,000s NOK have been imposed. Foreign vessels are usually more strictly inspected than the Norwegian ones.

The general opinion is that the national as well as the individual quota are fairly well adhered to. The early closure of the cod fishery in 1989 did not lead to large scale illegal fishing. Until the present the policy was to maintain the fishermen in their jobs and guarantee them a fair income. A large scale reduction of the size of the sector, which is being proposed in the EC, is not considered in Norway.

It remains an open question how such a large and dispersed fleet can be effectively controlled as many small vessels can sell their catch directly to the consumers. If catch possibilities will remain limited the costs of government support will further increase.

12.5.5 Accession to the EC

Fisheries was one of the main obstacles to the accession of Norway to the EC in the beginning of the seventies. The sector feared that a large part of the resources in the Norwegian zone would be allocated to other nations which had been fishing there prior to the introduction of the 200 mile EEZ or which lost fishing opportunities elsewhere (mainly Iceland).

However, 20 years later the situation has completely changed. If the present Common Fisheries Policy is continued, Norway will be able to keep almost sole access to its marine resources. The English and the German distant fleets, which had been operating in the Norwegian waters, are no more in existence. Only the Spanish north Atlantic fleet may claim some rights, but its activity in the Norwegian waters has been rather limited since 1976.

Furthermore, Norway would like to improve its access to the EC market for its salmon and processed fish. In fact the situation of the processing industry (especially freezing) may further deteriorate because of the high EC import duties.

It remains to be seen to which extent the organization of the Norwegian fishing sector and the extensive support it receives can be made to conform with the EC regulations. The present organizations seem rather monopolistic and the prices are not quite determined by market forces. However, both price subsidies and monopolies are already being abandoned as a result of EFTA negotiations.

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Annexes

Annex 1. List of interviewed persons

1. Germany

Gero Mochlinghof

- Ministerialdirigent, Min. für Ernährung und Landwirtschaft

2. Belgium

Luc Maertens

- Head of division, Dienst voor Zeevisserij

Paul Hovart

- Director, Onderzoekstation voor Zeevisserij

3. Denmark

Hans Frost

- Economist, Danish Institute of Fisheries Economics Research

Carsten Krog

- Fiskericonsulent, Danmarks Havfiskeri Forening

Bent Bro

- Fiskericonsulent, Thyborøn Havns Fiskeriforening

P. Kristensen

- Danske Fiskeres FO

Peder Andersen

- Head of division, Fiskeriministeriet

Leif Skytte

- Dep. Secretary General, Association of Danish Fish Processing Industries and Exporters

Torben T. Larsen

- Economist, COWI Consult

Stig P. Christensen

- Head of division, COWI Consult

Jens H. Møller

- Economist, Dansk Fiskeriforening

Marianne Ziirsen

- Kontorchef, Kongeriget Danmarks Fiskeribank

Preben Nielsen

- Account Manager, Kongeriget Danmarks Fiskeribank

Bjørn Westh

- Member of the Parliament for the Social Democratic Party

4. Ireland

Paul J. Hillis

- Biologist, Fisheries Research Centre

J. Frank Doyle

- General Secretary, Irish Fishermen's Organization

Brandon Cahill

- Principal, Sea Fisheries, Department of Marine

Alex Heskin

- Fleet Development Manager, Board Iascaigh Mhara (BIM)

Majella Fitzsimons

- Market Research, BIM

Mark Lochrin

- Secretary, Irish Fish Producers Organization

George Gear

- Secretary, Irish Federation of Marine Industries

T.F. Geoghan
 - Secretary, Irish Fish Processors and Exporters As.
 Robert O'Connor
 - Economist, Economic and Social Research Institute (ESRI)
 Brandon Whelan
 - Economist, ESRI

5. United Kingdom

Neil McKellar
 - Chief economist, Sea Fish Industry Authority (SFIA)
 Phillip Rodgers
 - Senior economist, SFIA
 Keith Cormack
 - Statistician, SFIA
 James Anderson
 - Chief marine surveyor, SFIA
 Evelyn Oakeshott
 - Senior economist, DAFS
 Iain MacSween
 - Chief Executive, Scottish Fishermen Organization
 George Walker
 - Manager, Fishermen's Mutual Ass., Eyemouth
 Bob Milne
 - Executive Director, Aberdeen Fish Curers and Merchants Ass.
 Bob Allan
 - Chief Executive, Scottish Fishermen's Federation
 James Young
 - Advances Manager, The Royal Bank of Scotland
 John Paterson
 - Chief Executive, Peterhead Harbour Trust

6. France

Jean-Claude Hennequin
 - Président, Comité Central des Pêches Maritimes
 Jean-Luc de Feuardent
 - Secrétaire Général, Confédération de la Coopération, de la Mutualité et du Crédit Maritimes
 André Darcel
 - Directeur Général Adj., Société Centrale de Crédit Maritime Mutuel
 Antoine de l'Espinay
 - Secrétaire Général, Confédération des Industries de Traitement des Produits des Pêches Maritimes
 Alain Parres
 - Délégué Général, Union des Armateurs à la Pêche de France
 Jacques Weber
 - Economist, IFREMER
 Joseph Catanzano
 - Chef du Service d'Economie Maritime, IFREMER
 Loïc Jagot
 - Secrétaire Général, Fédération des Organisations de Producteurs de la Pêche Artisanale
 Christophe Vernier
 - Délégué Permanent, Centre de Gestion de la Pêche Artisanale
 Pascal Melennec
 - Directeur, Association pour l'Investissement et le Développement de la Pêche Artisanale du Finistère
 Marie-Christine Mestre
 - Secrétaire Général, Crédit Maritime, Quimper

M. Rosenberg
 - Direction des Pêches Maritimes, Min. de la Mer
 Pascal Piriou
 - Chantier Piriou, Concarneau
 André Le Prince
 - Directeur, Cooperative d'Armement à la Pêche Artisanale de Loctudy

7. Norway

Finn Bergesen
 - Managing Director, Norges Sildesalgslag
 Gon Klepsvik
 - Statens Fiskarbank
 Leif H. Hanssen
 - Director, Garantikassen for Fiskere
 Asbjorn Solbakk
 - Managing Director, UNIDOS al.
 Sverre B. Solbakk
 - Export Secretary, UNIDOS al.
 Bjarte Flem
 - Sales Manager, Leroy Seafood a/s
 Audun Marak
 - Secretary General, Fiskebatredernes Forbund
 Paul-Gustav Remoy
 - Section Director, Fiskebatredernes Forbund
 Jan Ivar Marak
 - Section Director, Fiskebatredernes Forbund
 Rognvaldur Hannesson
 - Economist, Fiskeriokonomisk Institutt, Norges Handelshoyskole
 Vigdis Harevik
 - Norges Fiskarlag, EC matters
 Otto Gregussen
 - Norges Fiskarlag, economic affairs
 Thor Melhus
 - Fiskeridirektoratet, economic research
 Eilif Sund
 - Fiskeridirektoratet, legal division
 Ove Midttun
 - Fiskeridirektoratet, licensing division

8. Spain

Paulino San Emeterio Colina
 - Secretario General, Federación Española de Armadores de Buques de Pesca
 Antonio García Espinoza
 - Secretario General, Confederación Española de Asociaciones Pesqueras
 J.M. González Gil de Barnabé
 - Secretario General, Federación Nacional de Cofradías de Pescadores
 Pedro Valdéz Fernádes
 - Asesor, Banco de Crédito Agrícola
 J.M. Allo Carillo de Albornoz
 - Director Gerente, Federación Nacional de Comercio e Industria de Elaboración de Productos del Mar
 Fernando del Castillo
 - Subdirector Construcción Naval, Banco de Crédito Industrial
 Antonio Crespo García
 - Subdirección General, Ordenación de Flota Pesquera, MAPA
 Lavio Santaella Alvarez
 - Subdirector General, Ordenación Marítimo-Pesquera y Cofradías, MAPA

