

**REPORT ON THE ECONOMIC AND SOCIAL SITUATION OF COASTAL  
REGIONS**

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## 1. COMMUNITY OVERVIEW<sup>1</sup>

### 1.1. Economic Overview of EU fisheries

#### **Introduction: Availability of data**

In contrast to the situation regarding the management of fisheries resources, where statistical data is regularly collected and transmitted to the Commission according to Community regulations and the Commission works closely with a well-established international scientific organisation (ICES), there is no systematic collection and analysis of economic data relating to the fisheries sector, apart from price data for certain fish species coming under the common market organisation for fisheries products. The Council agreed in June 2000 to include economic data within the scope of Council Regulation 1543/2000 on the collection of data essential to the management of the Common Fisheries Policy but this part of the Regulation will not become mandatory until 2004.

As a result, much of the data presented in this section, particularly in relation to the situation in individual Member States, is based on information available to the Commission through its own desk research or ad hoc external studies. This data is sometimes incomplete and there may also be problems of comparability of data from different Member States; nevertheless, the Commission considers that it is possible to identify clear trends from it. Improved availability of economic data is a priority for improved economic management of the fisheries sector.

#### *1.1.1. Economic importance of fisheries*

The EU is one of the major world fishing powers and the first market of processed products and of aquaculture. In 1998, the value of the whole production chain, namely fishing, aquaculture, processing and marketing reached approximately €20 billion, i.e. 0,28% of EU GDP. In 1990, the value of production was €18 billion, also 0,28% of EU GDP.

#### *1.1.2. Fleet Structure*

In 1998, there were 99,170 registered fishing vessels in EU Member States. Total fishing power was just under 8 million kW, and the total tonnage was just over 2 million GRT. Table 1 highlights the enormous variation in structural characteristics of the EU fleet. Greece had the largest fleet in terms of numbers, with over 20,000 vessels (20% of the total), but over 93% of these vessels were under 12m in length. Spain has the second largest fleet with almost 29% of the total tonnage of the EU. This is despite 75% of the vessels being under 12m in length.

Outside the Mediterranean and the Baltic regions, the pattern of a small modern segment of the fleet representing a large percentage of the capacity is common. For the EU as a whole, 80% of the vessels are under 12m and 53% under 9 metres. In Germany for example, out of a total of 2,373 vessels, 12 large trawlers represent almost 50% of the fleet tonnage. Only in the Netherlands and Belgium are there greater numbers of vessels over 12m than under. On the whole, the EU fleet is an ageing fleet, with few vessels introduced in recent years - only 16% of the total EU fleet had been purchased in the ten years previous to 1998. The regions with relatively newer fleets are the Netherlands, Northern France, Finland and Belgium.

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<sup>1</sup> Dr. Ian Goulding of Megapesca Lda ([www.megapesca.com](http://www.megapesca.com)) contributed to this document.

Between 1991 and 1998, there was a nominal reduction in the registered EU fleet capacity of 4.5% in tonnage and 9.1% in power, but during this period, the EU fleet was also increased by the accession of two maritime nations, Sweden and Finland, and the re-unification of Germany. Based on the fleet of the EU 12 in 1991, by 1998 tonnage had declined by 8% and power by 14.7%.

**Table 1**

**EU Fleet Structure, 1998**

	No. vessels	Capacity <sup>3</sup>	Power kW	Av. Tonnage <sup>3</sup>	Av. Power (kW)
Belgium	148	23.082	64.896	156	438
Denmark	4.648	97.932	380.877	21	82
Finland	3.979	24.170	219.745	6	55
France	8.836	209.460	1.141.528	24	129
Germany	2.373	75.103	171.457	32	72
Greece	20.243	111.933	654.199	6	32
Ireland	1.246	61.082	190.625	49	153
Italy <sup>1</sup>	16.325	260.603	1.513.677	16	93
Netherlands	1.040	174.344	482.263	168	464
Portugal	11.579	123.923	393.671	11	34
Spain	17.972	589.359	1.474.421	33	82
Sweden <sup>2</sup>	2.123	48.840	256.542	20	103
UK	8.658	253.409	1.047.690	29	121
EU 15	99.170	2.053.240	7.991.591	21	81

*Based on Marsource (derived from the Community Register of Fishing Vessels, 1<sup>st</sup> January 1998)*

<sup>1</sup> 1997 data

<sup>2</sup> 1997 data for tonnage and power, 1999 data for No. of vessels.

<sup>3</sup> Statistical tonnage (mixture of GRT, GT and national standards)

*1.1.3. Landings of marine fish*

In the EU 15 member states, landings of fish in 1990 were 6.38 million tonnes, rising to 7.45 million tonnes in 1995. Since then they have declined slightly to 6.3 million tonnes in 1998, with an estimated value of € 7.3 billion. Overall, the EU fleet accounts for about 7.5% (by quantity) of global marine capture fisheries.

Although Denmark lands some 30% of the EU total by volume (1.9 million tonnes) most of this is used for reduction, and is of relatively low unit value. With the exception of Sweden, in most other regions the landings are utilised mainly for human consumption, and have much higher unit value. After Denmark, Spain had the next highest landings, with 964,603 tonnes, followed by UK, France, Netherlands and Italy. EU vessels landed 423,000 tonnes outside the EU in 1998, particularly from UK and Spanish vessels.

There is a growing gap between Community supply and demand of fish and fish products which generates increasing dependence of the European market on imports from third countries. The deficit increased between 1990 and 1999 by 63% to reach €8.6billion, i.e. an amount equivalent to the value of the EU landings. Insofar as the imported quantities increased only by 32%, this reveals that those are high value imports. In 1997, the average value of the tons landed by Member States was €995, that of Community aquaculture €1850, that of the tons exported by the EU €1167, while the average of the imported ton amounted to €2208.

#### *1.1.4. Processing*

The processing sector provides markets for fish caught by EU fishermen, as well as an important source of employment in fishery dependent areas. The sector has been relatively stable throughout the last decade, with an output of about €10.3 billion in 1998. Spain and France have the largest processing sectors by value (corresponding to 22% and 20% of output) but Germany and Denmark also produce over €1 billion of output per year.

#### *1.1.5. Aquaculture*

The aquaculture sector is an important part of the EU fishery industry, with an output in 1998 of 1.1 million tonnes (up from 0.94 million tonnes in 1990). The EU accounted for 4% of total world aquaculture in production in 1997, and 8% of marine aquaculture production.

A recent study to characterise the sector <sup>2</sup> found that in 1997/1998 the production from marine aquaculture was 845,905 tonnes, with a value of over €1.36 billion. The major producers are France (208,065 tonnes), Spain (208,065 tonnes), Italy (157,719 tonnes) and the UK (113,425 tonnes) but in terms of value, France and UK are the most important, with outputs of €359.1 million and €350 million respectively.

About one third of the marine aquaculture production by value comprises bivalve molluscs. The major producing regions are found in Galicia in Northern Spain (mussel production) and the West Coast of France (oyster production). The main species of fish produced by marine aquaculture are salmon, seabass and bream, eel and turbot. Total production of this species was 181,929 tonnes with a value €793.8 million. The sector is dominated by the production of salmon (mainly in Scotland), followed by seabass and seabream in Greece; Ireland is the only other producer of note (mainly producing salmon). Greek hatcheries are also a major supplier of juvenile fish, generating revenues of another €31.4 million, all of which is consumed by the aquaculture sector.

Inland aquaculture production is widely practised, with some production in all EU Member States. The output of inland aquaculture was estimated to be €605 million in 1997/1998, corresponding to 261,858 tonnes. The main species produced are trout and carp. Italy produces 22.4% of EU output value and Germany 14.5 % by value, with France and Denmark (mainly trout and eels) also being significant producers, followed by the UK, with trout production accounting for 10% by of EU output value.

#### *1.1.6. Inland capture fisheries*

Unlike marine fish landings, there is no formal recording of catches from inland fisheries. However, the sector is not of major economic importance compared to other fishery sub-sectors, with an estimated total production of 106,600 tonnes in 1997. Production appears to have increased by about 17,000 tonnes throughout the last decade. Inland capture fishing is of significance in only a few EU countries. Germany is by far the largest producer, with 52,000 tonnes (nearly 50% of the total), although much of this is derived from re-stocking from aquaculture facilities. The main species are carp, trout, eels and members of the perch family.

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<sup>2</sup> Forward Study of Community Aquaculture, European Commission, Directorate General for Fisheries, December 1999 (MacAlister Elliott and Partners)

### 1.1.7. Profitability of the fishing fleet

The economic and financial situation and the performances of the Community fishing fleet during the period 1994-1999<sup>3</sup> can be summarised according to certain general characteristics, which have then to be specified in view of the important differences between countries and fleet segments. The period selected corresponds to the period of application of the FIGG programme and is characterised by a complete economic cycle, namely two years, 1994 and 1995, marked by particularly low prices; one year of transition and three years of more favourable economic situation thanks to a continuous increase in prices which more than compensated stagnant or falling landings volumes.

Globally, from a economic and financial point of view, the Community fleet is characterised by:

- high capital intensity : invested capital<sup>4</sup> per job in the fisheries sector as such is, in general, very high (Table 2, col.1). There is no comparable data in other economic sectors. As a comparison, the GFCF<sup>5</sup> level per job for the economy as a whole is indicated (Table 2,col.2). Invested capital in the fisheries sector is on average ten to twenty times the average 1999 GFCF.
- very high value added per job: there is a close relation in this sector between the level of the invested capital per job and the value added per job. With some exceptions, the value added generated per job in fishing is higher not only than in agriculture but also than in industry (Table 2, col.3-5) or in the economy as a whole, despite the relatively low qualification levels for jobs in the fisheries sector. In general, however the higher the invested capital, the less relative value added is generated.

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<sup>3</sup> The economic and financial data on the fisheries sector of this chapter has as a source the annual report 2000 « Economic Performance of Selected European Fishing Fleets » established within the framework of the concerted Action (FAIR PL97-3541). This report does not cover at the present time all the Community fleet, but an importing sample sufficiently representative of it.

<sup>4</sup> **Invested capital** : amount of the capital invested in the vessel at a certain moment. The book value, based on the replacement value is a measure for the invested capital; in a number of cases, the insured value of the vessel has been taken as an approach for the invested capital. This does not involve therefore annual investments carried out.

