COMMISSION OF THE EUROPEAN COMMUNITIES

Directorate-General for Fisheries

Regional Socio-economic Studies on Employment and the Level of Dependency on Fishing

Lot No.23: Coordination and Consolidation Study

EXECUTIVE SUMMARY

MegaPesca Lda. Portugal

in collaboration with

Centre for Agricultural Strategy, UK

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LIST OF ACRONYMS USED

ACP	African Caribbean and Pacific (Lome Convention) Countries
CFP	Common Fisheries Policy
ERDF	European Regional Development Fund
ESF	European Social Fund
FDA	Fisheries dependent Area
FIFG	Financial Instrument for Fisheries Guidance
FT	Full-time
FTE	Full-time equivalent
GRIT	Generation of Regional Input-output Tables
MAGP	Multi-Annual Guidance Programme
MS	Member State (of the European Union)
NGO	Non-Governmental Organisation
NUTS	Nomenclature of Territorial Units for Statistics
PO	Producer Organisation
PT	Part time
SWOT	Strengths, weaknesses, opportunities and threats
TAC	Total Allowable Catch
TTWA	Travel to Work Area
WTO	World Trade Organisation

DEFINITIONS OF KEY TERMS

Aquaculture	The managed reproduction and/or on-growing of fishery products.
Common Fisheries Policy	A collection of market, structural and conservation policy measures implemented at Community level by the EU
Employment Multiplier	A factor applied to the number employed in an activity which provides an estimate of the number of up- and down-stream jobs which are dependent on that activity.
Financial Instrument for Fisheries Guidance	An EU structural fund designed to support the structural component of the Common Fisheries Policy
Fisheries	The exploitation of living aquatic resources
Fishery products	Fish, mollusca and crustacea obtained from fishing and/or aquaculture (including shellfish culture and farming in fresh, brackish or seawater); also includes sea algae, sea urchins, sponges and corals of economic importance
Fishing	The capture, harvesting or gathering of fishery products from the wild when pursued with a vessel and/or equipment designed for the purpose
Inland aquaculture	The aquaculture of freshwater or euryhaline species of fish, mollusca or crustacea in freshwater.
Inland fishing	Fishing in freshwater.
Marine aquaculture	The aquaculture of marine or euryhaline species of fish, mollusca or crustacea in brackish water or seawater, including land-based systems
Marine fishing	Fishing in the sea, estuarine or coastal lagoon waters
Multi-Annual Guidance Programme	An agreed programme of managed changes to the Community fishing fleet as measured by the fleet registers of Member States
Producer Organisation	A voluntary association of fishers or aquaculture producers formed for the purpose of ensuring improved marketing conditions for their production.

1 Introduction

In 1991 the European Commission Directorate General for Fisheries commissioned a number of studies on employment and dependency on fisheries throughout the Member States. A second series of studies was commissioned in 1998, for implementation during 1999. This report presents a synthesis of this second series of studies, which were undertaken by a number of institutions and consultants during 1998 and 1999. The report was prepared by Megapesca Lda., fisheries consultants in Portugal, as the party responsible for the coordination of the regional studies and the consolidation of their results.

One of the principal benefits of fisheries is the socio-economic impact on jobs and incomes, not just in fishing, but also in up- and down-stream activities. The fishery sector is subject to competitive pressures which impact on labour, as do regulatory requirements and resource and capacity management measures. In the European Union, as elsewhere, fisheries-related employment frequently falls in areas which have few other alternative economic activities and these impacts can have a disproportionately negative effect on living conditions. Present policy within the European Union is to compensate for these negative effects, and to provide support for alternative employment through investments in job creation and training programmes. It is vital that the areas whose local economies are the most dependent upon the fishery sector are identified in order that efforts to reduce the negative impact of the fleet reductions can be targeted effectively.

2 Objectives

The aims of this series of studies, which equate into four defined tasks, are to:

> Quantify and describe the socio-economic importance of fishing and aquaculture in Europe
> Determine the level of dependency on fisheries of these areas, in terms of jobs and incomes
> Examine the trends in evolution of employment since the 1991 socio-economic studies
> Examine the extent to which the socio-economic measures currently in place have been implemented, and the potential in the coastal areas for conversion and diversification of employment.

3 Methodology

The work was conducted by considering 22 separate fisheries regions. In each region four tasks were completed.

Task 1 provided an overview of the whole fishing industry in each region, covering the basic economic parameters of fleet structure, production, processing, on-shore infrastructure and ancillary trades (such as vessel construction and repair). Aquaculture (both coastal and inland) was also included. In all cases there was a focus on data relating to employment and value added.

Task 2 involved measuring three indicators of dependency. These were the share of fisheries activity in the value added of the area (**Ratio 1**), the share of fisheries employment in total regional employment (**Ratio 2**), and the share of catches subject to CFP quota management measures as a proportion of total catches (**Ratio 3**). Employment multipliers were also calculated where feasible, by creating local input-output models from national input-output tables. In addition to the quantitative indicators, case studies were undertaken in each of the 22 study regions. These helped to illustrate the different kinds of dependency which exist within the regions of the EU.

Task 3 was an examination of the changes over time in socio-economic parameters and levels of dependency since the previous study conducted in 1991.

Task 4 identified and commented on the types of socio-economic support measure available to the fishery sector in each region, the extent of their application and their actual and perceived effects,

taking into account the likely future trends in the fishery sector in each region. Recommendations were developed for improving these measures.

The minimum regional level was NUTS 3 (except for inland fisheries and aquaculture where NUTS 2 would be acceptable). However, data were also available at lower regional levels of disaggregation and many regions were able to provide data at NUTS 4 and NUTS 5 levels.

Apart from this report, one of the main outputs of these projects is development of dependency maps (and data tables) to illustrate graphically, at NUTS 3 levels (and lower regional levels of disaggregation where available), the regional values of the Ratios 1, 2 and 3, as well as other key economic indicators for the fishery sector. The maps are presented in separate volume (and also published on the internet at http://www.megapesca.com) along with a brief socio-economic profile of each study region.

4 Constraints and limitations of the study

Any EU-wide study of this nature will need to reconcile differences in data definitions and methodologies between regions. During the study two workshops were held in Brussels, attended by all of the consultants undertaking the regional studies, the coordination group and staff from DG Fisheries. The workshops assisted the development of a harmonised methodology across the study regions, and supported the development of methodological guidelines and standardised data tables.

4.1 Comparisons between regions

To enable comparison of regional dependency indicators, there is a need to ensure that the definition of areas within regions is consistent across study regions. One major problem experienced with this was that in some regions, the territorial divisions for which employment data were available were not NUTS-based. In the UK, the fishing employment data are collected on a port, rather than NUTS basis, and so fisheries dependency areas were based on TTWAs (travel to work areas). There was no option but to accept this regional definition in the UK study.

There was a second problem which relates to the fact that the area and population size of the NUTS 3 areas varies considerably between member states, and this affects the value of any dependency ratio. It is therefore important that the dependency ratios should be considered in the context of the total population of the areas to which they apply.

