

COMMISSION OF THE EUROPEAN COMMUNITIES
Directorate-General for Fisheries

Regional, Socio-Economic Study in the Fisheries Sector

UNITED KINGDOM

Scotland, Northern Ireland

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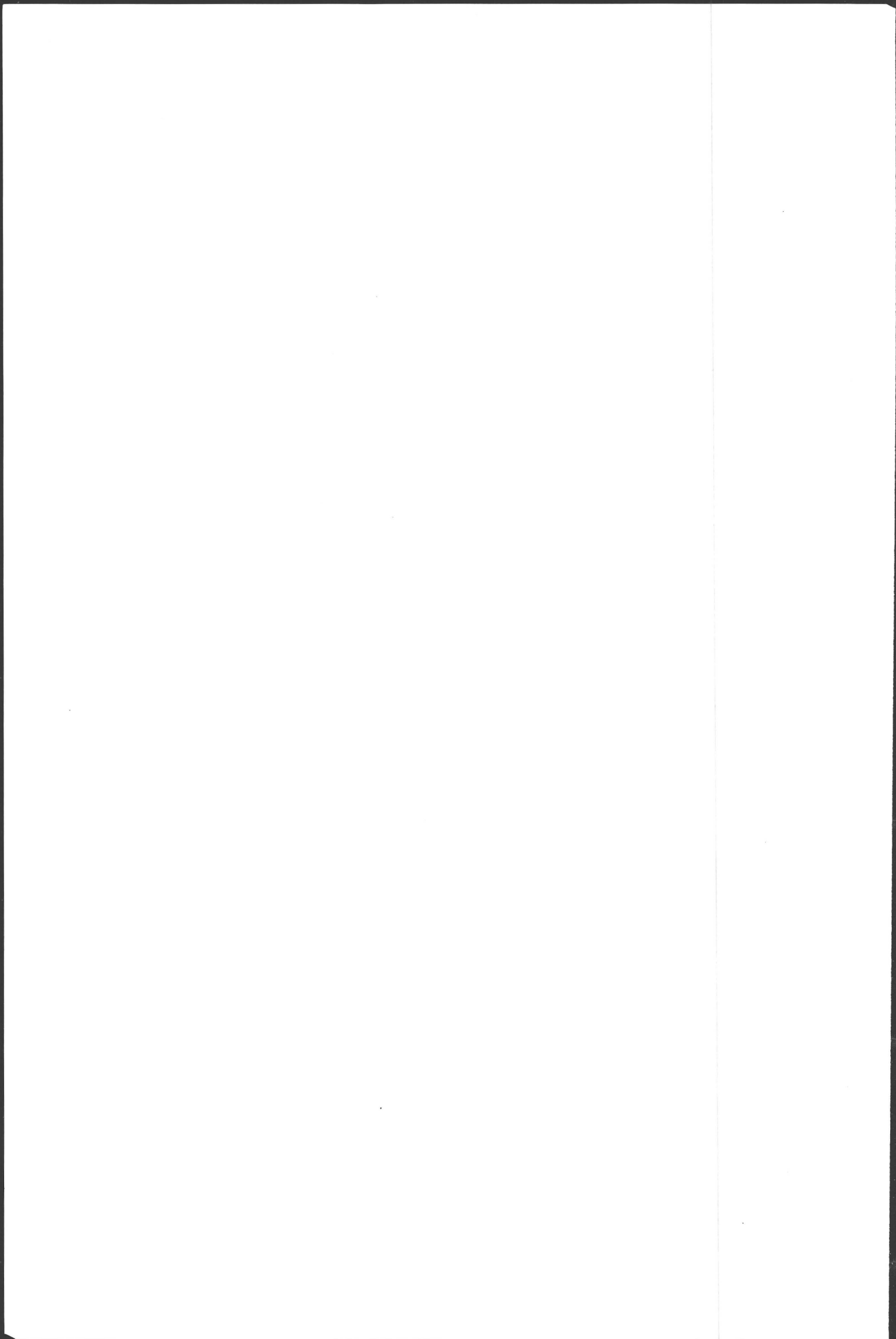
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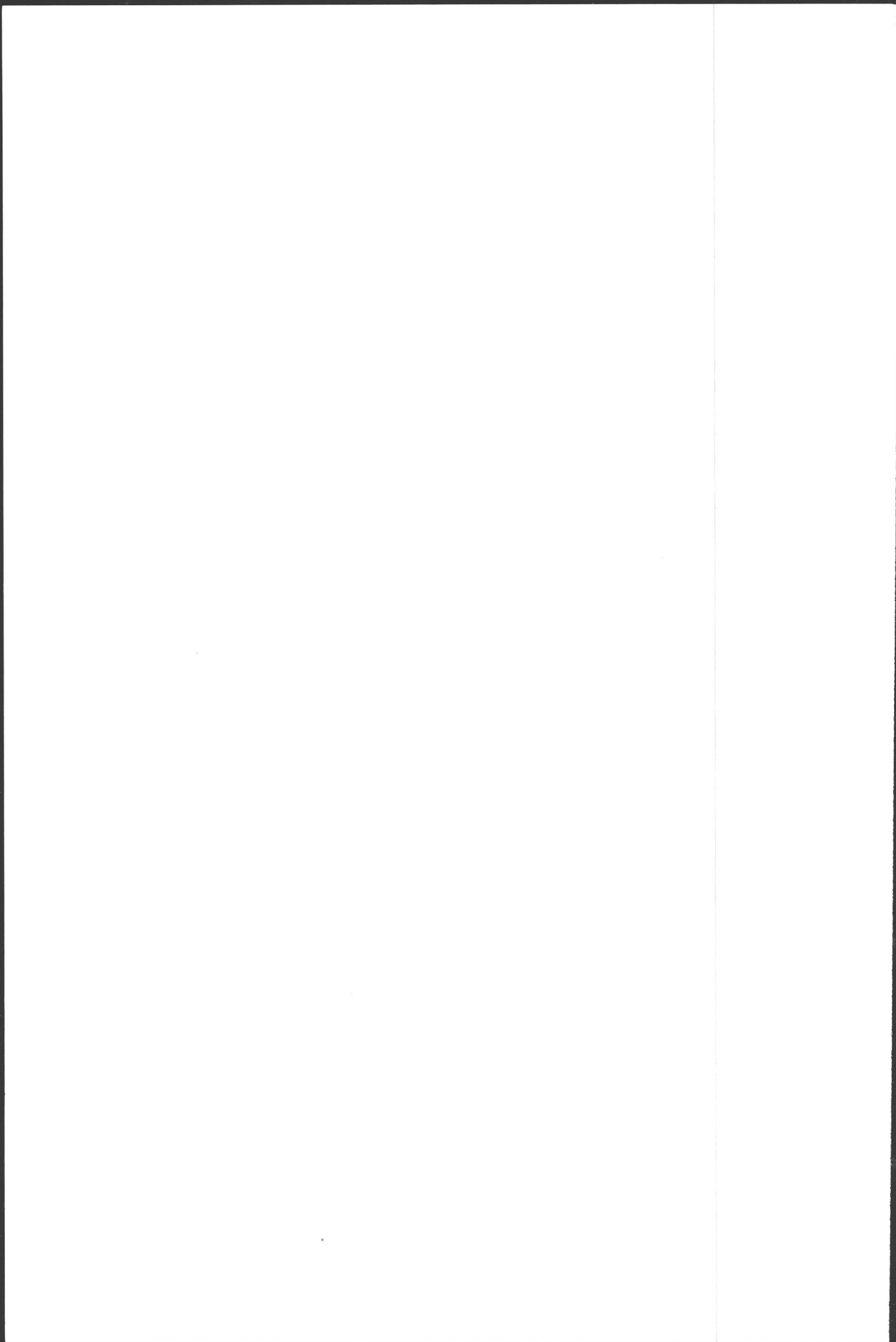


ABSTRACT

- * This Report is the outcome of a contract - between the European Commission Directorate General on Fisheries DG XIV and the Seafish Industry Authority - to undertake a study to identify the zones of Scotland and Northern Ireland highly dependent on fishing, to analyse the impact of Common Fisheries Policy (CFP) upon them and to suggest appropriate support measures and reconversion programmes for any unemployment caused as a result of fleet restructuring.
- * There are six sections in the Report. First the four segments of the sector, namely fleet, aquaculture, processing and ancillary activities are analysed. Then the zones highly dependent on fishing and ancillary activities are identified and characterised and this is extended in the third section to an examination of the characteristics of the employment groups most at risk. Fourthly the socio-economic impact of CFP is analysed with particular reference to the concerned zones. Fifth other Community reconversion programmes are reviewed and their relevance to fisheries considered. This is fed into the final section which reviews the socio-economic problems of the sector and explores possible means of resolution.
- * The evolution of the Scottish and Northern Irish fleets over recent years has been characterised by unremitting growth. Since 1983 the Scottish fleet has grown by a quarter in tonnage terms and nearly a third in aggregate power; the Northern Ireland fleet shows a similar development. Average age of the fleet has remained constant in Scotland though it has increased in Northern Ireland where the fleet is now much older than in Scotland.
- * Over the same period there has been a dramatic decline in the quantities of demersal species available to Scotland. As a result of greatly increased price total earnings have not really declined. Northern Ireland has also suffered a decline in its main fisheries especially nephrops and whiting.
- * Aquaculture has been a boom industry in Scotland and Northern Ireland - exhibiting exceptional growth rates during the 1980's. Scotland is now the Community's largest producer of farmed salmon. By 1991 fish farm output was equal to just over half of the value of total landings into Scottish and Northern Irish ports.
- * A major weakness of the aquaculture industry in Scotland is the overwhelming dependence on Atlantic salmon. This has made it extremely vulnerable to the recent deteriorating market conditions. It is expected that the short term weakness in demand for aquaculture products may pass with the recession, as prospects for increases in domestic consumption are likely to be good in view of the Community's trade deficit in fish.
- * As the likely developments in fleet structural policy would be intended to sustain and eventually improve the supply of fish available to processors from domestic landings, there is no reason to assume that employment in this segment would be adversely affected by reductions in fleet capacity. In fact, it might be argued that as British caught fish might cost less in the event of a successful outcome of the policy there might be some prospect of an increase in employment in processing as a consequence.

- * A review of onshore ancillary activities suggests that employment in this segment may be divided between those jobs that are dependent on the level of landings and those whose work depends on the size of the fleet. Those in the former group should be unaffected by a restructuring of the fleet. The number of jobs in vessel construction and servicing will not face the same pro-rata reduction that might be expected to take place in respect of crews involved in a fleet reduction.
- * Five sets of measures were used to identify zones; the first set was based on the ratio of fish industry (catching, processing and ancillary) employment to the size of the local workforce, the second on the likelihood of a displaced fish worker finding alternative employment, and the third taking account of the relative importance of the zone in contributing to fish related employment throughout the two countries. The fourth and fifth were based on the ratios of value added by the catching sector and by the total fish industry respectively, to local GDP. The analysis resulted in 23 Travel to Work Areas (TTWA's) out of a possible 76 being defined as highly dependent on employment measures and 25 areas on the basis of value added.
- * An investigation of the characteristics of employment groups most at risk showed that, although fishermen tend to be slightly younger than the workforce in general, the change since 1983 has been slight. Regarding skills, it is unfortunately the case that almost all engineers do not hold formal engineering qualifications. As a result of the contracting Scottish workforce over the next decade when over 100,000 less males and 65,000 less females under 35 will be seeking employment, reductions in fish industry employment could well be taken care of by natural wastage as it will become harder to recruit new entrants.
- * The TAC and quota regime which has been operated since 1983 has undoubtedly encouraged fishermen to expand their fishing capacity to the current level - which is clearly greatly in excess of that required to harvest the fishing opportunities available to it. The Review of CFP concluded that the regime provided fishermen with an incentive to expand to obtain advantage in relation to other fishermen. This chronic overcapacity has the economic consequence of dissipating the economic rent - estimated as a foregone revenue of ECU 3 billion annually.
- * Unfortunately, the UK has had very little experience of operating Community initiatives such as RESIDER, RECHAR, RENAVAL and LEADER. However, there are lessons to be learned from the national schemes operated by the enterprise companies set up to assist with restructuring in the coal and steel communities affected by contraction.
- * The pilot project at Macduff appears to have taken on board many of the lessons to be learned from these national enterprise companies and seems to be a source of good new ideas.
- * On the existing means available to fishermen in Scotland and Northern Ireland for readjustment there is a major drawback resulting from their classification as "share fishermen" by the Department of Employment. This, while treating them for most purposes as self-employed except for unemployment benefits, does mean that they are not eligible for redundancy payments should their vessel be decommissioned.

- * It would appear that within the UK as a whole no mechanism currently exists to provide any matching Member State contribution to any "redundancy payment" which might be paid by the Community. In Scotland the recently created Local Enterprise Companies (LECS) - who have a dual responsibility for training and inward investment - would seem to provide an ideal mechanism for the missing Member State contribution. One LEC at least saw the possibility of using their network of enterprise trusts, as a means of executing programmes.
- * Parts of the draft of the final report were circulated to industry, LECS, Local Authorities and other interested parties to solicit views, ideas and comments on appropriate measures. Unfortunately the response was disappointing and no new ideas were generated using this approach.

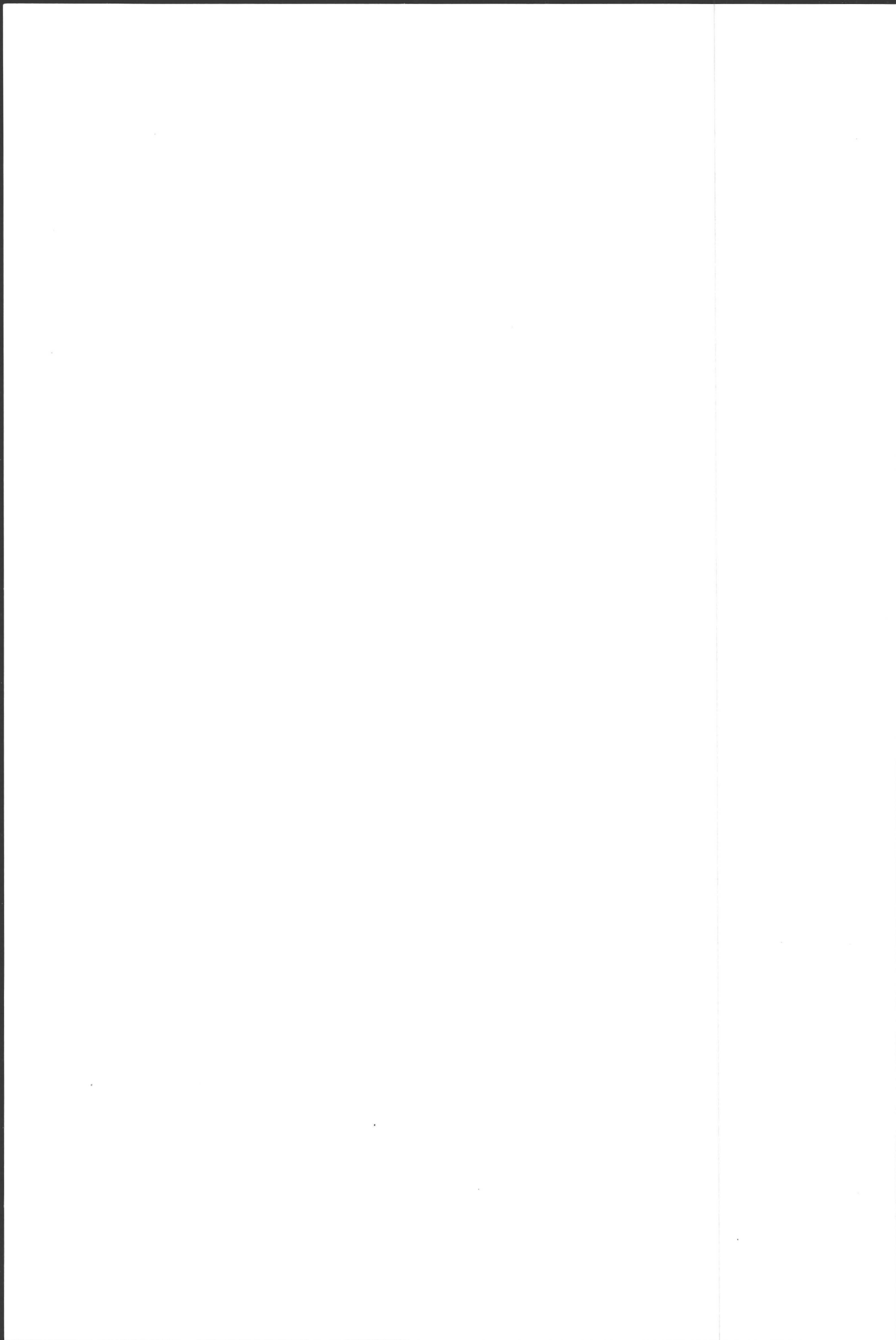


ABSTRACT

- * Le présent rapport est l'aboutissement d'un contrat - entre la direction générale de la Commission des Communautés européennes responsable de la pêche (DG XIV) et la Seafish Industry Authority - sur la réalisation d'une étude visant à identifier les zones de l'Ecosse et de l'Irlande du Nord fortement tributaires de la pêche, à analyser l'incidence de la politique commune de la pêche (PCP) sur ces zones et à suggérer des mesures de soutien appropriées et des programmes de reconversion en cas de chômage résultant d'une restructuration de la flotte.
- * Ce rapport comprend six sections. La première analyse les quatre segments du secteur, à savoir la flotte, l'aquaculture, la transformation et les activités connexes. La deuxième identifie et caractérise les zones fortement tributaires de la pêche et de ses activités connexes, partie développée dans la troisième section qui examine les caractéristiques des groupes d'emploi les plus menacés. La quatrième section analyse l'incidence socio-économique de la PCP, notamment sur les zones concernées. La cinquième passe en revue d'autres programmes communautaires de reconversion et analyse leur importance pour les pêches considérées. Tous ces éléments sont repris dans la dernière section, qui examine les problèmes socio-économiques du secteur et recherche les moyens éventuels de les résoudre.
- * Ces dernières années, les flottes de l'Ecosse et de l'Irlande du Nord ont enregistré une croissance constante. Depuis 1983, la flotte écossaise s'est développée d'un quart en termes de tonnage et de près d'un tiers en termes de puissance totale; la flotte de l'Irlande du Nord présente un développement semblable. L'âge moyen de la flotte est demeuré constant en Ecosse, mais en Irlande du Nord, il a augmenté et la flotte y est maintenant beaucoup plus ancienne qu'en Ecosse.
- * Au cours de la même période, les quantités d'espèces démersales dont dispose l'Ecosse ont considérablement diminué. Leur prix ayant beaucoup augmenté, les recettes totales n'ont pas réellement diminué. L'Irlande du Nord a également enregistré une baisse de ses principales pêches, notamment celles de la langoustine et du merlan.
- * L'aquaculture a subi un développement spectaculaire en Ecosse et en Irlande du Nord, présentant des taux de croissance exceptionnels pendant les années 80. L'Ecosse est maintenant le principal producteur de saumon d'élevage de la Communauté. En 1991, la valeur de la production piscicole y était légèrement supérieure à la moitié de la valeur totale des débarquements effectués dans les ports de l'Ecosse et de l'Irlande du Nord.
- * L'une des principales faiblesses de l'aquaculture écossaise est d'être absolument dépendante du saumon d'Atlantique. Cela l'a rendue extrêmement vulnérable à la détérioration récente des conditions du marché. On pense que la faiblesse à court terme de la demande de produits aquacoles pourrait disparaître avec la récession, car les perspectives d'augmentation de la consommation intérieure sont bonnes compte tenu du déficit commercial de la Communauté en poisson.
- * Etant donné que l'évolution probable des mesures concernant les structures de la flotte devrait permettre de soutenir, voire d'améliorer l'approvisionnement en poisson des transformateurs à partir des débarquements intérieurs, il n'y a pas de raison de penser que l'emploi dans ce segment souffrira des réductions de capacité de la flotte. En fait, on pourrait avancer que puisque le prix du poisson capturé par la flotte britannique pourrait diminuer en cas d'issue favorable de la politique appliquée, on peut espérer que cela entraînera une augmentation de l'emploi dans le secteur de la transformation.