<sup>5</sup> **GFCF** : gross fixed capital formation

TABLE 2

## Capital intensity indicators and added value/employment - 1999-

000 EUR

Country	Segment	Inv Cap/Empl	FBCF/Empl	Added value/employment		
		Fisheries	Tot, Econ,	Fisheries	Agriculture	Industry
		1	2	3	4	5
<b>Belgium</b>			13		38	69
	Beam trawlers	167		70		
<b>Denmark*</b>			12		40	59
	Trawlers>200GT	268		137		
	Trawlers<200GT	93		58		
	Danish seiner	83		67		
	Gill netters	61		41		
<b>Finland</b>			8		27	61
	Pelagic trawlers	71		19		
<b>France</b>			11		34	62
	Bottom trawlers 16-30 m	89		58		
	Gill netters > 16 m	39		39		
<b>Germany</b>			11		22	53
	Nearw, and coastal fl,	63		59		
	Shrimp trawlers	66		57		
	Fish trawlers	60		61		
<b>Greece</b>			7		12	23
	Deepwater trawl	98		31		
	Coastal trawl	112		25		
<b>Italy</b>			9		27	45
	Trawlers	94		26		
	Purse seiners	39		20		
	Midw, pair trawl	93		25		
	Dredgers	73		24		
	Multi-purpose trawl	54		23		
	Small-scale fishery	20		14		
	Tuna fleet	133		22		
	Swordfish fleet	43		13		
<b>The Netherlands</b>			10		34	61
	Eurocutters 191 - 221kW	158		82		
	Beamtrawl > 811 kW	304		110		
<b>Portugal</b>			5		7	20
	Coastal Trawlers	21		12		
	Coastal purse seiners	8		14		
	NAFO Vessels	19		24		
<b>Spain</b>			9		19	38
	300's fleet EEC Waters			36		
	Med, Trawlers	47		11		
	Med, Purse seiners	14		3		
<b>Sweden</b>			9		36	NA
	Pelagic v, >20m	233		48		
	Pelagic v,<20m	107		16		
	Shrimp trawlers	134		36		
	Demersal trawl, >20m	191		48		
	Demersal trawl,<20m	164		51		
	Nephrops	140		49		
	Net/hook fishery	119		29		
<b>United Kingdom</b>			9		26	60
	Scottish demersal< 24m	122		62		
	Scot,dem trawl,>24m	261		107		
	Scott,nephrops trawl,	50		32		



Scottish dem, seiners	165	73
Nd, IreI,nephrops trawl,	39	31

\* Data 1998

Sources : "Economic Performances of selected European fleets-annual report 2000-Concerted Action (FAIR PL 97-3541) and AMECO (DG ECFIN)

- Poor financial profitability : over the period 1994-1999, the net profit<sup>6</sup> of fishing fleets, often negative or very weak, did not allow to remunerate the capital normally. In other words, despite the high level of value added per job, it remained insufficient to cover at the same time the crew's share and the financial costs related to a high capital intensive equipment. The rather exceptional economic trend in 1999 showed that in particularly favourable price circumstances and with a favourable development of the landing volumes for some countries, a clear profit allowing a return on the capital was realisable. Increases in the price of fuel during 2000, however, have radically modified the favourable situation recorded in 1999.

TABLE 3

**Profitability indicators 1999 and 1994-1999**  
**Prices and quantities evolution in 1994 – 1999**

Country	Segment	Net Profit/ Invested Capital	Net Profit/ Invested Capital	Prices 1999 <sup>1</sup>	Volume of landings 1999
		1999 in % 1	Average 94-99 in % 2	1994= 100 3	1994=100 4
<b>Belgium</b>	Beam trawlers	4,7	2,2	131	88
<b>Denmark</b> <sup>2</sup>	Trawlers>200GT	7,4	2,1	151 <sup>3</sup>	92 <sup>3</sup>
	Trawlers<200GT	-0,1	-3,7	132 <sup>3</sup>	80 <sup>3</sup>
	Danish seiner	5,1	-3,3	131	85
	Gill netters	-12,2	-15,4	120	84
<b>Finland</b>	Pelagic trawlers <sup>4</sup>	-5,1	-2,1	94	99
<b>France</b>	Bottom trawlers 16-30 m	2,1	-1,1	132	94
	Gill netters > 16 m	5,1	1,1	136	100
<b>Germany</b>	Near w. and coastal fl.	14,5	-4,9	NA	NA
	Shrimp trawlers	10,4	-3,6	NA	NA
	Fish trawlers	19	-5,2	NA	NA
<b>Greece</b>	Deepwater trawl	-2,3	-3,8	104	156
	Coastal trawl	-4,9	-4,7	98	119
<b>Italy</b>	Trawlers	4,6	9,1	128	99
	Purse seiners	20,5	10,2	103	140
	Midw, pair trawl	4,0	7,8	80	137
	Dredgers	9,1	9,5	91	98
	Multi-purpose trawl	7,9	14,2	117	84
	Small-scale fishery	41,3	37	94	145
	Tuna fleet	-2,5	3,7	125	119
	Swordfish fleet	3,3	19,5	104	37
<b>The Netherlands</b>	Eurocutters 191 – 221kW	10,7	1,9	138	119
	Beamtrawl > 811 kW	7,3	2,0	141	69
<b>Portugal</b>	Coastal Trawlers <sup>4</sup>	12,5	18,7	151	89
	Coastal purse seiners <sup>5</sup>	29,2	26,8	175	86
<b>Spain</b>	300's fleet EEC Waters				
	Medit, Trawlers <sup>6</sup>	-2,6	-8,5	142	106
	Medit, Purse seiners <sup>6</sup>	-6,4	1,7	105	58
<b>United Kingdom</b>	Scottish demersal	4,9	0,1	NA	NA
	Scott,nephrops trawl,	8,2	12,4	NA	NA

(1) Value of landings/Volume of landings

(2) Data regard 1995 and 1998

<sup>6</sup> **Net profit** : value of landings minus all costs, including depreciation and an imputed interest amount. This balance is the reward for entrepreneurship.

- (3) Data regard 1996 – 1998
- (4) Data regard 1996 – 1999
- (5) Data regard 1997 – 1999
- (6) Data regard 1995 – 1999

Table 3 shows clearly that the long-term financial viability of the majority of the Community fleets concerned was compromised under the conditions which prevailed during the period 1994-1999.

During this period, only the Italian fleet and certain segments of Portuguese fleet show clear profits likely to remunerate the capital. But these are the two fleets for which value added and capital invested per job is among weakest. It seems inappropriate to compare the situation of these two countries with that of the majority of the other Community countries, because the share reserved in these two countries for the crews' remuneration appears very low compared with the other countries.

- Insufficient utilisation rate of equipment : in a situation of very high capital intensity, the utilisation rate of equipment is a key parameter of profitability. A high activity ratio by production unit makes it possible to cover depreciation and financial costs by a higher production level. In this area the potential for improvement within the EU is enormous.

Between 1994 and 1999, numerous Community fleets carried out significant reductions of capacity by decommissioning (Table 4, col.4), but these adjustments were insufficient insofar as they often did not compensate for reductions in activity and productivity increases of the remaining vessels (table 4, col.3).

Table 4

**Utilisation rate<sup>7</sup> of the available fishing capacity<sup>8</sup> - 1994-1999**

Country	Segment	Utilisation rate %		KW/vessel	Available
		1994	1999	1999 1994=100	capacity 99 1994=100
		1	2	3	4
<b>Belgium</b>	Beam trawlers	102	86	102	94
<b>Denmark</b>	Trawlers>200GT	90	86	105 <sup>2</sup>	100
	Trawlers<200GT	61	66	942	84
	Danish seiner	59	57	122 <sup>2</sup>	61
	Gill netters	54	46	132 <sup>2</sup>	71
<b>Finland</b>	Pelagic trawlers	24	22	115	83
<b>France</b>	Bottom trawlers 16-30 m	69	72	104	78
	Gill netters	53	52	122	98
<b>Greece</b>	Deepwater trawl	73	62	100	111
	Coastal trawl	70	70	100	95
<b>Italy</b>	Trawlers	63	62	99	124
	Purse seiners	48	48	98	81
	Midw. pair trawl	60	56	104	101
	Dredgers	37	34	129	95
	Multi-purpose trawl	57	59	95	101
	Small-scale fishery	61	71	90	102
	Tuna fleet	43	28	101	118
	Swordfish fleet	38	29	120	42
<b>The Netherlands</b>	Eurocutters 191 -221kW	57	51	104	113
	Beamtrawl > 811 kW	72	67	106	82
<b>Portugal</b>	Coastal Trawlers	118	85	104	151
	Coastal purse seiners	99	64	106	89
<b>Spain</b>	300's fleet EEC Waters	95	100	95	79
	Med, Trawlers	76	77	98	91
	Med, Purse seiners	68	62	110	95
<b>Sweden</b>	Pelagic >20m	73	59	124	70
	Traw.cod>20m	63	54	102	77
	Prawn	45	60	105	67
	Cod <20m	42	42	111	57
	Nephrops	59	41	97	140
	Net/hook fishery	21	53	97	71
<b>United Kingdom</b>	Scottish demersal	72	84	104	93
	Scott,nephrops trawl,	70	63	118	74

(1)Data regard 1995-1998

(2)GT/Vessel

(3) Data regard 1996 – 1998

<sup>7</sup> The **utilisation rate of capacity** is calculated by comparing the total number of days at sea actually recorded to the available capacity. To take account of the structural changes that occurred between 1994 and 1999, a coefficient reflecting the rising or declining power by vessel corrects the 1999 available capacity. In concrete terms, the 1999 available capacity is multiplied by the index kW per boat 1999/1994.

<sup>8</sup> The **available capacity** is assumed to be 265-days effort per vessel per year.

One may conclude from the above tables that the profitability of trawlers in particular, owing to the importance of the invested capital, involves very high use of capacity. For the period 1994-1999, except in Italy and Portugal, no trawler fleet reached a satisfactory profitability threshold.

What lessons to draw from this analysis ?

Beyond the adjustments made to the size of the Community fleet, further adjustments were realised by a reduction in fishing effort, expressed in days at sea/vessel. Effort reductions were very significant for several fleet segments, as shown in column 4 of table 4.

Resorting in large measure to the reduction in the fishing effort rather than reduction in the fleet, is a solution which satisfies the conservation constraint, even if pressure on the resource remains high. From the point-of-view of economic and financial viability in the long-term, however the relevance of such an approach may be questioned. In a sector with high capital intensity, with significant overcapacity and where the capital cannot be remunerated owing to the excessive charges borne by each unit of production, it is important to improve profitability by reducing costs.

Better adjustment of the fleet capacity to available fishing would have important direct and indirect effects on the economic and financial situation of the fishing fleet. It would make it possible to reduce the fixed overheads (depreciation and financing costs) linked with the installed capital and to lower certain operation costs, in particular by permitting economies of scale.