José Louis González Serrano

- Jefe de la Sección de Ordenación y Regulación del Marisqueo y Cultivos Marinos, MAPA

Pedro Arruza

- Subdirector General, Ordenación Económico-Pesquera, MAPA

Margarita Maiza Urbieto

- Directora General, Asociación Nacional de Armadores de Sociedades Conjuntas e Internacionales

9. The Netherlands

Dick Langestraat

- Chairman, Dutch Fishery Board

Willems Tacken

- Director of Fisheries Division, Min. of Agriculture

Hr. Klaris

- Account Manager, Scheepshypotheekbank

10. Portugal

Eurico Pimenta de Brito

- Director, Direcção Geral das Pescas (DGP)

Maria Helena de Figueiredo

- Head Section External Affairs, DGP

Maria Barbara Duque

- Head Section Fleet, DGP

Maria Amelia Miguez

- Section Internal Affairs, DGP

Marcelo de Sousa Vasconcelos

- Director, Gabinete de Estudos e Planeamento das Pescas (GEPP)

Antonio Duarte de Almeida Pinho

- GEPP

João A. de Melo Miranda Mendes

- Assessor da DGP, MAPA

Manuel M. Cardoso Leal

- Economist, Instituto Financeiro de Apoio ao Desenvolvimento da Agricultura e Pesca

Carlos Augusto Mendes Alves

- Banco de Fomento Exterior

Helio Paulino Pereira

- Inspector Geral das Pescas

Ricardo Jorge O. Silva

- Administrador, Empresa de Pesca de Aveiro

Pedro Elias Salgueiro Franca

- Director, Sociedade Pesca Miradouro

Helder Claro

- Director, Associação dos Armadores da Pesca Longínqua (ADAPLA)

Armando Leitao

- Director (retired), Sociedade Nacional dos Armadores de Bacalhau

Annex 2. EUROPEAN COMMUNITY

Table 1 TAC's, 1987-1991, (1000 t)

Area/species	1987	1988	1989	1990	1991
<i>EC waters</i>					
Cod	332	345	287	253	225
Haddock	177	214	112	80	67
Saithe	135	138	132	111	106
Pollack	15	19	19	19	19
Whiting	177	164	160	128	130
Plaice	186	215	227	214	207
Sole	31	30	30	41	43
Hake	88	91	80	74	85
Anglerfish	59	64	64	63	64
Megrim	34	36	36	36	37
Norway lobster	54	53	55	55	43
Mackerel	426	426	376	380	400
Sprat	122	122	132	123	85
Anchovy	37	38	38	39	39
Herring	556	503	536	446	452
Horse mackerel	220	290	261	338	341
Blue whiting	359	389	425	412	261
Norway pout	171	171	171	171	171
Total EC-waters	3177	3307	3142	2983	2773
<i>Non-EC waters *)</i>					
Cod	29	142	142	91	95
Haddock	7	8	3	1	1
Saithe	8	8	10	10	10
Redfish	83	108	106	83	80
Gr. Halibut	7	5	5	6	6
Blue whiting	57	46	57	72	75
Mackerel	20	20	17	20	19
Capelin	50	50	50	83	83
Sandeel	170	170	151	184	158
Other species	18	63	57	28	45
Total non-EC waters	449	621	599	578	570
Total	3626	3928	3741	3562	3344

Source: EC Official Journal.

*) Non-EC areas contain NAFO, Faeroe Islands, Sweden, Norway and Greenland.

Table 2 Foreign trade of EC-12 in 1990 by species, (mln. ECU)

Species	Import		Export	
	total	non-EC	total	non-EC
Cod	1582	1006	651	94
Salmon	1048	789	322	53
Shrimp	1806	1288	726	168
Squid	472	362	106	15
Tuna	800	627	338	156
Sardine	231	86	188	57
Lobster, crab	592	284	271	22
Herring	208	67	222	86
Sole	239	29	231	18
Mackerel	140	23	197	88
Bivalves	373	117	276	14
Hake	373	248	106	6
Saithe	226	152	71	3
Plaice	209	18	212	52
Other species	2861	1252	1824	362
Total	11161	6346	5742	1194

Source: Eurostat.

Table 3 Foreign trade of the 12 EC member countries in 1990, (mln. ECU)

Country	Import		Export	
	total	non-EC	total	non-EC
Denmark	869	786	1595	348
United Kingdom	1333	954	698	99
Ireland	68	6	197	45
Netherlands	571	255	1006	214
Germany	1341	640	362	75
France	2188	1228	740	126
Belgium/Luxemburg	563	183	175	8
Spain	1754	1080	517	181
Portugal	471	286	213	51
Italy	1867	839	175	40
Greece	136	88	65	8
Total	11161	6346	5743	1194

Source: Eurostat.

Table 4 EC foreign trade by major non-EC partner countries, 1990, (mln. ECU)

Import		Export	
Norway	987	Japan	192
Iceland	712	Switzerland	149
Canada	323	USA	147
Thailand	327	Sweden	105
Greenland	282	Austria	60
USA	320	Canary Is.	56
Faeroe Is.	272	Ivory Coast	44
Morocco	237	Poland	37
Senegal	153	Norway	31
Argentina	178	Nigeria	31
Poland	171	Thailand	30
Chile	165	USSR	21
Other countries	2220	Other countries	292
Total	6346	Total	1194

Source: Eurostat.

Table 5 EC foreign trade by degree of processing, 1990, (mln. ECU)

Type of product	Import		Export	
	total	non-EC	total	non-EC
Whole				
- fresh	2416	1055	1383	149
- frozen	1339	934	733	303
Processed				
- frozen fillets	1298	805	618	150
- canned	1394	787	797	217
- other	1285	665	674	121
Shellfish				
- fresh, frozen	2558	1630	1081	188
- canned	872	470	457	66
Total	11161	6346	5742	1194

Source: Eurostat.

Annex 3 GERMANY

Table 1 Fishing rights, 1987-1991, (1000 t)

Area/species	1987	1988	1989	1990	1991
EC waters					
Cod	47.4	48.8	38.5	34.1	32.8
Haddock	.	8.3	2.3	1.7	1.2
Saithe	23.2	22.3	21.6	17.1	17.0
Whiting	3.6	3.1	3.0	1.9	2.2
Plaice	8.7	10.4	10.9	10.6	10.3
Sole	1.0	1.0	1.0	1.7	1.8
Hake	0.2	0.2	0.1	0.2	0.2
Anglerfish	0.6	0.7	0.7	0.3	0.7
Mackerel	24.3	24.3	21.2	21.5	22.5
Sprat	2.1	2.1	3.9	4.7	10.7
Herring	80.3	71.2	75.2	66.1	109.8
Non-EC waters					
Cod	26.3	37.7	43.0	36.4	37.8
Haddock	1.5	1.7	0.6	0.1	0.1
Saithe	5.1	4.9	5.9	4.2	4.2
Herring	0.6	0.6	0.6	0.6	2.4
Bl. whiting	27.0	27.0	27.0	28.0	30.7
Redfish	78.3	73.9	71.2	60.2	60.7
Ling, blue ling	1.0	1.1	1.1	1.1	1.1
Greenland halibut	5.1	5.1	5.1	5.1	5.1
Catfish	2.0	2.0	2.0	2.0	2.0
Other species	0.7	0.7	0.7	0.6	0.6
Total	339.0	347.1	335.6	298.2	354.0

Sources: EC Official Journal.