4.2 Definitions of fishery sector activities

Definition of different activities within the fishery sector was also problematic. Particular problems were experienced with the activities of *mareyage* in France (wholesaling and primary processing) and the production of mollusca in managed fisheries (such as *viveiros* in Portugal). After detailed consideration of which activities should be included in the numerators of Ratio 2, the following disaggregations and definitions were agreed:

Fishing	All fishing activities conducted from a vessel
Processing	All fish processing activities, including primary processing, but excluding *mareyage* and distribution activities
Marine aquaculture	Activities in the culture of finfish and bivalve mollusca when introduction of juveniles and/or feeding is conducted
Total fishery sector	All activities including the above, plus (where data available) inland fishing, inland aquaculture, vessel construction and repair, marketing and distribution (inlcuding *mareyage*) and gathering of bivalve mollusca.

4.3 Comparisons over time

A major constraint was also the regional disaggregation used in the previous 1991 studies, since for Task 3 it was necessary to maintain, as far as possible, comparability of data. The areas for which the 1991 study developed dependency indicators were extremely heterogeneous, with different regions reporting at different NUTS levels, such that in many cases the only common base for comparison was at NUTS 2 level.

In the 1991 studies, the capture fishing sector was examined separately, but all other fishing related activities were consolidated in an 'others' category. However, this category was frequently not fully defined. Where definitions were given it was clear that they varied significantly from one region to another. Except for fishing as such, this makes it very difficult, and in some cases impossible, to compare the employment data from the present studies with those previously undertaken.

5 Task 1: Brief Analysis of Fishing and Related Activities in the EU

As summarised in Table 1 in 1996/97 the EU fishery sector provided direct employment for a minimum of 526,000 people. However there are known under-estimations arising from the statistical limitations of the data on which the studies were based. It is possible to make a better estimate of fisheries dependent employment in the EU based on the average employment multipliers (of 1.1 dependent job linked to every fishing job) derived for marine fishing. This would suggest that the total number of jobs dependent on fisheries was likely to be in the region of 580,000 to 600,000 in 1996/97.

Marine fishing, with an output of about 6.3 billion ECU, accounts for the largest share of direct employment in the sector (251,600 recorded jobs). Fish processing provided employment for a further 96,250 individuals (with a gross output of 11.3 billion ECU). Aquaculture provided another 56,000 jobs and 80% of these were in marine aquaculture where bivalve mollusc culture provides the most employment. The inland fishing sector was small in comparison to marine capture and processing, employing only 9,597, although this is likely to be underestimated.

When viewed in terms of estimated numbers employed on a full-time equivalent basis, employment in the fleet sector is equivalent to 234,000, indicating the general low level of reliance on part-time work in the sector, and the dependence of fishers on fishing as their main source of income. Employment in processing of 96,250 is only slightly less dependent on part-time work, although there are some quite notable regional variations.

There is also a significant employment of women in the fishery sector, with an estimated 87,000 jobs held by women throughout the EU. Even in fishing, which is traditionally regarded as a male preserve, women hold about 6% of the jobs. This excludes the harvesting of bivalve mollusca where there is a significant level of employment and a known high representation of women. Women hold the majority of jobs in fish processing (57,000 employed) and also fill about 31% of the 47,000 jobs in aquaculture. There is a clear argument for the consideration of gender issues in socio-economic policy measures for the EU fishery sector.

Table 1: Principal economic dimensions of the EU fishery sector

Sector	Production		No.employed			
	Volume Tonnes 1000	Value ECU million	FT+PT	FTE	Men	Women
Marine fishing	5,610	6,287	251,602	234,003	236,016	15,600
Fish processing	n.a.	11,351	96,250	86,625	39,270	56,980
Marine aquaculture	903	1,385	45,341	36,975	32,464	12,877
Inland aquaculture	203	632	11,045	9,720	9,410	1,635
Inland fishing	90	258	9,597	6,814	n.a.	n.a.
Other fishery sector	n.a.	n.a.	112,147	n.a.	n.a.	n.a.
TOTAL	***6,807***	***19,912***	***526,034***	***374,137***	***317,160***	***87,092***

Notes:
1. FT+PT figures are recorded numbers; FTE and gender estimates are extrapolated from regions with data available
2. "Other fishery sector" includes distribution, mollusc gathering, vessel construction and repair, and is likely to underestimate employment by 60-70,000.

6 Task 2: Quantifying, Describing and Examining the Level of Dependency

6.1 Overview of fisheries dependency in the EU

The regional studies identified 343 NUTS 3 areas (or other defined "zones of dependency") with a measurable degree of dependency on fishing (as defined by employment Ratio 2 for Fishing), and 553 areas at NUTS 4 or 5. The numbers at the lower level of regional disaggregation do not include Greece, France or Italy (since no NUTS 4/5 areas are defined in those countries). The number of fishers working in these 343 NUTS 3 regions was 246,722 or 98.1% of the EU total numbers of fishers. The corresponding number in the 553 NUTS 4/5 regions was 139,135 representing 55.3% of the total fishers employed.

The number of fisheries dependent areas depends on the criteria used to measure dependency and the threshold level applied. The employment Ratio 2 for fishing is considered to provide the most reliable indicator. The 1991 studies used a level of 1% for Ratio 2 as the criteria to distinguish fisheries dependent areas.

As shown in Table 2 at NUTS 3 level, no areas have more than 10% employment dependency on fishing itself. However, there are nine with a value of Ratio 2 fishing between 5 and 10%, 26 between 2 and 5% and 21 between 1 and 2%. If the 1% dependency threshold were applied it would suggest that there are a total of 56 fisheries dependent NUTS 3 regions in the EU, in which 128,885 fishers are employed (51% of the total) and a further 87,408 people directly employed in other fisheries related activities. If the criteria were to be established at 2%, then the number of dependent areas would fall to 35.

Dependency rates are higher at greater levels of regional disaggregation as shown in Table 3. At NUTS 4/5 level, of the 553 areas for which data were available, 33 had values for Ratio 2 Fishing above 10% and 46 areas had values between 5 and 10%. Applying a dependency criteria of 1% for Ratio 2 Fishing results in 238 areas dependent on fishing. If the criteria is 2%, there would be 164 dependent areas, and at 5%, 79 dependent areas. However, it should be remembered that these are substantial under-estimates of the numbers of fisheries dependent areas in the EU, since they omit data for Greece, France and Italy, where substantial numbers of areas smaller than NUTS 3 are likely to meet these threshold criteria for dependency.