A reduction of the fleet will also have effects on the level of employment, but these could be compensated, at least partially, by the increase in the activity of the remaining boats. The adaptation of the level of employment to the structure of the fleet will have as a counterpart improvement of the productivity of employment.

The discussion of this problem at Community level is all the more necessary as each Member State has established its FIG financing plan for the period 2000-2006 without necessarily having taken into account the situation which will arise from application by the other Member States of their plans. Taken as a whole, the Member States are planning to reduce their level of aid for fleet reduction and increase it for vessels construction or modernisation. In other words, present national intentions will further increase the capital intensity of the fleet instead of reducing it<sup>9</sup>.

#### *1.1.8. Aid to the fisheries sector*

### **Financial Instrument for Fisheries Guidance (FIG)**

As indicated in table 5, aid granted until now under the structural programme 1994-1999 has mainly concerned the fleet (more than 55%), 60% of this aid going to the financing of the adjustment of the fleet and, 40% to its modernisation. For the period 2000-2006, an increase in aid to aquaculture and in particular, to the downstream processing industries is envisaged and consequently a relative decrease of

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<sup>9</sup> It should be noted, however, that the Member States which are favouring modernisation/construction are the ones that have accomplished their MAGP objectives for fishing effort reduction. In this particular case, modernisation/construction is neutral in terms of capacity increase (with the exception of technological progress) because it is conditional upon the withdrawal of equivalent capacity without Community aid.

the aid to the fleet from 57% to 41%. Nevertheless, the intended expenditure for the fleet, is in relative terms centred on an intensification of modernisation rather than decommissioning. If these expressed intentions are carried out, one must therefore expect a further increase in the capital intensity of the fleet.

Distribution by areas Area	Provisional data of 1994-1999 program (in progress)						Estimated expenditure 2000 – 2006					
	EU contribution (FIFG)		National contribution		TOTAL Public aid		EU contribution (FIFG)		National contribution		TOTAL Public aid	
	Mio€	%	Mio€	%	Mio€	%	Mio€	%	Mio€	%	Mio€	%
<b>Decommissioning</b>	542,3	29,96	351,8	41,12	894,10	33,54	652,8	18,1				
<b>Renewal and modernisation of fleet</b>	459,28	25,38	134,22	15,69	593,50	22,27	839,3	23,2				
<b>Aquaculture</b>	125,25	6,92	44,13	5,16	169,38	6,35	2116,9	58,7				
<b>Marine areas/port facilities</b>	118,47	6,55	58,98	6,89	177,45	6,66						
<b>Processing/marketing</b>	376,21	20,79	143,98	16,83	520,19	19,52						
<b>Others (promotion, technical assist...)</b>	188,43	10,41	122,44	14,31	310,87	11,66						
<b>TOTAL</b>	1809,94	100	855,55	100	2665,49	100	3609,0	100				

Distribution by Member State Member State	Provisional data of 1994-1999 program (in progress)													
	Decommissioning		Renewal/Modernisation		Aquaculture		Marine areas/port facilities		Processing/marketing		Others		TOTAL Public aid	
	UE	Nat	UE	Nat	UE	Nat	UE	Nat	UE	Nat	UE	Nat	UE	Nat
<b>Austria</b>	0,00	0,00	0,00	0,00	1,09	2,20	0,00	0,00	0,69	1,32	0,02	0,06	1,80	3,58
<b>Belgium</b>	2,03	2,03	4,54	5,91	0,21	0,10	0,36	0,08	4,09	1,53	0,87	0,81	12,10	10,46
<b>Denmark</b>	21,79	20,72	22,74	4,56	5,42	1,09	4,49	2,28	26,27	5,28	14,47	14,47	95,18	48,40
<b>Germany</b>	3,51	2,61	21,79	8,87	5,32	1,39	17,80	4,93	40,20	21,83	2,27	2,71	90,89	42,34
<b>Greece</b>	39,21	11,91	5,76	2,47	20,49	6,06	0,20	0,07	15,50	4,57	1,06	0,34	82,22	25,42
<b>Spain</b>	329,54	203,17	293,81	69,15	37,12	9,22	49,36	24,52	173,16	44,46	71,33	26,84	954,32	377,36
<b>Finland</b>	2,13	2,13	2,24	1,01	2,14	1,27	2,36	2,20	7,43	3,98	2,28	2,27	18,58	12,86
<b>France</b>	19,80	19,17	19,39	17,93	13,11	10,33	4,22	5,17	24,55	22,38	8,08	8,22	89,15	83,20
<b>Ireland</b>	1,53	0,51	5,26	1,20	8,23	1,42	9,70	7,87	1,64	0,55	11,25	3,75	37,61	15,30
<b>Italy</b>	41,05	32,48	18,96	5,84	14,78	5,17	4,12	2,87	25,20	16,73	55,00	55,12	159,11	118,21
<b>Netherlands</b>	7,36	10,72	0,00	0,00	0,54	0,22	0,00	0,00	2,02	3,09	1,00	0,56	10,92	14,59
<b>Portugal</b>	36,71	12,09	45,23	9,28	5,37	1,57	17,78	4,41	22,28	7,76	12,04	3,71	139,41	38,82
<b>Sweden</b>	2,26	2,26	10,12	2,98	3,56	0,94	3,78	2,78	8,75	2,95	3,23	3,04	31,70	14,95
<b>United Kingdom</b>	35,38	32,00	9,44	5,02	7,87	3,15	4,30	1,8	24,43	7,55	5,53	0,54	86,95	50,06
<b>European Union</b>	542,30	351,80	459,28	134,22	125,25	44,13	118,47	58,98	376,21	143,98	188,43	122,44	1809,94	855,55

## - National aid

Table 7 indicates the amounts (in million euros) of direct aid identified in each Member State (Austria and Luxembourg do not have specific mechanisms). The overall amount over the period 1994-1998 was about 450 M € more than half provided by national and regional authorities in Italy.

**Table 7**

### **Direct aid granted by sector in the Member States between 1994 and 1998. Data in million euros**

<b>Country</b>	<b>Total 94/98</b>	<b>Aquaculture</b>	<b>Fishing</b>	<b>Transformation</b>
<b>Belgium</b>	0.11		0.11	
<b>Germany</b>	36.09		36.04	0.05
<b>Denmark</b>	1.00		1.00	
<b>Spain</b>	28.78	0.18	28.60	
<b>Finland</b>	10.26	2.49	7.69	0.08
<b>France</b>	47.34	4.58	42.76	
<b>Greece</b>	13.00	13.00		
<b>Ireland</b>	15.15	9.59	3.40	2.16
<b>Italy</b>	229.71	9.42	220.29	
<b>The Netherlands</b>	0.50		0.50	
<b>Portugal</b>	6.29		6.29	
<b>United Kingdom</b>	53.91	16.32	24.50	12.55
<b>Sweden</b>	5.88		5.66	0.22
<b>Total</b>	448.01	55.58	376.84	15.05

Table 8 shows how direct national aid for the fisheries sector was distributed according to four main categories: effort reduction (temporary cessation of fishing, decommissioning ), investment (construction, modernisation, purchase second-hand), earnings aid (calamity compensation, market crisis), and help towards charges (only support for insurance in Finland). The effort reduction category is the most important one, with 59% of the total, before investment aid (modernisation mainly) with 28%, and income support (financial aid for companies in difficulties in France in particular) with 11%.

**Table 8****Distribution of direct aid for fishing by main category between 1994 and 1998. Data in million euros**

Country	Total 94/98	Effort reduction	Investment	Aid in respect of earnings	Aid on charges
Belgium	0.11		0.11		
Germany	36.04	23.98	11.98	0.08	
Denmark	1.00		1.00		
Spain	28.60	18.58	9.18	0.85	
Finland	7.69	0.77	0.19	0.54	6.19
France	42.76	0.03	8.55	34.18	
Ireland	3.40		0.39	3.01	
Italy	220.29	179.35	38.97	1.98	
The Netherlands	0.50	0.50			
Portugal	6.29		6.29		
United Kingdom	24.50		24.50		
Sweden	5.66		5.66		
<b>Total</b>	<b>376.84</b>	<b>223.21</b>	<b>106.81</b>	<b>40.63</b>	<b>6.19</b>

Indirect aid reached approximately 93 M € (table 9). Support for development/construction of harbour infrastructures is the principal expenditure for aid for fishing. Aid for all sectors incorporates mainly expenditure connected with the promotion of the sea products.

**Table 9****Indirect aid granted between 1994 and 1998 by the Member States according to the sector to which they are mainly addressed. Data in million euros**

Country	Total 94/98	Aquaculture	Fishing	Transformation	All
Denmark	1.50		1.50		
Spain	0.05		0.05		
France	21.33		15.51		5.82
Ireland	1.67		0.60	0.27	0.80
Italy	41.61		39.14	0.17	
The Netherlands	0.09	0.09			
Finland	13.74		4.90		8.84
Sweden	1.74		1.74		
United Kingdom	11.01	0.09	10.27	0.64	
<b>Total</b>	<b>92.74</b>	<b>0.18</b>	<b>73.71</b>	<b>1.08</b>	<b>15.47</b>

Concerning tax treatment, Table 10 indicates by Member State the main types of aid. The total remission of fuel tax is the only measure common to all the Member States. Few cases are noted on the whole, but two countries are distinguished: the Netherlands, with original provisions connected with the inheritance of quotas, and France, where a series of specific provisions are made for economic operators and the potential investors (individual and companies) as an incentive for capital placement in the fishing enterprises.



**Table 10****Tax treatments particular to the fisheries sector in the Member States**

Recipient	Type of tax treatment	BE	DE	DK	ES	FR	GR.	IR	IT	NL	PO	FIN	SV	U.K.
Companies	Remission of tax of the fuel	X	X	X	X	X	X	X	X	X	X	X	X	X
Companies	Accelerated depreciation investments		X				X					X		
Companies	Depreciation of the value of the quotas									X				
Companies	Inheritance tax exemption for catch quotas									X				
Companies	VAT payment exemption				X	X			X					X
Companies	Reduction of income tax					X	X							
Companies	Exemption from insurance tax					X								
Companies	Exemption from CCI					X								
Companies	Exemption from professional taxes					X								
Companies	Reduction of tax on profits					X								
Companies	Tax reduction											X		
Investors	Income tax reduction					X								
Employees	Deductions of taxes for day of sea			X										X

Source: COFREPECHE. "Les aides prévues par l'Etat membre pour les investissements dans le secteur de la pêche".2001.