Table 2 Fish processing - gross sales by product group, 1977-1989, (mln. ECU)

Type of product	1977	1982	1987	1989
Fresh				
- whole	11	7	10	21
- fillets	31	32	56	73
Smoked				
- herring and sprat	6	7	6	6
- other	45	54	75	88
Marinades	102	143	110	116
Fish in oil	34	35	40	39
Canned	87	109	106	116
Anchovies	18	41	35	49
Salted herring	12	12	8	6
Shellfish	8	21	26	36
Frozen				
- whole	1	0	7	23
- fillets	13	18	32	41
- breaded	48	74	176	199
- other	49	101	99	102
Fish salads	27	44	47	50
Other	6	7	8	15
Total	498	704	842	980
- total frozen	110	193	315	365

Source: DFW.

Table 3 Fishmeal industry - quantity and value, 1977-1989

	1977	1982	1987	1989
Quantity (1000 t)				
Meal	48.6	36.9	27.0	27.2
Oil	10.6	10.5	7.5	7.6
Value (mln. ECU)				
Meal	21	14	9	11
Oil	2	3	1	2

Source: DFW.

Table 4 Foreign trade - by major species, 1982-1989, (mln. ECU)

Species	Import			Species	Export		
	1982	1987	1989		1982	1987	1989
Human consumption							
Trout	37	47	61	Mackerel	15	9	10
Salmon	40	101	120	Herring	16	20	21
Eel	25	32	38	Cod	60	46	65
Herring	100	81	81	Saithe	3	11	11
Redfish	13	34	45	Shrimp	21	19	31
Cod	37	54	64	Other	118	194	211
Saithe	40	77	85				
Shrimp	26	43	129				
Tunas	39	58	72				
Other	284	424	430				
Total	641	951	1125	Total	234	297	349
Industrial uses *)							
Meal	126	120	177	Meal	76	71	116
Oil	68	30	40	Oil	2	2	4
Total	194	150	217	Total	78	73	120

Source: Eurostat.

*) There are also exports of small quantities of other industrial products with a value of some 2-4 mln. ECU.

Table 5 Foreign trade - by partner countries, 1982-1989, (mln. ECU)

Country	Import			Country	Export		
	1982	1987	1989		1982	1987	1989
Denmark	182	262	288	France	51	66	99
Netherlands	81	103	133	Netherlands	31	50	65
Norway	49	97	112	Italy	32	41	39
Iceland	29	70	85	Austria	19	28	24
France	39	41	61	Belgium/Lux.	25	25	24
Canada	30	17	23	Other	76	87	97
Other	230	360	424				
Total	640	951	1125	Total	234	297	349

Source: Eurostat.

Table 6 Foreign trade - by degree of processing, 1982-1989, (mln. ECU)

Type of product	Import			Export		
	1982	1987	1989	1982	1987	1989
Whole						
- fresh	185	270	306	12	19	25
- frozen	95	102	85	32	21	25
Processed						
- frozen fillets	77	164	196	79	70	88
- canned	115	153	177	69	134	148
- other	72	99	159	15	17	24
Shellfish						
- fresh, frozen	50	85	114	16	17	21
- canned	47	79	87	13	18	18
Total	641	951	1125	234	297	350

Source: Eurostat.

Table 7 Prices of major fish species, 1967-1989, (DEM/kg, fresh fish)

Species	1967	1972	1977	1982	1987	1989
Cod	0.72	0.75	1.07	1.36	1.81	2.65
Saithe	0.69	0.65	1.07	1.12	1.19	1.64
Herring	0.46	0.57	0.79	0.61	0.57	0.58
Redfish	0.88	1.16	1.56	1.80	2.17	2.26
Shrimp	1.55	2.12	3.21	2.80	3.59	5.73
Sole	3.42	5.42	8.27	8.22	13.68	12.95
Plaice	0.95	1.05	1.49	1.78	2.21	2.39

Source: DFW.

Table 8 Price index and exchange rate of ECU, 1972-1989

	1972	1977	1982	1987	1988	1989
Price index	56	73	93	100	101	104
Exchange rate	-	2.38	2.07	2.07	2.07	2.07

Table 9 Composition of the cutter fleet by hp-groups, (31.12.1986)

Hp-group	Baltic	North Sea			Total	Average engine (hp)
	fish	fish	shrimp	other		
To 75	71	5	3	1	80	49
76-100	31	2	5	2	42	92
101-125	17	6	3	2	28	117
126-150	31	1	29	7	69	145
151-200	34	2	57	15	108	183
201-250	26	6	69	47	151	236
251-300	24	32	10	19	94	291
301-350	1	5	-	-	6	338
351-400	4	10	-	-	16	394
401-450	0	1	-	-	1	430
451-500	0	2	-	-	2	500
501-600	4	28	1	-	34	573
600 a.m.	1	3	-	-	4	796
Total	244	103	177	93	635	

Source: DFW.

Table 10 Composition of the cutter fleet by age, 1988

Age (years)	Baltic	North Sea			Total
	fish	fish	shrimp	both	
to 5	29	13	20	9	71
6-10	41	8	27	4	80
11-15	30	10	35	4	79
16-20	13	16	59	5	93
21-25	16	3	38	3	60
26-30	12	7	29	4	52
31-35	7	2	12	-	21
36-40	30	0	7	2	39
41-45	20	2	8	1	31
46 a.m.	33	7	6	-	25
Total	231	68	241	32	572

Source: DF.

Annex 4 BELGIUM

Table 1 Fishing rights, 1987-1991, (1000 t)

Species	1987	1988	1989	1990	1991
Cod	7.0	6.9	5.9	5.1	4.5
Haddock	1.6	2.0	0.6	0.4	0.3
Saithe	0.1	0.1	0.2	0.1	0.1
Pollack	0.3	0.4	0.4	0.4	0.4
Whiting	3.4	3.0	2.8	2.0	2.2
Plaice	11.4	13.3	14.2	13.5	13.2
Sole	4.4	3.9	3.7	4.5	4.9
Hake	0.4	0.4	0.4	0.4	0.4
Anglerfish	3.1	3.4	3.4	3.4	3.4
Megrim	0.4	0.4	0.4	0.4	0.4
Mackerel	0.5	0.5	0.4	0.3	0.5
Sprat	0.0	0.0	1.1	1.6	1.6
Herring	9.7	9.2	9.4	8.8	8.5
Total	42.3	43.5	42.8	41.1	40.5

Sources: BZ.

Table 2 Foreign trade - by major species, 1982-1987, (mln. ECU)

Species	Import			Species	Export		
	1982	1987	1989		1982	1987	1989
Salmon	34	50	57	Salmon	2	8	12
Sole	7	12	18	Sole	12	29	24
Cod	33	40	43	Plaice	2	9	9
Shrimp	19	49	123	Cod	5	9	6
Crab	23	30	39	Shrimp	5	18	54
Tunas	13	19	23	Crustacea *)	22	32	31
Crustacea *)	50	53	68	Other	17	38	30
Other	120	185	148				
Total	299	438	519	Total	65	143	165

Source: Eurostat.

*) Preparations of crustacea.