Table 2: Number and employment characteristics of EU Fisheries dependent areas defined by Ratio 2 Fishing at NUTS 3 level in 1996/97

RATIO 2 FISHING	>10%		5-10%		2-5%		1-2%		<1%	
TOTALS WITHIN EACH RANGE										
	No.	**%**	**No.**	**%**	**No.**	**%**	**No.**	**%**	**No.**	**%**
No. of Zones	0	0	9	2.6	26	7.6	21	6.1	287	83.7
Total Employed	0	0	559,731	0.7	1,667,325	2.1	2,272,934	2.9	75,033,597	94.3
Employment in Fishing	0	0	40,632	16.4	56,294	22.7	31,959	12.9	119,554	48.1
Other Fishery Sector Employment	0	0	32,171	15.5	33,598	16.2	21,639	10.5	119,517	57.8
Total Fishery Sector Employment	0	0	72,803	16.0	89,892	19.7	53,598	11.8	239,071	52.5
CUMULATIVE TOTALS										
	No.	**%**	**No.**	**%**	**No.**	**%**	**No.**	**%**	**No.**	**%**
No. of Zones	0	0	9	2.6	35	10.2	56	16.33	343	100
Total Employed	0	0	559731	0.7	2227056	2.8	4499990	5.66	79533587	100
Employment in Fishing	0	0	40632	16.3	96926	39.0	128885	51.88	248439	100
Other Fishery Sector Employment	0	0	32171	15.5	65769	31.8	87408	42.24	206925	100
Total Fishery Sector Employment	0	0	72803	16.0	162695	35.7	216293	47.50	455364	100
Average employment / zone			62192		63630		80357		231876	

Notes:

1. the total number employed in fisheries does not match exactly with the summary tables in Task 1 as some regional breakdowns eg.Denmark and Ireland are omitted due to lack of regionally disaggregated empoyment data. In addition, some of the regions did not fully allocate all fishers to Nuts 3 areas so the Nuts 3 employment total is less than the overall total.

2. E1 employment data is based on "dependency zones"

3. UK1 and UK2 employment data were presented in TTWAs which for the basis of this table were considered to be Nuts 3 equivalents.

Table 3: Number and employment characteristics of EU Fisheries dependent areas defined by Ratio 2 Fishing at NUTS 4/5 level in 1996/97

RATIO 2 FISHING	>10%		5-10%		2-5%		1-2%		<1%	
TOTALS WITHIN EACH RANGE										
	No.	**%**	**No.**	**%**	**No.**	**%**	**No.**	**%**	**No.**	**%**
No. of Zones	33	6.0	46	8.3	85	15.4	74	13.4	315	57.0
Total Employed	173,457	1.3	398,398	3.0	1,233,131	9.4	1,465,017	11.2	9,800,680	75.0
Employment in Fishing	28,164	20.2	29,361	21.1	36,860	26.5	19,550	14.1	25,200	18.1
Other Fishery Sector Employment	29,221	6.9	27,442	6.5	319,469	75.3	23,204	5.5	24,833	5.9
Total Fishery Sector Employment	57,385	21.8	56,803	21.6	56,329	21.4	42,754	16.2	50,033	19.0
CUMULATIVE TOTALS										
	No.	**%**	**No.**	**%**	**No.**	**%**	**No.**	**%**	**No.**	**%**
No. of Zones	33	6.0	79	14.3	164	29.7	238	43.0	553	100
Total Employed	173,457	1.3	571855	4.4	1804986	13.8	3270003	25.0	13070683	100
Employment in Fishing	28,164	20.2	57525	41.4	94385	67.8	113935	81.9	139135	100
Other Fishery Sector Employment	29,221	6.9	56663	13.4	376132	88.7	399336	94.1	424169	100
Total Fishery Sector Employment	57,385	21.8	114188	43.4	170517	64.8	213271	81.0	263304	100
Average employment / zone	5256		7239		11006		13740		23636	

Note: This breakdown does not include France F3 and F4, Italy, Greece (no areas defined at NUTS 4/5 level)

6.2 Regional analysis for Ratio 2

A summary of the most fisheries dependent area (according to Ratio 2 Total Fishery Sector) in each study region is shown in Table 4 (for NUTS 3 level). The tables shows the wide range of fisheries dependency within the EU, and how the most dependent areas compare between regions and countries.

There is only one region where dependency ratios at NUTS 3 level are more than 10% of employment in the fishery sector, and that is Spain E1 (North). However, in Greece, Portugal Mainland and Italy I3 fishery sector employment in the most dependent areas is more than 5%, and in these countries structural adjustment in fisheries dependent areas can be expected to have disproportionate impact. Medium ranges of dependency (2-5%) are found in Belgium, Germany, France, Italy I1 and I2, Ireland, Netherlands, UK 1 and 2, and Finland. Sweden has the lowest dependency rates, less than 1% at NUTS 3 level.

Table 4: Summary of most fisheries dependent areas (at NUTS 3 level) in each study region (as defined by Ratio 2 - total fishery sector employment)

Country/Region	Most dependent NUTS 3 area	Ratio 2 Total Fishery Sector
Belgium	Zone 1	2.4
Germany	Cuxhaven	4.1
Denmark	Bornholm	1.7
Spain E1	Pontevedra	15.1
Spain E2	Huelva	9.8
Spain E3	Taragona	6.1
France F1	Manche	1.9
France F2	Finistère	3.9
France F3	Herault	1.2
France F4	Guyane	1.9
Greece	Lesvos	9.8
Italy I1	Crotone	1.5
Italy I2	Foggia	1.9
Italy I3	Trapani	5.2
Ireland*	West	2.0
Netherlands	Flevoland	3.0
Portugal P1	Algarve	8.3
Portugal P2	Azores	5.6
UK 1	East Riding and N.Lincolnshire	1.4
UK 2	Highlands and Islands	4.2
Sweden	Gotland	0.9
Finland	Åland-Ahvenanmaa	1.6

Notes:
1. Denmark ratio is for fishing
2. Ireland is sum of fishing, processing and aquaculture

Table 5: NUTS 3 Areas Most Dependent on Fishing (Ratio 2 Fishing)

RANK	COUNTRY	REGION	NUTS 2	NUTS 3	Ratio 2				Fisheries sector employment					Employment in all sectors	
					FISHING	PROCESSING	AQUA-CULTURE	TOTAL	FISHING	PROCESSING	AQUA-CULTURE	TOTAL	CUMULATIVE TOTAL	TOTAL	CUMULATIVE TOTAL
1	Greece	GR1		Lesvos	9.63	0.11	0.11	9.85	3,062	34	35	3,131	3,131	31,791	31,791
2	Greece	GR1		Lefkada	8.47	0.00	0.26	8.79	660		20	685	3,816	7,795	39,586
3	Greece	GR1		Samos	8.22	0.05	0.07	8.34	1,136	7	10	1,153	4,969	13,818	53,404
4	Greece	GR1		Cyclades	7.88	0.00	0.02	7.90	2,637		8	2,645	7,614	33,479	86,883
5	Spain	E2		Huelva	7.01	1.70	0.17	9.83	4,273	1,034	104	5,994	13,608	60,947	147,830
6	Spain	E1		Pontevedra	6.84	1.64	3.92	15.12	17,072	4,378	8,802	43,637	57,245	191,079	338,909
7	Greece	GR1		Chios	6.31	0.00	0.82	7.13	919		120	1,039	58,284	14,565	353,474
8	Spain	E3		Taragona	5.44	0.07	0.35	6.09	2,232	28	145	2,500	60,784	41,025	394,499
9	Spain	E2	Andalucia Occidental		5.23	0.92	0.19	7.27	8,641	1,518	322	12,019	72,803	165,232	559,731
10	Greece	GR1		Chalkidiki	4.98	0.01	0.05	5.05	1,660	5	16	1,683	74,486	33,355	593,086

Table 6: NUTS 4/5 Areas Most Dependent on Fishing (Ratio 2 Fishing)