**- Social systems particular to the fisheries sector in the Member States**

The majority of the Member States support the fisheries sector through individual social systems, at least for certain aspects.

The provisions on social security and other incentives to employment can be divided with 12 categories:

- Sickness insurance
- Retirement
- Unemployment
- Other incentives to employment and/or activity stops
- Industrial accidents and occupational diseases
- Other insurance
- Apprenticeship
- Continuing vocational training
- Technical activity stops

- Temporary activity stops
- Family benefits
- Special treatment of the sector of the processing or of marketing

In descending order of importance, the four countries which have set up most arrangements and individual measures are Spain, Italy, France, Finland and, to a lesser extent, Portugal.

Special treatments are largely based on benefits, such as for temporary activity stops, further training, unemployment, apprenticeship and other incentives to employment.

Specific arrangements for coverage of technical activity stops, of insurance other than sickness insurance and of industrial accidents are only seldom set up. Sweden has an old practice of support for technical and temporary activity stops: that is explained mainly by its geographical situation and weather, which makes compensation for activity stops necessary for the maintenance of fishermen's income.

Only Finland supports the sector of processing and marketing.

<b>Country</b>	<b>Field benefiting from special treatment</b>
<b>Spain</b>	Industrial accidents/Occupational disease, sickness insurance, other insurance, continuing vocational training, apprenticeship, temporary activity, unemployment
<b>Finland</b>	Industrial accidents/occupational disease, other insurance, sickness insurance, Retirement, special treatment on the sector of the processing or of marketing
<b>The United Kingdom</b>	Unemployment, continuing vocational training
<b>Sweden</b>	Temporary activity stops , technical activity stops
<b>France</b>	Industrial accidents/occupational disease, Precaution, apprenticeship, technical activity stops, other incentive to employment/activity stops
<b>Ireland</b>	Sickness insurance, retirement, unemployment
<b>Belgium</b>	Sickness insurance, unemployment
<b>Greece</b>	Apprenticeship, continuing vocational training, temporary activity stops
<b>Portugal</b>	Continuing vocational training, apprenticeship, temporary activity stops, technical activity stops
<b>Italy</b>	Apprenticeship, other incentives to employment/activity, retirement, continuing vocational training, unemployment stops, temporary activity stops
<b>Austria</b>	No
<b>Germany</b>	No
<b>The Netherlands</b>	No
<b>Denmark</b>	No

Source: PriceWaterhouseCoopers. " Etude des dispositions en matière de sécurité sociale et des autres incitations à l'emploi prévues par Etat membre dans le secteur de la pêche".2001.

### **- International comparisons**

It is not easy to obtain data about aid to the fishing industry in third countries. The Commission has recently organised a study of aid schemes in both developed and developing countries, but these data are not necessarily complete (particularly in respect of local or regional government aids) and the differences between countries makes any comparison difficult.

The Fisheries Committee of OECD, however, carried out in 1999-2000 an analysis of government financial transfers to the fisheries sector, based on data presented by Member Governments and the European Union, which represents a first attempt to measure various forms of government

financial support. These data, too, may be incomplete and approximate in parts and actually misleading in one or two cases; nevertheless the estimates provided in the following two tables (for the year 1997) are the only ones available based on official statistics and using a common methodology.

**TABLE 11**

**Estimates of Government Financial Transfers to Marine Capture Fisheries in OECD Countries: 1997<sup>1</sup>**

(USD million)

	<i>Direct payments (A)</i>	<i>Cost Reducing Transfers (B)</i>	<i>General Services (C)</i>	<i>Total Transfers (D)</i>	<i>Total Landed Value (TL)</i>	<i>(A+B)/ TL</i>	<i>D / TL</i>
<b>Australia<sup>2</sup></b>	5	7	11	24	259	5%	9%
<b>Canada</b>	252	18	135	405	1621	17%	25%
<b>European Union<sup>4</sup></b>	366	358	710	1 434	9 324	8%	15%
<b>Belgium</b>	-	3	2	5	99	3%	5%
<b>Denmark</b>	20	-	62	82	521	4%	16%
<b>Finland</b>	3	2	21	26	29	18%	90%
<b>France</b>	22	14	104	139	756 <sup>4</sup>	5%	18%
<b>Germany</b>	8	3	52	63	194	5%	32%
<b>Greece</b>	12	-	38	50	387	3%	13%
<b>Ireland</b>	5	3	96	104	220	3%	47%
<b>Italy</b>	24	5	64	92	1 749	2%	5%
<b>Netherlands</b>	4	-	32	36	466	1%	8%
<b>Portugal</b>	32	0	34	66	319 <sup>4</sup>	10%	21%
<b>Spain</b>	205	81	59	345	3 443 <sup>4</sup>	8%	10%
<b>Sweden</b>	9	-	45	54	129	7%	42%
<b>United Kingdom</b>	23	4	101	128	1 012	3%	13%
<b>Iceland</b>	-	18	18	36	877	2%	4%
<b>Japan</b>	25	22	2 899	2 946	14 117	0%	21%
<b>Korea</b>	30	59	253	342	4 929	2%	7%
<b>Mexico</b>	-	-	17	17	1 017	-%	1%
<b>New Zealand</b>	-	-	17	17	475 <sup>5</sup>	-%	4%
<b>Norway</b>	3	62	98	163	1 343	5%	12%
<b>Poland</b>	-	-	8	8	215	-%	4%
<b>Turkey</b>	-	1	27	29	212	1%	13%
<b>United States</b>	21	194	662	877	3 644	6%	24%
<b>OECD Total</b>	<b>702</b>	<b>740</b>	<b>4856</b>	<b>6298</b>	<b>38032</b>	<b>4%</b>	<b>17%</b>

- zero

0: Value less than 0.5 of the unit of measure.

1. The table does not reflect any assessment of whether individual transfers programs have positive or negative implications for fisheries resource sustainability. Therefore, proper care should be applied in interpreting this summary information to consult the country case studies provided in the following section that discusses these implications.
2. Commonwealth fisheries only.
3. European Union values are the sum of all EU Member State values. The exception to this is cost reducing transfers, where payments for access for third country waters are not allocated among each Member State. In this case, the value is added to the EU total figure.
4. Does not include national landings in foreign ports.
5. 1996 figure.

TABLE 12

**Estimates of Government Financial Transfers to Marine Capture Fisheries in OECD Countries - Classification  
by Program Objectives: 1997<sup>1</sup>**

(USD million)

	Fisheries Infrastructure	Management, Research, enforcement and enhancement	Access to other countries' waters	Decommis- sioning of vessels and licence retirement	Investment and modernis- ation	Income support and unemployment insurance	Taxation exemptions	Other	Total
<b>Australia<sup>2</sup></b>	-	11	-	3	-	-	7	2	<b>24</b>
<b>Canada</b>	35	100	-	0	-	248	-	22	<b>405</b>
<b>European Union<sup>3</sup></b>	67	592	245	288	144	4	3	91	<b>1 434</b>
<b>Belgium</b>	-	2	-	-	3	-	-	0	<b>5</b>
<b>Denmark</b>	3	49	-	8	12	-	-	10	<b>82</b>
<b>Finland</b>	0	21	-	1	1	-	-	3	<b>26</b>
<b>France</b>	6	74	-	5	13	-	-	41	<b>139</b>
<b>Germany</b>	6	46	-	2	2	-	-	8	<b>63</b>
<b>Greece</b>	1	36	-	9	4	-	-	1	<b>50</b>
<b>Ireland</b>	2	92	-	1	3	-	3	2	<b>104</b>
<b>Italy</b>	2	62	-	17	9	-	-	2	<b>92</b>
<b>Netherlands</b>	7	25	-	3	1	-	-	0	<b>36</b>
<b>Portugal</b>	7	25	-	21	9	-	-	4	<b>66</b>
<b>Spain</b>	16	37	-	196	80	-	-	15	<b>345</b>
<b>Sweden</b>	1	42	-	2	3	4	-	1	<b>54</b>
<b>United Kingdom</b>	15	83	-	23	4	-	-	4	<b>128</b>
<b>Iceland</b>	-	18	-	-	-	-	18	0	<b>36</b>
<b>Japan</b>	2 165	628	-	25	21	-	-	107	<b>2 946</b>
<b>Korea</b>	164	73	-	30	-	-	-	75	<b>342</b>
<b>Mexico</b>	-	17	-	-	-	-	-	0	<b>106</b>
<b>New Zealand</b>	-	17	-	-	-	-	-	0	<b>17</b>
<b>Norway</b>	-	98	-	0	14	3	34	14	<b>163</b>
<b>Poland</b>	-	8	-	-	-	-	-	0	<b>8</b>
<b>Turkey</b>	27	-	-	-	-	-	-	1	<b>29</b>
<b>United States</b>	11	664	-	4	30	-	150	18	<b>877</b>
<b>OECD Total</b>	<b>2 470</b>	<b>2 227</b>	<b>245</b>	<b>350</b>	<b>206</b>	<b>255</b>	<b>213</b>	<b>330</b>	<b>6 298</b>

- zero

0: Value less than 0.5 of the unit of measure.

1. The table does not reflect any assessment of whether individual transfers programs have positive or negative implications for fisheries resource sustainability. Therefore, proper care should be applied in interpreting this summary information to consult the country case studies provided in the following section that discusses these implications.
2. Commonwealth fisheries only.
3. European Union values are the sum of all EU Member State values. The exception to this are payments for access for third country waters; these are not allocated to each Member State. In this case, the value is added to the EU total figure.

Subject to further clarification, these data suggest that while the EU is certainly not alone in making direct payments and cost-reducing transfers to the fisheries sector, it appears to be the main donor of direct transfers (Table 11), is by far the main donor of aid for investment and modernisation of the fishing fleet (Table 12) and is the only OECD member which directly subsidises access by its fishing fleets to other countries' waters (Table 12).

## 1.2. Social Dimension of Fisheries

### 1.2.1. Overview

In 1998 the various parts of the EU fishery sector provided a total gross output of about €20 billion and provided direct employment for at least 514,054 people. Table 13 provides a summary of output and employment by sector, with full-time equivalent (FTE) and gender breakdown estimates also shown. Net sector output will be somewhat less since a significant proportion of output is consumed within the fisheries branch. For example, the outputs of marine fishing are partially consumed by fish processing and, to an extent, by the aquaculture sector. Because of the nature of fishing, numbers employed in this activity are difficult to record and are often underestimated, and the number employed in the sector is likely to be higher than indicated above. By applying known employment multipliers calculated for the EU fisheries sector (see Section 1.2.5) we can estimate total sector employment in 1998 to be about 550,000<sup>10</sup>.