Table 3 Foreign trade - by major partner countries, 1982-1989, (mln. ECU)

Country	Import			Country	Export		
	1982	1987	1989		1982	1987	1989
Netherlands	84	134	171	France	26	48	55
Denmark	39	45	52	Netherlands	20	49	51
France	27	54	55	U.K.	5	14	13
Germany	25	24	24	Germany	8	13	18
U.K.	11	33	37	USA	2	4	3
Norway	9	23	25	Other	3	14	27
Other	103	126	156				
Total	299	438	519	Total	65	143	165

Source: Eurostat.

Table 4 Foreign trade - by degree of processing, 1982-1989, (mln. ECU)

Type of product	Import			Export		
	1982	1987	1989	1982	1987	1989
Whole						
- fresh	62	103	126	23	48	46
- frozen	26	28	18	7	12	9
Processed						
- frozen fillets	18	30	30	6	9	5
- canned	23	29	36	1	7	13
- other	54	74	87	6	14	21
Shellfish						
- fresh, frozen	59	113	145	8	22	36
- canned	56	61	78	15	30	36
Total	299	438	519	65	143	165

Source: Eurostat.

Table 5 Price index and exchange rate of ECU, 1967-1989

	1967	1972	1977	1982	1987	1988	1989
Price index	30	36	58	78	100	101	104
Exchange rate	-	-	40.87	44.65	42.94	43.34	43.38

Table 6 Prices of selected species, 1972-1990, (BEF/kg, fresh fish)

Species	1972	1977	1982	1987	1989	1990
Cod	16	28	49	56	78	87
Sole	96	154	225	347	325	253
Plaice	16	24	35	52	45	53
Haddock	13	25	36	49	47	61
Whiting	12	21	29	39	48	46

Sources: MKJ, BZ, DZ.

Table 7 Age composition of the fleet by size group, 1.1.1990

Age (years)	Gt / Hp				Total
	5-35	35-70	70-180	180-400 b)	
	75-270	135-300	225-900	510-1450	
to 5	4	15	9	19	47
6-10	-	2	5	18	25
11-15 a)	-	-	-	4	4
16-20	3	-	15	4	22
21-25	3	11	32	1	47
26-30	7	21	13	2	43
31-35	-	9	-	1	10
36 a.m.	3	2	1	1	7
Total	20	60	75	50	205

Source: JE 1988.

a) No new vessels were built between 1977 and 1979; b) Incl. one vessel over 400 grt.

Annex 5 DENMARK

Table 1 Fishing rights, 1987 - 1991, (1000 t)

Area/species	1987	1988	1989	1990	1991
EC waters					
Cod	124.0	123.5	102.3	94.2	76.0
Haddock	.	20.1	10.8	9.9	5.2
Saithe	8.4	7.8	7.7	5.9	6.1
Whiting	28.1	26.7	26.1	22.4	23.6
Plaice	45.4	53.1	54.5	48.4	46.0
Sole	1.3	1.4	1.2	1.4	1.7
Hake	2.4	2.6	2.5	2.6	3.4
Mackerel	12.4	12.4	9.9	9.0	13.7
Sprat	66.0	66.0	72.1	60.0	19.8
Herring	173.3	155.6	161.8	86.3	77.0
Non-EC waters					
Cod	1.9	1.8	1.8	5.5	4.8
Mackerel	20.0	20.0	17.5	2.0	18.6
Herring	0.9	0.9	0.9	0.9	0.8
Blue whiting	14.0	14.0	14.0	14.0	14.0
Shrimp	2.7	1.9	1.8	1.8	2.0
Sandeel	162.5	162.5	142.5	166.3	142.5
Norway pout	47.5	47.5	47.5	47.5	47.5
Other	2.5	2.5	2.5	2.5	3.3
Total	713.3	720.3	677.4	580.6	506.0

Source: EC Official Journal.

Table 2 Foreign trade - by species, 1982-1989, (mln. ECU *)

Species	Import			Species	Export		
	1982	1987	1989		1982	1987	1989
Cod	24	98	146	Trout	51	64	83
Salmon	32	63	77	Salmon	47	98	106
Herring	40	22	22	Eel	15	13	17
Plaice	11	16	10	Herring	75	53	50
Saithe	19	30	32	Plaice	26	53	29
Haddock	3	19	8	Cod	187	280	307
Halibut	5	11	10	Saithe	24	44	38
Pandalus	94	260	297	Haddock	12	25	16
Other	70	129	104	Mackerel	26	25	30
				Pandalus	107	276	313
				Other	210	345	308
Total	300	648	706	Total	780	1276	1297

Source: Eurostat.

*) Excl. fish meal.

Table 3 Foreign trade - by partner countries, 1982-1989, (mln. ECU) *)

Country	Import			Country	Export		
	1982	1987	1989		1982	1987	1989
Greenland	90	256	261	Germany	192	273	290
Faeroe Is.	58	107	115	Italy	70	207	201
Norway	34	122	147	France	99	190	188
Sweden	43	39	45	U.K.	111	160	200
Netherlands	14	35	24	Japan	9	93	120
Germany	15	24	21	USA	34	112	56
Iceland	5	29	46	Sweden	67	92	71
Canada	8	24	33	Netherlands	37	60	63
U.K.	11	17	16	Switzerland	36	58	50
USSR	1	18	19	Spain	33	42	55
Poland	1	16	20	Belgium/Lux.	43	49	47
Other	21	39	42	Other	50	95	112
Total	300	726	791	Total	780	1430	1453

Source: Eurostat.

*) Excl. fish meal.

Table 4 Export of fishmeal - by partner countries, 1982-1989, (mln. ECU)

Country	1982	1987	1988	1989
Switzerland	23	14	18	15
Finland	11	10	15	24
Greece	8	10	10	12
Italy	8	9	12	11
U.K.	16	7	15	9
Sweden	8	3	6	5
Belgium/Lux.	5	5	4	3
Taiwan	1	5	8	3
Egypt	5	3	1	1
Netherlands	6	1	7	6
Norway	0	0	8	21
Other	24	17	23	20
Total	115	83	127	131

Source: Eurostat.

Table 5 Foreign trade - by level of processing, 1982-1989, (mln. ECU)

Type of product	Import			Export		
	1982	1987	1989	1982	1987	1989
Whole						
- fresh	105	198	197	197	262	258
- frozen	44	81	72	64	88	87
Processed						
- frozen fillets	14	58	82	151	339	264
- canned	11	25	25	106	149	167
- other	26	83	63	123	211	255
Shellfish						
- fresh, frozen	54	193	215	84	248	266
- canned	46	116	137	55	133	157
Total	300	726	713	780	1430	1355

Source: Eurostat.

Table 6 Price index and exchange rate of ECU, 1967-1989

	1967	1972	1977	1982	1987	1989
Price index	21	28	47	78	100	110
Exchange rate	-	-	6.85	8.14	7.86	8.04

Table 7 Nominal prices of selected species, 1972-1989, (fresh fish, DKK/kg)

Species	1972	1977	1982	1987	1989
Cod	1.76	3.62	5.40	8.20	9.15
Plaice	2.74	3.87	6.52	10.14	9.37
Herring	1.09	2.76	2.61	2.16	2.07
Fish for reduction	0.26	0.54	0.60	0.46	0.68

Source: Fiskeriministeriet.