- * Une analyse des activités connexes à terre suggère que l'emploi dans ce segment peut être réparti entre les emplois qui sont tributaires du volume des débarquements et ceux qui dépendent de la dimension de la flotte. Les emplois du premier groupe ne devraient pas être touchés par une restructuration de la flotte. Le nombre d'emplois dans la construction navale et dans les services d'entretien ne subira pas la même réduction au prorata que celle que l'on peut craindre pour le personnel concerné par la réduction de la flotte.
- * Cinq séries de mesures ont été prises pour identifier les zones : la première reposait sur le rapport entre l'emploi dans l'industrie du poisson (captures, transformation et activités connexes) et l'importance de la main-d'oeuvre locale, la deuxième sur la probabilité, pour un travailleur de l'industrie du poisson déplacé, de trouver un autre emploi, et la troisième tenait compte de l'importance relative de la zone par sa contribution à l'emploi dans le secteur du poisson dans les deux pays. La quatrième et la cinquième séries de mesures reposaient sur les rapports entre la valeur ajoutée, respectivement par le secteur des captures et par l'ensemble de l'industrie du poisson, et le PIB local. L'analyse a permis d'identifier 23 bassins d'emploi (TTWA's) sur les quelque 76 zones définies comme fortement tributaires de mesures en matière d'emploi, et 25 zones sur la base de la valeur ajoutée.
- * Une enquête sur les caractéristiques des groupes d'emploi les plus menacés a révélé que, bien que les pêcheurs soient généralement légèrement plus jeunes que les travailleurs des autres secteurs, la situation a peu évolué depuis 1983. En ce qui concerne les qualifications, il se trouve malheureusement que la plupart des ingénieurs n'ont pas de qualifications officielles. Par suite de la diminution de la main-d'oeuvre écossaise au cours de la décennie à venir, où le nombre de personnes cherchant un emploi diminuera de plus de 100.000 pour les hommes et de 65.000 pour les femmes de moins de 35 ans, les réductions d'emploi dans l'industrie du poisson pourraient bien être absorbées par les départs naturels car il sera plus dur de recruter des débutants.
- * Le régime des TAC et des quotas qui est appliqué depuis 1983 a incontestablement encouragé les pêcheurs à augmenter leur capacité jusqu'au niveau actuel, qui est bien supérieur au niveau requis pour exploiter les possibilités de pêche actuelles. La conclusion de l'examen de la PCP est que le régime incite les pêcheurs à étendre leur capacité pour obtenir plus d'avantages que les autres pêcheurs. Cette surcapacité chronique a pour conséquence, sur le plan économique, de gaspiller la rente économique, dont le revenu est estimé à 3 milliards d'écus par an.
- * Malheureusement, le Royaume-Uni a très peu d'expérience dans l'application d'initiatives communautaires telles que RESIDER, RECHAR, RENAVAL et LEADER. Cependant, il y a des leçons à tirer des programmes nationaux appliqués par les entreprises liées (enterprise companies) créées pour participer à la restructuration des communautés travaillant dans le charbon et l'acier et touchées par les réductions.
- * Le projet pilote réalisé à Macduff semble avoir profité de bien des leçons à tirer de ces entreprises liées nationales, et l'on peut y trouver de bonnes idées.
- * En ce qui concerne les moyens dont disposent actuellement les pêcheurs en Ecosse et en Irlande du Nord pour se réadapter, ils ont le grand inconvénient d'être classés comme "pêcheurs à la part" par le ministère de l'emploi. Cela signifie non seulement qu'ils sont traités à presque tous égards comme indépendants, sauf sur le plan des allocations de chômage, mais aussi qu'ils n'ont pas droit à des indemnités de cessation de fonction en cas de retrait de leurs bateaux.

- * Il semble qu'au Royaume-Uni, il n'existe pas actuellement de mécanisme prévoyant une contribution de l'Etat membre correspondant à une "indemnité de cessation de fonction" qui pourrait être payée par la Communauté. En Ecosse, les entreprises liées locales (LEC) récemment créées - qui ont la double responsabilité de la formation et de l'investissement intérieur - sembleraient offrir un mécanisme idéal pour la contribution manquante de l'Etat membre. Une LEC au moins s'est vu en mesure d'utiliser son réseau d'"entreprises trusts" pour la réalisation de programmes.
- * Des parties du projet de rapport final ont été adressées aux milieux industriels, aux LEC, aux autorités locales et à d'autres parties intéressées, auxquels il est demandé de faire connaître leur point de vue et de fournir des idées et des commentaires sur les mesures appropriées. Malheureusement, les réponses ont été décevantes et cette méthode n'a pas permis d'obtenir de nouvelles idées.



C O N T E N T S

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1. ANALYSIS OF THE SECTOR

1.1 FISHING FLEET

1.1.1 STRUCTURE

1.1.1.1 CHARACTERISTICS OF VESSELS

The evolution of the Scottish and Northern Irish fishing fleets over the period from 1983 to 1990 described in this section is based on Fisheries Departments lists of active vessels, and therefore does not correspond exactly to the situation with regard to Registration, which has been used as the basis for analysis of ownership.

SIZE OF THE FLEET

The main feature of fleet evolution in both countries over this period has been unremitting growth.

In Scotland, the fleet was fairly stable at around 2,200 active vessels from 1983 to 1986/7, but since then has grown by some 10% to around 2,400 boats. This growth has not been even across the various size classes however, growth in numbers being concentrated in the smallest and largest vessels (under 12 metres and over 24 metres), while the medium sized vessels have shown a decline, especially in the 12 to 18 metre size band.

In tonnage terms, the expansion in Scotland has been more rapid. 1983 and 1984 had shown an active fleet of some 61,300 grt, but by 1989 this had grown to a peak of about 78,500 grt (i.e. a rise of 28.1%), since when it has fallen slightly to 76,100 grt (principally due to reductions in the aggregate tonnage of vessels over 33 metres).

So far as the aggregate power of the active Scottish fleet is concerned, the pattern has been continuous year on year increase throughout, at an average rate of 3.87% per year, from 316,000 kw in 1983 to 413,000 kw by the end of 1990. No vessel group shows a long term decline, but the growth has been slowest in the 12-18m group, which has been nearly static with an average rate of only 0.33% per year, and fastest in over 33m, and 9-12m, vessels (average rates of 14.40 and 9.58% growth per year).

The amount of employment provided by Scottish vessels (in terms of number of men required to crew the fleet) has not shown this type of growth however. It remained constant at some 8,200 from 1983 to 1986, rose gradually to a peak of 8,700 in 1989, and fell back during 1990 to some 8,300.

Northern Ireland shows a very similar pattern. In terms of numbers of boats over 10m, these have increased steadily from 185 at the end of 1986, to a maximum of 258 by the end of 1990, i.e. an average rate of 8.67% per year.

The tonnage figures are rather more difficult to interpret, for although the total of vessels over 10m rose from 9,700 grt in 1986 to 16,200 grt by the end of 1990, this is partly caused by the introduction of 4 very large vessels in 1988. Excluding these vessels still shows a growth rate which averages 7.02% per year however.

In terms of installed engine power, the figures are also slightly distorted by the introduction of these 4 vessels, with the total rising from 37,900 kw in 1986 to 68,000 kw in 1990. However each individual class of vessel shows a rise 1986 to 1990, with average rates of: 10-12m 25.86%; 12-18m 15.62%; 18-24m 11.46%; and 24-33m 5.47%; per year - dramatic growth indeed.

CHARACTERISTICS OF VESSELS

It is obvious from the above description that vessels in Scotland and Northern Ireland have changed in terms of their physical characteristics over the past seven years. In Scotland, the average boat in 1983 measured 27.7 grt and had an installed power of 142.9 kw. By 1990 these figures had increased to 32.1 grt and 174.3 kw respectively. For vessels over 12m based in Northern Ireland, the corresponding figures are: 1983 - 61.4 grt and 227.4 kw; 1990 - 68.9 grt and 284.3 kw. These changes reflect alterations which are the result of technological improvements designed to increase fishing capability - greater breadth and the installation of shelterdecks for improved seaworthiness, and increasingly large engines to improve speed or the ability to tow fishing gear.

AGES OF VESSELS

Comparison of the evolution of the age structure shows that there is some disparity between the Scottish and Northern Irish fleets.

In Scotland the average age of vessels has remained effectively constant at around 19 years over the period 1983-1990, but this masks a slight concentration into vessels of middle age as the proportion of vessels under 10 years old has fallen from 30 to 26%, as has the proportion of over 35 year boats, (from 13% to 11%). The former fall is slightly more telling, as it mostly occurred relatively suddenly during 1990, as the number of vessels being replaced fell. The vessel size groups which show divergence from this general pattern are:- under 9m, where the average age and the proportion aged over 35 fell from 24 to 21 years and 25 to 17% respectively; 12 to 18m where average age rose from 20 to 23 years; and over 33m where the average age rose from 9 to 14 years, while the proportion under 10 years old fell from 73 to 22%. These changes are generally consistent with the growth patterns described above, with small vessels coming into the fleet, and decline of 12-18m boats. The exception is the boats over 33m, but here the growth occurred in the first half of the period (when some second hand vessels may have been purchased), and there has been little recent change - which simply explains why the average age increased from 12 to 14 years over the last two years. This is still a young section of the fleet however.

Northern Ireland is characterised in terms of an ageing fleet, which is now much older than that based in Scotland. The average age of vessels over 12 metres has increased from 21 to 27 years, the proportion of boats under 10 years old has fallen from 24 to 5%, while the proportion of over 35's has risen from 11 to 19%, all within the period 1983 to 1990. The oldest section of the fleet are the 12 to 18m boats, now at an average of 29 years, and the youngest are the over 33m vessels, with an average of 17 years. Thus the expansion of this fleet described above has been mainly founded on the purchase of second-hand boats from outside the province.

EVOLUTION OF LOCAL FLEETS 1983 TO 1990

The regional fleet evolution outlined above masks significant diversity in the evolution of local fleet structures.

The fortunes of the East coast of Scotland have been mixed. Only one district has seen significant growth in the number of vessels, i.e. Fraserburgh, while Lossiemouth, Peterhead, Eyemouth & Leith, Macduff and especially Aberdeen districts have witnessed significant falls in the number of boats. The average size of vessels (in tonnage and power terms) has fallen at Pittenweem, and even more noticeably in Aberdeen, where the middle water fleet (over 24m) has declined dramatically. In contrast Peterhead, Macduff and Fraserburgh districts show an increase in the average size of vessels, as the proportion of over 33m, and sometimes 24-33m vessels, has increased. So far as age structure is concerned, Peterhead, Fraserburgh, Macduff, Buckie and Lossiemouth districts all show a similar fall in the percentage of vessels less than 10 years old.

The Northern Isles of Orkney and Shetland present an entirely different picture. Here the number of vessels may have declined significantly, but the average boat size has more than doubled, as increased emphasis has been placed on vessels over 24 metres. In age structure terms, the changes here are also noticeable, with sharp falls in both the average age and the proportion of boats over 35 years old, while the proportion under 10 years has simultaneously increased.

In the Hebrides and on the Scottish West coast the evolution has been different again. With the exception of Ayr, all districts record a significant increase in the number of vessels, especially Mallaig and Stornoway. In Oban this increase has been accompanied by an increase in boats' average size, but in Stornoway, and to a lesser extent Campbeltown, the average vessel size has reduced markedly, as many small boats have been introduced, also causing a sharp increase in the proportion of vessels under 10 years old.

The general contrasts between Northern Ireland and Scotland have been drawn above, but Ardglass shows a faster relative growth in the number of vessels, coupled with a marked decline in the proportion of vessels over 35 years old, which suggests that relatively more recent second-hand vessels have been bought here.

CURRENT FLEET STRUCTURE IN ZONES HIGHLY DEPENDENT ON FISHERIES

In the Lowlands of Scotland, on both the East and West coasts, the TTWA's which are highly dependent on fisheries, i.e. Arbroath, Berwickshire, Campbeltown, Girvan, North East Fife and Stewartry are characterised by a concentration into the smaller classes of vessels, typically averaging 15 to 30 grt and 100 to 200 kw. The ages of boats in these zones are also similar, with averages ranging from 15 (in Stewarty) to 23 (in Arbroath and Girvan).

The rest of the highly dependent zones on the Scottish East Coast range along the Southern shore of the Moray Firth, viz: Banff, Buckie, Elgin, Fraserburgh and Peterhead. They represent those TTWA's where the largest vessels are concentrated, with average tonnages typically 45 to 90 grt, and mean powers 250 to 400 kw. So far as ages are concerned, some of the younger average ages are to be found in this area, ranging from 15 in Banff to 21 in Fraserburgh.

The Northern Isles also have a fair number of large vessels, average tonnages and power being some 37 grt and 150 kw in Orkney (which also has a high number of small vessels) and 90 grt and 360 kw in Shetland. The average ages do not differ greatly from the regional average of 19, but Orkney vessels are a little older with a mean age of 22 years, compared to Shetland's 18.

Northern Scottish mainland highly dependant zones (Sutherland A and B, Thurso and Wick) are characterised by smaller average boat sizes, 5 - 30 grt and 50 - 150 kw, and mean ages which range from a low of 13 years (Sutherland B) to a high of 25 years (Wick).

The Hebrides and the rest of the West Coast of Scotland - Islay/Mid Argyll, Oban, Wester Ross A, Skye & Wester Ross B, and the Western Isles, are where the smallest boats are found. Average grt's are only in the range 5 to 10, and average power 50 to 75 kw. With the exception of the Western Isles (22 years) the average ages are low, ranging from only 13 to 18 years.

In Northern Ireland, both Belfast B and Newry TTWA's show dependence on medium to large boats, average tonnage and power being 42 grt & 205 kw, and 66 grt & 300 kw respectively. As would be expected, the average ages are high at 28 years for Belfast B and 25 years for Newry.

1.1.1.2 PROFILE OF OWNERS AND INVESTMENT STRUCTURE

An investigation of corporate ownership, for UK owners whose address is in Scotland or Northern Ireland, as at October 1990, shows that 6.54% of the boats, 21.16% of the tonnage, and 18.92% of the power is under corporate (company) ownership. The disparity between these figures is because companies generally are more likely to take a share of the equity in larger vessels, i.e. 1.90% of boats under 9 metres are owned by corporations, rising through 3.78% for 9-12 metres, 8.70% for 12 to 18m, 17.69% for 18 to 24m, 23.89% for 24 to 33m, to a maximum of half for vessels over 33 metres.

In general Scottish addresses show a higher proportion of corporate ownership (7.03%) than Northern Ireland (1.43%). Companies appear to be concentrated in the Travel to Work Areas of Aberdeen, Peterhead, Edinburgh and Buckie, as would be expected. It is also no surprise that they tend to have interests in younger boats, the average age of vessels in corporate ownership is 13 years as opposed to 19 years, the proportion under 10 years old is higher at 34% in comparison to individuals at 28%, and company interest in the oldest boats is very limited, with only 2% of boats so owned being over 35 years old.

1.1.1.3 BASE PORTS AND LANDING PORTS

Based on the Scottish Fisheries Statistical Tables, the following table has been prepared. This shows the proportion of landed value in each district which derives from locally based boats (as opposed to other Scottish boats). Also shown are the proportion of landings by vessels made outside their home district. (No similar data is readily available for Northern Ireland).

TABLE 1.1: LANDING VALUE BY LOCAL FLEET

DISTRICT	% of landings in district by fleet based there		% of landings by vessels made outside home district	
	1983	1989	1983	1989
Eyemouth/Leith	99.6	99.6	10.3	38.1
Pittenweem	93.1	82.4	66.9	73.3
Arbroath	95.6	97.8	26.0	61.4
Aberdeen	50.3	21.0	2.6	30.7
Peterhead	40.2	35.9	16.3	25.9
Fraserburgh	49.6	42.5	67.0	82.0
Macduff	98.8	94.1	87.2	93.9
Buckie	94.4	94.8	86.8	82.0
Lossiemouth	76.3	62.2	94.9	95.8
Wick	82.1	42.8	33.6	41.6
Orkney	99.8	98.6	73.6	60.3
Shetland	94.4	62.7	30.2	13.5
Stornoway	90.6	86.1	12.7	4.9
KLB/LInvr/U'pl.	12.6	12.4	17.0	23.2
Mallaig	46.0	48.8	19.0	12.3
Oban	41.4	61.1	7.9	7.6
Campbeltown	93.9	96.6	15.3	7.8
Ayr	89.2	85.4	12.7	7.6

SOURCE : SOAFD

This table shows that, in the majority of districts, local vessels made up at least three-quarters, and often more than 90%, of the value of local landings. The exceptions were:- the three major Grampian ports (Aberdeen, Peterhead and Fraserburgh), and Mallaig and Oban on the West coast, where visiting boats (mainly from the Moray Firth) contributed at least half the landed value; and Kinlochbervie, Lochinver and Ullapool, which have small local fleets, yet are used for pelagic trans-shipments, and as bases from which landings are consigned to East coast markets. The general trend over the period 1983 to 1989 (the latest data available) was to increase the proportion of landings by visitor boats, especially in Aberdeen (with the decline of the local fleet), Wick and Shetland. On the other hand, Oban now attracts a lower percentage of visitor landings than before.

Two groups of fleet behaviour may be deduced from the last two columns of the table:- effectively static fleets on the West coast, and at Aberdeen, Eyemouth and Leith; Peterhead, Arbroath, and, to a lesser extent, Shetland and Wick; and much more mobile fleets from Pittenweem, Orkney and the Moray Firth. Fraserburgh is a district which attracts much of its landings from visitor vessels, yet also has a mobile fleet, because it forms the major base for the pelagic purse-seine fleet. The general trend on the East coast of Scotland, is for vessel mobility to have increased between 1983 and 1989, exceptions being Buckie and the Northern Isles, but West coast boats still seem to land locally, indeed they may even be less mobile than previously.

1.1.1.4 METHODS

The table below details the percentage of total landed value that derived from each fishing method in 1983 and 1989 (the latest readily available data). This table refers to vessels based in Scotland, no similar data being published for Northern Ireland.

TABLE 1.2: COMPOSITION OF LANDINGS BY FISHING METHOD

FISHING METHOD	1983		1989		CHANGE IN %
	VALUE /£000s	PERCENT	VALUE /£000s	PERCENT	
Demersal Trawl	59,087	23.4	69,803	25.8	+2.4
Demersal Pair Trawl	26,748	10.6	34,747	12.8	+2.2
Industrial Trawl	2,286	0.9	1,048	0.4	-0.5
Seine Net	87,983	34.8	66,624	24.6	-10.2
Lines	539	0.2	586	0.2	0
Purse Seine	21,596	8.6	24,730	9.1	+0.5
Pelagic Trawl	7,928	3.1	6,938	2.6	-0.5
Nephrops Trawl	23,888	9.5	31,733	11.7	+2.2
Shrimp Trawl	3,127	1.2	1,015	0.4	-0.8
Queen Scallop Trawl	661	0.2	418	0.2	0
Scallop Dredge	6,135	2.4	9,125	3.7	+1.3
Creel Fishing	9,345	3.7	19,322	7.1	+3.4
Shellfishing by Hand	1,715	0.7	1,875	0.7	0
Other Nets	1,576	0.6	1,651	0.6	0
Total	252,614	100.0	270,488	100.0	-

Source: SOAFD

Note: Values have been reflatd to 1990 pounds sterling using the Retail Price Index (RPI) (1983=84.9, 1989=115 1990=126).

It may be seen that seine netting has shown a decline in relative popularity over the first 6 years of the CFP, with the proportion of landed value in 1989 being only some 70 % of that in 1983. To compensate, relatively more emphasis is now placed on creel fishing, demersal trawling and Nephrops trawling.

1.1.1.5 SPECIES

The table overleaf details the major species landed by UK vessels in Scotland and Northern Ireland in 1983 and 1989.

TABLE 1.3: COMPOSITION OF LANDINGS BY SPECIES

SPECIES	SCOTLAND					NORTHERN IRELAND				
	1983		1989		CHANGE IN %	1983		1989		CHANGE IN %
	VALUE	PERCENT	VALUE	PERCENT		VALUE	PERCENT	VALUE	PERCENT	
COD	56,118	22.2	39,968	14.8	-7.4	2,283	18.2	3,622	19.6	+1.4
DOGFISH	1,121	0.4	4,550	1.7	+1.3	279	2.2	440	2.4	+0.2
HADDOCK	75,585	29.9	64,563	23.9	-6.0	15	0.1	233	1.3	+1.2
HAKE	2,014	0.8	2,638	1.0	+0.2	530	4.1	1,602	8.7	+4.6
LEMON SOLE	3,284	1.3	4,020	1.5	+0.2	0	0	15	0.1	+0.1
MEGRIMS	401	0.2	2,980	1.1	+0.9	3	0	2	0	0
MONKS	3,971	1.6	16,786	6.2	+4.6	270	2.2	646	3.5	+1.3
PLAICE	4,440	1.8	4,308	1.6	-0.2	89	0.7	138	0.7	0
SAITHE	3,141	1.2	4,432	1.6	+0.4	197	1.6	197	1.1	-0.5
SOLE	98	0	232	0.1	+0.1	76	0.6	253	1.4	+0.8
WHITING	21,658	8.6	18,051	6.1	-1.9	2,063	16.4	2,469	13.4	-3.0
HERRING	9,634	3.8	11,642	4.3	+0.5	445	3.5	298	1.6	-1.9
MACKEREL	19,626	7.8	19,417	7.2	-0.6	174	1.4	46	0.2	1.2
CRABS	2,350	0.9	4,483	1.7	+0.8	1	0	60	0.3	+0.3
LOBSTERS	4,327	1.7	7,438	2.7	+1.0	76	0.6	99	0.5	-0.1
SHRIMPS	2,631	1.0	753	0.3	-0.7	0	0	0	0	0
SCALLOPS	5,585	2.2	8,467	3.1	+0.9	9	0.1	572	3.1	+3.0
NEPHROPS	24,981	9.9	33,855	12.5	+2.6	5,686	45.3	6,927	37.5	-7.8
SQUID	291	0.1	2,748	1.0	+0.9	91	0.7	149	0.8	+0.1
VELVET CRAB	N/A	N/A	3,282	1.2	(+1.2)	N/A	N/A	N/A	N/A	N/A
OTHERS	11,357	4.5	15,875	5.8	+1.4	263	2.1	679	3.7	+1.6
TOTAL	252,613	100.0	270,488	100.0	-	12,550	100.0	18,447	100.0	-

Source: SOAFD and MAFF.

Note: Values have been reflatd to 1990 pounds sterling using the RPI. Values are expressed in f000s.

In Scottish ports the decline in relative shares of the major demersal species, viz: Cod, Haddock and Whiting is quite marked, the compensation coming from a switch towards less familiar species such as Monkfish, and, to a lesser extent, Dogfish and Megrims, and into the shellfish area. Here not only has Nephrops shown relative growth, but almost all other shellfish species have become more important in terms of proportion of Scottish landed values. In the pelagic area, a slight rise in Herring values has mostly compensated for the fall in Mackerel.