**Table 13**

#### Principal economic dimensions of the EU fishery sector

Sector	Sector Output		No. employed					
	Volume	Value	FT+PT		Men <sup>2</sup>		Women <sup>2</sup>	
	Tonnes 1000	€million	FT+PT	FTE <sup>2</sup>	No.	%	No.	%
Marine fishing	6,301	7,273	241,010	224,152	226,065	94	14,943	6
Fish processing	n.a.	10,265	89,468	80,521	36,503	41	52,965	59
Marine aquaculture	845	1,370	50,329	41,043	36,035	72	14,294	28
Inland aquaculture	261	605	11,569	10,181	9,856	85	1,713	15
Inland fishing	104	258 <sup>3</sup>	9,521	6,760	n.a.		n.a.	
Other fishery sector <sup>1</sup>	n.a.	n.a.	112,147	n.a.	n.a.		n.a.	
<b>TOTAL</b>	<b>7,511</b>	<b>19771<sup>3</sup></b>	<b>514,054</b>	<b>362,657</b>	<b>308,460</b>	<b>78</b>	<b>83,914</b>	<b>22</b>

Source: National statistical sources and 'Regional Socio-economic Studies on Employment and the Level of Dependency on Fishing' Directorate General for Fisheries, 2000

Notes: <sup>1</sup> Other is 1996/97 estimate and includes distribution, mollusc gathering, vessel construction and repair; it is likely to underestimate employment

<sup>2</sup> FTE and gender estimates are based on the data factors from the 1997 figures, assuming no change in employment departments between 1996 and 1998

<sup>3</sup> A significant proportion of primary output from fishing and aquaculture is consumed by other branches of the fishery sector (such as processing)

<sup>4</sup> 1996/97 data

<sup>10</sup> includes 241,010 fishers, plus (241,010 x 0.8) up- and downstream fishing related jobs, plus 116,153 employed in aquaculture, inland fishing and processing of imported fish (assumed to be 50% of all processing jobs).

### *1.2.2. Employment in fisheries*

Marine fishing accounts for the largest share of direct employment in the sector (241,010 jobs). Fish processing provides employment for a further 89,468 individuals. Aquaculture provides another 61,898 jobs and over 80% of these are in marine aquaculture where bivalve mollusc culture provides the most employment. The inland fishing sector is small in comparison with marine fishing and fish processing, employing only 9,521.

Spain has most fishers, employing 68,297 in 1996 (about a quarter of the EU total) followed by Italy with 18% and Greece with 17% of the total. Other Member States with relatively large numbers employed at sea are Portugal (27,197), France (19, 163) and UK (17,847). Ireland, Germany, Denmark, Belgium, Finland, Sweden and Netherlands all have less than 7,000 fishers. There is no employment in marine fishing in land-locked Austria and Luxembourg.

Between 1990 and 1998, the numbers of fishers in the EU fell by about 66,000 from a nominal 306,961 to 241,010, corresponding to an overall decrease of 21%. The last decade has seen a net reduction of about 8,000 fishers in the sector each year. Three countries (Spain, Portugal and Italy) showed quite substantial declines in the number employed with the greatest fall in employment being recorded in the Spanish industry. Here the number employed declined by over 24,000, about one quarter of the 1990 total of 92,424, with the main decline experienced in the North and Atlantic coast regions. Part of this fall can be attributed to the reduced access to the Moroccan fishery under successive fisheries agreements between the EU and Morocco.

Portugal, with 27,197 fishers, was the country to show the next largest decline in fishing employment with a fall of over 10,000 (since 1981). Fishing employment in Italy also fell by 9,194 fishers, to 43,289 (a 17.4% decline). Some regions in the EU have shown an apparent slight increase in numbers of fishers since 1991 (such as the Azores). The majority of other areas experienced a smaller decline in employment in marine fishing, and in several regions (e.g. Greece, Sicily and Sardinia, Finland and Scotland & Northern Ireland) there were no significant changes in fishing employment.

### *1.2.3. Developments in fisheries-dependent regions*

On the first 100 FDA (Fishing Dependent Areas) identified in 1990 (on various territorial scales), the degree of dependence decreased for 51 FDA, increased for 35 FDA, stagnated for 14 FDA. The vast majority of the FDA of 1990 remained dependent in 1997. The decrease of dependence towards captures/landings was often compensated by an increase in dependence with respect to aquaculture. It is noted indeed that the aquaculture channels (salmon, sparidae, clams) having known the most spectacular progressions in the EU during the 1990s especially developed in the peripheral areas with reduced economic activity alternatives. In this context, aquaculture represents an important factor of the reinforcement of socio-economic cohesion.

The map of the most dependent areas nevertheless strongly evolved. Spain, which had in 1990 the 11 most dependent areas on fishing of the EU saw 9 of them reducing their dependence rate from 15 to 50%. This fall may be related to the reduction in fishing employment in Spain by 25% between 1990 and 1997. These regions remain however among the most dependent ones.

In areas where the dependence rate increased, the increase was relatively minor, except in four Greek areas where it reaches between 17 and 70%. It must be noted that Greece is the country which lost less jobs in fishing (- 5%).

In the majority of the areas most dependent on fishing alternative activities to fishing are rare. In other words, the situation of dependence is most marked in the areas which in addition suffer from a general problem of economic development. A concentration of efforts to diversify economic activities in these areas has to be a top priority

#### *1.2.4. Employment in fish processing*

The distribution of employment in fish processing is quite different to that of employment in marine fishing. Fish processing is more evenly distributed throughout the EU, with the UK accounting for 18,140 jobs (20% of the EU total in this activity). France, with 11,899 (13%) and Spain with 15,449 (17%) employed also have significant employment in fish processing. Italy and Greece, despite having relatively high numbers employed in fishing (18% and 17% of fishers) have only relatively low levels of employment in processing (accounting for 7% and 3% of processing employment). This is the converse of the situation in Germany, which has a relatively large processing sector of 11,280 (13% of the EU processing employment), compared to employment in fishing of only 2,932 (1% of fishers).

Despite expansion of the EU, employment in fish processing fell from 104,316 in 1990 to 89,468 in 1998 (a decline of just over 14%). Portugal and Denmark experienced the largest apparent declines in employment in processing. Significant declines were also suffered in Italy, France and the UK (around 20% over the period). Spain experienced a lesser decline (around 12%) and numbers employed in fish processing appear to have increased slightly in Belgium and in Germany.

#### *1.2.5. Dependency of the processing sector on the EU fishing industry*

Whereas numbers employed in processing have fallen by 14%, employment in fishing has declined by 21% over the same period. In many sectors of the EU processing industry there is no directly proportional link between employment at sea and employment in processing. It is known that the EU imports substantial quantities of fish to be used as raw material for processing and the importance of imported raw material in sustaining employment in the fish processing industry is recognised by the Common Fisheries Policy in the establishment of import tariffs for fishery products.

Some of the major imports are white fish fillet blocks, herring, tuna for canning and frozen crustacea. Overall, only an estimated 53% of processing jobs appeared to be dependent on EU landings in 1996/97. Sectors of the EU processing industry which are considered to be still substantially dependent on EU landings are tuna and sardine canning, and the primary processing of white fish.

The tuna canning sectors of Spain, France and Portugal are respectively substantially dependent on EU landings into Galicia, Brittany and the Azores. The Italian tuna canning industry is considered to be exceptional, since it is now almost 100% dependent on imported raw material from third countries.

Sardine canning provides employment linked exclusively to local landings in Spain (Huelva in the South), Portugal (Mainland) and France (Brittany and Bay of Biscay). In Italy about 35% of fish processing employment is linked to local landings, mainly in the sardine canning and anchovy conserving sectors.

In most of the more northern EU countries such as Belgium, Germany, Denmark, Sweden, and in parts of the UK, the EU-landing related employment in processing is limited to primary processing of whitefish and some shellfish processing (e.g. shrimp processing in Netherlands and Denmark). In Germany, nearly 100% of the processing inputs (fillet blocks and herring) are imported, and there are few, if any links to landings. In Belgium also, the larger industrial processors rely on imports. In Denmark although the fish meal industry does rely exclusively on local landings, it provides little employment relative to the volume of material processed.

#### *1.2.6. Employment in other fisheries related activities*

The aquaculture sector accounts for 61,898 of the fishery-related jobs in the EU (about 15%) and more than 80% of these are in marine aquaculture. Spain and France are the two countries with substantial employment in marine aquaculture, with 14,500 employed in the former and 14,055 in the latter, between them accounting for 57% of employment in the marine aquaculture sector. Most of these jobs are in the culture of bivalve mollusca. Italy also has substantial employment in this activity (8,665 jobs). Greece and UK (in particular Scotland) are the two regions where there is a substantial production of fish (seabass/ seabream and salmon respectively). Here employment is lower at 2,910 (5.8% of EU employed in the sector) and 1,617 (3.24%) respectively, despite the relatively higher value of production. Inland aquaculture in the EU employs 11,569, with the major centres of employment found in Germany (2,825), Austria (2,300) and Italy (2,142). Although all other regions have some employment in this activity, France is the only other country in which employment exceeds 1000.

Inland fishing accounts for only 2.3% of fishery sector employment. However there is no data for some regions and under-recording is suspected in the regions where zero employment is reported. Greece (2,701 employed), France (2,501 employed), Portugal (1,939 employed) and Finland (995) are the regions in which substantial numbers are recorded.

#### *1.2.7. Women in EU fisheries*

An estimated 84,000 jobs in the fisheries sector were held by women throughout the EU in 1998, as indicated in Table 13. Even in fishing, which is traditionally regarded as a male preserve, women hold about 6% of the jobs. Female participation is recorded in harvesting of bivalve molluscs in Spain and Portugal, in an on-shore capacity in fishing enterprises in Belgium and Spain, and in gear repair and preparation in Greece. Women also hold the majority of jobs in fish processing (53,000 employed) and also fill an estimated 30% of the 47,000 jobs in aquaculture, especially those related to the production of bivalve mollusca.

The proportion of women in fish processing jobs shows some regional variations, the highest levels being in Italy (about 87%). Employment of women in the Portuguese processing sector is also high (over 70%). Lower levels of female employment in the sector are found in the Netherlands (39%) and Greece (32%). High levels of female employment are particularly associated with the (labour intensive) processing of canned tuna and sardines. It is important to note that these sectors of the



processing industry are those which are most dependent on EU landings for their raw material inputs.