Annex 6 IRELAND

Table 1 Fishing rights, 1987-1989, (1000 t)

Area/species	1987	1988	1989	1990	1991
<i>EC waters</i>					
Cod	2.7	11.5	11.7	11.7	10.2
Haddock	-	4.1	4.1	3.2	2.5
Saithe	3.8	4.8	4.7	4.6	4.5
Pollack	0.9	1.2	1.2	1.2	1.2
Whiting	17.2	17.2	17.5	16.8	15.1
Plaice	3.3	3.4	3.9	4.0	3.5
Sole	0.6	0.4	0.7	1.0	0.7
Hake	2.0	2.1	1.9	2.0	2.1
Anglerfish	3.1	3.4	3.4	3.4	3.4
Dab	3.0	3.3	3.3	3.3	3.3
Norway lobster	9.3	9.3	9.8	9.8	7.2
Mackerel	79.4	79.4	69.3	70.6	73.3
Herring	38.9	33.4	44.8	52.1	47.8
<i>Non-EC waters</i>					
Cod	.	.	39.4	14.5	14.7
Redfish	.	.	0.5	0.8	0.8
Total	164.1	173.5	216.0	199.0	190.3

Source: EC Official Journal.

Table 2 Foreign trade - by species, 1982-1987, (mln. ECU)

Species	Import			Species	Export		
	1982	1987	1989		1982	1987	1989
Salmon	5	10	8	Mackerel	43	35	27
Mackerel	6	4	3	Herring	11	15	11
Cod	1	1	2	Lobster, crab	8	12	20
Shrimp	3	5	6	Salmon	5	15	25
Herring	1	1	1	Shrimp	7	15	17
Other	21	26	30	Cod	5	3	4
				Roe	0	13	10
				Other	22	52	74
Total	37	46	50	Total	100	160	188

Source: Eurostat.

Table 3 Foreign trade - by partner countries, 1982-1989, (mln. ECU)

Country	Import			Country	Export		
	1982	1987	1989		1982	1987	1989
U.K.	33	38	42	France	21	40	55
Canada	1	2	2	U.K.	21	27	30
USA	0	1	1	Japan	0	24	22
Netherlands	0	1	1	Germany	10	15	17
Denmark	0	1	1	Spain	4	12	24
Other	2	4	4	Netherlands	8	9	8
				Nigeria	25	10	4
				Other	10	24	27
Total	37	46	51	Total	100	160	188

Source: Eurostat.

Table 4 Foreign trade - by level of processing, 1982-1989, (mln. ECU)

Type of product	Import			Export		
	1982	1987	1989	1982	1987	1989
Whole						
- fresh	4	9	6	22	40	61
- frozen	5	3	3	39	55	39
Processed						
- frozen fillets	2	1	2	4	11	14
- canned	19	25	27	2	2	5
- other	3	3	4	12	14	15
Shellfish						
- fresh, frozen	3	5	7	20	38	53
- canned	0	1	1	2	0	0
Total	37	47	51	100	160	188

Source: Eurostat.

Table 5 Price index and exchange rate of ECU, 1972-1989

	1972	1977	1982	1987	1988	1989
Price index	17	36	74	100	102	106
Exchange rate	-	0.65	0.69	0.77	0.77	0.77

Table 6 Construction of new vessels, 1980-1986, (number)

Length (m)	Grt-group	1980	1981/82	1983/84	1985/86
6-9	5-8.5	10	10	10	2
9-12	8.5-15	23	22	20	11
12-24	15-99	10	23	15	3
24-33	100+	8	4	1	0
33+		4	1	0	1
Total		55	60	46	17

Source: O'Connor.

Table 7 Estimate of gross revenues per vessel in 1987, (1000 ECU)

Type	Length (m)	Revenues/vessel
Inshore	tot 12	11
	12-18	56
Near water	18-21	107
	21-27	150
Off-shore	27-40	773
Distant water	49-55	1502

Table 8 Prices of selected species, 1973-1987, (fresh fish, IEP/t)

Species	1973	1977	1982	1987
Cod	139	375	482	871
Sole	931	1732	2759	4999
Plaice	217	457	690	874
Herring	72	261	176	144
Mackerel	46	77	113	125
Whiting	68	205	182	428
Megrim	95	230	269	873
Haddock	96	327	296	741

Source: O'Connor.

Annex 7 UNITED KINGDOM

Table 1 Fishing rights, 1987-1991, (1000 t)

Area/species	1987	1988	1989	1990	1991
<i>EC waters</i>					
Cod	66.3	91.4	75.4	63.7	58.4
Haddock	.	157.4	83.2	56.2	50.0
Saithe	22.9	23.4	22.4	18.7	18.4
Pollack	2.1	2.8	2.8	2.8	2.8
Whiting	74.5	67.4	65.1	46.0	46.0
Plaice	49.1	56.4	60.3	57.9	56.4
Sole	3.0	2.9	2.7	3.1	3.2
Hake	6.9	7.2	6.4	6.5	7.2
Anglerfish	7.8	8.6	2.7	8.6	8.6
Megrim	3.5	3.8	3.8	3.8	3.8
Norway lobster	23.7	23.7	24.2	24.2	19.4
Mackerel	218.2	219.6	191.6	195.0	203.2
Sprat	2.6	2.6	7.3	7.8	7.8
Herring	112.3	107.5	111.4	111.7	98.7
<i>Non-EC waters</i>					
Cod	9.8	9.1	8.9	8.9	11.4
Haddock	4.6	5.3	2.0	0.3	0.3
Saithe	1.0	1.0	1.1	0.9	0.9
Blue whiting	11.0	11.0	11.0	11.0	11.0
Redfish	1.5	0.7	1.1	1.0	1.0
Greenland halibut	1.5	0.1	0.4	0.4	0.4
Norway pout	2.5	2.5	2.5	2.5	2.5
Sandeel	7.5	7.5	7.5	8.8	7.5
Ling	0.2	0.2	0.2	0.2	0.2
Other	2.3	2.4	3.1	3.5	3.5
Total	634.8	814.6	697.0	643.5	622.6

Source: EC Official Journal.

Table 2 Foreign trade - by species, 1982-1989, (mln. ECU)

Country	Import			Country	Export		
	1982	1987	1989		1982	1987	1989
Salmon	106	158	176	Salmon	18	64	93
Tuna	45	80	150	Herring	16	21	21
Plaice	23	27	29	Mackerel	39	36	51
Cod	189	276	288	Cod	5	30	19
Haddock	27	47	74	Lobster, crab	34	78	89
Shrimp	146	244	301	Shrimp	42	94	102
Other	182	229	294	Other	131	252	289
Total	716	1061	1313	Total	287	576	664
Fish meal	91	87	121				
Fish oil	92	45	38				

Source: Eurostat.

Table 3 Foreign trade - by degree of processing, 1982-1989, (mln. ECU)

Type of product	Import			Export		
	1982	1987	1989	1982	1987	1989
Whole						
- fresh	93	145	188	76	189	247
- frozen	65	85	77	33	35	36
Processed						
- frozen fillets	184	255	263	12	40	26
- canned	196	289	403	33	39	48
- other	9	9	30	25	43	58
Shellfish						
- fresh, frozen	80	154	165	94	201	227
- canned	90	124	187	14	28	22
Total	716	1061	1313	287	576	664

Source: Eurostat.

Table 4 Foreign trade - by partner countries, 1982-1989, (mln. ECU)

Country	Import			Country	Export		
	1982	1987	1989		1982	1987	1989
Iceland	62	183	197	France	87	208	252
Denmark	116	167	200	Spain	27	73	105
Norway	109	125	138	Netherlands	21	48	45
Canada	76	94	94	Ireland	30	33	39
Thailand	15	73	121	USA	20	39	27
USA	49	63	82	Belgium/Lux.	11	30	30
Netherlands	42	42	48	Italy	11	25	33
Other	246	313	433	Other	79	120	133
Total	716	1061	1313	Total	287	576	664

Source: Eurostat.