RANK	COUNTRY	REGION	NUTS 4	NUTS 5	Ratio 2				Fisheries sector employment					Employment in all sectors	
					FISHING	PROCESSING	AQUA-CULTURE	TOTAL	FISHING	PROCESSING	AQUA-CULTURE	TOTAL	CUMULATIVE TOTAL	TOTAL	CUMULATIVE TOTAL
1	Spain	E3	Port de la Selva		61.90	0.00	0.00	61.90	221			221	221	357	357
2	Spain	E2	Barbate		28.77	2.55	0.00	31.35	1,308	116		1,425	1,646	4,546	4,903
3	Spain	E3	Ametlla		27.85	0.00	0.00	28.88	406			421	2,067	1,458	6,361
4	Spain	E2	Punta Umbría		26.18	0.00	0.00	26.33	701			705	2,772	2,678	9,039
5	Spain	E2	Isla Cristina		24.23	5.63	0.00	29.86	1,162	270		1,432	4,204	4,795	13,834
6	Portugal	P1	Olhao		23.93	3.39	0.00	27.42	2,986	423		3,421	7,625	12,478	26,312
7	Spain	E1		Bermeo	22.84	5.96	0.11	38.86	1,497	435	8	2,840	10,465	7,307	33,619
8	Spain	E1		Ondarroa	21.47	4.60	0.00	32.25	1,054	279	0	1,958	12,422	6,069	39,688
9	Portugal	P1	V.Bispo		19.02	0.00	0.00	19.20	421	0		425	12,847	2,213	41,901
10	Denmark	DK1		Holmsland	19.01			27.18	558			797	13,644	2,932	44,833

The thirty NUTS 3 regions most dependent on fishing have dependency Ratio 2 ranging from 9.63% to 2.31%. The ten NUTS 3 areas most dependent for employment on fishing, as defined by Ratio 2, are shown in Table 5. Overall the thirty regions account for a total fishery sector employment of 130,766 (some 25% of total fishery sector employment in the EU). About 1.82 million people are employed in these 30 regions, with the fishery sector employment contributing 7.19% of employment.

Of the thirty regions, 15 are in Greece, 11 in Spain, two in Portugal and one each in Italy and Germany. The four most dependent NUTS 3 regions are in Greece, with Lesvos being the most dependent of all. However it should be noted that the size of the regions varies quite considerably, with total employed in all sectors ranging from 7,795 to 191,079. The Greek NUTS 3 regions are on average much smaller than the remainder (average total employed 35,628 compared to overall 60,582 in all thirty regions), which must be taken into account when comparing dependency rates and ranking of most dependent regions.

Dependency ratios at NUTS 4 and 5 are much higher, as shown by the list of the top 10 most dependent areas in Table 6. This reflects the relatively greater impact of fisheries on the economy of smaller regions. Of the 27 most dependent areas, 20 are in Spain, four in Portugal and three in Denmark. The five most dependent NUTS 4 areas are in Spain, with Port de la Selva being most dependent of all, with a Ratio 2 value for Fishing of 61.9%. However it should be noted that in areas with low total employment, relatively small changes in fisheries related employment can have a major impact on the dependency ratio. Porto de la Selva (with a total reported working population of just 357) and Ampolla (530), are examples and here the results are probably best regarded as anomalous. The remaining areas are more representative, with total numbers employed ranging up to 24,807.

6.3 Areas most dependent on fish processing

Dependency on fish processing contrasts markedly with that for fishing. Dependency Ratio 2 (fish processing) tends to be much lower even in the regions most dependent on this activity, with the highest value at NUTS 3 (of 3.4%) level being found in Cuxhaven, Germany. In fact only twelve NUTS 3 regions in the EU depend on fish processing for more than 1% of the regional employment total. However, note that the area in the table with the largest employment in this activity (La Coruña, with 2898) only has a relatively low dependency ratio due to the high total employment figure. Similarly, it should be noted that some other regions with high processing employment, for example Bremerhaven (3356 employed in the sector) and Boulogne-sur-Mer (5522 employed) do not feature at all on this table since the non-fish processing employment is also high, and Ratio 2 at NUTS 3 level is correspondingly lower than 0.5%.

The other major feature of the dependency on fish processing is how widely it is distributed throughout the EU, with four of the 25 most dependent NUTS 3 areas in Spain, four in Netherlands, and three each in UK, Germany, Ireland and Greece. Overall there are 36,254 employed in fish processing in these 25 regions, out of a total number employed of 2,862,909, with a relative dependency on this activity of 1.3%.

6.4 Areas most dependent on aquaculture

Employment dependency on aquaculture is much lower than for fishing or fish processing. At NUTS 3 level, Pontevedra and La Coruña in Spain E1 are the most dependent with 3.9 and 2.8% of jobs in this sector. Charentes Maritime (France F1) and Highands and Islands (UK2) also have Ratio 2 values above 1%. At NUTS 4/5, Ria de Arousa in Spain E1 with 25% of the local employment attributable to this activity. Four regions in Finland are also relatively highly dependent on aquaculture, these being Houtskari (20.6%), Iniö (17.2%), Föglö (15.5%) and Brändö (13.7%). The rias of Galicia, with their extensive mollusc culture, also contribute another 6 of the top 20 aquaculture dependent regions, the balance being in UK2 (all in Scotland) where employment in salmon culture is important in Sutherland NW, Skye and Wester Ross and Shetland Isles.

6.5 Areas most dependent on stocks subject to management measures

Dependency Ratio 3 provides a measure of the share of the value of catches within a region which are subject to CFP quota management, as a proportion of the value of the total catches within that region.

Although the measure does not take into account the extent to which quotas are already utilised, it can give a broad indication of how susceptible an area might be to changes in the management regime. Many areas appear to be highly dependent on species to subject management measures. At NUTS 3 level, 20 areas have a quota dependency above 90%. The areas most dependent are found in Sweden where the regions of Kalmar, Gotland, Blekinge, Skaane and Goetegorg and Bohus are all 100% dependent on species under quota. Eight of the top twenty dependent regions are in Italy, where management measures relate to gear controls and minimum sizes; these areas are Campobasso, Macerata, Ascoli Piceno, Forli, Ancona, Pescara, Rimini and Trapani in Sicily. In Denmark Frederiksorg, Nordjyllands and Rygkøbing Amts all have high levels of quota dependency. The only high value for Ratio 3 outside of Denmark, Italy and Sweden is in Bremerhaven. It should also be noted that in the UK2 Region, the whole of N.Ireland (a NUTS 1 area) has a Ratio 3 value of 86%.

Quota reductions can have a significant short-term effect on employment in fishing where the quota dependency (Ratio 3) is high and the quotas are fully utilised, but in the longer term, for modest changes in quota, the impact is likely to cause a redirection of fishing effort. There are also implications for processing employment where the stocks subject to quota form a significant part of the raw material input for processing, or a lower-cost alternative input to imports.

Of non-quota stocks the Iberian sardine is being considered for management measures. This would have an impact on Spain and Portugal. The impact for Portugal is shown in the following Table 7.