### *1.2.8. Employment multipliers*

All industrial activities support jobs in related up- and down-stream industries. Employment multipliers give a measure of the relative numbers of dependent jobs in these related industries. In the EU fishery sector, it has been estimated<sup>11</sup> that for every job at sea, there are a further 0.8 related jobs on land. However, there are many land-based fisheries jobs that are not at all related to fishing (such as processing of imported raw material, aquaculture and inland fisheries). When these jobs are included, for every fishing job at sea, there are, on average, a further 1.15 jobs directly related to fisheries on land. The apparent employment multipliers are notably higher by a factor of 3 or 4 in Netherlands, Belgium Germany and Denmark compared to countries such as Greece, Spain and Portugal. The former countries are characterised by relatively low fleet employment in labour-efficient, capital intensive fishing operations, and a high level of processing employment, mainly in enterprises utilising imported raw materials. These regions therefore show relatively higher apparent employment multipliers, even though the real linkages between the jobs in fishing and jobs on land are much weaker than in the regions with lower apparent values.

## **2. REGIONAL PROFILES**

### **2.1. Austria**

The Austrian fishery sector is small, comprising of fish farming and inland fishing only. The production from aquaculture (which concentrates on carp and trout) was 4,274 tonnes (value about € 12.7 million) in 1997 and the sector provided employment for some 300 full-time employees, 500 part-time jobs and around 1,500 seasonal jobs. There are a further 100 people employed in processing and related activities. In 1998, inland capture fisheries produced 454 tonnes, with a value of €2.7 million. Employment extended to about 150 part-time jobs.

### **2.2. Belgium**

In 1998 the Belgian fleet consisted of 148 vessels with a gross tonnage of 23,082 GT and power of 64,896kW. The average size of vessel is relatively higher than the rest of the EU fleet, with some 57 vessels longer than 30m. A significant part of the Belgian fleet is under Dutch ownership. Since 1991 the Belgian fleet numbers have dropped from 205 vessels to 148 vessels, corresponding to a 25% decrease in vessel numbers. Vessel numbers in 1998 fell by 4 compared to 1997 figures. Belgian vessels caught about 30,325 tonnes of fish in 1998 (value € 103.4 million). Of this 72% was landed in Belgian harbours whilst the rest was sold at foreign auctions (mainly in Netherlands). The Belgian fishing sector provided employment for 745 people in 1997, of which 87 were estimated to work part time. Employment in fishing is largely concentrated around the Brugge region, where 410 fishers were located.

There is no coastal aquaculture in Belgium although pilot projects for turbot and oyster farming have started recently. The Belgian inland aquaculture (trout and carp production) provided

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<sup>11</sup> by the 'Regional Socio-economic Studies on Employment and the Level of Dependency on Fishing'

employment for 137 people. About half (64) of these worked part time. Inland fisheries yielded 511 tonnes in 1998, but numbers employed in the sector are not significant.

Processing output was € 236.6 million in 1997. The larger processing firms are generally not dependent on local landings but rely on imports of frozen fish. In 1997 there were 1,261 people employed in the Belgian processing industry; this number includes wholesale traders and importers due to the fact that small scale processing and wholesaling are substantially integrated. Employment is concentrated in the Oostende and Brugge region. It is estimated that almost half (569) of the workers are female.

### 2.3. Denmark

In 1998 the Danish fleet consisted of 4,648 vessels with a gross tonnage of 97,932 GT and power of

380,877 kW. Of the total, 70% of fishing vessels are less than 10 metres in length and only 5% over 20m in length. Total numbers of crew and skippers employed on fishing vessels was 6,361 people in 1998 (see Table 14). The larger vessels in the Danish fleet target herring for human consumption and sprat destined for fishmeal. Traditional fishing grounds are located in the North Sea Skagerrak/Kattegat and the Baltic Sea, with the main fishing ports located along the North and West coast of Jutland. Bornholm Island in the Baltic Sea is the centre for landing from the Baltic Sea. Cod, flatfish, *Nephrops*, mackerel and herring account for more than 60% of the value of landings in Danish ports.

**Table 14: Employment in the Danish fishery sector, 1998**

	Full time	Total
Fishing	2710	6361
Smoking	1250	1931
Processing	4323	5220
Fishmeal	433	499
Wholesale	2282	3399
Retail	335	901
<b>TOTAL</b>	<b>11333</b>	<b>18311</b>

**Table 15: Landings of fish in Denmark by source and destination, 1998**

Destination	Danish vessels		Other EU vessels		Foreign vessels		All vessels	
	Tonnes	€	Tonnes	€	Tonnes	€	tonnes	€
Human consumption	355,965	295,017,935	79,670	41,724,694	122,259	65,709,066	557,894	402,451,695
Fishmeal	1,106,682	152,389,690	145,165	17,051,992	95,844	11,684,424	1,347,691	181,126,105
Total	1,462,647	447,407,625	224,835	58,776,686	218,103	77,393,490	1,905,585	583,577,801

Source: Directorate of Fisheries, 1999. Yearbook of Fishery Statistics 1998. Danish Ministry of Fisheries

Landings in Denmark in 1998 are shown in Table 15. Total landings were 1.9 million tonnes with a value of €583 million. Of this total, 70% is destined for reduction to fishmeal and oil. Landings by other EU and non-EU vessels in Danish ports are also significant, and are principally made by Sweden (mainly of fish for industrial purposes) and the United Kingdom.

In 1998 32,607 tonnes of fish was produced from freshwater aquaculture, and 7,089 tonnes of trout was produced in marine culture systems. Estimated employment in marine aquaculture was 200-300 in 1997. This figure includes slaughter, gutting filleting, cooling/freezing and packing and sales for further processing. It is estimated that 613 people are employed in freshwater trout production. A further 85 people (FTEs) are estimated to be employed in eel farming. The inland fishery is estimated to provide employment for 5 people or less (FTE).

The Danish processing industry is highly capitalised. In 1998 there were a total of 193 fish processing and preservation factories with a total production output value of €1.19 billion. The processing industry (all sectors including fishmeal) in Denmark employed a total of 7,650 people in 1998.

#### **2.4. Finland**

In 1998 the Finnish fleet comprised of 3,979 vessels with a total capacity of 24,170 GRT and power

of 219,745 kW. The majority of these vessels were small with an average size of 6 GRT and power of 55kW. In terms of numbers, the coastal fishery constitutes the largest segment with 3,640 vessels. In terms of volume and value of catches the pelagic trawler segment (which consists of 239 vessels) is the most important. This segment targets herring and sprat and operates throughout the Baltic Sea but the main fishing grounds are in the Bothnian Sea.

Key features of the Finnish fisheries are shown in Table 16. In 1998, there were 2,950 registered fishers, of which about 1,000 are full-time. For Finland as a whole 92% of the fishing workforce is male; however in some areas, such as Varsinais-Suomi the percentage of female fishers is as high as 18%.

In 1998 the Finnish catch totalled 115,178 tonnes valued at €20.3 million. In terms of volume and value the Baltic herring was the most important with total landing of 85,545 tonnes valued at €11.9 million. Other important species were salmon, vendace, sprat and cod.

**Table 16: Outputs and employment in Finnish fishery sector, 1998**

Activity	Production		Employment
	Tonnes	€ million	
Marine fishing	115,178	20.3	2950
Marine aquaculture	13,269	32.1	381
Inland aquaculture	2,755	6.7	270
Inland fishing	4,568	5.8	995
Processing	38,711 <sup>1</sup>	80.0	560

*Source: Professional Marine Fishery 1998 and Professional Inland Fishery 1998; Finnish Game and Fisheries Research Institute 2000*

<sup>1</sup> raw material usage

Coastal aquaculture is concentrated in South-western Finland and produced 13,269 tonnes, mainly rainbow trout, in 1998. Inland aquaculture produced a further 2,755 tonnes. The aquaculture industry employed 651 people. Freshwater fisheries in Finland yielded 4,568 tonnes of fish (€5.8 million) with the main species fished being vendace. There are almost 995 registered commercial fishers in inland waters, but for only 230 of these was fishing the principle source of income.

In 1998 there were around 172 establishments engaged in fish processing. The industry is highly concentrated with the 10 largest companies accounting for over 50% of the production volume. The total amount of fish (mainly Baltic herring and farmed rainbow trout) processed for human consumption was 38,711 tonnes, of which 85% tonnes was domestic production and the rest was imported raw material.

## 2.5. France

In France there were 8,836 registered fishing vessels in 1998, with a tonnage of 209,460 GRT and power of

1,141,528 kW. Around 75% of the vessels were less than 12m in length. Fishing employed an estimated 19,136 (FTE) persons in 1998, including 3,687 professional fishers in the Overseas

Departments of Guadeloupe, Martinique, French Guyana and Réunion (where there is also a large informal fishing sector for which there are no statistics).

The main production and employment data relating to the French fishery sector are shown in Table 17.

**Table 17: Outputs and employment in French fishery sector, 1998**

Activity	Production		Employment
	Tonnes	€ million	
Marine fishing	550,198	932.4	19,163
Marine aquaculture	208,065	359.1	14,055
Inland aquaculture	57,706	151.6	1,213
Inland fishing	4,540	14.4	2,501
Mareyage	N/a	1,367.0	4,007
Secondary processing <sup>1</sup>	400,900	2,100.6	11,899
Auctions	N/a	652.9	819

*IFREMER, Données économiques maritimes françaises*

<sup>1</sup> 1997

Marine capture fisheries landed a total of 550,198 tonnes valued at €932.4 million in 1998. Around 18% of the value landed was in frozen form (processed at sea). In addition the Overseas Departments recorded landings of 27,008 tonnes in 1998.

Processing is split into primary processing and wholesaling (*mareyage*) and secondary processing. The output value of *mareyage* in 1998 was recorded as €1.4 billion. This activity employed 4,007 people registered in over 300 enterprises, with the majority (42%) being located in Brittany. Secondary processing in 1997 produced a further €2.1 billion of output value and employed 11,899 people in 173 enterprises. Auction hall and fish market employment in 1998 totalled 819 FTE in 43 establishments and sales amounted to €652.9 million.

## 2.6. Germany

In 1998 the German fleet consisted of 2,373 vessels with a gross tonnage of 75,103 GT and power of 171,457 kW. Of the total, 76 % of fishing vessels were less than 10 metres in length and

only 5% over 20m in length. The majority of the vessels (approximately 1,800) were small coastal fishing boats under 12 metres in length, fishing for demersal species and herring in the Baltic and North Seas. The deep-sea segment based in Bremerhaven, Cuxhaven and Rostock consisted of 12 vessels, and fishes in EU and international waters. The cutter segment accounted for another 477 vessels. A majority of the vessels within this segment are beam trawlers, fishing for flatfish and shrimps in the North Sea.