The traditional Northern Ireland fishery i.e. Nephrops and Whiting, has also reduced its share of catch values, while Hake and Scallops have become relatively more important.

Both countries therefore show a trend away from familiar species (as a result of restricted opportunities), with a ready market in the UK, and are becoming more orientated towards species for which there is an export market in other EC states.

1.1.2 STRENGTHS AND WEAKNESSES

1.1.2.1 AGE OF FLEET BY TTWA

Section 1.1.1.1 above gives a detailed description of the age profile of the fleets locally. The weakness of an old or aging fleet is that it cannot generate sufficient returns to replace vessels, therefore the employment provided is at risk.

This is the situation which, so far as the zones highly dependant on fisheries (defined in Section 2 below) are concerned, generally occurs in the travel to work areas of : Belfast B, Newry, Wick, Arbroath, Girvan, Orkney and Western Isles (in terms of average age being significantly above the norm).

The problem is not evenly spread across all vessel size groups in all these zones however, except in Girvan where nearly a third of the (small) fleet is over 35 years old. In Arbroath, Western Isles and Northern Ireland the old vessels tend to be over 12 metres, while Orkney and Wick show older smaller vessels.

Elderly boats are not just concentrated in these districts where boats are generally old however, specific 'black' spots occur in Berwickshire and Shetland (10-12m), Buckie and Fraserburgh (under 12m), Campbeltown, Skye and Wester Ross B, and Sutherland C (12-18m), and even Peterhead (under 9m). In general terms however Shetland and Moray Firth ports have a much healthier age structure than Northern Ireland, the West Coast, and South-East Scotland.

1.1.2.2 AGE OF SKIPPERS

Section 3 below gives details of the age and skill profiles of fishermen in general, here we are solely concerned with the ages of those holding Skipper's posts. The table overleaf compares the 1990 age profile of Scottish skippers of vessels over 16.5m with other crew members and with the workforce at large.

TABLE 1.4: AGE DISTRIBUTION OF EMPLOYEES

Percent Aged	16-24	25-34	35-44	45-59	60-64	65 & over
Skippers	1.1	23.5	32.9	37.7	4.0	0.8
Other Crew	25.9	28.3	21.0	22.1	2.4	0.3
Scottish Workforce	20.2	26.5	22.6	24.7	4.6	1.4

It can be seen that, although there are very few skippers under 25, as would be expected, there are healthy numbers in the 25 to 34 age group, suggesting that expertise to run vessels will be available into the foreseeable future. The majority of skippers are in the older age groups (35 and over) and it seems that, so far as the over 60's are concerned, a fisherman is more likely to be a skipper than to hold any other position. If, under any future decommissioning scheme the skipper is the major decision maker, as would seem likely, this relatively large group (perhaps nearly 30% of skippers are over 50) could be attracted by the early retirement opportunity such a scheme could represent. By comparison the relative youth (contrasted with the general working population) of the rest of the crews could imply better than average retraining possibilities.

1.1.2.3 FLEET INVESTMENT PROFILE

The investment profile has been described in Section 1.1.1.2 above. The low penetration of company ownership into the Scottish, and even more especially the Northern Irish fleets, is often portrayed as representing a strength, in terms of entrepreneurial flair, close involvement of investors with producers, social structure etc. This apparent strength may in fact be illusory, as companies could be presumed to take a much more detached view of the benefits to be obtained from fishing, and adopt much more cost reducing strategies in periods of restricted opportunity, than large numbers of competitive individuals.

1.2 AQUACULTURE

1.2.1 STRUCTURE

1.2.1.1 PRODUCTION

Aquaculture in Scotland and Northern Ireland has been a boom industry in recent years, exhibiting exceptional growth rates during the 1980s. For example, annual aquacultural output in Scotland and Northern Ireland increased more than twenty-fold over the period 1979-1991, from around 2,000 tonnes in 1979, to over 45,000 tonnes in 1991. Aquacultural production in Scotland and Northern Ireland is currently valued in excess of £160 millions, and represents over two-thirds of the value of total U.K. aquacultural output.

By 1991 aquacultural output was valued at just over half the value of total landings by UK vessels into Scottish and Northern Irish ports. Thus, for example, the total value of aquacultural output in 1991 was approaching the value of whitefish landings into Scotland (£179 millions) during the year.

Within Scotland and Northern Ireland as a whole, aquacultural production is concentrated mainly on the west coast of the Scottish Highlands and around the Western and Northern Islands of Scotland. Over three-quarters of the total value of aquacultural production is currently produced within the Highlands and Islands area of Scotland.

Aquaculture is especially important to the regional economy of the Highland and Islands and in 1989 the output value exceeded the value of fish landings for the first time. Aquacultural output was almost one sixth more valuable than landings in 1990, even surpassing the combined value of beef and lamb production in this area. At a more local level, areas which are reckoned to be particularly dependent on the fish farming industry include Skye, Wester Ross, Sutherland, Lochaber, Shetland and the Western Isles.

In 1987 there were 547 aquaculture businesses on 911 sites in Scotland and Northern Ireland which were registered with the UK Fisheries Departments (see Table 1.5 below). However, not all were operating throughout the year.

TABLE 1.5: REGISTERED AQUACULTURE BUSINESSES & SITES IN SCOTLAND & NORTHERN IRELAND IN 1987

Region	BUSINESSES			SITES		
	FISH	SHELLFISH	TOTAL	FISH	SHELLFISH	TOTAL
Scotland	295	217	512	569	299	868
Northern Ireland	23	12	35	30	13	43
TOTAL	318	229	547	599	312	911

Source: European Association of Fisheries Economists (EAFE): Evaluation of the Effectiveness of the Aquaculture Support Policies of the Commission with special reference to Regulation 4028/86: Country Report No 11: United Kingdom (1990, p.25).

The vast majority of aquacultural businesses and sites are located in Scotland, with less than one tenth of the total being situated in Northern Ireland in 1987. Approximately half the total number of aquacultural businesses and sites registered in the U.K. in 1987 were located in Scotland, or Northern Ireland.

The majority of registered aquaculture businesses and sites in 1987 in Scotland and Northern Ireland were concerned with finfish farming, with the remainder being concerned with shellfish farming. The geographical distribution of fish and shellfish farms in Scotland in 1986 are shown in Table 1.6 below.

TABLE 1.6: REGIONAL DISTRIBUTION OF SCOTTISH FISH AND SHELLFISH FARMS IN 1986

REGION:	NUMBER OF FARMS	PERCENTAGE OF TOTAL (%)
HIGHLAND	115	27.6
WESTERN ISLES	100	24.0
STRATHCLYDE	95	22.8
SHETLAND	34	8.2
ORKNEY	25	6.0
DUMFRIES & GALLOWAY	15	3.6
TAYSIDE	13	3.1
GRAMPIAN	7	1.7
BORDERS	6	1.4
CENTRAL	2	0.5
FIFE	2	0.5
LOTHIAN	2	0.5
TOTAL	416	100.0

Source: Cobham Resource Consultants with Fisheries Development Ltd: An Environmental Assessment of Fish Farms. Report for Countryside Commission for Scotland, Crown Estate Commissioners, HIDB and Scottish Salmon Growers' Association (1987, p.7)

As Table 1.6 above shows, almost three-quarters of fish and shellfish farms in Scotland in 1986 were located in just three of the twelve Scottish regions. Furthermore, the predominantly west coast location of aquacultural activities is also emphasized by the map of Scottish aquacultural sites shown on the next page.

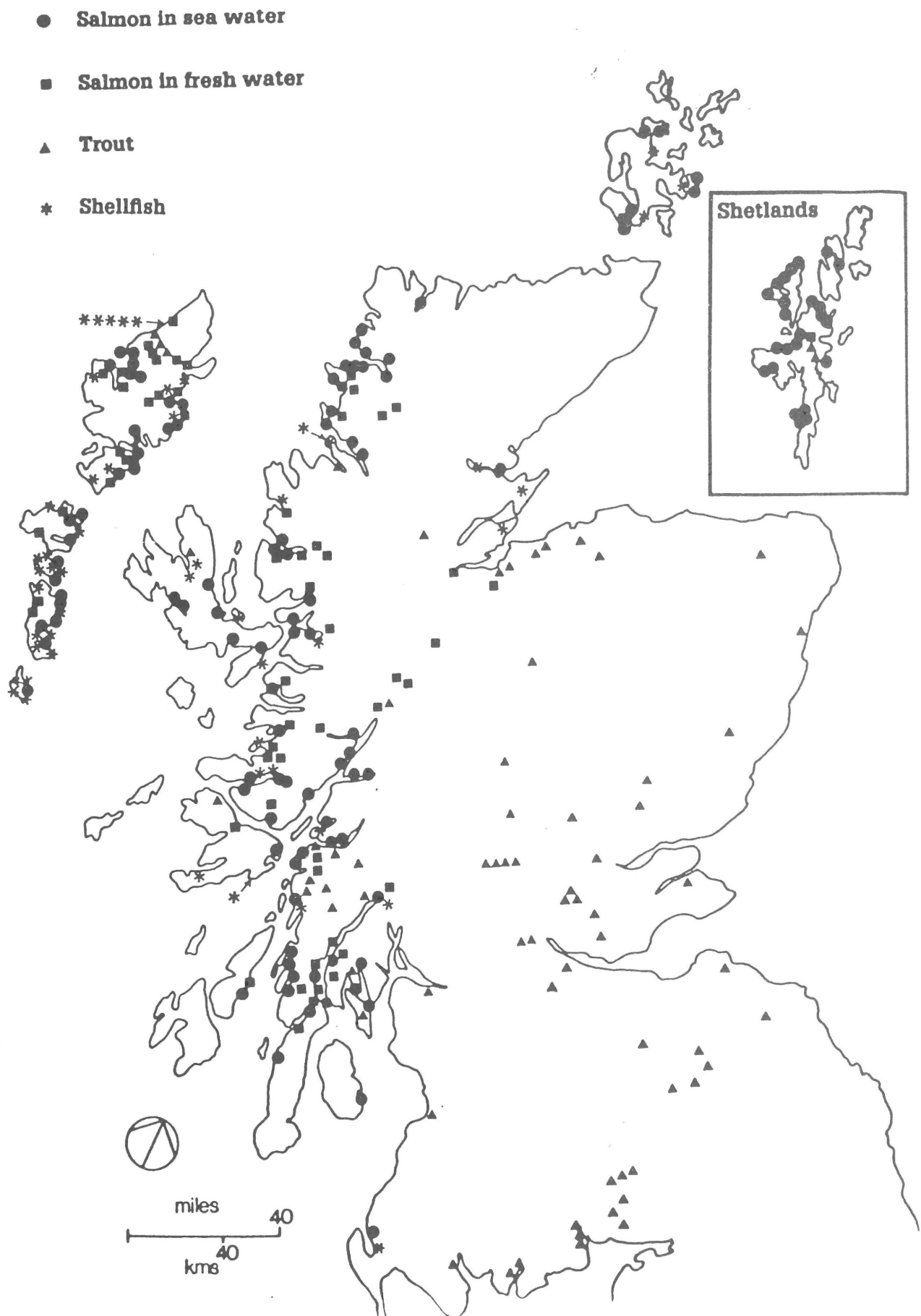
Unfortunately information on aquacultural activities, especially relating to shellfish farming, and to Northern Ireland, is generally sparse. Comparison of different data sources also suggests that disparities exist in some of the shellfish data published. Therefore considerable caution needs to be exercised in interpreting the available data.

Despite this dearth of data, estimates of value added and employment in aquaculture were made for each Travel to Work Area. These estimates are presented in Table A of Appendix 4 (Volume 2).

1.2.1.2 TYPOLOGY

By far the most important form of aquaculture undertaken in Scotland and Northern Ireland as a whole is salmon farming, which accounts for over four-fifths of the total annual production (see Table 1.7 below). Of the remainder, trout farming is by far the most valuable, with mussel farming and oyster farming being the most important types of shellfish cultivation undertaken.

Trout farming and mussel farming are the most important kinds of aquacultural activities in Northern Ireland. Thus, whereas in Scotland salmon accounts for around 90% of total annual aquacultural output,



Taken from CRC & FDL (op.cit. p.6)

in Northern Ireland trout and mussels together account for about 90% of annual production.

TABLE 1.7: AQUACULTURAL PRODUCTION IN SCOTLAND & NORTHERN IRELAND IN 1990

SPECIES	SCOTLAND		NORTHERN IRELAND		TOTAL	
	Quantity (Tonnes)	Value (£000s)	Quantity (Tonnes)	Value (£000s)	Quantity (Tonnes)	Value (£000s)
SALMON	32,350	120,000	n.a.	n.a.	32,350(m)	120,000(m)
TROUT	3,183	7,300(t)	1,000	2,300	4,183	9,600(t)
MUSSELS	457	)	2,500(e)	935(f)	2,957(e))
OYSTERS	114	)	181	359	295)
QUEENS	54	) 750	n.a.	n.a.	54(m)	) 1,685(m)
SCALLOPS	13	)	n.a.	n.a.	13(m))
TOTAL	36,171	128,050	3,681(m)	3,594(m)	39,852(m)	131,285(m)

Sources: DAFS, DANI, HIDB Annual Report 1990 p.23
Shaw, Gabbott & Gibbs (1991)

- Notes: (m) signifies a total excluding missing data;
- (t) value of Scottish trout production obtained using average price prevailing for Northern Irish trout;
- (e) Mussel production in Northern Ireland was estimated by Shaw, Gabbot & Gibbs (1991, p.8) to be between 2,000 and 3,000 tonnes in 1990. (This figure greatly exceeds that given in DANI's Reports on the Sea & Inland Fisheries of Northern Ireland for 1989. This is possibly due to a definitional difference);
- (f) Value of mussel production in Northern Ireland in 1990 estimated using price of £374 per tonne in 1989/90 for Scotland quoted by Shaw, Gabbot & Gibbs (1991, p.16).

Of the different types of aquacultural production undertaken, salmon farming has exhibited the most spectacular growth. Within the UK, salmon farming is almost exclusively confined to Scotland. Scottish production of farmed salmon increased more than fifty-fold over the decade 1979-89, from 520 tonnes in 1979 to 40,593 tonnes in 1991. Thus since 1979, output of Scottish farmed salmon has on average doubled every 2-3 years (see Table 1.8 below).

TABLE 1.8: ANNUAL PRODUCTION OF FARMED SALMON IN SCOTLAND 1983-1991.

YEAR	Quantity (Tonnes)	Value (£000s)
1983	2,536	n.a.
1984	3,912	n.a.
1985	6,921	n.a.
1986	10,300	n.a.
1987	12,721	n.a.
1988	17,951	n.a.
1989	28,553	108,300
1990	32,351	120,000
1991	40,593	150,000

Sources: DAFS: Annual Surveys of Fish Farms.
The Scotsman 13/2/92.
Fishing News 21/2/92.

Salmon farming is almost exclusively confined to the Highlands and Islands area of Scotland. The geographical distribution of Scottish salmon production in 1990 is shown below.

TABLE 1.9: SALMON PRODUCTION IN SCOTLAND IN 1990 BY REGION

REGION:	PRODUCTION (Tonnes) (live weight)	PERCENTAGE OF TOTAL (%)
HIGHLAND	15,424	47.7
SHETLAND	6,461	20.0
STRATHCLYDE	5,484	17.0
WESTERN ISLES	4,133	12.8
ORKNEY	849	2.6
TOTAL	32,351	100.0

Source: DAFS: Annual Survey of Fish Farms - 1990 (Table 11).

Although far less rapid than the expansion in salmon farming, production of farmed trout has also exhibited considerable growth in recent years, with production almost tripling in the eighties. The expansion of trout farming in Northern Ireland appears to have followed more closely the overall trend in trout production in the UK, than has production in Scotland, with output quadrupling in the eighties.

By far the greatest proportion of Scottish trout is produced in fresh water cages, ponds, or tanks, with only about one sixth of the total output in 1990 being produced using sea water cages. As trout production utilizes mainly fresh water sites, it tends to be located in different areas from salmon production.

Like salmon farming, shellfish cultivation in Scotland is carried out almost exclusively in the sheltered coastal waters of the Western and Northern Isles, and in the sea lochs of the west coast of Scotland. However, in contrast to fish farming, shellfish farming appears to currently occur on a more significant scale in Northern Ireland than in Scotland.

Shellfish farming in Scotland also appears to have exhibited very rapid growth in recent years, with production (according to HIE) having risen from 181 tonnes in 1985 to over 600 tonnes recently. However this is only worth £0.75 million.

TABLE 1.10: ANNUAL PRODUCTION OF FARMED SHELLFISH IN SCOTLAND 1985-1990

YEAR	Mussels (Tonnes)	Oysters (Tonnes)	Scallops (Tonnes)	Queens (Tonnes)	Total	
					(Tonnes)	(£000s)
1985	116	60	5	0	181	164.0
1986	222	80	11	4	317	277.9
1987	371	137	11	15	534	486.3
1988	484	150	11	14	659	600.4
1989	440	157	9	76	682	713.3
1990	457	114	13	54	638	750.0

Source: HIDB Annual Report 1990 (p.23)

Note: The figures for 1988 and 1989 do not match well those quoted by Shaw, Gabbott & Gibbs (1991, p.18). For example, they estimate production in 1988 to have amounted to 463 tonnes of mussels, 134 tonnes of oysters, 8 tonnes of scallops and 137 tonnes of queens.

It is estimated (by Shaw, Gabbott & Gibbs (1991)), that mussel production in Northern Ireland in 1990 was between 2,000 and 3,000 tonnes, or at least four times as great as that in Scotland, and representing around one third of total UK output. However, this estimate appears to be at variance with the figure of 104 tonnes reported by DANI as having been produced in Northern Ireland in 1989. The apparent disparity in reported output may be due to a difference in definitions as to what constitutes aquaculture. According to Shaw, Gabbott & Gibbs (1991), mussel farming in Northern Ireland is carried out using seabed cultivation of natural spatfall, with harvesting of the grown mussels taking place by dredging. This method is obviously far more akin to conventional fishing methods, than are the rope-based methods which are used exclusively by mussel farmers in Scotland and which fit more easily within the traditional classification of aquacultural activities.

1.2.1.3 PROFILE OF UNDERTAKINGS

In 1990 there were 164 companies operating 298 sites producing salmon in Scotland, compared to a single site in Northern Ireland at Glenarm. Salmon output per producer in Scotland in 1990 averaged 197 tonnes, and output per site averaged 109 tonnes. The salmon industry is characterized by a high degree of concentration. Marine Harvest, a subsidiary of Unilever, is currently the largest producer, operating 33 sites from Arran to Loch Awe, and producing around one quarter of the total Scottish output. This company's sales are estimated to have been around £50 millions in 1990. Together with McConnell

Salmon, and Golden Sea Produce (a subsidiary of Norsk Hydro), these three companies account for more than half the total Scottish output. As Table 1.11 shows, almost one third of the total output in 1990 was produced on just 14 of the sites.

TABLE 1.11: ACTIVE SCOTTISH SALMON FARM SITES IN 1990 BY SCALE OF PRODUCTION

ANNUAL PRODUCTION (Tonnes)	NUMBER OF SITES	SHARE OF TOTAL ANNUAL OUTPUT (%)
Less than 1	55	0
1 - 10	19	0.2
10 - 25	42	2.2
26 - 50	37	4.1
51 - 100	49	11.1
101 - 200	55	25.0
201 - 300	14	10.4
301 - 400	10	10.4
401 - 500	3	4.3
More than 500	14	32.3
TOTAL	298	100.0

Source: DAFS: Annual Survey of Fish Farms - 1990 (Table 14).

According to DANI, of the 28 fish farm sites in Northern Ireland in 1990, 2 were trout hatcheries and 24 trout farms. In 1990 there were 54 companies operating 71 sites producing trout in Scotland. Output averaged 59 tonnes of trout per producer, and 49 tonnes per site. Production levels in Northern Irish trout farms appear to be similar. Trout production in Scotland is also characterized by a considerable degree of concentration, with over half the annual output being produced by the 15 farms which are members of producer cooperative Scot Trout Ltd of Motherwell. Scot Trout is reported to have processed and marketed over 2000 tons of trout on behalf of its 15 member farms in 1991. Furthermore, more than two-fifths of the total Scottish output in 1990 was produced on just ten sites, which each produced over 100 tonnes.

According to DANI's Annual Fisheries Report, in 1990 there were 4 oyster farms, one mussel farm, and one scallop farm registered in Northern Ireland, Shaw, Gabbott & Gibbs (1991) state that there are currently two mussel farms operating in Northern Ireland, one at Carringford Lough and the other at Belfast Lough, with output per farm estimated to be in excess of 1,000 tonnes.

Oyster production is also undertaken on a larger scale in Northern Ireland than in Scotland. Compared with an average output per farm in excess of 40 tonnes of the 3 or 4 oyster farms in Northern Ireland, the average output of the 70 or so oyster farms in Scotland is around 2 tonnes. Cuan Sea Fisheries dominates pacific oyster production in the UK and is located in Strangford Lough, Northern Ireland. In Scotland almost half the total output is produced by Loch Fyne Oysters, who also finish on-growing oysters and undertake marketing on behalf of other smaller producers.

The comparatively small-scale nature of shellfish farming in Scotland, is emphasized by the findings of a recent study undertaken by Highlands and Islands Enterprise. This found that the turnover of most Scottish shellfish farms in 1989 was below £5,000, with only one having a turnover of £100,000. Thus, for most Scottish shellfish farmers, shellfish farming apparently provides a relatively small part of their total income. Of the 223 shellfish farms registered in Scotland Table 1.12 overleaf shows that only 121 were operating.