Table 7: Job losses in fishing and fish processing due to impact of sardine quotas in Portugal

IMPLICATIONS FOR FISHING SECTOR		IMPLICATIONS FOR PROCESSING SECTOR	
Jobs lost	**Principal impact locations**	**Jobs lost**	**Principal impact locations**
46.6 jobs per 1000 tonnes reduction in annual catch	Matosinhos P.Varzim, Peniche Sines Portimao	23.9 per 1000 tonnes reduction in annual catch	Matosinhos Peniche VRS Antonio

Source: Consultants' estimates

6.6 Objective 1 areas most dependent on fisheries

Support to Objective 1 regions promotes the development and structural adjustment of those regions whose development is lagging behind the rest of the Community. These are regions whose per capita GDP has amounted to less than 75% of the Community average over the past 3 years (plus some regions with special needs).

Objective 1 regions contain 22% of the EU population and will receive 69.7% of the structural funds allocated (136 billion Euro). With respect to the fishery sector 155,739 fishers are employed in Objective 1 regions, corresponding to 63% of the EU total. Just four countries contribute the majority (92%) of these. In Spain 51,908 fishers out of 68,275 are included, in Greece all 41,251 fishers are included, in Italy 27, 891 out of 43,547 are included and in Portugal 22,853 out of 29,416 are included. The relatively high proportion of each member states fishing sector which is included in Objective 1, indicates that the sector in these countries has potential to benefit from the Objective 1 funding available (usually in terms of higher rates of community support). However, Objective 1 funding will have less of an impact on fishing dependent areas in Germany, France, UK, Sweden and Finland, where only relatively small numbers of fishers are found in Objective 1 regions. In these (and the remaining) Member States Objective 2 support for the fishery sector will be relatively more important.

The Objective 1 regions include 134 NUTS 3 areas in which fisheries dependency was estimated by this study. Of these 48 (36%) have a dependency on fishing of greater than 1%. Of these 48 areas, 25 are in Greece, eight in Spain, five in Portugal and just three in Italy. The remainder are found in France, Germany and Ireland. These 48 most fisheries dependent Objective 1 regions include 97,546 fishermen and a further 68,253 employed in other parts of the fishery sector, out a total employed of just over 3 million.

Fish processing is more widely dispersed than fishing in the EU, and only 25% of employees in the sub-sector are included in Objective 1 areas. The greatest number of these is in Spain, where 11,293 out of 16,850 process workers are in Objective 1 regions. Portugal also has a high proportion of process workers in these regions (4,605 out of a total 6,475 employed nationally). In aquaculture some 45% of EU-wide employment falls within Objective 1 regions.

6.7 Fisheries employment multipliers

The overall picture derived from the analysis of multipliers in the fishery sector is of relatively low values for multipliers for fishing, demonstrating limited linkages between fishing and the local economy. In general, the data suggest that there is approximately half to one and half jobs on land, linked to the existence of every job at sea. There are however, a few areas where the multipliers are much larger, for example Killybegs in Ireland, and in a few of the Portuguese mainland regions (such as Vila Real S.Antonio) thus revealing in some locations a fishing industry very much more integrated with other local business.

In general, the backwards multipliers for fishing are much smaller than those forward. This relates to the primary nature of the fishing industry with labour, rather than materials produced by other industries, making up a large proportion of the input cost, and the labour intensive nature of many of the processing, packing and distributing and retail industries. The only region for which this is not the case is in Greece, where both multipliers are very small and those forward even smaller than those backward. This is because the fish processing industry has hardly developed in Greece.

6.8 Relation between employment at sea and on land

Overall in the EU it would appear that for every job at sea, there are a further 1.1 jobs on land in direct fisheries employment. As discussed under Task 1, the numbers employed in fisheries are under-estimated by perhaps 60-75,000. This would suggest that, under present circumstances, as a crude means of estimating employment in all fisheries and related activities, the numbers of fishing jobs at sea can be multiplied by a factor of 2.4.

The ratio is notably higher by a factor of 3 or 4 in Netherlands, Belgium Germany and Denmark compared to countries such as Greece, Spain and Portugal. These former regions are characterised by relatively low fleet employment in 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 on land to fishing in these countries are much weaker than in the regions with lower apparent values.

There are some significant differences between these crude multipliers and those calculated by the GRIT methodology. The crude measures take no account of the linkages between the various activities (only their presence). Despite these reservations the crude estimate based on numbers at sea to onshore employment does correspond quite well with the estimates of fishing multipliers derived from the GRIT analysis (0.5 to 1.5) downstream jobs for every fisher.

6.9 Dependency on third country access

The European Union has established bilateral fisheries agreements with a number of other nations. Many of these provide for access rights for EU flagged vessels to fish within the EEZ of the third country concerned, and many fishermen from EU Member States find employment in this type of activity.

The Moroccan agreement is by far the largest and most significant. The access rights are allocated by the EU mainly between Spain and Portugal. In 1996 the Moroccan agreement sustained 1,117 fishing jobs in Portugal, mainly in Olhão and Sesimbra. The landings in Portugal of fish caught under the agreement principally comprise scabbard fish, other demersal species and cephalopods. None of these provide substantial inputs to the fish processing sector, and the impact of this agreement on processing employment on the Portuguese mainland is considered to be negligible. Corresponding figures for the dependency of the Spanish region E2 (Atlantic Coast and Canary islands) are not available. However the main dependent areas will be in the NUTS 3 areas of Cadiz, Huelva and la Luz in Las Palmas.

The Mauritanian agreement will continue until the end of July 2001. It provides for fisheries access by Spanish, Portuguese, Italian, German, Irish, Dutch and French vessels. Proportionally, the Mauritanian fishery is of much lower importance, with only about 95 jobs dependent in Portugal, and these are based in Lisbon, with many alternative employment opportunities available. The numbers of Spanish, French and Italian employed in fishing in Mauritanian waters are not available, but the employment impact of this fishery is clearly more diffuse than for Morocco.

6.10 Dependency in the Processing Sector

It is known that the EU processing sector imports substantial quantities of fish as raw material for processing. Therefore of importance for the present studies is the nature and extent of the linkages between processing and the EU fishing industry. Estimated numbers of jobs linked to processing of local fish landings and the nature and location of those jobs are shown in Table 8.

Overall some 53% of processing jobs appear to be dependent on EU landings. Note that this figure includes all jobs in the tuna canning sectors of Spain, France and Portugal. This evidence is strongly supported by the analysis undertaken at Task 3, which shows that whilst numbers employed in fishing in the pre-enlargement EU12 has declined by 18% in the nominal period 1990 to 1996/97, the numbers of employed in processing has only declined by 12%.

Sardine canning is also important in providing employment linked exclusively to local landings. Spain (including Huelva in the South), Portugal P1 (Mainland) and France F2 (Brittany and Bay of Biscay) provide the main centres. In Italy I1 (Mediterranean) about 35% of employment is linked to local landings, mainly in the sardine canning and anchovy conserving sectors. Other areas of Italy are more weakly linked.

In most of the northern EU countries such as Belgium, Germany, Denmark, Sweden, and parts of the UK, the EU-landing related employment in processing is limited to primary processing of whitefish and some shellfish processing (eg.shrimp processing in Netherlands and Denmark). In Germany, nearly 100% of the processing inputs (fillet blocks and herring) are imported, and there are no 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.