Table 5 Price index and exchange rate of ECU, 1972-1989

	1972	1977	1982	1987	1988	1989
Price index	21	45	79	100	105	113
Exchange rate	-	0.65	0.56	0.70	0.66	0.67

Table 6 Prices of selected species, 1972-1989, (fresh fish, GBP/t)

	1972	1977	1982	1987	1988	1989
Cod	154	522	631	922	964	1020
Haddock	133	390	390	763	704	861
Norway lobster	362	821	1153	1775	1629	1559
Plaice	187	419	570	876	817	779
Whiting	106	278	284	486	463	551
Anglerfish	138	649	1084	1894	1752	1849
Mackerel	49	79	104	113	118	118
Sole	770	2124	2623	5412	4702	4995
Crab	118	311	496	844	917	973

Source: MAFF.

Annex 8 FRANCE

Table 1 Fishing rights, 1987-1991, (1000 t)

	1987	1988	1989	1990	1991
EC waters					
Cod	12.1	32.2	31.4	29.3	27.1
Haddock	0.0	21.3	10.9	8.7	7.4
Saithe	76.3	79.6	75.4	64.1	59.7
Pollack	9.7	12.7	12.9	12.9	12.9
whiting	37.6	34.8	34.4	30.2	31.3
Plaice	6.8	9.3	10.4	9.2	9.5
Sole	7.1	6.8	6.9	7.5	7.9
Hake	34.9	36.2	32.4	29.4	35.9
Anglerfish	28.9	31.8	31.8	31.5	31.8
Megrim	8.7	9.5	9.5	9.5	9.6
Norway lobster	13.3	13.3	13.6	13.6	10.9
Mackerel	17.6	17.6	15.2	15.4	16.5
Sprat	0.4	0.4	1.8	2.3	2.3
Anchovy	3.2	3.2	3.2	3.0	3.0
Herring	42.2	37.7	39.8	35.5	32.5
Horse mackerel	0.5	0.6	0.5	0.4	0.5
Non-EC waters *)					
Cod	1.2	2.1	4.9	2.0	2.3
Haddock	0.4	1.0	0.4	0.1	0.1
Saithe	2.4	2.3	2.4	2.1	2.1
Blue whiting	2.0	2.0	5.0	4.0	4.0
Redfish	0.8	0.8	1.2	1.1	1.1
Ling, blue ling	2.3	2.3	2.3	2.3	2.3
Other species	0.4	0.4	1.4	1.4	1.4
Total	308.8	357.8	347.9	315.5	312.1

Source: EC Official Journal.

*) Excl. a quatum of 3,000 t of blue whiting in Faeroe waters together with Germany and The Netherlands.

Table 2 Foreign trade - by species, 1982-1989, (mln. ECU)

Species	Import			Species	Export		
	1982	1987	1989		1982	1987	1989
Salmon	129	254	294	Salmon	9	21	27
Sardine	37	48	53	Rel	16	22	27
Tuna	106	144	164	Tuna	42	90	110
Cod	87	135	161	Cod	6	17	9
Lobster,	128	188	231	Lobst., crab	20	33	36
Shrimp	162	261	266	Shrimp	28	58	56
Bivalves	65	73	131	Bivalves	13	13	42
Other	335	659	690	Squid	.	27	48
				Other	169	293	357
Total	1049	1763	1991	Total	302	575	713
Fish meal	25	26	34	4	3	3	
Fish oil	4	4	7	3	3	6	

Source: Eurostat.

Table 3 Foreign trade - by degree of processing, 1982-1989, (mln. ECU)

Type of product	Import			Export		
	1982	1987	1989	1982	1987	1989
Whole						
- fresh	170	311	390	123	219	308
- frozen	169	234	197	52	87	108
Processed						
- frozen fillets	90	201	240	10	18	15
- canned	156	262	333	15	37	45
- other	55	96	118	17	45	38
Shellfish						
- fresh, frozen	298	492	558	67	139	170
- canned	112	166	155	18	28	29
Total	1049	1762	1991	301	574	713

Source: Eurostat.

Table 4 Foreign trade - by partner countries, 1982-1989, (mln. ECU)

Country	Import			Country	Export		
	1982	1987	1989		1982	1987	1989
U.K.	87	206	251	Italy	66	174	208
Denmark	87	187	188	Spain	57	98	189
Netherlands	81	101	133	Germany	39	58	61
Norway	59	153	201	Belgium/Lux.	28	54	59
Senegal	74	115	116	USA	16	30	18
Canada	65	67	52	U.K.	15	23	21
USA	62	80	62	Switzerland	13	27	29
Germany	49	63	99	Netherlands	7	17	14
Ivory Coast	44	68	84	Other	61	94	115
Thailand	38	52	34				
Other	405	672	770				
Total	1049	1763	1991	Total	302	575	713

Source: Eurostat.

Table 5 Price index and exchange rate of ECU, 1972-1989

	1972	1977	1982	1987	1988	1989
Price index	26	43	76	100	103	106
Exchange rate	-	5.60	6.43	6.91	7.02	7.02

Table 6 Prices of selected species, 1972-1987, (fresh fish, FRF/kg)

	1972	1977	1982	1987
Cod	2.44	4.83	8.3	10.48
Haddock	1.41	3.08	4.2	7.79
Saithe	1.29	2.65	4.4	5.74
Whiting	1.89	3.45	4.9	7.9
Sole	12.21	21.25	33.6	49.45
Hake	6.61	11.18	17.1	23.15
Anglerfish	4.77	8.00	14.0	24.75
Norway lobster	8.01	14.28	25.1	35.34

Source: DP.

Table 7 Fleet composition by type of vessel, 1972 and 1977 *)

Type of vessel	1972			1977		
	number vessels	average size		number vessels	average size	
		Grt	Hp		Grt	Hp
Trawlers						
- salted fish	12	1344	1618	1	948	1500
- salting/freezing	15	1600	2583	14	1704	3698
- wet fish	1708	74	322	1412	79	386
- wet f./freezing	9	249	828	10	442	2062
- tuna	29	82	351	41	67	355
Sardine freezers	9	458	1140	33	36	199
Fresh tuna	119	68	248	71	89	337
Tuna freezers	36	404	1395	57	390	1305
Fresh lobster	255	14	67	41	38	190
Lobster freezers	15	310	552	14	214	387
Refrig. transport	1	3393	1800	0	-	-
Multipurpose	1628	23	111	1379	23	129
Below 10 grt	10327	3	22	9451	4	32
Total (1000)	14.2	279.3	1153.7	12.5	243.4	1233.7

Source: DP 1977.

*) Incl. Mediterranean.

Table 8 Fleet composition by length group, 1983-1989 *)

	Length group (m)					Total
	to 12	12-16	16-25	25-38	38 a.m.	
Number						
1983	9454	928	993	174	112	11661
1987	9234	904	983	135	99	11355
1989	8156	929	1043	131	102	10361
Average Grt						
1983	4	23	48	172	682	212841
1987	4	23	52	174	720	204549
1989	4	24	56	178	721	213302
Average Hp						
1983	58	215	382	716	2205	1499086
1987	67	224	408	690	2311	1537654
1989	76	239	436	720	2326	1625489

Source: Weber.

*) Incl. Mediterranean.