TABLE 1.12: NUMBER OF SHELLFISH FARMS OPERATING IN SCOTLAND IN OCTOBER 1989

AREA:	MUSSEL FARMS	OYSTER FARMS	SCALLOP FARMS	OTHER FARMS	TOTAL NUMBER
WESTERN ISLES	44	1	0	1	46
ARGYLL	11	19	6	1	37
ORKNEY	1	8	2	0	11
ROSS-SHIRE	6	0	1	0	7
SUTHERLAND	2	2	1	0	5
SKYE, INVERNESS, NAIRN & MORAY	4	4	6	1	15
TOTAL	68	34	16	3	121

Source: European Association of Fisheries Economists (EAFE): Evaluation of the Effectiveness of the Aquaculture Support Policies of the Commission with special reference to Regulation 4028/86: Country Report No 11: United Kingdom (1990, p.25).

1.2.1.4 EMPLOYMENT

Employment in aquaculture has grown very rapidly over the past decade, and currently provides over 2,000 jobs in Scotland and Northern Ireland. As the pattern of aquacultural output suggests, employment in aquaculture is concentrated in the Highlands and Islands of Scotland, where this industry is currently reckoned to be the largest employer in some areas. Due to its location, aquaculture provides an especially valuable source of employment in remote coastal areas. (See Table A of Appendix 4 for estimated aquacultural employment in the Travel-to-Work Areas of Scotland and Northern Ireland).

Growth in employment in aquaculture has been especially rapid in salmon farming, increasing fivefold since 1983. In contrast employment in trout farming has hardly changed.

TABLE 1.13: EMPLOYMENT ON SALMON & TROUT FARMS IN SCOTLAND 1983-1990

YEAR	SALMON FARMING			TROUT FARMING			TOTAL FTE
	(Full-time)	(Part-time)	FTE	(Full-time)	(Part-time)	FTE	
1983	283	89	333	118	72	159	492
1984	387	128	459	114	66	151	610
1985	528	193	637	121	69	160	797
1986	723	298	891	143	80	188	1079
1987	836	288	998	145	71	185	1183
1988	1335	448	1587	146	83	193	1780
1989	1432	403	1659	151	83	198	1857
1990	1450	419	1686	138	68	176	1862

Source: DAFS: Annual Surveys of Fish Farms

Note: Calculation of Full-time equivalent (FTE) employment is based on the method used by the Central Statistical Office of weighting part-time jobs by a factor of 21.1/37.5 (≈ 0.56).

TABLE 1.14: EMPLOYMENT IN SALMON & TROUT FARMING IN SCOTLAND IN 1990 BY REGION

REGION	SALMON FARMING			TROUT FARMING			TOTAL FTE
	(Full-time)	(Part-time)	FTE	(Full-time)	(Part-time)	FTE	
HIGHLAND	631	117	697	13	7	17	714
STRATHCLYDE	278	61	312	47	13	54	366
SHETLAND	230	139	308	0	0	0	308
WESTERN ISLES	250	68	288	1	0	1	289
ORKNEY	47	29	63	0	0	0	63
DUMFRIES & GALLOWAY	)	)	)	27	13	34)
CENTRAL & FIFE	) 14	) 5	) 17	18	15	26	) 9
TAYSIDE	)	)	)	17	7	21)
LOTHIAN	0	0	0	6	3	8	8
BORDERS	0	0	0	6	3	8	8
GRAMPIAN	0	0	0	4	7	8	8
	1,450	419	1,686	139	68	177	1,863

Source: DAFS: Annual Survey of Fish Farms - 1990 (Tables 2, 7 & 11).

Note: Calculation of Full-time equivalent (FTE) employment is based on the method used by the Central Statistical Office of weighting part-time jobs by a factor of 21.1/37.5 (≈ 0.56).

In 1988 the HIDB estimated that apart from 1,335 full-time and 448 part-time jobs in salmon farming, there were a further 5,000 indirect and "downstream" jobs related to aquaculture throughout Scotland. For example, an estimated 1,800 people were employed in processing farmed salmon in Scotland in 1988. (Processing aquaculture production is included in the employment estimates used in sections 1.3 and 2 below). According to the SOAFD Annual Survey of Shellfish Farms, in 1990 there were 287 people employed in shellfish farming in Scotland. However, most were employed either part-time (122), or on a casual basis (110). The above figures imply that direct employment in aquaculture currently provides about 2,000 jobs in Scotland. When indirect and "downstream" employment is included, the HIDB's estimate suggests that total employment in aquaculture in Scotland may be of the order of 7,000 jobs.

Employment provided by aquaculture in Northern Ireland is relatively small, providing under 100 jobs in total at present. According to DANI, 45 people were employed in fish farming and a further 20 people were employed in shellfish farming in 1986 (all were employed on a full-time basis). Whereas employment in shellfish farming in Northern Ireland has risen in recent years, employment in fish farming seems to have been more static. In 1990 there were reported to be 21 people employed full-time and one person part-time on oyster farms in Northern Ireland, and about 6 people employed full-time on the mussel farms. It is estimated that employment in shellfish farming in Northern Ireland currently provides the equivalent of 30 full-time jobs, compared to 46 in fish farming.

1.2.2 STRENGTHS AND WEAKNESSES

1.2.2.1 SUPPLY

One of the major weaknesses identified by aquacultural producers in the pattern of supply in Scotland and Northern Ireland as a whole, is the overwhelming dependence of the sector on the production of a single species, namely Atlantic Salmon. This has made the sector extremely vulnerable to changing market conditions for salmon, which in turn has led to a relatively high level of bankruptcies in aquacultural enterprises during the past year, when conditions in the salmon market significantly worsened. Thus, diversification of activities is currently seen as one of the sector's main priorities. Fortunately, sites where trout farming is feasible are still available in Scotland.

An associated strength in terms of supply is the volume of aquacultural research and development being undertaken, which includes projects closely related to the aim of diversifying the species farmed commercially. This work is primarily undertaken at SOAFD's Marine Laboratory, Aberdeen, SFIA's Marine Farming Unit at Ardtoe, Argyll, and the Institute of Aquaculture at Stirling University, with the institutes frequently collaborating on projects. Research in progress at SFIA Marine Farming Unit Ardtoe for example, currently includes work on farming halibut, lobsters, scallops, mussels and clams. Of these, halibut farming is thought to provide one of the best potential alternatives to salmon.

From the salmon farmers' perspective, one of the major weaknesses affecting supply has been the trend in prices paid for their output. While in nominal terms wholesale prices for farmed salmon rose slightly during the 1980s, in real terms, prices fell significantly, with the average price in 1989 being about one quarter lower than that prevailing in 1981 (or about the same as in 1983). By comparison, the trend in trout prices has been more favourable.

TABLE 1.15: AVERAGE WHOLESALE SALMON PRICES 1983-1989

YEAR	SALMON PRICE	
	NOMINAL (£ Per Kg)	AT 1989 PRICES (£ Per Kg)
1983	3.6	4.8
1984	3.7	4.7
1985	4.5	5.5
1986	5.1	5.9
1987	4.4	4.9
1988	5.1	5.5
1989	4.7	4.7

Source: EAFE (1990): Evaluation of the Effectiveness of the Aquaculture Support Policies of the Commission with special reference to Regulation 4028/86: Country Report No 11: United Kingdom (p.69).

The most dramatic falls in wholesale salmon prices occurred during 1991, when in real terms, prices fell by almost one third during the first 6 months of the year, to around half the level prevailing in January 1982. This fall was associated with an influx of supplies of cheap imported salmon, which has been the subject of considerable controversy over alleged dumping on EC markets of farmed salmon by Norwegian and U.S. companies. This is claimed to have cost Scottish salmon farmers £25 millions in lost income. Frozen Norwegian farmed salmon was reportedly being offered to U.K. processors at the equivalent of about £1.20 per Kg, or less than one third of the usual price. Under pressure

from Scottish producers and the UK Government, the European Commission introduced a temporary minimum import price for salmon, effective until February 29th 1992.

Certainly the weakness in supply due to excessive vulnerability to fluctuations in the salmon market, is exacerbated by the fact that the UK market is so closely linked to the world supply situation, particularly as this has recently been characterized by a glut. In 1989 salmon production in Scotland represented 82% of total EC production of farmed salmon. However, in terms of other European countries, Scottish salmon production is dwarfed by that of Norway. Salmon production in Norway accounted for around two-thirds of the total world production of Atlantic salmon in 1989, compared to production in Scotland which amounted to about one sixth of total world production of this species in that year. The problems for Scottish salmon producers due to low market prices in 1991 were closely linked to the crisis affecting Norwegian producers. In Norway salmon companies were reportedly going bankrupt at the rate of more than one a week in November 1991, with almost as many bankruptcies having occurred during October, as during the whole of 1990. In an attempt to try and stabilize the UK salmon market by trying to prevent gluts occurring in domestic production, Scottish salmon farmers recently agreed to the introduction of voluntary limitations on ova production.

A further weakness in supply is the overdependence of Scottish salmon producers on a single supplier of fishmeal. A major weakness in the supply of farmed shellfish, especially of mussels, scallops and queens in Scotland, appears to be the largely marginal and fragmented nature of production, with associated low levels of productivity and investment. However, changes appear to be occurring in the structure of Scottish production of these species. For example, although two-thirds of the shellfish farmers interviewed in a survey by Highlands and Islands Enterprise (HIE) during 1990 derived less than one quarter of their income from shellfish farming, half those interviewed said that they aimed to make it their main occupation.

One strength appears to be in the marketing of salmon, where an estimated 90% of total sales are handled by 8 or 9 sales points. A major strength in aquacultural supply has been the ability of Scottish and Northern Irish businesses, particularly salmon producers, to increase their share of the U.K. market, and for sustained import substitution to occur. Although salmon imports increased slightly over the period 1980-1989, from 6,105 tonnes in 1980 to 8,368 tonnes in 1989, as proportion of the total amount of non-canned salmon consumed, Scottish farmed salmon has increasingly taken the place of imports as the main source of UK supplies. Thus, from being of relatively minor importance in 1980, when production of farmed salmon in Scotland amounted to less than one tenth of the total consumed in the UK, by 1989, Scottish production exceeded the level of UK consumption.

A further strength in supply has been in Scottish salmon producers' ability to consistently expand overseas sales. Exports of non-canned salmon increasing over ten-fold during the 1980s, from 989 tonnes (whole-weight equivalent) in 1980 to 10,943 tonnes in 1989. The largest proportion (42% in 1988) of Scottish farmed salmon is sold for smoking and exports of smoked salmon from the UK tripled over the period 1983-1989, from 483 tonnes to 1,523 tonnes. Over one third of Scottish farmed salmon is currently exported, with this mainly going to other EC countries, particularly France (17% in 1988).

Another weakness in aquacultural supply is the susceptibility of farmed shellfish and fish to disease. This appears to represent a major constraint on development of the industry, both in terms of expanding production of species already farmed and also in diversifying production by farming other species.

1.2.2.2 DEMAND

A major short-term weakness in the demand for aquacultural products at present is caused by the recession.

A major strength in the demand for aquacultural products has been the expansion of U.K. consumption in recent years, with the prospects for further expansion generally appearing good. Demand for aquacultural products generally appears to be fairly elastic, so that despite an expansion in U.K. consumption, prices have shown only a modest fall if any, and for some species (e.g. trout), increased consumption has been accompanied by significant increases in prices in real terms. Prospects for further increases in domestic consumption are thought to be good, especially in view of the declining volumes of U.K. landings of the main shellfish and whitefish species, and associated increases in real landings prices. The divergence between retail prices for farmed salmon and trout, and whitefish has narrowed considerably in recent years, so that salmon in particular, is no longer viewed as a luxury commodity. As a consequence of the healthy image of fish and increasing health consciousness, prospects for growth in demand for fish and shellfish as a whole appear to be good.

Growth in the consumption of salmon in the UK has been rapid, with consumption of non-canned salmon increasing more than four-fold during the 1980s, from 6,802 tonnes in 1980 to 26,925 tonnes in 1989. This represented an annual average rate of growth in UK consumption of 17% over this period. By comparison there was a relatively modest fall in real prices. There is thought to remain considerable potential for further expansion in the U.K. market for farmed salmon. Per capita consumption of salmon in the U.K. is currently only about half the level in France, and less than one third of U.K. households are reported to have purchased any fresh salmon during 1990.

According to a recent study by the TSB, the prospects for salmon exports are also favourable, with growth in world demand for salmon being likely to outstrip supply over the next few years. However, other studies have been less optimistic, pointing to the increasing importance of Pacific farmed supplies.

Despite a three-fold increase in the consumption of trout in the U.K. over the period 1981-1989, in real terms, trout prices increased by over one fifth during this period. Whereas in 1981 6,020 tonnes (live-weight equivalent) of trout were consumed in the U.K., by 1989 the amount consumed had risen to 18,260 tonnes. Compared to the average wholesale price of £2.2 per Kg in 1981, prices rose to £2.7 per Kg in 1989.

Demand conditions are thought to remain good for both farmed trout and for farmed shellfish.

1.3 PROCESSING

As the likely developments in structural policy would be to sustain or even improve the supply of fish available to processors from domestic landings, there is no reason to assume that employment in this sector would be adversely affected in the future. In fact it might be argued that as British caught fish might cost less in the event of the successful outcome of the policy there might be some increase in employment as a consequence. Therefore this section of the report is fairly cursory.

1.3.1 OUTLETS

The number of outlets that there are in Scotland and Northern Ireland seems to depend critically upon the definition of processing which is adopted. A survey of processors in the UK last year by Mackay's Consultants on behalf of the European Commission suggested that an earlier survey by Seafish adopted too wide a definition of processors and as a result included operations which could be more properly be described as wholesalers. This survey in turn has been criticised by trade representatives for omission of many of their processing members. Current estimates by the Marketing Division of Seafish, based on their dealing with companies are that there are about 300 companies in Scotland and about 30 in Northern Ireland that could be described as processors and definitely not traders or wholesalers. It is probably worth commenting that many of the companies engaged in the sector are small and change in the numbers is quite common.

Various estimates exist for the numbers employed in processing. For 1990 the Fisheries Departments estimate employment to be about 10,900 (FTE) of whom 890 were in Northern Ireland. NOMIS estimated 8,000 for Scotland but some of these were in non-coastal TTWAs not covered by Fisheries Department's estimates. Adjusting the Fisheries Department's to take account of this gives an alternative estimate of 11,200 (FTE) jobs in processing for Scotland and Northern Ireland.

1.3.2 OUTPUT

According to the Department of Agriculture for Northern Ireland (DANI) the 29 main companies engaged in processing in 1990 were based primarily in Kilkeel, Ardglass, Portavogie and Annalong, and had a turnover of over £44 million. The UK mainland is the largest market accounting for 45% of output, the rest of EEC and the local market each account for 25% and the remaining 5% is sold to third countries.

Scotland has long been regarded as a source of fresh fish for processors located elsewhere in the UK. Evidence of this flow from north to south can be seen in the quantity of overlanded Scottish fish on sale at Hull and Grimsby fish markets. However, reduced quotas for the prime species of cod and haddock may have resulted in higher prices being paid for the reduced supplies landed into Scotland and a smaller proportion of the total moving out. In 1989 commercial vessels landed 4,100 tonnes of haddock and 1,600 tonnes of cod from other countries in Scottish ports, but the proportion that was retained is not known.

Assuming that the only imported fish used for processing in Scotland came from landings of foreign vessels (i.e. ignoring significant inter-UK trade and imports of material through commercial ports - see section 1.3.3 below - and aquacultural production - see section 1.2 above) the following table was produced:

TABLE 1.16: QUANTITY OF FISH CATCHES PROCESSED IN SCOTLAND IN 1989 ('000 tonnes)

TYPE:	DEMERSAL	PELAGIC	SHELL	TOTAL
LANDINGS BY BRITISH VESSELS	208.3	257.3	45.0	510.6
LANDINGS BY FOREIGN VESSELS	1.6	18.5	0.9	21.0
TOTAL AVAILABLE SUPPLIES	209.9	275.8	45.9	531.6
NON-HUMAN CONSUMPTION	26.2	32.5	-	58.7
KLONDYKED	-	188.2	-	188.2
TOTAL AVAILABLE FOR PROCESSING	183.7	55.1	45.9	284.7
PROCESSED IN SCOTLAND				210.0
PROCESSED ELSEWHERE				75.0

1.3.3 SOURCING

In Northern Ireland the mainstay of the processing industry is the production of scampi from nephrops. This accounts for about half of turnover and labour employed in fish processing in the Province. Some 85 to 90% of nephrops landed are purchased by local processors and this is augmented by some imports. A substantial part of the whitefish catch, comprising largely of cod and whiting, is transported to Scotland for processing. Local processing is supplemented by additional supplies from Scotland and the Irish Republic. Anglerfish, sole and turbot - along with the less valuable dogfish and skate - are chiefly exported for processing on the UK mainland. Also according to DANI, most of the landings from the summer herring season are processed locally into fillets and frozen blocks, though a small proportion is used to produce spiced and marinated herring, Mourne Kippers and other specialist smoked products. In 1990 about 1500 tonnes were klondyked and a small quantity sent to Donegal for processing.

In Scotland, most of the processing is concentrated in the Grampian area particularly in Aberdeen, Fraserburgh and Peterhead which are also main landing places. As indicated above Scottish based processors are not so dependent on direct imported fish as those in England. Consequently catch restrictions on gadoids in the North Sea have had quite an adverse effect on these companies, many of whom have reduced workforces or even gone out of business recently. On the other hand, there are some local businesses who are sourcing supplies indirectly from elsewhere in the UK and via direct imports (mainly frozen) from non-E.C. countries. These firms are therefore maintaining their level of business. Also one area of processing which has enjoyed some expansion recently has been filleting and freezing herring and mackerel. This has been as a result of the reduction in the number of factory vessels from Eastern Europe which used to participate in what was known colloquially as the "klondyke". Under this arrangement the Scottish pelagic fleet landed 75% of their herring catch and even more of their mackerel to be processed on board these factory vessels anchored around the Scottish coast, and then exported to former Communist Bloc countries.

1.4 ANCILLARY ACTIVITIES

1.4.1 INFRASTRUCTURE - DESCRIPTION

The support services for the catching/processing sector of the total fishing industry can be sub-divided into two main categories:

1. Dependent on fishing activity.
2. Committed to the fishing industry but with opportunity to trade in other areas of business.

Catchers, processors and fishmongers are excluded from the description given below.

1.4.1.1 DEPENDENT

FISHING VESSEL MANAGEMENT AGENCIES

Function:

Act as fish salesmen for agency vessels, manage vessels operating accounts, supply information on quota restrictions, restricted fishing zones, organise supplies of fuel oil, ships chandlery, boxes, nets, groceries, bonded stores, vessel insurance, vessel repairs. Grant applications for improvements, registration, payment for crews. Assist in vessel purchase/sale. Assist financially in construction of new vessels. Shareholders in some vessels. Members of Fishing Industry trade associations/ organisations, fishermen's welfare organisations etc.

NET MAKERS AND REPAIRERS

Function:

To manufacture and supply, seine net, trawl nets, purse nets for the various species fisheries. Modify and adjust nets for individual owners. Provide nets to meet the statutory requirements of the catching sector. Repair owners existing nets. Provide warps, wires, and ropes.

SHIPS CHANDLERS

Function:

To supply maritime equipment, charts, log books, seamen's equipment, cleaning equipment, flags, bunting, fishing equipment etc.

BOX WASHING FACILITIES

Function:

To ensure a constant rotation, supply clean fish containers. Uplifting used containers at markets, wash, sterilise and re-stock compounds. Transportation of boxes to compounds from washing area, and to individual vessels as demanded. Repair of boxes (wooden), purchase of new replacement stock. Operate security system to prevent illicit box usage.

FISH MARKET PORTERS/LUMPERS

Function:

To assist off-loading of catches. Arrange containers for auction. Load buyers vehicles. Clean up auction area, market area after sales. Provide watchman services.

FISH TRANSPORTING STAFF (LOCAL)

Function:

Transportation of buyers purchases to buyers premises for processing. Uplifting of boxes for return to washing facilities. Transporting washed boxes to compounds at harbours.

WASTE PRODUCT CONVERTERS (OFFAL PLANTS)**Function:**

Collection of by-products ie offal, skins, skeletons from processors premises/markets and from withdrawn fish. Processing offal to produce animal feedstuffs, fertilisers. Packaging, distribution of end-product to factories, pet-food manufacturers etc.

ICE PLANT, MANUFACTURE & DISTRIBUTION**Function:**

Production of fresh water ice for supply to fishing vessels. Provide loading facilities. Transportation to areas without ice making facilities.

SHIPS PAINTERS**Function:**

Attend vessel at Slipways/Dry Docks. Wash down vessels. Prepare surfaces for coating. Painting vessel name boards, lifebelts, personal number. Interior painting, new and disturbed work. Degreasing engine rooms, fish hold etc. Apply anti-fouling paints to vessels hulls etc.

1.4.1.2 COMMITTED**HARBOUR AUTHORITIES****Function:**

Berthing, slipping, dry-docking, markets, supply potable water, box compounds and stowages/repair facilities, shore power connections, gangways, cranage, harbour safety equipment. Pilotage, Emergency services etc.

SHIP SURVEYORS AND MARINE CONSULTANTS**Functions:**

Provide consultancy services to owners, for modifications, repairs, insurance claims, troubleshooting, valuation surveys, stability work, dry docking/slipping etc.

SHIP REPAIRERS**Function:**

Repairs to hull, engines, deck machinery, interior repairs to engine rooms, accommodation, galleys. Re-engining, modifications, installation of new equipment. Assistance at Surveys, etc.

SHIP SUPPLIERS (GROCERS & BUTCHERS, BONDED STORES)**Functions:**

To supply consumables for victualling vessel crews etc.