The main production and employment data relating to the German fishery sector are shown in Table 18.

**Table 18: Outputs and employment in German fishery sector, 1998**

Activity	Production		Employment <sup>1</sup>
	Tonnes	€ million	
Marine fishing	94,272	84.4	2,932
Marine aquaculture	22,405	11.5	40
Inland aquaculture <sup>1</sup>	36,664	88.0	2,825
Inland fishing <sup>1</sup>	52,338	N/a	329
Processing <sup>1</sup>	N/a	1,273	11,280

*Source: Bundesministerium für Ernährung, Landwirtschaft und Forsten, 1999. Annual Report on German Fisheries 1999, BMELF infomiert*

<sup>1</sup> indicates 1997 data

In 1998 the German fleet landed 94,272 tonnes of fish; the most important catches were cod (10,398 tonnes) and brown shrimp (11,151 tonnes). Most fishers are full-time. Employment in the ancillary industries such as construction and repair of fishing vessels was estimated to total 633 in 1997. Coastal aquaculture consists of mussel production, and the number employed is likely to be under-estimated in the above table. Inland aquaculture production (mainly trout and carp) employed 2,825 persons in 1997, in the production of nearly 37,000 tonnes of trout and carp. The total catch from inland fisheries in 1998 was 52,338 tonnes, mainly of vendace, pike and pike-perch.

Germany has a large fish processing industry with a total production output value of 1,273 million € in 1997. The processing industry is relatively independent of the German and EU landings, as it relies largely on imported raw materials from third countries, and in particular, Norway. The North Sea centres of Bremerhaven, Cuxhaven and Hamburg account for almost 70% of the 11,280 processing jobs recorded in 1997.

## 2.7. Greece

In 1998 the Greek fleet consisted of 20,243 vessels with a gross tonnage of 111,933 GT and power of 654,199 kW. An estimated 94% of registered vessels are less than 12m in length. Between 1991 and 1997 there was an 8% decrease in the number of vessels. The decrease in the number of smaller boats was relatively modest, less than 2%, but the trawler segment experienced a 23% decline, and vessels fishing in the Atlantic a 55% decline.

The main production and employment data relating to the fisheries sector are shown in Table 19.

**Table 19: Outputs and employment in the Greek fisheries sector, 1997.**

Activity	Production		Employment
	Tonnes	€ million	
Marine fishing	124,386	458.2	41,251
Marine aquaculture	52,263	169.4	2,910
Inland aquaculture	2,684	8.7	254
Inland fishing	16,000 <sup>1</sup>	N/a	2,701
Processing	N/a	89.8	2,409

Sources:

<http://www.statistics.gr/en/data/tables/table78.htm>

*Regional Socio-economic Studies on Employment and the Level of Dependency on Fishing, (Lot 11 - Greece), European Commission, Directorate General for Fisheries, 1999*

<sup>1</sup> Data for 1998

Landings totalled some 124,386 tonnes in 1997. Of the 41,251 employed in marine capture fishing, an estimated 81% work in inshore fisheries, 17% in the offshore fisheries and 2% overseas<sup>12</sup>. An estimated 8% of the fishing sector workforce are female, engaged in net repair and gear preparation. Marine farming of bass and bream is a significant economic activity in Greece. About

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<sup>12</sup> Regional Socio-economic Studies on Employment and the Level of Dependency on Fishing; Lot No.11: Greece, Final Report, MacAlister Elliott and Partners, 1999.

65% of the production of 52,263 tonnes is exported, mainly to Italy. Fish processing is relatively less important in Greece than in other EU Member States. The majority of the fish processing takes place in Thessaloniki, Attica and Kavala. Most processing facilities are old and rely on both local production and imports from abroad. The processing sector in Greece provided employment for 1,455 full time and 954 part time workers. Women made up 32% of those employed in this sector.

## 2.8. Ireland

In Ireland there were 1,246 registered fishing vessels in 1998. Total tonnage in the fleet in 1998 was 61,082 GRT with a power of 190,625 kW. Approximately 70% of all registered vessels are classed as inshore vessels (less than 15m in length and operating within 12 miles of the coast).

The main production and employment data relating to the fisheries sector are shown in Table 20.

**Table 20: Outputs and employment in the Irish fisheries sector, 1998.**

Activity	Production		Employment
	Tonnes	€ million	
Marine fishing	324,843 <sup>1</sup>	193.9	6,274
Marine aquaculture	39,980	77.3	2,198 <sup>2</sup>
Inland aquaculture	1,799 <sup>2</sup>	4.6 <sup>2</sup>	N/a
Inland fishing	895	3.4	150
Processing	145,000	285	2,746

Sources: Department of Marine and Natural Resources, 1999. Fishery Statistics, 1998. Central Statistics Office, Ireland.

<http://www.cso.ie/principalstats/pristat6.html>

<sup>1</sup> excluding oysters, clams and farmed mussels

<sup>2</sup> 1997 data

The number of fishers employed in marine capture fishing in 1997 totalled 6,274 (5,494 FTEs). The majority of these fishers were located on the West Coast of Ireland. Over half of Ireland's fishers are classified as working in inshore fisheries. Total landings volume increased from 225,000 tonnes in 1989 to 324,843 in 1998. Approximately 22% of landings (by value) were made into



foreign ports, mainly in Northern Ireland. The Irish fleet targets a variety of species; the main ones are cod, whiting, herring, horse mackerel, mackerel, crab, *Nephrops* and lobster. In recent years demersal and pelagic species have been equally important in value terms, but with the bulk of the landings coming from the pelagic sector.

The Irish marine aquaculture industry has grown from a production of 5,815 tonnes (€3.3 million) in 1980 to 39,980 tonnes, worth €194 million, in 1998. Production of salmon has accounted for 82% by value of this expansion. Rope culture of mussels and oyster production have also steadily increased; shellfish production was recorded as 23,200 tonnes (€17 million) in 1998. In 1997 marine aquaculture sector provided employment for 2,198 persons (estimated to be 1,092 FTEs). There are approximately 150 people employed in fishing for eels in inland waters.

The Irish fish processing industries had a throughput of 145,000 tonnes in 1998 with a total value €285 million. Ireland is a net exporter of fish products, with exports predominately in mackerel, horse mackerel and salmon. The processing sector employed 2,746 people in 1998; 57% of these workers are part-time and the largest concentration of processing employment is in County Donegal, where over 1,000 people are involved.

## **2.9. Italy**

In 1997 the Italian fleet consisted of 16,325 vessels with a gross tonnage of 260,603 GT and power of 1,513,677 kW. Many of the vessels are small; some 87% are less than 25 GT. Only 5% of vessels are less than 5 years old.

The main production and employment data relating to the fisheries sector are shown in Table 10. In 1997 the Italian fleet landed 441,241 tonnes of fish valued at €1,523.6 million. Around 85,000 tonnes of the landings were molluscs. The landings of the purse seining fleet consisted mainly of sardines and anchovies, about half of which go to processing. The catch from the smaller vessels is mainly for human consumption, comprises a wide variety of species, and is often sold direct to local fish markets or to restaurants without processing or going through wholesalers. The main centres of the fishing industry are Napoli, Venezia, Bari and Trapani.

**Table 21: Outputs and employment in the Italian fisheries sector, 1997.**

Activity	Production		Employment
	Tonnes	€ million	
Marine fishing	441,241	1,523.6	43,289
Marine aquaculture	157,719	221.4	8,665
Inland aquaculture	54,200	135.6	2,142
Inland fishing	10,393	N/a	N/a
Processing	N/a	582.2	6,447

*Source: Regional Socio-economic Studies on Employment and the Level of Dependency on Fishing, (Lots 12,13 and 14 - Italy), European Commission, Directorate General for Fisheries, 1999*

Mussel, eel, seabass and seabream are the main species farmed in marine aquaculture, whilst inland aquaculture consists mainly of trout farms, which are relatively small (with on average only 2 or 3 people working at each). Some carp and tench is also produced. Inland fishing is relatively unimportant, with an output of just over 10,000 tonnes.

The Italian fish processing sector is broadly divided into small scale artisanal processing and larger scale industrial processing. There were 393 processing firms in Italy in 1997, plus 40 industrial canning firms, concentrating on tuna and sardines. Production of processed tuna products amounted to 34,000 tonnes in 1997. Anchovy processing occurs mainly on the Adriatic coastline. The tuna-canning sector is coming under pressure from cheaper third country imports, and many factories now use frozen imported loins to reduce labour costs. Sardine processing is also under pressure from imports; production in 1997 was only 2,000 tonnes. In 1997 the processing sector provided employment for 6,447 people. In contrast to the harvesting sector, many of these are women (up to 87% in the case of Sardinia and Sicily) and significant numbers are part time workers (in some regions up to 28% of the total employed).

### **2.10. Luxembourg**

The Luxembourg fishery sector is very small, comprising only of one fish farm (employing 5 persons) and some importers.

### **2.11. Netherlands**

In 1998 the Dutch fleet consisted of 1,040 vessels with a gross tonnage of 174,344 GT and power of 482,263 kW. The fleet included 416 cutters, 14 distant water freezer trawlers and 22 inland cockle vessels. Since 1991 the cutter fleet has decreased by 25% in number (from 556). In

addition, vessel numbers in the cockle fleet have halved, but the number of freezer trawlers has increased by 1 vessel. Dutch vessels are large relative to the fleets of some other EU Member States; some 55% of vessels are over 24 metres in length.

The main production and employment data relating to the fisheries sector are shown in Table 22.

**Table 22: Outputs and employment in the Irish fisheries sector, 1997**

Activity	Production		Employment
	Tonnes	€million	
Marine fishing	546,477 <sup>1</sup>	358.1	2,572
Marine aquaculture	95,640	60.5	312
Inland aquaculture	2,000	15.3	92
Inland fishing	2293	N/a	530
Processing	N/a	464.5	6,051 <sup>2</sup>

*Source: Regional Socio-economic Studies on Employment and the Level of Dependency on Fishing, (Lots 16- Netherlands), European Commission, Directorate General for Fisheries, 1999*

*Personal Communication, Central bureau of Statistics, 2000*

<sup>1</sup> 1998

<sup>2</sup> includes 2,751 employed in fish distribution

In 1998, landings amounted to 546,477 tonnes (70% of which was landed by the cutter sector). The main species were herring, horse mackerel and mackerel. High value landings include cod, plaice and sole. In 1997, there were 2,572 people employed in the capture-fishing sector in the Netherlands. The majority of these fishers (1,880) were employed onboard cutters.