Table 8: Links between fish landings and the EU processing sector

COUNTRY	REGION	NO. OF JOBS		NATURE AND LOCATION OF DEPENDENCY
		Totals	EU Landing dependent[1]	
Belgium	BL1	1261	133	Shrimp and flatfish processing
Germany	DA1	11380	0	Total includes 100 processing jobs in Austria. Not dependent
Denmark	DK1	8588	859	Primary processing of whitefish Bornholm Shellfish processing Esbjerg; fishmeal
Spain	E1	13123	13123	Re-processing of frozen at sea Galicia Tuna canning Galicia
	E2	2028	2028	Re-processing of frozen at sea Huelva and Las Palmas
	E3	1699	500	Sardine and anchovy conserves
France	F1	3850	n.a.	Primary processing of whitefish Boulogne
	F2	6156	2359	Sardine canning Concarneau Tuna canning Concarneau, Duarnenez
	F3	596	596	Sardine and anchovy conserves
	F4	191	191	No imports to processing
Greece	GR1	2409	2409	No imports to processing
Italy	I1	2874	1066	Non-tuna inputs = 35%
	I2	2400	408	Non-tuna inputs = 17%
	I3	1173	176	Non-tuna inputs = 15%
Ireland	IRL1	4920	4920	Few imports to processing.
Netherlands	NL1	3300	1650	Primary processing of whitefish and shellfish. Overall c.50% imports to processing
	P1	5059	1850	Sardine and tuna canning
	P2	1416	1416	Tuna canning
United Kingdom	UK1	9598	5343	EU landings c.50% Humberside and 100% SW
	Scotland	9300	9300	Primary processing of whitefish; salmon processing
	Northern Ireland	1022	1022	Few imports to processing
	UK2	10322	10322	
Sweden	SV1	1993	996	Estimated 50% processing inputs from imports
Finland	FIN1	560	560	
	TOTAL	**95381**	**50505**	

Notes:
1. EU landing dependent jobs are consultants' estimates of jobs in sardine, anchovy and tuna canning plus primary processing of white fish
2. Spain and France includes processors at inland locations

7 Task 3: Examination of the Development of Employment and Dependency Since 1990

7.1 Change in fishing employment

Apparent numbers of fishers in the EU have fallen by 55,345, from a nominal 306,961 in 1990 to 251,602 in 1996/7, corresponding to an overall decrease of 18%. Three countries showed quite substantial declines in the number employed. These were Spain (mainly in regions E1 and E2), Portugal (Mainland) and Italy. The greatest fall in employment was in Spain, where the number

employed declined by over 24,000, about one quarter of the total of 92,424, with the main decline experienced in regions E1 (North) and E2 (Atlantic coast). 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 (Mainland) was the region to show the next largest decline in fishing employment with a fall of over 10,000, again about one third of the work force reported in the 1991 studies (although the numbers of fishers reported was based on the 1981 census). In Portugal as a whole, this decline was slightly offset by an increase in the numbers of fishers in the Azores, from 4,640 to 5,222.

Fishing employment in Italy (all regions) fell by an apparent of 9,194 workers. UK 1 (England & Wales) also experienced a drop in employment from 14,941 to 9,895, a decrease of 33.8 %. Most of the other regions experienced falls in employment of 20% or over, including Germany, where employment fell from 5,535 to 4,422, despite re-unification and the integration of the East German fleet.

Exceptions which only experienced very small falls in numbers were Italy I3 (Sicily and Sardinia), Finland and UK 2 (Scotland & Northern Island). The regions which experienced an increase in fishing employment were Greece and Portugal P2 Islands, although in both of these regions there are some doubts expressed about the validity of the definition of employment in fishing during the 1991 studies.

7.2 Changes in fishing employment in relation to fleet capacity

In broad terms, the trend shows a nominal reduction in fleet capacity of 8.4% in power and 12.1% in tonnage, compared to an average reduction in fishing employment between the two studies of about 18%. However, a direct comparison is difficult due to the wide range of reference years used in the 1991 study, the and the effects on the vessel register of German unification and changes in the registration basis in Italy and Ireland. Despite this it is clear that the relationship between capacity and employment is not linear. Spain for example, shows an employment change of 26%, yet a capacity change of only 3.3% in power and 13% in tonnage. This pattern of employment changes in excess of fleet capacity reductions is reflected in most regions. This may be partly due to the tendency for the least productive fleet segments to be withdrawn first, with greater employment impact, but will undoubtedly also be due to the impact of other socio-economic pressures on the sector.

7.3 Change in fish processing employment

It would appear that employment in fish processing has fallen in the EU12 from 104,316 in 1990 to 90,634 in 1996/97 (a decline of 13%). It is apparent that this change is much less than that experienced by fishing (c.18%), illustrating once again the lack of linkages between the two sub-sectors in some regions.

The largest apparent declines in employment in processing have been experienced by Portugal (52.2%) and Denmark (37.3%). However, the 1991 study employment figure for Portugal is an estimate, and includes unspecified "other" activities, so the decline in numbers is likely to be significantly overstated. Italy, France and UK suffered declines of 19.4, 23.8 and18.4% respectively. Spain experienced a decline of 12.2%. Numbers employed in fish processing appears to have increased slightly in Belgium, and substantially in Germany, although the increase in the latter is based on an unrealistic estimate of only 100 processors in W.Germany in 1990.

7.4 Changes in fisheries dependency ratios

Of the 100 dependent areas in 1990, 51 show a decline in dependency Ratio 2 greater than 0.1%. Fourteen show little or no change, and 36 have increased in dependency. All but four of the 30 most dependent areas in 1990 showed a fall in fisheries dependency. In some cases the decline in dependency is quite marked. The largest changes were in the most dependent areas, for example in Spain E1, where Ratio 2 (Fishing) declined from 42.5 to 21.5% for Ondarroa, and from 38.5 to 22.8%

in the case of Bermeo. These are the areas where there has been a very significant structural adjustment in the regional economy.

One exception to the decline in the most dependent areas is the Ria de Arousa (Pontevedra) in Spain E1, where there was an increase in Ratio 2 from 51.5% dependency in 1990, to 52.2% in 1996/97. Thirty-five other areas have also shown an increase in their dependency; amongst these eight are in the UK2 Region (all in Scotland).

The remaining 13 of the top 100 fisheries dependent areas have shown little or no change (defined as a shift in Ratio 2 Fishing of less than 0.1%). This applies to areas such as Cuxhaven and Ruegen in Germany, Tarragona in Spain E3 and Cantabria in Spain E1.

The greatest changes in fisheries dependent areas are shown in Table 9 (largest increases) and Table 10 (largest decreases) in dependency. Most of the increases in dependency have occurred in France F1 and F2 regions, and UK2 (in particular Scotland). Only one of the most significant dependency increases was outside these regions, in Galway (Ireland).

Most of the largest falls in dependency have occurred in the Spain E1 region, in particular the *rias* of Galicia. Note that the largest changes have occurred in regions ranking highly on the list of most dependent regions in 1991. Here the largest changes in Ratio 2 (in Ondarroa) have been over 20 percentage points. Only Keith and Buckie (UK2) and Bredene (Belgium) outside Spain E1 have experienced declines in dependency on fishing of a similar order as the areas in Spain E1.