OIL SUPPLIERS**Function:**

To supply oil fuel, lubricants, greases, de-greasing/bilge cleaning materials.

BULK TRANSPORT (LONG DISTANCE)**Function:**

Transportation of processor materials to major inland wholesale outlets. Cartage of ice to coastal ports with no facilities for production of ice locally.

EQUIPMENT MANUFACTURERS**Function:**

To supply deck machinery, electronics, fish handling equipment, emergency equipment. Usually installed by Builders/Ship Repairers.

1.4.2 REGIONAL DISTRIBUTION

TABLE 1.17: REGIONAL DISTRIBUTION OF EMPLOYMENT DEPENDENT ON THE VOLUME OF FISH OR THE SIZE OF THE FLEET

DISTRICT OR PORT	DEPENDENT ON VOLUME OF FISH			DEPENDENT ON FLEET							TOTAL
				FISHING BOAT BUILDERS AND REPAIRERS			OTHER FLEET DEPENDENT			TOTAL	
	F/T	P/T	FTE	F/T	P/T	FTE	F/T	P/T	FTE	FTE	FTE
Districts											
Eyemouth	105	49	133	75	17	85	108	37	129	213	346
Pittenweem	11	3	13	122	0	122	14	4	16	138	151
Arbroath	12	1	13	21	0	21	21	0	21	42	55
Aberdeen	378	7	382	67	0	67	134	1	135	202	584
Peterhead	260	15	268	199	18	209	96	7	100	309	578
Fraserburgh	163	3	165	168	2	169	69	12	76	245	410
Buckie	39	0	39	139	0	139	43	4	45	184	223
Macduff	23	14	31	139	23	152	23	4	25	177	208
Lossiemouth	21	8	26	43	2	44	16	4	18	62	88
Wick	66	13	73	14	4	16	7	13	14	31	104
Orkney	10	1	11	11	1	12	6	1	7	18	29
Shetland	36	12	43	161	10	167	32	12	39	205	248
Kinlochbervie	31	13	38	3	0	3	1	2	2	5	43
Lochinver	17	7	21	3	0	3	9	1	10	13	34
Stornoway	28	14	36	33	9	38	25	8	30	68	103
Ullapool	11	0	11	8	0	8	26	0	26	34	45
Mallaig	38	10	44	77	5	80	18	4	20	100	144
Oban	26	3	28	9	1	10	19	5	22	31	59
Campbeltown	24	9	29	138	1	139	6	6	9	148	177
Ayr	164	0	164	70	0	70	25	0	25	95	259
All Scotland	1463	182	1565	1500	93	1552	693	125	768	2321	3886
Ports											
Kilkeel	30	10	36	22	10	28	nk	nk	nk	-	63
Ardglass	24	4	26	2	0	2	nk	nk	nk	-	28
Portavogie	27	12	34	14	1	15	nk	nk	nk	-	48
Others	0	3	2	3	0	3	nk	nk	nk	-	5
All N. Ireland	81	29	97	41	11	47	nk	nk	nk	-	145

Figures are for the end of 1990 in the case of Scottish districts (1989 for Buckie), and 1991 for Northern Ireland. Data was provided by SOAFD and DANI. FTEs (Full Time Equivalents) were calculated using the Central Statistical Office's method that one part time worker is equivalent to 21.1/37.5 (≈ 0.56) full time workers.

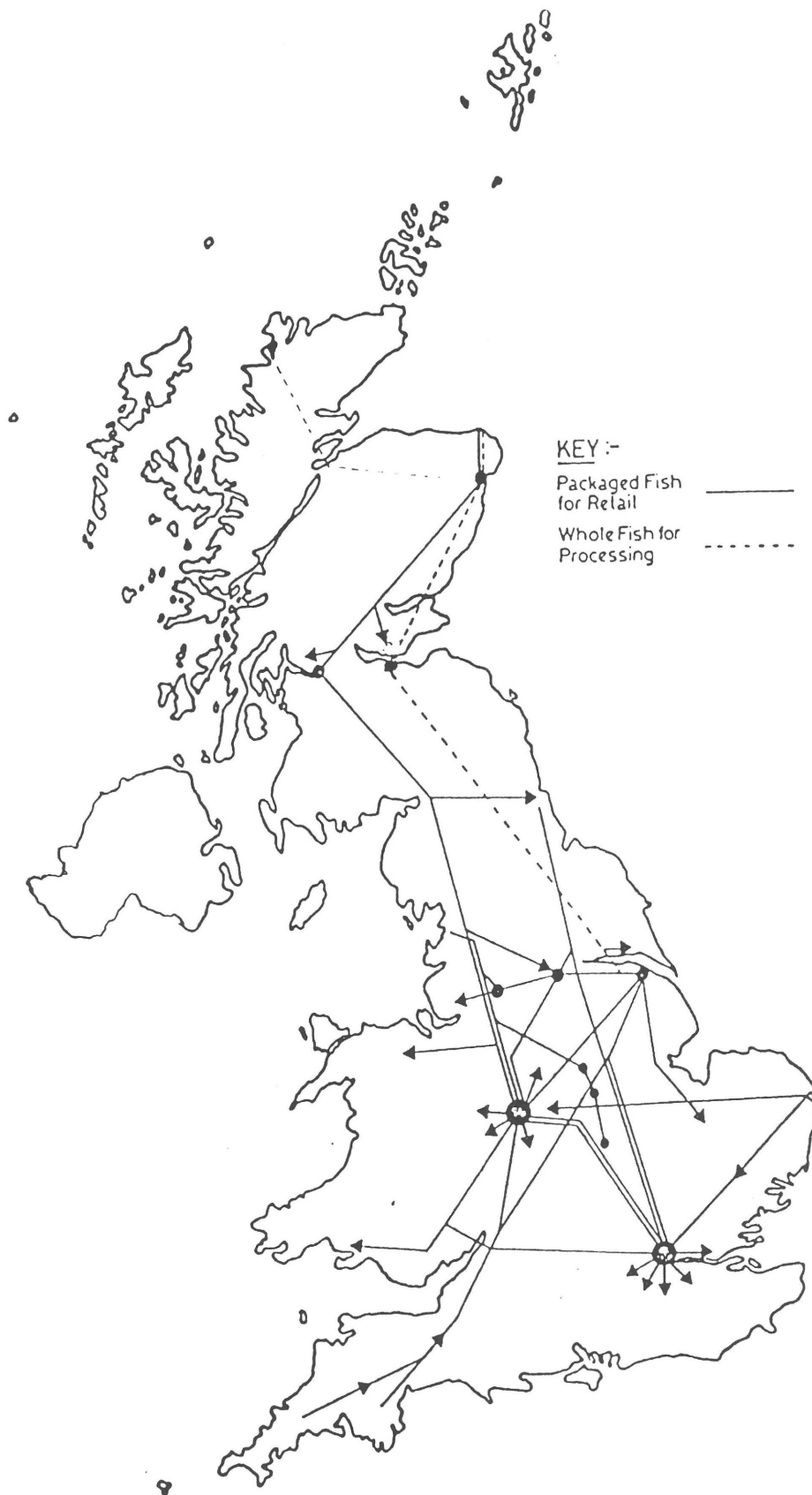
The Scottish figures assume that the following were dependent on the volume of fish: fish salesmen, fish market staff, box pool staff, harbour staff, fish transport staff, ice manufacturers and box manufacturers. While vessel insurance staff, net making/repairing staff, rope/wire manufacturers, ship chandlers and fuel suppliers were assumed dependent on the size of the fleet. Fishing vessel builders and repairers were also assumed to be dependent on the size of the fleet, but were accorded their own sub-category.

The Northern Irish figures assume that fish wholesalers depend on the volume of fish. Boatbuilders depend on the size of the fleet. Harbour staff were again assumed dependent on the volume of fish. The Northern Ireland data is recorded in a less disaggregated manner, thus making it impossible to deduce the numbers dependent on the size of the fleet other than boat builders/repairers.

The letters 'nk' state that the relevant entry is unknown. Errors apparent in some totals are due to rounding errors.

Table 1.17 shows that about 4,000 jobs in Scotland and Northern Ireland are created in ancillary activities by fishing. In the table these are analysed by jobs dependent on the volume of fish and the jobs dependent on the fleet. There are slightly more of the latter than the former and this is significant in that it is those jobs which are likely to be affected by changes as a result of structural policy. As indicated in the previous section there are jobs which are very dependent on fishing activity and those committed to the fishing industry but with the opportunity to trade in other areas. Unfortunately the level of aggregation in the data does not allow these two analyses to be undertaken together, but clearly the largest group in the fleet dependent sector, who are the boat builders and repairers do have skills and facilities which could be applied outside fishing boats.

1.4.3 DISTRIBUTION NETWORK - FLOW DIAGRAM



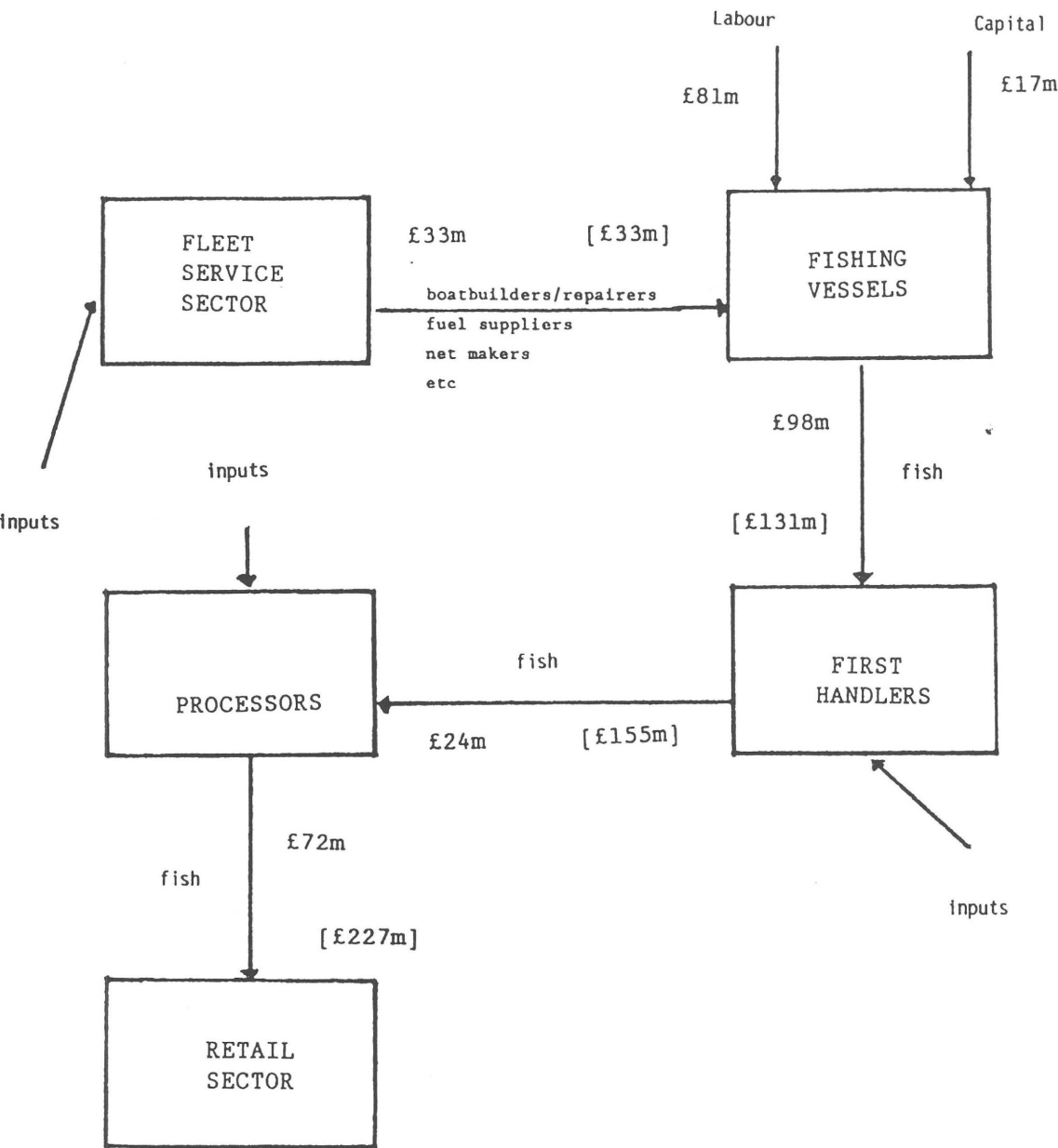
Major Fresh Fish Distribution Routes in U.K.

As might be expected the flow diagram shows the movement of whole fish for processing from the West Coast of Scotland (Kinlochbervie) and the Moray Firth ports (Peterhead and Fraserburgh) to Aberdeen. From there packaged fish for retail is sent south, through Glasgow to the centres of population in England. Some whole fish for processing also flows south down the east side of the country to Humberside.

1.5 RELATIONSHIPS BETWEEN SEGMENTS IN THE SECTOR

1.5.1 FLOW DIAGRAM

VALUE ADDED IN THE SCOTTISH AND NORTHERN IRISH SEA FISHING INDUSTRY



The above chart traces the flow of goods and services in the Scottish and Northern Irish sea fishing industries. The arrows show the direction of this flow. The value added by each sector is shown adjacent to the arrow, while the bracketed term is the cumulative total. The capital input to fishing vessels excludes interest repayments. The value added by fishing vessels is the sum of the labour share and vessel profit, as these two are the factors that are not outputs of another sector. The calculation of the value added terms is explained in Appendix 2.2.

1.5.2 HORIZONTAL AND VERTICAL INTEGRATION

Horizontal integration is where two firms in the same business merge. While recessionary times such as we are currently experiencing are likely to encourage this and there has been some, the fishing industries in Scotland and Northern Ireland are not characterised by a significant degree of horizontal integration. Most segments of the industry have quite large numbers of small companies and it is not until fish reaches the level of secondary processing that there is much large company participation. At that level Unilever is represented by Bird's Eye Walls and Nestle by Findus who are the two largest in the segment.

Vertical integration is the undertaking by a single firm of successive stages in the process of production of fishery products. At one time Unilever owned fishing vessels, processing plants and retail outlets, but they have long since ceased to be a player in all but secondary processing and aquaculture in the UK. In fact there now is very little vertical integration throughout the sector in Scotland and Northern Ireland. The fish-selling companies are perhaps the main link between segments. Traditionally they have provided a source of capital for fishermen to invest in new boats. In Scotland and Northern Ireland skipper and family ownership is very common and the boat may be divided into shares, usually in multiples of four. Commonly a boat's ownership would be made up of 4, 8, 16, 32 or even 64 shares with the skipper and crew possibly having the major stake. Shore ownership would usually be limited to family or their fish-selling company, but sometimes a processor will have a share. As fish is normally auctioned, an ownership share by a processor will not affect the disposal of the boat's catch, though there may be exceptions to this in the case of some shellfish which is sold on contract. Fish-selling companies are responsible for rather more than the sales of a boat's fish as they usually provide a complete accounting and management system for the boats as well as arranging bunkering, ice, boxes and chandlery. The extent to which fish-selling companies own these services varies. In the case of one, Denholm Fish Selling Company, there is also ownership in fish processing.

To some extent vertical integration exists through fishermen's cooperatives and Producers Organisations (PO's). In the case of the former, some coops are similar to fish selling companies and others are formed to provide a specific service such as the supply of ice. At one time there was a Scottish coop which owned a boat-building yard, undertook fish selling and supplied a wide range of goods and services, but this has ceased to trade. Also PO's, particularly in Scotland, are another source of vertical integration in that they have also fulfilled the function of fish salesmen. Additionally one PO (the Scottish Fishermen's Organisation) has moved in to processing members' fish. This arose because it was felt that there was insufficient competition in a particular shellfish sector. The Shetland PO owns and operates a sizeable white fish processing plant in Shetland, and is a major shareholder in another.

Fish meal plants in Scotland are reduced to two, both of which have the same management. The plant in Aberdeen is owned by a group of local fish merchants and the same company manages the one in Shetland, which is owned by a group comprising the PO and fish processors.

Finally a considerable part of the boat insurance is undertaken by mutual insurance companies, owned collectively by the boatowners.

2. IDENTIFICATION OF ZONES HIGHLY DEPENDENT ON FISHERIES

2.1 EMPLOYMENT

Appendix 2.1 (Volume 2) contains the detailed results of the analysis of employment in fishing and related industries by travel to work areas (zones - also defined in this Appendix), all based on data pertaining to 1990.

Three sets of employment measures have been used to help identify zones:- the first based on the ratio of fish industry employment to the size of the local workforce (Tables A, B and C of the Appendix); the second examines the relative likelihood of a displaced fish worker finding alternate employment (Tables D, E and F) based on the local median duration of unemployment; and the third looks at the relative importance of the zone in contributing to fisheries related employment throughout the region of Scotland and Northern Ireland.

The comparison between zones has been based on two location quotients, (i.e. the ratio of fish industry percentage of zonal total employment to fish industry percentage of regional total employment). The first quotient has been formed using the employment ratio for all TTWA's in the region as the basis for comparison, and a zone identified as potentially highly dependent on fisheries if it exceeds the overall average (i.e. location quotient greater than one). The second quotient was formed in a similar way, but using a total of only those zones where there was some fish related employment, in which case zones were selected as potentially highly dependent if the quotient exceeded two. Both these procedures have been adopted by contractors studying other Community regions.

Appendix 2.1, Table J gives basic employment and unemployment statistics.

2.1.1 CATCHING SECTOR

Catching sector employment only is considered in Tables A (relative employment ratio), D (relative unemployment avoided) and G (relative contribution to regional fishery related employment). In these tables the comparison local workforce used has been taken as the total (male and female) workforce so that a fair comparison of percentage of local jobs may be made between zones. However, the unemployment based measure used has been based on the average median duration of male unemployment, as a person losing their job in fishing is almost certain to be a man.

2.1.2 OTHER SECTORS

In Tables B, E and H, the additional contribution of fleet service workers is considered in defining potentially highly dependant zones, whereas in Tables C, F and I the total number of jobs in catching, fleet service and fish processing is examined. This procedure of first adding fleet service sector to catching sector, and then adding the processing sector to that sum, was adopted because the study team believe that the further removed from the catching sector a job is, the less likely it is to be affected by fleet restructuring. This methodology was therefore chosen to place relatively less emphasis on fleet service employment, and even less on fish processing (yet not ignoring either of them), when identifying zones.

2.2 INCOMES

Appendix 2.2 gives details of income based measures of fishery dependence by zones, together with local Gross Domestic Product (GDP) estimates, based on data referring to 1989. Appendix 2.2 Table C gives GDP per head by TTWAs.

2.2.1 CATCHING SECTOR

Table A gives, for each zone, estimates of value added from direct fishing activities in terms of:- remuneration to labour (calculated as a percentage of landed value and distributed by active vessel base); remuneration to capital (based on expected operating profit as a function of vessel size and distributed using the ownership data described in Section 1.1.1.2 above); and the local average GDP per worker times direct landing employment.

Two location quotients similar to those described in 2.1 above were formed, in order to make judgements concerning relative fisheries dependence.

2.2.2 OTHER SECTORS

Using a similar methodology to the that described in 2.1.2 to place less relative importance on fleet service and processing activities, Table B shows the total value added derived from fisheries, with the contribution from fleet service calculated on the basis of average local GDP per employee, and that due to processing from an estimate of regional total fish processing value added, distributed according to the relative processing employment in each zone.

2.3 CONCLUSIONS

Tables 1a and 1b in Appendix 2.1 summarise the results of the zone identification process based on employment, while the corresponding tables in Appendix 2.2 give value added based comparisons.

In both Tables 1b, a line is drawn at which the decision to define zones as highly dependent or less dependent has been made. For employment, this distinction is where a minimum of 6 of the total 18 measures described above show high dependencies on fishing, whereas for incomes it is made where all 4 measures show high dependence. This results in 23 zones (out of a possible 76) being defined as highly dependent on employment measures, plus a further 2 zones (Stewartry and Thurso) on the basis of value added.

Although a total of 22 parameters were used to identify zones, with most emphasis being placed on the catching sector and with relatively lower emphases on fleet service and processing activities, the five main parameters resulting in the selections made are summarised in the table overleaf. This table also partitions zones into those identified by the study as highly dependent on fisheries, and those less dependent.

Even just using the five summary measures shown in Table 2.1, it can be seen that none of the zones identified as less dependent (using 22 measures) has parameters that exceed the minimum value for the highly dependent zones in a majority (3 or more) of the measures. This confirms the distinction between highly dependent and less dependent zones.