Annex 9 SPAIN

Table 1 Fishing rights, 1987-1991, (1000 t)

Area/Species	1987	1988	1989	1990	1991
EC waters					
Cod	.	10.9	6.0	2.7	3.7
Pollack	1.5	1.6	1.6	1.6	1.6
Whiting	2.0	2.0	2.0	2.0	2.0
Plaice	0.8	0.1	0.1	0.1	0.1
Sole	0.7	0.8	0.7	0.7	0.8
Hake	34.0	34.8	29.7	27.0	30.3
Anglerfish	12.8	13.1	13.1	13.1	13.1
Megrim	18.0	18.5	18.5	18.5	19.7
Norway lobster	3.7	3.7	3.8	4.0	2.9
Mackerel	30.2	30.2	30.2	30.2	30.2
Anchovy	31.0	31.7	31.7	31.3	31.3
Horse mackerel	39.0	75.8	70.5	60.7	70.3
Blue whiting	40.0	70.0	70.0	70.0	70.0
Non-EC waters *)					
Cod	.	.	44.4	14.4	9.1
Total	213.7	293.2	322.2	276.3	285.0

Source: EC Official Journal.

*) Excl. fishing opportunities within bilateral agreements of the EC with third countries.

Table 2 Foreign trade - by species, 1986-1989, (mln. ECU)

Species	Import			Species	Export		
	1986	1988	1989		1986	1988	1989
Cod	58	103	104	Tuna	65	166	155
Tuna	21	118	104	Sardine b)	.	48	54
Shrimp	.	249	301	Hake	5	29	35
Hake	24	176	165	Shrimp	.	17	18
Squid	72	143	199	Squid	20	29	21
Lobster a)	19	79	89	Other	172	161	179
Sardine b)	.	46	52				
Salmon	.	41	60				
Sole c)	.	62	78				
Other	483	328	401				
Total	677	1345	1553	Total	263	449	461

Source: Eurostat.

a) Lobster and crab; b) Sardine incl. anchovy, sardinella and sprat; c) Incl. megrim and possibly other flatfish.

Table 3 Foreign trade - by partner countries, 1986-1989, (mln. ECU)

Country	Import			Country	Export		
	1986	1988	1989		1986	1988	1989
U.K.	81	149	144	Italy	73	161	152
France	74	141	184	Portugal	58	60	67
Chile	28	93	107	France	29	33	40
Canary Is.	0	79	92	USA	35	30	30
Argentina	46	67	74	Canary Is.	0	44	48
Morocco	33	52	70	Japan	10	24	16
Denmark	32	48	70	Germany	12	14	16
Netherlands	33	44	59	Switzerland	9	11	11
Iceland	37	39	48	Other	38	73	82
Norway	25	47	57				
Italy	36	32	42				
Other	288	587	647				
Total	677	1345	1553	Total	263	449	461

Source: Eurostat.

Table 4 Foreign trade - by degree of processing, 1986-1989, (mln. ECU)

Type of product	Import			Export		
	1986	1988	1989	1986	1988	1989
Whole						
- fresh	178	278	349	85	66	72
- frozen	59	264	239	22	140	121
Processed						
- frozen fillets	15	29	26	1	3	7
- canned	11	38	42	45	81	100
- other	85	128	136	45	50	55
Shellfish						
- fresh, frozen	298	544	690	46	74	69
- canned	31	64	72	19	35	37
Total	677	1345	1553	263	449	461

Source: Eurostat.

Table 5 Price index and exchange rate of ECU, 1972-1990

	1972	1977	1982	1987	1989	1990
Price index	14	31	65	100	112	119
Exchange rate	-	86.66	107.17	142.05	130.41	129.32

Table 6 Prices of selected species, 1980-1986 (ESP/kg, fresh fish)

	1980	1982	1984	1986
Anchovy	83.5	92.3	160.5	271.1
Sardine	17.8	5.6	29.3	40.2
Horse mackerel	33.0	45.6	58.9	84.4
Anglerfish	165.4	213.7	299.0	383.1
Bake - big	450.4	535.9	587.0	657.2
Bake - small	251.3	280.0	365.6	442.2

Source: MAPA 1986.

Table 7 Average nominal and real price of total landings, 1983-1989, (ESP/kg, real prices of 1987)

	1983	1985	1987	1988	1989
Nominal	162	207	235	240	261
Real	224	235	235	229	233

Sources: BME, MAPA.

Annex 10 PORTUGAL

Table 1 Fishing rights, 1987-1991, (1000 t)

Area/species	1987	1988	1989	1990	1991
EC waters					
Whiting	2.6	2.6	2.6	2.6	2.6
Plaice	.	.	0.1	0.1	0.1
Sole	1.2	1.2	1.5	1.2	1.2
Hake	7.5	7.5	6.0	6.0	5.4
Anglerfish	2.0	2.0	2.0	2.0	2.0
Megrim	0.4	0.4	0.4	0.4	0.4
Norway lobster	3.5	3.5	3.5	3.5	2.3
Mackerel	6.2	6.2	6.2	6.2	6.2
Anchovy	.	3.1	3.1	4.7	4.7
Horse mackerel	33.0	36.7	33.0	24.9	33.2
Blue whiting	10.0	10.0	10.0	10.0	10.0
Non-EC waters *)					
Cod	.	.	29.9	15.1	14.7
Redfish	0.8	0.8	0.8	0.8	0.8
Total	67.2	74.0	99.3	77.6	83.7

Source: EC Official Journal.

*) Excl. EC bilateral agreements.

Table 2 Foreign trade - by species, 1986-1989, (mln. ECU)

Species	Import			Species	Export		
	1986	1988	1989		1986	1988	1989
Cod	190	282	234	Tuna	13	11	18
Tuna	10	12	10	Cod	7	10	29
Shrimp	.	11	18	Lobster, crab	.	6	10
Hake	14	34	33	Redfish	.	12	7
Squid	14	10	11	Sardine	.	46	57
Other	29	36	48	Mackerel	10	10	13
				Other	112	51	67
Total	256	385	354	Total	142	147	201

Source: Eurostat.

Table 3 Foreign trade - by partner countries, 1986-1989, (mln. ECU)

Country	Import			Country	Export		
	1986	1988	1989		1986	1988	1989
Iceland	73	104	65	Italy	25	31	45
Spain	65	64	66	Spain	20	27	34
Norway	28	64	64	Japan	15	13	12
Canada	35	47	40	France	12	11	22
Denmark	8	22	30	USA	11	12	13
Faeroe Is.	14	1	4	U.K.	8	9	21
Chile	3	9	15	Other	52	44	54
USA	1	8	17				
Other	29	66	53				
Total	256	385	354	Total	142	147	201

Source: Eurostat.

Table 4 Foreign trade - by degree of processing, 1986-1989, (mln. ECU)

Type of product	Import			Export		
	1986	1988	1989	1986	1988	1989
Whole						
- fresh	21	13	15	27	31	37
- frozen	21	61	65	21	26	34
Processed						
- frozen fillets	0	1	3	4	2	4
- canned	0	3	2	74	66	86
- other	191	280	232	4	6	12
Shellfish						
- fresh, frozen	23	27	36	12	16	27
- canned	0	1	1	.	.	.
Total	256	385	354	142	147	201

Source: Eurostat.

Table 5 Price index and exchange rate of ECU, 1972-1990

	1972	1977	1982	1987	1988	1990
Price index	7	16	42	100	110	140
Exchange rate	-	48.95	76.53	161.92	169.64	181.11

Table 6 Index of average real fish prices at auctions, 1977-1990, (1987=100)

Year	Index	Year	Index	Year	Index
1977	92	1982	104	1987	100
1978	110	1983	114	1988	104
1979	115	1984	98	1989	108
1980	116	1985	88	1990	104
1981	111	1986	92		

Source: Docapesca.