Table 9: EU fisheries dependent areas with most significant dependency increases (nominally between 1990 and 1997)

1990 RANK	1997 RANK	COUNTRY	REGION	NAME OF AREA	TERRIT-ORIAL UNIT	CHANGE IN RATIO 2 FISHING (absolute %)
70	19	United Kingdom	UK2	Campbeltown	Travel to work area	5.1
69	27	France	F2	Quimper	Zone d'emploi	3.81
72	30	France	F2	Vendée Maritime	Zone d'emploi	3.12
71	33	France	F1	Fecamp	Zone d'emploi	2.89
28	17	United Kingdom	UK2	Skye & Wester Ross	Travel to work area	1.9
68	50	France	F1	Boulogne	Zone d'emploi	1.73
63	45	Ireland	IRL1	Galway And Mayo (Excl Galway City)	NUTS 3 + 4	1.6
52	40	United Kingdom	UK2	Kirkcudbright	Travel to work area	1.4
75	52	France	F2	Saint Malo	Zone d'emploi	1.38
76	53	France	F1	Dieppe	Zone d'emploi	1.3

Table 10: EU fisheries dependent areas with most significant dependency decreases (nominally between 1990 and 1997)

1990 RANK	1997 RANK	COUNTRY	REGION	NAME OF AREA	TERRIT-ORIAL UNIT	CHANGE IN RATIO 2 FISHING (absolute %)
1	2	Spain	E1	Ondarroa	Zones of Dependence	-21.00
2	1	Spain	E1	Bermeo	Zones of Dependence	-15.70
12	25	United Kingdom	UK2	Keith & Buckie	Travel to work area	-7.90
3	4	Spain	E1	Lugo Coast	Zones of Dependence	-5.84
7	9	Spain	E1	Getaria	Zones of Dependence	-4.70
11	12	Spain	E1	Ria De Camariñas	Zones of Dependence	-4.08
8	7	Spain	E1	Estaca De Bares	Zones of Dependence	-3.51
18	46	Belgium	BL1	Bredene	NUTS 5	-3.40
9	8	Spain	E1	Ria De Vigo	Zones of Dependence	-3.20
10	10	Spain	E1	Ria De Corcubión	Zones of Dependence	-3.20

7.5 Changes in fisheries dependent areas

A direct comparison can be made between identical regions over the time period between the two studies. Again using Ratio 2 Fishing as the basis for comparison on this reduced list of fisheries dependent areas, the analysis of the 1991 regional studies identifies 58 areas dependent on fisheries with Ratio 2 above 1%. In the interim period seven of these regions fell below 1% dependency, but a further 13 increased their dependency above this threshold. As a result the 1996/97 data indicate a total of 64 fisheries dependent areas. Therefore, despite the generally negative changes in dependency ratios noted above, the majority of those areas which met the dependency criteria of 1% for Ratio 2 Fishing in the nominal year of 1990, still met it in 1997. Overall there appears to be little change in the fisheries dependent areas defined in this manner, although there are some changes at the margins. If anything, the slight increase in numbers of regions above the dependency threshold would suggest a trend to increasing levels of dependency amongst the most dependent areas, as fisheries activity becomes more concentrated in industrial clusters.

8 Task 4: Suggestions for improved socio-economic support measures

8.1 Objectives of support measures

To facilitate better labour mobility from fishing to other occupations, support measures should provide:

Opportunities for job-seeking and re-training where they are not adequately provided from other sources
family security to cover period whilst job seeking or re-training
in extreme cases, support for migration to other areas

They should also take into account the changing patterns of dependency

8.2 Present support measures

The community structural fund, the Financial Instrument for Fisheries Guidance and the Community PESCA Initiative have both provided a variety of socio-economic measures to alleviate directly the impact of structural adjustment in fishing-dependent areas. Although the PESCA Initiative ceased in 1999, the measures it delivered have been incorporated in the new FIFG regulation. As a result the fishery sector will continue to benefit from the availability of:

early retirement schemes
lump-sum redundancy payments
job-creation in related or alternative activities
training and re-training

The application of support measures available differ from one member state to another. The principal need of displaced fishery workers is for employment in alternative industries and sectors. However, it appears that in practice activities closely related to fishing seem to be the focus of many "diversification" schemes. The case study and survey work in the study regions indicated that there is only limited uptake of lump-sum redundancy payments and early retirement schemes.

8.3 Need for targeting

The diversity of the EU fishery sector means that no two fisheries dependent areas have identical needs. Policy should enable a flexible application with targeting of measures to address the needs of specific areas, defined at an appropriate NUTS level eg. measures to ameliorate the impact of changes in quota arrangements or loss of access to third country fishery agreements, where the Moroccan case is the most acute.

The economic case for targeting of support rests on the greater marginal return to spending in those areas most affected by loss of fishing opportunities. The measures to be adopted will depend substantially on unemployment rates and alternative employment opportunities in each location. They can be linked to other regional development initiatives, in terms of the targeted design of re-training opportunities, financial support for re-training, provision of re-location support and similar activities. The approach also maximises scope for local consultation and hence the likelihood that any measures proposed be accepted by regional fishing communities.

The information needs for effective targeting are provided to a significant extent by the current study in its identification of fisheries dependent areas. The major difficulty is making inter-regional

comparisons since not all data were collected on a common basis to allow the same criteria to be applied throughout the EU. A two-stage process might be envisaged in which regions qualifying for support are identified according to some threshold criterion (for example within the present Objective 2 criteria) and then regional fisheries development programmes designed to reflect the local objectives of the restructuring process in the fishery sector. Then possible measures could be delivered as follows.

8.4 Support measures for fishers

There is a strong case for continuation of the decommissioning grants to fishers since this would appear to provide the most direct means of support. However, the general lack of uptake by Member States is of concern, although these studies have not identified why the member States have been so reluctant to implement it. Some regional reports have commented upon the reluctance of fishers to leave the sea, and the difficulties of adjusting to a life on shore. However, it seems likely that this is at least partly due to a constellation of factors including the limited alternative employment opportunities in many traditional fishing areas.

8.5 Support for investment in fish processing

Those involved in fishing itself are not the only workers to be displaced by industry decline. Workers in the processing industry may also be affected by redundancy and hence be legitimate targets for socio-economic measures. Processing and marketing have accounted for approximately 26% of funding under FIFG, but the precise targeting of support is not known.

Process workers are to a substantial extent insulated from the effects of the CFP conservation measures, at least in some regions, due the low dependence on EU landings, and the ability in most cases to switch at short notice into alternative imported sources of raw material. From a policy point of view, there is little need to support fish processing in such regions for the purpose of ameliorating the impact of CFP structural or conservation policies.

However, the failure of local landings to keep pace with increasing demand for fish and fish products has meant an inevitable increasing reliance of imported supplies. Development of fish processing, on the basis of raw materials from whatever source, can provide additional jobs which capitalise on the local skills base. Furthermore, the fishing sector may well depend on processing as a major market for some species. This is very much the case in those key linked sectors - primary processing of white fish, sardine and tuna canning, without which markets fishers would lose their livelihood. Also much fish processing provides strategic markets for the fishing industry and substantial employment opportunities in fisheries dependent areas, in many cases for the women of the fishing community. For both of these reasons, fish processing is deserving of continued support.