TABLE 2.1: FIVE PRINCIPAL MEASURES FOR ZONAL IDENTIFICATION

ZONES HIGHLY DEPENDANT ON FISHERIES						
TRAVEL TO WORK AREA		Fishing Employment	Fishing & Fleet Service Employment	Total Employment	Catching & 1st Handling Value Added	Total Value Added &
NO.	NAME	Per 000	Per 000	Per 000	% GDP	GDP
<u>SCOTLAND</u>						
4	Arbroath	10.8	13.5	25.7	0.99	1.93
7	Banff	53.3	69.6	85.5	5.66	8.03
9	Berwickshire	29.0	48.1	130.4	4.93	10.76
12	Buckie	115.8	154.7	225.6	12.61	20.16
13	Campbeltown	50.4	71.0	105.4	4.42	8.34
22	Elgin	29.6	32.9	40.6	3.16	3.81
26	Fraserburgh	87.3	118.9	306.5	12.20	26.00
28	Girvan	15.7	19.7	23.6	1.16	1.64
37	Islay/Mid Argyll	14.9	20.9	28.0	0.83	1.76
43	Lochaber	18.9	25.3	35.8	1.86	2.90
46	North East Fife	13.1	19.3	22.0	1.09	1.84
47	Oban	19.6	24.3	25.9	1.56	1.90
48	Orkney	27.4	29.9	37.1	2.81	3.37
51	Peterhead	52.8	81.3	150.5	8.42	13.73
52	Shetland	38.2	57.3	92.9	3.99	7.39
53.1	Wester Ross A	38.8	54.7	68.4	1.87	3.99
53.2	Skye & Wester Ross B	37.2	48.4	54.1	1.83	3.08
54	Stewartry	7.9	9.8	45.4	1.24	3.03
57.2	Sutherland B	38.9	63.3	93.7	6.59	7.74
57.3	Sutherland C	93.4	109.7	150.9	7.60	10.03
58	Thurso	6.8	10.2	13.4	1.40	1.69
59	Western Isles	47.0	56.5	71.4	2.11	3.79
60	Wick	21.9	29.7	31.7	1.51	1.87
<u>NORTHERN IRELAND</u>						
62.2	Belfast B	8.5	9.3	16.9	0.68	1.12
70	Newry	21.8	23.2	37.7	1.27	2.26
ZONES LESS DEPENDENT ON FISHERIES						
<u>SCOTLAND</u>						
1	Aberdeen	1.0	3.4	13.2	0.32	0.82
2	Alloa	0	0	0	0	<0.01
3	Annan	2.9	3.6	72.8	0.07	3.54
5	Ayr	2.9	3.7	4.7	0.27	0.35
6	Badenseh	0	0	11.7	0.02	0.68
8	Bathgate	0	0	0	0	<0.01
11	Brechin & Montrose	4.9	5.9	15.0	0.16	0.74
16	Dumbarton	0	0	0	0.02	0.02
17	Dumfries	0	0	0	0	<0.01
18	Dundee	0	0	0	0	<0.01
19	Dunfermline	0	0	0	0	<0.01
20	Dunoon & Bute	5.2	7.2	7.7	0.11	0.34
21	Edinburgh	0.6	0.9	1.5	0.02	0.07
23	Falkirk	0	0	0	0	<0.01
24	Forfar	0	0	2.7	0	0.13
25	Forres	0	0	0	0.01	0.01
29	Glasgow	0	0	0.1	0	0.01
30	Greenock	0.3	0.4	0.4	0.04	0.04
31	Haddington	4.3	6.8	12.7	0.28	0.76
33	Huntley	0	0	0	0	<0.01
34	Invergordon & Dingwall	0.9	1.0	4.5	0.07	0.25
35	Inverness	2.4	2.6	4.7	0.02	0.15
36	Irvine	0.6	0.8	1.0	0.09	0.11
38	Keith	0	0	0	0.04	0.04
40	Kilmarnock	0	0	3.2	0	0.16
41	Kirkcaldy	0.5	0.8	0.8	0.01	0.04
42	Lanarkshire	0	0	1.1	0	0.06
44	Lockerbie	0	0	0	0.01	0.01
45	Newton Stewart	2.4	3.0	48.4	0.38	3.36
50	Perth	0	0	0.6	0	0.03
56	Stranraer	2.6	3.4	4.3	0.25	0.34
57.1	Sutherland A	8.1	10.6	10.6	0.50	0.57
<u>NORTHERN IRELAND</u>						
62.1	Belfast A	0	0	0	0.01	0.01
63	Coleraine	0	0	0	0.06	0.06
65	Craigavon	0	0	0	0	<0.01
66	Dungannon	0	0	0	0	<0.01
68	Londonderry	0	0	0	0	<0.01

N.B. THIS TABLE SHOULD BE READ IN CONJUNCTION WITH APPENDICES 2.1 AND 2.2.

3. CHARACTERISTICS OF EMPLOYMENT GROUPS MOST AT RISK

3.1 FISHERMEN

A sample of crew lists for Scottish and Northern Irish vessels over 16.5m length was obtained by visiting the Registrar General of Shipping's offices, the results from which are summarised in Appendix 3 (Volume 2).

3.1.1 AGE PROFILES

A summary of the age profiles of fishermen detailed in that Appendix is reproduced in the table below, as are Department of Employment estimates for the Scottish workforce as a whole.

TABLE 3.1: AGE PROFILE OF EMPLOYEES

Year	Percent Aged	16-24	25-34	35-44	45-59	60-64	65 & over
'83	Fishermen	21.4	26.4	26.5	21.8	3.5	0.3
	Workforce	23.0	23.7	21.0	25.4	5.6	1.3
'90	Fishermen	21.8	27.5	22.9	24.6	2.7	0.4
	Workforce	20.2	26.5	22.6	24.7	4.6	1.4

This table shows that, although fishermen tend to be slightly younger than the workforce in general, the change over the period of the CFP has been slight, with a fall in the proportion of 35-44 year olds, and a rise in the proportion of those aged 45-59. This contrasts with the Scottish male workforce, which shows decline in the percentage of 16-24 year olds, and a rise in 25-24 year olds. Thus the fishing industry has done well in attracting young people, probably on the back of its expansion.

The detailed tables in Appendix 3 do show some interesting results, for instance there was a sharp relative fall in 60-64 year olds employed in vessels over 80 ft. Of more significance perhaps is the change in the proportion of young men (16-24) in the different regions, this having decreased in South-East Scotland, remained mostly static in Grampian and the Highlands and Islands (where there was a noticeably young fishing workforce in 1983), and risen in South-West Scotland. In 1983 fishermen in Northern Ireland appeared younger than in Scotland.

3.1.2 SKILL PROFILES

So far as the skills of the fishing workforce are concerned, the only information to hand concerns their fishing qualifications, as detailed in Appendix 3. It is however unlikely that a great many skills other than those directly associated with catching and handling fish, and vessel handling, exist within the industry.

In terms of fishing qualifications, although in total originally the percentage of those employed as skippers (12.5%) corresponded well with those with the required qualifications (13.0%) it is interesting that in 1983 28% of skippers were qualified at lower levels, while some qualified skippers were sailing in other posts. Now (1990) those with lower qualifications have increased in proportion to 33.7%, while there is some imbalance between the proportion of jobs as skippers (risen to 16.2%), and those so qualified (12.4%).

It is interesting to note that now, as in 1983, almost all engineers do not hold formal engineering qualifications, and indeed they are not required to do so, although the proportion suitably certificated has risen to 12.8%, and the percentage with no qualification at all has fallen from 95 to 80 %. Previously (1983) the proportion of qualified mates (8.9%) was slightly lower than the number of posts (9.4%), but by 1990 the corresponding figures were 10.4% and 9.6%, indicating sufficient qualified personnel.

In summary therefore, there does not seem to be a lack of formal fishing qualifications within the Scottish and Northern Irish workforce.

The final table in Appendix 3 shows that the proportion of the workforce employed on vessels over 80 ft. in all jobs has fallen, showing that employment has become further concentrated into smaller vessels, where less formal qualifications are required.

3.2 OTHER WORKERS

TABLE 3.2: NUMBERS AND SEX STRUCTURE OF THE CURRENT (1990) SCOTTISH WORKFORCE, AND THE DEPARTMENT OF EMPLOYMENT'S PREDICTION FOR 2000

Year	Age Group	Male	Female	Total
1990	16 to 24	287,500	245,300	532,700
	25 to 34	377,400	260,300	637,700
	35 to 44	322,100	256,900	579,000
	45 to 59	350,900	275,000	625,900
	60 to 64	65,300	25,900	91,200
	65 and over	19,700	9,500	29,200
	TOTAL	1,422,800	1,072,800	2,495,700
2000	16 to 24	217,300	188,000	405,300
	25 to 34	338,400	251,800	590,100
	35 to 44	356,200	298,900	655,100
	45 to 59	375,900	293,600	669,600
	60 to 64	59,300	24,400	83,700
	65 and over	12,600	6,300	18,800
	TOTAL	1,359,600	1,062,900	2,422,600

This table indicates a generally falling total Scottish workforce over the next decade, particularly in males under 35, where over 100,000 less people will be seeking employment, and, to a lesser extent, females in the same age group where the fall is smaller at about 65,000. These major projected reductions, in the age groups from which the fish industries recruit most of their employees, suggest that reductions in fish catching employment could well occur from natural wastage as it becomes harder to recruit new entrants. Also the onshore fish related industries, with their higher reliance on female labour, must improve their terms and conditions if they are to retain their workforce.

3.3 CONCLUSIONS

The conclusions to be drawn from the data presented both in this section, and section 1.1.2.2 above, is that priority should be given to encouraging early retirement among older fishermen, especially skippers, and to retraining younger fishermen for employment in other industries, where, with new skills and in a competitive labour market, they will be more likely to find employment in the future. Great care must be exercised however, to develop reconversion schemes which are aimed at minimising further depopulation in rural areas.

The situation in Northern Ireland is probably somewhat different, as here there are currently very few alternate employment opportunities. Perhaps this is the one area where the maintenance of fish and related industry employment should be a priority.

4. ASSESSMENT OF SOCIO-ECONOMIC IMPACTS OF CFP (WITH PARTICULAR EMPHASIS ON CONCERNED ZONES)

4.1 DESCRIPTION OF CFP

The CFP was created by Council Regulation (EEC) No.2141/70, covering the establishment of a common structural policy, and No.2142/70, introducing a common marketing policy, in 1970. This was just before the European Community was enlarged to embrace the UK, Ireland and Denmark and was one of the factors influencing the Norwegian decision not to join. For the first few years, before the extension of fisheries limits to 200 miles, the main emphasis was on marketing and the setting up of PO's to operate withdrawal price schemes. This was of particular importance in Scotland where some fishermen were subject to restraining orders placed upon them by the Restrictive Practices Court as a result of investigation of their own minimum price schemes. CFP was designed to give protection to what was seen as the quite vulnerable primary producer and in Scotland it also freed them from the legal encumbrance of national restrictive practice regulation. The peripherality of Scotland was also recognised in the creation of regional differentials in withdrawal prices which took account of the distance to the market.

Extension of fishing zones by Member States in the North Atlantic in 1977 had a major, but quite different, effect on the Scottish fleet, to that on the fleet south of the border. Compared with England, Scotland had very few distant water or middle water vessels whose fishing opportunities were lost as a result of extension of limits. In fact the Scottish fleet - and to some extent that in Northern Ireland - benefited from the exclusion of third countries from the newly created fishery zones. This is epitomised in the development of the Scottish purse seine fleet, which almost doubled in number during the period when the main herring fisheries were closed for conservation purposes. Mackerel which had previously been taken by fleets from the USSR and other third countries became the mainstay of the pelagic fleet. Another major impact of extension of limits was to refocus the emphasis of CFP on the issues of access to other Member States waters and allocation of the Community's total share of fish. From the date of extension it was a further six years before agreement was reached on the access and allocation issues.

Resolution of the conservation and management issues was achieved by 1983 when the present system of Total Allowable Catches (TACs) and quotas was introduced - along with a raft of technical conservation measures, special measures for inshore fishing and supervisory arrangements. Though nowhere clearly defined as a policy objective, TACs were set for the first few years on the basis of achieving status quo fishing, that is to say maintaining fishing fleets and employment at their existing levels. While alternative strategies were suggested by the Commission, the Council of Fisheries Ministers were reluctant to take decisions that might be unpopular with their industries back home. To some extent the same criticism could be applied to the Multi-annual Guidance Programmes (MAGPs), which were a parallel measure to control structural development. The first of these ran from 1983 to 1986 and required each Member State to demonstrate that it was taking appropriate steps to ensure that its fishing fleet's capacity was being brought into line with its fishing opportunities. To assist Member States achieve these targets a number of discretionary measures were introduced by the Community. Though these included decommissioning grants and laying up grants, capacity in general increased over the three years according and to the Review of CFP (SEC (91) 2288 final).

In 1986 all structural measures in respect of the fleets and aquaculture were consolidated into one Council Regulation (EEC) No. 4028/86 (subsequently amended by Regulation (EEC) No. 3944/90 to extend cover to smaller vessels). The new MAGP targets for 31 December 1991 were based on a reduction of 3% in tonnage and 2% in engine power compared with the previous programmes' targets. In order to reduce capacity gradually, intermediate targets were fixed for each year. According to the Review, though the 1987-91 MAGPs achieved some progress in comparison with the previous programmes, the result was still unsatisfactory.

4.2 FISHERIES MANAGEMENT AND TECHNICAL MEASURES

As mentioned in the previous section, the present management and conservation regime was introduced in 1983 and has remained substantially unaltered since then. While fixing most TACs in most years since then has been on the status quo basis, the last two or three years has seen some change. This has largely been attributable to scientists pointing out that if fishing pressure continued to be applied at its former level on certain stocks, there was a serious risk of stock collapse. In particular two of the most important stocks to Scottish fishermen, namely North Sea haddock and cod, have become endangered as a result of a combination of over-exploitation and poor recruitment. Instead of controlling these fisheries through the adoption of TACs, which have consistently been overfished, the scientific advice has been to control fishing effort. In 1990 the British introduced a national measure restricting the number of days fishing that individual vessels could fish on these stocks. This was followed by the "8 day tie up" in every month, which was introduced by the Community in 1991. A rather less restrictive maximum of 135 annual fishing days has again been introduced by the Community for this year. Given that only the largest vessels would be affected, it has been estimated by Seafish that British effort would only be reduced by 2% and therefore the recommended 30% reduction will be nothing like achieved.

According to the Review, the rules on technical conservation have proved insufficient to provide adequate protection for the stocks. Particularly as regards mesh size, it has proved impossible to make the measures sufficiently stringent. Also the complexity of some of the rules makes monitoring extremely difficult. The Review concluded that the technical measures are now somewhat outmoded as the context has evolved both in technical terms and as regards social demand. A major overhaul of these measures has already produced certain results. Agreement has been reached on increasing mesh size, from the beginning of June 1992, for the major whitefisheries prosecuted by the Scottish fleet. A second increase will become effective by the beginning of 1995 if scientific advice at that time confirms that the current measures had failed at that time to achieve the reconstitution of stocks in question. On the other hand one technical conservation measure which seems to meet with approval of the Review are exclusion zones, such as the "Shetland Box".

4.3 IMPACT OF THE CFP ON FLEET STRUCTURE

In order to assess the impact of the structural part of the CFP on the Scottish and Northern Irish fleet, the following table has been prepared, which shows how, in real terms, the estimated total value of landings has varied, together with the gross earnings per unit of input. Technical (capital) inputs are estimated aggregate tonnage and power of the fleet, while an estimate of the number of crew berths available on board active vessels has been used as the measure of labour input.

TABLE 4.1: EARNINGS PER UNIT OF INPUT

Year	1983	1984	1985	1986	1987	1988	1989	1990
Landings, £m	189	209	227	250	289	266	264	290
RPI	84.9	89.2	94.6	97.8	102	107	115	126
Landings '90£m	281	295	303	323	358	314	289	290
GRT, 000's	71.5	70.2	72.7	74.9	79.5	87.0	94.2	91.9
'90 £/GRT	3920	4200	4170	4310	4500	3610	3070	3160
Kw, 000's	354	354	368	380	407	443	476	478
'90 £/Kw	793	833	826	848	878	708	608	608
No. Berths	9340	9280	9230	9280	9600	9770	9960	9550
'90 £000/Man	30.0	31.8	32.9	34.7	37.2	32.1	29.0	30.4

These figures demonstrate that the CFP has not yet been a success so far as the structure of the fleet is concerned. Although productivity rose significantly in the first five years from 1983 through to 1987, the gains were more than lost in the subsequent three years. In real terms capital productivity is now (1990) some 19.4% lower than in 1983 (tonnage basis) or 23.3% down if power is used as the denominator for the comparison. Labour productivity has returned to much the same level as 1983, primarily because fleet expansion did not create a great deal of additional employment. The underlying cause must be the failure to prevent the build-up of fleet capacity, as the fishing effort generated by this ever growing fleet has eventually resulted in a decline in the opportunities available to it.

The reasons for the fleet's expansion are complex, but the industry has been given indications that growth was acceptable by both Community and national administrations as well as by local development agencies. Vessel building and modernisation grants have been made available throughout this period, although latterly new buildings were restricted to the replacement of accidental losses. The rate of grants were even increased for Northern Ireland and the West of Scotland to encourage extra investment to create a more modern fleet. Decommissioning premia were only available for the first three years, and restrictive licensing still only applies to vessels over 10 metres, and has only generally restricted vessel sizes (as opposed to numbers) for these larger vessels since 1989.

TABLE 4.2: AGGREGATE REAL EARNINGS, LABOUR SHARE AND PROFITS 1983-1989

YEAR	EARNINGS	FISHERMEN	OP PROFIT AS PROPORTION OF EARNINGS	PROFIT	LABOUR SHARE		
	£m	(FTE)	%	£m	%	£m	£ per man
1983	281	9,340	11.7	32	32.4	91	9,740
1984	295	9,280	14.5	43	34.0	100	10,820
1985	303	9,230	15.2	46	32.5	99	10,680
1986	323	9,280	17.4	56	34.5	111	12,000
1987	358	9,600	19.2	69	33.3	119	12,420
1988	314	9,770	10.7	34	33.7	106	10,840
1989	289	9,960	6.2	18	30.4	88	8,830

(At 1990 prices)

Table 4.2 has been derived from Costs and Earnings Surveys (undertaken annually for the Scottish fleet and for 1986 and 1987 for N. Ireland) which were then raised using aggregate earnings for the fleets as supplied by SOAFD and DANI. The resulting table appears to substantiate other impressions about the financial fortunes of the catching sector since the change in CFP. Increasing profits and labour share from 1983 to 1987 followed by a sharp decline over the next two years. This is reflected in the change in the fleet size shown in Table 4.1, which lags the change in these economic indicators by one or two years.

4.4 REGIONAL DEPENDENCE ON EC-TAC STOCKS

Landings of EC-TAC stocks were worth more than 75% of the value of Scottish landings made by UK vessels in 1990. In the same year, 90% of the value of landings by all vessels into Northern Ireland was derived from EC-TAC stocks. Table 4.2 summarises the dependence of fisheries districts (Scotland) and ports (Northern Ireland) on these stocks, while tables A and B in appendix 5 (Volume 2) are more detailed, showing dependence on individual stocks.

In the ports of Northern Ireland, 80% of the value of landings made by all vessels was due to nephrops, cod, hake and whiting. Another 10% of the value is made up of other EC-TAC stocks. The ports of Northern Ireland are therefore highly dependent on the CFP and its ensuing arrangements.

For the Scottish districts, two columns in table 4.3 show information for 1989 that was not available for Northern Ireland. First is the percentage of each district's value of fish landings that is due to visitor vessels, ie vessels that are not based there. The other is the value of landings made by the locally based fleet into other districts, as a percentage of the total value of landings made by the local fleet. These two columns show that the Scottish fishing fleet is extremely mobile, and they should be referred to when considering the dependence of a district on EC-TAC stocks. Table 1.1 and section 1.1.1.3 also offered a discussion on fleet mobility.

In areas where markets for fish are small, we expect to see a high proportion of landings being made by smaller vessels. This is because the larger vessels based in that area are sufficiently mobile to make their landings at larger ports, where greater competition between buyers should lead to higher prices. However, smaller vessels tend to specialise more on shellfish, which are not (with the exception of nephrops) EC-TAC stocks. As a result, we expect districts with limited markets to show a lower dependence on EC-TAC stocks. The result of this is that fleets based at ports with small markets, will be more dependent on EC-TAC stocks than the dependence figures for their district show.

The above argument explains the position for the vessels based in Orkney. Table 4.3 shows that only 15% of the value of landings made there are due to EC-TAC stocks. However, column 5 shows that 60% of the value of landings made by the Orkney-based fleet were made at other districts. Much more than 15% of the value of these landings at other districts is likely to be derived from EC-TAC stocks.

At Stornoway, EC-TAC stocks are seen to account for only 37% of the value of landings. Also, the Stornoway fleet only made 5% of its landings at other ports, as there are very few larger vessels in the district. Appendix 1.1 A shows that only 7 of the district's 291 vessels (1989) were over 18 metres in length. The large proportion of small vessels, in an area of productive shellfish grounds, led to shellfish (excluding nephrops) accounting for 54% of the value of landings in 1989.

By contrast, the Ullapool fleet is likely to depend less on EC-TAC stocks than the figure of 92% suggests. Ullapool district played host to the Eastern Bloc factory/freezer ships that received large trans-shipments of herring and mackerel. This trade was therefore recorded as landings into Ullapool district.