Annex 11 THE NETHERLANDS

Table 1 Fishing rights, 1987-1989, (1000 t)

Species	1987	1988	1989	1990	1991
Cod	13.6	17.8	14.1	11.7	11.3
Haddock	1.0	1.3	0.3	0.2	0.2
Saithe	0.2	0.2	0.2	0.2	0.2
Whiting	7.9	6.9	6.5	4.4	5.1
Plaice	60.0	69.0	72.9	70.1	68.0
Sole	11.3	11.2	11.3	19.5	20.9
Hake	0.3	0.3	0.3	0.3	0.3
Anglerfish	0.6	0.7	0.7	0.7	0.7
Mackerel	36.2	36.2	31.5	31.9	32.1
Herring	99.1	88.4	93.8	85.2	77.5
Total	230.3	232.0	231.5	224.2	216.2

Source: EC Official Journal.

Table 2 Foreign trade - by species, 1982-1989, (mln. ECU)

Species	Import			Species	Export		
	1982	1987	1989		1982	1987	1989
Shrimp	51	73	136	Sole	64	129	131
Herring	28	20	27	Plaice	28	124	118
Salmon	23	39	42	Shrimp	53	85	113
Bel	21	26	29	Herring	51	72	65
Sole	9	38	39	Mackerel	76	43	52
Plaice	3	27	31	Bivalves	26	47	61
Cod	15	23	58	Cod	23	36	52
Other	72	147	149	Other	179	288	338
Total	221	392	512	Total	502	826	930

Source: Eurostat.

Table 3 Foreign trade - by partner countries, 1982-1989, (mln. ECU)

Country	Import			Country	Export		
	1982	1987	1989		1987	1989	
Denmark	39	64	68	Italy	64	168	169
Germany	33	53	82	Belgium/Lux.	84	140	175
U.K.	27	55	59	Germany	79	101	127
Belgium/Lux.	18	51	54	France	79	97	118
France	7	18	15	Spain	11	49	75
USA	18	12	17	U.K.	41	39	34
Canada	9	17	12	USA	13	43	26
Thailand	4	14	20	Nigeria	49	33	18
Other	65	97	186	Denmark	11	27	17
				Other	71	127	171
Total	221	392	512	Total	502	826	930

Source: Eurostat.

Table 4 Foreign trade - by degree of processing, 1982-1989, (mln. ECU)

Type of product	Import			Export		
	1982	1987	1989	1982	1987	1989
Whole						
- fresh	61	141	175	135	165	178
- frozen	30	34	44	121	179	177
Processed						
- frozen fillets	12	18	21	51	127	120
- canned	36	62	77	35	70	72
- other	13	21	43	56	85	116
Shellfish						
- fresh, frozen	38	68	87	64	114	151
- canned	31	46	65	40	85	115
Total	221	392	512	502	825	930

Source: Eurostat.

Table 5 Price index and exchange rate of ECU, 1972-1989

	1972	1977	1982	1987	1988	1989
Price index	47	71	94	100	101	102
Exchange rate	-	2.80	2.61	2.33	2.33	2.33

Table 6 Prices of selected species, (NLG/kg, fresh fish)

Species	1972	1977	1982	1987	1988	1989
Sole	7.28	11.29	12.28	16.97	16.42	18.12
Plaice	1.07	1.60	2.29	2.98	2.77	2.57
Cod	1.07	1.81	2.67	3.09	3.63	3.99
Whiting	0.90	1.53	1.68	1.95	2.53	2.79
Mackerel	0.62	1.03	1.20	1.00	1.33	1.58
Herring	0.67	0.92	0.78	0.53	0.42	0.51

Sources: Min. of Agriculture, LEI, (u.i.).

Annex 12 NORWAY

Table 1 Important fishing rights, 1989-1990, (1000 t) a)

Species	1989		1990	
	Norwegian zone	other areas	Norwegian zone	other areas
Cod	178	5	113	7
Haddock	35	3	12	5
Saithe	114	82	87	52
Redfish	3	-	18	-
Greenland halibut	17	-	11	-
Capelin b)	0	115	0	66
Herring	75	167	60	136
Mackerel	79	33	96	43
Whiting	-	11	-	12
Plaice	-	2	-	3

Source: Fiskeridepartementet: Kvoteregulering i Norges fiskerisoner, 1989, 1990

a) Table is not complete because of the complexity of arrangements between Norway and its neighbours; b) Quota for capelin in areas V, XIV en IIA (J. Mayen, Iceland, Greenland) are valid from 1.7 to 30.4; c) There are specific arrangements for maximum catches in the EC zone of the North Sea.

Table 2 Foreign trade - by partner countries, 1982-1988, (mln. ECU)

Country	Export *)		Country	Import	
	1982	1988		1982	1988
U.K.	152	91	Denmark	17	24
Germany	58	86	Greenland	0	4
France	72	122	U.K.	2	2
Italy	86	68	Netherlands	1	2
USA	72	98	Iceland	0	10
Sweden	118	82	USSR	6	10
Finland	65	31	Canada	3	9
Other	398	409	Sweden	8	8
			Other	19	26
Total	1021	988	Total	55	97
- EC	429	564	- EC	19	30
- non-EC	592	424	- non-EC	36	66

Source: FS.

*) Export incl. salmon and fish meal.

Table 3 Foreign trade - major products, 1988, (mln. ECU)

Export Product	Value	Import Product	Value
Salmon (fresh, frozen)	288	Crust./mollus., not preserv.	27
Frozen fillets (ex. herring)	152	Fish oil	22
Stok- and klipfisk	130	Canned fish	12
Crustacea and molluscs	101	Fish meal	7
Other	317	Other	29
Total	988	Total	97

Source: FS 1987.

Table 4 Price index and exchange rate of ECU, 1972-1988

	1972	1977	1982	1987	1988
Price index	28	44	70	100	106
Exchange rate	-	6.07	6.30	7.74	7.66

Table 5 Prices of selected species, 1972-1987, (NOK/kg, fresh fish)

Species	1972	1977	1982	1987
Cod	2.66	2.66	3.78	7.50
Haddock	2.14	2.15	3.18	4.72
Saithe	1.44	1.45	2.38	3.70
Shrimp	7.21	7.19	8.42	17.48
North Sea herring	2.35	2.36	1.70	0.92
Mackerel	0.93	0.93	1.64	1.56

Source: FS.

Annex 13 LIST OF ABBREVIATIONS

a.m.	and more
BIM	Irish Sea Fisheries Board
bln.	billion
gt	gross ton
CCPM	Comité Central des Pêches Maritimes
CFP	Common Fisheries Policy
CM	Crédit Maritime Mutuel
DAFS	Department of Agriculture and Fisheries of Scotland
EC	European Community
EEZ	Exclusive Economic Zone
ft	feet
grt	gross registered ton
hl	hectolitre
hp	horse power
ITQ	individual transferable quota
kw	kilowatt
m	meter
MAFF	Ministry of Agriculture, Food and Fisheries
MAGP	Multianual Guidance Programme
mln.	million
NAFO	North Atlantic Fishery Organization
PME	permis de mise en exploitation
PO	producers organization
PS	pressure stock
PSL	pressure stock licence
row	refrigerated sea water
SFIA	Sea Fisheries Industry Authority
t	ton
TAC	total allowable catch
u.i.	unpublished information
U.K.	United Kingdom
.	not available
-	0 or not relevant

Currencies

BEF	Belgian frank
DEM	German mark
DKK	Danish crown
ECU	European currency unit
ESP	Spanish peseta
FRF	French frank
GBP	Pound sterling
IEP	Irish pound
NLG	Dutch guilder
NOK	Norwegian crown
PTB	Portuguese escudo