Present policy on investment support measures under FIFG supports fish processing in general, whatever the source of raw material, and whatever the location. As a result there is a lack of targeting of investment support measures to regions where such support would do most good. Although PESCA support has been focused by Member States on fisheries dependent areas, increasingly there appears to be a trend for this support to be used for processing activities which use imported raw material and which are closer to main markets.

It might be argued that this appears to be a misuse of FIFG structural funds and takes away the potential employment benefit from fisheries dependent areas. For this reason policy might strengthen the relative incentives by making the investment support for fish processing being conditional on location in fisheries dependent areas or use of EU landed raw material. On the other hand the economic forces in modern food distribution may favour the location of processing at strategic points in road communication networks. To encourage location elsewhere may be to encourage a regional misallocation of resources against the requirements of the market. It is, essentially, a political decision.

8.6 Support for training in processing skills

A key locational factor is the availability of skilled labour, which is why fisheries dependent areas have retained processing sectors long after they ceased to depend on local supplies (in fact in some cases long after the fishing industry has disappeared, Humberside in the UK being the notable example). Again, it could be argued that the relative strengths of fisheries dependent areas should be enhanced.

Notable in the Task 4 studies undertaken in the regions is the relatively low priority given to improving fish processing skills, which can be considered as one of the key strategic strengths of such regions. There is a need for these skills to keep pace with technological development in processing technology and changes in health and hygiene rules if the comparative advantage is to be maintained. This would suggest a need for training in these topics.

However as more and more supplies to fish processing are derived from imports and this activity moves away from fishing ports, there are obvious limits to the extent to which training of fish processing workers can benefit employment in fisheries dependent areas. In such cases training in alternative skills outside fish and food processing may be more appropriate.

8.7 Support measures for alternative employment opportunities

Socio-economic measures implemented by Member States have often focused on creation of jobs and training for employment *within* the fisheries sector. The viability of this approach depends on there being a difference in the fortunes of sub-sectors of the regional fisheries economy. The requirement is to create sustainable alternative employment and simply encouraging labour to shift from one declining subsector to another is an inadequate response. However, it is clear that certain fisheries related activities in traditional fishing areas could be developed further. This might include vertical integration into processing and distribution, perhaps exploiting local tourist markets. Such activities might be conducted on a cooperative basis by local fishing organisations.

However, the particular focus of activity in many fishing regions may mean that there are relatively fewer alternatives within the local fishing industry than in other non-fisheries related sectors. The possibility of fishers finding alternative employment in aquaculture has been one element of the PESCA programme, which has offered support for aquacultural development. There is little evidence from the case study work conducted by the regional studies of the transferability of fishing skills to aquaculture, although it is true that some fishers have found employment in coastal aquaculture enterprises, for example where boat-handling skills may be in demand. In any case, aquaculture is a significant employer and merits support in its own right rather than simply as a destination for labour released from fishing. Furthermore the prospects for all branches of aquaculture are not equally bright due to environmental constraints, coastal zone use conflicts and lack of markets for certain species. It is also not necessarily the case that aquaculture employment opportunities arise close to traditional fishing ports where structural unemployment is likely to occur.

Where alternative employment opportunities are scarce, as will often be the case since traditional fishing areas are often also areas of above average unemployment generally, support for small business creation may be the most effective approach. The development of employment opportunities outside the fisheries sector will, as noted above, frequently imply a need for business creation. This in turn will require a network of supportive business advice since redundant fishers or fish processors cannot always be expected to be equipped with the necessary business skills. Business as well as technical training is necessary. There is a need to think widely in terms of economic diversification in fishing dependent areas. Tourist development for example, has offered employment in some of the Mediterranean regions.

Many fisheries dependent areas also have a tourist industry and indeed the fishing industry itself has often been a tourist attraction. This applies throughout the EU. Whilst not aiming to turn a local fishing industry into a theme park attraction, there is a great public interest in the fishery sector and its culture, which provides a market opportunity which can be exploited. This might be through generation of more

added value from those fishing activities which do continue, by supplying tourist markets for local fish products, perhaps in combination with heritage exhibits. Some fishers, perhaps mainly the smaller scale operators, have turned their skills, experience and local knowledge into businesses in pleasure angling, or used their boat handling skills, and boats where suitable, for pleasure trips. Most such tourist related activity is inevitably seasonal. Furthermore, skills and experience gained in fishing are not the only requirement for success in such businesses, and appropriate training and advice would again be essential. Financial support for conversion of boats and other investments, to meet safety standards, for example, might also be required.

8.8 Gender issues in support measures

Women comprise a significant part of the fish processing workforce. Women tend to be less mobile because of family commitments and therefore their opportunities for alternative employment are correspondingly less than for male fishers, many groups of which have demonstrated a remarkable propensity to migrate. Where alternative jobs are not available then more self-sufficient solutions are required which involve small business development support such as advisory centres, business training and credit unions and sources of credit, and child care facilities for working mothers.

In terms of communication with women employed in processing, existing fisheries channels eg. via Producer Organisations are not appropriate. Communication with sources of assistance should be developed via NGOs (possibly with women fisheries liaison staff in the regional or central fisheries administration) to ensure that there is adequate coordination and focus of these broader base measures. Support for NGOs which represent and work on behalf of women working in fisheries should also be considered.

8.9 Administrative design of support measures

There is a widespread concern within the industry that the complexity of application procedures for support are a deterrent to uptake. Greater simplicity and transparency in the rules and application procedures and a speeding up of decision-making could encourage uptake, especially amongst communities where literacy rates may be low.

In many regions payment of a minimum of social security benefits is a qualifying condition for support. This has been the case in those countries (Portugal and France) which have made use of direct payments to fishers whose vessels have been decommissioned. Whilst it is recognised that, to a large extent, the social security qualification provides a clear and unambiguous indicator of dependency, many workers in the fishery sector do not pay contributions to social security. As a result they suffer a double jeopardy, failing to qualify for both unemployment benefit and direct support.

It is proposed that it would be beneficial to adopt a more flexible approach in the Community and national legislation defining the conditions of access to support measures. The conditions should, it is proposed, be more representative of the reality of the nature of employment in the fishery sector. In particular the rules should recognise that fishers' dependence on weather and season means that many are not employed under formal arrangements. Clearly the individual must present adequate evidence to ensure qualification (eg. that a minimum period has been spent in the fishery sector and/or working on the decommissioned vessel) but with imagination and effort new criteria could be applied. For example, criteria could be related to the matriculation of fishers, or days at sea within a given period. Harbour or coastguard authorities (which maintain records, or could easily do so) could be employed in checking the criteria as applied to fishers.

With respect to the grant aid in support of investment, in some cases the financial conditions applied (for example the requirement for joint financing) may act as a deterrent. This is especially the case for small-scale operators who may lack capital resources. In these cases availability of credit facilities on favourable terms might provide a more realistic incentive for investment than grant aid with rigid conditions of access.