TABLE 4.3: DEPENDENCE OF DISTRICTS AND PORTS ON EC-TAC STOCKS, 1990

PORT OR DISTRICT	VALUE OF EC-TAC LANDINGS/£	VALUE OF ALL LANDINGS/£	% OF LANDINGS DUE TO VISITOR VESSELS (1989)	% OF LANDINGS OF LOCAL BASED FLEET MADE AT OTHER PORTS, (1989)	% DEPENDENCE ON EC-TAC STOCKS, 1990
Eyemouth	6,722,920	8,542,365	2.2%	38.1%	78.7%
Pittenweem	2,227,325	3,430,529	19.4%	73.3%	64.9%
Arbroath	984,618	1,588,203	4.3%	61.4%	62.0%
Aberdeen	24,192,636	27,998,445	79.7%	30.7%	86.4%
Peterhead	70,741,088	80,602,031	64.4%	25.9%	87.8%
Fraserburgh	14,968,495	19,616,683	58.0%	82.0%	76.3%
Macduff	1,444,197	2,022,508	13.1%	93.9%	71.4%
Buckie	2,500,780	4,378,623	6.8%	82.0%	57.1%
Lossiemouth	1,597,455	2,178,932	39.1%	95.8%	73.3%
Wick	5,805,725	9,265,726	65.9%	41.6%	62.7%
Orkney	390,660	2,677,237	1.4%	59.8%	14.6%
Shetland	18,387,355	24,793,587	39.3%	13.5%	74.2%
Stornoway	3,224,302	8,734,155	14.6%	4.9%	36.9%
Kinlochbervie	9,297,862	11,580,341	94.1%	23.1%	80.3%
Lochinver	5,760,779	7,790,077	74.0%	33.4%	74.0%
Ullapool	11,154,684	12,080,796	92.4%	20.8%	92.3%
Mallaig	10,908,415	13,565,706	51.7%	13.3%	80.4%
Oban	3,101,127	6,191,612	39.5%	7.6%	50.1%
Campbeltown	5,226,094	8,139,549	5.0%	7.8%	64.2%
Ayr	8,423,176	12,462,209	29.6%	7.6%	67.6%
All Scotland	207,059,173	267,639,414	-	-	77.4%
Kilkeel	9,014,856	10,007,397	n.a.	n.a.	90.1%
Ardglass	2,146,807	2,282,246	n.a.	n.a.	94.1%
Portavogie	6,748,281	7,310,058	n.a.	n.a.	92.3%
Ardglass & Portavogie	8,895,088	9,592,304	n.a.	n.a.	92.7%
All Northern Ireland	18,453,254	20,660,415	-	-	89.3%

SOURCE: SOAFD and DANI

In the summary tables of section 7, the dependence of coastal TTWAs on EC-TAC stocks is defined as the percentage of the value of landings due to EC-TAC stocks for the fishery district in which the TTWA lies. For Northern Ireland, Newry TTWA is taken to have the same dependence as the port of Kilkeel, while Belfast B TTWA reflects the combined dependence of Ardglass and Portavogie.

4.5 MARKETING

The market organisation is the part of CFP which is most analogous to Common Agricultural Policy and shares common objectives :

- to stabilise the markets,
- to guarantee security of supplies,
- to ensure that prices to consumers are reasonable.

The four main elements of the market organisation are:

- common marketing standards,
- producer organisations,
- a common prices system,
- a system of trade with third countries.

As far as common marketing standards are concerned, both Scotland and Northern Ireland operate fleets which do not stay at sea for very long trips. Therefore common grading is relatively easy as landings are either "Extra" or "A" quality so only size normally needs to be taken into account in grading fish. There are five POs based in Scotland - and one English PO (The Anglo-Scottish) has many Scottish members - and two in Northern Ireland. Given the increase in fish prices, the operation of withdrawal prices has tended to occupy less of their time than it once did. They are all involved in the administration of the quota system and at least one has become involved in marketing and processing their members' fish. (See also Section 1.5.2).

According to the Review, one major difference between CFP and CAP arises from the fact that the customs tariffs for fishery products were bound under GATT in 1962 at the end of the Dillon Round, when the Common Customs Tariff was being initially drawn up. This introduced an element of rigidity by restricting the Community's scope for manoeuvre when adopting market management mechanisms - particularly in relation to trade with third countries. The Gatt element largely explains why the common market organisation for fish has remained bound to a market economy concept which is not present in all the elements of CAP. The difference in approach arising as a result of this fundamental element can be clearly seen in the budgets. In the case of agriculture nearly 93% of the budget is directed at market support and the rest on structural measures. In contrast less than 10% of the fisheries budget is for market support and over 90% is the structural budget.

As landings of the main roundfish species such as cod and haddock have fallen in line with TACs, the former by some 50% since 1983 and the latter by two thirds in the same period, prices have increased in real as well as monetary terms. On the other hand some flatfish TACs, which are not so important to Scotland and Northern Ireland, have remained fairly stable. Pelagic landings and those of certain shellfish, which are significant contributors to the region, have shown a tendency to increase. However Community trade in fishery products is characterised by a structural deficit, which is increasing steadily from year to year. This dependence creates a dichotomy as it is necessary to both supply the market in order to meet consumers needs and also preserve the interests of Community producers.

4.6 OTHER

TRADE WITH THIRD COUNTRIES

The concept of "security of supplies" as provided for in the Treaty, seeks to secure supplies from Community producers, not with the aid of imports. However reference has already been made to the increasing Community trade deficit. The main mechanisms for control of trade are the Common Customs Tariff, reference prices and protection measures. CCT can be adjusted on the basis of linking trade concessions to access to fishing grounds. Such access arrangements are not of much interest to fishermen in Northern Ireland and only to a limited number of Scots.

ACCESS TO THIRD COUNTRY WATERS

While 16 agreements have been made with African and Indian Ocean countries and 7 with North Atlantic countries, there is feeling that it is preferable for countries to fish their own waters and stocks and the long term future of this type of agreement is not certain.

4.7 CONCLUSIONS AND POSSIBLE FUTURE SCENARIOS

The Review concluded that the TAC and quota regime in place since 1983 has provided fishermen with an incentive to expand their fishing capacity in order to obtain advantage in relation to other fishermen, with the result that total capacity has been maintained at a level well beyond what is required to take the TACs. This chronic overcapacity has the economic consequence that the potential rent of the fishery resources is dissipated (an estimate of the foregone rent was ECU 3 billion annually). Fishermen with excess capacity clearly have a much stronger incentive to break the rules than those who are operating at full capacity. Indeed the argument has been used by some fishermen in the Scottish industry that it is necessary to cheat in order to survive. The basic problem with the present system is that the private costs of fishing are lower than the social costs - as fishermen have no need to take account of the costs imposed on other fishermen resulting from the depletion of the stock due to increased fishing effort. A management system providing for more economic incentives, where private costs of fishing are at a level similar to that of social costs, could provide the solution to many of the problems which have been experienced in the past.

According to the Review, fishing and aquaculture are first and foremost economic activities and certain socio-economic parameters indicate the existence of a latent crisis in the sector. Although rising real prices have helped to maintain earnings despite falling catches, price elasticities and new alternatives will limit the extent to which this may continue. Fishing is an activity that traditionally offers a low return on capital. This delicate balance is currently being undermined by over-investment accompanied by a growing scarcity of raw material. The fishing industry is extremely vulnerable in terms of jobs. Most fleets face some cutback and major technological advances will also contribute to job losses.

The Review is not very helpful in suggesting alternative scenarios which might indicate the extent of future fleet reductions. Therefore it has been necessary to look at other sources. A starting point is to take the recently announced package of measures which the UK intends to introduce. Making some quite large assumptions such as all of the fleets in the UK will be equally affected by the proposed measures and that the uptake of the decommissioning monies will equate approximately with the tonnage rate on offer under the Community Scheme. On this basis, it appears that £5 million would result in

taking out 1% of the fleet and therefore the £25 million on offer would remove 5% between 1993 and 1994. This might be taken as the "minimum scenario". An alternative would be to base a reduction on a realistic re-appraisal of the British fleet vis-a-vis the opportunities available to it. This - according to Seafish's own estimates - would mean a reduction of about 25% and this might be taken as a "medium scenario". Finally, in November 1990 a REPORT OF AN INDEPENDENT GROUP OF EXPERTS ON GUIDELINES FOR THE PREPARATION OF MAGPs FOR THE PERIOD 1992-1996 was published. The recommended reduction in this report was 40% and this may be taken as the "high scenario". It should be noted that in suggesting these three scenarios, no attempt is made to suggest anything about what is the most likely outcome. The possible impact of these scenarios on jobs would broadly reflect these proportions.

5. REVIEW OF OTHER COMMUNITY RECONVERSION PROGRAMMES

5.1 LIST OF PROGRAMMES

RESIDER was introduced in February 1988 to assist the conversion of steel areas. Unfortunately only one area in the UK (Scunthorpe and South Yorkshire) has satisfied the eligibility criteria - which include a minimum number becoming unemployed within a certain time period. The programme therefore does not appear to have had any impact in Scotland. In 1975 British Steel (Industry) Limited was formed as a subsidiary of British Steel plc (one of the UK's largest companies) in order to assist in the creation of jobs in areas affected by changes in the steel industry. During the intervening years the emphasis has moved from short term job creation to support for business growth. Out of the UK total of 19 British Steel (Industry) Areas three are in Scotland. The main financial incentives from British Steel (Industry) are intended mainly for the development of existing businesses in the Areas, but help is also given to help finance new businesses and to assist in management buyouts and acquisitions. Discussion with their manager in Scotland revealed that while RESIDER had not been a source of funding, both the Social Fund and ERDF have been and continue to be important. The former has been drawn on for training and the latter used to convert British Steel properties to workshops and other units. It is estimated that an average placement of an unemployed steelworker costs British Steel (Industry) £2,000 and as their leverage is typically 5 to 1 then the total cost of reconversion is £10,000 per man.

RECHAR was introduced in 1990 as a Community initiative for the economic conversion of coal-mining areas but the dispute between the British Government and the European Commission DGXVI over additionality has meant that no projects have yet been assisted in this country. An announcement at the end of February has released some £13 million for projects in eligible areas. British Coal Enterprise (BCE) was set up in the mid-eighties by British Coal to back businesses and create jobs for displaced coal workers. Since then some 71,000 people have been given the opportunity of new employment in regions where once the predominant employer was the coal industry. BCE operates in 7 regions and one of these is Scotland. In the cumulative period until March 1991 Scottish Region created 11,650 employment opportunities at a cost of £13.1 million from BCE i.e. £1,125 per job. When total funding is taken into account the cost is £8,765 per job which is lower than in the steel industry. Nationally these figures are a little lower (at £967 per job BCE contribution and £7,446 overall) reflecting perhaps the higher levels of unemployment in Scotland and the greater difficulty of finding a job. The Community provided nearly £2 million in grants during the year to support BCE job creation work throughout British coalfields. BCE were also invited to sit on the Governing Body of the newly formed European Centre for Economic Development and Restructuring which is substantially supported by EEC.

LEADER - the Community scheme to encourage the cessation of farming - was opposed by the UK. However, unlike the comparable scheme for fishing which was not implemented, the farming scheme was introduced in April 1988. British opposition to both schemes was based on the belief that pensioning, which is really what these measures were about, should be more appropriately dealt with under social security arrangements and that the very small number of groups currently enjoying earlier than normal retirement should not be added to in the UK. Given this background it is not difficult to imagine that this scheme has not had a great impact in this country.

RENAVAL was the Community scheme introduced in July 1988 to assist the conversion of shipbuilding areas. As this was earlier than **RECHAR**, it has not been subject to the same degree of scrutiny and dissent and at the beginning of December 1991 approval of £17 million for programmes under **RENAVAL** for two areas in Scotland was announced by the Commissioner. One of these was for £15 million for projects involving land clearance on the sites of the old shipyards on the Lower Clyde and the other in Fife on the East coast. Obviously it is too early to form any view on their effectiveness.

PILOT ACTION SCHEMES are intended to be small scale pilot schemes to deal with representative cases of socio-economic problems of Community importance. It is hoped that these will yield general information and guidance for the planning and implementation of suitable socio-economic measures to accompany the Common Fisheries Policy. Based on Commission Decisions at the end of August 1991 pilot schemes were introduced for Barbate in Spain and Macduff in Scotland. The Scottish scheme originally ran until the end of February 1992 and has a budget of 100,000 ECU. An extension was granted, and first results are discussed in 6.2.2 below.

5.2 LESSONS TO BE LEARNED

Given the low level of uptake of Community schemes in the UK to date, it is only possible to draw on generalities rather than on the experience of the particular programmes in operation. One such generality is the set of conditions applied for eligibility and these are shown below:

TABLE 5.1: COMMUNITY INITIATIVES

SCHEME	START DATE	AREA	MIN NO OF JOBS	% DEPENDENCE	JOB LOSSES
RESIDER	FEB 1988	NUT 3*	3500	10%	<1500
RENAVAL	JUL 1988	NUT 3	NONE	NONE	substantial
LEADER	APR 1988	-	NONE	NONE	NONE
RECHAR	1990	> NUT 3	1000	NONE	<1000

*Usually NUTs level 3, however exceptions are where steel problems are located in employment areas or basins which differ from or overlap NUTs level 3.

Clearly the lessons which may be learnt are from the national programmes rather than the Community ones. The dissimilarity of the coal and steel programmes' costs suggests that there are lessons to be learnt from close scrutiny of the composition of the programmes themselves. Discussion with managers at BCE revealed that they progressed through a learning curve and many of their experiences could be drawn upon in order to design a more effective programme for the fishing industry. Details of the BCE regional record is given overleaf:

EMPLOYMENT OPPORTUNITIES FROM:

PROJECTS	8247
WORKSHOPS	1148
JACCS* etc	2255
TOTAL	11650

(cumulative position at end March 1991)

* JACCS Job and career change scheme

Outside the particular industry schemes there is a net which catches the unemployed through the Employment Services' Job Centres. Training has to be offered by law to certain groups such as those between 18 and 25 years old who have been unemployed for at least 6 months, or under 52 years and been unemployed for over 2 years. However the curious employment status of share fishermen in Scotland which excludes them from redundancy payments also creates some doubt about their eligibility for such schemes. In Grampian the Local Enterprise Company (LEC) is currently running a pilot scheme called SKILLSEEKER which provides school leavers with an action plan and a training credit which may be used to buy on and off the job training. It is intended to extend this LEC credit scheme to other groups, one of which will be those who become unemployed from declining industries in the area (which includes fishing). As this is at least a year away and depends on resources being available it does not provide much experience upon which to draw.

6. REVIEW OF PROBLEMS EXISTING WITHIN THE FISHERIES SECTOR AND MEANS OF RESOLVING THEM

6.1 REVIEW OF SOCIO-ECONOMIC PROBLEMS

6.1.1 AS PERCEIVED BY THE STUDY TEAM

Clearly from all that has already been said there is a major imbalance between the catching capacity of Community fleets and the total fishing opportunities available to it. This is nowhere more poignantly illustrated than in the example of the Scottish North Sea white fish fleet of seiners and trawlers, whose fishing capacity, expressed by almost any measure, such as GRT, HP or vessel capacity units (VCUs), has risen dramatically since 1983 during which time their quota for haddock, their most valuable fishery, has declined by two thirds and cod, the second most valuable has been halved. While earnings have been sustained by price increases and the landings of "black fish" outside the official system, the possibility of this continuing is remote and the need for a reduction is quite clear. There is also an urgent requirement to ensure that any reduction, once achieved, is not allowed to be eroded through any creeping back. Expressed in economic terms the problem is simply stated as one of externalities, where no market exists to allocate fish while it is still in the sea between competing fishermen and as a consequence excess resources are drawn in to the harvesting process. As fishermen do not need to pay for the fish they catch their private costs are less than the social costs (the real cost to society) of harvesting.

While the industry is quite convinced about the need for decommissioning, the team are concerned that the uptake of any scheme is rather more uncertain than advocates appear to believe. A Seafish survey undertaken in 1990, on fishermen's attitudes suggested strongly that while fishermen thought that decommissioning schemes were a "good thing", it was something which it was expected to apply to other people. Clearly the assumption that has been made that the budget provision equates with the tonnage which will actually come out is overly simplistic and the total reduction achieved may be rather less. Therefore accompanying measures, such as:- crew compensation payments for those employed (even as share fishermen) on decommissioned vessels; and realistic charges for licences, might be required to enhance the attractiveness of decommissioning premia.

6.1.2 AS PERCEIVED BY THE INDUSTRY

Industry in Scotland and Northern Ireland are certainly convinced about the desirability of introducing a decommissioning scheme and very recently, at the end of February, they might have been partly appeased by the Fisheries Departments' announcement that within a package of measures to contain fishing effort, £25 million will be made available for decommissioning part of the British fleet. It is a matter of some concern that two regions within Scotland have already made out cases to demonstrate that they are in some respects special and should not bear the overall reduction required across the fleet either nationally or across the Community. Highlands and Islands Enterprise (the recently created regional development agency which has replaced the Highlands and Islands Development Board) has argued, quite understandably, that the combination of extreme peripherality and relative socio-economic disadvantage means that their area has a greater dependence on their primary resources than the rest of the UK. Part of their fleet is old and concentrates mainly on shellfisheries, therefore selective modernisation is seen as a priority in HIE's strategy for 1992-1996. More difficult to understand is the part of the Grampian Fisheries Strategy which declares the need to "retain the size of the Grampian fishing fleet" by maintaining fish quality, fishing for alternative species, reducing fishing capacity through greater gear selectivity

and investigating alternatives to traditional grounds. This might be difficult as the fleet in this area is one which has expanded its capacity particularly, to fish the North Sea whitefish species currently giving most concern.

Grampian is quite a diverse region including as it does TTWA's such as Fraserburgh, Buckie and Peterhead with the highest dependence on fishing in Scotland and others like Aberdeen where other industries submerge fishing's importance. Grampian Fisheries Strategy which was prepared jointly by the industry and Grampian Regional Council and Grampian Enterprise Ltd (the local enterprise company) recognises the importance of fishing to the local economy. Grampian Enterprise Ltd has established a network of Enterprise Trusts throughout its area and sees these as a good vehicle for implementing programmes which may be introduced to assist reconversion. Banff and Buchan Enterprise Trust were closely involved in the Macduff Pilot Project. LECs themselves are probably better suited to setting up any training structure which may be required.

6.2 MEANS AVAILABLE FOR RESOLUTION

6.2.1 EXISTING

Fishermen in Scotland and Northern Ireland are usually classified as "share fishermen" by the Department of Employment, which means that they are regarded as self-employed for most purposes but, because they pay a special stamp, they can claim unemployment benefit when weather or other circumstance prevents them going to sea. This unique classification does not provide for payment by the state in the event of redundancy. In the event of vessels being decommissioned the crew and skipper, if he was not an owner, would not be entitled to any benefits. Arguably this could provide a considerable disincentive to the uptake of the decommissioning scheme, particularly where family were involved.

Unlike fishermen, those employed in on shore support services would be eligible for redundancy if they lost their jobs through contraction of the sector. They would then become eligible for unemployment benefit. Depending upon where they were located and the length of time they remained unemployed they could join the fishermen in becoming eligible for retraining.

6.2.2 SUGGESTED

Drawing on the experience of other industries, such as coal and steel, suggests that one possibility would be to set up an enterprise company, like British Coal Enterprise or British Steel (Industry) Ltd. These companies were set up as subsidiaries, to assist in the creation of jobs in the areas affected by the decline or contraction of their industries. In order to fulfil this role they set up Job Shops, training advisory service and stimulated the growth of new businesses. Job Shops were designed to put prospective employees and employers in touch with each other and to offer advice and practical help to both. However they are much more than a place to find job vacancies, as they also provide help in producing CVs, writing applications, completing forms, teach interviewing skills and give advice on obtaining new marketable skills. For the employer, a Job Shop could provide the place to find responsible, motivated, willing and resourceful workers trained in the required skills of their company at no cost to them. Given the much greater fragmentation and wider geographical distribution of the fishing industry the approach used by the coal and steel industries may not be appropriate. One possibility might be to draw on the skills and experience which these programmes have acquired. Given that the redundancies in the coal industry have ended for the present, British Coal Enterprise is now diversifying into other industries. For example a major

redundancy has recently occurred in the Armed Forces, which affects Scotland more than most other areas as it is traditionally a strong recruiting ground, and this is a target for these companies.

The Macduff Project has produced some schemes for evaluation.

	<u>Funding from EC pilot</u>
1. Training Project	£20,000
2. Leisure Project	£20,000
3. Crustacean Project	£20,000
4. Three small projects	£10,000

The Training Project commenced on 14 April 1992 and involves setting up a course to convert fishermen to oil rig standby vessel decklands. Thirteen applied, but six are now on the course, with good prospects of all finishing and getting a job with North Star Ltd. There seems to be good future prospects for this type of training initiative for other ex-fishermen. It is an example of a traditional industry directly involved and participating with a modern one and of a working relationship between the training agency and oil industry, producing a course designed to meet skill shortages.

This is very much in line with the advice given by the Scottish Regional Manager of British Coal Enterprise, who said that electricians in coal mining were highly skilled but had no qualification which was recognised outside their industry. Once this was overcome there was no difficulty in placing them in alternative jobs. Retraining fishermen, to bring together their needs and wishes with those of local industry, is the kind of approach used by the coal and steel enterprise companies, but not all of their retraining programmes have been completely successful. For example British Coal Enterprise retrained bricklayers to become bus drivers to meet the demand created by deregulation of bus routes. In retrospect this was seen as an error as the original skill was more valuable than the newly acquired one and therefore retraining is not always appropriate.

A second project involved a local company - Seaway Net Co - acquiring a suitable boat and equipping it to provide a service for sea angling, deep sea and coastal SCUBA diving and for pleasure cruising along the Buchan coast. The project, which is quite well advanced in terms of acceptance, would probably involve three ex-fishermen on a part-time basis together with support from the Seaway Net Co. If the project develops to cover guided tours of Macduff harbour and its environs and the creation of holiday packages based on sea angling and diving in conjunction with local hotels and guest houses, there may be many more employment opportunities generated. Again this has considerable appeal as it involves less discarding of previous skills.

The third project, which is not quite as far advanced as the previous two, involves an existing company (Macduff Shellfish Ltd) extending and developing their live lobster storage facility to encompass other crustaceans. One reason for the delay in this project is that the company are involved in relocation within Macduff and this in itself is demanding of staff and capital. If it does go ahead it will create jobs for two or three ex-fishermen, depending on the outcome of the related aquarium project. Interestingly the only example of ex-fishermen becoming employed in fish farming, that was found, covered a handful of ex-scallop fishermen who have now gone into farming them.