Mussel production is the main marine aquaculture activity and, along with some oyster cultivation, provided employment for 312 people in 1997. A total of 92 people (of whom 11 are female) are employed in inland aquaculture production. One third are part time. The main species produced are eel and catfish. Inland fishing (mainly for eels) employs 530 persons (on the IJsselmeer and in inland waterways and lakes). In 1997 there were an estimated 6,051 involved in the processing and distribution sectors. About one third of process workers are women. The main activities are in the processing of flat fish and shellfish.

## **2.12. Portugal**

In 1998, in mainland Portugal there were 11,579 registered vessels with a tonnage of 123,923 GT and power of 393,671 kW. This includes 2,214 vessels registered in the Azores Islands and

Madeira. Multipurpose vessels comprise the majority of the fleet (96%). Most vessels of this type are small (with an average size of 4 GRT and power of 19.5 kW) and catch a wide range of species using different gears in almost exclusively coastal operations.

The main production and employment data relating to the fisheries sector are shown in Table 23.

**Table 23: Outputs and employment in the Portuguese fisheries sector, 1998**

Activity	Production		Employment
	Tonnes	€million	
Marine fishing	189,529	252.4	27,197
Marine aquaculture	7,081 <sup>1</sup>	47.5 <sup>1</sup>	5,257
Inland aquaculture	1,700 <sup>1</sup>	6.2 <sup>1</sup>	83
Inland fishing	1,320	3.1	1,939 <sup>3</sup>
Processing	149,820 <sup>2</sup>	503.7	6,294

Sources: *Estatísticas da pesca 1999*, INE 2000 and *Departamento de Emprego Trabalho e Formação Profissional, 2000*

<sup>1</sup> 1997 data

<sup>2</sup> finished product

<sup>3</sup> 1996 data

Landings for Portugal Mainland were in the region of 164,313 tonnes and those in the Portuguese islands were about 25,216 tonnes in 1998. The most important landings are sardine (19%), octopus and cuttlefish (13% of value of mainland landings). Tuna accounts for half the catch in the Islands. There were 21,402 fishers registered in Portugal Mainland in 1999, 3,966 in the Azores (60% on the island of Sao Miguel) and 1,292 in Madeira.

In the south of Portugal, marine aquaculture is undertaken by *viveiros* who manage the natural production of clams in estuarine waters; there were about 4,800 people involved in this sector, mostly situated in the South. In addition there are 130 finfish enterprises on the mainland providing employment for 457 people. Production is mostly of seabass and seabream. Freshwater aquaculture involved 27 freshwater fish farms employing a total of 83 people. In 1996, there were 1,939 professional fishing licences issued to inland fishers in Portugal. There are no significant aquaculture or inland fishing activities on the island groups of Azores and Madeira.

In 1997 there were 136 processing establishments on the mainland, of which 29 produce canned or other preserved fish, and the remainder undertake processing and distribution of salted, fresh and frozen fish.

Processing is dominated by the production of *bacalhau* (dry salted cod), which account for 37% of output volume and 46% by value (and almost exclusively, uses imported raw material). Total value of processing output (sales) in 1998 was €503.7 million, corresponding to 138,653 tonnes of finished product. Industrial canning on the mainland uses mainly imported tuna, and in the Azores uses both locally caught and imported fish.

### 2.13. Spain

In 1998 the Spanish fleet consisted of 17,972 vessels with a gross tonnage of 589,359 GT and power of 1,474,421 kW. Although it has fewer vessels than Greece, Spain has one of the largest fishing capacities in the EU, accounting for 29% of tonnage and 18 % of power. The greatest part of the Spanish fleet is made up of inshore vessels, with 76.5% of vessels being less than 12m in length in 1998.

The main production and employment data relating to the fisheries sector are shown in Table 24.

**Table 24: Outputs and employment in the Spanish fisheries sector, 1997**

Activity	Production		Employment <sup>2</sup>
	Tonnes	€million	
Marine fishing	964,603 <sup>1</sup>	1,842.5 <sup>3</sup>	68,297
Marine aquaculture	208,427	168.6	14,500
Inland aquaculture	25,266	43.4	300
Inland fishing	10,000	N/a	N/a
Processing	N/a	2,241.2	15,449

*Source: Regional Socio-economic Studies on Employment and the Level of Dependency on Fishing, (Lots 4,5 and 6 - Spain), European Commission, Directorate General for Fisheries, 1999 and Instituto Nacional de Estadística, 1999. Encuesta Industrial de Productos de 1998. INE.*

<sup>1</sup> Excludes non-EU landings (124,000t)

<sup>2</sup> 1996 data

<sup>3</sup> Estimates based on 1996 unit values

In 1996, recorded fish landings were 964,603 tonnes. The main centres are Galicia, Huelva and Cadiz, and the Canary Islands. The catches are characterised by a wide range of species, reflecting the global reach of the Spanish fleet. Tuna is caught in the Indian Ocean and West Africa; South Atlantic fisheries yield hake and squid, and the North Atlantic, cod, halibut and redfish. In the Mediterranean, the main landings by volume are of mackerel, horse mackerel and sardine. In 1996 there were 68,297 fishers in Spain (include shore-based employees of fishing companies). By far the heaviest concentration of these fishers is in the region of Galicia where there 25,710 fishers, one the main European centres of the fishing industry. Collection and culture of shellfish also employs a large number of persons in Galicia, where in 1996, over 9,000 licences were issued to individuals for collection of shellfish.

Marine aquaculture is dominated by the small-scale culture of mussels, which is an important source of employment for an estimated 14,500 persons, again mainly in Galicia. Marine aquaculture in other regions is limited to relatively few mollusc and cage culture sites. Professional inland fishing is not pursued extensively in Spain. Inland aquaculture comprises mainly of trout production. An estimated 300 persons are employed in Northern Spain in this activity.

Traditionally the Spanish fish processing sector was based on fish canning (mainly tuna and sardine). Nowadays, however, the production of frozen value added fish products is the major activity. In 1996, there were 15,449 persons employed in the fish processing sector; more than 79% were located in Galicia and the Basque country. An estimated 56% of employees in fish processing are women.

#### **2.14. Sweden**

In 1998, the Swedish fleet comprised of some 2,123 vessels. Around 60% (by tonnage) of the vessels were located in the West Coast area of West Goetland, fishing both in the North Sea and the Baltic. In 1998 the Swedish landings amounted to 400,945 tonnes valued at €117.2 million, mostly from the Baltic Sea. In terms of value, cod was the most important species accounting for about 30% of the value. Catches of fish targeted for reduction to fishmeal and oil (mostly Baltic herring and sprat) amounted to 80% by volume, but only 30% by value of the catch. Around 35% of catches by Swedish vessels are landed abroad, mostly in Denmark. In 1999 there were 2,132 commercial fishers in Sweden.

Marine aquaculture in Sweden comprises blue mussel production (1,425 tonnes) and cage farming of rainbow trout (5,040 tonnes, which includes some fresh water production of this species). The production value of the aquaculture sector was €13.9 million. In 1998 the total number of persons employed in aquaculture amounted to 794 people. There are also about 221 commercial fishers on Swedish inland waters. The main species caught are pike, perch, vendace species, eel and crayfish.

There were 160 processing establishments in Sweden in 1997, mainly processing cod and herring. The Swedish processing industry imports 55% of its raw material, which includes substantial amounts of frozen whitefish fillet blocks. Total production value in 1997 was €346.8 million. The processing sector in Sweden employs 1,933 persons and women make up 52% of the persons employed.

## 2.15. United-Kingdom

In 1998 the United-Kingdom's fleet consisted of 8,658 vessels with a gross tonnage of 253,409 GT and power of 1,047,690 kW. Of these vessels 63% were less than 10m in length. In England, the largest concentration of vessels is in the Southwest and Humberside, and in Scotland the main centres are Peterhead and Fraserburgh.

The main production and employment data relating to the fisheries sector are shown in Table 25.

**Table 25: Outputs and employment in the UK fisheries sector, 1997**

Activity	Production		Employment
	Tonnes	€million	
Marine fishing <sup>1</sup>	613,900	803.0	17,847
Marine aquaculture	113,425	350.9	1,617
Inland aquaculture	16,109	33.6	850
Inland fishing	1,481	N/a	N/a
Processing <sup>2</sup>	433,000	873.0	18,140

Sources:

MAFF, 1999. *Sea Fisheries Statistics, 1998*. United-Kingdom Government Statistical Service, The Stationery Office.

Department of Agriculture and Rural Development, Fisheries Division, 2000. *Sea and Inland Fisheries Report 1998*.

Department of Agriculture and Rural Development, Fisheries Division, 2000. *Marine Aquaculture and Trout Production*.

<sup>1</sup> Excludes non-EU landings (205,000t)

<sup>2</sup> 1997

In 1998, total landings were 613,900 tonnes. The main species caught were haddock (83,400 tonnes), cod (77,200 tonnes), mackerel (179,700 tonnes) and herring (104,600 tonnes). The main landing sites were Peterhead (112,100 tonnes) and Lerwick (66,500 tonnes), in North East Scotland and the Shetland Isles respectively. UK vessels land over 40% of their catch in other countries (mainly Denmark, Norway and Germany); this includes substantial volumes of pelagic fish and shellfish caught by Scottish vessels. Employment within the UK capture fishing sector totals 17,847 (including 14,394 full-time and 3,453 part-time fishers).

The main marine aquaculture activity is salmon farming, which takes place in West Scotland and Shetland Islands. Production of this species in 1997 was 99,197 tonnes, value €339.4 million. In

addition there was some mussel production in England and Wales (about 13,000 tonnes per annum). The marine aquaculture industry in Scotland employs 1,617 people, of which 1,183 are full-time and 434 are part-time. Inland aquaculture in the UK is mainly trout farming. In 1998 this produced 16,109 tonnes and employed about 850 FTE in England and Wales. Freshwater aquaculture in Scotland consists of both trout production and salmon smolt production.

The UK has one of the EU's largest fish processing industries. Demersal species account for 83% of the total volume of fish (433,000 tonnes) processed in England and Wales. The main processing activities include primary processing of white fish derived from North Sea fisheries and value added processing of fish and shellfish. Salmon processing is also a significant activity in the West of Scotland. The main locations for the fish processing sector are Humberside in North of England and NE Scotland. In 1997 the processing industry in the UK employed 18,140. About 9,598 were employed in England and Wales (mainly Grimsby, with 2,300 FTEs) and about 8,500 were employed in Scotland. An estimated 83% of jobs are full time; women occupied an estimated 49% of all jobs in this sector.