Finally the remaining £10K looks like being used to retrain three ex-fishermen (all brothers). The funding partners have agreed to support by way of subsistence and travel one who wished to obtain a HGVA licence to enable him to become a long distance lorry driver. Ways of assisting the second brother take a training course in engineering/welding were to be investigated. The third brother is currently attending an Enterprise Allowance Scheme (EAS) which will assist him to draw up a business plan for a photographic business which he wishes to set up. Though able to obtain funding under the Better Business Scheme once the EAS was completed, the funding partners were agreed that he should receive a grant from Banff & Buchan Enterprise Trust for photographic equipment.

The Macduff Pilot Project has produced ideas on diversification in a way that none of our requests to the industry achieved. It is interesting that all three of the main projects have utilised the skills that the ex-fishermen already had. All three have also used existing businesses by encouraging diversification or expansion.

Clearly there is an attraction in a scheme which would absorb ex-fishermen into fish farming, as it would contribute to the twin problems of the Community trade deficit in fish and the excess capacity in the catching sector. However inquiries in Scotland about the feasibility or likelihood of this suggested that while it may be a possibility in the long term it was not likely in the immediate future. Unlike Norway, where many salmon farmers have come from a fishing background, in Scotland they have tended to come from non fish industries and recruitment has probably reflected this. At present the difficulties being experienced by salmon, which is by far the major employer, has meant there is very little recruitment going on and the other fin fish farming, such as halibut, is still at an early development stage. The one area which seems to be enjoying expansion currently is mussel production, both in rope cultivation and in the relaying that is practised in the Dornoch Firth. Shellfish cultivation seemed to provide the only example that was known of fishermen becoming scallop farmers.

7. CONCLUSIONS AND RECOMMENDATIONS

The Review of CFP concluded that the TAC and quota regime, in place since 1983, provided fishermen with an incentive to expand their fishing capacity, and that total capacity is now well beyond what is necessary to catch the TACs. Section 1. of this Report demonstrates convincingly that the same is true for Scotland and Northern Ireland. Since 1983 the main feature of fleet evolution has been unremitting growth. The Scottish fleet has grown by a quarter in tonnage terms and nearly a third in aggregate power; the Northern Ireland fleet shows a similar development. Over the same period the stocks of round fish and flat fish are all at least fully exploited and many of them are heavily exploited with some approaching, or already in, a depleted state. In general the state of the stocks has deteriorated since the agreement on access and allocation in 1983. This is particularly the case for cod and haddock in the North Sea, and for whiting in the Irish Sea, where serious concern is being expressed about the ability of these stocks to replenish themselves by recruitment. Between 1983 and 1991 the availability of cod dropped by a half while real prices increased by almost a third. For haddock, availability dropped by two thirds and real prices increased by well over a half. The spawning stock biomass of these two species is now at its lowest value on record - as a consequence of excess fishing mortality coinciding with poor recruitment. Some stocks such as herring, though fully exploited, have shown a considerable recovery from the very low levels before the ban of the mid 1970's. During the ban many of the vessels formally exploiting North Sea herring redirected their activities to the then lightly exploited western mackerel stock and have since continued to participate in this fishery.

Clearly, there is a need to achieve a better and more permanent balance between catching capacity and the fishing opportunities available to it. The review of CFP has proposed a two stage movement towards such an ideal. In view of this imbalance they regard it as vital to reduce fishing capacity by a more binding policy of structural planning taking account of the different segments of the fleet, and in the future taking steps to ensure that such capacity does not become re-established.

There is a consensus of views within the industry and its organisations that such adjustment can only be achieved through the use of a decommissioning scheme. The Fisheries Departments in the UK have recently relented and announced the introduction of a conservation package directed at reducing effort and adjusting capacity by means of a decommissioning scheme. Clearly therefore, while there may be some doubt about the level of uptake of such a measure, there should be a reduction in the size of the UK fleet over the next few years. The MAGP for the next four years has not yet been agreed and therefore it is difficult to decide upon an appropriate scenario for the size of such a reduction.

While the job losses may not be very great, they would often occur in communities where their impact would be large and the opportunity for alternative employment would be low. Also, the employment and multiplier effects of the loss of such jobs could be particularly significant in the communities in which they may occur.

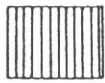
An investigation of the characteristics of employment groups most at risk showed that, although fishermen tend to be slightly younger than the workforce in general, they tend to be rather short of marketable skills.

On the existing means available to fishermen in Scotland and Northern Ireland for readjustment, there is a major drawback resulting from their classification by the Department of Employment as "share fishermen" which, while treating them for the most part as self employed does provide access to unemployment benefit. Unfortunately, their "self employed status" means they are not eligible for redundancy payments from the state and indeed, if they were to receive "ex gratia" payment out of decommissioning grants this would be subject to tax. It is regrettable that within the UK as a whole it would appear that no mechanism currently exists to provide any member state contribution to match any Community payment which might be made towards those who have lost their job as a result of contraction or other change within the sector.

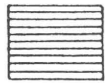
Identification of highly dependent fishing zones within the two countries has been subject to as exhaustive an investigation as the available data will allow. The tables and map on the following pages showing zones highly dependent on fisheries represent a distillation of our findings. They produce no real surprises to anyone familiar with the industry in the two countries, either in terms of the inclusions or exclusions.

It is interesting in view of the likely means of distributing Community funds that most of the zones highly dependent on fisheries (on either employment or value basis) are already in Structural Funds objective 5b areas. The areas outside are mainly those on the Buchan coast together with Arbroath, the East Neuk of Fife and East Berwickshire. The two other travel to work areas, namely Girvan and Stewartry, are already covered by other Community regional preference. As the whole of Ireland is covered by objective 1 status no special pleading is required for fishing in this area. Therefore, we are left with some 8 travel to work areas in Grampian, Arbroath, East Neuk of Fife and East Berwickshire which are highly dependent on fishing but remain outside the existing Community catchment area for special consideration or preference. These are the additional areas that need to be considered if a Community scheme for reconversion of fishermen is to be adopted.

ZONES HIGHLY DEPENDENT ON FISHERIES SCOTLAND AND NORTHERN IRELAND



- EMPLOYMENT BASIS



- VALUE BASIS

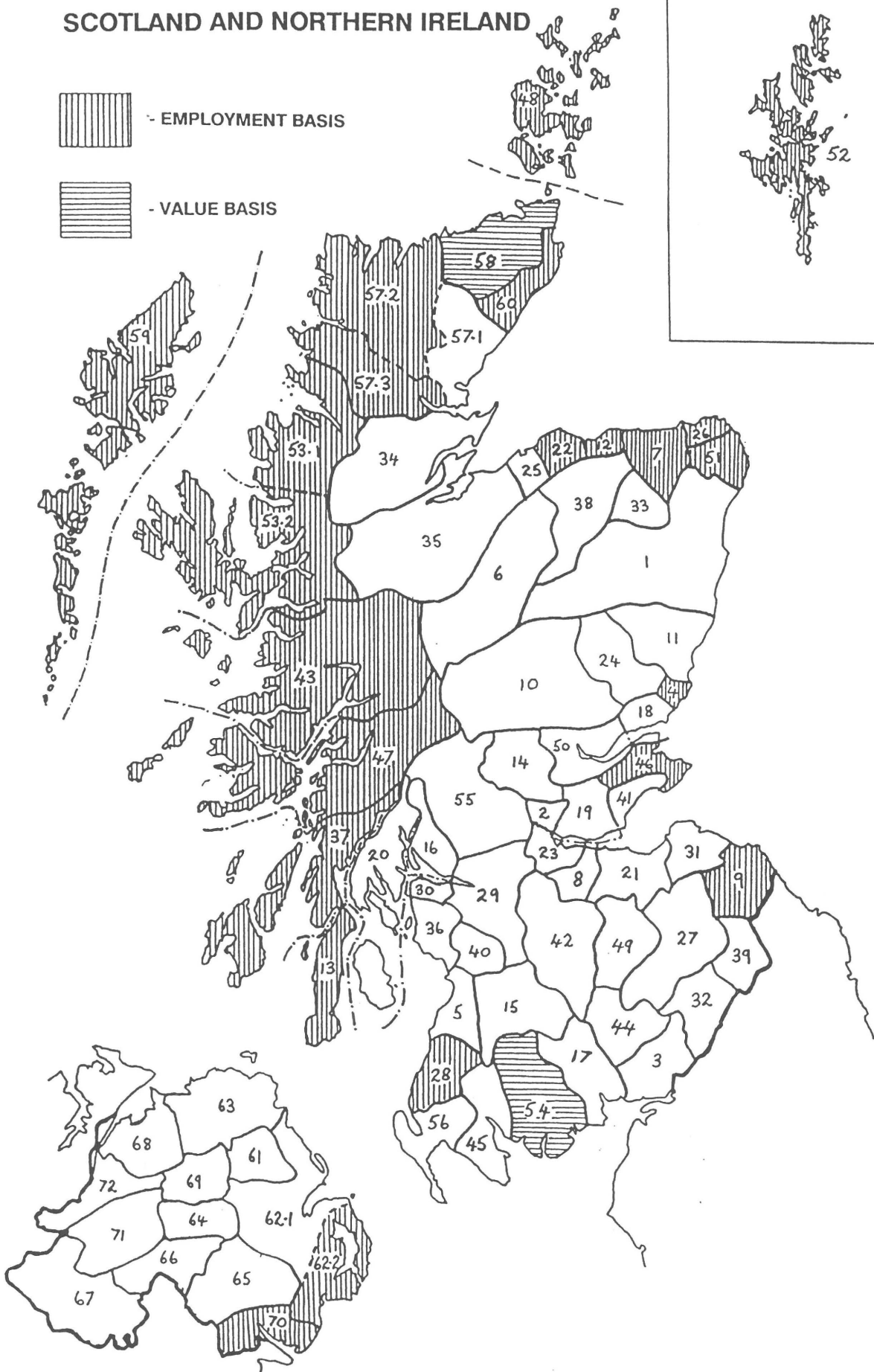


TABLE 7.1 SUMMARY STATISTICS FOR ZONES HIGHLY DEPENDENT ON FISHERIES

ZONE (TTWA) HIGH FISHERIES DEPENDENCE		GENERAL FEATURES				EMPLOYMENT					VALUE ADDED				RELATIVE DEPENDENCE (%)				CFP STOCKS	
		POPU- LATION	WORKFORCE		GDP		FISH- MEN	OTHER			TOTAL	LAND & 1ST H	OTHER		TOTAL	EMPLOYMENT		ECONOMICS		% OF CATCH
			TOTAL	IN JOBS	TOTAL	PER CAP		AQUA	PROC	SERV			AQUA	OTHER		CATCH	TOT	CATCH	TOT	
		a	b ₁	b ₂	c	d=c/a	e	f ₁	f ₂	f ₃	g=e+f	h	i ₁	i ₂	j=h+i	e/ b ₂	g/ b ₂	h/c	j/c	k
4 Arbroath		27.9	11.4	10.3	198	7100	123	0	140	31	294	1960	0	1840	3800	1.0	3.0	1.0	2.0	62.0
7 Banff		26.6	11.8	11.3	208	7820	628	0	188	192	1007	11730	0	4910	16640	5.5	9.0	5.5	8.0	71.5
9 Berwickshire		17.9	7.0	6.6	120	6700	202	0	572	133	907	5890	0	6960	12850	3.0	14.0	5.0	10.5	78.5
12 Buckie		13.6	5.4	5.1	95	6990	624	1	382	209	1217	11940	4	7160	19100	12.0	24.0	12.5	20.0	57.0
13 Campbeltown		11.6	4.9	4.5	81	6980	246	49	168	101	564	3570	539	3170	7280	5.5	12.5	4.5	9.0	64.0
22 Elgin		37.6	18.9	17.8	360	9570	559	1	147	61	768	11380	4	2350	13730	3.0	4.5	3.0	4.0	73.5
26 Fraserburgh		22.9	11.0	10.5	171	7470	957	0	2057	347	3361	20800	0	23520	44320	9.0	32.0	12.0	26.0	76.5
28 Girvan		12.3	4.5	4.0	78	6340	71	0	18	18	107	910	0	370	1280	2.0	2.0	1.0	1.5	67.5
37 Islay		11.0	5.6	5.2	112	10180	83	57	39	33	212	940	582	1050	2570	1.5	4.0	1.0	2.5	64.0
43 Lochaber		19.0	9.7	9.0	178	9370	183	259	102	62	607	3300	3980	1860	9140	2.0	6.5	2.0	5.0	80.5
46 N.E.Fife		47.6	21.0	19.9	383	8046	274	0	55	130	460	4170	0	2870	7040	1.5	2.5	1.0	2.0	65.0
47 Oban		17.9	10.1	9.6	179	10000	198	145	17	47	407	2800	1540	630	4970	2.0	4.0	1.5	3.0	50.0
48 Orkney		18.4	10.2	9.7	184	10000	278	68	74	26	445	5150	548	1040	6740	3.0	4.5	3.0	3.5	14.5
51 Peterhead		30.9	14.9	14.0	277	8960	788	3	1032	426	2249	23320	9	14730	38060	5.5	16.0	8.5	13.5	88.0
52 Shetland		22.8	12.0	11.6	239	10480	456	308	426	228	1419	9560	4780	8140	22480	4.0	12.0	4.0	9.5	74.0
53.1 W. Ross A		3.5	3.0	2.8	50	14290	115	106	41	47	309	940	1700	1070	3710	4.0	11.0	2.0	7.5	92.5
53.2 W. Ross B		11.2	6.1	5.6	111	9910	228	235	35	69	567	2020	3370	1380	6770	4.0	10.0	2.0	6.0	80.5
54 Stewartry		22.4	9.6	9.0	169	7540	75	7	340	19	441	2110	182	3020	5310	1.0	5.0	1.0	3.0	67.5
57.2 Suth. B		2.4	1.0	0.9	21	8750	40	34	31	25	131	1450	464	260	2170	4.5	14.5	7.0	10.5	80.5
57.3 Suth. C		2.5	1.1	1.0	26	10400	101	48	45	18	211	1910	696	610	3220	10.5	21.0	7.5	12.5	74.0
58 Thurso		15.0	8.4	7.8	159	10600	57	0	26	29	112	2250	0	470	2720	0.5	1.5	1.0	1.5	62.5
59 W.Isles		30.7	12.9	11.5	216	7040	605	292	192	121	1210	4550	2790	3630	10970	5.5	10.5	2.0	5.0	37.0
60 Wick		13.0	5.4	4.9	92	7080	119	0	11	42	173	1390	0	330	1710	2.5	3.5	1.5	2.0	62.5
62.2 Belfast B		120.0	55.0	49.8	1032	8600	466	24	416	48	953	7000	202	4510	11710	1.0	2.0	0.5	1.0	92.0
70 Newry		87.1	32.8	26.7	554	6360	714	3	473	48	1238	7000	47	5520	12570	2.5	4.5	1.5	2.5	90.0
Total High Dep.		645.8	293.7	269.1	5293	8200	8190	1640	7027	2510	19367	148040	21437	101400	270880	3.0	7.0	3.0	5.0	n.a.
Total UK2		6611	3228	2927	64234	9720	9239	1991	11203	3274	25707	173700	27090	150920	351710	0.5	1.0	0.5	0.5	78.5

(see also Notes on Summary Tables - P60)

TABLE 7.2 SUMMARY STATISTICS FOR ZONES LESS DEPENDENT ON FISHERIES

ZONE (TTWA) LOWER FISHERIES DEPENDENCE		GENERAL FEATURES				EMPLOYMENT					VALUE ADDED				RELATIVE DEPENDENCE (%)				CFP STOCKS	
		POPU- LATION	WORKFORCE		GDP		FISH- MEN	OTHER			TOTAL	LAND & 1ST H	OTHER		TOTAL	EMPLOYMENT		ECONOMICS		% OF CATCH
			TOTAL	IN JOBS	TOTAL	PER CAP		AQUA	PROC	SERV			AQUA	OTHER		CATCH	TOT	CATCH	TOT	
		a	b ₁	b ₂	c	d=c/a	e	f ₁	f ₂	f ₃	g=e+f	h	i ₁	i ₂	j=h+i	e/ b ₂	g/ b ₂	h/c	j/c	k
1	Aberdeen	282.3	202.3	196.8	4619	16360	204	0	1992	473	2669	14630	0	23170	37800	+	1.0	0.5	1.0	86.5
3	Annan	23.0	11.8	11.2	233	10130	34	0	814	8	856	160	0	8100	8260	0.5	7.5	+	3.5	67.5
5	Ayr	101.4	55.4	51.7	1043	10290	163	4	57	41	265	2860	24	810	3700	0.5	0.5	0.5	0.5	67.5
6	Badenoch	9.4	5.6	5.3	98	10430	0	11	66	0	77	10	269	640	920	0	1.5	+	1.0	-
11	Brechin	35.1	16.5	15.6	302	8600	80	0	150	18	248	470	0	1750	2220	0.5	1.5	+	0.5	62.0
16	Dumbarton	76.9	32.5	29.1	697	9060	0	0	0	0	0	140	0	0	140	0	0	+	+	-
20	Dunoon	27.0	11.5	10.5	184	6810	60	105	6	23	194	200	1380	430	2010	0.5	2.0	+	1.0	64.0
21	Edinburgh	555.8	329.3	309.2	7108	12790	187	0	183	106	477	1350	0	3600	4950	+	+	+	+	78.5
24	Forfar	27.0	12.0	11.3	240	8890	0	0	33	0	33	0	0	310	310	0	0.5	0	+	-
29	Glasgow	1327.3	664.0	595.3	13634	10270	0	0	94	0	94	40	0	920	960	0	+	+	+	-
30	Greenock	110.0	42.8	37.2	807	7340	13	11	3	3	30	300	73	70	440	+	+	+	+	67.5
31	Haddington	30.1	13.4	12.6	253	8410	57	4	80	34	175	700	31	1220	1950	0.5	1.5	0.5	1.0	78.5
34	Invergordon	31.5	15.3	13.8	306	9710	14	19	54	2	89	200	313	550	1070	+	0.5	+	0.5	73.5
35	Inverness	72.1	43.5	40.9	820	11370	103	45	92	11	251	160	766	1080	2010	0.5	0.5	+	+	73.5
36	Irvine	135.2	60.3	53.9	1224	9053	36	4	19	9	68	1080	24	260	1360	+	+	+	+	67.5
38	Keith	14.7	5.2	4.9	125	8500	0	0	0	0	0	60	0	0	60	0	0	+	+	-
40	Kilmarnock	81.7	35.1	31.5	687	8410	0	0	111	0	111	0	0	1100	1100	0	0.5	0	+	-
41	Kirkcaldy	145.2	67.7	64.1	1340	9230	35	0	3	18	56	160	0	398	560	+	+	+	+	65.0
42	Lanarkshire	423.9	169.7	151.5	3259	7690	0	11	186	0	197	0	73	1820	1890	0	+	0	+	-
44	Lockerbie	12.0	4.9	4.6	87	7250	0	10	0	0	10	10	273	0	290	0	+	+	0.5	-
45	N'Stewart	10.8	4.5	4.0	67	6200	11	3	204	3	221	260	91	2010	2360	0.5	5.5	0.5	3.5	67.5
50	Perth	68.6	34.6	32.8	706	10290	0	4	20	0	24	0	37	200	240	0	+	0	+	-
56	Stranraer	18.8	9.1	8.3	178	9470	24	3	8	7	42	440	91	160	690	0.5	0.5	+	0.5	67.5
57.1	Suth. A	7.0	3.4	3.2	57	8140	28	0	0	7	36	290	0	40	330	1.0	1.0	0.5	0.5	62.5
62.1	Belfast A	702.2	340.4	298.0	6174	8790	0	29	0	0	29	550	457	0	1010	0	+	+	+	n.a
63	Coleraine	86.7	38.0	32.3	669	7720	0	5	0	0	5	370	128	0	500	0	+	+	+	n.a
Total Lower Dep.		4415.7	2228.8	2029.6	44917	10170	1049	268	4175	763	6255	24440	4030	48638	77108	+	0.5	+	+	n.a.
Total UK2		6611	3228	2927	64234	9720	9239	1991	11203	3274	25707	173700	27090	150920	351710	0.5	1.0	0.5	0.5	78.5

(see also Notes on Summary Tables - P60)

NOTES ON SUMMARY TABLES

- a. Thousands 1981 (Census of Population (via NOMIS)).
- b1. Thousands, employed, self employed, unemployed and HM services, 1990 (NOMIS).
- b2. Thousands, b1 less unemployed, 1990 (NOMIS).
- c. ECU million, 1989 (CSO and NOMIS).
- d. ECU, 1989.
- e. Full time equivalents, Scotland (except Buckie) 1990, Northern Ireland 1991 (SOAFD and DANI). Column "e" does not include the numbers employed in the first hand sale activity though column "h" does include the value added associated with this activity. The number employed would only represent an additional 8%.
- f1. Full time equivalents.
- f2. Full time equivalents, Northern Ireland (1991).
- f3. Full time equivalents, Scotland (except Buckie) 1990, Northern Ireland 1991.
- g. Full time equivalents, Scotland (except Buckie) 1990, Northern Ireland 1991.
- h. ECU 000s, 1989.
- i1. ECU 000s.
- i2 ECU 000s, 1989.
- j. ECU 000s, 1989.
- k. Value of EC-TAC stocks, landed as % of local value of landings. Figures are only given for coastal travel to work areas. Figures were not available for Belfast A and Coleraine. Such a measure is not applicable for the high or lower dependent areas. See section 4.4, table 4.2 for further details.

+ indicates values greater than 0% but less than 0.25%.

NOTE :

All ECU figures used rate of 15.4.92, (£1 = 1.432 ECU) - Source : Financial Times.

Disparities in the tables are due to rounding errors.